

CLALLAM COUNTY AMATEUR RADIO CLUB

QTC
JUNE 10

From the DRT's shack:

FIELD DAY MONTH!! Yippee! We work hard all year preparing for this weekend. How you might ask? Look at our VE's. They teach those who want to become licensed Hams, giving up much of their personal time to prepare for these sessions. From electronics to frequency's, that dreaded math to the ionosphere, antenna's, be they random or verticals, it's all taught by not only the book, or Hamstestonline, but by those who have 'been there, done that'.

Without the classes, unless you're an engineer with NASA, the knowledge learned from the classes forward now gets put to test. Field Day is as close to setting up and handling emergency traffic as it gets, so lets call it good practice!. It's not only setting up our equipment to see if it's still in working condition, surprising yourself as to what's in your parts box that might just be the part needed, but also following safety guidelines. More then these things however is working as a TEAM. Nothing gets done correctly if the Field Day Chairmen, Dennis, AD7TV, and George, W7TTY, and our highly respected Safety Officer Paul, W6IAM, don't get listened to. Many others of course have solutions, but communicate we must. Otherwise we may end up interfering with one another, and how fun is that?

As you may know, the Club has it's own 70ft tower/trailer, and this week W7TTY is working diligently to make it shine in all it's glory, meaning, working on what antenna's } will be lifted up on it, gathering coax, a rotor, whatever it takes to make it something our Club can, and will, be quite proud of.

Gary Braun, our Port Angeles Mayor, will be visiting and presenting the Proclamation of Declaration for Field Day Week.

Pizza Saturday night. Callie, YMU and I will be working on what else to feed the hungry Hams. POTLUCK??

Please come to this weeks meeting on the 9Th. for sign ups and input. Now's the time. It's FIELD DAY team. Let's go get 'em!

73 all!
Nita~KE7DRT
CCARC President

Get Your License Here!

VE Exam Session
 23 July 2010
 1900 at PA Fire Station
 5th and Laurel

To Register call:
 Chuck, N7BV 360-452-4672
 Tom, KE7XX 360-452-8228

Thanks, Chuck, ARRL VE-L

CCARC QTC Newsletter

Just a little background on the QTC.

We use ccarcqtq@yahoo.com as a repository for information for the newsletter. So if you have something for the QTC, please send it to the yahoo address. Do not sent it to one of the editors as they will just have to turn around and resend it to the yahoo address.

Please make sure the article or information is complete. As we rotate editing the newsletter you cannot be sure which editor will be piecing the newsletter together.

Please remove as much formatting from within whatever program you are using (MSword, edit, clear, formatting) if you know how, before sending it to ccarcqtq. If you feel the creative urge to design a document—please open a design shop, but don't do it and then send it to us expecting to see your creative work transferred to the newsletter.

We do not edit, except to change fonts to a standard non-serif font (Arial which is easier to read than Times Roman). We will run a spell checker.

When first conceived the editors were given free license, it still is that way. It was understood they would endeavor to include everything submitted, within reason. For instance, off color jokes etc are not going to be printed.

Thanks,
 Chuck, N7BV & Bob K6MBY



PROGRAM
For June

Field Day Planning

We need articles for the QTC newsletter. This is your newsletter.

Tell us how you became interested in Ham Radio. What did you do over the summer (just like school) huh!

The more you submit the less we have to think of.

Thanks, the staff!

Have an idea for a club program? Pass them along to the members of the program committee: Bill Carter, Janet Parris, or Chuck Jones.
 Thanks.

2 METER NETS

CCARC :
 Every Thursday 7:00 pm on the W7FEL Repeater.

ARES/RACES:
 Every Tuesday except 1st Tuesday of the month at 7:00 pm on W7FEL Repeater.

W7FEL Repeater: 146.76 MHz., offset down 600 KHz. with a tone of 100 Hz.

