

**The Central Texas Amateur Radio Club  
meets the first Tuesday of each month at 7:00 PM at the  
Bell County Communications Center, 798 West Avenue O, in Belton**

## President's Corner

*Kenneth Watkins, KE5ISN*

I had the opportunity to attend Ham-Com in Plano on June 12th. There were the usual vender and manufacturer booths. One of the features of Ham-Com is the educational programs that are provided. These programs ranged from presentations on APRS to interpreting weather radar to amateur radio equipment typing and teaching amateur radio classes by Gordon West to mention a few. This is a unique Ham Fest that you may want to attend next year.

ARRL Field Day is over. The Temple Amateur Radio Club and CTARC held a joint Field Day this year. Approximately 25 members from both clubs had an enjoyable time working this contest. There were several band openings that allowed several contacts being made into Canada and Hawaii.

July 4<sup>th</sup> is on a Sunday this year and the Belton Parade will be held on Saturday the 3<sup>rd</sup> of July. TARC and CTARC will be helping with this event and will meet in the parking lot near the main entrance to the UMHB campus at 7:30 AM. Our members will be assisting with the staging of the parade entries, so bring your HT and your walking shoes and give us a hand. I will be sending an e-mail out with more details before the 2<sup>nd</sup> of July.

**The next club meeting is on July 6<sup>th</sup>.** Mark McGraw – who recently passed both the Technician and General Class exam elements at the last VE session – and who is the Bell County Coordinator for the Community Collaborative Rain, Hail & Snow Network (CoCoRaHS), will be giving a presentation on this nation-wide program of citizens weather reporting. Many amateur radio operators and other individuals participate in this program that provides valuable information to the National Weather Service. Please try to attend and bring a neighbor and learn about this volunteer weather reporting program.

Have a safe and happy 4<sup>th</sup> of July.

73 de KE5ISN






The Central Texas Amateur Radio Net meets every Thursday at 8:00 PM on the W5BEC repeater, on 147.140(+) PL 123.0 Join Us!

July NCS & Back-Up NCS Schedule

July 1 <sup>st</sup> Net Control: K5KFH Back-Up: KE5DPS	July 8 <sup>th</sup> KE5DPS W5VEX
July 15 <sup>th</sup> Net Control: W5VEX Back-Up: AD5SK	July 22 <sup>nd</sup> AD5SK KE5ISN
July 29 <sup>th</sup> Net Control: KE5ISN Back-Up: K6WXA	

**CQ** CQ World-Wide VHF Contest

Contest period is 27 hours, beginning at 1800Z, Saturday July 17<sup>th</sup>, through 2100Z, Sunday July 18<sup>th</sup> on 6 Meters (50 MHz) and 2 Meters (144 MHz).

For a complete list of rules, contest specifics and log submissions, visit: <http://www.cqww-vhf.com/rules.htm>

Educational Opportunities



This past month, FEMA added several new courses to its' Independent Study Program, including: IS-35.10 *FEMA Safety Orientation*; IS-107.10 *FEMA Travel Rules and Regulations*; IS-200.HCa *Applying ICS to Healthcare Organizations*; IS-366 *Planning for the Needs of Children in Disasters*; IS-650.a *Building Partnerships with Tribal Governments* and IS-702.a *NIMS Public Information Systems*.

For a complete list of all the courses available through FEMA, please visit: <http://training.fema.gov/IS/crslst.asp>

Also this past month, the UCAR COMET/MetEd released a new single module course entitled "*Quantitative Precipitation Forecasts Verification*" which can be accessed through: <http://www.meted.ucar.edu/hydro/verification/QPFverif1/index.htm>



Storm clouds over Stillhouse Hollow Lake. Photo courtesy Robert Shoemaker - KE5WVC

Texas is worse than any other state because she has never been whipped.  
- David Stanley





## It's Not Just the Heat

National Weather Service  
Office of Climate, Water, and Weather Services

"If I owned Hell and Texas, I would rent Texas and live at the other place."  
Union General Philip H. Sheridan, April 1866

Heat is the number one weather-related killer in the United States. NOAA National Weather Service statistical data shows that heat causes more fatalities per year than floods, lightning, tornadoes, and hurricanes combined. Based on the 10-year average from 1994 to 2003, excessive heat claimed 237 lives each year. By contrast, floods killed 84; tornadoes, 58; lightning, 63; and hurricanes, 18.

