



The Spectrum

Issue 03

February / March 2007

Words From The President

The much anticipated FCC action to remove element 1 Morse code proficiency testing to gain access to HF frequencies has arrived. Will it be the end of amateur radio as many lament, or will it be a shot in the arm? Only time will tell. If the CARS test session on the 24th is any indication I would have to say it will be a good thing in the long run. Over 19 individuals came to take various tests. Congratulations to everyone who upgraded!

We have received several requests from a few new upgrades about having the QRM room opened more often and some would like to have a more experienced ham sit with them as they get on the air for the first time. We will be looking at having the shack opened more often for radio communications. Members can also get an access code for the shack if you would like to operate on your own time schedule.

I will also discuss with the board the need for HF classes, where we would go over proper operating procedures, to radios and antenna selections.

We have a change in newsletter editor. Gavin, KD7GJB, is taking over for Rich, N5RAG. I wish to thank Rich for the outstanding job he has done the past couple of years. You and the family will be greatly missed when you leave later this year.

We are in need of people to help out with running the club. We need someone to take over as treasurer when Rich leaves later this year. We also are going to need people to help with jobs that Leo, KG4PWC, handles when he also leaves us later this year. If you want to find out more about any club positions please contact a board member.

March is going to be a busy month. Dinner meeting at the Silver Diner, monitor merrimack, VA Qso Party, just to name a few. Look forward to seeing everyone supporting club events.

73
Keith
KG4ZXX/AG

Links of Interest

[Virginia Beach Amateur Radio Club](#)

[Portsmouth Amateur Radio Club](#)

[Home - KG4ZXX.COM - IRLP and much more!](#)

[South Hampton Roads Sky warn Net](#)

[ARRLWeb: New US Amateur Bands Chart](#)

[ARRLWeb: FCC ULS Modifies Customer Support Hotline Hours](#)

[QRP Amateur Radio Club International - Home](#)

[VA QSO Party](#)

[Dismal Swamp Stomp - Half Marathon - Coming April 14, 2007 - Registration](#)

[CSS Virginia Home Page \(Monitor & Merrimack\)](#)

[Tour de Cure: Chesapeake](#)

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Upcoming Events

CARS Dinner Meeting

Monday, March 7th, arrive between 1800 & 1830
Silver Diner,
1401 Tintern St.
Chesapeake, VA 23320

Monitor Merrimack Special Event

10-11 March
contact

KG4PWC@ARRL.Net

VA QSO Party & Shack Day

17 March

Dismal Swamp Stomp-Half Marathon

14 April

Tour de Cure

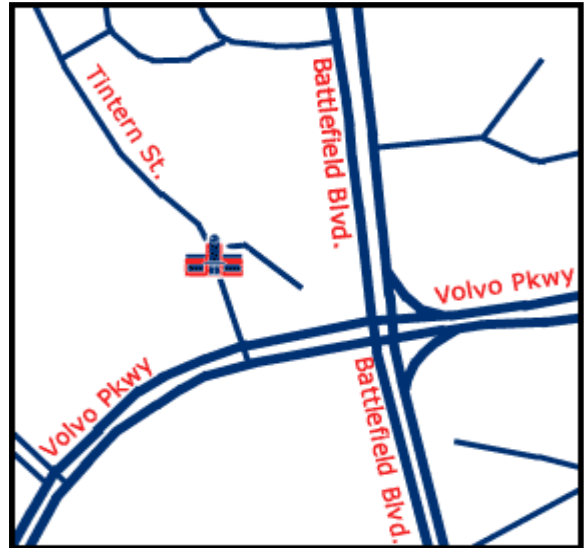
21 April

Spring Fest

Sunday April 15th

Moose Lodge 898

1400 N. George Washington Highway
Chesapeake VA 23323



Silver Diner Chesapeake

chesapeake@silverdiner.com

LOCAL NETS

Local Nets

SKYWARN NET Wednesday 2000 Hours.	146.820 MHz
CARS 2M Net Sundays 2030 Hours	146.820 MHz
CARS 10 Meter Net 2000 hours on Mondays CARS doesn't meet	28.400 MHz
Hampton Roads Public Service Net Mon-Sat 2100 hours	146.970 MHz
VBARC 10 Meter Net 2000 hours on Thursdays VBARC doesn't meet	28.400 MHz
Portsmouth "RagChew" Net Monday & Wednesday 1930 hours	146.850 MHz
Southeastern Virginia Traffic Net Sun, Tues, Thurs @ 2000 hours	146.850 MHz
Portsmouth Amateur Radio Emergency Services Net Fridays 2000 hours	146.850 MHz
Tidewater Radio Association WT4RA net Thursday 1930 hours (code drill follows net)	147.195 MHz

