CLALLAM COUNTY AMATEUR RADIO CLUB

QTC

JANUARY 09

DRT's Shack:

To all Clallam County Amateur Radio Club members~~ Happy New Year!

2009 will be a fun, exciting, learning experience for me, and hopefully for you as well. As your new President, I'm here to work for you, help solve problems if they arise, and to ask for your support! Commitment to committees and activities as we travel together through the year side by side. If we all put time and effort into the many activities the club participates in, then the vision I see is one of friends helping friends, hams being the best they can be, all the time coming together for sharing, growth, fun, and learning. Comrades! Helping other hams in any fashion, for that's what we do best!

The Amateur Code reminds us all of this. Written by Paul M. Segal, W9EEA in 1928, just a couple decades after the discovery of Ham Radio, he may have gotten frustrated by how some were not savvy on their communications skills, who really knows for sure. But a reason for it came to light, which, in a paraphrased version says this: The Amateur Code:

Considerate. Loyal, Progressive, Friendly, Balanced, Patriotic. We never operate in ways to lessen the pleasure of others. We offer encouragement and the support of all Hams, all Clubs, and join the ARRL. We keep learning the science of our hobby, keep our station efficient, plus operate above reproach. Ham radio is an avocation. We never let family, school, or job duties suffer because we're having way too much fun! It's our hobby, not our life. A fascinating and creative interest apart from our work, which enriches our minds, adds zest to our lives, and results in service to our neighbors, city, county, state, and country. All essential for happy living! Ham radio I'm finding, is pretty much with out end.

That's why we're the team we are. We all have other responsibilities that sometimes will keep us away from meetings, a breakfast, maybe even a check in. It doesn't mean we won't miss you, because we will.
I know I have a team of energetic professional communicators, and problem solvers backing me 100%, which takes a load off to be quite honest! It will give me time to not only reflect on how I can work with each of you to move the club forward, but also time for other activities I'm involved in as well.

I especially thank our Vice President, Dennis, AD7TV, for his extraordinary energy and loyalty, going the extra mile daily. Also to our new Secretary Lee, KE7TTY, as I think she's going to be as busy if not more so then I am. To all committee members who've taken on some interesting and fun duties, you're the glue holding us all together. I won't say you're on your own, but you are. We're here to back you at all times. I trust you know what you're doing, so have fun!! There's nothing that can't get fixed if it gets broken, remember, you are the glue!! There's plenty of smart Hams who have already led this club, many Hams who are highly praised for their thinking, reflection, projection and application. The ones we all depend on for leadership! The ones who look to that "Code", and say I can help...I WILL help! Out of love for their hobby, with complete sincerity and integrity.
That's the CCARC I know and respect.

Thank you members for allowing me the opportunity to serve you as president in this new year. 2009 will carry us all to new heights and adventures.
Encouraged and proud to be a part of the growth I know we all look forward to.
73,

Nita KE7DRT
CCARC President

Get Your License Here!

The CCARC Amateur Radio License Classes will be April 18 and 25 and May 2 .

If you know of anyone who would be interested in a Technician or General Class license please have them call Chuck, N7BV 360-452-4672 or Tom, KE7XX 360-452-8228.

Thanks, Chuck, VE-L

Today, Jan 09 , I drove west on Hwy 112 to check out the damage to the road after I got word that it had partially collapsed. I took some pictures (attached) and talked to one of the guys that was surveying there. When I drove through there last evening at about 4:30 pm, I noticed a crack running from one side of the street to the other. One of the guys told me he came through at about 5 pm and it had caved in.

73, Becky, W7RJW

PROGRAM FOR January 14th

IRLP

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.

Pacific NW In For A World Of Wet?

Snowmelt and Rain Threaten Urban Flooding

Release Date: December 24, 2008
Release Number: R10-09-018
» 2008 Region X News Releases

SEATTLE, Wash. -- For several weeks now, the Pacific Northwest has been in the icy grip of successive winter storms, and there's every sign that there is more to come. But current projections for rain have emergency managers nervously evaluating new potential for urban flooding. According to FEMA Acting Regional Administrator Dennis Hunsinger, ice and snow, windfall and debris can restrict storm drains, and increase flood risk.