North American summers are hot; most summers see heat waves in one section or another of the United States. East of the Rockies, they tend to combine both high temperature and high humidity although some of the worst have been catastrophically dry. Excessive heat can pose conditions which lead to serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life and/or property.

**Heat Index Values.** The "Heat Index", sometimes referred to as the "apparent temperature" or "wet-bulb temperature" and given in degrees Fahrenheit, is a measure of how hot it really feels when relative humidity is added to the actual air temperature. To find the heat index, look at the Heat Index Chart, below. As an example, if the air temperature is 96°F (found on the top of the table) and the relative humidity is 65% (found on the left of the table), the heat index - or how hot it really feels - is 121°F. This is at the intersection of the 96° column and the 65% row. Heat index values were devised for shady, light wind conditions. Exposure to full sunshine can increase heat index values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

**Heat Index**  
Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	118	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	126	130					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

■ Caution     
 ■ Extreme Caution     
 ■ Danger     
 ■ Extreme Danger

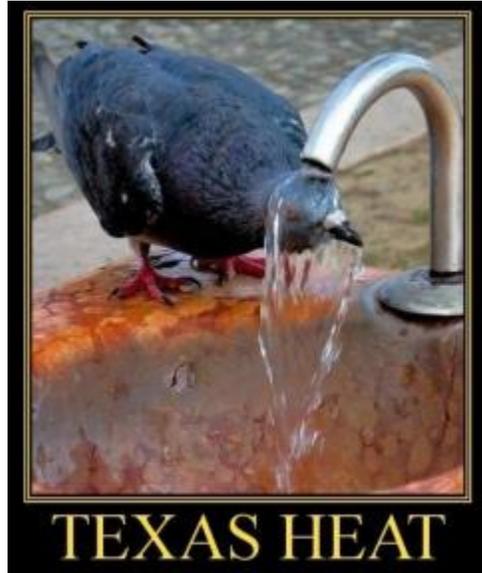
**Hazards of Excessive Heat.** Heat disorders generally have to do with a reduction or collapse of the body's ability to shed heat by circulatory changes and sweating, or a chemical (salt) imbalance caused by too much sweating. When heat gain exceeds the level the body can remove, or when the body cannot compensate for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise and heat-related illnesses may develop.

**SUNBURN:** Redness and pain. In severe cases swelling of skin, blisters, fever, headaches. First Aid: Ointments for mild cases if blisters appear and do not break. If breaking occurs, apply dry sterile dressing.

**HEAT CRAMPS:** Painful spasms usually in muscles of legs and abdomen possible. Heavy sweating. First Aid: Firm pressure on cramping muscles, or gentle massage to relieve spasm. Give sips of water. If nausea occurs, discontinue use.

**HEAT EXHAUSTION:** Heavy sweating, weakness, skin cold, pale and clammy. Pulse thready. Normal temperature possible. Fainting and vomiting. First Aid: Get the victim out of

the sun. Lie down and loosen clothing. Apply cool, wet cloths. Fan or move victim to air conditioned room. Sips of water. If nausea occurs, discontinue use. If vomiting continues, seek immediate medical attention.



**HEAT STROKE (or sunstroke):** High body temperature, 106° F or higher. Hot dry skin. Rapid and strong pulse. Possible unconsciousness. First Aid: **HEAT STROKE IS A SEVERE MEDICAL EMERGENCY. SUMMON EMERGENCY MEDICAL ASSISTANCE OR GET THE VICTIM TO A HOSPITAL IMMEDIATELY. DELAY CAN BE FATAL.** Move the victim to a cooler environment Reduce body temperature with cold bath or sponging. Use extreme caution. Remove clothing, use fans and air conditioners. If temperature rises again, repeat process. Do not give fluids.

