

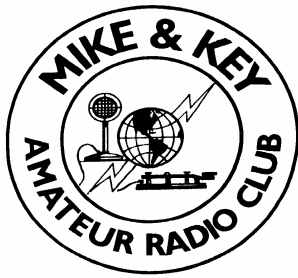
# K7LED

# RELAY

Volume 31, Issue 2

Mike and Key Amateur Radio Club - Seattle, Washington

February 2003



**President**

Jack Grimmett  
N7IHS

**Vice-President**

Jo Hallstrom KB7UFM

**Secretary**

Kim Wolborsky KD7FYD

**Treasurer**

Jack Burrell N7ZS

**Activity Mngr/ Newsletter**

Michael Dinkelman N7WA

**Radio Officer**

Ken Rau K7YR

**Trustees**

**#1/Chairman of the Board**

Brendan Burget KD7IKV

**#2** Barry Wolborsky KC7YB

**#3** Steven Cook KD7IQL

**#4** Dick Radford WA7NIW

**#5** Alan Hughes KB7SVU

**Web Page**

[www.mikeandkey.com](http://www.mikeandkey.com)

**e-mail**

[info@mikeandkey.com](mailto:info@mikeandkey.com)

**Reflector**

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

**Send dues to:**

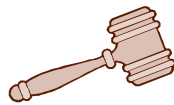
Jack Burrell N7ZS  
108 130th Place NE  
Bellevue, WA 98005-3361

**Send Relay input to:**

Michael Dinkelman, N7WA  
22222 148th Ave SE  
Kent, WA 98042-3147  
[mwdink@eskimo.com](mailto:mwdink@eskimo.com)

## The Prez Sez

Club President Jack Grimmett, N7IHS



The January business meeting had a full house. We had about 70 people in attendance. It was probably the best meeting that I have had as president of the Mike & Key ARC in that it was very positive. We also had approximately six visitors all of who took a membership applications.

We had a great program following the meeting. Terry Dettman (WX7S) presented a discussion of antennas using the

SGC coupler/tuner. His discussion included hiding antennas in restricted areas, mobile antennas and RV applications.

I have additional good news; Mike Dinkelman (N7WA) has volunteered to chair the Technical committee. This committee has been dormant for the past 4-5 years but is really needed to stimulate more interest the technical aspects of amateur radio.

Elections will be held at the March business meeting. There are a large number of positions that are open this year. I would urge each member to consider running for an office to help support the Club.

## 2003 Mike & Key ARC Electronics Show and Fleamarket March 8th, 2003 Support Your Club!

*(You might want to say thanks to the following people who made it happen too.)*

Hal Goodell/N7WA, Frank Kreiger/KA7QHG, Jack Burrell/N7ZS, Barry Wolborsky/KC7YB, Kim Wolborsky/KD7FYD, Fred Lowell/N7PZ, Dawn Hanner/N7VWH, Curtis Hanner/N7MWC, Diane Dinkelman/KB7DNE, Michael Dinkelman/N7WA, Ronnie Laferla/KC7UFS, Wayne Heath/KC7ORB, Alan Hughes/KB7SVU

Supporting Cast:

Dorothy Lowell/KB7WSO, Dan Humphrey/N7QHC, Dawn Humphrey/KC7YYB, Kevin Barrows/N7GXZ (pallets), Chuck Jones/N7BV(signs) and all the members of the Public Service Committee (too numerous to mention)

## Programs and Activities

Activity Manager Michael Dinkelman, N7WA



The program for the February Meeting will be a discussion of the upcoming Flea Market (surprise!). This is a good meeting for neophytes and old timers alike to attend. We will discuss the organization and operation of the event, review potential hiccups, and dispense the tribal knowledge essential to making this a smooth event. It would be helpful if Committee Chairs were

there to answer questions related to their own areas.

Next month's program will be supplanted by Club Elections (always an interesting endeavor).

Upcoming activities include, of course, the biggest Hamfest in the Pacific Northwest. Details inside. Following that, on March 29th will be the annual Club Banquet. Details for that and a application form are elsewhere in the Relay.

This is a busy and exciting time of the year for the Club. Please participate.

*(This month, Club member Dr. Roubal KC7ZEO continues instructing us in some techniques he has found useful when creating metal enclosures. A lot of work went into this, hope you enjoy it.)*

### METAL ENCLOSURES AND OTHER DEVICES FOR ELECTRONICS FROM SHEET BRASS AND ALUMINUM—part 3

**Soldering Brass. Use the Right flux:** Soldering you say...no big deal. After all, soldering is soldering isn't it? Well, if your soldering experience consists only of soldering bare wires together or soldering components to printed circuit boards then maybe it is. Joining metal parts however can be frustrating. Blobs of solder appear where unwanted, or solder does not completely span the joint, or it gets smeared and looks terrible. Because of bad experiences such as these, to many people, soldering is looked upon as a chore to be avoided and not as a pleasant construction experience. Such notions need not prevail because when you go about soldering using methods covered in detail below you simple can't go wrong.

The secret to success, if there is one, is using the right soldering flux; then your work will exhibit those professional qualities that make it stand out. I have not tested all brands and products with regard to making what I call the perfect solder job, however I find that the watery consistency rosin-less flux, Loctite- Henkel HYDRO-X/20 (used in industry as a wave soldering flux in PCB assembly) from the R. S. Hughes Co (see ref 2), together with Loctite Henkel solder WRAP3 (Active Electronics, ref 2) to be an excellent combination, giving a much thinner solder line than the popular liquid rosin flux No. 835 from MG Chemicals (Active Electronics) for example.

Some additional combinations that I have checked are: Radio Shack 64-028 lead-free silver-containing low melting point solder with HYDRO- X/20 liquid flux. This results in a good job. Also, WRAP 3, 0.032" in diameter solder with Radio Shack rosin soldering paste #63-021 also works, however fillet buildup is more prevalent here and a good choice for those of you who prefer this. A novel approach is to use Radio Shack low-heat tape solder #64-101 in conjunction with HYDRO-X/20 liquid flux. The tape solder is just that, short lengths of thin, flat tape-like solder that you place between surfaces to be joined. This works best when the parts to be joined can be weighted from the top so that when the solder melts, the gap left by the previously un-melted solder will close up. Another Radio Shack product and one that would appear to be ideal because the solder and flux are applied simultaneously is RS silver bearing Paste Solder Weld #64-029. Claimed to be a low melting point solder, I find just the opposite, that it requires more heat than any of the other combinations tested. More over, in my hands the joints are spotty, that is, there are places along the joint that do not receive solder. It is claimed that this solder will join cast iron, steels, stainless steel, galvanized

metals, nickel, chrome, platinum, gold, brass, copper and bronze. When all is said and done, though, I prefer the first method described above, Loctite Henkel solder and Loctite liquid non rosin flux, HYDRO-X/20. The molten solder moves with lightning fast speed along the heated joint and you are done in no time. The only disadvantage of HYDRO-XI 20 is the package size one gallon is the least you can purchase, and although a gallon costs only about \$26, a gallon is more than you can use in 5 life times. If you need some, give me call.

Now, some actual soldering. Moisten the surfaces to be soldered with a flux-soaked Q tip and attach one of the sides. Do this by positioning a side upright in the proper location next to the base on a flat chimney brick or ceramic tile. Use small, lightweight pieces of scrap aluminum or pieces of brick that stand upright to hold the side upright and in place (Fig 11).

