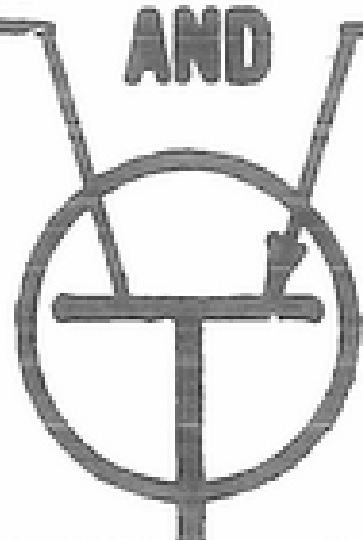


Central Oklahoma Radio Amateurs

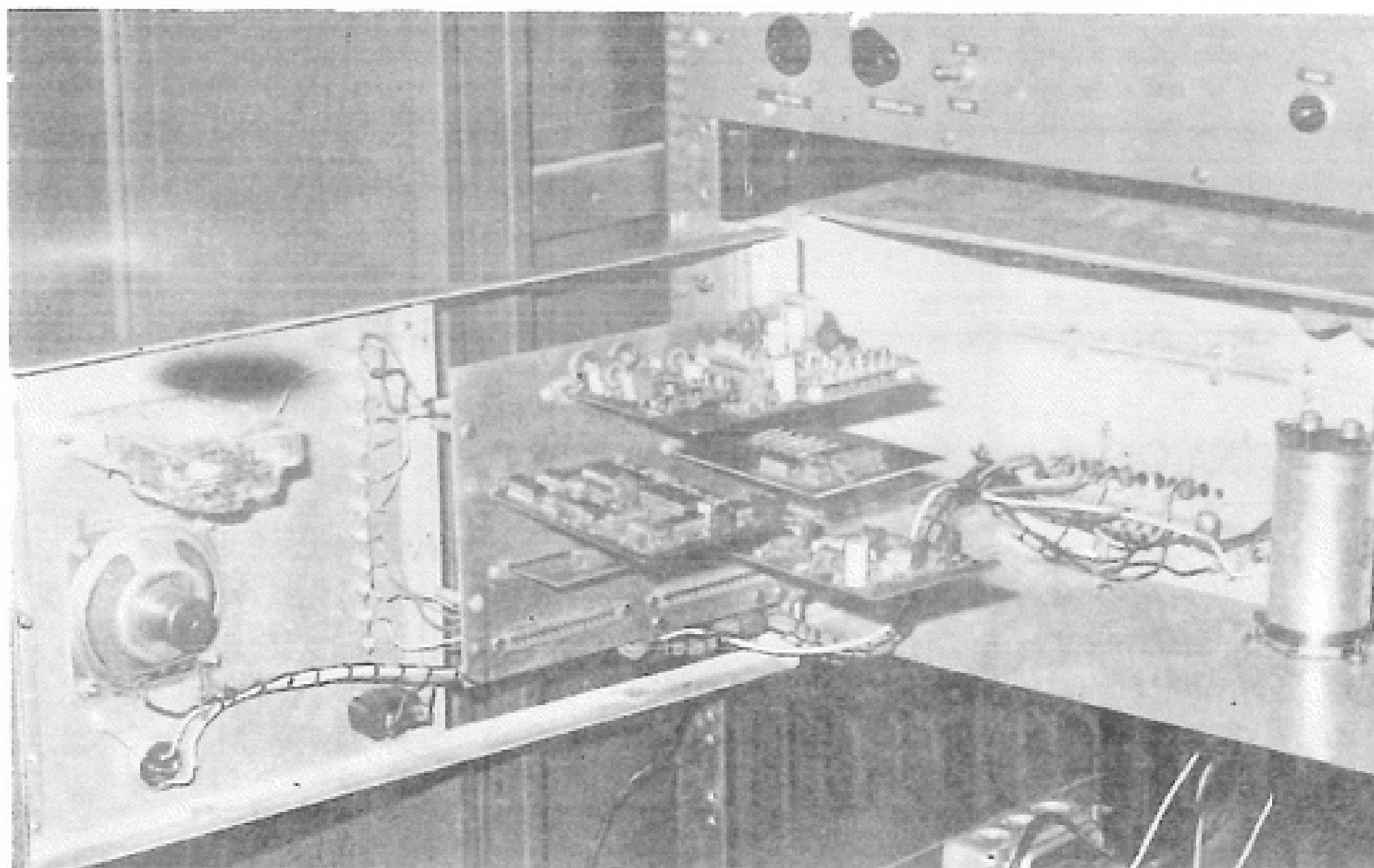
COLLECTOR AND EMITTER



1976 MARCH 1976							
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Vol. 2

No. 14



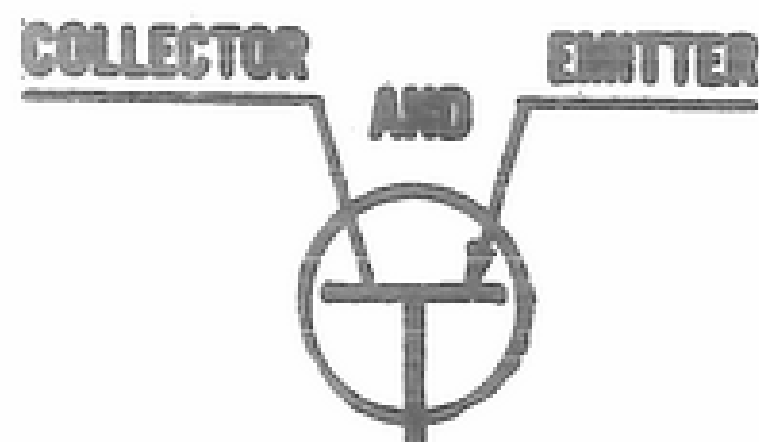
34/94 mhz...
behind the
scene,
logic and
control
boards

Equipment
(worker &
supervisor)
overview...



Ron Cron, WA5EAI (left), trustee of the WR5AJP repeater, explains operation of the equipment to H. O. Townsend, WA5MLT, president of the Mid-Oklahoma Repeater, Inc. To the right of the 34/94 machine is the 440 MHz repeater, which is also operated by MORI (Photo by WA5AQW)

Central Oklahoma Radio Amateurs



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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	Ken Kendrick	WB5ECJ	751-4917
Vice President	Gary McCormick	WA5ETV	946-2898
Secretary	Ellard Foster	W5KE	789-6702
Treasurer	Bob Williams	WB5LHR	789-0987

ACARC Editor	Don Templeman	WB5NIY	787-7174
MORI Editor	Jim Williams	K5VRL	942-0536
OCVHF Editor	Joe Buswell	WA5TRS	732-0676
OKCAP Editor	Don Moore	WA5FFK	787-5189

PARTICIPATING CLUBS FOR CORA COLLECTOR AND EMITTER:

AERONAUTICAL CENTER AMATEUR RADIO CLUB, INC.

Postal Station 18, Oklahoma City OK 73169

Meetings: 8:00 P.M. on first Friday of each month, Flight Standards Bldg, FAA Aeronautical Center. Club Station W5PAA

President	Al Prince	WB5KCU	789-1160
Vice President	Bill Hulse	W5UGZ	376-2125
Secretary/Treasurer	Bill Oliver	K5KDR	329-6333

OKLAHOMA CENTRAL VHF AMATEUR RADIO CLUB, INC.

323 N.W. 10th, Oklahoma City OK 73103

Meetings: 8:00 P.M. on third Friday each month, American Red Cross, 323 N.W. 10th. Club Station W5LOW

President	Tom Stinson	W5OZE	942-3714
Vice President	Ken Ford	WB5KHU	528-8770
Secretary	Joe Buswell	WA5TRS	732-0676
Treasurer	Ellard Foster	W5KE	789-6702

MID-OKLAHOMA REPEATER, INC.

Meetings: 8:00 P.M. Tuesday of first full week each month, Okla City EOC 4600 N Eastern. WR5ADE 34/94 WR5ADF 07/67

President	H. O. Townsend	WA5MLT	329-4426
Vice President	Chester Hazelwood	W5GDL	427-1439
Secretary/Treasurer	John Huckaby	K5QDR	672-4706
Mail Dues to:	Sid Gerber, 829 E Bouse, MWC 73110		737-1050

OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

Meetings: 7:30 P.M. 3rd Tuesday, Bi-Monthly, Okla Military Academy 36th & Grand, WR5ACB 146 22/82, 147 81/21

President	Frank McCollom	WB5JBL	751-3577
Vice President	Larry Dillard	WB5CWB	685-4065
Secretary/Treasurer	Jim Denman	WB5EOL	681-6048
	7705 S Charlotte Dr, Okla City OK 73159		



NEWS BRIEFS OF THE FEBUARY MEETING:

The meeting was called to order by our President, Frank, WB5JBL. The purpose of the Febuary meeting was to lay the plans for the weather net.

Our representatives from the TV Station were not able to attend due to sickness and other engaguementssso the ACT of acting weather man fell upon Franks shoulders.

The use of the new weather maps. wasthe first point of business and the meaning of the condition codes for weather purposes was explained. The different types of reports and information that should be relayed to weather control was explained. It was brought out that special attention should be paid to the danger of a condition when sighted and reporting of rain stopping or minor conditions such as might, cause unneccessary tie up of the weather net, and should be kept an a minium.

It was also was brought out that this net is a DIRECTED NET and all stations will go through Net Control, this also includes EOC stations.

It was brought out that operators should be carefull with what type of information they put out on the net. Results from a recent survey show that the 146.82 crystal is on of the most popular sold crystals for scanners. This means that their are thousands of non-hams listing to the repeater on these stormy nights. Any thing that could cause panic or concern to a great extent to a non-ham should be given carefull consideration before placing it on the weather net. It was suggested that stations not only give the grid location, but also give the street location to give listeners somewhat of an idea as to the location.

The question was brought up to the value or validness of the reports made by amateurs. Bob, K5PJU, said that Amateur reports would be used as valid reports, due to the fact that in the past years amateur reports had a high degree of accurcey.

Mac, K2GKK was appointed the chief net control operator for the weather nets. His job will need the coopèration of all in running a good net. Mac had some volenters to help him in calling the nets at his absence.

Joe, WA5ZNF, managing Editor of CORA asked for input and comments on printing a special Issue of CORA amied to lure some of our CB friends intor Amateur Radio. If you have any ideas along this line please let us know.

WANTED

Articles for the BIG SIGNAL. Please, Please try to come up with input to your paper. Send it to the editor in any shape or form just let us here from YOU. Do you realize that the voice of Big Signal has been reprintsented by less than 10 people durring the past 6 months. Thats not very good considering we have over 150 members. Try to send something in, if you can't type wright it on paper and mail it, we will type it, now you can't beat a deal like that can you?



LET'S GET ON 432, TRY THIS CHEAP AND EASY WAY:

With the coming of the 450 repeater, many local amateurs find themselves faced with the problem of a huge investment in another transceiver being without capability to operate on the new repeater. The following is an inexpensive answer to get 450 MHZ capability while still keeping the pocketbook somewhat intact. The total cost of the project should not exceed \$40.00 at current bargain prices.

First, let's take a look at the transmitter problem. Using the current generation of 2 meter transceivers, it is quite easy to get 10 - 40 watts of 2 meter RF out. By using a variactor tripler we can achieve 60% efficiency and get useful output in the 450 MHZ band. In practical terms, we can drive our variactor at 147.6 MHZ and 25 watts and get 17 watts out on 442.8 MHZ. That shall be sufficient to gain access to the 750 repeater now operating in Oklahoma City.

Now that we have successfully gained access to the machine, we must have a form of receiver to hear the output of the repeater. This problem is solved by Hamtronics who make an excellent converter board that will feed any good 2 meter receiver.

