Potomac Valley Radio Club Newsletter

July 2009 Edition

Visit us on the web at www.pvrc.org and www.pvrcnc.org

See you in the summer contests and and at the W3YOZ FowlFest

FROM THE PRESIDENT

It was nice to see everyone at the W3LPL Open House. Once again a big thank you to Frank and Phyllis Donovan for allowing us to invade their QTH. It's always fun to see the reaction of first time visitors.

A brief meeting was held and a few pieces of club business were passed along. A small change is being made to the reference score used for the 5 Million program. The Officers and Trustees agreed to open up the Reference Score to both Assisted and Unassisted Single Op entries. In the past we used only the high unassisted score. The updated rules will be posted to the 5 Million webpage and go into effect with the new season starting this month.

Our Webinar program started this month with my EY8 Lowband presentation. The event drew close to 90 attendees from around the US and overseas. We have some great programs lined up for this summer. Please visit our schedule using the Webinar link on the front of our webpage and pass the word! Before the meeting was adjourned, the special 75th anniversary SS gavel was shared with everyone. It's a beautiful piece of hardware!

This year's FowlFest at W3YOZ is scheduled for Saturday, August 15 and the PVRC Central Region's Holiday party has been booked for Monday, December 7 at PJ Skidoos in Fairfax, VA.

Lastly, I'd like to mention that we are going to begin work on overhauling our webpage. More details will follow as we pull together our plans. Have a great summer!

73, Ken, K4ZW

EDITORIAL MUSINGS

The 2008-2009 contest season has just ended, Field Day has come and gone, along with the July 4th celebrations, barbeques and fireworks.

I trust the summer will turn out to be a good one, and that you'll be able to take advantage of the break to work on your station, antennas and operating skills. For your editor, spending time at a local operation with my 15 year old unlicensed son and 20 year old technician-class nephew was a great learning experience. Not only was I able to see ham radio from a fresh perspective, but too, I leaned a lot watching NN3W and N6CY operate. Rich and Rick have very different styles of operating, yet both produce excellent results. Thanks!

As mentioned last month, we will be publishing an issue of the PVRC Newsletter describing the 2008-2009 contest season as seen through the eyes (and ears) of PVRC members. It's been a fascinating project, proving that you don't need a mega-station to enjoy this aspect of our hobby.

As always, I look forward to your comments, criticisms and contributions. With that, enjoy this issue of the Newsletter and the summer season. Send them to me at: pvrc [at] his.com

In the meantime, enjoy the upcoming PVRC webinars, and see you at the W3YOZ FowlFest in mid-August, and in the summer contests (IARU HF, CQWW VHF and IOTA).

73, Eric W3DQ

PVRC ON-AIR REUNION RESULTS

from Jim, WX3B

I am pleased to announce the final results of the 2009 PVRC reunion.

High Power / High Scores:

1. N4AF (Highest reunion score)
2. WX3B
3. W4PM
4. K4ZW
5. ND9E (a.k.a. K3WA re-located)

Low Power / High Scores:

1. W0UCE
2. N3AM
3. K1HTV
4. W4KFC (Op Jack, W3TMZ)
5. K3WI

High Power

Call	#QSOs	#mults	Score	Category
N4AF	122	47	5734	hp
WX3B	109	37	4033	hp
W4PM	58	30	1740	hp
K4ZW	54	32	1728	hp
ND9E	60	24	1440	hp
K3CKT	33	21	693	hp
W3PP	34	20	680	hp
WJ9B	32	17	544	hp
K1ZZI	49	11	539	hp
DK5AD	23	22	506	hp
W7YS	31	16	496	hp
W3YY	27	16	432	hp
W0YR	25	17	425	hp
N3BM	25	14	350	hp
K3ZO	22	14	308	hp
K3RV	25	11	275	hp
W8OHT	18	10	180	hp
AE4EC	14	12	168	hp
K8OQL	21	8	168	hp
NX9T	20	8	160	hp
W2RS	13	5	65	hp
NE3H	10	5	50	hp
K4XD	8	5	40	hp
WA3G	8	4	32	hp
W3DQ	5	4	20	hp
N4CW	tbd	tbd		hp

