



The Cuyahoga Amateur Radio Society

THE WOBBLY OSCILLATOR

News

Activites

Articles

Minutes

October, 2002

Vol: XXXI

Issue: IX

CARS WINS BIG AWARD !!!

The Cuyahoga Amateur Radio Society has walked away with the coveted OHIO HAM RADIO NEWSLETTER OF THE YEAR award, which was presented by the Ohio Section of the Great Lakes Division of the ARRL!

This is the eleventh year of the award, which is believed to be the only such award presented in the 71 sections of the ARRL, and only the second year that our newsletter, The Wobbly Oscillator, has been entered into the contest.

CARS President, Bob Check W8GC, and the editor of the Wobbly Oscillator, Tom Wayne WB8N, drove down to the 2002 Ohio Section Conference on Saturday, Sept. 14, to accept the award which was presented by Public Information Officer, Scott Yonally N8SY, and Ohio Section Manager, Joe Phillips K8QOE.

The judging of the newsletters entered into the contest was done by non-hams. The judges were professionals in the magazine and writing fields.

The award is a great honor for our club and For the Wobbly Oscillator Newsletter, and we should all be proud of our fine publication! The editor will do all he can to keep up the high standards that let to us achieving this award.

The Lake Erie Amateur Radio Association (LEARA) won second place in this contest by only a couple of points behind us with their newsletter, The Spirit of 76 & 88. Congratulations go out to them for that achievement!

Way to go CARS! See a copy of the award on page three.



Wobbly Oscillator editor, Tom Wayne WB8N accepting the newsletter award from Ohio Section Manager, Joe Phillips K8QOE.

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Minutes of the Meeting of 18 September, 2002

The meeting held at the Busch Funeral Home Community Center was called to order by President Bob Check W8GC, at 7:33 PM.

A motion to accept the minutes of the August meeting per the September WO was made by Terry KB8DTC, and seconded by Everett WA8EYF. A vote was taken and passed.

The treasurer's report was given by Mike, KB8UGT. Bob W8GC, informs us that Gary NI8Z, placed 1st in the Ohio RTTY Roundup held last January and that Steve, N8IS, earned 3rd place.

The WO won an award by the ARRL for the best Newsletter in the State of Ohio as reported by Tom WB8N. This award was picked up by Tom WB8N, and Bob W8GC, in Columbus, Ohio.

Bob reported the Board has voted to have our Christmas Party at the Independence Civic Center in the White Oak Room on Saturday December 21, 2002. Cost for adults \$16, age 6-12 \$10 and 5 or under free.

Lin, WD8SDP, reported on the SS Mather and a discussion followed.

A report on the Sunshine was given by Aaron KC8INE.

Gordon, W8GTK, reported on the Club Net & Dayton bus.

Toby, KC8TID, reported to us on the Lighthouse activities and a discussion followed.

Bob also reported that Dave K8DAV, is doing a great job rebuilding our Web site. Please check it out at www.cars.org.

Reminder: please send your Newsletter articles to Tom WB8N, at newsletter@cars.org.

Gary NI8Z, reported on the September VE session and upcoming programs.

A refreshment chairperson is needed as requested by Bob. Toby KC8TID, volunteered to this. Many thanks to Toby.

Bob reported that the club needs A technical person to help out with the maintenance of the club repeaters. A discussion followed and Terry KB8DTC, volunteered help out in this capacity. Dave W8IXY will also help if possible. Thank you, Terry & Dave.

Gary NI8Z, gave the 2nd reading on the proposed changes to the Bylaws and the Constitution and this was followed by a discussion. A motion was made by Ev WA8EYF, and seconded by Terry KB8DTC, to amend the change on Section 3 of the Constitution

to read "for at least (12) twelve months preceding the nomination for office" and accept the changes to the Constitution and Bylaws as read. A discussion followed and a vote was taken and passed.

The 50/50 raffle was won by Jack W8JAK. His share was \$22.00.

