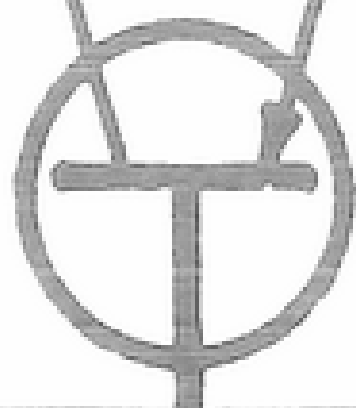


Central Oklahoma Radio Amateurs

COLLECTOR AND EMITTER

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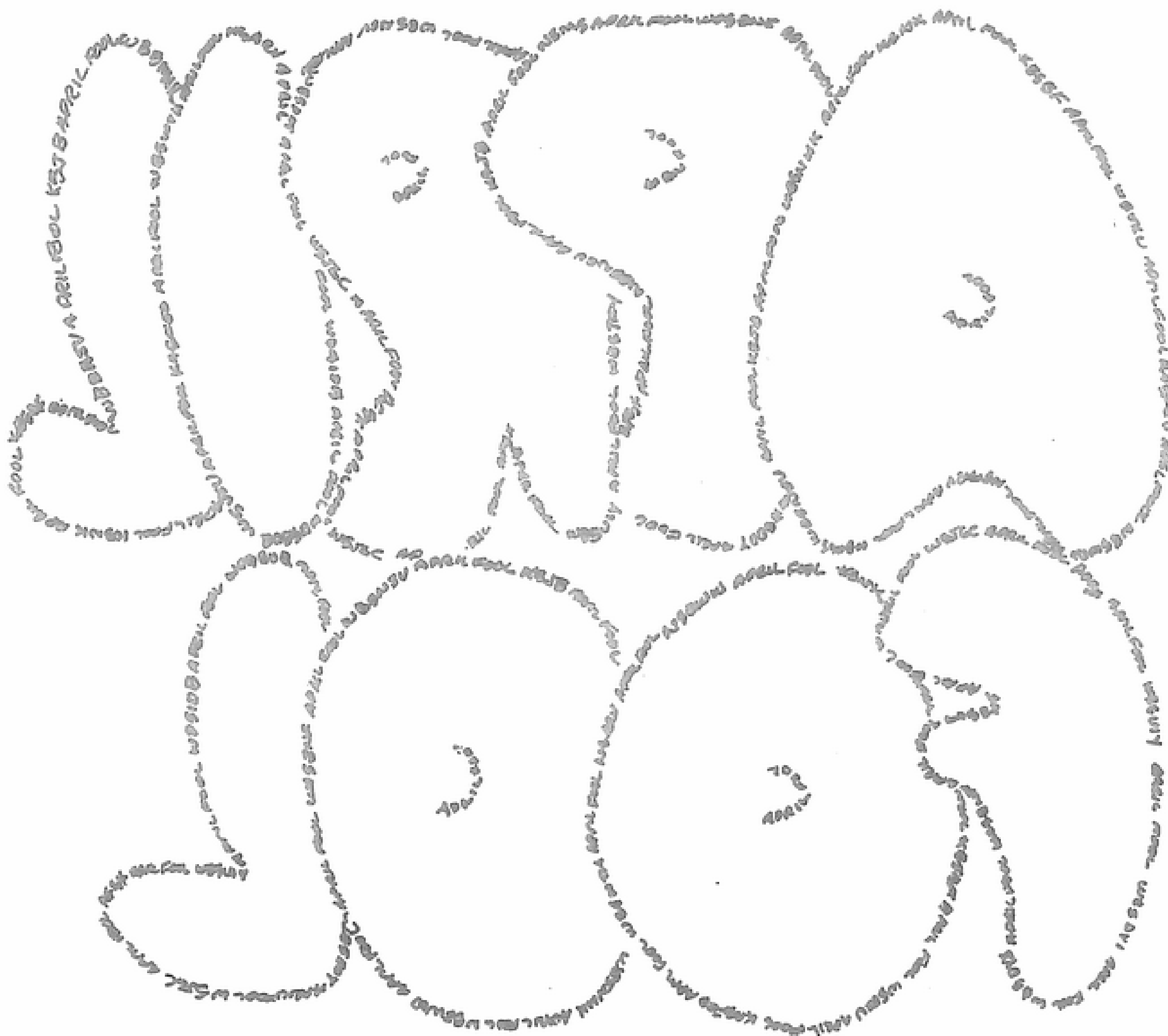
AN INFORMATIVE MAGAZINE
PUBLISHED MONTHLY BY AND
FOR OKLAHOMA RADIO
AMATEURS

AND ANYONE INTERESTED IN
LEARNING ABOUT IT

Volume 6

APRIL 1980

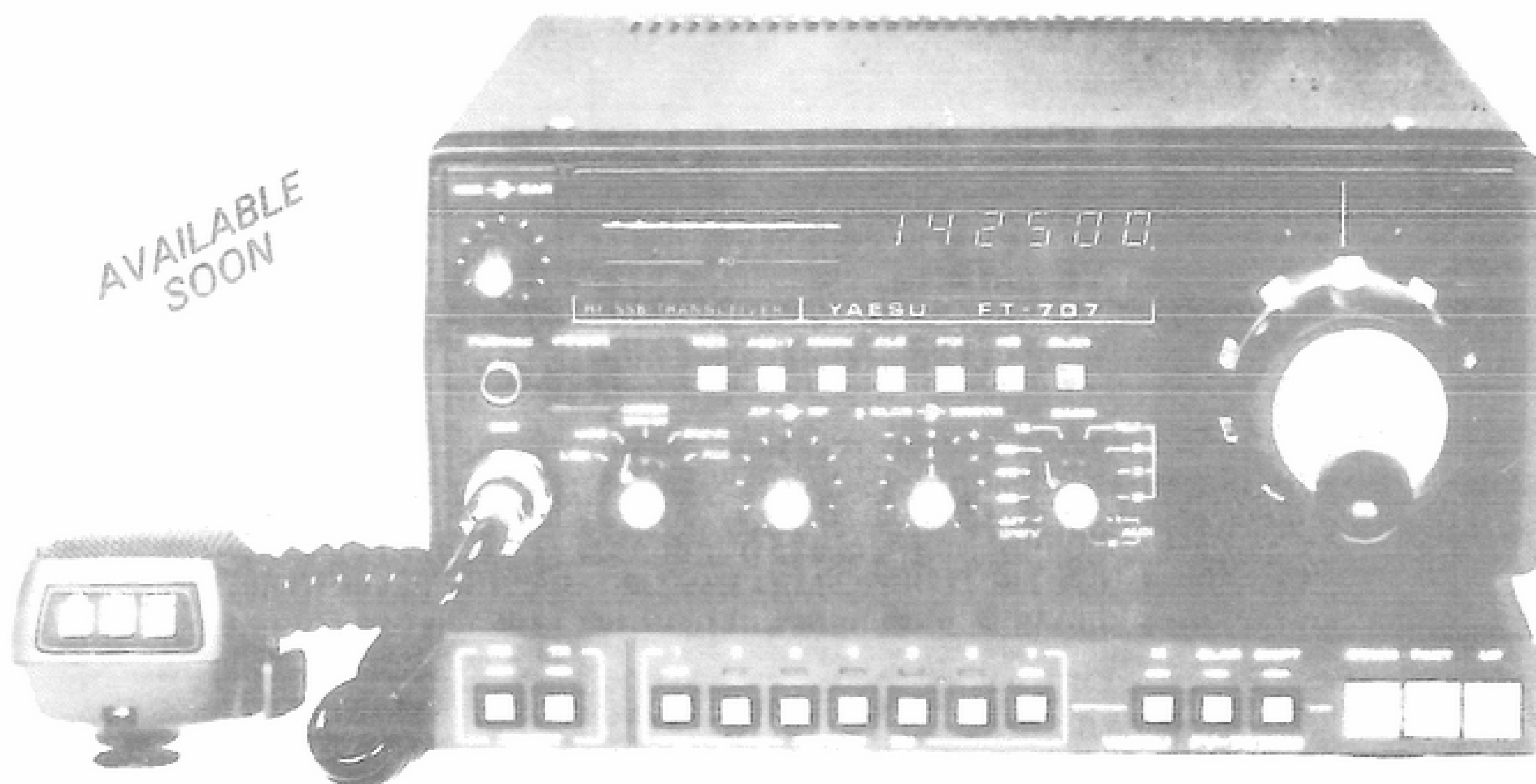
Number 63



DONE BY K4SJS

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 $.25 \mu\text{V}/10 \text{ dB SN}$ 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

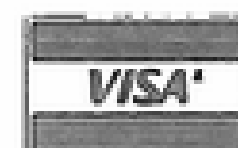
- ☐ Choice of two rates of scan
- ☐ Remote scanning from microphone
- ☐ Scans in ten cycle steps
- ☐ Synthesized VFO
- ☐ Selection of receiver/transmitter functions from either front panel or external VFO
- ☐ "DMS" (Digital Memory Shift)

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Chuck Guschke, N5 SW

NEW STORE HOURS

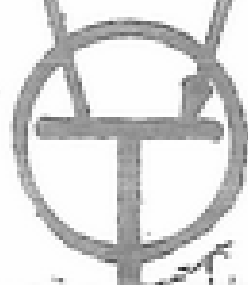
Sunday Closed
Monday Closed
Tues., Wed., Thurs. ... 10 - 5
Friday 10 - 9
Saturday 10 - 5



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

Central Oklahoma Radio Amateurs

COLLECTOR AND EMITTER



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

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K5NK

WB5NSV

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KE5M

721-4926

677-8685

842-1086

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 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 K5CXM Fred Taylor 520-1537 VP W5GPM Bob White 681-9222 Se W5BEQ Jim Buswell 256-0368 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, 38th & Grand Pr W5CZM Doc Goodhead 721-8592 VP W5NK Chuck Wilhite 721-4926 Se W5NXX 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 K5DMF James Gardner 321-8779 VP W5QLF Alan Mornser 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 (CD) 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 75'ERS) MEETS: 7:00 PM 2nd Tuesday each month Air National Guard, Hill Roberts Apt. Pr W5BHP Joe Couch (Guthrie) 282-4353 VP W5DYJ Kay Northcutt 842-1086 Se W5BEQ Jim Buswell 256-0368 Tr W5FE Tom Cassidy 751-1194 Ed K5FED Susie Ackinson	9 WHEATSTRAM AMATEUR RADIO CLUB MEETS: 2:30 PM First Sunday of month Location Varies. See club section Pr W5JHT Ted Vanlangham 262-1675 VP W5SZ Ray Barnes S/T W5SPK Ralph Wilder 623-5421 Ed W5NTH Virginia Boneda 825-3302	10 CHOCTAW AMATEUR RADIO CLUB MEETS: 7:00 PM 2nd Monday, Woods Community Baptist Church, SE 29 & Choctaw Pr W5SH Frank Carter 391-3394 VP W5EYP Bob Allen Se W5ARY June Allen Tr W5ALO 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 W5IOB Howard Wise 341-2510 VP W5NXX Ken Stepp S/T W5ZLM Bill Wright 341-6076 Ed W5IOB Howard Wise 341-2510	12 SHAWNEE AMATEUR RADIO CLUB MEETS: 8:00 PM 2nd & 4th Tuesday Shawnee City Hall - EOC Pr W5OHL John Owens 273-0846 VP W5FUG Les Stewart 567-3095 S/T W5TQO Bill Warren 275-0119 Ed W5BUQ Jay Tingle	13 KAY COUNTY AMATEUR RADIO CLUB MEETS: 7:30 PM 3rd Thursday of month Security Bank Basement, Ponce City Pr W5DUT Chuck Willis 765-5366 Pr W5ZMH C. L. Hallmark 762-8620 S/T W5TKF Jay Williams 765-9140 Ed W5DUT 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 K5OK Laverne Hoag 329-7625 VP W5ABC John Stehr 364-8761 Se W5GHJ Jerry Howard 364-3518 Ed AF5X 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 W5DQX Bob Shaw VP W5ISO Wendell Cochran S/T W5UIV Stan Van Hout Ed W5UIV Stan Van Hout
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 K5FED 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 representatives to every meeting.



Red Cross. The Good Neighbor.