**Preparing for and Responding to Excessive Heat Events:** The "*Excessive Heat Events Guidebook*" ( [http://www.epa.gov/heatisland/about/pdf/EHEguide\\_final.pdf](http://www.epa.gov/heatisland/about/pdf/EHEguide_final.pdf) ) was developed by the Environmental Protection Agency in 2006, in collaboration with NOAA's National Weather Service, the Centers for Disease Control and Prevention, and the U.S. Department of Homeland Security. This guidebook provides best practices that have been employed to save lives during heat waves in different urban areas, and provides a menu of options that communities can use in developing their own mitigation plans.

## Damage Assessment by Amateur Radio Operators

*Alfred M. Fronefield, KC5VCF / YI9*

During local disasters, many agencies will be depending on the information that is collected and passed by Amateur Radio Operators. Timely information is critical to agencies determining where disaster relief efforts are required. Timely and accurate damage assessment reports will be of great assistance soon after the onset of a disaster. Knowing proper information needed by agencies has the potential to ensure that limited resources are used more effectively.

Amateur radio operators have the potential to find themselves in different scenarios where they may be reporting damage. An amateur may be asked by a trained professional or individual without communications to relay a report. With the growing popularity of Community Emer-



gency Response Teams (CERT) there is an ever increasing possibility a neighbor may ask you to relay this vital information. When faced with any individual providing the amateur radio operator information, one of the radio operator's important tasks will be to organize the information and relay what is pertinent. In these cases it is important to encourage the person to report the damage and number of individuals by level of injury. An amateur's people skills may be needed to encourage the individual to agree to the report in the proper manner.



In most cases it will be the traveling amateur radio operator to briefly stop, evaluate an affected area and report on their findings. When faced with both situations, one basic principle continues to be important, that is not the time to figure out what you should be looking for or what information would best serve the agencies.

Basic damage assessment can be extracted from the guidelines of Federal Emergency Management and the American Red Cross. Neither of these agencies is expecting amateurs to provide detailed assessments of everything you are exposed to. What will be helpful will be general reports, where damage has occurred.

Damage assessment is based on what it would take to get the structure habitable again. The inset at right, presents what are guidelines in determining levels of damage. It is suggested you keep these guidelines with any other references you may keep in your vehicle. Remember, disasters happen when you are at other places besides the home!

### **1. A structure should be considered destroyed if the structure:**

- (a) Is permanently uninhabitable and cannot be repaired.
- (b) Has major sections of exterior walls missing or collapsed.
- (c) Shifted off its foundation.

### **2. Structures with major damage may:**

- (a) Not be considered habitable until damage is repaired.
- (b) Have portions of the roof missing.
- (c) Have forceful penetration of the structure by a large object such as a tree or car.
- (d) Have 24 inches of water above the floor of the ground floor or 6 inches in a mobile home.
- (e) Twisted, bowed or cracked walls.

### **3. A structure with minor damage:**

Is habitable, having only cosmetic damage.

Since damage assessment is not the sole purpose of most nets, it is important to keep a few things in mind. Unless traffic is time sensitive to critical care injuries, it should be handled as routine. Stations taking note to damage reports may be listening and choose not to disturb the flow of the net, unless clarification of the traffic is needed. A Skywarn net is a good example of a net to interject damage assessment. This net is started early in any weather-related disaster, and already has provisions for reporting damage in the community.

A damage assessment report should be quick and simple. It will include the location, specifying if you are reporting for a block, apartment complex, trailer park or subdivision. Indicate the number of living units categorized by amount of destruction, with major or minor damage. The following is an example of an appropriate report: *“The 300 block of ‘This Street’ has 3 houses destroyed, 2 apartment units at the Unlucky Apartments have major damage.”* The above example will allow agencies to know that at least 5 families may be displaced or need



disaster relief. In addition, the relief agencies will get brief demographics of the area, and the knowledge that the affected area is a mixed community of houses and at least one apartment.