The particular converter comes in kit form for \$20.00 without the crystal. The crystal frequency is determined by the following formula:

F_{r2} = 2 meter receive frequency

F_{r450} = 450 receive frequency

$$\text{Xtal Frequency} = \frac{F_{r450} - F_{r2}}{6}$$

(Continued on Next Page)

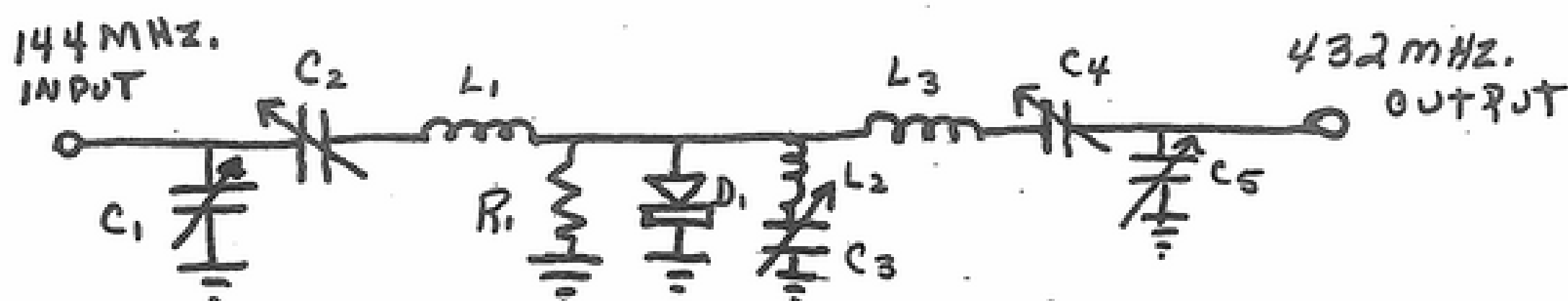
GUESS WHAT? OUR SIX METER REPEATER IS ON THE AIR. ALSO THE 432 MACHINE IS GOING GREAT. TRY THEM YOU WILL LIKE THEM.

The crystal can be purchased from International Crystal Company, Oklahoma City, Oklahoma under their hobby-type called EX for \$4.95 at current day prices.

The only other problem that exists now is the necessary switching needed to get 2 band capability. In other words, with a flick of a band switch you can be on 2 meter FM or 450 meter FM.

The author has used the above methods for the last 4 months using a Clegg 27B as 2 meter XCVR. Output power on 442.8 MHZ is 17 watts and the receiver sensitivity on 447.8 MHZ is 0.7 microvolts for 20 db quieting.

The author has recently built a cavity-type filter and installed it in the coax of the 450 antenna to reduce 2 meter feed there.



NOTE L_2 & C_3 SERIES RESONATE 288 MHZ.

C_1, C_2 — 3 to 50 mmf

L_1 — 8 turns #14 $\frac{1}{4}$ " DIAMETER

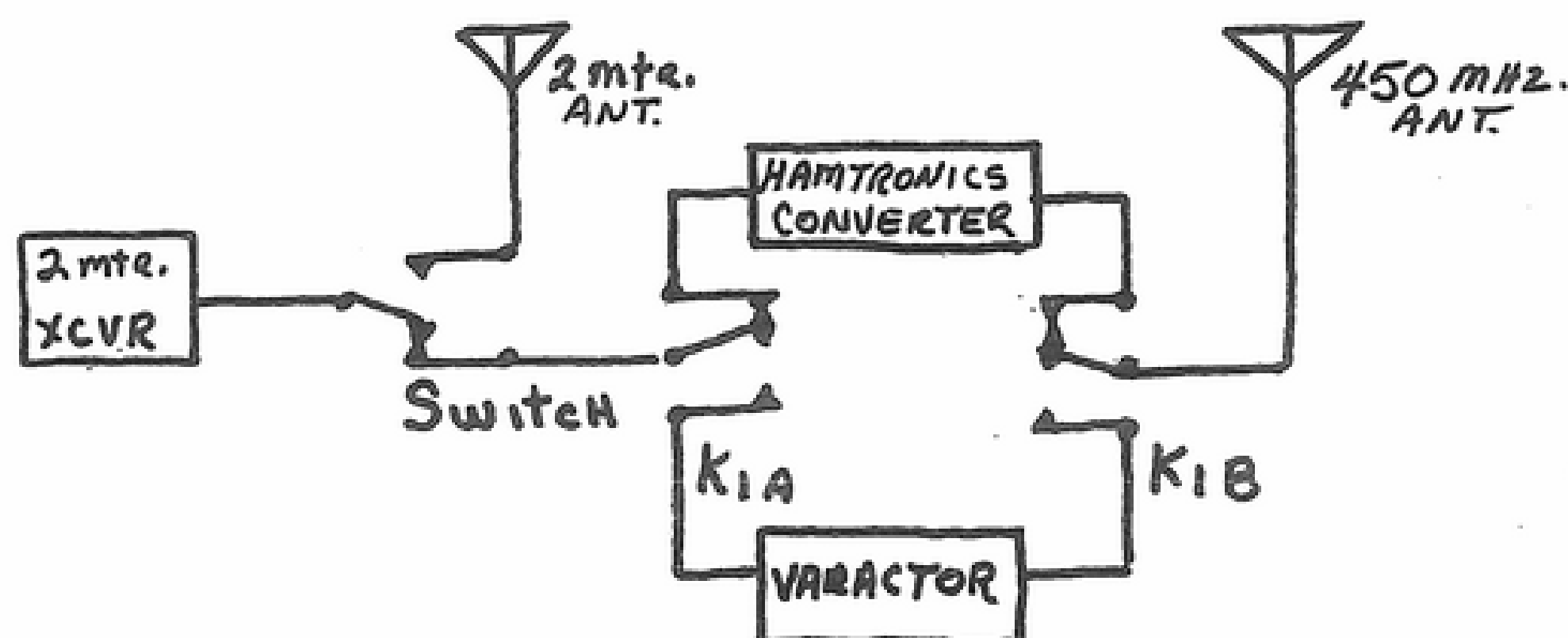
R_1 — 82 K

D_1 — H9A OR EQUAL

L_2 — 1 TURN #14 $\frac{1}{4}$ " DIAMETER

L_3 — COPPER STRAP $\frac{1}{4}$ " WIDE 2 $\frac{1}{2}$ " LONG

C_4, C_5 — 3-25 mmf





MINUTES OF THE AERONAUTICAL CENTER AMATEUR RADIO CLUB MEETING
OF FRIDAY, FEBRUARY 6, 1976

The meeting was called to order at 2007 by President Al Prince. Thirty-eight members and guests were present. Each member was asked to introduce himself and give any appropriate comments. Joe, WA5ZNF, has been busy keeping the Collector and Emitter in business. Elmer, W5BKN, has been working portable from 4 land. Ivan, W5HFU, bought a power supply and is planning to modify it. Leonard, WA5FSN, found out how useful repeaters can be during an emergency. Leo, W5OH/6, from Long Beach, is visiting Ellard, W5KE. Charlie, WA5JGU, has moved his station from the living room into a spare bedroom. Fred, WB5PWO, has been listening to 40 M CW. Frank, W5AAR, has been enjoying the warm weather in Michigan. Don, WB5NIY, has acquired a 2 M rig and SB200. Marvin, K5HQP, got a power supply for his Atlas - he says it works very well. Clark, W3WGF/5 has been working on an encoder kit, but it was bad and had to be returned. Ellard, W5KE, is trying to peddle a 15KVA transformer. Dave, W4YDY/5, fixed his electronic keyer, but it broke again the next day much to the dismay of daughter Susan who had planned to use it at school. It was to be used in a history of Morse Code demonstration. Pat, WB5JYK, has been piddling with antennas. Sparky, W0KUJ, a student from Kansas City, had bad luck with a Handy Talkie from Wilson. George, WB5QNU, is limited to 2 M now. Lloyd, WB5HUP, reported he has new batteries in his watch now. Jef, WB5GWB, is still working on his repeater. Jerry, W5MCJ, conducted the SET exercise in Norman last week. He has some darkroom equipment for sale. John, W5AVK, took a trip to Texas just to work 2 M. He put a modification on his SB 104 and reported the receiver is twice as sensitive. Al, WB5KCU, reported he has been listening mostly.

Charlie, WA5JGU, the Club's CORA representative last year, asked that he be the assistant to the CORA representative. Carl, W5JJ, volunteered to be the Club representative to CORA and was quickly approved by the Club. Charlie then reported that the ACARC will have the responsibility of providing the program (excluding the ladies program) for Ham Holiday. A motion was passed for the Club to give \$150.00 to CORA to help finance Ham Holiday.

Two members were needed to work up the program for Ham Holiday. Bob, K5AYL, (who was present) and Bob, W5HXL, (who was absent) were selected for this.

Jerry, W5MCJ, was selected as the Public Relations man for the Club.

After a break for refreshments, Don, WB5NIY, gave the program on the Heathkit HW 2026. The meeting was adjourned at 2226. Bill Oliver, K5KDR
Secretary/Treasurer




















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THE PRESIDENT'S CORNER

At the beginning of late January and February, it did not look at the start as though they would be busy months for amateur activity. It turned out, however, to be very interesting as a result of two different emergencies such as downed aircraft and the earthquake. We noted several of our members passing traffic and they are to be complimented for their time and effort put forth into these causes.

Have you noted the format of the magazines? It is a big change after all these years of the smaller size. After the initial shock, I think it is a good move. The first issues certainly contained interesting articles. This is also the anniversary of our CORA C and E which has been a big success as to bringing the club activities together as well as a large savings. So, we have a big "thank you" to Joe, WA5ZNF, and his crew who spent many hours to give us a good paper.

Leonard, WA5FSN, is the Oklahoma Section Communications Manager, and is looking for someone to fill the position as Oklahoma County Emergency Coordinator. So, if anyone is interested to serve in this capacity, please let it be known.

Daisy and I spent several days at the cabin on Lake Eufaula the latter part of January. Between having to replace broken water pipes and the warm weather which made it pleasant to be outside, it left a little time to operate on 40 meters.

Our thanks to Don, WB5NIY, for the program at the last club meeting. If you were not there you missed a heartbreaking story of the 2026. So come on out to the club meetings as we are looking forward to more of this type programs. If you have something you would like to say, let us know. We need your participation. We will be looking forward to seeing you at the next club meeting.

73

A1 WB5KCU

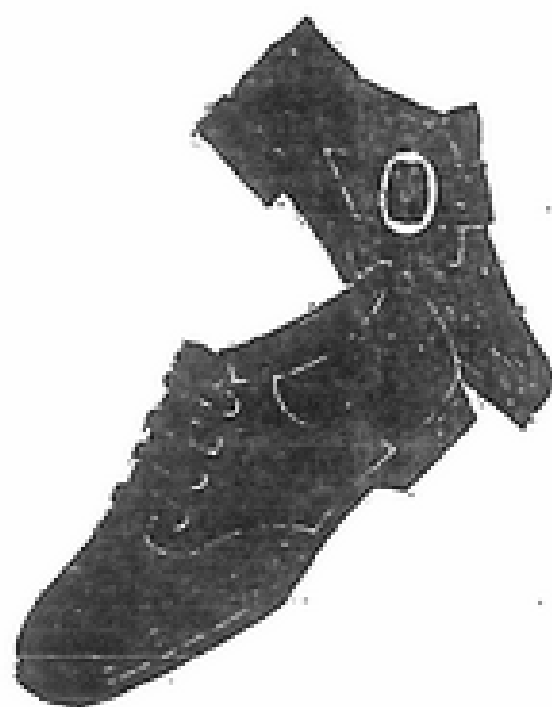
*One of the Finest Shoe Repair Shops
in the Oklahoma City area*