The Linear Accelerator, a technician's view

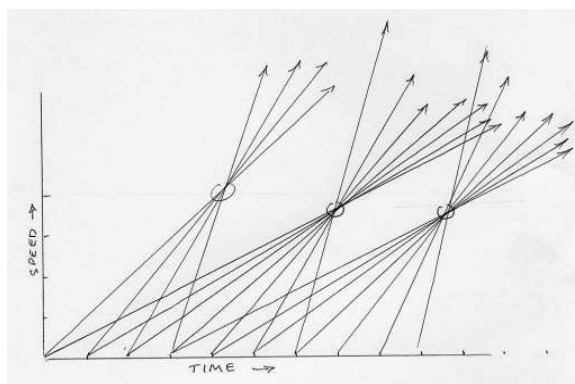
Part-3 Klystron amplifiers

It would have been possible to distribute RF energy along the accelerator wave guide with available magnetrons but the problem of phase synchronizing at least 100 independent oscillators was too terrifying to contemplate. Instead, it was decided to use a single magnetron as an exciter and feed the wave guide with high power amplifiers at ten foot intervals. The problem was that no such amplifiers existed at the time so a program was initiated to home-brew a klystron amplifier capable of 100 MegaWatt output.

This was no casual undertaking. It meant designing a cathode to produce 250 Amps of current while being zapped with 400 KV pulses and a complex tunable cavity structure that could be continuously pumped to a high vacuum. But let me digress for a moment to describe the klystron principle of operation.

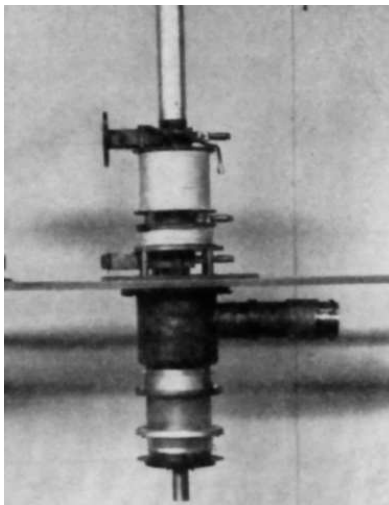
The klystron came about as a way to extend vacuum tubes into the microwave region. Ordinary tubes can't be built for frequencies much above VHF. The internal components can't be spaced closely enough together. Inter-electrode capacitances become impossibly high and power is limited to very low wattages because of the close electrode spacing. Microwave devices would have to wait until something better than vacuum tubes came along. Of course we have something better now but solid state amplifiers didn't exist in the 1940s when the idea came to Dr Hansen that "if you can't beat em, join em." That is to say, if you can't pack the electrodes closely enough together, space them *really* far apart!

Electrons accelerated towards an anode, travel at varying speeds. It's like cars moving along a freeway. Some are moving at 50mph, some at 55, 60, and 65mph. At some point, and I'm sure you've experienced this first hand, the cars will converge -- bunch into a cluster -- and then spread out again as the faster cars move ahead of the slower ones. The trick is to find where the electrons converge and place a resonant cavity where a signal can be input to modulate them. Then choose a place further on, where they converge again, to position another cavity where they can produce an amplified signal.



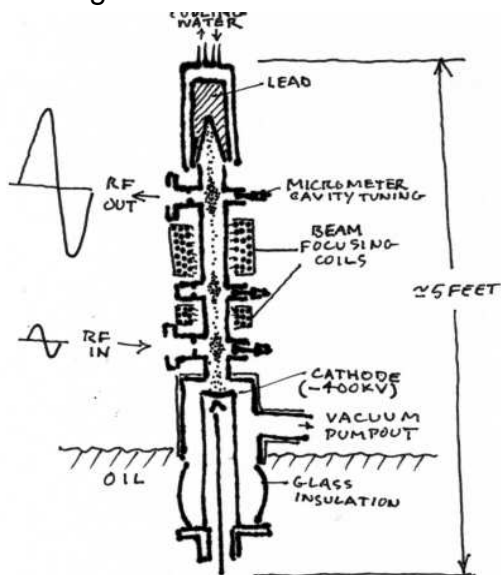
(Fig 3-1)

The 100 MW Stanford klystrons were the first of their kind and were about 1000 times more powerful than anything built before. The first one was fabricated in the laboratory's own shops in 1949 and worked pretty much as predicted but it took another four years to work some of the irksome bugs out of the design.



