

# Four States Amateur Radio Club Newsletter

Number 9

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## Officers

### President

Pat Bell, KG5SC

### Vice President

Wes Bolin, WV5I

### Secretary

Travis Bailey, K5AVH

### Treasurer

Bill Miller, WD5HJF

## Directors

Wes Bolin, WV5I

Jack Goodson, KA5IQB

Dan Griffin, W5LTQ

Don Lynch, N5DZ

## Committees

### Activities

Don Lynch, N5DZ 838-4155

### Field Day / Flea Market

Dick Curtis, W5NEU 838-6028

Malcolm Bussey, KF5JX 773-9130

### Instructional Classes

"Cap" Caplinger, WA5APY 832-1410

### Newsletter

Travis Bailey, K5AVH 792-2080

### Digital

Hal Clark, KF5YO 772-8742

### Skywarn

Al Parsons, KA5LPJ 832-2421

### VE Testing

Wes Bolin, WV5I 838-0568

Club meetings are held each Sat. Morning at 9am in the rear of the cafeteria on the 2nd floor of Wadley Hospital. Visitors are welcome. Business meetings are held on the 2nd Saturday of each month at the same time and location.

Articles for the newsletter must be submitted to the editor no later than the first Saturday of each month.

## Notes from the President

Pat, KG5SC

Want to upgrade? You can get lots of help. That help comes in the form of one on one help from members of the club, the formation of a class and the loaning of study material.

One On One Help.--I have never met a group more willing to help someone than the members of the Four States Amateur Radio Club. If you ever need help in studying for an upgrade exam and get hung up on a question just give a fellow member a call and I have no doubt that he will help you. If he doesn't know the answer I'll bet he will help you find the answer.

Formation of a Class.--Cappy is the chairman of the club's instructional committee and would be glad to help members of the club form up a study group if enough people show an interest. So if you are studying for an upgrade and know several others studying for the same test it might be beneficial to form a study group.

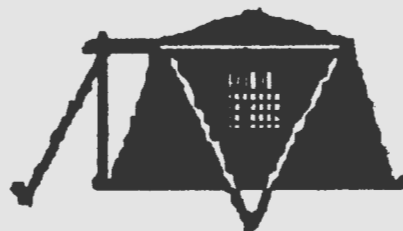
Loaning of Study Material.--Several members have study material that they would be willing to loan. The following members have agreed to loan their materials:

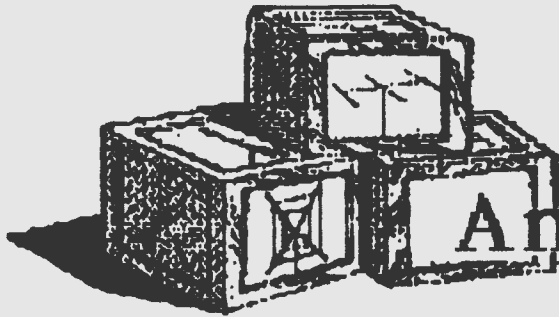
Bob Ward (Code tapes and license manuals), Dave Woisard (Tech and General license manuals), Bill Miller (code tapes), Oris Smith (code tapes and General class license manual), Pat Bell (Advanced license manual, Advanced tapes, and code disks for IBM compatibles).

With all this help, why not give it a try?

## Fall Campout October 6,7,8 DeGray State Park

Contact Pat or Travis for Information or Reservations





# Antenna Basics

Of the various equipment necessary for an amateur station, perhaps the antenna is the most mysterious. Like most other mysteries, this one has come about through a lack of knowledge and understanding of the operating principles of the antenna. We understand best those things that we can evaluate by measurements. Unfortunately, detailed antenna measurements cannot be made using only the v.s.w.r. indicators that make up the antenna instrumentation available to most of us. By necessity then, the antenna is usually cut to length by formula and pruned a bit to reduce the v.s.w.r. The user is then left to wonder about the results and he is often subjected to a host of problems, many of which are self-created by simple "not knowing."

This article collects some of the basic information about the horizontal dipole antenna and applies it to the non-ideal situations that exist for most of us. Hopefully, it will explain relevant and interesting statements like:

(1) Pruning an antenna is necessary, not because the formula for the length is inexact, but because of the effects on the antenna of its surroundings.