ORTHOPEDIC WORK

GLEN OAK CENTER SHOE REPAIR
Bill Sorrels

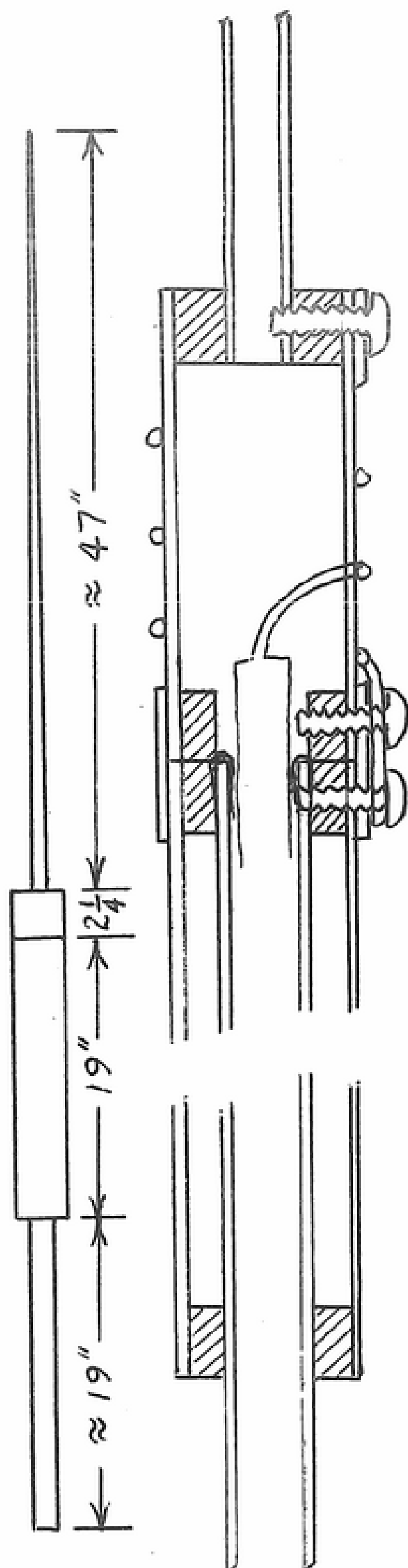
23rd & Rockwell - 7140 NW 23rd

BETHANY



A 5/8 WAVELENGTH 2 METER VERTICAL FOR FIXED OR PORTABLE USE

The desire for a "convenient to haul around" and effective 2 meter vertical as a companion to the portable 2 meter Yagi (February Collector and Emitter) resulted in this antenna. The "Ringo" seems to be the most popular vertical, but is a little awkward to haul around and susceptible to damage. Scrounging the "junk" box produced a length of 1/2 inch aluminum tubing (from a busted 6 meter yagi element), a 19 inch length of 1 inch aluminum tubing (from a busted yard chair), an old telescoping car radio whip, and a 1 inch diameter coil form 2 1/4 inches long.



The coaxial antenna with its quarter wave decoupling sleeve, instead of the ground plane rods, was considered ideal for portability so the "junk" was assembled as shown in Figure 1. Four bushings were cut from 3/8 inch fiber stock, one for each end of the coil form, and one for each end of the decoupling sleeve. A one inch strap of aluminum was wrapped around the 1 inch tubing and coil form to hold them together. Three 6-32 screws were drilled and tapped to hold things together at each level, see Figure 1.

RG-8 coax is fed through the 1/2 inch tubing, the braid is turned back over the outside of the 1/2 inch tubing and the fiber spacer forced over it. Connections between the 1/2 inch and 1 inch tubing is with the 3 mounting screws. The screws also make connection to the matching coil.

The matching coil is three turns of number 12 wire spaced about 1/2 inch between turns. The center conductor is tapped one turn up. After several unsuccessful attempts to prune the coil to obtain a good match without a trimmer capacitor, a "gimmic" capacitor of a couple turns of hook up wire wrapped around the whip element was added. Adjusting this capacitor and the length of the whip resulted in a 1:1 SWR. After the match was obtained, the telescoping whip was cut to the right length when fully extended and the coil and "gimmic" capacitor protected with a liberal application of coil dope.

W5HXL

For Sale: Swan 250 w/XC-117 power supply, mike, 4-element beam. \$200.00 Contact John, K5QDR, 672-4706

WANTED: A METHOD TO DISCOURAGE BASE STATIONS FROM USING REPEATERS TO CONVERSE WITH OTHER BASE STATIONS, WHEN SIMPLEX WOULD DO JUST AS WELL. THE DESIRED METHOD WOULD NOT ANTAGONIZE ANYONE OR HURT ANY FEELINGS BUT WOULD FREE THE EQUIPMENT FOR MOBILE USE, THE PURPOSE FOR WHICH IT IS INTENDED ANYWAY. SEE RON, WB5EA1, IF YOU HAVE A SOLUTION.



Club NEWS

VSLOW
The Elmer Goshler Memorial
Station

MINUTES OF FEBRUARY MEETING

MEETING WAS CALLED TO ORDER 8:10 PM, FEB 20, 1976 BY TOM, W50ZE, PRESIDENT, WITH 13 MEMBERS AND GUESTS PRESENT.

KEN, WB5KHU, REPORTED ON THE SATURDAY MORNING COFFEE AND DONUT MEETINGS AT THE CLUB STATION IN RED CROSS HEADQUARTERS. BESIDES THE EYEBALL QSO'S, ETC, THE 2-M RIG HAS BEEN PROFESSIONALLY MOUNTED AND SOME ANTENNA REPAIR WORK DONE. THE TRI-BAND BEAM AND 2-M ANTENNAS NEED TO BE REMOVED AND COAX UNWRAPPED FROM THE TOWER AND MAST.

THE SP-600 AND EICO 753 HAVE BEEN SOLD. THERE IS STILL MUCH MATERIAL TO BE SOLD OR TRADED. OTHER MATERIAL MATTERS WERE DISCUSSED IN NEW BUSINESS.

J.W., WA5KFT, SUBMITTED A COMPREHENSIVE REPORT OF THE CORA MEETING HELD JAN 30, 1976. IN SUMMARY, VHF CLUB WAS REMINDED TO MAKE PAYMENT FOR CORA C&E. IT AMOUNTS TO 15¢ PER MEMBER. CORA C&E IS TO BE MAILED TO ALL CLUBS IN OKLAHOMA. CORA WON THE TRAVELLING TROPHY WHICH HAD BEEN ESTABLISHED BY WHEATSTRAW CLUB FOR THE HIGHEST POINT SCORE ON VHF DURING FIELD DAY. WHEATSTRAW, A VERY ACTIVE CLUB, WON IT IN 73 AND 74. CORA CLUBS ARE TO BE POLLED TO SEE IF THEY WANT TO PARTICIPATE THIS YEAR.

HAM HOLIDAY WAS DISCUSSED. IT WILL BE AUG. 7-8, AT SOUTHGATE, PRE-REGISTRATION \$3.00, AT THE DOOR \$4.00. RESPONSIBILITIES ARE:

PRIZES	MORI
PUBLICITY & REGISTRATIONS	AUTOPATCH
PROGRAMS	AERONAUTICAL CENTER
FACILITIES & TALK-IN	JOE, WA5ZNF
LADIES PROGRAM & ACTIVITIES	VHF CLUB

CLUBS ARE TO ADVANCE \$150.00 EACH TO UNDERWRITE THE FEST.

NEED FOR OKLAHOMA COUNTY EMERGENCY COORDINATOR WAS STRESSED. ALL CLUBS WERE ASKED TO SUBMIT CANDIDATES. ALSO, PERSONS WITH PUBLIC RELATIONS TRAINING AND EXPERIENCE ARE ASKED TO SUBMIT APPLICATIONS FOR CORA PUBLIC RELATIONS MANAGER.

IT WAS MOVED AND PASSED THAT THE HF MINI BEAM AND HEATHKIT AR-10 HF RECEIVER BE OFFERED FOR SALE TO THE HIGHEST BIDDER. BIDS WILL CLOSE AT NEXT MONTH'S MEETING.

IT WAS MOVED AND PASSED THAT THE CLUB PUT UP \$150.00 TO PARTICIPATE IN HAM HOLIDAY.

IT WAS MOVED AND PASSED THAT THE CLUB PARTICIPATE IN FIELD DAY 1976 WITH CORA.

IT WAS MOVED AND PASSED THAT CHARLIE, WA5JGU, CLOSE THE EXPLORER POST 24 BANK ACCOUNT AND DEPOSIT THE MONEY IN THE CLUB TO BE EAR-MARKED FOR SIMILAR USE SHOULD THE CLUB EVER SPONSOR ANOTHER EXPLORER POST. SERVICE CHARGES WERE EATING UP THE FUND.

FURTHER DISCUSSION BY THE TRUSTEE INVOLVED THE PROPERTY BEING KEPT AT THE HOME OF LEON POULIS, K5MJY. BOB, W5HXL, AND CHARLIE, WA5JGU, ARE TO INVENTORY AND STUDY THE ASSETS AND SEARCH FOR ANOTHER PLACE TO KEEP THOSE ITEMS WE WISH TO KEEP. DISPOSITION WILL BE MADE AT THE TIME OF FIELD DAY. THERE IS NEED TO OBTAIN SOME HAND TOOLS FOR THE CLUB STATION. BEFORE ANY ARE BOUGHT, DONATIONS ARE SOUGHT. IN PARTICULAR, THE CLUB NEEDS: SCREWDRIVERS, ASSORTED, INCLUDING PHILLIPS, PLIERS, NEEDLENOSE PLIERS, DIAGONAL CUTTERS, CARPENTER HAMMER, ADJUSTABLE WRENCH, HACKSAW, BOX AND/OR END WRENCHES, ALLEN WRENCHES, NUT DRIVERS AND A 500 MHZ SPECTRUM ANALYZER.

MEETING AJOURNED AT 9:05 PM.....JOE, WA5TRS, SECRETARY



Club
NEWS

WSLOV
The Elmer Cordier Memorial
Station

GRIPE OF THE MONTH DEPT

CURRENT ADVERTISEMENTS IN THE RADIO RELATED PERIODICALS BY NRI SCHOOLS AND BELL AND HOWELL HAVE GOT MY DANDER UP.

THE NRI AD SAYS, "YOUR COMMUNICATIONS/CB TRAINING...EXPERIMENT WITH THIS SOLID STATE TRANSCEIVER. MOUNT IT IN YOUR CAR OR USE IT WITH YOUR AC POWER SUPPLY AS A BASE STATION. YOU GET HANDS-ON EXPERIENCE.

THERE IS NO MENTION OF AMATEUR LICENSE REQUIRED BUT THE DIGITAL READOUT ON THE RIG SHOWS 222.34, WHICH I DON'T BELIEVE FALLS IN CLASS A OR CLASS D OF THE CITIZENS RADIO SERVICE, AND LAST I HEARD, CLASS E IS NOT A REALITY YET.

NO DOUBT, NRI IS PROBABLY A GOOD SCHOOL, EVEN THOUGH I VIEW THEM, AND THE OTHERS, WITH JAUNDICED EYE BECAUSE OF TACTICS USED WHICH APPEAL TO THE LARCENOUS STREAK IN ALL OF US. NO TELLING HOW MANY TV SETS I HAVE BOUGHT FOR VETERANS WITH MY TAX MONEY.

THIS IS SOMETHING ELSE. I CAN TOLERATE THE LEGAL LARCENY COMMITTED BY SUCH DESERVING AMERICAN CITIZENS BECAUSE, AFTER ALL, MORAL FIBER IS A FADING FIGMENT OF THE IMAGINATION AND THEY DESERVE WHAT THEY CAN RIP OFF AS MUCH AS ANYONE ELSE.

HOWEVER, NOW THESE COMPANIES ARE TAMPERING WITH AN INTANGIBLE AND JEALOUSLY COVETED POSSESSION, MY EARNED PRIVILEGE TO USE PART OF THE RADIO SPECTRUM. TO HELL WITH THAT! I'M LETTING THEM KNOW I DON'T LIKE IT! LET THEM GIVE AWAY ALL THE COLOR TV SETS THEY WANT. LET THEM GIVE AWAY TOY 27 MHZ RADIOS. LET THEM GIVE AWAY AM OR FM BROADCAST TRANSMITTERS. BUT, LET THEM LURE A BUNCH OF FREELOADING NINNY'S TO ONE OF MY HAM BANDS WITHOUT EVEN A HINT OF THE ACCOMPANYING RESPONSIBILITIES AND I GET Madder THAN HELL! JOE, WASTRS

ACOUSTIC-COUPLED TONE GENERATOR

WITH THE ADVENT OF "DO-IT-YOURSELF" TONE ENCODER KITS, I DECIDED TO BUILD MY OWN ACOUSTIC-COUPLED GENERATOR FOR USE ON THE LOCAL AUTO-PATCHES AND TONE CONTROL PROJECTS. THE KEYBOARD/ENCODER KIT WAS OBTAINED FROM AN OUTFIT IN ALBANY GA FOR ABOUT \$23.00. REFERRING TO THE SCHEMATIC ON THE NEXT PAGE, THE KIT CONTAINS ALL THE PARTS UP THROUGH THE 0.47 UF COUPLING CAPICATOR. THE KIT COMPONENTS COULD HAVE BEEN PURCHASED SEPARATELY WITH SOME POSSIBLE SAVINGS BUT I DECIDED TO BUY THE KIT BECAUSE I HAD NO CIRCUIT BOARD ETCHING MATERIALS.