A Brief History of Telegraphy

Telegraphy can be defined as the sending of written messages without physically transporting them. Early examples of telegraphy included smoke signals and semaphores. With the advent of electricity in the late 1830's in England and the United States, the transmission of signals over wire was invented. Samuel Morse was credited with inventing the electric telegraph in the United States independent of efforts in England. However, the actual code is thought to have been invented by his assistant, Alfred Vail. The word telegraphy is normally associated with communication using Morse code over electrical wire in the form of telegrams. A broader application of the word can include all forms of digital communications using any energy forms.

The simplest form of electric current modulation is the opening and closing of a switch or key. The information can be coded by grouping the number of key closures and their duration. A machine called a register, which produced a tape of dots, received early telegraph messages. Vail was credited with making the first reliable register. Translating the written dots to text in real time was actually quite slow. When it was realized that operators could transcribe much faster by listening to clicks, the first sounder was invented in 1849. Sounders produce a click at the beginning and end of key closure. The basic telegraph circuit consists of two individual circuits. The main transmission line is connected to the sending key and batteries. When the key is closed, a relay at the receiving station is closed. The receiving station relay then energizes a second circuit that causes the sounder's electromagnet to move a metal arm making an audible click. Upon release of the sending key, the relay at the receiving station opens.

Continued on page 7

28 STEPS THAT WILL HELP NEW HAMS, GENERALS, AND EXTRAS TRYING VHF FOR THE FIRST TIME.

From "Jeff" on the News Groups.. (originally titled "30 steps to help all Hams on VHF for the first time")

- 1: Use as many "Q" signals as possible. Yes, I know they were invented solely for CW and are totally inappropriate for two meter FM, but they are fun and entertaining. They keep people guessing as to what you really meant. I.E. "I'm going to QSY to the phone." Can you really change frequencies to the phone? QSL used to mean, "I am acknowledging receipt", but now it appears to mean, "yes" or "OK". I guess I missed it when the ARRL changed the meaning. It is also best to use "OK" and "QSL" together.
- 2: Never laugh when you can say "HI HI". No one will ever know you aren't a long time CW rag-chewer if you don't tell them. They'll think you've been on since the days of Marconi.
- 3: Utilize an alternative vocabulary. Use words like "Destinated" and "Negatory". It's OK to make up your own words here. I.E. "Yeah Tom, I "pheelbart zaphonix" occasionally myself."
- 4: Always say "XX4XXX" (Insert your own call) "for I.D." As mentioned in Step One, anything that creates redundancy is always encouraged. That's why we have the Department of Redundancy Department. (Please note that you can follow your call with "for identification purposes" instead of "for I.D."
- 5: The better the copy on two meter FM, the more you should use phonetics. Names should be especially used if they are short or common ones. I.E. "My name is Al... Alpha Lima" or "Jack.. Juliet Alpha Charlie Kilo." If at all possible use the less common HF phonetics "A4SM... America, Number Four, Sugar Mexico." And for maximum points, make up unintelligible phonetics. "My name is Bob... Billibong Oregano Bumperpool."
- 6: Always give the calls of yourself and everyone who is (or has been) in the group, whether they are still there or not. While this has been unnecessary for years, it is still a great memory test. You may also use "and the group" if you are an "old timer" or just have a bad memory. Extra points for saying everyone's call and then clearing in a silly way "K2PKK, Chow, Chow."
- 7: Whenever possible, use the wrong terminology. It keeps people guessing. Use "modulation" when you mean "deviation", and vice-versa.
- 8: If someone asks for a break, always finish your turn, taking as long as possible before turning it over. Whenever possible, pass it around a few times first. This will discourage the breaker, and if it is an emergency, encourage him to switch to another repeater and not bother you.
- 9: Always ask involved questions of the person who is trying to sign out. Never let him get by with just a "yes" or "no" answer. Make it a question that will take him a long time to answer.
- 10: The less you know on a subject, the more you should speculate about it in the roundtable. Also the amount of time you spend on the subject should be inversely proportionate to your knowledge of the subject even though you have no damn clue.
- 11: If you hear two amateurs start a conversation, wait until they are twenty seconds into their contact, and then break in to make a call, or better yet to use the auto-patch. Make sure you keep the repeater tied up for at least three minutes. This way, once the two have reestablished contact, they won't even remember what they were talking about.
- 12: You hear someone on the repeater giving directions to a visiting amateur. Even if the directions are good, make sure you break in with your own "alternate route but better way to get there" version. By the time the visiting amateur unscrambles all the street names whizzing by in his mind, he should have moved out of the range of the repeater.
- 13: If an annoying station is bothering you, make sure your other buddies have a "coded" frequency list. Even though "CODES" are strictly forbidden on Amateur Radio, it's really neat to practice "James Bond" tactics.
- 14: Always use the National Calling Frequency for general conversations. The more uninteresting, the longer you should use it. Extra points are awarded if you have recently moved from an adjacent frequency for no reason. Make sure when DX is "rolling" in on 52.525 that you hang out there and talk to your friends five miles down the road about the good old CB days!
- 15: Make sure that if you have a personal problem with someone, you should voice your opinion in a public forum, especially a net. Make sure you give their name, call, and any other identifying remarks. For maximum points, make sure the person in question is not on the repeater, or not available.

