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OCTOBER 1998

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Pop'Comm Exclusive: Tell Us What You Think About Jock's "Class-A Family Radio Service" ...page 4

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- **Alice Recalls The 10 Years Of Nebraska's KFKX**
- **Product Spotlight: RELM's New MS-200 Mobile Scanner**
- **CB Scene Reviews: FireStik Antenna, Astatic Mics, and ParaDynamics Meter**

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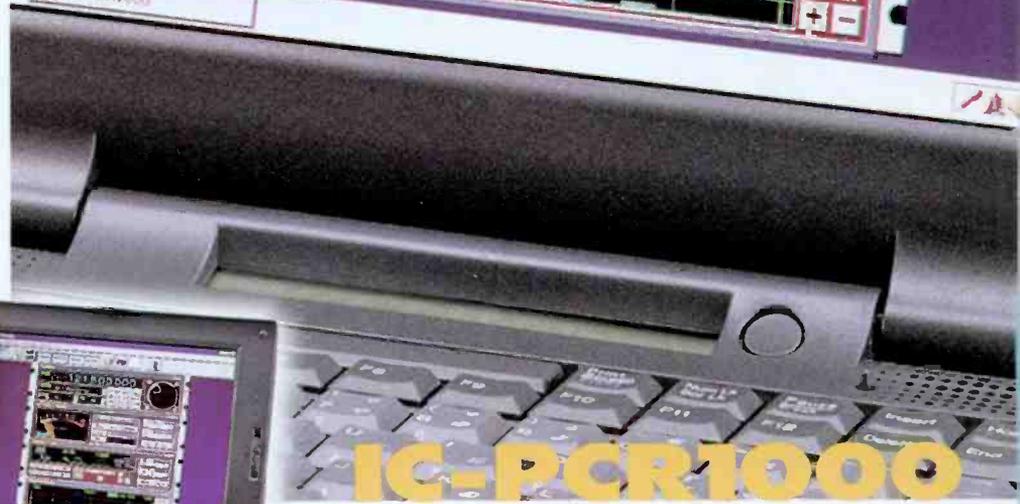
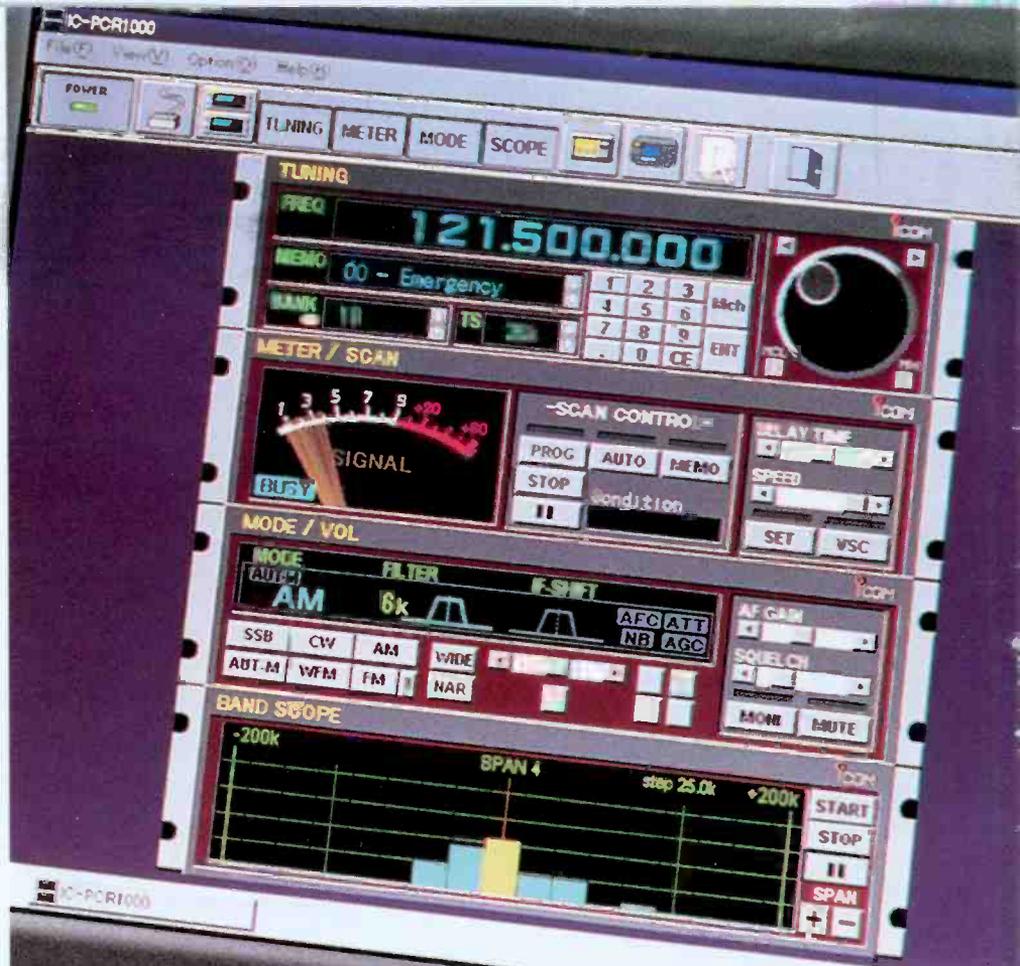
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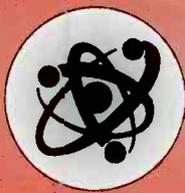


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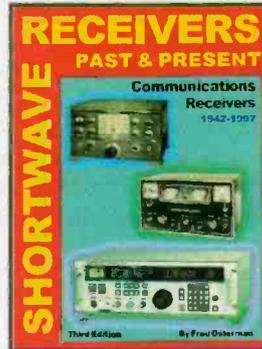
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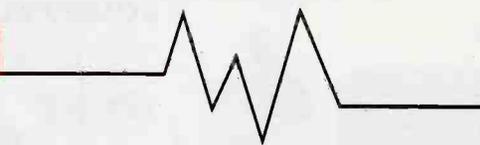
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Tuning In

AN EDITORIAL

BY HAROLD ORT, N2RLL, SSB-596



Personal Communications For You And Me?

By Jock Elliott

Editor's Note: This month we've given the pen to Jock Elliott. You'll recall that in the June issue of Pop'Comm he proposed a "Class-A Family Radio Service" that has great potential, if enough folks get behind his proposal. Let's hear the latest from Jock.

In many ways, this is both the best of times and the worst of times for personal communications. What makes this the best of times? Well, we've got more personal communications options than ever before. Among them, cellular phones which have taken the country by storm, and PCS phones which are rapidly catching up. And, of course, we have a number of radio options, like CB, ham radio, Family Radio Service, and GMRS.

What makes this the worst of times? There isn't a single, solitary personal communications tool that offers reliability and networkability and that's readily accessible to the ordinary person to handle family business. Now, before we go any further, let's define some terms.

• **Reliability** — The ability to "get through" (execute the communication) most of the time at a range of, say, five miles. While Citizens Band usually meets the range requirement, it is unreliable because it was placed in a former ham radio DX band: 27 MHz. When long-range propagation is taking place, it can be easier to talk to a distant state than across town. Family Radio Service doesn't qualify either. It operates around 462 MHz, which means it does not suffer from long-range "skip," but, because power is limited to 1/2 watt and no external antennas are allowed, range is usually limited to one or two miles.

• **Networkability** — The capacity to easily communicate with more than one per-

son at a time. Cellular phones and PCS phones cannot really share information with a group of people unless extraordinary arrangements, such as conference calling, are made. Networkability is one of the reasons that CB has proved so popular with long-haul truckers. A group of trucks rolling down the highway becomes a mobile network, quickly and easily sharing information with each other.

• **Readily accessible** — That means use of the service can be obtained without a great deal of fuss and bother. Ham radio requires study and passing a test. Also, since ham radio is an amateur service, there are restrictions on discussing commercially related activities which might be part of an ordinary family's business. The General Mobile Radio Service has no such limitation, but, at this juncture, the procedure for obtaining a GMRS license (for which there is no test, but a fee) can be extremely confusing. In addition, it often requires considerable effort to find out which GMRS repeaters are available and accessible in your area.

So it was with all these factors in mind that in the June "CB Scene" I proposed a "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. The service would retain the CTCSS (Continuous Tone Coded Squelch System) "privacy" codes that make it possible to block transmissions that are not

"What makes this the worst of times? There isn't a single, solitary personal communications tool that offers reliability and networkability and that's readily accessible to the ordinary person to handle family business."

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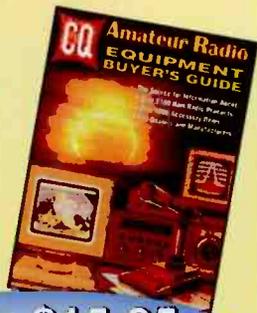


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The results were spectacular. I got more response to that column than to anything else I have ever written. Dozens and dozens of people wrote to me or E-mailed to voice their opinion. About 75 percent of the responses supported the Class A FRS proposal. A couple of people offered the notion that the current General Mobile Radio Service would deliver everything that I wanted in the new Class A FRS. So I called Corwin Moore, Administrative Coordinator of the Personal Radio Steering Group, which is the national advocacy organization for personal licensees in the General Mobile Radio Service. Moore said he thinks GMRS does, indeed, fulfill all the objectives of the proposed Class A FRS, but he admits that licensing fees for GMRS are too high, and the license application itself is far too complicated. He believes that licensing *should* be a part of any such service. In addition, when there is licensing, Moore says, there is an identifiable group of people who can organize to act in their own self-interest. Moore also acknowledged that some GMRS licensees are reluctant to welcome new users to the service. But Moore says, "They will soon have to realize that if GMRS does not grow, it will eventually die."

I also asked REACT International for its reaction to the Class A FRS proposal, since a number of REACT teams have repeaters which operate on the GMRS traveler's assistance/emergency frequen-

cies. As of press time, I had not yet heard from REACT.

Finally, Ed Boakes, an expert on cellular phone and PCS systems wrote with information about a Japanese personal radio system in which each transceiver has a unique ID. To call someone, you key in their ID (or multiple IDs for multiple people). When you transmit, your unit uses an "overhead" channel to send a list of unused channels in your area to the units you wish to communicate with. The receiving units, in turn, check to see which channels are clear in their area and send that information back to your unit. Your unit, the responding unit, and all other monitoring units then go to an identified clear channel. While it sounds complicated, the whole thing happens in less than half a second, and there is no way that a bully can dominate a channel, regardless of how much power is transmitted. Such a system could support an emergency ID code that would function like an emergency channel. Boakes says a similar system was proposed for FRS but was denied because the manufacturers thought it would be too expensive.

So, which of these proposals appeals to you? Fill out the form below and send it to us at *Pop'Comm*. Please fill in your name, address, and phone number (no, we won't share them with anyone). If you have additional comments, attach them to the form. Or E-mail the relevant information to <lightkeeper@sprintmail.com>. Stay tuned, we'll be printing your comments in an upcoming issue.

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Monitoring Military HF Communications

Military Comms On Shortwave Abound 24 Hours A Day!

By Richard "RD" Baker

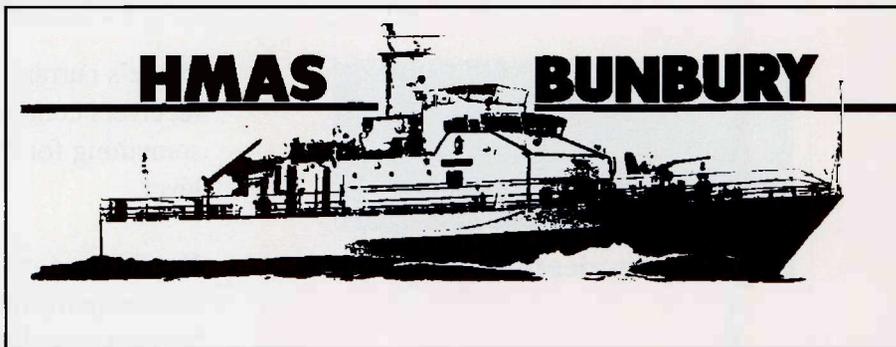
There are many military communications taking place on "Hotel Fox" — HF band from 3 to 30 MHz — that can provide long-range voice and data comms without the use, and expense, of relay systems such as satellites and telephones. The technology itself is tried and true and is relatively inexpensive. Innovations have made using HF radio equipment less demanding on the users because they now require less training and experience.

Military monitoring is one of the most popular areas under the utility station "umbrella." Those who follow these comms have a deeper understanding of what goes on "behind the scenes" and exactly how deep the commitment is to those who serve their countries around the world.

It's important to understand that if you're new to the hobby you'll rarely tune a frequency and immediately grasp what is taking place. But with time and some research, you'll gain some understanding of what is taking place behind the scenes with military HF action. In this article, I'll give you a glimpse of what's out there that you can hear. What you need as far as radio equipment is the same as for any utility station monitoring: a receiver that can tune below 30 MHz and which has a BFO knob that can tune upper or lower sideband, or a upper or lower sideband mode selection (USB or LSB). Ninety-nine percent of these communications take place in upper sideband (USB). All of the frequencies listed are in USB unless otherwise noted, and all frequencies are in kHz.

What You Can Hear

The most commonly heard communications are probably those of the U.S. Air Force's GHFS or Global High Frequency System, sometimes called "Global."



Bumper sticker sent as part of a QSL report to Jim Pogue (TN) by HMAS Bunbury (P-217). The patrol boat is one of many heard around the world on 8122.0 kHz.

GHFS is primarily a USAF network providing support to the United States Department of Defense, NATO, and, on a "non-interference" basis, to other U.S. government agencies. The stated mission of the GHFS System is to "provide continuous, reliable, rapid, two-way communications to all DoD aircraft, ships, and ground agencies, regardless of their location."

On GHFS, you can hear KC-135/KC-10 tankers, B-52, B-2, and B-1B bombers, C-141, C-17, and C-130 cargo transports, as well as a multitude of other HF-equipped aircraft. Callsigns are generally static, although some are daily tactical callwords, while others are tactical trigraph callsigns, such as Lima 5 Victor. The Global system consists of 13 stations strategically located throughout the world to ensure worldwide HF communications. The present GHFS stations are: Anderson, at Anderson AFB, Guam (AIE2); Andrews, at Andrews AFB, Maryland (AFA3); Ascension, at Ascension Island Auxiliary Air Base, Ascension Island (AFD14), Bayonne, at the Military Traffic Management Command Emergency Comms Center, Bayonne, New Jersey (when personnel are not deployed); Croughton, at Croughton Air Base, England (AJE);

Elmendorf, at Elmendorf AFB, Alaska (AKA5); Hickam, at Hickam AFB, Hawaii (AGA2); Lajes, at Lajes Air Base, Azores (CUW); McClellan, at McClellan AFB, California (AFI2); Offutt, at Offutt AFB, Nebraska (AFS); Incirlik, at Incirlik AB, Turkey (AJG9); Thule (sounds like Tool-lee), Thule Air Base, Greenland (XPH); and Yokota, at Yokota Air Base, Japan (AIF2). Not all of these stations use the same frequencies, and they're not always on at the same times. (A 14th station, at MacDill AFB, Florida, recently ceased operations due to the conversion of the GHFS system to the new "Scope Command System.") **Table 1** is a present listing of GHFS frequencies and hours of operation.

On these frequencies (and others) you will hear Joint Chiefs of Staff Emergency Action Messages (EAMs) which can contain key instructions or information from high-level command authority. These messages are formatted as coded six-character alphanumeric groups, read phonetically, with the first six characters forming the message header. Total message length can go up to hundreds of characters. The exact meaning of these messages is, of course, highly classified. But it's widely believed they can range from meaning absolutely nothing (to confuse and stifle

traffic analysis) to the passing of the actual codes to initiate a nuclear war option. The initial string is a header which tells recipients all over the world if the message is one they need to act upon.

A second group of EAMs is the so-called FOXTROT messages, which are Force Direction Messages (FDM) broadcasts. These start out with the announcement "SKY KING, SKY KING do not answer" and are reportedly only for assets under operational control of the U.S. Strategic Command (USSTRATCOM).

The so-called NIGHTWATCH nets are also a part of the delivery of these instruc-



Prior to six-month deployments, carrier battle groups (CVBG) like the USS Enterprise (CVN-68) seen here, conduct work ups and exercises which are really exciting to hear. (U.S. Navy Photo)

tions or messages. A more accurate name for these nets is WABNRES (WWMCCS Airborne Resources) — WWMCCS is the Worldwide Military Command & Control System, a term being phased out and replaced by Global Command and Control System. NIGHTWATCH is the project name for the National Emergency Airborne Command Post (NEACP or "Kneecap") mission, which was set up in 1962 as a method of providing a secure command and control platform for the National Command Authority during a nuclear crisis.

Today, there are four E-4B Advanced

Table 1. USAF Global HF System (GHFS)

GHFS is primarily an Air Force network providing command control support to the U.S. DOD and NATO, plus support on a non-interference basis to other U.S. government agencies and friendly foreign governments. It's primarily an air/ground system, with occasional maritime and ground-based users.

Frequency	Station	(Guard times)	Frequency	Station	(Guard times)	
4724	Croughton	(2300-0500)	10780 (cont.)	Ascension		
	Elmendorf	(Apr-Sep 1800-0800, Oct-Mar H24)		Mahe (Seychelles)		
	Incirlik	(H24)	11175	Andersen	(H24)	
	McClellan	(0400-1600)		Andrews	(H24)	
	Thule	(H24)		Ascension	(H24)	
Yokota	(1000-2100)	Bayonne		(1300-2100)		
6712	Andrews	(0001-1000)	Croughton	(H24)		
	Bayonne	(1300-2100)	Elmendorf	(H24)		
	Croughton	(H24)	Hickam	(H24)		
6739	Andersen	(0900-2000)	Incirlik	(H24)		
	Ascension	(1800-0600)	McClellan	(H24)		
	Elmendorf	(Apr-Sep H24, Oct-Mar 0600-2000)	Offutt	(H24)		
	Hickam	(0400-1600)	13200	Andersen	(2000-0900)	
	Lajes	(H24)		Croughton	(0500-2300)	
	McClellan	(0400-1600)		Elmendorf	(Apr-Sep 1800-0800, Oct-Mar H24)	
	Offutt	(2300-0800)		Hickam	(1600-0400)	
	Thule	(H24)		McClellan	(1600-0400)	
	Incirlik	(H24)		Thule	(H24)	
	Yokota	(1000-2100)		Yokota	(2100-1000)	
8968				15016	Ascension	(H24)
	Andersen	(H24)			Bayonne	(1300-2100)
	Andrews	(H24)			Croughton	(0500-2300)
	Elmendorf	(H24)	Elmendorf		(Apr-Sep H24, Oct-Mar 2000-0600)	
	Hickam	(H24)	Lajes		(H24)	
	Lajes	(H24)	Loring		(0900-2400)	
	McClellan	(H24)	(remote from MacDill)			
	Offutt	(H24)	McClellan		(1600-0400)	
	Thule	(H24)	Incirlik		(H24)	
	Yokota	(H24)	Yokota		(2100-1000)	
8992	Ascension	(H24)	17976	Andrews	(1000-2400)	
	Croughton	(2300-0500)		Croughton	(H24)	
10780	AF Eastern Test Range			Elmendorf	(H24)	
	(Backup for Ascension)			Incirlik	(H24)	
	Cape Canaveral			McClellan	(H24)	
	Antigua			Offutt	(0800-2300)	
				Yokota	(H24)	



Advanced Airborne Command Post aircraft perform what is now known as the National Airborne Operations Center (NAOC) mission. (USAF Photo)

Airborne Command Post aircraft which perform what is now known as the National Airborne Operations Center (NAOC) mission, a term which replaced NEACP. The E-4Bs are Boeing 747-200B airframes. Often found within these nets are USAF EC-135 "Looking Glass" ABNCP Airborne Command Post aircraft performing the Strategic Command ABNCP mission passing and relaying the EAMs to USAF nuclear assets, and Navy E-6A/B TACAMO (Take Charge And Move Out) aircraft. The E-6A/Bs then relay the messages to Navy assets, including the "Boomers" or SSBN nuclear ballistic missile submarines by transmitting the EAMs on VLF (Very Low Frequency) on long trailing wire antennas. The EC-135s are being phased out, and the Navy E-6Bs will take over their mission in October of this year.

The conversion from Looking Glass to TACAMO will offer the advantage of consolidated communications. An airborne command post needs the ability to communicate with all three legs of the nation's nuclear triad: bombers, missiles, and ballistic missile submarines. The EC-135 lacked the capability of communicating directly with submarines and had to relay messages through the TACAMOs. With slight modifications (E-6As to E-6Bs), TACAMO can assume all of the functions of the EC-135, with the added capability of communicating with submarines.

The NIGHTWATCH nets operate 24 hours a day, 365 days a year. Listen for NIGHTWATCH 01, 2, 3, and 4 for the E-4Bs while other "players" in the net use daily tactical (usually) eight-character word combinations. POST HOLE, PART TIME, and TEST CORE were recent examples. These callsigns change every 24 hours. **Table 2** is a listing of the known "Zulu" frequencies used by these units.

The 89th Airlift Wing at Andrews AFB, Maryland, flies Air Force 1 and 2, and a small fleet of other VIP aircraft that use the prefix SAM for Special Air Mission. When airborne, these aircraft make use of frequencies that are a part of the Mystic

Table 2. "Zulu" Designators

Z100	3068	Z165	6757	Z225	13907
Z105	3116	Z170	7831	Z230	15046
Z110	3134	Z174	N/A	Z235	15094
Z115	3143	Z175	9016	Z240	15097
Z120	3295	Z180	9057	Z250	15962
Z124	N/A	Z185	9809	Z255	N/A
Z125	4495	Z190	10204	Z270	18027
Z130	4472	Z195	11104*	Z275	N/A
Z135	4745	Z200	11181	Z285	N/A
Z140	5026	Z205	11494	Z295	N/A
Z145	5705	Z210	11229	Z315	23872
Z150	5800	Z211	12070	Z330	N/A
Z155	5875	Z215	13242		
Z160	6715	Z220	13245		

*not confirmed

Star net when working Andrews, which can use special transmit and receive sites located around the world. The frequencies all carry "F" or Foxtrot channel designations. There are literally hundreds of frequencies available, but some seem to be used more than others. Check 6683, 6717, 6730, 6761 (also an air-to-air refueling frequency), 6830, 6993, 8026, 8032, 8040, 11059, 11220, 11460, 11494, and 13211. The Mystic Star net is one of the few instances where you might catch U.S. military activity in LSB (lower sideband).

On The Navy Side

One of the most frequent nets found is the so-called Link-11 coordination nets. Link-11, or Tactical Digital Information Link (TADIL-A) provides commanders a "linked" radar picture of the battlefield combining ships of the battle group, airborne assets, and sometimes shore assets, to form a linked image of a very wide area. The Tactical Data System (TDS) computer that is the heart of this system, is typically manned by Operations Specialists (OSs) in the USN. The TDS computer accepts operator entries, such as the Data Link Reference Point (DLRP), Participating Unit (Papa Uniforms or PUs) identification, track block data, and various other modes. It is very important that these selections be entered correctly. After information is received, it must be correlated, or matched with existing database information. Of particular importance is matching the positions of objects. An incorrect operator entry could prevent proper correlation and confuse the tactical picture with numerous un-correlated tracks. There is, therefore, a considerable amount of air traffic on these nets, which

are characterized by "track IDs" and three-letter X-ray brevity codes being used by the operators, such as "X-ray Alpha Echo." The frequency the Link-11 system is operating on is often referred to as an object name used as a code word for the actual frequency. I've heard the names of motorcycles, brands of beer, baseball team names, etc., used.

Another type of Navy net you'll hear is the Joint Fleet Exercise or JTFEX. These are typically heard prior to the deployment of a combined Carrier Battle Group (CVBG) and an Amphibious Ready Group (ARG). Recent logs in my "Communications Confidential" column were from the *USS John C. Stennis* (CVN-74) Carrier Battle Group and *USS Wasp* (LHD-1) ARG in JTFEX 98-1. While writing this article, I was able to hear some of the action from the *USS Abraham Lincoln* (CVN-72) CVBG and the *USS Essex* (LHD 2) ARG in Pacific Joint Task Force Exercise 98-1 (PAC JTFEX 98-1) off the coast of California. These war game scenarios usually involve five or six assigned frequencies that are rarely the same, but are frequently found in the same areas. Try around 2354.6, 2357, 2546, 2844, 3039, 4040.1, 4395, 5043.5, 5338.6, 5392, 5411, 5425, 5725.5, 6284.5, 6731, 7988.6, 8027.6, 8029, 9034, 10548.5 and 10608 kHz for comms with various nets including Link-11 coordination, Air Defense Warning, and a battle group commanders net. Terms such as "event," "launch," and "recovery" will be heard. Two-letter callsigns are often used as net control stations with single-letter callsigns used within the net.

The only nets still using the ship's name as the ID are the SESEF (Ships Electronic Systems Evaluation Facility)



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RD's Top "52" HF Military Frequencies

Note: All frequencies in kHz and have been logged here in NE Ohio in USB. Send me your favorites *c/o Pop'Comm* or by E-mail to <CommConf@concentric.net>

Frequency	Station
4154.5	DHJ59, German Navy, Wilhelmshaven RTTY Coord w/ships
4426.0	USCG SCN Shore (ships/cutters on 4134.0)
4560.0	Canadian Forces, Maritime Command
4739.0	USN Safety of Flight/Canadian Forces
4742.0	Royal Air Force STCICS
5198.5	Canadian Forces, Maritime Command
5320.0	USCG Groups
5680.0	International Search and Rescue
5693.0	USCG Air Stations
5696.0	USCG Safety of Flight
5717.0	Canadian Forces
6501.0	USCG SCN Shore (ships/cutters on 6200.0)
6683.0	USAF Mystic Star (VIP Flights)
6730.0	USAF Mystic Star (VIP Flights)
6739.0	USAF GHFS
6761.0	USAF Air/Air refueling coord., Mystic Star (VIP Flts)
6779.0	DHJ59, German Navy, Wilhelmshaven RTTY Coord w/ships
7535.0	USN SESEF Norfolk, ship emitter testing
8122.0	Royal Australian Navy
8335.5	DHJ59, German Navy, Wilhelmshaven RTTY coord. w/ships
8764.0	USCG SCN Shore (ships/cutters on 8240.0)
8968.0	USAF GHFS
8983.0	USCG Safety of Flight
8992.0	USAF GHFS
8971.0	USN Safety of Flight
8974.0	RAAF/RNZAF Air Operations Communications System — AOCS
9007.0	Canadian Forces MACS
9018.0	USAF Special Ops Command
9023.0	NORAD
9031.0	Royal Air Force STCICS
10192.5	DHJ59, German Navy, Wilhelmshaven RTTY Coord w/ships
10722.0	DHJ59, German Navy, Wilhelmshaven RTTY Coord w/ships
11053.0	USAF Mystic Star (VIP Flights)
11175.0	USAF GHFS (primary frequency)
11178.0	Royal Netherlands Navy (Caribbean Ops)
11202.0	USCG Safety of Flight
11214.0	NORAD
11220.0	USAF Mystic Star (VIP Flights)
11226.0	USAF Mystic Star (VIP Flights)
11232.0	Canadian Forces MACS
11235.0	RAAF/RNZAF Air Operations Communications System — AOCS
11247.0	Royal Air Force STCICS
11460.0	USAF Mystic Star (VIP Flights)
12415.5	DHJ59, German Navy, Wilhelmshaven RTTY Coord w/ships
13089.0	USCG SCN Shore (ships/cutters on 12242.0)
13200.0	USAF GHFS
13206.0	USAF Special Ops Command
13247.0	USAF Mystic Star (VIP Flights)
13257.0	Canadian Forces MACS
14441.5	Navy-Marine Corps MARS, calling
15016.0	USAF GHFS
15031.0	Canadian Forces MACS

frequencies where the ships test their emitters. There are known SESEFs in Norfolk, Virginia (SESEF Norfolk, 7535.0 primary) and Mayport, Florida (SESEF Mayport, 5745.0 primary). SESEF is a "business hours only" operation, so try between 1200 and 1600 UTC. Navy ships carry the salutation of USS for United States Ship and USNS for United States Naval Ship.

Coast Guard Comms

The U.S. Coast Guard was covered pretty well in my "Riders on the Storm" article (August 1997, page 20). As a quick review, check 2182, 2670, 3253, 4134/4426 (ship/shore), 5320, 5696, 6200/6501, 8240/8764, 8983, 11202, and 12242/13089 for USCG comms. Aircraft generally ID by "Coast Guard" and tail number or "Rescue" and tail number if deployed on a Search and Rescue (SAR) case. Cutters generally ID by name and carry the salutation of USCGC for United States Coast Guard Cutter.

Elsewhere In The World

With the solar cycle greatly improving, the sky is the limit to what you can hear, if you check the right frequencies at the right times.

In Canada, the Canadian Forces have their own version of the U.S. GHFS system called MACS for Military Aeronautical Communications System, sometimes referred to as CANMACS. The frequencies 3007, 5717, 6694, 6706, 6745, 8989, 9007, 11232, 13257, 15031, and 17994 are the most active frequencies to try for CHR, Trenton Military, Ontario; CFH, Halifax Military, Nova Scotia; CJX, St. Johns Military, Newfoundland; VXA, Edmonton Military, Alberta; and CKN, Vancouver Military, British Columbia. Additionally, the Maritime Command uses 4560, 5198.5, and 6716 most often, for ship communications. Canadian warships use the salutation HMCS for Her Majesty's Canadian Ship.

Going "across the pond" as they say, we have the Royal Air Force in the UK. Their primary system is the Strike Command Integrated Communications System or STCICS. Although thought of as strictly a Royal Air Force net, the Royal Navy is infrequently found on these frequencies also, mostly using NATO tri-graph callsigns (Lima 5 Hotel/Letter Number Letter), they occasionally use the ship's name. ARCHITECT, the RAF Strike Command in London, is most com-

11205.0, 11247.0, 13257.0, 15031.0 and 18018.0 kHz, in USB.

Another unique system is the UKADR (United Kingdom Air Defense Radar) Off-shore Coordination nets. On these nets, you can also hear Royal Navy vessels. The UKADR stations are: RAF Buchan, Scotland; RAF Boulmer, RAF Benbecula and RAF Neatishead, England. Frequencies used include: 2261.0, 3117.0, 3435.0, 3467.0, 3449.0, 3882.0, 3885.0, 3893.0, 3933.0, 3939.0, 4463.0, 4464.0, 4484.0, 4540.0, 4706.0, 4709.0, 4711.0, 4718.0, 4724.0, 4730.0, 4739.0, 4749.0, 4763.0, 4785.0, 4833.5, 5130.0, 5270.0, 5287.0, 5450.0, 5462.0, 5470.0, 5654.0, 5685.0, 5690.0, 5747.0, 5843.0, 6681.0, 6686.0, 6691.0, 6697.0, 6725.0, 6736.0, 6740.0, 6742.0, 6745.0, 6748.0, 6751.0, 6755.0, 6760.0, 8971.0, 8975.0, 8988.0, 9014.0, 10194.0, 10210.0, 11172.0, 11178.0, 11212.0, 13205.0, 13234.0, 18013.0, and 18025.0

The Royal Navy uses the United Kingdom Maritime Coastal Communications System (UKMACCS). This system is also known as "Coastal Control." UKMACCS is controlled from Whitehall, London (callsign "GYA") with a standby location at Forest Moor (callsign "GXQ"). Transmitters are located at Milltown and St. Eval, with receivers located at Kinloss and Penhale Sands. There is often encrypted radioteletype (RTTY) transmissions on these frequencies. The frequencies for the RTTY transmissions are coordinated by voice. Royal Navy vessels always use two-letter "Golf" callsigns, like "GT," "GP," "GK," etc. The operational calls that can be heard are called "Opcalls" and go like this: "Opcall (ship name), Opcall (ship name), Opcall (ship name), contact UKMACCS." The distinctive feature of this network is the "calling" tones, which are distinctive two-note tones that are heard every five seconds on the frequencies in use when they are free for traffic. When the service is unavailable, the tones do not sound. Once contact is made, they will switch to a set of working frequencies, which are not strictly paired. Royal Navy warships normally use their name or shortened version of their international callsign. Known Royal Navy calling frequencies include:

Channel	Coastal/Ship	Operating Sched. (UTC)
Alpha	1780.0/1875.0	2000-0600
Bravo	2702.0/2754.0	2000-0600
Charlie	3710.0/3158.0	
Delta	4420.0/4502.0	0600-2000

Echo	6522.0/6221.0	1600-2000 (formerly 6509.5/6203.0)
Foxtrot	8716.0/8235.3	0600-1600 (formerly coastal frequency 8759/ship?)
Golf	13134.9/12364.1	(possibly now changed)

There is a great number of working frequencies which are identified by a channel number.

Next stop, Germany, where we have the German Navy (Bundesmarine) and Air Force (Luftwaffe). German Navy warships are often heard working DHJ59, the German Naval Base at Wilhelmshaven for encrypted RTTY coordination. The ships call using their international callsigns, which are four letters starting with "DR." They use English phonetics so the callsigns are fairly easy to catch. Check 4154.5, 6779, 8335.5, 10192.5 and 10722 as the most active frequencies right now. Check for the German Air Force at Munster (DHM91) on 5687, 5690, 6718, 6762, 8967, 9000, 9019, 11187, 11217, and 13245 to list a few. Again English and phonetics are common.

A Look Down Under

Next, we hop on down to the Land of Oz — Australia. The Royal Australian Navy and the Royal Australian Air Force can be commonly heard on darkness paths to North America and elsewhere. For navy comms, listen for "Cairns Control," "Darwin Control," and "Cairns Control" on 4375 and (more commonly) 8122. Royal Australian Navy ships carry the salutation "HMAS" and have rich names that reflect Australian culture, such as HMAS Warmambool, HMAS Wollongong, and HMAS Bunbury. The RAAF stations commonly heard include

Air Force Darwin, Pearce (Perth), Sydney and Townsville. The RAAF and the Royal New Zealand Air Force (RNZAF) share what is known as the Air Operations Communications System (AOCS). The combined Air Operations Communication Centers are located in Sydney, Darwin, Townsville, Perth, Auckland and Woodbourne and operate on the same shared frequencies of: 5687, 8974, 11235, and 13207.

The Dutch Scene

Rounding out our trip around the world of military HF monitoring, is the Royal Netherlands Navy. The Dutch are commonly heard in the United States from the Caribbean where they are an active participant in the drug interdiction efforts in that region.

Primarily heard on 11178, the most commonly heard station is PJK, Suffisant Drop Naval, Curacao in the Netherlands Antilles. Here you'll catch Dutch warships using international callsigns starting in "PA" (PAXx). Again, English phonetics is commonly used making callsigns fairly easily understood. Also heard are the Dutch Air Force F-27MPAs (Maritime Patrol Aircraft) callsigns PE-MMA and PE-MMB of 336 Squadron flying out of Curacao.

This is only a small sample of the military HF communications taking place daily all over the world. As always, I appreciate updates and corrections, as well as logs for my monthly "Communications Confidential" column. Give a listen and drop me a line with what you hear. I can be reached by E-mail at: <CommConf@concentric.net> or by regular mail at: P.O. Box 4222, Youngstown, Ohio, 44515. I will present updates and additional countries as time goes on. ■

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CIRCLE 78 ON READER SERVICE CARD

KFKX: A Most Historic Broadcast Station

The 10-Year Trip From Glory To Gone

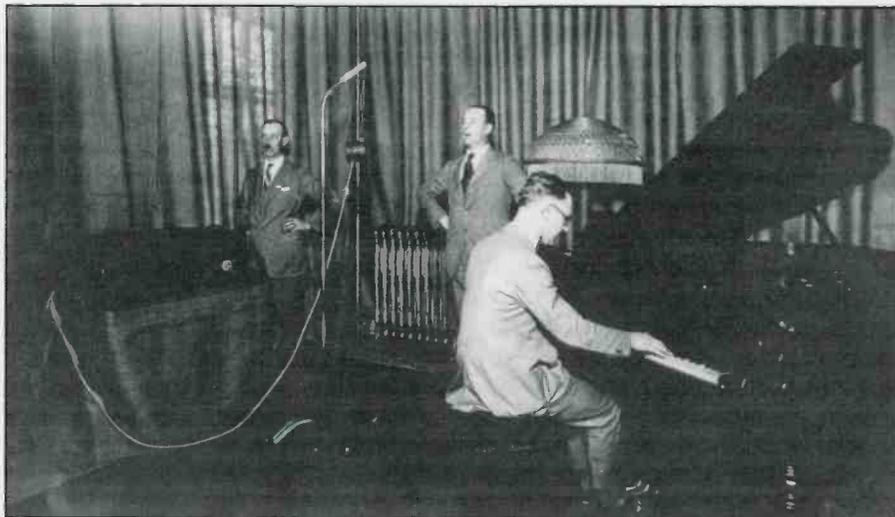
By Alice Brannigan

In the early days of broadcasting, Westinghouse tried an interesting experiment. The company wanted national signal coverage for its pioneer station, KDKA (1 kW on 920 kHz, Pittsburgh, Pennsylvania), so they used their shortwave transmitter 8XS to feed some of KDKA's programs to KDPM. KDPM was a temporary, 500-watt relay station the company had established March 4, 1923, for this purpose on 1110 kHz in Cleveland, Ohio. Tests of the relay idea proved it was feasible, inspiring Westinghouse to move ahead with Phase Two of a grandiose plan.

Westinghouse then commenced construction of a new relay station at Hastings, Nebraska. The purpose of this transmitter was to re-launch KDKA's signal from a point in mid-America that would simultaneously repeat KDKA's programs where they could be picked up throughout North and South America, reaching millions of new listeners on remote farms and ranches. Hastings was selected because it was not far from the geographic center of the continental U.S. In September of 1923, call letters KFKX were issued to this relay transmitter, which was authorized for operation with 500 watts on 1050 kHz.