Low Power

W0UCE	110	47	5170	lp
N3AM	102	44	4488	lp
K1HTV	88	36	3168	lp
W4KFC	82	33	2706	lp
K3WI	75	32	2400	lp
K3KU	39	25	975	lp
W3CP	42	20	840	lp
N3II	27	22	594	lp
W4YE	44	12	528	lp
W3CB	30	14	420	lp
K3TN	16	15	240	lp
W4ZYT	16	12	192	lp
K3STX	17	9	153	lp
W3AZD	20	6	120	lp
W4AGI	15	5	75	lp
K4EU	11	6	66	lp
NG3K	11	5	55	lp
WA2BCK	9	4	36	lp

Two photos from the 2009 W3LPL Open house (tnx WG4M)

The 2009 W3A Field Day Crew

NOISE INDUCED HEARING LOSS

from Harvard Medical School Health Publications

Call it acoustic trauma or noise-induced hearing loss. By any name, it's not something the iPod generation wants to hear about. But since acoustic trauma is the most important preventable cause of permanent hearing loss, it's a message that should ring out clear (if not loud).

Now hear this

Noise-induced hearing loss is a product of modern life. It first surfaced during the industrial revolution, when workers were exposed to loud machinery for hours on end. Occupational exposure is still the most common cause of acoustic trauma, but recreational noise threatens to catch up. When this problem was first recognized, it was called boilermakers' disease because of the impaired hearing that plagued men who manufactured steam boilers. If present trends continue, though, it may someday be known as iPod Ear.

Although estimates vary, up to 28 million Americans have impaired hearing; for as many as a third, acoustic trauma is a significant contributor.

Normal hearing, abnormal sounds

The ear is divided into three parts. Sound waves first enter the outer ear, which is little more than a passive sound-collecting channel. Next, the waves strike the eardrum, the tympanic membrane, causing it to vibrate. The vibrations are transmitted through the middle ear along a short chain of three small bones, the hammer, anvil, and stirrup. Finally, in the inner ear these vibrations reach the cochlea, which is lined by tiny hair cells, the cilia. The vibrations caused by sound produce a shearing force on the cilia, which translate it into electrical impulses that are transmitted along the acoustic nerve to the brain. But the cilia are delicate structures. Excessively loud sound produces excessive force, which can damage the hair cells. The cells can recover from mild damage, but severe damage will kill nerve cells, producing permanent hearing loss.

Especially loud sounds will damage anyone's ears, but some people are more susceptible than others. In addition to genetic differences, environmental factors such as smoking and exposure to heavy metals and solvents can play a role. Still, in the last analysis, it is the sound itself that in time damages the fragile hearing apparatus.

Noise and your heart

It's easy to see how excessively loud sounds can harm your ears. According to research from Canada and Germany, long-term exposure to loud noise can also increase the risk of heart attack. Scientists don't yet understand the apparent link between the ears and the heart; stress is not likely to be the sole explanation, since the actual sound burden was a greater predictor of risk than the degree of annoyance caused by the sound. Other studies have linked loud noise to high blood pressure, stress, and even tumors of the acoustic nerve.

How loud?

The intensity of sound is measured on the decibel (dB) scale; the higher the number of decibels, the louder the sound.

The table lists typical dB values for some common sounds. Note that this is a logarithmic scale. That means an increase of just 3 dB indicates a doubling of the sound intensity.

A sound's potential to damage the ear depends on the duration of exposure as well as the intensity of the sound. For example, just four hours at 88 dB will deliver the same dose of sound as eight hours at 85 dB. And a single gunshot at 140 dB will be as damaging as 40 hours at 90 dB.

How much sound is dangerous to your hearing? The Occupational Safety and Health Administration (OSHA) has developed guides based on the intensity of sound and the duration of exposure. Sounds below 75 dB are safe, but eight hours at 85 dB can be harmful; OSHA regulations require hearing conservation programs for workers exposed to this level of sound. And you should take steps to conserve your own hearing as well.