Pacific Northwesteners are pretty savvy when it comes to protecting themselves and their loved ones with flood insurance, and we've learned time and time again that you don't have to live in a mapped floodplain to need flood insurance," said Hunsinger. "But we do have a highly mobile population, and it's important for homeowners and renters who are experiencing their first flood season to know that conventional homeowner policies do not cover flood damage. The good news is that coverage through the National Flood Insurance Program (NFIP) is available from the same agent you bought your home policy from."

Flood insurance covers structural elements and contents (purchased separately) for all insurable residential and non-residential buildings. Policies can be purchased from any licensed insurance agent or broker. Maximum coverage for single-family homes is $250,000 for the structure itself, and $100,000 for contents. Renters can also insure their personal belongings for up to $100,000. Businesses can insure buildings for up to $500,000 for the structure, and contents for up to $500,000.

Hunsinger cautions that winter weather is far from over. "Flood waters can rise just hours after a heavy rain," he said. "And there is a 30-day waiting period before newly purchased flood insurance takes effect. If you aren't protected by flood insurance, now is not the time to procrastinate."

For information about the NFIP, contact your insurance agent, or call the National Flood Insurance Call Center toll free: 1-800-427-4661.

FEMA coordinates the federal government's role in preparing for, preventing, mitigating the effects of, responding to, and recovering from all domestic disasters, whether natural or man-made, including acts of terror.

Becky, W7RJW

Guess What! It's dues time again. The By-laws call for dues to be paid in the first quarter of the year.

We need articles for the QTC newsletter. This is after all 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 do, or think of.

Thanks, the staff!

Electronic Fundamentals, Part-1 (Analog Circuits)

Unit-10 Linear power supplies

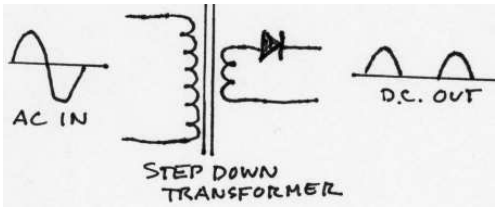
Every radio needs power and most modern radios are designed to operate from a nominal 12VDC source so a way must be found to convert 110VAC mains power into relatively pure and stable DC. There are two ways to do this. The first, or **linear power supply**, is simpler but it's only about 50% efficient. It uses large, heavy transformers and chokes to step the voltage up or down and filter it. The second, or **switching mode power supply** is a lot more complicated but smaller and lighter in weight and it's efficiency approaches 90% In this unit, we'll look at the linear power supply. It can be described in terms of what we've already seen. The switching mode power supply requires a few more building blocks so, I'll deal with it in a later unit.

The linear power supply can be broken into three stages.

(Fig 10-1)

The first stage contains a **power transformer** to convert the115V AC mains power into the needed operating voltage and one or more diodes to **rectify** it to DC. Let's look at the two components together. There are three ways to rectify the transformer output to direct current, **half wave, full wave, and full wave bridge** rectification. All of these methods could involve vacuum tubes, metal oxide rectifiers or semiconductor diodes. The process is the same.

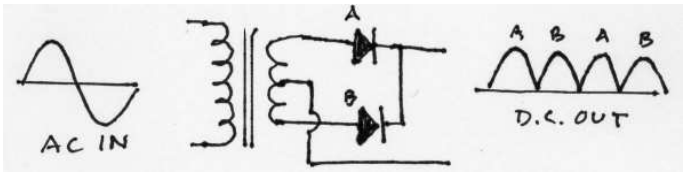
The half wave rectifier is simply a diode connected in series with the transformer output.



(Fig 10-2)

With no load on the circuit, the peak DC voltage will equal the peak AC output from the transformer but the diode will conduct for only half of each cycle. If a load is applied, the output voltage will be drastically reduced from the peak value. This is the least efficient method of rectification and suitable only or very light loads.