Reminder nominations for Officers will be held at the October meeting.

Another reminder is in order as well. Get your dues in by the end of December 2002/beginning of January 2003!

A motion to adjourn the meeting was made by Terry KB8DTC, and seconded by Fred, NO2O. A vote was taken and passed.

The meeting was adjourned by Bob W8GC, at 8:55 PM.

Respectfully submitted by Ron Borkey K8VJG, Secretary
Cuyahoga Amateur Radio Society.

MONTHLY TRIVIA QUESTION

What band has been proposed as a new amateur band by the ARRL, to the FCC?

1. 36 meters
2. 5 meters
3. 60 meters
4. 600 meters

Answer found elsewhere in this issue.

VE NEWS

The September VE session held 9-8-2002 had more VEs than testees. Showing their support to provide this testing opportunity were Roger Boehlein N8TCP; George Pindroh K8KR; Steve Riley N8IS; Dave Kushman K8DAV; Tom Wayne WB8N; Robert Check W8GC; and Ronald Borkey Sr. K8VJG. All three individuals who came to be tested passed either a test for a new license or an element completion. Two new Technician licenses were issued and a CSCE for element 3, General Class, written but 5 wpm code test still needed for license upgrade.

Gary Dewey NI8Z, VE

FROM THE PREZ

It was good to get back to our regular meeting room at the Busch Funeral Home. Thanks to all who attended.

Ron K8VJG provided refreshments for the last time, THANKS FOR A JOB WELL DONE! Toby KC8TID will be our new refreshment chairman beginning with the October meeting.

Kayla KC8RYH collected \$44.00 for the 50/50 drawing this month, Jack, W8JAK, won the 50/50 raffle, he took home a cool \$22.00, congratulations Jack.

Toby KC8TID reported the Lighthouse committee is working on another activation in December from Vermillion and maybe something next month if time and weather allow.

I am sure you have seen Tom WB8N's article on our winning the newsletter contest, attached is a pix of the award. WAY TO GO TOM!!!!

Please contact Mike K8EHP or David W8IXY for tickets & info to our Christmas party.

Buffet Dinner will include;

salad, Breaded pork chops, Baked chicken, Roast beef in gravy, corn, Parsley potatoes, rolls & butter, assorted pastries, coffee & pop.

Watch the progress at www.cars.org, our Web site, as Dave K8DAV makes it a more user friendly site with new material and information. Send Dave an e-mail with your suggestions or comments to k8dav@cars.org.

I will have some new and better options regarding our repeaters at the October meeting.

Nominations for 2003 officers at our October 16, 2002, 7:30PM at the Busch Funeral Home.

See you at the October meeting!

73,

de Bob W8GC



EXCERPTS FROM THE GEARVAKf BULLETIN

Reprinted with permission.

Anti-cellphone Forces Threaten Ham Radio

Having failed in 2000, Senators have proposed legislation to severely restrict the use of cellular telephones. If passed, it could prohibit operation of cellphones in public places, all motor vehicles, trains, bicycles, animals, or other means of transportation, including walking or running. Public officials would be exempt. According to one of the sponsors, Hillary Rodham Clinton (C-NY), the legislation will stop "cellphone users from taunting poor people with their ostentatious wealth." Supporting the legislation is the American Bar Association, the National Association of Prosecutors, and the Federal Print Media Regulatory Agency. They claim to have secret evidence showing that speaking or listening while in motion is dangerous to the social order. The League of Radio Relaying Americans is opposing the legislation because it would ban ham radio contacts from anything that moves. The LRRRA'S stance has been condemned as unpatriotic by the *New York Times*, *Washington Post*, and the *Stinking Springs Gazette*.

FCC Asks LRRRA To End DX

At its meeting on December 25th, the FCC directed its legal council to petition the LRRRA to stop DX contacts on all frequencies. FCC spokesman Ralph R. Spiffie told reporters that "DX is outmoded, wasteful of natural resources, and unfair to disadvantaged, skill-challenged radio operators".