Continued next page

16: Make sure you say the first few words of each transmission twice, especially if it is the same thing each time. Like "roger, roger" or "fine business, fine business". I cannot stress enough about encouraging redundancy.

17: If you hear a conversation on a local repeater, break in and ask how each station is receiving you. Of course they will only see the signal of the repeater you are using. Extra points are awarded if you are using a base station, and the repeater is less than twenty-five air miles from you.

18: Use the repeater for an hour or two at a time, preventing others from using it. Better yet, do it on a daily basis. Your quest is to make people so sick of hearing your voice every time they turn on their radio, they'll move to another frequency. This way you'll lighten the load on the repeater, leaving even more time for you to talk on it.

19: See just how much flutter you can generate by operating at handheld power levels too far away from the repeater. Engage people in conversations when you know they won't be able to copy half of what your saying.

20: Use lots of radio jargon. After all, it makes you feel important using words ordinary people don't say. Who cares if it makes you sound like you just fell off Channel 19 on the citizen's Band? Use phrases such as "Roger on that", "10-4", "I'm on the side", "Your making the trip" and "Negatory on that".

21: Use excessive microphone gain. See just how loud you can make your audio. Make sure the audio gain is so high that other amateurs can hear any bugs crawling on your floor. If mobile, make sure the wind noise is loud enough that others have to strain to pick your words out from all the racket.

22: Start every transmission with the word "Roger" or "QSL". Sure, you don't need to acknowledge that you received the other transmission in full. After all, you would simply ask for a repeat if you missed something.

23: When looking for a contact on a repeater, always say your "listening" or "monitoring" multiple times. I've always found that at least a half dozen times or so is good. Repeating your multiple "listening" ID's every 10 to 15 seconds is even better.

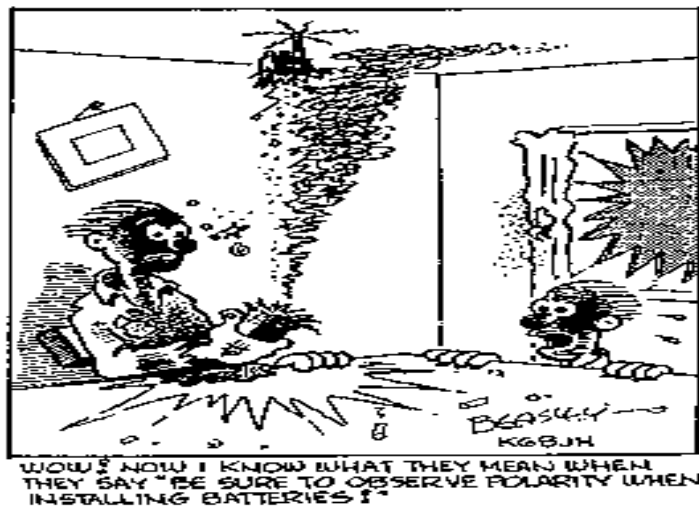
24: Always use a repeater, even if you can work the other station easily on simplex ... especially if you can make the contact on simplex. The coverage of the repeater you use should be inversely proportional to your distance from the other station.

