

Next Monthly Meeting: Friday May 24 6:30 PM at the MCL Cafeteria in Kettering .
Meeting is always the 4th Friday of the month except for when impacted by holidays

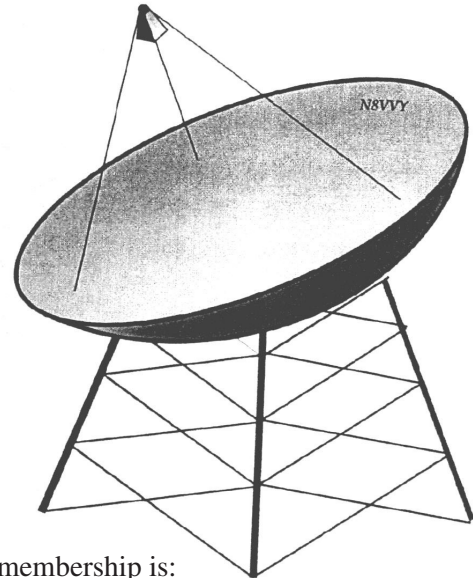
ANOMALOUS PROPAGATION

April 2024

Newsletter of the **Midwest VHF/UHF Society**

Editor: Jim Bacher, WB8VSU

For a Word document template for articles, send a request to Jim (j.bacher@ieee.org) or click on this link to get the Word format Template. Thank you!



Annual membership is:

\$12.00 for newsletter by Email

\$16 if newsletter by USPS

\$240 Life Membership by email

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Tipp City, OH 45371



Vol. 38 No. 4

www.mvus.org

April 2024

Beacons: 1296.079 W8KSE EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.
MVUS Skimmer -. <http://www.reversebeacon.net/dxsd1/dxsd1.php?f=0&c=w8kse&t=de>

Contents

De N8ZM	3
Crystal Radio Set	4
MVUS Renewal	10

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De N8ZM

Not much big news to report this month, except that Hamvention is now less than a month away. I would hope that by now, that isn't news at all, let alone big news. As previously announced, MVUS will have a space in the flea market (7338), so plan to stop by to say hi, or use it as a place to meet friends. We will also have some miscellaneous items looking for new homes at very good prices. Some gadgets (like amps, splitters, combiners, filters), wire and cable, maybe some waveguide, microwave dishes, who knows? If you are looking for something specific, let me know. I might have it and can bring it to the show. There might even be some free stuff! You won't know if you don't stop by!

Not much progress to report on beacons, as Mike, W8RKO, and I have been busy with other projects. Mike, as you may know, is heavily involved as one of the transmitting stations for the twice-yearly Frequency Measuring Tests. By the time you read this, the spring edition of the contest will have just been completed. I hope you gave it a try, it is really quite interesting and fun.

So the big eclipse of 2024 is now history and I hope you got to see it, even if somehow remotely. John, N8UR, and I had a 6m beacon running at 100 watts to a horizontally polarized omni antenna all that day, and we were also monitoring the LF and HF bands and recorded over a terabyte of data, which is being processed by the HamSci and Case Western folks to see what can be learned. In a few months there should be some papers from those two organizations disclosing what was observed. It was a nice day up at the N8GA contest station watching the show with John, Mark (KB8ZR), Sharon (KC8JRS), Ed (W8BFT), and his XYL, Jan. The weather was perfect, the clouds were minimal and the show was impressive. Ed recorded the whole thing with his tracking telescope and the video he produced is first class. Here it is: <https://tinyurl.com/4c66br88>. Warning, it is quite big, so have a lot of disk space available and a pretty fast internet connection, or prepare to let it run overnight. I'm not kidding.

The meeting is on the 26th this month, at the MCL at 6:30 PM. I hope to see you there.

de N8ZM

Crystal Radio Set

Author: Bruce Lundy, KA8EDE

Editors note: Bruce says "Please know that there is NO copyright to any of my photos and my text is not copyrighted either." More pictures are in Anomalous Propagation Vol.. 37 No.. 5 (May 2023) . Bruce will have it setup in the Dayton Hamvention Flea Market Space Number 7276 & 7376. Space layout is nose to tail, not side by side.

