SPARKS

Volume 9,No.5 MayJune1995

Next meeting of PARS will be Thursday, June15 at 7:30pm at the Puget Power Auditorium. The early-bird session begins at 7:OOpm: A basic DC electronics theory course given by Tom Grotte, WB7TEJ

SPARKS Delayed!

This issue of Sparks was delayed due to a computer problem. Thus we will be combining the May issue with the June issue. Sorry for any missed information this has caused, but sometimes these things just happen...

The next issue will be a July/August issue. We will be getting back to the normal schedule then as the summer comes to a close and life gets a little less hectic (Hopefully!)

We have included a short calendar of club happenings that you can remove and hang on your wall to remind you of important dates.

Presidents Corner

Spring has finally sprung here and the days are numbered with suitable rain and wind for amateurs to install their latest antenna projects. I hear things have been heating up on 6 and 2 metes in contrast to the now familiar chill of radio winter. Two big events have occurred and without any clear priority, I'll have to deal with them on a seniority basis. First I'm pleased to announce that Ben Bennett, N7IVM, has upgraded to Extra class. Any of you who know him can attest to his expertise in the RF field (pun intended) coming from his years of work experience and his natural inquisitiveness. Another milestone has been reached by Jim Von Seggern, KC7FEH. I recall that it wasn't too long ago that Jim first showed up at our meeting and explained to me that he had purchased a two meter handheld to encourage him to earn his first ham ticket I've heard him practicing CW with the Walking Tall group on 10 meters and it has paid off for him in the form of his General class upgrade. Congratulations are in order for you, Doctor General! I hope this is just the start of more club members following these fine examples and achieving their next class. Things are progressing on the QRP project, there are now three functional kits with two more on the way. We're finding this to be an easy beginning project that works great me fist time you plug it in. Jim Hossack has been going QRP mobile again and has now met the requirements for the thousand miles per watt award. Paper? Bahh! Jim's just having fun and reports he is now close to meeting that challenge with the Hamstick he mounted in his car. And finally, I've heard reports that Herschel Whiting, WS7K is trying to sell his Swan linear to one of us as an accessory to our QRP rigs. I guess that answers the age old question: what do you get the QRP'er who has everything?
73 DE KB7UUX

FCC data on Internet

The Federal Communications Commission is now offering the complete amateur service database on the Internet, via the FCC's file transfer protocol (ftp) site.

This new service marks the beginning of electronic granting of licenses at the FCC's Wireless Telecommunications Bureau. As soon as the data for a new license appears in the database, the license is effective and all privileges of that license may be exercised by the licensee.

Licensees will no longer need to wait to receive a license document in the mail; they may use the database as proof of licensing and go on the air immediately.

The database will be updated every Monday by noon (Eastern Time).

Information may be retrieved using the following procedure: Access: anonymous ftp.fcc.gov Directory: pub/YFS A1phaTest/amateur Documentation: readme.txt

The FCC's Consumer Staff Gettysburg, Pennsylvania, can answer questions at 800-322-1117 or 717-337-1212

Treasures Report

April 1995 PARS Treasurer's Report

Balance (Current)	$1889.61

No Income nor Expense activities this month.

Note: I did receive a number of checks for dues and this will be included as income for May.

Please refer any address changes or additions to Chaz or any of the officers.

May 1995 Treasurer's Report

Beginning Balance	$1889.61
Income:	
Dues	$ 95.00
Expense:	
Postage	$ 46.08
Ending Balance	$1938.53

500 kc
(A true story in 7 parts)

Part 4. Procedures

4A. Silent Periods (SP)

The first thing an op coming on watch does is to check his clock against WWV (ITU regs!), for certain actions on 500 have to be timed down to the second. In the log it goes:

OBTAINED WWVH TIME TICK
-CLOCK CORRECT
2500KC 09002

Because of the steady stream of signs on 500 a weak station sending a distress msg might not be heard. And at one time, calls AND traffic were passed on 500 - there was no shifting to working frequencies to pass messages. Thus silent periods were created. These consist of two three-minute intervals, in which worldwide no one transmits - volume controls are turned up - ears are pressed to the speaker grill - one's breath is held, from minute :1 5 to minute :l 8, and again from minute :45 to minute :48. Even traffic being passed on working frequencies would stop. For example, if I were sending the WX on 440kc:

....HIGH PRESSURE 1028MB
35.8N 132.3W BT CQ CQ CQ DE
NMO AS SP SP AR

at which point myself and my listening audience would shift back up to 500 for that particular 3 minutes.