KFKX was constructed on a site in the northeast corner of the city park in Hastings. A 25- by 40-foot frame building was erected to house the transmitter. Near the building, two 75-foot-high telephone poles were installed 100 feet apart to support a two-wire inverted-L type flattop antenna. Sensitive receivers were installed nearby to pick up the shortwave program feed from KDKA to be sent on 3200 kHz. A brief test was conducted on November 15, then KFKX went into regular service repeating KDKA on November 22, 1923.

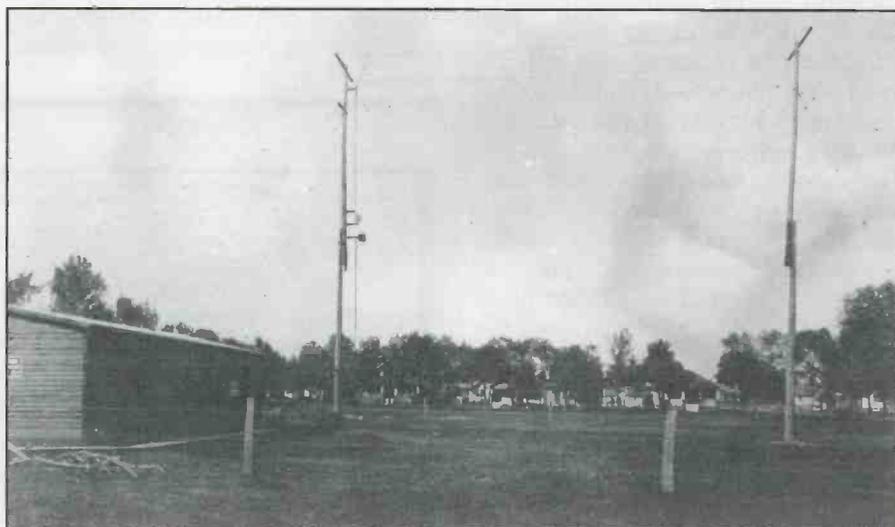
As it turned out, some local programming did begin to originate from KFKX not long after it began operation. Bill Hay



Studios of KFKX were located in the Gaston Building, Hastings, Nebraska. (Photo courtesy Broadcast Pro-File)

gave up his job as a piano salesman to join the KFKX staff as its announcer and Music Director. Monday and Tuesday evenings had time set aside for KFKX's "local talent" programming, the rest of the time it relayed KDKA.

Westinghouse was thrilled with the results obtained from KFKX, which was bringing in reception reports from throughout North and South America. The basic concept had been suggested in mid-1922 by H.P. Davis, Vice President of



The original KFKX antenna system and transmitter building. It was located in the city park in Hastings. (Photo courtesy Broadcast Pro-File)

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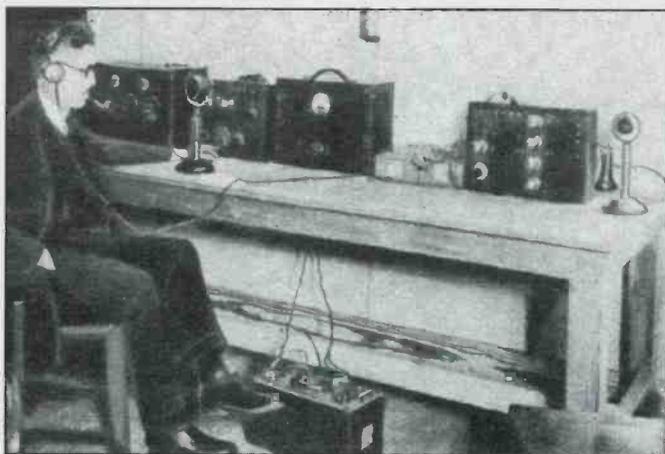


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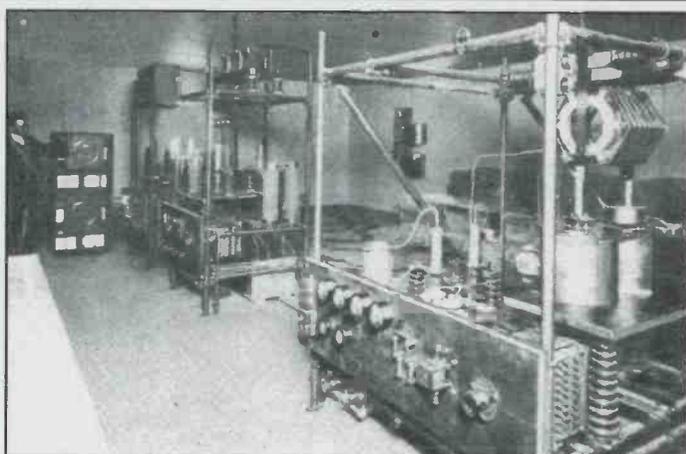
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Shortwave receiver at KFKX used to pick up signals from KDKA's shortwave transmitter for rebroadcast.



Here's the shortwave transmitter of 9XW, used by KFKX to relay its programs to KGO in San Diego.

Westinghouse. He said that the solution to the problems of radio broadcasting (interference, frequency shortage, and other) lay in the introduction of a few centrally located broadcast stations that would serve many low-powered and non-interfering repeating stations, so as to bring the best reception to the greatest number of listeners. Davis had predicted that repeating stations would be able to supply one central station's programs to the entire continent without interference. He saw low-powered repeating stations serving local areas with programs of special interest to listeners within their range, with higher-powered repeating stations serving larger regions or nationally.

January 17, 1924, saw one dramatic example of KFKX's value that was widely reported in the media. A Hudson Bay Company trapper, at the time marooned in the far north, knew that his wife was undergoing a serious emergency operation; however, he had no way of knowing the outcome until his return to civilization after the spring thaws. Friends, recalling that the trapper had several radio receivers, asked KDKA to broadcast the news of his wife's recovery. The message was broadcast several times and was rewarded the following April with a heartfelt message of thanks from the grateful trapper who had heard the radio broadcast without any difficulty.

An Amazing Concept

In early 1924, at the Annual Alumni Dinner of the Massachusetts Institute of Technology, held at New York City's swank Waldorf-Astoria Hotel, the concept of repeating stations was successfully demonstrated. It was based upon the success of KFKX, which was hailed there

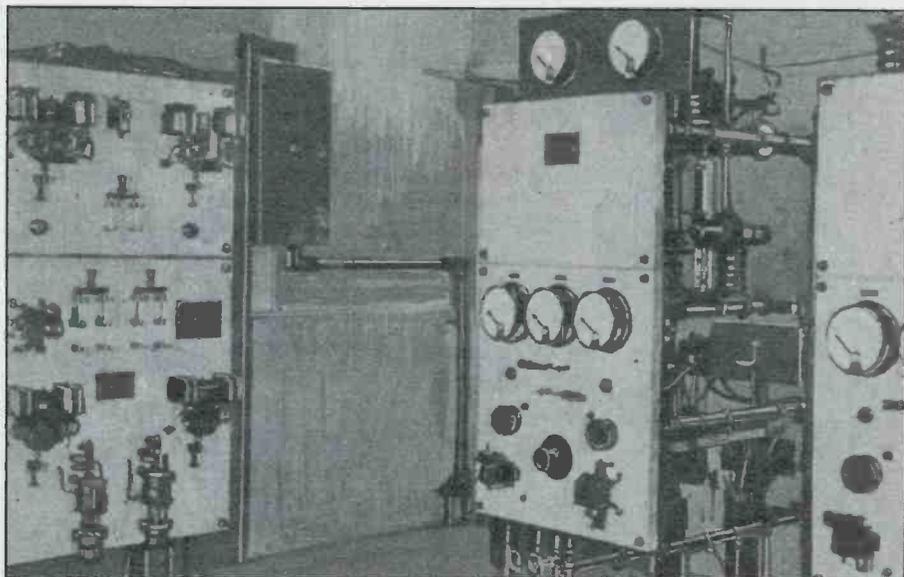
as "the latest and greatest achievement of modern radio science."

In this demonstration, RCA's New York station WJZ had its microphones installed at the speakers' table and beside the musicians' rostrum at the banquet. WJZ carried the program with 500 watts over its regular 660-kHz frequency, while its programming also went by landline to GE's station, WGY, Schenectady, New York. WGY broadcast the material over its usual 790 kHz, and also over 2XI, its shortwave transmitter on 3000 kHz. The 2XI shortwave signal was picked up at KDKA and fed out over both 920 kHz and over 8XS, KDKA's shortwave transmitter on 3060 kHz. The 8XS signals were picked up for rebroadcast, not only by KFKX in Hastings, but also by 2LO in London, England, running 2 kW on 822 kHz, and by 2AC in Manchester. Station 2LO was linked with seven other stations

in England and Scotland that either relayed 2LO directly or picked up from one another.

KFKX rebroadcast the banquet's signals over its regular 1050 kHz channel, and also over 9XW, its own 10-kW shortwave transmitter on 2885 kHz (also licensed on 5355 kHz) for pickup and simultaneous rebroadcast by KGO, Oakland, California, which ran 1 kW on 960 kHz. Listeners from the British Isles to the Pacific Coast heard everything from the Waldorf-Astoria at virtually the same instant events were taking place. Every circuit worked without a problem. It was nothing short of amazing to all.

Throughout the evening, telegrams poured into the Waldorf-Astoria congratulating those involved. One radio listener wired that he could listen to WJZ, and also had a 10-tube superhet in another room to bring in WGY, KDKA, KFKX,



This is 8XS, KDKA's shortwave transmitter used to send programs to KFKX for rebroadcast.

and KGO in succession to compare against WJZ. He couldn't believe that there was no time lag between any of the relay stations and WJZ, the primary station, with each word spoken and note of music "absolutely synchronized."

Reaping The Harvest Of Success

In May of 1924, KFKX shifted to clear channel 880 kHz and upped its power to 1 kW. At this time, the Hastings Chamber of Commerce convinced Westinghouse to use more locally originated programming, so studio facilities were installed in a Hastings hotel. Later that year, KFKX raised its power to 1.5 kW, changing frequency to another clear channel, 1040 kHz. New studios were established in early 1925 on an upper floor of the Euston Building at 600 West Second Street (now known as the Gray Building) in downtown Hastings. By the spring of 1925, KFKX was operating with 2 kW, and in early 1926 it was raised to 5 kW.

In the summer of 1924, the Canadian government had asked for KDKA's cooperation in maintaining radio contact with the exploration vessel *Arctic* during its

annual summer cruise conducting government investigations and taking supplies to outposts. These broadcasts via KFKX were very successful, and the ship was able to receive instructions from headquarters for the first time in the history of the service.

This demonstrated the great value of KFKX to persons in inaccessible locations and led, soon after, to the inauguration of KDKA's Far North Service. For several years this was the one personal connection with civilization for hundreds of missionaries, traders, and Royal Canadian Mounted Police officers at remote outposts, and other isolated dwellers near the top of the world.

Sic Transit Gloria Mundi

In June of 1927, KFKX was assigned to operate on 570 kHz with a power reduction to 2.5 kW. The station's slogan at this time was "Empress of the Air." At the same time, the Westinghouse station in Chicago, KYW, was also reassigned to 570 kHz, with both Westinghouse stations in operation simultaneously, and KFKX repeating KYW's programs during most of its hours of operation.

As a result of this assignment, after

three and a half years, operation of KFKX at Hastings was discontinued. The KFKX plant at the city park was abandoned. Westinghouse announced that the KFKX station license would be moved to Chicago and combined with that of its station there, KYW. KYW seemed less than enthusiastic about having KFKX forced upon it. Physical facilities were moved in September of 1927, and, in December, KFKX returned to the air from KYW's studios at 508 South Michigan Ave., Chicago. Both stations operated on 570 kHz on a time-sharing basis, with each running 2 kW.

As of January, 1928, KFKX was calling itself "The Agricultural Station." In sad fact, KFKX was treated as little more than KYW's awkward step-sister. KFKX operated only a few hours a day and had been relegated to the unglamorous task of sending out only stodgy public service announcements, such as government reports, weather, stock, and grain reports. Co-owned KYW occupied the frequency for most of the hours of the day with its popular NBC network programming and other commercial entertainment features. At this time both stations held separate licenses, but, in October of 1928, Westinghouse was granted a new single

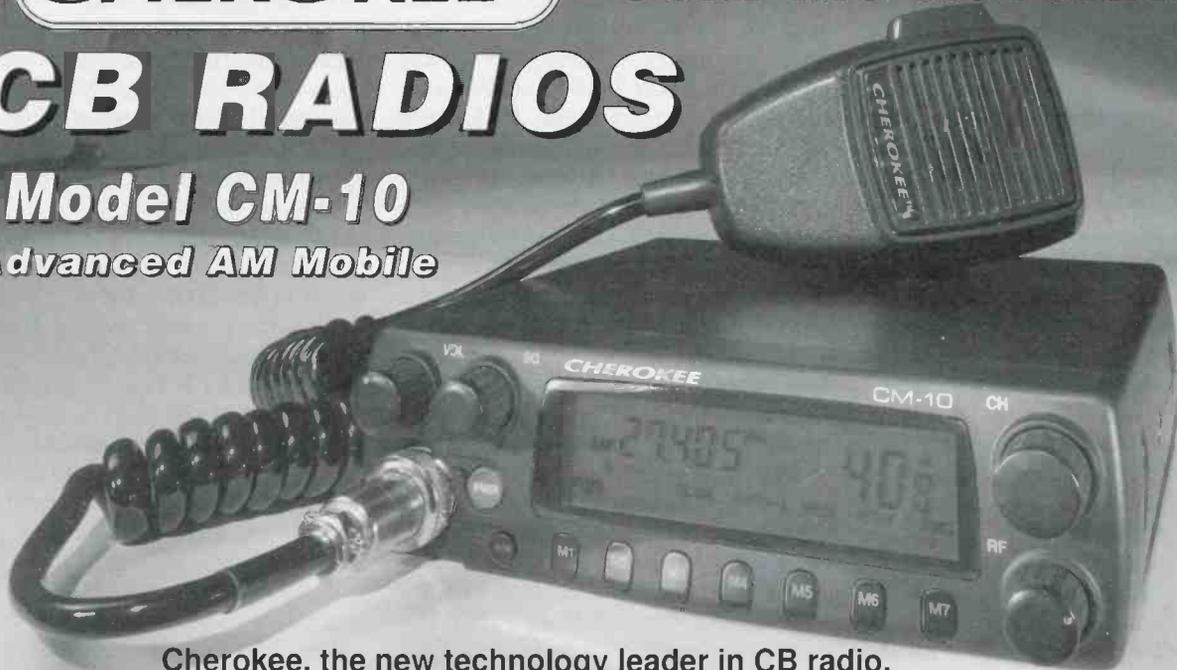
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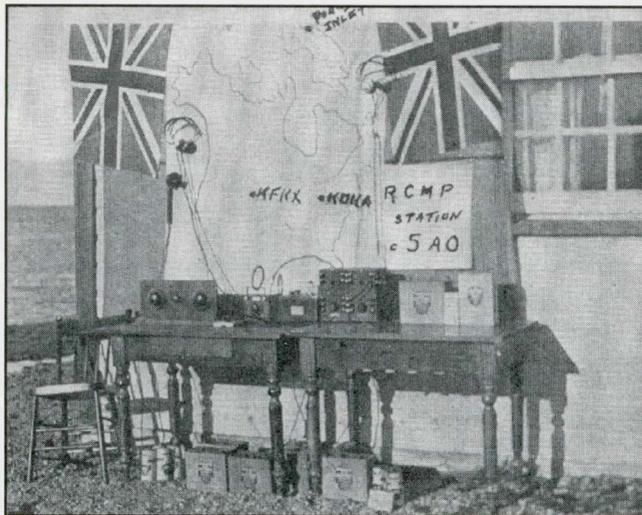


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An example of KFKX's great coverage. It's a 1924 photo of the Royal Canadian Mounted Police communications station C540 (7596 kHz) located at Pond's Inlet, Baffin Island, NWT, Canada — a remote outpost north of the Arctic Circle. A crudely drawn map of North America on the wall shows the handwritten call letters of the only two broadcast stations the operator knew of: KFKX, and the station it relayed, KDKA!

The beginning of the end for KFKX came when Westinghouse moved it to Chicago in 1929 and unceremoniously dumped it on its station KYW, which was less than enthusiastic — an arrangement that did not bode well for historic KFKX. This 1930 ad was issued by the combined stations. →

license that approved the use of two call letters for one combined station.

In the aftermath of the nationwide frequency relocations effective in November, 1928, KFKX/KYW was assigned to operate on 1020 kHz. The station(s) power was changed from 2.5 kW from 6 a.m. to 10 p.m., and 5 kW thereafter. But, in early 1929, the newly created FRC granted temporary authority to operate at 10 kW, even though the license stipulated 5 kW. This high power authorization ended later in the year.

In December of 1929, KFKX/KYW was leased to the *Chicago Herald and Examiner* newspaper. At least the newspaper referred to KFKX and KYW as "twin stations," thus restoring some dignity to KFKX by granting it a measure of equality and a reprieve from the back seat image imposed upon it after the move to Chicago. Westinghouse continued to operate the KFKW/KYW outlet for the newspaper from KYW headquarters, but the newspaper was responsible for the broadcast programming.

In January of 1930, the transmitting facilities were moved from the roof of the Congress Hotel (corner of Michigan and Congress Avenues, downtown Chicago),

to a new shared KFKX/KYW site near Bloomingdale Township, Illinois. A new diamond-shaped fan antenna was erected at the site for both to use. Also, in early 1930, the power of KFKX/KYW was increased to 10 kW. In 1932, studios were moved to Chicago's Straus Building at 310 South Michigan Ave. The newspaper was still leasing the station.

As of January, 1933, the location of the transmitter was changed to a new site near Glen Ellyn, Illinois. In May of that year, the lease between Westinghouse and the newspaper for KFKX/KYW was terminated, though operation by Westinghouse continued. In May of 1933, KFKX's call letters were deleted by the FRC, thus bringing a barely noticed and inglorious end to this historic station that only nine years earlier had been referred to as the "latest and greatest achievement of modern radio science."

What had happened to cause KFKX's reversal of fortune in June, 1927? The continuing rapid growth of broadcast technology had quickly bypassed the concept of domestic relay broadcasting, leaving it (and KFKX) ignored and forgotten in the dust. In 1926, NBC had been created, and the CBS network was formed in

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1927. Basically, these national domestic broadcast networks (or "chains" as they were then popularly known) had decided to use more suitable techniques for distributing their programming to local audiences from coast to coast. Moreover, people located in remote areas of the world could now access news from civilization by tuning in the many shortwave broadcasters that had appeared.

This month's report on KFKX was compiled from several sources, including the use (with permission) of excerpts from the lengthy research report on this station prepared by Broadcast Pro-File, 28243 Royal Road, Castaic, CA 91384-3028. BP-F is a professional service that (for a reasonable fee) can provide a highly detailed historical report on any FCC licensed AM or FM broadcast station, past or present. Send them \$1 for a complete catalog. Please mention that you read about them here.

We always appreciate it when readers pass along to us old radio and wireless station photos, picture postcards, old QSL cards and letters (good photocopies are OK), news clippings, and old station listings. You are invited to us by E-mail at <Radioville@juno.com> with column suggestions and comments. ■

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

A LOOK BEHIND THE DIALS

Another Milestone

It's hard to believe it's been over two years since Harold first approached me about doing a column for *Pop'Comm*. We had no idea what the column should be all about; but we both agreed it should be technical — in a practical hands-on sort of way. I was worried that my material and ideas would soon run out. The last thing I wanted was a column that became stale and repetitious. With some reservations, we decided to start by covering vintage electronics and restorations. The hunch was a good one, judging by reader feedback and the support we have received. A needed niche was filled by the "Radio Connection"! My fears never materialized, I have *too* many things to write about. I wonder when and how I will ever cover all the things on the "project board." Our success is owed to our readers! Your support is what makes this column what it is — every contribution, letter, photo, and suggestion is sincerely appreciated.

The Hallicrafters Saga Continues

I've had some time to research the Hallicrafters S40-A receiver. There were several versions of this receiver sold between 1946 and 1955. The earliest was the S-40, sold between 1946 and 1949. The S-40A was announced in 1949 and was replaced by the S-40B in 1950. Hallicrafters continued producing the S-40B until 1955. The earlier models sported white dials; the green color was adopted with the "A" model. The "B" model used more modern miniature IF transformers, a few changes in the tube lineup, and the front panel became a one-piece assembly. The receiver used nine tubes, covering 540 kHz to 43 MHz in four bands. The bandwidth was a separate, uncalibrated "logging scale"-type dial. A "Universal" model, with a U suffix, allowed 110- or 220-volt operation — a \$10 option. The receiver was first offered for \$79.50, and had only risen to \$89.95 by the end of production. An S-40 in good condition is currently valued



Varnish and grime mar the front panel of the old S-40A.

at about \$50. I couldn't find production run figures, but, judging by the fact that the radios are easily found and were produced for almost 10 years, makes me believe that tens-of-thousands were sold.

We briefly touched upon the S-38 receiver in earlier columns and immediately received numerous requests for more information on Hallicrafters receivers. I've amassed a few sets for future column restorations: a Hallicrafters S-20R, SX-28 and SX-42. Please know that it may take some time before I can actually start work on the receivers, but it will happen. The SX-28 and SX-42 are arguably the epitome of early Hallicrafters communications receivers.

Let's continue with Dr. Edward Engelken's S-40A restoration. When we left off, Ed had replaced a defective power transformer and was surveying the damage caused by water and years of neglect. Ed continues: "I managed to remove the varnish and other grime from the front panel with a product called 'Kleen Clutter' that removes varnish, shellac, and lacquer, but not paint. Unfortunately, I did rub through the paint in several places. The silk-screened labels showed signs of wear, and many rust spots remained. I decided to repaint the entire radio.

"Since a repaint job would destroy the original appearance of the set, I decided to turn my 'receiver design instincts' loose and upgrade the performance of the set. Most of the phone transmissions on the LF ham bands these days are SSB, therefore a good product detector is needed. Since the power transformer had to be replaced, a redesigned regulated power supply could be included to provide improved stability. I replaced the vintage eight-pin octals with newer seven- and nine-pin glass miniatures. The rebuilt Hallicrafters' chassis has the following tube lineup: 6BA6 (RF amp), 6BE6 (converter), two 6BA6s (IF amps), 12AU7 (AF amp and BFO), 6AQ5 (AF output), and an 0B2 gas regulator.

"The replacement transformer (Fair Radio, T1/URM25) didn't have a 5-volt winding for the rectifier filament, and the HV winding only produced 450-Vct. I replaced the 80 rectifier with a pair of 1N4007 rectifier diodes. The power supply generates 210 Vdc and 108 volts regulated dc. Regulated voltage is used for the screen supplies for the 6BE6 and the 6BA6s as well as the BFO plate.

"The photo shows the finished front panel and chassis on the workbench. The replacement main tuning dial cover was

cut from a sheet of .03-inch thick polycarbonate (Lexan™). The "hairline" was engraved using a sharp dental pick and straightedge; the hairline was filled using a red 'Sharpie' permanent marker. I sanded the panel smooth using 240 grit, followed by 600 grit, wet-or-dry sandpaper. The panel was thoroughly washed, and given one coat of Rustoleum Auto Primer. This was followed by two coats of Rustoleum Flat Black enamel. Both coats were lightly buffed using 0000 steel wool. The panel was labeled using 'Dri-Transfer Lettering' (from Antique Electronics Supply) and then sprayed with a thin coat of clear satin 'Carver Tripp' polyurethane finish. Despite using flat enamel and satin clear finish, the look is quite glossy compared to the original finish.

"The next photo shows the completed S-40A. The gray paint on the cabinet had to be stripped with paint remover. Each of the tiny holes in the 'Airodized' lid and speaker grille had to be individually cleaned using toothpicks — what a job! The cabinet was finished in the same style as the front panel."

The Engelken Product Detector

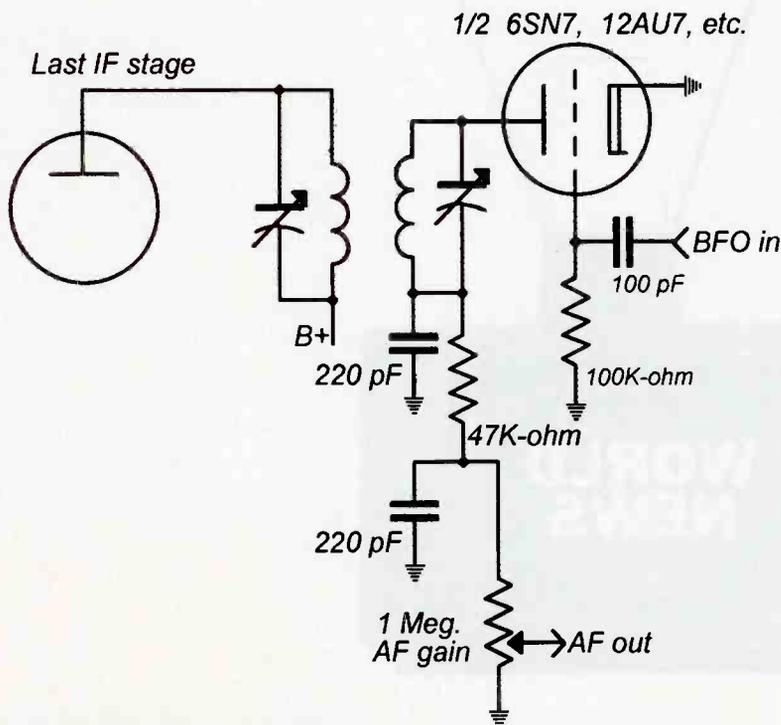
Dr. Engelken has devised a neat and effective product detector for use in vin-

tage receivers. It can be installed as a reversible modification in many receivers. This is the circuit used in the modified S-40A. Ed refers to it as a "Gated-Diode Product Detector." Here's the story in Ed's words:

"I can't claim the design to be original to me, but I have looked at a lot of published product detector circuits and I haven't seen anything like it. Take a look at Figure 1.

"The conventional detector diode is replaced with a triode. With the BFO off, the triode simply acts as a diode, and the set receives AM signals as before. The AVC works as usual. With the BFO on, the triode develops grid-leak bias and the BFO signal gates the 'gated diode' off and on at the BFO frequency. This modulates the IF signal in the plate circuit of the 'gated diode,' and demodulates the received SSB or CW signal. Notice that the BFO signal does not appear in the plate load circuit of the detector as in the conventional diode detector. Thus, the AVC is not overloaded by the BFO signal. There is no need to turn off the AVC when receiving SSB or CW signals. Because the design does not produce an AVC voltage in the SSB/CW mode, the RF gain must be set to avoid receiver overload. This detector gives the cleanest sounding SSB I've ever heard."

Figure 1. Schematic For The Gated-Diode Product Detector



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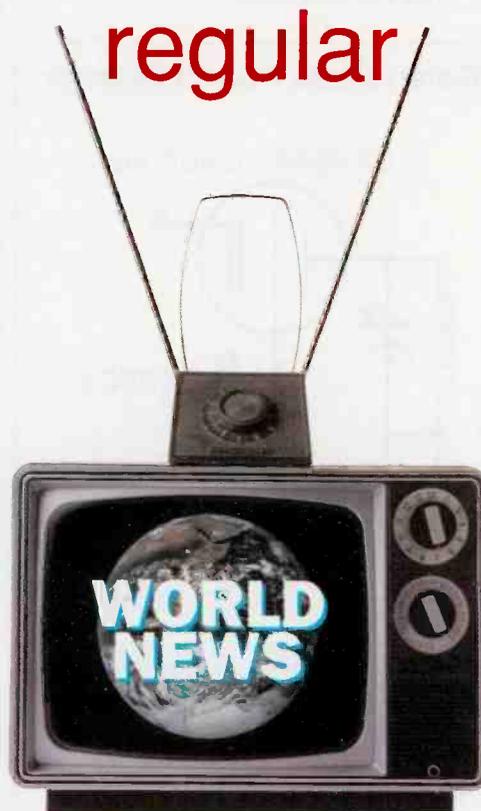
Implementing The Gated Diode Product Detector

Ed continues, "For receivers using a 6SQ7 diode/triode for the detector and first audio, you can use a dual-triode 6SL7

to replace the 6SQ7. One triode can serve as the first audio; the other as the gated diode. If the set uses a 6H6 as a detector and noise limiter (dual-diode tube), use a 6SL7 or 6SN7 with one of the triodes wired as a diode for the noise limiter (grid

and plate tied together). The triode section is used for the gated diode.

"The main advantage of this circuit is that it requires no additional switching. Simply turn the BFO off or on to switch between AM and SSB modes."





The completed S-40A, ready for Christmas!



The pile of old parts removed from the S-40A. Even the power transformer was found to be bad.

Modifications

It's a lot of fun taking an old junker like Ed's S-40A and breathing new life into it. The S-40A saga centers on the resurrection of a junker — a set of little value that has been brought back to life.

Remember that doing similar mods to a "classic," such as the SX-28, greatly diminishes its value as a collectable.

See you again next month. This column is being prepared early, so I haven't decided what's coming up in November! But, with cold weather coming, it's probably

back to the workshop for more finish work on the Philcos! Meanwhile, you might want to get a copy of *Radios by Hallicrafters*, by Chuck Dachis, Schiffer Publishing, Ltd., 77 Lower Valley Rd., Atglen, PA 19310; 610-593-2002; 1996, ISBN 0-88740-929-6. ■

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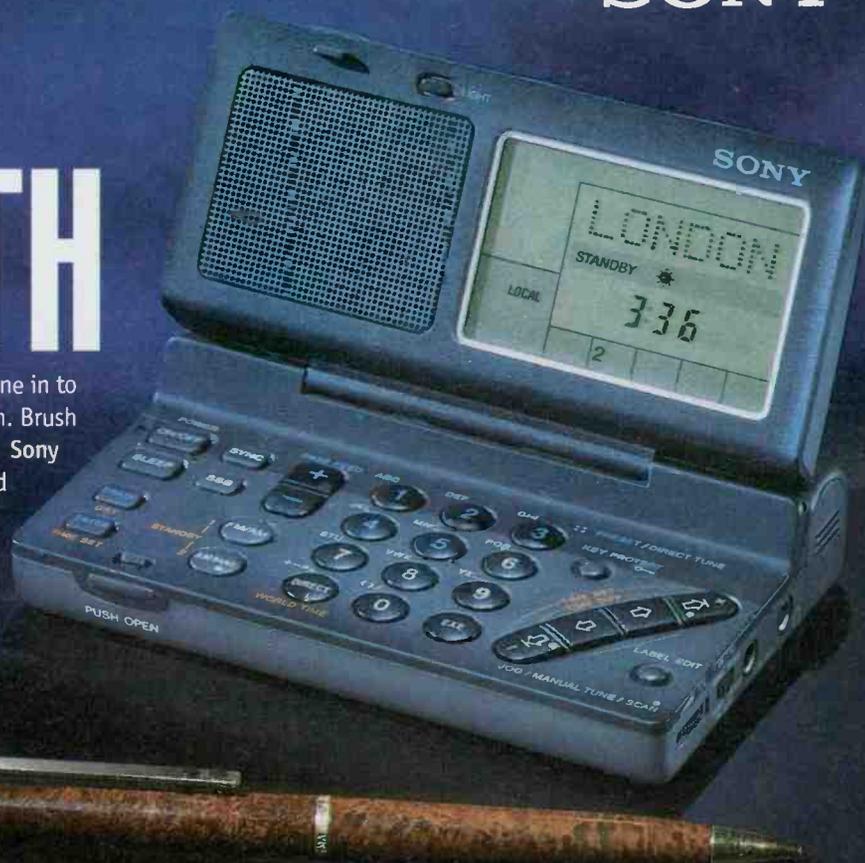
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SONY



Radio Resources

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Filters Can Improve Your Scanning

Project finished! That roof-top, all-band scanner antenna is standing tall and absolutely straight. Your coax is LMR 400 for minimal losses on UHF and 800 MHz. Your brand new scanner will certainly pull in a lot more distant stations now that you have an outside antenna. Prior to the antenna project, the little scanner pull-up antenna could barely hear the National Weather Service transmitter 60 miles away.

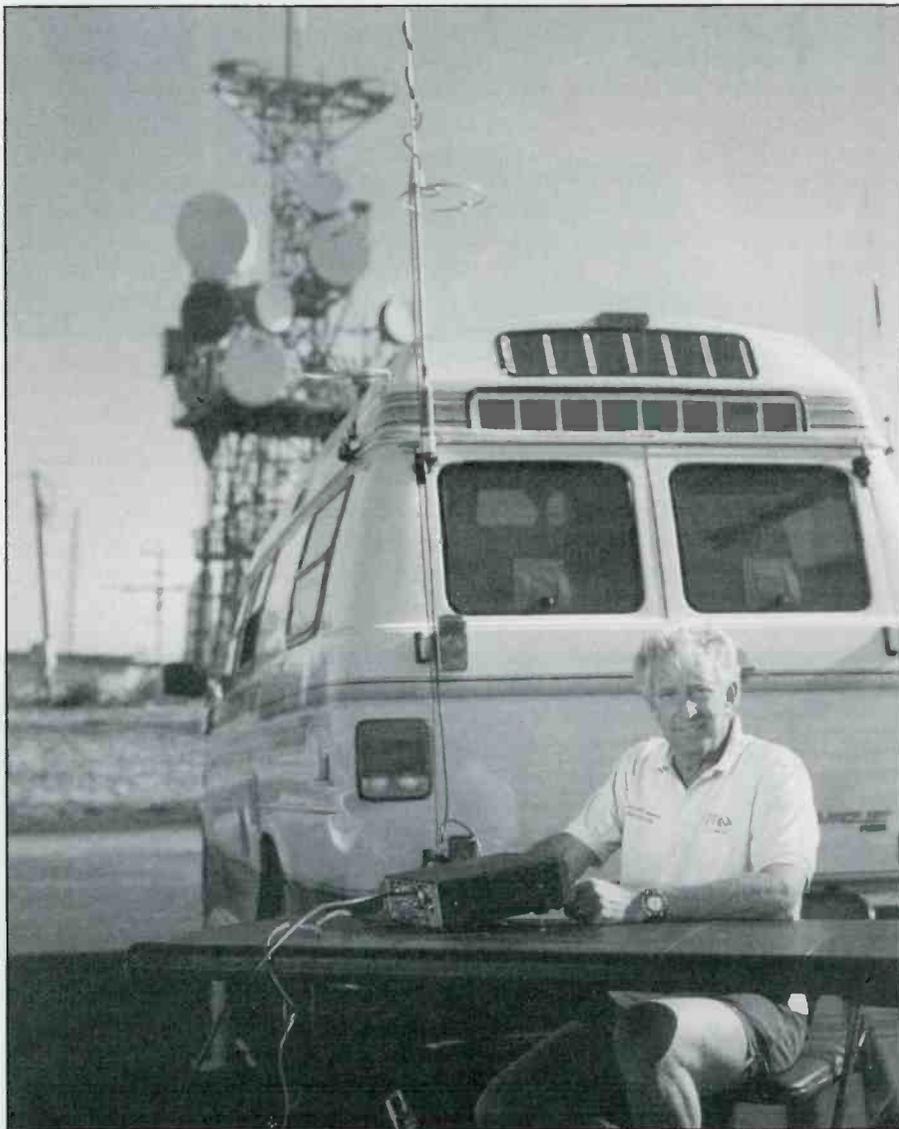
Now for the big moment: hit the power button and first start scanning low-band, 30 MHz to 50 MHz. Listen to those distant signals — you couldn't even hear the county low-band fire station on 46 MHz with your old little telescopic whip, and now the distant station comes in loud and clear, plus you can also pick up the fire engines, too. Absolutely marvelous! What an improvement!

Now you switch to the VHF high-band. Your scanner goes about two channels, and then locks up on paging tones. No problem. You probably just entered the wrong frequency. You hit lockout, and the scanner goes two more channels, and then locks up again on the same paging tones. You lock this channel out, and the problem continues to repeat itself, including squeaks, squawks, bee-bops, and just about everything else on almost every VHF channel you've programmed. Something's wrong here, but let's see what's happening up on UHF first before we tackle the problem.

You switch up to 460 MHz, and police and paramedics are stronger than ever, and no squeaks, squeals, or squawks. Everything is perfect. Now on to 856 MHz for some additional public service trunking. Just like UHF, reception is superb — light years better than what you were receiving with that little telescopic whip. In fact, on both 460 MHz and 856 MHz, you are picking up public safety calls from departments over 80 miles away. That new outside antenna is working better than you had anticipated!

What's Wrong On VHF?

Something's definitely really wrong here. Can you figure it out? Let's see...



Gordon tests a 154-MHz Par notch filter right under a powerful pager site near Los Angeles. The filter did its job well!

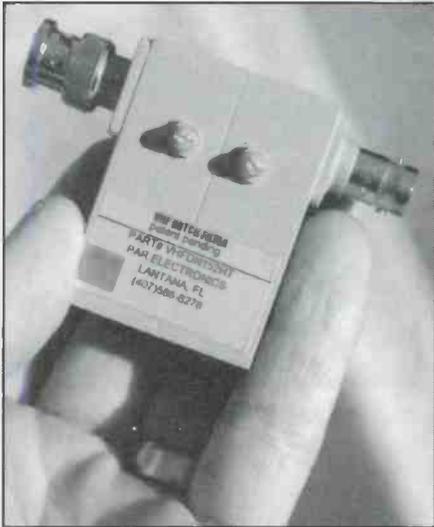
Q. What is the problem on the VHF band where local signals are covered up by pager tones?

- A. Desensitization**
- B. Microphonics**
- C. Poor receiver sensitivity**
- D. Front-end overload**

The problem is not Answer A, desensitization. This problem occurs when the signal you are listening to suddenly drops in intensity when someone in your radio room transmits on a handheld on a near-

by frequency. And the problem is not "microphonics" — this was a problem years ago when turning the volume up too loud on an old tube-type scanner would cause the signal to break up because of the speaker vibrating the elements inside the tube. And we know your problem is not poor receiver sensitivity because you are getting plenty of signals — it's just that VHF signals are covered up with pager tones.