When reported with additional Skywarn information, the report will indicate if weather conditions may cause more damage. If reporting this info on another net, then the radio operator may wish to mention if there are conditions that may cause more damage or inaccessibility to the area.



Attempt to make sure that the report is simple but clear. This information may become important in making key decisions in getting help where it is needed. If the net becomes busy with reports that are time critical, such as the tracking of a Tornado, damage assessment reports may be held off until after tracking info settles down.

More information on damage assessment and rapid needs assessment, may be found within Section 4, of FEMA’s Independent Study Course IS-208.A *“State Disaster Management”* available in .pdf format, here:

[http://training.fema.gov/EMIWeb/IS/IS208A/05\\_SDM\\_Unit\\_04\\_508.pdf](http://training.fema.gov/EMIWeb/IS/IS208A/05_SDM_Unit_04_508.pdf)

To access the IS-208.A *State Disaster Management* course in its entirety, visit:  
<http://training.fema.gov/EMIWeb/IS/is208a.asp>

## Safety Concerns In Amateur Radio

Jeff Wolf, K6JW, MD

Recently, a ham friend of mine was seriously injured when he slipped and fell from a roof. Although he was not engaged in an amateur radio related activity at the time, it got me thinking about safety in our hobby, and I thought that it might be useful to review a few basic rules to keep all of us safe as we pursue our passion for this wonderful hobby.

We're all pretty familiar with the requirement for RF safety – its part of our rules and regulations. Honestly, I think those rules go somewhat overboard and, in some cases, particularly those related to HF emissions, make unwarranted assumptions about the harmful effects of RF exposure at levels we encounter in our usual activities, but the regs are the regs and we need to adhere to them. In fact, RF exposure is not really what I'm going to address in this short piece. I'm more concerned here with some other stuff that can bite you.



**Let's start with electrical shock hazard.** If you're operating with a balanced antenna that's set up and matched properly, you don't need to worry much about RF shocks, but plain old electrical shocks from your equipment developing shorts is a real risk. OK, perhaps not so much of a risk if you're just operating a 12 volt, solid state, 100 watt rig barefoot, but if you're running older, tube-type equipment or a tube-based linear amp-

lifier, you may be dealing with potentially lethal shock hazards involving upwards of 1500 volts. So, here are the rules for working around such voltages:

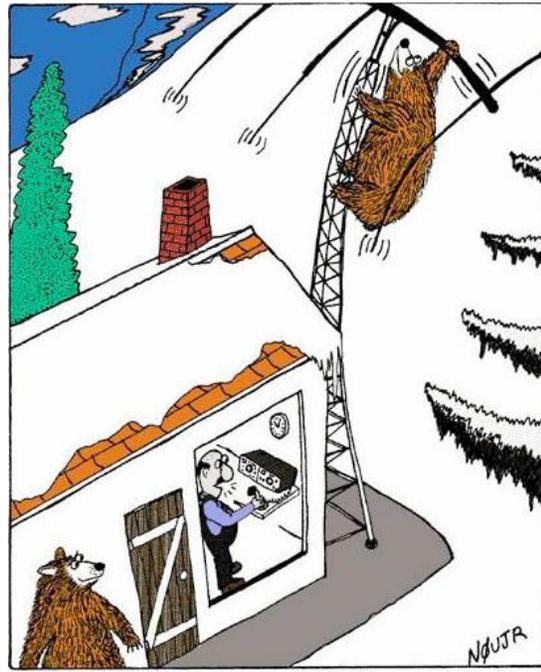
- Never work around high voltage without someone else in the area who can cut the power and/or call 911 in an emergency.
- Turn the unit's power off, unplug it, and short any high voltage capacitors to ground using an insulated screwdriver before touching any part of the unit with your bare hands.
- Try to work with one hand only as much as possible in order not to create a path for current flow across your chest.
- If possible, keep an earth ground connected to the unit while you're working on it. If an earth ground isn't available, you can run a wire to the third prong of a wall socket *as long as you are 100% CERTAIN that your house wiring has been done correctly.*
- When you're ready to test the equipment, put it back in its case before applying power.
- Never, ever, work on your radio gear in your bare feet. Rubber-soled shoes are recommended. (Exception: If you're handling ICs and you know that there's no electrical hazard present, be sure to work on an anti-static mat that's properly grounded and wear a wristband that's grounded to the mat.)