(Fig 3-2)

These tubes were experimental and subject to frequent breakdown so they were constructed in such a way that they could be taken apart and re-built as often as needed. As it turned out that was pretty often. Most of the problems were due to electrical breakdown because of the extremely high voltages and RF levels we were working with.



(Fig 3-3)

A typical klystron stood about 5 feet high and was not sealed but was continuously pumped to a vacuum of .0000001mm of mercury. Pumping that hard a vacuum on that large a scale was an interesting problem and I'll talk about it later.

To enable us to operate with the waveguide and accelerator structures at ground potential, the cathode end of the tube was operated at a negative 400KV. It was immersed, along with its associated filament and pulsing circuitry in a tank of "high grade mineral oil" (Translate that to read PCB) and from time to time things in the oil bath would explode, creating an opaque mixture of oil and carbon so I'd strip to my skivvies and "dive in" up to my armpits to disconnect stuff by feel. After a few excursions in the tank, I got to where I could remove everything and replace the faulty com-

ponents in about four hours. There were always spare klystrons and pulse transformers on standby. It was all part of the routine.

Having done their work, the electron bunches were absorbed and dissipated in a water-cooled lead slug at the top of the klystron. X-rays, produced by the high energy electron beam were absorbed by lead shielding -- at least most of them were. There was always enough x-ray leakage about the wave guide connections and other "plumbing" to make the klystrons hazardous to be around. To contain and focus the electron beam, powerful focusing coils were provided whose magnetic flux could be controlled from the operating console. Although the cavities were machined to extremely close tolerances, they were built with micrometer-adjustable mechanical slugs to allow precise tuning of their resonant frequencies. The micrometers had to be vacuum sealed and the input/output wave guides also had to be isolated from the main accelerator structure by vacuum tight RF "windows," making for some interesting design challenges.

So much for the klystrons themselves. In the next installment, I'll talk about the high voltage power supplies and pulsing circuits.

Paul Honore' W6IAM
Rev-2, May 2010

FOR SALE OR TRADE

~~~~~  
**Wanted** people to go in on buying a Vector Network Analyzer.

Contact: Chuck N7BV or Bob K6MBY.

~~~~~  
FREE

2 EF Johnson, Challenger Plus 242-7187's
1 Motorola M01HX +627W transceivers.
They have remote heads and speakers.

Contact: Howard AC7TZ

~~~~~  
Coax 200ft 5/8" Comscope Corp  
Aluminum Cable \$47.00  
Contact AL7KK 457-7827

~~~~~  
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**Your Ad Could Have Gone Here**

## **Wanted Treasurer**

As the saying goes. all good things must come to an end. David, KE7JEJ has informed us he will be moving on with his personal life. This leaves the club looking for a replacement this fall. Now it shouldn't be hard, here is a list of attributes David has displayed:

***Ensure club dues are collected.***

Be able to leap tall buildings in one (OK two) bounds.

***Maintain up-to-date financial records.***

Be able to out run a speeding bullet.

***Ensure club bills are paid on time.***

Be able to start BBQ fires with Heat vision.

***Attend all Club meetings, board meetings, and VE examination dates to collect club monies, as humanly possible.***

Have X-ray vision.

***Present financial information at meetings as necessary and monthly to the newsletter.***

Have a suit that bullets bounce off of.

***Assist the board in preparing the yearly budget.***

Be able to hear what is being said at 100 paces.

**CONTACT ANY BOARD MEMBER.** See QTC.

**CLALLAM COUNTY AMATEUR RADIO CLUB  
Minutes of the General Meeting 12 May 2010**

The meeting was called to order at 1910 by the Club President Nita Lyman, KE7DRT. Thirty people attended the meeting. We'll just report the number of people because the Board voted that a sign in sheet wasn't needed.

First up was self introductions around the room.

Chuck, N7BV gave the information about the presenter of the first slide show, Scott Robinson, AG7T.

Scott loaned us his video presentation about Field Day called "Geography Lessons and Propagation". His main point was that Field Day stations located in the Pacific Northwest will have a hard time competing for first place. Stations located in the Northeast USA just have more stations available to work. The second point was that we can compete strongly and have fun doing so.