The correct answer is front-end over-



This small Par Electronics notch filter fits directly on top of a handheld scanner.

load. That new scanner antenna, fed with low-loss coax is actually pulling in *too many* VHF signals, and the signal strength of all of the stations combined is so strong that your receiver is beginning to process undesirable signals as well as the desired frequency you have tuned.

Q. Since you're hearing multiple, unwanted phantom signals coming in, one on top of the other, what is a more precise term to describe this problem with your scanner receiver station?

- A. Splatter
- B. Harmonics
- C. Intermodulation interference
- D. Spurious emissions

Splatter occurs more on CB bands when a station that's one or two channels away turns their mic gain too high, causing signals to spread beyond their normal channel limits. And harmonics is probably not the culprit because you did your math and calculated multiples and halves on the VHF frequency you tuned in, and there are no transmitters in the 70-MHz to 90-MHz area sending out strong paging tones. The term "spurious emissions" might possibly apply here, but you know that the local city pager system is well maintained by land mobile radio experts with spectrum analyzers.

The problem is indeed intermodulation interference. "Intermod" is distortion that occurs in your scanner's RF amplifier when strong, non-linear signals mix with one another, creating phantom signals that ultimately come out of your squelch and speaker. Sometimes the intermodulation occurs at the distant land-mobile radio site. In this case, you'll pick up the same interference no matter what kind of

scanner receiver you have. But, more than likely, the intermod that you are experiencing on VHF high-band signals is a result of your scanner receiver being saturated by too many VHF signals covering up the desired frequency.

Q. What land-mobile radio service generally causes receiver overload from its powerful transmitters?

- A. Pagers
- B. Police
- C. Fire
- D. Taxi radio service

In major cities, most police and fire

departments have moved off of VHF and switched to UHF or 800-MHz public safety trunking. Transmissions from the few state police and rural fire departments which are still on VHF high-band wouldn't cause the tones you are hearing. And the intermodulation tones you are hearing don't sound like a taxi dispatcher, do they?

Chances are you probably figured out that tones mean just one thing: pager transmitters. Land-mobile paging is a billion dollar industry. Just last year, it was estimated that there are more than 30 mil-



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Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	41
27.165	1.50	40
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

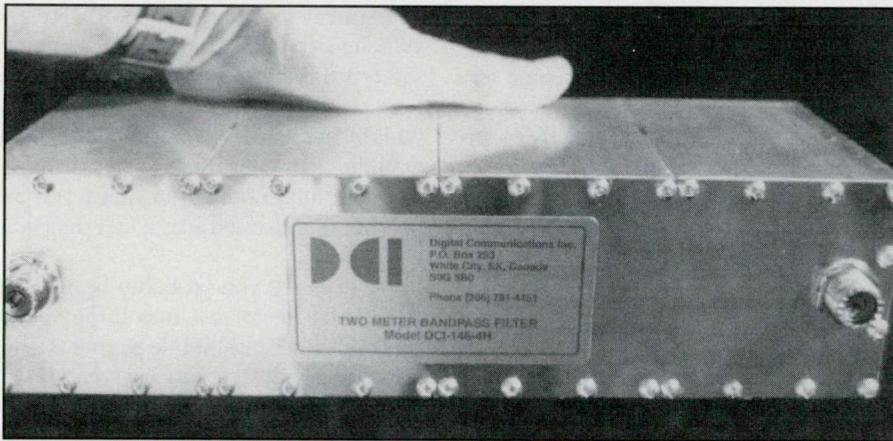
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K40**

Individual test results may vary upon actual use.

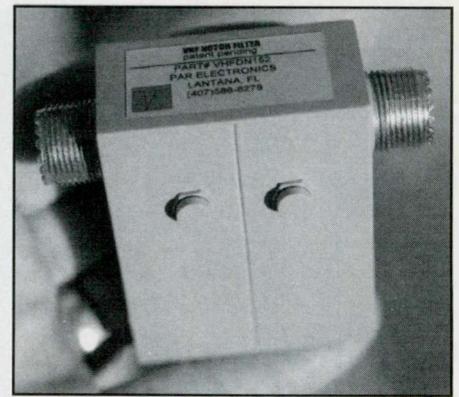
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A Digital Communications 4-MHz-wide bandpass filter.



This Par mobile notch filter worked well in blocking 152-MHz pager signals.

lion paging subscribers, which is up almost 50 percent over the previous year. Now that satellites may interconnect paging transmitters throughout the country, many 1/2-kilowatt paging transmitters stay on the air continuously, sending out these powerful beeps, bops, tweets, and other tones that are overwhelming your scanner on VHF high-band.

Q. So it's the new national paging satellites that are overriding my receiver, direct from space?

A. Yes, it's interference direct from the satellites

B. No, because satellites don't transmit high-band

The satellites are only relaying pager data signals on microwaves. The satellites themselves don't cause the interference because they don't transmit on VHF high-band. Rather, the interference is coming directly from your local pager system located on a nearby hill or a nearby building top.

Q. What frequency would I tune to confirm that the local pager transmitter is creating the interference?

A. 156.800

B. 162.400

C. The 2-MHz segments between 152 MHz and 154 MHz

D. 172 MHz

The 156-MHz band is marine VHF. Mariners, too, are troubled by pager transmitters in downtown ports. In fact, along the Mississippi River and New Orleans to Baton Rouge, Louisiana, commercial boats are cautioned that local marine channels can experience intermodulation problems from high-power local pager transmitters.

The 172-MHz band is the beginning of television audio, so the correct answer is 152 to 154 MHz on 18 powerful pager channels. There are also a few paging frequencies located from 157.740 MHz to

158.700 MHz, but it's usually some of these pager channels from 152 to 154 MHz that create severe receiver problems.

Typical paging transmitters might run 200 watts into a 10-dB gain down-tilt VHF antenna overlooking a major metropolitan area. Two-hundred watts with a 10-dB gain antenna has an effective radiated power (ERP) of 2000 watts. At 10 miles away, the signal strength is more than capable of going into undesirable mixing within your scanner receiver. Now combine two different paging signals, and the result is two or more signals simultaneously coming in on the desired frequency that's 1 or 2 MHz away.

Finding The Frequencies

Identifying the offending frequencies requires you to go back to that small telescopic whip and scan the band for the sounds of the signal that you feel is interfering with what you normally tune in on your scanner. If the local pager site is close, you can also drive within a quarter-mile of the paging tower and use an Optoelectronics handheld receiver that will easily lock up on the strong signal. Here in southern California, I hook my Opto frequency counter up to an outside antenna, and with a pre-selector I can easily lock onto the powerful paging transmitters over 10 miles away! (A pre-selector allows the Optoelectronics counter to

zero-in on specific frequency bands so the counter does not lock up on local FM music stations.)

Q. What are some inexpensive ways to cut down on pager interference once I know the frequency?

A. Attenuators

B. Halfwave stubs

C. Quarter wavelength stubs

D. You must live with it

No, you don't need to live with it! Your new, improved antenna system shouldn't give you headaches on the VHF high-band. Clicking on the attenuator will reduce *all* reception on that frequency. It may help, but you'll want to do it only on that specific frequency.

A good way to knock down specific frequency interference is with a 1/4-wavelength coax trap operated off a T-connector (in parallel) on the back of your scanner. You can use RG-58AU cable, or RG-8X cable — you don't have to use the big coax for a trap. The 1/4-wavelength coax stub is not shorted at the end, but rather left open. You can calculate the length in feet by the formula 234 divided by *f* (feet), multiplied by .66 (the usual velocity factor of coax cable). Example: A strong pager transmitter is knocking out fire reception on a desired frequency of 154.805. Using an Optoelectronics counter, plus your own receiver on the little antenna, you have determined that the pager is transmitting on 153 MHz. With a

Sources For Filters

Digital Communications, Inc., White City, Canada; 800-563-5351

Par Electronics, Lantana, Florida; 561-586-8278; Website: <<http://www.rf-filters.com>>

Sinclabs, Tonawanda, New York; 716-874-3682

TX RX Systems, Angola, New York; 716-549-4700

The ARRL Handbook, plus filter projects, Newington, Connecticut; 860-594-0200; Website: <<http://www.arrl.org/>>

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calculator, here are the steps in determining the 1/4-wavelength coax stub: $234 \div 153 = 1.5 \times 12 = 18.352$ inches. (We multiplied the 1.5 feet by 12 to convert feet to inches.) Now multiple 18.352 by .66, the velocity factor of the coax. Radio waves don't travel at the speed of light in coax. Answer: 12.1 inches.

I would start out with about 12 1/2 inches of coax, solder a PL-259 on the end of the coax, and then use a T-connector to parallel my regular coax run. I would then connect and disconnect the coax stub and see if it makes a difference. If it makes a

little difference, I would then start snipping a little bit of coax from the open end, making sure not to leave any dangling wires that could short out the open end. As I'm snipping, the interference might completely disappear. My 1-foot, 1/4-wavelength open stub has just notched out the offending frequency.

Q. Will cavity band-pass filters help?

A. Yes

B. No

C. Sometimes

Cavity filters are a good way to pass 2 to 4 MHz of band through to your receiv-

er while attenuating frequencies below and above the desired passband. But if you plan to do a lot of VHF monitoring, you may find that there are some juicy frequencies close to the pager transmitters that you would *like* to receive, but the cavity is not allowing that particular portion of the band to come through. Cavities are great in some applications, but not necessarily on target when you want to notch out a specific frequency.

A good solution is a *notch filter*. The notch filter is factory pre-tuned to the specific pager frequency you're troubled with. Or maybe it comes from the factory pre-tuned to the 2-MHz paging channels down at 152 to 154 MHz. A small filter, such as the Par VHF TN-152, may provide a notch depth of over 54 dB down, with almost no insertion loss on frequencies 1 MHz higher or lower. It will also allow all other bands to pass through the filter without any attenuation. This is important, because *all you're trying to do is take out one specific frequency on one specific band without affecting all the other frequencies on all the other bands that your scanner may tune.*

When you find pager signals on both portions of the VHF band (153 MHz and 158 MHz), you may need to go with the more elaborate triple cavity filter, such as the Par VHF TN-152-158. There's a 54-dB notch at 152.5 MHz, and at 158 MHz, a 35-dB notch, with almost no attenuation (less than 1/2 dB) to all other low-band, VHF, and UHF signals.

The ARRL Handbook and other ARRL publications also give you step-by-step instructions on how to "homebrew" your own notch filter or bandpass cavities with simple components. But you'll generally need some sophisticated test equipment to go with your project, which is why I recommend the inexpensive solution of 1/4-wavelength stubs or buying commercially available filters.

The newer scanners incorporate powerful receivers with some of the best sensitivity figures we've ever seen. But because these receivers must cover such a wide range of frequencies — literally hundreds of MHz — additional notch and passband filters may be needed to sort out unwanted powerful signals that may be broadcasting thousands of watts of ERP just a couple of miles away. It's simply too much for most scanners to handle without a little help. So check with the following manufacturers, and see what they offer to help you cancel out those offending signals on that new scanner tied into that incredible roof-top antenna. ■



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How I Got Started

Congratulations To J. Edward Bresal Of Michigan



James Edward Bresal of Michigan at his well-equipped monitoring post.

Bresal of Battle Creek, Michigan, says, "I always liked to listen to shortwave as a child. My first radio was one of the first Hallicrafters on the market. I would sit and listen for hours to it. My father was in the Army and ran a MARS station. I would go almost every day to listen to distant nets and hams talk on the expensive radio gear.

"I would get very excited. My own gear consists of a Yaesu FT-1000D, two Sony ICF2010s, an MFJ 462 Multi-Reader, Yaesu external speaker, RCI-2970, a Cobra CB, RadioShack PRO-2038, PRO-37, a Uniden 100-channel scanner, and Cobra handheld 40-channel CB. I still enjoy listening to shortwave today at 52 years old. I'm working on my ham ticket, and have been sick with diabetes, but am studying more.

"I enjoy all your magazines — *CQ*, *Pop'Comm*, and *CQ VHF*."

Editor's Note: James also sent along a clipping from his local newspaper, The Enquirer, which ran an article about James and our monitoring hobby. It's important to tell others about our radio hobby — why not contact your local newspaper and invite them to your shack? And don't forget to send us a copy of the article when it's published.

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 October Winner

Pop'Comm reader James Edward



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Table 1. HF Contests Beginners Will Enjoy

Month	Contest	Activity
March	ARRL DX Contest, SSB	W/VE stations work DXCC Countries
March	CQ WPX Contest, SSB	All stations work all others
June	ARRL Field Day	Mostly W/VE
July	IARU HF World Championship	All stations work all others
October	CQ Worldwide DX Contest, SSB	All stations work all others
November	ARRL Sweepstakes, SSB	W/VE stations work W/VE only
December	ARRL 10-Meter Contest	All stations work all others

“At first, the whole scene may seem overwhelming, but once you get your feet wet, you’ll get the hang of it in no time.”

Contest operating is fast and furious. Sometimes, thousands of signals from every corner of the globe are crowded into a relatively small part of the band. A typical SSB contest QSO may only last a few seconds. Ops stations exchange signal and location reports, and perhaps consecutive serial numbers or power-level identifiers. At first, the whole scene may seem overwhelming, but once you get your feet wet, you’ll get the hang of it in no time. Look at it this way: You could spend days looking for a Wyoming or New Hampshire contact to finish your Worked All States (WAS) award, or you could work them both in one afternoon in the ARRL Sweepstakes contest. The same thing holds true for DX contacts and DX awards. Contesters regularly work all 50 states and 100 or more DX countries in one weekend by participating in the right contest! Although you may not finish your certificate’s requirements in one sitting, you’ll probably be amazed at your progress.

Table 1 lists a few major contests that feature a lot of beginner participation. There are many more contests spread throughout the year. *CQ* and *QST* have monthly contesting columns, and many ham radio Web sites have contest listings (see <www.arrl.org/contests> and <www.contest.com> for starters). These are good places to look for up-to-date contest information. The *ARRL Operating Manual* has plenty of detailed information on the fine points of contesting. It’s a popular subject.

The extreme level of competition has driven some hams to erect gigantic

antenna arrays powered by rows of dedicated amplifiers and top-of-the-line transceivers. Fortunately, ham radio contesting is productive even with modest stations. That big-gun station in the South Pacific can pull your weaker signal through with ease. In that case, the contesters’ top-notch station is working for you, too! Don’t be afraid to enter the heat of the battle with only a transceiver and a simple antenna — the big-guns need you, and they have to listen for weak signals.

Can SWLs Participate?

SWLs can have a lot of fun in ham radio contests, too. I can’t think of any other time when there are so many signals emanating from exotic locations. In a big DX contest you can hear stations from every little nook and cranny on the globe — many you’ve probably never even heard of! Island countries that have no (or very few) international broadcast outlets often support furious ham radio contest activity. Many of these stations will send you a QSL card if you write to them and provide the details of one or more of their contest contacts. During SSB DX contests, listen from 28.3 to 28.7 MHz, 21.15 to 21.35 MHz, and 14.1 to 14.3 MHz during daylight and early evening hours, and 7.05 to 7.25 MHz and 3.75 to 3.85 MHz during late-night hours for contest activity.

The best way to get comfortable with ham radio contesting is to simply get your feet wet. Be careful, though. Contesting can be extremely addicting. If you’re like many hams, once you get started you won’t want to stop!

If you’d like me to cover your favorite ham radio topic in “The Ham Column,” write to me at *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. Why not send along your photo while you’re at it? See you next month!

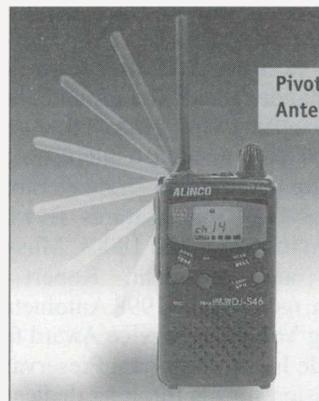
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DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Marconi Sparks "Steamy" Documentary

The New England Wireless & Steam Museum in East Greenwich, Rhode Island, was recently taken over by film crews from WGBH television for a PBS documentary about the role of wireless in the rescue of over 1,500 people from the sinking of the Cunard steamer *Republic* in January 1909. The ship collided with the steamer *Florida* in dense fog. Mock-ups of the *Republic's* wireless cabin before and after the collision were created for the documentary. And simulations of the 'Sconset, Nantucket station and others using authentic working Marconi equipment were filmed. It's expected that the documentary will be aired in January, 1999.

An original working spark gap transmitter was moved to the New England Wireless & Steam Museum from Point Judith, Rhode Island. The museum hosts a "Yankee Tune-Up" get-together every spring for radio amateurs and historians, along with a traditional "Yankee Steam-Up" every fall that features flywheel steam engines from the 1800s. Museum founder and president, Robert W. Merriam, received the 1998 Antoinette F. Downing Volunteer Service Award from the Rhode Island Historical Preservation Commission for his life-long dedication to the preservation of wireless and steam for future generations. Visit the museum's Website at users.ids.net/~newsm to learn more about the museum and coming events.

Broadcasting Over Troubled Waters

The Cold War between Cuba and the U.S. might be escalating, at least via the airwaves. Cuba has apparently signed on at 1700 kHz, perhaps in response to Spanish programming from Florida's WCMQ, also on 1700. Radio Habana Cuba broadcasts have been heard competing with WCMQ's 1000-watt nighttime signal. While the ongoing conflict between the VOA's Radio Marti in Florida and Cuba's Radio Rebelde (formerly Radio Taino) on 1180 kHz is per-

haps the most well known of the Cuba/U.S. radio wars, the battle hasn't been limited to the Sunshine State. A number of stations well to the north have registered complaints over the years about Cuban interference, including WHO Des Moines, Iowa, on 1040; KYW Philadelphia, Pennsylvania, on 1060; and WHAM Rochester, New York, on 1180. In some cases, the FCC allowed U.S. broadcasters to operate at higher power to compensate for Cuban interference.

And the battle isn't limited to AM either. Radio Rebelde is being heard on 96.7 FM in Florida as well. There are three national networks that broadcast on mediumwave from Cuba: Radio Progreso, Radio Rebelde, and Radio Reloj, along with a number of smaller regional networks. Even if you don't have a good command of Spanish, Radio Reloj is easy to identify with its continuous news, "RR" code IDs, and syncopated clock. Rebelde is also easily identified by matching broadcasts with 5025-kHz SW, or the 3000- and 3600-kHz harmonics of 600 kHz. Undoubtedly, there will be renewed complaints from U.S. broadcasters as increasing solar activity enhances tropical signals.

Winds Of Change In Chicago

There's plenty of radio activity in Chicago these days. To start, Disney and Radio Unica are making waves. Disney has acquired WMVP 1000 for its ESPN radio network, and WTAQ 1300 for the all-ears Radio Disney network. Disney initially expressed an interest in WYPA 820 for Mickey Mouse. But instead 820 was purchased by the Radio Unica Spanish-language network. WYPA's motivational talk moved to WNDZ 750, pushing the WNDZ gay/lesbian talk show to WSBC 1240. Radio Disney hopes to be on the air in every metropolitan area by next year, as children represent the fastest growing segment of consumer spending.

Meanwhile, Chicago FM and TV may

Cuban Networks And Frequencies Regularly Received In The U.S. And Canada

Cadena CMKS 1060, 1070

Dobleve 840

Radio Progreso 640, 660, 690, 730, 740, 880, 890, 900

Radio Rebelde 570, 580, 600, 620, 670, 710, 1180, 5025

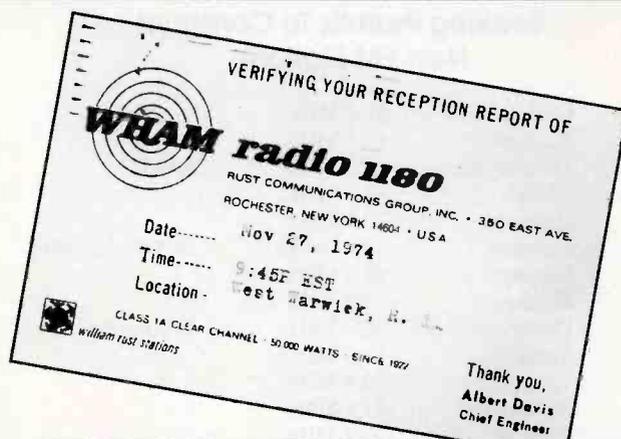
Radio Reloj 570, 760, 790, 860, 910, 930, 940, 960

Radio Victoria 1040, 1060

soon get a boost. A developer is considering construction of a new skyscraper with the hope of regaining the title of World's Tallest Building. A majority of the Windy City's FM and TV stations are crammed onto masts on the top of either the John Hancock Center or the Sears Tower, leaving no room for the addition of digital broadcast antennas. The Petronas Twin Towers in Kuala Lumpur, Malaysia, currently hold the title at 1,483 feet, with spires just barely nudging beyond the 1,450-foot Sears Tower rooftop. (Here's some more tower trivia: Toronto's CN Tower is the world's tallest freestanding communications tower at 1,815 feet, followed by the Ostankino TV tower in Moscow at 1,771 feet, and Malaysia's second tallest structure, the Kuala Lumpur Tower at 1,379 feet. In contrast, Seattle's Space Needle tops out at just 615 feet.)

More Broadcast News/Talk

The Catholic Radio Network has purchased 10 former Radio Aahs AM stations across the country. CRN is launching a 24-hour Catholic talk show network, debuting in Chicago, Dallas, Denver, Kansas City, Los Angeles, Milwaukee, Minneapolis, New York, and Philadelphia. The former Aahs station at 1660 kHz in Elizabeth, New Jersey, is now WBAH Radio Unica in Spanish.



Independence Mall East,
Philadelphia, Pa. 19106



In Australia, Sport 927 is expanding its services to fill gaps left by stations moving to FM. According to a report from David Onley in Australia, regarding reception of unidentified sports stations by Patrick Martin, Sport 927 has taken over the old 3BA Ballarat, Victoria transmitter on 1314. This is in addition to the recent takeover of 945 kHz in Bendigo. And the network recently bought a license in Shepparton, indicating that 1260 may be next. Sport 927 is also looking at obtaining a license for the Gippsland region.

Back here in the states, the FCC may not be ready to relocate from downtown Washington, D.C., to "The Portals," their new southwest D.C. office building, but they are moving toward modernizing their processes for paperwork reduction. For example, the FCC recently changed the rules for certification of personal computers and peripherals, no longer requiring an FCC ID number, thus eliminating fees and the typical six-week processing delay. Instead, the manufacturer self-certifies and provides a Declaration of Conformity. However, receivers and transmitters still require FCC certification. The FCC has also streamlined the process for requests and authorization of new or modified call letters, installing an on-line system to replace paper application forms.

Arnie Arnesen and Todd Feinburg, hosts of the "Morning Attitude" talk

show on 1590 WSMN Nashua, New Hampshire, have started a campaign to commemorate the late teacher-astronaut Christa McAuliffe on the new one-dollar coin to be issued by the U.S. Mint in 2000. WSMN is staging a coin design contest, from which the winning entry will be presented to the dollar coin advisory committee in Washington, D.C. WSMN recently changed from a music format to talk radio, carrying BNN programs and Bloomberg news. Like many stations along the East Coast, WSMN beams its signal over the Atlantic to protect stations to the west, and is therefore an easy target for DXers in Europe. In fact, it's probably easier to hear New Hampshire in Europe than it is for most DXers in North America.

X-Band Files

The flood gates are open on the AM expanded band, with a number of new stations signing on. Beginning in Wisconsin, two new stations are on the air. WTDY in Madison is finally on full-time at 1670 after a number of false starts due to flooding and technical difficulties. WKSH Sussex, Wisconsin, on 1640 has been on the air limited hours (6 a.m. to 10 p.m. Central Time, Monday to Saturday, and 6 a.m. to 8:30 p.m. on Sunday). Their 1370 is now off. WKSH only IDs at the top of the hour after USA network news.

KKJY Lake Oswego, Oregon, on 1640 experienced some problems getting started, as a filter capacitor in the 1330 multiplex blew up.

KGXL Costa Mesa, California, on 1650 received over 75 reception reports in their first days on the air; QSL cards are in the process of going out. They've since changed calls and format, and are now KKTR with 24-hour traffic reports. WMDM Lexington Park, Maryland, at 1690 is on the air carrying Art Bell's talk show overnight. KXOL Brigham City, Utah, on 1660 has been testing their multiplex with KSOS. And the Pennsylvania Department of Transportation's Highway Advisory Radio WQO740 Lehigh Park is being widely heard on 1630 with Route 22 construction info.

QSL Information

660 KZTU Junction City, OR, in seven days from Scott Thunder, Op. Director. Address: KZTU c/o KPAM, 10209 SE Division St. #100, Portland, OR 97266. (Martin)

1080 KOTK Portland, OR, verie letter in 245 days (!) from Bruce Agler-PD, along with a Dr. Toni Grant button. New address: 2000 SW First Avenue, Ste.300, Portland, OR 97201-5345. (Martin)

1593 3RG Melbourne, Australia, full-data card received in 17 days for taped report. Reports for this and other

Seeking Permits To Construct New FM Stations

AK	Girdwood	88.9 MHz	
AK	Kasiloff	91.5 MHz	
AZ	Monroeville	88.9 MHz	50 kW
AZ	Globe	91.9 MHz	
AZ	Holbrook	90.3 MHz	
CA	Fremont	105.7 MHz	(KARA booster)
CO	Durango	89.3 MHz	
CO	Gypsum	91.3 MHz	
CO	Placerville	90.7 MHz	250 watts
CO	Sidney	91.3 MHz	
GA	Helen	89.9 MHz	
IA	Bettendorf	91.1 MHz	
IA	Creston	90.9 MHz	
IA	Marshalltown	88.7 MHz	
IL	New Berlin	88.9 MHz	6 kW
IL	Pengree Grove	88.5 MHz	
IL	Petersburg	88.1 MHz	
IL	Princeton	88.3 MHz	
IL	Sherman	88.9 MHz	500 watts
IL	Taylorville	88.9 MHz	1.5 kW
IN	Lowell	89.1 MHz	
IN	Ooltic	90.3 MHz	
IN	Plymouth	89.3 MHz	
RS	Emporia	89.7 MHz	
KY	Frankfort	88.3 MHz	
MD	Columbia	93.5 MHz	(DAB)
MI	Trout Lake	89.9 MHz	
MO	Cabool	89.9 MHz	
MO	Farmington	88.9 MHz	10 kW
MO	Poplar Bluff	88.7 MHz	50 kW
NC	Elizabeth City	88.3 MHz	50 kW
ND	Fargo	89.5 MHz	
NY	Beekman	88.3 MHz	
OH	Eden	88.7 MHz	
OK	Seminole	89.1 MHz	500 watts
NV	Lund	88.7 MHz	
OR	Bend	90.3 MHz	
OR	Bend	90.5 MHz	
OR	Cave Junction	88.7 MHz	1.5 kW
PA	Mufflin	88.5 MHz	
SD	Dell Rapids	95.7 MHz	
SD	Rapid City	90.3 MHz	
TX	Big Spring	89.3 MHz	
TX	Breckenridge	90.7 MHz	
TX	Bryan	91.9 MHz	
TX	Bushland	91.5 MHz	
UT	Logan	90.5 MHz	300 watts
VT	St. Johnsbury	88.5 MHz	
WI	Appleton	91.1 MHz	
WY	Laramie	90.1 MHz	
WY	Sheridan	88.7 MHz	500 watts

Granted Permits To Construct New FM Stations

AK	Anchorage	93.7 MHz	27 kW
AR	Lakeview	93.5 MHz	
CO	Canon City	89.1 MHz	
CO	Delta	103.3 MHz	
ID	Lewiston	105.1 MHz	500 watts
LA	Alexandria	106.9 MHz	
MN	Park Rapids	92.5 MHz	3.2 kW
MN	St. Joseph	99.9 MHz	
MN	Walker	101.9 MHz	6 kW

MO	Oterville	107.7 MHz	
TN	Bulls Gap	100.7 MHz	6 kW
VA	Deltaville	92.3 MHz	

Reinstated

WBTY	Homerville, GA	105.5 MHz	
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Cancelled Or Revoked

KFCC	Bay City, TX	1270 kHz	
KMBY	Capitola, CA	1540 kHz	
KNJP	Sargent, NE	92.1 MHz	100 kW

Changed AM Facilities

KYCY	San Francisco, CA	1550 kHz	Changed daytime power
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Requesting Changed FM Frequencies

KHBM-FM	Monticello, AR	93.5 MHz	Seeks 93.7 MHz
WXKZ-FM	Prestonsburg, KY	105.5 MHz	Seeks 105.3 MHz

Changed FM Facilities

KCKR	Waco, TX	95.5 MHz	Changed frequency
WFRQ	Collingwood, TN	94.9 MHz	Changed community
WLTS-FM	Kenner, LA	105.3 MHz	Changed community

New AM Call Letters Issued

KDIA	Vallejo, CA
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New AM Call Letters Rescinded

KBDB	Sparks, NV
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Pending AM Call Letter Changes

New	Old	
WIHM	WTIM	Taylorville, IL

Changed AM Call Letters

New	Old	
KANM	KBUL	Modesto, CA
KBME	KKBQ	Houston, TX
KBUL	KDWG	Billings, MT
KEZZ	KRKI	Estes Park, CO
KGNM	KEAN	Abilene, TX
KHCH	KYLR	Huntsville, TX
KNNT	KBAG	Farmington, NM
KXBT	KLQB	Oracle, AZ
KXOL	KBDF	Brigham City, UT
WAZY	WCFY	Lafayette, IN
WBUB	WOFR	Warren C. H., OH
WDRF	WJKI	Woodruff, SC
WJYT	WARA	Attleboro, MA
WOOM	WMPS	Millington, TN
WRNI	WRCP	Providence, RI
WSFN	WPIQ	Brunswick, GA
WTBC	WTNW	Tuscaloosa, AL

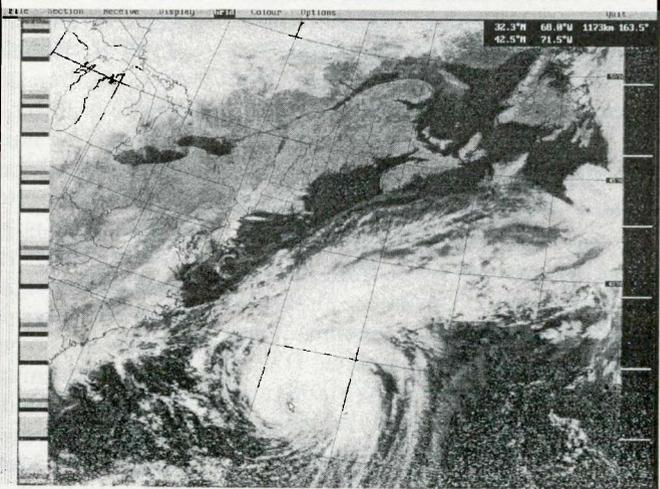
New FM Call Letters Issued

KBDJ	Ruston, LA
KBDO	Des Arc, LA
KBDQ	Owensville, MO
KBDS	Arvin, CA
KBDT	Oraibi, AZ
KBDU	Hayden, CO
KBDV	Houston, AK
KBEB	Hamilton, MT
KBED	Shreveport, LA
KBEF	Gibbsland, LA
KBOP-FM	Jordanton, TX
KBTL	El Dorado, KS
KBUW	Buffalo, WY
KCSX	Moberly, MO
KCWU	Ellensburg, WA
KDIA	Vallejo, CA
KDZY	McCall, ID
KEKO	Hebronville, TX
KGRI	Mt. Enterprise, TX
KHIM	Mangum, OK
KLSN	Santa Cruz, CA
KPFC	Callisburg, TX
KXEZ	Farmersville, TX
WAZM	Sturgeon Bay, WI
WAZN	Yankeetown, FL
WAZO	Shallotte, NC
WAZP	Cape Charles, VA
WAZV	Norwood, NY
WBGQ	Bulls Gap, TN
WCHK-FM	Talking Rock, GA
WGKL	Gladstone, MI
WPPD	Frederiksted, VI
WRKU	Forestville, WI
WRLU	Algoma, WI
WWRE	Lebanon, IN

Changed FM Call Letters

New	Old	
KALZ	KTHT	Fresno, CA
KBTE	KAJM	Rockport, TX
KDXT-FM	KMRT-FM	Granbury, TX
KIDX	KOOK-FM	Billings, MT
KIXD	KLQB	Oracle, AZ
KKER	KBBP	Kerrville, TX
KMVK	KBOK-FM	Malvern, AR
KNCW	KOMW-FM	Omak, WA
KPTE	KWXA	Durango, CO
KQLI	WGEN-FM	DeWitt, IA
KRAR	KUUU	Brigham City, UT
KRKI	KEZZ	Estes Park, CO
KTHU	KAWF	Los Molinos, CA
KULL	KROW	Abilene, TX
KXTZ	KWBR	Pismo Beach, CA
KYAK	KTRQ	Quincy, WA
KZBE	KAVQ	Omak, WA
KZFX	KGDE	Lincoln, NE
WAYR-FM	WAQC	Brunswick, GA
WBIX	WNSR	New York, NY
WEMY	WGBW	Green Bay, WI
WKZW	WIZK-FM	Bay Springs, MS
WMPL-FM	WZRK	Hancock, MI
WQPC	WPRE-FM	Prairie du Chien, WI
WSNI	WAPU	Colfax, IL
WVKL	WVCL	Norfolk, VA
WWKR	WEWM	Pentwater, MI

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Italia stations should be sent to: John Wright, Unit 4, Kerrie Gesent, Peakhurst 2210 NSW. (Martin)

1650 KKTR Costa Mesa, CA (ex-KGXL), in 13 days, signed Elaine Hawkes, Assistant CE. Address: P.O. Box 250028, 1500 Cotner Avenue, Los Angeles, CA 90025. (Martin)

Broadcast Loggings

In this month's selected loggings, Patrick Martin checks in from Oregon with transpacific DX using the Drake R8 and a terminated Ewe antenna, Paul McDonough via Boston Area DXers (BADX) has the scoop on WMDM, and Maryanne Kehoe and Nicholas Pattison of Cumbre DX report the latest goings on in Cuba. All times are in UTC.

540 1XC Tauranga, New Zealand, very good and dominant with minister giving what sounded like a "Thought for the Day" at 1204, after a mention of Radio Rhema, this by far the stronger of all R. Rhema stations I hear. (Martin)

666 RFO Noumea, New Caledonia, fair with man in French at 1130, Tahiti was much stronger. (Martin) 675 3YA Christchurch, New Zealand, at 1222 good with national program parallel 2XA-1602. (Martin)

738 RFO Papeete, Tahiti, very good with woman and man in French. Later

excellent, especially after KCBS faded down at 1240. (Martin)

930 KYAK Yakima, WA (ex-KGER), noted still with religious programming, parallel KTBI-810, ID at 2300. (Martin)

1180 R. Rebelde, Cuba, at 0430 a noticeable drop in power, often from an S5 to S3 or lower, and sometimes a low-grade buzzing noise that sounds like the old-style "cold war" jammers being tested. Has anyone else noticed this, and what do you think is going on? (Kehoe via Cumbre DX) Perhaps the 50-kW Villa Maria station signs off at 0430, leaving one of the lower power stations on 1180 in the clear. The buzzing might be from a defective transmitter. R. Progreso on 690 carried a loud wide-band buzz for many years before being repaired. (Conti)

1629 3MM Melbourne, Australia, at 1219 good for the first time, Greek talk by man and woman, over a station off frequency producing a het, didn't seem parallel to 1665. (Martin)

1670 WTDY Madison, WI, fair signal over/under static crashes with talk, ID at 0600 "WTDY 1670 Madison" into network news. X-bander #10. (Martin)

1690 WMDM Lexington Park, MD at 0145 with a strong signal (S9+), Art Bell, and "Bay Talk 1690 WMDM AM, Lexington Park" ID. After news at 0200, "AM 1690 WMDM weather, where southern Maryland turns first for up-to-the-minute weather," and mention of up-

to-the-minute-weather on the Bay Net Website: <<http://www.thebaynet.com>>. Address: WPTX WMDM Patuxent Radio Partners, St. Andrews Church Road, Lexington Park. (McDonough via BADX) Heard at 0220 with ID, "You're listening to NASCAR racing on AM 920 WPTX." (Conti)

1700 Radio Habana Cuba, at 0405 with RHC news followed by Spotlight and Spanish music, parallel 6000 and 9280 kHz. (Pattison via Cumbre DX)

Reader Mail

Bob Dangle asks if there's anything available that's comparable to the old *White's Radio Log*. Unfortunately, I'm not aware of any direct replacement for White's log. But there are two publications that come pretty close. *Radio on the Road: The Traveler's Companion* by W. Hutchings lists AM, FM, and TV for the U.S. and Canada by state, city, and station format. And *Highway Radio* by W. J. Stank provides maps indicating AM and FM, city of license locations, along with AM, FM, and TV listings. These are two good publications for travelers and beginning DXers.

For the serious broadcast DXer, I recommend the following two publications instead, although neither covers TV. *The National Radio Club AM Radio Log* lists all U.S. and Canada AM broadcast stations, including addresses, phone numbers, formats, and network affiliations. A revised edition is released every fall. *The FM Atlas* by Dr. Bruce Elving provides maps and listings by state and frequency for all FM stations in the U.S. and Canada, including low power translators. And don't forget the *WRTH* as an international broadcast reference. Any of these publications are available from Universal Radio and other mail order distributors. For more info about TV, check out the Ultimate TV Website at <<http://www.ultimate.tv.com>> which lists TV stations by state and provides mailing addresses and Website links. I hope that answers your question.

Thanks to Bob Dangle, William Hassig, Maryanne Kehoe (via Cumbre DX), Nile Kelly, Paul McDonough (via BADX), Patrick Martin, Nicholas Pattison (via Cumbre DX), Elmer Wallesen, and Kent Winrich. Autumn often provides some of the best transoceanic mediumwave DX conditions of the year. So, as Robert Merriam might say, "Keep the steam up and sparks crackling!" 73

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MFJ Antenna Matcher

MFJ-959B **\$99⁹⁵**

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

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload.