Using a hand held propane torch sweep the flame back and forth the entire length of the side at brick level (where the base of the side contacts the base of the box) and test the joint on the inside surface from time to time with Loctite WRAP 3, 0.032" diameter solder at the start (beginning) of the joint. As soon as the solder melts,

heat the entire joint a few moments longer, then remove the heat. **IMMEDIATELY AND WITHOUT HESITATION**, feed in some more solder. You will be surprised at what happens. In the blink of the eye, the solder will have traveled the entire length of the joint. This will be evident by the very narrow shiny solder bead that has traveled along the joint. I must point out though that this will not occur unless the joint is fully heated to the solder melting point. If it isn't, the bead of solder will travel only part way. But this is easy to correct; just heat the remainder of the joint to the solder melting point and it will continue on to the end of the joint. If you maintain the joint at the melting point of the solder and continue to feed in more solder, a fillet of solder will form along the length of the joint. Whether you allow the fillet to form or not is up to you. I doubt that it strengthens the joint significantly, however it



*(Continued on page 3)*

*(Continued from page 2)*

looks nice. Allow the assembly to cool then repeat the steps and solder on the other side. The side already soldered in place will remain there because the brick will soak up enough heat to prevent the solder on that side from re-melting. When cool, stand the assembly on end and one at a time, solder in the end pieces. When cool, place the box in a container ruled with hot soapy water and slosh the liquid about in order to remove traces of soldering flux (which by now may have turned black), Then rise well with clear water and dry.

Tarnish and How to Deal With It: One thing that will occur during soldering is the formation of tarnish on the outside surfaces that were heated. The degree of tarnish will depend on how long the metal was heated and to what temperature. A light tarnish has the rather pleasant appearance of a coppery sheen and you may prefer to leave it alone. Usually a heavier tarnish prevails as a black smudgy coating that is just plain ugly and you'll want to remove it. Treat the brass as follows Sand smooth the entire outside surfaces, especially at the corners in order to make nice perfectly formed joints. This is best accomplished by first placing several layers of paper towels stacked one on top of the other on a flat surface and wetting the paper. Now place a 10" x 12" sheet of wet-dry sandpaper on the wet towels and then wet the sandpaper. Draw the metal box back and forth over the sandpaper in order to sand the metal. Prepared in this way, the wet pad of paper is spongy allowing the sandpaper to move up and down with the metal getting into nooks and cranny's otherwise hard to reach. For sanding surfaces inside an enclosure, there are, now available, several small power sanders especially designed to sand hard to reach places, and one source of these is Micro Mark (ref 2).

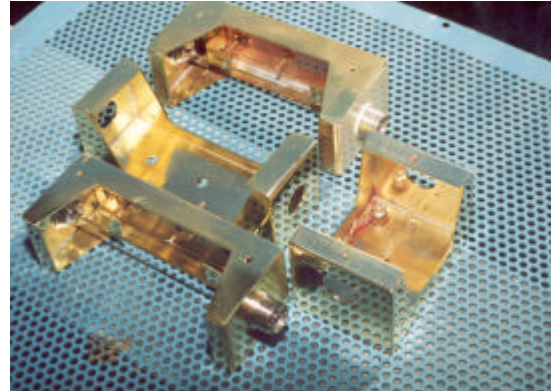
Polishing Brass: A final sanding may be all that you need to finish your work. But if your goal is to make your work



really outstanding, polishing is the final step. You simply can't beat one of those tumbler-vibrator polishers, the kind used to polish brass cartridges (Fig 12) used in re-

loading ammunition.

For this, merely fill the plastic bowl of the polisher with Lyman brand Tufnut polishing granules (Ref 2) , add the fully assembled metal enclosure and run the polisher overnight. You'll be amazed and pleased with the mirror smooth finish (Fig 13).



Polished surfaces can be protected permanently from tarnish or dulling in luster by dipping the parts in Fuller-O'Brien's Nason brand Acry-Oear #426-00 Acrylic Urethane clear lacquer. This is a two part lacquer; a catalyst is added just before dipping, and the clear micro-thin coating cures to a solvent proof, hard and tough protective layer. This two-part lacquer is available from shops selling automotive paints and restoration products. Vibrator-tumbler polishers and Tufnut are available from shops selling ammunition reloading supplies. It will be necessary to remove reddish colored polish residues with hot soapy water before putting the box in use. The nice thing about this kind of polisher is that you can place an entire assembly enclosure, electronic parts, printer circuits and all in the polisher. Delicate parts will not be damaged.

In place of a vibrator type polisher, you can substitute a Dremel tool with a 1/2' or 1' OD soft felt polishing cylinder loaded with rouge polishing compound. If using a Dremel tool is new to you, I urge you to practice first on scrap pieces of brass. It takes some getting used to polishing metal with a Dremel setup. Dremel tools and all accessories are available from numerous sources; try hobby shops first. The best one in the entire Seattle area in my opinion is Websters' Hobby Shop (ref 2).

Other Finishing Touches. In place of a polished surface you may prefer to paint the metal instead. This is very easy to do, and I like to paint enclosure covers of brass parts that are handled and tarnish with age and use. An epoxy based spray enamel is ideal for this, and the kind used for painting appliances works fine. This enamel is hard, tough, solvent resistant and oil proof and available

*(Continued on page 4)*

(Continued from page 3)

from the paint department at your local hardware store.

Using Sheet Aluminum In Radio Work: Anytime we read or hear the word, aluminum, it automatically brings to mind radio chassis and the usual project boxes. We all know that aluminum is a lightweight metal, and as a thin material bends easily, is readily shaped, and I won't go further with this. But there is one property of aluminum that sets it apart from all other metals. All surfaces, even those freshly made, quickly react with oxygen (in the air) and become coated with a thin, invisible layer of refractory aluminum oxide. Refractory coatings are very hard and chemically inert. An example of refractory aluminum oxide found in nature is the mineral sapphire—a very hard substance. Synthetic sapphire is the common white abrasive material used in making grinding wheels.

Soldering Aluminum: In order to solder aluminum, a very aggressive flux together with special alloy solders must be used. Only those fluxes that can penetrate the oxide layer on aluminum are satisfactory; these are often included inside the solder as a flux core as in WELCO COR-AL or separately as a paste with ALSOLDER 500, both products of the J. W. Harris Co. and sold through dealers such as Central Welding Supply (see ref 2). An aluminum solder in rod form is available as Bernz-O-Matic Model AL-3 4043 Aluminum Soldering Rod available from outlets selling this brand. Lowels in Seattle is one source. And for readers who really want a challenge, try aluminum brazing using AL-BRAZE 1070 available from Central Welding Supply. In my opinion, however, that brazing aluminum should not be attempted unless you are very skilled indeed...otherwise you'll end up chucking your work in the garbage can.

Typical lead-tin solders for brass could be used as solders for aluminum were it not for the fact that aluminum lies high on the electromotive scale for the metals. With tin-lead, a potential of about 1.53 volts exists between aluminum and the solder, an intolerable situation because it results in galvanic action that soon destroys the joint. Most alloy solders for aluminum consist of zinc, magnesium and aluminum and exhibit an electromotive potential close to that for aluminum. By now you must have concluded that soldering aluminum is difficult. Indeed, it is, for in addition to solder/flux problems, there is also the matter of soldering temperature. All solders for aluminum melt at temperatures considerably higher than those for brass. Couple this with the extremely high heat transfer for aluminum and this makes maintaining the proper soldering temperature very tricky. Not enough heat and the solder crumbles and scatters about only to melt eventually into little puddles. Too much heat and the molten solder oxidizes. Oxidation arrests solder flow and prevents solder from traveling along a solder line. At best the solder line is lumpy, spotty, often weak and more often

than not, looks just awful.

