



From our Club President...

**The Revolution May Not Be Televised—
But It Will Be Posted To YouTube**

By Robert Grinnell KD7WNV, President

“It’s funny how you can wander all around the neighborhood of a good idea, yet not conceive of it until someone else expresses it.”

The November calendar worked out this year as it does most years, that the Seattle Marathon (*the Sunday after Thanksgiving—4th Thursday*) falls on the weekend following our General Membership meeting (3rd Saturday). As Fran, N7FWZ, carried on the Underwoods’ tradition of conducting Marathon briefings at their Newcastle home over the weekend prior to the event, one finds that attendance at the Saturday afternoon session is largely comprised of Club members who have just had lunch or otherwise hung around the area following the meeting, in order to handle both matters in one journey.

So as I lingered at Fran’s following the briefing, I found myself engaged in conversation by recently-rejoined member Bill, KL7BB, fresh off his campaign for ARRL Northwestern Division Director, in which he and Vice Director candidate Daniel, KL7WM, jointly employed various modern communication and media technologies. Bill offered several ideas on how we could make use of those methods to promote the Club and publicize its events.

All of the ideas were interesting, and worthy of further discussion and consideration. But one in particular resonated so much that I want to put it into motion immediately. That is *to prepare a series of short videos that serve to introduce the Club and demonstrate its activities.* (This is the idea that just struck me as so obvious, yet I had failed to conceive of it myself, despite the ramping up of my own hobby of photography/videography over recent months, while concurrently watching numerous videos on the web, including many that were related to Amateur Radio!)

Bill subsequently came to the December Board meeting and presented the video idea. The Board also received it favorably.

The introductory videos must be brief and concise; others might be somewhat longer. All should share a consistent style and production quality. I envision a well-organized series, posted on YouTube (and/or similar websites), with links from our website and Facebook page, as well as listed in the *Relay* and public service *Guide*.

Organizationally, this seems to fall under the responsibilities of the Facilities and Publicity Committee. However, since the few existing members of that committee are oriented to the facilities side, and due to the specialized nature of this task, we will enlist a new group of volunteers to carry it out. If you are interested in participating, please contact the committee’s Trustee liaison, Daniel, KL7WM, or myself.

[A related side note: Several of us on the Board recall a new member that joined in the past few years, who identified himself as having professional video production experience, and volunteered his services the Club. If you are that member, or know who he is, please let us know.]

See you on the 15th!

Another Seattle Marathon – ‘In the Books’
By Fran Underwood N7FWZ

The 2012 Seattle Marathon course was completed by 4:15 PM, one of the earliest finishing times in the last 14 years. I (the Sweep Car) arrived at the Seattle Center before dark. The weather was perfect as the sun lighted Lake Washington for our slow trip through the course with our last participants.

One of our staff took credit for the sunshine, but I reminded him, that **W7AKA was looking down and he was doing his part.** The Amiga Marathon was dedicated to Gene in gratitude for all his volunteer work he did over the years for that event and others.

As you know I tackled the job and learned so very much about computers, Emails, and Volunteers. No event of this magnitude could happen without its Volunteers.

I want to say a big ‘Thank You’ to the members of the Mike and Key Club for supporting me. I hope you had a good time out on the course, in the Victory Recovery area, or in the Med-Tent. All of you are important to making this a success, and it was. I personally wish you a happy Holiday Season and a wonderful New Year.

And when you get your 2013 calendar, please mark the Sunday after Thanksgiving for to 2013 Marathon and be sure and let me know mid-October so I can get you on the team, where you want to be and we (together) can make next year’s event every bit as good as this one.

Again, thank you all from the bottom of my heart for your help.

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The *K7LED Relay*, published monthly, is the official newsletter of the Mike & Key Amateur Radio Club. Mike & Key ARC is an ARRL-affiliated club dedicated to the growth and betterment of Amateur Radio.

The club meets at 10 A.M. the third Saturday of every month at Salvation Army Headquarters, 720 S. Tobin Street, in Renton (near the southeast corner of Renton Airport). Anyone interested in Amateur Radio is invited to participate in the Mike & Key ARC and its activities. Annual dues are \$12 for individuals and \$18 for families.

**Postal Address:**

P.O. Box 4234
Renton, WA 98057-4234

Web Site:

www.mikeandkey.org

Send dues to:

Mike & Key ARC
P.O. Box 4234
Renton, WA 98057-4234

K7LED Repeaters:

146.82 output / 146.22 input
(PL 103.5)
Tiger Mountain
224.120 output / 222.520 input
(PL 103.5)
Tiger Mountain

Email:

info @ mikeandkey.org

Send newsletter submissions to:

Gary Bryan, *Relay* Editor
34033 33rd Ave SW
Federal Way, WA 98023-7724
kg7ku @ arrl.net

Reflector:

<http://groups.yahoo.com/groups/mkarc>

Club Contacts

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No. 3 (CoB)	Tim Kane	K7ANE	k7ane @ arrl.net	206-251-7467
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No. 5	Daniel Stevens	KL7WM	KL7WM @ arrl.net	206-228-9274
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Club Library	'Toku' Okumura	AD7JA	tokuzo_okumura @ msn.com	206-772-2450
Webmaster	Jim Etwiler	KD7BAT	kd7bat @ arrl.net	425-788-7887

Mike & Key Online – The following Club resources are available:

On the Web – The Club's site at www.mikeandkey.org includes extensive information about Club activities and events, such as: VE testing, membership, past editions of the *Relay* and more.

Reflector – The Club's public message board offers an easy and free way to converse with Club members. To sign up, visit: <http://groups.yahoo.com/groups/mkarc>.

E-Relay – Help the Club save on printing and postage, Email the *Relay* Editor: kg7ku @ arrl.net.

M&K Club - December Activities

By George Thornton AE7G, Activity Manager

INTRO TO MICRO-CONTROLLERS... by Mike N7WA

They are in your car and in your household appliances. The toys your kids play with have them. You probably have several in your pocket (ring! ring!). Over 4 billion were sold in 2006. Needless to say, they are heavily used in Amateur Radio. Micro-controllers are everywhere and you can also use them in your own projects which is the intent behind the **December program**.

No, we won't be teaching you how to program or how to design a new smartphone. What we will do is introduce you to the simplest and most readily available platforms. We'll also discuss their relative merits and where you can find more information. Many of your kids are doing this in school and it's not like rocket science. (That reminds me of a joke... what does a Rocket Scientist say when he wants to relate that something is difficult? Come to the program to find out!)

