Central Oklahoma Radio Amateurs

COLLECTOR AND EMITTER

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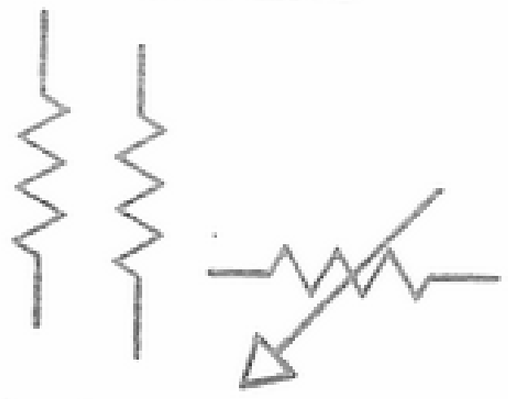
25¢

AN INFORMATIVE MAGAZINE PUBLISHED MONTHLY BY AND FOR OKLAHOMA RADIO AMATEURS AND ANYONE INTERESTED IN LEARNING ABOUT IT

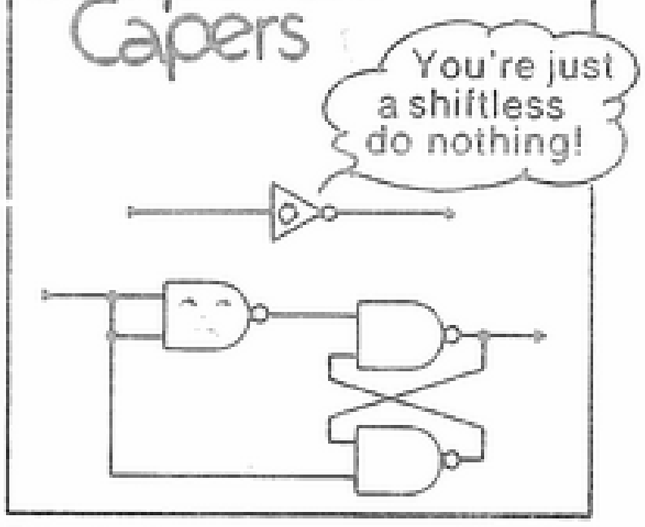
VOLUME 5 OCTOBER 1979 NUMBER 57

COMPONENT CAPERS



I told him not to fool around with the Indian Chief's daughter.

Component Capers

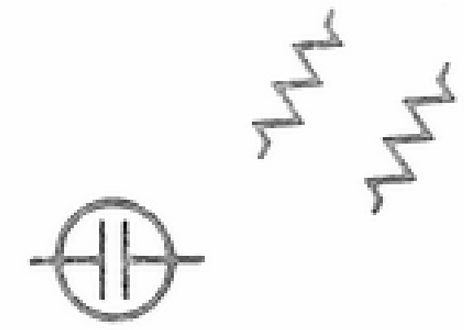


This circuit was actually used by an engineer because he didn't want to bother terminating the unused inputs on his CMOS NAND gate.

Component Capers

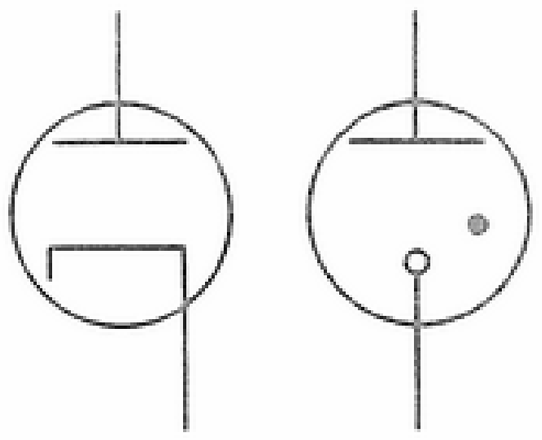
Wait till I meet that guy who said Violet gives willingly!

Component Capers



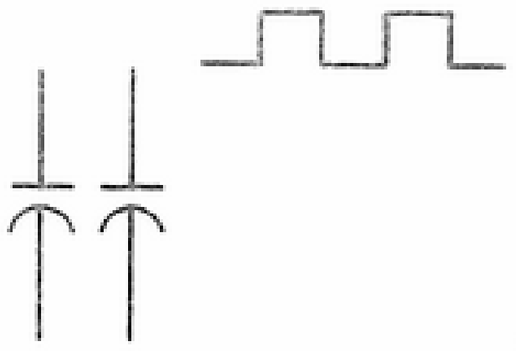
"I don't care if his name is Man 'O War — he still looks like a plug to me."

Component Capers



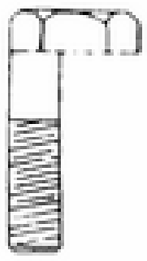
"How do **you** spell relief?"

Component Capers



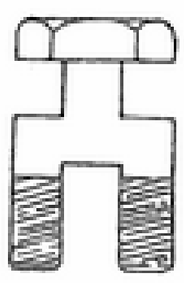
"He's got a few rough edges, but I think we can smooth them out."

AN ASSORTMENT OF SLOBBOVIAN SCREWS



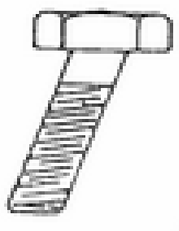
For holes too near the edge

For all tapered holes (special nut required)

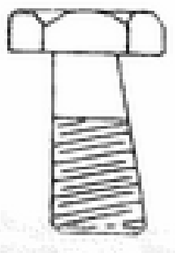


For redrilled holes that still don't match

For double counter sunk holes



For holes not square



For holes drilled crooked and then straightened (nut is hard starting)

- from Counternoise News

Central Oklahoma Radio Amateurs

COLLECTOR AND EMITTER

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Central Oklahoma Radio Amateurs, Inc. (CORA) is a not-for profit association of radio amateurs, founded for the promotion of interest in amateur radio communication and experimentation, for the advancement of the radio art and of the public welfare and operates to enhance the cooperation of member clubs in sponsoring activities of mutual interest to the clubs and all radio amateurs.

President	Mark Northcutt	WD5DYI	842-1086
Vice President	Chuck Wilhite	K5NK	721-4926
Secretary	Jim Buswell	N5BEQ	947-1180
Treasurer	Ron Recer	WD5FRQ	751-5378

Welcome to the Oklahoma County Emergency training net. We meet each Monday night at 9:00 PM. 146.52 MHz

WB5IMX	Dave	WA5GWH	Jim
WB5EIP	J. C.	KB5BS	Bill
AE5N	Don	WA4PLG	Charlie
W5OZE	Tom	WD5DYJ	Kay
WB5PWZ	Bob	WB5YJP	John
KA5ALO	Richard	W5VZY	Lee
KA5ERL	Billy	WD5DYI	Mark
W5JPI	Gordon	WB5TKG	C.Y.
N5BEQ	Jim	KA5CXW	Fred
WB5TMW	Dick	K5SJV	Don
N5ABF	Jerry	KA5BOA	Dale
WA5JGU	Charlie	WB5ZKY	Charlie
WB5NMK	George	AB5H	Frank
WB5HUP	Lloyd	WB5KVZ	David
WD5EXY	Bill	WB5ETB	Winston
N5AOZ	Tom	K5WUF	Dale
KA5EAY	Randy	W5JYT	Bill
W5PDH	Frank	WB5TDW	Joe
WA5FFO	Don	KA5DDE	Mike
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W5NLZ	Russ	WD5FHR	Dee
WD5IDE	Harry	W5RØU	Willard
K5CFM	Tony	N5AKL	Freddy
W5NBH	Tiny	WD5IRB	Ralph
K5YTW	Lloyd	N4BBQ	Gary
KB4PR	Larry	WB5NKC	Arley
WB5PVL	Phill	W5IQL	Paul
KA5DCM	Jerry	WDØGBI	Steve

To all these we would like to say a big THANK YOU. Anyone that would join us on Monday, we say welcome.
Bob WB5PWZ

FOR SALE SWAN 5ØØ SSB AND CW TRANSCEIVER FOR 8Ø-1Ø METERS. 5ØØ WATT PEP INPUT. INCLUDED ARE AC POWER SUPPLY, VOX MODULE AND EXTERNAL VFO. EXCELLENT SHAPE. MAKE OFFER. NOVICES GET SPECIAL DEAL...4Ø M ANTENNA INCLUDED FREE. RON, WA5EAI, 681-Ø896, LEAVE MESSAGE.

FOR SALE: TR4C with Rv$ remote VFO and PS complete. Ready for antenna. Price $600.00. Bill Peterson, WB5NXO, phone 524-7415/

CLUB EDITOR
Joe Buswell, K5JB
732-0676

MEETS: 8:00 PM Third Friday each month
American Red Cross, 10th & Hudson OKC

PRES	Ken Ford	WB5KHU	528-8770
V-P	Jim Williams	K5VRL	789-0769
SEC	Joe Buswell	K6JB	732-0676
TREAS	Ellard Foster	W5KE	789-6702

CLUB MEETING

THE SEPTEMBER CLUB MEETING WILL BE HELD TWO DAYS AFTER THIS C&E IS PASTED UP. THE MINUTES WILL BE INCLUDED IN THE NOVEMBER ISSUE.

JOE, K5JB, SEC'Y

W5LOW ACTIVITY

IT DOESN'T TAKE A MAJOR LOCAL TORNADO TO CAUSE W5LOW, THE CLUB STATION AT RED CROSS HEADQUARTERS. SINCE THE TORNADO ACTIVITY AT LAWTON AND WICHITA FALLS ON APRIL 11, 1979, W5LOW HAS BEEN ACTIVATED SIX TIMES AS FOLLOWS:

JUNE 20...SEVERE WEATHER WATCH
JUNE 21... " " "
JULY 16...STORM DAMAGES AND SURVEY
AUGUST 21...SEVERE WEATHER WATCH
AUGUST 31... " " "
SEPTEMBER 12...HURRICANE FREDRICK LANDFALL

ON EACH OCCASION, RED CROSS HAS FELT A NEED FOR OUR "SPECIAL" COMMUNICATIONS. SOME HAVE ONLY TRACKED THE STORMS, OTHERS HAVE FOLLOWED SURVEY TEAMS AND PASSED NEEDED TRAFFIC.

KEY OPERATORS ARE NOT ALWAYS AVAILABLE. WE NEED MORE VOLUNTEERS WILLING TO BE ON THE "ON-CALL" LIST.

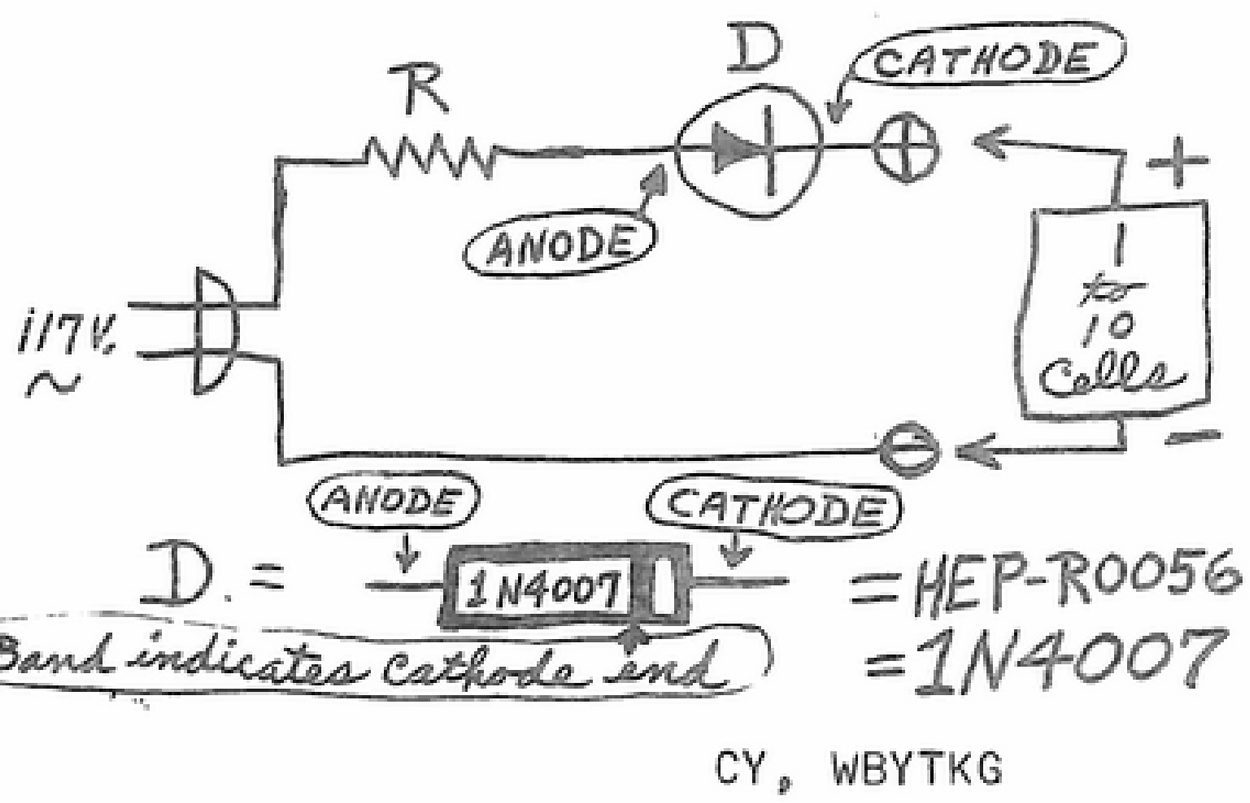
ONE EVENING I CAME DOWN TO TRACK THE TWISTERS. ONE OF THE HIGH-SCHOOL AMATEUR RADIO CLUBS WAS ALSO WORKING. I GOT TO MEET SOME OF THE FINE TEENAGERS CONCERNED ABOUT THEIR COMMUNITY. IT PROVIDED A RESTORATION OF MY FEELINGS ABOUT OUR HIGH SCHOOL YOUTH.

CONTACT ANY OF THE CLUB OFFICERS ABOUT THE "ON-CALL" LIST. THERE SHOULD BE NO PROBLEM GETTING INTO THAT ELETE GROUP. KEN, WB5KHU, PRES.

CY'S CIRCUIT

A VERY DANGEROUS, INEFFICIENT, CHEAP, SIMPLE, EFFECTIVE, "NI-CAD" CHARGER

AVERAGE CHARGING CURRENT	R (Ω)
25mA.	2K-25W.
50mA.	1K-50W.
100mA.	500-100W.



CY, WBYTKG

EDITORS COMMENTS

CY HANDED ME THE ABOVE CIRCUIT AND SAID HE WAS GOING TO SUBMIT HIS MATERIAL FOR TECHNICAL REVIEW BEFORE IT GETS PUBLISHED IN THE C&E. HE SAID HE HAD BEEN SEVERELY CRITICIZED FOR HIS DISCOVERY ON HOW TO HEAR TWO REPEATERS ON ONE FREQUENCY. MAYBE SOMEWHERE IN THIS ISSUE IS AN ANALYSIS OF THE THING, BUT I DOUBT IT. IT IS A WHOLE LOT EASIER FOR SOME PEOPLE TO SET BACK ON THEIR HAUNCHES AND ROAR DISAPPROVAL AND CRITICIZE THAN TAKE PEN IN HAND AND DO SOMETHING CON-

STRUCTIVE. I DONT THINK CY HAS HAD THE BENEFIT OF ALL THE WISDOM REGARDING INTERMODULATION DISTORTION, HIGH, OR ODD, ORDER DISTORTION PRODUCTS, THIRD ORDER INTERCEPT POINTS, DYNAMIC RANGE, AND ALL LIKE THAT HEAVY STUFF I READ ABOUT IN HAM RADIO MAGAZINE AND PRETEND I KNOW ABOUT IN MY COLUMN. NEVER-THE-LESS, I ADMIRE AND ENCOURAGE HIM BECAUSE HE DOCUMENTS HIS DISCOVERIES AND GETS THEM IN THE C&E.

THIS MONTH I AM BLESSED WITH SOME GOOD STUFF. IT REALLY MAKES MY JOB EASIER AND MAKES THE C&E MORE INTERESTING. JOE, K5JB

MEASURING INDUCTANCE

Measuring inductance has always been a problem for most of us and I freely admit using a lot of Kentucky windage in this area. While its pretty easy to accurately measure either condensers or resistors, measuring inductors has generally meant a lot of trouble which really didnt yeild too high an accuracy anyway. Well if this has been your experience maybe you would like to try my (hopefully better) method which is very quick and accurate too.

Several months ago while working on some receiver tuned circuits, the old "cut-and-try" method just wasnt working out too well. Must admit I got badly sidetracked and found myself in the project of just measuring inductance. Oh well, what the heck? To make a long story very short I found a method that satisfied me so I thought I would pass it along.

I hope you dont expect something complicated as all I can offer is the single transistor oscillator shown in Figure 1. Notice its battery operated and mine is housed in an unadorned wooden box with nothing more than a pair of terminals and a push button switch showing. The oscillator will work over a very wide range of frequencies, however the exact frequency will depend entirely on the exact value of inductance (since there are no other variables). Relating the oscillator frequency to inductance is easy, and if we measure the frequency accurately, we can also measure the inductance accurately. Simple? You bet.