THE OTHER PARTS WERE STRICTLY "JUNK-BOX". THE CHALLENGE TO THE SCROUNGE ARTIST CAME WHEN I NEEDED A TINY BOX TO PUT IT IN AND EVEN MORE TINY SPEAKER THAT WOULD FIT THEREIN...IDEALLY, THE CASE WOULD BE THE SAME SIZE AS THE KEYBOARD. THE ONE I SETTLED ON IS LAFAYETTE BAKELITE UTILITY CASE 99-80772. IT MEASURES 2 1/4 X 3 X 1 1/8 INCHES. A TWO INCH SPEAKER WILL NOT QUITE FIT INSIDE THIS CASE WITHOUT ALTERATION OF THE CASE OR SPEAKER OR CASE SO YOU MIGHT AS WELL SAVE SOME TIME AND LOOK FOR A 1 1/2" SPEAKER. THE SPEAKER IS MOUNTED ON THE INSIDE BACK OF THE CASE. WHEN YOU ARE FINISHED YOU MIGHT GLUE A PIECE OF FOAM TO THE BACK OF THE CASE TO PREVENT RATTLING SOUNDS FROM BEING CAUSED BY CONTACT BETWEEN THE CASE AND MICROPHONE.

THERE IS ONE CRITICAL PART IN THE CIRCUIT WHICH WILL NEED TO BE TAILORED TO MATCH THE TRANSISTORS SELECTED. BECAUSE OF VARIATIONS IN TRANSISTOR PARAMETERS, THE BIAS MAY HAVE TO BE ADJUSTED BY ALTERING THE VALUE OF THE 68K RESISTOR. WITH NO INPUT, POT WIPER AT GROUNDED END, BIAS ON THE INPUT AMPLIFIER SHOULD BE ADJUSTED TO YIELD A QUIESCENT VOLTAGE OF 4-4.5 VOLTS DC AT THE COLLECTOR OF

ESTIMATING COMMUNICATION RANGE ON VHF/UHF

HAS A NON-AMATEUR EVER ASKED "HOW FAR CAN YOU TALK ON THAT HAM RADIO THING"? YOU WOULD BE SAFE IN SAYING "GIVEN THE RIGHT CONDITIONS, I CAN TALK EXACTLY HALF WAY AROUND THE WORLD, IN ANY DIRECTION." THAT SHOULD SATISFY HIM. HOWEVER, IF YOU ARE DISCUSSING IT WITH ANOTHER AMATEUR, YOU MIGHT WANT TO GET A LITTLE MORE TECHNICAL.

ON VHF AND UHF, THE COMMERCIAL BOYS HAVE BEEN ESTIMATING RANGE FOR CUSTOMERS FOR A LONG TIME. THINKING THAT THE EFFECT OF SOME OF THE VARIABLES SUCH AS ANTENNAS, TOWER HEIGHT AND POWER, AND THEIR INTER-RELATIONSHIPS MIGHT BE INTERESTING, I EXTRACTED SOME OF THEM FROM A SALES AID PROVIDED BY ANTENNA SPECIALISTS CO, FOR PRESENTATION HERE.

FACTORS EFFECTING MAXIMUM RANGE OF A ONE WAY RADIO TRANSMISSION AND RECEPTION INCLUDE TRANSMITTER POWER, TOWER HEIGHT, FEEDLINE LOSS, ANTENNA GAIN OF BOTH ANTENNAS, TERRAIN AND SURROUNDING BUILDINGS, VEHICLE NOISE AND RECEIVER SENSITIVITY.

ANYONE WHO HOLDS AN AMATEUR LICENSE UNDERSTANDS THE CONCEPT OF DB SO IF WE QUANTIFY EACH OF THESE FACTORS IN TERMS OF DB, OR EQUIVALENT, ALL THE FACTORS CAN BE ADDED AND THE RESULTS CONVERTED TO EXPECTED RANGE.

NORMALLY, DB EXPRESSES A RATIO OR COMPARES TWO QUANTITIES. IN THIS EXERCISE WE WILL ASSUME ABSOLUTE VALUES SO LET'S CALL THEM RANGE FACTORS, AS ANTENNA SPECIALISTS CO. DOES, OR "RF'S" FOR SHORT, CAUSE MY TYPEWRITER DOESN'T HAVE A LOWER CASE D SO I CAN'T SPELL DB CORRECTLY! ASSUME AN RF FOR EACH OF THE FOLLOWING:

TRANSMITTER POWER-USE DB AS REFERENCED TO ONE WATT. FOR EXAMPLE:

WATTS:	1	5	10	25	50	100
RANGE FACTOR:	0	7	10	14	17	20

TOWER HEIGHT-USE THE FOLLOWING TABLE

HEIGHT-FEET:	25	50	75	100	150	200	300
RANGE FACTOR:	12	18	21	24	27	30	33

FEEDLINE LOSS-USE THE ESTIMATED FEEDLINE LOSS IN DB. ASSIGN THIS RANGE FACTOR A NEGATIVE VALUE OR SUBTRACT IT FROM THE TOTAL RANGE FACTOR. FOR LACK OF BETTER DATA, ASSUME LOSS OF 1 DB PER 100 FT AT 6 M, 2.5 DB PER 100 FT AT 2 M AND 5 DB PER HUNDRED FT AT 70 CM, IF YOU ARE USING RG-8.

ANTENNA GAIN-ADD THE ANTENNA GAIN, IF ANY, OF BOTH BASE AND MOBILE ANTENNAS.

TERRAIN-PICK ONE OF THE FOLLOWING, AS APPROPRIATE:

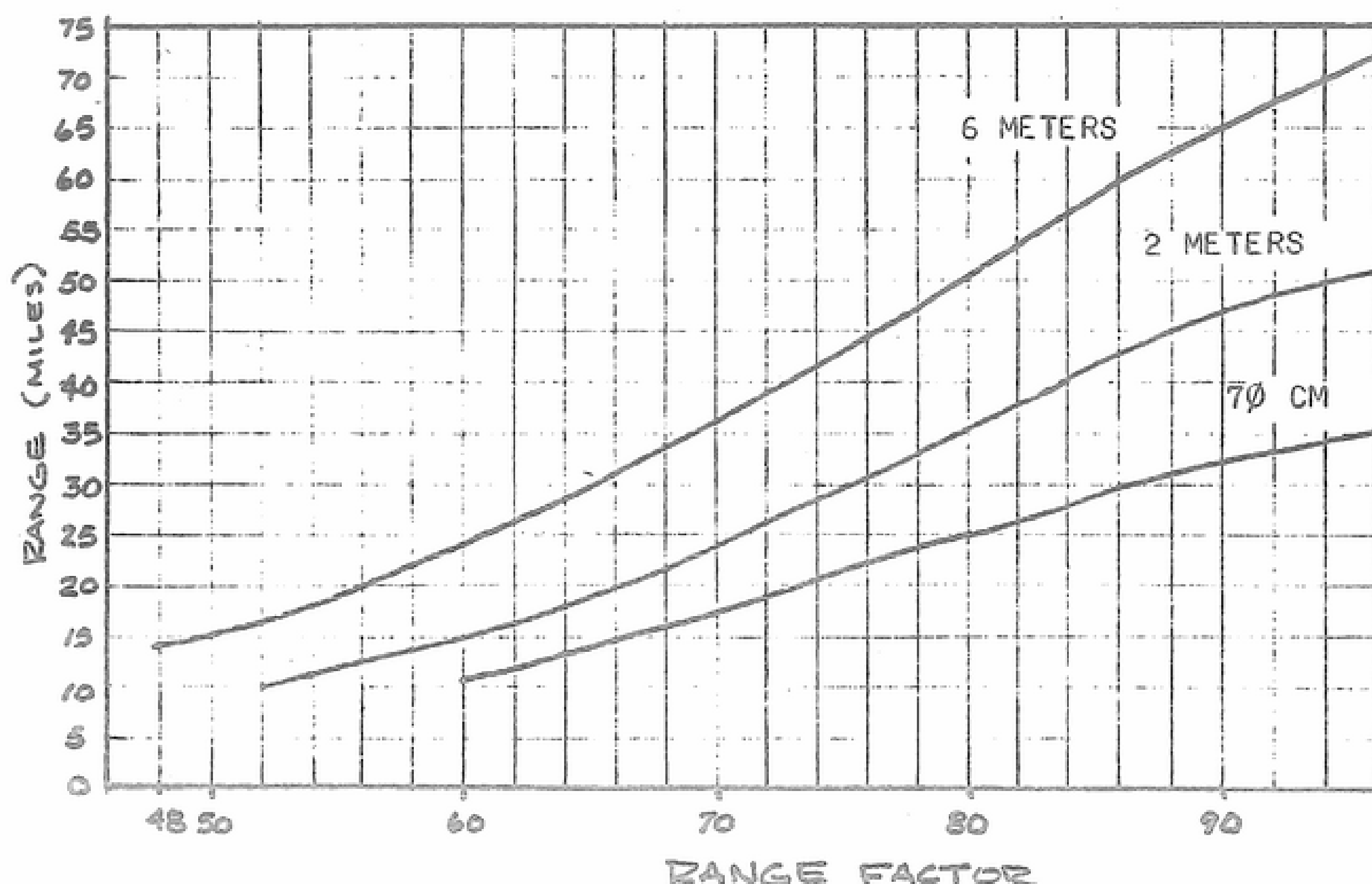
	SUBURBAN	URBAN	INDUSTRIAL
HILLY TERRAIN	-2	-4	-6
FLAT TERRAIN	0	-2	-3

VEHICLE NOISE-HERE IS WHERE SOME JUDGEMENT IS NEEDED. THE ESTIMATING GUIDELINE DOES NOT HAVE A NEUTRAL CONDITION, ONLY A DETRACTION OR ENHANCEMENT. IT SAYS ADD 3 IF VEHICLE HAS NOISE BLANKET, WHATEVER THAT IS, AND SUBTRACT 3 IF THE VEHICLE HAS NOISE. I WOULD IGNORE THIS FACTOR UNLESS THE VEHICLE IS A FORD OR IT IS RUNNING DOWN SUNNYLANE. HI.

RECEIVER SENSITIVITY-USE THE FOLLOWING TABLE

SENSITIVITY, MICROVOLTS:	.25	.5	1.0	5.0	10
RANGE FACTOR:	30	27	24	14	6

AFTER ALL THE RANGE FACTORS HAVE BEEN SELECTED, ADD THEM UP, REMEMBERING TO SUBTRACT THOSE MINUS NUMBERS THAT REPRESENT LOSSES. USE THE GRAPH ON THE NEXT PAGE TO CONVERT THE RANGE FACTOR TO RANGE. I TRIED A FEW CASES AND THEY SEEMED REASONABLE BUT I AM SURE THAT IN AMATEUR PRACTICE OF STRETCHING THE STATE OF THE ART, OR THE TRUTH AS THE CASE MAY BE, ACTUAL RANGE MAY BE SOMEWHAT MORE.



