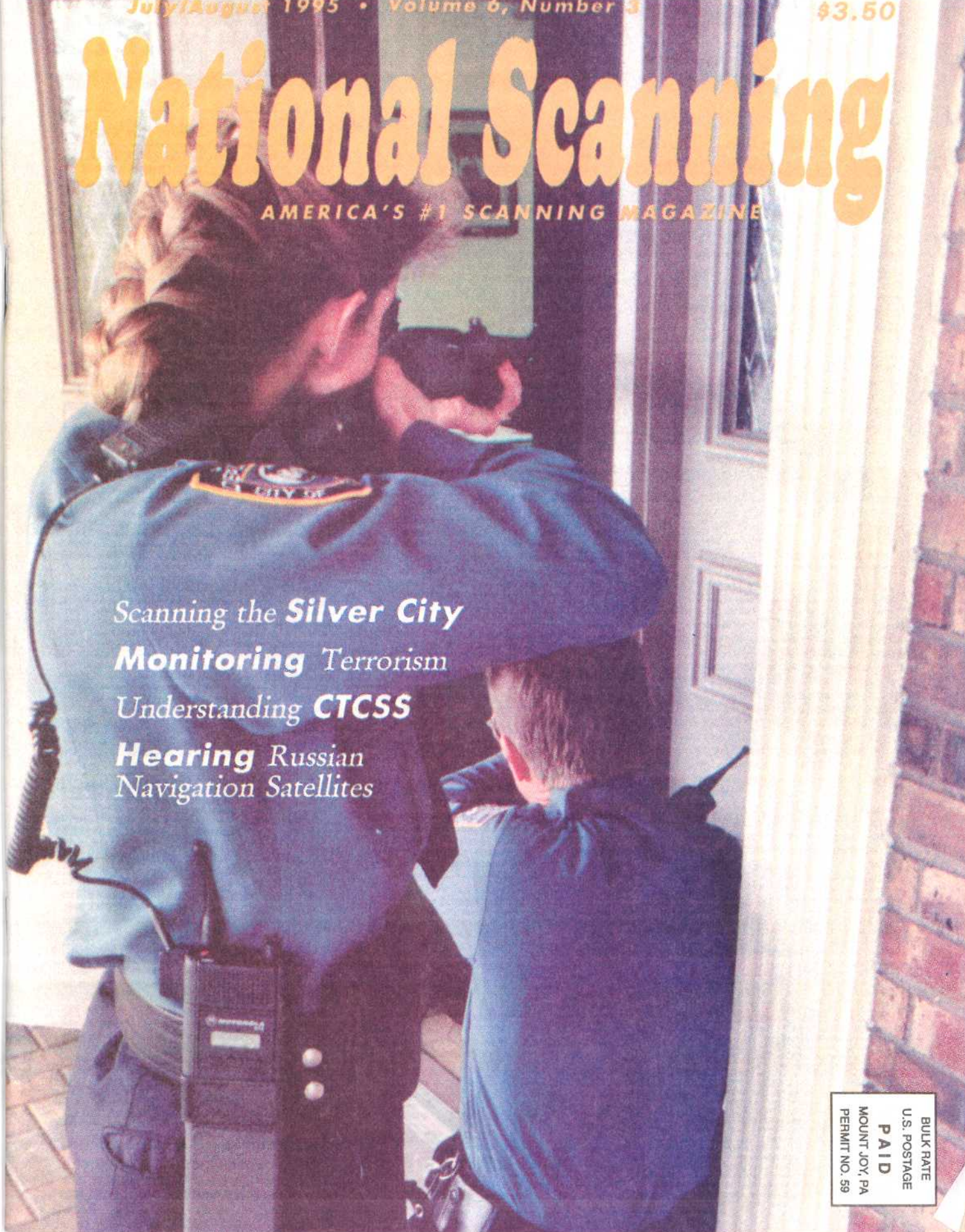
July/August 1995 • Volume 6, Number 3

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National Scanning

AMERICA'S #1 SCANNING MAGAZINE



Scanning the **Silver City**

Monitoring Terrorism

Understanding **CTCSS**

Hearing Russian Navigation Satellites

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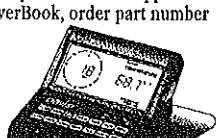
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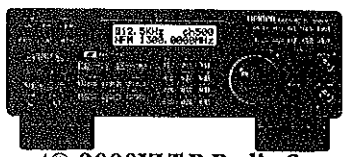
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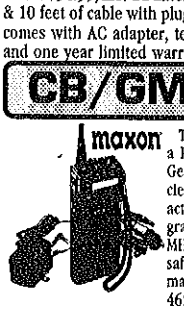
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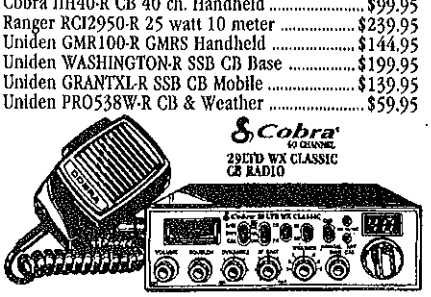
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Our cover: Ceneterville, Ohio police officers Donna Peacock and Steve Maynard simulate an approach to a "breaking and entering in-progress" call.

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National Scanning
Box 360, Wagontown, PA 19376

National Scanning
is the official publication of the
Bearcat Radio Club.
Subscription & Membership,
Box 291918, Kettering, OH 45429

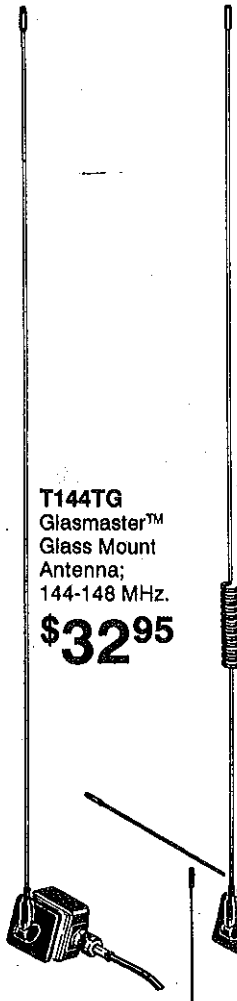
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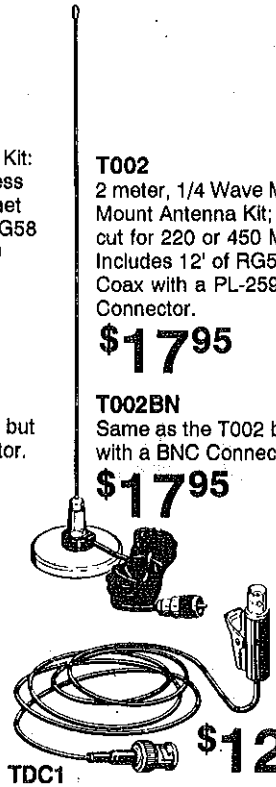
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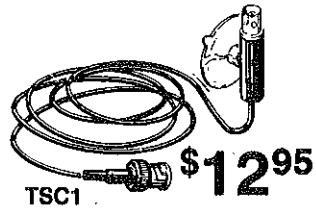
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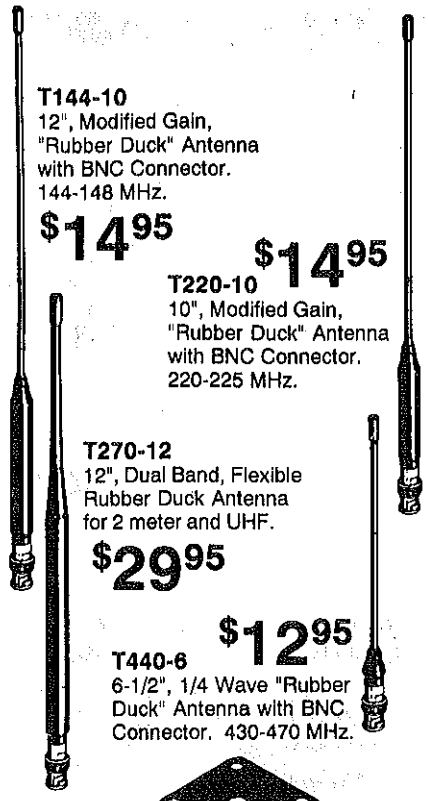
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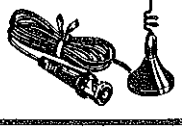
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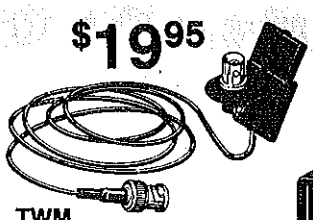
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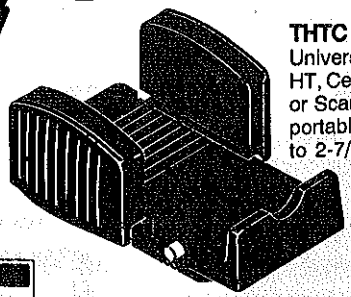
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Rape Suspects Caught By Scanner

Stafford County, Virginia Deputy Sheriff Robin Perkins knew something was wrong when she offered a ride home to a girl she found walking alone at 1AM. The teenager seemed upset, but wouldn't reveal the problem to the deputy. After dropping the girl off at home, Perkins drove away to resume patrol when the scanner in her patrol unit picked up a phone conversation between the girl and her alleged attacker. Perkins recognized the girl's voice and returned to the home to question her. The girl told the deputy about the assault and arrests were subsequently made. Stafford County Detective Jeff DeBord said that if Deputy Perkins hadn't heard the call "odds are that we would never have known about the assault."

The Many Uses of Baby Monitors

A Kitchener, Ontario, couple decided that they'd had enough of the low-down, immoral behavior that was going on. So they planted a baby monitor under a female relative's bed to alert them if the woman had "company." If there was any hanky-panky, the two would react. It worked and one evening at midnight, two people broke into the female relative's apartment, punched the male visitor in the eye and nose, and threatened him with a knife. The boyfriend reacted by jumping from a window to safety. "Obviously," said Waterloo Region Police Sgt. Jim Doyle, "they didn't approve of her boyfriend."



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Walkman Bandit Gets an Earful

The FBI called San Diego bank robber Scott Allen Wilson the "Walkman Bandit" because of the earphones and radio he wore while committing his crimes. Wilson, 25, recently pled guilty to holding up four banks in the La Jolla, Hillcrest and Mission Valley areas of San Diego. Security camera films and eyewitness reports confirmed that the robber wore a Walkman radio during the holdups, but apparently he wasn't listening to music, he was monitoring a police scanner. "He was listening to what the cops were saying," Assistant US Attorney Jay Alvarez told the news media. The scanner didn't do Wilson any good in avoiding the law; he was sentenced to ten years in federal prison.

Saved by a Cell Phone

Darrell Gene Devier was only twenty minutes away from death in a Georgia electric chair when a storm knocked the power out. The 39 year-old Devier, who had been waiting on death row since his 1979 conviction for the kidnapping, rape and beating of a 12 year-old girl, was due to be put to death at 7PM sharp. The electric chair that was to help carry out the sentence had its own power source and backup generator and was not affected by the outage. The prison phone system, however, went out at the same time as the lights. Georgia Attorney General Michael Bowers had been on the phone talking to his office, awaiting word of a reprieve for Devier. With the phones out, Bowers was forced to jump in his car, pick up his cell phone and drive a half-mile up the highway to find a good signal. He did and learned that Devier had been given a stay of execution. Racing back to the prison minutes before 7PM, Bowers delivered the news to prison officials. The Corrections Department was quick to point out that, if the phones had remained out of commission and Bowers hadn't had a cell phone, the execution wouldn't have been delayed a day.

Failed Mike

A police officer in Pampano Beach, Florida experienced every undercover cop's worst nightmare when his hidden microphone failed. The detective, working a drug sting, had just been sold $100 in crack cocaine by a drug dealer. The detective gave a verbal signal to his three backup officers, advising them to move in for the arrest and then proceeded to identify himself as a police officer to the suspect. However, the microphone he was wearing began "cutting in and out," according to police spokeswoman Sandra King. "When the detective was giving the signal, nobody moved," she said. The suspect floored the gas pedal on his Jeep and, with the detective hanging onto the passenger window, crashed through a

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pair of parked cars. The detective was thrown clear and sustained minor injuries. The backup officers pursued the suspect, who struck another vehicle with his Jeep, killing the driver. The suspect then ran into a concrete light pole. A foot chase ensued and the suspect was captured without further incident. No disciplinary action is planned against the detective. What he did was "exactly picture perfect, outside of the equipment failing, which you can't help," said King.

LAPD Comms Off-Limits in Two Years

Los Angeles' new $14.1 million radio system spells trouble for scanner listeners. Police are raving about the Motorola Astro Saber radios whose transmissions will be in digital form and not decipherable by scanners. Sgt. Kurt Miles, head of the LAPD's radio technology unit, said that people with scanners will soon be unable to hear the emergency communications. Patrol officers in the Van Nuys Division and Foothill Division already have the new radios, other divisions will follow. The system should be fully implemented in two years.

KCMO System Idea Revised

Bowing to the uproar over the Kansas City, Missouri Police Department's new encrypted radio system, Chief Steven Bishop has conceded that there may be a way to compromise. "The truth is, we might be able to come to something that I think would facilitate the open aspect abilities of the media to the department as well as protect the officers." Bishop said his office just hasn't had the time to draw up a proposal yet. KCMO's proposed system would encrypt all communications, making it impossible for transmissions to be received on conventional scanners.

Police Radios Fail

The San Rafael Police Department's radio system was having a bad day...unfortunately it was Memorial Day, traditionally a hectic time for law enforcement. For five hours, the system was down, forcing officers and dispatchers to communicate via cellular phones and on an alternate car-to-car frequency. This isn't the first time the $521,000 radio system has hiccuped; it has failed before since its 1990 installation. Technicians are attempting to diagnose the problem.

Radio Glitches

Police officers in central-western Broward County, Florida are complaining of radio problems. City of Sunrise officers are fighting not only bad guys on the street, but radio "dead spots" and missed communications as well. Acting Police Chief Jerry Blough said, "quite candidly, we are concerned about our officers' safety more than anything else, and obviously the radio is the link between the dispatcher and officer in the field." The radio system is 13 years old, but Mobile Communications – the company that maintains the radios – believe that antenna adjustments will solve the problems.

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Citizens on Patrol

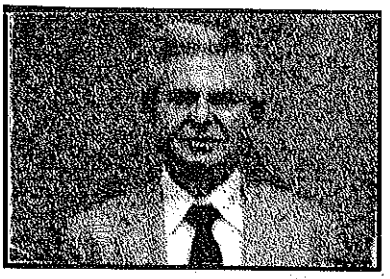
The Chicago Police Department's alternative policing program encourages citizens to get involved in the fight against crime. Neighborhood watch groups on walking patrol had to use CB radios and walkie-talkies in order to summon help, which put an extra step in the process of getting the needed information to police. Now, Ameritech Corporation has donated 250 cellular phones and airtime to groups working with CPD's program. Operation Beat Feat in the Rogers Park area is a good example: patrollers hit a button on their portable phones and the police are automatically dialed. CPD hopes to have the program and the phones operating in all 25 police districts by the end of summer.

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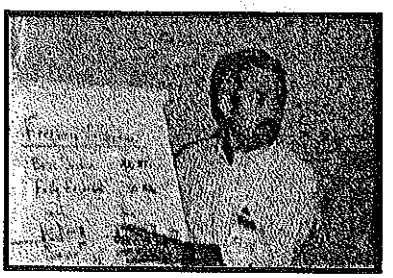


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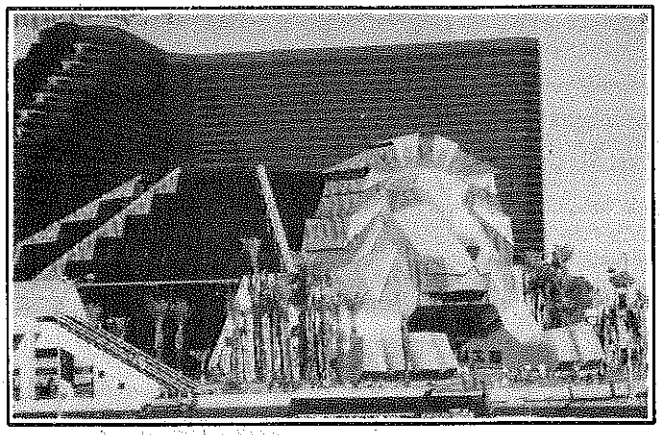
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Scanning the Silver City



MGM Grand Casino on "The Strip"



Las Vegas lights up the night

By Jack McCartan

When one thinks of Las Vegas, a few things may come to mind: gambling, bright lights, glamour, wedding chapels, etc. There are all of these things and more in Las Vegas, Nevada.

Recently, I took a trip to Las Vegas, and I brought my scanner along to monitor the action in this city that never sleeps. At first glance, one would not think that there's too much to monitor in Vegas, except for the usual public safety agencies. Well, there's more to it than meets the eye--alot more!! The main attraction in Las Vegas is the casinos. Keeping the guests happy and secure is a must for casino management, who depend on the tourist dollars to survive. With hundreds of guests in any casino at any given time, and with the enormous amounts of cash on hand, it is imperative that a well-trained and well-equipped security force be ready to deal with any crisis that may occur.

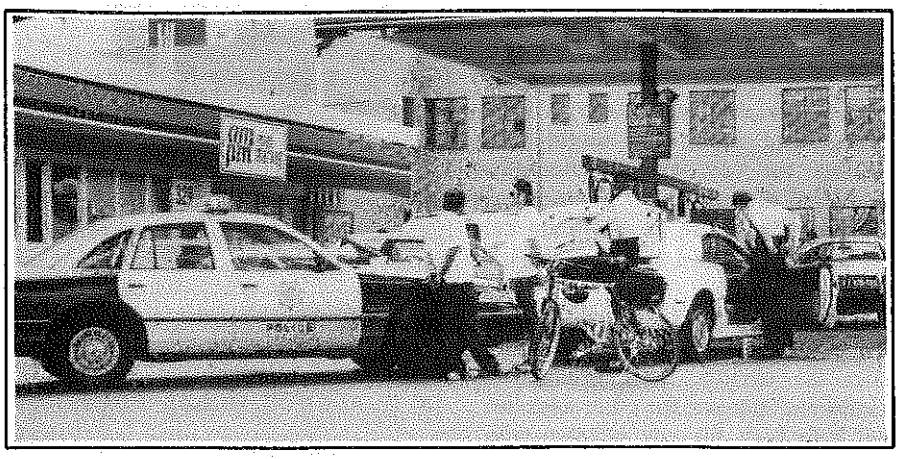
Of all the casinos I visited on my trip (and I visited alot!), all of the security guards that I saw were carrying a sidearm. In addition, Motorola radios were the radios of choice for the casinos- it was the only brand that I saw in use the entire week. Many casinos, like The Excalibur, have large security forces; these include uniformed officers, undercover officers, and foot patrol officers for outside detail. In addition, many of the larger casinos have patrol vehicles and bicycle units for patrols outside. Most casinos have a command center, which is the eyes and ears of the entire operation. Surveillance cameras scan for those unscrupulous gamblers who try to cheat at the table games. These cameras are also used to watch for unauthorized people in the casino, etc. Casino security guards go through a rigorous three-week training course at the LVMPD Academy.

Nearly all casino employees carry handheld radios. This includes of course, the security guards, but the change people, maintenance, hostesses, janitorial staff, desk clerks and management. Many casinos, like the MGM Grand, use many frequencies for the varied types of occupations.

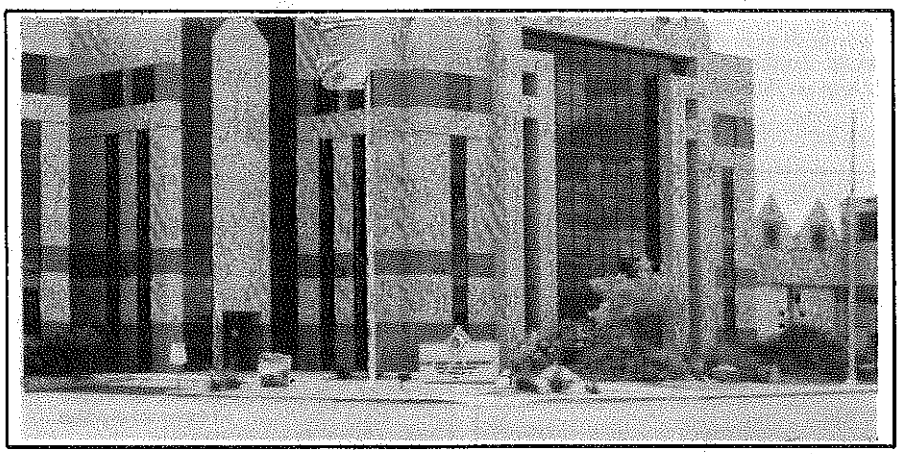
When monitoring a hotel/casino security frequency, you'll most likely hear some mundane stuff like a lost wallet, or perhaps a car is parked in the fire lane. But did you know that many times you can find out which slot machines are paying out?? After a big payout, many times the machine needs to be filled with money. Security gets the call that "machine number 1234 in the east side casino needs to be filled with coins". In addition to this, many times security officers will have to confront unruly customers, assist the ill patrons, make money drops and pickups, help lost children, etc. It's a never-ending job that surely does require patience and dedication, and it makes some interesting monitoring.



These two Excalibur security guards get ready to go out on bicycle patrol on a chilly night



LVMPD take two robbery suspects into custody



Clark County FD's HQ

Silver City

Besides the behind-the-scenes look into Las Vegas, there is also the obvious: the local public safety agencies. In a city such as Las Vegas, the action is non-stop. There are car accidents, fights, domestic disputes, robberies, etc. Just like any other city, Las Vegas has its share of crime too, and the public safety agencies in town are always there to answer the call. In addition, the Las Vegas FD and Clark County FD are always ready to respond to fire calls when needed. These are just a few of the many public safety agencies in and around Las Vegas that provide great scanner action.

If you have ever visited Las Vegas, you'll notice that there are many taxi companies and bus lines serving the thousands of tourists each day. Do not overlook these transportation companies, either. Maybe if you monitor these agencies, you can find out why that darn taxi hasn't shown up yet!

The main airport for Las Vegas is McCarran Airport. It's a very large airport, and if you've ever walked through it from end to end while loaded down with yours and your wife-to-be's luggage, it'll seem even bigger!! The McCarran tower can be heard on 119.900.

Besides casinos, another big business in Las Vegas and the entire State of Nevada is the wedding chapel business. One of the main reasons I went to Las Vegas, besides hitting the "big" jackpot, was to get married. My fiance and I decided that since we both like to gamble, that we'd get married in Vegas. All through Las Vegas, there are countless wedding chapels. There is even a "drive-thru" window at one wedding chapel. Although the chapels do not offer to much in the way of scanner monitoring, I thought I'd mention it anyway, since it is a big part of the Las Vegas way of life.

When traveling to Las Vegas, or any other major city, do not forget to monitor the federal bands. There is a FBI office in Las Vegas, and although I did not find its frequency while out there, the feds are one agency to always keep an ear (and an eye) on!!

Las Vegas is the home to The University of Nevada at Las Vegas, or UNLV. A major sports arena is on the campus of UNLV, the Thomas & Mack Center. A professional ice hockey team, the Las Vegas Thunder, call the Thomas & Mack Center home. Although I did not make it to an ice hockey game, (and I really wanted to go, too!!) this is yet another venue that would provide some serious scanning opportunity. Large college campuses always provide great action, with the college police force, maintenance, sports teams, etc.

Another area that I always monitor, whether traveling or at home is the itinerant frequencies. These frequencies are great to listen to because you never know what you're going to hear. It could be a local construction company, a police undercover unit, (yes, they've been used for that purpose in the past) or even a local fast food drive-thru window. Always keep the itinerants programmed into your scanner. In fact, do what I do--dedicate an entire bank to strictly itinerants and monitor them often.

Las Vegas is also the home to Nellis Air Force Base. Like any military installation, great monitoring abounds. See the list on the following pages for some Nellis AFB frequencies.

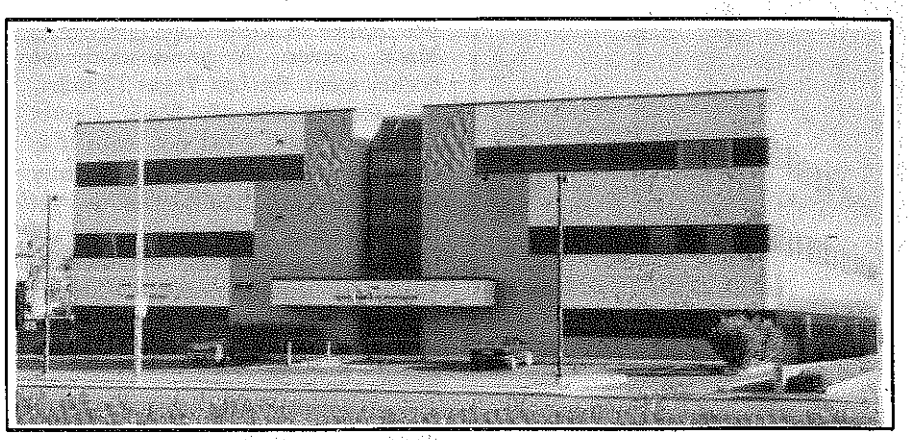
Silver City

Never overlook the GMRS frequencies. Search between 462.550 and 462.7125. This is very popular and growing segment of radio communications and can provide great opportunities for scanner enthusiasts. In fact, I plan on buying a GMRS radio in the near future.

The news media in any city is always busy. In Las Vegas, KLAS-TV Channel 8 is one of the local TV stations. In one strange twist of fate, one evening while walking on "The Strip" with my handheld scanner, I noticed a KLAS news van parked up the street. Luckily I had their mobile frequency 450.250 punched in and I monitored them for a while. Turns out that they were getting ready to do a shot of downtown Las Vegas and a live report from "The Strip" about the recent cool weather the city was experiencing. And from the exact spot where I was standing was where the newsman did his live report, as I saw later on the newscast.

In any city, scanner monitoring is always an adventure. Besides the obvious, look behind the scenes and monitor the other agencies that help keep the city buzzing with activity. In Las Vegas, the action is never-ending. I hope you enjoyed this look at "The Silver City".

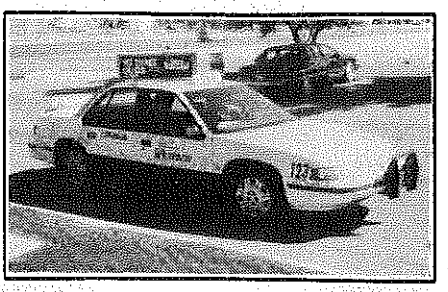
Special thanks to Fred McGowen for all his help on this article.



The Las Vegas office of the FBI, notice the antennas on the roof



A LVMP cruiser on patrol on "The Strip"



Western Cab Co. is one of many cab companies that can be monitored in Las Vegas.

SOME TIPS ON "TRAVEL SCANNING"

* Before departing, compile a list of the frequencies in the area which you are visiting. Frequency directories and National Scanning are good sources for this information.

* Keep the original box and packing materials which came with the scanner. Use these to carefully re-pack the scanner to prevent damage to the unit. If traveling by air, stow the scanner in a carry-on bag to keep with you at all times.

* If scanning in public places, be discreet. Use an earphone or Walkman-type headset. Always obey the commands of local officials.

* I recommend the use of Ni-Cad batteries. Always bring your battery charger with you, too.

* When monitoring while traveling, the local public safety bands are always a sure bet to hear lots of action, but there is so much more to hear!! Monitor local businesses, taxis, hotel security, highway departments, airports, shipping traffic on local waterways, military, GMRS, itinerants, as well as the ham bands. Search the many frequency ranges for new or unpublished frequencies.

* Look up the telephone numbers of local law enforcement agencies in the local telephone directory, and give them a call. It might be worth it. Who knows, you might get a free tour of HQ or other valuable information.

* Always take a notepad and pencil with you, and jot down any notes or other important information. Upon your return, share your findings with the NatScan readers!!

