November 2006 **Volume 11-2006**

Nacogdoches Amateur Radio Club

President: Tom Atchison – W5TV

VP: John Chapman – KC5MIB

Sec/Treas: Army Curtis - AE5P

NOVEMBER MINUTES

The November meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on November 1st. Twenty-four members and one guest were present. **President Tom, W5TV**, opened the meeting at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. Each person present introduced himself. Minutes of the previous meeting were approved as published. Treasurer's report was read.

Discussion held on the Christmas Party / Meeting to be held on December 6th. Place will be the Parish Hall of Christ Episcopal Church, our regular meeting place. Time will be 7:00 p.m., our normal starting time. Everyone to bring their favorite party food or snack. The club will furnish drinks, paper goods, etc. Everyone is also encouraged to bring a White Elephant gift to be auctioned off. The White Elephant should be something appropriate for ham radio folks or their ladies, and can be wrapped or not. The proceeds of the auction will go to the general fund of the club. For the auction to be a success, everyone should also bring money for bidding.

The Shuttle Columbia Special Event is planned for February 3rd, 2007, 9:00 a.m. until 4:00 p.m. at the KC Hall. **Tony, KE5ASM**, is to reserve the hall for us. **Andy, KE5EXX**, is to handle publicity with QST, World Radio, and ARRL League Officials.

Nominating Committee Report: The Nominating Committee recommended a slate of officers for 2007 comprised of **John Chapman, KC5MIB** for President, **Andy Delgado, KE5EXX** for Vice President, and **Army Curtis, AE5P** for Secretary-Treasurer. The slate was elected by acclimation.

Discussion was held on the possible impacts of TXU bringing BPL to our area for meter reading. So far,

no adverse affects have been noted.

Winlink, W5NAC-10. **Kent, KD5SHM** has been working hard on getting the bugs out and has the equipment working pretty solid now. The radio has been donated by **Mark, W5TXR**, the computer donated by Curtis & Clark Engineering, LLC, the TNC was purchased by the club, and the UPS donated by Curtis & Clark Engineering, LLC, although it needs a new battery. We still need an antenna and coax. It was voted to authorize Kent up to $200 to make this happen.

Army, AE5P, discussed obtaining additional club callsigns that can be used during emergency events. Motion passed to authorize Army to proceed.

Meeting was adjourned at 8:07 p.m.

Show and Tell: **John, KC5MIB** showed off some portable equipment carrying cases. **Andy, KE5EXX** showed his new frequency counter kit. **Kent, KD5SHM** showed his new copper pipe 2M J-pole he made. **Army, AE5P**, showed off a new Elecraft VHF transverter he built from a kit.

PRESIDENT'S CORNER

I want each of you to know that I have enjoyed this past year as President of the Nacogdoches Amateur Radio Club. You are a good group to work with and we are all excited about the future of amateur radio here in East Texas. I'm looking forward to working with John Chapman, KC5MIB, Andy Delgado, KE5EXX, and Army Curtis, AE5P, next year as we move our club forward.

Let me remind everyone that the Christmas Party will be on Wednesday, December 6, at 7:00 p.m. at Christ's Episcopal Church. I hope you will be able to attend. Please bring your favorite snack food and a contribution to the White Elephant auction. We always have a great time with the auction and the money goes to NARC.

I hope each of you has a great Christmas and a fabulous new year. I urge you to try something different in amateur radio next year. As Robert, KE5FEE, says, keep 'listening and learning'.

73 de Tom, W5TV

V.P.'s CORNER…

Wow, it's been a busy year and a busy couple of weeks. I hope everyone had a great Thanksgiving and are looking forward to family and friends at Christmas.

The year has been very good. I want to thank all the folks that helped with the State-wide SET and the few Skywarn activations. We were lucky this year; the weather was generally good to us

A crystal ball for the future of ham radio, this

club and our own lives will be very nice. We have new allocations that I'm sure most of you have read about. I sure can't tell you what is out there except what we have on our planning calendar. AND the most current event will be our Pot luck Christmas Party, White Elephant and I hear rumblings of a raffle…

Let's all take time this season to reflect on the good things, pray for better things in life, remember all of our family, share with our friends. Pray for peace. Merry Christmas, Happy Holidays, however you celebrate—Blessings to you and yours and Peace.

73 to all,
John Chapman
e-mail:
jlchapman2@juno.com or
kc5mib@arrl.net

VE TESTING

Our next VE testing is scheduled for Wednesday, December 20th at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. Applicants should bring a picture ID, the original and a copy of their current Amateur license, the original of any CSCE's and $14 to cover the cost of the exam(s). Correct change is always very much appreciated.