THE ABSOLUTE VALUE OF RANGE FACTOR IN THIS EXERCISE MAY BE SUSPECT BUT THE COMPARATIVE VALUES BEAR STUDY. NOTICE, FOR EXAMPLE, THE EFFECT OF TOWER HEIGHT. AN INCREASE IN HEIGHT FROM 25 FT TO 50 FT RESULTS IN A 6 DB IMPROVEMENT, JUST THE SAME AS INCREASING THE TRANSMITTER POWER FROM 10 TO 40 WATTS, OR INCREASING RECEIVER SENSITIVITY FROM 1 TO .25 MICROVOLTS. I AM NOT SURE I CAN EXPLAIN THE LATTER BECAUSE SUPERFICIALLY, IT LOOKS LIKE THAT INCREASE IN SENSITIVITY WOULD BE 12 DB. OH WELL, WHAT DO I KNOW? JOE, WA5TRS

BATTERY TRIVIA

AS I REPORTED LAST MONTH, I HAVE BEEN EXPERIMENTING WITH REJUVENATING SHORTED NI-CAD BATTERIES. SPECIFICALLY, K20AW REPORTED IN JANUARY 73 THAT SOMETIMES SHORTED NI-CAD CELLS COULD BE RESTORED BY PLACING A SURGE OF HIGH CURRENT THROUGH THEM, THE THEORY BEING THAT WHISKERS, OR CRYSTALS, WHICH HAD FORMED INTERNALLY, HAD SHORTED THE ELECTRODES. THE HIGH CURRENT WAS SUPPOSED TO MELT DOWN THE SHORT CIRCUIT.

MY FIRST EXPERIMENTS WERE ON A 12V, 4AH BATTERY CONSISTING OF 10 CELLS AND INTENDED TO RUN A PORTABLE VIDEO TAPE RECORDER. WHEN I STARTED, NINE CELLS WERE SHORTED. EACH CELL WAS SUBJECTED TO A CURRENT PULSE IN THE ORDER OF 100 AMPERES FOR A FRACTION OF A SECOND. THE HIGH CURRENT WAS USED AFTER ATTEMPTS AT 40A WERE UNSUCCESSFUL. NEEDLESS TO SAY, THE CURRENT PULSING WAS DONE WITH CONSIDERABLE CAUTION. THE CURRENT SOURCE WAS A 6V LEAD ACID BATTERY IN AN EMERGENCY LIGHTING UNIT.

THE SHORT TERM RESULTS WERE FAIRLY GOOD. WHEN DISCHARGED INTO A CALIBRATED LOAD, THE LAMPS IN THE EMERGENCY LIGHT WIRED IN SERIES TO GET 12V CAPACITY, THE BATTERY SHOWED ABOUT 70% OF THE 10 HOUR CAPACITY, WHEN DISCHARGED AT THE ONE HOUR RATE, WHICH IS ABOUT CORRECT. TWO OF THE CELLS, HOWEVER, RAN DOWN BEFORE THE REST AND WHEN VOLTAGE ON EACH CELL HIT ZERO, IT SHORT CIRCUITED AND HAD TO BE BURNED OPEN AGAIN.

SEVERAL RECHARGE-DISCHARGE CYCLES LATER, THE BATTERY WAS SHELVED FOR A WEEK TO SEE WHAT WOULD HAPPEN. UPON REOPENING INVESTIGATION, THE OPEN CIRCUIT VOLTAGE WAS MEASURED AND FOUND TO BE ABOUT 6 VOLTS. CRAP! OH WELL, SO MUCH FOR THAT. I'LL REPORT FURTHER PROGRESS, IF I'M SUFFICIENTLY STRICKEN WITH CURIOSITY TO WASTE SOME MORE OF MY

VALUABLE LOAFING TIME ON THAT PARTICULAR BATTERY.

MEANWHILE, BACK ON THE WORK BENCH, A HT-22Ø BATTERY, WHICH HAD BEEN DISASSEMBLED BY MIKE, WASEPK, WAS BEING KICKED AROUND, ALTHOUGH WITH A LITTLE LESS CURRENT. THE BATTERY CONSISTED OF NINE CELLS OF 45ØMAH CAPACITY. THREE CELLS HAD BEEN ABSCONDED BY THE PREVIOUS OWNER AND TWO OF THE REMAINING NINE WERE SHORTED OUT. A COUPLE OF PUNCHES FROM A 2.6 AH, 6V GEL-CELL CLEANED OUT THE TWO SHORTED ONES. THE CELLS WERE REARRANGED INTO A 3 X 3 MATRIX AND A TENTH CELL, OF THE AA VARIETY, ADDED TO THE SERIES STRING.

THIS BATTERY IS NOW RESIDING IN MY MIDLAND HAND HELD AND LIVING HAPPILY EVER AFTER, I HOPE. SPURRED ON BY MY RECKLESSNESS, MIKE HAS ZAPPED A COUPLE OF HT-22Ø BATTERIES BACK TO LIFE BY PUTTING ABOUT 24 VOLTS ACROSS EACH ONE MOMENTARILY. AT LAST REPORT THEY WERE HOLDING UP.

A METHOD FOR NON-DESTRUCTIVE SOLDERING TO THE NI-CADS WAS DISCOVERED. A LIQUID FLUX USED FOR SILVER SOLDERING WAS APPLIED WITH A Q-TIP TO THE END OF THE BATTERY TO BE SOLDERED. A HOT SOLDERING IRON CONTAINING A MOLTEN SOLDER BLOB WAS TOUCHED TO THE ACID VAPORIZING IT. WHEN THE METAL SAW THIS, IT IMMEDIATELY CAME CLEAN, GOT HOT, AND DREW MOLTEN SOLDER FROM THE IRON, TINNING THE BATTERY. A NEARBY FINGER, WHICH HAD BEEN PREPARED BY LIBERAL APPLICATION OF SPITTLE, WAS QUICKLY USED TO QUENCH THE SOLDER. THE MORE FASTIDIOUS MIGHT WANT TO DIP HIS FINGER IN HIS BEER INSTEAD. IT WOULD PROBABLY WORK AS WELL. AFTER REMOVING TRACES OF THE ACID WITH A DAMP CLOTH, CONNECTION TO THE CELL WAS MADE BY SWEATING A SUITABLE CONDUCTOR, ALSO TINNED, TO IT. NONE OF THIS SOLDERING SEEMED TO GET THE CELL WARM ENOUGH TO GENERATE INTERNAL STEAM OR DAMAGE THE SEALS.

STILL ON THE SUBJECT OF BATTERIES, BUT TURNING TO A LITTLE DIFFERENT TYPE, I HAVE BEEN LOOKING FOR INFORMATION ON LEAD ACID BATTERIES USING CALCIUM TO ALLOY THE GRIDS RATHER THAN ANTIMONY. IN POPULAR MECHANICS FOR FEBRUARY, THERE IS AN ARTICLE "ALL ABOUT BATTERIES" THAT TELLS A LITTLE ABOUT BATTERIES. IT MENTIONS THAT "MAINTENANCE FREE" BATTERIES USE LEAD-CALCIUM GRIDS AND THAT IS WHY THEY DON'T OUTGAS HYDROGEN AND OXYGEN WHEN CHARGING. MANUFACTURERS OF THESE BATTERIES INCLUDE GOULD, GLOBE-UNION, PRESTOLITE, ELECTRIC STORAGE BATTERY AND GENERAL BATTERY CORP. I ASSUME THE JC PENNY BATTERY USES A LEAD-CALCIUM ALLOY. A PICTURE OF THE DELCO "FREEDOM BATTERY" SHOWS THAT IT IS SEALED AND HAS THE ADDED FEATURE OF A BUILT-IN STATE-OF-CHARGE INDICATOR. THAT SHOULD BE USEFUL IF ONE WAS TO BE USED AS A STANDBY POWER SUPPLY OR BENCH POWER SUPPLY.

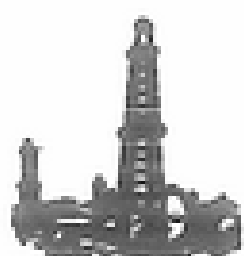
IT HAS BEEN MY UNDERSTANDING THAT LEAD-ANTIMONY BATTERIES WERE DESIGNED TO WITHSTAND DEEP DISCHARGE, LIKE MIGHT BE EXPERIENCED ON AN ELECTRIC FORK LIFT, OR A TRANSCIEVER BEING OPERATED AWAY FROM THE POWER MAINS. THE LEAD-CALCIUM BATTERIES, I THOUGHT, WERE BEST FOR FLOAT CHARGE DUTY, LIKE YOU MIGHT FIND IN EMERGENCY LIGHTS OR IN AN AUTOMOBILE STARTING BATTERY APPLICATION.

WHAT I WOULD LIKE TO KNOW, IS WHAT HARM WOULD BEFALL A LEAD-CALCIUM BATTERY IF IT IS TAKEN DOWN TO DEEP DISCHARGE IF IT IS RECHARGED BEFORE SULPHATION CAN OCCUR? ALSO, I WOULD LIKE TO KNOW IF GEL-CELLS AND GATES CELLS ARE LEAD-CALCIUM ALLOY. IF SO, DOES IT HURT THESE THINGS TO DISCHARGE THEM WAY DOWN BEFORE RECHARGING? JOE, WASTRS

THINGS THAT MAKE ME FEEL REAL STUPID-DEPT.

HOW ABOUT WORKING SPARE TIME FOR SEVERAL WEEKS TRYING TO BREADBOARD A 5ØØ MW 2M TRANSMITTER FOR MY MOTORCYCLE BURGLAR ALARM ANG GETTING ONLY ONE MW OUT OF IT?

THEN, HOW ABOUT BUILDING THE STAR TREK COMMUNICATOR FEATURED IN A RECENT ISSUE OF 73 AND SPENDING THREE EVENINGS TRYING TO GET IT TO WORK? JOE, WASTRS



MID-OKLAHOMA REPEATER INC.

The Long WIRE

h. o. townsend, WA5MLT
President, MORI

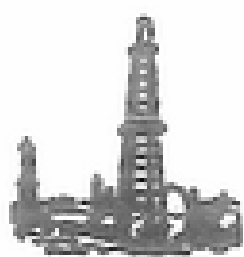
If you will recall last month, I mentioned I had quickly chosen the title for this column. To briefly continue, a few nights after the February edition was released, I talked to Wally, W6BHM, on 75-meters who ask for a signal report as he tried several antennas. To make a long story even shorter, his best signal, into Oklahoma at least, was from his 1,000-foot LONG WIRE antenna. Wally says 1,000 feet yields about four wavelengths on 75 making it quite directional. The antenna is strung across a canyon next to his QTH in Oroville, California. Since talking to Wally, I have to my surprise, talked to several who use long-wire antenna arrangements. Incidentally, the first antenna I used as a Short Wave Listener was a 1/2-wave long-wire antenna for 75 in 1958. So on to subjects closer to home.

Several days after our February meeting, it was learned that Hank, W5TF, was missing in his light-plane. After some checking by the authorities, it was further learned that he may have been operating his 2-meter rig air-mobile. Soon a general call went out to all Amateurs to see if someone had talked to him. The sad part is we still have not heard from him. However, thanks to all for making such a fine effort to help the CAP and the immediate family in trying to locate him: Charlie, WA5JGU; Mac, K2GKK/5; Tom W5OZE; Jerry, W5MCJ; Bill, WA5RAQ; Ken, WA5DTL and many others whose call I do not remember. True, the Rules and Regulations say we have an obligation to serve the public, but it still gives you a sense of pride to know you have tried to help someone in need.

I would like to thank Dr. Bill Cronenwett, W5TPJ, for the program on Phase Lock Loops at the February meeting. I must, at the same time apologize for not getting the program started earlier. However, the club did have some important issues to cover.

The program for the March meeting will be presented by Dr. David Huttner and is entitled "Energy Policy, Present and Future." David is associated with the Center for Economic Management and Research at the University of Oklahoma. The meeting will be held at 8:00pm March 9, 1976 in the Oklahoma Military Academy, 3501 NE Military Circle. The meeting will be open to the general public so urge friends to attend. The program will be presented first, then the business session.

During the January meeting, Ron, WA5EAI, approached the club concerning the possibility of a new receiver for the 146.34-MHz site. On January 20 the Executive Committee took the idea under advisement and after some researching for the need, pricing, and funding, decided to propose to the club that we purchase a new receiver. The club overwhelmingly voted at the regular meeting to buy an RCA receiver. The receiver will be factory tuned for 146.34-MHz



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continued-

and will include power supply, crystal, and COR circuit. The receiver has been ordered and should arrive sometime during the last part of March. This purchase is certainly going to increase our quality and consistency of operation.

