

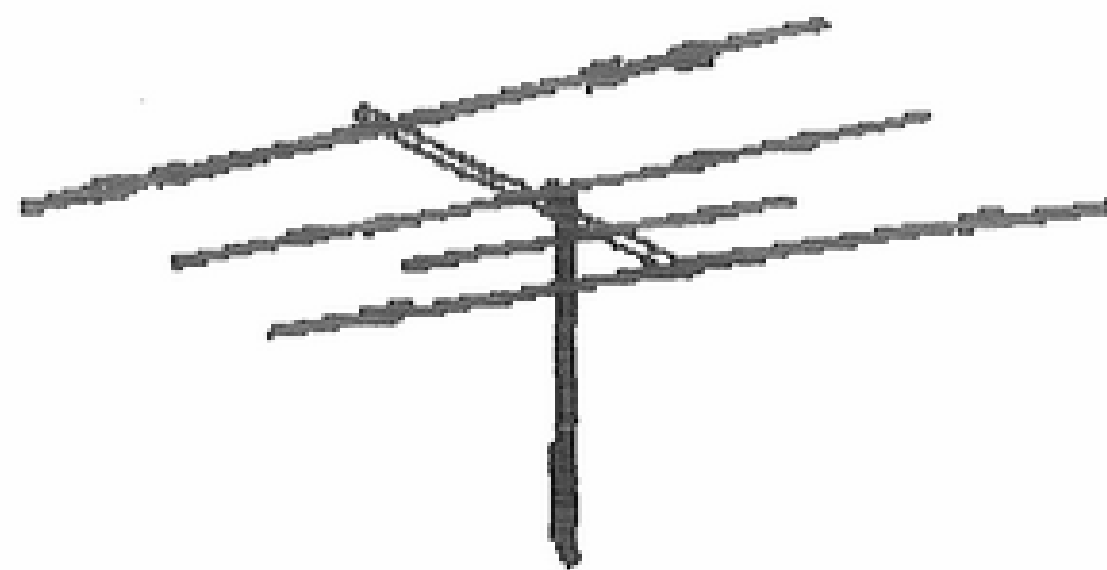
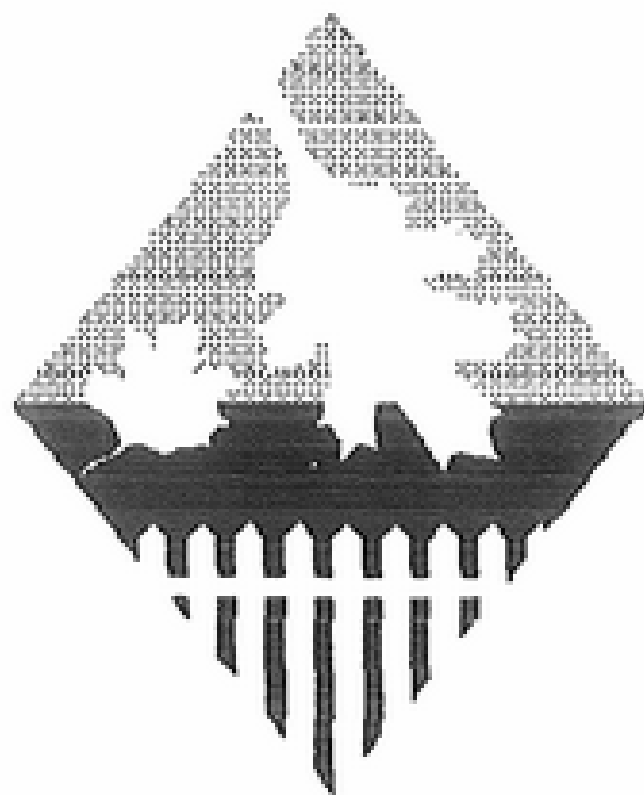
C&E

CORA
Collector & Emitter

October 1994
Volume 20, Number 10
Issue 236

Second Class Mail

Postmaster See Page 2
For Postal Information

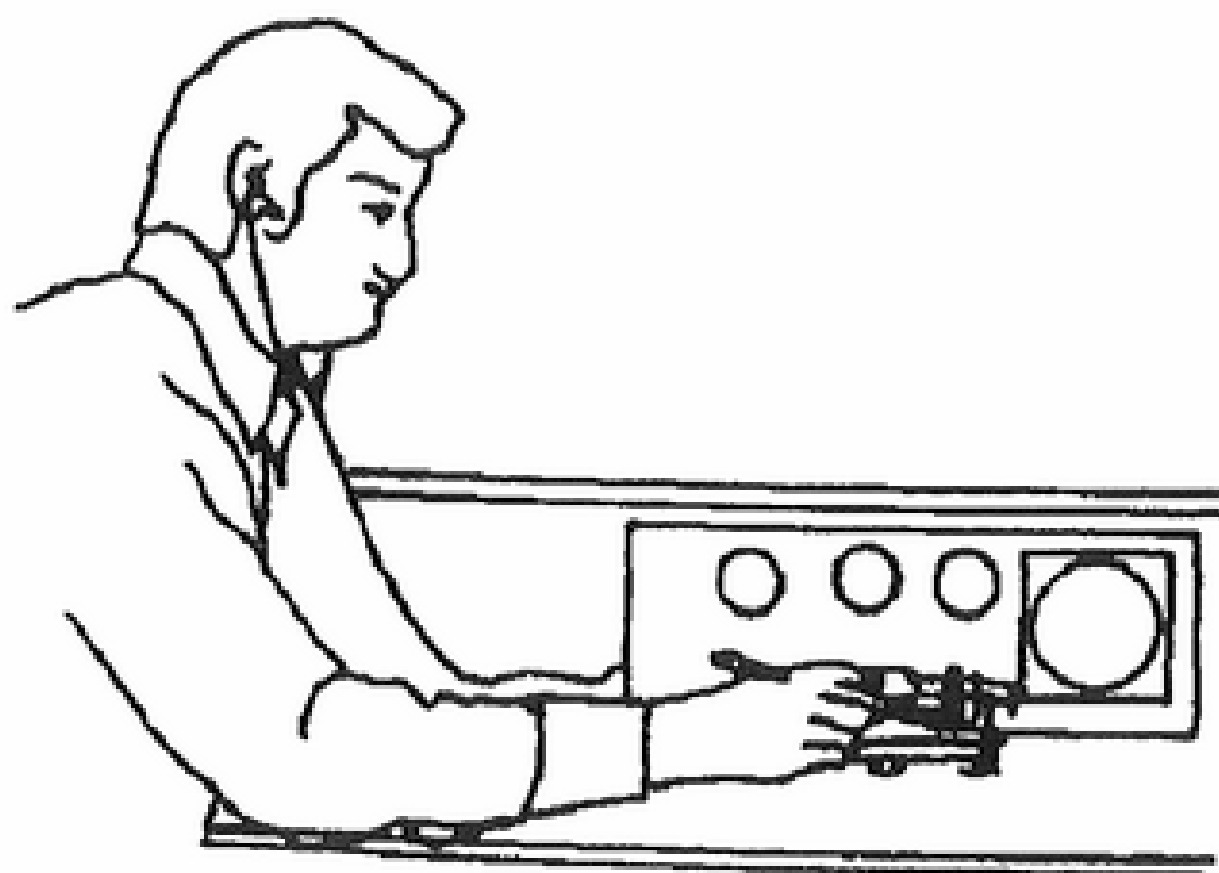


Fall; Time of Beautiful Foilage and Start of Contest Season!!

News From A Scholarship Winner

Areonautical Center Club News

Club Artists Challenged



1994 CQ World Wide SSB Dx Contest 29 -30 October

CORA

Collector & Emitter

Harold C. Miller, KB1ZQ/5
Editor

Central Oklahoma Radio Amateurs, Inc.

President: Chuck Wilhite, K5NK
Vice President: John Guida, NJ1V
Secretary: John Brassfield, N5SAM
Treasurer: Tom Mangham, K5LDI

Dear Subscriber:

PLEASE help us keep your information up to date. What time, where, when, who are your officers, editors, and their phone numbers. Check your entry, it can be changed. If there appears to be a mistake, check with your club officials. We can't do a thing about it if you don't. Below is a sample label:

4	94/07	2
DOE, JOHN E.	KASABC	
1234 SW 56th STREET		
RADIOVILLE, OK	74321	

The "4" means Autopatch Club, "94/07" means the year/month dues expire. The "2" is for postal rates.

Dear Secretary / Treasurer:

When you want a change of any sort to your membership, you must fill out completely a subscription slip. Watch for the date you received their funds and the date the subscription expires. Have your slips, or list of deletions submitted by the 22nd of each month. If there is anything about C&E subscriptions you need to know, please contact us.

October 1994

VOL. 20, No 10, Issue 236

CORA Collector and Emitter (USPS 116-150)

is published monthly by CORA, Inc.
3913 S. Mable St. Oklahoma City, OK
73143-6819. Second Class postage paid
at Oklahoma City, OK.

Subscription rates:

CORA Member \$4.80 per year

Paid subscription \$7.00 per year

Postmaster:

Send address changes to;

CORA Collector and Emitter

P. O. Box 95942

Oklahoma City, OK 73143-
5942

<p>1. Aeronautical Center ARC Meets: 1930L, 1st Thursday, FAA, S. MacArthur, OKC Pres: Dick Russell, KJ5VV 733-2141 Sec/Tr: Brad Nelson, KJ0W 793-9470 VP: Chuck Bryant, KB5ZVZ 737-0423 Editor</p>	<p>11. Edmond Amateur Radio Society Meets: Odd Months, 1400L, 3rd Sunday, Edmond EOC, Even Months, Dinner, 3rd Friday Pres: Lee Vaughn, KA5WIS 348-2961 VP: John Thomason, WB5SYT 340-1798 Sec: Kay Sage, KB5LDO 341-8971 Treas: Sue Snyder, N5VWI 341-8753 Editor: John Thomason, WB5SYT 340-1798</p>
<p>2. Oklahoma Central VHF ARC Meets: 1100L, 3rd Saturday, Neighbor's Restaurant 3401 N. Classen Blvd, OKC Pres: J. Frank Feilds, KB0QJ 789-8469 VP: Bill Noland, WA5FWD 354-5018 Sec: Joe Buswell, K5JB 732-0676 Treas: Ellard Foster, W5KE 789-6702 Editor: Joe Buswell, K5JB 732-0676</p>	<p>14. Cimmaron Amateur Radio Society Meets: 1930L, 1st Thursday, WXSY Playhouse 827 S. 13th, Fairview Pres: John Medley, N5WVU VP: Kenneth Monahan, KB5SOM Sec: Dennis Painton, WK5V 764-3599 Treas: Nadine Painton, N5FMH 764-3599 Editor: Kenneth Monahan, KB5SOM</p>
<p>3. Mid-Oklahoma Repeater, Inc. Meets: 1900L, 1st Tuesday, Favorite's Cafe, 36th and S. Western, OKC Pres: Scott Walsh, N5NYS 787-3804 VP: Rick Masters, N5WNR Sec: Jim Buswell, N5BEQ Treas: Craig Conwall, N5VIS Editor: Dean Ward, N0PAD 681-4606</p>	<p>15. South Canadian ARS Meets: 0930L, 2nd Saturday, Red Cross Bldg North OU Campus, Norma Pres: Don, KJ5KB 321-1673 VP: Mike Winkel, N5SOF 366-8639 Sec: Keith, KB5FCI 329-2213 Treas: Bill, N5UMH</p>
<p>4. Oklahoma City Autopatch Assn. Meets: 1930L, 3rd Tuesday, Salvation Army Bldg N.W. 50th and Penn. (Back Door) Pres: Brad Nelson, KJ0W 793-9470 VP: Mike Fields, KB5WIC 720-9123 Sec: Perry Jenkins, KB5TOT 354-5075 Treas: Cheryl Brassfield, KB5WQR 685-8070 Editor: Mike Fields, KB5WIC 720-9123</p>	<p>16. Edmond Amateur Radio Club Meets: 1900L, 2nd Monday, Various Locations Pres: Mark Northcutt, WD5DYI 755-4672 VP: Wendell Cochran, WB5ISO 396-8224 Sec/Tr: Kay Northcutt, WD5DYJ 755-4672 Trustee: Dennis Orcutt, WB5ISN 340-0034</p>
<p>6. Altus Association Meets: 2nd Thursday, Check Daily Net on 146.79 / 146.82 for current location. Pres: George Mayetko, AA1IJ 266-3357 VP: None Sec/Tr: Mike Brown, KC5AWB 481-6665 Editor: Mike Brown, KC5AWB 481-5928 Hosp: Vallie McClain, KC5AHX 477-3357</p>	<p>18. Great Plains Amateur Radio Club Meets: 1415L, 1st Sunday, Home of N5LRR 2914 Osage Dr, Woodward Pres: Bob Bayles, WB5GAX 254-3561 VP: Andy Taylor, N5LRR 256-4017 Sec/Tr: Rod Ford, WB5OVT 923-7683 Editor: Freida Patterson, N5EQX 256-2111</p>
<p>9. Wheatstraw Amateur Radio Club Meets: 1430L, 2nd Sunday, Location Varies Pres: Joe Hyatt, WA5GHK 375-3783 VP: Leo Peil, WZ5H 886-2998 Sec/Tr: Joe Garland, WA5FLT 893-2660 Editor: Ralph Wilder, WA5PFK 623-5421</p>	<p>Central Oklahoma Radio Amateurs Meets: 1930L, 4th Tuesday, Salvation Army Bldg N.W. 50th and Penn, OKC (BackDoor) Pres: Chuck Wilhite, K5NK 721-4926 VP: John Guida, NJ1V 340-6518 Sec: John Brassfield, N5SAM 685-8070 Treas: Tom Mangham, K5LDI 677-5291 Editor: Harold Miller, KB1ZQ 672-7735</p>

CONTENTS

On The Cover...Contest Season Has Arrived

C. O. R. A. Meeting Minutes and other News	3
Chit - Chat, The Meaning of Christmas.....	4
Contesting Made Simple.....	5
CW Forever / 16 Ways to Improve Ham Clubs.....	6
Aeronautical Center ARC News and History.....	7
HamHappenings - Announcements, VE Testing, Hamfests, Special Meetings.....	8
Newsline, News From Around The World.....	9
Wanted: Club Logos.....	10
VHF Club Minutes and News.....	11
Wheatstraw Minutes and News.....	12
E. A. R. S. News.....	13
M. O. R. I. News.....	14
On The Air - Nets.....	15
O. C. A. P. A. Minutes.....	15
A.R.R.L. Bulletins.....	18
Technical Corner.....	19

Contesting Made Simple

Howdy! This is NJ1V! Hal, KB1ZQ has asked me to write a little something about the upcoming Fall contest season for the *C&E*.