THE RANDOM WIRE

By Tom Wayne, WB8N

CLEVELAND HAMFEST TIME

Well, the Cleveland Hamfest has come and gone for another year. The 2002 hamfest was a pretty good one. The weather was great, the flea market had a lot was filled with vendors who had a lot of good stuff for sale, and overall I think the attendance was good too. The indoor area was confined to one and a quarter buildings this year. This is presumably because there was a computer show at the fairgrounds on the previous day, and on the day of the hamfest there was another computer show elsewhere, and most of the computer vendors that normally set up at the Cleveland Hamfest were at the other show.

CARS had a table again this year, as did several other area clubs. Normally we would have been grouped with the other club tables, but because we were selling items that belonged to members, we were away from the club table area, which was alright.

I got to see a lot of hams that I don't see often, as well as several CARS members. I didn't make any purchases this year, and as usual, I didn't win anything either! Oh well.

I wish to thank Gary NI8Z, David W8IXY, Gordon W8GTK, Ron K8VJG, Toby KC8TID, who along with myself, helped man the CARS table.



Part of the crew manning the CARS table.

Dave W8IXY, Gary NI8Z, Tom WB8N, and Ron K8VJG



Gordon W8GTK , at the Cleveland Hamfest

MINI DX-PEDITION

On October 19, a few days after the October meeting, I will be arriving on the island of St. Maarten in the Caribbean. On Sunday, October 20, I plan on beginning operations as PJ7/WB8N from the resort my wife and I will be staying at on the Dutch side of the Island. The island is half Dutch and half French. I plan on operating from about 9:00 A.M. to around 11:00 A.M. and from about 4:00 P.M. to around 7:00 P.M. local time here. Also possibly later in the evening, after around 10:00 P.M. The frequencies will be in the 10, 15, and 20 meter bands, around the normal DX frequencies: 28.495 MHz., 21.295 MHz., and 14.195 MHz., plus or minus 5-10 MHz. I will be running an Alinco DX-70 rig at 100 watts, with a portable antenna. Hopefully I will be able to work some of you while I am down in the Caribbean. The reason for the short hours of operation is that I plan on operating in the morning before my non-ham wife gets out of bed, in the afternoon when she takes a nap, and at night when she is back in the sack again. We'll see what happens.

The last time I was in St. Maartin, I only had my hand-held rig and was not too successful in working any locals on the local repeater. It seems they are not too active on two meters, but there is one two meter repeater on the Dutch side and one on the French side. I hope to meet up with a fellow named David Bardfield PJ7DB - N1DDD, who is an American that resides and operates a business on the island. He is originally from Massachusetts.

Then there is the French side of the island, where the infamous Orient Beach is located. Ask me about Orient Beach at the meeting. All I know is, it should be a fun and interesting trip!

Continued on page 8...

NOT ALL GROUND RODS ARE EQUAL

continued from July W.O.

Although the internal abilities of these different rod materials to conduct current vary from 100% for copper to 2.4% for stainless steel, corrosion and other physical considerations typically govern which type of metal rod you should install. Except for corrosion considerations, the type of metal has almost no effect on the ground rod's earth electrode resistance. Soil almost entirely determines the resistance value.

During the winter, having the ground rod extended to the deep non-frozen soil greatly improves its resistance value over what it would have been in frozen soil or ice.