Appearance of the solder joint may not be a concern if all you want to do is solder in aluminum screws in order to prevent them from loosening when constructing a beam antenna from aluminum tubing for example. Nor is it a problem when you want to replace stripped threads in an aluminum part. You achieve the latter by heating the part to the melting point of the solder and filling the hole with melted material, then re-drilling and rethreading the hole. But if you desire to make small metal boxes like those described above in brass, forget it. Aluminum cannot be soldered with the ease and perfection that brass can and making assemblies like those shown is simply out of reach.

Other Problems With Aluminum: There is another property of aluminum, a non-solder property, that impedes certain machining operations, and easily sidestepped. Aluminum is called a long chip metal. This means simply that when the metal is drilled for instance, the cuttings (or chips if you prefer) tend to be long and stringy. Because aluminum is also a soft metal, the chips have a great tendency to adhere to the drill, filling up the flutes resulting in friction and build up of heat. The cuttings rub against the hole wall and this results in a rough surface. There is an easy fix to all of this. In order to prevent chip buildup or loading, ...use a cutting lubricant, but not just any lubricant. Use one of the modern environmentally friendly, biodegradable kinds. These modern liquid products are of low odor, non-objectionable in smell, and non-toxic. My favorite is Tapmatic Natural Cutting Fluid, a light green liquid prepared from purified natural fatty acids, and available locally from Cutting Tool Control Co (see ref 2). Fill a squirt type oil can with the fluid and squirt a few drops into the hole from time to time as it is being drilled and you'll obtain a hole with smooth, polished walls.

Despite Certain Shortcomings. Aluminum Provides Beautiful Enclosures: An example of an all-aluminum enclosure for electronics instrumentation (Multipurpose Instrumentation Tester by Doug deMaw [ref 1]), shown under construction, is seen in Fig 14. I formed the front panel from 0.03" thick sheet aluminum and attached this to 1/8" thick aluminum end panels by means of brackets, screws and Black Max . The front panel is spray painted with Red Devil brand Ultra High Gloss Appliance Epoxy from Fred Meyer.

Quite frequently aluminum enclosures are built up "Erector Set" fashion without soldering or welding from aluminum angles, U's, Tees and a myriad other shapes now available for this purpose. An example of my work is shown in Fig 15. This is an electro analytical flow-through detector, under construction, that I built and used in my research on detecting reactive DNA damaging organic metabolites in living systems exposed to certain carcino-

genic substances in polluted environments. I printed the front panel by photomechanical screen process printing. Don't overlook recycling old aluminum cabinets.

I have 15 Heathkit power supplies used in microbiological research that were placed in damp cold rooms when in use. As the years passed, dampness completely destroyed the "innards" and made repairs impossible. However not all was lost.. The rear panels have three small openings in them and the rear panels can be swapped directly for the front panels. Using a rear panel, I made a cut-out and mounted a panel meter where the three small holes were located and used the remainder of the panel to mount the rest of the controls. I used this assembly (Fig 16) to house the electronics for Doug deMaw's " A Tester For Crystal F, Q and R" (Ref 1). '



Fig 14



Fig 15

This concludes my presentation on making and joining thin metal parts. None of the methods I covered are earth shattering in nature, but they do work, and I

encourage you to use them. Although my formal training is that of an organic chemist and molecular biologist, I've managed to squeeze in some 50+ years of metalworking experience along the way. I have published about 50 articles on various aspects of metalworking in the Home Shop Machinist, Projects in Metal and Live Steam magazines and in Home Shop Machinist books. If you have a n y q u e s - t i o n s / c o m - m e n t s i n g - c o n c e r n i n g t h i s a r t i c l e o r



alworking in general, give me a call. My phone number is 206 542 3572 and my E-mail is Roubalstuff@aol.com.

*(References made in this article and the previous installments may be found elsewhere in the Relay. My thanks to Dr Roubal for his efforts and for teaching me something new and useful! Where were you when I was flunking metal shop? —Ed)*

## Fleamarket Committee Update

**Submitted by Michael, N7WA**

The last meeting for the 2003 Fleamarket was held at the Salvation Army HQ on February 4th, at 7:30PM. Committee heads in attendance: Facilities, Security, Registration, Publicity, Announcing, Hospitality, Country Store, and VE.

Major points:

- Fire permits applied for
- Insurance certificate in hand
- All pre-payments in, funding is secure and sufficient
- Programs: PSK31, APRS, and Stealth Antennas
- worker signup is deficient in registration/traffic, ticket sellers. Need to emphasize signups in those areas for February.
- Jack Grimmet to run the "Gator". Need one additional

person

- Tables sales about 75% sold out.
- Security is being revamped, no longer use the Explorer Scouts, going to rent professional security and emphasize security out at the ticket booths.
- Tickets and hand stamps ready
- post event dinner to be scheduled at usual place—\$12 cost per person this year.
- Country Store will be experimenting with a specialty basket raffle as an additional fund raiser.
- Badges for workers that have already signed up will be available at February meeting. All others on site.

At this point, all looks well to go. We still need workers. Final points to be made at February Club meeting. Hope everyone realizes this is the Club's "Bread and Butter" and the reason we can get away with dues that don't even cover the cost of running this Club. Go Team!

## Spring Awards Banquet

By Dave, KB7PSN



It is that time of year again. On March 29, 2003, we will hold our annual event down at Barnaby's Steak and Ale Restaurant in Tukwila. Barnaby's is located at the intersection of Interurban Ave West Valley Hwy) and Strander Blvd in Tukwila, 16401 W Valley Hwy (a map and driving instructions are included at the Mike and Key web site under the "Club Events" tab (<http://www.mikeandkey.com/banquet.htm>).

A No-Host Social starts at about 5:00 PM, and the dinner starts at 6:00 PM. Due to size limitations at the

restaurant we have a seating limitation of 70 people. The main dishes are Prime Rib, New York Steak, Marinated Chicken, King Salmon, or Vegetable Fettuccini Alfredo. There is also a 29 item salad bar, and coffee, tea, or milk.

After the banquet we will traditional installation of officers and awards program. As with previous years' activities, this year we will recognize our newly elected officers and hand out many club awards and door prizes.

I will be around at the February and March club meetings to take your \$16/person reservation. Please reserve early to guarantee this price as it will be \$20/person at the door. *(If there is any room left—ed.)*

If you have any questions or need any further information, feel free to contact me at 425-235-5095. Looking forward to seeing you there! We're destined to have fun...

## Mike and Key ARC General Account Audit

January 18, 2003

From: Audit Committee

To: Mike and Key Amateur Radio Club

Subject: Audit for fiscal year 2002

On January 18, 2003, the listed members conducted an audit of the Club's financial records for the purpose of preparing this report.

### REVENUE

Revenue was traced from receipt records, club meetings, fleamarket, etc., through recording and deposit. In addition a review was made of the monthly bank reconciliation's and the timing of deposits. No discrepancies were noted.

### EXPENDITURES

In reviewing expenditures and associated disbursements we took a monthly sampling of invoices and requests for reimbursements. In each case the items were confirmed for authorization. No discrepancies were noted.

