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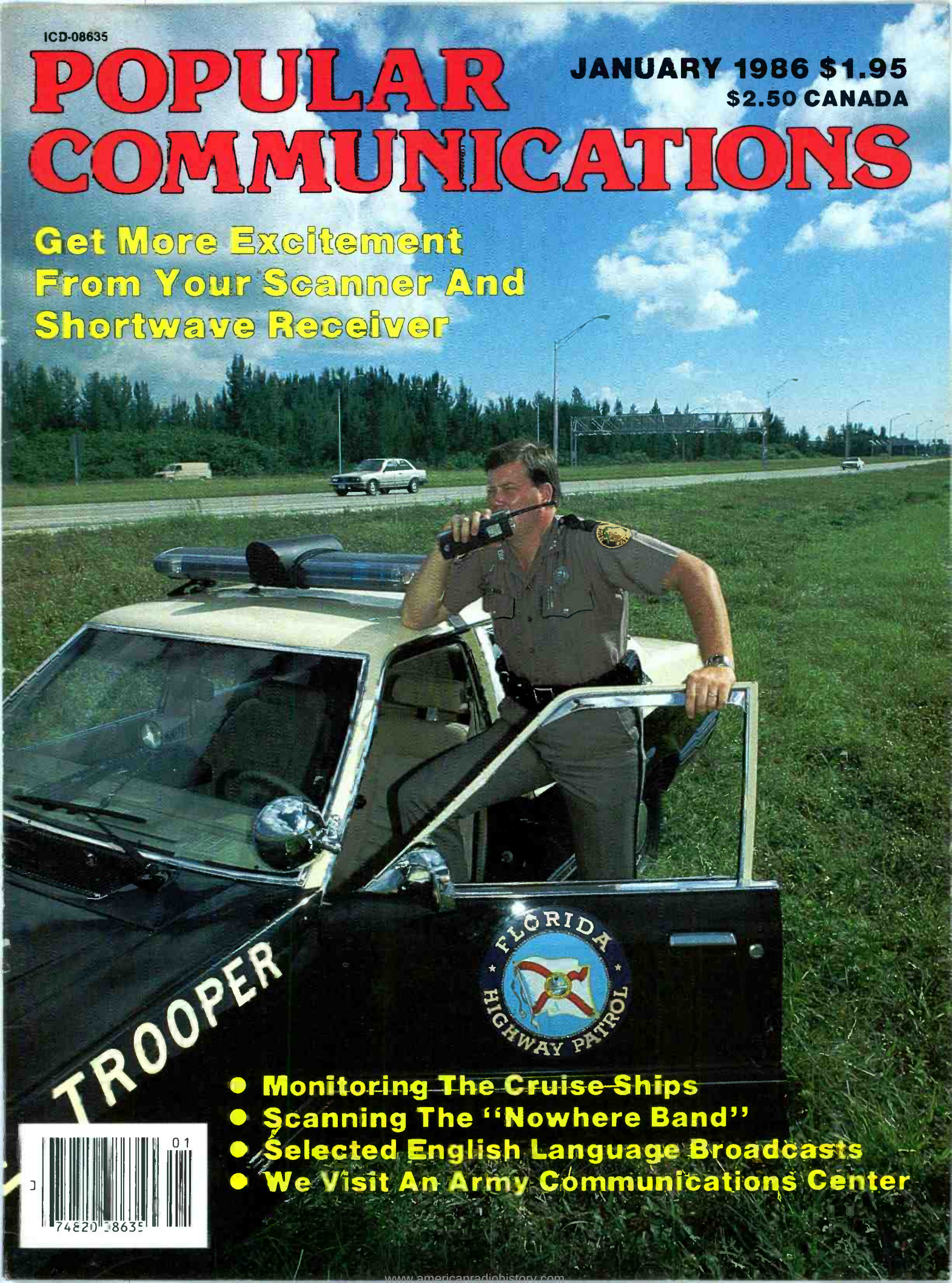

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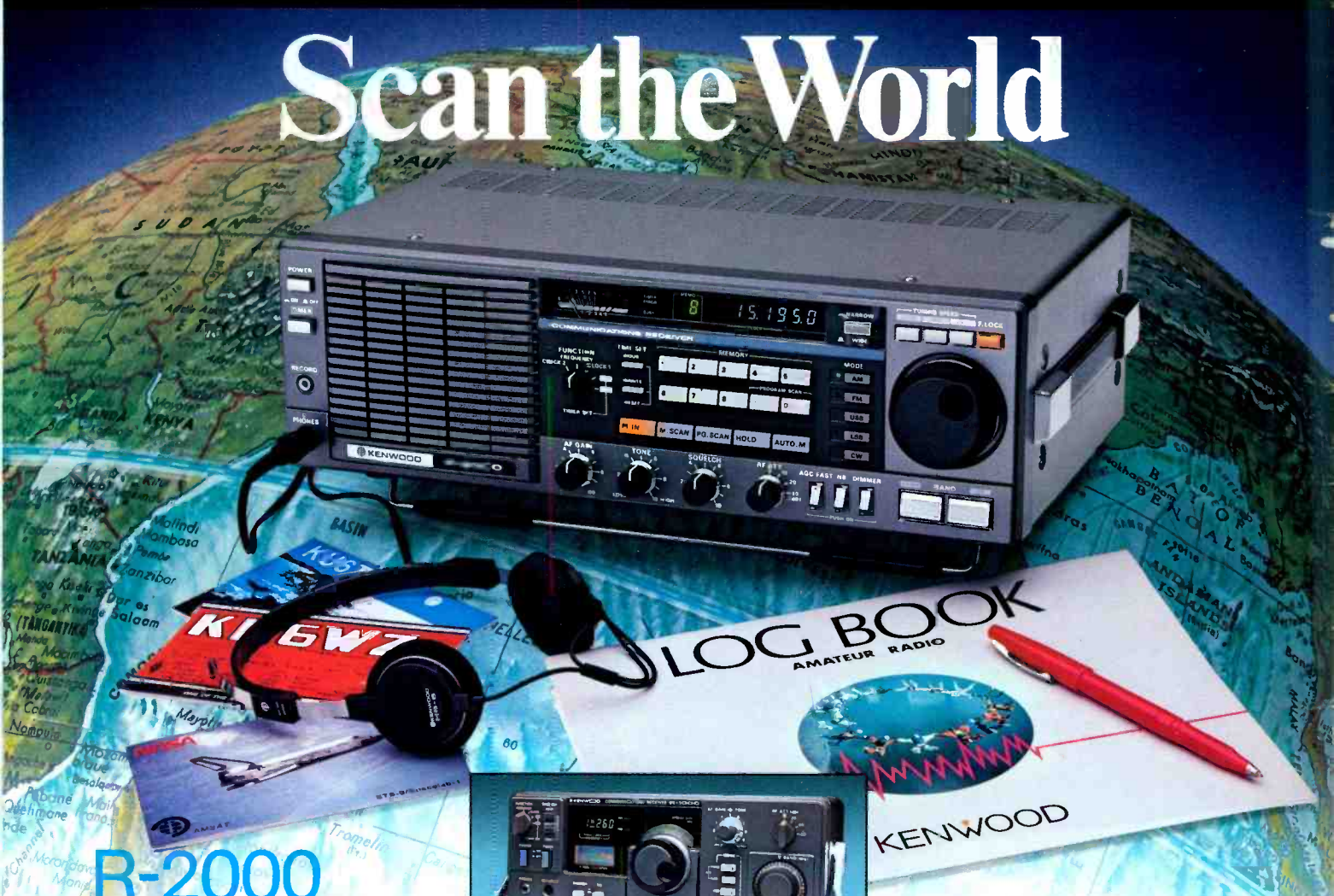

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- Programmable band scan.
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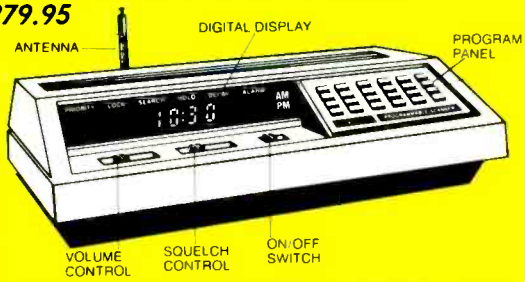

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Sophisticated microprocess-controlled circuitry elminates the need for crystals, instead, the frequency for each channel is programmed through the numbered keyboard similar to the one used on a telephone. A "beep" acknowledges contact each time a key is touched. The Z30 scans approximately 15 channels per second.

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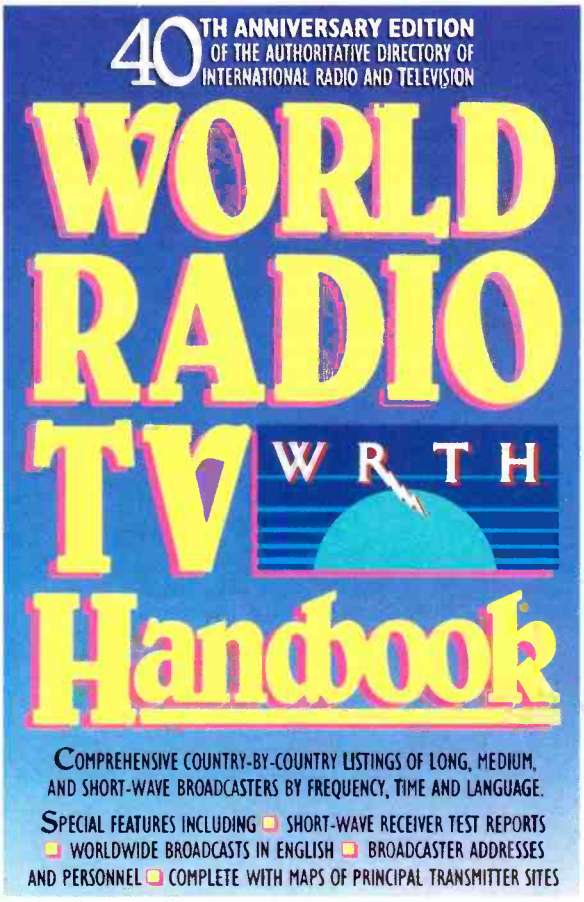

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POPULAR COMMUNICATIONS

JANUARY 1986 **VOL. 4, NO.5**


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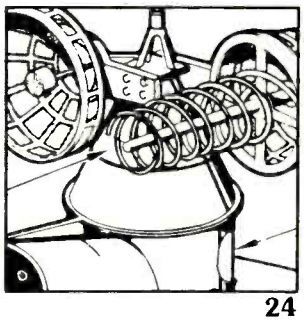
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FEATURES

This month's cover: *Trooper Robert L. Miller of the Florida Highway Patrol on radar traffic duty. Photo by Larry Mulvehill, WB2ZPI.*

DEPARTMENTS

BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

POP'COMM *Update*

Over the months we have had reader inquiries (ahh—well, a few were complaints) about the fact that we seldom share with our readers any of the nitty gritty about what's going on behind the scenes here at *POP'COMM*—what with occasional columnist changes, the addition of new columns, etc. The beginning of a new year is probably as good a time as any to offer you some thoughts on where we've been and what we're up to here at *POP'COMM*.

Our newest column is *Better Signals*, conducted by Ed Noll, W3FQJ. That seemed to be the one major area readers kept telling us required more coverage in our pages than we had been carrying. Ed's column will be covering receiving antennas and add-on accessories intended to improve reception on all frequencies between VLF and UHF. Ed Noll is an expert on the topic of antennas and has written countless articles about antenna construction for leading journals for a couple of decades. Ed's approach for *POP'COMM* readers will concentrate on the "how-to" aspects of antenna construction, rather than the theoretical areas of why antennas do what they do.

Gerry Dexter's shortwave broadcasting column, *Listening Post*, as well as his many fine feature stories, continue to receive accolades. Gerry has been writing for us ever since our first issue and there appears to be a limitless supply of absolutely fascinating information he has to share with readers. He's got some great stories in various stages of research and preparation and he's so doggone prolific that I think he could write an entire book every month. And, by the way, Gerry recently purchased an Info-Tech M-600 and now he can copy RTTY and Telex traffic, so you "ute" monitors watch out with Dexter on the loose in your stomping grounds!

Pirate's Den, Darren Leno's column, has been steadily growing in its popularity. We had a pirate radio listeners' column right from the start and, quite frankly, it didn't arrive on the doorstep of the hobby without a number of problems on various levels, not the least of which was a chorus of readers who felt that it was illegal and/or immoral to discuss pirate broadcasters. When we began covering this topic it was a pariah; no "respectable" national publication dared touch the subject. Eventually, via Darren's efforts, listening to pirate broadcasters has become very popular and even quasi-respectable. I suppose the best indication of this is that after *POP'COMM* took all the flak for having the audacity to run such a column, several other publications have lately decided that it's now "safe" to run similarly oriented coverage. I suppose it's a form of sincere flattery, at least that's what I keep telling myself.

Communications Confidential continues to evolve and has become one of our most dynamic features. Interestingly, when we began the planning for the first issue of *POP'COMM*, *Communications Confidential* was conceived with Mike Chabak in mind as columnist. After some lengthy correspondence with Mike, we just couldn't seem to get things worked out and we had to let someone else conduct *Communications Confidential*. While it worked out as well as might be expected under the circumstances, it still wasn't what I had in mind for this column.

Several columnists later, and despite the efforts of those contributors to change the concept of the column into something I didn't want, we finally got things worked out with Mike. It took a couple of years, but it was worth it.

The *Intercepts* section of *Communications Confidential* contains the "ute" station loggings from our readers. Tending to these listings was such an awesome job that it called out for a separate columnist. There was simply no way that Chabak could spin out the quality and quantity of material he generates each month and still sort through, evaluate, arrange, research, and then put into manuscript form the reader "ute" loggings. It's a highly complex and time-consuming task and we consider ourselves most fortunate to have been able to obtain the talents of Don Schimmel, a chap whose fine efforts are well-known to readers of *Monitoring Times*.

I am very enthusiastic about our *RTTY* column. While "ute" monitoring is a specialty interest, RTTY monitoring is a rather sophisticated specialty within a specialty and it has enormous growth potential as more and more monitors get the RTTY bug. With the exception of some relatively minor attention given RTTY loggings by a few DX clubs, it's a topic that has been generally overlooked for all too long. *POP'COMM* has been running a RTTY monitoring column every month since 1982.

Not long ago, the stewardship of this column was turned over to Bob Margolis, an active RTTY monitoring buff. I felt that the column's previous format was far too theoretical to spur interest in and expand this aspect of monitoring. The column needed listings and loggings of RTTY stations, lots of them. No matter how much I tried, I couldn't make it happen. Finally, under Bob's guidance, the *RTTY* column is becoming what I wanted it to be in the first

place. I suppose it won't be too long before a few other publications suddenly decide to offer *POP'COMM* some additional sincere flattery!

We have a couple of instances of column switching to report. Gordon West, another one of our veteran authors who was with us right from *POP'COMM* issue #1, has done a great job with our *On The Line* column. He felt that he now wanted to do a column that was related to emergency communications, one of his long-time specialties. Simultaneously, "Slats" Slattery, our resident *Rambo*, was dropping little hints that he would give his red/white/blue headband for a chance to review books for us—even if it meant relinquishing his spot as author of our *Survival* column.

A deal was recently struck to accommodate these requests. Slats was installed as conservator of our *Books You'll Like* section. Gordo was put in charge of the column that Slats used to write, and we changed the title of the column to permit Gordo to have a more wide-ranging scope of topics than before to select from. The former *Survival Communications* column is now known as *Emergency*.

The column *On The Line* is now being handled by Julian Macassey, N6ARE, ex-G8LUK and ex-OZ9IY. Julian, who is English, is an Electronics Engineer who has an extensive writing and lecture background. Julian's a life member of AMSAT and recently stood for election to the AMSAT board of directors. We are happy to have access to this man's many talents.

Chuck Gysi keeps rolling along with his informative *Scanner Scene* column. Chuck (N2DUP) is actually the third author to tackle this column, the two earlier columnists (unfortunately) didn't last very long—one lasted only a single issue and the other just a couple of issues. Yes, the rumors you've heard *are* true, I can be an ogre when I can't get what I want from a columnist. But I want the best for my readers and I become very nit-picky when I ask for quality writing and all I get is dross. Gysi, who is a professional journalist and an avid scanner enthusiast, has a genuine feeling for what *Scanner Scene* needs. The excellent reader support for his column bears this out.

The *Broadcast Topix* column was one that was added some months after we commenced publication in 1982. Readers asked for it and we try to be accommodating as long as it's within the scope of our coverage. Mark Manucy is a professional broadcast engineer who's on the staff of a 50 kW station, so he's someone involved in broadcasting as well as a hobbyist.

Some of those who regularly write feature articles for us will continue to provide you with in-depth coverage of all aspects of communications. Authors the likes of Bill Orr (W6SAI), Harry Caul, Don Jensen, Alice Brannigan, Rick Maslau, Anton K. ze S. are all working on numerous projects for *POP'COMM*, and, of course, we will be bringing our readers authors whose names are not yet familiar to you, authors drawn from within the ranks of our general readership. One of the questions I'm often asked is if we accept stories and articles from our readers and the answer is that we do.

Readers who have expertise in a specific topic within the scope of *POP'COMM*'s coverage are invited to request an author's guide that will explain what we are seeking (and what we aren't seeking), as well as how to prepare manuscripts for our consideration. Write and ask for one! You don't have to be a Norman Mailer or Ernest Hemingway, or even someone who has ever written for a publication before. Mainly, you need to know your topic. Some of our most popular feature writers kicked off their professional writing careers in our pages—result of the simple act of asking for an author's guide! That includes Harry Caul, Alice Brannigan, and Anton K. ze S. At one time they were hopeful authors with an idea for a feature story!

We are always honing and sharpening the edge of *POP'COMM* to keep it as vital, interesting, and useful as possible. Input from our readers helps to guide us in the directions you like, and keeping our readers satisfied is what it's all about. The support our readers have given our columns with loggings and information has been wonderful, and we hope that this continues to increase throughout 1986. *POP'COMM* is what *you* make it, nothing more, nothing less. Stay in touch! PC

MAILBAG LETTERS TO THE EDITOR

The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

Too Much Said?

Your November and December story about Radio Swan/Americas was a classic. As I read it, I felt as if I was making the trip to Swan Island with you in person. My own memory of the events surrounding the RS/RA "affair" seems to trigger some vague recollection concerning the controversial "DX news" radio program you once had on station WNYW. For some reason this was not mentioned in either part of your coverage. Why? And please refresh my memory about this matter.

Conrad G. Leslie
Le Mars, IA

In 1961, when I was the editor of DX'ing Horizons Magazine *in Modesto, CA, Horizons' Bob Cooper (K6EDX/W5KHT) and I did a short SW broadcast over Radio New York Worldwide, WNYW. We taped this program at station KTRB in Modesto and mailed it to WNYW each week. I had noticed that RS was rebroadcasting a number of the WNYW programs and, suspecting that RS had a CIA connection, I was curious about how WNYW fit into the picture. WNYW kept stonewalling all of the questions I put to them about their tie-in with RS and/or the CIA, so I felt it would be interesting to "test" them by seeing what might happen if one of our weekly DX broadcasts (right after the Bay of Pigs invasion) was devoted to RS. I would point out its apparent active participation in the invasion and mention the suspicions many people had about it being a clandestine CIA operation. We made the tape and sent it off to WNYW, then waited to see if the station had any unusual reaction to the show. They did. WNYW refused to broadcast even one word of the program. Moreover, they promptly cancelled the entire series without giving us a reason. Well, we did want to see a reaction, so we weren't at all disappointed. You can draw your own conclusions as to the possible reasons behind their decision. I didn't include this in the recent Radio Swan story because, until you brought up the subject, it had slipped out of the forefront of my memory. Thanks!—Editor*

'Taint Funny, McGhee!

I must strongly object to your recent jocular comments about Alice Brannigan. I'm talking about the December issue Mailbag column where you told of retouching her warts and wrinkles and painting in curves. Also, you said that she had a tattoo from the U.S. Navy on her arm. I have been a member of the U.S. Navy for 15 years and we don't tattoo ladies. We show them respect. I hope that you will also in the future.

QMC Charles McGhee
FPO San Francisco

Watsamatta, Chief, get your sense of humor shot off in the war?—Editor

We did a little dusting before we shot this photo for the December issue.

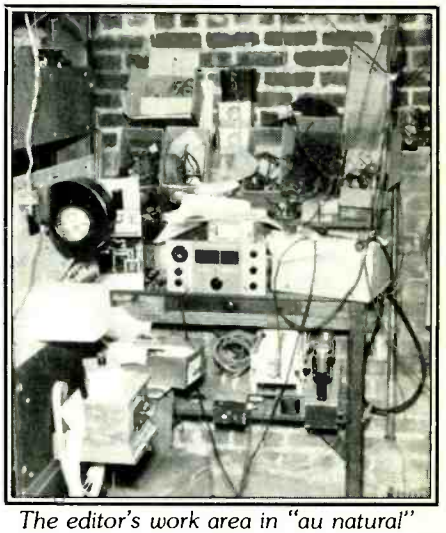
Our modern state-of-the art communications console; we didn't dust.

Let's See It All!

In the December Beaming In column you ran a photo you described as "the *POP'COMM* shack," showing QSL-covered walls, a lavishly decorated Christmas tree sitting on a thickly carpeted floor. I could just see you, Tom, nestled in the corner in that comfy chair, reading manuscripts, your slippered feet propped up on the hassock. It all seemed to have such great "atmosphere," so warm and cozy —like the kind of place you'd never want to leave. But where's the radio gear? How about some additional views of the rest of "the *POP'COMM* shack" to give your readers a better peek at where our favorite magazine is "born" every month?

Sally Greenfield
Atlanta, GA

To be frank, we did do just a tiny bit of tidying-up before we took the photo for the December issue. But, as you guessed, there is more to our crib than was displayed in December. Without the bit of dusting and tidying, the rest of the place doesn't look quite as cozy as it might. Keep that in mind when looking over two photos showing portions of the place not shown in December. Actually, we were going to straighten up a little, but by a week after we shot the December "Christmas Tree" photo, that corner of the office again looked like the rest of the place.—Editor



The editor's work area in "au natural" condition.

The One That Got Away

A few months ago I was lucky enough to log a South American low power broadcaster I'd been trying to snag for a very long time. Two days later a hurricane tore through this area and did water damage to important monitoring records, including the details of my reception that I was going to include in my report. That means starting all over trying to again log this station. Made me wonder, Tom, about any ones that got away from you over the years.

Bert Levy
Cedar Key, FL

Somehow, over the decades, a couple of highly valued QSL's have managed to vanish and resist all efforts to become found. One was from coastal telegraph station XSG in Shanghai, China. Another was from the U.S. Border Patrol station in New Orleans. There's also one from an experimental station located in Silver, Nevada, that was put on the air for the purposes of being blown up in a mid-1950's atomic bomb test (although I still have the envelope in which the QSL was sent to me). There are a couple of others, too. I suspect that, at some point in the remote past, I "put them away for safe keeping" and did the job so well that they'll be safe forever. In the meantime, for the last 20 years, I've deluded myself by thinking that someday they'll simply flutter out of a book that I'll remove from a shelf. It's painful.—Editor PC

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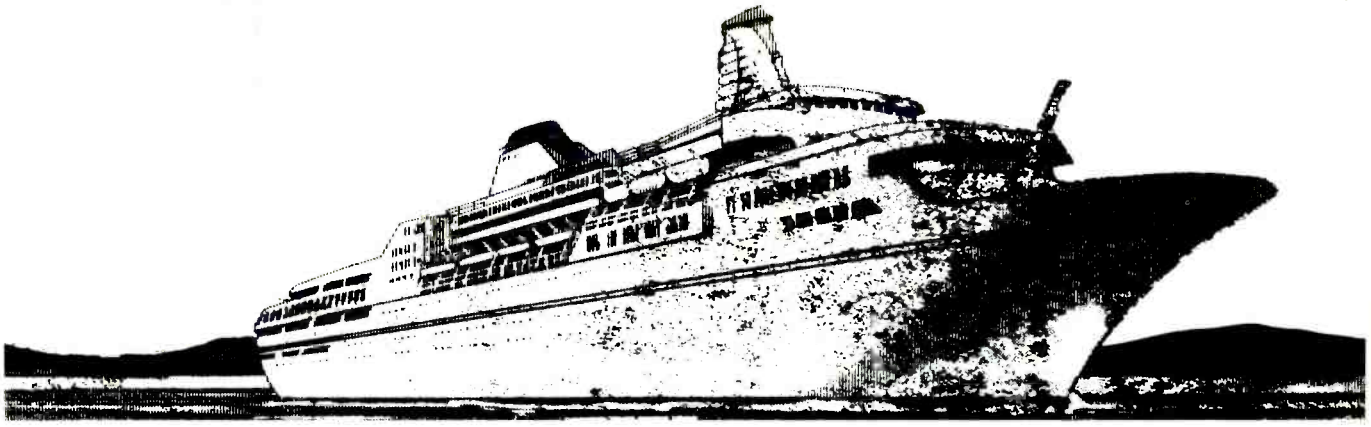


Monitoring The Cruise Ships

Take An Armchair Winter Vacation, Courtesy Of Your Shortwave Receiver. It's Less Expensive (And Maybe Safer) Than The Real Thing!

BY DON SCHIMMEL

The passengers who thought they were going to take a leisurely Mediterranean cruise aboard the Italian cruise ship *ACHILLE LAURO* got more than was listed in the colorful brochure that convinced them to go. Luckily for all concerned, most cruises are not nearly as dramatic, harrowing, eventful, or horrifying! They are—as their descriptive brochures claim—relaxing and carefree holiday visits to beautiful and exotic ports, a chance to make new friends, eat lots of good food, get a great suntan, and play shuffleboard.

This is not accomplished without paying a most respectable tariff to the cruise line whose luxury facilities you will be using. An all-frills winter cruise around the globe in a First Class stateroom on a highly rated ship runs into more money than many folks earn in several years of hard work!

Have no fear; you can travel the same route and never leave your living room—at least, if you've got a communications re-

HERE'S WHERE TO LISTEN!:

Calls to/from San Francisco (Station KMI)

Shore	Ships
4357.4	4063
4403.9	4109.5
4407	4112.6
8728.2	8204.3
8743.7	8219.8
8784	8260.1
13100.8	12330
13103.9	12333.1
13107	12336.2
13187.6	12416.8
17236	16463.1
17239.1	16466.2
17304.2	16531.3
22636.3	22040.3
22664.2	22068.2
22679.7	22083.7
22704.5	22108.5

Calls to/from Mobile AL (Station WLO)

Shore	Ships
8970.2	8266.3
8805.7	8281.8
8808.8	8284.9
13134.9	12364.1
13175.2	12404.4
13178.3	12407.5
17251.5	16478.6
17239	16556.1
17356.9	16584
22676.6	22080.6
22689	22093
22707.6	22111.6

Calls to/from Miami FL (Station WOM)

Shore	Ships
4363.6	4069.2
4391.5	4097.1
4407	4112.6
4425.6	4131.2
8722	8198.1
8731.3	8207.4
8746.8	8222.9
8759.2	8235.3
8793.3	8269.4
8811.9	8288
13116.3	12345.5
13122.5	12351.7
13125.6	12354.8
13144.2	12373.4
13169	13298.2
13190.7	12419.9
17232.9	16460
17257.7	16484.8
17260.8	16487.9
17363.9	16491
17279.4	16506.6
22639.4	22043.4
22642.5	22046.5
22661.5	22065.1

Calls to/from New York (Station WOO)

Shore	Ships
4385.3	4090.9
4388.4	4094
4403.9	4109.5
4422.5	4128.1
8740.6	8216.7
8749.9	8226
8760.3	8238.4
8796.4	8272.5
13107	12336.2
13128.7	12357.9
13131.8	12361
13184.5	12413.7
17245.3	16472.4
17291.8	16518.9
17310.4	16537.5
17325.9	16553
22596	22000
22608.4	22012.4
22632.9	22027.9
22704.5	22108.5

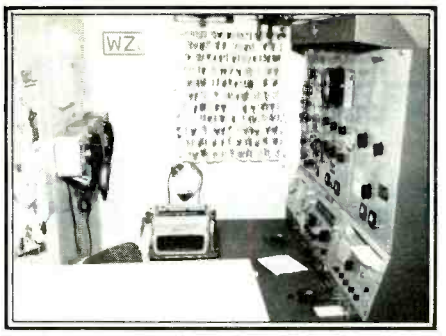
Calls to/from Vancouver BC (Station VAI)

Shore	Ships
4385.3	4090.9
6518.8	6212.4
8737.5	8213.6
13119.4	12348.6
17254.6	16481.7
22654.9	22058.9

Calls to/from Halifax NS (Station VCS)

Shore	Ships
4394.6	4100.2
4410.1	4115.7
6518.8	6212.4
8787.1	8263.2
13138	12367.2
17242.2	16469.3

A rare QSL from the cruise ship SS Florida, *which was destroyed by fire several years ago. (Photo courtesy Tom Kneitel)*



A shipboard "radio shack" operates on many frequencies that you can easily monitor.

Cruise ships arrive/depart ports of call all over the world—every day! Get in on the action. (Photo courtesy Anita Hipius)

You don't have to be aboard ship to be in on the excitement. (Photo courtesy Anita Hipius)

ceiver. This is possible by listening to the high seas telephone calls from the cruise ships! Communications include personal and business calls to and from passengers and also calls to and from the officers and crew of the cruise liners.

With the frequencies in hand, lots of hors d'oeuvres in the refrigerator, and *The Love Boat* tuned in on the TV, you're *almost* set for your own economy cruise via shortwave. All you need is information on the major luxury cruise ships and their respective itineraries. That's where we come in!

The following list, while not all-inclusive, does present many of the cruise ships popular with North American travelers. It will offer you an ample selection from which to choose, thus allowing you an ample opportunity to indulge all of your wildest travel fantasies. Listening to the calls is the next best thing to being there in person! Our listing gives the ship name, nation of registry, departure dates, and ports of call. PC

Thanks to the Washington Post *Newspaper and to AARP Travel Service for the cruise schedules.*

Selected Cruise Ships

ATLANTIC, Home Lines, Liberia, Sails from Port Everglades FL 2/7 on 16-day round trip cruise visiting San Juan, St. Thomas, St. Maarten, Antigua, Martinique, Barbados, La Guaira, Curacao, Aruba, and Ocho Rios.

BOHEME, Commodore Cruises, Panama: Sails from Miami FL on Saturdays for 7-day round trip cruises to Port-au-Prince, Port Antonio, Grand Cayman and Cozumel.

CARIBE, Commodore Cruise, Panama: Sails from Miami FL Saturdays for 7-day round trip cruises to St. Thomas, San Juan, Puerto Plata.

CONSTITUTION (KAEG), American Hawaii Cruises, USA: Sails from Honolulu HI 1/11, 2/1, 2/8, 5/10, 6/14, 6/21, 7/12, 7/19, 9/13, 9/20, 11/8, 11/15 on 8-day round trip cruise to some ports as INDEPENDENCE but in different order.

CUNARD COUNTESS (GUNP), Cunard, UK: Sails from San Juan PR Saturdoys for 7-day round trip cruises to La Guairo, Grenada, Barbados, Mortiniqie, St. Thomas. On alt. Saturdays sails from San Juan for 7-day round trip cruises to Tortola, St. Kitts, Nevis, Guadeloupe, St. Lucio, St. Maarten, and St. Thomas.

FAIRSEA (ELMQ), Sitmar Cruises, Liberia: Sails from Seattle WA for 10-doy round trip cruise 7/2, 8/12, 8/22, 9/1 to AK visiting Columbia Glacier, Valdez, Seward, Malaspina Glocier, La Perouse Glacier, Juneau, Frederick Sound/Stephens Passage, Ketchikan, Victoria. Sails from Los Angeles CA for 9-doy round trip cruise 10/14, 10/23, 11/19, 12/7 to Mexican Riviera visiting Cabo San Lucas, Acapulco, Zihuatanejo, Puerto Vallarta. Sails from Los Angeles for 11-day round trip cruise to Mexican Riviera with same ports as preceeding cruise plus a visit to Mazatlan. Sails Acapulco to San Juan for 10-day cruise 3/18, 4/27, 5/17 with Panama Canal passage visiting San Blas Islands, Curacao, St. Croix, St. Thomas. Sails from Son Juan to San Francisco CA for 14-day trans-conal cruise 6/16 visiting St. Thomas, Curacao, San Blas Is., Balboa, Acapulco, Cabo San Lucas.

FAIRSKY (6ZNV), Sitmar Cruises, Liberia: Sails from San Francisco CA 6/5, 6/17, 7/11, 8/4, 8/28, 9/9 on 12-day round trip cruise to AK visiting Victoria & Vancouver (BC), Pt. Hardy, Ketchikan, Clarence Straight, Sumner Straight, Juneau, Skagway, Glacier Bay, La Perouse Glacier, Sitka. Sails from Los Angeles CA 4/20, 4/29, 5/26 on 9-day round trip to Mexican Riviera (same ports as 9-day FAIRSEA cruise). Sails from San Francisco CA to Ft. Lauderdale FL 9/21 on 14-day trans-canal cruise visiting Cabo San Lucas, Puerto Villarta, Acapulco, Cartagena, Montego Bay. Sails from Pt. Everglades FL 10/29 on 10-day round trip to E. Caribbean visiting St. Thomas, Antigua, Barbados, Martinique, St. Croix, Nassau. Sails from Pt. Everglades 12/16 on 11-day cruise (same ports as preceeding ex-Nassau). Sails from Pt. Everglades FL 10/9, 12/6 on 10-day round trip to W. Caribbean visiting Playa del Carmen, Cozumel, Grand Cayman, Montego Bay, St. Thomas, St. Croix, Nassau.

FAIRWIND (ELPH), Sitmar Cruises, Liberia: Sails from Pt. Everglades FL 5/17, 6/14, 9/6 on 8-day round trip to E. Caribbean visiting St. Thomas, St. Maarten, St. John, Nassau. Sails from Pt. Everglades 6/4,, 8/27, 9/24 on 10-day round trip visiting St. Thomas, Antigua, Barbados, Martinique, St. Croix, Nassau. Sails from Pt. Everglades 4/22, 9/14 on 10-day round trip to W. Caribbean visiting Playa del Carmen, Cozumel, Grand Cayman, Montego Bay, St. Thomas, St. Croix, Nassau. Sails from Acapulco to San Juan 12/1 on 10-day trans-canal trip to San Blas Is., Curacao, St. Croix, St. Thomas. On 12/11 same cruise with reverse itinerary. Sails from Pt. Everglades to Acapulco 10/12 on 10-day cruise to Playa del Carmen, Cozumel, Grand Cayman, San Blas Is., Balboa. Sails San Juan-Acapulco 12/30 on 3-day trans-canal to St. Thomas, Aruba, Cartagena, San Blas Islands.

FESTIVALE, Carnival Cruise, Panama: Sails from Miami FL Saturdays for 7-day round trip cruises to Nassau, San Juan, St. Thomas.

INDEPENDENCE (KPHI), American Hawaii Cruises, USA: Sails from Honolulu HI 1/18, 3/1, 3/8, 4/5, 4/12, 5/3, 5/31, 8/9, 8/16, 10/11, 11/23, 12/6, 12/13 for 8-day cruise to Kona, Hilo, Kahului, Mawiliwili.

LIBERTE, Americon Hawaii Cruises, Ponama: Sails from Papeete (Tahiti) 3/1, 3/8, 3/15, 5/3, 5/10, 7/5, 7/12, 9/6, 9/13, 11/1, 11/8 for 8-doy cruise visiting Rangiroa Atoll, Huahine, Raiateo/Tahaa, Boro Bora, Moorea.

MARDI GRAS (3EQN), Carnivol Cruise, Panama: Sailes from Miami FL Sundays for 7-day round trip to Cozumel, Grand Cayman, and Ocho Rios.

NORWAY, Norwegian Caribbeon, Norway: Sails from Miami FL every Saturday for 7-day round trip cruise to St. Thomas, Nassau, Bahamas.

RHAPSODY, Paquet, Bahamos: Soils from Pt. Everglades FL Sundoys for 7-day round trip cruises to Nassau, San Juan, St. Thomas.

ROYAL ODYSSEY, Royal Cruise Line, Greece: Sails from Lisbon to Athens 5/2, 10/22 on 12-day cruise visiting Casablonca, Malaga, Palmo, Villefranche (Monte Carlo), Liverno (Florence/Pisa), Naples, Mykonos, Athens/Piraeus. Sails San Juan-Athens 3/8 on 20-day cruise to Ponta Delgada, Lisbon, Cadiz (Seville), Gibraltar, Palma, Villefranche (Monte Carlo), Naples, Civitavecchia (Rome), Messina (Taormina), Athens/Pireus. Sales from Athens 3/27, 4/8, 4/20, 9/27 on 14-day round trip to Skiathos, Istanbul, Kusadasi (Ephesus), Rhodes, Ashdod (Jerusalem), Pt. Said (Cairo), Santoŧini, Mykonos, Athens. Sails from London 6/26 & 8/17 on 14-day cruise to Amsterdam, Copenhagen, Leningrad, Helsinki, Stockholm, Gothenburg, Oslo, Oslofjord, London.

SKYWARD (LKQH), Norwegian Caribbean, Norway: Soils from Miami for 7-day cruises to Cancun, Cozumel, Grand Cayman, Bahamas.

SONG OF AMERICA, Royal Caribbean Cruise, Norway: Sails from Miami Sundays for 7-day trips to Nassau, San Juan, St. Thomas.

SONG OF NORWAY (KNVP), Royal Caribbean Cruise, Norway: Sails from Miami Sundays for 7-day cruises to Grand Cayman, Montego Bay, Cozumel.

STARWARD (LCJK), Norwegian American, Norway: Sails from Miami Saturdays for 7-day cruises to Bahamas Out Is., Ocho Rios, Grand Cayman, and Cozumel.

SUN VIKING (LIZA), Royal Caribbean Cruise, Norway: Sails from Miami alt. Saturdays for 14-day cruises to Ocho Rios, Curacao, La Guaira, Barbados, Martinique, St. Maarten, San Juan, St. Thomas.

TROPICALE, Carnival Cruise, Liberia: Sails from Los Angeles CA Sundays for 7-day cruise to Puerto Vallarta, Mazatlan, Cabo San Lucas.

BON VOYAGE VIA SHORTWAVE RADIO!

Scanning The "Nowhere Band"

Has Anybody Ever Taken The Trouble To Scan The 138 To 150 MHz "Federal Band"? Okay, So It Has A 4 MHz "Hole" In Its Middle—But So What?

BY RICK MASLAU, KNY2GL

Running between 138.00 and 150.80 MHz is a strange little band of frequencies generally set aside (in the U.S.) for federal agencies. True, it suffers from the indignity of having had its mid-section (144.00 to 148.00 MHz) resectioned and allocated to the Amateur Radio Service. What's left? Two separate chunks of band, one 6 MHz in size and the other a paltry 2.8 MHz of frequency space.

Many scanners cover one or both of these frequency ranges between 138.00 to 144.00 MHz and 148.00 to 150.80 MHz. Despite considerable interest in monitoring federal agency communications, this Nowhere Band (as I call it) remains an unknown quantity and has been ignored by most scanner enthusiasts. This is probably because of the preponderance of federal station activity in the 30 to 50 MHz, 162 to 174 MHz, and 406 to 420 MHz bands containing FBI, Secret Service, Border Patrol, military and others. The Nowhere Band somehow managed to get itself lost in the shuffle in the rush to scan the larger and more glamorous bands!

Hopefully, this will serve as an introduction to this ignored band. It does have its uses and, although it may not be as busy as some other bands, it produces its own assortment of activities.

Hear Here!

American military forces are major users of the Nowhere Band, but others are also to be heard, too. Listen here for:

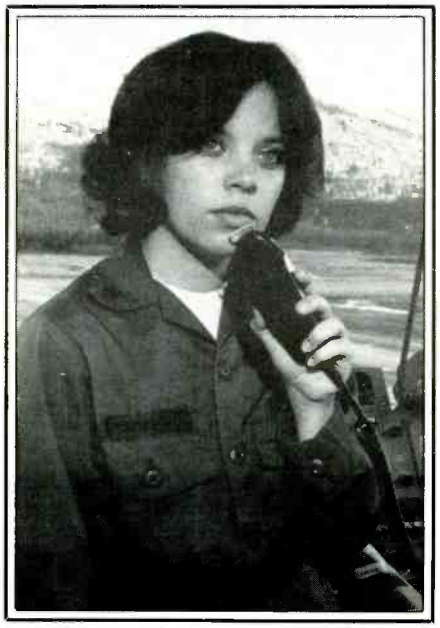
FEMA: 142.35, 142.425, 142.975, 143.00 MHz

National Science Foundation: 138.54 MHz

NASA Space Shuttle Support Aircraft: 141.30 MHz

Civil Air Patrol: 143.75, 143.90, 148.15, 148.925 MHz

Dept. of Energy: 138.35, 139.77, 141.68, 141.70, 142.23, 148.47 MHz



The Army is a heavy user of the Nowhere Band. In this photo, Specialist 5th Class Kathleen Britton communicates with Army UH-1 HUEY choppers from Bryant Army Heliport in Alaska. Among this facility's frequencies are 150.405 and 150.675 MHz. (U.S. Army photo)

Army MARS: 143.415, 143.99, 148.01, 148.65, 150.625 MHz

Navy MARS: 140.875, 148.375, 148.41, 148.975 MHz

USAF MARS: 142.155, 143.46, 143.95 MHz

USSR Manned Spacecraft: 142.40, 142.4175, 142.60, 143.144, 143.625 MHz

As for American military services, they use an enormous number of frequencies and stations. A small sampler of selected stations and their uses accompanies this report (Table 1). Communications related to military aircraft activities are often to be found in this band.