LAS VEGAS AREA PUBLIC SAFETY FREQUENCIES

LVMPD	Ch 1	159.150 -- record checks
LVMPD	Ch 2	159.090 -- SE Patrol
LVMPD	Ch 3	158.970 -- SW Patrol
LVMPD	Ch 4	158.745 -- NE Patrol
LVMPD	Ch 5	159.210 -- Car/car
LVMPD	Ch 6	159.030 -- NW Patrol
LVMPD	Ch 7	158.790 -- Day-shift detectives
LVMPD	Ch 8	156.210 -- Car to car
LVMPD	Ch 9	158.850 -- Rural units
LVMPD	Ch 10	156.030 -- Search & Rescue
LVMPD	Ch 11	156.210 -- Car to car

Nevada Highway Patrol (NHP) Ch 4 -- 42.88 Las Vegas dispatch
NHP Ch 8 -- 42.80 Las Vegas dispatch
NHP -- 153.740
NHP -- 154.920 Mobile extenders
Las Vegas Park Rangers -- 155.685 all activities
Las Vegas Court Marshalls -- 453.725
McCarran Airport Security -- 155.880
Las Vegas Fire Dept. -- 453.150 East dispatch
LVFD 453.400 -- West dispatch
Clark County FD -- 453.100 West dispatch
Clark County FD -- 453.700 East dispatch
Las Vegas downtown trolleys -- 158.925
LV City Parks Maintenance -- 453.825
LV Public Works -- 159.000
Red Cross Phone Channel -- 463.975 (shared with other users)
S. Nevada Emergency Rescue Associates -- 463.700
Mercy Ambulance -- 155.175
Primary Mercy Ambulane -- 155.205 Secondary

LAS VEGAS CASINO FREQUENCIES
(used for security and/or housekeeping)

EXCALIBUR	LUXOR	TROPICANA
857.9125	856.3625	461.0375
855.2875	857.3625	461.675
853.4875	858.3625	463.325
859.8375	859.3625	464.875
860.8375	860.3625	855.3375
858.2875		855.5875
929.2875		

O'SHEA'S	FRONTIER	IMPERIAL PALACE
462.0375	461.8375	461.1375
461.7625	463.2375	461.200
462.1375	854.5625	462.475
	855.5625	463.5375

UNKNOWN LAS VEGAS FREQUENCIES

151.925 -- Paging hospital/hotel
148.125-- Civil Air Patrol??
855.6875, 154.570, 151.505, 461.150, 464.9125
461.325 -- Security agency? "Unit 11 to control"
462.975 -- Ambulance??
154.515 -- Two fellows joking around

Silver City

MISCELLANEOUS LAS VEGAS AREA FREQUENCIES

UNLV --
154.570, 463.6375, 463.7125,
464.5625, 853.4875

Nellis Air Force Base
126.200 -- Tower
124.950 -- Approach Control
134.100 -- Departure Control
121.800 -- Ground Control
163.4875 -- Air Base Security-primary
163.5875 -- AirBase Security-secondary
173.5875 -- Fire/crash crews-primary
173.8375 -- Fire/crash crews-secondary

KLAS-TV --
450.250 mobiles
450.550 camera crews
450.850 audio
Ace Cab Co. -- 854.8875
ABC Cab Co. -- 855.8875
Downtown Trolleys -- 158.925

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Understanding CTCSS

by Steve Donnell



Continuous Tone Coded Squelch System, CTCSS for short, is the full name for tone controlled squelch, and the standard tone frequencies set in place by the Electronic Industries Association. CTCSS is also commonly referred to as Private Line or PL, which is merely a trade name used by Motorola. GE refers to tone squelch as Channel Guard and EF Johnson uses the term, Call Guard. However with Motorola being one of the largest suppliers of two-way radios, PL has become the standard slang for tone squelch.

How CTCSS Works

CTCSS (PL) is transmitted as a continuous low level tone on a radio channel, along with regular voice audio. There are about 32 commonly used different tone frequencies, from 67 to 254 Hz, which are used as CTCSS tones. CTCSS is considered subaudible because the standard tone frequencies used are below 300 Hz, outside of the normal voice frequency range used with two-way radios. And also because the level that the tones modulate the transmitter is only about 15% of the total modulation level. In a radio setup for tone squelch operation, the receiver speaker will not unmute unless a received signal includes the correct CTCSS tone. The radio operator does however have the OPTION of defeating the tone squelch function, primarily as a means to "monitor" a radio channel for other users, which is required prior to transmitting a message.

DCS

A newer form of coded squelch, Digital Coded Squelch, more commonly known by it's Motorola name, DPL (Digital Private Line), performs the same function the same as regular CTCSS (PL). The difference is, with CTCSS (PL) different tone frequencies are used for different user groups. In DCS (DPL) the code signal that is used is a binary number, which is transmitted as a continuously repeated digital data "word" with low frequency pulses sent to represent the 1s and 0s of the code "word" or number. The main advantage of DCS, is a much larger number of possible user codes, and because the digital data stream is sent at a lower frequency than many CTCSS tones, there is less of a chance for DPL to degrade the clarity transmitted voice audio.

Currently there are no scanners which include a factory designed option accessory for decoding DCS codes, but this represents a very limited problem. DCS is primarily used for various business radio systems, although a few newer public safety (police and fire, etc.) radio systems do make use of it. Also, DCS should also not be confused with the digital coding formats used on 800 MHz trunked radios systems.

CTCSS and Repeaters

CTCSS is used extensively with VHF and UHF repeaters, primarily to keep unauthorized stations from accidentally, or otherwise, accessing the repeater. It can also be helpful in keeping some forms of noise interference from being retransmitted through the repeater. With business repeater systems typically shared by several different user "groups", the repeater is setup to be accessed by the different groups, each assigned to use a different CTCSS tone. Monitoring a multi-user repeater, to hear one specific user group can be a lot easier, if you use a radio that can decode CTCSS.

For public safety (police, etc) repeaters, CTCSS can have some different uses. In order to cover a very large area, two or more repeaters can be setup in different locations, sharing the receive and transmit radio frequencies, but using different CTCSS tones. A mobile unit can select the repeater that has the best signal for his area, by "channel selecting" his radio to the CTCSS tone needed for the repeater in his area. A close variation of this is where you have repeater transmitter, located at some very high vantage point, along with a number of outlying receivers. The receivers are linked to the transmitter half of the repeater via microwave or telephone lines. A given mobile unit merely has to select the CTCSS tone used by the nearest receiver. In both types of systems however, the CTCSS that the repeater transmits is usually a single fixed tone.

CTCSS Use In Scanners

Using a scanner or other monitor receiver which includes CTCSS decoding has a number of distinct advantages. Primarily it permits the listener to hear ONLY those transmissions with the correct CTCSS tone. This can make monitoring most public safety or business radio channels, shared by different users, much easier.

And as many already know, sharing of an all too limited supply of public safety radio channels is becoming more and more commonplace everyday. Channels which you only heard local police and or fire department transmissions on a few years ago, are now often used by other communities short distances away. This condition can most often be easily noticed on frequencies designated as local government usage channels.

CTCSS decoding in a scanner can also be used as an easy way to block out reception of "skip" signals, common on VHF low band frequencies. A reversal to this approach is that CTCSS decoding can be used as a way to selectively monitor for certain distant stations without hearing most local radio traffic on the same frequency. Also, CTCSS is a VERY effective way to block out "image" signals or from hearing most objectionable "intermod" interference from sources such as paging transmitters. CTCSS decoding in a scanner is a very easy way to block out the harsh sound of DVP/DES voice encryption used by local police or various federal agencies. DVP/DES voice scrambling also scrambles the transmitted CTCSS tone, permitting only "clear voice" transmissions to be heard.

Typically the CTCSS tone used by a given police department within a given community, county, or state will be the same for all of their radio channels. While this can sometimes limit the degree that you can block out hearing others that share a public safety radio channel, it can make identifying a given CTCSS tone used for a certain public safety frequency much easier. It can also make identifying unknown federal users of some radio frequencies easier. For example, the FBI usually uses a CTCSS tone of 167.9 Hz. When you decode that CTCSS tone you can pretty well be sure that the folks using that new 170 MHz repeater is the good ol' G Men. And as mentioned earlier, you can elect to not hear their DVP transmissions as well.

OPERATING HINT FOR THE BC-8500

Although this is not specifically described in the owner's manual as part of programming a CTCSS (PL) tone frequency into the BC-8500, here's one way you can "find" or identify the CTCSS tone being used on an active channel. Proceed with the normal radio frequency programming for a given memory channel. Then, before you press the program mode button to select a CTCSS tone to be included in a given memory channel, do this instead: Press the CTCSS button. Then continue and press the program button and then the CTCSS button (again) as you normally would to select a CTCSS tone.

What this does is preset the scanner into CTCSS decoding mode. As soon as you turn the BC-8500's spinner knob one stop left or right the speaker will mute, unless you turn the spinner knob to select the correct CTCSS tone being used on that frequency. SLOWLY rotate through the different tones until you find the correct one that unmutes the speaker. In order to listen to the channel without need of decoding the correct CTCSS tone, merely rotate the spinner knob back to select tone "0.00". This lets you "clear" a given channel of decoding a CTCSS tone without dropping the CTCSS decode function for all the others. By slowly spinning the knob through the other CTCSS tone frequencies you can identify the CTCSS tone(s) used by others who share a given radio frequency. You may find it helpful if you maintain a log of the active CTCSS tones used on any business or public safety frequency that you listen to. Most public safety radio systems will typically just use one CTCSS tone for police or fire users for ALL channels of a given city, county or statewide radio system. This is not without many exceptions though.

Remember that in order to decode the given CTCSS tone, a radio channel user has to be actually transmitting. Also note that some business and public Safety radio users sometimes do NOT use any CTCSS tones in their radios and a few may use the new Digital Coded Squelch (DPL) code/tone. A BC-8500 can not decode this.

Only a few models of scanners on the market (Uniden BC-760, BC-890, BC-8500, BC-9000 or the Radio Shack PRO-2036) offer CTCSS decoding as a factory designed option. These scanners from Uniden and Radio Shack allow the user to program each memory channel with a different CTCSS frequency, permitting the scanner to stop and unmute only if a signal received also contains the correct CTCSS tone. The user can also elect not to decode a CTCSS tone for a given channel as well.

CTCSS Frequencies

1	67.0	12	100.0	23	146.5
2	71.9	13	103.5	24	151.4
3	74.4	14	107.2	25	156.7
4	77.0	15	110.9	26	162.2
5	79.7	16	114.8	27	167.6
6	82.5	17	118.8	28	173.8
7	85.4	18	123.0	29	179.9
8	88.5	19	127.3	30	186.2
9	91.5	20	131.8	31	192.8
10	94.8	21	136.5	32	203.5
11	97.4	22	141.3		

Some Alternatives

For those who are experienced with building electronic circuits, you might want to try the QT-1 (Quick Tone) CTCSS tone decoder kit from DX Radio Supply. The QT-1 uses one of the very latest in design, CTCSS decoder ICs, that can be programmed by the user for most any of the standard CTCSS tone frequencies. The QT-1 assembles on a PC small enough to be fitted inside many types of scanners. While the QT-1 can be used with most any scanner, even one like the new PRO-2035, it can be very useful as a means of upgrading older crystal controlled scanners which employ a limited number of channels.

Yet another way to enjoy the advantages of CTCSS with monitoring activities is with many of the different models of VHF/UHF ham transceivers which employ "wide" frequency receiver coverage. CTCSS decoding available as a standard feature or as a plug-in option, can be employed for selective monitoring of different services beyond the amateur band frequency limits. One BIG advantage with using ham radios can be realized in many of the tiny portable models that exist, along with some of the additional features they include, like S meters, which most scanners still lack. Currently no portable scanner models exist which include CTCSS tone decoding.

We will continue our discussion about the advantages and uses of having CTCSS decoding with a scanner in future issues. We will also cover some usage and installation hints for the QT-1 CTCSS decoder kit.

Monitoring Russian Navigation Satellites

by Brian Webb

Introduction

Few areas of scanning intrigue listeners more than satellite monitoring. Although numerous operational spacecraft circle the earth, most are difficult to hear because they use low transmitter power, transmit outside the frequency ranges of most scanners, or require extended monitoring before one hears anything.

Luckily, there's an exception to this problem: The Russian Low Earth Orbit (LEO) navigation satellites (NAVSATs). For three decades these spacecraft have provided the Russian navy and merchant marine with navigational information. Their powerful VHF and UHF signals are easily heard on even the simplest receiving setups.

Russian LEO NAVSAT Systems

The Russians operate two separate, but complementary LEO NAVSAT systems (Table 1). The first, for military users, is called Parus and consists of six satellites with orbital planes spaced at 30 degree intervals.[1] Civilians, meanwhile, use the Tsikada system, a constellation of four satellites with orbital planes spaced at 45 degree intervals. The orbital planes of the military and civilian systems NAVSATs are positioned opposite to one another, apparently to maximize coverage.[2]

Satellites of both systems follow near-circular, 597x628 mile orbits inclined 82.9 degrees to the equator. The Russians selected this low orbit to reduce the required satellite transmitter power and ground-based receiver sensitivity. The high orbital inclination was chosen to ensure coverage of the entire Russian territory and Arctic Ocean.[3] All of these NAVSATs also have orbital periods of 104.8 minutes.

The military and civilian NAVSATs are also virtually identical in terms of design. All satellites are barrel-shaped (Figure 1) with a latticework and boom protruding from the top. Solar cells mounted around the circumference of the main body provide electrical power. A pressurized vessel containing the spacecraft electronics protrudes from the ends of the body. A flat, disc-shaped antenna on the bottom of each satellite radiates VHF and UHF signals. Some of the civilian NAVSATs also carry antennas and a transponder to receive and relay transmissions from emergency locator beacons.[4]

Theory of Operation

The principle of operation behind these two NAVSAT systems is fairly simple. Each satellite simultaneously transmits time signals and position data on VHF and a dead carrier on UHF (Table

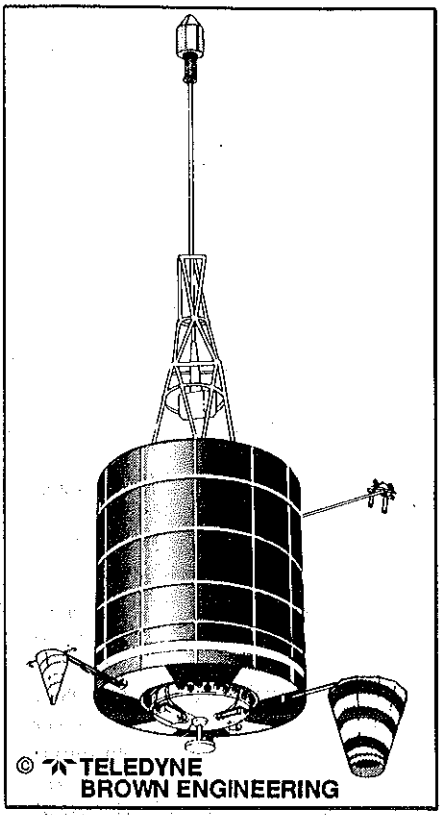


Figure 1. Tsikada navigation satellite. The conical structures are antennas used for the distress beacon transponder. (Illustration by Robert A. Sweeny)

Table 1. Russian LEO NAVSAT Systems.

System Type	Military	Civilian
System Name	Parus	Tsikada
Orbital Plane Spacing (deg.)	30	45
Spacecraft	Kosmos 2184 Kosmos 2218 Kosmos 2233 Kosmos 2239 Kosmos 2266	Kosmos 2230 Nadezhda 3 Nadezhda 4 Tsikada 1 Kosmos 2279

Note: Data is as of February 1, 1995

2). During a satellite pass, the VHF signal is monitored to obtain time versus position data for the spacecraft. The UHF signal, meanwhile, is monitored to determine the NAVSAT's time of closest approach (TCA) to the user. Both signals are observed to correct for ionospheric refraction.[5]

Table 2. Russian LEO NAVSAT Frequency Pairs.

Frequency Pair (MHz)		NAVSAT
VHF	UHF	System
149.910	399.760	Military
149.940	399.840	Military
149.970	399.920	Military
150.000	400.000	Civilian
150.030	400.080	Military

The TCA is found by observing the UHF signal's Doppler shift. When a NAVSAT rises over the user's horizon, the frequency on which the UHF signal is heard is above the actual transmitted frequency. As the satellite approaches the user, the received frequency of the signal drops. For a short instant, at the TCA, the two frequencies match. The received frequency of the UHF signal continues to drop for the remainder of the pass.

The observed TCA and NAVSAT position data are used to determine where the satellite was on its groundtrack at the TCA (Figure 2). This point is called the point of closest approach (PCA). With the PCA located, a line of position (LOP) is established by placing a straight line perpendicular to the groundtrack through the PCA. The user's location is then defined as a an unknown point somewhere along the LOP. A second pass is then observed and the process is repeated. The intersection of the two LOPs is the user's position.[6] Two passes have to be observed to obtain a fix. For maximum accuracy, three or more passes are required.

The Russians claim that, by using this technique, users can fix their position to within 80 to 100 meters (262 to 328 feet). The weakness of the Parus and Tsikada systems is the limited number of satellites in each constellation. This results in gaps in the coverage and forces the user to wait until at least two passes have been observed before a fix can be obtained.

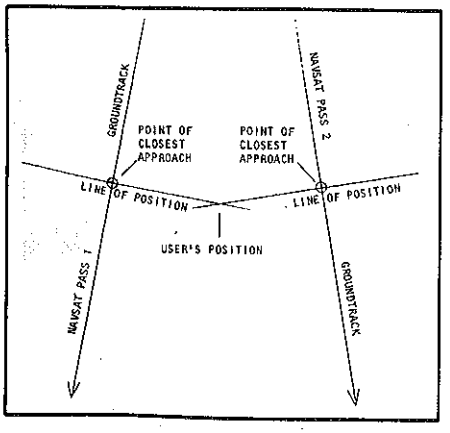


Figure 2. Graphic representation of how a fix is obtained.

Signal Characteristics

Each NAVSAT simultaneously transmits a VHF and UHF signal. The VHF transmissions are quite strong and consist of a time pip each second along with data transmitted at 50 baud.[7] The UHF signals, meanwhile, are much weaker and are nothing more than dead carriers. During a pass, both VHF and VHF signals undergo a Doppler shift, with maximum shifts on overhead passes. The maximum observed shifts from the actual transmitted frequencies are approximately +/-5 KHz and +/- 10 KHz for the VHF and UHF signals, respectively. Thus, a 150.000 MHz signal would be heard over a range of frequencies between 149.995 and 150.005 MHz.

Required Equipment

Russian LEO NAVSAT transmissions are strong and occur on frequencies within the tuning

Russian Satellites

ranges of most scanners. Thus, they can even be heard on inexpensive receivers with simple antennas. The telescoping whip antennas that come with tabletop scanners are more than adequate for indoor reception of the VHF transmissions. Since the UHF signals are weaker and unmodulated, they're harder to hear (yet still audible) using a whip. Better reception requires the use of a better antenna, such as a discone or groundplane, located outdoors.

A groundplane antenna for NAVSAT reception (Figure 3) can be easily constructed using a flange-type SO-239 UHF bulkhead connector and 3/32-and 1/8-inch diameter brass brazing rod [8] or copper wire. The first step is to cut the brass rod stock to the proper length. Make each element 18 13/16-inches long for VHF or 7 1/16-inches long for UHF monitoring. Insert the 3/32-

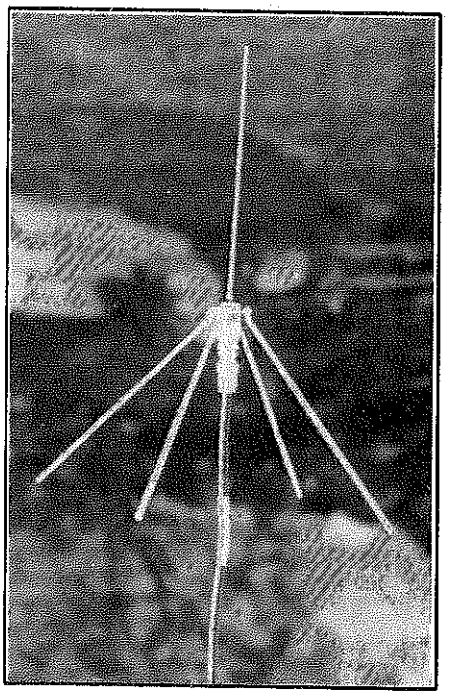


Figure 3. Groundplane antenna designed for Russian LEO NAVSAT reception.

Russian Satellites

inch element into the tube on the top of the connector and solder them together. Then take the 1/8-inch elements and bend the last 1/4-inch on one end of each to a 45 degree angle. Insert the bent element ends into the SO-239 screw holes. Use a high wattage soldering gun to solder each element to the flange.

Although a groundplane antenna will work indoors, best results will be had if it's placed outside. Look for an outdoor location that provides a good view of the horizon, but is close enough to the scanner to require a cable run of 25 feet or less. Then mount the antenna high enough so that it clears the roof of the building.

Monitoring Techniques

There are two basic techniques for monitoring NAVSATs. The first is to program your scanner with the lower and upper frequency limits of the VHF or UHF NAVSAT band (149.905-150.035 and 399.750-400.090 MHz, respectively) and then scan the band in 5 KHz steps from top to bottom. The second method is to program your receiver's memory channels with the actual transmitted and adjacent frequencies [9] (Table 3). Although the receiving mode isn't critical, VHF signals are best heard using FM narrow, whereas AM works best for the UHF transmissions. Regardless of the monitoring technique you use, be sure set the squelch for maximum sensitivity by rotatating the squelch control on your scanner fully counter-clockwise and then clockwise until the noise barely stops.

What You'll Hear

The VHF signals will sound like a series of rapid musical tones (the position data) accompanied by a "tink...tink... tink" (the time pulses). The UHF signals have no sound; they're simply dead carriers. During a typical pass, VHF and UHF signals will slowly fade in and out. If you monitor these satellite bands long enough, you'll also hear other satellites as well, most of which are operated by the U.S. military.

Conclusion

The Russian LEO NAVSAT systems have provided naval and merchant marine users with navigational information for three decades. The VHF and UHF signals from these satellites are easily heard using simple equipment and provide scanner enthusiasts with an easy introduction to satellite monitoring.

Table 3. Frequencies (MHz) for Monitoring Russian LEO NAVSATS.

149.905	149.975	399.755	399.850	400.000
149.910	149.995	399.760	399.910	400.005
149.915	150.000	399.765	399.915	400.010
149.935	150.005	399.770	399.920	400.070
149.940	150.025	399.830	399.925	400.075
149.945	150.030	399.835	399.930	400.080
149.965	150.035	399.840	399.990	400.085
49.970	399.750	399.845	399.995	400.090

Table includes actual transmitter frequencies and frequencies on which signals will be heard due to Doppler shift.

Notes

1. The spacing, in degrees of longitude, of the points at which NAVSAT orbits the cross the equator.
2. This suggests that some users have the ability to use both the military and civilian systems.
3. This statement was apparently provided by the Russians in an effort to minimize the area of operations of their navy. The Russian navy and merchant marine operate far from Russian waters and both the military and civilian LEO NAVSAT systems are capable of providing global coverage.
4. The signals from distress beacons are received by the satellite and relayed to several control centers on the ground.
5. These satellites orbit above the ionosphere which bends the signals. This refraction needs to be measured and compensated for in order to obtain maximum accuracy.
6. The procedure described here is how a user would manually determine his position. Fixes are probably all obtained automatically using special receivers which receive the signals, perform the computations, and display the user's coordinates.
7. Data is sent in a frame that lasts one minute. Each frame is divided into two sets of four blocks. Each block has seven words. The data includes Moscow Time in hours, minutes, and seconds; orbital information for the transmitting satellite, and orbital data for other satellites in the system.
8. Brass brazing rods are available from welding supply shops and some hardware stores.
9. This is done because of the Doppler shift.

Acknowledgments
The author would like to thank Nicholas L. Johnson of Kaman Sciences Corporation for providing technical information used in th preparation of this article and Rip Koken of Teledyne Brown Engineering (TBE) for securing permission to use a copyrighted TBE drawing for Figure 1.

Domestic Terrorism: Monitoring the Front Lines

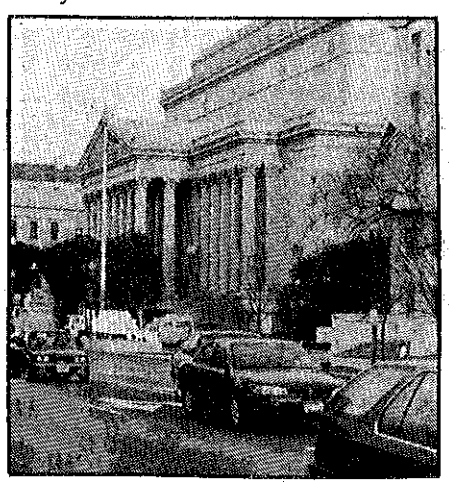
Federal Monitoring



By Laura Quarantiello

Who would have dreamed that a federal building in Oklahoma would become a target for a car bomb? Who would have been prepared to monitor such a devasting and horrifying incident? As shocking as the Murrah Federal Building bombing in Oklahoma City was, those who monitor federal frequencies know that is not an isolated event. What happened there can happen in other places throughout our country.

Often, our only real key to what is happening during such an emergency will be from what we hear on our scanners. The pictures from Oklahoma don't lie - BATF, FBI, US Marshals - all were on scene and active. Listeners will want to think about devoting a bank or two of channels to federal frequencies. To get you started, here's the latest from my database for the Bureau of Alcohol, Tobacco and Firearms. These folks are sure to be very busy at any terroism site.



103.5000 – BATF CTCSS Tone BATF Repeaters
164.5500 – BATF OCDETF Repeater (paired w/168.8625)
165.2050 – Treasury Nationwide Common
165.2150 – Treasury Nationwide Common
165.2875 – BATF Romeo - Primary Dispatch
165.3500 – BATF Local Offfices Simplex
165.3600 – BATF Special Operations Group (SOG)
165.3750 – BATF Charlie - USSS Interagency
165.4875 – Treasury Nationwide Common
165.5125 – BATF F-4 Surveillance
165.5375 – BATF Sierra - Tactical
165.9125 – BATF Echo - Tactical and Car to Car
165.9250 – BATF Repeater (paired w/166.9250)
166.2000 – Treasury Nationwide Common
166.2875 – BATF Special Operations Group (SOG)
166.4375 – Treasury Nationwide Common
166.4625 – BATF X-ray Common
166.5000 – BATF Explosives Investigation Team
166.5375 – BATF Romeo - Dispatch Repeater (paired w/173.8875)
166.6250 – Treasury Nationwide Common
166.7500 – BATF Tobacco Products Investigations
166.8500 – BATF Car to Car Simplex
166.8750 – BATF Alcohol Investigations Team
166.9250 – BATF Repeater (paired w/165.925)
167.9000 – BATF CTCSS Repeater Tone
168.0000 – BATF Tactical/National Assignments
168.8625 – BATF OCDETF Repeater (paired w/164.5500)
169.5500 – Treasury Nationwide Common
170.4125 – BATF Special Operations Group (SOG)
173.8875 – BATF Special Operations Group (SOG) (Paired w/166.5375)
192.8000 – BATF CTCSS Repeaters Tone
407.1500 – BATF Internal Affairs Unit
407.7875 – Treasury Nationwide Common
407.8250 – BATF National Assignments
407.8500 – BATF National Assignments
407.8750 – BATF National Assignments
409.1500 – BATF Internal Affairs Unit
409.1500 – BATF Surveillance
414.1250 – BATF Tactical
414.7000 – BATF Tactical
414.8000 – Treasury Nationwide Common
414.9000 – Treasury Nationwide Common
415.7250 – BATF Tactical Operations
416.0500 – BATF Tactical Operations
418.1500 – BATF SOG
418.1750 – BATF SOG
418.2000 – BATF SOG
418.2250 – BATF SOG
418.2500 – BATF Field Offices
418.6500 – BATF Field Offices
419.1000 – BATF Field Offices
465.0250 – BATF Joint Task Force Operations
465.1000 – BATF JTF Tactical
465.2000 – BATF JTF Tactical
465.2750 – BATF Vehicle Extenders
465.3125 – BATF JTF Tactical

Federal Monitoring

Trunked Federal Frequencies

Many federal agencies and military bases are jumping on the trunking bandwagon. Instead of 800 Megahertz, these agencies are using four trunked groups in the 400 Megahertz band. Only actual monitoring will reveal what is being used in your area. Search the 406-420 MHz band and jot down what active freqs you hear, then use the following list to help you narrow down what trunking groups are in use.

406.3500 – Group 1
407.1500 – Group 1
407.9500 – Group 1
408.7500 – Group 1
409.5500 – Group 1
415.1500 – Group 1
415.9500 – Group 1
416.7500 – Group 1
417.5500 – Group 1
418.3500 – Group 1

406.7500 – Group 2
407.5500 – Group 2
408.3500 – Group 2
409.1500 – Group 2
409.9500 – Group 2
414.7500 – Group 2
415.5500 – Group 2
416.3500 – Group 2
417.1500 – Group 2
417.9500 – Group 2

406.5500 – Group 3
407.3500 – Group 3
408.1500 – Group 3
408.9500 – Group 3
409.7500 – Group 3
415.3500 – Group 3
416.1500 – Group 3
416.9500 – Group 3
417.7500 – Group 3
418.5500 – Group 3

406.9500 – Group 4
407.7500 – Group 4
408.5500 – Group 4
409.3500 – Group 4
410.1500 – Group 4
414.9500 – Group 4
415.7500 – Group 4
416.5500 – Group 4
417.3500 – Group 4
418.1500 – Group 4

FBI Black Box Repeater

Thanks to Marc Blitz, we have some information on the FBI's black box repeater. This repeater is on the US/Canada border, pointing toward the Hamilton/Toronto area. Output is 10 watts, mostly DES, which may indicate a point to point link with Canadian stations or local use at the border. Usage has diminshed lately, but the freqs off the Motorola site are as follows:

167.225 input,
167.5625 input,
163.9125 output.
167.2875 input,
167.6825 input,

A Little Feedback

Daniel J. Haggerty, retired inspector with the New York City Police Department Internal Affairs Division told me a good one recently that's been circulating among law enforcement circles. Rumor has it that an undercover federal agent walked into an apartment wearing a concealed transmitter and caused a scanner that the bad guys were using to being squealing with "feedback" like an alarm! "This is a dangerous business and you can never have enough intelligence. A key question to always ask informants is whether or not your targets use scanners."