The February meeting also included a discussion of the 146.16/76-MHz repeater offer by the western electric club. The discussion started with a proposal from the Executive Committee. The Committee suggested to the club that we make a counter-proposal stating in part that MORI would install a repeater on 146.16/76-MHz of low power (1-watt) but would not immediately include autopatch equipment. Frank, W5PDH, stated the original planned site and trustee offer was no longer available. In short, the club voted to ask the feasibility committee to continue to seek a possible location. If you know of a possible site and/or trustee you might contact one of the committee members, Ken, K5VVZ; Frank, W5PDH; or Larry, WB5LTI.

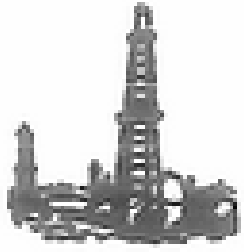
Frank, W5PDH, our CORA representative, gave the club a report on the first CORA meeting of '76. Frank announced that Ham Hoilday will be held this summer. Someone suggested that CORA coordinate Ham Holiday with the North Texas VHF Society so that both hamfests do not conflict. Joe, WA5ZNF, said he has tried; however, to no avail. Frank added, MORI will be responsible for the prizes. The club voted to contribute \$150.00 to CORA's general fund to help get the planning underway. For this, we will need to establish a committee. Please contact Frank or myself, H. O., WA5MLT.

CORA is also preparing to open the Collector-Emitter to advertising. The advertising will help offset the monthly cost of mailing and printing. Frank also indicated, we need to select two members to seek advertisers. This is another golden opportunity to serve the club and Amateur Radio.

Inconclusion, CORA is requesting each of the participating clubs to designate two additional members to attend the CORA meetings. In general this will add strength to CORA and provide a broader base from which committees can be established and officers elected. CORA elections will be held in September following Ham Holiday.

Field Day 1976. Will MORI participate? If so, do we want to enter by ourselves, or participate possibly with another club?

Ken, WA5DTL, our Public Relations Director, reported to the club last month he was successful in having our meeting announcement published in one of the Oklahoma City newspapers. As I prepare this article, the XYL tells me we have received the Public Service announcements from ARRL Headquarters. Hopefully, we will soon have some of these on radio and television in the Oklahoma City area. I have also talked to Bob, W4GDY, Mobile, Alabama, and Bob reports



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continued-

there is a source for obtaining a series of video-taped public service announcements. Who knows, we may be able to obtain a copy.

Last December, Tony, WB5PNH, ask me about the possibility of someone in the Oklahoma City area coordinating stolen equipment reports. First of all, Tony I apologize for not getting the idea into print before now. Nevertheless, it seems like our area should have some central point for reporting stolen equipment. To my knowledge we do not. Joe, WA5TRS; Sid, W5KOZ; and several others reported stolen rigs during November and December. Apparently the rigs lifted were mistaken for what use to be called 11-meter gear. We all need to take advantage of Operation ID. If someone would like to coordinate a stolen equipment effort, contact Tony, WB5PNH.

Smokey reports have been heard on 2-meters. Enough said. Who me?

Several have ask about code pratice schedules and programs for those who would like to up grade. I have also thought this would be a great idea. At first I thought it might conducted though a repeater; however, possibly simplex would be better. Which ever way it might be handled, it would be a tremendous educational help to all of us. As an Amateur Radio club, we should give serious thought to this. Our club has some real cracker-jack CW buggggggs.

I suppose I had better close for now and get back to my Worked All States BiCentennial effort. Hello CQ WAS BiCennial looking for Alaska, Delaware, Mississippi, Utah, and Oklahoma. Won't somebody sent me a QSL from Oklahoma? You are 5 and 9, 59, 5 by 9, go.

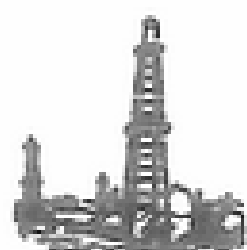
See you at the March meeting.

Is AMATEUR RADIO Getting Too Technical, or...

Not long ago while standing around the OU ham-shack, W5TC, I picked up an old copy of the ACARC Collector-Emitter and started reading. The basic theme of the article, whose title and author I have not been able to relocate, centered around the new innovations in equipments and generally the impact that these technical advances would have on the Amateur Radio Service in years to come.

Here we are some three or four years later and as I continue to read, I see the same question, "is Amateur Radio getting too technical," still a topic of discussion. At least some readers of QST think so according to the January and February editions.

I suppose the subject is more of a rag-chew QSO topic, but here are some points to think about.



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Many years ago when the FCC and Amateurs formed the Amateur Radio Service, they recognized the fact that certain fundamental principles needed to be drafted. The principles were needed for many reasons, some of which were to serve the public interest, provide a hobby for those who could not travel, hunt, or fish, and promote research and development in electronics. All of these principles through the years have certainly contributed life supporting blood to the fraternity. It is very difficult to say that one principle is more important than the other; however, let us consider the research and development aspect or as Part 97 of the Rules and Regulations states, "the improvement of Technical phases of the radio art and intercommunication thereof."

Too technical, personally I do not think so. By the same token, I realize not everyone has a back ground in communications or electronics. And this is not to say I understand all of the technical articles I read. Nevertheless, I do feel we have a responsibility to contribute to the advancement of the state of the art.

For example, where would we be today without this impressive list of Amateurs: Alessandro Volta who experimented with various forms of electrical energy; Thomas Alva Edison who invented the phonograph and who also improved the telegraph operations and incandescent lamp; Heinrich Rudolf Hertz who expanded Maxwell's electromagnetic theory and who studied the behavior of electrical and light-waves; mathematician André-Marie Amperé; Lee DeForrest, M. Faraday, E. H. Armstrong and the list goes on.

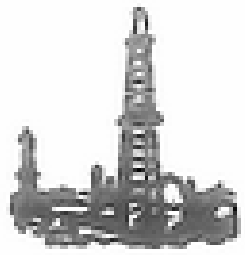
These men certainly felt a responsibility to further the state of the art. But also they understood the necessity and importance of the intercommunication or documentation of their works and sharing their findings with future generations.

It seems to me this is what the authors of the Technical articles in QST and related publications are trying to do. Especially the new column in QST for us beginners.

Why then don't we take the hint these fellow Amateurs are trying to give us. Construct these circuits and in so doing use our imagination and try to improve on the basic idea. Is it because we are too busy to search for parts, economic reasons, merchandising by the large companies, or lack of interest or laziness on our part. I am sure there are many reasons; however, what ever the reasons are, we do, as the Rules and Regulation state, have a responsibility.

Who then, will be our next Sir J. A. Fleming, William Gilbert, George Simon Ohm, or James Watt.....

H. O. Townsend, WA5MLT



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From the SECRETARY.....

The February meeting was opened at 2004 by H. O., WA5MLT, President. Members and guests were welcomed.

After the self-introductions, the minutes from the January meeting were read, voted on and approved as read.

The club next heard the Executive Committee report on the need for a new .34/94 receiver. The club as a result voted to buy a new RCA receiver and limited the buy to \$600.

The club then discussed the western electric club repeater offer. In summary, the club did express a positive interest in keeping the 146.16/76-MHz frequency pair available and open to Amateurs in the area. The club voted to continue to study the feasibility.

Frank, W5PDH, gave a very fine report on CORA activities. The club voted to advance CORA \$150 to get this years Ham Holiday under way.

MORI was thanked for the token of expression it gave to the widow of W5TNW.

Coffee break.....

H. O. announced the KLM amplifier was back from the manufacturer. The Executive Committee suggested the club sell it. The motion was made, seconded, voted on and passed. Sid, W5KOZ, trustee of the .34/94-MHz system is in charge of the sell.

Al Prince, WB5KCU, invited everyone to the ACARC meeting and Tom, W5OZE, likewise invited all to attend the Oklahoma Central VHF Radio club meeting. It was also announced the EOC, WB5KMD, would be open every evening on .07/67-MHz for accident reports.

The program was then turned over to Bill Cronenwett, W5TPJ, who gave a very fine talk and lecture on PLL's and several different projects using PLL's.

The meeting was closed at 2236.

John Huckaby, K5QDR
Secretary/Treasurer

Are you an active member, the kind that would be missed
Or are you just contented that your name is on the list?
Do you attend the meetings and mingle with the flock,
Or do you stay at home and criticize and knock?
Do you ever work on committees to see there is no trick,
Or leave the work to just a few and talk about the clique?
So come to meetings often and help with hand and heart,
Don't be just a member but take an active part.

Bill, WA5RAQ



GREETINGS TO CORA! On the February 10th meeting of the OU Amateur Radio Club, members present voted to join CORA and contribute to the CORA Collector and Emitter. Although most of the members of the OU ARC reside in and around the Norman area, it was felt that Oklahoma City area hams would benefit from news recieved of OU ARC activities. Also OU club members will now be able to recieve OKC amateur news. We hope you enjoy reading the OU ARC section and that our association with CORA will be a long and fruitful one for all! WB5EEY/5

SEVERAL ITEMS OF INTEREST FROM THE FEBR. 10th MEETING...
THE OU ARC REPEATER (146.28-.88) will now be supported by the club through member's club dues. The autopatch will be supported by donations from users. This policy was adopted as it was seen that the autopatch equipment, phone lines, etc. are the greatest cost in maintaining the repeater. For those interested in supporting the autopatch facility, the OU Amateur Radio Club is accepting donations of \$10.00 to cover the cost of yearly upkeep of the autopatch.
ALSO VOTED ON BY CLUB MEMBERS AT LAST MEETING was a dues increase. In the past, dues have been \$2.00 a semester or \$4.00 per year. Because the club supports such things as the club station, W5TC, Field Day, and the licensing classes, and with the repeater now being maintained by OU ARC, it is felt that the current club dues are insufficient, and a raise in dues to \$8.00 per year or a student rate of \$4.00 per semester will be implemented. The dues will be paid by the calendar year, so that dues for this semester will be retroactive to January 1st, 1976.
IT WAS APPROVED IN THE SAME MEETING TO APPROPRIATE A MAXIMUM OF \$40.00 TO COVER THE cost of needed parts to repair the SB-200 linear amplifier the club has acquired. A check will be sent to Heath Co. for the Parts.

THE CLEVELAND AND MCCLAIN COUNTY SIMULATED EMERGENCY TEST ON JAN. 31 went off smoothly with many area amateurs and local officials participating. The simulated emergency was an ice storm causing downed power and phone lines and impassable roads. Washington area amateurs WA5PPA and WB5CPA effected the communications necessary to transport a woman in labor from Washington to Norman Municipal Hospital with WA5KQB contacting the Air National Guard in Lexington to provide the helicopter transport. Other communications were maintained with American Red Cross in Okla. City, Norman Hospital, Norman Emergency Operating Center, and Cleveland Co. Red Cross. The SET went very well this year with only minor needed improvements noted.

W5MCJ, Cleveland Co. EC

THANKS TO BILL BRODY, K3TGY/5, the club now has the makings for RTTY operation on HF and VHF. Bill very graciously donated a set of three PC boards which includes the ST-5 teletype demodulator, its power supply, and the AK-1 oscillator which gives us the capability for AFSK (Audio Frequency Shift Keying). The parts required are minimal and not too hard to obtain. We will probably be asking some of ya'll for help in wiring up the circuits and in acquiring parts. This converter, in conjunction with the Model 28 KSR printer the club owns, the SB102 HF rig and Heathkit 2 meter transceiver in the club station, should put W5TC on RTTY soon, and will introduce this exciting mode of operation to many club members.

SPEAKING OF THE 2-METER RIG..... You may remember in one of the club bulletins last semester that a power supply for the converted Heathkit VHF-FM marine mobile rig was being built up. The power supply project has been reestablished and said power supply is on its way towards completion. Many of the club members, especially students who may lack a 2-meter station, will then be able to operate 2m-FM from the club station as soon as the power supply and rig are checked out and ready to go..... IT WON'T BE LONG NOW!!!