Full wave rectification will fill in the gaps by conducting during both halves of the cycle

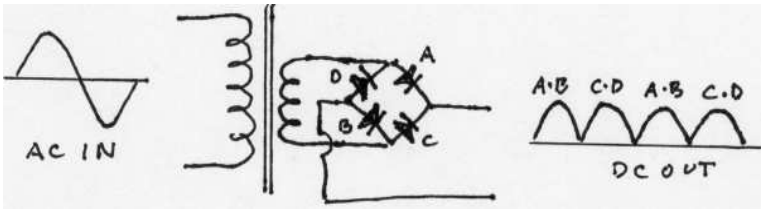


(Fig 10-3)

To achieve the same peak voltage output as the half wave rectifier, the

transformer must have twice the output voltage and a center tapped winding. In this circuit, diode "A" conducts during the first half cycle and diode "B" conducts during the other half cycle.

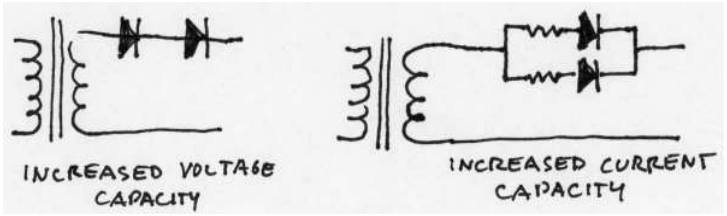
A full wave bridge rectifier has it both ways.



(Fig 10-4)

Using this method, the same transformer that was used for the half wave rectifier can provide full wave rectification with no loss in peak voltage. Four diodes are connected as shown. During the first half cycle, diodes "A" and "B" conduct, and during the second half cycle, diodes "C" and "D" conduct.

Regardless of the method of rectification, the diodes must be able to handle the full voltage in the reverse direction and full current in the forward direction. As a safety measure, it is wise to choose diodes rated at twice the needed current and twice the inverse voltage rating. Diodes can be wired in series to increase the forward voltage handling capacity or they can be wired in parallel to handle greater amounts of current.

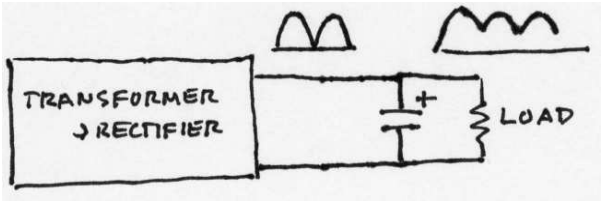


(Fig 10-5)

However, since no two diodes will be perfectly matched, if they are connected in parallel one will try to take all of the current so a small series resistor must be added to each diode. This will force the current to divide equally between the diodes.

So, now, we have turned the mains supply into a DC power source for our radio. Let's move on now to the **filter stage.** As you can see from the rectified waveforms, the DC output is a series of ½ sine waves, all going in the positive direction. You can call this DC if you want to but it is a bit raw for practical use.

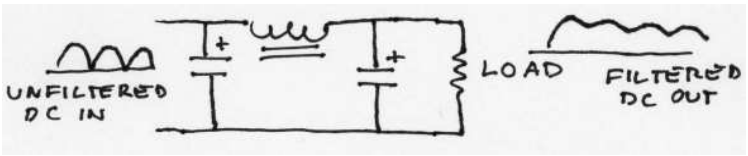
If we place a large value electrolytic capacitor across the output, it will store energy during the first 90° of each cycle, and release it back into the cir cuit during the next 90° to help fill-in the gaps a nd smooth the waveform.



(Fig 10-6)

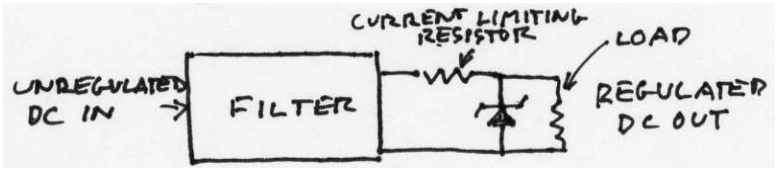
If the load on the power supply is light, the capacitive filter will provide relatively smooth DC with only a little "ripple" on the output but If the load is heavy, the

capacitor will discharge too rapidly and ripple will increase. The situation can be improved by inserting an inductive filter choke either before or after the capacitor. For even better filtering, a second capacitor is usually placed after the choke.