Woe to the station whose clock is off or who forgets the SP, For a half dozen stations might jump on him:

VLA VLA VLA DE 3FWR 3FWR
K
QRT SP SP
SRI
SP
OK SRI
SP SP

(the ship 3FWR calls the shore station VLA -someone breaks in to tell him to stop transmitting he responds with 'sorry' and is still scolded, says he's sorry a second time, and is scolded again), although someone somewhere in the Pacific was more direct and to the point

Want Ads

This would be the perfect place to advertise to get rid of that old boat anchor in your closet gathering dust! All ads are free to Club members!

JNKB JNKB DE FHWN FHWN
SHUT UP SP (at 30 wpm)

Now, the last 15 seconds of a SP was set aside for safety and urgent preliminary transmissions:

4B. Broadcasts

>From the lowest to the highest priority, the following types of broadcast exist:

CQ - meaning "Hello All Ships and Stations" sent in a 3x3 format

CQ CQ CQ DE FUM FUM FUM
WX AND TFC LIST QSW 430
AR

Here, the shore station FUM, French Navy Tahiti makes an announcement that he'll be sending the weather and his traffic list on 430 kc. The CQ is the most common broadcast announcement, one will go out every few minutes.

TTT - this is the prosign for a safety broadcast storm warnings, navigation hazards, or anything involving the safety of shipping.

TTT TTT TTT CQ DE ZLW ZLW
ZLW CYCLONE WARNING NR
38 QSW 475 UP

Each T is longer than usually sent to provide a very distinctive sound. During the last 15 seconds of a silent period a half dozen TTT's would be going out. In particular, the shore stations running around the perimeter of Australia would sent the same TTT, one station following the previous station. Everyone in the Pacific wanted to be the first one out with their TTT announcement instead of waiting for a station 1000 miles away to finish, so many time they'd all go out at once. What a mess!

XXX - this prosign is indicative of an urgent broadcast where shipping and lives might be in danger (the CO might order the auto alarm sent prior to the preliminary announcement on 500):

XXX XXX XXX CQ DE NMO NMO NMO HURRICANE WARNING QSW 440 AR

Again, each X is drawn out so as to provide a very distinctive sound. This, as with the TTT announcements, went out during the last 15 seconds of a silent period. Those sending a TTT were supposed to give way to an XXX (remember, everyone is working duplex or full QSK -you MUST be able to hear anyone sending under you).

SOS - the darkest hour of an ops career is when the Captain of the ship enters the radio shack, hands the op a piece of paper, and says "Send the SOS - here's our position". International procedures dictate *every* step the operator will take:

4C. Distress Proceedures:

1. Auto Alarm (AA): twelve 4-second dashes, each dash followed by a one-second pause, sent in A2 (modulated CW). ITU regs demand that every ship carry an AA decoding receiver; this decoder will ONL Y respond to AA's sent in A2.

1A. In A2 the transmitter is modulated by a tone (two meter repeaters ID in this manner). Thus, what you would hear on your receiver, with your BFO on would be several tones, or harmonics - very musical and an attention getter, a station sending CW in A2 sounds like someone sending code on a piano keyboard by pressing a half dozen keys at once! [One very old book in my collection describes an easy (but archaic) method of modulating a CW transmitter a toothed wheel is rotated at several hundred RPM with a wiper, connected to the keying circuit of the xmtr, rubbing over the teeth of the wheel. Crude but effective.)

The AA will activate the decoder onboard every ship within receiving distance after four correctly sent dashes are received; the decoders are designed to be a bit forgiving concerning the timing of the AA dash: they will accept, as a void dash, a dash of between 3.5s and 6s in length (just in case the sending op is nervous!). As mentioned, only four correct dashes are needed, but just to be sure, ITU demands that twelve be sent. Once the AA decoder receives four dashes its latching relay closes activating lights and bells in the radio room, the radio officers stateroom, and up on the bridge.

2. The op in distress now must wait two minutes (if possible - if his feet are getting wet then he skips this step) for off duty ops, on board other ships that have received his AA, to get to their radio rooms. 500 kc is now in a continuous silent period until the controlling station sends:

CQ CQ CQ DE (cs of controlling stn) QUM 500 KC VA

Note that QUM = Distress traffic has ended - resume normal traffic. The controlling station is the distressed vessel - he can and does give control to the first responding shore station; thus if I was the first shore stn to respond then NMO would be the controlling stn.