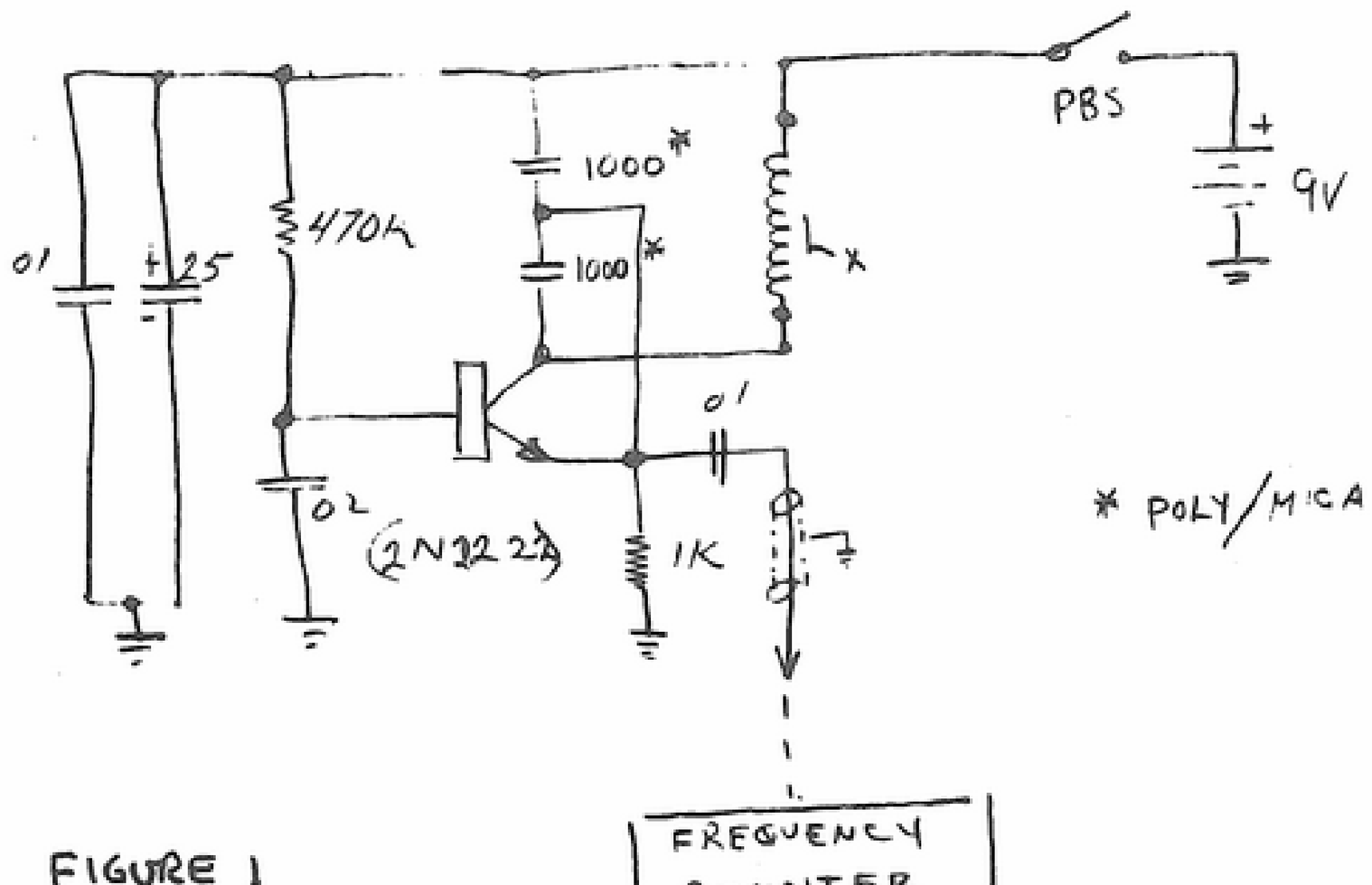


FIGURE 1

FREQUENCY COUNTER

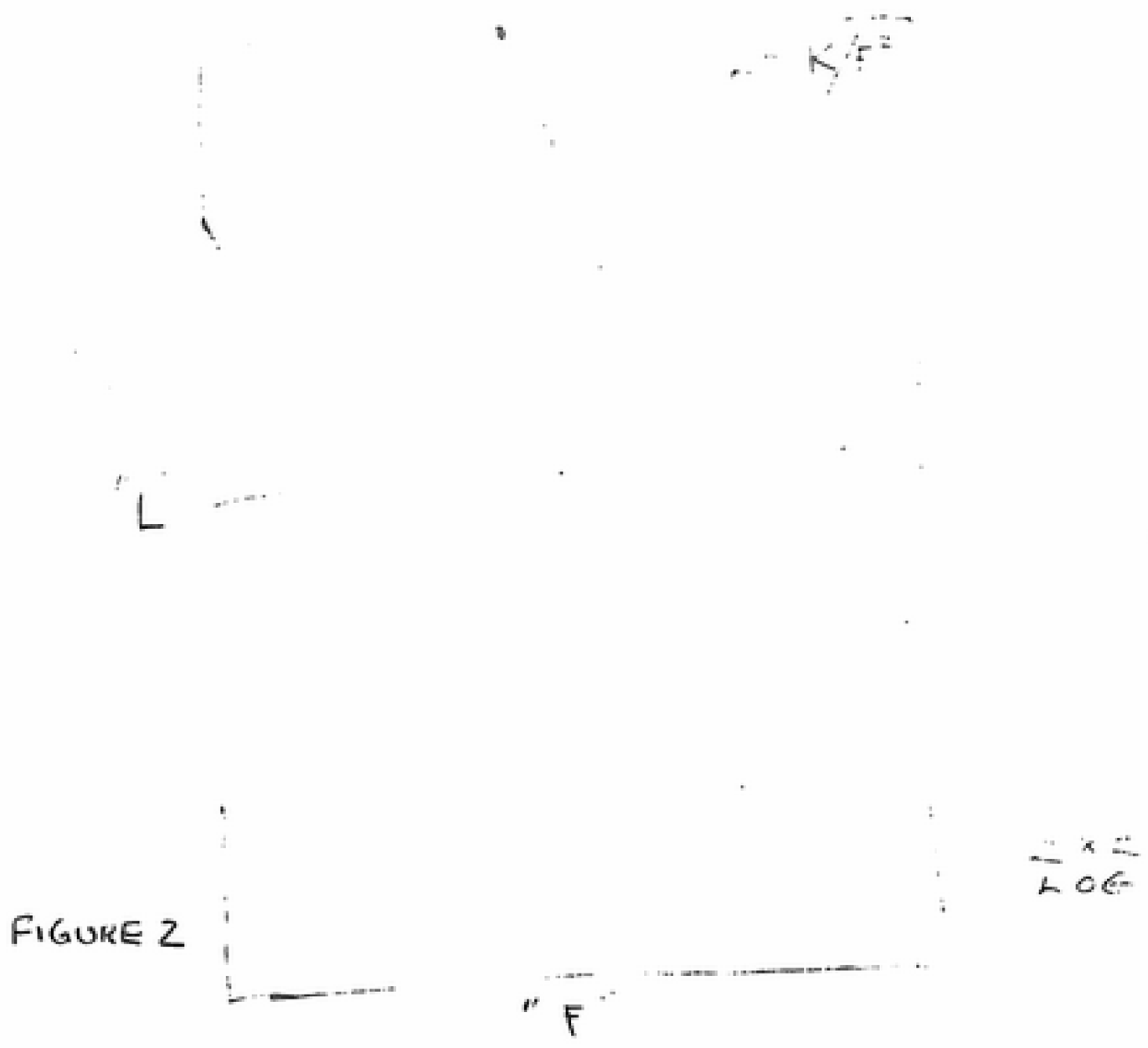
A useful oscillator range is obtained from roughly .1uh to 3000uh without resorting to extra components being switched into the circuit. Although the range could be extended, frankly I dont recommend it because I dont need a wider range and switching components could result in less accuracy. Note that the output of the oscillator is fed through a length of coax to the counter. This length is not critical, but once the coax is made a part of the calibration, it should not be changed. Should you be a purist, possibly you would like to include an emitter follower. If so the coax length is unimportant. I am well satisfied with a fixed length of around 30".

Assuming you are still with us, the time has now come to discuss calibration which is of much importance if you want very accurate results. If you just happen to have some precision inductors laying around in the junk box, fine you are ready to go, if not I guess a compromise is in order. Should you need to use ye-old-junque-baux for calibration purposes dont despair as long as you are using marked components you cant be too far away from the truth, and besides you can re-calibrate.. anytime. Could say much more here but wont just to save space.

With the reference inductance in the circuit and the oscillator working, a frequency will display on the counter. Square the frequency (in Mhz) on a hand calculator and multiply the result by the value of the inductance (in UH). You should come up with a number around 43 perhaps, depending on several factors. This is our calibration number and will not change so be sure to record its exact value.. better still, affix it to the oscillator case. Expressed another way the calibration, or K, is:

$$K = F^2L$$

Once calibration has been made we are now ready to make actual measurements.. Just place the unknown inductance in the circuit and as before measure the frequency in Mhz. Square the frequency and divide it into the calibration number. Presto! You now have the value of the unknown inductance expressed in uh's. In other words $L = K/F^2$.



As a final thought, should you want to use a chart rather than making calculations each time, this is quite practical (see fig. 2). To make a chart, let me suggest you obtain so 2 cycle by 2 cycle log graph paper as this will simplify things greatly. If you use this graph paper you will need to draw only two straight lines as determined by four values in the calculation of $L = K/F^2$.

Bill - W5CC

ALL AT THE CONVENTION

LAST YEAR I DECIDED A VISIT TO THE FOLKS FROM HAMID SYSTEMS TECHNOLOGY, INC AND HAD A BOOTH AT OSHKOSH DURING THE FLY-IN. HAL MITCHELL AND JIM WEIR, W9EWI, WERE FRIENDLY AND CONVINCING SO I PURCHASED ONE OF THEIR KITS. ACTUALLY, I HAD MY MIND MADE UP BEFORE I WENT TO THE CONVENTION THAT I HAD SEVERAL USES FOR A PORTABLE AIRCRAFT BAND TRANSCEIVER. I WOULD HAVE PROBABLY SETTLED FOR A CRASH DAMAGED COMMUNICATION SET THAT A REPAIR JOB COULD SALVAGE. NOT FINDING THAT AND FINDING HAND-HELDS COSTING FOUR TO

FIVE HUNDRED BUCKS, CONVINCED ME THE RADIO SYSTEMS TECHNOLOGY KIT WOULD FIT MY NEEDS. THE COMPANY ADVERTISES IN AVIATION AND AMATEUR RADIO PUBLICATIONS AND I HAD A SKETCHY IDEA OF WHAT THEIR TRANSCEIV-ER CONSISTED OF. AT THE SHOW I WAS ABLE TO SEE ONE AND TAKE THE SPECS BACK TO THE DORM ROOM TO STUDY.

THE TRANSMITTER IS A ONE WATT OUTPUT, AM JOB, CRYSTAL CONTROLLED ON SIX CHANNELS. THE RECEIVER SECTION IS ALSO CRYSTAL CONTROLLED WITH 2 MICROVOLTS SENSITIVITY FOR 1Ø DB SIGNAL TO NOISE RATIO. IF THIS SENSITIVELY DOESN'T DAZZLE YOU I'LL EXPLAIN THAT IT IS TYPICAL FOR AIRCRAFT EQUIPMENT FOR TWO REASONS. THE BAND IS WIDE, COVERING 118 TO 136 MHZ, REQUIRING LOW Q TUNED CIRCUITS, AND MORE IMPORTANT, IT IS RIGHT NEXT TO THE FM BROADCAST BAND WITH ITS HUGE SIGNAL STRENGTHS. THE RECEIVER MUST BE ABLE TO PERFORM ITS FUNCTION WITH-WIPE-OUT FROM THE BC'ERS.

SINCE VERY FEW OF YOU COULD CARE ABOUT AIRCRAFT BAND EQUIPMENT I WILL LIMIT THIS TO THE KIT BUILDING ASPECTS OF THE RST 542, AS IT IS CALLED.

THE RADIO TOOK 18 HOURS TO ASSEMBLE. THE INSTRUCTIONS WERE VERY GOOD, RESEMBLING THE HEATHKIT STYLE, TAKING STEP-BY-STEP AFTER A PRIMER ON SOLDERING AND OTHER CONSTRUCTION TECHNIQUES WERE COVERED. I HAD NEVER SERIOUSLY DONE ANY CABLE TYING BEFORE. MY PROJECTS USUALLY BEING FINISHED IN THE "RATS NEST" STAGE, OR IF TAKEN TO THE NEXT STAGE, FINISHED OFF WITH A FEW PLASTIC TYE WRAPS. I HAD TO GRAB THE ARRL HANDBOOK AND DECIDE WHAT STYLE TO USE. WITH HELP FROM PHOTOGRAPHS IN THE CONSTRUCTION MANUAL I WAS ABLE TO PASS THE TEST OF TYING PENCILS TOGETHER TIGHT ENOUGH THAT ONE WAS DIFFICULT TO REMOVE. THE WIRE CABLING TOOK ME A LITTLE LONGER THAN A PRO BECAUSE IT WAS MY FIRST AND THE EQUIPMENT HAD TO BE SENT BACK TO THE PROS FOR TUNE-UP AND I DIDN'T WANT ANYONE TO SEE ANY SHABBY WORK.

THE REASON FOR RETURN OF THE EQUIPMENT IS FOR IT TO BE TESTED AND RECEIVE ITS TYPE ACCEPTANCE LABEL. CRYSTALS WERE NOT INCLUDED IN THE KIT SO I WASN'T EVEN ABLE TO CHEAT. THE ONLY THING MISSING FROM THE KIT UNINTENTIONALLY WAS A TRANSISTOR AND SOME 4-4Ø SCREWS FOR HOLDING THE CASE TOGETHER. I WAS SHORT ONE .ØØ1 AND LONG ONE 5 PF CAPACITORS. I KNOW I DON'T DO THE NASA STYLE SOLDERING METHOD BUT NEITHER DO I GLOP IT ON BUT I RAN OUT OF SOLDER. I GUESS THEY HATE FOR SOMEONE TO OVER GROSS ON LEAD. I GUESS I'LL GO BACK AND READ THE SOLDERING INSTRUCTIONS.

WHERE IT WAS IMPORTANT, THERE WERE EXTRA PARTS. THREE OF THE CIRCUIT BOARDS PLUG INTO MOLEX EDGE CONNECTORS. THESE THINGS ARE FABRICATED BY CRIMPING INDIVIDUAL CONNECTORS ONTO WIRES AND SNAPPING THEM INTO A PLASTIC BLOCK. THERE WERE EXTRAS TO REPLACE THOSE ONE MASHED WITH HIS 'PLARS'. I WAS FORTUNATELY EQUIPPED WITH MOLEX CRIMPING TOOL WHICH SPEEDED UP THE JOB THOUGH IT DIDN'T QUITE FIT. I GUESS THEY HAVE A DIFFERENT TOOL FOR EVERY CONNECTOR THEY MAKE. BY THE WAY, I NOTICED TRICE HAS A LOW PRICE? CRIMPING TOOL FOR THESE THINGS... $1Ø.ØØ IS BETTER THAN $4Ø.ØØ I WAS TOLD THE PRODUCTION TOOL COSTS. I INSURED THE INTEGRITY OF THE CONNECTIONS BY SOLDERING THEM AFTER CRIMPING

ONE DELIGHTFUL THING ABOUT THE PARTS IN THE KIT WAS THE RESISTORS. THEY WERE ATTACHED TO SOME TAPE <u>IN THE ORDER OF ASSEMBLY</u>. BOY THAT WAS A TIME SAVER! COILS WERE PREFORMED AND IDENTIFIED BY COLOR DOTS MAKING THEIR INSTALLATION A SNAP.

PERHAPS NEXT MONTH I WILL BE ABLE TO REPORT ON THE PERFORMANCE OF THE COMPLETED UNIT. FOR INFORMATION WRITE RADIO SYSTEMS TECHNOLOGY, 1Ø985 GRASS VALLEY AVE, GRASS VALLEY CA, 95945. THE RST-542 COSTS $199.5Ø WITH ONE PAIR OF CRYSTALS. EXTRA CRYSTALS COST $19.5Ø EACH. THE COMPANY CAN PROVIDE ALL OTHER ACCESSORIES. JOE, K5JB

<u>FOR SALE</u> RINGO RANGER ANTENNA FOR 2M. GE PROGLINES. VHF MOBILE UNIT ON 34/94, 5Ø WATT COMPLETE WITH CABLES AND CONTROL HEAD. LOW BAND ON 4Ø MHZ. GOOD FOR 6M. RON WA5EAI, 681-Ø896.

THE L5L G SIGNAL NEWS
OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

CLUB EDITOR
Chuck Wilhite, K5NK, 721-4926

MEETS: 7:30 PM 3rd Tuesday each month
Okla. Military Academy, 36th & Grand.
PRES: Doc Goodhead WA5CZN 721-8592
V-P: Chuck Wilhite K5NK 721-4926
SEC/TR: Karen Recer WD5HBX 751-5378

The first meeting has come and gone with Doc Goodhead at the reins. We had a most enjoyable meeting with a very good turnout. After our usual business meeting, our program chairman, WB5YLZ, Chuck Sullivan, introduced Dr. Stephen Acker, a radiologist, who presented a very interesting program about the evils of smoking. Dr. Acker had a captive audience with Sully threatening to shoot anyone who walked out.

Prior to the actual meeting, an Executive Committee meeting was held. Many good things came from this meeting and several committee heads were appointed. Following is a list of some of our present committees:

Program Chairman:	Chuck Sullivan, WB5YLZ
Membership Chairman:	Reuben Castleberry, WD5FKF
Technical Committee:	
2 meter repeaters:	Martin Vinson, WD5FEI
6 meter repeater:	Perry McWhorter, K5URJ
450 repeater:	Marc Adams, WA5REC
CORA Representatives:	Ron Recer, WD5FRQ
	Zack Zackery, WB5QPI
	Merrill Scott, WB5PTQ
	Karen Recer, WD5HBX (Alternate)
Constitution Committee:	Reuben Castleberry, WD5FKF
	Henry Israel, N5IH
	Larry Hazlewood, W5NZS
	Zack Zackery, WB5QPI
Repeater Trustee:	Jay Liebmann, K5JL
Christmas Dinner Committee:	John Young, WD5FXP
	Jim Buswell, N5BEQ
	Buddy Kidd, KA5AQY

There are other committees which I am sure I have left out which is unintential. We have some very good people working on these various committees. They will need each of our help, so if any of them call on you, please offere your assistance.

