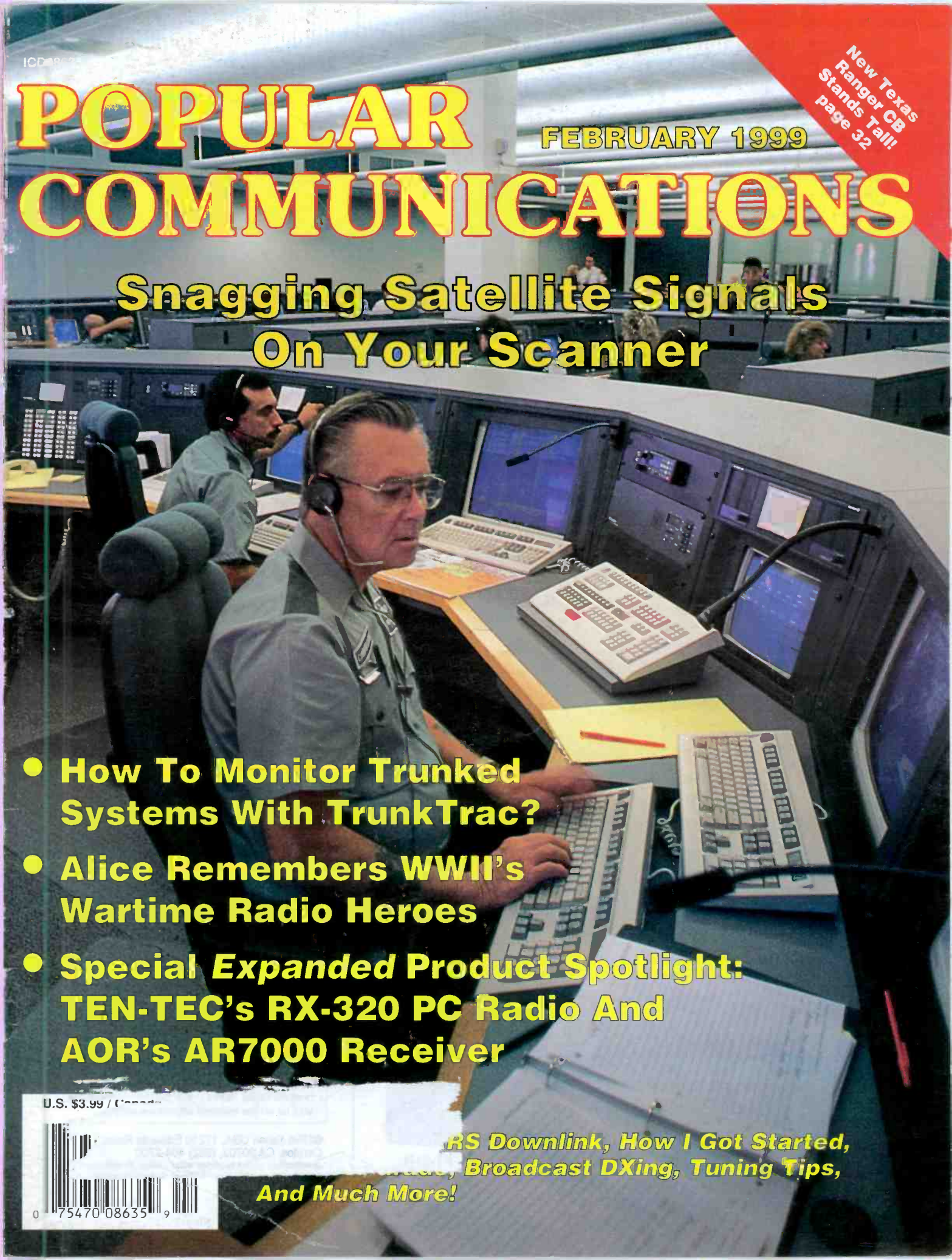
POPULAR COMMUNICATIONS
FEBRUARY 1999
New Texas Ranger CB Stands Tall! page 32
Snagging Satellite Signals On Your Scanner
• How To Monitor Trunked Systems With TrunkTrac?
• Alice Remembers WWII's Wartime Radio Heroes
• Special Expanded Product Spotlight: TEN-TEC's RX-320 PC Radio And AOR's AR7000 Receiver
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FEBRUARY 1999 VOLUME 17, NUMBER 6

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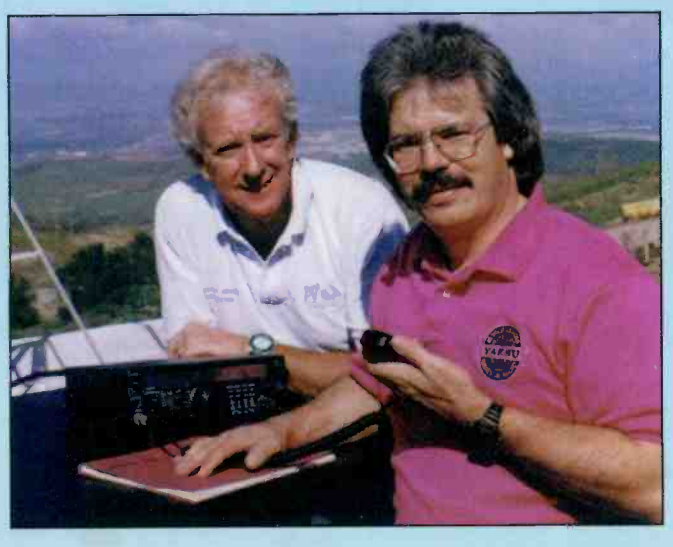

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COLUMNS

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DEPARTMENTS

ON THE COVER: *Here's a look at Hillsborough County Sheriff's Radio Dispatch Center in Tampa. If your city or state police have gone to a trunked system, be sure to read Ken Reiss' "ScanTech" this month on page 24. (Photo by Larry Mulvehill)*

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Tuning In

BY JOCK ELLIOTT SSB-734

AN EDITORIAL

Pop'Comm *Readers Speak Out*

Editor's Note: This month we're giving Jock Elliott the "Tuning In" pen as he updates us on his Class-A FRS proposal that he presented in June.

OK, I'll admit it. I'm amazed. In the October issue, in an editorial titled "Personal Communications for You and Me?" I put forward the proposition that there isn't a single personal communications tool that offers reliability and networkability and that's readily accessible to the ordinary person to handle family business.

Among the possible solutions I suggested was my concept for a yet-to-be-created "Class-A Family Radio Service." The service would take the 14 channels of the Family Radio Service, allow 5 watts power on seven of the channels, permit external mobile and base antennas and would allow, for the purposes of getting help, access to the GMRS repeater pair that gives priority to emergencies and traveler's assistance. To discourage abuse and hellraisers, the service would require registration of the radios at the point of purchase and would incorporate a unique digital-burst ID into each transmitter.

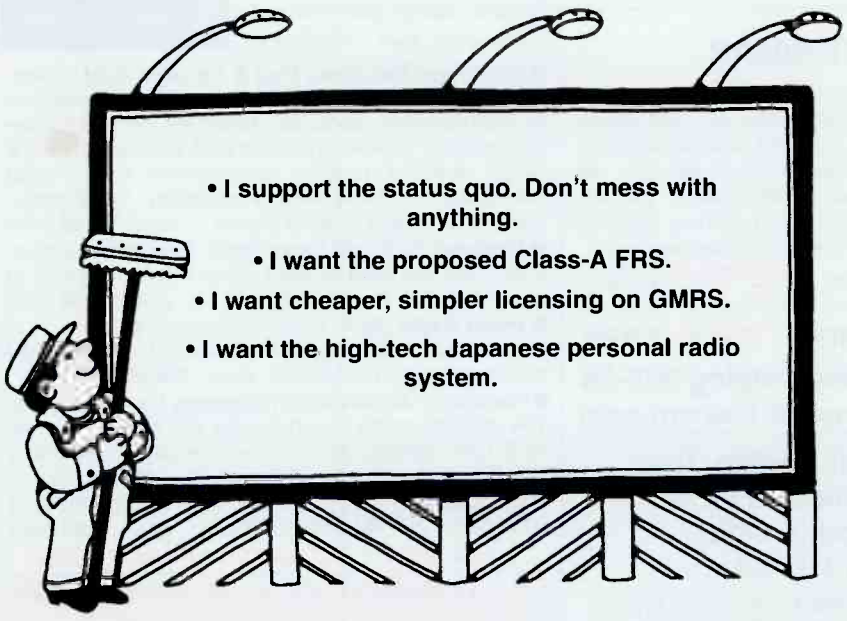
Then I asked readers to respond by choosing among the following items:

- I support the status quo. Don't mess with anything.
- I want the proposed Class-A FRS.
- I want cheaper, simpler licensing on GMRS.
- I want the high-tech Japanese personal radio system (which had been described in the editorial).

I'm deeply gratified by what happened next. Frankly, I expected to get *some* response, but certainly not what arrived. There were a total of 74 responses — that's more response than I've gotten to anything during my career as a writer, including the original article that I did on Class-A FRS. Forty-one of the responses arrived via regular mail; 33 (44.6 percent) came from E-mail.

Eleven (14.8 percent) of the respondents chose more than one option — including one gentleman who wanted all

(Continued on page 77)



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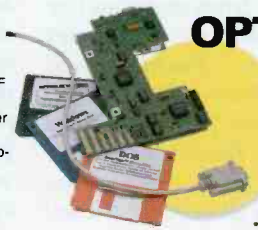

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LETTERS TO THE EDITOR

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A Liberal Education?

Dear Editor:

That's it, I've had it! After 10 years, this crap is continuing. It's becoming more obvious to me that the continued whining of the anti-Morse code crowd is not going to end until you "liberals" in the hobby get your way; that being no code requirements for all amateur radio license testing. I'm not going to get into reasons why the code should remain a requirement, however, I'll say that since the first two forms of ham radio welfare — novice enhancement and the codeless tech license — have not generated the predicted droves of newcomers . . . it seems the code continues to be a scapegoat until total welfare is imposed. Well, sir, I must inform you that welfare does not work! It promotes laziness and lack of incentives to upgrade. Yes, the code is ancient, but it is part of our history, like it or not. It makes a ham earn his stripes and makes him or her a well-rounded operator. I thought that is what a "liberal" education was all about! As for treating codeless hams any different, I can only speak for myself when I say that I have never been rude to any codeless ham or a newcomer taking a codeless tech test at our VE sessions. In fact, I encourage them to go beyond the codeless license by telling them the code will not end your life, it is not that difficult, and will open new doors for them on the HF bands. I sincerely think it is time for you magazine editors and other assorted "liberals" and code bashing whiners like Mr. Cantrell to stop complaining that you do not have your way like spoiled children. It is a crying shame that after 10 years, you people continue to do this. By the way, I'm a 31-year-old codger with an Extra class license. And if you have not figured out by now, I'm a big Rush Limbaugh fan!

And please stop using advances in radio technology as an excuse to end the code requirements in license testing. That, along with the whining, is getting mighty old!

Vincent Ponzio, KA3NRX
Pennsylvania

Dear Vincent:

Rush who? This may seem un-American to you, but I don't align myself with any radio personality, living or dead. Lately, I've pinched my posterior a half-dozen times in as many days just to make sure that what I'm hearing on the same-old, same-old radio talkshows is real! And, unfortunately for all of us, it is. Talk about whining!

The idea that we're "code bashing" or "whining" as you suggest is absurd. It's constructive criticism, and an attempt to get the radio community to look inward at itself and see what can be done to improve our lot. And the code/no-code argument is just the tip of the iceberg. It's precisely what you said in your letter, and what I've been criticizing for years: " . . . it makes a ham earn his stripes." You hit the nail right on the head, Vincent. But unfortunately you used a sledge hammer and smashed your fingers. The old "I got mine, now you get yours" cry is exactly what we've been saying is old-codger-like all along, and it's that age-old battle cry that makes newcomers to any hobby or organization bristle and feel unwelcome. Our hobby — and please remember, it's just that, a hobby — is no different from any other endeavor people undertake for camaraderie and fun.

Perhaps it's a lot like biking. There are those die-hard bikers who would argue that maybe I should get rid of my old Sears 10-speed and get a "real" bike, then learn the ways of mountain biking. But first, I must become trail certified, get a pair of those leather gloves, and carry a sleeping bag bungee-corded to my back. But all I want to do is ride around town after work. Sure, I'm wearing my helmet, know the basic rules of the road, and don't really give a hoot if 150 Spandex™-clothed bikers pass me at 50 mph. You can bet that not one of them would pull me aside and say, "Hey, Harold, becoming a real biker is for you — look at what you can do with a $500 Pike's Peak-tested bike. You seem to know the rules of the road, but look at how much more you can do!"

Like I've said before, Spandex just isn't my thing. Should states require bikers to take a short course and pass a written and road test? Probably — it might save lives. But should they be required to take a course and pass a written and mountain biking test if they aren't interested in mountain or trail biking? Certainly not. But if they want to take part in trail riding, perhaps a basic certification course would be appropriate.

I believe there should be a logical testing system in place for ham radio, not just a fly-by-the-seat-of-your-pants test that once completed is forgotten. How relevant is a code test if you aren't interested in using code? It's a wonderful mode of communication, but the bottom line is that amateur radio would be better served by a revamped testing system with an emphasis on actual on-air operating techniques, net management, electronics, and, yes (here we are changing with the times again!), computer basics. It's just plain common sense, not "welfare" as you stated. Remember, the license to operate — that certificate on the wall and in your wallet, like your driver's license, doesn't mean operating is a right, it's a privilege. And you forfeit that privilege if you break the rules.

And don't you think it's time we stopped labeling folks with viewpoints other than our own as "liberals," "conservatives," "left of right," "right of center," etc.? I'll bet if we eliminated the word "liberal" from some talkshow hosts' vocabulary, there would certainly be a lot of dead air, making room for a real dialogue, as opposed to a monologue. ■

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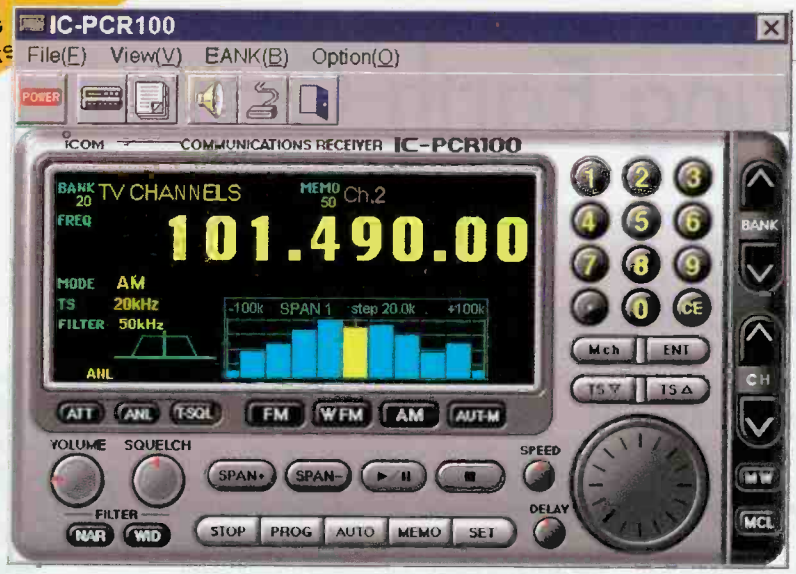
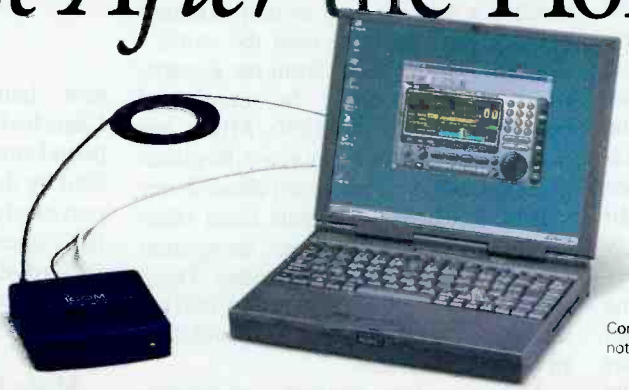


The Best Toys Always Arrive Just *After* the Holidays



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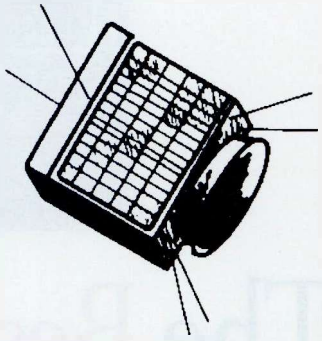
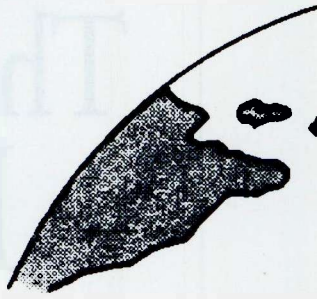
Monitoring Earth-Orbiting Satellites

Checking Out Satellite Signals On Your Receiver

By Keith Stein <kstein@erols.com>





The general non-radio hobbyist has the idea that the radio clipped to your belt when attending an air show, NASCAR race, or any major police activity is a "police scanner," right? Well, that's the common name for it, giving the impression it can only monitor local police activity. With cell phones around for so many years now, you may also hear "what's that, a cell phone?" But, if you're reading this magazine right now, you know there's a lot more you can hear on a scanner than just your local police force. We have a great hobby here, giving us the ability to monitor the DEA, FBI, local fire departments, military aircraft, even Russian cosmonauts aboard the Mir space station.

Most people start off in the hobby monitoring their local fire department and police force. I did too. But in 1987, my overall interest turned toward astronomy and space technology. And, after looking into the concept behind satellite communications, huge satellite dishes, amplifiers, miles of coax cable, and software driven antennas, I didn't think there would ever be a chance of monitoring anything in this region. But I was wrong!

Now wait, don't stop reading, you don't need a $2,000 satellite dish, all those software programs, and miles of cabling. It's very simple. After looking at the full radio spectrum to understand where satellites transmit, to my surprise, I found activity in the HF, VHF, and UHF bands.

Satellite activity in the HF-band is rather slim — most activity has moved to higher ground, like VHF, UHF. But, there is some activity left in HF. To monitor the HF band, you'll need a shortwave receiver like a simple Sony ICF-2010 or Sangean ATS-818CS. Make sure your receiver has a single sideband (SSB) mode. This is mandatory. The only area you'll find satellite activity today is between 29–30 MHz, in upper side band (USB).

Russian Amateur Radio

Russia launched a joint amateur/government navigation satellite February 5, 1991 named Cosmos 2123. The primary objective of the government side of the satellite's mission was to help Russian fishing fleets navigate over the world's oceans. Transmissions from the government payload could be monitored between 149.910–150.030 MHz, but have been silent for many years. Replacement satellites are launched about every year and a half, so signals from other recently launched Cosmos navigation satellites can be monitored today. These spacecraft are placed in an orbit 1,000 km above earth and complete each revolution in only 105 minutes.

The secondary amateur communications package called Radio Sputnik-12/13 (RS-12/13) is still active today. The system is open for use by amateurs around the world for two-way communications in Morse code (CW) and in upper side band mode (USB). Your best bet for hearing this satellite is in the following frequency range. The uplink frequencies are used to send signals up to the satellite, and downlinks are the return signal to Earth.

KA mode:
Uplink 145.910–145.950 MHz (CW/SSB)
Downlink 29.410–29.450 MHz (CW/SSB)

An even bigger delight for amateur radio operators came at the end of 1994. A satellite named Radio Rosto (also known as Radio Sputnik-15, or RS-15) was launched by the Russians on a brand new launch vehicle called Rokot. Launched December 26, 1994, this 155-pound amateur radio satellite was assembled by the same team that had built and previously launched the Radio Sputnik (RS) spacecraft, like RS-12/13.

Currently, in a 1,430-mile high orbit, this satellite can be found on the following frequencies.

Mode A:
Uplink 145.858–145.898 MHz (CW/SSB)
Downlink 29.354–29.394 MHz (CW/SSB)

VHF Monitoring

Now we'll step into the Very High Frequency (VHF) spectrum, where there are a lot of easy satellite signals to receive and decode. All types of telemetry downlinks can be monitored, along with a few voice transmissions.

VHF receivers come in a variety of models. You may have a simple mobile unit in the car, handheld unit clipped to your belt, or a home base unit with an external antenna. To give you an idea of how simple your satellite monitoring setup could be, let me tell you what I use in my satellite listening post. First, you do not need a large satellite dish to hear

satellite transmissions. I live on the ground floor of an apartment complex and use a RadioShack PRO-2006 receiver, RG-8 coax cable with a RadioShack discone antenna.

Where is my antenna located? It's taped to my patio railing with only the North, South, and East horizons visible to my antenna. I can't see anything in the West. Even with this simple setup like this, you can be a major player in the satellite monitoring hobby.

The easiest VHF satellites for new hobbyists to monitor are the Russian navigation satellites between 149.910–150.030 MHz range, narrowband FM. These spacecraft are launched from the Plesetsk Cosmodrome in northern Russia aboard Cosmos launch vehicles. They are launched into a 1,020 km by 965 km orbits inclined 82.9 degrees with an orbital period of 104 minutes. Transmitter power has been estimated at about 10 watts, making them very easy to receive.

A total of 10 satellites are active at any one time in the constellation. Four are used by civilians, and six are used by the Russian military. Past analysis indicates a FSK binary signal transmitted at a rate of 50 bits per second.

These systems first appeared in 1967, each one transmitting on these frequencies; 149.910/399.760 (military) and 149.940/399.840 (military) 149.970/399.920 (military) 150.000/400.000 (civilian) 150.030/399.920 (military).

NOAA And METEORS

Weather satellite FAX signals are widely heard from 136–138 MHz and can readily be demodulated. Weather satellites are very helpful tools in forecasting storms, jet streams, upper-level winds, fog, ice, and snow systems. Currently, there are three polar orbiting weather birds available to the beginner satellite monitor. These are some of the easiest spacecraft to hear in this part of the VHF band. Here are some selected frequencies to try:

METEOR 3-5 (Russian) 137.850 MHz (narrowband FM)

NOAA 12 (U.S.) 137.500 MHz (narrowband FM)

NOAA 14 (U.S.) 137.620 MHz (narrowband FM)

NOAA 15 (U.S.) 137.500 MHz (narrowband FM)

ORBCOMM

In 1995, Orbital Sciences Corporation (OSC), based in Dulles, Virginia, surprised the commercial satellite industry with the secret launch of their first two ORBCOMM test satellites. The Orbital Communications Corporation (ORBCOMM) satellite constellation will consist of 48 satellites providing person-to-person global messaging, automotive and maritime communications, remote industrial asset monitoring, emergency rescue, remote recreation, stolen vehicle recovery, radio determinations, and cargo location services.

Today 28 ORBCOMM satellites circle the globe, launched by four Pegasus rockets and one Taurus rocket between 1995 and 1998. Here are the downlink frequencies used by the ORBCOMM's currently in orbit.

137.2250 MHz (testing frequency only)
137.2500 MHz (testing frequency only)
137.4400 MHz
137.4600 MHz
137.6625 MHz
137.6875 MHz
137.7175 MHz
137.7375 MHz
137.8000 MHz

Amateur Radio Satellites

Known as the 2-meter amateur satellite band, 145.800–146.000 MHz, you'll find numerous amateur radio satellite downlinks in this area. CW, RTTY, Packet, and SSB voice transmissions are the major modes in use.

If you really want to get involved in this area, put in some volunteer time with the Amateur Radio Satellite Corporation (AMSAT). They've built and currently operate several satellites which transmit in the 145.8–146.0 range. AMSAT consists of a group of amateur radio operators who share an active interest in building, launching, and then communicating with each other through non-commercial amateur radio, or "ham" satellites. Since its founding nearly 25 years ago, AMSAT's volunteer labor force has designed, constructed, and successfully launched about 30 amateur radio satellites into Earth's orbit. AMSAT satellites carry the name OSCAR, which stands for Orbiting Satellite Carrying Amateur Radio. These satellites are built quite literally in peoples garages and basements.

The UoSat satellites can be widely heard on the simplest of equipment using narrowband FM. These satellites even carry digital voice downlinks. Built in less than six months by students at England's University of Surrey, UoSat-2 is similar mechanically and in appearance to UoSat 1, the first satellite in the series. Its primary mission is to store and forward digital communications. With a low-altitude orbit, both ground stations and the satellite transmitter can use low power.

This 59.4 kg (132-pound) spacecraft was launched in March 1984 from California as a secondary payload aboard the Landsat 5 mission. Here are the downlink frequencies.

Downlink 145.825 MHz FM (1200 Baud PSK)

Beacon 2401.500 MHz FM

In addition, various Chinese imaging satellites have also been reported in the high band VHF range. A couple of the frequencies to watch include: 179.985 MHz and 479.970 MHz.

Be sure to let *Pop'Comm* know what satellites you're hearing. And, if you're into other aspects of ultra-long-distance monitoring, let us know about your success! You can E-mail me directly at <kstein@erols.com>. ■

Editor's note: Keith Stein is a freelance writer for ISI Consulting based in Woodbridge, Virginia <http://www.isi-consulting.com>.

SWLs: WWII's Homefront Heroes!

Unusual Footnote To History Comes To Light

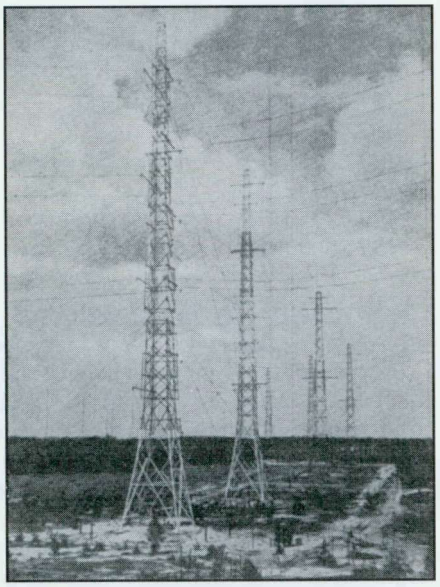
By Alice Brannigan

They sat in their dimly lit radio rooms from coast to coast. Far into the wee hours of the morning, their faces were illuminated by the faint, yellow glow of the dials of shortwave receivers. During the bleakest days of World War II, they carefully tuned through the international broadcast bands to find the propaganda broadcasts from Berlin, the enemy capital thousands of miles away. Enemy sympathizers? Hardly! They were everyday citizens who independently served as intelligence agents without portfolio, sometimes finding hope and joy for the families of American and Canadian POWs in the enemy broadcasts intended to create only despair and disillusionment.

Supposedly in order to broadcast news of the 1936 Berlin Olympics to the world, Germany constructed a powerful shortwave facility at Zeesen, near Berlin. The stations were used for that purpose, but in 1938, when Germany invaded Austria, Czechoslovakia, and Poland, the true intent of the stations became manifested. They had been constructed to meet the needs of Dr. Joseph Goebbels, Germany's resourceful Minister of Propaganda. Goebbels virtually invented psywar broadcasting, establishing techniques still used today. The Zeesen stations began broadcasting Nazi propaganda in dozens of languages, around the clock, and to all points of the globe.

Yada, Yada, Yada . . .

One of Nazi Germany's most talkative English language propagandists was American-born Mildred Gillars. Although she identified herself on the air only as "Sally," Gillars was dubbed by soldiers as "Axis Sally." The object of her nightly programs was to demoralize American and Canadian forces, and even civilians on the homefront. Her sultry voice attracted thousands of listeners.



The spectacular German shortwave facility constructed at Zeesen to broadcast news of the 1936 Berlin Olympics was soon used to pump out a torrent of Nazi propaganda.

She evoked memories of home for lonely GIs by spinning nostalgic pop tunes, but she then speculated about whether the wives and sweethearts of those left behind were cheating on them. She incessantly gloated over Germany's recently captured POWs, and told of the horrors awaiting those who were stupid enough to fight Nazi Germany.

Sally never realized that a major component of her scheme was backfiring! Each night, certain homefront hobbyists closely listened to her broadcasts waiting for information about soldiers and airmen taken prisoner by German forces. These broadcasts included the names of POWs, sometimes service numbers, hometowns, and the names of family members.

For SWLs like Irene Walters of Patchogue, New York, Ida Smith of Prairieton, Indiana, Sanford Lowe, of New York City, and Leroy S. Schum of Redding, Pennslyvania; POWs like Army Sgt. Frank Davis, Army pilots Lt. Col. Donald Hillman, and 2nd Lt. Ralph Peters, Army Bombardier 2nd Lt. Stewart Cooper, and their families at home, the broadcasts were a godsend.

"Fate Unknown"

Sgt. Davis was a platoon leader with the 101st Airborne Division fighting at Bastogne during the Battle of the Bulge. He was critically wounded during an assault on an enemy gun position, an action in which nine of his 12-man platoon died. Davis was rescued by medics and taken to the Division field hospital, which was quickly overrun by enemy forces. Alive, but with wounds untreated, he was taken a POW. His family was sent notice by the U.S. War Department that he was badly wounded and missing. His fate was unknown.

Irene Walters, Ida Smith, and Leroy Schum were the first to spread the word that Sgt. Frank Davis was actually alive. They were among the 38 American SWLs who monitored Axis Sally that night in early 1945, when she announced that Sgt. Davis had been captured. Listening to the early morning broadcasts on the East coast, Irene Walters quickly wrote a postcard to Sgt. Davis' family, letting them know he was alive and a POW. Ida Smith and Leroy Schum were

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In Vertretung

Nazi Germany's shortwave stations cultivated listeners around the world during the late 1930s with a generous and prompt QSL policy. For listeners here, that source of QSLs ended in December of 1941 when we went to war with Germany.

also among the 38 individuals who sent letters and telegrams to the Davis family.

Today, Mr. Davis seeks to dedicate a memorial to recognize the hope and feeling of relief these American radio hobbyists brought to worried and distraught families. "Each operator thought they were the only one doing it," Davis said. "They had no organization at all," he noted, although each realized how important such news would be to the families of soldiers who believed their loved ones were either MIA or dead.

One SWL's Experience

Irene Walters, the wife of a New York newspaperman who often worked late into the night, said she happened upon Axis Sally while tuning across the band early one morning. She immediately saw the opportunity it offered to bring news to families concerned about the status of their loved ones fighting in the European Theatre. With her own brother stationed at an unknown location, she was acutely aware of the gnawing anxiety that a lack of information could evoke.

Dutifully monitoring every night, she passed along information about captured soldiers and airmen. Mrs. Walters remained tuned in during broadcasts that were often interrupted for 15 or 20 minutes or even an hour. She noted that the broadcasts always came in very clearly, and at that time the house was very quiet because the kids were asleep.

After each broadcast, Mrs. Walters wrote postcards to the families of the POWs, telling them that their son, husband, or father was safe. "I wrote them the same day, right away, early in the morning," she said. Unaware that 37 others had mailed letters to the Davis family the same day, she added, "I didn't know anyone else was doing it!"

The responses she received were quick as well as emotional, totaling more than 1,000 letters during the course of the war. "They thanked me for sending the cards and were so appreciative," Mrs. Walters states. One father in Texas donated $100 in her name to the American Red Cross. Not all of her messages arrived in time, however. One letter from a banker in Canada said that the card didn't get there in time for the mother to learn that her son was alive. Mrs. Walters said, "I thought that was sad."

Elation

Despite the few instances of sorrow, most of the grateful messages from the families of POWs were filled with joy. Army 2nd Lt. Ralph Peters was one of the pilots of a B-17 *Flying Fortress* shot down in September of 1944 by enemy ground fire during a bombing mission on a Tiger tank factory in Kassel, Germany. Four members of the crew bailed out safely, but the other pilot had been so severely wounded in the legs, he was unable to bail out. Peters, plus the bombardier, navigator, and an enlisted gunner remained on board the damaged aircraft to render assistance. Lt. Peters flew the burning bomber on only one of its four engines to a crash landing. The wounded pilot died shortly after landing, and Peters became a POW in Stalag Luft 1.

Although the U.S. War Department officially notified Peters' family that he was killed in action, Axis Sally's broadcast readily identified him as a POW. His mother received no less than 65 letters and telegrams from SWLs with the news. Peters says his mother was "elated." He said she had never given up hope that her son was alive, and it wasn't until more than a month after she got the news from the SWLs that she received official notification from the War Department that her son was still alive.

She Had No Idea

Lt. Col. Donald E. Hillman, a Deputy Group Commander, was piloting his P-47 Thunderbolt near Cologne, Germany, on October 4, 1944. He was chasing a German aircraft attempting to land at a camouflaged landing strip. Suddenly his aircraft was engulfed in intense anti-aircraft fire. As he pulled away at top speed, he began to smell smoke. He didn't realize his aircraft had been hit and scarcely had time to radio his squadron to continue the mission. Moments later, his plane was on fire and he had to bail out. On the ground, he was surrounded by angry German farmers. The crew of a nearby anti-aircraft battery saved his life by taking him prisoner.

Two weeks later, his wife received a phone call from an SWL in Georgia advising her that her husband had been taken prisoner. It was the first news she had gotten about her husband. She said,

Mildred Gillars, American traitor who broadcast propaganda for Hitler. After the war, she was convicted of treason for her Axis Sally programs. This photo was taken in 1961 upon her release from federal prison.

"I had no idea if my husband was alive or dead. You can imagine how I felt." This was a month before the U.S. War Department notified her he was a POW.

Listed As Missing

Stewart Cooper was the bombardier on a B-17 of the 96th Bomb Group shot down by enemy aircraft over Eden, Germany, in September of 1943. A rocket had blown away the nose of the aircraft, the bombardier's position. Lt. Cooper bailed out, and immediately passed out. He recovered consciousness in midair and pulled the parachute release ring. Looking for other chutes, he saw none. Looking down towards the ground, he realized his left leg was gone. Once on the ground, a German farmer gave him first aid, and later he was picked up by an ambulance. He spent the next five months in a German hospital recovering from his wounds. In November, 1943, a German doctor was able to get a message broadcast that he was alive and recovering from his wounds. Until that time, he had been listed as MIA. The broadcast was monitored by Sanford Lowe in New York City who sent a telegram on November 26th to Lt.

Unsung heroes on the homefront. SWLs monitored Axis Sally, took notes on who was being held POW, then notified their worried families of their status. Cold comfort, yes, but until then, families believed their loved ones were either MIA or had been killed in action.

Cooper's mother in Cedar Grove, New Jersey. It was the first message she received that her son was alive. Cooper's son said that, "because it came before Thanksgiving, she thought it was a miracle." Lowe later sent a second telegram to the Cooper family notifying them that Stewart had been included in a September, 1944 POW exchange. In all, Lowe sent out well over 10,000 letters and telegrams to servicemen's families containing information about their loved ones, as learned from monitoring shortwave broadcasts.

War Ends

After surviving nearly four months at forced labor as a POW, Sgt. Frank Davis was liberated by Gen. George S. Patton's Third Army. Finally treated for his wounds, he was sent home. A half century after World War II ended, Davis discovered the messages from the SWLs in his mother's personal papers. "It was the first time I laid eyes on them and it was amazing," Davis recalled.

He wrote the 38 SWLs who had sent messages to his family, but only Mrs. Walters and the surviving families of Mrs. Smith and Mr. Schum replied. Fearing the important behind-the-scenes role they played during the war would remain unrecognized or forgotten and lost to history, Mr. Davis began to campaign for a memorial to commemorate their contributions to the families of POWs.

Mr. Davis asked for the help of Delaware Senators William V. Roth Jr., and Joseph R. Biden, who said, "It is important to save this significant portion of World War II history." Now, Davis is undertaking the enormous task of identifying other living SWLs, the families of deceased operators, the families who received cards and letters from SWLs, and the POWs involved.

Mrs. Walters has retained a complete record of all those to whom she wrote. Ida Smith's daughter still has information about the wartime letters her late mother wrote. A joint letter to the Disabled American Veterans (DAV) from both Delaware Senators stated that, "A nationwide sampling of these World War II SWLs needs to be documented, so they can be properly and permanently acknowledged by all Americans, present and future."

Any reader with relevant information about SWLs during World War II is invited to contact Mr. Davis. His mailing address is P.O. Box 6207, Stanton, Delaware 19804. His phone/fax number is 302-994-0109.

Sally's In The Alley

What became of Axis Sally? In 1946, she was picked up on a street in West Berlin by U.S. Military Intelligence agents. A year later she was indicted on 10 counts of treason, and convicted in 1949 on one count. Sentenced to 10 to 30 years and fined $10,000, she was paroled in 1961. She then entered a convent in Ohio and taught languages in their high school. She died June 25, 1988, and was believed to be in her eighties.

We wish to acknowledge and thank *Pop'Comm* reader and DAV member Bob Wheaton, ET3, USN (Ret.), W5XW, of San Antonio, Texas, for bringing this interesting story and worthwhile project to our attention, as written up in the *DAV Magazine*, Vol. 40, Issue 4, by Thom Wilborn. And we also want to thank the DAV for their kind cooperation in granting us permission to reprint their material in part, which we have supplemented with additional information.

We are always seeking information on old time radio and wireless stations, also QSL cards and letters (originals or good copies), picture postcards, station photos, station lists, and directories, etc. Our postal address is: Alice Brannigan, *Popular Communications*, 25 Newbridge Road, Hicksville, NY 18801. Your thoughts and column suggestions are always invited by directly E-mailing me at: <Radioville@juno.com>. ■

BY GORDON WEST, WB6NOA

Radio Resources

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Proposed License Restructuring — Answers To Your Questions!