I suspect many of you already play with these devices and may be way beyond what we'll talk about in the few minutes available to us but please bring your experiences and passion and kibitz from the floor. I have several projects I've built that I'll bring along for show and tell. Please feel free to do so yourself.

For the January meeting we will feature Fran Underwood N7FWZ and myself (AE7G) speaking on how to organize a public service event. Fran and her silent key husband Gene W7AKA blazed the trail in the use of HAM radio for public service. They have served as communication directors for the RAMROD bicycle rally for nearly all of the 30 years the event has been in existence. For fourteen years they directed the communications effort for the Seattle Marathon, an event that uses more than 100 HAM radio operators.

I will supplement Fran's presentation with a discussion of the impact of new Homeland Security policies and programs on public service events.

Ever since Hurricane Katrina, a concerted effort has been underway to improve the quality and efficiency of response to a local or national emergency. The effort promotes a system of common principles, organizing structures and forms that make it possible for various organizations to work together efficiently.

Increasingly the agencies we work with when we put on a public service event speak the language of NIMS, or National Incident Management System. They expect to see from us the kinds of structures and standard documents that are part of the Incident Command System, or ICS. To keep credibility with these agencies we need a better understanding of these new approaches.

Because of work obligations I will not be able to be personally present at the December meeting.

I am pleased to report that we have made our target and have some big yearend prizes including the KX3. See the separate report by Jim Aigner.

I want to wish all of you Merry Christmas and Happy New Year.

This is a time to think of family, close friends and the values which give our lives meaning.

I hope all of you find that special Joy and Peace that comes from caring and being cared for.

M&K December Door Prizes

Prize List & Photo's by Jim Aigner N7MU

We'll have our regular monthly door prize drawing using tickets purchased at the December meeting. Here's the line-up for this month's prizes:

- "When All Else Fails" Banner
- ARRL Repeater Directory
- "When All Else Fails" window sticker
- Pelican 1050 Micro Case
- Sylvania Digital Stereo Headphones
- Polaroid Metal Earbuds with builtin mic
- Sentry Metal Stereo Earbuds
- MFJ-281 Mobile Speaker



This month we hold a special drawing for two exceptional yearend door prizes: an Elecraft KX3 Transceiver and the West Mountain Radio PG40S PWRgate backup power system. See photos elsewhere in this issue. Your generous participation in the monthly drawings makes this possible. Tickets from December 2011 through November 2012 are eligible for these two prizes. Winners need not be present to win and winners are limited to one prize.

KX3 Transceiver

Ultra-Compact Home/Portable/Mobile Station

The revolutionary Elecraft KX3 puts the world in the palm of your hand! Despite its small size, it covers all amateur bands from 160-6 meters, operates in all modes, and has DSP-based features usually found only on larger radios. The KX3's unique form-factor allows you to operate from anywhere. Fold out the rear tilt-feet for use on a desktop or picnic table, or add our rugged mobile mount bracket for vehicle use. For extreme portability, you can add the internal wide-range ATU, 8-AA cell battery pack with NiMH charger, and adjustable KXPD3 keyer paddle. With a whip antenna, you can even operate hand-held.



Super PWRgate PG40S (\$139.95)

- A Super PWRgate is a 12 volt backup power system rated at 40 amperes continuous from either a Power Supply or a Battery.
- The Super PWRgate has a built-in four-stage battery charger with selectable current rates of 1, 4, 7 or 10 amperes.
- Connected equipment will instantly switch to battery during a power blackout or power supply failure.
- Uses two 80 ampere Schottky diodes as an OR-Gate to isolate the battery and power supply from each other.
- Forward voltage drop of less than 0.3 volts at 20 A.
- Optimized for use with GELLED & AGM type batteries, but will keep flooded lead acid and marine type batteries near full charge as well.
- Measures 1.64" x 3.9" x 5" and uses Anderson Powerpole connectors.



Salvation Army Bell Ringers 2012

By Jim Etwiler – KD7BAT



**Mark Huffstutter KB7WAL
& Ryan Martin N7TNI**



Al Hopwood KB7THX

Once again the Mike and Key ARC helped the Salvation Army raise funds by participating in the Bell Ringing program.

Thanks go to each member that donated one or more hours of their time to make this a success. This includes friends and significant others.

Mike Dinkelman, N7WA, acted as coordinator at Fry's. Supporting Mike were Mark Hansen, KE7VSF, Mark Huffstutter, KB7WAL, Greg Pietrucha, W7HRC, and his wife Linda, Dick Radford, WA7NIW, and his wife Meredith, and Eric Snyder, N7DLV.

Those helping Jim Etwiler, KD7BAT, at Wal-Mart were Gil Drynan, W7GIL, Al Hopwood, KB7THX, Kathy Martin, KB7QMO, Mark Huffstutter, KB7WAL, and Ryan Martin, N7TNI.

The team at Fry's again raised more funds than the team at Wal-Mart, but all of the funds go to support the programs at the Salvation Army!



**Kathy Martin
KB7QMO**

I noticed that several participants extended their shifts to enjoy some face to face QSOs. We should think about signing up multiple persons per shift for next year.

M&K Radio Officer Report

By Hal Goodell N7NW

Great News! Our MRT2000 Motorola repeater is back in operation!! Yea!! After a delay in getting parts shipped from Motorola, the repeater was repaired (replaced power supply, which had been hit with a surge AC voltage) and placed back in operation on Monday, Dec. 3. Just in time to beat the snow which is now flying on Tiger.

It sure is nice to have our controller as well back in operation with the nice courtesy beeps. Remember there is a 90 sec time out, which I'm sure Dean, N7XS, would love to catch someone timing it out. Can you say ALLIGATOR!!

We have also made some modifications to the controller to announce when we go on battery power. The programming is not yet completed, but will be shortly. I'll announce the changes when it is completed and tested. Hopefully this will make everyone aware when the repeater is on battery power and we can keep communications to those which are necessary. Again, more later.

Thanks for your patience while we maintained operation with the backup repeater. Also I would like to thank Greg Krantz, NF6C, for his loan of the backup and for getting our repeater back operational. Nice to have a local expert who understands the Motorola and has the equipment to support repair. The 220 repeater continues to function nominally, just needs a few more users. Great place to get away from the traffic on 2 meters and have a nice rag chew.