First, speaking of the *C&E*, hasn't Hal done a TERRIFIC job as the new Editor? This is not an easy job that he is doing, so please let him know your appreciation when you get a chance, and help with columns and ideas of your own. Remember, Hal is the EDITOR, not necessarily the one and only CREATOR! So give him something to EDIT!

Well, back to the subject of this article -- HF CW and SSB Contesting -- my favorite Ham Radio activity (CW of course!). We are approaching the season for the BIGGIES, so I will try to discuss a little about contesting in general, the different approaches, and dates and formats for the major contests in the near future.

The purpose of a contest is to contact as many amateur radio stations as possible during a specified period of time, under varying rules designated by the contest sponsor. These periods of time are normally 48 hours, but there are contests with different time periods such as 36 and 24 hours. DX contests typically start at 0000Z Saturday morning (Friday evening local time), and run till 2359Z Sunday midnight (Sunday evening local time).

Contests come in many different types, modes, and operator, power, and band categories. An example of types of contests is CQ World Wide and ARRL DX which are DX contests, and of course ARRL Sweepstakes, which is restricted to US and Canadian Amateurs.

Modes, in the context of this article, may be CW only, SSB only, or mixed in certain contests such as the IARU which is a 24 hour DX contest that takes place in July (nice contest -- relatively short, everybody works everybody).

The different categories assure something to fit almost anyone's preference and station capabilities. Some of the more typical operator categories are: Single Operator (one operator does everything), Multi-Single (many operators -- one transmitted signal at any given

time); Multi-Multi (many operators and usually a station and separate antenna for each band -- this one is for the BIG BIG BIG GUNS); Single Operator Assisted (for those that use spotting assistance such as the DX Packet Cluster), and others as designated in the contest rules.

Power categories accommodate various station set-ups and operating preferences. Examples are high power (usually 100 watts and up), low power (usually less than 100 watts -- typical barefoot scenario), and QRP (5 watts or less).

To help insure that antenna deployment, restrictions, and preferences are considered, most major contests may be entered in either all band or single band categories. So if you don't have the room to put up big antennas for the low bands, you can get by with a small tri-bander or vertical, and play on 20, 15, or 10 (oops ... sorry---a few years down the road!) meters, and compete only against those in these same categories.

In regard to the power and antenna situation, no one should be intimidated by power or antenna restrictions when it comes to contesting. During the time of the 1988 ARRL CW Sweepstakes, Ruthie and I were in temporary corporate quarters, having just moved to the Dallas area. Determined that I would not let the situation keep me from participating in the contest, I loaded our West facing, second story apartment balcony rail, and, barefoot, made 100 contacts, working 37 states including Alaska! (Try that one on SSB!)

Confused? Well, don't be. All of the above, the contest exchange, scoring, and more, can be found in the rules published in the contest sections of QST and CQ magazines, to name a couple. Also, the contest sponsors usually go into great depth of explanation in announcements of the major contests, usually two to three months preceding the actual contest date(s).

You can also learn a lot regarding scoring and categories by reviewing the contest results in the sponsoring publication. You will have to wait several months after the contest to do this, though, as it takes some time for the logs to be submitted, compiled, checked and verified, and set for publication.

Which brings us to another subject -- submission of your logs. If you participate, you should submit your logs! Sometimes, early in your contest endeavors, about the only thing you will have to look forward to is to see you call sign published in the results. But then, you can see how you stack up against others in your category, and your own previous results, and soon, you will begin really **COMPETING!**

You will soon realize that you could even WIN a specific category in your state or call area, and receive a certificate as testimony to your hard earned contest skills! Or be eligible for a Sweepstakes Pin (100 contacts or more) or a Sweepstakes Clean Sweep Cup (by working all 77 US and Canadian Sections).

Or, you can set some specific personal goals, such as exceeding your last years' results, working all states in a weekend, or hitting a rate of 60 or more contacts per hour.

Your own participation can vary as much as all of the categories I have presented. You do not have to spend the entire 48 or 36 or 24 hours working the contest. As a matter of fact, most don't, unless they are running Multi-Single or Multi-Multi categories (or those Single-Ops who practice sleep deprivation, starvation, and other forms of sadism regularly). You are free to choose which times you want to play in the contest, and just how much total time you wish to devote. Of course, if you are participating in a single band effort, you can also choose a band that will allow you to better select day or night time bands to better fit your situation and preferences and the contest format.

You can also select the method by which you wish to participate. Typically, you can either solicit contacts (find a clear spot and call CQ), or scan the bands and answer others' CQs (Search and Pounce, or S&P), or some of both. Those of us that contest regularly really appreciate the participation and efforts of the part-time casual contestors who typically get in the contest at some time during the weekend, primarily to provide contacts (especially during the Sunday afternoon doldrums!). S&P is also an excellent way to "cherry-pick" -- add to your country count, or pick up that needed state or county.

CW FOREVER

Logging, duping, and scoring can often be the most difficult and tedious part of a contest. While the old paper log and dup sheets are still widely used and accepted, the computer has also become a big part of the sport. Several contest logging programs such as CT and NA are available to help you log, score, dup, determine needs during the contest, and prepare your paper work for submission. Also, the files created by these contest logging programs can typically be imported into the more popular personal logging programs. You can find these and other contest logging programs advertised in most Amateur Radio publications.

Well, I guess I could go on forever, but by now you should have the general idea. You can only read and study so long, though. The best way to find out just what is going on is to review the rules, prepare for the contest (that's a whole other subject), and after the contest starts, listen for awhile so that you can get comfortable with the format, and JOIN IN! Pretty simple!

Here are the major contests that are coming soon (dates are based on GMT):

October 29 - October 30

CQ World Wide SSB DX

November 5 - November 6

ARRL Sweepstakes CW

November 19 - November 20

ARRL Sweepstakes SSB

November 26 - November 27

CQ World Wide CW DX

(The MOTHER of all contests!)

February 18 - February 19

ARRL DX CW

March 4 - March 5

ARRL DX SSB

March 25 - March 26

CQ World Wide Prefix SSB

Again, you can find the specific times and rules regarding these contests in the contest sections of QST, CQ, and other Ham Radio publications. And if I can be of any help, please let me know.

But at least, get on and work ME!
I can use the points!

As we say - "KICK BUTT!!!"

CU in the TEST....73....."victor"

John Guida NJ1V

You must have, at times, thought into the past

Where some things go out, while others last.

What comes to my mind is the Old Morse Code

That has weathered the storms from any abode.

To talk with one's finger is surely an art.

Of any info you care to impart.

In most conditions the signals get through.

While the same about phone is simply not true.

Those dits and dahs cut through the trash

Of nearby noise or lightning's crash.

To the sensitive ears of the ham receiver

That records this data with ardent fever.

He knows he's doing something unique.

In such poor conditions, that's quite a feat!

To roger the message that came off the air,

These brass pounders sure do have that flair.

They say Morse ops are a dying breed,

But don't despair, There's always the need.

When conditions get rough for the new automation,

Rest assured there is a need for your station.

CW is dying? Believe it never.

This mode will be 'round forever and ever.

But one thing is sure. What we really need

Is to relay our knowledge to the younger breed.

To carry the torch long after we're gone,

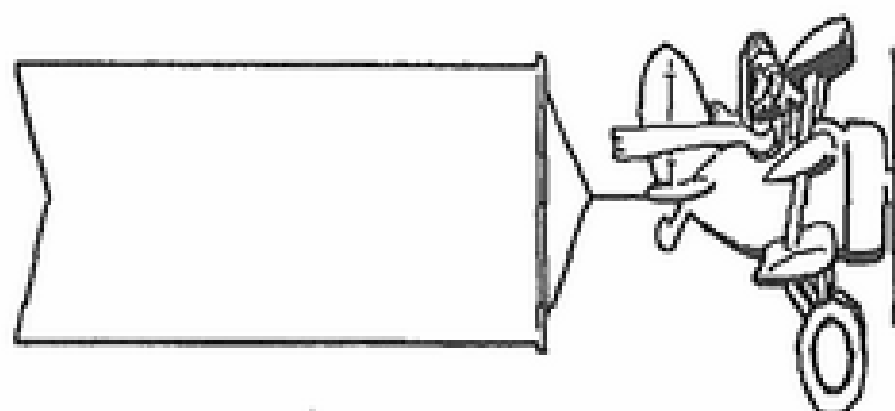
To send Morse Code through the air like a song.

When at last, silent keys pull that final lever,

We can rest in peace. It's CW forever.

Jim Hatherley, WA1TBY

7/4/85



16 WAYS TO IMPROVE YOUR LOCAL AMATEUR RADIO CLUB

1. Don't attend meetings...but if you do, arrive late.
2. Be sure and leave before the meeting is over.
3. Never have anything to say at meetings.. wait until you get outside after the meeting.
4. When at meetings, vote to do everything. then go home and do nothing.
5. The day after the meeting, find fault with your club officers and fellow members.
6. Take no active part in the organization's affairs. let someone else do it.
7. Be sure to sit in the back so you can talk things over with another member while the meeting is in progress...nobody will notice.
8. Get all the organization has to give but... give nothing in return.
9. Talk cooperation but...never cooperate.
10. Never ask anyone to come to meetings or join.
11. Threaten to resign at every opportunity.
12. If asked to help, always say you just can't find the time.
13. Never read anything about the organization's history...you might learn too much.
14. Never accept any office...its easier to criticize than to volunteer to do things.
15. If appointed to a committee, never give any time to it...let the chair do it all but, show up for the "thank you's".
16. Finally, don't do anything more than you have to...when others willingly and unselfishly use the their ability or equipment to help out...howl about the organization being run by a clique.

Written by Phil Ackerman, N8ICH, from the IARC-Maser newsletter "Airwaves" as found in the "Mission-Aire".

C. O. R. A. NEWS

Minutes of the 23 August 1994 meeting:

The meeting was called to order at 7:38 p.m. by President Rick N5WNR and the following Directors and Guests were present representing 4 of the 11 Member Clubs:

ACARC - Brad Nelson, KJ0W
VHF - Ellard W. Foster, W5KE
MORI - Bill Edwards, NW5M
Elizabeth Edwards, KC5GLP
John Guida, NJ1V
OCAPA - Tom Webb, WA9AFM
John Brassfield, N5SAM
Chuck Wilhite, K5NK
Treasurer - Tom Mangham, K5LDI
Secretary - Jim Buswell, N5BEQ
Visitors - James Arnett (awaiting call),
Jerry Sproul, KJ5KP

The minutes of the July '94 Meeting and the Treasurer's Report were accepted as distributed.

REPORTS: C&E: Hal, KB1ZQ relayed thru Brad, KJ0W, that the absolute deadline for submittals is the 15th day of the month.
V.E.C. - Bill, NW5M reported for VEC as having tested 28 persons at HH21 on Saturday, 11 persons on Sunday, and 6 persons last week.

OLD BUSINESS:

Committee Reports from Ham Holiday #21 (HH21), 29-31 July 1994; Dispensed to plan HH22, to be held on the 28-30 July 1995.

NEW BUSINESS:

Ham Holiday #22

FACILITY: Tom, WA9AFM volunteered to serve as Facility Chairman with assistance of appointed committee members, Chuck, K5NK, John, N5SAM, and Brad, KJ0W. They are to search for suitable sites to hold HH22 and present their findings at the next meeting.