The intensity of various sounds

Approximate loudness (dB)	Sound
140	Gunshot, jet plane taking off, siren
110	Sand blasting, rock concert, chain saw
100	Snowmobile, personal stereo (high volume), car horn
90	Lawn mower, motorcycle, heavy traffic
60	Normal conversation
50	Quiet room
30	Whisper
0	Softest audible sound

Warning symptoms

Most often, noise-induced hearing loss begins with a subtle difficulty hearing high-frequency tones, then slowly begins to encompass lower tones as it becomes more severe. Both ears are usually equally involved, but if one ear is closer to the offending sound, the impairment may be asymmetric.

NOISE INDUCED HEARING LOSS (cont.)

Once your hearing is lost, it can't be restored; your only recourse is to wear a hearing aid, which amplifies whatever sound your acoustic nerve can still pick up. That's why it's very important to recognize early symptoms. If your ears ring or buzz after being exposed to noise, it's loud enough to cause damage. And if noise exposure makes hearing painful, muffled, blurry, or distant for hours or days, your cilia are already in trouble. If you allow the noise exposure to continue, you're likely to suffer permanent hearing loss.

Who is at risk?

Everyone who is exposed to loud noise is vulnerable. If background noise makes it necessary for you to shout to make yourself understood by someone just an arm's length away, that noise is loud enough to be damaging.

Occupational exposure is the most common cause of noise-induced hearing loss. Construction workers, factory workers, policemen, firefighters, military personnel, farmers, and truck drivers are especially at risk. Enthusiastic crowds at sporting events can also generate excessive sound, putting stadium workers and fans who attend many games at risk. Musicians are also at risk. Many classical performers wear ear plugs for protection during orchestral performances. Some rock musicians are less cautious; acoustic self-mutilation by the young seems to have become a tribal rite. Dr. Walter Brattain regrets "the use of solid-state electronics by rock musicians to raise the level of sound to where it is both painful and injurious." Hardly a disinterested observer, Dr. Brattain won the 1956 Nobel Prize in Physics for inventing the transistor!

Personal stereos are a particular threat to the younger generation. Prolonged battery life means these devices can be played for hours on end, and iPods can store lots of music for continuous listening. Listeners are conditioned to like loud music, and since they often listen to their music in public, they are likely to turn the volume even higher to drown out competing environmental sounds. The trendy earbuds that are replacing earmuff-style headphones make the problem even worse by focusing the sound directly into the ear.

What to do?

First, turn down the volume wherever you can. You may have a hard time persuading your kids to keep their amplifiers and MP3 players set halfway between low and max, but you can set your own devices properly. And when you are at a loud concert or party, angle for a seat far from the band.

Even if you can't get away from sound, you can keep it away from your ears. For occasional exposures, use disposable ear plugs — but if you're frequently at risk, invest in custom-fitted ear plugs. For protection outdoors or at work, try acoustic earmuffs. And for maximum protection, wear both.

Used properly, plugs and muffs can provide 15 to 40 dB of sound attenuation. They may seem awkward, ungainly, or unsightly, but temporarily wearing protectors now is a lot better than wearing a hearing aid in the years ahead. It's sound advice

Source: https://www.health.harvard.edu/newsletters/Harvard_Mens_Health_Watch/2007/December/Noise-induced_hearing_loss

Mark Your Calendar

July 11-12 IARU HF World Championship

July 18-19 CQ WW VHF Contest

July 21 PVRC Webinar*: Design, Construction and Maintenance of Antennas and Towers for Storm Survival and Long Term Reliability; Practical Checklists of Best Practices. Presented by Frank Donovan W3LPL

July 25-26 RSGB IOTA Contest

August 6 0000 UTC - PVRC Webinar*: Contest Antennas - DX or Domestic, What's Your Pleasure? Presented by Dean Straw N6BV

August 15: W3YOZ FowlFest

August 20 0000 UTC - PVRC Webinar Cycle . Presented by Carl Luetzelschwab K9LA

Details and information for the PVRC Webinars can be found on the PVRC website:

http://www.pvrc.org/webinar

IOWA TEEN WINS TEXT-MESSAGING CHAMPIONSHIP

Kimberly Chou, Wall Street Journal (6/17/2009)

After the tears (and there were tears), texts and frantic thumb work, Kate Moore, 15 years old, came from behind to win the best-of-three finals round of LG's U.S. National Texting Championships Tuesday.