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, \$129.95.

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High-Gain Preselector

MFJ-1045C **\$69⁹⁵**

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, \$129.95.

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

MFJ-1214PC **\$149⁹⁵**

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

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 **\$39⁹⁵**

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 **\$99⁹⁵**

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

Easy-Up Antennas Book

How to MFJ-38 build and put **\$16⁹⁵** 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.

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. 5/4x2 1/2x5 1/4 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.

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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.

MFJ 12/24 Hour LCD Clocks

MFJ-107B **\$9⁹⁵**

MFJ-108B **\$19⁹⁵**

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 **\$59⁹⁵**

MFJ-1702C **\$21⁹⁵**

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.

World Band Radio Kit

MFJ-8100K **\$59⁹⁵ kit**

MFJ-8100W **\$79⁹⁵ 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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Technical Help: 601-323-0549

*1 year *No Matter What™* limited warranty *30 day money back guarantee (less s/h) on orders from MFJ

MFJ ENTERPRISES, INC.
 Box 494, Miss. State, MS 39762
 (601) 323-5869; 8-4:30 CST. Mon.-Fri.
 FAX: (601) 323-6551; Add s/h

Prices and specifications subject to change © 1998 MFJ Enterprises, Inc.

Pop'Comm's World Band Tuning Tips

October 1998

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	9810	Radio Budapest, Hungary		0230	4926	Radio San Miguel, Bolivia	SS
0000	9900	Radio Cairo, Egypt	AA	0230	7150	Radio Ukraine Int'l	
0000	11815	Radio Gaucha, Brazil	PP	0230	9605	Vatican Radio	FF
0000	11935	Radio Jordan	AA	0300	5975	BBC, via Antigua	
0000	5770	Radio Miskut, Nicaragua	SS	0300	9690	China Radio Int'l via Spain	
0000	9580	Radio Yugoslavia		0300	4980	Ecos del Torbes, Venezuela	SS
0030	7345	Radio Prague, Czech Republic	SS/EE	0300	9745	HCJB, Ecuador	
0030	6725	Radio Satellite, Peru	SSW	0300	3300	Radio Cultural, Guatemala	SS
0030	15395	Radio Thailand		0300	4755	Radio Educacao Rural, Brazil	PP
0030	12040	Radio Ukraine Int'l		0300	17825	Radio Japan	
0030	5950	Radio Vilnius, Lithuania, via Germany		0300	9345	Radio Prague, Czech Republic	
0030	9855	Radio Vilnius, Lithuania, via Germany		0300	4835	Radio Tezulutlan, Guatemala	SS
0030	7115	Radio Yugoslavia		0300	6260	Voice of Greece	Greek/EE
0030	6055	VOIRI, Iran		0300	9655	Voice of Turkey	
0050	6010	RAI, Italy		0300	17705	Voice of Turkey	
0100	3270	Namibia Broadcasting Corp.		0330	15635	Australian Defence Forces Radio	
0100	9580	Radio Budapest, Hungary		0330	9820	Far East Broadcasting Assn., Seychelles	various langs.
0100	11780	Radio Nacional do Amazonia, Brazil	PP	0330	11675	Radio Kuwait	AA
0100	9737	Radio Nacional, Paraguay	SS	0330	7500	Radio Moldova Int'l, via Romania	
0100	17675	Radio New Zealand Int'l		0330	9475	Radio Sweden	
0100	5637	Radio Peru	SS	0330	9490	Republi of Abkhazia Radio	local
0100	5930	Radio Slovakia Int'l, Slovak Rep.		0330	15615	Reshet Bet home service, Israel	HH
0100	11710	RAE, Argentina		0330	15400	UAE Radio, Dubai, UAE	
0100	9885	Swiss Radio Int'l		0330	7250	Voice of Vietnam, via Russia	
0130	17795	Radio Australia		0330	4828	Zimbabwe Broadcasting Corporation	
0130	7325	Radio Austria Int'l		0400	9730	China Radio Int'l, via French Guiana	
0130	6212	Radio Tirana, Albania		0400	4919	Radio Quito, Ecuador	SS
0130	7160	Radio Tirana, Albania		0400	6030	Radio Ukraine Int'l	
0200	5010	Esculas Radiofonicas Populares, Ecuador	SS	0400	9905	Swiss Radio Int'l, via French Guiana	
0200	4940	Radio Amazonas, Venezuela	SS	0400	6265	Zambia Nationala Broadcasting Corp	
0200	9645	Radio Bandeirantes, Brazil	PP	0430	6115	Radio Union, Peru	SS
0200	11720	Radio Bulgaria		0430	7130	Radio Yugoslavia	
0200	4885	Radio Clube do Para, Brazil	PP	0430	7415	Voice of America, via Botswana	
0200	5018	Radio Horizonte, Peru	SS	0500	5030	Adventist World Radio, Costa Rica	
0200	7465	Radio Norway Int'l	NN/EE	0500	5077	Caracol, Colombia	SS
0200	15170	Radio Tahiti	FF/TT	0500	9525	Channel Africa	
0200	13640	RDP, Portugal	PP	0500	9675	Channel Africa	Saturdays
0200	7450	Voice of Greece	GG/EE	0500	7645	Kol Israel	
0230	15140	HCJB, Ecuador	SS	0500	7520	Radio Bulgaria	
0230	9655	Radio Austria Int'l		0500	11900	Radio New Zealand	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0500	4770	Radio Nigeria, Kaduna	vern/EE	1300	11745	Radio Taipei Int'l	CC; via WYFR
0500	4850	RTV Cameroon	FF				
0500	7255	Voice of Nigeria		1330	11735	Radio Finland Int'l	
0530	11900	Channel Africa		1330	11690	Radio Jordan	
0600	5025	Radio Rebelde, Cuba	SS	1330	5930	Radio Netherlands via Russia	DD
0600	5047	RT Togolaise, Togo	FF	1330	13755	Radio Netherlands via Russia	DD
0600	12005	RTV Tunisienne, Tunisia	AA	1330	9840	Voice of Vietnam	//12020
0600	4800	XERTA, Mexico	SS, irregular	1400	6150	Adventist World Radio, Costa Rica	
0630	3290	Guyana Broadcasting Corp.		1400	11600	Far East Broadcasting Assn., Seychelles	
0630	6015	Radio Austria Int'l, via Canada		1400	21645	Radio France Int'l	SS
0630	4815	Radio Burkina, Burkina Faso	FF	1400	13580	Radio Prague, Czech Republic	
0630	11805	Radio Georgia, Georgia Rep.		1400	6160	Voice of America, via Philippines	
0640	9600	Voice of the Mediterranean, via Italy		1500	10330	All India Radio	Hindi
0700	6070	CFRX/CFRB, Canada		1500	9405	FEBC, Philippines	CC
0700	5100	Radio Liberia		1500	21551	Radio Vision Cristina, Chile	EE/SS
0700	11625	Radio Norway Int'l		1500	15255	Voice of America, via Greece	
0700	4783	RTV Malienne, Mali	FF	1600	9770	Radio Australia	
0800	5865	HCJB, Ecuador		1600	17620	Radio France Int'l, via French Guiana	FF
0800	11880	Radio Australia		1600	11570	Radio Pakistan	
0800	11785	Voice of Indonesia	II	1600	12125	Voice of Hope, via Georgia Republic	
0830	6155	Radio Austria Int'l		1630	11715	Radio Algiers Int'l, Algeria	EE, others
0900	4890	NBC, Papua New Guinea		1630	15340	Radio Denmark, via Norway	DD
0900	9580	Radio Australia		1630	11815	Radio Exterior de Espana	SS
0900	6185	Radio Educacion, Mexico	SS/EE	1630	13675	UAE Radio. Dubai, UAE	
0900	3220	Radio Tampa, Japan	JJ	1700	12135	Adventist World Radio, via S. Africa	Af. langs
0930	11635	Far East Broadcasting Corp., Philippines		1700	15084	VOIRI, Iran	Farsi
0930	9710	Radio Australia	Pidgin	1730	15475	Africa Number One, Gabon	FF
0930	6040	Radio Clube Paranaense, Brazil	PP	1730	15570	Vatican Radio	
0930	9700	Radio New Zealand		1800	11990	Radio Kuwait	
0930	4875	Radio Roraima, Brazil	PP	1800	9200	Republic of Sudan Radio	AA
1000	6130	CHNX, Canada		1800	15345	RTV Morocaine, Morocco	AA
1000	9795	Radio New Zealand		1800	11625	Vatican Radio	unk lang.
1000	4830	Radio Tachira, Venezuela	SS				
1000	6937	Yunan People's Bc Station, China	various langs.	1900	17830	BBC via Ascension	
1030	3280	La Voz del Napo, Ecuador	SS	1900	17860	Deutsche Welle, Germany, via Rwanda	GG
1030	4790	Radio Atlantida, Peru	SS	1900	13690	Merlin Network One, England	
1100	5055	Faro del Caribe, Costa Rica	SS	1900	15120	Voice of Nigeria	various langs.
1100	11660	KCBS, North Korea	KK				
1100	9385	KHBI, Saipan		1930	11402	Icelandic National Broadcasting Service	Icelandic
1100	5981	Radio Chasqui, Peru	SS	2000	17735	HCJB, Ecuador	
1100	7746	Radio Cristal, Peru	SS	2000	11715	Radio Algiers Int'l, Algeria	
1100	6120	Radio Japan, via Canada		2000	15160	Radio Algiers Int'l, Algeria	
1100	3325	Radio Maya Barillas, Guatemala	vern	2030	13715	Radio Havana Cuba	
1100	9540	Radio Nacional, Venezuela	SS	2030	15415	Radio Jamahiriya, Libya	AA
1100	3905	Radio New Ireland, PNG	Pidgin	2030	9770	UAE Radio. Dubai, UAE	
1100	5522	Radio Sudamerica, Peru	SS	2030	6285	Voice of Hope, via Georgia Republic	
1100	9865	Radio Sweden		2100	9855	Radio Kuwait	AA
1100	4960	Radio Vanuatu		2130	11680	BBC to Falklands	
1100	4887	Radio Vila Rica, Peru	SS variable	2130	17810	Deutsche Welle via Antigua	GG
1100	5020	Solomon Is. Broadcasting Corp.		2130	9785	Radio Bulgaria	
1130	9845	Voice of Russia	Mongolian	2130	9750	Radio Romania Int'l	
1200	9515	BBC via Canada	GG	2200	9950	All India Radio	
1200	9495	KWHR, Hawaii		2200	11830	Radio Anhanguera, Brazil	PP
1200	12085	Voice of Mongolia	EE/others	2200	15600	Radio Taipei Int'l, via WYFR	
1230	9640	Radio Canada Int'l		2200	7225	RTT, Tunisia	AA
1230	7130	Radio Taipei Int'l		2215	7105	Cyprus Broadcasting Corporation	weekends
1230	9810	Radio Thailand		2300	9725	Adventist World Radio, Costa Rica	
1300	11705	Radio Japan/NHK	JJ	2300	6135	Voice of Turkey	
1300	11815	Radio Polonia, Poland		2330	6980	Radio For Peace Int'l, Costa Rica	
1300	17745	Radio Romania Int'l					

Product Parade

BY HAROLD ORT
AND R.L. SLATTERY

REVIEW OF NEW, INTERESTING, AND USEFUL PRODUCTS

Davis Weather Stations Go Wireless

Davis Instruments, a leader in innovative weather monitoring technology, has introduced its new wireless weather stations: the Wireless Weather Monitor II® and the Wireless Weather Wizard III®. Each station comes completely pre-assembled, ready to mount on a roof or mast, and includes pre-mounted sensors, a radiation shield, and a weather-tight shelter. The SensorLink™ transmitter sends data to the included display module up to 400 feet away. You can add as many display modules as you need — all without running wires or cables.

The company also has introduced three radio transmission solutions that work with any Davis weather station: Spread-Spectrum Radio Modem, UHF Radio Modem, and Cellular Telephone Modem.

The radio options support a variety of transmission ranges and can transmit point-to-point or point-to-multi-point. If you don't have an external power source, add the Solar Power option. You can pair your choice of radio option with the company's Antenna/Installation kits.

Davis Instruments sells its products throughout the world, both directly and through its distributors. For more information and a free catalog, call 800-678-3669 or visit their Website at <<http://www.davisnet.com>>.

Oregon Scientific's Handheld All Hazards/Weather Alert Radio

Oregon Scientific has announced a new handheld receiver that's ideal for travel- and outdoor use. The compact

portable unit receives regional and localized warnings and severe weather and other emergency communications. Housed in a yellow, water-resistant plastic case, the receiver seeks all seven frequencies used by NOAA, finding the clearest signal and locking onto it.

In the event of special warning broadcasts, the receiver automatically sounds a loud alarm, flashes a red LED indicator, and turns on the radio's speaker. David Childers, the company's president says, "Oregon Scientific is very pleased to be advancing a technology that clearly has the potential to protect life and property." He continued, "Even a few extra minutes' warning about an approaching tornado or an accidental release of toxic fumes could save lives and avert greater disaster."

The radio includes a built-in analog compass, an ambient temperature display (with audible/visual Freeze Warning

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With the addition of AOR's SDU-5000 Spectrum Analyzer and this NEW Windows Software any radio that has a 10.7MHz IF output will give you full computer controllable spectrum analysis. Plus, with the listed radios below, you can have a complete computerized control of receive frequency, direct frequency readout, and a spectrum bandwidth (variable from 500KHz to 10 MHz).

Just use your mouse to "arm chair" the controls. Never touch the radio once the software is running.

Supports

- AR3000A, 5000
- R7000, R7100 ICOM
- Most ICOMs with 10.7MHz IF.

Features *indicates for above listed radios only

- Variable bandwidth, up to 10.7 MHz.
- Instant Readout of Frequency any place on the PC's Display.
- Instant change of center frequency with a simple mouse click.
- Save Spectrum data to disk. Playback of Recorded Spectrum data from disk.
- Signal Averaging, PLUS our exclusive "VARI-COLOR" Analysis.
- Variable Peak Readout.
- THREE different graphical analysis modes.
- Download our demo for test drive.

Minimum Requirements • IBM PC 8 meg ram. • Windows 3.1 or later. • 8 meg Hard Drive

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The ONLY Commercially Available Computer Control Program for the Universal M-7000 & M-8000. Also, AEA's PK-232 and the MFJ-1278

COPY-CAT PRO FEATURES

- 32K Incoming text buffer.
- Runs on any 640K PC-Compatible.
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- Multiple pop-up windows for HELP, frequency files, and text editor.
- Supports ALL SCANCAT files.
- Download our demo for test drive.

Discover our revolutionary COMPUTER CONTROL PROGRAM for the M-7000, M-8000, PK-232, and MFJ-1278. Let COPYCAT-PRO free you FOREVER from remembering all those buttons and keys. COPYCAT-PRO does it all. Simple "PULL-DOWN" menus control all functions. Fully editable text buffer, 20 PROGRAMMABLE "menus" and much more.

COPYCAT-PRO \$79.95, UPGRADES \$24.95 \$H \$5.00 (\$7.50 Foreign)
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TIRED OF YOUR HANDHELD SCANNER FALLING OVER?

Try our unique, swivel base, telescopic scanner antenna CAT-WHISKER lets you lay your handheld scanner on its back and still keep the antenna vertical!

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CAT-WHISKER #1 (5 to 23 Inches)...\$19.95
CAT-WHISKER #2 (6 to 36 Inches)...\$24.95
plus \$2.50 S & H

HOKA CODE-3 USA Version

"The Standard Against Which All Future Decoders Will Be Compared"

Many radio amateurs and SWLs are puzzled! Just what are all those strange signals you can hear but not identify on the Short Wave Bands? A few of them such as CW, RTTY, Packet and Amtor you'll know - but what about the many other signals?

There are some well known CW/RTTY Decoders but then there is CODE-3. It's up to you to make the choice, but it will be easy once you see CODE-3. CODE-3 has an exclusive auto-classification module that tells YOU what you're listening to AND automatically sets you up to start decoding. No other decoder can do this on ALL the modes listed below - and most more expensive decoders have no means of identifying ANY received signals! Why spend more money for other decoders with FEWER features? CODE-3 works on any IBM-compatible computer with MS-DOS with at least 640kb of RAM, and a CGA monitor. CODE-3 includes software, a complete audio to digital FSK converter with built-in 115V ac power supply, and a RS-232 cable, ready to use.

CODE-3 is the most sophisticated decoder available for ANY amount of money.

26 Modes included in PROFESSIONAL package include:

- Morse *
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- AX25 Packet *
- Facsimile all RPM (up to 16 gray shades at 1024 x 768 pixels) *
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- DUP-ARQ Artrac
- Twinplex
- ASCII *
- ARQ6-90/98
- SI-ARQ/ARQ-S
- SWED-ARQ-ARQ-SWE
- ARQ-E/ARQ1000 Duplex
- ARQ-N-ARQ1000 Duplex Variant
- ARQ-E3-CCIR519 Variant
- POL-ARQ 100 Baud
- Duplex ARQ
- TDM242/ARQ-M2/4-242
- TDM342/ARQ-M2/4
- FEC-A FEC100A/FEC101
- FEC-S * FEC1000 Simplex
- Sports info 300 baud ASCII
- Hellsreiber-Synch/Asynch *
- Sitor * RAW (Normal Sitor but without Synch.
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- Coquelet \$85.00
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CODE-3 - GOLD VHF/SW DECODER \$425.00 + S & H
Includes POCsag & ACARS Plus * Modes/Options
with ALL EXTRA MODES/OPTIONS \$595.00 + S & H

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888-722-6228

Alert when temperatures reach about 37°F. The digital display incorporates a clock with alarm and snooze feature. The unit has a belt clip and built-in desktop stand. It operates on three "AA" batteries (not included). The All Hazards/Weather Emergency Alert Monitor model WR-8000 has a suggested retail price of \$69.95.

The Portland-based Oregon Scientific is a marketer of innovative electronics products for home, business, and travel. These include weather forecasting and environmental monitoring instruments; travel alarms, clocks, and timers; databank organizers and electronic database products; and home, health, and convenience products. The company maintains a toll-free consumer



Oregon Scientific's handheld All Hazards/Weather Alert Radio is compact and loaded with neat features.

assistance number during Pacific Time business hours at 800-853-8883 to provide product information and the names of retailers and catalogs that sell their products.

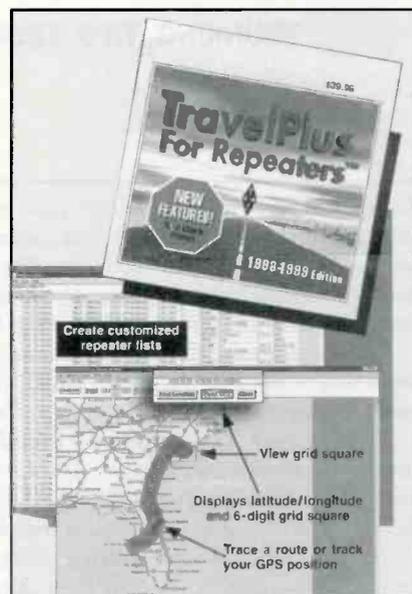
ARRL's TravelPlus For Repeaters

The new CD-ROM enables you to locate ham repeaters along your travel route and access repeater data in ways that you never thought possible. With TravelPlus you can trace a route and find all amateur repeaters within a specified range on whatever bands you select. You can identify repeaters within 500 miles of any location and change the ranges along your route.

You can also print map screens or repeater lists and modify column widths on repeater lists. You can plug in a GPS unit and track your current position, route, and grid square.

Additionally, you can customize repeater information for your needs. The database includes the entire ARRL VHF/UHF Repeater DataBase. The CD-ROM requires Microsoft Windows™.

TravelPlus 1998-1999 costs \$39.95 retail from the ARRL; Phone: 800-243-7767; Fax: 860-594-0303.



The ARRL's TravelPlus For Repeaters™ has two sets of maps; you can choose maps that display major highways and cities in the U.S. or Canada, or choose more detailed maps that add U.S. state highways.

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SCANCAT GOLD for Windows "SE"

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• ICOM IC-PCR1000
(incl. band scope)
• YAESU FT-847

Once you use SCANCAT with YOUR radio, you'll NEVER use your radio again WITHOUT SCANCAT!

SCANCAT supports almost ALL computer controlled radios by: AOR, DRAKE, KENWOOD, ICOM, YAESU and JRC (NFD) Plus PRO 2005/6/35/42 (with OS456/535), Lowe HF-150, and Watkins-Johnson

SCANCAT GOLD FOR WINDOWS "SE"

FEATURES

- Selective Sound Recording using PC-compatible sound card. "Point & Shoot" playback by individual hits.
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- Detailed logging to ASCII type files with DATE, TIME, Sig Str, Air Time.
- UNLIMITED file sizes with our exclusive SCANCAT filling method.

- Exclusive "MACRO" control by frequency of Dwell, Hang, Resume, Sig. Threshold and even 6 separate programmable, audible alarms.
- Command line options for TIMED ON/OFF (Unattended) logging/searches.
- Run as many as 6 different CI-V addressable radios as "Master/Slave."

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With Scancat Gold for Windows "SE", your spectrum never looked so good! Load virtually "any" database and Scancat "SE" will examine your database, plot each and every frequency, no matter what the range...and "paint" the entire analysis on your screen.

- By Signal Strength per frequency in a "histograph".
- By Signal Strength plotted in individual dots.
- By Number of hits per frequency in a "histograph".
- IF THAT ISN'T ENOUGH, try this... Multicolored, 3-D "Spatial/Landscape" (Depicted at left).

SCANCAT GOLD "SE".....\$159.95 + S & H*

UPGRADE SCANCAT GOLD FOR WINDOWS "SE".....\$59.95 + S & H*

*\$3 U.S. \$7.50 FOREIGN

SCANCAT'S WINDOWS FEATURES

- Unattended Logging of frequencies
- Scan Create Disk Files.
- Spectrum Analysis to Screen OR Printer.
- Supports PerCon, Mr. Scanner, and Betty Bearcat CD Roms.
- LINK up to 100 Disk files or ranges.
- Scan VHF & HF Icom's Simultaneously.
- MULTIPLE search filters for Diskfile Scanning.
- Search by CTCSS & DCS tones with OS456/535 or DC440 (ICOM only).
- INCLUDES several large shortwave and VHF/UHF databases

All the features you EXPECT from a true Windows application such as:

- UNIQUE database management system with moveable columns. Even SPLIT columns into doubles or triples for easy viewing of ALL important data on one screen.
- Exclusive "SLIDE RULE" tuner. Click or "skate" your mouse over our Slide-Tuner to change frequencies effortlessly! OR use our graphical tuning knob.
- VERSATILE "Functional" spectrum analysis. NOT just a "pretty face". Spectrum is held in memory for long term accumulation. Simply "mouse over" to read frequency of spectrum location. "CLICK" to immediately tune your receiver. You can even accumulate a spectrum from scanning DISKFILES of random frequencies!
- DIRECT scanning of most DBASE, FOXPRO, ACCESS, BTRIEVE files WITHOUT "importing".

SCANCAT GOLD FOR WINDOWS (NON-"SE").....\$99.95 + S & H*

UPGRADE.....\$29.95 + S & H*

*\$3 U.S. \$7.50 FOREIGN

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ScanVention!

Editor's Note: A couple of years ago, we promised you a new Pop'Comm with the goal of improving the quality and content of your magazine. Beginning this month, we've combined the old "Scanning The Globe" and "ScanTech" columns into one larger scanning column, penned by Ken Reiss. Look for new scanning topics you've asked about with a fresh outlook from Ken.

Ken was licensed as a ham in Canada, where he was living in the late '70s. Upon returning to the U.S., he had to retake the tests because there's no reciprocal agreement between the U.S. and Canada. He's currently an Advanced class ham.

It's been over 20 years since a friend was cleaning out his garage and gave him a very old shortwave receiver. Ken says, "... one thing led to another and pretty soon I was listening from DC to daylight." Listening has always remained his first hobby. Ken says his wife argues that his hobby is not radio listening, but rather radio collecting. She may have a point, as these days his job keeps him fairly well occupied evenings as well as days. Ken is a computer consultant, specializing in desktop publishing. He's also a licensed pilot. Besides his wife, his family consists of a teenage daughter, three cats, and a poodle. Ken says, "... life is never dull around here and locking myself in my office with several scanners and a shortwave receiver or two blaring is occasionally very calming."

Some of you may know Ken as <Armadillo1>, host of the weekly "ScanScene" conference on AOL. He continues, "We have a lot of fun, get answers to a few questions and occasionally learn something important. If you find yourself cruising AOL on Thursday nights, come join us from 9 to 11 p.m. Eastern Time."

So Harold (you know, the editor dude) calls me to rant and rave . . . er . . . to discuss some article or another I had written, and I happened to ask him if he was going to be in Dayton to suggest that maybe we could meet. He says, "sure sounds like a good idea." Then he asks why I'm trying to get in early to take pictures since, after all, it's not a scanner event. I'm not sure, but I think Harold was thinking that if I was lucky they would let us scanner people in at all (or maybe it's just me?), and I should consider myself lucky.

So I mentioned that I had this idea to do an article focusing on the convention from a scanner perspective. He says "Yes, we could do that, and maybe shortwave too . . ." His voice was rising all the way through the sentence, so I could tell he was warming up to the idea. "I'm glad I thought of it!" Right Harold . . . you're the editor. So here's Harold's article on the Dayton HamVention from a scanner enthusiast's standpoint.

And starting this month, "ScanTech" has expanded — kind of like its author. Wasn't it just last month that I was whin-

ing — commenting — about the limited amount of space that I have for this column? Well, ol' "Gee-I-don't-know" Harold has fixed that right up by expanding the column to double its previous size. We'll be covering all the same stuff that "ScanTech" always has, plus picking up

the more general scanner topics covered by "Scanning the Globe." Feel free to send your comments, questions, pictures, or suggestions to me.

**Dayton, Ohio —
May 14th, 1998**

There is nothing like this event for radio enthusiasts anywhere else in the world, and it all happens every year. It is the undisputed king of hamfests anywhere. But they will gladly let us scanner and shortwave listeners in, and you should go, at least once. Seeing the crowds of radio nuts (for some of them, the radio is purely an excuse) cramming the aisles, and the huge expanse of both new and used electronic equipment is simply beyond description.

So What's New For Us?

Lots! The first stop was the Opto-electronics booth to look at two new products that had been hinted at on the Internet just before the show. The Optotrakker, an external device that works with your ICOM, AOR 8000, or Optoscan radio provides tone control and Motorola and LTR trunk tracking with



The calm before the storm. Last minute preparations are made just before the doors open at 12 p.m. on Friday in the main arena at the Dayton HamVention. In just a few minutes, it would be difficult to walk through these same aisles.

the correct software. The only software shown at the show was a new version of ScanStar. Physically, the Optotrakker is built in the same case as the DC-440/442 series of tone decoders that has been around for some time, and, in fact, the unit can be used like a DC-442 for CTCSS, DCS, and DTMF decoding. The Optotrakker should be available by the time you read this.

The second exciting product from Optoelectronics is the new Optocom. This is a "black box" radio with just a volume and squelch knob on the front. The radio is intended to be completely computer controlled. In fact, it is an OS-535 interface at heart, with some special modifications for the new features. One thing the new radio can do is trunking of Motorola type I and II, and Johnson's LTR format. Once again, special software will be required to take full advantage of these features, and only the special version of ScanStar was shown at the show. All the existing Optoscan compatible software will work with the basic features. The Optocom should be close to release, if not available by now.

The really cool thing about both of these products is that they do not use the data channel to follow the trunking information, but rather rely on subaudible data that is carried on the voice channels. What this means for us is that you can track trunking systems with older radios (using the Optotrakker and any radio that it is compatible with, including all ICOM CI-V radios and the AOR AR-8000). Only one radio will be required to track a trunking system instead of the two-receiver method used by some systems in the past. And, probably more importantly, you can track a trunked system and scan conventional channels at the same time! Look for reviews of both these exciting products coming soon.

New AOR Handheld

Our next stop is at the EDCO booth for a look at some new and exciting products from AOR. The AR-8200 handheld will replace the famous AR-8000. This updated model is slightly smaller and offers a few new features that are not available on many other radios. One of the most exciting is that there is a slot on the bottom for optional "accessory cards" which can be used for all sorts of things. A CTCSS option was the most exciting as far as I was concerned, since we don't have too many handheld radios with that capability, but there are also cards promised for

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additional memories and other features. The only downside I could see to this expansion method is that there is only room for one card at a time.

Also from AOR is the new ARD-2 Acars/Navtex decoder and display unit. This stand-alone unit will decode both

modes when hooked to a receiver. It also features an RS-232 port for connection to the PC for capture of the data, or, if you prefer, the more comfortable viewing format offered by the PC screen. The decoder does have its own LCD two-line display for using the unit as a stand-alone,



The new Optotrakker from Optoelectronics is a version of the DC-442 tone reader that supports all the same modes plus both Johnson LTR and Motorola trunking! Shown on screen is a Motorola ID. With special software, your ICOM and AOR receivers will be able to trunk and scan conventional channels at the same time!



The other exciting product from Optoelectronics is the Optocom, a self-contained black box receiver. It too will follow Johnson LTR and Motorola Type I, II and III trunking with the included version of Trakkstar software from ScanStar. Another exciting feature is the ability to load 28 frequencies or one talk group ID to scan away from the computer.



Last minute preparations underway at Universal Radio's booth in the exhibition hall. Universal specializes in equipment and publications for the listener and was a popular spot with both shortwave and scanner enthusiasts. This picture was taken moments after the doors opened.

and can be operated off batteries for "in the field" reception. Connection to a receiver audio source is required.

Just briefly, for those who are unfamiliar with either mode, ACARS is the Aircraft Communications And Reporting System. It is used by almost all commercial flights in North America to automate the reporting of aircraft takeoff and landing, as well as information about the aircraft's systems while in flight. On larger planes, there is a keyboard/printer or screen in the cockpit which can be used to send plain text messages back to the aircraft's base of operations. The primary frequency for ACARS activity in North America is **131.550**.

Navtex is a contraction for Navigational Telex and is used by ships at sea for handling traffic and mail messages without the need for a human operator at the coastal station. Coast stations routinely broadcast lists of ships for which they have traffic, as well as weather and some other routine traffic. If a ship has a message waiting, it can log-in and retrieve that message from the mailbox of the coastal station. Primary frequencies for Navtex are **518** and **424 kHz**, so you'll need a communications receiver that can handle the low frequencies.

External Versions Of WinRadio

Another exciting product shown at the Hamvention is the external line of WinRadios. There will be two varieties,

a 1000e and a 1500e. In addition to helping with some of the interference problems associated with putting a radio receiver inside a PC, it will allow for the units to be used with a laptop computer on the go. To help facilitate this, there is even an optional battery pack which attaches underneath the unit and can provide operating power for several hours. (It will probably operate the radio longer than most laptop batteries will hold out.)

The main difference between the new models appears to be in the specs and filters, but both are housed in a small box that will sit outside the computer. The 1000 has frequency coverage from 500 kHz to 1.3 GHz. It features AM, FM Narrow and Wide, and an SSB/CW mode. The 1500 covers from 150 kHz to 1.5 GHz and features AM, FM Narrow and Wide, USB, LSB, and CW modes. The advantage of the 1500 manifests itself in the selectivity specs as 6 KHz for the SSB/CW mode on the 1000, while the 1500 claims 2.5 kHz in the SSB modes. No doubt this is reflecting the addition of filters to help with these commonly used shortwave modes. For scanner enthusiasts, there may not be much advantage to these enhancements, but the 1500 also claims to have better sensitivity in the VHF/UHF regions that most of us listen to.

Another interesting feature of both of the external units is the ability to control the receiver by standard serial port, and through a special jack intended for connection to a PCMCIA card in a laptop. While information on this card is not

available at this time, it appears that the implication is that this will enable significant speed enhancements for the laptop users. Both models support the digital suite enhancement software for FAX, Packet, ACARS, DTMF, CTCSS, and audio enhancements, making this a very versatile system indeed. This should prove to be an exciting development. For those who are interested, there will also be a model 1500I for internal mounting like the original WinRadio. Look for a full review on these units soon also!

Sony Scanner!

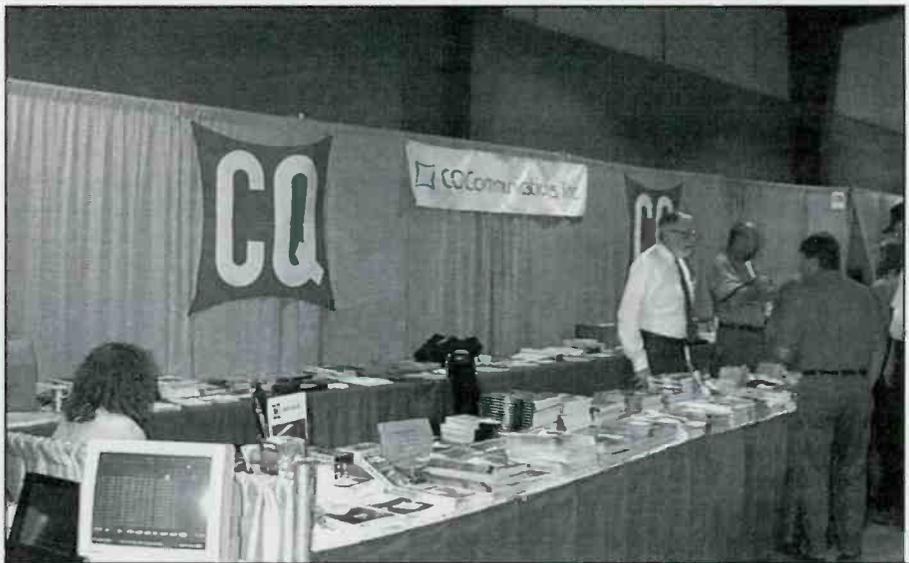
Also available at the show was the new Sony PC scanner. This is a handheld unit with 300 channels and marks two unique firsts. One, it's the first entry into the scanner market for Sony in quite some time. Secondly, it's their first computer interface, and I must admit that the software looks like it will cover everything. You can upload and download memories (Sony calls banks "Pages" like they do on their shortwave receivers) and you can control the unit directly from the computer. It appears at first glance like the software is really focused on searching and finding new frequencies (the radio is called "Wave Hawk," after all), but as a scanner it looks promising too. The software is, however, fully functional for upload/download of frequency data as well as computer-controlled operations. There is a full review of this unit in the works, so I won't comment any further.

ICOM Portable!

ICOM was showing the new R-2 hand-held receiver. Unfortunately, it was so crowded around the display that I did not get a chance to have a good look at this new compact unit. The most interesting feature is that there is no keypad on the front panel. No doubt, we'll be taking a closer look at this unit in the near future!

Also new, or at least relatively new from ICOM, is the addition of software for controlling the R-8500. The software ships with a cable so that you are ready to go with a direct connection to the receiver. It will allow for management of the radio's memories as well as control of the receiver if you like. It also adds a Band Scope feature very similar to the PCR-1000 software, although unlike the PCR-1000 bandscope, this one requires the radio to scan through the covered frequencies, charting the spectrum display as it goes. Clicking on a frequency will retune the receiver immediately to that frequency, so it may prove to be of some use in hunting for unknown signals.

Also of interest is that this software will allow scanning across multiple banks.

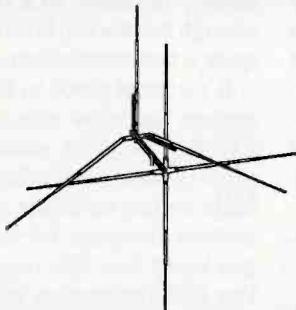


Hey... haven't I heard of these guys somewhere? Even though cleverly disguised as a ham booth, the CQ table was a place to find issues of Popular Communications and lots of other great information!

ICOM does not appear to want to do this in most of their radios, but this software allows the use of the SEL and SKIP functions across all of the banks in the receiver. (Wonder if the PCR-1000 software team knows about this?) By careful mem-

ory management, a number of combinations are possible, and make the radio much more versatile. Now, if they'll only fix the software on the PCR-1000 to do this! The RS-R8500 is available now at ICOM dealers nationwide, or available

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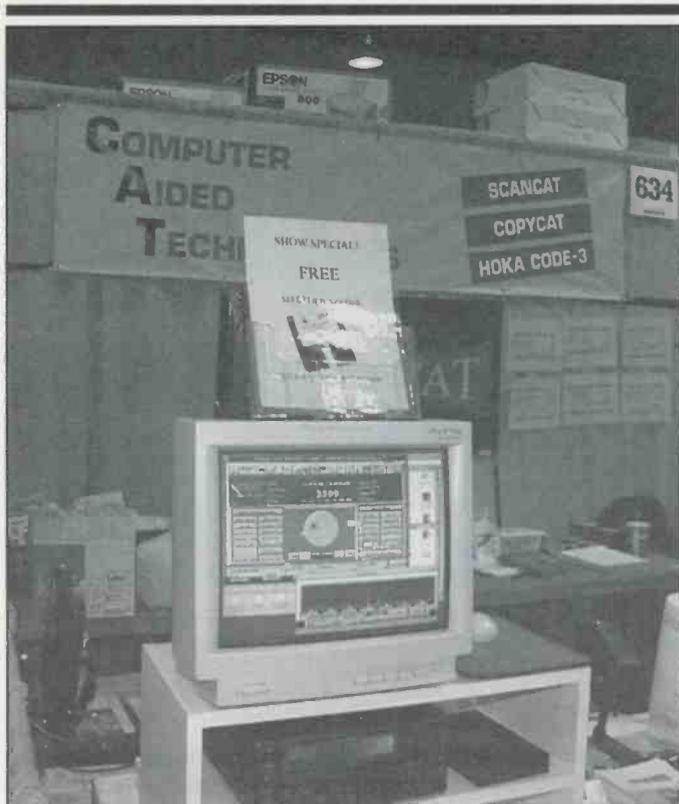
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Computer Aided Technologies was showing their latest version of ScanCat as well as a number of other products intended to support the radio listener from DC to Daylight!