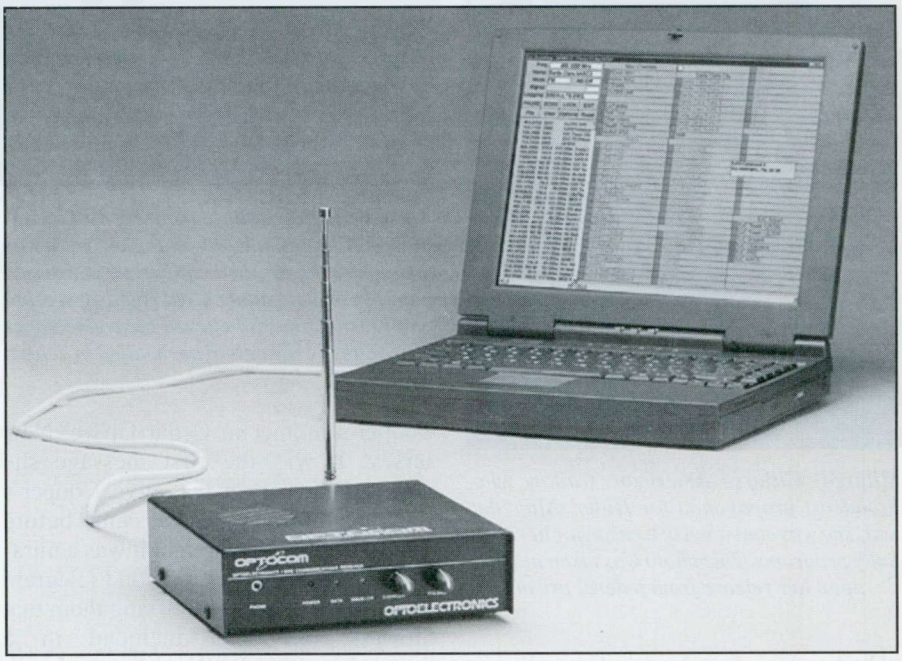
Big changes will soon affect how you might obtain an entry-level ham radio license. If you are already a licensed ham, the new rules might grandfather you to a higher license grade without you having to do anything at all! And if you are a long-time ham who has made it to the top — Extra class — the new proposals have probably gotten you ticked off big time. But one thing's for sure: the ham radio service will undergo the biggest restructuring in its history sometime this summer.

Use 'Em Or Lose 'Em

Holding onto radio frequency allocations is now a numbers game. The Federal Communications Commission (FCC) regularly auctions off radio spectrum to the highest bidder. As an avid shortwave listener or scanner user, you know that almost every kilohertz of radio frequency spectrum is crowded with activity. If you scan the business bands, medical emergency frequencies, or trunked radio systems, your Optocom™ and Optoscan™ from Optoelectronics will show you constant activity almost 24 hours a day.

As a shortwave listener, you are well aware of the wall-to-wall activities on all those frequencies where skywaves bounce signals around the world. But have you tuned into ham frequencies lately? Yes, during contest weekends, the 20-meter ham band is filled with CQs. But what about the VHF and UHF ham bands? Run your Optoelectronics equipment from 420 MHz to 450 MHz and see the lack of radio activity within the precious 30 MHz of ham band allocation. And have you tried scanning the 1240 MHz to 1300 MHz ham band, looking for activity? And there are even 11 bands above this range — some as big as 500 MHz wide, and there's almost no activity on them.

The FCC must account for band occupancy. If the primary user is not occupying the band, it goes up for auction. This is precisely what happened to the bottom 2 MHz of the amateur radio 220–225 MHz band which was auctioned off, and now we have only 222–225 MHz left.



A quick check of most business, medical, and public safety frequencies with Optoelectronic's Optocom™ PC controlled receiver will show constant activity all day long. Not so on many ham frequencies.

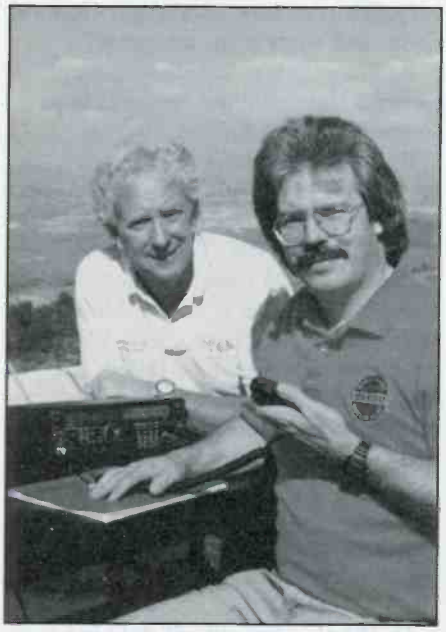
Our ham bands are under attack right now. The FCC says so. "We are initiating amateur restructuring as part of our 1998 Federal Communications Commission biennial review of regulations pursuant to Section 11 of the Communications Act of 1934, as amended," comments the FCC. They continue, "Section 11 requires us to review all of our regulations applicable to providers of telecommunications service and determine whether any rule is no longer in the public interest as a result of meaningful economic competition between providers of telecommunications services, and whether such regulations should be deleted or modified."

So the FCC has introduced a proposed rulemaking — Docket 98-143 — to make some sweeping changes to our amateur radio service, and big changes for those of you who wanted to get a ham radio license but felt the Morse code tests and hundreds of questions in a single question pool were simply too much to master. Or, perhaps if you already hold a No-

Table 1

2.30–2.31 GHz
2.39–2.45 GHz
3.30–3.50 GHz
5.65–5.925 GHz
10.0–10.50 GHz
24.0–24.25 GHz
47.0–47.20 GHz
75.50–81.0 GHz
119.98–120.02 GHz
142.0–149.0 GHz
241.0–250.0 GHz
All above 300 GHz

Amateur Gigahertz Bands.



Chip Margelli, K7SA (right) proposes no code test for General CW privileges.

Code Technician license, you are not operating on the worldwide bands because you couldn't master that 13-wpm code test.

Think you could pass it at five wpm for worldwide privileges? A lot of No-Code Technician class operators are now learning the code, anticipating that the code speeds for General class worldwide operation will drop considerably. As the FCC was making its proposed changes, amateur radio's largest lobby organization, the American Radio Relay League (ARRL), also announced *its* idea on what we can do to streamline the amateur service, making it more appealing to radio enthusiasts who have a passion for working the airwaves, but not necessarily being a hot-shot Morse code operator. The ARRL and the FCC proposals have certain things in common, and both organizations will help ham operators and create enough positive comments to help streamline the licensing process.

There are some important points to the upcoming changes in the amateur service that we all need to know about and better understand. How much do YOU know about the reasons behind the proposals?

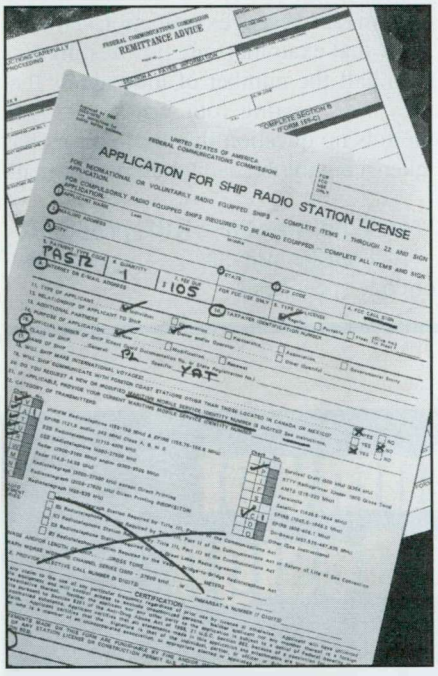
Q. What has been the growth rate for the amateur radio service over the past four years?

A. Doubled
B. Slight increase
C. Slight decrease
D. Half growth

Looking over amateur licensing statistics, we see a slight growth in the number of licensed amateurs every year. However, license terms of 10 years do not reflect hams who may have given up the hobby, or died, or never got on the air in the first place. I wouldn't say that our growth is half of what it used to be, but we're dramatically declining in hams that are pioneering new microwave frequencies. In fact, recent examination statistics show that examiners are now testing less than half the number of individuals that they were testing four years ago. And there is no question that the Internet has taken a big toll on ham radio recruitment.

Q. What was the ARRL proposal?

A. Four license classes and two slower code speed tests



Soon we'll see "paperless" FCC applications.

B. Eliminate Morse code testing completely

C. Keep the service status quo with no big changes

D. Develop incentive licensing where licensed hams will also need to upgrade

The ARRL proposes four license classes, eliminating the Novice class. Originally, they were going to assign letter designators for each new proposed class, but this became a very unpopular issue, so they're now going back to Extra, Advanced, General, and Technician class designators. The ARRL sees two CW speeds as a happy compromise — five wpm for General class privileges and 12 wpm for Extra class privileges. This was probably the biggest surprise of all. Who would have thought that the ARRL would ever see benefits in dropping the Morse code speed for worldwide privileges from 13 wpm down to five wpm? The League feels this is what it will take to revitalize the amateur activity on high frequency and could very well pull in more No-Code operators into learning the code. This is already happening!

"I'm a Technician No-Code licensee now, and if all I have to do to get to the worldwide bands is learn the code at five wpm, and maybe take one more General written exam, I'm all for it," comments a newly licensed Technician class operator. Originally, the operator said he would never learn the code because the General class 13 wpm code test was simply beyond his reach.

Q. What did the FCC suggest for the CW tests?

A. Five wpm for General; 20 wpm for Extra class

B. 13 wpm for General and Extra

C. Keep CW speed exams exactly the same and strengthen written exams

D. The FCC made no CW speed proposals

Everyone was surprised with this one. The FCC made absolutely no Morse code speed reduction proposals. Rather, they invited amateur operators to comment on the relevancy of Morse code in today's amateur service.

"Do the three levels of five wpm, 13 wpm, and 20 wpm remain relevant in today's communications practices or should these three code tests be reduced to one or two and, if so, what should be the required speeds?" writes the FCC. The FCC *did* propose to reduce the number of license classes from six to four, eliminating the seldom-obtained Novice license, and doing away with the Technician-Plus category that only offers limited high-frequency privileges.

Q. What surprising CW twist is now in the offering?

A. Examinees must write down the entire code alphabet

B. Examinees might send the code, rather than receive it

C. No code test required to operate on HF with the entry-level Tech license

D. Code tests would be written, not oral

The ARRL Board of Directors took an idea from Chip Margelli, K7JA, an employee of Yaesu Corporation and one of the country's best and fastest CW operators. Margelli points out that giving newcomers full access to Morse code privileges on the worldwide band is completely within the international treaty laws because the applicant attempting to send a shaky CQ on the CW bands would indeed be demonstrating his or her comprehension of the international Morse code.

"By their very nature, you can't use the privileges until you know the code, and we're not expecting the CW bands to be overrun with people taking advantage of this, but as any CW operators know, the best way to become proficient in the code is to use it on the air," adds ARRL President, David Sumner, K1ZZ.

It also looks like there's a change in who might give the examinations for the new General class "slow code" operators.

Q. Who can now administer General class, and what is the proposal?

A. Only Extras can now administer General class, and the proposal is to let Generals test themselves

B. Only Extras may test Generals, but the proposal is to allow Advanced class operators to test General

The answer is B. The proposal is to allow Advanced class operators to give test to the General class. Under the National Conference of Volunteer Examiner Coordinators (NVEC) comments, this group of 14 volunteer organizations who conduct amateur examinations on a voluntary basis would see the amateur Extra class license and the Advanced class license merged into just one license, thus reducing the number of licenses from six to three.

Q. What is the cut-off date for your comments to the FCC?

A. June

B. September

C. Up until official rulemaking

D. The comment period is closed

The comment period is closed. When you read this, amateurs will be looking over all of the incoming comments that were due at the FCC before December 1, 1998, and will be writing their replies to those existing comments. Any new comments are past due and will not factor into the FCC's ultimate decision.

Q. When will the decision be made to change amateur testing requirements?

A. Within one year of the notice

B. By June 1, 1999

C. Likely this summer or fall

D. It's two or three years away

It is likely the FCC will announce their rulemaking in June or early fall to restructure the amateur service with fewer license classes, dramatically reduced code speed requirements, and specific changes to the content of the written question pools. When they make their announcement, it is usually 30 days before it becomes law. Answers B and C are correct.

Q. Were equipment manufacturers behind the reduction of code speed, making it "easier" to get a ham license and thereby "easier" to sell worldwide ham radio sets?

A. Manufacturers have been absolutely out of the loop on this one

B. Manufacturers have all supported this proposal

C. A manufacturer lobby group is behind some of the proposals

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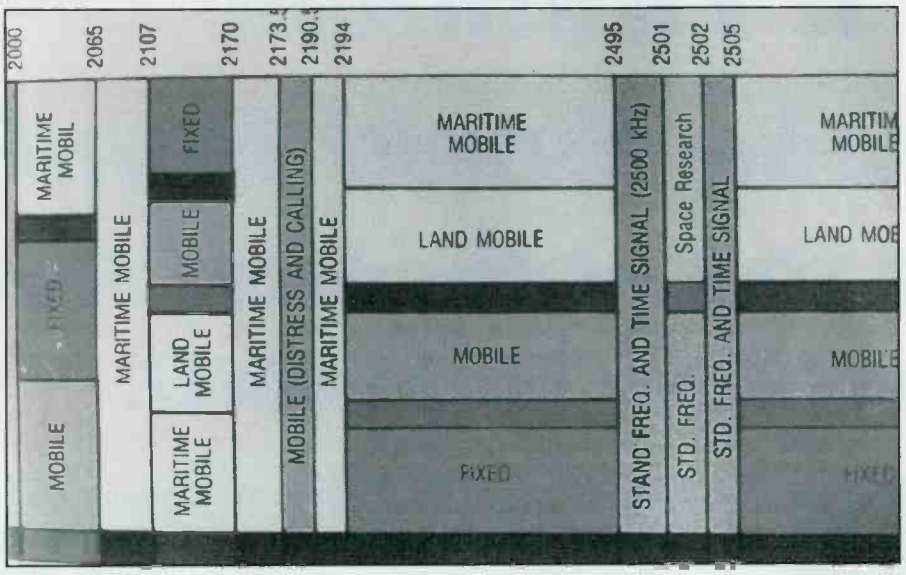


Everyone wants a slice of the ham's spectrum.

D. Manufacturers openly support fewer rules for selling more gear

The amateur radio manufacturers do not have a lobby group. Surprisingly, amateur radio manufacturers, amateur radio accessory makers, and ham radio dealers have absolutely no industry organization. They flatly won't communicate with each other. And they also are quite protective of their image; so most manufacturers have made it a point to stay absolutely out of the proposed rulemaking. After all, they don't want to upset their clients who may own their equipment and who feel "I took the test the hard way, and everyone else should too."

Nope, ham manufacturers as didn't have anything to do with the ARRL or the FCC restructuring proposals.

Q. Who will probably be most against these proposals?

A. Novice and Tech operators
B. Beginners without a license
C. Advanced operators
D. Extra class operators

The majority of "no" votes and "keep everything absolutely the same" seems to come from Extra class operators who have held their licenses for more than 20 years. Looking over the comments, you can definitely see a pattern that the old boys (of which I am one) want to keep everything exactly the same and just as hard as it was for them when they took their test (by the way, I don't agree).

Q. What will be the likely result of the new proposed rules ?

A. Dummy down the amateur service
B. More CBers will get into the hobby
C. Greater number of new hams will get on the General class ham bands
D. More hams will learn the Morse code

There are two correct answers here. We will see more new hams entering our hobby and learning the code at five wpm if this will give them access to the worldwide ham bands. We will also see increased enthusiasm by current No-Code Technician class hams learning the code and joining the worldwide ham band operators. I don't see that these regulations will make any difference to out-of-band CB radio operators who already have plenty of skip and plenty of elbow room to do their thing — legal or not.

And as for the "dummying down" of ham radio, I would be happy to take any one of my brand new ham radio students and sit them down next to any Extra class senior ham and see which one can run a Windows 95 program to install a Kantronics Kam Plus for Pactor operations on the 40-meter band. I don't believe the new rules will cause a dummying down of ham radio. Rather, I see a shift of emphasis on ham radio traditions, where code was one way of filtering out certain operators.

We will continue to keep our high testing standards, thanks to the thousands of volunteer examiners throughout the country. The ham radio service will flourish as emphasis will now be placed on operating and technical skills, and we will see a decrease in what it takes to pound out dit-dit-dit, dah-dah-dah, dit-dit-dit. ■

How I Got Started

Congratulations To Steve Searcy Of Arkansas!

Popular Communications invites you to submit, in about 150 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

Each month, we'll select one entry and publish it here. Submit your entry only once; we'll keep it on file. All submissions become the property of *Popular Communications*, and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual, or even humorous. We reserve the right to edit all submitted material for length, grammar, and style.

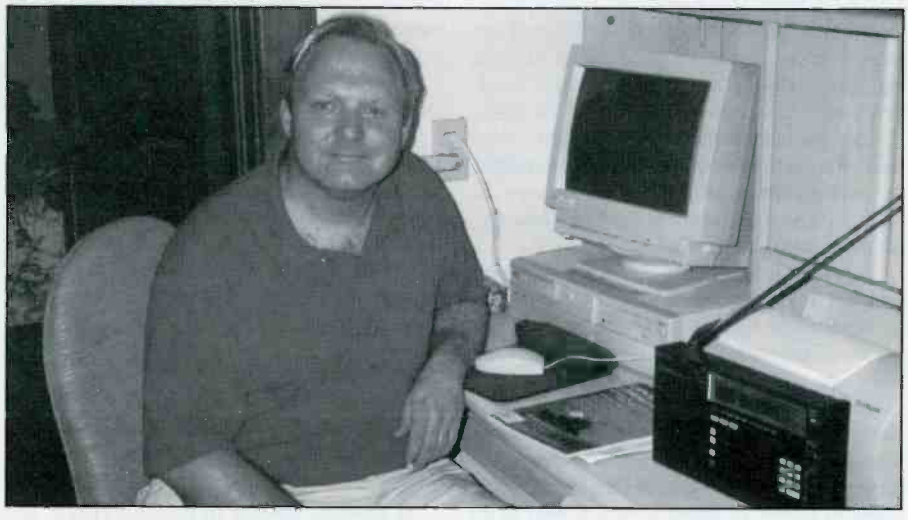
The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "How I Got Started," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or E-mail your entry to <popularcom@aol.com>, letting us know if you're sending photos.

Our February Winner

Pop'Comm reader, Steve Searcy of Harrison, Arkansas, says, "My first hometown was Jackson, Mississippi. We moved to Gulfport, 150 miles away when I was 10 years old. We'd go back and visit my grandparents. The station they would listen to was WSLI 930, an adult contemporary station with a well-respected and legendary announcer named Farmer Jim Neal. This man worked there for 49 years.

Living 150 miles from the station, I never knew at that age about skywaves. A couple of years later, my cousin gave me a Sears AM radio-phonograph. By sheer luck one night, I found out I could pick up my station. So, at night and early morning because of skywaves, I was very glad! It was my favorite station. Later, I began to tune around, finding stations farther away. Another cousin also introduced me to shortwave. So on Christmas 1976, I got my first taste of shortwave on my RadioShack Realistic Astronaut-5. Now, some 22 years later, I enjoy the hams on my Sony ICF-2010. I love this radio!"

Steve also asks us to print his address — 420 S. Locust Street, Apt #6, Harrison, AR 72601 — as he's interested in hearing from other DXers. Thanks for your story and letter, Steve.



Here's Pop'Comm *reader Steve Searcy of Arkansas with his Sony ICF-2010.*

The Radio Connection

A LOOK BEHIND THE DIALS

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

Answering Your Letters

This month I am going to share some reader mail that has been begging for attention. I found them to be very interesting reading, and thought that sharing them with you on an occasional basis might be popular with the readers as well. I will run more letters, if the majority of you want this style of column. Letters used in this column are edited for size, content, and grammar.

From The Land Of Mandalay

"The Radio Connection" seems to be generating a following in some exotic locales! I have several English antique radio collectors who have promised to write and share photos of their collections. This month's feature contribution comes from the far-off land of Mandalay, Myanmar, perhaps better known by its former name — Burma! Here is reader Hugh Water's story:

Part of Hugh's collection. These sets await repair and restoration. All are European sets garnered from Germany, Holland, and England. Most of them include SW coverage.

"Before my subscription to *Pop'Comm* expired earlier this year, I found myself becoming interested in the technical aspects of vintage radio restoration even though I am not a 'techie' type of person. Since coming to Myanmar, I've bought over 70 radios in various stages disrepair. Some were in working condition, and some were in showroom condition, even though 30 years old! These sets were found in display cases and not used, and were used to show the owner's status or wealth."

As a brief introduction, I am an American English language teacher, and I have lived throughout Southeast Asia, including Taiwan, Korea, Japan, and Hong Kong since 1975. I take yearly trips back to my hometown, which is near Savannah, Georgia. In the past, I've noticed Southern Asian stations giving their wavelength in meters, as well as frequency in MHz. I always wondered why they carried on with that custom, which seemed archaic to me. I learned that earlier radios, some of which were still being used, had the frequency and wavelengths both marked on the tuning dials! While living in or around Singapore for over 13 years, and traveling around Malaysia, Indonesia, Thailand, and Sri Lanka, I had never seen such a radio."

When Burma was a 'hermit kingdom' between 1962 and 1992, there was no importing of new foreign goods, except for the black market. Locals had to repair, salvage and scrimp pieces of cars — often three cars were needed to make one that could be driven."

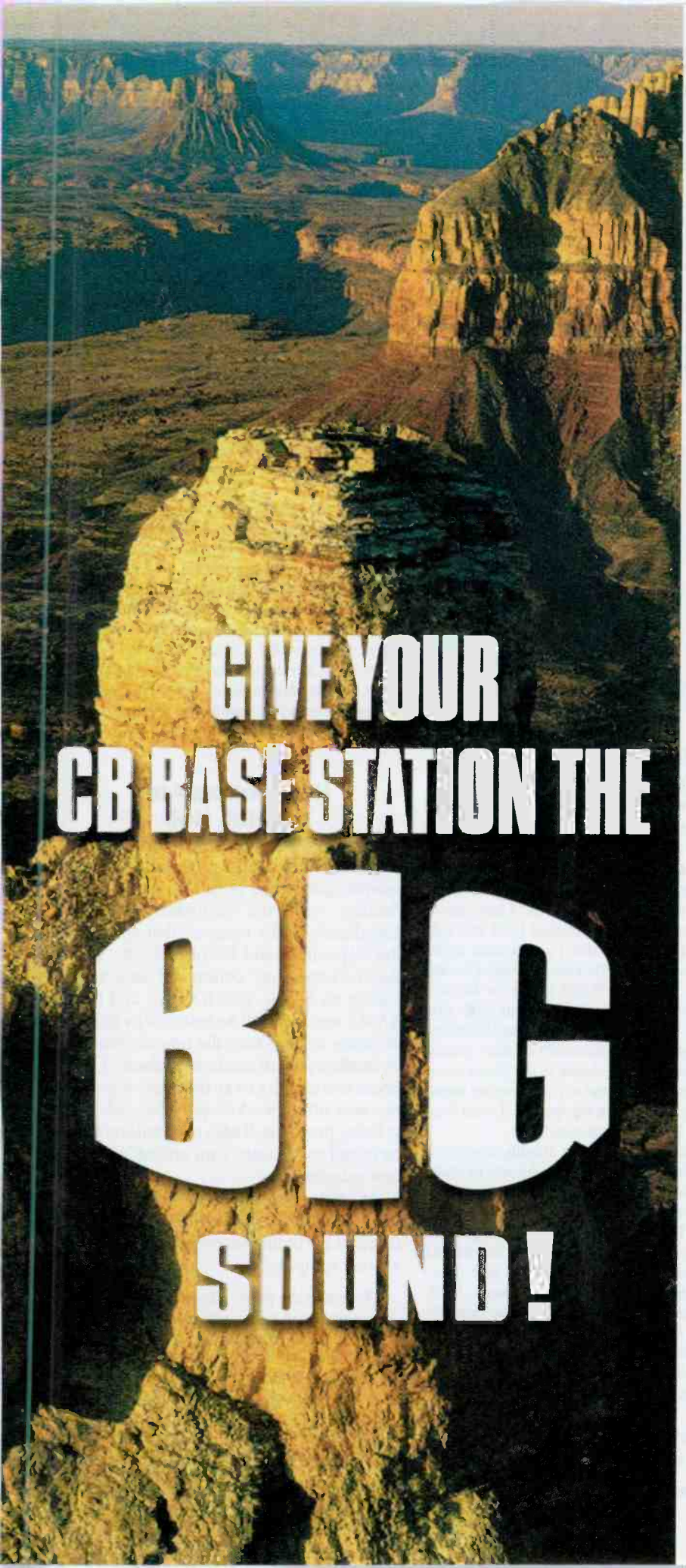
While Burma was in this time capsule (and still remains so today in many ways) things didn't modernize. Indeed, many homes used, and still do, vintage MW/SW sets made in the 1950s from the UK, Germany, and Holland. I've visited many rural homes outside of the major cities, and have seen many strange European brand names that no longer exist. From the UK came Pye, Bush, Murphy, Cossor, His Master's Voice, and GEC. And there were some from Germany, whose names have survived with time and manage to change with the times including Grundig, Siemens, and Blaupunkt."

This country is light years away from the Internet revolution; we must get by with mail by land. Even foreign exchange remittances are time consuming and expensive. The middle class own Japanese and Chinese-made radio/cassette sets; they are cheaply made using inferior components. Copyright laws do not apply here as far as I know so there are radios with "Sony" labels that were never made in Japan! In major towns, a visit to 20 or 30 homes will usually yield one family with a vintage receiver. They are usually kept for sentimental reasons, to honor or remember a grandparent, for example."

I suspect I'd have to pay two or three times the going rates for locals to obtain one for my collection. Even a 'broker' gets a 50 percent finder's fee! It is very difficult to find even elderly technicians to service these sets. Most have passed away, or are now invalids. Spare parts must be scrounged from donor sets.

I am curious where the collector market might be for some of these sets. With over 70, I seem to be well on my way to establishing my own radio museum! Perhaps I should team up with a partner in the U.S. or UK to determine whether my collection can be used for fun and profit? I have to research the export/shipping costs. Perhaps I should pen an article for *Pop'Comm*, 'Prospecting for Antique Radios in Burma' to see where the interest lies. Please excuse my typing. Electricity is rationed here; we only have power every third day and evening. There is no air conditioning which makes for sultry and humid evenings." — Hugh

If anyone wishes to contact Hugh, his address is Hugh Waters, c/o Dynamic



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CIRCLE 161 ON READER SERVICE CARD

Co., Corner of 30/65 Streets, Mandalay, Myanmar (Burma) South East Asia. He was kind enough to send along a 5 kayat banknote from Burma. Let's see, if 400 kyats equals one U.S. dollar, I should be about 2.5 cents richer. Wonder what it cost to print this thing! Another reader has this to say about Gerry VanLoh's journey to "The Shop that Time Forget," featured in last November's "The Radio Connection" column.

"It has been a while since I've picked up a copy of *Popular Communications*. At about 1 a.m., I came across your column. What a joy it was reading both Gerry's and Hartley's stories! Sure hope you have more of the same in future columns! I have already visited Gerry's Website and thanked him. If you contact Harley, tell him I also thank him! Perhaps they can share more radio stories in the future. Thanks!" — Steve

Steve, I certainly enjoy running a good story when it is sent in. A lot of the stories are "discovered" by chance encounters on the Internet — with some persuading, most folks are willing to share their experiences. Gerry reported to us that he has received a lot of E-mail and that his Website has been very active since the column appeared. Even a few other publications have requested he write about his find! Folks, when E-mailing "The Radio Connection," please give your complete name! Often I receive some very nice letters, with only a ham call or first name to go by.

Helping ID An Old German Radio

Going back to Jim Ashworth's request for help in identifying his German set last August, we received this letter from Gerry Andrews that may be of help to Jim and other collectors of European sets.

"I hope this may be helpful to both you and Jim. There is a very nice Website out of Berlin (in both English and German), that is run by a German radio hobbyist. He offers a schematic service for many German sets, including Telefunken. His Internet address is <http://www.snafu.de/~wumpus/radio.htm>. Rainer's site also has links to other interesting sites, including a very thorough French database of European sets."

I've been shopping the local German, French, and Belgium flea markets for over a year and found numerous sets priced from $20 to several hundred dollars. Of course, I go for those in the lower end of this price range! Although my collection is rather small, I've spent many enjoyable hours cleaning and restoring those great sounding sets! Please let us know how your readers make out at Rainer's radio Website. Mit Freundlichen Gruessen (with friendly regards) from Kaiserslautern, Germany."

Gerry, thanks for the information. I hope the readers will let us know if they find anything of service from Rainer's Website. A source of solid information for these foreign sets would be most welcome. And, Gerry send us some photos, please!

Douglas Neller's Advice On Our Philco 89 Saga

"I read with interest your column 'The Philco 89 Saga Continues.' I became seriously interested in tube-type radios and TVs in 1950 at the age of 13. By age 14, I was repairing these modern day 'miracles.' I have never lost interest in this fascinating field and still use several Heathkits that I constructed in the late '50s and early '60s. Once a week, I would drive my car from Battle Creek to Benton Harbor (Michigan) to load my car with new Heathkits for my own use and to build for others (a good source of income!). (*Editor's note: Benton Harbor is the home to the Heath company.*) This enabled me to complete my home workshop with Heath equipment. I wish they were still in the kit business!

Your comment on tube shields was especially interesting. I remember having to make hard-to-find replacements using sheet metal stock. I would form its size, and spot-weld it together. This was more fun than having to buy them! Experience has proven to me that the old tube radios, especially on the AM and shortwave frequencies, are great performers. I will never lose my excitement and enthusiasm for these old radios. I am still trying to locate a Zenith Transoceanic radio, but with little avail."

It is a pleasure to know that others still enjoy the fascination in these old radios."

Thank you, Doug. There were millions of both tube and solid versions of the Zenith TO made. Considering they cost the equivalent of some weeks pay, many are still in storage in closets, cellars, and attics. I have owned several, and they pop up regularly at flea markets and yard sales. Beat the bushes, you will find one!

I will be reviewing the book *The Zenith Trans-Oceanic, Royalty of Radios* by Schiffer Publishing this spring. These are the same fine folks who published the Hallicrafters book we reviewed earlier. The history behind these radios is fascinating reading, especially when done by authors John Bryant and Harold Cones. While the Heath Company is no longer producing kits, they are still in existence, producing education courses.

Here is a letter from Michael Cathcart:

"I just wanted to post a thank you for all of your informative, helpful, and good-humored writings over the past few years, and I hope to read all of your future columns. I've been into radios for about two years and have amassed about a dozen or so older radios. I have an Arvin chairside and a few Silvertones (Sears brand). All of them have the AM and SW bands. Your articles and advice have helped me put almost all of them back to working order. Thanks for helping so many folks maintain and enjoy those treasures of our past. All the best!"

Hallicrafters Are Hot Hot, Hot!

I wasn't prepared for the landslide of interest generated by a two-part series dealing with the restoration of Ed Engelken's S40A receiver that spanned the September and October 1998 "The Radio Connection" columns. Thankfully, I have an S-20R, two SX-28s, and two SX-42 sets that will be restored in future columns to help feed the interest shown by readers in Hallicrafters products! I am about two months away from moving into my new office/workshop as this column is being prepared. Radio restorations will be in full swing once I am settled into my new quarters.

At least several folks have written that the article motivated them to find an S40 receiver for their own enjoyment! Here's a small sampling:

"To get to the point, I love to acquire special radios, and was particularly impressed with the S40A restoration in the Sept/Oct *Pop'Comm*. I withheld writing to you earlier, but, on second thought, I must ask if it's for sale." — Best regards, Paul Origlio

Paul, the S40A was not from my collection. It was owned by Ed, who restored

it as a Christmas gift for his grandsons. I am sure they value his gift far more than money can buy. I have seen several S40 and S40A receivers listed on the Ebay online auction service. Try doing a search of "Hallicrafters" on a regular basis on <http://www.ebay.com>. Typical auction price has been well under a hundred dollars; it is a common radio. Since some sellers can't spell, try doing a search of "Hallicrafter" as well, this may lead to offerings that others miss bidding on! (I am giving away my trade secrets!) Another excellent resource for finding vintage communications receivers is through the <rec.radio.amateur.boat anchors> newsgroup. You might try listing a "WTB" (Want To Buy) for an S-40A receiver. The newsgroup is a good resource for finding technical assistance or vintage parts. For those who are wondering, "Boatanchors" are what amateurs call vintage tube-based equipment. The "boatanchor" moniker implies the massive size of some of these beasts would allow them to anchor the Titanic! The Internet <rec.antique.radio+phono> newsgroup, that we have discussed in the past, should not be used for communications equipment.

Ed's S40 product detector generated some mail. Via E-mail, we have these interesting comments:

"That is a really a novel way to provide acceptable SSB reception with extensive modifications. Sets without a BFO could use this by providing an external BFO, such as one offered by TEN-TEC as an inexpensive kit. It would be perfect for such applications. *(I will investigate this for future article fodder — Pete.)* If height permits, a socket adapter could be constructed to plug into the existing socket. The wiring changes would be made in the adapter, and not by modifying the existing radio wiring. One of my radios, a Zenith 5808, uses a diode-connected 6J5 as a detector. The Gated-Diode Detector would be really easy for this circuit."

Connecting a Heathkit QF-1 Q-multiplier to the mixer plate of almost any shortwave radio will give reasonable enough performance for two-way SSB or CW amateur communication." — Regards and 73, AD4UY (no name given)"

Al Sorenson, WB5RGC asks:

"I enjoyed the article on the S-40A so much that I obtained one for myself. I am interested in the putting the product detector in my Hallicrafters S-40A as described in the October issue. I need more information about what components need to be changed in order to install the 6SL7 in place of the 6SQ7. Do you have an address for Dr. Engelken so I might be able to get a more complete schematic? I am not much of an engineer, but I do know my way around a schematic. I have been enjoying your articles very much. Thanks." — Al Sorenson, WB5RGC

Al, I have passed your request on to Ed via E-mail. If need be, I will run more detailed information on product detector mods in future columns.

Charles Brown, N4SO aboard the *USNS Pathfinder* adds:

"Good article on the Hallicrafters, hope you keep them coming. I used to own the Hallicrafters HT-37 transmitter long ago . . . "

And, this plea for parts help from reader Bob Pole, W5RXB. If anyone has an SX-42 parts set, please contact Bob at <W5RXB@aol.com>.

"I noted you mentioned owning an SX-42 and SX-28 receiver. I obtained a Hallicrafters SX-42 last fall; the set was working when I purchased it. WWV time signals come in right where they are supposed to be. It came with the companion R-42 and it sounds good! I also own an SX-71 receiver from the 1950s, the era when I was an active ham in the St. Paul, Minnesota area. My SX-42 is missing the metal dial lock knob that screws into the hollow of the main tuning/bandspread shaft. Do you have a parts source for this receiver; or know where I might find a knob for sale?"

Bob, try placing an ad looking for someone with an SX-42 parts set in the boatanchor radio newsgroup on the Internet. Some very helpful folks who are interested in vintage tube-based communications equipment frequent this group. Have your server take you to the newsgroup <rec.radio.amateur.boatanchors>. Good luck!

R. D. Carter sent a long letter I will use in a future column. Mr. Carter asks about finding a Hallicrafters EC-1, S-38, or S-120 receiver, and the cost of retubing. R.D., all three radios are very common, and I suspect they all run in the $50 price range for a decent and working model. Try the Ebay auction site mentioned earlier to get a feel for the going prices for Hallicrafters sets. I have seen these models at local radio shows and several of the local antique dealers. These radios use very common and readily available tubes. Retubing should run well under the cost of the set!

Well, that's it for this special "reader's edition" of "The Radio Connection." To those of you who have letters on file to be answered, I am slowly working my way down the pile! Occasionally, a letter or two gets lost in transit, and I humbly apologize if this has happened to yours. Several others bridge on the subject matter for future columns, and I will use those letters at those times. ■

ScanTech

TRUNKING, TIPS, TECHNIQUES, AND MODS

BY KEN REISS
<armadillo1@aol.com>

TrunkTrac — New Life For That Old Receiver!

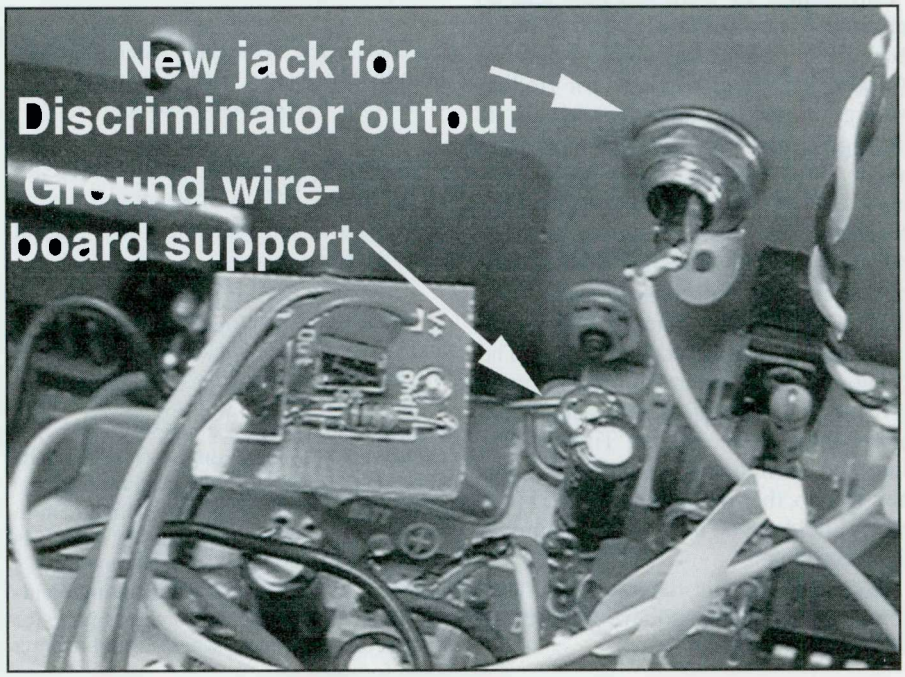
If you'll remember, it wasn't all that long ago that the word "trunked," when discussing public safety radio systems, would cause extreme emotional reactions from otherwise normal scanner listeners. There simply was no way to easily listen to any of these systems, and while it could still be done with a conventional radio, it was difficult at best. Following any one conversation was almost impossible. Still, we persisted, and it was possible to at least "keep up" with dispatch operations and other major users. Following the detectives or car-to-car channels was somewhere between improbable on a slow system to impossible on a busy one.

Then, all of a sudden, users on CompuServe began seeing claims from a user that he had a trunk-following system available, and would be selling it shortly. There were lots of details: it would be on a board for your PC, it would work with most computer-controlled radios, and even pricing was discussed. Then nothing happened. Almost as fast as it had appeared, it was gone. Rumors flew about legal issues, injunctions, and technical problems.

Then rumors started flowing about Uniden introducing a trunk-following scanner based on the work of this same person — Greg Knox. It was a painfully long wait, but it did eventually materialize, and now trunk systems are a joy to listen to. No doubt, if you have one near you, you probably already have or want a Uniden Trunktracker!