Doc, WA5CZN is a most enthusiastic person. He is very anxious for the Autopatch Club to be one of the most active clubs in the Oklahoma City area. It is his desire and intention to see the club membership double during his administration. We have some very technical oriented people in the club and he would like for many more members to be added to this list. We would like to have you.

Many varied activities will be planned for the club during the coming year. We plan to have social gatherings of some sort. As stated earlier, a Christmas dinner committee was appointed by Doc to search out a place for us to get together this year with our families for a dinner. This will be held instead of our regular meeting.

Five new members were voted on and approved by the members present. Willard, W5ROU and Jim, KL7HIT were present and introduced to the members. Welcome new members.

As your club editor, I am asking for help from each of you. We are allocated three pages in each issue of the Collector and Emitter. I know we have many members who can author some excellent articles to help fill up these three pages each month. So, let me have some input from you folks.

K5NK

THE BIG SIGNAL NEWS
OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

HEADACHES IN THE HOSPITAL

CHUCK WILHITE - K5NK

As some of you folks know, I recently had the misfortune of having to spend some eight days in one of the local hospitals and go under the surgeon's knife. There are other places I had rather spend a week, but fearing my problem would affect this brilliant mind of mine, I decided to obey the doctor's orders. I don't intend to go into detail as to how my hair was shaved about two inches back from the front of my hair line for an inch or so from ear to ear and the incision going the same route, my entire forehead being laid open to give the doctor enough room to get in with both feet and hands, infected bones were scraped, drilled or removed, an incision made in my tummy to remove some blubber to pack my upper sinus cavity, a bale of cotton stuffed in my right nostril, some 150 stitches made in my noggin to sew me back up, and then wrapped to look something like King Tut. I'm sure this would be of interest to no one, so I won't bore anyone with details.

Sodium Pentothal is a wonderful drug and really has an effect on me. Seldom do I ever remember the needle being removed from my behind, it hits me that fast. I know there are many things that happened during my stay in the hospital that I do not remember, or I have forgotten. But, there was one incident I thought was one to remember and was most interesting.

Knowing for approximately three weeks that I was going to have the surgery, I had plenty of time to worry myself crazy. Every morning that I woke up, I knew I had one less day to enjoy before checking into the medical motel. I had one of the worst cases of the nervous jitters that one could have, not knowing exactly what the good doctor was going to do to me.

The day finally came that I had been dreading so much and I started packing bags. Not having any p.j.'s, I went out and bought a couple pairs, got me a robe, and waited for my wife to come home from school to take me to the hospital. I carefully packed my Drake TR-33C inside the suitcase along with my charging cord and had lots of plans to talk to all my friends during my stay.

After signing all my rights away with the receptionist and giving three vials, (at least a quart) of blood down in the lab, I was wheeled to my room by a lovely gal in a wheelchair. I had been dreading this day, but I finally realized I was at the mercy of the nurses and my good doctor. After a few minutes, I started the process of unpacking my bags. I placed my Drake on my console, pulled out the antenna, and quickly found out I could hit all the repeaters. Very good, for I was concerned about being able to hit repeaters from the hospital.

After pulling off my boots and shirt, I decided to try out my bed with all its controls to see if they were working properly. I turned on the television set and it worked fine also. It looked like everything was working fine and my stay should be pleasant enough. About this time, in walked one of the nurses who saw my radio and immediately told me I would have to have it checked to see if it met the hospital's specifications. I told her that would be fine. In a few minutes, back she came and told me I would have to send it home. I thought this strange and asked her why. She informed me that the television sets in the hospital did not have filters on them and they didn't want me coming through everyone's set. I proceeded to inform her that this was not a CB and that I would not cause any TVI. I asked her if she would check again. So, out she went and in a minute or so in walks this young fellow with some sort of walkie talkie hung on his hip like Matt Dillon. He proceeded to tell me that this radio I had would cause all kinds of trouble for him and the hospital. He told me I would come through all the TV sets, stop all pace makers, mess up all the sophisticated hospital equipment, but worst of all, everytime I talked I would mess up his walkie talkie. His radio was capable of hearing all frequencies, no matter what kind of radio I was using. I told him he had a pretty good walkie talkie if it was able to receive any known frequency. I should have told him he had a pretty lousy one, but at this time I was getting desperate. Seeing that I was getting no place at all with this young EE, I asked him if it would be possible for me to just use the radio to listen to. No, that will cause problems too. About this time, I was completely dumbfounded, so I asked him if there was anyone I could call about

my situation. Well, the boss had gone home, but I could call him if I liked. I asked for the number and proceeded to call this gentleman. He was a little more human and was sympathetic about my situation. He finally agreed to let me keep the radio if I promised not to transmit. I figured this was the best I could hope for. I thanked the man and told him that to keep me honest, I would send my mike home the first passing. I asked him if he would be so kind as to relay this information to the young EE, which he did, and everything was fine. After giving my radio and charging cord a complete physical examination, he put the blue tape on them showing they had passed and left.

By the way, the operation was successful. Being fortunate enough to still have a full head of hair, I was able to go from the wet look to the dry look and let the hair go where it pleases and all those stitches are well hidden. I hadn't planned on having it done, but I got a partial facelift out of the deal. I have the tightest forehead in town. It's so tight I can't even wiggle my eyebrows.

MORE MORI

correct though.

Our attendance was down this last meeting. Those absentees missed an excellent presentation of antennas and related laws by Mike Salem. One gentleman, I forgot who, remarked that Mike always made a good presentation.

George, WB5NMK

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kay COUNTY AMATEUR RADIO CLUB

MEETS: 7:30 PM 3rd Thursday of month.
Security Bank Basement, Ponca City
PRES Chuck Willis WB5DOT 765-5366
V-P C. L. Hallmark W5ZWM 762-8620
SEC/TR Jay Williams W5TXF 765-9440
CLUB EDITOR Chuck Willis, WB5DOT

It doesn't seem possible that another month and a summer have slipped past again, and it is time for more great words of wisdom from northern Oklahoma. This past month has been rather busy at our QTH with all the end of summer activities, but we managed to sneak in a few 15 meter QSO's anyway.

Our August club meeting was attended by 13 members and a guest. We didn't have a whole bunch of business to attend to, so we had a lengthy discussion on the subject of lightning being hazardous to your rig's electronic health! Grady Skillern, WB5SAG was the unfortunate recipient of natures light shows. During a recent thunderstorm, Grady had taken all the normal precautions that most of us do, such as disconnecting the antennas and grounding them, powering off rig's, ect. Grady did not take a direct hit from the high voltage demon, but instead lightning struck a powerline(not even his own) some distance from his QTH. The induced voltage in his own power line was sufficient to wipe out a FT-101,HW-2036, and Bearcat scanner, even though they were powered off and not connected to antennas. I think that all of us will be a little more attentive to pulling the plug when the next thunderstorm rumbles through. Experience can be a very hard, and expensive teacher--first she gives the test, and then the lesson follows afterwards!!

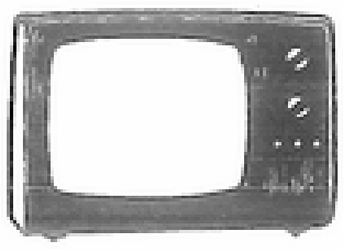
The remainder of our August club meeting was a presentation on some of the various awards available to radio amateurs. Some of the old standbys such as WAS and DXCC were discussed along with some of the lesser known stuff like"WORKED 10 ERIE HAMS" award. (I don't know if they were erie, but I've certainly worked some strange hams before!) For those of you who like to collect unusual wallpaper, there are multitudes of awards available, and you may already qualify. Check your log book and old copies of QST detailing the various awards.

With college starting again, we've lost two of our active club members to the OSU campus again. Tony Congram,WD5EAA and Vern Trieber,N5ANV will now be heard from the club station W5YJ at OSU. Best wishes go out to them for a good academic year from all of us in Kay County.

SET time is upon us again this next month and I'm sure your EC will be looking under rocks for volunteers again. Before you turn on your automatic "NO" answer with a big ho-hum at his request, think of the surprises that awaited the ham communities in Whicita Falls and Lawton this year. If we don't want to look like a bunch of undisciplined slobs at the next disaster that happens to fall in our back yards, then we need to practice,practice,practice. So when the EC comes your way, don't turn a deaf ear--you may be the one who is center stage without a script the next time a disaster strikes.

73's

Chuck



AMATEUR
TELEVISION
SOCIETY

MEETS: 7:30 PM 2nd Thursday each month
American Red Cross, 10th & Hudson OKC
PRES Larry Griffin WB5NYX 733-8110
V-P H. E. Hutchins K5SUD 677-5272
SEC/TR Virgil Kerr W5LIL 787-5834
CLUB EDITOR: Larry Griffin

What do the following have in common? Besides being amateur radio operators ? :

WB5NYX WB5EVO W5JGC WB5OKJ WB5VQG K5CFM WD5DFS WB5SRX K5VRL ?
K5SUD WA5HTL N5BEQ K5LDL WD5HHL WB5NXO W5WL K5HQP WB5CNM ?
W5LIL WD5FIS WB5TKG WA5CZN WB5VAE N5WM AC5C K5NK N5ANG ?

And why is your call missing? There is room ...

These are HAMS, in every sense of the word, because, besides being Amateur Radio Operators, they're also on TV, often, hamming it up where they can see and be seen; give up? OK, we'll tell you - they're Amateur TV Operators, members of the Amateur Television Experimental Society, right here in central Oklahoma.

The Society (ATV for short) held its monthly meeting of September (second Thursday) on the 13th at the central Red Cross building and you weren't there, were you?

Here's what you missed: self introductions, when you would have gotten to meet all these fine hams listed above and they would've met you; a report from the Treasurer, Virgil W5LIL, that the treasury's in excellent shape in the black; the appointment/nomination/volunteering of Doc WA5CZN, Mike N5ANG and Paul WA5HTL as the club's representatives to CORA; minutes of the previous meeting from Butch K5SUD wherein it was announced to decide this month definitely whether to buy or build a TV repeater: it was decided at this meeting to buy; Tony K5CFM offered to donate the antennae for the repeater to the club if we vote to change our frequency plan from 439.11 to 439.25 MHz. as is common across the country (see page 96 of your repeater directory), whereupon his offer was gratefully accepted; we will try to use the repeater site offered by Central State University in Edmond (first, because of the generous offer; second, because of the heighth available there) so the repeater was ordered!

Technically there's more: the antennae will be vertical polarized for the longer distances; the machine will be "in-band:" 70 cm in, 70 cm out, probably a 12 MHz split (which is common) and we'll use horizontal polarization for direct/simplex operation.

If the site in Edmond, on K5SC's tower, is unsuccessful, we have an offer of professional building roofs near Northwest Highway and Portland where we will have access to phone lines and can use separate buildings for transmit and receive portions of the repeater.

Further, we agreed to continue charter members' memberships for one year after we begin the operation of the repeater,

Now, see what you missed? We adjourned at 8:31 pm CDT.

So, come join us, 7:30 pm CDT, 2nd Thursday, 11 October, American Red Cross, 323 NW 10th Street, Oklahoma City, northwest door, in the rear.

Look for you there!

Jim N5BEQ Jim
(Reporter-at-Large)

Shawnee Amateur Radio Club

W 5 S X A

MEETS: 8:00 PM, 2nd & 4th Tuesday
Shawnee City Hall, EOC
Pres Earl Couch WB5ZBA
V-P Jay Tingler WD5BUQ
Sec/Tr Bill Warren WB5TZQ
CLUB EDITOR Jay Tingler, WD5BUQ

WORK DAY - ROOF: Saturday, September 15 was work day at the club house. Under the astute leadership of our president, the old, rotten roof material was cut away and replaced. An area about 3' x 5' was repaired. A roofing crew will be out soon to put down an all-over felt and mop job. Those present were WB5ZBA, WB5TZQ, K5LZF, KB5KS, and WD5BUQ.

HT's - HT's - HT's: More and more hand-held transceivers are showing up in the Shawnee area. I had the pleasure of using one during Ham Holiday; thanks to ED, KA5AFC and really enjoyed it. Maybe, some day .....

CAN-DO: Earl, WB5ZBA tells of a tavern operator in Tecumseh who saves all aluminum cans and donates them to the local Civil Defense organization. The funds raised in this effort support communications and other equipment. The donor gets a tax break and the community gets better emergency service. Ham clubs take note!

UP-GRADE CLASS: Yes, Virginia, there will be an up-grade class for General/ Technician Class theory. Les, WD5FUG, is the instructor. Classes will start on October 18th with the January 1980 testing cycle as the finish date. Classes will meet in the EOC; time to be announced. A Novice Class is tentatively scheduled to start in January.

NEW SOURCE: Electronics Theory Handbook is an annual magazine published by Davis Publications, Inc. The 1979 Edition has some very good - easy to read and understand - articles of interest to hams. There is a little bit about a lot of things in this little magazine. Antennas, code, two meters, propagation, TVI, Ohms law, SSB, FM and on and on. The section I enjoyed most was "Learning About Computers." If you are an Elmer - or trying to be - it would be good for "that - kid - next - door."

SAVE A BUCK: A simple arrangement of a number of empty aluminum pop cans, a piece of plywood with an equal number of 2 5/8" holes, a piece of glass or plexi-glass the same size as the plywood and a simple 1" x 6" frame can produce free heat this winter. Cut the holes in the plywood on about 4" centers. Cut tops out of the cans (size can depends upon what you have lying around.) Mount the plywood on one side of the frame and glue or tack open end of the cans into the holes, flush with the outer surface of the plywood. Paint cans, inside of frame and plywood, flat black. Mount the glass on the other side of the frame. Now, we have a rather flat box full of black pop cans with glass on one side and a bunch of holes on the other. Seal all joints to keep rain, etc. out and air, etc. in. Set this thing up out in the yard with the glass facing the sun. Lean it over at an angle equal to your latitude (about 32° in Central Oklahoma). This is not critical - just more efficient. This may not be a very attractive lawn ornament but the heat coming out of the holes on the shady side of this contraption is impressive. Now, build some kind of chamber on the back side of it. Insulate this part if you like. Hang the whole thing in a window on the south side of your house (or your best friend's), provide some way to exchange the air in the heat chamber with the cold air on the floor inside the house (flexible dryer duct and a whisper fan, maybe) and, voilla - "free" heat!! What does this have to do with amateur radio? I'm going to heat the Shack with mine! (NOTE: If you want something a little better, the "Heat Grabber" featured in Mother Earth News No. 54, Nov-Dec 78, may be for you. It is much more sophisticated but only slightly more expensive. The metal plates required are available at the local newspaper office for fifty cents.

73,
Jay / WD5BUQ

AERONAUTICAL CENTER AMATEUR RADIO CLUB, INC.

W5PAA

MEETS: 8:00 pm First Friday each month
Flight Standards bldg, FAA Aero Center

PRES	Bob Pace	WA5CJG 376-3569
V-P	Bill Oliver	K5KDR 329-6333
SEC	Bob Graham	WB5NSV 677-8685

Club Editor, Bob Graham, WB5NSV

MINUTES OF THE SEPTEMBER MEETING OF THE ACARC

The September meeting was called to order at 8:00 PM by President Bob Pace, WA5CJG. There was a very good crowd of members and guests present. The usual round of self introductions was followed by a variety of reports, and announcements. A summary of these announcements follows:

It was announced during the self-introductions, that the Oklahoma County emergency Net now meets Mondays at 9:00PM on 146.52 MHz.

Charlie Greene has a new grandson. Congratulations Grampa!

George Lagaly, W5WTL, gave a report on the W5PAA station equipment. He reported that the TR-4CW has been inoperative, but that it has been repaired and is now operational. George, also set a tentative date for September 15, for a W5PAA antenna party.

Bob Graham, WB5NSV, gave a report on the latest CORA business, and reported on the success of Ham Holiday 1979. He also reported that CORA elections will be held at the September CORA meeting, and that new CORA representatives should be at that meeting.

President Pace at that time announced the appointment of George Lagaly, W5WTL, Bill Oliver, K5KDR, and Bob Graham, WB5NSV, as the new CORA representives for the Aeronautical Center Amateur Radio Club.

Bob announced that the program for our October meeting will be on a subject of rapidly growing interest, SHF Converters. He also announced that OG&E will be presenting the November program. More on that later.

Bob then asked for anyone interested in helping make the arrangements for our annual Christmas Dinner to please contact him individually. Help is needed and we invite your participation.

The program for the evening was presented by Joe Buswell, K5JB, who gave an excellent program on how to remote control your station. Joes program was complete with actual demonstrations, and was very much enjoyed by all who attended. Thanks Joe, for a fine program.

The meeting adjourned at 9:10 PM for coffee and donuts.

Bob Graham, WB5NSV, Secretary/Treasurer

RANDOM WORDS FROM THE PRESIDENT;

OUR SEPT. MEETING WAS A GOOD ONE, WE HAD JOE K5JB OUT TO PUT ON OUR PROGRAM. JOE SHOWED US HOW WE MIGHT REMOTE CONTROL OUR H.F. GEAR, THE PROGRAM WAS VERY GOOD, AND I WOULD LIKE TO THANK JOE FOR COMMING OUT TO PUT IT ON.

BOB WB5NSV IS HEADING UP THE CLASSES AT THE RED CROSS AGAIN THIS YEAR OUR CLASSES STARTED SEPT. THE 12TH. BOB SAID HE HAD A GOOD TURN OUT FOR THE FIRST NIGHT AND THERE WOULD PROBLY BE MORE SHOW UP AT THENEXT CLASS SESSION.

OUR PROGRAM AT THE OCT. MEETING WILL BE ON THE DESIGN OF VHF/UHF/SHF CONVERTORS, COME ON OUT AND JOIN US.....

73,BOB PACE,WA5CJG.

The South Canadian Amateur Radio Society

TO OUR FRIENDS IN CORA:

This issue of the C&E marks our debut in CORA and our first contribution to its publication. It is perhaps enough for me to say:

1. Thanks for accepting us into the most influential amateur radio organization in Oklahoma.
2. We'll do our best to deserve it.
3. God bless the Liquid Paper Corporation.