(Fig 10-7)

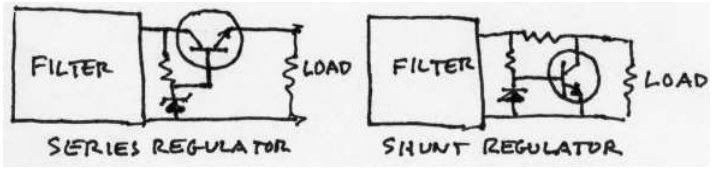
We now have a relatively smooth source of DC but it will vary with changes in line voltage and load current, so we need a way to keep it constant. This brings us to **regulator stage**. The most common regulator in modern use is the **Zener diode.** Here's how it works. Any diode will conduct current in one direction and block current flow in the reverse direction -- up to a point. If the reverse voltage is high enough, the semiconductor junction in the diode will "break down" and allow current to pass. This condition is called **avalanche.** It does not mean that the diode will be destroyed, however, as long as the current is kept within reasonable limits. When the diode is conducting in the avalanche region, it maintains a constant voltage drop between its cathode and anode. If we place a zener diode across the power supply output, and use a series resistor to limit current flow within the avalanche or "zener" range, it will provide a constant voltage with varying line and load conditions.



(Fig 10-8)

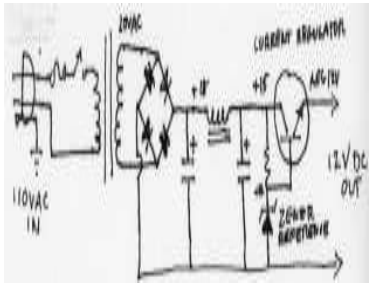
If the load current is too great for the zener diode to be used directly, it can be used as a reference source for one or more transistors used as regulators. This allows the small zener current to control a much larger load current. There are two ways to do this, A **series regulator** is somewhat sensitive to load variations and works best when the load is relatively constant.

By placing the transistor in parallel with the load, it becomes immune to changes in load current. The parallel **shunt regulator** maintains a relatively constant load on the power supply, even when the external load is removed.



(Fig 10-9)

We can now put the whole thing together.



(Fig 10-10)

There are voltage drops across each of the components, one or two volts across each of the diodes, a couple of more volts across the choke, some more across the regulator. Finally, the output is reduced to the value of the zener reference voltage. All these voltage drops determine the required output voltage of the power transformer.

An estimate of the fuse size can be determined using Watt's law. For instance, if your radio draws 20A at 12V maximum power, the power supply output will be

P=IE, P= 20X12, P=240W.

Working backward, we need to supply the same input wattage to the power supply.

P=IE, 240 = I X 110, I = 240 / 110, I = 2.18A

The nearest off-the-shelf fuse size would be 2-½A

In this unit, we examined the basic linear DC power supply. Later, we'll look at the switching mode power supply and some ways to generate very high voltages but we'll need some more building blocks first. In the next unit, I'll discuss amplifiers. .

Terms to remember

Bridge rectifier	**4 diodes used as a full wave rectifier**
Choke	**Iron core inductor used as a filter**
Full-wave rectifier	**2 diodes to rectify both halves of a cycle**
Half-wave rectifier	**1 diode to rectify ½ cycle**
Shunt regulator	**Transistor across output to increase Regulator current capacity**
Rectifier	**Current flows in one direction only**
Series regulator	**Transistor in series with the output to increase regulator current capacity**
Zener Diode	**Diode regulator or voltage reference**

Paul Honore' W6IAM
(rev-2 Dec '08)

Small Bite of Airmail - Part 1

This is a short article to give you a quick flavor for twenty first century radio messages. Here is the main idea. Last century we used packet radio or voice to send messages. Now we use that same system and meld it into the new internet way of sending messages. Almost all of us are using eMail on the internet to send messages. Why can't we use our Ham radios to send those eMails? We can, we have, and we are.

The first trick is for some ham to set up a radio to internet interface. They exist and are called RMS servers. RMS is short for Radio Message Server. There are hundreds of these stations scattered all over the U.S. and Europe.

The second major task is to limit access only to licensed operators and avoid spam. This is accomplished using five central servers and pre authorizing every user. These sites are called CMS which stands for Common Mail Server. CMS systems are located on the east and west coasts of the USA, Canada, Australia, and in Europe.

So your radio generated message goes to an RMS station via good old packet. Then it goes via the internet to a CMS. The sender is verified and the message goes on to the user.