Scott showed propagation results of actual stations contacted during the 2008 Field Day at K7LED. He showed various HF bands at different times of the day and the number contacts being made. Note: Scott had made himself available for Q & A via the internet and Skype. Unfortunately the Hospital had changed the WiFi access and no internet was available.

Dennis, AC7TV gave a summary of the plans for radios at field day. He included slides of the equipment to be used.

1945: BREAK

Nita opened the business meeting asking for Committee reports. Bill, W7WEC announced that the Board Meeting will be on May 26<sup>th</sup>. Location will be at Johan's, KO6I, shop. Six PM. All are welcome to attend.

The minutes of the previous meeting were approved as printed in last month's QTC.

George, W7TTY gave a trip report that he and Nita made to pick up a tower and trailer assembly. This was an item donated to the club by Bob McClung WA6KNW of San Jose, Ca. George described a short side trip they made to the KPH Project at Point Reyes National Seashore, part of the National Park Service . (No expenses were claimed for this part of the trip). This included pictures of the facility.

Then George showed pictures of the trailer and its various features. The trailer is currently at Nita's place and will be moved to Johan's storage lot.

Note: This trailer was a "get it now" kind of offer. George was offered the assembly and said he couldn't use it but that the Club might. The trailer was located on commercial property and needed to be removed immediately. The Board was contacted and approved \$500 for gas to get the trailer back to Washington.

A motion was made to give WA6KNW an Honorary Life Membership in the Club and a plaque. It was seconded and approved unanimously.

The Raffle Drawing was held for the YASEU FT-990. Thirty-nine tickets were sold and the winner was..... George Hutchinson, W7TTY.

The meeting was adjourned at 2035.

Bill Carter, Secretary, CCARC

## CCARC Field Day Results

| Year  |                  | QSOs | CAT | PARTs | SCORE & Section |
|-------|------------------|------|-----|-------|-----------------|
| 2009: | W7FEL<br>+WX7RIK | 364  | 2A  | 25    | 2142 WWA        |
| 2008: | W7FEL<br>+KE7XX  | 780  | 5A  | 24    | 2160 WWA        |
| 2007: | W7FEL<br>+KE7XX  | 702  | 3A  | 27    | 2864 WWA        |
| 2006: | W7FEL<br>+KE7XX  | 456  | 2A  | 77    | 1912 WWA        |
| 2005: | W7FEL<br>+KE7XX  | 251  | 2A  | 36    | 1658 WWA        |
| 2004: | W7FEL<br>+KE7XX  | 630  | 2A  | 46    | 2466 WWA        |
| 2003: | W7FEL            | 40   | 2A  | 22    | 680 WWA         |

### Why W7FEL?

Where did that call sign come from? What's the history?

During a phone interview with Gil Welcher, W7LG, about another Ham Club Life member he revealed the source of the call sign. Gil was a key member of the group that helped install the W7FEL repeater. They were searching around for a call sign to use with the repeater. Bob Burke, W7FEL, had recently passed away and he had a good call sign. It's easy to say and easy to send with CW. They decided to go with W7FEL. The paperwork was done and the call sign is now part of our local history.

W7FEL is used for a lot of Club events besides the repeater. The biggest event is coming up at the end of June. Field Day. We use that call during the event and in the logs we send to the ARRL. Come on by and use call that will roll easily off your lips or gently pound it out on a key or keyboard.

73, Bill Carter, W7WEC



**CCARC Board Meeting Minutes:**

Attendees: Board Members: Bill W7WEC, Nita KE7DRT, Johan KO6I, Chuck N7BV, AI W7YLV. Board Members Absent: David KE7JEJ (excused) A Quorum was present

Guests: George W7TTY, David KE7TTT

The May 24th. CCARC Board Meeting was called to order at 6PM, by Board Chairman Johan, KO6I.

First agenda was to approve full reimbursement to W7TTY for the trip to CA, for the new Club tower/trailer. The vote was unanimous. At that time, it was established George, TTY, would get all papers in order for licensing, insurance, and retrieving the title.

Next order of business was Recurring Obligations of the Board: IE, By-Laws, Secretary responsibilities, and keeping our Club belongings inventoried, together, and in safe keeping.