Army helicopters, such as this UH-1 HUEY, are equipped with communications gear for many frequency bands, including 138 to 150 MHz. (U.S. Army photo)

Look for the U.S. Coast Guard on 143.28 MHz.

Also on a national basis, the Army and Air Force seem to prefer to use frequencies selected from within certain blocks or segments of frequencies. The usual case is for frequencies to be spaced at 25 kHz intervals between the high/low ends of these bands (although there are exceptions to all of this).

Thus, U.S. Army frequencies will most likely lie within the following band segments:

139.00 to 139.45 MHz
141.325 to 142.475 MHz
143.00 to 143.40 MHz
148.575 to 148.925 MHz
149.55 to 149.925 MHz
150.425 to 150.75 MHz

Other nationally used Army frequencies that don't fit into this pattern include: 138.00, 141.025, 141.06, 141.12, 141.125, 141.225, 141.465, 143.04, 148.025 MHz.

Specific uses noted for individual Army frequencies include:

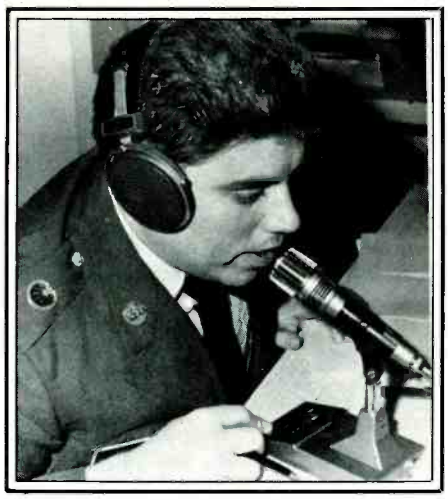
Air Evacuation 141.375 MHz
Investigators 141.325 MHz
Tactical 139.00 MHz
Missile test 139.44 MHz
Emergencies 139.075 MHz

Table 1: Station Sampler

AL	FT RUCKER	148.900 MHz	CONTROL TOWER
		149.600	HELICOPTER GROUND CONTROL
CA	EDWARDS AFB	141.100	ARMY AVIATION ENGINEERING
CA	MOFFETT FIELD NAVAL AIR STA	139.700	AIR GUARD
CA	ONTARIO INT'L APT	142.150	LOCKHEED OPERATIONS
FL	CRAIG MUNIC APT	139.300	ARMY GUARD
FL	HURLBURT FLD, MARY ESTHER	140.400	COMMAND POST
FL	PATRICK AFB, COCOA BCH	138.300	COMMAND POST
GA	FT BENNING	141.800	MILITARY AIRLIFT COMMAND
GA	HUNTER AAF, SAVANNAH	143.100	HELICOPTER DISPATCHER
ID	MOUNTAIN HOME AFB	148.075	390TH ELECTRONIC COMBAT SQDN (JAMMERS) "RED SECTION"
		148.20	389TH TFTS "YELLOW SECTION"
		148.45	391ST TFS "BLUE SECTION"
IN	SHELBYVILLE MUNIC APT	139.100	ARMY GUARD
KS	FT LEAVENWORTH	137.950	HELICOPTER APPROACH CONTROL
KY	CAPITAL CITY APT, FRANKFORT	139.350	ARMY GUARD
KY	FT CAMPBELL	139.300	ARMY AVIATION "EAGLE CONTROL"
		142.900	VIP HELICOPTER OPERATIONS
		139.900	HELICOPTER APPROACH CONTROL
		138.800	HELICOPTER CLEARANCES
MA	SOUTH WEYMOUTH NAVAL AIR	139.900	AIRCRAFT APPROACH CONTROL
MD	ANDREWS AFB	141.550	VIP AIRCRAFT OPERATIONS
		143.800	AIR FORCE RESERVE
NY	STEWART APT, NEWBURGH	139.100	ARMY AVIATION
OK	TINKER AFB, OKLAHOMA CITY	139.950	TACTICAL AIR COMMAND
		141.650	TACTICAL AIR COMMAND
		138.150	MILITARY AIRLIFT COMMAND
OR	PORTLAND INT'L APT	138.450	USAF RESERVE RESCUE
PA	FT INDIANTOWN GAP	139.000	HELICOPTER GROUND CONTROL
RI	QUONSET STATE APT	141.800	ARMY GUARD "BACON 80"
TN	FT CAMPBELL	139.900	HELICOPTER APPROACH CONTROL
		143.300	CONTROL TOWER
		149.850	HELICOPTER GROUND CONTROL
TN	MEMPHIS INT'L APT	138.100	ARMY GUARD
TX	CORPUS CHRISTI NAVAL AIR	138.600	FLIGHT INFO BROADCASTS
TX	FT HOOD	143.100	HELICOPTER GROUND CONTROL
TX	KELLY AFB, SAN ANTONIO	143.800	USAF RESERVE
VA	FT BELVOIR	139.400	WEATHER/DISPATCHER
WA	FT LEWIS, TACOMA	141.500	VIP HELICOPTERS "BULLSEYE RADIO"
WI	GENERAL MITCHELL FLD, MILW	139.500	AIR GUARD

Post Operations 138.975, 139.40 MHz
Search/Rescue 138.75 MHz
Command 143.35 MHz
Aero testing: 139.40, 141.025, 148.025, 148.65, 148.80, 149.86 MHz
Army Explosive Ordinance Disposal: 139.00, 139.175 MHz
Army Civil Disturbance Net: 149.91 MHz
Army Reserve: 139.20 MHz
Security: 149.175, 149.205, 150.435, 150.555 MHz
Army National Guard: 139.10, 141.465, 142.325, 143.05, 143.075, 143.10, 143.125, 143.15, 143.175, 143.20, 143.225, 143.275, 143.30, 143.335, 143.35, 143.375, 143.40 MHz.

Naval and Marine Corps aircraft operations are plentiful in the Nowhere Band, if you know where to look for them! (U.S. Navy photo)



Military Affiliate Radio System stations of the various branches of our armed forces have frequencies allocated just outside the edges of the 2-meter ham band. Here's SP4 Rory Arenz operating the Army MARS station at Ft. McClellan, Alabama. (U.S. Army photo by Lt. Col. D. L. Verdier)

U.S. Air Force

The USAF prefers frequency blocks within the following ranges:

138.00 to 138.50 MHz
138.875 to 138.925 MHz
139.60 to 140.00 MHz
141.525 to 141.925 MHz
142.125 to 142.30 MHz
143.425 to 143.475 MHz
143.75 to 143.875 MHz
148.00 to 148.245 MHz
148.45 to 148.55 MHz
149.15 to 149.325 MHz
149.475 to 149.55 MHz
150.15 to 150.35 MHz

It is reported that 149.175 and 149.205 MHz are used by security personnel at USAF bases.

Missile Silo Use

One of the important uses of the Nowhere Band is for military comms in and around the silos used to house ICBM's. Our information is that the following frequencies are in use at the ICBM sites listed below:

Davis-Monthan AFB, Arizona (18 Titan II silos): 143.76, 143.88, 150.35 MHz.

Ellsworth AFB, South Dakota (150 Minuteman II silos): 148.095, 148.245, 148.455, 148.475, 148.485, 148.54, 148.935, 149.275, 149.565, 150.10, 150.315 MHz.

F.E. Warren AFB, Wyoming (200 Minuteman III silos): 148.455, 148.54, 148.935, 148.95, 149.175, 149.235, 149.265, 149.565, 150.10, 150.225, 150.35 MHz.

Grand Forks AFB, North Dakota (150 Minuteman III silos): 138.50, 148.50, 148.545, 148.95, 148.535, 149.565, 150.10, 150.195, 150.225, 150.285, 150.315, 150.35 MHz.

Little Rock AFB, Arkansas (18 Titan II silos): 140.40, 143.88, 149.31, 149.565, 150.315, 150.35 MHz.

Malmstrom AFB, Montana (100 Minuteman II and 100 Minuteman III silos): 148.455, 148.54, 148.935, 148.95, 149.175, 149.235, 149.265, 149.505, 149.535, 149.565, 150.10, 150.375, 150.50 MHz.

McConnell AFB, Kansas (18 Titan II silos): 140.40, 143.88, 149.31, 149.565, 150.315, 150.35 MHz.

Minot AFB, North Dakota (150 Minuteman III silos): 148.30, 148.95, 149.175, 149.265, 149.475, 149.535, 149.565, 150.10, 150.285 MHz.

Whiteman AFB, Missouri (150 Minuteman III silos): 148.095, 148.245, 148.95, 149.175, 149.205, 149.235, 149.565, 150.10, 150.375 MHz.

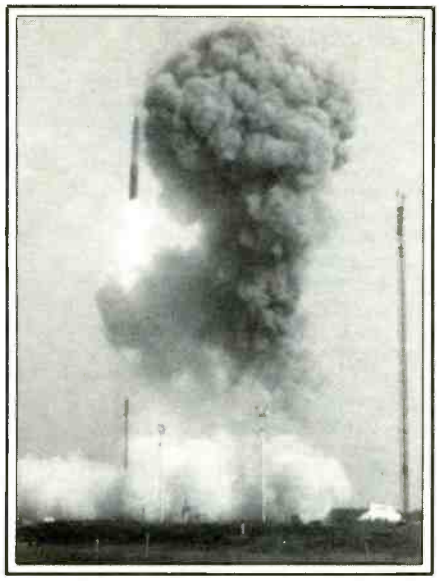
Navy

The U.S. Navy makes heavy use of this band and the following frequencies are available on a national basis: 138.00, 138.54, 138.575, 138.58, 138.62, 138.84, 140.10, 148.43, 149.025, 149.40 MHz. This includes U.S. Marine Corps usage. Other frequencies are also in use at specific USN and USMC facilities; 140.10 and 140.22 MHz are widely used at Naval Air and USMC Air Stations for fire and crash truck communications; 140.575, 140.82, and 148.83 MHz appear to be used by security personnel at some USN facilities.

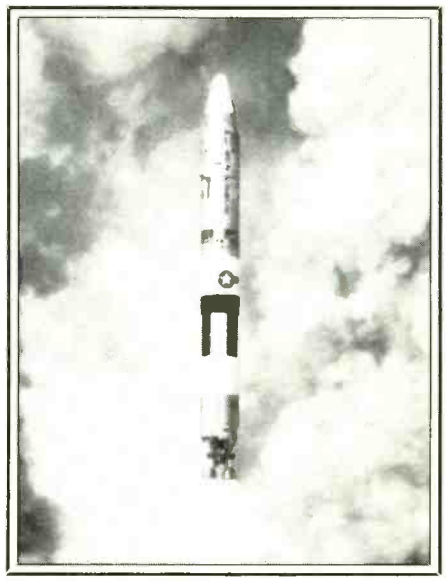
Rounding out our survey of the more interesting frequencies in the Nowhere Band, let's not overlook the uplink voice/data frequencies employed by earth stations transmitting to satellites such as ATS and NIMBUS. These include 148.25, 148.26, 148.275, 148.375, 148.56, 148.98, 149.195, 149.22, 149.245, 149.265, 149.48, 149.52, 149.82 MHz.

Additional information on specific stations operating within the 138 to 144 MHz and 148 to 150.8 MHz bands may be found in the *Top Secret Registry (5th Edition)*.

As you can see, the Nowhere Band isn't large, nor as famous as the low/high/UHF bands. Nevertheless, it's quietly serving a number of important communications functions. Why not give it a listen when you get the itch to try something new and different? You might like it! PC



Listen for communications regarding the maintenance and other operations relating to Minuteman III ICBM missiles.



The Titan II ICBM's are kept in Kansas, Arkansas, and Arizona. Communications relating to their readiness are in the Nowhere Band.

New 800 MHz models

Regency Scanners

Bring you the Excitement of Police, Fire, Emergency Radio, and more.

Our radios deliver the local news. From bank hold-ups to three alarm fires. It's on-the-scene action. While it's happening from where it's happening . . . in your neighborhood.

You can also listen to weather, business and marine radio calls. Plus radio telephone conversations that offer more real life intrigue than most soap operas. And with our new models, there's even more.

Unique Capabilities

Introducing two all new Regency scanners. First, there's the MX7000, a 20 channel, no-crystal unit that receives continuously from 25 to 550 MHz and 800 MHz to 1.2 GHz. That's right! Continuous coverage that includes VHF and UHF television audio, FM Broadcast, civil and military aircraft bands and 800 MHz communications. Next in line is the new MX4000. It's eight band coverage includes standard VHF and UHF ranges with the important addition of 800 MHz and aircraft bands. Both units feature keyboard entry, a multifunction liquid crystal display and selectable search frequency increments.

Practical Performance

If you don't need the 800 MHz range coverage, Regency offers two exciting new units. The MX5000 is a 20 channel, no-crystal scanner that receives continuously from 25 to 550 MHz with all the same features as the MX7000. Then there's the 30 channel MX3000. It's digitally synthesized so no crystals are necessary, and the pressure sensitive keyboard makes programming simple. What's more, it has a full function digital readout, priority, search and scan delay, dual scan speed, and a brightness switch for day or night operation.

At Home Or On The Road

With compact design, easy access front panel and mounting bracket these Regency scanners are ideal for mobile* use. But we also supply each radio with a plug-in transformer and a telescoping antenna so you can stay in touch at home. The MX4000 even has a rechargeable battery pack so it's fully portable.

See your Regency Scanner Authorized Dealer for a free demonstration on these and other new Regency Scanners. Or, write Regency Electronics, 7707 Records Street, Indianapolis, IN 46226.

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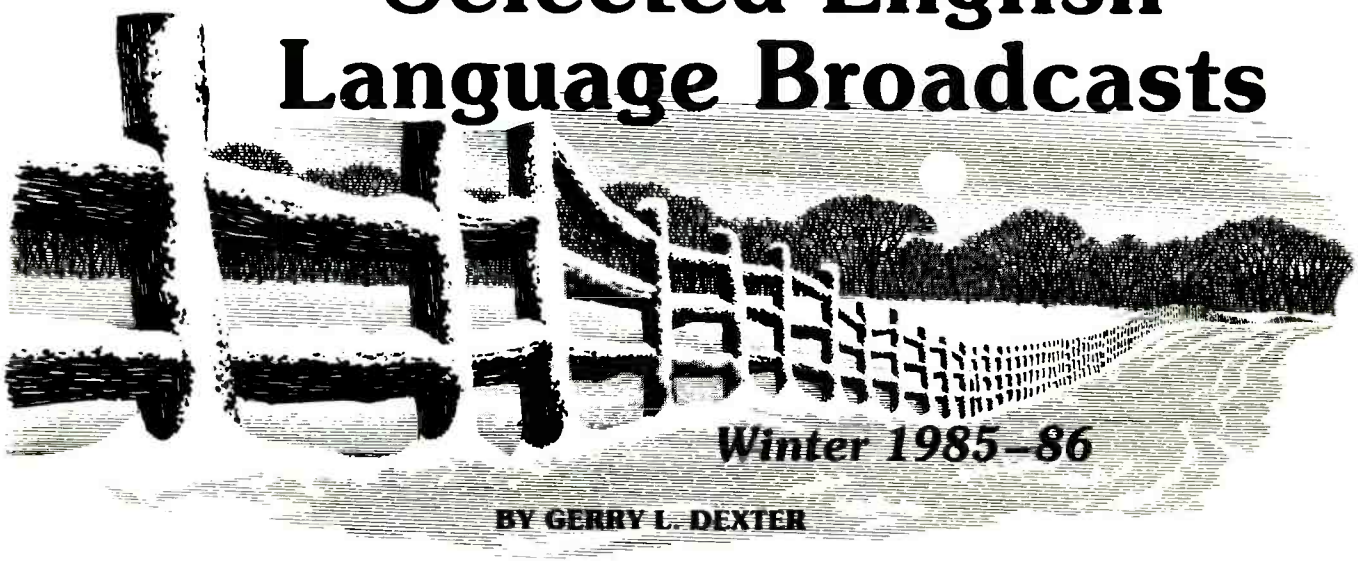
ELECTRONICS, INC.
7707 Records Street
Indianapolis, IN 46226-9989

*Mobile use subject to restriction in certain localities.

CIRCLE 62 ON READER SERVICE CARD

Selected English Language Broadcasts



Winter 1985–86

BY GERRY L. DEXTER

Note: This list of English language broadcasts was accurate at the time of compilation, but stations often make changes in the hours and frequencies of their broadcasts with little advance warning. Hundreds of broadcasts are aired in English on the shortwave bands every day, many of them directed to an audience in North America. This is a representative sampling and not a complete reference. Some broadcasters air only a part of their program in English during a given hour, or may run the English segment into the following hour. Major broadcasters such as the Voice of America, Radio Moscow, and the BBC operate in English practically around the clock using a wide and varying list of frequencies. These are not included here. Numbers in parenthesis indicate a starting time for English that many minutes past the hour. Times are GMT.

Time	Country	Frequencies
0000	Israel	7.140, 9.435, 9.815
	Belgium (30)	5.910
	Canada	5.960, 9.755
	Ecuador	9.745, 15.155
	Japan (15)	11.875, 15.300
	Cuba	6.100, 9.7450
	Spain	9.630, 11.880
	Vatican (50)	6.015, 9.605, 11.845
	Portugal (30)	6.095
	China	9.880, 11.860
0100	Italy	6.010, 9.575
	Israel	7.410, 9.535, 9.815
	Netherlands (30)	6.020, 9.895
	Argentina	9.690, 11.710
	Nicaragua	6.015
	Austria (30)	6.000, 9.635
	Hungary	6.025, 6.110, 9.520, 9.835, 11.910, 12.000
	Cuba	6.100, 6.140, 9.740, 11.725
	Albania (30)	7.065, 9.765
	East Germany (30)	9.730
	Czechoslovakia	5.930, 7.345, 9.540, 11.990
	Spain	9.630, 11.880
	Taiwan	5.985, 9.680
	Greece (30)	7.395, 9.420, 9.905
	W. Germany	6.040, 6.085, 6.145, 9.545, 11.785
0200	Israel	7.410, 9.435, 9.815
	Netherlands (30)	6.165, 9.590
	Belize	3.285
	Canada	5.960, 9.755
	Ecuador	6.095, 9.745
	S. Africa	5.980, 6.010, 9.615
	Brazil	11.745
	Hungary	6.025, 6.110, 9.520, 9.845, 11.910, 12.000
	Czechoslovakia	5.930, 7.345, 9.540, 11.990
	Taiwan	5.985, 9.680
	Greece (30)	7.395, 9.420, 9.905
	E. Germany (30)	9.730
	Albania (30)	7.120, 9.765
	Sweden (30)	9.695, 11.705
	Poland	6.095, 7.145, 7.270, 9.535, 15.120
	Switzerland	6.135, 9.725, 9.885, 12.035
	Romania	5.990, 6.155, 9.510, 9.570, 11.810, 11.940
	Egypt	9.475, 9.675
0300	Guatemala	3.300, 5.055
	Austria (30)	5.945, 6.000
	Turkey	9.560
	Romania	5.990, 6.155, 9.510, 9.570, 11.810, 11.940
	Egypt	9.475, 9.675
	Cuba	6.100, 6.140, 9.740, 11.725
	E. Germany	9.560, 9.620, 11.970
	Czechoslovakia	5.930, 7.345, 9.540, 11.990
	Bulgaria	9.700
	France (15, 45)	7.135, 9.545, 9.550, 9.800
	Greece (40)	7.3395, 9.420, 9.905
	Poland	6.095, 7.145. 7.270, 9.525, 15.120
	Albania (30)	6.200, 7.300
	Namibia	3.295
	USA-AFRTS	6.030
0400	Nicaragua	6.015
	Zambia	3.346
	Austria (30)	6.000, 9.635
	Netherlands Antilles	9.535
	S. Korea	9.570
	France (15, 45)	7.135, 9.545, 9.550, 9.800
	Honduras	4.820
	Botswana	4.820, 7.255
	Romania	5.990, 9.510, 9.570, 11.940

Time	Country	Frequencies
	Zimbabwe	3.396
	Uganda	5.026
0500	Netherlands (30)	6.165, 9.715
	Austria (30)	6.000, 9.635
	Spain	6.125, 9.630
	W. Germany	5.960, 6.130, 9.545, 9.690, 11.705
	Cuba	6.090, 6.100, 6.140, 9.740, 11.725
	Taiwan	5.985, 9.680
	E. Germany	6.165, 9.715
	Nigeria	7.255
	Cameroon	4.850
0600	Cuba	9.525
	Taiwan	5.985
	Cook Is.	11.760
	Ghana	4.915
	Canada-CKZU/CKZN	6.160
	Liberia	4.760
0700	Solomon Islands	5.020, 9.520
	Ecuador	6.130, 9.745, 11.925
	Alaska	9.755
	Canada-CFRX	6.070
0800	Belgium	9.880
	Guyana	5.950
	Australia	6.045, 6.060, 9.580, 9.770
0900	Belgium (10) (Sat)	9.880
	New Zealand (30)	9.520, 11.850
	Australia	6.045, 6.060, 9.580, 9.770
	Guam	11.840
1000	Norway (Sun)	15.165, 15.180, 15.205, 15.230
	Nigeria	15.120
	Papua New Guinea	4.890, 9.520
1100	Pakistan	15.605, 17.660
	Malaysia–Sarawak	7.160
	New Zealand	9.520, 11.850
	Netherlands Antilles (15)	11.815
	N. Korea	9.750, 9.977
	Australia	5.995, 6.045, 6.060, 6.080, 9.580, 9.710, 9.770
	China	9.535, 11.860
	Papua New Guinea	4.890, 9.520
	Japan	9.505
1200	Argentina	15.345
	Bangladesh (30)	15.570, 17.760
	Canada	9.650, 11.955, 15.440, 17.820
	Ecuador	15.115, 17.790
	Mongolia	11.985, 12.020
	Austria	15.320
	Greece (35)	11.645, 15.405, 17.565
	China	9.535, 11.650, 11.860
	Syria	11.625, 12.085
	Singapore	5.052, 11.940
	Kampuchea	11.938
1300	Pakistan (30)	9.885, 11.675, 15.595, 17.660
	Belgium	15.590
	Japan	9.605
	Norway (Sun)	6.040, 9.590, 15.305, 17.740
	N. Korea	11.880, 15.340
	Australia	5.995, 6.045, 6.060, 9.580
	China	9.550, 9.730, 11.660
1400	S. Korea	9.750, 15.575
	Philippines	9.730
	Sweden	15.345
	Saipan	11.900
1500	Jordan	9.560
	Australia	9.580
	Canada	11.955
	Ecuador	11.740, 15.115, 17.890
	Indonesia	11.790, 15.150
1600	Pakistan	9.885, 11.675, 15.595, 17.660
	Norway (Sun)	9.590, 9.655, 11.850, 11.935, 15.305
	France	11.705, 17.620, 17.795
	UAE (10)	15.300, 15.320
1700	USA-KCBI	11.790
	Israel	9.385, 11.583, 13.720
	Norway (Sun)	11.925, 15.305
	Pakistan	11.810
1800	Argentina	15.345
	Mozambique	9.618
	Brazil	15.155
	USA-R. Earth (Sun)	11.790
	Kuwait	11.675
1900	Afghanistan	9.665, 11.880
	Norway (Sun)	9.590, 11.850,15.225
	Iran (30)	9.022, 9.765
	Kuwait	11.675
2000	Algeria	9.640, 17.745
	Angola	9.535
	Canada	5.995, 11.945, 15.325, 17.820, 17.875
	Syria (05)	12.085, 17.825
	Bulgaria	9.700
2100	Argentina	15.345
	Iraq	9.610
	Yugoslavia (15)	9.620
	Cuba	15.300, 17.750
	Eq. Guinea	15.106
	Bulgaria (30)	9.700, 11.720
2200	Norway (Sun)	9.590, 9.610
	Turkey	9.560
	Libya	15.450
	Lithuania	9.610, 11.720, 15.180
	Taiwan	11.825, 15.270
	India	11.620, 15.620
2300	Sweden	9.695, 11.705
	Canada	5.960, 9.755
	Australia	15.240, 15.320, 15.395
	Bulgaria	9.700, 11.720
	E. Germany (15)	9.730, 11.975
	Ukraine (30)	11.720, 11.960
	Greece (35)	7.395, 9.860
	Luxembourg	6.090 PC

The Way It Was

Recalling The Roots And Heritage Of Broadcasting/Communications

BY ALICE BRANNIGAN

Spitzbergen (Svalbard) is a group of desolate islands about 400 miles north of Norway. Since 1925, Norway has administered the entire group of islands. There are about 2,000 Russians in three mining villages—Barentsburg, Gruvmantbyen (Green Harbour), Pyramiden (Pyramids). Some 1,400 Norwegians live in two mining villages—Longyearbyen and Ny-Alesund. Considering the northern position, the climate is surprisingly mild; this is due to the Gulf stream. Although there are many species of wild animals in Spitzbergen, and many types of wild flowers, there aren't any trees. When Swedish Ham operator SM8KV went there on a DXpedition in 1957, he couldn't even find a tree or tall structure from which to drape his antenna!

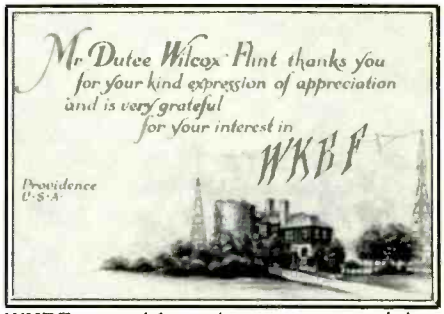
Of course, the reason that SM8KV went there was to give DX-hounds a shot at QSL'ing this very rare spot, which counts as a separate country for various DX awards. SM8KV found that the only place he could string his antenna was from one of the masts of the local telegraph station —being that Spitzbergen's telegraph station is about the only regular communications facility in Spitzbergen. There are no broadcasters there, no resident Hams either.

The telegraph station is little-known to the outside world, however, it has been in active operation for decades. Presently it is operating with the callsign LGS on 444 kHz (guards 500 kHz) CW. Voice facilities are on 1694, 1736, and 3645 kHz (paired with 2541, 2456, and 3217 kHz, respectively). LGS also operates on 161.95 MHz (Channel 27). All of these frequencies are for communicating with ships.

Since you probably won't be visiting Spitzbergen, here's a photo taken of LGS at some unknown time in the past. The 15 buildings surrounding the two transmitting towers are the entire village of Green Harbour!

There's one to look for on the old MHz inhaler!

The little-known station at Spitzbergen—an island in the middle of nowhere.



WKBF existed for only two years, and that was 60 years ago!

In Like Flint

In 1924, Dutee Wilcox Flint opened up no less than two broadcasting stations in Cranston, Rhode Island. One station was WKAP with 50 watts on 833 kHz. The other station was WKBF with 500 watts on 1050 kHz. From a vantage point of 60 years after the fact, there is almost nothing known of these two stations, except that they were located on Allens Avenue. By 1925, WKAP had shifted to 1280 kHz, with WKBF hopping over to 1120 kHz. After that, the picture becomes clearer.

In 1926, Flint connected with Lincoln Studios Inc. and formed a partnership located at 184 Washington Street, Providence, Rhode Island. The callsigns of WKAP and WKBF were changed to ones representing the initials of the owners, WDWF and WLSI. Interestingly, both WDWF and WLSI operated on 680 kHz, sharing time on the same 500 watt transmitter.

In short order, WDWF/WLSI had moved to new headquarters at 335 Westminster Street in Providence. Also, they both shifted frequency to 1210 kHz and reduced their power to 100 watts. Eventually, two other Rhode Island stations were sharing time on 1210 kHz with WDWF/WLSI. These were stations WPAW and WPRO, both 100 watt stations.

By May of 1931 it appears that Flint and Lincoln Studios had gone their separate ways, each taking along the broadcast station imbued with their respective initials. Both stations, however, remained on 1210 kHz, sharing time with WPAW and WPRO. WLSI, in any event, sank in the process and by October of 1931 was gone from the scene. Maybe Flint wasn't in the mood to continue either; by November he had sold WDWF to a company called Cherry and Webb (which had simultaneously purchased WPRO). By November of 1932, Cherry and Webb absorbed WDWF into WPRO, and the following year they purchased WPAW, the remaining Rhode Island station on 1210 kHz. Thus, WPRO became the station that consolidated all of the 1210 kHz Rhode Island broadcasting operations.

Station WPRO remains on the air, a well-known 50 kW powerhouse now operating on 630 kHz—a friend to DX'ers in all areas.

Our card from one of WPRO's obscure ancestors, WKBF, is dated October of 1924 and shows the castle-like WKBF station and twin transmitting towers. It isn't exactly a QSL card and, frankly, in its black engraved style and odd wording, it's rather similar to a funeral card! Nevertheless, it may well be the only remnant of this short-lived broadcaster! You saw it in *POP'COMM*!

Hometowner

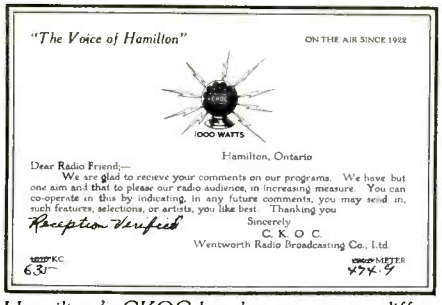
We have had a wonderful response to glimpses of "hometown" broadcasters, stations that are the backbone of the radio scene. So here's another one for you! It's WVJS in Owensboro, Kentucky.

This station came on the air in the late 1940's with 1 kW on 1420 kHz. Today it remains on 1420 kHz running 5 kW days and 1 kW at night. An FM outlet on 96.1 MHz is known as WSTD.

Our postcard view of WVJS is dated 1950 and shows the station as it looked shortly after it commenced broadcasting. The card describes the scene as the "transmitter building" located "on scenic U.S. Highway 60" in Owensboro.

A stucco one-story building with awnings is located in the center of a fenced plot of neat lawn. There are two towers, the large AM station three-legged tower at the right

WVJS, a "hometown" station operating on 1420 kHz from Kentucky.



Hamilton's CKOC has known many different frequencies in its 64 years.

of the photo and the single FM mast near the center of the photo.

Another Hometowner!

When it comes to pioneer broadcasting, not too many predate CKOC in Hamilton, Ontario. This station has been on the air since 1922, and that's about as far back into history as you can go in broadcasting!

If any station could be described as a "nomad," then CKOC is that station. In 1925, CKOC was operated by H. Slack, Wentworth Radio Supply, 31 John St. North, with 50 watts on 880 kHz. In 1929 the station remained on 880 kHz but upped its power to 100 watts and changed its location to the Royal Connaught Hotel.

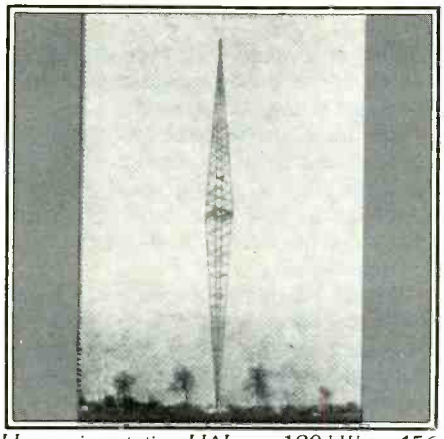
Shortly thereafter, CKOC slid over to 1010 kHz, closely followed by a hop to 635 kHz. In 1935 the station was operating on 1120 kHz with 500 watts. It wasn't until years later that CKOC migrated to its familiar 1150 kHz spot on the dial, first with 500 watts and later with its present 50 kW.

Our 1931 QSL from CKOC shows the frequency 1010 kHz printed on the card but hand crossed-out to show that the station had changed to 635 kHz. Maybe they should have printed up the QSL's with a blank space for the frequency.

Hey, it looks like they're going to stay put on 1150 kHz, so why not give a listen for this proud veteran?

From Hungary

With the outbreak of WWII the European nation of Hungary became a captive of



Hungarian station HAL ran 120 kW on 456 kHz before WWII.

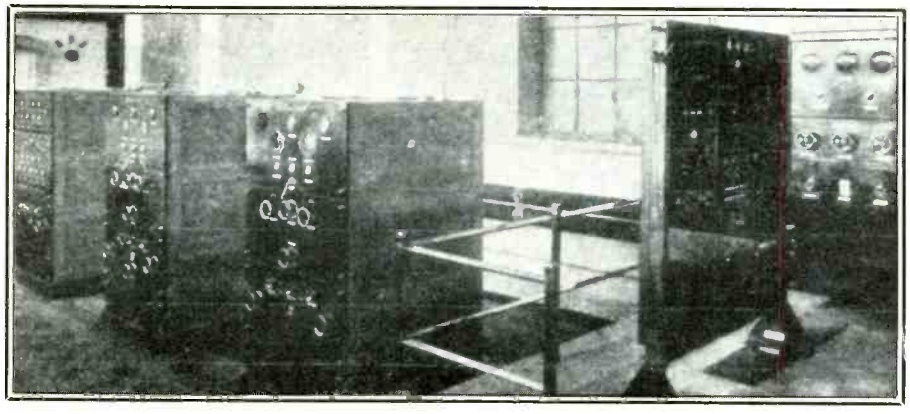
oppression, and since that time it has never known true freedom. But at one time, Hungary was a fully independent nation and its shortwave broadcasts over stations HAT and HAS3 were quite a bit more varied than the present Soviet-oriented fare from Radio Budapest.

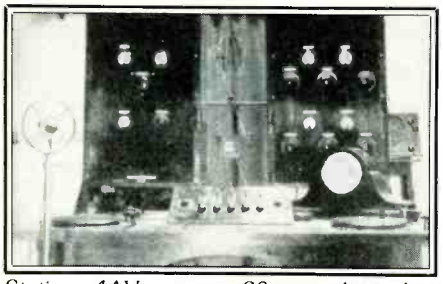
Station HAT, in 1935, operated on 5400 kHz, while HAS3 held down the fort on 15370 kHz. This powerful station was heard throughout the world.

Our photo of these two stations was taken at Budapest, where their transmitters were located.

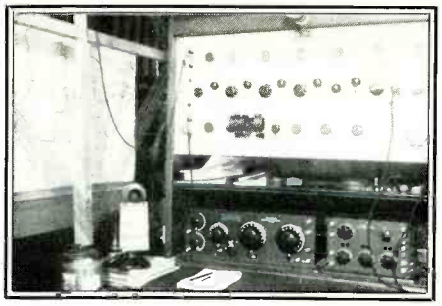
Hungary's station "Budapest No. 1" was also monitored throughout the world. That's because it ran a whopping 120 kW on the off-beat frequency of 456 kHz.

Here are the three transmitter panels used by former Hungarian broadcaster HAT/HAS3. This station was active before WWII.

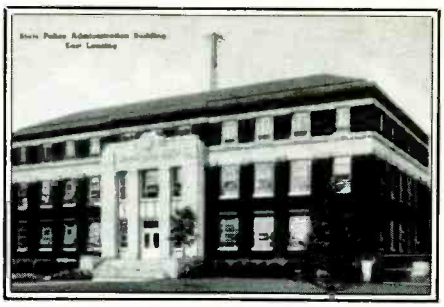




Station 4AY was a 30-watt Australian broadcast band station heard by a few lucky DX'ers in North America, but that was fifty years ago!



A DX listener in Red Bank, New Jersey called this assortment of tubes and coils his pride and joy in 1923.



The Michigan State Police station WRDS in East Lansing.

Monitors in North America could hear this station daily from 0545 to 0615 GMT without much difficulty.

Our photo of "Budapest No. 1" (callsign: HAL) shows a vertical radiator, although the many guy wires required to support this monster don't show up well in the 50-year-old snapshot.

More Long Distance BCB Reception Of Yore

Okay, so reception of a 120 kW out-of-band station wasn't too difficult. In the meantime, DX'ers were still trying for the weak ones, like 30-watter 4AY on busy 980 kHz. This little Australian station must have had a fancy antenna system in the mid-1930's, because it was heard by a few astute listeners in the U.S. and Canada.

First to get a prized QSL from this station located in the small Queensland town of Ayr was a listener in Saskatchewan.

Our rather rare photo of 4AY shows the modulation and RF panels at the rear. On the table are the mixing panel and twin turntables, as well as a station clock that looks like it has been borrowed from granny's mantlepiece.

Wonder when the last time a 30 watt Aussie was heard in these parts on the AM broadcast band. And those DX'ers weren't tuning around with Kenwoods, Uniden Bearcats, Yaesus, and ICOMs. Here's a photo of a typical DX receiving station from 1923, complete with hand-wound directional loop antenna. Would you believe that these doodads managed to drag in super DX?

Car 54, Where Are You?

Scanner fans, take note of the Administration Building for the Michigan State Police in East Lansing. Our rather ancient view of this structure notes that it houses "the second largest identification bureau in the United States and scientific crime detection laboratories are also located there."

At the rear of the building can be seen the top-loaded tower for MSP station WRDS.

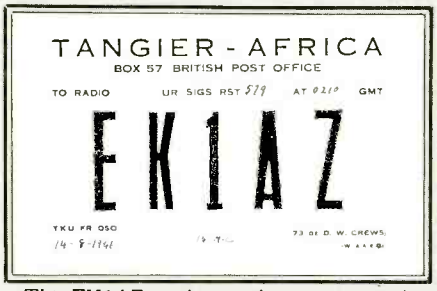
Historic Ham DX Cards

Today a station sporting an EK prefix would be in the USSR, but for a while there the EK1 stations were in Tangier International Zone, one of the world's most unusual non-nations. In fact, the EK1 stations were unauthorized (some might say pirates)!

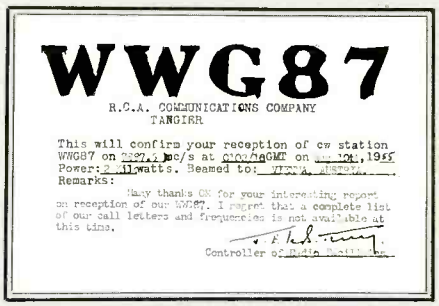
The Tangier International Zone was a 225-square mile area of North Africa having a population of 180,000. In 1923–24 the Tangier Convention established the Zone with England, Spain, and France overseeing permanent neutralization of the area and government by an international commission. Spain controlled the Zone during WWII, but in October of 1945 international administration was resumed. It became a part of Morocco in 1956.

Tangier had no regulations governing radio communications for many years. Hams operated there anyway, without licenses, using an unofficial EK1 prefix. In 1950 the administration announced laws governing radio and stated that commercial and ham licenses would cost $140. The Tangier Amateur Radio Club protested the fees and also the severe regulations. This resulted in police action being taken against a number of the Zone's hams.

American companies still act as if Tangiers was an international city. American owned commercial stations still operate with American callsigns!



This EK1AZ card came from a strange little non-nation, now extinct.



Tom Kneitel's prepared reply card from WWG87, located in Tangier International Zone and using an American callsign for lack of anything better! It's dated 1955.

Tom Kneitel has a QSL dated 1955 from one of these stations, WWG87 on 7887.5 kHz. It was mailed with a British postage stamp overprinted "Tangier."

Our QSL from EK1AZ is dated 14 August 1946. This station was operated by an American, D.W. Crews, W4AEG.

WRDS was operating at least as early as 1931 when it was on 1662 kHz and later on 1642 kHz from Ingham, Michigan. In late 1932, WRDS, having changed frequencies to 1574 kHz, was moved to East Lansing. By 1934 the station had returned to 1642 kHz for a long stay with 1 kW of power. This "ute" station was widely reported by monitors throughout North America. By the mid-1940's it had increased daytime power to 5 kW. At that time, WRDS was also running 500 watts CW in the old Interzone Police networks on 9 frequencies in the 2, 5, and 7 MHz bands.

The year 1950 saw the WRDS callsign dropped in favor of one from the FCC's revised format. It became KQA258 and KQA938 on 1642 kHz and 42.58 MHz. By 1953, the location of KQA258 was changed to Okemos and 1642 kHz was dropped in favor of 37.10, 42.58, and 155.37 MHz. Operations from East Lansing shifted in status and consisted only of KQD98, a 6 GHz microwave link. The Interzone CW station became known as KQA57.

Currently the MSP at East Lansing is again known as KQA258 and operates on 42.48, 42.58, 42.68, and 154.935 MHz. The callsign KNBU650 is assigned for 42.94, while KVU458/KZZ993 are the calls for 460.275 MHz.