(2) Pruning a transmission line may improve the way a transmitter loads, not because the v.s.w.r. is reduced, but because the line impedance is transformed to a more compatible value.

(3) No matter how much an antenna length is pruned, the transmission line v.s.w.r. may never equal 1:1, not because the antenna does not reach the correct length, but because the radiation resistance of the antenna never equals the characteristic impedance of the transmission line.

An understanding of the few basics outlined in this article may save the heartbreaks that usually accompany the back-breaking task of trying to achieve the impossible.

## The Antenna Proper

Those who have the real estate to place an antenna in the ideal location and at the ideal height represent a very select minority. Most of us must string our antenna between existing supports that predetermine the antenna height, direction and length. From the telephone pole in the backyard to the house gable, or from the chimney to the far eaves are much more likely supports for the majority of us. The object then is to learn how we can make the best of these supports and effectively use what we have available to us. If the antenna is intended for use on a particular band, try to make it as near the resonant length as possible. If it is not possible to make the antenna long enough to be resonant at the desired frequency, a few extra feet can be picked up at the center with an open wire line, as shown in *Fig. 1*. The total electrical length is the sum of L1 through L4, however, the lengths L2 and L3 do not radiate because the antenna currents are flowing in opposite directions through L2 and L3. These two lengths are so close together that the radiation of one cancels the other. Only L1 and L4 constitute the radiator, but all four lengths affect the antenna tuning. If it is not possible to achieve enough length even with the open wire lines, then empirically add a little inductance in series with the antenna until resonance is reached. If a coaxial feed line is planned, then it is recommended that a balun be used to transform the unbalanced coaxial line to the balanced dipole or open wire feed line section. The balun is good for several reasons. It makes it easier to add the inductance mentioned earlier since the inductance can be added in only the hot leg on the unbalanced side. (Otherwise, the inductance should be inserted such that half of the total is placed in each side of

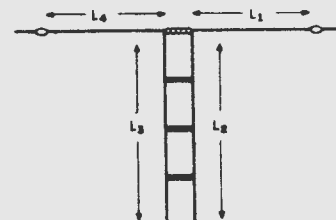


Fig. 1—Dipole antenna with open wire feed section.

the open wire feeder and this is somewhat difficult to adjust empirically.) The balun also reduces the pickup and radiation from the transmission line with the result that the receiver picks up less noise and there is less r.f. floating around the shack.

An antenna may be considered to be a series LCR resonant circuit where R is the radiation resistance. Above the resonant frequency the antenna looks like an inductive reactance in series with R and below the resonant frequency, the antenna looks like a capacitive reactance in series with R. At resonance, of course, the antenna looks resistive and this is usually the condition of lowest v.s.w.r. and the greatest power transfer. The usual method of evaluating an antenna is to measure the v.s.w.r. at several frequencies in the band where resonance is sought. If the minimum v.s.w.r. occurs at a frequency lower than desired, the antenna length should be shortened and the v.s.w.r. vs. frequency data taken again. If the minimum v.s.w.r. occurs at a frequency higher than desired, the antenna should be lengthened before retaking the data.

This more or less "cut and try" method is continued until the minimum v.s.w.r. is obtained at the desired frequency.

To be continued-- Next month, we will look at the effects of antenna height and transmission lines.

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## The Interviewer

Since we last talked, I remembered something that I had almost forgotten--- an amateur radio convention that was held right here in Texarkana. Let me lean back and dig down in the grey matter between my ears and see what I can bring to mind.

After WWII, there were a few years when we were so busy rebuilding our stations and equipment that we had no time for anything else. Then in 1948, I believe it was, one of our members said "Lets have a convention in Texarkana."

Our new club president had just taken office and he thought that this would be a good project for the year. The first thing that he did was appoint two of the members to go with him to the Chamber of Commerce Hotel Committee meeting.

We found out at this meeting that we could get Hotel space during the second or third week in August. The hotel committee was advised to expect about 400 people. The committee didn't believe that there could possibly be that many people attending but the August dates were reserved.

As 160, 75, 40, and 20 were the most used bands at that time we started in January telling everyone we talked to about the Four States Area Hamfest to be held in August. The club had laid itself on the line for a convention. There was much work to be done. Joe T. Hargis, W5QF, of Okay, Ar. took on the job of Chairman of the Committees. There was so much to do--Entertainment, Ladies Program, Printing of Programs, Flea Market setup, Saturday night dance, Banquet-- there was hardly any end to the preparations.

The Grim Hotel was selected for the big meetings. The Savoy and McCartney were also used and the hotel operators were surprised and pleased when the reservations began to come in as early as February and March. All dealers in the area wanted space to show their new equipment and two or three directors of the ARRL wanted to be on the program. All kinds of new antenna designs were shown and there were breadboard transmitters and receivers and even rack and panel transmitters on display in the Grim complete with antennas on the roof.

One of the most talked about programs was the one put on by Klipsch Speakers. Klipsch, of Hope was just getting into building his speakers for perfect audio reproduction. These speakers were being used in large churches, auditoriums etc. It took two panel trucks to bring in his equipment and his "Legend in Sound" program could be heard throughout the Grim Hotel. It was one of the highlights of the meeting.

The banquet and Saturday night dance went off very smoothly with a local seven piece orchestra playing dance music of the era. There was a paid attendance of 450 for the convention and needless to say the Hotel people could not believe what a success that it had been.

I'm sorry to say I have misplaced my program book from that convention and even worse, I failed to write the names of the persons on the back of the pictures which I still have. Well, thats the way I remember the last Amateur Radio Convention held in Texarkana.

## Business Meeting

The September FSARC business meeting was held on Saturday September 16. There were 22 members and 4 visitors present.

Bill reported that the checking account balance as of the end of August was \$636.60 and that we now have 70 paid members which is a record for the club.

Hal reported that we could get a table at Central Mall again this year to promote Amateur Radio to the public on October 28. It was voted for him to go ahead and make arrangements for this.

Cap said he was planning to start the Novice class in early October and ask anyone interested to contact him for more information. Dick showed the Direction Finding Antenna which he recently constructed and said he had more information for anyone interested in building one.

A nominating committee for 1990 officers was appointed by Pat. This committee consists of Bill, WD5HJF, Dick, W5NEU, Carl, KG5RX, Hal, KF5YO and AL, KA5LPJ. They are to bring their recommendations to the club at the October meeting at which time the officers for 1990 will be elected.

There being no further business, the meeting was adjourned.

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## More From the Past

Dick, W5NEU

W5SQ, Benny "Skipper" Craig related some of the early Texarkana Ham activity to me during a recent 40 QSO.

Skipper was one of the early group of amateurs in the Texarkana area. He was also a radio operator in the merchant marine and sailed all over the world. He spent time as a land lubber in Texarkana and operated a service station at 8th and State Line in the 40's. It was a Magnolia station with the famous Flying Red Horse sign in front.

During his spare time between customers, he set up a ham station complete with a signal squirter beam antenna and tower from the Mimms Radio Company which was then located on New Boston Road, near the KCS tracks. Later

Mimms moved his radio business to a building about 24th and State Line.

Skipper said that he shorted the elements so that only the 20 meter portion of the signal squirter beam was active. He also had up a 40 meter dipole. He said any ham driving by would immediately know that he was a ham by looking at the antennas.

Skipper recalled trading or buying a SW-3 receiver from Mr. Mimms which had one set of coils for 40 meters. He said he had many hours of enjoyable operating time with that receiver. Later he got a RME70 from Mimms which he still has today.

He said that one day an FCC Engineer stopped at his station for gas. Of course he noticed the antennas and after they talked a while, Skipper found out that this was the same engineer that had come to Texarkana a few years before to give him and Mr. Mimms and several others their tests for their amateur license. After visiting a while, the engineer asked if he could use Skipper's rig to keep a 40 meter CW schedule with a fellow FCC engineer in the Dallas office, which he did.

Skipper did some radio repair during those years and later a little TV repair. He enjoyed working CW using an old Vibroplex bug. Maybe later Skipper will tell me more of his early experiences as an amateur in Texarkana.

Bob, W5KVO, keeps a regular schedule with Skipper around 7168 about 8:20 each Sunday morning. Listen for them there.