The new WinRadio 1500 is another external computer-controlled radio that builds on the already established WinRadio line. Note the matching battery pack below the radio for completely portable use.



from ICOM in a special promotion for new purchasers of an ICR-8500.

Other Goodies!

Of course, the Dayton HamVention is mostly for hams, but if you think about it, they're doing the same stuff we are: playing radio. So it's a great place to find all sorts of accessory items, reference books and other things to help your radio hobby along.

Several vendors, including Universal Radio from Columbus, Ohio, Ham Station of Evansville, Indiana, and Grove Enterprises from Brasstown, North Carolina, cater to the listeners' market

more than most of the "ham only" vendors. I was pleased to see that they were present at the show with a wide variety of receivers, antennas, and supplies.

It was a great place to browse for books and reference materials as well. I picked up a copy of Fred Osterman's *Radio Receivers Past and Present* and found myself alternating between "Oh my gosh — I had forgotten that one" and "What the heck is that?" If you have any interest in shortwave receivers, this is a must-have book. (See, *I told you last month that Ken has been in the hobby for a looong time!* — Ed.)

While we're on shortwave for a minute, Japan Radio was showing the much-

anticipated NRD-545 receiver. It is supposed to be getting close to release in North America, pending FCC approval. One thing I did not know about this receiver is that in addition to being a great DSP shortwave set, it will have an optional VHF converter that will extend the frequency coverage to a full 2 GHz. With enough memories, this might prove to be quite a communications receiver!

It's a great place to find unusual connectors and other antenna requirements. Cellular Security group was showing some of their latest offerings for the 800-MHz region including a short 800-MHz antenna designed for handhelds. I'll let you know how that one works out when I've had time to play with it.

Many ham antennas work great as scanner antennas too, since they tend to be built for transmitting only a few MHz away from where we are trying to receive. My favorite antenna for base scanner use is a Comet Tri-band ham antenna, which I have connected to an R-8500. It works great, and offers considerable gain on most of the public safety frequencies that I listen to.

Also present were almost all of the FCC data vendors, or at least dealers carrying the product. Optoelectronics had a great deal on the Spectrum disk with FCC records for the entire country. Mr. Scanner was featuring their Mr. Scanner disk along with the Betty Bearcat collec-

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tion. There were also a couple of other collections available from various software vendors that I did not get a chance to look at. If you don't have one of these reference guides, you should. They contain a lot of raw data that is very helpful when trying to identify who might be on a particular frequency.

And last, but not least, the flea market is like none other. If you're looking for almost any imaginable type of electronic gear, or things to work on electronic gear, or connectors for electronic gear, or . . . well, you get the point. It runs for rows and rows around the outside of the arena. I don't know if I have ever completely walked through it, and I'm sure that I've never seen all that there was. It's overwhelming. Many commercial vendors who are unable to get space, or get as much space as they want inside also have flea market space, so even if you're not looking for used equipment, it's worth walking through.

So there you have it: the hamfest of the year from a listener's standpoint. If you've never attended one, you should try to find a smaller one — they're all smaller than Dayton — in your area, and go. They're a lot of fun, you can find great

things to enhance your hobby, and you might just develop an interest in getting your ham license. Most hamfests also offer testing sessions and can help you to get started, or find classes in your area if you need a little help. Either way, you'll have a great time!

Antenna Check!

Fall has arrived. And of course, you know what that means . . . the great pumpkin will be skimming over rooftops shortly creating never-ending sightings of UFOs and other controversy. Well, maybe he won't be sighted in your area, but you might want to have air traffic control and local police and sheriff frequencies handy for that night! The fire department would probably be worth including as well, just in case any little pumpkins catch on fire from the candles or overheated lights inside. And, of course, if you're out trick-or-treating with the little ones, take your scanner along. Why should they have all the fun?

The other thing that fall should signal is a reminder to check your antenna for stability and security for the upcoming cold months. If you haven't looked in the

last couple of years, it might be a good time to check. If it's been five years or more since you were last up there, there's a better than average chance that you could be due for some new coax, and at a minimum, the connections could use a good cleaning. Depending on the severity of the weather where you live, you may need to do this every year or two!

The first way to check is from the ground. Can you see any signs of loose connections or shaky mountings? If so, you definitely need to have a look. If the antenna's relatively new, that might be all you need to do. But if it's a little older, or if you want to be sure, it's probably worth a climb up to look at coax and other potential problem spots. The two leading problems with performance are corroded connections, and cracked or leaky coax.

Of course, I shouldn't have to say this, but I will anyway: **BE CAREFUL!** There is nothing like putting an antenna across a power line to pretty much spoil your whole day . . . or more. And it can happen so quickly if a wind gust or other unexpected change comes along suddenly. Please be extremely careful any time you are working with outdoor antennas! It's a wonderful idea to have a friend or

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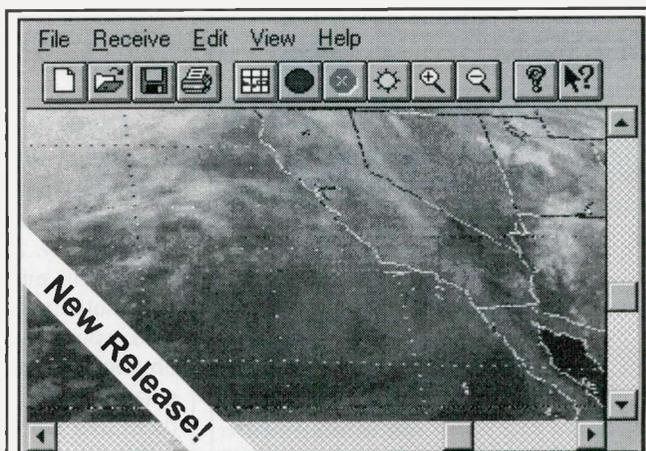
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FM/CEL-1 features include 6dB gain co-linear cellular antenna for maximum performance, Weatherband "TRAP" for AM/FM radios with Weatherband feature, 90° low loss RG-59/CU cable from antenna base to duplexer box, adjustable mounting base from 1/16" to 3/8" for metallic or composite vehicles, 3-foot RG-62 AM/FM cable with male Motorola plug and 3-foot RG-58/CU cellular cable with TNC connector.

NEW! INCEL-1

This 5dB gain cellular antenna is designed specifically to mount on the interior fiberglass wall of the RV with no holes to drill and all coax routing is internal. This flat antenna design measures 24" high, 1" wide, and 1/4" thick!

- 5dB Gain Co-Linear
- 17' RG-58/CU Coax w/TNC Connector
- Height: 24"

EVERHARDT ANTENNAS

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The new 8200 from AOR looks like another sure winner! Hopefully, it will be through FCC approval and available by the time you read this. Look for a full review soon!

two along to help. If you're not physically able or if you're unsure of what you are doing, find a friend or a local antenna company to do the work for you. While this hobby is a lot of fun, it is simply not worth an accident. Besides, I need all the readers I can get! Now I'll step down off my soapbox.

Check The Coax, Too!

If water gets into the feedline, your antenna's performance will drop quite dramatically. So have a look at places where you might have potential leaks, most notably, anyplace where the coax is held in place by something. Of course, the obvious one is the connection to the antenna itself, since there's a connector there that has the potential to cause all sorts of problems. But it's worth a look at the place where the coax enters the building also, to make sure that there hasn't been any accumulated wear from friction or other problems, including wild animal visits, using your coax as a teething tool.

It's also occasionally worthwhile to loosen the connections and check the condition of the connectors. Any connection that's left in the weather long enough will eventually show signs of corrosion, which can contribute greatly to reduced performance. Once in a while, I find that if I just replace the connectors and use a bit of steel wool on the antenna itself (the connector end), I'll notice considerable performance increases. Remember, now

is the time to check before there's too much snow and ice on the roof to get up there for a look.

Those of you with antennas in the attic are much less likely to have problems, but you should still check from time to time. Coax does still wear with changes in temperature and can become cracked or damaged. Connectors also corrode in the extremes of heat, humidity, and cold that are present in most attic systems. Using coax sealers in the attic can also prove to be a good idea.

Speaking Of Antennas

J. Darrell Gammon of Cary, North Carolina, writes in to tell us about an experimental antenna he's been using and having some luck with. Better let him tell you about it:

Since I had a couple of mag mount cell phone antennas available, I decided to try them out as a scanner antenna and see how they performed by adding a TNC-to-BNC adapter (RadioShack part number 278-244) to the TNC cable connector. I was very pleased at the performance of the antenna. I have one of them sitting on top of a four-drawer file cabinet (*a great groundplane*). — Ken) in my office and I carry the other one in my car in case I need it. The nice thing about these antennas is that they do not look like a scanner antenna and they can be purchased for as little as \$10. Performance was lacking somewhat on the low bands, but made up for it on the VHF, UHF and especially the 800 MHz band.

I'll bet it does. Sounds like a great antenna for a Trunktracker! I've also used a rubber duck antenna for 800 MHz on a Trunktracker handheld with great success. Mounting a mag mount on a filing cabinet makes an excellent indoor antenna system if you can't get one outdoors. Thanks for sending that in, Darrell!

Speaking Of Sending Things In (hint)

We're looking for your input too! If you have suggestions or questions you'd like to see explored in "ScanTech," please don't hesitate to write or E-mail. Also if you have pictures of your scanning shack, or other photos of interest to scanner listeners, (like radios, police and fire vehicles, etc.) please send them in. If you'll include an SASE, the pictures can be returned to you quickly! You can reach me at <armadillo1@aol.com>, or via good ol' fashioned mail at: Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Until next month, good listening!

Pop'Comm P.O.

LETTERS TO THE EDITOR

Each month, we select representative reader letters for our "Pop'Comm P.O." column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid E-mail address. Upon request, we will withhold a sender's name if the letter is used in "Pop'Comm P.O." Address letters to: Harold Ort, N2RLL, SSB-596, Editor, *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801-2909, or send E-mail via the Internet to <popularcom@aol.com>.

Everybody Loves Raymond?

Dear Editor:

This is a reply to the editorials in your "Tuning In" section. If I am an Old Codger, then you must be a Bimbo. The Old Codger says this: No upgrade, no license. No Morse Code, receiving and sending, no license. Quality, not quantity. Oh, look how fast the amateur radio family has grown — xxx numbers of no-code technicians. No code is not an entry-level to the hobby, Novice is at five wpm Morse code.

Old Codger asks Bimbo another one: Why give this large quantity of phone privileges in the 40-, 80-, and 160-meter bands? To make it worse, good buddy?

Old Codgers last question . . . Why is it, Bimbo, in order to obtain a driver's license you must pass the written AND driving exam? Oh well, he's close enough, pass him. You don't pass the code and written, you don't pass the written and driving, no license.

Driving is a privilege, not a right or grant. Amateur licensing is a grant, not a privilege or right. Both you earn and are not given.

Raymond Yakesh, WN3FUR
Arizona

Dear Raymond:

I'll bet all my radio equipment and coax that you didn't know that the amateur community has indeed grown, and it's because of the no-code tech folks. It's time to change and survive, not die.

Raymond, let's face the music: Like it or not, we're living in a different world than it was 10, 20, or 30 years ago. Fact

is, unless they're retired, most people hardly have time after they get home from work to eat, study, talk with the kids about their day, and hit the sack, ready to repeat the process the next day, let alone take 45 minutes to listen to and practice code. We've got all the tools to make our lives easier, more efficient, and less cumbersome, but somehow we've managed to find less time for personal "fun" endeavors like playing with our radios. Pulling folks away from the Internet, TV, and their fast-paced lives to learn Morse code would be like telling me I've got to go to Internet School to use the Web.

So here we are in the '90s, right on the steps of the millennium, and you're still holding onto that blasted key like it's the Holy Grail. Let's help change John Q. Public's perception of our hobby, and encourage those desiring to upgrade with something to work for, not be "given," as you've said in your letter.

And since you brought up the topic of driver's licensing being a privilege, not a right, I totally agree. As a matter of fact, with the hundreds of people dying every year on our nation's highways, as a driver with an impeccable record, I advocate a graduated licensing plan for new drivers, and annual vision and reaction-time testing for folks over 65. Holy cow, I can hear the grumbling now from both ends of the spectrum, and I'll bet my clean driver's license that you'd be singing a different tune and pleading with the motor vehicle department if this sort of testing becomes reality.

Oh well, he's only got five tickets for running the red lights and stop signs, and two for failure to yield the right-of-way, and, in order to let others live longer, we're taking away his privilege.

And The GOOD News

Dear Editor:

I've enclosed two local newspaper articles once again demonstrating that ordinary citizens using scanners can, and do help police in apprehending criminals; in this case, a stolen vehicle.

John Kozak, Ohio

Editor's Note: John's newspaper clipping from the March 14 edition of the

Sandusky Register (Ohio) was titled "Teens Lead High-Speed Chase From Sandusky" and said in part,

Two Ashland teens were arrested Friday after stealing a car in Sandusky and leading state troopers on a high-speed chase. . . Sandusky police notified area law enforcement agencies of the theft. About 10 minutes later, a Bay View resident who was listening to his police scanner reported to the Sandusky Post of the Ohio State Highway Patrol he saw the car getting gas at Holbrook Garage in Bay View. The driver of the car left without paying for the gas, heading south on Ohio 269 toward Ohio 2. At 10:56 a.m. Trooper Del-Rey Feagan saw the car heading west on Ohio 2. . . two state troopers and a Carroll Township officer chased the car at 100 mph to Ohio 105 where an Oak Harbor office(r) had put spikes across the road. The spikes deflated the car's right front tire and the car finally came to a stop. The 14-year-old driver and 16-year old passenger are being held in the Erie County Detention Facility on felony theft charges.

I spoke with Lieutenant Gabriel Ferencz, Post Commander of the Ohio State Highway Patrol in Sandusky who told me,

In this particular case, the caller listening on his scanner was an enormous help for us . . . we didn't know which direction the car was headed, or if the kids were taking it for a local joy ride, but because this person called in and gave us the direction the vehicle was going . . . we positioned troopers west of the location and spotted the vehicle.

The person did the right thing by calling it in . . . the timeliness of the call certainly helped — we appreciated it as we got the vehicle back to the owner and everything turned out OK.

We're also getting a lot more cooperation from the public now that cell phones are more popular. Just two years ago we averaged 80 cell calls on 911 monthly, this year we're averaging 350 a month. We're getting more people to help us in reporting crimes, drunk drivers, accidents, and even cases of road rage.

Our hats are off to the anonymous scanner user, and to John Kozak of Marblehead, Ohio, for sending in the news clippings. Speaking of news clippings, please know that we're grateful for all the news items everyone's sending to the magazine. While we can't acknowledge them all, they're sincerely appreciated! Keep sending them our way to Popular Communications, 25 Newbridge Road, Hicksville, NY 11801 ■

27-MHZ COMMUNICATIONS ACTIVITIES

Review-O-Rama — Cool Toys And Tools For CBers

Boy, there's nothing that will give a CBer a three-alarm heart attack like an equipment failure, or an apparent equipment failure. And there's nothing like information to cure it in a hurry. A case in point: The Elliott Clan was out mobile one day when I noticed a family stranded by the side of the road. I grabbed the microphone and gave a shout on Ch. 9 for a local base station to get them some help. There was no answer, so I shouted again, this time paying close attention to the modulation needle to make sure I was transmitting OK. The needle wasn't moving. Holy smokes, I thought, the rig has died. But it hadn't; I had fooled myself. I had been tweaking an antenna that day and had left the meter set on SWR, rather than "modulation." My "real" problem was lack of information about what was going on with the rig. And, unfortunately, most CBers will have the same problem with their transceivers. Why? Because most mobile rigs have tiny, multi-function meters, with settings for SWR, SWR calibration, and transmit and receive signal strength. You can operate only one of these functions at a time.

The ParaDynamics PDC600 Meter

Many base stations have two meters: usually one for transmit and receive signal strength and the other that is switchable between modulation and SWR. But still, there is no way to know the total status of your station at a glance.

Enter our first product for Review-O-Rama, the ParaDynamics PDC600 RF Power Scanner. This (HWD) 4 x 10 x 4.75-inch instrument houses three separate, easy-to-read meters: one for SWR, one for RF transmit power; and one for modulation. Key the mic, talk, and you can see instantly whether your SWR is OK, how much power you're putting out, and how much modulation you're making. Now, obviously, with an instrument this size, the primary application would be in a base station, whether you're using a base radio or a mobile connected to a power supply.



ParaDynamics' PDC600 RF Power Scanner is a multi-function meter that's a must-have for the serious CBer.

The PDC600 appears to be very well made, and it's really easy to use. Simply connect it between your transceiver and your antenna. To set up SWR measurement, place the SWR switch on the FWD position, key the transmitter, and rotate the SWR potentiometer until the meter reads in the SET position. Then change the switch to the REF position. Key the transmitter again, and you'll instantly read the SWR.

The middle meter reads transmitter power, and all you have to do is select from the 10-watt, 100-watt, or 1000 (ahem!)-watt scale. Finally, the set-up for the modulation meter is very similar to the SWR meter. Put the switch in the SET position, key the transmitter, and rotate the modulation potentiometer until you get the needle to the SET position. Put the switch in the MOD position, and you're now ready to read your modulation anytime you key up and talk.

Once set up, the PDC600 works exactly as advertised, providing a clear readout of your SWR, transmit power, and modulation anytime you key up and talk. I give this piece of gear my highest personal recommendation. Suggested retail price is \$149.95. For additional information, call Valor Enterprises at 1-800-543-2197.

FireStik's Potent Antennas

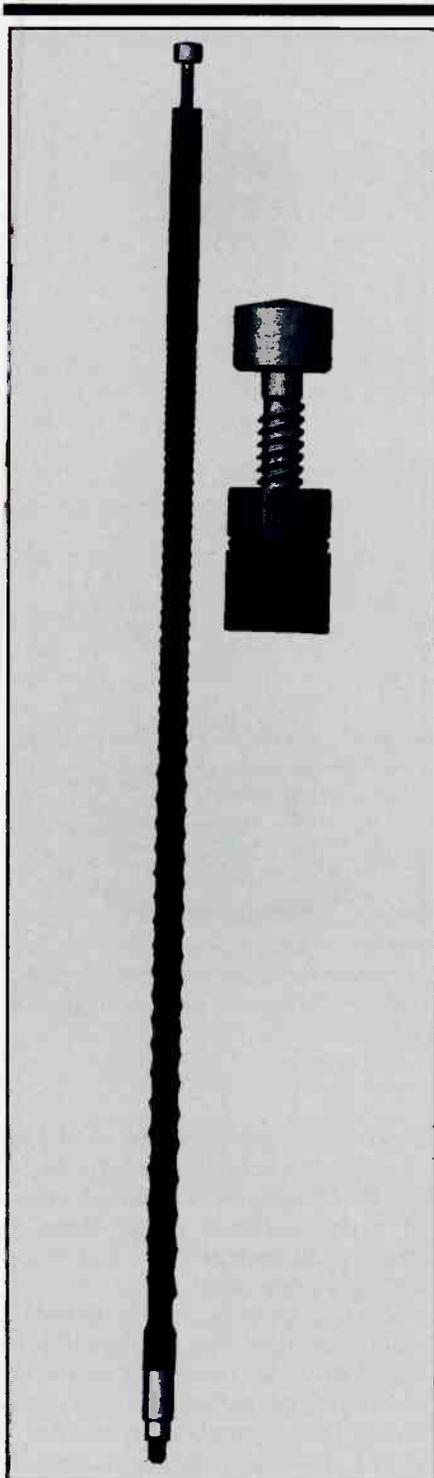
FireStik Antenna Company enjoys a well-deserved reputation for manufactur-

ing quality antennas. Travel down virtually any interstate highway and, within a few miles, you'll spot an 18-wheeler with a pair of FireStik antennas mounted on the mirrors. Clearly the pros count on FireStik for communications over the road. So when FireStik offered to send me a couple of antennas for hands-on testing, I jumped at the chance.

The first antenna that I tried was a three-foot FireStik with a magnetic mount and a stainless steel shock absorbing spring. The quality of this antenna was obvious the moment I laid eyes on it: a fiberglass rod, wrapped with wire, covered with a sturdy vinyl coating. At the top end is a removable plastic cap, underneath which is a tunable tip and locking nut. The other end of the "stik" screws into the stainless steel spring which, in turn, screws into the magnetic mount. FireStik recommends using a spring with every mobile antenna to absorb mechanical shock from striking objects and to even out the load on the magnet in gusty wind conditions.

Everywhere, attention to detail is evident. The mag mount has a thick Mylar disk on the bottom to protect the finish of a vehicle. The coax that comes with it has a neat molded terminator — no cheap crimp-ons here. The entire assembly looks like it is designed to out-last five lesser antennas.

Incidentally, although FireStik manufactures "stiks" in two-, three-, four-, five-



The FireStik II Tunable Tip antennas let you tune your system for maximum performance without cutting the antenna. The antenna's tip "fingertip-unscrews" and locks into place.

five-, and seven-foot lengths, Rick Vincent of FireStik specifically does NOT recommend using an antenna longer than three feet with the mag mount. A larger antenna is simply too prone to coming unstuck at speed when hit by a gust of wind, say, from a passing truck. If you



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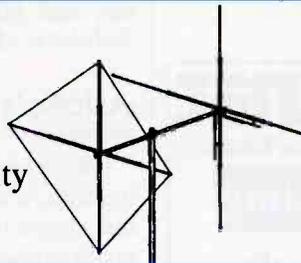
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NOTE! To prevent fatigue failure, no holes are made in any boom or element.

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Using a Quad reflector with a Yagi driven element, the Y-Quad combines the advantages of both designs to give the best performing lightweight antenna available, with switchable polarity. The Quad reflector assures low angle of radiation even at low heights for real long distance performance. The Quad reflector also gives excellent front to back ratio of 25-30 dB along with excellent forward gain. Stack with YQSK.

Y-Quad

Specifications:

Boom Length	6'
Boom OD	1.5"
Number Elements	4
Longest Radius	17.5'
Turn Radius	8'
Surface	
Area	2.7 (sq. ft.)
Wind Survival	90 mph
Tuning (MHz)	11
Gain	11 dB
VSWR	1.1 to 1
Power	
Multiplication	14X
Front-to-Back	
Separation	25-30 dB
Weight	15 lbs.

Call or write for free catalog and name of reseller near you.

CIRCLE 71 ON READER SERVICE CARD

want to use a bigger antenna, Vincent says to make sure it's hard mounted.

With other mag mount antennas, the usual tuning method is to check the SWR and then adjust the whip's position in the base of the mag mount. Sometimes you need to slide the whip out a bit, tighten the setscrew, and check the SWR. Other times, it's necessary to remove the whip entirely, cut a bit off the end, drop the whip back into the base, tighten the setscrew, and check the SWR again.

Tuning an antenna this way can be a time-consuming and laborious process. The worst part is that if you inadvertently trim too much off the whip, you're stuck. Not so with FireStik's "bare hand tunable" antennas. Just pop the antenna on top of the vehicle where you want it and connect it to your CB. Remove the red cap at the end of the antenna, and you have access to the tuning set-up. Check the SWR and then lengthen or shorten the antenna by turning the screw at the end of the stick, then cinching it in place with the locking nut. All you need is your fingers.

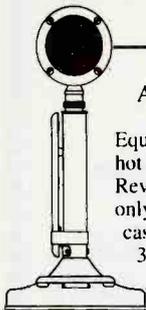
When I was tuning the test antenna on top of my van, the spring allowed me to bend the antenna over so I could easily

make the adjustment. The only tricky part is that when you put the red cap over the end of the antenna once again, the SWR may change. As a result, it's a trial-and-error process to get the SWR minimized over all 40 channels. Nevertheless, you don't need any tools to get the job done, and, if you inadvertently go too far in one direction or another, it's no big deal: just readjust the tunable tip. There's no such thing as cutting off too much, followed by "instant regrets."

This is one heck of an antenna. It offers first-rate performance and unmatched quality of construction, and I can heartily recommend it. Total suggested retail cost of the three-foot FireStik, stainless steel spring and magnetic mount with coax is \$63.97.

If you'd rather not go for a high-profile antenna, FireStik has a very attractive alternative: the DS11. This is a magnetic mount antenna that features 15 feet of coax. You get your choice of whips that you can use with this low-profile antenna: a straight whip or a cellular look-alike. This antenna does not feature bare hands tuning but is tuned in the usual way.

Even though the performance of the



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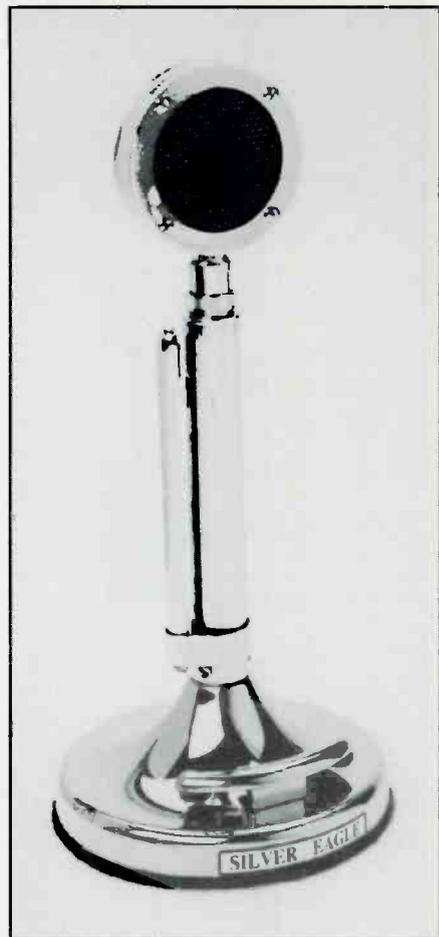
CIRCLE 66 ON READER SERVICE CARD

DS11 is not as high as the three-foot FireStik, this small antenna works surprisingly well. The DS11 is an excellent choice for the casual CBER who wants to be able to get the vehicle into the garage or other low-clearance locations without removing the antenna. Suggested retail price of the DS11 is \$34.99. It's also available in a hard-mount model (DS14, \$39.99) with a fold-down option that allows the antenna to lie flat. For additional information about FireStik antennas, call 802-273-7151 or visit their Website at <<http://www.firestik.com>>.

Astatic's Killer Microphones

If there is one thing CBers LOVE messing with, it's microphones. Tune around the channels virtually anywhere, and you'll hear a conversation that goes something like this: "How's this?" "It's pretty good." "OK, now I've changed microphones. How does that sound?" It goes on and on and on, and I'm as guilty as the next guy. It's just plain fun to mess with combinations of radios, microphones, and operating settings to see which one works the best.

So when a box arrived one day from Astatic containing three of their world-



Astatic's D104SE Silver Eagle microphone.

famous microphones, it was like Christmas. The first item to come out of the box was the 636L Noise Cancelling Dynamic Microphone. This is a noise-cancelling microphone designed for close talking handheld applications.

The frequency response of the 636L is tailored for maximum intelligibility and clarity in voice communications with a 360-degree minimization of background noise. This microphone is molded of black Cylolac with a steel grill screen and a vinyl lip guard that helps provide proper mic position.

No battery is required, yet this handheld microphone punches through noise with a great deal of authority. A thin, yet extremely rugged, microphone cord provides very long life. In fact, Astatic says their mic cord is tested to 10,000 flexes. In addition, a spring-like gizmo, called a "cable strain relief bushing," protects the mic cable against breakage where it enters the microphone housing.

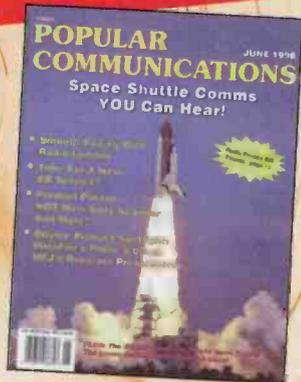
I tried this microphone, and I liked it a lot. It's handsome, rugged, and works

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The Astatic 636L handheld mic really punches through the noise.

well. It's a great choice if you're in the market for an unamplified hand mic. Suggested retail price of the 636L is \$49.

Next out of the box from Astatic was its top-of-the-line EchoMax 2000. This is a desk microphone with two different digital echo effects and two unique digitally generated end-of-transmission tones (otherwise known as a roger beep).

Now, as anyone who has read this column for a while knows, I'm not a huge fan of noise toys on microphones. But from my test, I can see there are a number of reasons why the EchoMax 2000 is an outstanding desk microphone.

First, the fit and finish are really good. Measuring about (HWD) 9 x 7.5 x 7 inches, this microphone is built with a quality look and feel that promise years of solid performance. Second, the microphone element itself offers excellent over-the-air audio quality that's very crisp and clean. I was also surprised to discover that the end-of-transmission signal did NOT overwhelm the microphone as it so often does on other microphones with these signals. As roger beeps go, the EchoMax 2000 does it with style.

But the very best feature of the EchoMax 2000 is that there is a headphone output jack on the back of the microphone, so you can monitor exactly

what kind of signal you are sending from the microphone to your CB transceiver.

When I first put the EchoMax 2000 on the air, I did what a lot of users would do: I just hooked it up without reading the instructions. I plugged in the headphones and gave a shout for a radio check. I heard a howling din in the headphones. I thought the headphone output wasn't working properly. But then the first breaker came back to me. "You're squealing like a pig," he said.

So I decided to read the instructions. Under "Read This First," it said, "The Echomax 2000 has more output than any CB mic you have ever owned! (We aren't kidding!) Do yourself and your neighbor's TV set a BIG favor and start with the master gain control on the back of the mic turned DOWN!"

I followed the instructions, and then I used the sliding microphone gain to set the level so that the VU meter did not exceed +3. Then I turned up the master output gain control on the back of the mic until I reached 100 percent modulation. The EchoMax 2000 sounded gorgeous in the headset, and I started getting complements over the air about my great audio. 'Nuff said: this is a great microphone. Suggested retail price is \$220.

The final microphone I tested from Astatic was that all-American classic, the D104SE Silver Eagle. When I pulled this 11-inch-tall beauty from its box, my wife commented, "It looks like an award." Indeed it does. The Silver Eagle really looks like the winner of the Academy Award for microphones.

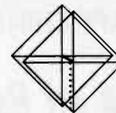
Built with all-metal brass and die-cast zinc construction, it's big, heavily chromed, and looks like something that Walter Winchell would have broadcast over. On the back of the microphone head is an engraved eagle. Just install a 9-V battery to power the two-stage amplifier, and you're ready to go. You can key this microphone by gripping the bar in the middle or by pushing a bar on the base. Either way, you get that famous D104 sound that's authoritative and distinctive. This is my favorite base microphone. Suggested retail price of the D104SE Silver Eagle is \$119.

I liked all of these Astatic microphones. For information about any of them, call Astatic at 440-593-1111. Tell 'em you saw it in *Pop'Comm*.

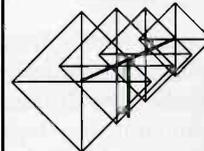
Till next time, keep those cards and letters coming (and don't forget your shack photos) or E-mail me at <lightkeeper@sprintmail.com>.

SE SIGNAL ENGINEERING'S High Performance CB & 10 Meter Antennas

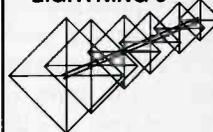
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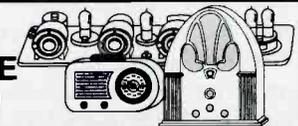
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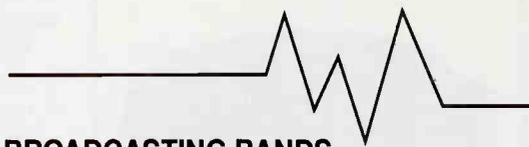
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The Listening Post

BY GERRY L. DEXTER



WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Cutbacks At Radio New Zealand International, And Herald Broadcasting Syndicate News

According to a news release from Adrian Sainsbury, Frequency Manager for Radio New Zealand International in Wellington, the New Zealand Ministry of Foreign Affairs has approved cutbacks in their programs and broadcasting output. Sainsbury said, "The reduction in service follows recent budget allocation which was down 13 percent from the previous year . . . the changes . . . will see RNZI's evening shortwave broadcasts being dropped and replaced by the domestic National Program." He continued,

Daily broadcasting output prepared for audiences in the South Pacific will be reduced from 11 to five hours. The station's personnel have been cut by a quarter, and it will in the future, be run by a staff filling nine full-time positions. The Chief Executive of Radio New Zealand, Sharon Crosbie, says she is sad and frustrated that RNZI will have to implement cutbacks to such a valuable service. She says RNZI's coverage of regional issues has contributed much to New Zealand's increased understanding of its part of the world.

Herald Broadcasting's SW Presence Dwindles

Herald Broadcasting Syndicate (the Christian Science people) has taken another step towards removing itself completely from owning and operating shortwave stations. A couple of years ago, the organization sold its original station, WCSN in Maine. The next to go was KHBI in Saipan, which has been picked up by Radio Free Asia, the U.S. government-funded broadcaster seeking to promote democracy in various Asian countries. RFA had been buying time on KHBI (as on other stations) to air up to 15 hours of programs daily. If things progress on schedule, the transfer of ownership will have already been accomplished by the time you read this. The FCC can move fast when it wants to! The KHBI facility includes two 100-kW transmitters. Herald Broadcasting will retain some air-



Adventist World Radio's Voice of Hope in Romania.

time on KHBI for its own programming. The sale price wasn't disclosed. For the time being, Herald Broadcasting will continue to operate and program its remaining station, WSHB in South Carolina, which beams to Eastern Europe, Africa, and South America.

The Dominican Republic station, **Radio Cima 100**, has returned to the air after being gone for about four years. It's operating on **4960** and should be audible in our evenings or early mornings.

The Costa Rica station mentioned last time, **Radio 88 Estereo**, is now operating on its assigned frequency of **6075**. This is a pretty messy frequency, so you may need to check it at different times during the evening and early morning hours, from about 1000.

You should also watch for the new religious broadcaster, **WWBS** in Georgia on **11905**, as well as **11910**. They've been slow getting everything together and ready to roll, but things may be operational by now, at least that's the plan.

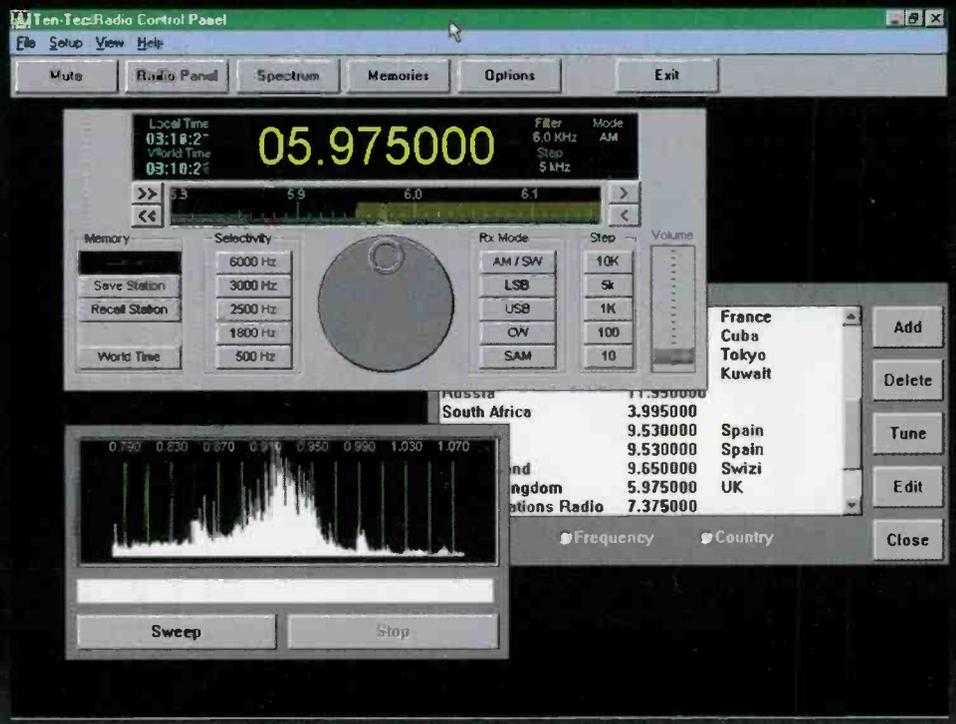
Also on the home front, Allan Weiner's shortwave station should have begun operating by now. **WBCQ**, using the slogan "The Planet," will initially operate on 7415, and should feature programming from a myriad of sources, including many pirate broadcasters.

One hears all sorts of things about Radio Australia's transmitter site at Darwin these days. One report has it scheduled to be sold (one report had it being sold for scrap!). Another says no decision has been made regarding the site's future. We've also heard that the facility is still tested fairly often, but, of course, no one has any way of knowing when or where these tests take place.

Remember that we always welcome your informational input. Log reports should be listed by country, double-spaced between items, and tagged with your last name and state abbreviation. Besides reports on what you're hearing, we're always in need of info about station address changes or QSL policies. In addition we especially need illustrative material — photographs of shortwave stations or personalities, photos of you and your shack (or, if you're the shy type, of just your shack), spare/sample QSL cards, station brochures, schedules, and any other informative or illustrative items you care to share.

Thanks so much for your continued interest in and support of "The Listening Post"! It's very much appreciated!