OU Amateur Radio Club membership is not limited to OU students and faculty. In fact, many of the club members are not, or have never been part of the OU community. If you are interested in friendly fellowship with other amateurs, good programs, or would just like to help support the OU ARC's programs, we welcome you to join. OU Amateur Radio Club meetings are held on alternate Tuesdays (which means some months may have three meetings scheduled) at 7:00 PM in either room 160 or 161 of the Memorial Student Union. The Union is about a half block south of Boyd St. on the west side of Asp St. If any further information or directions are needed, call on the .28-.88 repeater.

CONGRATULATIONS TO NEW NOVICE WN5RKQ, JAMES JONES

LICENSING CLASSES for those working on their Novice and General tickets are being sponsored by the OU ARC with about 25 enrolled. The classes have been going very smoothly with three lessons completed. Instructors are Mike Salem, Paul Thompson, and John Loffland with James Jones helping on CW practice. The lesson plans are those prepared by Joe WA5TRS and have been used in conjunction with OKC club licensing classes.

Those attending the courses are:

Tom Benjamin	Fay Evans	Jeri Johnson	Jess McKenzie	Floyd Reid
Jack Cobb	Judy Green	James Jones	Ralph Moulton	Robbie Reid
John Dunn	Phil Johnson	John Loffland	Mike Nealon	Joe Shirley
James Dubois	Brett Johnson	Lowry McKee	Fred Noble	R.D. Brown
Mike Holt	Charles McCown	Joe Peach	Glen Turner	Andrew Zelby

HOPE YOU ALL MAKE IT !!!

THE CLUB STATION W5TC, is located on the fourth floor of the Engineering Center in room 419. The Engineering Center is on the north side of campus at the corner of Asp and Boyd Streets. Present equipment includes an SB-102 5-band SSB transceiver, the Heath 2-meter rig, a Collins R-390A receiver, another Collins receiver, a freq. meter, tube tester, VOM, several hand keys, two bugs, Teletype Corp. model 14 and model 28KSR printers. Antennas include the five band trap dipole that is in use now, two baluns and a 3-element tribander beam (TH3MK3) on which plans are being made to put on top of the EC roof. Much of this equipment is not in use at the moment and all of it needs to be checked for needed repairs and put back into service. The club station itself is in disarray and needs to be organized. Would you want YOUR station to look like such a mess? Seriously, a job is available to someone who can help get the station back to the point where we can be proud to show it off to visitors, new students on campus, etc. YOU may be just the one for the job. Full support of the club is available to whoever will take it upon himself to get the station back into operating order.

BESIDES THE EQUIPMENT LISTED ABOVE, the club maintains a library of amateur books and magazines such as recent handbooks and QST magazines by ARRL, RTTY and Slow-Scan Handbooks by 73 Magazine Press, License manuals and study guides, and semiconductor handbooks. Also, we thank H.O. WA5MLT for his recent gift of a 1976 Callbook to the OU ARC. These books are all up in the club station for your "reading enjoyment".

NEWS OF FUTURE AMATEUR RADIO CLUB MEETINGS....

The meeting which would have been held on March the 9th, will be moved up a week to March the 16th since many of us will have headed for home over OU's spring break which, incidentally, is March 6 through 14.

March 16th meeting is going to be a dandy!!! A local RC (as in Radio Control) aficionado will speak to the club on RC airplanes and (hopefully) show off some of the delightful contraptions. Several of you have asked us for a program of this sort so we're expecting a good turnout for this extra-special program!

WE ARE ATTEMPTING to gather news clippings, magazine articles, pictures, etc. of amateur radio activities together for binding in a scrapbook. This will help our publicity chairman in the writing of articles for the local news media and enable us as a club in improving our public relations abilities. Please save any amateur or CB articles you find. Shouldn't have any trouble there! We are planning on having someone experienced in public relations to speak to the club in the near future. More later.

OU AMATEUR RADIO CLUB'S OFFICIAL NAME IS ALPHA SIGMA DELTA RADIO SOCIETY. The origin of the club name will be revealed next month.

OU Amateur radio club is affiliated with the American Radio Relay League and recommends membership in the national organization to all club members. League membership is \$9.00 which includes subscription to the monthly magazine, QST.

IN FUTURE ISSUES OF THE CORA C AND E, WE HOPE TO PRINT A COLUMN GIVING A LISTING OF ALL ACTIVE REPEATERS IN CENTRAL OKLAHOMA. PLEASE HELP US IN CARRYING THIS COLUMN BY SENDING ANY INFORMATION YOU MAY HAVE ON REPEATERS IN THE AREA TO OU Amateur Radio Club, 202 W. Boyd, Room 217, Norman 73069 or call Paul 321-6265.

MOBILE RADIO IN 1938

During summers in the late 30's my teenage friends and I would get together a lot and trade radio parts and work on our amateur equipment. We built and experimented all the time. One of our favorite activities was to conjure up some 5 meter equipment and set up an amateur station in one or two of the available cars.

A mobile installation was usually placed on the back seat and floor. A technician/operator sat in the middle. Around him was placed the various units. He was able to reach all the equipment. If someone yelled at him that something was wrong, or if he saw sparks or smoke, he went to work.

The equipment was modularized because we never did get all the stuff assembled into a unit. Besides, open like this, we could modify (or repair) it more easily. Our frequency was somewhere in the 5 meter (56 to 60 Mc) band. All mobile units were home brew. One chassis was the RF section of the transmitter - a 5 meter self-controlled oscillator. The deluxe version might have a push-pull amplifier using a twin triode. We employed plate modulation using a pentode tube in a Heising circuit. We might get as much as 5 watts input to the oscillator or amplifier. The output would usually light a flashlight bulb. Other modules, sometimes on a pine board, were a superregenerative receiver and the modulator. A slight circuit change in the one tube receiver would convert it to an oscillator. A carbon microphone connected to a 1 or 2 turn loop coupled to the coil provided modulation. This device was called a transceiver. Headphones provided further economy and explains why we were always yelling at each other. Also we needed to get enough modulation. One or both of our stations usually consisted of such a transceiver.

We didn't have push-to-talk, but there were several switches to accomplish the transition. Sometimes one of the changes between transmit and receive involved moving a wire from one point to another.

The antenna was quite often a wire that was mounted on a bamboo fishing pole. The wire might be used to pull the pole into a bow. Fastening the pole to a car was easy. The bumpers, horns, headlights, and door handles projected from the car several inches. Cords, light rope or another bamboo pole was used to brace the antenna in a generally vertical position. A vehicle so equipped attracted a lot of attention. Instead of a rubber duckie, we had a bamboo giraffe.

There were occasions when we could only transmit or receive in the vehicle, the one way transmission being completed at one of our houses. The mobile would take a test cruise-never over a few blocks-then return to the "fixed" station to compare results. I don't know why we called it fixed. Nothing ever seemed to be fixed. However, as I recall, the cars usually worked. I think that was because we just messed with the radio equipment, not the cars. On very rare occasions we had two mobile units working at the same time. This way everyone could go and we could also cover more territory. One car would follow a block or two behind the other. Keeping close together had several advantages. We could supplement the radio link with code on the horns and by sticking our heads out the windows and shouting replies, etc.

On one memorable tour we had two mobile units in a city park. We were unable to achieve two way via the radio equipment, so the circuit was completed by horn honking. Our experiment involved directional effects, so one car was driving around in tight circles on the park grass honking replies from the parked unit. We didn't give the fashionable neighborhood on the hill around the edge of the park much thought with all our horn honking, but when the police arrived on the scene, they reminded us of the desire for tranquillity. After the cops left, we discussed our neighbors. We decided they had grown accustomed to the lions roaring and the hyenas laughing, not to mention the aroma that came from the zoo located almost under their eaves.

The police were very nice to us. They heard us on their radio as they approached, but that was OK. They didn't look for guns, dope or liquor. Bright-eyed teenage boys who worked on radio

equipment in 1938 just didn't mess with that stuff. We were asked to not honk or drive around on the grass, so we didn't.

I would often wish we had good receivers and powerful transmitters so that we might cover 2 or 3 miles, but I don't recall wanting the equipment all in one neat package because what fun would that be?

Bill, WA5RAQ

FLEA MARKET

BUY - SELL - SWAP

Commercial Rates: 5¢ per word.
No Charge to Subscribers.

FOR SALE:

Heathkit Marauder SSB Transmitter/w mike, 200-Watts PEP, 80 through 10-Meters, Used very little. Contact John Crain 842-2245 after 6pm

FOR SALE:

TR-6, 6-Meter Transceiver with Noise Blanker, home brew power supply and 5-element beam \$350. Contact Wayne Hogan, WA5AOB, 732-1870.

WANTED: Johnson KW Matchbox. Will Pay Cash. Contact Marshall WA5UNL 787-9292.

WANTED: 5inch Scope Tube. Don WA5FFK 7875189

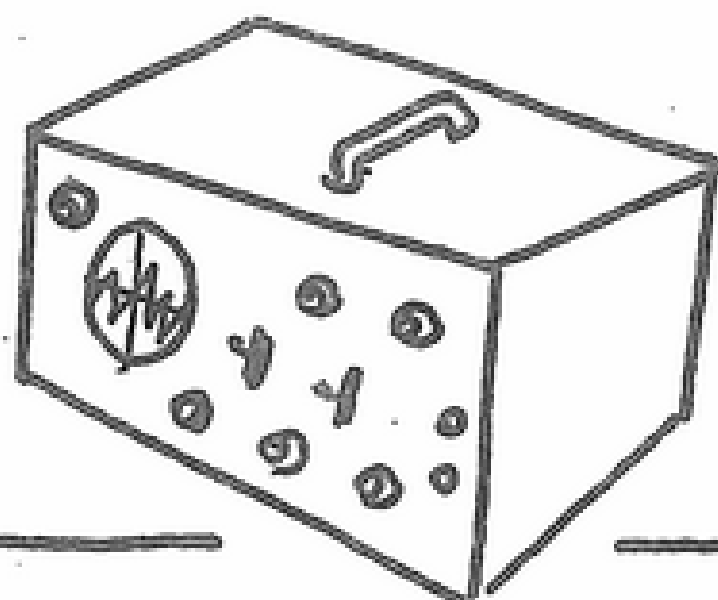
FOR SALE: JOHNSON Range Transmitter. 160-11-10 Meters. 65 wats on Phone 75 on CW. Built in VFO. \$75 Don WA5FFK 78705189

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WB5BRX

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UNLICENSED AMATEUR-LIKE ACTIVITY

Unlicensed amateur-like activity by the "HF" gang operating on SSB in the region between channel 25 and 27.5 MHz grows at an ever increasing pace. Latest report is that 10,000 each of "HF-" and "HFA-" series "calls" have been assigned to these illegal stations and they are now well into the "HFB-" numbers! With rumors abundant that Class-D CB expansion to 27.5 MHz is due out shortly, it's not at all unlikely that we'll soon find more of them than licensed Amateurs on the 10 meter band.

Amateurs can assist FCC in their efforts to cope with this illegal tide by reporting to the FCC any information they pick up listening to the HFers that might help in identifying individual operators -- some have been heard recently giving their complete street addresses for QSL purposes, and since their's is entirely illegal operation, the restrictions concerning secrecy of communications do not apply. Reports can be sent to the Engineer In Charge of your nearest FCC Field Office, but better yet would be one of the four FCC Special Enforcement Facilities with a carbon to your local EIC. Write Supervisor, FCC SEF at P. O. Box 1588, Grand Island, NB 68801; P. O. Box 65, Powder Springs, GA 30073; 2914 W. Edinger Ave, Box 5126, Santa Ana, CA 92701; or P. O. Box 36, Laurel, MD 20810.

HR Report

HIDETSUGU YAGI

Hidetsugu Yagi, Japanese radio pioneer who invented the Yagi antenna, passed away recently in Tokyo at the age of 89. Like many early radio researchers, Yagi had been an Amateur in pre-World War II days. Thanks K8ONA.

HR Report

RCA WILL STOP TUBE PRODUCTION

RCA will stop tube production and close its historic Harrison, New Jersey plant July 30. However, RCA will continue to make some types overseas and buy others from other makers so does plan to continue as a major tube supplier for some time to come.

RCA is also giving up the manufacture of TV and appliance service equipment, selling those product lines to VIZ.

HR Report

10 METER REPEATERS

10 meter repeaters will now be permitted according to an Order just released by the FCC. Inputs and outputs for in-band ten meter machines must lie between 29.5 and 29.7 MNz, and cross banding to ten meters will be quite tricky since the rule change does specifically prohibit repeating the transmissions of an Amateur not authorized to operate on the 28 MHz band.

HR Report

* * * * *

* FOR SALE *

* IC-21 TWO-METER XCVR, 118VAC/12VDC, MOBILE BRACKET, *

* XTALS FOR .34/.94, .16/.76, .22/.82, .28/.88, .07/.67, *

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* PRICE: \$315.00. PHONE WA4AQW, CARL, 672-5476 *

* * * * *

The OLZ CW net which meets daily at 7:00 PM on 3682kHz had 231 check-ins in January. Forty four messages were handled.

Ted Garvin, WB5OYU, earned his net certificate by checking in at least once a week for three months in a row. The certificate was presented February 7, 1976.

NET CONTROL STATIONS ARE:

Monday	:	Dick Hawkins W5FW	Tuesday	:	Don Merit K5JOA
Wednesday	:	Mike Strouse WB5HQX	Thursday	:	Chas Greene WA5JGU
Friday	:	Pat Garvin WB5NKD (XYL)	Saturday	:	Bill Peterson WB5NXO
	:	Sunday: H A Gilbertson W5RB		:	

Long skip was a problem at times but generally conditions were not too bad for January.

STATIONS HAVING 5 OR MORE CHECK-INS FOR THE MONTH WERE:

Gil	W5RB	29	Pat	WB5NKD	27	Reedy	W5ADC	17
Oliver	WA5OGC	16	Ted	WB5OYU	11	Ed	W5BYC	10
Chas	WA5JGU	6	Bill	WB5NXO	28	Don	K5JOA	20
Fay	WB5EAY	16	Arley	WB5NKC	12	Kevin	WB5KGP	11
Leon	WA5CUJ	7	Dick	W5FW	5			

The net control stations for OLZ meet the region net, RN5 at 7:30 PM and 9:30 PM to send and receive Oklahoma traffic. The region net meets on 3645 kHz, and has check-ins from each of the eight states in the fifth region. These state representatives are designated by the net managers for the various states. In OLZ, the representative is the net control station for that night. If he can't check in the net control station will request another station to cover for him.

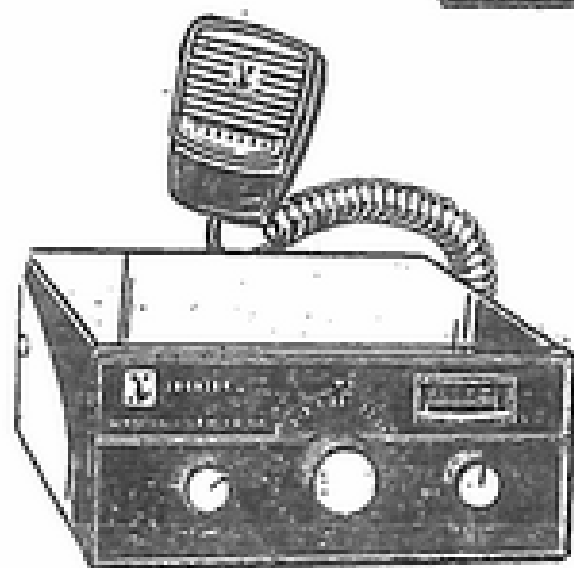
Bill Peterson, WB5NXO, has been working on a linear amplifier for his station. He should have it ready to go in the near future. Bill is a "retread", having been licensed in the past. His eyes give him a big problem but he does a good job.

That wraps it up for January. Hope to see you on the net.
73 and good luck.

H A Gilbertson W5RB
Net Manager & RM

* * * * *

CB HEADQUARTERS

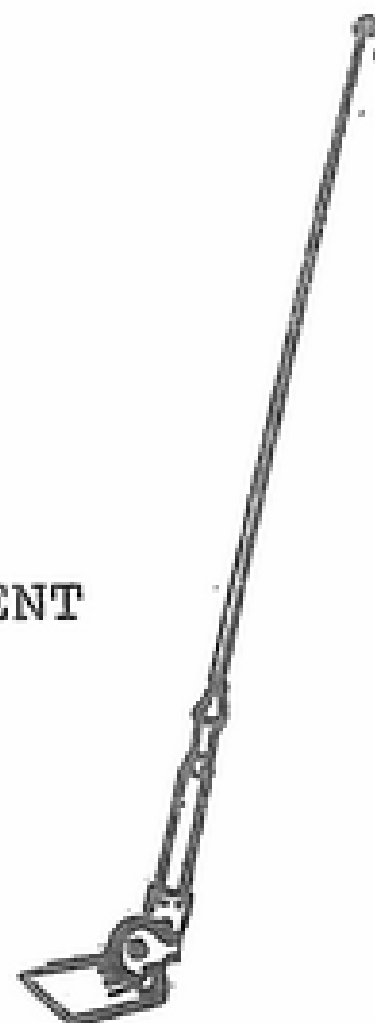


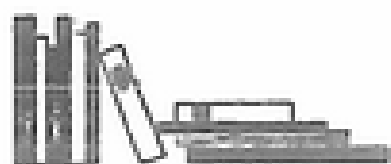
We have the White Knight and the Rubber Duck here in the DeVille South Shopping Center.

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TECHNICAL REVIEWS

W 5 J J



CQ, Dec (yeah, it arrived mid-January!), has W6SAI's valuable discourse on antennas, this time for 160-m; some more (and far less valuable) stuff on antennas by K5YNR; and W9EGQ's advice to Novices.

SHORT WAVE MAGAZINE, Dec, is limited to its superb comment on communications and DX.

73, Feb, tells how to make photo PC boards. W9ZTK shows a 2-m preamplifier. The staff discusses speech quality. W5JJ shows a simple means of getting your transmission line to present an acceptable load to your transmitter. WA7SCB deals out good stuff on ICs as counters. W4RHZ revives the ancient fishpole mobile antenna. WB2NEL touts alarm foil for indoor antennas.

AMATEUR RADIO, Nov, describes a wide-band RF transformer, a QRP 7-MHz transmitter, and the use of speakers as microphones.

RADIO-ELECTRONICS, Feb, has a good article on the NE-555 IC.

POPULAR ELECTRONICS, Feb, tells about an optical radiotelephone for short ranges. (I doubt that the writer had built it!) W9EGV discusses dummy loads.

ELECTRONIC-TECHNICIAN/DEALER, Jan, courtesy of W5KE, has good info on the use of the frequency spectrum from LF to UHF.

ELEMENTARY ELECTRONICS, Mar-Apr, shows the modern-day equivalent of the old time "breadboard" construction layout. The publication is notable for its meticulous adherence to correct nomenclature, especially abbreviations, something the "ham" magazines ignore.

73, Mar, has WB4FDQ tell how to work with tiny components, G3OGR shows a circuit for a low-cost capacitance bridge, W0FEV tells how to salvage parts, and a raft of digital projects.

QST, Feb, has W7HOI discuss multiband phased vertical antennas, W1LNQ do the same for an inexpensive ground-plane, and K4WVT foul up Public Relations for amateur radio by branding it with the disparaging term "ham", which is guaranteed to make the public regard radio amateurs as a mob of piddling nincompoops, three steps lower than the jackasses on 11 meters!

HAM RADIO, Feb, really gets with it, telling the 50-year story of TV. W7LR tries to cast gloom over any operator who doesn't have his antenna up at least 80 ft. W6APW tells us why the World Administrative Conference is so important. W6HDM shows combinations of field effect and bipolar transistors to combine high input impedance with high gain.

AMATEUR RADIO, Dec, has these; an antenna rotor from a windshield wiper, an AF Q-notch filter, a solid-state 50 MHz SSB transceiver, a tilt-over pole design, a simple 1.8 MHz VFO AM transmitter, and a quite good description of both primary and secondary cells.

POPULAR ELECTRONICS, Mar, tells how to care for niCad batteries.

RADIO-ELECTRONICS, Mar, continues its study of 555 ICs. Its high point is not something for amateurs of radio, but a report on a treatment that greatly extends the life of phonograph records.

CQ, Jan, comes through with a stack of readable articles on such diverse subjects as 1.8 MHz solid-state final, HF beam, product detector, VHF antenna for the proposed Communicator band, and a forecast on sun spot activity.

THE ZANY NEWS FREQUENCY

Joe, WA5ZNF

OU IS NOT #1, IT IS #5 - - Now before I get impeached, hanged in effigy or worse, have my license suspended I want to point out that the OU referred to is not the football team but the OU Amateur Radio Club. You see they voted the other night to join in the efforts of CORA, Inc. to carry out all of its aims. That makes 5 participating clubs. They are a young club, don't have the treasury that some of the older ones have but they will do their part and they have a lot of energy. They are looking forward to participating in the Collector & Emitter effort and the upcoming HAM HOLIDAY. Their voting representative hasn't been chosen yet but that will be done before the next CORA meeting on March 12th. This is my personal welcome into the "Fold" and I know that all others in the CORA organization feel the same way. NOW, how about Shawnee, Enid, Wheatstraw and all the other clubs in the Central Oklahoma area? You are welcome!

* * * * *

OLD SOLDIERS NEVER DIE - - And I'm an old soldier who is about like the guy sitting in a revival audience. When the evangelist asked for everyone who wanted to go to heaven to stand up he remained seated. The evangelist addressed hi, "Do you mean to tell me that you do not want to go to heaven when you die?" The answer was "Well, that's different, I thought you were getting up a load for tonight and I am in no hurry." I expect to be around and publishing the CORA C & E for quite a few years yet - but - we really need one or more to work with me to learn all of the details so in the event I can't make it, even for one issue they can step in and keep it going. It is fascinating and anyone who is interested in learning something new will have a rewarding experience. Maybe there is a experienced one around too. I have some in mind but want to hear from a true volunteer first. This aint the Army you know. You will know what you are volunteering for! We had a true volunteer to be Advertising Manager, Ivan Miller, W5HFU, and he is just getting started. Advertising revenue will help us publish a bigger and hopefully better magazine. Now I need a production type that can learn to put the various club editors copy together, make the pages up, have negatives made, make printing plates and the whole ball of wax. It must be simple, I can do it. Contact me, let's have fun. YLs & XYLs would be most welcome to help and to write items that would make this a family publication.

* * * * *


RESULTS SO QUICK? - - The following showed up right after I typed the above. Let's have more with this spirit.

I WILL WRITE YOUR C & E ARTICLE

The CORA C & E has taken a turn for the better recently because there are new contributors on a variety of subjects. You surely must have some circuit, story, or experience that would make an interesting article. By all means take advantage of this help, or I will make it even easier to get your story into the C & E. Call me, Bill, WA5RAQ, 632-4375. I will record your article/idea through my phone patch and write it and put your name on it of course. You might have to get diagrams, etc. to me. I will redraw them if you wish. Let's keep CORA C & E interesting. Examples of my style are: REMOTE MONITORING, C&E, October 1975, page 12 and MOBILE RADIO IN 1938 in this issue.

Bill, WA5RAQ

NOT ENOUGH THAT CARE - - The Muskogee Hamfest that was to be held at Talequah in April has been canceled according to a mobile I talked to the other day. Many backed out. Joe, WA5ZNF

MARCH HAM HAPPENINGS						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	ACARC MEETING 5	 AT RED CROSS 6
7	8	MORI MEETING 9	10	11	CORA MEETING 12	ditto 13
14	15	Q ARC MEETING 16	ST PATRICK'S DAY 17	18	VHF CLUB MEETING 19	1st DAY OF SPRING! 20
21	EDIT C&E 22	23	24	25	26	ditto 27
28	29	Q ARC MEETING 30	RESERVE 7&8 AUGUST FOR HAM HOLIDAY			
			April 3/4 Lawton/Ft. Sill Hamfest 31			

See page 2 and Club Sections for details.

amateur radio



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