How about when you need to do some soldering? A few of good rules here are:

- Only work in a well ventilated area. If the area does not have cross ventilation, consider running a small fan to blow the solder-related fumes away from your face so you won't inhale them. Yes, the rosin smells wonderful, but fumes probably aren't very good for you.
- Since most of us still use lead-containing solder, be sure to wash your hands thoroughly after handling it. We don't want club members getting lead poisoning!
- Be sure your soldering iron has a stand that will keep it from sliding or rolling off the work surface. Having a hot soldering iron hit your thigh is distinctly unpleasant, and carpet burns aren't usually appreciated by one's spouse.
- Do not leave the soldering iron plugged in if you have to leave the project for any length of time, or if children or other uninitiated individuals might think to touch it.

**Oh, and about climbing towers or onto your roof:**

- If you're going to climb a tower, always wear (and properly use) a well inspected climbing belt that's in good condition.
- Never climb a tower or onto your roof unless you have someone else present. That person may not be able to catch you if you fall, but he/she can stabilize a ladder or call 911 if necessary.
- If you're not essential to an activity involving antenna-raising, keep clear of the work area and maintain a radius of separation that will keep you safe from anything that might fall.
- Work slowly and deliberately, thinking about every move before you make it. You don't want to be like those cartoon characters who run off the cliff without



"Hang on a minute Larry...my SWR is jumping...I'm going outside and see what the problem is..."

thinking, and as soon as they look down and realize what they've done, plummet totally out of control.

For any heavy lifting, climbing, or other activity that presents physical risk, be sure someone is available to help or "spot" you in case of trouble.

Lastly, on the subject of generators, always have a second person present when refueling a generator, preferably someone with ready access to a fire extinguisher, and NEVER, ever, try to refuel a running generator. Then after refueling, be sure that no gasoline has spilled onto areas where a spark might ignite it.

The list is not meant to be all-inclusive, since not all situations can be anticipated. Remember that you are engaged in a purely voluntary activity, and you assume liability for any injury or death associated with participation in these activities.

Most of what I've outlined is simple, common sense, but it's been said many times that the problem with common sense is that it isn't truly common. Think before acting and always remember: the life you save might be mine!

## Ticketed for Talking

*Erin Connolly*  
YNN, Rochester, NY

CLIFTON PARK, N.Y. -- Talking on a cell phone while driving in New York State is a no, no. But this past weekend, a local man was ticketed for using something else in a car.

Sunday morning, **Steve Bozak** {WB2IQU} took a drive to Troy {NY}. On the way, he talked to his buddies using his ham radio. But he didn't expect to talk to a police officer next.

Bozak said, "He assured me that I was not to be talking on that cell phone. I said this isn't a cell phone. It's an amateur radio. He said it's all the same."

Bozak was issued a ticket for talking on a mobile device while driving. He says his ham radio may look like a phone, but it's not.

Bozak said, "It is not a cell phone and there is no dialing. It's not connected to the telephone service in any way. It's a two way radio. It's very similar to one the policeman had in his car at the moment."

The main difference between a ham radio and a cell phone is the ham radio is put to your mouth and the cell phone is put to your ear.

Arnold Proskin, a legal expert said, "It's not grey at all. It's black and white. The statute is very clear, very specific. It must be to your ear. It must be a cell phone and that's what we're talking about."