Years ago at one of our MVUS Radio Club meetings, Ed Garner, WR8A (sk) gave a very interesting presentation of his crystal set which really set my wheels spinning. This meeting, Ed had not brought his set to the meeting so, I was swimming in deep waters trying to imagine what his set looked like. He talked of his set having fantastic selectivity. What I had ever made would pick up three stations at the same time with the same settings! I've got to see this. So, I invited Ed over to the farm and the instant I saw his set..... he had three separate tunable L C sections all in a row with adjustable spacing capability. BINGO! I was off to the races with thoughts. Ed's coils were wound of 10 gauge solid copper wire, 8" diameter forms, spaced wound by string and lacquer. Beautiful!

I started my madness around January 10, 2001. One bit of necessary information Ed shared was the design of the coil. Coil length and diameter was very important. My first coils I chose to be 1 1/2 x 1 ratio. If you use a length of copper tubing, 1/4" diameter, that would be 1 1/2 times the coils diameter, and using 270 Pf to tune the AM broadcast band, and each turn on the coil will have 1/2" spacing, your length of copper tubing would be approximately 130' long. Now, for the math to figure out what would be the diameter of the coil form and how long would it be to have a 1 1/2 to 1 length to diameter ratio, 18" in length with a 12" diameter with 1/2" turns spacing.

To make the coil form, I cut out 2 discs of 3/4" plywood 10" diameter. Allowing for 3/4" sticks to be spaced all around the plywood discs edges because I found out to wrap all those turns of copper tubing over those sticks, You would not be able to slide your copper windings off the form! There fore, three of those sticks had to be removable to get my clamp plates in and off the winding. Groups of three sticks were removed 4 different places, at the 12, 3, 6, and 9 o'clock positions.

The pics are extremely necessary to totally help you understand how and why I made the coil form the way I did. Not to mention the handy dandy crank handle I made to actually turn the form to wind the coil. The very skinny form hanging from the floor joists holds 100' of copper tubing. I spliced the windings using 1" long pieces of 10 x 32 threaded brass rod and soldering the splice with my 250 watt soldering iron. Bingo!

The spacer sticks are made of 3/4" red oak, which I cut to 3/8" thickness. Clamping two of those sticks and securing them on edge, I was able to drill the necessary number of 1/4" holes on my vertical mill following the line of toughing of each other. Perfect half inch

Continued on page 5
Midwest VHF / UHF Society

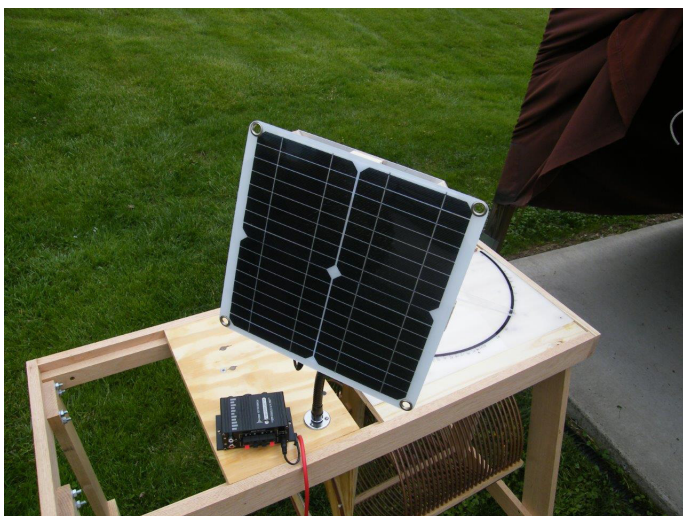
hole spacing for the tubing to get perfectly spaced and secured with a dab of Elmer's Glue and several small clamps holding them together while the glue sets up. Again, the pics are very helpful in understanding the procedure.