Vol. 6 APRIL 1980 No. 63



ORIGIN OF "HAM"

The word "Ham" as applied to Amateur Radio dates back to 1908 and was the call letters of the First Amateur Wireless Station operated by some members of the Harvard Wireless Club. They were Albert S. Hyman, Bob Almy and Reggy Murray.

At first they called their station Hyman-Almy-Murray, but tapping out such a long name in code soon called for a revision. They thus changed their sine to Hy-Al-Mu, using the first two letters of each name. Early in 1909 some confusion resulted between signals from Amateur Wireless HyAlMu and the Mexican ship named the Hyalmo. It was then the boys decided to use only the first letters of each name and the call became Ham.

In the very early days of radio, amateur operators picked their own frequency and their own call letters. The resulting confusion and interference finally came to the attention of congressional committees and they gave much attention to proposed legislation designed to critically limit amateur activities. In 1911 Albert Hyman chose the controversial wireless legislation bill as his thesis topic at Harvard. His instructor insisted a copy be sent to Senator Davis A. Walsh, a member of one of the committees hearing the bill.

The senator was so impressed he sent for Hyman to appear before the committee. He took the stand and described how the little amateur station was built. He almost cried when he told the crowded committee room that if the bill went through they would have to close the station because they could not afford the license fees and all the other requirements of the bill.

The debate started and the little Ham became the symbol of all the little amateur stations in the country crying out to be saved.

Finally the bill got to the floor of Congress and every member talked about the poor little station Ham. That's how it all started and you'll find the whole story in the Congressional record. Nationwide publicity associated radio station Ham with amateurs. From that day to this, and probably to the end of time, in radio language an amateur is a "HAM".

Sine of the Times, Indiana Co.
Amateur Radio Club

(Published in the Hit & Bounce Traffic Hounds Journal Oct-Nov 1979 issue)

(Submitted by W. C. Alcock, Danville, Ky.)

EDITORS NOTE: I have no desire to question the authenticity of history, but as every telegrapher, either Morse or International Code knows, when he first began, his ability left something to be desired, and he was called a "Ham", or "Lid" or an "Amateur". After many years of professional use of the code, he still desires to continue on the air with his love of the code. However, he reverts back to being a "Ham" or an "Amateur", which has to be a let-down. It seems to me they should dignify the art of radio telegraphy, perhaps giving it the title of "Wireless Operator"

I am a burned up "Ham" and how do you cure that? Perhaps by using "Oinkment?"

The above article appeared in the Jan., Feb., March, 1980 issue of Dots and Dashes, the official publication of the Morse Telegraph Club, Inc. Mr. Cecil D. Combs of Lincoln, Nebraska is the editor of this fine newspaper and it is his Editor's Note which appears at the bottom of the article. I am sure Carl, W5JJ will agree with his thoughts.
Chuck Wilhite, K5NK

FOR SALE: Standard 146A 2-meter walkie-talkie with CES Touchtone back, charger, 12 xtals, ducky, manual, etc. \$200. Montie, WA5TSL, 685-1839.

FOR SALE: Three element tri-band beam. Wilson System III. \$100. Call George, AD1S. 840-9047.



I HEARD: NK has worked all states on 75 meter phone.....NK uses a TRS-80 to copy code with.....NK is a real nice kid.....NK takes a lot of showers with Reuben.....NK is considering going into tower climbing business as a full time job.....NK sells used Radio Shack tubes out of his garage to the CB'ers.....NK is considering buying an FKF hand-me-down.....NK spikes his tea while on cw.....NK got his TR-7 from the Mexican market.....NK has a bad final and a shaky driver.....NK placed first in the recent cw DX contest.....NK waits until everyone goes to bed and then gets on 20 meter phone.....NK carries a copy of his license with him.....NK jumps on novice's backs at 35 w.p.m.....NK got a 599 signal report out of the Russian woodpecker.....NK is thinking of running for senator.....NK does a lot of bluffing about his cw ability.....NK has always used a lot of tactfulness.....NK likes to pick on some folks.....NK has a better antenna system than FXP.....NK is a good joke teller.....NK was paid off by a recent antenna builder winner.....NK is really very shy.....NK has to stick his tummy out to hold up his pants.....NK does a lot of listening to folks and makes lots of notes.....NK steals all his articles which appear in the C&E.....NK was seen driving around with DYJ.....NK is really not a tightwad.....and very little else. K5NK

NEW RADIO CLUB: There are at least a dozen or so amateur radio clubs in the metropolitan area of Oklahoma City and I suppose some are members of most or all of the clubs around. All these clubs have a good membership and serve their purpose. I don't know of any club which has a restriction on membership as long as one will cough up the dough to obtain membership. However, a new club has been formed and membership in this club is very exclusive. At the present time we have only five members and there is a vacancy for one more new member. We can't be a complete club until this vacancy is filled. The club has no dues and actually serves no purpose at all. We as of yet don't have a repeater. As our president, we have Mr. Ron Recer, KE5M. The vice-president is none other than Mr. Robbie Runyon, AAØO. As secretary, yours truly, K5NK fills this capacity. Just in case we ever decide to collect dues for the club, Mr. Tom Cassady, KF5E serves as out treasurer. As our fearless reporter, Mr. George Adkins, AD1S does a wonderful job. As stated, this is a very exclusive club and not just anyone can join. We would like to fill our one vacancy, but, to do so, the call must end with the single letter "Y", such as KF5Y. Anyone out there in radio land who might upgrade or get a new call and it end with the letter "Y", please contact one of the officers. We will be more than happy to make a MONKEY out of you. K5NK

A SPECIAL THANKS: I would like to take this opportunity to thank Karen, WD5HBX, who so graciously accepted the task of providing the input to last month's C & E. A job well done Karen and many thanks for doing it. By the way, while you were so hard at it, I was catching a lot of fish down Mexico way. K5NK

MARCH MEETING: Our beloved El Supremo, WA5CZN, called the meeting to order on or about on time, due to K5NK being a little late to open the doors. The main reason I was late was that I had to leave home three times before I finally got gone. The first time I left, I forgot the keys to the building, so came back for them. Then, the second time I left, I forgot my camera, so came back for it. Finally, on the third try, I finally made it. One of the highlights of the meeting was a presentation of plaques to Ron and Karen Recer from KOFM's Mr. Ron Williams, given in appreciation for the work they did last year in helping the station during the severe weather net operations.

NEW MEMBERS: We would like to welcome the following new members who were voted on and approved at the March meeting: Joe Burnett, WØPWG; Mark Newton, WB5SLA; Don Rooker, K5SJV; Tom Shepherd, WB5ELO; George Adkins, AD1S; Charles King, W5KWK. Welcome to the Oklahoma City Autopatch Association, Inc. fellows. The one and only opposition to their membership and everything else that was voted on was made by Mr. John Young, WD5FXP. It seems John is against progress in everything. K5NK



ANTENNA CONTEST: After all business was taken care of, the first annual Novel Antenna contest was held. What a sight! We had a total of eight entrants in the contest and these were judged in three different categories: Most novel; most ridiculous; and the one with the lowest s.w.r. The three expert antenna judges comprised of N5FM, KB5BS and K5NK did an excellent job of picking the following winners: The most novel antenna was displayed by Mr. Buddy Kidd, KA5AQY, which was two bed springs fed in phase with a miracle s.w.r. of 1.7 to 1. Mr. Bill Riddles, N5WM, modeled the most ridiculous antenna, masquerading as Captain Hamshack with two rubber duckies fed in phase on top of a helmet liner. Bill took top honors with the highest s.w.r. of 4 to 1. Mr. Ron Recer, KE5M, exhibited his rabbit ear antenna and had the lowest s.w.r. of 1.12 to 1 and was able to hit every repeater in town. Congratulations to all you winners. K5NK

THE DEAD TRANSMITTER: At 9:40 a.m. on Friday, March 21, Bill Humphreys, W5JYT, had the pleasure of pulling the 440 volt plug on the old G.E. watercooled transmitter at KOKH-TV. The old transmitter had been in operation for some 28 years, but has been in a stand-by position for the last 71 days in case the new transmitter shot out sparks. It was a sad but also a happy day for Bill.

PRODUCT REVIEW: In the March issue of the C & E on the inside front cover above the Kryder Electronics advertisement, some goony bird made the statement that Chuck Wilhite does not need a Drake TR-7. Let me be the first to say that this is the absolute gospel truth. I don't need one, because the fact is, I already have one. Let me tell you about it. First of all, anyone who takes any of the amateur publications can easily find the ads describing the rig. However, there are some things that I find truly amazing about the rig. Secondly, I have always been somewhat of a bird man when it comes to buying amateur equipment. One of the first bird rigs I had was a Swan. I kept this rig for several years, but decided there was another bird rig that would be to my liking and that was a Drake. My second bird radio was a set of "B" line twins. I bought these things well used up from my friend Ray Long W5TY. He had about chirped them out, but it's hard to wear out a good thing. Even the "C" line couldn't beat my "B" line. Anyway, after making goodness knows how many cw contacts with this set of birds, the time had come for me to upgrade my station. Considering the fact that if Mr. Reuben Castleberry, WD5FKF thought enough of a piece of equipment to own it twice, surely I could own the same thing once in my lifetime, so I reluctantly sold my faithful set of twins and bought the new TR-7, another bird radio.

It looks so pretty sitting on my operating desk. Those pretty blue Drake lights on the dial and s-meter are just the right color, along with the red digital readout. Besides all this, it works like a charm. The only band that I know for certain that it will work on phone is 10 meters, since I have used it a few times talking to the local gang on 28,800, but I assume it will work on the other bands as well. It is a real champ on all bands using the cw mode, which really is the only way to fly.

The only drawback to the rig I have found is that it is so hard to tune up. I have looked and looked but can't find any knobs to dip the plate or increase the loading. I guess until I do, I will just keep on turning the controls until the little green light comes on when I transmit. If you haven't tried a bird type radio, get one. K5NK

A man was arrested and he told the judge, "My name is Sparks, I'm an electrician, and I'm charged with battery."

The judge said to the officer, "Put this man in a dry cell."

Cowboy: Did you find the horse well behaved?

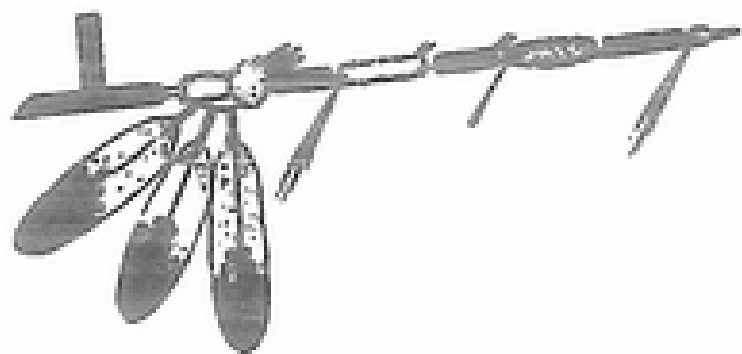
Dude: Sure did! We came to a fence and he let me go over first.

Don't say anything is impossible. The chances are that you'll regret it because some fool who doesn't know will come along and do it.

I certainly hope everyone has a happy April Fool's Day.

K5NK

CHOCTAW ARC



The March Meeting was called to order at 7:15 P.M. by President Carter, AB5H, with 15 members and guests present. We accepted two (2) new members which increased our membership to 24.

The minutes of the last meeting were read; Treasurer's Report was given by KA5ALO; and WD5EVP gave a report on the latest CORA Activities. Motion was made by KA5ALO and seconded by K5EGQ to accept the above mentioned reports as read.

K5EGQ gave report on his findings relative to a new and larger meeting place. He hopes to have something finalized by next month. Field Day 1980 was discussed.

Short break was taken for coffee after which a program was presented on home brew HF Amplifier for Mobile Use by AB5H. He also demonstrated the use of a grid dip meter.

A presentation on ATV was given by Larry, WB5NYX. It came as a surprise to learn you can be on ATV for about the price of a 2 meter rig.

A door prize was won by KA5EOS.

Those not at the meeting missed a very enjoyable evening. An invitation is extended to all amateurs and their YL's to visit our club. Meeting adjourned at 8:50 P.M.