### COMMENTS

It is the opinion of the undersigned that the financial records of the Mike and Key Amateur Radio Club represent a fairly accurate record of cash receipts, disbursements, and deposits for the fiscal year 2002.

Signed by Members of the Audit Committee

Sam Sullivan, N7RHE (Chair); Nils Hallstrom, W7RUJ; Carolyn Pasquier, WV7Q; Barry Wolborsky, KC7YB (Trustee); Dick Radford, WA7NIW (Trustee)

*(Your editor messed up again last month and left a couple articles out. Here is one from our most southern-most member— ed)*

## MY PLAN FOR 2003

Submitted by de Fred, W6TKV

Many people make New Year's resolutions. It's certainly a worthy concept, however, one that is most often doomed to fizzle out after a few days. I used to make these resolutions, but I wised up in my late teens and, since then, have been able to consider world matters instead of dreaming up New Year resolutions. Actually, while I consider world problems, but haven't made any difference there either.

Nowadays, I spend my time planning my contest schedule. There are many contests, and I like about half of them - the SSB ones most. I do, however, participate in the ARRL CW Sweepstakes - but that's all the fault of a friend, Dick-N6XUC. He's the one who got me anxious

about CW a decade ago when he suggested a CW contest in our local southern California club - I increased my CW QSO total that month from a 39-year career total of 50 QSOs to 235 because I felt obliged to try and beat him - so my current involvement with CW isn't my fault, it's all Dick's doing. Now, each year I enter the ARRL CW Sweepstakes and end up with 200 to 400 QSOs.

My personal contest schedule looks something like this: **January** - North American QSO Party, **March** - ARRL International DX Contest/CQ WPX Contest, **July** - IARU HF Championship, **October** - California QSO Party/CQ World Wide Contest, **November** - ARRL CW Sweepstakes/ARRL SSB Sweepstakes.

Of these contests, my favorite is the California QSO Party because that's when the world chases California stations. It's the 6-landers time to be the center of attention. My best results in CQP was 1,606 QSOs and all 58 multipliers - (50 U.S. states and 8 Canadian

provinces). That set a new record in Riverside County which has since been surpassed - but I still have an award hanging on my wall that says I did good.

Contesting makes one a better operator and there are many who are a lot better at it than I am, but that doesn't bother me at all. I'm just glad to know them and admire how quick and efficient they are while I plod along. One big advantage I have over the guys who are really outstanding contesters is I have much more room for improvement than they do. That gives me an edge on them.

I don't want you to think that I enter all of the contests because I don't. There are several contests each and every weekend of the year. Many are SSB, many are CW, many are RTTY and many are a mix of modes. The ones I like, I like more than the others. If I get on the air and find a contest underway, I figure out the exchange and then just jump in for a while. I may just work 10-15 stations, or I may hang around and work a 100 or so. These are my "casual contests". The ones I listed are my "serious contests". The differences between casual and serious seem to be the time spent, knowing the name of the contest, logging on the computer and sending in my log.

Contesting may not be for every ham in the United States, but it sure seems like it is when you turn on your radio during CQP only to discover you can't find a place to call CQ, and then when you finally do, the first guy to respond says something like, "You're #12 Colorado." Hey - contests are a way to work states you might need for WAS or countries you might need for DXCC. Contesting offers something for everyone - even the guy who answers my call, "CQ Cal QSO Party W6TKV" with "I'm not in the contest but I just called to give you a point." My response to him is, "You're in the contest now!"

So, my plan for 2003 is to work all the contests I can, especially the ones I like. I won't get mad if you don't get on during a contest, but I sure will be happier if I hear you during one and if you give me a contact for another few points in my score.

I just bought a Digital Voice Keyer, so when you hear me calling CQ it may be this gadget and not me. It sounds like me - or at least, I think it does. I got it as a part of my new program on spending less money on ham radio. Now, I don't have to buy throat lozenges - and with the every increasing cost of medications, I'm feel I'm going to save some serious money.

**Again, this month too, I am Baaaccckkk** Submitted by Jan K7YH

Time; how it doth fly, and I have been thinking about it quite a lot lately. You too may contemplate time, as it does exist. And you can prove the theory. Simply look at your watch, or a clock and observe the second hand. Each second that passes is lost to history! It cannot be relived, duplicated yes, relived no.



*POIT* - a day without sunshine is like, well, night.

Time and the measurement of it, is a prime consideration to you as an amateur radio operator. Measuring time is a major factor in the accurate measurement of frequency. You will be surprised to learn all of the implications involved in the measurement of time. As a radio operator you may use a universally accepted method of time measuring, GMT, Greenwich Mean Time, another is UTC, not to be confused with GMT which is its basis, UTC is far more accurate, and is based right here in the good ol' USA.

*P\** Oops, got lost in thought there, and that is unfamiliar territory!

In Fort Collins Colorado is a place where the National Institute Of Standards and Technology has its time measuring and broadcasting system. I know you have all tuned to WWV on 2.5, 5, 15, and 20 KHz to check your station clock, but you also use it to gauge what propagation is

doing. At 17 minutes after the hour the station broadcasts the daily solar indices; solar flux at 10Mhz, A index and K index. Now we could discuss WWV and its subordinate stations and attributes for several pages, so lets cut it down. When you are on the Internet, go to your search engine, and type NIST. That will bring up a choices page. Select National Institute of Standards and Technology. That will take you to the home page for NIST, and I recommend you do this when you have a little time to read, as you will become thoroughly engrossed in the material, I did and do.

*P\** You must realize of course, that everyone has a photographic memory; some just do not have film!

*Tempus fugit* We have again orbited the star Sol, and approach several great events in the club, as we do every year at this stage in our orbit around Sol. Of course I am speaking of the annual Mike and Key Flea Market. I have it on good authority that the weather is going to be good. We may anticipate that as many as *P\** three out of four licensed hams may attend, and that's 75% of the hams in Washington. Wouldn't it be nice? You just have to remember *P\** you cannot have everything, where would you put it? And if you start out with nothing, in the end you will still have most of it! And now I have changed my goals, I started out looking for that proverbial blind, deaf and dumb millionairess, that owned a chain of liquor stores. As I approach my Birthday...again, I am still looking for her, but if she has a chain of funeral parlors that would be great!!!!

*P\** He who laughs last.....thinks slowest!



So, the second club event is the Annual Elections coming up in March, followed by the Annual Awards Banquet! I have said it before, and I will say it again, please nominate and elect predicated on who will perform their jobs to the best of their ability, and benefit to the club. Many of the key positions in the club are open for a number of reasons, so over the next two meetings you are faced with some major considerations. Good Luck and remember

*P\** You have the right to remain silent. Anything you say will likely be misquoted, and then used against you! I can certainly attest to that.

## Communications Academy 2003

March 22-23, 2003

Shoreline Conference Center, Shoreline, Washington

Check back at [www.CommAcademy.org](http://www.CommAcademy.org)

Past keynote speakers have been Ross Merlin, WA2WDT, from US Public Health Service - Telecommunications, and Jerry Wellman, W7SAR, from World Radio Magazine. Online Registration will be available here for Academy 2003 about mid-February 2003.

For additional information or questions, or to request a mailed registration form, contact program chair Marina Zuetell, N7LSL at [N7LSL@ARRL.NET](mailto:N7LSL@ARRL.NET).