25: When on repeaters using courtesy tones, you should always say "over". Courtesy tones are designed to let everyone know when you have un-keyed but don't let that stop you. Say "over", "back to you" or "go ahead". It serves no useful purpose but don't worry, it's still fun!

26: Never say "My name is" It makes you sound human. If at all possible, use one of the following phrases: a) "The personal here is ..." b) "The handle here is..."

27: Use "73" and "88" incorrectly. Both are already considered plural, but add an "s" to the end anyway. Say "73's" or "88's". Who cares if it means "best regards" and "love and kisses." Better yet, say "seventy thirds"! (By the way, seventy thirds equals about 23.3).

28: If the repeater is off the air for service, complain about the fact that it was off the air as soon as it's turned back on. Act as though your entire day has been ruined because the repeater wasn't available when you wanted to use it. Even though you have never paid a penny to help out with the upkeep of it.





Frostfest been very, very good to me

Barry, W3AFH won the \$1000.00 frostfest bucks and used that to buy an IC-7000



KC4LEO making a new HAM's day

56 people tested in three hours... some of them taking multiple tests. Everyone from RARC (Richmond Amateur Radio Club) was very friendly and taught me a lot. They were happy to have extra help, too. I really got my feet wet on my first VE session!

From the Editor

This will be my last issue. As you all know my career with the Coast Guard will come to an end, after 30 years, this June. In addition to retirement planning we are building our new home in Texas, north of San Antonio. I just wanted to thank all of you that have made my job as your editor enjoyable. Gavin, KD7GJB, will be taking this position starting in April. 73 to all and hope to hear you on the frequency.

Rich – N5RAG

The excitement of QRP...or...More power and bigger antennas?

You have all heard me before. I am an HAM looking to break the common perception that the more money you spend, the more power you radiate and, the biggest antenna will do you well. If you remember I was the one that brought you Slow Scan Television (SSTV for under \$20.00...see: [W4CAR Spectrum - July 2006](#). Don't get me wrong. Full legal power has its place but, I was looking for something a little more challenging and less expensive.

This all started 2 to 3 months ago when Jim, KG4WOJ, hung a wire in a tree and contacted Aruba on 5 watts. At the time I thought all the planets must be at their right positions and the wind was blowing due south.

I wanted to upgrade my HT so I thought what the heck, I'll get a Yaesu 817-ND and that will be great for all bands. Well the 817 showed up in the mail and I immediately took it out of the box, charged it up and hung something that resembled a 20 meter dipole in the front yard tree. The stations were coming in load and clear so I gave a call. To my surprise PA0AGA (Netherlands) came back to me with a 59 report. I was hooked! At that point in time I put the 20 meter, ¼ wave HAM Stick on my truck and continued to have great success with HR1AAB (Honduras), KB1VSL (Missouri), AE1P (New Hampshire) and, LY2ZZ (Lithuania).

Luck or not this has been a great experience and a new mode for me. If you get a chance stop on up to the QRM Room, lower the power and give a shout. You just might be surprised to hear who comes back to you.

Rich – N5RAG



Transceivers, How To Take Advantage of Your New General Class License

With the elimination of the Morse code requirement, the primary stumbling block in getting HF privileges has been removed. With the knowledge gained from obtaining your General Class license, you should be able to assemble a reasonable station and get on the air. Unfortunately, we are at the bottom of the sunspot cycle so propagation is less favorable for really great DX but still good for contacts hundreds to thousands of miles away.

To paraphrase a well-known saying, “It is better to have a good antenna and a mediocre transceiver than a great transceiver and a poor antenna.” Even in communities with restrictive covenants, it is best to plan your antenna(s) before your initial purchase. If you own your own home, consider laying a wire along the peak of the roof or even around the fascia of the roof in a horizontal loop or dipole. Antennas can be placed inside the attic, but having the antenna outside is better. Vertical wire antennas with elevated radials can be hidden along the fence and trees. The variety of antennas that can be built is the subject of books and another article, so I won't cover this area in more detail. But it cannot be emphasized enough that you have the greatest opportunity to get the most bang for the buck by building an antenna compared to any other piece of equipment. To give you the most flexibility, allow for the purchase of an antenna tuner or transmatch, good coax (RG8X or better) and commercial or homebrewed balun(s). If you have the patience to build multiple antennas (can be with a single feedpoint), the cost can be much lower. You should have at least a common RF ground, which will be a ground rod and connecting wire/braid.