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



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Build in
8 hrs

1253.....\$59*

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25 hrs

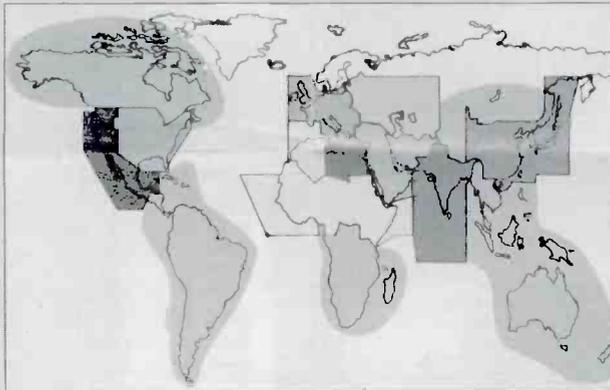
1254.....\$195*



FREQUENCY SCHEDULE FOR THE PERIOD J-1998
EFFECTIVE FROM 2/5/1998 TO 5/9/1998

جدول موجات إذاعة دولة الكويت عن فترة
يونيو ١٩٩٨ (١٩٩٨/٥/٢ - ١٩٩٨/٩/٥)

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منطقة التغطية TARGET AREA	نطاق (بالمتار) Metre Band	توقيت الكويت KLT																								
		05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05
		توقيت غرينتش UTC																								
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دليل البرامج
GUIDE TO PROGRAMME CODES

English Programme البرنامج الإنجليزي Main Arabic Programme البرنامج العام

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

Target areas and frequencies for Radio Kuwait.

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.

ALBANIA — Radio Tirana, **6212.34** (nominal 6220) at 0130 with EE sked, news, comments. Good, and //7159.9. (Alexander, PA)
ANTIGUA — Deutsche Welle relay, **17810** at 2143 in GG with classical music program, news, frequency info. (Jeffery, NY) BBC relay, **5975** at 0300 with news update. (Jeffery, NY)
ASCENSION ISLAND — BBC relay to Africa, **17830** at 2000 with "Newshour." (Jeffery, NY)
AUSTRALIA — Radio Australia, **9580** at 0827 with sports results. And **9710** at 0950 in Pidgin English. (Barton, AZ) **17795** at 0131 with program on American daytime TV talk shows. (Jeffery, NY) Australian Defense Forces Radio, **15635 USB** at 0330 with news, sports and U.S. pops. (Alexander, PA)
AUSTRIA — Radio Austria Int'l, **7325** at 0145 to 0200 close. (Austermiller, IN) **9655** at 0230 with talk on propaganda films. (Wallesen, IL)

BOLIVIA — Radio San Miguel, **4926.05**, 0250 to past 0330 in SS with talks, local pop-folk music. Drifting upwards slowly. (Alexander, PA)
BULGARIA — Radio Bulgaria, **9785** at 2150 to 2300 with discussion. (Bannar, FL)
CAMBODIA — National Radio of Cambodia. QSL received from Kem Yam, Dir. of International Relations noting that their transmitters are old and they have no spare parts so "the output power cannot reach the original level." Schedule (all on **11940**): English from 0000-0015 and 1200-1215, French 0015-0030, 1215-1230, Thai 0030-0045 and 1230-1245, Lao 0045-0100 and 1245-1300, and Vietnamese 0100-0115 and 1300-1315. (Silvi, OH)
CANADA — Radio Canada Int'l, **13760** at 0200 with talk of summer Olympics. (Wallesen, IL) **15305//17880** (//15365 and **17795** via Wooferton, UK) at 1500-1700 with special "lighthouse program" in FF. (Silvi, OH) BBC via Canada, **5965** at 1000, **9515** at 1257 and **15220** at 1515. (Jeffery, NY) Radio Japan via Canada, **5960** at 0332 in JJ. (Jeffery, NY)
CHILE — Voz Cristiana, **21549.94**, 1730 to past 2000. SS and EE IDs with mail and

E-mail addresses. Contemporary Christian music in SS. (Alexander, PA)
COSTA RICA — Adventist World Radio, **6150** at 1412. (Barton, AZ) RFPI, **7385** at 0149, **15050** at 2258 and 0156. (Jeffery, NY) **21460** at 1800. (Salzman, VA)
CUBA — Radio Havana Cuba, **6000** at 0324 with music, IS, ID, frequency info, and news update. Also **13715** at 2030 with IS, ID, news. (Jeffery, NY)
CZECH REPUBLIC — Radio Prague, **7345** at 0310. (Moser, IL)
ECUADOR — HCJB, **9745** at 0300. (Austermiller, IN) New **12015** at 0100 with news, ID, "Studio 9 tour." //9745. (Alexander, PA) **15140** at 0241 in SS and **17735** at 2012 in EE. (Jeffery, NY) Escuelas Radiofonicas Populares, **5010.34** at 0155 to 0224 close. Man and woman in SS, "... Radiofonicas." ID, Ecuadorian folk music and abrupt sign-off. (Alexander, PA)
EGYPT — Radio Cairo, **9900** at 0020 with male and female announcers. Mideast music, European news. Crowded out by Swiss Radio's IS at 0025. (Moser, IL)
ENGLAND — BBC, **11680** "Calling the Falklands" at 2128, beginning with IS. (Jeffery, NY) Merlin Network One, **13690** at 1915 with "Media Zoo." (Jeffery, NY) Voice of America relay. **15205** at 1500 sign-on. News, "All About English." (Jeffery, NY)
GABON — Africa Number One, **15475** at 1817 in FF with music program, news, sports news. (Jeffery, NY)
GERMANY — Deutsche Welle. **6200** at 0300 in GG. **Parallel 3995, 6075, 6100**. New frequency or another Sackville spur? Also heard tentatively at 0015 until covered by Prague sign-on at 0058. (Alexander, PA) And on **11765** at 0430. (Moser, IL)
GREECE — Voice of Greece, **7450** at 0306 with Greek talk and music. (Moser, IL) Voice of America relay. **9760** at 1423 with news. (Barton, AZ) **15225** at 1500 with ID, news. (Jeffery, NY)

Seldom-Seen Program Sked For Radio Damascus, Syria

First Period, Directed To Europe

2010 to 2105 GMT

Sat.	2030	Welcome To Syria
	2045	Arab Civilization
Sun.	2030	From Our Literature
	2045	Music From The Orient
Mon.	2030	Arab Profile
	2045	Palestine Talk
Tues.	2030	Syria & The World
	2045	Listeners Overseas
Wed.	2030	Around The World
	2045	Selected Readings
Thurs.	2030	From World Press
	2045	Reflections
Fri.	2030	Arab Newsweek
	2045	Cultural Magazine

Second Period, Directed To U.S., Canada, Japan, and Australia

2110 to 2210 GMT

2130	Human Rights
2145	Syria & The World
2130	Arab Profile
2145	Economic Affairs
2130	Camera & Masks
2145	Selected Readings
2130	Reflections
2145	Camera & Masks
2130	Listeners Overseas
2145	Palestine Talk
2130	From World Press
2145	Arab Women In Focus
2130	Arab Newsweek
2145	From Our Literature

GUYANA — Guyana Broadcasting Corp., **3289.85** at 0005 to past 0100 (ex-5950). Country-western, obits at 0032, phone talk, list of local events, personal messages. Again, and very good, at 0630 with BBC music request program and BBC news at 0700. (Alexander, PA)

HUNGARY — Radio Budapest, **9580** at 0100 with news about how the new government is doing. (Walleesen, IL)

INDIA — All India Radio, Thiruvananthapuram, **5010** heard at 0036 with news in EE to 0040, then sub-continental music. (Alexander, PA)

INDONESIA — The Voice of Indonesia, **11784.88**. Tuned in to 1-kHz tone around 0756, into ID and EE program at 0800. Quite good until 0824 when Radio Guaiba signed on with open carrier. The Indonesian still audible in USB until 0900 when the Brazilian began programming. (Quaglieri, NY)

IRAN — VOIRI, **6055** at 0030 with news in EE, commentary, local music. Weak, under Spain. //9022 and 9685. Not heard on **9650** despite earlier reports. (Alexander, PA)

ITALY — RAI, **6010** at 0100. (Austermiller, IN) Voice of the Mediterranean via RAI, **new 9600** at 0630 to 0700. EE sign-on with national anthem, IDs, "The Collector" program. Poor, with co-channel QRM from BBC. (Alexander, PA)

JAPAN — Radio Japan, **6120** (via Canada, Ed.) at 1130 in JJ/EE with "Japanese For Beginners." (Northrup, MO) **17825** at 0353 with mailbag. (Paszkwicz, WI)

MADAGASCAR — Adventist World Relay, **3215** (suppressed carrier USB) at 0300 to 0329 fair with WWCRC gone. Religious choral music, talk in Malagasy, IS at 0328 to sign-off. (Alexander, PA)

MEXICO — Radio Universidad, **6115** with

Latin pops heard at 0756. (Barton, AZ) (Not 6105? — Ed.)

MONGOLIA — Voice of Mongolia, **12085** at 1210 with IS, opening EE announcements with IDs, EE sked: 1210 on **12085**, 1430, 1830 on **9720** and **12085**. (Alexander, PA)

MOROCCO — Voice of America relay, **15410** at 1900 with news. (Jeffery, NY) RTV Moroccan, **15345** at 2101 with pop and Moroccan music. Off at 2102. (Moser, IL) 1750 to past 1928 in AA; mostly Mideast music. Per recent QSL received this is the Nador transmitter site. (Silvi, OH)

NETHERLANDS ANTILLES — Radio Netherlands Bonaire relay, **6165** at 2327 in EE with IS, ID, frequency info, news, weather, "Newline." (Jeffery, NY)

NEW ZEALAND — Radio New Zealand Int'l, **17675** at 2216 with weather for Cook Islands and Fiji. (Barton, AZ) 0121 with "Cadenza" program. (Jeffery, NY) Heard at 0200 with frequency announcement, news, ID. (Paszkwicz, WI)

NIGERIA — Voice of Nigeria, **7255** at 0501 sign-on, African music, disco. Also **15120** at 2040. QRM. (Moser, IL) 0625 with a mailbag program, ID, local folk music, time check, world news at 0630. //7255. (Alexander, PA)

NORTH KOREA — Radio Pyongyang, **7580** at 1135 with man and woman, music. (Northrup, MO)

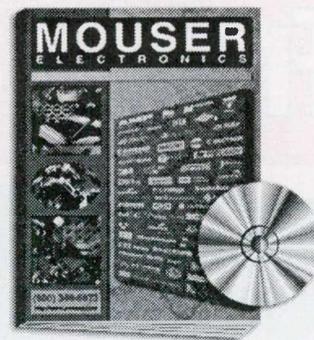
NORWAY — Radio Norway Int'l, **7465** at 0200 with EE ID. (Austermiller, IN)

OMAN — BBC relay, **15310** at 0300 with news. (Paszkwicz, WI)

PHILIPPINES — Voice of America relay, **6160** with news at 14045. (Barton, AZ) **15160** at 1411 with news. (Jeffery, NY)

PORTUGAL — Radio Portugal, **13640** in PP at 0220 with discussion, song. //13700. (Paszkwicz, WI)

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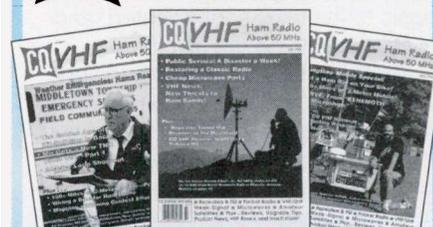
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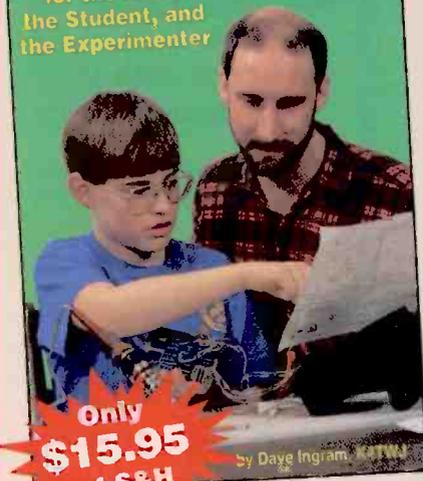
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Effective from 4 May to 25 October 1998

Frequency (kHz)	Band (m)	From UTC	To UTC	CIRAF Zones	Site	kW	From Date	To Date	Week Days	Mode of Operation	Language
5960	49	16:00	04:00	38E, 39, 40W	ÇAK	250	290398	251098		DSB	Turkish
5980	49	15:00	22:00	27, 28	EMR	500	290398	251098	1234567	DSB	Turkish
5980	49	22:00	04:00	18, 27, 28	ÇAK	500	290398	251098	1234567	DSB	Turkish
6130	49	16:00	16:30	29S, 30S, 40N	ÇAK	250	290398	251098	1234567	DSB	Georgian
6135	49	18:00	19:00	27S, 28S	EMR	250	290398	251098	1234567	DSB	Bosnian
7110	41	11:30	12:30	28SE	EMR	250	290398	251098	1234567	DSB	Bulgarian
7110	41	14:30	15:30	28S	EMR	250	290398	251098	1234567	DSB	Greek
7150	41	10:30	11:30	38, 39N	EMR	250	290398	251098	1234567	DSB	Greek
7160	41	16:30	17:00	27, 28	ÇAK	250	290398	251098	1234567	DSB	Macedonian
7175	41	19:30	20:30	37, 38, 46	EMR	500	290398	251098	1234567	DSB	French
7190	41	22:00	23:00	18S, 27, 28	EMR	500	290398	251098	1234567	DSB	English
7195	41	16:00	22:00	37, 38, 46	EMR	500	290398	251098	1234567	DSB	Turkish
7210	41	20:30	21:30	30S, 39-41, 49S, 54, 55, 58, 59	EMR	500	290398	251098	1234567	DSB	English
7270	41	03:00	04:00	38E, 39, 40W	EMR	500	290398	251098	1234567	DSB	English
9445	31	17:30	18:30	18, 27, 28	ÇAK	250	290398	251098	1234567	DSB	German
9445	31	18:30	19:30	18, 27, 28	ÇAK	250	290398	251098	1234567	DSB	English
9445	31	21:00	07:00	8, 9S, 11, 27, 28W	ÇAK	500	290398	251098	1234567	DSB	Turkish
9460	31	07:00	21:00	8N, 9S, 27, 28	ÇAK	500	290398	251098	1234567	DSB	Turkish
9460	31	21:00	07:00	18, 27, 28	ÇAK	250	290398	251098	1234567	DSB	Turkish
9515	31	14:00	16:00	38E, 39, 40W	ÇAK	250	290398	251098	1234567	DSB	Arabic
9540	31	04:00	07:00	27E, 28	ÇAK	500	290398	251098	1234567	DSB	Turkish
9540	31	16:00	22:00	18, 27, 28W	ÇAK	500	290398	251098	1234567	DSB	Turkish
9560	31	16:00	22:00	40, 41, 49, 54, 55, 58, 59	EMR	500	290398	251098	1234567	DSB	Turkish
9565	31	04:00	09:00	29S, 39NE, 40W	EMR	500	290398	251098	1234567	DSB	Turkish
9615	31	17:30	18:30	18, 27, 28	EMR	500	290398	251098	1234567	DSB	German
9630	31	09:30	10:30	28E	ÇAK	250	290398	251098	1234567	DSB	Rumanian
9655	31	03:00	04:00	3, 5, 6E, 7W, 10W, 18, 27N, 28N	EMR	500	290398	251098	1234567	DSB	English
9655	31	15:30	16:30	27, 28	EMR	250	290398	251098	1234567	DSB	Hungarian
9655	31	22:00	23:00	5, 8, 9, 18, 27	EMR	500	290398	251098	1234567	DSB	English
9675	31	17:00	18:00	19, 22, 29, 30N	EMR	500	290398	251098	1234567	DSB	Russian
9770	31	10:30	11:30	28S	ÇAK	250	290398	251098	1234567	DSB	Greek
11620	25	19:30	20:30	27, 28W	ÇAK	250	290398	251098	1234567	DSB	French
11765	25	18:30	19:30	18, 27W, 28	EMR	500	290398	251098	1234567	DSB	English
11765	25	19:30	20:30	27, 28W, 37N	EMR	500	290398	251098	1234567	DSB	French
11795	25	03:30	09:30	40W	ÇAK	250	290398	251098	1234567	DSB	Persian
11835	25	07:30	08:30	29SE, 30SW, 40NW	ÇAK	250	290398	251098	1234567	DSB	Azerbaijani
11865	25	14:00	15:00	29S, 30S, 39E, 40, 41N	EMR	500	290398	251098	1234567	DSB	Azerbaijani
11885	25	22:00	04:00	5, 8-11, 18, 27	EMR	500	290398	251098	1234567	DSB	Turkish
11910	25	11:30	12:30	28S	ÇAK	250	290398	251098	1234567	DSB	Albanian
11920	25	09:30	10:00	28	EMR	500	290398	251098	1234567	DSB	Croatian
11920	25	10:00	10:30	28	EMR	500	290398	251098	1234567	DSB	Serbian
11955	25	04:00	16:00	38E, 39, 40W, 48N	ÇAK	250	290398	251098	1234567	DSB	Turkish
11965	25	13:00	14:00	19, 20, 29, 30NW	EMR	500	290398	251098	1234567	DSB	Russian
11970	25	22:00	24:00	40, 41, 49, 54, 55, 58, 59	EMR	500	290398	251098	1234567	DSB	Turkish
11995	25	13:00	14:00	29SE, 39E, 40	ÇAK	250	290398	251098	1234567	DSB	Persian
13640	22	14:00	16:00	37, 38, 46N	EMR	500	290398	251098	1234567	DSB	Arabic
13655	22	12:00	16:00	40, 41N, 54, 55, 58N, 59N	EMR	500	290398	251098	1234567	DSB	Turkish
13660	22	24:00	03:00	40, 41, 54, 58W	EMR	500	290398	251098	1234567	DSB	Turkish
13665	22	16:30	17:00	29N, 30	EMR	250	290398	251098	1234567	DSB	Tatar
13710	22	09:00	11:00	38E	EMR	500	290398	251098	1234567	DSB	Arabic
13725	22	12:00	13:00	29S, 30S, 40, 41N	EMR	500	290398	251098	1234567	DSB	Urdu
13755	22	13:30	14:30	27, 28	EMR	500	290398	251098	1234567	DSB	German
13760	22	09:00	11:00	39	EMR	500	290398	251098	1234567	DSB	Arabic
15130	19	07:30	08:30	29SE, 30S, 40	EMR	500	290398	251098	1234567	DSB	Azerbaijani
15145	19	04:00	09:00	29S, 30S, 39N, 40, 41N	EMR	500	290398	251098	1234567	DSB	Turkish
15185	19	12:30	13:30	30S, 40-43, 49, 50, 54, 55N, 58N	EMR	500	290398	251098	1234567	DSB	English
15290	19	12:30	13:30	27, 28	EMR	500	290398	010899	1234567	DSB	English
15350	19	07:00	16:00	18, 27, 28	ÇAK	500	290398	251098	1234567	DSB	Turkish
15375	19	04:00	07:00	30S, 40W, 42	EMR	500	290398	251098	1234567	DSB	Turkish
15430	19	10:00	15:00	37E, 38	ÇAK	250	290398	251098	6	DSB	Turkish
17705	16	03:00	04:00	40E, 41N, 49, 58N	EMR	500	290398	251098	1234567	DSB	English
17705	16	08:30	09:30	40, 41N	EMR	250	290398	251098	1234567	DSB	Persian
17745	16	11:00	12:00	29S, 30S, 32S, 33S, 42-44	EMR	500	290398	251098	1234567	DSB	Chinese
17830	16	12:30	13:30	27, 28	EMR	500	020898	251098	1234567	DSB	English
21715	13	04:00	12:00	40E, 41E, 49W, 55N, 58N	EMR	500	290398	251098	1234567	DSB	Turkish

Here's a complete listing of all currently active shortwave frequencies for the Voice of Turkey/TRT. (Thanks to Jeff Muska)

ROMANIA — Radio Romania Int'l, 9750 at 2146 with "Letter Time." (Bannar, FL)

RUSSIA — Radio Netherlands via Kharbarovsk (presumed), 13755 from 1330 until lost under Deutsche Welle sign-on on 13750 at 1359. Dutch sounding announcer was weaker than music segments. (Silvi, OH)

SINGAPORE — BBC relay, 11955 at 2102. (Bannar, FL)

SLOVAK REPUBLIC — Radio Slovakia Int'l, 5930 at 0100 with address, times and frequencies. (Austermiller, IN)

SOUTH AFRICA — Channel Africa, 9525 at 0515 discussing immigration problem. 11900 at 0617, economic development in Africa. (Moser, IL)

SPAIN — Radio Exterior de Espana, 6055 at 0030 with weather forecast and Spanish music. (Austermiller, IN) 0518 with "Panorama." (Jeffery, NY) China Radio Int'l, relay, 9690 at 0300 with ID, news, commentary. (Jeffery, IN)

SWEDEN — Radio Sweden, 9475 heard at 0332, Volvo restructuring, strike in Denmark. (Moser, IL)

SWITZERLAND — Swiss Radio Int'l, 9885 at 0100 with talk about making the movie about climbing Mt. Everest. (Wallesen, IL) 9905 at 0115. (Austermiller, IN)

TAIWAN — Radio Taipei Int'l, via WYFR heard at 0311 with news, "Jade Bells and Bamboo Pipes." Also on 15600 via WYFR

ENGLISH ON RADIO AUSTRALIA - EFFECTIVE 20 APRIL 1998							
TIME-UT	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
0000	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
0005						Feedback	Oz Sounds
0010	Asia Pacific	Asia Pacific	Asia Pacific	Asia Pacific	Asia Pacific	Asia Pacific	Corres. Report
0030	Innovations	Arts Aust	Rural Reporter	Book Talk	Earthbeat	NEWS(5)	NEWS(5)
0100	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	Oz Sounds	Europeans
0105							
0110	Away	Science Show	National Interest	B ground Brief	Hindsight		
0130						Arts Aust	
0200	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
0205						Ockham's Razor	Fine Music
0210	The World Today	The World Today	The World Today	The World Today	The World Today		
0230						Health Report	Religion Report
0300	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
0305						Book Reading	Feedback
0310	Aust Talks Back	Aust Talks Back	Aust Talks Back	Aust Talks Back	Aust Talks Back		
0330						Rural Reporter	Corres. Report
0400	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
0405						Pacific Focus	Pacific Focus
0410	TWT (R)	TWT (R)	TWT (R)	TWT (R)	TWT (R)		
0430						Asia Pacific	Week's End
0500	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	Oz Sounds	NEWS(5)
0505							Oz Sounds
0510	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat		
0530	Sport	Sport	Sport	Sport	Sport	Sports Factor	Media Report
0600	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
0605						Feedback	Ockham's Razor
0610	Aust. Music	At Your Request	Blacktracker	Country Style	Music Deli		
0630	Sport	Sport	Sport	Sport	Sport	Arts Aust	Corr. Report
0640	Music Deli	Aust. Music	At Your Request	Blacktracker	Country Style		
0700	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
0705						Pacific Focus	Pacific Focus
0710	Pac Beat (R)	Pacific Beat(R)	Pacific Beat(R)	Pacific Beat(R)	Pacific Beat(R)		
0730	Sport	Sport	Sport	Sport	Sport	Week's End	Rural Reporter
0800	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)
0810	PM	PM	PM	PM	PM	Grandstand	Grandstand
0830						Asia Pacific	Innovations
0900	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
0905						Science Show	Hindsight
0910	Countrywide	Countrywide	Countrywide	Countrywide	Countrywide		
0935	Sport	Sport	Sport	Sport	Sport		
0940	Aust. Music	At Your Request	Blacktracker	Country Style	Music Deli		
1000	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
1005	Asia Pacific	Asia Pacific	Asia Pacific	Asia Pacific	Asia Pacific	Jazz Notes	Oz Sounds
1030	Innovations	Arts Aust	Rural Reporter	Book Talk	Earth Beat	Asia Pacific	Corres. Report
1100	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
1105	Asia Pacific(R)	Asia Pacific(R)	Asia Pacific(R)	Asia Pacific(R)	Asia Pacific(R)	Fine Music	Jazz Notes
1130	Sport	Sport	Sport	Sport	Sport	Book Reading	Week's End
1135	Countrywide	Countrywide	Countrywide	Countrywide	Countrywide		
1200	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)
1205	Late Night Live	Late Night Live	Late Night Live	Late Night Live	Late Night Live	RN relay	RN relay
1300	NEWS(15)	NEWS(15)	NEWS(15)	NEWS(15)	NEWS(15)	NEWS(5)	NEWS(5)
1305						RN relay	RN relay
1315	The Planet	The Planet	The Planet	The Planet	The Planet		
1400	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)		NEWS(5)
1405	R. Nat (to 1800)	relay RN	relay RN	relay RN	relay RN	RN(to 1900)	RN(to 1800)
1800	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)		NEWS(10)
1810	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat	Relay RN	Pacific Beat
1900	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(5)	NEWS(10)
1905						Pacific Focus	Ockham's Razor
1910	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat		Sports Factor	Pacific Beat
1930						Media Report	
2000	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(10)
2005						Oz Sounds	Aust. All
2010	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat	Over (Mauca)	Pacific Beat
2030	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat	Pacific Beat	2030-NEWS	Pacific Beat
2100	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(10)
2105						Feedback	NEWS(10)
2110	AM	AM	AM	AM	AM	Aust All	AM
2130	Innovations	Arts Aust	Rural Reporter	Book Talk	Innovations	Over (Mauca)	Earthbeat
2200	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	2145-NEWS	NEWS(10)
2205						Jazz Notes	
2210	AM	AM	AM	AM	AM	Aust All	AM
2230						Over (Mauca)	
2240	Aust Music	At Your Request	Blacktracker	Country Style	AM		Music Deli
2300	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(10)	NEWS(5)	NEWS(10)	NEWS(10)
2305						Aust All	Asia Pacific
2310	Asia Pacific	Asia Pacific	Asia Pacific	Asia Pacific	Book Reading	Over (Mauca)	Media Report
2330	Sports Factor	Health Report	Law Report	Religion Report	Week's End		
TIME-UT	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY

Radio Australia's current English language schedule.

5950 at 2004 with news. (Jeffery, NY) 7130 (direct) at 1240 with "Hot Spots" program. (Barton, AZ)
THAILAND — Radio Thailand, 15395 monitored at 0033 with program on Thai culture. (Moser, IL)
TURKEY — Voice of Turkey, 9665 at 0320 discussing Greek/Turkish problems. (Moser, IL) 17705 heard at 0300 in EE to Asia. (Paszkiwicz, WI)
UKRAINE — Radio Ukraine Int'l, 7150 at 0245. (Austermiller, IN)
UNITED ARAB EMIRATES — UAE Radio, Dubai, 15395 at 1328 with ID, frequency info, news. (Jeffery, NY) 15400 at 0329 with EE open, announcing 15400, 13675, 12009 and these were heard in parallel. EE news at 0330. (Alexander, PA) 15400 heard at 0333 with news, Dubai weather. (Moser, IL)

YUGOSLAVIA — Radio Belgrade, 7115 at 0030 with IS. (Moser, IL)

That's the story. A round of hearty applause for the good folks who helped out this month: Lee Silvi, Mentor, OH; Al Quaglieri, Albany, NY; Mark Northrup, Gladstone, MO; Sheryl Paszkiewicz, Manitowoc, WI; Vernan Austermiller, Mooresville, IN; Howard Moser, Lincolnshire, IL; Elmer Wallesen, LaGrange Park, IL; Rick Barton, Phoenix, AZ; Brian Alexander, Mechanicsburg, PA; Dave Jeffery, Niagara Falls, NY and David Bannar, Ormond Beach, FL. Thanks to each one of you!
 Until next month, good listening!

Federal Bureau of Investigation



The FBI is seeking experienced Communications Analysts (Radio Operator) to work two rotating shifts. Requirements for the position include experience with voice, FSK, and packet communications; a proficiency of Morse code at 18-20 groups per minute or Extra Class FCC ARL; knowledge of radio theory, Q signs, and experience in using radios and related equipment. Positions are located in rural Virginia. Salary range is \$32,457 to \$61,190. Entry level salary will be based on skills and experience. Related military experience beneficial but not mandatory.

Send resume to: Attn: Personnel, P.O. Box 1077, Stafford, VA 22555. Candidates must be a US citizen and consent to complete background investigation, polygraph, and drug test.

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CIRCLE 67 ON READER SERVICE CARD

Product Spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

BY KEN REISS

<Armadillo1@aol.com>

RELM MS-200 Scanner!

RELM recently introduced the MS-100 handheld scanner and took the scanner market by storm. This was the first "new" scanner manufacturer in a long time, and the radio has features that we've been asking for, for almost the same length of time. The MS-100 was the first handheld to hit the market with CTCSS and DCS tone decoding as standard equipment. You can imagine the excitement when RELM announced that they were going to do a *mobile* version. The MS-200 is finally here, and it is worth the wait!

So who is RELM, and where did they come from? Well, they're no stranger to the scanner market. Many folks who have been around this hobby for some time will remember the Regency HX-1000 and 1500 series. These were programmable (keypad entry) handhelds that were quite exciting for their day. When they were the current model, everyone I knew either had one or wanted one. I still have mine, although it's been consigned to the "museum" in the basement.

The announcement that Regency would no longer be producing scanners was received by the scanner community with great disappointment. That pretty much left Uniden and RadioShack in the scanner marketplace. AOR, ICOM, Kenwood, and Yaesu were still around too, but their radios tended to be more a bit more high-

end communications receivers, out of the price range of many hobbyists, and not as useful as scanners to a lot of others. Regency marketed two-way equipment under many names, including Regency, Symetrics, Wilson, and, finally, Regency Land Mobile. The new company is RELM, and they're back in full force!

The MS-200

On the surface, it's just an ordinary mobile scanner. Small package, 200 channels in 10 banks, and all the typical features you'd expect to find in a mobile scanner. It operates off of 13.8 volts DC, and can be powered in the house with the typical wall wart transformer that we've all come to know and love.

The 200 is not a continuous coverage receiver. Frequencies covered range from 29 to 960 MHz with the common scanner bands except for TV frequencies, and the military air range from 174 to 406 MHz. Of course, the cellular range is also deleted for compliance with U.S. import laws. It does cover 29 to 54 for VHF low, followed by a gap from 54 to 118 (television channels and FM broadcast band). From 118 to 136 is the air band, but I haven't found a way to switch modes, which could be a problem if the 136 to 137 range is active in your area as AM air frequencies.

Coverage resumes in FM from 136

through 174, jumps to 406 for the government UHF band, and then is continuous from there to 520 MHz. There's another gap for the mostly UHF television region, and then its 806 to 960 range covers the business and public safety regions of those bands.

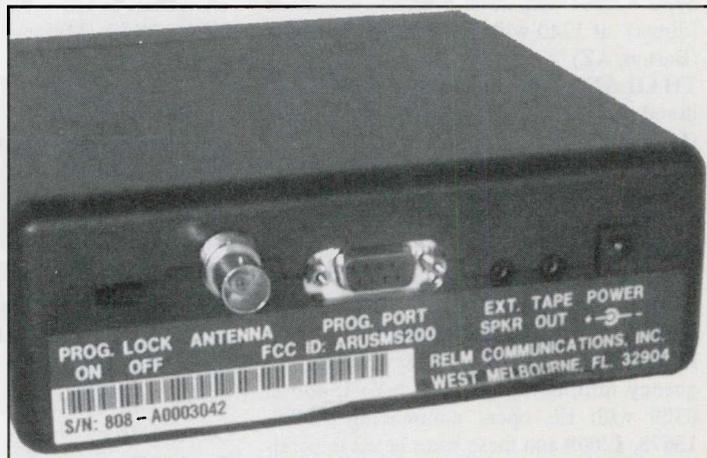
The front panel controls provide pretty much what you'd expect for this class of radio: volume and squelch, a keypad with various functions, and a channel knob. Wait a minute Dudley . . . did he say "Channel knob?" Yes, a *channel* knob. Here's where things get interesting. It can be used to select a channel, stepping through memories one at a time. It's also used to set the alphanumeric label which can be assigned to each memory location. Alphanumeric labels? Now this is going to be a cool scanner!

Up to seven characters can be programmed for each of the 200 memories. Those who have worked with an alphanumeric scanner in the past will understand how quickly you can get addicted to this feature. It is a bit tedious to program by hand, but, with the computer interface, it's a breeze and extremely handy.

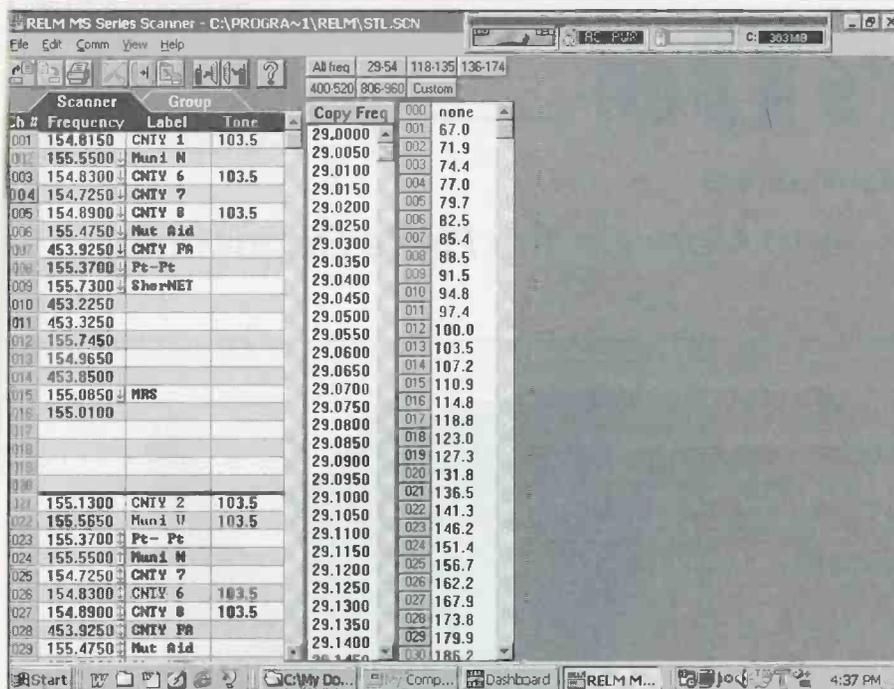
Computer interface? Yes — I did say computer interface, too! There is an RS-232 connection on the back of the scanner. A typical male-to-female nine-pin cable is all it takes to hook from any standard nine-pin serial port to the radio.



The MS-200 is a small scanner ideal for mobile installation. The volume and squelch functions are coaxial on the left control and the channel selector is the larger knob at center.



Here's a view of the rear of the MS-200 mobile scanner. Note the DB-9 connector for the RS-232 computer link.



The software provided for the RELM is very simple to operate and has some convenient features. Note the table of tones on the far right, so you don't have to memorize the RELM codes and acceptable tones.

Upload and download functions are supported with the included application. Programming the entire radio only takes a minute or two, depending on how fast you are at hooking things together.

Great Performer

The MS-200 also features the same CTCSS and DCS tone squelch mechanism as in the popular handheld. This alone makes the scanner almost the ideal choice for anyone in a metropolitan area. I'm hoping that this is a trend and that we'll begin to see tone squelch available either as an option or as standard equipment on more scanners. It really makes a difference in interference and unwanted signal reception.

The MS-200 also appears to be quite sensitive, like its handheld brother. In the VHF high band, it received signals from quite some distance using only a back of the set antenna. And because of the tone squelch function, it was relatively interference free. All this assumes, of course, that the transmitting station is using a CTCSS or DCS tone, which most of the agencies in a metropolitan area are likely to do. RELM claims the sensitivity is .5 microvolts max for most of its frequency range in the published specs, but I'm sure these are fairly conservative.

The audio from the unit is quite strong, although a bit "bassy" from the internal

speaker. This is easily corrected with an external speaker, which you'd probably want anyway for most installations, mobile or base. Manufacturer specifications claim 2 full watts of audio — enough to overcome lots of road noise.

The software that comes with the 200 is very simple to use, yet quite functional. The application, RELM MS Series Scanner, features an easy-to-use interface for frequency and tone programming. On the left side of the display is a frequency window with two tabs: one for the scanner and one for the "group." The scanner window is the information that will actually be programmed into the scanner, or can be read from the scanner if you've programmed it manually. The group window is kind of a temporary storage group. You can have as many scanner files and group files as your hard disk space will allow, and copying and pasting from one to the other is quite easy. Simply select the cell or cells you want to copy, use the edit menu for the appropriate commands, and you're on your way. Should you enter a frequency that's duplicated, an arrow appears next to the frequency in question to indicate in which direction the duplicate appears. Clicking that arrow takes you to the duplicate record, if you desire. The software lets you leave the duplicates in place if you desire as well.

To the right of the frequency window is a "Copy Freq" window and a "tone"

window. The "Copy Freq" window is a scrolling list of all the valid frequencies that the MS-200 can receive. You can scroll through the list and find the appropriate frequency and then copy and paste from this window. I suppose if you were entering a search range directly into memory positions for some reason, this might be a convenient feature, but I found it much easier to just type the frequency into the scanner channel as necessary.

The tone window, however, was quite useful. RELM stores the tones in the scanner by codes. A code of 001 represents a CTCSS tone of 67.0 for instance. Code 013 is the tone of 103.5, which is used frequently in this area. DCS codes start at code 051 (the DCS for 023) and range all the way to code 154. This feature is handy for looking up the appropriate code and making sure the data you enter is in fact a valid CTCSS or DCS code.

Once the data is entered and saved, it's a simple matter of connecting the radio and downloading the memories. This feature alone makes the MS-200 an attractive mobile for anyone who travels on a regular basis. Quick reprogramming with a laptop could be done at any roadside stop or while waiting for the gas to pump into the tank. The ability to store groups of frequency data apart from the memory channels will make the maintenance of a master list of frequencies easier, and, at the same time, make it easy to transfer the data to the scanner's memory. Each group file is limited to 200 channels, just like the scanner, but individual group files can be opened and closed at will, so copying data from several group files to get the combination of frequencies and settings you want can be quick and easy, once the files have been established.

The Bottom Line

The MS-200, with a retail price of \$408, is quite a mobile scanner, which also works well for base applications. The computer interface makes it a breeze to program, although it's not impossible to do it manually, if necessary. With the addition of an external speaker, it represents one of the few tone squelch-enabled radios available to us with audio and features for use in almost any situation. Check it out . . . you may find a home for one in your shack or car. I know I will.