IRS

I'm sure that everyone reading this has paid their taxes, but it might be interesting to check out the Internal Revenue Service's Criminal Investigations Division anyway. Here are the latest numbers. If you have any additions or corrections, send them along and we'll update the list.

CID Channel1 Repeater – 165.950/167.000
CID Channel 2 Direct – 167.000
CID Channel 3 Direct – 165.950
INV Channel 1 – 166.000
INV Channel 2 – 166.000
CID Channel 1 UHF – 418.225/414.700
Treasury Common – 166.4625

DVP Tip

If you're hearing encrypted traffic on a federal frequency, immediately search the related band for possible in the clear surveillance traffic. Often, agents will chat with the office on an encrypted repeater, while conducting undercover ops in the clear on another freq. If you're close enough to the location, you can catch the action.

Member's Classifieds

FOR SALE: PRO-43, Nicad batteries, AC adapter/charger, $350. Barry Fincher, DeSoto, Texas 214-230-6430.

WIN

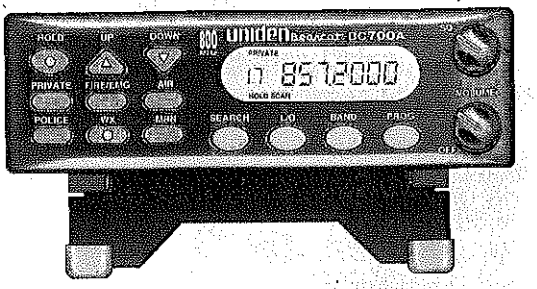
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1. *What frequency can Las Vegas' McCarran airport tower be heard on?*
2. *Who will be Saturday night's keynote speaker at the NatScan convention?*
3. *When is fishing not a healthy way to relax?*

Good Luck!

Things That Work

Plenty of Features

Realistic PRO-26 Handheld Scanner



There is a new addition to the list of Radio Shack scanners, one which really offers plenty of features for even the most skeptical of scannists. Manufactured by Uniden for Radio Shack, the PRO-26 is a nice little scanner.

Measuring 6-1/16"H x 2-5/8"W x 1-5/8" D, the PRO-26 is nicely laid out and easy to use. There are lots of interesting functions new to Radio Shack scanners, and a keyboard lock is included, to help prevent unfortunate accidental button-presses (especially nice with all the features this one has!).

The unit covers 25 to 1300 MHz continuous, with the cellular frequencies of course deleted, and not restorable. This extensive coverage range makes for some interesting scanning targets in frequency ranges not usually covered by handheld scanners. Included with the scanner are a rubber antenna, a belt clip (unfortunately plastic), and a manual which, like all Radio Shack scanner manuals, is well written and easy to follow. The scanner uses 4 AA alkaline or NiCd batteries. A word of warning here: DO NOT attempt to connect an external power adaptor to the "Charge" jack when using alkaline batteries, as they are not rechargeable and all sorts of unpleasant things could happen. The audio output is fairly good, with little distortion, even at high volume levels.

Quite easy to program, the PRO-26 has 200 memory channels arranged in 10 banks of 20 channels, which is very handy if you want to arrange your programming by either listening preference or for covering different geographical areas; to access or disable a channel bank, simply press the numbered button corresponding to that bank while in the Scan mode. A small number (1–10) will appear or disappear in the upper part of the display, indicating the bank status. The scan rate is a rapid 50 channels-per-second. The Priority feature is also as in the past, with any channel programmable as the priority.

The PRO-26 also has a 100 step-per-second search feature and a 300 step per second "Hyper Mode" (which only operates with 5kHz search steps), allowing you to search between programmed limits for active frequencies. Also included is a pre-programmed search bank for weather, which allows you to use memory and monitor channels for regular scanning and monitoring, then pop over to weather search if you want to check the forecast.

Like most recent Radio Shack scanners, the PRO-26 has a temporary 10 channel monitor bank, which you can use to store frequencies located during search. You can also use the monitor channels to store special frequencies that you wish to be able to access quickly.

Like last year's PRO-51, the PRO-26 features an excellent display backlight that not only stays on for 15 seconds after the button is pressed, but also provides complete illumination of the display. This has been a problem in past models, which only had one small bulb for illumination, thus leading to some difficulty in viewing the edges of the display in dim light.

Like the good old PRO-43, the PRO-26 uses triple up-conversion. It seemed to have very little trouble with images and other interference until I got downtown around all the paging

By Tom Swisher

Things That Work

transmitters; triple up-conversion seems to be troublesome in intermod alley areas. Even so, the PRO-26 performs quite well in the reception department. From my test location at the office I had no trouble receiving many police and fire departments around the county, even though I am surrounded by all sorts of interference-causing apparatus.

The PRO-26 introduces several interesting new features to the Radio Shack line. Selectable 2 or 4 second delay, automatic channel sorting, keypad 'beep' disable, and a programmable attenuator all make this a really spiffy scanner to use. The one I liked best was the programmable attenuator; using it while in intermod alley enabled me to cut down the worst of the noise while still hearing what I wanted to hear (although at about 10dB less signal strength). Automatic channel sorting was also nifty; if I wanted to scan by frequency instead of by channel, all I had to do was turn it on and off as needed. Scanning by frequency (lowest frequency to highest) improves the scan rate since the circuitry is not constantly having to radically retune itself from channel to channel.

I found the wide coverage to be really great. The ability to monitor FM broadcast and TV audio was very helpful, and the sensitivity was excellent. I even picked up UHF-TV audio (slightly scratchy, but readable) from a city about 40 miles away from my home, which really impressed me. Many TV sets do not perform that well.

Unfortunately, one must take the bad with the good. The PRO-26 had a few drawbacks that I wasn't thrilled with. Foremost of these was the squelch hysteresis. This is a "twangyness" built into the squelch control of all radios to prevent every little RF blip from opening the squelch. You've probably noticed it yourself when you set the squelch on your scanner; the squelch opens as soon as you turn the knob slightly counter-clockwise, but you have to turn it considerably farther clockwise to close the squelch again. A slight amount of hysteresis is acceptable and desirable, but the PRO-26 squelch was like a rubber band. Once I opened the squelch, I had to turn it way past the halfway point to close it again, then back off carefully to the threshold point for best sensitivity.

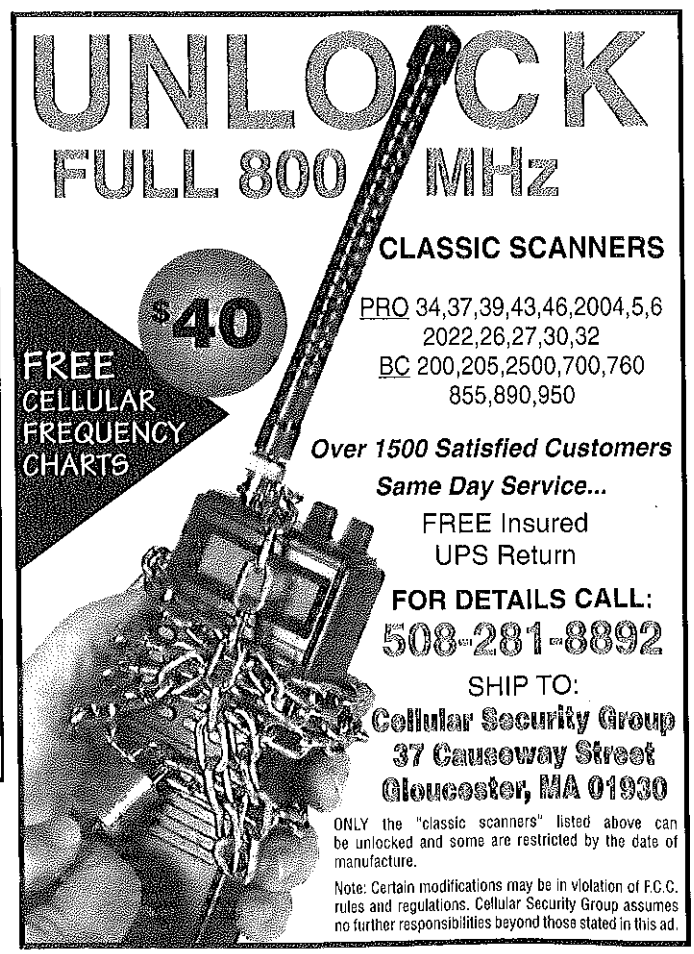
Other minor problems I had were with the battery compartment and the audio. Like that on the PRO-51, half of the battery compartment is a 2-cell 'clamshell' arrangement which comes off the back of the scanner. The catch which holds the compartment closed seemed like it would break if you looked at it funny, thus requiring repair; the contacts between the halves could also break or at least require cleaning. However, this should only worry one when alkaline batteries are being used, requiring regular replacement.

Finally, the audio. Although perfectly understandable and of adequate level, it was slightly mushy-sounding. Audio response more toward the high-frequency end is preferable in communications equipment, as it cuts through environmental noise better.

The drawbacks notwitstanding, the PRO-26 is an excellent handheld scanner. The wide coverage range and advanced features make it a handy and noteworthy addition to the Radio Shack line of scanners. It lists for $399.99.

"I enjoy reading National Scanning. Keep up the fine work!"

-- George E. Speck, Fort Worth, Texas



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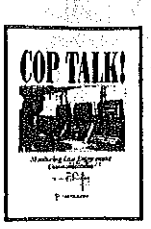
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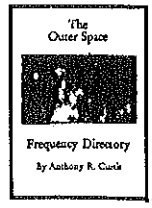
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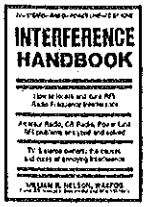
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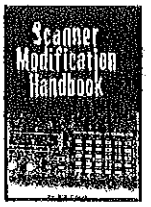
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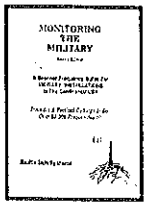
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The Ultimate Scanner

By Bill Cheek



The Ultimate Scanner begins where Scanner Modification Handbook Volume 1 and 2 left off! Information on adding channels, extending frequency bands, enhancing sensitivity, improving control, optimizing everything -- made easy with a wealth of step-by-step instructions and specially-prepared photos, charts, diagrams, and schematics.

The Ultimate Scanner also provides generic information for modifying any scanner buy deals extensively with the popular Radio Shack PRO-2004, 2005 and 2006. Other scanners include the new PRO-2035, the PRO-43, 34, 37 and 39 handhelds and the AR-1000XC.

Order The Ultimate Scanner (regularly $29.95) before June 30 and save $5.00! Order The Ultimate Scanner plus Scanner Modification Handbook 1 & 2 and get free shipping -- a $6.50 value -- total savings $11.00!

HOLDING THE LINE! STILL

Ultimate Scanner (Ordered before June 30) $24.95

Utlimate Scanner plus Scanner Mod Handbooks 1 & 2 (before 6-30) $62.85

Air-Scan

By Tom Kneitel

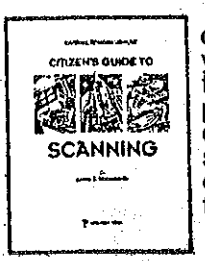
NEW EDITION!



Air-Scan is your brand new, hot-off the presses passport to aeronautical frequencies for the United States. Look up frequencies by state and town for more than 6,000 landing areas including military and civilian airports, seaplane bases, and private landing strips and helo ports plus FAA Air Route Traffic Control Centers. A must for every air scan:fan! 143 pages. $18.95

Citizens Guide to Scanning

By Laura Quarantiello

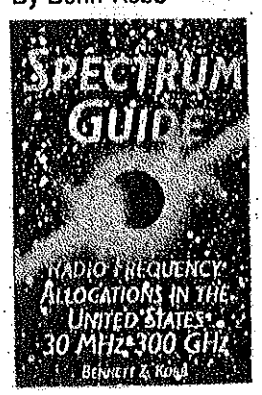


Your scanner's owner's manual only tells you half the story of what your radio can do! Hear more police, fire and ambulance communications plus your next-door neighbor's cordless phone, undercover narcotics stings, local businesses, even a satellite as it circles 3,000 feet above the earth. Includes frequency ranges. 140 pages. ~~$19.95~~ 15.95

The Frequency Roadmap for Scanning!

Spectrum Guide

By Benn Kobb



Spectrum Guide is a roadmap to the entire 30 MHz to 300 GHz radio spectrum. The book is arranged by frequency so you can look up any frequency range and find out immediately who is authorized to be there. For example, did you know that if you hear something between 30 and 30.5 MHz it's likely to be the U.S. Army? And that you'll never hear anything between 608 and 614 MHz because it's a receive-only band for astronomers? ~~$34.95~~ 32.95

Tune in On Telephone Calls



People will talk about almost anything on the phone. They don't seem to know -- or care -- that anyone with a scanner can listen in. You, too, can tune in telephone calls. You don't need any fancy equipment -- just this book and your scanner. Hear calls from homes, cars, businesses, ships, aircraft, even trains. Gives you the frequencies and tells you how. An incredible 160 pages. $14.95

The Reviews Are In!

"The Scantenna -- Five Stars"

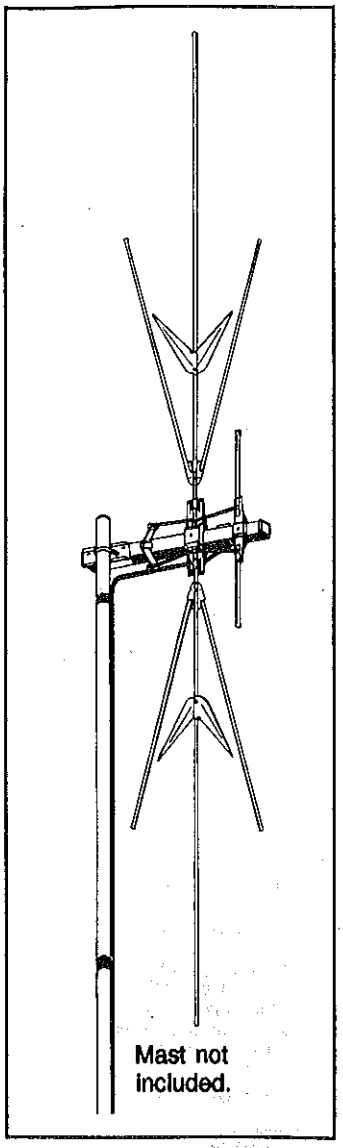
★★★★★

"I'M FOUR COUNTIES AWAY AND NOW I CAN HEAR MILWAUKEE!"
--Pete Edwards, Lake Geneva, Wisconsin

"I CAN HEAR THINGS WITH MY SCANTENNA THAT I NEVER KNEW EXISTED BEFORE!"
--Ken Peters, Los Angeles, California

"I'VE THROWN AWAY THAT LITTLE WHIP ANTENNA THAT CAME WITH MY SCANNER."
--Carroll Ethridge, Berkey City, Tennessee

"WOW! WHAT A DIFFERENCE! THE SCANTENNA IS THE BEST!"
--Travis Lantz, Iowa City, Iowa



The Scantenna is a quality antenna manufactured in the U.S. by AntennaCrafters, a firm well-known for its TV and FM antennas.

There's an old saying among communications specialists: your scanner is only as good as your antenna.

Get the most out of your scanner with the famous Scantenna. Designed for use with both handheld and base scanners, it dramatically increases the range of your radio by miles. Actual distance depends on local terrain and height at which you mount the antenna. The Scantenna provides continuous frequency coverage from 25--1300 MHZ providing superb reception of communications of all types. And it comes with a mounting kit and 50' of RG-59/U cable.

The Scantenna is available from DX Radio Supply for $39.95 plus $7.00 UPS. Optional Motorola to BNC connector $3.95. Send check or money order to P.O. Box 360, Wagontown, PA 19376. Or use your Mastercard or Visa and call our 24-hour order line. **1-800-753-2060**

Please send me the Scantenna. Here's my check or money order for $39.95 plus $7.00 UPS shipping. DX Radio Supply, Box 360, Wagontown, PA 19376

Name ----------

Street Address ----------

City ---------- **State** ---------- **Zip** ----------

Please bill my bank card. My MC or VISA number is:

---------- **Expiry Date** ----------

Signature ----------

DX Radio Supply

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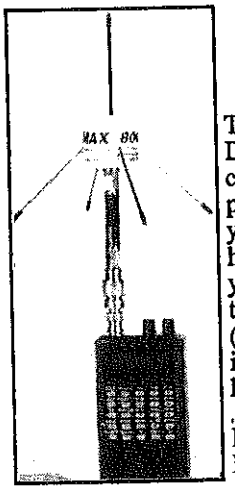
Order Operator 1-800-753-2060

Questions and Comments 610-273-7823

Cellular and Cordless Phone Antennas

Hear More Car Phones!

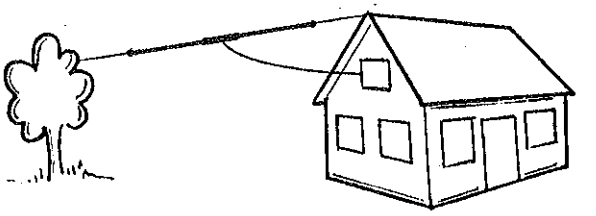
MAX 800 Ground Plane

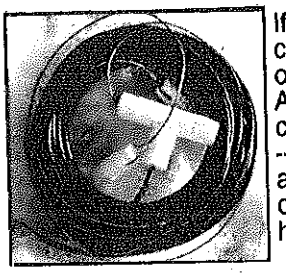


The MAX 800 is one hot performer! Designed specifically for reception of cellular car phones -- as well as public safety channels on 800 MHz -- you'll hear more of what you want to hear. Can be mounted directly on your handheld or base scanner or on the roof for even better reception. (Roof mount requires cable, not included. For roof mount, order handheld model.)

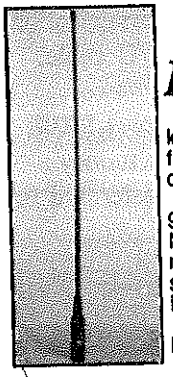
Handheld Model $31.95 plus 4.00
Base Model $35.95 plus 4.00 UPS

MAX 46-49 MHZ Dipole
The Ultimate Cordless Phone Antenna





If you really want to pull in cordless phone calls from all over, this is the antenna. Antenna is 10 ft. long and comes with 50 feet of coax -- all you do is hang it up and plug it in. Works inside or out. Built like a brick dog house. $49.95 plus 5.50.



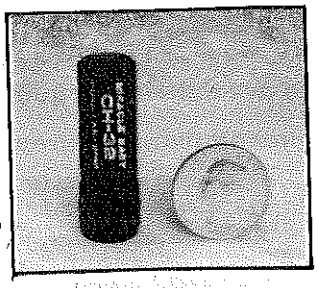
Finally! A Replacement Rubber Duck

A replacement rubber duck for your handheld that really works! It's the RH77 -- a 15" inch antenna that's got excellent gain all the way through 950 MHz. This is Diamond's rugged, commercial-grade VHF/UHF-receive antenna. It's fitted with a BNC connector so it plugs right into most every handheld scanner on the market today. Can also be purchased with the optional right-angle BNC adapter and used with base-style scanners.

We had an independent lab run a test on these ducks and found that they did, in fact, exhibit excellent gain through 950 MHz. More important, was our practical test -- and you can try this, too. Program your scanner with one of the NOAA weather channels and listen using the rubber duck that came with your scanner. Then pull of that duck and replace it with the RH77. We found an increase in signal strength. Results, of course, will vary according to terrain and so forth but we think that this is the replacement duck that we've been looking for. The fact that it's made by Diamond is, in itself, proof of quality.

The Diamond RH77 Replacement Rubber Duck is just $34.95 plus 5.00 UPS. Optional right angle BNC Adaptor for base scanner use is $5.00

Miracle Baby Micro Duck



This hot little rubber duck is specially made for low-profile scanning. The antenna itself is only one inch tall! Yet packed into that one inch is a high-tech signal grabber that let's you use your scanner in places where it otherwise would really stand out because of a big, standard, rubber duck.

To use that Miracle Baby Micro Duck, you MUST use a sensitive scanner and be in close signal proximity. But the beenfit is that you can slip your scanner, unnoticed, into a jacket pocket and listen with an earphone and no one will know what you're doing. Receives 10 bands, transmits on three.

This one was suggested by NatScan's Steve Donnell. Miracle Baby Micro Duck is $33.95 plus $5.00 UPS.

ORDER TOLL-FREE TWENTY-FOUR HOURS A DAY

1-800-753-2060

SEE OUR ORDER BLANK FOR DETAILS

Scanner Accessory Kits

Order Line 1-800-753-2060 DX Radio Supply 1-800-753-2060 Order Line 1-800-753-2060 DX Radio Supply

800 MHz Scanner Converter Kit



If you've always wanted to pick up 800 MHz frequencies -- including cellular phones -- on your scanner but your radio didn't get 800 Mhz or the cell phone frequencies were blocked out by the government, we have the answer. It's the 800-950 MHz Scanner Converter Kit.

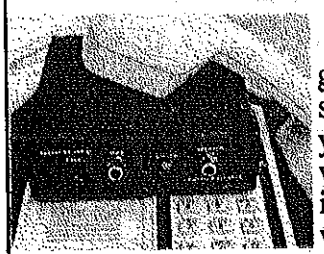
The SCN-1 800 MHz Converter Kit can be used on any scanner that receives 400 to 550 MHz and it assembles in about an hour using simple, easy-to-follow directions. Once completed, hook-up is easy. A handsome matching case set is available for a good looking finished product.

Please remember that while it is not illegal to own either the kit or the the unit that you've assembled, it is illegal to listen, in the privacy of your own home, to other people discussing juicy details of their personal lives over the public airwaves on a cellular telephone.

45.95

SCN-1 Scanner Converter Kit ..... ~~$49.95~~
CSCN Matching Case Set $14.95

Speech Descrambler



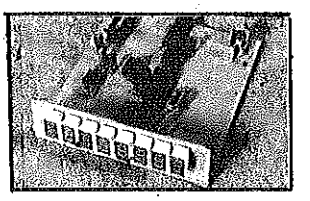
Descramble those garbled "Donald Duck" sounds that you hear on your scanner. The SS-70 will decode simple speech inversion scrambling which is the most commonly used scrambling systems on police, security, fire, cordless phones and business radio. The built-in 2-watt speaker amplifier makes scanner hook-up a snap. Can also be used to set up your own scramble/descramble system. The matching case finishes the job with a real pro look.

36.95

SS-70 Speech Descrambler Kit .... ~~$39.95~~
CSSD Matching Case Set $14.95

Grab Telephone Numbers from your Scanner!

TG-1 Tone Grabber Kit

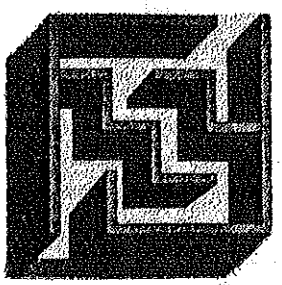


Use the TG-1 Tone Grabber to decode the touch-tone sounds you hear on your scanner when someone dials a phone. The number that was dialed is displayed on an easy-to-read 8-digit LED display. You'll know exactly what number they're calling!

A simple hook up to your scanner through an earphone or external speaker jack is all that's required. Operates off a standard 9 volt battery.

$9.95

TG-1 Tone Grabber Kit ..... ~~$99.95~~
CTG Matching Case $14.95



Quick Tone CTCSS Sub-audible Tone Encoder/Decoder

CTCSS encoders and decoders have been off lmits for hobbyists for some time. A few scanners have optional tone boards, but not many. Now, the new Quick Tone Tone Encoder/Decoder (QT-1) kit decodes any of the 39 Motorola PL sub-audible tones with crystal quartz accuracy. Jumpers allow easy frequency programming, and built-in audio filtering eliminates falsing and interference from normal speech. The QT-1 uses CMOS single chip technology and runs on a low 5-15 volts. Fits 2"x1"x½. Easily bypassed for no-tone operation.

Just $39.95

Questions? Comments? 610-273-7823 Questions? Comments? 610-273-7823.

DX RADIO SUPPLY, BOX 360, WAGONTOWN, PA 19376



DX Radio Supply

Box 360, Wagontown, PA 19376

1-610-273-7823

Serving Hobbyists and Professionals Since 1982



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PLEASE READ BEFORE ORDERING
FOLLOWING THESE SIMPLE STEPS WILL SPEED YOUR ORDER

MAIL ORDERS
1. Fill out the order blank and send a check, bank or postal money order, or your complete credit card information (see #3, below) to DX Radio Supply, P.O. Box 360, Wagontown, PA 19376.

PHONE ORDERS
1. Order toll-free. Call 800-753-2060. This number will connect you to our order operators. If you have questions about a product or require other assistance, please call 610-273-7823. Our order operators, although wonderfull people otherwise, are not scanner listeners.
2. To speed your order, fill out the form before you call. Have your charge card in front of you. Call 1-800-753-2060.
3. When using a bank card, merchandise must ship to the address to which the card is billed. If you are unable to provide this information, please use a postal money order or certified check.
All credit cards are verified.

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1. Books and Kits: We charge you 4.50 to ship the first book or kit that you order. If you order more than one book or kit at a time, shipping on each additional item is just 1.00. Cases for kits ship free so long as they are ordered at the same time as you order the kit.
2. Equipment: Because of size requirements, some equipment, like the Scantenna, must ship separately from books and other items. Shipping charges for these items are listed in the catalog.
3. Sorry, no CODs.
4. Items that arrive damaged in shipping should be reported immediately to UPS/USPS and then to us. A damage determination is made by UPS and their decision is considered final.
5. Canadian customers are subject to duties and GST taxes. These charges are the responsibility of the customer and not DX Radio Supply.

DELIVERY SCHEDULE
1. We ship your order within 24 hours of receipt, except on items marked otherwise. If there is a delay, you will recieve a postcard notifying you of the expected delivery date. Depending on where you live in the country, your merchandise should arrive within 10 working days.

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2. We do not offer merchandise on a trial basis. All transactions are final.
3. This catalog supercedes all previous catalogs, flyers and advertisements.
4. Prices are subject to change. Not responsible or typographical errors.
5. PA residents (only) add 6% sales tax.

If you have any questions about anything on this order blank, please call 1-610-273-7823 before ordering.

SHIPPING ADDRESS

NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

DAYTIME PHONE NUMBER: (Area Code) _____

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Card Number: _____

Issuing Bank: _____

Signature: _____

Total $_____

Shipping $ _____

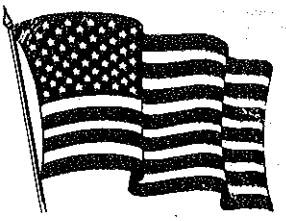
PA Residents (only) 6% Sales Tax $_____

TOTAL ENCLOSED $_____



THE NESN EDITOR'S DESK

Les Mattson, NESN Editor
Post Office Box 62-N, Gibbstown, NJ 08027
"NEWS YOU CAN USE"



Welcome to the July/August issue of NESN.

1995 NATIONAL SCANNING SCANNER CONVENTION

Have you reserved your motel/hotel room for July 14, 15 & 16th? Don't forget to pack the scanner, case, charger, rubber-duckie, ear phones, spare batteries, pen/pencil and notepad, frequency counter, credit card/s, business cards, camera and film, frequency list, POLICE CALL, eyeglasses, sunglasses (and if you have some extra room, why not throw in a toothbrush, paste, extra pair of socks, shaver, after-shave, wash cloth and loads of deodorant?)

WHO'S GOING TO BE THERE?

I am certainly looking forward to this weekend. Although I have met Larry Miller, it has been so many years ago that I doubt if I could pick him out of a police lineup. (A most likely spot!) I want to shake the hand of the mischievous GENE HUGHES with whom I have talked on the telephone and exchanged letters and e-mail. Norm Schrein is another scanner personality I want to meet. And, the ladies at DX Radio Supply, I simply must see the faces that go along with the voices. Robin, Teresa and Angie. Also, the rest of the NatScan editors, Laura Q., Tom Swisher, Wayne Heinen and Brian Webb.