-Hal N7NW

Special Peoples' Holiday Cruise

By Dick Radford WA7NIW

This year's Special Peoples' Holiday Cruise proved the value of Amateur Radio communications in an event of this nature. We had 22 Hams, half of which are either current or former Mike and Key members, participating from 8 boat loading locations tracking 598 guests and chaperones traveling on 18 buses and I don't know how many boats. One very significant factor was the weather that day. Winds in excess of 20 MPH on Lake Washington caused the course to be shortened to keep everyone in more sheltered waters.



**Charles
Beckmeier
W7CEB**



**Part of the
SEAFAIR Staff**

The weather conditions apparently caused a number of boats to not be available for the cruise creating an imbalance between the number of guests who were scheduled to go out from three of the locations to exceed the carrying capacity of the boats that were available there.

Thanks to Hams communicating this information it was possible to send extra boats from other locations to where the extra people were so that everyone got the full experience of this joyous occasion. Without timely communications there would have been about 50 disappointed people.



Many thanks to all of you who help make this event run smoothly year after year. -Dick WA7NIW

Celebrate Our December Members!

By Dave Smith KB7PSN, Treasurer

As of December 2012, these have been Mike & Key members for the number of years stated. Congratulations to all of you, and thanks for your participation & service.

Each of you makes us who we are:

John Becker	K7PFR	40 Years*
Ken Rau	K7YR	40 Years*
Raleigh Elkins	WB7WNF	33 Years*
Norman Ahrens	N7KWZ	25 Years*
Michael Ross	KB7YXB	19 Years
David Smith	KB7PSN	19 Years
Marilyn Olson	KB7WSH	18 Years
Alan Hughes	KB7SVU	16 Years
Ted Roubal	KC7ZEO	15 Years
Robert LeDoux	KE7JPI	5 Years
Vandy Eam	N7EAM	3 Years
Allen Evenson	KF7EST	3 Years
Jay Walton	KE7OLG	2 Years
Kenneth Whitman	N9PHW	2 Years
Kenneth Nielsen	N7KLN	1 Year
Kathryn Shuman	KF7TTM	1 Year

* Life member = member 25 consecutive years or more

Mike & Key ARC – Elmer Contacts – By Jim Aigner N7MU

Area	Elmer Coordinator	Email	Phone	Description
Homebrew, DX, antennas	<i>[-Open-]</i>			New Hams, Satellite work
Beams and Towers	Alan Hughes, KB7SVU	kb7svu@juno.com	253-840-4947	Beam antennas and towers, safety
Contesting	Mike Dinkelman, N7WA	mwdink@clearwire.net	253-631-3756	Contest operations
CW	Mike Dinkelman, N7WA	mwdink@clearwire.net	253-631-3756	Learn CW, operating proficiency
Digital Modes	Curt Black, WR5J	wr5j@westseattlearc.org	206-755-4541	Digital modes, software, TNC's
D-STAR	Curt Black, WR5J	wr5j@westseattlearc.org	206-755-4541	D-STAR technology and operation
Emergency Comm	Tim Kane, K7ANE	k7ane@arrl.net	206-251-7467	CERT, ARES, organizations & Eq't
HF Operation	Dale Tongue AC7NP	dale.tongue@gmail.com	425-432-4254	Eq't, Antennas, best HF operating practices
New Members	Dick Radford, WA7NIW	wa7niw@arrl.net	425-828-9791	Getting started, Eq't selection and operation
QRP	Frank Qualls, AB7HA	franklin_qualls@hotmail.com	425-802-1837	Low power operation, design & construction
VHF / UHF Operation	<i>[-Open-]</i>			6-Meters & up; radios, antennas, modes

Two (2) Emails received... Hi Gary— Renee (KF7IUQ) and I (KF7IUP) successfully passed our General test! -- //Mike Canaan ...and... Hi Gary— I am looking for a member that might be able to assist me in programming a Motorola HT-1260 portable two-way radio. Needing programming cables and software to do the task. //Mike Canaan KF7IUP Email: contrabanddog@hotmail.com .

Salmon Run Results Summary

By Michael Dinkelman N7WA

It was a fun Salmon Run this year, and I think our Club is a rising star within the event.

First – we need more people to participate, and **Second** – be sure to indicate M&K on their logs - we were #3 out of 16 clubs.

WASHINGTON CLUB AGGREGATE SCORES**CLUB SCORE LOGS PTS/LOG**

WESTERN WASHINGTON DX CLUB 1754832 21 83563

RADIO CLUB OF REDMOND 768888 11 69899

MIKE & KEY ARC 387027 3 129009

Each entry is followed by County, Q's, mults, and score (Kudos to the W7A team for the top score from San Juan):

TOP SCORES IN EACH COUNTY**W7A SAN 636 95 121340 EXP-MO2T**

(and Kudos to Dean for the top SO LP Phone entry in the entire state - he was also #7 in the entire state among all score classes)

WASHINGTON SINGLE-OP LOW SSB**N7XS SNO 1057 102 216128**

(W7A Team was number two in their class - nice going but you need to put M&K in your entry)

(Tim and Robert took #8)

WASHINGTON EXPEDITIONS

W7PU GRAY 771 108 217648 EXP-MOST ALL AMATEUR RADIO CLUB

W7A SAN 636 95 121340 EXP-MO2T

N3QQ WHA 411 90 97390 EXP-MOST ORCA DX AND CONTEST CLUB

K9JF7 SKAM 329 83 69307 EXP-SOST MIXED WESTERN WASHINGTON DX CLUB

W7POE PAC 293 71 60066 EXP-SOST

A17AA WAH 229 59 41033 EXP-SOST CW

N7OMS SKAM 228 48 25048 EXP-MOST

K7ANE WHA 160 68 21760 EXP-MOST MIKE & KEY ARC**WASHINGTON MOBILE CW****N7WA MULTI 681 73 149139 MOB CW MIKE & KEY ARC****Pacific Northwest Hamfairs & Events**

Source: PNW Hamfair webpage at <http://www.n7cfo.com/amradio/hf/hf.htm>. (Used with Permission)

February 16, 2013. Salem Hamfair & Computer/Electronics Swapmeet. Rickreall, Oregon at the Polk County Fairgrounds. <http://www.w7sra.com> .