TRAINING MATERIALS

The club has purchased several copies of the latest ARRL "Now You're Talking" books, which provides everything a person needs to be able to pass the Technician class Amateur Radio license exam. Anyone may "borrow" one of these books for a $20 deposit. When you return the book in good condition, you will get your deposit back. Interested? See **Army, AE5P**.

CLUB NETS

Remember to join us each week for the 2-meter nets sponsored by NARC. Each MONDAY is the NARC ARES/RACES net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3). Second, on THURSDAY evenings at 8:00 p.m. is the Deep East Texas Skywarn Net on the 147.32 repeater (PL 141.3). Please join us for one or both.

NEXT MEETING

The next meeting will be on Wednesday December 6th at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. This is at the corner of Starr and Mound Streets in Nacogdoches. Hope to see y'all there.

Basic Electronics Part Nine By Thomas Atchison

The discussion up to this point has dealt with circuits that have steady voltages applied and steady currents flowing. Many electronic circuits, however, include some voltages and currents that are changing. Circuit currents and voltages may increase and/or decrease over time even if their direction doesn't change. Such currents are called direct currents (DC). For

example, consider the circuit in Fig. 1

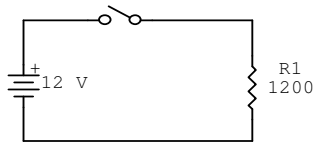

Fig. 1

If we open and close the switch once every second we will generate a series of pulses, each 1 second long. The voltage across R1 will be 12 volts when the switch is closed and 0 volts when the switch is open. The current through R1 will be 10 mA when the switch is closed and 0 when the switch is open. Voltage and current both change each time the switch opens or closes. The electrons always move in the same direction through the circuit, so we have a direct-current signal (DC).

Some electronic circuits are such that electrons move through the circuit in one direction part of the time and in the opposite direction part of the time. When electrons flow first in one direction and then in the other, we say there is an alternating current. This is usually abbreviated AC.

An AC waveform that you will frequently find in electronics is the sine wave. A sine-wave current varies gradually between its peak positive and peak negative values. A sine-wave current graph looks like Fig. 2.

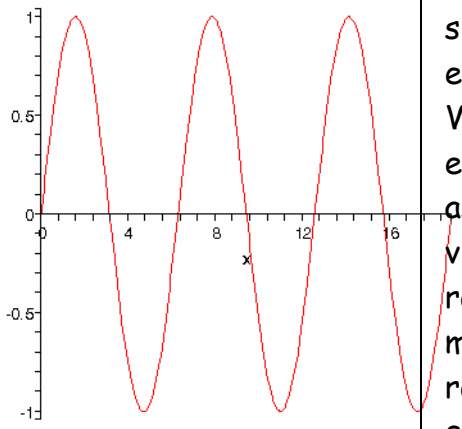

Fig. 2

In this graph we think of those values above the horizontal axis as positive and those below the horizontal axis as negative. Notice that the wave starts at zero and increases positively to a maximum or peak value. It then decreases to zero and continues to decrease through negative values to a maximum negative value or peak. From this negative peak it increases until it is again zero. This completes one cycle of the alternating current. You see that a cycle consists of a positive half cycle followed by a negative half cycle.

Alternating current signals travel through conductors in much the same way as DC signals do. Alternating signals also produce electromagnetic radiation. We refer to electromagnetic radiation as radio waves; however, visible light, ultraviolet radiation, X-rays, and many other types of radiation are also electromagnetic radiation.

AC currents can change direction at almost any rate. The frequency of a wave is the number of complete cycles the wave makes in one second. Frequency is measured in hertz, abbreviated Hz. For example, if the current completes 60 complete cycles in one second, then it has a frequency of 60 Hz. The power company supplies electricity to your house

as 60 Hz AC. If you tune in a two meter signal at 144.200 megahertz (MHz), this means that you are listening to a signal that is alternating at a rate of 144.2 million cycles per second.

Wavelength is another quality that we associate with every AC signal. Wavelength refers to the distance the wave travels through space in a single cycle. We use the symbol lambda (λ) to represent wavelength. All electromagnetic radiation travels through space at the speed of light, 300,000,000 meters per second. The faster a signal alternates the less distance it can travel during one cycle. The equation that relates a signal's frequency and wavelength to the speed of light is

$$c = f\lambda$$

where c is the speed of light, $3 \text{ X } 10^8$ meters/second, f is the frequency of the wave in hertz, and λ is the wavelength of the wave in meters.

For example, if we have a radio signal with a frequency of 7.125 MHz, which is $7.125 \text{ X } 10^6$ Hz, then the wavelength is given by

$$\lambda = \frac{c}{f}$$

Therefore,

$$\lambda = \frac{3 \text{ X } 10^8 \ meters/\text{sec}ond}{7.125 \text{ X } 10^6 \ Hz}$$

or

$$\lambda = 42.1 \ meters.$$

What is the wavelength of a signal operating at 144.2 MHz?