The overall system is called Winlink sometimes referred to as "WL2K". The five CMS's communicate with each other all of the time and every message goes to every CMS. If one goes down the others keep working.

You can use this system using your old packet client software you used in 1995. There are easier ways though. That's where programs like "Airmail" and "Paclink" come into play.

You may have a lot of questions. What about simple user to user? Yes. What about HF? Yes. Can I connect directly to a CMS? Yes. Do I need a fancy TNC? No. Is it a lot of work to get started? I say yes but hey, that's what keeps the brain working. There are so many new terms and concepts that it takes a while before the Ah-Ha happens. But, it will happen.

For more information you can go to www.winlink.org.

Just take it one bite at a time.

73, Bill Carter, W7WEC

ELECTRONIC PROJECT CLASS

I will be hosting a very basic electronic assembly project class.

We will have a preliminary meeting at 288 Carlsborg Rd. on Saturday January 31, 2009 at 10am.

The first class will cover basic soldering techniques. The project part of the class will be held on following Saturdays. For the project I recommend assembling a simple AC to DC power supply kit. Power supplies are one of the most basic components used in ham radio, they are simple, relatively inexpensive and easy to construct.

As we are assembling the kits we will explain the function of each part and the basic electronic principles on which they operate. This is a hands-on class for beginners so register early because class size is limited. The only cost will be the price of the kit around, $25.00.

Johan Van Nimwegen, KO6I (360) 809-0777 – (360) 681-7300 jvn@olypen.com

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FROM OUR TREASURER:

First Federal S & L of PA	Balance:	$ 2,207.37
Outstanding Cheques:		- 0.00
Current Book Balance:		**$ 2,207.37**
CD at WestSound Bank (6-mo, 3.40% APY):		+ 1,037.74
CD at WestSound Bank (18-Mo, 5.13% APY):		+ 3,000.00
Total Cash Assets:		**$ 6,245.11**

David R. McCoy,
KE7JEJ -.- . --... .--- . .---
CC-ARC Treasurer

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COMING EVENTS

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March 7th 2009
Electronic Show and
Flea Market at the
Puyallup Fairgrounds

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BIRTHDAYS:

Barello, Bess	KC7NMN	Jan-02
Coulter, James	K7QCK	Jan-07
Mitchell, Henry	W7HKF	Jan-14
Parris, Janet	WA7JEP	Jan-15
Harty, Carol	KE7OMR	Jan-16
Bevan, Gerald	K3SWH	Jan-22
Moore, John	K7NIA	Jan-23
Belcher, Steve	KE7TTX	Jan-25
Hubley, Donna	KE7DJH	Jan-27
Brazier, Sharon	KE7TTW	Jan-28
Dillard, Don	K5MTW	Feb-06

YL Birthdays

Dove, Belinda (Barry) , (KE7WGO), Feb-06

Happy Birthday!

FOR SALE OR TRADE

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I have a commercial, low power, repeater for sale. Power is about 1.5 Watts, present frequency is 147.33 MHz (up), 100 Hz tone (but adjustable). Was in operation on a small island in the Atlantic Ocean for several years and worked well for 10 miles even with two very low antennas. No diplexer included. Looking for an offer. Rob AL7KK 360-457-7827

~ ~ ~ ~ ~ ~ ~ ~ ~

I'm looking for two items:
1. A keyer that will handle -70V to feed my Iambic key into the TS830.
2. A 30 ft. telescoping TV mast. Dennis AD7TV

For Sale

Staco Variable Autotransformer Transformer Model 3PN1010
Input : 120 V, 10 A
Output : 0-120/140 V
Description: This is a Staco Inc. Variable AutoTransformer, Type 3PN1010, used, in excellent working condition. Still in original box. Input 120 Volt, Freq.50/60 Hz, Output 0-120/140, Amp 10, KVA 1.4. Made in Dayton Ohio, 12 Amp Fused for Protection. Plug in on cord and receptacle plug on unit. Heavy Duty Autotransformer. Useful for ham radio, lab / scientific, and cows. These sell for $400+, make me an offer.
wx7rik@pobox.co

Second Bite of Airmail

Maybe the first "Bite of Airmail" got you interested and that someday you might want to try it. You can. Right now, and without a TNC or Radio involved. All you need is a computer with internet access. You can install and learn the major part of Airmail and use it to send and receive eMails.