Your HF radio will probably be the most expensive item you buy in your station. But like any other activity, equipment is not a good substitute for operating skill. Just like golf, you can have the most expensive set of clubs (a Callaway driver retails for \$329), but if you cannot hit the ball, you will still not be able to hit the ball with a Callaway driver. Fortunately, when starting out, you can start with a good used basic radio and upgrade its performance with add-ons at a later date.

I have had good luck buying used and new equipment off of Ebay. Ebay (www.ebay.com), allows you to pay with credit card or using online money transfer using Paypal. I am always wary of sellers refusing to accept Paypal and insisting on a Money Order. You will notice that items sold only through cash payment do not sell as high. If the seller has a good rating and you are buying an item that generally is not in high demand, you can get a pretty good deal. Unlike the sources for used equipment sold in printed or electronic classified ads, sellers are rated. I find this safer than buying from most Hamfest vendors or from estate sales.

Continued on next page

A good source of information is www.eham.net/reviews. When you read the reviews, the number of reviewers is probably the most important. Given enough reviewers, there is at least one bad experience in the group. However, when you read the less than stellar reviews, often I get the sense that the reviewer's expectations were well above what the product was designed to do.

When querying Ebay some common search words used include:

- Transceiver or Radio
- Yaesu FT
- Icom IC
- Kenwood TS
- Ten tec (two separate words)

Some rigs that can be found for less than \$500 include the following (I apologize, if I left out a rig):

Yaesu	ICOM	Kenwood
FT 890	IC 751	TS 140
FT 757	IC 706 MK2 (non-G)	TS 430
FT 707	IC 730	TS 440
FT 600	IC 735	TS 530 tube
FT 840	IC 736	TS 680
FT 747	IC 737	TS 690
	IC 738	
	IC 718	Ten-tec
	IC 725	
	IC 726	555 scout
	IC 728	540 Triton
	IC 729	Corsair I & II

Most of these rigs do not have tight selective IF filtering or ways to combat noise such as DSP or audio filtering. You can greatly improve the audio qualities with external DSP units/speakers made by MFJ, Timewave, GAP and SGC. Another audio processing device that has gotten great reviews is the SCAF filter by Idiompres. All these units will set you back \$100-300. However, we have used radios without elaborate IF or audio filtering during Field Day quite effectively. Some of the older rigs do not cover all the bands (WARC or 60-meter).

A few rigs will have a built in power supply. Most will require an external 12-volt source. If you have a 20+ amp power supply for your VHF rig, you can hook both transceivers to the same power. Just do not try to transmit at full power simultaneously from both rigs. New power supplies can set you back \$100-200.

A good (can be less than \$30) headset will help tremendously. One area that usually does not need a lot of improvement is the microphone. Microphones and code keys can be very beautiful to look at but the improvement in the sound on the other end is more determined by noise, bandwidth of the passband and your own voice and operating technique. An SWR meter (\$50-150) is extremely useful. During the initial setup, you can certainly borrow one; however, having it inline is very helpful in detecting feedline problems from bad connectors, water in the coax or a damaged antenna. If you have any questions about a piece of equipment, feel free to ask members of our club (even if you are not a member). We love the hobby and do our best to make everybody's experience with the hobby a good one. Finally, if you cannot afford the HF rig now, get checked out with the communications officer and come to the club shack!

73
Leo
KG4PWC

A Brief History of Telegraphy... *Continued from page 2*

The return movement of the sounder arm would create another click. The return path of the sending circuit is earth ground. Telegraph operators could reliably send and receive messages at 25-30 words per minute (wpm). Good operators could receive in excess of 40 wpm. Later automatic telegraph machines were developed in the latter half of the 19th century that could send and receive messages in excess of 300 wpm. However, the tape still had to be converted to text by people and signals had to be transmitted over very high quality lines.