In Greg's own words, "It all started one day as I was pulling into the gate at Hartsfield Airport in Atlanta in a DC-9 (Greg is a pilot in the real world). It was the end of a three or four-day trip and I was looking forward to the next four days off. Just as we were about to turn into the gate, the ramp tower called and said to have the first officer (me) call scheduling, as they had a trip to assign me over my days off."

Well, to say the least, Greg was a little annoyed — actually, he used other words, but I don't think we could get them past ol' "Gee, I don't know" Harold. Greg continues, "When I finally calmed down, I realized it would net me about an extra thousand dollars, so I decided buying a new radio with the money would 'right' this 'injustice.' I bought an ICOM R-7100, but couldn't listen to any of the public safety activity around here because, as I soon found out, most of the Atlanta metro area is trunked. I didn't even know what trunked was. I thought it meant the transceiver was in the TRUNK with a control head up front! But I got past that, naively assumed I could solve the trunking problem, and the rest, as they say, is history."



The discriminator buffer has to be installed in most radios before the TrunkTrac will work correctly. A stiff copper wire, that also serves as ground, supports the board. Three other connections are required on the Optoscan: one was to test point two, one to a power source, and one to a new jack that had to be added on the rear panel to pass the discriminator signal out the back of the radio to the TrunkTrac board.

So What Happened To That Board?

Around the same time Uniden introduced the Trunktracker, Greg's company, SyntheComm released the board for your computer that would also allow trunking with a computer-controlled receiver. That board is called TrunkTrac, and I have had the privilege of working with one for the last couple of months.

The main advantages of TrunkTrac really break down into two categories. The Trunktracker radios from Uniden and RadioShack are only capable of following one trunking system at a time. TrunkTrac can follow as many as four. And TrunkTrac can be added to an existing computer-controlled scanner, reviving the usefulness of those radios if your town has switched its communications over to a trunking system.

Installation

Upon unpacking the TrunkTrac, you'll find an ISA circuit board that goes inside the computer, a manual, disk, and

a small circuit board called the "discriminator buffer." This board must be installed inside most radios that the TrunkTrac works with, but the process is not all that difficult.

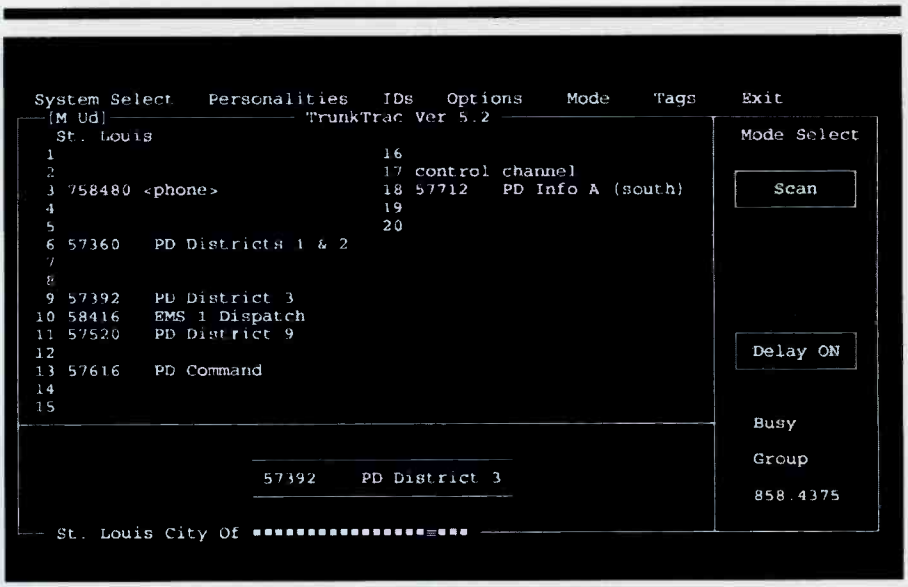
TrunkTrac's system requirements are fairly modest. It works best in a DOS mode, rather than a DOS window from another operating system, but only requires a 286 or faster processor. I was able to locate a 386 machine for less than $75 that works great. You'll probably want this application running quite a bit, so having a dedicated computer is preferable. One slot and one COM port are the only other requirements for the system.

Installation is the task that scares most folks away from systems involving computers and radios. It's unfortunate, but a necessary evil. There are a few internal connections that have to be made to the radio (depending on the model) in order for the system to work. Specifically, a discriminator output is required. Of course the radio must also be computer controllable, and any hardware necessary for that must also be installed.

On the PRO-2006, the radio I choose for most of the testing, the discriminator is readily accessible at "test point two," which I had already identified when installing the Optoscan OS-456 interface. The top cover must be removed, and the buffer circuit attached to test point two, a power source and the rear of the radio, so a total of three solder connections were required. This is very typical, although the location of the discriminator output varies by radio and can be somewhat difficult to locate. The good news is that SyntheComm will install the buffer for you for the small price of shipping the radio in both directions. If you're not comfortable inside the radio, this is a very generous offer that will ease your mind considerably. Now you really have no excuse!

The next installation task is software. The software installation itself is fairly straightforward. Just copy some files to a directory on your hard disk. But, the configuration of those files is a bit trickier. Here is one place where the manual makes the task look much more daunting than it really is.

You need to tell the software through the use of the "config.tnk" file what type of radio you have and what COM port is used for communicating with the radio. You'll need to use a text editing program (edit, for instance, included with MS-DOS, but any word processor will do) in order to change the file.



The channel display screen works great when you're listening to a single system. It not only reveals what channels in the system are active, but what kind of traffic they are carrying.

The other main parameter that must be set in the "config.tnk" file while we're here is the radio model. Currently, the TrunkTrac supports the ICOM R-7000, R-7100, R-9000, R-8500, and PCR-1000, and the PRO-2006, PRO-2005, PRO-2035 radios from RadioShack with a suitable Optoscan interface installed. I assume that it would also support the PRO-2042 with the OS-535 installed and just refer to it as a 2035, since there is no difference between the computer control portions of these radios. It also supports the BC-895, if you're interested in tracking multiple systems with your TrunkTrac, although I'm not sure this is really a good application for that radio. For the most part, you can accept all of the other settings for now. The manual talks about all of the other settings in the "config.tnk" file as it goes through this setup step, but it's really not necessary to make any decisions at this point. You'll begin to appreciate those other settings as time goes on and you work with the system.

It's also important to set the dipswitches on the board to the appropriate COM port and IRQ setting. This should probably be done *before* you install the board into an open slot on your computer. The settings on the board and the settings in the "config.tnk" file must match. Note that the board does not require its own IRQ, but rather needs the information about where to send control signals for the radio.

And finally, in order to begin trunking, you must also set up a "system.tnk" file. This file contains information about the systems that you'll be listening to. A lot of this information can be entered or updated from within the program, but at a minimum, you must identify the system and its frequencies. Actually, you can just identify the current control channel, or just the channels used for control. The system has a mode to help you search for the frequencies in use. It will run a bit faster and smoother if you enter all the system frequencies for any system that you intend to listen to often.

There is a sample file provided to help you make your system fit and still get the entries correct. Putting the minimum information in the "system.tnk" file is advisable because it is much easier to adjust other parameters from within the program. It would be really convenient if you could also enter the system name (a text name that you assign to each system) and frequencies from there, but that function is not available in the current version of the software.

So Let's Make It Work!

Once all the required information has been entered into the appropriate files, you're ready to begin trunking. Prepare for a cool experience.

The first thing to do is select the systems menu and pick the system you want to listen to. I'm assuming at first you'll probably only have one system installed, so that will be an easy pick. Later, you can have many systems installed, and you can listen to as many as four at once.

Once the system is selected, TrunkTrac begins by locating the data channel. If you

have a reasonably strong signal, this won't take long, and then the display will begin to show you IDs that are being found in the search mode. Since we're scanning, or rather searching a new system, the IDs that are found will all indicate "NOT TAGGED," but we can fix that in a hurry.

A Talkgroup By Any Other Name

The system defaults to using Motorola type ID numbers for type I and type II talkgroups. This isn't a problem if you haven't spent any time with the Uniden Trunktrackers, and probably has some advantage that I'm not aware of. However, for those of us who have used the Trunktracker, we're already used to dealing with talkgroup information in decimal format. The good news is that this can be switched from the options menu (you'll be getting used to a lot of the commands in the options menu) or can even be made the default by an entry in the "config.tnk" file (one of those settings I told you to ignore earlier). I chose to use the Uniden IDs because I already had fairly extensive information on talkgroups for our local police system. Using the same format saved a lot of work in converting the numbers.

If you need to enter a custom fleet map, now is the time to do that. If you don't know, or are fortunate enough to have an all-type II system, then you can skip this step. The fleet map programming, while it can be done directly in the "system.tnk" file, is much easier to access through the options menu. Pressing "Alt O" and then selecting the system map option will get you there. Your changes will be preserved for future use, so editing the file manually is unnecessary.

Just like everything else in TrunkTrac, there is a choice of working in the Motorola format or Uniden's decimal equivalent. I've chosen the Uniden because of familiarity, but you can work in either mode. The only difference is that in Uniden mode, a Type II block is identified by a size code of 0, whereas in Motorola format, a Type II block is identified with a 2. The Type I blocks use letters A through Q (but skip L, N, and P for some reason). Either one will get you there.

The fleet editing screen has its own commands to allow you to edit the fleet map. You can also reset the whole thing and start over. And you can switch between the Motorola and Uniden ID modes at any time. You can also load any of 16 preset maps. These are suggested to be the most common configurations of systems throughout the country. In fact, our local police system requires a custom map, but all of the SMR systems I have tried are able to use one of the built-in maps. If you're familiar with Uniden fleet maps, these 16 presets match exactly the ones built into the Trunktracker.

All in all, it's very easy to use, but still will require some diligence to discover the correct settings for the systems you are listening to. The manual provides some suggestions on how to identify the correct settings for any system that you may be listening to. And there are numerous sites on the Internet, as well as other reference material being published all the time with settings and other valuable information.

Trunking

TrunkTrac has two screen modes for actual operation. Running in single-system mode, which I do most of the time, the default "Channel screen" format provides a great overview of system activity. In the upper part of the display, TrunkTrac will show you all of the talkgroups that are currently active. Later, in the scan mode, any of these that are of interest will become active and also display at the bottom portion of the screen

The list screen is great for seeing what IDs you're scanning, or for use in multiple systems. Note that the left column indicates IDs requested by the system, as they are called on the control channel. IDs at the top of the list represent "history" and may or may not be active any longer. The ID at the bottom was the most recently requested, and if it's in your scan list, TrunkTrac will lock on to the conversation.

as the audio is heard. In search mode, the first active conversation is heard, unless it's locked out, but the display will try to update you on additional activity. It's fascinating to watch the amount of activity on the system go from very busy to absolutely dead in a matter of seconds.

The other screen display mode, the scrolling format, also has advantages. For one thing, if you are scanning multiple systems, this is really the only screen that will give you any truly valuable information. In this mode, the ID's that are active are listed in the left column. As more activity is found, the screen scrolls up so that a historical list of things that have been active in the last few minutes can be seen. If there's room(and there is in a single system mode, but less in multi-system operation), the scan lists will also be displayed. This mode only displays the alpha tags for the currently active ID at the bottom of the screen as they are on the air. You do not see anything but numbers scrolling or viewed in the ID lists.

As you search the system, you'll either recognize the group or begin to identify certain talkgroups. Pressing "Alt-T" while the group is active will allow you to assign an alphanumeric tag of up to 35 characters to it. As you exit the program, you'll be prompted to save the updated tags, and it won't take long to get most of them identified. Now you don't have to memorize the ID numbers of your favorite channels. That feature alone is probably worth tying up a computer.

Scanning For IDs

Just like on the Trunktracker, you can maintain lists of talkgroups, called scan lists, that you are interested in monitoring. Each list in TrunkTrac can have up to 14 IDs and there are five lists. But it gets better. The set of five lists can be saved — and should be — to a "personality." You can have up to 10 personalities per system, making concentrating on particular types of activity easy to switch in and out. For instance, our system has both police and emergency medical services on it. Most of the time I'm not interested in the EMS traffic, so I set up a personality that doesn't include them. However, there are times when that's the only thing I want to listen to, or I want EMS mixed in with a few of the police dispatch channels. Setting up a personality for each of these situations still leaves me with plenty of configurations to spare.

One minor complaint about the software is that it is not possible to set up a "default personality." More than once, I have run the system and put it into scan mode and then watched as lots of IDs went active, but heard nothing. What's happening is that the software is scanning, but has no IDs in any of the lists to look for until a personality is loaded.

Another trick with TrunkTrac software is that it will allow for monitoring of both phone-interconnect calls, and private (unit-to-unit) calls. These can easily be turned off by using the scan mode (with none of these IDs loaded) or by the use of the "Alt-V" command. There was much concern about this when the Trunktracker first came out, but while it sounds like this would be interesting to monitor. I find myself turning this mode off most of the time. These calls are listed in the activity screens with a "p" next to the ID for "Private calls" and a "t" next to the ID for "Telephone," so you won't have any trouble identifying them.

Keeping Your Priorities Straight

Another cool feature of TrunkTrac is the ability to scan in a "priority" mode. Scan List 1 has the highest priority; any ID that becomes active in that list will cause the system to flip over and follow that conversation regardless of what it was listening to before. List 5 has the lowest scanning priority.

What this allows you to accomplish, much like the priority system on a conventional scanner, is to focus on one or more talkgroups but still follow other, less important activity when the important ones aren't active. A good example of that is our local detective talkgroup. They don't talk much, but when they do it's almost always interesting. By putting them in a higher priority list than the dispatch channels, most of the activity on the detective group can be heard, but I can still listen to the dispatch channels when things are slow. Nice feature once you play with it a little bit.

The Manual

Probably the worst part of any program is the manual. A lot of them are written by the programmer, or at least by someone who has a complete understanding of the product, but may not be able to explain it in a fluid manner. I found that the manual for TrunkTrac fits this category quite well, and Greg Knox readily admits that he is "too close to the program" to write a good manual.

The information is all there, but daunting to the beginner. It would probably be very difficult for someone who had not worked with any trunk-following system to get a handle what this thing is supposed to do. However, if you understand what you're trying to accomplish, then reading

through it completely will get you started. There is a "Quickstart" section, but it comes about halfway into the manual, after much detail about setting up the config and system files is explained.

After using the system for a few weeks, I have found myself returning to the manual time and time again looking for things that I remember reading but don't recall exactly how they function. The info is there, but it's a bit hard to access at times. There is a handy "Quick Reference Guide" included with the manual for all of the keyboard shortcuts in the software. This is an extremely useful thing to keep handy as the program makes extensive use of F keys and ALT keys, rather than on-screen-mnemonic commands. A lot of them can be accessed through the menu system, but the shortcuts do come in handy.

These two shortfalls are the only complaints I have about the system, and one of those (the keyboard shortcuts) is really my own weakness in remembering function keys. The information is in the manual, but it will take some study, and I suspect frequent consultation for some time to come before the software and its options are completely mastered. The system itself performs flawlessly. Sure it missed an occasional call, but I believe most of that is related to the weaker computer system that I'm running with, or perhaps some option or another that wasn't set. In tracking side by side with an 895, there were times when one radio would grab a signal and the other wouldn't, for some reason. My guess is this was due to some variations in the data channel, or what that particular radio was looking at just prior to the call coming out. Neither system out-performed the other, and neither missed enough of anything to be concerned about.

The bottom line is that it works, and works well. SyntheComm is making a very generous offer to help you get the system up and running by offering to install the buffer/discriminator output for you. And it makes some of those high-end receivers that were almost useless against a trunking system look like hot performers. If you have one of the radios compatible with this unit and a trunking system in your town, you probably need the TrunkTrac. I'll be sending a check rather than returning the evaluation unit.

TrunkTrac was originally sold in two versions, but recently the lower end model (single system) has been discontinued, and the price lowered on the multi-system version. The whole kit is yours for $299 (plus shipping). Further information on the system and the incredible limited time offer of installation of the buffer circuit for only shipping charges can be obtained from ScannerMaster at 800-722-6701 or contact them at <http://www.scannermaster.com>.

Your Input Needed

"Scan Tech" is your column. And we are always looking for your questions and suggestions. In the meantime, don't hesitate to contact me either via E-mail at <armadillo1@aol.com>, or via the post office at Ken Reiss, 9051 Watson Rd. #309, St. Louis, Missouri 63126.

Or join us on-line Thursday nights on America On-Line in the Radio Communications Forum. Until next month good listening. ■

CB Scene

27-MHz COMMUNICATIONS ACTIVITIES

BY JOCK ELLIOTT
SSB-734

Texas Ranger Sideband Base Stands Tall

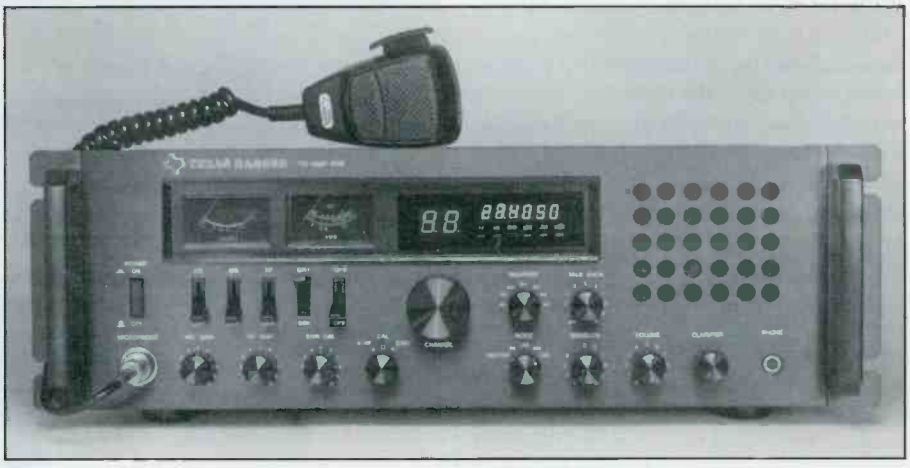
Recently, I heard some numbers that knocked my socks off. The source was the director of marketing for a company that markets CBs and other two-way radios. He said he had checked with the Federal Department of Commerce to see how many CBs had been imported into the country last year. The answer: 1.4 *million*.

Further, he said, the Commerce Department reports that during the previous four years, the number of CBs imported per year had never been lower than 1.1 million and sometimes was as high as 2 million. That's somewhere between five and 10 million CBs imported into the good old U.S.A. during the past five years. That tells me (as if there was any doubt) that CB is very much alive and well in the U.S. That's good news for all of us who enjoy CBing.

As if to underscore the point, a new manufacturer has stepped into the ring with a new brand of CB radios. Called Texas Ranger, it is manufactured by Ranger Communications, Inc. That's right — the same folks who manufacture the Ranger line of 10-meter radios now have an FCC-approved, type-certified line of CBs. And judging from the first transceiver that I got my hands on, Texas Ranger isn't out to sell just a few radios — they are out to win big.

I won't keep you in suspense: the Texas Ranger TR 696F-SSB base station is an awesome radio. To begin, it's physically impressive. At about 19 inches wide, 6.5 inches high, and about a foot deep (a bit more, if you count the rack handles), the TR 696F is huge — the largest of the currently available type-accepted base stations. In fact, of all the solid state radios I've had my hands on, only the Cobra 2000 GTL is larger.

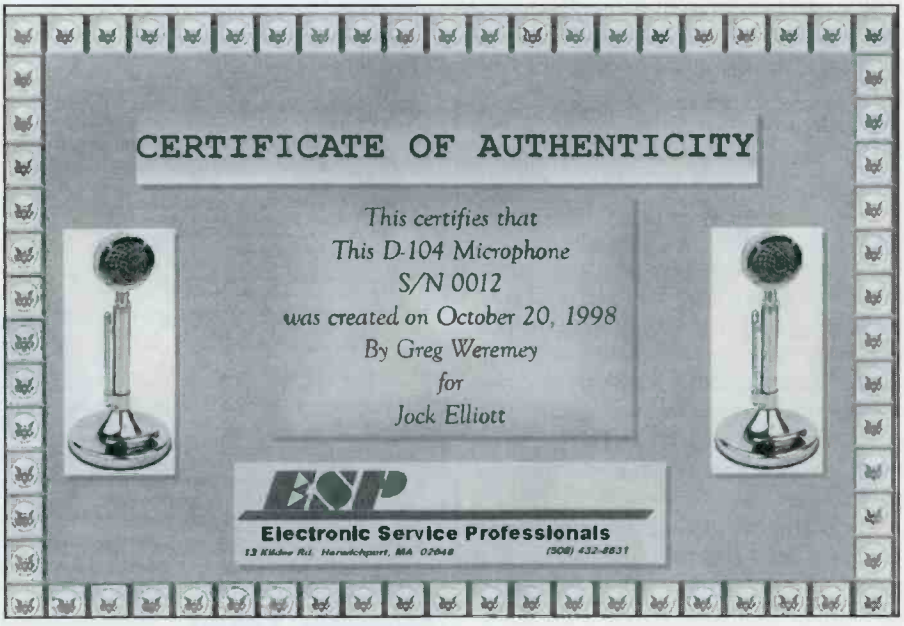
As I pulled the TR 696F from its box, my first impression was "Wow, this is one cool-looking radio." And indeed it is. The entire radio is black, accented by white lettering. The smooth metal front panel is studded with 11 knobs, five switches, two meters, and a couple of light-emitting diode displays.



Texas Ranger's good-looking and great-performing AM/SSB base station.

Let's Take A Tour

At the left hand side of the front panel is a push-button power switch. Press it and a small red LED illuminates above it to let you know the rig is powered up. Immediately to the right of the LED are meters for received signal strength and transmit power and SWR. To the right of that is a large red LED channel indicator. Moving to the right again, a red LED six-digit frequency counter (*a real frequency counter*, not just a frequency display). Under the frequency counter is a series of red LED indicators for transmit, weather, Channel 9, lower sideband, AM, and



Every Weremey-modified D-104 comes with a certificate of authenticity.

upper sideband. Further to the right is a front-firing speaker.

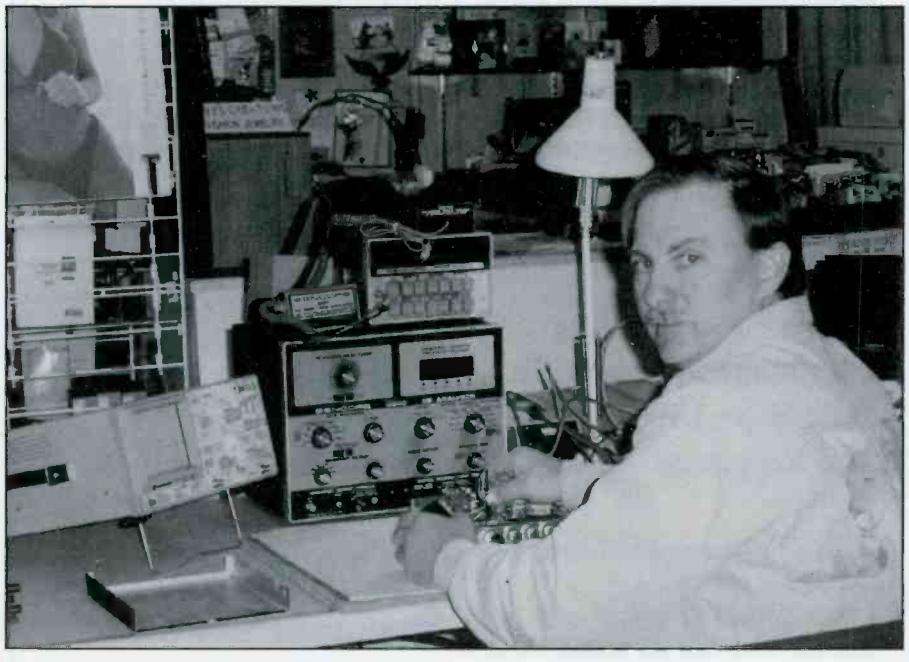
From the left, across the middle band of the radio is a series of toggle switches for noise blanker, automatic noise limiter, a high-frequency noise attenuator to be used in pulling out weak signals, display brightness, and instant channel 9 selection. Next to them, a large knob for selecting the 40 FCC-approved citizens band channels. Moving again to the right, you'll find a knob for selecting any of seven NOAA weather channels (the TR 696F can receive both NOAA weather radio and NOAA weather "alerts") and a knob for a "Talk Back" circuit, which allows you to hear what the audio going into your microphone circuit sounds like.

Across the bottom of the front panel, from the left, there is a four-pin microphone connector and series of knobs for mic gain, RF gain, SWR calibration, SWR meter function, mode (weather, PA, LSB, AM, or USB), squelch, volume, and clarifier. At the bottom right corner of the rig, there is a jack for headphones. All the knobs are good-sized, have a satin-finish face with a white position-indicating dot and knurled edges, and feel substantial and smooth when operated. In fact, the entire control set has a quality look and feel to it, and the fit and finish is outstanding. This is a transceiver that has "pride of ownership" written all over it.

The main box of the TR 696F is covered in a black wrinkle finish. On the back panel, there are connectors for an antenna, PA speaker, external speaker, external frequency counter, and recording output, in addition to the power cord and a fuse holder. A friend — an electronics engineer — was having a look inside the Texas Ranger when he remarked that the quality of construction is "a cut above" what he normally sees in CB transceivers.

But as any hot-rodder will tell you: show is one thing; go is another. So how does this cool-looking radio perform? The short answer: just great, thank you. On transmit, it delivers great-sounding audio at the full legal limit on AM and single-sideband. There is one odd thing, though. When you key the mic, the TR 696F emits an audible click through the speaker and another click when you un-key. Nevertheless, I got "thumbs up" signal reports from the folks I normally talk to. In fact, in a head-to-head comparison with another radio that had been highly "tuned," the Texas Ranger delivered greater signal strength, greater audio clarity, and didn't interfere with the television!

On receive, the TR 696F is even more impressive. Sensitivity is high, yet the audio is very smooth. The clarifier works with great precision, and the frequency counter lets you know exactly what you're doing as you change the receive frequency. The noise blanker and automatic noise limiter work well. The TR 696F also exhibits very good ability to



Gary Smith, the "CB MD," at his bench.

reject adjacent channel noise. I happen to be a "receiver chauvinist" — since most CBs transmit pretty well, the thing I value most in a rig is a receiver that I can listen to for hours at a time without tiring of the audio quality. In this regard, the TR 696F is a real winner.

The only area in which the TR 696F fails to deliver absolutely top-of-the-line performance is that neither one of the meters measures modulation. It seems a strange omission on such a high-quality CB radio.

On balance, the Texas Ranger TR 696F is simply outstanding. Occasionally, I hear from CBers who complain that, since Cobra stopped making the 2000 GTL, they haven't seen a base station that gets their blood pumping. If you are in that camp, have a look at the TR 696F; it's got "the right stuff." Suggested retail price is $399.95. This radio comes with a two-year warranty. Because they are so new, Texas Rangers may not be available in your area. One place to get them is from JCRE International. Give Jerry Faughn a call at 800-568-7752 or visit the Website <http://www.jcre.com>. Be sure to tell him you saw it in *Pop'Comm*.

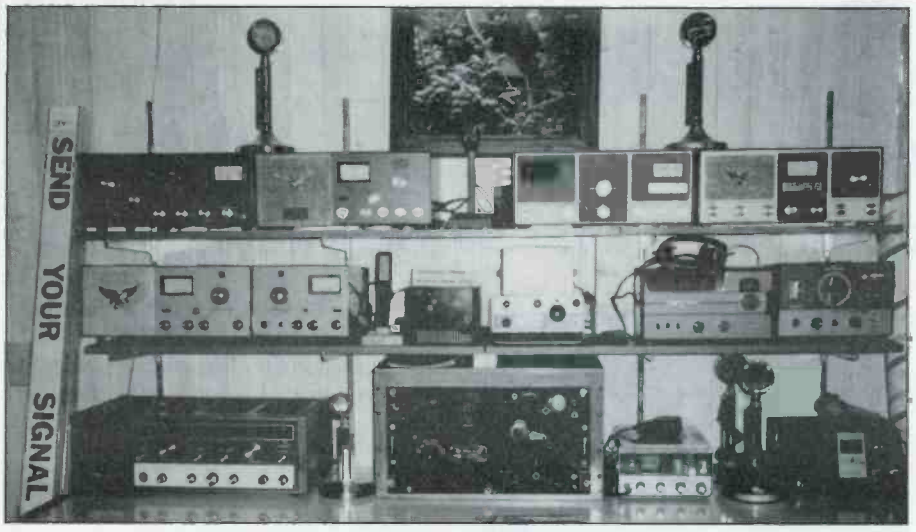
A couple of notes: The Texas Ranger is NOT a Ranger 10-meter rig in disguise. You can't clip a wire and suddenly get 100 watts transmit power. It is, however, a superb SSB CB base station and, as such, should provide years of CBing enjoyment.

For information on the Texas Ranger TR 696F-SSB base CB transceiver, contact Commex Marketing, Inc., 18003 Skypark Circle, Irwin, California 92614 or call them at 949-474-8595. You can also E-mail them directly at <Commex@hotmail.com> or visit their Website at <http://www.texas-ranger.com>.

Does Your Microphone Have ESP?

No, I'm not talking about Extra Sensory Perception; what I had in mind was Electronic Service Professionals, a small company run by Greg Weremey in Harwichport, Massachusetts. He contacted me after my review of the D-104 microphone with the news that he does custom modifications on the D-104.

You see, as a former broadcast professional himself, Weremey is a bug on "broadcast quality sound." He modified my D-104, and I can tell you that the result is richer, fuller sound that actually delivers MORE punch on single sideband without sounding raucous or harsh. Each one of these modifications is done carefully by hand, and, when it's done,



Smith's collection of vintage CBs. Nice!

each microphone is delivered with a certificate of authenticity.

The Weremey modification costs $75 — that does not include the cost of the microphone, which you must buy. For an additional $25, he adds a tone control under the bottom plate of the D-104 and a switch that allows you to use the microphone on VOX (voice-activated transmit) *if* your radio has a VOX circuit built into it.

Electronic Service Professionals can be reached at 13 Kildee Rd., Harwichport, Massachusetts 02646 or call 508-432-8831. If you have Internet access, you can hear an audio demonstration of the difference between a stock D-104 and an ESP D-104 by visiting <http://www.angelfire.com/ma/electroservepro/>.

Sick CB? Call The CB MD!

I was researching an obscure CB problem one day and began calling some of the fellows I know for some help. Pretty soon, I began hearing a recurring theme: there's this guy in New Hampshire — the "CB MD" — who should know the answer. In fact, if he doesn't know, they said, there probably isn't an answer!

In short order, I was speaking with the CB MD, Gary Smith of Walpole, New Hampshire. Very quickly, it became clear to me that here is a knowledgeable service technician who really knows his stuff and knows how to separate folk lore from what really works. Smith tells me people from all over the country send rigs to him for repair and retrofitting. He also has a neat collection of vintage rigs.

If your CB needs help, consider giving the CB MD a call at 603-445-2161 during shop hours 8 a.m. to 5 p.m., Eastern time, Mon–Fri, and Saturday, 8 a.m. to 1 p.m.

Until next time, keep those cards, letters, and shack photos coming! Write to me at *Pop'Comm* or send an E-mail to <lightkeeper@sprintmail.com>. ■

The ACARS Downlink

YOUR LINK TO DIGITAL AIRCRAFT COMMUNICATIONS

BY BOB EVANS

Reviewing AOR's ARD-2 ACARS/NAVTEX Decoder & Display Unit

AOR's ARD-2 is a stand-alone ACARS/NAVTEX decoder that features a two-line LCD display. The unit's small size (4 inches W x 6 inches H x 1 1/2 inches D) makes it an excellent choice for portable operations. The unit is powered from four "AA" batteries or may be connected to a DC source, such as a car or boat battery. A DC converter cable is supplied. In addition, the unit has an RS232 serial connector for attachment to your home computer.

Setting Up

With regards to ACARS, the ARD-2 is basically plug and play. Insert the batteries, plug the supplied mini jack extension patch cord into the AF IN jack of the unit and plug the other end of the cable into the speaker out/phone out of your VHF scanner or receiver. Tune an ACARS frequency (131.550 for example) and turn the power switch on. The LCD display lights up and temporarily displays the unit name and software version number. It then defaults to ACARS-1 mode.

Decoding Modes

The ARD-2 supports two ACARS modes — Mode 1 and Mode 2.

Mode-1 (the default) neatly organizes ACARS transmissions with appropriate message headers before the text, whereas Mode-2 presents a stream of raw data without the message element headers. See the latter part of this article for a short explanation on NAVTEX decoding.

Setting The Signal Levels

AOR recommends setting the volume of your VHF scanner/receiver to around the 11 o'clock position. The unit also has a level control knob to help you adjust the strength of the signal going to the decoder. If the signal level is too low, nothing will be decoded. If it is too high, clipping will occur and the decoded text will be garbled. I found that when it was connected to my ICOM R-7100, the 11 o'clock position also worked well on the volume control knob of the unit.

A look at the new AOR ARD-2 ACARS decoder.

One of the drawbacks of previous decoders is that once you've connected them to your scanner/receiver, you could not hear signal transmissions. AOR has thoughtfully provided a built-in speaker with its own volume control knob. If you wish to listen in private, there are also headphone and extension speaker jacks. The mini-plug jacks are on BOTH ends of the unit. After about 30 seconds of adjusting the volume levels, I was well on my way to decoding ACARS.

LCD Display

The ARD-2 features a 16-character by two-line LCD display. When operating in ACARS Mode-1, the first line of the display normally contains the message header. Up and down scroll keys permit you to access the 512-character (32-line) buffer. Once the buffer is filled, it is refreshed with the next 512 characters and the previous contents are lost. While scrolling is performed, the unit ceases decoding. To restart decoding, press the DECODE START button. A red LED flashes to indicate an incoming signal that is being decoded.

For instance, consider the following sample ACARS message:

.N321AA 5Z6
5910AA038OS ZRH
.N321AA

Address: Aircraft Registration Mark — American Airlines Boeing 767
5Z
Downlink Message Label: 5Z — Airline Designated Downlink
6 Downlink Block Identifier 5910
Message Sequence Number: 59 minutes, 10 seconds past the hour (21:59:10)

AA038
American Airlines flight # 38
OS
Other Supplementary
ZRH
Destination: Zurich, Switzerland

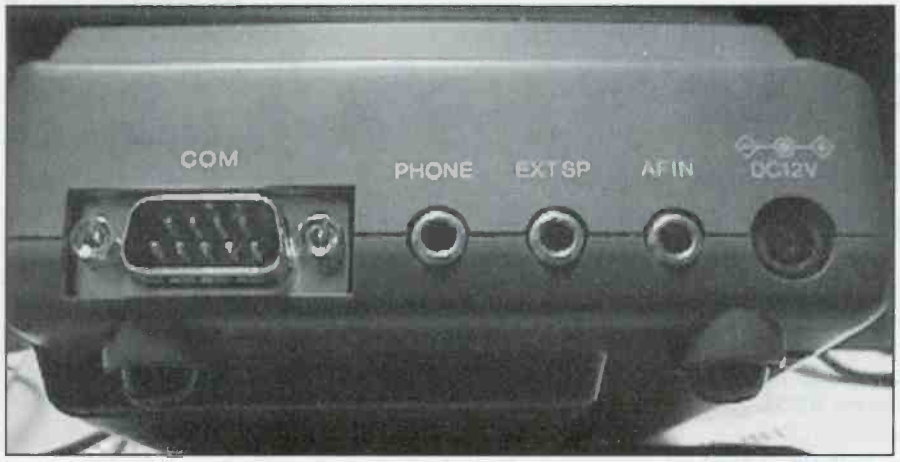
Here's how the above message would look on the ARD-2's LCD screen.

ACARS mode: 2
Aircraft reg: .N321AA
Message label: 5Z
Block id: 6
Msg. No: 5910
Flight id: AA038
Message content: OS ZRH

To view the entire message, you will need to use the up and down scroll keys.

Connecting To Your Home Computer

If you live in an area with high ACARS activity, it will soon become apparent that the two-line LCD display is too limiting for monitoring purposes. This is where the unit's serial com port comes into its own. The supplied serial cable permits easy connection to your computer system. Unlike other decoders, no special



The panel connections on the end of the unit.

A close-up view of the ARD-2 keypad.

software is required. You may use any terminal communications software. A sample program was supplied with the unit I evaluated. In ACARS Mode-1, the above message would appear on your computer screen as follows:

ACARS mode: 2 Aircraft reg: .N321AA
Message label: 5Z Block id: 6 Msg. No: 5910
Flight id: AA038
Message content: OS ZRH

In Mode-2, all text headers are removed and only the raw ACARS data is displayed.

Parity Checking

One of the drawbacks of early standalone portable decoders was that they were prone to displaying spurious characters. Only the more sophisticated desktop units featured a parity checking circuit. Fortunately, the ARD-2 contains automatic parity correction. If a spurious character is received, it is displayed with a special character. In bench tests against other ACARS decoders, the ARD-2 was equal to the best of them as far as parity checking and clean signal decoding were concerned. (I have owned every ACARS decoder ever manufactured and currently have the best half dozen of them on hand for bench test purposes.)

Scanner/Receiver Choices

The ARD-2 was designed to be connected to a desktop or handheld scanner. Not surprisingly, AOR manufactures a highly successful product line for this area of communications. Connection to my ICOM R-7100 VHF/UHF communications receiver was really overkill. The unit performed equally as well when I took it to the airport (YYZ) and used my Uniden Bearcat 3000XLT handheld. Connected to a NEC 486 laptop, I logged several hours of ACARS transmissions.

Decoding NAVTEX

NAVTEX (Navigational Telex) signals are transmitted by maritime coastal stations on a frequency of 518 kHz in the shortwave band. These digital signals are similar to SITOR (Simplex Telex Over Radio) transmissions also used by ship/shore stations operating in the HF spectrum. To receive these distant signals, you must have a shortwave receiver capable of tuning single sideband, with an appropriate shortwave antenna. NAVTEX transmissions include maritime warnings and advisories. They are similar in nature to the automated ATIS broadcasts used by major airports, except that they describe local maritime conditions.