Airmail is a simple program to install and run. It doesn't use any fancy Windows files or the Registry. If you install Airmail and then want to take it off the computer you just delete one file folder in your Programs folder and it's gone.

There is another program to use WinLink but it's harder to set up. It's called Paclink and is a very good program but let's skip it for now.

The Airmail program can be complex if you want to run a VHF radio, the internet, and HF. Those three methods are run by Modules in Airmail and we'll just stick to the internet Module for now.

Here's the procedure in checklist type format.

1. Go to www.airmail2000.com/ and then download Airmail. for Hams.
2. Run the file you've downloaded.
3. During install uncheck "install PTC-II usb drivers. We don't have that TNC.
4. Put in your call sign when asked.
5. Put in your Lat/Long if you know it otherwise hit cancel.
6. Airmail is installed!
7. Now lets connect to the internet. On the toolbar at the top is a block called Module. Click it and then Internet Access.

Click NEW and there are some blocks to fill. They are filled in from top to bottom. WL2KS then SanDiego.Winlink.org, port is 8772, time-out is 120. Password is CMSTELNET and then there should be a black dot in front of B2. You should be ready to experiment with Airmail!

If you want more detailed instructions go to Yahoo groups and join LOADING_WL2K_USER_PROGRAMS. Yes that is the name of the Yahoo group. Go to their file section and get the file NEWE-MAIL ASSIGNMENT #4Airmail.

Remember. Just take it one bite at a time.

73, Bill Carter, W7WEC

CTCSS

The use of CTCSS allows mobile radio users to block out unwanted traffic on the same radio channel, either from a different user group on a shared repeater system, or from a foreign repeater or mobile. In crowded RF environments, the use of CTCSS is essential to protect against unwanted interference.

When equipped with a CTCSS decoder, a radio receiver will remain muted in the presence of carrier unless the carrier contains the proper CTCSS code. This will effectively block out unwanted transmissions from other radios or repeaters on the same channel. When the correct tone code is received, the radio will unmute for the duration of the transmission. Because the tone is continuous, CTCSS provides positive control of the radio's squelch circuit during each transmission. Because the tone is sub-audible (below 250 Hz), it is filtered out of the radio's audio path and does not interfere with normal voice communication.

While most CTCSS applications require an encoder/decoder combination for both transmit and receive, some applications require only an encoder. For example, in some fleet applications, only the base station may be protected with a decoder, in which case the mobile units require only an encoder to unmute the base station.

Check your rigs' instruction manual. You will no longer have to listen to your squelch breaking from the door openers in downtown Port Angeles or listen to the Federal Way repeater. However, anyone using our repeater tones will be audible.

See http://www.olyham.com/9612055.pdf

73, Chuck, N7BV

CLALLAM COUNTY AMATEUR RADIO CLUB
Minutes of the General Meeting December 10, 2008

The meeting was called to order at 7:05 P.M. by club president, Chuck, N7BV.

The Pledge of Allegiance was given, then, introductions were made around.

Chuck N7BV recognized Tom KE7XX and Shirley KC7ZQA who recently observed their 60th wedding anniversary.
Chuck mentioned that sometimes outgoing club emails arrive later for some than for others because the system will allow only 100 emails per hour, and the club membership is greater than that. He also advised that if members are signed up to receive ARRL bulletins (on-line), they may receive notices 3 or 4 times due to local duplication.
The Pacific Northwest DX Club convention will be held in August 2009 in Spokane.

Steve W6MPD reported on the status of the club repeater. It is on the bench being repaired, as it only puts out about 1½ watts. It will be back up as soon as possible, but when is unknown.

Tom KE7XX has all levels of license manuals, and also has Morse Code discs. The manuals are $24.95 each, and the code discs are only $10.00 per set.

It was moved that the minutes of the General Meeting for October be approved. Seconded and carried.
It was moved that the minutes of the General Meeting for November be approved. Seconded and carried.

Dennis AD7TV mentioned that the format of QRZ.com has changed. And he also mentioned that using the satellite camera views available at Google Earth (in high resolution areas) is useable for planning antenna layout on one's property.

Mike McCarty, N7MLM facilitated the election of officers.

Nominations for President reopened, with a request for any further nominations. There were none. Moved and seconded that nominations be closed. Motion passed. (Nita KE7DRT remains the only candidate.)

Nominations for Vice-president reopened, with a request for any further nominations. There were none. Moved and seconded that nominations be closed. Motion passed. (Dennis AD7TV remains the only candidate.)

Nominations for Secretary reopened, with a request for further nominations. There were none. Moved and seconded that nominations be closed. Motion passed. (Lee KE7TTY remains the only candidate.)

Nominations for Treasurer reopened, with a request for any further nominations. It was moved and seconded that nominations be closed. Motion passed. (David KE7JEJ remains the only candidate.)

Nominations for Board Member (three year term) reopened, with a request for any further nominations. There were none. Moved and seconded that nominations be closed. Motion carried. As there were two nominees, Al W7YLV and Matt KC7EQO, voting was held by written ballot. Al W7YLV received a majority of votes.

Nominations for Board Member (two year term) reopened, with notice that Carol KE7OMR declined consideration as a candidate because of a recent adverse health diagnosis. After some discussion, it was determined that Johan KO6I was indeed open to being nominated for the position, and subsequently was nominated. Steve W6MPD then declined his nomination in favor of putting his time into repeater support.
It was moved and seconded that a vote by acclimation be held for all candidates nominated without opposition. Motion carried. A voice/hand vote was held, unanimously in favor.

Announcement: The Club Christmas party will be held this Sunday. The details of the gift exchange were discussed.
Chuck talked about the role of the Board of Directors and encouraged members to read the club bylaws.
Dennis AD7TV advised that Boy Scouts have requested a Ham Radio merit badge presentation.
Chuck advised there will be a 10-Meter contest this weekend.

The President-elect was asked to come forward and tell the club members of her ideas for the club. Nita asked for member support. General discussion included youth involvement, publicity, expanding the club, etc.

At 8:30 PM it was moved and seconded that the meeting be adjourned. Motion carried, and the meeting adjourned.

There were 24 members and guests present.

Minutes by Rich N7NCN

NEXT YL LUNCHEON

13 February
Old Mill Cafe
Carlsborg
Time: 11:45 a.m.

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

2009 YL Luncheons:

February - Old Mill Cafe - 721 Carlsborg Rd. - Carlsborg
March - Gordy's Pasta and Pizza - 1123 E. 1st - Port Angeles
April - Oak Table - 292 W. Bell - Sequim
May - Downriggers - 115 E. Railroad Ave. - Port Angeles
June - Mariner - 707 E. Washington - Sequim
July - Joshuas - 113 DelGuzzi Dr. - 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 - Paradise - 703 S. Sequim Ave. - Sequim

Description	Time/Date	Location	Contact
Clallam County ARES/RACES meeting	7 pm, first Tue of every month	Clallam County Courthouse EOC, 223 E. 4th St., PA	Dan Abbott N7DWA 360-582-3824
Clallam County Amateur Radio Club general meeting	7 pm, second Wed of every month	Port Angeles Fire Station 5th & Laurel Streets, PA	Tom Newcomb KE7XX 360-452-8228
Clallam County Amateur Radio Club social breakfast	8 am, first Sat of every month	Joshua's Restaurant Hwy. 101 & Del Guzzi Dr.	Tom Newcomb KE7XX 360-452-8228
Clallam Country Amateur Radio Club YL social lunch	11:45 am 2d Fri of every month	Rotates - announced on Thursday night Net	

CLUB OFFICERS For 2009

President: Nita Lyman KE7DRT 360-457-5022 Nita_lyman@yahoo.com
Vice President: Dennis Tilton AC7TV 360-452-1217 3tiltons@wavecable.com
Secretary: Lee Diemer KE7TTY 360-683-5102 pathfindernorth@aol.com
Treasurer: David McCoy KE7JEJ 360-457-8550 mccoy.d.r@olypen.com
***Board Member* (Chairman):** Bill Carter W7WEC 360-6814375 w7wec@arrl.net
***Board Member*:** Johan Van Nimwegen KO6I 360-681-7300 jvn@olypen.com
***Board Member*:** Al Dawson W7YLV 360-457-0752 adawson@tfon.com