Ms. Moore, from Des Moines, Iowa, beat Morgan Dynda, 14 years old, for the $50,000 prize by being first to text an error-free modified chorus from "Zip-a-Dee-Doo-Dah."

Ms. Dynda was in New York for a second straight year to compete for the texting title, which began as a promotional campaign for LG's cellphones three years ago.

"I'm just, like, completely stunned right now," Ms. Moore said. "You'd never think a girl from Iowa would win something this big in New York." Minutes earlier, she had joked about buying Coach purses and "a pony" if she won.

Over two days in a TV studio made up to look like an arena, the competition whittled 21 finalists down to the two teenagers. Over five rounds, contestants texted phrases on LG-distributed phones — no iPhones or other handsets allowed — while jumping obstacles on a treadmill, enduring heckling and while blindfolded, the latter inspired by a Harris Interactive study in which 42% of teens said they could text with their eyes shut.

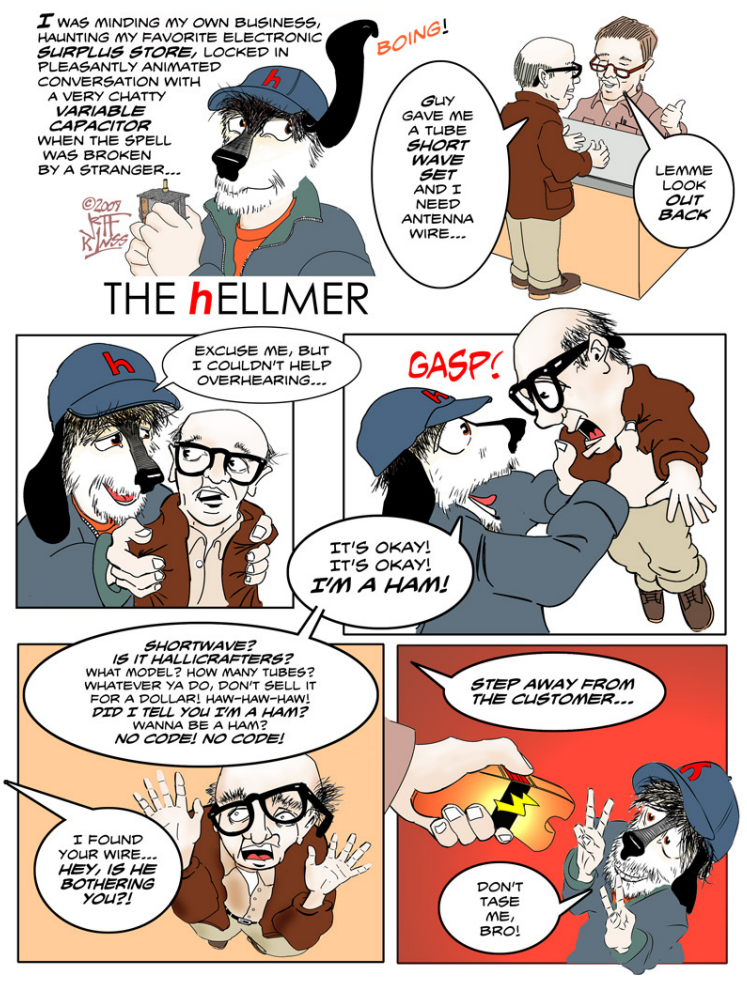
The text trials were tense, even without the emcee repeatedly noting the tension. Family members and the finalists eliminated earlier in the day yelled and whooped for their favorites, and the winners from 2007 and 2008 went head-to-head to warm up the crowd, like homecoming queens returning to pass on the crown (and compete for a 50-inch LG plasma TV).