Send your ideas for speakers, workshops, presentations to [N7LSL@ARRL.NET](mailto:N7LSL@ARRL.NET)



By Jo, KB7UFM

Are you irritable with your family and friends? Having trouble sleeping? Eating habits gone to the devil? Well, here's something else to really make you snap at loved

ones and friends. All you have to do is go to the Post office and request International Response Coupons (aka IRC's) and you will soon realize why some folks have bowel problems!

The postal clerk is supposed to know ALL about IRC's including the rules and regulations concerning said IRC'. Very strange things happen right in front of your face. Eyes narrow, cheeks get red and you, the customer are treated as a definite threat to the security of the clerk if not the nation!

You just might be a threat when this same postal clerk doesn't know which square to stamp the verification date on. After our Postal friends Steve and Jo called four separate Post Offices to find out the answer and were given another number to call, they were given the answer, "I dunno".

After forty minutes of this, they found someone who actually knew (I hope) where to put the validation stamp. IT GOES ON THE LEFT SIDE (they thought). The coupon is marked U.S. \$1.75. The new IRC's are larger than the older ones and colored blue. Shirley Temple is even pictured on them though why I don't know.

Ah!, for the good old days when the postal clerk could look for information in his trusty Postal Rules and Regulation book that is about six inches thick. In this Relay Nils--W7RUJ will tell you about the other benefits of Philips Milk of Magnesia. I'm not kidding!

## **ONE OF THE TWO MOST IMPORTANT MEETINGS OF THE YEAR!**

Submitted by Barry KC7YB

The next general meeting is one of the two most important meetings of the year (the other being the election meeting in March). The February meeting is your chance to nominate club officers and this year there are many openings. Additionally, this is the last meeting before the Flea Market and many committees still need help. The Flea Market is what funds this club, dues do not even begin to cover our expenses. Without the Flea Market we would either have to discontinue most of our activities or raise dues 300% to 400% of what they are.

If you enjoy participating in ANY of the club activities then get out and support the Flea Market with your time.

Lastly the next Public Service Committee meeting will see the final draft of the public service booklet. It will also be our time to plan projects for our next years activities. Please come and join us for good food, good company and good service to the club. We meet at the Yankee Grill in the Holiday Inn, Renton. It is located at Grady Way and Rainier. We usually get together at about 12:15. Hope to see you all at the next meeting.



*(A personal note from the Secretary: I'd like to forewarn you that there's very sad news in this month's board meeting minutes. Jo Hallstrom (KB7UFM), our Vice President, has terminal lung cancer. Her prognosis is 6 months to a year. She'll be on chemotherapy, and is resigning her position as Vice President. What I didn't put in the minutes was the grace and strength that Jo and Nils showed when she told us about it. We all gave Jo and Nils our best wishes. They'll be in our thoughts and prayers.)*

## General Meeting Minutes, 01/18/2003

### Officers present:

President – Jack Grimmert (N7IHS);  
Vice President – Jo Hallstrom (KB7UFM);  
Secretary – Kim Wolborsky (KD7FYD);  
Treasurer - Jack Burrell (N7ZS);  
Activity Manager & Relay Editor – Mike Dinkelman (N7WA);  
Radio Officer - Ken Rau (K7YR)

### Trustees Present:

Trustee #1 & COB– Brendan Burget (KD7IKV);  
Trustee #2 – Barry Wolborsky (KC7YB);  
Trustee #3 – Steve Cook (KD7IQL);  
Trustee #4 – Dick Radford (WA7NIW);  
Trustee #5 – Alan Hughes (KB7SVU);

The meeting was called to order at 10:00 AM with all members and guests repeating the Pledge of Allegiance at the Salvation Army Building in Renton. Introductions of members and guests were made. The President made announcements regarding taking breaks on the west side of the building at the request of Salvation Army. The coffee and donut fund is self-supporting. We are an affiliated club are encourage to join and support the ARRL. Please sign the rosters at the table. Visitors are asked to refrain from voting on club matters requiring a vote.

**Minutes:** It was moved by Brendan and seconded by Jim to approve the minutes of the previous meeting as printed in the Relay. The motion was approved.

### Officer Reports

**President:** Jack (N7IHS): The Audit committee will be meeting quickly directly after this meeting. Sam will chair the audit committee next year.

Mike Dinkelman has volunteered to chair the technical committee.

Jo has been awarded the DCXCC100 Award, and has applied for 15 meters. Has 75 endorsements. There are 385 countries, she has 220.

**Vice President:** Jo (KB7UFM): We have a quorum. Brian Lepke, Art Tiller, are new members not present.

**Secretary:** Kim (KD7FYD): Has two copies of the "Logger's Bark"

**Treasurer:** Jim (KD7BAT): We are solvent. We closed out the year with 42,587 total wealth. 204.02 profit for the year. Good since we budgeted to be \$3000.00 lower. Switching over to QuickBooks. He bought it, would like to be reimbursed at the next board meeting.

**Activity Manage & Relay:** Mike (N7WA): Today's program by Terry Dettman. The topic will be antenna couplers and stealth antennas, etc. Next relay deadline Feb. 7, flea market meeting Feb. 4. Please sign up for the flea market. Hope you have March 7<sup>th</sup> & 8<sup>th</sup> blocked out to come work. So far only 48 people are signed up, we need at least 100.

**Radio Officer:** Ken Rau (K7YR) It has been difficult to schedule trips up to the mountain. Has been impossible to get up there. So Ken is soliciting other site owners for space, has had offers. Ken is looking at the options now. Also there has been a lot of other RF up there.

**Chairman of the Board:** Brendan (KD7IKV) Attend the board meeting on the 29<sup>th</sup>. Who has the hot pink antenna analyzer? Ted returned it at the last meeting, and it is now missing. Please call your friends and see if they have it, it's our last one.

### Standing Committee Reports

Those committees not reporting in the RELAY are asked to report before the General Membership.

**Facilities:** Steve Cook (KD7IQL):

**Strategic Planning:** Carolyn (WV7Q): We are still looking for new people, meeting in this room at 9:00 before the next GM. Have some exciting new ideas.

**Technical:** No report

**Public Service Committee:** Barry (KC7YB): Please join us at the Holiday inn at the yankee grill at 12:15. Today we finalize the 2003 book, big decisions today.

**Education:** Mitch (K7TUT):

**Picnic:** Dawn Humphrey (KC7YYB):

**Field Day:** Brendan (KD7IKV): Filling in for Steve Cook. Still looking for chairmen for Get on the Air (GOTA) station, need an extra class. VHF, 6 and 2 meters: Would like a technician to handle this, since that class can manage these frequencies. Looking for ideas for non-ham activities for wives, husbands, and children.

**Awards:** Dave. March 29<sup>th</sup> at Barnaby's at 6:00 pm. \$16.00/person, signup sheets starting next month. We'll be in a bigger room than last year. There is a limit of 70 people.

**Public Service Events:** Gary (KG7KU): Public Service net: Thursday evenings at 7:30 PM on 146.82. For information please see [www.mikeandkey.com/pubserve.htm](http://www.mikeandkey.com/pubserve.htm) or call Gary at 253-661-7882. Gene w7aka 23<sup>rd</sup> Feb Chilly Hilly bike ride. If you need Gene's number contact Gary.

**Alligator Award:** Calvin): Please get on the air,

he had to buy Christmas presents for the alligator this year. Jack presented Calvin with a hat from Hotpress that says 'Repeater Eater', Mike & Key club. The timer is 90 seconds.

From Jack: The alligator award is presented to the club member who is caught timing out the repeater. Is supposed to be a rotating award. Some members hold on to it longer than others.

### Old Business

None

### New Business

Nils makes a motion that the membership (subject to approval by the board), reimburse the treasurer for the purchase of QuickBooks. Seconded by Sam. Motion carries.

Jim: Write to your congressman about bill 4720. There will be a new number for the bill this year. Be sure to get behind it. If there is a disaster, we will have the authority to put in towers regardless of CC&Rs (covenants, codes & restrictions). We know the state of Washington is a disaster area. The new number will be out soon.

June: David Lee hasn't been here because he's been at Valley Medical all the time with his mother who is terminally ill. It would be nice if people could visit, and possibly take him out.

Bill: He is a prime example of 4720. He is in a restricted area, but has to have his HF set up in his motor home with a vertical. Planning to join ARES and RACES. Not as many active hams in Marysville/Snohomish area. 4720 would have made it so owners would have to reasonably negotiate with hams to let them put up antennas.

### Good of the Order

There being no further business Barry (KC7YB) moved to adjourn and Brendan (KD7IKV) seconded the motion, Jack (N7IHS) closed the meeting at 10:40 AM.

Attested: Kim Wolborsky, KD7FYD, Secretary

## Board Meeting Minutes, 01/29/2003

**Officers present:** President Jack Grimmert (N7IHS); Vice President – Jo Hallstrom (KB7UFM); Secretary – Kim Wolborsky (KD7FYD); Treasurer – Jack Burrell (N7ZS); Activity Manager – Mike Dinkelman (N7WA); Radio Officer – Ken Rau (K7YR).

**Trustees Present:** Trustee #1 & COB – Brendan Burget (KD7IKV); Trustee #2 - Barry Wolborsky (KC7YB); Trustee #3 – Steve Cook (KD7IQL); Trustee #4 -; Trustee #4 – Dick Radford (); Trustee #5 – Alan Hughes (KB7SVU).

### Visitors:

Dan Humphrey (N7QHC), Nils Hallstrom (W7RUJ)

The Chairman called the meeting to order at 7:19.

Motion made by Barry (KC7YB) to approve the minutes as amended and seconded by Nils

(W7RUJ). The motion passes.

**Officer Reports**

**COB:** Brendan Burget (KD7IKV): Nothing to report.

**President:** Jack Grimmer (N7IHS): Will report under new business.

**Vice President:** Jo Hallstrom (KB7UFM): Jo has terminal lung cancer. Her prognosis is 6 months to a year. She will be on chemotherapy, and is resigning her position as vice president. Jack, seconded, all in favor. The motion passed.

**Memberships:** 6 applications. Timothy Carstens, no call yet. Passed. Family membership for Peter (KD7SEC) tech, Caleb (KD7SEG), and Ian Dougherty (KD7SEF). All passed in separate votes. Perry (Bing) Clisbee, KG7SF, Extra class. Passed. Thomas Grate, General, software engineer. KD7SCC. Passed.

**Secretary:** Kim Wolborsky (KD7FYD): nothing to report.

**Treasurer:** Jim Etwiler (KD7BAT): Doing ok. One question, does anybody know why we have a savings account? No one at the meeting knew.

**Activities Manager:** Mike Dinkelman (N7WA): Relay deadline is the 7<sup>th</sup>. Dave Smith KB7PSN will be the banquet chair. Has accepted the technical committee, hopes to have a presentation next meeting based on the 'Hands on Radio' series in QST. Asked Brendan to look at a projector. Brendan thinks we can get an average one for about \$2000. Flea market meeting is next Tuesday.

**Radio Officer:** Ken Rau (K7YR): Flea market operating frequencies: He has some suggestions for frequencies we can use, has sent them to Barry, suggests Barry listen to them and make sure we can't hear anything. Barry will do so.

Looking at moving the repeater. Has been unable to arrange a mutual time to meet the current technician. Green Mountain, Gold Mountain, Tiger Mountain, Rattlesnake Mountain. Leaning toward Rattlesnake, quiet site, works reasonably well. Downtown may be a bit of a challenge but

not too much. Still open and looking for other sites. Hoping to make the move sometime between February and April.

Alan may start taking care of a site south of Orting, about \$20 to \$25/month. This is probably too far south for us, but Ken is open.

Ken is planning on retiring at the end of the year and moving to Chelan. Not resigning now, but just making the Board aware of his plans. He'd like to continue on as radio officer for as long as it works. He is open to helping train qualified extras who are interested in being radio officer.

**Committees Liaison Reports**

**Technical:** Mike Dinkelman (N7WA): Gave report earlier.

**Public Service:** Brendan Burget (KD7IKV): Gave Jack a check for another full-page ad for ALF enterprises. Have two full-page ads, one-quarter page ad sold.

**Education:** Steve Cook (KD7IQL): No report. Barry noted that the Renton EOC is putting on a class in Renton in March. He will send the information to the board.

**Strategic Planning:** Barry Wolborsky (KC7YB): They had a meeting, noted that the liaison can't be Jack, has to be a trustee. Barry will have to resign as trustee #2 at the end of the year. His work situation has changed and he can't be available Wednesday evenings.

**Facilities:** Steve Cook (KD7IQL): The small pink box was not lost. It was at Steve's house because at one meeting they couldn't get into the closet. Steve wasn't at the meeting to announce that. He's planning to have the cabinet lock replaced at the next meeting, and redistribute the keys. There will be a form filled out by those who have keys.

**Field Day:** Steve Cook (KD7IQL): Needs a co-chair for the VHF/UHF. Mike Eakins (K7OV) has confirmed that he wants to do the GOTA station. Ken says Rick is interested in doing the 220 contact on Microwave. Band chairman are ok, need to make a few inquiries on tents and trailers. We're in good shape.

Mike noted that there is now a \$5 day use permit for those using National parks. Those who are camped there have paid, how do the rangers know who is paid? Jack Burrell will look into it.

**Banquet:** Dave Smith (KB7PSN) March 29, Saturday. Happy hour at 5, meal at 6 at Barnaby's in Tukwila, meals almost the same as last year. Dave will have an article on this in the Relay. \$16/per person advance, \$20 at door. Sign up sheets will be available. Can take up to 70 people. Will be in the large room. Looking for suggestions for MC.

**Logo Committee :** Dan Humphrey (N7QHC): Nothing new to report. From Jo: someone told her they remembered that you used to get your badge for free. The board replied no, it was never was that way.

**Old Business**  
None.

**New Business**

Jo recommended that Nils replace her as vice president for the next month until elections. Nils has been vice president before for 2 years. Jack appointed Nils to serve out Jo's unexpired term. Offered a motion that the board confirmed. Barry seconded. Motion passed.

Jack Burrell: Expired members need to be dropped after 60 days. Jack Grimmer checked the bylaws and confirmed this. Board agreed that Jack should drop expired members.

Nils: Good of the order: Jo and Nils have been long-term participants in the flea market. They probably won't be there this year. They are hoping to participate in field day. Nils will have a report on the repeater site on Rattlesnake for next board meeting.

There being no further business a motion by Barry seconded by Jack Burrell to adjourn was made, and the chairman closed the meeting at 8:34.

Attested: Kim Wolborsky, KD7FYD, Secretary

**Meet your Logo Committee - Part II**

**Sonrise, KC7YYB.**

Dan N7QHC, became interested in a friend's enterprise of engraving and hot stamping. Dawn KC7YYB, his wife, had met a former Marine at the local VA Hospital, where she was a volunteer and introduced them and the rest is history.

Since the pantograph engraver is in effect a router, Dan had no difficulty picking up the techniques in using a template and learning how to set up the system to get the sizes needed to fit a given space. Dan is a woodworker by trade. Two years prior to becoming the club's badge supplier, he and Dawn had convinced Shorty (the Marine) that they could take his equipment to the Mike and

Key and other local hamfests and make badges for whoever needed/wanted them.

Shorty was not a well man, and soon discovered that the pressures of hamfests was more than he could handle. He liked working alone, filling orders at night when he had difficulty sleeping. So, shortly after fouling up the first two orders, he conceded to let Dan take over.

Shorty never had gotten a business license, so the first thing they did to cover them all, was to choose a name and apply for the license... Introducing TopHat Novelties/Engraving D&D Humphrey. Proprietors. With Shorty's equipment, they partnered with him until he died, just short one of the Mike & Key shows.

His son, unfamiliar with their unwritten partnership, dis-

posed of the equipment, leaving them less than a week to try to secure a machine in order to get set up for the show. Their material supplier, also a broker for used machines had one similar to Shorty's which he rented to them for the show. After that they answered an ad in WorldRadio and purchased their present machine from an Ohio ham who'd worked Dayton for years, but then had a stroke and could no longer keep up the business.

It was a pretty big chunk of cash to lay out, especially with the shipping! Those machines aren't light!!! He tossed in templates, and materials and many things they didn't think they'd need but have found a use for after all, as they've grown with the business. After two years of engraving at the shows, they approached the board to see if they could facilitate quicker service with Portland. The board gave their blessing and they made contact with the engraver after much trying, since he was having personal problems and was hardly ever at his shop. They made ar-

rangements to buy not only the Mike & Key template, but the Radio Club of Tacoma's too. That was the beginning of a pleasant arrangement with both clubs. Mike and Key had been using the engraver in Portland who required a minimum of ten orders before he'd work to supply what was needed, so unless there were enough people wanting a badge in order to send in an order, the first person on the list sometimes would have to wait as long as six months or so before getting their order, thereby tying up their prepaid money for that long. Now, neither club will need to wait any longer than 1 month before getting their new badge. And, if arranged beforehand they can make sure a badge is delivered sooner, like for a surprise presentation, or something. "We like to be a part of surprises!"

So there you have it. A bit of an insight into your "Logo Committee" and where they've come from and plan to be in the coming years. . . AT YOUR SERVICE!!!

### Public Service Committee minutes 1/18/03

Meeting called to order by Barry. In attendance: Dawn, Dan, Brendan, Barry, Kim, Jim, Pam, Gary, Carolyn, Dick, and Terry.

#### Old Business:

Status of the packet is that it's still in Brendan's hands and nothing is happening.

Status of the interest survey is that it's still in Dick's computer and nothing is happening at the present time. Additional questions will be added to determine interests and areas of expertise. Name to be changed to Public Service Committee's Ham Radio Interest Survey.

#### New Business:

Barry read a letter from the people organizing the MS walk in Belfair on April 5th. We should contact the organizer and tell him that we can add this to the list of events in our book.

#### Booklet discussion:

We currently have one and three quarters pages that are empty. We currently have two pages of emergency information, and this could be reduced to one. There is also a three quarter page that is blank due to only one ad being on it. By reducing the booklet by four pages, we save two hundred and fifty dollars. Terry had another suggestion for an ad that could come from promoting the Emergency Communications Course. Discussion as to whether we should include a listing of area li-

censing classes. Suggestion was made that we make a notation in the booklet indicating the area clubs that offer classes in next year's booklet.

#### List of items that we will definitely keep for the book:

- Morse code was considered recommended, but not mandatory
- Net list, mandatory one page
- Repeater list, mandatory one page
- How to become a ham, recommended
- Field day, recommended First Alternate
- Hamfests, mandatory one page
- Public service events, mandatory two pages
- Radio exams, mandatory one page
- Club contacts, mandatory two pages
- Emergency plan, low level recommendation
- Amateur's code, not recommended
- Glossary, recommended
- Mike and Key ad, mandatory front and back covers, two pages
- Ads, mandatory, two and a quarter pages so far.

Brendan will take this information and design the book to take out four pages so that everything fits. Final proof will be available at the next meeting.

There was discussion of where would be the best place to get the booklet printed...again.... And the current printer has been the best so far and is giving us the job for the same price as last year. Meeting adjourned.

### 160M Contest Lesson

Submitted by Michael, N7WA

A couple of weeks ago, the CQWW 160M CW contest was being held. For this year's running, I built a short beverage (about 300 feet) and a preamp. Life has been busy lately so I just got the preamp running the night before. However, not enough time to put the Beverage and preamp in the rig's receive

antenna port so I hooked it up to the transmit antenna switchbox believing I could surely remember to switch it out before transmitting.

I actually managed to get to the second evening of the contest before I had burned out all my spare (3) transistors. It only takes a millisecond. It was a fun contest anyway—I even worked Australia with only a 100 watts.

## METAL ENCLOSURES AND OTHER DEVICES FOR ELECTRONICS FROM SHEET BRASS AND ALUMINUM

### I. Literature References

1. The Easy Way to Make PC Boards The Photopositive Method by William T. Roubal Popular Electronics 1976 Electronic Experimenters Handbook (Reprints are available from the author).
2. Multipurpose Instrumentation Amplifier / Tester, by Doug DeMaw, WIFB (SK) QST, June 1989
3. A Tester For Crystal F, Q and R by Doug DeMaw, WIFB (SK) QST, Jan 1990.

### II. Parts and supply sources

(Listed in the order of appearance)

#### Tacoma Screw Products

3930 Leary Way NW. , Seattle, WA 98107 206 632 7565

Layout dye, cutting fluids, your one stop source for nuts and bolts, threading taps and dies, hand tools, drills, drill rod and brass rod. (Call ahead)

#### Harbor Freight Tools

5231 Evergreen Way Everett, WA 98023 425 513 6213

Hand held deburring tools, vises and clamps Lots of hand and machine tools (Free catalog available)

#### Grizzly Industrial

1821 Valencia St. Bellingham, WA 98226 1 800 523 4777

High end hole saws, multipurpose sheet metal working tools, hundreds of other metal and woodworking machine tools (Free catalog available).

#### Enco, Inc.

400 Nevada Pacific Highway, Fernley, NY 89408 1 800 873 3626

Layout dye, scribes, cutting tools and machine tools of all kinds. (Free catalog available)

#### Cogsdill Tool Supply

1001 Guion Drive Lugoff, NC 29020 803 438-4000

Deburring Tools. Catalog available

#### Boeing Surplus Retail Store

2065 184th Ave. S. Kent, WA 425 393 4065

Deburring tools, drills, reamers, milling cutters, aluminum tubing, electronic components and instruments, rivets and a multitude of other items.

#### Micro Mark Co.

340 Snyder Ave,

Berkeley Heights, NJ 07922 1 800 225 1066

Small metal brakes (benders), and loads of small hand and power tools. (Free catalog available)

#### Loctite Henkel

R.S. Hughes Co. 6530 5th Place S. Seattle. WA 98108 206 767-4463

HYDROX-X/20 Wave soldering liquid flux, Black Max 380 instant adhesive (Free data sheets available for all products,.)

#### J. W. Harris Co.Inc

Cincinnati, OH 45242

Manufacturer of aluminum solders, fluxes, aluminum brazing and welding rod.

#### Central Welding Supply

5401 4th Ave. S. Seattle, WA 98108 206 766 9353

Solder, brazing rod and fluxes for aluminum. Bronze brazing rod (used in projects made from metal). (Call ahead)

#### Cutting Tool Control Co

1411 NW 51st St. Seattle, WA 98107 1 800 356 2416

Tapmatic Cutting Fluid, drills, reamers, milling cutters

(Call ahead) free samples sometimes available on cutting fluids

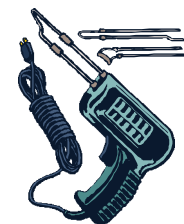
#### Webster's Hobby Shop

14032 Aurora Ave. N. Seattle, WA 98133 206 306 9914

Good source of sheet aluminum and brass, small diameter brass, aluminum, stainless steel and copper rod and tubing and other shapes as well.

## Technical Committee

Submitted by Michael, N7WA



The past number of years I have watched the Technical Committee from afar but way to busy to really participate. I have been disappointed in the general trend of our hobby that shows a declining lack of technical ability. These days, a "Quarter Century Appliance Operator Club" could easily be made a reality. With the termination of my role as Activity Manager, I hope to be able to put some time into making the Technical Committee a viable entity.

I have a specific view of the Committee and I don't know if it's going to jive with the "published" criteria. I hope to get a dedicated cadre of members that want to learn and teach about Amateur Radio.... and have fun doing

so. I'm not looking for experts but I am looking for self-starters and "do-ers".

In that vein, I'll be jumping straight into something, that I hope our members will find fun. Maybe you've noticed the new series started by Ward Silver N0AX in QST—"Hand's On Radio". I plan on following Ward's series with a live demonstration each month as long as there appears to be interest. The demonstration should be available prior to each Club meeting and members are welcome to come, play, and ask questions.

Later, if the Committee gels, we'll expand our activities into a wider arena of interest. Antenna's seem to be popular. So does software. The term "technical" can mean a lot of different things to different people. What really counts is that we expand our knowledge beyond that required to push a switch or attach a rubber ducky. I hope you'll join us and support us in this endeavor.

## Elections—ad naseum

Submitted by Michael, N7WA

If you've been keeping count, this is probably the fourth article to mention the upcoming election in this edition of the Relay. There is a reason for that.

At the last Board Meeting, I took a straw pool of the attending members. The following Board member terms are either expiring or will otherwise be vacant:

President, Vice President, Secretary, Treasurer, Activity Manager, 3 Trustee positions due to normal odd year expirations, 1 Trustee position due to lack of time. That leaves one Trustee and the Radio Officer staying on. It's unknown how many of the officers with expired terms will choose to run for another position but it didn't look like a stampede.

Some of you need to consider running.

## --- Annual Mike and Key Awards Banquet ---

--- Saturday, March 29, 2003 ---

Barnaby's Steak and Ale, 16401 W Valley Hwy, Tukwila, WA 98188-5527  
(just SW of the old Longacres track)

Phone: (425)251-8341

The No-Host Social starts at about 5:00 PM, and the dinner starts at 6:00 PM.

Choice of: Prime Rib, New York Steak, Marinated Chicken, King Salmon, or Vegetable Fettichini Alfredo.

All dinners include 29 item salad bar, and coffee, tea, or milk.

Dinners are \$16 each and limited to the first 70 to sign up.

Following the dinner there will be the traditional installation of officers and awards program.

There will be some very nice door prizes. There may even be the traditional "Roast" of one or more of the prominent members of the club (a few even deserve it). Considering past Banquets, do not miss the "Roast".

Please sign up before March 25 to guarantee \$16 (per person) price as price will be \$20 (perperson) at the door.

To sign up, please fill out the following information and deliver (with payment) to Dave Smith, KB7PSN :

Name \_\_\_\_\_  
 Callsign \_\_\_\_\_  
 Dinner Choice \_\_\_\_\_  
 Number of people attending \_\_\_\_\_  
 Total Price enclosed \_\_\_\_\_

**David Smith KB7PSN**  
**624 - SW Sunset Blvd**  
**Renton WA 98055**  
**425 235 50950**  
**kb7psn@yahoo.com**

The *RELAY* is the official tabloid of the Mike and Key Amateur Radio Club. The Mike and Key is dedicated to the growth and betterment of Amateur Radio. We meet the third Saturday of every month at the Salvation Army Renton HQ, 720 Tolbin St., near the SE corner of the Renton Airport. The Club operates repeaters on 146.22-146.82 (PL103.5), and 222.52-224.12 under the call K7LED. The Club mailing address is: POB 4234, Renton, WA 98057. All persons interested in Amateur Radio are invited to participate in the Mike and Key Amateur Radio Club and it's activities. Yearly dues are \$12 for individuals and \$18 for families.

## Club Contacts

<b>PRESIDENT</b>	Jack Grimmert	N7IHS	n7ihs@aol.com	425-271-7955
<b>VICE-PRESIDENT</b>	Jo Hallstrom	KB7UFM	nazj.hams@juno.com	206-242-8271
<b>SECRETARY</b>	Kim Wolborsky	KD7FYD	bwolb@attbi.com	425-271-5799
<b>TREASURER</b>	Jack Burrell	N7ZS	n7zs@aol.com	425-454-3617
<b>ACTIVITY MGR</b>	Michael Dinkelman	N7WA	mwdink@eskimo.com	253-631-3756
<b>RADIO OFFICER</b>	Ken Rau	K7YR	ken@foss.com	425-222-7711
<b>TRUSTEE #1(Cob)</b>	Brendan Burget	KD7IKV	kd7ikv@arrl.net	206-362-4807
<b>TRUSTEE #2</b>	Barry Wolborsky	KC7YB	bwolb@attbi.com	425-271-5799
<b>TRUSTEE #3</b>	Steven Cook	KD7IQL	kd7iql@arrl.net	206-781-2293
<b>TRUSTEE #4</b>	Dick Radford	WA7NIW	wa7niw@arrl.net	425-828-9791
<b>TRUSTEE #5</b>	Alan Hughes	KB7SVU	kb7svu@juno.com	253-840-4947
<b>WEBMASTER</b>	Jim Eztwiler	KD7BAT	kd7bat@arrl.net	206-633-1512
<b>Badges/Logo</b>	Dan Humphrey	N7QHC	n7qhc@juno.com	206-243-0163
<b>Chair Fleamarket</b>	Hal Goodell	N7NW	goodellh@gte.net	253-549-4178
<b>Annual Banquet</b>	Dave Smith	KB7PSN	kb7psn@yahoo.com	425-235-5095

# February-March 2003

Sun	Mon	Tue	Wed	Thu	Fri	Sat
9 RN	10	11	12	13 PSN	14 ARRL DX Contest CW	15 Club Meeting 10AM  ARRL DX Contest CW MKN
16 ARRL DX Contest CW  RN	17	18	19	20 PSN	21 CQWW 160M SSB	22 CQWW 160M SSB
23 RN	24	25	26 Board Meeting 7:15	27 PSN	28 ARRL DX SSB	1 ARRL DX SSB
2 ARRL DX SSB RN	3	4 DA	5	6 PSN	7 FleaMarket Setup  Relay Deadline	8 Flea Market
9 RN	10	11 DA	12	13 PSN	14	15

**RN – ARES Regional Net, 8PM, 146.82**

**PSN – Public Service Net, 7PM, 146.82**

**MKN – Mike & Key Net, 9:15AM, 146.82**

**Contests**