No one place has been established, however, W7TTY did say he could store the trailer on his property.

KE7JEJ will make a spread sheet of all said inventoried Club belongings, as mentioned by Chuck, N7BV.

An audit was done by Riley and Company, headed by Karen Jones, all ledgers were found to be in good order. It was noted by Chuck, N7BV that the Club went over budget for Field Day 2009. Considering we just bought a new tower/trailer, we're hoping to keep expenses fiscally conservative this Field Day.

Moving into Field Day, the Board is looking for all equipment, who has what, and asking to members to contact Bill, W7WEC with what you have stored. Board knows where most equipment is, and wants to make sure it's at Field Day.

The Board discussed whether the Club wanted to participate in Safety Days, KE7DRT would follow up on this. She did, and calls made were either already involved, or no thanks.

Cost of mailing out the QTC is expensive, with concerns of it going even higher. Board will investigate INDECIA mail at a reduced cost for a non-profit organization.

We are looking for a new Treasurer, as David McCoy will be leaving his post, yet has offered to stay on to train. Board discussed new President, Vice President also will be re-elected for the next 2 years, nominations taking place in November. Treasurer will also be put on that list of Officers.

David, KE7TTT reported Striped Peak Key #105 has been retrieved from K7RGR, Roger Uhden, and returned to DNR. We have now 3 key holders to the Stripped Peak site.

Also discussed was the Sequim Fair, working tables. No decision was made.

Meeting adjourned at 7PM.

**CCARC Committees**

**Activities Chair:** Callie Kroll N7YMU

**Education and Training:** Chuck Jones N7BV

**Field Day Co-Chairs:** Dennis Tilton AC7TV, Al Fisk KD7TFK, George Hutchinson W7TTY

**Health and Welfare Co-Chairs:** Chuck Jones N7BV, Rich Golding N7NCN

**Membership Chair:** Becky Winters W7RJW

**Net Coordinator:** Becky Winters W7RJW

**Program Co-Chairs:** Janet Parris WA7JEP, Bill Carter W7WEC, Chuck Jones N7BV

**Public Relations Chair:**

**Publications (Newsletter):** Bob Sampson, K6MBY, Chuck Jones N7BV

**Technical Co-Chairs:** Bob Sampson, K6MBY, Steve Debiddle, W6MPD

**Web Site Administrator:** Rik Scairpon WX7RIK

**FROM OUR TREASURER:**

As of May 31<sup>st</sup>, 2010:

First Federal Savings & Loan of Port Angeles Balance: \$ 8,497.14  
 Outstanding Cheques (#'s 1240 & 1241): - 150.06  
**Checkbook Balance: \$ 8,347.08**

*David R. McCoy,*

**KE7JEJ** -.- . -... .--- . .---

**CC-ARC Treasurer**

**Birthdays for June, 2010 and the first week of July, 2010:**

|                             |        |        |
|-----------------------------|--------|--------|
| Baker-Wilson, Jan           | N7JAN  | Jun-02 |
| Greene, Norman B.           | KF7BCR | Jun-03 |
| Golding, Rich               | N7NCN  | Jun-05 |
| Llewellyn, Birget A.        | KF7JQR | Jun-08 |
| Wise, Jack L.               | KC6ZXS | Jun-09 |
| McGilvra, Chuck             | N7HFL  | Jun-14 |
| Edes, Richard               | WA6CUE | Jun-16 |
| Hutchinson, George B.       | W7TTY  | Jun-16 |
| Kagan, Jerry P.             | W7JRY  | Jun-16 |
| Jones, Charles              | N7BV   | Jun-17 |
| McPherson, Robert W. (Bill) | W6JEQ  | Jun-18 |
| Stearns, Mary               | N7MES  | Jun-19 |
| Hubley, Jack B.             | K7JBH  | Jun-25 |
| Doherty, Frank              | KJ7SK  | Jun-29 |
| Drath, William A.           | K7WWU  | Jun-29 |
| Kasicki, Charles            | KE7KVZ | Jun-29 |
| Acorn, William G.           | KF7BCY | Jul-03 |
| Sampont, Gerald M.          | WA7BUY | Jul-03 |
| Llewellyn, George A.        | KF7JQS | Jul-04 |
| Wilson, Doreen J.           | KL1HG  | Jul-04 |
| Coffel, Floyd J. (John)     | KE7RFO | Jul-05 |
| Newcomb, Shirley            | KC7ZQA | Jul-05 |