LG representatives said that more than 250,000 people competed this year, with online competitions testing speed and accuracy, "text-ins" during MTV programs, and live qualifying events in cities around the country.

"It's gone from an event with nice PR legs to a program with real continuity," said Tres McCullough, co-founder of ad firm Fathom Communications, which worked with LG on the event.

Next up? Global competition. Ehtisham Rabbani, LG's vice president of product strategy and marketing, said the company is planning for a "mobile world cup" in the fall, with winners from the U.S., Korea, Brazil and other countries participating.

U.S. winner Ms. Moore got teary on the brink of elimination — Ms. Dynda won the first round and finished first in the second round, though a mistake on her part kept Ms. Moore's hopes alive. At the end of the finals, as the confetti guns exploded and Ms. Moore's phone vibrated to confirm her win, tears came full force — from her, her mother in the audience and apparently her dad back home (whom Mom called, not texted, with the news).



2010 DAYTON CROWNE PLAZA RESERVATION INFORMATION

from Frank, W3LPL

Crowne Plaza reservations for Dayton 2010 open on Tuesday, July 7th at 8:00 a.m.

1-877-834-3613 or http://www.cpdayton
Be sure to use group code **DHX**

MAKING PLASTIC KNOBS

Detrick Merz, KI4STU, SKCC 2577

Knobs can be very useful things. They provide torque multiplication, for easier turning. They can also be indexed, to provide some idea of how much impact your turning will produce. Sometimes, though, we just cannot find a knob to suit our needs. Or, perhaps, the knobs we can find are not available in small quantities, or will take too long for us to patiently wait for. We may need a bigger knob, for slower going, or a smaller knob for a more comfortable fit in the hand. We might want a smooth knob, or one with small ridges, or perhaps we want a different colored knob! If we can make the knob ourselves, perhaps we can have a knob that fits our desires.

So, how do the big boys make plastic knobs? Well, mostly, they use a process called Injection Molding. For the small batches we might require for homebrewing, plastic casting might be more desirable. It is relatively easy to do, and the materials are few and easily obtained.

To get started making knobs, you will need some casting resin (polyurethane), a hardening catalyst, a mold, and some stirring sticks. The first two can be obtained at a local crafts store.

I have successfully used "Castin'Craft Clear Polyester Casting Resin," which I get at my local "Michael's" craft store. "Michael's" has the catalyst, too. A 16oz can of resin should be under $20, and the catalyst should be under $5. Molds are best if made, or scrounged, so their price will vary (free or inexpensive). Polyethylene molds tend to perform best, so look for plastic marked as #2 (HDPE) or #4 (LDPE).

I have found that Polypropylene (#5, PP) also works well. Beyond plastic molds, the can be made out of silicone, aluminum foil, steel, or various other things. Molds always tend to work better if you use a mold release agent, but if you can deal with cutting the mold away (one time use mold), a release agent might not be necessary. Tooth picks or popsicle sticks seem to work well as stirring sticks, as they're cheap, and you probably already have them around the house.

Use something disposable, unless you want to dedicate a stick permanently to stirring resin... if so, you'll need to let your stick cure too, once you're done stirring.

Molds are either free, or cheap, depending on what you want out of one. I needed an indexed knob for a jig I was making to hold my Dremel, to make Manhattan style SMT IC pads

I wanted a knob with a threaded rod coming out of the back, and an indexed face so I knew how far it was being turned. So, rummaging through my recycling bin I found an empty Del Monte single serving fruit cup. It's a little plastic cup, with a few ribs (maybe 20?) that go down towards the bottom of the cup, and a nice curved side. It is marked as #7 plastic (OTHER). Perfect! The curved sides would let the molded knob fall out more easily, and the ribs would serve well as index marks!