DID YOU KNOW? It seems that all members don't drink coffee since there was a formal request made by a certain party that ice tea be served at the next meeting. I'm sure he will keep my memory refreshed on 09...ALO-Ice Cream Kid..... WZM-Hunting AZO.....UKP-Grandpa again.....KZV-Lost in woods..... FIJ-Recuperating.....AZP-Slices ham on new saw.....ITV-Can't find ALO.....HLZ-Attends club meeting to miss water haul..... K5UV-Has disappeared.....AE5N-Needs escort to Club Meeting..... EVP-Calling CQ 09.....ZRU-Sandburr Farmer.....PDH-Spec MechanicEOS-Repairs left side of computers only.....They all blame me.....See you next month.....73

N5ARV

FOR SALE: Hammerlund SP-600 general coverage receiver. In excellent condition, with speaker & manual. \$125.00. Ray Roton, N5AU9, 341-6123.

FOR SALE: Kenwood TR-7400, synthesized, 2meter, \$275.00 firm. Kenwood TS-700A, 2 meter all mode XCVR, \$375.00 firm. Drake T4XC, R4C, MS-4, AC4 with ten extra crystals. \$875.00, firm. Heathkit SB-220, 2 kw linear, \$525.00 firm. 2 element GEM quad, 10-15-20, \$100.00. For any or all, call Marvin, K5HQP, 732-8133.

FOR SALE: INSTRUCTOGRAPH with 16 tapes, \$25.00. Vibroplex "Lightning Bug", absolutely new, \$35.00. TA-33, buyer takes it down, \$75.00. Wilson 1405 Handy-Talky, 6 crystals, charger, leather case, \$170.00. Lloyd, WA5PPA, 288-6641, Washington OK.

FOR SALE: Standard SR-C146A handie talkie with stand type charger, touch tone pad, case, telescoping & rubber duckie antenna, manual and xtals for 94/94, 34/94, 22/82, 28/88 and 52/52. \$175.00. Call Vern Hoag, KB5DK. Home 329-7625. Business 325-3721.

THE AMERICAN RADIO RELAY LEAGUE, INC.



OFFICE OF THE SECTION COMMUNICATIONS MANAGER

THE ARRL COMMUNICATIONS DEPARTMENT OPERATES ONE OF THE LARGEST HONOR SYSTEMS IN THE COUNTRY. THEY HAVE SET THE GUIDELINES FOR THE REPORTING OF FORMAL TRAFFIC HANDLED. THEN DEPEND ON THE OPERATORS TO VOLUNTARILY GIVE THEM A TRUE REPORT OF THE TRAFFIC HANDLED.

IT IS GENERALLY ACCEPTED THAT A MESSAGE TO BE COUNTED AS TRAFFIC, WILL BE A COMPLETE MESSAGE BEARING ALL OF THE RECOMMENDED PARTS: NUMBER PRECEDENCE, STATION OF ORIGIN, CHECK, PLACE OF ORIGIN, DATE-TIME FILED, ADDRESS, TEXT AND SIGNATURE. I REALIZE THAT SOME NETS USED TO KEEP A RECORD OF PATCHES AND OTHER INFORMAL CONTACTS. HOWEVER, NOWHERE IN OUR INSTRUCTIONS DO I SEE A PLACE TO COUNT ANYTHING BUT 'FORMAL' TRAFFIC. I AM WELL AWARE THAT WE HAVE OPERATORS THAT COUNT AND REPORT 'ABBREVIATED' MESSAGES, AS WELL AS THE FORMAL MESSAGES THAT THEY HANDLE. I WILL NOT SAY THAT WE IN OKLAHOMA DO THIS.

SOMETIMES (AND I HAVE BEEN GUILTY) I FEEL THAT A MESSAGE IS HANDLED TOO MUCH, JUST TO BUILD UP A TRAFFIC COUNT. THIS INCREASES THE CHANCES FOR MISTAKES AND THE RESULTANT CHANCE FOR US TO GET A 'BLACK EYE' FROM THE RESULTANT MISTAKE.

I HOPE TO SEE MANY OF YOU IN LAWTON THE WEEK END OF APRIL 19-20 IT SHOULD BE A FINE MEETING.

AGAIN, WE HAD A FINE GROUP OF OKLAHOMA OPERATORS REPRESENT OKLAHOMA IN THE N.T.S. OPERATIONS. THEY ARE RESPONSIBLE FOR MUCH, AND PROBABLY MOST OF THE OUT-OF-STATE TRAFFIC HANDLED. THANKS.

FEBRUARY NET REPORTS WERE DOWN SOME BUT NOT ALARMING, JUST A SEASONAL SLUMP. I LOOK FOR AN INCREASE DURING EASTER.

NET	SESSIONS	CHECK-INS	TRAFFIC	WX.
O.P.E.N.	4	262	10	
O.F.O.N	21	435	115	
S.T.N.	25	533	117	
O.T.W.N.	25	468	36	297
O.A.N.	29	177	34	
O.L.Z.	29	208	48	
N.W.O.S.N.	13	149	6	

THE LAW WEST OF THE PECOS FUN DX-PEDITION

A group of San Antonio-area amateurs will be on the air April 19 and 20, not far from the famous Jersey Lilly Saloon, where Judge Roy Bean served drinks and dispensed his own brand of frontier justice in the 1800's.

Call of the DXpedition will be W5TEX. Hours of operation will be from 1800GMT Saturday to 1800GMT Sunday. Frequencies and modes of operation will be: 7235 kHz (SSB), 14285 kHz (SSB), 21110 KHz (CW), 21360 kHz (SSB). [all plus or minus 5 kHz]

Specially printed certificates will be sent to those stations sending QSL cards - and an s.a.s.e. or IRC's- to: Law West of the Pecos DXpedition, 2618 Rigsby Ave. San Antonio TX 78222.

AMATEUR RADIO EMERGENCY SERVICE



Bill Skipper, KB5BS,

449 N. Air Depot #20, Midwest City, OK 73110

Sunday, the 2nd of March, 1980, all the Emergency Coordinators, Section Emergency Coordinators, and the Section Communication Manager for the S. W. Region of Oklahoma met at Cement, Oklahoma. Many ideas were exchanged. The most prevalent subject was a weak link in communications with the S. W. Region of Oklahoma from Oklahoma City. The most severe weather comes from this region, and a need for a reliable and noise-free communication link is a must! This link could be the first of many links to expand communications throughout Oklahoma. This proposal is almost a carbon copy of the Texas Repeater Interstate System (TRIS), which will be called Oklahoma Repeater Interstate System (ORIS).

The first link was chosen as Altus, Oklahoma. Altus was chosen because of its repeater coverage and weather net, which has check-ins from Lawton and Duncan areas.

This is how ORIS will work: Altus and Oklahoma City will inter-link a VHF repeater to a 450 MHz transciever. I chose the 146.25/.85 repeater with the permission of the Aeronautical Center. Operators in both locations will use the VHF repeater as normal. This will be transmitted to Cement, OK via 450 MHz, which will have a 450 MHz repeater. The distant end will receive on 450 MHz which will be down linked to VHF. Set up basically in this manner a person using a handheld in Oklahoma City could talk to an operator in Altus, OK.

This system can also be used to filter incoming traffic to smaller communities.

The completion dead line is set for Ham Holiday 1980. We need help with running path tests to Cement and constructing the boards which only need parts bought and installed on the existing boards. Please contact me, KB5BS, if you would like to help. Oklahoma needs this system!

March 17, 1980 - The monthly ARES meeting started at 1900 hrs. with 13 members present. We still need operators for an Enduro Race at Draper Lake June 1st. Please contact Pat Sherrill, N5PS, at 943-3219, or myself, KB5BS.

Fred Taylor, KA5CXW, is going camping with some youth groups at beautiful Lake Tishomingo. He needs four more operators to help in communications for the 11-12-13 April. Come on, campers, have 3 fun days hamming and camping. Contact Fred at 528-1537 or 734-2034, or call me, KB5BS. How many times have you donated money for a good cause? This is your chance to donate your hamming skills to the March of Dimes. The March will start at 8 a.m. on 12 April with hundreds of people walking around Lake Hefner. We need many operators, portable, fixed and mobile. Please contact me, KB5BS. Also, Jim Buswell, N5BEQ, said the Special Olympics is coming up in mid-May. He needs 5 to 10 people to operate at judges' locations, first aid stand, and organizing community booth.

CY Chandler, WB5TKG, wants to be relieved of the 2 meter Samaritans. If no one volunteers, this program will be filed under the heading of "file 13". So, if you want this to work, contact CY.

The meeting ended at 2045 hours.

There are now 57 registered members in ARES. Remember, any amateur can join and you do not have to be a member of ARRL. Drop me a note if you are interested.

Bill Skipper, KB5BS
733-0889 or 848-7595

FOR SALE: Kenwood TR-2200A hand held 2 meter XCVR. 94/94, 34/94, 52/52, 16/76, 22/82, 28/88, 66/06 crystals and room for five more. Heath Auto-patch microphone, Kenwood mic., rubber duckie, case, strap, charger, nicad battery pack, original box & packing & manuals. Like new. Will deliver within 100 miles. \$185.00 (I have \$270 in it.) Robert Reid, WB5VXL. 700 W Franklin Rd, Norman OK 73069. (405) 321-0077.

Mid-Oklahoma Repeater Inc.

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

Meeting was called to order at 8:00 PM, with self-introductions following. We met in the smaller room again, but it seemed the crowd was smaller. I guess that about fifty, or a little above were there.

This editor was proud to announce his new call, N5BWW, to the group. Don't know any good reason for changing from WB5NMK, except just on a whim--anyway, it is shorter. Haven't gotten used to it yet. I went down to the exams seven times, at least. I almost thought "What's the use?" but it shows some of the truth of the old adage: "Keep on pitching." If you don't try, you sure won't win--But, if you stay in there, you might. So, don't anyone ever give up, I have heard one or two say that they had taken the test twelve, or thirteen times; they finally got it, though.

I tried crowing about it when I got home, and my wife thought I had gone more haywire than usual, or had the croup. I finally convinced her I was just happy. Routine preliminary business was disposed of in the usual manner, and Sid made a request that all new calls, addresses, etc., be turned in to him because you might just miss getting your C.&E., or miss getting in the new directory that I understand is in the works.

I was distressed to hear that Carl, W5JJ, had to have a heart pacer put in. Hear he is progressing nicely at this writing. I know an old gentleman that has wore one successfully for years, and led an active and useful life. Jerry, W5MCJ, is also in the hospital, seriously ill, at this writing. They have my prayers--I hope they have yours. Anyway, I know we all wish them the best.

Jim Buswell, N5BEQ, announced that the advance price of Ham Holliday will be \$5.00, but \$6.00 at the door. Registration prize will be an Icom 255, all mode; Grand Prize will be a Yaesu FT-707, Wayfarer, an HF rig; Raffle Prize is a Kenwood 7625, 2 mtr. rig.

Bill Skipper, Area County Co-ordinator, made some announcements; including a link-up movement getting underway in August. Details in the C.&E. Bill is a contagiously enthusiastic organizer, and seems to be doing a great job. Motion made and passed to buy both of Wayne Hogan's Bird watt meters. Norma, his wife made bargain offer to us that would have been foolish to turn down. It was generous of her. Thank you, Norma. Sid, W5K0Z, announced that Mori VHF stickers would be issued when you joined the club, and would fifty cents each, for extras. Blame it on inflation. The new 07/67 machine is being tested at the home of Ken, K5VVZ, and will use his call until ready to be installed in the old machine's place. The new repeater will still be under the supervision of the present trustee, using his call, K5ELL.

It is with regret that I write this last editorial, but my hearing is seriously impaired. Also, the interests of the club will be served by making way for some other more technically qualified writer, as well as one that can hear. I called Fred after suspecting, and finding out from Charlie, WA5JGU, that part of my information was in error; I made the necessary corrections. I don't want to do this job, or any other half-way. It's just a waste of time and laziness, besides the harm that might result. When I offered to write an article, Mori had no editor, and I intended to write it only once. But, I missed the next meeting, and found over the Nite Owl net that I had been "railroaded". Well, the void has now been filled by other writers, and a better editor is needed. I find out from indirect sources, that more technical articles are desired, and I agree with that feeling. I have filled this job to the best of my ability, imperfect as that may be. I thank you for the opportunity to serve, it has been a pleasure. And, an education. About the time Joe got me half-way trained, I take out--what a life! It's someone else's baby, now. Good luck, Ed., you're very patient. Might submit an occasional article, if warranted. Otherwise; It's sort of a relief, too.

Best regards to all,

George N5BWW

Notes while passing....