For more information about the RELM MS-200 scanner, contact AK America, Inc., at 960 N. DuPage Ave., Lombard, IL 60148, phone: 800-933-9199. ■

The Pirate's Den

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

Strange Skits, Music, And More On The Pirate Frequencies

The envelopes are open, so let's get right to it. Remember, your pirate loggings are always welcome!

WRCR, 6955 SSB at 0132 with talk about Major Spook, phone number 888-959-8177, various skits until sign-off at 0259. (Tim Taylor, PA)

Free Hope Experience, 6955 USB at 0344, giving Blue Ridge Summit address. Various skits, Indian chanting effects, "Walk Like an Egyptian," talks about UFOs, "Pop Goes the Weasel." Off at 0414. Also at 0347 with Roswell excerpts and other UFO topics to close at 0415. (Taylor, PA)

Radio Nonsense, 6955 USB at 2324 with Jo Mamma, hard rock, and sketches. Belfast, NY, address and off at 2358. (Dave Jeffery, NY)

Radio Four, 6955 at 0230 with hard rock, parody commercial for WEWN and ID. Off suddenly at 0237. (Jeffery, NY)

WRACK Radio, 6955 SSB at 1845 with rock music, ID and off at 1853. Again at 0231 with mix of hard and soft rock, listener phone calls, funny commercials. Comments on the broadcast could be made to (888) 479-7480. (Jeffery, NY)

Radio Malibu, 6955 SSB at 2321. Hard rock and ID, then off at 2333. (Jeffery, NY)

Reefer Madness Radio, 6955 SSB at 2339 sign-on with reggae, sketch about being busted by the FCC. (Jeffery, NY)

WUNH, 6955 SSB at 0130 with a variety of music and ID. (Jeffery, NY)

WMPR, 6955 at 0146 to 0225 with the usual stuff. (Lee Silvi, OH)

Radio Free Speech, 6955 at 2250. Didn't announce their usual mail drop. Again at 2320. (Silvi, OH)

Britain's Better Music Radio, 6955 USB heard at 2343 to 0058. U.S. relay. (Silvi, OH)

Lounge Lizard Radio, 6955 USB heard at 0246 with first anniversary show. (Silvi, OH)

WREC, 6955 USB at 0323 to 0404 with their usual great skits. Also 0057 to 0124 with a repeat program (Silvi, OH)



0041 with Breastie Boys. Off at 0048. (Taylor, PA)

Alan Masyga Project, tentative, 6955 USB at 1555 with Providence, RI, drop mention. It sounded like this one but was too weak to ID. Again at 1841, and stronger, but still no positive ID. (Silvi, OH) 2020 to 2053 closing with a salute to T & R. Jurens. (Coatsworth, ON)

WRKO Shortwave, 6955 USB at 1838 with oldies and several IDs. (Silvi,

OH) **6950** at 1320, simulcasting 680 kHz in Boston, "Big 68 Countdown" playing older rock; actual commercials. Blue Ridge Summit maildrop. Gave E-mail as <wrko@w@hotmail.com>. (Vincent P. Everett, NY)

Caribbean Sound System, 6955 USB at 1938 with Bob Dylan music, several IDs and mention of Stoneham mail drop. (Silvi, OH)

WSRR, 6955 USB at 2005 with the

Hendrix version of the National Anthem. (Silvi, OH)

WMFQ, 6955 USB at 2223 with "Hey Jude" and other things. (Silvi, OH) 2134 sign-on on **6954.8 USB**. (Coatsworth, ON) And at 1530 with their usual format. Also from 2128 to 2118 with Elton John and other things. Tough modulation at times. (Silvi, OH)

WLIQ, 6955 USB at 0120 with what sounded like fishing tips, then the Jimmy Hicks Show with country and rockabilly. Partial address: P.O. Box 909 (city not copied), PA. (Joey Gillihan, AR) And 0126 to 0223 with music and several IDs. Not sure if this was a continuous broadcast or was on and off. (Silvi, OH)

WRCK Radio, 6955 SSB, 0136 with talk about Major Spook, Hootie and the Blowfish number, mailbag address and call-in phone number. (Taylor, PA)

Radio Doomsday, 6955 SSB at 0326 with ID and skit. Off around 0353. (Taylor, PA)

Mystery Radio, 6955 SSB at 0359 with weird music, IDs. Music was all string instrumentals. (Taylor, PA)

Radio Free Vial, 6955 SSB at 0441 with a lot of talk about free radio, mention of Radio Free Berkley being in trou-

ble with the FCC. Closed at 0451. (Taylor, PA)

Indiri Calling, 6955 USB at 2330 with hilarious stuff. (Jerry Coatsworth, ON)

Jerry Rigged Radio, 6955 USB heard at 2305 to 2326. (Coatsworth, ON) 0037 to 0057 with music and several IDs. (Silvi, OH)

Radio Beaver, 6955.5 USB at 0045 sign-on to past 0105 with a "G-rated" program. (Coatsworth, ON) 0044 to 0105 with several IDs between music selections. Station was hard to understand at times. (Silvi, OH)

WMPR, 6955.5 at 0225 to 0229 close, ID sounded like Mercury Power Radio. (Coatsworth, ON)

WPIG, 6955 SSB at 0240 to 0307 with music and temperatures in several different cities. May have been a relay via WARR. (Silvi, OH)

Radio USA, 6955 SSB, heard at 0310 to 0346 with a number of songs and mention of the Blue Ridge Summit mail drop. (Silvi, OH)

Deliverance Radio, 6955 USB at 2310 with banjo theme music, pig squeals, announcer with southern accent "waiting for schoolboys to float down the river...." (Jill Dybka, TN)

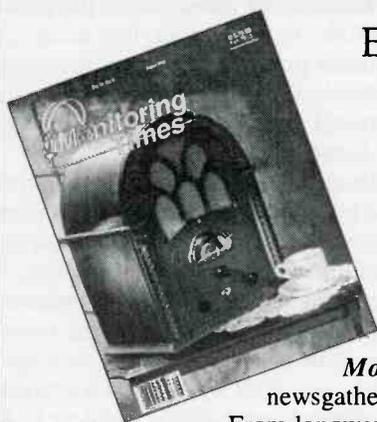
WACK Radio, 6955 USB at 0010 with Green Day and Rage Against the Machine, and 888 number for phone reports. (Dybka, TN) (*Same as WRACK Radio, above? — Ed.*)

Reefer Madness Radio, 6955 at 0032 to 0112 with various skits about marijuana and spoof of Drug Free America. Host was named Harry. Gave a New York post office box. (Al Ogrizovich, FL)

WUNH, 6955 at 0114 with many IDs, Providence, RI, address, boogie-woogie type tunes from the '30s and '40s. (Ogrizovich, FL)

A good list, folks! A couple of house-keeping chores: I could use a little more program/content details on some of the logs, even if it's only a little. Also I'm sometimes unclear about whether a listing period from 0032 to 0111, or whatever, involves a sign-on or a sign-off. Indicate either by saying so, or by placing an asterisk (*) before the sign-on time, or following a sign-off time. And, of course, remember that I always need good clean copies of QSLs to use in the column. Thanks again for your continued fine support! ■

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The ACARS Downlink

BY BOB EVANS

YOUR LINK TO DIGITAL AIRCRAFT COMMUNICATIONS

ARINC Operating Modes Used By Ground Stations And American Airlines Routing Messages

The Airborne part of ACARS operates in conjunction with a ground-based digital data processor in either Polled or Demand Mode. In Polled Mode, the ground processor controls the transmission of all messages from the Airborne Subsystem to the ground. This mode is used in environments in which unacceptable contention levels cannot be otherwise avoided.

In Demand Mode, the Airborne Subsystem itself, initiates transmissions. This mode is used in environments in which the volume of communications is sufficiently low for contention so as to pose no problems.

Airborne Subsystem Operation — Demand Mode Operation

Communication transactions may be initiated by either the ground processor or the Airborne Subsystem. In the absence of ground-initiated messages requiring a response, the airborne subsystem remains quiet until either the occurrence of a pre-defined event or a pilot-entered command to send a message to the ground. In either case, the airborne subsystem is armed for transmission. It then monitors the RF channel for traffic, and, if there is none, transmits the message. If the channel is busy with other traffic, the airborne subsystem waits for the channel to clear and then transmits the message.

Should two or more airborne subsystems attempt to transmit at the same time, the message will be garbled at the ground station. Since no message acknowledgment will be sent from the ground station if this occurs, the airborne subsystem will attempt a retry. A random interval timer for each airborne subsystem normally ensures that transmission retries do not occur at the same instant. Remember that these digital messages, transmitted at 2400 baud, normally occupy less than a second of actual on-air time. In the jargon of computer communications protocol, either unit initiating the message traffic (the airborne subsystem or the ground-based processor) will transmit a preamble technical acknowledgment field (positive acknowledgment — ACK or negative acknowledgment — NAK) as the first element of the message.

Demand Mode Operations — Air-to-Ground

The following series of events takes place during Air-to-Ground transmissions:

→ The airborne subsystem transmits the message. The preamble technical acknowledgment field of the downlink contains a "NAK" so that any uplink messages awaiting transmission from the ground processor to the airborne subsystem won't be destroyed.

→ Upon receipt of the message, the ground processor performs an error check on the data received.

→ If the message is found to be error-free, it is routed to its proper destination.

→ The ground processor generates a positive acknowledgment (ACK) which it transmits to the airborne subsystem when the RF channel is clear using a Demand Mode general response uplink.

→ Upon receipt of the acknowledgment, the airborne subsystem clears the original message from its memory storage and returns to a quiescent state, awaiting further activity.

→ If the original transmitted message was garbled or contains errors, the ground processor generated no response. The airborne subsystem will continue to hold the message in its memory storage. After a predetermined time, the airborne subsystem will re-transmit the message. Several retries are permitted (normally up to six) before the unit alerts the aircrew that it is unable to obtain a response.

Demand Mode Operations — Ground-to-Air

The procedure for the initiation of messages by the ground processor in Demand Mode is similar to the foregoing. Messages likely to be initiated in this manner include ground-to-air calls for voice communications, messages for the optional printer and auxiliary terminal, as well as data transceiver auto-tune frequency selection commands.

Once again, the preamble technical acknowledgment field of each uplink that is not the response to a downlink will contain a "NAK." This will preclude the possibility of destroying a message stored in the airborne subsystem which is awaiting RF channel availability for transmission to the ground processor. On receipt of this message in the aircraft, the airborne subsystem likewise performs an error check and, if the message is determined to be error-free, generates a positive acknowledgment which will be downlinked immediately (subject to RF channel availability), either in the preamble of the next air-to-ground message, if the airborne subsystem is armed to transmit, or in the preamble of a Demand Mode general response.

When a downlink message is the vehicle for the "positive acknowledgment," the ground processor, after performing an error check on the message and finding it error-free, returns to the aircraft with another "positive acknowledgment" contained in either a Demand Mode general response, or a message, if it has one for the aircraft. If the Demand Mode general response

is used, the airborne subsystem returns to the quiescent state upon receiving it.

Use of an uplink message for positive acknowledgment will result in another acknowledgment cycle being initiated. When the original positive acknowledgment is downlinked in a Demand Mode general response, however, the airborne subsystem returns to the quiescent state as soon as the transmission is complete. If the uplink message is found to contain errors, the airborne subsystem generates a negative technical acknowledgment "NAK," for the downlink message or general response. Upon receiving the NAK, the ground processor re-transmits the uplink message. A number of retries are permitted before the aircrew is alerted.

Polled Mode Operations

The airborne subsystem will interpret a general poll uplink from the ground processor as an instruction to transfer from the Demand Mode of system operation to that of Polled Mode. In this mode, the airborne subsystem transmits only in response to received uplink messages or polls. It does not initiate any communications traffic itself. Having commanded the airborne subsystem to switch to operation in Polled Mode, the ground processor maintains continuous communications with it by transmitting general polls (or messages) to it at time intervals not exceeding the time interval specified as the "no communications" alert criteria for Polled Mode. When the RF channel is clear, the aircraft responds to these polls or messages with its own messages, or if it has no message on hand, with the Polled Mode general response. Error checks are performed on all polls and messages received, both on the ground and in the air, and a positive or negative acknowledgment (ACK or NAK) is generated for inclusion in the next transmission.

The ground processor will command an airborne subsystem operating in Polled Mode to transfer to Demand Mode by transmitting a Demand Mode general response message which must be acknowledged by the aircraft. An "ON" event will also trigger the airborne subsystem operating in Polled Mode to return to Demand Mode.

American Airlines Aircraft Routing Messages

These transmissions from the aircraft occur after the aircraft has become airborne. A considerable period of time may elapse between the first and second transmissions (up to one hour has been observed). It's important to catch the first destination message as it contains both the aircraft registration, carrier, and flight number. Subsequent transmissions only contain the registration number, with the flight number always appearing as "0000."

It is possible that the Flight Management Computer (FMC) and the Digital Flight Data Acquisition Recorder (DFDAU) are not programmed with the flight number, which is why it appears as "0000" in this example.

Message 1 — Flight Destination (22:05:04 UTC)

This transmission from the aircraft occurs shortly after take-off. Its chief purpose is apparently to indicate the destination of the flight. It is the only transmission in the series that contains both the aircraft's registration number as well as the flight num-

ber. Likewise, it seems to be the only message that contains the flight's destination.

```
.N321AA 5Z6
5910AA038OS ZRH
.N321AA Address: Aircraft Registration Mark - American
Airlines Boeing 767
5ZDownlink Message Label: 5Z - Airline Designated
Downlink
6 Downlink Block Identifier
5910 Message Sequence Number: 59 minutes, 10 seconds
past the hour (21:59:10)<BR>
AA038 American Airlines flight # 38
OS Other Supplementary
ZRH Destination: Zurich, Switzerland
```

Message 2 — Flight Routing (22:49:30 UTC)

This transmission from the aircraft occurs after the aircraft has been airborne for some time. It has been observed as much as one hour after the original destination message. The majority of the message identifies the VORTAC navigational beacons and Waypoint names that the aircraft will follow on its flight to the destination airport. Monitoring the same flight on different days yields interesting comparisons of differing flight routes to the same destination. Waypoint and beacon names are often observed joined together. Beacon names are usually three characters in length, while Waypoints are generally five characters long. Aircraft positions over the Atlantic Ocean are normally given in degrees latitude. Note the use of non-standard Message Sequence Numbers generated by the aircraft's avionics subsystems.

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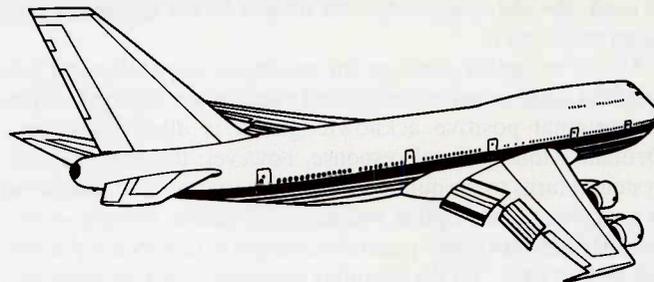


Delta Research



Box 13677 - Wauwatosa, WI 53213 - FAX/Phone (414) 353-4567

.N321AA H10
 F004AA0000#M1APWDA370YYZ VQC YUP YMX
 CEFOUYNA JUGARYAY 5350N5440N5430N54
 20N5315NBURAKCRK TIVLILND NAKIDLIZADJSY
 SENEQCAN RBT BRY TRO RLP



N321AA Address: Aircraft Registration Mark: American Airlines Boeing 767

H1 Downlink Message Label: H1 - Optional Auxiliary Terminal Message

0 Downlink Block Identifier

F004 Message Sequence Number (FMC Avionics Subsystem Downlink)

AA0000 AA Flight Number always appears as 0000. You must catch previous message with registration and Flight Number to identify this transmission.

#M1A Message originated by Flight Management Computer #1

PWDA Predicted Wind Data
 370 FL 370

YYZ Position: Toronto, Ont

VQC Position: Sterling, Ont VOR

YUP Position: Uplands, Ont VOR

YMX Position: Montreal, Que VOR

CEFOU Position: Waypoint "CEFOU" (somewhere in Quebec)

YNA Position: Natashquan, Que VOR

JUGAR Position: Waypoint "JUGAR," Nfld

YAY Position: St. Anthony, Nfld VOR

5350N Position: 53:50 North

5440N Position: 54:40 North

5430N Position: 54:30 North

5420N Position: 54:20 North

5315N Position: 53:15 North

BURAK Position: Waypoint "BURAK" off coast of United Kingdom

CRK Position: Beacon at Cork, Ireland

TIVLI Position: Waypoint "TIVLI" - southern coast of England

LND Position: Beacon at Land's End, England

NAKID Position: Waypoint "NAKID"

LIZAD Position: Waypoint "LIZAD"

JSY Position: Beacon at Jersey

SENEQ Position: Waypoint "SENEQ"

CAN Position: Beacon at Caen, France

RBT Position: Beacon at Rambouillet, France

BRY Position: Beacon at Bray, France

TRO Position: Beacon at Troyes France

RLP Position: Beacon at Rolampont, France

Message 3 — Position Report (22:50:37 UTC)

This position report was transmitted approximately 45 minutes after the first destination report message. Current position, flight level, wind and outside air temperature are usually given. Time and flight level at the next position also appear.

.N321AA H11
 F005AA0000#M1AAEPN433524W08021362250370M5729
 759YAY/0105/370

.N321AA Address: Aircraft Registration Mark: American Airlines Boeing 767

H1 Downlink Message Label: H1 - Optional Auxiliary

Terminal Downlink Message

1 Downlink Block Identifier

F005 Message Sequence Number (FMC Avionics Subsystem Downlink)

AA0000 AA Flight Number always appears as 0000. You must catch previous message with registration and Flight Number to identify this transmission.

#M1A Message originated by Flight Management Computer #1

AEP Fixed ICAO Format Position Report with Weather

N433524 Current North Position: 43:35.24 degrees

W0802136 Current West position: 80:21:36 degrees

2250 Time over current position 22 hours 50 minutes

370 Flight Level FL370

M57 Outside Air Temperature - Minus 57 Celsius

297 Wind Direction; Blowing from 297 degrees

59 Wind Speed in Knots: 59

YAY Next Position : St. Anthony Nfld VOR

/0105 Time at next position (St. Anthony) 0105

/370 Flight level at next position (St. Anthony) FL370

Message 4 — Engine Data Report (22:51:51 UTC)

This message, transmitted by the aircraft, contains information on aircraft engine performance. Content will vary depending on the type of aircraft. For now, the actual engine data is not decipherable.

.N321AA H11
 D635AA0000#DFBEDA/E184,411,322,E3B,,61E621,5FE5F
 D,5FE5FD,58C585,2AE2AD,03C03F,2
 B02E0,2192E8,2571BF,12401240,3E8,0E30E2,00C,001,0,6
 AD449,225146

.N321AA Address: Aircraft Registration Mark: American Airlines Boeing 767

H1 Downlink Message Label: H1 - Optional Auxiliary Terminal Downlink Message

1 Downlink Block Identifier

D635 Message Sequence Number

AA0000 AA Flight Number always appears as 0000. You must catch previous message with registration and Flight Number to identify this transmission.

#DFBEDA Engine Performance Data follows: (Hexadecimal format - Generated by DFDAU subsystem)

Several of our readers have sent me E-mail regarding various ACARS questions. I'm always glad to hear from you, be it E-mail or snail mail at "The ACARS Downlink," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801; E-mail: <reevans@interlog.com>.

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YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

U.S. Army Corps Of Engineers — USACE

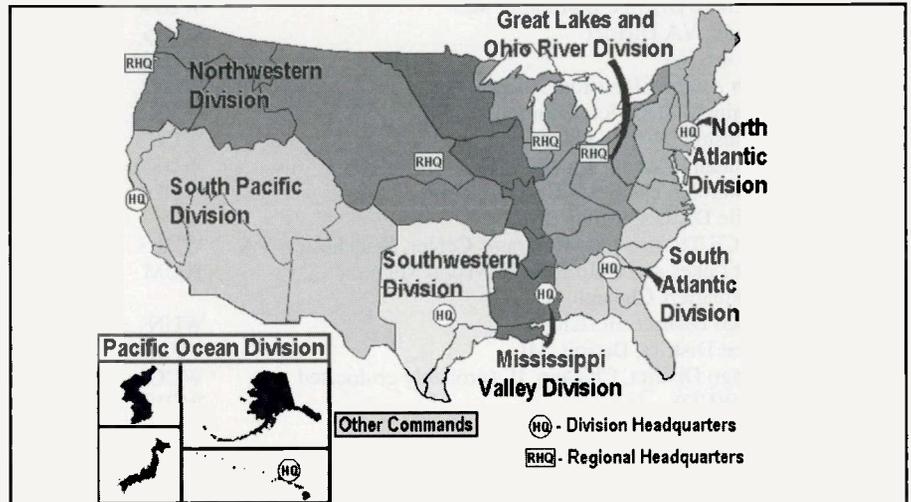
With the motto "Essayons!," or "Let Us Try!," the U.S. Army Corps of Engineers (USACE) provides comprehensive engineering, management, and technical support to the Department of Defense, other agencies, and to state and local governments.

Continental Congress authority for a "Chief Engineer for the Army" dates from June 16, 1775, when General George Washington appointed Colonel Richard Gridley as Chief Engineer of the Continental Army. A "Corps of Engineers" for the United States was authorized by the Congress on March 11, 1779. Engineer soldiers, then called Sappers and Miners, played a significant role in the Revolutionary War.

The Corps of Engineers, as it is known today, came into being on March 16, 1802, when the President was authorized to "organize and establish a Corps of Engineers." A little known fact is that the Corps was responsible for running the West Point Academy from its beginning to the end of the Civil War.

With the enactment of the first River and Harbor Act in 1824, the Corps became the federal agency responsible for navigation and flood control on the nation's rivers.

In its peacetime role, the Corps continues to build the future. In the 1950s, it was instrumental in the development of the St. Lawrence Seaway, the design and construction of ICBM launching sites, and flood control dams and levees on the Mississippi and Ohio rivers. During the 1960s, the Corps helped build the Manned Space Center in Houston and the Kennedy Space Center in Florida. In the 1970s, the Corps took on additional missions to develop hydroelectric power and new methods of flood control on the nation's rivers. From divisions and districts to dams and vessels, the Corps of Engineers maintains an extensive voice and digital HF capability. A regular voice net with check-in is held each Friday at **1500 UTC on 9162.5 primary**, as seen in many logs in this column. Sitor-B (FEC) comms with their vessels and sta-



Districts used by the U.S. Army Corps of Engineers.

tions are frequently logged on **5400.0 kHz**. **Table 1** is a listing of known call signs and frequencies to check for these comms. Let me know what you hear!

Bluestar

For many years, readers have noted the callsign BLUESTAR, mostly on the U.S. Navy Safety of Flight frequency **8971.0 kHz**. It had been associated with the Anti-Submarine Warfare (ASW) Op's Center at Roosevelt Roads, Puerto Rico, as one of the three ASW stations heard on the east coast (Iceland, New Brunswick, and Roosevelt Roads). Thanks to a recent discussion on the Milcom Internet list, it was learned that the role has changed over the last few years. They are now known as the Communications Tactical Support Center at Roosevelt Roads, Puerto Rico. They provide communications support to units involved in counter-narcotics operations, for Search and Rescue (SAR), and other missions as directed.

More News

Klingenfuss Publications announced the publication of four new products for 1998: *Radio Data Code Manual*; Set 2 of

Compact Disc Recordings of Modulation Types; *1998/1999 Guide to Worldwide Weather Services*; and *Shortwave Communication Receivers 1942-1997*. The new Radio Data Code Manual has been expanded to nearly 800 pages and now includes more than 230 graphics and screen-shots, plus the Unicode tables for all major scripts and languages worldwide. New aeronautical telecommunications technology, such as ACARS, ATN, CIDIN, CNS, and INMARSAT, plus recent amendments to certain meteorological code forms are covered, as well as thousands of new meteorological station index numbers, aeronautical location indicators, and aircraft and airline designators.

Set 2 of Compact Disc Recordings of Modulation Types covers more than 120 new recordings on two CDs: ACARS, ADPCM, ALF, ALFA, ALIS-2, ARS-Guard, ASCII Slovak, ATC-RADAR, ATIS, AWACS-NATO, BR-6028, BUL-ASCII, CALLSEL, CIS (various), Clover, Clover-2000, Coquelet-13, Coquelet-80, CVSD, DATATRAK, DECCA, DECTRA, DGPS, Dialup (V22, V22bis, V32) and Leased Line standards (V21, V23, V26, V26bis, V27bis, V27ter, V29, V33), DME/ILS/VOR, DTMF, DUP-FEC-2, EFR, ERMES, Eurosignal, FAF-FAX, FEBECO, FMS-BOS, G-TOR,

Table 1. Known Callsigns And Frequencies Used By The U.S. Army Corps Of Engineers

Callsign	Location	WUI5	Albuquerque District, NM
WUA	New England District, Concord, MA (formerly New England Division)	WUI6	Ft. Worth District, TX
WUB	North Atlantic Division, New York, NY (Co-located with WUB2)	WUJ	Northwestern Division, Portland, OR
WUB2	New York District, New York, NY	WUJ1	Unidentified
WUB3	Philadelphia District, Philadelphia, PA	WUJ2	Seattle, WA District
WUB4	Baltimore District, Baltimore, MD	WUJ312	Radio Maintenance Shop, Portland District, Portland, OR
WUB5	Norfolk, VA District	WUJ35	John Day Project Office, The Dalles, OR
WUB8	Radford, VA	WUJ4	Walla Walla District, Walla Walla, WA
WUC	South Atlantic Division, Atlanta, GA	WUJ5	Alaska District, Anchorage
WUC2	Wilmington District, Wilmington, NC	WUJ6	Unidentified
WUC3	Charleston District, Charleston, SC	WUK	South Pacific Division, San Francisco, CA
WUC4	Savannah District, Savannah, GA	WUK2	San Francisco District, San Francisco, CA
WUC5	Jacksonville District, Jacksonville, FL	WUK3	Sacramento District
WUC6	Mobile District, Mobile, AL	WUK4	Los Angeles District, CA
WUC7	USACE Transatlantic Programs Center, Winchester, VA	WUL	U.S. Army Engineering and Support Center, Huntsville, AL
WUD	Great Lakes and Ohio River Division Regional Headquarters Chicago, IL	WUL3	Unid USACE
WUD2	Buffalo District, Buffalo, NY	WUM	U.S. Army Topographic Engineering Center, Ft. Belvoir, VA
WUD3	Detroit District, Detroit, MI	WUN	USACE Cold Regions Research Lab (CRREL), Hanover, NH
WUD4	Chicago District, Chicago, IL (probably co-located with WUD)	WUO	USACE Headquarters, Washington, DC
WUD6	St. Paul District, St. Paul, MN	WUP	Waterways Experiment Station (WES), Vicksburg, MS
WUD7	Rock Island District, Rock Island, IL	WUQ	Construction Engineering Research Laboratories, Champaign, IL
WUE	Great Lakes and Ohio River Division, Cincinnati, OH	WUR	USACE Ft. Belvoir, VA
WUE3	Pittsburgh District, Pittsburgh, PA		
WUE4	Huntington, WV District		
WUE5	Louisville, KY District		
WUE6	Nashville, TN District		
WUG	Mississippi Valley Division, Vicksburg, MS (formerly Lower Mississippi Valley Division)		
WUG2	Memphis TN District		
WUG3	Vicksburg District, Vicksburg, MS (co-located with WUG)		
WUG4	New Orleans District, New Orleans, LA		
WUG5	St. Louis District, St. Louis, MO		
WUH	Missouri River Regional HQ, Omaha, NE (formerly Missouri River Division)		
WUH4	Omaha District, Omaha, NE		
WUH5	Kansas City District, Kansas City, MO		
WUI	Southwestern Division, Dallas, TX		
WUI2	Little Rock District, Little Rock, AR		
WUI3	Tulsa District, Tulsa, OK		
WUI4	Galveston District, Galveston, TX		

Frequencies	
Channel	Frequency
CH-2	5015 (Not Confirmed)
CH-3	5327.5
CH-4	5400
CH-5	5437.5
CH-6	6020
CH-7	6785
CH-8	9122.5 PRI
CH-9	11693.5
CH-10	12070 SEC
CH-11	12122
CH-12	16077
CH-13	16326 TER
CH-14	16358
CH-15	20659

GAF-FEC, GN-FEC, HARP, HARRIS RF-5710, HELL, HYPERFIX, JOINT-STARS, LORAN-C, Manchester, Micro-PCM, MPTI 1327/1343, NDB, NMT900, Packet Radio, PACTOR, PACTOR-2, Pager, PSK31, RELP, RIPLE-Control, SELCAL (various), SSTV (all modes), TMS-430, TT2300, Vocoder, and more.

The new 1998/1999 *Guide to World-weather Weather Services* covers the latest Internet, Navtex, radiifax, and radio-telex meteorological data sources worldwide. It includes hundreds of sample charts, homepages, images, and messages recently monitored. For customers outside North America, they now offer

Fred Osterman's brand new third edition of his bestseller *Shortwave Communication Receivers 1942-1997*. It now covers no fewer than 770 communication receivers, with dramatically improved coverage of Australian and European manufacturers. These items are available from most distributors of shortwave radio products and books.

Also available is the 1998-99 issue of the German language title, *Spezial-Frequenzliste*, by Rainer Brannolte and Wolf Siebel, with more than 400 pages of utility frequencies including SSB, CW, Fax, and various digital modes. Although in German, I had no problem using the

book myself as the actual listings are in English. Unfortunately, there are no U.S. distributors. For orders from outside Germany, contact Siebel Verlag, Auf dem Steinbuechel 6, D-53340 Meckenheim, Germany, for further information.

Princess Cruises cruise ship *M/S Grand Princess*, the largest, most expensive cruise ship ever built, recently set sail on her maiden voyage from Istanbul, Turkey. She checks in at 109,000 tons and can handle 2,600 passengers! In mid-September the ship will cross the Atlantic bound for New York and her North American debut. She will be christened in New York on Sept. 29, 1998.

Raytheon Systems Company has been awarded a \$29.2-million U.S. Navy contract to modify three additional E-6A aircraft to the E-6B configuration and produce two additional aircraft and trainer modification kits. This is a continuation of a contract to incorporate the operational capabilities of both the U.S. Strategic Command's (USSTRATCOM) EC-135C Airborne Command Post and the E-6A TACAMO (Take Charge and Move Out) mission into one aircraft. The aircraft is a Boeing 707 extensively modified to provide highly reliable and survivable communications between the National Command Authority and U.S. strategic forces. The total scope of the program involves the modification of all 16 of the E-6A TACAMO aircraft into the E-6B configuration.

The *USS Pearl Harbor* (LSD-52) was commissioned May 30, 1998, at Naval Air Station North Island, San Diego. The dock landing ship (LSD) will be homeported in San Diego. It will carry combat ready Marines and air-cushioned landing craft (LCACs) to transport troops and equipment ashore. No callsign info yet. Also the *USS Harry W. Hill* (DD-986) was decommissioned at Naval Station San Diego on May 29, 1998. Cross that one off your lists.

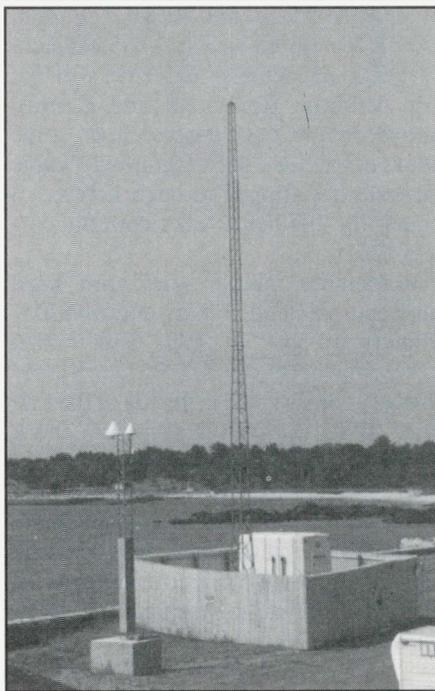
At 2359 UTC on June 30th, 1998, listeners to 11175.0 kHz, USAFGHFS were surprised to hear MacDill Global, Florida signing off "permanently, after 50 years of service, at 0000 Zulu 1 July 1998." So "AFE3" has been lost to history. This is undoubtedly a part of the Air Force's transformation to the Scope Command system I mentioned last year in this column. Scope Command will utilize a "central dispatch" concept using transmitters at existing sites worldwide by remote. It is possible that one or two more GHFS stations will disappear before the system is fully operational. More next month.

SVA, Athens Radio, Greece, ceased all HF CW at 2359 UTC on July 1, 1998, adding to the list of stations which have gone QRT with their CW transmissions.

Reader Mail

John Temple, Sr. (OH) used information from an earlier column to snag one of his first digital utility stations. John caught WNU on Ch. 819 with station info and a traffic list using a Drake SW-8 and a Universal M-400 decoder.

Reader Albert Hussein (FL) reports finding a new Cuban "The Bored Man" frequency on 9415.0 kHz. Heard at 1413



A photo of USCG beacon "NCE" located at New Castle, New Hampshire, on 288 kHz taken by Ralph Craig. Note the two cones are GPS antennas.

UTC and parallel with the usual 6868.0 and 4106.0 kHz.

Ary Boender in the Netherlands reports the Netherlands Royal Navy's brand new Landing Platform Dock "Rotterdam" now has a callsign: "PARD."

Nolan Tucker ponders some of the relationships between aviation location identifiers and radio callsigns: "Why is EWR the code for Newark, New Jersey? Why is UIN the code for Quincy, Illinois?"

Going back to yesteryear when CW was the primary long-range point to point radio communication system, the letter prefixes for station callsigns were assigned by international agreement. The U.S. wound up with K, N, and W (later we obtained a few A assignments from Germany). So when the airport codes were being promulgated, the Ns were already occupied by the U.S. Navy and Coast Guard (although the U.S. aircraft registrations were also assigned N. Interesting?). So the Ns were avoided because of possible radio callsign conflicts. Nolan wonders if perhaps this is the same reason the U.S. civil aircraft, which operated CW stations, were assigned the block beginning with KHAAA. For a similar reason the Q, as in Quincy, was not assigned any codes.

A three-letter code system was in place

by WW II called the Q codes. These were used in place of long phrases. We all know and love our QSL, QSO, and QRM, and many are still used. Today the Ns and Qs are being assigned but never retroactively so ol' Newark must remain EWR and Quincy UIN, although the rationale is that it would be too terribly expensive to change a code (IDL for Idlewyld to JFK notwithstanding). That is also why ORD is O'Hare — it used to be a little airport called Orchard Park. As for LAX for Los Angeles and PDX for Portland, Oregon, when I first got into ATC, the main airports had two-letter codes while the "minor" airports were being assigned three-letter codes. So when LA and PD was changed, there was no logical code available, so who needs logic? Simply add an X and bingo — LAX and PDX!

Another play used by the FAA office given the task of naming these locations was to insert a little used letter in the code. The only one that pops into my aging mind is HII for the North Highland (CA) RBN. At one time, the little used J was used as a prefix for the large number of heliports that suddenly sprang up, but this is no longer adhered to. In ICAO, a different system was developed in the '50s based on regions. For example, the four-letter ICAO code for Isla Grande Airport in San Juan, Puerto Rico was MJIG. It coexisted with the FAA assigned code of SIG(!). The M is the prefix for the Caribbean area, the J was the code for Puerto Rico, and IG was Isla Grande. This also facilitated routing codes for messages sent to ATC, Metro, Air Lines Ops, and others by adding appropriate suffixes. The U.S. retained the K as the prefix added to existing three-letter codes as KMIA as Miami.

But what about these intersections or WAYPOINTS with five letter codes? Originally intersection codes were devised by a number of the old CAA (pre-FAA) region in which it was located followed by two letters. They had names. For example, 4WR, on Jet Airway 110 (J-110) west of Beatty, Nevada, was named Wild Rose for the canyon in or near Death Valley. When the decision to make these WAYPOINTS instead of intersections, they also decided to make them pronounceable (almost). So Wild Rose became WILDY. I hope you can make sense of this. But I was lucky, as it evolved over the 30 or so years I served in air traffic control, I was able to absorb it slowly! Thanks, Nolan.

Ian Julian of New Zealand writes in about the **Ships of Greenpeace** covered



Welcome aboard

The Mississippi



M/V Mississippi, callsign AEUI, is the flagship of the USACE Memphis District.

in the August column. Ian suggests adding the simplex frequencies of **8300.0** and **6230.0 kHz** in the list of frequencies for them. These were used continuously for comms with the M/V Greenpeace and others for coordinating daily activities when they were protesting the French Nuclear tests at Mururoa.

Gremlins cut off Simon Denneen's equipment used from last month's column. Simon uses (primarily) a JRC NRD-345 HF receiver with a 16-m antenna and (secondarily) an AOR AR3000A scanner with a Diamond D707 active antenna in his listening efforts from Australia.

Dave Wright (TX) notes a change in his list of B-2 aircraft appearing in the August column. B-2A #82-1071 is not the Spirit of Arizona. That name belongs to 82-1067, Development Air Vehicle #2. So you may want to make corrections to that list.

Tim Tyler notes that in the 15016 log

of LOOK 35 in the August column, LOOK was listed as a RC-135 callsign. LOOK's are actually EC-135Cs of the 7th Airborne Command and Control Squadron (ACCS) despite how some books or lists have them identified. I know this one has slipped through before, so hopefully this helps folks with the correct ID.