So, how did I turn a fruit cup, a bolt, and a can of polyester resin into a knob? Pretty easily, actually. First, I rinsed out the recycled cup with some water, and dried it. Then, I poured a bit of casting resin out of my can, into the fruit cup. I filled the fruit cup about 3/8" deep with resin, then put in a few drops of the catalyst. The back of the can has a guide on how much catalyst to use, as it will vary depending on the size of your casting. After adding catalyst, I stirred with a toothpick for about 30 seconds, then let the cup set for a few minutes. It will take about 24 hours for the knob to cure, but it should start to thicken in a few minutes.

Once slightly thickened, I pressed the head of my bolt into the resin, trying to keep it centered, and at a right angle to the surface of the resin. Then, I left the whole fruit cup alone for a few days. 24 hours is all that is needed for most castings to set up, but it shouldn't matter if you leave it in the mold longer. Since I have a seemingly endless supply of fruit cups, I cut the cup down the sides, and peeled it off of my knob, once cured. This is where a mold release agent, and/or different mold type (2 piece silicone) could help, if you want to use your mold again. Maybe we will do a bit on more advanced mold making in a future article.

There are a few things to watch out for when casting plastic. First, is safety. This stuff needs to be used in a well ventilated area, as it is kind of smelly. I will refer you to the can for full safety warnings. Aside from safety, you may pull something out of a mold and find that it feels a bit sticky or tacky. This is an indication that the part has not fully cured, and final curing can usually be done by leaving the part out of the mold to set for a few hours. Usually this stickiness is not enough to leave any product on your hands, only enough to create a tacky feeling when you touch it. If your part is more sticky (enough that bits are left stuck to your fingers), then it really is not cured.

S&P RATE QUESTION FROM THE CQ-CONTEST REFLECTOR

from Pete Smith, N4ZR

The following discussion comes from the CQ-Contest email reflector.

W4ZR's original question: "I'm curious: what do top contest ops hope to do when operating S&P, in terms of rates per hour, or per shorter period? What about SO2R on the second radio while continuing to run, at some rate or another, on the first?

73, Pete N4ZR

Responses came from Randy, K5ZD

"S&P results differ depending on the contest and the situation. For the CQWW CW the last two years, I have started the contest by doing S&P on 40m.

In 2007, my first hour was an 87. Most on 40 meters, but then a pass across 80m. In 2008, the first hour was 116. That's probably as good as it gets.

Looking at the log, I was working multiple stations per minute and per KHz.

So it must have been a very target rich environment. I also had the luxury of knowing every station I called was a new QSO so I didn't always have to get their call before I called them!

I once worked 62 stations in 40 minutes during a 10 meter opening to South America in a CQWW SSB contest. Again, lots of loud signals and all fresh meat.

"What slows down S&P is the second pass up the band or after you have worked a lot stations. Each one you hear, you have to check to see if they have already been worked. That takes time.

"When doing SO2R, the rate you can do on the second radio is directly a function of how busy you are on the run radio. I find that if I can make 10-15 QSOs per hour on the second radio, that is a lot. But, there are cases in contests like Sweepstakes where I have made as many QSOs on the second radio doing S&P as I did on the run radio."

and Rich NN3W:

"I agree with Randy. Once I hit about 120 to 140 an hour on SSB, SO2R becomes taxing. It also gets harder to do it seamlessly without seeing like a klutz.

S&P RATE QUESTION (CONT.,)

From Rich, NN3W

"Its also MUCH easier on Day 1 because its guaranteed that anybody you tune across on the first day is a new QSO. Day 2 on SO2R on 15 or 10 meters is much tougher because you've worked ZW5B, LW9DA, PJ2T several times before, and if you're band map isn't totally up to date (and especially when you're not assisted), every QSO is a guess as to if you've worked a given station or not."

Don't forget to keep your membership and 5m Award information up-to-date on the PVRC Website!

MAKING PLASTIC KNOBS (cont.,)

Perhaps you needed a bit more catalyst, or a bit more curing time? This tends to be more of a problem when using Silicone molds, because of the heat transfer in silicone.