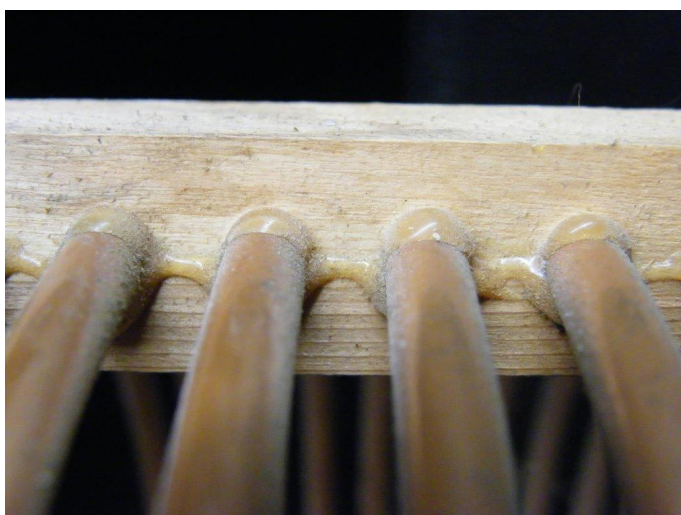
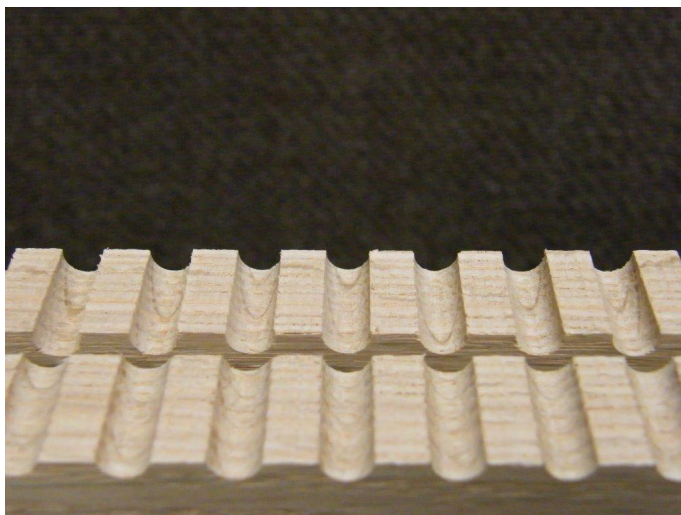
Now, to make calibrated tuning dials, with 10" long pointers for fine adjustment. Yes, I made the knobs which none of them match, color wise. The white plexiglass sheets, 12" x 24" with black Sharpie Chisel Tip, I made a compass like device to hold the large pen to swing the arcs. I found out the black ink is permanent. All other color Sharpies are NOT permanent ink. I used a HP-8640B signal generator for calibration accuracy. Low frequency will receive 540 Kc and up to 1710 Kc +.