October 23, 2013. HAM Days '13, Elma, WA. Grays Harbor Amateur Radio Club. This is an ARRL sanctioned event. <http://gharc.org/>

March 23, 2013. MicroHAMS Digital Conference. Redmond, WA. <http://www.microhams.com/softcontent.aspx?scld=9>

March 9, 2013. Mike & Key Swap Meet. Puyallup fairgrounds exhibition hall, Puyallup, WA. This is an ARRL sanctioned event. For information, contact

dmdink@yahoo.com or n7wa@arrl.net . <http://www.mikeandkey.org/flea.htm>

April 2013 Yakima Hamfest. Yakima, Washington. Selah Civic Center, 216 South 1st Street, Selah, WA. For information, contact Lindsay Kooser

(509)965-6612 n7rhw@arrl.net . <http://w7taq.org/>

April 13-14, 2013. Communications Academy. Seattle, WA. This is an ARRL sanctioned event. <http://www.commacademy.org>

April 26-27-28, 2013. Idaho State Convention. Boise, ID, Voice of Idaho ARC. This is an ARRL sanctioned event. Info, Don Lynn , ND7L, (208)899-5801, don_lynn@pacbell.net . <http://www.idahostateconvention.com/>

These Workshops-Classes open to All Washington-State, FCC Licensed Hams and CERT Members

Contributed by Bill Balzarini KL7BB

Location: Auburn Annex Building @ One East Main Street (3rd Floor) in Downtown Auburn WA. 98002 (206-400-1723) Also see: <http://HamShare.com>

December 15, 2011 9:00AM to 5:00PM Saturday, (Lunch 12 to 1 PM) Class #12500-RPT – High Performance Repeater Systems designed for EOC and EMCOMM Environments,

December 22, 2012 9:00AM to 5:00PM Saturday, (Lunch 12 to 1 PM) Class # 12575-DXC – DXing, Contesting and QSLing What to do with Your New Equip. Getting Ready for the Big One. Not all contests are Disasters.

December 29, 2012 9:00AM to 5:00PM Saturday, (Lunch 12 to 1 PM) Class #12071-RPGM – Programming Your VHF-UHF Ham Radio HTs & Mobiles, Also NW-Repeaters in Washington.

Experience NW-Mesh Networking and Ham Radio Fun.

By Bill Balzarini KL7BB

There will be a **2013 NW-MESH Networking Hands-on Workshop** on Saturday January 26th 2013. This is an all-day event which runs from 9:00AM to 5:00PM.

Lunch is available from 12 to 1PM at local cafes in Auburn (A lunch room is also available).

Bring your 2.4GHz Wireless routers and Out-door Bullets for configuration and tweaking onto the 2.3GHz ham band. You should also bring your laptop with the DRATS digital messaging program already loaded. **(People will help you configure it at the Workshop).**

Location is at One East Main Street up on the 3rd Floor of the Annex Bldg in Downtown Auburn WA. 98002. Lots of free street parking (Please check the street signs for times and dates)

This event is **free of charge** for this leading-edge training and all-day Ham Radio fun.

Please sign up by sending your Name, Call Sign, Telephone Number and Email Address to: Email.Hamshare@Yahoo.com

Current information will be kept up-to-date at <http://Hamshare.com> in the 'Calendar of Events' section.

73 de Bill KL7BB 206-400-1723 KL7BB@Yahoo.com

Washington State VHF Listings from 1968-69 ERA

By Bill Balzarini KL7BB

Mike and Key readers may enjoy this historical look at Washington State VHF Listings from 1968-69 era.

I produced this list 44 years ago when I was appointed ARRL VHF PAM (phone activities manager) by Harry Lewis W7JWJ, who was then ARRL Washington State SCM (Section Communications Manager). This listing was the first attempt at organization of 6 & 2 meter VHF channels and spectrum management for the entire State of Washington. (Then the ARRL Section WA.)

The listing was composed on a Model 19 RTTY machine with a punched paper tape as the storage medium. (Complete with hanging chads and typing reperf.)

Dick Aspinwall W7PV of the Georgetown Radio Supply Co. distributed over 10,000 copies in one of his Christmas mailings to all the Hams in the Greater Northwest area.

73 de Bill Balzarini KL7BB 206-400-1723 KL7BB@Yahoo.com

**1968-1969 Listing
de Bill KL7BB © 2012**

2 METERS

150.090 FM OUTPUT OF CAPITOL PEAK NAVY MARS REPEATER (OLYMPIA)
ALSO INPUT TO ARLINGTON NAVY MARS REPEATER

148.410 FM INPUT TO CAPITOL PEAK NAVY MARS REPEATER (OLYMPIA)
ALSO OUTPUT OF ARLINGTON NAVY MARS REPEATER

148.010 AM ARMY MARS NET. ON MONDAY NIGHTS AT 10:01 PM

147.750 FM DX CHANNEL FOR 20 METER DX ERS

147.330 FM CANADA POPULAR FM FREQ. USE THIS FREQ. FOR CONTACTS !!!

147.210 FM YAKIMA REPEATER OUTPUT (COMES IN ON 145.260)
ALSO THIS IS THE INPUT FREQ. TO THE WENATCHEE AM REPEATER
WHICH COMES OUT ON 145.62 MHZ AM FOR INFO
CONTACT JIM K7UDG IN WENATCHEE.

146.940 FM C.D. WORK AND VARIOUS PUBLIC SERVICE WORK SUCH AS
THE SPORT CAR RACES AT SEATTLE INTERNATIONAL RACEWAY.

146.880 FM C.D. WORK ON THURSDAY NIGHTS.

146.760 FM LARGEST NORTHWEST FM NET FREQ. ALSO INPUT FREQ. TO
SEATTLE REPEATER WHICH COMES OUT ON 146.580 MHZ.
THIS IS ALSO THE OUTPUT FREQ. OF THE SOAP LAKE REPEATER
146.76 MHZ. THE INPUT IS ON 146.34 MHZ.
146.76 MHZ IS ALSO THE OUTPUT OF THE SPOKANE REPEATER.
AND THE INPUT IS ON 146.34 MHZ IT IS ON MT. SPOKANE.
FOR MORE INFO CONTACT W7GSS + W7PUL.