"But This gave me a clear knob, and I want my knob to be colored!"

Okay, go back to your crafts store, and look on the shelf next to where you picked up the resin. There will probably be a package of dyes right there. When I looked at the dyes last, the price seemed a little high to me, so I decided to try food coloring instead. This did not work so well, but was not terrible either. Since the food coloring is water based, it does not dissolve in the resin, but rather creates a bunch of tiny droplets inside of the plastic. This is why my knob is clear, with flecks of blue scattered throughout. It was certainly cheaper than the real dye! If you want solid colored knobs, casting resins are available in solid colors, but you may not have as much luck finding it at a local crafts store.

So go get some molds, and make some knobs, and finish off that project you were working on last year!

Editor's Note: This technique is excellent for making custom knobs for keys, too. This site, http://www.info-central.org/construction_moldmaking.shtml , has an excellent how-to on mold making for casting parts.

WHERE CAN YOU FIND PVRC MEMBERS?

(as of 1 July 2009)

The PVRC NW Region: Bud W3LL

Meetings are held on the third Tuesday of each month at the City Buffet, 1306 W. Patrick Street, Frederick, MD. (301) 360-9666.

It's in a small shopping center. Most arrive about 6 PM for dinner and informal discussions.

The meeting begins at 7:00 PM.

>From W. Patrick Street, turn up McCain Dr. (the Mountain View Diner is on the corner), then turn right into the shopping center, then turn left and search for a parking place. The City Buffet is tucked back in the left corner of the shopping center behind the Mountain View Diner. You can't see the City Buffet from W. Patrick Street.

The Annapolis Crew : Bob W9GE

Meetings are held on the 4th Wednesday of each month at West End Grill in Annapolis.

We gather at about 5:30 PM and order dinner about 6. We break up usually before 8 PM. E-Mail W9GE to be put on the e-mail reminder list.

PVRCNC-East : Rob, KA1ARB

Meets on the first Thursday of each month. Details are always available on the web site: http://www.pvrcnc.org

PVRC-NC/West: Tom N4IOZ

"The Winston-Salem Courteous Operators Club" (W4WS) meets on the fourth Monday of each month at 7:00 PM in the "Pure Chrome" establishment, 505 Deacon Blvd. Winston-Salem, NC 27105. It's now a biker bar (we came with the building), so feel free to roar in on your Harley. Info at http://www.w4ws.org

Gaithersburg Area: Jeff K3OQ

Several of us get together, much like the downtown lunch group, about every 4 to 6 weeks and visit various restaurants in the Gaithersburg area.

Central Virginia Contest Club: Ed NW4V

Meets the first Tuesday of the month at St. Martins Church, 9000 St. Martin Lane, Richmond VA, (between W. Broad St. and N. Parham Road). Our meeting begins at 7PM.

Over the Hill Bunch: Bill W3AZ

The group meets for lunch at noon alternately in Maryland at the College PARK Holiday Hotel Route 1 and the Beltway or in Virginia at the Parkview Marriot near route 50 and the Beltway. Meetings generally are held on the last Wednesday of the month and are subject to change. Meetings are announced by E-Mail.

All PVRC members, non-members interested in membership and guests are welcome. For information contact Roger Stephens, K5VRX, 703-658-3991 for Virginia meetings; or Bill Leavitt, W3AZ for Maryland meetings.

Downtown Lunch Group

Meets on the 3rd Wednesday or Thursday of the month in the downtown area of Washington, DC. Locations occasionally change, but are always Metro accessible. Details are sent out on the PVRC reflector. Feel free to contact Eric W3DQ or Brian WV4V for details and directions.

If you have a group that meets regularly or occasionally, please send details and contact information to W3DQ for inclusion in the Newsletter!