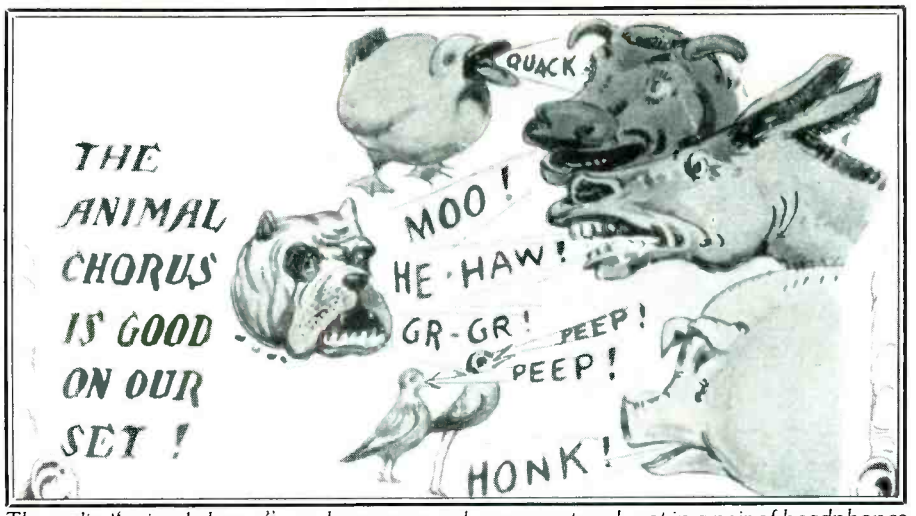
Lastly, a look at a postcard from the mid-1920's that pokes fun at the variety of barnyard-like sounds that might be expected to come through the family receiver. Noises were due to poor antenna systems, poorly adjusted regenerative receivers, interference generated by nearby regenerative receivers, trying to hear low power stations that may well have been off frequency, plus the usual atmospheric static. As broadcasting became popular, those who owned receivers enjoyed this type of good-natured joking.

One more thought before I leave you. In last month's Mailbag column there appeared a photo represented as being one taken of your's truly, although totally unretouched. Accompanying that photo was a description of the type of retouching that is normally required on my photos.

I don't mind a little kidding at my expense, but I had a feeling when I agreed to let them run the photo and discuss the retouching that I'd probably be all the sorrier for it. I was!

My main objection was the editor's exaggerated and cruel statement about having to paint over tattoos reading "Death Before Dishonor" and "Compliments of the 7th Fleet" supposedly displayed on my right forearm. With all due respect, that was going a bit too far with my good nature! I'd like to set the record straight: there is no tattoo reading "Compliments of the 7th Fleet." It reads, "Semper Fi From The Officers and Men of 1st Marine Division, Saigon, 1968."

POP'COMM might never again talk me into being a "good sport." PC



The radio "animal chorus" was humorous only on a postcard, not in a pair of headphones or a loudspeaker.

At Tobyhanna Army Depot, technician Ted Bretsky, left, tests a receiver module while co-worker Robert Bushinski tests a radio receiver in a test bay of the Ground Radio Maintenance Test Facility (GRM-100). Designed specifically for Tobyhanna, the depot possesses the only two facilities in the Army. They are utilized in the test and repair of the AN/GRC-143 and AN/GRC-144 radio sets used in several microwave communications systems. (U.S. Army photo)

POP'COMM *Visits:*

An Army Communications Repair Center

Tobyhanna Army Depot in Pennsylvania possesses the Army's only system for repairing and testing certain microwave communications equipment. Specially designed for Tobyhanna, the Ground Radio Maintenance Test Facility (GRM-100) is used by depot technicians to test and overhaul the AN/GRC-143 and AN/GRC-144 radio sets. Two of the GRM-100s are located in Tobyhanna's Electronic Warfare/Signal Intelligence/Microwave Section. They have a combined value of more than $3.3 million.

"The GRM-100 was especially built for Tobyhanna," says George Bellas, chief of the depot's Voice Communications Branch. "It came here as a complete package; everything we need is right here. The GRM-100 gives us the capability to repair components and entire systems.

"The manufacturer developed the repair facility at the same time it was developing the radios," adds Ray Szczucki, foreman in the EW/SIGINT/Microwave Section. "We had immediate and total repair capabilities for the radios from the first day. That's the first time such a thing happened at Tobyhanna because, normally, it takes a few years to reach full capability with a system."

The GRM-100s were installed in the late 1970's and updated for a new requirement in 1983.

The AN/GRC-143 and 144 tactical radio sets are installed in various microwave communications systems, including: the AN/TRC-112 and TRC-121 tropospheric scatter radio terminals; the AN/TRC-138 and 138A radio repeater sets; and the AN/TRC-175 radio terminal set.

The GRM-100 can test three functional groups of systems: line-of-sight (LOS); tropospheric scatter; and the recently introduced Short Range Wide Band Radio (SRWBR), which adds significant new capabilities to the GRC-144 radio system.

The Army utilizes line-of-sight communications where difficult terrain or other considerations prevent the use of cable systems.

Tropospheric scatter communications systems have a range of 100 miles and can transmit voice, data, and teletype signals.

SRWBR is an improvement for Army tactical communications. It incorporates line-of-sight features and makes possible direct connections with satellite communications.

"Basically, SRWBR increases the frequency of the radio, and adds more channels and widens the digital rate," explains Szczucki.

Depot technicians are currently modifying the GRC-144 radios by adding SRWBR components. Two test bays were added to the GRM-100s to handle this additional requirement, Bellas says.

He also notes that, along with continuing requirements to overhaul older radios, the new SRWBR mission has given Tobyhanna "a strong future workload."

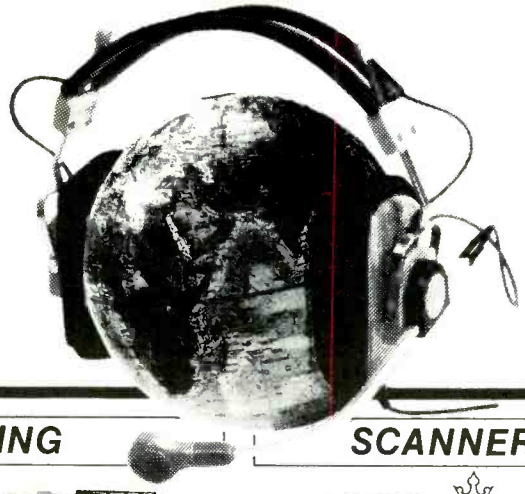
The depot is currently scheduled to upgrade a minimum of 200 sets, he says.

Each GRM-100 facility consists of eight bays for repairing and testing complete systems and their components. They feature an interface and testing device for the major assemblies in transmitters, receivers, and amplifiers, and all modules and subassemblies of the line-of-sight, tropospheric, and SRWBR groups. Available test equipment includes phase angle meters, oscilloscopes, frequency counters, spectrum analyzers, and sweep generators.

The entire facility is bench-mounted and is repaired and maintained by depot personnel.

Originally designed and built by ITT's Defense Communications Division, the GRM-100s now include government-furnished equipment. PC

LISTEN FOR LESS



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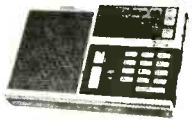

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THE MONITORING MAGAZINE

CIRCLE 152 ON READER SERVICE CARD

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL, W3FQJ

All-Band Longwire And Tuner Combo

A longwire antenna of appropriate length, in association with a good tuner, can provide effective performance over a span of frequencies extending between 0.1–30 MHz. A tuner itself does nothing for the signal pick-up of an antenna. Under proper circumstance, a tuner permits a more efficient transfer of the available antenna signal to the receiver. In effect it peaks the signal at the antenna input of the receiver. The proper circumstance is an evasive quantity that depends on the characteristics of antenna, tuner, and receiver input system. All of these factors change from band to band and, sometimes, from one frequency end to the other of an individual band. Consequently, when you connect a tuner ahead of your receiver antenna terminals, you must expect improved peaking of the signal to vary from nil to good. Nevertheless, a tuner can be of considerable help when you wish to use a simple end-fed longwire as a receiving antenna to cover the wide span of frequencies between 100 kHz and 30 MHz. In our tests, two antennas and two receivers were used. The results are tabulated in Figure 1.

Band	71′ Longwire R-4A	71′ Longwire R-2000	120′ Longwire R-4A	120′ Longwire F-2000
LW	N–L	G	M–G	G
MW LO	G	G	L–M	M–G
MW HI	M	L–M	S–L	S–M
120M	G	L	L–M	S–L
90M	G	S	M	L–M
75M	G	S	L	L–M
60M	M	M	N	N
49M	S–L	M–G	M	N–S
41M	N	N	N	L
31M	N–S	S–L	N–S	N
25M	N–S	S–L	N	N
19M	N–S	N–S	N	N
16M	S–L	S–L	N	S–L
13M	–	S–L	S–L	S–L

Legend	
N	None
S	Slight
L	Limited
M	Moderate
G	Good

Figure 1: *Extent of tuner signal-peaking with a single-wire fed antenna.*

One receiver is a twenty-year-old Ham set Drake (R-4A), for which I have additional crystals to cover SWB and HF marine bands, as well as MW broadcast and LW bands. The second receiver was a Kenwood R-2000. The tuner was a Group Enterprises TUN-3. The shorter long-wire antenna was 71′ from its far end to the tuner input, corresponding to a quarter wavelength on the 90M tropical band. Past experience indicates that this length provides good compromise performance up into the MW and LW bands that can be boosted further with a tuner. Past experience indicates that a 120′ long wire also provides good wide-band performance, which is somewhat better than the 71′ length on the MW and LW bands. However, there is some sacrifice in the reception of the tropical bands and adjacent frequencies. In these two regions of the spectrum, a tuner provides significant peaking. Both long-wire antennas do well in the spectrum between 9–30 MHz.

It is true that the longer 120′ long-wire requires a good lot size if it is erected in linear fashion. However, many smaller lots can accommodate this length very well because you need not sacrifice too much signal by using an L-shape or even a 3-sided configuration (Figure 2). It is still capable of capturing more signal to work with on the MW and LW bands than a shorter one. If your interests lie no lower in frequency than 2 MHz, stick to the shorter long-wire.