146.640 FM TACOMA AREA FREQ

146.580 FM OUTPUT OF SEATTLE REPEATER WHICH HAS TWO INPUT
FREQ.S OF 146.76 AND 146.34 MHZ

146.460 FM LOCAL SEATTLE AREA NET FREQ

146.340 FM MOBILE CALLING FREQ. FOR THE SEATTLE REPEATER. OUTPUT
IS ON 146.580 MHZ

146.250 AM LOCAL SOUTHWEST WASHINGTON AND NORTH OREGON RAG CHEW
FREQ ON MOSTLY IN THE EVENING

145.800 AM THIS FREQ. IS USED MOSTLY WHEN 145.35 IS IN USE.

145.620 AM OUTPUT OF WENATCHEE REPEATER. INPUT IS ON 147.21 AM
FOR MORE INFO CONTACT JIM K7UDG

145.350 AM LOCAL CALLING FREQ. FOR THE LARGEST 2 METER AM NET
ACTIVE MOSTLY DURING THE EVENING (AFTER 8 PM)
WITH AREC NETS EVERY NIGHT AT 8 PM MONDAY THRU FRIDAY
FOR THE SOUTHWEST WASHINGTON AREA. CONTACT
WA7DLE + WA7JLV + WA7DDH FOR MORE INFORMATION.

145.260 FM YAKIMA REPEATER INPUT FREQ. (GOES OUT ON 147.21 MHZ)

144.200 SSB SSB CALLING FREQ. FOR STATIONS FROM CANADA TO OREGON.

143.990 AM ARMY MARS NET ON AT 8:01 PM TUESDAYS ALSO ON SATURDAY
AT 10:01 AM WITH RTTY (AFSK)

143.950 AM AIRFORCE MARS NET. ALSO AIRFORCE MARS RTTY FREQ.
RTTY ON TUESDAY NIGHTS AT 8:00 PM LOCAL TIME (AFSK MODE)

143.700 AM OUTPUT OF ARLINGTON NAVY MARS REPEATER
ALSO INPUT TO CAPITOL PEAK NAVY MARS REPEATER (OLYMPIA)

139.560 AM INPUT TO ARLINGTON NAVY MARS REPEATER
ALSO OUTPUT OF CAPITOL PEAK NAVY MARS REPEATER (OLYMPIA)

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VHF DIRECTORY FOR WASHINGTON STATE

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6 METERS

53.950 FM OUTPUT OF SPACENEEDLE REPEATER

53.528 FM SEATTLE TACOMA JEEP CLUB

53.500 FM C.D. WORK SOUTH OF SEATTLE

53.460 FM RADIO SYSTEMS TRANSMIT FREQ. (REPEATER OUTPUT)

53.420 FM W7FKL (REPEATER)

53.400 FM NORTHWEST AMATEUR RADIO COMMUNICATIONS SYSTEM INC.
AREC NET AND THURSTON COUNTY RACES NET. NET ROLL CALL
FOR THIS FREQ. IS AT 12:00 NOON ON SATURDAYS.
24 HOURS MONITOR. QUIET HRS 10 PM TO 8 AM
FOR MORE INFORMATION CONTACT W7GJL

53.290 FM LARGEST 6 METER FM NET IN WASHINGTON THIS IS ALSO
THE OUTPUT FREQ. OF THE BADGER MT REPEATER. FOR MORE
INFO CONTACT W7OEB.

52.800 FM RADIO SYSTEMS RECEIVER FREQ. (REPEATER INPUT)

52.525 FM NATIONAL CALLING FREQ. FOR FM -(ACTIVE IN SEATTLE EVERETT
INPUT TO REPEATER AT EVERETT AT K7KSZ OUTPUT ON 53.290

51.000 AM LOCAL AM NET ON MOSTLY IN THE EVENINGS. REBEL NET IS
ON THIS FREQ. THE 1ST AND 3RD TUESDAYS OF THE MONTH
AT 8:00 PM LOCAL TIME.

50.850 AM AREC NET FREQ. ON MONDAY NIGHTS AT 8:00 PM LOCAL TIME

50.400 AM LOCAL CALLING FREQ. VERY ACTIVE AM CHANNEL WITH AM MOBILE
WORK. ALSO THE HEDGE HOPPERS NET ON SUNDAY NIGHT
WITH WA7FVT AS NET CONTROL STATION.

50.110 SSB SSB LOCAL CALLING FREQ. THIS IS THE MOST POPULAR PLACE
FOR SSB AND DX.

50.098 CW CW BEACONS ON THIS FREQ. FROM ALL OVER THE GLOBE.

49.980 AM AIRFORCE MARS NET. ALSO AIRFORCE MARS RTTY FREQ.

49.940 AM ARMY MARS NET TUESDAY AT 8:01 PM

49.692 AM NAVY MARS NET ALSO NAVY MARS RTTY FREQ.

Photos From Our November General Meeting

By Ric Danielson K7RIC

Welcome Our New Members!



Don Heaverlo, KFTZED



John Robson Jr, AC7LK



Robert Grinnell KD7WNV, President, speaks to the Club during the General Meeting



Our very own Hal Goodell N7NW gave a very interesting talk regarding Moonbounce and Meteor Scatter communications



Jim Aigner, N7MU with door prizes



Dave Smith KB7PSN, our Club Treasurer



Members & visitors were helping stuff Flyers even after the meeting was over

Fleamarket 2013: Help Needed – One Ticket Co-Chair

By Michael Dinkelman N7WA

I really need someone to step up to volunteer as a Fleamarket Ticket Co-Chair. We already have one in Kathleen Weiss KF7MUD, but we need another... and a two-person team really helps make this job go more smoothly. Kathleen is actually quite nice to work with and the job is a Saturday morning-only position. Basically, you'll work from about 7:30AM to 1PM. Please see me to express your interest.

K6TU Propagation Service

By Michael Dinkeman N7WA

Over the years, I've reviewed a number of propagation modeling programs. My favorite was always WinCap but with the creator/programmer becoming a Silent Key several years ago, I found myself with the program orphaned on an old computer without any means of getting a fresh license. (By the way, the freeware version, which they call QSLware, is still out there but the capabilities I enjoyed most aren't available with it but you might find it useful). Nothing I've tried, and wasted money on, since has been acceptable. I was even contemplating breaking down and getting Proplab which Scot AG7T uses but the cost is pretty high.

Recently, a new internet propagation service has been introduced by Stu, K6TU. You can find it at www.k6tu.net. Stu has taken the VOACap engine (which I've written about before) and combined it with a high powered server that can run the calculations to produce propagation maps fairly quickly. The same maps used to take me hours (overnight) with WinCap. These are maps that can be broken down by band and hour and show the relative expected signal strength to any part of the world you want. (He has two canned maps for the entire world and the USA but you can define new maps using latitude and longitude.)

Putting in station and propagation parameters has always been the hard part with working with VOACap. That's why others, like WinCap, have developed "wrappers" to make it simpler. This is what K6TU has essentially done except now its web based instead of an application on your computer. You can define your station, the expected receiving station, dates, and either use the default NOAA Sunspot number or the estimated Sunspot number from NWRA. Once you kick off a run, the calculation process starts and you receive an email when it's complete. Then you can go back to the site and there will be a PDF with your results. (Trust me, if you want to print these out, buy lots of ink.)

If you are one who just wants to do a single prediction while you are sitting in front of the radio, the process is even quicker. It's called an On-Demand prediction and is for a single hour and a single band. One you click on run, you'll get small map in the browser instead of a PDF. It only takes several seconds.

There are a number of different prediction types available and configurations you can define. All are stored with the service and can be readily used and/or modified. If you are interested, I recommend you go to k6tu.net and sign up for the 30 day trial. I did and was sold after the first run. If you decide to subscribe, the yearly subscription is \$30. Stu is readily available by email if you experience any issues. I had one suggestion for a new feature and he answered almost immediately pointing me to where the feature was already implemented. (*It was obviously there, I just had a brain fart.*)

*Al and Becky Hopwood writes... While walking the streets of Wallace, Idaho I spotted this in a shop window.
It talked to me and made me feel warm. Maybe it will do the same for you. de Al, KB7THX*

A Cold Winter's Night, and a Radio

by Gary Myers, K9CZB

The house is quiet, with the peaceful hush that winter brings. I gaze out the window at the moonlit snowscape. My dog is at my side. Her fur is silky and warm...

Warm. Radios used to be warm. They smelled like hot wax and phenolic, and the dust that had settled on the tubes added a hint of unique spice.

Tubes. Tubes glowed, letting you know that they really were doing something. If you stared into a glowing tube, you could imagine that the faint sounds in your headphones were the voices of tiny beings whose universe was contained in the glass envelope. You could almost see the electrons streaming from that orange hot filament, alternately attracted to and repelled from the black plate, indecisive but energetic lovers whose fickle and fleeting emotions were fanned to a frenzy by the whispering of the grid.

The grid, that unabashed gossip, heard all sorts of things from a length of copper wire. Slowly you looked up from the glowing tubes. In the moonlight, through the frosted window pane, you could see rabbits in the snow, you could see stately pines and ghostly bare branches silhouetted against the backdrop of cold stars, but that precious length of wire was lost in the blackness of the bitter night sky. But you knew it was there. It talked to you.

You put that wire there. You scraped the skin from your arm climbing the tree to string it up, as high as you could get it. And the radio. You cut your finger removing metal burrs from the chassis with an old pocket knife your grandfather had given you. You blistered your knee with an errant blob of molten solder. You cut and drilled and bolted and soldered, you built that radio.

And now, that congregation of inanimate parts, parts that had arrived on your doorstep by Parcel Post or had been salvaged from someone's trash, was ...alive.

It talked to you.

You remember coming home from school and finding, not one, but two packages on the kitchen table. You tracked snow on your mother's floor, because you couldn't wait to take off your boots.

Two brown cardboard boxes sealed with paper tape, one from Allied Radio, the other from Burstein-Applebee. Inside, buried in wadded newspaper or stringy tan excelsior, were magical devices. You stood there in a slowly spreading puddle of melting snow, still in your coat and boots, reverently laying them out on the table. Shiny glass tubes in crisp orange-and-blue or red and-black boxes. Waxy yellow condensers, printed all over in blue. Brown resistors with multi color stripes. A variable condenser, looking like a fossilized sea creature. Magic stuff.

And when they were all put together, those parts from far-off Chicago and Kansas City, when the last wisp of rosin smoke had stung your eyes, you held your breath and plugged it in. And the tubes glowed. And there was a faint hum in your headphones and ...voices. It talked to you.

And after a while, your ears filled with wondrous sounds from distant lands, in the soft orange light that spilled from your electronic magic carpet, in your bedroom on that cold, crystal winter night, you placed your hand on the radio.

It was warm.

It smelled good.

It talked to you.

M&K General Meeting Minutes

By Ivy Nelson-Groves WA7IVY, Secretary

General Meeting Agenda – 17 November 2012

Meeting was called to order at 10:00 am by the President, Robert KD7WNV.

Pledge of Allegiance

Announcements: The Mike and Key ARC is affiliated with the ARRL, which members are encouraged to join. Everyone, including visitors, should sign the rosters. Visitors are reminded not to vote on membership matters.

Introductions

Officer Reports:

President: Robert KD7WNV: Last month's business meeting went a bit over, so we are going to try to keep the meetings moving along so we have sufficient time for the program.

Secretary: Ivy WA7IVY: Nothing to report.

Treasurer: Dave KB7PSN: The club's books are in good order.

Activities Manager: George AE7G: Jim announced that Hal will be speaking to us about moon bounce.

Chairman of the Board: Tim K7ANE: not present.

Radio Officer: Hal N7NW: The power supply has been shipped by Motorola, and hopefully the week after Thanksgiving it should be ready to go up on the mountain. The backup repeater has had some noise on it. Still working the issues, and the repeater is working fine despite the noise.

Quorum present.

A motion was made to approve the minutes of the previous meeting as printed in the Relay was made by Sam N7RHE and seconded by Steve KD7IQL. Motion passed.

Vice President: Kathy KB7QMO: The following prospective members were voted on by the membership: John Robson, Jr., KF7ZED; Don Heaverlo, KF7ZDD. All were approved by the membership.

Relay Editor: Gary KG7KU: Gary thanked the contributors and encouraged the membership to send in articles.

Webmaster: Jim KD7BAT: the website is up to date. If you have contributions for the website, please contact Jim.

Standing Committee Reports:

Strategic Planning: Mike N7WA: no report.

Facilities: Daniel KLWM: not present.