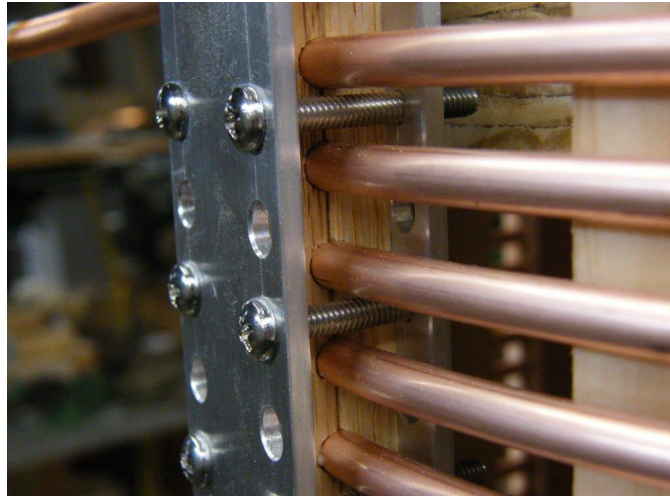
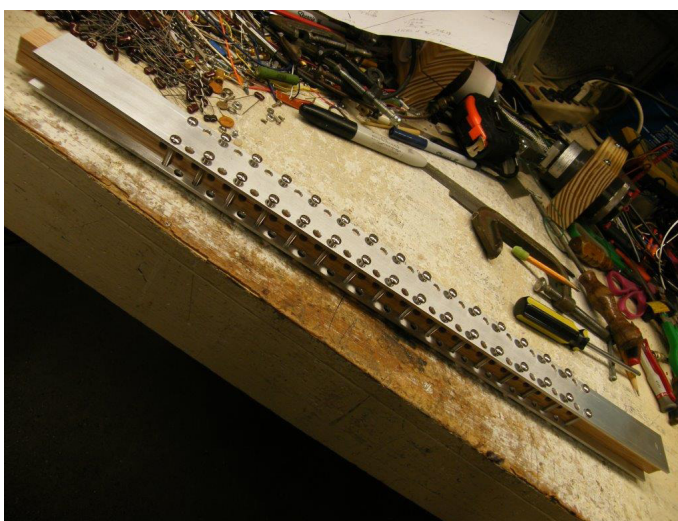
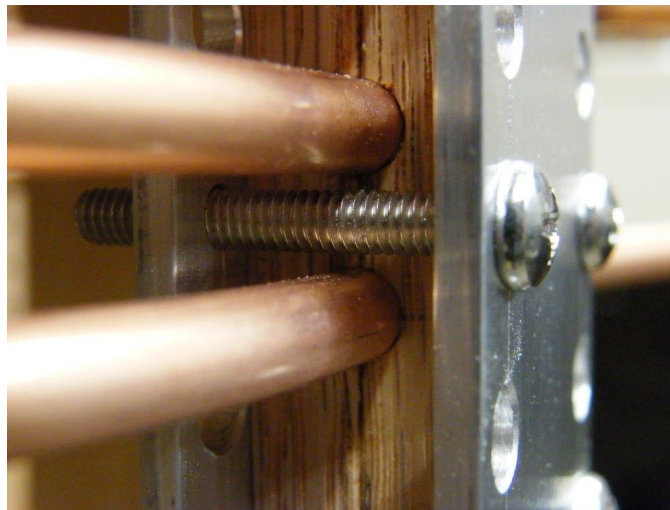
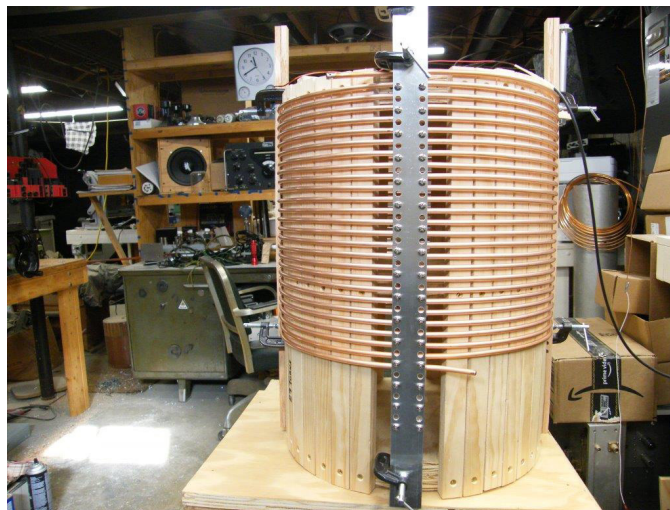
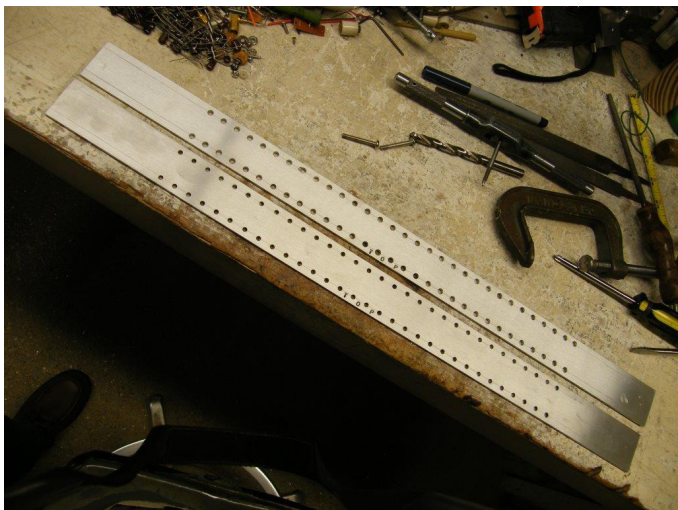
The clamp idea to squeeze the spacer sticks together is 3/16" x 2" wide aluminum strap. Clamping those two straps together in the mill vise, I drilled .159" holes spaced every 1/2" as necessary and those holes in one strap got tapped for 10 x 32 screws. The other strap plate got re drilled to "clear" the 10 x 32 screws. I found out using a screw between every turn was totally not necessary because clamping every hole I could crush the oak sticks. Don't need that! Again, the pics will help you understand how it all works.