Soil resistance is nonlinear. You'll find most of the earth electrode resistance within a few feet of the ground rod - concentrated within a horizontal distance that is 1.1 times the length of the ground rod. Therefore, if you install ground rods too close together, you essentially design the current to flow into the same earth volume. This causes the rod's parallel resistance values to remote earth to be less than expected for parallel resistances in a normal electrical circuit. For maximum effectiveness, you must provide each rod with its own volume of earth, having a diameter about 2.2 times the rod length. In fact, tests show two 10 ft. ground rods driven only 1 ft. apart provide almost exactly the same conductivity as a single 10 ft. rod. This is why the National Electric Code requires you to install a second rod at least 6 ft. away from the first rod, if the resistance of the first rod is greater than 25 ohms. You can think of the soil surrounding a ground rod as a series of conductive onion-like layers of equal thickness. The current flowing from the ground rod must flow through these layers. The earth layer closest to the ground rod has the smallest surface area and offers the greatest resistance. As the distance from the ground rod increases, the cross-sectional area of each layer increases. Therefore, if you improve the conductive characteristics of the soil immediately adjacent to the ground rod, you can greatly reduce the overall earth electrode resistance of the ground rod.

During an event, current flows only through the electrolyte portion of the soil, not through the soil itself. Without the moisture to form the electrolyte, almost all soils exhibit poor conductive characteristics. However, you can cut the resistance in half by excavating a 12 in. O.D. hole, installing the 10 ft. ground rod in the hole, and then filling it with a chemical that has high electrical conductivity, holds water, and exhibits stable resistivity.

If you excavate a 24 in. hole, you can reduce the resistance of the rod to one-third of its untreated value.

As another alternative, you can encase ground rods in concrete to reduce ground rod resistance, particularly in highly resistive soils. The concrete, being hygroscopic, attracts moisture and acts as a semi-conducting medium with a very low resistivity. The concrete encasement reduces the overall resistivity in much the same manner as a chemical treatment of the soil.

Selecting the best ground rod: The installation process influences the integrity of driven rods. You can damage ground rods during installation. While copper components are highly conductive and resist underground corrosion, copper cladding doesn't primarily provide better conductivity. If you scratch or chip the copper coating during installation, the steel underneath galvanically reacts with the surrounding soil and quickly corrodes. During excavation, you'll typically find ground rods of this type totally disintegrated.

In an electrolyte, conventional current flows from the anode (+) to the cathode (-). Measurable voltages of different metals in a water electrolyte differ significantly. Therefore, when installation damage causes a break in the copper covering on a steel-core rod, conventional current flows from the anode (steel) to the cathode (copper) in the ground water electrolyte. Thus, you sacrifice the steel rod to the copper in an aggravated corrosion process. When the galvanizing is gone, the unprotected steel simply rusts and disappears after time, which causes the resistance of the ground rod to increase over time.

At the wire connection end of the ground rod, mechanical clamps may be effective, but tend to loosen over time and must be tightened periodically to maintain a low resistance grounding path.

Ground rods are available in various lengths, diameters, shapes and metals. By carefully analyzing each installation site, you can rest assured your installation will function as designed. (*Submitted by Terry Pallatt, KB8DTC.*)

Answer To Trivia Question

And the answer is: #3. The 60 meter band, 5.25 - 5.4 MHz. The FCC was close to allocating this band to the Amateur Service, when at the last minute (and after the deadline for comments) the Nat'l Telecommunications & Information Administration (NTIA) came out against the allocation. The NTIA regulates radio spectrum allocated to the Federal Govt. and said this frequency range was used by the Justice Dept., U.S. Coast Guard, and the Dept. Of Defense, and that use by Amateurs would potentially cause interference. Things are looking up now however as a compromise is close to being reached.

FACTS ABOUT LIGHTNING

During a thunderstorm, churning air separates ions into positive and negative charges. Lightning occurs when a buildup of this electrical energy explosively discharges either within the cloud itself or between the cloud and ground.

The air near a lightning strike is heated to 50,000 degrees Fahrenheit, which hotter than the surface of the sun. It is the rapid heating and cooling of air near the lightning channel that causes a shock wave which results in thunder.

The average lightning strike is six miles long and is 30,000 times faster than a speeding bullet. Every day 44,000 lightning strikes occur throughout the world. The earth is struck 6,000 times every minute.