Education: Tim K7ANE: Tim is deployed in support of Hurricane Sandy. Classes are posted on the

Public Service: Robert ND7WNV: Seattle marathon volunteer meetings will be taking place this weekend – the event is next weekend; contact Fran N7FWZ. Dick WA7NIW mentioned that the Special People's Cruise still has a few openings; it is the first Sunday in December. The committee will meet at the Cedar River Smokehouse today at 12:30pm. Liz has been reappointed as the chair of communications for the SeaFair Marshalls. There is a parade in Auburn on the day before the Special People's Cruise, and they could still use some help.

Other Committees:

VE Exams: Scott AG7T: 7 people attended exams: 4 Technicians; 0 Generals; and 1 Extra were awarded.

Logo: Jim N7MU: nothing to report. Dave KB7PSN has the badges.

Membership: Kathy KB7QMO: the chair is Gary KG7KU, and they will be meeting at the Kent library at 3:30 today. The committee was designed to be of benefit of the entire membership, not just the new folks.

By Laws Review: Dave KB7PSN: We have had a meeting, and are working through the suggestions to the bylaws. Next meeting will be in January. After it is finalized, it will be presented to the board, and then presented to the general membership.

Christmas Party: There will be no party this year because we had no volunteer for chairperson.

Flea Market: Hal N7NW/Mike N7WA: Mike appreciates everyone's help stuffing the envelopes today for Flea Market. If you have not got an email initiation yet to sign up for Flea Market, let Mike know. Volunteer spot is what we are using for volunteer signups. We need a co-chair for Tickets to help Kathleen.

Field Day: Ivy WA7IVY: 217 days to Field Day.

Old Business:

Bell Ringing for the Salvation Army: This will be on Saturday, December 1st. There are still several openings; this activity helps us get a reduced rental fee here at our meeting facility in return for bell-ringing. We will be ringing at Fry's at the Landing and Wal-Mart on Rainier Ave.

New Business:

The financial audit will be conducted prior to the January General Meeting at 9am, by the audit committee.

Budget: The board met and began budget deliberations at the last meeting. There has been a substantial price increase for the Barracks and the Wagon Wheel, nearly double last year's fees. The board is considering asking folks going to the Wagon wheel to pay a \$5/night/adult. If that is a financial burden, we can discuss that on a case by case basis. If you have comments on this or any other matter, contact the board by phone or email. It was proposed last year that the club contribute to ARRL. We are considering this as a part of this year's budget planning; the amount we are discussing is \$500, and we have not decided on what fund we would want to contribute to. If you have any comments, you can email any board member. Spectrum defense was suggested.

Good of the Order:

Alligator Award: Dean N7XS still holds the alligator award. However Dean did encourage the membership to time out the repeater so he may pass the award along.

Frank K7GSE mentioned that the first Mike & Key Field Day was at Angle Lake.

Robert KD7WNV mentioned that he was recently informed of the options for amateur radio licensing in Canada and shared this with the membership.

The next Mike & Key Board meeting will be on the first Tuesday of the month, December 4th at 7:30 pm at the Salvation Army in Renton.

The next Mike & Key General Membership meeting will be on the third Saturday of the month, December 15th at 10:00am at the Salvation Army in Renton.

Steve KD7IQL made a motion to close the meeting, seconded by Gil W7GIL. The motion was passed. Meeting adjourned at 11:22 am.

11 guests; 59 members; 56 ARRL members

Attested: Ivy Nelson-Groves, WA7IVY, Secretary

December 2012

M&K Board Meeting Minutes

By Ivy Nelson-Groves WA7IVY, Secretary

Meeting Held – 04 December 2012

K7LED Relay

Public Service – Kathleen KF7MUD: Robert KD7WNV reported that the season has pretty much ended and spoke about the Seattle Marathon and the Special Peoples Cruise. Still working on content for next year's booklet and getting advertising. We are looking to change our printer this year.

Technical – Gil W7GIL: No report.

By Laws – Dave KB7PSN: No report.

Logo – Daniel KL7WM: no report.

Field Day – Ivy WA7IVY: no report.

Flea Market – HAL N7NW and Mike N7WA: Meeting next Tuesday. 7000 flyers are sealed and ready to go; Mike is almost done with the rest.

Membership – Kathy KB7QMO: Held a meeting and are working on the focus for the committee. They have some modifications they would like to make to the application form. Ivy WA7IVY made a motion that we accept the improvements that Kathy suggested; Daniel KL7WM seconded.

Old Business:

Jim KD7BAT reported that the club did bell ringing for the Salvation Army for a total of \$1061.07 for the two locations. They provided a sign with our name on it. They were very happy with our participation.

New business:

Bill KL7BB brought in some historical information about Repeater Coordination. He also brought up the idea of folks from the club to help promote Mike and Key via short YouTube videos. We could use this to highlight the various events we do during the course of the year in a short video. It would be a low cost way to promote the club that is limited only by our imagination. There was brief discussion on how we could implement this.

January Board Meeting: Kathy KB7QMO moved that we keep the meeting on January 1st; Ivy WA7IVY seconded. Motion passed.

Budget Discussion:

The field day accommodation costs were discussed; it was decided not to charge anything for the 2013 Field Day accommodations (other than the refundable barracks reservation fee); this will enable us one more year of data before making a determination for the 2014 budget. We added some to the reservation fees in anticipation of rate increases in 2013.

Steve KD7IQL spoke to the board in regard to ARRL donations. Mike N7WA made the suggestion that we offer to match member's contributions to the ARRL up to a total of \$500 for the entire club. If we put a line item in next year's budget and determine how to do this at a later time, dependent on the club's finances later in the year 2013. Motion was made by Hal N7NW that we put a line item in for donation, with the provision that how to allocate this will be determined by the board at a later date, Ivy WA7IVY seconded. Motion passed.

Gil W7GIL moved and Daniel KL7WM seconded that the board accept the budget as proposed. The motion passed.

Good of the Order: No Good of the Order.

There being no further business, the COB adjourned the meeting at 9:02 pm.

Attested: Ivy Nelson-Groves WA7IVY, Secretary 

Officers present		
X	President	Robert Grinnell KD7WNV
X	Vice President	Kathy Martin KB7QMO
X	Secretary	Ivy Nelson-Groves WA7IVY
X	Treasurer	Dave Smith KB7PSN
	Activities Manager	George Thornton AE7G
X	Radio Officer	Hal Goodell N7NW
Trustees present		
X	No. 1	Mike Dinkelman N7WA
X	No. 2	Kathleen Weiss KF7MUD
X	No. 3 CoB	Tim Kane K7ANE
X	No. 4	Gil Drynan W7GIL
X	No. 5	Daniel Stevens KL7WM
Other officers (non-voting)		
	Relay Editor	Gary Bryan KG7KU
X	Webmaster	Jim Etwiler KD7BAT
Visitors		
	Bil Balzarini	KL7BB
	Steve Cook	KD7IQL
	Michael Hansen	KG7MX

The Chairman of the Board called the meeting to order at 7:30 p.m.