CORA SCHOLARSHIP: Jerry, KJ5KP suggested to rename the scholarship in honor of our Editor Emeritus, now a

"Silent Key". Jim, N5BEQ made it into a motion with John, NJ1V seconding. It was unanimously decided that the scholarship will now be called the "Joe Harding Memorial Scholarship Award".

The balance of the meeting was an open discussion on: criteria for the Facility Committee to use in its search for next year's site; must be capable of supporting attendance to 1,600; a minimum of 30,000 sq. feet of floor space for Dealers and Flea Market to comply with the Fire Marshal's requirements; 3 to 4 conference rooms to be available for programs and VEC testing; easy access to parking; available space for "Hospitality Rooms"; constraints on "CATERING" if we decide to have it; nearness to lodging and restaurants; etc.

It was discussed whether to reduce to Ham Holiday to a one day event, such as starting it on a Friday evening and ending it on Saturday night. It was also suggested whether or not to present the Awards as part of the Banquet Saturday night, and dropping Sunday's activities altogether.

HH22 COMMITTEES:

PUBLICITY: A diligent, sentient being must volunteer. They must be willing to get all information available and promote this event as early on the calendar as possible (in other words, they must get the information to the different Ham publications before the deadline set by each publication expires)

PROGRAMS: The discussion included reminders of the need for PRINTED SCHEDULES well in advance. It was also suggested a need for technical as well as non-technical programs.

SECURITY: This will need to be examined for limiting access to the Registration area and the possibility of having Explorer Scouts to patrol the other doors.

SCHOLARSHIP: Jim, N5BEQ has 30 '94 HH21 T-shirts and 21 older ones to "sell" for the fund. He would like to explore other ways of fund raising for this project.
BANQUET: It was suggested that possible sites for the banquet was the ROUND-UP or PIGGY'S restaurants.

There was a strong reminder that next month's meeting is Elections and all Clubs are being asked to be properly represented.

The next meeting is scheduled for the 27 September 1994 at the same time and place. This meeting was adjourned at 8:47 p.m.

Jim, N5BEQ
Secretary

From The New President of C. O. R. A.

Another year has come and gone and new officers have been selected to lead C. O. R. A. during the remainder of 1994 and 1995. Having served as president of the organization in the past, I hope that my experience will help in leading this fine group. I believe we have a very good slate of officers. John Guida, NJ1V will serve as vice-president. John Brassfield, N5SAM is the new secretary, and Tom Mangham, K5LDI remains as the treasurer. All past officers are to be commended for the work they have done.

We are presently in the process of selecting a site for Ham Holiday 1995, which is a great undertaking. Unfortunately, the Oklahoma City area does not have the ideal location for our needs. With the high costs of leasing facilities and our plans to grow in the future, it is difficult to locate a place that fulfills our requirements. Tom Webb, WA9AFM, John Guida, NJ1V and myself will hopefully confirm a location in the near future. Once a site is decided on, we plan an all out advertising program for Ham Holiday 95.

The new officers would appreciate more attendance at the C. O. R. A. meetings. These are held on the fourth Tuesday of each month at the Salvation Army headquarters, at the southwest corner of North Penn and the Northwest Highway, beginning at 7:30 p.m. Everyone is invited to these meetings even though you are not a designated representative of your club. Any and all suggestions for improving Ham Holiday are welcome and appreciated. It is much better to express your feelings and suggestions prior to the event than afterwards. Hopefully, the officers will be able to attend as many of the various club meetings which comprise C. O. R. A. as possible to encourage more

club participation. And a word to outlying clubs, such as Altus, Wheatstraw and Great Plains. We would also appreciate hearing from you and appreciate any help you could offer.

Assignments for various committees will be made soon. It is time to begin work now so we can make Ham Holiday 1995 the best one ever. Hopefully, we will have many volunteers for these roles. We will try and keep everyone informed as to the progress being made in future issues of the *Collector and Emitter*.

Chuck Wilhite, N5NK
President, C. O. R. A.

The Future Of The C&E

A few words on my plans for the future of the *Collector and Emitter*. Since I have taken over the C&E, I have had many comments on the new format and what I have done with the publication to date. In the next few paragraphs I want to explain what I want to do for the remainder of the year.

First off, for next month's issue I need to know all of the clubs' plans for the holiday season, such as parties and other functions. Let the area know what you are doing for the holidays. As far as articles go I want to continue to cover the contests and or other pertinent happenings.

Then for the December issue I want all copy to me by the 9th of December. Reason is the first of the year I will try to put the C&E out the first of the month instead of the last.

I would like to only do a small issue for December with a Christmas/Holiday theme, if you know of a story of someone's first Ham Christmas or something similar please send it to me.

Keep all club news for the first of January and we will start a new deadline probably around the 21st of the month. With your help this publication will remain something to be proud of for a very long time.

The Editor

NEWS FROM KB5YGO A CORA SCHOLARSHIP RECIPIENT

The following letter was recieved from one of the CORA scholarship recipients. It's nice to hear from one of the people have helped. We hope to hear from the folks in Stillwater again.

September 27, 1994

Hello,
I'm Kurt Duggins. In case you don't recognize me, I'm one of the scholarship recipients. We're on the sixth week of classes here at O.S.U. now and I'm doing alright. It took some time to get adjusted, but I really like it here. I'm not in any really big classes. My largest is about 162 people, but it's not too bad. I'm a member of the amateur radio association on campus and I'm serving as a representative to student government. If anyone is wondering as to why the digi-peater isn't working well, it is because the computer at campus was nailed by lightening and the current node is at the president's house. We are working to get everything checked out and we hope to have the digi-peater up within a couple of months. Also, we hope to have the new packet station linked into a new ethernet that is currently being installed throughout campus. This link would allow packet operators access to O.S.U.'s information system. However, this will depend upon whether or not the university will allow us to do that. I'll have a better idea of what we'll be doing in a few weeks. So, I'll let everyone know as we get things worked out.

73's, de Kurt R. Duggins, KB5YGO
3305 S. Boomer #12
Stillwater, OK 74074

CHIT-CHAT THE MEANING OF CHRISTMAS

This column is set aside for the YL's of the Ham community. It is for any topic you

wish to share with others as long as it is up beat and G-RATED. For the December C&E we would like to hear from anyone who has a special Christmas memory they would like to share. During the Holidays, some see them as a time to be sad, a time to avoid. By opening your heart and sharing memories that bring a smile or tear to your eye, you could just for a few minutes, brighten someone's day. We never really know whom your story may touch.

I will accept these articles for this column as follows: hand written (as long as it's readable), typed, sent on packet in care of KB1ZQ and this column or on computer disk. Do not worry about spelling, we have a spell check program on the computer. We will publish as many articles as we can and if for some reason yours is not, you will be given a call and the reason, usually it's because there's no more room once the C&E is multiples of 4 pages. Please include your phone number with your article.

If the holiday's are the time you look forward to for all the specialties of the palette, like my husband does, then why not share with us that favorite recipe that everyone demands that you make. My grandmother use to make a cake she would call "A Butter Cake with Burnt Sugar Icing". She would poke holes in the cake and pour the hot icing over it slowly. She passed away before sharing the recipe with the family, it was made totally from scratch. I was lucky enough to have watched her cook and have written down those recipes I helped her with, it's just that I always came in while she was finishing the icing.

Think about what you have just read, and if you have a story to share then send it, it can be a short article, or call me about your idea. I am home during most days and evenings. (Phone # 672-7735). I, myself, have some very cherished memories, some very bitter sweet ones as well as some "hard candy" Christmases. I've discovered that what makes the Holidays special is the ability to reach beyond yourself, give freely, without seeking glory or reward.

Thank you,
Linda, N1LPN

AREONAUTICAL CENTER ARC NEWS

W5PAA - Aeronautical Center Radio Club

The October ACARC meeting was called to order by Dick Russell, KJ5VV, at 7:25 PM. After introductions were made, Dick updated the members on the upcoming Jamboree-on-the-Air (JOTA). W5PAA will be hosting Oklahoma City area Boy Scouts October 15 and 16 for JOTA for the third consecutive year. The club station will be open both days of the event due to several members who volunteered to help. WD0GTY, Jeff; WB5DXZ, Marvin; N5WNL, Glynn; N5VWF, Forrest; WB5GSZ, Jim; NY5W, Ted; KJ5VV, Dick. Glynn/N5WNL will bring his packet equipment so that we can work the DX packet cluster and, hopefully, work some DX JOTA stations.

In preparation for the JOTA operation, our club "climbers", led by KJ0W, installed the 40 meter beam after necessary repairs. We now have all club radios and antennas in operating condition.

CORA meeting minutes were presented NSSAM, John, who announced the new CORA officers for the next year. John also said that CORA was looking to find a new location for Ham Holiday instead of the current location at the State Fair. Further information will be provided as it becomes available.

No-Code Technician classes will again be conducted by the club starting November 3, 1994. Interested parties should contact Brad, KJ0W, at 793-9470, evenings, by October 27, 1994, so that we will know how many students to expect. Dick, KJ5VV, informed the membership that he is assisting Hefner Middle School in their efforts to organize an Amateur Radio Club for youngsters in 6th through 8th grades. WB2JKJ in New York City has been very successful in bringing new hams to the hobby while providing opportunities to youngsters through amateur radio. Dick is seeking assistance from other amateurs

who might live in the Hefner Middle School area (NW Expressway and Mac Arthur) and be available twice each month for classes and operating instruction.

W5PAA will be operating a Special Events operation in December to celebrate the anniversary of powered flight at Kitty Hawk, NC., by Orville and Wilbur Wright. We welcome other operators who might like to assist in this effort.

Club members in attendance voted to increase yearly dues to ensure we continue to have operating expenses necessary to meet unexpected equipment repairs. Dues will be increased from \$6.00 a year to \$10.00 a year for Regular members. FAA student member dues will increase to \$5.00 and those members wishing auto dial privileges will pay an additional \$3.00. Dues can be paid at the old rate until November 1, 1994 and should contact Brad, KJ0W, ASAP. To pay at the old rate send payment to Brad Nelson, 308 SE. 7th Circle, Moore, OK, 73160-6716.

Stan Bradley, WA7WNM, spoke to the group saying that a school in El Reno wanted to get information to schedule a contact with one of the SAREX missions and the Space Shuttle. Dick, KJ5VV, took an IOU to contact WA9AFM for further information and possible coordination of such an operation.

The club discussed a Christmas Party in December and agreed to that we should have a social event. The Club President, Dick, will check on a location and date, with the Hometown Buffet on SW 74th street as a possible site.

Recent upgrades to General Class, Glenn, N5WNL and Dick, Extra, KJ5VV. The club membership also discussed future equipment and operational abilities for packet and satellite with W5PAA. The location of the club station lends itself to having satellite antenna installation and we need to continue to look to future enhancements to our station.

The 1994 term for ACARC officers is drawing near to close and members should be considering candidates for appropriate chairs for 1995.

Meanwhile, bring a friend or member to our next club meeting. The meeting was adjourned at 8:45 P.M. for coffee and donuts.

Brad, KJ0W
Sec/Treas.

History Of W5PAA

The Aeronautical Center Amateur Radio Club had its beginnings in Fort Worth, Texas, with a group of instructors of the Civil Aeronautics Administration Signals Training Center, under the direction of Claude E. Gardner, W5GAM. Two of the instructors, Carl C. Drumeller, W0EHC, and John Ott, W5HEV, set up a Collins Model TDO and a National RCK receiver when amateur HF bands were reopened after World War II, in 1946. That group made numerous radio contacts under the call W0EHC/5 before the Signals Training Center moved to Oklahoma City to become a part of the newly-constructed Aeronautical Center.

The Radio Club set up operations in Building 10 and during this time organized the CAA Employees' Association and agreed to sponsor a number of special interest clubs to focus on the many and varied special interests of the 240 employees here. The CAA Radio Club was organized and applied for an FCC Club License. After being rejected by the FCC with a note that the identification of a government agency could not be used in an amateur radio club. The club name was changed to the Aeronautical Center Radio Club and the FCC subsequently issued the call W5PAA to the Aeronautical Center Amateur Radio Club.

W5PAA has been active throughout the years by students and employees of the FAA at the Aeronautical Center in Oklahoma City, OK. In the early years it was a means by which students kept in touch with the home QTH while attending often lengthy training courses in Oklahoma.

W5PAA garnered the ARRL "Worked All States" and "Worked All Continents" by 19___. W5PAA also has served as the Net Control Station for a n Oklahoma Civil

Defense net working in close coordination with the State Highway Patrol and Oklahoma State Civil Defense organizations. It once served as a check-station for one of the "Powder Puff Derbys". WSPAA, Aeronautical Center Amateur Radio Club was the financial sponsor of the "now" Center Bookstore at the Mike Monroney Aeronautical Center.

MMAC progress and new building construction over the years has caused WSPAA to move operating locations to its present location in General Office Building #147 to the west of the Civil Aeromedical Medical Institute at 6500 South MacArthur Boulevard, Oklahoma City, OK 73125. The club meets the first Thursday evening of each month at 7:30 PM, 0130Z UTC.