A "positive giant" is a lightning strike that hits the ground up to 20 miles away from the storm and is known as the proverbial "bolt from the blue". Positive giants carry several times the destructive energy of a regular lightning strike.

Approximately 100,000 thunderstorms occur in the United States each year. Many of them are in the states of Kansas and Florida. More than one million strikes jolt the Sunshine State each year, earning Florida a second nick-name, "lightning capitol of the United States".

Lightning kills about 93 people annually and injures another 300, according to the National Oceanic and Atmospheric Administration (NOAA). It also causes more than one billion dollars in insurance industry losses, from residential claims each year. A strike can pack up to 100 million volts of electricity, a force similar to that of a small nuclear reactor.

Your chances of being struck by lightning is estimated to be one in 600,000 according to NOAA. Most lightning strikes and injuries occur when people are caught outdoors during the summer months, in the afternoon and early evening. Lightning seeks the path of least resistance. If you are taller than your surroundings or are standing next to an object that is taller than your surroundings, like a tree, you are a prime target.

One of the best lightning safety guidelines is the 30/30 rule. If it takes less than 30 seconds, after you see lightning, to hear the thunder, you should get indoors and stay there for thirty minutes. If you are outdoors and feel a tingling sensation, your hair stands on end or if you smell sulfur, lightning may be about to strike. Immediately crouch down and cover your ears. Do not lie down or place your hands on the ground, because a lightning strike may momentarily electrify the ground beneath you.

The pathology of lightning, keraunopathy, is known only to a few specialists.

Most of the current from a lightning strike passes over the surface of the body in a process called "external flashover."

Storm distances may be determined by observing the time it takes to hear the thunder from the lightning flash. Every five seconds equals one mile.

Reprinted from the Tusco Amateur Radio Club newsletter, which reprinted it from some other publication.

The Wobbly Oscillator is a publication of the Cuyahoga Amateur Radio Society, which is a not for profit organization dedicated to the hobby of Amateur Radio. The Wobbly Oscillator is published monthly. The editor is Tom Wayne WB8N, and the publisher is Bob Check W8GC.

Articles of interest pertaining to Amateur Radio may be submitted by e-mail or U.S. mail, on floppy disk, cd-r disk, and in most any format. Deadline for publication in the next month's publication is the 30th of the present month.

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CARS REPEATER FREQUENCIES

2m repeater	146.820 MHz	Input 146.220 MHz PL 110.9 Hz
2m simplex	145.750 MHz	
70cm repeaters	443.825 MHz	Input 448.825 MHz PL 131.8 Hz
	444.750 MHz	Input 449.750 MHz PL 131.8 Hz
6m repeaters	53.010 MHz	Input 52.010 MHz PL 136.5 Hz
	53.830 MHz	Input 52.830 MHz PL 107.2 Hz
Internet: http://www.cars.org		