NAVTEX Mode-1 decodes standard English language NAVTEX broadcasts on shortwave. NAVTEX Mode-2 decodes Japanese language NAVTEX broadcasts using Japan-ese characters. (AOR is a Japanese company, so this option is not really unexpected).

The Bottom Line

The ARD-2 is a well-built, rugged unit. Its compact size and ease of use make it suitable for both novice and advanced users alike. The controls, keypad, and display are both functional as well as ergonomically usable. While the unit may be used in a portable "stand-alone" environment, it really needs to be connected to a personal computer (a laptop is the perfect companion) to gain maximum decoding benefit. Parity error detection is as good as any other currently available ACARS decoder. The user manual supplied with the unit is both well written and easy to understand.

At a suggested retail price of $299, ARD-2 performance rivals that of top-of-the-line decoders costing twice as much. For my money, this unit is a keeper. ■

BY EDWARD TEACH

The Pirate's Den

FOCUS ON FREE RADIO BROADCASTING

Digging Into The Den's Mailbag For Your Pirate Logs!

We're off and running with another bunch of great logs. Remember, *your* pirate logs and information is always needed!

Radio Bob Communications Network on 6955 heard at 1110 giving address as P.O. Box 24, Lula, Georgia 30554. Also at 1150 to 1200 (Dave, FL — his first pirate catch).

Radio DC ("Alternative Radio from the Beltway") 6955 at 1239. Very poor, and no other details copied. (Dave, FL)

Radio Free Speech, 6955 at 1211 calling for Clinton's impeachment. On another day, station was heard at 0024. Also at 1300 and 2100. (Lee Silvi, and his three sons, OH) Heard at 2117 noting he was out of retirement to call for Clinton's impeachment. Also had sound bites from "South Park." (Dean Burgess, MA)

Radio USA, 5945 monitored at 2158 with Blue Ridge address. (Silvi, OH)

Voice of Pig's Ear, 6955 USB at 2305. No mail drop announced. Other days heard at 2215, 0145, 2000, 2322, 0012, 0105, 0154, 0042, 0139, 0032, 2140, 2228, 2321, 0005, and 0033. (Silvi, OH) *(Whew! — Ed)* At 0000 with so-called comedy sounding like Andrew Dice Clay, anti-Clinton, anti-banking, anti-government, said time for revolution, "right wing radical lunatic fringe radio." Another day at 0030 with extreme right wing talk. (Hassig, IL)

Raptor Radio, 6955 USB at 0208 with music and several IDs. (Silvi, OH)

WKND, 6955 at 1312 with Radio Animal. Also at 2128 and a repeat of that program at 2259. Also at 2342 with Rock and Rap Confidential. (Silvi, OH)

Partial India Radio, 6955 USB at 2148 with possible repeat program. Also at 0035 and 0055 and tentative at 1318 discussing Pakistan and Ganges River. Also tentatively at 2325 with "Partial" almost sounding like "Postal." (Silvi, OH)

WMPR, 6955 USB at 2312 with usual music, no drop announced. (Silvi, OH)

Radio Metallica Worldwide, 6955 at 1507 with hard rock, "Secret Agent" theme. Off at 1534. Blue Ridge address was given. (Dave Jeffery, NY)

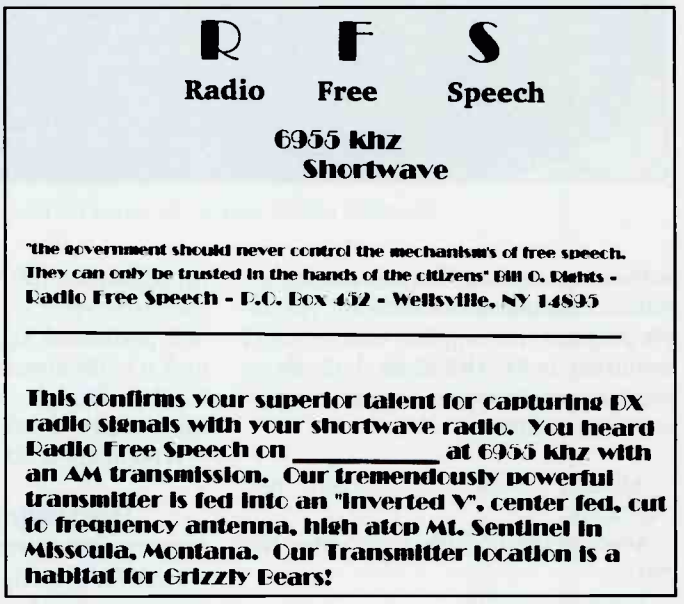
Radio Eclipse, 6955 at 2338 with music, ID, Clinton comedy. Providence address. (Jeffery, NY)

Jolly Green Radio, 6955 USB at 0106. Nothing but IDs to 0117 off. (Jeffery, NY)

Radio Goon, 6955 at 0224. DJ was the Juiceman with various rock songs, parodies, clips from "Beavis and Butthead." Used the slogan "Free Radio North America" and gave a request number as 1-800-111-1111. (Burgess, MA)

Radio Omega/Mystery Radio, 6955 USB at 0418. Both of these plus the sound of a FAX machine trying to make a connection. Omega was playing a spoof of the "Price is Right," then a Clinton spoof. Address as P.O. Box 98, Moline, Michigan 49335. Mystery Radio had '30s and '40s big band and easy-listening music. Address: P.O. Box 146, Stoneham, Massachusetts 02180. (Burgess, MA)

Radio Azteca, 6955 USB at 2100; "The Station that lifts and separates"and "Small furry critter report," "Looney Tunes," and "Rocky and Bullwinkle" interval music. (William Hassig, IL) 2041 with a repeat of program 31. (Silvi, OH)



QSL from Radio Free Speech.

Scream of the Butterfly, 6954.9v USB at 2315 with punk rock, Bob Dylan. Said it was from the good ship Lollipop. (Hassig, IL) 2325 with oldies, IDs, Providence drop.(Silvi, OH)

Radio Nonsense, 6955 USB at 0108 with rock, comedy including Tom Lehrer, Monty Python's "Spam," and various spoofs. (Hassig, IL) Different dates at 0105 and 0216. (Silvi, OH) Weak at 0221 with Doobie Brothers, preacher sketch, numbers parody. (Randall Ruger, CA)

WNCR, tentative, 6955 USB at 0154. At first, I thought it was KCHZ due to a Wolfman Jack-like voice on briefly. Near the end the announcer said, "You're listening to WNCR — sign and return — in the galaxy." Another date tentatively at 0200 with host "Maxwell Silver." And ID "the original WNCR — people's radio." (Silvi, OH)

XANAX. 6955 USB at 1959 with usual format. (Silvi, OH)

Microdot Radio, 6950 USB at 0120 with a few songs, sound effects, and spooky laughter. (Silvi, OH)

Radio Caliente, 6955 USB at 0135 with announced relay, flute song, some talk in Spanish. (Ruger, CA)

Free Hope Experience, 6955 USB monitored at 0525 sign-on. Program of old music. Also ID'd as "Foxtrot Hotel X-Ray." (Ruger, CA)

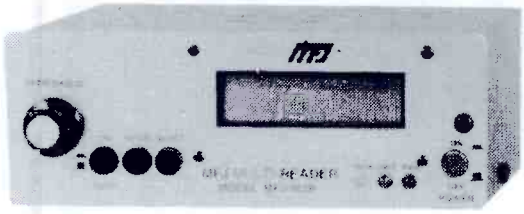
KBLK, 6955 USB at 0129. Guy with a fake African-American dialect playing hip-hop and insulting other pirates. (Ruger, CA)

Unidentified Florida station, 6955 USB at 0113 with reggae style music, including theme from "Cops," and others. ID as "Radio . . . from West Miami" and "Radio . . . from Miami, Florida." (Silvi, OH)

Thanks for all the great logs, guys. I'd also like to receive pirate-related items to use as illustrations. Show me your QSLs!

Tap into *secret* Shortwave Signals

Turn mysterious signals into exciting text messages with this new MFJ MultiReader™



MFJ-462B **$179.95** Plug this self-contained MFJ MultiReader™ into your shortwave receiver's earphone jack.

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

You'll *read* interesting commerical, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . . traffic your friends can't read -- unless they have a decoder.

Eavesdrop on the World

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

Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive error free messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- from all over the world -- Australia, Russia, Hong Kong, Japan, Egypt, Norway, Israel, Africa.

Printer Monitors 24 Hours a Day

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

Printer cable, MFJ-5412, $9.95.

MFJ *MessageSaver*™

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

High Performance Modem

MFJ's high performance *phaselock loop* modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

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

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

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

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

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $12.95. 5¼x2½x5¼ inches.

No Matter What Warranty

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

Try it for 30 Days

Order an *MFJ-462B MultiReader*™ *from* MFJ and try it in your own setup -- compare it to any other product on the market regardless of price.

Then if you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping).

Order today and try it -- you'll be glad you did.

Super Active Antenna

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

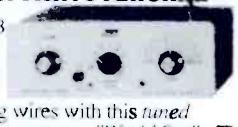
Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz to 30 MHz.

Receives strong, clear signals from all over the world. 20dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. remote has 54 inch whip, 50 ft. coax. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, $12.95.

MFJ-1024 **$129.95**

Indoor Active Antenna

MFJ-1020B **$79.95**



Rival outside long wires with this *tuned* indoor active antenna. *"World Radio TV Handbook"* says MFJ-1020 is a "fine value . . . fair price . . . best offering to date . . . performs very well indeed."

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as preselector with external antenna. Covers 0.3-30 MHz. Has Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip, 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, $12.95.

Compact Active Antenna

MFJ-1022 **$39.95**

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

Also improves scanner radio reception on VHF high and low bands.

Detachable 20 in. telescoping antenna. 9 volt battery or 110 VAC with MFJ-1312B, $12.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$169.95**

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

MFJ Antenna Matcher

MFJ-959B **$99.95**

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

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Pushbuttons let you select 2 antennas and 2 receivers. Cover 1.6-30 MHz. 9x2x6 inches. Use 9-18 VDC or 110 VAC with MFJ-1312, $12.95.

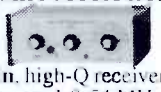
Dual Tunable Audio Filter

MFJ-752C **$99.95**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

High-Gain Preselector

MFJ-1045C **$69.95**



High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Pushbuttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18VDC or 110 VAC with MFJ-1312, $12.95.

Receive *CW, RTTY, ASCII, Weather Maps, News Photos*

MFJ-1214PC **$149.95**

Use your computer and radio to receive and display *brilliant full color* FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code.

Animate weather maps. Display 10 global pictures simultaneously. Zoom any part of picture or map. Frequency manager lists over 900 FAX stations. Automatic picture saver.

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

High-Q Passive Preselector

MFJ-956 **$39.95**

The MFJ-956 is a *high-Q* passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass and receiver grounded pos. 2x3x4 inches.

Super Passive Preselector

MFJ-1046 **$99.95**

New! **Improves** any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q *series tuned* circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

Easy-Up Antennas Book

How to build and put up inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before. Antennas from 100 KHz to 1000 MHz.

MFJ-38 **$16.95**

MFJ 12/24 Hour LCD Clocks

MFJ-107B **$9.95**

MFJ-108B **$19.95** MFJ-105C **$19.95**

MFJ-108B, dual clock displays 24 UTC and 12 hour local time *simultaneously*. **MFJ-107B**, single clock shows you 24 hour UTC time. *3 star rated* by *Passport to World Band Radio*!

MFJ-105C, accurate 24 hour UTC quartz *wall clock* with large 10 inch face.

MFJ Antenna Switches

MFJ-1704 **$59.95**

MFJ-1702C **$21.95**

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

MFJ-1702C for 2 antennas.

World Band Radio Kit

MFJ-8100K **$59.95***kit*
MFJ-8100W **$79.95***wired*

Build this *regenerative* shortwave receiver *kit* and listen to shortwave signals from all over the world with just a 10 foot wire antenna.

Has RF stage, vernier reduction drive, smooth regeneration, five bands.

Free MFJ Catalog

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(601) 323-5869; 8-4:30 CST, Mon.-Fri.
FAX: (601) 323-6551; **Add s/h**

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CIRCLE 120 ON READER SERVICE CARD

Pop'Comm's World Band Tuning Tips

February 1999

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

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

UTC	Freq.	Station/Country	Notes
0000	7415	WBCQ — The Planet, Maine	
0000	9580	Radio Yugoslavia	
0000	9630	Voz Cristiana, Chile	SS
0030	4785	Ecos del Combeima, Colombia	SS
0030	5950	Radio Vilnius, Lithuania, via Germany	
0030	6331	Radio Arcangel, Peru	SS
0030	7160	Radio Tirana, Albania	
0030	7345	Radio Prague, Czech Republic	SS/EE
0030	9685	VOIRI, Iran	
0030	9855	Radio Vilnius, Lithuania, via Germany	
0030	15395	Radio Thailand	
0100	4945	Emisora Rural, Brazil	PP
0100	5305	Radio La Immaculada, Peru	SS
0100	5930	Radio Slovakia, Slovak republic	
0100	6010	RAI, Italy	EE
0100	7250	Voice of Vietnam, via Russia	
0100	9737	Radio Nacional, Paraguay	SS
0100	9840	Radio Budapest, Hungary	
0100	9925	Croatian Radio	EE/Croat
0100	11710	RAE, Argentina	
0100	11780	Radio Nacional do Amazonia, Brazil	PP
0100	11900	YLE/Radio Finland	Finnish
0130	4779	Radio Coatan, Guatemala	SS
0130	5045	Radio Cultura do Para, Brazil	PP
0130	6220	Radio Tirana, Albania	variable freq.
0130	6798	Radio Ondas del Rio Mayo	SS
0130	9665	Voice of Russia	
0130	11760	Radio Havana Cuba	SS
0150	11765	RAI, Italy	II
0200	3210	Radio Exterior de Espana, Span via C.Rica	SS
0200	3325	Radio Maya, Guatamala	SS
0200	3380	Radio Chortis, Guatemala	SS
0200	4940	Radio Amazonas, Venezuela	SS
0200	6155	Radio Romania Int'l	
0200	6458	Armed Forces Radio, USA	USB
0200	7450	Voice of Greece	GG/EE
0200	9475	Radio Cairo, Egypt	
0200	9570	Radio Romania Int'l	
0200	9780	YLE — Radio Finland	
0200	11720	Radio Bulgaria	
0230	2460	Radio Alvorada, Brazil	PP
0230	4835	Radio Tezulutlan, Guatemala	SS
0230	4955	Radio Nacional, Colombia	SS/EE
0230	5990	REE, Spain	SS
0230	9605	Vatican Radio	FF
0230	9765	RDP, Portugal	PP
0230	9945	Voice of Russia	SS
0230	9965	Voice of Armenia	SS
0230	11810	Deutsche Welle, Germany, via Antigua	GG
0230	13750	Adventist World Radio, Costa Rica	SS
0300	3240	Trans World Radio, Swaziland	
0300	3300	Radio Cultural, Guatemala	SS
0300	4800	XERTA, Mexico	SS
0300	4819	La Voz Evangelica, Honduras	SS
0300	5840	Croatian Radio	Croatian
0300	6040	Radio Monte Carlo, via Canada	AA
0300	9200	Radio Omdurman, Sudan Sunrise Radio, via Germany	
0300	9575	RAI, Italy	SS
0300	9745	HCJB, Ecuador	
0300	9755	Radio Monte Carlo, via Canada	AA
0300	11665	Radio Sweden	Swedish
0300	11785	Radio Iraq Int'l	EE
0300	12040	Radio Ukraine	
0330	5905	Voice of Vietnam, via Russia	
0330	6940	Radio Fana, Ethiopia	vern.
0330	7215	Trans World Radio via South Africa	
0400	4919	Radio Quito, Ecuador	SS
0400	4930	Radio Internacional, Honduras	SS
0400	6265	Zambia National Broadcasting Corp	
0400	9435	Kol Israel	
0400	9730	China Radio Int'l, via French Guiana	
0400	9885	Swiss Radio Int'l	
0400	11605	Kol Israel	
0400	11940	Radio Romania Int'l	
0430	9525	Channel Africa, South Africa	FF
0500	4975	Ondas del Orteguaza, Colombia	SS

UTC	Freq.	Station/Country	Notes
0500	5030	Adventist World Radio, Costa Rica	
0500	7255	Voice of Nigeria	
0500	7520	Radio Bulgaria	
0500	9375	Voice of Greece	EE
0500	9580	Africa Number One, Gabon	FF
0500	9790	Radio France Int'l	FF
0600	5025	Radio Rebelde, Cuba	SS
0600	5047	Radio Lome, Togo	FF
0630	6015	Radio Austria Int'l, via Canada	
0700	4960	Radio Vanuatu	
0700	5850	Sunrise Radio, via Germany	
0700	9505	Radio Prague, Czech Republic	
0800	5865	HCJB, Ecuador	
0800	6020	Radio Victoria, Peru	PP
0800	7365	KNLS, Alaska	
0800	9615	KNLS, Alaska	
0800	9830	Croatian Radio	EE/Croat
0800	11880	Radio Australia	
0800	13730	Radio Austria Int'l	
0800	13745	BBC, via Canada	RR
0830	6115	La Voz del Llano, Colombia	SS
0900	4890	NBC, Papua New Guinea	
0900	6060	Radio Nacional, Argentina	SS
0900	6150	Radio Record, Brazil	PP
0900	6185	Radio Educacion, Mexico	SS/EE
0900	12080	Radio Australia	Pidgin
0930	3280	La Voz del Napo, Ecuador	SS
0930	4755	Radio Educadora Rural, Brazil	PP
0930	4875	Radio Roraima, Brazil	PP
0930	9700	Radio New Zealand	
0930	9710	Radio Australia	Pidgin
0930	11635	Far East Broadcasting Corp., Philippines	
1000	3340	Radio Altura, Peru	SS
1000	4775	Radio Tarma, Peru	SS
1000	4830	Radio Tachira, Venezuela	SS
1000	9865	Trans World Radio, Guam	
1000	11805	Radio Globo, Brazil	PP
1030	4935	Radio Tropical, Peru	SS
1030	6070	Voz Cristiana, Chile	SS
1030	6100	Radio New Zealand Int'l	
1030	15240	Radio Sweden	Swedish
1100	4845	Radio K'ekchi, Guatemala	SS/local
1100	5055	Faro del Caribe, Costa Rica	SS
1100	6105	XEQM, Mexico	SS
1100	7260	Radio Thailand	various langs.
1100	9795	Far East Broadcasting Corp., Philippines	EE/various
1100	9810	Swiss Radio Int'l	EE
1130	9845	Voice of Russia	Mongolian
1130	15125	Broadcasting Corp. of China, Taiwan	CC
1200	15485	China Radio Int'l	
1300	11705	Radio Japan/NHK	JJ
1300	17545	Reshet Bet, Israel	HH
1330	9490	Voice of Abkhazia (clandestine)	RR
1330	17790	Radio Romania Int'l	
1400	5995	Radio Australia	
1400	7405	China Radio Int'l	
1400	9625	CBC Northern Service, Canada	
1400	9830	Radio Thailand	
1400	13580	Radio Prague, Czech Republic	
1400	17675	Channel Africa, South Africa	
1430	7115	Radio Thailand	TT
1430	9660	Radio Veritas Asia, Philippines	EE/RR
1430	15220	BBC, via Canada	
1430	15265	Swiss Radio Int'l	
1430	15275	BSKSA, Saudi Arabia	AA
1430	21605	RDP, Portugal	PP
1500	9465	Adventist World Radio via Czech Rep.	RR
1500	9500	Radio Australia	
1500	9930	KWHR, Hawaii	
1500	15460	Voice of Russia	RR
1500	15550	Vatican Radio	FF
1500	15640	Kol Israel	
1500	21551	Voz Cristiana, Chile	SS (variable freq)
1530	11585	All India Radio	Baluchi
1530	11600	FEBA, Seychelles	
1530	11690	Radio Jordan	EE
1530	12085	Radio Tirana, Albania	
1600	11620	Radio Jordan	
1600	12015	Radio France Int'l, via Gabon	
1600	15084	Voice of Islamic Rep. of Iran	Farsi
1600	17760	BSKSA, Saudi Arabia	AA
1630	13675	UAE Radio. Dubai, UAE	
1630	15340	Radio Denmark, via Norway	DD
1700	13705	Radio Rossi, Russia	RR
1700	15505	Radio Kuwait	AA
1700	18910	Herald Broadcasting/WSHB, USA	
1730	11735	YLE - Radio Finland	Finnish
1730	15475	Africa Number One, Gabon	FF
1730	15735	Radio Sweden	
1800	11990	Radio Kuwait	
1800	12689.5	Armed Forces Radio, USA	SSB
1800	15200	Merlin Network One, England	
1830	15705	Radio Denmark, via Norway	DD
1830	17735	HCJB, Ecuador	
1900	9510	Trans World Radio, via S. Africa	vern
1900	15120	Voice of Nigeria	various langs.
1930	7260	Voice of Islamic Rep. of Iran	
1945	11402	Icelandic National Broadcasting	Icelandic (SSB)
2000	9665	Voice of Armenia	EE
2000	9905	Swiss Radio Int'l	
2000	11655	Radio Netherlands	
2000	11715	Radio Algiers Int'l, Algeria	
2000	11965	Radio France Int'l	FF
2000	15160	Radio Algiers Int'l, Algeria	
2015	13610	Radio Damascus, Syria	
2030	15415	Radio Jamahiriya, Libya	AA/EE
2100	11700	Radio Budapest, Hungary	
2100	11915	Merlin Network One, England	
2130	15575	Radio Korea Int'l	
2130	17765	Voice of Greece	
2140	11600	Radio Prague, Czech Republic	
2200	21470	Radio Australia	
2215	7105	Cyprus Broadcasting Corporation	weekends
2230	4870	ORTB, Benin	FF
2230	7205	Cyprus Broadcasting Corporation	Greek(wknds)
2230	13670	Radio Vlaanderen Int'l, Belgium (via Bonaire)	
2300	6040	Radio Clube Paranaense	PP
2300	6135	Radio Aparecida, Brazil	PP
2300	9485	Radio Bulgaria	
2300	9645	Merlin Network One, England	
2300	9725	Adventist World Radio, Costa Rica	
2300	11885	Voice of Turkey	TT
2330	4985	Radio Brazil Central, Brazil	PP ■

Product Parade

BY HAROLD ORT AND R.L. SLATTERY

REVIEW OF NEW, INTERESTING AND USEFUL PRODUCTS

MFJ's Code Practice Oscillator

Specially designed, according to MFJ for "demanding classroom use and abuse," the new Code Practice Oscillator produces a true, pure sinewave — not a harsh sounding square wave. MFJ's news release says, " . . . you get low distortion CW — typically less than .2 percent total harmonic distortion from its BTL (Bridge-Tied-Load) amplifier . . . it'll fill an entire room with beautiful-sounding code." The speaker unit delivers a full 1 watt into its internal three-inch speaker, or you can plug in an external speaker for more volume.

The MFJ-554 removes all traces of harsh key clicks so you can concentrate on learning Morse code without distraction. Five milliseconds of symmetrical rise and fall time shapes the keyed oscillator wave form to remove key clicks — an MFJ exclusive.

The unit has a volume control and adjustable tone control from 400 to 1000 Hz. The Code Practice Oscillator has an on/off switch, power-on LED, 1/4-inch key jack, 3.55-millimeter external speaker jack and coaxial DC power input jack. The unit requires 12 Vdc. The metal enclosure measures (HWD) 1 1/2 x 4 3/4 x 5 inches.

MFJ's "special deal" includes the MFJ-554 Code Practice Oscillator, MFJ-281 ClearTone™ Communications Speaker, MFJ-550 Telegraph Straight Key, and MFJ-1315 AC adapter for $99.95. Order MFJ-554X. Or order the Code Practice Oscillator (MFJ-554) for $79.95 from MFJ Enterprises, Inc. at P.O. Box 494, Mississippi State, MS 39762; Phone: 800-647-1800; Fax: 601-323-6551.

Well Rounded Wireless History

Lewis Coe's book, *Wireless Radio: A Brief History*, lives up to its title more

than adequately. In 204 pages, Coe traces the origins and development of a spectrum-full of services, including broadcasting, amateur radio, point-to-point, military radio, cell phones, satellite communications, television, VLF systems, police radio, radar, CB, and more. He begins at the roots of wireless and describes its earliest manifestations, then explains how it evolved.

Additional discussions explore the development of Morse Code, Telsa's experiments with wireless transmission of electrical energy, and collecting antique radios.

There's also a section that provides biographical information about leading pioneers in the field of radio, a listing of radio publications and organizations, reprints of several fascinating historic federal documents relating to radio, a bibliography, and other relevant information. The book is topped off with a detailed index.

Coe's book is hardcover, and illustrated with about 50 excellent photos and other graphics from all eras of various wireless technologies. This book is well written, and intended for reading by the general reader seeking basic information rather than a technical treatise.

Wireless Radio: A Brief History is available at $27.50 (plus $4 s/h, $6 to Canada) from Mcfarland & Company, Inc., Box 611, Jefferson, NC 28640. Phone 336-246-4460. Residents of North Carolina please add 6 percent sales tax. Orders outside the U.S. please pay in U.S. funds. Visa, MasterCard, AMEX and Discover accepted.

Scancat-Gold For Windows Now Supports TEN-TEC RX320 And AOR AR8200

Computer-Aided Technologies announces their newest addition to their receiver lineup, the RX320 from TEN-TEC. The unique "Black Box" or "PC-Radio" from TEN-TEC will, according to the release, " . . . soon find a place in the SWL hobby, and Scancat is the first third-party software developer to announce support!"

Computer-Aided Technologies just informed *Pop'Comm* of their full software control support for the new AOR AR8200 receiver. This state-of-the-art handheld from AOR has 1,000 memories and a 12-character text label. Scancat can control the AR8200 with scanning, logging, spectrum analysis, etc. Scancat can also read the radio's memory contents to files, including text information. It supports "Dbase" files so you can immediately use Scancat with most FCC CD-ROMs.

With Scancat you can use all of the standard features such as database support, scanning, logging and spectrum analysis, etc. Users can also record sound to the computer's hard drive with the "SE" option. Scancat supports over 50 radios from over 12 manufacturers. The Scancat-Gold For Windows-SE is $159.95 and the Scancat-Gold For Windows is $99.95. Upgrades from your present Scancat program start at $29.95. For more information contact Computer-Aided Technologies at P.O. Box 18285, Shreveport, LA 71138 or call 888-722-6228. You can FAX them at 318-686-0449. Their E-mail address is <scancat@scancat.com>. Foreign orders are taken at 318-687-4444. Be sure to tell them you read about it in *Pop'Comm*!

Broadcast DXing

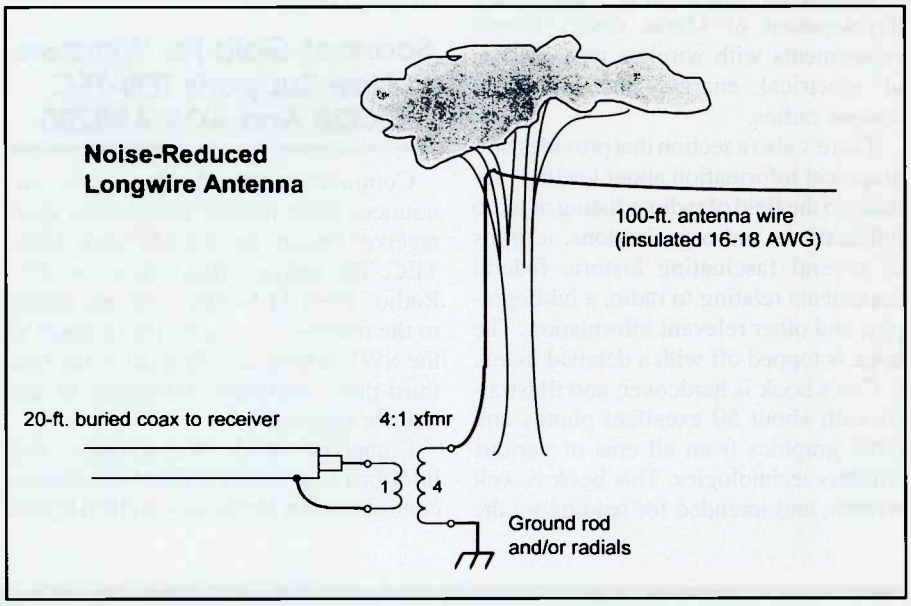
BY BRUCE CONTI
<BAConti@aol.com>

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Bruce's Top Picks For MW DX Receivers

The most numerous requests I get in the mail are for receiver recommendations. John Wagner, technical consultant for Universal Radio, once told me that he never met a receiver he didn't like.

With the technological advances made in receiver design today, it's indeed hard to choose a poor receiver if you know what you're looking for. Picking a receiver will ultimately depend on personal preferences above and beyond the best specs and latest features. Because I'm one of those crazies that will string up hundreds (or thousands) of feet of wire and spend all night locked on a few mediumwave frequencies waiting for that rare signal to surface over the static and interference, my top picks are slanted toward receivers that perform well on the AM broadcast band. Your top choices may differ. With that qualifying statement in mind, here are my top picks.



Here's a look at the plan for Bruce's noise-reduced longwire antenna.

Number one on my list is the Drake R8B. Its predecessor, the Drake R8A, is also a great receiver if you can obtain it used. But the synchronous detection is significantly improved on the R8B. I believe the Drake R8B is presently the most popular tabletop communications receiver in Europe and North America.

The Lowe HF-225 Europa is another excellent DXer's receiver. Although the Europa doesn't have all the functionality of the Drake R8B, it's about half the size and comes with a handy remote control. The Europa was designed for DXers in Europe who typically have to deal with much stronger signals on mediumwave than we do in North America, and thus it does a good job in urban environments where overload problems are an issue. The stock IF filters are excellent.

The AOR AR7030 is also an exceptional receiver, especially when outfitted with optional Kiwa and Collins filters. Although all of these receivers will cost over $1,000, their performance is equal to that of receivers that used to cost thousands more some years ago.

For less money, the best DX receiver has to be the Sony ICF-2010. The synchronous detection on the 2010 can't be beat. With the Kiwa filter mod, the 2010 rivals the performance of the top DX receivers. I logged many transatlantic mediumwave signals on the 2010 before upgrading to the R8A.

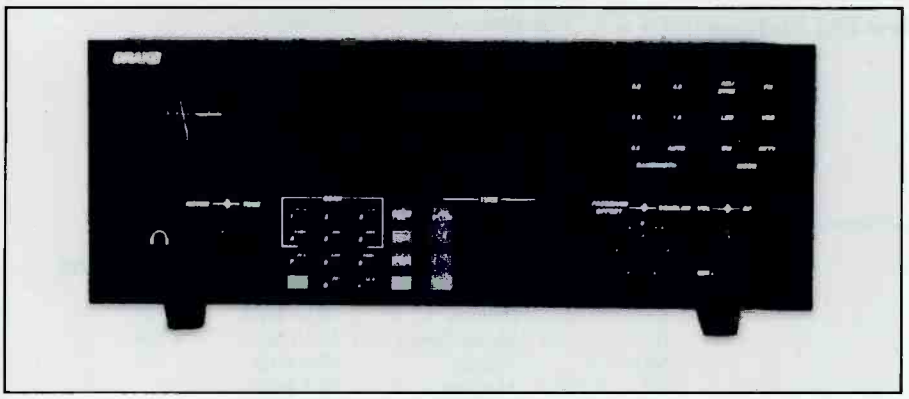
Program listeners will enjoy the high fidelity sound of the GE SuperRadio and the RadioShack Optimus model 12-604. The 12-604 includes AM and FM, along with all VHF and UHF TV channels 2 though 69. These receivers are great for casual listening or recording air checks. Most DX receivers don't have the wideband sound of these models because the bandwidth is limited to reduce interference from adjacent frequencies.

The new CCRadio is one exception, where the AM bandwidth is limited to improve long distance reception; fine for listening to your favorite sports or talk programs. For brief reviews of most of the communications receivers on the market, check out *Passport to World Band Radio.* For more detailed information on the top receivers, consult Passport's *Radio Database International (RDI) White Papers,* which report the results of extensive independent lab tests. More info on *RDI White Papers* can be found in *Passport to World Band Radio,* or via their Website at <http://www.passport.com>.

Don't Forget The Antenna!

Don't forget that a receiver is only as good as the antenna. The CCRadio, Sangean ATS-909 or ATS-818CS portables, Drake SW-1 or 2, Lowe HF-150, and Yaesu FRG-100B, like most any receiver, will perform admirably with the right antenna. For combined mediumwave and shortwave DXing, a noise-reduced wire at about a minimum length of 100 feet will capture almost everything there is to hear.

A typical antenna installation consists of an insulated wire located at least 20 feet from any buildings, electrical wires, or other noise sources, connected to a buried coax lead-in via a 4:1 matching transformer. The antenna is connected to the high-impedance end of the matching transformer, and the coax is connected to the low impedance side. The coax to the receiver is buried just a few inches underground. The noise reduction works best



Rated top-notch for MW DXing, R.L. Drake's R8B communications receiver is also a highly acclaimed shortwave receiver.

if the antenna and receiver grounds are isolated. To isolate the grounds, a ground rod and/or ground radials must be installed at the matching transformer and connected to the other high impedance leg of the transformer. The better the ground, the better the performance. The low impedance end of the transformer picks up its ground via the shield of the coax to the receiver. If winding RF transformers isn't your forte, then look for an assembled transformer that covers MW and SW. Be careful because most are designed for SW or ham use only. Also most don't provide for ground isolation.

Mini-Circuits Labs, Brooklyn, New York, <http://www.minicircuits.com>, makes a wide variety of RF transformers in a six-pin DIP IC package. Use Mini-Circuits part numbers T4-1 or T4-6 for a 4:1 impedance. Although a higher impedance, such as 9:1, might provide a better match for particular frequencies or Beverage antennas, I've found that a 4:1 produces the best results when using a random-length long wire antenna for multi-band LW, MW, and SW reception. The Mini-Circuits transformers are for reception only, not for transmitting, like those used by hams or CBers for proper antenna matching.

At the receiver, sometimes an antenna tuner or phasing unit will take out any remaining noise or overload problems. The JPS ANC-4 is an example of a phasing unit that implements phase cancellation between the antenna and a noise pick-up wire to cancel out localized noise. An antenna tuner will reduce harmonics or spurs from strong locals. If you live in a noisy environment, then this rather simple noise-reduced antenna scheme should produce some surprising results.

Internet Foul Play

Undoubtedly, many of you have heard stories about entrepreneurs who are the first to obtain the rights to Website addresses and then place them up for sale. So why not Web addresses that are the same as popular radio station call letters? That's what WPOR Portland, Maine, decided to do by registering country music competitor WTHT's call letters. While WPOR doesn't plan to actually use

Applied For Permits To Construct New FM Stations

AK	Barrow	91.1 MHz	
AK	Deadhorse	88.1 MHz	
AK	King Cove	88.1 MHz	
AK	Palmer	88.5 MHz	
AL	Eufaula	91.9 MHz	
AR	El Dorado	88.9 MHz	
CA	Mill Valley	107.7 MHz (KSAN booster)	
CO	Aspen	88.1 MHz	
CO	Brush	89.5 MHz	
CO	Glenwood Springs	88.1 MHz	
CO	New Castle	88.1 MHz	
CO	Sterling	90.7 MHz	
FL	Bushnell	89.3 MHz	
FL	Key Largo	90.9 MHz	
GA	Helen	89.9 MHz	
GA	Jessup	90.5 MHz	6 kW
GA	Sutter	88.7 MHz	560 watts
HI	Pahala	90.5 MHz	
IL	Athens	88.1 MHz	
IL	Effingham	89.5 MHz	
IL	Lynwood	89.1 MHz	1 kW
IL	Morris	90.7 MHz	
IL	Pana	89.3 MHz	
IL	Pingree Grove	88.5 MHz	
IL	Pleasant Plains	88.1 MHz	
IL	Pontiac	88.3 MHz	
IN	Hanna	89.9 MHz	
IN	Lowell	89.1 MHz	4.5 kW
IN	Morristown	88.1 MHz	
IN	Rochester	88.5 MHz	
IN	Trafalger	88.3 MHz	
IN	Versailles	88.1 MHz	
KS	Enterprise	90.5 MHz	
KS	Independence	91.5 MHz	
KY	Frankfort	88.3 MHz	350 watts
LA	Port Sulphur	91.5 MHz	100 watts
MI	Augusta	90.9 MHz	
MI	Bay City	91.3 MHz	
MI	Gaylord	88.1 MHz	
MI	Jackson	88.7 MHz	
MI	Mount Pleasant	90.7 MHz	
MI	Sault Ste. Marie	102.3 MHz	
MI	Spring Arbor	89.3 MHz	
MI	Springfield	90.9 MHz	
MN	Montevideo	89.5 MHz	
MN	New Ulm	88.3 MHz	
MO	Farmington	88.9 MHz	50 kW
MT	Great Falls	91.5 MHz	
MT	Great Falls	91.9 MHz	1 kW
NC	Hickory	89.1 MHz	
ND	Lincoln	89.1 MHz	
NE	Grand Island	90.7 MHz	
NJ	Plainfield	90.3 MHz	
NJ	Woodbine	89.9 MHz	300 watts
NM	Farmington	89.7 MHz	
NV	Owyhee	88.5 MHz	6 kW
NY	Albany	90.9 MHz	
NY	Malone	90.1 MHz	150 watts
OH	Eden	88.7 MHz	
OR	Bend	88.1 MHz	
OR	Coos Bay	91.3 MHz	
OR	Florence	91.7 MHz	150 watts
OR	Gleneden	88.5 MHz	
OR	Roseburg	88.1 MHz	
PA	Shenandoah	91.5 MHz	500 watts
TN	Kingston	90.1 MHz	
TN	Lawrenceburg	88.5 MHz	
TX	Bay City	88.1 MHz	
TX	Breckenridge	90.7 MHz	
TX	Brownfield	90.7 MHz	
TX	Bryan	91.9 MHz	6 kW
TX	Eastland	91.1 MHz	
TX	Gonzales	88.1 MHz	
TX	Greenville	90.5 MHz	
TX	Lake Hills	91.5 MHz	
TX	Yoakum	88.1 MHz	
WA	Olympia	90.1 MHz	
WA	Port Angeles	89.3 MHz	
WI	Sturgeon Bay	91.3 MHz	
WI	Wittenburg	88.9 MHz	
WV	Crab Orchard	90.1 MHz	
WY	Laramie	89.3 MHz	
WY	Sheridan	89.9 MHz	

Granted Permits To Construct New FM Stations

CA	Needles	107.1 MHz	50 kW
IL	Mount Grove	105.3 MHz	6 kW
MO	Vienna	90.9 MHz	
NE	McCook	98.5 MHz	
TX	Llano	96.3 MHz	

Cancelled Booster Transmitters

KGB-FM1	La Jolla, CA	101.5 MHz
KID-FM1	Idaho Falls, ID	96.1 MHz
KJQY1	La Jolla, CA	102.9 MHz
KYKN-FM1	Payson, UT	103.9 MHz
WIOB2	Yauco, PR	97.5 MHz

Reinstated

KJCB	Lafayette, LA	620 kHz

Changed AM Facilities

KRBI	St. Peter, MN	1310 kHz	Changed power
WHDM	McKenzie, TN	1440 kHz	Added 91 watt night service
WHJB	Greensburg, TN	620 kHz	Changed community, power
WNTT	Tazewell, TN	1250 kHz	Changed operating hours
WTMP	Temple Terrace, FL	1150 kHz	Changed community, power

Changed FM Facilities

KSFH	Mountain View, CA	88.1 MHz	Changed frequency
KTFW	Glenrose, TX	92.1 MHz	Changed frequency

New AM Call Letters Issued

KBJA	Sandy, UT
KBJC	Kansas City, KS
KBJD	Denver, CO
KDNZ	Cedar Falls, IA

Pending AM Call Letter Changes

New	Old	
KOKP	KVCS	Perry, OK
WCBW	WBDI	Highland, IL

Changed AM Call Letters

New	Old	
KCLN	KLNT	Clinton, IA
KFNX	KCCF	Cave Creek, AZ
KHOB	KUCU	Hobbs, NM
KKGJ	KKGM	Grand Junction, CO
KLUV	KOOO	Dallas, TX
KLYF	KAHS	Thousand Oaks, CA
KOME	KQPT	Sacramento, CA
KPHN	KLOV	Loveland, CO
WAZI	WKSH	Sussex, WI
WDJA	WEAT	W. Palm Beach, FL
WDMN	WVOI	Toledo, OH
WEAE	WYAE	Pittsburgh, PA
WGOL	WJRD	Russellville, AL
WIHM	WTIM	Taylorville, IL
WKSH	WAZI	Sussex, WI
WNSG	WKDA	Nashville, TN
WNSR	WYOR	Brentwood, TN

New FM Call Letters Issued

KBIO	Natchitoches, LA
KBIP	Shell Knob, MO
KBIW	Lenwood, CA
KBIY	Van Buren, MO
KMDX	San Angelo, TX
KXBA	Nisiski, AK
WBFY	Pinehurst, NC
WBFZ	Selma, AL
WBGI	Manteo, NC
WBGJ	Sylvan Beach, NY
WBGK	Old Forge, NY
WQEM	Columbiana, AL

Changed FM Call Letters

New	Old	
KCDE	KJQY	San Diego, CA
KEDG	KBGI	Alexandria, LA
KIBR	KSPT-FM	Sandpoint, ID
KIOD	KKYT	McCook, NE
KJQY	KXGL	San Diego, CA
KLDZ	KUFX	Fremont, CA
KLTO	KLTP	Galveston, TX
KMXD	KLYF	Des Moines, IA
KOVA	KLTO	Rosenberg, TX
KQOL-FM	KQOL	Boulder City, NV
KRXZ	KPEL-FM	Erath, LA
KUFX	KOME	San Jose, CA
KTGS	KBIK	Ada, OK
KZEG	KCLN-FM	Clinton, IA
WBKS	WGGR	Greenwood, IN
WJXM	WMLV	Dekalb, MS
WKGL	WSHK	Russellville, AL
WMDC	WMVM	Mayville, WI
WMLV	WMMZ	Stonewall, MS
WMMZ	WTUX	Meridian, MS
WTLX	WYKY	Columbus, WI
WWUZ	WLMN	Bowling Green, VA

Pending FM Call Letter Changes

New	Old	
KLQV	KCDE	San Diego, CA
KOSB	KVCS-FM	Perry, OK

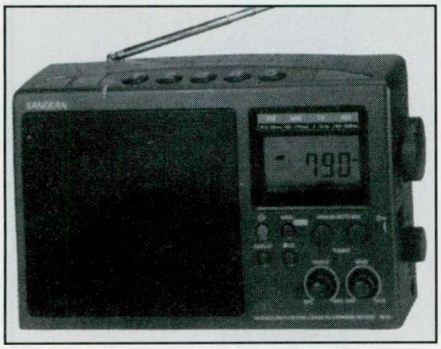
the address, it means that WTHT won't be found at <wtht.com> if, or when, they get their Website up and running.

On The Move

It's expected that by the time you read this, WLIB, New York on 1190 will be on the air 24 hours. WOWO, Ft. Wayne, Indiana will be changing their nighttime pattern to accommodate WLIB. Meanwhile, at the time of this writing, the CBC AM stations awaiting their fate on death row were still broadcasting. CBL, CBM, and CBF were to go off the air in October after six months of simulcasting on FM, completing the long-planned transition to FM. However, it's been reported that CBL had not been satisfied with the coverage of their FM signal. And I expect that the CBC received numerous letters from long distance listeners who would have lost CBC service with the move.

DX Test

Here's notice of a special DX test: "I'm the Chief Engineer for 10 stations in California and for the last four years now, I have conducted a DX test. This will be



C. Crane Company's new CCRadio gets high marks for MW reception.

the fifth year in a row I have done it. I hope it's not too late to get this in the column! The station is KSTN AM at 1420 kHz using daytime power and one of the three towers. I do it on January 1st starting at midnight EST (just as Dick Clark drops the lighted ball on New York). By the time the test is going on, I will have the Website done too, so people can get a look at the classic transmitter being used, the towers, studio, etc. The address is<http://members.spree.com/paulshinn>."

Since this has become an annual thing on KSTN, there is also a contest associated with it. I will randomly draw one of the reception reports sent in before February 1st to win a bunch of station stuff, including a tube out of the transmitter used that night! Everybody else gets a QSL and something else station-related. The IDs will be in CW every 15 minutes and the format will be '70s disco! Not too hard to figure out if you got the right signal, eh? I will be playing 45s and 33s directly onto the air, so if one skips, it'll be like old times. I'm looking forward to doing the test again this year, as each year I have gotten more responses than the year before. I even got letters from Fiji, Japan, Brazil, and South Africa! Of course, I get about 20 from the Aussies! The same way you collect QSL cards, I collect reception reports for this test. It's sort of a hobby for me too. Thank you in advance, and good luck!" The station's address is KSTN, 2171 Ralph Ave., Stockton, California 95206.

QSL Information

700 KWLW North Salt Lake City UT, letter in 11 days from taped report. Sent report to 2801 Decker Lake Drive, Salt Lake City, UT 84119, but reply came from Dickie Shannon-PD, 312 East South Temple, Salt Lake City UT 84111. QSL #2525. (Martin—OR)

1670.5 Mishima Marine Lighthouse Station, Mishima Island, Japan. Card and letter with tourist info in 45 days, signed by Wrighting Jun Hashimoto. Address: Hagi Kouro Hyousiki Jimusho 5699-2 Ooaza Chintou Hagi City, Yamaguchi Pref. 758-0011, Japan. 50 watts. My 5th lighthouse station QSL. (Martin — OR)

Broadcast Loggings

In this month's selected loggings, two more X-banders are on the air, and Mark Connelly goes mini-DXpeditioning for transatlantic signals at Massachusetts coastal sites. All times are UTC.

675 R. Ten Gold, Lopik, Netherlands at 0201 with oldies including "I Got You Babe" by Sonny and Cher; good. (Connelly — MA)

693 BBC Radio 5, Droitwich et al., United Kingdom at 0028 with news interview; rising over RDP—Azores, choppy fades. (Connelly — MA)

774 RNE1 synchros, Spain, at 2301 man and woman with news in Spanish; over Egypt. (Connelly — MA)

828 Hitradio Veronica, Rotterdam, Netherlands at 0048 likely this with rock music; in and out of a pile of signals. (Connelly — MA)

954 R.Espana, Madrid, Spain at 2158 Spanish telephone talk; fair, and at 0059 very good with two announcers in Spanish. (Connelly — MA)

981 Elleniki Radiophonia, Megara, Greece at 2312 parallel 1512 kHz with mellow Greek male vocal (in a nightclub /lounge style); to fair peak through Algeria carrier. (Connelly — MA)

1125 HRT Deanovec, Croatia at 0026 parallel 1134 kHz with male Slavic folk vocal; good, over Spain. (Connelly—MA)

1467 TWR Roumoules, France at 2214 hymn, then preacher said "Goodbye and God bless you." Signal was good to excellent. (Connelly — MA)

1521 BSKSA Duba, Saudi Arabia at 2255 excellent; Koranic recitations and 2300 sign-off with anthem parallel 9555 and 9870 SW. (Conti — NH)

1620 WHLY South Bend, Indiana at 1130 presumed the source of pop oldies music and "1620 AM, Radio Hollywood" ID. Hopefully I can hear it better for a report. (Martin — OR)

1680 WBHD Ada, Michigan is on the air with urban contemporary music. (Conti — NH; Martin — OR)

Also, Dick Gustavsson in Sweden reports hearing WSMN Nashua, New Hampshire on 1590, although more recently finding WAKR Akron, Ohio and other unIDs dominant. Gustavsson mentions that some stations from the East coast come in loud and clear but fade up and down a lot, like WSAR on 1480, WLAM on 1470, and WQEW on 1560. And Roy Wilson in Georgia checks in with signals heard on his Grundig YB 400 at 526, 555, and between 1310–1320 kHz. The station on 526 was likely a navigational beacon, 555 was probably Radio ZIZ, St. Kitts, and the 1310/1320 split might have been from either Norway or Spain.

Thanks to Mark Connelly, Bob Gilbert, Dick Gustavsson, Eric Mappes, Patrick Martin, Paul Shinn, and Roy Wilson for another great column. If you have a favorite broadcast receiver, share your thoughts with us. My area of expertise is in international mediumwave DXing. Other than a few lucky catches, I have very little experience or knowledge in FM or TV DXing. So, looking forward to the spring season, I would be especially interested in learning more about FM-TV broadcast receivers, antennas, and tricks of the trade. Meanwhile, keep the MW logs and info coming in! 73 ■

Product Spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

TEN-TEC's RX-320 PC Radio — The Medium Or The Message?

BY PETER BERTINI

Generally I lump SWLs into one of two rather broad categories: First, there is the hardware type. This fellow enjoys monitoring SW in a traditional manner. His monitoring post may consist of the latest portable offering from Sony, or he may own several examples of the best commercial receivers made by Watkins Johnson or Harris. His Golden Grail is to own the best receiver made; and shortwave listening is an enjoyable means of determining that goal.

On the other hand, we have the shortwave listener who is more interested in the message than the medium used to deliver it. He is likely to own one or two shortwave receivers, but he is also likely to monitor his favorite shortwave fare using Internet Phone when propagation conditions preclude on-air reception. For this type of listener, the hardware needed to receive his favorite broadcasts, whether it is off the air or off the Internet, is purely secondary.

I admit I am a hardware type. I love using radio equipment, whether it's a venerable Hallicrafters SX-28 or a Watkins Johnson HF1000. When the tiny package arrived from TEN-TEC, I was amazed to find the box contained a rather plain "Black Box" (the RX-320 receiver), along with a few interconnect cables, a small wall-plug type AC supply, instruction book, and software disk. Could this be the receiver whose claimed performance and low price challenged my arsenal of receiver hardware?

The more I used TEN-TEC's new PC receiver, the RX-320, the more I realized the challenge I faced in writing a review of this exciting new product. The RX-320 offers full coverage from 100 kHz to 30 MHz with AM, LSB, USB, and CW reception. It features several bandwidth positions; and the filter performance is very good. The third-order intercept is a very respectable +10 dBm, and the receiver has a dynamic range of 90 dB with the 2.5-kHz filter and 50-kHz signal spacing. Yet, the radio is very different from the portable or tabletop units most SWLs are familiar with operating. This radio sports no knobs, displays, or meters. It is a plain box that interfaces between your antenna and personal computer or laptop.

At left is the RX-320 receiver. Also shown are the manual, cables, software disk, and 12-vdc wall power pack.

Getting Started

To use the RX-320 you will need a laptop or home computer running Microsoft Windows. Any version of Windows above 3.1 will do. My machine is a 200-MHz Pentium running Windows 98. This pretty well precludes using a vintage 286 or slow 386 machine with the RX-320. You will also need a free serial port. A sound card is nice to have, but not entirely necessary. The needed software comes on a 3.5-inch floppy. In addition to the main program files, the disk also contains the latest "readme" files with the latest release notices.

The RX-320 requires 12 volts at 500 mA for operation. This is provided by a wall-plug power supply that is included with the receiver. The off/on function is controlled by a small toggle switch on the rear apron of the receiver. This is the only control present on the RX-320.

A six-foot RS-232 serial cable is included to interconnect the receiver to your PC. The cable is terminated in the standard nine-pin male to nine-pin female RS-232 connectors. Depending on your serial port connector, you may need a 25 to nine-pin adapter or gender changer. Also included is a six-foot audio cable to interconnect the line-level output from the RX-320 to the line-level input of your soundcard. The audio line-level cable is terminated with stereo-type 1/8-inch plugs on each end. Although the receiver audio is monaural, it plays through both speakers on your PC. If your soundcard will not support an external line-level input, the RX-320 also has a speaker jack (standard 1/8-inch monaural) to drive an external 8-ohm speaker.

Active Antenna Onboard

The RX-320 sports a removable telescoping whip. The schematic shows the receiver includes an internal "active antenna" amplifier stage for the whip antenna. Let's get down to brass tacks here. Anyone who has tried using a shortwave receiver with the antenna near a computer and monitor knows first-hand the broadband hash that is generated across the RF spectrum by those devices! Alas, the RX-320 is not immune to those problems. Virtually every broadcast station I monitored was plagued by heterodynes or weak birdies. Shortwave reception faired a tad better, but the interference problem was still bothersome. You will need to make up or buy some longer RS-232 and audio cables if you intend to use the RX-320 with its supplied whip antenna. Use a good quality shielded RS-232 cable. The receiver should be about 20 feet or more away from the computer, and it should be located near a window or outside wall for best reception. The internal antenna works quite well, when kept at a distance from the computer system. Since the receiver contains quite a bit of high-speed digital circuitry, it does generate some internal birdies. These are, for the most part, masked by atmospheric noise when using an external antenna. For serious listening, you will need an outdoor antenna, as with any other receiver. The RX-320 has an external antenna jack to accommodate using coaxial fed antennas. The antenna jack is an RCA type phono connector (one is supplied). When an external antenna is plugged in, the whip antenna is automatically bypassed.

Virtual Reality

There are two levels of software involved in the RX-320. The first is firmware — the EPROM that contains the mathematical algorithms that control the microprocessor in the DSP (Digital Signal Processing) section of the receiver. The DSP software determines what modes the receiver will demodulate, and the number and characteristics of the filters. The DSP operates at the last IF frequency — and until recently was found only in military-grade receivers. The second is the software that is contained in the program files which presents a virtual-reality image of the receiver as "hardware" on your computer screen. These programs are also used for the memory functions and the spectrum display.

Here's how the receiver panel appears on the computer screen.

Upgrading the DSP software would involve opening the receiver and changing the chip. I doubt that TEN-TEC is considering any immediate upgrades to this portion of the receiver, since the DSP performance has been flawless.

Of more concern are the program files contained on the floppy disk. TEN-TEC has been fine-tuning this software based on the feedback of the beta testers and current users. If you have Internet access, the current version may be downloaded without charge. Indeed, this is a fine way to "test drive" the RX-320 receiver in your shack! All of the controls work, and while you won't be able to hear signals, you will be able to explore the various features and see how the software receiver handles.

The Windows Screen

The software is installed from your A or B drive by running the setup file on the disk. This installs all of the necessary files, and also places the RX-320 icon on your Windows screen.

When opening the RX-320 window for the first time, you will need to open the Interface options on the setup menu and select the serial port being used for the RX-320 receiver. You now have access to three panels, any of which may be opened at the same time.

The Receiver Panel Screen

The receiver panel represents the actual "receiver." The screen capture of the receiver panel shows the main controls. Note that pointing and clicking using a mouse or trackball makes the selectivity, mode, and tuning step selections. The volume is set by clicking on the volume control and dragging to the desired setting. The keyboard arrow keys can also be used. For example, the left and right arrows will select the tuning rate, while the up and down arrow keys will control the receiver tuning. Holding the control key and using the up/down arrow keys can set the volume.

There are several ways to "tune the bands" besides using the keyboard arrow keys. Note that there are two frequency displays. The first is a digital readout of the operating frequenc,. below it is a slide-rule type linear tuning dial scale. You may click directly on the digital frequency display and highlight it, and then use the numeric keys to directly enter a frequency. Clicking the mouse on the upper or lower portion of the "tuning knob" will also tune the radio in one direction or the other. You may click on the cursor for the slide rule display, and drag it to a new frequency. Or, simply double-clicking on a new frequency will bring you there.

There are also two sets of left/right arrow keys (">", "<") present at either side of the slide rule display. Clicking on the right hand arrows will move the frequency up or down. Note that the left arrows are double (">>" or "<<"). These will tune the receiver at 10 times the selected tuning rate.

Selectivity Options

The RX-320 is a triple conversion receiver. The receiver uses up-conversion to the first IF at 45 MHz (there is a 45-MHz roofing filter). The second IF is at 455 kHz, and the last IF is at 12 kHz. All of the analog RF stages are on the top pc board in the receiver. From here, the 12-kHz IF signal goes to the DSP board on the bottom of the receiver. Here the analog IF signal is converted into 16-bit digital data. All IF functions take place in the DSP portion of the receiver. Five selectivity positions are available: 8.0 kHz, 5.0 kHz, 2.5 kHz, 1.8 kHz, and 500 Hz. These

The memory panel allows the user to store and recall favorite stations.

filters have excellent 1.5:1 shape factors and I was extremely impressed by their performance. Consider what a single optional filter costs for a typical communications receiver! The filtering is done at the IF frequency by the DSP portion of the receiver. Instead of each filter being a physical entity, mathematical algorithms produce them. You might be surprised to know that the RX-320 EPROM is factory programmed for about 34 selectivity options! TEN-TEC elected to keep the front panel layout simple, and limited the choice with the present operating software to the five selectivity selections mentioned above. A complete programmer's manuals which includes all of the RX-320 command protocols, is available at TEN-TEC's Website.

Modes

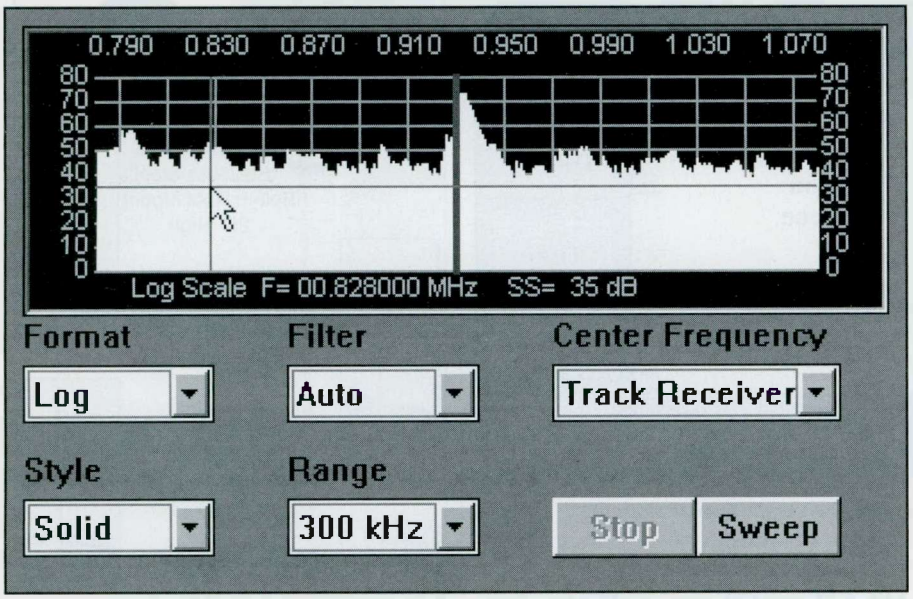
The RX-320 will demodulate USB, LSB, CW, and AM signals. The displayed frequency is "true," regardless of the mode selected. In AM or either SSB mode, the display correctly indicates the exact carrier frequency. Excellent! TEN-TEC didn't forget us CW operators either! One of the options allows the operator to select the CW tone frequency preferred by the CW operator. Once set, the receiver will correctly display the CW carrier frequency when the demodulated beat note is tuned to the preferred CW monitoring tone frequency. CW operation is pure pleasure when using the 10-Hz tuning rate and sharp 500-Hz filter. Unlike many other "low-cost" or "beginner" receivers, the RX-320's tuning rates, display accuracy, and filter selections are first-rate.

I noticed no anomalies when using the AM, SSB, or CW modes. If there were any bugs in TEN-TEC's DSP software, they were worked out at the factory before the product was released. The receiver was in Beta test for over a year before being released for public sale. Synchronous AM detection is not an option at this time. While I didn't have time to try using an external speaker on the high level 8-ohm output of the receiver, the recovered audio through my sound card and PC speakers was very good. Since almost all sound cards come with supporting software that allow adjusting bass and treble response, you can tailor the audio to suit your taste for music, voice, or CW operation. The receiver automatically chooses the optimum filter bandwidth when a new mode is selected; but the operator may manually select any of the available filters if inclined to do so. The optimum tuning rate is selected for each mode automatically, and again the operator may select a faster or slower rate if desired.

Even though the receiver heavily relies on DSP, there are no mode enhancements centered on this technology. For example, there is no heterodyne notch filtering in the SSB modes, nor is there DSP noise reduction or AM synchronous detection.

The S-Meter And Frequency Accuracy

The S-meter was a bit disappointing. The S-meter is calibrated with a scale that reads from 0 through 80. Most signals seem to crowd in a small range between 60 and 80. The receiver, with no antenna or signal, produces a steady 30 reading on the S-meter. This is more of a problem when the internal active antenna amplifi-



The spectrum display allows viewing activity in a slice of spectrum up to 1.5-MHz wide. Finding activity on a quiet band has never been easier!

er is in use; the S-meter performs better when using an external antenna. A call to TEN-TEC answered my concerns regarding the S-meter. Originally, the engineers at TEN-TEC did not plan on including an S-meter due to complex design limitations in the DSP portion of the receiver. The 16-bit DSP processor has a theoretical 96 dB S-meter range. Yet, the majority of the Beta testers wanted an S-meter, and TEN-TEC relented and did the best they could based on the DSP limitations they had to work around. The S-meter sports two needles. The action of the lower needle follows the received signal strength. The upper needle is more of a peak reading indicator with a very slow release time. Besides the S-meter, the receiver also displays the filter bandwidth and step-tuning rate. A dual time-zone clock is included to permit keeping track of Universal and local time.

The frequency accuracy of the RX-320 receiver is within 100 Hz. This can be set to a tighter tolerance via trimmer C59 in the receiver. You may continue to monitor your favorite shortwave station when exiting the TEN-TEC program, or you may have the receiver mute when the Window is closed. You can control the receiver volume level using the sound card master volume control or line level volume control while monitoring a shortwave program with the RX-320 window closed.

The Memory Panel

The number of stations stored in the RX-320 memory is determined by the available computer memory. TEN-TEC gives no exact figures, but I imagine the storage space is considerable. The memory panel displays three columns of information for each entry. The "station," the frequency, and the country of origin. You have three choices for the order in which they are displayed, and this is done by checking either the "station," "frequency," or "country" box. For example, if the frequency is checked, the stations will be listed in numerical order according to frequency. Checking either the station or country box will list the stations stored in memory based on alphabetical order. Only 11 stations appear in the memory panel window at one time. The memory panel may be opened or closed by using a button on the RX-320 window screen. The panel is also opened whenever the recall button is clicked on the receiver control panel.

Not displayed is a small field in which the operator can add comments relating to each station stored in memory. This data is accessed or modified by using the "edit" function. This might contain QSL information, the time when the station is heard best, etc. The mode and filter bandwidth is also contained in the edit field. One small glitch: Opening and closing the Edit field for the comments automatically scrolls you back to first station in the list. If you find an interesting station while tuning the bands, it may be quickly entered into memory using the save station function button on the radio control panel.

Double clicking on a row in the list of stations in memory will immediately set the receiver to that frequency. Or, simply highlighting the desired station (single click) and clicking on the tune button will also bring you there. If the "auto tune" box is selected, the receiver will automatically tune to the desired memory station once it is highlighted. Mode and filter bandwidth data are retained for each station. It would be nice to have a way to edit the memory files, perhaps by using a spreadsheet or word processor.

A method of breaking up the memory into several subgroups is another feature that I would like to see added in future software releases. I would like to have my favorite AM BCB stations, SW stations, and Utility stations stored in separate lists. Having to scroll through a serialized list of hundreds of stations to find one station is tedious at best.

The Spectrum Display Window

The spectrum display presents a spectrum analyzer display of activity across a range of frequencies. The signal amplitudes are drawn on graphs marked from 0 to 80. The swept range may be set from 3 kHz to 1.5 MHz. The software automatically selects the optimum filter bandwidth based on the sweep setting. The filter may also be set manually by the operator. Hitting the sweep button activates the spectrum display. The receiver mutes during the sweep operation, which takes several seconds to complete.

The display presentation is also optional. You may select either a log or linear display, or have the display draw in solid or line fashion. The log display suffers the same problems I noted concerning the S-meter. I vastly preferred using the linear display — even though technically the log display would be more meaningful — it worked better. Once the scan is completed, signals that appear on the display can be tuned by simply clicking on the peak of the signal on the spectrum display screen.

The radio panel, memory panel, and the spectrum panel may be displayed or minimized. Or, all three panels may be on screen at the same time.

More Software Notes

Several companies are in the process of writing programs that will support the RX-320 receiver. Of course, if you spend a couple hundred dollars for a program written by a vendor, your $300 receiver is now a $500 receiver. Readers versed in C++ programming may wish to try tailoring the TEN-TEC software to address

their monitoring needs. Since the receiver and computer communicate over a simple serial bus, it should be easy to write simple DOS-based programs to operate and control the receiver.

Overall Impressions

The information offered in the manual is rather general and sketchy. The user should always refer to the "readme" files contained on the software diskette to be up to date with the current software. Obviously, TEN-TEC can't rewrite the entire manual whenever updates are released in newer software versions. (I noticed some small changes when upgrading the software — for example, the S-meter was moved from the right to left side of the display panel!) The manual contains an excellent introduction to shortwave listening by *Pop'Comm* columnist Joe Carr. He offers the beginner sage advice on what, where, and when to listen, and also gives some good tips on antennas and how time zones work.

I took a quick peek under the covers. (The case is made of heavy steel, and is painted powder black). The receiver relies heavily on surface-mount technology. I sadly note that our ability to fix radio problems in the home workshop is slowly fading away! There was no schematic included with the manual, however a call to TEN-TEC sales had one in the mail the next day. The schematic covered several sheets, and I must admit a new respect for the software and RF engineers who designed this fine American-made product!

The RX-320 has two problems that may be of concern to users. First, when using the attached whip antenna, you must keep the receiver as far away from the computer and monitor as possible. The supplied cables aren't long enough, but longer, inexpensive cables can be found at most electronic department stores. The poor S-meter performance has no easy fix, since it is directly linked to DSP design limitations. Would it have been better if TEN-TEC simply skipped including the S-meter and spectrum display? I've seen quite a few receivers in this price class that don't include S-meters, let alone spectrum displays! I would like to see some better features in the Memories storage in the RX-320 program. I dislike using the price class of a reviewed receiver as an excuse for poor performance or as a justification for its being a good "beginners" receiver. The RX-320 has too many excellent features to be relegated to a "beginners" receiver classification, even though it is well within a beginner's budget.

On the positive side, the receiver includes several excellent filters; most of these would be extremely expensive options on most high-end receivers. The RX-320 offers ideal tuning rates for CW, SSB, and AM operation. The 10 dBm intercept point is in the high-end league and the DSP software works flawlessly. I suspect some "old-timers" will have difficulty adjusting to the virtual reality aspects of this receiver. Missing is the "touchy-feely" physical interface to a tuning knob attached to a flywheel driven gear train — the "feel" of a proper vintage communications receiver. For those more interested in hearing the "message" of SWL broadcasts, rather than the hardware used to achieve that goal, the RX-320 represents a fantastic bargain and what will be the new technical age of SWL listening.

The new RX-320 receiver costs $295 from TEN-TEC, Inc., 1185 Dolly Parton Parkway, Sevierville, Tennessee 37862;. Phone: 423-453-7172. Check out their Website at <http://www.tentec.com>.

AOR's AR7000

BY JOHN WARD

Editor's Note:

A radio as new the AR7000 has many functions and features that are still manifesting themselves. For example, the unit is shipped with an infrared remote contro , which was not available at the time of he review. The IR unit allows access to he AR7000 front panel controls and menus. A set of PC commands is available that can be used to control most of the radio's functions, overcoming some of the reviewer's concerns about keyboard operations. The 8-pin DIN socket on the rear of the unit provides the user wi h a number of connectivity options for taping and squelch-operated switching functions. Additional details are available at <www.aorusa.com>.

The long-awaited AOR AR7000 finally hit dealer's shelves in September, some three years after the prototype was first shown to the scanning public. Armed with 1,500 programmable memory channels, digital signal processing, and a 10-line, full-color LCD display. The AR7K promised to be a logical step up for the listener who wanted to graduate from garden variety Uniden and RadioShack scanners to a more sophisticated receiver, without plunking down $2,000 for an AR5000 or ICOM R8500.

AOR's AR7000 receiver retails for $1,459.95.

Using The AR7000

Like most AOR receivers, the AR7000 is a combination of advanced features and an awkward user interface. While not as hard to learn as the AR5000 or AR8000, even simple tasks can take several steps on the AR7000. Take adjusting the squelch, for example. First, you push and hold the numeral "4" key for two seconds. This shifts the radio into squelch mode. Pushing the key again toggles between an open squelch, or an adjustable squelch setting. Once in the adjustable squelch mode, you use the "main" knob to adjust the squelch threshold. Finally, you push the "enter" button to make the change effective. Should you wish to adjust the volume while in the middle of adjusting the squelch, forget it. The push-button volume controls won't work while you're in the middle of any other operation.

I had difficulty adjusting the AR7000's squelch to eliminate all background noise while allowing weak signals to come through. The squelch is adjusted in S-units and the spacing between steps is too wide to allow fine-tuning. Stations that are weak, but readable, on my Uniden 9000XLT were completely blocked by the AR7000's squelch.

Another unpleasant surprise on the AR7000 is the global delay and attenuator functions, affecting all memory chan-

AR7000 Specifications

Frequency Range: 100 kHz to 2 GHz (cellular blocked)
Receive Modes: FM wide, FM narrow, AM, USB, LSB, CW
Receiver: Triple conversion superheterodyne, digital conversion in final IF stage

IF Frequencies:
1st: 275.4 MHz, 782.28 MHz
2nd: 45 MHz
3rd: 10.7 MHz
Step Size: 10 Hz-1 MHz in 10Hz increments

Sensitivity
(Typical) ƒÊV:
100 KHz-700 KHz
AM: 4.2
CW/SSB: 1.6
NFM: 4.0
WFM: N/A

700 KHz-20 MHz
AM: 3.5
CW/SSB: 1.5
NFM: 2.0
WFM: N/A

20 MHz-1200 MHz
AM: 1.3
CW/SSB: 0.5
NFM: 0.56
WFM: 1.3

1200 MHz-2000 MHz
AM: 4.0
CW/SSB: 2.0
NFM: 1.6
WFM: 3.5

Selectivity:
Bandwidth: 50 Hz
Mode: CW Pass Band
(-3dB): 75 Hz Stop Band
(-50dB): 330 Hz

Bandwidth: 150 Hz
Mode: CW Pass Band
(-3dB): 200 Hz Stop Band
(-50dB): 680 Hz

Bandwidth: 250 Hz
Mode: CW Pass Band
(-3dB): 330 Hz Stop Band
(-50dB): 920 Hz
Bandwidth: 500 Hz
Mode: CW Pass Band
(-3dB): 550 Hz Stop Band
(-50dB): 1050 Hz

Bandwidth: 800 Hz
Mode: CW Pass Band
(-3dB): 880 Hz Stop Band
(-50dB): 1650 Hz

Bandwidth: 2.0 KHz
Mode: SSB Pass Band
(-3dB): 2150 Hz Stop Band
(-50dB): 2900 Hz

Bandwidth: 2.5 KHz
Mode: SSB Pass Band
(-3dB): 2650 Hz Stop Band
(-50dB): 3450 Hz

Bandwidth: 3.0 KHz
Mode: SSB Pass Band
(-3dB): 3150 Hz Stop Band
(-50dB): 3950 Hz

Bandwidth: 3.0 KHz
Mode: AM Pass Band
(-3dB): 3650 Hz Stop Band
(-50dB): 5000 Hz

Bandwidth: 6.0 KHz
Mode: AM Pass Band
(-3dB): 6650 Hz Stop Band
(-50dB): 8000 Hz

Bandwidth: 8.0 KHz
Mode: AM Pass Band
(-3dB): 8700 Hz Stop Band
(-50dB): 10 KHz

Bandwidth: 15 KHz
Mode: NFM 25 kHz
(-40dB)

Bandwidth: 150 kHz
Mode: WFM 650 kHz
(-20dB)

IF Shift: 8.5 kHz (max) at 100 Hz steps
Audio Filter: NFM 2.5/3 kHz; WFM 7.5 kHz; CW Tones 400 / 600 / 800 Hz
Audio output: 10 watts @ 8 ohm, THD 10%
Power Requirements: 12 Vdc +15%, -10%
Current Consumption: 1.5A @ 1 watt audio, 0.1A receiver in off position

Memory channels: 1,500 (15 banks of 100 channels)
Search Programs: 8
Scan Programs: 8
Timer Programs: 5
Clocks: 5
Scan/Search Speed: 20 channels/ second

Input/Output Ports:
Antenna Connector
Video Output
Audio Output
External Speaker
Headphones
AUX
Rec Output
Mute
+12 Vdc Out
RS-232C Port
Remote Control
50 ohm BNC
75 ohm NTSC/PAL composite (RCA Phono)
10K ohm demodulated output (RCA Phono)
8 ohm 3.5mm Jack
32 ohm (nominal) 3.5mm Jack
On/Off less than 300mA AC/DC
More than 10K ohm
TTL or contact signal
Less than 10mA (in line with main switch)
9 pin, 9600 BPS
Infrared (1 line)
LCD Display: 3.1 inch diagonal color
Temperature Range: 32F to 104F
Dimensions (H W D): 3.54 in x 8.66 in x 9.45 in or 90mm x 220 mm x 240mm, w/o projections
Weight (approx.): 7.72 lbs. or 3.5kg
Supplied Accessories: AC adapter, IR remote controller, and operator's manual
List Price: $1,459.95
Typical dealer selling price: $1,150.00

AR7000 Features

- Digital Signal Processing
- Triple Conversion + DSP Front End
- Color LCD Video Display
- 1500 Channels
- Two VFOs
- 100 KHz to 2 GHz (cellular blocked)
- FM-W, FM-N, AM, USB, LSB, CW
- Computer Programmable
- Alphanumeric Channel Labels
- Remote Control
- Spectrum Display
- Adjustable IF Bandwidth
- Adjustable IF Shift
- Adjustable AGC (Fast/Slow)
- Attenuator (10 dB)
- Adjustable Squelch Tail Delay
- Adjustable Delay
- Automatic On/Off Timer (five memories)
- Video Display output (NTSC or PAL)
- RS232 (9 pin) Port
- DIN (8 pin) Auxiliary Port
- Eight Programmable Search Banks
- Eight Programmable Scan Banks
- Manual Tuning Dial

nels simultaneously. Far less expensive radios manage to have channel-selectable delay and attenuators. Taka Nakayama, AOR's vice-president for U.S. operations, said the radio uses electronic volume and squelch controls because they are part of the Digital Signal Processing circuitry. Global delay and attenuation are necessitated by limitations in the radio's internal memory capacity, he said.

Also strange is the single BNC antenna connector. Since antennas that cover the full frequency range of 100 kHz to 2 GHz are as rare as hen's teeth, most users will want to attach at least two antennas, one for HF and another for VHF/UHF. AOR recognized this situation with the AR5000, which has multiple antenna inputs, but it seems they forgot with the AR7000. Probably the best way to deal with the problem is via a two-position coax switch such as the Delta 2 from Alpha Delta Communications.

The 7000 "B" comes with the Voice of America and other shortwave broadcasters preprogrammed, plus a sampling of VHF/UHF airband, public safety, marine, business band, FM broadcast, and TV audio frequencies.

The receiver looks more like a piece of test bench equipment than a receiver. The three-inch (diagonal) LCD screen dominates the left side of the front panel. A numeric keypad and push button volume controls fill the center column while a rotary multi-function "main" dial, the infrared remote sensor, and another handful of buttons are on the right. The main dial serves as both a VFO tuning dial and to scroll through the programming menu options. A push-on, push-off power button and a 1/8-inch headphone jack complete the layout.

The faceplate is grey, with black rubberized buttons with orange letters and numerals. Most buttons on the radio have secondary functions and those labels are stenciled in white on the faceplate above the keys. Pushing and holding the button for two seconds accesses the secondary function. This is certainly more convenient than radios that require you to first push a "function" key to access secondary receiver functions.

The case is painted black and has four

rubber feet plus a sturdy chromed steel bail to tilt the radio up to a comfortable viewing angle. At 7.7 pounds and 8.5 x 3.5 x 9.4 inches, the AR7K is no lightweight, and the radio has a solid, substantial feel.

Powering up requires connecting the AC adapter's barrel connector to a jack on the rear panel. The adapter, labeled Sino-American, is rated at 2000 mA at 12 VDC. While external converters are a bit cumbersome, they do keep the heat generated by the power supply away from sensitive internal components.

Turn the radio on and your eye is immediately drawn to the large LCD screen. If a three-inch color display isn't big enough, there are audio and video output jacks on the rear that allow you to connect the AR7000 to a composite video monitor. The LCD screen is best viewed from slightly above. It can be a bit difficult to read when viewed straight on, from either side, or from below.

Superb AM Sensitivity And Neat Band Scope Feature

AOR claims a sensitivity figure of 0.56 microvolts in NFM mode when tuned between 20 MHz and 1200 MHz. Using the radio with the antenna, normally connected to my Uniden BC9000XLT, supported those claims. With the AR7000, I was able to pick up Florida Highway Patrol transmissions on 156.800 MHz from several counties away. My BC9000XLT cannot hear those same transmissions. Reception in the AM mode on the VHF and UHF airbands is superb on the AR7000, a common trait among AOR receivers.

The AR7000 is a fairly capable HF receiver. While it doesn't offer synchronous detection, automatic noise limiter, or some other functions found on dedicated HF receivers, it does offer 10 different bandwidths, an adjustable IF shift, and good sensitivity on the shortwave bands.

One really nice feature of the AR7000 is the band search/band scope combination. The AR7000 displays the background noise level on its band scope so you can visually adjust the squelch to a setting above the background noise. Activate the search function and the radio will only stop on signals above the background level. This is especially handy for searching the HF bands.

The bandscope also functions during scanning, displaying signals received on the programmed memory channels. I was able to spot signals too weak to break squelch by watching for their spikes on the screen.

Also on the plus side is the AR7000's ability to link up to eight search ranges and autostore active frequencies. Up to 100 frequencies can be locked out of the search if you have problems with birdies or other spurious signals.

Overall, the AR7000 is a capable receiver. A bit of tweaking of the design by the manufacturer could turn it into a great radio. For more information, contact AOR directly at AOR U.S.A., Inc., 20655 S. Western Avenue, Suite 112, Torrance, California 90501 or call them at 310-787-8615 or FAX 310-787-8619. Visit the AOR Website at <http://www.aorusa.com> for a look at this receiver and the complete AOR lineup. ■

The Ham Column

BY KIRK KLEINSCHMIDT, NTØZ

GETTING STARTED AS A RADIO AMATEUR

RF Power: 100 W Is Plenty!

If you think you need a linear amplifier to chase away your radio blues, think again. Your 100-W barefoot signal almost certainly provides more than enough power. If you need a bigger signal, you might be happier with a better antenna or an improved feed line. This month's column shows show you why.

Beginning hams often struggle with deciding whether to buy an amplifier or improve their antenna system — or maybe both. It's a logical question. You want to improve your station's signal quality, make more QSOs, work more DX stations, rack up higher contest scores, and chat with others while enjoying armchair copy.

But which way to go? Are amplifiers a good investment? Will they provide the big boost in readability you've been looking for?

The philosophical struggle between amplifiers and antennas has been raging for years, but if I had my way, I'd cap the maximum non-emergency power output for all U.S. hams to 250 W — maybe even 100 W! (And no, contesting and DXing aren't emergencies!)

That pretty much makes me an "antenna guy," right? Right. But beyond the many practical reasons to stay "unamplified," you should also consider a few philosophical reasons to keep your power output at barefoot levels (or less!). Then, if you're still not convinced, we'll take a look at the cold, hard facts about amplifiers and antennas.

Philosophy 101

In case you've forgotten, amateur radio is a radio service, with rules, regulations, and goals that transcend hobby operation. One of the most important rules compels us to use the minimum transmitter power required to communicate. That doesn't eliminate linear amplifiers entirely, but it does limit their habitual use. The minimum necessary power rule protects us all. It promotes responsible, considerate operation. Try it sometime! Reduce your 100-W signal to 50 or 25 W. Thanks to my years of low-power operating, I know that you'll maintain effective comms most of the time. You'll also improve your operating skills, enjoy a greater sense of achievement, and gain an intuitive sense of propagation.

Hams who are also decent human beings are concerned about others — other hams, neighbors, and family members. They try to fit in, to get along, to accommodate a community of interests in addition to their own. Just because we can transmit a 1500-W signal doesn't mean we should. Just because we can erect a 200-foot-high antenna tower doesn't mean we should. Hams who follow the Golden Rule integrate their radio pursuits with the pursuits of others, not because they have to, but because they want to!

Governments can't legislate common sense. That's up to us. Alright, that's the end of my pitch for restraint. If you're still tempted to dig into your piggy bank fund to purchase an amplifier, let's look at the facts.

Just A Regular Ham

Let's assume that you have a typical shack. A 100-W transceiver holds down your operating desk and feeds a coax-fed dipole (or two) through a 300-W antenna tuner. Because of the tuner, your rig can happily put out full power, regardless of actual antenna/feed line SWRs on the various bands you work. This setup — used by thousands, works pretty well, right? Maybe. But maybe not. You might have noticed that working stations on some bands doesn't seem as easy as it should — especially DX stations. You might even be dreaming of solving your problem by cranking up the power. By adding a glowing monster amp to your modest shack, you might think, those stations with once-marginal copy will respond with ease. It's a comforting image, but it's probably a fantasy. Although you may not yet know it, you'll likely get a lot more signal for a lot less money if you upgrade your antenna system before (or instead of) shelling out the bucks for an amplifier.

You Gotta Pay The Piper

Let's boost our signal and see how the decibels stack up against the greenbacks. If your amplifier budget is modest, a small solid-state or single-tube amplifier will boost your 100-W barefoot signal to about 500 W. That's enough to be noticed, or so you think — but just how noticeable?

Here's the bad news: Every time you double your power output, stations that are receiving your signal hear a 3-dB increase in strength. That's less than half an S-unit! To nudge the needle a full S-unit you need to quadruple your power output (a 6-dB increase)! The progression looks like this: 100 W doubled to 200 W equals a 3-dB increase. Next, 200 W doubled to 400 W equals a 6-dB increase. Then, 400 W doubled to 800 W equals a 9-dB increase (exceeding the output power of our entry-level amplifi-

er). Finally, 100 W times 10 equals 1000 W, a 10-dB increase in power output.

Our 500-W output amplifier gives us a smidgen more than a 1 S-unit boost on the other end. That's not much, especially when an amplifier in this class can costs as much as $1,500.

Full Speed Ahead

Want more power? Using our calculations from before, boosting your signal to a kilowatt output provides a 10-dB shot in the arm. That's just under two S-units on the other end — S3 to S5, S7 to S9, etc. That's enough of a difference to be noticed, but still not enough to "burn down the barn." And by the way, you're now spending about $1,500. If you go for a legal-limit amplifier, your 1500-W signal will be about 12 dB stronger than your "barefoot" transceiver. Because of the "price of power," 1500 W is still only two S-units stronger! And a legal-limit amplifier is hardly a casual purchase. It'll set your wallet back about $2,500.

What They May Not Tell You

Don't think you can get away with just an amplifier! The power output curve is often deceptive. For example, above 300 W output or so, you'll need a beefier antenna tuner. Expect to spend up to $500 for a good one.

And don't forget about the AC mains, either. You can run a 500 W output amplifier on 117 Vac, but beyond that, it's 240 V all the way. You may think it's nifty that every light in the house blinks in time with your Morse code signal, but others won't! And installing that 240-V line could set you back another $300 to $500.

Many first-time amplifier users don't consider the power supply requirements until they've set up the amp and started "browning out" the rest of their house! If this is you, you'll be lucky if you don't trash your TV set or your home computer in the process of "modulating" your 117 V power feed!

And if you live in an urban setting, don't neglect the potential "public relations" costs of firing up a killer signal in the midst of all those consumer electronics devices. The "law" might be on your side — but it's a lonely vigil.

A Better Way?

To save wear and tear on your neighbors, fellow hams, your wallet, and even your house wiring, consider improving your antenna system before investing in an amplifier. Here are some ideas to get you started.

• One almost universal way to get out more signal is to get your antenna(s) farther up in the air (your present antenna or a new one). Build a taller mast, find a taller tree or put up a tower.

• If that dipole just isn't cutting it, put up a contest-winning and DX-catching secret weapon: a full-wave horizontal loop for 40 or 80 meters (up as high as possible, of course!). Feed it with coax and use a tuner on bands above the fundamental frequency. That's a "cheap 'n' dirty" way to snag an extra 2 to 10 dB, depending on frequency.

• Disconnect the feed line from your coax-fed multiband dipole and replace it with 450-ohm ladder line. With a coax feed, even though your antenna tuner may be presenting a happy impedance to your transmitter, feed line losses due to high SWR may slash your signal by 6, 10, or 25 dB, depending on the band and the size of your dipole! By using 450-ohm open-wire line, you'll likely reclaim most of that lost power. Now that's a 6- to 20 dB shot in the arm that anyone can afford!

• For less than the price of an entry-level amplifier, you can buy a multiband beam antenna and a decent rotator. This dynamic duo, mounted reasonably high, will offer a 5- to 7 dB steerable improvement to your signal. Remember: Amplifiers only boost your transmitted signal and do nothing to improve reception. By rotating a directional antenna you can often boost the signal you're trying to receive, while attenuating signals that are unwanted. For example, if I'm working a European ham from my Minnesota QTH, a potentially interfering signal from an op in Florida — located in the side null of my directional antenna — may drop 25 dB or more! The difference, more than 30 dB of signal enhancement, could never be achieved by a lone amplifier.

• On SSB, learn to correctly use your rig's speech processor. That's another 3 dB (or more) improvement, this time in the modulation department! No purchase is necessary!

Time To Decide

So, do antennas win out over amplifiers in your shack? Or will your operating table soon be sporting some heavy iron? Amplifiers *do* have their uses — especially after you've tweaked your antenna farm. Add a 10-dB amplifier to a 7-dB beam antenna and you've got a whopping 17-dB improvement in signal strength! That will put you on the map, especially when the minimum necessary power required to communicate calls for maximum smoke.

The first amplifier I used was one that I built myself from scavenged parts. I was seduced by the possibility of a glowing 4–400 A transmitting tube, and I was trying to work DX on 80 meters with a poor antenna. The amplifier helped me put a few difficult QSOs in the log, but practical considerations forced me back to barefoot power. The 150-pound amp was collapsing my operating desk, and its draw from the 117-V mains was overwhelming! I could only use it in the wee hours when everyone else was in bed.

After I put up a decent 80-meter antenna, I never looked back. Given the choice, I'll take a "killer" antenna instead of a "rock crusher" any day! How about you?

Send your questions, comments and QSLs to me at *Popular Communications*, "The Ham Column," 25 Newbridge Road, Hicksville, NY 11801. And send along your photo while you're at it. See you next month! ■

The Listening Post

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Hot News From Libya, Poland, And Liberia

Radio Jamahiriya in **Libya** has begun a new English language service it is billing as the **Voice of Africa**, using **15235, 15415, and 15435**. The broadcast, inserted into the normal Arabic language programming, begins around 2030, but that timing can vary by as much as 10 minutes. So far, the English segment is not what you'd call a big deal, because the program switches into French after about 15 minutes. The station's address is P.O. Box 4677, Tripoli, Libya. Another, probably better, address is Libyan Jamahiriya Broadcasting, European Branch, P.O. Box 17, Hamrun, Malta. According to *Passport to World Band Radio*, the station still maintains an office in Malta, and this source has always been better at replying to listener's reports.

Polish Radio is now airing a Belarusian language FM station on shortwave twice a day. Radio 101.2 is scheduled at 1330 on **5995 and 7275** and 1700 on **6260** and **7180**. Forty years ago, Polish Radio was on a par with Hungary, Romania, and Bulgaria, as far as ease of reception in North America is concerned, but Polish authorities have apparently not given a very high priority for their shortwave service because reception quality has slipped further and further, even when we were still in the depths of the Cold War. Despite the huge number of people of Polish extraction in North America, only an hour a day is devoted to broadcasts to this continent, and then not exactly in "prime time" (1300 on **11815 or 11820**).

Star Radio has returned to the air in **Liberia**. The station uses **5880** from the 0500 sign-on, broadcasting in English and local languages. Star Radio is operated by a Swiss foundation, with funding from the United States Agency for International Development.

Reception reports go to the station on Sekou Torre Avenue, Mamba Point, Monrovia, Liberia. It might be a better bet to avoid the chancy mail delivery to Liberia and send your letter directly to Star Radio, care of Foundation Hirondelle, 3 Rue Traversiere, CH-1018 Lausanne, Switzerland.

Here's one of the new QSLs being issued by Herald Broadcasting.

Speaking of Switzerland, Swiss Radio International has discontinued operation of its Lenk transmitter site which is currently being torn down. The German shortwave site at Juelich is broadcasting SRI. The only broadcasts direct from Switzerland are from the Sottens transmitter site.

Radio Macarena (don't know if that's the dance or not!) has resumed operation

Another new Herald Broadcasting card shows the First Church of Christ, Scientist — this faith's "mother church" in Boston, Massachusetts.

on **5975** from Villavicencio, **Colombia**. They've been off a couple of years, while their transmitter was repaired. There may not be much of an evening schedule (and the channel would often be blocked in any event) but you should have a shot at them during their 1000 sign-on. Programming is mostly Spanish language religion. Their address is Radio Macarena, Calle 38, No. 32-41, piso 7, Edificio Santander, Villivacencio, Colombia.

Radio Bulgaria says you can now join its monitoring club — that is, once you have collected the six QSL cards in their current series. Each of the six cards require three reception reports per month — three each for January and February (for card #1); three each for March and April (for card #2) and so on, through December. Reports should cover a minimum of 15 minutes of program details and include a SINPO rating. You have to send the reports within the period indicated for each of the cards; i.e. you must have your January/February reports in the mail by the end of February. If you keep this up through the entire year, Radio Bulgaria will send you its "Monitoring Club Membership Card." (Couldn't we just send 'em five bucks?) The station also says that the old QSL system leading to Bronze, Silver, and Gold diplomas awarded for multiple reception reports will be discontinued at the end of this year.

Radio Bulgaria airs one-hour broadcasts in **English to North America** daily at 0000 and 0300 on **7375 and 9485**. Reception reports go to English Service, Radio Bulgaria, 4 Dragan Tzankov Blvd., 1040 Sofia, Bulgaria.

Herald Broadcasting (Christian Science) says it is **revising its mailing list.** If you're on that list, you need to contact them by the end of January. The address is Shortwave Broadcasts, P.O. Box 1524, Boston, Massachusetts 02117-1524.

Now the monthly appeal for your loggings which must be **listed by country**, be double-spaced, and include your last name and state abbreviation after each one. Other items we'll welcome with open arms include spare QSL cards, station schedules, photos and other literature, notes about changes in QSLing policies or station addresses, and other shortwave station news. We also encourage you to show us your shack! We welcome photos of your listening post, so don't be shy. Get out the camera and fire away!

Here are this month's logs. All times are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language abbreviation is included, the broadcast is assumed to have been in English.

In 1992, Radio Japan issued this special QSL to shortwave listeners for reception of its broadcasts via Skelton, England.

ALBANIA — Radio Tirana, **6228.61**, 0130 to 0157 close. News, "Review of Albanian Press." **//7160.03**. (Alexander, PA) **7160** at 0046 and 0130 with news and features about Albania. (Moser, IL)

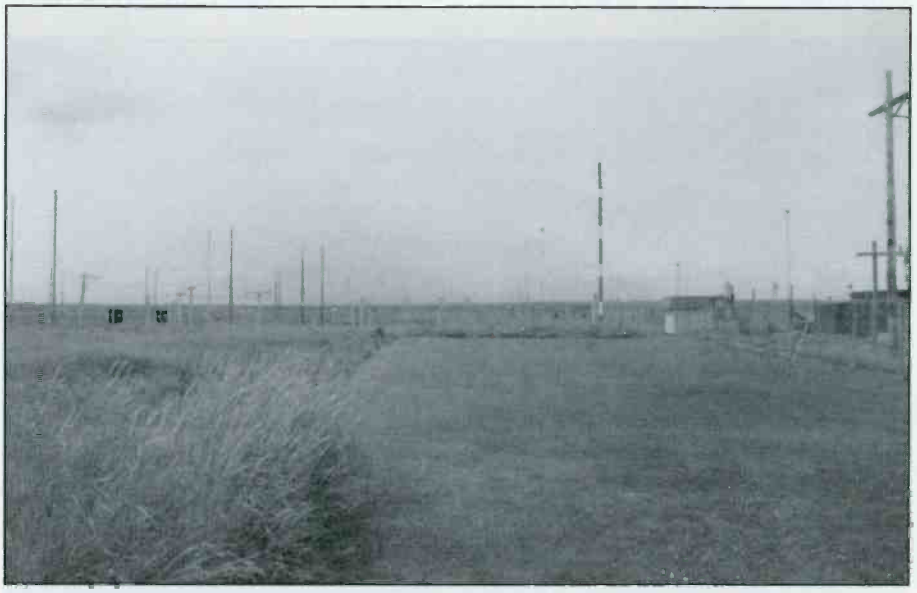
ANTIGUA — Deutsche Welle relay, **11810** at 0243 in GG. (Perron, MD)

ARGENTINA — RAE, **11710** at 0134 with music and comments. (Miller, WA)

ARMENIA — Voice of Armenia, **9965** at 2014 sign-on with ID, schedule, EE news. Poor in noise. (Alexander, PA) 2015 to 2045. Commentary. (Ziegner, MA)

ASCENSION ISLAND — BBC World Service relay, **17830** at 2000 with "Newshour." (Jeffery, NY)

AUSTRALIA — Radio Australia, **9500** at 1538 with music and **11660** at 1548 with classical music. **11880** at 1736 and **21740** at 2124. (Miller, WA) **12080** at 0935 with South Pacific Service in Pidgin. Also **21470** at 2235 with program on U.S. political scandals. (Barton, AZ) **17715** at 0358 and **21740** at 0105 with



Part of the Sackville, New Brunswick, transmitting site of Radio Canada International. (Thanks Gary Hubert, Ontario, Canada)

You could get lost in the headquarters of Swiss Radio in Berne!

news (Moser, IL) **17715** at 0205 and **17750** at 0209, both with news. (Jeffery, NY).

AUSTRIA — Radio Austria Int'l, **6015** (via Canada) at 2306 in GG and **9660** in FF at 0035. (Miller, WA) 13730 monitored at 0817 with news in GG. (Foss, AK)

BELGIUM — Radio Vlaanderan, **15545**, with EE to North America monitored from 1228 to 1257. (Silvi, OH)

BRAZIL — Radio Nacional Amazonia, **11780** at 0155 with jazz and easy listening music. (Perron, MD) PP at 0130. (Miller, WA) Radio Nacional, **11765** at 1614 in PP. Abrupt sign-off. (Miller, WA)

BULGARIA — Radio Bulgaria, **11720** presumed the one at 1755. (Barton, AZ) 0030 with Bulgarian pops. (Miller, WA)

CANADA — Radio Canada Int'l, **5925** in FF at 0555 and **11690** with news at 2006; **11715** in SS at 0555. (Perron, MD) **15340** at 1504 in FF. (Miller, WA) CBC Radio One, Vancouver, **6160** at 0029. (Miller, WA) BBC Sackville relay, **9515** at 1256 with sports, "Newshour." (Jeffery, NY) CHU time station, **3330** at 1120 with EE/FF time announcements. (Miller, WA) CBC Northern Service, **9625** at 1400 in EE/FF. (Wallesen, IL)

CHILE — Voz Cristiana, **9630.4** at 2320 to past 0000 with religious talks in SS. // **21549.9.** At 0520 **9630.4 parallel with 11690**.

These towers are part of Radio Netherland's Bonaire relay station.

(Alexander, PA) **21550** at 2340 with mostly music, SS announcer, and IDs. (Silvi, OH) **21550** at 2112 in SS. (Miller, WA)

CHINA — China Radio Int'l, **7405** monitored at 1327 with news of Third World. QRM from Radio Marti. (Miller, WA) Central People's Broadcasting Station, **17700** at 0127 in CC with music, news. (Jeffery, NY)

COLOMBIA — Caracol, **5075** in SS at 1026 and 0650. (Miller, WA)

COSTA RICA — Adventist World Radio, **5030** at 1202 and **9725** in SS at 0252. (Miller, WA) **13750** at 0239 in SS. (Perron, MD) Radio Reloj, **4832** in SS at 1040, also 0542. (Miller, WA) Faro del Caribe/TIFC, **5054** at 1123 in SS. (Miller, WA) Radio For Peace Int'l, **6975** at 0126 and **15049** at 2253. (Jeffery, NY)

CROATIA — Croatian Radio, **9925** at 0101 with news. Into unidentified language (*probably Croatian — Ed*) at 0104. (Moser, IL)

CUBA — Radio Havana, **6000** at 0100 with IS, ID, news. (Jeffery, NY) 1210 with news in SS. (Northrup, MO) **9550** and **9820** at 0545 and **11760** in SS at 0145. (Perron, MD)

CYPRUS — Cyprus Broadcasting Corp., **7205** at 2215 to 2244 close. Greek talk and music. Scheduled Friday, Saturday, Sunday only. Also **6180**, mixing with Brazil and 9760, fair. (Alexander, PA)

CZECH REPUBLIC — Radio Prague, **7345** at 0123 with Czech news items. (Moser, IL) **11600** at 2140 with music, ID. (Jeffery, NY) Adventist World Radio, **9465** at 1532 via Rimavska-Sabota site, in RR with religious broadcast. (Miller, WA)

DENMARK — Radio Denmark, **11990** via Radio Norway at 0228 with xylophone, IS, ID, into news in Danish. (Moser, IL) **15705** at 1841 in DD. Off at 1855. (Miller, WA)

EGYPT — Radio Cairo, **9475** at 0200 with talk about city of Alexandria. (Linonis, PA) 0218 and 0301 in EE. (Moser, IL)

ECUADOR — HCJB, **11615** at 0142 in PP. Also **12015** at 0227 in EE and **15140** with music at 0245. (Perron, MD) **11960** at 0712. (Barton, AZ) **17735** at 1858 with IS, ID, frequency info, news update. (Jeffery, NY) Radio Quito, **4919** at 1055 in SS. (Miller, WA)

ENGLAND — Merlin Network One, **13690** at 1902 with world weather, "Media Zoo." Also **15200** at 1851 with Radio Caroline relay, then news with muffled audio. (Jeffery, NY) BBC, **6175** (via USA) at 0434. **13745** at 0811 with news in RR. (Foss, AK) **6195** and **9740** at 1529. (Miller, WA) **9600** with English Network Africa news program at 0540 and **13660** in PP at 0234. (Perron, MD) **15220** at 1445. (Moser, IL)

FINLAND — Radio Finland, **11900** monitored at 0202. (Moser, IL) 0100; also **15400** at 1104. (Miller, WA)

FRANCE — Radio France Int'l, **6045** at 0604 in FF; **6120** (*probably via Japan — Ed*) at 0607, **7135** at 0548, **11670** (*probably via French Guiana — Ed*) monitored at 0143 and **11705** (*via Japan — Ed*). (Perron, MD) **11615** at 1613 and **15300** at 1608. (Miller, WA) **11965** at 2043 in FF. (Foss, AK)

GABON — Africa Number One, **9580** in FF

Abbreviations Used in Listening Post

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

at 0542. (Perron, MD) 2119. (Miller, WA)

GERMANY — Deutsche Welle, **6015** heard at 0602 and **7335** at 0552, **6075** and **6085** (via Sackville) at 0605, **9715** heard at 0540 — all in GG. Also **11865** in SS at 0218. (Perron, MD) **6120** via Portugal at 0535 and **11785** in GG at 2200. (Miller, WA)

GREECE — Voice of Greece, **7448** at 0135 with news in EE. (Moser, IL) **9375** and **9420** at 0534. (*In Greek — Ed*) (Perron, MD) **11645** at 2358 in Greek. (Miller, WA)

GUATEMALA — Radio Cultural, Guatemala City **3300**, monitored at 1010 in SS. (Miller, WA) Radio Maya de Barillas, Huehuetenago, **3325** in SS at 1113. (Miller, WA) La Voz de Nahuala, **3360** at 1124 in SS. (Miller, WA) Radio Chortis, Jacotan, **3380** in SS at 1142. (Miller, WA) Radio Buenas Nuevas, San Sebastian, **4799** in Quechua at 1206. (Miller, WA) Radio Tezulutlan, Coban, **4835** in Quechua with personal messages. (Miller, WA) Radio K'ekchi, San Cristobal, **4845** at 1156 with religious broadcast in Quechua. (Miller, WA)

HAWAII — KWHR, **17510** at 0145 with USA Radio Network Sports followed by the Home Schooling Network. (Jeffery, NY)

HONDURAS — La Voz Evangelica, **4819** at 1208 with SS religious program. (Miller, WA)

HUNGARY — Radio Budapest, **9580** at 0100 with news, comment. (Linonis, PA) 0119 with "Hungary Today." (Moser, IL) **9840** at 0257. Off at 0258. (Miller, WA)

ICELAND — Icelandic National Broadcasting Service, **11402** at 1947 in Icelandic. (Perron, MD) 2113. (Miller, WA)

INDIA — All India Radio, Delhi, **10300** monitored at 1601 in Hindi; **11585** Bangalore at 1538 in unidentified language. **11585** in Baluchi at 1530–1600, into Dari at 1613. (Ziegner, MA) **10330** in Hindi at 1601. Also **11620** Bangalore at 2219 (Miller, WA) **11620** at 2104 with EE news. (Jeffery, NY)

INDONESIA — Radio Republik Indonesia, Ujung Padang, **4755** at 1500 in Indonesian. (Miller, WA) RRI Jakarta on **15125** at 2151 in II with "Programma Nacional" and **15150** in II at 1748. (Miller, WA)

IRAN — Voice of the Islamic Republic of Iran, **5995** at 0640 with Koran. On **6005** at 0601 with news in EE. (Perron, MD) **15084** in Farsi at 1603. (Miller, WA)

IRAQ — Radio Iraq Int'l, **11784.96**, 2123 to 2134 close. Mideast music, EE news at 2124. Abrupt close. (Alexander, PA) **11785** at 0320 with EE commentaries. (Moser, IL)

ISRAEL — Kol Israel, **9390** in HH at 0533. (Perron, MD) 15616 in Hebrew at 1542, **15640** monitored at 1514 in EE and **15650** at 1518. (Miller, WA)

ITALY — RAI, **6010** at 0100 with EE to North America, news, and II pops. Into FF at 0110. (Linonis, PA) **11765** at 0149 in II. (Perron, MD) **11800 at** 0056. Into II pops at 0100. (Moser, IL)

JAPAN — Radio Japan/NHK, **6110** monitored at 0500. (Miller, WA)

JORDAN — Radio Jordan, **11690** at 1534 in EE with Arab music, contests, quizzes, phone calls. (Miller, WA)

KENYA — Adventist World Radio/ Voice of Hope, via Kenya on **9747** at 2000 in FF. Into EE at 2320. (Ziegner, MA)

KUWAIT — Radio Kuwait, **9855** at 2130 in AA with talk of Palestinians and Yassar Arafat. (Linonis, PA) **9880** at 1511, **15110** at 1604 and **15505** at 1511, all in AA (Miller, WA)

LIBYA — Radio Jamahiriya, **15415**, at 0159 in AA with talk, ID. (Jeffery, NY) 1430 with Mideast music. Then partly overridden by Deutsche Welle sign-on. (Moser, IL)

MALAYSIA — Voice of Malaysia, Kajang, **4840** at 1430 in unidentified language. Also **6100** at 1525 with QRM from **6110**. (Miller, WA) (*EE — Ed*)

MEXICO — Radio Educcacion, **6185** at 1038 in SS. (Miller, WA) 0437 with 1940s big band type music, male SS vocal. (Foss, AK) Radio Mexico Int'l, **9705** at 1408 with reports in EE. (Moser, IL)

MONACO — Radio Monte Carlo (via Canada) **9755** at 0309 in AA. (Miller, WA)

MOROCCO — Voice of America relay, **7255** at 0427 in AA. (Foss, AK)

NETHERLANDS — Radio Netherlands, **5930** via Russia, 1514 in DD. (Miller, WA) **9895** at 0624. (Barton, AZ) **11655** at 2003 in EE. (Perron, MD)

NETHERLANDS ANTILLES — Radio Vlaanderan Int'l, to North America via Bonaire, **13670** at 2230 to 2300. Very strong. (Silvi, OH) Radio Netherlands Bonaire relay, **15315** monitored at 1929 with frequency info, ID, news, weather, "Newsline," "Weekend." (Jeffery, NY)

NEW ZEALAND — Radio New Zealand Int'l, **6100** heard at 1032. (Miller, WA) **17675** at 2349 with discussion of Clinton scandal.

These are also R. Netherland's towers — featured on a 20th anniversary QSL issued 10 years ago.

Also 0428 with a jazz trio. (Foss, AK) 0107 with "Cadenza." (Jeffery, NY) 0330 with oldies. (Barton, AZ)

NIGERIA — Voice of Nigeria, **15120** at 2043 with EE commentary. (Miller, WA)

NORWAY — Radio Norway, **11635** monitored at 0302 with news in NN and **15230** in NN at 1536. (Miller, WA) **15340** at 1645 in NN. (Barton, AZ)

PAPUA, NEW GUINEA — NBC, **4890** at 1258 with music. (Miller, WA)

PARAGUAY — Radio Nacional, **9735** at 0030 in SS. (Miller, WA) **9737** at 2245 to 0100 or 0200 depending on "bleed" from HCJB or Deutsche Welle. Music and SS announcements, many IDs of "Radio Nacional de Paraguay." They seem to have "themes" each night. One night was all instrumental, another was folk-like ballads. (Silvi, OH) (*Never noticed that! — Ed*)

PERU — Radio Cora, **4914.4** at 0622 in SS. (Barton, AZ) Radio Tropical, **4935** at 1058 in SS with music, news. (Miller, WA) Radio La Immaculada, **5305**, 0100 to 0258 close, Peruvian folk music, SS talks, IDs, commercials, ballads. Off with national anthem. (Alexander, PA) Radio Sudamerica, **5522.21**, 0130 in SS with Peruvian folk music, SS talk. (Alexander, PA) Radio Ilucan, **5678**, 0000 to past 0200 in SS with re-makes of U.S. pop tunes, ID, SS talk. (Alexander, PA) Radio Frecuencia San Ignacio, **5699.88v**, 0045 to 0303 sign-off. SS talks, Peruvian folk music. Off with national anthem. (Alexander, PA) Radio Los Andes, **6479.7** at 0200 to 0326 close, Peruvian folk music, SS talk, ID. Off with national anthem. (Alexander, PA) Radiodifusora Huancabamba, **6535.72** at 0100 to 0211 close. SS talks, ID, lively Peruvian folk music, many mentions of Huancabamba. Off with national anthem. (Alexander, PA) Radio Nueva Sensacion, **6618.25**, 0000 to 0105 close. Peruvian folk music, ID, SS talk, abrupt close. (Alexander, PA) Radio Satelite, **6726** at 0145 to sign-off at 0259 one night, 0315 the next. SS announcer with much Andean music. Many IDs. (Silvi, OH) Radio Ondas del Rio Mayo, **6797.68** at 0000 to 0154 close, SS pops, Peruvian folk music, commercials, promos, ID. Off with national anthem. (Alexander, PA) Radio La Voz de las Huaringas, **7003.38** monitored at 0130 to past 0335. Peruvian folk music, SS talk, ID. Occasional CW QRM. (Alexander, PA)

PHILIPPINES — Radio Pilipinas, **11720 and 11890** at 1732 in Tagalog. Also **11730** at 1731 in Tagalog. (Miller, WA) Radio Veritas Asia, **9660** at 1427 with EE; into RR at 1430. (Miller, WA) FEBC Radio Int'l, **11635** at 1001 in EE with religious programming, ID, music and news. Barely audible. (Jeffery, NY) Voice of America relay, **15160** at 1313 with news. (Jeffery, NY)

ROMANIA — Radio Romania Int'l, **9925** in Romanian at 0346. (Miller, WA) **11940** in EE at 0401. Also **17790** at 1345. (Moser, IL) **15370** at 1700 with tourist news. (Ziegner, MA)

RUSSIA — Khabarovsk Radio, **7210** at 0655 in RR. (Foss, AK) Voice of Russia, **9665** at 0140 and **15425** at 0354. (Moser, IL) **15460** at 1509. (Miller, WA) **15425** at 0330 and **15595** at 0433. (Hill, ID)

RWANDA — Deutsche Welle relay, **7120** at 1515 in unidentified language and **9735** in EE at 2137. (Miller, WA)

SAUDI ARABIA — Broadcasting Service of the Kingdom of Saudi Arabia, **11870** at 0321 in AA and **15275** at 1451 in AA over Deutsche Welle. (Miller, WA)

SEYCHELLES — FEBA Radio, **11600** at 1544 with Bible broadcast. (Miller, WA)

SINGAPORE — Radio Singapore Int'l, **6150** at 1530, carrying News Radio 938. News and music with "Duncan." (Miller, WA) BBC relay, **9740** at 1200 with World Service to Asia. (Silvi, OH)

SLOVAKIA — Radio Slovakia Int'l, **5930** at 0100 with EE news. (Linonis, PA)

SOUTH AFRICA — Channel Africa, **9525** at 0425 with IS and ID. Into FF at 0430. (Barton, AZ) **11900** at 1557 with IS and into Swahili. (Miller, WA) **17675** at 1420 with developments in Uganda. (Moser, PA) **17870** at 1800 with "News-watch." Into FF at 1830 to sign-off around 1854. (Silvi, OH) Trans World Radio via South Africa, **7215** at 0331 with hymns, ID, and off at 0400. (Miller, WA)

SOUTH KOREA — Radio Korea Int'l, **5975** at 1353 in CC. (Miller, WA) **13670** at 0828 with talk about Korean doll makers exhibition. (Foss, AK)

SOLOMON ISLANDS — Solomon Islands Broadcasting Corp., **5020** at 1120 with news. (Miller, WA)

One of the many studios at Radio Japan/NHK.

Headquarters of Romanian government broadcasting.

SPAIN — Radio Exterior de Espana, **6155 and 11775** monitored at 0112 in SS. (Miller, WA) **17715** at 1545 in SS. (Barton, AZ) (*All via Costa Rica — Ed*)
SUDAN — Republic of Sudan Radio, **9200** at 0348 in AA. (Miller, WA)
SWAZILAND — Trans World Radio, **9500** at 1515 under Radio Australia. (Miller, WA)
SWEDEN — Radio Sweden, **7115** in Swedish monitored at 0328 to 0330 off; **9475** at 0330 with "Spectrum of the Arts;" **15240** at 1056 to 1100 sign-off. (Miller, WA) **9475** at 0350. (Moser, IL)
SWITZERLAND —Swiss Radio Int'l, **9810** at 1152. (Miller, WA) (*via Singapore — Ed*) **9885** at 0115. (Linonis, PA) **11725** heard at 2057 with news. (*via Germany — Ed*) Also **13685** at 0239 in Italian. (Perron, MD) **15265** at 1430. (Moser, IL)
TAHITI — RFO/Radio Tahiti, **15170** at 0226 with man and woman announcers in FF; music. (Jeffery, NY)
TAIWAN — Radio Taipei Int'l, via WYFR, **5950** at 0558 in CC. (Perron, MD) **7130** at 1225 in CC with music. (Northrup, MO)
THAILAND — Radio Thailand, **7115** at 1430 in TT with comments and music. Also on **11835** at 1824. (Miller, WA) **15395** at 0045 with EE to North America. (Linonis, PA)
TOGO — Radio Lome, **5047**, presumed, in FF with some music. (Silvi, OH)
TURKEY — Voice of Turkey, **9445** heard at 0536 in Turkish. (Perron, MD) **9655** at 0345. (Moser, IL) 0337. Also **11885** at 2350 in TT. (Miller, WA)
UKRAINE — Radio Ukraine, **12040** in EE at 0355 with ID. (Barton, AZ)
UNITED ARAB EMIRATES — UAE Radio, Dubai, **13675** at 0826 in AA. Also **15435** at 0444 with fast-moving AA tunes. (Foss, AK) **15395** at 1507. (Miller, WA)
VANUATU — Radio Vanuatu, **4960** heard at 0700 with news of Vanuatu and South Pacific. (Foss, AK)
VATICAN CITY — Vatican Radio, **15500** at 1510 in FF with echo. (Miller, WA)
VIETNAM — Voice of Vietnam, **7250** (via Russia) at 0113 with news reports and features. (Moser, IL)
YUGOSLAVIA — Radio Yugoslavia, **9580** at 0000 with ID, frequency info, news, press review, editorial, economic report, and music. (Jeffery, NY) 0116 with news. Better at 0200. (Miller, WA) **11870** at 0442 with news about Croatia and Bosnia. (Foss, AK)

And that's our shortwave fix for this month! A sweeping bow of gratitude to the folks who did the good thing this month: Tricia Ziegner, Westfield, Massachusetts; Marty Foss, Talkeetna, Alaska; Brian Alexander, Mechanicsburg, Pennsylvania; Jack Linonis, West Middlesex, Pennsylvania; Tim Hill, Mountain Home, Idaho; Mark Northrup, Gladstone, Missouri; Howard Moser, Lincolnshire, Illinois; Michael Miller, Issaquah, Washington; Lee Silvi, Mentor, Ohio; Dave Jeffery, Niagara Falls, New York; Rick Barton, Phoenix, Arizona; Elmer Wellesen, LaGrange, Illinois and Ronald A. Perron, Glen Bernie, Maryland. Thanks to each of you!

Until next month, good listening! ■

A studio at China Radio International. (Thanks: R.C. Watts, Kentucky)

BY GERRY L. DEXTER

Clandestine Communiqué

TUNING IN TO ANTI-GOVERNMENT RADIO

The Latest On Nigerian Clandestines And Washington's Radio Free Iraq

At least two anti-Nigerian stations continue active. **Radio Kuridat**, operated by the United Democratic Front of Nigeria (UDFN), broadcasts on **6205 and 11540** from just before 1900 to around 2000. Their address is P.O. Box 9663, London SE1 3ZD, England. The broadcast is aired on shortwave over South African government transmitters.

Ogene Ndigbo Radio, operated by the Eastern Mandate Union Abroad and the World Igbo Council, airs from 2100 to 2200 on **15460** and can be reached by writing to P.O. Box 91425, Washington, D.C. 20059.

Radio Free Tibet is aired on **9710** over the facilities of Radio Vilnius, Lithuania, with broadcasts in Chinese and Tibetan from 1300 to around 1330 Monday through Thursday, although the language used varies from day to day. The name of the group behind these HF broadcasts isn't yet known.