Sincerely, Jess, AF5X; President

SCARS: GLAD TO BE ABOARD

As a new member club in CORA, the South Canadian Amateur Radio Society (SCARS) is delighted to be aboard, and I'm sure I speak for all the members when I say we hope we can pull our weight and make a contribution.

SCARS is a relatively new club. It was formed in the Fall of 1977 largely at the instigation of Carl Horowitz, WB5QNK, and Jess McKenzie, WB5UWB (now AF5X). From the outset, meetings have been held at the Cleveland County Red Cross building on the North Campus. Purpose of the club, in addition to good fellowship and enhancement of amateur radio skills, is community service, especially through emergency operations. Business meetings are held on the third Saturday of each month, but you'll find a dozen to 20 members at the Red Cross every Saturday for coffee starting about 9:30 a.m.

Because it is closely allied to the Red Cross and the Cleveland County ARES, the club has centered much of its activity on emergency operations. One of the first orders of business was to put up a 40-foot Rohn tower and dipoles. A club station, donated to the Red Cross and kept in order by members, became a reality only this Fall after a lot of effort. (See related story.) Many members have cross-membership with the OU club, the FAA club, and others.

The organizing president of the club was Horowitz. He stepped down last January and McKenzie was elected as president. Other officers are Joe Green, KA5AXQ, vice president; Charlie McCown, WB5UUX, treasurer, and Jack Bickham, WB5TZZ, secretary.

SCARS is not a big club. Attendance at business meetings usually runs about 18 members. Projects to date have included Field Day at Norman's Andrews Park, this year in cooperation with the OU bunch; work on the tower, antennas and club station; a holiday message-handling demonstration booth at Sooner Fashion Mall; communications assistance during a fund-raising marathon, and help with a novice class. Many Saturdays during the year combine coffee-drinking with brief instructional sessions on traffic-handling and other phases of emergency service.

Projects afoot at the moment include planning a novice class, getting the club formally incorporated, and participation in the October SET. Before long there will be talk again about a Norman amateur radio Christmas party, which SCARS initiated last year. The family dinner at a Norman motel was carried off in cooperation with the OU club and was considered a great success.

If you find yourself at loose ends some Saturday morning, come join us!

-- WB5TZZ

NORMAN CLUB RAISES FUNDS, GETS RED CROSS STATION GOING

For more than a year after its inception, the South Canadian Amateur Radio Society struggled to get a club/Red Cross station on the air. During simulated emergencies, the club tower, dipoles and Ringo Ranger, bouth with donations by members, were used. But members hauled in their own equipment from home for these exercises.

Today, after a public fund drive spearheaded by Verne Hoag, KB5DK, the club has been able to install a Kenwood station. The 2-meter rig is up and operating and the Kenwood 120 is expected back on line any day after encountering some factory-type glitches. The station also includes a rotor, wattmeter/SWR bridge, 2-meter Swiss quad and 5-element HF tribander, all courtesy of TET USA, the new Norman-based branch of the respected Japanese antenna firm. Bob Fields, N5ALG, was instrumental in securing the donation of some of this antenna equipment from TET, and of course everyone thanks both bob and the people at TET very much.

Raising money, we learned, is not hard when your club has someone willing to invest countless hours of effort. Verne has done just that. Armed with a detailed outline of station needs as well as a statement of purpose for emergency operating, Verne has personally contacted dozens (if not hundreds!) of Norman area business people and civic organizations. The response has been fantastic. Equipment on line so far is paid for and the club hopes to add a coax switching device and other necessary goodies without incurring debt. A special committee is looking into the possibility of buying a repeater which could provide emergency redundancy for the WR5AFW machine everyone likes and uses so much locally.

A great many members have invested time and effort into assembling of the new station. Verne and Bob have been mentioned because their efforts have been so outstanding. The fact that the others are not mentioned is in no way a denigration of their work. So many have given help that listing all of them would require too much space for one report. They know who they are, and so do their fellow members of SCARS.

The station is going to remain super-compact to avoid interfering with daily routine at the Red Cross. Even with pieces missing and a bug waiting to jump out of the 120, however, one of the first stations worked during a trial run was the DX-pedition on Manihiki. So we think we'll have a first-class operation going in another month or two.

SCARS will have an open house for donors and the general public to view the new equipment in operation this Fall. We hope the station will provide new muscle for emergency operating capability in central Oklahoma -- and we hope just as fervently that a serious emergency never comes along.

-- WB5TZZ

ANTENNA WHAT?

The newer FCC exams have included some questions on antenna aperture, and some confusion has resulted from the fact that there's two kinds of the critter: Physical Aperture (A_p) relates to the Physical dimensions of the antenna. For example, if you wanted some gain at VHF you might put up a dish of large diameter that would give you a big area (related to physical aperture), but it might not -- if you had not designed it right-- give you all the gain you ought to have. We can measure the gain on the antenna range, and from our data we can calculate a different kind of aperture, called the Effective Aperture (A_e), which is a function of gain:

$A_e = G\lambda^2 / 4\pi$ When G is the gain over an isotropic radiator, that hypothetical device which radiates in a spherical pattern (not even dipoles do this; remember the donut pattern?). A dipole, by the way, has a gain of 1.64 over isotropic, and we can calculate A_e for the dipole from:

$A_e = 1.64\lambda^2 / 4\pi = 0.13\lambda^2$ In words, a dipole has an effective aperture of 0.13 sq. wavelengths, a convenient unit that eliminates the need for considering frequency.

CONTINUED

Of course, other antennas have better or worse gain than a good dipole, and therefore they have greater or smaller effective apertures. For example, the 1,000 ft diameter radiotelescope antenna at Arecibo has an area of 7.3 X 10^4 sq meters, which at 432 mHz gives:

$A_p = \pi R^2 = 1.53 \times 10^5 \lambda^2$. The gain of this antenna at 432 is 60 dB over isotropic, by measurement, and in non-log terms that's 1 million.

By the equation: $A_e = G\lambda^2/4\pi = 10^6\lambda^2/4\pi = 8 \times 10^4\lambda^2$

Putting that in terms of efficiency: $A_e/A_p = 8/50 = 0.52$, or 50%.

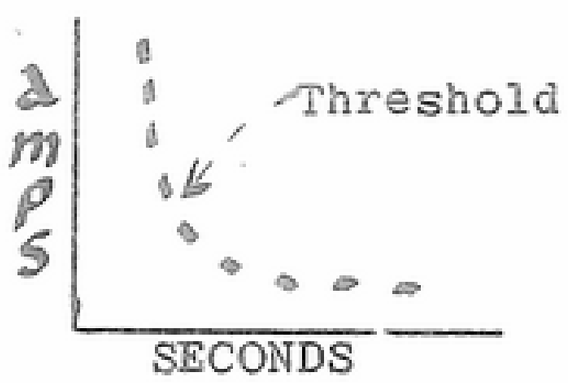
A payoff of 50% is about what we'd expect. Any less is cause to look for bad design, impedance match, etc. For example, in a Yagi it's not the number of elements that makes the gain, but the spacing; in other words, the boom length. As to what the FCC means by "aperture", read the question; maybe the context, or the choice of answers, will give you a clue. (REF's: W.J. Orr, Beam Antenna Handbook; ARRL, Antenna Book, p.317) GL, Jess, AF5X.

THE ADVANTAGES OF A GOOD GROUND

(Or How to Avoid Probate)

(Reprinted from the OKlahoma MARS POW-WOW, July-August, 1979)

Except for I^2R heating, alternating current produces its harmful biological effects by either stimulating or paralyzing the irritable tissues. The extent of the effect depends upon several variables: Current Intensity, Exposure Time, Body Weight, and Frequency. The first two factors interact in this way:



This "strength-duration" curve shows that an effect will result when both current and time exceed certain threshold limits; i.e. above and to the right of the curve drawn on the graph. If either t or I is below the line there is no effect.

Let's dispense with frequency by pointing out that 60 Hz is about the worst we could have picked, with respect to hazard-- but it works fine with clocks.

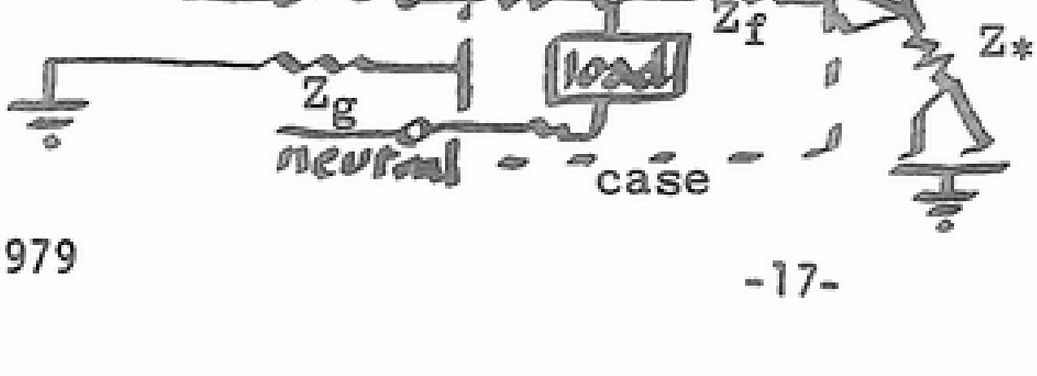
Body weight affects the current density: a big conductor distributes current over a greater cross sectional area. By "big" we don't mean "fat"; that's a poor conductor.

For brevity we'll confine our next calculations to a "standard" man, weighing 150 lbs (68 Kg) ; if you're smaller you will have to reduce the current and time figures some. Here are some current thresholds for our standard man:

EFFECT	THRESHOLD (mA)
Pain	3-10
Muscle Paralysis(frozen grip)	10
Breathing Paralyzed	30
Heart Fibrillates	60-250
Heart Paralyzed	4,000
Tissue burns	5,000

Of course, to calculate current we'll need to know the impedance. For skin this can be quite high, as much as 300 KΩ if the skin is dry, but if it is wet, or the contact area is great, Z can drop much lower; so, at least for voltages below 240 V, 1500Ω is a more reasonable figure. Above 240 V the stuff may punch through the skin, and the juicy, inside part of the body is only about 200Ω . In the interest of optimism, then, let's stay below 240 V and use 1500Ω .

Now look at this little problem:



This is what happens when a ground fault occurs and someone is in contact with the equipment case on the one hand and a fair ground on the other foot. Again to simplify, assume that Z_f at the fault is nil. With a fault condition the current has two new paths to ground:

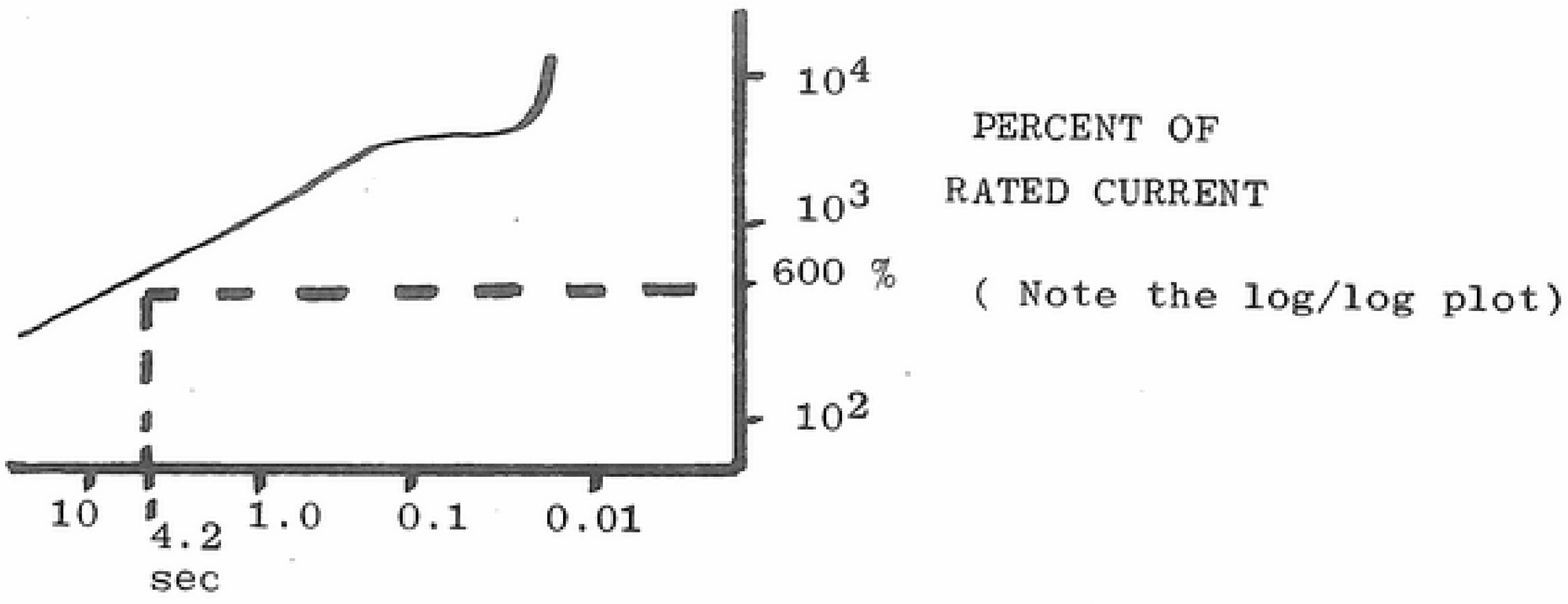
through the ground return, Z_g, and through the little chap on the right (I don't mean to be a sexist here; AC is an equal opportunity killer). Now, assuming that his (or her) Z_* is 1500Ω, and that the current will avoid the very high Z of the load, we can figure the current through each branch. For Z_g we'll use a reasonable(?) figure of, say, 5Ω :

$$I_g = 120/5 = 24A \; ; \; I_* = 120/1500 = 0.080A$$

The voltage used was 120 because it is the most common; but it is enough! From the table we see that 80 mA is over the fibrillation threshold. Remember, though, that we have to consider the exposure time. Prof. C.F. Dalziel of U. Cal., Berkely gives us the equation for time to fibrillate:

$$t_f = 0.027/I^2 = 0.027/.08^2 = 4.2 \text{ sec}$$

So, our chap has 4.2 seconds to let go. But can he? The table tells us that he has a good chance of freezing to the source-- 80 mA is over the 10 mA required for this-- unless, of course, he is holding the source just right and gets knocked loose. Now, the crucial question is, will the circuit breaker trip before the 4 seconds is up? Let's look at some of the properties of the breaker:



T is typical time/current chart shows the average maximum time to "break", plotting time against per cent of rated trip current; i.e., 100% of a 20A device would be 20A. Now, we look up 4.2 sec on this chart and see that our friend doesn't have a prayer-- well, maybe a short one. The breaker has only 24.08A flowing through it, but it needs 120A to trip in 4.2 seconds (6 X 20A). How good a ground would our friend need to get by? Well:

$$Z = V/I = 120/120 = 1\Omega = Z_g$$

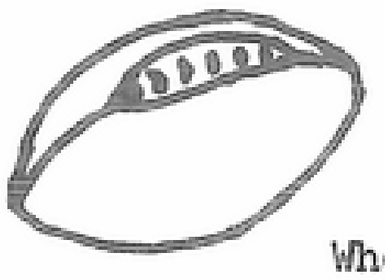
The moral is obvious: check your ground returns and get 'em down to, say, 2 ohms or less. If they're too high look for bad bonding or bad design; for example, aluminum-copper connections look good, until the high humidity causes corrosion and a high Z; so, don't use 'em.

Think about adding a separate ground rod, or installing a ground fault interrupter, if you don't have one already; these widgets sense current flow in the ground return and shut off the system when this happens.

About the use of "Z": At 60 Hz people are mostly resistive, but wiring is often not. So, get an impedance-measuring device that will give you an indication when the Z_g is two ohms or more. These things sell for $30.00 , or less. (REF's: Kleronomos and Cantwell, IEEE Power System Technology Conference, pp. 1-9, 1979... C.F. Dalziel, Electric Shock Hazards. IEEE Spectrum, pp. 41-50, 1972.., Jess, AF5X

WHEATSTRAW 01-61 ARC ®

MEETS: 2:30 PM 1st Sunday. Location varies. See Text.
PRES Marvin Stokes WA5JHB 893-2221
V-P Ted Vanlangham WD5JNT 262-1675
SEC/TR Ralph Wilder WA5PFK 623-5421
CLUB EDITOR Virginia Beneda, WB5WTH, 825-3302



FALL - WHEATSTRAW - FOOTBALL

I don't know how many of you remember Andy Griffith's record of "What It Was-Was Football", but at the September meeting of the Wheatstraw ARC "What It Was-Was Foodball". The Quarterback, WA5JHB, called the first play of the afternoon by having K5GBN lead us in returning Thanks. The second play was a scramble at the food line. A Varsity of 52 came out of the huddle and hit the line hard, but when the whistle blew the people were down and the food still going strong. And what a variety of food! It practically covered the culinary field from end zone to end zone. The day couldn't have been more beautiful nor the picnic area and lake more scenic. Thanks again Canton & Longdale for inviting us and attending to all the necessary details.

About the time everyone settled down on the sidelines, WA5JHB pulled a Quarterback Sneak and set the business meeting in motion. It was reported a lot of yardage was being made on the Power Dividers by WD5JNT, WA5FLT and K5GGL working on a dummy load and making meter readings in a circle around the repeater and looked as if they were in for a touchdown when WD5GLD made a shoestring tackle from Kingfisher and sent them back to the huddle to work on a new signal. Hang in there fellows - we're rooting for you! Then WA5FLT got the backfield in motion by suggesting the repeater frequency be published in CORA. WD5JNT snapped the ball with a second, so fans keep your eyes on # 01-61.

Ralph, WB5PFW, winged a long pass aimed at changing the club meeting date to the first Sunday of each month to allow the reporter more time for an end run around CORA. Pass completed! so remember team ----------

NEW MEETING DATE FOR WHEATSTRAW !!!