Present club officers are: Dick Russell, AVN-520, President; Chuck Bryant, AML-, vice-president; Brad Nelson, KJ0W, Secretary/Treasurer, OKC Airway Facilities; Doug Teachman, W0DZA, AML-, Board Member; Ted NY5W, Repeater Trustee; Stan Bradley, WA7WNM, Board Member.

Membership in the club is open to any licensed amateur, with 80% membership required by FAA employees to be recognized as an FAA sponsored employee organization.

Ham Happenings in the Oklahoma Area

VE Exams, Social Gatherings, Hamfests, Licensing Classes and other Events:

VE exams on 3rd Monday of each month sponsored by C.O.R.A. 1800 @ Salvation Army HQ at NW 50th and N. Penn, Oklahoma City.

VE exams on 3rd Saturday of each month are held at 0900 in Math Science building at Rose State College in Midwest City.

VE exams on 1st Sunday of each month sponsored by M.O.R.I. 1400 @ radio station KOMA, 820 SW 4th Street, Moore, OK

VE exams on 4th Tuesday of each month are held at 1800 in the Shawnee Public Library, 101 N. Philadelphia.

VE exams on 2nd Saturday of each month sponsored by SCARS are held at 1000 at Red Cross in Norman.

VE exams on 4th Saturday of each month are held times are 1830 for code and 1900 for theory, at the Wilson Center in Altus, OK.

The Choctaw ARC sponsoring Novice/Tech classes at the Choctaw Community Center on Choctaw Rd. Times are not available at time of printing.

Enid's Annual Hamfest will be held on Saturday, November 5, 1994 at the Garfield County Fairgrounds. Doors open at 8:00 a.m. Yalk-in on 147.375 or 444.825 Mhz There will VE testing and Dealers present. For more info call Tom, N5LWT; Fred, N5QJX or Dick, N5HEL

Amateur Radio licensing classes sponsored by Edmond Amateur Radio Society at St. John's Catholic Church (9th and Littler, Edmond) at 2:00 p.m. Contact Frank Tassone 341-1124

Hams on the Southeast side of Oklahoma City meet at various locations for lunch on Tuesdays from 11:00 - 12:00 a.m., to find out where they meet listen to 146.22/82.

Hams from all over Oklahoma City meet at various locations for lunch on Thursdays at 11:00 a.m., to find the lunch location of the day listen to 146.22/82.

Hams from around the central Oklahoma area meet Fridays at 7:00 for supper, coffee, friendship and overall story telling at the Skyline Restaurant on 15th and Eastern in Oklahoma City.

MORI sponsors a transmitter hunt each week, alternating between north and south Oklahoma City at 7:00 p.m.. The hunt frequency is 147.470mHz. Check on the 146.07/67 machine for the hunt announcement.

Virus

Just a word to the wise the virus Michael Angelo, cannot be detected by a CHKDSK command some people have been known to say that the Bytes in memory will differ if MICH. is present. But this is not true as I have experimented with this and a disk with MICH. has the same number of bytes that is used up as the same disk without MICH. Also I deleted all the files on my infected disk and I mean all, this means the two hidden files IO.SYS and IBM BIOS.SYS now they are hidden and they are gone but my scanner says that the disk is still infected it is a virus that attaches its self to the Zero track (or so to speak) now a quick format in dos 5 will kill (get rid of) the virus (of course DOS 6 vscan will also).

Now this is what happened to me I just did a DIR on the infected drive (keep in mind I knew it was infected) the DIR may have infected my residence memory, but I am not sure of this yet. I did clean my res. mem. out and did dir/w dir dir-ed all over the place and never could get the virus to climb into the res. mem. So I may have accidentally had another disk in there that did this. Now for all of you out there that read this and know very little about viruses do not get bent out of shape, because if you practice safe EXE you will be safe from the sting of viruses. From what have now read you know I have been hit by a VIRUS but I was lucky I got a V killer before it got me. I will tell you this much (I trust the killers) I know they work, I took mich. off my hard drive long, long ago so if you ever find one do not get excited. Do not fly off the handle it can be killed (needs to be done as soon as possible).

Now one more thing if you get it you may need to use (THIS DEPENDS ON THE TYPE OF VIRUS KILLER YOU HAVE) the /nomem command (this will cause the memory check to be skipped) because if you type CLEAN C: [MICH] it will find the infection in the res. mem. and through its self out of the program telling you to reboot from a clean disk (now remember I am not responsible for what ever happen so if you have a clean disk turn the syst. off then reboot, but if you don't then (again, THIS DEPENDS ON THE TYPE OF VIRUS KILLER YOU HAVE) type

CLEAN C: [MICH] /NOMEM Well OKay it worked for me.

Keep in mind what has been type here is not in control of SYSTEMS OPERATOR (I could be wrong on some things here I am only human,) but I know some people do not know much about VIRUS what they are is a program that can not be seen by any DIR or DIR/A reading the /a lets you see hidden files but not MICH.

Later I will try to pull info on stoned that is the VIRUS [STONED]

till then 73 from ROBIN, N5SPA @
K2GKK.#OKC.OK.USA.NA

Newsline

News from around the world courtesy of
Amateur Radio Newsline.

IARU

An important meeting of Region 3 of the International Amateur Radio Union has taken place in Singapore. A number of the decisions made there will definitely impact on the way that Amateur Radio is perceived at the upcoming World Radiocommunications Conferences. The 9th Conference of the IARU Region 3 was held in Singapore from the 5th to the 9th of September.

Key items supported by the conference included that the conference recognized the excellent work of JARL, Paul Rinaldo (W4RI), in the working group ITU TG8/2 dealing with wind profiler radar. The conference confirmed support for the continuation of the requirement contained in the ITU regulations for competency in morse code to be first demonstrated before an operator in the amateur service is licensed to use the allocated HF bands. Region 3 recognized the work of IPHA, the information program for handicapped radio amateurs. And commended it to member societies. Amateur radio direction finding and rules for IARU Region 3 ARDF Championships were approved. IARU Region 3 International Class Referees were also appointed. The next ARDF Championship in Region 3, that

will be hosted by the Wireless Institute of Australia in Queensland.

To Beacons, and the conference approved the international beacon project. Region 3 is to establish timeshare beacons. The generous offer of the JARL to fund the purchase of beacon in Sri Lanka was acknowledged. Region 3's bandplan for 144 Mhz has had the EME segment extended. It is now aligned with the plan of Region 1.

Many papers were presented to the conference relating to the improper use of amateur bands and the IARU monitoring service. The conference encouraged all societies to be active in the monitoring service. Finally in this summary of key points of the conference, Region 3 conference endorsed the Phase 3D satellite project and societies have agreed to assist with funding to the one or more organizations involved in the realization of the project. For those not aware, decisions made in any IARU region eventually impact on amateur radio operations worldwide. For that reason it is important to keep an eye on all of the Union's gatherings. We will have more on this IARU conference next week.

SOUTH PACIFIC RADIO HOAX

The Boston FCC Office reports that it has helped to bust an apparent South Pacific radio distress hoax. It started when the office received a call from the Coast Guard reporting they has been alerted to a distress call from a woman saying she was on a boat off the Massachusetts coast and in an emergency situation. The woman claimed that her husband, a diabetic, was seriously ill and needed emergency medical attention. She also claimed that her vessel's power supply was dead and she was communicating via cellular radio. The Coast Guard launched a 14,000 square mile search without success. But the Engineer In Charge of the Boston FCC Office, who helps coordinate the Coast Guard District Hoax Enforcement Action Team, suspected that the call was a phony. This, because she could not accurately describe her location, sea conditions and other details to the Coast Guard.

Working with local cellular companies, he determined that the call was not being placed locally. Instead it was actually coming from Avalon Beach, a suburb of Sydney, Australia. Contacts will be made via the U.S. Embassy and prosecution by Australian authorities is expected.

FCC TO MOVE

The FCC's Washington D.C. headquarters will be relocating to southwest Washington D.C. after all. An agreement between the U.S. government's General Services Administration and an office complex called "The Portals" has been reinstated by an appeals court. The justices ruled that the GSA had improperly terminated an agreement to lease space in 1991 after the FCC decided it did not want to make the move. The commission argued that the leased space was inadequate for future needs and that it did not want to leave the downtown Washington area which they say is more conducive to FCC operations. As a result of the court decision, the GSA has re-signed the lease with "The Portals" and plans to move the FCC to the new location before the end of the century.

SAREX - STS-64 FLIES

On the 9th of September, the Space Ship Discovery was launched into a high inclination orbit that flew it over most of the populated places on Earth. It's prime objective was to measure the atmosphere, emitting laser energy and measuring the return signals that bounced back. The astronauts also deployed and retrieved a free flying astronomical observer, took an untethered space walk and conducted robotic processing of semi conductor materials.

Ham radio operators cheered the success of another shuttle amateur radio station, the 15th sent into orbit by the SAREX Program. Mission Commander Dick Richards, KB5SIW checked out the equipment during an Australian pass with Graham Ratcliffe, VK5AGR. Then Richards and Blaine Hammond, the pilot, KC5HBS, and Doctor Jerry Linenger, KC5HBR, a Mission Specialist, went on to rack up ten of the most successful school

contacts ever. Several of the school groups had horizon to horizon QSO's with the astronauts, asking and getting answers to dozens of questions.

Most of the school were stateside, but one of them, the Middletown Grange School, was in Christchurch, New Zealand, where some 60 pupils, teachers and parents chatted with Jerry Linenger, who described his life aboard the Discovery. The contact was covered by all the New Zealand National Television Services and was retransmitted throughout the country on amateur repeaters.

The young astronauts association, in Spokane, Washington, also televised their contact with the space ship, from the Step/Star Schools to a C Band satellite system that sent coverage to schools all over the United States.

Added to the school contacts, the crew of STS-64 found time for dozens of general QSO's with hams all over the world, their high orbit giving them strong signals almost everywhere.

Next up for SAREX? STS-67, Now scheduled in January. A 14 day mission aboard the Space Ship Endeavour with Steve Oswald, KB5YSR, the Commander, and Ron Parise, WA4SIR, the Payload Specialist making his second SAREX flight.

SPACE HAM EXPERIMENT

A ham radio operator will soon have an experiment flying on a space shuttle mission. Dalina Steiner, N2MIA is a researcher at the Hospital for Special Surgery in New York City. Her project is a study is a cartilage mineralizing culture system. N2MIA says that this is very important in the study of osteoporosis and other bone related diseases and the effects of new medications on them. As we go to air Dalina Steiner is at Cape Canaveral for a run through of the project with the NASA launch team. She says she hopes the experiment will fly before years end.

TASMA CANCELS DATABASE FEE

Southern California's Two Meter Area Spectrum Management Association now says its ten dollar a year database management fee is not mandatory. Repeater owners in the area were upset after receiving notification that read in part -- and we quote -- "TASMA has adopted a resolution to assess each coordinated repeater ten dollars per year. The assessment will be due on July 1st of each year and will be held to be delinquent if not paid by September 31st of each year, commencing with September 31, 1994." -- end quote --.

Needless to say this announcement was not very popular. Now, TASMA has recanted it stating that the \$10 fee is optional, and will be used only to purchase equipment for monitoring the band. However, all two meter repeaters will still be required to submit updated information on their current status or risk decoordination.

NEW LEADERS AT QCWA

Famed radio amateur Lew Mc Coy, WIICP has assumed the Presidency of the Quarter Century Wireless Association. Mc Coy who is currently a Contributing Editor of CQ Magazine is best known for his years of service to the American Radio Relay League. He first hired on at League headquarters in 1949 and served as Assistant Communications Manager. In 1950 he transferred to the Technical Department where he held many titles including Technical Editor of QST Magazine. WIICP also used his writing skills as Novice Editor to assist newly licensed hams get started in the hobby. In 1988 Mc Coy was named the winner of the Dayton Amateur Radio Association's Technical Excellence Award.

Serving with Mc Coy as his Vice President is Jack Kelleher W4ZC, Secretary John Swafford W4HU and Treasurer Wes Randles W4COW. The new QCWA Directors are Walt Brink W3WPY, Milt Chaffee W1EFW, John Edel K8LBZ, Gary Harrison WA0RWS, John Huntoon

WIRW, Larry Shima W0PAN, Croft Taylor VE3CT, John Troster W6ISQ, Milly Wise W5OVH and Ed Yoder W3YMB.

If you want to meet the new QCWA leadership team you will get your chance September 29th to October the 1st. All will be attending the 1994 QCWA National Convention in El Paso, Texas that weekend.

MOUNT ATHOS

In DX operating news, word that Mount Athos is now on RTTY. Several German operators have set up RTTY gear for Monk Apollo, SV2ASP/A. He has already been heard on the air testing the equipment. The best day to catch him is Sunday.

Wanted: Club Logos

I want to see if we can put some of the great expertise we have available to use. In an effort to improve the Collector and Emitter, I would like to start including club logos in their column.

If you have noticed only a few columns have logos in them. Let's see if we can't get some of your more artistic members together and come up with an appropriate logo for your club.

You vote on it and then have your officers send it to me in a .PCX computer file that I can import to your column. This will add some new looks to the C&E as we grow.

In the past, logos were used all of the time but the ones I have on file are no longer of a quality to scan or use. They have been copied so many times they are blurry and faded.

So, artists of the ham community this is your chance to stand out and make a mark. Don't say you can't do it because if I can edit the C&E then you can design a possible logo for your club.

The Editor



VHF Club

NEWS

W5LOW

Elmer Goekler Memorial Station

Minutes of September Meeting

There was no September meeting but instead a wiener roast at Bethany Lyon park. About a dozen and a half attended and munched down many wieners roasted over the charcoal fire tended by President J, KB0QJ. What else can I say (burp!)? It was good to see those who came and I missed those who didn't. Maybe next time.

Joe, K5JB, Secy

Packet Hidden Terminals

Had a nice packet radio "chat" with Jim, K5LGW, the other night and he made reference to some time in the past where I had explained in the C&E about the "hidden terminal syndrome" in packet radio. I suppose I have mentioned it before because I have written thousands of words in the C&E about packet radio, and hidden terminals are the most serious flaws in applying the aloha protocol to radio. I will take a little time to again explain what the hidden terminal syndrome is, and what can be done to live with its effects. Unfortunately, as long as there are hidden terminals, the effects can *not* be eliminated.

Figure 1 shows three stations with circles showing their effective transmitting ranges. For this example, we are assuming that each is constructed so that its transmit range is similar to its receive range, and that each station has its transmitter's deviation

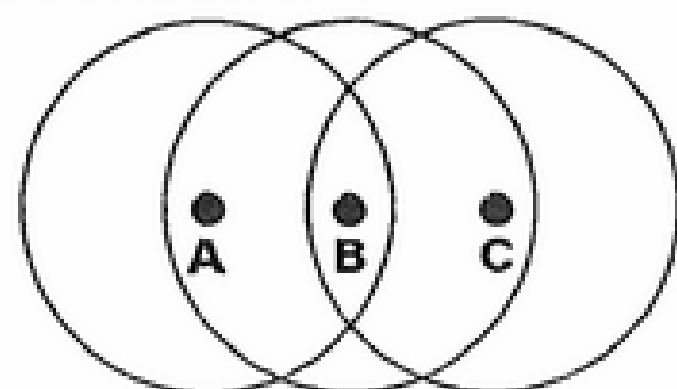


Fig. 1. Hidden Transmitter

correctly set, and receiver's audio levels correctly set. In a moment we will cover situations where things are *not* correctly set.

Note that station B lies inside A's circle, and inside C's circle. This means that station B would be able to maintain effective commu-

nications with station A or station C.

Since Station C lies outside Station A's circle, Station C would not be able to communicate directly with station A. Now let's describe the hidden transmitter syndrome by starting a session between stations A and B. Since they can hear each other, all is fine until station C comes on the air, say with a connection to station B. B can handle two connections with no problem, but suppose while Station A is transmitting a packet, station C, not hearing station the transmission from station A, starts to send a packet. Station B hears both packets, and since it can't decode both, it will decode neither. Station A, suspecting something wrong because it didn't get an ACK, retransmits. Station C, also suspecting something wrong because it didn't get an ACK, retransmits. Result, both stations A and C will probably fail, because of interference from the other. It is either station's fault, it is a fault in the basic design of AX.25 protocol, and *that's the way it is!*

The way we struggle under these circumstances is that if station A or station C really wants to communicate with station B, one of them will reconnect later, and hopefully will finish the session before the other comes back and breaks up the circuit.

Note, there is *nothing* you can do about this. No parameters, no tricks, *no nothing!*

But it can be *worse*. One or more stations in the middle of this picture will exhibit some kind of performance deficiency where it either has limited receiving or transmitting range. Maybe its deficiency is that its modulation is not correctly set. (Most packet operators don't set their modulation -- they take the TNC out of the box, connect it up, and start sending beacons, "Hey, Everybody! Lookit me! I am on packet! (Since nobody can hear them they would also probably digipeat this beacon through station B.) Performance deficiency normally only affects the station that has it, because it normally won't hold a circuit and be on the air enough to cause much chaos.

Because of the hidden transmitter problem, a frequency is considered fully occupied

when there are packets on the air about 18% of the time (Tannenbaum 1981, Abramson 1970). It is trivial for one person to tie up a frequency for well over 18% of the time by using a conference bridge, or sending long files over single frequency routers like ROSE, Netroms, etc. People engaged in these activities may be able to get a trickle of data through, but others who are sharing the frequency are having the same "trickle" problem. The only solution is for such users to be more aware of the effects their activities have on others, have some consideration, and use discretion (or use the telephone). Most packet operators simply don't know the limitations of packets; I'll give them benefit of the doubt.

There is one solution to the hidden transmitter syndrome that works quite well but is an enormous commitment in hardware and operating setup. A full duplex repeater that is transmitting simultaneously while any station within its receiving range is transmitting, will enable all the stations in its transmitting range to know that the frequency is busy and thus hold off and wait for the frequency to clear. Such repeaters have been used to good effect in many places and one has been in the construction phase for central Oklahoma for some time. The repeater is completed and starting its testing phase now. It will have to be absolutely reliable or will be no good, because there is no "go around" when it quits. I hope to give more specific information on that device soon. It will be set up on the 450 band.

Joe, K5JB

Vertical J - How Does It Work?

Norm, N0ELS, and Mike, WG5C, recently built vertical J antennas for 2M, and Mike asked me some questions about the feed arrangement for the things. I told him it was magic (heh!)

The lower part of the J is a quarter wave of transmission line that transforms the approximately 3000 Ohms at the end of the half wave radiator to zero at its short at the bottom. Somewhere just above the zero impedance point is a 50 Ohm point. All you have to do is find it and connect your 50 Ohm transmission line there. If your 50 Ohm transmission line happens to be coax

then you have to do a little magic or the outside of the shield will carry considerable RF current and mess up the pattern of the antenna. You have to either add a balun, or seek out a point near the bottom of the J (where the voltage is near zero) to connect the shield. Once you have temporarily connected the shield to the bottom, and connected the center conductor to some place so the feedline shows minimum SWR, you should be able to run a metal tool around the coax shield connection point and see no change in reflected power. See? Magic!

UHF antennas are a little easier to work with than 2M antennas because they are smaller, but the principle is the same. I brought one to the pizza lunch with Mike and Norm to show how I applied this information. The antenna was a 450 MHz one I used to carry with me on my travels so I could have a reasonable signal from hotel rooms.

Incidentally, the vertical J antenna is the same electrical design as a Zepp, used on HF. Zepp antennas were initially designed for the zeppelin dirigibles, which lacked the ground plane typical of the ground mounted Hertz antennas of the day.

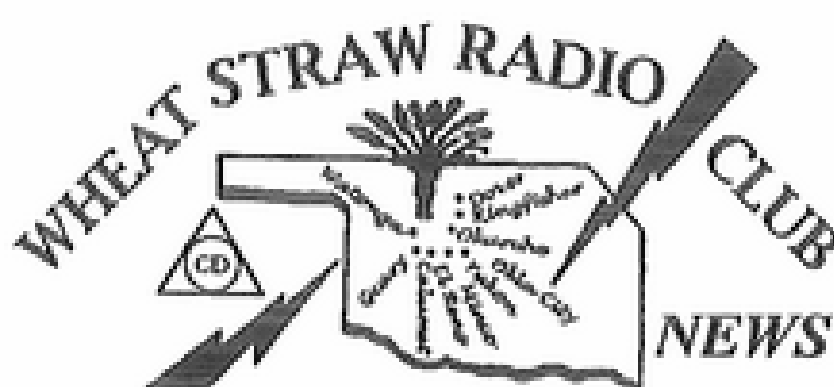
Joe, K5JB

JNOS on a Roll

You who are into TCP/IP have surely heard of NOS, the current program for MS-DOS computers that I refer to as a BBS with incidental TCP/IP. In the middle of August I started taking a serious look at JNOS and have touched about 30% of the files in it, making it work to my liking. I still have my primary station, K5JB-10 running NET, but with some help from J, KB0QJ, Norm, NOELS, and Mike, WG5C, have dewormed JNOS to the point where it works pretty well.

If you have been on TCP/IP before and would like to get into it with this Gee Whiz JNOS, give me a call. I even have some rough notes that would help get you set up. (They are rough because I am still discovering things that make it work effectively. JNOS is a huge program and I will be discovering things a year from now.)

Joe, K5JB



Wheat Straw Radio Club Meeting

Because of fortunate timing between our club meeting and publication of the September C&E, our September meeting was reported last month. However, because of numerous conflicting activities, there was no club meeting in October.

The November meeting will be on November 13, and will be at Dover OK, at the Christian Church Fellowship Hall, which is located about the middle of town, on Highway 81. It is on the East side of the highway, the second building from the highway. Meeting will start at 2:30 p.m.

Ralph, WA5PFK

From the ARRL Letter

HPM-125 Celebration a Rousing Success

The 10-day Hiram Percy Maxim 125th Birthday Memorial Celebration appears to have been an overwhelming success. Many participants reported contact totals in the thousands. The 10 and 15 meter bands were nearly useless. There was very little activity on the "new" bands.

Some believe the length of the event (10 days) encouraged more operation as time went on.

The highest contact total that ARRL heard of was 5125 by September 19. That total was by Dave Hachadorian, K6LL/7, an Official Relay Station in Arizona, who reported 3802 QSOs on SSB and 1323 on CW.

Re-exams Declined in VE Probe

In June, the Federal Communications Commission gave 51 amateurs the choice of reappearing for examination or forfeiting the privileges they obtained through exams taken in 1992 and 1993. Of the 51, all of who had taken the exams in southern California, only three appeared for retest, and all three failed.

The Status of FCC Rulemaking

October 1 1994 -- A complete reorganization of the FCC was announced on August 1. Some of these changes are still pending Congressional action. They have not occurred yet.

One of the changes is that Private Radio Bureau Chief Ralph Haller will become Deputy Chief of a new and much larger Bureau to be called the Wireless Telecommunications Bureau.

At this point no one knows what effect that will have on amateur radio because the structure of the new Bureau will be determined by the new incoming Bureau chief, Regina Keeney.

She is moving from minority counsel for the Senate Committee on Commerce, Science and Transportation, to a very important position involving emerging communications technology. Her background in Congress is sure to be an asset!

(Ed: Ralph, surely you jest -- K5JB)

She is not officially on board. Reportedly she will begin her duties as Bureau chief October 15. Until she sets up the structure of the Bureau and decides how she wants it organized, no one knows whom the players are going to be or what roles they are going to have.

The FCC is currently organized into Bureaus which are further subdivided into Divisions and Branches. The current Personal Radio Branch is really a hybrid of commercial and noncommercial data service, and the Part 13 commercial service.

The Part 95 GMRS, and (CB) services involve the business of the family sort of land mobile service under the guide of personal radio. Then you have Radio Control and Amateur Radio. All are considered "personal radio".

Ralph Haller really does know what his new duties as deputy are going to be. He was very heavily involved in two new and very important telecommunications initiatives:

the new Personal Communications Services, and the auctioning of spectrum for the government. Everyone agrees that he did an outstanding job and the best guess is that he probably will continue in these areas.

Vanity Call Signs - PR Docket 97-305

I read in the W5YI report where the vanity signs are still alive. The FCC is expected to adopt the proposition this fall, possibly some time in October.

It seems they are getting lots of mail in favor of the program, with many suggestions how to, and how to not, implement the program.

Lifetime Amateur Radio Licenses RM-8418

The ARRL proposal suggests a lifetime license for the holder, but a portion of the license of the station would be for a ten year period. Additionally, amateurs whose licenses have lapsed, on or after a date to be determined by the FCC, would be permitted to regain their operator privileges. They would not get their old calls back.

If this proposal is acted on and passed by the FCC it would be a big advantage for the operators who had let their licenses lapse.

I can not understand why anyone would knowingly let that happen to him.

The FCC has not yet decided whether to issue a Notice of Proposed Rule Making on this matter.

Code Exemption Denied for Senior Citizens

On May 19, 1994, Guy A Matzinger, KB7PNQ, of Cheney Washington, filed a petition (RM-8485) seeking relief from the higher speed Morse code requirements for senior citizens age 65 or older. Matzinger is 68 years old. Matzinger noted several examples along with his petition.

The FCC turned down the petition on September 16, 1994.

(Action by Chief, Private Radio Bureau)

Small Town Life

You know you live in a small town when:

You don't use your turn signals because everybody knows where you're going.

You dial the wrong number and talk for 20 minutes anyway.

You can't walk for exercise because everyone who passes stops and offers you a ride.

You write a check on a wrong bank and they cover it for you.

You miss Sunday at church and get 15 "get well" cards.

Did You Know

To achieve that caved-in look to her cheekbones, Marlene Dietrich had her upper rear molars removed.

Humphrey Bogart's sneer (and Sylvester Stallone's) resulted from paralysis of the lip.

Richard Burton's nickname for Elizabeth Taylor was "fatty."

The three stars of the 1955 movie, Rebel Without a Cause, met with untimely deaths. James Dean died in a car crash, Sal Mineo was stabbed to death, and Natalie Wood drowned.

As a young actor, Marlin Brando's favorite breakfast was a raw egg and orange juice.

In 1925 production of Quo Vadis, a lion was kept hungry so he'd act more ferocious, got loose and ate one of the extras.

As a teenager, Debbie Reynolds embroidered her sweaters with the initials, "NN", for non-necker.

Watonga Cheese Festival

Tomorrow, October 7, the Watonga's annual two day Cheese Fest will take place. By the time you read this it will be a "was". In the parade there is to be 75 entries besides the political entries.

This year they will have a professional in

charge of all the entertainment. There is to be four places to buy Watonga cheese. There will be lots of people working long hours.

A small carnival has been set up to keep the children happy; it includes pony rides.

The Cheese Fest is to be the first Friday and Saturday of October of each year. If sometime during the coming year you wish information about booth spaces of the program, you can call the Chamber of Commerce at 405 623-5452, or write for information to:

Watonga Chamber of Commerce
BOX 537
WATONGA OK 73772

Lord fill my mouth with worthwhile stuff,
and nudge me when I've said enough.

Ralph, WA5PFK

Figger that Vizwar!

You want to know how to figure SWR when you know the forward and reflected powers, and don't have one of those little plastic charts handy?

In you head, figure the square root of the forward power, and figure the square root of the reflected power. Approximate figures are fine. For example 3 is close enough for the square root of 10.

Take the sum of these two square roots, and divide it by their difference. The answer is the SWR!

For example, if we have 100 watts forward, square root of that is 10. If we have 10 watts reflected, square root of that is *about* 3. 10 plus 3 is 13, 10 minus 3 is 7. 13 divided by 7 is *about* 2. You have *about* 2 to 1 SWR.

For another example, if forward is 100 and reflected is 4, square roots are 10 and 2, so SWR is 12/ 8, or 1.5 (to 1). SWR is never less than 1, by the way.

You know how I knew that? Robby, AA00, told Joe, K5JB, who told me. Robby wouldn't lie, but Joe checked his veracity anyway, and he was right!

Ralph, WA5PFK

E. A. R. S. NEWS

Edmond Amateur Radio Society Edmond, OK

October..... does that have a nice ring to it ! Yes, those months with "r's " in them are lovely aren't they ? I agree we have made it to Fall. Suppose it is time to get that outdoor antenna work completed. EARS has certainly been an active group of folk the past month. The U.C.O. homecoming parade, CROP Walk and start of our licensing classes- all on the same weekend!

Our amateur licensing classes, being conducted under the stewardship of Frank Tassone, AA5GI began Sept 25th at St. John the Baptist Catholic Church. Frank tells us that the students are enrolled and are underway in the sojourn toward becoming a full-fledged card-carrying amateur radio operators. Hopefully, club members will pitch in and be good support for our students and instructors. I guess we are all students in at least one subject aren't we? Good Luck to the licensing effort! In this column, we will try to keep you informed as to the collective and individual progress of the class. Thanks to Rick Tasetano for his help publicizing our classes- hopefully we didn't embarrass ya Rick, in the September 23rd on-the-air interview.

EARS members helped in the U.C.O. homecoming parade by staging, starting, relaying information, coordinating parade entries and location of a lost item or child or two. Must have been about 20 EARS folk up early on the am of the 24th of September "to do" the display of a collegiate happening with color, sights, Shriners and real live marching bands! Let us see Mike, just what time do we need to be there? Just early enough so we can grasp some of that early morning OK frostbite about our head, ears, hands and toes. Richard (without his knowledge) drew the short straw and will next year bring, for all EARS members, heated gloves, hot chocolate and bun warmers (your are right-I am not talking about Rainbow buns). All indications were that EARS did another superlative job with the parade: contributors are to be commended.

The CROP walk was held on Sunday the 25th of September in Edmond and was coordinated with the help of the Edmond Amateur Radio Society. Approximately 250 people walked to be of community service to help solve the problems inherent in hunger. The CROP walk support provided by EARS is yet another example of community intervention provided by our club. I have observed Edmond community leaders notice and respect our club's presence and contribution to the many functions of which we are a part. We should be proud of this recognition and work hard to be more apparent. The following EARS members rendered help to be of collective benefit to the success of the CROP Walk:

Lee Vaughn-Edith Vaughn
Richard Winnard-Toni Winnard
Dee Mize- Shelby Mize
Kay Sage- A.C. Adams
Ronald Quam-Ken Snider

The September Board meeting was held on the 14th at the Edmond EOC with the following Board members present:

Lee Vaughn-KA5WIS- President
John Thomason-WB5SYT-Vice President
Kay Sage-KB5LDO-Secretary
Sue Snider-N5VTW-Treasurer
Mike Mize-KB5BIX-Emergency
Coordinat or
Ken Stepp-N5DBM-Past President
Brad Kiespert-KG5UK-Member at Large
Club members present were: Edith Vaughn, KA5YPX, Barbara Kiespert, KB5DGH, and Brian Kiespert, KB5ODR.

The meeting was preceded by pictures being taken for the *Edmond Sun* to serve as publicity for our licensing class. The *Sun* has been very receptive to our publicity needs, while they applaud and recognize our public service effort. Similar items as previously discussed in the Board meetings were reviewed. Major income (only) for the month was from dues with major expenses in descending order of dollar amount: Yaesu U.S.A., C.O.R.A., and Southwestern Bell. Our September business meeting was held on Sunday the 18th at St. John's the Baptist Catholic Church. The superb weather sure kept alot of our folk enjoying the outdoors and away from the meeting. EARS members

present at the meeting included the following:

Toni Winnard- KC5ICQ
Dee Mize- WD5FHR
Edith Vaughn- KA5YPX
Shelby Mize- KA5YPE
Donna Seible-N5PYV
Clarence Dollmeyer-KB5RR
George Mastena-N5GFG
Frank Tassone- AA5GI
Clara Granger-KG5UK
Jim Juniper-KC5DMK

All Board members were also present except Mike and Brad. Clarence made delivery on his rolodex type club rosters and sold some on the spot. What beautiful work Clarence- ya done good! This is certainly a nice project for a scholarship fund raiser. An overview of the classes, the South link being "repaired and back-up", and a new courtesy tone being on the repeater during the Monday night net was discussed. KB5BUK tells me of the following November Birthday's for EARS members:

Opal King, KB5BUK November 1st
Bob Hebert, N5SAG November 3rd
Jim Richardson, N5OHL November 4th
Terri Reed, N5SFM November 9th
Hayes Forbes, Sr. WA5ZSH November 12th
Irby Marchant, N5KLJ November 13th
Linda Richardson, N5OJP November 14th
Gayle McGee KB5HXO November 15th

New member, yes! Jamie Barker-KB5EIC
Attractions Coming Right Toward Ya:
Saturday-November 5th, Siren Test-
Contact Edith, KA5YPX 12 noon
Wednesday-November 16th, Board
Meeting-Contact Lee, KA5WIS 7 p.m.
Sunday-November 21st, Club Meeting
2:00 p.m., St. John the Baptist Catholic
Church.
Each Monday at 8 p.m., EARS
Information Net. 147.135 +
Each Saturday, 8:30 a.m. coffee at
Grandy's

73 WB5SYT, John
EARS VP and Editor

observe and admire the lower extremities of the feminine gender. A group of attractive females had entered and was seated at a booth located on the way to the check out counter. Having noticed the long limbs of one particular member of this party, he desired to make closer observation of these. So, on his way out, he carefully dropped his ticket so it would fall by the feet of the attractive lady. At the same instant, he gently stooped over to pick up the ticket and at the same time admired the beauty of those nicely shaped legs. He walmost fell flat on his face from being kneed from behind. He could not recall the color of the shoes she was wearing.

And then, there's this other fellow, who we won't call by name or indicate in what part of town he lives to protect him from his wife. But, he absolutely goes wild when he sees a good looking waitress or customer in the establishment, especially those dressed completely in black. He will not pay any attention to anyone talking to him. One of these days he will probably develop a crick in his neck from following them around.

I actually got in on the tail end of the conversation of one of our members out Yukon way, but it seems he is conniving a way to come up with some new radio equipment at the expense of his company. It seems his expenses allowed for a certain venture greatly exceeded his actual expenditures and instead of returning the funds to his company, he is considering using them for some new HF equipment.

And then, there is this member who just happens to be the chief engineer for a local rock and roll radio station in Oklahoma City, who hasn't learned to keep one hand in his pocket when working on electrical equipment. While testing a Kenwood 520 for another member of the club, he got zapped from careless activity by pulling the cap of a 6146. If this wasn't enough charge, he pulled some other stunt and got zapped again. Third time is charm, so wonder what he will pull next.

Chuck, K5NK

Another Successful Hamnic

The fall Hamnic was another social success with more than 30 people enjoying Don, KC5BRO and Carol's KC5EXR hospitality. A special thanks to the set-up crew: Tom, N5TCG; John, KC5DRI; Gene, KJ5GX; Katherine, KC5CQH; C. R., KC5CYI; Fred, N5NIO and Don, KC5BRO.

The food and fun included packet and HF stations, and lots of lawn games, then concluded with a campfire and marshmallow roast. We hope everyone enjoyed the hamnic as much as we did.

Keith, K15XA
Mary, KB5VNP

GOOD INFORMATION

I use two vertical antennas at my QTH. an R-3 Cushcraft, 10 and 20 meter turnable, and an 18AVTWB Hygain, 10 through 80 meter. The R-3 has a motor driven capacitor in it and it had stopped working. The factory was called and they didn't have one in stock and it would be \$700 each if reordered. So, I took the base unit into the shack and removed the motor. Then taking the plastic cover off, I shot a dose of tuner cleaner into the motor. Then reapplying voltage it still didn't run, so several gentle pushes were applied to the armature. It then started running and at an amazing slow R.P.M. It was then reinstalled in the unit and has been working very well for over a year.

The 18AVTWB had a high S.W.R., especially on 80 meters. It was also leaning in a curved manner due to insulator spacers which the wind had vibrated into a lower position in the case of the traps. The 15 meter trap was removed after marking it's physical location with a pencil. By tapping the bottom section to the top of the trap as far as it would go, then grab the top part and pull hard, then push it back in, etc, until you gradually pull the entire inside of the trap out. I found the tuning coil was okay, so, I put the unit back together. The insulator spacers were put back in being careful to push the lower one in with a rod so it was in as far as I could get it. Then slide the top insulator back level

with the top of the trap case. The upper rain guard had gone to pieces, so I enclosed it with duct tape and sealed it with bath tub seal, spreading it over the entire duct tape area. I followed the same procedure with the 10 meter trap. It also had a broken tuning coil at the low end, so a solderless connector was staked onto the end of the aluminum coil and then a screw was applied to secure the coil back into position.

The bath tub seal is great stuff to use if you have an antenna that changes tuning when it rains. Just seal the suspected area and if you chose the right area, it will be stable the next time it rains.

I worked on a couple of handy talkies which the factory wanted too much money or wouldn't repair them at all due to their age. I got no where, but did prove that the problem was in the board or the computer style ribbon cable. I did not care to proceed further as it was buried deep in the bowels of these miniature monsters they are now selling for HT's.

Recently, I read an article about computer mother boards. It seems many of these boards have multiple layer traces in them. They are made in such a way that "NO" you can not repair them. In the case of mother boards, you replace them depending on the problem and if it is practical to perform the repair or not. It's just a matter of judgement. Sadly to say, you can not see these traces either, so you don't know if this particular board has trace or not. You have to have a service manual to find out.

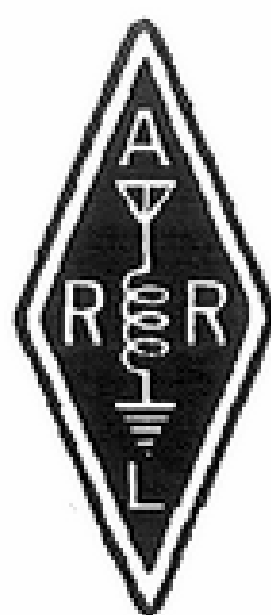
So, it appears as if this may have been the problem with the H.T.'s, because when I attempted to resolder a joint at the volume control, it was low volume all the time instead of intermittent volume when I wiggled the volume control before I worked on it. The volume control checked out okay when checked with a meter.

Further information shows that to replace the part itself and to solder in the new part, it is best to cut the leads close to the part and solder in the new part to those leads. Also, be sure to use a soldering iron isolated from the line or least use a wrist grounding cable. You will need low

temperature solder such as 63/37 instead of the usual 60/40 we all are use to using.

I would like to thank Hal KB1ZQ for confirming the multi-layer board and that it was used in the military as much as 10 years ago. The best thing to do is get a service manual before attempting to service any electronic gear.

Best of 73's, Bill, K5SKA



A. R. R. L. Bulletins

From ARRL Headquarters
Newington CT

ARRL Bulletin 75

FCC Seeks Actions

The FCC has ordered three California amateurs to show cause why their station licenses should not be revoked, and has ordered their operator licenses suspended.