INSTALLING PL-259'S

BY AE5P

There were some postings recently on Hamlist concerning how to install PL-259 connectors on LMR-400 coax. The following applies to installing PL-259 connectors on any style of coax, not just LMR-400. You should also know that this is certainly not the only way to install PL-259's, but it works for me, and it may just help you.

Tools needed:

* A good sharp knife. I like to use either a box cutter with a sharp blade, or an Xacto knife with a #11 blade.
* A small tubing cutter.
* A large soldering iron or gun. I use a Weller 375 watt soldering gun which is a real hoss. Some folks have reported very good results using a butane type soldering iron. Whatever you use, it needs to be able to heat up the connector quickly without melting the coax.
* A very wet rag. I cut out an old 1 gallon plastic milk carton and put the rag in there. That way I don't drip TOO much water on myself while working on the connector ;o)

The best connectors are silver plated, and they take solder very easily. They are also a little more expensive. The cheaper connectors are nickel plated, and they can be a little tough sometimes to take solder. If you are using nickel plated

connectors, use a small rat tail file to cut through the nickel plating around each of the four solder holes. This can make it much easier to solder.

Okay, let's put that connector on. First, unscrew the back of the connector and slide it over the coax. If you are going to use heat shrink tubing (recommended), now is the time to put it over the coax also. Second, measure back from the end of the coax at least 1-1/4 inches. Use the knife of your choice to carefully cut through the jacket at that point without cutting the braid, and remove the jacket leaving the braid exposed. Carefully and quickly tin the braid with your soldering iron. You want to do this quickly so you don't melt the center insulation. Tin the braid at least 5/16 inches from the end of the jacket towards the end of the cable. Now, set it aside, and find something else to do while it cools.

When the cable is cool, use the tubing cutter to cut through the tinned braid exactly 1/4 inch from the jacket. Since the braid is tinned, it will cut very easily without distorting. Remove the rest of the braid, exposing the center insulation. Now, use your sharp knife again to cut through the center insulation, about 1/16 inch from where you cut the braid with the tubing cutter, and remove the center insulation exposing the center conductor. If you are using RG-8 type coax, quickly tin the center conductor. Again, be careful not to melt the center insulation. Now, set it aside and go find something else to do while it cools.

If desired, apply a very light coating of silicone grease to the end 1/4 inch of the jacket to facilitate it screwing into the connector. Now, screw the connector body onto the end of the coax, making sure the center conductor goes into the center pin of the connector. I use a pair of slip joint pliers to help screw on the connector, as it can get pretty tight. Screw it on until you can see the tinned braid through the holes in the connector body. Ideally, you want the end of the center insulation to be tight against the inside end of the connector body. The center conductor of the coax should be even with the end of the center pin, or extending from the end just a little.

Now, put your big, hot soldering iron on the body of the connector next to one of the solder holes, and melt a little solder between the tip of the iron and connector. The melted solder will greatly help to heat things up a lot faster than using a dry iron tip. Watch the connector carefully, and try feeding a little solder directly into the hole of the connector. As soon as you see the solder start to melt, feed some more solder into the hole, but be quick about it. Quickly rotate the connector and coax, and feed a little solder into one more of the solder holes. It is not necessary to put solder in all four holes. This is an electrical connection you're making, not a mechanical connection.

Now, remove the soldering iron and quickly quench the connector with your wet rag. It will hiss and spit at you, and normally a small cloud of steam will erupt from the rag. Make sure the steam is coming from your rag and not from your hand. Use the rag to completely cool down the connector and the cable.

When soldering the connector to the braid, do not put the soldering iron tip into one of the solder holes. You are trying to heat up the connector, not the braid. When the connector gets hot enough to melt solder, the braid will be hot enough also.

Now, use the soldering iron to solder the center conductor in the center pin of the connector. You don't have to flood it with solder, a little works just fine. Again, as soon as it takes solder, remove the iron and use the wet rag to completely cool the connector again.

If you got solder on the outside of the center pin, you can use a knife or small file to carefully remove it. If necessary, trim off the center conductor even with the end of the pin, and make sure everything is smooth.

Now, screw the back of the connector onto the front part, and install the heat shrink tubing over the back end of the connector. You're done!

For me, tinning the braid makes all the difference in the world in putting on the connectors, and the dripping wet rag will cool everything down before the cable melts on you.

As I said, this is not the only way to install PL-259's. If you have a way that works good for you, use it. If you're having problems, you might want to give this method a try.

Have fun, and get to making up those coax jumpers!