MORI is rolling along gaining a member or so, testing a new repeater, tweaking here and there on the installed ones -- having great meetings, thanks to all of you for being so courteous on the air.

K5VVZ checking our new repeater, N5BUJ getting in the swing, WA5GVH out of the hospital after a heart by-pass, K5IRO rigged up now for 2 meter/armchair, AA00 Robbie iced up with Gloria, WA5CJG stirring up 450Mh Link for 2 meter storm watch with KB5BS, N5AZO whipping up 1750 VLF, W5PZW back on HF, KA5DCM, WD5KFT, N5GE, W7LLP into 2 meter SSB, WA5FSN and the multitude, N5BEV kudos for Civil Defense communications, K5NK stirring up HH exhibitors and prizes, WD5DYI and WD5DYJ a beautiful matched pair..... of Kenwood 2400's.

Welcome to new members, KA5ELM, Bill WD5FIJ, Mary WD5GBC Donald WB5TKG C. Y. and W5TMM.

K5JB Joe, was on the spot, in fact right behind the bus that turned over Thursday evening --- He was talking to WA5JGU Charlie when Joe exclaimed suddenly that a bus had flipped over on I-40 & Reno exit. Charlie called the Patrol and Joe jumped out to assist and communicate further details. Another plus for Ham Radio.

N5BWW George called me and regretfully resigned as editor. We are sure going to miss his column, but he promises he will do instant coverage of s special events, thanks George, for all your good words.

Several special events that Hams with Mobile or talkie capability may participate in.

- April 11-12-13 Slippery Falls Scout Ranch - Tishomingo, Oklahoma
Four teams are needed for communications during a Camporee for the Boy Scouts in the Oklahoma City metropolitan area, call KA5CXW (Fred) if you can help.
- April 12 March of Dimes Walkathon - Lake Hefner
Saturday Net control K5VRL will be at the
8:00AM to 3 PM Stars and Stripes Park
Four stations and Roving stations
- April 19 Lung Association Walkathon
8:00AM to 3 PM Need Net Control from OC/South Side
Starts 1st St. - Moore to RangerStation - Draper Lake
- April 18-19 Hamfest - Lawton, Oklahoma
Montego Bay Motel
Pre-registration by 16th of April.

All for now,

KA5CXW

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#
#   According to the April 1980 issue of the C D Bulletin,
#   published by the ARRL, the following is to be amended on the
#   new ARRL Numbered Radiograms (see February, 1980 C & E,
#   pp. 42-43).
#   REGARDING ARL FIFTY ONE,
#   DELETE: "Will let you know when I return."
#   AMENDED ARL FIFTY ONE:
#   "Greetings by Amateur Radio. This message
#   is sent as a free public service by ham
#   radio operators at _____. Am having
#   a wonderful time."
#
#####
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MINUTES

The March meeting was called to order by Prez Fred KA5CXW at 8:00 pm at the Emergency Operating Center on the 4TH with 46 members and guests present.

The minutes of the February meeting were approved as published in the March Collector and Emitter (C&E).

The Treasurer's report was approved as read, with the announcement that accounts will eventually be audited.

It was announced that the Executive Committee had decided to request the club's approval to acquire both wattmeters and necessary slugs for the repeater sites from the estate of Wayne Hogan WA5AOB. There being no dissension it was decided agreed and the technical committee was so empowered.

Sid W5KOZ reminded each member to update the pertinent information changes as possible on the computerized roster available at the meetings, especially those call sign changes...

The CORA report included the reminder that MORI is responsible for prizes at Ham Holiday (HH80) again this year and desires or suggestions to the committee (Chuck K5NK, Fred KA5CXW and Jim N5BEQ) are solicited, including possible dealers or vendors of Amateur gear to display their wares. We will have door prizes at programs this year. Don't berate the output if you don't provide input!; so far, your committee has decided to offer a Yaesu FT707 as the Grand Prize, a Kenwood TR 7625 for the Pre-Registration Prize and to raffle off an ICOM IC 260A to benefit the C&E equipment fund.

Oklahoma County EC Bill KB5BS announced and introduced his Assistant ECs: Bryan N5BEV for Civil Defense, Fred KA5CXW for Explorer Scouts, Charlie WA5J GU for Red Cross and Don AE5N for the National Weather Service.

Announcement of and condolences were extended to our fellow members whose health states were under the weather: Jerry W5MCJ, Meredith WA5GVH, Bob WB5PWZ *GET WELL QUICK, THAT'S AN ORDER.*

It was moved, seconded and passed to provide each new member a club bumper sticker upon joining, charge 50¢ for each additional sticker and not provide another sticker just because of the member's renewing.

The meeting was adjourned for liquids and donuts at 8:30.

The program on Direction Finding was presented by Joe K5JB and Bill KB5BS. Antenna samples included "hand" loops, "mast" loops, "LittleLpers@," quads and RFI sources included an oscillator that modulated without a microphone! (yea, army!)

Next meeting, same time, same place, 1 April 80.

Jim N5BEQ
Secretary

LAWTON HAMFEST - - April 19-20, Montego Bay Motel Complex, East Gore exit. Free swap tables for pre-registrants. Pre-registration is \$5.00 per person, Sunday Banquet \$6.00 per person. To Box 892, Lawton OK 73501. Preregistration closes 16 April.

MODERNIZE YOUR MAP - - Enid has a new repeater on the air. WR5ABW 223.34 in / 224.94 out. It is "open". Per Ron, WD5HUI via C.Y., WB5TKG

FOR SALE: Heathkit, 25 inch color TV, brand new, (the RCA picture tube is worth \$175). All manuals. First \$100 gets it. Joe, WA5ZNF 737-1044. I need the room and have another one.

The South Canadian Amateur Radio Society

FIELD DAY PLANS UNDER WAY

The South Canadian Amateur Radio Society will combine Field Day, 1980, with an open house at its emergency station in the Cleveland County chapter of the American Red Cross on the OU North Campus.

The club decided to combine the events during the March business meeting. As in the recent past, SCARS expressed the hope that all Norman amateurs can band together for the Field Day exercise.

Plans are in the hands of a committee, but the tentative SCARS plan is to hold the Field Day exercise in open fields near the Red Cross building. This will allow the public to observe emergency operations on alternator power, and at the same time other club members will have the indoor station open for inspection if citizens wish to visit it.

The club station as well as the W5OU repeater were funded by club members and the general public during a drive headed by KB5DK, now club president.

ARES NET MEETINGS RESUME

Under the leadership of WB5UUX, new Emergency Coordinator for Cleveland County, monthly net meetings of the Cleveland County Emergency Net have resumed on a regular basis. Sessions are called at 7 p.m. local time on the first Monday of each month. A telephone calling tree is used to notify members of the callup.

Traditionally held on the WR5AFW repeater, net sessions have been moved to the W5OU machine effective in April, WB5UUX said. He expressed the hope that all interested amateurs will have the proper crystals by this time. Use of W5OU/R, UUX pointed out, will leave the autopatch open on the WR5AFW machine.

Checkins from all interested amateurs are always welcome, WB5UUX added. "Whether it's a monthly meeting or a weather net or other emergency, checkins are welcome whether they happen to be members of the local club or even of ARES," he said. Especially useful, he added, are checkins from amateurs serving as liaison with other areas. At times last year when stations from Purcell, Norman, Oklahoma City-Midwest City and Shawnee were linked through such net liaison, information moved more swiftly throughout the broad area.

THIRD 2-METER REPEATER ON THE AIR IN NORMAN

Norman has its third 2-meter repeater, WA5RPP/R. Operating on a coordinated frequency of 146.625-.025, the Motorola machine is temporarily housed at the QTH of WB5TZZ on Norman's west side, not far south of the Holiday Inn. Antenna is a duplxd Ringo Ranger at about 50 feet.

Whether the machine will become a permanent part of the Norman scene is anyone's guess at this point, as an ad elsewhere in these pages makes clear. The repeater and duplexer were purchased before announcement of the relatively recent W5OU machine, and may turn out to be redundant....

EVENTS

N5ABC has a new tower and beam. KB5EK was last seen "making hole" for same and keeping one eye peeled for a delivery truck. W5OU is starting a new house and a couple of towers to match. WD5HAM has begun the long trek toward DXCC. AF5X started up a 250-foot tower recently with a MARS antenna on his back...but regained his sanity at the 70-foot level.*KB5DK is talking about London in June. W5MCJ back on the bands after a serious illness. WB5QNK went off to the West Coast on business -- no radios along, so it had to be serious. N5ALG talking about Dayton....

** See last page!*

HELP!

Some months Yr. Obt. ~~8~~ tears hair out, trying to find copy for the SCARS pages, and it's hair he can't afford to lose. Pitch in, guys.

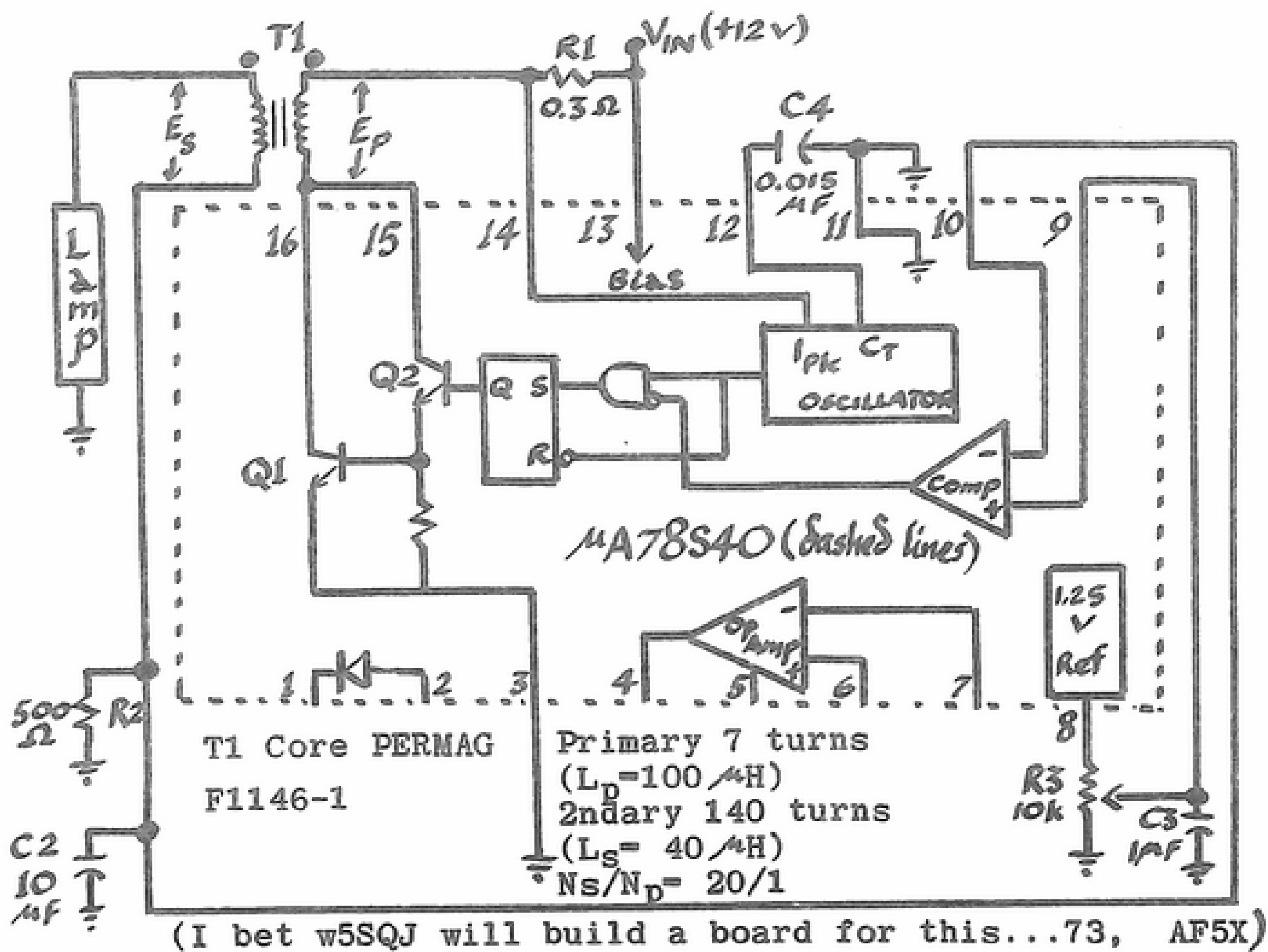
The South Canadian
Amateur Radio Society

A NICE NITE LITE.....