First Sunday of each month.
Next meeting - Sunday October 7th at Okarche.

Thanks Ralph! I appreciate the block. (Just hope I don't drop the ball. Ha!)

Some hardy guards bucked the line on a midnight transmitter hunt recently. 34-94 in Enid and OKC had both been timed out by a constant signal. K5GGL heard the call for assistance and punted to K5GBN; I don't know who all got a piece of the action but by 1:30 AM they had pinpointed the deflection in El Reno and completed the play. Rah! Rah! for Wheatstraw! Good going gang.

Ralph, WA5PFK, will kick-off on net control this month. I counted 7 YL members and 8 YL associate members in our club so let's try for at least "10" yards for YL check-ins one night this month. You old line guards can run interference as Control Operators and the YL's can at least say Hello, or tell some new recipe they tried, or whatever. What do you say YL's?

After the motion for adjournment, Ray, AB5Z, and his YL invited those present to tour their new underground home. Everyone was quite impressed with what they saw, but the real hot-spot seemed to be the radio room. YL's tried to throw screen passes on their husbands but were out flanked by interceptions and the husbands ran center field for good yardage.

Well, that about wraps it up for this game. Mark your calendar now for October 7 in Okarche, and tune in to WB5WTN next month for a whole new ball game.

73

Need some good 2 meter equipment?
Joe WA5FLT
has
8 Element - 2 meter antenna's with 14' boom length

Model HT220 Motorola - 2 meter handy talkie's
2 - 4 - 6 or 10 channel

Central Oklahoma Radio Amateurs, Inc.

MINUTES

The August 28th meeting convened at 7:34 p.m. with 14 representatives and 4 guests from six of our 14 clubs present.

Minutes of the July meeting were approved as published in September Collector and Emitter (C&E).

Treasurer's report was approved as read and will be printed in financial statement format in a forthcoming C&E.

There being no announcements we moved on to Old Business in order to pick up reactions to Ham Holiday '79, for the record: broke even financially as desired; some registrants felt shortchanged on variety of prize values; there were two known complaints of badge security at the flea market; formal security suggested for future events; 3 months' advance advertising suggested including registration forms and rules of procedure; include rules in programs (the timetable) with statement of allowable time for flea market set-up; it was suggested to move to Oklahoma State Fairgrounds or OCU; set open hours for the dealers who must collect sales tax; open banquet hall for all to hear speakers; limit the number of commercial exhibitors; buy prizes Saturday evening instead of Sunday; set up time and space for Kadiddlehopper's Annual Meeting; registration needs more people to operate the desk functions between 9 and 5 Saturday; facilities committee needs an assistance team of volunteers from Friday evening to Sunday noon; to avoid last-minute changes and surprises, all agreements with facility need to be in writing, in advance; some committee, such as programs, needs to take the responsibility to publish a written timetable-type program for calendar of events; need to decide on a coordinating radio frequency for committee chairmen and responsible people during the event when needed; need a committee to monitor repeaters for talk-ins; some dealers suggested putting them on the same floor as other events and others suggested putting them all together in one large room by booths; might have one-hour breaks between hour-long programs, two-hour meal breaks; schedule a formal program for Friday evening; involve the Boy Scouts (or Girl Scouts) and their program in radio communications; have programs on Lightning Protection, CPR (Cardio-Pulmonary Resuscitation), Emergency Medical Aid Teams, Operating Procedures, Antennas, and something aimed specifically at Novice License Holders directly; CORA could provide community meals Saturday noon and evening; and we could use the Myriad or Sheraton Century Center for a site...

New Business: it was moved, seconded, and passed to replace Mark's label maker (which bit the dust during registration) from CORA funds; the motion passed to hold Ham Holiday '80 and the State ARRL Convention 25, 26, and 27 July 1980 in Oklahoma City.

Thirty days' notice was given of intent to amend the Constitution, Article 2 - Purpose, second sentence, following the word "operators," by adding the clause "to be held annually in the Oklahoma City metropolitan area" followed by extant semicolon; said notice through motion seconded and passed. Question will be voted on at first meeting following 27 September 79.

Acceptance of South Canadian Amateur Radio Society (SCARS) was voted, making it our 14th member club by number, number 15 entry in our computer (Ed. note: #1 is ACARC; #2 - OCARC (VHF); #3 - MORI; #4 - OCAPA; #5 - OU; #6 - Altus; #7 - 76ers; #8 - SUBSCRIPTIONS; #9 - Wheatstraw; #10 - Choctaw; #11 - EARS; #12 - Shawnee; #13 - Kay County; #14 - ATV; #15 - SCARS-----15 numbers, 14 clubs).

It was decided to attempt tax-exemption status for CORA through Ron, WD5FAQ.

It was voted to return a confidential, controversial letter to its sender without comment or action.

We are reminded that CORA will begin amateur radio licensing classes at the Red Cross Center Wednesday 12 September 79 (probably 7 p.m.) and the 76ers classes begin 27 September at the Air National Guard base.

Not represented at this meeting were OU, Altus, Choctaw, EARS, Shawnee, Kay County, nor ATVES.

There being no further business the meeting adjourned at 10:06 p.m.

Jim, N5BEQ,
Secretary.

CORA IS STRENGTHENED

Central Oklahoma Radio Amateurs is proud to announce another club affiliation: the South Canadian Amateur Radio Society (SCARS). The Norman area club applied for affiliation at our August meeting. Watch for future information in the Collector and Emitter on the club's activities. There are many talented people in the organization.

HOW ACTIVE ARE WE, REALLY?

If there is any concern I personally have for the future of CORA, it would possibly be in the area of public service and publicity. We ourselves know what can be done in these areas, but the public still confuses the Amateur Service with the Citizen's Service. We need more community involvement to tell our story.

THANKS

It has been a great personal honor to serve this past year as president of CORA. In this position, I have seen the inner workings, met the people, and in general have been terrifically impressed by the way the CORA system works. CORA is a model organization for many other cooperative groups beginning to form across the country.

As the CORA Constitution dictates, my job will now be "ex-officio" for a period of one year, remaining in an advisory capacity. I intend to stay active in the organization and have appreciated the opportunity of this obligation. Maybe now I'll have some more time to get on the air!

73 to all,
Mark, WD5DYI, CORA President

CENTRAL OKLAHOMA RADIO AMATEURS
CASH FLOW
September 1, 1978 to August 31, 1979

	Ham Holiday	Collector and Emitter	Total
Revenue:			
Registrations & Meals	$7,469.29	$	
*C & E Equipment Fund Donations	897.00		
Subscriptions		1,981.10	
Advertising		727.15	
*Donations (Net from HH)		598.00	
Total Revenue	$8,366.29	$3,306.25	$11,672.54
Expenditures:			
Prizes	$4,007.92	$	
Facilities	2,725.36		
*Net Donations for C&E	598.00		
Name Badges	369.66		
*Special Prize	299.00		
Supplies	176.58		
ARRL (Consignment Goods)	64.25		
Bad Checks	10.00		
Printing		1,777.60	
Paper		784.80	
Postage		245.25	
Equipment		103.20	
Donation to Aeronautical Center ARC		300.00	
Other		64.36	
Total Expenditures	$8,250.77	$3,275.21	$11,525.98
Increase in Cash	$ 115.52	$ 31.04	$ 146.56
Cash Balance September 1, 1978	1,274.27	618.12	1,892.39
Cash Balance August 31, 1979	$1,389.79	$ 649.16	$ 2,038.95

PHONE PATCH, AUTOPATCH, ALL AROUND THE TOWN

The legality of the phone patch and autopatch has never been one of those items that was understood with crystal clarity at the few ham bull (?) sessions that I have had occasion to attend. Phone patches use to be illegal according to the telephone company tariffs because those tariffs forbade the attachment of certain type of foreign attachments to the telephone company without a phone company protective coupler. This has become a completely different story since the Carterfone decision and subsequent other cases that finally forced the phone company to recognize and register certain types of foreign attachments as being safe for direct coupling to the lines. You might want to read foreign attachment as "phone patch, autopatch, recorder, answering machine, and etc. This was always a curiousity to me since the phone company never used any type of protective coupler for their own equipment such as the Codaphones. As a result, companies that manufactured telephone answering devices and other types of telephone accessories had difficulty competing with the phone company since they had to send their customers to the Bell office with hat in hand and request the installation of a protective block to interface the equipment. This was true even though the speakerphone or answering machine had the exact same circuit that the phone company used in their answering machine or speaker phone which did not require a protective block, of course.

I really don't want to get into any type of discussion as to whether or not the phone company's tariffs on protective couplers were essentially anticompetitive, but it easy to see that manufacturers of these devices could not effectively compete since they were already down the installation fee and monthly rental for these devices. I am concerned, however, with the legality of the phone patch and autopatch devices, not just with the tariff, but whether or not the phone company, as a complaining witness, could seek a criminal charge or liability against some amateur radio operator who used a patch.

There is a law which forbids the unlawful procurement (or theft) of telecommunications services and imposes a criminal penalty for anyone convicted of such a violation. The law was passed in 1965 as a means of protecting the phone company from various types who steal phone company credit cards or who charge phone calls to nonexistent numbers or connects a device to the line that can be used for avoiding a lawful tariff. The law is found in Title 21 of the Statutes and is reproduced below:

§ 1515. Telecommunication services—Unlawful procurement—Penalty

Any individual, corporation, or other person, who, with intent to defraud or to aid and abet another to defraud any individual, corporation, or other person, of the lawful charge, in whole or in part, for any telecommunications service, shall avoid or attempt to avoid or shall cause or assist another to avoid or attempt to avoid any such charge for such service:

(a) by charging such service to an existing account, telephone number or credit card number without the authority of the subscriber thereto or the legitimate holder thereof; or

(b) by charging such service to a nonexisteut, false, fictitious, or counterfeit account, telephone number or credit card number or to a suspended, terminated, expired, cancelled or revoked telephone number or credit card number; or

(c) by use of a code, prearranged scheme, or other similar strategem or device whereby said person in effect sends or receives information; or

(d) by rearranging, tampering with or making connection with any facilities or equipment of a telephone or other communications company, whether physically, inductively, acoustically, or electrically, or by utilizing such service, having reason to believe that such rearrangement, connection, or tampering existed or occurred;

shall be guilty of a misdemeanor, and shall, upon conviction thereof, be imprisoned not exceeding one (1) year or fined not exceeding One Thousand Dollars ($1,000.00), or both, in the discretion of the court. Laws 1965, c. 137, § 1.

It can be seen that the statute covers the usual and normal frauds that occur such as charging to nonexistent phone numbers or credit cards and unauthorized use of telephone credit cards or phone numbers. I would imagine that this has really been a problem with the phone company although I would assume with their computers and what not, they could prevent a certain amount of this with just a little vigilance. Of course, the operator or accounting agent could alway call the person who received the illegal call and attempt to find out who made the charges and attempted to charge them, but as a practical matter, this probably just doesn't occur very often. This is costly, not only in lost revenue, but also in manpower needed to chase down the culprits.

I am not suggesting that the phone company does not need such a law to protect them, but it does made an amateur radio operator walk a thin line when he attaches his phone patch or autopatch to the phone line and in most cases ignorant of the law that formerly required a protective coupler or now requires a registration with ATT. For those devices that are not registered, the protective network is still required. The phone company may still be entitled to a revenue for the protective network and the amateur may find himself still civilly liable for it. As will be seen later, the amateur does enjoy a certain amount of protection from criminal liability.

An additional section of the law makes the possession of such devices or the sale of devices or plans to procure services a crime and these are found in Section 1516 of Title 21:

§ 1516. Devices or plans to procure services—Making, possessing, etc., prohibited—Penalty

Any individual, corporation or other person who:

(a) makes or possesses any instrument, apparatus, equipment, or device designed, adapted or which can be used

(1) to fraudulently avoid the lawful charge for any telecommunication service in violation of Section 1 of this act; or

(2) to conceal, or to assist another to conceal, from any supplier of telecommunication service or from any lawful authority the existence or place of origin or of destination of any telecommunication; or

(b) sells, gives or otherwise transfers to another, or offers or advertises to sell, give or otherwise transfer, any instrument, apparatus, equipment, or device, described in (a) above, or plans or instructions for making or assembling the same; under circumstances evidencing an intent to use or employ such instrument, apparatus, equipment, or device, or to allow the same to be used or employed, for a purpose described in (a) (1) or (a) (2), above, or knowing or having reason to believe that the same is intended to be so used, or that the aforesaid plans or instructions are intended to be used for making or assembling such instrument, apparatus, equipment, or device;

shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be imprisoned not exceeding one (1) year or fined not exceeding One Thousand Dollars ($1,000.00), or both, in the discretion of the court. Laws 1965, c. 127, § 2.

The problem here is that the theft of telecommunications services is a rather transistory thing. It is difficult to detect in some instances and even more to difficult to catch. So the law builds in an escape clause for the phone company to ensure that they might be able to catch the guilty party at something. This was generally intended to cover the possession of the so-called "Blue Boxes" and "Red Boxes" used by phone phreaks. The law makes the sale of plans for such equipment under certain types of conditions illegal. Besides the abundant number of phone patch articles that appear in the various amateur journals, several years ago 73 magazine ran a series of articles on the telephone company which described and illustrated the schematic for an actual blue box. All that I can say is that you should not ever get caught selling that magazine under suspicious circumstances. I don't know that there might not be some problem with this particular statute in that it might be overly broad and include some activities that might be constitutionally protected.

Actually, I don't intend to be an alarmist in this instance. There is a general escape clause or exemption which was made a part of the law and in its simplicity, it protects the amateur radio operator from criminal liability with a fairly broad cover. The section is 1517 and it is as follows:

> **§ 1317. Amateur radio operators exempt**
>
> Nothing herein shall apply to public service and emergency communications performed by holders of valid Federal Communications Commission radio amateur licenses without charge on the part of such licensees; provided that nothing herein shall excuse any person from compliance with lawful tariffs of any telecommunications company. Laws 1965, c. 137, § 3.

It is my understanding that lobbying for this section exempting the amateur operator was hard and heavy at the time that the law was passed and the main charge was led by Carl, W5JJ. The law generally exempts public service and emergency communications by amateurs from criminal liability. This might bring up the question of whether or not the use of autopatches is in the public interest. I happen to think that it is. You should also realize that the law does not protect you from a civil liability for the value of the telecommunications service used. Here, I am talking about the possible cost of a protective network and its reasonable rental value when you use an unregistered device on the phone line. If you use a registered device, everthing may be ok. I am, of course, not talking about transmissions across the telephone companies tariff barriers for long distance phone calls. This particular topic is subject to a lot of misinformation. It seems to me that when I use my federal license to talk from Norman Oklahoma to Tulsa or wherever I am legally entitled to and I chose to have the person on the other end either automatically or actually connect my radio signal through his radio to the phone line, that I have created no illegal situation. Federal law specifically allows me to make such a communication across the tariff barrier (I hope that nobody suggests that the telephone company has a monopoly over the transfer of information across their tariff barriers whether or not you use their network or not). There might be an argument to be made on the fact that by using my amateur radio I am gaining a pecuniary interest in this communications since I have not had to make a phone call which would have cost me money. Fortunately, the analog is that the FCC already allows third party traffic under certain circumstances and in fact, in many instances, it is encouraged. Why does this third party traffic take on a sinister connotation when an automatic device is used to connect my signal to the telephone? Or even if the connection is made manually? There are additional reasons to be careful with the use of autopatch since the Commission is considering the nature of the service, i.e. whether or not it is a common carrier or not. As such, if autopatch is a common carrier activity, then we might be infringing upon the activities of other radio services with legitimate interests to protect. Thus it is the use of the autopatch that may very well determine its continued existence.

So what do you do to play it completely safe? Well, get a an autopatch or phone patch that is registered for attachment directly to the phone line or obtain and use a protective coupler if your device is unregistered. I am not at all impressed with some of the protective couplers that I have seen. Some of them generally don't consist of anything more than a couple of zener diodes back to back and an occasional DC isolation circuit. Others are more elaborate with active elements and transformers to completely isolate any problems. Of course, you should alway exercise caution to make sure that you are not feeding the line with more signal than you should. One way to eliminate problems is to never draw attention to yourself. And remember that the autopatch may continue to be a part of the amateur scene as long as it not abused and the Commission is given a reason to limit its use.

Micheal Salem N5MS

ACCU-KEYER FOR ALL SEASONS - A CMOS SUBSTITUTE

Why do I have a penchant for building CW keyers? Well, I really can't answer that question. In the 17 years or so that I have been licensed, I have been fascinated by the simplest mode of communication. I used to spend quite a bit of time on CW back in the early years of my amateur career. This included 2 o'clock sessions on 40 CW, operating among the foreign broadcast stations that would squat in the 40 meter novice band. That 2 O'Clock by the way was A.M. I would occasionally zero beat one of those foreign broadcast stations and call CQ. The quieting effect of their carrier would usually quiet down the frequency and by judicious use of the receiver IF Bandpass filters you could cut out most of the audio sidebands. True, the range might have been limited because of the interference of the broadcast station, but it was a minimal problem since I never got into DX.

I owned a variety of keys for use on the CW bands including several hand keys and a unique knee key that strapped onto the leg for use in the military. I don't know exactly where they came from, maybe a tank or something. I also had a bug, but it was given to me and was a real dog and I never learned to use it properly, so I never put it on the air. One man's gold is another man's trash and I traded the key to W5MCJ for his collection. It was unique and kind of rare. I also built several electronic keyers. Mind you, when I was a young tyke, we were just getting all those electronic IC goodies that make the world of digital a practical and fun thing. The first IC keyer I built used a single transistor and worked on a capacitor charge and discharge cycle. Not bad, but my limited resources in Drumright, Oklahoma prevented me from obtaining a satisfactory keying relay to use. I recall that I had scrounged the relay from some radiosonde that someone had given me (Let's give it to Mike, he knows about electronics). It had a little bounce and had a maximum keying speed of about 15 words or so before falling to pieces. I didn't really like it.