We reached out to Troy Police to get their take. They said since this case is ongoing, they didn't want to comment and potentially impact a judge's ruling. Meanwhile, Bozak says ham radios don't only allow people to communicate with

one another; they can also provide a public service.

Bozak said, "If there is any natural disaster anywhere, the amateur radio system will continue to stay up and running because we aren't connected to the grid."

Bozak's court date is pending. He faces up to a \$100 fine.

Bozak said, "I hope the law will be modified so all the other 3,000 ham operators driving across the Capital District can drive without the fear of a police car pulling us over. It's terribly inconvenient for all of us."



*Kenwood THF6 used at the time by WB2IQU*



🇺🇸 Drivers in the Lone Star State are reminded that it is unlawful to talk on a cellular telephone device, while operating a motor vehicle in a school zone. And, despite the fact that amateur radio operators are exempted from this law while utilizing a radio frequency transmitting device, perhaps it's just a good idea to hang up the mic while driving through a school zone.

🇺🇸 Additionally, for those who may be travelling on Fort Hood, Army Regulation 190-5, para 4-2, prohibits talking on a cellular telephone device while operating a motor vehicle, unless it is a hands-free device.

## Truth, Lies and the Venerable J-Pole

Rick Murray, K6WXA

I was politely prodded into again writing articles on the design and building of home brew antennas. I'll start with the ever popular J-Pole. Herein also, I'll discuss what has widely become known as the "No-Duh Theory of Relativity." So, to the applicable prodder reading herein, this is your fault and you know who you are.

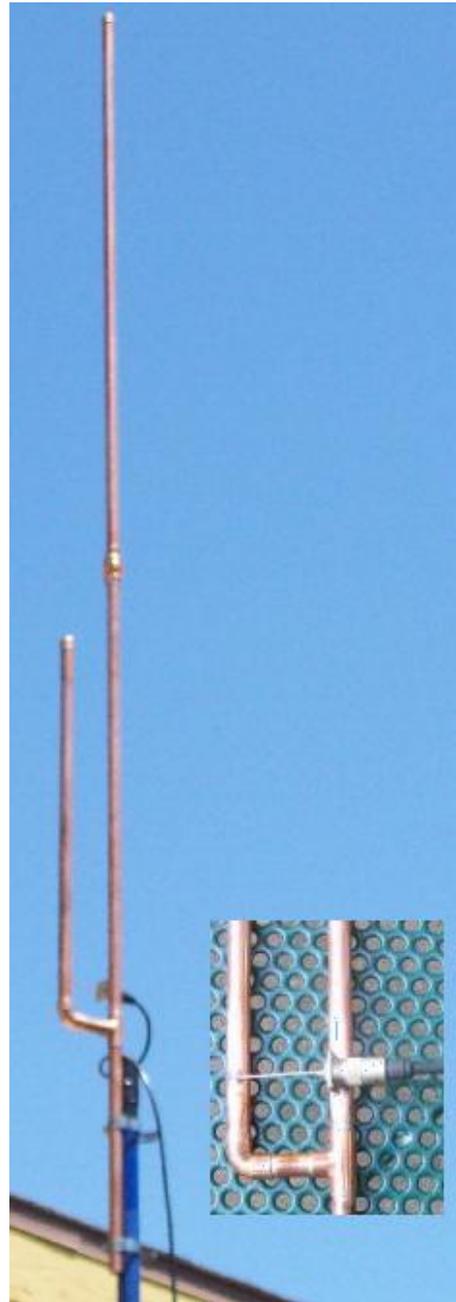
**The misbegotten J-Pole:** If you go on the internet and do a search for *J-Pole Antenna* you're going to find twenty different designs, by twenty different guys. In those designs, you'll also find a half-dozen different feedpoint arrangements. These feedpoint arrangements will vary from the clever, but dumb; to just plain dumb. Looking closer at these twenty different designs, you'll find that no two of them have element lengths, spacing, or location of feedpoint placement the same. On top of all that, each of these twenty different guys will rave about how their antenna design *really* works. By now it should become clear that at least nineteen of these guys are short a barrel connector. Then, just to prove it, accompanying their designs will be charts and graphs clearly showing the VSWR results are all over the scale, along with spurious RF radiation patterns.