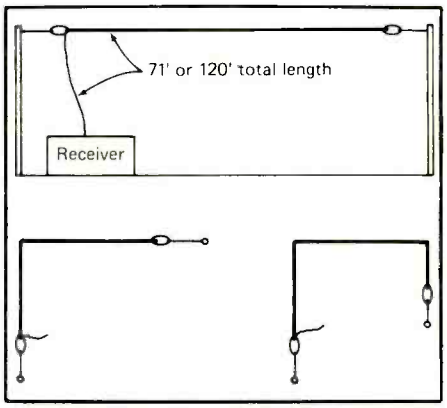

Figure 2: *Basic long wire and possibilities for small lots.*

Results in the charts are indicated according to the legend and bear out our experiences with tuners over the years. Signal peaking is always more pronounced on the low-frequency side of the frequency that corresponds to a wire length of one quarter wave. Improvement is largely nil to limited on the high-frequency bands because the antenna wire is longer than a quarter wave on these frequencies. Incidentally, if you use a very short antenna

```
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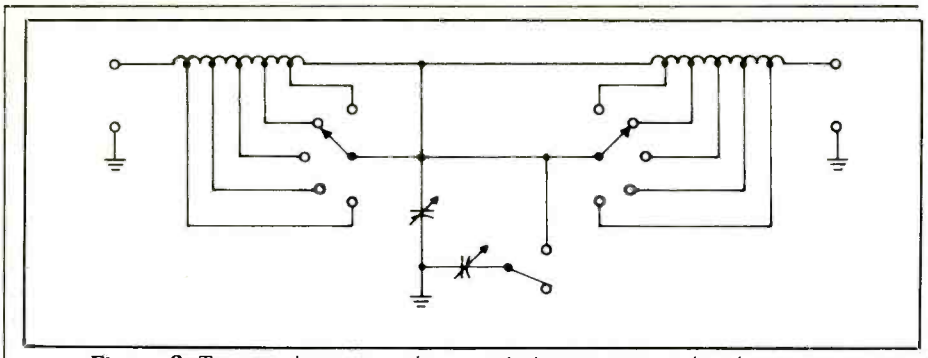


Figure 3. *Tee-matching network, versatile but requires multi-adjustments.*

wire, you can expect somewhat better peaking from the tuner on the higher frequency bands, but you lose much in the form of lower-frequency antenna pickup. Our objective in this article is to come up with a length that provides acceptable general coverage from 0.1 to 30 MHz, and, hence the need for a long wire. Furthermore, such an all-band longwire cannot be expected to do as well as antennas cut for operation on specific high-frequency bands and is only a good performing compromise that is helped, in this case, to become a better system with the use of a tuner. The longwires themselves perform well and the tuner gives that additional help in IDing some of the weaker signals or delivers a somewhat better signal when you wish to enjoy some good listening. The 120-footer permitted me to copy a LOWFER on 186 kHz that was 75 miles away.

Some Tuner Helps

Whatever tuner peaking does occur is more helpful in receiving single sideband and CW signals than conventional AM. There is a greater improvement in clarity. The averaging type of standard AM modulation is more subject to selective fading and the possible improvement ratio appears more restricted. Give it a try on one of the Ham bands. A tuner is also quite helpful when you eavesdrop on Ham DX'ing, roundtables, and networks. The extra peaking, little as it might be, often improves the intelligibility of the weaker-station participants. It's nice to hear all stations involved.

Most tuners respond best to single-wire fed antennas, such as end-fed longwires and windoms. Next in order are the parallel and open-wire lines. Coaxial lines are low on the totem pole. It seems the problem is the influence of the high capacity being shunt across the tuner. I suppose it is a situation that can be handled with tuner design. At one time I built up a tee-network tuner for Ham-band operation (Figure 3). This is the type tuner often used to match AM broadcast transmitters to their antennas. A bit complex, I admit, but it could handle almost anything I attached to its input over the entire spectrum from 1.8 to 60 MHz. You could just hear the background rush and atmospherics come up when you hit match. I could tune it very close without even keying on the transmitter on the Ham bands. I regret having sold it at some Hamfest. PC

Grove tuner and Kenwood receiver. This combination with 120' long wire picked up LOWFER HRM, Oakland, New Jersey, 75 miles.

SATELLITE VIEW

INSIDE THE WORLD OF TVRO EARTH STATIONS

DONALD E. DICKERSON, N9CUE/WPE9JEF

Radio Satellites

If you have ever wanted to tune in on some of the many satellites presently orbiting planet earth, you are certainly not alone. Unfortunately, most of the commercial, military, TV, and weather satellites require some rather sophisticated VHF and UHF receiving equipment that is often out of the reach of the average SWL. But do not despair, you can still tune in on some of those exotic signals from space with your HF shortwave receiver and a good outside antenna.

The best place to start your search for radio satellites is the high end of the HF spectrum. The USSR operates three Radio Sputnik satellites in the 10 meter band, between 29,300 and 29,500 kHz.

In 1978 the Soviets launched Radio Sputnik #1 and #2. These first two of the RS series satellites were experimental in nature. RS #2 has since fallen silent, but RS #1's beacon can still be heard on 29,402 kHz. Then, in 1981, the USSR launched the next six in the RS series of amateur radio satellites, RS-3 through RS-8. Each of these Phase II satellites has a 2 meter up-link and a 10 meter down-link transponder on board. The RS satellites maintain an orbit 1,100 miles above the surface of the earth and complete one revolution every two hours.

Each spacecraft can be identified by its CW beacon, which transmits the letters RS followed by the number of the satellite. This is followed by a series of three digit codes which consist of a single letter and two number combinations, as in K-83, G-11, A-53, etc. These groups can be decoded to provide the listener with specific information on the spacecraft, such as the internal temperature or the voltage and current of the onboard power supply. Decoding information can be found in Table 1.

In addition to CW beacons, satellites RS-5 and RS-7 both have robots on board. The robot is an on-board computer which, if addressed properly in CW from an amateur radio earth station, can be communicated with. The robot will assign a QSO number for a completed contact. The QSO number will qualify the operator to receive a QSL card from the spacecraft. RS-5's robot can be heard on a frequency of 29,331 kHz; RS-7's is found on 29,341 kHz. You will be able to hear both the robot and the amateur radio station on these frequencies.

Even if you are not proficient at CW you can still find some very interesting listening in this satellite band. When you hear a CW beacon you can soon expect to hear some SSB activity beginning just below 29,450 kHz for RS-5 and 29,500 kHz for RS-7 and 8. While tuning these signals you will notice some deep fades and frequency shifts of ±3 kHz. Both are caused in part by the motion of the spacecraft. A simple turnstyle antenna could be constructed to help overcome the deep fades, though it certainly is not necessary. I successfully use an 80 meter dipole antenna, fed with 300 ohm twin lead.

On Mid-Atlantic passes, much of western and northern Europe can be heard. On a recent pass I heard SSB stations in seven states and two foreign countries—Hungary and Switzerland. Tracking aids like Project Oscar's yearly satellite schedule will make finding the satellites easy because it lists all operational amateur satellites by time and location. If you want to learn to track these satellites, the Oscar Locator (from the ARRL), used in conjunction with the schedule, will tell you exactly where each satellite is at all times. Both tracking aids can be purchased for under $10. Each satellite will

Table 1: "Radio Sputnik RS-5/7/8 Telemetry" Channel #1

Code		Content	Formula
K-#	inactive	(any single letter code group indicates old data)	
EK-#	active	Transponder output power	0.2•#2 = (in milliwatts)
ED-#	active	Source voltage	#•2 = (source in volts)
EO-#	active	Source current	20•(100-#) = mA
EG-#	active	Tlm calibration	
EU-#		Unknown	
ES-#	active	Voltage regulator temp	# = temp
EW-#	active	Temp of 10 meter transmitter	# = temp
SK-#	active	Same as EK	
SD-#	active	Telemetry calibration	
SO-#	active	Beacon output in mW	0.2•#2 = mW
SG-#	active	Transponder sensitivity	# = -dB
SU-#	active	First received signal (per pass) in S" Units	= 0.1•(#-10)
SS-#	active	First received Robot signal (per pass)	same as above
SW-#	active	Second received signal in S" Units	same as above
N and R code groups are Classified Service and command data			
UK-#		Same as EK	
UD-#	active	9 volt transponder line	0.1•# = supply voltage
UO-#	active	7.5 volt transponder supply	same as above
UG-#	active	9 V 1st stabilizer supply	same as above
UU-#	active	7.5 V 1st stabilizer supply	same as above
US-#	active	9 V 2nd stabilizer supply	same as above
UW-#	active	7.5 V 2nd stabilizer supply	same as above
WK-#		Same as EK	
WD-#	active	number of QSO'S in Robots memory	number = #
WO-#	active	heater control	#•0.1 = Watts
WG-#	active	Robot input power	20•# = mW
WU-#	active	Service transponder power	same as above
WS-#	active	Robot receive sensitivity	# = dB
WN-#	active	Service transponder receive sensitivity	same as above

Table 2: AMSAT

Net Name	Day/Time (GMT)	Freq	NCS
AMSAT Espanol	Sunday 1900	14180	XE1TU
AMSAT International	Sunday 1800	14282	Several
AMSAT International	Sunday 1900	21280	Several
AMSAT European 20m	Saturday 1000	14280	PA0DLO
AMSAT UK 80m	Sunday 1000	3780	G3RWL
AMSAT Asia/Pacific	Sunday 1100	14305	JA1ANG
AMSAT South Pacific	Saturday 2200	28878	W6CG
AMSAT South Africa	Sunday 0900	14280	ZS1BI
SEASAT	Sunday 1300	7280	WB4ZXS
East Coast 75m	Wednesday 0200	3850	Several
Mid-America 75m	Wednesday 0300	3850	W0CY
West Coast 75m	Wednesday 0400	3850	W6CG
Australian AMSAT	Sunday 1000	3680	VK3ACR
New Zealand V.U.S.	Wednesday 0800	3850	ZL1BQ
VHF Nets			
New York City 2m	Wednesday 0300	144.400	K3JNZ/2 (SSB)
AMSAT Goddard	Wednesday 0200	146.835	Several[1]
Los Angeles 2m	Wednesday 0400	145.775	W6CG (SSB)[2]

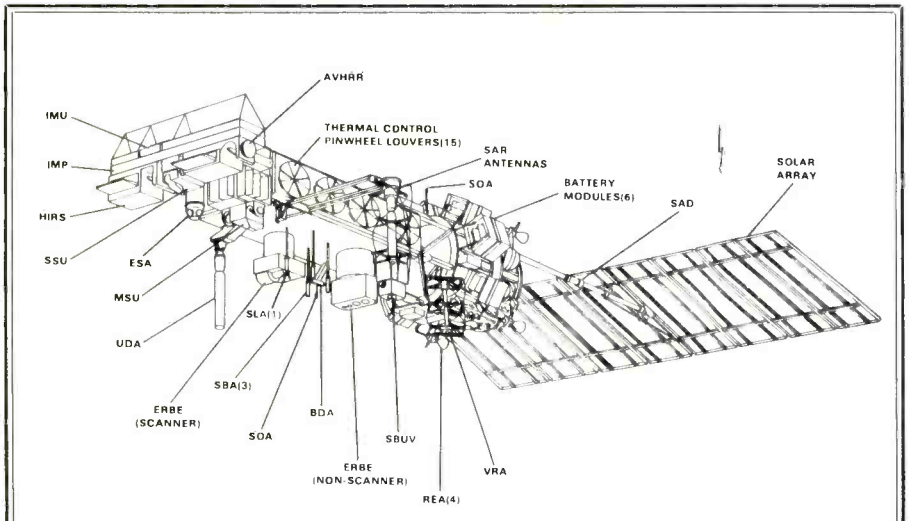
[1]This Net is simulcast on the Goddard FM repeater W3ZM of the East Coast 75m Net. Repeater I/O is 146.235/835 MHz.
[2]This Net is a simulcast of the West Coast 75m Net on SSB.

Additional Information
SATELLITE CLASSIFICATION
PHASE I–Beacons only.
PHASE II–Beacons and transponders/low orbit.
PHASE III–Beacons and transponders/high orbit.
PHASE IV–Beacons and transponders/high geostationary orbit.

be in range for approximately 20 minutes. At times the satellites will run consecutive passes, increasing your listening time considerably. If you are interested in a QSL card, as I was, copy the telemetry from one of the satellites, or make a cassette tape of the CW telemetry and send it to Moscow Radio Club, Box 88, Moscow, USSR. You need not worry with decoding the telemetry. Do not expect a quick response to your report, though; it seems that there is almost a year and a half backlog of mail in Moscow. And we complain about the U.S. Postal Service!

From this point our listening becomes a little more challenging and, as with the 10 meter satellite band, we again look to the Soviets as a major supplier of space communications in the rest of the HF spectrum. The USSR maintains several channels that are used for coded telemetry, CW beacons, and wide band FM transmissions. The beacons and telemetry come largely from scientific and military satellites, while the wide band FM is used on Soviet manned space flights and in connection with their space stations. Here are a few frequencies to monitor for activity: 15,008, 17,365,

Advanced TIROS—N



Satellite Glossary

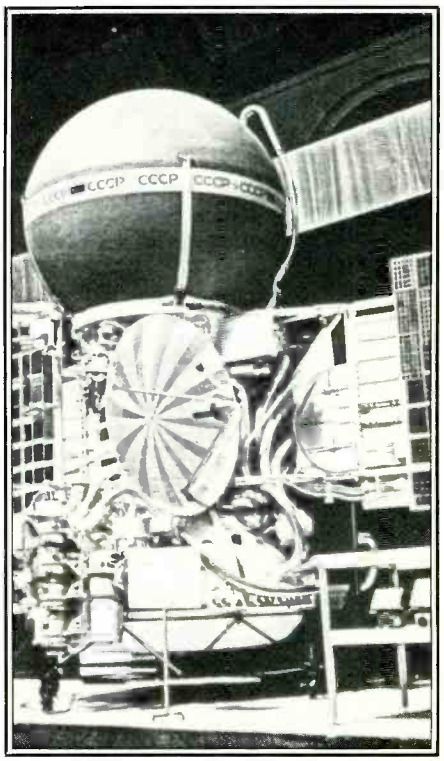
AOS–Acquisition of signal.
Apogee–The point where the satellite is closest to earth.
Ascending pass–A satellite traveling from south to north.
Descending pass–A satellite traveling from north to south.
Downlink–A radio transmission from a spacecraft.
Geostationary satellite–A satellite having a fixed position near the equator.
OSCAR–Orbital Satellite Carrying Amateur Radio.
Perigee–Point where the satellite is farthest from earth.
Reference orbit–The first orbit of the GMT day.
ROBOT–An Autotransponder/on-board computer.
Subsatellite point–The point on earth's surface directly below the satellite.
Telemetry (TLM)–Coded information from the satellite.
Transponder–An on-board transceiver that receives signals from one portion of the spectrum and rebroadcasts them in another.
Uplink–Signals sent from a ground station to a satellite.
Window–The point in a satellite's path in which two radio stations at distant points can communicate.
Turnstyle antenna–An antenna of two or more elements mounted at a right angle. A 90° phase shift is introduced to the second element through a ¼ wave balun.

Table 3: Satellite Frequency Lists

Satellite	Beacon / Robot kHz		Downlink/kHz	Uplink/MHz
RS-1	29,402			
RS-5	29,452 / 29,331		29,410–29,450	145.910–145.950
RS-7	29,501 / 29,341		29,460–29,500	145.960–146.000
RS-8	29,502		29,460–29,500	145.960–146.000
UoSAT II	145,825			
	28,001			
	21,001			
	14,001			
	7,001			
UoSAT 9	145,825			
OSCAR 10	145,812	MODE B	145.900 MHz	435 MHz
		MODE L	435 MHz	1261 MHz
		MODE J	435 MHz	145.900 MHz
		MODE S	1261 MHz	2401 MHz
JamSAT 1		MODE J	Launch date 85/86	
PACSAT 1		MODE J/plus	Launch date 86/87	

"Active NOAA Weather Satellites"

Satellite	Frequencies	Altitude/Degrees	Comments
GOES 1	468 MHz/1690/2215 MHz	22,000 miles/131° West	Geosyn-chronous
GOES 3	468 MHz/1690/2215 MHz	22,000 miles/90° West	Geosyn
Nimbus 7		595 miles/NA	Sunsyn
NOAA 6	136.76/147.77 MHz	360 miles/NA	Sunsyn
GOES 5	468 MHz/1690/2215 MHz	22,000 miles/75° West	Geosyn
NOAA 7	136.76/137.77 MHz	350 miles/NA	Sunsyn
Landsat 4		420 miles/NA	Sunsyn
NOAA 8	136.76/137.77 MHz	520 miles/NA	Sunsyn
GOES 6	468 MHz/1690/2215 MHz	22,000 miles/135° West	Geosyn



18,000, 18,060, 19,954 and 19,995 kHz. Activity is sparse and unpredictable, but it is still unique to be able to hear telemetry, data, and CW transmissions from unidentified spacecraft. You will know you have a satellite signal tuned in when you notice the deep fades and doppler shift.

Another source of space communications is the AMSAT Satellites. At present there are three AMSAT satellites in orbit. Two of these are scientific and educational in nature. UoSat 9 and UoSat 11 are joint projects of AMSAT and the University of Surry, England. Both have complex telemetry systems and camera imagery equipment on board with which a wide variety of experiments are performed. The area of interest for us, though, is the propagation studies that are being conducted. Both UoSat 9 and 11 are using HF beacons for this purpose. The beacons are just inside the amateur radio bands on 7,001, 14,001, 21,001, and 28,001 kHz. There is also a VHF beacon on a frequency of 145.825 MHz. It incorporates a very unique feature. Just before going into the telemetry mode, the satellite IDs through the use of an FM voice synthesizer. Any scanner with an outside antenna can hear this VHF beacon when it is within range.

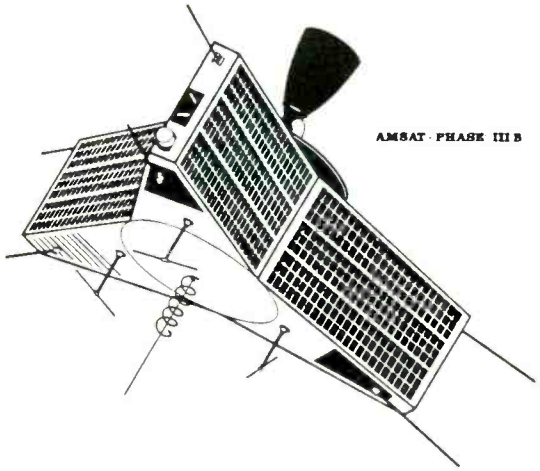
AMSAT operates a satellite information net on the 80 meter band. Weekly satellite tracking updates are provided, as well as general information on space communications. The net can be heard on 3,850 kHz at 0200 GMT, Wednesday (Tuesday night stateside). See Table 2.

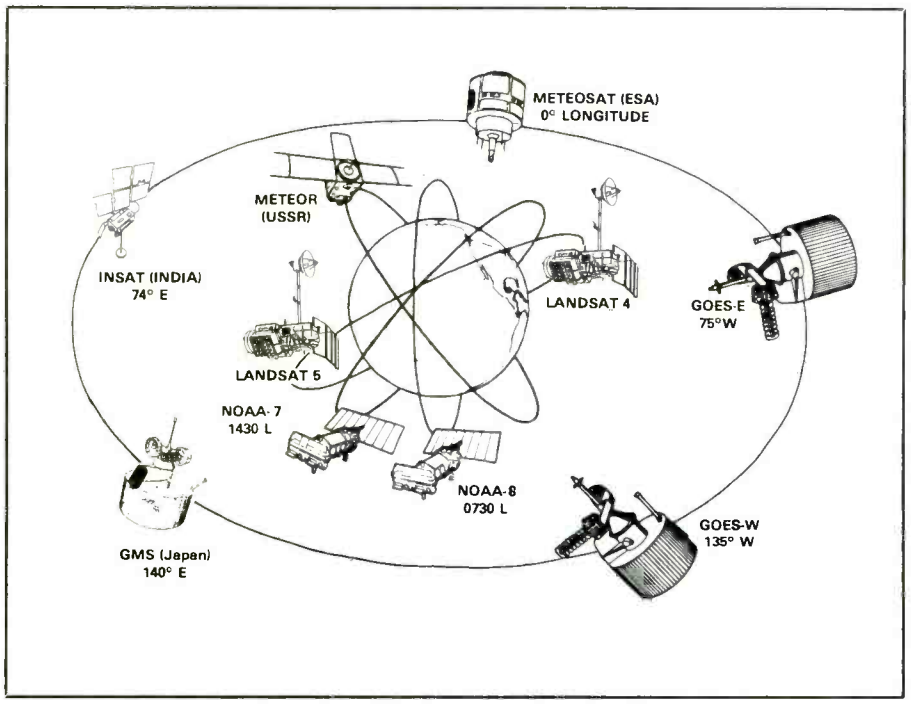
That just about rounds out our HF satel-

Diagram 1

OSCAR 12 (Phase IIIC) projected launch date July '86.
Same TRI-STAR design as OSCAR 10 (Phase IIIB).
ORBIT Apogee 24,000 miles/geostationary.
Launch vehicle—the new Arian #4 rocket from the European Space Agency.
Launch site—Kourou, French Guiana, South America.
14 to 16 hours a day continuous operation.
Transponder modes B L J S and DATA channels.
Mode B—435 MHz up link / 145.900 MHz down link.
L—1261 MHz up link / 435 MHz down link.
J—145.900 MHz up link / 435 MHz down link.
S—2401 MHz up link / 1261 MHz down link.

Japan will launch JAMSAT #1 in 85/86. It's a low orbit J mode satellite.
PACSAT—a new RTTY data satellite for Amateur radio will be launched from the space shuttle sometime in 86/87.
AMSAT has a long range plan to orbit a network of three or six satellites to provide worldwide 24 hour coverage.



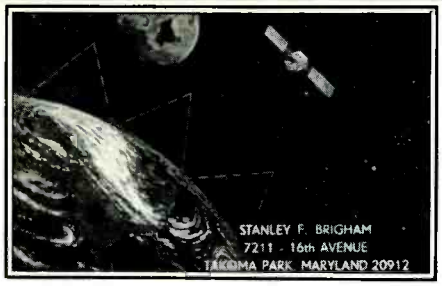


Operational Earth Observation Satellites

lite prospects. The first VHF band we come to is the International Aeronautical band, which runs from 136 to 138 MHz. This band is largely comprised of weather and other government satellites. A partial listing of satellites can be found in Table 3.

AMSAT, the Radio Amateur Satellite Corporation, also operates a VHF/UHF satellite, OSCAR 10. This Phase III satellite is the most sophisticated Amateur communications satellite launched to date. This satellite has a unique Tri-Star design and incorporates telemetry, CW, and ASCII (see Diagram 1). Oscar-10 has two general beacons, one on 145.810 MHz and another on 436.04 MHz. The CW and SSB traffic can be heard between 145.825 and 145.977 MHz, and 436.15 to 436.95 MHz.

Since 1969 AMSAT has successfully designed, financed, launched, and operated seven communications satellites. In fact, the amateur community launched its first satellite in 1961, only three years after the U.S. Government launched its first spacecraft. AMSAT is presently working on several new satellite projects. The next scheduled launch should see another Phase III communications satellite in orbit by mid-1986. This spacecraft will be launched on the European Space Agency's new Arian Four rocket from the Kourou, French Guiana launch site. AMSAT expects to launch three more satellites by 1987, one from Japan, another from France, and PACSAT will be launched from the space shuttle. Most of AMSAT's satellites are international endeavors being constructed largely by volunteers from around the world.



AMSAT can assist you in learning about the Radio Sputnik satellites and satellites in general. They provide tracking aids, charts, computer software, and books on the subject. One especially good reference is the *Satellite Experimenters Handbook*, written by Martin Davidoff, K2UBC. This book will give you a fascinating look at the history of amateur communication satellites, how to set up your ground station, antennas, weather, and TV satellites. It provides diagrams of various satellites, block diagrams of all on-board systems, orbital, launch, and telemetry details. But remember, you can start your satellite operations with the equipment you already have, knowing what you already know.

The SWL has been provided a somewhat unique opportunity to support and take part in the amateur space program. For a donation of $15 or more, AMSAT will affix your name, address, and/or callsign to the next satellite they launch. This is about as close as most of us will come to being there. AMSAT will then send you a personalized Space Program Sponsor's certificate. Membership in AMSAT is $25 a year and includes a subscription to *ORBIT*, their official magazine. AMSAT's membership includes scientists, engineers, and other professionals, amateur radio operators, and SWL's from around the world.

You will find below a list of the addresses and phone numbers of organizations that will be able to assist you and answer your questions about satellite operations. Why not drop them a line and get involved in the space program.

AMSAT
Radio Amateur Satellite Corporation
Post Office Box 27
Washington, DC 20044
Phone: 301-589-6062

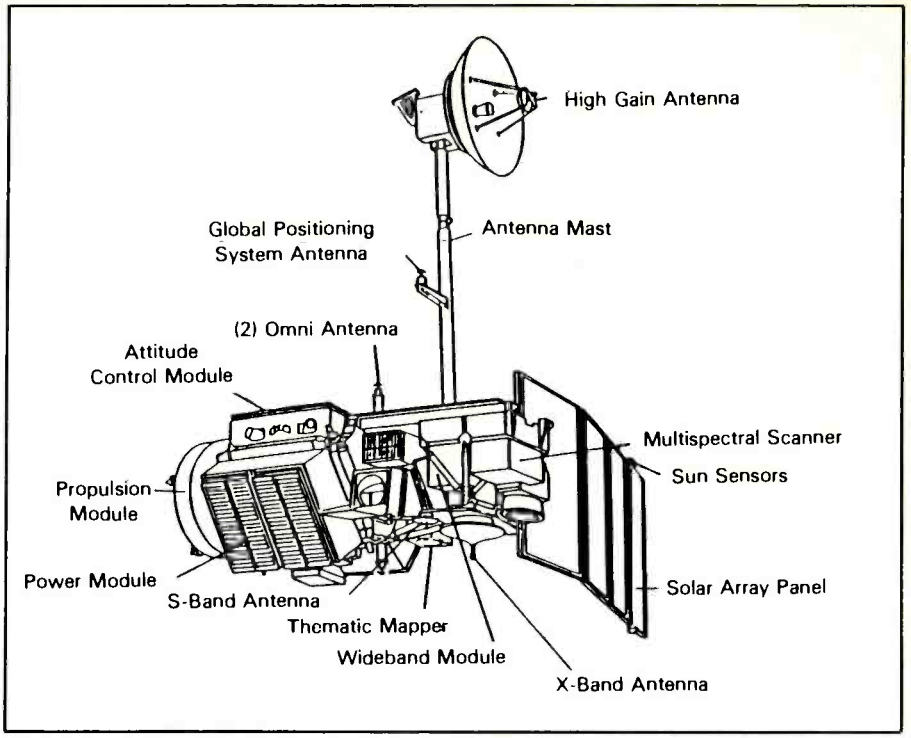
AMSAT-UK (UoSat 9 & 11 information)
Ronald J. C. Broadbent
Wanstead Park
London El2 5EQ
England

American Radio Relay League
225 Main Street
Newington, Connecticut 06111

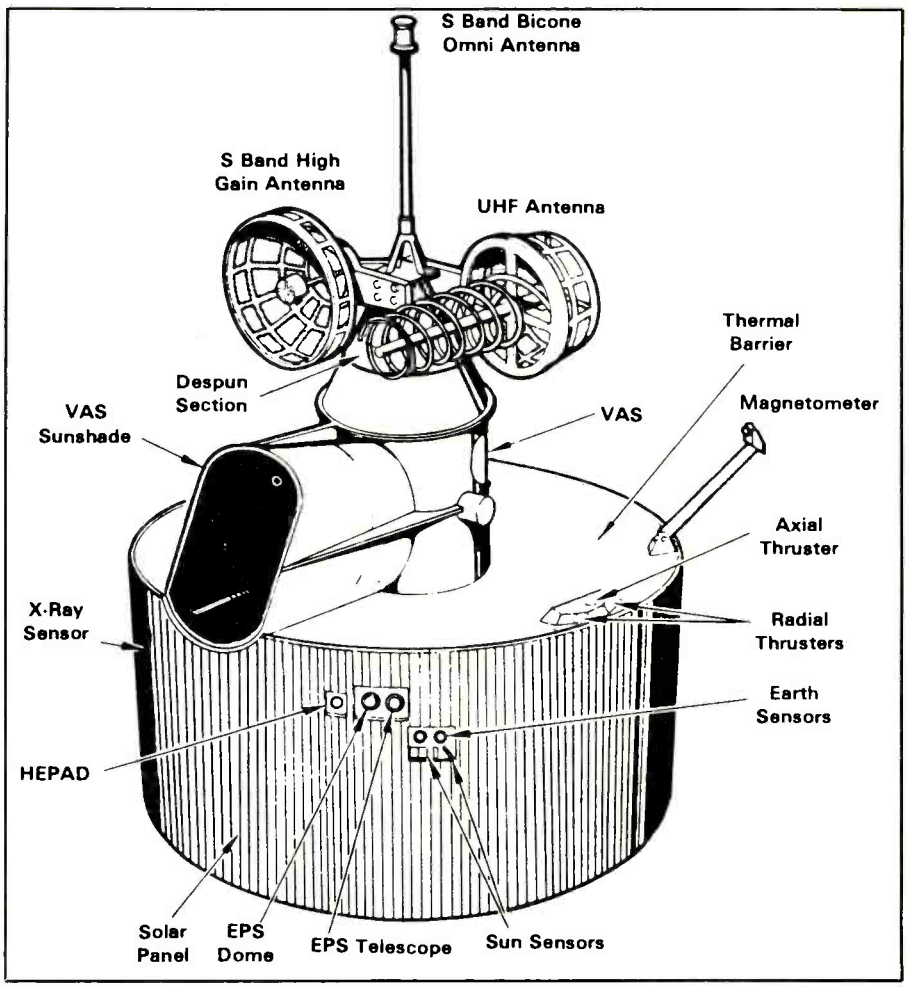
AMSAT QSL Bureau
1850 Lisle Avenue
Obetz, Ohio 43207

Project OSCAR, Inc.
Post Office Box 1136
Los Altos, California 94022

PC



Landsat-4: *The Multi-Spectral Scanner (MSS) is the operational sensor on Landsat-4. It has been the primary Earth-observing instrument on land satellites for 11 years. The Thematic Mapper (TM) is a new R&D sensor on Landsat-4.*



GOES Satellite: *The GOES 5 and 6 satellite sensor systems include: Visible-Infrared Spin-Scan Radiometer (VISSR) Atmospheric Sounder (VAS), Space Environment Monitor (SEM), and Data Collection System (DCS).*

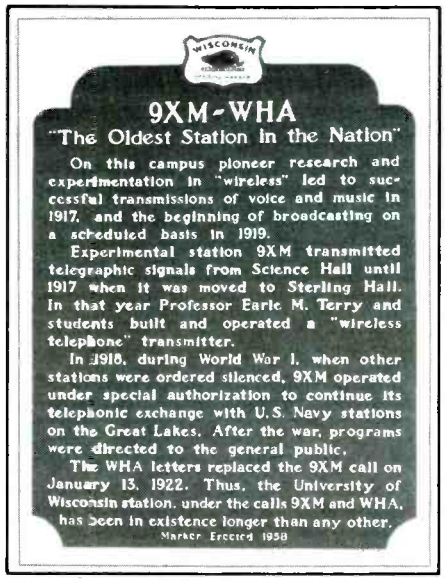
BROADCAST TOPIX

BY MARK MANUCY, W3GMG

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

AM Stereo is saved, thanks to Radio Shack! In their 1986 catalog they have an auto radio for $139.95 with FM/AM Stereo! It is a digital LCD and has all other nice features one would expect, such as a cassette deck and signal seek, and at a decent price! Thanks, guys!

Here is another broadcaster saying he will be glad to QSL *POP'COMM* readers. He says their QSL isn't fancy, but that's not the important part . . . . The station is WNBC (660) in New York. The letter was from Engineering Supervisor Gary Blau. Gary wants to point out to the readers of Broadcast Topix that a lot (actually most) of the auto radios available today, including the one I just mentioned above, will not receive stereo from WNBC, WQXR, and other stations using the Kahn system of AM Stereo. They will only receive the C-Qaum system. That brings us back to the Sony SRF-A100, which receives both systems. Gary is especially interested in long distance stereo reports, so he says keep that Sony switch in the "B" position! I'll give you a clue to WNBC after midnight (EST) . . . Wolfman Jack! To insure the QSL, write to Gary at WNBC-AM Radio, Room 293, Attn: Chief Engineer, 30 Rockefeller Plaza, New York, NY 10020. Thanks, Gary.



WHA Plaque.

Preamp For The BCB

Loop antennas work very well for getting rid of noise, unwanted signals, and cross modulation. However, sometimes there is not enough gain from the loop antenna to give a good 'S' meter reading. If the reading could be boosted just a couple of 'S' units, it would be easier to give comparison reports. If the receiver doesn't have a meter, you might find the volume control turned almost all the way up.

Table 1 shows a single transistor preamp that will boost the signal level from 3 to 5 'S' units. That translates to between 15 and about 30 dB gain. No measurements were made other than to use the R-70 'S' meter with a loop antenna. This is what is important . . . how well does it work with the loop, not how much gain does some sophisticated test gear measure.

Here is the comparison: (Column 1) Using a 2 foot loop, described earlier last year straight into the R-70 and 'S' meter readings taken. (Column 2) Using preamp with 180 ohm resistor at location *. (Column 3) Using 5 mh RF choke at location *. An 'S' unit on the R-70 is approximately 6 dB. In columns 2 and 3 the preamp input is connected across the tuning capacitor of the loop and the output of the preamp is connected to the R-70

Nothing seems to be too critical in this circuit. An extra 3 to 6 dB of gain can be realized if an RF choke is used in place of the resistor * Various voltages were tried also and these are not critical either. The 9 volt battery was used for ease of availability, but if you want to steal 9 volts from somewhere else, be my guest. The circuit draws 7.5 ma, so a 9 volt battery should last a good while if you don't leave it on overnight.

All of the parts are from Radio Shack except the 5 MH choke. They do not carry such a gizmo. The one the Shack has is 10 uH and it is not the same thing. Use the resistor if you can't find the choke coil. As you may notice, the higher in frequency, the less difference the coke makes. If you want to find one, ask at electronic supply houses near you or an amateur audio supply house.

Description

The switch, in addition to turning the preamp on and off, also switches the pickup turn in and out of the circuit. The preamp replaces the pickup turn of the loop antenna, in use, and actually if you want to use the preamp all the time you could remove the pickup turn completely.

One reason I selected battery operation was to keep noisy AC power away from the antenna. Therefore, you will probably need two other items from Radio Shack to hold the battery in place and connect to it. The battery holder is R.S. part number 270-326 and is 59 cents for two. The battery clips come in packages of 5 (group project), guys) for 99 cents and the part number is 270-325.

How is the best way to put the rest of the preamp together? PC board, small chassis? Well, after thinking for all of two minutes, I opted for the terminal lug route. Here's why: how many of my readers have experience with PC board construction? Right . . . and we really don't need a chassis. Again Radio Shack has 5 lug tie-points (4 for 89 cents), part number 274-688, and one is apt to be plenty although two will make a neat job. You can do the construction just about any way you want if you have the experience. I'm trying to plan the project so that those with limited experience can have fun building this easy project

Table 1: Gain Of The Preamp

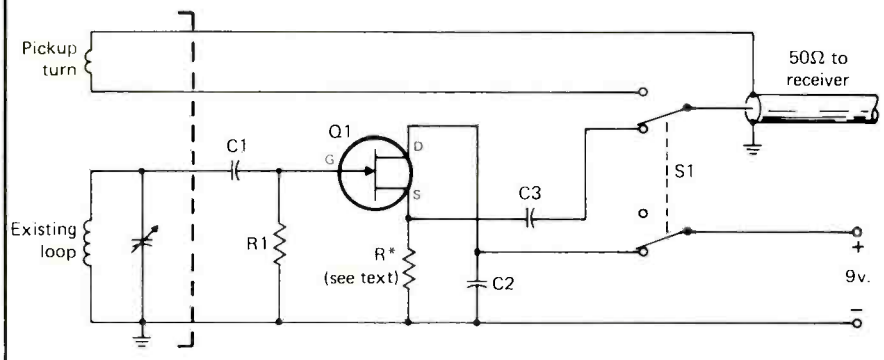
Freq.		Col 1	Col 2	Col 3	Freq.		Col 1	Col 2	Col 3
WDMV	540	−0	S1	S2	WSBA	910	S1	S6	S7
WGMS	570	S1	S4	S6	WYST	1010*	+15	+30	+32
WMAL	630	S5	S7	S81/2	WNTR	1050	S4	S8	S81/2
WNBC	660	−0	#	S51/2	WUST	1120	S2	S6	S61/2
WOR	710	−0	#	S7	WANN	1190*	S7	+10	+13
WPKX	730	S5	S8	S9	WHVR	1280	S4	S81/2	S9
WABC	770	−0	#	S6	WASA	1330	S2	S71/2	S8
WYRE	810	S3	S61/2	S8	WTOP	1500	S6	S9	+3
WCBS	880	−0	#	S51/2					

* = local signals # = not measured −0 = signal below 0 on meter.

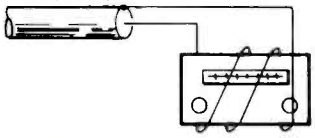
Parts List

Item	Part	R.S. #	Cost
Q1	2N3819, N Channel FET	276-2035	$ .99
C1	220 pf 50 volt capacitor	272-124	.49
C2	.1mf 50 volt capacitor	272-135	.59
C3	.01 mf 50 volt capacitor	272-131	.59
R1	150k ohm 1/2 watt resistor	271-047	.19
*	180 ohm 1/2 watt resistor	271-014	.19
S1	DPDT switch	275-666	1.29

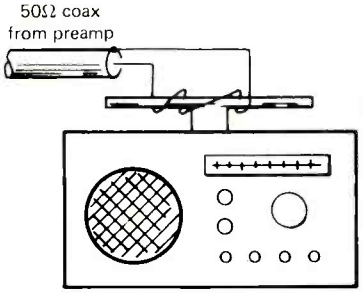
Notes: The resistors can be 1/4 or 1/8 watt. These are the standard values from Radio Shack. The switch was the cheapest one available and therefore may be substituted. The total cost for the parts is $6.21 plus the battery, which is free with the Radio Shack battery card!



NOTE:
Keep lead between coax and turns short. Experiment with number of turns and location. Turns should be closely spaced.

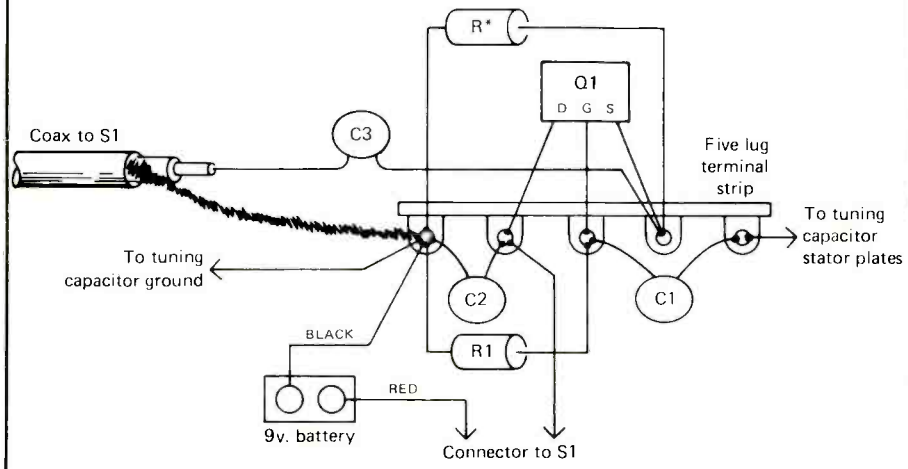


Small radio (internal loop) such as Sony SRF-A100



Radio with external loop, such as Panasonic RF-1170

Connection of preamp to radio without provision for external antennas.



Layout of preamp using S terminal tie strip.

Broadcast Band Preamp (must be used with tuned antenna).

and have something to show when they complete the job. This "do-it-yourself kit" does require soldering and I know no way around that!

Parts List

All of the parts are from Radio Shack, due to the convenience of these stores for everyone. The parts can be found at most electronic supply house as well. (See parts list.)

The most critical placement of parts that I have found is the connection to the loop itself. If your loop just tunes to 1600 kHz with the tuning capacitor wide open (plates unmeshed), then it will be important to keep the wires from the tuning capacitor to the preamp as short as possible. This is good construction practice anyway. The capacitor C1 is connected to the stator plates (nonmoving) of the loop tuning capacitor with the ground to the frame of the tuning capacitor. If the leads are excessive in length, the loop will no longer tune the high end of the band. In other words, it will not be possible to "peak" the stations above a certain frequency. Even a few inches of wire might make the difference. Keep the battery leads to a minimum as well. This doesn't mean to make them so short that you can't change the battery easily, but don't make them excessive.

A few other construction notes. This FET is not one of those that has to be totally protected from static, but as with any solid-state device, handle it with care. Use a heat sink when soldering the leads of the FET. This may be a pair of small pliers on the lead between the soldering point and the body of the FET. Continue to hold the lead until the solder joint has cooled. This is also true if making other connections to the same lugs to which the FET is attached. Put a rubber band around the end of the pliers if an extra hand is needed.

Operation

This has turned out to be a fantastic little preamp for $6. It has excellent gain and is simple to put together. It is designed to work with a receiver that has a 50 ohm connector on the back, but here's good news . . . it will work with a radio that doesn't have external antenna connections!

To couple the preamp to a receiver without antenna connections, simply take some hookup (insulated) wire and form several turns around the radio, connecting the ends of the turns to the end of a short piece of coax (50 ohm), which is connected to the preamp output. If the radio has an external loop antenna, such as the RF-1170, then just make the turns around the loop and not the entire radio. The large loop may have to be several feet away from the radio or strange noises might be experienced. An alternative to wrapping turns around the entire radio would be to make a small coil of several turns of hookup wire about an inch or two in diameter. Tape the turns to hold them in place and, with the preamp on, simply move this coil around the case of the radio (usually the back) until the signal is

WISCONSIN PUBLIC RADIO PROFILE

Call	Location	Freq.	pwr.	ant.	air date.	
WHA	Madison	970	5 *	-	1917	
WLBL	Auburndale	930	5	455'	1922	(WPAH)
WERN	Madison	88.7	33	990'	1947	
WHAD	Delafield	90.7	79	697'	1948	
WPNE	Green Bay	89.3	55	940'	1949	(WHKW)
WHRM	Wausau	90.9	77	1120'	1949	
WHWC	Menomonie	88.3	10	1050'	1950	
WHLA	La Crosse	90.3	57	1005'	1950	
WHHI	Highland	91.3	100	559'	1952	
WHSA	Brule	89.9	56	551'	1952	

*= PSSA power of 55 watts

Table 2: *The Wisconsin Public Radio Schedule.*

strongest. Then you could tape this small coil to the back of the radio to hold it in position. I've tried both and either will boost the signal the radio normally hears.

This preamp is designed to be used with a loop (tuned) antenna. It will not work with a long wire or random length wire.

If you experience any problems, don't hesitate to ask me about them. Just be sure to include an SASE for me to return an answer to you.

Mail Call

There is a new idea in TIS stations in Horicon Marsh. The station broadcasts goose migration information! This info comes from Kevin Klein, who you can listen to on WROE/WRJQ in Neenah, Wisconsin. Another TIS report this month is from Robert Homuth, who received WNAG-556 on 530 kHz some 25 miles away. He has logged Tucson Airport, a distance of some 125 miles on quiet winter nights. To prove that DX is possible during the summer, Robert has logged two Europeans on long wave—Magadan, USSR on 236 kHz and Petropavlovsk on 182 kHz—both on July 12 in the wee hours of the morning using a loop similar to the ones described in this column. Being a diversified fellow, Robert also logged (and QSLed) WTVN (TV) RPU in Columbus, Ohio. Thanks for the unusual reports, Robert.

The best DX location? Here is a vote for Hawaii from Chuck Boehnke. He hears BC stations from all over the world! Using an R-70, he says the Aussie stations cause him more trouble than those from Honolulu, which is 250 miles from him. Claims to have even heard WBAL on 1090. . . . I wonder if that was the long path, Chuck?

A letter from Colin Sanor with a list of updates on call letters and powers. Colin, the call letter changes are listed by state since most callbooks or guides list call letters in this way. The frequency and power changes are listed by frequency for the same reason. I feed the information into my Commodore 64 any old way and it sorts the stations either numerically or alphabetically, depending on the program I use. I just sit by and watch it print or go about doing something else. Depending on how many stations I have for a month, it takes about five or ten minutes to sort everything out. Sure beats doing it by hand. These programs are available for any C-64 operator. Send me an SASE for more details.

Station Updates

Call	Location	Freq	Pwr	Ant
AM				
WGTO	Cypress Gardens, FL	540	50/5	DA-2
KRVV	Vail, CO	610	N/C	N/C
KFRZ	Brigham City, UT	800	1/0	O
WBIX	Jacksonville Bch, FL	1010	10/10	DA-2
KBND	Bend, OR	1110	12.5/0	O
KIFW	Sitka, AK	1230	1/1	O
WNOG	Naples, FL	1270	2.5/.5	DA-2
KWXY	Cathedral City, CA	1340	1/1	O
KBBO	Yakima, WA	1390	5/.5	DA-2
WKNX	Huntsville, NY	1400	1/1	O
WZEP	De Funiak Spgs., FL	1460	5/0	O
FM				
WGNV	Milladore, WI	88.5	25	330′
KGSP	Parkville, MO	92.3	N/C	N/C
WQTZ	Decatur, IN	92.7	N/C	397′
KBXS	Ely, NV	92.7	N/C	941′
KIXQ	Webb City, MO	94.3	1.25	522′
KAMS	Mammoth Spgs., AR	95.1	75	97′
KHCR	Paauilo, HI	95.5	3	−187′
WLCQ	Clarksville, VA	98.3	N/C	298′
WCLS-FM	Detroit, MI	99.5	21	N/C
WQPO	Harrisonburg, VA	100.7	50	491′
WBOD	Canton, IL	100.9	3	328′
WTIJ	Waterbury, VT	103.1	N/C	367′
WMUZ	Detroit, MI	103.5	50	500′
WEZL	Charleston, SC	103.5	N/C	989′
WKKX	Jerseyville, IL	104.1	43	535′
KBRQ-FM	Denver, CO	105.1	N/C	1329′
KAAQ	Alliance, NE	105.9	N/C	705′
KIHX-FM	Prescott Valley, AZ	106.3	N/C	−219′

KEY: D = Daytime N = Nighttime DA = Directional Antenna DA1 = Same Pattern Day & Night DA2 = Different Pattern/Power Day/Night O = Omni Antenna Day and/or Night £ = Special Operation or Critical Hours N/C = No Change

Call Letter Changes

Old	New	Location
AM Stations		
new	WKWA	Mobile, AL
WACQ	WSFU	Tallassee, AL
KGHX	KRKO	Fairbanks, AK
new	KNWA	Bellefonte, AR
KDON	KLCZ	Salinas, CA
KZUN	KFIV	Modesto, CA
new	KQPL	Windsor, CA
KCMP	KKGZ	Brush, CO
WNVR	WNAQ	Naugatuck, CT
WJZX	WCKS	Cocoa, FL
WHOO	WLTO	Orlando, FL
new	WKII	Port Charlotte, FL
WBUK	WHEZ	Portage, MI
WJKK	WGUD	Pascagoula, MS
KCEZ	KXTL	Butte, MT
new	WSGH	Lewisville, NC
new	WCQR	Mint Hill, NC
WIIZ	WOPY	Jacksonville, NC
WSAI	WWNK	Cincinnati, OH
KCNN	KXXY	Oklahoma City, OK
KQDQ	KZAM	Springfield, OR
KRVC	KBOY	Medford, OR
WAJE	WEBG	Ebensburg, PA
WNOW	WOBG	York, PA
WFLN	WDVT	Philadelphia, PA
new	WJJF	Hope Valley, RI
WKLL	WJFX	Aikens, SC
WSSL	WGSL	Greenville, SC
WYLQ	WBBX	Kingston, TN
new	KUBR	San Juan, TX
WBDY	WCBV	Bluefield, VA
new	WAMN	Green Valley, WV
WVMS	WRJQ	Appletin, WI
FM Stations		
WDAL	WCCJ	Chatom, AL
WSCA	WSFU-FM	Union Springs, AL
KRKR	KRKO-FM	Fairbanks, AK
KBUL	KKDD	Brush, CO
KTUS	KSNO-FM	Snowmass Village, CO
new	WPCI	Perry, FL
WMGG	WNLT	Clearwater, FL
new	WIML	Wrightville, GA
WPQO	WXGA-FM	Waycross, GA
WJBM-FM	WKKX	Jerseyville, IL
KRUE	KQNS-FM	Lindborg, KS
new	WKEM	Bowling Green, KY
WKJJ-FM	WDJX	Louisville, KY
new	WXYB	Cadillac, MI
KCMT-FM	KIKV-FM	Alexandria, MN
WGUD	WGUD-FM	Moss Point, MS
KQDI-FM	KOOZ-FM	Great Falls, MT
KILA	KYYX	Henderson, NV
KYYD	KILA	Las Vegas, NV
KIVA	KSKS	Sante Fe, NM
new	WDGE	Saranac Lake, NY
new	WGCC-FM	Batavia, NY
WKXF	WWNK-FM	Cincinnati, OH
KELI-FM	KQZZ	Broken Arrow, OK
KZAM	KZAM-FM	Creswell, OR
KJIB	KWJJ-FM	Portland, OR
WLVW	WMXQ	Moncks Corner, SC
new	KAOR	Vermillion, SD
KZXL-FM	KIKM-FM	Sherman, TX
new	KPJN	Gonzales, TX
KOBR	KBRA	Freer, TX
KJIM	KLTY	Arlington, TX
new	WKMM	Kingwood, WV
WLID	WSAN	Vieques, PR

Shack of John Mayson.

Terry O'Laughlin, engineer for Wisconsin Public Radio, included a photo of the plaque that adorns the front of the building where he works. He started his DXing in the late 60's with a Philco he bought at a garage sale for $1.50 (less cabinet). Being a lover of the older gear also, he still harbors a R-390A, SP-600JX, and two R-105A's. Elsewhere, there is a profile of the Wisconsin Public Radio Network, which Terry helps run. Log them all and send a report! The address is 821 University Avenue, Madison, WI 53706.

There has been a tremendous request for the loop antenna plans I have, much more than I thought. They will continue to be available as long as I get requests. Here is a rundown on what is available:

- Plan set 1) Four foot box loop and an 18 inch circular loop both made with TV cable coax, RG-59. $5.50
- Plan set 2) Two foot square shielded loop with metal frame and a ferrite rod loop, including the preamp above. $7.50
- Plan set 3) More detailed instructions on the preamp described in the column. $2.50
- Plan set 4) For R-70/71 owners. How to improve BC band sensitivity, R-70 also, make a switchable AM filter (wide/narrow). My version uses front panel switching without eliminating any functions (such as FM). $2.50

Due to the response, I have been running four to six weeks on delivery. I'm sorry it takes so long, and maybe the time will be less by the printing of this issue. There are only so many hours a week for each job!

Thanks again for the many comments on the column. I welcome suggestions and pictures of stations and your shacks. The address for all correspondence is: P.O. Box 5624, Baltimore, MD 21210. That's about -30- 'til next month. PC

MISSING

NAME: Stewart Wade Beam DOB: 2/28/78 Age: 7
EYES: Blue HAIR: Blonde DATE MISSING: 11/25/81
FROM: Gallatin, IL. CHILD FIND #2371P

NAME: Daniel Metzger DOB: 10/6/80 Age: 5 EYES: Brown HAIR: Brown DATE MISSING: 6/14/84
FROM: Latham, IL. CHILD FIND #2354P

If you can assist in identifying a child or if you are one of these missing children, call Child Find Inc.,
TOLL FREE HOTLINE (800)-I-AM-LOST
(914-255-1848 collect in NY). Please refer to the Child Find # when calling.

CIRCLE 37 ON READER SERVICE CARD

Please send all reader inquiries directly.

BOOKS YOU'LL LIKE!

BY R. L. SLATTERY

Careers In Secret Operations

Ever wonder what it might be like to be an "insider" in Uncle Sam's "Intelligence Community"? A 25-year veteran CIA agent, David Atlee Phillips, has written a new book entitled, *Careers In Secret Operations: How To Be A Federal Intelligence Officer.* In his book, Atlee tells how to find employment with the CIA, FBI, DEA, NSA, DIA, State Department Intelligence, Secret Service, Office of Protective Intelligence, Customs Service, Treasury, the Bureau of Alcohol, Tobacco and Firearms, and services involved in secret operations.

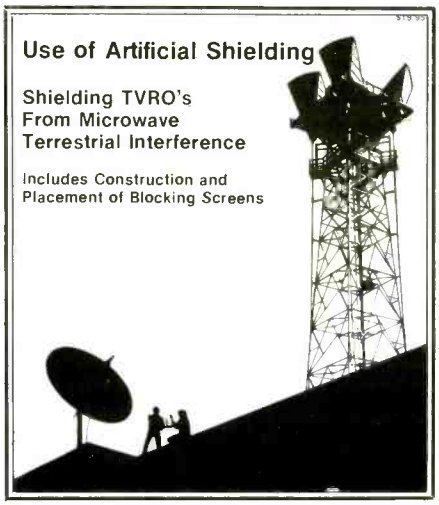
Phillips gives full job (and pay) descriptions as well as application addresses and "tips." He explains how these agencies perform security screenings on applicants, the use of polygraphs (lie detectors), best time to apply for intelligence work with the government, the dangers and hazards of the trade, opportunities for those without a college degree, agents' ethics (do you have to kill anybody?), agents' jargon (do you know what the "Pickle Factory" is?), and lots more!

He tells about the "two" CIA's, the one known to the public and the "secret" or Clandestine Service virtually unknown outside the cult of intelligence. Special skills could bring a starting salary of as much as $33,000! You'll find out what the Clandestine Service does and why they're always looking for just the right operatives.

This new book tells you everything you need to know in order to tap into an exciting and rewarding career in the Intelligence Community. Former CIA Director Richard Helms says this is a "must" book. Maybe your interest/experience in the field of communications or international broadcast monitoring—even Ham radio—can be channeled into a well paying career in the service of your country. Here's a good way to find out!

On the other hand, perhaps you're quite content with your present career and don't hanker to become an espionage agent for the government. The author's descriptions of the jobs and internal practices of these agencies will still give you some revealing insights that probably never occurred to you—and will absolutely amaze you! Personally, I felt that he might have revealed a little *too* much!

Careers In Secret Operations is available at $10.95 per copy, plus $1 postage/handling to addresses in the USA/Canada/APO/FPO. Order your copy from CRB Research, P.O. Box 56, Commack, NY 11725.



Protecting TVRO's With Shielding

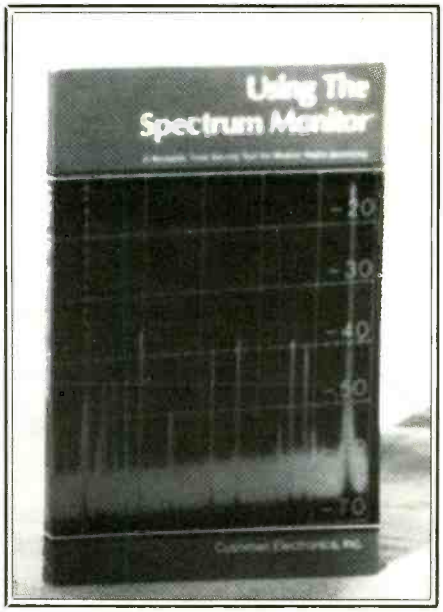
The benefits of using artificial shielding to protect TVRO antennas from terrestrial interference are discussed in a newly published book from Microwave Filter Company, Inc.

Use of Artificial Shielding, emphasizes the importance of proper site selection when installing a TVRO antenna. It describes how microwave transmissions may hamper satellite signals and how existing property features, constructing screening, or a combination of both can prevent interference.

The book was first published as Chapter 11 of ASTI, a handbook on the *Avoidance and Suppression of Terrestrial Interference.* Since demand increased for a low cost handbook on shielding techniques, the new edition was published.

It describes absorptive and reflective properties of materials and where the antenna should be placed in proximity to them. How to select materials to build a screen are also covered.

The price is $19.95 and delivery is five days. Each book contains a $10 coupon that can be used toward the purchase of any MFC TVRO filter. For more information, contact Microwave Filter Company, Inc., 6743 Kinne Street, East Syracuse, NY 13057.



Spectrum Monitor Book

The computer industry could learn something from the long-term popularity of a spectrum monitor, the CE-15, produced by Cushman Electronics, Inc. Cushman has sold thousands of this mobile radio test instrument, and sales are still steady almost ten years later. "The success of this product is due primarily to its ease of use," says Ed Kamholz, marketing director for Cushman. "From the beginning of the product's development to its documentation, simplicity of operation was the goal."

In the computer industry, a popular computer product will often spawn a number of books about how to use it, but these

books are usually written by someone not associated with the company that produced the product. The documentation companies provide is often the worst part of the product. Some documentation is so poorly written that it makes the product unusable.

Before the phrase "user friendly" was invented, Cushman was determined to make the CE-15 a paragon of simplicity, while building in as much power as possible.

After concentrating on the simplicity of operation in the instrument itself, Cushman turned its attention to the documentation. The book *Using the Spectrum Monitor* is the result.

The book, which has over 100 pages, is generously illustrated with oscilloscope screen photos that help the technician understand how the monitor reacts in various testing situations. It is also full of friendly stories and advice pertaining to spectrum monitoring testing. Specific test set-ups, observations about the testing process, and sections on "Chasing Interference" and "Receiver Techniques" are all written in a conversational, technician-to-technician style.

"This product has become a standard for technicians new to the industry," says Kamholz. "But it is also quite popular with the more advanced technicians who appreciate its simplicity."

This book is offered at $5.25 from Cushman Electronics, Inc., 1525 Atteberry Lane, San Jose, CA 95131. PC

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CIRCLE 76 ON READER SERVICE CARD

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SCANNER SCENE

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

BY CHUCK GYSI, N2DUP

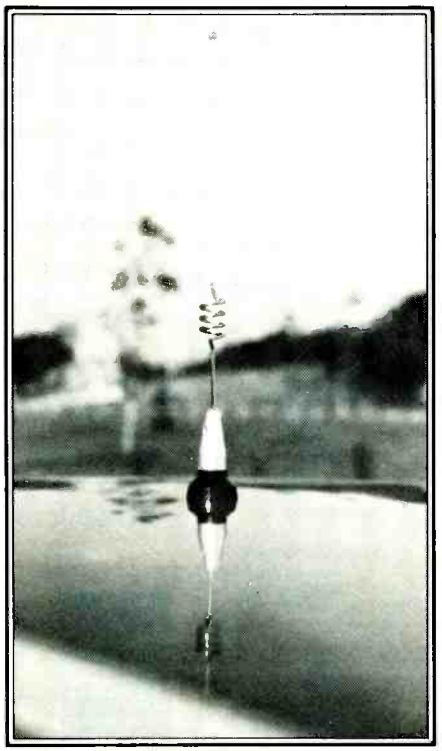
To clear out the mailbox, I thought I'd present a potpourri of information this month:

Dan Burns of Warminster, Pennsylvania, writes in to say he's been monitoring a federal agency in the Philadelphia area on 165.4625 MHz and was wondering what he is listening to. He says that units ID such as "Papa 10–36" and call a base station called "Sector 1." He notes checks are run on vehicle license plates as well as airplanes and boats. Who is it? The U.S. Customs Service. In the Philadelphia area, they're probably the busiest federal agency on the air around the clock. In fact, I even had a crystal cut for this frequency at one time because there was always something to listen to on that channel, no matter what time of day or night it was. The Customs Service checks goods coming into the United States from planes and boats, so their units are at work 24 hours a day.

In fact, in Philadelphia, if you go down to the ports and terminals along Delaware Avenue, you'll see marked Customs patrol vehicles, which operate on the 165.4625 repeater. Some other frequencies to check out for Customs Service activity elsewhere in the nation include 165.2375 and 165.3375. According to my notes, 165.2375 is used in New York City, Boston, New Haven (Connecticut), and Baltimore. The input frequency to the Philadelphia repeater is 166.5875; 166.4375 is the input for the New York City repeater.

In addition, Customs units can pop up on 166.4625, which is called the "Treasury common" channel because it is a common frequency to be used by Treasury Department agencies. Each agency may call the channel something different, but it's good for interagency work within the Treasury Department. For instance, the Bureau of Alcohol, Tobacco, and Firearms (ATF) calls 166.4625 "Channel 4," whereas the Secret Service refers to it as "X-ray" in keeping with the White House Communications Agency's alpha system of channel designation. Federal station monitoring is an "art" unto itself!

A new radio channel has been added by the international emergency satellite rescue system (known as SARSAT for search and rescue satellite). The new frequency, 406.000 MHz, will allow the system to expand to the Southern Hemisphere. The system, on 243.000 MHz in the Northern Hemisphere, has already rescued more than 400 sailors and aviators in the three years it has been in operation. SARSAT tracks signals transmitted from emergency beacons and can relay the location of the signal back to a ground station. It has the capability of pinpointing the beacon within one to three miles. The system on 406.000 MHz proved beneficial a year ago on New Year's Eve when Belgian race car driver Serge Goriely had a mishap in a remote area of Somalia in Africa. He switched on the beacon transmitter and rescuers airlifted him to safety. SARSAT is operated by the United States, the Soviet Union, Canada, and France and uses three Soviet and two U.S. satellites equipped with instruments from the other two cooperating countries. The four nations also operate ground stations, in addition to the United Kingdom and Norway. Other countries participating in the system include Bulgaria, Brazil, Denmark, Finland, and Sweden.



This Antenna Specialists 800 MHz rooftop mobile antenna is designed to be used for conventional and trunked systems in the 806–866 MHz range. The antenna has 3 dB gain.

Amateur radio operators now have privileges to use the 902–928 MHz band and those with the new-wave scanners that cover this band can tune in. Don't expect to hear too much activity on the band this soon, but here is the band plan adopted by the American Radio Relay League:

902–904	Narrow-bandwidth, weak signal communications
902.0–902.8	Slow scan TV, facsimile, amplitude compandored sideband, experimental
902.8–903.0	Earth-moon-earth, CW expansion (future)
903.0–903.05	Earth-moon-earth exclusive
903.07–903.08	CW (Morse code) beacons
903.1	CW, sideband calling frequency
903.4–903.6	Crossband linear translator inputs
903.6–903.8	Crossband linear translator outputs
903.8–904.0	Experimental beacons exclusive
904–906	Digital communications
906–907	Narrow bandwidth FM simplex services
906.500	National simplex frequency
907–910	FM repeater inputs (paired with 919-922)
910–916	Amateur television
916–918	Digital communications
918–919	Narrow bandwidth, FM control links and remote bases
919–922	FM repeater outputs (paired with 907-910)
922–928	Wide bandwidth experimental, simplex amateur television, spread spectrum

Amateur radio operators in Wyoming and Colorado will not be able to use the new band. Here are some other services you might stumble across in the 902–928 MHz band:

890–942	Military radiolocation
902–912	Automatic vehicle monitoring systems
902–928	Industrial, scientific, and medical; government fixed and mobile and low-power radio control operations; automatic vehicle monitoring systems
915	Microwave ovens (a hot DX item!)
918–928	Automatic vehicle monitoring systems

Are you a mobile phone listener? There actually is a directory available to help you find local mobile phone channels. Telocator Network of America, a nationwide association of radio common carriers (non-telephone company phone service

providers), publishes a directory of mobile phone channels oriented primarily toward the user of mobile phones. The directory provides operating area, frequencies, and information necessary for mobile phone user to access a certain system. It also offers state maps showing coverage areas, and shows paging channels used by RCCs. The 1985 directory doesn't seem as accurate as the previous 1982 edition, but it's must having for phone call monitors. This handy book is available for $10 plus 80 cents postage from: Telocator Network of America, 2000 M Street, N.W., Suite 230, Washington, DC 20036. Ask for the *Nationwide Service Directory*. American Telephone and Telegraph Co. used to publish a directory of telephone company mobile telephone channels, but since divestiture, who knows what they're doing. If anyone knows whether such a directory is still available, let us know here at *POP'COMM*.

One of the nation's first 800 MHz statewide radio systems is expected to go on the air. The Board of Directors of NJ Transit has awarded a $27.4 million contract to Motorola Communications and Electronics to install a statewide radio system in New Jersey for the agency's fleet of buses and vehicles. The system, when completed by 1987, will allow NJ Transit to keep in contact with 2,200 of its own buses and vehicles across the state, as well as 600 other buses operated by 22 private carriers. In addition to New Jersey, buses also will have coverage into New York City and Philadelphia. The system's communications center will be located in Maplewood, New Jersey, while a secondary comm center will be set up in Camden for buses in South Jersey.

The contract calls for Motorola to provide NJ Transit with 2,770 mobile radios, 150 portable radios, computer equipment, a paging system, repeaters and links, the control center, and repairs. The system is expected to aid in the reporting of accidents, crimes, and traffic delays. Here are some frequencies already licensed to NJ Transit you can expect the system to be operating on: 852.4625, 854.1625, 854.2875, 854.4875, 856.2375, 856.3875, 856.4125, 856.4875, 857.2375, 857.3875, 857.4125, 857.4875, 858.2375, 858.3875, 858.4125, 858.4875, 859.2375, 859.3875, 859.4125, 859.4875, 860.2375, 860.3875, 860.4125, 860.4875. Essentially, it looks like it will be a 20-channel trunked system with administrative channels. Other agencies in New Jersey are also expected to switch over to the 800 MHz band. The state police on the Garden State Parkway already have a systemwide 800 MHz system. The State Corrections Department has been issued statewide licenses for 800 MHz and state police have been allocated money in their budget for implementing a statewide 800 MHz system that could possibly replace the current 44 MHz low-band system.

We'd like to hear from you here a *POP'COMM*'s Scanner Scene. What are your favorite frequencies? What is the most unusual use of a scanner you've heard of? What's the most unusual frequency you've ever stumbled across? Write and tell us. We also desperately need some photographs from you, our readers. Send us that shot of your shack or antenna farm. How about a shot of the police radio tower or of the radio installation in a fire truck? Our address: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909 PC

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Some months ago in a *POP'COMM* article, we made reference to a coming expansion in the facilities of United Nations Radio. More details are now on hand. The fall International Telecommunications Union frequency registrations show a major increase planned for UN broadcasts, which is summarized in the publication *Australian DX News*.

At first glance the UN appears to be putting 250 kilowatt transmitters on the air from Ethiopia, Iraq, Chile, and Thailand. Our suspicion is that the UN will merely be making use of existing or planned shortwave facilities owned by those respective governments.

The fall '85 allocations show the Ethiopian facility scheduled for UN broadcast from 0230–0300 on 11.710, 0300–0400 on 15.335, 0400–0430 on 17.855, 0500–0530 on 21.465, 0530–0700 on 15.335, 1500–1530 on 21.480, 1530–1800 on 17.855, and 1800–1830 on 17.755.

From Iraq: 1530–1600 on 11.860, 1600–1700 on 7.285, 1700–1900 on 6.115, 1900–2130 on 11.860, 0300–0430 on 7.180, 0430–0530 on 11.860, and 0530–0700 on 17.770.

The Chilean outlet is scheduled for 0100–0200 on 15.115, 0230–0400 on 17.715, 1000–1100 on 9.695, 1100–1200 on 11.745, 1200–1400 on 15.290, 2200–2230 on 15.115, and 2330–0100 on 15.290.

From Thailand at 0000–0100 on 17.735, 0100–0200 on 17.845, 0830–0930 on 17.810, 0930–1100 on 15.145, 1100–1200 on 21.460, 1200–1300 on 11.770, 1300–1330 on 7.145, 1330–1400 on 11.770, 1400–1430 on 15.430, 1430–1700 on 11.770, 2000–2100 on 6.105, 2100–2200 on 7.115, 2200–2230 on 7.145, 2230–2300 on 9.695, and 2300–0200 on 6.105.

Registrations such as these are often made well before the facilities are actually ready to go on the air, so there's a good chance these will not be active for the particular schedules above. But you can use the schedules here as a guide to the timing segments and frequency possibilities.

If you use a computer in connection with your radio monitoring, then the European DX Council and Radio Netherlands would like to hear from you. They want to get an idea of what radio-related software is currently in use and will then make this information available to hobbyists and manufacturers.

Master Control at UN Radio in New York. UN Radio facilities are due for a major expansion at four sites around the world. (United Nations Photo)

They'd like to have the following information from you: the make of your receiver and your computer, how long you've been listening, and how long you've had a computer. Tell them what shortwave-related uses you make of the computer (i.e. as a data base or for writing reception reports, etc.) and whether you bought the computer primarily for use with your shortwave hobby. If you don't already do so, would you consider the purchase of an interface/software for direct computer control of the receiver and why, and, whether your computer causes interference problems with the radio and, if you overcame the problem, how you did so. Also, send your name, address, and age group. Send information to Paul Ellis, EDXC Computer Survey, P.O. Box 348, 1270 AH Huizen, The Netherlands.

Those pesky unidentified stations we all wrestle with from time to time! Well, now we have a new tool to call on when we run into them. The long awaited *Radio Database International* has at last made its appearance and the wait was worth it. The book displays each frequency in a graphic format, showing country, station, location, time, language, power, and other data. The International Broadcasting Edition covers frequencies from 5.730 to 26.100 and is priced at $9.95 plus $1.85 postage (in the U.S.). The Tropical Bands Edition covers 3.200 to 5.730, is priced at $4.95 plus 85 cents shipping within the U.S. The books should be available from most shortwave booksellers or can be ordered direct from Radio Database International, P.O. Box 300, Penns Park, PA 18943.

Radio Lebanon probably doesn't look like its picture on this QSL card now. Thanks to Harold Ort, Jr.

On the club scene there's a new one in the Pacific Northwest, focusing on what can be heard in that area. The club's newsletter will cover both shortwave broadcast and utility stations. For more information send a self-addressed, stamped envelope to Gary Stone, E. 603 Empire, Spokane, WA 99207.

In The Mailbag

This month's mail brings a request from Jack Linonis of West Middlesex, Pennsylvania for some station addresses. Okay, Jack. UAE Radio's is P.O. Box 1695, Dubai, United Arab Emirates. RAE can be written to at Casilla Correo 555, 1000 Buenos Aires, Argentina, and Kol Israel's is P.O. Box 6367, Jerusalem. Those of you

Here's the multi receiver shack of John Sgrulletta in Mahopac, New York—and, John himself.

SWL cards don't have to be dull. Here's the creative effort of Anthony L. Wermuth of South Deerfield, Massachusetts.

who don't have a source for addresses should consider our *World Broadcast Station Address Book*, $8.95 from Gilfer Associates, P.O. Box 239, Park Ridge, NJ 07656. It's a lot easier than hoping for an address to be announced on the air. Jack also wonders when the next sunspot cycle is due. No one knows the answer to that one for sure. Indeed, we won't know for certain til we're already in it! Probably sometime in 1986, though.

Larry Fravel is interested in getting an informal listener's group going in the north central West Virginia area. If you live around there, contact Larry at 645 South 7th Street, Clarksburg, WV 26301.

Richard Jeo in Tacoma, Washington has an unidentified station on 7.170 that he's hearing in French between 0700 and 0900. Very likely it's Radio Noumea in New Caledonia, Richard. He is also puzzled over the blank QSL card he received from Radio Canada International and wonders how to get his reception verified. Just fill the card out yourself, with the details of your reception, and send it back to RCI. It'll then be authenticated and returned to you.

Professional musician Mark Carlsen of Brookline, Massachusetts says he's rejoining the SWL ranks after a ten year absence and is using a Realistic DX-150. He notes that, with the ocean practically next door, reception is great.

Nice to hear from Stanley Mayo again. Stan is relocated in Yarmouth, Maine and now getting back to the dials. Stan picked up a Drake DSR-1 and is very pleased with it. We look forward to having your loggings.

John Sgrulletta sits in Mahopac, New York, perched on top of a countries heard/verified total that's well past the 200 mark notes that he recently added a Japan Radio Company NRD 515 to the shack. John's been active since 1958 and, like many of us who've been around that long, has made the trek through a number of receivers. The QSL copies you sent were damaged in the mail, John, so we can't use them. A couple of fine catches they were, too.

David Twiggs has moved to Alaska, courtesy of the U.S. Army, and reports "non-stop" Asian and Pacific DX from that location. David is using an ICOM R-70 and works as a multi-channel communications equipment operator. He's anxious to contact Anchorage area DX'ers; you can reach him at 418 H 6th St., Ft. Richardson, Alaska 99505.

Kenneth Smith in Ozark, Arkansas has run into an unidentified on 7.125 using Arabic around 0400. Our guess would be Radio Cairo, Ken.

"How do you get a QSL card from the BBC with a transmitter site on it?" asks Douglas J. Moses of Amherst, New York. Generally, you don't! The BBC is famous for its no data cards that don't tell you anything. About the only route to a more specific QSL is to chance across something unusual in a BBC transmission, technically that is—jamming, transmitter problems, and the like that BBC engineers weren't aware of. You may, then, get a verification letter with mention of the site.

After 20 years away, Robert E. Wallace is back in the SWLing fold, listening in between studies at the University of New Mexico in Albuquerque. Robert is majoring in geography and his Realistic DX-400.

George L. Green of Warner Robins, Georgia says he's been searching for KVOH, the new religious shortwave broadcaster destined to go on the air from Rancho Simi in California. They're not on as of this writing, George, and we haven't had any fresh news on a target date either. It could still be some ways away.

Good to hear from all of you and we'll be looking for another fine crop of letters next month. Your comments, questions, shack photos, good copies of your better QSLs, press clippings, and so on are always welcome. So, of course, are loggings! Please include your last name and state abbreviation after each logging, list by country, and provide some space for the scissors between each item.

Listening Reports

Here's what's on. All times are GMT:

Alaska KNLS, 11.780 at 0445 in European Service in Russian. On 11.960 at 0500 with English to Europe sign on. (Griffith, CO) 11.850 at 0845, religious program. (Twiggs, AK)

Albania Radio Tirana in English on 6.200 at 0330 with news. (Stoddard, TX)

Algeria Radio Algiers on 17.745 with home service in French, pop music at 1535. (McDonough, PA) 2015 with English and pop music. (Carlsen, MA)

Antigua Deutsche Welle Relay 9.735 in Portuguese, with ID in English at 1040. (Fravel, WV) English to North America on 6.040 at 0120. (Stoddard, TX) To 0150 sign off. (Lyster, BC) 9.545 at 0113 in English. (Lyster, BC)

BBC Relay 11.775 at 1309 with English to North America and Central America. (Pastrick, PA)

Argentina RAE on 15.345 at 1300 strong, in English. (Linonis, PA) 1230 in English. (Hunt, NC) 2100 English to Africa. (Carlsen, MA) 1205 English. (Pastrick, PA)

Armenian SSR Radio Yerevan (via Radio Moscow Transmitters, Editor) English news 0756–0800 on 9.905 upper side-band and 9.810 AM. Into Russian 0800. (Twiggs, AK)

Ascension Island BBC Relay on 15.400 in English to Africa at 1103. (Pastrick, PA)

Australia Radio Australia at 0425 on 15.160, 15.240, 15.320, 15.395 in English. (Sgrulletta, NY) 9.580 at 1524, 15.320 at 2331, 15.395 at 2334 and 0202. (Lyster, BC) 9.580 at 1250. (Pastrick, PA) 1445, parallel with 5.995 at 1445. (Wallace, NM) 5.995 at 1058. (Fravel, WV) 17.825 at 0420.(Mackenzie, CA)

VNG Time station, 12.000 with pips. Russian QRM. (Twiggs, AK)

Austria ORF with English on 5.945 at 0340. (Stoddard, TX) 15.320 at 1246 with English to North America. (Pastrick, PA)

Belgium BRT at 1300 in English to North America on 15.590. (Pastrick, PA)

Benin ORT Contonou on 4.870 in language at 2310. (Green, GA)

Bolivia Radio Illimani, 6.025 in Spanish at 0326, Andean flutes, "Aqui Bolivia, Radio Illimani." (Ross, ONT)

Botswana Radio Botswana on 7.255 at 0350 with barnyard IS, ID and African hymn. Better than parallel 4.820. (Carlsen, MA)

Brazil Radiobras, English on 11.745 at 0215, ending English at 2329 on 15.250. (Lyster, BC) English 0200–0300 to North America on 11.745. (Hicks, TN) Very strong at 0200. (Linonis, PA)

Radio Nacional Amazonia 11.780 from 2200–2300, Brazillian pops, Portuguese. (Linonis, PA) 6.065 at 0815 in Portuguese. (Ross, ONT)

Radio Anhanguera, 4.915 at 0750 in Portuguese, ID by man. (Ross, ONT)

Radiodifusora Amazonas, Manaus, 4.805 at 0152 with announcements in Portuguese, Latin music, echo effects. Fair. (Paszkiewicz, WI) 2332–0002 with music. (Fravel, WV)

Radio Brazil Central, 4.985 at 0615 in Portuguese, Latin pops, ID. (Ross, ONT)

Radiodifusora Maranhao, 4.755 at 0452 in Portuguese, music program to sign off at 0500. (Fravel, WV)

Radio Nacional Tabatinga, 4.815 mostly

talk 0637 to 0649 fade out. (Fravel, WV)

Bulgaria Radio Sofia, English at 0300 on 11.870. News and commentary. (Linois, PA) 2340 on 11.720 with English to North America. (Pastrick, PA)

Cameroon Radio Nacional, Yaounde on 4.850 at 2310 in French with ID, regional music. (Green, GA)

Radio Garoua, 5.010 at 2313 in Foulfoulde with music, talk and off at 2315. (Green, GA) You recognize Foulfoulde? (Editor)

Canada Radio Canada International with English to Europe at 1915 on 11.945. (Stoddard, TX) 9.510 to North America at 1307. (Pastrick, PA) 9.755 at 2343, 11.940 at 0124, 11.960 at 2238. (Lyster, BC)

CBC Northern Quebec Service, 11.720 in English at 2225. (Lyster, BC)

China Radio Beijing 15.435 at 0000 with English to North America. Flutter and QRM from WYFR. (Carlsen, MA) WYFR QRM's just about everybody. (Editor) 1430 in English on 11.600, parallel 9.730 and 9.550. (Wallace, NM) 11.860 at 1109 with English to North America. (Pastrick, PA) Spanish to South America at 2300 on 15.145. (Linonis, PA)

Nei Menggu PBS on 6.974 at (Hour? Editor), not parallel to 6.725. (Twiggs, AK)

Fujian Front (PLA) station in Chinese on 6.765 with music program at 1051. (Twiggs, AK)

Clandestine La Voz del CID on 9.940 at 0150 with ID and revolutionary type programs. (Green, GA)

Radio Venceremos on 6.557 at 0224 with ID, march music, mention of Radio Farabundo Marti. (Green, GA)

Cook Islands Radio Cook Islands on 11.759.9 at 0811 in Maori with much island music. (Twiggs, AK)

Costa Rica TIFC, Faro del Caribe, 5.055 at 0600 in Spanish. End of religious program, ID, frequencies, and sign off. (Ross, ONT)

Cuba Radio Havana 6.140 at 0242, 9.740 at 0026 and 0221 all English. (Lyster, BC)

Czechoslovakia Radio Prague at 0118 on 5.930 in English. (McDonough, PA) 7.345 at 0100–0130 in English. (Linonis, PA)

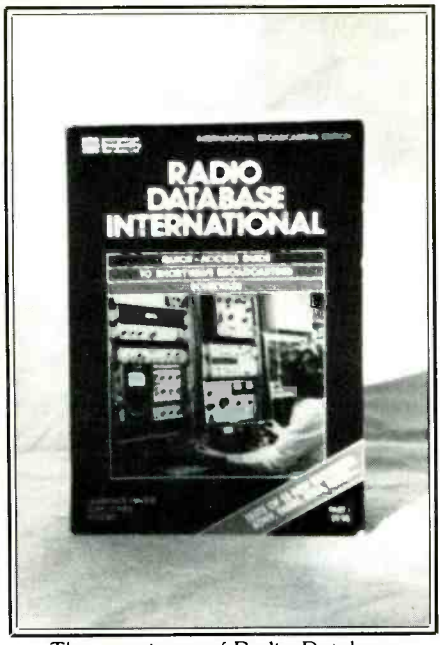
Dominican Republic Radio Clarin, 11.700 English at 0130. Got ID but was fading in and out. (Linonis, PA)

East Germany Radio Berlin International on 6.125 at 0200 in English. (Salmi, MA) 9.730 at 2348, English to North America. (Pastrick, PA) 9.560 at 0252. (Lyster, BC)

Ecuador HCJB in Spanish at 2214 on 17.790, beamed to Europe. (McDonough, PA) 15.155 in English at 0100. (Linonis, PA) 3.220 in Spanish at 0925. (Ross, ONT) English at 1248 on 15.115. (Pastrick, PA)

Radio Rio Amazonas, 4.870 at 0320 in Spanish with ID, location, local music. (Green, GA)

Egypt Radio Cairo at 1800 with sign on in Italian on 9.805. (Salmi, MA)



The new issue of Radio Database International.

Finland Radio Finland International, 1300–1330 in English on 15.400. (Linonis, PA) 1211 in English. (Pastrick, PA)

French Guiana RFI Relay 9.800 address for reports at 0330 end of English segment. (Sgrulletta, NY) 11.670 in French at 1447. (Wallace, NM) 11.995 news in English 0346. (Griffith, CO)

Gabon Radiodiffusion TV Gabonaise on 4.777 at 2314 in French. (Green, GA)

Africa No. One on 4.810 at 0626 in French. Also at 2253. (Green, GA)

Ghana Ghana Broadcasting Corp. 3.366 at 0615 in English. Poor modulation. (McDonough, PA) 2300 to 2303 sign off music and English announcement. (Fravel WV)

Greece Voice of Greece in English 0130–0145 on 9.420 with news. (Linonis, PA)

Guam KTWR at 0841 with DX program in English on 11.840. (Twiggs, AK)

Guatemala Radio Maya Barillas at 0332 on 3.325 in Spanish with ID, frequencies, national anthem. Off 0337. (Green, GA)

Guyana GBC on 5.950 at 2318–0000 in English. (Fravel, WV) 0800 in English with listener's letter, music, ID. (Ross, ONT) 0745 in English. (Wallace, NM)

Honduras La Voz del Junco, 6.075 at 0259 in Spanish with ID, chimes, music program. (Ross, ONT)

Hungary Radio Budapest, 12.000 at 1827 with ID and news in language. (Green, GA)

Iceland ISBS on 13.797 at 1238 in Icelandic with an interview type program. (Green GA)

India ALL India Radio on 11.620 at 2109 in English with news. (Green, GA)

Indonesia Voice of Indonesia on 11.790 at 1539 with English. Music and woman announcer. (Twiggs, AK)

Iran Voice of the Islamic Republic of Iran, 15.084 at 1538, music and talk in unknown language. (McDonough, PA)

Iraq Radio Baghdad on 9.610 at 2010 with Arabic music, ID in English. (Hunt, NC)

Israel Voice of Israel in English at 1920 on 11.605 with talk. (Hunt, NC) 2359 with interval signal, sign on in English. (Lyster, BC)

Italy RAI on 9.575 at 0110 with world news, music in English. (Hunt, NC) 0107 in English, 0141 in Spanish or Italian. (Lyster, BC)

Japan Radio Japan on 15.235 at 0630 in English. (Wallace, NM) 0207 on 15.575. (Lyster, BC) 17.825 at 0200 in English. (Mackenzie, CA)

FEN on 11.750 with country music countdown at 0447. (Twiggs, AK)

NSB at 0914 on 3.925 in Japanese, Beatles music. (Twiggs, AK)

JJY Time station with pips at 0937 on 8.000. (Twiggs, AK)

Kuwait Radio Kuwait at 2040 in English with international pops on 11.675. (Hunt, NC)

Liberia ELWA in English at 0700 on 4.760 with BBC news, ID, gospel program. (Ross, ONT)

Libya Radio Jamahiriyah, 15.450 at 1800 with African Service in English. Commentary and music. (Carlsen, MA)

Voice of the Arab World service on 7.245 at 0035 in Arabic. (Fravel, WV)

Lithuanian SSR Radio Vilnius, 9.610 (via Radio Moscow transmitters, Editor) 2200 with interval signal and sign on in English. Program schedule, news. (Carlsen, MA)

Luxembourg Radio Luxembourg, pop music show in English 2328 on 6.090. (Fravel, WV)

Mauritania ORTM with ID at 2330, chanting, little talk on 4.845. (Green, GA)

Malaysia Radio Malaysia in English at 0045 on 7.295. (Harry, Philippines)

Mexico Radio Huayacocotla, 2.390 at 0112 with woman DJ, Latin music in Spanish. (Green, GA)

Monte Carlo Trans World Radio on 7.160 at 0630 with "Back to the Bible." (Green, GA) 0621 with music box interval signal, sign on in English 0625. (Carlsen, MA)

Netherlands Antilles Radio Netherlands Relay, Bonaire, 9.650 at 1030 in English. (McDonough, PA) 6.020 (dual 9.895) at 0130–0225. (Linonis, PA) 1045 with "Newsline." (Pastrick, PA) 9.715 and 6.165, 0530–0625. (Hicks, TN) 6.175 and 9.590 from 0229 sign on. (Lyster, BC)

Trans World Radio, Bonaire, 11.815 at 1130 with English "Morning Sounds." (McDonough, PA) 1214 with "Through the Bible." (Pastrick, PA)

New Caledonia Radio Noumea, 3.355 at 0918 with English and French disco music, parallel 7.170. (Twiggs, AK)

New Zealand Radio New Zealand 17.706 to 0145 sign off and from 2351.

Also on 15.150. (Stark, NM) 0355 on 15.150, parallel 11.780. (Sgrulletta, NY)

Nicaragua Voice of Nicaragua, 6.015 with anti-U.S. stuff at 0430. (Linonis, PA) 0150 in English. (Pastrick, PA)

Radio Sandino, Managua, 6.200 in Spanish at 0730, Latin pops, yelled-out IDs. (Ross, ONT)

Niger ORTN Niamey, 5.020 at 1035 in French. (Fravel, WV) Strange time to be hearing this. (Editor)

Nigeria Voice of Nigeria, 7.258 (? Editor. Nominal 7.255) 0500–0600 in English, heavy QRM. (Hicks, TN)

FRCN in English on 4.990 at 2305 with news. Also 4.770 (Kaduna, Editor) at 0440 in English with morning prayer. (Green, GA)

North Korea Radio Pyongyang, 9.977 in English at 1240. (Hunt, NC) English 1100–1146. (Fravel, WV) 1111 with English to North America. (Pastrick, PA) 11.830 with English at 0800. (Wallace, NM) 6.540 in Korean at 1054. (Twiggs, AK)

Northern Marianas KYOI Saipan, 15.190 at 0600 in Japanese. (Wallace, NM) 11.900 at 1447, English and Japanese. Rock. (Pastrick, PA) 1430. (Wallace, NM)

Pakistan Radio Pakistan in English at 1720 on 11.810. (Salmi, MA)

Papua New Guinea Radio East New Britain on 3.385 at 0909, choral music in Pidgin. (Twiggs, AK)

Radio West Sepik on 3.205 at 0914, English news headlines. (Twiggs, AK)

Radio West New Britain 3.235 at 0928 with local music. (Twiggs, AK)

Radio Madang 3.260 with local music, knocked out by SSB QRM. (Twiggs, AK)

Radio East Sepik, 3.335 in Pidgin at 1103, woman announcer, ID, news, vocals, talk. Poor with QRM from CHU. (Paszkiewicz, WI)

Peru Radiodifusora San Martin, 4.810 at 0312 in Spanish with easy listening music. (Green, GA)

Radio San Juan de Chota, 5.275 at 0223 to 0245 off with Spanish. (Salmi, MA)

Radio Satellite 6.725 tentative in Spanish at 0129 with local pops. (Green, GA)

Radio Union, 6.115 in Spanish at 0725. (Wallace, NM)

Radio America, 6.010 in Spanish at 0724. (Wallace, NM)

Philippines VOA relay Tinang on 9.760 at 1317 with English to Asia. (Pastrick, PA) 1530 in English. (Wallace, NM) 15.290 at 0010 in English. (Mackenzie, CA)

FEBC on 11.890 at 0640 in English with news. (Twiggs, AK)

Portugal Radio Portugal, 15.250 at 2000 in Portugese. (Salmi, MA)

Romania Radio Bucharest, 9.690 at 2020 in English with music, sports roundup. (Hunt, NC)

Senegal ORTS Dakar, 4.890 in national service, vernaculars at 2313. (Green, GA) 0704 in French. (Fravel, WV)

Singapore BBC Relay on 9.740, parallel 11.750 in English at 1439. (Wallace, NM)

Solomon Islands SIBC on 5.020 at 0815 with English news, ID, ads. (Twiggs, AK) 0935–1000 interviews, Radio Australia news. (Ross, ONT)

South Africa Radio RSA 3.230 at 0305 in English with news, ID. (Ross, ONT) 7.270 at 0510 in French. (Salmi, MA)

SABC 4.835 at 0505 in English, 0500 on 4.880 in English. (Fravel, WV)

South Korea Radio Korea 7.550 at 2200 into English with frequency schedule and ID, news. (Carlsen, MA) 9.750, parallel 15.575, 1425 in English. (Wallace, NM) 15.575 in English at 1400. (Pastrick, PA) 5.975 "Let's Talk Korean" at 1637. (Twiggs, AK)

Spain Radio Exterior Espana, English to North America at 0045 on 11.880 with "DX Spot." (Stoddard, TX) 11.880 and 9.630 at 0000 in English, news and talk. (Pastrick, PA) 9.630 at 0000, generally excellent. (Wallace, NM) 6.125 at 0500 with English. (McDonough, PA)

9.630 at 0030–0100. (Linonis, PA)

Syria Radio Damascus, 12.085 at 2015 with news. (Sgrulletta, NY) To 2102 sign off. (Pastrick, PA) 2010 to 2100 sign off. (Salmi, MA) 2000, rock 2030.

(McDonough, PA) 17.825 at 1900 in German, French, English. (Mackenzie, CA)

Sweden Radio Sweden International, 15.345 at 1405 in English. (Pastrick, PA) 1400. (Carlsen MA, & Wallace, NM) 1400–1430. (Linonis, PA) 0236–0300 on 9.695 with various items in English. (Hagerty, VA) 2300–2330 to North America on 9.695 and 11.705. (Hicks, TN)

Switzerland Swiss Radio International on 9.885 in German at 0145. ID in English, German, and French. (Linonis, PA) 12.035 in English at 0200. (Wallace, NM) 15.570 in English at 1235. (Hunt, NC) 1336 in English. (Pastrick, PA)

Tahiti Radio Tahiti, 11.825 at 0245 in French, 0300 into Tahitian, island music. (Salmi, MA) 0520. (Carlsen, MA) 15.170 at 0200 in French. (Sgrulletta, NY)

Taiwan Voice of Free China, 11.745 at 2300 with national anthem. (Lyster, BC) 9.600 with English at 2225. (Harry, Philippines)

Ukraine SSR Radio Kiev (via Radio Moscow transmitters, Editor) 11.960 at 2336 in English. (Pastrick, PA)

United Arab Emirates UAE Radio, Dubai at 1600 on 17.775. Easy music, news at 1630, English. (McDonough, PA) English at 1330. (Pastrick, PA) At 1335. (Hunt, NC) 15.230 with English at 1600 with "Zionism Unmasked." (Carlsen, MA) 1715 in English, parallel 15.300. (Mackenzie, CA)

United States KCBI International, 11.790, 1700–2000 with address for reports as KCBI, P.O. Box 1809, Dallas, TX. (Kerr, IA) 1750 with equipment tests. (Hunt, NC) 1855 with ID and interval signal. (Griffith, CO)

Radio Earth program, via KCBI 1800–2100, 11.790. (Mackenzie, CA) 1800 with "The World." (Griffith, CO) "Mailbag" and other regular features. (Pastrick, PA)

AFRTS 1500 on 9.700 with English. (Wallace, NM) 15.430 at 1325 with news. (Pastrick, PA)

WYFR 9.535 at 1450 with religious songs. (Pastrick, PA)

Voice of Free China, via WYFR on 9.680 at 0147 in English, with Chinese music. (Pastrick, PA)

WRNO on 6.185 with rock, Louisiana tourism ad at 0300. (Linonis, PA) 15.420 at 1725 with ID, commercials. (Salmi, MA)

Radio Marti, via VOA, 9.660 at 0057 in Spanish. ID, news, Latin music. (Sgrulletta, NY)

USSR Radio Moscow in English, various times between 2200 and past 0200 on 9.600, 11.735, 11.850, 11.990, 12.050, 15.245, 15.425. (Lyster, BC) World Service at 0400 on 11.730. (Sgrulletta, NY) 15.100 in English with World Service (via Havana, Editor) at 1323. (Pastrick, PA)

Radio Mayak service, 5.940, parallel 7.320, 9.500 and 9.600 at 1245 in presumed Russian. (Wallace, NM)

Radio Moscow First program 7.210 in Russian at 1245. (Wallace, NM)

Vanuatu Radio Vanuatu 3.945, parallel 7.260 at 0903 with island music. (Twiggs, AK)

Vatican Vatican Radio in English at 0100 to 0120 on 6.015. QRM, probably from Nicaragua. (Linonis, PA) English at 0500 on 6.250. (Salmi, MA)

Venezuela Radio Nacional, 9.540 at 0015 in Spanish, music, news, ID. (Hunt, NC)

Radio Tachira, 4.830 at 0120 with Latin music, ID in Spanish. (Hunt, NC)

Ecos del Torbes, 4.980 at 0003 in Spanish, music program. (Fravel, WV)

Radio Mundial Bolivar, 4.770 at 0106 in Spanish with music. (Fravel, WV)

West Germany Deutsche Welle on 15.210 at 1420 in German. (Wallace, NM) 7.150 at 0330 in possible Swahili. (McDonough, PA)

Sudwestfunk, 7.265 at 0117 in German with the all night program, variety music. (Fravel, WV)

Yugoslavia Radio Yugoslavia 9.620 at 2115 in English with world news, talks. (Hunt, NC)

And that's it! The thank you list: George L. Green, Warner Robins, GA; Donald L. Hicks, Jr., Memphis, TN; Robert E. Wallace, Albuquerque, NM; Alex Hagerty, Arlington, VA; Robert Pastrick, Conway, PA; Gregg Harry, USN, Philippines; Stewart Mackenzie, Huntington Beach, CA; S. Lyster, Keremeos, BC, Canada; Robert S. Ross, Lonton, ONT, Canada; Patrick M. Griffith, Denver, CO; Linda Stoddard, Sulpher Springs, TX; John Sgrulletta, Mahopac, NY; Mark Carlsen, Brookline, MA; David E. Kerr, Cedar Rapids, IA; Larry R. Fravel, Clarksburg, WV; Debby Stark, Albuquerque, NM; Billy Hunt, Durham, NC; David E. Salmi, Maynard, MA; Sheryl Paszkiewicz, Manitowoc, WI; Jack Linonis, West Middlesex, PA; David Twiggs, Ft. Richardson, AK; and W. Patrick McDonough II, Pittsburgh, PA.

Till next month, good listening. PC

Please send all reader inquiries directly.

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE

BY JANICE LEE

County Prosecutor Calls Halt To No-Risk Speeding

Last year, if you got a traffic ticket on Wise County, Texas highways, you could win an automatic dismissal if you know—as many lawyers, truckers, and other drivers knew—that the county attorney refused to prosecute traffic tickets appealed to district court.

All you had to do was simply plead guilty or "no contest" to the charge before a justice of the peace, then appeal to the district court.

As a result, local law enforcement officers say, truckers "kept the hammer down" when they thundered down State Highway 114 of the alternative trucking route, U.S. 380-287, to deliver their 35-ton loads of sand and gravel to Dallas area construction sites.

But all that's a thing of the past now, says Pat Morris, who took over in January as the new county attorney for Wise County.

"I didn't go to law school for three years to try traffic cases, but Wise County is kind of unique. I'm going to open traffic court," Morris said.

A state crackdown on reckless driving in Wise County produced more than 1,500 traffic tickets last month, and Morris promises that a vigorous effort will be made to collect fines on them.

In the past, appealing traffic tickets to district court has been a guaranteed victory for truck drivers and automobile drivers alike, Morris said, because his predecessor had a policy of not prosecuting traffic cases appealed to district court.

Former County Attorney Sam Gallo said he used the policy because his staff was too small and the court docket was already overcrowded.

Truckers could afford to go through the appeal process because they carry something called "hammer-down insurance," officials say.

According to a local representative of Prepaid Legal Services Associates of Ada, Oklahoma, an $8 monthly premium entitles a driver to legal assistance for an unlimited number of minor traffic violations. This insurance, which does not cover fees for alcohol or drug related traffic charges, pays only the lawyer's fee, not the fine. But in Wise County, that's all that's been necessary in the past.

11½ mph Signs Startle Drivers But Make 'Em Slow Down

Motorists in San Antonio, Texas have recently been doing a double take as they cross

a newly completed Interstate 35 overpass with a 11½ mph speed warning sign posted.

"It was the state's idea to put up the ridiculous signs," said Live Oak Police Sgt. Dan Pue, patrol division supervisor.

The signs are ridiculous because "it's impossible" for a driver to maintain such an exact speed and even radar sets don't measure one-half mph increments, said Live Oak Sgt. Gary Hopper.

But he said the signs are causing motorists to slow down for the two hairpin U-turns on each side of the Shin Oak overpass because "they are more of an attention-grabber" than normal 10 or 15 mph signs.

"That's the whole point," said State Department of Highways and Public Transportation spokesman Mal Steinberg.

He said Dub Maytum, highway department engineer for the $26 million Interstate 35 project in the Live Oak area, came up with the idea for the 11½ mph signs.

"It's a little ridiculous, but it does slow them down," said Skip Detre, project manager for Abrams Construction Co., which installed the signs. Detre said the signs are temporary while construction is going on in the area, but that they probably will remain until the project is completed.

"Most of the citizenry probably thinks it's the police that put up the signs," Pue worried. "They probably think it's another speed trap."

He said his officers mostly will issue warning citations unless a driver is acting reckless and trying to take the curves at high speed.

In that case, he conceded an officer might write a citation reading, "35 mph in an 11½ speed zone," or, to escape embarrassment, "driving at an unsafe speed."

Illinois Has Another Illegal Speed Trap

A sudden drop in the speed limit, from 55 to 35 on the main highway into Bourbonnais, Illinois, has been ruled, in effect, an illegal speed trap.

The Kankaee County court decision calls into question the legality of many other local speed change zones—anywhere drivers must slow more than 10 mph at a time.

The case grew out of the January 5 arrest by Bourbonnais police of Thomas Judd, a former FBI agent now serving as Kankakee's assistant city attorney.

It was late on a Saturday night when Judd, southbound on US 45, was clocked at 54 mph just inside the village border—where the speed limit abruptly drops from 55 to 35.

Judd got a $50 ticket. And Judd got mad.

"I am not a speed demon," he said, but speed limits should be "reasonable and fair."

"Speed zones are set up to maintain an orderly flow of traffic and for obvious purposes of safety—they're not for (generating municipal) revenues," he said.

"Don't forget, it was regulation for revenue that led to tea chests being thrown into Boston Harbor."

Judd went to court in March, pointing to an obscure section of Illinois motor vehicle law—Chapter 95½, Paragraph 11-604—that says "the difference in limit between adjacent altered speed zones shall not be more than 10 miles per hour."

By that definition, he said, a speed change from 55 to 45 is okay—but a change from 55 to 35 is not.

"The statute is absolute, the object is plain," Judd said in an interview. "It's an anti-speed trap law."

After studying the case for a month, Associate Circuit Judge Rodger Benson ruled April 11 that Judd was right. He approved a directed verdict of dismissal, throwing out the case.

"I don't think many people realize those (speed changes) are illegal," Judd said recently. "And it's a moneymaker" for local government.

Last year, Bourbonnais got $98,176 in police fines, said village Administrator Tom Clark. That represents about 6 percent of the town's budget.

While acknowledging "a rumor for a number of years" that Bourbonnais is a speed trap, Clark said police have begun shifting their focus from traffic enforcement to neighborhood patrols.

That, he said, is partly responsible for this year's one-third drop in fine payments, to about $65,000. PC

Janice Lee is the Editor of Monday. A.M. *, the newsletter of Electrolert, Inc.*

EMERGENCY
COMMUNICATIONS FOR SURVIVAL

BY GORDON WEST, WB6NOA

Emergency Battery Power

Last month we talked about charging batteries from the sun with solar cells. This system works well providing you start with good, fresh batteries.

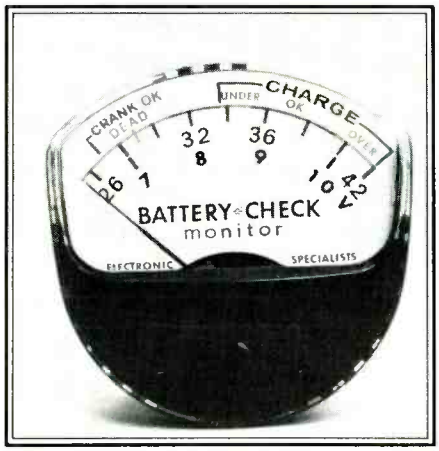
With a good battery system, you can stay on the air long after the main power lines may fail. But a good battery system depends on the right choice of batteries and good battery maintenance.

For a truly portable system, nickel cadmium rechargeable batteries are a great way to go. These batteries are available in all the popular sizes that your radio equipment might take, such as flashlight batteries, C cells, and the popular AA cells. You will notice that the voltage rating of nickel cadmium batteries (affectionately called NiCads) is typically lower than a regular alkaline or non-rechargeable long life battery. For instance, an alkaline AA cell normally is rated a 1.5 volts, but in a nickel cadmium battery, the rating is only 1.25 volts. Generally this slightly lower voltage won't severely affect the operation of your survival equipment.

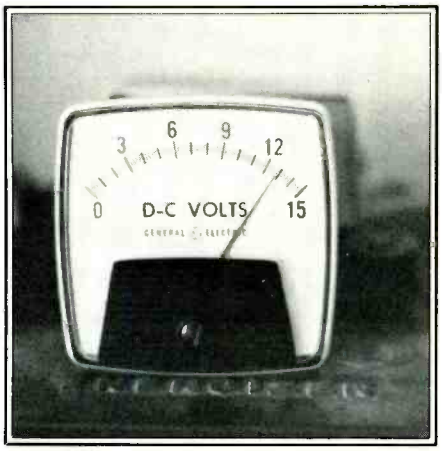
The NiCad battery can be recharged up to 500 to 1,000 times after depletion. Most NiCads will run approximately 75 percent as long as non-rechargeable extra long life batteries. However, most regular batteries begin to drop dramatically in voltage their last 25 percent of charge, so you will find that a set of NiCads have almost the same longevity as long life batteries when under constant use.

Unlike regular long life batteries that slowly get weaker when in use, the NiCad battery continues to give a good constant output until seconds before it dies. One minute it's putting out its rated power, and the next minute it goes dead and it's time for a recharge. This is why it's sometimes difficult to determine how much battery life is left in a NiCad battery; you sure can't test it with a voltmeter. Probably the best way to determine the state of charge on a NiCad is to charge it up completely and then estimate the battery life.

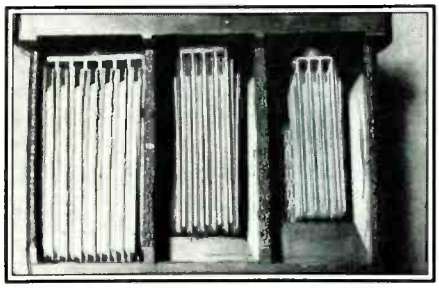
NiCads are charged at 1/10th of their total battery capacity. The common AA NiCad battery is rated at 450 milliamp hours (mAh). This means that one little AA cell will give out just about 1/2 amp for one hour. The typical set of ten AA NiCads will power a 1/2 amp radio set for ten hours. A set of ten AA NiCads would best be charged at 1/2 amp for ten hours, or 1 amp for no more than a couple of hours, or until the batteries get warm to the touch. Charging NiCad batteries too quickly will cause them to heat up and sometimes rupture. I've never seen one explode where it knocks the plate glass out of a window, but I have seen them pop and start oozing all over the place. And not only is that not fun to smell, but it's also dangerous to breathe and costly to replace. Don't overcharge NiCads!