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## Transmitter Hunt

The FSARC held its first Transmitter Hunt on Sunday September 17th. The 8 participants met on the K Mart parking lot at 2pm and Pat, KG5SC got the honor of being the Fox. After he left for his hiding place the participants all scattered out to await the signal that the hunt was on. One hour was allocated for the hunt. At 2:05 Pat announced on .62 that he had arrived and would begin transmitting a signal on 146.94. The hunt was on. All kinds of antennas were used including beams, DF antennas, handi-talkies with rubber ducks and even a 2 turn loop on a handi-talkie. The first team to find the Fox was Don, N5DZ and Carl, KG5RX. They did it in record time of 37 minutes using a 3 element beam mounted horizontally. Next to arrive was Dave, N5MTO about 3 minutes later using a 2 turn loop on his handi-talkie. Dick, W5NEU

showed up about 10 minutes later using a combination of his DF antenna and a handi-talkie with the rubber duck.

Two teams who will remain un-named were unable to find the Fox after searching for 1 hour and fifteen minutes. After these teams reluctantly admitted defeat, everyone met at McDonalds for refreshments where there was lots of talk of how the various antennas worked (or didn't work) and how to do better next time. Everyone had a great time (even those who didn't find the Fox).

This hunt proved that even the simplest of equipment can be effective if used properly. If you didn't make it this time, make plans to join the next hunt.

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## Texas Amateur License Plates

Questions are often asked about how mobile radio operator license plates can be obtained from the State of Texas.

Go to any State motor vehicle office and ask for form number 53. They will give you the form to fill out. Following the instructions on the form, fill it out then have it notarized by a Notary Public and return to the address shown on the bottom of the form.

You will need to include a check or money order for \$2.00 along with the application.

Your license plates will be mailed to the Tax Assessor Collector of the county in which you reside.

## Congratulations

The following persons earned license or upgraded at the Sept. 16th VE Testing Session.

Richard "Cap" Caplinger, WB5APY to Advanced  
John Homes Jr., KB5GGI to Technician  
Gary Myers KA5UHN to Technician  
Freeman Nickelson to Technician  
Edwin Robinson WD3IID to Advanced  
Donald Shirley made Novice.

## Wanted

The club is still looking for a good 2 meter FM transceiver for use at the Bi State Criminal Justice Building for our Skywarn program. We need a good synthesized rig in the 25 watt range with no modifications and in good condition. If you know of such a rig which the club could purchase for \$200 .00 or less, please contact Wimpy, KB5GYR-Ves, WV5I or Travis, K5AVH.

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## Skywarn Personnel

September	Dick, W5NEU---Bill, WD5HJF
October	Travis, K5AVH---Mike, N5LQV

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## "Someone Else"

The club is saddened to learn of the death this week of one of the club's most valuable members, SOMEONE ELSE. "Someone's passing creates a vacancy that will be difficult to fill. Else has been with the club since it's beginning. Someone did far more than a normal person's share of the work." Whenever there was a job to do, a class to teach, a committee to be chaired, or a meeting to attend, one name was on everybody's list--"let Someone Else do it." It was common knowledge that Someone Else was among the largest contributors of his time to the Club; whenever there was a need for volunteers, everyone just assumed Someone Else would volunteer.

Someone Else was a wonderful person, sometimes appearing super human, but a person can only do so much. Were the truth known, everybody expected too much of Someone Else. Now he is gone! We wonder what we are going to do. Someone Else left a wonderful example to follow but who is going to do the things Someone Else did? When you are asked to help, remember--we can't depend on Someone Else. The saying of Omar IBN: "Four things come not back: The spoken word; the sped arrow; time past; the neglected opportunity." Think about this the next time volunteers are needed!!!!

## Four States Amateur Radio Club

### Calendar

**FSARC 2m Net (146.62)**

**Lunch**

**Digital Meeting**

**V.E. Testing**

**FSARC Club Campout**

**Catfish Supper**

**Central Mail Exhibit**

**Troubleshooting Workshop**

**Pot Luck Dinner**

Each Tuesday 9pm (Swap Net Follows)

Each Wednesday 12 noon Mr. Gatti's Pizza State Line Ave.

3rd Thursday of each Month 7pm Wadley Hospital Cafeteria

Saturday December 16 9am Wadley Hospital Cafeteria

Lake DeGray State Park October 6,7

( Contact Pat, KG5SC or Travis , K5AVH for more info.)

October 27 Vaughns near Linden-Douglasville

October 28 (contact Hal, KF5YO for more information)

November 18 and 25 9am Wadley Hospital Cafeteria

November 19

Four States Amateur Radio Club  
18 Highland Hills  
Texarkana, Ar. 75502



**First Class Mail**