Minutes: A motion was made to approve the minutes as published was made by Robert KD7WNV and seconded by Dave KB7PSN. Motion passed.

Reports:

Chairman of the Board – Tim K7ANE: Tim announced that he will be resigning all his positions effective the next board meeting.

President – Robert KD7WNV: Robert will continue to try to keep the meetings within time.

Vice President – Kathy KB7QMO: Membership applications for consideration: Jerry Olson, WA7CCR; Glenn R. Showalter, WB7QBZ; Forest Jones, callsign pending. They were approved by the board.

Secretary – Ivy WA7IVY: No report.

Treasurer – Dave KB7PSN: The Club's books are in order. Dave passed out copies of the current budget.

Activity Manager – George AE7G: Not present.

Radio Officer – HAL N7NW: Repeater is working with the Motorola. It took longer than anticipated to get the new Power Supply, but once we received it, things went quickly.

Relay Editor – Gary KG7KU: not present.

Webmaster – Jim KD7BAT: Website is up to date, to include the Field Day information. The home page has a question mark for the January board meeting, which needs to be addressed later in this meeting.

Standing Committees:

Strategic Planning – Mike N7WA: No report.

Facilities – Daniel KL7WM: No report.

Education & Training – Tim K7ANE: There are 2 tech classes coming up, one in Everett and the other in Tacoma. A tech class will be the first weekend of February in Tukwila.



M&K-K7LED Club Library

By Tim Kane – K7ANE

Library open 8:30 AM to 11:15 AM (General Meeting)

M&K Library Shop open Tue. to Sat. (www.skywaytv.net)

The Library is located 11818 Renton Ave So., Seattle WA, Tel. 206-772-2350

Four new books have arrived for the Club Library. Based on suggestions from the members, we've acquired the ARRL's excellent set of three books on the basics of electronics, radio and antennas, along with the newest ARRL book on Software-Defined Radio (SDR). These four new books will be available to checkout at the general meeting in May:

- **Understanding Basic Electronics, 2nd Edition, 2010, by Walter Banzhaf, WB1ANE**
- **Basic Radio, Understanding the Key Building Blocks, 2006-12, by Joel R. Hallas, W1ZR**
- **Basic Antennas, Understanding Practical Antennas And Design, 2008-09, by Joel R. Hallas, W1ZR**
- **The ABCs of Software Defined Radio, 2012, By Martin Ewing, AA6E**

The Basic Electronics book discusses the basics of electricity, electronics, and simple circuits. Chapters cover components, DC and AC electrical circuit concepts, basic analog and digital circuits, series and parallel circuits, problem solving and applied math (by hand and calculator), frequency, active devices, semiconductors and integrated circuits. The book also takes a look back at vacuum tubes and their applications. A good glossary of electric and electronic terms is also included.

Basic Radio looks at the development of radio from the simplest crystal sets, early simple receivers through modern superheterodyne receivers. It then looks at the parallel development of transmitters, from earliest CW sets through the evolution of voice transmission from AM to SSB. Chapters also cover power amplification, wave propagation, transmitting and receiving antennas, radiolocation and radionavigation systems, and another glossary of relevant terms. The author also looks into his crystal ball to see what the future might hold. The appendix includes several build-it-yourself projects.

The third book in the series, Basic Antennas, looks at a wide range of communications antennas, starting with the venerable dipole, and continues through both verticals and horizontals, arrays, surface reflector antennas, yagis and log periodics, and loops. Also discussed are microwave and vehicle-mounted antennas. The author discusses antenna measurements and modeling, using EZNEC software. Instructions for some easy-to-build antennas are also included.

The Software Defined Radio publication is really more of a pamphlet than a book, and thus somewhat disappointing. It discusses the application of digital electronics and the road that has led to this new metamorphosis of radio and computers. However, it covers the basic concepts and suggests where the future of this new technology may take amateur radio.

We've still got some of our annual budget left for the library, and are always anxiously seeking good suggestions for editions to add to our shelves. Get in touch with me if you have a good idea. We'll order some more new books later in the year.



Ham Nets & Events – 2012 December / 2013 January

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
09 1700 – NWWA-LDS Net 147.34 (Weekly) 2000 – King Co. ARES Net 147.08 (Weekly) 2015 – Kids Net 145.49 (Weekly) 2200 – NW Astronomy Net 145.33 (Weekly)	10 0545 & 1645 – Weather Net 145.33 (M-F) 1700 – Evergreen State Traffic System Net 145.19 (Daily) 1830 – WA Emerg. HF Net-ARES 3.985 (Weekly)	11 2000 – Seattle Red Cross Comm Team Net 147.080 (Weekly) 2000 – Snohomish Co. ACS/RACES Net 146.92 (Weekly)	12 2000 – Evergreen Intertie Gen/Tech Info Net – 145.33 (Weekly) 2000 – Educational Radio Net – PSRG 146.96 (Weekly) 2100 – NWSOAR Net 146.82 (Weekly)	13 1900 – M&K Public Service Net 146.82 (Wkly) 2000 – Computer & Packet Net 145.33 (Wkly)	14	15 1000–M&K Club Meeting, Renton 1230– M&K Ham Radio Exams, Renton. Scott- ag7t@arrl.net 0900 – WA State Emerg. Net (WSEN) ARES HF Net 3.985 (Weekly)
16	17 1900 – Seattle ACS Net 146.90 (Weekly) 1930 – PSRG Net 146.96 (Weekly) 2000 –YL Net 145.33 (Wkly)	18	19	20	21	22
23	24	25	26	27	28	29
30	31	01 —JANUARY— Happy New Year! M&K Board Mtg Salvation Army Bldg Renton, 7:30 pm	02	03	04	05
06	07	08 Fleamarket Mtg – Dinkelman's Residence	09	10	11 Relay Articles Due 23:59:59	12
13	14	15	16	17	18	19 1000–M&K Club Meeting, Renton 1230– M&K Ham Radio Exams, Renton. Scott- ag7t@arrl.net