PVRC Spotting Network

N2QT	telnet://n2qt.no-ip.com
K3SKE:	telnet://dxc.k3ske.net
NE3H	telnet://dxc.ne3h.net
N3ME:	telnet://dxc/n3me.net
WC3J:	telnet://dxc.wc4j.net
WR3L:	telnet://dxc.wr3l.net
W3LPL:	telnet://dxc.w3lpl.net
W4ML:	telnet://dxc.w4ml.net

N2QT Lynchburg, VA 144.97, 446.075

Information regarding the PVRC reflector can be found on the PVRC website: http://pvrc.org/pvrcfaq.htm

Note that this is simply the REFLECTOR FAQ pull down under main-page **REFERENCE**

12 STORE BUYING POWER

HAM RADIO OUTLET®

WORLDWIDE DISTRIBUTION

Hot Summer Specials From Yaesu

Good Thru 5-31-09

YAESU

FT-897D VHF/UHF/HF Transceiver

- HF/6M/2M/70CM • DSP Built-In
- HF 100W (20W battery)
- Optional P.S. + Tuner • TCXO Built-In

Call Now For Our Low Pricing!

FT-950 HF + 6M TCVR

- 100W HF/6M
- Auto Tuner built-in
- 3 roofing filters built-in
- DMU-2000 Compatible

NEW!

Call Now For Low Pricing!

FT-8800R 2M/440 Mobile

- V+UV+V/U+U operation
- V+U full duplex • Cross Band repeater function
- 50W 2M 35W UHF
- 1000+ Memory channels
- WIRES ready

Call Now For Low Pricing!

VX-3R 2M/440 HT

- Ultra-Compact Dual-Band HT w/ Wide band RX
- 1.5W RF out 2m/ 1w RF out 440
- WIRES Compatible
- 1000 Memory channels
- AA Battary compatible w/Optional FBA-37

NEW!

Call For Low Intro Price!

FT-60R

- 2m/440 HT
- 5W Wide-band receive
- CTCSS/DCS Built-In
- Emergency Auto ID

Low Price!

VX-7R/VX-7R Black

50/21M/220/440 HT

- Wideband RX - 900 Memories
- 5W TX (300mw 220Mhz)
- LI-Ion Battary
- Fully Submersible to 3 ft.
- Built-in CTCSS/DCS
- Internet WIRES compatible

Now available in Black!

VX-6R

2M/220/440HT

- wideband RX – 900 memories
- 5W 2/440 , 1.5W 220 MHz TX
- LI-ION Battary - EAI system
- Fully submersible to 3 ft.
- CW trainer built-in

NEW Low Price!

VX-8R

50/144/222/440 Handheld

- 5w (1W 222)
- Bluetooth optional
- waterproof/submersible 3 ft 30 mins
- GPS/APRS operation optional
- LI-Ion Hi-capacity battery
- wide band Rx

NEW!

FT-857D

Ultra compact HF, VHF, UHF

- 100w HF/6M, 50w 2M, 20w UHF
- DSP included • 32 color display
- 200 mems • Detachable front panel (YSK-857 required)

Call for Low Price!

FT-7800R 2M/440 Mobile

- 50w 2m, 40w on 440mHz
- Weather Alert
- 1000+ Mems
- WIRES Capability
- Wideband Receiver (Cell Blocked)

Call Now For Your Low Price!

FT-2000/FT2000D HF + 6M tcvr

- 100 W w/ auto tuner • built-in Power supply
- DSP filters /Voice memory recorder
- 200W (FT-2000D)
- 3 Band Parametric Mic EQ • 3 IF roofing filters

Call For Low Pricing!

FT-450AT HF + 6M TCVR

- 100W HF/6M • Auto Tuner built-in • DSP Built-In
- 500 Memories • DNR, IF Notch, IF Shift

Call Now For Special Pricing

AZ, CA, CO, GA, VA residents add sales tax. Prices, specifications, descriptions, subject to change without notice.

Look for the HRO Home Page on the World Wide Web
http://www.hamradio.com

$1 to Charity

COAST TO COAST
FREE SHIPPING
UPS - Most Items Over $100
Rapid Deliveries From
The Store Nearest To You!