A NICE NITE LITE.....
The following by David B. Jones describes a nice circuit for driving a 5 watt fluorescent lamp with a 12 V battery. Seems timely in light (hi) of recent power failures in central OK. Except for the diagram, which is redrawn for better reproduction, the article is reprinted by permission of the Fairchild Journal of Semiconductor Progress, Vol. 7 #3(1979); Fairchild Camera and Instrument Corp; special thanks to Harriet Crewell, Ed:

Harriet Creweil, Ed:

All drive circuitry necessary to operate a high-voltage fluorescent lamp from a low voltage battery is provided by the μ A78S40 Switching regulator subsystem. A fluorescent lamp, a current operated device, requires a current supply with a voltage range larger than the ionization potential. The μ A78S40 circuit uses a current transformer to meet this requirement and also provides light dimming capability by controlling the average current through the lamp. Because the circuit is basically a switching supply, efficiency is high, even when the lamp is operated at less than full rated input power. Circuit operation begins when Q1 closes and initiates the start of a current ramp in the primary of T1. See figure. Primary current increases at a rate of V_{IN}/L_p until I_{pk} is reached, determined by 0.3Ω resistor R1. During this time there is no current flow in the secondary of T1 because the voltage developed across the secondary E_s is less than the voltage required to ionize the fluorescent lamp. When Q1 opens E_s jumps up to ionization potential and then back to the sustaining potential of the lamp. The current flowing through the lamp is now $I_{pk}(N_p/N_s)$, decaying at a rate E_s/L_s . There is no current flow in the T1 primary at this time since Q1 is turned off and the voltage across it, determined by $E_s(N_p/N_s)+V_{IN}$, is less than the breakdown voltage, BV_{CER} . When the voltage across the current sampling network R_2C_2 drops below the voltage on pin 9 of the μ A78S40 a new cycle begins. Dimming of the lamp is accomplished using the 10k potentiometer R3 to vary the voltage on pin 9 and control average current through the lamp. The value of the timing capacitor C4 (in F) is derived from the equation $C4 = (L_s/E_s)(I_{pk})(N_p/N_s)(450)$. The circuit shown in the figure, designed for a 5 W fluorescent lamp, can easily be modified to accommodate larger models.



The South Canadian Amateur Radio Society

MORE EXTRA EXAM STUDY QUESTIONS

After our article on antenna aperture we were inundated with requests for more study material on the extra. The following, while not directly copied from FCC material, are attempts to paraphrase actual questions. See QST, March, page 55 for the study guide and for the nine general subjects which every exam will cover. Your answers to these questions can be found in the ARRL manual and other material.

PROPAGATION: A phase-modulated signal of polarization angle 0.0 deg is reflected from an astronomical body of zero mass located 4×10^3 parsec from the antenna. Calculate the polarity on the third bounce. What will be the effect of large stands of conifers on polarity?

SIGS/Emissions: What is the bandwidth (in wavelengths) of an F2f signal when frammis density is 4.0 stilb? (Hint: calculate first in phot)

RULES/REGS: What clearances are necessary for towing an antenna over 50 meters long from an aircraft (fixed wing) above an altitude of 14,500 ft MSL?

AM RAD PRACTICE: Discuss the divotometer design feature which enables accurate measurement of frammis density (see question above).

EL PRINCIPLES: Why can't the Oersted, a unit of the so-called electromagnetic 3-dimensional CGS system, be compared to the new 4-dimensional system of the SI?

MATH REL'S/CALCS: The astronomical unit (AU) of distance is the length of the radius of an unperturbed circular orbit of a massless body moving about the sun with a sidereal angular velocity of (BLANK). (Hint: The units here are in radians per day of 86,400 ephemeris second.

MATH REL'S/CALCS: Which of the following units have been temporarily accepted by the CIPM: nautical mile, barn, stilb, hectare?

PROPAGATION: What is the likelihood (use P factor) of a signal originating in Rhode Island reaching--assume A3j mode-- Znojmo, CZ when the antenna aperture is 1.5 wavelengths on the ten meter band and the time is anywhere between 0440 and 08440 Z?

We will, as time goes by, provide more of these questions for your consideration. If you have any trouble with these please contact WA5MLT and he will point you in the right direction. 73/GL... AF5X

FOR SALE--- 2-Meter Repeater. Standard MOTOROLA, tube type. With 6-cavity duplexer. Presently operating on State-coordinated frequency. Latest model solid state control system. Auto I.D., time out timer, 450 control rcvr, tone access system... The whole shooting match: \$800. Contact Sam @ 321-2601 or Jack @ 329-1311, both in Norman.

OPERATOR'S NOTE : That wasn't me 70 feet up on the new Army MARS site. It was WA5VAQ (Todd). I was the guy on the ground with the sharp stick.

.....Operatpr's Note Two: Although somewhere in this issue there may be a credit to me as SCARS Editor, this is not the case. Jack, WB5TZZ, is the editor and is solely responsible for contents of this and future issues. It is he who cries for contributions. Lay 'em on him..... or we shall escalate! 73 es GL on the exam; AF5X.



MEETS: 8:00 pm First Friday each month
 Flight Standards bldg, FAA Aero Center
 PRES Bob Pace WA5CJG 376-3569
 V-P Bill Oliver K5KDR 329-6333
 SEC Bob Graham WB5NSV 677-8685
 TREA Larry Bugg WB5AAY 789-4180

RANDOM WORDS FROM THE PRESIDENT:

WE HAD A GOOD TURN OUT FOR THE MARCH MEETING OF ACARC, THE PROGRAM PRESENTED BY SUSAN AND JACK FROM RED CROSS WAS VERY INTERESTING AND WAS ENJOYED BY EVERY ONE THANKS SUSAN AND JACK FOR YOUR TIME AND ALL YOUR INTEREST.

THE APRIL PROGRAM AT ACARC WILL BE BROUGHT TO YOU ALL THE WAY FROM DALLAS TEXAS MR MIKE RILEY FROM TEKTRONIX'S, MIKE IS GOING TO BRING ALONG SOME REAL NICE EQUIPMENT AND MIKE TOLD HE WOULD MAKE THE PROGRAM INTERESTING FOR BOTH THE BEGINNER AND FOR THE OLD TIMER SO COME ON OUT AND JOIN US.

I WILL TRY TO HAVE A REPORT FOR YOU ON CLUB PROJECTS AT THE NEXT CLUB MEETING.

SUPPORT AND WORK WITH O.R.I.S. ITS TO YOUR BENEFIT.....

72 , BOB PACE , WA5CJG.

MINUTES OF THE MARCH MEETING OF THE ACARC

The meeting was called to order at 8:08 PM by President Bob Pace, WA5CJG. There were 55 members and guests present. Following the usual round of self-introductions, President Pace asked for reports from the various committee chairmen. They reported as follows.

The C.O.R.A. report was given by Bob Graham, WB5NSV. Ham Holiday preparations are coming along fine, and all looks in readiness for Ham Holiday '80.

The repeater report was given by President Pace, who reported that some problems had been experienced with the repeater auto-patch, but that all is well now.

The computer report was given by Bob Graham, who reported that earlier in the month we had a memory chip go bad. However this was quickly repaired and all is now well here also.

Bill Skipper, KB5BS, reported on a meeting in Cement, Oklahoma, in which he is negotiating a link (2 meter type) with Altus, Okla. Bill has radios which have been donated for this link in the UHF bands, and more will follow soon.

The program of the evening was given by Susan Clowe, and Jack Muse, WB5ZKZ, both of the Red Cross. They presented a Video Tape titled "Disaster - Sights & Sounds." This was followed by an excellent discussion on our disaster preparedness. Thanks for an excellent program.

Next months program will be Mike Riley from Tektronix Dallas Office.

73, Bob Graham, WB5NSV

AMATEUR RADIO

The December (1979) issue of Amateur Radio contains an ad by Daiwa for an automatic antenna tuner. The 2.5kW model sells for \$569. In the USA, J.W. Miller handles the Daiwa line. It'll be interesting to note just how long it'll be before it shows up on the market here.

An automatic antenna tuner is an ideal adjunct for "no-tune" solid state xmtrs, such as the TS-120S. Those of us who have had experience with the Collins automatic antenna tuners for airborne xmtrs appreciate their capabilities.

The same issue also has an excellent article on the design of a VHF receiver using the Madley-Loop for frequency stability. Look it over in the ACARC clubroom!

W5JJ



Club
NEWS

WSLOV
The Elmer Cordier Memorial
Station

MINUTES OF MARCH MEETING

MEETING WAS CALLED TO ORDER AT 8:03 PM BY PRESIDENT JIM, K5VRL WITH 18 MEMBERS AND GUESTS PRESENT.

AFTER SELF INTRODUCTIONS, TREASURER'S REPORT, ETC., JOE, WA5ZNF, REPORTED THAT THE PRINTING PRESS IS WORKING FINE.

CARL, W5JJ, REPORTED THAT HE HAS NOTIFIED ALL THE AMATEUR RADIO MAGAZINES OF THE PARTICULARS ON HAM HOLIDAY.

IT WAS ANNOUNCED THAT J. W. WORD, WA5KFT WILL BE RETIRED MARCH 31.

FRED, KA5CXW, ANNOUNCED THAT A WALK-A-THON IS TO BE HELD APRIL 12 AT LAKE HEFNER. IT WILL RUN FROM 7:30 AM TO 3:00 PM. WKY RADIO PERSONALITY MIKE MUNDAY IS COMMUNICATIONS MANAGER FOR THE EVENT AND HE HAS REQUESTED HELP FROM RADIO OPERATORS. HE NEEDS FOUR OPERATING POSITIONS WHICH SHOULD HAVE AT LEAST TWO OPERATORS EACH. CONTACT JIM, K5VRL FOR DETAILS. HE WILL BE NET CONTROL.

JIM, K5VRL, ANNOUNCED THAT THE AMERICAN CANCER SOCIETY DRIVE WILL BE HELD APRIL 10. AMATEUR RADIO OPERATORS ARE BEING ASKED TO HELP BY TRANSFERRING COLLECTIONS TO THE BANK. JIM HAS ORGANIZED THIS FOR THE LAST SEVERAL YEARS. CALL JIM FOR DETAILS ON HOW TO GET IN ON THE FREE COFFEE AND DONUTS, AND TAX DEDUCTIBLE DRIVING.

PLANS WERE MADE FOR ANTENNA AND FEEDLINE TESTS TO BE RUN THE NEXT MORNING AT THE CLUB STATION.

A GENERAL DISCUSSION OF SATELLITE AND CABLE TV FOLLOWED. CARL, W5JJ, DESCRIBED A CASE OF TVI RELATED TO CABLE INTERFACING TO A RECEIVER.

MEETING WAS ADJOURNED AT 9:00 PM TO DEFER TO THE COFFEE AND DONUTS.
JOE, K5JB, SECRETARY

APRIL FOOL ISSUE

WELL IT IS SPRING AND A YOUNG MAN'S FANCY TURNS TO LOVE, BUT THE OLD REPROBATE EDITORS OF THE C&E START THINKING THOUGHTS OF TRICKERY FOR THE APRIL ISSUE.

I MULLED OVER A FEW IDEAS BUT NOTHING REALLY STRUCK MY FANCY. I THOUGHT OF AN INTERDEMODULATOR WHICH WOULD BE ADDED TO A RECEIVER FRONT END TO REVERSE PHASE OF INTERMODULATION PRODUCTS AND CANCEL THEM OUT. THE ONE KNOB ADJUSTMENT WOULD GIVE THE DESIRED SIGNAL 360 DEGREES OF PHASE SHIFT TO ALLOW IT TO NOT ONLY PASS THROUGH, BUT HAVE 3 DB OF GAIN. CANCELLATION OF NOISE WOULD GIVE IT A ZERO DB NOISE FIGURE. THEN I THOUGHT NAA, YOU'D NEVER FALL FOR THAT.