Woe to ANY ship or shore station who xmts normal tfc during a distress:

9JBV 9JBV DE HCKO HCKO HW OM K
QRT QRT QRT SOS 500 (sent by dozens of stations)

3. The distress broadcast.

All traffic pertaining to the distress will be sent on 500. Those not in a position to assist will move to 512 kc - 512 is the alternate calling freq when 500 is in distress use. Here is a typical distress bcst (sent at no more than 16 wpm (ITU regs!)):

SOS SOS SOS CQ DE 5TER 5TER 5TER BT SOS 281751Z MV

PANAMA TRADER TAKING ON WATER ENGINE ROOM FLOODED POSN 13.73N 152.55W 13.73N 152.55W NEED IMMEDIATE ASSISTANCE AR MASTER SOS

This broadcast would be followed by a l0 second long dash to aid receiving stations in getting a bearing to 5TER's position.

Then would come the acknowledgements:

SOS 5TER 5TER DE NMO NMO NMO R R R SOS

SOS 5TER DE KFS KFS KFS R R R SOS

SOS 5TER 5TER 5TER DE JNA JNA JNA R R R SOS

SOS 5TER 5TER 5TER DE WNPH WNPH WNPH R R R SOS WE ARE IN POSN 11.81N 151.32W
CHANGING CSE TO UR POSN WILL GET ETA K

SOS WNPH DE 5TER R TU HERE IS MORE INFO .....

The first thing you'll notice is that ALL transmissions MUST start with SOS (ITU regs!). What happened here is that three shore stns QSL'd the distress bcst - ITU regs state that you must send R R R SOS; a nearby ship also QSL'd and is proceeding to 5TER's posn. The 500 op at NMO (me!) would be on the phone to RCC (Rescue Coordination Center) passing all info - RCC would launch aircraft and also key up the AMVER computer to check for nearby vessels. Suppose the AMVER computer shows that KPLH is steaming nearby:

SOS KPLH KPLH KPLH DE NMO NMO NMO

would be sent every 5 minutes both on 500kc and on all the HF freqs.

In case no ship responded to STER's distress calls, STER might give control to NMO. We would then periodically send:

<Auto Alarm>

DDD SOS SOS SOS DDD CQ DE NMO NMO NMO BT <repeat 5TER's distress msg>

where the DDD indicates that NMO is relaying a distress.

Part 4 to be continued.

Jeff NHGIL Jeffrey Herman
Jeffrey@math.hawaii.edu

OLD GOATS MEMORIES,
OR HOW THINGS USED
TO BE.

W7JIE, "GIB".

SUBMARINE CABLE TELEGRAPHY WAS INTERESTING AND USEFUL I WORKED ON THE SEATTLE-KETCHIKAN AND THE KETCHIKAN-SEWARD CABLE SYSTEM DURING WW II. I WAS BOTH AN OPERATOR AND A TECHNICIAN. LAST MONTH I TOLD ABOUT THE KEYING SYSTEM. OBVIOUSLY THERE WAS NO SOUND! NO DITS NO DAHS NO SQUEALS, JUST A SYSTEM OPERATING.

HOW THEN, DID ONE RECEIVE? AH-HA THERE IN LIES THE WORDS FOR THIS MONTHS TOUR THROUGH OLD TIME TRAFFIC HANDLING. CONSIDER THAT THE FAR END IS SENDING INTERNATIONAL MORSE CODE USING THE TWO-HANDKEY SYSTEM. AT THE RECEIVING END COMES IN A VERY SMALL VOLTAGE OF MAYBE A HALF-VOLT. NOT MUCH TO WORK WITH BUT ENOUGH TO USE.