Steve Donnell and I are old friends as is Joe Nooney and Louis Campagna. Bob Coburn is another voice that I have spoken to, but I've never had the pleasure of meeting. I hope many of my NESN column editors attend. Jack McCartan, Jim Sutton, Joe Nooney, Louis Campagna, Jim Lawrence, Josh Heller and Art Audley have said they hope to appear. I am also looking forward to meeting some of my America Online, AMERICAN SCANNER CONFERENCE members.

EDITING RESPONSIBILITIES

I'd like to clarify my editing responsibilities here. This is in response to a half-dozen pieces of mail. The NESN portion of NATIONAL SCANNING begins with this page each month, THE NESN EDITOR'S DESK and extends for the next 17 pages to the Florida column. I have no input into the Central United States or the Western United States portion. Any questions, comments, suggestions or input into those columns should be sent directly to NATIONAL SCANNING, P. O. BOX 360, WAGONTOWN, PA 19376.

EDITORS NEEDED

We have two editorial vacancies here at NESN. Anyone want to tackle the North Jersey column or the Florida column? If you do, please send me a cover letter telling me a bit about yourself and a sample column and I'll look it over and get back to you. I re-type all columns in order to edit them for space, conformity, etc. so you have no special margins or type style (fonts) to concern yourself with. You can fold your sample column in a #10 business envelope if you want. I'll be responsible for correct spelling except YOU must send me accurately spelled names of cities, boroughs, municipalities, etc.

SELF-ADDRESSED, STAMPED ENVELOPE (SASE)

When writing to any of our NESN Regional Column Editors for information, please include a SASE for the return. Thanks!

NEW ENGLAND

This column will cover the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

CONNECTICUT - By Keith Victor, 44 Suffolk Dr., East Hartford, CT 06118

Thanks to reader JOHN KLAFF for this input. I may have mentioned this is the past, but the EPA has begun cleanup operations in the Town of Stratford, CT of the asbestos dump sites of the company that was known as Raybestos or Raymark Industries. They can be monitored on 464.550. I live about 2 miles from the cleanup site and have no problem picking them up. John included the following list of Connecticut Public Safety and some miscellaneous frequencies as well.

39.4600 = Fairfield County Hotline
43.0400 = O & G Industries (Bridges) = Torrington
46.0400 = Stratford Student Bus Serv. = Stratford
153.1100 = Sikorsky Tower (Fire/Crash) = Stratford
154.8750 = CT Dept. of M. V. Inspectors (Police)
155.9550 = New Haven Coliseum Security
161.1450 = Haddam Neck Nuclear Plt. Emergency
153.6950 = Haddam Neck Nuclear Plt. Emergency
161.7000 = WICC Radio Flight 60 Traffic Chopper
464.6500 = Gen. Elect. Corporate HQ (Security) Fairfield
155.3550 = Park City Hospital Security (Bridgeport)
461.0875 = Trumbull Marriott Hotel Security (Trumbull)



45.5200 = CT. CIVIL DEFENSE NET
45.8600 = New Haven Co. Hotline
48.1800 = Bridgeport Hydraulic Co.
153.1400 = New Haven Fire Chief's Net
155.0400 = New Haven School Police
160.5450 = Conrail Yard Ops. Bridgeport
161.2200 = Conrail Police, New Haven
153.3800 = United Technologies (Sec.)
161.2950 = Amtrak Police, Bridgeport
154.6450 = CT St. Pol. Mobile Repeater
155.3850 = Life Flight Helicopter
151.3550 = Fairfield Co. Sheriffs

MAINE - By Brian D. Snow, 35 Clover Lane, Auburn, ME 04210

Hello once again from the State of Maine. We are gradually moving out of the "mud season" and into summer. From my central Maine vantage point, I'm seeing an increased use of the Regional Police Communications System. This system was developed to allow easy exchanges between adjacent agencies. A number of conversations are being moved to these frequencies, so they can leave their primary dispatch channels clear. From my location, the Region 5 (Androscoggin and Oxford Counties) repeater can be heard on 155.550, along with Region 1 (York County) and Region 2 (Cumberland County) on 155.580 and 155.535 respectively.

I am also monitoring increased activity on the new regional fire frequencies. While the state and many local communities still operate on the statewide frequency of 154.310, the new regional system breaks the state into three regions, north, south and central. The central region does weather and fire danger updates daily on 154.295. The north and south regions appear to both operate on 154.265.

With the influx of summer traffic, the Maine Turnpike's maintenance frequency of 151.070 goes into overdrive. Here you'll learn of any traffic tie-ups, hazards or motor vehicle breakdowns. You'll also find a significant amount of activity by the Maine State Police units assigned to the turnpike.

L. L. Bean in Freeport, has to be one of the most frequently visited sites in Maine in the summer (or all year for that matter). Bean's run a fairly extensive communications net for sales, security and warehouse operations on 462.100, 153.260 and 153.305.

Just as a closing note, Poland Fire/Rescue is currently using 154.055. If you are up this way on a summer vacation, drop me a line telling me about something new or interesting you monitored. I'll be happy to pass it along in an upcoming column. Until next time.....THINK SNOW! (That's Brian D. Snow!!)

NEW ENGLAND

Continued from previous page

MASSACHUSETTS - By Mariner S. Ayer, 299 Thompson St., Middleboro, MA 02346

Hello, and welcome to the Massachusetts column for June/July. Lots of great input to share with you concerning the Goodyear Blimp from WILLIAM DUNN and JEFF.

THE GOODYEAR BLIMP

The Goodyear Blimp is owned and operated by "Airship International, Ltd" of Kissimmee, FL. Gulf is the sponsor of the ship as well as a fleet of more than six vehicles which travel across the country with the blimp. The blimp is a frequent visitor to the Southern New England area and the ground crew is more than friendly to show off the floating billboard.

The only frequency confirmed over the past two years has been 464.660 MHz. They are licensed for the following frequencies:

123.3000 Call Sign of KP-9938
464.5000 Call Sign of KB-66446
464.7250 Call Sign of KB-66446
464.6600



123.5000 Call Sign of KP-9938
464.5500 Call Sign of KB-66446
464.7500 Call Sign of KB-66446

NESN Editor-In-Chief, Les Mattson supplies these additional Goodyear Blimp frequencies:

132.0000 = Goodyear Company Frequency and Public Relations
151.6250 = Ground Crews to Goodyear Blimp
469.9125 = Goodyear Blimp Security
464.9125 = Goodyear Frequency #1
465.9375 = Goodyear Frequency #2
465.9625 = Goodyear Frequency #3

WILLIAM BRUNDIGE sent in a list of frequencies from the Quabbin area for those who live in the central part of the state.

154.8450 = (R) 141.3 PL Ware Police
155.8500 = 141.3 PL Ware Police
153.9200 = Ware Police
451.0250 = Ware Police
39.1000 = 85.4 PL Hardwick Police
31.4600 = Game Wardens
31.5000 = Game Wardens
159.4350 = Quabbin Fishing Areas

Thanks to BOB JARRETT for the following frequencies:

155.5200 = West Springfield Police Dept.
155.1900 = Westfield Police Department
155.5500 = East Longmeadow Police Dept.
155.6700 = Palmer Police Department (Ops.)
159.2100 = Holyoke Police Dept. Ch. #1 (LG)
154.8150 = Southwick Police Dept. (Ops.)
460.4250 = Longmeadow Police Dept.
453.2500 = Ludlow Police Dept. (Ops.)
155.4900 = Chicopee Police Dept. (Ops.)
42.6000 = Massachusetts State Police (B)

That's it for this edition. Thanks to all you great Massachusetts readers (and writers!) for all your input. You're the best of all the rest! Have a nice vacation.

VERMONT - By Jim Lawrence, Post Office Box 167, Websterville, VT 05678

This issue, we'll take a look at the "10" codes used by state and local law enforcement officials in Vermont. In a future column, I'll list some of the incident codes and other miscellaneous codes you may hear while monitoring.

VERMONT LAW ENFORCEMENT "TEN" CODES

10-0 = Caution
10-1 = Unable to copy, weak signal
10-2 = Signal's good
10-3 = Stop Transmitting
10-4 = Acknowledgment, OK
10-5 = Relay
10-6 = Busy, Stand by
10-7 = Out of Service
10-8 = In Service
10-9 = Repeat
10-10 = Fight
10-11 = Dog Call
10-12 = Stand By, Stop
10-13 = Weather or Road Report
10-14 = Prowler
10-15 = Civil Disturbance
10-16 = Domestic
10-17 = Meet Complainant
10-18 = Complete Assignment Quickly
10-19 = Return To Station
10-20 = Give Location
10-21 = Call By Phone
10-22 = Disregard
10-23 = Arrived At Scene
10-24 = Assignment Completed
10-25 = Report In Person To _____
10-26 = Detaining Subject, Expedite
10-27 = Driver's License Info
10-28 = Vehicle Registration Check
10-29 = Criminal Record Check
10-30 = Illegal Use Of Radio
10-31 = Crime In Progress
10-32 = Man With Gun
10-33 = Emergency
10-34 = Riot
10-35 = Major Crime Alert
10-36 = Correct Time
10-37 = Investigate Suspicious Car
10-38 = Stopping Suspicious Car
10-39 = Urgent, Use Lights & Siren
10-40 = Silent Run
10-41 = Beginning Tour Of Duty
10-42 = Ending Tour Of Duty
10-43 = Information, Message
10-44 = Request Permission To ___
10-45 = Animal Carcass
10-46 = Disabled Vehicle
10-47 = Emergency Road Service Needed
10-48 = Traffic Signal Needs Repair
10-49 = Traffic Light Out
10-50 = Accident
10-50l= Accident With Injuries
10-51 = Wrecker Needed
10-52 = Ambulance Needed
10-53 = Road Blocked
10-54 = Livestock On Highway
10-55 = Intoxicated Drive
10-56 = Intoxicated Pedestrian
10-57 = Hit and Run
10-58 = Direct Traffic
10-59 = Escort
10-60 = Squad In Vicinity
10-61 = Personnel In Area
10-62 = Reply To Message
10-63 = Prepare Written Copy
10-64 = Message for Local Delivery
10-65 = Net Message Assignment
10-66 = Message Cancellation
10-67 = Clear To Read Net Message
10-68 = Dispatch Information
10-69 = Message Received
10-70 = Fire Alarm
10-71 = Advise Nature Of Fire
10-72 = Report Progress Of Fire
10-73 = Smoke Report
10-74 = Negative
10-75 = In Contact With
10-76 = En Route
10-77 = Estimated Time of Arrival
10-78 = Need Assistance
10-79 = Notify Coroner
10-80 = Chase In Progress
10-81 = Breathalizer Report
10-82 = Reserve Lodging
10-83 = Work School Crossing
10-84 = If Meeting, Advise ETA
10-85 = Delay Due To
10-86 = Officer/Operator On Duty
10-87 = Pick Up Checks
10-88 = Advise Present Phone No.
10-89 = Bomb Threat
10-90 = Alarm At _____
10-91 = Pickup Prisoner/Subject
10-92 = Improperly Parked Vehicle
10-93 = Blockade
10-94 = Drag Racing
10-95 = Subject In Custody
10-96 = Mental Subject
10-97 = Check Test Signal
10-98 = Jail Break
10-99= Subject Wanted



I hope to see many of you at the 1995 First Annual NATIONAL SCANNING Convention in mid-July.

Q. WHEN IS FISHING NOT A HEALTHY WAY TO RELAX? A. WHEN YOU'RE THE WORM!

NEW JERSEY

This column will cover the State of New Jersey

CENTRAL - By Louis G. Shirley, 220 Route #18, East Brunswick, NJ 08816

Hello and welcome to the CJ column, hope your summer is a good one. Maybe you'll have a chance to take the scanner along on your outdoor activities. Perhaps I can give you some info that will make scanning easier and more fun. Let's start with the state police as they've made some changes to the trunked radio system.

NEW JERSEY STATE POLICE FREQUENCIES

TROOP A -	856.4375	857.4375	858.4375	859.4375	UNUSED	855.7125
	856.9375	857.9375	858.9375	859.9375	860.9375	----------
TROOP B	856.4625	857.4625	858.4625	859.4625	860.4625	866.3125
	856.9625	857.9625	858.9625	859.9625	860.9625	----------
TROOP C	UNUSED	857.2125	858.2125	859.2125	860.2125	867.2125
	856.7125	857.7125	858.7125	859.7125	860.7125	866.3125
	866.5625	868.1375				

I also have 855.2125 and 855.4625 listed for Troop A (South) and 866.5625 for Troop B (North) and 867.2375 and 867.3125 listed for Troop C (Central), it's unknown if any of these are being used. Troop C has added 867.6625 and 868.1375 to their system. Generally the turnpike troopers (both Morrestown and New Brunswick use Troop C) will access these two more readily than the other frequencies. Newark Turnpike Barracks uses the Troop B system.

When things are quiet and only one channel is in use, I found that Troop A will access 855.7125, Troop B accesses 860.4625 and Troop C accesses 867.2125 first. Once other users get on the system, it then becomes more random. Highway phone patches for roadside assistance generally pop up on .4625 freqs. for Troop B. But, so does Narc surveillance and 860.4625 seems to be several NJSP bureaus favorite frequency, besides the phone patches. Anything goes, but late in the evening, following the system is quite easy, use two scanners and load the .9625 into one and .4625 into the other.

OKLAHOMA BOMBING

I've started hearing more Troop C phone patches from troopers to the homefront, etc...There has been a lot of NYC surveillance by the NJSP. I overheard one group talk about working with the IRS and about records that were lost in the Oklahoma bombing. My guess is, some info about that building's purpose is not being told to us. I think it was selected specifically to destroy records.

The NJSP works closely with ALL Federal Agencies and I've heard some good surveillances with the FBI. Local Police Departments and county prosecutors also have been busy with the DEA, FBI and U. S. Customs of late. There was a record number of air and mobile surveillances during April near the CJ address. Several major drug busts occurred. One big bust in New Brunswick found the narcs keeping in touch with their cell phones, and no sooner than they'd hang up, the druggies were calling their friends on stolen cell phones, unknown to the narcs. That's all for this edition, till next time, bye, Scanneroos.

A woman got into a taxi and the driver immediately shot into traffic, cutting in and out, changing lanes quickly and making hair-raising turns. "Be careful, please," the woman admonished the cabbie, "I have 10 children at home!" "You have 10 children" the cabbie exclaimed, "and you're telling ME to be careful!"

NEW JERSEY

Continued from previous page

SOUTH JERSEY - By Les Mattson, Post Office Box 62, Gibbstown, NJ 08027

Hello from South Jersey! For this issue, I thought we would examine area hospitals, medevac helicopters and ambulance frequencies. If you are looking for a particular ambulance frequency, try the following:

AMBULANCE FREQUENCIES

45.9200, 45.9600, 46.0000, 46.0400, 155.1600, 155.1750, 155.2050, 155.2200, 155.2350, 155.2650, 155.2800, 155.2950, 155.3250, 155.3400, 155.3550, 155.3850 and 155.4000.

PHILA./SOUTH JERSEY HOSPITALS MEDICAL EVACUATION COPTERS

	150.7750 = MedEvac to CHOP Neonatal Unit
47.5400 = Hospital Alert in Bucks Co, PA	150.7900 = MedEvac Simplex to Security
151.8950 = Salem County Memorial Hospital, NJ	151.6850 = MedEvac to Cooper Hosp. Emerg. Room
151.9550 = Sacred Heart Hospital, PA	154.2650 = MedEvac One and Two
154.5400 = Underwood Memorial Hospital	155.1750 = SouthStar
Woodbury, NJ	155.1750 = MedEvac One and Two
155.2050 = Deborah Heart & Lung Center	155.2200 = MedEvac One and Two
Browns Mills, NJ	155.2650 = MedEvac One and Two
155.3400 = Salem County Memorial Hospital, NJ	155.2950 = SouthStar
155.3400 = Newcomb Med. Ctr. In Vineland, NJ	155.2950 = NorthStar
155.3850 = Newcomb Med. Ctr. In Vineland, NJ	155.2950 = SkyCare One
453.0250 = Albert Einstein Med. Ctr. in Phila., PA	155.3250 = SkyCare
453.1750 = Memorial Health Alliance Hospital	155.3400 = SouthStar
464.1500 = Temple Hospital Security, Phila., PA	155.3400 = Trooper Four
464.3750 = Univ. of Medicine & Dentistry, Camden, NJ	155.3400 = LifeLion to Lancaster Hospital, PA
464.5250 = St. Claire's Hospital in Denville, NJ	155.3400 = PennStar
467.7500 = Hahnemann Hospital Security, Ch. 3 in	155.3550 = PennStar = Tac-2
Philadelphia, PA	155.3850 = PennStar = Tac-1
468.5500 = Newcomb Med. Ctr. in Vineland, NJ	155.3850 = LifeFlight
	155.3850 = MedStar (?)
500.9875 = Trenton Psychiatric Center, NJ	155.3850 = Care One
506.8325 = Paramedic Response Teams (?)	462.2375 = LifeFlight
508.5875 = Underwood Hospital, Woodbury, NJ to	462.9500 = SkyCare One to Riddle Mem. Hospital
Incoming Ambulances	462.9500 = MedStar One and Two
508.5875 = Washington Township Hospital in	462.9750 = Air Care One (VA)
Washington Twsp., NJ to Incoming	462.9750 = LifeFlight
Ambulances	463.0625 = PennStar Response Team (?)
856.4375 = Cooper Phone Patch to SouthStar (?)	467.9750 = SouthStar to At. City Med. Ctr (?)

ALBERT EINSTEIN MEDICAL CENTER
Genius in healthcare.

NEW YORK STATE

This column will cover the State of New York

EASTERN NEW YORK - By Joe Nooney, Post Office Box 30, Valatie, NY 12184

Hello again, and welcome to the July/August edition of ENY. Getting right to it, the E911 system in Columbia County is up and running. All "hang up" calls (calls to the 911 switchboard where the person hangs up before he can give any information) will be responded to by police, fire and EMS personnel. Since most of the rescue squads and all of the fire departments in the county are volunteer, this will place a burden on already under-staffed emergency services.

SUMMER VACATION IN EASTERN NEW YORK

For those of you visiting the area this summer, here are a few frequencies to monitor on your vacation:



154.5700 = Hunter Mountain German Alps Fest
151.7150 = The Great Escape - Lake George
464.3250 = Friar Tuck Resort - Catskill
151.8950 = Saratoga Harness Track
152.4800 = Saratoga Flat Track (NYRA)
173.7625 = Saratoga National Battlefield Monument & Historical Park
151.9550 = McGregor Links Country Club - Saratoga Springs
464.9500 = Glen Sanders Mansion - Wiley Corners
151.6550 = Bassett Mountain Recreation Center - Jay
154.5400 = Nevele Country Club - Wawarsing
464.3750 = Kutsher's Country Club - Monticello
154.6000 = Spook Rock Golf Course - Rockland Co.
159.3300 = Adirondack Mountain Reserve
154.5400 = Lake George Steamboat
154.5150 = Saratoga Performing Arts Center
153.0050 = Catskill Game Farm
462.1375 = Saratoga Harness Track
155.8200 = Saratoga State Park
151.8650 = Colonie Country Club
453.8750 = Empire State Plaza - Albany
154.9650 = NYS Museum - Albany
159.3150 = Adirondack Park Agency
152.3300 = Mohonk Mt. House - New Paltz
156.3000 = Hudson River Cruises - New Paltz
465.0000 = Raleigh Hotel - South Fallsburg
166.3500 - FDR Home/Vanderbilt Mansion -
166.9500 = FDR Home/Vanderbilt Mansion - Hyde Park

151.6550 & 151.7450 & 151.8650 = Sagamore Hotel - Lake George

I received a letter from Steve Harrsch, Sr. in New Jersey regarding the story we ran in the last edition about Albany ex-mayor, Tom Whelan's 1993 Oldsmobile burning up near a fire house that he had closed several years earlier. Turns out that Steve is not a big fan of GM products and suggested (tongue-in-cheek) that maybe the former mayor was fortunate that his "Mr. Goodwrench Special" caught on fire where it did.

Steve also pointed out three of the frequencies in our column were incorrect. They should read:

155.5050 = N. Y. State Police - Troop K (Base to Car)
155.5350 = N. Y. State Police - Troop F (Base to Car)
154.8150 = Town of Ulster Police Department

Those frequencies were added to my column after I had sent the column to NESN HQ. The N. Y. State Police Car-to-Base frequencies are: 154.9200 = Used by Troop K and 154.9350 used by Troop F. That's all for this edition. Hope to see you at the 1995 National Scanning Convention in Lancaster, PA in July. Until next time, we're Signal 140.

NEW YORK STATE
Continued from previous page

NEW YORK CITY - By Brendan Quigley, 67 Argyle Pl., Rockville Center, NY 11570

NYPD BLUE: PART 2

At the heart and soul of the New York City Police Department (NYPD) is the average cop who walks (or drives) the beat in one of the 77 precincts in the city. These officers fall under the direction of the Patrol Bureau.

The organization of the precinct is that it is divided into sectors. The sectors are known by letters which are read out phonetically on the air. The sector is preceded by the precinct. For example, in the 34th Precinct, the car that covers Sector Frank on the air is known as 34Frank or 3-4Frank.

Also active on the precinct frequencies are the Anti-Crime units as well as specialty units responding to calls in the command. When units request to go to "12", they are referring to 470.8625, the citywide frequency.

A precinct by precinct listing for frequencies is much too long to print here. If you would like a frequency for a particular precinct, you can send me an SASE at my above address or e-mail me at: 76016,1755 @Compuserve.com.

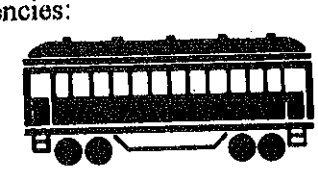
NYPD TRANSIT DIVISION

In the spring of 1995, the New York City Police Department absorbed the New York City Transit Police and its 4,400 officers as the N. Y. P. D. Transit Division. This fine organization is tasked with patrolling the city's many miles of subway lines.

Due to an aggressive program in the late 1980's and early 1990's, there has been a drastic drop in subway crime. The current NYPD commissioner, William Bratton, was Transit PD commissioner when many of these reforms were taking place. When it was a separate department, it was one of the largest in the country. Officers of the Transit Division (or Department as it was then known) were among the first to receive 9mm pistols.

With the merger with the NYPD, there has been much speculation about changes of frequencies, but for now the Transit units remain on the same frequencies:

Manhattan	160.9050	Brooklyn	160.3050
Bronx	160.5000	Queens	160.9650
Citywide	160.6950		



In addition, certain special Transit units can operate on NYPD frequencies, primarily 470.8375 (see last issue) and NYPD ESU can be heard on the Transit frequencies. Unit IDs are much the same as those on the NYPD Precinct Bands except the District Number is used instead of a Precinct number.

HOUSING POLICE DEPARTMENT

The third major police department in the New York City area is the N. Y. Housing Police. This unit patrols the Public Housing Projects in the city. It operates on the NYPD precinct frequencies and it is planned for this organization to also merge with the NYPD soon. That's it for this edition, I welcome your comments, corrections and input to this column.

NEW YORK STATE

Continued from previous page

WESTERN - By Jim Sutton, Post Office Box 115, Mt. Morris, NY 14510

Welcome to the July/August column. This edition, we will take a look at the New York State Police. The system the NYSP uses is VHF High Band. The only exceptions are the Thruway Patrol that uses UHF and the base-to-base system that uses the old low band frequency. The state is divided into troops. Each troop is divided into four zones with stations within each zone. Patrol areas are called posts.

Unit numbering usually begins with the zone number followed by the letter of the zone and then the unit number. For example, Troop E, Zone One, Unit 43 is 1E43. Units that are not assigned to a specific zones are not preceded by a zone number. Bureau of Criminal Investigation, or BCI, units are usually preceded with a "five." Portable units are preceded with a "six" and police departments are preceded with a "seven." For example, my village of Mt. Morris is 7E311.

FILE CODES

Each conversation is concluded with the officers badge number. The only codes used by the New York State Police are the following file codes:

1. = Stolen vehicle/motorcycle
2. = DMV Information request
3. = Emergency reports to division HQ
4. = Wanted! Hit and run
5. = Wanted or escaped person
6. = Missing person
7. = Wanted: Burglary
8. = Wanted: Robbery
9. = Property lost or stolen
10. = Stolen property
14. = Following are test messages only.



13. = General police information
14. = Orders and administrative messages
15. = Requests for information, miscellaneous
16. = Lost/Stolen registration/plate
20. = Criminal investigation (BCI only)
24. = Legal bulletins
25. = Misc. bulletins and opinions
26. = Trouble reports
27. = Weather bureau fallout data
28. = Road conditions and weather reports
29. = Computer statistics reports

Troop A - Batavia. Includes Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming Counties. Base to Car = 155.5050 Car to Base = 155.5350

Troop B - Ray Brook. Includes Clinton, Essex, Franklin, northern Hamilton and St. Lawrence Counties. Base to Car = 154.9050 Car to Base = 155.5950

Troop C - Norwich. Includes Broome, Chenango, Cortland, Delaware, Otsego, Tioga and Tompkins Counties. Base to Car = 155.6550 Car to Base = 154.9500

Troop D - Oneida. Includes Herkimer, Jefferson, Lewis, Madison, Oneida, Onondaga and Oswego Counties. Base to Car = 155.5050 Car to Base = 154.9200

Troop E - Canandaigua. Includes Cayuga, Chemung, Livingston, Monroe, Ontario, Schuyler, Seneca, Steuben, Wayne and Yates Counties. Base to Car = 154.9050 Car to Base = 154.7700

Troop G. - Loudinville. Includes Albany, Fulton, southern Hamilton, Montgomery, Renssalaer, Saratoga, Schenectady, Schoharie, Warren and Washington Counties. Base to Car = 155.4450 Car to Base = 154.6800

That's it for now. I hope to see you in Lancaster, PA on July 14-16. Be sure to bring your input for the next column.

PENNSYLVANIA

This column will cover the State of Pennsylvania

EASTERN - By Josh Heller, 855 N. Park Rd., Apt. AA304, Wyomissing, PA 19610

Thank you for flipping to another installment of my Eastern Pennsylvania column in the NESN section of NATIONAL SCANNING! This issue, it's time to look at the Berks County Police Force. Here are their ID numbers:

ID # 23 = Central Berks Police Department
ID # 25 = Exerter Township
ID # 26 = Amity Township
ID # 29 = Birdsboro
ID # 31 = Robeson Township
ID # 32 = Caernarvon Township
ID # 33 = Brecknock Township
ID # 34 = Cumru Township
ID # 35 = Mohnton
ID # 36 = Shillington
ID # 38 = West Reading
ID # 41 = Wyomissing Hills
ID # 43 = Spring Township
ID # 44 = Sinking Spring
ID # 45 = South Heidelberg
ID # 46 = Wernersville
ID # 47 = Robesonia
ID # 48 = Heidelberg Township
ID # 49 = Womelsdorf



ID # 51 = Marion Township
ID # 53 = Lower Heidelberg Township
ID # 54 = Bern Township
ID # 55 = Centre Township
ID # 57 = Bernville
ID # 59 = Upper Bern Township
ID # 64 = Bethel Township
ID # 65 = Tulpehocken Township
ID # 66 = Muhlenberg Township
ID # 67 = Laureldale
ID # 68 = Temple
ID # 71 = Leesport
ID # 72 = Maidencreek/Ontelaunee
ID # 74 = Shoemakersville
ID # 76 = Hamburg
ID # 81 = Kutztown
ID # 83 = Richmond Township
ID # 85 = N. E. Berks Regional P. D.
ID # 92 = Oley

BERKS COUNTY POLICE FREQUENCIES

Berks County Police F-1 = 155.0700
Berks County Police F-2 = 155.0100
Berks County Police F-3 = 155.2500

Berks Co. Police (Car/Car) = 154.7250
National Police Emergency = 155.4750

Most, if not all municipalities have their own private frequencies to chat between themselves.

The Pennsylvania State Police provide coverage in areas where the Boro or Township has no car on patrol during a particular shift. Catch the PSP on the following:
155.8050 = (Mobile) (Channel C)
PSP Reading Barracks = 154.6950 = (Channel E)
PSP Hamburg Barracks = 155.5050 = (Base)

All Public Safety apparatus in the City of Reading share the 800 MHz system. The police units are identified by a 3-digit number. To the best of my knowledge, the first number represents the shift and the last two digits are a police district. Casual listening while looking at a map of the City of Reading will help you identify the district to a geographical area of the city. Follow the action on: 866.0125 (National) 866.3000 (Phone Patch)
866.5125 866.9125 868.3250 866.6125 867.2250

Thank you to everyone who has written! I am still looking for Lancaster & York County Contributors! You can reach me via the Internet at Josh911@aol.com for fastest access. See you in Lancaster on July 14, 15 & 16th!

PHILADELPHIA - Louis Campagna, Post Office Box 52434, Philadelphia, PA 19115

Don't forget the 1995 NATIONAL SCANNING Convention in Lancaster, PA in July. What a great way to meet all of your favorite column editors and special guest speakers.

PHILADELPHIA PRISON COMPLEX EXPANSION

There's a new corrections facility scheduled to open in June '95 within the city's prison complex located on State Road at Rhawn Street. Due to overcrowding conditions in the prison system, city officials have pushed the necessary buttons to construct a new center which will hold over 2,000 inmates. Known as the Curran-Fromhold Correctional Facility (CFCF), it is situated just north of the House of Corrections. Other facilities in the complex include the Detention Center and Holmesburg Prison that services as Philadelphia's county prison. The areas use 158.9400 MHz for communications between the centers.

The Philadelphia Sheriff's Department conducts operations on 460.1500 MHz and are responsible for prisoner transport as well as serving as the security detail at Philadelphia's municipal courts in the downtown section.

BUCKS COUNTY POLICE "DOCUCAMS"

We've all seen them in use lately, and it was about time that local law enforcement officers in Bucks County were finally equipped. Although still in the experimental phase, two Upper Southampton (501.2375 MHz) police cruisers have been equipped with video cameras. At a cost of $5000 per set-up, "DocuCam", an audio-video system will enable officers to record actions during routine traffic stops. The new cameras can be used to record road conditions, accident scenes in addition to the motor vehicle violations. One official stated that these cameras will be as common as the police two-way radio in the near future.

PHILADELPHIA INTERNATIONAL AIRPORT PROPOSES NEW RUNWAY

The Philadelphia International Airport (PIA) has considered the idea of building a new runway that would help alleviate the traffic burdened by small aircraft and commuter airlines. Most area folks know that the two main runways run parallel to each other and are identified as 9-27 left and right.

Currently, the only other runway (17-35) intersects one of the main runways and has caused delays for larger aircraft, especially during inclement weather. An extension of runway17-35 was not approved, but officials want to construct a new 8-26 runway independent from the airport's main runways. We'll keep you updated concerning what the officials decide to do regarding the re-designing of the airport.

That's all for this edition, I hope to meet many of you in Lancaster, PA. Please send me your input, comments, frequencies, apparatus or district numbering or any good news you come across for the Philadelphia column.

BACK ISSUES OF NORTHEAST SCANNING NEWS AVAILABLE

Send a Self-Addressed, Stamped Envelope (SASE) to NESN, Post Office Box 62, Gibbstown, NJ 08027 and get our list of NESN back issues. In the back issues, each edition was centered around a certain Theme and most Regional Column Editors attempted to write their columns around whatever Theme it was for that month. Military, Law Enforcement, Aircraft, Federal Government, EMS, Fire, Rescue, Rails, Marine Band, Malls, Security, Education, Weather, and Forest Fire were some of the many Themes featured.

PENNSYLVANIA

Continued from previous page

WESTERN - By Dan Ruhe, 607 Evergreen Street, Johnstown, PA 15904

Welcome to the Western PA column. Let's look at what's taking place in Westmoreland County. The listed trunk system is a new system and it's unknown if it is in service or not. It's also unknown if this system is used by police, fire, EMS, public works or all of the above. The Fire Station list and the Police I. D. list is very extensive, if you would like a copy, send a SASE to the above address and I'll get a copy out to you.

WESTMORELAND COUNTY

33.7000 = County Fire Dispatch
33.5200 = Operations, Zone 1
33.6000 = Operations, Zone 2
33.6400 = Operations, Zone 3
33.5600 = Operations, Zone 4
154.2500 = City of Greensburg Fire
155.1600 = County EMS Dispatch
155.7150 = Mutual Aid Dispatch
155.2800 = Ambulance to Hospital
155.2650 = Star MedEvac Helicopter

461.3125 = Westmoreland Mall
464.7625 = Greengate Mall
125.0000 = Latrobe Airport

155.1300 = Police West
155.3700 = Police - Northwest
154.8000 = Police - Greensburg
154.7400 = Police - East
154.9800 = Police - North
155.5650 = Police - South
39.2800 = County Detectives
154.9200 = PA. State Police - Base
154.8300 = PA. State Police - Mobile



464.9125 = Greengate Mall
464.4250 = Pitt Greensburg

851.8875 = Conventional
853.3125 = Conventional
854.0125 = Conventional
856.7125 = Trunked
856.9875 = Trunked
857.2375 = Trunked
857.7125 = Trunked
857.9875 = Trunked
858.7125 = Trunked
858.9875 = Trunked
859.2375 = Trunked
859.7125 = Trunked
859.9875 = Trunked

With water sports and other outdoor activities at a high peak, lets look at some of the action that can be monitored on and around area waterways. Here's some frequencies from Bob Apple's list:

156.4250 = Marine Ch. 68 = Outboard Haven (Verona)
156.9000 = Marine Ch. 18 = Tugboats (Pittsburgh)
156.9250 = Marine Ch. 78 = Fox Chapel Yacht Club
156.4250 = Pymatuning Yacht Club
156.4500 =Marine Ch. 09 = Erie Yacht Club
157.0250 = Marine Ch. 80 = Gateway Clipper Fleet

Also received from Bob Apple is the news that Angel One medical evacuation helicopter is dispatched on 155.2350 and can also use 155.3400 and 155.4000 as do most Pittsburgh area medical facilities.

Well, that will take care of this month's installment of the Western Pennsylvania column. Additions, deletions and corrections are always welcome. Hope to see everybody at the 1995 NATIONAL SCANNER Convention in Lancaster, PA in July. Dan

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Bum: Hey buddy, gimme a buck.
Man: A buck? No way. If you asked for a dime or quarter or maybe even half a dollar.....
Bum: Listen, you can cough up the buck or not, that's up to you. But, don't tell me how to run my business.

DELMARVA

This column will cover the States of Delaware, Maryland, Virginia, Virginia, West Virginia and the District of Columbia.

DELAWARE - By Jack McCartan, P. O. Box 9453, Newark, DE 19714

Greetings from Delaware! Now that the summer is in full swing, you've all hopefully had the time to do some serious scanning. If so, drop us a line and let us know what's going on out there!

This edition, I thought I would give you the most monitored frequencies that are programmed into my two top scanners, a PRO-43 handheld and a PRO-2006 base scanner. Hopefully, you'll find something new and you'll get as much out of it as I do. Let's start with the public safety agencies here in Delaware:

NEW CASTLE COUNTY POLICE

156.1650 = Dispatch F-1
156.1650 = Car/Car F-2
155.1150 = F-3
155.1150 = Car/Car F-4
155.4900 = Data F-5
154.8600 = Statewide Network F-6
155.4750 = Nationwide Police Net F-7

NEW CASTLE COUNTY FIRE BOARD

33.7800 = Statewide Dispatch F-1 (For all three Delaware State counties.)
33.9400 = Fireground F-2
33.6800 = Fireground F-3

NEWARK, DELAWARE POLICE FREQUENCIES

155.2500 = Dispatch F-1
154.7550 = F-2
156.0300 = Car/Car F-3
154.8600 = Statewide Network F-4
154.0400 = Data F-5

UNIVERSITY OF DELAWARE POLICE

501.6625 = F-1
501.5125 = F-2

DELAWARE STATE POLICE

154.6650 = New Castle Co. Troops (Troops #1, #2, #6 and #9) = F-1
154.9350 = Kent County Troops (Troop #3) = F-2
154.7550 = Sussex County Troops (Troops #4, #5 and #7) = F-3
155.4750 = Nationwide Police Emergency = F-7
154.6950 = F-4
155.8500 = F-5
155.4600 = F-6
154.8600 = Statewide Net = F-8

Hopefully, you've done your "Spring Cleaning" of your antennas. In my new residence, I do not have a roof-mounted discone any longer. My Discone is in the attic, and it works just as good as it did when mounted to my rooftop. I did, however, have one heck of a time cleaning my magnetic mobile antenna. It had not been cleaned in some time and really needed it. I noticed a great improvement in the reception when I was done. WD-40 and steel wool can work wonders.

How many of you are planning on going to the 1995 NATIONAL SCANNING Convention in Lancaster, PA? I hope to meet a lot of scanner buffs there. I have not had the pleasure of meeting our esteemed NESN and NatScan leaders and staff. It will be nice to finally meet them all face-to-face and talk shop. That's all for now folks. Hope you are having a great summer so far! See ya next time!!

DELMARVA

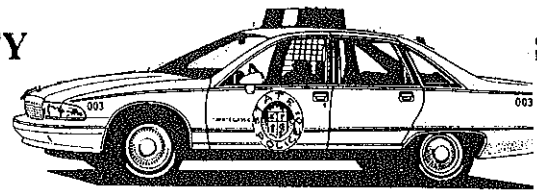
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MARYLAND - By Art Audley, Post Office Box 74, LaPlata, MD 20646

Welcome to Maryland where both the weather and the scanning scene are warming up. Let's pick up where we left off in the last issue with a BIG list of frequencies from Richard Bozovitch (MD-3AMI), from Lexington Park, MD

CALVERT COUNTY

39.2800 = Calvert Sheriff



ST. MARY'S COUNTY

39.4600 = St. Mary's County Sheriff
39.7000 = St. Mary's County Sheriff
39.1200 = St. Mary's College Security

OTHER POLICE AND SECURITY AGENCIES:

140.5250 = NESEA/NISE EAST Security = (Naval Electronic Systems Engineering Activity-St Mary's County)
155.3700 = St. Mary's County Vehicle Repeater
155.4750 = St. Mary's County Vehicle Repeater
406.3500 = Naval Air Station - Patuxent River Security (Phone Patch)
410.1500 = Naval Air Station - Patuxent River Security (Phone Patch)
411.3250 = Patuxent River Security
412.0500 = Patuxent River Security
412.7500 = Patuxent River Security
416.7500, 416.8500, 416.9500, 417.9250, 419.6750 = Pax River Security Mobiles

Glen Smith, a reader from Pennsylvania, sent along some frequencies and department numbers from fire departments in Maryland's Allegheny and Garrett Counties.

37.9000 = Garrett County EMS
33.8800 = Garrett County Fire
33.7800 = Allegheny County Fire

Finally, Gary Weaver of Rock, Maryland sends along some of his favorite frequencies from Suburban (Prince Georges and Montgomery Counties) Maryland.



151.8950 = USAir Arena (Formerly the Capital Center) Security and Maintenance
151.8650 = USAir Arena Parking
158.8650 = U. S. Park Police (at the USAir Arena Only)
151.8350 = Washington Bullets of the NBA
151.5000 = Washington Capitals of the NHL
461.1375 = Contemporary Services Corporation (CSC) Auxiliary Security Channel #1
461.3850 = Contemporary Services Corporation (CSC) Channel #2
461.4375 = Contemporary Services Corporation (CSC) Channel #3
461.5125 = Contemporary Services Corporation (CSC) Channel #4

MILITARY FREQUENCIES

140.9500 = Naval Research Lab (NRL) Security
140.9750 = Naval Research Lab (NRL) Security
118.4000 = Andrews Air Force Base Tower
127.5000 = Andrews AFB Crash Detail
234.8000 = DC Air Nat. Guard - 113th Tactical Fighter Wing

DELMARVA

Continued from previous page

VIRGINIA - By Van Reynolds, 13 Holiday Drive, Hampton, VA 23669

Welcome back to the Virginia column. Is it hot enough for ya? (I hate it when people ask that!) Summer is here and people are on the move. The beaches are packed and the roads are jammed, so there are bound to be accidents. Let's hope no bad ones occur, but if there is one with serious injuries, Nightingale Regional Air Ambulance may be called upon to transport.

NIGHTINGALE MEDICAL HELICOPTER

Nightingale helicopter has been known to respond as far away as 75 miles from its base at Sentara Norfolk Central Hospital. The helicopter uses a two frequency system with 462.9500 being the base frequency and 467.9500 the air. Usually, when Nightingale is dispatched, the frequency to be used to contact the ground units is given out by the dispatcher. Two commonly used frequencies are:

165.2650 = Peninsula Fire Mutual Aid

154.2950 = Tidewater Fire Mutual Aid

Sometimes contact is made on the local fire dispatch frequency used when Nightingale is responding. Nightingale is licensed to use 462.9750 which is the old Norfolk Fire Dispatch frequency. This frequency is still used to simulcast fire dispatch along with the 800 MHz system Norfolk now has. I have no information showing Nightingale has 800 MHz capability, with the exception of the cellular phone, but if anyone does have such information, please drop me a line..

Also listen for patient information on Nightingales return trip via the CORE radio.



463.1000 MED-5 468.1000

For those of you who monitor railroad activity, there are reports of new frequencies being used by CSX. If you live in CSX territory, you might want to check these out.

F-1 = 160.3500 (R)/161.4300 input

F-2 = 161.4150 (R)/160.8900 input

160.4100 = Possible New Dispatch

F-1 is reportedly already being used in Richmond and is planned to be used in other areas.

Thanks to Brett Bodine for the following input.



154.1300 = Richmond Fire & Ambulance
450.4125 = WTVR Channel 6 BC Remote
452.8500 = Greater Richmond Transit
460.1000 = Richmond Police Department F-1
460.2250 = Henrico County Police Dept. F-1

158.9850 = VA State Highway Patrol
159.0000 = VA State Highway Patrol
453.3750 = Greater Richmond Transit
460.2000 = Richmond Police Dept. F-2

Well, that's all for this issue. Since I'm new on the block, I would like to get some feedback from those of you out there. Some information to share wouldn't hurt either. Until next time, have a great summer.

A lot of growing up takes place between "It fell" and "I dropped it."

CAROLINAS

This column will cover the States of North and South Carolina

By - Richard J. Wells, 105-2B Arbor Way, Cary, North Carolina 27513

Hello, and welcome to my first real column as editor of the CAROLINAS for July/August 1995. Les was giving this job away (literally!), so I agreed to give it my best shot and give a little back to the hobby that has given me so much for the last six years. Living just three miles from Raleigh/Durham International (RDU), affords me plenty of opportunity to listen in to lots of good air band chatter. Like all communications, a little perseverance and research yields their reward.

RDU hosts a number of airlines including American, Delta, United, US Air, Air South, TWA and Northwest. The freight carriers include UPS, Federal Express and Emery. Since American has pulled most of its flights out of RDU, the backlog has been filled by Midway and ValuJet. For the big carriers, you can see a wide variety of planes: DC-9, MD80, 727, 737, 757, 767 and F100s. Every once in a while we are graced with a Tower Air Charter into RDU flying the big 747. Quite a blast after getting used to watching the "smaller" planes go by. The commuter fleet at RDU is composed of the Jetstream 31, Shorts 360, Fokker 28 and Dash 8.

FLYING MADE EASY

Various frequencies are used for communications depending on where the plane is in its flight. A commercial plane coming into RDU will be handled by Washington Center (WC) when it's above 10,000 ft.. When descending below this altitude, WC will instruct the pilot to contact RDU approach. Approach vectors aircraft in the direction of RDU while keeping seperatation between planes. When approximately 20 miles from the airport, approach will hand off the plane to the tower who tells the pilot which runway is in use, what airspeed restrictions there are and the traffic situation. Once on final approach, the tower will give clearance to land. After touch-down, the pilot is handed over to ground control, which gives taxiways to use to get the plane to its terminal.

Planes leaving the airport follow a similar procedure using a reverse sequence of frequencies: ground, tower, departure and Washington Center. There may be a first communication to Clearance Delivery to verify the flight plan. Ground will taxi them to the runway, the tower will give basic departure instructions, and clearance for take off, and departure will vector them clear of other traffic until handed off to WC for the high altitude airways.

Referencing several sources of information, a list of frequencies can be compiled to help in your listening. Understanding how the planes are directed from frequency to frequency can help you follow any flight from its first contact with RDU right to the time it pulls up to the terminal. This becomes even more interesting when watching from the observation deck or waiting for someone to arrive at the terminal. Here is a list of frequencies to help you get going:

120.1000 = Clearance Delivery
121.7000, 121.9000 = Ground Control
119.3000, 127.4500 = Tower
125.3000, 132.3500 = Departure
124.9500, 128.3000 = Dispatch



118.7500, 133.8500 = Washington Center
135.2000, 135.3000 = Washington Center
118.5000, 126.6000 = Greensboro Approach
119.5500 = Fayetteville Approach

When communicating, pilots will use their carrier name and flight number (e.g. American 1534). Midway uses the call sign, "JetEx" while ValueJet uses "Critter." With that said, I'll close this column. I urge all my fellow North and South Carolinians to send me information that can be passed along to our NESN readers. This way we all gain from the hobby as well as getting some personal satisfaction for helping others. Until next time, strong signals!

GEORGIA

This column will cover the State of Georgia

By Bob Langley, 471 Cottonpatch Road, Lawrenceville, GA 30245-7166

Thanks to Edward Ashley for the following Burke County EMS & Fire Codes:

BURKE COUNTY FIRE & EMS CODES

10-01 = Receiving Poorly	10-08 = In Service	10-20 = Location (?)
10-02 = Receiving Well	10-09 = Repeat Message	10-21 = Call By Phone
10-03 = Stop Transmitting	10-12 = Stand By	10-22 = Disregard Previous Info
10-04 = Acknowledged	10-13 = Road Conditions	10-33 = Emergency Traffic, Stand By
10-05 = Relay Message	10-14 = Convoy or Escort	10-35 = Confidential Info
10-06 = Unit Busy, Stand By	10-18 = Ass Soon As Possible	10-36 = Correct Time
10-07 = Unit Out Of Service	10-19 = Return (ing) to Station	10-97 = Arrived On Scene

Also from Edward Ashley comes this batch of Richmond County Codes:

RICHMOND COUNTY CODES

01 = Gone On Arrival
02 = Unfounded
03 = No Action Taken
04 = Miscellaneous Report
05 = Incident Report
06 = Traffic Report
07 = Traffic Citation
09 = Wanted Card
10 = Arrest



11 = Open Jail Gate
12 = True Alarm
13 = Uncertain Alarm
14 = Code "M"
15 = Field Interview
16 = Pulled Vehicle
17 = Dangerous Weapon Involved
18 = Dangerous Drugs
19 = Call Assigned to Another Agency

EDITOR'S NOTE: Here is a letter from Georgia Editor, Bob Langley.

Dear Les:

I am sorry I have not been able to keep up with my obligations toward the newsletter. It is with great regret that I must resign my Regional Column Editorship for Georgia. Personal and professional reasons are going to keep me from devoting the necessary time toward the column. I have greatly enjoyed the time I have given to NESN, and am sorry to have to leave it.

I wish you great success with the newsletter. I like the combination of it and NATIONAL SCANNING. That was a good idea. I wish I could continue the column, but given my present situation, it would be impossible. Good luck, and my thoughts will be with you and NESN.

Bob, thanks for your past loyalty to me and to the NESN readers. I wish you the best of luck in the future. L.M.

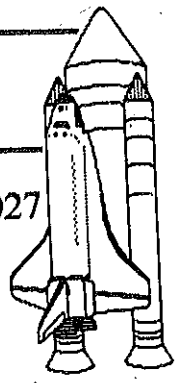
THE GEORGIA REGIONAL COLUMN IS NOW VACANT!

Anyone who wishes to edit this column should send me a cover letter telling me a little about your scanning experience and a sample column which may be used in the next issue of NESN. Les Mattson, NESN Editor, P. O. Box 62, Gibbstown, NJ 08027. Become a member of the prestigious NESN Writing Team!

"NEWS YOU CAN USE!"

FLORIDA

This column will cover the State of Florida



FLORIDA - By the NESN Staff, c/o NESN, P. O. Box 62, Gibbstown, NJ 08027

Thanks to Stephen H. Feldstein for this miscellaneous Florida information:

MONITORING SPACE SHUTTLES

Well, it's Wednesday night, and once again I find myself listening to the shuttle launch control center on somebody else's repeater. In Miami, I listen to 442.650 MHz to listen in on shuttle missions, launch, flight and landing. I don't know who broadcasts this, I don't know why this is not a published frequency for shuttle listeners in Miami. Although I believe it belongs to a club, I think this frequency should be published somewhere.

When up at the Kennedy Space Center for a launch, you should monitor 146.9400 for the shuttle communications and 173.6875 for security. The Security frequency is interesting. You can hear the approximate number of vehicles at a launch, and in my case, when the traffic will be stopping, so I was able to find a viewing spot. And, if you haven't experienced a shuttle launch, live at the space center, I highly recommend it. A vehicle pass is free, just write to: NASA Public Affairs, PA-PASS, Kennedy Space Center, Florida 32899.

BROWARD COUNTY NEWS

I recently visited the Broward County Sheriff's Public Safety Facility and obtained a copy of "SIGNAL 14" - the official newsletter of the Broward Co. Sheriff's Office (BSO). While flipping through the pages, I found an interesting article called "Things to know on the radio." It seems that the BSO officers have coded radios. These radios are encoded with an individual's ID. All BSO officers have an ID and now so do their radios. This means that an officer can be tracked by the coded signal of the handheld radio.

There is also a new channel called the Information/Inter-City channel, to be used to call for certain information (Animal Abuse, Wreckers, Traffic Engineering, etc.) This frequency, unknown to me, is NOT for emergency traffic.

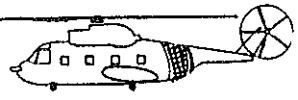
This column is vacant. If you are interested in editing this column, please send a sample copy and a note about yourself, scanner experience, scanning equipment, etc. to the above address.

1995 NATIONAL SCANNING CONVENTION

I don't know about you, but I can't wait for July 14, 15 & 16th to arrive, so I can finally meet so many of you who have written, called me on the NESN "Hotline" and/or attended one of our 8 Annual NESN Summer Picnics in National Park, NJ.

Gene Hughes, Larry Miller, Bob Coburn and Norm Schrein are all names to me as they are to most of you. Where else could we meet such illustrious Champions of the Scanner Hobby but in Lancaster, PA in mid-July of this year? Also close to me are the NESN Regional Column Editors, NESN subscribers, all the NatScan readers and my friends of the newly formed AMERICAN SCANNER CONFERENCE on America OnLine.

In closing I must admit I am also looking forward to meeting the National Scanning Office Staff; Robin, Teresa, Angie and especially the NatScan full-time employees. (Most of all, I'm hoping to finally see the inside of a medical evacuation helicopter! L.M.)



CENTRAL UNITED STATES

Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Ohio, Oklahoma, Tennessee, Texas, Wisconsin

Send Frequency and other information to:
Central U.S. Editor, National Scanning
Box 360, Wagontown, PA 19376

ALABAMA

Jerry Osterman (AL 1 AKS) keeps up with the many changes to Winston Cup auto racing frequencies. Here's his latest list for 1995. So far, Jerry says Brett Bodine is the only driver scrambling his communications.

1. Rick Mast – 461.162, 463.8875
2. Rusty Wallace – 461.5875, 461.3375
3. Dale Earnhardt – 466.425, 466.925, 469.925
4. Sterling Marlin – 464.300, 464.3875
5. Terry Labonte – 468.2125, 469.4875
6. Mark Martin – 460.950, 468.5625, 463.925
7. Geoff Bodine – 457.175, 457.975, 458.975
8. Jeff Burton – 465.8875, 466.0875
9. Lake Speed – 463.975, 464.175
10. Ricky Rudd – 465.7375
11. Brett Bodine – 855.5125
12. Derrike Cope – 467.575, 467.725
14. Randy MacDonald – 466.575
15. Dick Trickle – 457.550, 457.525
16. Ted Musgrave – 468.450
17. Darrell Waltrip – 469.3125, 468.7625,
18. Bobby Labonte – 466.0125, 467.7625
19. Phil Parsons – 467.1875
20. Bobby Hillin – 466.275
21. Morgan Shepard – 855.2875, 855.0375
22. Randy LaJoie – 468.9375
23. Jimmy Spencer – 469.8375
24. Jeff Gordon – 467.0625, 469.4875
25. Ken Schrader – 466.7875
26. Steve Kinser – 460.5875, 468.4875
27. Loy Allen Jr. – 855.5625
28. Dale Jarrett – 466.950, 466.450
29. Steve Grissom – 467.9625, 463.400
30. Michael Waltrip – 466.300, 466.125
31. Ward Burton – 467.9875, 463.775
32. Mike Chase – 462.7125
33. Robert Pressley – 468.775
36. H.B. Bailey – 468.425
37. John Andretti – 462.525
40. Greg Sacks – 462.975
41. Ricky Craven – 460.2375, 468.8375, 461.2125
42. Kyle Petty – 460.975, 461.000
43. Bobby Hamilton – 852.1875, 865.6125, 865.7125
44. Jeff Purvis 463.5875
47. Billy Standbridge – 465.7875, 463.900, 465.7875
51. Kerry Teague – 468.8125
52. Gary Bradbury – 467.925
53. Richie Petty – 858.7875
62. Ronnie Sanders – 469.175

And here are some related frequencies for International Motor Sports, CART and USAC which should be of use to you at the races:

151.685 – IMS
151.775 – IMS
154.600 – IMS
467.750 – Track Ambulance
454.575 – Pace Car
452.575 – Pace Car
452.600 – Pace Car
935.1375 – Pace Car
469.625 – Safety 5
464.800 – Safety 6
462.700 – Safety 7
857.9625 – Indy Radio
151.625 – Goodyear Blimp
464.500 – CART
464.550 – CART
464.750 – CART Pace Car
464.625 – CART Fire Safety
466.6875 – US Auto Club F-1
461.6875 – USAC F-2
461.6375 – USAC F-3
462.6375 – USAC F4.

ARKANSAS

Living just one mile from Gravette Medical Center has its pros and cons, according to Philip Norell. "I get to listen to ambulance traffic on the MED channels and the Medical Center on 155.340. All of it comes in loud and clear on my BC890XLT. Of course, I also have to hear sirens all the time, but that's okay, it's worth it." Phil sent these numbers for the City of Gravette and the University of Arkansas, which he attends:

453.975 – Local, 37.100 – County CENCOMM, 37.180, 37.200, 37.240 – UofA: F-1 453.700, F-1 Police 453.450, F-2 Police Tactical – 460.250, F-3 Police Dispatch – 46.0375, Student Patrol – 155.625.

ILLINOIS

Dan Gann was kind enough to write and tell us about the Chicago Police Department. "Chicago Police utilize twenty-five primary police districts. Dispatch frequencies are shared, usually by two districts and are called radio zones numbered 1 through 13. Unit numbering is fairly straightforward: the first two unit numbers define the district. In addition to these frequencies CPD uses a trunked system: 856.9375, 857.9375, 858.9375, 859.9375, 860.9375."

460.475 – Zone 1 Districts 16 and 17
460.050 – Zone 2 Districts 19 and 23
460.225 – Zone 3 Districts 13 and 14
460.150 – Zone 4 Districts 1 and 18
460.500 – Zone 5 Districts 2 and 21
460.400 – Zone 6 Districts 7 and 8
460.075 – Zone 7 District 3
460.200 – Zone 8 Districts 4 and 6
460.025 – Zone 9 Districts 5 and 22
460.100 – Zone 10 Districts 10 and 11
460.375 – Zone 11 Districts 20 and 22
460.425 – Zone 12 Districts 15 and 25
460.450 – Zone 13 Districts 9 and 12
460.125 – Citywide 1 Traffic/Gangs
460.175 – Citywide 2 Detectives/Tactical
460.275 – Citywide 3 Emergency Messages
460.325 – Citywide 4 Youth/Evidence Techinicans
460.350 – Citywide 5 Special Events
460.250 – Citywide 6
460.300 – Citywide/Phone Patch

Rick Walton in Rockford sent in these numbers and asked if we "would be kind enough to print them." Since you were kind enough to send them, Rick, it would be our pleasure to share them.

155.505 – Illinois State Police Mobile Extender
42.500 – ISP Statewide Car to Car 4
42.340 – ISP District 4/7/18
42.840 – ISP District 7/21 Mobiles
154.845 – ISP District 7
155.460 – ISP
154.235 – Rockford Fire Department
154.190 – Fire
154.370 – Fire
154.340 – Area Hospitals
155.565 – Rockford Police - City West
155.625 – Rockford Police - City East
155.850 – Rockford Police - Car to Car F8
156.150 – Rockford Police - Surveillance F7
155.475 – ISPERN
155.370 – Point to Point

INDIANA

A thousand thank-yous to Dave Wendt for a great list of Indiana State Police frequencies. Dave says that he hasn't checked these frequencies, except for the 42.42 dispatch. Holler if you find any mistakes and we'll print them. Look for more from Dave in the next issue.

155.4600 – Emergency Net
856.5875 – Portable Trunked System
864.6875 – Portable Trunked System
42.2600 – Aircraft 857.7125 Trunked System
42.4000 – Mobile
156.0300 – Indiana Toll Road
860.4875 – Trunked System, Lafayette
42.4200 – Dispatch
154.7550 – Base-Car-Base
859.9625 – Trunked System, Lafayette
858.5875 – Trunked System, Lafayette
42.4000 – Secondary Dispatch
42.1200 – Car to Car/Radar
42.2000 – Car to Car/Radar
859.7125 – Trunked System, Lafayette
860.7125 – Trunked System, Lafayette
859.5875 – Trunked System, Lafayette
858.4875 – Trunked System, Lafayette
858.7125 – Trunked System, Lafayette
42.1600 – Aircraft/Tactical
860.5875 – Trunked System, Lafayette
861.6875 – Trunked System, Lafayette
863.6875 – Trunked System, Lafayette
857.9625 – Trunked System, Lafayette
856.7125 – Trunked System, Lafayette
42.3200 – Mobile
155.4750 – NLEEC/Emergency
155.4100 – Base-Car-Base
860.9625 – Trunked System, Lafayette
862.6875 – Portable Trunked System
856.9625 – Trunked System, Lafayette
857.5875 – Trunked System, Lafayette
155.4450 – Handheld Extenders/Rural
42.4000 – Post-To-Post
453.0500 – Repeater, Dana
155.4450 – ISP Statewide Moble Extender
42.1000 – ISP Car to Car
42.1200 – ISP F3 Car to Car
42.1600 – ISP F4 Tac
42.2600 – ISP Mobile
42.4000 – ISP F2 Backup
42.4200 – ISP Base
155.4750 – Indiana Law Enforcement Emergency Network
155.4600 – ISP Tactical
47.3600 – I.D.O.T Ft. Wayne

IOWA

Rick Askegreen noticed that the following frequencies are used by state police for ground speed traps and airborne speed enforcement. "Put these in your scanner if you're on the highway. It can save you a ticket or two." 155.430 – Police Speed Traps; 155.505 – Police Aircraft Enforcement.

KANSAS

Paul Carruthers passed along information that the Kansas City police narcotics unit has now scrambled their radio communications. Both Vice and Narcotics officers now use encrypted radios. Narc Unit commanders Captain Sam Breshears and Lieutenant Rex Garner said that it isn't unusual to raid a drug house and find a police scanner tuned to KCK police frequencies. Confiscated drug money allowed the unit to purchase 16 radios, with the possibility of six more being purchased for multi- jurisdictional investigations. KCK Police have no plans to encrypt any other part of their 800 MHz system.

KENTUCKY

"I always carry an updated list of police and fire frequencies with me. I pulled it out the other day and thought you might be able to use it, so here's a copy," said Richard Anderson (KY 4 TYR). "There are lots of tactical type freqs that I didn't include, because you can find those easily enough. These are the top ones to have in your scanner if you want to hear action."

City of Louisville Fire Department
154.160 – F-1 South
154.370 – F-2 Central
154.250 – F-3 East
154.445 – County Dispatch
460.575 – F-2 Special Backup
460.600 – F-3 Investigators
460.625 – F-4 Primary Dispatch
462.950 – F-9 City EMS Dispatch
462.975 – F-10 County EMS Dispatch

City of Louisville Police Department
460.025 – F-1 Districts 1,3,5
460.150 – F-2 Districts 2,4
450.375 – F-3 Traffic Units/Information
460.475 – F-4 Car to Car
460.100 – F-5 Command/Car to Car
460.225 – F-6 Tactical, SWAT, Special Event Coordination

LOUISIANA

Henry Ostwalt is a Maintenance Engineer in Monroe. One of his favorite pastimes is listening to police and fire on his PRO-34 while working. Don't worry, Henry, we won't tell your boss!

154.785 – Monroe PD Patrol Dispatch F-2
155.010 – Monroe PD Detectives F-3
155.430 – Monroe PD Detectives F-4
155.655 – Monroe PD Tactical
155.685 – Monroe PD Tactical
158.790 – Monroe PD Patrol Dispatch F-1

Monitoring the Mississippi River is Dave Wagner's thing and he sent us the latest frequencies in case you'd like to try them out: 155.100 – Port Pilots, 155.835 – Port Pilots, 155.985 – Port Pilots, 453.400 – Mississippi River Bridges, 453.675 – Mississippi River Bridges, 453.750 – Mississippi River Ferry.

MICHIGAN

We have some frequencies for Glen Canyon National Recreation Area from Jim Sokol (MI 8 AFM) in St. Joseph. Jim says that these numbers aren't confirmed, but may be valid: 171.650, 172.475, 172.625/172.400. Thank you, Jim!

MINNESOTA

Our friend Bud Mason in the Minneapolis/Saint Paul area sent along these UPS frequencies. He hasn't done much listening to them, but he believes that 200 MHz frequencies might be used for data, while the 400 MHz freqs are voice:

220.8625, 220.9275, 221.8625, 221.9275, 151.6675, 151.7275, 151.9075, 151.9375, 462.0125, 462.1125, 462.7625, 462.9125, 467.1125, 467.1375, 467.9125,

MISSISSIPPI

T. Thornton (MS 5 AAB) tells us more this issue about low band. "Low band is still the most widely used band for law enforcement all over the state. The following frequencies will govern all low band statewide, including state troopers and most local fire departments and ambulance services: 42.020, 42.080, 42.120,42.160, 42.180, 42.200, 42.240, 42.300, 42.800, 42.840, 45.080, 45.100, 45.140, 45.180, 45.220, 45.260, 45.300, 45.320, 45.340, 45.380, 45.420, 45.460, 45.500, 45.540, 45.620, 45.700, 45.740, 45.780, 45.820, 45.940. 45.220 is known as statewide low band and virtually every law enforcement agency, along with FD, ambulances, and EMS in the state have this freq for mutual aid. Only the larger towns and cities use VHF high, UHF or trunked systems, and most of these still use low band on a regular basis. The most common statewide high band frequencies are 155.010, 155.370, 155.475, 155.490, and 155.730."

MISSOURI

A package came our way from Jeff Albers (MO 0 AAL) in Jefferson City, who sent along these numbers for the Columbia/Jefferson City region. Look for more from Jeff in the coming months as we run additional sections of his very complete list.

Missouri Highway Patrol (MHP) – 42.020, 42.060, 42.120, 42.220, 42.320, 42.380, 154.695, 154.725, 154.740, 154.770, 154.830, 154.875, 154.920, 154.935, 155.070, 155.370, 155.445, 155.505 , 155.595, 155.730, 158.895, 158.970, 158.745, 453.450, 456.175, 456.200, 456.225, 456.275, 456.425, 456.475, 456.525, 456.575, 456.625, 456.650, 456.750, 458.887, 460.150, 460.187, 460.237, 460.387

Missouri Department of Transportation (DOT) – 151.040, 151.070, 151.130, 156.045, 156.135

NEBRASKA

Joseph Catalina, Jr. said "here is another list of frequencies for Nebraska." We appreciate the info! Joseph is Assistant Scoutmaster for BSA Troop 86 in Port Arthur, Texas and asked us to publish the BSA Outdoor Code: "As an American, I will do my best to be clean in my outdoor manners, be careful with fire, be considerate in the outdoors and be conservation-minded." Words to live by!

159.3300 – Nebraska Game and Parks
457.2500 – Nebraska State Patrol
42.4600 – NSP Base
42.3000 – NSP Mobiles
155.1900 – NSP
47.1600 – Nebraska State Roads Base
47.2400 – Nebraska State Roads Mobiles
163.4875 – Offutt AFB Security
163.5125 – Offut AFB Security
163.5150 – Offut AFB
163.5600 – Offut AFB
149.5000 – Offut AFB Base Commander
150.2850 – Offut AFB Crash Net
150.1900 – Offut AFB Hospital
150.0250 – Offut AFB Motor Pool

Marty Nissen posted these numbers for Omaha, which we gratefully reproduce here:

460.100 – Omaha Police Dept. Ch.1 West
460.150 – Omaha Police Dept. Ch.2 North
460.225 – Omaha Police Dept. Ch.3 South
460.500 – Omaha Police Dept. Ch.7 Citywide
154.190 – Omaha Fire & Rescue Dispatch
39.900 – Nebraska Law Network
39.980 – Nebraska Fire Network
39.780 – Sarpy Co. Sheriff
155.745 – Sarpy Co. Sheriff
155.130 – Douglas Co. Sheriff Dispatch Ch.2
155.325 – Lifeflight Helecopter
153.950 – Omaha Fire Ch.3 Tactical
155.070 – Douglas Co. Sheriff Ch.1 Info
155.550 – Sarpy Co. Sheriff Ch.2 Info
39.820 – Rescue Squad to Hospital
462.950 – Omaha Rescue Squad to Hospital
453.325 – Millard Rural Fire Dept. Ch.2
458.325 – Millard Rural Fire Dept.
460.750 – Bellevue Police Dept.
156.210 – Papillion Police Dept.
39.740 – La Vista Police Dept.
39.960 – Ralston Police Dept.
42.340 – Nebraska State Patrol base
42.460 – Nebraska State Patrol base
42.300 – Nebraska State Patrol mobiles
42.180 – Nebraska State Patrol mobiles
42.040 – Nebraska State Patrol mobiles
460.325 – Council Bluffs PD
155.625 – Cass County Sheriff - Plattsmouth
155.625 – Wash. County Sheriff - Blair
148.150 – Civil Air Patrol 159.330 Game & Parks
151.475 – Game & Parks
462.700 – Douglas County React

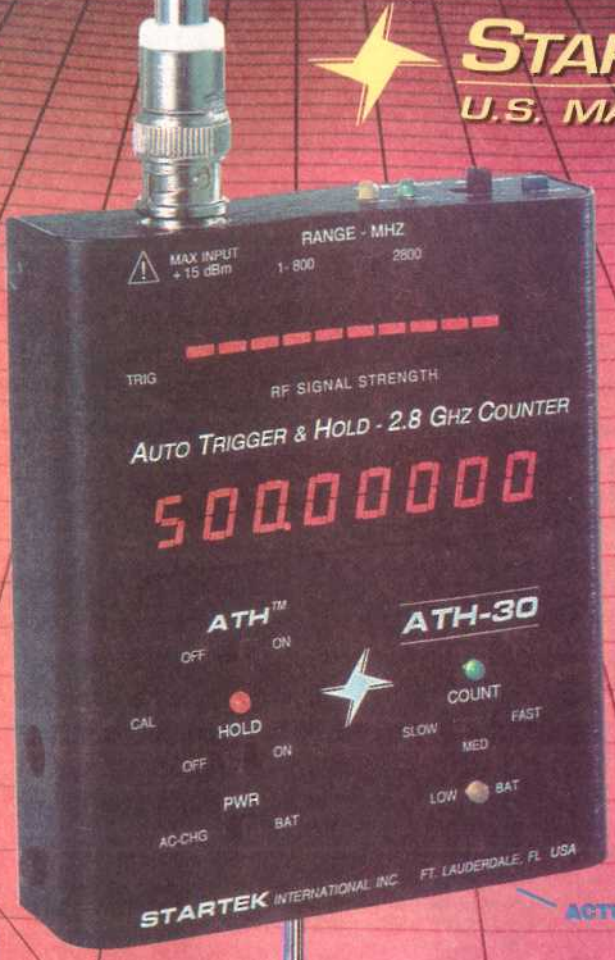
OHIO

The Dayton Hamvention, held April 28-30, yielded these frequencies, according to Mark Meece. He advises that due to the large amount of Ham operators in attendence, it was best to use a low gain antenna such as a 1/4 wave 2-meter or 1/4 wave UHF stubby to cut co-channel interference and front end overload. An external speaker and plenty of batteries are two other must-have tips. Try these freqs out at next year's show:

461.0500 – Hamvention Security
465.0125 – DARA Administration Ch.3 Flea Market
462.5375 – DARA Administration Ch.1 Security
462.7375 – DARA Administration Ch.2 Traffic
466.0500 – Merchants Security
467.5375 – DARA Administration Ch.4
467.7375 – DARA Administration Ch.5
154.6000 – Hara Arena Concessions
154.1300 – Madison Township Fire
155.1600 – Box 21 Rescue
155.0100 – Madison Township Police
155.8500 – Madison Township Police

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#TA-90-L	Telescope Elbow BNC Antenna	16
#RD-150	150 MHZ Rubber Duck Antenna	16
#RD-2750	27 & 50 MHZ Rubber Duck Antenna	19
#RD-450	450 MHZ Rubber Duck Antenna	16
#RD-800	Cellular phone band RD Antenna	16
#P-110	200 MHZ 1X-10X Probe	39
#LP-22	Low Pass, Audio Probe	25
#DC-10	Direct, 50 OHM Probe	20
#DC-5	BNC Cable to Clip Leads	12
#M-207-IC	Interface Cable MFJ Ant. Analyzers	10
#APA-9	9VDC Auto Power Adapter	6

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SIGNAL BAR GRAPH	NO	YES	YES	YES
LOW BATTERY IND.	NO	YES	YES	YES
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Ohio Highway Patrol is a popular listening target for Amy Trageser, so here's her District 10, Post 18 (Cuyahoga County) District HQ, Turnpike HQ list:

44.740 – Base
44.860 – Mobiles
45.020 – Ch.3 Aircraft
45.100 – Ch.4 Aircraft/Speed Enforcement
154.935 – LEERN F-2
465.375 – MRE, Aircraft
465.425 – MRE
465.525 – MRE
465.550 – MRE Ohio Turnpike Patrol
155.685 – CH. A Base
154.710 – CH. A Mobiles
155.790 – CH. B Base
154.710 – CH. B Mobiles

Our Cleveland correspondent sent the lastest from his list. He mentions that there is an 800 MHz system in use on the following bandplan: 851 – 855.1375, 851 – 855.1875, 851 – 855.2375, 851 – 855.2875, 851 – 855.3375.

33.9000 – Cleveland Fire F1 Dispatch
33.5800 – Cleveland Fire F1 Dispatch
153.890 – Cleveland Fire F1 Fireground
33.7200 – Cleveland Fire F2 Alternate Dispatch
33.4600 – Cleveland Fire F2 Alternate Dispatch
154.145 – Cleveland Fire F2 Hi-Rise Fireground
154.010 – Cleveland Fire F3 Fireground
154.070 – Cleveland Fire F4 Fireground
153.950 – Cleveland Fire F5 Command
154.010 – Cleveland Fire F5 Command
153.830 – Cleveland Fire
154.160 – Cleveland Fire
154.250 – Cleveland Fire
45.8800 – Cleveland Fire
155.160 – Cleveland EMS
462.950 – Cleveland EMS
467.950 – Cleveland EMS
462.975 – Cleveland EMS
467.975 – Cleveland EMS
460.225 – Cleveland Police F1 District 1 Far West
460.400 – Cleveland Police F2 District 2 West
460.150 – Cleveland Police F3 - District 3 Central
460.475 – Cleveland Police F4 - District 4 South
460.275 – Cleveland Police F5 - District 5 East
460.450 – Cleveland Police F6 - District 6 Far East
460.125 – Cleveland Police F7 - Tow Trucks
460.500 – Cleveland Police F8 - Tactical/Overflow
460.350 – Cleveland Police F9 - Detectives
158.850 – Cleveland Police Radio Techs
155.010 – Cleveland Police Helicopters
158.850 – Cleveland Police SWAT F1 Dispatch
154.845 – Cleveland Police SWAT F2 Special Ops
154.830 – Cleveland Police SWAT F3 Special Ops
154.815 – Cleveland Police SWAT F4 Special Ops
154.800 – Cleveland Police SWAT F5 Special Ops
154.785 – Cleveland Police SWAT F6 Special Ops
154.085 – Cleveland Street Dept. East
154.040 – Cleveland Street Dept. West
151.160 – Cleveland MetroParks
159.330 – Cleveland MetroParks
154.515 – Cleveland MetroParks

OKLAHOMA

Alert reader Allen Keith in Tulsa picked up an article detailing plans for a regional 800 MHz radio system. The joint effort by Tulsa and state agencies should provide seamless communications for law enforcement in the state. Within three years officials hope that they'll have direct communications ability among emergency and law enforcement personnel from Wichita, Kansas to Joplin, to Fayetteville, Arkansas and on to the Texas border.

It will be quite a while before Oklahoma City fully recovers from the horrible bombing of the Alfred P. Murrah Federal Building. Readers have been sending in their frequency lists, monitored during the incident:

453.150 – OKC Fire F-1
453.350 – OKC Fire F-2 Dispatch
453.450 – OKC Fire F-5
453.600 – OKC Fire F-3 Dispatch
453.300 – OKC Fire F-4
453.450 – OKC Fire F-5
453.700 – OKC Fire F-6 Administration
453.625 – OKC Emergency Operations Center
453.475 – OKC EMS F-1
453.375 – OKC EMS F-2
453.500 – OKC EMS F-3
453.975 – OKC EMS F-4
159.090 – OKC PD F-1 Inquiry
159.030 – OKC PD F-2 South
158.730 – OKC PD F-3 Administration
158.790 – OKC PD F-4 Central
158.970 – OKC PD F-5 North
155.190 – OKC PD F-9 Detectives
460.350 – OKC Sheriff F-1 Dispatch
460.375 – OKC Sheriff F-2 Tactical
460.425 – OKC Sheriff F-3
462.975 – Oklahoma EMS
155.160 – Oklahoma Search and Rescue

Marvin Corteway (OK 5 AGV), who works 15 miles from the federal building, felt the blast and was happy that he had happened to take his PRO-34 to work with him on April 19. Oklahoma City Police Mobile Command Center worked on 158.730, Oklahoma Fire Mobile Command Center on 453.600 and 453.450, Emsa Ambulance MCC 463.050, Red Cross 151.235, FEMA 138.225, US Customs 165.2375 and 165.375.

TENNESSEE

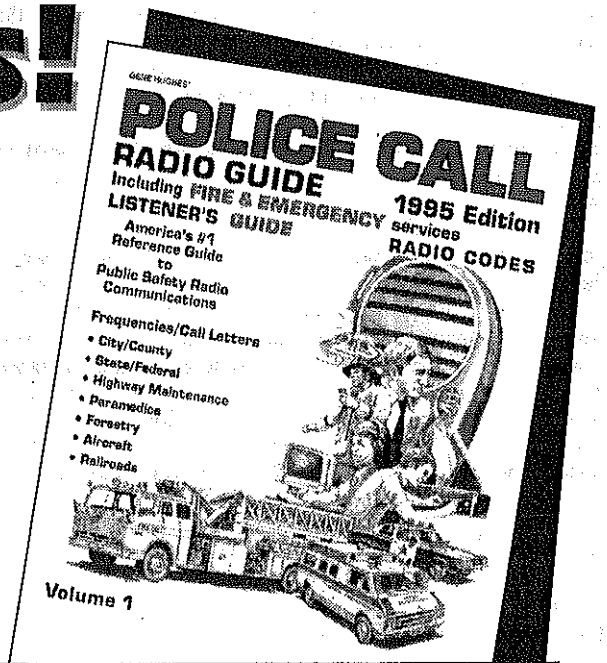
Chuck Bronson was kind enough to come up with these current frequencies for Nashville International Airport

(BNA):
ATIS – Arrivals 135.1
ATIS – Departures 135.675
FSS – 122.55, 122.2
Clearance Delivery – 126.05
Ground Control – 121.9 (west), 132.95 (east)
Tower – 128.15 (runway 2R-20L)
Tower – 118.6 (runways 2L-20R 2C-20C 13-31)
Approach – 127.175 (019'-199'), 120.6 (200'-018')
Departure – 119.35 (200'-018'), 118.4 (019'-199')
UNICOM – 122.95

TEXAS

Alex B. Francis has a neat set-up via the Internet Phone. Alex says he often broadcasts Irving Police, Fire and DFW Approach. If you're using a Windows compatible sound device, use your Web browser to connect to http//vocaltec.com and download iphone08.exe. Then call "scanner." We haven't tried this, so let us know what you think of it. Thanks to an anonymous drop, we have these frequencies assigned to US Customs and the Drug Enforcement Administration. They are good nationwide.

37.0000 – Gulf Area board and search ops
162.8250 – Customs Ops 164.7750 DEA/Customs
165.2375 – Customs F1/2 Repeater
165.4625 – Customs F5 Repeater
165.7375 – Customs F4 Tactical
165.8500 – Customs Tactical/Car to Car
166.0000 – DEA
166.4375 – Customs F1/2 Repeater
166.4625 – Customs F3 Treasury Common
166.5875 – Customs F5 Repeater
281.4000 – DEA/Customs Air Ops
415.6000 – DEA Ch.5 Repeater in, output 418.825
416.0500 – DEA Ch.1 Repeater in, output 418.625
416.2000 – DEA Ch.6 Repeater in, output 418.950
416.3250 – DEA Ch.2 Repeater in, output 418.900
416.6750 – DEA Ch.4 Car to Car simplex
417.0250 – DEA Ch.7 Repeater in, output 418.975
417.2000 – DEA
418.6250 – DEA Ch.1 Repeater
418.6750 – DEA Ch.4 Simplex Car to Car
418.7500 – DEA Ch.3 Simplex Car to Car
418.8250 – DEA Ch.5 Repeater
418.9000 – DEA Ch.2 Repeater
418.9500 – DEA Ch.6 Repeater
418.9750 – DEA Ch.7 Repeater

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GWSC Greater Western Scanning Club

FROM THE PRESIDENT
by Michael J. Smith

Ever since North East Scanning News joined National Scanning, those of us in the western part of the United States have been a little jealous. The NESN section of the magazine is always *packed* with local frequencies and information for the eastern US. That's not to say that the western section has been a total write-off. The problem is that scanner listeners in the western states have not been as organized.

Here in California, Zack Benjamin and I have been trading frequencies under the banner of the Great Western Scanner Club. Over the past two years, though, Zack and I, along with Arizona editor Dave Watson, have been trying to find a way to get out high-quality, up-to-date frequency information to scanner listeners in the western US. We thought about producing a specialized newsletter but the cost would be prohibitive -- the price of paper alone has been going through the roof, not to mention postage. After turning to NatScan publisher Larry Miller for advice, we decided to do the same thing that North East Scanning News did -- join up with the best.

The idea is this: if we can get enough people involved -- as state editors and as individual contributors -- we can put together a section of the magazine for the western US that would rival North East Scanning News' section for the east.

So here it is. After months of work and a monsterous phone bill, we are proud to present the first installment of the Great Western Scanner Club western states section of National Scanning. Each and every one of our state editors is an experienced scanner listener and a volunteer. But all of them need your help. Be sure to send in copies of your frequency list! When you discover something new, send it in to the appropriate state editor. California native Laura Quarantiello has agreed to act as our contact person and unpaid secretary. You can send material to us in care of the magazine (Box 360, Wagontown, PA 19376) until such time as we get a west coast editorial office established.

WASHINGTON
by Steve Sullivan

Hi, gang! We're fortunate to have a neat profile for Clark County for this issue, including the new 800 MHz trunked system. This has been provided to us by a reserve firefighter who has asked to remain nameless lest he is mobbed by appreciative fans.

Clark County Fire
154.0700 -- District 1 Washougal
154.3700 -- District 1 Washougal
154.0700 -- District 3 Dispatch Brush Prairie
153.9500 -- District 3 Brush Prairie
154.0700 -- District 5 Dispatch Vancouver
153.9500 -- District 5 Vancouver
154.3700 -- District 5 Vancouver
154.3700 -- District 6
154.0700 -- District 10
154.0700 -- District 11 Battle Ground/Dollars Corner
154.0700 -- District 12 Ridgefield
154.3700 -- District 12 Ridgefield
154.0700 -- District 14
154.3700 -- All Districts Ambulance

Clark County Sheriff's Department VHF
155.3100 -- F1
155.6550 -- F2 Dispatch
155.0700 -- F4 Tactical

Clark County Sheriff's Department Trunked System
856.7625, 856.9375, 856.9625, 856.9875, 857.7625, 857.9375, 857.9625, 857.9875, 858.7625, 858.9375, 858.9625, 858.9875, 859.7625, 859.9375, 859.9625, 859.9875, 860.7625, 860.9375, 860.9625, 860.9875

William Atkinson, who has been a NatScan Washington state contributor for two years, sent in his listing for the Columbia River Valley. William tells us that the River Fish Commission is on 156.225, 159.015 and a UHF freq of 460.1625. Mosquito Control mobiles chat on 158.880, but you've got to be within a mile to hear them. William promises that he'll write again as soon as he gets his frequency counter battery recharged.

Next month I'll be bestowing the coveted NatScan Scanner Listener of the Month award to the person with the best contribution of frequencies for this section. What do you get? Your name in lights (or at least in this column.)

OREGON by Sue Duncan

Hi, and welcome to your Oregon column. I suppose I should explain to all the National Scanning readers that 1) yes, I'm a woman who actually likes scanning, and 2) I've been listening for twelve years. Trying to keep up with the guys in this hobby is a full-time job, at times rivalling my real full-time job as a teacher. Let me tell you, once you've handled a classroom of rowdy ninth graders, you can handle anything male scanner listeners dish out! With any luck, I'll get to meet some of you at the convention in July! On to business...

Grady Benson in Medford wrote to tell us that Mercy Flights communicate on 155.205, 155.220, 155.280, 155.340 and 155.400. Mercy Medical Center, on the other hand, uses 457.700 MHz for their operations. Grady asks that I remind everyone of the nationwide paramedic frequencies. Here you go!

463.000/468.000 MED 1 463.025/468.025 MED 2
463.050/468.050 MED 3 463.075/468.075 MED 4
463.100/468.100 MED 5 463.125/468.125 MED 6
463.150/468.150 MED 7 463.175/468.175 MED 8

You will also find medical paging done on certain frequencies throughout the spectrum. The most popular are 152.0075, 157.450, 163.250, and 453.075. Do you know of others? Whether they are specific to Oregon or are nationwide, let us know and we'll print them.

We picked these frequencies up from Brian Varine, who says that the Oregon State Police working I-5 between Halsey and Corvallis are using 154.665 for speed enforcement by aircraft. Also, 155.475 is sometimes used for this.

I'm happy to report the recent purchase of a BC-9000, which I'm very pleased with. It's small enough that I can carry it around without anyone knowing about it. Add a pair of headphones, and no one is the wiser! Until next time, scan safely.

CALIFORNIA By Zack Benjamin

Hi to all our National Scanning readers. Good to be here. Mike says I have to give you my M.O., so you know who I am. I'm an ex-Mountie who moved down to sunny L.A. after I retired. Been into scanning as a hobby for ten years and I'm one of the founding fathers of GWSC; Mike's the other proud papa of this group. The gear I'm using lately is a PRO-2006 and PRO-43 running off of some really weird hybrid antennas I trucked down with me from British Columbia. Hey, don't knock 'em, they work!

On with the show! My spies in Seattle say that Seattle Fire is still toning-out their crews on a UHF frequency of 453.800 and then switching to 800 MHz for further communications. Can't give up on the ol' VHF, huh? Sissies!

Laren Ambrose visited with these Cowlitz County frequencies. Try these out and let me know what you're hearing and if they're still active; remember, confirmation ain't just a Catholic sacrament:

Cowlitz County Sheriff -- 156.210
CCSO -- 155.370
CCSO -- 155.595
CCSO -- 154.370
Cowlitz County Fire -- 155.670
Kelso Police -- 154.670
Kelso Fire -- 156.210
Kelso Fire -- 154.370
Longview Police -- 155.535
Longview Police -- 156.210
Longview Fire -- 155.535
Longview Fire -- 154.370
Kalama Police -- 155.010
Woodland Police -- 155.085

Santa Clara Police have been reported using a trunked system lately, like just about everyone else in the known world. Here are the frequencies in case you need them, courtesy of Randy Duran: 866.2625, 866.8375, 867.075, 867,3375, 867.8625, 868.625, 868.8875. Randy says 867.075 is also used as a simplex tactical and you'll find SCPD using a repeater on SMARS frequency 866.0125. Gotta watch those SMARS, they seem to be heating up. It's always smart to keep an ear on the amateur radio emergency frequencies for up to date information. Here's a few that will keep you busy in the San Diego area, courtesy of Alison Long: 147.195, 147.480, 146.265, 224.980, 448.975.

Our winner of the "Best Monthly Contributor Award," Kent Amadour (who is always on top of breaking news and traffic information) gave us these numbers this time around. These are for the Bay Area, in case you forgot where Kent hails from:

KGO-TV -- 450.4625
KGO-TV -- 450.2875
KGO-TV -- 450.275
KCBS -- 450.0875
KCBS -- 450.650
KRON TV -- 450.4125
KRON TV -- 450.4375
KRON TV -- 450.450
KPIX TV -- 450.850
KPIX TV -- 450.4875
KPIX TV -- 450.5125
KTVU TV -- 450.3375
KTVU TV -- 450.3625
KNTV TV -- 450.1875

Hey, you have freqs for your area of California? Send 'em in, eh? I need column fodder. Til next time, I leave you with this thought: blowing in the wind is not a phrase you want to hear associated with your antenna farm.

NEVADA by Bill Martin

I want to extend a personal invitation to all Nevada-area scanner listeners to send your frequencies in. You folks are the experts about what's out there on the airwaves! Wondering about frequencies for the MGM hotels? Wonder no more, here's what they are using for hotel security. MGM Desert Inn 857.8375, MGM Grand 863.825, MGM Marina 853.6625, and MGM Sands 462.900.

Officials keeping those nasty little NASCAR's in line can be heard on the following frequency set-up:

Channel 1 - 464.500
Channel 2 - 464.775
Channel 3 - 464.900
Channel 4 - 469.500
Channel 5 - 462.025
Channel 6 - 463.850
Scoring - 467.800
Inspectors - 468.850

According to our buddy, Bob Dean, the US Air Force Thunderbirds air demonstration team are using 141.850 for general chit-chat before shows and for diamond formation (#1-4) communications during performances. This freq is know as "Victor." 322.95 is seeing use by the soloists (#5-6) and is called "Uniform." These seem to be the active numbers during shows.

ARIZONA by David Watson

Not too much to report this time, as I've been spending most of my time the last few months doing the legwork to put this section together. Do me a favor? Make my day, send me some frequencies! In the meantime, I've pulled up a listing from my own files for this column, so you know things are bad. Let's look at some state agencies while we eagerly await a deluge of mail.

Arizona Department of Transportation
156.120 -- ADOT F1
156.105 -- ADOT F2
156.225 -- ADOT F3
156.135 -- ADOT F4

Arizona State Parks and Forestry
44.760 -- Parks Statewide/Patagonia Lake
45.040 -- Parks Statewide 1
151.400 -- State Parks Fire F2
151.415 -- State Parks Fire F1
151.175 -- Parks Fireground 1
151.145 -- Fish and Game Statewide
151.250 -- Fish and Game Mobiles
151.385 -- Fish and Game
151.430 -- Fish and Game
151.445 -- Fish and Game
151.460 -- Fish and Game
151.475 -- Fish and Game
151.490 -- Fish and Game
159.435 -- Fish and Game Mobiles

Arizona State Agriculture Commission
39.360 -- F1
39.340 -- F2
45.480 -- F3

UTAH by Leo Russell

This month we have a few hits - but no misses! - from the mailbag. Remember, to get column info to myself or anyone at GWSC, use the National Scanning post office box. I look forward to hearing from you! The Navajo tribe of Utah makes for interesting listening, or so says Carl Walters. The active numbers are 45.440, 46.520, 46.560, 153.845, 153.980, 154.710, and 154.980. Police use 46.020 and 155.625.

Burt Denson says that Ace Ambulance Service in Ogden is using 155.235, but he suspects there are other frequencies in use by this agency. Anyone know? Drop me a line.

Yes, the Goshute Indian Tribe in Abapah Valley is using one 800 MHz frequency: 851.9625 MHz. This answers Tim Winters question that appeared in the newsletter a few months ago.

Joe Payton had the opportunity recently to see a demonstration by the Rocky Mountain Rescue Dog Association. He writes that a look at their radios revealed two 155 MHz frequencies in use, 155.280 and 155.295. The call sign printed on the radios was KB69108. Thanks to all and see you next time around!

IDAHO by Barry Jones

The other day I was thinking (which is, in itself, a bad thing!) And it came to me that as scanner listeners we have a unique perspective on what's going on in our areas. Yet we still choose to share frequencies with each other, instead of hording them for ourselves. In fact, we like to talk shop with fellow scanner listeners. I think this sets us apart as a hobby.

Speaking of sharing frequencies, Walt Adams sent in this short but sweet list for Bannock County. Walt, for those of you that don't know, is a regular to this column. He's a man of few words, but what he does say is worth a million bucks.

460.625 -- Bannock County Fire Valley Dispatch
153.800 -- Bannock County Local Government
154.115 -- Bannock County EMS
155.805 -- Bannock County Hospital
155.280 -- Bannock County Hospital
158.940 -- Bannock County Local Government
154.725 -- Bannock County Jail
154.755 -- Bannock County Fire and EMS South
460.225 -- Bannock County Police Dispatch
465.225 -- Bannock County Police Car to Car

I'm still looking for a definitive list of search and rescue groups. So far I've got Fremont County (462.950), and Bannock County (47.46, 47.50, 155.220.) If you've got any, send them along.

Archie Williams let us know that he's been monitoring Boise National Forest comms on 164.600, 165.4125, 171.450, and 172.200. Apparently, a Forestry Service official told Archie that a few 415 MHz frequencies are in use also. Do you know what they are? Archie would like to hear about them.

COLORADO

Anyone interested in writing this column? If so, drop a sample column to Mike Smith, GWSC, care of NatScan. We would love to have you aboard!

Denver's newest airport, known as DIA by pilots, is open for business. Richard Neuber sent in the frequencies scheduled for use. DIA officials say that some frequencies may be dropped and others combined as things get going.

134.020 -- ATIS
118.750 -- Departure Taxi
123.300 -- Tower runways 8/26 and 17L/35R
132.350 -- Tower runways 17R/35L
133.300 -- Tower runways 7/25

135.300 – Tower runways 16/34
121.850 – Ground runways 8/26, 17R/35L, 17L/35R
127.500 – Ground runways 7/25
128.750 – Ground runways 16/34
129.020 – Ramp Control Concourse A
131.070 – Ramp Control Concourse B North
129.500 – Ramp Control Concourse B South
129.850 – Ramp Control Concourse C
131.970 – Ramp Control Cargo Ramp
127.050 – Departure North
128.250 – Departure East and South
126.100 – Departure West and South
118.975 – Approach
119.300 – Approach
120.350 – Approach
120.800 – Approach
123.850 – Approach
125.750 – Approach

Here's a short list of Denver area agencies. Give them a try and let us know what's active:

460.075 – Adams Sheriff's Department Ch.1
460.175 – Adams & Commerce City Car to Car Ch.2
453.350 – Commerce City Police Dept Ch.3
460.450 – Sheriff Commerce Information Ch.4
460.125 – Northgleen, Thornton, Brighton PD Information Ch.5
460.500 – Northgleen, Brighton PD Primary Ch.6
460.225 – Northgleen, Thornton, Brighton Car to Car Ch.7 460.275 –Thornton PD Primary Ch.8
460.425 – All Agencies CLEER Ch.9
460.525 – S. Adams, Haley Amb & Brighton Fire
460.550 – SW Adams Co FD, Northgleen Amb, Thornton Fire
460.575 – SW Adams Fire, North Washington Fire, AMR Ambulance
154.920 – Colorado State Patrol
154.740 – CSP
154.830 – CSP
151.070 – CSP
151.085 – CSP

NEW MEXICO by Scott Williams

Hi, I'm Scott, your New Mexico section editor. I've been a scanner listener for six years and wouldn't trade it for the world. We got some good stuff from an anonymous member through the NatScan mailbag, so I'll just let him tell it: "New Mexico State Police 155.550 F-2 statewide car-to-car, 155.370 NM Law Enforcement Net, transmit to NMSP base stations receive 155.550. Some county sheriff repeater frequencies are used by the above agencies. Also NM statewide search and rescue frequencies 155.160 F-1, 155.295 F-2 and 159.225 SAR Fire Command, are being used. 460.150 and 465.150 F-1 are frequencies for NMSP Motorola handie-talkies, which work with new mobile car repeaters.

"Radios have 14 channels and some officers talk to each other at close range on 465.150 F-2. Most have 453.950 and 458.950 installed for link with DOT units. Most radios also have all or part of the 10 UHF national medical frequencies installed. 460.4375 F-3 and F-5 in some walkies with 179.9 PL, unknown use. 453.500 and 458.500 with control in Sante Fe, the state capitol, we being used for the SWAT team in the past. 460.475 and 465.475 unknown use and may be replacing 453.500/458.500. When more than two officer's units are together, only one car repeater can be in use. New walkies have emergency button installed which transmit tone on 154.920 F-4 statewide emergency channel. Officers must select channel in car radio to be used with handheld before leaving car. Cars with scanners left on will rebroadcast all channels being scanned to handheld radio. Officers assigned special duties such as Search and Rescue and HAZMAT are being issued new 99-channel Motorola Spectra car radios. Many officers have local city, SAR and county freqs installed in new higher capacity radios. Many officers also have cellular phones because of recent new service on I-40 across the state."

Bill Farley compiled a very complete looking list of his scanning catches that he forwarded to us. It's too long for this issue, so I'll break it up over several issues. Let's look at low band this time around. Thanks for thinking of us, Bill!

30.0900 – Land/Air DOC Photo
30.1500 – Navy White Sands Missile Range (WSMR) F2
30.4900 – WSMR Met Support
30.5500 – Navy WSMR F1
30.6400 – Unknown, one side voice
32.0500 – Air WDAMC Helicopter (AM)
32.5000 – WSMR Medivac
32.6500 – WSMR Medivac
34.0900 – WSMR Taxi
34.3100 – NASA Temporary Optics Loop
43.3100 – Land/Air Optics F2
34.5500 – WSMR Transportation
34.8500 – Land/Air Optics F1
36.5100 – WSMR MP On-Post
36.9100 – WSMR MP Up-Range
37.0600 – New Mexico State Police
38.3500 – USMC Armored Vehicles
38.4500 – NASA Telemetry
38.4500 – Land/Air Telemetry F2
38.6500 – Land/Air Net 4
38.7100 – Land/Air Telemetry F3
38.9500 – Land/Air Telemetry F1
39.9000 – HAFB Interim
41.1000 – WSMR Recovery
41.2500 – WSMR Expert F2
41.4300 – Land/Air Documentary Photo
41.5900 – WSMR Expert F1
41.9000 – Recovery F1
42.1600 – Unknown
42.4000 – Unknown
44.8000 – NM Fish and Game
44.9200 – NM Fish and Game
48.0200 – Gas Company of Texas and NM
48.9000 – WSMR IRF Primary
49.8000 – WSMR IRF Secondary

Man, keep up the letters like that one and I won't need

to do much work here! The mailbox has been empty for awhile. Help me out, guys! See you next time.

NORTH AND SOUTH DAKOTA by Walt Clancy

The South Dakota Highway Patrol code 10-2 (Subject is monitoring radio) was heard by Stewart Paul the other day when a District One trooper on 39.240 MHz was asked by the dispatcher: "Is your subject 10-2?" The trooper answered in the affirmative. Turns out the trooper had a car thief on his hands. Another unit showed up and the arrest was made without incident. Stewart sent along his SDHP list for us.

39.100 -- SDHP Statewide F-1
39.120 -- SDHP Car to Car F-2
39.160 -- SDHP Mobile F-4
39.280 -- SDHP Dispatch F-4
39.240 -- SDHP District 1/2/3
39.280 -- SDHP District 1
453.300 -- SDHP Extender
453.425 -- SDHP Extender

A reader by the name of Alison Katz wrote recently to mention that private aircraft telephones operate on the following bandplan:

454.025 - 454.650 -- Mobile Telephone
454.675 - 454.975 -- Mobile Telephone Air (ground)
459.025 - 459.650 -- Mobile Telephone
459.675 - 459.975 -- Mobile Telephone Air (airborne)

HAWAII by Laura Quarantiello

Since most of you know me, I won't bother with an introduction. In GWSC's shuffle from there to here, I've been talked into handling this section until we can get a full-time sectioneditor. If you're interested (and I hope you are!), drop a sample of your work to Mike Smith at NatScan, P.O. Box 360, Wagontown, PA 19376. The only requirements are that you produce a bimonthly column (on time!) and that you know about your area communications.

Rodney Souza in Wailuku, who is becoming a regular and very valued contributor, comes through with these frequencies. We'll hear more from Rod in the next issue, including future Maui Police and Honolulu Police 800/900 MHz frequencies.

Wailuku Police -- 155.670
Wailuku Car to Car -- 155.550
Lahaina -- 155.730
Lahaina -- 154.725
Lahaina Vice -- 155.625
Hana -- 155.790
Hana --154.770
Hana Fire -- 155.955
Hana Fire -- 155.805
Ambulance -- 453.250
State Marine Patrol -- 156.850
State Marine Patrol -- 156.800
State Conservation/Forestry -- 154.995
State Conversation/Forestry -- 154.980
State Conservation/Forestry -- 154.085
Coast Guard -- 156.800
Coast Guard -- 157.100
Coast Guard -- 156.300
Coast Guard -- 157.100
Sheriff -- 453.300
Maui Jail -- 155.085
Kahului Airport Security -- 155.760
Kahului Airport Security Backup -- 464.625
Maui Professional Patrol -- 464.975
Wailea Resort Security -- 463.950
Maui Prince (Makena) Security -- 461.800
Koanapali Resort Security -- 464.525
Kapalua Resort -- 461.275
Resort Taxi -- 157.620
Mt. Haleakala Rangers -- 169.550

Our mailbag also included an anonymous letter saying that these were the frequencies to watch for maritime/Coast Guard activity around Hawaii:

Ch. 6 -- 156.300 Intership Safety
Ch. 5 -- 156.750 Weather, Notices to Mariners
Ch.16 -- 156.800 General Calling (Maui, Oahu, Big Island, Kauai)
Ch.22 -- 157.100 Coast Guard Liaison
Ch.23 -- 157.150 Coast Guard (Maui, Oahu, Big Island, Kauai)

Bearcat Radio Club's 1995 Show Schedule

July 14-16 -- NatScan Scanner Show, Lancaster, PA (Lancaster Host)
July 14-15 -- Atlanta Hamfest, Atlanta, GA (The Galleria)
July 29-30 -- ARRL New England, Manchester, NH (Center of NH Holiday)
Aug 5-6 -- Jacksonville Hamfest, Jacksonville, FL (Prime Osborn Center)
Aug 19-20 -- Huntsville Hamfest, Huntsville, AL (Von Braun Civic Center)
Sep 1-3 -- Southwest Div. Convention, Long Beach, CA (Queen Mary Hotel)
Sep 15-17 -- Peoria Hamfest, Peoria IL (Peoria Fairgrounds)
Sept 23-24 -- Virginia Beach Hamfest, Virgina Beach, VA (The Pavillion)
Sept/Oct -- Louisville Hamfest, Louisville, KY (Loulsville Convention Center)
Oct 13-16 -- MT Convention, Atlanta, GA (Airport Hilton)
Nov 4-5 -- Odessa Hamfest Convention, Odessa, TX (Holiday Inn Center)
Nov 18-19 -- Fort Wayne Hamfest, Fort Wayne, IN (Allen County Center)
Nov 18-19 -- Florida Gulf Coast Radio Show, Tampa FL (Florida Expo Park)

Take your scanner to these radio shows ans scan this frequency: 145.380 MHz. The Bearcat Radio Club will have a two meter amateur repeater for hams to use. The repeaters will be located at the show site and should be heard for miles around!

Ask The Experts

Q: I would like to know the frequencies for the Atlantic City, New Jersey Bomb Squad and the Cumberland County Narcotics Task Force.

– Albert Chailowa
Millville, New Jersey

A: Generally, these type of units operate on tactical frequencies. Look for Atlantic City's Bomb Squad on the Investigator's channel 155.415, Tactical 1 460.150, Tac 2 460.425, Tac 3 460.325, or Tac 4 460.200. As for Cumberland County Narcotics Task Force, this sounds like an interagency team; look for them on countywide tacticals like 156.210 or 155.475. While you're trying these, we'll throw this question out to our readers.



Q: Would I be able to hear talk within an air ambulance helicopter? I only hear the doctor/nurse to hospital. I would like to hear doctor/nurse to pilot. And what about the military Huey helicopters?

– Richard Reyes
Adrian, Michigan

A: The EMS crew aboard an aeromedical helicopter communicates directly with the hospital on some or all of the following frequencies: 155.160, 155.280, 155.340, 155.355, 155.400, 462.950, 462.975. The pilot communicates primarily with air traffic control between 118–137 MHz. You won't be able to hear conversations among the crew within the helicopter, they use hardwired intercoms that do not broadcast. Military helicopters may be heard between 138-144 MHz, 148-150.8 MHz, and 225-400 MHz.

Q: We own a BC350A and have just purchased a BC700A. If we buy an 800 MHz converter for the BC350A to convert 800/900 MHz frequencies to 400/500 MHz, would we pick up more 800 band freqs? It seems that there's a big gap between 868.9875–894.0125 and 823.9875–849.0125.

– Jim Taylor & Kerry McGraw
Mechanicsburg, Penna.

A: Yes, you can use a converter with your BC350A and probably pick up the missing frequencies, which are the cellular telephone bands. However, the converter is a down-converter and when turned on, you won't be able to monitor the 400 MHz band. Secondly, the converter will cost in the range of $100; it may be more efficient and cheaper to buy a scanner that already has 800 MHz coverage. Today's scanners can no longer include the cellular band and it is a federal crime to listen to cellular calls. That being said, try searching 895–916 on your BC700A.

Q: What is the difference between a scanner and a ham radio? Why do you need a license for a ham radio?

– Alfred Alvarez
Pico Rivera, California

A: A scanner is a receive-only device. A ham radio, on the other hand, is a transmitter. You don't need to be licensed to listen, but you must be licensed to transmit.

Q: The Port Authority Police at Newark, New Jersey Airport recently switched over to new 800 MHz frequencies. Do you know what they are?

– James Freeman
Old Bridge, New Jersey

A: The New York/New Jersey Port Authority is licensed for the following 800 MHz trunked frequencies: 866.2125, 866.775, 866.8125, 867.2625, 867.375, 867.5625, 867.7625, 867.875, 868.075, 868.300, 868.325, 868.550, 868.600, 868.625, 868.650, 868.9125, 868.9875.

Q: I'm going to erect an outdoor antenna and I'm concerned about lightning. What can I do to protect my scanner?

– Andrew Doles
Wonder Lake, Illinois

A: A good copper ground is the first place to start. Once you have this installed, remember these quick tips: always unplug the scanner power cord and antennas during storms (with or without lighting visible), and isolate the unplugged ends in a glass jar for added protection. Don't use your scanner during storms, wait until the threat has passed.

Q: What frequencies does police X and K band radar operate on?

– Walt Askegreen
El Paso, Texas

A: X-band radar can be found operating on 10.525 GHz, while K-band is on 24.15 GHz. Both are out of the range of most scanners.

Q: I listen to Hutchinson City Police dispatch on 155.250. When I leave the freq unlocked, it scans fine, but after that freq is activated, scanning doesn't start again. Why?

– Steve Moore
Huchinson, Kansas

A: First of all, check your delay feature, though I doubt this is the problem. Sounds suspiciously like an internal scanner problem. Does it happen with any other freqs or just this one? Do a little investigating before you take it in for repairs.

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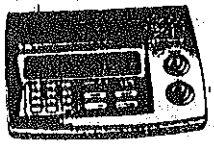


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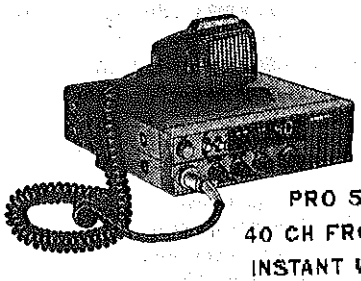


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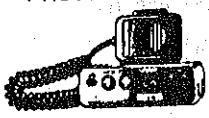
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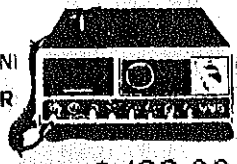
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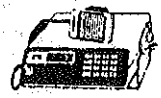
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An FCC Story

by Professor Gene Hughes

SCANNER SCHOOL

Like any other school, once in a while we take a break for "story time." The following story is true. The names have been changed to protect the guilty.

For many years, this old Professor was General Manager of a two-way mobile radio sales-service company in the Los Angeles area. One balmy winter morning about ten years ago, Ralph Snyder, our FCC licensing specialist, dragged his weary bones into my office. Years of battling the Federal bureaucracy had given him a permanently dour expression, but on this morning his face was even longer than usual. I knew the look and the words that would go with it.

"Gene, I think we've got a problem."

That was Ralph's way of telling me that we, one of our customers, or both were about to be in deep doo-doo trouble with the Federal Communications Commission.

Before continuing the story, I have to explain the 72--76 MHz band, which does not appear in most scanners. It's part of the Land-mobile Service, but is not used for direct base-mobile communications. Technically, it's called the "mid-band." I call it a "junk band." Mid-band frequency pairs may be used as a link between a dispatch point and a remote base station, just like microwave but with greater range and lower cost. It can also be used for radio fire alarm boxes and remote signalling. There is no frequency coordination, so almost any Radio Service can use it on a first-come, first-served basis. One of the few rules is that a new station cannot cause interference to a station that is already licensed.



As Ralph explained the situation, I had to struggle with him to keep it brief (Ralph was the kind of person who, if you asked him for the correct time, would tell you how to make a watch). Listening to the news as he drove to work, Ralph had heard that a mysterious "virus" was affecting the radio fire alarm system in the suburban city of Santa Madre. False alarms were being received at the rate of one every few minutes.

Ralph's sixth sense had gone into overdrive, and some quick checking confirmed his worst fears. One of our customers, Barker's Trucking Company, had opened a branch in San Diego, a hundred miles south of Los Angeles. The mountain-top VHF base station near San Diego would be controlled from Los Angeles, with a pair of mid-band frequencies serving as the link.

We had contracted with a company in San Diego to install Barker's base station and link equipment that morning. Apparently, the down-link frequency was the same as that used by Santa Madre's fire alarm boxes. For reasons still unknown, every few minutes the down-link would transmit a tone that was tripping the fire alarm receiver at the station. Ordinarily, that wouldn't have been a big problem: just shut off the system. However, we had a bigger predicament: Although we had applied for it, Barker's FCC license hadn't been issued yet. The system was illegal!

The FCC had surely been notified. They would use their direction finding equipment to locate the transmitter site, and then examine all the equipment at the site until they found the offending transmitter. In those days, the FCC was tough on offenders, and they would lower the boom on both Barker's and us. We had to get that transmitter off the air before they could home in on it! Quick!

A phone call to the contractor's office in San Diego brought more bad news. Their technician was now on the way down from the mountain and could not be contacted by radio. Our instructions were brief: once he could be reached, get him

back up the mountain to shut down the equipment, and pull out the frequency determining crystals.

Meanwhile, we had set up a command post in Ralph's office and were joined by the manager of our service department. We tuned one scanner to the FCC's field frequency, and another to the illegal down-link. The FCC would have to take one directional bearing from their Field Office, and then two or three from a mobile unit to pinpoint the location, since there are so many radio sites in the area.

We tuned in just after the FCC's mobile crew had completed their first field measurement. "It's in the San Diego area," the Field Office told them, "you'll have to try another location farther west."

Meanwhile, the down-link was chattering away with bleeps and repeating messages from trucks. We could understand the frustration at the Santa Madre Fire Department headquarters: a third scanner made it clear that they were responding to every false alarm.

The contractor called to tell us that they had made contact with the technician, and that barring an accident, he would be back at the site in thirty minutes. That was just about how much time the FCC would need....if we were lucky.

The FCC field unit radioed in bearings from the second location. We were in luck: the angle was still too wide, but they had narrowed it down to four possible radio sites. The Field Office directed the crew to move to another site about five miles away. Looking at our own map, we knew it would be the last reading they would have to take.

Time was turning against us. Where was that field crew now (maybe they were thirsty and had stopped for a drink)? Where was that technician? Did he understand the urgency of what was happening?

The FCC radio suddenly answered the first question. The field unit was set up: "We've got the signal. As soon as the needle settles down we'll give you the numbers."

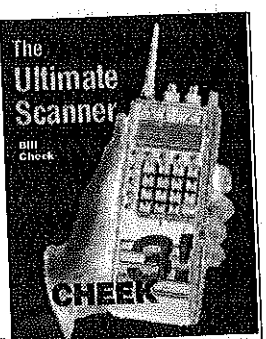
We were dead!

Then, as quickly as we had noticed it, the field crew reported, "We're not getting any more signals!" We checked the volume on our receiver. If ever one could describe "silence" as beautiful, this was the time. We collectively exhaled for the first time in an hour.

The rest was anticlimactic. Ralph wrapped up the details. A "contact" in Washington would amend the frequency on the license application, thus destroying any paper trail that might have existed. Later that day, the San Diego technician phoned us: "Don't worry. I gave those crystals a proper burial up in the mountains. May they rest in peace."

To which we all added "Amen," and retired to a nearby bar. Drinks on the Company, of course.

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Bud Lite? No, Scan Lite!

Simple Scanning Projects

By Wayne Heinen N0POH

Over the years I've covered a variety of scanning events on the road. I have developed some techniques that have allowed me to Scan Lite. There by increasing my pleasure and giving me much less to keep track of when I'm mobile.

The first watch words are "Plan Ahead". You know where you're headed and have probably planned the outing accordingly. Whether a day at the air show, the auto races or at the beach, you know when you're going and where. If you're taking a longer trip and will be operating mobile, first make sure it is legal where you're travelling both to and through, then plan out your route. A handheld with 10 banks is more than sufficient to load all the frequencies that you'll need.

You'll need to research your trip or outing in advance. What kinds of scanning will take place? Public safety is usually first. Check the map and find out which counties, cities and towns you'll be travelling through. Consult your references. If you're lucky enough to live in an area with a reliable scanning guide load up a bank or two with the frequencies you'll need. The only written reference you'll need is a small card. I use the back of one of my business cards from work. Number your banks 1 to 10 and fill in which bank holds what.

If you're doing a specialty event, research the frequencies that you'll be using. Be it maritime for the beach, the Thunderbirds for the air show, or pit frequencies for the races. Load them into the appropriate banks and you're ready to take off. All you have is a small card, your scanner and headphones if needed. "Scanning Lite" allows you to keep free of cumbersome references and notes while on the road.

"But, I ain't got no frequencies!"

Well, if you want to stay prepared, get prepared. First acquire your local or regional scanner guide. If you have a computer with a database, fine, but consider the lowly three by five card. I still keep records that way for travelling, I don't have a laptop and during power outages you may wish to look something up, hard to do when your PC has no power to power up.

One of your best places for specialty frequencies is *National Scanning*. Watch the frequency lists for places and areas of interest. Parks and maritime frequencies, for instance are easily gathered and complied in alphabetical order on three by fives. A small file box will hold a few hundred cards and be readily available. When travelling, a small card file takes little space in either the glove box or a suitcase. You'll have all you need with you wherever you are. All it takes is the time to build up your reference files.

Other Sources...

Check out the advertisers in *National Scanning* for your areas of interest. A large nationwide guide for railroading will need your attention if that's your interest. It will be cumbersome to haul around so after you buy it, condense the parts you need to refer to the most into your three by five cards. Almost all the good references are similar in scope, Nationwide, but needing to be pared down to your individual needs.

Maintaining Your Data

After you start working with the data, remember to keep it up! If a certain recommended frequency is never active, eliminate it from your scanner and note the lack of inactivity on your card. You may wish to contact the source and let them know that a particular channel is no longer active in your area. Also, as you find other frequencies through the use of your scanners scanning features keep a record of them. An unidentified frequency card will be a good cross reference that can be used with Police Call, National Scanning and with Beyond Police Call in identifying the unknown users of certain frequencies.

In this day of computer technology, some things are better done the old fashion way! Your entire data base will no doubt be less than a three by five card filebox. It is easy to reference, portable and immune from disk crashes and power outages!

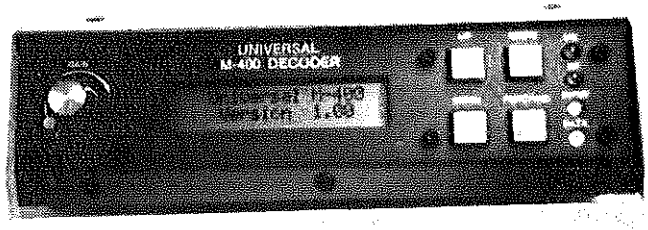
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The Ultimate Accessory for Every Shortwave & Scanner Enthusiast

UNIVERSAL M-400



Many early teletype listeners started their monitoring hobby with code readers. However, readers have fallen out of favor in recent years because of their limited performance, limited mode coverage and lack of features. The M-400 reverses this trend, providing a high quality demodulator, extensive mode coverage, state-of-the art display and parallel printer port. The Universal M-400 incorporates capability never seen in a reader before. It is the ultimate affordable accessory for the SWL and the scanner enthusiast.

The M-400 provides all the benefits of a reader, without the limitations. The M-400 is totally self contained; there is nothing else to buy. It is compact and operates from 12 VDC making it a natural for auto or boat installations. The two line liquid crystal display provides a (40) forty characters readout (not just 8 or 16 like other readers). This super-twist LCD can be read from any angle, and the front of the M-400 is sloped to provide the optimum in viewing and operating convenience. LED indicators for *Mark, Space, Input* and *Data* are provided. A gray, all-metal cabinet provides a solid look of quality. For the shortwave listener, the M-400 provides all the standard reception modes ... and then some.

● **SHORTWAVE MODES**
- **Baudot,** the original RTTY mode, can be copied in all five speeds (45, 50, 57, 75 and 100 baud). Baudot is used by some press agencies and weather stations.
- **SITOR A and B** are extremely popular teletype modes on shortwave. SITOR is used for communications between ships and coastal stations.
- **FEC-A** is a new press-diplomatic mode gaining wide acceptance primarily in Europe. Extensive FEC-A traffic can be monitored in North America during the day.
- **ASCII** at 75, 110 and 150 baud.
- **SWED-ARQ** This Swedish diplomatic mode can be copied in the U.S.A. during the day.
- **FAX** - That's right; with a graphics compatible parallel printer attached, you can copy FAX from shortwave. You can print weather maps and charts from around the world. The printer is optional. (FAX decoding is at 120 LPM, 576 IOC).

