

Central Oklahoma Radio Amateurs

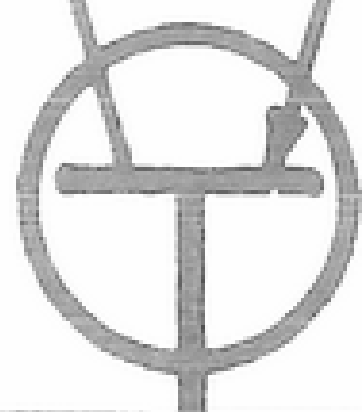
COLLECTOR

AND

EMITTER

SINGLE COPY

50¢



AN INFORMATIVE MAGAZINE
PUBLISHED MONTHLY BY AND
FOR OKLAHOMA RADIO
AMATEURS

AND ANYONE INTERESTED IN
LEARNING ABOUT IT

VOLUME 6

MAY 1980

Number 64

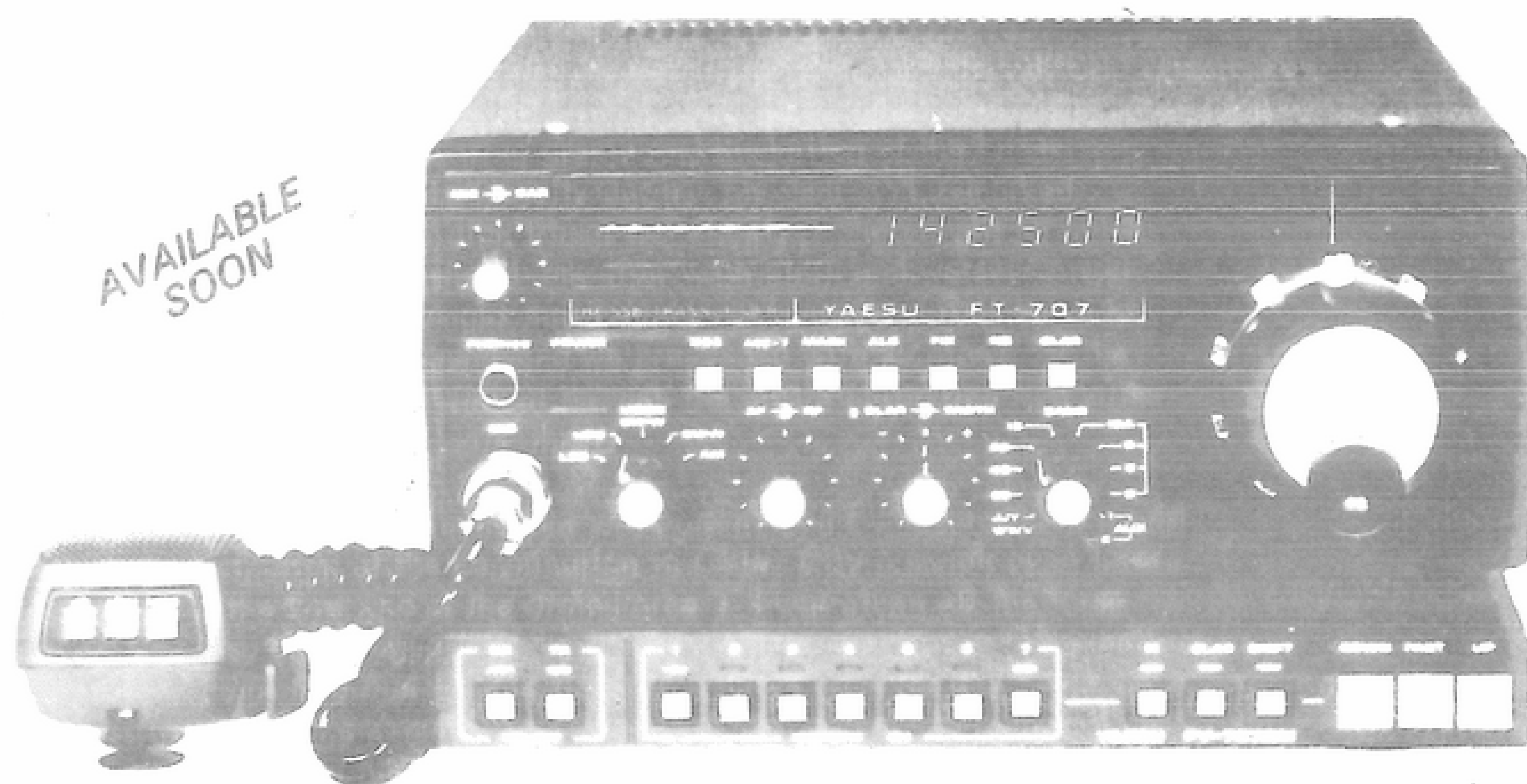
Help CORA Plan Ahead

PRE-REGISTER NOW



YOUR COMPLETE AMATEUR RADIO STORE

KRYDER ELECTRONICS



THE NEW YAESU FT-707 "WAYFARER"

The introduction of the "WAYFARER" by Yaesu is the beginning of a new era in compact solid state transceivers. The FT-707 "WAYFARER" offers you a full 100 watts output on 80 thru 10 meters and operates SSB, CW, and AM modes.

Don't let the small size fool you! Though it is not much larger than a book, this is a full-featured transceiver which is ideally suited for your home station or as a traveling companion for mobile or portable operation.

The receiver offers sensitivity of $.25 \mu V / 10 \text{ dB SN}$ as well as a degree of selectivity previously unavailable

in a package this small. The "WAYFARER" comes equipped with 16 poles of IF filtering, variable bandwidth, and optional crystal filters for 600 Hz or 350 Hz.

Impressive as the "WAYFARER" is, its versatility can be greatly increased by the addition of the FV-707DM (optional). The FV-707DM, though only one inch high, allows the storage of 13 discrete frequencies, and with the use of "DMS" (Digital Memory Shift), each memory can be band-spread 500 KHz. These 500 KHz bands may be remotely scanned from the microphone at the very smooth rate of 10Hz steps.

CHECK THE ADDITIONAL FEATURES OF THIS TRULY UNIQUE RIG!

FT-707 with Standard Equipment:

- ☐ Fast/slow AGC selection
- ☐ Advanced noise blanker
- ☐ Built-in calibrator
- ☐ WWV/JJY Band
- ☐ Bright Digital Readout
- ☐ Fixed crystal position
- ☐ Includes new WARC bands
- ☐ Unique multi-color bar metering - monitors signal strength, power output, and ALC voltage

FT 707 with Optional FV 707DM and Scanning Microphone

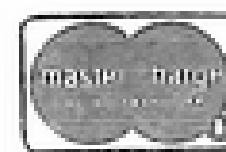
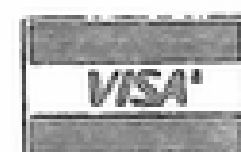
- ☐ Choice of two rates of scan
- ☐ Remote scanning from microphone
- ☐ Scans in ten cycle steps
- ☐ Synthesized VFO
- ☐ Selection of receiver/transmitter functions from either front panel or external VFO
- ☐ "DMS" (Digital Memory Shift)

KRYDER ELECTRONICS CARRIES ALL MAJOR BRANDS OF HAM RADIO EQUIPMENT

(405) 789-1951
Chuck Guschke, N5 SW

NEW STORE HOURS

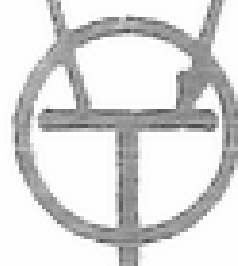
Sunday Closed
Monday Closed
Tues., Wed., Thurs. ... 10 - 5
Friday 10 - 9
Saturday 10 - 5



MacArthur Square Shopping Center 5826 N.W. 50th Street Oklahoma City, OK 73122

Central Oklahoma Radio Amateurs

COLLECTOR AND EMITTER



CORA Collector & Emitter (USPS 116-150) is published monthly for \$6 per year by CORA, Inc., 1020 Arthur Dr., Midwest City OK 73110. Second Class postage paid at Oklahoma City OK. POSTMASTER: Send address changes to: CORA C&E, P.O. Box 15073, Oklahoma City OK 73155.

Contents may be reprinted without prior permission by "club type", non-profit publications. Credit: CORA Collector & Emitter

Managing Editor Joe Harding, WA5ZNF 737-1044

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
Vice President
Secretary
Treasurer

Chuck Wilhite
Bob Graham
Kay Northcutt
Ron Recer

K5NK 721-4926
WB5NSV 677-8685
WD5DYJ 842-1086
KE5M 751-5378

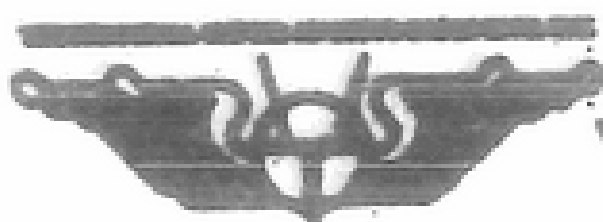
CLUBS PARTICIPATING IN CORA

1 AERONAUTICAL CENTER ARC MEETS: 8:00 PM First Friday each month Flight Standards Bldg. FAA Aero Center Pr W5CJG Bob Pace 376-3569 VP K5KDR Bill Oliver 329-6333 Se W5NSV Bob Graham 677-8685 Tr W5AAY Larry Bugg 789-4180 Ed W5NSV Bob Graham 677-8685	2 OKLAHOMA CENTRAL VHF CLUB MEETS: 8:00 PM Third Friday each month American Red Cross, 10th & Hudson OKC Pr K5YRL Jim Williams 789-0769 VP K5YAO Clarence Sittel 947-4015 Se K5JB Joe Buswell 732-0676 Tr W5KE Ellard Foster 789-6702 Ed K5JB Joe Buswell 732-0676	3 MID-OKLAHOMA REPEATER, Inc. MEETS: 8:00 PM First Tuesday of month Okla City EOC, 4600 N Eastern Pr K5CXW Fred Taylor 528-1537 VP W5PMZ Bob White 681-2222 Se W5BEQ Jim Buswell 236-0308 Tr K5PER Jim Jones 634-5235 Ed W5NKK George Lee 946-2754 Dues: Sid Gerber, 829 Bouse HMC 73110
4 OKLA CITY AUTOPATCH ASSOCIATION MEETS: 7:30 PM 3rd Tuesday of month Okla Military Academy, 36th & Grand Pr W5CZN Doc Goodhead 721-8592 VP W5NK Chuck Wilhite 721-4926 Se W5HXB Karen Recer 751-5378 Tr " " " " Ed K5NK Chuck Wilhite 721-4926	5 OKLAHOMA UNIVERSITY ARC MEETS: 8:00 PM (Sep-May) 2nd Tuesday Room 499, Carson Engineering Center Pr K5DNF James Gardner 321-8779 VP W5QLF Alan Wormser 325-2194 Se K5COI Peter Richeson 325-3015 DUES: K5SBF Nathan Kirby 364-7979 Ed K5SBF Nathan Kirby 364-7979	6 ALTUS AREA AMATEUR RADIO ASSOC. MEETS: 7:30 PM 2nd Thursday each month North Main Fire Station (CO) Altus Pr W5KI Steve Morris 482-4815 VP " " " " S/T W5VXU Mike Schenkle 482-1797 Ed W5VXU Mike Schenkle 482-1797
7 BICENTENIAL ARC (THE 76'ERS) MEETS: 7:00 PM 2nd Tuesday each month Air National Guard, Will Rogers Apt. Pr W5BMP Joe Couch (Guthrie) 282-4353 VP W5DYJ Kay Northcutt 842-1086 Se W5BEQ Jim Buswell 236-0308 Tr K5FE Tom Cassidy 751-1194 Ed K5FED Susie Atkinson	9 WHEATSTRAW AMATEUR RADIO CLUB MEETS: 2:30 PM First Sunday of month Location Varies. See club section Pr W5JNT Ted Vanlangham 262-1675 VP W5Z Ray Barnes S/T W5PFR Ralph Wilder 623-5421 Ed W5MTH Virginia Beneda 825-3302	10 CHOCTAW AMATEUR RADIO CLUB MEETS: 7:00 PM 2nd Monday, Woods Comm- unity Baptist Church, SE 29 & Choctaw Pr W5H Frank Carter 391-3394 VP W5EVP Bob Allen Se W5ARY June Allen Tr K5ALO R. G. Edwards 390-8297 Ed W5ARY June Allen
11 EDMOND AMATEUR RADIO SOCIETY MEETS: 2:00 PM 3rd Sunday, Room 205 Science Bldg. Central State Univ. Pr W5HKK Ken Stepp VP K5RR Clarence Dollmeyer S/T W5ERY Allen Watson Ad W5FHR Dee Hize Ed W5IOB Howard Wise 341-2510	12 SHAWNEE AMATEUR RADIO CLUB MEETS: 8:00 PM 2nd & 4th Tuesday Shawnee City Hall - EOC Pr W5ONL John Owens 273-0848 VP W5FUG Les Stewart 567-3895 S/T W5TZQ Bill Warren 275-0119 Ed W5BUQ Jay Tingler	13 KAY COUNTY AMATEUR RADIO CLUB MEETS: 7:30 PM 3rd Thursday of month Security Bank Basement, Ponca City Pr W5DOT Chuck Willis 765-5366 Pr W5ZMH C. L. Hallmark 762-8620 S/T W5TXF Jay Williams 765-9440 Ed W5DOT Chuck Willis 765-5366
14 AMATEUR TV EXPERIMENTAL SOCIETY MEETS: 7:30 PM 2nd Thursday each month Central State Univ. Edmond Pr W5JGC James Buchanan 495-2777 VP W5HTL Paul Asplin (Bus) 521-2861 S/T W5ANG Mike Woods 528-3699 Ed W5JGC James Buchanan 495-2777	15 SOUTH CANADIAN AMATEUR RADIO SOCIETY MEETS: 9:30 AM 3rd Saturday each month Red Cross Bldg. North Campus Norman Pr K5DK Laverne Hoag 329-7625 VP W5ABC John Stehr 364-8761 Se K5GHJ Jerry Howard 364-3518 Ed AFSX Jess McKenzie 329-1543	16 EDMOND AMATEUR RADIO CLUB MEETS: 7:45 PM First Monday of month General Electric, 3228 N Santa Fe OKC Pr K5GBF Harold Plunk VP W5BQX Bob Shaw S/T W5UIY Stan Van Nort Ed W5UIY Stan Van Nort
17 TRI-CITY AMATEUR RADIO CLUB MEETS: 7:30 PM First Monday of month. Location varies, see club section. Pr W5TFX Ben Gard 379-3112 VP W5VPM Carl Cash 257-2243 S/T K5FD Nancy Haydon 379-6448 Ed W5TFY Pat Gard 379-3112	18 GREAT PLAINS AMATEUR RADIO CLUB MEETS: 7:30 PM 1st Tuesday each month Woodward Court House basement. Pr W5OVT Rod Ford VP W5DFH Bill Reid Se W5DFG Donna Reid Tr K5FKV Gerald Bowman	19 NOTE: CORA meets the fourth Thursday each month at American Red Cross 10th & Hudson (Back door) 7:30 PM ALL CLUBS should send 3 represent- atives to every meeting.



Red Cross. The Good Neighbor.

Vol. 6 MAY 1980 No. 64



WSPAA

RANDOM WORDS FROM THE PRESIDENT:

THESE WORDS ARE COMING TO YOU FROM FLIGHT 443, THE PROUD BIRD WITH THE GOLDEN TAIL. WELL ANYWAY I AM ON MY WAY BACK FROM HOUSTON WHERE I HAVE BEEN GOING TO SCHOOL FOR THE PAST WEEK, THE FIRST OF LAST WEEK I COULDN'T EVEN SPELL IT NOW I AM ONE.

OUR MEETING IN APRIL WAS VERY WELL ATTENDED, I COUNTED 55. MR. MIKE RILEY FROM TEKTRONIX WAS OUR GUEST AND LIKE ALWAYS MIKE PUT ON A SUPER PROGRAM. THANKS FROM ALL OF US MIKE. NOW ON TO OTHER THINGS, OUR CLUB REALLY NEEDS SOME ONE TO TAKE THE FIELD DAY THIS YEAR, SO IF ANY OF YOU WOULD TAKE ON THIS PROJECT PLEASE CALL ME BOB, W5CJG, AT 376-3569. THE FOLLOWING LETTER WAS RECEIVED FROM RAY WANDLER, W5EDZ, OUR WEST GULF DIRECTOR OF THE ARRL. I HAVE WRITTEN RAY AND ASKED HIM TO VISIT OUR CLUB. SEE YOU IN MAY AT THE MEETING.

73. BOB PACE, W5CJG

MINUTES OF THE APRIL MEETING OF THE ACARC

The meeting was called to order at 8:02 PM by President Bob Pace, W5CJG. There were 49 members and guests present. Following the usual round of self-introductions, President Pace asked for reports from the various committee chairmen. A summary follows;

The C.O.R.A. report was given by Bob Graham, W5NSV, Ham Holiday '80 is just around the corner, and some major prizes were announced. The "Grand Prize" will be a Yaesu FT707, the "Preregistration Prize" will be an Icom 260, and a raffle will be held with a Kenwood TR7625 as the raffle prize.

A motion was made by Charlie Greene, W5JGU, and seconded by Bob Ashby, W5HXL, to agree to the proposed C.O.R.A. Constitution change regarding C.O.R.A.s tax exempt status. The motion carried.

Repeater and computer reports followed; both are well and doing fine.

President Pace then asked for volunteers to "Ram-rod" our field-day effort. It seems that although many club members want to participate, nobody is willing to accept any responsibility in connection with Field-day. In other words, nobody volunteered!! Come on fellows quit waiting for the "other guy" to do it, and pitch in. You'll find it is well worth the effort.

An excellent program was presented by Mike Riley, representing Tektronix. Mike brought Tektronix latest micro-processor controlled spectrum analyzer. This was an amazing machine, and was extremely interesting to everyone present. Thanks again Mike for another fine program.

The meeting adjourned at 9:30 PM for coffee and donuts.

73, Bob Graham, W5NSV, Secretary

CW AND REDUNDANCY

"Amateur Radio," that excellent magazine of the Wireless Institute of Australia, has in its January issue a thought-provoking article on redundancy in radiotelegraphic transmission. In this article VK3SV points out the sad fact that up to 25% of the average radiotelegraphic contact is wasted in redundant keying.

Amen! I have a long-standing hobby of contacting newcomers to amateur radio. It's touching to note how the newcomer (and that applies to 90% of those licensed in the past five years!) wastes time that could be used in meaningful communication by totally useless redundancy.

Here are some of the more common examples. "The QTH here is....." A quick glance at any list of Q signals shows that "QTH" alone expresses the full meaning. "W5JJ de KA5XXXX r r r all ok solid cpy". What the heck! A single r after the KA5XXXX tells the whole story! And there's that habitual repetition after the other opr has given a Readability 5 report..... it seems every newcomer sends ".....Name name hr is Ed Ed and QTH QTH hr is Podunk Hollow Podunk Hollow....." And no RST is ever sent just once! It's always "Ur RST RST is 599 599....." The listing could go on for many pages, but I'll spare you that pain. Just listen across any radiotelegraph section of a band and hear for yourself.

W5JJ

Mt. Oklahoma Repeater Inc.

A NON-PROFIT ORGANIZATION
OF RADIO AMATEURS DEDICATED TO PUBLIC SERVICE

Note From The President:

I am encouraged by the public spirited MORI members and others who envolved themselves in the several activities this month to help our community. the March of Dimes WALKATHON was helped by a fine net control Jim Williams K5VRL . With Jim the following Hams assisted to make it a success: WD5DYI Mark, WD5DYJ Kaye, KA5ECJ Ken, WD5IRB Ralph, WA5HTL Paul, N5BEQ Jim and our Susie KA5FED served coffee. Our project to help the Boy Scouts on thier Camporee at Slippery Falls was successful notwithstanding the rain, snow, wind and generally nasty weather. With the help of the Ardmore Club (Who incidentally are talking about CORA membership) On the radio standing by for any emergencies that might occur were Jack Gant W5GM, K5OWK Marty, WB5CXS Dave and four lovely volunteers to go out to the ranch with me to set up a station (Sorry about the lovely-guys, but you looked great). After the station was set up in a log cabin on the ranch we all spread out in the weather near all the activity areas to be in communication with our Net Control WA5OPP Mel and his lady Ruby WB5SIP, Ted Spurgeon K5PJO and I (KA5CXW) were outpost stations. Thanks again for all the help from the Ardmore Club.....

FRED KA5CXW

MINUTES

The April meeting was called to order by Prez Fred KA5CXW at 8:02 pm on the 1st at the EOC with 36 members and guests present.