AT THE RECEIVER IS A INSTRUMENT AFFECTIONALLY CALLED A "MOUSE-MILL"! IT STOOD ABOUT I8 INCHES HIGH AND ABOUT A FOOT SQUARE. ON THE BACKSIDE OF THE MILL WAS A SMALL WEIGHTED WHEEL TO GIVE THE MACHINE A STEADY RPM. IT HAD A SMALL D.C. MOTOR TO DRIVE THE WEIGHTED WHEEL AND ONCE STARTED IT RAN VERY SMOOTH FOREVER. ON THE RIGHT SIDE OF THE SQUARE BOX WAS A SUPPORT ARM THAT HELD AN 8 INCH REEL OF WHITE PAPER TAPE ABOUT A HALF INCH WIDE. THIS PAPER TAPE WAS FED THRU A SMALL FULLER WHEEL (DRIVEN BY THE MOTOR AND WEIGHTED WHEEL), AND THEN TO A SMALL METAL FLAT UNIT ON THE LEFT SIDE OF THE BOX. ABOVE THE PAPER DRIVE WHEEL WAS A SMALL HALF-INCH INK WELL SUSPENDED OVER THE INK WELL AND MOULDED (BY A MATCH OR LIGHTER) INTO A SHAPE LIKE A DISTORTED LETTER 'U' WAS A TINY GLASS TUBE. ONE END INTO THE INK WELL AND THE OTHER END JUST TOUCHING THE PAPER THE SUSPENSION OF THE GLASS TUBE WAS HOOKED TO AN ARMATURE SIMILAR TO A METER MOVEMENT. IT WAS PLACED IN SUCH A WAY THAT WHEN THE CABLE RECEIVED A POSITIVE VOLTAGE THE GLASS TUBE MOVED TOWARD THE NEAR SIDE OF THE PAPER AND WHEN IT RECEIVED A NEGATIVE VOLTAGE IT MOVED TO THE FAR SIDE OF THE PAPER TAPE. WHEN NO

SIGNAL WAS RECEIVED THE INK-FILLED GLASS TUBE STAYED IN THE CENTER OF THE TAPE.

WITH THE SMALL VOLTAGE RECEIVED FROM A 500 VOLT INPUT, THE SMALL SIGNAL HAD TO BE HANDLED CAREFULLY AND THATS WHY SUCH A SMALL RECORDER DEVICE WAS USED. IT REACTED TO THE SMALL VOLTAGES BY "WRITING" ON THE PAPER TAPE. THE RECEIVING OPERATOR FED THE TAPE ACROSS A SMALL TAPE HOLDER MOUNTED ON HIS TYPEWRITER AND WOUND UPON A TAKE-UP REEL. SIGHT READING THE POSITIVE AND NEGATIVE MARKINGS FROM THE INK-WELL, THE OPERATOR TRANSLATED THE INFORMATION INTO A MESSAGE FOR DELIVERY OR RELAYING. (AT SEWARD WE USED A MODEL 15 TTY TO RELAY TRAFFIC ON TO ANCHORAGE).

OF COURSE SENDING SPEED WAS SLOW BECAUSE OF THE CABLES ELECTRICAL RESISTANCE TO RAPID VOLTAGE CHANGES BUT I CAN ASSURE YOU THAT IT WAS A BUSY PLACE. THIS WAS IN 1942 AND WAR WAS HOT AND HEAVY. WE WOULD SEND FOR AN HOUR AND THEN RECEIVE FOR AN HOUR. TRY DOING THAT FOR 8 TO 12 HOURS A DAY WITH NO SAND-BOX BREAKS EITHER! 24-HOURS OF TRAFFIC FOR MONTHS ON END. KEPT MY WAISTLINE DOWN TOO.

EVENTUALLY THIS WAS MECHANIZED AND OPERATORS BECAME TECHNICIANS. MORE ON THAT NEXT MONTH. 30 de W7JIE.

"Live" from the 777

Well, after all these many months of working on Flight Testing the Boeing 777 aircraft and it has finally paid off. I was picked to participate in the testing of the cabin management system (Games and video etc-).

All I can say it was way cool!!. We took off Tuesday night from Paine Field near Everett Washington around 11 pm. Normally with any jet aircraft, the take off tends to be a practice of how far you can mold yourself into the back of the seat. Not so on the 777, with 98,OOOlbs of thrust it was not as noticeable as in other aircraft like the 767 or A330. It was very smooth and comfortable aircraft to fly in.

Once airborne, we headed west toward the Pacific coast. Vancouver BC could be seen very clearly with all the lights it has to offer. Plus Victoria and active pass could be seen too. The route was Port Angeles, Cape Flattery, Portland OR, Spokane, Ellensburg, Everett, and then one more time around. In all, the trip was 4 hours long - 11 pm Tuesday to 3:00 am Wed. I had to be work at 7am so I only had 2 hours of sleep.

There were 290 passengers (all Boeing Volunteers) and we did 4 tests. The entertainment system consists of a LCD video monitor, a control panel, a head set (digital over ear), and a game stick that doubled as a phone. The Nintendo was not working so we were testing the video and audio portions of the systems.

We were flying United's 777 called VlAO08 and there were 4 tests conducted during the flight to figure out where all the bugs are. My seat didn't have to many this trip. But since I had a window seat I was able to look at the lights below and the stars above. Also had a chance to investigate the rest of the airplane.

Here is my 2 cents worth.

- Seat room in coach is still the same as the other model and airlines.
- First class and business are better with seats turning into beds. Plus more space.
- Head room is better. The storage is deep end can hold a lot of stuff but use a cam and lever system which reset up in the ceiling giving more head room to everybody. However, when I stood up from my window seat. I hit my head. Oh well.
- The aisle is larger. You can get around the food cart to get to the bathroom. Yahooll!
- Bathrooms are the same but with accordion doors so you don't swing out and hit someone (or is that touch someone?).
- Cockpit was all "glass". The pilot just has to monitor fuel and radio calls. They said it was a very automatic airplane and very good to fly (I think that was standard line #3). I noticed there was no glare on the monitor plus the seat moves them as far forward as the controls. So they can see the dials and outside by just adjusting their eyes rather that their head.

There were some problems with some seats but that's what we were testing for. To shake out as many bugs as we cold. After flying around the state of Washington it was time to come home. The landing was as smooth as the take off.

Overall, it was a very smooth and wonderful airplane to fly around in. It was also nice to be nice to fly

before the general public can. It has been exciting time at Boeing especially at Flight Test. In the ground station where I work the data processed was 3 rimes more that the 747-400 test program and any other flight test program we have done in the past. Even thought it was larger the amount of time to process them was down because of the new digital computers in our area.

So, the 777 is now certified and the ETOPS cert will be soon. The airplane will go into service here in the future. I thought it would be nice to share with you all my Flight Test experience I had on WA008.

Chaz Hitz

SAREX STS-70 postponed

Space Shuttle Mission STS-70, which is scheduled to carry the Shuttle Amateur Radio EXperiment, has been postponed. Mission managers have decided to repair damage done by woodpeckers in the foam insulation of the external fuel tank. The foam prevents ice from building up on the tank. The repairs will be done at the shuttle Vehicle Assembly Building, requiring the Space Shuttle Discovery to be removed from the launch pad during the week. The mission may be rescheduled for sometime in August.

Mission STS-71, which will also carry the Shuttle Amateur Radio EXperiment, is still scheduled for no earlier than June 22.

Following a Flight Readiness Review last Friday, mission managers decided not to select an official launch date due to ongoing work aboard the Russian Mir Space Station that needs to be completed prior to the Space Shuttle Atlantis' rendezvous and docking. The launch team at the Kennedy Space Center will continue vehicle processing work so that Atlantis will be ready for launch anytime on or after June 22. An official launch date is expected to be announced in about one week.

Thanks to SAREX Working Group member Matthew Bordelon, KCSBTL, at NASA Johnson Space Center and the Kennedy Space Center Public Affairs Office for the p seceding information. For more information about SAREX; contact the American Radio Relay League's Education Activities Department.

Rules changes detailed

The FCC has issued a Notice of Proposed Rule Making on several changes in amateur service rules announced last week.

The FCC proposes to designate one volunteer examiner of a team as tie examination session manager, saying that would increase "examination efficiency." The FCC said that continuing to require at least three VE's to be present would preserve the protection of cross-checking, as sought by the ARRL.

The Commission also proposes to give examination credit to former licensees, as requested by the ARRL in RM-8418. The FCC said the League's position had merit and the proposed new rule would allow VE's to give exam element credit for any exam the applicant had previously passed. In addition, the FCC asked for comments on criteria "it should use" to allow credit on amateur exams for other types of formerly and currently held US operator licenses and foreign licenses.

The FCC also agreed with the ARRL proposal in RM-8462 that bona fide Amateur Radio clubs should comprise a minimum of four people in order to be eligible for a club station license and proposes a rule to that effect.

In response to an ARRL request as part of the vanity call sign program, the Commission proposes to make one-by-one call signs available to special event stations. Requests for such call signs would have to be made 120 days in advance; the period of the special call sign would be 15 days or for the duration of the event whichever is shorter. The application would have to state the nature of the event and include a list of requested call signs in order of preference.

Finally, the FCC also proposes to allow portable indicators to be included before, after, or both before and after, the assigned call sign. This was, the FCC said, in response to several informal requests for clarification of its rule 97.119(c).

The comment deadline for these proposals, in WT Docket 95-57, is July 14, 1995. The reply comment deadline is August 14, 1995.