Cuyahoga Amateur Radio Society

ANNUAL

Christmas Party

6363 Selig Dr.

Independence Civic Center

Saturday, December 21 2002

6:00 PM-10:30 PM

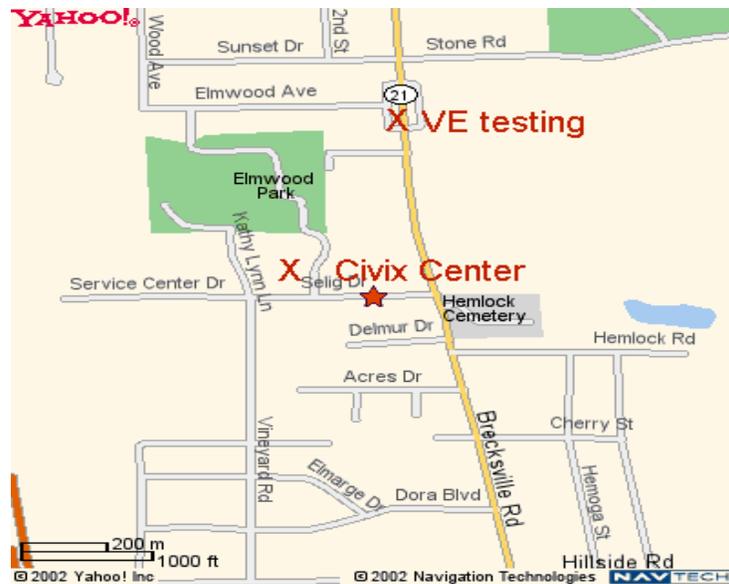
Catering Provided by

R&K Sausage

Adults \$16.00, Children 6-12 \$ 10.00

Number of Adults _____ Children _____

**Menu: Breaded Pork Chops, Baked Chicken, Roast Beef in Gravy,
Corn, Parsley Potatoes, Salad, Rolls & Butter,
Assorted Pastries, Coffee & Soft Drinks**



The Random Wire continued...

HAMFESTS

There are a couple of hamfests coming up in the near future. The next one is the Medina County Hamfest, on Sunday, October 6th at the Medina County Career Center located at 1101 W. Liberty St. (State Rt. 18). It starts at 8 A.M. and runs until 2 P.M.

This one has been around for awhile and is usually a pretty good one. For more information contact Mike N8TZY, at n8tzy@m3net.net.

The next one is the Woodchuck ARC Hamfest on Saturday, Nov 2nd at the St. Johns Lutheran School at 11333 Granger Rd, Garfield Hts. It starts at 8 A.M. and goes til 1 P.M. This was run by the school in the past and now the Woodchuck ARC has taken it over. It is a small hamfest but only costs a buck to get in!

For more information, contact Jason Jodan KB8QQS at kb8qqs@arrl.net

CARS WEEKLY CLUB NET

Contrary to popular believe, CARS (your club) still conducts a weekly net over the CARS repeater on 146.82 MHz. The net is conducted on Wednesday evenings at 7:00 P.M., except for the club meeting nights (3rd Wed of the month). There are several members who take turns being net control each week.

The net is a chance to meet some of your fellow members if you can't make it to a meeting very often, and to find out what is going on with the club between meetings. There is usually a trivia question thrown out at the beginning of the net for all to take a guess on. The answer is given at the end of the net. Give a listen and check in. Don't just check in and let that be it. Stick around. The net control operator will come back to each check-in and ask for any comments, guess on the trivia question, etc. Let this be a chance to make a few comments on what is on your mind (preferably amateur radio related of course), and to get used to talking on the radio if you are new at the game. Don't be shy, just key the mike and have at it. Don't forget to identify when you sign clear though. The net normally runs for about a half hour, although some nights it runs a bit longer, depending on the number of check-ins and the number of announcements and information passed along. So mark it on your calender and tie a string around your finger (or hand-held) and make it a point to check into YOUR CLUB NET!

This net has been around for several years now, and is well established. It was originally held on Tuesday nights, but was changed a couple of years ago. Over the years there have been several members who were in charge of the net, in-so-far as lining up members to be net control on a rotating basis. At the present time Gordon Kolus W8GTK

is in charge of the net. He takes a turn as net control, and usually steps in if someone cannot run the net when it is their turn (or falls asleep or forgets, as I have been known to do). Hope to hear you checking into the next net. I'll know who you are, if you don't!