The best way to find out the condition of your batteries is to check them on a meter.



Metering also keeps track of your voltage levels.



Cut-away view of a storage battery.

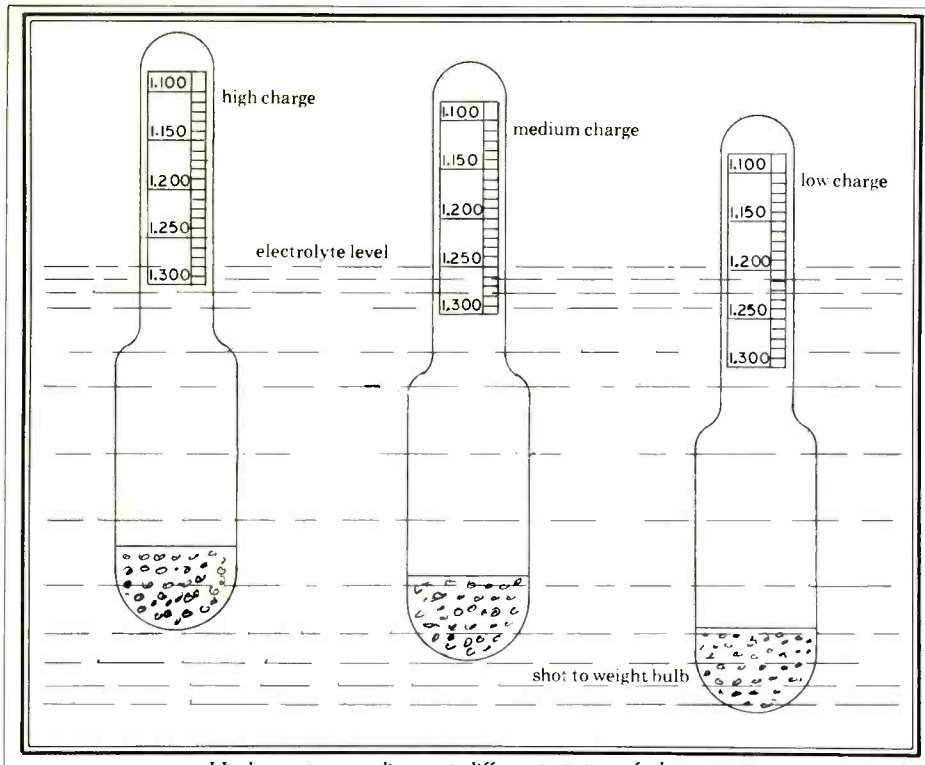
Batteries come in all sizes, shapes, and voltages.

One trick to extend the life of rechargeable NiCad batteries is to regularly work them out. Turn on your emergency preparedness equipment, and run the batteries down. Then charge the batteries up and weekly repeat this cycle. NiCads, like athletes, do their best when they have a regular workout. If you do nothing but constantly charge your NiCads, chances are they won't perform very long before they go dead. Forever charging NiCads without use is just as bad as leaving them dead.

It's also a good idea to check out your emergency equipment by turning it on and running it for at least a day, once a month. This will allow you to work your NiCad batteries and to doublecheck that everything is working properly before you need to use it in an emergency.

If your battery requirements necessitate automobile-type batteries, always start off with a fresh, new system. The common lead-acid battery has been around for over 100 years. They consist of negative electrodes of spongey lead held in place by a grid of small wires and positive electrodes of lead peroxide. Each plate is separated by an insulator and grouped into cells, then wired together in series. The battery water is called electrolyte, and it is approximately 30 percent acid.

The lead-acid battery does its work by constantly changing chemical to electrical energy. When you are running your emergency equipment off the battery, electrons flow from the negative plates to the positive plates through the acid. Sulfate in the acid is absorbed in the spongey lead and the acid solution gets weaker. This process continues until the battery can no longer sup-



Hydrometer readings at different states of charge.

port this chemical process and goes dead. When you charge the battery, electrons are driven back into the negative plates converting lead sulfates into lead, lead peroxide, and thus strengthening the acid.

To check the charge of the battery, an inexpensive hydrometer can be used to measure the strength of the acid and let you know the state of charge. Another good way is to monitor the resting voltage of your battery.

13.8 volts = fully and freshly charged battery
13.6 volts = fully charged battery
13.0 volts = charged battery
12.6 volts = slightly discharged battery
12.0 volts = discharged battery

Resting voltages may sometimes be misleading, too. Another good way to check the potential of a battery is to monitor the battery voltage during transmitter operation. A CB radio might normally pull the battery down to 12.6 volts on AM transmit. If you notice that the voltage dips down to 12.0 volts, chances are your battery may need recharging, or you may have a dead cell.

A major change in batteries has been the maintenance-free battery without filler holes. These are ideal for the survivalist wishing to transport the battery from one location to another—little chance of any fluid leaking out.

These maintenance-free batteries are also better performers than their regular counterpart. First of all, seldom will there ever be corrosion around the battery terminals to create resistance.

The new maintenance-free batteries also have a larger reservoir than regular batteries, so they require no additional water for a life expectancy equal to, or better than, regular batteries.

You can also store a maintenance-free battery up to 18 months without having to recharge it. Conventional batteries may self-discharge because of fluid that builds up between the two battery posts.

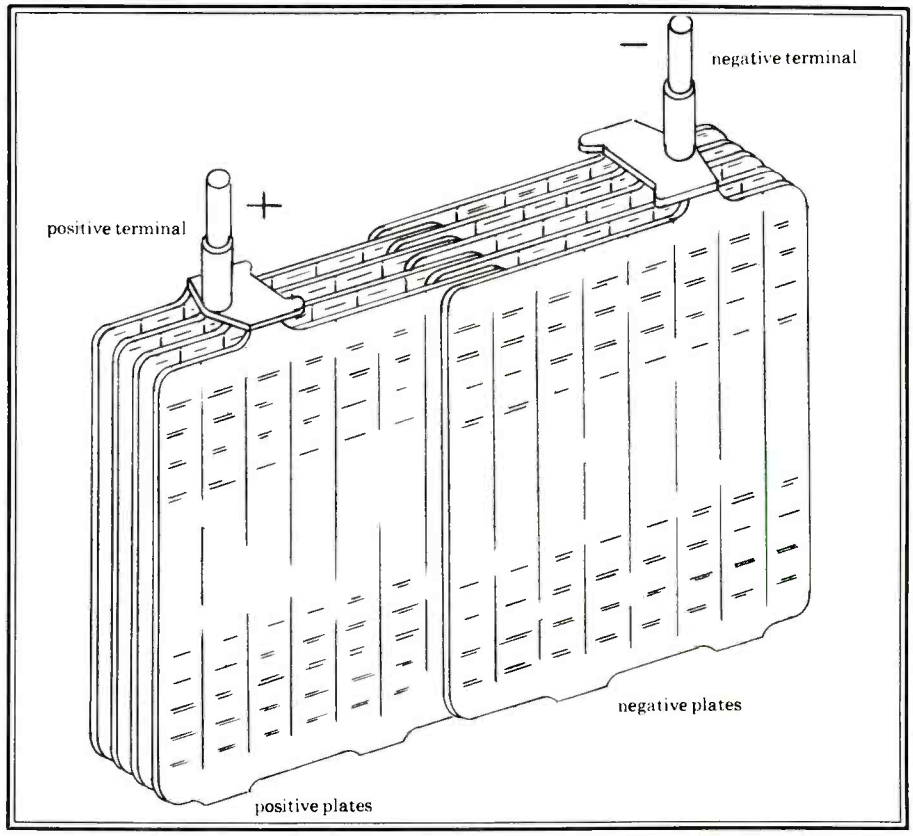
Another advantage of the maintenance-free battery is the fact that they use thicker plates on their insides. While it is true that a greater number of thin plates increases the "cranking" power a battery can deliver, these thin plates may soon succumb to vibration or fractures in heavy use. The thicker plates in maintenance-free batteries tend to resist vibration and hold up better.

These same batteries also require less ventilation than conventional batteries with filler tops.

Another form of maintenance-free battery is the gel-cell. These are quite similar to motorcycle batteries, and can deliver quite a bit of power for their extremely small size. The most common gel-cell is one rated at 1-1/2 ampere hours, which means that you could play an emergency radio on this rechargeable battery for up to five days before needing a recharge. While it won't last a month like a regular car battery, between charges, the gel-cell and radio setup is a good way to go where portability is required. The gel-cell is completely encased and will not leak. It's great for a backpack if you don't mind hauling around ten pounds of battery.

How much battery do you need? If you're just planning on running small handheld equipment, NiCad batteries or a small gel-cell will probably work out well. If you plan to run auxiliary lighting, better go with a regular automobile maintenance-free

Positive and negative plates attached to their respective terminals. Note how each positive plate is sandwiched between two negative plates.



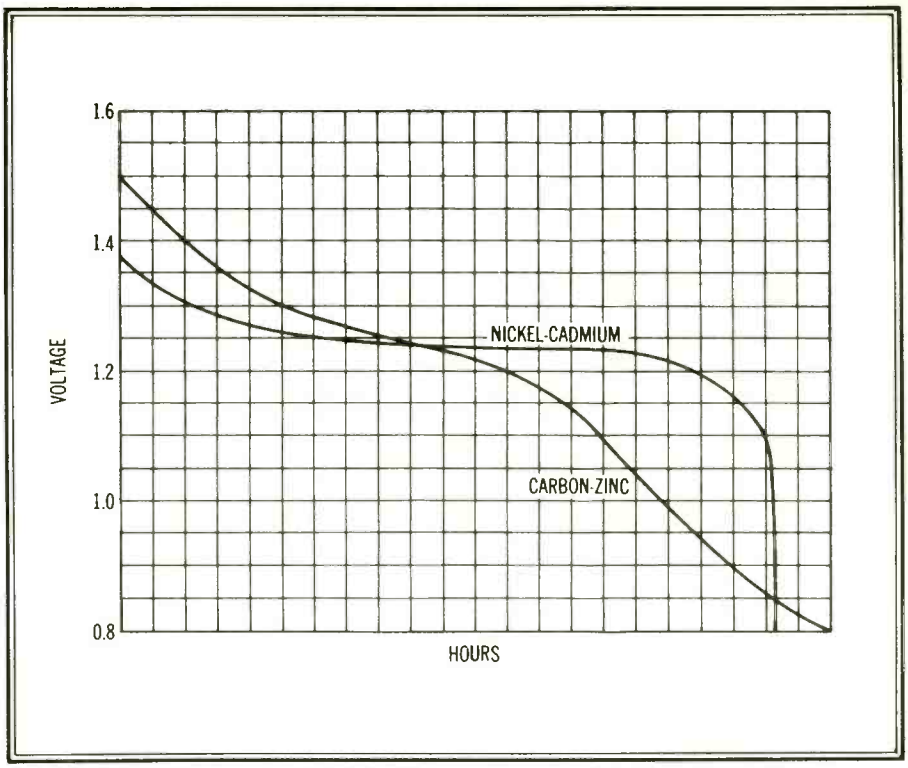
battery. Last month's article will give you some good tips on how to charge these batteries from the sun.

Some final tips on operating your equipment in an emergency situation. Keep the batteries out of the moisture to prevent stray current from flowing between the terminals. Keep the batteries warm; cold batteries don't perform as long as warm batteries. Regularly cycle your battery from discharge to charge. It's bad for any type of battery to be constantly charged and never use it.

Be able to "feel" and "hear" your batteries for overheating during charging. On smaller batteries, they are fully charged when they are warm to the touch. On automobile batteries, when you begin to hear the electrolyte bubbling, the charge is adequate and should be discontinued.

An inexpensive voltmeter will tell you plenty about the state of charge that a battery has. It's best to always make voltage measurements when the battery is under a normal load. You can have a completely dead automobile battery read 12 volts, yet it won't have enough pop to power even the smallest transmitter.

Keep your battery in good shape and expect years of trouble-free service from it for any emergency situation. Run periodic tests with your equipment operating on the battery and keep notes as to how long you can go before you need a recharge. PC



A distinct advantage of rechargeable NiCad cells over primary (non-rechargeable) carbon-zinc cells is a flat discharge curve. When a NiCad is near full discharge, its voltage output will drop sharply, and the device powered will stop functioning abruptly. While the single life cycle of a carbon-zinc is longer than a NiCad, its voltage output drops gradually rather than sharply.

PIRATES DEN

BY DARREN LENO, WDØEWJ

FOCUS ON FREE RADIO BROADCASTING

The Federal Communications Commission is fed up with the increasing numbers of radio pirates, and they want everyone to know it—especially the pirates. Recently, the Commission mailed press releases to the "mail drops" these stations use to receive reception reports from listeners, as well as communications magazines and newspapers, describing action being taken against pirates.

"Feel free to distribute this information to others who should be aware of the FCC's continued effort to shut down illegal radio operations," said James Berrie Jr., Engineer in Charge of the FCC's monitoring station in Grand Island, Nebraska.

And so we shall.

"The operation of unlicensed radio stations is in direct violation of FCC Rules and Regulations. Their operation may endanger life and property by causing harmful interference to licensed radio operations.

"If convicted of operating an unlicensed radio station, the operator faces a maximum penalty of one year imprisonment, a fine up to $10,000 and possible forfeiture of their radio equipment to the U.S. Government."

Hey, these guys aren't fooling around!

Ask KRZY.

This Arkansas pirate was located by the FCC last year on March 9. A $1,000 Notice of Apparent Liability was issued for "unlicensed and out-of-band operation." I'm not sure how a station that is unlicensed could be operating out of band, but that didn't seem to matter.

KRZY, it was revealed, was actually KQRP in disguise. The operator of the popular KQRP became worried that his frequent broadcasting would attract the FCC's attention. First heard on January 7, 1984, KQRP signed off, supposedly for good, later that year on September 27.

Then, on October 30, 1984, a "new" pirate known as KRZY appeared.

I talked to the operator of KRZY (a/k/a KQRP) shortly after he was closed. He was willing to speak about his bust, but asked that I refrain from writing about it until his problems were settled with the FCC —$1,000 worth of problems. But even so, he confided that he had a strong desire to return to the air.

I knew this "desire" he was speaking of. It is the same addiction that grips many pirate radio operators. I mean it when I say "addiction." I've seen it in many pirate operators, including Scott Blixt of the famous Voice of the Voyager. Scott talked with me about the "pirate bug" one afternoon in a Minneapolis restaurant. Even though the Voyager had been closed by the FCC, Scott Blixt and friend Mike Martin felt compelled to put the station back on the air. They missed the adventure of taking over a frequency, the thrill of receiving fan mail from around the nation, and the feeling of being appreciated by listeners. When they returned to the air, they were closed again, and this second time cost the pair $3,000.

So KRZY had a "desire" to try it again. For this man, the "pirate bug" was working overtime. But five months passed, and no pirate calling itself KRZY appeared on the air. Then the press release arrived:

"On August 19, 1985, under the direction of Assistant U.S. Attorney Steven Snider of Fort Smith, Arkansas, U.S. Marshals accompanied by an agent from the FCC district office in Dallas, served a warrant and seized the transmitting equipment of a pirate known as KBBR."

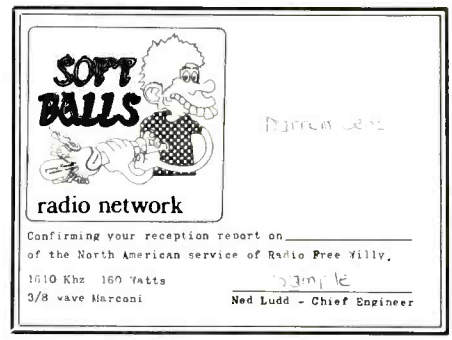
KBBR, the FCC revealed, was one in the same as KRZY, and KQRP—same operator, same equipment, and same location.

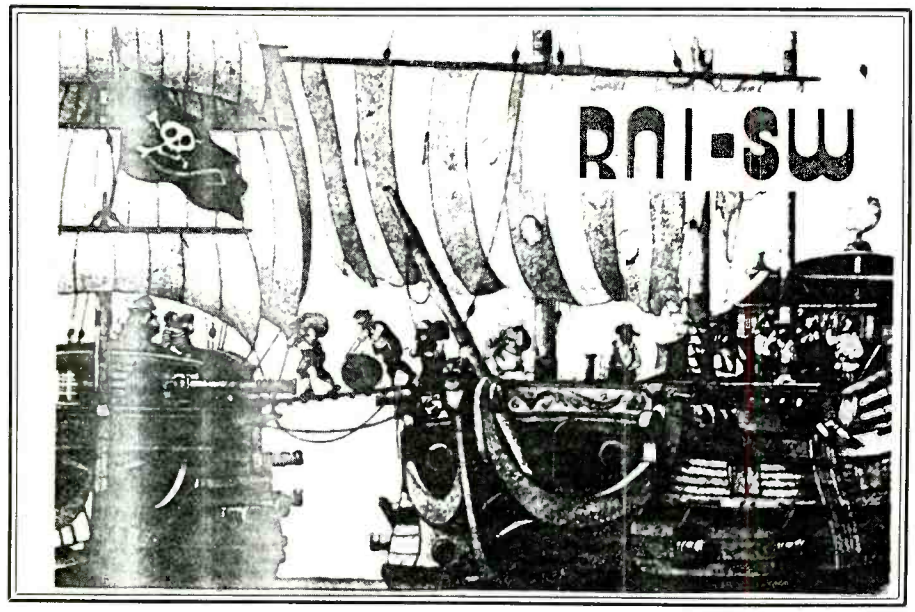
On the night KBBR was closed, "Abraham the Alien" as the operator was calling himself (you may also know him as Capt. Crazy, or Dr. X) was quite outspoken about the FCC. Pirates Den readers Ken Evans in South Carolina and John Friberg Jr. in New Hampshire both heard this final broadcast. Incredibly, shortly after KBBR called FCC agents "the most lowly scumbag creatures that you have on the face of the planet," they arrived at his station.

Somebody's in trouble!

Just how much remains to be seen. Although the maximum penalty is a staggering $10,000 fine and one year in prison, no one has been locked up for operating a pirate station—yet. The largest single fine levied to date was against Mike Martin of the Voice of the Voyager—$2,000.

Scott McClellan, mail forwarder for KQRP, KRZY, and KBBR, wrote in *The ACE*, "The operator, who resides high in the Ozark Mountains of Arkansas . . . learned the hard way that when you push the FCC too hard it will take whatever action is necessary to get you off the air.





Reader Frank Decker in New York received this QSL from Radio Nova, a very active pirate these days.

*A*C*E art editor Ralph Martinez drew this cartoon when KQRP announced they were leaving the air. This Pirate returned later as KRZY, and again as KBBR.*

H.M. Government WARNING:
It is illegal to listen to
RADIO CAROLINE
on 576 and 963 kHz
from the M.V. "Ross Revenge"
International Waters Radio Group
BM Box 1763, London, WC1N 3XX, England

Support Offshore Radio
RADIO CAROLINE
M.V. "Ross Revenge"
LASER 558
M.V. "Communicator"
INTERNATIONAL WATERS RADIO GROUP
BM Box 1763, London WC1N 3XX

These stickers are given out by England's RADIO CAROLINE and LASER 558 offshore broadcasters. (Courtesy Tom Kneitel)

TUNING IN RNI-SW

P.O. Box 245
Moorhead, MN 56560
U.S.A.

INFORMATION SHEET NUMBER 2 *SUMMER 1985*

Thank you for your letter to RADIO NOVA INTERNATIONAL. In an effort to keep our listeners up to date with our activities, we are sending this information sheet, to give YOU the listeners the inside story here at RNI.

We offer listeners a mix of reggae and classic rock from the late 60's and early 70's. In future broadcasts, we would like to put more emphasis on reggae as it is generally ignored as a source of music here in North America. At this time, we are the only shortwave broadcaster in the world with reggae as a normal part of programming. We hope that our listeners will give this type of music a chance and for those who don't, we offer rock classics by Jimi Hendrix, the Doors, the Beatles, the Clash, the Who and many more to numerous to mention here. Listeners can also expect to hear relays of the following free radio stations; RADIO APOLLO, FREE RADIO SERVICE HOLLAND, and CANZONI RADIO in the coming months. We also offer our own brand of humor and commentary so please stay tuned!

A very brief history of RNI-

We hit the airwaves with our first broadcast on December 9, 1984 via the great RADIO APOLLO in the U.K. on 7350 KHz. According to reports received, our programs met with very favorable responses from listeners in Belgium, the Channel Islands, England, and Scotland. RNI made its North America debut on June 22, 1985 on 7410 KHz.

The future of RNI-

In the coming months we will be relaying programs from the above mentioned free radio stations as a regular part of our alternative programming. We also plan to move our broadcasts into the morning hours between 1000 and 1300 GMT for our North America service and from 0500 to 0900 GMT for our International service for listeners in Europe and the rest of the world. We will relay stations without a transmitter of their own. Write to us for details.

The staff of RNI-

Monty Python is the station owner/manager. A free radio buff since 1981 and heavily into reggae music proving it on his show.
Sgt. Pepper presents his program of music from the Clash, the Beatles and many more. A newcomer to the free radio scene presenting his own brand of music and commentary. Also operates CAPITAL RADIO ONE, a sister station to RNI.
Dr. Bantai, the samurai disc jockey will appear from time to time between his expeditions to the Amazon and Mt. Everest. Offering his own style of Psychadelia era rock.

Reception reports and QSLs-

We love to get your letters, comments and even music requests. RNI will verify all correct reports containing time, date and frequency plus some program details and reception conditions. Please include either (3) 22¢ stamps for listeners in the USA or (2) IRCs for listeners outside the states. All correct reports will receive one of our many different styles of QSL cards and letters.

So why do we do it???

We exist to serve and entertain YOU, without YOU there would be no point, we ask that you write regularly with your comments on our station and any suggestions for improvement. All letters are answered and sent out within 48 hours after they are received. PLEASE SUPPORT US AND FREE RADIO AROUND THE WORLD!!!

"When he first went on the air, this operator never dreamed that the FCC would come all the way from Dallas to shut him down," McClellan continued. "But it did . . . not once, but twice."

Where Are The Pirates?

The FCC monitoring network has been investigating pirate radio activity for quite some time. Through long distance direction-finding techniques, they have determined that pirate operations are currently operating out of the following cities:

Richmond, VA
Charlottesville, VA
Staunton, VA
Youngstown, OH
Miami, FL
Orlando, FL
Minneapolis, MN
Washington, DC
Louisville, KY
Waterbury, CT
Newark, DE
Grand Rapids, MI
Lansing, MI
San Francisco, CA
Arkansas City, KS
Fort Smith, AR

The FCC won't say which pirates are operating from these cities, but several pirate "insiders" are very surprised and concerned with the accuracy of this list. This may mean a decrease in underground broadcasting activity. Pirates tend to be a paranoid group, and for good reason. I'm sure that these pirates will feel a chill run down their backs as they see just how close to being caught they are. But will they really sign off for good, or will the "pirate bug" call them back to the air, like it has so many other stations?

Across The Dial

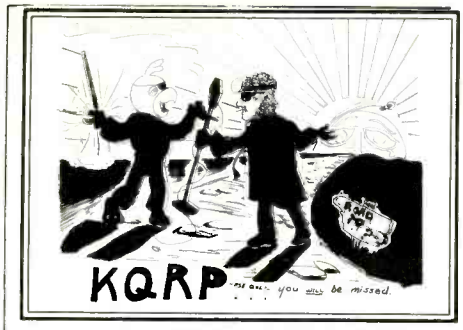
CMA "Clandestine Voice of Mid-America" took to the air on 7426 kHz from after 0400 GMT. Kenneth Smith of Alabama says this station asked listeners to mail reception reports to *Popular Communications*. While I can't forward your mail to CMA, I'm always happy to receive your listening reports for the Pirates Den.

Radio Clandestine Carlton Green in Maryland came across this pirate on 7352 kHz as they played the comedy skits and commercials that have become their trademark over the last dozen or so years. Radio Clandestine is a good QSLer. Send a detailed reception report c/o PO Box 982, Battle Creek, MI 49016.

Radio North Coast Int'l Mace Twigg in Minnesota discovered RNCI on 7428 kHz with comical music from 0130 to 0200 GMT.

Radio Nova Int'l From 0200 to almost 0300 GMT, Mace Twigg listened to this pirate on 7428 kHz. Oldies and 70's rock were on the musical menu that evening. In South Dakota, Bob Smith heard RNI on 7406 kHz from 2324–0000 GMT. Reception reports can be sent c/o Box 245, Moorhead, MN 56560.

Reggae Radio Paul Walkendorf in Michigan heard this rock 'n' reggae music station on 7435 kHz after 1350 GMT. The



announcer spoke in a monotone, "robot-like" voice.

Voice of Laryngitis George Zeller in Ohio found this pirate on 15050 kHz from 2300 to 2330 GMT. Famous for their comedy productions, VOL was poking fun at Radio Marti and Paul Harvey during this show.

WXNY DJ "Dr. X" said he was broadcasting from New York with 50 watts and a dipole antenna. This is probably not KQRP's Dr. X. Ken Suess of Wisconsin heard WXNY on 7440 kHz from 0245 until 0300. A phone number was announced so listeners could call the station.

In Conclusion

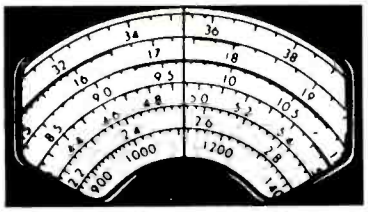
Do you have a personal computer? How about a telephone modem? If you do, you can participate in an ongoing discussion of the underground radio scene on the A*C*E computer bulletin board system, available 24 hours a day at 913-677-1288, 300 or 1200 baud.

The Association of Clandestine radio Enthusiasts publishes a newsletter each month that I find very useful while preparing this column. For more information on A*C*E and what it has to offer the pirate, clandestine, and spy-numbers enthusiast, send a long self-addressed stamped envelope to A*C*E, PO Box 452, Moorhead, MN 56560.

CRB Research is the world's leading publisher of radio frequency registries, books on espionage, covert operations, surveillance, codes, monitoring, scanners, and a heckuva lot more. Send $1 for their catalog to PO Box 56, Commack, NY 11725.

Keep those letters coming! I've been very pleased with the amount of reader mail that *POP'COMM* has been forwarding to me. Your feedback and contributions are always welcome. My address is: The Pirates Den, c/o Popular Communications, 76 North Broadway, Hicksville, NY 11801.

Most pirate broadcasters take to the airwaves on local Friday, Saturday, and Sunday evenings. Note the times and frequencies mentioned here and plan your monitoring activities accordingly. Finding these low power stations can be an exciting, but frustrating task. So can enticing them to send you a QSL card. But if you stick with it, the rewards will be your's. Drop me a card this month and let me know how you're doing. PC



COMMUNICATIONS CONFIDENTIAL

BY MIKE CHABAK

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

I want to bid one and all a hearty welcome to 1986. January is another ideal month for utility monitoring and SWLing in general, so don't let the opportunity pass you by. For those of you heavenly body watchers (the stars, gentlemen!) you know that a once in a lifetime visitor is here. Although not best situated for viewing in the northern states and Canada, a comet by the name of Halley is paying the sun a regular visit.

Halley's comet has absolutely nothing to do with radio monitoring, but the comet will put on its best show, one to two hours before local dawn, low toward the southern horizon, between 10 March and 10 April of this year.

This pre-dawn period happens to coincide with many an SWLers habit of getting up several hours earlier than normal to roam the shortwave bands. There's great radio DX'ing from 3 a.m. to local dawn, so if you're up anyway, why not take the time to check out this heavenly visitor? Bound to be a little nippy outside, but unless you know that you'll be around 76 years from now, 1986 will be your only chance to see this famous comet.

FEMA

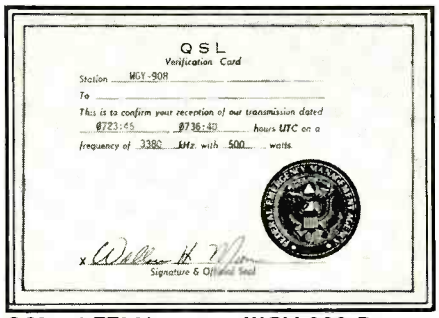
Elsewhere in this column is an illustration of a QSL received by Mike Hardester of Modesto, California, on the U.S. government agency FEMA station WGY-908. This QSL is most interesting in that it confirms reception of the odd 5-letter CW transmissions sent by WGY-908, Denver, Colorado. At least now we know that (some) FEMA stations will QSL. The mailing address for WGY-908 is: Federal Emergency Management Agency, Region 8, Denver Federal Center, Bldg 710, Denver, CO 80225.

French Antarctic

Mike Hardester reminded me that I forgot to mention another French Antarctic station. Mike did so by providing a recent QSL (see illustration). So add to the October 85 listing, FJY-4 Saint Paul et Amsterdam. By the way, Mike, a real good DX catch.

Air Force One and Two

A very knowledgeable Mystic Star buff has sent in some very illuminating information regarding Air Force 1 and 2. The President of the United States is assigned two


Q S L
Verification Card

Station WGY-908

To

This is to confirm your reception of our transmission dated

0723:45 0736:40 hours UTC on a

frequency of 3380 kHz with 500 watts

Signature & Official Seal

QSL of FEMA station WGY-908 Denver, Colorado sent in by Mike Hardester.

specific fixed wing aircraft. These are the Boeing VC-137C types, with tail numbers of 27000 and 26000. Whatever fixed wing aircraft the president climbs aboard, it automatically becomes Air Force One. Whenever possible, this is the primary aircraft 27000. On all presidential flights, his aircraft is accompanied by back-up aircraft. That aircraft uses the voice ident of "Air Force Two" (in some instances its SAM tail numbers).

At any given time, the back-up aircraft is designated to be no more than 30 minutes flying time from Air Force One. Normally, the back-up bird will not land at the same airfield as AF1, except on the return flight to Andrews AFB. Instead, once AF1 is safely on the ground, AF2 is then diverted to a nearby military or otherwise secure airfield. Once the president has concluded his business, before he takes off, the back-up aircraft gets airborne. By the way, the back-up aircraft is normally the VC-137C Boeing type with a tail number of 26000. If unavailable, one of the other 86 — — — series Boeings will be utilized.

Even though AF2 accompanies AF1, it doesn't mean that it tags along behind. In some instances, AF2 is actually flying ahead of the presidential aircraft. Whatever the case, the back-up aircraft remains airborne until the president's aircraft has landed.

Here, though, is a basic misconception that some of us have made and perpetuated. Air Force Two is NOT the vice presidential aircraft. It is the presidential back-up aircraft. So when you monitor AF1 and AF2 during the same time frame period, you are hearing the aircraft on which the president is aboard, and his back-up aircraft, NOT BOTH the president and the vice president flying at the same time.

Of course there is an exception. When the V-P flies overseas, such as to represent the United States at some official function, his aircraft will use the ident of Air Force Two. His back-up will be one of the 86 — — — series.

The V-P does considerable air travel within the USA. Normally for this he will not utilize the large four engine Boeings, but the smaller McDonnell-Douglas VC-9Cs. Our reader says that the V-P prefers SAM 31682, and if possible that aircraft is set aside for his use. But other than SAM 27000 and 26000, no VIP aircraft is specifically assigned to any government agency or official.

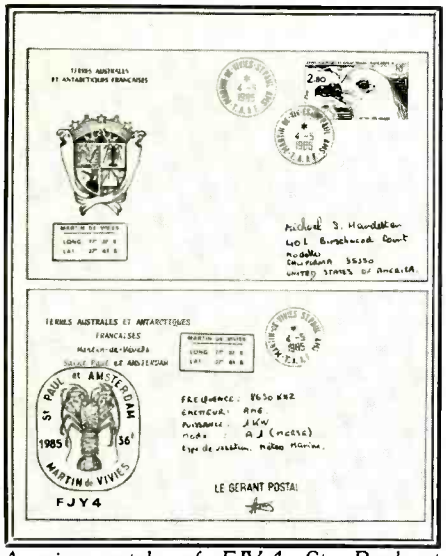
Valid QSLs

In the last issue I brought up the question of what constitutes a valid QSL. This "problem" is normally confined to verifications obtainable from certain government agencies and military units. The problem child is called security.

All agencies and military units must follow COMSEC regs (Communications Security) and these vary, depending on which agency/mil unit is involved. An example of the extremes is the U.S. Coast Guard, which readily verifies, and the Central Intelligence Agency, which does not QSL. There also exists a large middle-ground group of stations wherein verifications can be made, but COMSEC regs forbid few of the prime hard data items to be given out. These data items can include frequency, transmission mode, location (in the case of a ship or aircraft), and possibly even a specific reference to date or time. As such, when a reply does come back, it is polite in tenor, possibly includes some unclass info, yet is vague and unspecific regarding verification. The utility buff can do little about this, but possibly something can be done on the other end. Undoubtedly gov't/military radio personnel read this magazine, so I'm going to take this opportunity to talk directly to you.

Attention: Government/ Military Radio Personnel

In instances where COMSEC regs forbid you to verify, we know that you have one of two options. Either you can chuck the reception report in the trash, or you can send out a no verification letter. QSLing buffs will be disappointed receiving a letter stating that a confirmation cannot be made, but even this is appreciated by the utility monitor. At least he or she now knows the score, rather than to see their reception report simply disappearing into the limbo world of silence. As such, we do appreciate



A nice catch of FJY-4 St. Paul et Amsterdam Islands by Mike Hardester. Both sides of the QSL card are shown.

the fact that your facility did take the time to send back a reply.

A major problem can develop (for the QSLing buff) when your facility does respond, but due to COMSEC regs, delivers a reply that is vague on the primary aspect the QSLer wants—confirmation of reception.

The utility QSLer usually seeks these basic data items: station ID, location, frequency, transmission mode, date, and time; if your facility is a ship or aircraft, also the basic parameters pertaining to type, class, and so on. This is what the QSLer seeks, yet we fully realize that your unit must abide by COMSEC regs, and therefore some of the above cannot be given out. This can be somewhat compounded by the fact that some QSLers include a prepared reply form, containing blank spaces for you to fill in. It may well be that regs forbid you from using the supplied form, so you must answer via a letter.

Whatever the case, what the QSL buff often ends up with is something that, *Depending on Individual Interpretation*, does or does not constitute a valid verification. Hence, through no fault on your part, a controversy can develop.

To you government military personnel who are involved with handling reception reports, I would like to make the following "suggestions." Whether they can be applied, of course, depends on the COMSEC regs you must follow, but if they can, it will serve to lessen the controversy. Please note that my purpose here is not to dictate parameters, but to lay out suggestions that can possibly be utilized without violating the regulations you must abide by.

1) Letter reply to be on the official letterhead stationary of your facility and signed by an authorized party.

2) If possible, rubber stamp the letter with a seal that depicts your agency/military unit's insignia, emblem, etc. This, combined with the letterhead, serves to unquestionably authenticate the letter. If you can use the reporter's enclosed card/letter form, rubber stamping it authenticates this homemade QSL.

3) If COMSEC regs permit, a lead-off statement should say, in effect, that the letter confirms the radio reception. In many instances a very polite letter was sent to the radio monitor, but nowhere in it was there a simple, straightforward one-liner advising that reception was being confirmed.

4) If the confirmation statement can be made, then whatever other hard data items that can be included, by all means do so. We realize that in many instances some cannot be given out, so can you also explain why? This can be accomplished with a statement—"due to security regulations, we are unable to give out any other information regarding the transmission." This statement will serve to clarify why most of the hard data was not included.

Altogether, a letter reply on official stationary, with possibly the facility's rubber stamp seal; a one-liner stating radio confirmation, and a follow up statement explaining why some particulars cannot be divulged gives the QSL buff a reply that will constitute a valid verification, even though it may lack the bulk of hard data information.

We realize that this subject treads, in certain instances, on delicate grounds. You have a job to do, and we radio monitors are literally eavesdropping on communications that we have no business listening into in the first place. There are many government/military units whose radio comms are of an unclass nature, and so can readily verify with virtually full data. Others are completely out of bounds and the knowledgeable utility buff won't even attempt to send in a reception report. But there are many units who may not be out of bounds, so a QSL attempt will be made. For these questionable facilities/operations, this discussion was presented. For these class of stations, what I am attempting here is to suggest a more or less standardized format of replying, one that conforms to your restrictions, while at the same time can produce a radio monitoring verification that most, if not all, can accept as valid.

In closing, I can speak for all the utility QSL hounds and say that we deeply appreciate your taking the time and trouble to make a formal reply. We know that you are under no obligation to do so. So when you do so, be it a confirmation or a non-verification reply, you have our sincere thanks.

More Antenna Discussion

In the July 85 CommCo column I briefly discussed antennas and associated equipment. This prompted several letters, and from their tenor, I believe that this subject should be more comprehensively discussed.

POP'COMM reader Harry Sleigh of Winnipeg, Manitoba echoed my basic statement that, "the antenna is the weakest link in any radio monitoring setup." Believe it.

Whether you're using a military surplus rig, the top of the line solid state wonder, or anything in between, that hunk of wire you've got connected to the receiver's antenna terminal is a very critical component. A good antenna will maximize your receiver's potential, while a bad one will leave you with the impression that you bought a lemon.

There are countless books and magazine articles that devote themselves to the subject of antennas. Unfortunately, most of this literature is aimed at hams or SWBC monitors. Many antennas mentioned are yagi, quad, and the infinite variety of dipole designs. Overall, the emphasis is on single band communications/monitoring, or via traps/loading coils, multi-band in capability. Although accurate, these literary works often gloss over a very pivotal aspect—your location.

Everyone has their own unique environmental situation. You can live in your own home, with or without a backyard; an apartment complex/highrise; in the basement; sandwiched between apartments; or on the top floor. Your location can be at sea level; high up in the mountains; along the coast; well inland; in the midst of a city; or all alone in the boondocks. Your dwelling itself could be constructed of wood, brick, steel girder, reinforced concrete, or combinations thereof. Electrical power can be trunked in via underground cable or above ground power poles. As you can see, each of you resides in a unique surrounding, with X-number of variables acting upon it. Some of these variables are not important factors affecting antennas, while others are.

Add to this the very nature of utility monitoring. The average ute can roam from long wave to 27 MHz or above. With roughly a 25 MHz frequency spread, no single type of antenna will give you gangbusters reception over this wide range of frequencies. The other factor in utility monitoring is the nature of the transmitting stations. By and large, you can expect signals to come in from any angle of the compass. Hence the utility monitor must seek out a compromise in antennas, one that is both useful over a wide frequency spread and has omni-directional characteristics. The last variable to the problem will be, will your antenna be indoor or outdoor?

There is a lot to say for simplicity. In this age of sophistication, it is the unsophisticated open end long wire antenna that finds wide applications for the utility monitor. You'll note that I've disregarded the ½ wave dipole. The dipole, when cut for a specific frequency, will outperform a long wire in directional receiving abilities and overall signal gain. But when you tune well above or below that cut frequency, directional abilities and signal gain degrade giving the dipole no practical advantage over a long wire when utilized in the realm of wide frequency spectrum monitoring. As the dipole consists of two wires, it is also more complex in construction; and if you want good multi-band capabilities, then you must incorporate traps/loading coils to achieve this. All of this makes for complexity and added expense.

Laying out a dipole, especially outdoor, can involve much longer coax lead-ins. As such, for the wide frequency spectrum utility monitor, the long wire antenna is more practical from cost, simplicity, layout and overall performance standpoints.

Long Wire Parameters

A standard antenna wire is the #14 multi-stranded bare or enameled copper type. This can be purchased by itself or as part of an SW antenna kit. Normal single lengths range from 50 to 100 feet. Kits also supply stand off insulators and coax cable lead-in. Broadly speaking, virtually any kind of wire can be used as an antenna.

For the wide frequency utility monitor, the following advice and suggestions are given:

A) For outdoor locations, use a multi-stranded wire of sufficient thickness. An outdoor antenna has to contend with nature—heat and cold, plus wind and icing.

B) Indoor or out, the antenna must be isolated from contact with any object, except its stand-off insulators and, of course, the coax lead-in interface.

This isolation factor is the most important aspect to remember. A bare wire touching a metal object will be grounded out. Even contact with tree branches, wooden poles, sides of buildings, etc., will cause grounding when it rains or snows.

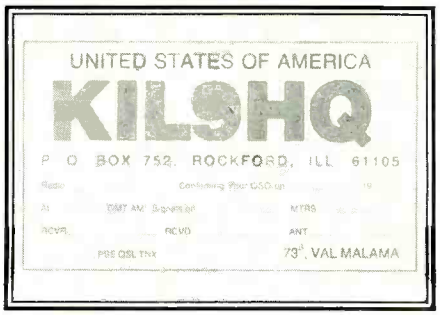
C) Even if you use insulated wire, use stand-off insulators as a go-between for attachment to support structures. Wind movement could eventually rub away the insulation at the attachment point, causing grounding.

D) For outdoors, get your antenna up as high as possible above the ground, roof, etc. Normally this distance is ¼ wavelength for a given frequency. For the 2 MHz marine band, this is in the neighborhood of 93 feet. For 27 MHz, it is only 8½ feet. Since you're wide band monitoring and have to contend with practicalities, don't tear your hair out if you can only get the antenna up 10 to 40 feet.

E) Indoor or out, use the FG-58U coax cable for lead-in to your receiver. *Don't* connect your antenna wire directly to your receiver. The coax cable will act like a shield, protecting against any grounding when you feed it into your house to the rig.

Direct antenna to receiver connections are to be avoided when using any permanently installed antenna system. It can be done without any harm, but usually under temporary circumstances. This is done primarily when utilizing a battery powered rig outdoors, or when on vacation, finding oneself in a motel room.

Insulated wire is a must, for often boondock monitoring means draping the antenna over some sort of structure, tree, bush, rock, etc. One can even lay the antenna out on the ground. This is not the most ideal situation, but unless you pack along portable erectable support structures, you've got to use what's available. The same holds true for a motel room, and this is about the only



situation where I would actually recommend the active antenna for use.

F) Indoor or out, solder the antenna/coax center wire connection, and make sure that the outer wire braid is cut back so it won't be accidently connected during soldering. For outdoor wires, sandwich popsicle sticks, pencils, or whatever over the antenna/coax connection area, then wrap with electrical tape. This will prevent the wind from flexing this solder joint and possibly breaking the coax center wire at that junction.

G) Indoor or out, don't worry about the exact length of your long wire. Fifty feet should be a minimum length. Max length depends on your available space, but consider this to be in the neighborhood of 200 feet. If you are a long wave buff, the longer the better.

H) Don't worry about laying out your antenna versus compass bearing alignments. Your antenna can take the shape of a straight line, zig-zag, or configure in an "L," "J," "U," rectangle, or box. Giving your antenna an angle will insure full omni-directional ability, but because of the wide frequency spread you work with, even a straight line wire will be omni on most frequencies. Outdoor configuration will depend on what support structures are available and where they are situated.

I) Your antenna need not be perfectly horizontal to the ground. In fact, partial elevated angles may work better than a pure horizontal or vertical, since wave polarization of radio waves can vary the incoming wave from any angle between 0° and 90°. Having an antenna with both a horizontal and vertical component is beneficial but not mandatory.

J) For outdoor antennas, *never* run them over, under, or for that matter, in close proximity to any power line. Any antenna contact with a live power line means bye-bye to your rig and possibly yourself.

K) In addition, don't use a power pole as a support structure. Most cities have ordinances against you attaching anything to these poles.

L) For indoor antennas, you virtually have to throw away the book. The prime requirement is to give your antenna the widest possible free space configuration. Running a 50 foot wire 25 feet in one direction, then doubling it back on itself (even if it is insulated) will result in the antenna having only a 25 foot capture ability.

M) The best indoor room layout is to run your antenna the perimeter of the room. This produces a wide "L,J,U" rectangle or box, depending on the antenna length and the room configuration. You can even run it room to room. Ceiling suspension is best. Use ceiling hooks for supports. If your antenna is bare wire, use "china cup" hooks that have rubber coated hooks. If not, use electrical tape to insulate the hooks. If you use an insulated antenna wire, there is no requirement for additional insulation.

N) For indoor layouts you may have to experiment, both with antenna lengths and configurations. Depending on your environmental situation, the antenna could work better in one room than it will in another. So experiment. Even in one room you could run 100 feet (or more) of wire. This layout is to run from one corner, along the ceiling to the far corner, then diagonally across the room to the opposite corner. From there along the ceiling to its far corner, and diagonally across to the opposite corner. At the center room wire crossover, make sure bare wires don't touch one another. This configuration looks something like two triangles set up apex to apex.

O) Whatever indoor layout you choose, start your antenna directly above your receiver. In this way, you'll have the shortest possible coax lead in.

P) Widest possible free space for an indoor wire is a must. Forget about the "wrap it around your window frame" technique, as well as the adhesive window glass burglar alarm type variety. One to really stay away from is the "convert your house electrical wiring into an antenna!" This one just begs for disaster.

Q) Overall, an outdoor long wire will outperform any indoor long wire, so if you have a choice, go outdoor.

R) If you cannot erect any outdoor or indoor wire, your only option is the Active Antenna. Considering their cost and overall performance, it is a last resort item. If this is your only option, then go for the outdoor model. Even if your building manager doesn't allow any outdoor antennas, you can temporarily stick the outdoor whip component out your window by resting it on the ledge, on the end of a short homemade boom, even hanging it by its coax cable. In some instances, because of the small and inconspicuous whip component, your building manager might allow you to permanently mount it near your window. Here again I ask for comments from anyone who uses an active antenna. What have you found good or bad about it, and if you have access to a regular antenna (indoor or out), how does it compare? These comments and observations will be presented in a later column.

As you can seen from this discussion, your environmental situation determines the layout, configuration, and length of your long wire antenna. Experimentation probably would be a wise course of action (especially for indoor). Via an antenna switcher, you may find that two or more different antennas will be required to give you better results for a given frequency range.

If you are a dipole fan, then by all means set up a dipole antenna. Neither the dipole or long wire is the optimum for wide frequency spread monitoring, so use the type you prefer.