New band available

On April 26, 1995, amateurs will gain secondary status access to 219 to 220MHz. Amateur operation is limited to forwarding stations in point-to-point fixed digital message forwarding systems--including intercity packet backbone networks--only.

All amateur stations are required to notify ARRL (in its FCC designated role as contact point) at least 30 days before operating in this band, and amateur stations within 80 km of an Automated Maritime Telecommunications Systems coast station must obtain written permission from the AMTS licensee before operating.

Amateur stations between 80 km and 640 km of an AMTS coast station must notify the AMTS licensee.

A Form 219A kit, available from ARRL. Headquarters, includes a cover letter of explanation, a Form 219A for the required notification to ARRL (one is required for each transmitter planned), and a copy of the 219 to 220 MHz band plan.

HF auto digital detailed

The FCC has released its Report and Order in PR Docket 9159, concerning HF digital communications in the Amateur Radio Service. The new rules, effective July 1, 1995, permit automatically controlled HF RTTY and data stations to communicate with one another in the following segments: 28.120 to 28.189, 24.925 to 24.930, 21.090 to 21.100, 18.105 to 18.110, 14.095 to 14.0995, 14.1005 to 14.112, 10.140 to 10.150, 7.100 to 7.105, and 3.620 to 3.635 MHz.

The new rules also permit manually controlled stations to initiate communication with automatically controlled HF RTTY and data stations. In this case the automatically controlled station may use any frequency authorized for such emissions, but may occupy a bandwidth of no more than 500 Hz.

Automatic control must cease upon notification by an FCC engineer in charge that the station is transmitting improperly or causing interference to other stations.

The FCC said it recognized the concerns of those who opposed the propose on grounds that such operation could interfere with other amateurs, but that it believed the provisions adopted would be adequate to minimize such interference.

EMF cancer link studied

The Council of the American Physical Society (APS) has issued the results of a study entitled "Power Line Fields and Public Health," concerning the potential dangers of cancer from electromagnetic fields that emanate from common power lines and electrical appliances.

The APS concluded that "the scientific literature and the reports of reviews by other panels show no consistent significant link between cancer and power line fields "and" the preponderance of ... research findings have failed to substantiate those studies which have reported specific adverse health effects from exposure to such fields.

"While it is impossible to prove that no deleterious health effect occur from exposure to any environmental factor, it is necessary to demonstrate a consistent, significant, and causal relationship before one can conclude that such effect do occur. From this standpoint the conjectures relating cancer to power line fields have not been scientifically substantiated."

The APS said that billions of dollars are being spent by states and municipalities to mitigate and litigate this perceived problem and "the burden of cost placed on the American public incommensurate with the risk, if any."

A background report on this sue by David Hafemeister is available on the Internet through the APS World Wide Web HomePage at. http://aps.org

Inside This Issue:
500 kc (Part d), More SAREX news, Presidents Corner!

Meeting Thursday, June 15, 7:30 p.m.

Meetings are held every third Thursday of the month at 7:30 PM in the Puget Power auditorium at 10600 N.E. 4th Ave., Bellevue.

For Info: Call Chuck or Lorie at3925846

PARS OFFICERS

PRESIDENT: Stuart Whiting, KB7UUX 230-0882
Vice Pres.: David Johnson, KJ7GA 827-3827
Treasurer: Chaz Hitz, N7NNS 230-9061

Membership Info:
To join PARS, please write Chaz Hitz, N7NNS at 2445 65th Pl. S.E., Mercer Island, WA 98004 or call 230-9061

Dues are $15.00 per year an individual, $22.50 for family membership and $7.50 for students 18 or under.

PARS Field Day June 24,1995

9:00 AM Setup

11:00 12:00? On Air

5:00 PM Light BBQ'S

?:?? PM Bands Drop Out

This year we'll be operating at the Microsoft Campus in Redmond. Take 520 to the 51st street exit and turn right onto 51st Turn right at the light onto 156th heading south. See the map on the other side for more details.

We'll have a Barbeque grill setup so bring whatever you wish to throw on. Julia Hossock (882-7343) will coordinate the potluck so call her and let her know if you're bringing a Salad, Side Dish or Dessert.

We're setting up the club beam and try to get some more wire in the air. If you have a rig you'd like to setup and show off, bring it down. If you have suggestions or questions give Stuart a call at 230-0882 This year we'Il be demonstrating our emergency capabilities to the Hams at Microsoft and other employees, as well as the Security and Emergency Management groups who have been asked to use Hams in their disaster plans.