● **VHF-UHF MODES** will be enjoyed by the scanner enthusiast.
- **ACARS** Stands for *Aircraft Communications Addressing and Reporting System*. This new aviation teletype mode is in wide use at most major airports. Extensive traffic can be copied from both nearby commercial airports and aircraft. The M-400 is the first unit to offer this capability.
- **GOLAY** digital pager mode.
- **POCSAG** digital pager mode.
- **DTMF** decoding of all 16 DTMF digits.
- **CTCSS (PL)** frequency decoding is also available. Read all 41 standard tones.
- **DCS** (*Digital Coded Squelch*, also referred to as *Digital Private Line*) all 104 standard codes.

The M-400 has several functions that you can program. With the use of an optional speaker, the M-400 can be programmed to pass only the audio you want to hear! You can set the M-400 to only activate the speaker when it receives a CTCSS, DCS or DTMF code of your choosing. The M-400 comes with an instructive *Owner's Manual* and a wall adapter that provides 12 VDC. Note: For accurate DCS and PL reception, direct connection to the receiver's discriminator may be required. One year limited warranty. Manufactured in the U.S.A. by Digital Electronic Systems. The M-400 is *the* affordable accessory for every shortwave or scanner enthusiast. Available now for only **$399.95** (+$6). Order *#0400.*

RECEPTION MODES

- **RTTY Baudot**
  45, 50, 57, 75 and 100 baud.
- **SITOR A**
  ARQTOR, Amtor A
- **SITOR B**
  FECTOR, Amtor B, NAVTEX
- **ASCII**
  75, 110 and 150 baud.
- **SWED-ARQ**
  3, 9 or 22 character groups.
- **FEC-A**
  96, 144 and baud.
- **Facsimile (FAX)**
  120 LPM 576 IOC
- **POCSAG**
  Digital pager mode.
- **GOLAY**
  Digital pager mode.
- **ACARS**
  VHF Aviation teletype mode.
- **DTMF**
  16 digits
- **CTCSS (PL)**
  41 standard frequencies
- **DCS (DPL)**
  104 standard codes

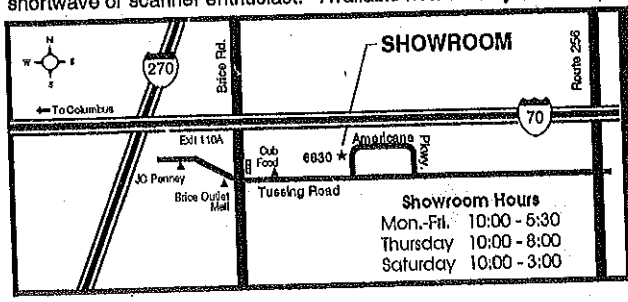
SPECIFICATIONS

Dimensions	8.75"W x 2.5"H x 8"D
Weight	2 Lbs. (5 Lbs. ship with PS)
Display	LCD two line 40 char. total
Filter Tones	Low tone (mark = 1275 Hz) Fixed: 170, 425 and 850 Hz Variable: 100 - 1000 Hz
Power	11-16 VDC @ 200 ma AC wall adapter included.
Speaker Input	4-16 Ohms 100 MW max Mono mini jack (1/8")
Discriminator Input	10K Ohms .25V max Mono mini jack (1/8")
Speaker Output	Mono mini jack (1/8")
Printer Output	Parallel ASCII 8 bit Centr.

★ HUGE FREE CATALOG ★

Universal offers a huge communications catalog covering shortwave, amateur and scanner equipment. There are also antennas, books, parts and accessories. This informative **100 page** reference covers everything for the radio enthusiast. With prices, photos and full descriptions.

Available FREE by fourth class mail or $1.00 by first class mail.



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Speech Scrambling

Mod House

BY STEVE DONNELL

One of the more common methods of scrambling speech used to obtain a low level of privacy when conversing over a radio channel is by a technique known as "Frequency Inversion", or simply, "Speech Inversion". This technique works by mixing voice audio with an audio tone carrier which operates on a frequency in the range of 2,700 -- 3,600 Hz. When this tone mixes with the assorted frequency components that make up human speech, which covers a range of from 300 -- 3,000 Hz, the frequency arrangement of the voice audio, as viewed across the audio spectrum becomes inverted. Low frequency portions of the speech audio become the high frequency portion. And high frequency portion of the voice audio become now the low frequency portion.

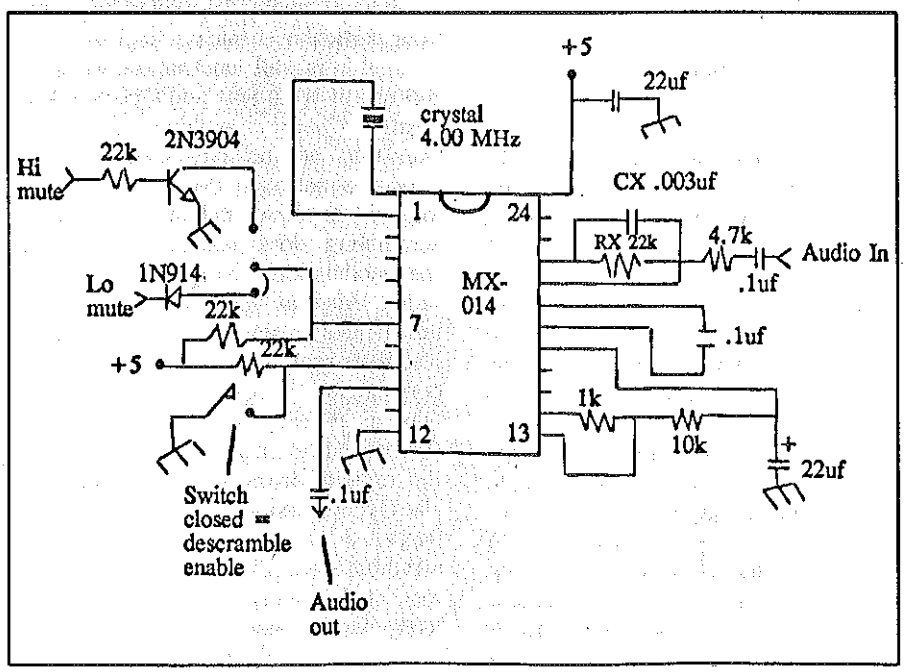
A good example of this is a voice audio component with a frequency of 400 Hz, when mixed with a typical "pilot" or scrambling tone of 3,333 Hz, results in a new speech audio component with a frequency of 2,933 Hz being produced (3,333 - 400 = 2933).

At the same time, a voice audio component with a normal frequency of, say 2550 Hz, when mixed with the 3,333 pilot tone becomes 783 Hz (3,333 - 2550 = 783). A voice transmission that is employing inverted speech is fairly easy to identify, sounding much like a mistuned single sideband signal, characterised by its's Donald Duck-like sound.

Inversion scrambling has been used for over 25 years, however because of the simplicity of the techniques it employs, speech inversion has never been considered to offer a very "high" level of communications security. It has largely been useful in deterring casual listeners on a radio channel. Improved scrambling methods developed in past years such as DVP/DES, offer much higher levels of security, but at a much higher cost to it's users.

Until the passage of the ECPA (Electronic Communications Privacy Act) rendered manufacturing them illegal, there were several different models of descramblers available on the market for use with scanners. Although technologically crude, they provided an effective way to listen to inversion scrambled speech.

Recently, inversion scrambling has become somewhat more popular again. In part because of the assumed legal protection that ECPA now affords it. And in part because of how it stacks up for cost against high(er) security digital scrambling formats, including some of the newest "hybrid" analog/digital scrambling formats as well. Another reason behind the comeback of inversion scrambling is due to advances in the technology used to implement it. Early inversion scrambler units typically consisted of rather bulky add-on equipment and was often not especially stable in (re)producing easily understood voice audio. New advances in integrated circuit design have resulted in inversion scrambler circuits being produced on modules about the size of a book of matches. Scramblers using these new generation ICs also provide such features as digital audio filtering, along with quartz crystal referenced pilot tone generation, which is much less susceptable to frequency drift. With



These modifications, like many modifications, are experimental in nature. The publisher of this magazine does not test the accuracy of this material and therefore takes no responsibility with respect to the information contained herein. All questions and comments should be addressed to the author at Box 360, Wagontown, PA 19376. Any modifications made to equipment are the sole and complete responsibility of the owner. Modifications are not recommended by manufacturers and invalidate the terms of your warranty. Use of equipment must be in compliance with federal, state and local ordinance.

Mod House

these changes in mind, it has become much easier to implement inversion scrambling into a wide(er) variety of different types of radios, even for the smallest handheld portable models. Inversion scrambling has also become popular as a "value added" feature in many different types of consumer communications products, such as cordless phones, cellular phones, and marine band radios too. What's interesting here is that most people who use these scramble capable products, do not actually realize the minimal degree of "real" voice security speech inversion scrambling actually affords to them.

Even with the removal of commercially manufactured inversion descramblers, one easy way for a radio hobbyist to experiment with speech inversion scrambling/descrambling is with the SS-70 speech descrambler kit from DX Radio Supply. This kit employs one of the latest speech inversion scrambler/descrambler IC's on the market. It comes complete with all of the parts you need, including a high quality printed circuit board, and a detailed instruction booklet for easy assembly. The SS-70 kit sells for only $39.95 (plus $4.50 shipping).

Another way to experiment with inversion descrambling is with a circuit that I designed a while back. See diagram 1. It uses an IC similar to the one used in the new SS-70, and it can be wired directly into the internal audio path of most any scanner. Most experienced circuit builders should be able to construct this circuit in a small enough fashion on a PC board, so as to fit it completely inside most scanners. I have been able to easily install this circuit into a BC-760 and an old Regency TS-2.

For most anyone with a well stocked component junk box, you should already have most the required resistors and capacitors for the circuit, which will help keep the cost of this very high quality descrambler circuit fairly low. The most expensive component is the main IC, the MX-014 IC, which is available from MX-Com for about $17.00. MX-Com can be contacted at 1-800-638-5577. The crystal the circuit uses is a common 4.00 MHz "microprocessor" type crystal, parallel resonant type. This is available from many different electronics parts sources such as Digi Key (1-800-344-4539), their part number is: X405. Use of the 4.00 MHz crystal will set the MX-014 to operate with a pilot tone of 3,333 Hz. This being the most common of all possible tones, accounting for the pilot tone used in over 90% of frequency inversion scrambling systems. A few older inversion scrambling systems that use Motorola designed equipment, used a pilot tone of 3,500 Hz. These scrambled systems can easily be decoded by simply using a different crystal, one with a frequency of 4.194 MHz. This too is a common "microprocessor" clock crystal frequency. A simple switch circuit can be added to permit either one of these crystals to be selected as they are needed. You should remember to keep the leads between the switch and the crystals as short as possible, not more than three inches or so at the most.

The several components connected to pin 7 of the MX-014 IC are to control the MX IC's own internal audio muting function. However the muting control portion of the circuit is needed only if you connect the descrambler into the scanner's audio path after its own squelch muting control point. If the muting option is used, it can be controlled in conjunction with the same muting control logic voltages already available within the scanner. Identify the logic line within the scanner designated as the mute or squelch control line. If the scanner mutes with a LO logic voltage (0 -.5 volts), use the LO input to the muting option. If the scanner mutes with a HI logic voltage (.75 -5 volts), use the HI mute input. If the muting control circuit is not needed, you can also just connect pin 7 directly to +5 volts. Pin 7 of the MX-014 IC needs to be a logic HI in order to pass audio through the chip.

A single pole switch providing a ground connection to pin 9 of the MX-014 IC is all that's needed to activate the descrambler circuit. On a BC-760 scanner where the optional CTCSS decoder is installed, you can make use of the otherwise unused RF Amplifier switch for this purpose. Simply cut the circuit traces that connect to this switch and connect leads from the descrambler to it. The best place to tie in to the audio path of a BC-760 is to cut the circuit trace between C110 and the colector of transistor Q7. The input to the descrambler connects to the floating end of C110 and the output goes to the colector of Q7. +5 volts can easily be tapped off from the output of the 78L05 voltage regulator IC near the CPU IC. You should not need the use of the muting control circuit in this installation.

When used in some other scanners, you may want to experiment with the value of capacitor CX. Try capacitor values of between .002 and .01 uf. You may also want to try different values of resistor RX (10k - 47K) for better tailoring of the audio amplification "gain" of the descrambler. This will depend on the non-scrambled audio characteristics of your particular scanner.

It is still unclear as to how the use of a circuit could be viewed legally. There is nothing as to the standards or methods used within-version scrambling that is not widely known to the public. Inversion scrambling does nothing to change the modulation characteristics of a radio. Also as inversion scramblers are typically set up, if I had one installed for use in my own commercial two-way transceiver, there is nothing to prevent me from (inadvertently) using my scrambler/descrambler from decoding someone elses transmissions which my radio happened to receive, provided my scrambler/descrambler used a pilot tone of the same frequency as would likely be the case.

New Products Preview

By Larry Miller

New York Air Traffic Control



New York City boasts some of the hottest aero monitoring in the country. Scanners absolutely blaze with action from 118 to 136 MHz as planes crowd the skies above LaGuardia, Kennedy, Westchester and Newark airports. Air traffic controllers handle enormous loads. It can be difficult to handle all of the action – even if you're only handling the dials of a scanner, not a sky full of planes.

Peter Marsella has written an outstanding book on monitoring air traffic control at New York City's La Guardia airport and vicinity. You'll learn about spacing, departure sequencing, information service broadcasting, climb-outs, arrival procedures and more.

Examples of actual dialog between pilots and air traffic controllers are deciphered in easy-to-understand English. If you've ever been put off by the jargon that fills the aero band, then this book will finally give you the insight you've been looking for. The author's knowledge of the field and his ability to translate it into plain English is commendable.

Although based on NYC's LaGuardia, the information in this book will help anyone, anywhere understand more about what he hears on the scanner. I highly recommend *New York City Air Traffic Control*. It's 100 pages plus maps and diagrams. The price is $19.95 plus $4.50 UPS from DX Radio Supply, Box 360, Wagontown, PA 19376. The orderline is 1-800-753-2060.

The Ultimate Scanner

After nearly a year of anticipation, Bill Cheek's new scanner modification handbook, volume 3 is finally here! And it is excellent.



Cheek covers everything from the "importance" of computers in the radio hobby, to general mod basics, hints, and pitfalls, an entire chapter dedicated to memory mods, plus others on subsidiary carrier authorization, data tone squelch, cellular mods and other wizardry.

You should be cautioned that *The Ultimate Scanner* is not entirely a stand alone book, rather it's a serial effort and works best with its earlier editions. Also, most of the mods presented are for the PRO-2004, 5 & 6, which Cheek feels were the best radios ever made.

The Ultimate Scanner Cheek 3! sells for $29.95 plus $4.50 UPS at DX Radio Supply, Box 360, Wagontown, PA 19376. Or order toll free at 1-800-753-2060.

Scanning BC

J&D Communications has produced the 9th edition of their *British Columbia Frequency Directory*. The book, which includes an incredible 11,000 listings, covers everything from the Royal Canadian Mounted Police to the police in downtown Vancouver. In between are the numbers you need for everything from the Coast Guard to Duncan Taxis.

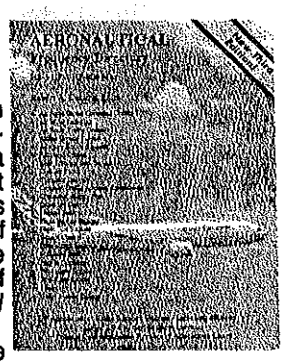
The introduction section is extremely thorough and provides the listener with 10-codes, frequency allocations, even instructions on a home-brew antenna. The bulk of the book, however, is the frequencies, arranged first by location and then by frequency.

If you're living in British Columbia, doing business or planning a vacation there, J&D Communications's BC frequency book is a must. Get your copy at 1207 W. 14th St., North Vancouver, BC V7P 1K1. The price is $24.95 plus 7% GST plus $3.00 shipping.

Radio Mod Book

Applied Communications and Electronics (ACE) of Winnipeg, Manitoba has just released the Radio Modification Handbook. The spiral bound book is self-published in what Gerald Hynes of ACE calls his first attempt at in-house publishing. Hynes business specializes in the repair of scanners, CB's and shortwave units. He says that the mods described in the book are ones that he has personally performed over the years and verified. The book covers most Radio Shack and Bearcat models. If you need a quick and easy guide to basic scanner mods, try this one. ACE is offering the Radio Modification Handbook for $15.00. Money orders can be sent to ACE, P.O. Box 2623M, Winnipeg, MB, R3C 4B3, Canada.

Aero Freq Directory 3rd Edition



Robert Coburn knows how aeronautical data quickly goes out of date, so he is right on top of things with the third edition of the *Aeronautical Frequency Directory*. I've used Bob's directories since the first edition, so I can attest to the quality within their pages. Covering everything from Air Force GCC, air- to-air refueling, ATC, Airlines, Civil Air Patrol, commercial callsigns, search and rescue and utility mobile stations, edition three lacks nothing. You'll appreciate the complete Air Route Traffic Control Center frequency list, as well as the alphabetical community listings that help you find the freqs you're looking for quickly. This book is one of the standards for aero monitors. Pick it up today by calling 603-432-2615 or writing Official Scanner Guide, P.O. Box 525, Londonderry, NH 03053. The *Aeronautical Frequency Direction* 3rd Edition is $21.95 plus $4.05 shipping

and handling.

ARRL Catalog

Hams should be aware that the new ARRL Publications Catalog is out. This six page listing includes books, videos, tapes, maps, binders, log books, stationary and more for the radio amateur. If you're a beginner, planning to upgrade your license or just need reference materials, this catalog is worth your time. Contact the American Radio Relay League, 225 Main Street, Newington, CT 06111 or call them at 203-666-1541.

The Phone Book

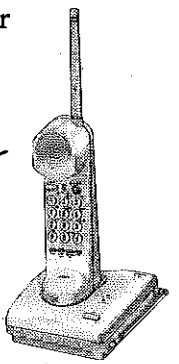
I'm always skeptical when an author decides that he's going to tell all about the nasty world of telephone eavesdroppers, as M.L. Shannon purports to do in "The Phone Book." This time, however, I was pleasantly surprised to find information that went beyond hype and titillation and actually gave good, solid technical info. *The Phone Book* has chapters on landline telephones, wiretapping, defenses against tapping, hacking and phreaking, cellular and cordless, data communications, secure communications and the future of phones. It's a fun book which even lists cordless, aircraft, and cellular frequencies in the appendices. Order your copy for $25.00 plus $3.90 shipping from Lysias Press, P.O. Box 192171, San Francisco, CA 94119.

Dial 911

Ever tried to teach kids about the 911 system? It can be a chore, especially with the lightning fast attention span of a child. Positive Promotions of Brooklyn, New York has come up with the perfect way to teach and entertain at the same time. Children love dinosaurs and Positive Promotions' Timmy the Dinosaur has been recruited to teach kids how to dial 911 in an emergency. The educational tools are fun, clearly illustrated and include a coloring book with 911 do's and don't, 911 buddy stickers, an emergency hotline glancer for parents and children. At no extra charge, your organization's name, telephone number and message can be imprinted on these products free. Great for local schools, health and safety fairs, neighborhood watch groups and others. For more information on the Dial 911 Emergency Pack, or separate items, contact Positive Promotions, 222 Ashland Place, Brooklyn, NY 11217 or call toll-free 1-800-635-2666.

CONGRATULATIONS!!
R.LCaruso (PA 3 BBM)
of Wrightsville, Pennsylvania

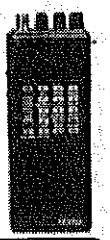
You're the winner of our Uniden Cordless Extend-A-Phone contest.

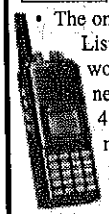


Thanks to everyone who entered. Check out this issue's exciting scanner give away.

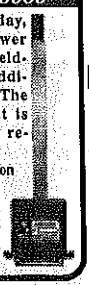
EEB Nation's #1 Receiver Outlet
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AOR AR2700(A) .5-1300MHz
• Replaces older AR1000/TR1200 models w/Hi Quality surface mount technology, many advanced features, cloning, computer I/O (opt. RS232 converter), 1000 memory 50ch x 20 bank, AM/FM/FMW auto band.
List $499.95
Introductory $...CALL

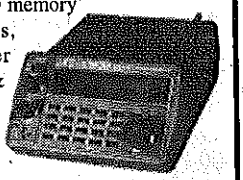


AOR AR8000 .5-1900MHz

• The only TRUE SSB scanner on the market. Listen to AM/SSB voice from around the world as well as local signals. Several new-patented features. Alpha-Numeric, 4 level LCD read out, bar graph "S" meter, Band scope spectral display, computer I/O (opt. RS232 & Software), 1000 memory 50ch. x 20 banks.
List $799.00 **Special Sale $599.95**

Computer Interface for the AR8000
Unlike some of the European devices sold today, this unit is smaller, lighter, and makes no power demands on your receiver. With the extra shielding and smaller size there is less chance of additional interference leaking into your radio. The AR8000INF is also the only interface that is upgradeable for use with the optional Tape recorder controller due first quarter '95.
• Low Power, powered by your serial port • No Drain on the batteries in the radio • 100% Shielded cable to receiver for reduced interference • PC Software included for Windows and DOS • Optional 100% shield computer cable from AR8000INF to computer for reduced interference.



AOR AR3000A .1-2036MHz
• Compact, Professional quality, a favorite with many agencies that want Hi-Performance at a low cost. All mode, including SSB, one small unit does it all. 400 memory 100ch. x 4 banks, RS232 computer ready (opt. DOS & WINDOWS software) EEB offers many options to satisfy any special need...CALL
List $1195.00 **EEB $1029.00**



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IBM PC computer control for the AR3000A! A comprehensive user-friendly package.
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•Prices do not include freight
•Returns subject to 20% restock fee

AR 8000

The New Concept - AR8000 shocks the market. AOR made every effort to incorporate the latest technology in to this new scanner.

• SPECIFICATIONS •

- **Range:** .5 - 1900MHz usable to 100kHz
- **Modes:** AM/NFM/WFM/USB/LSB/CW
- **Stepsize:** 50Mz to 999.995kHz
- **Sensitivity(μV):** 30 to 1000MHz
  SSB .2 **AM** 1.0 **NFM** .35 **WFM** 1.0
- **Filters:** (kHz) **SSB** 4 **AM/NFM** 12
  WFM 180
- **Memories:** 50 ch. x 20 banks=1000 total
- **Size/Wt.:** 6.1 x 2.8 x 1.6 inch.
  20 oz. batt. incl.

* Cell blocked for all, but Approved agencies.



- Covers .5-1900MHz*
- Ferrite Rod antenna below 2MHz
- Only portable scanner on U.S. market to have true SSB, both LSB & USB. Others attempt SSB using a BFO, but are difficult to tune and produce poor SSB audio.
- 4 level alpha numeric LCD read out frequency, mode, signal strength, band scope spectral display, battery low, remote and more
- Computer control up/down load data, will add a new dimension to the world of scanning.
- Clone your memory banks with a friend, load 1000 memory channels in seconds

.1 - 1900MHz*



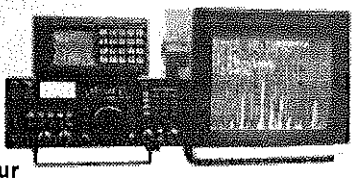


The Latest From AOR Products

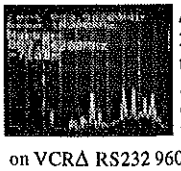
Available at a Dealer Near You!

SDU 5000

NEW



The Spectral Display Unit adds a new dimension to the signal interception hobby. Imagine seeing stations above and below your receiving frequency. Usually the transmissions are short, perhaps 1 or 2 seconds. What are the chances of you being tuned to the exact frequency at the instant of transmission? Very slim. With an SDU you can watch for stations to pop up over a 10MHz window, then zero in. The SDU 5000 offers features unheard of only a year ago.



Δ Frequency coverage up to 10MHz Δ **Display** - 3.1" HQM Simple matrix color LCD Δ **Resolution:** 5 or 30kHz selectable Δ **Input:** 10.7MHz Δ 50dB Dynamic range Δ Screen refresh 2/s Δ Composite video out Δ Full computer control Δ Video output NTSC or Pal display, on TV or record on VCRΔ RS232 9600bps Δ Instant receiver set from cursor via RS232 Δ Store image on disc or your video recorder Δ Menu driven system makes SDU5000 simple to operate Δ SDU5000 is designed to work with the AR3000A (modified with a 10.7MHz output) using RS232 link with or without a computer. Other receivers with 10.7MHz IF output but digital linking may not be straight forward.

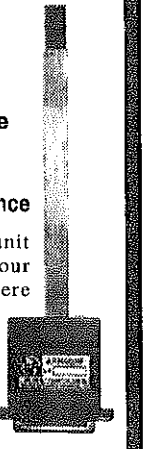
AR8000 Interface



Computer Interface for the AR8000

- Δ Low Power, powered by your serial port
- Δ No Drain on the batteries in the radio
- Δ Light weight, perfect for Laptop use
- Δ As small as a DB-25 Connector
- Δ Hi-Tech Surface mount design for reliability
- Δ 100% Shielded cable to receiver for reduced interference
- Δ PC Software included for Windows and DOS
- Δ Manual included
- Δ Detailed Programers documentation available
- Δ Designed and Manufactured in the USA
- Δ Optional 100% shield computer cable from AR8000INF to computer for reduced interference

Unlike some of the European devices sold today, this unit is smaller, lighter, and makes no power demands on your receiver. With the extra shielding and smaller size there is less chance of additional interference leaking into your radio. The AR8000INF is also the only interface that is upgradeable for use with the optional Tape recorder controller due first quarter '95.



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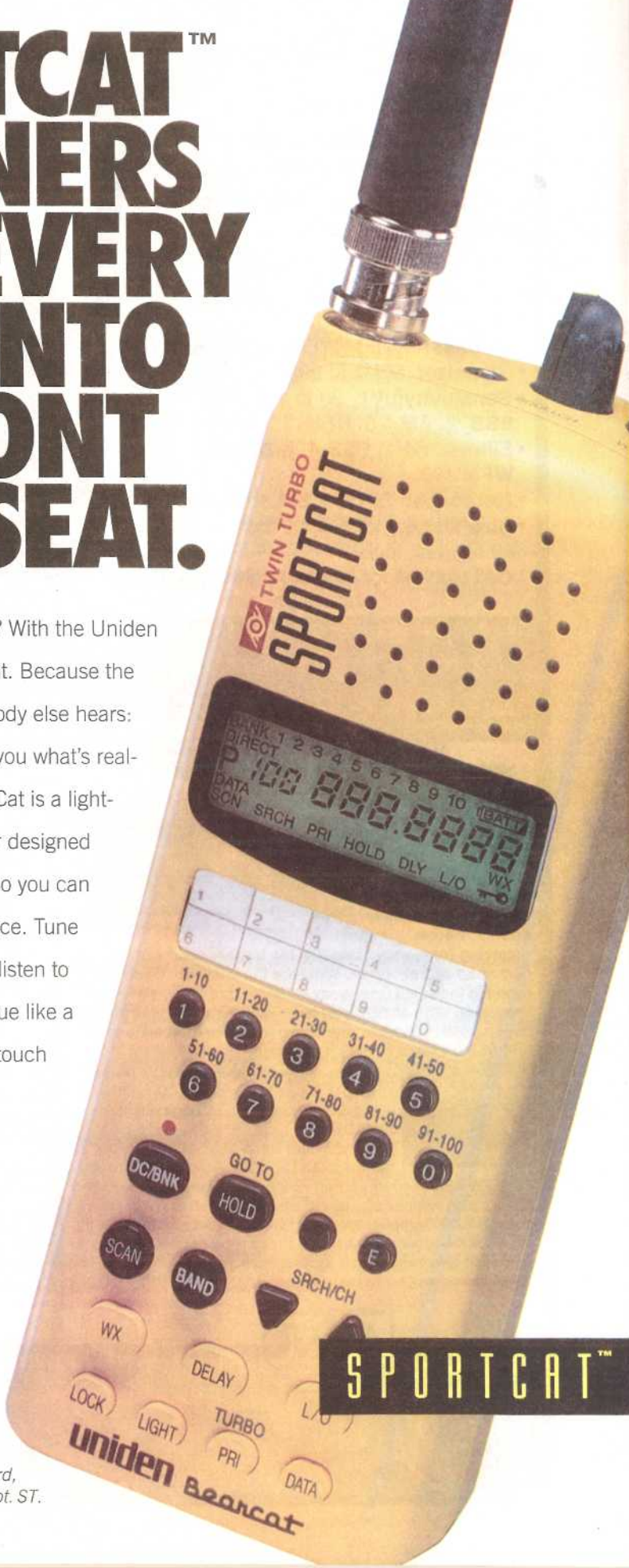


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