Ya think maybe they got the element lengths wrong and a less than optimal feedpoint arrangement? I give you the No-Duh Theory of Relativity!

To add insult to injury, some of the barrel connector deprived, will incorporate a computer-aided design program calculator into their websites. With this calculator they say, all you have to do is enter the operating frequency you wish to use, then press 'Enter' and it will display the length and spacing of each applicable element. *Please, listen to me... they don't work.* These calculators may in fact get you in the ballpark, but instead of being on the pitchers mound, you're going to find yourself way out in left field, or maybe even as far away as the hot-dog stand.

Another widely-circulating misconception is to take four or five turns of your coax feedline and roll it up in about a ten inch loop just below the antenna, as this is suppose to act as some kind of a matching balun.

( Continued )



Typical 2 Meter J-Pole with a less than stellar feedpoint arrangement.

Another theory suggests that this coiled up coax acts as some kind of RF trap or choke to help prevent RF current on the outside or shield of the coax feedline, and supposedly it prevents difficulties with the VSWR. Testing has found that with or without this 'choke' there's no differences obtained when measuring the VSWR. As to the functionality of the 'choke' itself, it's a theory. But personally I haven't seen a set of circumstances, or piece of test equipment to support the theory. From what I've observed, it neither adds to nor takes away from, the performance of the antenna.

**What's the stink over the feedpoint arrangement?** Think about this... you're building a 'tuned' or 'balanced' antenna to operate on or over a specific frequency or set of frequencies and now you need to connect it to an unbalanced feedline. You can't just stick the end of your coax to the antenna and expect it to perform optimally. Between the two, you're going to need a balun to match the antenna and the feedline.

**Protecting your antenna:** When you put your antenna up in the air, over time things happen. Tarnish and corrosion sets in and just plain ol' gunk works its way into the electrical connections.

To remedy these problems, stop by your local marine or boating service store. There you'll find tubes of general purpose marine adhesive. Its water proof and lasts forever; completely 'goop' all your electrical connections with this stuff. Next, pick up a quart size can of "Pettit Marine Brand EASYPOXY" – this is a type of paint that is used to paint boat hulls. Apply two coats of this on your antenna and it'll out-last the best of any commercially made antenna product.

**The Venerable J-Pole:** The J-Pole antenna has a lot of nice things going for it. The parts needed for its construction can be obtained from any of your local home improvement stores. It doesn't take an engineering degree to put together and it's adaptable. Why build an antenna for one band, when with only simple modifications, the J-Pole can be easily modified to operate efficiently on two separate bands and along with that, it has a tendency to be broad-banded.

**Some other notes found during experimentation:** The J-Pole antenna is usually classified as an omni-directional antenna; suggesting that it radiates equally in all directions. For the Purist, during testing with a field strength meter, what was found was that the J-Pole, rather than having a circular radiation pattern, actually has a slightly oval shaped radiation pattern. A slightly stronger increase in signal was detectable, radiating in the direction of the short element. Why? *I have no idea.*

Another fun fact, substitute the 1/2" copper pipe – as in the illustration that follows – with 3/4" copper pipe and then hook an antenna analyzer to the J-Pole. You'll find the broad-bandedness of the antenna will extend far out into adjacent frequency ranges. Sure, you can't operate on these frequencies, but it was an interesting observation.

