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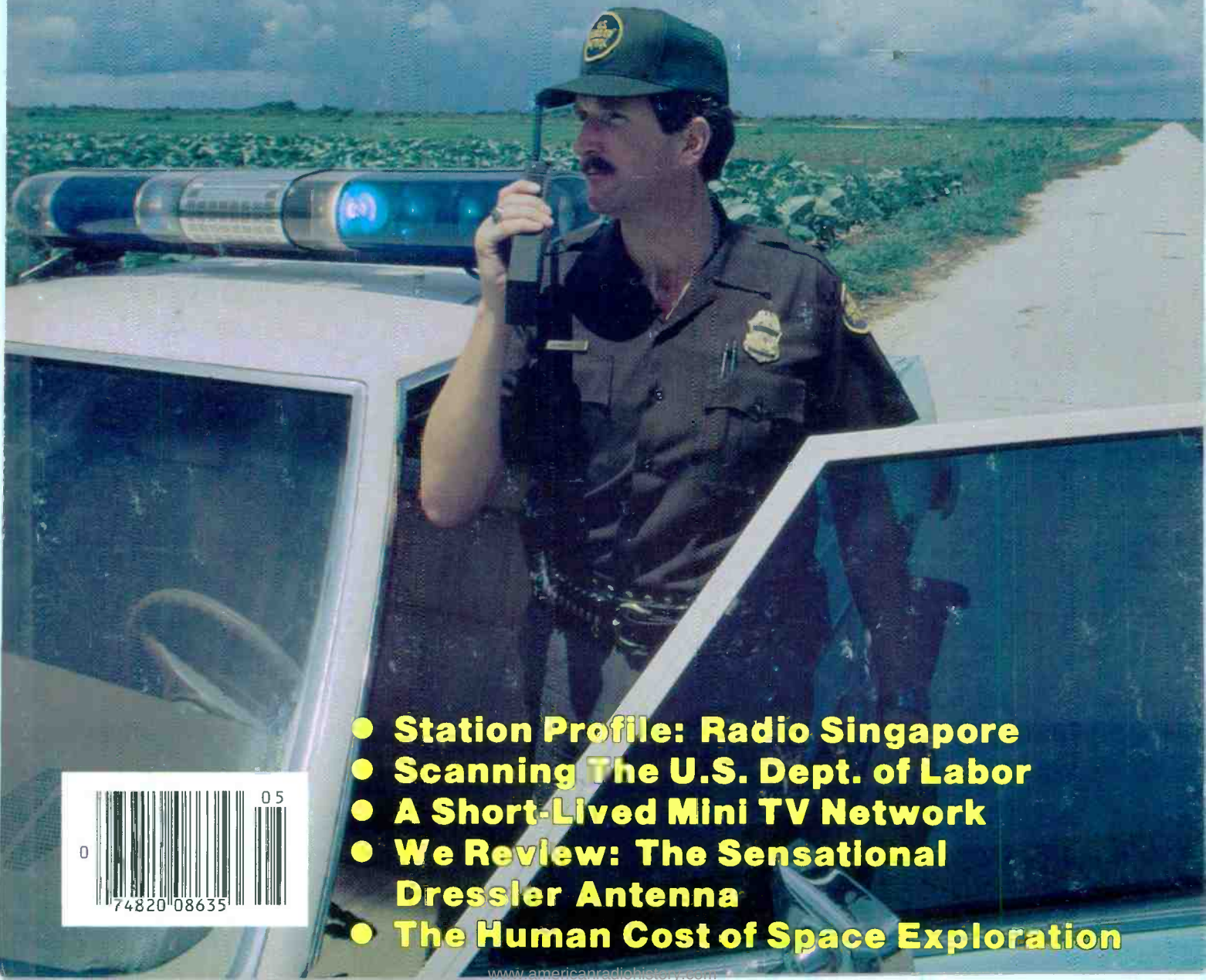

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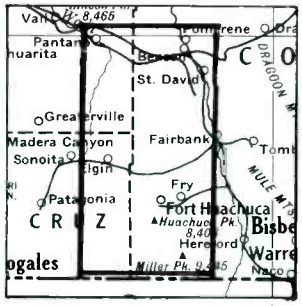

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FEATURES

This month's cover: *Al Sheard of the Miami, Florida, Border Patrol talking with aircraft.*

DEPARTMENTS

BEAMING IN

AN EDITORIAL

BY TOM KNEITEL, K2AES

The ECPA: *It Figures!*

In the aftermath of the passage of the Electronic Communications Privacy Act (ECPA), let's take a few minutes to reflect upon this little piece of work, its whys and wherefores. If the factors that fell into place that resulted in the spectre of the ECPA could be understood, it would be of value in getting a fix on where things are heading in the world of communications. Off-hand, it appears that they are heading higher; higher in technology, higher in finances, and higher in frequency.

We've seen increased technologies before, they're nothing new to us. Recall how SSB put a large dent in AM for voice communications; how RTTY/SITOR/FEC sliced into the amount of CW to be heard on the commercial bands. To paraphrase Dr. Margaret Murray, the gods of the old technologies become the devils of the new technologies.

As the world of communications technology continues to expand, new things to do with communications are being devised almost daily. Moreover, the parade of new products to meet those needs appears to be endless: CMT's, trunked mobile systems, microwave devices, digital equipment, satellites, packet (computer) communications units, military equipment, security devices, and more. For the most part, this equipment craves RF spectrum—especially the higher frequencies extending far into the GHz ranges.

Only twenty-five years ago there seemed to be minimal practical use or value for some of these bands, but today they are being fought over like the battle of hungry dogs over a bone. Yes, the frequencies are in great demand by a myriad of persons, companies, and industries gambling for big stakes.

CMT frequencies in the once barren 825 to 890 MHz portion of the spectrum are being parsimoniously doled out by the FCC using a lottery method. Only a few hundred such assignments (in effect, franchises) are to be awarded to the thousands of applicants. Those who succeed in snagging FCC authorizations to establish "non-wireline" CMT systems can turn around and immediately peddle them to others for quick and tidy profits—and all they're selling is a frequency assignment without any equipment, any reputation, any customers! As you might imagine, there's a brisk business in buying and selling these frequency assignments by investors and speculators who have the same interest in communications as they have in their investments in government oil leases, cotton futures, or pork bellies.

Those who can't secure an FCC authorization of their own, may become re-sellers of mobile telephone service, buying air time in bulk from those who have the franchises, then selling it to their own subscribers. You might think that this is a dumb idea, but the Nova Cellular Co., of Broadview, IL, managed to acquire 1,600 Chicago-area subscribers for their resale service. Last year they showed about $2.6 million in revenue and in early January, a competitor bought them out for approximately $1.2 million!

Highly-charged business activity is 100% guaranteed to stir up all manner of interested parties, companies, politicians, and bureaucrats. Seems as though everybody wants to buy it, sell it, manufacture it, legislate it, organize it, regulate it, and generally turn the whole mess into a totally hysterical shambles. Not the least of those involved in this latest communications circus are the industry groups connected with CMT's. Let's just say that thusfar they have displayed a rather callous disregard for other members of the communications world, combined with unlimited avarice and a public relations image pegged somewhere between that of Khadaffy and Rowdy Roddy Piper.

While all of this high tech, high finance frenzy is filling the world with fantastic foolishness, the hobbyists (that's us) are twiddling the knobs of our receivers, scanners, and transceivers. Despite the fact that we may view our techniques and equipment as being the ultimate in cool, it is my belief that, to the Wall Street fancy dancers that have elected themselves to positions of high places in communications circles, we are all a bunch of yokels playing with cats' whisker crystal sets, calling "CQ," and talking about QSL's—all to no good purpose, at best. Not only do we perform no service that generates revenue, we are sitting on something worth its weight in platinum—frequency space!

A recently retired FCC official estimated that the VHF/UHF Ham bands have a value of $300-billion on the commercial marketplace. When you hear something like that you realize how the hens feel when the fox discovers the chicken coop! Anybody who thinks that any of these new-fangled high tech communications Draculas are going to go out of their way to make things comfortable for communications hobbyists had better take a couple of reality pills.

While the ECPA seems to have been an attempt to enable the CMT industry to imply to its subscribers that their mobile telephone calls are assured of privacy, it trampled the traditional concept that achieving communications privacy is the responsibility of the parties engaged in the communications. The ECPA turned the tables and put the burden on parties not involved in the matter. A neat, albeit sneaky, move that sets the stage for additional tinkering and tampering with other aspects of communications. Now that the ECPA managed to get itself on the books, it will be a lot easier to tack on amendments than it would have been to start from scratch with restrictions. It's quite apparent that there's a hungry monster coming our way and that it's chewing up everything in sight in order to satisfy its ferocious appetite. If the ECPA was the *hors d'oeuvres* to this feast, we can only wonder about what the next meal course will be.

Now that we've heard the FCC's estimate of the multi-billion dollar bounty on VHF/UHF hobby bands, will the bands retain their integrity? We all saw how the ECPA—at first thought to be absolutely preposterous—went through both houses of Congress in a twinkling. They couldn't rubber stamp it into law fast enough!

You'd better believe that frequencies set aside for military, aeronautical, maritime, broadcasting, common carrier, and public safety purposes will remain safe. Frankly, I'm more than a bit concerned that the same pack of idiots that concocted the ECPA and passed it into law could bring sufficient pressure on the FCC to shake loose some chunks of hobby radio spectrum in order to convert those frequencies into a fast buck. If you think that this has not already crossed their minds, you're rather naive, my friend!

Yes, there is activity on the VHF/UHF Ham bands, but it isn't sufficient at this time to make those bands sound busy enough for us to laugh off any seriously orchestrated wallet-powered attempt at ripping them off for commercial purposes. The sunspot cycle and many other factors (previously discussed in these pages) has reduced the number of new entrants into hobby communications. There are those who say that having to learn CW has also done its share in diminishing the number of those who might obtain Ham tickets, especially when the beginners' (Novice Class) license doesn't permit the user to communicate by voice. It does seem that there is something to be said in that respect.

The FCC has now announced the opening of portions of the 10 meter (28 MHz) Ham band for SSB, digital, and data communications by Novice and Technician Class licensees. The bands at 220 and 1250 MHz are also now open for communications by Novice Class operators.

In particular, letting Novices and Techni-

cians use SSB on 28 MHz should add some vitality to this very desirable band that (when the sunspots are benevolent) permits worldwide communications with less than 200 watts PEP. Good DX conditions in this band are on the way back and the influx of new users should be welcomed by all concerned. What is most unfortunate is that Novices/Technicians should have been granted these voice privileges on 28 MHz during Sunspot Cycle 21 (about 10 years ago) when CB hobby use was at its peak. Millions of those operators who were disgusted with 27 MHz *goodbuddies* could have easily been turned into valuable 10 meter SSB users if only their requests for Novice/Technician Class voice privileges there were granted. Despite all efforts to make it happen, nobody who could help to bring it about seemed to care.

Hobby communication gives the public the general perception that since it doesn't produce revenue its services aren't essential. These communications aren't taken very seriously, despite that fact that many operators are deeply involved in many vital public service activities. The aftermath of a major tornado, hurricane, flood, or earthquake appears to be about the only time the public gives a hoot. What's worse, the ranks of hobby communications no longer boast the large number of inventors and experimenters that were here in past decades. Persons who aren't licensed Hams and enjoy the hobby by just listening have an even bigger image problem since (unfortunately) licensed hobbyists seldom appear to look upon them as important and integral a part of the hobby as those with FCC tickets.

To put it in very brief and blunt terms, they see you and I playing with toy radios in frequency space that, in their hands, could generate $300 billion. If you can't appreciate anything else I've said thusfar, then perhaps you can see it if made short and sweet. Maybe you can then see that things like the ECPA, and other similar affronts, are inevitable. These good folks don't give a rap about any of us. We are, in fact, annoying obstacles standing in their way of a great windfall!

We're all in this together. What one loses, all lose. I hope that I have helped you to bring into sharp focus the forces that are at work here, that those who shoved the ECPA through are a constant and real threat to every communications hobbyist. If the communications hobby is to survive, there is going to have to be more use of the allocated hobby frequencies, more of a high profile image given to those who love and use hobby communications. This will have to come from individuals in their support of clubs, manufacturers, dealers, and publications.

One would have hoped that perhaps the recently arrived high tech, well-heeled industries would have come charging through and not have noticed any of us quietly enjoying the many facets of our hobby. Obviously, it didn't work out that way. *Drat!* Guess we'll have to learn to stick together a little better and make a lot more noise. How much noise can *you* make? PC

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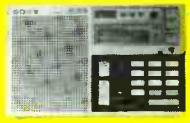

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Al Tanzi
Patchogue, NY

Of the 10,000 + American broadcasters, some 2,200 are low-powered daytimers. The FCC has come to feel that there are enough of these stations already in existence. Financial survival for daytimers has been rough, what with having to compete with major AM stations, and since FM stations siphon off almost three quarters of the total radio listening audience. There are three dozen AM daytimer licenses now pending and being processed, but the FCC says it isn't going to accept any additional ones for filing.

However, even when applications were being accepted, the amount of money required to open a 250-watt AM broadcaster ran into tens of thousands of dollars and was far beyond the personal resources of most individuals. The days when a hobbyist could get a backroom AM broadcasting license for a 50-watt rig and a 100-foot length of wire have been gone for decades. —Editor

Ray Briem Show

Caught your interview on ABC Talkradio's all-night Ray Briem Show and it rekindled my interest in DX'ing, having lost track of the hobby several years ago. The Briem Show reminded me of all that I've been missing. That caused me to subscribe to *Popular Communications* and also to purchase a communications receiver. The magazine is great, and I'm still dazzled by the advances in receiver design; my Kenwood R-2000 makes my old Hammarlund HQ-180 look like a crystal set by comparison. Thanks to Ray Briem and you, I've gotten back into the DX hobby!

Robert N. Pelletier
Phoenix, AZ

According to the mail that arrived here in the aftermath of the interview (which was aired nationally last January), almost as many inactive DX'ers rekindled their interest in the hobby as there were new folks coming aboard. To those who wrote complaining that they tried in vain to get through to me on the phones during the call-in portion of my interview, I regret that you weren't successful. I had nothing to do with selecting the calls; the program's producer told me that the switchboard was jammed with calls for me long before my scheduled segment of the show at 1100 UTC (6 a.m. Eastern, 3 a.m. Pacific).

Of all the mail that came in, the most curious was the angry letter from an anonymous correspondent in Wilkes-Barre, PA who complained that he stayed up all night to hear me only to learn that the Briem Show never put me on the air! As explained in the January issue of POP'COMM, *the entire program is normally not carried on every station in the ABC Talkradio network; readers were advised to check with their area network affiliates to find out which segments of the Briem Show would be carried. Bay Briem devotes one program per year to DX'ers and his good efforts have been of great benefit the hobby in general. Every communications enthusiast owes Ray a hearty "well done." —Editor*

Kenneth, What Is The Frequency?

There is a mystery signal that comes on the air every day at exactly 4:30 p.m. First there is a 15-second tone signal then a man says, "Unit Delta, test is complete." Please let me know what the test is and the location of the transmitting station.

Ken Westerfield
Albany, GA

The main problem with your inquiry, Ken, is that you didn't provide us with sufficient information. If you had told us the frequency of the station we might have been able to venture a reasonable guess. "Unit Delta" could be anything from a military unit to your local dog catcher. This points up a common problem with some of the inquiries we receive, lack of sufficient information to provide an answer. Here's another suggestion: if you hope for a direct-mail answer to an inquiry from one of our authors or columnists, your chances are substantially improved if you enclose a self-addressed and stamped reply envelope. —Editor

No Drums Along The Mohawk

In the January issue you ran a story about "Monitoring The Forgotten Americans." Please add that in New York State, the St. Regis (Mohawk) Indian Reservation (which is half in Canada and half in the United States) is taken care of by the St. Regis Indian Police out of Canada. That agency operates on 42.72 MHz. Some communications are in the Mohawk language.

Chuck LaTrace
Brasher Falls, NY

Bumper Crop

POP'COMM often runs AM/FM station bumper stickers in its pages. You haven't requested them from your readers and I'm wondering if the stations themselves send them to the magazine. I'm asking since several broadcasters in my area have bumper stickers and I'd be happy to send you some if you wanted them.

E.J. Hines
West Allis, WI

The stickers arrive from readers and also directly from the broadcasters. We are pleased to receive them and are always looking for more to run. Readers are certainly welcome to submit any they can acquire (sorry, we can't return them), and broadcasters are likewise invited to send us stickers from their own stations. POP'COMM *enjoys a sizeable readership among broadcasting station personnel, by the way. —Editor*

Free Postage Discovery?

Thanks to *POP'COMM*, I've become a fan of DX'ing on the Ham radio bands. My QSL collection now numbers well over 400 cards from the U.S.A., Canada, and elsewhere. Not long ago I received a QSL from a Ham in Texas that didn't have a postage stamp. In the spot where the stamp was supposed to be there was a purple rubber stamp impression that read "Postage O.K. Shed Stamp." I wrote to the Ham and asked him how I could climb aboard this free postage bandwagon by getting "Shed Stamps." He answered that he didn't know what I was talking about; my guess is that this guy's got a good thing going and he doesn't want to share it with anybody. Since I send between 25 and 50 SWL cards each week, this could save me as much as $28 per month in postage. You should find out about this and share it with your readers.

Roger Vogel, KIN8UE
Richmond, IN

That was a new one on me and my first reaction was that it was a boon to those of us who send out lots of QSL cards. When I checked with the Post people they told me that your Texas Ham must have used a

postage stamp that either didn't have enough glue on it, or else it got knocked off as it went through a cancelling machine. Because the card displayed evidence that there had been a stamp affixed when the card was mailed, the Postal Service itself rubber stamped it to indicate that the original stamp had been shed. That would alert mail handling personnel that the postage had been paid. Good thinking, Roger, for a few minutes there it sounded like you had made the discovery of the year!—Editor

POP'COMM Program?

One of the members of DX club to which I belong told me that *POP'COMM* is planning a regular DX-news program that will be sent out over an international shortwave broadcast station. I was surprised that nothing has been mentioned about this in your pages and hope that you will let all of your readers in on this exciting news. What's the story?

Scott Harris
Dover, DE

The story is that there isn't any story. In the years that POP'COMM *has been in publication, I have received two inquiries from shortwave stations about doing the type of program you described. One inquiry was a rather informal suggestion made by a friend who is a honcho at a SWBC station. The other inquiry was more in the nature of a serious proposal. Thusfar, nothing to report on either front and I can't say that anything will ever come of either plan, not that I'm at all closed to the idea. Maybe someday an offer will come along that catches my imagination and, if and when that time comes, readers will be given the full details. However, inasmuch as I have never mentioned either inquiry to anybody, I'm wondering how your pal (and the several others who have written similar letters to us) heard about such things. Big Brother never sleeps!—Editor*

Heavy Duty Question

A common term heard on my aircraft band scanner is "heavy," often used after an airliner's callsign; for instance, "United 27 Heavy." I don't understand the meaning of this term and it has never been explained in anything I've read about aero band monitoring. Please discuss this.

R. van Zandt
Elkins, WV

When an aircraft weighs 350,000 or more pounds, it is considered to be "heavy" in the sense that it is required to add that word to its callsign when communicating with air traffic controllers. Heavy aircraft cause vortices (miniature hurricanes) off the wingtips at the rear of the craft. Should a small plan fly into such one of these vortices, it could encourter severe turbulence. When a heavy aircraft announces that it is in an area, different safety rules must be followed. —Editor PC

Selecting The "Best" Scanner

That's always a hot topic among scanner owners and those just now joining our fascinating world of scanning. We get many phone calls and letters asking us to recommend the "best" scanner . . . and we steadfastly refuse! There's good reason for our refusal to give a quick answer, but because interest in the subject is so intense, it is time to discuss the subject here in *Scanning Today*.

Most of you will have already guessed that one reason the question is not so simple is that what is "best" for one user is not "best" for someone with different needs. There are those who need 50 channels and those that don't. But that isn't the reason we are so hesitant in giving advice. Recently, I was interviewed on a Chicago area Ham repeater about how to select a scanner. The program director was a little surprised that I didn't point out which specifications to look for and give some clear cut guidance. The reason I didn't was based partly on the following experience, which I described during the interview . . . .

Before moving to our current suburban location, SCAN, for a number of years, had offices in the Chicago Loop area. Most recently we were on a top floor of the Merchandise Mart, actually looking down on a forest of microwave link, dish, and conventional two-way radio antennas in use by WMAQ-TV (Chicago Channel 5) and radio. Talk about interference! This is the type of location that is known as "intermod alley" because of the intermodulation interference many receivers have with all of those signals floating around. Because the signals mix together, it can often sound like the police, paging service, and local Ham repeater are all on the same channel . . . even though they are obviously not.

Using a synthesized receiver at that location we quickly found that some of our favorite frequencies could rarely be heard. The signals that mysteriously appeared from other services on other frequencies actually came in much louder on the "wrong" frequencies. We thought about trying tunable trap filters and other solutions. One day, however, we had the opportunity to use another receiver at that location and we couldn't believe our ears. The interference on several of the problem frequencies was non-existent! To top it off, this was a much less expensive radio. What was going on here anyway? The published specifications were investigated and found to be very similar for both radios. Was the deluxe radio, which cost about twice as much because of many extra operating features, so poorly-designed that it didn't meet specifications? Had we been ripped off?

After much investigation and experimentation, we found that nothing is simple when you are dealing with radio frequency (RF) energy. In the lab, where we tested the radios, both came reasonably close to meeting the published sensitivity and selectivity specifications. It was only in actual use that some dramatic differences began to be heard.

The fact is, however, that we discovered that one radio could not be called better than the other, because, as we explored further, we found that it depended entirely on which frequencies we were trying to receive. One radio would be useless and one would work fine on a channel. On the next channel it was the opposite. What we suspected was happening was that the different radios, because of internal wire lengths, component placement, and who-knows-what-else, made them susceptible to different frequencies. RF can be strange stuff indeed!

My solution to finding the "best" scanner is simply to try out the model radio you are thinking of buying on the frequencies that you want to hear . . . at the location you plan to use it. Sometimes your local dealer will let you borrow a demo unit for a day, or you might have a friend with that model. Try it out. You can analyze specifications all day, but the proof is in the use!

Incidentally, as radical as this may sound, don't overlook a good used crystal scanner as part of your scanner arsenal. Now, I am not suggesting that you should be without a synthesized scanner in this day and age. but those crystal-controlled radios are real sleepers! They do not have synthesizer noise to contend with that can mask the very weak signals. And the good ones were extremely well-designed and constructed, with heavy duty components and very well-shielded metal cabinets. Best of all, nobody seems to want them, so they can often be picked up for a song at local swapmeets and Hamfests. If you know the frequencies you want to receive and are looking for optimum weak signal reception, don't pass by one of these bargains.

Being a "Frequency Detective" Gets More Difficult

In a previous column we discussed how to find out what frequency was being used by a service if it wasn't published and they didn't want to tell you. One place to start was with careful observation of the antenna, to at least be able to zero in on what frequency band is being used. Now we see that it may not be so easy in the future. On antenna company recently introduced a CB radio antenna that looks just like a cellular phone antenna. If they can make a 27 MHz CB antenna look just like one of those 800 MHz cellular antennas, who knows what other antennas will look like in the future. Well, there's still the trusty portable frequency counter. It may take a little longer, but SCAN members always seem to come up with the frequencies!

Back Issue Treasure Discovered

Popular Communications and *SCAN Magazine*, as most of you know, were originally separate publications. Each had its own unique character and we feel that the new combined format is "the best of both worlds." Those who subscribed to both, before the combining of *SCAN* and *POP'COMM*, got the full benefit of both of these worlds. For those of you who didn't get both publications, there is a way to obtain a vast amount of exciting information by obtaining back issues. Every issue is new before you read it! And it's the perfect way to satisfy that reading hunger between regular new issues.

Recently, due to a modernization project at our mailing house, we needed to make a decision about the back issues of *SCAN Magazine* in storage. Recalling a couple of years ago, when we discovered some old back issues and offered them for sale, made our decision easy. That time we literally sold out in days! Rather than have these valuable back issues disappear forever, we have had them packaged in two sets. Both sets offer some exciting reading and a tremendous amount of scanner monitoring information. Each set consits of nine issues of *SCAN Magazine*. Here's just a small sampling of what you'll find in these issues:

Set Number One:

- Mysteries of fire communications lingo, such as "Detroit door opener," explained.
- Listening in on the nation's largest police force (NYPD).
- Predicting long-distance scanner reception by using your TV set.
- Tips on aircraft communications scanning.
- "Digital Voice Protection" and other scrambling systems.
- All about GMRS scanning . . . "the forgotten service."
- Scanning satellite frequencies and the Space Shuttle.
- Area Profile maps and frequencies.

(continued on page 70)

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The size, price and performance of these new instruments make them indispensible for technicians, engineers, schools, Hams, CBers, electronic hobbyists, short wave listeners, law enforcement personnel and many others.

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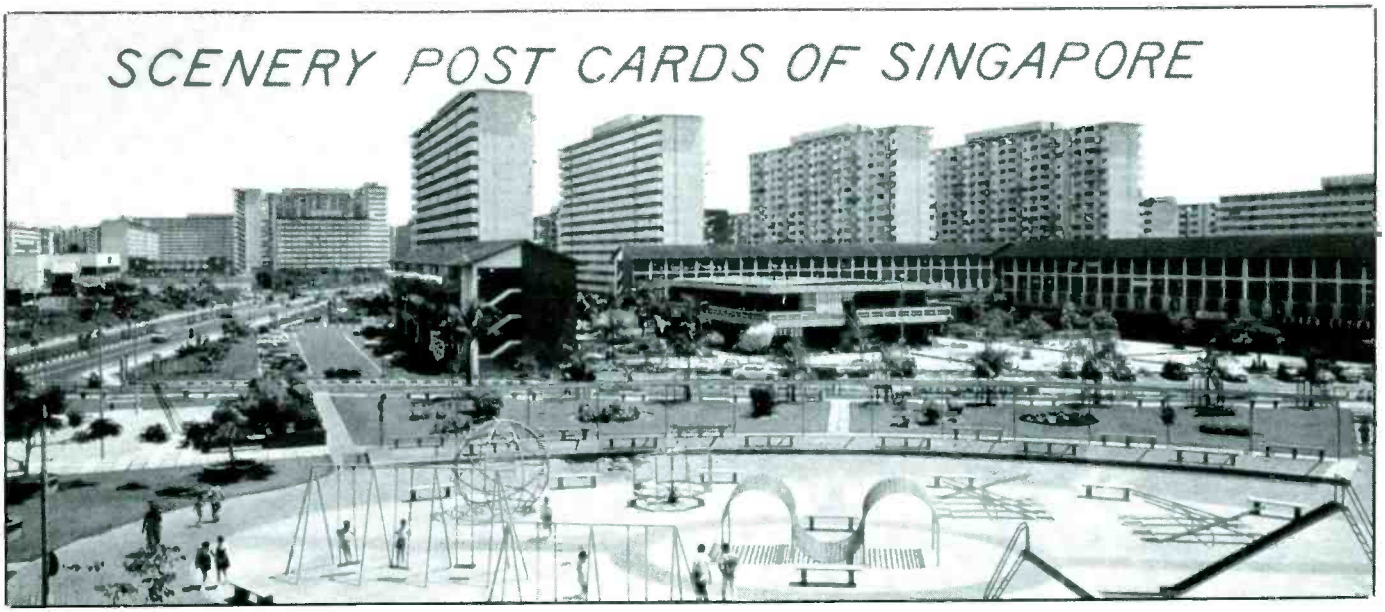


Station Profile:

Inilah Radio Singapura

BY DR. ADRIAN M. PETERSON

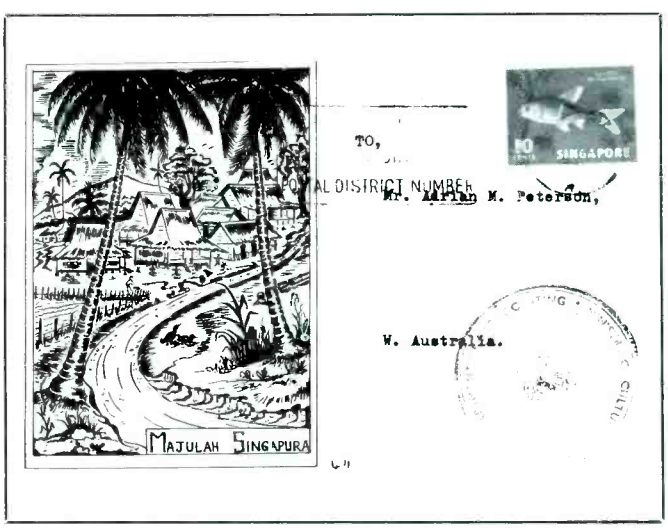
The exotic island of Singapore, lush and green, is situated at the southern tip of the Malay peninsula in South East Asia. It is an island with a historic background, it is peopled by three Asian races, it ranks high as a tourist attraction, and is listed as a great shopping paradise.

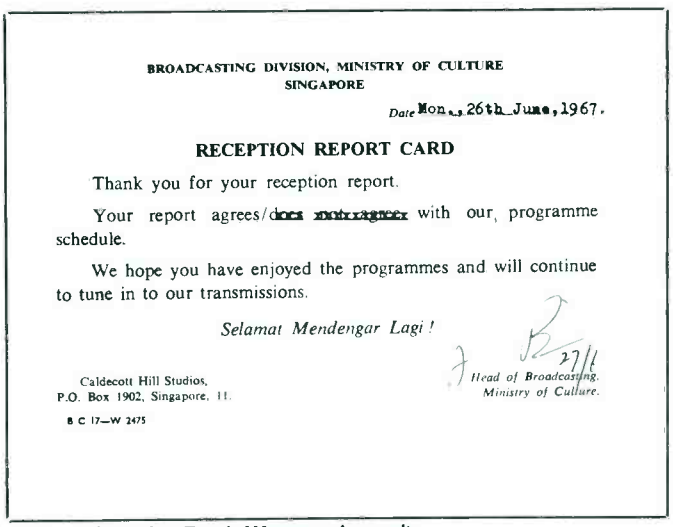
I first visited Singapore in 1968. At the time, we as a family were under transfer from Australia to Southern Asia, a radio adventure that lasted nearly 20 years. Even back then, Singapore was a wonder, with its modern buildings, its extensive shopping plazas, and its hordes of foreign tourists. Many high-rise buildings were under construction, streets were being widened and straightened, and public park areas were being developed.

We also took the opportunity of purchasing many duty-free items. We procured in Singapore watches for the family, film for the camera, and a German radio so that I could listen to the world.

Since that first visit, the increased development in Singapore has been phenomenal. There is now a revolving restaurant at the top of one of the tallest buildings, a huge new airport complex has been completed, new apartment suburbs are now occupied, and millions of tourists have flowed through the shopping plazas. Incidentally, the prices of quality electronic goods, watches, and photographic items in the duty-free shops at the airport can sometimes be cheaper than in the regular shopping areas downtown.

In addition to a wild shopping spree, the tourist these days will probably make a visit to the Chinese and Indian and Malay communities, tour the strange Tiger Balm Gar-




BROADCASTING DIVISION, MINISTRY OF CULTURE
SINGAPORE

Date Mon., 26th June, 1967.

RECEPTION REPORT CARD

Thank you for your reception report.

Your report agrees/does ~~not agree~~ with our programme schedule.

We hope you have enjoyed the programmes and will continue to tune in to our transmissions.

Selamat Mendengar Lagi !

27/6
Head of Broadcasting,
Ministry of Culture.

Caldecott Hill Studios,
P.O. Box 1902, Singapore, 11.

B C 17—W 2475

1967 QSL for the 10 kW AM outlet on 790 kHz, as heard in Perth Western Australia.

DEPARTMENT OF BROADCASTING,
Engineering Division,
1st floor, Cathay Building,
Singapore.

.....23rd.May.1947...

A.M.Peterson esq.,

Australia.

Dear Sir,

Thank you for your report of 23rd.August 1946. The details given by you have been confirmed by reference to our programme schedules, and we have great pleasure in verifying your reception of Radio Malaya.

Our Singapore transmitters are at present as follows:

570 Kc/S	10 Kw (Testing at unscheduled times)
620 Kc/S	7 Kw
1333.3 Kc/S	500 watts (Temporary Transmitter)
6770 Kc/S	10 KW
4825 Kc/S	10 KW

It is likely that some of these frequencies may be changed before the end of the present year. There are also transmitters in the Malayan Union at Kuala Lumpur, Penang, Malacca, and Seremban. These are mostly on low power at present but are to be replaced by larger stations within the next two years.

A copy of "Radio Malaya News", giving typical programme schedules in English, Malay, Chinese and Tamil (Indian) is enclosed.

With many thanks for your interest,

Yours faithfully,

GSM/AN.

Acting Director of Engineering.

PS. Please accept our regrets for the delay in replying, but your letter has only today reached this department.

QSL letter dated 1947, for the outlet on 6770 kHz. This was listed as 10 kW, and was, in reality, the 7½-kW transmitter which was transferred from Penang.

Department
of
PUBLICITY & PRINTING
BRITISH MILITARY ADMINISTRATION
Malaya

WE ARE PLEASED TO CONFIRM YOUR
RECEPTION
OF OUR BROADCAST FROM SINGAPORE

BMA QSL.

dens, and relax in the beautiful Jurong Bird Park. You could go across to Sentosa Island on the cable car and see the World War II museum, and if you are fortunate, you may even see some of the island's strange festivals, such as the Indian taipusam, and the associated fire walking ceremonies.

Radio Broadcasting— Before World War II

The first radio station in Singapore was an amateur operation established in the mid-1920s by the Malaya Amateur Wireless Society. This station radiated in the mediumwave (AM) band, with a power of 100 watts on 330 meters (910 kHz). In those days, British radio stations were identified with an alphanumeric system and this small, irregular Singapore station was allocated the callsign 1SE. Broadcasting from this station was abandoned in the early 1930s.

The first official radio station in Singapore was a shortwave unit, which was established in 1935, under the now nostalgic callsign ZHI. The records of the time tell us that this station was owned at first by the Radio Service Company in Singapore, and that it radiated test transmissions with 90 watts on 6012 kHz in the 49 meter band. Ownership was transferred to the British Malaya Broadcasting Corporation, and on June 1, 1936, a regular broadcast service was begun. The location of this historic radio station was on Orchard Road, which is today a major thoroughfare with several big shopping plazas. At the time, the station was on the air 5 days a week for a total of just 6 hours.

Soon after the establishment of the shortwave station, ZHI was joined by a mediumwave outlet, ZHL. This unit radiated 2 kW on 1332 kHz. Programming on mediumwave was in parallel to the shortwave outlet. Shortwave listeners and DXers in Australia and New Zealand, and occasionally in USA, reported hearing the 49 meter band ZHI but not the very low powered AM outlet.

During the War Years

When the angry war clouds gathered over Europe in 1939, plans were laid to establish a larger station in Singapore. The BBC attempted to buy the Singapore radio station and to upgrade the equipment. At this stage, the now familiar transmitter base at Jurong was established and four transmitters were installed here. Two of these radiated on mediumwave, 2 kW on 1333 kHz, and 7 kW on 618 kHz both under the call ZHI; and two radiated on shortwave with 400 watts and 500 watts under the calls ZHL and ZHN. Programming was in four languages, English, Malay, Chinese and the Indian Tamil. The studio building on Caldecott Hill, near the beautiful MacRitchie Reservoir, was built at the same time.

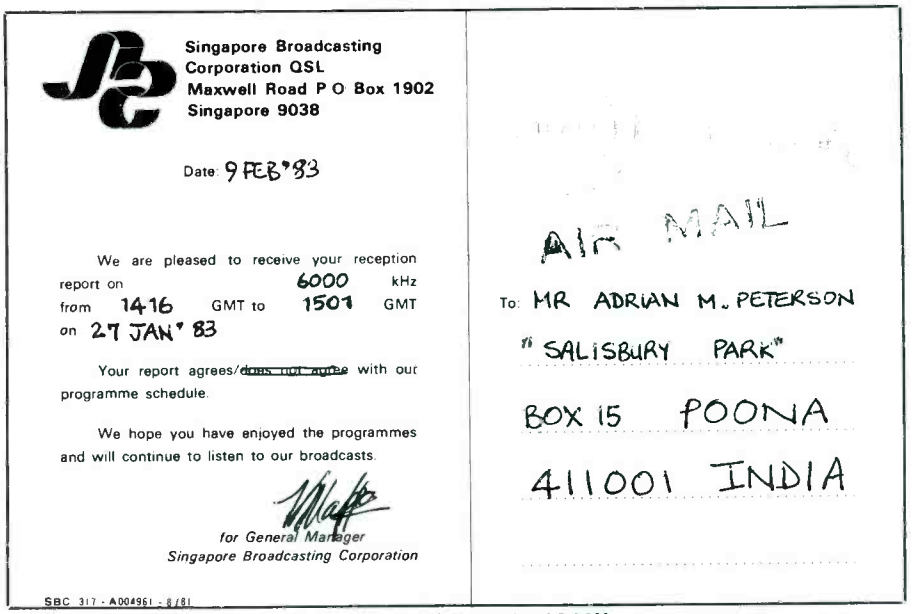
High-powered transmission equipment was shipped from England for installation in Singapore, and this included a 100-kW shortwave transmitter. Unfortunately though, some of the equipment was damaged en route, and that which reached Singapore arrived too late to be of any use.

In 1942, the Japanese marched down the Malay peninsula and took Singapore from the British. In an effort to reach a wider audience, the Japanese administration transferred a 7½ kW shortwave transmitter from the station on the island of Penang, and installed this unit at the Jurong radio base.

This new station, on the air now as Shonan Radio, broadcast programs to Asia and the Pacific. Many people in Australia and New Zealand listened to Shonan Radio for prisoner-of-war information, and the noted New Zealand DXer, Arthur Cushen, MBE, monitored the POW broadcasts regularly.

After World War II

In 1945, Allied forces re-entered Singapore, and the radio station came on the air again, briefly as SEAC, South East Asia



Singapore Broadcasting Corporation QSL
Maxwell Road P O Box 1902
Singapore 9038

Date: 9 FEB '83

We are pleased to receive your reception report on 6000 kHz from 1416 GMT to 1501 GMT on 27 JAN '83

Your report agrees/~~does not agree~~ with our programme schedule.

We hope you have enjoyed the programmes and will continue to listen to our broadcasts.

for General Manager
Singapore Broadcasting Corporation

SBC 317 - A004961 - 8/81

AIR MAIL

To: MR ADRIAN M. PETERSON
"SALISBURY PARK"
BOX 15 POONA
411001 INDIA

1983 QSL for 6000 kHz, 10 kW.

Command, and soon afterwards as BMA, the British Military Administration. When peace was restored, the radio station was handed back to the civilian authorities, and it became Radio Malaya Singapore. During this era, the Singapore radio station was also used by the British Far East Broadcasting Service, and soon afterwards by the BBC. When Singapore assumed its own independence in 1965, Radio Singapura was established.

Subsequently, in 1963 to be exact, a single channel black and white TV service was introduced, and this has since grown into a three channel color service.

My Visit to Radio Singapura

On a pleasant sunny morning in 1977, I walked from the main thoroughfare of Thomson Road where I was staying, towards the radio aerials located on Caldecott Hill. I made my way across a small waterway, through a modern suburban area towards Radio TV Singapura. I walked past the old abandoned studio building used by the British as ZHI and ZHL, and by the Japanese as Shonan Radio, and by the British again as BMA.

I came to the impressive new complex of buildings which comprise the present electronic complex used by the radio and TV services. I continued on my way with a minimum of formality to the reception area, where a Chinese guide was waiting. This gracious host spent the next couple of hours giving me a guided tour through the splendid facilities of Radio TV Singapura, and in telling me the interesting historical backgrounds of his station.

Construction work on the new studio and office complex began in the late 1960s, and the buildings were officially opened in 1972.

This superb suite of modern radio studios is capable of producing a large number of different programs simultaneously. Each studio is similar in design, and is engineered with a floating design to dampen outside noise. The TV studios produce and transmit two color programs simultaneously.

On another occasion, after an exotic visit to the fascinating Jurong Bird Park, I went to the nearby transmitter base. This houses the old transmitters used in pre-war days, the imported transmitter during the Japanese occupation, and the modern units currently in use. One transmitter of particular interest is the 10 kW unit installed after World War II by the British Forces Broadcasting Service. This operated on 5010 kHz. When the BFBS left Singapore in 1971, the transmitter was handed over to Radio Singapura, and programming was generally in parallel to the other 60 meter band outlet on 5052 kHz.

Current Radio & TV Services

Currently, Radio TV Singapura is on the air with four services, in English, Malay, Chinese and Tamil. All four services can be heard on three bands, shortwave, AM and FM—that is, if you live close enough to hear all of these outlets! Now, if you do live in the right part of the world, then you can hear the high-powered 750 kW outlet on 792 kHz AM, though generally this channel is on the air with only about 100 kW. In times of emergency, full power is used. Most shortwave outlets are now at 50 kW, with comparatively new transmitters.

The color TV service now radiates on three channels with 120 kW video and 12 kW audio. These can be viewed on Channels 5, 8 and 12.