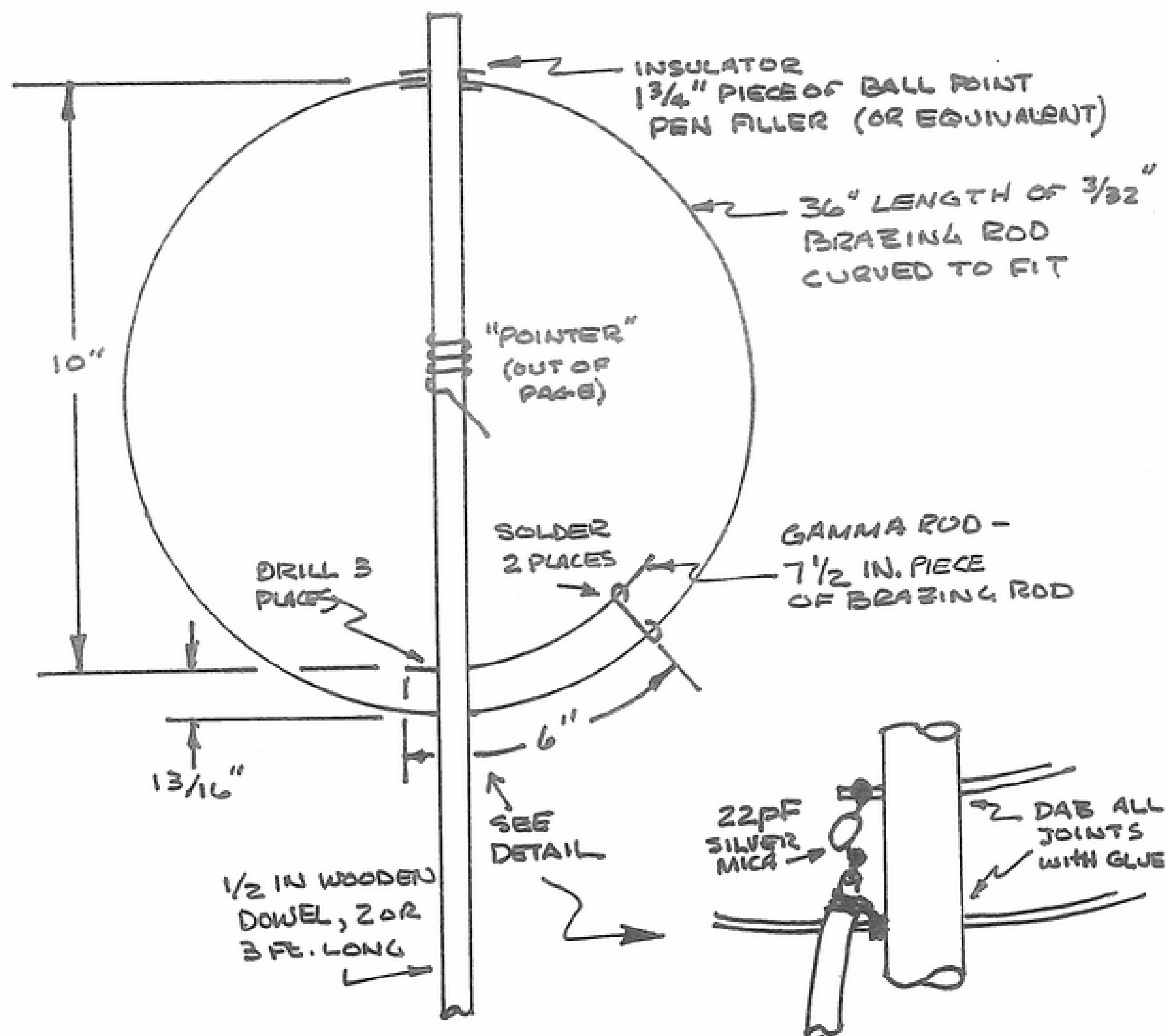
THEN I THOUGHT OF THE RADIO-OPTICAL SCAN CONVERTER...THE ROSCO, WHICH CONVERTS ELECTRIC FIELD TO VISUAL IMAGE TO FACILITATE CIRCUIT TROUBLESHOOTING AND POWER LINE NOISE TRACING. N5MS SAYS NOPE, ALREADY BEEN INVENTED.

WELL HOW ABOUT THE NEW BATTERY WHICH COMBINES SUGAR, $C_{12}H_{22}O_{11}$, WITH WATER, H_2O , TO GENERATE ELECTRICITY. ONE CELL HAS A POTENTIAL OF 3.5 VOLTS SO IT TAKES FOUR CELLS TO RUN A MOBILE RADIO. ONE UNDESIRABLE BY PRODUCT IS ETHANOL, C_2H_5OH . FRED, W5NL, SAYS SHHH! ALCOHOL TOBACCO AND FIRECRACKER BOYS ARE TRYING TO SUPPRESS THIS ONE.

WELL, MAYBE, JUST MAYBE, THE YOUNG MAN'S THOUGHTS WILL PREVAIL. HEY CHARLIE BROWN. WANNA HOLD THIS FOOTBALL FOR ME? JOE, K5JB

SID'S LOOP

THE ANTENNA ILLUSTRATED HERE IS BROUGHT TO YOU BY POPULAR DEMAND FROM THE ARCHIVES OF THE C&E. ONE FEATURE OF SID'S LOOP IS THAT IT HAS A SINGLE NULL LIKE THAT OF A CARDIOD PATTERN. I DON'T KNOW HOW IT WORKS, BUT IT DOES AND IS REPRODUCIBLE. A REFLECTOMETER CAN BE USED TO PLACE THE GAMMA MATCHING SHORT WHERE MINIMUM REFLECTED POWER IS MEASURED BUT I DON'T KNOW THAT IT WOULD WORK ANY BETTER, EXCEPT FOR TRANSMITTING. JOE, K5JB



WSKOZ
DF ANTENNA

DETAIL: SOLDER SHIELD TO CENTER OF LOOP. SOLDER CENT. CONDUCTOR TO 22 PF S.M. CAP. SOLDER OTHER LEG OF CAP TO END OF GAMMA ROD.

CW TRAFFIC HANDLING

ARLIE, WB5NKC, HAS SOME ADVICE FOR THOSE WHO ARE RELUCTANT TO GET INTO A CW TRAFFIC NET BECAUSE OF FEAR OF GETTING RUN OVER. HE SAYS THAT IT IS EXPECTED THAT NEWCOMERS TO THE NETS HAVE NOT HAD MUCH EXPERIENCE AND ARE GOING TO MAKE MISTAKES. SINCE THE BEST WAY TO LEARN IS TO MAKE MISTAKES, HE URGES PEOPLE TO CHECK INTO OAN, 3705 KHZ 6:30, ANY MONDAY THRU SATURDAY EVENING, AND TRY IT OUT. THE NCS WILL SEND NO FASTER THAN THE OPERATOR CHECKING IN SO THERE IS ABSOLUTELY NO REASON TO BE AFRAID OF GETTING 'BURNED DOWN'.

WHY NOT GIVE IT A TRY, UNDER RELAXED CONDITIONS, WHEN MISTAKES ARE NOT SERIOUS, AND BE PREPARED FOR THE EVENTUALITY THAT THE SKILL AND KNOWLEDGE OF PROCEDURES MAY BE NEEDED SOMEDAY. WHO KNOWS, YOU MAY BECOME ONE OF THE ELITE...A RADIO TELEGRAPHER. JOE, K5JB

REMOTE CONTROL OF IC-701

ONE OF THE COMPELLING REASONS FOR GETTING THE IC-701 WAS THAT I HATE TO SIT STILL. AS SOON AS I SIT IN THE OPERATING POSITION, I WANT TO GET BACK UP. RIGHT AFTER I CALL CQ, I WANT TO GO GET A CUP OF COFFEE AND RIGHT AFTER I GET AN ANSWER, I WANT TO GO TO THE BATHROOM. WHEN THE ROUNDTABLE GETS PRETTY BIG, I WANT TO GO OUT AND GET THE PAPER. I THINK I AM GETTING SPOILED BY FM WALKIE TALKIES.

THE ICOM HF RIG APPEALED TO ME BECAUSE THE ENGINEERS PROVIDED VITAL CONNECTIONS TO ITS CENTRAL NERVOUS SYSTEM AT A CONNECTOR ON THE REAR PANEL. I HAD VISIONS OF REMOTELY CONTROLLING THE THING WITH THE UHF WALKIE TALKIE. JUST THINK, I WOULDN'T HAVE TO BE HOME EXACTLY ON TIME FOR A SCHEDULE. I COULD CALL THE WEATHER NET FROM THE FRIENDLY NEIGHBOR HOOD TAVERN. THERE WERE ALL KINDS OF POSSIBILITIES. HERE IT IS A YEAR AND A HALF LATER, AND I AM STILL WORKING ON THE PROJECT. AT THIS TIME I CAN REPORT THAT THE THING IS TRULY REMOTE CONTROLLABLE AND HERE IS HOW IT IS DONE.

REFER TO FIGURE 1 SHOWING IC1 IN THE 701. IF YOU EXAMINE IT CLOSELY YOU WILL SEE THAT THERE ARE TWO WAYS TO CAUSE THE FREQUENCY OF THE RIG TO BE CHANGED. THE CK, IN CONJUNCTION WITH THE UD INPUTS CAN STEP THE FREQUENCY UP OR DOWN 100 HERTZ AT A TIME. INITIAL CONDITIONS CAN BE ESTABLISHED BY PRE-SETTING THE RIG ON A FREQUENCY AND MOVING IT AS NECESSARY TO 'FINE TUNE' IT, OR, FEED A PRESELECTED NUMBER OF PULSES TO MOVE IT TO A SPECIFIC FREQUENCY. IT CAN BE PRE-SET BY USING THE CL INPUT WHICH WILL PUT IT ON THE BOTTOM OF THE BAND IN USE.

THESE THREE CHIP INPUTS ARE DRIVEN BY 'OR' GATES IN IC-2 AND IC-4 IN FIGURE 2 BELOW. ONE INPUT OF EACH OF THE GATES IS AVAILABLE AT THE ACCESSORY SOCKET AND SIGNALS ARE RENAMED CL, UDC, AND SCAN AT PINS 18, 16, AND 17 RESPECTIVELY.