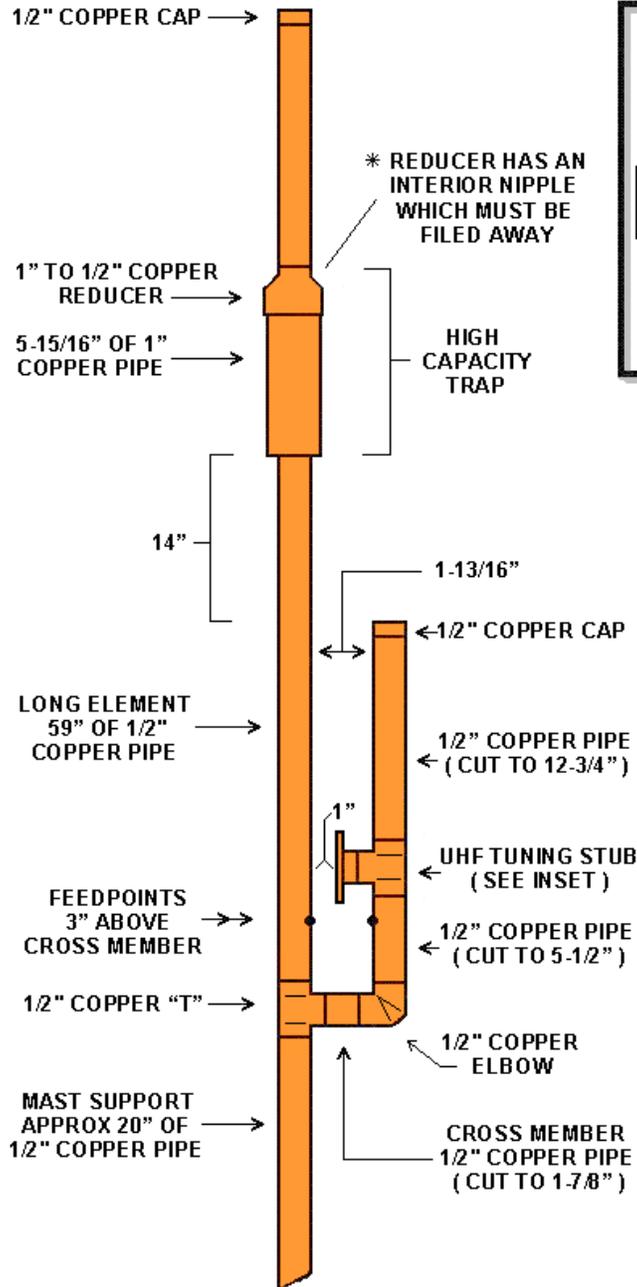
**How do you 'prove' an antenna design?** Trial and error and experimentation. It's part of the amateur creed. Once you get done tinkering around and you've got it just right, document it. Then field test the thing and document the results. Then have a couple of other guys build the same antenna in duplication, then field test each one against the other.

The design that follows has all the guess work taken out of it for you; and this one *really* does work. Accompanying it, is an illustration on how to construct a coaxial balun to match your antenna to its feedline.

**Lastly**, when designing and building an antenna, remember the old engineering adage, which says: "*You can't measure it with a micrometer, mark it with chalk, and then cut it with an axe.*"

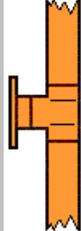
# 2M / 70Cm Dual-Band J

DESIGN BY WA6ESC

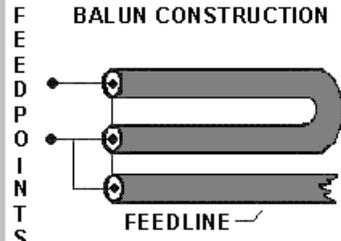


## UHF TUNING STUB

THIS SECTION CONSISTS OF A 1/2" COPPER "T" PLUS A 1/2" COPPER CAP THAT HAS BEEN SOLDERED TOGETHER. THEN A 1" SCRAP PIECE OF 1/2" PIPE HAS BEEN CUT & FLATTENED OUT, THEN CUT IN A CIRCULAR SHAPE SO AS TO HAVE A 1" DIAMETER. ALL THREE OF THESE PARTS ARE THEN SOLDERED TOGETHER.



## BALUN CONSTRUCTION



33" OF RG-X OR 26.5" OF RG-58U

## VSWR Results:

