CENTRAL OKLAHOMA RADIO AMATEURS
COLLECTOR AND EMITTER

50¢

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TRS 80C Central Oklahoma C★mputer Organization

WESTLINK REPORT

THE FCC HAS FINALLY COMMENTED on the action it recently took in temporarily suspending the 2 meter operating privileges of Richard Whiten, WB2OTK, of Piedmont, South Carolina. According to Richard W. Smith, Chief of the FCC's Field Operations Bureau, the cable television ingress problems have been solved to a great extent. In spite of that, some direct-to-viewer interference from Whiten's transmitter and amplifier still does exist. For that reason, the matter cannot be considered closed. Smith detailed a number of cases where TV viewers who are not connected to the cable system suffer severe interference in the form of fundamental overload or audio rectification whenever WB2OTK is on the air. What complicates the problem, according to Smith, is that Whiten's primary 2 meter station is designed for weak signal DXing, and he often transmits with fairly high power. When the gain of Whiten's antenna is taken into account, the station's effective radiated power is several thousand watts. Obviously, some consumer electronic equipment cannot handle this power level without degradation in performance. Smith indicated that the FCC had a responsibility to the entire community, not just to one individual. He said that the large number of complaints received from Whiten's neighbors, coupled with his failure to give much assistance in solving the RFI he was creating, dictated the original action in temporarily suspending WB2OTK's operating privileges on 2 meters. Dick Smith also disagreed with Whiten's assertion that it was he, himself, who had suggested limiting his operating time. The FOB chief noted, however, that regardless who made the initial suggestion, it was the FCC's prerogative, and not that of one of its licensees, to take such action. Smith added that the matter of WB2OTK cannot be closed until all of the interference caused by Whiten's high power 2 meter station is eliminated. He also said that he was unaware of any threat of legal action against the FCC had WB2OTK's operating privileges not been reinstated. Bureau Chief Smith is somewhat of an expert in the handling of RFI - related matters, having served as an FCC field engineer, including a stint in the Los Angeles area during the heyday of high - power 6 meter AM activity. With this background, Smith has a better understanding of these problems than most FCC officials.

DAYTON HAS ANNOUNCED THIS YEAR'S WINNERS. The man who conceived the Dayton Hamvention, the lady who spearheaded the All Volunteer Testing Program, and the ham who made the national Teleconference Radio Net a reality have been named recipients of the 1985 Dayton Amateur Radio Association awards. Leading the list is Ham of the Year John Willig, W8ACE/4, of Sarasota, Florida. It was Willig, who in 1951, conceived the idea of a hamfest for the Dayton club to sponsor. This amateur radio gathering eventually became the "show of shows" in amateur radio worldwide, drawing attendance that now approaches 30,000 each year, and continues to grow. W8ACE is known to many as "Mr. Hamvention," but is being honored for his dedication to the overall amateur community as well as to DARA for his continued leadership in preserving the thrice weekly Dayton Net, which permits hams who are former residents of Dayton or who are former DARA members to keep in contact with each other. This year's Ham of the Year has been at this project for more than a decade.

Specific Achievement Award winner Judy Frye, KG8P, should be no stranger to Westlink Report readers. If you have followed the development of the All Volunteer amateur testing program since its inception, you are already familiar with her name. An education profession, Mrs. Frye realized that some form of leadership was necessary if the VEC program was to get off the ground. She not only convinced the Dayton Amateur Radio Association to take on the role of the 8th Call District VEC (which they relinquished after the ARRL became involved in the program) but helped to develop many of the examination procedures and materials which have been adopted in part or in whole by other VECs. KG8P was honored for her role in the program last year when US Senator Barry M. Goldwater (R-Ariz) singled her out as one of those responsible for the initial success of the program and had that information recorded into the Congressional Record. Mrs. Frye's work in the VEC program has not just been limited to the 8th Call Area. Her participation has even included aiding a group wishing to give tests to US citizens in Japan. The Dayton club feels that without the total dedication of Judy Frye, the All Volunteer Testing Program might not be nearly the success it is today.

Another well known name and callsign to Westlink readers is Rich Whiting, WØTN. Rich is employed by the Honeywell Corporation of Minneapolis, Minnesota. With the aid of that company's radio club and the cooperation of the Darome Connection Teleconferencing Group, he took the fledgling idea of Dr. Edwin Piller, W2KPQ, of an intertied regional teleconferencing amateur radio network and expanded it nationwide. For three years, Whiting hand nurtured the net, slowly developing it into the format it exists in today. Other duties forced him to turn the net's operation over to the Midway ARC of Kearney, Nebraska late last year. It is well known, though, that he keeps a guiding hand in the net's operation. Under Whiting's operation, the net grew to a point where an estimated 100,000 to 200,000 hams tune in for each session.

Meeting held at Red Cross Bldg
NW 10th & Hudson
2nd Saturday of the month
9:00 A.M.
Club Dues: $5.00 per year

Meeting called to order by Bob Pace at 9:15 A.M. 74 members/guests attended the meeting on April 13, 1985.

1. COCONET - A general appeal was made for donations to clear the COCONET debt. $143.05 was collected and a check was presented to Joe Schilling to retire the COCONET loan. Our thanks to Joe for his generosity.
2. C&E - All articles should now be 32 characters wide.
3. Dorothy Roberts volunteered to be COCO's Editor for the Computer Street Journal. Thanks to Dorothy!
4 Jim Seals volunteered to write articles about COCO for Rainbow and Hot COCO. Thanks to Jim!
5. Bob Helms presented a motion to honor club members who make major contributions to the club through a lifetime membership. Sam Murr seconded the motion and it carried. Following this Joe Schilling was honored as COCO's first LIFETIME member. Congratulations Joe!!
6. Bob Pace suggested that we hold our 1st COCO Swapfest instead of a monthly meeting in May. See a related article in this issue of the C&E.
7. Bill Holland presented an excellent program on Assembler language. This included a demonstration of the speed of machine language compared to BASIC. Bill also demonstrated a program that he is developing.
8. The newest graphics program COCOMAX was also demonstrated.

See you all at the Swapfest Saturday, May 11th.

Secretary/Treasurer
Kaye Derryberry

The Wheatstraw club members traveled to the Mooreland swapfest for our April meeting. The group gathered at Watonga and then traveled as a caravan on to Mooreland. A great time was had by all with lots of good fellowship and the covered dish dinner was excellent. We want to thank the Great Plains Radio club for the great hospitality. There was also lots of radio gear to ponder over with several commericial dealers having bargain prices on new items. Brodie electronics happen to make me a good deal on a Kenwood 2600A, but it turned out to be too good to be true (3 battery packs)!!

Tom KA5FUU and Bertha left early to take the VEC exams but I understand the test questions were pretty tough and Bertha just missed upgrading by one question. After the gathering we caravaned back home by way of the Glass Mts. and Cheyenne valley with Joe and Mary Ann as the wagon masters while WA5JHB called the monthly meeting to order. Maybe we should have more meetings this way, because the meeting only lasted about 20 minutes or miles. Next meeting will be at Red Rock park on the 19th so everyone come. Listen in on 01-61 net Wed. nights at 0830 for more details. Untill then....

73's..WD5GLD

STORM CHASER IT LOOKS UP

Storm chasers should remember to be circumspect in expressing their enthusiasm for tornados and severe storms, while visiting local weather stations, resturants and other public places. Some of those within ear-shot have experienced great personal tradgedy and financial loss frrom these storms. A few still lie awake at night, listening to distant thunder and remembering. They won't under-undestand your attitude, so you should make an effort to anticipate and understand theirs.

You are also reminded to be considerate when dopping in on local National Weather Service (NWS) or Federal Aviation Administration (FAA) flight service stations, during a chase. Even when storms are already building nearby, and you're impatient for access to the data or quick answers, be courteous.

The handfulof people who chase storms are, appropriately, further down on their scale of priorities. When you breeze in for five minutes, don't expect instant reaction or intelligent answers to strange question like, "Where are the toronados?" Study the charts first, make some reasoned guesses, then ask a few questions and LEAVE! In fact you will find most such staff to be cheerful, helpful and-sometimes-even interested in wwhat you're about.But keeping that way depends on being patient and considerate.

EDMOND AMATEUR RADIO SOCIETY

Another month is here to try and bring you the latest news and I must have spent all my know on last months news as it is a bit thin for this writing.

I believe this is a good time to suggest if you have anything for publication please get it to me as soon as possible so we can make the dead line.

We have a new member who is Tres Ross KE5ML and we wish to welcome him to the club and to the fellowship our group offers. He is also a Hot Air Balloonist so don't be surprised to hear from Tres as a Air Mobile. I wonder if that could be Hot Air Balloonist Mobile?

Our wonderful teachers have already produced a new Novice Operator, but we will keep you in suspense until we have all the details. We would like to say that according to all the students and Amateurs we have heard from these are the best classes ever due to our excellant teachers.

The repeater has it's new finals in now and is up to full power. I also understand that we may be getting a new excitor section for the transmitter.

As we said we could use more information to write about so please let us know if you have anything of interest for the next issue of the C. & E.

Bill K5SKA.

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1 AERONAUTICAL CENTER ARC
MEETS: 7:30pm First Thursday, Flight Standards Bldg., FAA, S. Macarthur

PR	WB5SVN	Jack Iman	677-8537
VP	K5LDI	Tom Mangham	677-5291
SE	WD5JPW	Gloria Seignious	722-1740
TR	WA5CJG	Bob Pace	376-3569
EDITOR: Gloria Seignious, WD5JPW			722-1740

2 OKLAHOMA CENTRAL VHF CLUB
MEETS: 10:00am Third Saturday, Red Cross. 110th & Hudson (Back door) Okla City

PR	KD5IS	Jerry Wermore	524-5080
VP	N5PS	Pat Sherrill	943-3219
SE	K5JB	Joe Buswell	732-0676
TR	W5KE	Ellard Foster	789-6702
EDITOR: Joe Buswell, K5JB			732-0676

3 MID-OKLAHOMA REPEATOR, Inc.
MEETS: 8:00pm 1st Tuesday Okla City State Civil Def. Will Rogers Bldg State Capitol

PR	N5EPV	Bob Allen	Unlisted
VP	N5GRA	Bob Gambel	672-9294
SE	N5HII	Elise Northern	376-4287
TR	W5KOZ	Sid Gerber	737-1050
EDITOR: Elise Northern, N5HII			376-4287

4 OKLAHOMA CITY AUTOPATCH ASSOCIATION
MEETS: 7:30pm Third Tuesday. Okla City Fire Training Center. 800 N Portland

PR	WB5NDO	Kathy Whited	799-1457
VP	N5GWZ	Bob Northern	376-4287
SE	WA5ZNQ	Joe Hustak	789-8587
TR	KE5M	Ron Recer	341-7030
EDITOR: Bob Northern, N5GWZ			376-4287

5 OKLAHOMA UNIVERSITY ARC
MEETS: 7:30pm Second Tuesday (Sep-May) 119 Wilson Center. 1334 S Jenkins

PR	KA5BAY	Luke Noah	325-1775
VP	KE5N	John Wustenberg	325-2382
SE	KA5COI	Peter Richeson	329-3217
TR	KA5LZN	Greg Smith	366-1641
EDITOR: Greg Smith, KA5LZN			366-1641

6 ALTUS AREA AMATEUR ASSOCIATION
MEETS: 7:30pm Second Thursday North Main Fire Station (CD) Altus

PR	WB5KRH	Dwight Dennis	482-2498
VP			
S/T	W5VXU	Mike Schenkle	482-1797
EDITOR: Mike Schenkle, W5VXU			482-1797

7 BICENTENNIAL (76ers) ARC
MEETS: 7:00pm Second Tuesday. OG&E Bldg. SE 3rd & E. K. Gaylord Blvd.

PR	AE5N	Donald Duck	691-4199
VP	WD5JNT	Ted Vanlaningham	262-1675
SE	N5AUH	Jerry Sproul	354-2061
TR	WA9AFM	Tom Webb	737-6716
EDITOR: Jim Seals, KB5XN			381-2005

9 WHEATSTRAW AMATEUR RADIO CLUB
MEETS: 2:30pm Second Sunday. Location varies. See club section.

PR	WA5JHB	Harvin Stokes	893-2221
VP	N5EHD	Virginia Beneda	825-3302
S/T	K5GGL	George Maschino	263-7614
EDITOR: Richard Ruhle, WD5GLD			375-4843

11 EDMOND AMATEUR RADIO SOCIETY
MEETS: Varies. See club section.

PR	N5DBM	Ken Stepp	341-4874
VP	K5SKA	Bill DeMand	751-5137
S/T	KC5GN	Bill Wright	341-6076
EDITOR: Bill DeMand, K5SKA			751-5137

12 QUARTER CENTURY WIRELESS ASSOCIATION
MEETS: Quarterly at various places.
NET: 3855 kHz Sunday at 8:00am.

CH!	W5NL	Fred Boardman	427-2505
VCH	W5TY	Ray Long	942-4314
S/T	W5AS	Howard Baker	721-5453
EDITOR: Robert Runyon, AAOO			373-1818

13 KAY COUNTY AMATEUR RADIO CLUB
MEETS: 7:00pm Third Thursday Ponca City EOC

PR	N5HIC	Paul Davis	765-2227
VP	WA5UBO	Marsh Pronneke	363-2526
S/T	KD5FX	Dave Land	762-8616
EDITOR: Dave Land, KD5FX			762-8616

14 CIMMARON AMATEUR RADIO ASSOCIATION
MEETS: 7:00pm Fourth Monday. Place varies. See club section.

PR	NN5Z	Jack Day	227-3462
VP	KA5DUO	Leo Peil	886-2996
ST	KA5SLY	Reeta Martin	227-3013
TR	N5FUN	Dede Bailey	
EDITOR: Ruth Simpson, N5FUR			227-2791

15 SOUTH CANADIAN AMATEUR RADIO SOCIETY
MEETS: 9:30am Second Saturday. Red Cross Bldg., North OU Campus. Norman.

PR	KD5IT	Dave Egle	321-7570
VP	N5BEW	Ken Esadooah	329-4667
SE	KA5AXQ	Joe Green	364-4301
TR	WB5RXZ	Monte Bateman	329-7485
EDITOR: Sam Barrett, WA5RPP			321-2601

16 EDMOND AMATEUR RADIO CLUB
MEETS: 7:00pm Second Monday. See club section for location and type.

PR	WD5DYI	Mark Northcutt	755-4672
VP	WA5EAI	Ron Cron	681-0896
S/T	WD5DYJ	Kay Northcutt	755-4672
EDITOR: Mark Northcutt, WD5DYI			755-4672

18 GREAT PLAINS AMATEUR RADIO CLUB
MEETS: 7:30pm First Tuesday. Civil Defense Room, Woodward courthouse.

PR	NC5C	Gerry Ford	256-5342
VP	W5KFK	Lewis Patterson	256-2111
SE	KA5PYA	Lois Ford	923-7683
TR	N5EOX	Freida Patterson	256-2111
EDITOR: Lois Ford, KA5PYA			923-7683

20 ARDMORE AMATEUR RADIO CLUB
MEETS: 7:45am Saturday. Corral Restaurant
INFORMAL: Every Wednesday, 221 9th NW

PR	WD5FZD	John W Merlyn	223-9543
VP	WA5IJA	Gene South	223-8252
SE	W5JCX	Jim Chilcoat	226-6816
TR	W5BLW	Charles Dibrell	226-0589
EDITOR: Glenn Hamilton, KE5ES			226-4379

ALTUS AREA AMATEUR RADIO ASSOCIATION

The Altus Ham Club met in formal session Thursday evening, April 11, at the North Main Fire Station. Dwight, WB5KRH, opened the meeting at 7.45PM and Mike, W5VXU, gave the financial report showing the Club has something over $300 in the bank. Several members renewed their membership and there are about eight more who need to do so quickly before the next meeting or they will be dropped from the rolls. Please contact the Secretary as soon as you can.
Dwight kept the membership interested when he announced that the City of Altus and the Altus Air Force Base were getting together to the tune of $4000 each to organize a big Fourth of July celebration. Since more recent celebrations have been somewhat disappointing in scope, the hopes are that this year's will be bigger and better than ever. The hams have been asked to help with communications and Dwight will tell everyone what will be needed as soon as he can. All of you please be ready to help in any way you can. At the very least there will be an active radio station set up to operate in the amateur bands and with more operators maybe we can set up some operations on various MARS frequencies.
The theme of the day will be "Patriotism Now".

Mike, W5VXU attended the Moore land Hamfest and came away impressed with their efforts in making this a huge success.

Mike also has taken on a new prospective ham, Ann Potts, who in just two weeks has mastered 20 letters of the alphabet and should be ready for her Novice test shortly.

There are some very preliminary plans underway to try and set up a single channel teletype link on VHF between Childress and Altus for use in handling large volumes of traffic during or after disaster situations. If there is any interest out there in participating in this kind of thing, please let me know.

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BOB WA5CJG

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CENTRAL OKLAHOMA RADIO AMATEURS, Inc.
MEETS: 7:30pm Fourth Tuesday. Red Cross Bldg. 10 & Hudson Okla City (Back door).

PR	WN5NWX	Reggy Whited	799-1457
VP	WD5ISS	Don Saunders	751-0404
SE	N5BEQ	Jim Buswell	236-0368
TR	WDOFTM	Linda Callison	751-3620

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GROUNDING, SHIELDING, AND THE BIG SIGNAL--HUMMM

I have wired up plenty of circuits only to see them hum like crazy when I had powered them up. This primarily takes place in audio circuits, especially those audio circuits that have high input characteristics--impedence wise, that is.

The same is also true of circuits that have been wired up for the purpose of RF output and the like. What generally happens is that the circuit is installed or completed. It is then interfaced to the RF portion of the project. After a brief check and power to it, the transmit switch is thrown. Blowey! The radio begins to whistle Dixie like nobody's business and its off to the races. Number of hours later, it is still troubleshoot city as I am still looking for the place or source of the 60 hz.

One obnoxious and memorable example involved an aircraft radio that was on the bench for a checkout. Transmit power was OK, receiver was OK. However, everytime I keyed the radio up in the plane, it seemed that there was a hum and distortion that would not quit. I carried my Bearcat 20/20 out to the plane and tuned it up on aircraft frequency. Keyed up the radio. Buzzzz, Humm, Crackle, Pop. I thought that the previous difficulty on the bench was due to a bad supply or something. Something that was not related to the plane environment of the airplane. Well, this was not true. It sounded just as bad in the plane, if not worse and tower was always asking for repeats and complaining about the general crappiness of my signal. We pulled the radio out and back to the bench. After a lot of digging and a little bit of voodoo magic, I found that breaking the coax shield going from the exciter to the PA would drop the power a little bit, and the hum would completely go away. It seemed like a reasonable compromise and I went along with it. Haven't had a complaint or a request for repeat since we did the modification.

The problem with the aircraft radio, more likely than not, is that coax cable from the driver to the exciter was grounded at both ends. This means that there was a path between the output from the exciter and the input to the amplifier through the coax cable. However, since the cable was also grounded to metal at both ends, there was another path for the output from the exciter to the input of the amplifier. The two different paths had two different voltages across them and hence this is a result of different impedence paths. The result is that a potential difference exists path 1 and path 2, that is, because the impedence for the coax cable is different than the impedence for the ground return through the chassis, there is a voltage difference that exists between the two different paths and that voltage difference can show up as hum.

Let's look at the ground loop from a slightly more rigorous view. Figure 1A shows the electric and magnetic fields that encircle a wire elevated slightly above a ground plane. Remember, the H (magnetic) Field encircles the wire. Without going through any fancy mathematical footwork (most of which I have forgotten), the circling magnetic field has the lines of force closer together below the wire than above the wire because of the presence of the ground plane below it. The E (Electric) Field travel from the conductor to ground. This is, of course, assuming that there is an electric current traveling through the wire.

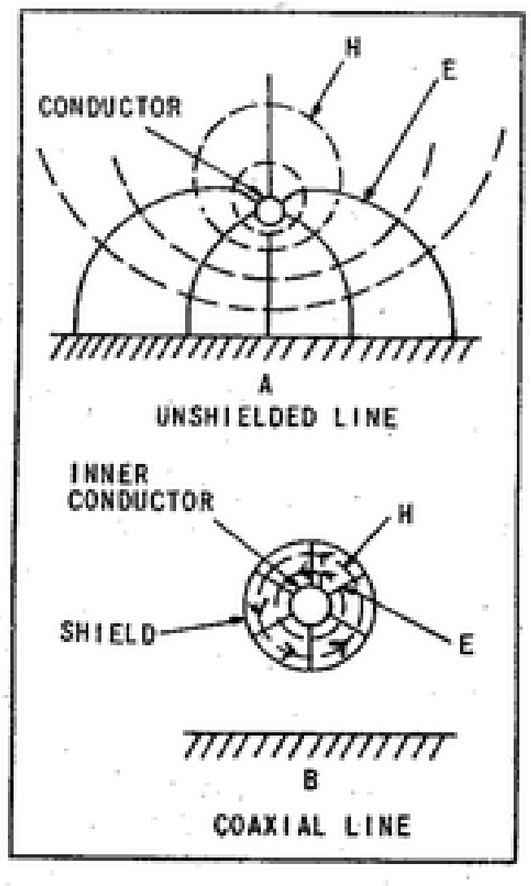


FIGURE 1. Electromagnetic Fields around a conductor carrying an electric current is shown in (A) and for (B) where the electromagnetic lines of force are contained within a coaxially shielded conductor.

Figure 1B shows what hoppens when you use another conductor to encircle the first current carrying conductor and "shield" it. Here, the electric field lines emanating from the center conductor terminate at the shield. The magnetic field lines (due to the current in the center conductor) exist within the shield and encircle the center conductor. However, outside of the shielded cable is a different story. If there is a current traveling through the center conductor, then there must be a return current and it is traveling on the shield in the opposite direction to the current in the center conductor. For example, if the current in the center conductor is traveling out of the page, then the return current on the shield must be into the page. The current on the center conductor produces a magnetic field that is traveling counterclockwise (remember the right hand rule) and the magnetic field produced by the shield would be traveling clockwise and opposite in direction to the center conductor.

Since the magnetic fields external to the shield are in opposite direction and equal in strength, there is no magnetic or electric field that exists external to the shield. Therefore, no net field exists outside the shield. This is really a simplistic view since the magnetic field external to the shield is really a vector summation of the various magnetic fields existing at each discrete point, and the this transposition principle also exists for the electric field, except that it is a scalar value and not a vector. It will suffice to say that this is a simplified explanation of no electromagnetic field exists outside of a coaxial cable.

Getting back to Figure 1A, if the current carrying conductor produces a magnetic and electric field as a result of the current flowing through it, then the conductor itself is also capable of picking up "stray" magnetic and electric fields emanating from other wires that are carrying current in the near vicinity. This can be both beneficial and a real pain, depending upon your intended use. If you are intent upon communications with your fellow amateur radio operator, having a conductor that picks the "stray" electromagnetic fields of your friends transmitters is useful. That is the beginning of communications. And if they can pick up your "stray" electromagnetic fields, then that is

"birth of the QSO." Why do you not hear the other electromagnetic field of your friend if your antenna wire is shielded? Well, remembering the simple lesson, the "stray" electromagnetic field will induce a current in center conductor of the shielded cable and an opposite current in the shield. The net voltage existing at the receiver input terminal will be 0 volts.

What happens if the shield current is not the same as the current on the inner conductor? Well, this means that the electromagnetic field external to the cable will not now net to zero and some leakage of the internal electromagnetic field will occur. By the same token, this also means that the external electromagnetic fields can also induce voltages inside the shielded cable that are not equal to each other and in this instance, a net voltage will appear at your input. This is the birth of interference. And it can arise as a result of the use of ineffective cable or an inadequate installation.

How can a circumstance arrive where the two voltages on the center conductor and the shield are not the same? See Figure 2.

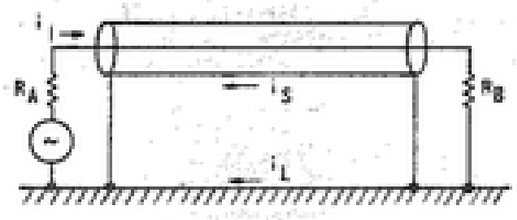


FIGURE 2. Signal and Signal return path demonstrating that the current in the outer conductor can be different from the current in the center conductor because part of the current that is induced in the cable will return to the signal generator via the ground.

A key requirement in the effective use of shielded cable is that the shield current be equal and opposite to the center conductor's current. But there are times when this will not happen. Why should the current return only via the shield? It doesn't have to. In Figure 2, it shows that the ground plane can be an alternate, more attractive return path for the current and indeed some of the current (i_L) is being shown doing just that. What will be the net electromagnetic field in this instance? Well, it will be that difference current between the inner conductor and the outer conductor. We know that the current on the inner conductor is the current i_1 which is the sum of $i_S + i_L$. If subtract the current on the shield from the current on the center conductor, then we have the net electromagnetic field existing outside of the conductor.

$$i_1 = i_L + i_S \quad \text{Center Conduct}$$

Subtract the current on the shield:

$$i_L - i_s = i_L + i_S - i_S$$

leaves us with the equation which is no surprise:

$$i_1 - i_S = i_L$$

To simplify things, that means that the net effect of the shielding project is that if there is another path to ground, then the shield could become ineffective, across a wide spectrum of uses.

To keep the return current on the shield, equal to or greater than the current on the center conductor, a couple of things need to be done to make sure that no ground loops can form. The resistance of typical shield wires or coaxial cable can run in the neighborhood from 1 to 10 Milliohm; the resistance of any self respecting ground plane is lower than .1 milliohm per foot. It is clear that, at least for low frequencies, the current return is going to be via the ground plane. If you remember our calculation just earlier, it would appear that where part of the current is diverted to the ground plane, then the shielded wire will look like an unshielded wire with a current of i_L.

Getting back to the radio example, the aircraft radio that I was working on had a synthesizer that was the exciter. Separating it and the final amplifier was a piece of coaxial cable which was grounded on both ends, one to the synthezer and the other end to the PA. The exciter and the amplifier also are bolted together in a subchassis in the radio. The ground plane is good. And the coaxial cable between the exciter and the PA was some small stuff, but not apparently very good cable because it was unable to successfully compete with the ground plane in the radio. This means that the shielded cable began to radiate and when it did, it got into the audio of the transmitter and biased off a couple of things and in general drove the microphone circuit. The solution was to disconnect the ground to the PA at the exciter. Actually, it fell off and broke one time and I sat and tried to figure out why the audio got really great all of a sudden. After I had reconnected the exciter shield which had broken, the audio was bad again. Figuring that there was a ground loop between the exciter and the PA I rebroke the wire shield and the radio has been working fairly well. The power output has changed a little which indicates that the ground loop has caused a change in either the output circuit of the exciter or the input circuit of the PA. I was a little uncomfortable in breaking the ground lead since we are dealing with RF, but it did seem to cut down on the loose RF running around the radio.

What factors should you consider when selecting cable of a shielded nature? Well, there are several, but simply you should consider:

1. The range of the frequencies to which the system is susceptible.
2. The range of the frequencies which the system is designed to operate.
3. The nature of potential EMI sources in the area where the system is to be used.
4. Mechanical factors including continous flexing versus fixed installation, convenience, size of cables, etc.

Odviously, the best cable shield are those of the seamless coaxial type where there is a continous and seamless sheath of metal used for the outer conductor shield. These are not always practical since they are difficult to work with mechanically. Most cable now is the inner conductor with a wire braid or mesh comprising the outer shield. This cable is classified as flexible as opposed to the semirigid which the military calls the solid outer sheath cable.

The braid covered cable is a compromise since because the strands are braided in an over and under pattern, it is impossible to obtain complete coverage of a cable core with a single strand. For RF, the double braid cables such as RG9 or RG214 are superior to single braid equivalents such as RG8.

Coverage is generally expressed as a percentage of coverage optically.

This is strictly a mechanical concept and has nothing to do with electrical shielding effectiveness. For example, a particular cable might have a percent shield coverage of 90%. This means that the shield optically covers 90% of the cable. It does not mean that the shield will have 90% of the shield effectiveness of a shield having 100% coverage. It does hold true that cables with higher percent shield coverage are better electrical shields, the electrical shield effectiveness is dependent on more factors than just percent shield coverage. It also include such factors as the angle that the braids make with the axis of the cable and the conductivity of the shield material.

Optical coverage of the cable can be calculated with a little trouble. For double shielded cable, the optical coverage can not be calculated directly since it depends upon the statistical probability of strands in the outer braid that happen to be over the holes in the inner braid. Nevertheless, double shielded cable is measurably more effective than single braid cable.

Many people have found that the single shield unbalanced cable is very susceptible to low frequency EMI. This typically is stuff like transformers, fluorescent lamp ballasts, relays, arc welders and others. Unfortunately, this stuff is the major source of hum at 60 Hz and its harmonics. You can shield all you want and it will do no good if it is a single sheath unbalanced cable routed near a source of 60 Hz EMI. The reason that such cable is ineffective is basically a question of physics and I will derive it mathematically in just a minute, but to combat the hum that arises from long audio runs, designers use a variety of techniques. One of the simplest techniques is to use balance lines for audio instead unbalance lines. In this instance, the EMI is induced into both lines at the same time and with current flow in the same direction. By the use of equipment with good common mode rejection and balanced lines, the induced voltages can be cancelled at the load. Construction techniques will also help by routing audio cables away from hum sources such as transformers or you can enclose the cable in iron shields that divert the magnetic lines of force and prevent the induction of the stray voltages.

The susceptibility of the unbalanced cable to low frequency EMI is a bit of a mystery for what is effective at higher frequencies. The same cable that can keep the local radio station out of your audio circuit is no good when it comes to power line noise. The reason lies in the physical to electrical analysis of the circuit of a shielded cable. Figure 3 is the Equivalent Circuit of a Shielded Cable:

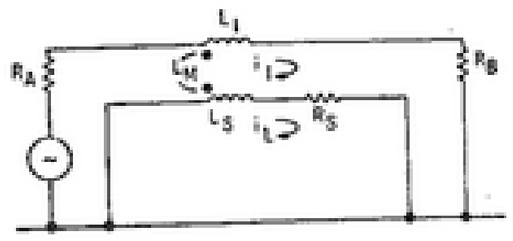


Figure 3. Equivalent Circuit of a Shielded Line.

Looking at the circuit, which is simplified but good enough for our analysis, L_I and L_S are the self-inductances of the center conductor and of the shield. In this analysis, we are reducing the inductance of the wire to a lump inductor. The inductance is actually a distributed inductance. There are also distributed capacitances along the line, but at the frequencies that we are talking about for the purpose of this example, these capacitances are insignificant. All the various terms are defined as follows:

L_I - Self-inductance of the inner conductor.

L_S - Self-inductance of the shield conductor.

R_A - Internal resistance of the signal source.

R_B - Resistance of the inner conductor.

R_S - Resistance of the shield.

L_M - The Mutual Inductance between the center conductor and the shield.

i_I is the current that flows through the inner conductor.

i_L is the current that flows through the shield conductor.

Note that L_M is the mutual inductance of inner and outer conductor. Since all the magnetic lines of force between the two conductors are contained between two conductors, all flux linkages with the shield, due to shield current are also common with the center conductor, the self-inductance of the shield is also equal to the mutual inductance between it and the center conductor.

For those of you who remember Kirchoff's Law regarding summation of current's into a node, if we apply that for the ground plane loop, the equation will be:

$$0 = i_1 (jwL_M - jwL_S - R_S) + i_L (jwL_S + R_S) \qquad \text{Eq. 1}$$

Remember that $w = 2\pi f$ where f is the frequency in hertz. j is $\sqrt{-1}$, a useful construct when dealing with impedences.

I don't want to run through all the mathematics because there will not be a lot of interest in the number crunching, but if you rearrange the equation by solving for i_L and recalling the fact that we earlier decided that $L_M = L_S$, the equation becomes:

$$i_L = i_I \frac{1}{1 + \frac{jwL_S}{R_S}} \qquad \text{Eq. 2}$$

In analyzing, it can be seen that the leakage current, that is, the current induced in the shield by virtue of the current in the inner conductor is really the inner conductor current or i_I reduced or attenuated by the factor to the right of i_I in Eq. 2.

Remembering that $w = 2\pi f$, it can be seen that at frequencies below

$$f = \frac{R_S}{2\pi L_S}$$

the shield offers virtually no attenuation; as the frequency increases, the shield offers more and more attenuation. Also note that if the resistance of the shield is low, then the transistion frequency is also lower. But even with really good cable, the transistion frequency is still not enough to do any good. For RG9B/U, double shielded coax, the transistion frequency is about 650 Hertz. For No. 22 shielded hookup wire, the transistion frequency is about 8500 Hz. Both of these are far away from the usual 60 hz. So even is you replaced that noisy mike cord with coax, you would still have hum in the radio mike.

Micheal Salem N5MS

PACKETEROO MOVES UP!

It is not every day that I see the name of somebody I know that is an amateur radio operator in the technical journals. So it was a little of a surprize when I was reading the April 1985 issue of Microwaves and RF and noticed that they were heralding the addition of Harold Winard KB2M to their staff. Hoary Harold is one of the big pushers in packet radio. I heard him talk about the PACSAT in Dallas last year at HamCom and I see from the schedule that he will also be talking about packet at Dayton. Harold seems to be on the ball and is entertaining to listen to. He seems to have a lot of energy, so I don't think that this new job will change him or his devotion to packet and PACSAT. He had previously worked for Electronic Design, a good magazine.

Micheal Salem N5MS

REPEATER DOCKET FROM FCC!!

Repeater interference in certain parts of the world, notably New York, Los Angeles, etc. has become a serious problem. That is why the recent FCC Notice of Proposed Rulemaking (NPRM) regarding repeater coordination has become a hot topic. When the Commission originally proposed changing the rules regarding coordination, they also issued a moratorium prohibiting any amateur from putting into operation, a "new" repeater on any band within the larger metropolitan area. The ARRL swung into action and was able to win a lifting of the moratorium after filing a Petition for Partial Reconsideration.

What is the problem? Well, frankly in the larger metropolitan areas, it is interference between repeaters and repeater users. The FCC had to listen to all the complaints from the locals who would shout that so and so's repeater was creaming his and why don't they make him take it off or throttle it way down in power or take him out and hand him up the tower and hang him by his coax. Well, it all just seems to bring up an expression my Dad used to say, "You kids don't play well, together."

I don't really have time for a complete analysis of the NPRM this month (Dayton is upcoming and I got packing to do, yu hear?) But there are a few thoughts that have occurred to me. First, why is the Commission thinking about imposing a coordination scheme on amateurs? Probably because people haven't been getting along. And that is a problem. First, because it points up self-policing is not working. Even here in Oklahoma, where the coordinator is well organized and works harder than anybody I know, there are still complaints. I have seen Dan really study the charts to find out interference potentials or suggest a frequency that might have the minimum interference. One thing that should be remembered here is that Dan K5FVL does not assign frequencies. He coordinates and suggests. Nobody is forced to take a frequency they don't want. One of the results of the FCC NPRM may be that the coordinator can force you on a frequency for your repeater. Not that that is bad. In these days of synthesized radios, the only cost of a frequency change is just the price of crystals for the repeater. For some of the older system, this could still be $50.00, but that aint bad. I still have $500.00 worth of crystals from all kinds of frequency changes.

The Commission will probably seek to turn the coordination over to some private organization. This is really not a new concept. They have already done this in the Business Radio Service where NABER is the coordinating body. The ARRL has expressed no interest in taking over, and who would blame them. Membership trends are down in the League and joining the partisan trends of repeater operators fighting over frequencies is not conducive to keeping membership up and not out. As Don Corleone said in the "Godfather," "Uhh, it's a dirty business."

Why are we unable to self-police? My Dad is right, we just don't play well together. And many of us forget the purpose for which the FCC designed repeaters. Repeaters were designed for intracommunity service, not intercommunity. Docket 18803 discussed the service use of repeaters within the community. Docket 20554 discussed power limitations (under paragraph 15) and concluded "With limited channels available, the possibility of interference between repeater stations in adjacent communities desiring to use the same frequencies must be considered. For these reasons, limits are established for effective radiated power from a repeater station antenna, based upon the power normally required for reception by a typical vehicular mobile station over a nominal community coverage area."

A lot of the established practices for repeater operation come to us from commercial business repeater service since a lot of that equipment turns up in the amateur service. Remember, most of the business radio service is mobile and portable. Very little of it is communication from base station to repeater.

I bring this up because I have heard various comments on the local Kahuna about the repeater as an interference source. For all the joking that I do, the local 88 Kahuna is really a stock, just like the factory Motorola Base Station that has been fitted with a special controller. And it works well for portables and mobiles within its service area. But I just don't understand people with base stations complaining that they can hear the system 60 miles away. That is going to happen and there is not really anything I can do about it. Besides, people who put up high power base stations with tall antennas also have an obligation to not interfere with a repeater. On any number of the channels, these stations are attempting to communicate with people in other towns and sit there kerchunking the local repeater or driving another repeater off the side of their beam crazy. And they seem offended in the local repeater is covering up the out of town station. If that person is trying to enhance his skills as an operator and the capability of his station, why isn't he off on a simplex frequency instead of tying up the local system? And it is not uncommon for this same person to sit and shoot the breeze on the local system all the time tripping the out of town repeater. What kind of insanity is this?

Don't tell me that people are people and these problems can't be worked out. I know that they can. I was able to avert a serious frequency coordination problem with a group of amateurs operating on an uncoordinated repeater by just writing them and talking to them. And we worked it out and both groups seem to be working together.

The problem is that repeaters belong to groups and individuals and are generally operated for the benefit of those groups and individuals. The people who travel through town

or those who operate from out of town are secondary users. Yet, to effectively service the area for the local, certain power levels must be used.

Amateurs have a class of users that typically are not found in the commercial area and that is high powered base stations located outside of town. This is a class of interference that is slightly different perhaps from what the FCC is interested in. They are looking at interference problems caused by two repeaters on the same frequency within the same service area that have the same PL code, no PL or just have users keying up on top of each other. That is a problem and nothing short of Commission regulation in this area or vigilante action will solve it. But the base station use of repeater will continue to be a serious problem. I only hope that when the Commission gets around to repeater coordination, they also finally recognize the repeater as a unique entity and give it a little protection from "repeater abuse."

Repeater abuse is the local base station that keeps yakking keeping the local repeater on and basically out of service. Contrary to what appears, when a repeater is being used and in service, it is out of service to others. Long winded conversations take the repeater away from others regardless of whether the users announce that anyone can break in and make a call. The fact is that unless it is urgent, few will and most will turn the radio off unless they are a control operator and have to keep on listening.

The approach should be common sense and courtesy. There is nothing wrong with a local high power base station using the channel for a brief QSO with somebody out of town, but keep it short. Make the contact and move off frequency. The same is actually true of longwinded local conversations. Make the contact and then move off the repeater. Two base stations that sit on a repeater and converse for an hour are engaging in repeater abuse of the worst kind. Besides it is a violation of the rule and the statute that proscribes minimum power to achieve the communications desired. 97 C.F.R. 97.67 and 42 U.S.C. §324.

WA5TOO was telling me about two base stations talking in a town far away and they were complaining about the 88 repeater in Norman as an "alligator." (all mouth and no ears) With a base station, it was no wonder and what Darrell thought was especially funny was that he was hearing both of these stations from Tulsa through the Norman repeater. To a base station, any repeater from out of town that is on the same frequency as the local is probably an alligator.

This is also similiar to the person at a meeting who complained about another system that interfered with his ability to talk into another repeater in another town. When queried about his antenna, he said that it was an omnidirectional antenna above 45 feet. The problem with that is there probably little he could do with any kind of an antenna at that height that is omnidirectional. Over the distance (about 50 miles away from the "interfering" repeater station), the "interfering station would have to cut its power to 5 or 10 watts to do any good to this single station. The use of a directional antenna would help, but there are still side lobes and other things that would make the problem just slightly less. A change in frequency would help, but those are not just readily available.

The fact is that repeaters have to be designed to operate with particular criteria. And in the amateur service, the criteria is that the repeater is to be designed for portable and mobile operation. I have carried a walkie talkie for years everywhere I go and also have a mobile that I use and all during that time there might have been only a couple of times that I actually heard a station from out of town on the walkie talkie. The mobile is only slightly more. If the design criteria is for the mobile and walkie talkie, then it is the burden of the base station to minimize its interference problem. One repeater system in Chicago tried to help the mobiles and portables out to keep them from being stepped on by the high power base stations by requiring all base stations to stay on a particular input to the repeater. Mobiles and portables could use the other input frequency and seize priority over the base station.

What to do? Well, it will be slow, but a little common sense will also help. More on the NPRM next month.

Micheal Salem N5MS

KAHUNA TO GO TO 20 KHZ SPLIT

Along the lines of the preceding rantings about "repeater abuse", I thought that I would announce that I intend to coordinate the 146.88 Mhz Kahuna repeater in Norman on a 20 Khz split. I felt that it was time to do it. What with all the talk and the recent articles in the C & E by K5JB, I felt that somebody should take the lead and do it.

Like I said previously, a lot of what we do in the FM bands on 2 meters comes from the commercial business service and our frequency splits are a case in point. Commercial boys used 30 Khz channels and started from the top of the band. The old top of the band used to be 147.00 Mhz since technicians were not permitted to operate up above 147.00 for awhile. That is why 146.97 Mhz and 146.94 Mhz are very popular pairs. One is 30 Khz and the other is 60 Khz down from the band.

But JB says that 20 Khz splits is the coming thing, so I strongly considered it. I talked to the frequency coordinator to see if any 20 Khz frequencies are available and he said that one was very close to my existing frequency. In fact, it is 120 Khz down from 147.00 Mhz and there is only one existing repeater on now in the area, so it looks like there won't be much interference here in Norman on the new frequency. Besides, the other operator also said that he was planning on moving his frequency to a 20 Khz split.

Dan went ahead and nailed down the frequency for me and I have ordered crystals. I suspect that the conversion will take place the weekend of the 26th through 29th. It won't be much trouble though, although I might want to peak up the duplexer a little.

I am not sure that the interference potential will be any less since there are already some other repeaters coordinated on the same frequency, but at least the interference will not be any worse. Since most of the 88 repeater users here in Norman have synthesized walkie-talkies, I don't anticipate much trouble with the conversion. Let you know how it works.

Micheal Salem N5MS

Q. R. Zedd

ZEDD MAY CONVERT TO QRP OPERATION

Recent word that the FCC had taken action against a Texas DXer for running something like 35,000 watts on 75 meters came as no surprise to the world's greatest DXer, Q. R. Zedd.

Zedd, A5A, was relaxing on the verandah at Honor Roll Ranch, just a hoot and a holler south of Norman, recently, when he discussed the issue.

"It's a serious problem, boys," said Zedd, his gold-plated cowboy boots hiked up on the porch railing. He paused to twist a knob on his large copper belt buckle, detuning it a bit so the pileup incoming on his chest-mounted Icom would not be so loud.

"I think there are fellows here and there around the world who run illegal power," the great man went on. "The FCC can catch one now and then, but it's up to the amateur radio community to police itself and operate within the stated rules for maximum rf output.

"You take the famous DXpedition to Clipperton back in '79 or '80," Zedd went on, firing up a cheroot. "I'm not saying some of the boys were running illegal power, but it is a fact that the expedition had to be cut short when the signals coming in through the pileup got so intense that they melted two Rohn towers on the island and incinerated 3,200 seagulls.

"Of course, as everybody knows, I never run more than the legal maximum. It's true that my No. 1 linear amplifier is capable of sufficient power to light Cincinnati, but I built it only to test the circuit theories I used in designing the radios for the Voice of America. I like the reserve power to be there, so the tubes will run nice and cool, loafing along at 4% output.

"I would never lose patience in a pileup and crank it wide open.

"It would be illegal, as well as unethical, and I don't believe in that stuff. Besides, somebody in the signal path might get sterilized.

"No, boys," Zedd went on, "I just don't believe in illegal power. Furthermore, I **strongly** believe that it's up to great men like myself to lead by example.

"That's why I'm seriously considering going to QRP operation exclusively."

Well, at that pronouncement, W5OU blanched, KA5EFJ began preparing a bulletin for his TV station, and W5LFK fell off the railing into the rhododendrons.

"Q.!" gasped K5KDR. "How would we know to clear all frequencies at the right times if we couldn't look south to glimpse the corona effects off the ends of your Yagis?"

"It would be hard," said Zedd. "But perhaps I could light one of the extra beacon lights on the six thousand-footer. "Or possibly I should even consider operation right in there amongst the riffraff, without asking or expecting special consideration from those in the local area who (quite properly) adore me."

"But the faithful around the globe might not hear you!" protested W5SQJ. "Is this some kind of new plot by Reagan? Zedd, think of the war veterans! They're already being mistreated! I --"

"Be calm, be calm," Zedd advised, his keen and intelligent eyes on some far-distant personal horizon, or perhaps on the crew of Mohawk steeplejacks swarming over one of his 2,000-foot towers nearby. "With good operating practices, the world will still have its chances.

"I might publish a schedule of my operating times, similar to QST's listing for W1AW. Or I might make an announcement on frequency at full legal power, then switch over, if the faithful demanded it.

"All such problems could be worked out.

"After all," Zedd pointed out, "as long as I have adequate antennas -- which I do -- most will still hear me.

"I can use the curtain array and the sixteen phased verticals on 75. The rhombics seem to work adequately on 40 and 30. In most cases, I think I could be heard with a watt or two output into the ten-over-tens at six thousand feet on 20. As to 15 and 10, when the skip is right, I might have some hope of being heard with the 30-element beams stacked on the big tower.

"Then there is always the long wire, which will be repaired soon, despite that unfortunate incident in which one of the south support towers fell down and wiped out Ardmore."

Zedd paused again, grabbed a handi-talkie, and transmitted some instructions to one of the steeplejacks who seemed to be having difficulty with installation of a new 40-meter beam as a result of vortices generated by a passing airliner. Satisfied that his orders had been heard and would be followed, the great one returned to the topic at hand.

"I plan," he said, "to give it a shot. Tondelayo, my blond, nubile, 20-year-old QSL secretary and constant companion, is in the lab at this very hour, constructing my first QRP transmitter out of some broken garage door openers and a surplus Casio watch.

"I'll let you boys know how it comes out. But in the meantime I want to address another aspect of this grave issue.

"And that is, what do we do about these fellows we know are running too much power?"

No one spoke. No one had an inkling.

Zedd added significantly, "I have some thoughts on the subject, if you want to hear them."

Of course everyone did.

That report: next month.

--KU5B

DON'T SET FRIENDS UP FOR ROBBERY

Dave Fuseler, who is a former policecenan and should know, reminds us all that these are days of plentiful household robberies and that thieves use all sorts of ways to discover safe places to burglarize.

He reminds us of Ken Winston's home burglary of last year after Ken thgoughtlessly mentioned on the air that he was headed out of town.

"Not only should we be careful not to give our absense from the city away, but we should also be careful not to say on the air that Joe or Bill is out of town, and when talking to Joe or Bill a well intentioned, innocuous phrase like, "Have a nice trip", or "Call me when you get back from vacation," could be the only tip-off that an alert scanner listener would need to check Joe's or Bill's for burglary possibilities." --Mecklenburg ARS News, NC (World Radio)

MID-OKLAHOMA REPEATOR, INC.

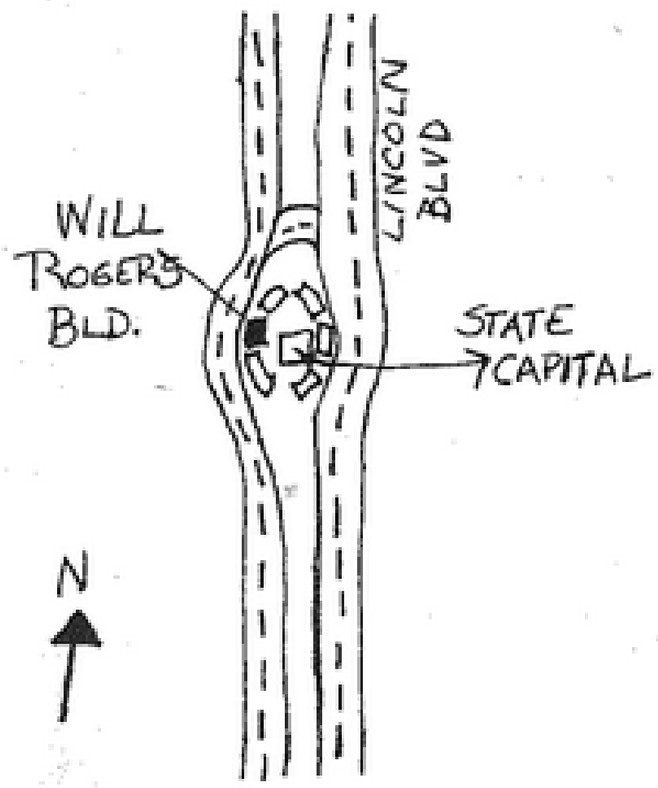
WA5YTI

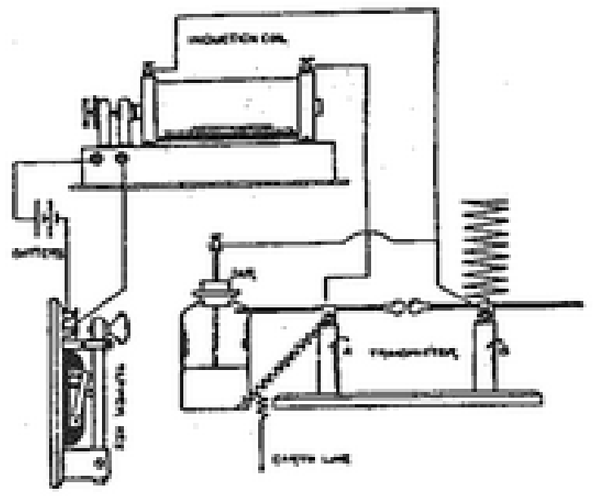
Ham Holiday '85 is in planning stages now. ND5S and N5GVK are chairpersons for non-technical programs, including the well received hospitality room. (Non-technical = Ladies, plus a whole lot more). Any and all help Ron and Sue get will make HH '85 the best ever. Please be available when needed.

The following map was drawn up in hopes that more emebers will know where to go for club meetings - and for visitors also. Talk - in on meeting nights is on .07/.67.

When you enter the west door of the Will Rogers Building at the State Capitol Complex, be sure to sign in. Take the elevator to the basement. Turn left and go down the long hall to the door for Civil Defense or MORI. Follow the maze of rooms and halls to the meeting room. If you keep an ear open you can hear the sounds of fellow club memebers. Coffee is brewing during the meeting also.

N5HII





Pictured here is a truly vintage circuit diagram for a Spark Transmitter. This was published December 7, 1907, in "The Boy's Own Paper".

The material was obtained from Harry Gloster, VE3IT, who in turn had received it from the Toronto Public Library through the efforts of VE3BGW.

The Boy's Own Paper was an English publication of that time and formed the basis for the first amateur transmitter and receiver constructed by VE3IT.

TNX QCWA

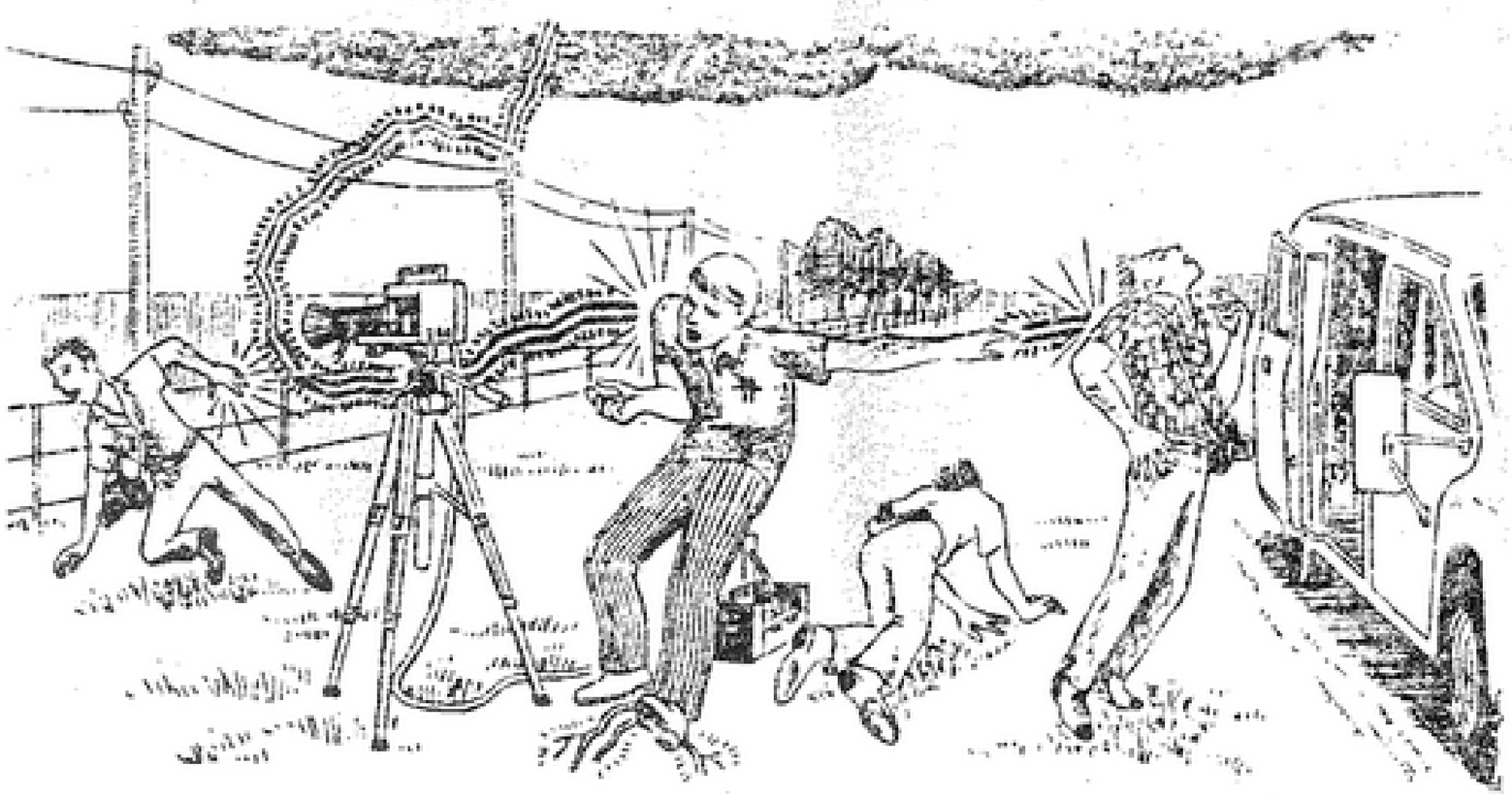
LIGHTNING STRIKES AND STRIKES AND STRIKES ' '

One of the most skilled chasers, Gene Moore, has been twice struck! The last time was on May 23, 1981, while with a film crew from UHF 43, out looking for toronado film footage. Near Katie, about 50 miles southwest of OKC, they found their storm. "The scene was almost pastoral. A mile and a half north-northwest, a tornado had touched down. It was quiet -- birds could be heard singing in the vicinity. They had seen no lightning, heard no thunder, nor felt even a drop of rain. Another group of chasers had arrived, and one (Chuck Robertson) was leaning against a wire fence which ran beside the road. The location seemed perfect. Then, all hell broke loose. Gene suddenly began hearing a loud, continuous buzzing, and his hair reacted to the static by literally standing on end. An anvil to ground bolt struck a nearby power pole. The charge traveled down the pole, to the fence, and jumped out to Gene before he realized what was happening." "Gene flew off his feet, spinning, and as he did so a spark, accompanied by a loud crack of sound, flew from his hand and hit Steve Cone. Steve went down. Mike had already been knocked to his knees,/when the charge crossed the cabel connecting the mini-cam to the support package. Gene landed near the road, on the brink of consciousness, feeling 'numb' from head to toe. Meanwhile, Chuck Robertson, who had been leaning on the fence, caught the brunt of the shock in his hands - and rushed out into the road.