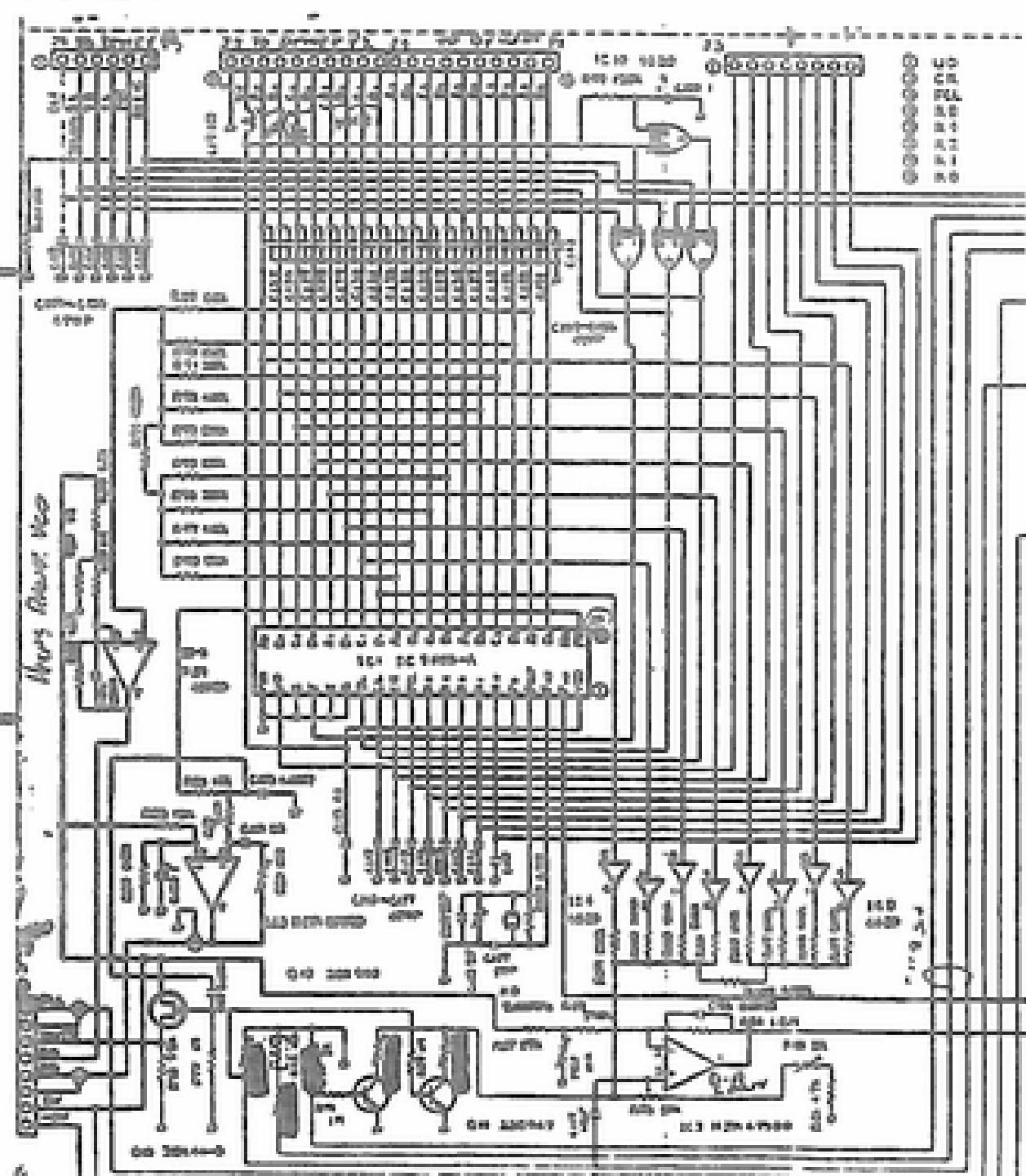


FIGURE 1. IC-1

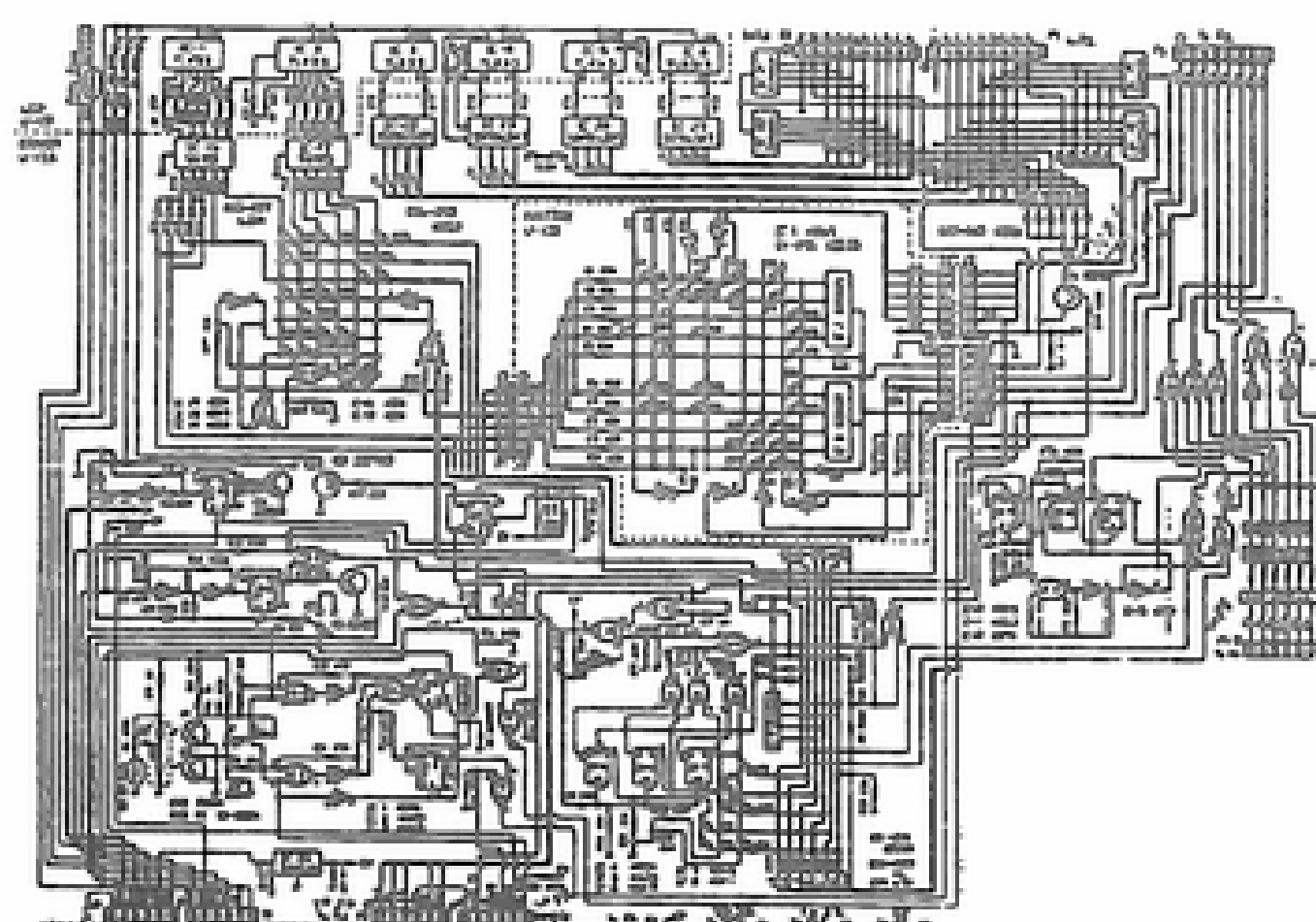


FIGURE 2. IC-2 AND IC-4

A CLOSE EXAMINATION OF THE CIRCUIT IN FIGURE ONE WILL REVEAL THAT THESE INPUTS ARE HELD LOW WITH RESISTORS TO GROUND. A PLUS 5 VOLT PULSE TO CL CAUSES THE RADIO TO GO TO THE BOTTOM EDGE OF THE BAND. FROM THIS POINT IS A SIMPLE MATTER TO GO TO A SPOT FREQUENCY. FOR EXAMPLE, TO GET ON 3900, 4000 PULSES APPLIED TO SCAN AND WITH UDC HELD HIGH THE FREQUENCY WILL BE 400 KHZ ABOVE 3500, OR 3900. FINE TUNING IS ACCOMPLISHED BY PUTTING HIGH OR LOW ON UDC AND ONE PULSE AT A TIME ON SCAN, EACH TIME MOVING THE FREQUENCY 100 HZ.

GENERATING THESE SIGNALS IS SIMPLY A MATTER OF LOADING A FREQUENCY, ONE DIGIT AT A TIME INTO A PROGRAMMABLE DOWN COUNTER AND AFTER THE LAST DIGIT, STARTING A CLOCK WHICH PULSES THE SCAN UNTIL THE COUNTER

READS ZERO AND THE RADIO READS THE PROGRAMMED FREQUENCY. FINE TUNE IS ACCOMPLISHED BY USING AN UNNUMBERED KEY SUCH AS POUND OR STAR TO GENERATE AN UP OR DOWN PULSE.

THE ONLY DISADVANTAGE OF THIS METHOD IS THAT IT TAKES A LITTLE LONGER TO PROGRAM A SPECIFIC FREQUENCY THAN THE SECOND METHOD SHOWN BELOW.

THERE ARE SIX PINS CALLED FCL, K0, K1, K2, K4, AND K8 AVAILABLE AT THE ACCESSORY SOCKET THAT CAN BE USED TO PROGRAM A SPECIFIC FREQUENCY INTO THE 701. FCL AND K0 PULSED HIGH AT THE SAME TIME SET THE TENS OF MHZ DIGIT TO A ZERO. FCL AND K1 PULSED HIGH SET THIS DIGIT TO A ONE, AND SO FORTH. THE REST OF THE DIGITS ARE LOADED BY PULSING K0 THROUGH K8, AS APPROPRIATE, FOR EACH DIGIT, MOVING FROM LEFT TO RIGHT. FOR EXAMPLE, A DIGIT VALUE OF SIX WOULD REQUIRE K4 AND K2 TO BE PULSED HIGH SIMULTANEOUSLY.

TO DO THIS WITHOUT A LOT OF HARDWARE REQUIRES USE OF A MICROPROCESSOR. THE CIRCUIT IN FIGURE 3 USES A MICROPROCESSOR TO INTERFACE THE DECODER AND LOGIC UNIT WITH THE ACCESSORY SOCKET IN THE 701. THE DECODER AND LOGIC UNIT IS CONNECTED TO THE TERMINALS SHOWN AT THE LOWER LEFT AND THE ACCESSORY SOCKET IS WIRED TO THE TERMINALS SHOWN ON THE RIGHT.

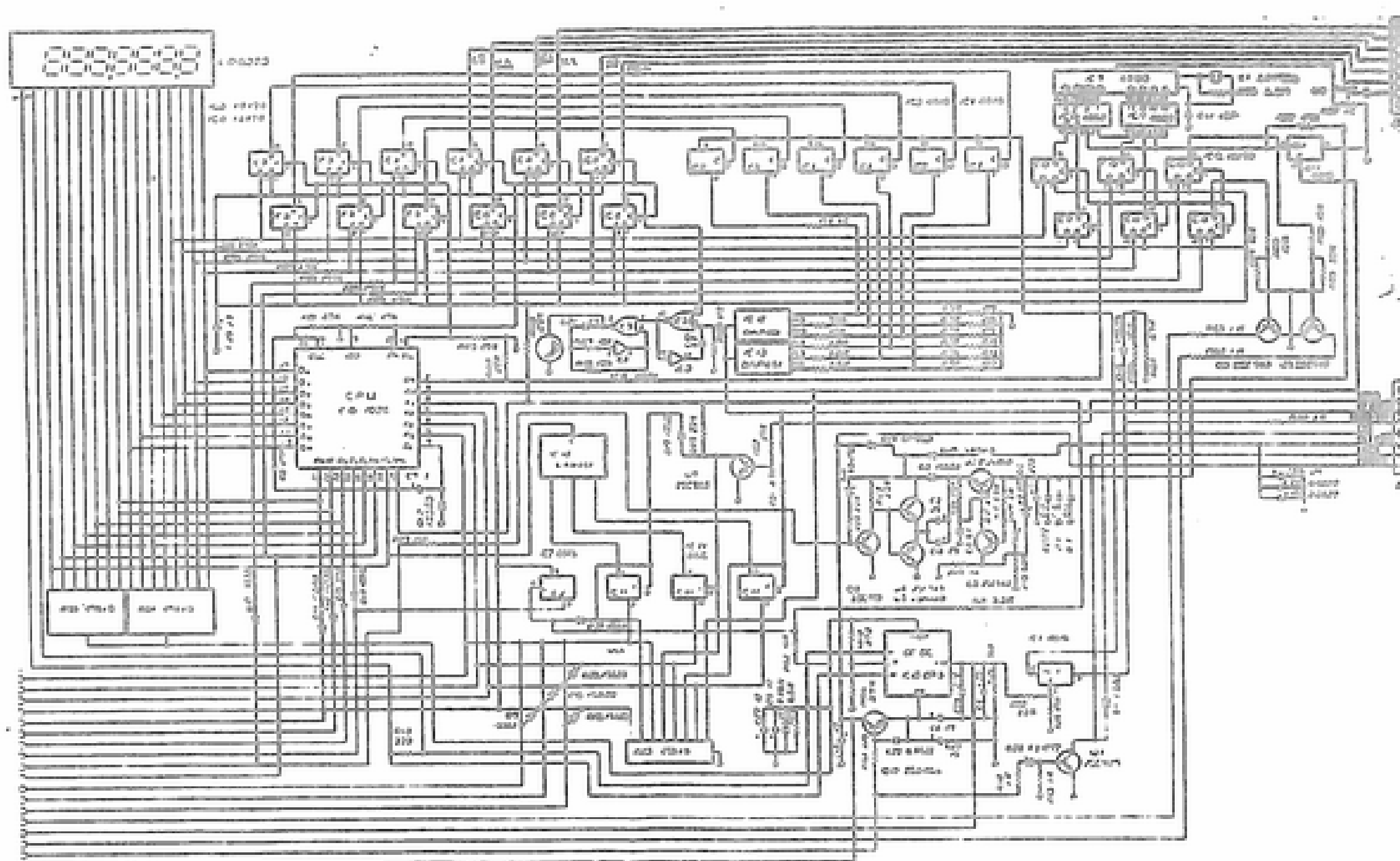


FIGURE 3. INTERFACE

FOR THOSE WHO DO NOT HAVE A REMOTE BASE TO CONNECT THIS CIRCUITRY, THE CONNECTOR ON THE LOWER LEFT CAN BE CONNECTED TO A LITTLE KEYBOARD AND THE CONTROL UNIT WIRED REMOTELY FROM THE 1C-701. FOR THOSE WHO MIGHT HAVE HAD A LITTLE DIFFICULTY FOLLOWING THE CIRCUITRY AND THOSE WHO AREN'T INCLINED TO BUILD THINGS, ICOM HAS PROVIDED A READY-MADE GADGET THAT WILL DO ALL THESE THINGS, AND MORE.