ARTICLES FOR THE NEWSLETTER

Just a few words here guys and gals, to try to get you to write an article for this award winning newsletter. It isn't easy to come up with articles each month, and this column would not have to be so long if I didn't have to fill the blank spaces with words myself each month. Help me keep this newsletter interesting and award winning! Sit down at your computer (or just use a piece of paper and pencil) and write about what interests you. Write about that new piece of gear you recently got...it doesn't have to be brand new, just new to you! Write about what interests you in this great hobby of ours. Write about that rare DX contact you made, or even a great rag-chew with a stateside station. You could put down in words why you became a ham in the first place and what satisfaction you get from the hobby. There are all kinds of ham radio related subjects that I know you each have tucked away inside you, just waiting to get out. Get it out now by putting it down in words and submitting it to the newsletter. Don't worry about spelling or punctuation. That is the editor's job. Send along a photo of your station...I know, how about a contest...the neatest station and the messiest station? That would fill some space! Let your imagination be your guide. It aint hard! When I sit down each month to write the Random Wire, I usually don't have a clue what the heck I am gonna write about, until I begin. Then it just seems to flow out through my fingers and onto the keyboard and I ramble away.

So c'mon all you frustrated authors. Let's get those articles coming in! We want this newsletter to win an award again next year as well, and it won't happen without your input and help! I'm going to really start bugging all of you whenever I see you about this folks.

ELECTION OF OFFICERS

Next meeting. Nomination for officers of CARS. Who is going to be the next President and Vice President? Be thinking of who you want to preside over your club for the next year or two.

That's it for this month. I've rambled on long enough.

73,
de Tom, WB8N

CARS Officers & Committees 2002

American Red Cross Disaster liaison

Ev, WA8EYF ** 216-581-3657

ARRL Liaison/Media Representative

Marc, KB8QHJ ** 440-717-0846

CBARC/Liaison

Dwayne, K8ME 440-582-3462

Community Education & School Program

Dave, KD8V ** 330-666-8721

Steve, N8IS ** 216-328-9276, Ron K8VJG

Dayton Bus

Gordon, W8GTK ** 330-225-6917

Digipeater

Tom, WB8N ** 440-232-4193

Elmer

George, K8KR ** 216-941-5304

Field Day

Tom, WB8N ** 440-232-4193, Aaron KC8INE

Phil K8MPL, Bob W8GC, Steve N8IS, Gary NI8Z,

Holiday Party

Mike, K8EHP 216-252-6640 ** Dave, W8IXY **

Jamboree on the Air

Paul, KC8AMD ** 440-237-8116

Lighthouse events

Dennis, AB8NI ** 440-974-1087

Toby KC8TID ** 440-572-1544, Bob W8GC

Museum Ship W. G. Mather W8WGM

Bob W8GC ** 216-524-1750 Lin WD8SDP **

Steve N8IS, Gary NI8Z, Bob W2THU, Mike K8EHP, Dennis

AB8NI, Mike KB8UGT, Bruce N8DJX

Membership

Ron, K8VJG ** Bob Check, W8GC

NET

Gordon W8GTK ** Gary NI8Z, Tom WB8N,

Toby KC8TID, Kayla KC8RYH

WO/Newsletter Editor

Tom, WB8N ** 440-232-4193

Program director

Gary, NI8Z ** 216-642-1399

CARS QSL Manager

Tom, WB8N ** 440-232-4193

Refreshments & 50/50 at meetings

Ron, K8VJG ** 440-237-6718 / Kayla, KC8RYH

Sunshine (Welfare)

Aaron, KC8INE ** 440-526-9705

Technical

Roy, KB8VJF ** 330-468-3020

Vince, N8OVW ** 216-635-2579

VE Exams and Ham License Classes

Gary, NI8Z ** 216-642-1399

Web Master/e-mail

Dave, K8DAV ** 440-243-3593

Bob, W8GC ** 216-524-1750

** chairman or co-chairman

Board Members

Even Year Executive Board;

George, K8KR 216-941-5304

Steve, N8IS 216-328-9276

Odd Year Executive Board;

Gordon, W8GTK 330-225-6917

Terry, KB8DTC 330-273-1043

K8ZFR License Trustee

Tom, WB8N 440-232-4193

NO8A License Trustee

Bob, W8GC 216-524-1750

2002 Officers

PRESIDENT

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president@cars.org

VICE-PRESIDENT

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treasurer@cars.org