The **Voice of Independent Kashmir** is on the air from 1530 to 1730 on **variable 3835, 5300, and 6300** — time/frequency combinations which are not conducive to reception in North America. The **Voice of Southern Azerbaijan** broadcasts on behalf of the National and Independent Front of Southern Azerbaijan at 1600 on **13645**.

Still another in this genre, **Radio Democracy for Africa** (RDA), is almost certainly in our future as well. The legislation has been passed and the project awaits funding in next year's federal budget. Steps are apparently already being taken to get programming people lined up. The service will be operated as a quasi-arm of the Voice of America.

A couple of other anti-Baghdad outlets include the **Voice of the Iraqi Communist Workers Party** which broadcasts in Kurdish and Arabic from 1630 to 1800 on **4000**. That's one of those stations which listeners in North America have little chance of ever picking up due to the time/frequency pairings used.

Another is the **Voice of the Iraqi People** which broadcasts on variables **3890 and 4760** from 0300 to 0400 and 1730 to 1830, both in Arabic. This one speaks on behalf of the Iraqi Communist Party and is believed to broadcast from somewhere in Syria.

Still another communist anti-Iraq station is called **Radio Freedom**, operated by the Communist Party of Iraqi Kurdistan, which also uses **3890 variable** (see above), operating more or less from 1600 to 1700.

There are **three anti-Eritrean clandestine radio stations** currently in operation (Eritrea used to be a province of Ethiopia). The **Voice of Democratic Eritrea** uses **9230** between 1500 and 1530. The station is operated by the Eritrean Liberation Front and can be reached at the ELF-RC Foreign Information Department, P.O. Box 200343, 53134 Bonn, Germany. The **Voice of Free Eritrea**, operated by the Eritrean National Alliance, broadcasts from 1530 to 1600 on **9230**. Their address is P.O. Box 200434, 53134 Bonn, Germany. The **Voice of Truth**, operated by the Eritrean Islamic Jihad Movement, has the same address and operates from 1600 to 1630, also on **9230**. The first two air programming in Arabic and Tigrigna; the Voice of Truth airs in Arabic only.

An address has turned up for the Colombian clandestine **Radio Patria Libre** — something which has eluded clandestine fans over the 10 years the station has been in operation. This address is a representative of some kind but, nonetheless, it is still very much worth a try: Colombia Popular, care of Tommy Weissbeckerhaus, Wilhemstrasse 9, 10963 Berlin, Germany. **Patria Libre's** most recent schedule is on **6250** from 1800 to 1830 and 2200 to 2230.

The other Colombian opposition station, **Voz de la Resistencia**, operates on **6240** (variable) from 2000 to 2200.

The anti-Iranian station **Voice of Mojahed** (also known as Voice of the Crusaders) broadcasts from transmitters in Iraq from 0100 to 0300 and 1600 to past 1800 on **4650, 4850, 5150, 5650, 5750, and 6250**, all in Farsi. A different program is carried from 0100 to 0300 and 1500 to 1805 on **6177**.

Anti-Fidel Stations

Although voices broadcasting in opposition to Fidel Castro's Cuba aren't perhaps as prominent as they were in the past, several organizations continue to air programs **over Radio Miami International (WRMI).** A couple of new ones are **La Voz de los Plantados and La Voz de la Disidencia.**

The first is produced by **Plantados Until Freedom and Democracy in Cuba** and airs in Spanish on Monday through Friday at 0100 to 0300. It's also on Saturdays and Sundays from 0230 to 0330 and again on Sundays from 2230 to 2300.

La Voz de la Disidencia is produced by an organization called the Grupo de Apoyo a la Disidencia and broadcasts in Spanish on Saturdays and Sundays from 2130 to 2200. All airings for both organizations are **over WRMI on 9955** — which, last time we checked, Cuba was still managing to jam a bit.

That covers things for this time. Please remember that your logs of clandestine stations and broadcasts are always most welcome, as is any other related material you may find about clandestines — including station schedules, address and QSL information (including copies of QSLs or other materials we can use for illustrative purposes), info about the organizations which operate or back these stations, and transmitter locations. Thanks for your continued interest and support.

Until next month, good hunting! ■

1999 Calendars, Books, Cards & Videos!

33 Simple Weekend Projects

by Dave Ingram, K4TWJ

Do-it-yourself electronics projects from the most basic to the fairly sophisticated. You'll find: station accessories for VHF FMing, working OSCAR satellites, fun on HF, trying CW, building simple antennas, even a complete working HF station you can build for $100. Also includes practical tips and techniques on how to create your own electronic projects.

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by Bill Orr, W6SAI

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Amateur Radio Equipment Buyer's Guide

This 144-page book is your single source for detailed information on practically every piece of Amateur Radio equipment and accessory item currently offered for sale in the USA complete with specs and prices. Also includes the most comprehensive directory of Ham product manufacturers and dealers in the USA.

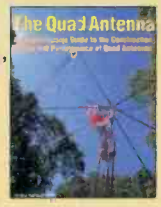
Order No. EBG..... $15.95

The Quad Antenna

by Bob Haviland, W4MB

Second Printing

An authoritative book on the design, construction, characteristics and applications of quad antennas.

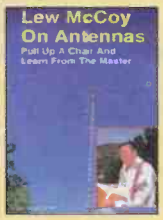


Order No. QUAD $15.95

McCoy on Antennas

by Lew McCoy, W1ICP

Unlike many technical publications, Lew presents his invaluable antenna information in a casual, non-intimidating way for anyone!



Order No. MCCOY.... $15.95

Building and Using Baluns and Ununs

by Jerry Sevick, W2FM

This volume is the source for the latest information and designs on transmission line transformer theory. Discover new applications for dipoles, yagis, log periodics, beverages, antenna tuners, and countless other examples.

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BY RICHARD "RD" BAKER
<CommConf@concentric.net>

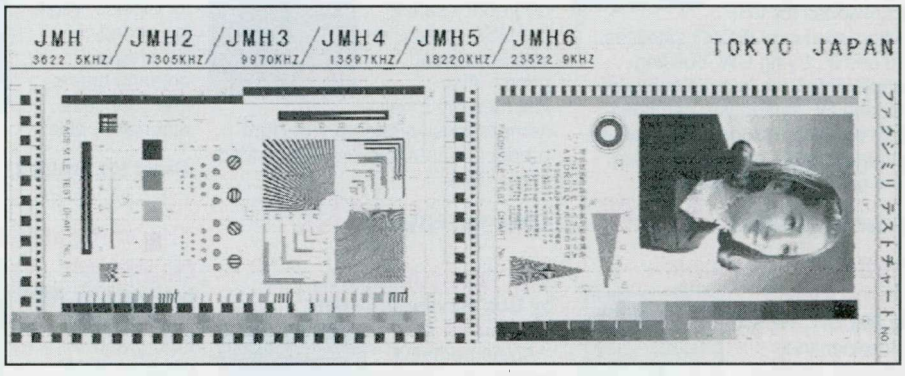
Communications Confidential

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Special Anniversary Issue

Howdy everyone. Time does fly when you're having fun! This is the second anniversary of my doing this column. We're celebrating with a special log extravaganza this month. This also happens to be my 30th year of enjoying the DXing of utility stations. I've learned a lot over those years about the hobby, but like the Beatles sang "...I get by with a little help from my friends" — for many reasons, most cannot be named — or don't care to be named. But, they certainly know who they are. When I need confirmation, information, or plain "hey, does this sound right" type advice, I can count on these friends to help. And where would we be if no one took the time to send in and share what they have heard and where they heard it?

I get a few letters from folks such as a recent letter where the writer wanted to know why I don't have as many beacon logs. There's a pretty simple answer. Only one reader has been sending me beacon logs, and the most recent letter writer didn't send any! Another writer was very complimentary on the columns expanded international logs. I'm pleased with this also, as one person's everyday local logs is another's exotic DX. The point is, I can only share what folks share with me. So let's take this time to thank all these folks who help out and send logs, photos, and material. I'm just the mailman who brings it to you.

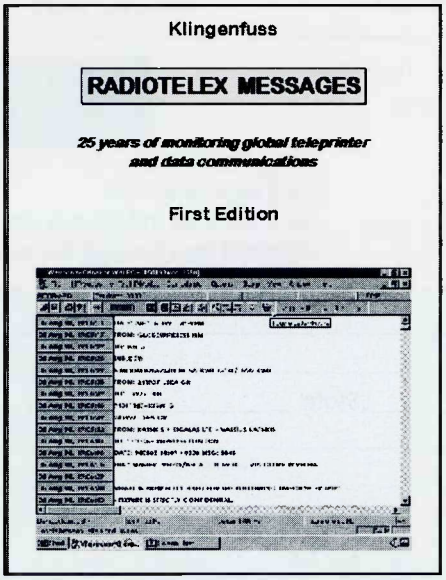


Test chart sent by JMH, Tokyo Meteo, Japan, caught by Marius Rensen, Germany.

Other News

I mentioned last month about the Worldwide UTE News (WUN) clubs Internet listserver move to <qth.net> and promised some more information on other lists. I was going to list them but found there were more than 40 lists covering every aspect of the radio hobby. Some of the popular ones that may be of interest to readers of this column are: ACARS List Server, ACARS Logs List Server, AmFmTvDx List Server, Antennas Mailing List, Atlantic (aircraft crossing the Atlantic/HF), FedCom (Federal Communications), Lowfer Mailing List, MilCom (Military Communications), Scanning and Monitoring Mailing List, Scannist List Server, Short Wave Listeners and Scanner List (SWL), WEFAX Mailing List, and WxSat. There are a bunch more. For more information, send an E-mail to <majordomo@qth.net>, and in the message body type: "lists" (no quotes).

Klingenfuss Publications has announced some new 1999 editions. *Radiotelex Messages 1974–1998; 1999 Super Frequency List on CD-ROM (5th Edition); 1999 Guide to Utility Radio Stations (17th Edition); 1999 Shortwave Frequency Guide; and Encyclopedia of Intelligence and Secret Services*, which is brand-new. This handbook covers the current methods, techniques, and organization of secret services all over the world. *Radiotelex Messages* is also brand-new and gives insight into dozens of message formats and transmission protocols. It covers 1,004 messages and screenshots of 692 utility stations from 136 countries. Coverage includes global aeronautical, commercial, diplomatic, maritime, meteorological, military, navigation, police, press, public, and "secret" radio communications on shortwave, according to the release. I haven't seen these yet, but they sound interesting. They're available from most fine sellers of hobby books or visit their Internet site at <http://ourworld.compuserve.com/homepages/Klingenfuss/>.



One of the newly released goodies from Klingenfus Publications.

Reader Mail

I want to welcome several new contributors this month. First, Ian Baxter in England, whom I met "B.I." (Before Internet) when he was co-editor for the Utility Shack column of the Danish Shortwave Club. Ian uses a JRC NRD-525 with an outdoor 22m longwire and enjoys civil aviation. I think you will enjoy his catches.

J.S. Ditlev-Petersen, aka "Dit," wrote

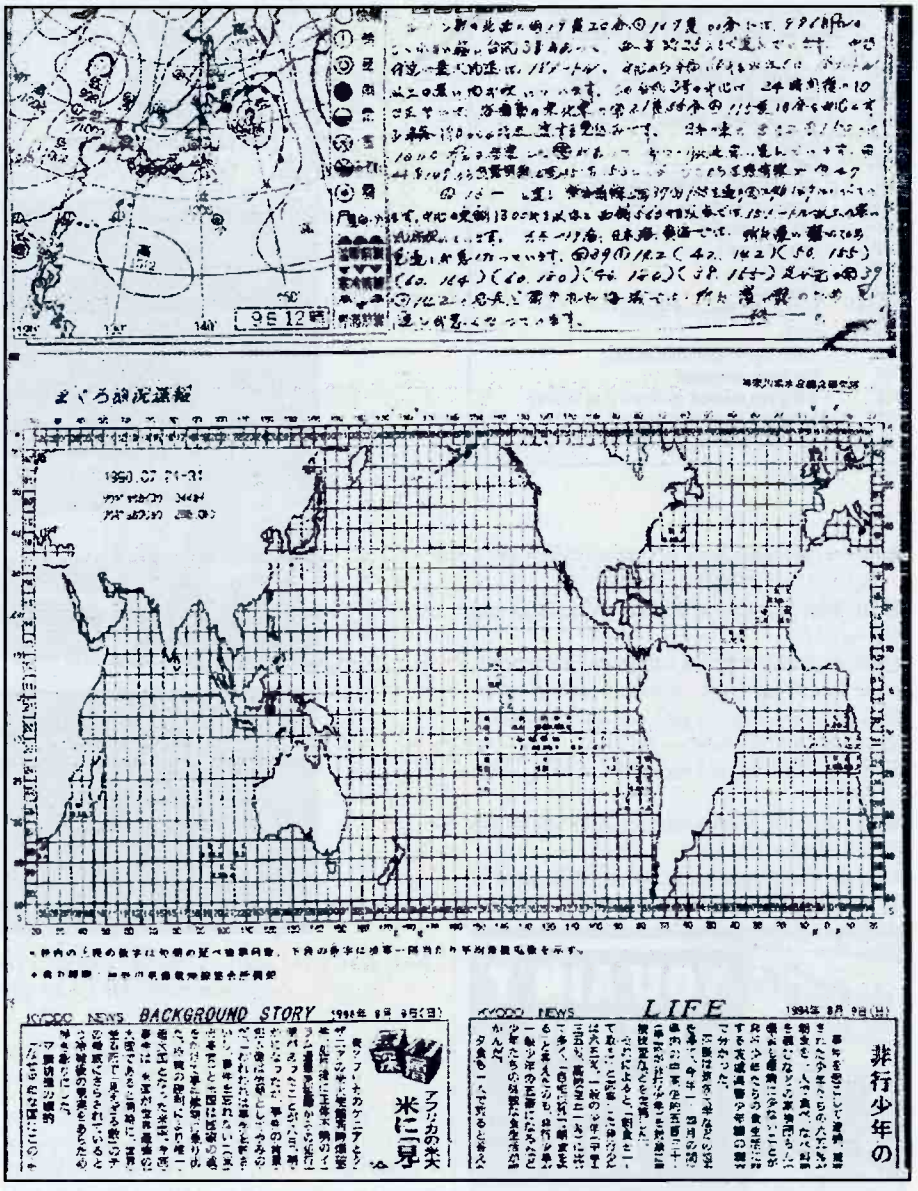
from his home in Denmark. It seems he has a hard time finding *Pop'Comm* there but enjoys reading it when he can find it. Dit wrote a fascinating letter reminiscing about when he could hear U.S. B-17 "Forts" during WWII test their CW radios by sending "BEST BENT WIRE" routine before take-off. Unfortunately, it was later discovered the "Abwer" also listened and counted the number of times the phrase was sent to get an idea of how many bombers were going up that day. These days Dit is retired and enjoys listening to his Bearcat scanner and a Sangean 800. On HF, most of his time is spent on 5517 listening to the civil aero stations there. Thanks for the letter Dit. This is the first time we have had someone from Denmark in the column.

Sean Ingram checks in saying he has used info from previous columns to make a few first-time snags. Sean uses a RadioShack DX-398 and a spool of 16-gauge wire as a longwire antenna, but didn't mention where he's listening from.

We've got an impressive 30 contributors from nine countries this month, so let's get on with the show.

UTE Loggings SSB/CW/DIGITAL

206: GLS, Galveston, TX at 0245. (BF)
212: BCY, Boise City, OK at 0249. (BF)
230: SH, Shreveport, LA at 0255. (BF)
233: VHN, Van Horn, TX at 0256. (BF)
242: EL, El Paso, TX at 0302. (BF)
275: GUY, Guyman, OK at 0308. (BF)
281: UVA, Uvalde, TX at 0310. (BF)
290: AOP, Rock Springs, WY and TMV, Stamford, TX at 0307. (BF)
305: RO, Roswell, NM at 1248. (BF)
311: MVI, Monte Vista, CO at 0319. (BF)
329: FIA, Socorro, NM at 1246. (BF)
335: HIS, Ft. Collins, CO at 0326. (BF)
344: FCH, Fresno, CA at 0301. (BF)
350: NY, Enderby, BC, Canada at 0329, Canadian aero beacon w/3 to eight-second dash after each ident. (BF)
368: SIR, Sinclair, WY at 0110. (BF)
375: DW, Tulsa, OK at 0253. (BF)
382: Monitored at 1640, unid in AM w/aviation wx for Bangor to Caribou. (DB) (*prob. LQ Boston — Ed*)
392: AGZ, Wagner, SD at 0235. (BF)
397: FN, Flint, MI at 0232. (BF)
406: D5, McArther Lake, SK, Canada at 0348, new beacon, just put on line. (BF)
412: BWR, Alpine, TX at 0116. (BF)
428: SYW, Greenville, TX at 0355. (BF)
522.5: SAE, Tingstaede Rdo, S at 2056 w/CW wx in EE. (HOOD)
657: North Korean/YL nbrs in powerful AM at 500//3250//6400. (TY)
1740: 1S1HT, unid beacon, hrd repeating this callsign in CW at 0358. (DG) (*Still unid after all this time —Ed.*)



This FAX chart, from the Kydo News Service, was among a nice package of FAX charts I received, but the sender's name could not be found inside. Maybe the sender can drop me a line at P.O. Box 4450, Youngstown, Ohio 44515.

2182: *S/V Red Star* at 0343 in USB wkg USCG **Hampton Roads** re shots fired at them from passing speedboat, no one hurt, but cutter was sent in case they came back. (RK)
2624: IQX, Trieste Rdo, I at 2158 w/nav wng in Italian. (HOOD)
2643: A9M, Bahrain w/CW marker "DE A9M TLX" at 2232. (DG)
2643.5: SPS, Witowo, POL w/"DE SPS/TOR K" marker in CW monitored at 2233, QRM from A9M. (DG)
2670: NMA10, USCG Group Mayport at 0628 in USB w/MIB brdcst and comms info. (DW)
2761: OST, Ostend Rdo heard at 2106 in USB asking for sightings of vsl *Seahunter* (OPBZ). (HOOD)
2800: 4XZ, Haifa Naval, ISR w/VVV marker in CW at 2218. (DG)
2824: PCG, Scheveningen Rdo, HOL at 0010 in USB w/voice mirror. (AB)
2869: Samara Volmet at 2146 in USB w/wx in RR and ID at 2149. (HOOD)
3016: Rescue 12 (RAF Nimrod) at 2302 in USB wkg Shanwick. (AG)
3272.8: ZRC1, Capetown Radio, RSA in FEC at 0104 w/"quick brown fox" test tape. (TS) (*Not one I've seen logged before — Ed.*)
3651: Russian Air Defense, RUS at 2257 in CW w/BT? Etc. (AB)
3678: SXH32, Souda Naval, Crete (Greece) w/CW VVV marker at 2247. (DG)
3685: SXA2, Athens Naval, GRC w/CW VVV marker at 2246. (DG)
3756: Unid, "The Pip" heard at 2250 pipping away. (AWH)
4197: UIKE, TKH Baltiyskiy 29 at 0732 in CW clg UBF2. (HOOD)
4240.5: XSG, Shanghai Rdo, CHN at 1223 w/CW marker. (EW)
4262.5: ZLO, RNZN Waiouru, NZ in RTTY

Abbreviations Used For Intercepts

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

75/850 encrypted, later in CW w/ "ZAY A1A . . . ZNI1A . . . ZNI1B . . ." (JD)

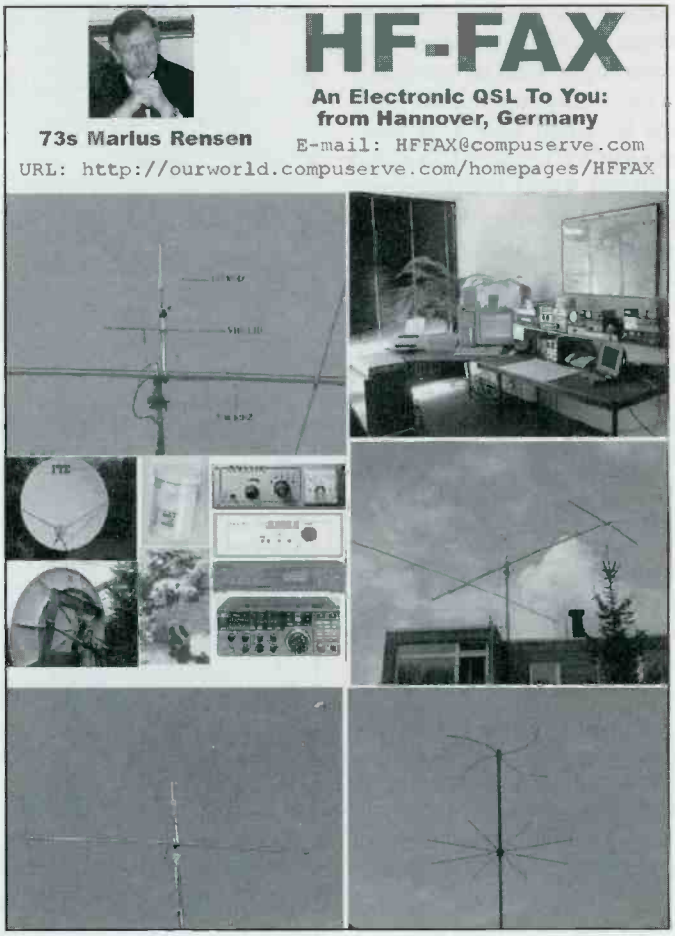
4270: Mossad, ISR at 2300 in AM, PCD and 5LGs. (AB)

4426: At 0433, various continued wx reports, same heard on 6501, assume USCG SCN. (DG2) (*Should be NMC, CAMSPAC Point Reyes, CA at this time — Ed.*)

4540: Cuban CW net incl JMN, CQY, 1055. (AWH)

4571: HZN46, Jeddah Meteo, ARS at 1649 in RTTY 100bd Wx. (AB)

4612.2: Unid Spook in CW at 0400 w/"483 483 483 00000" repeated, cut 0 = T. (AWH)



Neat QSL card used by Marius Rensen. Visit his Website at <http://ourworld.compuserve.com/homepages/HFFAX> for outstanding FAX info and links.

4616: ZKSD, Raoul Island, the Kermadecs and Port Fitzroy Great Barrier Isl Dept. of Conservation stns, NZ at 0735 in USB, re annual weeding of Raoul Island by DOC volunteers. (IJ)

4620: English Man, RUS at 2145 in AM, Tests at 2145–2150, calls 813 in RR/EE. (AB)

4625: The Buzzer, RUS at 2159, bursts change to 'siren' (no stops between the bursts) between 2159m30s and 2200. (AB)

4637: OVK, Danish Navy, Aarhus in CW at 1625 wkg warship "9GL" on same freq. "9GL" then sent a msg in RTTY. (JD)

4675: At 0450, TEJ7204 in USB clg Gander w/posn report, told to contact here or 2872. Posn 53N30W at 0508. Lots of tfc. (DG2)

4693: VIC, Melbourne Aeradio, Aus at 1030 in USB w/comms to unid a/c. (IJ)

4700: CANFORCE 1628 wkg Halifax Military at 0531 in USB, told to switch to freq A6C. (RP)

4739: Canadian Rescue 106 w/Halifax Military at 0250 in USB w/pp RCC, 106 will maintain CRATT watch on freq A6C, also listening watch on 5717, use CG stn Fundy, if necessary for comms relay. (RP) PELICAN 01A clg 'FIDDLE' in USB heard at 1049, no joy. (TS)

4770: North Korean/YL nbrs in AM at 1400// 5873. (TY)

4815: 3-Note Oddity stn at 0405, 3-tone IS to 0410, then GG w/5FGs 2x. (AWH)

4880: Mossad, ISR at 2300 in AM, ULX + 5LGs. (AB)

4915: Three-Note Oddity stn at 0442, GG w/5FG 2x already in progress. (AWH)

5000: Unid at 1330, ARQ-E 72 bd idling right slap-bang on top of the standard-freq stns, probably FF "exercise" (that's how they spell it) stns. (JD)

5114: JMW9, unid in CW clg AQH4; audible every evening here for the past two or three years, freq varying between 5110 and 5120 kHz; always weak here. Nothing but call tape "AQH4 de JMW9" ever heard. (JD)

5145: VJN, RFDS Cairns QLD, Aus at 0830 in USB w/voice tape "this is RFDS frequency for Cairns base VJN for calls to the RFDS operator please use your emergency alarm call button." (IJ)

5160: At 0145, unid w/Eastern European language monitored in USB, could'nt pull anything out. (DG2)

5180: At 1715, USS O'Bannon w/DOD CAPE, posn and on scene wx passed. Later DOD Cape wkg O'Bannon w/status info, just

passed T-60 min. KING 4, 5 clg DOD CAPE "on HF," no joy. At 1829, O'Bannon wkg KING 1 re c/s 467, also re 2 SH-60s in the area. DOD CAPE ltr wkg O'Bannon, T-22 seconds, then reports lift off at 1918. All in USB in support of launch of STS-95 w/John Glenn. (RM)

5196.4: Two unid stns in Mississippi in USB at 0126 discussing amateur radio op's and disaster nets. One stn used the callsign KFDC211. (TS) (OP SECURE *freq., prob KNDC211, Mississippi Emergency Management Agency, Jackson, MS, no KFDC211 shown in FCC — Ed.*)

5246: At 1926, SRB recovery vsl *Liberty Star* wkg DoD Cape, giving range, posn of boosters. At 2006, Liberty Star passes posn of right booster and at 2017 removing parachute from a booster. Ltr w/posn of left booster. At 2119, wkg BRD (Booster Recovery Director), re status of right hand booster. All in USB in support of launch of STS-95 w/John Glenn. (RM)

5320: NMN70, USCG Group Eastern Shores, VA at 2021in USB wkg Group Atlantic City w/rdo ck. (Ed.)

5380: CITY Base and CITY 1, Presumed Govt. Community Radio Network stn, Papua New Guinea at 0905 in USB, 2 OMs in Pidgin EE discussing the next days plans (Klingenfuss UTE 94 has Provincial Govt. Lae listed). (IJ)

5448: "The Pip" at 0445 w/1 second raspy beep repeated, sort of like 4625 before its reincarnation as "The Buzzer." Haven't heard it since and nothing on 3757 either. (AWH)

5450: At 2350, UKADR or RAF wx report in USB could only catch wind and ceilings. (DG2) (*MVU, RAF Volmet, West Drayton, G — Ed.*)

5466: Cuban CW net at 1842, EGZ wkg ZBL, and this net used 3446 at night. (AWH)

5505: At 2051, Shannon Volmet, IRE in USB w/wx info. (EW)

5517: Benghazi Aero, LBY at 2102 wkg Corsair-910. CTP-8418, Tashkent Aircraft Co at 2134 wkg Khartoum, FL280. STV-300, Southern Aviation, Ghana at 2124 wkg Khartoum. 5A-DDB, Light Air, at 2110 wkg Tripoli. Djibouti Air 800 at 0219 wkg Addis Ababa, FL350. SBZ-014, Scibe Airlift, at 0221 wkg Sana`a, FL280. (IB) Khartoum, Addis (Addis Ababa), Cairo, and Tripoli all wkg a/c, including Air France 6536, Air France 8296, Ethiopia 731, Sabena 554 0500-0530. (JSDP) All in USB.

5541: Stockholm Radio hrd here often wkg a/c in USB. (PP)

5629: YL/EE Mossad stn rpting VLB2 in USB at 0350. (TS)

5658: IRP-4662, Payam Air Service at 2122 wkg Delhi. KGA-2095, Kyrgystan Airlines at 2022 wkg Urumchi, and Lahore. IYE-850, Yemeni, at 1926 wkg Bombay w/selcal PR-CH. All in USB. (IB)

5680: Swallow 91 at 0942 in r/ck w/Kinloss, Wessex helo inbound Aldergrove, rqst r/watch. Sierra Hotel Zero 227 at 1125 w/Kinloss, Wessex helo out of Aldergrove enrt to Baldonnel (Irish base for goodwill visit), req r/watch over Irish Sea. SRG 07 at 1119 in r/ck w/Kinloss, "Sea King on Air Test." Swallow Formation at 1020 clg Kinloss, Wessex helo w/5 pob, and Lynx helo w/3 pob. Enrt fm EGAA (Aldergrove) to EGNC (Carlisle), req r/watch. Warlock Formation at 1321 in r/ck w/Kinloss, two Pumas fm Sennybridge to RAF Benson, req r/watch. Navy 318 at 1540 wkg Kinloss, Lynx helo fm RAF Valley, req r/watch. Karup Rescue (DNK) at 1339 in r/ck w/Kinloss. Swansea CG, G at 1344 w/wx for Rescue 193. Tartan One (Sea King helo formerly Med Res 178) at 1837 wkg Kinloss, is outbound to floating c/s J7H. All in USB. (AG)

5688: Cuban Babbler at 1252 idle tx w/hum, first time hrd in a while. (AWH)

5692: Atlantic Area w/Rescue 1502 who is wkg SAR off Bermuda, adv 1502 that persons on board stricken S/V will have to ride out the night. AF Rescue won't be able to help until first light. AF Rescue will be sending a C130 and two helos, will be on scene at first light along w/1502 to hoist injured and others from S/V. (DS2) (*SAR was for* S/V Kampesra *w/10 injured persons aboard in wake of Tropical Storm (ex-Hurricane) Mitch — Ed.*)

5696: Rescue 193 at 2110 clg Culdrose Ops, no reply, but lots of QRM from CAMSLANT Chesapeake at 2110 wkg CG 1716. (AG) At 1702, RESCUE 6004, an HH-60 out of CGAS

Clearwater, wkg CAMSLANT re was located near Freeport and had just picked up 2 survivors. (AS) Rescue 1501 at 1055 wkg CAMSLANT re RESCUE 6026 starting hoisting ops from S/V, posn 3047N/6815W. At 1125, RESCUE 1501 reports that the 6026 has all S/V crew hoisted and is in process of hoisting rescue swimmer. (DS2) SLINGSHOT at 0200 wkg PINBALL and BOOGERBEAR re chase of Cessna a/c dropping bundles into ocean, a/c later ditched in the Everglades. (RK) All stns in USB.

5705: DOC LUCKY in USB at 0721 clg 'NIGHTWATCH 01,' no joy so switched to Z135 (4745). (TS)

5714: ARCHITECT at 0203 in USB w/RAF airfield status brdcst. (RP)

5715: North Korean/YL nbrs in AM at 1400. Similar, but non-parallel transmission hrd on 4770, 5873 kHz at the same time. (TY)

5717: RESCUE 1011 at 0300 in USB wkg CFB Whitehorse re rescue of trapped hunting party, had 2 POB, 1 w/fractured leg, 1 "very dead" elk. (RK) *(Assume this was a pp to Whitehorse? — Ed.)*

5831: MFA Tunis, TUN at 1638 in RTTY 50bd w/various msgs. (AB)

6235: At 0120, MAGTAF AIR in clear and secure cks w/JTF AIR in USB, QSY to ch. Mike 23. At 0225, tfc re visit of unid general. At 0229, JTF AIR closes down for the night. Another night, JTF AIR at 0150 re ck in times of units. All in USB. (RP) *(MAGTAF is Marine Ground Task Force, have also seen it as MAGTF, Marine Air Ground Task Force — Ed.)*

6344: WLO, Mobile Radio, AL, in FEC at 0243 w/tfc list, WX, and full info bdcst. (TS)

6357: At 1956, SAA, Karlskrona Radio, SWE w/CW marker. (EW)

6388: EBA, Madrid Naval at 1983 w/CW nav wngs in SS. (HOOD)

6390: At 2009, AQP4, Karachi Naval Radio, PAK w/CW marker. (EW)

6513: Canadian CG Iqualuit (Northwest Territory) Radio heard at 0220 in USB w/wx in FF/EE. (RP) HLS, Seoul Rdo, S. Korea, w/melody mirror between pp's in USB at 2230. (TY)

6586: Numerous ac during the evening to late night hours in USB. (SI) *(NAT-B MWARA freq for a/c crossing the north Atlantic, stns are Gander, Iceland, New York, Santa Maria, and Shanwick — Ed.)*

6622: Jamaican 002 at 1217 wkg Shanwick for higher level. (HOOD)

6628: Santa Maria control w/unid AC at 0317 in USB. Air France 3441 w/Santa Maria at 0318, posn 33N, 40W. (HO)

6685: "Jeddah," Jeddah LDOC, Saudi Arabia heard at 0346 in USB wkg Saudi 003 w/flt info, some EE. (Ed.)

6692: Various: 0530 in USB w/Russian Far East ATCs: Petropavlovsk (YL/RR), Yuzhnyj (Sakhalinsk) (YL/RR), Khabarovsk (OM/RR) and one aircraft #85430 (OM/RR). (DW)

6693: ICM clg Juliet Mike at 1957 in USB no joy. Alpha 6 India in rdo cks at 0527 in clear and ANDVT w/unid stn. (RP) *(ICM is Italian Navy, Ponza — Ed.)*

6694: Canadian Rescue 406 at 2009 in USB w/Halifax Military w/pp Halifax Rescue Coordination Center. (RP)

6760: Kinloss at 1623 in USB w/rdo ck w/Rescue 193, Rescue 12, and Rescue 13. (AG)

6745: Mossad, YL/EE at 0521 in USB w/KPA2 ann. (DB)

6758: MKL, Pitreavie Air, Scotland, in CW at 0302 w/WX. (TS) *(Station is now operated by MARTELO — Maritime Telecommunications Organization from British Joint Forces, Northwood, near London — Ed.)*

6758.5: Unid stn GPXT rptng "V ABYZ DE GPXJ" in powerful CW at 0930.(TY)

6786: Spook CW stn at 2200 w/"730 730 730 1" rptd, cut 0 = T, 20 wpm. At 2205:30, went into 35 wpm 5FGs 2x. (AWH)

6792: DZFG, Serbian diplomatic corps in RTTY 75/425 at 0600 w/3F msgs. (TS) 6815.6: Whiskey Juliet (FF-accented EE) at 2312 in USB w/Whiskey Golf (American) passing contact freq of 311.0 MHz. Later, GANTSEC (CG Greater Antilles Section) calls Whiskey Zulu "in the red" re is to shift SHARK 33 to same area as SHARK 06. ANDVT also noted here. SHARK 619 at 2316 calls Victor Echo to pass info to OMAHA-42. (RP)

6820: ARIA 1, ARIA 2, and ARIA CONTROL //7706.5 at 0720 in USB w/various comms, incl preferred to pass some data via INMARSAT. (IJ)

6849: Christian Radio Missionary Fellowship, Goroka, PNG at 0838 in USB w/stns relaying and passing msgs. (SD)

6865: YL/EE in AM rpting 936 at 0130, then 120 120 543 543 and 543 grp msg. Finally, signed down at 0307 w/ 00000. (TS)

6920: VJC, RFDS Broken Hill, NSW, Aus at 0800 in USB, YL w/wx forecasts and road reports. (IJ)

6959: Lincolnshire Poacher at 2200 in USB w/92438 repeated. (DB)

6993: NIGHTWATCH 01 wkg Andrews w/data comms at 0155 in USB. (JJ)

7078.5: Unid stn LBCC Rptng "V CP12 DE L9CC" over and over in CW at 1850. Haven't hrd this one for a long time. (TY)

7375: ADMP, USAV Five Forks (LCU-2018) and ADMM, USAV Contreras (LCU-2015) at 2030 in USB wkg SEALORD, USN FACSFAC (Fleet Area Control and Surveillance Facility) Jacksonville, FL w/radio cks. (RK) *(Freq is also used by the USN "HOPPER" LCAC's at Little Creek, VA. — Ed.)*

7535: Norfolk SESEF wkg USS Barry (DDG-52, Norfolk) in USB/FSK comms testing. (RP)

7600: The CIA Counting stn hrd in powerful AM at 1500//10597. (TY)

7642.7: RFFVA, France at 1015 in ARQ-M2 200/400 ckt FDXA/FDXB to Sarajevo, odd hour. (AWH)

7657: VKA, Police Adelaide SA, Aus monitored at 0735 in USB w/vehicle license ck for a mobile unit. (IJ)

7668: 8BY, French Intel, F, sending "VW 8BY followed by 3FG's separated by /" in CW at 2140//10248//12075//14931. (TY)

7674: Unid tactical at 1420 in USB w/CISCO wkg VIGILANT. (AWH)

7681: Cuban YL/SS w/5F grps in AM at 0209. Audio badly distorted. (TS)

7687: SAM 973 wkg Andrews VIP re: a 0510z block time at Andrews, last SAM flt for the crew chief in LSB at 0155. (JJ)

7696: Unid Australian net at 0729 in USB w/base wkg Joe. (SD)

7737: Russian Man (S7) at 0520 in AM w/call-up 973. (SD)

7762: Arkhangelsk Meteo, RUS at 1324 in FAX 90/576 wx chart. (AB)

7887: Cuban YL/SS 5F numbers stn in AM at 0242. (TS)

7890: New Zealand Telecom HF link to Kermadec Islands at 0759 in USB w/YLs discussing maps. (SD)

7934: CYCLONE wkg TIDALWAVE, HAILSTORM, MUDSLIDE, SHOCKWAVE, HURRICANE, AVALANCHE, TSUNAMI, others re all personnel accounted for and equipment operational at 0107 in USB. (JJ)

7965: Echo 3 Golf wkg w/WAFER 23 at 0017 in USB, 23 req BARE KNUCKLES be informed 23 has chopped to E3G. (RP)

7978.3: LUM, Martienso, Antarctica at 0910 in RTTY 100/850 w/RYRYand 5Lgs. (IJ)

8000: JJY, Tokyo Time Station at 0604 in USB w/time ticks. (DW)

8008: ALPHA FOX and ALPHA X-RAY, USN net, at 0740 in USB w/comms about a surface contact. (IJ)

8026: EXECUTIVE-1-FOXTROT, (SAM 682) w/Hillary Clinton, at 0020 in USB outbound Jacksonville for Salina KS, wkg Andrews VIP re: a 0255z ETA. (JJ)

8027.6: CG Group St. Petersbug, FL clg Victor 3 Foxtrot and Victor 6 Zulu in clear and ANDVT at 0026 in USB. (RP)

8037: WOLFMAN wkg ICEMAN and EAGLE 40 at 0023 in USB w/net comms. (JJ)

8045.5: USMC, w/TECG REAR wkg POINT LOMA monitored at 1859 in USB re signal ck on SATCOM. What kind of antenna are they using? Other players in the net: TECG AFLOAT, TRAP, CONVICT, SHAMU, TEAM OPS, ECHO-7-BRAVO, LONGRIFLE, and others. (JJ)

8056: INDIA-9-WHISKEY wkg YANKEE-1-KILO at 0115 in USB re friendlies wounded, gave wound descriptions, blood types, LZ will be marked w/green smoke, etc. (JJ)

8122: Canberra Ctl at 1234 in USB telling 3 Hotel Oscar to switch to 4375. First time I've ever heard them here. (RP)

8131.5: Mexican Navy at 0000 on in ARQ 100/400, long online crypto dump, some XBRB Selcal's noted, CW at times between tfc. 8336 active w/XE CW also. (AWH)

8298: India? Maybe Naval Radio, 1145 to 1215 in RTTY 50/1000 repeating "VTP14/15 RBSL VNR VNR VTP14/15 RYRYRY . . ." difficult copy, first time was able to copy. (AWH) *(Vishakhapatnam Naval, India — Ed.)*

8316: RNZN Auckland and HMNZS TARAPUNGA, NZ at 0850 in USB w/NAV warnings re sunken Korean Fishing vsl *Don Jong*. Scene Commander says the area is off limits. (IJ)

8335.5: Foxtrot Uniform monitored at 0108 in USB w/DHJ-59, Wilhelmshaven Navl.