Remember, please send your logs, information, and other contributions directly to me at P.O. Box 4222, Youngstown, Ohio 44515-0222 or via my E-mail address listed at the top of the first page. When using E-mail, please check back with me if you don't get a QSL of your E-mail in a few days. Sometimes, for many reasons, an E-mail message doesn't get to the recipient, so it's best to check and confirm that I received it. Remember, all logs of all types are appreciated. Now, on with the show

UTE Loggings SSB/CW/DIGITAL

- 111.3: SOA211, Warsaw Meteo, POL at 0013 in RTTY 50bd Synops. (AB)
- 230: NDB "BI," Bismarck, ND at 0405. (BF)
- 248: NDB "QL," Lethbridge, CAN heard at 0210. (BF)
- 290: NDB "TZ," Toronto Island, CAN at 0218. (BF)
- 344: NDB "YC," Calgary, CAN at 0311. (BF)
- 389: NDB "JW," Alta Pigeon, CAN heard at 0215. (BF)
- 3270: Abnormal Mossad best hrd at 2015 in faint USB. YL/EE Rptng "Kilo Papa Alpha Two" for more than 30 mins. Also noted on 4665, 5629 kHz. (TY)
- 3336: ZKMM, Mountain Radio Service, Blenheim, New Zealand at 0725 in USB w/2 OMs talking about their next mornings sked. (This is their secondary freq.) (IJ)
- 4125: Vsl Top Gun clg Sydney Radio, VIS, at 1230 in USB w/request for wx to Mandura W.A. & adv by VIS to QSY Ch 424 (4134/4426) for wx report from Perth Radio, VIP, via the Darwin N.T. transmitter. (SD)
- 4211: At 1250, ZLA, Wellington Radio, New Zealand in CW w/ID. (EW)
- 4219: At 1247, UDB2, Kholmsk Radio, Russia in CW w/station marker. (EW)
- 4270: PCDZ, Mossad, Israel, hrd in USB at 2030. (TY)
- 4313: At 1115, 9VG, Singapore Radio, Singapore in CW w/channel marker. (EW)
- 4375: Royal Australian Navy, Alpha 2 w/ CHARLIE TANGO OSCAR clg Darwin Control at 0720 in USB w/no result. (SD)
- 4402: At 1305, KMI, Dixon Radio, USA in USB w/wx forecast. (EW)
- 4417: UBF2, St. Petersburg, RUS at 1910 in CW, QSX 4197 (ship heard) and 8370.5 kHz. Calls collective callsign "4LT3." (JD)
- 4439.5: P7X in CW at 0650 w/5L msgs. (TS)
- 4479: "Attencion" spook stn at 0400 in AM, YL/SS w/5F, no parallel freq, finale X3. (RC)

Abbreviations Used For Intercepts

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

4575: Argentine Nat'l Police at 0305 in USB w/two-tone siren like tone, then SS/OM w/app ann's. I'd appreciate any further info on this net which is also hrd on 9215. (Ed.)

4627: Arizona Wing HF net, Civil Air Patrol at 0242 in USB w/Red Rock 283 as net control. (RC)

4644: Presumed Telecom Port Vila, Vanuatu, at 0555 in USB w/YL hanging up the phone. (Had Port Vila listed here in one off my old log books, used to link various outstations. First time heard any telecom activity here for eight years.) (IJ)

4665: Mossad, ISR at 2220 in USB, KPA2 transmission. (AB)

4739: RESCUE 314, CanForces a/c at 0406 in USB w/kg Halifax Military w/pp Halifax RCC, is ent to Halifax Harbor pad w/three survivors, ETA 20 mins, need ambulance standing by. Was re SAR for an overdue fishing vessel off Nova Scotia. (Ed.)

4780: VLB2, Mossad, Israel, hrd in USB at 1945. (TY)

4946: ZKKG, King Country Communications, Otorohanga, New Zealand, at 0540 in USB for radio checks, & radios bought at an auction. (IJ)

5001: 4XZ, Haifa, ISR, at 1845 in CW within the "Guard Band" for TS stations. (JD)

5127.5: P7X in CW at 0155 w/5L msgs. //5879.5. (TS)

5170: CI02, Mossad, Israel, heard in USB at 1945. Also noted on 3640 kHz. Another day CC/YL nbr station heard in powerful USB at 2020. (TY)

5236.2: FDI8, Nice, F at 0802 in RTTY 50/400 w/test tape "Le Brick," 8-bit Baudot (2-bit "Stop"). (JD)

5302: DELTA QUEBEC GOLF & 5 LIMA, New Zealand Military, in ISB, this was a VFT circuit w/wideband data on USB & radio checks on LSB to co-ordinate the link mentioned they were loosing synch. Didn't appear to be Army, guessing probably Air Force (IJ)

5310: "X1T," Royal Navy vessel at 0845 in USB "Alligator" co-ord net. (JD)

5355: "English man and family" at 0321 in USB, YL/EE w/5F x 2, ends 00000 03:30 (sounds like a German lady on steroids). (RC)

5383.5: "K7J," Royal Navy vessel at 1250 in

USB w/Alligator co-ord; K7J is also on 5178 kHz w/kg Buchan for radar-tracking. (JD)

5400: 78, 79, 81, 84, 89, 91, 94 & 97, possibly Fijian Police Net at 0540 in USB in EE & Fijian, w/radio checks. After the radio checks each number was assigned to a station; Suva, Lautoka etc. Comms seem police related. (IJ)

5419: Unid station at 0300 in CW w/5L. (RC)

5430: "3RT," Royal Navy vessel at 1930 in USB w/"Alligator" co-ord net. (JD)

5435: ART, Mossed, Israel, hrd in USB at 2030. (TY)

5517: At 2252 Nairobi Radio, Kenya being called by unid a/c. At 2300 Asmara Radio, Ethiopia "Asmara Control" receiving posn report from unid a/c. Both in USB. (EW)

5600: Unid stn 6PXJ Rptng "V ABYZ DE 6PXJ" over and over in powerful CW at 1040. Also noted on 3440, 6785 kHz. This stn hrd at every East Asian night around these freqs, poss from Mainland China. (TY)

5643: At 0813 Honolulu Radio, Hawaii, USA receiving posn report from United Airlines flight. At 0853 Brisbane Radio, Australia clg Air New Zealand flt 106 & Malaysian 127. Both in USB. (EW)

5648: EBIE, unid station at 0430 in RTTY 100/850 w/"EL TRAFFICO DE LO PASAR PAS AMOS AZ5RRRR CQAR ARAR." (IJ)

5680: Four Oscar Alpha Zero Five at 1411, Puma helo, 5 POB enrt from EGOV (RAF Valley) to (EGAA) RAF Aldergrove, req listening watch. "Pave Maintenance" at 1230 in r/check w/Kinloss (this was a U.S. station, believed to be a U.S. "Jolly Green Giant helo" from Mildenhall). SRG 40 at 1135 in r/check w/Kinloss. Swiss Air 146 at 0008 clg Dakar. Lufthansa 527 at 0130 clg Dakar, "Selcal 'MRDG.'" Yankee 64 at 1124 in r/check w/Sweden Air Rescue. SRG 32 at 2112 in r/check w/Kinloss, airborne from St Mawgan, 6 POB, enrt to Falmouth Bay. Bodo (Norway) at 2119 w/kg Sabre 33. Unknown (Canadian?) station at 2137 asking what sounded like U.S. fishermen to move off 5680 as it was a SAR frequency! DRGI, German Navy warship *FGS Frauenlob* (M-2658) at 1150, r/check w/Glucksburg Rescue (D). DRFL, *FGS Siegburg* (M-1098) at 1157 w/same. Mission 4868 at 1203 in r/check w/Glucksburg Rescue. SHF 91 (Puma helo w/3 POB from Humberside) at 1255 in r/check w/Kinloss, enrt to EGNH (Blackpool), then EGAA (Aldergrove, Belfast). Req radio watch, & asked Kinloss to relay to EGAA & info to ZXAO at SH Ops. N206G at 0053 in wx check w/unid. Canadian or U.S. station. (AG) *(5680 is a legal regional FSS frequency for northern Canada — Ed.)* SAR Tuai Base, 6, 13, 14 & RNZAF Iroquois (just missed No) New Zealand at 2140 in USB re-evacuating patient out of the bush. (IJ)

5691: Khabarovsk Volmet, Russia, YL opr w/flying in RR at 1415 in RR. Also noted on 3116, 8861 kHz. (TY)

5717: RESCUE 310, CanForces a/c at 0310 in USB w/kg Halifax Military w/pp Halifax RCC (aka Halifax Search) re tasking for search area. (Ed.)

5723: Unid FF military net at 0612 in USB w/ROMEO JULIET clg CHARLIE JULIET w/posn report. At 0647 one station adv he had no contact (pas de contacte) & posn report (too fast but it was in Southern Hemisphere), possibly an early warning net. (SD)

5762: "Attencion" stn at 0200 in AM, YL/SS w/5F, no parallel freq noted. (RC)

5775: Presumed Telecom Solomon Islands at 0650 in USB w/freight orders, adv would "send the computer to Honiara." (IJ)

5820: YHF, Mossad, Israel, hrd in USB at 1600. Also noted on 7918, 10648 kHz. (TY)

5841: At 2037, PANTHER in USB passing "Target of Interest" (TOI) to BARRACUDA 05, 52 ALPHA is also briefed. (MF)

5841.4: Possibly Mexican Highway Patrol heard at 0700 in USB, OM in SS sounded like he was in an a/c due to the background noise. He was giving out a continuous commentary of events and would say "Repeato" after each sentence. (IJ) *(Interesting, can any of our other Spanish speaking readers provide more details? — Ed.)*

6315.5: KFS, Palo Alto Radio at 0824 in ARQ w/msg to unid ship. (EW)

6400: North Korean nbr stn hrd in powerful AM at 1500. Also noted on 657, 3250 kHz. These are famous R. Pyongyang's freq. (TY)

6407: UAI3, Nakhodka Radio, Russia at 1240 in RTTY 50/170 w/"DE Nakhodka BAMR BMRT Nikolas." etc. (EW)

6498: PCD2, Mossad, Israel, hrd in USB at 2010. (TY)

6507: SAG, Goteborg Radio, Sweden at 2338 in USB w/wx info. (EW)

6544: Bodo at 2011 in USB clg Sabre 33 — "Still poor. QSY back to 5680 kHz." (AG)

6637: ZKA, LDOC Auckland Air New Zealand, w/ANZ 124 at 1020 in USB talking about having to divert to Melbourne because of fog conditions. (IJ)

6688: IGJ, Italian Navy Augusta, Italy at 0540 in USB w/radio checks. (IJ)

6706: MAFF Base London, at 0830 in USB w/kg GUY, HMS Orkney & Watchdog 93 (aircraft). Fisheries protection; MAFF Base is the Ministry of Agriculture, Fisheries and Food in London. (JD)

6738: GUSR, HMS Chaser at 0826 in USB clg Architect. No joy. (AB)

6750: Scrambled speech in USB at 0553. (TS)

6765: HSW, Bangkok Meteo, Thailand, OM opr wx bcst in USB at 1950. (TY)

6768: "Attencion" stn at 0100 in AM, YL/SS w/5F, no parallel freq. (RC)

6780: Asmara Air Eritrea at 2055 in RTTY 50/850 w/RVRY & Brief Msgs. (IJ)

6795: Cuban YL/SS numbers stn in AM at 0600 w/3 5F msgs. (TS)

6815.6: At 2101 CAMSLANT in USB securing guard for STINGRAY 35. (MF)

6900: Russian Man nbr station heard at 2000 in extremely powerful AM, OM/RR w/ 3 + 2FGs, ea X 2 Able to confirm using "The Cornet Project" CD. This is an occasional Lincolnshire Poacher's freq. (TY)

6983: "Attencion" stn at 0200 in AM, YL/SS w/5F. No parallel freq. (RC)

7302: At 1946 unid net in USB. (MF)

7337: Lincolnshire Poacher, CYP at 2200 in USB, Id 28065. //9251 //12603 kHz. (AB)

7429: "3QT," Royal Navy vessel at 1115 in USB w/"Alligator" co-ord net. (JD)

7481: "Attencion" stn at 0400 in AM, YL/SS w/5F. (RC)

7517.5: RFFEDFA unid, F monitored at 1700 in ARQ-E 72 bd w/cct ID "UFA" exercise traffic. (JD)

7535: NNTR, *USS Theodore Roosevelt* (CVN-71) at 1715 in primary mode USB w/kg SESEF for HF testing, was here for two days. (Ed.)

7540: JSR2, Mossad, Israel, bcst in USB at 1530 Also noted on 5091 kHz. (TY)

7720.8: AAA6USA, U.S. Army MARS, Ft. Sam Houston, San Antonio, TX at 0037 in packet 300/170 w/kg AAT6TNM, unid U.S. Army MARS. (DW)

7726: "Attencion" spook at 0500 in AM, YL/SS w/5F finale X3. Also noted on 9153 to 0549. (RC)

7760: RGH77, Arkhangelsk Meteo, Russia at 0010 in RTTY 50/850 w/WX synopsis, unusual propagation this time of the day here to log them. (IJ)

7783: SLCS Link-11 Coordination Net at 0030 in USB w/FOXTROT, KILO, LIMA & other single letter callsigns w/link-11 coordination. (Ed.)

7887: Manila Aeradio, Philippines, w/kg various a/c in partly EE & poss Tagalog at 1000 in USB. Not listed in Klingenfuss Guide. Poss regional & domestic air route. (TY)

7995: MacMurdo & South Pole Stations along w/MV Nathaniel B. Palmer at 0415 in USB re what they were going to do, to keep them going through winter. (IJ) *(Remember summer in the northern hemisphere means winter in the southern half, so its winter now in Antarctica. — Ed.)*

8012: At 0500 "Attencion" spook stn in AM, YL/SS w/5F. (RC)

8040: GFA, Bracknell Meteo, UK at 2232 in FAX 120/576 transmitting wx map. (EW)

8122: Royal Australian Navy Collins-class submarine *HMAS Waller* (#75) at 1124 in USB clg Darwin Control. (DW)

8126: Russian Man numbers station heard at 0502 in AM w/msg no. 248 w/a group count of 72. (SD)

8140: BMF, Taipei Meteo, Taiwan at 2147 in FAX 120/576 wx map for South Asia. (EW)

8150.4: PBB, Dutch Navy *Den Helder* in RTTY 75/850 monitored at 0210 w/availability tape. (TS)

8192: 9MR, Johor Bahru, MLA at 1830 in RTTY 50/850 "9MR 5/11 RMMJ MRB RYs SGs JULL." (JD)

8300: New Star Broadcasting Numbers Station heard at 1100 in AM w/flute music & YL/CC. (DW)

8303: LOR, Argentinean Navy in RTTY 75/425 monitored at 0256 w/SS plain text & 5L grps. (TS)

8405.5: BATM "Pavel Batov" (UATY) catch rpt to a UK telex number via UIW in 50Bd RTTY at 0724. (HOOD)

8425.5: WNU, Slidell Radio heard in FEC

w/ann of two new channels in the Globe Network, 6316.5 shore, 6265.0 ship and 19687, 18876.5, both for KHF. Then into traffic list. (JT)

8453: HWN, French Navy, Paris, F at 2035 in RTTY 75/850 w/RYRY & SGSG. (IJ)

8461: PKD, Surabaya Radio, Indonesia at 0815 in CW w/marker beneath strong vft group. (EW)

8605: ZRH, Silvermine, AFS at 1845 in RTTY 75/170 w/"NAWS S12S 591" every two minutes. (JD) (NAVCOMCEN Silvermine is located in an underground facility at the South African Navy (SAN) base there, which is about 25 miles from Capetown. — Ed.)

8700: 9AR, Rijeka Radio, Croatia at 0505 in CW w/VVV DE 9AR. (IJ)

8725: HLS, Soul Radio, South Korea, w/short melody mirror between phone patches in USB at 0836. (TY)

8734: Athens Radio clg "Arisitis D" (P3AZ6, a 32708dwt bulker) in USB at 1924. (HOOD)

8782: BVA, Taipei Radio, Taiwan at 1335 in USB w/YL in CC, at end of conversation operator says bva phonetically. (EW)

8806: Monaco Radio wkg "Kapitan Pulitin" (ELSS5) in USB at 0614. (HOOD)

8933: Continental 39 at 0435 in USB wkg unid stn w/wx around Panama/Bogota. On board wx radar not getting radar returns. (RC) (Quite a few U.S. LDOCs here. — Ed.)

8971: At 2056 PASSBOOK 03 req BEAR 01 switch green, BEAR 01 reports "No skin on target," BLUESTAR is coord clearance in unid country. (MF) BEAR 02, E-2C of VAW-124 "Bear Aces" at 0122 wkg BEAR 03, MID-NIGHT 05, & DELTA, all wkg BLUESTAR; Tactical Support Center, Roosevelt Roads, PR. (Ed.) At 2254 BLUESTAR w/several ANDVT transmissions then in the clear w/phonetics to Bear 03 then back to ANDVT. (RC) All in USB.

8974: BUCKSHOT 20 (F-111C) clg Air Force Sydney at 0405 w/request for pp to Amberley & adv to QSY 9031. EXCALIBUR (USS Mobile Bay) clg Air Force Darwin at 0409. BROLGA 2 (DH Caribou) clg Air Force Sydney at 0625 w/departure message, est destination at 0819. All in USB. (SD)

8980: AF Rescue 82101 at 0337 in USB w/pp to Command Post via CAMSLANT after QSY from 8983. (RC) (HC-130H tail 88-2101, see 9069 log. — Ed.)

8992: At 1850 Andrews in USB w/pp for PINEY 22 to RAYMOND 19. (MF)

9007: RAAF Sydney & AUSSIE 125 (one of a flight of 4 F-111s) heard at 0200 in USB w/pp re live radio interview with the pilot. The F-111s were flying down the coast of Queensland to celebrate 21 years of service with the RAAF. (IJ)

9069: Air Force RESCUE 82101 at 0259 in USB wkg "Rescue Ops," adv will call after they make contact w/vsl. (Ed.)

9076.7: RFFA, MoD Paris, F at 0630 in ARQ-E3 192/425 idling only. (EW)

9080: Unid shipping company net monitored at 0536 in USB w/conversation between OM and YL. (SD)



Photo of the HF radio system in use at Tygart Dam, in Grafton, West Virginia, taken by John Mondary. John included a beautiful photo of the dam itself which is now my Win95 "wallpaper."

9134: CC/YL nbr stn hrd in LSB at 1238. (TY)

9165: HLL, Seoul Meteo, S. Korea heard at 1257 in FAX 120/576 w/wx map of part of SE Asia. (EW)

9268: "Attencion" spook stn at 0600 in AM YL/SS w/5F, powerful signal (S9+40). Xmitter keys for each 5FG. At 0608 finale X2 "02 53" X3 then into more 5F, at 0612 finale X2 "Attencion 971 01 584 02" several times, then "01 55" X3 then into more 5F. At 0620 finale X2 "02 36" X3 then into 5F, finale X2 at 0625. Carrier off 0638. (RC)

9376.7: RFHJ, French Forces, Papeete, Tahiti at 2055 in ARQ-E3 100/400 idling. (IJ) (The last I logged this frequency sending traffic two years ago it was circuit HIJ which would make this RFHI Noumea, NCL to RFHJ. We'll need to check the circuit ID. — Ed.)

9393: High Pitched Polytone (XPH) tonal numbers station at 0600 in AM. (SD)

9996: RWM, Time Signal stn Moscow, RUS at 1958 in CW, Time signals & ID. (AB)

10000: BPM, TS Xian, CHN at 2000, CW/AM w/Time signals & ID. (AB)

10018: Bombay Aeradio, India, wkg Pakistan 824 at 1307 in USB. This is a regional & domestic air route around India. (TY)

10345: Unid CW stn at 0100 w/5L. (RC)

10527: The Counting nbr stn hrd in USB at 2040, unable to hear in AM mode, First time I've ever encountered this stn in pure USB mode, used to be AM compatible reduced carrier USB mode. (TY)

10648: YHF, Mossad, Israel, in AM at 1600. Not listed in "ENIGMA Newsletter" 12, 13, 14. Also noted on 5820, 7918 kHz. (TY)

10780: Cape Radio, USAF ETR, Cape Canaveral AFS, FL at 1000 in USB clg USS Boone during launch of Space Shuttle Discovery (OV-103) on STS-91. (Ed.)

10945: CFH, Halifax Military, CAN in RTTY 75/850 at 1706 w/NAWS tape. (TS)

11059: SAM 300 at 2255 in USB wkg Andrews VIP re: arrival report. (JJ)

11147: Spanish Man (V7) numbers station heard at 0600 in w/msg no. 810 w/group count of 72. (SD)

11153.5: SPAR 76 (C-20) inbound Goose Bay wkg Andrews VIP for pps, also heard on 8032. (JJ)

11175: Unid US Army vessel c/s AAFA clg Thule at 2120 w/posn rpt as 37-39N/29-49W. (HOOD) At 1656 Andrews w/pp for ADMN to AAC2. (MF) Both in USB. (AAFA is USAV SP4 James A. Loux (LSV-6), ADMN is USAV Corinth (LCU-2016) while AAC2 is the harbormaster at Fort Eustis, VA. — Ed.)

11220: Air Force 2 (SAM 683) in USB, DV-2 plus 24, wkg Andrews VIP re: 0135z arrival Andrews AFB. (JJ)

11235: ARMY 10 clg Air Force Sydney at 2224 in USB w/request for a terminal area forecast (TAF) for Cooktown Qld. (SD)

11325.9: Unid, Ulan Bator, MNG? at 2015 in RTTY 50/1000 w/5F, fills on CW. No ID seen but MFA Ulan Bator listed 50/1000 on this freq. (JD)

11421.7: FJY5, Alfred Faure (French Forces) Crozet Island at 0825 in ARQ-E3 96/425 idling signal. (EW)

11436: Unid 75/170 robust signal with privacy equipment at 1935. (FH)

11494: Lots of ANDVT trans. in USB, switched to Parkhill at 1617. Then in clear "you were Donald Duck — say your last transmission again." Parkhill/ANDVT follow, stays in ANDVT for remainder of day. (RC) (U.S. Customs — Ed.)

11502: CW stn sending 5F at 2055, signed down w/000 000. (TS)

11565: EZI, Mossed, Israel, hrd in USB at 1430 w/heavy QRM from BC (R. Pakistan) on the same freq. (TY)

12101: Unid RTTY 50/425 5L signals, msg

signing off at 1150 w/Q "RU SK." (FH)
12140: University of the South Pacific, Suva, Fiji at 2115 in USB w/YL talking about courses for economics & science classes, students, academic meetings, etc., & calling Tonga & the Solomon Islands, will come up on the 0200 sked. (Must have had satellite problems, as HF is usually used for backup purposes these days). (IJ)
12152: TBB6, Ankara, TUR at 1610 in CW sends "TBDJ de TBB/6 QAP." (JD)
12356: Unid vessel heard at 2245 in USB in Russian. (RC)
12359: Unid ARQ on this simplex maritime freq, re wedding plans. (*Apparent bootleg maritime comms. — Ed.*) At 2200, "Herb" in USB w/his wx net wkg various yachts. (RDC)
12477.5: "Olaberri" (EHYF), Spanish trawler in company w/"Olazar" (EAHI) at 75.02N/17.00E sending rpt to Fisheries Directorate in Bergen via GKE in ARQ at 1221. (HOOD)
12484.5: Sailing vsl *Esmeralda* (CCES) with ARQ at 0705 via Madrid Radio and logs in as 19006 ESME. (HOOD) (*Esmeralda, BE-43, is a 4-masted Chilean Navy training schooner and sister ship of the USCGC Eagle. — Ed.*)
12594: IDR, Italian Naval Radio w/75Bd RTTY test tape at 1520, gives QRM to commercial ARQ stations. (HOOD)
12596.5: PCH, Scheveningen Radio, Holland at 0650 in CW w/channel marker. (EW)
12617: Unid USB FONE on this Maritime RTTY channel daily in SS at 2200. (FH)
12728: J2A9, Djibouti Radio w/CW ID marker at 0813. (HOOD)
12824: GYU, Royal Navy Gibraltar at 0629 in RTTY 75/850 w/08a gyu. (EW)
12948: JJF, Tokyo?, J at 1630 in CW, sends "CP de JJF FB3 ZIC nr —" every 30 minutes. (JD)
12958: Sounds like RS-ARQ 228/170 at 1300. Cannot read RS-ARQ here. (FH)
13080: KMI, AT&T High Seas Radio, Point Reyes, Ca, USA at 0113 in USB wkg HC3095 w/attempted ship-shore phone call. At 0118 CW w/"de KMI." (DW)
13161: VIS, Sydney Radio, Australia heard at 0143 in USB w/phone call between two women. (EW)
13267: Irkutsk Volmet, Russia, YL opr w/flyng wx in RR at 0455. (TY)
13270: Gander Volmet, CAN heard at 2255 in USB. (RDC)
13285: Beijing Volmet, China, w/flying wx in heavily accented EE in distorted USB at 0138, also noted on 8849 kHz. (TY)
13397: DFZG, MFA Belgrade, Serbia at 0555 in RTTY 75/500 w/RYY. (IJ)
13450: At 1939 unid numbers station w/YL voice. (MF) (*Should be "The Counting Station" — Ed.*)
13750: New Star Broadcasting, Taiwan, hrd in AM at 1400. Similar bcst hrd on 8375, 8375, 9725, 11430, 15388 kHz at this time. (TY)
14000: Numbers station at 1700 in USB w/ID Frank Young Peter. (AB) YL/EE Rptng "Frank Young Peter" in USB at 1400. This is a "Nancy Adam Susan" nbr stn. (TY)
14340: BAF, Beijing Meteo, China at 0705 in

RTTY 50/850 w/WX synopsis. (IJ)
14352: Russian FAPSI, Lourdes, Cuba at 1548 in RTTY 75/500 w/5L in progress, link 00128. (Ed.)
14421: "Counting station" at 0300 in AM, YL/SS 3+2 FG msg to 697. (RC)
14441.5: NNN0CEQ, USCGC Harriet Lane (WMEC-903) at 1811 clg "any MARS stn stateside." At 1813, NNN0CCK, USCGC Bear (WMEC-901) clg ASSMS w/beam heading of south, both in USB. Navy-Marine Corps MARS "calling." (Ed.)
14626.7: RFLI, French Forces Fort de France, Martinique at 0740 in ARQ-E3 100/425 idling, then de rfli controle de voie on circuit "LIJ." (EW)
14662: Commercial Fishing Station, QLD, Australia monitored at 2120 in USB w/general chit-chat. (IJ)
14686: ATLAS at 1538 in USB wkg Coast Guard 6019 re intel from Key West. (RC)
14930: Unid in 50/405 RTTY signing off at tune-in here 1320. (FH)
14996: RWM, Time Stn Moscow, RUS at 0630 w/CW Timesignals & ID. (AB)
15000: WWVH, TS Kihei, HWA at 0628 in CW/AM w/timesignals & ann. (AB)
16101: HBD20, MFA Berne, SUI at 1105 in ARQ w/5L to unid embassy, NOT parallel w/18269 kHz. (JD)
16143.7: "RFLI" Fort de France, MRT at 1930 in ARQ-E3 192 bd on cct ID BFL; C de V msgs from both RFLI and Provence. (JD)
16228: YBU, Havana? in 75/500 RTTY RYs until QRU at 1403, a regular, alaoast daily. (FH)
16715: M/V *Pella* (ELUH3) at 1008 w/ ARQ msg to Square Ltd, Piraeus via SAB and logs in as 26765 MARINO. (HOOD)
16785: TKH *Nyura Kizhevato* (UWZB) at 1018 w/50 Bd RTTY msg from Capt. Davydenko to Izmail (is a 2180dwt cargo vsl of Ukrainian Danube Co). (HOOD)
16786.5: RTMS *Znamya Truda* (UWRY) at 1022 w/50 Bd RTTY msg from radio officer to Kerch Radio (URK9). (HOOD)
16793.5: Unid ship from Philippines in FEC relaying NX/EE election returns from DZX Manila (Satellite to Ship) amid charges of vote buying. (FH)
16904.5: FUV, Djibuti in RTTY 75/850 RYs SGs testing, then moved down to 16904.6 at 2050. (FH)
16912: RDL? Moscow? In 50/200 at 2100. (FH)
16922: VTH, Bombay, IND at 1155 in RTTY 50/850 w/"VTH5/7/9 RBSL BNR RYs SGs," although Bombay is now called something else in the native language, but it still sends "BNR" — Bombay Naval Radio. (JD)
16951.5: 6WW Dakar in 75/850 RTTY RYs etc., at 0130 w/good signal. (FH)
16955: YLQ, Riga Radio in FEC w/Traffic List at 1518. (FH)
16975: RKLK, Arkhangelsk Radio, taking CW tfc from unid vsl call sign UDMS on 12463.5 at 1603. RKLK listens on 16619/12551.5 for initial calls. (HOOD)
17053: 4XZ, Haifa, Israel, w/v mkr in CW at 1143. (TY)
17090: UAI, Nakhodka Radio, Russia w/CW

ID marker at 0733. (HOOD)
17275: UHS, Murmansk Radio, Russia at 0158 w/Russian operator taking number to call. Had very noisy signal. (EW)
17428.7: SAM, MFA Stockholm, S at 1050 in SWE-ARQ w/msgs to unid embassy. (JD)
17461: Unid RS-ARQ 228.5/170? Can't read here, 1430 to 1500. Italian has been rptd. (FH) (*Turkish MFA has been logged here before in this mode. — Ed.*)
17904: Tokyo Aeradio, Japan, wkg various a/c in USB at 0135. (TY)
18000: Nancy Adam Susan nbr stn hrd at 1100. OM opr Rptng "Baker Edward Charlie" in weak but readable USB. First time I've ever encountered NAS nbr stn on this freq. (TY)
18230: MKD, Akrotiri, CYP at 0930 in Piccolo-6, Only "de MKD" on engineering channel. (JD)
18645: Test tone of the counting nbr stn hrd in AM at 0958, then into RTTY at 1000. (TY)
18737: MFA Ankara with African business/commerce nx (in EE) using 144Bd FEC-A at 0848. (HOOD)
18875: M/V Greenridge at 0140 in ARQ w/telex to Singapore. (IJ)
19225.2: RFFTD Paris in ARQ-E3 200/400 w/5LG msg to RFFVAE Alysse after BBBB at 1405. (FH)
19715: YL/EE, EZI, Mossed, Israel, hrd in USB at 1100. Also noted on 15980, 17410 kHz. (TY)
19724.5: UIW, Kaliningrad Radio, Russia heard at 0912 w/50Bd RTTY msgs to NIS "Bavenit" (UAIO) an Arctic Geo Expedition vsl & to RTMS "Zvezda" (UALY) for Captain Laptev. (HOOD)
20469: AXM37, Canberra, AUS w/FAX at 0210. (FH)
20890: Parkhill type scrambling ("Turkey Talk") heard at 2027 in USB on Customs COTHEN. (MF)
20946: 8BY, French Intelligence, F, sending "VVV 8BY followed by 3FG's separated by a slant bar in faint but readable CW at 1345. Also noted on 14931, 18415 kHz. (TY)
22258.3: CCS Santiago in RTTY 50/850 w/RYs at 1408 to ships. (FH)
22575.5: PKX, Jakarta Radio, Indonesia, w/CQ mkr in CW at 0845. (TY)

A special thanks to this month's contributors: (AB) Ary Boender, The Netherlands; (AG) Alan Gale, UK; (BF) Bill Farley, NM (during trip to Canada); (DW) David C. Wright, TX; (FH) Fred Hetherington, FL; (HOOD) Robin Hood, UK; (IJ) Ian Julian, New Zealand; (JD) John Doe, UK; (JJ) Jeff Jones, CA; (JT) John Temple, OH; (MF) Mike Fink, FL; (RC) "RC" in TX; (RDC) R.D. Carter, NC; (SD) Simon Denneen, Australia; (TS) Tom Severt, KS; (TY) Takashi Yamaguchi, Japan; and (*Ed.*) ye editor in Ohio. Thanks to all. ■

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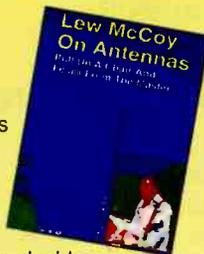
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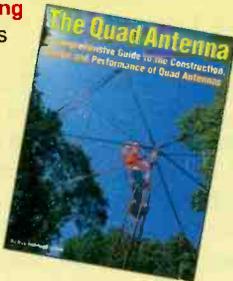
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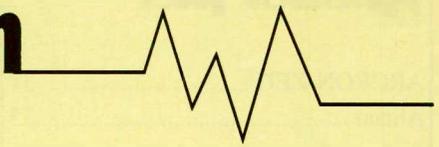
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The Loose Connection

RADIO COMMUNICATIONS HUMOR

BY BILL PRICE, N3AVY



Lights, Camera — Barbasol!

Note: Bill tells me this is a "generally true" story, and that the names have been changed to protect the guilty. — Ed.

Here in Cowfield County, the cable TV system has recently expanded to 11 channels. For us, a cable-ready set is one from before the days when a built-in UHF tuner was mandatory. We have channels 2 through 13, but channel 3 is just snow until the Cowfield County Cable (our motto, "Because we got the franchise, that's why") fires up their character generator to produce their "TV Classified" advertising channel. Be still my heart.

I like trains, and when I passed through the usually snowy channel 3, I saw that my cable-provider was airing what looked like footage shot from the front of a moving train. I can't say why, but I found it mesmerizing — a little like riding in the front car of a roller-coaster without the steep hills. This particular footage was scary to watch, though, because the camera lens appeared to be zoomed in so that every time the train approached an object and turned away, it seemed as if I would smash my face into the object just before the train turned. You can duplicate this feeling by looking out the windshield of a moving car from the *passenger* seat, through a pair of binoculars. This is not for the faint of heart, I assure you.

Scary, bad photography, dirty lens — none of those things mattered — I like trains. I headed to the kitchen for a lemonade and returned to enjoy my train ride. After a while, I noticed that the train's route seemed to repeat itself every minute or so. I checked with my watch and found that the train passed the same rock every 46 seconds. Even a person of my limited brain power could quickly surmise that there were no signs of editing in the scene I was watching, and I also realized I had the sound turned down. I turned it up to hear some tinny, then some wooden sounds — nothing at all like a train. I watched some more and the train stopped

abruptly — almost instantly, and some kid said, "dammit!" With that, the camera swung violently upward, whipped around in a blur and stopped upside-down showing a wide-angle view of a china cabinet and a doorway. When the image was righted, I recognized it as belonging to my neighbor Larry.

Those of you with very few grey cells such as I have are probably just now catching on that Larry had mounted a tiny TV camera on the front of his HO-gauge locomotive, and set an RF modulator (from an early computer) in the coal car. I learned later that he received this channel 2 signal on a rabbit-ears antenna feeding the RF input of his VCR and put a 75-ohm amplifier in line with the RF output, which he fed to another rabbit-ears antenna so he could watch his "train-cam" in any room of the house (Larry had a lot of televisions). He had set the VCR output to channel 3, because that channel was unused on our copper-optic cable TV system. He did not realize how far his signal traveled. My estimate was a good quarter-mile. Larry had re-invented both the television transmitter and a repeater. He didn't do a bad job for the \$200-some bucks he had in it (train extra).

The "dammit!" had come from Larry Jr., Larry's 12-year-old son whom I later learned had no idea that the camera existed. He was just playing with the train, and probably thought the camera, which didn't look anything at all like a camera, was just one more train-gadget his dad was experimenting with.

Soon the train was back on the track and Larry Jr. and a friend — Marty — were sitting within the camera's view and plotting something very similar to something his father and I had plotted some 30 years prior. They too had discovered that Barbasol Shave Cream was not only a great bargain for a shaver, but was also a prankster's weapon of choice. If a kid shook it up pretty well, two or three cans could fill the entire interior of a car — and after all these years it could still be had for about a buck a can. They planned to fill their homeroom teacher's car with

shaving cream, and they were kind enough to provide me with the teacher's name and the time they would do it. The phone-book provided me with the address. I called Larry at work. Yes, he would help. That night, after Larry and his wife had pretended to go to sleep, Larry Jr. tiptoed downstairs and left the house by the basement door. He wrapped the top of the paper bag around the hand-grip of his bike, met up with Marty (Larry had called Marty's dad and enlisted his aid) and headed off to Lard — uh — Lardbutt Laringer's house to give him a head-start shampooing the upholstery in his Buick. The driveway was empty when they got there. They thought Lardy must have put the car in the garage. "Look, the window's open!" These kids couldn't smell a setup if it was hand-delivered by a skunk. They were both looking into the open window when that cooperative Mr. Laringer popped up inside the garage and fired off two flashes in rapid succession. The whirring motor told the kids they'd been had by Polaroid. Twice. Temporarily blinded, they couldn't run, and Mr. Laringer handed them one of the matched set of pictures. "Nice pose," he said. "I'll hang on to the other one." "Oh," he added, and took the bag from Larry Jr.'s hand. "Is this for me? How nice of you. Better run along home now. See if you can get there in time to answer the phone so it doesn't wake your folks," he added. The two boys ran for their bikes and worked furiously to set a new cross-town record.

It wasn't bad enough that their fathers had both put ketchup all over the ear-pieces of their telephones. That not only let them know their parents were on to them, but gave them the false sense of security in thinking that it made up their entire punishment, which in turn let them tiptoe into their respective bedrooms, undress, and slip quietly into their beds — each filled with two cans of Barbasol. Larry showed me the picture he took of Larry Jr. as "Foam-Boy." Marty's father says he took an interesting picture too. They've had copies made for Mr. Laringer. ■



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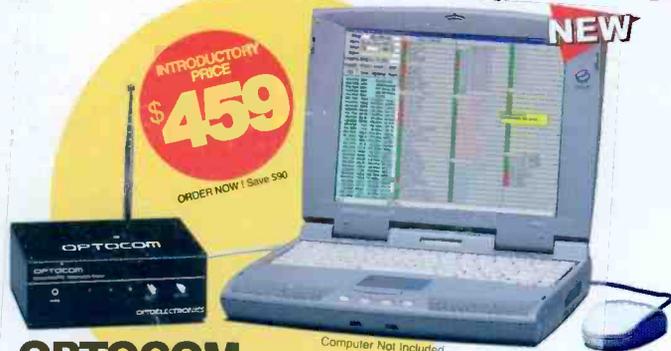
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