In North America, you can hear Radio Singapura on shortwave, and I suggest that you try for the following channels:

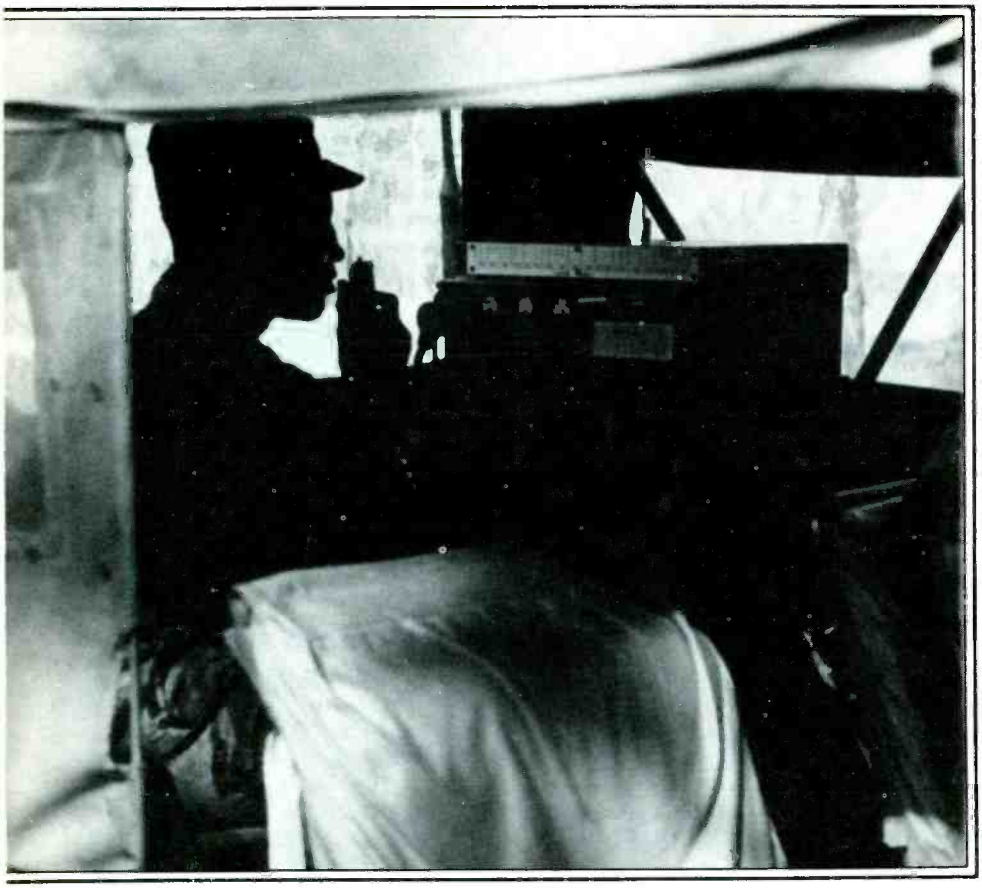
5052 kHz	1500 UTC
11940 kHz	1200-1700 UTC

Reception is considerably better on the west coast than in the east. Listen carefully, and when propagation is good, you may be rewarded by hearing the identification announcement in Malay, "Inilah Radio Singapura."

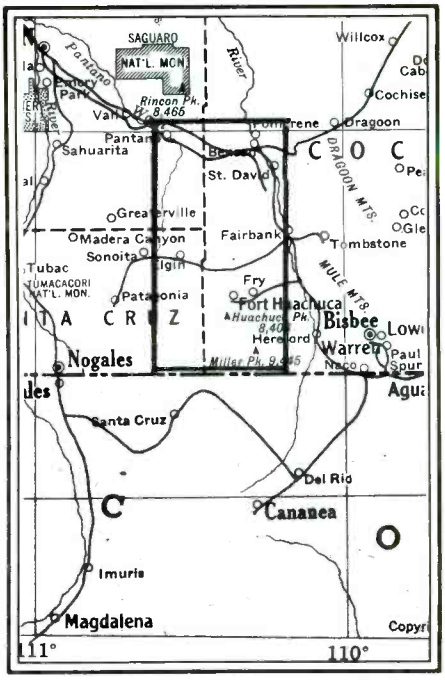
QSLs from Radio Singapura

My first QSL from Singapore was for a report to the BMA, British Military Administration outlet on 11800 kHz, October 6, 1945. I heard this station on a small home constructed receiver, using three old English Cossar tubes. At the time I was living in a small country town in South Australia. The broadcast was over the 7½ kW transmitter transferred earlier by the Japanese fron Penang Island to Singapore. Many subsequent QSLs have been received, from their many SW, FM, and AM outlets.

Radio Singapura readily issues a colorful QSL card for all correct reception reports, and their address is Radio TV Singapura, Box 1902, Singapore 9038, Singapore. PC



Ft. Huachuca, Army Intelligence HQ's, is one place that cocaine smugglers try to avoid when moving along "Cocaine Alley" because its perimeters are so heavily patrolled. (U.S. Army photo.)



Located at the intersections of Cochise, Pima, and Santa Cruz Counties, Arizona, "Cocaine Alley" is the entry point (from Mexico) for a large percentage of the illicit cocaine smuggled into the United States.

Cover Story:

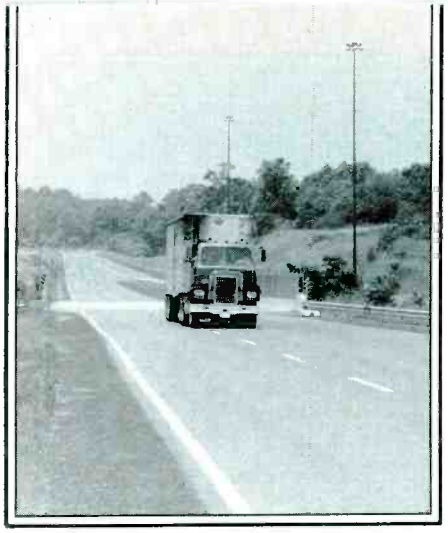
Cocaine Alley's Communications

Drug Smugglers Call This Remote Area Of Arizona "Avenue C." Almost One-Third Of The Nation's Illegal Cocaine Rolls Through "Cocaine Alley" Every Year!

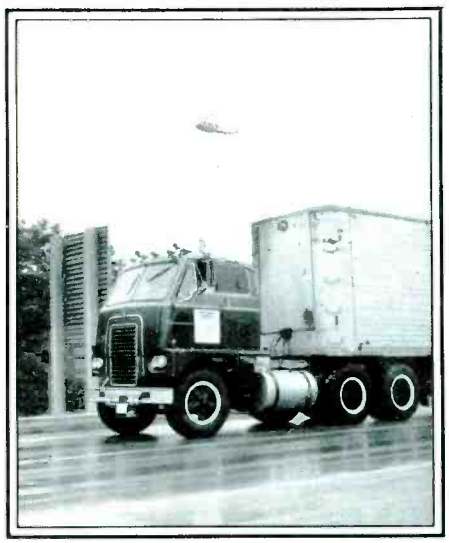
BY R.L. SLATTERY, KAZ7JS

Most folks have never even heard of the place that carries the local name of *Cocaine Alley*, much less visited the desolate place. It's in southeastern Arizona, along the Mexican border. *Cocaine Alley* is 30 miles wide and 42 miles from north to south; 1,260 square miles crisscrossed with dirt roads and the cocaine traffickers who drive on them at 70 to 80 MPH.

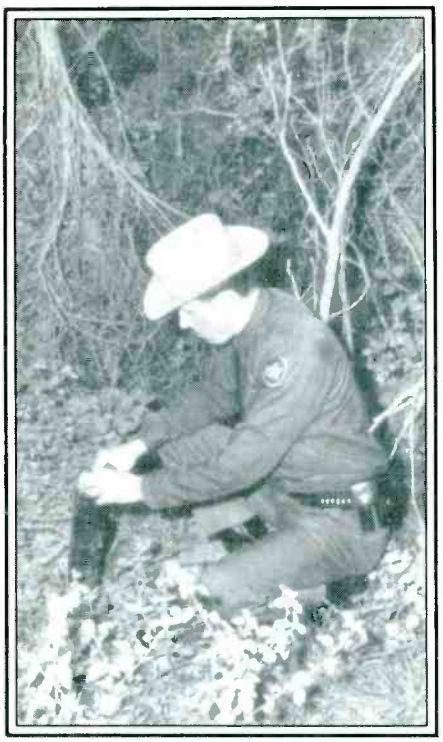
Cocaine Alley is located in the counties of Cochise, Santa Cruz, and Pima, and is roughly bounded at the north by Interstate 10, on the west by State Route 83, and on the east by an anonymous little road that runs along the railroad tracks between St. David towards the general direction of Hereford. The southern boundary is the Arizona-Mexico border.



One 18-wheeler looks like another moving along Interstate 10 towards Tucson or Phoenix. Some, however, carry cocaine that is then transferred to other vehicles or to aircraft for transit across the nation.



Aircraft maintain surveillance on vehicles moving along major and minor roads, but the cocaine still manages to sneak past the watchful eyes.



The U.S. Border Patrol hides automatic movement sensors in the ground along the border with Mexico. The units send an electronic signal out when they pick up vehicles or even nearby pedestrian traffic.

The two main features within this zone are the U.S. Army's Ft. Huachuca (home of the Army's Intelligence Center and School), and the Coronado National Forest. The National Forest consists of rugged mountains that rise abruptly from the surrounding desert. It is a haven of cactuses and fir trees, canyons, and several wilderness areas.

The American Southwest, including *Cocaine Alley*, sees about 25 tons of cocaine move through its border area every year, with perhaps 50,000 pounds directly attributable to the *Cocaine Alley* route. It flies over by aircraft, drives through by car, truck and van. It hobbles through by mule pack and in the knapsacks of couriers who walk. Rental trucks and vans are the most popular methods of transportation; at any given hour of the day or night there may be any number of them either on the move or else hiding from detection amidst the valleys, canyons, washes, and gullies.

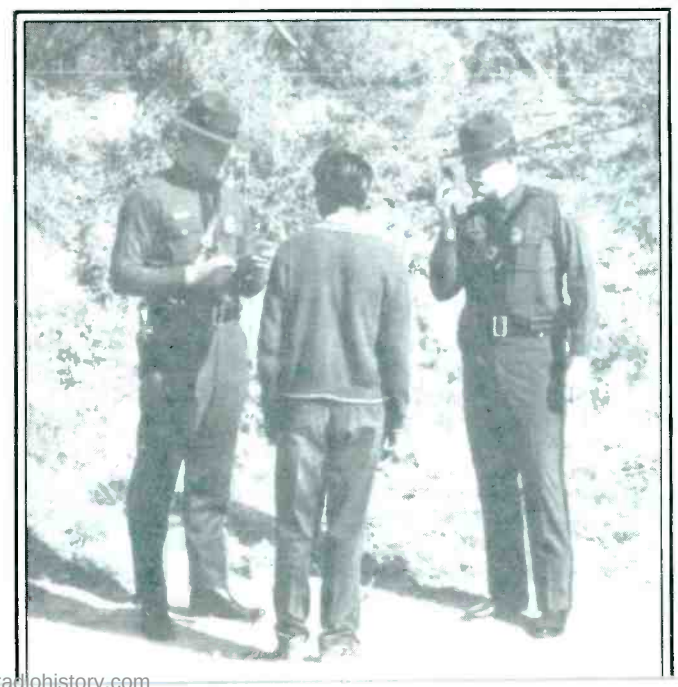
On their route northward, the smugglers try to keep as much distance as possible between themselves and civilization, and in this area that means Ft. Huachuca as well as several populated areas, the largest being the city of Sierra Vista (pop. 26,000). Civilization means law enforcement, although such enforcement makes every attempt to reach into the most remote and hidden areas. Federal, state, county and local agencies use aircraft and patrol vehicles to maintain surveillance, and many arrests are made. On the other hand, it's such a remote, large, and rugged area that it's practically impossible to patrol there with any great amount of efficiency.

Two-way communications channels, considering the remoteness of the area, are the heard at all hours. A hobbyist with a scanner has no shortage of frequencies to monitor in *Cocaine Alley!*

Federal Agencies

Although more federal frequencies than we list here are in actual use, the following have been previously published in several different reference sources and directories available to the general public. The U.S. Border Patrol has frequencies between 162.00 and 164.00 MHz along the Arizona-Mexico border, with 162.925, 162.975, 163.625 and 163.775 MHz being specific-

Agents of the U.S. Border Patrol check out suspicious vehicles and pedestrians transiting through remote areas. These activities are relayed to HQ's by two-way radio.



Aircraft, large and small, know the route over "Cocaine Alley." Here, U.S. Customs agents search for drugs that might be hidden in a private plane. (U.S. Customs Service photo.)

ally mentioned. The U.S. Customs service could be active on 165.235 and 165.29 MHz, with the DEA using a number of channels between 418.00 and 419.00 MHz.

Within the Coronado National Forest area, activity can be monitored from U.S. Department of Agriculture stations on 170.55, 411.325, 411.475, 411.525, 411.575, 415.325, 415.475, and 415.525 MHz. Around the Coronado National Memorial, NPS rangers use 171.725 MHz.

At the Fort Huachuca Army Base, the MP's operate on 36.10, 163.5625, 165.0625, and 173.4125 MHz. The airport at Ft. Huachuca is known as the Libby AAF and also the Sierra Vista Municipal Airport; that facility uses 41.50, 118.9, 128.25, and 229.6 MHz (the airport is closed after 10 p.m. MST during the week and 4 p.m. MST on weekends).

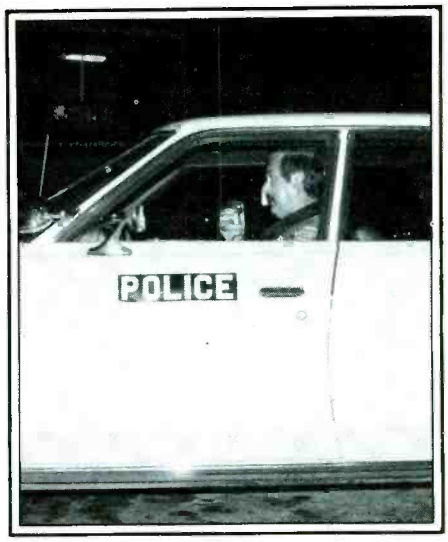
State Agency Activity

Arizona's State Drug Control operations are on 155.445 MHz, but other enforcement activities by State agencies in the area can be heard on 151.445, 154.785, 154.935, 155.475, 155.19, 156.09, 460.225, 460.275, 460.525, 460.375, and 460.50 MHz.

County Operations

Santa Cruz County's communications are on 39.18, 155.475, 155.595 and 155.835 MHz. Cochise County's agencies operate on 45.24, 45.64, 155.07, 155.13, 155.475, 155.835, 155.925, and 155.97 MHz.

The Pima County Sheriff here can be monitored on 39.18, 155.415, 155.475, 155.535, 155.565, 155.61, 155.70, 155.895, 453.65, and 460.375 MHz.



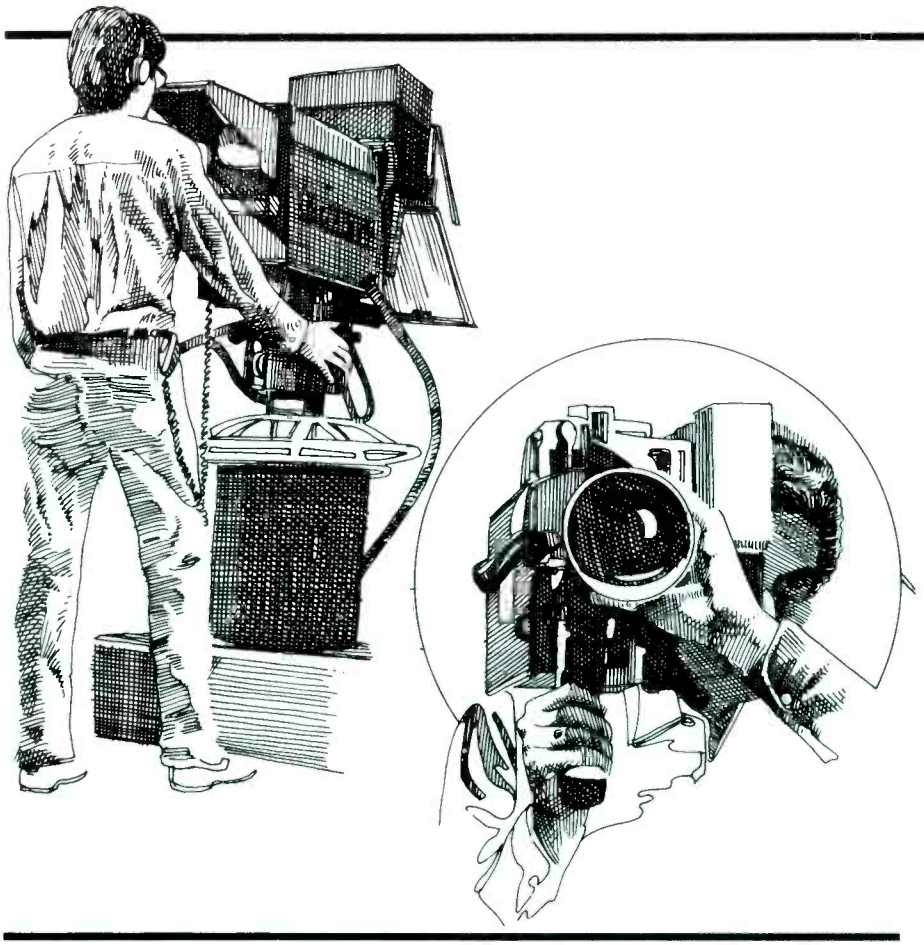
There are only three municipal police departments within "Cocaine Alley," and even though they are small, they do their share in looking for drug smugglers.

At a U.S. Border Patrol station near Mexico, an agent checks the printout that shows signals from a movement detection sensor.

Municipal Services

The City of Sierra Vista's activities are transmitted on 155.475, 155.64, 155.835, and 155.865 MHz. Huachuca City operates on 155.43, 155.475, 155.835, and 155.94 MHz. Benson's police use 155.37 and 155.475. Other localities are too small to have their own agencies and rely upon other agencies listed here.

For such a remote, isolated, and sparsely populated area, there are a high concentration of frequencies in use. State, county, and municipal agency frequencies listed here are all a matter of public record and are readily available to the general public in numerous directories. PC



The Very Short Life of a Very Small TV Network

The ON Network took a dramatic 30-day run at glory—then fizzled.

BY PETER HUNN

When the average American thinks about popular communications, he or she most likely conjures up images of the communications transmitted by our country's television networks. Undoubtedly though, few of those "communications" thoughts ever focus on the programming efforts of a 1960s TV network made up largely of struggling independent television outlets; a group of stations most viewers received with the help of a table radio sized gadget called the UHF Converter.

Twenty years ago (1966), D.H. Overmyer, a wealthy warehouse magnate, decided to put together a broadcasting company comprised of readily available UHF TV stations. One Overmyer television facility went on the air in Toledo, and a half dozen other stations were planned for Cincinnati, Pittsburgh, Atlanta, Houston, San Francisco, and Dallas.

While the operation of a chain of all Ultra High Frequency TV stations—in a VHF-TV dominated world—should have presented enough challenge to even the most ambitious individual, Mr. Overmyer announced that he also proposed to start America's fourth television network! This new outfit, noted an Overmyer spokesman from company headquarters located over a New York City Woolworth's store, would be called "ON," denoting Overmyer Network.

ON began signing up stations interested in carrying the new network's programming. Overmyer hoped to offer eight hours of telecasting daily with a "thematic" program line up. For example: Monday would be devoted to comedy, Tuesday to game shows, Wednesday would feature suspense programs, etc. ON also boasted of plans to air a two-hour, evening news broadcast from United Press International, as well as the acquisition of two hundred hours of popular movies. Even the Federal Communications Commission, with its strong desire for diversity on the airwaves, had high hopes for ON's claims. The stage was set for ABC, NBC, and CBS to get a competitor.

In the late winter of 1967, Mr. Overmyer sold his interest in ON to some businessmen who changed the proposed network's name to The United Network.

By May all was ready and The United Network, along with its one hundred employees, geared up for a grand premier. United Network's president identified his company's first program offering as "the most exciting and dynamic variety show ever televised." He was refering to The Las Vegas Show, a two-hour, five-night-per-week program hosted by Bill (Jose Jimenez) Dana, introducing pre-taped Las Vegas acts.

The Last Vegas Show was taped in a forty-foot trailer equipped with TV gear that extended over half of the trailer's length. The mobile facility included a video switcher, video monitors, audio system, and four RCA TK-43 color cameras.

To say that the "trailer produced" show received mixed reviews would be euphemistic. Although the initial program featured the big Las Vegas stars, subsequent shows consisted of relatively unknown lounge act performers. Soon after the show's debut, a number of The United Network's 106 affiliates either rescheduled The Las Vegas Show from its original 11:30 PM time slot, or simply dropped the program altogether. The general manager of one such station offered a faintly positive statement in admitting "that The United Network would have been successful if its show has been any good."

Suddenly, United's advertising rates, originally listed at $6,000 per minute, were slashed to $2,500. Early sponsors like General Mills, General Foods, Armour, and Adolf's Meat Tenderizer, were replaced by a tiny company in Las Vegas trying to sell flags for $4.98 apiece. Finally, after the network president appeared on the air in order to request advertiser support, the many available commercial time slots became the province of free public service announcements for the Peace Corps and the U.S. Post Office.

When AT&T mailed The United Network a bill for $400,000 (to cover the cost of leasing the big coaxial transmission lines used to interconnect the Network's affiliates), there was talk that only a wealthy person, willing to take a big risk, could rescue the fledgling TV network. Legend has it that Howard Hughes was offered the opportunity to buy into United Net. Upon the eccentric billionaire's swift refusal, network officials felt that there was no further reason to prolong their company's financial agony.

On Wednesday night, May 31, 1967, just a month after telecasting its first program, The United Network went dark. The signals from the little television network were never again seen. Their only remnants were discarded along with the UHF-TV converters that once tuned them in. PC

Radio Daze

The Heyday of Radio and Wireless Remembered For A Moment

BY ALICE BRANNIGAN

Plenty of goodies in the mail sack this month; poor Freddie (the letter carrier) complains that he had to get arch supports for his shoes! First out of bag is a photo and letter from Dwight M. Brown, Jr., W5WE, a petroleum geologist from Shreveport, LA.

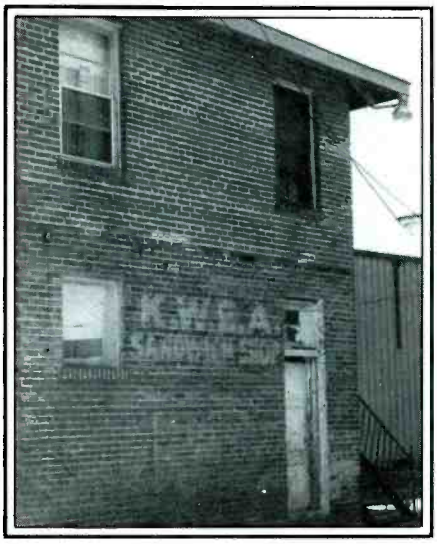
Dwight recalls the day when he was a kid and his Dad (W5ABA) took him to visit some of the Shreveport radio stations. One station visited was KWEA (1210 kHz, 100 watts). In the late 1920's, KWEA shared time on the frequency with religious station KFDX. The most interesting thing about KWEA was its owner, William ("Bill") E. Antony. Bill was a local experimenter (licensed as 5ZS) whose activities were well known to all area radio buffs.

Climbing the old wooden stairs (now replaced with iron steps) at the rear of the KWEA building, he was impressed with the glow given off by the station's mercury vapor rectifier tubes.

When W.K. Henderson (of KWKH fame, see *POP'COMM* for February, 1985, for his story) was looking for the best engineer around to operate KWKH, he went looking for Bill Antony. Antony was apparently not anxious to leave his own station and so the flamboyant Henderson had to purchase KWEA and let Antony operate *both* stations from KWKH's headquarters at 228 Spring Street (at the intersection of Fannin Street). Records of 1931 show the same owner for 10-kW KWKH (on 850 kHz) and little 100-watt KWEA!

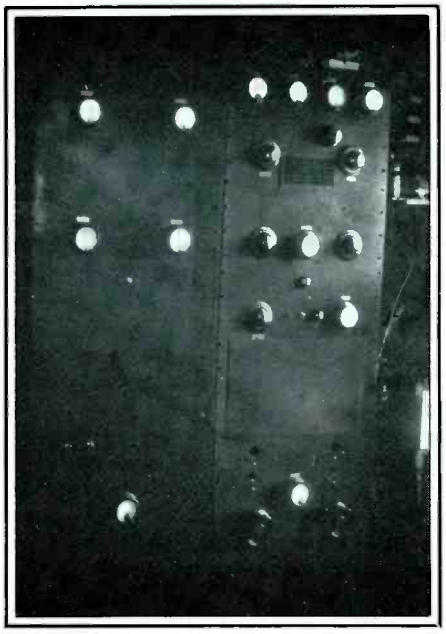
Antony had managed to have his cake and eat it too, while W.K. Henderson was able to employ the talents of one of the top radio engineers in the area! Antony remained with KWKH for 47 years until his death in 1964. His widow, Claudine (who was almost as well-known in radio circles as Bill was) passed away at age 83 last October 30th.

Dwight thought our readers might like to see a recently taken photo of the original home of KWEA. The callsign can still be seen painted on the wall above the words "sandwich shop." Although Dwight didn't mention the address, we assume it is 825 Grimmet Drive (formerly Agurs Street).



The callsign KWEA can still be faintly seen on this wall in Shreveport, LA. The station was operated by Bill Antony.

W.K. Henderson, wild and wooly owner of station KWKH, wanted Bill Antony's talents at his own station, but Antony didn't want to give up running KWEA. Henderson finally had to buy KWEA and let Antony run both stations!



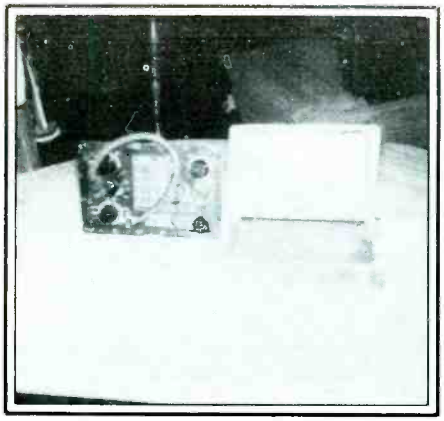
The old WHOP 250-watt broadcasting transmitter saw prior service at WPAD in Paducah, KY, but that was about 50 years ago. Presently it's a 1-kW Ham rig operated under the callsign K4KYV. Bravo, K4KYV!

HOP To It!

Station WHOP in Hopkinsville, KY went on the air in 1939 as one of a group of area stations under common ownership. Others were WPAD in Paducah, and WSON in Henderson. So says Donald Chester, K4KYV, of Woodlawn, TN. WPAD and WSON used homebrew transmitters built by "Preacher" Sims, the Chief Engineer. When WPAD updated its facilities, its 250-watt transmitter was shipped to Hopkinsville for use as WHOP's first transmitter. WHOP used that transmitter until 1955 when a new 1-kW remote-controlled rig was installed.

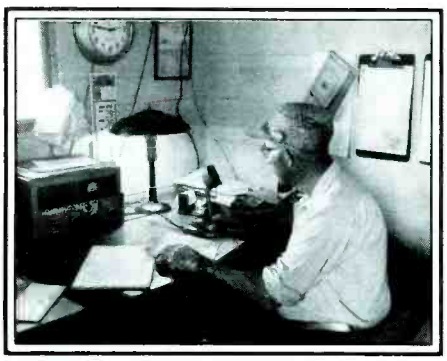
The original WHOP (ex-WPAD) transmitter used three 203-A's in parallel in the final, driven by a single Taylor HD-203A. The Class B modulators were a pair of 838's. When WHOP retired the transmitter, it was given to a Ham op who converted it for the 75 meter band and used it there for a number of years. By 1970, the rig was in sad shape, having been relieved of many of its internal components. At that point, it came into the possession of K4KYV.

The cabinet itself was homemade, and of very crude construction using sheet metal and angle irons held together with stove bolts. It still had its original dozen Jewell surface mount meters and National Type A Velvet Vernier dials. Along with the transmitter came the UTC LS-103 50-henry 500 milliamp modulation reactor along with a box of assorted components and the final tank variable capacitor.



Anybody out there have any idea of the particulars relating to this mil surplus RT-3 transmitter? One of our readers is asking.

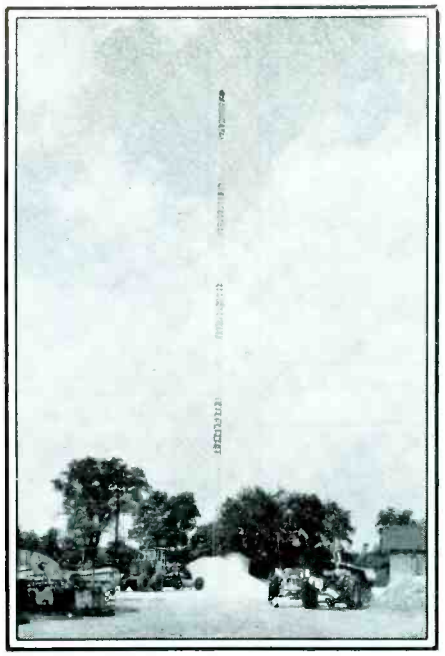
Here's station KQF282 of Ohio's Highway Department as it looked in the summer of 1956.



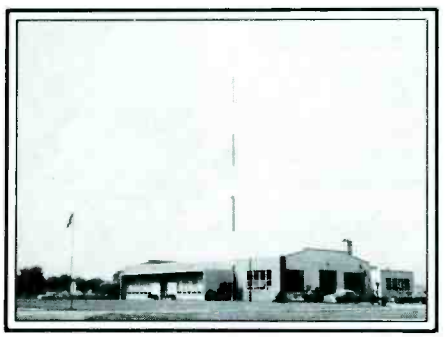
A dispatcher at an Ohio Highway Department station in 1956. The exact station identification isn't known, but the 'phone book on the wall lists Apple Creek as one of its coverage areas.

Donald was able to get a look at the old WSON transmitter and realized that it was remarkably similar to the WPAD/WHOP rig, in fact WSON's CE gave him a spare LS-103 that might be used in reconstructing the rig.

The old transmitter was finally rebuilt to 1 kW input for Ham use between 160 and 20 meters (with plug-in coils). Many of the original components were used, although the circuit was of K4KYV's own design. The transmitter is at present used for AM 'phone between 1880 and 1900 kHz and from 3870 to 3890 kHz, also sometimes on the 7 MHz band. CW operation is used at times, too.



The Ohio Highway Department's transmitting tower at Toledo in 1956.



Another tower located at Toledo and operated by the Ohio Highway Department in 1956.

Donald (who edits Ham Radio's only monthly newsletter on AM operation, *The AM Press/Exchange*) sent along a photo of the old WPAD/WHOP rig as it presently appears in his radio shack.

Whatzit?

SMSgt. Paul A. Mathieu, R.N. (USAFSS, Retd.), of 3109 Southland Blvd., San Angelo, TX 76904, has an old piece of communications gear he's trying to identify. If any reader can provide information on Paul's mystery equipment, *please contact him directly*.

The equipment shown in the photo is a small transmitter bearing the designation "Type RT-3" and the Serial #6491. Frequency range is 3 to 22 MHz for CW operation, crystal controlled on two frequencies (two internal crystal sockets for different pin spacings). The unit uses a 6AC7 and a 2E26. Looks to be WWII vintage and made for rough use.

The photo Paul sent provides a look at the unit, which carries no manufacturer's name. The case is about 8½ by 5½, and almost 4 inches deep.

The operator is W2WV. The rig saw service in 1939 as VS6BF and VQ9AA aboard the Chinese Junk "Pan Jin" until the vessel sank. The transmitter was salvaged and still works just fine!

Paul's a 30-year veteran of the DX'ing hobby and says that he's so enthusiastic about *POP'COMM* that he constantly sends copies to DX'ers overseas to let them see his favorite publication.

Ohio Highway Radio

Dale E. Reich, of Seville, OH sent us several photos of two-way communications stations of the Ohio State Highway Department. Dale didn't have much information on the details of the stations, but a calendar on the wall shows that the pix were taken in 1956.

Digging through our reference records, it appears that the Ohio Highway Department was using 37.90 MHz in 1950, and a few years later was operating on 33.10, 37.90, 47.22, and 47.34 MHz.

Another Old Rig Given New Life

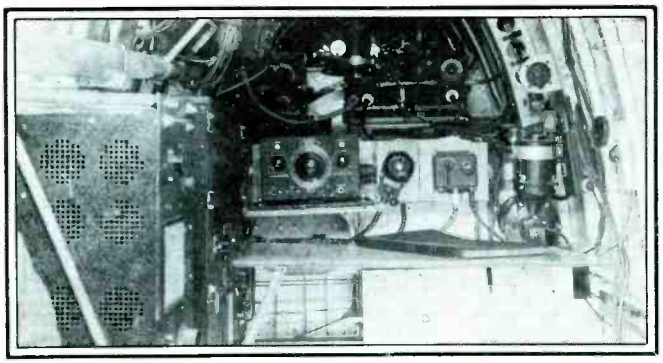
Bill Turner, W2WV, of Clearwater, FL is a bug on old time radio and reports that he enjoys our efforts in *POP'COMM*'s pages. He sent along a photo of himself seated at the console of a very interesting looking station.

It turns out that the transmitter in the photo was once installed aboard the Chinese Junk *Pan Jin* as it sailed the adventure-filled waters of the Orient in 1939—the October, 1939 issue of *QST* carried the *Pang Jin*'s breathtaking saga.

Running 45 watts CW on 14136 kHz, the transmitter signed the calls VS6BF and VQ9AA during that era of its existence. Its original operator, Rex Purcell, is still a member of the QCWA Chapter in Clearwater, and the transmitter (which survived the sinking of the *Pan Jin*) has been kept in fully-operable condition. The rig now rests in a radio museum in St. Petersburg, FL. Bill is the fellow who repaired the rig and put it back in shape.

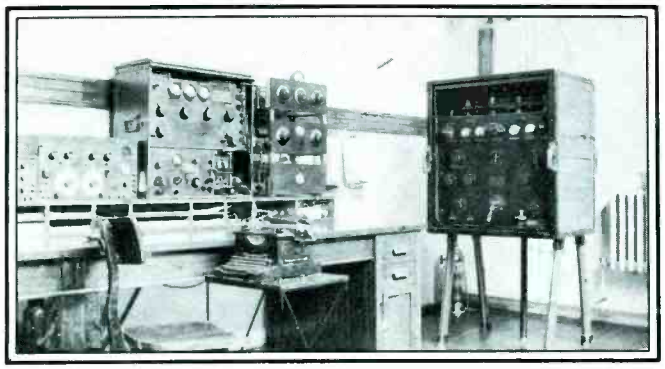
Aero Radio, Circa 1933

Vance Murr, W4FWI, of Miami Springs, FL was in the Army Air Corps in the early 1930's when the Army was conducting high altitude long-range photo recon flights, many flown over Alaska and considered

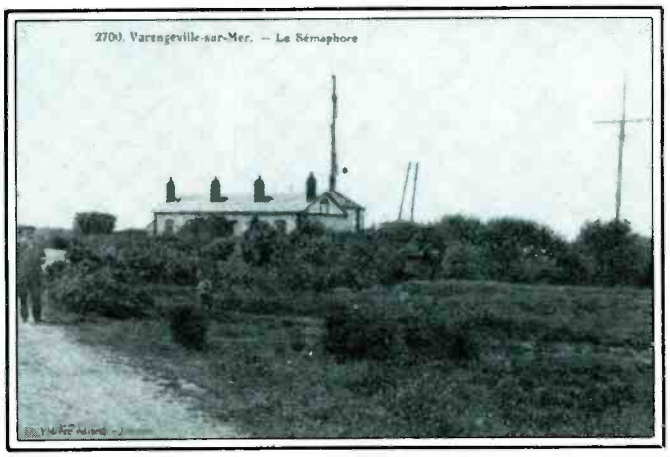


The radio operator's position aboard a Martin Bomber in 1934

This contraption was a portable transceiver used in 1933 by Goodyear engineers in Akron. It was good for talking to passing blimps.



The Army Air Corps ground station WYC, Langley Field, VA as it looked in 1934 during the Alaskan flight.



The tower at the far right and the two shorter masts in the center appear to support antennas at the turn-of-the-century French semaphore station.

"secret." These flights were under the direction of Gen. H.H. "Hap" Arnold.

Vance's activities brought him into close contact with early aviation radio, blimps, bombers, and the like. Luckily (for us), he kept many of the photos he took while he was engaged in these activities. Even luckier, he sent along some of those photos to share with *POP'COMM* readers.

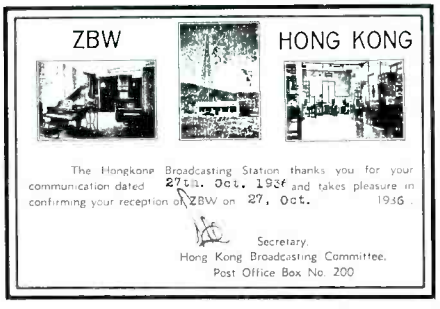
One photo shows what passed for being a "VHF portable" unit in 1933. This transceiver, mounted in a pushcart, was used by Goodyear engineers at Akron, OH when communicating with their blimps.

One of Vance's other great original photos shows the radio operator's position aboard one of the ten Wright Cyclone-powered bombers that flew round-trip from Washington, DC to Fairbanks, AK in July of 1934.

One of the ground stations used during that epocal flight was WYC at Langley Field, Hampton, VA. Operating on 200 and 229 kHz (among other frequencies), it maintained contact with the aircraft. Vance also sent a photo of that station.

The King of Hong Kong

For many years, the most well-known broadcaster in Hong Kong was ZBW, operated by the Hong Kong Government on 845 kHz (1.5 kW) and 9525 kHz (2.5 kW). Programs in English and Chinese went out eight hours a day, six days a week to the delight of BCB DX'ers and SWL's throughout the world.



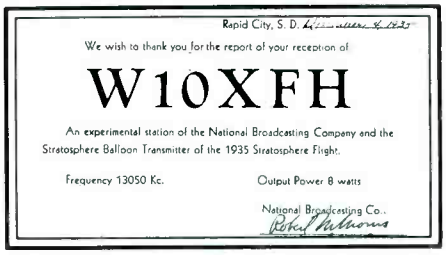
Station ZBW in Hong Kong was a favorite of DX'ers 50 years ago.

One of those who fondly recalls ZBW's programs is Carroll H. Weyrich of Baltimore, MD. Carroll sent us a copy of his cherished QSL from station ZBW that verified his reception of 27 October, 1936.

So You Want To Crack A Mystery?

Now that, thanks to our readers, we have been able to pin down the mystery stations in Miami and Wilmington, let's have another. This time it's a very early wireless telegraph station located at Varengeville-sur-Mer, France.

Our undated, but obviously pre-1910, view of this station shows several masts. The tall mast on the building wasn't used for wireless, it was a huge semaphore (visual communications) system. The other three masts (to the right of the building), however, do show (under magnification) what appears to be antenna wires and insulators.

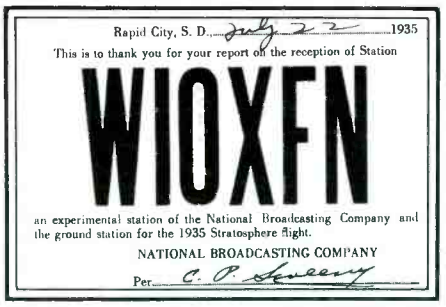


W10XFH was operated by NBC during an historic manned stratosphere balloon ascension that took place in 1935. Not many of these QSL's around!

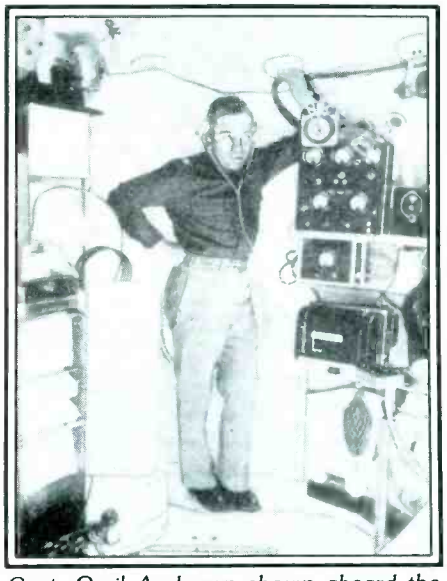
High-Flying QSL's

Vance Murr's early aviation radio photos reminded me of the radio transmissions that took place during the stratosphere balloon flight of the 1935. Within the context of the era, this manned "space" flight was as thrilling and headline-making as the space trips made by Yuri Gagarin and Allan Shepard more than 25 years later in 1961!

This flight was conducted by the Army Air Corps in cooperation with the National



NBC's ground station near Rapid City, SD was W10XFN. It ran 200 watts on 6350 kHz, and was on the air for only one day!



Capt. Orvil Anderson shown aboard the "EXPLORER II" stratosphere balloon with the W10XFH rig on the top shelf.

Geographic Society, with the NBC radio chain picking up live broadcasts. The intricate communications setup required 40 radio engineers and 6,000 miles of extra wireline in addition to the usual network facilities. The balloon was able to talk with the *China Clipper* aircraft flying off the coast of California. A hookup was also available to communicate with a reporter in London.