I saw the ICKEY keyers in QST and the TO made by Hallicrafters was considered to be one of the ultimates. It used vaccuum tubes (you remember them) and had a nifty neon light on the front panel that bounced back and forth as you keyed the paddles. But the first real breakthrough came with the WB4VVF Accu-Keyer first published in the August, 1973 issue of QST. This was the article that launched a thousand dots and dashes. Jim Garrett WB4VVF has steadily improved on the device and has added many modifications and accessories to this most versitile circuit including memory that won't quit. I see Jim every year at Dayton among the commercial exhibitors selling the boards for his keyers and he appears to do a brisk business, proving that CW aint dead, in fact, I don't believe it is even sick.

I liked his keyer and my fascination with these devices led me to order one of the boards to fiddle with. I had it for several years and finally waited long enough for someone to come out with an article describing how to modify the accukeyer for use with CMOS. (January 1976 QST) I am really glad this article came out because I had just started to lay out a board using 4000 series CMOS to convert the keyer to CMOS from 7400 TTL. The suggestion by Gene Hinkle was so simple, I wonder why it didn't occur to me. He suggested using 74C series with its direct pin for pin replacement of the 7400 series. Well, this made a lot of sense and I orderd the appropriate chips and began construction. About this time, W5HF had moved to Norman for the summer and said that in his busy schedule, he had wanted a good keyer, but had never been able to build one and others that had been promised to him by various friends never materialized. I decided that this was a great way to experiment and prototype a keyer for myself.

I refer you to WA5KPG's article for the complete conversion to 74C CMOS. You will definitely want to include his conversion to a low power clock that

draw literally microamps. In addition, there are a couple of pull up resistors you will need to include on the board to tie up some unterminated gates.

There's a couple of circuits that they suggest for keying and sidetone. I didn't follow the descriptions exactly and built a sidetone of my own. The circuit they describe is as follows:

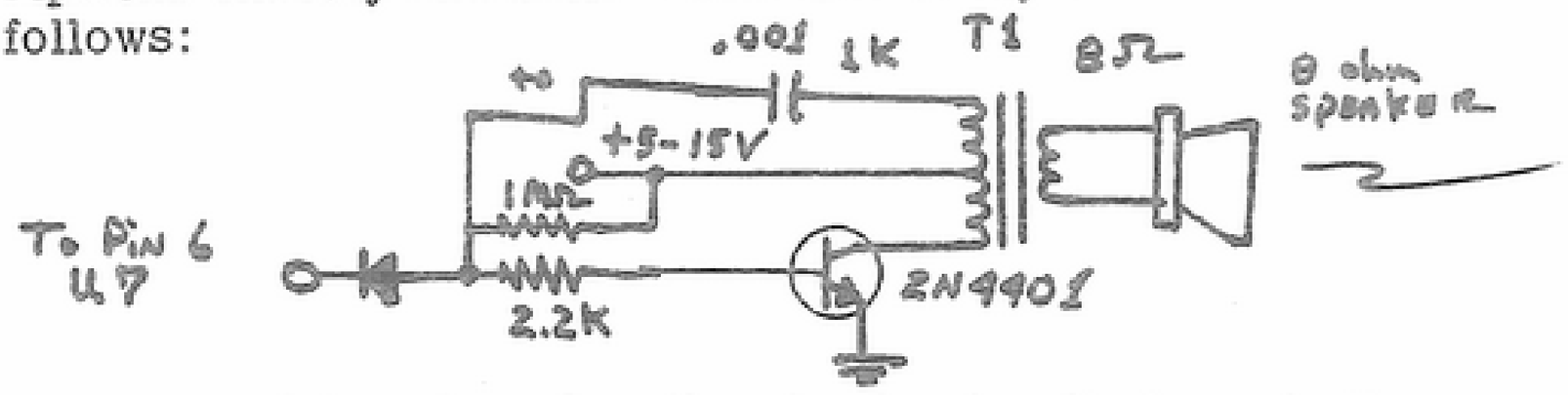


FIG. 1.

I designed a circuit for sidetone based on the simple circuit shown in the left figure below. I needed a little more volume than the circuit above, so I modified it and used a 4011 CMOS IC and had a couple of extra auxilary outputs for whatever use I might need:

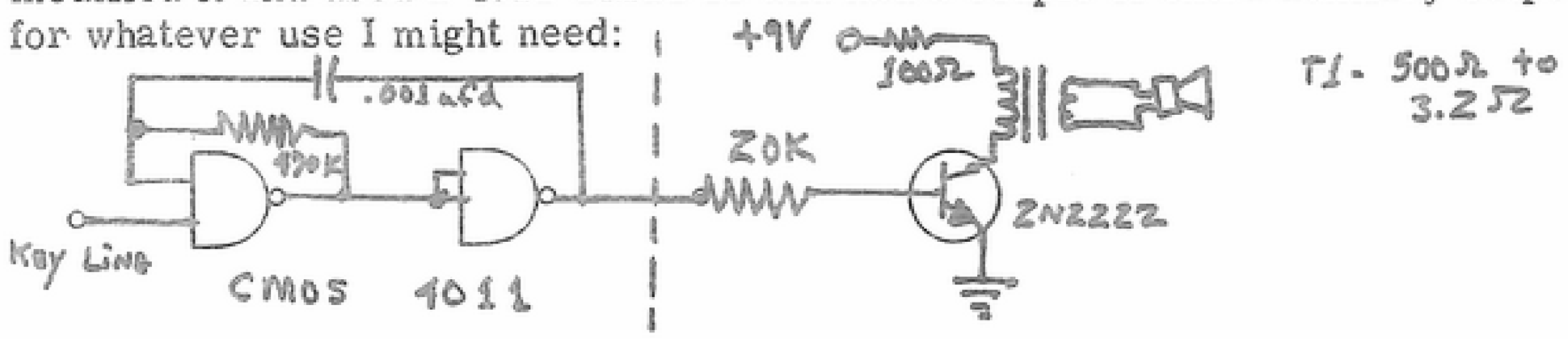


FIG. 2. CMOS Sidetone.

The circuit on the left side of the dashed line is a simple CMOS oscillator that I have used on several occassions for various tone oscillator projects. This circuit provides pretty good output and will give you a snootful of audio if you adjust the 100 ohm resistor downward. I wouldn't go to low. All it does is switch the current through T1. Perhaps, it is not a very elegant design, but it does appear to work.

The keyer appeared to run and I think that I didn't even put an on off switch on it. Key down current was about 5 to 10 mils or so and maybe a little more with the monitor. If you add a grid output circuit, you also can add a couple or so mils to that circuit.

The Accukeyer is nifty and has a good feel with both dot and dash memories and self completing characters. I built two of these CMOS versions and they both worked well. I mounted one in a box like the people from Tentec make. I sent it to Fred and he wrote back that it worked great.

I need to mount that other keyer in another box sometime and maybe when I do, I might drop down on 40 CW some nite and zero beat some broadcast station . . . .

Micheal Salem N5MS

HOW TO FIND THE LAW

I had intended to mention a couple of books that AF5X, Jess sent to me by way of WB5TZZ. These books were special publications of the U.S. Department of Commerce under the Office of Telecommunications and contain FCC decisions interpreting the Communications Act of 1934. The books break down the decisions by topics and then cross indexes the legal topics. They include both case law for the various federal courts and FCC decisions. Out of curiousity, I looked up the topics under amateur radio and amateur radio operators. Most of the citations are to the official reports of the FCC which I understand are in most well equipped law school libraries. There is only one citation to the Federal Court of Appeals case reports under amateur radio.

Adverse decisions of the FCC are appealed by the agrieved party to the Court of Appeals for the District of Columbia. Hum, won't take but just a minute to bop over to the law library here at OU and take a gander at the single entry in the index in the Court of Appeals decisions for amateur radio topics. Unfortunately, the result was not too interesting when I found that it was a relatively minor case dealing with an appeal from a license forfeiture. The appeal was lodged in the Sixth Circuit and was dismissed since the proper place for appeal was the D.C. Circuit in Washington. The fact that only one case existed in the entire index for amateur radio was a surprize to me. It just seemed that there would have been more cases in the Court of Appeals appealing adverse amateur radio decisions.

What does this mean? Essentially, that amateurs depend upon the FCC to decide all matters about their operation and the amateur service. The actual matter is that amateurs are relunctant to appeal decisions of the FCC. This is in contrast to topics that I looked up under the broadcast service or common carrier service. Each of these other topics are peppered with various appeals to the Court of Appeals and an occasional Supreme Court citation. No doubt that these commercial services are not relunctant to challenge Commission decisions in the appellate courts.

The FCC is the determiner of our regulations. Appeals as a practical matter just do not occur. In some instances, an appeal could serve to keep the Commission honest. Regulation writing bureaucrats who have reason to believe that their work product might be tested in the Federal Appeals Court might be more careful and responsive to the the considerations of the governed populace. Who knows, maybe the infamous repeater docket 18803 might have never come about if the FCC had known that the reasonableness of this regulation would be immediately challenged. But this was not the case. We suffered in silence until the Commission on its own motion began deregulation of the repeater and other regulations. This has not been really much of a problem since the advent of the policy of deregulation, but looking through this two volume set got me wondering whether or not there would have been any success back then. In any case, the books form a nifty two volume resource and information source. Thanks, Jess, you don't want them back do you?

Micheal Salem N5MS

TIS BETTER TO RENT THAN TO BUY (OR IS IT?)

I got a catolog from one of those Electronic Instrument rental companies the other day and was perusing it to see what was and was not available on the equipment rental scene. The answer is that just about everything is available to rent, if you could afford it. The rental fees are just another story and appear to run about 1.10 of the total purchase price for just one month's rental. For example, a HP608E Signal Generator which provides calibrated output from 10 Mhz to 480 Mhz was available for just a measly $395 a month!! And this was not unusual. I was just interested in possibly renting a spectrum analyzer for signal generator or modulation monitor for a month or so just to play with it, but I would rather not quote those rental prices. The cost is outasite and reason. I have seen many signal generators in various flea markets of the 608 variety (not E's, of course) that have sold for 1/8 the monthly rental. Well, that's just another silly idea of mine down the tubes. I do understand that these companies occasionally have sales of rental equipment after it has been returned and you might be able to pick up a nifty device for a reasonable price. I suggest that you check with your local electronic rental company.

Micheal Salem

THE UNIVERSITY OF OKLAHOMA

CLUB EDITOR
Nathan Kirby, KB5BF

Alpha Sigma Delta Radio Fraternity

MEETS: 2nd Thursday, 8 PM, (Sep-May)
Room 449, Carson Engineering Center

PRES	James Gardner	KA5DHF	321-8779
V-P	Alan Wormser	WB5QLF	325-2194
SEC/TRES	Peter Richeson	KA5COI	325-3015
DUES	Nathan Kirby	KB5BF	364-7979

NEW CLUB OFFICERS ELECTED

During the first meeting of the 79-80 school year, new club officers were elected. James Gardner KA5DHF was elected to the office of President again. All agreed that James did an excellent job motivating us last year. James, an OSU graduate and former USMC officer, is studying Electrical Engineering at OU. He is also a DJ for WKY Radio and, of late, has been working for O G & E Engineering. Like many of us James has a demanding schedule but still takes time to help the club. James asked each of us to continue helping the club by continuing to perform the jobs we do best. The club needs to continue the momentum it has gained in the past two years. The best way for us to continue this momentum is for each of us to do his part in the most professional manner possible. Alan Wormser WB5QLF, another good man, was elected Vice-President. We kid Alan a lot about his call sign (which he takes in very good humor) but Alan worked hard for the club last year and is looking for another good year on campus. Alan is a General class licensee and is known to be active on HF bands using the club station. Peter Richeson KA5COI was elected to be Secretary/Treasurer. Pete is a Novice and is planning on upgrading to General this year. The club asked me to continue collecting all dues since I already had a good system set up. I will be reporting to and assisting Pete in his role as Treasurer. Because of my graduation from OU last year I am no longer eligible to be a club officer due to changes in the Student Code. I must admit that collecting dues and donations has been an unpleasant job which I would prefer to give up, but I will continue to do the job in the most efficient manner possible. Anytime Pete, our "official" Treasurer, or anyone else in Norman wishes to take over the dues collecting job I do wish they would give me a call. I can guarantee they will have the job and all the record keeping that goes with it in a matter of minutes. I will even personally deliver all records to the new "dues collector". Until then, your cooperation and understanding that this is an unpleasant but necessary job will be much appreciated by me. Nathan Kirby KB5BF Home: 364-7979 Work: 734-5885

ASDRF HAS BOOTH AT KALEIDOSCOPE

Lee Hardy WB5RQB, Special Assistant to the President for On Campus Promotion of the Alpha Sigma Delta Radio Fraternity organized an excellent booth for Kaleidoscope, a back to school function in a cafeteria which gives student a chance to see all campus clubs. Lee and friends had the Kenwood TS-320S set up and operating so the students could see amateur radio in action first hand. Demonstrations of two meter repeater operation and autopatching was also performed. The effort was a big success and I know the club appreciates his efforts at organizing the effort as well as the efforts of those who participated.

GENERAL CLASS LICENSE CLASSES BEGIN

The General Class License course under the direction of Joe Green KA5AXQ have begun. The classes are being held at the Cleveland County Red Cross building on Tuesday nights at 7 PM. As we mentioned last month the course is being jointly sponsored by the OU Amateur Radio Club and the South Canadian Amateur Radio Society. The text used is the K5JB course written by Joe Buswell K5JB. Report is the class has about 18 students with about 3 or 4 from the campus. For more information read last month's issue of the Collector and Emitter. The course is free, so if you know someone who wants to become a ham or upgrade it's not too late to get them involved in learning about this fascinating hobby.

CONGRATULATIONS TO THE SOUTH CANADIAN AMATEUR RADIO SOCIETY

Congratulations to SCARS on their application and acceptance into the Central Oklahoma Radio Amateurs (CORA). This club, under the direction of Jess McKenzie AF5X has many knowledgible and dedicated amateur radio opperators in it's membership. I am sure they will make a positive and worthwhile contribution to CORA. One of the main projects of SCARS is support for the ARES in Cleveland County. One of their members, Jack Bickham WB5TZZ, is Cleveland County Emergency Coordinator (EC).

Alpha Sigma Delta Radio Fraternity
since June 10, 1924

Dedicated to serving *The University*, the community
and introducing amateur radio to tomorrow's leaders.

CLUB GETS NEW TEE SHIRT AND JACKET LOGO

The ASDRF now has a new iron-on logo for tee shirts and jackets. The logo was designed by Gene Johnson WD5GTC. Gene has a General class license and is on the staff of the University of Oklahoma Press. Both he and his son Kevin WD5GTB reside in Norman and assist the club in their own special way. The logo designed by Gene uses the new official logo like the one at the top of this page. Over the top of the interlocking OU are the words "AMATEUR RADIO" gracefully curved. At the bottom in block letters is "W5TC". You see lots of shirts that say "OU Football"; why not some shirts that say "OU AMATEUR RADIO". Gene's effort in designing us a new logo is a good example of how each of us "doing what we do best" strengthens the club. No club can be a one person operation, and each club depends on such concentrated efforts as this to make the overall effort a success. Thanks Gene!

OCTOBER MEETING TO HAVE TELETYPE DEMONSTRATION & DOOR PRIZE

Bruce Rogers KØWFA an Aurora, Illinois resident and student at the UC Postal Training Center on campus is planning a lecture and demonstration on RTTY if he can round up all the equipment. The demo is scheduled for the next club meeting on October 11. This is the second Thursday. The OU club by a vote decided to have only one meeting each month. This meeting will be the second Thursday of every month. All persons attending the meeting will be eligible for the door prize. I do not know what the door prize is but John Stehr W5ABC, Trustee for W5TC. informs me some undisclosed Roman amateur radio operator is cleaning out his ham shack and has a highly exotic piece of ? that he will donate as a door prize. The donor of the prize asked to remain anonymous (we understand this is to prevent a return of the item to the donor). Meeting time is 8 PM, Thursday October 11, at the Carson Engineering Center on Boyd. Assemble at the club station on the 4th floor.

CLUB GETS NEW FACULTY SPONSOR

The Alpha Sigma Delta Radio Fraternity now has a new Faculty Sponsor. The new sponsor for our club is Laverne Hoag KB5DK. "Verne" is a professor in the Industrial Engineering Department of the College of Engineering. I plan to write more about our new sponsor in a future issue. Verne relieves Professor W. T. "Bill" Cronenwett W5ITJ. Bill was sponsor of the club for many years. All of us certainly appreciate his efforts in behalf of the club. A Faculty Sponsor is a mighty important person to a college amateur radio club. Bill says he will still help us any way he can. To Bill Cronenwett we say thanks for your help for all the things you have done for the club.

UPGRADES * * * * * * * CONGRATULATIONS!

John Lewis WB5YJP	Technician to General
Carl Horowitz WB5QNK	General to Advanced
Gene Johnson WD5GTC	Novice to General
Kevin Johnson WD5GTB	Novice to Advanced

W5TC TO GET TOWER INSTALLED SOON

The trustee for W5TC, John Stehr W5ABC, reports he expects the Physical Plant will let us put our 40' tower up sometime in October. The steel tower is the 40' tower donated recently by John Lewis WB5YJP. The tower is to be installed on the Carson Engineering Center and hold the Hy-Gain tri band beam which is still sitting on the roof assembled and ready to install. It is hoped the tower and beam will mean a tremendous improvement in the DX capability of W5TC. One of the problems faced by college amateur radio clubs is cutting through the university bureaucracy to get permission to install an item such as a tower. Both John W5ABC, W5TC trustee and Michael Salem N5MS, the VHF repeater trustee, have apparently developed a considerable degree of patience in such situations. Anyway, I know all of us are looking forward to having that beam in operation.

Nathan Kirby KB5BF

BICENTENNIAL AMATEUR RADIO CLUB

MEETS: 7:00 PM on the 2nd Tuesday of each month
at Air National Guard - Will Rogers World Airport

President:	Mark Northcutt	WD5DYI	842-1086
V. P. :	Joe Ramage	WB5IDW	685-4816
Secretary:	Joe Couch	WD5BMP	282-4353
Treasurer:	Don Duck	AE5N	681-0133
Editor :	Chas. Kemmner	WA4PLG	632-4653

76ERS

Sponsored by Oklahoma Air National Guard

PERSONAL SKETCHES

MARK NORTHCUTT, WD5DYI KAY NORTHCUTT, WD5DYJ

Mark's enthusiasm for amateur radio is highly infectious. I'm glad I began this project of contributing some material to the 76ers section of CQE by calling on Mark. I received a big boost in my morale almost instantly as I interviewed him on the phone.

The introduction of amateur radio into the lives of Mark and his lovely wife, Kay is just about the greatest thing that could have happened to them. In addition to being a fantastic hobby, it is a common interest they both can share. They keep in touch via 2 meter FM since they both carry talkies. They both enjoy operating amateur radio and working together in various club activities. Their interest in amateur radio was sparked by the two meter repeater operation of one of Mark's fellow workers at KTVY Channel 4 TV, John Spivey, K5YGM. Mark liked the way 2 meters works and got the bug. Incidentally, another shared hobby is photography. They take mostly color slides of candid portraits and scenery.

Attending classes was the next step, and this training was provided by the Bicentennial Amateur Radio Club. Mark said that Coy Day, K5OK, was especially helpful in furthering their interest and training. Mark was first licensed in May of 1977. Then in rapid succession came the Technician in August '77, General in January '79 and Advanced in April '79. Kay got her General Class license the same day as Mark received his Advanced. Kay's first license was the Technician Class in Sept. of 1977. Mark has ambitions of going on to the Extra Class and also getting a commercial license. Mark said a strong incentive for advancing from Technician was the purchase of an H.F. rig. This was before the Techs were permitted on H.F. So there it sat. He figured he better get to studying.

Kay and Mark grew up in the little Oklahoma town of Coment. Kay played the piano for various activities such as the church and the high school chorus. She also learned sewing, which proved to be very useful, because she can now make some of her clothes. Mark was musically inclined too, and played the drums in the Jr. high and high school bands. Mark studied Business Management at the Oklahoma College of liberal Arts. He was graduated with a B. S. degree in 1972. He was employed by KTVY at age 20 where he has been for 7½ years. He is Production Studio Supervisor in charge of the studio crew. He is also Senior Camera man and takes care of lighting.

Kay attended Draughon's Business College. She is now Office Manager for the Oklahoma State General Agent of the Minnesota Mutual Life Insurance Company where she has been for 4½ years.

Mark was secretary of the Bicentennial Amateur Radio Club last year and is President of that organization this year. He is also President of the Central Oklahoma Radio Amateurs (CORA) this year, and will serve in an advisory capacity next year.

Ham Holiday registration and pre-registration has kept Kay and Mark busy the last two years. This year Kay was chairperson of this committee.

Emergency and Public Service segments of amateur radio has Mark's deep interest. A Certificate of Appreciation signed by the Wichita Falls Civil Defense, AREC and Red Cross was awarded to Mark for his emergency traffic net operation in Whichita Falls following the recent tornado. He said that everywhere you looked was like the scene on the front cover of August, 1979 QST, a Wichita Falls scene of devastation.

(Continued)

Operation Checkerboard (continued)

their ham operating is hampered by the fact that they live in an apartment. They must mount an antenna of sorts on the balcony rail. Despite this handicap, Mark is working C.W. so as to build his confidence and speed. The Extra Class license is the ultimate goal.

I think we will all agree that amateur radio is profiting very much because of this enthusiastic, energetic couple. Mark and Amy deserve it.

= = = Bill, WA5HTL

MINUTES FOR SEPTEMBER

Meeting was called to order at 7:30 p.m. by Mark, WD5DYI. Self introductions followed. There were 51 members and four guests present.

Old business: Bill, KB5BS, reported he has found a source for club tee shirts. Prices are $3.15 and $4.15 plus .05 per letter. See Bill.

The new CORA representatives are Kay, WD5DYJ, Don, AE5N, and Joe, WD5BMP. If you have anything for CORA let them know.

CORA report was given and on motion by Coy, N5OK, seconded by Joe, WD5BMP the club voted to have our CORA representatives voice our opposition to the censoring of amateur articles sent to the C & E for publication.

More new business: a nominating committee has been formed consisting of past presidents to make recommendations for new officers. Motion by Paul, WA5HTL, second by Karen, WB5HTL, to buy crystals for MORI DF equipment, passed.

There was some discussion of a possible name change for CORA but no votes taken.

Next meeting we elect new officers for the club. Please attend the meeting and let your voice be heard!!!

Secretary
Joe WD5BMP

BILL BEAMER WA5YGX

We were all especially grateful to hear that Bill was reported to be improving rapidly in St. Anthony's Hospital. Everyone sends their very best wishes, Bill, and we hope you feel better than ever when you get out.

$$SWR = \frac{10 + \sqrt{\%\ of\ Power\ Reflected}}{10 - \sqrt{\%\ of\ Power\ Reflected}}$$

(SWR = standing wave ratio)

$$\%\ of\ Power\ Reflected = \left[\frac{(SWR \otimes 10) - 10}{(SWR + 1)}\right]^2$$

% of Power Reflected	SWR (x=EXACT)	% of Power Reflected	SWR (x=EXACT)
100	∞ (INFINITE)	11	2 to 1
95	78 to 1	4 x	1.5 to 1 x
90	38 to 1	2.8	1.4 to 1
80	18 to 1	1.7	1.3 to 1
67	10 to 1	0.826	1.2 to 1
64 x	9 to 1 x	0.227	1.1 to 1
51	6 to 1	0.060	1.05 to 1
36 x	4 to 1 x	0.010	1.02 to 1
25 x	3 to 1 x	0.000x	1 to 1 x

I wish to thank Bill, WA5RAQ, for his response to my plea for ideas or articles for C & E. The first in a series of articles on 76er club members appears this month.
- WA4PLG

For sale: Icom 21A with DV21 VFO Wilson Talky, Charger, Speaker Mike and carrying case. Bob, WD5EVP 632-1708

Mid-Oklahoma Repeater Inc.
A NON PROFIT ORGANIZATION
OF RADIO AMATEURS DEDICATED TO PUBLIC SERVICE

MEETS: 8:00 PM First Tuesday of month
Okla City EOC, 4600 N Eastern
PRES Chuck Wilhite K5NK 721-4926
V-P Bill Atkins N5AH 737-6984
SEC/TR Jim Jones K5PER 634-5235
Dues: Sid Gerber, 829 Bouse, WMC 73110

CLUB EDITOR
George Lee, WB5NMK, 946-2754

I put my notes in a safe place that was almost too safe, I had to really look for them. My wife had a bunch of the church missionary circle ladies over for a meeting. Of course, everything extraneous to the looks of the house was put away. Way-a-Way. She was tired and I relieved when it was over because it took her two days to recover from the worry of everything being just right.

Enough of that. Our regular monthly meeting was held on Tuesday, Sept. 4, 1979, with President Chuck Wilhite presiding. Meeting was called to order at 8:00 PM with the usual self-introductions following. The treasurers report was read and accepted as matter of course.

There was a CORA report of Ham Holiday. They made $600 from the prize tickets, the proceeds to be used in purchasing a new printer for C&E/ Other business was discussed and it was announced that CORA now has 14 clubs as members. It's growing real good!

Proposed changes in the constitution were made to separate the offices of secretary and treasurer, and seconded. There was quite a lengthy discussion, pro and con. It seems, among other things, that the constitution cannot be amended in time to elect the new officers in accordance with the rules. Motion was made and seconded to temporarily elect these officers in an acting capacity until the rules could be changed. They would then assume their offices on a permanent basis.

President Chuck explained that MORI would continue to have charge of prizes at Ham Holiday through 1980 and that he would still be serving on the committee. Bet he was wishing he was triplets this past year because he had to be three places at once. I'll bet also that he will have some throat medicine hnady next year. If he has to do all that announcing, he will. Maybe he will have an assistant available to relieve him while he rests his voice. Chuck, you did a might fine job.

Motion was made and seconded for the following for CORA: Chuck, K5NK John Young, Jim Buswell and Clara Storm as the alternate.

Motion was made and seconded to purchase a new feed line for the 440 machine. It was carried.

There will be election of officers next month (October).

There was a discussion of the use of the word "Break" just to join a QSO. Properly speaking, a person is supposed to announce his call for that purpose, so the speaking parties can invite him into the conversation. According to protocol, a person is supposed to use the word "Break" only in an emergency. It would be polite to abide by the accepted procedures. Maybe so many of us own CB sets, that we are picking up bad habits???

Many of us, (me too) are so anxious to set our jaws in motion that we press the mike button before the other guy has hardly finished speaking. A slight pause would give some other party a chance without having to fight his way into the conversation. Besides being considerate there is always the possibility of a real emergency. I heard that one of our ladies had some problems when she had an accident and was trying to get in touch with her husband. I don't know the details and would not present them anyway, but don't you think it's pretty rough that you can't get through when you really need to?

Chuck brought this subject up at the meeting and I think there is some real food for thought in the foregoing. Also, there is the matter of rudeness in our practices, and occasionally profanity. Are we developing into a bunch of C.B.ers? Most rudeness is probably unintentional, but it still hurts the other party and how does he know it's accidental? Most people are pretty nice, but there are exceptions and none of us are perfect. It is something to think about and try to

Continued on page 10

THE TRANSMITTER HUNT

CHUCK WILHITE-K5NK

Mid-Oklahoma Repeater Inc.
A NON PROFIT ORGANIZATION OF RADIO AMATEURS DEDICATED TO PUBLIC SERVICE

On Wednesday night, September 5, 1979, sometime between the hours that most old folk have hit the hay, it was determined that the 34/94 repeaters in Oklahoma City & Enid were locked up by some kind of transmitter in unknown parts. Now and then the Tulsa repeater would come up. Where was the signal coming from that kept the repeaters in both cities keyed up, timed out, and then still be on when they came back on? It had to be some poor fellow that left his rig on, sat down on his mike, or either we had a jammer on our hands.

I suppose one of the first ones to notice this was Joe Buswell, K5JB. Trying desperately to find assistance in tracking down this signal, phones started ringing, getting folks out of bed that normally don't stay up to listen to the Night Owl Net or watch Johnny Carson. Charlie Green, WA5JGU, was one of the first ones to rise from a night of slumber. Then came Ken, K5VVZ, who had had a hard day at work.

Snooping around on the various repeaters to obtain information for my "I HEARD" column, I came upon these gentlemen trying to figure out what to do. Ken was wandering around in his pajamas and Charlie and Joe were taking beam headings. Seeing that no one was too interested in getting out in the middle of the night with Ken, I readily volunteered my services. I had been out with Ken before on late night search & find missions, and I knew how well we worked as a team.

With rotors all over the country swinging beams around, it was determined that the signal was coming from points west of Oklahoma City. Folks were using their training they had gotten in the military or boy scouts, and it appeared the signal was coming from the vicinity of El Reno. It was too early for Smitty, AC5C, to be home from work, but we didn't know. Perhaps he had left his rig turned on when he got out of the car and the seat belt had held the mike button in.

So, Ken got out of his P.J.'s and I found an old pair of jeans and shirt and here we went on our maiden voyage of tracking down unwanted signals. At approximately 12:20 a.m., I picked up a very sleepy K5VVZ with his Little L-Per, a spare set of batteries, a couple of two meter rigs and we headed for El Reno on I-40. Every few miles we would jump out of the car, take a reading on the DFer, and find that the signal was still coming from points west. After passing Yukon and determining it wasn't WD5FXP, we still got a reading from almost straight west. We made several stops in between Yukon and El Reno to take signal readings, and it was still west. All the time we were still getting helpful advice from the fellows with the beams. The signal had to be coming from the vicinity of El Reno. Some that didn't have their rotors zeroed properly showed it to be coming from north of El Reno. Every time we stopped to take a reading, the thought came to us how we were going to explain what we were doing to the Highway Patrolman that might come along. Still traveling west on I-40, we came to the junction of I-40 and U.S. 81. So, out of the car we came to take another reading. If it was still coming from the west, it had to be Mr. Smith. But, lo and behold, our signal was now coming from straight north, so that took him off the hook. Well, I was certain I knew where that signal was coming from. It was almost a sure bet that WA5UCK had left his rig on at his service station with something holding the mike button down and he was the guilty party. So, driving a short distance north to old 66 highway and driving into his driveway, out we came to nail our transmitter. To our surprise, the signal was still north of us.

Perhaps those fellows were right with their beam headings, and the signal was coming from north of El Reno. So, off we went, driving through downtown El Reno, on north on 81 highway, and came to the overpass north of town over the railroad tracks. We thought this would make a good spot for another reading, so out with the direction finder again. But, this time, instead of getting a reading to the north, the signal was now coming from the southeast, so we knew it had to be some place between WA5UCK and the railroad overpass.

While Ken was taking his readings, a car pulled up beside us and asked if he could help us. We quickly noticed that the fellow had no intentions of helping us, but wondered just what we were doing. He thought we were some kind of spies out in the middle of the night checking up on the boys on strike with the railroad. We noticed

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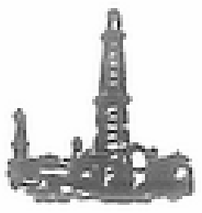

MID-OKLAHOMA REPEATOR INC.

I HEARD: FKF eats hot peppers by the jar - result a hot mouth.....CZN is back making faces on ATV.....AUP on his way to Shawnee.....AWI spends most of her spare time doodling.....OZE caught him another business caller on one of the auto-patches.....BJS won a trophy as the oldest lady on a recent cycle ride.....AUP coming home from Shawnee.....FXP doesn't stick the butt end of a cigarette in his mouth.....EVO has a new deduction.....CZN has a new dawg, named after a friend.....WM asking a BREAK station the nature of his emergency.....AUP on his way to Shawnee.....KFT had a run-in with a truck.....JGU has been doing lots of traveling lately.....ZKY fixing breakfast in the middle of the night.....FKF is against Nukes and most things connected with them.....INZ wrecked his motorcycle.....BEQ getting educated.....IH discussing the ancestry of his neighbors.....FKF is the proud owner of a Drake TR-7, wonder how long he will have it.....MEL operating submarine mobile.....EVO talking to El Supremo.....BEP is extremely cold natured.....BEQ describing a run-away Cadillac.....AUP coming home from Shawnee.....FRQ and HBX have some new babies.....SLA started out as a gopher.....GKK finally got his air conditioner fixed in the old hoopy.....and a few other things. K5NK

RAMBLINGS FROM THE PRESIDENT

SEPTEMBER MEETING: A special thanks to Mike Salem, N5MS for the very interesting program he presented concerning laws affecting Amateur Radio and Radio Operators in general. Mike brought out some interesting things about subdivision codes and restrictions, city laws and the like. Thanks Mike for a job well done.

OCTOBER MEETING: At this writing, Joe Buswell, K5JB, will present the program at the October meeting and will be giving us the latest information on Narrow Band Voice Modulation. It should be a very interesting meeting. Joe is very knowledgeable in the field of electronics and is able to present his information in a way we can all understand what he is talking about. Let's have a big turnout for Joe.

ELECTION OF OFFICERS: Also at the October meeting, the officers for 1980 will be elected. The nominating committee is keeping me in the dark as to their selections for the various positions, but I am sure they will come up with a good slate to be presented to the club. It should be pointed out that nominations can also be taken from the floor, so be sure and attend this meeting so you can help get your person elected. It's always good to have a run-off to keep the train whistle from sounding too loud. In the past, the secretary/treasurer has been a combined office. We will vary from this this year and elect separate individuals for the two positions. It will be necessary for us to change our constitution to this affect. So, we will be electing four new officers: President, Vice President, Secretary & Treasurer.

CORA REPRESENTATIVES: The M.O.R.I. representatives to C.O.R.A. for 1980 will be as follows: Chuck Wilhite, K5NK, John Young, WD5FXP, Jim Buswell, N5BEQ, with Clara Storm, WD5KFT as the alternate. These people will comprise the prize committee for the 1980 Ham Holiday. All have shown an interest in working along this line and I know each club member will support them in their decisions. Each club is allowed three representatives to C.O.R.A. and the decisions made at these meetings are voted on by only the club representatives. This can be a hard job at times, but a decision has to be made, and it is these folks who take the credit or the blame.

PERSONAL OPINION: I have been known to stick my neck out on a limb before and have almost had it chopped off a couple of times or more, so here I go again. There is something that is bothering me and let it be known that this is strictly my personal opinion and not necessarily anyone else. I feel that there are some who are carrying the Ethnic Joke situation a little too far. This seems to be especially true on the Night Owl Net. Some nights, this is about all one hears, is one Ethnic Joke after another. It has spread from one nationality to several. Let it be known that I enjoy hearing a good joke as well as anyone, but I feel there is a time and place for everything, and I do not feel our repeaters are the place for such things. It should be remembered that there are many people who have scanners and do listen to us. Also, our own ham fraternity involves many nationalities of people. These people do not need to be offended by hearing a constant barrage of Ethnic Jokes being told. What concerns me more than anything is the reflection this could have on MORI and I would certainly hate for people to get the wrong impression of our club. K5NK
CORA Collector & Emitter

these fellows walking the picket line up ahead of us. After making sure he knew we weren't spies and we knew what we were doing, he drove off to the picket line to let the boys in on what we were doing. In a few minutes he came back and offered to be our body guard in case we needed him.

After all our run-ins with the railroad boys, we turned around and headed back in a southeasterly direction. After making a stop or two to check our signal strength & location, down the street we drove looking for a tower and antennas. That meter was going crazy and we spotted a likely looking tower up the street a ways. As we neared the house, it sounded like we had a car load of rattlesnakes from the Little L-Per was going crazy. We had found our transmitter.

I drove up in the driveway, got out of the car with Ken tagging along behind with a hand full of rattlesnakes and walked to the door. I rang the doorbell a couple of times and after a minute or two, this sleepy gentleman came to the door. I explained to him who I was and that we felt like he had a transmitter keyed up. Feeling sure he didn't, he decided to go check. All of a sudden the Little L-Per was quiet. We couldn't see the expression on his face or the color when he came back to the door, for it was dark, but we sure had an embarrassed gentleman up in the middle of night. We thanked him and went on our way, wondering just what his wife had to say to him when he told her what had happened.

From the time we left Oklahoma City until the time the switch was turned off, a little less than an hour had passed. Pretty fast work, right? Boy our chests sure did stick out. On our way home, we decided to buy some .52 crystals and enter everyrabbit hunt we could. We had a lot of help though. For one thing, we had a constant signal that didn't move around. Also, the boys in Enid and Oklahoma City and also Stillwater were very helpful with their beam headings. Thanks fellows.

It was a very fruitful night for us. For one thing, we found out the Little L-Pers worked and worked fine. Now and then we are bothered with kooks on the repeaters who key down on them or turn the auto-patches on and off. A word of warning though to these people, we can find you. The Oklahoma City Autopatch and Bicentennial Club are buying crystals for our Little L-Pers just in case they are ever needed.

It was a fun night. I had a long nap that afternoon and didn't mind being up until 2:00 in the morning like Ken did. I even had an offer for eggs, hot biscuits, grits and red-eye gravy from WB5ZKY on the way home. Curiosity got the best of poor old Charlie and he couldn't go to bed fearing he would miss out on something.

As great a DF'er as Ken is, he made one statement that I thought took the cake. As I was pulling in to this gentleman's driveway, he said, "Chuck, you might should not drive in his driveway, it might not be him." I couldn't keep from laughing. Here he had tracked this signal down all the way from Oklahoma City, and now he was getting cold feet. I don't think he would have had the nerve to ring the doorbell.

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An old friend of mine died a while ago. He was a good TV repairman and ran a one man, personal attention shop. Now that he is gone his wife needs to dispose of all of his equipment. So, if someone wants to set up a TV repair shop, everything is there all ready to go including lots of extra components, you name it. No price has been set but if you are interested get in touch with me and see what can be worked out.

Joe, WA5ZNF (737-1044)

Ribbin' Ceremony Not a Grand-Opening:

There may be more than one application of the following technic and all that's needed are a good soldering iron, fine rosin solder and a steady hand with good eyesight...so if it'll help you, here goes...

This project began as an attempt at attaching "the world's (possibly) smallest" touch-tone pad to a two-meter (2M.) radio for autopatch use. At least, the thinnest switch pad I've found is the 217 model from Communications Electronics Specialties, Inc. (CES). There are thinner and smaller ones but I hadn't found one by the time I was ready to install...

The heart of this model (and its companion 217B) is a colorburst crystal oscillator and circuit board squeezed together into 1 3/4" square with all the components laid flat against the board so the whole thing is no higher than the thickness of a crystal holder (.4 inch) laid on its side.

My application was on a Wilson WE-300 made in March '78 that, ironically, had an empty space of the bottom circuit board next to the diode matrix board, that was just the size of the accessory oscillator board as if made for each other. By using kitchen-wall-type double-stick strip-mounts cut to the size of the accessory board and stuck to the radio's circuit board, I am confident it won't rattle around and will take as much if not more concussion shocks as the rest of the radio. The mounting strips are easily found in any five-and-dime or hardware store. Luckily, also, there was enough reach on the power, ground and audio wires to make ideal connections, out of harm's way - leaving the trim pot exposed in the radio for adjustment (which it sorely needed). If a fixed locating space is not available in your rig, you could us the kit's packing material for a shock absorber wrapped around the encoder and the whole held some convenient where inside the radio's case with single- or double-sided tape.

The external hardware consists of one 2" square two-side-etched PCB with short-throw finger-contact switches on one side covered by a 12-position-labelled, bubble, digital-marked plastic mask self-adhering to the PCB * literally a keyboard and nothing else !!! The back side has thin double-stick pads applied by the manufacturer who does not recommend using glue to attach this board to the radio's exterior for fear of accidentally letting glue run through open circuit holes locking up a switch contact or two. You can plug these holes with modelling clay or paraffin without interfering with the circuit and keep the glue out. Keeps dust out too. A steady enough hand and slow-flowing glue only on the outer edges of the wrapped-around mask would do nicely and make for a thinner installation if you desire by eliminating double-stick strips.

Now, here's the interesting part: the switch board and tone board need to be connected, right? Takes seven distinct circuits, right? So the manufacturer uses a 7-strand, side-by-side, flat (RIBBON) cable. OK so far... Rather than using a small drilled hole and feeding seven loose wires thru the case, the packaged instructions recommend a 3/4 X $\frac{1}{4}$ " slot (actually it only needs about 3/8 X 1/16 ") to feed this ribbon thru.

Suppose you ever have to open the radio's case for service - does that mean separating this seven-lead ribbon from either the keyboard or tone board or both, only to have to redo it after other servicing? NO! Does it mean undoing power/ground/audio leads of the encoder from their ideal roots and removing the entire circuit? NO! You could use miniature pins and sockets on the individual wires and mount both the keyboard and encoder sandwiched to the case, if room allows; or, as in my case, you could fix each board firmly then put a connector on the ribbon---

How?

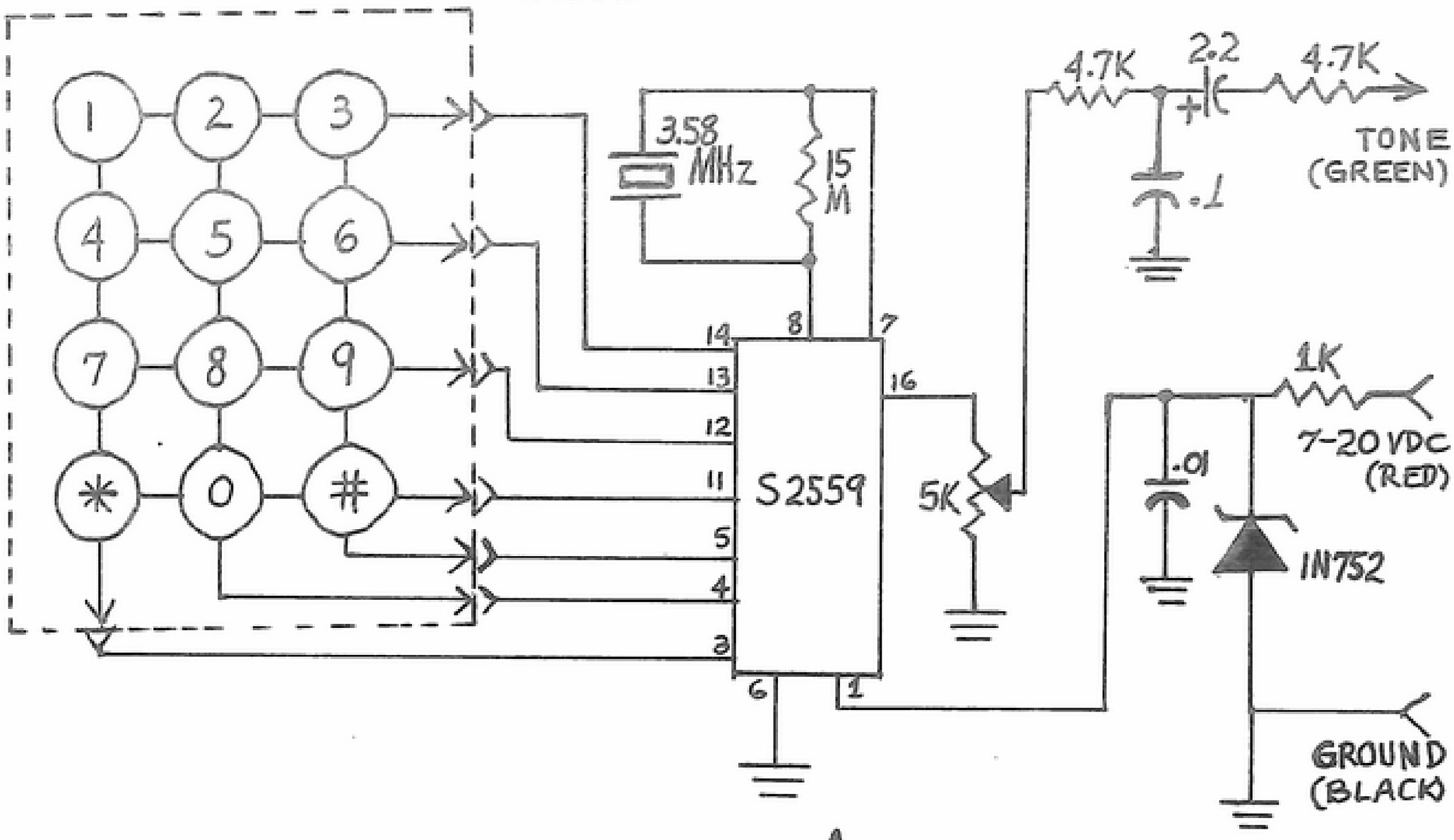
Well, remember, it's a 7-strand ribbon, would use a 7-

pin jack or socket - that adds up to 14 as in a 14-pin IC socket, cut in half lengthwise (coping saw, sabre saw, skill saw, razor blade, etc.): one ribbon end in one cut-off socket side, the other side soldered to the circuit of your choice depending on where you want your 'disconnect' to be; the other half of the IC socket then becomes the jack for the cable plug. Plug 'em together to assemble, pull 'em apart to disassemble.

You can use a cheap IC socket made of bent strap stock or a good quality socket like AUGAT's so the pins won't fall out! Either way you go, be very careful to avoid too much heat on the chip socket to avoid loosening the pins in the plastic.

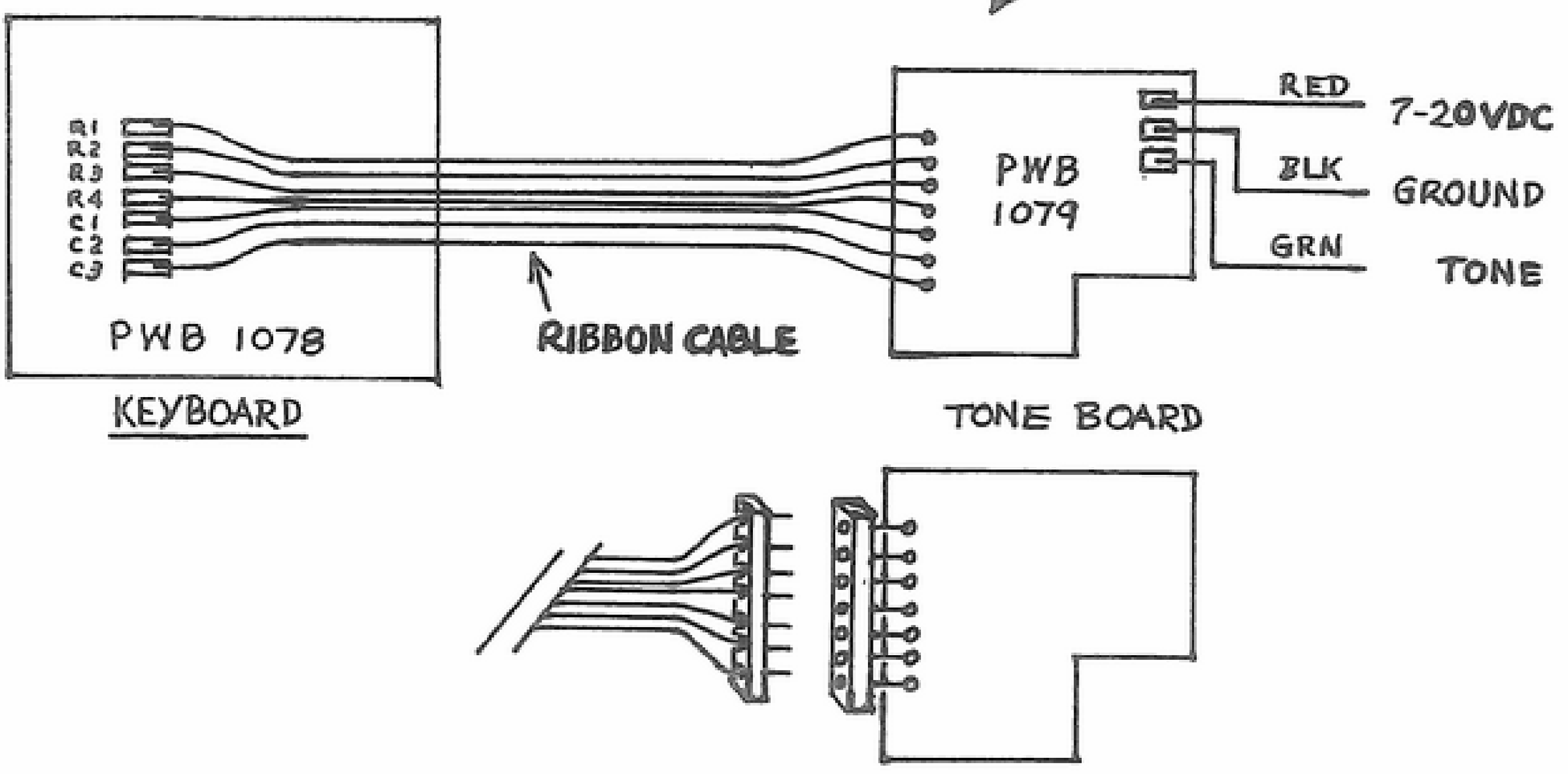
Good luck and happy "dialing!"

Now, if the radio would just keep working!.....



1 SCHEMATIC

2. BLOCK DIAGRAM



A. MODIFICATON

Jim N5BEQ

AMATEUR RADIO WORD SEARCH

The word list below is all about amateur radio. Can you find all the listed words in the diagram? The words are formed in the diagram forwards, backwards, up, down, and diagonally, but they are always in a straight line, and they are never formed by skipping over any letters. It is important to circle each word in the diagram, as in the example below. It's a good idea to cross off each word in the word list once you've circled it. Letters may be used more than once and the words often overlap. You will not, however, use all the letters in the diagram.

EXAMPLE: CORA

C H E N R Y P K R F L U G T S E W T O M D A U Q K E
I T T H F H C A E A R C X J P H T A F Z H P L C A C
B A A U S T R I A N X S X E X T T N V H E Z B L Y I
M M L U L R E M T H W M N M L S N P O E A A T A C V
O R P T L H T N L R I O A E O P E N L C R U K C O R
H Q E S A P E M O T H E O R Y E M O R I S T R A W E
R B H E L B M S V P B E B D A A P I N T X O I R T S
B E T T A W V F O R E Z A T D I I F S C N P W C J C
O H P C H E T R O D Y N E T D B U R M A L A H R A I
C L I A S E C N Y S V T A R L K Q E T R R T E A M L
H S D O N I X E E I Z A A K I J E Q R P E C A I H B
O J L T M Y H T A S M K Y A E S U U S D S H T B O U
C H E R L D R R R P E S K H F Q J E V O A W A S O P
T C Q H C T A P S A B R X R N M S N D C O R A D I O
A E R E S I S T O R O T I C A P A C A J A P A N X F
W T R A P P N P O W E R S U P P L Y N P J Q S F H V

POWER SUPPLY
VOLT
AMP
WATT
HEAT
RESISTOR
OHM
POLE
OPEN
ATV SYNC
IDLE (Current)
DIP THE PLATE
(Wire) WRAP
"ROCK"
CAPACITOR
FARAD
EQUIPMENT
DRAKE
KENWOOD
HEATH
YAESU
D.S.I.
TET
METER
MICROPHONE
TRIO
SWAN
FAN
VFO

CQ
QSO
QRM
NCS
QRS
TTL
QTA
EME
MHZ
WAS

RADIO
OPS
WORK
AUSTRIAN (OE)
ZERO (Iowa, etc.)
SIX (California)
ONT. (VE3)
SUDAN (ST)
YV (Venezuela)
JAPAN (JA)
ARAB (A6X)
ALA. (W4)
BURMA (XZ)

MORI
AUTOPATCH
BIARC (76ers)
EARS (Edmond Society)
EARC (Edmond Club)
SARC (Shawnee)
KAY CO. (Ponca City)
ACARC (Aeronautical)
OU (Norman)
VHF (Okla. Central)
WHEAT
STRAW
CHOCTAW

PNP
SWR
IC
PPM
WARC
PA
DC
AC
OM
XYL

HAM
TECH
OOPS
PRACTICE
MATH
THEORY
YEARS
TEST
EXTRA
XMIT
HETRODYNE
FREQUENCY
TRAP
DIPOLE
VERTICAL
BEAM
QUAD
RHOMBIC

FIELD DAY
NET
PATCH
SIMPLEX
WEST GULF
HF
PUBLIC SERVICE
TEAM
JAM
TABOO

Note: All words in the word list are in the puzzle. When more than one word is used at a time as a clue, as in "FIELD DAY", those words will be adjacent to each other. Words in parentheses are only used for clarification and do not appear in the puzzle.

Check the puzzle for other possible words not included in the list. Try looking for your callsign suffix. Mine is there, I found out. So are the suffixes of WB5SJX, WB5RAP, WB5WMN, and Tom, W5OZE has his suffix and name included in the puzzle. Good Luck and have fun! --de WD5DYI--

See individual club sections for times, places, etc.

O C T O B E R H A M H A P P E N I N G S

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	MORI 2	CORA Amateur 3 Classes	YL NET! 4	ACARC 5	6
WHEATSTRAW 7	8	SHAWNEE 76ers 9	" 10	ALTUS, CHOCTAW, O.U., ATVES. 11	12	Flea Mkt. 13
14	15	AUTOPATCH 16	" 17	KAY COUNTY 18	OCARC 19	SCARS 20
EARS 21	22	SHAWNEE 23 CORA	EDIT C&E@ A.R.C. 24	25	26	27
28	29	30	OCARC MAILS C&E 31			