The three, all Extra Class Volunteer Examiners, are accused by the Commission of signing paperwork indicating that several persons had passed amateur exam elements when, the FCC says, they had not. The exams, the FCC said, were not administered at all.

The FCC also said that, in response to its inquiries, all three Ves replied with answers that the FCC called "misrepresentations of material fact."

The three amateurs are James B. Williams, AA6TC, of Wilmington, California, and Rose Marie Flores, N6WPR, and Robert L. Flores, N6WPQ, both of Santa Monica, California.

The session was conducted under the coordination of the ARRL/VEC. The

ARRL/VEC suspended the accreditation of the three Volunteer Examiners when questions arose in late 1993.

The three have 30 days to request a hearing before an Administrative Law Judge.

ARRL Bulletin 78

Technician Renewals

If you hold a Technician Class license issued before March 16, 1991, then you automatically are a Technician licensee with HF privileges (a "Tech Plus").

In some recent instances the FCC has processed the renewal or modification of such a Tech Plus license but has mistakenly issued a "Technician" (no-code) license. Since June 8, 1994, new and renewed Tech Plus licenses have been clearly labeled as such.

If this has happened to you, do the following:

Write to the FCC, explaining the situation, including your current license status, with effective date. Include copies of both your "before" and "after" licenses.

If you no longer have either a copy or the original of your previous license, say so in your letter.

Send this to FCC, 1270 Fairfield Road, Gettysburg PA 17325-7245 (or FAX 717-337-1541). Keep copies of all your correspondence with the FCC.

Expect the matter to take four to six weeks to be resolved. In the meantime, you may continue to exercise "Tech Plus" privileges.

ARRL Bulletin 77

CW Exemption Denied

The FCC has denied a petition that proposed exemptions from Morse code exams for people age 65 and older.

Guy A. Matzinger, KB7PNQ, argued in his petition that old age results in diminished faculties, and equated those people 65 and older with the severely disabled in terms of passing a CW exam. He proposed the exemption for speeds above 5 wpm.

The FCC said that similar petitions had been denied in the past, because the current amateur radio license structure was based on "the desires of the amateur service community", based on thousands of comments on previous petitions. The Commission also noted that its rules already provide for Morse code exemptions for certain recognized disabilities.

Matzinger introduced the results of a survey he conducted that said 63 percent of those he surveyed supported such an exemption. The survey, the FCC said, provided an age profile of those surveyed but did not say how many people were surveyed.

Although the petition got the usual public notice, the FCC said it received no comments on it.

Matzinger is a 67-year-old Technician Class licensee who lives in Cheney, Washington.

DX Bulletin 60

Award Committee Vote

The Awards Committee has voted 5 to 2 against a DXAC recommendation that would set a minimum size for new DXCC countries. Those voting against shared the feeling that a --Minimum Size-- rule was not needed.

Awards Committee Chairman Chuck Hutchinson, K8CH, shared the results with DXAC Chairman Bob Beatty, W4VQ, immediately after the vote. Standard operating procedure for the committees allows the DXAC to resubmit a recommendation (with or without changes) on appeal, and Chairman Beatty has announced his intention to do that.

Individuals may send comments to ARRL Hq. Comments addressed to the DXAC will be read by members of both committees.

DXAC Chairman Beatty has declared a moratorium on new DXCC count petitions that may be affected by a minimum size rule. This moratorium will continue until such time as the deliberations on this issue are complete.

M. O. R. I. NEWS

MID-OKLAHOMA REPEATOR, INC.

October 4 Meeting Summary

The meeting was called to order at 7:16pm by Robert Moose, N5QKI.

Introductions followed for the 50 members and guests present.

The minutes of the September meeting were presented by Earl Draper, ABSTF, then the Treasurer's report was presented by Robert Moose, N5QKI. Both reports were accepted by the members.

The Foxhunt report was given by ABSTF.

The VE report was given by Jim, N5BEQ.

The CORA report was given by Rick, N5WNR.

The Technical Committee report was presented by Craig, N5VIS and Martin, KN6UG.

The 146.67 Transmit is at 1120 feet with a new antenna. A 220MHz machine is slated to go up soon.

The Multiple Sclerosis Society sent N5WNR a letter of thanks for the efforts of the volunteers at the Bikeathon. They hoped the group would help again next year.

This was also the meeting for annual officer elections. Following are the results of these elections and appointments.

Officers elected:

Treasurer - Craig Conwell, N5VIS

Secretary - Jim Buswell, N5BEQ

Vice-President - Rick Masters, N5WNR

President - Scott Walsh, N5NYS

President's appointments:

Directors - Martin, KN6UG and Jerry, N5KNU

Technical Committee - Martin, KN6UG and Craig, N5VIS

CORA representatives - Jim, N5BEQ, Liz, KC5GLP, and Bill, NW5M.

All appointments were approved by the membership.

OLD BUSINESS:

Further discussion of producing a newsletter was tabled.

NEW BUSINESS:

A motion was made by Gary, WB0RIS that the President forward a letter to CORA naming three club representatives and three alternates. Only these individuals would be eligible to vote on behalf of the club unless the President advises otherwise in writing. The motion was seconded and passed.

The meeting was adjourned at 9:02pm

Earl, ABSTF
Secretary.

Saturday Night Transmitter Hunts

Along with Halloween and Fall come nighttime transmitter hunts - a hider's delight. Darkness makes an ordinary hiding place into one which may be impossible to locate by even the most determined foxhunters. The trend of the last daylight hunts of the year has been toward intermittent, short, and well hidden transmitters. On September-24th David, KC5AEK sent RF bouncing through the area around N.W Highway and I-44, forcing a great deal of on-foot hunting around the hospital area. Jerry, N5ABF and Lesta, N5AWI staged a weak-signal intermittent hunt on October 1st, close to the starting point. Any travel in the wrong direction caused the hunter to lose the signal. On October 8th, Steve, KB5TOG hid a his HT on a fishing pier at Lake Hefner and used its crossband repeat function to make life difficult on the hunters. The hunters seem to be enjoying the challenge - and we all enjoy blowing our diets by going out to eat after the hunts! We invite you to try this exciting facet of the amateur radio hobby. Join us at the starting point on Saturday night - 7:00 p.m.. Call on the 146.67 repeater for info. Try it, you'll like it!

73.
Earl ABSTF

On the Air

Listings of Nets on local repeaters or sponsored by CORA members:

ARES - Oklahoma County Thursdays @ 8:00 p.m. on 146.22/82.

Packet check-in on 145.07

Salvation Army - Second Saturday of the month @ 8:00 a.m. on 146.22/82.

HF 3900kHz; Packet 145.07

AMTOR @ 8:30 a.m. 14.064mHz

Night Owl - Daily @ 10:30 p.m. on 146.07/67 with alternate 146.325/925.

OKC Swap-n-Shop - Saturdays @ 10:00 a.m. on 146.22/82.

Geritol - Daily @ 8:00 a.m. on 145.41 minus input.

Edmond Info - Mondays @ 7:00 p.m. on 147.135/735.

QCWA Chp 63 VHF - Thursdays @ 7:00 p.m. on 145.41 minus input.

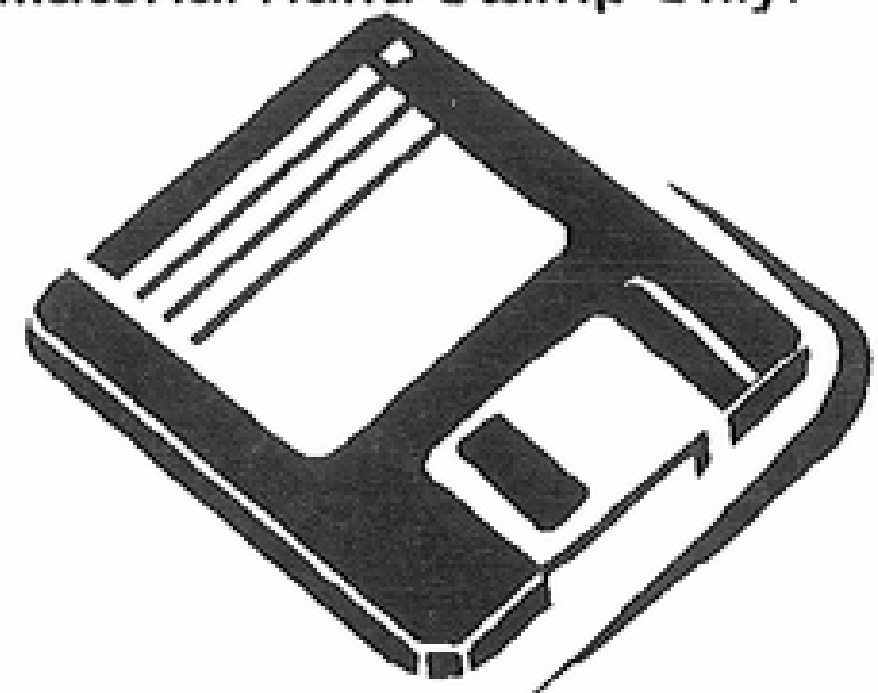
QCWA Chp 63 HF - Sundays @ 8:00 on 3856.5kHz.

Wheatstraw - Wednesdays @ 9:00 p.m. on 146.01/61.

Purcell - Mondays @ 8:00 on 145.19 minus input.

Climmaron - Tuesdays @ 9:00 p.m. on 145.45 minus input.

When sending floppy disks to the Editor of the Collector and Emitter, Please mark your packages as Magnetic Material Hand Stamp Only.



I have had several disks show up with nothing on them. Thank you for your assistance.

HAL, KB1ZQ/5

O. C. A. P. A. NEWS

Oklahoma City Autopatch Assn.

Minutes of the OCAPA September 20, 1994 meeting:

The meeting was called to order at 19:30 local time by Brad KJ0W. The President welcomed all visitors and new members. N5ENQ related information concerning a lightning strike at his house.

The minutes of the August meeting, as recorded by John, N5SAM were read by Perry KB5TOT. It was moved and seconded to accept the minutes as read. Motion passed unanimously.

Treasurer's report was submitted by Cheryl KB5WQR. It was moved and seconded to accept the Treasurer's report. Motion passed unanimously.

COMMITTEE/LIAISON REPORTS

TV9 Liaison: John, NJ1V was not present to report...it was mentioned that we have been blessed with non-violent weather.

Technical Committee: Mike, N5VIT said the technical committee will be gearing up the next couple of weeks for work at the site. Have had reports of phone patch problems. Mike indicated that he is still investigating the problem. Mike indicated the need to replace parts of the repeater. The 444.3 repeater is in need of work. Mike indicated the need for a general work day to clean up and paint the repeater building. Hal recommended concrete work...ie. addition of a retaining wall. Mike indicated that he had turned in an equipment count to TV9. TV9 will give us tags to tag our equipment on the tower. The technical committee is to meet and work on plans for the future.

PROPERTIES COMMITTEE: Ed, WA5YDF had no report all is OK.

SALVATION ARMY LIAISON: Tom, N5TCG was not present. Brad, KJ0W made the comments on the need to support the Salvation Army. Brad

Collector and Emitter, October 1994

mentioned the need to support the Salvation Army RACES Net on the second Saturday of the month. W5LDF indicated he is working on the generator cables for the Salvation Army generator.

CORA COMMITTEE: CORA Election to be held at the next CORA meeting.

OLD BUSINESS--

*None

NEW BUSINESS--

*Hamnic announcement October 8th

*Annual SET (Simulated Emergency Test) also on October 8th at 9:00 AM at the Salvation Army.

*Discussion on Club providing a porta pottie for the Hamnic. A Motion was made by Hal, KB1ZQ to provide a porta pottie for the Hamnic. The Motion was seconded by Mac, K2GKK. The question was called and passed unanimously.

*Mike, N5VIT moved to have the small supply of soda's left over from Field Day to be brought to the Hamnic for consumption. The motion was seconded, and passed unanimously.

*It was announced by Keith, K15XA, that Mary, KB5VNP would be the point of contact for the Hamnic.

*It was announced by Brad, KJ0W that there was no reservation for the Christmas Party this year. There was discussion of whether to have a sit down dinner or a pot luck supper. Mike, N5VIT was made the point of contact for ideas for a place for the Christmas party with first choice of dates to be December 20th. John, N5SAM moved to let Mike, N5VIT make a decision on the location on the party and give the club officers the authority to make a deposit. The motion was seconded and passed unanimously.

*Mary, KB5VNP was volunteered by her husband K15XA to be food coordinator for the Christmas party.

*Leonard Hanstein Scholarship Fund--Brad, KJ0W and John, N5SAM expressed

the need to push the fund raisers. The pocket change collection idea was raised again. John, N5SAM and Cheryl, KB5WQR coordinated a raffle for an 40 meter dipole antenna and a 2 meter ground plane antenna.

*JOTA--Jamboree on the air is slated for October 15th and 16th. The Tuttle Boy Scouts will be operating from the Tuttle Boy Scout Camp. Contact Keith, K15XA if you would like to participate. The FAA Club will also be having an open house the weekend for JOTA. Contact Brad, KJ0W for more information about that.

*AVON-Glynn, N5WNL mentioned that he is the treasurer for another non-profit club and that they had an AVON sale and made about \$300 (40%) profit in about a weeks time...he suggested the club look into it for the Leonard Hanstein Scholarship fund.

*Discussion was held concerning OCAPA insurance.

*Happy Birthday was sung to Mike N5VIT for his 40th birthday.

---Break was given for Scholarship raffle ticket sales

40 meter dipole was won but not accepted by the President KJ0W a re-draw was held. The 40 meter Dipole was won by Hal, KB1ZQ. The 2 meter ground plane was won by Perry, KB5TOT.

It was moved and seconded that the meeting adjourn. The motion passed unanimously. The meeting adjourned at 21:01 local time.

The attendance was 44.

Respectfully Submitted by

Perry, KB5TOT
Secretary

O. C. A. P. A. MEMBERS

The Thursday lunch bunch seems to be turning into nothing but a bunch of dirty old men. At one of our recent outings, one of our fellow members from up Erid way devised a rather conspicuous way to

Technical Corner

Keplerian Elements-2

In the first of our series, we discussed the nature of Keplerian Elements and their individual functions. The issue, we'll discuss how to get "Keps" and the two most common formats in which they are found.

The most common question about "Keps" is 'where can I get them'? Easy, just look on just about any packet bulletin board and you'll probably find Keplerian Elements listed. In the Oklahoma City area, check "SATBOX" on 145.07 MHz or, on 145.05 MHz, "K2GKK-4" or "K5JB". Although most recent satellite tracking programs allow direct update, as we'll see shortly, some older programs will only allow manual entry. Thus, if you need "Keps", in printed format, can be found in the "AMSAT Journal", "OSCAR Satellite Report", or "The Satellite Operator".

If you are downloading from a BBS, you'll most likely find one of two formats: NASA and AMSAT. The NASA format, or 'NASA two-line format' comes directly from the North American Aerospace Defense Command Complex at Cheyenne Mountain, Colorado. Orbital analysts calculate "Keps" on several hundred object in orbit around the Earth and publish the 'snapshot' of each one on a weekly basis. NASA, in turn, distributes the results to the public in the 'two-line' format which looks like this:

```
AO-13
1 19216U 88051B 94114.36934900 -
.00000468 10000-4 0 9054
2 19216 57.8413 256.1944 7213809
339.7848 2.0604 2.09724652 13386
```

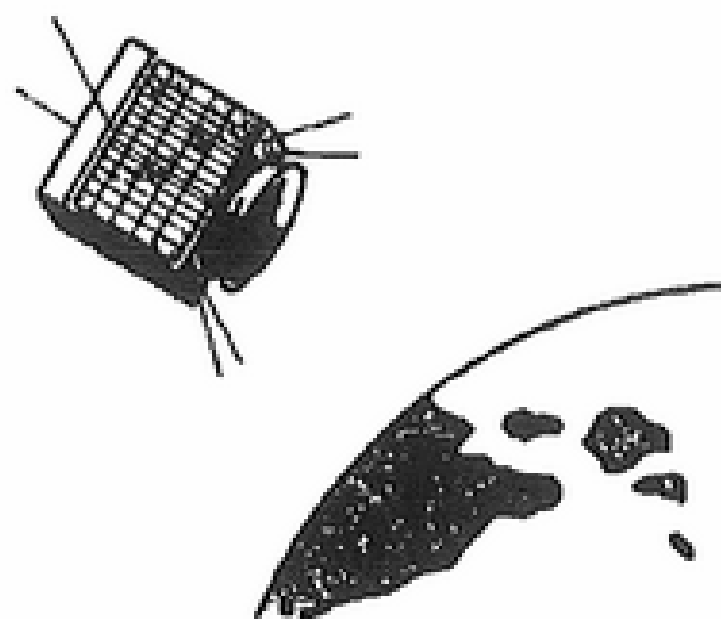
You can decode two-line elements with the following key:

```
1 AAAAAU 00 0 0 BBBBB.BBBBBBBB
.CCCCCC 00000-0 00000-0 0 DDDZ
2 AAAAA EEE.EEEE FFF.FFFF
GGGGGGG HHH.HHHH III.IIII
J' UJJJJJKKKKKZ
```

(: A-catalognum B-epochtime C-decay
D-eltsetnum E-inclination F-raan G-
eccentricity H-argperigee I-mnanom J-
mmotion K-orbitnum Z-checksum

As mentioned, "Keps" can be directly loaded into your tracking program from a computer file. However, if the 'two-line' format is used, editing will be required. As you can see in our sample "AO-13 Keps", the individual elements are not titled. The computer knows where the various elements are located in the line so any extra verbiage will confuse our tracking program's update function. Therefore, before loading can proceed, all extraneous text except the satellite name and the Keplerian data must be removed.

The second format, or "AMSAT Format" for our same "AO-13" looks like this:



```
Satellite: AO-13
Catalog number: 19216
Epoch time: 94114.3693490
Element set: 905
Inclination: 057.8413 deg
RA of node: 256.1944 deg
Eccentricity: 0.7213809
Arg of perigee: 339.7848 deg
Mean anomaly: 002.0604 deg
Mean motion: 02.09724562 rev/day
Decay rate: -4.68e-05 rev/day^2
Epoch rev: 13386
Checksum: 331
```

When the first tracking programs were written, they didn't have the automatic update capability. Thus, all "Keps" had to be loaded manually. The above format was based on some of the more common programs and the order they required the data to be entered. This wasn't so bad in the early days of the amateur satellite program as there were very few 'OSCARs' to track. With the tremendous increase of interest in not only amateur satellites but, also weather, TVRO, communications satellites. A rapid method of update

tracking programs had to be devised allowing satellite operators to automatically load the 'two-line' format.

At the end of both formats, there is a "Checksum" number. This allows the computer to 'test' the "Keps" for errors and tell you if you got all the info. Your program will tell you what "Kep" is incorrect, and why. Most of the current popular tracking programs including "Instant Track", "QuikTrak", "RealTrak", and "Winsat" have the 'auto-load' feature.

Although originally designed for manual loading, the "AMSAT" format can also be loaded automatically. Since each element is labeled, no editing is required; the computer knows what each line of data is and processes it accordingly so you can load everything, warts and all. The disadvantage, it takes longer, but the time isn't that significant.

Another frequent question about updating "Keps" is 'how often'? If you're a purist, you could update weekly. Generally, "Keps" for Low Earth Orbit (LEO) satellites should be update more frequently as the Earth's atmosphere and gravity have more impact on orbit parameters. Satellites such as AO-13 or AO-10 spend a good portion of their orbits away from Earth, thus you could probably go thirty days on one set of "Keps".

A special note on space shuttle missions. It is common for the shuttle to adjust its orbit numerous times during a mission. When a shuttle is in orbit, your best bet is to update your tracking program each time a new set of "Keps" is distributed.

Now we have our "Keps" loaded into the "Hypoturbo Version 100" of our tracking program and are ready to track satellites. Next issue, we'll look at how to apply the information our tracking program is providing.

73 de Tom, WA9AFM

The two line format is slightly off due to formatting Tom's article, the first line is actually the first two lines. And the second is the third and fourth lines as printed. Sorry for the mix-up.

The Editor

November 1 to December 4, 1994 Schedule of Events:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 7:00 p.m. MORI	2	3 7:00p.m. Aeronautical Center 7:30 p.m. CARS	4	5
6 2:00 p.m. MORI VE Exams 2:15 p.m. Great Plains	7	8	9	10 7:30 p.m. Altus Asm	11 Veteran's Day	12 9:30 a.m. SCARS 10:00 a.m. SCARS VE Exams
13 2:30 p.m. Wheatstraw	14 7:00 p.m. EARC	15 7:30 p.m. OCAPA	16	17	18 C&E Deadline	19 9:00 a.m. VE Exams (RSC) 11:00 a.m. VHF Club
20 2:00 p.m. EARS	21 6:00 p.m. CORA VE Exams	22 7:00 p.m. Shawnee VE Exams 7:30 p.m. CORA	23	24 Thanksgiving Day	25	26
27	29	30	1	2 7:00p.m. Aeronautical Center 7:30 p.m. CARS	3	4



Postmaster: See back for complete mailing instructions. Return address must be printed on this form.

(Required by 39 U.S.C. 3685)

1 Publication Title CORA Collector and Distributor	2 Publication No. 1 5 5 1 1 0	3 Filing Date 29 September 1994
4 Issue Frequency Monthly	5 No. of Issues Published Annually 12	6 Issue Date for Circulation Data Below 29 September 1994

7 Complete Mailing Address of Publisher (Street, P.O. Box, County, State, and ZIP+4®)

CORA, Inc. 2913 South Hobbs Street, Oklahoma City, Oklahoma County, Oklahoma 73143-5542

8 Complete Mailing Address of General Business Office of Publisher (Not for Mail)

CORA Collector and Distributor P. O. Box 55942 Oklahoma City, Oklahoma 73143-5592

9 Publication Title (Do not include "Collector and Distributor" in title)

Central Oklahoma Radio Amateurs, Inc. P. O. Box 55942 Oklahoma City, Oklahoma 73143-5592

10 Complete Mailing Address of Editor (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

11 Complete Mailing Address of Managing Editor (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

12 Complete Mailing Address of Business Office (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

13 Complete Mailing Address of Owner (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

14 Complete Mailing Address of Known Bondholder, Mortgagee, and Other Security Holder Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box.

None

15 Complete Mailing Address of Publisher (Do not include "Collector and Distributor" in title)

Central Oklahoma Radio Amateurs, Inc. P. O. Box 55942 Oklahoma City, Oklahoma 73143-5592

16 Complete Mailing Address of Editor (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

17 Complete Mailing Address of Managing Editor (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

18 Complete Mailing Address of Business Office (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

19 Complete Mailing Address of Owner (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

20 Complete Mailing Address of Known Bondholder, Mortgagee, and Other Security Holder Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box.

None

21 Complete Mailing Address of Publisher (Do not include "Collector and Distributor" in title)

Central Oklahoma Radio Amateurs, Inc. P. O. Box 55942 Oklahoma City, Oklahoma 73143-5592

22 Complete Mailing Address of Editor (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

23 Complete Mailing Address of Managing Editor (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

24 Complete Mailing Address of Business Office (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

25 Complete Mailing Address of Owner (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

26 Complete Mailing Address of Known Bondholder, Mortgagee, and Other Security Holder Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box.

None

27 Complete Mailing Address of Publisher (Do not include "Collector and Distributor" in title)

Central Oklahoma Radio Amateurs, Inc. P. O. Box 55942 Oklahoma City, Oklahoma 73143-5592

28 Complete Mailing Address of Editor (Do not include "Collector and Distributor" in title)

Harold C. Miller 4216 Spivey Drive Del City, Oklahoma 73115-4424

1 Publication Title CORA Collector and Distributor	2 Issue Date for Circulation Data Below September 1994	
3 Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a Total No. Copies (Net Press Run)	150	150
b Paid and Unpaid Distribution	0	10
c Paid Distribution Outside the United States	100	484
d Paid Distribution Within the United States	100	496
e Free Distribution by Mail (Barter, Contributions, and Other Free)	214	0
f Free Distribution Outside the United States	0	52
g Free Distribution Within the United States	214	52
h Total Distribution (Sum of b, c, d, e, f, g, and h)	918	148
i Copies Not Distributed (To Office Use, Leftovers, Spoiled)	0	2
j Total (Sum of h and i)	918	150
10 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
11 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
12 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
13 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
14 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
15 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
16 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
17 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
18 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
19 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
20 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
21 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
22 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
23 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
24 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
25 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
26 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
27 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
28 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
29 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
30 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
31 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
32 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
33 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
34 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
35 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
36 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
37 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
38 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
39 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
40 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
41 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
42 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
43 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
44 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
45 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
46 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
47 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
48 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
49 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
50 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
51 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
52 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
53 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
54 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
55 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
56 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
57 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
58 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
59 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
60 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
61 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
62 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
63 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
64 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
65 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
66 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
67 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
68 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
69 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
70 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
71 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
72 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
73 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
74 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
75 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
76 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
77 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
78 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
79 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
80 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
81 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
82 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
83 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
84 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
85 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
86 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
87 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
88 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
89 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
90 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
91 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
92 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
93 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
94 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
95 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
96 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
97 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
98 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
99 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148
100 Paid and Unpaid Circulation (Sum of b, c, d, e, f, g, and h)	918	148

Instructions to Publishers

- Complete and file one copy of this form with your postmaster on or before October 1, annually. Keep a copy of the completed form for your records.
- Include in items 10 and 11, in cases where the stockholder or security holder is a trustee, the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check box. Use blank sheets if more space is required.
- Be sure to furnish all information called for in item 15, regarding circulation. Free circulation must be shown in items 15d, e, and f.
- If the publication had second class authorization as a general or requester publication, the Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or the first printed issue after October if the publication is not published during October.
- In item 16, indicate date of the issue in which this Statement of Ownership will be printed.
- Item 17 must be signed.

Failure to file or publish a statement of ownership may lead to suspension of second-class authorization.