Lastly, be careful when setting up the antenna. Falling off a ladder or slipping off the roof is a sure way to ruin your day.

Electrical Peripherals

Once you've erected your antenna, that merely puts you into the monitoring business. SW receivers are sturdy pieces of equipment. The only way to damage or destroy them is to drop them out a window, run over them with a car, take a baseball bat or your foot to them, or other premeditated physical measures. Unless you go off your nut, your SW rig will render years of trouble-free service. Things we cannot prevent often do the damage. Hurricanes, tornados, fire and other acts of man, God, or nature fall into this category. We do our utmost to protect our equipment against these forces, yet many never give much thought about electromagnetic dangers.

We monitor radio waves that are a form of electromagnetic radiation. In fact, this type of EMR constantly bombards us, yet its electrical potential is so insignificant that we never feel it. Electricity is another form of generated electromagnetic radiation. We use it to power our equipment, but it also has a raunchy side that, if given a chance, will turn your receiver and other pieces of equipment into useless junk. These gremlins are known as electrical overloads, surges, and spikes. They are the three bears of the EM world.

Baby Bear is a transient voltage surges, produced by many household appliances. Also in his arsenal is static electricity.

Mama Bear accounts for mid-range value electrical overloads, between that of Baby Bear and Papa Bear.

Papa Bear is a real brute. His forte is lightning.

There are ways to protect your valuable equipment from the EM three bears, and here we will examine the variety of weapons you can use.

Grounding

Grounding your receiver serves to bleed off a static electrical build-up. Not grounded, the static charge produces a hissing of its own, which mingles with the signal you are trying to monitor. In addition, its discharge produces an electrical spike surge.

Modern house construction requires the use of a grounded electrical outlet system. This is the common 3-prong socket, with the round prong being the ground. If your wall sockets are of this type and your receiver has a 3-prong plug, then you are protected against static electrical buildup. But to be sure, check it out. To do so, leave your rig on for some time. Rub your finger lightly across the rig's metal cabinet or chassis. If properly grounded, you will feel no tingling sensation in your finger. If you do or else get a shock when you touch the metal, your rig is not grounded. You will have to utilize the separate ground terminal on the back of the rig to make a grounding connection. This takes two forms. One is to a ground rod driven into the earth. The other is to a cold water pipe.

The ground wire should be very heavy gauge solid wire with an insulated covering. To be most effective, the ground wire should be as short as possible between rig and grounding source, for the longer it is, the less effective it will be. Now you can see some problems here. Even if you have access to an outside earth ground, your rig may be quite a distance away. Ground it anyway, for some protection is better than none at all.

For apartment dwellers, I assume that most of you do not have your radio shack in the kitchen or bathroom. Hence, there will be considerable distance between rig and cold water pipe. Also there is a logistical problem running the grounding wire to this source. Make sure it is the cold water pipe, and that the pipe is metal—*not* PVC plastic. Don't hook up to a hot water pipe, for this terminates at your hot water heater. Any electrical surge fed to the hot water pipe may end up blowing the hot water heater circuitry. *Never* hook up to the gas pipe . . . need I say why? Hooking up to the cold water pipe is simple. Strip off 6 to 12 inches of the wire insulation and wrap/twist tie it around the pipe. Then cover with electrical tape.

For those of you with 2-prong outlets, the wall socket box itself may be grounded. Check this out by loosening the single screw that holds the cover plate, connect your ground wire to it, and retighten the screw. Then do the rub-your-finger exercise.

Although #8 solid aluminum wire is preferred as a ground wire, from a practical standpoint use whatever heavy gauge solid wire is available. Lengths from rig to grounding source may be beyond prescribed short lengths, but as stated, some protection is better than none at all. So ground your rig.

Transient Surges

These are small to mid-range electrical surges. The most common surge/spike culprits are appliances that draw 1,000 watts or more. These include air conditioners, water heaters, room heaters, refrigerators, hair dryers, and even fluorescent lights. Equipment with regulated power supplies can handle these surges, up to a degree. What occurs is, when the appliance is on it causes a heavier electrical flow in your house wiring. When they shut off, for a fraction of a second, the excessive electrical potential has nowhere to go. It simply dissipates back through the house wiring, but also into every electrical device turned on. Operating your equipment in this routine environment can, over a period of time, lessen the life expectancy of sensitive electrical components. A large surge can immediately damage or destroy some solid state circuit parts.

There are several types of transient voltage surge/spike protection devices on the market, but all require the 3-prong grounded wall socket to work.

The simplest surge protector is the single appliance model. This is often cannister in shape. You plug your rig AC line into it and then plug it into the wall socket. These units are designed to handle overloads in the range of 500 volts. A second model is the converted wall socket type. This usually has three to six 3-prong outlets. You remove the wall socket cover plate, insert its one or two rear mounted 3-prong plugs into the wall socket, then secure it with the center screw. These units have a neon lamp to tell you when it is functioning. The wall socket models handle higher voltage surges than the canister model. Both single appliance and wall socket surge protectors are passive filters. They permit normal current to flow, but act like a sponge to soak up values higher than normal. They have no reset capability, for the only way for them to fail is to take a massive voltage overload. Under normal conditions they do their job, and you'll never know how well unless you don't have one.

The third major type is the dedicated multi-plug "wand" version. This has between three to twelve 3-prong sockets (usually aligned in a line). One socket may be always hot to supply current to devices such as clocks. Built in is a heavy duty surge suppressor and circuit breaker assembly. It also has a master on/off switch (usually an illuminated rocker switch), a circuit breaker reset button, and a neon lamp to indicate that the breaker is engaged. The wand model has its own short AC line/3-prong plug, which you plug into the wall socket. There is a desk top model, too; otherwise you attach the wand unit to the baseboard, side of the desk, etc.

The master switch allows you to disconnect electrical power to all equipment plugged into the unit. If its surge suppressor activates just push the reset button once things have cooled down. Of the three main types of suppressors, the dedicated "wand/desk" circuit breaker model is the most effective against low to mid-range value overloads.

Prices for the single appliance model should range between $7 and $10. The wall socket model should be $10 to $20. The dedicated unit will range from $30 to $80.

I strongly recommend that you purchase one of these suppressors, for they will more than pay for themselves, as opposed to not having one and finding your rig is damaged.

In addition, if you decide to purchase the dedicated wand type, check out the specs concerning reaction time. Many units activate in less than 10 nanoseconds (10 billionths of a second), while better models in less than 5 nanoseconds. A faster reaction time is best.

Antenna Protectors

Anyone with an outside antenna should seriously consider a lightning arrestor and RF protector. The RF protector may not be required, for it will be needed only if you are very close to a radio or television transmitter

array, or there is a nearby ham pumping lots of watts into his transmitter. The lightning arrestor is another matter. It is basically an in-line device, designed to re-route excessive electrical potential. It does so via a separate ground wire to earth source. Some models have an expendable component that is designed to self-destruct under massive overload conditions. Whatever type, they are designed to break the antenna circuit and prevent large voltage surges from reaching your receiver. Their value far outweighs their cost.

Papa Bear

Papa Bear's primary weapon is the lightning strike. Of all electrical overloads, this is the granddaddy of them all. A typical lightning strike may only be a bolt of up to 12 inches in diameter. Packed within it is 100,000 plus volts and upwards of 20,000 amps. This is an incredible electrical potential, one that doesn't actually have to strike your antenna or power line. This massive potential can also be airborne inducted, as such, depending on the energy of the strike; a miss of a few feet or several yards will produce the same effect as a direct hit.

To really give you an idea of what lightning's potential is, let us use a simple illustration. Pretend you are a shortwave receiver. A one-inch thick piece of steel the size of a door is your surge suppressor, which you are now standing directly behind. Transient surges can be represented by a rifle bullet. No matter how many shots are fired at the steel plate, none will penetrate to you. Now comes Papa Bear with his lightning bolt in the guise of an armor piercing anti-tank round. He fires and you are in electronic heaven. You now understand what we are dealing with.

Lightning Realities

Unfortunately, neither the antenna lightning arrestor nor the AC line surge suppressor can handle such a massive electrical potential as produced by a direct lightning strike. They will do their job but won't prevent the energy from continuing on. Reasons for this is energy potential versus time, and energy to heat conversion factors.

Electromagnetic energy being conveyed through wires moves at less than the speed of light. Roughly, this is around 100,000 miles per second. If a suppressor can react in 5 nanoseconds, the lightning energy will move 1.25 inches during that interval. That can be sufficient to arc through the circuit before it reacts.

When this tremendous energy potential meets an obstacle such as the electrical dampening circuit of the arrestor or suppressor, it piles up on itself, converting energy into heat. It then delivers pinpoint heating in the neighborhood of 10,000 plus degrees F.

This is a combination one-two punch. Not only will it fuse the suppressor circuits, but at least 5 nanoseconds of energy will arc across at the same instant. The obstacle may, in part, vaporize, preventing any further passage of energy, but as I said, some energy already made the by-pass. The antenna coax lead-in or the rig's AC line now conveys the energy to the receiver. Your receiver's circuits will react as if they were hit by a bomb!

A point blank lightning strike on your antenna will cream your receiver(s), CW/RTTY demodulator, computer and associated peripherals, which may be interconnected with your receiver . . . and it doesn't matter if your receiver is turned on or off when this occurs.

Lightning strikes on your power line fare no better for your equipment, for even if they are turned off, they can still be rendered into junk. It's Papa Bear's one-two punch again. Up the AC cord to the back of your rig, then a pile up at the on/off switch circuit. Fusing and arcing take place, and WHAM!

Electrical power companies have in-line circuit breakers to prevent a lightning hit from traversing the entire power grid. Some are located at sub stations, others along the power poles. To take a power line hit that will reach your receiver means that the lightning bolt must strike close to the section of the power line leading into your dwelling, or back along the power line, but in front of the last pole mounted breaker unit.

Airborne induction of lightning bolt energy dissipates in proportion to distance. Hence antenna arrestors and power line suppressors can handle this mid-range voltage overload produced by a strike even just a few hundred feet away.

If your location is subject to heavy thunderstorms, manual precautions may be a wise thing to enact. You simply pull the AC line from the wall socket and disconnect both antenna and external ground wires, making sure to move their end terminals well away from the rig. By totally isolating your rig/equipment, it will take a direct strike on your room to cause damage.

Not all is gloom here. A direct lightning strike on your antenna or power line is remote. Mid-range electrical overloads will have a higher probability, but managable with suppressor devices.

So use your common sense. If you like to gamble, take no precautions at all. But if you value your equipment, take steps to protect it . . . and need I say to *never* monitor during a local area thunderstorm! Papa Bear wields his weapon indiscriminately, and can just as easily take you out along with your radio equipment.

Intercepts Section
BY DON SCHIMMEL

Reader William Burke, Virginia offered the following information regarding a logging in the August Communications Confidential column: "With respect to Osier's logging and question (2381 kHz) on page 58 of the August issue: 'Tobeckwi Island': This is probably 'To Bequia.' Bequia is the northernmost of the Grenadines which lie between St. Vincent and Grenada. It's an old whaling island with probably less than 10 square miles and not more than a hundred or two people."

A query comes from reader Charles Blanchard, who had picked up an RTTY activity he was unable to identify. Although this really should have been directed to the RTTY column, I will comment on this matter because I have observed the same transmissions for several years. The target heard by Charles was on 20096 kHz RTTY 50–425 and the schedule usually commenced daily at 1700Z. Charles believes the callsign sent by the transmitting station was 03J. The traffic consists of 5F groups plus some romanized Korean plaintext messages and some encoded operator chatter. The stations come up in CW briefly, go to RTTY, and then shift back to CW after passing the traffic. They then handle any necessary repeats and, upon completion, they often engage in lengthy chatter sessions, which is readily recognizible as it is composed of 2L, 3L, 4L and 5L groups like this sample: CHANG GONG ZI OA GUEN ZI GA ZB SE SE etc. The call I have usually observed is VVH. In addition to the above frequency, I have seen related transmissions on 20010.5, 13426.4, 13415.6, 13439, and 13431.5. Just recently I found the same type traffic on 20095 and 13421 kHz. Several times PYENG YANG has been noted in the headings of a few messages.

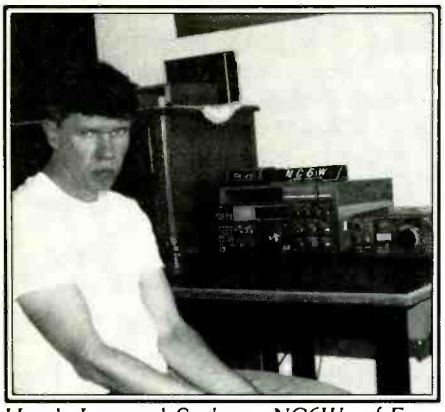
Two readers forwarded some interesting comments regarding unusual signals they found while monitoring:

Paul LeVinus, New York described an odd network operating on 4020 kHz in LSB Voice with 2GT calling and questioning 2KW, 2FB, 2UP, 2TJ, and 2TF. Control spoke of "abbreviated messages," nets of some sort, and "mixed groups." The activity took place between 1840 and 1910Z. (Ed. note: In the absence of an indication of the language, English is presumed.)

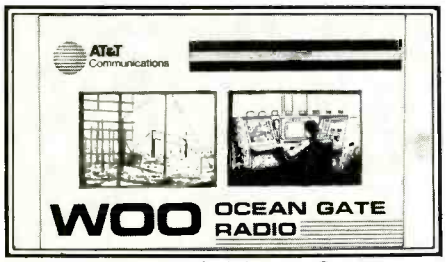
Steve Johnston, Florida ran across a rather strange transmission on 4780 kHz by an unidentified CW station who was repeating the sequence ORVHMRZXQO-KAITBRERVWYCTMOWYCTM SK. The station signed off at 0423Z.

To all those who have sent in loggings, our thanks. To those of you who have not as yet done so, send those cards and letters.

198: DIW (Dixon, NC) CW beacon at 2357. (Gary Vendetti, NJ)
201: MS (Monticello, NY) CW beacon at 1125. (Marion Filippi, PA)
204: EZ (Newark, NJ) CW beacon at 0137. (Filippi, PA)
262: VZO (Coatesville, PA) CW beacon at 2344. (Vendetti, NJ)
268: RT (JFK International Airport, NY) CW beacon at 1131. (Filippi, PA)
275: UV (Longstaff Bluff, NWT, Canada) CW beacon at 2337. (Vendetti, NJ)
286: T (Ambrose Light, NY) CW beacon at 2346. (Vendetti, NJ)
298: CL (Cape Lookout, NC) CW beacon at 0124. (Filippi, PA)
322: BI (Barneget Light, NJ) CW beacon at 1848. (Vendetti, NJ)
388: MFV (Accomack Airport, Melfa, VA) CW beacon at 1814. (Vendetti, NJ)



Here's Leonard Szalony, NC6W, of Fontana, California, listening to the sounds on shortwave.



Elton Manzione of Athens, Georgia received this nifty QSL from WOO, a high seas telephone station in Ocean Gate, New Jersey. Frequency was 8749.9 kHz.

390: DDP (San Juan, PR) CW beacon at 0145. (Filippi, PA)
408: YTA (Pembroke, Ontario, Canada) CW beacon at 0148. (Filippi, PA)
516: YWA (Pitawawa, Ontario, Canada) CW beacon at 0153. (Filippi, PA)
521: GF (Cleveland, Ohio) CW beacon at 0156. (Filippi, PA)
524: HEH (Newark, Ohio) CW beacon at 0157. (Filippi, PA)
4032: AA5NC, MARS station in LSB Voice passing traffic to unidentified station at 0135. (Thomas Borawski, PA)
4097.1: Cruise ship HOLIDAY working WOM (Miami, FL) in USB Voice, EE/OM, with phone patch at 0420. (Symington, OH)
4125: Squid boats in USB Voice talking about lack of squid except at depths over 140 fathoms at 1150. (Bob Pastrick, PA)
4143.6: XFL (Mazatlan, Mexico) in CW with call tape at 0724. (Ross, WA)
4236: 9MTI (Poss Malaysia) in CW with call tape at 1154. (Greg Harris, Philippines)
4310: MTI (Plymouth Naval Radio, England) in CW with call tape at 0159. (Vendetti, NJ)
4374: BRAVO EIGHT YANKEE, ONE BRAVO ECHO, ZULU NINE DELTA on USB Voice. Possible military tactical calls, making contact at 0146. (Borawski, PA)
4512: 41L 83A DE 0A ZB0 -0- AR. Unidentified acitvity in CW with call tape at 0215. (Borawski, PA)
4748: No calls. USB Voice, EE, cipher traffic, mixed digits/letters at 0817. (Borawski, PA)
4865: Commercial phone patches in LSB Voice. Melbourne, Australia working Baton Rouge, LA and British Columbia at 0540. (Dennis Murphy, CA)
5355: TANGO ZULU 50 working WL20 in USB Voice at 1147. Believe this is Philippine Constabulary activity on Mindanao. (Harris, Philippines)
5535: British Airways Flight 262 in USB Voice indicates it is grounded in Kingston, Jamaica for engine seal change at 0247. (Dan Burns, PA)
5696: Boston Helicopter Rescue in USB Voice with QSO between Comstead Boston and Rescue 1438 which is located at 12 miles northwest of Otis at 0115. (Pastrick, PA)
6020: 5-Letter groups in CW at 1525. Frequency is assigned to the US Army Corps of Engineers. (Robert Margolis, IL)
6225: SS/YL with 5-digit groups in AM at 0012. (Margolis, IL)
6246: FSK "U" Marker at 2320. Possible location between Murmansk and Amderma, USSR. (Borawski, PA)
6336.5: ZRH (Cape Fisantekraal) Naval Radio, RSA in CW with call tape at 0022. (Vendetti, NJ)
6386.3: HKC (Buenaventura, Columbia) in CW with call tape at 0029. (Vendetti, NJ)
6522: SEMINOLE WARRIOR (River Barge) in USB Voice, reports fuel and that he entered the "Ohio River" at 6 am. Also heard various barges at Baton Rouge, LA reporting fuel reserves during period of 1232–1238. (Pastrick, PA)
6673: Unidentified station in CW with cipher traffic in random group lengths, Russian characters, called for mode change ZZD IMI at 0725. (Borawski, PA)
6708: 4RI calls 8LH (both unidentified) in USB Voice. They QSY to frequency E-11-CF-1 at 0133. (Burns, PA)
6722: CLIMAX CENTER, an Aircraft Carrier off California coast in LSB Voice working FEVER CONTROL re 2 missing F-14's at 0412. FEVER CONTROL checking NAS Lemoore & Mirimar as well as San Clemente Tower for emergency divert. Carrier ID unknown. (J. C. Hall, WA)
7590: EE/YL with 3/2-digit groups in AM Voice at 0418. (Burns, PA)
7600: HD1L0A (Guayaquil, Ecuador) in AM with time signal at 0810. (Johnston, FL)
7635: THUNDERBIRD 54 of Arizona Civil Air Patrol on USB Voice working WIGWAM 4 of the Nebraska C.A.P at 1530. (Margolis, IL)
7707: "W" Marker in CW at 2355. (Vendetti, NJ)
7710: Station in MCW sending cut numbers TTND UU6U at 0330. (Borawski, PA)
7847: SS/YL with 5-digit groups in AM Voice at 0620. (Borawski, PA)
7887: SS/YL, 5-digit groups in USB Voice at 0730. (Glenn Finerman, NY)
7905: "IT" Marker in CW changing to "K" marker at 0002. (Vendetti, NJ)
8078: EE/YL in AM Voice with 2-digit/3-digit groups. (Finerman, NY)
8080: EE/YL in AM Voice with 4-digit groups at 0200. (Burns, PA)
8110: SS/YL in AM Voice with 5-digit groups sent very fast at 0200. (Burns, PA)
8176: EE/YL in USB Voice with 3/2-digit groups at 0035. (Burns, PA)
8295: Unidentified station in USB Voice sending Russian numerals mixed with English phonetic alphabet letters at 0415. Two minutes later the voice transmissions stopped and RTTY signal came up. (Mike Chinakas, WA)
8442: SXA (Spata Attikis Naval Radio, Greece) in CW with call tape at 0020. (Vendetti, NJ)
8506: UDE (Riga, Latvia, USSR) in CW with call tape at 0029. (Vendetti, NJ)
8589: HPP (Panama) in CW with call tape at 0116. (Vendetti, NJ)
8608: UKM6 (Russian call) DE CLO (Havana, Cuba) in CW at 0530. (Borawski, PA)
8625.2 GYU4 (Gibraltar Naval Radio, Gibraltar) in CW with call tape at 0239. (Vendetti, NJ)
8634: UJQ (Kiev, USSR) in CW with call tape at 0308. (Vendetti, NJ)
8640: PPJ (Juncao, Brazil) in CW with call tape at 0247. (Vendetti, NJ)
8645: "S" Marker in CW at 0119. (Vendetti, NJ)
8647: "D" Marker in CW at 0304. Also heard "Y" Marker in CW same time. (Vendetti, NJ)
8670: "U" Marker in CW at 0302. (Vendetti, NJ)
8677: "C" Marker in CW at 0233. (Vendetti, NJ)
8753: KVH (Norfolk Atlantic Marine Center) in USB Voice QSO with ship WTEG (Mt. Mitchell S222) at 1747. (Pastrick, PA)
8805.7: Sydney, Australia High Seas operator calling TECOBAR in USB Voice at 0725. (Pastrick, PA)
8854: SS/YM in USB Voice repeating "Ola 4556," whistling, then numbers 1-10. Odd tones in background. Abrupt signoff at 0522. (Hall, WA)
8989: McDill AFB in USB Voice with MAC Flight enroute to Torrejon, Spain. Discussing problems re fuel, instruments, poss. diversions at 0115. (Hall, WA)
8895: Coast Guard stations working New Orleans radio in USB Voice re disabled ship with injured personnel at 1615. (Johnston, FL)
9325: GG/YL in USB Voice with 5-digit groups at 2335. (Burns, PA)
10075: Japan Air 63 calling Houston Air Control in USB Voice at 1237. (Pastrick, PA)
10739: Unknown station calling RFNV and COL (AeroFlot stations Moscow and Havana) and indicates frequency of 8842. Shifted from CW to RTTY at 2215. (Borawski, PA)
10740: CW Numbers transmission, first with 4-digit groups and then followed by 6-digit groups during period of 0134–40. (Vendetti, NJ)
10741: GG/YL calls SIERRA BRAVO four times on USB Voice then electronic tones and into 5-digit groups at 2230. (Borawski, PA)

Reader Bob Pastrick with his intercept equipment. Bob is located in Baden, Pennsylvania.

10910: UAQV DE UHEY (Russian ships) in CW with callup at 0130. (Borawski, PA)
11182: SAM 12490 in USB Voice working Scott AFB with phone patch by Senator Goldwater to XYL at 0046. (Symington, OH)
11226: SAM 86970 in LSB Voice with phone patch to American Embassy in London through Andrews AFB at 1936. (Burns, PA)
11234: Trenton Military (Ontario RCAF) working aircraft in USB Voice at 2155. (Johnston, FL)
11239: MOLE 69 working McClellan AFB in USB Voice with phone patch by Tinker AFB Flight Test (MOLE Control) at 1627. (Symington, OH)
12000: VNG (Lyndhurst, Vic., Australia) with Time Signal in AM at 0620. (Pastrick, PA)
12100: 5-digit groups in CW at 0215. (Dennis Murphy, CA)
12687: OFJ (Helsinki, Finland) in CW with call tape at 0043. (Vendetti, NJ)
12717: ZLO (Irirangi Naval Radio, New Zealand) in CW with call tape. (Vendetti, NJ)
12739: ZLB (Awarua, New Zealand) with call tape in CW at 0430. (Borawski, PA)
12802: TAH (Istanbul, Turkey) with call tape in CW at 0455. (Borawski, PA)
12823.5: CTP (Oeiras, Portugal) in CW with call tape at 0249. (Vendetti, NJ)
12880.5: SAG (Goteborg, Sweden) in CW with call tape at 0030. (Vendetti, NJ)
12968: USE (Moscow Naval Radio, USSR) calls Russian ships UZNB and UROD in CW with PT Russian tfc at 1930. (Borawski, PA)
12994: VIP4 (Perth, Australia) in CW with call tape at 0019. (Vendetti, NJ)
13046: PZN (Paramaribo, Suriname) in CW with call tape at 0011. (Vendetti, NJ)
13076.1: UFN (Novorossiysk, USSR) in CW with call tape at 1549. (Vendetti, NJ)
13215: SAM 86970 in LSB Voice with phone patches to/from State Operations and SAM through Andrews AFB at 1417. (Secty Schultz's South East Asia trip.) (Burns, PA)
13238: BANKLOAN in USB Voice working WILSON (YL) with strange messages in code at 0024. (Hall, WA)
13412: AIRFORCE ONE in USB Voice working Andrews AFB with various Comms checks and frequency changes at 1654. (Symington, OH)
13872: Station calls 611 in CW then into 5-digit groups at 1515. Zero cut as T. (Margolis, IL)
14075: VRQ (Unidentified) in CW with call tape at 0231. (Harris, Philippines)
14412.5: EBA (Madrid Naval Radio, Spain) in CW with call tape followed by PT Spanish WX traffic at 1700. (Margolis, IL)
14441: 5-digit groups in CW at 1357. (Margolis, IL)
14526: 5-letter groups in CW in 1508. (Margolis, IL)
14556: 5-letter groups in CW at 1517. (Margolis, IL)
14790: 5-digit groups in CW at 1315. Letter T sent for zero. (Margolis, IL)
14800: FF/YL in USB Voice in telephone conversation routed via PTT Doha, Qatar at 1550. (Margolis, IL)
16446: 5-digit groups in CW at 1349. (Margolis, IL)
16942.8: YUR (Rijeka, Yugoslavia) in CW with call tape at 1528. (Vendetti, NJ)
17048: DAF (Norddeich, West Germany) in CW with call tape at 1759. (Johnston, FL)
17064.9: UAT (Moscow, USSR) in CW with call type at 1813. (Vendetti, NJ)
17069: OXZ8 (Lyngby, Denmark) in CW with call tape at 1754. (Johnston, FL)
17174.8: A9M (Bahrain, Bahrain) in CW with call tape at 1808. (Vendetti, NJ)
18023: HEE81 (Berne, Switzerland) in USB Voice handling several airline flights at 1352. (Margolis, IL)
18027: SAM 86972 in LSB Voice phone patches to State Operations and SAM through Andrews AFB at 1522. (Secty Schultz on his way to Hamilton, Bermuda.) (Burns, PA)
18176: 5-digit groups in CW sending 3 4 5 6 full and 1 2 7 8 9 0 cut as A U S D N T at 1935. (Margolis, IL)
18808: YL heard talking in Swedish on USB Voice at 1851. Conducted phone conversation with another YL. MFA, Stockholm, Sweden is listed for this frequency. (Margolis, IL)
22123.2: CCS (Santiago Naval Radio, Chile) in CW with call tape at 2200. (Al Trautman, LA)
22420.6: PPR (Rio de Janeiro, Brazil) in CW with call tape and time signals at 2100. (Trautman, LA)

Keep sending those great reports! And what about a photo of your monitoring station? PC

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Advanced Terminal Unit

The ATU-1000 is the most advanced H.F. RTTY modulator-demodulator available. The ATU-1000 is designed for interconnecting a communications transceiver with a computer (or mechanical communications device) using appropriate computer communications software. Operation on Morse, Baudot, ASCII, Packet, and AMTOR teletype is provided.

Demodulator

The heart of the demodulator system of the ATU-1000 is a pair of identical eight pole (0.5 dB ripple) Chebyshev filters. Twin oscillator-modulators mix the input tones to the filters' center frequency. Both mark and space tones may be adjusted independently from 1000 to 3000 Hz, providing compatibility with all commercial and amateur tone pairs. Adjustment of the tone frequencies is accomplished with ten turn potentiometers and the tone frequencies are indicated with a built in frequency counter. Adjustment of the filters is accurate to 1 Hz! For fixed tone pair operation, an optional eight pole band pass pre-filter is selectable from the front panel. Selection of the normal channel bandwidth of 180 Hz or a narrow 100 Hz bandwidth is provided for optimizing the channel filters for the mode of operation.

This exceptional filter system is followed by twin full-wave detectors and twin four pole low pass filters with selectable cutoff frequencies corresponding to 50, 110, and 300 baud data rates. This is followed by a DC coupled threshold correction system that provides superior performance during selective fades and low signal conditions. In total, 32 poles of receive filter are provided in this system.

Operation using both normal mark-space comparison and mark only or space only is selectable during interference on one of the information channels.

Tuning is indicated with a discriminator style LED bar graph with selectable mark only, space only, and summed mark and space operation. In addition, the tuning rate is selectable for quick initial tuning and precise final tuning.

Frequency Counter

The frequency counter input select allows measurement of:

1. The input mark filter center frequency;
2. The input space filter center frequency;
3. The AFSK generator mark of space frequency;
4. The frequency of the input signal.

Other Receive Features

For operation on CW, the space filter is adjustable from 700 to 2500 Hz.

The operator may select either fixed or variable shift. The fixed RTTY shift is set to the standard 170 Hz, 2125 Hz mark, 2295 Hz space tones, but may be internally reset to any pair in the 1000 to 3000 Hz range.

An input AGC system with front panel selectable time constant provides proper operating levels with inputs from 5 mv to 5 v RMS.

A front panel squelch control and LED indicator allow fine adjustment of the input signal level for operation. This is especially useful for mechanical teleprinters as it prevents printing on noise. It may also be turned off for printing those ultra weak signals.

AFSK Generator

A low distortion sine wave generator provides the AFSK signal. As with the mark and space input filters, both the AFSK mark and space tones may be adjusted from 1000 to 3000 Hz. The mark and space AFSK tones may be set to within 1 Hz using the built in frequency counter. Both variable and fixed operation of the tones is selectable. The fixed operation is factory set at 2125 Hz mark and 2295 Hz space, but may be internally reset to anything in the 1000 to 3000 Hz range.

Input-Output (I/O)

Audio from the receiver is connected through one of two paralleled 3.5 mm phone jacks. The other jack may be connected to a monitor speaker or other devices. An optional 600 ohm balanced input is available.

I/O to the computer is through a standard 5 pin connector and is compatible with all AEA data communications software. The RS-232 DB-25 connector may be used for interconnection to the computer. The ATU-1000 may be used with a 20 or 60 ma current loop and is capable of switching mechanical teletype machine selector magnets.

AFSK and PTT connections are via RCA phono jacks. The PTT line is an isolated relay contact. Normal and reverse FSK open collector outputs are available for direct FSK.

Positive and negative CW keying outputs are RCA connectors and a key input jack is ¼ inch phone.

For external scope tuning, both mark and space filter outputs are provided.

For more info, contact: AEA, P.O. Box C-2160, Lynwood, WA 98036, or circle number 15 on the reader service card.

State-Of-The-Art AM CB Base Station

Midland International Corporation recently announced a new, high-power AM base station (Model 76-300) that features a new size, a new style, and Midland's famous power and performance. It is part of Midland's full line of high-tech, state-of-the-art electronic communication equipment.

The Model 76-300 is the most powerful CB set Midland offers. Its "POW-R-MIKE" electronic circuitry lets the user adjust the TALK POWER audio for maximum range and clarity. Plus, a Variable Range Control provides reception range for nearby or distant stations.

A new electronic meter gives visual indications of incoming signal levels and transmitter output through state-of-the-art light emitting diodes. The innovative meter is far more reliable than analog meters.

The model's "Insta-9" electronic circuit gives the user instant access to emergency Channel 9 with the flip of a switch. It also features a special emergency circuit, allowing the user to run the 76-300 from an optional 12 volt battery during a power failure.

Midland's 76-300 has been reduced in size more than 40% over other previous models. It includes modern integrated circuits, digital readouts and high performance circuitry designed for long-term, trouble-free performance.

Other features include the ability for the model to become a public address system, an automatic noise eliminator, noise blanker and transmit indicator.

Midland International Corporation, a worldwide marketer of personal and busines communications equipment, supports the Model 76-300 and its full line of CB radio, car stereo, and test equipment products with an aggressive program promoting the themeline, "Midland to the Rescue." In addition, the firm markets a full line of CB accessories to complete its product base. Four-color literature, eye-catching packaging, point-of-purchase materials and a comprehensive co-op advertising program round out the sales support Midland offers. PC

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Rules To Require Automatic Power Reduction On Bridge-To-Bridge Channels

The Commission adopted rules requiring all VHF marine radios to reduce their power automatically to 1 watt when tuned to bridge-to-bridge Channel 13 (156.650 MHz) or Channel 67 (156.375 MHz) in the lower Mississippi River.

These channels are used for close range communications concerning pertinent navigational matters. All vessels are currently required to operate on 1 watt when tuned to Channel 13 or 67 where appropriate.

In November, 1984 the Commission proposed making the reduction to 1 watt automatic. It stated that frequent violations posed a safety hazard because other vessels in the area were unable to use the bridge-to-bridge channel when one vessel used greater power. It was further proposed that manufacturers design the new equipment with a device which, when activated, would raise the power to as much as 10 watts to comply with international agreements.

The proposal also sought comments regarding the inclusion of Channel 67, the lower Mississippi River bridge-to-bridge channel, in this new rule. The Commission stated that most of the commenters supported an automatic power reduction but were not in agreement over the inclusion of Channel 67. The Commission decided to include Channel 67 because improved safety outweighed other considerations.

The Commission also proposed allowing government stations to use five additional port operations channels, but has postponed any action on this matter. Because a blanket allotment of the five channels to government stations would have an adverse effect on non-government licensees, the FCC stated that it would consider the request on a port-by-port basis.

Auxiliary Operation For Amateur Frequencies Except 431-433 MHz And 435-438 MHz

The FCC proposed permitting auxiliary links to be used by amateur operators on all amateur frequencies, except 431-433 MHz and 435-438 MHz. Auxiliary operation is used for remote control, automatic relays, and intercommunications between amateur stations in a system of stations.

Present rule provisions restrict auxiliary operation to frequencies above 220.5 MHz, except 431-433 MHz and 435-438 MHz. The proposed rule continues the exception since the FCC wants to protect weak-signal communications, moonbounce experimentation, and satellite transmissions.

The Commission invited interested persons to submit comments on any problems that might arise from expanding the use of auxiliary links.

Future Public Safety Telecommunications Requirements

The FCC is seeking comments on a report prepared by the Private Radio Bureau, entitled "Future Public Safety Telecommunications Requirements."

The Report is the second phase of a three-part project to develop a plan to assure that the Commission considers the current and future communications requirements of public safety entities in making spectrum allocations. It contains projected public safety spectrum requirements for the years 1990 and 2000, as well as an analysis and evaluation of various options and alternatives available to the FCC to meet the telecommunications requirements of state and local public safety authorities.

The report consists of six main sections: a discussion of current public safety allocations; a discussion of the growth factors responsible for increasing public safety communication requirements; nationwide and geographic projections of public safety spectrum needs through the year 2000; a discussion of proposed public safety allocations; a discussion of the impact of new technologies on these projections; and a discussion of several alternative means to meet the projected future needs of the public safety radio services.

While comments are sought on all aspects of the report, the Commission said it was especially interested in reactions to the following options which are discussed in Chapter 7 of the report:

- Review the proposed allocations of the 900 MHz land mobile reserve spectrum;
- Reallocate spectrum currently allocated to the Domestic Public Land Mobile Radio Service to the public safety radio services;
- Reallocate all spectrum below 470 MHz currently allocated to the Private Land Mobile Radio Services exclusively to the public safety radio services;
- Reallocate or share current federal government land mobile spectrum with the public safety radio services;
- Make at least 2 UHF-TV channels available for land mobile sharing in major markets for use by all private radio users, including public safety;
- Require the implementation of narrow-band technology in the private radio services and phase out existing equipment; and
- Increase the use of existing common and private carrier communications capacity by public safety entities.

The Commission stated that it would use the comments from the public safety community and others to assist in the third and final phase of this project, development of a Public Safety Plan.

The report will be made available to the public through the Commission's records duplication contractor, International Transcription Services, 2100 M Street, N.W., First Floor, Washington, DC 20036, (202) 857-3800. Copies will be available for inspection during regular business hours in the FCC's public reference room, Room 239, M Street, N.W., Washington, DC.

FCC Restricts Amateur Radio Use Of 902-928 MHz Band At White Sands Missile Range

The Commission had modified footnote US275 to the Table of Frequency Allocations (Section 2.106 of the rules) to restrict secondary amateur operations in the 902-928 MHz band at White Sands Missile Range in southern New Mexico.

This action prohibits amateur use inside the White Sands Missile Range and restricts amateur use for 150 miles outside the range to a maximum transmitter peak envelope primary radiolocation operations at the range.

Frequencies To Implement Future Maritime Distress And Safety

The Commission adopted rules which will allows its marine service licensees to begin implementing the Future Global Maritime Distress and Safety System (FGMDSS) frequencies allocated by the 1983 World Administrative Radio Conference for the Mobile Service. Permitting voluntary use of these frequencies at an early date will provide for smooth transition to the FGMDSS.

This proceeding makes available five calling channels in the 2-18 MHz bands to be used for radiotelephone distress and safety communications. Six frequencies in these bands are being allocated exclusively for distress and safety, using digital selective calling techniques, and another six frequencies are being allocated exclusively for distress and safety, using narrow-band direct-printing (NB-DP) telegraphy. Five of these six NB-DP distress frequencies are being reallocated from NB-DP working frequencies.

The operation of such installations will be complementary to and not adversely affect existing distress and safety services. These amendments require no equipment to be installed on ships or in coast stations.

New Experimentals

The Commission, by its Office of Science and Technology, Frequency Liaison Branch, took the following actions:

KA2XAL, Alpha Industries, Inc., Methuen, Massachusetts. Station to operate on various and discrete frequency bands between 1215 and 23600 MHz and between 24.05 and 300 GHz bands for use in antenna test range for development of antennas.

KA2XAM, Astronautics Corp. Of America, Madison, Wisconsin. Station to operate in 216-220 MHz band and on 49.25 MHz for feasibility study of wind profiling radar.

KA2XAN, Millidyne Cellular Systems, Inc., St. Paul, Minnesota area. Station to operate on 825-845 MHz to field test hand-held cellular transmit/receive units prior to type acceptance.

KA2XAO, Millidyne Cellular Systems, Inc., Baltimore-Washington D.C. area. Station to operate on 825-845 MHz to field test hand-held cellular transmit/receive units prior to type acceptance.

Production Monitoring & Control Corp., Within State of Texas. Station to operate on 154.45625 MHz to provide telemetering of data collected from low production oil wells and telecommand of pumping equipment.

KA2XAU, C.M. Baker Electronics, Gilbertsville, Pennsylvania. Station to operate on 540, 1625, 9715, 11705, 15300, 17745 kHz, 89.7 and 100.5 MHz for development and testing of broadcast transmitting equipment. Here's one to try for!

KA2XAX, Bramham Enterprises, Inc., Southeastern U.S. Station to operate on frequency bands 450.05-450.95, 455.05-455.95, 152.87-153.35, 160.89-161.37 MHz to demonstrate equipment to potential customers.

KA2XAZ, Atlantic Scientific Corp., Melbourne, Florida & 30 mile radius. Station to operate on 452.3750, 452.6750, 452.7000, 452.7750, 464.3500, 464.7000, 463.6750, & 463.7500 MHz to provide communications while researching the feasibility of an automatic vehicle locating and tracking system based on voice modulated transmissions.

KA2XBB, Kustom Electronics, Inc., Lenexa, Kansas and 25 mile radius. Station to operate on 72-76 MHz band; 15.1775, 461.600 MHz, 816-821 & 861.866 MHz bands 928.1875, 952.1875, 954.35 and 957.95 MHz to enable applicant to continue to develop digital data communication products which will result in greater efficiency of spectrum utilization and to provide communications to users where not previously feasible.