Gene raised himself to look around. Mike Neese of the camera crew was trying to rise. The other crew member, Steve Cone, was up on his feet - but a little wobbly. As Gene sat up - then stood, a tingling washed over his body 'similar to what one feels when a foot or leg has been asleep.' The tingling was overpowering and forced him to sit back down." He found that he had great difficulty consentrating on anything, such as looking at one's sock but not really understanding why it was there or what its function was - in other words complete perception but without logical understanding. "After a few more minutes of recovery time,the group tried to resume the chase. " At which point, one of the crew turned to the other and said, "I think we've got problems. At this point they took Gene home to recover.

"The next day, Gene reports, all of them had symptoms very similar to the flu; namely, a feverish feeling, nausea, aching muscles/joints and an overall weakness. Within 48 hours, small portions of Gene's hair had turned gray." However, all subsequently recovered, and none reported any long-term effects. Of course, each was exceedingly lucky not to have FRIED to the spot where he stood !

By John Weaver



GREAT PLAINS A.R.C.

W5NGH Repeater 146. 13/73

On April 2, 1985 the Great Plains Amateur Radio Club met for the monthly meeting with fifteen members and four guests present. There was a relaxed feeling in the air as everyone was in high spirits. I don't know why everyone was so wirey. Maybe it was due to a full moon or something! At best, President Gerry had his hands full with us but he somehow managed to keep everyone under control and got us through the meeting. Plans for the April 14th Eyeball QSO were finalized and I think everyone knows what they're supposed to be doing. Bill Wyatt, KD5JR, was re-newed as a member as he had let time slip away and forgot to renew his dues. Could he have radar on the brain????? Anyway, welcome back to the club Bill. It was announced that the new Net Manager is James, N5HLJ with Myron, N5HRA, as assistant. Congratulations to these two hams. I know they will do an outstanding job as Gerald, N5CCV has done in the past.

GERRY AND ROD TO RUN 10K ????

You read it right. Gerry, NC5C and Rod WB5OVT have committed themselves this time! Will anyone care to place their bets now on when chicken out time will be this year? This event is supposed to occur at the Gage Marathon, May 25th, early, early in the morning. We're all anxiously awaiting to see not only which Ford is the fastest, but also which one gets the best gas mileage. The G.P.A.R.C. furnishes communication for this yearly event and I might add, does a superb job.

"RADAR BILLY"

Are we ever proud of this man. Bill Wyatt KD5JR, otherwise known as "Radar Billy", was presented by Dr. Kenneth Crawford, manager of the National Weather Service Forecast Office, with a Public Service award April 9th. The highest honor available to a civilian was paid to this fine gentlemen. It came as quite a surprise to him but was certainly well deserved. Congratulations Bill.

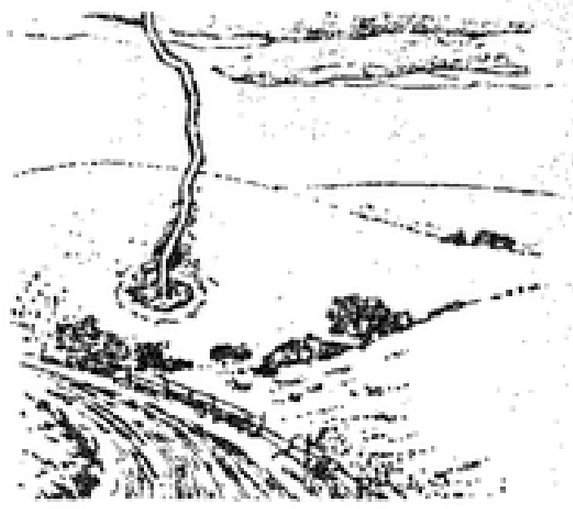
CLUB PROFILE

Gerald Bowman, N5CCV, (I have secretly bestowed him with the title "Club Bowman") is involved in almost every aspect of Ham Radio that is possible in the club. He has been a very active aspiring member of the club since 1979 when he received his Novice call KA5FKV. Gerald received his General license and call N5CCV in 1980 and his Advanced license in 1984. He has served admirably in the club as Activities Chairman, Secretary, Treasurer, President and most recently, as Net Manager from April 1982 until April 1985. He is involved in Scouts and is serving now as Mayor of Mooreland, Oklahoma. Although he serves many hours as a storm spotter, he claims to spend more time on c.w. than on any other activity. His other hobby is his paying job, that of owner of Bowman's Garage of Mooreland. Gerald first became interested in Ham Radio as a youth and met his first ham when he was 19. The Ham was a ripe old age of 14. You can find him volunteering for every club activity that is going on such as Novice Classes, work in the Gage Marathon, helping with Field Day, the Special Olympics, Eyeball QSO, the Woodward Harvest Day's races and the list goes on and on. He has a very relaxed and pleasing personality and so being withstands a considerable amount of teasing from a few members, including myself. I know he must feel like a guitar at times with everyone picking on him. I almost forgot. At Christmas time he is busy sending and receiving messages for elderly people residing at the Mooreland Nursing Home. He and Gordon, WX5L, work on this together and really seem to enjoy themselves. It seems to me that Gerald is having about as much fun as is possible. Where will it all end? Maybe in Never Never Land. But I doubt it.

Lois
KA5FYA

LIGHTNING, LIGHTNING ! !

This is the GREATEST SINGLE DANGER to storm chasers. Think lightning anytime you're within 5-10 miles of a storm . I have seen a charge arc out from mid afternoon, central Indiana thunderstorms, seemingly a "bolt from the blue," that struck ground 5-8 miles from the base and a mile from the anvil! I've also seen lightning strike a prairie hillside, almost 100 feet below the crest (so much for the high ground always gets the strike theory)! Sometimes, even extensive experience can give a false sense of security.



kay

OUR CLUB WILL HELP WITH COMMUNICATIONS FOR THE 10KM RUN ON SAT. APRIL THE 27TH. PLEASE CHECK INTO THE .97 REPEATER AROUND 8 AM IF YOU CAN HELP WITH THIS PROJECT. REMEMBER WE ARE HERE TO HELP OTHERS AND THEY CAME TO US ASKING FOR OUR HELP.

THE FIRST VOLUNTEER EXAMS FOR KAY COUNTY WERE HELD ON SAT. APRIL 20TH. I HOPE TO HEAR ALOT OF NEW VOICES ON THE REPEATER AS A RESULT OF THE UPGRADES.

WELCOME BACK TO RICK LONG (EX WD4CEP, EX KD0RA AND NOW KE5XY) HE AND HIS NEW BRIDE ARE COMING BACK TO US FROM DENVER. THEY ARE GETTING SETTLED INTO THEIR NEW HOME AND I HEAR HE WILL HAVE A TOWER PARTY SOON.

APRIL MEETING NOTES------
THERE WAS QUITE A BIT OF DISCUSSION OVER THE PROBLEM OF HAMS WHO WOULD LIKE TO SUPPORT THE REPEATER, BUT WHO ARE NOT INTERESTED IN CLUB PARTICIPATION. WE HAVE A FEW OF THESE HAMS IN THE AREA NOW. A MOTION WAS MADE TO SPLIT UP OUR DUES, WE WOULD THEN HAVE CLUB, REPEATER, AND AUTOPATCH DUES. ALL SEPERATE. IF YOU ONLY WANT TO USE THE REPEATER, THEN YOU ONLY PAY REPEATER DUES AND ETC. THE MOTION WAS TABLED UNTIL NEXT MEETING WHEN THE VOTE WILL BE TAKEN.
FIELD DAY FOR 85 WAS DISCUSSED ALSO, AND WE VOTED TO PARTICAPATE IN FIELD DAY AGAIN THIS YEAR. A COMMITTEE WILL BE FORMED SOON TO PLAN WHAT WE WILL DO THIS TIME. A SUGGESTION WAS MADE THAT THE CLUB BUY THE HAMBURGERS AND STUFF THIS YEAR AND WE HAVE A PICNIC AT THE FIELD DAY SITE. LEE LONG (RICK'S XYL) WILL LOOK INTO THE COST OF THIS, AND THE TREASURER WILL CHECK CLUB ACCOUNTS BEFORE THE NEXT MEETING SO THAT A DECISION CAN BE MADE.

THERE WERE A LUCKY 13 ATTENDEES THIS TIME AND THE MEETING ADJOURNED EARLY BECAUSE DOC HAD SOME CUTTIN' TO DO. (OR MAYBE IT WAS SANDIN')

****

INDIANA STAYS 15 KHZ

Indiana will remain a 15 kHz non-inverted state for repeaters in the 146 - 148 mHz subband.

Westlink Report

CENTRAL OKLAHOMA RADIO AMATEURS

proudly invite everyone to attend

our *bigger* and *better*

EVERYONE INVITED!

HAM HOLIDAY

State Convention

Bring a Friend!

LINCOLN PLAZA INN

Oklahoma City

JULY 26 - 27 - 28

USE THIS FORM TO PRE-REGISTER

You may buy as many registrations as you desire *All participants and all guests over age 12 will be required to register to enter any area. Tickets at the door are more expensive, so pre-register the whole family!*

Last Name _____ First _____
Address _____ Call _____
City _____ State _____ Zip _____ $ 8.00

See Other Side

Non Ham family members @$4.00 Ea. (Not eligible for Prizes except Program attendance prizes.)

Name _____ @4.00 $_____
Name _____ @4.00 $_____

The following items available in advance only, and will not be available at the door

Reserve ___ Flea Market tables (Sat Only) @5.00 Ea. $_____
Reserve ___ Banquet tickets @14.50 Ea. $_____
Reserve ___ QCWA Breakfast tickets @$7.00 Ea. $_____
(Ham Holiday registration not Required for QCWA Breakfast or Banquet)

Will you be taking an FCC Exam? Yes No TOTAL $_____
If yes indicate Class of Exam _____ (Circle one)

NOTE! Your form 610 must be in by July 10th 1985, see instructions elsewhere on this page for instructions for mailing.

Send Pre-Registration with check or money order to:
HAM HOLIDAY 1985 P.O. BOX 60093 OKLA CITY, OK 73146
Note! Must be postmarked before July 10,1985
Please! No confirmations or refunds will be given

Please send your FCC form 610 to:

FCC EXAMS
%Chuck Wilhite
P.O.Box 32001
Oklahoma City,OK 73132

HAM HOLIDAY | STATE CONVENTION

STATE CONVENTION | HAM HOLIDAY

FACILITIES: Ham Holiday/ARRL State Convention will be held in the Convention Center of Lincoln Plaza, 4445 N Lincoln Blvd, Oklahoma City OK. Commercial exhibits may be set up Friday night. Security has been arranged. Flea market exhibitors will set up at 7:30am, Saturday. The hospitality room will be open to all registered guests.

PROGRAMS: Something to interest everyone. There will be the usual displays, forums and seminars from beginning to extra. There will be programs on DX, antennas, satelites, FM, alternate energy sources and many others. Special groups will hold Meetings: ARRL, Night Owls, Oklahoma Repeater Society, SMIRK, MARS and CORA, to name a few. There will be QLF and QRM programs. The ladies will have plenty of interesting things to do.

FLEA MARKET: (Non-commercial only). Every Pre Registrant may rent one table for $5.00. Additional tables available on Pre Registration Form. The 30,000 sq. ft. area is indors and air conditioned, with easy access loading doors for setting up. No displays, or "tailgating" will be allowed in the parking lot.

PARKING: There is plenty of free parking urrounding the convention site. Several eating places are nearby. Free parking for SELF CONTAINED RV's.

AWARD POLICY: The winner and/or his ticket must be present to claim any award except the pre registration award. You may sign your ticket for someone else to hold for you. Unclaimed registrations will not be deposited for the main drawing - only for the pre registration drawing.

TRANSMITTER RESTRICTION: In order for any ticket holder to be eligible to win an amateur transmitter, the ticket holder must hold a valid amateur license or there must be a licensed ham in the family.

PRE-REGISTRATION: $8.00 with attached form. All envelopes must be postmarked not later than July 10 1985 to be eligible for the Pre Registration awards. Registration packet with necessary tickets will be held at the door. No limit on number of tickets you may purchase. No refunds or confirmations. Winner need not be present for this award only.

ADMISSION: $8.00 Pre Registered; $10.00 at the door. Non ham family members, 13 or over may Pre Register for $4.00, but are NOT eligible for the Sunday awards. Badges must be worn as proof of registration for entry into ANY area, including exhibit halls, program areas, flea market, commercial exhibits and coffee lounge. Registration not required for attendance at Banquet and QCWA Breakfast.

• HAM HOLIDAY 1985

• ARRL STATE CONVENTION

HAMS

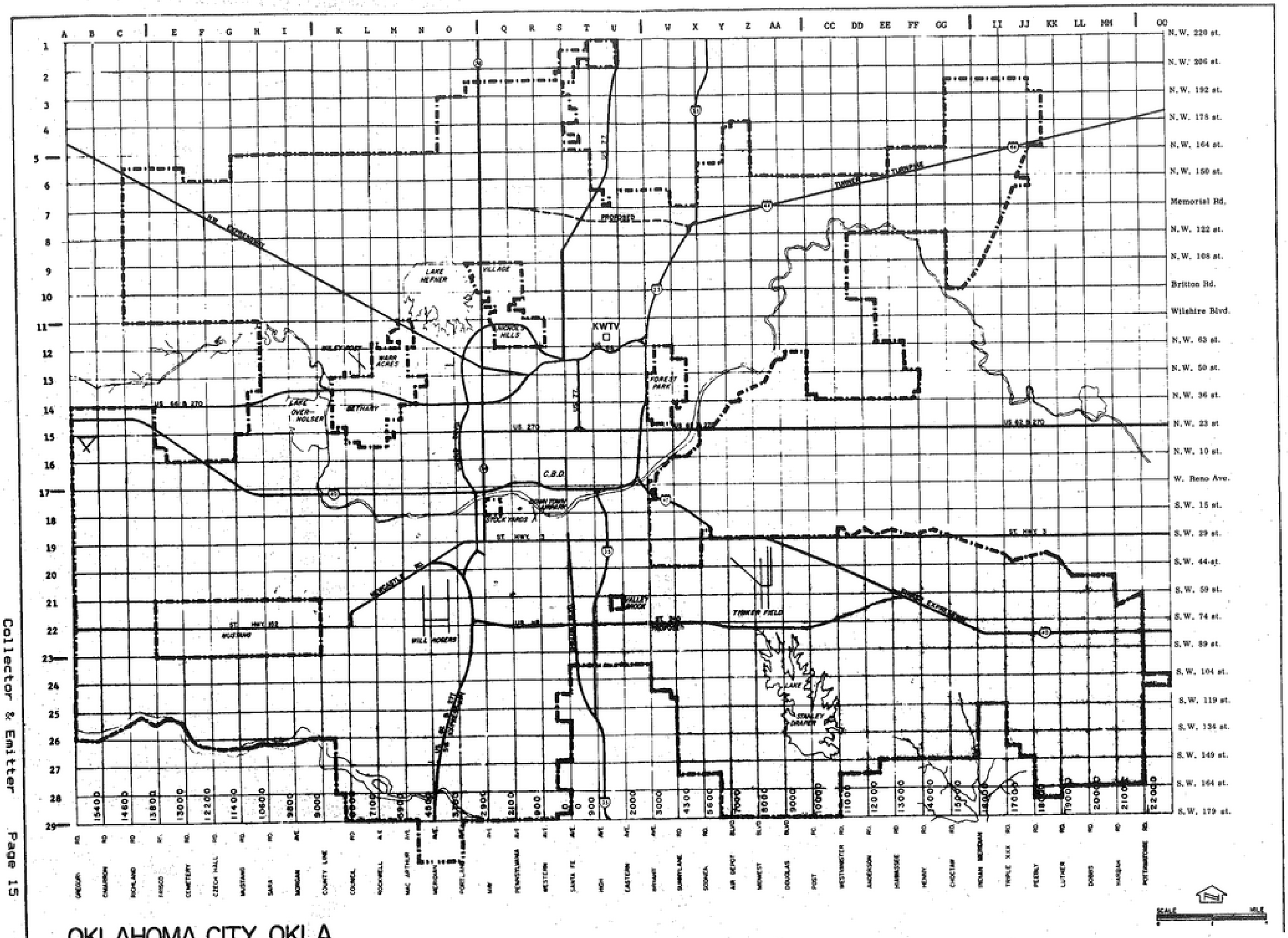
Preregistration Award

GRAND AWARD

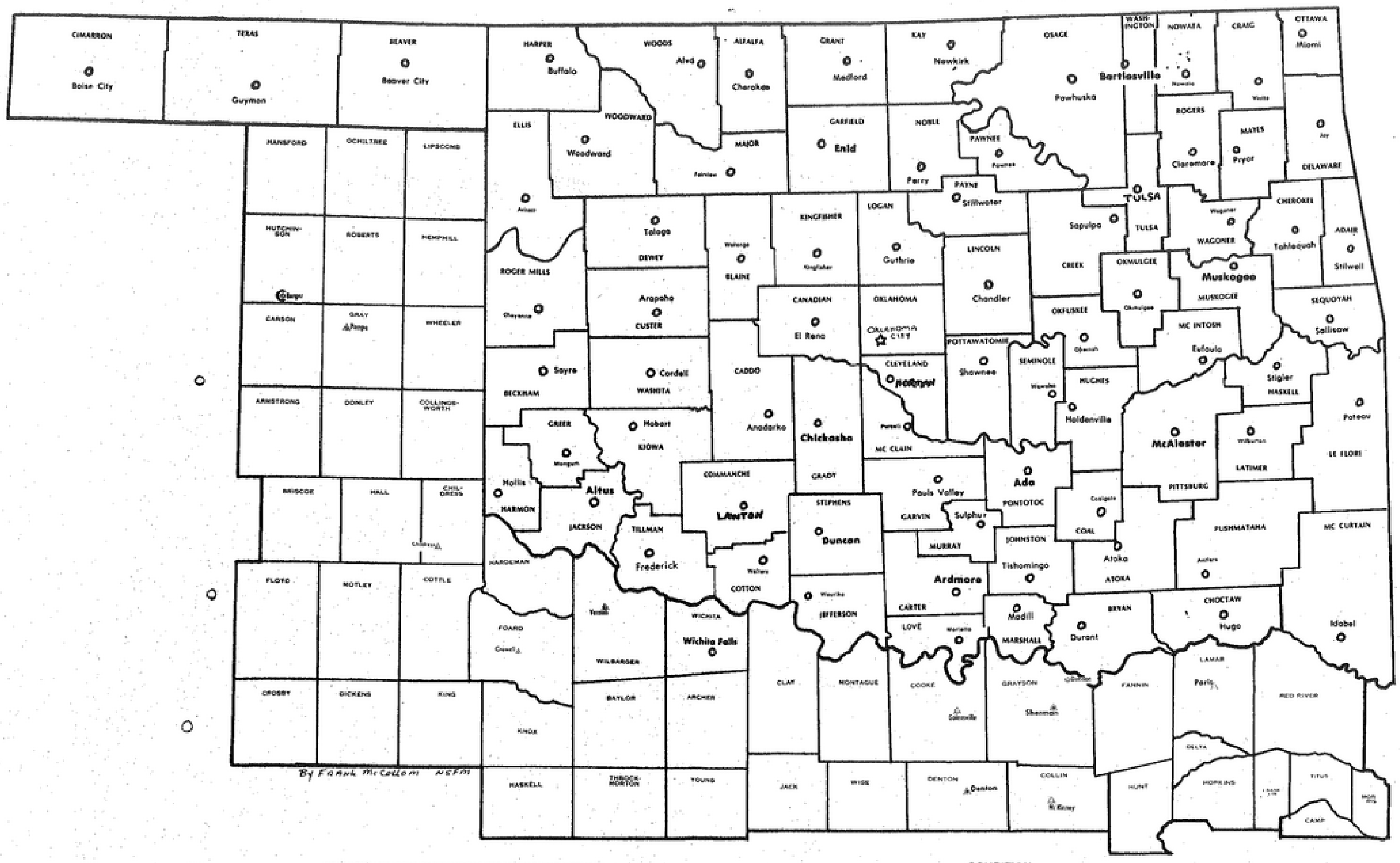
LADIES

See Other Side

PRE-REGISTRATION DEADLINE: **Postmarked by July 17, to be eligible for Pre-registration award**



OKLAHOMA CITY, OKLA.



By Frank McCallom N5FM

OKLAHOMA AMATEUR RADIO SEVERE STORM WARNING NETWORK — 146.82 MC

PROCEDURE

1: MOBILE UNITS AND BASE STATIONS REPORT INTO NET CONTROL.

2: NET CONTROL WILL REQUEST ADDITIONAL MOBILE UNITS INTO OPERATION IF AND WHEN NECESSARY.

3: REPORTING SEVERE WEATHER.

- A: SPOTTERS WILL GIVE THEIR STREET LOCATION AND GRID LOCATION.
- B: CONDITION OBSERVED WILL BE REPORTED TO NET CONTROL FROM LIST BELOW.

4: ALL TRAFFIC WILL BE HANDLED THRU NET CONTROL (NO MOBILE TO MOBILE COMMUNICATION).

CONDITION

CONDITION #1 — HEAVY RAIN (ONE HALF BLOCK VISIBILITY)

CONDITION #2 — HAIL (ANY SIZE)

CONDITION #3 — STRONG DAMAGING WIND (50 MPH OR MORE)

CONDITION #4 — CYCLONIC MOTION

CONDITION #5 — FUNNEL CLOUD (TORNADO ALOFT)

CONDITION #6 — TORNADO (ON GROUND)

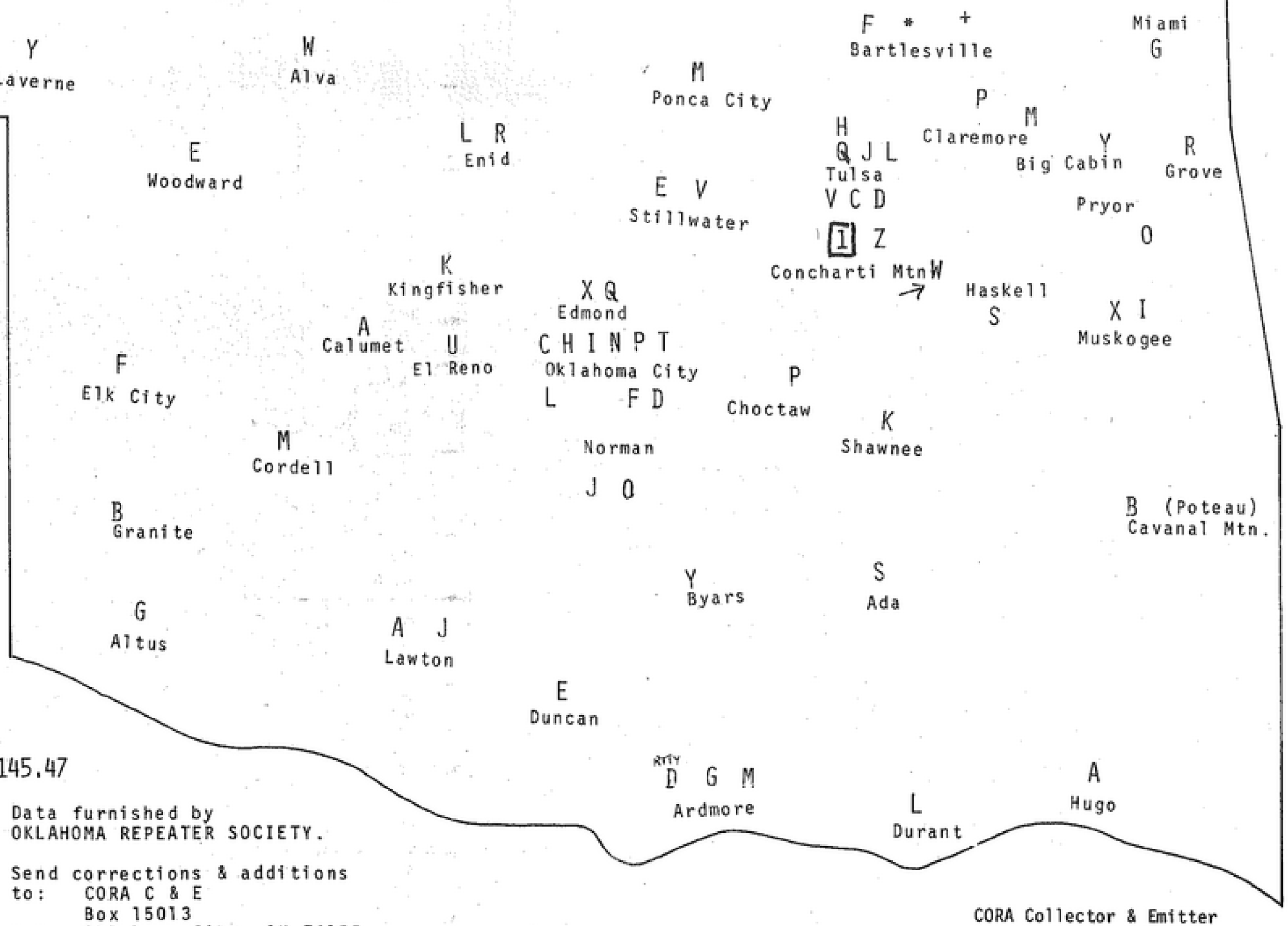
NET CONTROL LOCATION: MARK ACRES POLICE DEPARTMENT
INPUT: 146.22 MC
OUTPUT: 146.82 MC

146.	147.
A=01-61	N=63-03
B=04-64	O=66-06
C=07-67	P=69-09
D=10-70 [RTTY]	Q=72-12
E=13-73	R=75-15
F=16-76	S=78-18
G=19-79	T=81-21
H=22-82	U=84-24
I=25-85	V=87=27
J=28-88	W=90-30
K=31-91	X=93-33
L=34-94	Y=96-36
M=37-97	Z=99-39

*=655-055

+=985-385

1=144.87-145.47



Data furnished by
OKLAHOMA REPEATER SOCIETY.

Send corrections & additions
to: CORA C & E
Box 15013
Oklahoma City OK 73155
or call: Joe, WA5ZNF (405) 737-1044
Will be updated as required.

CORA Collector & Emitter

Club
NEWS
PILOT

Minutes of April Meeting

Meeting was called to order at 10:00 A.M. by President Jerry, KD5IS, with eight members and guests present.

Ellard, W5KE, gave the Treasurer's report.

Bob, W5HXL, gave the CORA report. He advised that arrangements were made with MORI to use the 34/94 repeater for Ham Holiday talk in.

It was announced that Richard Grizzle is the Red Cross' new Director of Emergency Services. He assumed the new position March 11, having previously served in Health Services.

April 22 is the date of the next scheduled Amateur license Volunteer Examination to be held at Red Cross headquarters. Examinations are being scheduled to fall on the fourth Monday of each month. Applicants are generally required to submit a Form 610 prior to the examination and come to the examination with $4.00 cash (to avoid change making problems). Chuck, K5NK, is the person to contact for information.

Hamfests were announced; Green Country on May 25, Rogers Arkansas, May 4.

Bicycle races are scheduled for Oklahoma City May 27 and to Guthrie and back May 28. Perry, N5GOH, is coordinating radio communicators who would like to help.

The Morse Telegraph Club is celebrating Samuel F.B. Morse's birthday with a dinner at Dotsons, 11:30 A.M. May 27. There will be a nation wide telegraph link established to add to the fun.

The RACES repeater is reported to be operating on 144.81/145.41 MHz.

Meeting adjourned at 10:40 A.M. and the group dove into the donuts.

Joe, K5JB, Secretary

New Look For The C&E

When I got the message from the Managing Editor Joe, WA5ZNF, that the format of the C&E was changing I was a little puzzled about what was going on. The new specification was going to reduce the column width from 46 to 32 characters, at ten characters per inch. I could understand why it might be cut to 32 characters because that is the number of characters Joe normally displays on the screen of his Radio Shack Computer. What left me puzzled was why he mentioned that the width would permit 38 characters at twelve characters per inch. Maybe he was going to upgrade to an Apple?

I called him on the phone. Sometime during the conversation he mentioned that the new printing process was going to permit going back to the one to one, or non-reduced style we used to have. Whoopee! I was delighted to hear this. My only dissatisfaction with the C&E has been the difficulty in reading the thing without wearing powerful magnifying glasses. Also, the "near letter quality" print from some of the dot matrix printers was suffering from the reduction. Those little dots were becoming microscopic, even illusory, after the reduction process. Things couldn't help but be better after this change.

The next question in my mind was what would be the preferred type style and pitch for my use. I use an IBM Selectric which is capable of either ten or twelve characters per inch. Recently I have been using Courier type in an effort to keep the character size large enough to see. (For a time I used a "Dick and Jane" type called "Presentor" which was designed to type speeches so they could be read by vain, aging, executives who preferred not to use glasses while making speeches. It worked pretty good but the space between lines was not quite great enough to keep it from looking crowded.) My favorite, when not doing C&E stuff, is the Letter Gothic which is a Sans Serif style that you see here. I used it before we went to the reduction format.

The remaining question I had for Joe was why we were going to three columns of 32 characters width instead of two columns of 49 characters. He allowed that it would be easier to compose pages made from random size submissions. Good enough for me; he has to do it and if it is easier that way, I'm all for it.

One day when I was twiddling my thumbs, trying to figure out something to write, I made the observation that I was losing an average of five characters per printed line because of the irregular right margin, even with aggressive hyphenation. (Pseudo justification used by word processors to even up the right margin wouldn't help without using a printer capable of micro justification. There would still be those five spaces sprinkled through an average line.) Assuming that there are 75 printed lines per column, there would be a loss of 375 characters as a result of the third column, or approximately 67 words per page. No big deal, eh?

I am real curious to see how it looks.

Joe, K5JB

RS-232 - The "Standard"

I have overheard a lot of discussion lately about problems folks have been having connecting digital equipment, including RTTY stuff, using the RS-232 "Standard" interface. I have covered it before but a quick review might possibly help someone out a bit.

The full blown RS-232 interface is shown in Figure 1 in the form of the familiar DB-25 connector. This picture came out of the book Understanding Data Communications, available at Radio Shack. Unfortunately it was mislabeled as the female connector when in fact it was a mirror image of the one found in the real world. It will do for our purposes though if we pretend it is a male connector. This connector is not specified by the EIA standard but the number of pins does happen to be specified at 25. Not all pins are used, in fact the most we will ever see connected is about nine. Normally, we will see closer to five and, in most cases won't need more than 3. I think we can simplify the problem a little if we concentrate on those lines that will normally be encountered.

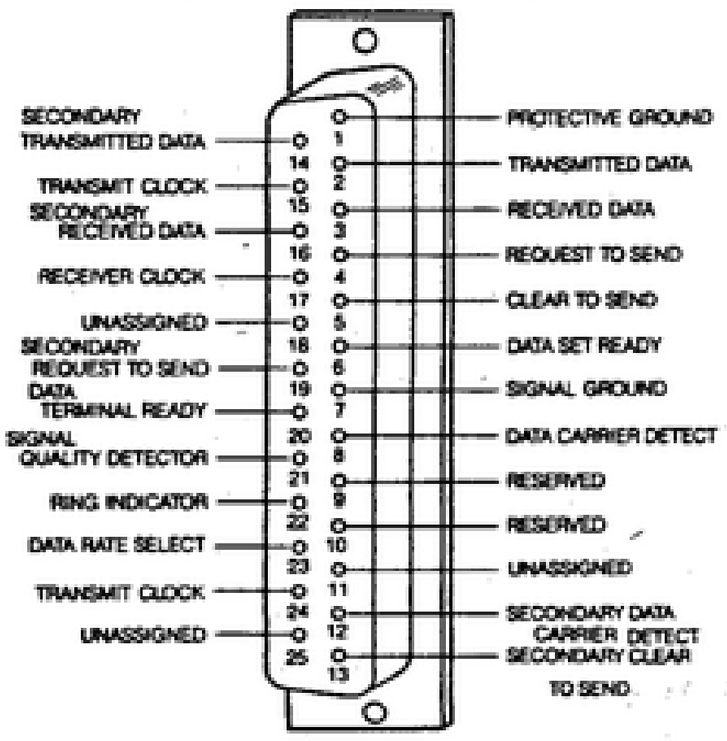


Figure 1. Typical RS-232 Male Connector

Figure 2 is a list of all 25 of the pins in tabular form. It bears close study. To save space, I left out the EIA and CCITT names of the pins and took some liberty in the signal description column. Many of the signals are used in synchronous communications and they aren't encountered much in our stuff.

To understand the last two columns an explanation is necessary. This standard was made to describe a particular set of circumstances. It describes connection of "Data Terminal Equipment" (DTE) to "Data Communications Equipment" (DCE). It specifically describes connecting a terminal like a Teletype machine or a CRT type terminal to a signal converter, like a modem, which is in turn going to be connected to a circuit leading to somewhere else. The terminal is the end the operator is on and the other end of the RS-232 cable is data communication equipment. (Think "modem" when you think of DCE.)

The reason for keeping in mind the original intent of the specification is to keep track of which direction signals will be flowing. In the terminal-modem configuration, transmitted data will flow from terminal to modem

and received data will flow from modem to terminal.

Sometimes the RS-232 circuit is connected between things other than terminals and modems, like computers and printers, for example. When RS-232 is used between a computer and printer, which end is DTE and which end is DCE. There is no way of guessing because the standard doesn't address this situation and the designers can argue that a printer is DTE or DCE depending on its intended application. For another example, a computer with an external terminal may have a serial port provided for the terminal and a serial port provided for another device. One serial port may be DCE (the one for the terminal connection) and the other one DTE with the assumption that it is going to be connected to a printer or a modem. It is therefore important to first determine what the connector on each end of the circuit is configured for. Once this has been established, each connector has a name and the last two columns on Figure 2 have meaning.

Pin	Signal Description	Common Abbrev	To DTE	To DCE
1	Protective Ground	GRD	X	X
2	Transmitted Data	TD		X
3	Received Data	RD	X	
4	Request To Send	RTS		X
5	Clear To Send	CTS	X	
6	Data Set Ready	DSR	X	
7	Signal Ground	SG	X	X
8	Recv. Line Sig. Det.	DCD	X	
9	Reserved			
10	Reserved			
11	Unassigned			
12	Sec. Recv. Sig. Det.		X	
13	Sec. Clear To Send		X	
14	Sec. Transmit Data			X
15	Transmit Clock(DCE)		X	
16	Sec. Received Data		X	
17	Receiver Clock		X	
18	Unassigned			
19	Sec. Request To Send			X
20	Data Terminal Ready	DTR		X
21	Sig. Qual. Detector	SQ	X	
22	Ring Indicator	RI	X	
23	Data Sig Rate Det(DTE/DCE)		X	X
24	Transmit Clock(DTE)			X
25	Unassigned			

Figure 2. Rs-232 Pin Designations

The last two columns identify whether signals come to the DTE or go to the DCE. If the manufacturer's literature doesn't identify which end, DCE or DTE, of the standard his equipment "meets" you may have to look at some schematics or do some probing to establish the name of the critter.

One electrical characteristic specified in the RS-232 standard is the voltage levels and polarities. Unfortunately, many manufacturers ignore this very important part of the standard and we have a real problem getting equipment to work. The true RS-232 signal swings plus and minus with respect to ground. On the data wires, Pins 2 and 3, a signal of plus 3 to 25 Volts is a Space, or logic zero. A minus 3 to 25 Volts is a Mark, or logic one. A voltage of zero with respect to the signal ground wire is undefined, and in some cases the equipment just won't work unless it sees a minus voltage of at least three Volts for a Mark.

The other signalling wires, or so called "handshaking" lines have a negative 3 to 25 Volts when they are trying to say "No". When they are asserted, they go to positive 3 to 25 Volts.

Once the voltage levels are straightened out, there are two families of problems that are commonly found when making RS-232 connections. One is when DTE is to be connected to DTE or DCE is to be connected to DCE. The other is when handshaking lines are needed by equipment on one end of the circuit or the other.

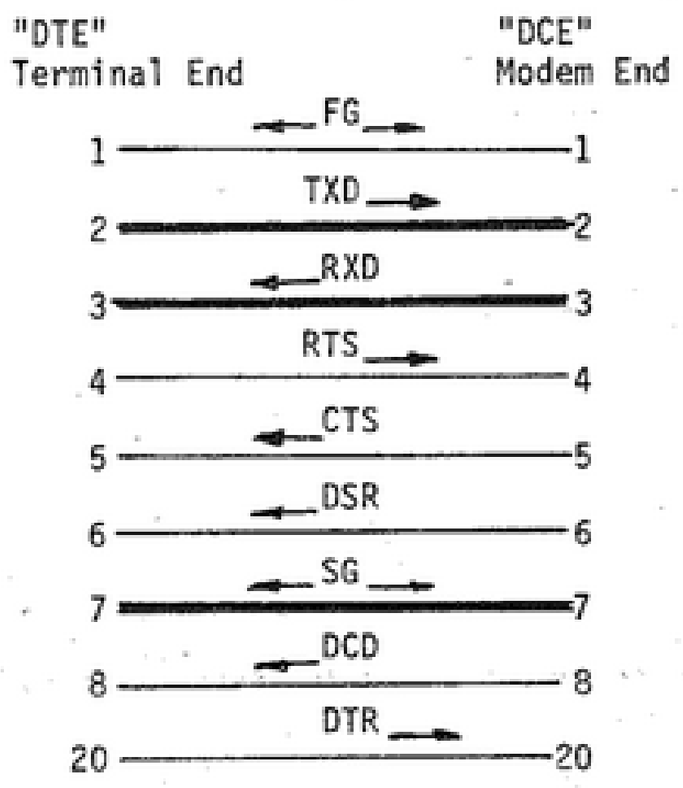


Figure 3. Normally found RS-232

Figure 3. shows the connections that might be found in a full blown RS-232 circuit. Notice the bold lines. They are the only ones needed in a lot of applications. Pins 1 and 2 carry data and pin 7 provides voltage reference for the data wires. If both ends of the circuit are the same type, all that is needed is exchange pins 1 and 2 on one end of the cable. Here is where the confusion sometimes starts. One end is transmitting data on the receive data pin. Just remember the Terminal/Modem analogy. When DCE is being connected to DCE it ain't being done the way the standard's authors intended, but it works anyway. We will get into ways of doing that in a moment.

There are two levels of handshaking lines. The primitive level is the DTR and DSR wires. Data Terminal Ready, when asserted (+3 to +25V) usually means power is on the terminal. When Data Set Ready is asserted, it means the Data Set (the modem) is powered up and ready. The next level of handshaking is done by the Request To Send (RTS) from the terminal to the Modem and in response, a Clear To Send (CTS) from the modem to the terminal. When these lines are asserted, data can flow. In a particular application it is unlikely all of these lines will be used. It depends on the manufacturer's whimsy whether the DTE negates DTR or RTS to stop data from coming from the modem. Likewise, DSR or CTS may be negated to stop data from coming from the terminal. It is pretty much up to you to figure it out.

One additional line coming from the DCE can cause problems. The Data Carrier Detect, coming from the modem is supposed to be asserted when a usable signal is present. The manufacturer may decide it would be a cute wire to use. In fact, he might not even realize it is supposed to come from the DCE and use it for handshaking from the DTE. What a mess!

In Figure 3. the direction of signal flow is shown. In each case, if it is an active control it is coming from some kind of driver or if it is a passive control, it is coming from a pull up resistor from the positive power supply. The RS-232 specifies that any pin can be connected to any other pin without doing harm. Hopefully this part of the specification was respected by the manufacturer and no harm would come from plugging a DCE to DCE. Hopefully.

If one end of the circuit needs an asserted signal from one of the hand shaking lines it is not necessary to go to the other end of the cable to get it if hardware handshaking is not needed. Identify the pin needing an asserted signal and tie it to a pin in the plug that is asserted. For example, on the Terminal end, if DTR is asserted by the terminal, CTS, DSR, and DCD (Pins 5, 6, and 8) can be connected to DTR (Pin 20) to make them all run wide open. On the DCE end, RTS and DTR (Pins 4 and 20) can be connected to DSR (Pin 6) if it is asserted by the Modem end.

A Null Modem, or Modem Eliminator, is a gadget that changes the configuration of a plug from DCE to DTE, or vice versa. Figure 4 illustrates one that I constructed to help sort out problems or make a quick connection when an unusual (actually a usual) condition arises.

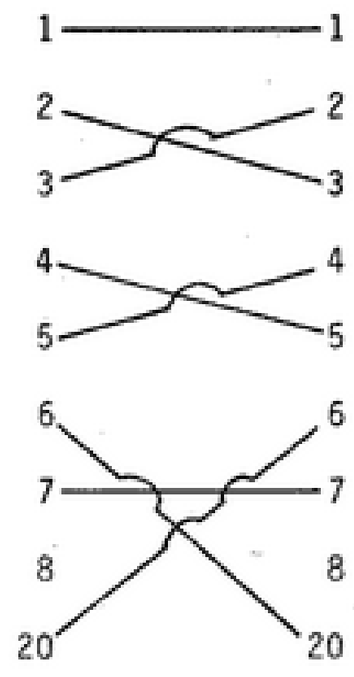


Figure 4. Null Modem

This device is made by taking a DB-25 male and female plugs and connecting them back to back. Standoffs an inch

or so long can be used to fasten the two connectors mechanically. The only hooker in the circuit is the Data Carrier Detect, Pin 8. I had to make a temporary connection once to get a DTE to respond as though it had Pin 8 asserted. For this purpose I added a jumper from one of the Pins 20, DTR, which was active.

This is the way a "Null Modem" cable is wired, by the way.

(Whew, got a bit carried away with that one) Joe, K5JB

New Packet Radio Controller

There is a new kid on the block Besides Heathkit)! The following, from Gateway, the ARRL Packet Radio Newsletter, describes a new TNC (Terminal Node Controller) being offered by Kantronics. Gateway credited its source as "Computers and Amateur Radio":

Kantronics, makers of several RTTY and AMTOR software/hardware packages, has announced the availability of a TNC, the Kantronics Packet Communicator. An early production model of the Packet Communicator was displayed at the recent Computer Networking Conference in San Francisco. The TNC is small, housed in a 2 X 6 X 8-inch cabinet, much like the cabinet for the Kantronics UTU.

Although Kantronics "took some cues from the TAPR TNC," the Packet Communicator is a new hardware design. The internal modem uses switched-capacitor filters and can be switched by software to provide either Bell 103 or 202 tones, with or without receiver equalization. Also, the Packet Communicator can be used as a Bell 202 modem, bypassing all packet-radio functions. The TNC can send and receive packets at 300, 400, 600 and 1200 bit/s, half duplex.

The Packet Communicator serial port can provide RS-232C or TTL signals, at 300, 1200 or 9600 bauds. Special packet-radio terminal programs for many computers will be available soon from Kantronics.

We welcome the Packet Communicator to the growing list of commercially-available TNCs. The Kantronics packet-radio motto? "Packet Made Easy!"

The Golden Packet

This was the message that prompted the short news note in the most recent ARRL letter. We at the C&E feel that we must print all the news that fits! This also came from Compuserve's Ham-Net.

To: Paul Rinaldo, W4RI, American Radio Relay League
From: H. S. Magnuski, KA6M
Date: March 30th, 1985

At the meeting of the Board of Directors of the Pacific Packet Radio Society on March 21st, 1985, the following resolution was passed:

Whereas the Pacific Packet Radio Society was one of the first societies formed specifically to encourage the growth of computer networking via radio using all digital concepts and techniques, and whereas the San Francisco area was the site of the nation's first amateur digipeater, and whereas an even greater challenge faces the amateur radio community to establish a transcontinental link, the Pacific Packet Radio Society has decided to establish a unique award to encourage the completion of the first terrestrial transcontinental network link. This one-time award shall be known as the "Golden Packet" award, and the regulations relating to it are listed below:

1. A transcontinental link must be established, with each terminus located within 100 kilometers of either the Atlantic or Pacific Ocean.

2. The system must consist of fixed terrestrial digital store-and-forward radio links using VHF (greater than 144.1 MHz.), UHF or microwave frequencies. Use of HF, satellite, tropo, metscat or moonbounce channels is prohibited.

3. A valid two-way transmission and acknowledgement of previously unknown information (256 characters or more) must occur in real time (less than ten minutes).

4. This competition is open only to validly licensed North American amateurs, and no commercial links or services may be utilized in the path. Club stations are permitted.

5. Proof of the exchange must be adequately documented and submitted to the PPRS. Proof must include a list of the stations in the link, their locations, frequencies used, and a copy of the text exchanged.

6. The reward shall consist of a suitably engraved plaque with the names of all participating stations listed which shall be presented to the ARRL. Each participating station shall receive either a plaque or a certificate.

7. Final decision on the award is subject to review and approval by the Board of Directors of the Pacific Packet Radio Society.

Respectfully submitted,

H. S. Magnuski, KA6M

Pacific Packet Radio Society
P. O. Box 51562
Palo Alto, CA 94303

RTTY Equipment Comparisons

The following message was found on Compuserve's special interest bulletin board, Hamnet. It is one persons perception of the relative merits of several pieces of RTTY/AMTOR/Packet stuff:

Message #: 28182
Sub-topic 9 - Packet/RTTY/AMTOR
Sb: comments
06-Apr-85 07:48:21
Fm: NORM W2JUP 74055,140
To: 71445,377

Hi Rick - in case we don't meet at Dayton, here are some comments from my own experiences. I operate Baudot and ASCII RTTY and AMTOR with a Taiwanese Apple Clone (II+), use ASCII Express Pro, Hayes Smartcom II and Data Capture 4.0 as term programs, along with Super-Ratt for RBBS and terminal, Galfo, and AEA MBATOR/Apple. Have developmental Apple/AMTOR terminal programs from KC7KK and ON4BX - both pretty good. Lynn Taylor's (WB6UUT) Pascal Packet BBS program is outstanding. Use both VIC20 and C-64 systems for running software tests. My benchmark for judging demodulator performance is the Dovetron MPC1000C (full box). During the past 2 years, I have tested the following gear on the air:

Kantronics:

- Interface I (poor except for DFQ FM RTTY)
- Interface II (fair to good)
- AMTORSoft (poor menu design makes operator errors)
- HamSoft (mediocre)
- HamText (better but not great - awkward QSP management)
- UTU (fair to good - 300-baud capability compromises HF)

Infotech:

- M44 (Excellent, complies fully with CCIR 476-2/3)

MFJ:

- MFJ-1224 (mediocre to fair)

Microlog:

- AIR-1 (poor except DFQ FM, AMTOR protocols have bugs)

Hal:

- ARQ-1000 (my unit had serious bugs in AMTOR timing)

AEA:

- MAP-64/2 (fair to good demod, correct CCIR 476-2/3)
- AMT-1 (good, correct CCIR 476-2/3) (excellent demod with K0KXR filter modifications)
- CP-1 standard version (good to excellent)
- CP-1 w/factory mods for 300 bauds (fair, 45 bauds suffers)
- MBA-TOR (good, correct AMTOR, easy QSP management)
- SWLText (good, correct AMTOR, clever diagnostic)
- ATU-1000 (outstanding! Best demod ever tested)
- PKT-1 (dandy box!)

TAPR:

- TNC from kit (need I say more?)

I can be more candid if we chat at Dayton.

Norm, W2JUP

While browsing Compuserve's Hamnet, another message of interest regarding digital communications was found...

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 #: 28077      Sub-topic 9 -
Packet/RTTY/AMTOR
Sb: Packet Books
    03-Apr-85  08:30:23
Fm: HamNet*SYSOP Scott W3VS 76703,407
To: All
```

C2970 CC112 Phil R. Karn (KA9Q,2979)
4/ 1/85   9:21 PM L:28
KEYS:/USEFUL BOOKS/

While scanning the exhibit floor at the WCCF on Sunday afternoon, I bought two books on networking that appear quite useful.

The first is "Computer Networks" by Andrew S. Tanenbaum, ISBN 0-13-165183-8. This is a very complete but readable reference on the entire subject, ranging from data transmission at Layer 1, through channel access techniques for satellite and packet radio broadcast channels, up through link, network and transport protocols (with a balanced and insightful coverage of the CCITT and ARPA views of the world). Later chapters deal with presentation and application layers with encryption and authentication given fairly good treatment.

Tanenbaum is a very good writer, able to explain things well and with a relaxed, often humorous style. Example:

"...In this protocol, an analogy is made between the stations and the balls in an urn. (Why probability theorists always use urns, and never basins, buckets, caldrons, chalices, crocks, pots, pails or tubs for ball storage is a question we leave to the linguistically minded reader.)"

The second book is "Tutorial" Principles of Communication and Networking Protocols", edited by Simon S. Lam and published by the IEEE, ISBN 0-8186-0582-0. This is a comprehensive collection of papers on the subject, most of them "classics" in that they have been heavily referenced. The papers cover link protocols, multiple access methods, local area networks, resource allocation in networks, network and internet services and protocol verification.

Phil

Packet Frequencies

I noticed that Harold Price, NK6K, was writing an article for QST that contains information on frequencies used for Packet radio around the country. Most places have settled on the frequency range of 145.01 to 145.09 MHz. In the Oklahoma City area and within a respectable radius we have been using 146.415. There are about a dozen Packeteros on that frequency and the question that will be coming before the Oklahoma Repeater Society at the July meeting is whether the frequencies in the 145.01 range ought to be coordinated.

I understand there is an organized net within splatter range of 145.01 and I would like to hear from anyone who has better information than I. Packet Radio is pretty obnoxious sounding to those using phone and I would be the last one to want any irritation to be caused by the mode. If anyone has any information, how about letting me know in advance of the Oklahoma Repeater Society meeting. Those who specialize in DX, weak signal work, Satellites, moonbounce, etc, would not be particularly inclined to break away form the Ham Holiday flea market to go to the ORS meeting but their interests need to be respected by the repeater boys (and girls). Let me know and I will do my part in letting those interests be known. Joe, K5JB

New Heath Hot Dog Forty Forty TNC

I had hoped that Jim, KB5XN, would get his new Heath TNC put together and send me a report via packet radio. He finished the TNC in plenty of time and it worked fine. However, after writing the article he was unable to send it to me because of limitations in the Radio Shack Color Computer, HI! I will let Jim explain that some other time...

He hand typed this report over the telephone at the eleventh hour:

******PACKET FLASH******

This is a preview report on the newest offering for the packeteer. I have just completed my review of the HD-4040 TERMINAL NODE CONTROLLER kit from the folks at HEATH Veritechnology. For those of you who are thinking of getting into PACKET RADIO the HD-4040 is one of the best ways to go. The folks at HEATH used the proven circuitry developed by the TUCSON AMATEUR PACKET RADIO (TAPR) group as the basis for the HD-4040.

I was very impressed with the quality of both the kit and the simplicity of the instructions. Lynn Williams, the manager of the local HEATH Veritechnology store was kind enough to allow me to assemble the display model for the store. The first units for sale to the public haven't been released yet. I have one on order for myself, and am anxious for it to arrive. The HD-4040 is so close to the TAPR TNC that I couldn't find any obvious differences. I made notes during the construction, and was only able to find one error in the documentation.

The power up test of the TNC instructs you to look for a certain sequence of events to happen, to indicate that internal diagnostics were successful. The book indicates that the spare, reset, and CW ID LEDs should light, and after about 2 seconds, the CW ID LED should go out. THIS IS IN ERROR. The correct sequence is for the spare, and the reset LED's to come on, and then after about 2 seconds the CW ID should come on. If you were unaware of the true sequence of events this could really cause you a head ache. (if it ain't broke, don't fix it.)

KB5BS, Bill was on hand for the initial power up sequence, and between us we managed to get back on the right track pretty quickly. This could lead to a lot of frustration for someone who kept searching for the indicated failure. Over all, the quality of the kit was superb. The only defective part in the kit was an option plug. It was defective from the manufacturer. (It is used to select a specific option by strapping between two pins on the board.) I made a replacemnt from an old data cable plug. The GURU of the PACKET set, K5JB, was on hand for the on the air test of the TNC. Joe, as usual was very patient as we got the bugs out of our radio to TNC hookup. We used my ancient and venerable IC-230 as the station transceiver. (almost..) We couldn't receive any packets from Joe, so we hastily plugged into Bills IC2AT for receive audio. EURIKA.. it worked! (Looked kinda funny to see Bill holding the HT up so that the rubber ducky antenna was touching the ceiling.)

I experimented a little, after Joe suggested that maybe the rig needed to see some receive audio load other than the TNC, and added a remote speaker. That seemed to clear up the trouble with the IC-230. This kit is not a beginners kit. I think that a beginner with some skills at soldering printed circuit boards cauld handle it OK though, as the documentation is very clear and concise. If you plan to build this kit, and haven't got much experience, I recommend that you practice soldering some old computer boards to get the hang of it. Be sure not to use that old "plumber's arn" to solder the IC's in.

For the person interested in getting into PACKET radio, I can recomend this kit without reservation. The HEATH HD-4040 TNC kit is of the finest quality available. My thanks to the folks at HEATH for bringing another product to us of this quality. Hope to hear you on PACKET RADIO soon.

73 KB5XN

For Sale

30 foot Airstream travel trailer. $6800. Call Hugh Benson, KA5DGY, 946-0033

Shack Cleaning

Ton of radio and test equipment, parts, work bench, power supplies, etc. Needs to go to clean up the workshop. Call Don Morris, W5TMM, 946-1801

ALTUS AREA AMATEUR RADIO ASSOCIATION

WHAT TO WATCH OUT FOR WHEN MOVING QTH AND ANTENNAS

De John Ackerman, AG9V

AERONAUTICAL CENTER AMATEUR RADIO CLUB, INC. W5 PAA

The Altus Ham Club held its regular monthly meeting Thursday March 14 at 7:30pm at the North Main Fire Station.

Ten members were in attendance Herb, N5FQR, gave a demonstration of his talking clock and Dennis, KA5KVU, not only showed off some of his weather instruments but also gave some of the members copies of the Storm Track publication.

Four members including W5VXU, WA5TXG, KA5KVU and N5FJK renewed their mebership or signed on a new member during the evening's proceedings.

The Club Secretary, W5VXU, told the membership that the Clubs financial status showed almost $300 in the bank. He also passed several pamphlets and publications among the group for their enjoyment.

The meeting was terminated with Joe, W5CCV, serving brownies made by his wife.

SIX METERS BEING SAUGHT BY CB'ers

From W5HTK via Bob, N5EZK

According to a SMIRK bulletin, a CB group has filed a petition with the FCC seeking the 6m amateur band (50-54 mHz) for CB use, citing (and documenting) realatively low activity by amateurs on that band. The band sees moderate useage in the Northeast as a repeater band, but is best known as SSB DX and experimenter teritory, especially during peak sunspot years, when 6m behaves like an HF band, with worldwide propogation. Apparently, during the current sunspot doldrums, not enough hams are making a racket on six. It seems everyone is listening to each other listen. If you or anyone you know has 6m gear, get out there and CQ on 50.2 or 50.110 a few times every day. You never know when the band will be open, and remember, sporadic-E (short skip) works even during sunspot nulls. As someone who has worked everything from New Zealand to Liberia on the band when it's open, and Dallas to Ft. Smith when it's not, I can only say we would be losing one of our most varied and interesting bands if we lost 6 meters. Also in our part of the country especially, 6m could stand some more repeaters. If your club or group has access to old Motorola or GE 40-50 mHz radios, consider putting up a repeater or remote base on six. From: TULSA Signal

Rich ,K9GDF, has asked me to write about zoning ordinances and other laws which can affect Ham Radio antennas. This makes me nervous, because every ordinance and every zoning board and every antenna installation is different, and there isn't any advice that will work in every situation. There are some precautions, however, that may help you avoid problems before they develop.

If you are going to be moving, look BEFORE YOU BUY. And I don't mean check the site with a topo map and mobile receiver (although that's important, too.)

You should take a look at the applicable zoning ordinance, check the deed for any covenants or restrictions, and most important, ask around to see what experiences the local Hams have had with their installations.

Zoning ordinances aren't the easiest things in the world to read, but there are generally two types of provisions you should look out for.

FIRST, many ordinances have specific references to antennas. Some apply only to commercial installations, while others don't distinguish between a 500 foot broadcast tower and a tribander at 30 feet.

SECOND, most, if not all, ordinances have provisions regarding "assessory structures" (or something similar) in residential zones. Such provisions often incorporate height limitations (usually of 30 feet or so), and some zoning agencies interpret these limitations to apply to antennas and towers, although you can make a good argument that they should not be so interpreted.

If the ordinance does have provisions which look as though they might affect your proposed installation, you have a touchy choice to make.

If you ask the zoning officials whether a questionable provision applies to HAM TOWERS, you may give them an idea they hadn't had before, and cause problems not only to yourself, but for other Hams as well.

On the other hand, they say ignorance of the zoning law is no excuse, and if the zoning agency has interpreted the ordinance against you, it's a good idea to know about it before putting the tower up...

Never untangle a piece of wire in your junk box. It won't be long enough anyway.

Meting was called to order at 7:30pm by President Jack Iman, followed by a round of self-introductions. There were 34 present.

President called for old business. None.

Jack gave the treasurers report saying it was in good hands with Bob Pace.

CORA report given by Tom, K5LDI:

MORI is taking ladies activities.

Help is still needed with programs.

Still discussing VE exams location.

Banquet will cost $14.50 per person. Anyone can attend.

QCWA Breakfast will cost $7.00. Same rules apply. Anyone can attend.

Pre-Registration forms will be in C & E.

Need donations of cookies & donuts for Hospitality room.

Bill Brodie, K3TGY presented the program which was about Amateur Satellite Communication Thanks Bill for the excellent program.

The program for the month of May will be concerning cameras, lens, film and how to acheive better photographs, conducted by Jack Iman.

Meeting was adjourned at 8:55 for coffee and sweetners.

Thanks go to Rosy Halley for taking the minutes.

Jack Iman, WB5SVN

OKLAHOMA COURAGEOUS ADVOCACY AWARD

MICHEAL SALEM
Norman

His representation in the Little Axe school prayer litigation meets the criteria of representing an unpopular cause in a manner befitting the highest ideals of the legal profession. This has not been without cost to him both financially and personally. He has received threats in phone calls, letters and in person and been the subject of unpopular references in newspaper articles, letters to editors and a radio editorial. His continued representation of his client on this emotional issue demonstrates his legal courage. Was court-appointed to represent Brock Kenyon Littlechief in a federal murder case, United States v. Littlechief. The case established the basis of tribal jurisdiction for "Indian Country" within the State of Oklahoma. One of the results was the establishment of the Tribal Courts of Indian Offenses. Holds B.S. in Electrical Engineering Masters of Public Administration and J.D. from University of Oklahoma. Received 1983 Angie Debo Civil Liberties Award of the American Civil Liberties Union of Oklahoma Foundation.

HERE YOU ARE FOLKS, ALL THE POOP ABOUT HAM HOLIDAY

Well folks it's all settled, well almost all. This years HAM HOLIDAY / ARRL STATE CONVENTION will be held at the Lincoln Plaza Convention Center out on North Lincoln Blvd. here in Oklahoma City.

July 26, 27, & 28

That only means that we will have to work one week faster and you will have to either put your vacation off for another week or move it up one week, or better yet plan it for that weekend and bring the family to the Lincoln Plaza, rent a room for Friday and Saturday night and have a ball, and be right there to enjoy everything, without having to leave the site.

You will find pre-registration forms in this issue of the Collector & Emitter so before reading what you will be offered turn to that page, rip it out and fill in a form. Non-Ham family members go for half price this year. Put it in the mail today so you won't forget it.

Now lets go into some detail about the proceedings:

First off there is the pre-registration award. It will be awarded at the banquet Saturday night, at least the name of the awardee will be known but he/she won't be able to pick up the prize until the Sunday afternoon awards.

Then there is the banquet, it will be held Saturday night, buffet style, with a super MC, two short speeches and a super program. Non registered guests may attend, that is wives, girl friend, husband ? ? ?

For those who want to dance afterwards there is a club in the Lincoln Plaza with live entertainment and plenty of room to dance.

The QCWA Breakfast will be Sunday morning with a real menu, the customary speeches and the other good times. You can attend even though you don't have 25 years experience, even if you are a novice.

The flea market will be in one area and the commercial exhibitors in another. The flea market will be opened to those who have pre-registered at 7:30am, with the doors opened to all you eager buyers at 9:00am. It will be held on Saturday only.

The commercial exhibitors look really good this year. They will be open for business at 9:00am Saturday, setting up Friday night, and staying open until you have bought them out and then they will open up again Sunday morning for those who didn't get what they wanted Saturday.

The ARRL West Gulf Director will be here with the latest information on what is happening to the amateur fraternity these days. He will conduct a Forum.

The programs have been arranged this year so that both men and women can take their choice of programs. Now as to just what will be presented will have to be dealt with next month but rest assured that there will be something for everyone.

The crowning event of course will be the award ceremony to be held Sunday afternoon when everyone will have a chance to carry home that fabulous HF rig or a super prize that will be awarded to someone. Now that you have seen a quick preview of what is going to happen go ahead and fill out that pre-registration form and get it in the mail today.

Next month we will have all the details so you will know what you have pre-registered for and what you will get for your money. Wonder how many there will be ? ?

A HAM WHO WAS TAKEN OFF THE AIR by the FCC's Atlanta GA field office for causing TVI was allowed back on the air, but only after threatening legal action. Richard Whiten, WB2OTK had been accused of interfeering with a neighbor's television reception, though his signal was delivered to him by a poorly sheilded cable television system....Whiten said: "What had happened is that they (the FCC) had called me and said that they would not be able to get back up here because one of the engineers had the flu...I said that you have had me off for almost three weeks now. I have proved that it is fundamental overload of the cable and I want to go back on the air, or my cousin who lives on Long Island has threatened to bring a law suit against you."

The engineer did not think it would be possible to give him a couple of hours on non-prime TV time....but in about two minutes called back to approve his request without any restrictions. Approximately 10 days later the FCC called and notified him that his 2 meter operating privileges were restored, providing he install and use a low-pass filter. In Whitten's view, the Commission's Atlanta office placed the burden on him, instead of on the cable operator who was obviously operating with below standard cable. He feels that he is setting on a powder keg, since it appears the FCC intends to keep this matter open, rather than place the blame on the inferior CATV operation.

50 lines

BASH EDUCATIONAL SERVICES

The sometime controversational publishing firm founded by Dick Bash, KL7IHP, has ceased operation. In a letter to subscribers of his "Part 97 Update" service, Bash explained that the new Volunteer Examination system eliminated the need for marketplace competition in training material, since, according to Bash, training and testing material must be uniform nationwide if the All Volunteer program is to be a success. Dick cited ARRL publications as being a primary source of such standardized material, noting that the League's publication negated the need for him to bring one to the marketplace since it would be, by necessity, an exact duplicate.

SOUTHERN CALIF. REJECTS 20 KHZ

Any chance of Southern California's moving to 20 kHz inter-system spacing in the 146-148 mHz repeater sub band were dashed when the Two Meter Area Spectrum Management Association voted overwhelmingly to continue repeater coordination using 15 kHz channel spacing. In doing so the Southern California organization basically followes the lead of the Northeast which recently voted to continue coordination policies along non-inverted 15 kHz standards. Other matters included a decision to continue the coordination of simplex autopatch systems to special and discrete sub bands, and to no longer continue the coordination of "odd-split" repeater systems.

The decision by TASMA to maintain the status quo indicates that three separate bandplans will continue to exist in the United States, unless the FCC dictates that one becomes the national standard when it acts on PR Docket 85-22.

The above articles from:

Westlink Report

CENTRAL OKLAHOMA CHAPTER #63
CHARTERED MARCH 19,1973

- FILE ZERO -

My most sincere thanks everyone for "waiting me out" during this past winter. Glo and I have had an interesting time of it since about April a year ago. I haven't been on my regular job since then, and let me tell you it's been interesting to say the least. The fun part really started about last September when we accepted an invitation from the local Airstream dealer to come in and "kick the tires" on some new tin. Glo and I do that every so often anyway, so the invitation wasen't necessary...but free coffee and cookies was promised so that made the difference. We have owned and operated a TTA (Tinker Toy for Adults), which is the inside name for Airstream trailers, for ten or fifteen years, and had about made up our minds that the one we had would probably be the final version for us...That wasn't to be the case however, and we wound up swapping for a nice shiney new one (which WILL be the final one!).

Equipped with our new TTA, we set out for a long-planned trip to the birthplace of the atomic age--Trinity Site in New Mexico. In July of 1945, I was out in the pre-dawn hours and saw the flash created by the first atomic explosion. I didn't know what it was at the time, but learned about the event later, after the bomb had been used at Hiroshima, and Nagasaki. So, having witnesd the birth of the atomic age, in the sense of the Magii, I've had a yen to visit that site and finally realized it last October. Trinity Site is opened to the public each October for a day...If you go to ground zero, you get about a half chest x-ray radiation dose in 90 minutes. We also spent some time on the desert exploring some of-the-beaten-path areas, and went into the Burro mountains in Western New Mexico to poke around for a few days. Immediately on our return to Oklahoma we went to Denver for a few days on business, then to Dayton, then to Petersburg, VA, then to Washington for a bit. What we thought was going to be a couple of weeks stay in Washington lasted almost until March. Needless to say, we never got around to winterizing the house, cleaning up the lawn equipment, chopping wood, etc. until spring. We did get back for a brief visit over the Christmas holidays, and wound up digging up half the yard looking for a sewer problem. Some R&R!.

In all, it was a rather intersting winter. That's where AA0O and his lady have been...I'm getting a bit long in the tooth for this kind of activity. Perhaps it will slow down for a bit now.

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This is being written Sunday the 14th of April, in the evening following the regular quarterly luncheon meeting. We had a small, but high quality gathering there today. Spirited discussion was held concerning the new Constitution and By-laws for Chapter 63. These issues are of vital interest to every chapter member and the proposed Constitution and By-Laws are reproduced in this column for your consideration and thoughtful reflection. One of the issues raised during the meeting concerned whether to publish these documents. Since we are a more-or-less public organization, hopefully with nothing to hide, the decision was reached to publish them rather than mail individual copies to the membership. Chairman Fred will have something to say on these matters elsewhere, so my only duty here is to respectfully request the membership to take a careful look at the documents, and furnish your comments and suggestions to Fred, by mail, within the next couple of weeks. The idea is to be able to publish a rewritten version incorporating those comments which can be incorporated in the June or July issue of C&E, so that we can have a ratification vote by an informed nenbership during the QCWA breakfast at HR-85 the latter part of July. So please give Fred the benefit of your thoughts.

Two rather important issues need to be looked at. First is the natter of what the Chapter ought to do about Memorial contributions when a member becomes a silent key. That delicate matter is spoken to in ARTICLE V of the By-Laws. Heretofore, we have donated a small sum to the QCWA scolarship fund in the deceased member's name. There is now some sentinent to donate to a medical research organization instead. Also, I take it, in the deceased member's name. The second issue is the limiting of officers and directors (except the Sec'y/Treas. to one term of two years. That item is in Section 4 of ARTICLE IV of the Constitution.

What follows is the text of the proposed Constitution, and the By-Laws for Chapter 63 of QCWA, Inc. With the new format of just 32 or 38 character lines, I won't try to put it in the form you will eventually see it. The text only is reproduced here. Please read it carefully. An informed membership must be one of our strongest assets.

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CONSTITUTION

ARTICLE I - NAME AND OBJECTIVE

Section 1. The name of this organization shall be "Quarter Century Wireless Association, Inc., Central Oklahoma Chapter No. 63".

Section 2. The "Objective" of this organization is: To foster and develop freindship and cooperation among Amateur Radio Operators of 25 or more years standing, and to operate for charitable, educational, and scientific purposes in accordance with the policies of the parent organization, QCWA, Inc.

ARTICLE II - MEMBERSHIP

Section 1. Eligibility: Any person possessing a valid Amateur Radio License, and who is a member in good standing of QCWA, Inc.

ARTICLE III - MEETINGS

Section 1. Annual Meeting: The Chapter shall convene an annual meeting on or before January 31 of each year at a time and location specified by the Board of Directors.

Section 2. Other Meetings: Other meetings of the Chapter may be held, throughout the year, at a time and location designated by the Board of Directors. An official ON-THE-AIR meeting shall be convened on a regular basis and conducted as described, generally, in the By-Laws.

ARTICLE IV - OFFICERS AND DIRECTORS

Section 1. Officers and Directors: Central Oklahoma Chapter officers and directors shall be designated as President, Vice President, Secretary/Treasurer and four (4) Directors. The retiring President will serve a one-year

term on the official board in an advisory capacity only. If unable to serve, the retiring Vice President shall serve in like capacity.

Section 2. Vacancies: If there exists a vacancy of officers or directors, the President will act in accordance with Article III, Section 1 (f) of the By-Laws.

Section 3. Recall: If an officer or director is unwilling or unable to perform his duties he may, by a majority decision of the remaining officers and directors, be removed from office.

Section 4. Term of Office: Each officer and director shall be elected for a term of two (2) years; each to serve until successors are selected and installed. The election of the President, Vice President and two (2) Directors will be held every even numbered year. The election of the Secretary/Treasurer and the other two (2) Directors will be held in odd numbered years. It shall be the general policy tc linit the term of "Board of Directors" members to one (1) term; an exeption being the Secretary /Treasurer.

ARTICLE V - AMENDMENTS

Section 1. Proposing Amendments: Any member may propose/submit in writing or by oral presentation an Amendment for consideration, with a second, at any Chapter meeting.

Section 2. Any amendment approved at a Chapter meeting, shall be appropriately advertised to each Active Member for each individual's approval or rejection.

Section 3. Voting: At the following regular meeting a two-thirds (2/3) vote in favor will accept the proposal(s) as an amendment to this Constitution. Mail in votes and Active Member voted at the following meeting shall be counted.

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BY-LAWS

ARTICLE I - DEFINITION

Section 1. Purpose: These By-Laws are authorized to define and clarify sections of the Constitution.

ARTICLE II - NOMINATIONS AND ELECTIONS

Section 1. Nominations: At least sixty (60) days prior to the "Annual Meeting" a Nominating Committee shall be appointed. This committee shall report to the President who will then authorize the Secretary to mail a ballot of the nominees to all active members, at least twenty one (21) days prior to the "Annual Meeting".

Section 2. Elections: The President shall prepare ballots listing the nominees for each office, leaving blanks for write-ins, and including appropriate instructions. The Secretary shall mail the ballots to all active members. A cut-off date for return shall be specified thereon. The Nominating Committee will receive and tally the ballots and notify the President of the results.

Section 3. In lieu of the above, the "Election" may be held at the "Annual Meeting". Mail-in ballots and ballots presented at the meeting will be tallied to determine the results.

ARTICLE III - OFFICERS' AND DIRECTORS' DUTIES

Section 1. Presidents'Duties:
(a) Preside at all meetings of the Chapter and conduct in accordance with Robert's Rules of Order.
(b) Act as Chairman of the "Board of Directors" and/or Executive Committee.
(c) Shall not vote on Chapter actions, except in the case of a tie; then President's vote will be counted.
(d) Shall appoint all committees except the "Nominating Committee". This committee is to be appointed by the Directors.
(e) Shall order an audit of the treasury (annually) and make a report to the Chapter of the results.
(f) Shall, in cooperation with the Directors and other Officers, fill any vacant office. This appointment will run for the unexpired term of the office to be filled.

Section 2. Vice President:
(a) In event the President is absent or unable to perform required duties, the Vice President will assume the duties of the President.
(b) Shall be responsibl;e for meeting place arrangements, program arrangements, and Chapter Publications.
(c) In normal operation of the Chapter, the Vice President will perform other duties assigned by the President.

Section 3. Secretary/Treasurer Shall:
(a) Keep minutes of all meetings.
(b) Handle all correspondence for the Chapter, except that delegated to others.
(c) Maintain an up-to-date list of members and their status as "active" or "inactive".
(d) Be responsible for collection of all dues.
(e) Prepare and sign all checks against the Chapter's Treasury.
(f) Keep accurate records of receipts and disbursements and prepare an annual financial statement.

Section 4. Directors Shall:
(a) Act in behalf of the Chapter's "Active Members", to oversee the actions and programs undertaken by the Officers.
(b) Meet at least once a year, at the call of the President or by a joint call from, at least, three members of the "Board of Directors".
(c) Define, in the interest of the Active Members, an official ON-THE-AIR meeting as to Period, Day, Time, Operating Frequency(s), and Format, and which shall be agreed by the "Board of Directors" and participateing Active Members. The President or his designee(s) shall be Net Control.

ARTICLE V - DUES

Section 1. Payment of Dues: Annual dues shall be payable by January 1 of each year.

Section 2. Non-Payment of Dues:
(a) Members who have not paid dues by June 30 shall be placed on the inactive member list and shall not actively participate in the affairs of the Chapter.
(b) Inactive members may be reinstated by paying current year's dues plus a $1.00 penalty.

ARTICLE V - MEMORIALS

Section 1. Each Silent Key, with current membership, of this Chapter will be honored by addition of an engraved nameplate to be placed on the Chapter's Silent Key Plaque. A contribution of $10.00 from the Chapter's Treasury will also be made in his/her honor to the QCWA, Inc. Scholarship Fund.

ARTICLE VI - AFFILIATION WITH OOTHER ORGANIZATIONS

Section 1. QCWA, Inc. has authorized the Central Oklahoma Chapter to become affiliated

with the Central Oklahoma Radio Amateur (CORA) organization. This affiliation provides each Chapter Member full membership in "CORA" activities and publications at a published cost to each member.

ARTICLE VII - AMENDMENTS

Section 1. Procedure for Amending By-Laws:
(a) Any Active Member may propose/submit in writing or by oral presentation, an Amendment, to consideration, with a second, at any regular meeting.
(b) These By-Laws may be amended at any time by a two-thirds (2/3) majority vote of the Active Members at any regular meeting.

WANTED

AT LEAST TWO MORE PEOPLE TO AID IN THE ARRL/QCWA BOOTH DURING THE HAM HOLIDAY IN JULY. PLEASE CONTACT TINY W5NBH AT 677-1309

CHAPTER 63 DID AGREE TO HANDLE THE NATIONAL ELECTION THIS YEAR. WE HAVE SO FAR NO OFFERS FOR TELLERS. WE NEED AT LEAST A DOZEN AND WILL OPERATE ON SATURDAYS AT THE RED CROSS BUILDING IN OKLAHOMA CITY...PLEASE CONTACT HOWARD W5AS 721-5453...OVER 5000 BALLOTS TO COUNT AND CHECK IS TOO MUCH FOR HOWARD TO DO ALONA.

- - - - - - - - - -

QCWA Birthdays for May 1985.

2	Gilla Wood	W5NUT	6	Dale Diehl	W5WUF
6	Ray Bryan	W5IQ	11	Claudine Heithecker	XYL W5EJ
11	Lucille Banks	XYL W5NTL	15	Pauline Lagaly	XYL W5NTL
18	Jeanette Myrick	XYL NG5G	24	Very Ladd	XYL W5FX
25	Helen Irwin	XYL W5NBH	29	D C Gibson	W5JQA

Congratulations to all !!

- - - - - - - - - - - - -

The following is a copy of the Chapter 63 activity report:

QCWA Chapter 63 On-The-Air Operation as follows for March, 1985

Sessions	5	Check-Ins	
201 Traffic	25		

Filed by Howard Baker W5AS

- - - - - -

That wraps it up for this month...Glad to be back among you-all again...it was a long winter for the Runyons... 73
Rob AA0O

A very sincere welcome back to Robby Runyon,AA0O;our No.1 News Editor and to Gloria who gives, at the very least, moral support. At the same time, Please recognize Melvin Bolger,W5AXM, who performed so ably the past five (5) or so months in like capacity. From all of us our vy sincere thanks for a Job well-done.

Received from Joe Harding,WA-5ZNF, C&E Managing Editor, "the new column width for PICA type will now be 32 spaces"--This equates to 3.2 inches on my typewriter and on computer printer. Am certain Joe will repeat the entire instruction is this upcoming May issue. Anyhow will try my level best to comply with this request because I know that Joe does not intend to re-do the articles that do not meet the standard. Wonder? if reader can stomach a super PUN: As follows, "I do not intend to be a PICA.

Attendance at the recent meeting was rather light (34 count) as compared to Oct. & Jan. Meetings. It was both interesting & different from the Norm. But, Perhaps, the light attendence does suggest that we need more input from the membership as to what would entice/interest most that attend. Please!!contact our DIRECTORS and give them OUR ideas. The next meeting will be at HAM HOLIDAY '85 (QCWA Breakfast) and the Fall Meeting in October. Some of the highlights at recent Apr. 14 meeting as follows:
(1) Many thanks to Don Rooker N0SM, for the American Flag (AMVETS) Presented to ChaPt.63 many months ago. Tho not displayed in grand style, we did "Pledge Allegiance" in a Proper manner. The Flagstaff that Sam Stephens,W5HZD,brought was longer than the ceiling height, but it shall be shortened & based for future use
(2) As Promised, Howard,W5AS, brought a recorder and extension microPhone to record, what will eventually be transcribed Meeting Minutes. His idea to Put Mic in a water glass to imProve it's Pick-uP sPhere is Probably an idea worth knowing--Howard will tell us subsequently. We also had two other recorders-to be described later.
(3) Our new (ProPosed) Constitution and By-Laws was a "handout in Macro Print size (to reduce Printing costs). After much discussion, it was voted (yea)to include in May C&E via Robby,AA0O and via his "Word Processor". Comes now a vital request to all members!!!. For a number of reasons we hoPe to ratify a new Constitution with By-Laws during HAM HOLIDAY'85. Please!!take a few moments to read/study and send your ideas & comments to Howard Baker, W5AS, 5928 N. Redmond, Oklahoma City, Ok.73122. Please!!By 15 May, 1985 so that reprinted version can aPPear in the June C&E. At the April 14 meeting there were two main items that could not be readily resolved in the short time available, as follows:

(a) Constitution, ArticleIV Section 4. The last sentence "It shall be the General Policy to limit the term of Board of Directors members to two (2) consecutive years; an exception being the Secretary/Treasurer." might read.....members to one (1) term.....The new ChaPter Manual says it thus: "It shall be the General Policy to limit the term of all Board Members to two (2) consecutive years. "An exception being the Secretary/Treasurer" was added for obvious reasons. This General Policy does not restrict any member from running at any subsequent elections, but it does add a new dimension for more members to be elected to office!!. Please vote your Preference or other wording to your liking.

(b) By-Laws, Article V: In last sentence, a concensus to omit the amount "$10.00". Also, Per Howard's statement at the meeting, the contribution has always been to Oklahoma Medical Research Foundation. Please vote your Preference for the above or for ScholarshiP Fund or for other designation!!.

(c) Each member will undoubtedly have other suggestions. The total cost is an envelope & a 22 Center or a "D" Model. Can be handscribed or Telecon will do. Also other inPuts for the June C&E will be aPPreciated!!

(4) The Program, announced earlier, seemed to whet a lot of interest. Each member brought forth their most unusual or most interesting Amateur Radio haPPening. ParticiPatiom 100% & all recorded with a hand held recorder & microPhone. Am sure that many will enjoy a rePlay at a future meeting. Ray Long, W5TY filled a complete table with a Part of his early collection of Crystal set goodies. Trust that everyone got a good look-see. Thanks Ray. Also many Kodak Disc Pictures taken; which same will be on display at HAM HOLIDAY!!.

BITS N' BYTES: More to come,unless you are already tired of eading:

(1) Special thanks to Eunice Holt. The Hustler Antenna that you bestowed to ChaPt. 63-many months ago recently sold to KA-5TSD, Mike, Del City. Even tho the base could not be found, Mike was able to imProvise and hoPefully he now has it in oP-

eration. Mike plans to upgrade via VEC program very soon. The treasury has been appropriately increased, Eunice-Tnx. Also tnx for Birthday Card remembrance of the 17th.

(2) Special recognition to Joe, K5JB: Your serving of an April Fool-er (April C&E) read and savored. Believe you must have had a lot of fun trying to disguise ye olde flashlight. At the same time wish to acknowledge a much earlier serving by Mike Salem,N5MS (April'79, Pg. 34). Kind of remembered it and started looking at back april issues. For those who cannot locate this issue, Mike provides a formula & conversion chart on semi-log graph for conversion of "Hertz" to CPS. Mike, now that you are well into PCs a program might be written for posterity. Just in case you missed my own serving; also in April'85 issue, I have to acknowledge it is not of the quality of the two (2) above. Kind of wish that QST would revive; it was something to look forward to each year. Perhaps QCWA might accept the challenge??

(3) At a recent "Nite-Owl meeting, Howard, W5AS was elected by acclamation as "Net Manager. Jerry, KD5IS was similarily elected "Asst. Net Manager. According to Jerry the election was of the Democratic, Mexican or Railroad type, wherein the nominations ceased at the end of one (1). The meeting took place at Howard's QTH.

(4) Today the Chapt 63 On-The-Air-Meeting shared the 3855 frequency with a group of Amateurs supporting a Muscular Distrophy (MD) Bike-a-Thon, going in two directions, Austin to Houston & vice versa (about 150 miles). They RON'd at La Grange, Tx & were in re-start mode. Recognize W5CAC, WN5PEN, KA5ABB, W5VPV plus others. Believe there were 290 BiCyclers involved. Great to learn of good happenings like this going on around the country.

(5) Other Happenings: Carl, W5JJ-We are glad you are on the mend but sorry you still have a way to go. Ellard, W5KE attended Woodward Hamfest. Please a highlight report. Doc, KX5W will be back from the Dayton Hamvention by the time this is read. Trust it was a great one and you brought back some goodies, prizes, etc. Ralph, W5AA to attend his 50th High School Reunion on April 27th, Carnegie, Ok. Congratulations Ralph & looking forward to seeing your certificate to be awarded. Mine was last year (Nevada,Iowa) and it was great-lasted 3 days,but no certificate-Pictures only!!!.

73 Fred, W5NL

NASA ANNOUNCES NEXT HAM IN SPACE

Dr. Tony England, W0ORE, will be the next US amateur to operate a ham station from space. This information was finally made official by NASA during the first week of April, just after Westlink Report issue #442 had been mailed. However, the announcement by NASA closely paralleled the information which appeared in that issue. Due to the non-feasibility of installing an antenna system in the cargo bay of the orbiter, Dr. England will be forced to use a window-mounted antenna inside of the orbiter. Since physical dimensions would preclude an effective 10 meter design, that band has been dropped from the planned amateur radio operation. All amateur activity will be confined to 2 meters. W0ORE will operate both FM voice and SSTV, with a portion of the video operation automated. That is, at times when the station is operating in an unattended mode, it will be downlinking a specific SSTV frame. This might be a crew picture, a view out the window, the flight's official "patch" or something else Dr. England selects. Most, if not all, voice QSOs will be pre-arranged schedules with schools or radio clubs, though some open operating time may be granted. From the outset, Dr. England has noted his preference to use his operating time to emphasize the educational rather than the competitive aspects of amateur radio. It was for this reason that the joint ARRL/AMSAT flight proposal placed its emphasis in that direction. Clubs and school groups wishing to qualify for an attempt to contact Tony England are advised to write the ARRL at 225 Main Street, Newington, CT 06111. The ARRL has agreed to take on the responsibility of selecting the candidates. Equipment to be carried on-board the orbiter will consist of the same type of flight-proven Motorola two meter FM hand-held as was used by

W5LFL during his STS-9 mission and a special video SSTV package consisting of a camera, video switcher, frame storer and SSTV transmitter. Several manufacturers, including Robot and Panasonic, have already donated the necessary hardware. While an exact operating schedule is impossible to publish this early in the planning, at least 3 1/2 days into the Spacelab 2 mission will pass before the window is available for mounting the antenna. For the first portion of the mission, the window will have to be kept clear for visual sighting of a deployed satellite. It is also unknown at this time whether the second astronaut-ham on the flight, Dr. John David Bartoe, W4NYZ, will have time to operate. While current plans are for W0ORE to have between 10 and 20 opportunities to make direct voice contact with amateurs on the ground, there is plenty of reason to believe that Dr. Bartoe will also use the station as his free time permits. Spacelab-2 / Flight 51F is tentatively scheduled for launch in mid July, although this date is far from firm. The responsibility for selecting operating frequencies has been given to AMSAT and is being coordinated by Bill Tynan, W3XO, who is AMSAT's new Vice President for Manned Spaceflight Operations. As was the case during the STS-9 flight, the ARRL will act as liaison between NASA and the news media and will coordinate the release of all information through Paul Courson, WA3VJB, who is the organization's new Public Information Officer. A short videotape documentary, hosted by Roy Neal, K6DUE, is planned for this second manned amateur radio operation from space. Tnx NASA, ARRL, AMSAT and K6DUE.

DE WA6ITP

OVER THE WEEKEND of February 16 and 17, special events station PA6FLD, operating from the new Radio Netherlands transmitter site in Flevoland, Holland, managed 1505 contacts. Most were with DX stations, and the group made them using the huge, high gain Curtin broadcasting antennas at the Flevoland site. All hams and SWLs who send in reports of verifiable contacts will receive a commemorative QSL in return. QSL to Flevo, c/o Radio Netherlands, PO Box 222, 1200 J.G., Hilversum, the Netherlands.

KC6JV in the EASTERN CAROLINES can be heard every Sunday at 0900 UTC in QSO with KE4SK on 3806 kHz. He is hoping to be operational on 160 meters in the near future as well.

HAMS AND SWLS listening on 8891 kHz will often be eavesdropping on international passenger flights. Some of those recently heard and identified include Air France 003, which is a Boeing 747 flying from Los Angeles to Paris; Air France 004, which is another 747 en route from Paris to Los Angeles. A real prize is catching Air France flight 001. That's a supersonic Concorde on a route between New York and Paris, as is flight 002 which makes the trip in the other direction. Also, the BOAC Concorde designated Speedbird 193 from New York to London can be heard on 8891 kHz as can Speedbird 194, which is the return flight.

WA2VUY REPORTS that several Spanish - speaking stations, claiming to be located in the Antarctic, are being heard. They give their QTH as Antarctica, although they may be located in another DXCC country such as the South Orkneys. It is known that Uruguay has set up a base on the South Shetland Islands for scientific research, and this could account for the stations noted above. Tnx two stories above QRZ DX and Arctic DX.

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SUN	MON	TUE	WED	THUR	FRI	SAT
MAY The managing editor assumes no responsability for the data contained herein.			1	Aeronautical Center ARC 2	3	4
BOULDER HAMFEST MOVED TO N I W O T HIGH SCHOOL 5	CIMARRON 6	M O R I Great Plains 7	8	ALTUS AREA 9	10	SCARS ARDMORE C O C O 11
O C W A 12	EDMOND Club 13	76'ers O U 14	15	KAY County 16	E A R S 17	VHF Club 18
Wheatstraw RED ROCK 19	20	AUTOPATCH 21	22	23	24	GREEN COUNTRY HAMFEST 25
VEC EXAMS TOMORROW 26	EDIT CENTRAL OKLAHOMA RADIO AMATEURS COLLECTOR – EMITTER 27	CORA MEETING 28	29	30	31	

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