Aboard the balloon, called the *EXPLORER II*, Capt. A. W. Stevens and Capt. Orvil Anderson, were located in the gondola with scientific gear. Included was a transmitter using the Experimental Station callsign of W10XFH, and operating on 13046, 13050, and 13055 kHz. It was battery powered and ran 8 watts into a quarter-wave wire antenna.

Ground communciations were handled by W3XL, Bound Brook, NJ running 20 kW on 6425 kHz; W9XF in Chicago running 5 kW on 6100 kHz; and NBC's "Stratocamp" base at the Indian School near Rapid City, SD. This station, W10XFN, ran 200 watts on 6350 kHz. The historic flight took place over South Dakota and was a roaring success in every respect.

The *EXPLORER II*, at more than 315 ft. from the top of the gas-filled balloon to the bottom of the gondola, was the world's largest craft of its type. During its 8 hour and 13 minute flight it reached a record-setting alti-

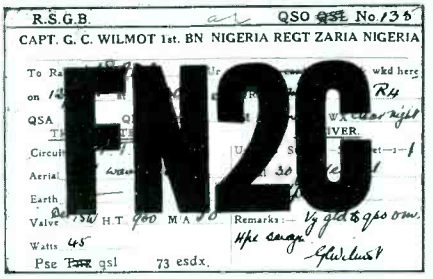
Historic Ham QSL's

This QSL isn't so much historic as it is curious; we ought to refer to it as the case of the misplaced callsign.

Nigeria is located on the southern coast of West Africa. It's more than twice the size of California. From the years 1400 to 1600 Portuguese and British slavers came on the scene, but as time went on British influence prevailed. In the mid-19th century, during an anti-slave campaign, the British seized Lagos (the capital) and slowly extended their power towards the interior of Nigeria until, by 1900, the nation was totally under British control and had become a member of the British Empire. Britain ruled Nigeria until 1960 when it became independent. A republic was declared in 1963.

Our QSL this month is dated 1931, and is from a Ham who was a British Army officer stationed at Zaria in the 1st Battalion of the Nigerian Regiment. Operating on 14 MHz with 45 watts into a full-wave transmitting antenna, Capt. G. C. Wilmot's station used a 30 ft. vertical as its receiving antenna.

What was more unusual than anything else about the station was its callsign, FN2C. Old Ham prefix lists show



Nigeria (also known as British Cameroons) as having been allocated the use of the prefix "ZD2." So far as we can determine, "FN" was a French prefix that was used in French India. After Nigeria's independence, Hams used the prefix "5N."

Why and how a British station located in a British colony came to be using a French callsign allocated to another area does pose a bit of a question. At a point more than 55 years after the fact, it's a question that we can't exactly answer. Maybe one of our readers can help us out.

"Stratocamp" at Rapid City, SD was the base for the balloon ascension. In addition to the Army communications equipment, NBC was given permission to install its own station, W10XFN.

On the famous airliner "China Clipper," flying at 3,500 ft. off the California coast, two-way contact was established with "EXPLORER II." Here W. Burke Miller of NBC and PAA chief pilot Capt. E. C. Musick are shown during the actual conversation.

This is the "EXPLORER II" as it drifted towards a landing 12 miles south of White Lake, SD, thus ending a unique DX monitoring opportunity.

tude of 72,395 feet (13.71 miles). Its one-ton cargo of scientific instruments functioned perfectly. After lift-off from the Rapid City "Stratobowl," it climed slowly to about 17,000 feet above the Badlands, then drifted southeast as it rose upwards towards the stratosphere. After more than an hour at an altitude of more than 13 miles, the balloon drifted towards the northeast and came to the ground south of White Lake, SD.

Those who bypassed the NBC network's rendition of the two-way communications picked everything up directly via shortwave. NBC generously responded to reception reports with QSL cards from W10XFH and W10XFN, giving DX'ers rare verifications that live in history long after the flight itself has been all but totally forgotten.

Howard Kemp of Laconia, NH heard those transmissions and earned himself two rather unique QSL cards. We thank him for giving all of us a peek at those cards—among the rarest of the rare "ute" cards! From our own files, we dug up some photographic memorabilia of the balloon ascent.

Alice's Mumblings

Wow! Where has all of the space gone? I could rattle on here for another dozen pages with more chatter but that's all the room we've got. Next month I'll have more. If you've got some antique QSL's, radio station photos, or related materials, please share them with other readers. Good quality office copier repros of QSL cards and letters are acceptable; don't send us the originals as they can't be returned.

One more thing before I put the dust cover back on the mill—I want to comment on the mail that normally arrives concerning not only my "true" identity but also doubting my very existence. That mail increased appreciably after several letters of this genre appeared in the February issue *POP'COMM Mailbag* column. Some of the letters were

Alice says, "You'll be more disappointed than astounded."

clever, some were funny, some were facetious, several were lengthy and extremely analytical; a smattering attempted to be insulting (two succeeded).

I do appreciate the interest in establishing the "facts" of my identity and/or existence, although it's really a tempest in a tank coil. For those who have become serious researchers on the subject of "Who is Alice Brannigan, and Does She Exist?"—here's a clue: In a 1976 issue of *CB Radio/S9* magazine, I wrote a lengthy feature story with my real name on the byline. My photo appeared with that article. Those who remember that now-defunct magazine and can locate copies can continue on their quest! It's a rather plain name; you'll be more disappointed than astounded. As it turns out, one *POP'COMM* reader accidentally stumbled across that story several months ago and wrote to tell me about his discovery!

Had I known that I'd generate so much interest and controversy by using a pen name, I'd have done it long ago! **PC**

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CIRCLE 59 ON READER SERVICE CARD

Postal Clerk Helps Prevent Electrocution

"I don't want to get involved," is something that all of us have heard at least once. Trained police officers, firefighters and other public servants get involved every day—it's part of their job. At other times, a regular citizen takes it upon himself or herself to do something postive for the community. Something that they don't have to do.

SCAN PUBLIC SERVICE AWARD

One such "ordinary citizen" is Charlie James, a postal clerk from Dayton, Ohio. James was at his home on Pleasant View Street when he heard a loud crash that sounded like thunder. He immediately ran outside and saw a large semi-trailer truck stalled in the street, with live high-voltage power lines all around the truck and thrashing around the street and nearby yards.

The truck driver had decided to ignore the law and drive the truck through the quiet residential area. The height of the trailer had torn the power wires from the transformers and knocked down poles.

"I knew the potential for a serious injury was great," James told the Dayton postal newsletter, *Dayton MSC News*. "My main concern was for the driver and the children of the neighborhood."

James told the driver to stay in the truck, and cautioned him not to touch any metal portion of the cab, including the door handle. He then phoned Dayton Power and Light, and the Dayton Police Department.

After the authorities were called, James returned to the scene of the accident and directed traffic around the wires. He told neighbors and the onlookers that had gathered that they should leave the area until the police arrived.

James was prepared for this emergency in part because of his training as a Neighborhood Assistant Office member. This program was developed by the Dayton Police Department. James had spent eight years in the organization.

James received a letter of appreciation from T. Broomfield, Dayton Chief of Police. Two local TV stations aired the ceremony.

For his quick thinking and correct action, James will also receive the SCAN Public Service Award, which consists of a special commendation plaque and a $100 cash prize. Jaime E. Faucett of Dayton will also receive a special commendation plaque for making the nomination. Congratulations to both of you.

SCAN PHOTO CONTEST WINNERS

Best Appearing

James Simons of Kalamazoo, Michigan says that he enjoys the photo contest and got some ideas from past winners on how to arrange his gear in an efficient layout.

So it's only fitting that James is now a winner with this smart shack! The equipment shown here includes a Regency Z45 scanner, Realistic DX-400 communications receiver with Archer 20-210 headphones, Uniden CB transceiver, TI-99/44A computer and Sony TV-920 used as a computer monitor. A J.C. Penney cassette recorder and Casio HR-100 calculator (to help figure out harmonic frequencies?) round out the shack. All of the antennas used with this equipment are located indoors and were designed by James.

James is employed by the phone company, and holds a general radiotelephone license. Parts of his job includes maintaining the public highway mobile and company maintenance mobile transmitter stations in Kalamazoo and Battle Creek.

Best Equipped

Robert S. LaPorte of Clarksville, Tennessee calls his radio shack "The 21st Century Monitoring Station" and he certainly does have an impressive array of equipment.

Leading off with the scanners, Bob uses a Regency MX-5000, Realistic Pro-16 and two Realistic Pro-7 scanners, one with an inversion descrambler tied into it. Also available for scanning is a Fanon four-channel portable pocket scanner.

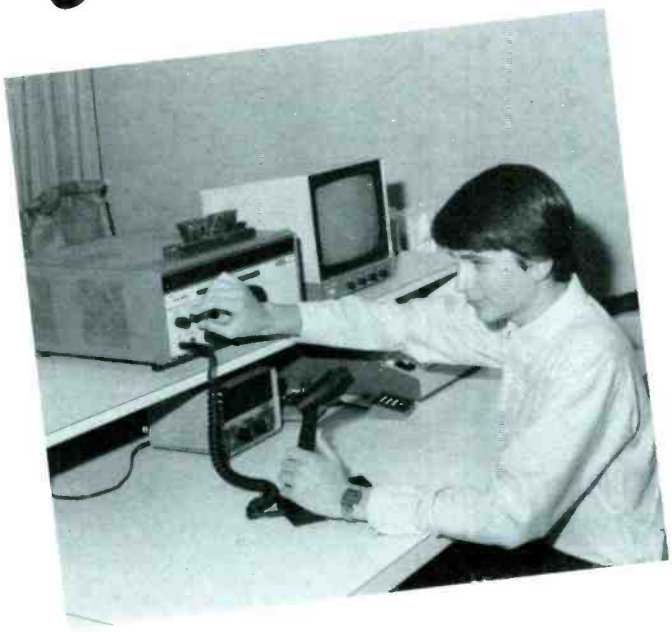
The main receiver is an ICOM IC-R71A with an experimental dipole antenna cut to 49 meters. A General Electric Superbase with Turner 500 base microphone is connected to a three-element beam mounted horizontally and a 3/4-wave ground plane for vertical polarization. A Realistic cassette recorder is also used. The computer is a Commodore SX-64 with SWL text cartridge and CP-1 interface. Bob also has an MPS-801 dot matrix printer and extra printer for the Commodore. (Looks like we might have to start a "Best Computer Equipped" section.)

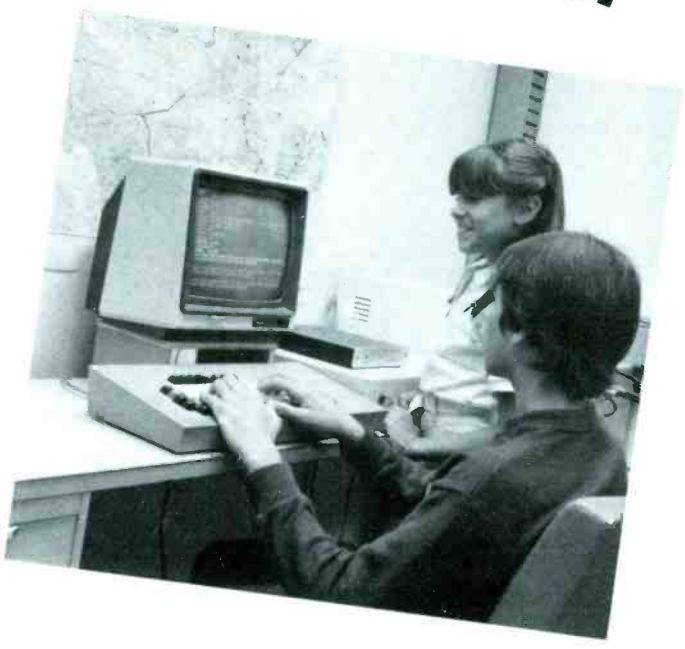
Bob says that he communicates with other monitoring enthusiasts in the area with a modem that plugs into the SX-64. Much of the local activity comes from the 101st Airborne Division at nearby Fort Campbell. To listen to these broadcasts and other local transmissions, Bob says that a small antenna is sufficient.

Winners in the Photo Contest this month receive the BMI "NiteLogger" tape recorder activator. Plugged into a cassette recorder and a scanner, it gives a complete record of all communications with no "dead time" on the tape. If you would like to enter the contest, just send a sharp black/white print to SCAN Photo Contest, P.O. Box 414, Western Springs, IL 60558. PC

HAM RADIO

JUST BECAME MORE FUN!





Beginners get new privileges

Hams who have passed the beginner's (Novice class) exam are no longer limited to using only Morse code. They are now allowed to operate on certain frequencies using voice, and they may also link their home computers through packet radio networks. Just think of all the fun you'll be able to have talking to other hams all over the world when conditions permit. Then you can switch to a repeater for local coverage, perhaps using a handheld transceiver. The key to passing the Novice class exam is *Tune In The World With Ham Radio*. This kit contains a book with over 200 pages that tell in easy to understand bite-sized chunks all about the FCC regulations and electronics you need to know. The cassette code practice material makes that part of the exam a snap! The book alone is only $8. The complete kit is $10. Please include $2.50 ($3.50 for UPS) for shipping and handling. For more information and a list of local radio clubs that can help you get your license, just fill out the reader service card in this magazine.

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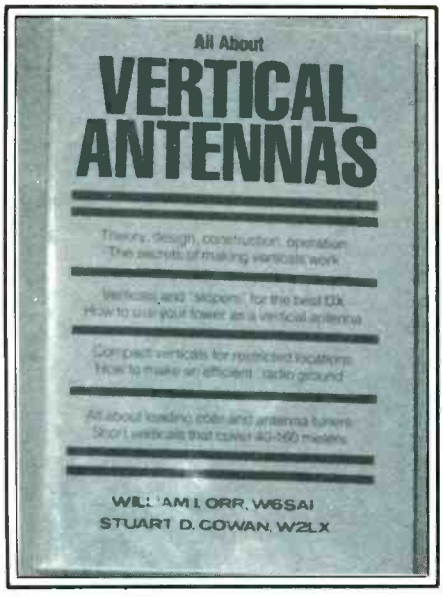


Upstanding and Outstanding Antennas

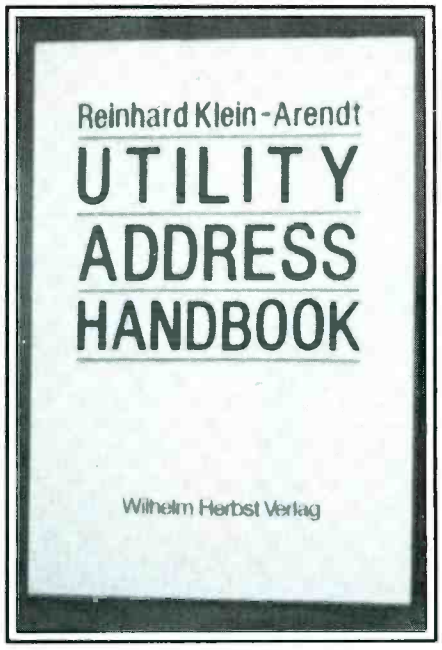
Bill Orr, W6SAI, and Stu Cowan, W2LX, have added a new title to their well-known series of communications books, *All About Vertical Antennas*. This is a 190-page book that is packed full of charts, tables, diagrams, and photos. Best of all, it's wall-to-wall information on the theory, design, construction and operation of vertical and sloping antennas that operate between 1800 kHz and the VHF bands.

The book covers ground planes, helical, top-loaded, reduced-space types, grounding and counterpoise problems, equalization, feed systems, tuning, and more. There are detailed instructions for actually constructing more than 25 types of antennas, each of which may be used for transmitting as well as for receiving.

One antenna that caught my eye was the "Compact Top Hat Antenna For 160 Meters." Although it is intended primarily for use on the 1800 kHz Ham band, I built it because I wanted to use it for reception on the AM broadcast band. I'm located out in the boonies and daytime reception is normally poor. The instructions in this book were easy to follow and it wasn't long before I had the antenna in operation. It makes a great broadcast band antenna and does a really fine job for nighttime monitoring on the 1620 kHz pirate broadcasting frequency.

This is a well-written book that explains the many uses for these versatile omnidirectional antennas. If you've never used a vertical antenna, this book could well provide you with the inspiration and information you need give them a try.

All About Vertical Antennas, by Orr and Cowan, costs $10.95 per copy (plus $1 postage/handling) from Radio Publications, Inc., P.O. Box 149, Wilton, CT 06897.



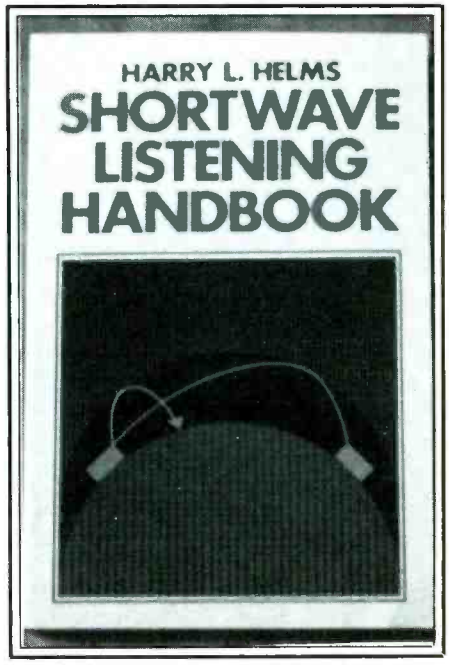
Where To Send That Report

One of the traditional "problems" facing "ute" DX'ers is that of finding out where to send the reception report. Yes, reception verifications from some press, military, aero, maritime, diplomatic, beacons and other utility stations can actually be obtained, measurably adding to your enjoyment of the communications experience. But you can't look up the addresses of these stations as easily as might be done with international shortwave broadcasting stations. At least, you couldn't do it until now!

Reinhard Klein-Arendt, a West German "ute" DX'er, has compiled 139 pages of pure joy for any DX fan wondering about where to send that reception report, or merely wondering about who operates various "ute" stations. It covers from Afghanistan to Zimbabwe and includes relief organizations, military, scientific, INTERPOL, national police agencies, press, diplomatic, aeronautical, maritime, meterological, PTT's, and time signal stations. These are stations that might be monitored using voice, CW, RTTY, FAX, ARQ, or FEC modes of tranmsission. The listing is so comprehensive that for the U.S.A. alone there are almost 1,500 addresses!

The listings are arranged alphabetically by nation, and are identified and organized into thirteen different operating classifications. The book is illustrated with a number of utility station QSL cards, just to make you green with envy.

Klein-Arendt, in typical German directness, has entitled his worthwhile book, *Utility Address Handbook*. Copies are $12.95 plus $2 postage and handling from Gilfer Shortwave, 52 Park Avenue, Park Ridge, NJ 07656.



Shortwave Listening Handbook

At last, an active DXpert has sat down and put together a no-nonsense, to-the-point, all-around book about DX'ing. This is the real nitty-gritty that probes the nuances of everything from shortwave broadcast station monitoring, to utility station monitoring, to clubs, receivers, antennas, propagation, FM/TV DX'ing, pirates, bootleggers, mystery and coded transmissions, and just about every other possible aspect of the hobby.

This new book is called the *Shortwave Listening Handbook*. It's written by Harry L. Helms, KR2H, frequent *POP'COMM* author and former columnist. Who else but the feisty Helms would take such a no-holds-barred look at the ins and outs of DX'ing—aptly deflating several of the hobby's most puffed-up sacred cows along the way? In his 243-page, fully-illustrated book, you'll get the benefits of tons of first-hand experience that Helms has racked up in his many years 'neath the headsets. You'll be treated to pictures of censored FBI memos about DX'ers, DX clubs, and magazine editors. You'll find out the equipment features that Helms con-

siders a waste of money. You'll learn about squeezing the most out of your equipment, so that even a medium-priced communications receiver will perform like one costing much more.

There really does not seem to be any area of the listening hobby that Helms hasn't explored here in a very frank and candid manner. Most listening handbooks we've seen seem to be afraid to tackle certain touchy subjects, or else tiptoe around them in a saccharine manner. Helms, apparently, isn't too worried about crumpling the egos of persons, organizations and clubs, that have underwhelmed him. He's even got a blunt discussion on the federal government's interest in (and files maintained on) DX'ers, this in response to much speculation, misinformation, and even disinformation on the subject. Helms spent many hours digging through documents obtained under the Freedom of Information Act (FOIA) to settle the question once and for all.

Helms next offers some straightforward insights on the VOA, BBC, HCJB, plus a bunch of other international broadcasters. Some stations are dubbed as just plain "dull" while others are given various degrees of accolades ranging from fair to fantastic.

It's doubtful that there has ever before been such a bluntly honest "tell-all" book on the subject of hobby DX monitoring. Helms' *Shortwave Listening Handbook* is certain to become a classic text, albeit controversial. Personally, I enjoyed every single page of the book; some of Helms' observations made me roar with laughter. For sure, in certain quarters of the hobby there will be those who will be loudly condemning this book because the author had the gall to pull the rugs out from so many ivory towers.

Aside from the more controversial aspects of Helms' new book, there is an abundance of excellent hardcore information on monitoring voice and non-voice communications in more than 70 different frequency bands lying between 150 kHz and 30 MHz. There's something here for every taste and level of expertise. A book for all seasons and reasons, to be sure!

Shortwave Listening Handbook, by Harry Helms, is available at $17.95 per copy (plus $1 postage/handling to addresses in the USA/Canada/APO/FPO) from CRB Research, P.O. Box 56, Commack, NY 11725.

And here's a postscript to the foregoing comments on *Shortwave Listening Handbook*, if you can "read between the lines" you'll get double the enjoyment from Helms' unique style and sense of humor.

PRODUCT SPOTLIGHT

Dressler ara 30 HF SWL Antenna

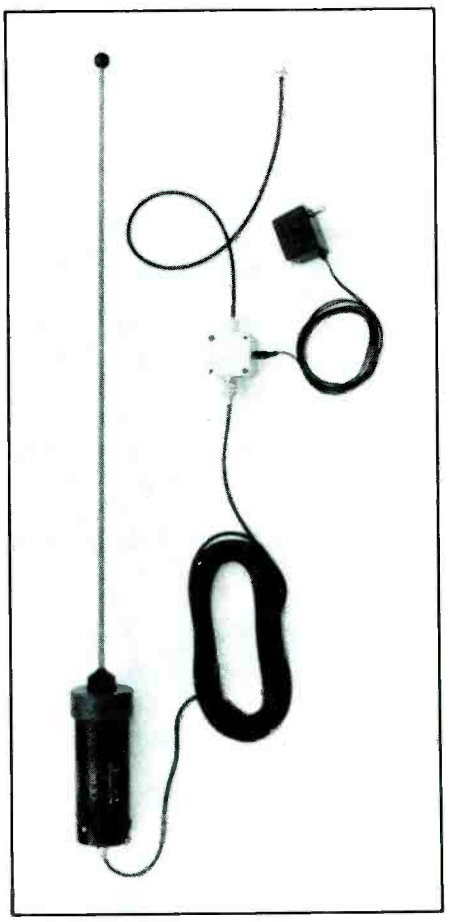
Occasionally a new product comes along that makes you want to tell everyone you know that it's a good performer and worth the money. I feel that way after testing the Dressler ara 30, so I'd like to tell you more about it and why I feel the way I do.

My experience with antennas goes back to 1950 when I got my first Amateur Radio license. Since then, I have built dozens of different antennas of various types, and have purchased quite a few, too. Many of them were good performers, a few were superior, and some were great disappointments. Finally, I selected two very different antennas to satisfy my modest requirements on the Ham bands: a multi-band trapped vertical with ground-plane radials to cover the 40 through 10 meter Ham bands, and a full-wave horizontal wire loop to cover the 80 meter band. These will be my "comparison" antennas for this review.

The Listener's Dilemma

During the last ten years or so, Hams and SWL's in ever-increasing numbers have moved into mobile homes, condos, apartments, and other restricted-space living quarters, making the choice of a suitable receiving antenna very difficult if not impossible. Building code restrictions, local ordinances, apartment regulations, landlord objections, and a variety of other problems have caused a great deal of grief and aggravation among those of us who have a need or desire to communicate by radio on the high frequency bands. Many of us have been prohibited from putting up outdoor antennas of any kind, meaning that we must find suitable alternatives if we are to carry on our hobby. Antenna manufacturers have met this need by devising two basic antenna types: passive antennas and active antennas, both of which are physically much smaller than they ordinarily should be for the frequencies and bands of intended operation.

A *passive* antenna represents almost all of the antennas most of us have ever known or used. On the other hand, an *active* antenna represents a type of physically small antenna that incorporates an electronic amplifier to amplify the received signal and present the stronger signal to your receiver antenna input terminals. Active antennas are bound to become increasingly popular because they seem to do the job of receiving signals almost as well as much larger, passive outdoor antennas. In many cases, an active antenna will do better than a passive antenna, especially if it is placed outdoors and at an elevated location. In any event, active antennas are far less likely to antagonize landlords, neighbors, or others who object to the huge monsters occsionally found on the roof or in the backyard of an SWL's dwelling.



One Solution To A Pressing Problem

Being fortunate to have room enough to erect passive antennas that fulfil my Hamming needs, I wondered if any active antenna could possibly do the listening job that my outdoor antennas do. Thus, I gratefully accepted an invitation to try out the Dressler ara 30 active antenna on the bands and frequencies I normally use for SWL'ing and Hamming. The Dressler ara 30 is made in Germany and, because I had never seen one of these antennas, much less tried one out, I did not know what to expect until the UPS man delivered it to my door. The shipping container was a large and nearly indestructible mailing tube which did not rattle . . . a good omen.

Upon opening the well-sealed tube, I discovered the ara 30 securely enclosed and well protected against any possible shipping damage. Included with the antenna itself, as part of the Dressler ara 30 system, was a set of instructions for mounting and connecting the antenna to your receiver; two stainless steel mounting brackets; about 25 feet of coaxial cable; a small, square "interface" box with attached connecting cable; and an AC/DC adapter for providing the necessary DC voltage to the electronic amplifier. Right away I was impressed with the neat packaging, the rugged and very attractive antenna, and the careful attention to detail . . . an altogether attractive system. Now the question was how would it perform?

Shortly after receiving the antenna, Old Man Winter decided to pay me an unwelcome visit, bringing two feet of ice and snow, and rendering my roof and antenna-mounting masts totally inaccessible. I couldn't even get out of the back door and into the yard, much less up to the roof! What to do: should I wait until I could put up the antenna outside, or should I go ahead with an indoor mounting and risk the possibility that the ara 30 might compare unfavorably with my outdoor antennas? Two factors persuaded me to adopt the latter procedure. First, if the antenna performed well indoors, it was bound to be an even better performer high and in the clear outdoors. Second, I just couldn't wait to try out this little beauty!

Before I give the results of my comparison tests over a period of several weeks' listening under day and night conditions and on all bands covered by my receiver, I'd like to describe the Dressler ara 30 for you.

Brief Description

The antenna consists of a green fiberglass "whip" about 38" long mounted on top of a black-anodized aluminum cylinder measuring 2½" in diameter and 7" in length. The name of the antenna and its manufacturer was silk-screened in white letters on the outside of the cylinder, contrasting neatly and attractively with the black finish. A chassis-type UHF coaxial connector is mounted on the bottom of the cylinder for accepting the coaxial cable connector which brings the signal from the antenna to your receiver. A small, grey "interface" box with a two-foot coax cable "pigtail" is provided to connect between the receiver and the antenna coax cable. The interface also has a socket to receive the plug from the adapter, which plugs into the wall socket and converts the 110-volt AC current to the 12-volt DC current required by the active antenna's electronic signal amplifier. There are two

Technical Data

Frequency coverage:	200 kHz to 40 MHz, broadbanded, at optimum performance; and extends to 100 MHz at slightly reduced performance.
Output Impedance:	50/75 ohms
Amplification:	10 db—push-pull FET amplifier
Cable connections:	Standard UHF "SO" socket, "PL" plug
Electrical requirements:	11-15 volts DC at 100-140 mA (furnished by AC-DC adapter included)
Total length:	Approximately 58" with interface

stainless steel mounting clamps, each consisting of a large clamp that fits around the cylindrical antenna base and a smaller clamp welded to the larger one that is intended to fit around a pipe or TV mast section for supporting the ara 30. Very clever and very simple. Because I wasn't able to mount the system outdoors, I fitted a short length of TV mast tubing into my camera tripod and set it up only a few feet away from the operating desk in my radio room. The ara 30 was then connected to the mast section. It looked a bit strange but was certainly better than leaning the antenna against a corner of the room!

One note of caution: the longer coax cable attaches to the base of the antenna. Its near end is connected to the interface box, and the coax "pigtail" on the interface box is then attached to the antenna input socket on your receiver. Finally, you plug the adapter into your wall socket and plug the DC lead into the interface box. Installation takes about five minutes if you aren't in any hurry.

In my test setup, I connected the pigtail to a B&W rotary coaxial switch so that I could quickly and easily switch back and forth between the outdoor antennas and the ara 30 for the purpose of comparing received signal strengths.

Performance

To my surprise and pleasure, I discovered that the ara 30 can "hear" anything that my outdoor antennas can . . . and often with the same signal strength indication on my receiver! On the 80 meter Amateur band, (3.5-4.0 MHz) my outdoor loop antenna would sometimes produce a slightly stronger signal by about 1 "S" unit (3db-5db) but then the receiving conditions would change and the two antennas perfomed equally. This is outstanding when you consider the vast difference in "capture area" of my 80-meter loop which is a resonant antenna as well, and therefore, (theoretically) more efficient. In a few instances, the ara 30 produced signals slightly better than the loop—a surprisingly and entirely satisfactory result.

On the 40 meter Amateur band, the ara 30 compared favorably with the outdoor vertical antenna mounted at a height of 15 feet above ground and a groundplane with 12 radials. Once or twice over the listening period each day or evening, the ara 30 sometimes produced a *better* signal than the outdoor antenna, and I ascribe this to propagation conditions and polarization effects. In *all* instances on 10 MHz (WWV reception), the ara 30 produced better signals than either of the other antennas outdoors. I believe that this is due to the fact that the outdoor antennas are not resonant at 10 MHz, whereas the Dressler antenna (although not resonant at any particulr frequency or band) has the built-in amplifier and a 10db gain factor, which gives it a broad-banded effect. Between 10 and 10.5 MHz, the ara 30 consistently out-performed both of my outdoor antennas at all times of day or night.

On the 20, 15, and 10 meter Amateur bands, definite signs of gain were observed with the Dressler antenna compared with my multiband trapped vertical. On 20 meters, for example, I was able to listen to dozens of DX stations on both antennas, but by rapidly switching between them, I found the signals produced by the ara 30 were often superior, but within ten or fifteen seconds (on the same station) the condition would reverse itself and the outdoor antenna would be better. This is probably due to "fading" and polarization effects on multi-hop and multi-path signal propagation. Just a few meters difference in antenna location (height or horizontal distance) will often make a big difference in signal reception within just a few seconds.

On 15 and 10 meters, the ara 30 seemed to exhibit definite signs of gain compared with either of the outdoor antennas, regardless of the station tuned in. On these bands at this time of year, "good" signals are few and far between, so it was encouraging to find that the Dressler antenna worked so well. The effects of "skip" variations, magnetic disturbances, interference and the like are very noticeable on these higher frequencies. One factor was immediately noticeable: the ara 30 seemed relatively immune to man-made noise interference compared to my outside vertical, without losing signal strength. Noise immunity can be a real benefit to the SWL or Ham who often tries to ferret weak signals out of the noise. This feature, plus the "gain" factor often made poorer signals into "Q5" copy.

Conclusions

Bearing in mind that this report is qualitative, and not very scientific in a quantitative sense, I can safely say that I would not hesitate to suggest the Dressler ara 30 active antenna for the serious HF SWL . . . perhaps

even the serious VHF SWL . . . although Dressler makes another version of this antenna specifically designed for VHF/UHF reception. I have no quarrel with the claimed 10db amplification figure, and have seen its value during my evaluation. Also, please bear in mind that *this antenna is for listening only*, and cannot be used as a transmitting antenna.

It should also be noted that when a Ham or SWL has the choice of a large, outdoor antenna mounted high and in the clear, he or she cannot expect the ara 30 to compete successfully if it is limited to indoor installation at low heights above ground. However, if you give it a fair chance out in the open and high above ground, it's going to work right up there with the big antennas . . . and occasionally better! Under these conditions, I would expect the ara 30 to really shine. If you live in an apartment, mobile home, condo or other restricted location, then you'll have to do the best you can, and the Dressler ara 30 will be right there doing its very best to pull in the signals and stations you want to hear.

Here's another thought for you: if you have a general coverage receiver in your car, there is every reason to expect the ara 30 to be a very, very good choice for mobile use. After all, you have the 12-volts DC right there all the time, and a bumper mount or roof mount would be simple.

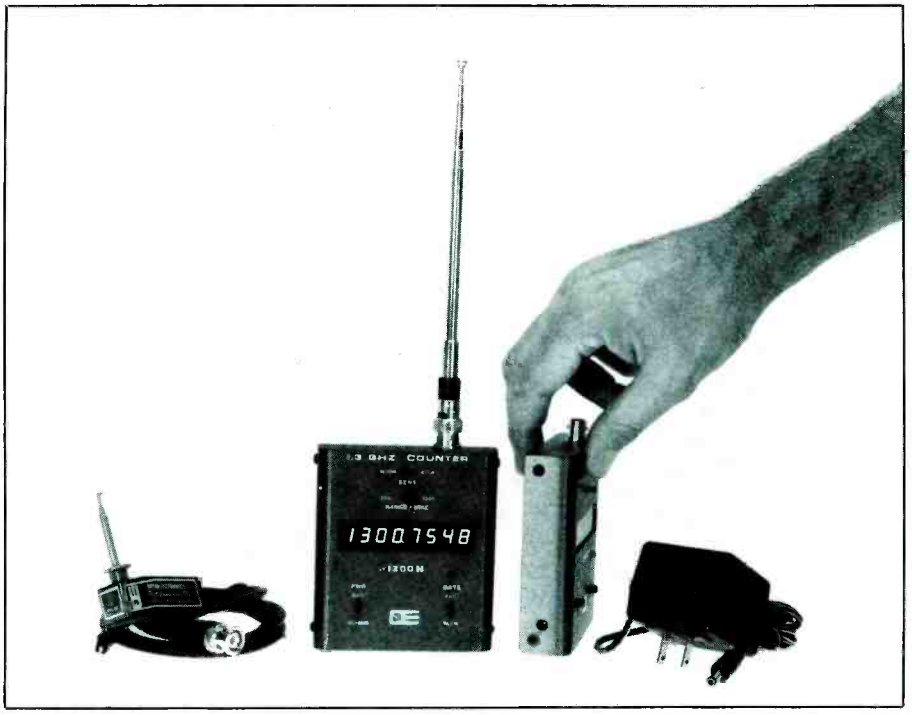
Although I've talked mostly about the Ham bands because these are the ones I use mostly, rest assured that the ara 30 will operate on all of the frequencies and bands in between: from 200 kHz to 40 MHz.

This good-looking, rugged and weatherproof performer should be a major consideration if you're looking for an HF SWL antenna for all seasons. Contact Gilfer Shortwave, P.O. Box 239, 52 Park Avenue, Park Ridge, NJ 07656 for more information. Their telephone number is 1-800-GILFER1. Oh yes, the suggested list price is $159.95 plus $4 shipping.

reviewed by Jim Gray, W1XU

OPTOelectronics Frequency Counter – 1300H

What is a frequency counter, anyway, and why do I need one? A fair question, and one that's asked by many radio enthusiasts. Let's first take a look at generalities, and then take a closer look at specifics.



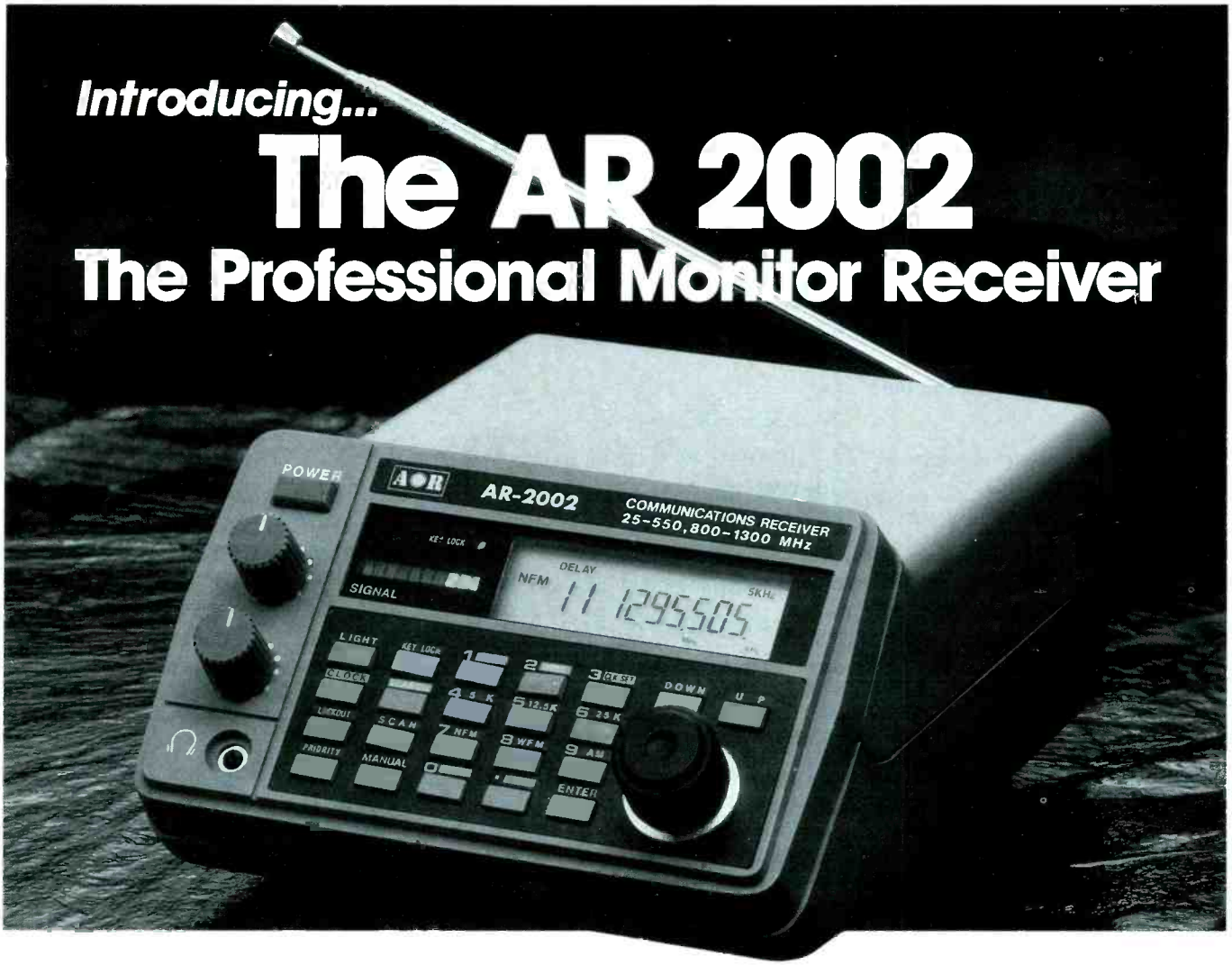
A frequency counter can be thought of as a very wideband receiver of radio frequency energy that can detect a transmitted signal and display its frequency as a digital readout. Just a few years ago, accurate laboratory frequency counters occupied an entire benchtop and cost many thousands of dollars. Government laboratories and industrial scientific research organizations could afford them, but the cost was out of the question for an average person. Today, it's a far different story; almost anyone can afford a good frequency counter, and—what's more—it can be small enough to be easily portable. The smallest counters are handheld, and are operated by transistor radio batteries. The sensitivity of a handheld counter is usually good enough for normal use, but can be increased by the addition of an equally tiny preamplifier. A good frequency counter can sense and display a VHF signal from a 1-watt source up to a distance of about 20 feet, but by adding a preamplifier, the range can be approximately doubled.

Without going into excessive detail, a frequency counter detects a radio signal and counts the oscillations or cycles by means of integrated circuit technology, displaying the final result down to an accuracy of a few hundred cycles per second. Unlike wavemeters which measure the *wavelength* of a sensed signal and convert it to the corresponding frequency, frequency counters digitally count the frequency cycles directly using a precision quartz time base to accurately determine the counting period.

Until recently, a typical frequency counter would cover the range of frequencies from about 1 MegaHertz (1 *million* cycles per second) to about 200-500 MegaHertz. An inexpensive counter now available can cover the range from 1 MegaHertz to 1300 MegaHertz (1.3 *billion* cycles per second) and will accurately and almost instantly tell the user the exact frequency being measured. The signal is picked up by a small telescoping antenna attached to a connector on the case of the counter, and the counter itself can be small enough to fit into your shirt pocket!

How and where might you find a use for a frequency counter in your home, car or workshop? Well, let's suppose you have a transmitter—perhaps a CB radio in your car, or maybe a handheld transceiver clipped to your belt. Your friends have been telling you that you are "off frequency" and that they can't hear you very well on the channel you are supposed to be on. Are they right or wrong? You can find out right away with a frequency counter; you turn it on, pull out the telescoping whip antenna, and key the transmitter with the mic button . . . watching the counter. There, in bright red digits, is your transmitted frequency, accurate right down to the last 100 cycles!

Here's another example: suppose you have a programmable scanner capable of covering VHF "low" and "high" bands, and also UHF frequencies . . . a versatile unit . . . but you are away from home in your car, and don't know where the "locals" are operating. How do you know what frequen-



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The AR2002 is available exclusively through us — so call us direct, TOLL FREE. We'll be happy to answer any questions you may have. And if you respond like thousands of other monitor users the world over, we'll be shipping you an AR2002 within 48 hours by surface UPS for only $455. Plus we pay all freight and handling charges. Remember to ask about our custom test and triple extended buyer protection warranty plans, and our express shipping option. If you're not satisfied within 25 days, return your AR2002. We'll refund your purchase and return shipping costs. There are no catches, no hidden charges.

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SPECIFICATIONS

Range	#1200 H #1300 H	1 to 1200 MHz 1 to 1300 MHz
Resolution	both units	100 Hz/2.5 seconds gate 1 kHz/.25 second gate
Display	" "	eight LED digits, .28" high; decimal point at MHz, and lead zero blanking above the decimal point
Gate times	" "	Fast: .25 second; slow: 2.5 second
Sensitivity (typical)	" "	1-10 MHz: 10-150 mV RMS 10-1000 MHz: 3-50 mV RMS 1-1.2 GHz: 10-150 mV RMS
Accuracy (typical)	" "	± 1 PPM (± .00001%), ± 1 count LSI
Time base aging	" "	.1 PPM/month (typical)
Gate LED	" "	Illuminated red during sample count
Input connector	" "	BNC, female
Input power	" "	9-12 VDC, 150 mA
AC Adapter/Battery charger		9 VDC, 300-500 mA rating
Input power connector		DC jack, center positive
Case		Anodized aluminum
Size		3.9" h. × 3.5" w. × 1" d.
Weight		5.5 oz. without batteries 8.5 oz. with batteries
Construction		First quality U.S. assembly; all IC's socketed, internal voltage regulator double-sided PC board, PTH, G10/FR4
Batteries		4 AA Ni-Cd, custom-configured, installed inside case, soldered.

cy to program into your scanner? If you have a frequency counter, it's very simple: you slide up next to a police car, fire truck, ambulance, or other vehicle that you're pretty sure is transmitting and you turn on your frequency counter. Whenever the other vehicle turns on its transmitter, your frequency counter lets you know immediately what frequency it is, and you set that into your scanner.

(A word of caution here: you don't do this in an obvious manner and you don't do it where monitoring these services is prohibited, else you're likely to get more than you originally bargained for.)

If you have a boat, an airplane, or a Ham station that employs a transmitter, you can determine immediately if it's transmitting on its assigned frequency or frequencies just by using your frequency counter. When you operate transmitting equipment, the FCC requires that it be operated on the frequency or frequencies assigned to that type of operation . . . and it's the responsibility of the operator (you, in many cases) to transmit there and nowhere else. A frequency counter will enable you to determine whether or not your station is complying with the regulations, and often with an accuracy as good as that of a laboratory primary frequency standard.

If you're into building your own equipment and have to check various output stages of a transmitter or receiver oscillator, your frequency counter becomes a valuable assistant . . . allowing you to instantly tune that stage to its required frequency.

Now that we've thought a little about the versatility and utility of a frequency counter, and how valuable it can be to your operation, you'd probably like to know what kind of counter we could recommend for your use, how much it will cost, and where you can get one.

There just happens to be a new small frequency counter on the market, and it could very well be the one you're looking for. It's available from OPTOelectronics of Fort Lauderdale, Florida. They have just introduced a new series of tiny, battery-operated counters designed to fit into your pocket and go anywhere with you, at a price you can afford.

After you've seen and used one of these little gems, you'll probably wonder how you ever got along without it. Chances are, all your friends who have transmitters—and maybe even some commercial and industrial users, too—will ask you for a quick check of their transmitting frequencies. These new little counters measure frequencies up to 1.3 GigaHertz (1,300 MegaHertz) and

you'll be pleased to know that they can measure frequencies as low as 1 MegaHertz, continuously covering all frequencies in between. If you happen to drive past an FM transmitting tower sometime you can flip on the model 1300H and usually determine what frequency the station is on, reading the information quickly and accurately. The Model 1300H includes rechargeable Ni-Cd battries installed inside the unit for hours of cordless operation. An AC adapter/charger is supplied with the counter, and a telescoping pickup antenna is an available option, ready for attachment to the built-in BNC connector on the top of the small, anodized aluminum case.

You'll be surprised that your little OPTOelectronics Model 1300H frequency counter measures only 4" high, 3.5" wide, and 1" deep—truly shirt-pocket size! Besides that, it weighs only a little over half a pound (8.5 ounces) *with* batteries.

Who will be the likely users of the 1300H? Well, we can say right now that engineers, technicians, Hams, SWL's, scanner users, police, marine, car telephone, and aircraft owners immediately come to mind. No doubt, there are many more. For example, I used my Model 1300H in two ways: as a radio Amateur I checked the output frequencies of my Kenwood and ICOM synthesized handheld transceivers on the two-meter band (they were "on the button," incidentally) and the output of my two aircraft transceivers—the Genave Alpha 200, and the Communications Specialists TR-720. I am very pleased to report that they, too, were "on-frequency" within the limits of measurement of my little 1300H counter.

What about the future, and what about accessories? Good questions, with equally good answers. OPTOelectronics has designed a Model PA-50 preamplifier that will extend the sensitivity and signal pickup distance of the basic unit by providing approximately 25db of amplification. For instance, it will enable the counter to detect and measure the output from a one-watt, two-meter handheld transceiver from a distance of about 100 feet. Without the preamp, the Model 1300H will do the same from about 50 feet. The preamp will accept a 9-volt battery and will attach directly to the BNC connector on your OPTOelectronics counter. The antenna will then attach to the preamp through an identical connector. In other words, the preamp rides "piggyback" on the counter. We were told that the PA-50 preamp should have been available in March 1987 (probably already on the market as you read this) and, of course, your 1300H is available immediately.

Accessories that are available but not included in the basic price include the Model P-100 test probe (required for measuring the clock frequency in a computer, test points in servicing TV's and VCR's, etc.) You can also get a grey, custom-fit, padded vinyl carrying case with zipper that will accommodate the counter, preamp, and telescoping antenna.

Finally, we ought to mention the price: a Model 1200H (from 1 MHz to 1.2 GHz range) in *kit* form, known as Model 1200HKC sells for $99.95 and includes all parts, cabinet, Ni-Cd batteries, AC adapter-charger and instructions. Ready to go, in factory-assembled form with batteries and charger, the Model 1200H sells for $137.50. The factory-assembled Model 1300H, tested and calibrated, sells for the slightly higher price of $150.

Accessories are priced at $12 for the TA-100S telescoping antenna, $18 for the P-100 probe, and $10 for the CC-12 carrying case. The PA-50 preamp is expected to list for about $50. For additional information, contact your local communications and electronics dealer, one of the dealers listed in our pages, or factory direct. Write or call OPTOelectronics, Inc., 5821 N.E. 14th Avenue, Fort Lauderdale, FL 33334; telephone 1-800-327-5912, or 1-305-771-2050 for Florida residents.

reviewed by Jim Gray, W1XU

Scanning The:

U.S. Department of Labor

The USDL Plays An Important Role In Anti-Crime Enforcement!

BY TOM KNEITEL, K2AES, EDITOR

The U.S. Department of Labor is a federal agency that has many functions, including protecting the wages, health and safety, employment and pension rights of working people; promoting equal employment opportunity; providing job training, unemployment insurance and workers' compensation; strengthening free collective bargaining; and collecting, analyzing and publishing labor statistics. Although the USDL was created to help workers, its services and information benefit many other groups, including employers, business organization, civil rights groups, government agencies at all levels, and the academic community.

Some of the activities of the USDL are carried out through the following divisions: Employment and Training Administration; Employment Standards Administration; Occupational Safety and Health Administration; Mine Safety and Health Administration; Pension and Welfare Benefits Administration; Office of Labor-Management Standards; Bureau of Labor-Management Relations and Cooperative Programs; Bureau of Internal Labor Affairs; Women's Bureau; Bureau of Labor Statistics; and the Veteran's Employment and Training Service.

The enforcement activities of the USDL are wide-ranging. For instance, the USDL's Employment Standards Administration (ESA) enforces the labor standards that protect workers. It administers equal employment opportunity requirements for federal government contractors and workers' compensation programs for federal employees, longshoremen and harbor workers, and for coal miners who are victims of black lung disease. It enforces minimum wage, overtime pay and child labor provisions of numerous federal laws such as the Fair Labor Standards Act, the Migrant and Season Agricultural Worker Protection Act, and others.

Another area of USDL enforcement is safety. The agency's Occupational Safety and Health Administration (OSHA) enforces workplace safety and health standards covering about 4.6 million work sites and 79 million workers.

The Mine Safety and Health Administration is concerned with preventing accidents and illnesses in the nation's mines. This includes mine inspections and accident investigation activities.

The USDL's Office of The Inspector General is responsible for providing comprehensive, independent and objective audit, loss analysis, prevention and investigation programs to identify and report program deficiencies. This office is also involved in detecting and preventing criminal activity, unethical conduct, and frauds/abuses related to labor programs and activities such as unions, etc. As such, the USDL's OIG is a full participating member of the Organized Crime Strike Force that is constantly investigating organized crime and racketeering throughout the nation.

These field, investigative, and enforcement activities of the USDL place the agency's personnel in mining areas, at rural farms, around major ports and harbors, in the heart of metropolitan areas, and just about everywhere else. Therefore, in monitoring the USDL's communications, one can expect to hear a wide-ranging spectrum of communications ranging from routine administrative traffic to basic surveillance and other types of anti-crime operations.

The author's own monitoring indicates that the UHF channels carry the most interesting and exciting USDL communications. The VHF frequencies appear to be a mix of enforcement and administrative chatter, depending upon the areas of operation.

We have been able to add to the roster of USDL stations that appeared in *POP'COMM* more than three years ago—more frequencies, more stations, plus many of the callsigns. If readers have additional information to offer, it will be combined with present information for future publication.

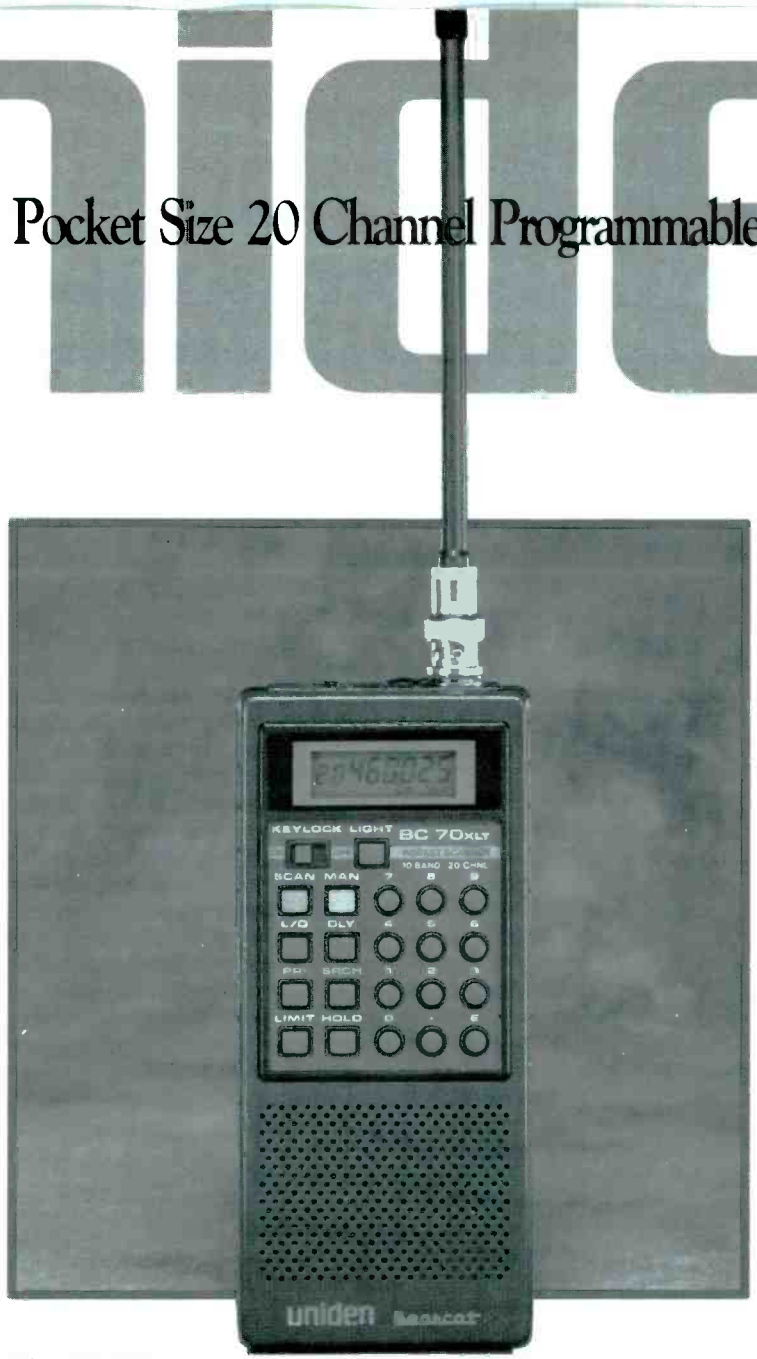
Not all scanners will receive the 406 to 420 MHz portion of the UHF spectrum. These frequencies can be picked up on any VHF high band scanner (148 to 168 MHz) by using a scanner converter such as the Model CVR-400 made by Hamtronics, 65 Moul Road, Hilton, NY 14468. For local UHF reception, you can probably get away with a VHF high-band antenna, but for best reception you'll want an all-band (tri-band) scanner antenna, or one designed to receive UHF scanner frequencies. PC

U.S. Department of Labor

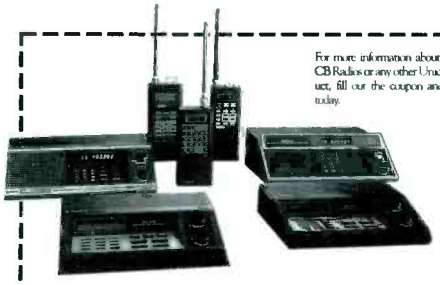
AZ	Phoenix	164.70 406.20
AR	Little Rock	KCB691 162.225 164.70 406.20
CA	Long Beach	
CA	Los Angeles	KIY879 172.30 406.20
CA	Sacramento	KCB672 172.30
CA	San Bernardino	KCB671 172.30
CA	San Diego	KCB674 407.175 408.025
CA	San Jose	408.025
CO	Denver	406.20
DC	Washington	162.90 163.75 408.475 409.125
FL	Gainesville	KCB682 166.20
FL	Jacksonville	KCB673 406.20 408.025
FL	Miami	406.20
FL	Tampa	406.20
GA	Atlanta	406.20
GA	Brunswick	KCB676 408.025
IL	Chicago	406.20
IL	Wilmington	409.025 415.45
IN	Edinburgh	KGU557 164.175 409.025
KY	Morganfield	KFZ930 164.70
		KSQ962 162.225 164.175
KY	Prestonburg	KCB690 164.70
LA	New Orleans	406.20
LA	Shreveport	KCB675 408.025 413.025
MA	Boston	406.20
ME	Bangor	KCB684 162.225
MD	Baltimore	163.75
MD	Port Deposit	163.75
MI	Detroit	KCB689 406.20 408.025
MI	Grand Rapids	408.025
MS	Crystal Springs	KIY878 164.175
MS	Gulfport	KCB683 172.30
MO	Excelsior Springs	KCB686 165.6125 166.25
MO	Kansas City	406.20
MO	St. Louis	KCB685 406.20 408.025
NV	Las Vegas	406.20
NV	Reno	KCB673 162.025 162.6125
NM	Albuquerque	408.025
NY	Bronx	KCB687 162.025
NY	Buffalo	406.20
NY	Callicoon	KCB677 406.225
NY	Cassadaga	KCB670 408.025
NY	Liberty	KCB677 409.025
NY	New York City	406.20
NC	Kittrell	KCB680 164.70
OH	Cincinnati	KP8018 173.6125
OH	Cleveland	406.20
OR	Astoria	162.225 162.85
PA	Philadelphia	406.20
PR	San Juan	406.20
TN	Knoxville	164.70
TX	Dallas	406.20
TX	McKinney	KRV677 163.00
TX	San Marcos	KFU446 164.70
UT	Clearfield	KGY343 164.70
WA	Meglr. Hill	162.225
WV	Triadelphia	168.35
All Areas (portable)		406.20

uniden

70 XLT Pocket Size 20 Channel Programmable Scanner



The 70XLT sets a new standard for portable Scanners in performance, dependability and size. This hard working unit has 20 programmable channels and 10 bands of coverage. It has the most desirable features including Priority, Lockout and Delay. It also includes automatic and manual Search to find new active frequencies. Built-in rechargeable batteries give hours of trouble-free use and quickly charge overnight. A Charger/Adaptor allows the unit to run on 120 VAC and the LCD display includes selectable illumination for night time scanning. The superior engineering of will treat your ears to real life excitement and drama as you've never heard it before.



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SATELLITE VIEW

INSIDE THE WORLD OF TVRO EARTH STATIONS

BY DONALD E. DICKERSON

The Human Cost Of Space Exploration

Monitoring Search and Rescue Operations

As with most worthwhile endeavors undertaken by mankind, the exploration of space has exacted its toll in human life. This price has been paid by both the United States and the Soviet Union. Though neither can ever get used to paying this price, it is an expected expense in the exploration of space and man's unending quest for knowledge. This human price seems very high and tragic at the moment payment is exacted, but when we look at the obstacles that must be overcome and the forces of physics that must be carefully controlled for man to simply reach outer space, it is miraculous that so few space travelers have been lost.

Apollo 1

1967 proved to be a tragic year for space exploration. The unthinkable happened. In January of that year, the United States became the first nation to suffer the loss of a space crew. The Apollo 1 was in place on complex 34 at Cape Kennedy, Florida. The crew consisted of astronauts Virgil Grissom, Edward White and Roger Chaffee. The astronauts were making a full "dress rehearsal" in preparation for their mission. The crew members were wearing their space suits and were strapped into their seats on top of the 350-foot tall Apollo launch vehicle. Pure oxygen was being pumped into their space suits. The cabin pressure was also maintained with pure oxygen. This practice session lasted into the early evening hours. Near 6:00 p.m. astronaut Chaffee reported smelling smoke; moments later a second voice exclaimed "FIRE!" Within seconds the spacecraft was consumed in flames. Virtually nothing could be done for the crew. The first started in the electrical wiring of the space capsule. It was apparently started by a short circuit. The over-heated wire ignited the pure oxygen which filled the spacecraft. This was the last time pure oxygen was used on a U.S. manned spaceflight.

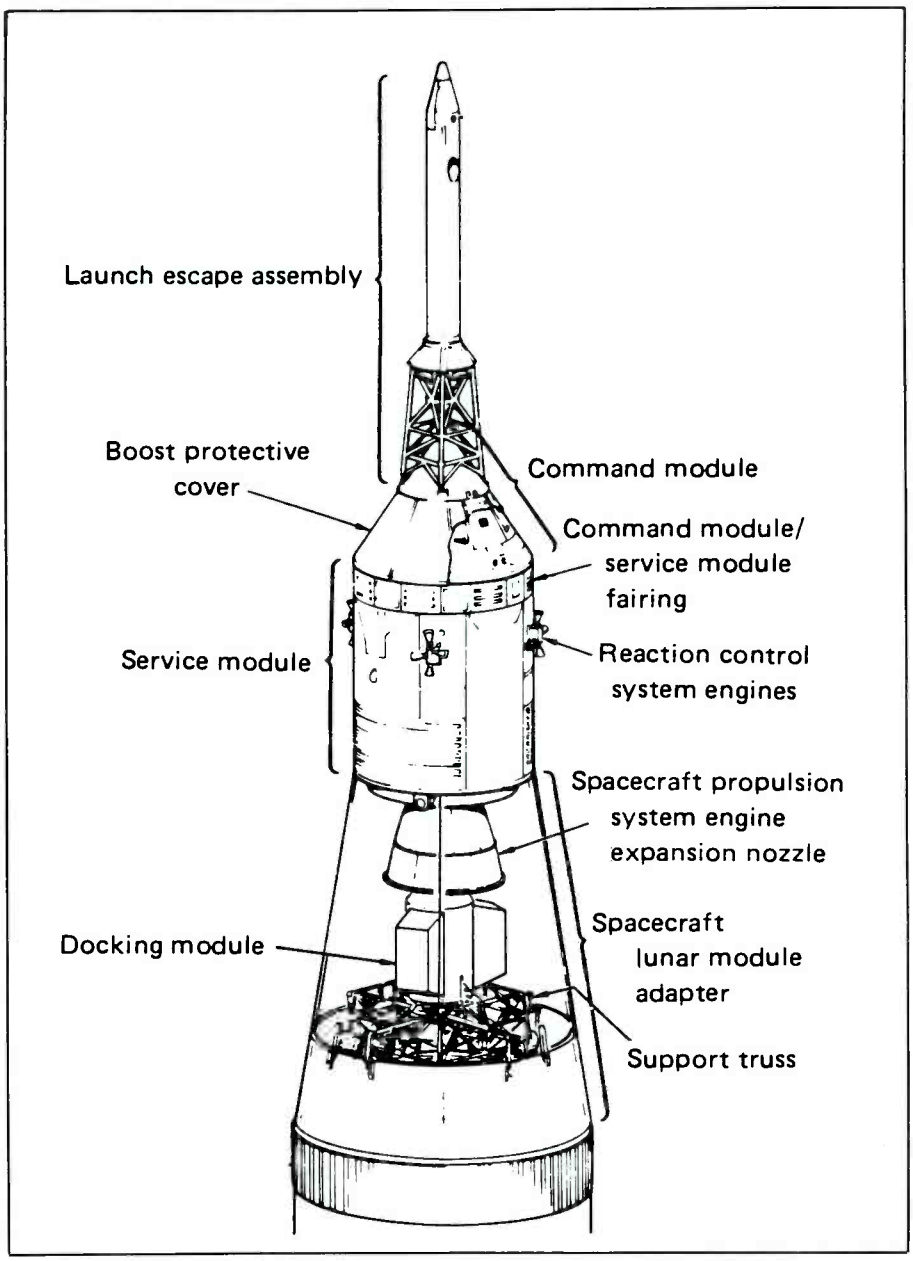


Figure 1: The Apollo launch escape assembly. (Courtesy of NASA.)

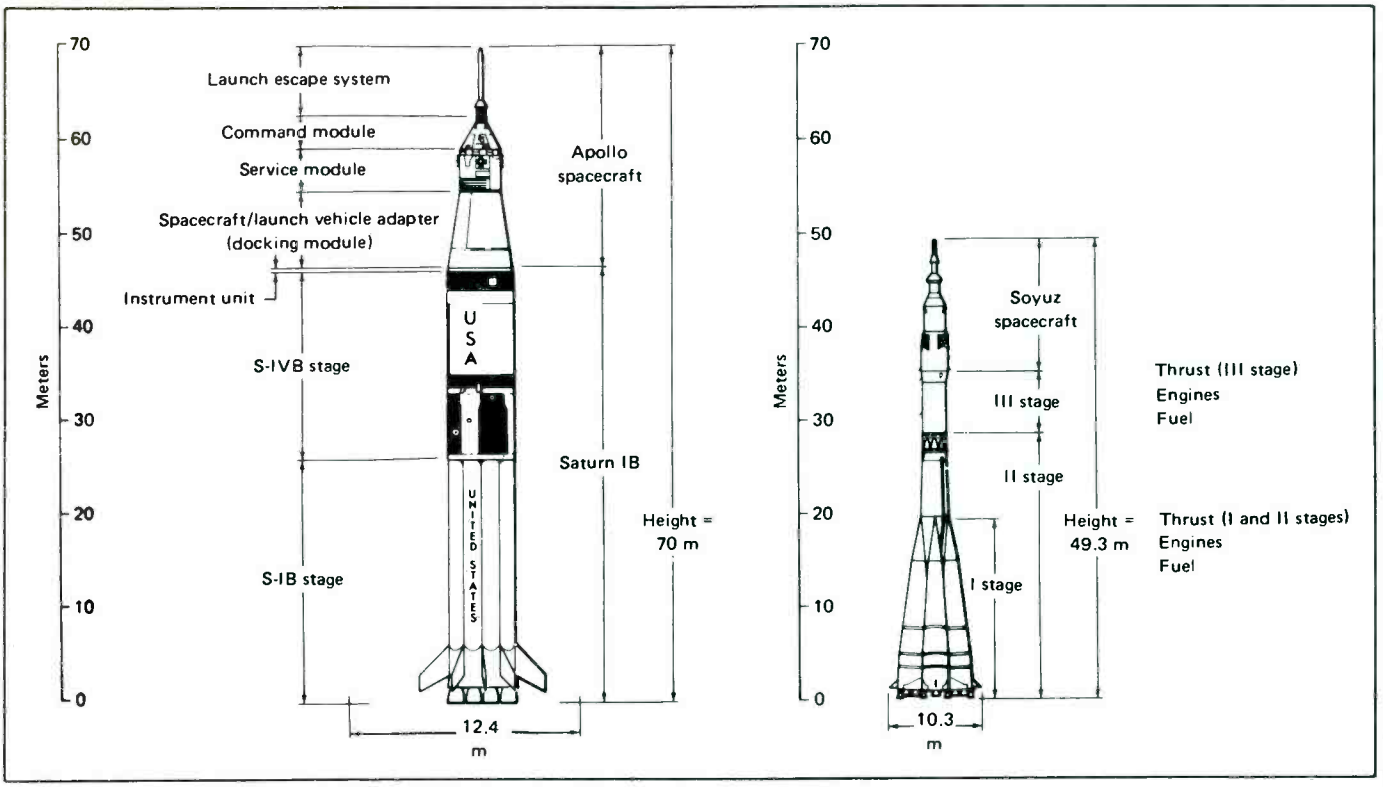
Soyuz 1

Less than three months after the Apollo fire, the Soviets lost their first cosmonaut. The U.S.S.R. had completed tests on a new third generation manned spacecraft known as Soyuz. Cosmonaut Valdimir Komorov was chosen for the honor of piloting the first Soyuz spacecraft. This would be Komorov's second trip into space.

The Soyuz 1 was launched on April 23, 1967. The mission went as planned, making 18 earth orbits. Re-entry was going as planned until just prior to the deployment of the parachutes, which would slow the vehicle's descent. The Soyuz 1 began to tumble uncontrollably. Corrective measures were exhausted: the parachutes deployed promptly only to become wrapped around the tumbling space capsule. There was no remedy; both the cosmonaut and spacecraft were lost on hard impact.

Apollo 13

It may come as no surprise to some of you that the Apollo 13 mission was plagued with problems from the beginning and that it proved to be a *nearly* fatal mission for the



Examples of the Apollo (left) and Soyuz (right) launch configurations.

crew. It began in March of 1970 with the Apollo 13 readied for launch on Pad A at Cape Kennedy. The day before the scheduled launch an accidental fire and explosion of liquid oxygen near the launch pad threatened the spacecraft and three security officers who were near the complex. The officers escaped the flames but three government vehicles were destroyed. The launch vehicle was not damaged. The fire started when an overflow build up of liquid oxygen was ignited by the starting of the security vehicles.

Then a problem was noticed with a small liquid oxygen tank onboard the space capsule itself. One of the tanks would not pressurize properly and at first it was thought to be a minor problem with the filler tube. It was at this point that the near fatal decision was made *not* to replace the tank. The repairs would have set the launch of Apollo 13 back by at least two days.

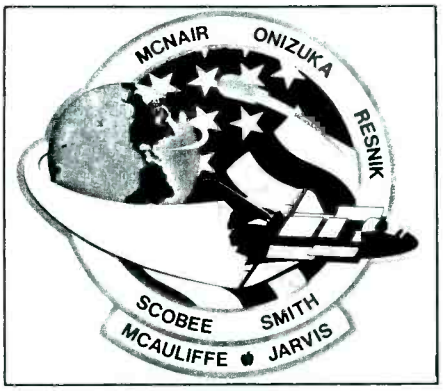
The next problem came with the discovery that one of the astronauts, Thomas Mattingly, had been exposed to measles. He was replaced by astronaut John Swigert after it was determined that the rest of the crew was not at risk. This would be Swigert's second mission.

The launch of Apollo 13 was also unique. The first stage engines shut down 35 seconds early. Despite this failure on the part of the first stage engines, NASA engineers were able to utilize the second and third stage engines well past their normal operating time to place spacecraft Apollo 13 and its crew into orbit.

Two days into the mission the crew of Apollo 13 heard a loud explosion and felt the spacecraft vibrate violently. The faulty liquid oxygen tank had over pressurized and exploded taking nearly half of the spacecraft's outer shell with it, as the crew would later learn from visual inspection. This was only part of the damage. The explosion had also taken out vital life-support equipment, leaving the crew with only 10 hours of life support for the 85 hour trip back home. The crew and mission control began to brainstorm ways in which the remaining life-support systems of the Apollo and lunar lander, which was still attached to the capsule, could be used to bring the crew back alive. Water and air purification equipment was fabricated from parts of other onboard systems. This gave the three man crew enough life support for only two men to return to Earth. Extraordinary conservation measures were successfully undertaken and the crew splashed down alive and relatively well on April 17, 1970.

International Freqs For Manned Spaceflight Search and Rescue Operations

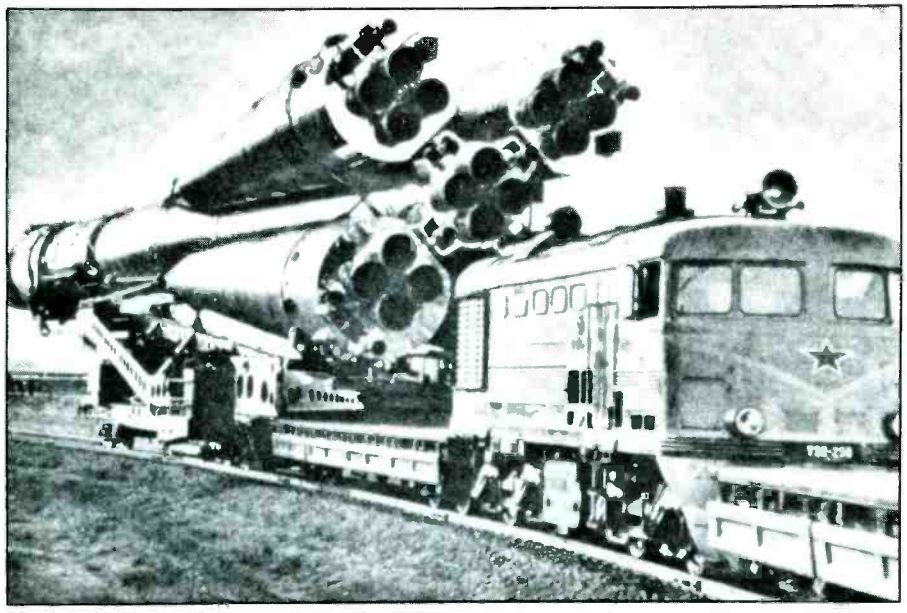
HF Freqs	*VHF Freqs*
2.182 MHz	121.5 MHz (used for SARSAT search and rescue satellite.)
3.023 MHz	
5.680 MHz	156.0 MHz (used for marine radio distress comms.)
8.346 MHz	
10.003 MHz	243.0 MHz (used for military aircraft distress comms and SARSAT.)
14.993 MHz	
19.993 MHz	



Challenger Flight STS-51L Mission Patch.

Soyuz 11

Just four years after the Soviets lost their first cosmonaut, tragedy struck again. As with the loss of Soyuz 1 and its pilot, Valdimir Komorov, a Soyuz class spacecraft was at fault. The Soyuz 11 mission carried three cosmonauts: pilot Georiy Dobrovolskiy and



Soyuz launcher being transported on special railroad equipment. (Courtesy USAF)

HF Freqs (used at Kennedy)	
Kennedy Operations	5.810 MHz
7.675 MHz	9.125 MHz
7.765 MHz	11.407 MHz
10.780 MHz	
13.213 MHz	**VHF Freqs (used at Kennedy)**
20.390 MHz	*Kennedy Operations*
Aircraft	117.8 MHz
6.693 MHz	121.9 MHz
6.896 MHz	126.4 MHz
6.983 MHz	148.4 MHz
7.461 MHz	162.6 MHz
8.891 MHz	170.1 MHz
9.043 MHz	284.0 MHz
9.131 MHz	*Shuttle*
10.780 MHz	296.0 MHz
11.205 MHz	259.7 MHz
13.170 MHz	279.0 MHz (EVA)
15.015 MHz	*Aircraft*
18.200 MHz	164.8 MHz
Ships	*Ships*
2.625 MHz	148.5 MHz
5.190 MHz	149.1 MHz
5.696 MHz	162.0 MHz

engineers Valdislav Volkov and Viktor Patsayev. The lift-off on June 6th of 1971 was followed by a flawless mission of 24 days duration onboard the Salyut 1 space station. Again, as with the Soyuz 1 mission, re-entry of Soyuz 11 appeared to be normal as did the landing. It was only after the rescue team arrived and opened the hatch of the spacecraft that they found that something had gone very wrong. The three crewmen were found dead in their seats.

The Soviets had placed enough confidence in their Soyuz class spacecraft so that, by this time, they no longer required the crew to wear pressurized space suits on launch or re-entry. This proved fatal to the Soyuz 11 crew, as a pressure valve on the capsule failed during the final stages of re-entry, allowing the loss of cabin pressure, killing the crew before they knew what had happened. Space suits are now required on launch and re-entry of all Soviet flights.

STS-51L

The Challenger disaster is the most recent reminder of the human cost of space exploration. It is easily the most dramatic loss of a crew ever witnessed as well as the largest single loss of life on a space mission.

As we now know, a poorly designed and fitted solid rocket booster joint failed shortly after lift-off. Less than two minutes into the flight the liquid hydrogen and liquid oxygen tanks exploded with tragic results. The shuttle, its payload and all of the crew members were lost.

A Quick Escape

The first of the shuttle fleet, the Enterprise, was designed with an emergency evacuation system. But subsequent models of the space shuttle did not have the system as it was of questionable use to the crew and added a great deal more weight to the shuttle, thereby limiting its payload capability. NASA is presently considering several new escape systems for the Challenger's replacement. One such system would incorporate small rockets which would pull each astronaut clear of the spacecraft in case of an emergency.

Since the early days of manned spaceflight both the U.S. and U.S.S.R. have built emergency escape systems into their rocket type launch vehicles. As shown in Figure 1, a small rocket is placed on top of the manned capsule which has the power to pull the crew clear of the launch vehicle. This system is still used by the Soviets as they still use rockets for all their manned spaceflights.

This system was put to the test on a Soviet A-2 launch vehicle in 1983. Three cosmonauts were in their Soyuz-T spacecraft on top of the launch vehicle when a fuel leak started a fire in the lower portion of the rocket. Just as the A-2 exploded the escape rocket was fired and the crew pulled clear of the fire storm. All three crewmen survived the short but difficult flight in their Soyuz space capsule. They endured twice the G-force of a normal A-2 launch and the landing was equally abrupt.

There are two other incidents involving Soviet spacecraft that we know little about. They both happened at the Baikonur (Tyuratam) Cosmodrome. The first occurred in the early 1960's when an explosion of an early A-1 launch vehicle claimed the lives of perhaps dozens of technicians and ground support personnel. Little else is known. The second incident was discovered through satellite reconnaissance. A Soviet transport plane which had been carrying a Soviet version of the space shuttle, in the same fashion a 747 carries the U.S. version, had skidded off the runway at Baikonur and crashed. It is not known whether this set the Soviet's shuttle program back. They are expected to be ready for the first launch of their shuttle before the end of 1987.

Search and Rescue Operations

Moments after the Challenger exploded upon lift-off, Navy and Air Force communi-

cations frequencies, both HF and VHF, came alive with activity. Listed below you will find some of the frequencies currently used by both military and NASA aircraft and ships.

During a normal launch of the space shuttle, AF and NASA aircraft can be heard giving play-by-play accounts of the flight. Naval and Coast Guard vessels stand by to assist in the event they are needed. Two NASA ships, the Freedom and Liberty, wait down range to retrieve the solid rocket boosters which the shuttle discards after each launch. Voice communications and data transmissions can be heard from each vessel.

During the launch phase and prior to reaching orbit the shuttle uses UHF channels to communicate with Kennedy's CAPCOM communications center. While in orbit the shuttle routes all communications through TDRS (Technical Data Relay Satellite) or appropriate ground stations using frequencies in the 1.7 to 2.2 GHz range. TDRS not only relays data but voice communications from the shuttle as well. Two types of transmissions are used for voice, PM (Phase Modulation) and FM.

The space shuttle carries a back-up radio system in the event the TDRS is down. Direct voice communications can sometimes be heard on a frequency of 296.0 MHz and a secondary frequency of 259.7 MHz. It is also possible to hear communications direct from the self-propelled space suits used for EVA (Extra Vehicular Activity). The EVA packs use a frequency of 279.0 MHz for communications with the shuttle.

International Cooperation

All space-related fatalities to date have occurred either on lift-off or re-entry. This has made recovery of the crew remains relatively easy. While the first in-orbit fatality is still somewhere in the future of space exploration and something no one likes to think about, it is one contingency that must be planned for. A communications system to assist in freeing stranded space travelers will also be necessary, of course.

Though there is at present no radio network or satellite system in place to coordinate international search and rescue efforts in the event of an in orbit disaster, there are allocated International manned spaceflight search and rescue frequencies. These frequencies may well be used for their intended purpose as the population of space increases and international communications in space becomes more desirable.

With the Soviet's new Mir space complex scheduled for completion by 1988 and the planned U.S./E.S.A. space station, there could be three or more space stations in orbit before the turn of the century with a moon base to follow soon after. By the middle of the next century the U.S. and U.S.S.R. plan to fly a joint manned mission to Mars. This will lead to the necessity of establishing an International Space communications network for both routine and search and rescue operations. PC

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY MARK MANUCY, W3GMG

From one of the lands down under comes a letter from David Pedersen in New Zealand. A MW DX'er, David is a country & western music fan. He uses a National DR31 receiver and has logged the following North American stations: KNX, KSDO, KTOM, and KDAY in California; WLW in Ohio; WBBM in Chicago; WHO in Iowa; KROW in Reno; KYTE in Portland, Oregon; KNIX in Arizona; and CFCN, CKWX, and CBU in Canada. One will note several of these stations are less than 50 kW. David is looking for people to swap tapes with those who are able to tape specific C & W programs. In return you would get to hear some airchecks from down under! Reach David at 196 Grandview Road in Hamilton, New Zealand.

In the bill this month from the Baltimore Gas and Electric Company was a brochure titled "More Information about Power Disturbances." I have reproduced the inside pages here for your information. For the purposes of most of us, the most expensive solutions shown here are beyond our need. Nonetheless, since I have received several letters and questions about the discussion on grounding a few months ago, I feel there is a desire on the part of the readers of this column to be informed about a variety of topics concerning our hobby. I thought the terminology would provide you with needed additions to your vocabulary, especially if you have to deal with the power companies in your area!

Some time back, probably a year or so ago, the CE of WAPE in Jacksonville, FL, sent me a coverage map of the station which I showed about five months ago. Of course, as Mr. Murphy would have it, the station changed call letters at the same time. Today, we all know that call letters come and go at a tremendous rate, maybe faster than a speeding bullet . . . who knows. Well, I grew up with the Big APE, The Mighty 690, (Ahh-Eeeeee-Ahhhh!). That was the "APE" call, folks, in case you didn't recognize it. I do a lousy job at imitations. Anyway, as call letters come and go, so do formats. I won't go into the list of formats except to say the most recent format was religious, which, let's face it, does not befit the letters WAPE. Don Lemore, who works for them on Sunday, tells me the call of the previously City-owned station (recently sold) has come to 690. That is: WAPE is now WJAX and WJAX-FM (whatever the other calls were in the meantime doesn't matter) has become WAPE, a Top 40 rock station. So the image of a great call is preserved! The original WAPE had a home-built, water-cooled transmitter with the water circulated through a swimming pool at the entrance to the station. They went on the air in 1958 with 25,000 watts.

The mobile studio of WVCG in Coral Gables, FL. It uses a mobile telescoping tower made by Aluma Tower Co., Inc., of Coral Gables, FL.

From another AM radio junkie, Dave Bartlett, comes the echo of the comment made several months ago by Jerry Starr, that radios should have continuous tuning, going from AM to FM without using a band switch. Technology is such that, today, this is not only possible but could be done with the greatest of ease using IC's. Dave says the Sony SRF-A100 is a step in the right direction but is concerned about the hetrodynes he hears at night. The noise would distract the AM listener.

How about this . . . . I have been putting some serious thought into what Starr said also, and here's what I've come up with in addition to the continuous tuning radio: The FM section can be left pretty much as it is today. But for the AM broadcaster to be on par with the FM broadcaster, while the radio would treat both modes the same, the AM section must have an automatic stereo decoder to select either Kahn or C-Quam. When the station is not broadcasting in stereo the synchronous detectors, yes, plural—detectors, must decode each sideband independently sending one to the left amplifier and the other to the right amplifier. The IF and audio systems must determine, again automatically, the signal level, whether it is local or distant and adjust the bandwidth, notch filters and noise blankers accordingly for each sideband for optimum reception. The radio should be electronically tuned and need not make reference to AM or FM.

If this is done as I've outlined above the listener will not care if the station is AM or FM. The AM station operators will have to maintain their transmitters and antenna systems to high quality in order to pass the full audio spectrum of which they are capable. The dual detectors on the AM section provide an amazing sound to an AM signal. It's not stereo, but it does provide a very pleasing full sound. This type of receiver shifts the

This info about power disturbances is courtesy of Baltimore Gas and Electric Company.

POWER SYSTEM CONDITIONS/PROBLEMS AND SOLUTIONS

PROBLEM	DESCRIPTION	TYPICAL CAUSE	LEAST EXPENSIVE ➡➡ SOLUTIONS ➡➡➡ MOST EXPENSIVE			
SPIKES	• Short increases in voltage lasting thousandths of a second. May damage electronics or cause misoperation.	• Lightning. • Turning major appliances on or off.	• Unplug sensitive appliances during storms. • Locate electronic appliances on different circuits from a/c, refrig., etc.	• Use plug-in surge protectors. • Consider appliances with built-in surge protection.	• Install surge arrester at main panel. Best when used in combination with a plug-in type at sensitive elec. appliance.	• Power Conditioner or UPS* systems for critical loads.
SURGES	• Over voltages. Lower magnitude than spikes but much longer time. Generally more damaging.	• Crossed wires due to storms (trees on lines) or auto accidents.	• Unplug sensitive appliances during storms.	• Fused plug-in surge protectors may help in some cases.		• Power Conditioner or UPS* systems for critical loads.
MOMENTARIES	• Short interruptions lasting seconds or tenths of seconds. Lights blink, digital clocks "forget" the time, computers lose data.	• Short circuits due to storms, contractors digging into wires, etc.	• Consider digital appliances with 5 seconds' carry-over.			• UPS* systems for critical loads.
SAGS	• Brief reductions in voltage lasting tenths of seconds. Lights dim, TV pictures shrink, computers lose data.	• Starting major appliances. • Short circuits.	• Consider digital appliances with 5 seconds' carry-over.			• Power Conditioners or UPS* systems for critical loads.
NOISE	• Continuous distortion of normal voltage. "Hash" in TV picture. "Static" on radio.	• Small appliance motors (blenders, shavers, etc.).		• Use a noise filter designed for this application. (Sometimes incorporated with surge protectors in a single unit).		• Power Conditioners or UPS* systems for critical loads.

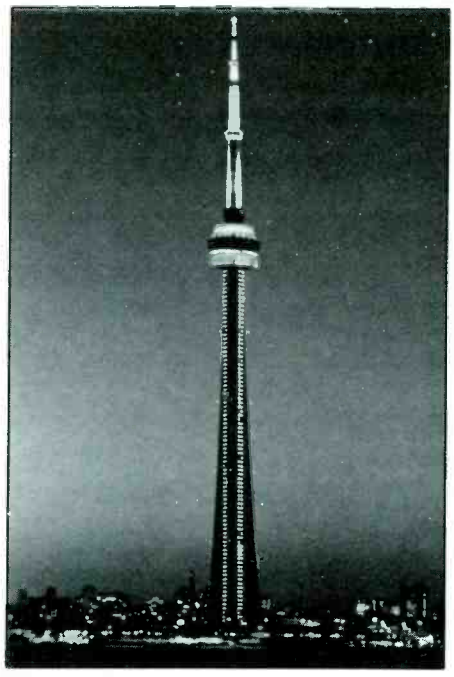
Power protection devices are available from many retailers of electrical supplies.

*UPS — Uninterruptible Power Supply, protection for all electrical disturbances.

Station Update

Call	Location	Freq	Pwr	Ant
AM				
KSTR	Grand Junction, CO	620	5/.8	DA-N
WMIX	Mt. Vernon, IL	940	5/1.5	DA-2
WVOZ	San Juan, PR	970	10/10	NDA
KOFY	San Mateo, CA	1050	.5/.5	DA-N
KDRY	Alamo Heights, TX	1100	11/0	NDA
KLWJ	Umatilla, OR	1100	10/1	DA-N
WVEL	Pekin, IL	1140	3.2/0	NDA
WAWA	West Allis, WI	1200	5/2.5	DA-2
WBZY	New Castle, PA	1200	10/2.5	DA-N
WELW	Willoughby, OH	1330	.5/.5	DA-2
WFTP	Ft. Pierce, FL	1330	5/1	DA-2
WMFC	Monroeville, AL	1360	.8/0	NDA
WARD	Pittston, PA	1550	10/0	NDA
WSRR	Washington, NJ	1580	4.4/.5	DA-2
FM				
WCSU-FM	Wilberforce, OH	88.9	1.0	174′
KCLC	St. Charles, MO	89.1	25.5	220′
WMCU	Miami, FL	89.3	100	981′
WSAJ-FM	Grove City, PA	89.5	.156	125′
KAEB	Alamosa, CO	90.1	3.0	144′
WESM	Princess Anne, MD	91.3	45	300′
KSOZ	Point Lookout, MO	91.7	7	767′
KNX-FM	Los Angeles, CA	93.1	28.5	3496′
KFKF-FM	Kansas City, KS	94.1	100	994′
KCLU-FM	Rolla, MO	94.3	28.5	114′
WWLV	Daytona Beach, FL	94.5	100	1200′
WQML	York Center, ME	95.3	100	467′
WIXV	Savannah, GA	95.5	100	856′
KUBB	Mariposa, CA	96.3	2.0	2112′
WMBN-FM	Petoskey, MI	96.3	100	981′
WKMZ	Martinsburg, WV	97.5	12.5	1008′
KKPR	Kearney, NE	98.9	100	626′
WEZY-FM	Cocoa, FL	99.3	1.21	499′
WMSR-FM	Manchester, TN	99.7	100	1138′
WMDJ-FM	Allen, KY	100.1	1.32	500′
WRAX	Bedford, PA	100.9	3.0	328′
WCWT-FM	Centerville, OH	101.5	.02	193′
WILS-FM	Lansing, MI	101.7	2.1	377′
KHTZ	Carnelian Bay, CA	103.7	6.7	2874′
WZYP	Athens, AL	104.3	100	1050′
KDXR	Borger, TX	104.3	100	1095′
WKJC	Tawas City, MI	104.5	50	492′
WDXC	Mount Pleasant, SC	104.5	28	656′
WOEC	Port Royal, SC	104.9	95	1210′
KRPQ	Rohnert, CA	104.9	.340	915′
WHQT	Coral Gables, FL	105.1	100	1007′
KFNC	Stuttgart, AR	105.5	3.0	324′
WKBX	Kingsland, GA	106.3	3.0	328′
KOOI-FM	Jacksonville, TX	106.5	100	1166′
KYNG-FM	Coos Bay, OR	106.5	4.0	545′

Key: D = Daytime, N = Nighttime, DA = Directional Antenna, DA1 = Same Pattern Day and Night, DA2 = Different Pattern/Power Day/Night, NDA = Omni Antenna Day and/or Night, * = Special Operation or Critical Hours, N/C = No Change.



The CN Tower in Toronto, Ontario is 555 meters high and is the location of most of the FM radio and TV antennas in the area.

burden of the sound quality back to the broadcast station, where it belongs. It would allow a sharp AM operation to sound better than many FM operations on the air right now. It would also help to save the AM band from extinction.

Now, Dave goes on talking about the clear channels, or rather the demise of the clears. From Colorado he says WNBC is now almost impossible to hear against KINN and, while visiting New York recently, he was not able to hear WOAI as clearly as in the past. He calls 1200 kHz a total zoo! Let me make a case right now for the clear channel we have left. I would like all my readers to try each night, for a week or so,to listen for a while to 530 kHz. Here is a 250-watt station on a frequency all their own. They are readable with good stereo well into Virginia and, according to reports I've received, they are being heard into parts of North Carolina and Tennessee as well. To the west, readers in Illinois and Wisconsin have reported hearing them also. Can one imagine the coverage of CJFT if they were 50 kW? Tune them in a send me a card with a report. Let's see just how far away this peanut whistle can be heard. We've already told of over a thousand miles. Anyone game for the West Coast? Years ago, many U.S. 250-watt stations would get QSL requests from Australia and New Zealand on a regular basis. And these stations operated on the local channels! More stations means more interference and less DX.

However, you could live near a 50-kW station like Elton Byington! Now, Elton has a real problem. Although he didn't mention what types of antennas he uses, here is the case for a loop antenna par excellence! When trying to DX near the 50-kW's frequency, the loop would always have its null you know where, so the DX would be coming from either of two directions. But with the sharpness of the loop's tuning there should not be too much of a problem elsewhere on the dial. This loop at Elton's house would also be the box type since the ferrite loop with a preamp would probably die from overload. If you're new to loop antennas and would like more information about them, send me a SASE mentioning the loops and I'll send you a three-page paper talking about loops, even some stuff that I haven't put in the column yet. I'll send it to "old timers," too!

A little more information on the Sony ICF-2010. Here are the drawbacks of the unit I purchased. In the metro area I have an image from every strong AM station 25 kHz above and below their operating frequency. This can be reduced by using an external tuned antenna if the tuning if sharp enough. Placing the 2010 next to my four-foot loop increases the signal lamp by two to five LED's in brightness. So, even as sensitive as the 2010 is, an external loop still makes an improvement.

Call Letter Changes

Location	Old	New
AM Stations		
Homer, AK	KGTL	KPEN
Juneau, AK	New	KAJD
Flagstaff, AZ	KFLG	KAFF
Farmington, AR	KHOG	KFAY
N. Little Rock, AR	KAUL	KPAL
Springdale, AR	KFAY	KHOG
Lancaster, CA	KOTE	KHJJ
Panama City, FL	WDLP	WGNE
Christmas, FL	New	WGOR
Wildwood, FL	WPMA	WHOF
Coleman, FL	WHOF	WMHI
Jupiter, FL	WKSY	WTRU
Thomasville, GA	New	WHGH
Atlanta, GA	WPLO	WKHX
Lawrenceville, GA	WLAW	WGNN
Rossville, GA	WRIP	WGVT
Savannah, GA	WWAM	WSAI
Ringgold, GA	New	WZRB
Nampa, ID	KNPA	KSGR
Lafayette, LA	KVOL	KRKR
Wyoming, MI	WMGF	WYGR
Cassopolis, MI	New	WLLJ
Escanaba, MI	WBDN	WCHT
Dearborn, MI	WNIC	WMTG
Ypsilanti, MI	WYFC	WWCM
Branson, MO	KLCO	KOMC
Chadron, NE	New	KZNE
Kearney, NE	KRNY	KKOA
Bernalillo, NM	New	KKTT
New Bern, NC	WWMG	WSFL
Hendersonville, NC	WHVL	WTZQ
Wake Forest, NC	New	WNOC
Pryor, OK	KGCR	KMYZ
Astoria, OR	KLBP	KKEE
Bethal Park, PA	New	WGLP
Collierville, TN	WMSO	WCRV
Harriman, TN	WKJS	WWBR
Big Lake, TX	New	KVOL
Stamford, TX	KDWT	KVRP
Fort Worth, TX	KSSA	KESS
Somerset, TX	New	KCHG
Tuckahoe, VA	WARH	WGNZ
Crozet, VA	WPED	WKZN
Purcellville, VA	New	WMHA
Tuckahoe, VA	New	WARH
Spokane, WA	KLSN	KAQQ
Blennerhassett, WV	New	WRRD
FM Stations		
Phenix City, AL	WEIZ-FM	WGSY
Anchorage, AK	New	KYGL
Soldotna, AK	KPEN	KPEN-FM
Phoenix, AZ	KAMJ-FM	KAMJ
Flagstaff, AZ	KAFF	KAFF-FM
Sheridan, AR	KAUL-FM	KAUL
Fort Bragg, CA	New	KWSF
Longmont, CO	KLMO-FM	KQKS
Fort Myers, FL	New	WAYJ
Venice, FL	WRAV	WCTQ
Naples, FL	New	WLSF
Jupiter, FL	WKSY-FM	WKSY
Marathon, FL	WPLC	WAVK
Panama City, FL	WGNE-FM	WFSY
Winder, GA	New	WBPS
Atlanta, GA	WKHX	WKHV-FM
Rossville, GA	WOWE	WLMX
Idaho Fall, ID	KID-FM	KEZF
Quincy, IL	New	WGCA-FM
Erlanger, KY	WSAI	WIZF
Pikeville, KY	New	WJSO
Fort Campbell, KY	WABD-FM	WCVQ
Alexandria, LA	KTIZ	KZMZ
Madawaska, ME	New	WCXX
Tuscola, MI	New	WGMZ
Pinconning, MI	WWRM	WBUK
Muskegon, MI	WKBZ	WKBZ-FM
Vicksburg, MS	WQMV	WCKO
Marshfield, MO	KTOZ	KTOZ-FM
Kearney, NE	KRNY-FM	KKPR
Wildwood, NJ	WNBR	WZXL
Alamogordo, NM	KKEE	KKBE
Shelby, NC	WMGF	WGIC
Hendersonville, NC	WKIT	WMYI
Hamilton, OH	WURD	WAXZ
Huntingdon, TN	WPBE	WHZZ-FM
Harriman, TN	WHBT	WEZG
Killeen, TX	KIXS-FM	KBTS-FM
San Antonio, TX	KSAQ	KSJL-FM
El Paso, TX	KFIM	KOFX
Gilmer, TX	KNIF	KAEZ
Round Rock, TX	KHCS-FM	KNLE-FM
Luling, TX	New	KCWR
Fort Worth, TX	KESS	KSSA
Newport News, VA	WRSR	WGH-FM
Altavista, VA	WKDE-FM	WKHV
Suffolk, VA	WTID	WSKX
Walla Walla, WA	New	KHSS
Long Beach, WA	New	KKEE
Seattle, WA	KQKT	KRQN
Naches, WA	New	KRKN
Racine, WI	WFNY	WHKQ
Kaukauna, WI	WKAU	WKFX
Merrill, WI	WJMT-FM	WMZK

The cost of the radio would have to be increased even more to eliminate the PLL pop each step the tuning knob is moved but, when wearing headphones while tuning by means of the knob, a pop is quite annoying. It doesn't take much of a bump for the batteries to loose their seating and cause the memory to become lost as well. This has happened to me frequently in the short time I've had the radio. Although I don't need to have the memory for specific reasons, it would be a pain to reprogram 32 memories after each trip outside the home.

The only other real complaints I have about this super radio is that Sony did not include a FM stereo detector and they could have included an AM stereo detector. The headphone jack (⅛ inch) is a stereo jack so that stereo phones work with this mono radio without an adapter. Otherwise, the LCD readout seems to be quite directional, at least on the set I purchased, and with the radio vertical on a table the dial cannot be read. I find that when I'm sitting in an easy chair, the angle of the radio is such that I cannot see the dial numbers. The LCD readout is angled so the radio has to be on its back and in front of the user, using the built-in bracket on the back of the set to give it a decent viewing angle. The bracket also bugs me because everytime I pick up the radio my fingers seem to make the bracket pop up from its resting place and I have to reseat it. But, don't mind me, folks, that's the name of the game, almost everyone could find something wrong with anything . . . . I love this radio and it will maintain a special spot in my shack and heart, although I think I will add an AM and FM stereo decoder for use with headphones.

The AM broadcast engineer will love the synchronous detector for checking his station's sidebands separately. The bandwidth is wide enough for very good fidelity AM.

A new FM band? Hold onto your hats but there has been a petition filed with the FCC to open a new FM band from 225 to 230 MHz. The band would be known as FM2 and would allow room for 25 channels. The request for the new frequencies, just above TV Channel 13, was filed by Larry Tighe who owns WRNJ in New Jersey. We'll see what happens.

Dean Kazmierczak tells me the new 530

A photo of Ed Skasko's shack.

kHz Canadian station is using a transmitter built in Nova Scotia and is capable of 400 watts but is being run at 250-270 watts. The antenna is a two-tower arrangement shared in the twelve-tower farm of CJRN. I bet that's a real bear to keep going. The height is 230 feet, top-loaded to 290 feet. Mighty short for 530 kHz. As of January the best DX (QSL request) has been Finland, however, in the USA proper, it is Provincetown, MA. I haven't requested a QSL but Baltimore is surely beyond MA! Dean included their phone number in the interest of our little DX contest this month; you might want to call them: (416) 871-6300 and in NY (716) 856-1121.

Michael Yohnicki sent in a bumper sticker from CKRM, where he used to work, and doesn't recommend radio to anyone . . . says the pay is too low! I won't disagree with that, Mike, but if you are really good the bigger markets pay big bucks. One has to be able to take the pressure that goes with it and the frustration of doing what the other guy wants 'cause he pays the freight! The pay can be handsome on the other side of the glass as well, but believe me the engineers can get mighty frustrated, too. In the larger markets where a union is involved, the pay scale for technicians at some stations can be higher than that of Chief Engineer at other stations in the same city!

It continues to amaze me the number of requests that come in for my loop plans . . . several people have taken the time to write back after having built the four-foot box loop saying how well it works. Thank you. A couple of Baltimore radio stations have used the smaller two-foot box loop with their EBS receiver to solve some reception problems with the key station. Of course they adjust the loop once and leave it set in a specific direction and tuned to a specific frequency. Some of the EBS receivers I have seen are really very poor receivers. The antennas suggested by the manufacturers, in some instances, just will not work well enough to hear the key station. A box loop will almost always solve these problems. The box loop plans include plans for the four- and two-foot loops for $5.50 postpaid. The ferrite loop plans include the needed preamp for $7.50. The ICOM R-70/71 BC band modification plans are $2.50. Address all orders and correspondence to P.O. Box 5624, Baltimore, MD 21210.

Until next month, keep the headphones warm! PC

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

RTTY column reader John Wiesenmeyer of Illinois asks if the domestic aviation weather transmissions of the National Weather Service and Federal Aviation Administration, which are sent by teletype over the nation's telephone lines, are available over HF radio so that a RTTY enthusiast can monitor them. The answer is "no."

Aviation Weather Services, a book sold by the FAA and National Oceanic and Atmospheric Administration, says, "Longline communications providing the flow of data through the (aviation) system are mostly teletypewriter and facsimile. Teletypewriter circuits collect and distribute weather reports, forecasts, and warnings. Facsimile transmits observed and forecast weather charts.

"Each service outlet has a drop on an area teletypewriter circuit which provides complete data within a few hundred miles of the outlet but only sparse data for more remote areas. Reports and forecasts not routinely available on the local area circuit are available on a request/reply circuit."

This service is a joint effort of the weather service, the aviation agency, the military weather services, and other aviation oriented groups and individuals. The ultimate users are pilots and dispatchers.

The weather satellite program is directed by the National Environmental Satellite Service. Satellite cloud photographs are made available at field facilities, again via landlines, and at some stations by direct picture reception.

FAA Flight Service Stations provide two other ways to receive weather transcriptions, one of them able to be picked up on most shortwave radios. That is the Transcribed Weather Broadcast (TWEB). It is a continuous voice broadcast on low/medium frequencies from 200 to 415 kHz, and selected VOR's from 108 to 117.95 MHz. The other is Pilot's Automatic Telephone Weather Answering Service, a recorded telephone briefing service you'll find listed in the telephone directories of cities with major airports.

Also, the NWS broadcasts weather information over VHF radio, that can be picked-up by those owning scanners or weather radio receivers.

Until last summer, RTTY monitors were able to get printouts of weather forecasts of U.S. cities by tuning to the HF radio RTTY broadcasts of the meteorological stations at New York and Miami. The RTTY broadcasts met their demise because of antiquated equipment and hefty budget cuts.

The only way left, I believe, to get weather data for U.S. cities via RTTY over HF radio is by tuning to the U.S. coastal stations as they send the Associated Press High Seas News Summary in the ARQ mode to ships.

Time now to enjoy the stuff that isn't sent over telephone lines.

RTTY Loggings
(All Times Are UTC)

2291: IDQ, Rome Navrad, Italy sends coastal navigation tfc at 2100 (Roger Aked, France-- all of Roger's loggings are via the SPEEDX ute column in that group's excellent publication).

2421.3: FEZKF, marker in ARQ mode at 0300 (Tom Kneitel, NY).

2497.5: ARQ idling at 0322 (Kneitel, NY).

2656.2: USN MARS tfc at 0000, 170/100R (Kneitel, NY).

2691.4: DHJ51, Grengel Meteo, FRG at 0115. RTTY setting not indicated (Thamas J. Yingling, Jr., MD). Glad to have you share your loggings w/us! We run all RTTY/ARQ/FEC/FAX loggings w/the exception of Ham stations-- Ed.

3700: RFFFCC, French mil, Versailles, France working RFFBBW at 1045 (Aked, France).

3803: RFFEC, French mil, Paris sending tfc to RFFC in ARQ at 2110 (Aked, France). RFFC is another French mil. unit in Paris & may have been operating on 2563 kHz-- Ed.

4026.5: AAR5XA, AAR5WZ, AAT5LC & others in an informal Army MARS net at 0350, 170/60N (Kneitel, NY).

4334.4: FUE, Brest Navrad, France sending "non protege msg" at 0800 but encrypts it! Was 850/100R (Fred Hetherington, FL). Probably knew you were reading his mail-- Ed.

4362.6: Magallenes Navrad, Chile sending CCM call marker & wx at 0140, 850/66R (Daryll Symington, OH).

4489: GFL26, Bracknell, England w/coded wx at 0412, 425/66R (Kneitel, NY).

4583: DDK2, Hamburg, FRG w/caded wx at 0318, 425/66R (Kneitel, NY).

4627: NNN0CSB sending MARS tfc at 2100, 170/100R (Carol Kirk, CT). This station is abaard the USS SPARTANBURG COUNTY (LST 1192). This is a Newport Class tank landing ship that went into service 9/1/71. Aft is a helo deck. There are bow & stern ramps for loading/unloading vehicles. Propulsion from 6 diesel engines gives it a 20 kt. sustained speed. Manpower is 13 officers & 205 enlisted personnel-- Ed.

4862.5: Un-ID sta sending DE V1E INT ZBK K at 0157, was 60R. U.S. Army?? (Editor).

4863.7: KRH51, U.S. Embassy, London, England w/foxes at 0051, 100R (Editor).

4965: ARQ phasing signal at 0327 (Kneitel, NY).

5061.5: RFFHCX, Marseille Police Dept., France w/tfc to RFFX in ARQ. No time given (Aked, France).

5224: RFFH, French mil, Paris w/tfc to RFGXX in ARQ at 2015 (Aked, France). My reference sources show RFFH as French AF at Metz, France-- Ed.

5393.5: ELRB, Roberts Field, Liberia w/RYRY at 0547, 50N (Editor).

5740.3: HZN46, Jeddah Meteo, Saudi Arabia w/wx data, 770/66N at 0130 (Hetherington, FL).

6357.4: 58JDQ of the Spanish Navy sending RYRY to 56UAZ. Was 850/100R at 0045. Callsign changes monthly, tune in next month! (Hetherington, FL). Probably learned from the USN how to make those fast changes-- Ed.

6416.5: CCS, Santiago Navrad, Chile w/5L tfc to Chilean naval forces at 0500, 66R (Editor).

6837: QCKF marker in ARQ mode at 0450 (Kneitel, NY).

6924.9: RFFDC, French mil, Paris w/tfc to RFFF at 1915, ARQ (Aked, France).

6978.7: CCS, Santiago Navrad, Chile w/nx in SS to ships at 1015, 850/66N then switches to 133 wpm to send RYRY. Don't often log this nx bc (Hetherington, FL).

7803.6: STK, Khartoum Aero, Sudan w/RYRY at 0126, 425/66R (Yingling, MD).

7819.4: 5NK, Kano, Nigeria w/RYRY at 0109, 425/66N (Yingling, MD).

7863: BJZ21, Hangzhou Meteo, PRC w/RYRY at 2347, 425/66R (Joseph O'Brien, S. Korea, via SPEEDX).

7917.5: DCF42, MFA Bonn, FRG noted at 1340 w/FEC-mode tfc (Aked, France).

8152: HME48, KCNA Pyongyang, N. Korea w/RYRY at 1145, 500/66N (O'Brien, S. Korea, via SPEEDX).

8156: MKD, RAF Akrotiri, Cyprus w/RYI's & foxes at 2030, 66R (Editor).

8327: RETJ, yet another ID for Madrid Navrad, Spain. Noted w/maritime notices in SS at 2037, 100R (Editor).

8347: 3EWC4 calling KFS at 0504 in ARQ, negative contact. Who is 3EWC4? Panamanian registry? (Chris Anderson, CO). First, welcome to our close-knit family of RTTY monitoring fanatics. Second, 3EWC4 is the ship LLOYD RECIFE, a newly commissioned vessel. You may be able to obtain details about the vessel by sending for a QSL from Companhia de Navegacao Lloyd Brasileiro, Rio de Janeiro, Brazil-- they own the ship, altho it's flying the flag of Panama. Third, it was a negative contact for a very simple reason, KFS doesn't monitor this freq. Forth, in answer to your questions, anyone who is serious about monitoring RTTY will want to invest in the best demodulating equipment they can afford. Top of the line equipment such as the Info Tech 6000 and the Pocom AFR-2010 offer some special capabilities and permit copy of bit inversian, ARQ, FEC modes and a wide assortment of baud rates & shifts. You'll never be disappointed when you buy the best-- Ed.

9047.5: Y2J, Deutsche Post, Berlin, GDR w/RYRY at 1228, 425/66R (Kneitel, NY).

9057.8: ZAIRE CENTRE LINE TEST + RYRY at 2027 sent by 9PL, Kinshasa Aeradio, Zaire. Was 66R (Editor).

9086: Y7A38/Y7A20/Y7A29, MFA Berlin, GDR w/RYRY at 0109, 525/132R (Kneitel, NY).

9110: RDZ77, TASS Moscow, USSR w/EE nx at 2225, 66 wpm (U.S. Army M/Sgt David Freed, FRG).

9086: Y7A38, MFA Berlin, GDR w/coded tfc to Prague, Czechoslovakia at 1200, 436/133N, then switching to 66N at 1207 for GG tfc to Prague in GG nx (Hetherington, FL).

9216.4: 5UA, ASECNA Naimey, Niger w/RYRY & QJH1 tape at 1950, 750/66N (Hetherington FL).

9855: VOA Tangiers, Morocco w/EE nx at 0145, 425/66N (Kneitel, NY).

9966.5: Y2V54/9, ADN Berlin, GDR w/RYRY beamed to S. Asia at 1255, 425/66N (Kneitel, NY).

10215: HZN48, Jeddah Meteo, Saudi Arabia 770/132N w/coded wx at 2035 (Kneitel, NY).

10223: Non-stop xmsn of RYRY w/o ID 0117-0120 66R. At 0124 manually-typed tfc in SS sez ESTA CTA, etc. Must be PTT in Havana (Editor).

10390: Interpol tfc at 0136 in ARQ mode, but too garbled to read. Station not ID'd. (Kneitel, NY).

10437: ATA Tirana, Albania w/FF nx at 1543, 850/66 (Kirk, CT).

10474.5: Probably the U.S. Army sending DE CII TEST at 1817 along w/foxes & RYRY at 60N. Noted with both "quick brown fox"

Abbreviations Used In The RTTY Column

AA	Arabic
ARQ	SITOR mode
BC	Broadcast
EE	English
FEC	Forward Error Connection mode
FF	French
foxes	"Quick brown fox . . ." test tape
GG	German
ID	Identification/ied
MFA	Ministry of Foreign Affairs
nx	news
PP	Portuguese
RYRY	"RYRY . . ." test tape
SS	Spanish
tfc	traffic
w/	with
wx	weather

& also misspelled "qucik brown fox." This same tape, complete w/typo was intercepted 9 days later at 1755 on 14537 kHz (Editor).

10543: Y2V54, ADN Berlin, GDR w/EE nx at 0142, 425/66N (Kneitel, NY).

10872: RFUICS, French mil, Paris w/tfc to RFUI at 1650, 96TDM (Aked, France).

10905: NAU, USN San Juan, PR testing at 1445, 850/100R (Hetherington, FL).

11063: LZU2, Sofia Meteo, Bulgaria w/wx data at 1322, 66R (Editor).

11110: LZG2, BTA Sofia, Bulgaria from 1310-1320 w/QRA & RYRY then into FF nx at 66R (Editor).

11124.5: DPA Hamburg, FRG w/RYRY & faxes at 1600, nx in EE at 1605; was 66N (Ed.).

11149: Several encrypted msgs 1340-1349 at 100N. Separation of individual msgs noted by the cursor moving across the screen os the space bar was held down. Each msg preceeded by a series of #'s such as 0253 21379 08444 8861 before going to crypto mode. The 1st group of #'s indicated the msg number & increased sequentiolly. The other groups of #'s varied widely from msg to msg & their meanings were unknown to me (Editor).

11420: VNA86, VNA Hanoi, Vietnam at 1409 w/nx in Vietnamese, 425/66N (O'Brien, S. Korea via SPEEDX).

11453: IMB33, Rome Meteo, Italy w/coded wx at 1948, 850/66N (Dallas Williams, CO).

11466: GABVYA, an unusual ID of French mil at Dakar, Senegal, granting permission for overflight at 1750, 96TDM (Aked, France).

11497: SOL349-1, PAP Warsaw, Poland w/RYRY at 1400 & then nx in EE at 66R (Editor).

11536: ATCC nx in FF from Pyongyang, N. Koreo at 1804, 66N. ATCC means KCNA in FF (Editor).

11570: "ETIANTN DE NBA..." & RYRY/SGSG from USN station at Balboa, Panama, 1813, 100R. I give up-- what's "ETIANTN"? (Editor).

12110: AGERPRES nx in EE at 1105 from Bucharest, Romania, 425/66R (Hetherington, FL).

12127.5: Encrypted tfc at 2320, 60N. Possibly U.S. Army (Editor).

12131.7: A purchase order for truck tires from a Mexican business, & an inventory of coarse & fine de-icing salt sent by a Mexican gov't station at Ensenada, Mexico to another in Mexico City; wos 75N at 2235 (Editor).

12136.8: FF text from an un-ID station at 1905, ARQ mode (Kneitel, NY).

12200.3: Un-ID USN unit sending "very" quick brown foxes at 1310, 850/100R (Hetherington, FL).

12227.3: HDN, Quito Navrad, Ecuador w/RYRY, 850/100N at 1405 (Hetherington, FL).

12229.7: CLP2, Cuban Embossy in Panama w/SS tfc, also in coded groups, plus encrypted to CLP1, MFA Havana at 1500, 520/100N (Hetherington, FL).

12270: GYA, Royal Navy, London, England w/foxes at 1745, 425/100R (Wolfgang Palmberger, FRG, & Hetherington, FL).

12295: 5L gps at 2305, 100R, w/"QRU SK" at 2306 (Editor).

12301: CME301, Polish Embassy, Havana, Cuba w/text in SS re the UN, was 320/100N & ended at 1800 (Hetherington, FL).

12497.5: BOZD, a ship in ARQ asking KPH for its wx skeds at 2208 (Hetherington, FL). The ship is the ZHUANG HE, a cargo vessel from PRC-- Ed.

12932: 58JDQ sending RY/SG to 56UAZ, 850/100R at 1934. You guessed it-- Spanish Navy! (Palmberger, FRG).

13374.8: CLP1, MFA Havana sending 5F groups to the Cuban embassy in the Congo at 2002, 525/66N (Kneitel, NY).

13400//15555: LZG3/LZP2, BTA Sofia, Bulgaria w/RYRY at 1256, 525/66R (Kneitel, NY).

13474.5: Un-ID station w/foxes & 1-0 count at 2006, 850/100N (Kneitel, NY).

13526: YIO71, INA Baghdad, Iraq w/nx in EE at 1525, 170/66R (Kirk, CT).

13585.2: a 5L msg & nx in GG from MFA Berne, Switzerland in ARQ at 1419 (Editor).

13647.5: OLI5, CTK Prague, Czechoslovakia w/RYRY at 1313, 425/66N (Kneitel, NY).

13654.6: RFQPM, French mil, Djibouti working RFFICY in 96TDM mode at 1745 (Aked, France). What the world needs, in addition to a good 5c stogie, is a comprehensive guide listing all of the "R" prefixed circuit ID's used by the FF & SS stations. In this case, my references say RFQPM is French mil in Paris, but RFQP is the French marine sta in Djibouti, which operates point-to-point w/Paris-- Ed.

13777: Pretoria Meteo, RSA w/coded wx at 1734, 100N (Editor).

13840.2: KRH51, US embassy in London, England w/foxes at 1405, 100R (Editor).

13977.7: FDZ, an un-ID French station sending DE FDZ + text in FF, ARQ mode at 2040 (Symington, OH). None of my references list FDZ, maybe one of our readers can help. I do have a record of a circuit here between Paris , Cango, Senegal & Djibouti-- ITU reports these as ground stas. Callsigns originating from Paris begin w/FD or FK. Not much help, I'm ofraid, although I do recall that you previously logged RFFVA here with coded tfc to RFFVAD-- Ed.

13998: DIPLO nx in FF from Paris, France at 1104, 66N (Editar).

14418: 9KT321, KUNA Safat, Kuwait w/nx in EE at 1332, 400/66N (Kneitel, NY).

14455: Un-ID meteo meteo sta w/5F coded wx at 1430, 425/100R (Symington, OH). I've logged this myself many times but could never determine its QTH. Help, anyone?-- Ed.

14497.5: CSY, Santa Maria Aeradio, Azores w/wx data at 1500, 66N (Editor).

14537: DE CII TEST-- 60N at 1755; see 10474.5 kHz listing for details (Editor).

14549.5: SPW, Warsaw R., Poland receiving telexes from another sta in ARQ, 1514-1530 & sending tfc in Polish in reply. ID learned from CW s/off of SPW, & "WARAD PL" seen in TTY copy. Warsaw R. maintains a TTY circuit to Paris around this freq (Editor).

14584.5: FDY, French AF, Orleans, France w/RYRY & "Le brick" at 1614, 66R (Editor).

14604: MKD, RAF Akrotiri, Cyprus w/RYI & foxes at 1630, 66N (Editor).

14632: "OK TWX WE HAVE TWO CCTTV..." manually typed between encrypted msgs, was 66R at 1415. Dunno who it was, but it wasn't TANJUG, Belgrade, Yugoslavia which usually occupies this freq. TWX stands for Teletypewriter Exchange; the CCTT in CCTTV must stand for closed-circuit teletype (Editor).

14636.7: Un-ID sta ending xmsn at 1523, ARQ. Similar format to that found 2 hrs earlier on 14914.5 kHz (Editor).

14638.5: CME326, Czech embassy in Havana, Cuba w/SS tfc sent at 1516, 100N (Editor).

14695.6: Un-ID sta idles in ARQ mode at 1442 while sending CW calls 14696.5 kHz. Negative contact & off at 1530 (Editor).

14723: TNL, ASECNA Brazzaville, Congo w/aero wx at 1535, 66R (Editor).

14760: CNM61, MAP Rabat, Morocco w/nx in EE at 1311, 425/66R (Kneitel, NY).

14795.7: FTQ79A-H1, AFP Paris, France w/nx in FF at 1340, 425/66N (Kneitel, NY).

14799.5: Un-ID FF sta signing off after sending "ZZZZZ" which indicates that encryption had been used, was 66N at 1549. The ADN press agency in Berlin, GDR uses this freq but obviously this wasn't them. AFP in Paris 4 kHz down the band is the closest FF station here we know but doubtful it was them either. Whatzit & werezit? (Editor).

14810.2: Encryption w/ZZZZZ noted at 1638, 66N followed by manually-typed tfc in SS. Probably MFA Havana, Cuba. Also noted a few days later at 1548 running 66R (Editor).

14817.5: JPA51, INTERPOL, Komaki, Japan relaying tfc at 1230, ARQ (O'Brien, S. Korea via SPEEDX).

14839.4: CLP1, Minrex Havana, Cuba sending circulors in SS to embacubas in Africa & S. Americo at 1651, 75N (Editor).

14945.2: CLP1, Minrex, Havana, Cuba abruptly stopped sending a 5F msg to another sta, says in SS that msg was being help up due ta tech problems w/its encryption device. Was 66R at 1645 (Editor).

14914.5: Un-ID sta sending 5L message at 1327, ARQ. S/off at 1358 (Editor).

15684: JPA62, INTERPOL Komaki, Japan w/ARQ tfc at 1250 (O'Brien, S, Korea via SPEEDX).

15780: RWM71, TASS Moscow, USSR w/nx in EE at 1515, 425/66R (Symington, OH).

15950.3: CXR, Montevideo Navrod, Uruguay w/encryption at 2020 before s/off in SS; was 75N (Editor).

15955: 3BT4, Vacoas Meteo, Mouritius w/coded wx at 1540, 850/66R (Williams, CO). Nice catch!-Ed.

16220: SOQ221, PAP Warsaw, Poland w/RYRY at 1500, 66R (Editor). At 1450 w/RYRY, 425/66R was //SON278 on 13785 kHz (Kneitel, NY).

16356.8: Nx in GG w/no logo or ID, 2106-2121 at 133N. No s/off. Must be a GDR embassy somewhere (Editor).

16702: UUKU calling URB2 w/RYRY, 170/66N at 1642 (Palmberger, FRG). UUKU is ship KAR-POGORY, a Soviet stern trawler factory ship. URB2 is Klaipeda R., USSR-- Ed.

17227: WNU w/plaintext wx bc at 1445, FEC mode. When did WNU arrive on this freq w/FEC?? (Anderson, CO). It hasn't! Looks like you're 1.5 kHz too high because you're probably decoding this station in LSB. WNU operates on 17198, 17206.5, 17223 & 17225.5 kHz, the last one being the freq you monitored-- Ed.

18193: CLN603, Havana, Cuba w/PL nx in EE but running it backwards 2240-2248 before being re-xmitted correctly; 425/66R (Williams, CO). Maybe you should have listed the time as 2248-2240, hi hi-- Ed.

18230: GFL25, Bracknell Meteo, England w/coded wx at 1525, 425/66R (Williams, CO).

18364: 9PL, Kinshasa Aeradio, Zaire w/RYRY & DE ZAIRE CENTRE LINE TEST at 1552, 425/66R (Williams, CO).

18386: RRQ20, TASS Moscow, USSR w/EE nx at 0528, 425/66R (Albin Magliano, Tahiti).

18873: BZR68, XINHUA Beijing, PRC w/nx in EE at 0646, 425/66N (Magliano, Tahiti).

19006: ASP32, MFA Islamabad, Pakistan w/tfc in EE to Libya, 425/66R at 1119; QSL made on USB rather thon RTTY! (Palmberger, FRG).

19225: FDY, French AF, Orleans, France at 1458, 425/66R (Williams, CO).

19516: IPG20, MFA Rome, Italy w/II tfc also 5L gps to its embassy in Addis Ababa, Ethipoia, ARQ at 1350 (Palmberger, FRG).

20084: ANSA nx in FF from Rome, Italy at 1405, 425/66N (Palmberger, FRG). PC

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Radio Kirabati has never been an easy station to log, not even back in the old days when the country was still the Gilbert and Ellice Islands and the station was Radio Tarawa. Radio Kirabati has traveled through a couple of active/inactive cycles and, in late '86, had become active again. We do not have a recent operating schedule but some loggings are being made between 0000 and 0130 sign-off on 14802 and 16433. Note that the transmissions, which include some English, are in upper sideband.

Family Radio WYFR, which sometimes seems to occupy as many channels as Radio Moscow, is adding still more transmitters to its Florida complex. Four more 100-kW units have either been added or are in the process of being added to the ten or so existing transmitters now in use. In addition, improvements are being made in the antenna system and a greater degree of transmitter automation will be employed.

Trans World Radio has begun shortwave broadcasts over SLBC facilities in Sri Lanka. Initial tests were to have been on 11835 from 1330 to 1530.

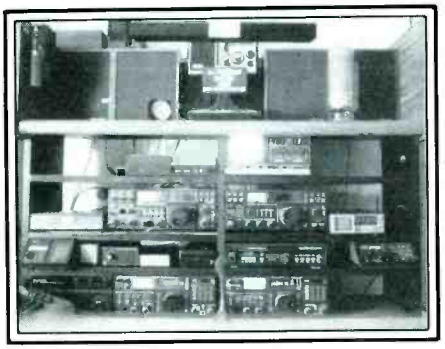
The construction permit is over two years old but it seems World Wide Radio's KRSP in Salt Lake City is still for real and still plans to join the growing ranks of broadcasters on shortwave from the U.S.

Radio Netherlands' Media Network reports that Radio Transkei was to begin shortwave broadcasts in March or April. The station reportedly will use the facilities of Capital Radio, Transkei. Radio Transkei is the government station of this South African "homeland" while Capital Radio is a commercial outlet.

The high power sweepstakes roll on and on. Jordan has placed an order for three 500-kW transmitters. The Voice of America —as part of its huge modernization plan— has ordered more than two dozen of these giant transmitters, and that's only about half of what the final total will be! Now, Iran and Iraq are playing wattage one-upsmanship. Iraq is installing sixteen 500-kW shortwave broadcast units and Iran expects to eventually have a fifth unit in operation.

The Association of North American Radio Clubs' Shortwave BBS has added two new features. One is English service notes from HCJB—advance details about several HCJB programs. The second is a cumulative file of solar flux, sunspot numbers, "A" and "k" indices as provided over WWV. The ANARC Computer BBS is on-line 24 hours per day at 1-217-368-3124. No password is necessary and there are no costs other than your long distance call.

MAIL CALL: Steve Lawrence (new address: 1088 Walnut Street, Dubuque, IA 52001, phone 319-556-8965) is still interested in getting an Iowa-based regional club going and he'd like to hear from you, particularly if you live in the Hawkeye state.



You aren't seeing double, despite the equipment arrangement. Thanks to Richard B. Krepps (W1ACG) in Houston, TX.

Here's Herb Shatz of Forest Hills, NY. Herb's been a DX'er for 22 years.

After starting his SWL'ing back in the late 30's, John Babbis of Silver Spring, MD had his interest rekindled when his Greek barber asked if he was familiar with shortwave broadcasts from the Voice of Greece. John's main interest is in tuning for Greek language broadcasts and he's always looking for more details on that subject so, if you run across items of interest you can send them to John at 709 Venice Dr., Silver Spring, MD 20904.

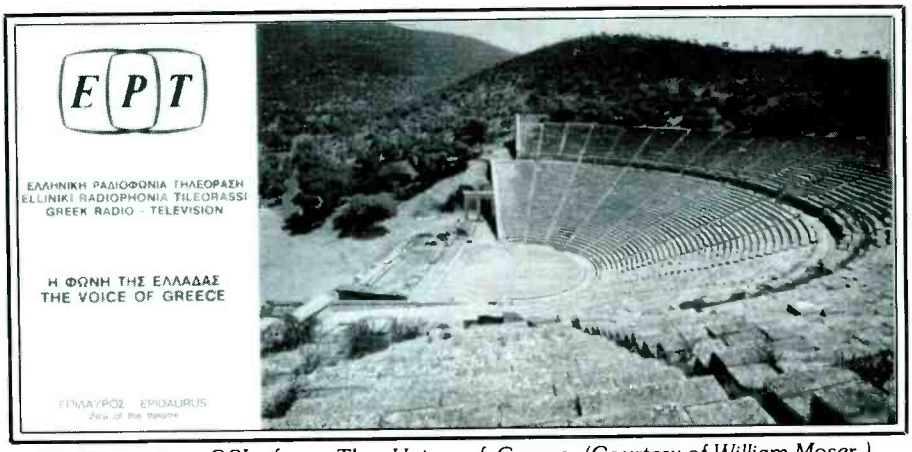
A couple of unidentified stations are nagging William Rosenbaum of Winthrup, ME. Your 4755 sounds like HRRI, Sani Radio in Puerto Lempira, Honduras. 7470 is Radio Caiman, the anti-Castro clandestine which broadcasts from somewhere in Central America.

Joseph Hueter in Philadelphia sends along a photo which depicts a very attractive way of displaying QSL's—by framing groups of them based upon geographical, political or other themes. The Hueter collection is an enviable one indeed, even including a very rare reply from Radio Katanga.

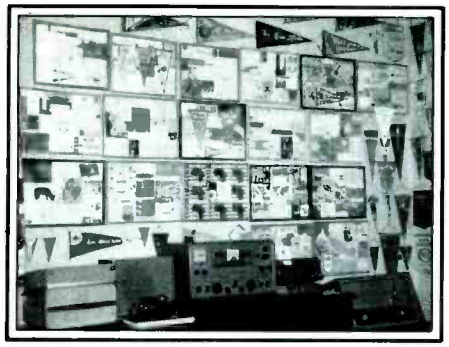
John Miller in Thomasville, GA inquires whether Radio Pyongyang has a service intended for North America. It does indeed, though it's usually not heard very well. Scheduled 1100-1250 on 9750 and 9977, and 2300-0050 on 11735 and 13650.

Richard B. Krepps in Houston, TX is justifiably proud of his combination "SWL post —Ham shack—scanner monitoring station" in which various ICOM units seem to be workhorses.

Two readers ask about QSL'ing. Joseph Yakoshi, Jr. in Springville, PA inquires about the how-to aspects in general, and Richard Russell of Hartselle, AL on the problems of writing reports in a foreign language. We think both of these problems are answered in the publications *Secrets of Successful QSLing* and *Language Lab* (Spanish and French editions, with Portuguese still to come). Several shortwave dealers carry these publications or you can get more information from Tiare Publications, P.O.



An attractive QSL from The Voice of Greece. (Courtesy of William Moser.)



QSL's galore adorn the walls of Joseph Hueter's house in Philadelphia. Seems to be a different arrangement from last month's photo. You don't build this kind of display overnight!

Box 493, Lake Geneva, WI 53147. Please include an SASE.

Gary Bledsoe in Anchorage, AK offers a possible solution to the problem of knowing which relay or other transmitter sight one has tuned. Gary suggests the broadcasters adopt the practice of inserting two-letter ID's via CW every half hour or so. He says this should make it easier on station engineering staffs to determine how well various outlets are doing and should, we assume, be beneficial to a station's official monitors as well. Gary says "perhaps I'm naive, but wouldn't it be simple?" It sounds simple, and fairly practical, Gary, which is probably why it won't be used by anyone.

Let's hear from you next month. Your loggings (properly formatted), comments, questions, shack photos and other items are always very welcome!

Here are the logs for this month. Times are UTC.

SWBC Loggings
(All Times Are UTC)

ALBANIA: R. Tirana, 6200//7090 in Greek at 1930-2000, but barely readable (Babbis, MD); 7060 w/EE nx at 0230 (Johnson, AZ); 7065 at 2344 in EE (Rosenbaum, ME); 11985 from 1408 w/nx feature (Gilson, MD); 16230 in CC at 1355 (Lukas, NY).

ANTIGUA: Deutsche Welle relay in EE at 0108 on 6085 to 0149 s/off (Gilbert, GA); Gilson, MD).

ARGENTINA: RAE in EE at 0102 (Neff, OH); 0150 w/ID & address in several languages (Rosenbaum, ME).

R. Rivadavia (bc feeder-- Ed.) on 4588 in SS at 0230 (Ross, ONT).

ASCENSION IS.: BBC Relay on 15400 at 1550 w/"Radio Newsreel" (Russell, AL).

AUSTRALIA: R. Australia, 5995 at 1328-1400 (Neff, OH); .6080 at 1320 w/"Top Hits" (Gilson, MD); 1155 on 7205//9580 (Lukas, NY); 9580 at 1430 in EE to Asia/Pacific (Petrarca, FL); 9655 at 0836 (Russell, AL); 9760 at 0830 in Papua New Guinea service (Johnson, AZ); 15160//15395 at 0705; 17715//17750 at 0220 (Lavallee, S. Korea); 17750//17795 at 0001 (Groner, BC).

ABC Perth, 9610 at 1400, EE nx (Durant, NY); 1320 w/racing results (Gilson, MD).

AUSTRIA: R. Austria Int'l., 6155 at 0130 (Miller, GA); 0848 on 11840 to Australasia in EE (Johnson, AZ); 15320 at 1230 (Gilson, MD).

BELGIUM: BRT in EE at 1630 on 15515 (Lukas, NY); 15590 at 1345 w/science pgm & "Brussels Calling" (Gilson, MD).

BELIZE: R. Belize, 3285 at 0415 in EE w/easy listening mx, ID's (Ross, ONT).

BENIN: ORTB in FF at 2156, & 0540 on 4870 (Russell, AL); Mx & ID in FF at 0635 (Scolese, NY).

BOLIVIA: R. Santa Ana, 4728.8 w/ballads, fanfare & ID at 2330 (Ross, ONT).

BOTSWANA: R. Botswana, 7255 at 0355 w/cows mooing, etc., anthem, times/freqs in Setswana & EE (Babbis, MD).

BRAZIL: Lins Radio Clube, 4225 at 0120, time check at 0131 (Ross, ONT).

R. Guaiba (assumed), 11785 at 2352 w/mx; talk in PP at 0000 (Gilson, MD); At 0206 (Hartley, OH).

R. Nacional Amazonia in PP at 1801 on 15200 (Lukas, NY).

R. Cultura do Para, 0220 on 5045 in PP w/frequent ID's (Stephens, AL).

R. Brazil Central, 4985 at 0455 in PP (Russell, AL).

BULGARIA: R. Sofia, on 6070 in EE at 2237 (Eichenholtz, PA); 7115 at 2130 to the UK & Ireland (Petrarca, FL); These 2 plus 7255 from 0500-0550 in Greek; On 11735//11860 in Greek at 1100 (Babbis, MD).

BURKINA FASO: R. Burkina on 4815 as early as 2148 (Hartley, OH) to as late as 0647 (Scolese, NY) mx, talks, ID's in FF.

CAMEROON: R. Cameroon - Yaounde on 4850 at 0534 w/nx in EE (Johnson, AZ); 0523 w/pop mx (Russell, AL).

R. Bertoua, 4750 in EE & FF at 0540 (Hartley, OH); EE nx at 0533, in FF at 0605 (Russell, AL).

R. Douala, 4795 at 2206 & 0550 in FF; many ID's (Russell, AL).

R. Garoua, 5010 at 2214 in FF (Hartley, OH); 0540 w/nx in EE (Johnsan, AZ).

CANADA: R. Canada Int'l., 5960 at 0840 to the Caribbean (Petrarca, FL); 9755 at 0120 (Yakoshi, PA); 11935 at 1553 w/discussion (Gilson, MD).

N. Quebec Service, 9625//11720 at 1458 w/political feature (Gilson, MD).

R. Japan relay, 6120 in EE at 1145 (Ross, ONT).

CFRX, Toronto, 6070 w/farm pgm at 1307 (Gilson, MD); 1820 & 0817; ID for SW outlet at H+23 (Russell, AL).

CKZN, St. John's at 0958 w/local nx on 6160 (Russell, AL).

CENTRAL AFRICAN REPUBLIC: R. Centrafricaine, 5035 at 0520, many mentions of "Bangui" (Russell, AL); At 2155 (Hartley, OH).

CHILE: R. Sistema Nacional, 15140 at 2325 in SS w/mx & ID's (Durant, NY); 0000 w/world nx in SS (Groner, BC).

CHINA: R. Beijing, "News About China" at 1112 on 9535 (Gilbert, CA).

CPBS, 6665 at 1245 in CC; 5125 at 1220 (Ross, ONT).

CPBS-1 Kunming on 9064, domestic svc in CC at 1630 (Palmer, WA).

COLOMBIA: Caracol Neiva on 4945 at 0908, SS talk & many ID's (Durant, NY); At 0115 (Hartley, OH).

A Colombian sta on 5955 at 0440 w/many ID's, pops, s/off at 0457 as "...la Republicc Colombia" & anthem (Groner, BC). It's La Voz de Centauros, Villavicencio-- Ed.

R. Sutatenza, 5095 in SS at 0112 (Hartley, OH); At 0036 (Eichenholtz, PA).

Armonia del Caqueta, 4915 in SS at 1058 (Russell, AL).

La Voz del Llano, 6115 at 1105 had QRM but definite ID's (Russell, AL).

Ondas del Orteguaza, 4975 in clear w/SS ID's at 1121 (Russell, AL).

COSTA RICA: TIFC Faro del Caribe, 6175 in SS at 1312 (Russell, AL).

R. Reloj, 4832 at 0706, ID's as "Radio Reloj, numero uno en Costa Rica" (Russell, AL).

Abbreviations Used in Listening Post

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

R. Impacto, 6160 at 0550 w/pops & ID's, s/off at 0557 (Groner, BC); 1217 w/mx, SS ID (Durant, NY).

CUBA: R. Havana Cuba, 6060 at 0115 in SS; 6090 at 0150 w/feature; 6140 at 0202; 9550 at 2316 in SS; 9770 at 1424 (Gilson, MD); 9740 in EE at 0200 (Johnson, AZ).

R. Rebelde, 5025 at 1825 in SS (Russell, AL).

CZECHOSLOVAKIA: R. Prague, 5930 at 0107 (Hartley, OH); At 0300 w/EE nx (Johnson, AZ); 11990 at 1400 in Slavic-saunding languages but no ID copied (Northrup, MI); 15110 in EE at 1610 (Ross, ONT).

DENMARK: R. Denmark, 15165 from 1330-1353 s/off in Danish w/EE ID (Eichenhaltz, PA).

DOMINICAN REPUBLIC: R. Discovery, 15045 in EE at 1815 w/ID & rx pgm (Not attributed).

R. Clarin, 11700 at 2313, Latin mx, ads for Banca Nacional Dominicano (Gilbert, CA); At 1448 (Gilson, MD); 0200 w/mx & numerous ID's (Durant, NY).

EAST GERMANY: R. Berlin Int'l., 6125 at 2335 in EE (Neff, OH); 0013 in EE on 15145 (Lukas, NY); 15240 in EE at 1555 to S.E. Asia (Ross, ONT).

ECUADOR: R. Catolica Nacional, 5055 in SS at 0253 (Hartley, OH).

R. Quito on 4920 w/mx, ads & ID in SS at 0200 (Durant, NY).

La Voz del Upano on 5040 in SS at 1125 but few ID's (Russell, AL).

R. Jesus del Gran Poder, 5050 & strong in SS at 1141 (Russell, AL).

R. Rio Amazonas, 4870 w/ID in SS at 1127 (Russell, AL).

HCJB on 6050 in SS at 0115 (Gilson, MD); 6230 at 0650 in EE (Lavallee, S. Korea); In EE at 0230 on 9870 (Hobbs, ONT); In FF at 0003 on 11910; 17790 at 2100 in SS (McDonough, PA); 17890 at 1252 (Gilson, MD).

EGYPT: R. Cairo, 9675 at 0217 in EE; 9900 at 0233 w/"Arabic By Radio" (Johnson, AZ); AA at 1348 on 17675 (Lukas, NY).

ENGLAND: BBC on 5995//6195 at 1348; also 6006//6120//6175//9515 at 2303; 15070 at 1323; 15180 at 1513 in apparent AA; 15400 at 1504 & presumed at 2212 on 11820 (Gilson, MD); 6175 at 2249 (Eichenholtz, PA); 12095 at 1344 (Hartley, OH); 11750 at 1310 (Lavallee, S. Korea).

ETHIOPIA: V. of Revolutionary Ethiopia, nx in EE at 1459 on 9560 (Russell, AL).

FINLAND: R. Finland Int'l., 11945 at 1430 in EE (Hobbs, ONT); 15400 in EE on 1510 (Russell, AL).

FRANCE: R. France Int'l., in SS on 5950 at 0103; 6055 in FF at 0130 (Gilson, MD); 11670 in FF at 1314; 11705 at 1610 in EE; 11965 at 1749 (Neff, OH); 15365 at 1343; 17720 at 2347 (Gilson, MD). Some freqs may be via French Guiana-- Ed.

FRENCH GUIANA: RFI Relay, 9800 w/nx in FF at 0015 (Gilson, MD).

GABON: Africa #1, 4830 in FF w/ute station QRM at 2205 (Palmer, WA); 11940 at 0648 in FF, a sultry YL announcer (Gilbert, CA); 15200 w/pop mx at 1325 (Northrup, MI); To 1650 tune out (Neff, OH); 15475 in FF at 1800 (Lukas, NY).

GHANA: GBC-1 on 3350 in EE & vernaculars at 0546-0613 (Ross, ONT); 0545 on 4915; EE nx at 0600 (Johnson, AZ); At 0708 (Scolese, NY).

GREECE: V. of Greece on 7430//9395//9420 at 0130 & 0340 w/EE nx; On 9905//11645//15630//17565 at 1235 w/EE nx; also at 1540 on 11645//15630//17565; at 1600-1700 on 7170//7395//9395 w/nx in Albanian, Serbo-Croat, Bulgarian & Romanian; EE nx at 1840 on 11615//11645//15630; also at 1920 on 7395//7430//9420 (Babbis, MD).

Radiofonikis Stathmos Makedonis, Thessaloniki, on 9935//11595 w/SW relay of First Program at 1956 w/nx in Greek followed by Greek mx (Babbis, MD).

GUATEMALA: Radio Mam, 4825 at 2355, talk & into full ID & s/off at 2359 (Ross, ONT); Heard at 2330 (Hartley, OH).

AWR/Union Radio, 5980 at 1117, rx mx, time checks (Durant, NY).

TGNA R. Cultural on 3300 at 0441-0500 in SS; ID at 0443; easy listening mx (Witsman, IL); 0350-0405 in EE (Ross, ONT).

HAITI: 4VEH on 4930 at 2154 in SS w/mx, off at 2200 (Durant, NY).

HONDURAS: HRRI Sani Radio, 4755 at 2251, including personal announcements (Eichenholtz, PA); 0022 in SS w/US pops (Durant, NY); 0130-0155 (Neff, OH).

La Voz Evangelica, 4820 w/rx pgm at 0458 (Scolese, NY); 0155-0205 (Neff, OH).

R. Luz y Vida, 3249.5 at 0350-0402 in SS w/ballads, full ID and gonzo at 0402 (Ross, ONT).

HUNGARY: R. Budapest, 9835 to Europe from 2000 opening, in Hungarian (Palmer, WA); At 0209 in EE (Johnson, AZ); 15220 at 1430 in Hungarian (Gilson, MD).

IRELAND: R. Dublin Int'l., 6910 at 0515 w/Top-40 requests, call-ins, jingles. Heard on a portable using a whip antenna! (Stephens, AL).

INDIA: AIR, 9910 at 0050 w/local pop mx 0100 w/ID & nx in EE (Groner, BC); 9910//11620 from 2148-2220 in EE (Eichenholtz, PA); 11620 at 1325 w/mx, no ID heard (Northrup).

IRAN: VOIRI, 9022 in EE at 1945 w/nx, commentary, letters (Durant, NY); in Farsi at 1336 on 15084 (Russell, AL).

ISRAEL: Kol Israel at 0202 on 5885//9435 (Gilson, MD); 7410 w/15 minutes of nx/wx at 0500 (Johnson, AZ); 7465 at 0200 w/nx (Lukas, NY); 0012-0030 in EE (Neff, OH); 9435 at 0130 (Hartley, OH).

Reshet Bet home svc in Hebrew on 7480 at 2217 (Lukas, NY).

ITALY: RAI, 9576 at 0055-0020, EE nx at 0100 (Johnson, AZ).

IVORY COAST: RTV Ivoirienne, 11920 in FF at 2355 (Hartley, OH).

JAPAN: R. Japan (via RCI), 6120 at 0334 in EE (McDonough, PA); via Gabon on 9645 at 2308 in EE (Rosenbaum, ME); 2215 w/DX pgm (Gilson, MD); 15195 at 0208 (Johnson, AZ).

NSB at 0727 on 9595 w/Japanese pops & announcer (Johnson, AZ).

KUWAIT: R. Kuwait, 11695 in EE in EE at 1802, pgm "In the Latin Mood" (Miller, GA); US pops, EE nx from 1822 tune-in (Eichenholtz, PA).

LIBERIA: ELWA, 4760 at 0709, heavy QRM from 4765. Was running EE rx pgms (Russell, AL).

VOA relay on 7280 at 0405, EE nx (Gilbert, CA).

LIBYA: V. of the Arab World at 0222 on 7245, all in AA (Johnson, AZ).

LITHUANIAN SSR: R. Vilnius, 11860 at 2322 in EE, off 2325 (Gilbert, CA).

LUXEMBOURG: R. Luxembourg (tentative) 2205-2303 on 6090 w/pop & rock mx (Carlson MA).

MALI: RTV Malienne on measured 4782.9, in FF at 2247, apparent telephone call-in pgm (Palmer, WA); 4782.8 w/mx, ID in FF at 2348 (Scolese, NY).

MAURITANIA: RTV Mauritania, 4846 at 0719 w/AA mx (Russell, AL).

MONACO: Trans World R., 9495 at 1535 in possible Farsi. Mx box IS at 1543 w/EE ID's & announcement of next pgm to be in Turkish, which ran 1545-1615 (Palmer, WA).

MOROCCO: RTV Marocaine (presumed), 15335 at 1432 w/mideast mx, talks in AA (Gilson, MD); 1202 on 15360 w/AA mx (Russell, AL); 17815 at 1331; 15360 at 1629 (Lukas, NY).

R. Mediterranee, 9575 at 2040 w/ID's for "Medi-1," all FF; nx then rock (Stephens, AL).

NETHERLANDS: R. Netherlands, 9540 to 2125 s/off. "Happy Station" pgm to NA (Eichenholtz, PA); 0128 on 9895 in SS (Johnson, AZ); 15570 at 1629 w/ID, IS, nx (Gilson, MD); 2215 on 17605 in Dutch (Groner, BC).

NETHERLANDS ANTILLES: R. Netherlands relay, 6165//9590 at 0230 in EE (Hobbs, ONT); 9630 at 0830 s/on in EE (Petrarca, FL); 15355 at 2119 to S. America (McDonough, PA).

Trans World R., 9535 at 0350 (Northrup, MI).

NEW ZEALAND: R. New Zealand, 0906 on 9600 w/nx, wx (Johnson, AZ); Presumed this on 9620 at 1248 w/pop mx (Gilson, MD); 15150, ending Maori & into EE nx (Groner, BC).

NICARAGUA: V. of Nicaragua, 6015 in EE at 0140 (Neff, OH); 0238 in SS (Groner, BC).

R. Sandino, 6200 at 0211 in SS, mostly talk (Durant, NY).

NIGERIA: V. of Nigeria, 7255 at 0457 s/on & into EE pgm (Gilbert, CA); 0530 in EE (Durant, NY); At 0800 (Scolese, NY).

R. Nigeria, Kaduna, 4770 at 0550 w/"Morning Beat" pgm in EE (Johnson, AZ); 0532 nx (Russell).

NIGER: RTV Niger in FF at 0546 on 5020 (Russell, AL).

NORTH KOREA: R. Pyongyang, 6100 at 0320, 5976 at 1224 in Korean; also at 1340 in Korean on local freqs 2300//2350//2400//2850//3320//3960 (Lavallee, S. Korea); 9325 in EE at 1702, think beamed to Europe/N. Africa (Palmer, WA); 13650 in SS at 0045 (Groner, BC).

NORTHERN MARIANAS: KYOI on 15190 at 0610; 15405 at 0110 (Lavallee, S. Korea); 15405 at 2250 (Groner, BC).

NORWAY: R. Norway Int'l., 6040 at 0232 in NN (Groner, BC); 9590 ending EE & into NN at 1730 (Johnson, AZ); 15310 at 1600 (Miller, GA).

PAPUA NEW GUINEA: NBC Pt. Moresby at 0812 on 4890 (Johnson, AZ).

PARAGUAY: R. Nacional, 9735 at 2224 in SS w/mx & many ID's (Durant, NY); 0920 (Groner, BC); At 1055 (Gilbert, CA).

PERU: R. San Martin, Tarapoto, 4810 at 0300, ID, Andean mx (Ross, ONT).

R. Sensacion, Huoncabamba, 0121-0245 w/mx, time checks, ID's (Ross, ONT). It's this rather than your tentative ID for R. Selecta-- Ed.

R. San Ignacio, San Ignacio, 5800.4 at 0250 then full ID at 0325, anthem 0327, off 0330 (Ross, ONT).

R. Union, 6115 at 0750. Announcements, mx, ID's (Groner, BC). Station names should be included in logging reports sent in by readers; presume this logging to be R. Union-- Ed.

R. Atlantida, Iquitos, 4790 in SS, time not stated (Russell, AL).

R. Moderna, Celendin, on 4300 w/songs, talk, jingle, ID at 0445, anthem & off 0448 (Ross, ONT).

R. Norandina, Celendin, 4459.7 at 0403-0435 w/Andean mx, talk, ID's, off 0435 (Ross, ONT).

PHILIPPINES: VOA relay, 6110 to SE Asia in EE at 1750 (Palmer, WA).

PORTUGAL: R. Portugal, 0055 on 9680; 0104 on 9740 (Hartley, OH); 15250 in EE at 1732-1800 (Neff, OH).

R. Trans Europe, Sines, w/IBRA RADIO on 9685 from 2000-2015 w/rx pgm in Greek; airs Th-Fr-Sa only (Babbis, MD).

ROMANIA: R. Bucharest, 9690//11940 at 1307 w/nx, commentary (Gilson, MD).

RWANDA: Deutsche Welle relay Kigali, 7225 in EE 0430-0515 (Johnson, AZ).

SAUDI ARABIA: BSKSA in AA at 1343 at 15060 (Russell, AL).

SENEGAL: ORTS, Dakar on 4890 at 0610 (Hartley, OH). Probably in FF-- Ed.

SEYCHELLES: FEBA at 0300 in Farsi on 11865 (Hartley, OH).

SINGAPORE: SBC Radio 1 at 0900 on 11940, EE nx, pop mx (Johnson, AZ).

SOLOMON IS.: SIBC on 9545 at 0705 in EE w/public svc anncts, ads, mx, off at 0800 (Johnson, AZ)

SOUTH AFRICA (REP. OF): Radio RSA on 5980//6010 at 0201 w/nx (Groner, BC); 6008 (nominal 6010-- Ed.) at 0230 (Yakoshi, PA); 6185 at 2350 (Coyle, NY); 0200 w/nx (Yakoshi, PA); 9585 to 2156 s/off (Eichenholtz, PA); ID 1900 & into PP (Gilson, MD); To 2256 s/off (Johnson, AZ); 2300 s/on on 9610 in SS to Latin America (Petrarca, FL); 0222 in EE on 9615 (Johnson, AZ); 1445 on 21590, "Africa Today" at 1500 was //7270//15220 (Petrarca, FL).

SABC/Radio 5, 4880 at 2120-2200 s/off (Russell, AL); 0345 in EE & Afrikaans (Johnson, AZ).

SOUTH KOREA: R. Korea, 9570 at 0820 in EE, off at 0830 (Johnson, AZ); 15575 in EE at 1433 (Russell, AL); 0040 w/Korean lesson (Groner, BC).

SPAIN: Spanish Foreign R., 6125 in EE w/"Panorama" at 0130 (Rosenbaum, ME); 7450 at 0600 in SS, s/on, nx (Johnson, AZ); 9630 at 0100 in EE (Hobbs, ONT); Into SS at 0200 (Gilbert, CA); 17845 at 1323 in SS (Gilson, MD); In SS at 1845 on 17890 (Lukas, NY).

SRI LANKA: SLBC at 1105 on 11835 in EE (Hartley, OH).

SURINAM: R. Surinam Int'l. (via Brazil), 17755 at 1730 in EE, ID at 1738 (Miller, GA).

SWAZILAND: Trans World R., 9550 at 1930 in EE, into FF after ID (Johnson, AZ).

SWEDEN: R. Sweden Int'l., in EE at 2307 on 6045 (Lukas, NY); 9695//15345 at 1409 w/nx, into Swedish at 1430 (Gilson, MD); 11785 at 1700 w/multi-linguol ID, discussion in Swedish (Gilson, MD).

SWITZERLAND: Swiss R. Int'l., 3985 w/European svc at 2213, s/off 2300 (Durant, NY); 2313 in II on 5965, to Europe on 6165 at 2035 (Petrarca, FL); EE on 6190 at 2251 (Eichenholtz, PA); EE nx at 0206 on 9725 (Gilson, MD); 9885 to Australasia at 0838 (Johnson, AZ); 1530 in EE (Gilbert, CA); 1553 on 11935 (Gilson, MD); 12035 at 1857 s/on, in GG (Rosenbaum, ME); 1552 on 15430 in EE (Gilson, MD).

SYRIA: R. Damascus, 7455 in EE at 2109 but RTTY QRM (Johnson, AZ); 12085 in AA at 1353 (Russell, AL); FF at 1909, EE at 2010 tune-in (Palmer, WA).

TAHITI: R. Tahiti, in Tahitian on 15170 at 0055 (Coyle, NY); At 0304 (Johnson, AZ).

TAIWAN: VOFC, 11745 at 0330, on 15345 at 0231 (Lavallee, S. Korea).

TANZANIA: R. Tanzania, 4785 kHz s/on at 0557 (Russell, AL). Did you get a definite ID, Rich? Seems late for Tanzania to s/on. More like Mali for a 0557 s/on-- Ed.

TOGO: RTT Lome, 5047 at 0527 s/on w/chimes then FF/EE & African pops (Johnson, AZ); At 2155 (Hartley, OH).

TURKEY: V. of Turkey, 7215 on 9560 at 0138 in Turkish (Johnson, AZ); in Greek w/poor signal level at 1900 (Babbis, MD); 2318 in EE on 9560.

UKRANIAN SSR: R. Kiev, 2230 on 11790 (Groner, BC); 11860 at 0310 in EE (Johnson, AZ)15180 at 2240 in probable Ukranian (Groner, BC).

UNITED ARAB EMIRATES: UAE Radio on 11955 in EE at 1615 (Eichenholtz, PA); 17865 at 1330 nx in EE (Gilson, MD); 21605 in EE at 1345 (Petraca, FL).

UNITED STATES: KVOH, 17775 w/rx & many ID's, 1700 & 2100 time frames (Witsman, IL; Gilson, MD; Eichenholtz, PA; Neff, OH).

R. Marti, 11930 w/world nx in SS, ID at 2131 (Groner, BC).

WHRI in EE at 1900 on 11705 (Hobbs, ONT); 11770 at 2349 (Gilson, MD).

V. of the OAS, in SS at 2358 on 11830 (Russell, AL); 15160 at 0019, EE ID, address & off 0030 (Durant, NY).

WRNO on 7355 at 0100 (Yakoshi, PA); 9852.5 at 2345 (Hartley, OH); 15470 at 1900 (Hobbs, ONT).

AFRTS, 9700 at 1509 (Neff, OH).

WYFR, 5830 at 1300 (Durant, NY); VOFC relay at 0200 on 5985 (Hobbs, ONT); 9510 at 2154; 9660 at 0030 (Gilson, MD); 11580 at 2100 in SS (Kendall, IN); 9852.5 in FF to 1845 (Petrarca, FL); 11805//11830 at 1555; 11855 at 2355 in SS, presumed 15170 at 1707 (Gilson, MD).

WINB, 15145 at 2320 in PP (Durant, NY).

VOA, 11740 at 0055 (Neff, OH); Greek 1600-1630 on 6040//9735//11925//15195 (Babbis, MD).

KCBI on 11735 at 1917 (Gilson, MD); 1815 w/"Today In Dallas" (Neff, OH).

USSR: R. Moscow on 5915 at 0004 (Gilson, MD); At 0604 (McDonough, PA); 0107 on 6000 (Gilson, MD); 6070 at 0134 (Gilson, MD); 6200 at 2253 (Eichenholtz, PA); 7340 at 2225 (Lukas, NY); 9450 at 0633 (Johnson, AZ); 13790 at 1435-1500 (Neff, OH); 15225 at 1209; 17820 at 1312 (Gilson, MD); African svc on 9470 at 1720 (Palmer, WA).

Radiostansiya Rodina in RR at 1400 on 17880 (Gilson, MD).

VATICAN: Vatican R., 6185 in EE at 0617 (Hartley, OH); 0106 on 9605 (Johnson, AZ); 15100 at 1450 w/nx, s/off 1455 (Gilson, MD).

VENEZUELA: R. Nacional, 5020 in SS at 0045 (Coyle, NY); At 2357 (Eichenholtz, PA); 11695 at 0000 s/on, pgm called "Hoy en Nuestro Historia" (Stephens, AL); 11852 apparent tests around 0218-0359, open carriers, etc., many ID's (Mayo, ME).

R. Capital, Caracas, 4850 at 0830 in SS, US mx (Scolese, NY); 0446 Top-40 (Russell, AL).

R. Mara, Maracaibo, 3275 at 0355, full ID & off 0400 (Ross, ONT).

R. Tachira, San Cristobal, 4830 at 0200, mx & commercials in SS (Gilson, MD).

R. Mundial Bolivar, Ciudad Bolivar, 4770 at 0210, much talk (Durant, NY).

R. Rumbos, Caracas, 4970 at 1312 in SS (Petrarca, FL); 0453 on 4970 (Russell, AL).

WEST GERMANY: Deutsche Welle, 9585 at 1430 in Urdu; 15355 in GG at 2025 (Lukas, NY).

RFE, 11725 at 1910; 11925 at 1842, also feeder on 4465 at 0125 (Lukas, NY). In Slovak at 1538 on 17835 (Durant, NY); 1745 to 1800 close on 17725 (Groner, BC).

R. Liberty, 1836 on 11970; 1335 on 17760. Jammed (Lukas, NY).

YUGOSLAVIA: R. Yugoslavia in Greek at 2130-2145 on 6100//7240//9620 (Babbis, MD); 2215 in EE on 7240 (Durant, NY).

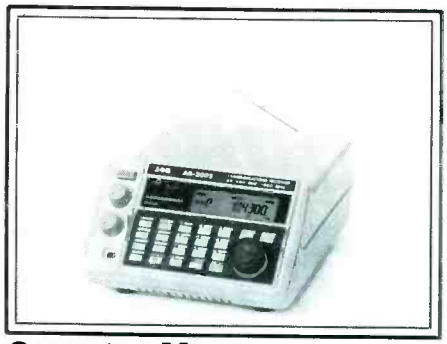
ZAMBIA: ZBS on 4910 at 0416 (Hartley, OH).

A TIP 'O THE HAT TO: Tom Hartley, Chillicothe, OH; George R. Neff, Niles, OH; Stanley Mayo, Westbrook, ME; G. Lavallee, South Korea; John Miller, Thomasville, GA; Terry Petrarca, Ft. Lauderdale, FL; Alexander Durant, Albany, NY; William Rosenbaum, Winthrop, ME; Richard Russell, Hartselle, AL; Joseph Yakoshi, Jr., Springville, PA; Paul Johnson, Phoenix, AZ; Robert S. Ross, London, ONT; Bob Eichenholtz, Coropolis, PA; David Kendall, Huntington, IN; Bruce Gilson, Silver Spring, MD; Mark Northrup, Ann Arbor, MI; Hank Lukas, Plainview, NY; J.D. Stephens, Huntsville, AL; Warren L. Gilbert, Sherman Oaks, CA; Paul Scolese, Amherst, NY; Jim Coyle, Johnson City, NY; Pat McDonough, Pittsburgh, PA; John P. Carlson, Littleton, MA; Karl R. Witsman, Oakwood, IL; Amund Groner, Kamloops, BC; K.J. Hobbs, Hamilton, ONT; John Babbis, Silver Spring, MD and Robert R. Palmer, Spokane, WA.

Until next month, good listening! **PC**

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



Scanning Monitor Receiver

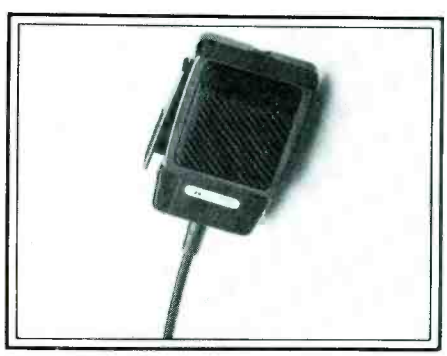
ACE Communications, Inc. has introduced the model AR-2002, a professional grade scanning monitor receiver that offers continuous coverage of 25-550 MHz and 800-1300 MHz.

The AR-2002 utilizes latest microprocessor and circuit technology to offer a multitude of features. These features include a 20-channel memory scan, priority scan, band search, multi-mode reception, conventional dial tuning, selectable frequency increments, bar graph signal strength indicator, and much more.

The AR-2002 incorporates commercial type receiver technology such as 750 MHz receiver IF, high level double balanced mixer, low noise wide band RF amplifier, and a high stable VCO unit to obtain higher performance capabilities.

The user price for the AR-2002 is $455.

Contact ACE Communications, Inc., 22511 Aspan Street, Lake Forest (El Toro), CA 92630-6321; (714) 581-4900; or circle number 105 on the reader service card.



"Power Max" Amplified CB Microphone

Midland International announces the development of Power Max, a powerful new amplified CB microphone. Power Max joins Midland's full line of high-tech portable, mobile and base station CB radios and accessories, and is especially engineered to be used with Midland Models 77-155, 77-202, 77-250.

The Power Max microphone, Model 22-310, is designed to amplify and shape the voice envelope to keep modulation at 100 percent. To do that, it electronically boosts weaker voices and syllables. The result is clean and crisp transmission, increased talk power, and increased range. Suggested retail price is $49.95.

For more information about the Power Max amplified microphone, contact Midland International, Consumer Products Division, 1690 N. Topping, Kansas City, MO 64120, or circle number 101 on the reader service card.

Crystal Mobile Scanner For Smaller Cars

Not everyone needs a programmable scanner to keep on top of the action in the public service bands.

For volunteer fireman, paramedics, policemen and individuals who live in rural areas—where only a handful of active frequencies are in use—a crystal scanner such as the new Regency R806 may be all the scanner they need.

Ideal for home or mobile use, the scanner measures just 1½" H × 5⁹⁄₁₀" W × 6⁷⁄₁₀ D, so it is small enough to fit under the dash or even in the glove box of the tiniest subcompact car.

Yet, despite its tiny size, the scanner covers eight channels and six of the most popular bands, including VHF-Low (30-50 MHz), VHF-Amateur (144-148 MHz), VHF-High (148-174 MHz), UHF-Amateur (440-450 MHz), UHF (450-470 MHz) and UHF-T (470-512 MHz). A separate version of the scanner substitutes the Government Land Mobile Band (406-420 MHz) for UHF-T.

In addition to its full frequency coverage, the scanner includes such sophisticated features as a programmable priority control, dual scan speeds (fast and slow), channel lockout, which skips channels not of current interest, and a scan/manual control for scanning or manually stepping through channels.

All controls are located on an attractively-styled front panel which includes LED channel indicators plus large volume and squelch controls. A top-mounted speaker delivers a full 1.5 watts of crisp, clear audio.

The Regency R806 crystal mobile scanner is designed for mobile or home use, and comes with a mobile mounting bracket, AC power cord, DC power cord and a telescoping antenna.

Additional details are available from Regency scanner suppliers, or by writing directly to Regency Electronics Inc., 7707 Records Street, Indianapolis, IN 46226, or circle reader service number 102.

New Mini Radar Detector

Radio Shack is now selling its smallest and most sophisticated radar detector ever, the Micronta Road Patrol XK® dual-conversion superheterodyne. The unit is so small that it can fit in a shirt pocket. It has the unique False Alert Suppression Technology (FAST™) to guard against annoying false alarms triggered by some other radar detectors.

The Road Patrol XK gives warnings of either X or K band radar with separate tones and LED lights that automatically adjust to day or night driving conditions. The unit can also be set for city or highway travel.

Each device is made by robotics and factory tuned by hand. Before shipment to a Radio Shack store, each is individually tested for accuracy. The Road Patrol XK has a Gallium Arsenide Schottky Diode (GaAs) front end which allows superior detection of low level and pulsed radar systems.

The Road Patrol XK can pick out police radar activity far more quickly than conventional radar detectors, using superheterodyne circuitry which results in superior selectivity and sensitivity.

The Radio Shack detector allows drivers to concentrate on their driving—free of distraction. It's easy to install on the dash or a sunvisor. Power comes from the cigarette lighter outlet. The unit comes complete with a DC power cable with cigarette lighter plug, direct connection power cable, sunvisor clip, hook and loop tape, double-faced tape, wire clip and a soft carrying case.

The Road Patrol XK, (Cat. No. 22-1617), has a suggested retail price of $199.95. Prices apply at Radio Shack Stores and participating dealers. Circle number 103 on the reader service card for more info.

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

Subscriber Carrier

How to Get More Than One Phone Line on a Phone Line

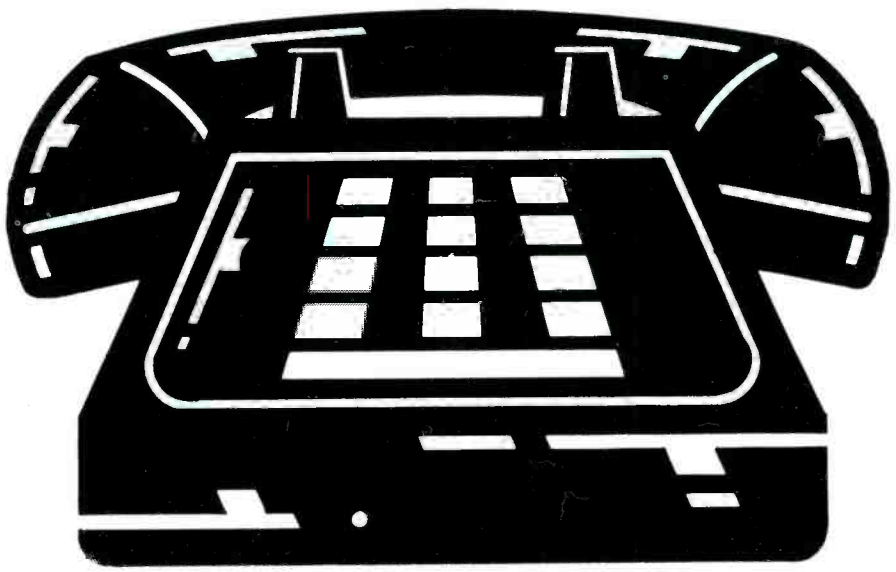
Everyone knows what a phone line is; it is two pieces of copper wire with DC voltage on it. In a majority of cases and in most of the world this is a true statement. Modern long-distance circuits are usually microwave, satellite or fiber optic circuits these days. In the old days even these circuits were copper wire.

Some of the old copper wire long-distance circuits are still in use. They carry only a small part of the ever increasing long-distance traffic, but since they still work, there is no reason to tear them out. Some of these long-distance circuits use large diameter copper wire. Rather than the 22 or 24 gauge wire that is used for a residential circuit to a private residence, some of these long-distance circuits use number two gauge wire. The heavy gauge keeps the losses down as the wire travels hundreds of miles.

When the phone company lays phone cable they try to estimate how many circuits (or "loops" in telephone speak) will be needed, then allow for future expansion. The cost-per-line for the cable itself is not all that high. What costs the money is the labor and equipment needed to dig trenches and splice cables. Having to dig up roads again to add a few more wires is very expensive. If the phone company has guessed right in your neighborhood there should be a "spare pair" so that you may order another phone line and have it installed.

Guessing right is really a polite way of describing gambling and, of course, gamblers don't always win. In fact, most of the time they lose—that's why bookies are rich and gamblers are poor. So, when the phone company loses the "how many lines does this community need" gamble, they have to do something else besides putting the blame on their bad luck.

The old solution to the not-enough-loops problem was the party line. By careful selection of ringer frequencies, wiring of ringers or ringing sequencies, several subscribers could share a loop. The problem with party lines is that only one subscriber can use them at a time. Related to the 'one user at a time' problem is the question of security. Back in the old days being on a party line could be as much fun as listening in to radio telephone calls with the added excitement that the callers were usually known to the eavesdropper rather than being anonymous voices.



There is a solution to the problem of getting more than one phone line off a single pair of copper wires. If a telephone line is considered as a radio transmission line, then radio signals can be sent down that line. As most readers of this magazine are aware, the number of "channels" available depends on how much radio spectrum you want to use. Subscriber carrier uses the "VLF" and "LF" bands. Just as in cellular phones, for full duplex use, a pair of frequencies is used. The frequencies start at about 30 kHz and tend to go up in 15 kHz steps. As these are low level and low frequency signals, there is not much "leakage," but where phone lines travel on poles or by coupling directly onto a phone line, these phone conversations can be copied on a modern communications receiver capable of resolving NBFM and tuning down into the "VLF" and "LF" portions of the spectrum.

How It Works

To add another line by using subscriber carrier, the phone company needs to add a receiver and transmitter at the central office. This is coupled to the phone line that will carry the new line. Also on that pair of copper wires will be the same DC phone line that was always there with all the same signals on it. Now it also has a radio signal on it radiating from the Central Office. At the subscribers site there is a phone line coming to the premises and a receiver and transmitter connected to that line and then leading to the phone equipment. The "subscriber carrier" line can be at the same premises as the "DC" line or it can be down the block.

The receiver at the subscribers end receives the signals from the Central Office and acts upon them. If it is a "ringing signal," it will start up the local ringing generator to ring the phones. It will also detect the audio tones and convert them to baseband audio to be fed to the telephone sets used by the subscriber.

The transmitter at the subscriber's end detects dialing (pulse or tone) and transmits it back to the Central Office. It also modulates the voice signals from the phones. The power for the subscriber carrier receiver and transmitter at the subscriber's end is usually supplied one of two ways. The first way is via a 110V powered battery charger that charges the batteries in the unit. The batteries should supply about eight hours of phone use should the AC power fail. The other way is to steal some DC current from the regular phone line and use this to charge the batteries. These units usually take 1 mA

or so off the phone line. The FCC states that a subscriber may take no more than 5 μA (Micro Amps) from an on hook phone. But, that is the FCC rule for subscribers; it does not apply to phone companies who supply the DC current in the first place.

The average subscriber should be totally unaware that the phone line is subscriber carrier. Under most circumstances, it will behave just like a regular phone line. Sometimes, it can sound better than a regular phone line. When subscriber carrier was first invented, back in the 1950's, it was supposed to be able to handle three rotary dial phones. It will easily handle three phones. Where it gets into trouble is if you add more than three ringers—a regular phone line will handle five ringers.

A regular phone line has an "on hook" voltage of about 48 volts. With subscriber carrier, the "on hook" voltage is 12 volts. This can cause trouble with phone answering machines and modern accessories that sense the line voltage to determine whether a line is in use or not. Some modern phone equipment seeing a voltage below thirty volts or so can refuse to "hang up." If you are having mysterious problems with equipment on a line, measure the on-hook voltage; if it is low, you have subscriber carrier. Rather than make measurements, you can call the phone company business office, they can usually check their records and tell you if you have subscriber carrier on a certain number.

Other Carrier Uses

Besides the use of carrier for subscribers, the phone company also uses it internally for long-distance and inter-office trunking. The other user of carrier, but often for one-way use, is power companies. They have all those wires carrying power, they may as well carry control signals and voice as well.

In some rural areas, the phone company sends carrier phone signals down the power lines. This way a remote farm has only one set of wires coming all the way to the farm house. Obviously, the coupling of phone (radio) signals in and out of power lines is done with great care. Whereas it is possible to listen in to these signals by stringing an antenna under a power line, NEVER, NEVER attempt to couple a communications receiver into a power line unless you really know what you are doing. Getting 220 volts across a receiver may destroy it and give the operator a nasty shock. Receiving the full force of a high tension distribution line could kill the operator and will undoubtedly vaporize the receiver.

Now that you know about subscriber carrier, one of the phone company's secrets, you can deal better with the business office. If you want to put another line in at home to cope with communicating teenagers or an expanding business, you now have an answer. When they tell you that you can't have another line because they have no more "spare pairs," just shoot back: "That's okay, give me the other line on subscriber carrier."

EMERGENCY
COMMUNICATIONS FOR SURVIVAL

BY GORDON WEST, WB6NOA

Loading And Phasing Mobile Whips

Mobile whip antennas are loaded to decrease their height on high frequency and on VHF low band frequencies. Mobile whips are also loaded on high band VHF frequencies and UHF frequencies to create gain. It's important to understand that different loading techniques will dramatically influence the vertical radiation pattern of your mobile antenna set-up.

For low band VHF operation, 1/4-wavelength unloaded whips are common. Here are some of the more popular dimensions:

MHz	Use	Length
27	CB band	9 feet
50	6 meter Ham band	4½ feet
144	2 meter Ham band	18 inches

These 1/4-wavelength loaded whips yield a vertical radiation pattern of approximately 60 degrees. This may put your main radiation lobe a lot higher than where you would like it. One way of bringing the radiation lobe down lower to the horizon for extended range is to add a loading and matching coil and cause the antenna to look like a half-wave radiator or a 5/8-wave radiator.

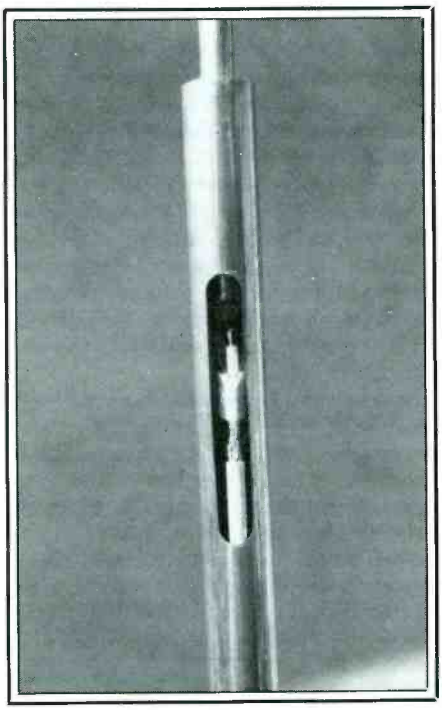
Halfwave antennas are typically a yard long for the VHF low bands, and their angle of radiation is approximately 50 degrees. A halfway antenna is a good performer because the radiation pattern remains fairly uniform as the whip begins to deflect in the wind.

Five-eighths (5/8) loaded whips are also quite common in the VHF service, and the 5/8-wave base-loaded whip offers two main lobes of radiation—one at 65 degrees, and one at 45 degrees. The 5/8-wave antenna is ideal for working repeater stations as well as local mobile stations.

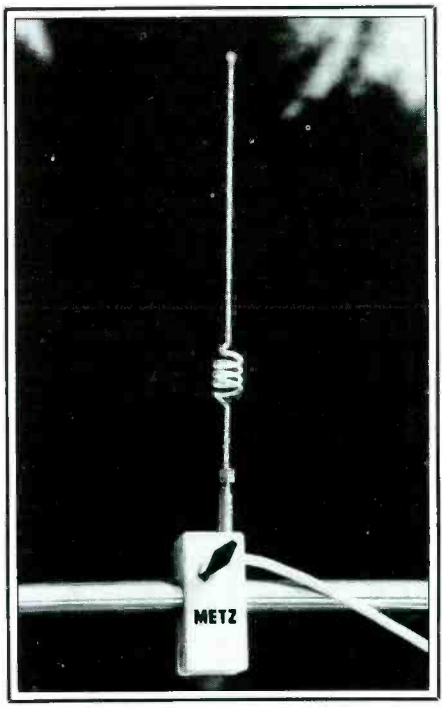
On UHF frequencies, a combination of base and center loading allows the extremely short 1/4-wave antenna to be a much better performer because of its "collinear" design. Collinear stacking may sometimes yield as much as 5 db gain over a conventional stubby, non-loaded spike. The higher the collinear gain, the lower the angle of radiation to the horizon, and the further the range.

The best place to put any base or center-loaded antenna is in the center of your roof. Putting the antenna on your trunk lid will decrease reception slightly. On UHF frequencies, putting your antenna on the trunk lid may dramatically decrease reception.

Co-phasing of two mobile antennas has been very popular with Citizens Band, and may also be used on other radio services.



Inside a collinear array.



Center loaded 800 MHz whip.

Co-phasing involves feeding two identically tuned antennas from a common transmission line and a coax split-section that goes to each antenna. For you engineers, we can determine the field intensity of two co-phased antennas by the following formula:

$$E = K \cos\left(\frac{d\Omega}{2} \cos\theta\right)$$

$$d\Omega = \frac{2\pi\Omega d}{\lambda}$$

d = Separation
θ = Azimuth Angle
K = Normalization Factor

It will take an engineer to compute out these figures to apply co-phasing harnesses for the particular band you wish to operate on. The separation required between two antennas for frequencies below 50 MHz is usually too great to consider for vehicle purposes. While there are CB radio co-phased antennas available, their close separation only yields about 1 dB gain over omnidirectional radiation.

Co-phasing antennas will develop significant gains and nulls in your radiation pattern. This means your mobile installation will be unidirectional—with best reception either front and rear, or if phased in another way, best reception to the sides. This is one of the biggest problems in phasing mobile antennas—as your vehicle goes around the corner, your signal will take some severe dips. Except in specialized cases, phasing of mobile whips is usually impractical. Except for the CB radio service, where have you ever seen two loaded mobile whip antennas co-phased on a vehicle?

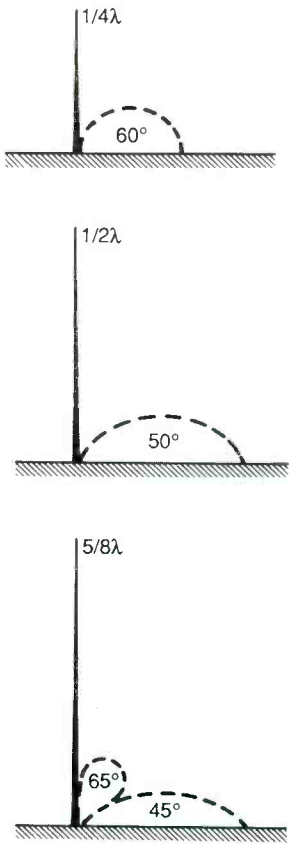
So how do we get more gain out of our mobile installation? First of all, get your mobile VHF scanner antenna or mobile VHF/UHF transmitting antenna up on the top of the roof. Put it in the exact center of the roof for the best symmetrical radiation pattern. Putting the mobile VHF whip to one side of the roof will skew your signal slightly in the direction of the most ground plane.

Next, improve your feed line. At VHF and UHF frequencies, there is considerable loss in RG58U, RG8X, and inexpensive RG8U. The ultimate in low loss coax is the Belden 9913. Unfortunately, this cable is the size of garden hose, and handles exactly like a garden hose at 30°F! I'm running this stuff in my car at 1296 MHz, and I cut my feed line losses in half.

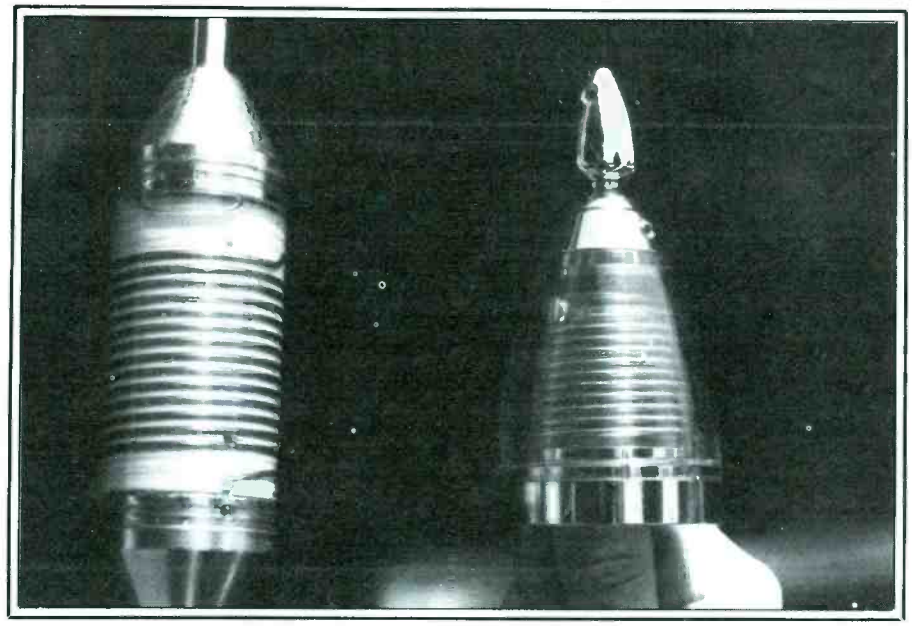
Upgrading your tiny spike to a loaded col-

Basic Radiation Angles of Vertical Antennas (Straight Verticals)

GRAPH 1/UNLOADED



Note: dotted or broken lines indicate maximum radiation. V.J.K.



A clear view of the mobile coil.

linear antenna for the band of frequencies you wish to operate will make the biggest difference in the transmission and reception range on VHF and UHF. These "collinear" antennas are available from most manufacturers, and a high gain antenna may net you as much as 5 or 6 db which equates to a 4 times effective radiated power output increase.

Adding a receiver preamplifier seldom does what some amplifier marketeers indicate. "Signals buried in the noise will pop out loud and clear" is a typical advertising line when suggesting a preamp to your scanner receiver or mobile set-up might help. A preamp out on the open highways may help a little bit, but most preamps in downtown cities will simply create intermodulation interference in your receiver. Some power amplifiers that also have built-in preamplifiers allow you to shut off the preamp when you drive downtown.

The new Gasfet preamps are nice, but in FM work, their gain really can't be appreciated unless you are operating in a more narrow mode, such as single sideband. Gasfets are less susceptible to intermodulation—so that's one small benefit.

To get more range out of your mobile system, go for a longer antenna set-up. Hopefully, it will be a collinear array consisting of a single whip that has been loaded to create gain. Down on low band VHF, go for the tallest whip you can to minimize "negative gain" losses as you load the whip shorter than its electrical ¼-wave length.

Use only high quality coax, keep your antenna in the center of the roof, and hopefully you will enjoy good mobile unit coverage with an outstanding signal at both ends of the radio circuit. PC

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL, W3FQJ

The Discone Revived

What is a discone antenna? It consists of a disc and a cone, Fig. 1. In its purest form, both the disc and the cone are fabricated from sheet metal. The coaxial line is fed up the central area of the cone. The inner conductor connects to the center of the disc; the braid, to the point of the cone. The dimensions shown go back to Kandoian's research conducted prior to 1946. Calculation is based on the lowest frequency of desired operation. A discone antnena maintains a low impedance over a wide span of frequencies that begin at its low cutoff frequency. As a result it will have good pick-up over a great bandwith. A discone designed for a specific low HF or VHF frequency cutoff may have a bandwidth that extends to a frequency 50 or more times higher. The response drops off quickly on the low frequency side of cutoff.

Practical discones can be fabricated from tubing, rods, wire, and even netting such as screening or hardware cloth. By proper choice of lengths, a reasonable bandwidth can be obtained. Also, very simple discones can be designed and element lengths can be chosen to zero in on specific bands that lie within a broad frequency span.

A rod version of the discone is the Diamond D130, Fig. 2, which consists of eight rods that form the disc and eight longer ones that droop away into a cone. The approximate lengths are given in Fig. 3. The transmission line feeds up inside the center tubing to the coaxial fitting mounted just below the center insulator. Bandwidth extends between 25 and 1300 MHz. It is really an all-band scanner antenna with performance at the low end of the VHF band assisted by the base-loaded vertical that screws into the top of the discone.

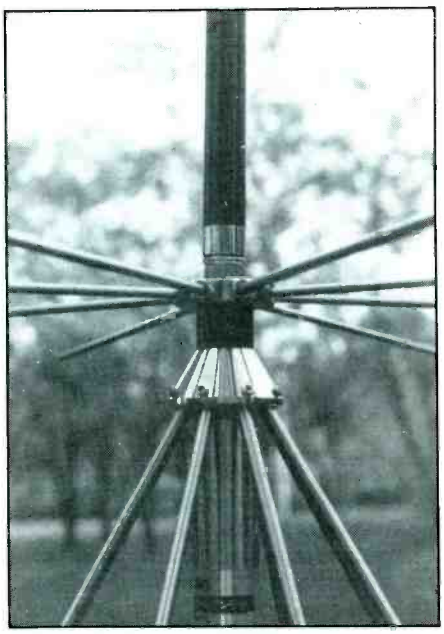


Figure 2: Diamond D130 construction.

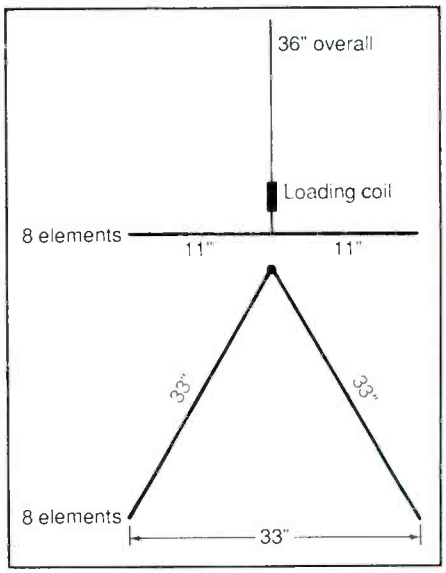


Figure 3: Approximate dimensional plan of D130.

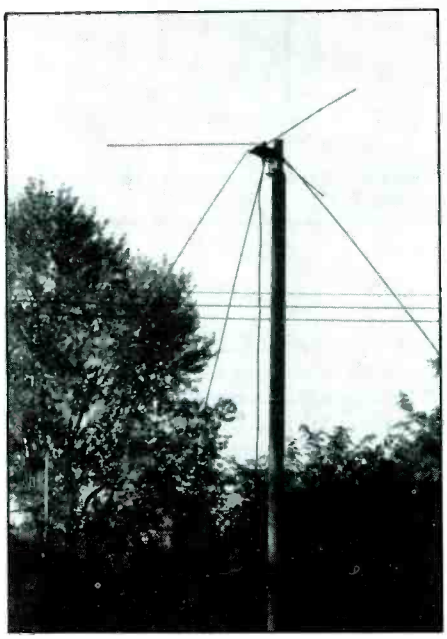


Figure 4: A shot of my Antenna Specialists' MON-64 Discan™.

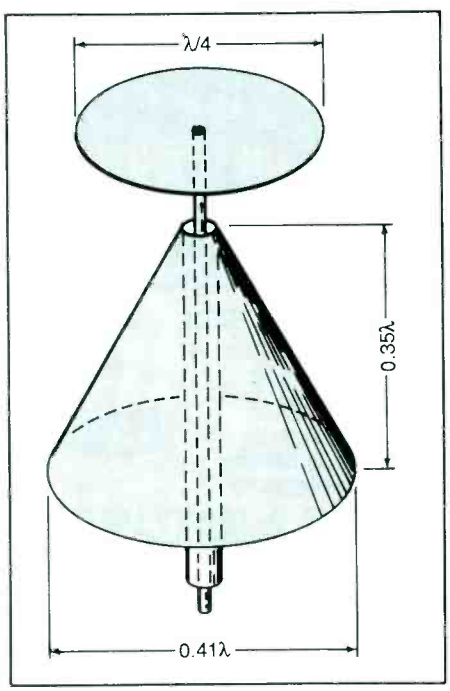


Figure 1: The basic discone.

Receive pick-up is good over the designed range. On its low frequency side, the pick-up remains reasonable on the 11 and 13 SW bands and even the 15 meter Ham band. The Diamond D130 does zero in on the 50, 144, 430 and 904 MHz Amateur bands with an impedance of 50 ohms for matching Ham transmitters.

The Antenna Specialists MON-64, Fig. 4, is inexpensive and is just a mere skeleton of a discone. But with its proper element length, Fig. 5, it does a fine job on the 150, aviation, and 450 bands and is sometimes down slightly on 50 MHz. This latter condition might be a less than uniform omnidirectional pattern on this band associated with the relative positioning of the disc and cone rods. The approximate length of the disc element is 20″; cone element, 45″.

The construction plan of the MON-64 is visible in Fig. 5. The three disc elements fasten to the top and are linked electrically to the inner conductor of the coaxial connector down the center of the short cylindrical insulator. The actual connector is a part of the plate portion of the cone bracket and transmission line connection is made directly beneath the plate. The three cone elements also attach to the plate.

Such discone-derived antennas fasten readily to 1″ ID plastic piping and permit easy attachment to chimney straps, wall mounts, and roof brackets. Good perfor-

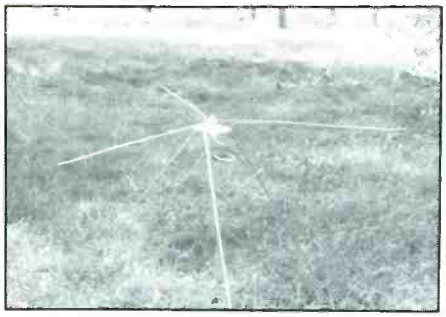


Figure 5: Basic construction of MON-64.

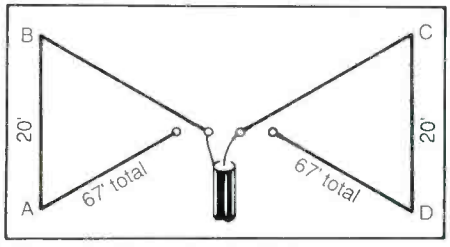


Figure 6: Shawn Axelrod's bow-tie dipole.

mance over a wide bandwidth is their thing. Maybe some homebrew versions of the discone will be forthcoming. Are you interested out there?

Wideband Bow-Tie For Radio Listening

Here is data that a neighbor from Winnepeg, Manitoba sent in early 1986. I had hoped to do a story on folded antennas and include this material. Much time has past and I'm presenting Mr. Shawn Axelrod's details while we are on the subject of wideband antennas. The antenna is a folded one in an open bow-tie configuration, Fig. 6. He has fit it into his 50 ′ lot.

Points A and B are about 20 ′ apart and are tied to the base of the peaked portion of his roof. The opposite points C and D are supported by two 20 ′ masts. The center insulator is a 10″ by 2½″ plastic piece with appropriate holes for supporting the antenna wires. Terminals for the transmission line are mounted at the center and permit attachment of the coaxial line. The two returning ends of wire are tied off individually and do not make any electrical connection. The total length of the wire on each side is about 67 ′, corresponding approximately to a quarter wavelength on 80 meters.

Actually, Shawn is a Ham radio, SWB and BCB listener. His loggings with the antenna follow, beginning with his main interest of Ham radio listening.

Ham: 317 countries and 40 zones with 7 countries on the very low frequency 160 meter band.

SWB: 115 countries (all continents).

BCB: 200 USA, 52 Canada and 10 Mexico stations.

Great, Shawn, and I'm sure you added more during the year past. We thank you for the helpful information. PC

CIRCLE 52 ON READER SERVICE CARD

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

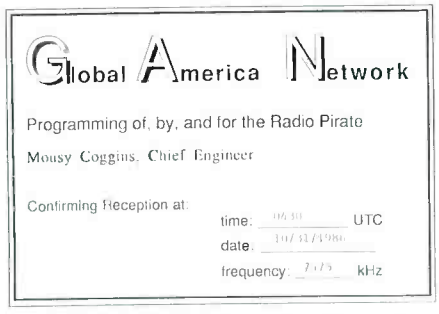
BY EDWARD TEACH

The Canadian pirate **TNFM** was both a popular and a widely heard station before it ceased operatons a few months ago. But is TNFM really finished? Minnesota's Mace Twiggs has been in touch with TNFM owner/operator Alan White who confirms that the orders to close down, which were issued by the Canadian Department of Communications, cited a notice received from an FCC monitoring station as the basis for the action. TNFM didn't receive a visit from Canada's radio police, merely a letter in which the station was told to "cease operations and dispose of and destroy your equipment." White told Twiggs that he is currently seeking a license for a legitimate FM station for Ganges and surrounding Salt Spring Island since there is "no clear FM service" and that for now at least, he has stopped operations on both FM and shortwave. But, White told Twiggs, there is "no way TNFM shortwave is dead." The station can still be reached at Box 1345, Ganges, B.C. V05 1E0, Canada.

Also from Canada, word about **Project 107**, an FM pirate planned for a Fall appearance in Vancouver on 107.3 MHz. Once it gets on, the station will feature an "AOR" format. Project 107 began as CERS (for Canadian Experimental Radio Station) and later became SR-101 (Street Rock FM) in Regina, Saskatchewan, several years ago. This was an extremely limited coverage station. Project 107 is to begin testing in mid-May and then broadcast regularly on Friday and Saturday evenings beginning in late September or early October. Thanks to Allan (A.J.) Taylor for the info.

More details are supplied by **Radio Mauser Worldwide** on their background and operations. Che Guevara is pictured on some of the station's material because the station's transmitter is the same type of unit which was used as an exciter by Che at his first clandestine radio station—at least that's according to what Mauser people spotted in a TV documentary. Radio Mauser's format remains "100% apolitical, full-time rock from the late 1960's." According to the station, 1987 will hopefully bring more frequency broadcasts, possibly including some "mobile transmissions" and an address for reception reports. The staton says "we plan on sticking around awhile!"

Global American Network bills itself as "programming of, by and for the radio pirate." G.A.N. says it broadcasts "with over 60" frequencies in the 49, 41 and 19 meter band to North America, Canada and Africa. Programs are "professionally produced" on studio/broadcast equipment, complete with professionally recorded station jingles. This



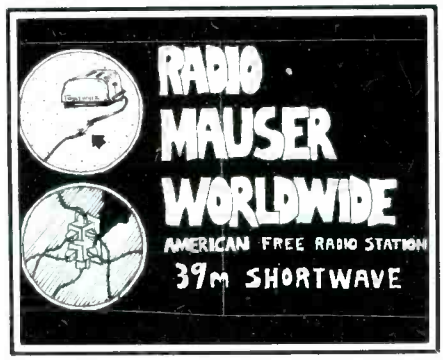
Global America Network QSL card.

station sent me a tape of its Halloween broadcast and I can vouch for the professional sound—hard to tell the difference between it and a commercial radio station!

Other special programs were supposedly broadcast over Christmas and New Years and one is planned for Easter. G.A.N. says it was the first pirate to use compact discs and will be the first to broadcast in stereo on shortwave. Effective radiated power is 1.5 kW and, according to announcements on the tape, the Halloween broadcast was on 7375 and 7475. Station personnel include news director Roger Willoughby, air personality Bob Grady, producer Zingabar Neff and chief engineer, Mousy Coggins.

Zeppelin Radio Worldwide was heard on 30 November by Mace Twiggs in Minnesota at 2310 sign-on on 7434. Program was rock music, contests and the like. Address given as P.O. Box 245, Moorehead, MN 56560.

One-O Radio (a tentative identification) was noted at 0339 on 7438 with contemporary hits and IDs such as "Hello, this is One-O Radio, not WRNO" and "Hello, this is One-O Radio, broadcasting from the swampland." Slickly done according to Mace Twiggs who reports this station.



Radio Mauser says they'll be on the air more often this year.

Canadian Club Radio was heard at 0200-0300 on 7440 by Robert Spivack in MA, who comments that the broadcasts were of excellent technical quality. Also heard by Twiggs at 0433 on the same frequency. Address, as we've reported before: Box 140, 3090 Danforth Ave., Toronto, M1L 1B1.

Radio Deadman heard at 0030 on 7438 with a program including an advertisement for the "DeLorean Snowmobile"—and not the kind of snow one finds on the ski slopes either, according to the way the ad was interpreted by reporter Robert Spivack.

Progressive Music Radio was heard at 0226 on 7440 by Spivack who says he heard no mention of an address for reception reports but would like information on that score.

Shawn Zurbrick, who is an engineer at KOSA-TV in Odessa-Midland, Texas heard a pirate FM'er from 0300 to 0430 on 106.7, in stereo and rebroadcasting local AM station KYXX. Later, however, it had its own programming and was ID'ing as **KROX-FM**, "Odessa's Alternative."

WRNC (Waterloo Radio Network) was noted on CB Channel 23 (27.235 MHz) on 20 December at 0430-0730 by Terry Klodt in Cedar Falls, Iowa. The station, operated by "the singing janitor" aired Christmas music, commentary and prayers.

Radio Clandestine was the first pirate logging for Thomas R. Chandler in Vienna, VA, who heard the station on Christmas Day from 0547 on 7375 with interference from La Voz del CID on 7380.

Christmas Eve brought the first pirate log into the Mike Hemeon shack in Fairfield, CT. He heard the **Voice of Communism** at 2230 on 7526. The statio claimed to be using a 1-kW Collins transmitter fed into a two element beam and gave the Battle Creek, Michigan address (P.O. Box 982, zip 49016) for reports.

Please send me your loggings, observations, illustrations and other pirate news items (and keep the loggings fresh, please). I especially look for those communications directly from the station operators so we can all hear about your plans, programs and activities! Let's hear from all of you free radio broadcasters!

That'll do it for this round but I'll be back with more stuff from the world of pirate broadcasting next month. PC

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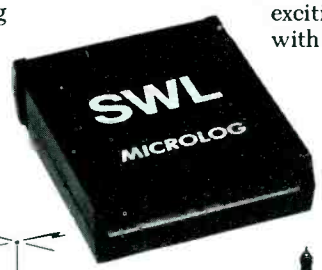

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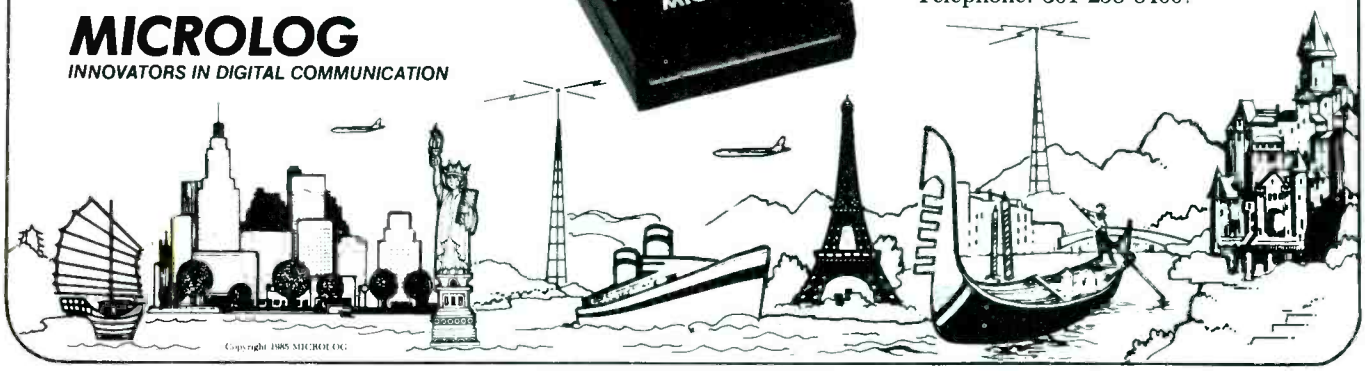

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SCANNER SCENE

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

BY CHUCK GYSI, N2DUP

I'm hearing things on my scanners that, technically, I should not be hearing. No, I'm not circumventing those blasted new scanner laws. Several mountain ranges are supposed to be blocking signals from various directions, but all of a sudden I'm hearing signals from the other sides of these mountains. And it's not skip I'm hearing, either. I'm hearing the signals straight—sucked right into my reciever. That would be one way of describing this new scanner antenna I'm about to tell you about—a signal sucker.

Most of us use the whip on the back of the scanner or maybe a ground plane, discone or even a directional beam for our monitoring. You may have spent anywhere from $20 to $50 for a good scanner antenna. Well, is it true that the more you spend, the better the antenna will be? In the case of the Dressler ara 500 scanner antenna, $170 was well spent. This is an excellent scanner antenna and you'll look hard to find another consumer scanner antenna available on the market that will beat this beauty.

The Dressler ara 500 is an active antenna, a term perhaps more familiar to SWL's. An active antenna is broadband, yet compact and has high gain at the antenna to negate losses in the coaxial cable. Active antennas are popular with SWL's who don't want to put up—or are unable to because of space restrictions—longwire antennas.

The Dressler ara 500 is rated for 50 to 900 MHz. However, I found that this antenna will work in the 30-50 MHz band almost as well as the other bands it is rated for. I've heard low band VHF mobiles in places that I could only imagine hearing before. And, the base stations and repeaters come in loud and clear with no noise on the signal. However, the ara 500 seems to be at its best on VHF high band from 150 to 174 MHz—that portion of the spectrum that seems to be most popular with scanner listeners in general.

To get an idea of how well your scanner could work with the ara 500, imagine that you're aboard a plane, several thousand feet up in the air with a scanner. Most of us know that you're not supposed to operate a scanner on board an airliner because radio receivers may interfere with the sophisticated navigational equipment on board, but just consider such operation for this example. If you turned on a scanner at several thousand feet, you'd most likely be bombarded with signals, especially if you were above the heavily populated areas of the Northeast, the Great Lakes or California. Tuning in one of the paging channels would sound like pure heterodyne—a real mishmash of signals, each competing to be heard.

Well, using the ara 500 with my handheld Regency HX1000 at home, I eventually stumbled across some paging channels and it sounded like I was listening from high up in a plane. The signals were being pulled into my scanner from North, South, East and West. It almost was too much signal to be heard by one receiver. However, while the antenna may make some congested channels seem "fully loaded," rest assured that for most of the listening you'll be doing the antenna will improve your reception greatly. I'm still amazed at how well metro signals are coming in at my rural listening post. The signals are as good as if I had been in those cities with a scanner. I'm also pulling in signals from points afar that I never knew I could receive. It's opening up a whole new world of listening for me, which will certainly keep me from getting bored!

So what is this antenna composed of? What makes it so unusual? Why am I so enthusiastic? Essentially, the antenna itself consists of a fiberglass tube about 19½ inches long and about 3½ inches in diameter. Inside that white, ultraviolet-resistant tube is a printed circuit board that has the antenna "etched" onto it. Also on the board is a two-stage wideband amplifier and an impedance matching network, or balun. The fiberglass housing is waterproof and when mounted vertically on an outdoor mast, the manufacturer claims interference from FM broadcast and TV stations is reduced.

To make all the electronics in the antenna work, you have to plug it in—to power, that is. The antenna comes supplied with about 25 feet of coaxial cable, however, lengths of up to 150 feet can be used with little loss of performance. The cable from the antenna terminates at an interface unit that has a jack for the AC adapter to be plugged in. Unless the AC adapter is plugged in to the interface unit, the antenna doesn't work. Power to the antenna is carried via the coaxial cable. A short cable coming off the interface unit then is plugged into the scanner or receiver.

The manufacturer's brochure states that the ara 500 can come equipped with either PL259 or N-type connectors. The model I reveiwed came equipped with the N connectors. I don't think anybody (hobbyists, that is) in the United States uses N connectors, however, I quickly found out that the N connector fits snugly over the BNC jack on the Regency HX1000 or Regency MX7000 scanners. Without the availability of N-type adapters, I couldn't try the antenna on other VHF/UHF receivers. The antenna itself also has an N-type connector on it, so I guess I'll be looking around for N connectors so as to experiment with this antenna some more.

The cable running from the antenna to the interface unit terminates in a PL259 connector at the interface box, but I found that the antenna wouldn't work properly unless I tugged on the cable at the PL259 connector so that the inside of the connector wasn't pressed against the SO239 connector on the interface unit. Strange, but that's what I found.

For those of you who like numbers, the ara 500 has a noise figure of 1 db to 2 db at 50-300 MHz and a gain of 15 db to 16 db. From 300-500 MHz, the noise figure is 2 db to 3 db and the gain again is 15 db to 16 db;

from 500-650 MHz, 3 db to 4 db noise, 14 db to 15 db gain; and 650-900 MHz, 3 db to 5 db noise and 11 db to 15 db gain. These are impressive figures.

I do need to tell you one thing about my test of this antenna, though. Most of my listening was done with the antenna sitting in a window of my "shack." I compared it side-by-side with other scanner antennas, but there is no comparison. That's the beauty of an active antenna: It can be used either indoors or outdoors. I hope to get this antenna mounted outdoors soon, and I can't wait. If I'm getting reception like I reported here with the antenna inside the house, imagine what I'll hear when I get it up outside and in the clear. Think about it!

If you're interested in trying out the super Dressler ara 500 scanner antenna yourself, it is available for $169.95 plus $4 shipping from Gilfer Shortwave, P.O. Box 239, Park Ridge, NJ 07656.

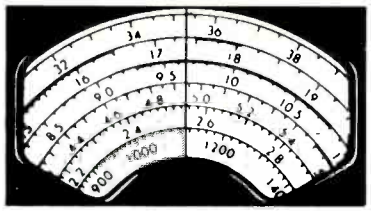
Reader mail

Two columns that appeared in *Scanner Scene* recently have been generating a lot of mail from our loyal readers. Many of you have written in response to the column on tricking scanners to program out of band. We listed tricks that were in the general domain on how to program certain scanners to accept out-of-band frequencies. These tricks for those particular scanners are the only ones we know of. Many of you have written requesting information about how to program a certain model that was not listed in the column. If any of you know of tricks for scanners that were not listed in that column, we'd be happy to hear about them so we can share them with other readers.

Many of you also have written in requesting information on where to buy frequency counters. One recent column told about how you could use a frequency counter to determine the operating frequency of a nearby transmitter. Many different types of counters are on the market in electronics and Ham radio stores and the prices vary. One advertiser in *POP'COMM*'s sister publication, *CQ*, sells pocket size frequency counters. OPTOelectronics Inc. sells one model that covers 1-1200 MHz for $137.50 and one model that covers up to 1300 MHz (mainly for Hams who operate in the 1260-300 MHz band) for $150. The 1200 MHz model is also available in kit form for $99.95. All units come equipped with Nicad batteries and adapter/battery chargers. For more information on these units, you can call the firm at (800) 327-5912, or write to them at: OPTOelectronics Inc., 5821 N.E. 14th Ave., Fort Lauderdale, FL 33334.

You, too

We'd like to hear form you. If you have a question (or an answer), a photo or a frequency, a list or a tip, we'd like you to write to us here at *POP'COMM*. Our address is: Chuck Gysi, N2DUP, Scanner Scene, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801-2909. PC



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

I am often asked for an address of a contributor because another individual wishes to contact him or her. I am very sorry but I am unable to be a middleman in helping folks get in touch with one another. One suggestion I made previously was to purchase a copy of the *DX'ers Directory*, available from Universal Shortwave. Another possibility would be to place an ad in the "Communications Shop" section of *POP'COMM*. Some of you may not be aware that *POP'COMM* subscribers may place one free 30-word non-commercial classified ad in the magazine once per year.

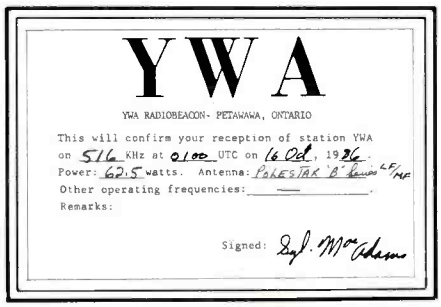
Here is what such an ad might look like:

> J. Bartok, England (Sept. '86 Utility column) wishes to exchange info re: gypsy music signals. Roland T. Pop, GPO Box 5177, NSW 2001 Sydney, Australia.

The instructions for submission of ad copy appear on the first page of the "Communications Shop" section. This method could be one solution to the problem of contacting fellow SWL'ers.

The flight of the Voyager captured the interest of many SWL'ers. As you may recall, this was the unrefueled, non-stop trip around the world by Jeana Yeager and Dick Rutan. *POP'COMM* readers who covered some part of this historic achievement are listed in Table 1. Our thanks to all these folks for sharing the monitored HF communications with our readers.

Hank Rogers, PA wrote saying "I just received a new Kenwood R-2000 which is a giant step forward from the stone-age receiver I had been using." Hank sent along a copy of a PFC from a radiobeacon station (shown in this month's column) and included the address: Tacan/Telecom Maintenance, Canadian Forces Base Petawawa, Petawawa Ontario, K8H 2X3.



YWA

YWA RADIOBEACON- PETAWAWA, ONTARIO

This will confirm your reception of station YWA on 516 KHz at 0100 UTC on 16 Oct, 1986.
Power: 62.5 watts. Antenna: PALESTAR B Loop LF/MF
Other operating frequencies: ——
Remarks:

Signed: Sgt. McAdam

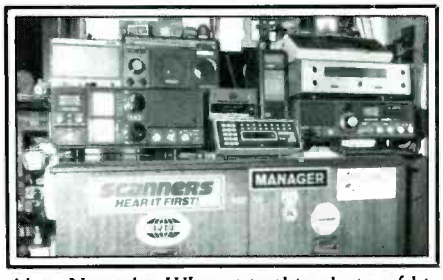
From Hank Rogers, PA, a PFC from a radiobeacon station in Petawawa, Ontario.

Patrick O'Connor, NH sent in loggings accompanied by a batch of QSL copies including one which he describes as follows: "The letter is the the reply received for a report on Air Force Two. Since it doesn't say 'No,' and in fact seems to be a real verification that I did hear them, I'm accepting it as a legitimate QSL for that logging."

In response to my query, Robert Homuth, AZ advises some information regarding the loop antenna he uses for intercepting beacon signals.

"My antenna is a wooden loop antenna that is much like the broadcast band antenna featured in "Broadcast Topix" in *POP'COMM* (See April & May 1985 issues). Double the variable capacity, and the resonant frequency will drop by a factor of 1.4. Double the number of coil turns, and the resonant frequency will also drop by a factor of 1.4. If you can't find a double or triple-gang variable capacitor, just use a standard 365 pf single-gang capacitor with 220-1000 pf fixed capacitor in parallel."

Here is a picture of your Ute editor's monitoring position at column preparation time.



Alvin Nowicki, WI sent in this photo of his neat looking equipment layout. His installation consists of a Bearcat Weather Alert, Bearcat 250, JIL SX200, Bearcat 100XL, Radio Shack DX200, Radio Shack TRC 490, Cobra PF-1, and Sony ICF-6500W.

Robert, I know I speak for all those asking for low frequency antenna information when I say many, many thanks.

James Brooks, KY forwarded a note saying "I previously wrote and asked you a mil-

Table 1

Freq	Voyager Location	Monitor	Freq	Voyager Location	Monitor
6550	Mission Control to Voyager I aircraft as it flew off the west coast of Baja, CA on its nonstop round the world flight.	Kim Martinson, AZ	13312	Note: Switched to 8822 as Voyager reports 13312 had negative effect on the autopilot.	Patrick O'Connor, NH
8822	East coast of Africa, approaching Lake Victoria, at altitude of 7000 feet.	Jon Lawson, NY	6550	Reported could see the coast of Baja, CA. Instruments show 795 miles to go and 10 hours flying time.	Alvin Nowicki, WI
8822	Northern tip of South America	Robert Edler, RI	8822/ 6550	Baja, California	Kevin Shelton, KS
8822	Over Central America	Patrick O'Connor, NH	8822	California	Semour, MO

lion questions about ute listening in general. I wanted to report back to you that I found all my answers in the two books, *Guide to Utility Stations* by Klingenfuss, and *Confidential Frequency List* by Ferrell. I use both books constantly."

Charles Nevel, PA sends news about WKM, West Haven, CT. "The station was broken into, the operator on watch was beaten, some equipment was damaged and some stolen. Unable to get operators, I understand they all quit, the station has been closed. One of the owners has returned to sailing as a seagoing radio officer."

Dave Finley, NM offered some additional information on the Soviet Mir spacecraft.

Your report from Dallas Williams on Soviet satellite reception in the December issue sent me back to a familiar frequency. Soviet spacecraft have transmitted on 19.953 MHz for several years and, after reading your column, I fired up the receiver and soon heard a very familiar sound.

Mr. Williams suggests that this beacon is on the Soviet Mir spacecraft, and he is probably right. Mir, by the way, is the Soviet manned space station, not a military monitoring platform. This frequency was used for manned space-station beacons for several years and I have numerous loggings from the older Salyut stations during 1982 and 1983. Technically, the beacons (at least in past years) were not aboard the space station proper but aboard smaller, unmanned craft sent up to resupply the station and then left attached.

The present signal sounds identical to the older ones, a series of alternating tones (FSK) with intermittent telemetry "dumps" sounding similar to very rapid touch-tone dialing. Doppler shift of the frequency is evident during a pass. Signal strength is quite good, as is evidenced by the fact that, having recently moved to Albuquerque, I haven't yet erected a real antenna but received the spacecraft using a convenient steel window frame as an antenna.

During the very early stages of manned Soyuz flights to their space stations, the Soviets also have used 20.008 MHz for air-to-ground comms.

Thank you Dave, we appreciate the explanation.

I receive many requests for the breakout of ship callsigns but unfortunately I do not hold the ITU List V "List of Ship Stations" nor do I have the ITU List VII "Alphabetical

Table 2

Freq	Callsign	Remarks	Mode	Time
8241.5	GYZU	Position report to Portishead Rdo, England by ACT 2.	USB	0724
	HO2267	Panama-flag container ship Gerard Patrick Purcell calls NMN USCG Portsmouth, VA.	USB	1703
8278.7	ELDV6	Merkur Delta, Liberian Dry Cargo, P/P to Bremen via DAK Norddeich, GFR.	USB	0518
8383	ELBB5	New Deal, Liberian tanker enroute to Mexico.	CW	1438
8386.5	WRGL	Valley Forge w/AMVER to NMN.	CW	1913
	Y4CM	Lichtenhagen, GDR Fish Carrier enroute to Rostok, GDR.	CW	0016
8392	JMGN	Caribbean Maru, Japanese ship sends Telex to IAR Rome, Italy.	CW	1950
12348.6	CLCK	Orankpais, Cuban ship with P/P via OSU Oostende, Belgium.	USB	1836
12564.2	A8WX	Southern Cross, Liberian vehicle carrier.	CW	1848
12577	VRFV	Malahat, a wood chip carrier from Hong Kong sends Telex to Hong Kong.	CW	2352
12597.5	D5NK	Bocha, Liberian dry cargo ship clg XDA Mexico City, Mexico.	CW	1433
12617	AQEL	Chittagong City, Pakistani cargo ship, Telex to Bangladesh.	CW	1744
12700	ELCF4	Oak Pearl, Liberian bulk carrier receiving Telex from HPP Panama.	CW	2115
16553	SZUX	Heritage, Greek cargo ship with P/P to Athens via WOO.	USB	1710
16720.5	9VNJ	Marilyn O., Singaporean cargo ship clg 9VG Singapore.	CW	0023
16724	9VLA	Poseidon Breeze, Singaporean cargo vessel clg WCC.	CW	1608
16727	8LAX	Matsushima Maru, Japanese cargo ship clg NMC.	CW	0008
16729.7	3EWK2	Isokaze, Panamanian tanker clg JDC, JCT, JCU.	CW	0030
	8KLX	Tensho Maru, Japanese cargo ship clg for QSS 777.	CW	0035
16765	GBWY	Lord Curzon, British bulk carrier wkg HLJ Seoul, South Korea.	CW	2329
16773.2	H2VE	Seaspeed, Cypriot cargo ship w/Telex to Greece.	CW	1815
16776	ELDF9	Santa Cruz, Liberian General cargo ship w/AMVER to ??	CW	2008
	WJBC	Overseas Ohio, US tanker with position report.	CW	2008
16779	HCZR	Esmeraldas, Ecuadorean tanker, AMVER to NMN.	CW	2027
	BOTL	Chinese cargo ship sailing from Ghent, Belgium to Cuba.	CW	2015
	H9TI	Universal Frontier, Panamanian tanker reporting rough seas & ETA Balboa.	CW	2001
16788.4	3ENG	Camena, Panamanian fishing vessel clg WCC.	CW	2200
16802	EHXJ	Castillo de Javier, Spanish cement carrier w/Telexes.	CW	1848
	YUFG	Vojvodina, Yugoslav cargo ship carrying copper, w/Telex to IAR Rome, Italy.	CW	1726

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 60TH MILITARY AIRLIFT WING (MAC)
ANDREWS AIR FORCE BASE DC 20331

18 Nov 86

Mr Patrick O'Connor

Dear Mr O'Connor

Thank you for the recent feed back on the quality of the transmissions you received. Unfortunately, in accordance with current regulations, we are not in a position to provide the information you requested.

We look forward to sharing the airways with you in the future, however, and wish you all the best.

Sincerely

JAMES E. STIEBER, Major, USAF
Executive Officer

Patrick O'Connor, NH says this is a real verification even though the USAF could not "provide the information requested."

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Sector Field Office, 866J
GPO Section
San Juan, PR 00936

January 13, 1986

Mr. Robert C. Homuth

Dear Mr. Homuth:

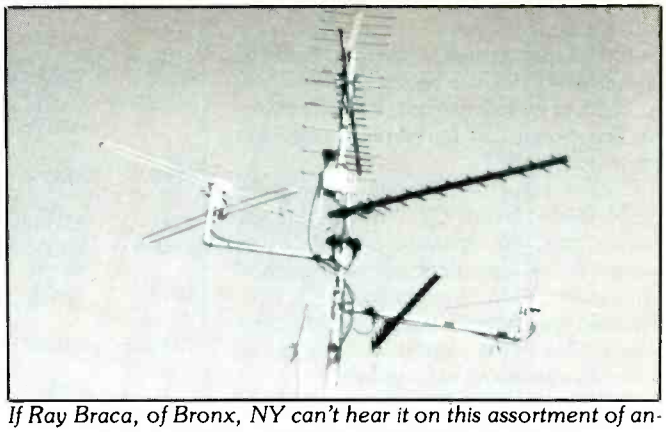
We received your inquiry and request for confirmation on radiobeacon "DDP," at Dorado, Puerto Rico. We are pleased to confirm your logging of this station. Your confirmation card is attached. Thank you for your interest in radio promulgation and time to comment on our facility. These are the types of correspondence that we like to receive and the technician that maintains the facility will be notified of your reception.

Sincerely,

Winfred A. Belue
Manager, Puerto Rico Sector Field

Copy of a radiobeacon QSL received by Robert C. Homuth, AZ.

From "Down Under" (Australia), we received this photo of Roland T. Pop in front of his equipment.



If Ray Braca, of Bronx, NY can't hear it on this assortment of antennas, then the station probably isn't on the air!

List of Callsigns of Stations Used by the Maritime Mobile Service" so I am unable to respond to but a fraction of such requests. However we are fortunate in knowing Bob Margolis, the *POP'COMM* RTTY editor, who frequently supplies me with batches of excellent loggings with callsign identification of these workings. Bob recently sent in another packet of ship ID's which appear in Table 2. Thanks again Bob, your contributions are always appreciated.

An anonymous contributor reports that, while on a trip to Florida, he heard 5L cipher activity that has been reported in the column in the past. This station always sends APR 85 after the date/time group in the headings of the messages. A typical heading is: -R-030300Z APR 85-GR 100-UNCLAS (text). Each element in the heading is repeated twice. The initial transmission was heard on 5619.3 on CW at 0423. Six minutes later on 5869.2, while the monitor was in the vicinity of Sugarloaf Key, Florida, a signal with very wide sidebands was heard: "Perhaps from the Naval installation in Key West or the restricted federal antenna farm on the Saddlebunch Keys between markers 16 and 15." At 0434, Mr. Anonymous reports he heard the same transmission which had been previously heard on 5619.3 at 0423.

David Bush, OH has pointed out the similarity between some languages, adding that you must listen carefully to avoid mistaking one for the other. Tables 3 and 4 show the charts he so thoughtfully prepared.

Peter X from England has been doing some Fax work according to a letter just received and he said he recently copied ORI5O Brussels, Belgium on 10727 with

Translation:

Steve Yekich,

Dear Steve,

At present 2 soviet amateur radio satellites "RS-5 and "RS-7" are functioning. Their basic parameters are as follows:

Orbit:circular,altitude - about 1700km,inclination -82,9°
period of revolution:about 120 min.

Technical data of the radio installation aboard the satellite:

Telemetering signals from the RS-5 are received on frequency 29451 KHz,reception bandwidth:29410;29450 KHz.Telemetering signals from the RS-7 are received on frequency 29502KHz,reception bandwidth:29460; 29500; KHz.The RS-5 transmission bandwidth:145910; 145950 KHz.The RS-7 transmission bandwidth:145960; 146000 KHz.

There is an automatic responder aboard the satellite to respond to signals from the Earth.Frequency of reception:29431 KHz; frequency of transmission: 145862 KHz.

With best regards,

N.KAZANSKY
Vice-President of the RSF of the USSR

-17-

ФЕДЕРАЦИЯ РАДИОСПОРТА СССР

ЧЛЕН МЕЖДУНАРОДНОГО РАДИОЛЮБИТЕЛЬСКОГО СОЮЗА (ИАРУ)

Radio Sport Federation of the U.S.S.R.
Affiliated to the I.A.R.U.

Адрес: СССР, г. Москва, почтовый ящик № 88
Address: Post office Box 88 Moscow, U.S.S.R.

Телефон: / Telephone: 491-86-61

№ 7/1784 31 октября 1986 г.

Стив Йекич

Дорогой Стив!

В настоящее время в космосе функционируют два советских радиолюбительских спутника РС-5 и РС-7. Основные данные:

Орбита круговая, высота около 1700 км, угол наклона - 82,9°, период обращения около 120 мин.

Технические характеристики бортового радиотехнического комплекса:

Прием сигналов телеметрии РС-5 на частоте 29451 кГц, полоса приема 29410÷ 29450 кГц; РС-7 на частоте - 29502, полоса приема - 29460÷29500 кГц; полоса передачи РС-5 - 145910 ÷ 145950 кГц РС-7 - 145960 ÷ 146000 кГц.

На спутнике установлен автоматический ответчик, который по запросу с Земли даст ответ. Частота приема - 29431 кГц, частота передачи - 145862 кГц.

С уважением

Н.Казанский
Вице-президент РСФСР СССР

A copy of a QSL in a Russian version and a English version were sent in by Steve Yekich, NY.

A copy of a QSL in a Russian and an English version were sent in by Steve Yekich, NY.

Table 3

Czech	#	Russian
jeden	1	adin
dve	2	dva
tri	3	tri
ctyri	4	chetirye
pet	5	pyat
sest	6	shest
sedm	7	syem
osm	8	vosem
devet	9	dyevyat
nula	0	nul

Freq	Schedule	Day
6639	2200	Sat
6675	2200	Tue
6675	2230	Wed, Thu
6675	2300	Mon
8067	2300	Wed

The Czech language broadcasts start with drum and trumpet military type music. After playing the music for about 5 minutes the female announcer commences the text of 5F groups. The Czech transmissions are reportedly originating in Vratislawice, Czechoslovakia.

Table 4

German	#	Yiddish
eins	1	ein
zwei	2	tsvei
drei	3	drei
vier	4	fier
funf	5	finef
sechs	6	seks
sieben	7	sibben
acht	8	acht
neun	9	nein
null	0	nul

Freq	Schedule	Day
6997	0300	Sat, Mon
7378	0200	Sun, Tue

The Yiddish transmissions are 5F groups announced by a male operator and commence with double beeps, then Gruppen (group count) and each group of the text is repeated twice.

pictures of racing cars; 3SD Beijing, China on 12827.3 with WX map; and CFH Halifax, NS, Canada on 13508.7 with WX map. He also passed along some addresses he noted on verifications he received from the indicated stations:

Grengel Meteo	Funksendestelle DHJ51, Box 902500/507, D-5000 Koeln 90, Federal Republic of Germany.
ADN News Agency (Y2V)	ADN, Technical Department, Mollstrasse 1, DDR-1026 Berlin.
CFH, Halifax	Naval Radio Station Newport Corner, Ellershouse Post Office, Hants County, Nova Scotia, Canada, B0N 1L0.

Abbreviations Used For Intercepts

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

Intercepts
(All Times Are UTC)

236: Beacon OW, Ottawa, Ont., at 0338 (Pat O'Connor, NH).

287: Beacon SMR, Santa Marta, Colombia at 0515 (O'Connor, NH).

294: Beacon ZIP, Zipaquira, Colombia at 0507 (O'Connor, NH).

300: Beacon SFM, San Francisco de Macrios, Dominican Republic at 0437 (O'Connor, NH).

311: Beacon TBG, Panama City, Panama at 0453. The ADXR's publication, "DX Reporter," observed that there seem to be 2 xmtrs using this freq w/the backup xmtr ID'ing as TKG (O'Connor, NH).

319: Beacon LEC, Stavanger/Varhaug (Stavanger/Sola), Norway at 2145 (Peter X, England).

320: Beacon W, Cape San Blas Lighthouse, FL at 0449 (O'Connor, NH).

322.5: Beacon BTN, un-ID at 2150 (Peter X, England). My references show BTN on 669.5 kHz & located at Barton, England-- Ed.

331.5: Beacon WAL, Wallasey (Liverpool), England; time not reported (Peter X, England).

333: Beacon SFD, San Fernando de Apure, Venezuela, at 0422 (O'Connor, NH).

335: Beacon CCI, un-ID, at 0058 (Rosenbaum, ME)

342: Beacon Y, Gallantry Head Lighthouse, St. Pierre & Miquelon Islands, time not given (O'Connor, NH).

366: Beacon AU, Augusta (State-Dunns), ME, time not given (Rosenbaum, ME). Also beacon YMW, Maniwaki, PQ at 0415 (Rogers, PA).

396: Beacon ZBB, Bimini, Bahamas at 0440 (Rogers, PA).

399: Beacon RL, Waterville (R. LaFleur-Bracy), ME, no time given (Rosenbaum, ME).

400: Beacon HIV, Santo Domingo, Dominican Republic at 0418 (O'Connor, NH).

417: Beacon HHG, Huntington, IN at 0431; a new beacon recently started (O'Connor, NH).

426: Beacon FTP, Ft. Payne, AL at 0435 (O'Connor, NH).

500: VFN, Montreal, PQ Canadian CG at 2342 working ship station SYYD (O'Connor, NH).

516: Beacon YWA, Petawawa, Ont., at 0100 (Rogers, PA).

522: Beacon VVV NAAO at 0230. This is probably the USCG Icebreaker GLACIER (WAGB-4) operating a nav beacon for helo landing on its deck or adjacent (Homuth, AZ).

1672: GKR1, Wick, England in CW at 0425 w/call marker & tones (O'Connor, NH).

2182: TFA, Reykjavik, Iceland in USB at 2143 to an un-ID ship. Also WI7523, fishing vessel PROVIDER at 2357 calling Mayday & working USCG Woods Hole, MA re fire in engine room (O'Connor, NH).

2670: NMY, USCG New York Harbor w/list of missing buoys, nav lights out, etc., at 0028 (in USB (Brooks, KY). NMN, USCG, Portsmouth, VA w/notices to mariners at 0443; YL at NMC, USCG San Francisco, CA w/bulletin re missing 27-ft. boat (Homuth, AZ).

3167.2: Beacon P, un-ID in CW at 0341 (Tom Kneitel, NY).

3170: OLB5, Prague Time Station, Czechoslovakia in CW at 0501 (J.M., KY); At 0325 w/time pips (Kneitel, NY).

3392.8: 75T/TT repeating in CW at 0441; the T's are "cut" 0's (Kneitel, NY).

4013: GBCF, luxury cruise liner PACIFIC PRINCESS at 0424 in USB running patches thru KMI. This ship is used in filming the TV series "The Love Boat" (O'Connor, NH).

4035: YL/SS in AM-mode with 3/5F gps starting w/"Atencion, Atencion." After this station went off, could hear an OM/SS talking to an unheard party. Intercepted 0600-0610 (Fernandez, MA).

4232: HWN, French mil at Houilles, France

w/VVV marker, listed as 2 kW, good sigs (Homuth, AZ).

4245: UFN, Novorossiysk, USSR in CW w/call marker at 0452 (Kneitel, NY).

4251: PPJ, Juncao, Brazil, 1 kW w/VVV marker, time not given (Homuth, AZ).

4332: JCK, Kobe, Japan in CW at 1436 calling CQ; RTTY QRM (Hall, WA).

4428.7: WOM, Miami High Seas Operator, FL in USB w/patch at 0330 to the vessel NORWAY. Called this freq for emergency assist to contact USCG Miami. WOM didn't reply until the ship mentioned the emergency. The CG finally was raised on this freq (simplex) & then switched to 4081.6 kHz (Brooks, KY). Also here, NMN, USCG at Portsmouth, VA w/urgent info bc re vessel SHA-HAIR-EH-ZAHD reported disabled & beset by severe wx at 37.45N, 68.45W. This was followed by comms with NDCK, USCG SANIBEL re rescue attempts (Seymour, MO).

4525: Y3S, Nauen Time Station, GDR, w/time pips at 0412 (Kneitel, NY).

4950: "Show Me" Net (MO National Guard) on USB at 1400. Net Control was Show Me Alfa at Jefferson City; also heard Show Me Alfa #'s 15 (at Sedalia), 18 (Jefferson Barracks), 19 (Joplin) 21 (Maryville), 23 (Lebanon), 24 (Hannibal), 26 (W. Plains), 29 (Dexter), 36 (Marshall), 41 (Sikeston), 42 (Chillicothe), and 43 (alternate NCS, Richmond). Heard from Bowen, IL when floods on Missouri & Mississippi Rivers (A. Nonymous, MO).

5026: Pep Rally to Stiletto in USB at 1628 on SAC's Foxtrot freq (J.M., KY).

5091: EE/YL in AM at 0339 w/phonetic gps (Bush, OH). According to Kneitel's Guide To Embassy & Espionage Communications book, this is probably the Israeli Mossad "RCH" xmsn on 5087 kHz-- Ed.

5168: 5L gps w/an "X" in each group, no ID or location, in CW at 0255 (Vendetti, NJ).

5196: Appears to be a short xmsn in cut #'s: 64 BVDUNA, heard 1240-1245; then from 1245-1250 was 4D TTBNBB, in CW (Margolis, IL).

5203: Whooping tones consisting of 8 separate nates lasting 4 seconds. Tones higher w/each note, then Mike Oscar Bravo calling Alfa Juliet Echo asking for radio check on Charlie 3 (Channel 3). (Vendetti, NJ).

5264: Cut #'s in CW at 0039-0040. Sent U4NE E4TV 44TD 6TWD (Vendetti. NJ).

5514: CNH, un-ID station (Morocco allocation) calling ZRP6 in CW at 0340 (Kneitel, NY).

5620: YL/EE with 5F gps in AM-mode at 0649. Each group repeated twice. Messages

5658: Air traffic control comms in USB; (British Airways) Speedbird 55 wkg Kano, Nigeria at 0049; Speedbird 66 working Cairo & Khartoum; Cathay Pacific 281 wkg Bahrain at 0055; aircraft OK-510 wkg Bombay at 2130 (Peter X, England).

5691.8: OM/EE in USB at 0130 asking for permission to enter "alligator playground" & to verify "Nuco Xray Juliette Un-Nuco" (Rogers, PA).

5696: USCG rescue helo #2109 wkg USCG Miami w/patch in SSB at 0618 re Haitian vessel taking on water. At 0702 situation stabilized & received help from SEWARD EXPLORER. Few mins later the helo reported receiving distress call from vessel RHONDA LEE taking on water w/inop bilge pumps but not in danger of immediate nature. Comms shifted to 156.8 MHz as vessel had 1 hr fuel left (Halstead, WV).

6428: VHP2/3/4/5/6 Royal Australian Navy at Canberra, Australia in CW w/channel marker followed by VIX2/3/4/5/6 Master Control Station Canberra w/ID & wx (Hall, WA).

6506.4: USCG Guam to USCGC CAPE GEORGE (duplex 8195 kHz) at 1025; USCG Kodiak w/tsunami warning at 1508, at 0906 to USCGC FINCH, at 1042 to CG New Orleans re RTTY tfc (Neely, OK).

6506.4: USCG Comsta, Barrigada, Guam w/Pacific storm warnings; NOX, USCG at Adak, AK to S3H in duplex (S3H on 6200 kHz) at 1547 (Hall, WA).

6577: Various airliners to NY ATC w/position reports in USB, 1530 (Simon, NY).

6630: CW station sending V's then 1 QRK UDK R QRK 3 QSA 3 QRN 3, faded out then sentUP TUNT NNA OT AAWDMA T AR OOFAOOF A MNA MWN R MRW TO WNUH OONF, then repeated the msg NUANRD RPT OONUH OONUM WRNNUANRD. Really poor CW note, very coooky sounding, no cryllic characters used. (Hall, WA). Looks like cut #'s to me-- Ed.

6675: Short drum & trumpet marching tune repeating at 2357, then into YL/GG w/5F gps at 0005 (Rogers, PA).

6708: YL/GG in AM at 0304 with 3/2F gps, 996 repeated X3, then 035 85 53 announced til 0305 (Bush, OH).

6738: MAC-70023 in USB w.patch to Letterman (wx forecaster at Hickam AFB, HI) at 0856. Aircraft over Midway Isl. (Halstead, WV).

6868: Machine sent semi-slow CW 5L gps at 0213 w/cut #'s A D G I M N R T U W. Ends 1 part then sends AGT TT AGT TT AGT TT BT BT BT then starts over again (Hall, WA). Similar to intercept on 3392.8 kHz?-- Ed.

7039: USB activity at 0215-- and wild! OM/SS & YL/SS activity in frantic confusion. OM shouting "dos dos dos" (2 2 2), then "seis seis seis (6 6 6), the YL almost in tears from another xmtr saying "por favor por favor commandande" (please please commander). About 3 or 4 separate xmtrs all going at once & sounding like one of those "ambush" tapes from Nam. Al the time on the same freq someone sending in CW "ZGD ZGD" while an MCW station drones out "RG RG." Meahwhile much whistling into mikes, total chaos. At 0225, they all move down 9 kHz to 7030 kHz as if on cue (Hall, WA). Looks like 40 Meters is starting to sound like 75 Meters!-- Ed.

7445: YL/EE in AM-mode at 0019 repeating Kilo Delta Alfa 2 (Bush, OH). This is Mossad's KPA & KPO channel-- Ed.

7530: YL/GG in AM at 2330 w/5F gps, off at 2347 (Simon, NY).

7605: YL/EE in AM at 0216 with Victor Lima Bravo 2 (Bush, OH). It's Mossad on 7606 kHz-- Ed.

8052//8117.5: French Telecommunication Network, at 0504 with YL/EE/FF testing from Paris for circuit adjustment purposes, USB & sounding like the old "voice mirror" xmsns that were so common in the 1950's (Kneitel, NY).

8101: WAR46, the FEMA VIP site at Ft. Richie, MD) to Piecework in USB at 2003 on SAC Alfa Papa freq. Also mentioned freqs Foxtrot 640 & Foxtrot 914 (J.M., KY).

8130: Metro 5 calling Whiskey 7 & Tango 44. ID's in EE but phonetics announced by SS/OM; tfc entirely in SS. USB at 0158 (Vendetti, NJ).

8189: TBO2, Turkish Navrad, Ismir, Turkey in CW at 2022 w/VVV marker (O'Connor, NH).

8190: Mike Mike Johnny calling Mike Johnny 4 in USB at 0204, SS/OM w/heavy accent calling in EE. Possible Central American mil net (Vendetti)

8241.5: GLXH, HMS INTREPID (RN Assault Ship L-11) at 1833 w/patches thru GKU46 (O'Connor, NH).

8248: AAI Corporation, Baltimore, MD to battleship USS IOWA in USB at 1545 re problems w/installation of Pioneer RPV aboard. Also heard stations Microwave, Webster & Pioneer Base re sked test flite of RPV to be used for fire-spotting the IOWA's 16" guns (J.M., KY).

8386.5: IBUV, Italian vessel Cielo Di Livorno to IQX on CW at 0646 w/tfc (Halstead, WV).

8523.4: JOR, Nagasaki, Japan in CW calling CQ at 2330 (O'Connor, NH).

8532: LZW42, Varna, Bulgaria in CW at 1103 w/tfc list (W.H., Austria).

8825: Colombian Air Force 1201 at 1729 in USB w/position & flite status report to Santa Maria (Azores) Aeradio (O'Connor, NH).

8846: Aircraft ID'ing as United Oscar 235 wkg NY on USB at 0624. This is a USSR callsign allocation. Aircraft advised was over Grann at 0605 & estimating Owski at 0633 (northbound track toward Bermuda). (Halstead, WV).

8967: XPH, USAF Thule Air Base, Greenland at 2051 w/coded tfc (O'Connor, NH).

8970: Possible outbander net at 0715, lots of foul language & talk about fishing (Neely, OK). Most likely fishing boat captains-- Ed.

8992.5: FUV, French Navy, Jibuti, Djibouti

in CW at 2015 w/VVV marker (Kneitel, NY).

8997: Aircraft XD06 to Christchurch, New Zealand in USB at 0551. Gave estimates for McMurdo, Antarctica. Carrying mail. Good sigs from aircraft & the ground sta (Halstead, WV).

9014: Century 64 wkg Raymond 24 (Tinker AFB, OK) in USB at 2101 vio Scott AFB (A. Nonymous, MO-- heard while in IL).

9322: Beacon X in CW at 1243 (Kneitel, NY).

9565: Jammer LK, presumed Soviet, at 1247 (Kneitel, NY).

10200: Passible law enforcement net in England, LSB at 1600. YL talking to OM re inquest in death of subject in vehicle & coroner's ID. Sounded like a 'phone patch (Vendetti, NJ).

10216: Beacon U in CW at 1300 (Kneitel, NY).

10227: Un-ID sta to Fireside in USB w/ref to Deckhand at 1803 (J.M., KY).

10570: Beacon K in CW at 1159 (Margolis, IL).

10582: FPK58, PTT Paris, France in LSB at 0650 w/FF comms (Margolis, IL).

10655: YL/GG in AM-mode at 1904 with 3/2F gps. Announces 416 1-0 till 1910; 10 rapid beeps or tones, Gruppen 156 (X2) then into groups (Bush, OH).

11176: Spar 76 (Aircraft of 89th Mil Airlift Wing - VIP) wkg Croughton RAF Base, England on SSB w/patch to Goose Bay MAC Ops (Halstead, WV).

11179: Navy Lima Quebec 566 in USB at 1633 wkg MacDill AFB, FL w/patch to NAS Brunswick, GA re seafood order! (Symington, OH).

11238: YL/GG in AM at 2107 w/5F gps. Sent 902 1-0 till 2110, 10 fast tones, Gruppen 122 (X2) & into groups (Bush, OH). "Gruppen" followed by numerals isn't a station ID, it is the number of groups contained in the text of the message to follow-- Ed.

11448: KNY37, GDR embassy, Washington, DC in CW w/VVV & QRA marker at 1328 (Margolis, IL).

11618: YL/GG in AM-mode at 1305 w/5F gps, mx box chimes till 1305 then into groups. "Achtung" at 1307 then into groups; another "Achtung" then more groups, each group being repeated X2. At 1400 more mx box chimes (Bush, OH).

12138: YL/GG in AM at 1406 w/5F gps. msg began "167" (Bush, OH).

12429.2: KRFV, the M/V AMBASSADOR in USB at 2308 to WPE w/position & status report (Symington, OH).

12432.3: WXZ232, Burnum Marine Shipping in USB at 2038 to M/V OCEAN BREEZE for position/ERA (Symington, OH).

13011.5: AQP, Karachi Naval R., Pakistan in CW at 1205 w/CQ marker (W.H., Austria).

13058.4: TEC, Costa Rican allocation, in CW at 1613 w/CQ (Vendetti, NJ).

13063: JDB, Nagasaki, Japan in CW at 1155 w/CQ marker (W.H., Austria).

13086.5: A9M, Manama, Bahrein in CW at 2100 w/ID marker (W.H., Austria).

13236: Echo Control in USB at 1910 was the Net Control in anti-air intruder defense exercise w/stas X10, A3Y vectored onto incoming targets. Heavy CW QRM from maritime markers of WCC, HWN, WLO, etc. (Hall, WA).

13440: Carbeam wkg Carnation in USB at 1718 (Margolis, IL).

13532: YL/EE in AM-mode at 1904 repeating Xray Zulu India 2, off abruptly at 1905 (Bush, OH). Apparent Mossad xmsn-- Ed.

13871.3: Un-ID sta in CW at 1524 w/5F gps, cut 0's as T's (Margolis, IL).

13890: PTT Paris as on 8052 kHz, USB at 1323 (Kneitel, NY).

14405.1: 7L1 in CW at 1441 w/VVV marker (Margolis, IL).

14435: OM/SS USB net at 2105, probably net control working SS mil-types w/much talk re "Operaciones manana" & "el jefe, commandante" plus lots of talk about cartas numeros (Hall, WA).

14686: Atlas wkg Panther in USB anti-smuggler net at 2102. Net seems to shut down shortly after this hour (Hall, WA).

14751: CLP1, MFA Havana, Cuba calling CLP33, embacuba in Addis Ababa, Ethiopia. Time not given, CW mode (Hall, WA).

16628: Rapid flute-like tones, 1703 (Rogers, PA).

16911.5: JNA, Japanese Maritime Safety Agency, Tokyo, calling CQ in CW at 0439 (O'Connor, NH).

16942.9: YUR, Rijeka, Yugoslavia in CW at 1518 w/VVV marker (Kneitel, NY).

17008: KLB, Seattle, WA calling CQ in CW at 1908 (Vendetti, NJ).

17008.5: TAH, Istanbul, Turkey in CW w/VVV marker (O'Connor, NH).

22386.3: JCT, Chashi, Japan calling CQ in CW at 0309 (Bledsoe, AK).

22473.5: VIS42, Sydney, Australia in CW w/VVV at 0143 (Bledsoe, AK).

22525.1: JFA, Matsudo, Japan calling CQ in CW at 0144 (Bledsoe, AK).

PC

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

Getting verifications from the Voice of Unity, formerly known as the Voice of the United Muslem Fighters of Afghanistan or the Voice of the Afghan Mujahidin has, more often than not, met with failure instead of success. For several years the station has announced an address of P.O. Box 261, 1061 Vienna, Austria. Reports sent to that address, however, are usually bounced right back by the Austrian post office. The occasional report that does slip through has resulted in a QSL card from the Voice of Unity. Act Two: a new address was announced by the station but reports to this address also came back—for a different reason. Monitors apparently transcribed the address incorrectly. Now it seems that things have been corrected and the accurate address is believed to be P.O. Box 2605, D-2000 Hamburg 50, Federal Republic of Germany. It's too early to know yet whether this address will work for QSL's. If you need to log this station it is scheduled from 1530 sign-on to variable 1625 sign-off on 9027, 9795, 11490 (probably best) and 15685.

Another station which has been nearly impossible to QSL has been the Voice of the Libyan People, the station of the National Front for the Salvation of Libya, simply because no address could be found. Some months ago this group took out a full-page ad in at least one European newspaper and included a mailing address of 323 South Franklin, Box A-246, Chicago, IL 60606-7093. That address is almost certainly one of those firms that, for a fee, can supply you with a Chicago address. Just the same, a reception report sent to that address was verified with a prepared card, signed and duly stamped with the National Front's rubber stamp. The card was mailed from the Northern Virginia Mail Sorting Center near Washington, DC. The Voice of the Libyan People is scheduled from 0400 to 0700 and 1600 to 1800 on 11975 and 1900 to 2100 on 15195. The transmitter is believed to be located in Iraq.

Reception of any broadcasts—clandestine or otherwise—in the vicinity of 4975 is normally blocked by the extremely strong utility station on that frequency (which never seems to go off the air.) During late December, and into January at least, 4975 has been free enough of the QRM to allow reception of the 0330 sign-on of La Voz Resistencia do Galo Negro (The Voice of the Resistance of the Black Cockerel) which is the official station of UNITA, the main Angolan opposition group which is conducting a war in the southern part of the country. If the frequency is still free of QRM, give this a try. The station signs on with the sound of a cock crowing followed by an apparent anthem and then music and talk in Portuguese. A nice QSL for this station was received from the UNITA office—the Free Angola Information Service, 1850 K Street, Suite 370, Washington, DC 20006-2202.

Radio Freedom, the quasi-clandestine program of the African National Congress which opposes the government of South Africa, is carried on a number of medium and shortwave stations in Africa. But many of the broadcast times and frequencies are such that the program cannot be heard well at all in this country. That may have changed. Wisconsin DX'er Sheryl Paszkiewicz noted the Radio Freedom program being carried by Gabon's Africa Number One, ending at 1935 on a Saturday on 15475. We've checked this daily but have not heard the broadcast; apparently it is a Saturday only airing. If so, the starting time is probably around 1905, after the station's English language newscast at 1900.

Another clandestine program being noted lately is Radio Halgan, the anti-Somalia program of the Somali opposition which is aired over the Ethiopian government's Voice of Revolutionary Ethiopia. It's been heard by East Coast DX'er Bob Hill on 9590 from around 1745 (after Radio Norway leaves the frequency) to sign-off at about 1755. That seems to be what we are hearing as well. This station has verified reports sent to: P.O. Box 1686, Addis Ababa, Ethiopia.

RECEPTIONS: La Voz del Cuba Independiente y Democratica was heard on 6305 in Spanish at 0845 with ID and news about Angola, (Paul Scolese, NY). On 9940 with songs in English and Spanish, IDs as "CID" and Radio Cienfuegos. Heard 1602-1630. Also via Radio Clarin in the

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RADIO FREEDOM

Voice of the African National Congress and Umkhonto We Sizwe, The People's Army

Radio Lusaka

Shortwave 31mb, 9505 KHz	7.00 p.m. Daily 10.15-10.45 p.m. Wednesday 9.30-10.00 p.m. Thursday 10.15-10.45 p.m. Friday
Shortwave 25mb, 11880 KHz	8.00-8.45 a.m. Sunday

Radio Luanda

Shortwave 31mb, 9535 KHz and 25mb	7.30 p.m. Monday-Saturday 8.30 p.m. Sunday

Radio Madagascar

Shortwave 49mb, 6135 KHz	7.00-9.00 p.m. Monday-Saturday 7.00-8.00 Sunday

Radio Ethiopia

Shortwave 31mb, 9595 KHz	9.30-10.00 p.m. Daily

Radio Tanzania

Shortwave 31mb, 9750 KHz	8.15 p.m. Monday, Wednesday, Friday 6.15 a.m. Tuesday, Thursday, Saturday

The above are South African times

Dominican Republic on 11700 from 1909 tune-in, (George Neff, OH).

Radio Caiman, 7470, in Spanish at 0147 with music and ID, (Scolese, NY). At 0020 with Latin music, IDs, (Warren Gilbert, CA). 0130 with American rock, ID about every 15 minutes, (J.D. Stephens, AL).

Radio Quince de Septiembre, 5950 at 0525 with powerhouse signal. Excellent modulation. Sounded like an international broadcaster. Could these improvements be the result of rumored CIA involvement? (J.D. Stephens). (CIA connection now out in the open and, yes, cash probably bought them some good equipment—Editor.)

La Voz de la UNO, 5890 at 0302-0307 in Spanish, (Eddie Hauge, NY). (Presume it was this station you heard rather than Quince, although UNO does relay Quince at times—Editor.)

Radio Free Surinam, 9940 at 2240 in Dutch, via La Voz del CID transmitter, (J.D. Stephens, AL).

Radio Venceremos or the "clone" at 1232 on 6552, man with talks in Spanish, (David Bush, OH).

That takes us to the bottom of the page. Again, we request your informational help with your loggings as well as copies of any news clippings, magazine articles or other info you may run across which have direct or indirect relevance to clandestine radio. Every little bit helps. This tidbit or that may add up to an important clue. PC

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- **MU-1** DCL modem unit
- **VS-1** voice synthesizer
- **PG-2N** extra DC cable
- **PG-3B** DC line noise filter
- **MB-10** extra mobile bracket
- **CD-10** call sign display
- **PS-430** DC power supply
- **MC-60A/MC-80/MC-85** desk mics.
- **MC-48B** extra DTMF mic. with UP/DOWN switch
- **MC-43S** UP/DOWN mic.
- **MC-55** (8 pin) mobile mic. with time-out timer
- **SP-40** compact mobile speaker
- **SP-50B** mobile speaker
- **SW-200B** SWR/power meter
- **SW-100B** compact SWR/power meter

Complete service manuals are available for all Trio-Kenwood transceivers and most accessories.
Specifications and prices are subject to change without notice or obligation.

TH-31BT/31A

Kenwood's advanced technology brings you a new standard in pocket/handheld transceivers!

- 1 watt high, 150 mW low
- Super compact and lightweight (about 8 oz. with PB-21!)
- Frequency range 220-224.995 MHz in 5-kHz steps
- BT Series has built-in tone
- Repeater offset:—1.6 MHz, reverse, simplex
- **Supplied accessories:** rubber flex antenna, earphone, wall charger, 180 mAH NiCd battery and wrist strap
- Quick change, locking battery case

TH-31BT/31A optional accessories:

- **HMC-1** headset with VOX
- **SMC-30** speaker microphone
- **PB-21** NiCd 180 mAH battery
- **PB-21H** NiCd 500 mAH battery
- **DC-21** DC-DC converter for mobile use
- **BT-2** manganese/alkaline battery case
- **EB-2** external C manganese/alkaline battery case
- **SC-8/8T** soft cases with belt hook
- **TU-6** programmable sub-tone unit
- **AJ-3** thread-loc to BNC female adapter
- **BC-6** 2-pack quick charger
- **BC-2** wall charger for PB-21H
- **RA-9A** StubbyDuk antenna
- **BH-3** belt hook

TH-31BT with DTMF pad shown. Optional RA-9A attached.

KENWOOD

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CIRCLE 77 ON READER SERVICE CARD