The minutes were approved as published in the April Collector and Emitter, whereupon Fred resigned the position of President and relinquished conduct of the meeting to our able vice-President Bob WB5PWZ. After a warm welcome was extended to Wilse KL7CQ for visiting our club, Fred gleefully announced APRIL FOOL!

Committee Reports: CORA (specifics are to be found elsewhere in this publication);

ARES (ditto)

HamHoliday 80: Grand Prize - Yaesu FT-707 HF; Pre-Registration prize - Icom IC-260A 2M multi-mode TCVR; C&E equipment fund raffle - Kenwood TR-7625. Ham Holiday committee functions will fall to the same clubs next year as this with the addition of EARS to the Registration Committee. Thanx.

Projects: walkathons, campouts, olympics, etc., are all asking our assistance IAW part 97.1(a) !

The Treasurer's report was approved as presented.

Old Business: Audit: Ellard W5KE and Ralph WD5IRB volunteered to audit the treasury and report to the club.

Repeaters: Frank W5PDH was in the process of check-out on the new 07/67 machine at his home station; the wattmeters have been acquired and are on station; no difficulties reported with .94 or .1; the club has a spare DB-224 antenna available.

There being no new business the meeting was adjourned for refreshments at 8:45 pm.

The evening's program at 9:08 was Larry Mooney WB5PWY from the National Weather Service on "Computer Weather Spotting - Doppler Radar." Larry also showed film of the multiple vortex tornado cell that damaged Orient, OK.

After many door prizes (the winners know who they are) the meeting adjourned for the aftermeet at 10:00 pm.

Next meeting, same time, same place, 6 May 1980.

Jim N5BEQ
Secretary

May 1980



APRIL MEETING: After dropping off my check to Uncle Sam for enough to buy a new TS-120, I arrived at the meeting, late as usual. After fumbling through all the keys, I finally found the right one to open the door to the meeting place, and the meeting was called to order. El Supremo relinquished the throne to El Segundo for the business meeting and the normal business affairs were taken up.

Of utmost importance during the business meeting was whether the club would allow one John Young, WD5FXP, to continue as a member in good standing. It seems John had allowed his dues to become delinquent, although he had submitted them for re-instatement into the club.

John is rather unique in that he is usually against everything that is brought up. Whether it be voting for new memberships, purchasing equipment for the repeaters, or whatever it might be, John usually casts a negative vote.

John's application for re-admission to the club was brought up with much discussion coming from most members in attendance. Several motions were presented to the chair and finally it was decided to let John come back into the club, but his membership fee would be doubled. A show of hands was called for as to whether John should be allowed back in, and as usual, he cast the only desenting vote.

After the normal business affairs were taken care of and everyone was given a chance to do their thing, our beloved El Supremo, Doc Goodhead, WA5CZN presented a most enjoyable program. Since Doc is an eyeball specialist, he told us why he is so beneficial to mankind and the difference between optomotrist, opthomologists and opticians and all the other people who deal with eyeballs. Thanks Doc. Job well done.

One noticable absence from the meeting was Mrs. Clara Storm, WD5KFT. We missed you Clara.

After adjournment, the second meeting was held at one of the local eating establishments. Why is it that the second meeting is always more enjoyable than the first?

K5NK

- Just for Fun -

S	R	O	S	S	E	C	O	R	P	1. Processors
L	D	Z	P	O	X	O	A	L	B	2. Computers
R	I	C	D	N	A	M	M	O	C	3. Command
E	S	N	T	K	E	P	B	U	N	4. Memory
G	P	E	P	M	W	U	C	T	O	5. Display
E	L	R	O	U	L	T	X	P	I	6. Print
T	A	R	I	A	T	O	W	U	T	7. Let
N	Y	X	E	N	Y	R	G	T	P	8. Run
I	O	N	P	U	T	S	M	I	O	9. Ready
Y	D	A	E	R	Z	W	L	Y	C	10. Logic
										11. End
										12. Input
										13. Integer
										14. Option
										15. Output

FOR SALE: Complete Drake 4-C Line. T4XC, R4C, AC4, MS4, 15 extra XTAL ranges, 2 extra filters, dust covers: \$950. Rare Drake C-4 station control system: \$325. See or call Mac, K2GKK at 672-4947 (home) or 734-5956 (work).

FOR SALE, ICOM IC-21. Crystals installed for 146.01/61-04/64-07/67-13/73-16/76-22/82-25/85-28/88-34/94-37/97-46/46-52/52-58/58-144.48/48-144.60/60-145.20/20- 145.32/32 with room for 6 more pair. ALSO ICOM DV-21. Both units have AC power supplies built in and DC power cords for 12 volts. With manuals. The first \$300 gets all of the above. Joe, WB5TDW, 685-4814 after 6 PM.



I HEARD: CZN is a fast motor-scooter.....FXP is building a 100 K amplifier so he can be heard.....E considers himself a Klutz.....WM has more fun having diarrhea than anything else.....MGP has taken up golf.....SVN doesn't like his legs dangling in the water.....FXP would like to be able to speak a foreign language but he has enough trouble with English.....GOM has no scientific skill at catching fish, depends strictly on luck.....E has to get momma's permission to get on 10 meters with the boys.....FKF believes if you pay lots of money for someting, he should wear it out before selling it; he is a fine example.....JGU thinks he is still young and handsome and the young gals will still chase him.....HXL has a hole in his muffler.....OZE has been getting obscene phone calls lately.....TMW was hauled off a tower by the cops and had to do some fast explaining.....FKF spotted Lady Godiva walking down the street.....YLZ nearly helped a guy by giving him a fat lip during the traffic rush.....SVN drinks scotch and chases wild turkey while his wife is gone.....SLA only slows down in school zones during spring break and other holidays.....YLZ had a bumper thumper.....IS has been working moon bounce and doing lots of scanning from his new bedroom.....SVJ has a bad case of poison ivy from playing in the woods.....BS flipped his sailboat out on Lake Hefner.....AQY has been improving his skill at copying cw and will have it mastered once he is able to tell the difference between an "A" and an "N".....DYI has a yellow streak down his back when it comes to working dx on cw.....VVZ thinks he is a handsome brute now that his beard has filled in the bare spots.....IH describing himself as being as bad as Reuben.....FKG doesn't want anything written about him in this column.....GKK selling girl scout cookies.....JYT is a real boat nut.....M continuing to quiz FKF about how he got the Icom fixed.....TDW telling falsehoods on NK.....PZW trying to figure out a good lie to tell his wife about why he needed that new tuner.....NBH bragging about his dx on 10 meters.....ZKY telling his war stories again.....and a whole lot more..... K5NK

CLUB MEMBERSHIP FULL: It was reported in last month's issue of the C & E that a new club had been formed, namely the MONKEYS CLUB, and that we were looking for a member to fill our one and only vacancy. After much searching, this member has been found and has agreed to join this prestigious club. We welcome Mr. Allen Alger, AI5Y, of El Reno, who will become our program chairman just in case we ever have a meeting of the club and need a program. Talk is going around that perhaps the club will hold a meeting at this year's Ham Holiday and discuss some monkey business. Just in case someone missed out of the list of the members of this club, they are: KE5M, Mr. Ron Recer, President; AAØO, Mr. Robby Runyon, Vice President; K5NK, Mr. Chuck Wilhite, Secretary; KF5E, Mr. Tom Cassidy, Treasurer; AI5Y, Mr. Allen Alger, Program Chairman; and AD1S, Mr. George Adkins, Reporter. We realize there are perhaps many out there in radio land that are jealous of us for not being able to belong to this fine club, but that's their tough luck. Perhaps you could form your own club. I hear that Mr. Donald Duck, AE5N is thinking of starting a QUACKERS club. Maybe you will fit into this one. K5NK

TEN METER DX: Before the rumor gets spread all out of proportion, I want to confess something. I did something that I had never done before and in all probability will never do again. I actually made a dx contact on 10 meter ssb. I had to struggle to get the vfo turned up that high in the band. I was so scared I hardly knew what to say. It's much easier on cw fellows. K5NK

FOR SALE: Kenwood SM-220 station monitor scope with pan adaptor, cables and dust cover. \$325.00 George, AD1S, 840-9047.

FOR SALE: Dentron GLA-1000 linear amplifier with 10 meters. \$225.00. George, AD1S, 840-9047.

WANTED TO BUY: 40 meter monoband beam with lower swr than N5GE. John Young, WD5FXP 324-8630.



AN EDITORIAL - CHUCK WILHITE, K5NK

DIAL 1-800

It's very interesting to listen to local amateurs talking on the local repeaters about some new piece of equipment they have just had delivered by UPS. Hosea just got a new Kenwood TS-120 delivered from ABC Electronics and Bolivar got several new antennas from DEF Electronics. These are just two of many examples of how easy it is to pick up the phone and dial 1-800 and talk to some far-away ham store and order some piece of equipment. The 800 number is a real blessing to us, for we can pick up one of the ham publications and scan through the pages looking for stores with the 800 number and start dialing, looking for the best bargain and at no cost for long distance calls at all. This is fine, real fine for those of us who live several hundred miles from the nearest amateur radio store out in Podunk Center.

What makes it even nicer for us who live in the metropolitan Oklahoma City area is that we just happen to have a very modern amateur radio store located here. We can hop in the jalopy and drive down, put a dime in the pot and get a good cup of coffee (some folks even drop in a penny if no one is looking - they all sound the same when they hit the bottom) and enjoy our coffee while we twist the knobs on all the equipment to make sure that is what we want. Then, we can drive back home and pick up the phone, dial 1-800 and find out what kind of deal we can make. We'll place our order, wait several days for it to come and when it finally gets here, we find the thing won't work or has been damaged. Of course, we didn't give the local dealer a chance to offer us a price. We just wanted to drink his coffee and twist the knobs on his equipment.

I personally consider this to be very bad. I realize that hams as a whole, including myself, are cheap - we all want the best deal and the lowest price we can possibly get, whether it be a new Kenwood TS-120, 100 feet of RG-8U or even a lowly PL-259. It doesn't make much sense to me to drive to Tulsa or Dallas to shop for a new automobile and save \$50 over what we could buy it for here in Oklahoma City. The same is true when it comes to amateur gear. I've heard fellows talk about ordering a power supply so they could save \$2.00 or so and not have to pay the local tax. That's pretty good, for the shipping charges probably cost more than they saved. Sure, you might save \$10 or so by ordering from some mail order place, but to me, it's worth the difference to be able to open the box and see if the thing is going to work right before taking it home. What's sad about the whole thing is that in all likelihood, they didn't give the local dealer a chance in the first place. He might have been able to sell it cheaper than they ordered it for at John Doe's.

It's no skin off my back. I don't have any interest in any local store. Sure, the owner is a good friend of mine, but I'm not out trying to drum up business for anyone. I'm proud of the fact that we have a nice store here that we can buy a cheap cup of coffee, see the latest equipment and just drop in to visit with other hams. We are very fortunate here, for there are cities a lot larger than Oklahoma City that do not have places for the local hams to buy gear. The only way we or any city can keep these stores is to support them. To me it's worth a few extra bucks if that's what it takes to keep them here instead of supporting some store where amateur gear is probably just a side line.

So, go ahead and call all the 800 numbers, see what kind of deal you can get and then check with the locals. You just might be surprised, but at least give them a chance. But, for goodness sake, why come in and brag about what a good deal you got some place in front of everyone and drink a 10¢ cup of coffee? That takes gall brother.

Shawnee Amateur Radio Club



W 5 S X A

THURSDAY NITE DRILL: Another "first" was achieved in the ever expanding Pott. County ARES capability on April 10, 1980 when the net was called up on short notice for a simulated emergency. The primary frequency, 146.31/91 was used to simulate assistance to the City of Seminole. Seventeen out of a possible total of 27 net members checked in. (The EC was ecstatic!) There were lessons learned - and that's why it happened - and that's why it will happen again. The net meets each Tuesday at 1900 hours, local time on 146.52 direct for its regular session. Join us!

AND ANOTHER: A 2 meter antenna and feed-line has been installed on top of the old American National Bank building in Shawnee to provide capability for remote operation from the Red Cross office on the third floor. Preliminary checks of the coverage from there indicate excellent - especially into Oklahoma City. A 75 meter wire is also planned.

KB5TW: That's it, folks. Bob finally got the call sign he qualified for on Jan. 9, 1980! Stands for Keep Back; Five Thousand Watts! Really, Bob!! Not with a 2036? Anyway - he's legal in the National Electric Code Book.

NEO-RTTY-PHYTE: That's a new term I picked up recently from RTTY Loop. A regular feature in 73 Magazine. I think that's what I am now. The new ST-6000 finally arrived after a ten-week wait. (Kinda like Bob's license.) After carefully unpacking the unit, running an inventory of the accessories, making a couple of hook-ups, etc., I turned on the old M-15 I bought at Ham-Holiday last year, tuned around at about 14.1 mcs (I like to call them what Mr. Hertz called them; "cycles".) and copied the last bulletin of the day from WIAW and the copy was solid! Well, I spent the next two hours - 20 meters stayed up late that evening - piling up paper on the floor and generally just having a regular party with my new expensive toy. I've really only had that one session with it so this will not be much of a tech-review. But, let me tell you - Hal Communications is a class outfit! They knew in advance that they were going to sell one of these things to a clod like me so they included in their gem-dandy instruction manual at paragraph 4.2 a simplified operating procedure "suggested for those operators who are anxious to try the ST-6000 without reading the rest of this manual". Well, I have read the rest of it now and am I sorry! What I got from that experience mostly was a headache. Lots and lots of terminology. And, like everyone else they have their own special names for certain circuits and design features that are still unfamiliar to me. They do need a proof-reader up there on the writing staff. Lots of typos in the text. The instructions mostly are very clear and the manual is well illustrated even though some of the circuit diagrams (there are no less than 18 pages of them) are rather dim and need some touch-ups. The first thing I really did with the unit was make up an excuse to look inside. I had to know whether to plug it into a 110 or 220 volt receptacle, so - six little screws later I had the top off and by comparing what I found with the appropriate drawing in the book I soon determined that it was wired for 110 volts just the way I ordered it. The unit appears to be of very fine quality throughout. Didn't find any "Mickey-Mouse" stuff or short cuts anywhere. As a matter-of-fact; I would say they leaned a little the other way. Construction is mostly on two large (about 7" x 7") good quality boards mounted flat at each end of the case. Operator control of the unit is through 12 push-on, push-off switches mounted on the front of these boards. All of the "I/o ports" are on the rear panel, of course, along with the usual complement of power cord, fuse holders, etc. Data line connection is made through a number of Molex type connectors which were selected to prevent accidental attempts to make an "input" through an "output" port or vice-versa. Extra plug bodies and pins are supplied for making up custom cable sets for most any kind of station configuration. There is a sizable gap between the boards on my unit because I chose the "metered" version and plan to use an external scope. Anyway the space provided for the optional scope and associated circuit boards will make a dandy place to store extra parity bits, mark holders, autostarters (both pre and post) decision threshold hysteresisses, etc. You know, all those things you never quite know what to do with. I hope that next



time I can tell you more about the wonderful world of RTTY.

BIKE-HIKE: SARC members provided communications assistance during a chairty BIKE-HIKE between Shawnee and Twin Lakes on Saturday, April 19. Benefactor was the otherSARC-Shawnee Association for Retarded Citizens - and the Special Olympics sponsored locally by the Lions Club.

FROM THE OLD PHILOSOPHER: Procrastination offers remarkable, little known advantages. More on this later -

73,
JAY/WD5BUQ

FOR SALE: Complete Motorola two meter and six meter base stations. Both mounted in the same 67" cabinet. Full metering. Would make excellent repeaters. Package \$100. JAY/WD5BUQ - 273-3033, Shawnee.

The Oklahoma Dirt Riders are sponsoring an Enduro motorcycle race June 1st at Draper Lake and need approximately 16 communicators and radios for coordination.. Each entrant is scored at 6 to 8 undisclosed check points along an 80 mile course, with 5 points for each minute early and one point for each minute late. The last race had 7 riders with 0 points so a tiebreaker counted in hundredths of a second was needed.

Communicators and spectators get in free. Contact Bill Skipper, KB5BS or Pat Sherrill, N5PS, for a choice spot for watching all the action, spills and thrills. To assist riders who do fall our radio people are needed for directing help, so plan for a fun Sunday and support our service image.

Pat, N5PS

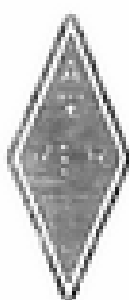
GREEN COUNTRY AMATEUR SWAP FEST "II"

May 3, 1980

sponsored by Broken Arrow Amateur Radio Club

AFTER THE TEN O'CLOCK NEWS AND JOHNNY CARSON'S MONOLOGUE, MANY OKLAHOMA AMATEURS ARE FINDING SOMETHING REFRESHING ON TWO METERS. MOBILES OUT-AND-ABOUT, LATE-SHIFT WORKERS, AND RELATIVELY DISTANT HAMS KNOW OF IT, TOO. IT'S CALLED THE NIGHT OWL NET, THE BEST WAY TO KEEP IN TOUCH WITH AMATEURS IN OKLAHOMA. EVERY AMATEUR, TECHNICIAN CLASS AND HIGHER IS WELCOME TO PARTICIPATE. THE NET PROVIDES ASSISTANCE TO MOBILES, PASSES TRAFFIC AND KEEPS THE BAND ALIVE WITH GOOD AMATEUR CONVERSATION. JOIN US ANY EVENING AT 10:30 P.M. - EVEN ON WEEKENDS. YOU MAY GET HOOKED!

The Night-Owl Net
146.07/.67 Oklahoma City



THE AMERICAN RADIO RELAY LEAGUE, INC.

OFFICE OF THE
SECTION COMMUNICATIONS-MANAGER

LEONARD HOLLAR WA5FSH

QST—
OFFICIAL ORGAN

NET ORGANIZATION IN OKLAHOMA

In Oklahoma, we have 6 nets that are classified as 'Section Nets'; O.P.E.N., O.F.O.N., S.T.N., O.T.W.N., O.A.N., & O.L.Z.

Each net is supervised by a net manager who takes responsibility for the over-all operation of the nets. From recruiting net control, recommending stations for O.T.S. appointments; to setting standards for and issuance of net participation certificates.

Net control stations are expected to call the net on their appointed day and time as close to advertised frequency as possible without causing interference.

Keep accurate records on 'QNI's and QTC's' listed.

Make every effort to move traffic as close to destination as possible by the most direct route. Too many relays cause too many errors.

Know the regular net members and their capabilities.

Keep the net under control. Move formal traffic first, then 'contacts'.

For net members:

A good net member checks in promptly, as often as possible. Stays at least 15 minutes if at all possible, and reports when leaving.

Transmits only when called by N.C.S. Some of us have a tendency to be too helpful.

I hope this has helped some in understanding the operation of our 'Section Nets'. Not to be overlooked is our 'Local Nets', operating mainly on the repeaters throughout the state. Participation is high, efficiency is good. The training is excellent and the overall results are super. My thanks to all for your help. It takes all of you to make the operation a success. No one of us can do it alone.

Now; any volunteers for any of the above listed appointments? We need N.M.'s N.C.S.'s, Wx loggers and just plain net members. Oklahoma is being well covered but I can still see gaps.

In response to some requests: I plan at this time, to be available for field day traffic on regular net schedules, plus monitoring 34/94 as much as possible. Also elsewhere, is an explanation of R.O.W.H., or 'Wouff Hong'. See you at Ham Holiday.

WOUFF HONG

One of the oldest traditions of amateur radio is our record of self-policing our ranks, our dedication to public service, our versatility in experimentation. But of the bymobs, other than the ArRL Diamond, is the Wouff Hong. Every amateur should know its origin.

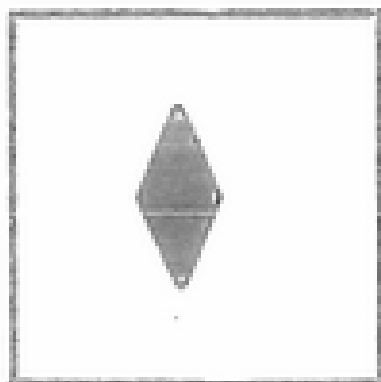
It started back in 1917, in the very earliest days of ArRL and Qst, when an anonymous amateur, writing under the title "The Old Man" created a series of stories in the magazine. In a pithy, irascible style he assailed all that struck him as criticizable about ham radio operations of the period in his famous "Rotten Radio" series, beloved to this day to all who read them.

In one of these stories, "Rotten QRM", he launched forth with examples of some of the poor sending cluttering up the band in a particular QSO to which he was listening. The givverish included the words "Wouff Hong" which, apparently, was being used by someone on somebody else.

It turned out to be one of those priceless pieces of spontaneous word invention. Instantly it caught on with the gang. Although T.O.M. himself admitted at the time he didn't know exactly what a Wouff Hong was. It quickly became something with which both to attack bad operating practices and to discipline their perpetrators.

When QST resumed after the war, one of its first contributors was T.O.M.

In an early 1919 issue he contributed an article on "Rotten Starting" to work off steam on the slowness with which the government was getting around to let us operate again. At the conclusion of this article appeared the following: In the meantime...I am sending you a specimen of a real live Wouff Hong which came to



light out here when we started to get our junk out of storage. Keep it in the editorial sanctum where can lay hands on it in an emergency. We will be allowed to transmit soon and then you will need it.

The object was duly received at HQ. The editor, fully mindful of the significance of the occasion, took the instrument to one of the first board meetings on May 3, 1919, subsequently duly reporting in QST that "each face noticably blanched when the awful 'Wouff Hone' was...laid on the table," By an action still a part of the leagues official records, that board voted that the Wouff Hong be framed and hung in the office of the secretary of the league. There it remains to this day.

We know the significance of the Wouff Hong. We don't know the significance of its weird shape. This was never explained. Nor was the precise manner of its use ever prescribed, although perhaps it may be guessed with a little imagination as the years passed, it continued to grow in the affections of amateurs the country over, old-timer and youngster alike. It became the inspiration of the "ROYAL ORDER OF THE WOUFF HONG". The amateur secret society of ARRL conventions. Today, it is thoroughly entrenched in the lore of amateur radio as its most sacred symbol.

The WOUF HONG! -- See it when you visit ARRL headquarters.

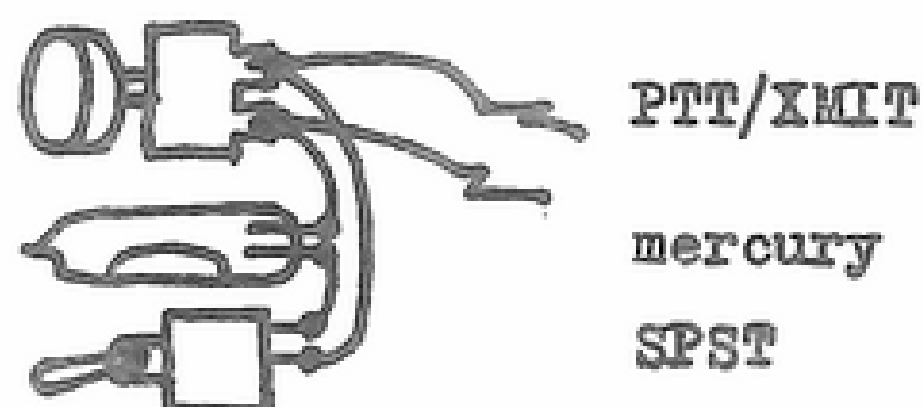
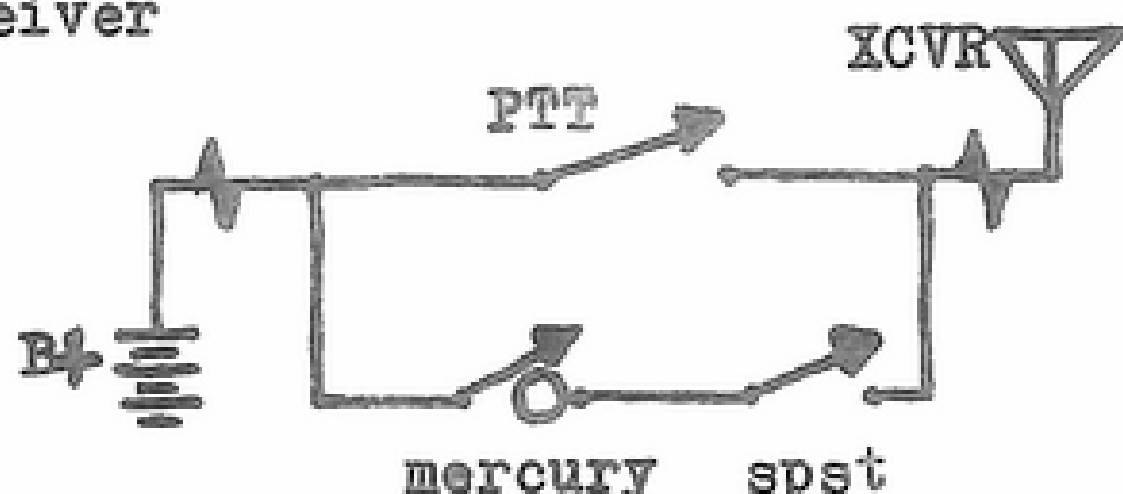
" STOP! THIEF! "

Have you ever felt like you've bolted the barn after the horse was stolen? Or, locked the gate after the fence burned down? Well, this may be my version: would YOU like to booby trap your transceiver? especially your hi-dollar rice-box hi-risk mobile? AND theft-alert your vehicle while you'r at it?

Parts required: mercury bulb switch (1), single-pole single throw (SPST) switch (1)/your choice of toggle or pushbutton so long as it's not momentary/, 2-3 inches wire each of two strands /your choice/, drill and bit, solder and iron.

Method: relieve a used/new central heat/air wall thermostat of its mercury bulb switch, as much of its associated wire/circuit and mounting as you like/need. (or buy a new bulb.)

decide on/acquire the smallest spst toggle or pushbutton you like which will fit your space/needs for a fixed switch
connect the mercury and toggle in series
connect the remaining ends of each switch in parallel with the push-to-talk switch (PTT) or transmit switch in the transceiver



Use: installed inside the microphone case where there is room (if any)/requiring the smallest parts possible/ or on an easily tiltable bracket for a fixed station, when the spst is closed, the Hg bubble will close or open the circuit by its position.

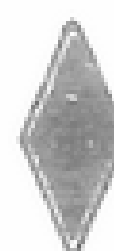
Suggestion: installing the mercury bulb so that it's closed when upright and inside the mike case inconspicuous allows transmitting when held, receiving when laid down; installing the spst in the case of the mike allows the mercury switch to be defeated and its operation removed from the circuit, freeing the PTT/XMIT switch.

Effects: when armed, laying the mike on its side or top keeps the radio in RECEIVE; when upset, closes the mercury switch and transmits as long as closed; a continuous transmission can be easily found.

The application of useful transmitting is an incidental benefit to locating a missing rig thru a continuous transmission by the unsuspecting and unknowing possible thief.



BI-CENTENNIAL AMATEUR RADIO CLUB
To Promote Radio Communications
 Sponsored by Oklahoma Air National Guard
 ARES, affiliated



MINUTES

The April meeting was called to order by Prez Joe WD5BMP at 7:01 pm at the Air Guard with 46 members and guests present.

The minutes were approved as published in the April Collector and Emitter.

The Treasury report was approved as presented by Tom KF5E.

Committee reports: CORA (specifics are to be found elsewhere in this C&E)

EE80 Prizes: Chuck K5NK is dispensing books of 25 raffle tickets each for a Kenwood TR-7625 to be raffled for the C&E equipment fund.

Field Day: committee to meet Saturday 12 April 1 pm Granada Mobile Village Club House 2400 S. MacArthur.

Repeater: the question of a satellite receiver appears to be in limbo.

ARES: May's meeting, 19 May, at the Red Cross center, 323 NW. 10th, will be a class in "Traffic."

There being no further business brought before the club the meeting adjourned for refreshments at 7:40 pm.

The program, begun at 8:02 pm was Mike Salem N5MS on "Laws vs. Hams:" building restrictions, RF emissions, special ID cards and plates and common carrier protection.

The club adjourned to the aftermeeting at 9:24 pm.

Next meeting, same time, same place, 13 May 1980.

Jim N5BEQ
 Secretary

SPECIAL OLYMPICS

D'ja ever win a foot race...in competition? Did you have polio, M.D. or M.S.? SOME of these ambitious competitors DO !

So, it's wise to have physically capable adults available with good means of communications to solve or avoid problems that CAN arise with active, spirited youngsters.

This year's Olympics will be held 14, 15 & 16 May, Wed. thru Friday, at Central State University's stadium and fieldhouses

Wednesday 1100 - 4 pm and 6 - 8:30 pm.

Thursday 0800 - 7:30 pm

Friday 0800 - noon !

Thus far, the following have volunteered to provide ham communication:

Oscar WB5GCX, Donna KA5GEP, Jim K5PER, Jerry KA5DCM, Dale K5WUF, Chuck K5NK, Art W1GOM, Fergy K5SXJ.

We'll need 5 people on duty at a time in 4 time periods for a total of 20. So, as you can see, we are short 10 - 12 operators.

If you wish to volunteer, contact Jim N5BEQ 236-0368 or Hobe WB5MLN 751-1646.

73
 Thanx
 Jim

CORA Collector & Emitter

THE MAY ATV MEETING WILL BE HELD ON THE THIRD THURSDAY (15 MAY 1980) DUE TO NONAVAILABILITY OF A ROOM ON THE REGULAR SCHEDULED DATE.

The April ATV meeting in the Communications Building at Central State University in Edmond, Oklahoma was called to order on 10 April at 7:30 PM with self introductions following. Two members of the HAM HOLIDAY planning committee were present to inquire about our clubs participation.

The main topics were the club's ATV repeater and the ATV program for the upcoming HAM HOLIDAY.

The ATV repeater has been on order for several months. The date it will be delivered is still not known. The receiving antenna is on hand, and the transmitting antenna is on order. Preparations are being made to install the antennas as soon as the transmitting antenna is received, a crew can be gathered, and suitable weather permits.

The planning for an ATV program at HAM HOLIDAY includes a working system composed of two stations, possibly one or maybe both in color, all day Saturday and 45 minutes for a talk with information handouts and a question and answer period on Sunday morning.

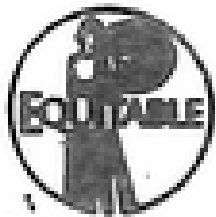
W5JGC

FARM AND RANCH LOANS

CHARLES (CHUCK) WILHITE,

Area Loan Manager

THE EQUITABLE LIFE ASSURANCE SOCIETY OF THE UNITED STATES



Bus. (405) 721-6225 P. O. Box 32001
Oklahoma City, Okla. 73132

An Authorized Beltone Dealership
Hearing Aids and
Audiometers



AE5N
DONALD H. DUCK
Special Instruments Representative

Beltone Hearing Aid Service
2828 N.W. 50th
Oklahoma City, Oklahoma 73112
Telephone (405) 947-4442



AVIATION CO.
HANGAR 3B, WILL ROGERS WORLD AIRPORT
P. O. BOX 59908, OKLAHOMA CITY, OKLA. 73159

GENE NAILON - K5DLE
Avionics Manager

OFFICE 405-681-2331
HOME 405-341-8289

WANTS: AVIONICS TECHNICIANS FOR
REPAIR AND INSTALLATION OF AVI-
ONICS EQUIPMENT (NAV/COM, PULSE
FLIGHT CONTROL) IN IN GENERAL
AVIATION AIRCRAFT.

EXPERIENCE IN GENERAL AVIATION
AVIONICS PREFERRED - - BUT NOT
REQUIRED

5-10



There are many things happening in amateur radio at this time. The FCC, EPA, HEW, and NIOSH are all concerned with biological effects from non-ionizing radiation. This is principally from public fear generated by a lack of understanding and explanation to the public. The news media as a whole do not define the difference in types of radiation from that group called ionizing and that group called non-ionizing. This is unfortunate in that it causes confusion on the part of the public, and they think all radiation is the same as that from the Three Mile Island incident. The public attaches the problems from ionizing radiation to the areas of non-ionizing radiation, whereas in fact there should be no cross correlation.

I look forward to meeting with your club, but may not have sufficient time to make all of the clubs this year. I will announce my travel schedule through the 3961 KHz, the 7290 KHz, and the 3855 Sooner Net each month. This will allow you to know what part of the Division I will be traveling through, and at the same time give you advance knowledge that may allow for me to arrange for a mutually agreeable meeting time and place when in your area. There are exceptions to this policy, and they will apply when your club or one of your members receives a special recognition for something accomplished in the area of amateur radio. If you will let me know of these accomplishments, I will do my best to arrange my schedule to be with you or have a representative there for the meeting. I am interested in recognizing any special service that takes place within your club structure for your membership. Please keep me posted in this area that we may work together to give recognition where it is appropriate.

The West Gulf Division Convention each year is held for the benefit of the clubs and members to advance their knowledge. It also gives all of us a chance to meet each other and exchange information. My policy concerning this convention is to offer it to any club that can handle it, and has facilities in the community to accommodate the attendees. Houston and Dallas have indicated a continuing desire to host the convention on alternate years, but if any club in the Division is interested at anytime in hosting the convention, I would like to discuss your plans with you prior to July 1st each year. Any club or group that plans to host the convention the following year should have at least 12 months to get things organized. I would be pleased to schedule the convention as much as two years ahead, should there be that interest.

In future visits to the clubs around the Division, I will have with me a set of slides that I made in January of 1980 when I visited Newington, Connecticut. These slides show the facilities that the American Radio Relay League has put together to support you and the other amateur radio operators within the United States. We have at this time approximately 110 staff members at headquarters working full time for your benefit in amateur radio. I will also have the new film on amateur radio which is approximately 26 minutes in duration. This is a 16mm color and sound motion picture. I would like to use local projection equipment in the area where I am going to show this film when possible. I will contact you to confirm if you have projection equipment available before my visit.

I would ask that you please refile your affiliate report to the League as soon after the first of the year as possible. This is my guide to know when your club meets, where you are meeting, and who your new club officers are that I may get in touch with them when I plan a trip into your area.

I am trying something new beginning in March, as all newly licensed amateurs will receive a letter from me inviting them to visit your club. This may help them locate your club and hopefully get you some new members, along with the League.

Your continued interest and support of the League is certainly appreciated, and I will assist you and your club in all ways possible. When you need assistance, please do not hesitate to send me a message through the traffic system or drop me a note and indicate your needs. I look forward to meeting with you in the months to come. R. B. WANGLER, W5EDZ, DIRECTOR, WEST GULF DIVISION

EDMOND AMATEUR

RADIO SOCIETY

147.72/147.12

LAST MEETING: C&E goes to press the morning after our meeting and during the Lawton Hamfest so I can only report on how good it is to be. The meeting was moved forward to 6:30P on Friday April 18 in order to coincide with an Oscar pass. Our apologies to any member or other CORA members who may not have gotten the word. Bob Shaw suggested the change to enhance the value of the meeting to those attending so we hope you were there.

NEXT MEETING: Back to our regular meeting place and time. Sunday May 18, 1980 at 2:00P, Science Bldg. Central State University. New member Art Roberts, W1GOM, (a para-medical type with Amcare) will present a program on CPR. That's Cardio Pulmonary Rescuscitation you jokers. He will have a film on the subject and a Nanny to use for demonstration and practice. Remember, high voltage electricity, such as found in ham radio power packs and final amplifiers, can be dangerous to your health. So come on out and find out how to resuscitate your fellow ham in case he grabs the wrong wire.

NOVICE CLASS---NOVICE CLASS---NOVICE CLASS---NOVICE CLASS---

The EARS summer novice class will get underway on Monday evening the 2nd of June 1980 at the Communications Building on the Central State campus. Howard Wise, Bill Wright and Clarence Dollmeyer will be some of the instructors. Who else would like to be involved?????????????

MORE ON THE 72/12 REPEATER: When last you tuned in we told you we were on the way to acquiring a new receiver. Well, old man Murphy was working overtime and when the new hardware arrived it was not as represented; like short a \$45-50 board. Now we have several contributions to refund; unless the donors and members wish to establish a repeater fund. What is your pleasure gentlemen?

CIVIL DEFENSE: Saturday April 5 brought another round of CD Siren tests. This time EARS set up a 10 meter relay to 2 meters to cover all the units. Bill Wright and Martin McCormick relayed the info on their respective area sirens to Dee Mize, who then relayed to Ken et al at CD headquarters. Seems Bob McCoy was monitoring one unit which is quite close to the home of an aging gentleman who came out to let Bob know what he thought of such doings. Sorry, we can't print that sort of thing, but we understand Bob retained his composure and there was no gunfire. Some people just don't appreciate the finer things in life I guess. Edmond CD Director David Nostrand recently arranged a showing of movies of the Lawton & Wichita Falls tornados of 1979. Who was in attendance? Well EARS was there to demonstrate 2m disaster communications to the audience. This time the honor roll includes Howard Wise, Al Board, Bob McCoy & J. D. Keeling.

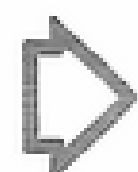
MORE SERVICE ACTIVITIES: Seems Howard Wise has been spending some of his evenings assisting Boy Scout Troop 79, David Nostrand Scout Master, demonstrating ham radio to the scouts. He put on a demonstration of 2 meter operations one evening and then came back the next week to demonstrate hf. That's great Howard--keep up the good work.

WILL EARS TAKE OVER ARMY MARS??? Two of our members began their MARS career this past quarter. Dee Mize, WD5FHR is also AAV6MQ & Clarence Dollmeyer, KB5RR is also AAT6MD. They join Bill Wright, WA5ZLW, who is also AAR6YG. All three were observed one/recent Sunday evening participating in the state technical training net.

EARS

NEW TICKET: Seems we have a new ham in Edmond. Louis Keeling, KA5HYJ (son of J. D.) received his call sign after 6 or 7 agonizing weeks of waiting for the FCC to process the paperwork. Louis is 14 and is using his dad's station. Listen for him on 40 meters.

MORE PROFILES:.....



Howard Wise
124 W. Wayne

WD5IDB

Advanced

Lic. since 1977

Edmond

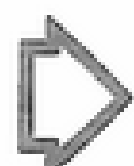
341-4573 shack

341-2510 house

Equipment: Kenwood TS520, 2m Wilson talkie, plus quite an array of misc. military & civilian gear incl. a half kw linear.

Interests: CW traffic & ragchew; occasional DX chaser.

Journeyman electrician--ex communications sargent in the army (incl. Viet Nam) forward area maintainance--a camper & fisherman when he can find the time. Married to Bertha who likes many things but not radio--seems she indulges in some fabric painting among other things. 5 children, 3 at home ages 23 to 18. Howard is active in Civil Defense and support of Boy Scouts and novice training. And last but certainly not least he is our immediate past president.



Dee Mize
622 SW 7th Street
Edmond

WD5HFR

General

Lic. since 1977

348-6535 shack

341-6163 house

Memberships: Autopatch and MARS

Dee is a hydrologic technician with the U.S. Geological Survey and has been with them for 23 years. He and his wife Jessie have, Mike 19 and Renee' 13, and 1 grandchild. Dee operates a Drake TR4C into a 10-15-20 Triband beam and a 10-80 vertical--plus a Clegg 27R 2m rig into an 11 element beam. His other interests include photography, stamp collecting, computers and antennas. Besides all that he is likewise a past president of the club and its current Activities Director.

HEARD AROUND TOWN: Dee Mize was having trouble with his vertical on 80 meters so tore it down and found a bit of corrosion in the telescoping tubing joints.

Ken Stepp has purchased a 39' tower to try to get away from some very noisy high voltage lines which run behind his house. So far it is still programmed for the future. He still has to dig a bit of a hole and fill it with concrete before he can start up in the air.

Martin McCormick finally blew up a \$12 chip he had been guarding so tenderly. Sorry to hear that Martin--better luck next time.

Nite time activity has picked up on 28.8 and 28.615 so tune ⁱⁿ whenever you can. No telling who, or what, you are liable to meet. A group of us had Flagstaff on with us one evening.

Heard on the bands--not much really--conditions have been terrible thru the second week in April. Guess the predictions of excessive solar activity have come to pass.

PUBLIC RELATIONS: By the time you read this we will have completed our operation from Bryant Square to publicize our summer novice class. Hope you were one of the hams who participated.

73 EARS DE KB5RR CL

CORA Collector & Emitter

AMATEUR 2 METER "SAMARITANS"

"SAMARITAN": ONE READY AND GENEROUS IN HELPING THOSE IN DISTRESS.
 WE WILL MONITOR THE 34-94 REPEATER EACH WEEK DURING THE HOUR
 WHERE OUR CALL SIGNS APPEAR BELOW, SO THAT ANY CALL FOR HELP ON
 THAT FREQUENCY WILL NOT GO UNNOTICED.
 FOR ADDITIONS, DELETIONS, OR CHANGES: CONTACT BILL WA5RAQ 632-4375

DUTIES of your new scribe, WA5RAQ. I will publish time slot assignments in C&E, publicize the project and encourage participation.

ASSIGNMENT CHANGES. Add WA5RAQ, Sundays 2 PM until 5 PM.

FUTURE PLANS. I might stop publishing the chart since it has changed very little in six months. Instead, just show the changes as I did above. I will write up any reasonable suggestions - just call me. I have one: List each case where help was provided by Samaritan 2-meter communication. Call me, I will list your deeds.

STATUS. I have some good news and some bad news. First the good news. During its six month existence, seven of the ten who became Samaritans were listed every month. These seven rate 100% performance. The overall participation was 87%. Those who did serve were faithful and persistent. I'm sure you Samaritans have everyone's thanks and appreciation, and a round of loud APPLAUSE FOR C.Y., WB5TKG for ramrodding this project. Now for the bad news. Only about 40 of the 168 slots have been filled. This is about 24% of the total slots.

HOPE. I am hoping the experienced Samaritans will remain and others will join the program.

Volunteers as of April 14, 1980:

		12	1	2	3	4	5	6	7	8	9	10	11	12
M O N	AM							KAS DCM	WB5 NXO		WB5 TKG			
	PM				WAS HTL	N5 BEQ		KAS CXW						
T U E	AM							KAS DCM	WB5 NXO		WB5 TKG			
	PM				WAS HTL	N5 BEQ		KAS CXW						
W E D	AM							KAS DCM	WB5 NXO		WB5 TKG			
	PM				WAS HTL	N5 BEQ		KAS CXW						
T H U R	AM							KAS DCM	WB5 NXO		WB5 TKG			
	PM				WAS HTL	N5 BEQ		KAS CXW				N5 BEV		
F R I	AM							KAS DCM	WB5 NXO		WB5 TKG			
	PM				WAS HTL	N5 BEQ		KAS CXW						
S A T	AM										N5 BWW			
	PM	N5 BEQ										N5 BEV	N5 GE	
S U N	AM	N5 GE									WB5 TKG			
	PM	N5 BEV		WAS RAQ	WAS RAQ	WAS RAQ	N5 BEQ					N5 BEV		

EXTRA CLASS
AMATEUR RADIO
WSKE

FIRST CLASS
RADIOTELEPHONE
LICENSE

ELLARD'S EX EL

ELLARD W. FOSTER, OWNER

5905 N.W. 42nd Street, Phone: 405/789-6702
 OKLAHOMA CITY, OKLA. 73122

TELETYPEWRITER
ASSEMBLIES

USED TEST
EQUIPMENT

EXCESS
ELECTRONICS

Tektronix
COMMITTED TO EXCELLENCE

MIKE RILEY

Sales Engineer
Measurement Products

Tektronix, Inc.
800 N.E. 63, Suite 201
Oklahoma City, Oklahoma 73105
Phone: 405-848-3361 or 800-522-8106 (Okla. WATS)





KAY COUNTY AMATEUR RADIO CLUB
KAY COUNTY AMATEUR RADIO CLUB
KAY COUNTY AMATEUR RADIO CLUB

Spring must be here again-- all the ham magazines are filled with ads for hamfests. I was unable to attend our March meeting, but I understand Grady Skillern, WB5SAG, did a super job providing CPR training to the 10 members and 3 XYL guests present. Couldn't find out if any business was discussed or transacted (maybe they doubled my salary--hmm, lets see 2 x 00.00 = ???), so I can't report on that.

This month's meeting will be held in the public safety center, where Larry Mooney of NWS in Oklahoma City will present our annual spotter training. We are throwing the meeting open to the public and have invited several groups to be present. I hope we have good attendance for the meeting. We seem to be having a run of stay-at-homes on the club meeting nights. Anybody got any suggestions???

Our May meeting will be the election of club officers. I'm trying to have a program on how to build 2M antennas for very low prices (under \$10) at the May meeting. Hopefully that will bring out some of our members.

So far, I haven't detected much enthusiasm for Field Day this year. If any club members are interested in setting up a field day station(s), let me know soon, as we need to be well under way by the May meeting.

Several of our members are building the tone alert units for their 2M gear. Jay Williams, W5TXF, still has a few kits available if you did not get one. We hope to have several of these operational by the end of the month, making emergency contact of our members easier. In order to have hams assist in a communications emergency, you must be able to alert them to the need, and the tone alert fits the bill. As far as I know, we will be the first club in Oklahoma so equipped.

Since this is the time of the year for trouble to drop unexpectedly from the skies, hopefully with some warning, I want to remind you of the following positions and the people who fill them:

Ponca City C.D. Communications Officer - Grady Skillern WB5SAG
Kay County E.C. - C.L. Hallmark W5ZWM

Grady Skillern has some Kay county maps with the spotter grid network marked on them.

Enough till next month 73 WB5DOT

Kay County 2M Net Control Scedule

Date	No.	Primary	Backup
04/28/80	171	WB5JYC	WB5DOT
05/05/80	172	N5EO	WD5ACK
05/12/80	173	WA5UBO	W5ZWM
05/19/80	174	WB5DOT	WB5JYC
05/26/80	175	WD5ACK	N5EO
06/02/80	176	W5ZWM	WA5UBO
06/09/80	177	WB5JYC	WB5DOT

CHOCTAW ARC



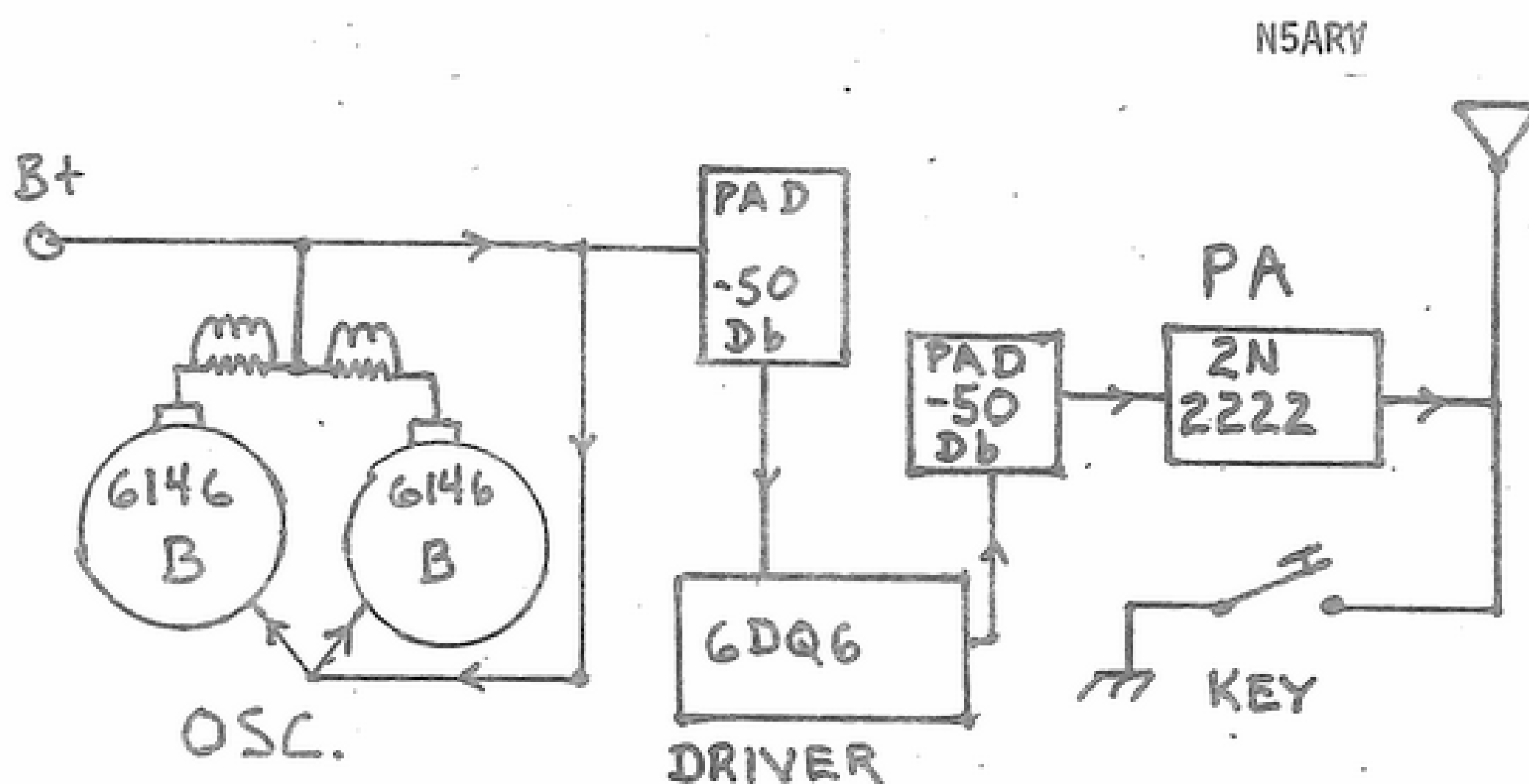
The April Meeting of the Choctaw Amateur Radio Club was called to order by Bob, WD5EVP (Executive Vice President) with twelve (12) members and guests present. Self introductions were made. We have accepted two (2) more members just this last month which brings our total membership to twenty-six (26). Our membership has doubled in size in less than a year.

We wish to welcome back home WB50HK from his annual pilgrimage to the coast. Since returning, he has made reservations for a COOK OUT/CLUB MEETING scheduled for May 12, 1980, 6:30 PM - UNTIL at the Midwest City Park located on Reno between Douglas and Midwest Blvd. All Club Members and their family are urged to attend. PLEASE BRING FOOD.

Due to increased membership, effective June 9, 1980 the Club will meet at the Choctaw City Hall, 24th and North Main. The time will remain 7 PM. Richard, KA5ALO, will write a letter conveying our thanks to the Woods Community Baptist Church for affording us meeting facilities. Now that we have a larger meeting place, plans are underway for conducting Advanced and Extra Class Schools in the near future with Code Classes on the 09 Repeater.

We wish to thank the Mayor of Choctaw who is the new Civil Defense Director for attending our meeting and providing information relative to Community Action for Civil Preparedness. He expressed his desire for club participation in case of disaster or area emergency. The Club agreed to be available if the need should arise.

Meeting adjourned 8:45 PM. SEE YOU ALL AT THE COOK OUT.



SONY **Amperex** **3M**

SPRAGUE

marantz

SUPERSCOPE

ATLAS SOUND **SONY**

XTEITE **DAKTRON**

TUBES 50% OFF
Free Testing
Most Electronic
Engineers and
Technicians buy
from us

Kelly's
DISCOUNT
ELECTRONICS
4221 N. Main
P.O. Box 4000
Oklahoma City

WORLD WIDE ELECTRONICS
J. C. BIDDY

(405) 525-9897
1715 N.W. 16TH

OKLAHOMA CITY, OKLA.
73105

REPEATER INPUT

MARK NORTHCUTT
WDSOYL

During the evolution of repeater coverage, many wild statements can be heard regarding their location, power output, antenna height and other details. To help us better understand all these mysteries, a chart has been developed to put these facts and figures into better perspective. The chart includes repeaters from Edmond to Norman and Calumet to Shawnee, encompassing the Metro Oklahoma City area. Other repeaters in the state may be charted if enough information can be sent to the Collector and Emitter.

FREQUENCY indicates the repeater's input and output frequencies. The repeater's input frequency should be your transmitter's output frequency; conversely, the output frequency of the repeater should be the frequency to which your receiver is tuned. In this chart, as in other references to repeater "splits", the input frequency is always given first, with the output frequency given last. Often, only the kHz numbers are referred to, as in "34/94". The chart lists one six meter, sixteen two meter and three 70cm repeaters in the Metropolitan Oklahoma City area.

CALLSIGN is the repeater's identification, mostly given on the repeater automatically in Morse code. Amateur radio operators should be able to understand the coded identification with some minor concentration.

In the last year, distinctive WR5*** callsigns were not renewed by the FCC. Current WR calls will eventually be replaced with callsigns of the repeater trustee, followed by the fraction bar, the letter R, RPT, or a combination of these. Many of the repeaters listed have already changed callsigns to those of the trustee. On repeaters with autopatch features, always remember to include the word "repeater" when identifying a "machine" that has the trustee's callsign in it, as "K5ELL Repeater."

LOCATION and CITY are fairly obvious. Repeaters by their nature need good locations for good service. Spaces for repeater sites in the amateur service are worked hard for and are usually donated by public service-minded owners of structures on which they are placed. Hams should always be aware of the public relations and engineering effort required to maintain repeater space and also of the generosity and consideration of the site's owner.

ANTENNA HEIGHT in this case is the height above ground at the repeater site. This figure may or may not be "height above average terrain" (HAAT). Many sites are chosen for their built-in advantage of higher-than-average altitude. However, an antenna's height on this chart may not be an indication of how well your transmissions reach it or reception comes back from it. Your altitude, transmit power and antenna gain play a big part, too.

In cases where two figures are given, the first is the receiver antenna height and the second is the transmitter antenna height. Single figures indicate duplexer operation, in which a single antenna is used for both functions at the same time.

W indicates power output, usually given in this chart as power at the antenna in watts. This was done to simplify feedline losses and other complications.

GAIN--dB indicates the transmit antenna's gain figures in decibels. This may greatly increase the transmitter's effective radiated power (ERP) when figured with power into the antenna. Many repeaters also have high gain receive antennas to increase sensitivity.

SPONSOR indicates who pays for the expenses and maintenance of the repeater. Expense can be relatively small or large, depending on the complexity of the machine(s). As a rule, club membership dues pay for these expenses. Although the frequencies are all free, support of a repeater for your use on a regular basis should be a matter of ethics and judgement. If you find yourself using a repeater you do not support, on a regular basis, seriously consider becoming a club member. Your morality determines when you are taking unfair advantage of the system. Details of full club names, club officers, and meeting times can be found on page 3 of this issue.

AUTOPATCH is the automatic interconnection of the repeater to the telephone lines for remote dialing and calling. Access and de-access codes are given for the repeaters with open patches. Open patches may be used by any amateur of Technician class or higher license. Others with the black dot indicate the up/down access codes are not published and are primarily for club member's use. On these frequencies, when the need for an autopatch exists, always ask for help in making autopatch calls. Club members are usually not snobs and will dial your autopatch call for you. In any case, ask for assistance for assistance when there is any question

96-203

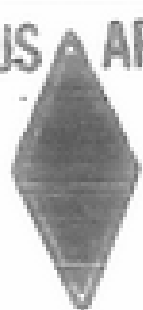
FREQUENCY	CALLSIGN	LOCATION	CITY	ANTENNA HEIGHT	GAIN W DB	SPONSOR	AUTOPATCH ? UP/DN	NULL	OTHER INFO
52.68/.525	K5JL/R	Northwest Section	OKC	120	80	3	OCAPA	No	
146.01/.61	K5GDE/RPT	9 ml. NW of City	Calumet	107	20	6	WHEATSTRAW	No	
146.07/.67	K5ELL RPT	Channel 4 TV Tower	NE OKC	800/600	35	6	MORI	Yes	* # NMW
146.10/.70	WR5ASI	SW 87th & May Avenue	SW OKC	60	50	6	Individuals (RTTY)	No	None
146.16/.76	WR5ANG	South Community Hospital	SW OKC	150	70	6	BiCentennial ARC	Yes	* * None
146.22/.82	K5JL/R	Channel 9 TV Tower	NE OKC	1200/800	60	6	OCAPA	No	None
146.25/.85	WR5AVM	NW 23rd & Rockwell	W OKC	140	50	6	ACARC	Yes	* # NE
146.28/.88	WR5AFW	O.U. Campus (Split Site)	Norman	198/116	25	6	OUARC	Yes	* # None
146.31/.91	WR5AOQ	Eastern Section of City	Shawnee	150/85	20	3	Tri-County Repeater	Yes	* # SE (RX)
146.34/.94	K5VRL R	Liberty Bank Building	DNTNOKC	500	40	5	MORI	No	NE
147.63/.03	WR5AMJ	Channel 5 TX/Channel 9 RX	NE OKC	1200/1000	40	6	EARC	Yes	* NW (TX)
147.66/.06	W5OU/R	Downtown	Norman	150	25	6	SCARS	No	NE
147.69/.09	K5EGQ RPT	Reno & Choctaw Road	Choctaw	55/35	12	6	Choctaw ARC	No	
147.72/.12	WD5FEI/R	KCSC-FM Radio Tower	Edmond	220/80	35	9	EARS	Yes	* NW(R)NE(T)
147.81/.21	K5JL/R	Channel 9 TV Tower	NE OKC	1200/700	40	6	OCAPA	Yes	* NNW(TX)
147.84/.24	WA5UCK R	AC5C Residence	E1 Reno	70	27	6	E1 Reno Area ARC	Yes	* East
147.93/.33	K5PL/R	Grain Elevator	Edmond	190/150	18	ERP	Individuals	Fut	* NW (TX)
449.1/444.1	WA5TRS R	Liberty Bank Building	DNTNOKC	500	20	12	MORI	No	None
449.2/444.2	WD5AIT	Channel 5 TV Tower	NE OKC	900/750	100	12	EARC	Yes	* None
449.3/444.3	K5JL/R	Channel 9 TX/Channel 5 TX	NE OKC	900/650	40	9	OCAPA	Yes	* East

* Indicates Club Members will dial for you when needed.

METRO REPEATER GUIDE

Wdsdyi

ALTUS AREA



AMATEUR RADIO
ASSOCIATION

The Altus Area Amateur Radio Association held its monthly meeting at the North Main Fire Station, April 10 at 7:30 PM. There were 22 in attendance, WB5KRH, WA5OGC, N5AIP, W5CHE, WB5WCB, WB5VUM, AJ5Q, WD5BBV, W5VXU, WD5ISO, KA5CES, WB5PUF, W5KI, WA5CBF, WA5ZAR, WB5UMH, WB5BBU, WB5NRQ, WA5TXG, W5HFN, Ida Ruth Meeks and Greg Ross.

After introductions around the table, Mike, W5VXU, Club Secretary/Treasurer, gave the financial report with \$251.00 in the bank and 34 members.

Loren, WA5CBF, Club President, spoke on the Lawton Hamfest on April 19-20 and the HAM-COM at Dallas June 7-8. Literature was handed out to interested parties.

Bob, N5AIP, read the Field Day Committee report. This committee met on March 31 at Loren's house. He reported on trying to locate a central area for the FD site with the Southwest corner of the city park seeming to be the prime location at this time. Since the price of gasoline will limit the use of the 10KW generator as it uses 2 gallons per hour, this years site should have commercial power available for our use. This FD we are just going to have fun and not really working all out for the contest points. There will be another report from this committee at the next Club meeting.

Dwight, WB5KRH, the Emergency Coordinator for Jackson County was next with a report on the oil company fire on March 21. This fire destroyed the Badger Oil Co. in Altus with a damage estimate of \$375,000. The fire broke out at 5:00PM and kept some 45 fire fighters from the City and Altus Air Force Base on the scene till some time around 10:00PM. Several fire fighters remained overnight to keep an eye on the hot ashes due to a 16MPH Southeasterly wind. Additional property to the north of the fire was damaged and destroyed as well as vehicles parked nearby.

With darkness arriving in the area, the firemen requested aid from the Altus Civil Defense thru the EM. Loren was tasked with loading up the generator and other auxiliary equipment and bringing it to the fire site. Dwight borrowed several high intensity lights from the Jackson County Sherriff's Office and after the generator was made operational the emergency lights worked well but more could have been used and the weary firemen were treated to coffee, ice water and a place to rest for a few minutes.

Loren reported on some of the lessons learned from this fire. One of the problems we faced was being able to get physically to the generator. He found that when he tried to hook up to the generator prior to towing it to the fire scene that a locked pickup was parked right in front of the generator. Much time was consumed in trying to locate a key to this pickup before it could be moved out of the way. Also the extension cords should be coiled for immediate use. Several days after this fire a storage box was mounted on the side of the generator, the cords were cleaned and carefully coiled inside as well as mounting some reflectors on the generator trailer.

Mike, W5VXY, reported that he and Major, KA5CES, were in the process of building some directional loop antennae to be used in a "fox hunt" some evening. The antennae were copied from pictures and descriptions in the ARRL Handbook and seem to be working well.

After a short break for coffee and donuts was a fill from the Bell Telephone Company called "About A Century". It covered the historical and technological developments between the years 1876 and 1976 in the field of communications.

The prize drawing showed the winners to be Chip, WD5ISO, who got the 'brownbag' and Greg Ross carried off the ARRL Handbook. Hopefully this will inspire him to start studying to get his Novice.

The meeting was closed at 10:00 PM and the next meeting will be on May 8.

Mike, W5VXU

MESSAGE FROM LEONARD, WA5FSN:

Some of the things we have firm for HAM HOLIDAY Program are:

QLF Contest - RQM Party - AF MARS Meeting - S M I R K Meeting - ARES & EC Meeting
Biological Radiation talk - ARRL Forum - DX - QSL Bureau - Bob Cooper -
Wouff Hong Initiation - QCWA Breakfast - Transmitter Hunt - ATV Presentation.
And as Chuck says, "And A Whole Lot More".

With exception of the Bio-Radiation talk it will be 'home town' people putting on the programs.

CORA Collector & Emitter

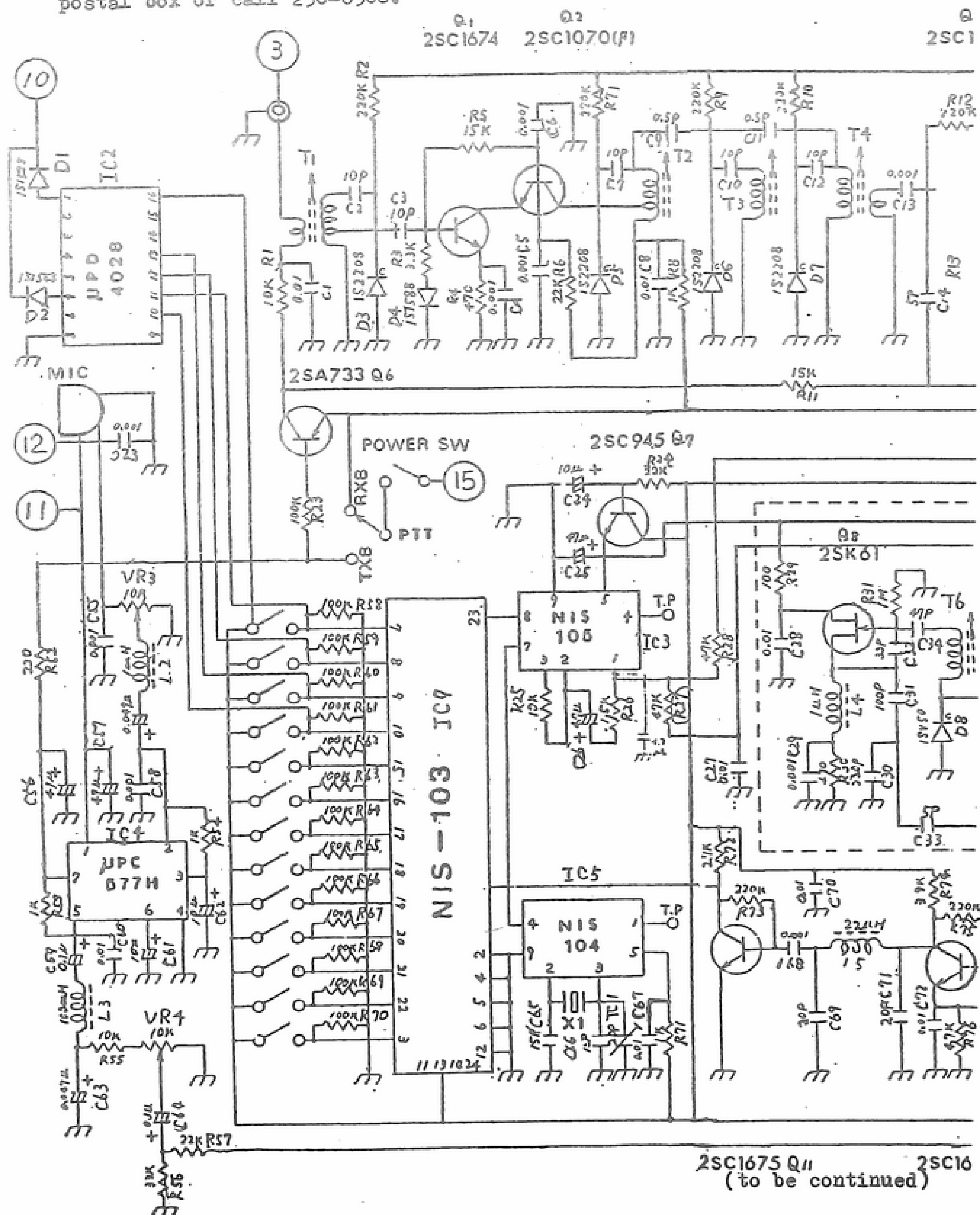
"WHAT 'TIS?"

Challenge : identify the following radio from its schematic and/or block diagram to come in following months and you will win your Ham Holiday Pre-Registration fee paid and a free raffle ticket for the Kenwood TR-7625 to be given away 27 July 1980.

There will be only one winner - the first correct guess. Those ineligible are Jim W5SWW, Lee W5VZY, Jim N5BEQ,

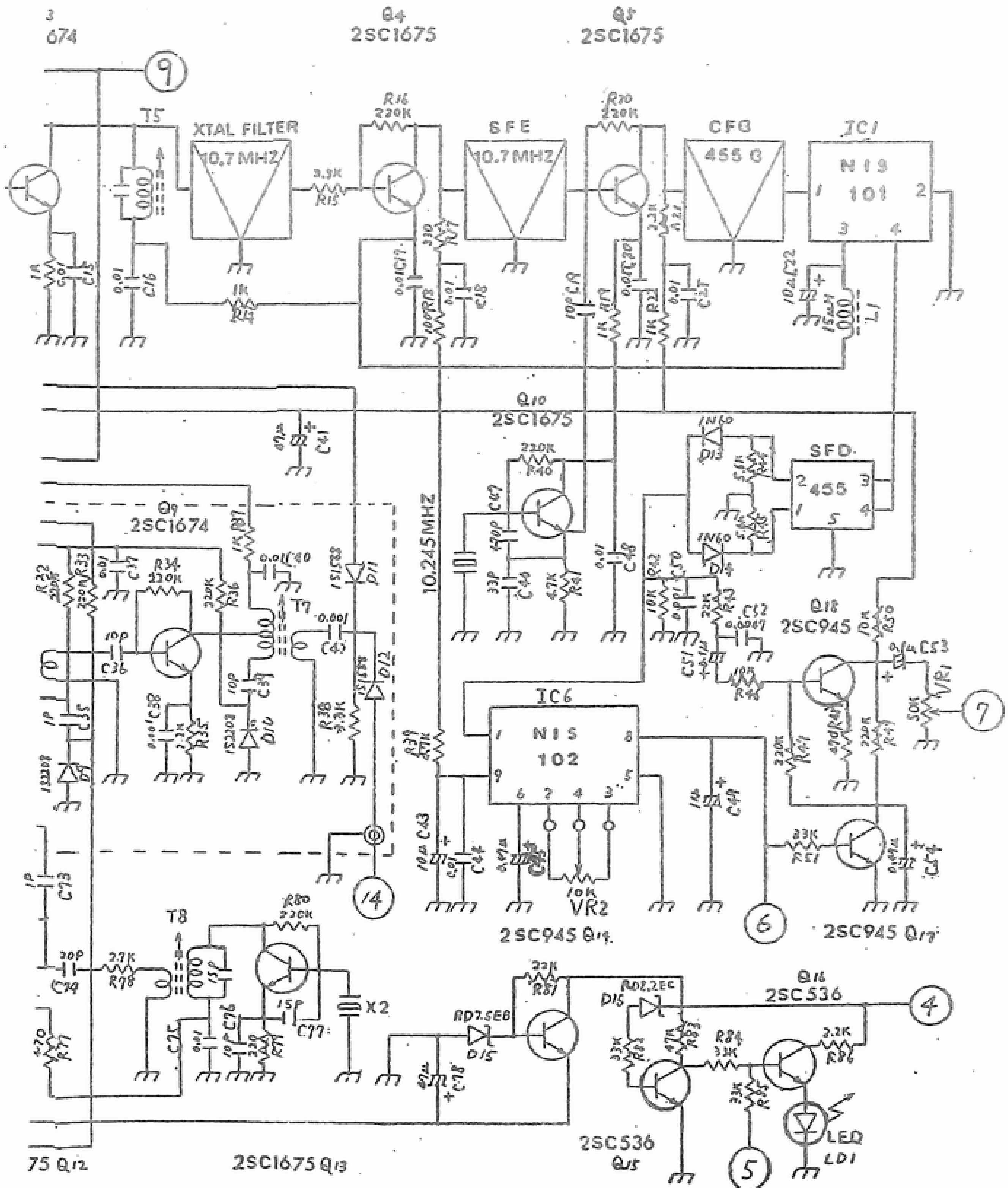
Bill K5JVD and Earl N5AWE. (NEEDLESS TO MENTION Joe WA5ZNF)

Send your guess to C&E Postal box, Autopatch Club's postal box or call 236-0368:



"WHAT 'TIS," PAGE 2

This is the second half of the first schematic guess - next part next month if no early winner (this month).



(to be continued next month?)

The South Canadian Amateur Radio Society

LAWS, THEORIES AND THEOREMS CONCERNING AMATEUR RADIO

As we all know, Murphy's Law may not have been invented by a radio amateur, but our fraternity has pioneered proof of it. That dictum, that "Anything that can go wrong, will," is proven somewhere daily by some intrepid ham building a new rig, trying to raise an antenna, or even push the right button to talk to a pal on two meters.

Less well-known are several other propositions of vital relevance to our beloved hobby. It is fitting and proper from time to time to remind ourselves of some of these hypotheses, some with more general application, some special to amateur radio.

Of the many laws, rules, theories and theorems that come to mind, one stands clearly above all others. Although seldom published and frequently violated, this rule, named after one of its foremost proponents in the W-5 call area, deserves repetition and a category all to itself because of its universality and stark but beautiful wisdom.

THE GORDON JONES RULE

"If it works, don't mess with it."

The author first heard this rule from the proponent himself about three years ago when planning "improvements" in the layout of his station. Rashly ignoring Mr. Jones, the author proceeded to disconnect cables and move equipment. After all, he reasoned, nothing was really going to be changed, and cosmetic alteration of the shack could not fall under the rule, right?

Wrong. Loading changed on every band, the SWR went from 1.2-1 to 3-1 on a beam, the digital display stopped working on the TS 820-S, and a DX-pedition was missed while frantic repair efforts were under way.

This is only one minor proof of the Jones Rule. The author has also tested it with dipoles, a keyer, new coax, a station monitor, adjustment of a tuner, and during construction of a linear amplifier. Mr. Jones himself has proven his own rule recently with an amplifier. This rule is always in effect, and woe betide the radio amateur who ignores it.

Some amateurs have been aided in remembering the rule, for purpose of testing by the FCC, by memorizing what is known in honor of Mr. Jones's son as --

THE JASON COROLLARY

"Any attempted improvement is first going to make things worse."

It should be added that things may be made worse permanently, and attempts to return the project to its original state may only make things worse again.

This immutable law, however, is as we said only one of a number in operation at all times. We submit herewith a number of others, identified by their common name when known.

THE HOWARD OSBORNE LAW

"Any time you find a rare DX station, he has just finished working the 5s."

It should be noted parenthetically that this rule does not apply if you are working /4. In that case, the station has just finished working the 4s. Neither does it apply when the DX station is going through the districts in reverse order. In that case, the DX station is always going QRT just as you tune up.

(Continued)

REPEATER/DUPLEXER FOR SALE: Tube-type Motorola 2-meter repeater with all the goodies except autopatch, plus six-cavity solid copper duplexer. Presently operating on state-coordinated frequency in Norman. Call Sam at 321-2601 or Jack at 329-1311 if the \$800 asking price sounds about right.



(Continued)

This rule is closely related to another, frequently observed by Dxers as:

THE SPLIT-FREQUENCY SYNDROME

(Part A): If you ever get your VFOs crossed in trying to work someone split, a loud voice will immediately be heard giving your full callsign and telling you that you are a nerd for operating "OUT OF THE BAND."

(Part B): Loud voices out of the band are never identified.

We are indebted to Wade in Moore for proving again recently the ageless truth of this gem:

THE KB5EK PRINCIPLE

"Any wire antenna you want to install must be 20 feet too long to fit in your lot." (Corollary: "If a wire antenna fits in your lot, the SWR is too high.")

And of course no list would be complete without the time-tested rules of timing and weather, summarized here under a single heading.

THE FICKLE FINGER FACTOR

Part 1: "Rotors never break when the weather is nice."

Part 2: "The same goes for antennas."

Part 3: "The higher your beam, the surer it is to break."

Part 4: "He who buys a new piece of equipment usually sees it on sale in the next issue of QST."

Part 5: "He who wants rain should take his new rig out for Field Day."

And, moving right along with as little commentary as possible, we have the following, also timeless and proven repeatedly:

THE HOROWITZ COMPLAINT

"The right part or tube is never available locally."

THE JOE KELLY RULE

"No QSL card ever comes fast enough." (This rule becomes invalid once you have a country confirmed.)

THE N5ALG THEORY

"You always think you can improve your station even when you can't."

THE JESS SPEER STIPULATION

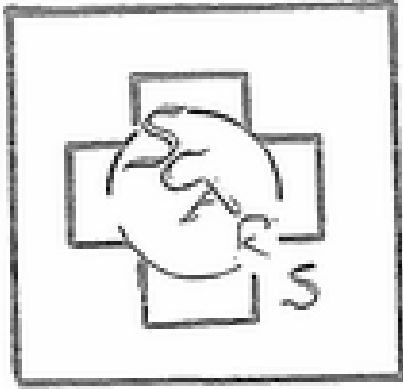
"No CW station ever sends at the right speed."

SALEM'S LOT

"The repeater is always busy when you want to use the patch."

THE FAIL-SAFE PROPOSITION

"He who asks if the frequency is in use will usually be rewarded with silence. He who then starts calling someone will be told the frequency is in use."



(Continued)

Finally, with great humility, your author wishes to publish, perhaps for the first time, an eternal verity he recently rediscovered on his own. Modesty precludes calling it "The Bickham Law," and therefore it is:

THE ANONYMOUS MAXIM

Part A: "He who tries to assemble a BNC connector over a shag rug will lose the pin and wind up going back to the store for another one."

Part B: "He who goes back to the store for another one will find the first BNC pin three days later by driving it through the ball of his bare foot."

What does all this prove? Only that our eternal search for truth and beauty goes on today, as undaunted as at any time in our illustrious past. I feel confident that this brief bit of research, if taken in the right way by my colleagues within the hobby, will surely lead soon to further publications by others in proof of the one major theorem we had not previously noted. That is --

THE CERTAINTY FACTOR

"There is always someone out there who can come up with a better 'law' than you can."

-- WB5TZZ

SCARS RUNS A LITTLE LATE THIS MONTH

Due to timing, the usual report of the SCARS business meeting is not included in this issue. The April meeting will be reported in a subsequent issue.

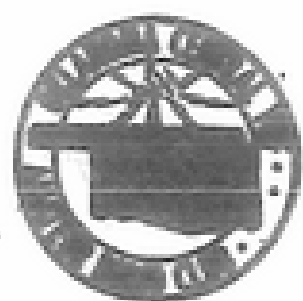
COFFEE-DRINKING IN NORMAN

For the benefit of newcomers, Norman amateurs get together twice weekly for coffee-drinking and lie-swapping. On Tuesdays, starting about 9 a.m. and going until 10:30 or 11, hams gather in the Commons Restaurant coffee shop on the south part of the main OU campus. The area is known as the adult education complex, or OCCE, for "Oklahoma Center for Continuing Education." There are no rules and no agenda. If there were, some of the regulars wouldn't come. Come east on Lindsay Street from IH 35 to the edge of the campus and turn south. Zigzag left and then right around the small shopping center, and you're close. Ask on the 66/06 machine. Once in the Commons, if you're early, look for Hugh Reynolds in his DRIP cap. He is the presiding officer without portfolio. Later, look for the biggest, loudest bunch in the place.

Every Saturday, coffee is poured at the Cleveland County Red Cross Building on the OU North Campus. Starts about 9:30. SCARS runs this and it's informal, too. Exit IH 35 at the Robinson Street exit and proceed east. Just after you pass the golf course, start watching for the building on your left.

-- WB5TZZ

FOR SALE: ICOM IC-20 2mtr mobile Xcvr, 10 watts output with 07-67, 16-76, 22-82, 25-85, 28-88, 34-94, 37-97, 63-03, 81-21, 52 sim, 76 sim, 94 sim
Crystals & Western Electric touch-tone pad. All in excellent Cond.
\$125 WB5RAX (405) 787-0092 Don Sullivan



Club
NEWS
VOL 17
No. 1
1980

MINUTES OF APRIL MEETING

MEETING WAS CALLED TO ORDER AT 8:09 P.M. BY PRESIDENT JIM, K5VRL, WITH 16 MEMBERS AND GUESTS PRESENT.

JIM, K5VRL, REPORTED THE AMERICAN CANCER SOCIETY COLLECTION ON APRIL TENTH WITH ABOUT A DOZEN PARTICIPATING. FROM MEMORY, THERE WAS JIM, K5VRL, CHARLIE, WA5JGU, MARK, WD5DYI, KAY, WD5DYJ, LEE, W5VZY, AND YL, JUDY, JIM, N5BEQ, KEN, WB5ECJ, BRYAN, N5BEV, ELLARD, W5KE, AL, AD5U, BILL, WA5FWD, AND YL, DOROTHY.

MARCH OF DIMES WALK-A-THON ON APRIL 12 WAS SUPPLIED COMMUNICATIONS BY MARK, WD5DYI, KAY, WD5DYJ, KEN, WB5ECJ, RALPH, WD5IRB, PAUL, WA5HTL, JIM, K5VRL, JIM, N5BEQ, CLARENCE, K5YAQ, JERRY, KA5DCM, AND SUZIE, KA5FED. SUZIE, BY THE WAY SUPPLIED THE COFFEE FOR NET CONTROL.

BOTH OF THESE EVENTS WERE WORTHY APPLICATIONS OF AMATEUR RADIO AND, I AM SURE THE EFFORT WAS APPRECIATED. I HOPE NO ONE WHO PARTICIPATED WAS LEFT OFF THE LIST.

IT WAS ANNOUNCED THAT RADIO COMMUNICATIONS WILL ALSO BE NEEDED FOR SPECIAL OLYMPICS, 14-16 MAY, MOSTLY DURING THE DAY, AT CENTRAL STATE UNIVERSITY. SEE ELSEWHERE IN C&E FOR MORE INFORMATION AND CONTACT N5BEQ FOR DETAILS.

FRED, KA5CXW, RELATED A CAMP-OUT WITH 300 BOY SCOUTS WHERE HE SET UP RADIO COMMUNICATIONS TO COVER EMERGENCIES. A BUNCH OF GUYS FROM ARDMORE JUMPED IN TO HELP. OUR EX-ARRL DIRECTOR JACK GANT, W5GM, SPENT MOST OF THE PERIOD ON THE RADIO HELPING WITH COMMUNICATIONS.

PLANS FOR THE DRAPER LAKE WALK-A-THON TO BE HELD THE NEXT DAY WERE DISCUSSED. IT IS A FUND RAISING EVENT FOR THE AMERICAN LUNG ASSOCIATION.

IT WAS MOVED AND PASSED THAT THE CLUB PARTICIPATE IN FIELD DAY. PAUL, WA5HTL, WAS APPOINTED COORDINATOR. RALPH, WD5IRB, IS GOING TO GIVE SOME ADVICE ON HOW THEY DO IT EAST OF THE BORDER.

BRYAN, N5BEV, REPORTED ON PLANS FOR CIVIL DEFENSE ORIENTATION TO BE HELD FOR ARES MEMBERS AT OKLAHOMA CITY EOC APRIL 26.

GENE BLACKETER, K5YXG, CALLED STEVE, W5VCJ, AND ASKED TO PASS ALONG A HELLO TO HIS OLD FRIENDS.

SHOW AND TELL WAS CONDUCTED BY JIM, K5VRL, WHO BROUGHT THE P. C. BOARD DUPLEXER HE IS BUILDING AND K5JB WHO BROUGHT A BOX FULL OF HOME MADE GADGETS MADE USING VARIOUS CONSTRUCTION TECHNIQUES.

MEETING WAS AJOURNED AT 9:13 AND THE GROUP MOVED TO THE RADIO SHACK COFFEE POT.
JOE, K5JB, SEC'Y

ARES

ARES has not met this month, but I still have a report . April 10 I went to a emergency meeting at the Capital. Officials attending were from all governmental offices, Both the Govener and Lt. Govener were also there. Contents of the meeting will be discussed at the next ARES meeting. I have received the UHF transcievers for the link to Altas Ok. I need help repairing and building A.C. power supplies.

MAY 19 at RED CROSS building 7:00PM open to all Amateurs. Class in Net procedure and Proper Traffic handeling. PLEASE COME!!!

BATTERY TESTER, MODEL MARK III

MANY OF YOU ARE FAMILIAR WITH MY POCKET VOLTMETER. FOR SOME TIME I HAVE BEEN USING A HOME MADE, POCKET SIZED, DIGITAL VOLTMETER TO TELL WHEN THE HT BATTERIES NEED TO BE RECHARGED. SEE NOVEMBER 1976 C&E FOR THE CIRCUIT. IT USED THREE OF THE BARS OF A SEVEN SEGMENT LIGHT EMITTING DIODE, LED, READOUT TO GIVE INDICATION OF STATE OF BATTERY CHARGE. ONE BAR INDICATED WEAK BATTERY, TWO BARS INDICATED BETTER BATTERY AND THREE BARS INDICATED SUPER-DUPER BATTERY. ONLY PROBLEM I HAD WITH IT WAS THAT MY YAESU FT-207R ONLY HAS 3/4 OF A BATTERY IN IT SO MY METER READS "OH-OH" ON THAT RADIO ALL THE TIME.

WELL, MOST RECENTLY, I ENCOUNTERED A MORE SERIOUS PROBLEM. MY VOLTMETER QUIT. NO BROKEN WIRES WERE SPOTTED THROUGH THE PLASTIC ENCAPSULATION SO I DECIDED IT WAS THE END OF THE LINE FOR THAT GADGET. N5MS VERIFIED ITS DEMISE WITH HIS BATTERY TESTER-TESTER, KEPT CLEVERLY CONCEALED IN HIS RADIO. HE ALLOWED AS THAT I SHOULD CONSIDER IT AN OPPORTUNITY TO PUSH THE STATE OF THE ART. HE ADVISED ME OF A NEW DEVICE MANUFACTURED BY NATIONAL SEMICONDUCTOR THAT WAS DESIGNED TO KEEP ME UP LATE SEVERAL NIGHTS IN A ROW. HE SAID NO LONGER WOULD I HAVE TO BE SATISFIED WITH ONLY FOUR STATES, OFF, ONE ON, TWO ON, AND THREE ON; BUT, THIS DEVICE WOULD GIVE ME ELEVEN STATES: OFF AND TEN LEDS. GEE! TWO MORE AND WE COULD START A COUNTRY!

THE DEVICE, LM3914, IS A DOT/BAR DISPLAY DRIVER, MEANING IT WAS DESIGNED TO MAKE A POCKET VOLTMETER. IT HAS OTHER USES TOO BUT WE CAN EXPLORE THAT LATER. THE DEVICE IS AVAILABLE AT YOUR FRIENDLY RADIO SHACK STORE. JUST MAKING A POCKET VOLTMETER, EVEN IF IT HAS TEN VOLTAGE STEPS, WOULD NOT BE AS SATISFYING AS A VOLTMETER WITH A REALLY NEW FEATURE. REMEMBER THE BASIC PROBLEM, TWO RADIOS WITH DIFFERENT VOLTAGE RANGES? TO GET CONVENIENT VOLTAGE STEPS AND NOT COMPROMISE OPERATION AT LOW VOLTAGE, I DID A LITTLE NUMBER JUGGLING AND CAME UP WITH THE BASIC VOLTAGE TRANSLATOR OF FIGURE 1. THE FIGURE REFLECTS N5MS' CONTRIBUTION TO THE DESIGN EFFORT WHICH INCREASED THE PARTS COUNT BY ONLY ONE, BUT THAT'S OK.

THE REASON FOR TRANSLATING THE VOLTAGE IS THE METHOD THE DEVICE USES TO GENERATE A REFERENCE VOLTAGE TO MEASURE AGAINST. I HAVE NO IDEA WHAT IS IN THE IC BUT IT ACTS LIKE THE MODEL IN FIGURE 2.

R1 AND R2 WERE SELECTED TO OBTAIN FIVE VOLTS ON PIN 7. THIS IS DONE BY APPLYING THE OPERATIONAL AMPLIFIER RULES THAT, 1. THE OUTPUT WILL DO WHAT IT CAN TO KEEP THE VOLTAGE ON THE INVERTING AND NON-INVERTING INPUTS THE SAME, AND, 2. NOT MUCH CURRENT FLOWS IN OR OUT OF EITHER INPUT. THE EQUATION FOR V-REF IS:

$$V-REF = 1.28 \left(1 + \frac{R2}{R1} \right) \times 80\mu A$$

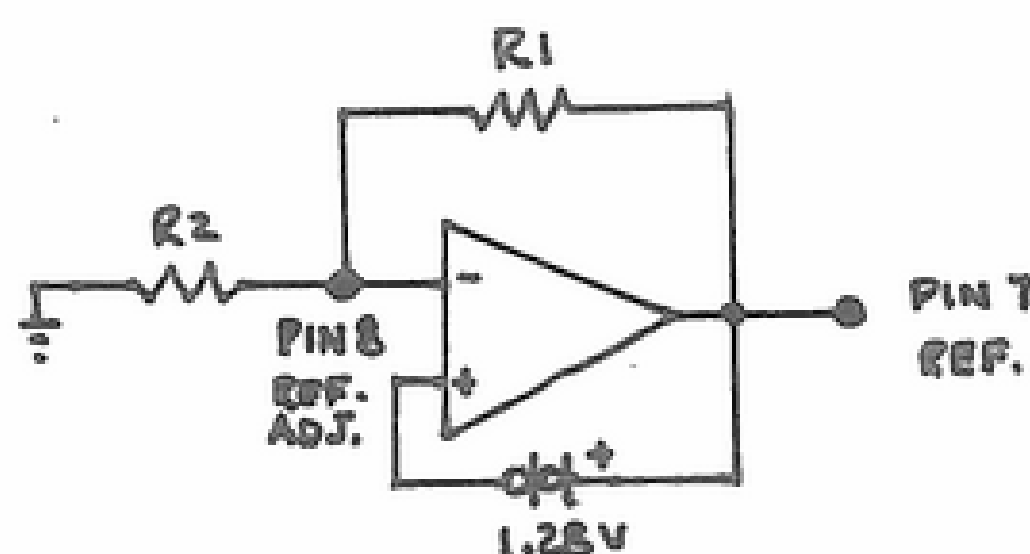


FIGURE 2. VOLTAGE REFERENCE

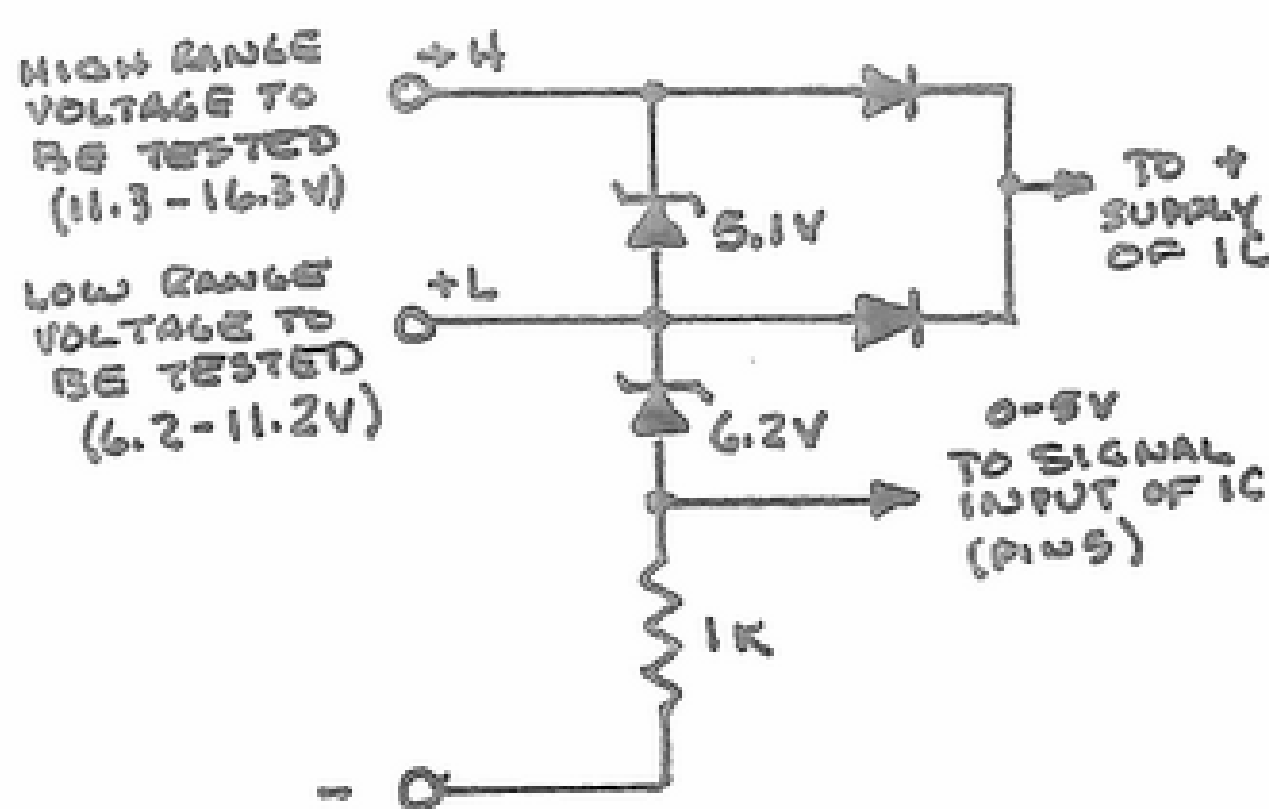


FIGURE 1. VOLTAGE TRANSLATOR

YOU WHO ARE ASTUTE MATHEMATICIANS WILL NOTICE THAT THIS IS AN EQUATION WITH TWO UNKNOWN, SO RATHER THAN GUESS AT THE ANSWER, WE CAN USE THE FACT THAT THE LED CURRENT IS ABOUT TEN TIMES THE CURRENT THROUGH R1. IF WE LET R1 BE 2K OHMS, LED CURRENT WILL BE UNDER 10 MA. CURRENT THROUGH R1 WILL BE $1.28/2K = .64$ MA. CURRENT THROUGH R2 WILL BE THE CURRENT

THROUGH R1 PLUS OFFSET CURRENT FROM PIN 8, OR APPROXIMATELY .72 MA TOTAL.

IF PIN 7 IS TO HAVE 5 VOLTS ON IT, PIN 8 WILL HAVE 5-1.28, OR 3.72 VOLTS. THEREFORE: $R2 = 3.72 \text{ VOLTS} / .72 \text{ MA OR, } 5.17 \text{ KOHMS}$.

SINCE MY JUNK BOX ONLY CONTAINS GARDEN VARIETY RESISTORS, I SELECTED PAIRS OF RESISTORS FOR R1 AND R2 UNTIL A 5 VOLT REFERENCE WAS MEASURED ON PIN 7 WITH RESPECT TO GROUND. ONE VOLTMETER WORKED WITH $R1 = 2.2 \text{ K}$ AND $R2 = 5.6 \text{ K}$, TEN PRECENTERS. WHEN I BUILT THE SECOND ONE, I USED A 5.6 K RESISTOR FOR R2 AND SELECTED A 2 K RESISTOR TO GET THE PROPER REFERENCE VOLTAGE.

FIVE VOLTS WAS SELECTED TO GET VOLTAGE STEPS ON THE LEDS THAT ARE EASY TO REMEMBER. I WOULD HATE TO HAVE A VOLTMETER ON MY KEY CHAIN AND A LOOK-UP TABLE IN MY BACK POCKET TO INTERPRET THE READINGS, HALF VOLT STEPS I CAN REMEMBER. THE LM3914 TAKES THE REFERENCE VOLTAGE AND BREAKS IT INTO TEN EQUAL STEPS.

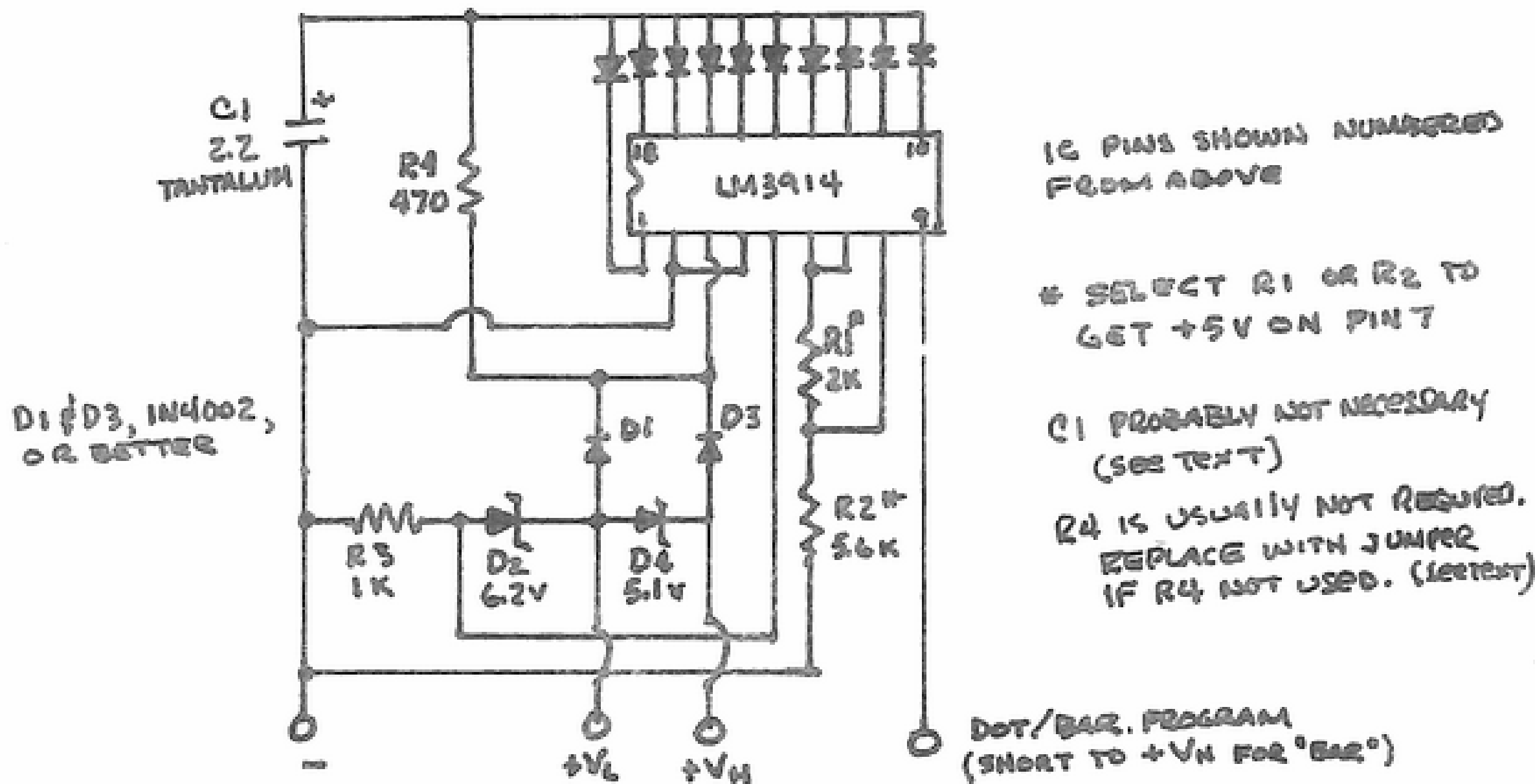
NOW, BACK TO THE REASON FOR THE TRANSLATOR CIRCUIT IN FIGURE 1. WHAT WE ARE REALLY TALKING ABOUT IS AN EXPANDED SCALE VOLTMETER. WE WANT TO PUT A VOLTAGE, SAY IN THE 12 TO 17 VOLT RANGE INTO THE DEVICE AND GET 0 TO 5 VOLTS INTO THE SIGNAL INPUT PIN OF THE LM3914. WITH THE COMPONENTS SHOWN, THE VOLTMETER HAS TWO RANGES AS ILLUSTRATED IN FIGURE 3.

LEDS	LM3914 PIN 5	LO RANGE INPUT	HIGH RANGE INPUT
NONE	0	0-6.2 V	0-11.3 V
1	.5	6.7	11.8
2	1.0	7.2	12.3
3	1.5	7.7	12.8
4	2.0	8.2	13.3
5	2.5	8.7	13.8
6	3.0	9.2	14.3
7	3.5	9.7	14.8
8	4.0	10.2	15.3
9	4.5	10.7	15.8
10	5.0	11.2	16.3

THE INPUT VOLTAGES LISTED ARE LOW ENDS OF VOLTAGE RANGES FOR THE LEDS. THE FIGURES LOOK AWKWARD BUT ARE NOT REALLY. WHEN, FOR EXAMPLE, LED 5 IS ON SOLID, IT IS EITHER SAYING THE VOLTAGE IS 9 OR 14 VOLTS, PLUS OR MINUS ABOUT .2 VOLTS. THAT IS NOT TOO BAD A RESOLUTION. I BOUNCED ONE AGAINST A \$1000 FLUKE LAB VOLTMETER AND MY POCKET DEVICE WAS WITHIN .01 VOLT AT EACH SWITCH-ON THRESHOLD VOLTAGE, EXCEPT FOR THE ONE LIGHTING THE FIRST LED. THIS NON-LINEATITY IS DUE TO

ZENER DIODE TURN-ON CHARACTERISTICS AT LOW CURRENT.

THE COMPLETE CIRCUIT IS SHOWN IN FIGURE 4, BELOW.



A SINGLE RANGE VOLTMETER CAN BE MADE BY LEAVING OUT D3 AND D4. JUST CALCULATE THE OFFSET, LIKE IN FIGURE 3, TO GET THE DESIRED VOLTAGE RANGE. TO GET THE FIRST LED TO LIGHT AT 10 VOLTS, FOR EXAMPLE, USE A ZENER OF 9.5 VOLTS FOR D2. REMEMBER, THE OFFSET VOLTAGE CAN BE TRIMMED IN BY ADDING VARIOUS COMBINATIONS OF DIODES IN THE FORWARD CONDUCTION MODE TO RAISE THE VOLTAGE A LITTLE. RESISTOR R4 IS NOT NECESSARY UNLESS THE BAR MODE IS GOING TO BE USED FOR EXTENDED PERIOD OF TIME. R4 LIMITS THE DISSIPATION IN THE LM3914. IF IT IS NOT USED CONNECT THE ANODES OF THE LEDS DIRECTLY TO PIN 3 OF THE IC. THE CAPACITOR, C1, IS UNNECESSARY UNLESS THE LED SUPPLY LEADS ARE GOING TO BE 6", OR LONGER.

SINCE N5MS AND I HAVE HAD DOZENS OF PEOPLE TRY TO TALK US OUT OF OUR OLD VOLTMETERS, HE WENT TO WORK TO MAKE IT EASIER TO ASSEMBLE ONE THAN THE "DEAD BUG" TECHNIQUE. SEE FIGURE 5 WHICH GIVES LAYOUT FOR PC BOARD MIKE DESIGNED. HE IS NOT SUPPLYING PC BOARDS BUT WITH A COPY CAMERA THE ARTWORK HERE CAN BE USED TO MAKE YOUR OWN NEGATIVE. THE SCALE WOULD HAVE TO BE CORRECTED, OF COURSE.

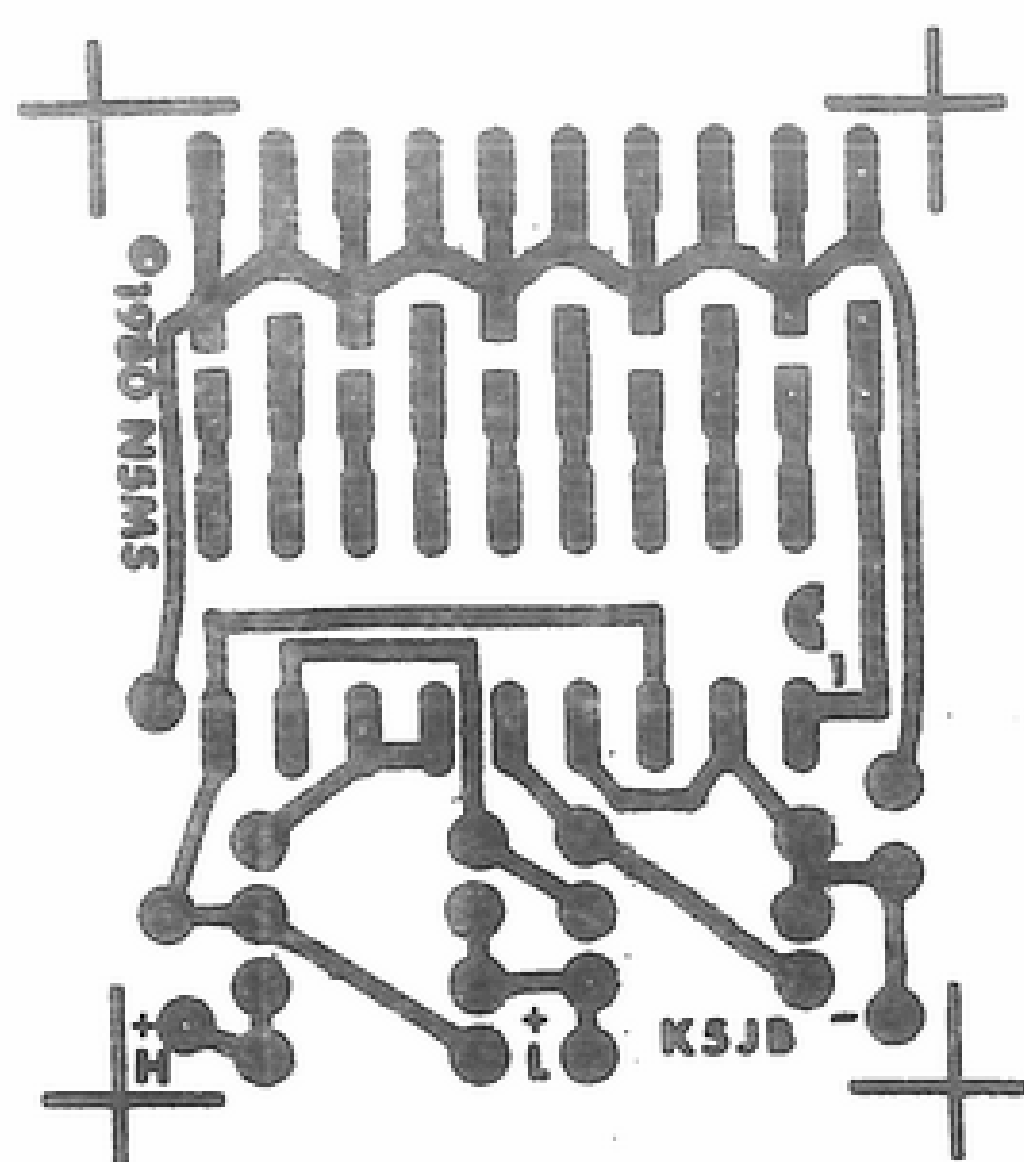


FIGURE 5. PC LAYOUT

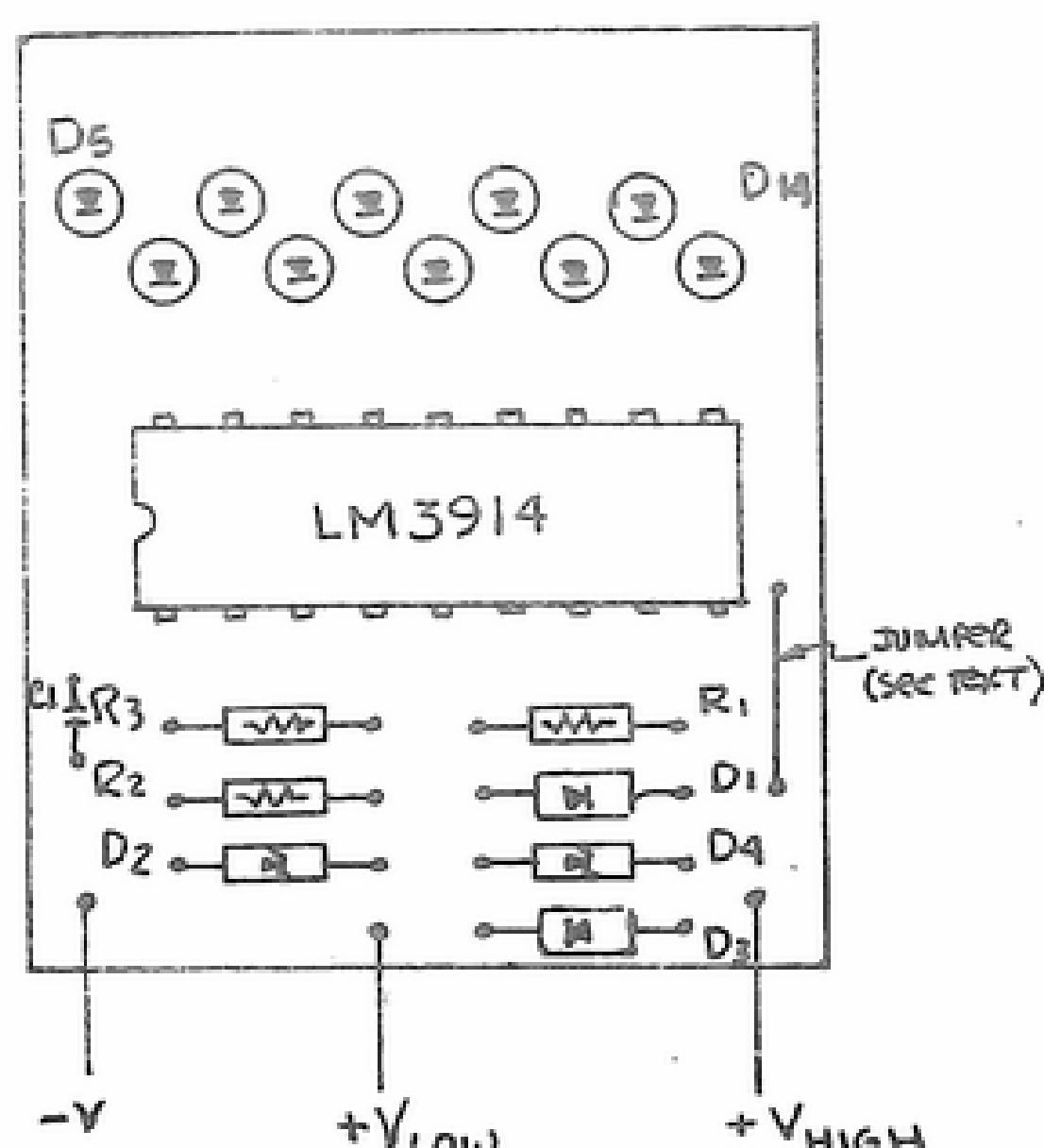


FIGURE 6. COMPONENT PLACEMENT

FIGURE 6 SHOWS COMPONENT PLACEMENT ON MIKE'S BOARD. C1 AND R4 HAVE NOT BEEN INCLUDED FOR REASONS GIVEN. A JUMPER IS INSTALLED IN PLACE OF R4.

SINCE IT IS MIKE'S LAYOUT, I'LL GIVE HIM CREDIT FOR THE CAUTION THAT BATTERY NOT BE APPLIED BETWEEN THE HIGH RANGE AND LOW RANGE PINS, LEST D4 FAIL THE "BATTERY TESTER TEST", OR THE BATTERY TESTOR FAILURE MODE ANALYSIS. MIKE SUGGESTED THAT THE HIGH RANGE AND LOW RANGE TERMINALS BE PLACED CLOSE ENOUGH TOGETHER THAT ONE OF THEM WOULD NOT ACCIDENTLY TOUCH GROUND WHILE THE OTHER IS ON THE HOT BATTERY LEAD.

JOE, K5JB



DeGe And Associates
(Division of Buttrick of Mich.)

YOU CARRY A SPARE TIRE - JUST IN CASE
WHY NOT A SECOND INCOME - ???????

Gene A. Nailon
K5DLE

405-341-8289

Computer System
\$8997⁰⁰

Small Business Applications

- General ledger
- Accounts payable/receivable
- Payroll and Inventory
- Custom programming

MICROLITHICS Inc.

2916 N. MacArthur

Call 947-6846

Great Plains A.R.C.

W5HGH Repeater 146.13/73

Woodward, Okla. 73852

Pres. ~~WB5VTT~~ ROD
V.P. WD5DFH BILL
Sec. WD5DFG DONNA

Treas. KA5FKV GERALD
Rptr. Trsty W5HGH LEE
Asst. & E.C. WA5UTO STEVE

The G.P.A.R.C. held it's monthly meeting on April Fools Day. There were 18 members and guests present. Aclub hamburger fry was dicussed, and it was decided that we would have a hamburger fry at Bollings Springs State Park on Sunday afternoon the 27th of April.

The G.P.A.R.C. had furnished the base, mobile, and the check point emergency communications for the 12th annual Gage Marathon for the Okla. State Championship. Rod WB5OVT informed us that they would like for us to serve in that same capacity this year for the 13th Annual Marathon. Discussion followed and it was decided that we would table it until the next meeting date. The Marathon is ran over a course on the hiway north of Gage, and it has several steep hills. The runners are young, old, healthy, and the infirm. One fellow has been making the run from his wheel-chair. It is really something to see, all the rooting and urging on that the people give to thoes that are infirm or disabled. This is one race where the last ones in, generally after about five hours, are truly the winners.

On March 23, 1980 K5SCX Leroy Dunnihoo of Shattuck became a "SILENT KEY". All of the amaturesin the area will and have missed him very much. I know that there will be an empty spot in my Log Book for a long time.

WA5UTO Steve our E.C. presided over an emergency training meeting on theevening of the 18th of April. He reveiwd the net proceedure and the proper net operations. He also designated the net controls as there avail- bility became known during an emergency. He also reminded us that many people listened to our normal QSO's as well as our regular nets and monitor- ed our repeater frequency on their scanners and to follow the radio amatures code of ethics.

KA5FKV Gerald informed us that he had aquired a walk in Metro van (sans motor) that he would make available to the club for an emergency mobile "Ham" shack. We dicussed the possibility of making it towable thereby releveing us of the need of bringing the title up to date and also of the cost of taging and insureing it. A power plant was mentioned being available to mount in the chassis in place of the motor and making some mast mounts hinged on the back to fold over the top for transporting.

Three amatures from the G.P.A.R.C. had a very rewarding trip to Okla. City to the Old Post Office Bldg. room #224. Seated among a group of worring fidgeting, perspiring, and aspiring amatures, under the stern unfaltering gaze of Mr. James D. Wells they waded into their "Tests". Congratulations to WB5EDD Oren, KA5FKV Gerald on their new "General Tickets" and WD5DFH Gordon whom after the fourth try made the Advanced.

WE heard this on the "air"

WB5MZZ Ross had quite a nice vacation to Calif. and back.

WA5OUV O.C. fighting the mud and sitting in front of the radio watching the signals fade on 75 meters.

AB5Z Ray with a new Honda Gold Wing, but he lost the trunk lid.

KA5DUO Leo also with a new Honda and giving fishing reports.

WB5EDD Oren on 75 mtrs. with a interim D.L. call.

WD5DFH Bill looking through his stockpile for a transmitter strip for the repeater at Bryon.

WBØPGD Ron getting his water lines hooked up since movein to Mooreland.

WD5BOZ Ricky very busy rounding out his senior year.

WB5DGT Harry still trying to get his talking read-out squared away.

WA5YQQ Doyle coming back to the QTH after a week on the road.

WA5UTO Steve with a 20wpm slip in his pocket and maybe the Extra next.

K5JJC Austin out attacking the gophers and harrowing down the mounds.

WB5ECP Doc getting his new racing machine ready for the season.

W4ZSL using his new two meter rig all day and looking for new 5 call.

WB5OVT learning all about his new computer Rod his name-

WA5PLW Wendle with a new freq. counter and a deviation meter.

W5HGH Lee having a hectic time keeping radios repaired

WB5EGZ Doug running back and forth to his T.V. translator shacks.

KA5FKV Gerald driving back from 15 mi. down the road to get a letter. |

K5OJ Guido getting his taxes in on time and repairing radios. 73s

May 1980

WAIT A COTTON-PICKIN' MINUTE

I have nothing personally against C.B. radio. In the beginning it provided me with many, many enjoyable hours, and I still have many friends in C.B. It triggered my interest in radio communication, and I held hopes that it might serve the purpose for which it was intended and bring people together once more.

Total strangers were sincerely looking for a way to help their fellow man, and it looked like maybe it was even bringing families back together. AM operators, not by law, but by gentlemen's agreement, respected those operating single side-band, and vice versa. Even the "little guy" could afford a mobile and a base station, and even "Uncle Charley", who made no serious demands on intelligence, was spoken of with respect--and the bubble grew and grew along with personal ego until it blew up, with deafening bleedover, foul language, flaming lean-e-ars, shrill whistles, simulated space crafts, and filibustering orators transmitting their own personally produced radio shows in unison. C.B. was dead, destroyed by its own big mouth, thoroughly amplified.

People who were sincerely interested turned to regaining their lost identity--no longer did they masquerade as "Prune Juice Papa", "Soup Can", or "Mustard Jar"; so, the answer is Ham Radio.

But wait just a "cotton-pickin" minute. These people "pull rank" on you and make it stick. Suddenly "Uncle Charley" has upgraded, respectfully or not, to the Federal Communications Commission, and up here he expects and demands intelligence and effort. He demands clean signals, good operating practice and courteous conduct. They brag about 1 watt, not 1,000 watts; so, you open the book and begin.

Hours and hours pass as you wade among the components, in full bloom. Hours turn to days, and days turn to weeks, and you find yourself walking around babbling da-di-da-dit while your friends look kinda funny at you and say, "huh"? Then, one day, the harvest comes, the work "pays off", and you very proudly display your new Ham Ticket at every opportunity. It is a precious commodity, and in my case, painfully earned. It therefore carries its privileges and responsibility. I love Ham Radio, and I proudly accept my responsibility to defend and perpetuate its future.

But wait, do I detect symptoms? Have my months of hard work been for naught? I thought I had earned an eternal respite from madness. There is little, if any, difference between a rude Ham and a rude C.B. operator, so if you want to talk C.B. with me, let's go to 11 meters and "bring it on, good buddy", 'cause that's where I try to leave my C.B. lingo, ten-fur?

If you ever hear me bringing C.B. onto the Ham frequencies, pull me up short and I, along with the majority of Ham operators, will thank you for it. You can expect the same action from me because I have now rescued the name my wonderful parents gave me, and The Federal Communications Commission gave me a call. It wasn't "Electronic Total Blank" nor "Energetic Tumble Bug"; it is WD5ETB. My name is Winston, and I have no further comment at this time. 73

MARCH NETS.

NET	SESSIONS	QNI	QTC	WX.
O.P.E.N.	5	327	10	
O.F.O.N.	21	416	125	
S.T.N.	26	499	131	
O.A.N.	31	215	53	
O.T.W.N.	26	476	146	316
O.L.Z.	31	245	83	
NIGHT OWL	31	491	6	
N.W.O.S.	13	164	7	
A.T.W.N.	2	14		
GRADY/CADDO		32	2	

NOTE: In last month's C & E the listing of Emergency Telephone Numbers did not include the following:

CLEVELAND COUNTY SHERIFF - 321-8600
 OKLAHOMA COUNTY SHERIFF - 236-1717 (Many small towns use this number after 5:00 p.m.)

FOR SALE: Drake TR33 with 1525E mike, 12 crystals and Nicads. Make offer. 685-2571, Heinz/WB5ZGP

THOU SHALT NOT MAKE AND SELL TEN METER AMPLIFIERS

I had an opportunity to read the actual decision of the Court of Appeals for the District of Columbia upholding the FCC's regulation banning the sale of 10 meter amplifiers and believe me, it is indeed proof that in numbers, there is strength. The entire decision has not been published in any amateur journal (I don't think, except maybe QST, 73 might have it). How close did the League come to reversing the Commission's decision? Not very. But for what it is worth, Judge Tamm in the decision stated:

Had we been the rulemakers in this case, we might have been more hesitant in encroaching on the domain of the innocent amateur . . .

The law recognizes a constitutional doctrine requiring, in certain circumstances, that the government "not employ a specific means to accomplish an admittedly legitimate purpose if it has available alternative means that are less restrictive upon some individual interest. . . .

In the present case, it arguably could have been drawn more narrowly without detracting from their effectiveness. . . .

Sounds a little sympathetic. So what happened? Perhaps a bit of explanation first. Most administrative decisions are subject to appeal through the Courts. In the case of the FCC, decisions are appealed directly to the District of Columbia Court of Appeals. There are many powerful interests and businesses that will willingly bounce an agency decision up the appeal process almost at will. To keep themselves from being swamped reviewing agency decisions, the Courts have adopted a series of decisions that limit what they can and can not do in reviewing agency actions. The Courts view judicial review of agency decisions as so much clutter, important, but for the most part boring. To protect themselves from this potential floodgate of litigation, the Court has determined that they will not reverse an agency decision unless the agency acted in a manner that was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law. . . This standard presumes that the agency action is valid. Moreover, it forbids this Court substituting its judgment for that of the agency, and requires affirmance if a rational basis exists for the agency's decision. . . Our task ends when we find that the agency has engaged in reasoned decisionmaking within the scope of its congressional mandate."

So, if you want to challenge an agency's decision, as the League did hear, unless you can show that they acted "arbitrarily, etc." you must find fault with the procedure or the way the agency went about making the decision. You must look to see if they followed the Administrative Procedures Act, the federal statutes, as well as their own rules. Don't expect the Court to give you any relief if they find that the Commission acted rationally and complied with the rules in making the decision.

However, there may have been some procedural defects in the way the Commission went about their decision making process, but it looks like the League unfortunately waited too long to assert them. Judge Tamm noted:

The administrative action we review in this case is "notice and comment" rulemaking conducted pursuant to Section 553 of the Administrative Procedures Act.

Although the League contends that the Commission did not comply with the procedural requisites of §553, we do not

consider these arguments, for the League did not raise its contentions before the Commission. See 47 U.S.C. §405.

The League tried to cover the mistake by attacking the standard of review used by the Courts, but this is very difficult since the Court of Appeals has using this method to get rid of cases for years. The League contended that the present case demanded "a more exacting scrutiny." They cited the statutory language of Section 302(a) of the Communications Act which authorizes the Commission to make "reasonable regulations governing the interference potential of (radio) devices." The Court quickly rejected the argument in a flurry of fancy legal footwork stating that Congress would have never expected an agency to act in anything but a reasonable manner (?), the additional language requiring reasonable regulations must have been surplusage and therefore would be ignored by the Court in its review. The FCC is the expert and the Court is just the Court and they should certainly not get their nose under the FCC's tent flap.

If the League had properly raised the procedural defects before the Commission, could they have prevented the 10 meter amplifier ban? Probably not. The problem with 11 meter amplifiers is one of tremendous proportions. The number of licensed CB operators has grown from 800,000 in 1974 to more than 14,000,000 in 1978, not counting several million unlicensed operators. TVI has been a very serious byproduct of that upsurge of interest. Interestingly, the Commission found that the interference was primarily the result of illegal power amplifiers on the CB bands. The number of people affected by this TVI potentially ranged from 3,000,000 to 21,000,000.

I am sure that many of those amplifiers were probably not of the best design, but the Commission's decision excluded even properly designed amateur amplifiers pressed into service on the CB bands. It apparently is presumed that an amateur amplifier operating legally on the 10 meter band causes no interference and that same amplifier on the 11 meter band amplifying a CB radio does. Humm, are you sure? I know that many amplifiers have failings in their design. (A friend told me of a CBer who built his own "lean-er" by paralleling several transistors and using no output circuit. He tied all the transistors together without benefit of equalizing resistors.)

The problem here is not so much that the Commission intends have properly designed amplifiers (for even amateur commercial like units are banned) but rather to eliminate a persistent problem by a very simple method. The critical issue here is that most TV receivers are so poorly designed, built, and maintained that they are susceptible even to a legal transmitter. What would happen if the amateur population suddenly rose to several million. Would the Commission impose a similar ban on all amateur amplifiers if they interfered with Television. The answer is "probably so." Interference susceptible TV's are the problem. I still remember horror stories of amateur operators prohibited from operating (especially in the days of six meter AM) during quiet hours so that everyone could get their weekly dose of "I Love Lucy."

What is the bottom line issue here? The FCC has punished a few for the sins of the many. If you offend a large segment of the population, then put on the battle hat and prepare to lose. Previously, the Commission used to impose quiet hour on amateurs on a case by case method. Now they have actually shut down an entire band and group. This is a considerable change from the previous practice of individual quiet hours. What's to prevent the imposition of further demands to shut down because amateurs interfere with other services. The proliferation of 2 meter operation now means that there are upwards of 500,000 to a million two meter radios in operation. If TVI complaints should increase, would the Commission react in a similar method? Maybe so. The

issue is primarily economic. Inexpensive Televisions and poor designs are the real culprit. The amplifier ban is intended to reduce the number of TVI complaints, not solve the problem. The Commission has begun inquiry to determine whether or not an economical TV can be built with sufficient TVI rejection to eliminate this problem. Or can the Commission even specify certain receiver technical specifications much as they do transmitters? This issue may have actually already been decided. The FCC has made specifications for TV receivers (requiring UHF capability and recently specifying certain sensitivity specifications).

So, was the Court right? Did the Commission act in a reasonable manner? That may be still an open question in the minds of amateurs even though the D.C. Court responded in the affirmative. Prior to 1975, the Commission handled the problem in their usual way and, of course, quickly found themselves swamped with complaints of TVI. The proliferation of ten meter amplifiers increased to astounding proportions. In 1975, the Commission proscribed rules which prohibited (1) the use of any external radio frequency power amplifier with a CB radio and (2) the marketing of any external amplifier capable of use between 24 and 35 megahertz unless the amplifier would also operate on four other specified amateur bands. Sounds fair enough. However, the response of the "leaner" manufacturers was to market broad band linear amplifiers that could be still used on the CB band. The brisk trade in CB stores continued and TVI complaints burgeoned. The amplifiers could still be made economically. The FCC's response was in 1978 by adding a few more regulations that prohibited the manufacture and marketing of any external amplifier capable of use between 24 and 35 Mhz, regardless of whether it can also be used on other frequencies. More specifically, the Commission required type acceptance as a precondition to the manufacture, importation, or marketing of any external amplifier capable of operation below 144 Mhz. The type acceptance required the amplifier to have (1) minimum drive input power of 50 watts and (2) no automatic sensing circuitry necessary for CB operation (automatic T/R switching). Fair enough. If the Commission had just imposed type acceptance with these requirements this might have been the end of that. But when they banned all amplifiers in that frequency range, the League saw red. The Commission did build in a few exceptions for the hapless amateur. One could construct his own equipment for 10 meter operation or modify his own equipment, equipment from any other radio service or the equipment of another amateur radio operator. Amateurs were allowed to service the equipment of another licensed amateur operator, and to construct one unit of a particular model amplifier per calendar year without obtaining a grant of type acceptance provided, in all cases, that the amplifier meets the applicable technical requirements after any of the above changes and the amplifier is for use only at a licensed amateur radio station.

Could the FCC have devised rules equally effective that would accomplished their objective of eliminating TVI CB complaints? The League said yes, the power input limitation and no T/R switching was enough. Actually, I am not so sure of this. Input circuits capable of no less than 50 watts can easily be built with swamping resistances which can be just as easily removed by the mildly technical CBer. No T/R relays might just be a little harder to change but the resourceful CBer could find a way. These CBers might be just as capable of modifying an amateur amplifier for operation on 11 meters, so you certainly haven't eliminated them from the marketplace. There will still be employment for the unscrupulous CB amplifier manufacturer, he will just not be able to distribute his wares as far and wide as he did before

The problem is actually one that the FCC may never be able to solve. They certainly weren't able to get compliance with their regulations before, they shouldn't think that banning all amplifiers will actually mean that CBers will quit using them. Meanwhile, it is a headache for all amateurs.

Micheal Salem N5MS

DOWNHOME AT DAYTON

In these days of hypersale superlatives, I suppose that most of are conditioned to the use of such language as "super best", "terrific", and the old standby "supercalifragilistic . . . uh", you know what I mean. Anyway, as tired and trite as some of these expressions may be, they all indeed do apply to that Mecca of amateur radio, the Dayton Hamvention. I remember quite well my first trek to the hallowed halls of the HARA arena back in April of 1976. Ahhh. Ahem. Hopefully, by the time that you read this, I will be back and putting together a report of this years Dayton Hamvention for next month's C & E. The crowd contingent from Oklahoma has steadily increased the last several years from the first time I was there in 1976. Five years ago, you could count the number of people from the Oklahoma City area on one hand. Now you might need to take off your shoes and socks to count em. The crowd seemed to peak a year or so ago, but the general energy problem depressed the overall attendance last year for the first time in many years. This year, a group from Edmond is taking a motor home and stuffing it full of eager attendees. I know a couple of people from Enid who will be driving up and I am sure that a bunch of the Tulsa crowd will be there. K5JB and I have planned to fly private, weather permitting, and whether not permitting, we will go commercial on a Delta Big Bird. Actually, more than likely, we will go commercial. It would be so much more fun to have all kinds of legroom room and a nice meal instead of a baloney sandwich in a paper bag. And the possibility of flying IFR (Intoxicated Flight Rules) on Delta is also a lot of fun.

The plan is to get to Dayton sometime Thursday evening or early Friday morning. After that, the sky is the limit. I do hope to get down to Mendelson's Surplus before they hike their prices for the Hamvention. Unless the goblins get me, I hope to have a full report next month.

Micheal Salem N5MS

THE LAW . . . AND THE AMATEUR RADIO OPERATOR

While updating my materials for a program for the 76ers, I checked the Amateur Special Personal Identification Card and Amateur Call Letter License Plate law to see if there had been any changes. Sure enough, the law was amended last year by changing the qualifications from General Class license or better to Technician Class or better. This apparent housekeeping chore was made to bring the law into line with previous administrative interpretations that already allowed Technicians to get call letter plates. The Oklahoma Tax Commission has issued plates for technicians for years. It is now official and the amendment appear in Title 47, Oklahoma Statutes, Section 251 and following. Forms are available from the Oklahoma Tax Commission for the Special Call Letter Plates and Oklahoma Department of Public Safety for the Special Personal Identification Cards. The fee is still \$2.30 or so, unchanged from the previous law. By the way, special so-called "vanity" plates are still issued every year. You must keep your regular multiyear tag and renew it every year as before. You still need to make application every year for the call letter plates. Do not put the little decal you got from the Tax Commission on the call letter plate. This goes on the permanent tag that you hide in the closet until you sell or trade your car.

Micheal Salem N5MS

BATTERY TESTER FAILURE MODE ANALYSIS DEPARTMENT

I must respond to what I am sure will be certain slander or libel to be applied to me in another part of this issue by K5JB. I love the little battery testers that Joe has built and I have a couple of them myself that I built many years ago. The latest one using the LM3914 is definitely one of the neatest and Joe has packaged a couple of these in epoxy. The first one is a single range voltmeter just made to order for HT-220 batteries. Oh, neat!! Joe and I talked about it and he finally came up with one that worked on two ranges, the second range runs roughly from 7 volts or so up to 11.5 volts. The second range took an extra zener and 1N4002 diode. JB built one up and tested it and then poured plastic over it. He then polished up the side and did it up right. Gosh it looked pretty!! Joe had two little pins coming out of the side for each range. One for the low and one for the high. I had been in the City for a meeting and was tooling back to Norman and gave Joe a call and decided to meet him for coffee. We were carrying away at Headquarters South when Joe produced the new polished version of his voltmeter for my inspection. I hesitate to discuss this further, but I feel that I have to follow the old technique of "Confession and Avoidance." That is, I will confess to my transgression before Joe can tell you about it and try to avoid what I did by this explanation. In any case, I had the battery tester in hand and was rocking it back and forth between the high and low ranges testing my HT-220 battery. Gulp! Now it just seemed to be working on just one range. I tested again. Still only worked on one range. After examining the battery terminal on my radio, I realized what had happened. Joe had spaced the pins between the high and low ranges far enough apart that they just fit between the metal frame ground and the B+ lead. The result was instant fusion of the first zener diode. I set the newly polished battery tester on the table and contemplated making a fast break for the door I am certain just ahead of Joe's outstretched arms aiming for my neck. I think that JB was too stunned to move. However, all was not lost. Phoenixlike from the ashes of this disaster, Joe rose to the adversity and quickly redesigned the circuit to idiotproof it against such blowouts again. He even drilled the potting compound and replaced the offending diode (Who says you can't make house calls in solid polyester resin?). And worse than anything, he put a little sign on the side that explained why there was a hole in the side of his battery tester. I guess that Joe did not appreciate my failure mode analysis test. Sigh. My solution is to put the pins so close together that you can't possibly get 15 volts between them. Joe says his is to demonstrate the battery tester to me from five feet away.

Micheal Salem N5MS

UNBELIEVABLE DICTIONARY DEPARTMENT

I have a few definitions that I ran into for inclusion in this month's C & E. See if any of these fit your situation:

NEW: Different color from previous design.

ALL NEW: Parts not interchangeable with previous design.

EXCLUSIVE: Imported product.

UNMATCHED: Almost as good as the competition.

DESIGN SIMPLICITY: Manufacturers costs cut to bone.

FOOLPROOF ADJUSTMENT: no provision for adjustment.

ADVANCED DESIGN: Ad writer doesn't understand it.

IT'S HERE AT LAST: Rush job, nobody knew it was coming.

FIELD TESTED: Manufacturer lacked test equipment.

HIGH ACCURACY: Unit on which all parts fit.

DIRECT SALES ONLY: Manufacturer had argument with distributor.

RUGGED: Too heavy to Lift.

LIGHTWEIGHT: Lighter than Rugged.

YEARS OF DEVELOPMENT: Finally got one that worked.
 UNPRECEDENTED PERFORMANCE: Nothing we had ever worked like this.
 BREAKTHROUGH: We finally figured out a way to sell it.
 FUTURISTIC: Can't figure out another reason why it looks the way it does.
 ENERGY SAVING: Achieved when the power switch is off.
 DISTINCTIVE: A different color or shape from the competition.
 NO MAINTENANCE: Impossible to fix.
 REDESIGNED: Previous faults are corrected, we think.
 HAND CRAFTED: Machine that assembles it is operated without gloves.
 PERFORMANCE PROVEN: Will operate through the warrant period.
 MEETS QUALITY STANDARDS: Ours, not yours.
 SATISFACTION GUARANTEED: Manufacturers, upon receipt of your check.

These are from Electronic Engineering Times, February 18, 1980.

The following is from the March 1980 issue of Broadcast Engineering:

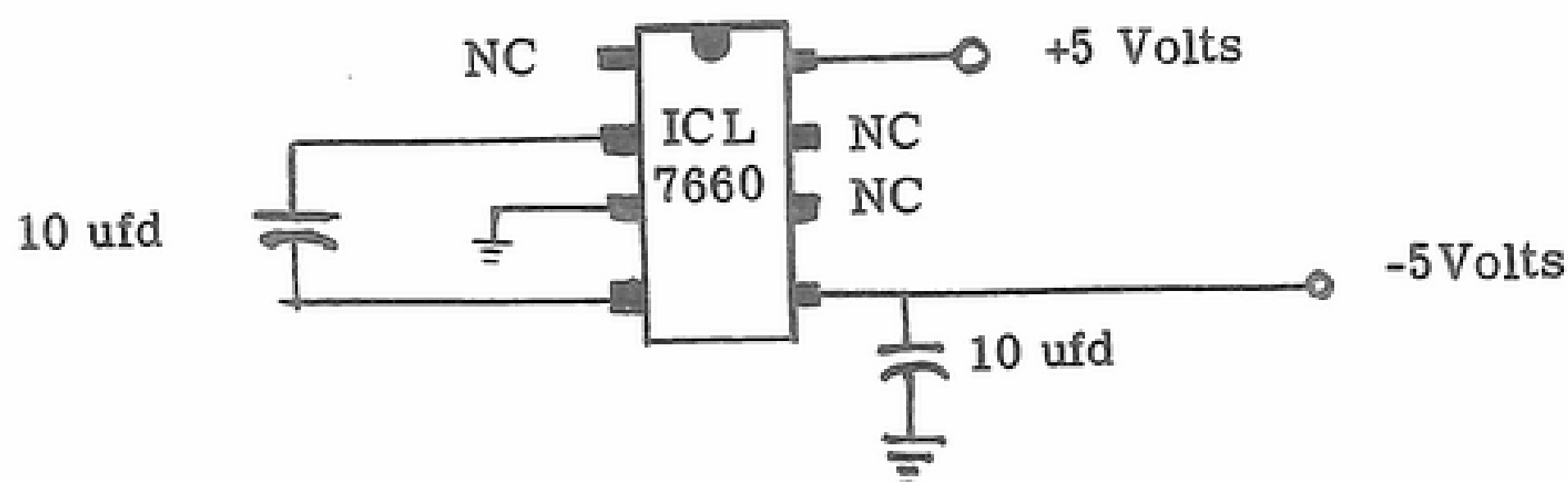
There was a young man from Clower
 Who job was to climb our Tower.
 No safety belt wore he
 Said, "I'm agile as can be,"
 Now his wife paints his grave with flowers.

Enough of all these cultural events.

Micheal Salem N5MS

QUICK AND DIRTY--NEW PRODUCTS DEPARTMENT

Intersil has produced a new chip that can provide a minus five volts from a plus five volts. The circuit is quite simple and is reproduced as follows:



Just can't get much more simpler than that. This monolithic chip converts positive voltage to negative voltage with a 99% voltage conversion accuracy (with R_L of infinity). With 98% power conversion accuracy ($R_L = 5 \text{ Kohms}$) And I_{out} is greater than 40 mils. ($R_{out} = 55 \text{ ohms}$) If you need more voltage, just cascade multiple 7660's. If you need greater current, All you need is to parallel em. Now the computer buffs among you might consider these goodies an ideal source for minus voltages for dynamic RAMs. I think in terms of them to eliminate a power supply for my HT-200 receivers. These goodies could put you on the air with the HT-200 positive ground receiver or transmitter without having to sweat another power supply or battery. Perhaps the best part is that these little goodies are just \$1.95 apiece in 100 piece quantities. The package is an 8 pin minidip. And they are delicious.

Micheal Salem N5MS

Seems like only yesterday that the event happened, but it is now over 7 months. It was during an extended weekend 'vacation' and my XYL and I had not yet arrived over into Arkansas when monitoring '52 simplex that we heard the tail end of "... no signals heard, returning to 64, XX repeater." I do not recall the frequency mentioned, however, I followed him and listened to talk of a 'ham fest'. When I heard talk of FLEA MARKET and JUNQUE for sale, I was hooked. I later struck up a conversation with a friendly Tulsa ham who was headed for this same 'ham fest'. Particulars and time and the best motel in the area were helpful tips from that good ham. Two meters is a very fine band. It was my only 'talk' band as my code speed, I thought, had not yet arrived. Technician was my highest level at this time.

After a good night's rest in Mena, Arkansas, we loaded a picnic lunch and headed for the top (Queen Wilhimena Lodge). I must have been a little excited because as I rounded the end of the truck, I forgot about the top window being left open and promptly walked briskly into it ... bumping my head, tearing the flesh, smearing greese and buckeling of the knees. I did make it to the seat of the truck before plopping heavily down. My dear XYL remarked something about 'you can't go like that' -- I really didn't hear too clearly. She caught on quick that I wasn't going to move from whence I sat and went back after wash cloth and water. Anger welled up inside from my clumsy action and the thought that I might not recover in time to go to the FLEA MARKET. In about 15 minutes, I did recover and we proceeded with caution. At the top, I found the junque andas is my custom... we walked through the entire collection first without making a purchase. (Buy things on the second walk-thru.)

Back at the lodge, I had heard that the FCC examiner was present and I was sure there would be extra forms for me to take in anticipation of the examination in Okla. City a month or so later. When I found the location (it was at the East end of the dining area) I was given all the forms necessary for the future, but I was also encouraged to 'take it now'. My excuses were "I haven't practiced code for several days." I was told that I could listen to a ham's receiver and 'warm up'. The lovely ladies who were assisting with the examinations were charming and encouraging. I was probably just enough drunk from the blow on the head that I thought "well, maybe" After the practice session, THEN I would decide. Everyone was friendly. Upon hearing a signal and asking how fast THAT was, I was told "That's teletype". My courage was wiped out. I was too embarrassed to leave the room so I listened for a while. There were several hams on the air that seemed pretty fast and I began copying them. Several people milled through the room and some looked over my shoulder and read what I was copying and one asked "is that what he's saying?". I nodded yes. My courage was coming back.

We drank coffee and then turned in the form 610. Waiting for the 13 word test, I listened to 20 words. It sounded like jingelling bells at Christmas. I was tense. The one minute practice was not impossible. I could hold my breath that long. Could I hold my breath for 5 minutes. There was a lady who complained of not being able to hear the tape recorder. She was in worse shape than I was. We would probably both fail. After arranging places at the table, we were ready to start. I didn't have to move. It was a good sign. Call signs ... Which is first the callee or the callor. HW 101, 1 watt (can't be wright) 13 tubes, (count 'em) and antenna 5 feet off ground... (that must be wrong too)... name is Pete, occupation is musician, plays in band and must go to rehearsal...and there come the call signs again, maybe I will get it right this time.

10 questions. Skip the first one, I must have copied the call letters wrong. Three in a row ... I know they are right. Who would use 1 watt of power, but that is what I copied ... and 5 feet above the ground with an antenna? Couldn't be, but that is one of the multiple guess answers and that is what I copied. Who you gonna trust? Sure, I got the Musician part right and his name is Pete. Well, back to question #1. I didn't copy his call to be any of the possible ones shown but the last choice is "none of the above". That might be right. And then the waiting. Only two ahead of me. (The first one gets "I'm sorry" and the second one gets a "you passed") Now it is my turn. I watched the white haired man grade my paper. When he blinked, I saw it. First one WAS right. and on down the page. TEN OUT OF TEN. HOT DAMN. Was I lucky. All of a sudden I was ten feet tall and two feet off the ground. What a feeling. Did I want to take the written advanced test? Why I couldn't even sit still and that was all that I could handle that day. Besides, I knew that there was no possible way of passing something that I hadn't studied at all for. And there you have it. Just one ham's experience and I'm sure every ham out there has a similar story. Maybe someone will enjoy hearing mine. 73, WD5HPU, Jim Greenshields.

See individual club sections for times, places & details.

MAY HAM HAPPENINGS

Sunday GIVE YOUR CLUB EDITOR YOUR INPUT FOR C&E..... YOU CAN DO IT!	Monday OKLAHOMA COUNTY EMERGENCY TRAINING NETS <i>on Mondays</i>	Tuesday PRE - REGISTER NOW FOR HAM HOLIDAY '80 * FORMS INCLUDED IN THIS ISSUE	Wednesday	Thursday YL NETS <i>on Thursdays</i>	Friday ACARC	Saturday SWAPFEST BROKEN ARROW
WHEATSTRAW 4	EDMOND CLUB TRI-CITY 5	MORI GREAT PLAINS 6	CHECK OUT OUR STATE TRAFFIC NETS GET INVOLVED! 7	ALTUS 8	9	10
MOTHER'S DAY 11	CHOCTAW 12	76 ERS OU SHAWNEE 13	14	ATVES KAY COUNTY 15	VHF 16	SCARS 17
EARS 18	ARES of OKLA. COUNTY SEMINAR (SEE INSIDE) PAGE 26 19	AUTOPATCH 20	21	22	23	EDIT C&E 24
TWO MONTHS 'TIL HAM HOLIDAY '80 25	MEMORIAL DAY 26	SHAWNEE CORA 27	28	MEET SOMEONE NEW WITH AMATEUR RADIO TODAY 29	30	ACARC MAILS C&E 31

CAN YOU WEAR SOFT CONTACT LENSES?

Would you like to find out?

Most people can wear them, but some cannot. Find out if you can. Just drop by for a *free computer analysis* using our System 6600 Autorefractor.

If the signs are right, we'll place soft contact lenses on your eyes and make a further evaluation. Bring your written prescription if you wish. Patient normally gets lenses *IMMEDIATELY!*

YOU DON'T NEED AN APPOINTMENT!

840-1234
Dr. Robert Goodhead
Optometrist, Inc.
2021 NW 57th Street



Ask Doc, WA5CZN, about his fantastic contacts!



AND
**ARRL
STATE
CONVENTION**

LINCOLN PLAZA FORUM
4345 NORTH LINCOLN BLVD OKC

JULY 25-26-27

DEALER - EQUIPMENT DISPLAY
SEE THE LATEST EQUIPMENT AND MEET THE DEALERS

TECHNICAL PROGRAMS
INTERESTING AND TIMELY TOPICS - HF, 2 METER, RTTY, COMPUTER, QRPP ????

DOOR AWARDS GALORE

QCWA BREAKFAST~EYEBALL QSO'S
COME PREPARED TO SEE YOUR OLD & NEW FRIENDS

SUNDAY BANQUET & AWARDS DRAWING
GOOD FOOD - GOOD AWARDS

10,000 SQ FT FLEA MARKET

Free table to pre-registered
Hams. (Not commercial)

You must register. Pre-register \$5.00 for each person 12 years or older.
(\$6.00 at door) You must wear issued badge for entry to any function or
area. Children under 12 must be accompanied by a parent.

PRE REGISTRATION AWARD -  ICOM 260

GRAND AWARD - YAESU  FT 707

PRE-REGISTRATION FOR OKLAHOMA HAM HOLIDAY '80 & STATE ARRL CONVENTION
Must be received by July 18, 1980 to be eligible for Icom 260. Tickets
will be held at registration desk. Send s.a.s.e. if confirmation wanted.

Name _____ Call _____
Street _____
City _____ State _____ ZIP _____
Others _____
Others _____

_____ Total pre-registrations @ \$5.00
_____ Sunday Banquet tickets @ \$8.25
_____ QCWA Breakfast tickets @ \$6.00
_____ (Tax and tip included.)

Total _____

Reserve me a free Flea Market table (Must be claimed by 10:00 am) ☐
Check or money order only TO: CORA, P.O. Box 20118, Okla City OK 73120