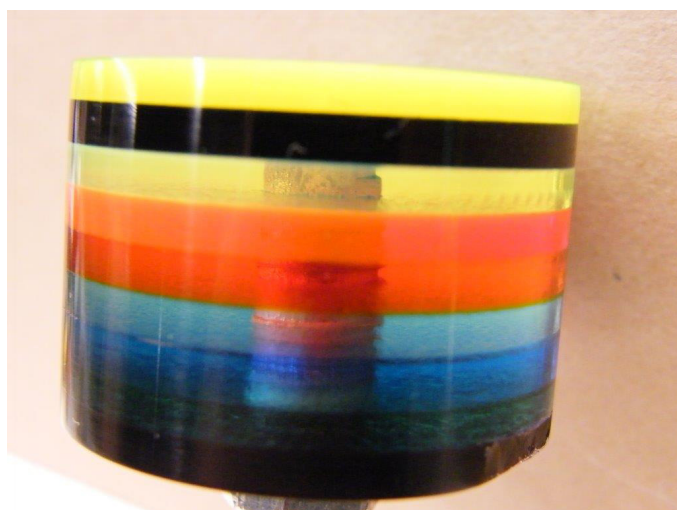
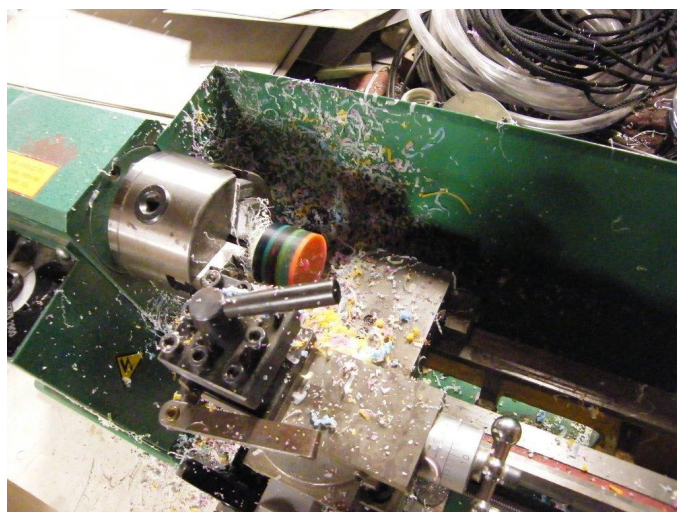
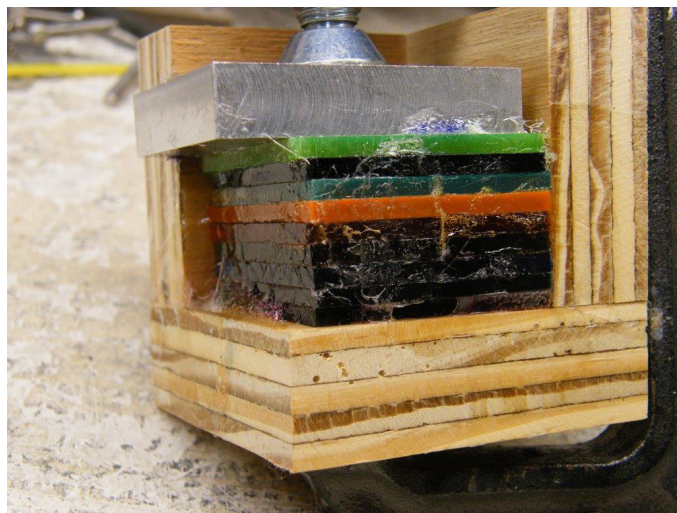
This latest rebuild has 4 stages . The second rebuild had 2 tunable stages because the bed of the truck is only 6' long. This latest addition makes the set have 3 tunable stages and is on casters detached from the original 6' long frame which holds 2 tunable stages. The separate stage also has the detector stage which is a random length of insulated hook up wire. The detector is a 1N34 diode connected in series with the other end of the detector winding. A DC blocking capacitor is connected between the detector and the transistor amplifier and larger speaker so a crowd can hear the results.