KA2XBC, Mark Products U.S., Inc., 4-5 miles SE of Huntsville, Texas. Station to operate on various discrete frequencies between 153.050 and 153.350 MHz for development of geophysical data acquisition systems for the Petroleum Industries.

KA2XBD, Owen R. Mulkey, Nordland, Washington and 10 mile radius. Station to operate on 156.450 and 156.800 MHz to provide communication link between shore and boat used as a test bed for development of custom marine electronic equipment.

KE2XPS, John A. Burns School of Medicine, Honolulu, Hawaii. Station to operate on 149.22 MHz for use via PEACESAT to get data to and from rehabilitation center.

KE2XPT, Sperry Corporation, Charlottesville, Virginia. Station to operate on 1636.5-1645 MHz band to develop improved models, production testing, demonstrate to potential customers, ship earth stations and to provide repair services for ship earth stations.

KE2XPV, The Mitre Corporation, Southbury, Connecticut and between Cedar Rapids, Iowa and Newfoundland and Washington, D.C. Station to operate on 1644.4 MHz via INMARSAT to demonstrate the technical feasibility of aeronautical data communications.

Regents Of Eastern New Mexico University, to operate an ITFS system between the main campus and remote campus areas:

KK2XAS—Clovis, NM on frequency 455.45 MHz.

KK2XAR—Roswell, NM on frequency 455.45 MHz.

KI2XHY—Portales, NM on frequency 2500-2518 MHz band.

KI2XIB—No. of Caprock, NM on 2500-2518 MHz band.

KI2XIA—Elida, NM on 2632-2650 MHz band.

KK2XAT—No. of Caprock, NM on frequency 450.45 MHz.

KE2XGJ, State Of California, Sacramento, California. On 149.175, 149.195, 149.220, 149.245 and 149.265 MHz for exploration of the feasibility of using satellite communications in an emergency service role.

KK2XCE, Sunair Electronics, Inc., Fort Lauderdale, Florida. On assigned freqs 5889.5, 7554.5, 9306.5, 13882.5, 17556.5, 23146.5 kHz for development and testing of HF/SSB radio equipment.

Rules Governing Telephone Maintenance Radio

The FCC proposed amending Part 90 of the rules governing eligibility and operations in the Telephone Maintenance Radio Service (TMRS), a Private Land Mobile Radio Service.

Facilities in the TMRS are used by communications common carriers to transmit communications related to the construction, repair, maintenance, or operation of communications carrier facilities.

Eligibility in the TMRS is limited to communications common carriers offering wireline service (referred to as wireline carriers) and radio communications common carriers licensed in the Point-to-Point Microwave Radio Service under Part 21 of the Commission's Rules (referred to as microwave carriers). The proposal would remove the frequency fence in the TMRS which allocates four VHF frequencies and six UHF frequency pairs for the exclusive use of wireline carriers, and allow access to these channels by the microwave carriers. Under present rules, the microwave carriers only have access to 12 UHF frequency pairs in the 450-470 MHz band which they must share with eligibles in the Power, Petroleum, Forest Products, and Manufacturers Radio Services. The proposal does not alter the eligibility requirements for the TMRS, nor the requirements for interservice sharing and interservice frequency coordination of the 12 shared UHF frequency pairs in the 450-470 MHz band.

This proceeding was initiated by a Notice of Inquiry, released September 26, 1984, soliciting public comments on rule amendments to the TMRS which may be required in light of the massive changes the telecommunications industry experienced with the January 1, 1984, divestiture of AT&T's Bell Operating Companies. Small and rural telephone companies and cooperatives expressed concern that any prohibition on their using TMRS facilities to install and maintain customer premises equipment (CPE) and enhanced services would severely affect those local exchange carriers that use common equipment (primarily utility trucks equipped with mobile radios) and personnel to maintain both their transmission facilities and CPE/enhanced services.

Responding to these concerns, the Commission has proposed permitting certain TMRS eligibles that use common equipment for the maintenance of both types of facilities to continue using their TMRS systems for both functions.

International Signalling Authorized Maritime Mobile Service

The Commission authorized the optional use of digital selective calling (DSC) within the Maritime Mobile Service and has set forth an implementation plan for DSC based upon two open-ended dates.

DSC is an internationally approved signalling technique designed to provide the basis for automated initiation of radio communications. The primary reason for implementing DSC is to provide a standard method for establishing radio contact in the marine environment and to promote more efficient use of the radio spectrum. DSC will be an integral part of the Future Global Maritime Distress and Safety System developed by the International Maritime Organization and planned for final implementation in the next decade.

In amending Parts 81, 83, and 87 of the rules to provide for optional implementation of DSC, the Commission concluded that it was time to permit the U.S. maritime community and manufacturers serving this community to commence planning for and using DSC which is based upon the International Radio Regulations and pertinent International Radio Consultative Committee (CCIR) Recommendations.

Multiple Address Systems (928 MHz And 952-960 MHz) In The Private Operational-Fixed Microwave Service

In 1980 the Commission allocated channels at 928/952 MHz for the operation of multiple address radio systems by entities eligible in the Power Radio Service (Section 90.63 of the Commission's Rules and Regulations). In 1982 the Commission allocated additional channels at 928/952 MHz and 956 MHz for multiple address systems operated by other Part 94 eligibles. *Second Report and Order* in Docket No. 79-18, 47 *Fed. Reg.* 6869 (February 17, 1982).

When adopting the multiple address rules, the Commission designated the 952 MHz frequencies for transmissions emanating from master stations and the 928 MHz frequencies for use by remote stations in communicating with the master stations. See Section 94.65(a)(1) of the Rules. Additionally, certain 956 MHz frequencies were designated for unpaired use in multiple address systems which required only one frequency.

It appears that some private multiple address systems has employed a multiple address frequency pair (master station transmit frequency at 952 MHz and remote transmit frequency at 928 MHz) for operations involving sporadic and infrequent transmissions from the master station to remote units, or operations otherwise involving insignificant use of the master transmit frequency, e.g., use of the master station transmissions only to assist in the initial installation and testing of remote units. Similarly, it appears that some multiple address licensees have "tiered" master stations utilizing otherwise unused master transmit frequencies to create an enlarged service area, the boundaries of which extend beyond the area which would be served by a single multiple address master station. Such uses do not conform to the type of operations for which the multiple address allocation was made.

Though the rules governing multiple address systems in the Private Operational-Fixed Service provide for some flexibility in the configuration of a system, there are features which must characterize multiple address systems established under Part 94:

(1) For a multiple address system to be considered properly constructed, each individual multiple address master station must have a minimum of four active remote stations which it controls, activates, interrogates, of from which it receives information. The system must be providing service consistent with the original application.
(2) Multiple address systems utilizing 928/952 MHz (paired) frequencies must be designed for two-way interrogate/response communications between a master and its remotes where the communications are inter-related.
(3) Transmissions from a master station to its remotes must be on the master frequencies 952.3625-952.8375 MHz for eligibles applying in the Power Radio Service and 952.0125-952.3375 MHz for other Part 94 eligibles.
(4) Transmissions from remote stations to their master must be on the remote frequencies 928.3625-928.8375 MHz for eligibles applying in the Power Radio Service and 928.0125-928.3375 MHz for other Part 94 eligibles.
(5) Multiple address systems, excluding Power Radio Service systems, designed essentially for one-way communications from the remote stations to their master or from the master station to its remotes or for two-way communications between the master and its remotes on a single frequency, utilize the 956.2625-956.4375 MHz frequencies designated for unpaired operation.
(6) Two or more master stations using different multiple address transmit frequencies may not employ the master or remote transmit frequencies to interconnect with one another to establish a "tiered" system.
(7) Two or more master stations using the same master transmit frequency may not use their assigned frequencies to "tier" their systems in such a way as to extend their operations beyond the area which would be served by any single master station. Where redundant master stations are involved, intercommunications between system elements reusing the assigned multiple address frequencies are permitted except for remote-to-remote traffic.

Private multiple address applications filed after August 16, 1985, must include sufficient explanation of the proposed configuration and mode of operation to demonstrate compliance with the previous-listed operational characteristics. For example, information which may be submitted to demonstrate compliance would include a detailed description of the system's connectivity, a map or scaled diagram showing all master, one-way remote, and two-way remote stations and the frequencies and routes of all communications paths, the manufacturer's make, model and type acceptance number of all two-way and one-way remote units and, for systems proposing to employ paired frequencies, the percentages of remote units which will operate two-way and one-way. All applications filed in Gettysburg after August 16, 1985, which, upon staff examination, are found to conflict with the operational characteristics of the conventional multiple address systems identified above will be dismissed as defective pursuant to Section 1.958 of the Commission's Rules and Regulations.

Procedures To Assess Loading Of Private Land Mobile Radio Licensees In The 800 MHz Band

The Commission's rules state that a private land mobile radio licensee will not be authorized additional frequencies within 40 miles of an existing system unless the existing system is loaded to at least 80 vehicular and portable mobile units and control stations per channel or 80% of its authorized capacity of vehicular and portable mobile units and control stations. See 47 C.F.R. §§90.364(b) (2) and (3), 90.623(c) (2) and (d), and 90.627(b) (2). The Private Bureau routinely dismisses applications for additional frequencies which fail to comply with the loading requirements contained in the rules. The Commission often receives petitions for reconsideration of these dismissals from licensees who claim that they had temporary authorization for additional vehicular or portable mobile units or control stations which were operating on the system but were not recorded in the station records. See 47 C.F.R. §90.159. These licensees then request the Commission to add retroactively the additional units to their loading count and to reinstate their applications.

Henceforth, when a private land mobile radio licensee has an application on file for additional channels at 800 MHz within 40 miles of an existing system, it is incumbent upon the licensee to keep the Licensing Division of the Private Radio Bureau in Gettysburg, Pennsylvania, informed of any temporary authorizations for vehicular or portable mobile units or control stations which are operating on the system but are not a part of the station records. The licensee must inform the Licensing Division of the number of operating units, the dates on which the applications for the units were filed and the application file numbers, in order for the units to be counted by the Private Radio Bureau for purposes of loading. In order to be effective, notification to the Licensing Division must be made prior to review of the application for additional channels.

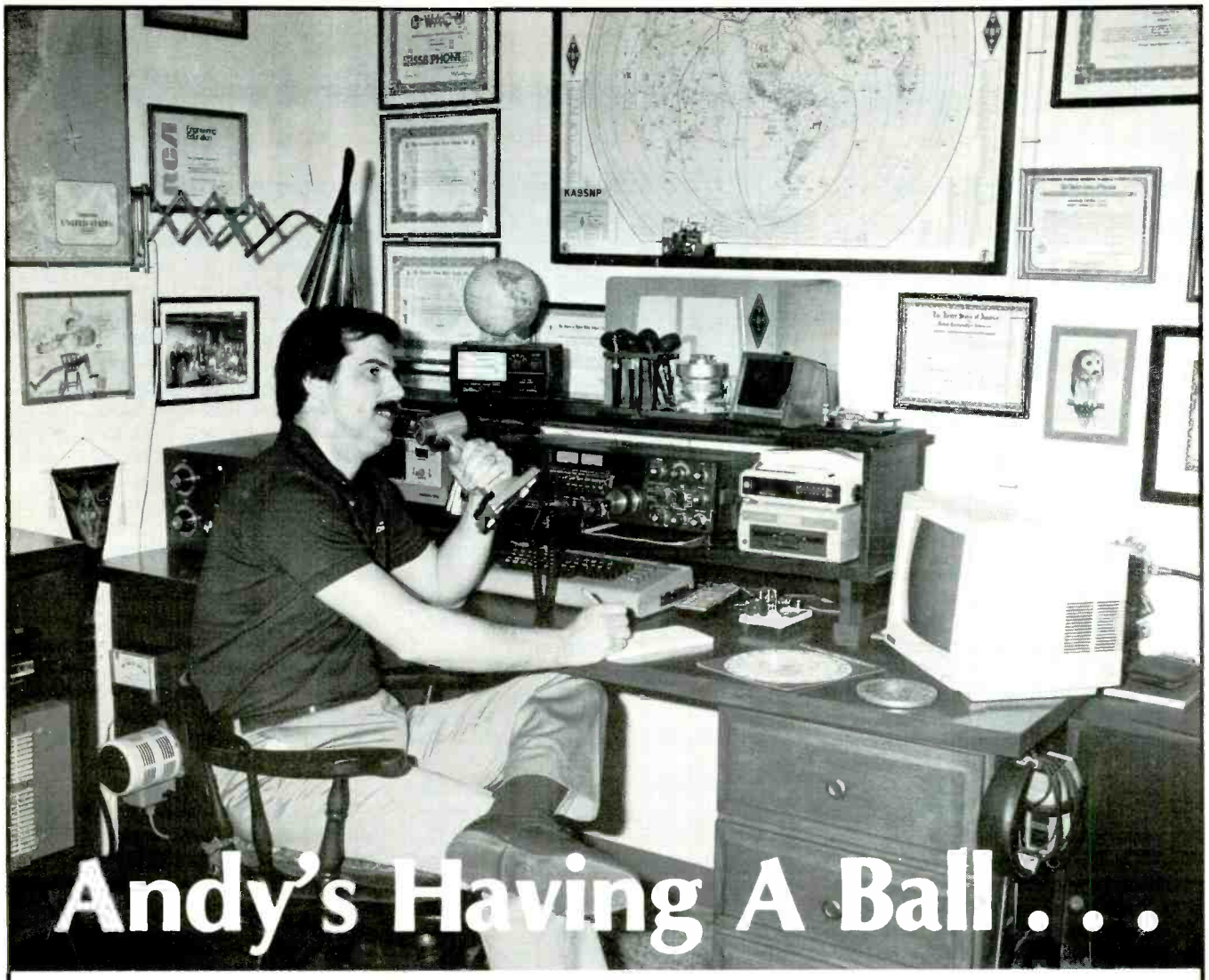
Propose Allowing Private Microwave Licensees To Lease Capacity

The FCC proposed allowing licensees in the Private Operational-Fixed Microwave Radio Service, excluding dominant common carriers, to lease excess capacity for transmitting common carrier communications on Private Radio Service frequencies.

The Commission said there are at least two possible advantages to widening the range of uses permitted on OFS frequencies. First, more permissible uses would encourage more efficient spectrum use. It is expected that many licensees would invest in capacity-enhancing equipment if they were able to recover those costs through resale of unused capacity. The second advantage is that it would provide a safety valve that could help relieve congestion in other microwave services.

The Commission said that in spite of the potential for fuller use of the OFS bands, it is concerned that relaxing the permissible communications restrictions could seriously affect traditional private microwave users.

Also, the Commission concluded that because there is no case in controversy, it makes no proposals with regard to whether the Commission should preempt state regulation of private systems consisting solely of fiber optic links.



and you can too!

Andy is a Ham Radio operator and he's having the time of his life talking to new and old friends in this country and around the world.

You can do it too! Join Andy as he communicates with the world. Enjoy the many unique and exclusive amateur bands . . . the millions of frequencies that Hams are allowed to use. Choose the frequency and time of day that are just right to talk to anywhere you wish. Only Amateur Radio operators get this kind of freedom of choice. And if it's friends you're looking to meet and talk with, Amateur Radio is the hobby for you. The world is waiting for you.

If you'd like to be part of the fun . . . if you'd like to feel the excitement . . . we can help you. We've got all the information you'll need to get your Ham license. Let us help you join more than a million other Hams around the world and here at home. Who are we? We're the American Radio Relay League, a non-profit representative organization of Amateur Radio operators.

For information on becoming a Ham operator
circle number 110 on the reader service card or write to:

AMERICAN RADIO RELAY LEAGUE Dept CQ, 225 Main Street
Newington, Conn. 06111.

This space donated by this publication in cooperation with the American Radio Relay League.

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

Have you ever felt as if you were in the Twilight Zone while monitoring the output of some RTTY stations, wondering if what you were seeing was for real?

No? Well, what language would you believe the following to be if you came across it during your monitoring excursions?

"Daisaneun menze uidaihn sulyengnim ggeise susangeigei bonaisineun chinsenzeg insaleul zenhayesseum ddohan chongi dongzieui insaleul zenhan daeum dunala saieui chinsengoangyei balzen . . ."

It looks like something from the Twilight Zone and would be a good guess on your part if you said North Korean. But is it that language? We shall see.

For more than a year, this writer has monitored an RTTY station in late mornings (local time) on 20095.5 kHz that was sending copy in that language.

Sometimes messages containing 5-digit groups would separate plaintext copy.

Little thought had been given to this station when this writer first monitored it late in 1984. Then, a set of loggings was received from Dallas Williams of Sedgwick, Colorado, a few months ago. Williams monitored the same station at 1215 on 12092 kHz and at 1805 on 20095 kHz.

Williams says that he saw the coded 5-digit groups and the unknown language, which he was told was Korean. And, if that were the case, the copy must have been sent from a North Korean embassy somewhere.

Shortly after Williams submitted his loggings, a set of loggings from Fred Hetherington of Ormond Beach, Florida, was received. At 12240.5 kHz, Hetherington has this to say: "Strange language with one word which is used frequently. Transliterates as 'zosen.' Five-digit groups at 1245. To CW 1300 with 'ALV.' Back to RTTY at 1330 with names 'chugeegen' and 'pyengyang.' Very probably an embassy or foreign office."

Those words, "zosen," "chugeegen," and "pyengyang" were among the words your editor spotted at the higher frequency.

RTTY settings were 500/66N for Williams, 475/66R for Hetherington, and 425/66N for this writer.

Let us now analyze this "strange" traffic, based upon this editor's research.

Much of the transmitted copy is similar to this: "MF271/200 0735 ZALYO" as header to the text, and "Choigeun ggubaneun modeun diabungzengchi zozigdeulgoa gongzang . . .," beginning the body of the text.

Similarities seem to exist with the text of all plaintext messages. All seem to use the same words or run-on words repeatedly. Therefore, observation number one is that the vocabulary is limited to maybe less than

Dominic Cassarino of Sunnyvale, California is an active RTTY monitor.

100 different words, which appear to be used in Far East or Southeast Asia.

Observation number two is gathered from many of the words, such as "geuneun," "nainmineun," "geugeseun," "senggoaleul," "naganeun," "chughaleul," "deulimyense," "dangsineui," "haneun," "nalaeui," "ogoaleul," "deuliugo," "guigeun," "mizeigugzueui," "uiebeul," "zasineui," "eul," "keulonikeul," and "eizeum." Notice that they all have the vowel combination "eu."

A third observation is that all letters of the Roman alphabet are used with the exception of F, J, Q, V, W, and X. The letter K is rarely found in the texts. This might rule out Korean as the observed language because upon Romanizing that language, "K" will be found to be used frequently. As a matter of fact, in Romanized Korean, the following letters are not found: B, D, F, G, Q, R, V, X, and Z. And "Z" is one of the letters frequently found in the RTTY texts.

Other languages from the Far East and Southeast Asia are immediately ruled out. This includes Mandarin and Cantonese Chinese, Japanese, and Indonesian, which have none of the observed words in their vocabularies. Many of the words found in our sample text contain three syllables. This rules out Malay because most of its words contain two syllables; words using more than two syllables are rare.

Vietnamese is also excluded, although some words, such as "choi," "cham," and "nam," are to be found in both languages. Vietnamese also has no letter "Z." It does have many words beginning with "X," which the RTTY text lacks, and "K" is a commonly used letter, also contrary to the sampled text.

No similarities are found between the RTTY text and Lao, Tagalog, Cambodian, Thai, Burmese, or Tibetan. The latter three languages are mainly monosyllabic.

When monitoring this station last September 10, one plaintext message was seen ending with, "O SEU GGA LEU SSAL LA SEU MO LEI NO 1985.9.5 MA UFI." Another ended with, "LEI NEI NU NEI SEU DDEIL LYEISEU 1985.9.7 MANAGOA."

Aha! A clue: "Managoa," might this be a translation of "Managua," the capital of Nicaragua? And the number groups are dates of September 5 and 7, 1985. One message had the word "NIGGALAGOA" in it. Could that be "Nicaragua?" There is a similarity both in sight and sound.

But we haven't yet proven this traffic to be in the North Korean language. (Different spelling systems are used in North and South Korea.) Are there any clues to help us make this determination?

One clue seems to have been shown earlier in this essay. Remember the word "Pyengyang?" Might that be Pyongyang, the capital of North Korea? Most likely.

How about "Zosen?" Well, the "Z" could equate to be the letter "C," making the word "Cosen," what Koreans have called their country for centuries.

From this analysis, other words spotted in various plaintext messages become recognizable. If "G" or "GG" equals "K" then "Gguba" would become "Kuba" and then "Cuba."

Then there is ". . .Gim il seng dongzigo," which has been spotted occasionally. "Gim il seng" must be Kim Il Sung, the North Korean president. "Dongzigo" would then become "chongjae" in Romanized Korean, and translate to English as "president."

So the assumption that this traffic is in North Korean appears to be correct. And these messages are being sent on a teleprinter that has a triple-shift keyboard, which would explain why the texts look strange.

All this is speculation, of course, for this writer is just an amateur linguist. If you have a good theory about this language, please share it with your fellow RTTY buffs.

Hetherington and Williams are most likely correct in saying these messages are embassy traffic. The use of 5-digit-grouped coded messages seems to prove that belief.

An educated guess by this writer is that all traffic originates from a North Korean embassy somewhere in the Caribbean or south of there. This thought is based on the good quality reception almost always found on the 20 MHz band between 1700 and 2100 GMT.

CW traffic always appears before and after RTTY and is sometimes coded into 5-alphanumeric groups using the letters A, D, N, T, and U, and the numbers three through seven. Three-letter-grouped CW traffic also has been seen by this writer.

Setting Up Your Logbook

Looking for a way to spruce up your log-

book so that it doesn't appear to be a mass of grey matter with typed numbers, call-signs, and remarks? Here's an idea you might like to copy from your editor's own logbook. Obviously, this idea is meant for your prize loggings and not for all 15,000 loggings.

Centered at the top of the page would be a typed-in category, such as "SHIPS." A few lines beneath that would be your logging. Let's say the ship is GCDN, La Pampa, and it was monitored working RTTY with GKA, Portishead Radio, England, at such-and-such time and on such-and-such frequency. Type that information in whatever format you choose.

Now you will develop your "theme," as a composer would with a musical idea. Using research material found at public libraries and other sources, including the ship's owner, you would be able to describe La Pampa as being a British bulk carrier, list its dimensions and when and where it was built. You also can say how many flags it sailed under and how many names it had. Try to get all the information you can, including incidents involving the ship. Try to obtain a photograph of the vessel to go along with the researched information. You could add your RTTY hard copy printout to the back of the same page along with a QSL card or letter.

You will find that your logbook will become more colorful and will take on a "magazine-like" appearance.

RTTY Logs

Thumbing through the RTTY logbook, we find:

518: Plaintext weather for the New England states being sent at 0515 by NMF, U.S. Coast Guard, Boston, MA, in FEC mode. This broadcast runs from 0500 to 0530. (Editor's logging)

4443: RGC72, Kiev Meteo, USSR, at 0205 with coded weather, 850/66R. (Fred Hetherington, Ormond Beach, FL)

4612: "Northern Jungle" sending RY's to "Central Jungle," 850/66R, at 1535. "Maintenance Guardian" also with RY's to "Central Jungle" at 1543. (Editor's logging)

4612.5: "Central Jungle" with foxes and RY's to "Northern Jungle" at 1526, 850/66R. (Editor's logging)

5107.2: EPD, Teheran Aero, Iran, with RY's test tape, 425/66N, at 0035. (Hetherington, FL)

5117.6: TYE, ASECNA, Cotonou, Benin, with RY's/QJH1 test tape, 425/66N, at 0130. (Hetherington, FL)

5415.4: MUY32, a British Army post in West Germany, sending RY's and foxes, 850/66N, at 0030. Is the post at Monchengladbach? (Hetherington, FL) Any readers have an answer? (Editor)

6263: EHSY, Guridi, a Spanish bulk and cement carrier, sending a telex at 0303 via St. Lys Radio, France, ARQ. (Editor's logging)

6504.5: WCC, Chatham Radio, MA, sending a telex to 3FMG2, Bermuda Star, a Panamanian passenger ship, in ARQ at 0251. This vessel has undergone seven name changes since 1972. (Editor's logging)

6870: CAI7E, Hanga Roa Aero, Easter Island, with RY's test tape, 850/100N, at 0707. (Editor's logging)

7585: 6VY41, Dakar Meteo, Senegal, with coded weather, 500/66R, at 0240. (Editor's logging)

7690: TUH, ASECNA, Abidjan, Ivory Coast, with RY's test tape, 425/66N, at 0247. (Editor's logging)

7979.5: VNV, Australian Associated Press, Sydney, Australia, with news in English at 1200, 300/66N. (Hetherington, FL)

8176.2: FZR81, St. Denis Meteo, Reunion, spotted sending a weather message to Mauritius at 1245, 400/66N. (Hetherington, FL)

8345.5: "7RT1" identifier on RY's/foxes test tape at 0230, 170/100R. (Editor's logging)

8349: YTFV, Jadran, a Yugoslav bulk carrier, with a position report being relayed at 0048 to SVS, Athens Radio, Greece, ARQ. (Editor's logging)

8349.5: NBOY, USNS Range Sentinal, a missile range instrumentation ship, working NMF, U.S. Coast Guard, Boston, MA, at 2343, ARQ. This civilian-manned vessel is operated by the U.S. Navy's Military Sealift Command and is unarmed. (Editor's logging)

8350: HZOP, Saudi Riyadh, a Singaporean roll-on, roll-off cargo ship, at 2355 with a telex to London sent via GKP, Portishead Radio, England, ARQ. (Editor's logging)

9141: GPX/5 testing with RY's at 1258, followed by Vietnamese traffic slugged "CAMPUCHIA" and "VIETNAM," and more RY's. Was 425/66R. (Dallas Williams, Sedgwick, CO) GPX is the designation of Ho Chi Minh City, Vietnam. (Editor)

9154: D4B, Sal Aero, Cape Verde, running RY's, 850/66N, at 0619. (Editor's logging)

9226: Unidentified meteo station sending coded weather at 0623. Was 425/66N. (Editor's logging)

9885.4: VHC, Canberra, Australia, sending foxes at 1030, 850/66R. (Hetherington, FL)

10140: Coded weather from RUZU, the Soviet Union's Molodezhnaya Base, Antarctica, observed at 0600, 425/66N. (Editor's logging)

10169.7: HSW63, Bangkok Meteo, Thailand, with coded weather, 800/66N, at 1105. (Hetherington, FL)

10231.5: Text in progress of a press conference held by President Reagan noted at 0610. Text run until 0717. No transmission after that. No indication whether copy was from AP or UPI. Setting for this FDM transmission was 85/100R. Is U.S. military broadcast. (Editor's logging)

10388.7: 5NL, Lagos, Aero, Nigeria, with RY's, 425/66R, at 2310. (Hetherington, FL)

10426.7: YMA8, Ankara Meteo, Turkey, at 0200 with coded weather, 850/66N. (Hetherington, FL)

10524: KCNA, Pyongyang, North Korea, with news in French, 425/66N, at 1243. (Williams CO)

11017: RPFN, Monsanto Naval Radio, Portugal, sending RY's/foxes test tape, 850/66R, at 0125. At 0130, it was calling PWZ, Rio de Janeiro Naval Radio, Brazil. (Editor's logging)

11027: IRI20, IINA, Rome, Italy, with an Arabic news broadcast at 1629, 425/66N. (Editor's logging)

11030: AXM34, Canberra Meteo, Australia, with coded weather, 850/66R, at 0729. Ended at 0732 and transmission for facsimile weather service was begun. (Editor's logging)

11080.2: SANA, Damascus, Syria, with news in Arabic, 700/66R, at 1340. (Hetherington, FL)

11105: Unidentified meteo station in the USSR sending coded weather at 0035, 500/66N. Data was for Buhta Providenja, Mys Smidta, Ostrov Vrangelja, and Mys Uzlen. (Editor's logging)

11110.5: RMD, Moscow, USSR, sending telegrams, traffic and weather, all in Russian, at 1720. Was 475/66N. (Editor's logging)

11133: BZG41, XNA, Beijing, China, spotted at 1555 sending news in French, 425/66R. (Editor's logging)

11419: VNA86, VNA, Hanoi, Vietnam, with news in Vietnamese, 425/66N, at 1407. (Editor's logging)

11494: SOL249, PAP, Warsaw, Poland, with news in English at 1412, 425/66R. (Editor's logging)

11677.8: TJK, ASECNA, Douala, Cameroon, observed at 0001 sending RY's, 925/66N. (Editor's logging)

12062.9: NAM, U.S. Navy, Norfolk, VA, with AFRTS broadcast of AP and UPI news at 2000, 100/66R (FDM) mode. (Hetherington, FL)

12122.3: ZLK43, Christchurch Naval Radio, New Zealand, sending plaintext weather at 1315. Was 850/100R. (Hetherington, FL)

12265: BZR62, XNA, Beijing, China, with RY's at 1536 and news in English at 1540. Was 425/66R. (Editor's logging)

13077: NRV, U.S. Coast Guard station, Apra Harbor, Guam, sending CQ and foxes in the FEC mode at 0905, followed by a hydrolant summary message. (Hetherington, FL)

13425.5: Unidentified Arab diplomatic station running YR's at 1329 followed by messages in Arabic text or encoded into 5-digit groups. Was 525/66N. (Editor's logging)

13437: GCPW, location undetermined but apparently British, with RY's and "QRA DE GCPW" test tape at 1239, 170/100R. Went to encryption at 1249. (Editor's logging)

13462: VNA7, VNA, Hanoi, Vietnam, with news in English, 425/66N, at 1529. (Editor's logging)

13563: 3MA22, CNA, Taipei, Taiwan, at 1412 with RY's/QRA test tape, 850/66R. (Editor's logging)

13597.5: OLI2, CTK, Prague, Czechoslovakia, with a test tape of RY's and "This is the CTK news service" in French, Spanish, and English at 1302, 425/66N. A news broadcast in English followed by 1315. (Editor's logging)

13735: ADN, Berlin, East Germany, with English news broadcast, 425/66N, at 1535. (Editor's logging)

13785: SON278, PAP, Warsaw, Poland, with RY's test tape, 425/66R, at 1517. (Editor's logging)

13963.3: JMI3, Tokyo Meteo, Japan, at 2330 with coded weather, 850/66R. (Hetherington, FL)

14422: News in Arabic from KUNA, Safat, Kuwait, 425/66N, at 1617. (Editor's logging)

14535: GYU, the British Royal Navy base at Gibraltar, sending foxes at 1930, 850/66R. (Williams, CO)

14573: 9HC67, JANA, Tripoli, Libya, with news in Arabic, 425/66R at 1612. (Editor's logging)

14631: SUC41, Cairo Aero, Egypt, testing with RY's, 850/66R, at 2017. (Williams, CO)

14672: MKD, Royal Air Force, Akrotiri, Cyprus, with RYI's and foxes, 170/66N, at 1546. (Editor's logging)

14738: SUU52, Cairo Meteo, Egypt, sending coded weather at 1557, 850/66R. (Editor's logging)

14760: MAP, Rabat, Morocco, with news in French, 425/66R at 1605. (Editor's logging)

14764: A9M70, GMA, Manama, Bahrain, news broadcast in Arabic, 425/100R at 1712. (Editor's logging)

14785: ATP65, INFOIND, New Delhi, India, with news in English, 425/66N, at 1601. (Editor's logging)

14795.5: FTO79A/H1, AFP, Paris, France, with news in French, 425/66N at 1600. (Editor's logging)

14912: Unidentified station sending encrypted traffic and RY's from 1703 to 1710, 425/100N. (Editor's logging)

14974: GBW34B, AP, London, England, with an English edition of the news at 1318, 425/66R. (Williams, CO)

15597: KRH51, U.S. Embassy, London, England, at 2001 with foxes, 850/100N. (Williams, CO)

15864.5: News in Arabic being broadcast at 1327 by RBK79, TASS, Moscow, USSR. Was 425/66R. (Editor's logging)

15890: TASS news in Spanish being transmitted by RBI79, Moscow, USSR, 425/66R at 1415. (Editor's logging)
15951: CXR, Montevideo Naval Radio, Uruguay, testing with RY's and SG's, 850/100R, at 1605, before calling OBC, Lima Naval Radio, Peru. (Williams, CO)
16057: HSF212BNN, Thai embassy, Bonn, West Germany, sending economic information about Thailand and Indonesia to HSF212WSN, Thai embassy, Washington, DC, 1445, 425/66N. (Editor's logging)
16116.5: 6VK317, PTT, Dakar, Senegal, with traffic in French, 425/66R, at 1524. (Editor's logging)
16187: 4UZ, United Nations, Geneva, Switzerland, with UN traffic in French and English at 1343, 425/100R. (Williams, CO)
16679: EREB, Volna, a Russian research ship, sending weather observations to WCC, Chatham Radio, MA, at 1750, ARQ. (Editor's logging)

17203.5: KPH, San Francisco Radio, CA, with world sports, and financial news, and weather, at 0005, ARQ. (Editor's logging)
17207: NMC, U.S. Coast Guard, San Francisco, CA, sending a weather broadcast at 0000, ARQ. (Editor's logging)
17207.5: WCC, Chatham Radio, MA, noted at 1511 sending a telex to D5UP, Seawise Giant, a Liberian tanker. Was by ARQ. According to *Guiness Book of World Records*, this vessel is the largest tanker and ship of any kind. At 1,504 feet in length, it is longer than the tallness of Chicago's Sears Tower, the world's tallest building at 1,454 feet. The vessel has a deadweight of 564,769 tons. (Editor's logging)
18040: TCY4, AA, Ankara, Turkey, running news in Turkish, 850/100R, at 1308. (Editor's logging)
18040: Traffic in Bulgarian spotted at 2015, 425/66N. Suspect this to be coming from the Bulgarian embassy at Havana, Cuba. (Editor's logging)
18164.5: STK, Khartoum Meteo, Sudan, sending coded weather at 1544, 425/66R. (Editor's logging)
18207.5: HBD20, MFA, Bern, Switzerland, sending ARQ messages at 1556, using English and 5-letter groupings. (Editor's logging)
18256: YWQ18, Marquetia Aero, Venezuela, with coded weather at 1519, 850/66N. (Editor's logging)
18278.5: LOL, Buenos Aires Naval Radio, Argentina, calling PWZ33, Rio de Janeiro Naval Radio, Brazil at 1619, 425/100N. (Editor's logging)
18297: 9KT352, KUNA, Safat, Kuwait, with news in Arabic, 425/66R, at 1803. (Editor's logging)
18381: Coded weather from JMI4, Tokyo Meteo, Japan. Was at 2138 at 850/66R. (Editor's logging)
18600: Voice of America facility, Greenville, NC, working VOA, Munich, West Germany and Tangier, Morocco, 85/100N (FDM transmission), at 1419. (Williams, CO)
18690: MFA, Havana, Cuba, sending an encrypted message at 1852 that was prefaced by "AL CHACAL DEL JAGUAR (To Jackal from Jaguar) NR 6379 CLA GR100 TXT814." Was 425/66N. Tuning in later, at 2002, this was spotted, "AL LIEBRE (Hare) DEL JAGUAR NR 6388 CLA AVION GR100 TXT814." (Editor's logging)
18906: GXQ, Royal Air Force, London, England, with foxes/RY's test, 170/66N, at 1540. (Editor's logging)
19043: CLN565, PTT, Havana, Cuba with RY's/QRA test tape and calling Shanghai, China, at 2218, 425/66R. Parallel frequency was 18233 kHz. (Editor's logging)
19178.4: IRR31, IINA, Rome, Italy, with news in English from 1300 to 1345. Was 425/66N. (Hetherington), FL)
19280: 4UV, United Nations Environment Program station at Nairobi, Kenya, with traffic in English at 1543. Was 350/100N. (Editor's logging)
19340: News broadcast in English at 1744 from SUA, MENA, Cairo, Egypt, 425/66R. (Editor's logging)
19353.5: PL, Havana, Cuba, with news in English, 425/66R, at 2224. Parallel frequency was 18193.5 kHz. (Editor's logging)
20078.3: FTU8B, DIPLO, Paris, France, news broadcast in French at 1606, 425/66N. (Editor's logging)
20085: ISX20, ANSA, Rome, Italy, broadcasting news in French, 425/66N, at 1604. (Editor's logging)
20285: 5-digit-grouped coded messages, 500/66N, being sent at 1939 by MFA, Havana, Cuba. (Editor's logging)
20447.5: CXR, Montevideo Naval Radio, Uruguay, with test tape of RY's, SG's and foxes, 850/100R, at 1600. (Editor's logging)
22782.3: WFN62, USIA, New York City, with news in English at 1640, 425/100N. (Editor's logging)
22866.2: 5YE8, Nairobi Meteo, Kenya, observed at 1545 sending weather messages, 425/66N. (Hetherington, FL)
23388.3: Notices to mariners in progress at 1524, 170/100N. Was in English and Spanish. Ended a short time later, so station was not determined. (Editor's logging)

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

Feeding Audio Down Phone Lines

How often have you wanted to play a tape or send audio from a receiver down a phone line? Usually you lay the telephone handset on the loudspeaker and hope for the best. For a couple of dollars, good couplers can be built that will feed audio from a scanner, communications receiver, or tape recorder down the phone line without added distortion and room noise.

Most radio parts stores sell audio transformers. With one of these we have the "guts" of the "patch" or coupler. Audio transformers are rated in impedance, not voltage. If you see a transformer for sale in a bin that has the taps marked in Ohms, it will probably do the job. The ideal transformer will be marked either 8 Ohms:600 Ohms or 8 Ohms:1000 Ohms. On the low side, anything between 4 and 16 Ohms will do. On the high side, anything between 500 and 2000 Ohms will do. You should be able to find something like this in most parts stores or at electronic swap meets. The body of the transformer should be at least one cubic inch. The maximum size is not important. If you can lift it and find room for it, it will work just fine.

The easiest way to couple into the radio or tape player is via the headphone jack. This may cut off the internal loudspeaker. You can either place another loudspeaker across the low impedance windings of the transformer, or use the telephone handset to monitor (see Figure 1). If you wish, you may get inside your radio and solder the transformer across the internal loudspeaker. This will give you a permanent hook-up.

Now the tricky part. The high impedance winding of the transformer needs to be attached to the phone line. The simplest way to do this is solder a line cord to the terminals and plug into the wall jack when you want to send audio down the line. A more sophisticated set up would have a switch on the line cord and leave the line cord permanently plugged in. You can, if you wish, hard wire the transformer using the screw terminals on the modular wall jack.

You are now ready to test and set up the patch. Find an audio source. Steady continuous audio is easiest to work rather than wait for your favorite scanner channel to open up. You can tune into a weather station or broadcast station. Dial a willing friend and ask him to give you reports. Slowly increase the volume of your signal until he says it is loud enough. To you, this will sound louder than his voice coming back. Make a note of the levels and controls you set. You are now set to send audio down the line. You may want to use this to help a friend winkle out some weak DX by sending him the audio while he tunes his receiver until he hears the same audio from his speaker. Another use would be to send some exciting scanner action to a friend. Or, if you have something of note on tape, you can call a friend and let him hear your catch.

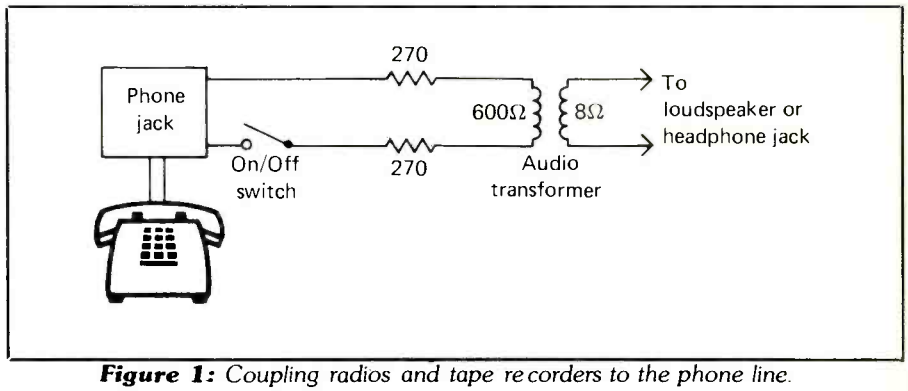


Figure 1: *Coupling radios and tape recorders to the phone line.*

So far we have a basic system. There are some enhancements that will make operation easier. If while listening on the phone your dial tone level drops when you switch in the patch, you are pulling in too much current. A couple of resistors will fix this (see Figure 1). The values should be between 100 and 270 Ohms. The volume should not drop significantly when you switch in the patch.

If you want to monitor via the handset, but don't want room noise to intrude, a switch across the microphone will do the trick (Figure 2). Note that the switch shorts across the microphone to turn it off. The logical thing to do would be to open the line to the microphone. If you do that the line will click every time the microphone is switched in and out. You may mount the switch in the handset or on the body of the phone. If you wish, the switch could be a Normally Closed momentary type so you have a push-to-talk handset. A push-to-talk handset is very handy in noisy environments or where you are carrying on several conversations at once, including one on the phone.

There are times when being able to record off the phone would be handy—important conversations or news and information items. The legality of this and its admissibility in court is never clear. Some services that record all of their calls put a beep

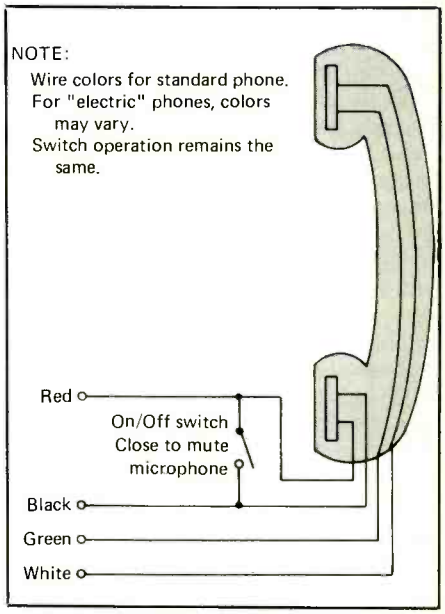


Figure 2: *Microphone mute switch.*

on the line every fifteen seconds; some don't. If you call the FAA to file a flight plan, they record you. Many large corporations have a tape recorder controlled by the PBX operator. This is used for crank calls and bomb threats.

It can be convenient to record the conversation if it is long and complex. There are devices available at most electronics stores to enable you to record off the phone line. Some of these will even turn on the tape recorder automatically when you lift the phone off the hook. Radio Shack has one of these, catalog number: 43-228. The price is about $20.

Another alternative is to use a phone pickup coil. These devices usually sell for about $2. They plug into the microphone

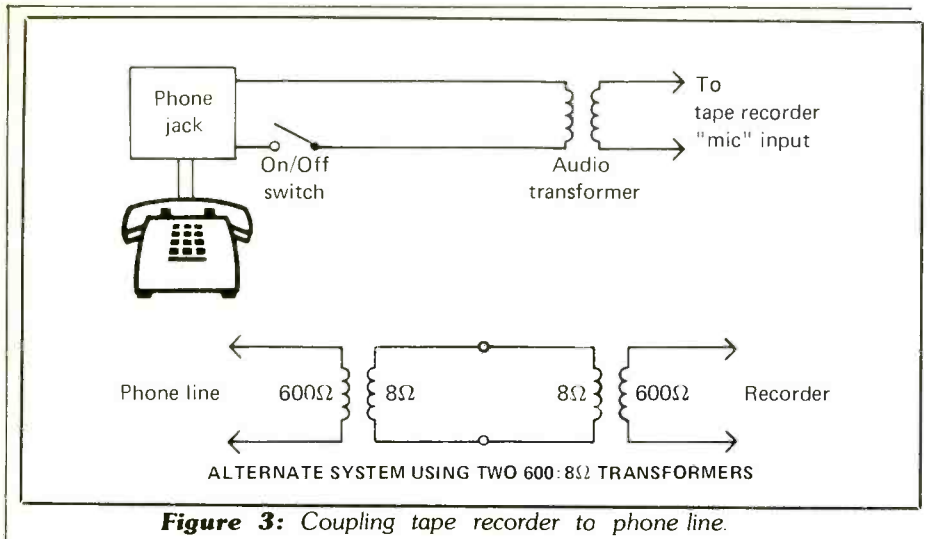
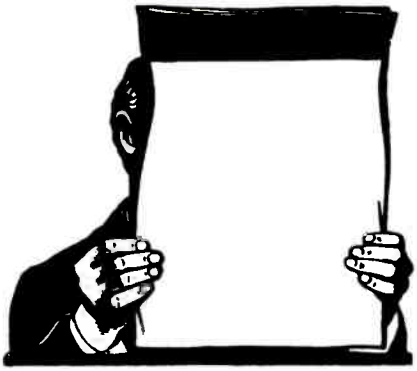


Figure 3: *Coupling tape recorder to phone line.*

input of a cassette recorder. The diagram that comes with the device usually shows it attached to the receiver of the handset. This tends to record only one side of the conversation well—the received side. If you have a standard phone, the best place to put the pickup coil is on the hybrid transformer. Find the best spot by moving the coil around on the body of the phone until the signal is strongest. This will give both sides of the conversation. A further bonus is not having the pickup coil dangling from the handset.

It is no more difficult to build a coupler to record off the phone line than to build a coupler to send audio down the phone line. The major difference is the transformer should be a 600:600 Ohm device and plugged into the microphone input of the recorder. Other transformer impedances may work, but with reduced efficiency (see Figure 3).

So there you have some simple ways to get audio other than your own voice into and out of the phone line. I am sure you can find lots of uses for these handy little gadgets. PC



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Inputs: DC-In 4.5V, External antenna input (minijack x 2)

Outputs: Earphone (minijack); Record output (minijack)

Speaker: 4-inch dynamic

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Dimensions: 6¼" H x 11⅜" W x 2 1/16" D

Weight: 3 lbs, 12 oz (with batteries inserted)

Color: Black

Supplied Accessories: AC Adaptor; Earphone, Shoulder Strap, Long Wire External Antenna, External Antenna Connector (x 2); Short Wave Handbook

Optional Accessories: DCC-127A Car Battery Cord; AN-1 Active Antenna

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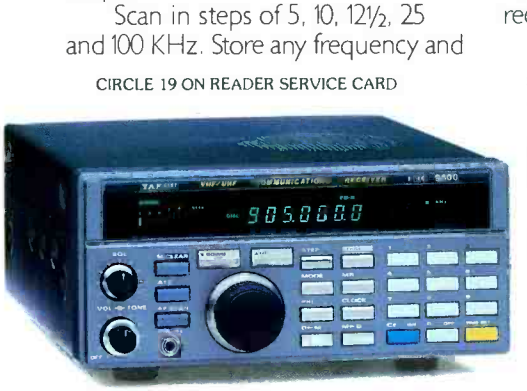

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