Early electric telegraph communications used the Vail code and register. By 1854, the Continental Morse Code was introduced and registers became obsolete. The Continental Morse Code eventually became the international Morse Code, which is still in use today. The Vail code differed in the letters C, F, J, L, O, P, R, X, Y, Z and the numbers. Some consider the Vail code easier to use with the click sound made by the electric telegraph sounder. With the development of wireless communications, the click was replaced with a tone. Up until the 1990's, marine First Class Radio operators were required to receive random 5 character code groups at 20 wpm and weather text at 25 wpm. Modern digital communications use tone pitch or frequency changes instead of tone lengths. Modern computers can send multiple messages in packets (multiplexing) over the same wire or frequency. When combined with error checking, the density of information sent is extremely high. But not until the recent development of cheap small computers that could perform digital signal processing was Morse Codes preeminence for its ability to be comprehended under bad conditions supplanted in the maritime world.

Alfred Vail is also credited with the first straight key (1844), which was no more than a strip of metal with a knob on top. The metal was both switch arm and spring. Subsequent sending keys changed with different metal, spring and swing arm bearing improvements. You can find examples of these keys still in use by Amateur Radio operators worldwide. Prolonged use of the straight key caused some operators to develop the "glass elbow", which was one of the earliest recognized forms of repetitive motion injury. The "glass elbow", today would be recognized as the Carpal Tunnel Syndrome. By the end of the 19th century and the beginning of the 20th, the side swiper key and the Vibroplex key were developed to decrease this injury. The Vibroplex Key is still manufactured today for Amateur Radio use and is also known as the semi-automatic bug. With the development of semi-conductors and digital circuits in the 1960's, John Curtis invented the electronic keyer in 1968. The first integrated circuit keyer was sold in 1973.

The telegraph played a significant role in the Civil War. It was used for communicating messages over long distances and also between observation positions including balloons and ground troops. Albert J. Myer, founder of the US Army Signal Corps performed some of his proof of concept tests of telegraphy at Ft Monroe VA in 1859. During the Civil War, there were two competing factions, the US Military Telegraph Service (USMTS), composed of civilians and the US Army Signal Corps. The Signal Corps attempted to use the Beardslee telegraph (could be used by untrained personnel and did not require batteries) with little success. Besides the telegraph, the Signal Corps also employed semaphore flags. The Signal Corps performed most ground tactical communications. Long distance logistical communications were usually performed by the USMTS. For political and economic reasons, the Signal Corps eventually absorbed the US Military Telegraphs service.

The telegraph was extremely useful for the railroad. A single wire along the entire line would connect all the stations. Stations not transmitting would close a bar on the side of the key (shorting bar) and leave the circuit closed. A message from any site would be heard along the entire line. In an emergency, one could cut the line and use the wire ends to send a message.

Just as the telegraph doomed the Pony Express with the completion of the transcontinental telegraph line in 1861, the development of the telephone in 1876 and wireless communications beginning in 1896 eventually doomed telegrams. Digital and satellite communications in 1990's led to the extinction of Morse Code maritime weather and emergency communications. On Feb 23, 2007, the FCC no longer required 5 words per minute Morse Code comprehension for Amateur Radio licensing.

Leo Kusuda
KG4PWC



The Spectrum

Monthly newsletter of the Chesapeake
Amateur Radio Service (CARS)

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CARS : Repeaters

146.610 MHz (PL 100.0)
146.820 (PL 162.2) MHz
444.000 (PL 100.0)MHz

W4CAR Trustee: Bill Runyon WF4R

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Spring Fest Coordinator:

Leo Kusuda KG4PWC

Sunday, April 15, 2007

Chesapeake Amateur Radio Service SpringFest 2007



Amateur Radio and Electronic Swapmeet/FleaMarket

Moose Lodge #898 (Same location as last year)

1400 N. George Washington Hwy, Chesapeake, VA 23 323

I-64 exit 296 North, approximately 2 miles north on N. George Washington Hwy (US-17)

Approximately 7500 square feet of air conditioned space

Admission includes table.

Talk-In Freq: 146.820 tone=162.2

\$5 Advance or at the door admission donation: \$6. 00

Additional Table: \$6.00 each

For more information please visit our web site at
or contact Leo Kusuda at (757) 465-0074 e-mail:

<http://w4car.org>

w4car@yahoo.com

Mail the following information with your ticket request to:

C.A.R.S., PO Box 6867, Chesapeake, VA 23323-0867

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____ Advance Tickets @ \$5.00 each *

(Children 12 yrs and under FREE when accompanied by paying adult) \$ _____
S.A.S.E. REQUIRED - MAKE CHECK or MONEY ORDER PAYABLE TO: C.A.R.S. TOTAL : \$ _____