(RP) *(DRFU, German navy vsl* Kulmback, *M-1091 — Ed.)*

8349: HMBY, M/V Tae Dong Gang at 0628 in CW w/eta for Bosphorus, 13550 dwt gen cargo vsl. (HOOD)

8401: UFAJ, TR Narimanovskiy at 0630 in RTTY 50/170 psn rpt to St. Petersburg and CW requesting QTH of UBAZ (Baskunchakskiy). (HOOD)

8453: At 2048, FUG, La Regine Radio, F in RTTY 75/850 "TESTING RY SG FAAA DE FUG." (EW)

8457: PKP, Dumai, Sumatra, Indonesia w/CQ mkr in CW at 1326. (DG)

8473: PKE, Amboina Rdo, Indonesia, w/CQ mkr in CW at 0910. (DG)

8582: XSN, Ningbo, CHN w/CQ mkr in CW at 0853. (DG)

8682: At 2328, J2A8, Djibouti Rdo, DJI w/CW mkr. (EW)

8694: XSZ, Dalian, CHN w/CQ mkr in CW at 0850. (DG)

8728: 3AC, Monaco Radio, w/Voice mirror by YL in EE/FF/Italian plus musical interval between ann at 0915. (DG)

8737: 5BA42, Cyprus Radio, CYP at 2309 in USB w/Voice mirror. (AB)

8782: HEB, Berne Radio at 1530 in USB wkh UCCP, TKH Pioner Uzbekistana. (HOOD)

8828: Honolulu Radio at 0304 in USB w/wx, followed by ID at 0305 "This Is Honolulu Radio" foll by wx for Seattle, LA, San Francisco, others. (HO)

8846: Various aero traffic in USB 2306 to 2316, including about 5 American Airlines jets reporting their posns. (SI)

8855: Belem wkg Continental flt 32 w/posn and selcal ck at 0244. American flt 950 w/Belem giving posn at 0310 and "CM-FP" Selcal. VHF freqs given to flt by Belem. (HO)

8861: Dakar called by Laker? 1031 at 0246 w/posn rpt. Freq very busy, many stns creating havoc for controllers including Al Italia, Continental, and other flts clg Dakar, didn't respond to 1031's call for five mins. Speedbird 2247 clg Recife w/posn, and selcal at 0252. (HO) PT-WLZ, undi at 0647 wkg Canarias w/selcal ck MS-GB. CC-CDM, LAN Chile, at 0649 wkg Dakar. Mauritius Aero, MAU at 2040 wkg Cargolux-761. (IB) All in USB.

8864: Delta 39 giving posn rpt to Gander at 1303 followed by Northwest 51 at 1304. USAir 3 clg Gander at 52N/30W at 1458. All in USB. (HO)

8867: National Jet 98 at 0616 in USB wkg Brisbane. Air Vanuatu 30 at 0739 wkg Brisbane, FL 330. (IB)

8879: At 2105, Bombay Aero, IND clg Air India flt re posn report. At 2108, Dar Es Salaam Control, TAN clg Egyptair flight w/posn report. At 2115, Jeddah Control, SAU clg unid a/c. All in USB. (EW)

8891: Churchill clg Baffin monitored at 2058. Iceland giving info to "8982" at 2054. Both in USB. (HO)

8894: XA-BAL, Aerovics, SA at 1801 wkg Algiers, dest LETO, Madrid, Torrejon, FL 430. ZS-SPE, Mozambique-707 at 1813 wkg Algiers, FL 370, selcal CK-EF, fm Lisboa to Maputo. Both in USB. (IB)

8903: Sudan 422, SudanAir at 0612 in USB wkg N'djamena. DTA-059, TAAG Angola, at 1806 wkg Kinshasa. Air Gabon 117 at 1807 wkg Luanda. AFP-0059, Portuguese AF at 1820 clg Luanda. (IB)

8942: Singapore Air Radio at 1553 wkg Northwest 19. (HOOD) Vietnam 940 at 1702 wkg Hong Kong, FL 330. (IB) Both in USB.

8957: Shannon Volmet w/ID at 0335 in USB and wx for Brussels, Dusseldorf. (HO)

8971: RINGBACK, WILDCAT, BATMAN and others at 2200 w/ANDVT tfc. (RK)

8975.5: Starting at 0400 "TIGER" sent in CW for 10 mins, then OM/EE 'Boris Badanov' sounding spells out "GHANP" in NATO phonetics, then recites 1st stanza of Wm Blakes "Tiger, Tiger" then "message message," then reads next stanza of poem. Faint jammers in background, almost same msg in Sept. '97 *Pop'Comm.* (RK)

8980: At 1800, in USB Atlantic Area via pp thru CAMSLANT in comms w/RESCUE 1502 re status of sailing vsl, several people w/injuries, Atlantic Area reports there are no resources in area to assist w/rescue, 1502 reporting other sailing vsls in area also battered and won't be able to assist. (DS2)

8982: US Military SIERRA ECHO JULIET GULF ALPHA at 0710 in USB clg 1 MIKE

MIKE for radio checks and said on 8982. (IJ) *(reportedly USN in Med area — Ed)*

8983: Miami Ops w/Rescue 1715 re vsl *"Seeker"*? taking on water at 1506, Miami adv of Tropical Storm Mitch posn for 1715 to relay. (HO) NMN, CAMSLANT Chesapeake at 1517 wkg CG 1716 re rescue exercise. (RK) Both in USB.

8992: At 0005, NIGHTWATCH 01 w/UHQOKZG EAM. (DG2) TAILSPIN at 0604 wkg HICKAM. (DW) Unid military, some Portuguese but couldn't make out ID, Portuguese AF? (PP) *(freq is an active one for Portuguese AF — Ed)* French AF stn Circus Villa (Villacoublay) w/a/c 262 at 0040. This freq confirmed as Vinaigrette 3. (RP) Both were in USB.

8996: FOXTROT TANGO at 2015 in USB (net control) w/Alpha, Charlie, Golf, Whiskey, November and Romeo exchanging tracking data. Whiskey reports C and D system locking up. (RP) 8997: USN, UNCLOUDED, CLOVERLEAF, STORMHOG, 861, 862, 863 and NAVY 587 at 0910 in USB w/various comms, rdo cks, and ANDVT. (IJ)

8998: Auckland Aeradio, NZ and PIRATE 03 (LC-130) at 2310 in USB w/McMurdo Stn Antarctica, suggests they turn back re wx. 03 adv going to try and continue anyway. McMurdo adv would try to talk directly w/PIRATE 03 on 4770. (IJ)

9007: At 1518, St. John's Military w/wx to CANFORCE 1562 for various locations. (HO) Portuguese AF a/c Alpha Foxtrot Papa 03 wkg Alpha Papa 04 at 2315. First time I've hrd them this freq. (RP) Both in USB.

9022: RESCUE 12 at 1407 in USB w/rdo ck w/Kinloss. (AG)

9023: SIDECAR clg G0P in USB at 0403 for rdo ck, no joy. (TS)

9027: SPAR 66, over Tennessee, ETA Gander 0300z, wkg Andrews VIP re: checking F-005 at 2327 in USB. (JJ)

9034: Rescue 11 at 1407 in USB w/rdo ck w/Kinloss. (AG)

9071: Hob Knob w/Hob Knob 01 and Hob Knob 27 from 1816–1945 in USB w/comms training using clear and ANDVT. (RP)

9192: US tuna fishermen at 0536 in LSB chat re using SatCom and E-mail so their families can contact them easily. (SD)

9215: ABNORMAL 20, Wheeler AFB Hawaii at 0655 in USB clg ARIA 1. (IJ)

9320: SAM 375, DV-2 +6, and SAM 202, DV-2 +8, outbound Denver for Andrews wkg Andrews VIP for pp's at 2257 and 2302, respectively in USB. (JJ)

9340: RCH73, Tahkent Meteo, UZB at 1438 in FAX 60/576 wx chart. (AB)

9429: Russian Man (S7) at 0520 in AM w/call-up 549. (SD)

10261.5: At 0800, MKK, British Forces, G in PICOLLLO 6, idle engineer channel. (EW)

10424: YL/EE at 2226 in AM in 3/2 figures in progress. (DB)

10493.7: At 2205, RFTJF, Port Bouet, IVO in ARQ-E3 48/400 idling, no traffic. (EW)

10575: Stockholm Radio at 1100 in USB wkg Europa 728. (PP)

10780: Cape Radio as "FISHER" wkg KING 01 at 1800 on day of Glenn Shuttle launch. KING 01 called by Cape Radio at 1805 adv "return to 5180 for Dod Cape". (HO) At 1620, USS O'Bannon clg "FISHER," Cape Radio answers, nor hrd. CLEARANCE 1 at 1621 wkg Cape Radio, off at minute 12, 22 minutes will reach gate, ETA 1144. At 1655, KING 2, KING 3 w/ck in. JSTARS 03 at1707 getting rdo cks fm FISHER. Was in support of launch of STS-95 w/John Glenn. (RM) All in USB mode.

10953: HBD20, MFA Bern, SUI at 1228 in ARQ w/encrypted msgs. (AB)

11050: Unid 192 bd FEC-A at 1730, 5LG's, presumably one of the French embassies listed on this freq. (JD)

11059: SAM 683, DV-2 +15, at 2100 in USB wkg Andrews VIP re: departed 2035z, ETB 2135z. (JJ)

11080: SANA Damascus, SYR at 1409 in RTTY 50bd Nx. (AB)

11095: Italian military stn at 0730 in USB clg MONGOOSE then into PSK data. (IJ)

11132: At 0100, Sydney Skycom, AUS in USB wkg JAL 772, w/pp. (EW)

11153: SAM 203, inbound Nellis, wkg Andrews VIP at 1845 in USB, also on 6730 and 9027. (JJ)

11155: At 1130, RIT, Moscow Naval in CW w/DE RIT and then into Russian msg. (EW)

11166: Spanish Man (V7) at 0600 in AM w/null msg. (SD)

11175: SHUCK 71 (Tinker 552ACW E-3) at 2037 wkg Andrews w/pp to Tinker Maint re intermittent gyro flags on the pilot-side ADI, then w/pp FALCON 1, wants to go on to Mildenhall, since he had spare ADI aboard, OK providing that SHUCK 71 call in "Ops Normal" after meeting up w/tanker. (AS) LANE 17 w/Andrews, pp to Little Rock Base Op's, re wx, LANE 17 advs having trouble w/landing gear and is having to fly w/it down at a level of 11,000 feet max, may have to divert. (CB) At 0136, PITT (?) 212 wkg McClellan w/pp to Kirtland. At 0141, a/c 80061 w/HF radio ck fm McClellan. (DG2) SCOTT SOUTH, at 1702 wkg Andrews for rdo ck. (DW) "NEWGUARD" at 0218 clg MacDill, no reply, gave 1-5 and 5-1 count. NATO 12 wkg Hickam at 0223 re wx info via pp for Gander, then for unreadable stn in Germany for 0700. GOLEM 11 at 0100 wkg Hickam re sick crewman, diverting Charleston for medical help. (RK) At 0450, DARK 37 w/pp via Ascension, app Dyess AFB w/UHF radios out. DARK 37 maintained broken contact w/RAYMOND 37 using them to pass approach info to the tower. Once within visual range of tower, pp terminated, used tower lights to finish the approach. (RM) All in USB.

11178: Navy 364 (probable Dutch Navy P-3) at 2350 in USB clg PE-MMA, Dutch Navy F-27 no joy. FALCON 01 wkg PJK, Dutch Navy, Suffisant Dorp, Curacao at 1239 re take off at 1227 and on stn time of 1400. At 1630, FALCON 01 gives posn according to card of the day from USGG Greater Antilles Section (GANTSEC). (RP)

11181: NIGHTWATCH 01 at 1515 in USB w/WAR46, Alternate Joint Communications Center, Raven Rock Mountain, PA and WGY916, FEMA MERS, Denton, TX w/data bursts. (RK)

11202: At 1745, CAMSLANT Chesapeake wkg RESCUE 1713 w/pp to D7 Op'S (Miami), SAR comms in southern Gulf of Mexico, 1713 wkg towards Mexican border and will RTB Clearwater when grid finished. At 1801, CAMSPAC Point Reyes wkg STRAIGHT 801, use 11202 as primary, 15088 as secondary, 801 wkg south of Mexico for abt five hrs then RTB to Corpus Christi. Both in USB. (DS2)

11214: SENTRY 60, 966th AACTS/ 552nd ACW E-3 AWAC (training sqd) Tinker AFB monitored at 1714 in USB wkg Trenton Military w/pp EAGLE 3 at RAYMOND 24 (Tinker AFB). (Ed.)

11232: Trenton Military at 1629 in USB wkg unid CANFORCE a/c w/wx info for EKCH: Copenhagen, and EKYT: Alborg, then selcal check. (DW)

11253: Unid volmet at 1645 in USB w/aviation wx for London, other locations. (DB) *(MVU, RAF Volmet, West Drayton — Ed.)*

11255: McMurdo wkg South Pole, Antarctica monitored at 0320 relaying wx info to ICE 04. KINGFISH BRAVO (Christchurch) New Zealand 2350 clg ICE 17 (C5) no joy. Both in USB. (IJ)

11285: Chennai Aero, IND at 1648 in USB wkg Jordanian 187 w/ selcal check. (IB)

11288: Jeddah LDOC at 1441 in USB wkg Saudi 003. (HOOD)

11300: Mogadishu wkg Nairobi at 2026 re several a/c coordinates and ETA's. Tripoli clg Khartoum no joy at 2028. Tripoli clg Cairo w/rx ck at 2029 and mention of freq 5517.(HO) RZL-500, Zambian 500 at 2052 wkg Cairo. Yemeni AF 180 at 1349 clg Sana`a, reg. 7O-ADE. (IB) Both in USB.

11309: New York at 1650 wkg Iberria 6071, Europa 1189A, others w/posn reports. (DB) Santa Maria w/German Air Force 104 enrt to Lajes at 1630 req wx (QNH 1021) then adv to switch to 132.15 vhf 15mns before landing followed by Crossair 926, Delta 127 and 109, Aeromexico 002, and Air France 3682, adv to contact Piarco at 40west on 10096 or 8855. (PP) Both in USB.

11330: American 588 at 2024 in USB w/NY Ctr req 40-mile deviation from course because of wx. (HO)

11345: NAF-42, Netherlands AF at 0745 wkg Stockholm, w/pp`s to White Horse ops, enrt TNCC Curacao. (IB) Stockholm Radio wkg a/c nightly. (PP) Both in USB.

11423: MFA Bucharest, ROU at 1320 in ROU-FEC 164bd encrypted msgs. (AB)

12066: Spanish Man (V7) at 0609 in AM w/null msg. (SD)

12436: UOXZ, TKH Volgo-Balt 229 at 1519 w/CW msg to UTQ. (HOOD)

12481: CCES, Esmeralda (BE-43) monitored at 2345 in ARQ, Chilean Navy 4-masted training sailing schooner, w/tlx via CBV, login 19006 ESME. (Ed.)

12676.5: At 1155, A4M, Muscat Rdo, OMN

w/CW marker. (EW)
12706: YLL, Liepaja Radio monitored at 1710 in CW wkg J8RH3: RTMKS Helios (ex Rybak 1). (HOOD)
12919: 3SA, unid, China? w/repeating CW mkr clg "BJCC" at 1301. (DG)
12967: UJE, Nizhnij-Novgorod Rdo, RUS at 1058 in CW w/unid vessel. (AB)
13089: NMC, USCG CAMSPAC Point Reyes, CA at 1800 in USB w/MIB. (DW)
13110: CUL, Lisbon Radio, POR in USB wkg unid. (PP)
13137: Russian coastal radio in USB might be 'Kaliningrad.' (PP)
13155: OHG, Helsinki Radio active around 1600 in USB, hrd wkg vessel 3FSA6. SPO, Szczecin Radio, POL w/Polish lang call tape at 1630 then traffic list at 1635. (PP)
13200: EVAC 4 JULIET 1 at 1739 w/pp via Offutt to Howard AFB, Panama, re permission from MD at GPMRC to administer saline solution via IV to 34 yr old patient who is 14 weeks pregnant. (Granted). RELIEF 474 (TEAL C-130 #50966 from Keesler's 403W/53WRS) at 1822 wkg Offutt w/pp to "Miami" passes 3 horizontal obs, ea obs consisting of 8 grps of 5-digit numbers, Grp 6 of which represents wind data. ETA at MHLC (La Ceiba A/p Honduras) is 2000z. (AS) Both in USB.
13236: French AF Circus Villa (Villacoublay) at 0038 in USB w/a/c 262 re take off from Circus Dore (Djibouti), 262 adv switch to Vinaigrette 3 (8992). (RP)
13242: Hickam Global clg PACAF01 at 1806 in USB. (JJ)
13285: Beijing Volmet, China, w/avian wx info in accented EE and distorted USB monitored at 0452. (TY)
13342: Stockholm Radio at 1700 in USB w/unid Viking flight for selcal ck. (PP)
13440: SPAR 66 wkg Andrews VIP at 1715 in USB for 2010z KMFX (?) wx and pps to UCOM and AMOC. (JJ)
13452: Cuba SVR/FAPSI at 2255 in RTTY 75/500 5LG tfc on link 00127, to JMS supposedly. (AWH)
13528: "C"(Moscow), "F" (Vladivostok), "P"(Kaliningrad), "S" (Arkhangelsk) Russian Navy CW channel mkr at 1410. (TY)
13875.4: HGX62, Hungarian Emb, Libya (?) in 125bd DUP-ARQ msgs in Hungarian datelined Tripoli and referring to "Libiai" (so it is that Tripoli, not Lebanon), ending "HGX21 de HGX62". (JD)
13927: AFN3C, USAF MARS stn in USB at 1535 wkg 'Reach 62' w/pp's. (TS)
13932.2: LZC3, MFA Sofia, Bulgaria at 1855 in RTTY 75/425 w/RY test. (JR)
13956.5: DCH, unid Tunisian Diplo at 2033 in FEC w/5LGs, passed typical Tunisian Diplo "stretch" (ddddddddcccccccchhhhhhh) ID. (DW)
13993: AFA5EX, USAF MARS at 1611 in USB wkg AFA6EX w/chat. (DW)
14442.5: CIW602, Canadian CFARS Stn at 1620 in USB wkg CIW607 re HF radio, satellite and GPS problems in the far north. (DW)
14467: USN Mars NNN0NIG, Pensacola, FL and NNN0CSN, USS Moosbrugger at 0205 in USB w/pp's. (IJ)
14481.7: RFTJ, French Forces Dakar heard at 1623 in ARQ-E3 48/400. At 1645, CdV msg on ckt TJF. (DW)
14532: AF MARS stn AFA2FK wkg AA1AH in 300 bd packet at 1548. (TS)
14544: MKK, RAF Bampton in Piccolo-6 at 1750 wkg MKD Akrotiri, Op chat on Ch. 1, crypto on Ch. 2. (JD)
14654.5: SPW, Warsaw, POL w/CW mkr at 1345, "QSX 12570 kHz". (DG)
14719: OST, Ostend Rdo, Belgium, in FEC at 2123 w/tfc list. (TS)
14739: The CIA Counting nbrs at 1300 in AM//10529. (TY)
14817.5: JPA, INTERPOL Tokyo, Japan at 0740 w/ARQ relay of passport info between IP Paris and IP Ouagdougou.(IJ)
14837: ATV65, New Delhi Meteo, IND at 1419 in RTTY 50bd Synops. (AB)
15016: NAVY LC765, P-3C of VP-8 "Tigers," NAS Brunswick, ME at 1532 in USB clg mainsail for rdo ck. (Ed.)
15031: Trenton Military at 1724 in USB wkg CANFORCE 86.QSY to 13257. (DW)
15041: SAM 973 wkg Andrews VIP at 2307 in USB prior to shutting down comms w/Andrews in the blind. (JJ)
15088: At 1750, CAMSPAC clg STRAIGHT 801 in USB no joy. (DS2)

15094: SAM 375, wkg Andrews VIP at 1650 in USB for wx at Misawa AB and Hakodate, ETA 2125z. Also found on 11053 and 13211 at various times. (JJ)
15797: GYU, RN Gibraltar; at 1720 w/2-channel Piccolo; didn't give call of station he was wkg. (JD)
15836: SVR/FAPSI at 1148 w/6-tone mazielka call-up, into RTTY 75/500, too weak to copy other than to note some 5LGs. (AWH)
15964: Speedbird 9672 in USB at 2156 clg Portishead Radio, no joy. (TS)
16101: Unid Swiss Diplo (prob HBD20) at 1503 in ARQ w/5LGs. (DW)
16320: Russian Spook, "Boris Badanov" aka "English Man" monitored at 1215 "208" repeated in callup. At 1219, "153 86" header into 5FGs 2x; 1234 recheck had "553 86 00000," into OC. (AWH)
16332: "C" (Moscow), "F" (Vladivostok), "P" (Kaliningrad), "S" (Arkhangelsk), Russian Navy CW channel markers at 1400. (TY)
16350: Cuban MFA CW/USB net similar to 10093 reported in Dec. '98 column active until Oct. 20, not hrd since. CLP1 w/CLP35, CLP48 and CLP82, noted but no digital tfc, poss some sort of training net, CLP48 noted clg CLP1 on 20818.4, no joy. (JR)
16366: 9HBD5, M/V Kapetan Stavros at 1500 in USB clg Cyprus Radio. (HOOD)
16501.7: Unid ARQ at 1625, poss. Cairo Egypt Embassy. (MS)
16718: UTSL, RTMKS Saturn at 1632 in RTTY 50/170 crew TGs to URL. (HOOD)
16926: At 2045, VTP, Vishakhapatnam Naval, IND w/CW marker. (EW)
16930: UVA, Gelendzhik Rdo monitored at 0802 in CW w/QSW 6459.5/12729/16930 and tfc list. (HOOD)
16969: WLO, Mobile Rdo at 1604 in CW w/tfc list. (DW)
16997.5: WLO, Mobile Rdo at 1600 in FEC w/freq usage info and storm track data. (DW)
17068.5: OXZ8, Lyngby Rdo, DEN at 1613 w/CW marker. (MS)
17074.4: LGX, Rogaland Rdo, NOR at 1616 w/CW marker. (MS)
17080: UAI3, Nakhodka, RUS in Cw w/VVV/CQ marker at 0005.(DG)
17151.2: NMC, USCG CAMSPAC Point Reyes, CA monitored at 1543 in FAX 120/576 w/chart. (DW)
17161: HLS, Seoul Rdo, S. Korea, w/melody mirror between pp's in USB at 0530. Similar transmission hrd on 17341, 17350 kHz. (TY)
17248: 5BA62, Cyprus Rdo, Nicosia w/voice mirror by YL in EE and another lang at 1753 in USB. (DG)
17425: Unid Russian FAPSI/SVA at 1506 in RTTY 75/425 5LG/5FG msgs. (JR)
17499: Cherry Ripe nbrs in USB at 1900//22108. (TY)
17994: LL35 wkg Trenton Military monitored at 2152 in USB for pp to unid re: best approach heading. (JJ)
18032: CLP1 Cuba (presumably) at 1915 in RTTY 50/600 usual boring "press" in EE. (JD)
18057: MKK, RAF Bampton; single channel Piccolo wkg MTS at 1700. (JD)
18261: GFA, Bracknell Meteo at 1533 in FAX 120/576 w/chart. (DW)
18643: CLP67, Cuban Embassy, Baghdad, Iraq at 1600 in RTTY 50/425 long ZZZZ crypto msg to CLP1. (JR)
18755.8: At 0930, JPA, Interpol Tokyo, Japan in ARQ w/encr msgs. (EW)
18862: Cherry Ripe nbrs in USB at 2200//15624. (TY)
18879: MTS, RAF Mt Pleasant (Falklands); single channel Piccolo wkg MKK at 1702. (JD)
18966.7: Poss RFHJ, French Forces Papeete at 1523 in ARQ-E3 96/380 w/idle signal. (DW)
18992.5: SPW, Warsaw Rdo, POL at 1518 in CW w/mkr. (DW)
19086: FDI8, French AF Nice, monitored at 1523 w/CW mkr. (JR)
19635: At 1237, P6Z, MFA Paris, F in FEC-A 192/425 w/5LG's to A9C. (EW) *(A9C is French embassy, Bucharest, Romania — Ed.)*
19698: At 1239, OST, Oostend Rdo, BEL w/Sitor free mkr, CW ID. (EW)
19724.5: UIW, Kaliningrad Rdo, RUS at 1514 in RTTY 50/170 wkg various ships including P3FW6, TR Kapitan Lazarev; ELUZ6, TR Frost-2; P3FZ6, TR Motovskiy Zaliv; ESME, Soela; UIUZ, TR Bukhta Uliss; Geminis; others, later w/nav-area region broadcast, good signal till after 1640. (Ed.)
19726: A9M, Bahrain Rdo at 1236 in ARQ idling. (HOOD)
19731.8: PCW1, The Hague, Netherlands in CW w/ID mkr at 1254.(DG)
19810: MUH44 (using his full c/s today) at 1035 in 2-ch Piccolo, in LSB, presumably wkg MKD. (JD)
19860: MGJ, RN Faslane at 1237 in RTTY 75Bd CARB tape. (HOOD)
20018: CLP1, MFA Havana, Cuba at 1428 in CW w/SS plain lang msgs to CLP8, only CW used. (JR)
20033.1: CLP6, Embacuba Syria, Damascus at 1640 in RTTY 50/425 w/ZZZZ crypto and SS plain lang msgs. (JR)
20126.7: Unid, prob Egyptian diplo monitored at 1540 in ARQ w/ATU80 tfc, some EE ment "from Kharq" to African cites w/5F Ids, 5FG tfc. (AWH)
20265: MKK all day 1200 to 2000 at least; two-channel Piccolo on USB as usual wkg MTS, this one has not caught the LSB bug. By 2045 had moved to 14511 USB (MTS unchanged). (JD)
20402: CLP23, Embacuba Lagos at 1423 in CW w/SS msgs to CLP1, Havana. (JR)
20474: Cherry Ripe (E4) at 1037 in USB, in progress //23461. (SD)
20617.1: MFA Bratislavia at 1405 in 100/850 RTTY 5FG msg to Jakarta. (JR)
20631: Andrews AFB wkg Croughton at 1743 in USB w/periodic signal checks, comms preceded by ALE pulses. (JJ)
20822: Unid Cuban diplo at 1448 in CW w/msg to CLP-1, "nil AR" at end of msg. (JR)
20823.4: CLP7, Embacuba Brazil at 1450 in 50 and 75/425 RTTY 5FG msg and SS tfc, also relay fm Embacuba Kinshasa, all to CLP1. (JR)
20830: CLP8, Embacuba Conakry at 1400 in 50/425 RTTY SS to CLP1, who was on 20018 in CW. (JR)
20833: CLP44, Embacuba Harare at 1600 w/50/425 RTTY ZZZZ crypto to CLP1 and 5FG relay fm Embacuba Pyonyang. (JR)
20935.3: CLP44, Embacuba Harare at 1620 w/50/425 RTTY ZZZZ crypto to CLP1 and 5FG tfc fm Pyonyang, repeats msgs sent previously on 20833. (JR)
20946: 8BY, Paris, France at 1557 w/CW marker. (MS)
20946.3: LN2A, Sveio, NOR, CW propagation beacon hrd w/repeating c/s at 1245, QRM from CW stn "8BY". (DG)
21811: The CIA Counting nbrs in powerful AM at 11 //16086. (TY)
21866: Cherry Ripe nbrs in USB at 0100 //19884. (TY)
22461: At 0455, FUM, French Navy Noumea, NCL in RTTY 75/850 RY and line test. (EW)
22630: ZLO, RNZN Waiouru in RTTY 75/850 encrypted. (JD)
22720: Athens coastal rdo, GRC in USB often in Greek. (PP)
22865: Russian SVR, Lourdes, Cuba at 2240 in RTTY 75/500 w/RYRY to PSB then into 5L on link 00126. (Ed.)
22888: DFZG, MFA Belgrade heard at 1425 in 75/425 RTTY w/RY's and crypto tfc to many stns. (JR)
22923.5: MTS, RAF Mt. Pleasant, Falklands in Piccolo-6 wkg MKK. (JD)
22963.6: HBD20, MFA Berne at 1328 in ARQ w/5LG msg to about 30 posts! (JR)
23370: HZN, Jeddah Meteo, Saudi Arabia at 0950 in RTTY 100/850 w/WX synopsis. (IJ)
23461: Cherry Ripe nbrs in USB at 1000, 1100 and 1200 //20474. (TY)
25599: PCH, Scheveningen Radio, HOL at 1430 w/CW mkr. (AWH)
27680: At 1932, in USB 31YB309 clg "CQ", was clg from Portugal to Canada and to N. America for any Portuguese stns. (SI)

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Tuning In *(from page 4)*

four options! Twelve people checked "I support the status quo." That's 16.2 percent who think the current state of personal communications is just fine. Judging from attached comments, these were generally folks who are current GMRS licensees or those who don't want any changes made to the current state of Family Radio Service.

Forty-nine respondents wanted the proposed Class-A FRS. That's 66.2 percent. Many were *very* enthusiastic about the possibility of Class-A FRS.

Twenty-three respondents (31 percent) indicated that they would like cheaper, simpler licensing on GMRS (this was often checked in combination with the Class-A FRS choice). Finally, 10 people said they wanted the high-tech Japanese system (13.5 percent).

At the same time that responses were flooding in from the editorial, Harold Ort sent a letter to manufacturers of two-way radio equipment — Alinco, Cobra, Maxon, Midland, Uniden, Cherokee, Kenwood, Yaesu, ICOM, RadioShack — asking them what they thought of the Class-A FRS proposal.

Doug Marrison of Wireless Marketing Corporation, the company that manufactures the Cherokee line of radios, wrote: "As you well know, the Family Radio Service has produced a boom for the two-way radio industry. Without question, it has sparked a renewed interest in wireless two-way radio communications. Best of all, it has captured a new customer who had previously not been purchasing radios. I firmly believe it has an opportunity to grow in a similar fashion to what CB did in the '70s."

He added, "We at Cherokee fully support any activity in seeing Jock's proposal become reality. It is good for consumers, good for business, and has no downside. Please let us know what we can do to help."

Mark Worthey of Maxon, which makes both FRS and GMRS equipment, said, "It seems that what you are proposing already exists in the form of GMRS. Why try to make FRS into GMRS?"

We heard from no other radio manufacturers, and without more support from the manufacturers — who, after all, might make money selling equipment for a new radio service — it seems doubtful whether the Class-A FRS proposal can move forward. Neither did we hear from REACT International, an organization we thought would have an interest since many of its teams have their own GMRS repeaters on the frequency pair that is used for emergencies and traveler's assistance.

I am very thankful for those of you who took the time to respond. I am especially appreciative of the people who took the time to write lengthy E-mails or letters. Usually, they disagreed with the Class-A FRS proposal, but they put a great deal of thought into their responses.

Still, there is hope. As this is being written, the Federal Communications Commission is considering a substantial rewrite of the GMRS rules that would permit markedly easier GMRS licensing and would permit current licensees to use any repeater pairs. (Under current GMRS licensing regulations, you have to choose two repeater pairs that you plan to use as part of the license application.) If that happens, suddenly a GMRS license (which, incidentally, covers the entire family) would be substantially more attractive for ordinary citizens.

Stay tuned in the pages of *Pop'Comm* to see what happens next. And thanks again for the response. ■

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The Loose Connection

RADIO COMMUNICATIONS HUMOR

BY BILL PRICE, N3AVY

Father Knows Least

Once there was a good little boy named Eddie. Eddie was generally a good lad whose only fault was that he would run off the moment his parents would turn their heads. At three years old, this sense of adventure prematurely aged his parents to the point where people would ask Eddie if he enjoyed spending the day with Grandma and Grandpop.

Eddie's parents had somehow come to hate the "kiddie-harness" that parents strapped onto their kids, walking them through parks and malls like, Poodles. They always suspected that instead of changing diapers, these "leash-parents" would wait till no one was looking and walk little Jason or Jennifer up to an isolated tree. There would be no kiddie leash on Eddie.

Eddie's father, whom we'll call *Dad*, was a professor, a science professor, and had come to learn that most of the devices he "wished someone would invent" had already been invented, and merely had to be discovered and adapted for his particular purpose. He was certain in this case that the high-tech world had already invented and built a simple device — probably radio controlled — which would help keep young Eddie in tow, even if Mom and Dad occasionally turned their heads simultaneously. Dad soon found "electronic dog-training collars," which hunters used to teach dogs when they were doing something bad. Without telling Eddie's mother (who we'll call *Mom*), he ordered one.

When the package arrived, dad scurried off to the basement to experiment in secret with the gadget he hoped would give his family peace of mind. He put the collar around his own neck, installed the batteries in the control transmitter, and pressed the button. After uttering a particular string of words, which he'd promised never to use after Eddie was born, Dad realized that his neck was less hairy, therefore far more conductive, than say, the neck of a Labrador Retriever. He imagined Child Protective Services taking Eddie away and placing him with some uneducated family with melted ice cream in their carpets — a family who'd spend Eddie's foster-care money on Cheese Doodles for their own kids while feeding Eddie dry dog food and month-old chocolate Winga-Dingies from the stale-bread store while telling Eddie about his mad-scientist father with the dog-collar fetish. He had to reduce the power in the collar before even discussing it with his wife.

Dad referred to a few books and found the microscopic schematic diagram supplied with the collar, and reduced both the voltage and the current. All he wanted was a tiny tingle — just enough to say "Stop!" to Eddie. During his endless testing, Dad could never have known that just three doors down the street, his neighbor had sworn never again to pay a "nuisance-barking" fine, and, bought the same collar (coincidentally with the same operating frequency) that dad bought for Eddie. Dad's neighbor had broken the dog of his barking habit with just the tiniest "tap" on the transmitter button as needed, and hadn't found it necessary to rush out and remove the collar from the dog. No one ever saw the connection between Dad's endless testing of Eddie's collar and the dog's relocation to the in-laws' farm, "for a little rest" to get over the strange twitch he'd suddenly developed.

Dad had tested the reduced-power collar on himself and was sure there'd be no discomfort for Eddie — just a little signal to tell him to come back to Mom and Dad. He proudly carried the collar and transmitter up to the dining room table where he announced his brilliant idea to his wife. Dad immediately sensed that Mom didn't quite understand his idea when he saw her face tighten and go straight to purple, skipping pink, red, and violet. It was only her flustered condition which delayed her from dialing 911 (she couldn't remember the number) long enough for him to realize that the collar was a bad idea and explain that it was just a joke — he was only kidding. Really.

He tossed the hundred-dollar-plus worth of wires and leather into his briefcase and told her he only borrowed it from a friend at work to play a little joke on her. Really.

For the next month, Dad browsed every high-tech catalog he could find. He found deals on surplus radar and thought of that rotating antenna on his roof. He thought of "hands-free" walkie-talkies, radio-direction-finders. The "invisible electric-fence" was out — it used a collar just like the one he'd almost lost his family over.

He thought he'd found the ideal gadget when he came across a "Kid-Saver" in one of those "Denture adhesive and therapeutic underwear" catalogs for lonely people over 90. This simple bracelet — *not* a collar — fit on a kid's wrist, and the nervous parents kept a receiver clipped to "pocket or purse." If junior wandered out of a pre-set distance of from 30 to 200 feet, a piercing alarm would sound, sending Mom, Dad, or Grandpop to save junior before he wandered into danger.

Delicately, as a man attempting to tiptoe undetected across potato chips and dry leaves, dad brought his latest purchase from his pocket to the dining room table. Gingerly, he asked mom what she would think of an alarm that would alert them if Eddie wandered off from them. He was careful not to use the words "collar," "electricity," or even "batteries."

Mom initially bristled like a startled porcupine, but, one by one her quills relaxed as she listened to dad's carefully rehearsed pitch. Dad demonstrated by wearing the bracelet and walking backward across the front yard, heading for the street. He listened carefully for the alarm to go off in the receiver in mom's purse. Because it was dark, Dad never saw the guy on the bicycle, who we assume never saw him either. After the crash, the guy on the bike was probably concerned about being sued, because he got up quickly and rode off without so much as an "ooops!" As Dad lay holding his knee, wincing, Mom's alarm went off. Dad looked for the transmitter to shut off the alarm, but a thorough search with flashlights led them to conclude that the transmitter's hook-and-loop fastener had caught on the cyclist's Spandex shorts and was now enroute to points unknown.

After Mom helped Dad back into the house, they thought about riding around town with the receiver until the alarm stopped blaring — at which time they'd be within 200 feet of Dad's assailant, but instead, they took a short ride to the emergency room. While Dad had gravel removed from his arm and leg, an observant staff-member noticed Eddie trying to run off from his Mom, and brought a complimentary child-harness, which the hospital was giving away during a month-long campaign to save neighborhood kiddies from unknown dangers. Mom looked at Dad; Dad nodded, and she snapped the bright orange harness into place. Eddie thought it was neat to play horsey. ■

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