**YL's Birthdays for the same period:**

|                                   |        |
|-----------------------------------|--------|
| Jones, Karen (Chuck, N7BV)        | Jun-05 |
| Dundas II, Joanne S. (John, W6SU) | Jun-06 |

**Happy Birthday!**

**COMING EVENTS**

~ ~ ~ ~ ~  
 ARRL Field Day  
 1800Z, Jun 25 to 2100Z, Jun 27

~ ~ ~ ~ ~  
 07/10/2010

Pacific Northwest Indoor/Outdoor  
 Ham Radio Tailgate Swapmeet  
 Location: Chehalis, WA

Sponsor: Chehalis Valley Amateur Radio Society

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**DX2010 Pacific Northwest DX Convention**  
 Vancouver, BC July 30, 31 & Aug 01, 2010

~ ~ ~ ~ ~  
 Hamfest

08/14/2010 **The Radio Club of Tacoma**

Location: Spanaway, WA

Type: ARRL Hamfest

Sponsor: The Radio Club of Tacoma

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**NEXT YL LUNCHEON**

**June 11th**

Mariner  
707 E. Washington Sequim

**Time: 11:30 a.m.**

**2010 - CCARC Ladies Luncheon Schedule**

**July** - Toga's - 122 W. Lauridsen Blvd. - Port Angeles

**August** - Tarcisios - 609 W. Washington - Sequim

**September** - Sergios - 205 E. 8th - Port Angeles

**October** - Fortune Star -145 E. Washington - Sequim

**November** - Chestnut Cottage -

929 E. Front - Port Angeles

**December** - Cedars at Dungeness -

1965 Woodcock Rd. - Sequim

**Find us on the web at  
www.olyham.com  
Check it out. Lots of  
information about ham radio  
in Clallam County!**

| Description                                        | Time/Date                       | Location                                                          | Contact                           |
|----------------------------------------------------|---------------------------------|-------------------------------------------------------------------|-----------------------------------|
| Clallam County ARES/RACES meeting                  | 7 pm, first Tue of every month  | Clallam County Courthouse EOC,<br>223 E. 4 <sup>th</sup> St., PA  | Dan Abbott N7DWA<br>360-582-3824  |
| Clallam County Amateur Radio Club general meeting  | 7 pm, second Wed of every month | Olympic Hospital<br>Linkletter Room, PA                           | Tom Newcomb KE7XX<br>360-452-8228 |
| Clallam County Amateur Radio Club social breakfast | 8 am, first Sat of every month  | Joshua's Restaurant<br>Hwy. 101 & Del Guzzi Dr.                   | Tom Newcomb KE7XX<br>360-452-8228 |
| Clallam County Amateur Radio Club YL social lunch  | 11:45 am 2d Fri of every month  | Rotates - announced on Thursday<br>night Net (See QTC Newsletter) |                                   |

**We welcome new members:**

Johnson, Alvin V.                      KF7JQP  
Llewellyn, Birget A.                    KF7JQR  
Llewellyn, George A.                    KF7JQS

**CLUB OFFICERS For 2010**

**President:** Nita Lyman KE7DRT 360-457-5022 Nita\_lyman@yahoo.com

**Vice President:** Dennis Tilton AD7TV 360-452-1217 3tiltons@wavecable.com

**Secretary:** Bill Carter W7WEC 360-6814375 w7wec@arrl.net

**Treasurer:** David McCoy KE7JEJ 360-457-8550 mccoy.d.r@olypen.com

**Board Member (Chairman):**

Johan Van Nimwegen KO6I 360-681-7300 jvn@olypen.com

**Board Member:** Al Dawson W7YLV 360-457-0752 adawson@tfn.com

**Board Member:** Chuck Jones N7BV 360-452-4672 n7bv@yahoo.com