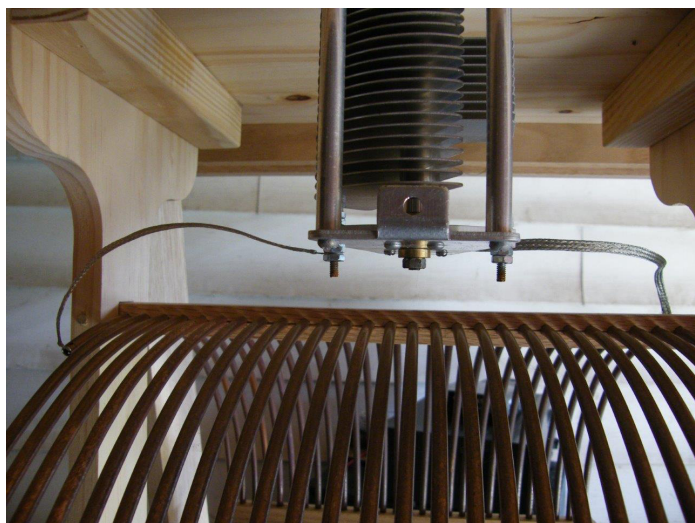
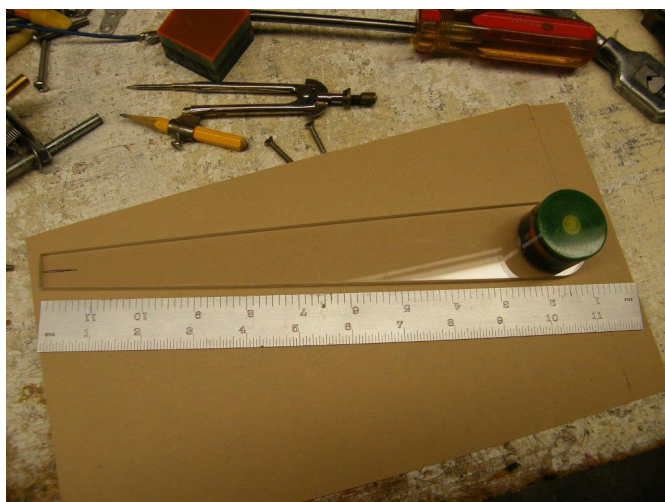
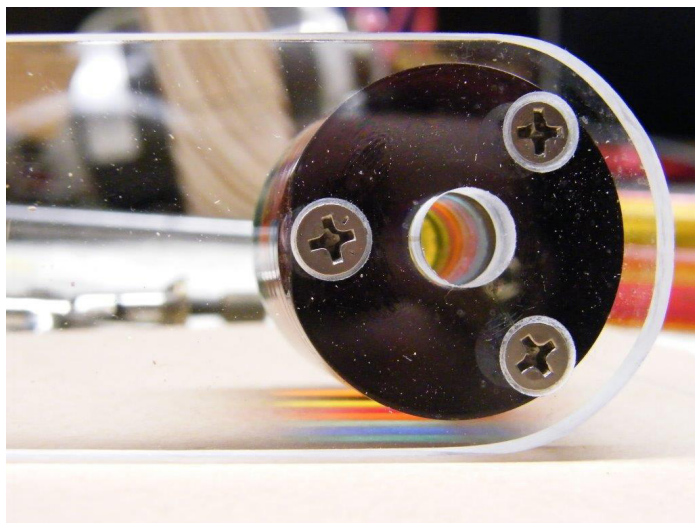
So far, listening during the day light hours, I can receive about 12 radio stations. After sunset, the entire band is just about packed solid with stations. Getting back about this selectivity thing, I live 34 miles away from WLW-700, a 50,000 watt station near Cincinnati, Oh Even back with the original set, I could listen to WOR-AM 710, a 50,000 watt station near New York, NY during the evening hours.











MVUS Renewal

Don't forget to renew your MVUS membership.

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Or

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Bellbrook OH 45305

MVUS will be at Hamvention in the flea market in space #7338

Memberships are prorated by month. So you can send any amount and Joe will adjust your membership accordingly

If you want to pay by PayPal you can send your renewal to Either Tom Holmes, N8ZM or Jim Bacher, WB8VSU and we will get your renewal to Joe.

Tom's PayPal account is: tholmes@woh.rr.com

Jim's PayPal account is: wb8vsu@arrl.net