IT IS CALLED AN 1C-RM2 REMOTE PROGRAMMER. JOE, K5JB

FOR SALE HEATHKIT SB 101, SB 600 & MIC 300.00, HEATH SB 220 (475.00)
 DRAKE REC. MODEL 2A \$100.00, HEATH GR-210 (ALL MOST TOGETHER) \$100.00
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 DTR-2000L 2KW Linear--\$950. Mac, K2GKK--405+672-4947.

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AMCARE (Ambulance)	232-1234
Coronary Care Mobile Unit	236-0191
Oklahoma Highway Patrol	424-4011
(EOC) Emergency Operations Center	231-2255
Poison Information Center	271-5454
(WATTS Line 1-800-522-4611)	








POLICE AND FIRE DEPARTMENTS

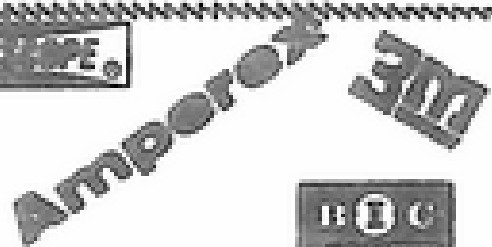
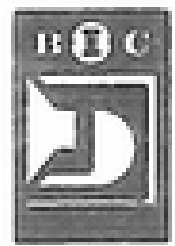

LOCALITY	POLICE	FIRE
Oklahoma City	231-2121	235-1313
Arcadia	236-1717	396-2475
Bethany	789-2323	789-1411
Del City	677-2443	677-3344
Edmond	341-3434	341-1313
Forest Park	427-1466	235-1313
Midwest City	732-2266	732-4548
Moore	799-7701	794-5518
Mustang	376-2488	376-2488
Nichols Hills	843-5672	843-4182
Nicoma Park	236-4111	424-4307
Norman	321-1444	321-3131
Piedmont	373-1334	373-1331
Spencer	771-3798	771-3853
Tuttle	381-2067	381-2311
Univ. of Okla. (OU)	325-1717	321-3131
Village The	751-9564	751-2121
Warr Acres	789-3329	789-3133
Yukon	354-2553	354-6611

HOSPITALS

Baptist Medical Center (Burn Center)	3300 N. W. Expressway	949-3011 949-3311
Bethany General Hospital	7600 N. W. 23	787-3450
Bone and Joint Hospital	1111 N. Dewey	272-9671
Childrens Convalescent	39th Expsy. & Mueller	789-6711
Childrens Hospital	940 N. E. 13	271-4371
Deaconess Hospital	5501 N. Portland	946-5581
Doctors General Hospital	1401 N. Robinson	236-3011
Edmond Memorial Hospital	1 S. Bryant	341-6100
Mercy Health Center	4300 W. Memorial Rd.	755-1515
Midwest City Memorial	2825 Parklawn	737-4411
Presbyterian Hospital	N. E. 13 & Lincoln	271-5100
St. Anthony Hospital	1000 N. Lee	231-1811
South Community Hospital	1001 S. W. 44	632-1661
University Hospital	800 N. E. 13	271-4000
Veterans Administration	921 N. E. 13	272-9876
Willow View Hospital	2601 N. Spencer Rd.	427-2441

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NO ONE WILL TELL YOU

I have never heard a CW operator tell another CW operator on the air that copy is difficult because of improper dit or dah length or because of improper spacing of these elements. Instead, a QSO may become quickly bogged down and end with a "SRI QRM 73 SK" because a station is sending incorrect element lengths or improper spacing.

I have done a lot of listening over the past three years to both operators in each particular QSO on the 40 meter novice/technician segment. My object was to learn to understand the meaning of code without writing. I made good progress and also began making CW contacts after 40 years yakking on 'phone with a few breaks to eat, etc. I heard some excellent sending and some almost unreadable sending and all in between. I wondered what, specifically was wrong, so I began analyzing the errors.

One simple error in dit or dah length or the spacing was often the only thing a particular operator was doing to cause everything he or she sent to be difficult to copy. The error was repeated like a well formed habit. Another operator would make some other error and repeat it every chance he or she got. Most of the poor senders were making only one or two errors in element length or spacing, but doing the same wrong thing throughout all that was sent. Correction seems such a simple matter for most of the offenders. After discovering the trouble, there were strong impulses on my part to tell an offending operator at times what was causing difficult copy. I don't tell 'em because this sort of thing apparently is not being done. He or she would probably wonder what kind of expert I am. Actually, I am no expert, but I am offering some suggestions below based on a lot of listening that is intended to be helpful to those wanting to improve and advance. Knowing what these errors are should help, so some are listed and described. Then we will look at ways to verify sending quality.

SOME OF THE MORE FREQUENTLY OCCURRING ERRORS

1. Dit and dah length almost equal.
2. Excessive space within a character at some point. Example: The letter L might contain an extra long space just after the dah, making the L sound like AI. Numerals contain this mistake quite often with the extra space being between the dit or dits and the dah or dahs.
3. Dah shortened to a dit, especially when dahs appear at the end of a character.
4. Dit and dah lengths vary.
5. Dah length is extremely long. This is not the short dit effect that occasionally occurs with a bug. The dah is absurdly long with last ones in a character or word being the longest as though the operator is resting with his or her hand on the key.
6. Word spaces are shortened to equal the spaces between characters in a word. This is usually not difficult to copy if there are no other gross defects, but coupled with one or more other defects and some individualized abbreviations makes deciphering very difficult.
7. Wrong number of dits or dahs. The operator is obviously counting the elements. Don't count, send and copy by sound and rhythm.
8. Interchange Y and Q. The operator learned that Y is just like Q except that . . . Other characters have this interchange error. Don't make such comparisons, ever. Each character has its own sound.
9. No character space, running two characters together so that NAME becomes NAG, for instance.

.continued

10. Electrical or mechanical defects such as chirp or loose connections can cause copying problems.

These element lengths and space time errors are way off from the normal when I say errors are being made. Some leeway from the norm can still be easily and accurately copied. Even electronic copiers allow for some deviation from the exact lengths and spacings. Next are some ways to uncover errors you may be sending.

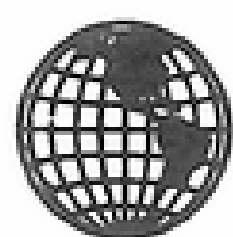
SUGGESTIONS ON HOW TO DISCOVER YOU ARE SENDING ERRORS

1. Make a tape recording of one of your QSO's. Listen to it.
2. Use a side tone oscillator as you send.
3. Compare your sending with WIAW or code tapes or records.
4. Working with an experienced amateur or a "CW Man" could be very helpful. However, see WHO IS THE EXPERT? below.
5. Consider the results you get from a single transmission. Did the other operator respond to it as he should have?
6. Are your QSO's conversational? It is possible to take turns making transmissions, with only the call letters received correctly. I have come close to doing this myself.

WHO IS THE EXPERT? The novice and technician amateurs are on their training band segments teaching each other bad tricks. In getting an experienced amateur to help you, you may team up with one of those who has retained a mistake or two in his sending habits from his early days. Maybe this guy was your teacher in code class. Who is the expert? What is the ultimate code instruction? It looks like it all boils down to your ability to use the code on WIAW, records and tapes as your guide.

I have suggested ways you can discover sending errors, and have provided a look at the nature of some common errors. You must be attentive, listen to what you are sending, and have some concern about whether or not you are sending correctly.

- - - - Bill, WA5RAQ - - - -



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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	None	
146.01/.61	K5GDE/RPT	9 mi. NW of City	Calumet	107	20 6	WHEATSTRAW	No	East	
146.07/.67	K5ELL RPT	Channel 4 TV Tower	NE OKC	800/600	35 6	MORI	Yes	NNW	WA5TSJ Trustee
146.10/.70	WR5ASI	SW 87th & May Avenue	SW OKC	60	50 6	Individuals (RTTY)	No	None	WB5GWB Trustee
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	W5NTL Trustee
146.28/.88	WR5AFW	O.U. Campus (Split Site)	Norman	198/116	25 6	OUARC	Yes	None	N5MS Trustee
146.31/.91	WR5AOQ	Eastern Section of City	Shawnee	150/85	20 3	Tri-County Repeater	Yes	SE (RX)	WB5BKH Trustee
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)	WB5ISN Trustee
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	El Reno	70	27 6	El Reno Area ARC	Yes	East	
147.93/.33	K5PL/R	Grain Elevator	Edmond	190/150	18 ERP	Individuals	Fut	NW (TX)	No Ider @ Presstime
449.1/444.1	WA5TRS R	Liberty Bank Building	DNTNOKC	500	20 12	MORI	No	None	K5JB Trustee
449.2/444.2	WD5AIT	Channel 5 TV Tower	NE OKC	900/750	100 12	EARC	Yes	None	WB5ISN Trustee
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

REPEATER INPUT

MARK NORTH CUTT
WDSOI

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

about making an autopatch call. The repeater trustee or control operators should be monitoring the repeater at all times. Remember Part 97: No business communications! If there is any question in your mind of the legality of the call, DON'T.

NULL is the area in which a radio signal may be partially or totally blocked. Nulls occur when an antenna is mounted on the side of a tower or near some other reflective object. The signal coming through a tower or blocked by a nearby taller building may create a "shadow" effect and will have a definite influence on the antenna field strength pattern. Sometimes, as in the case of the Calumet and El Reno repeaters, the "lay of the land" creates a null which is not intended. Higher ground elevation between downtown Oklahoma City and these repeaters creates an unfortunate null. In most cases however, nulls are like shadows: they have a definite effect but you can still see through them.

OTHER NOTES THAT WOULDN'T FIT ON THE CHART

10/70 is voice and RTTY and at a temporary location.
16/76 has emergency power. Also home of the Oklahoma County Emergency Training Net.
07/67 is the standby repeater for the Oklahoma Central Severe Storms Warning Net.
22/82 is the primary "weather net" frequency and will soon have emergency power.
25/85 needs a $\frac{1}{2}$ second tone minimum for patch access.
34/94 has emergency power and is committed to Red Cross disaster assistance.
72/12 autopatch access tones are available on request.
84/24 has weekly code practice on Monday, Wednesday and Friday nights. Check times.

RED CROSS DISASTER SERVICES WORKS ON "PEOPLE POWER"

Susan W. Clowe, Director Public Information
American Red Cross

It is almost time, once again, when severe weather may strike here in Oklahoma. When disaster is mentioned in this area, most people think immediately of tornadoes, but there is always a constant threat of floods, transportation accidents, fires and others.

The Oklahoma County Chapter of Red Cross Disaster Services recognizes the need for year-round disaster preparedness. In the initial phase of disaster, Red Cross offers victims food, clothing, shelter and medical aid. All assistance is an outright gift. There is never a charge for disaster services.

One of the ways the chapter stays "disaster ready" is through the use of the talents of dedicated volunteers who help formulate the disaster plans all year and who go into action when a disaster occurs.

The amateur radio operators in Oklahoma are some of the chapter's most valued volunteers without whose constant support the Oklahoma County Chapter's disaster effectiveness would be diminished.

Red Cross is "people power", and the organization depends upon its volunteers in order to function. The Oklahoma County Chapter, currently, has volunteer positions open in disaster services which the chapter would like to fill in advance of the tornado season. There are opportunities for wives of the amateur radio operators already involved in disaster services as well as for HAMS who would like to work in disaster in other areas than in communications.

There is frequent need for volunteers who would be available at various hours to help with family service. This position is open to those interested in helping people and who are willing to gather basic information from the disaster victim to help determine what Red Cross assistance will be given. Of course, Red Cross offers training in this area, and during disaster, there is a supervisor on hand while the interviews are being conducted.

Other volunteer jobs for both husband and wife together include helping to feed disaster victims and workers, surveying damage, working in shelters or answering telephones and relaying messages in the chapter.

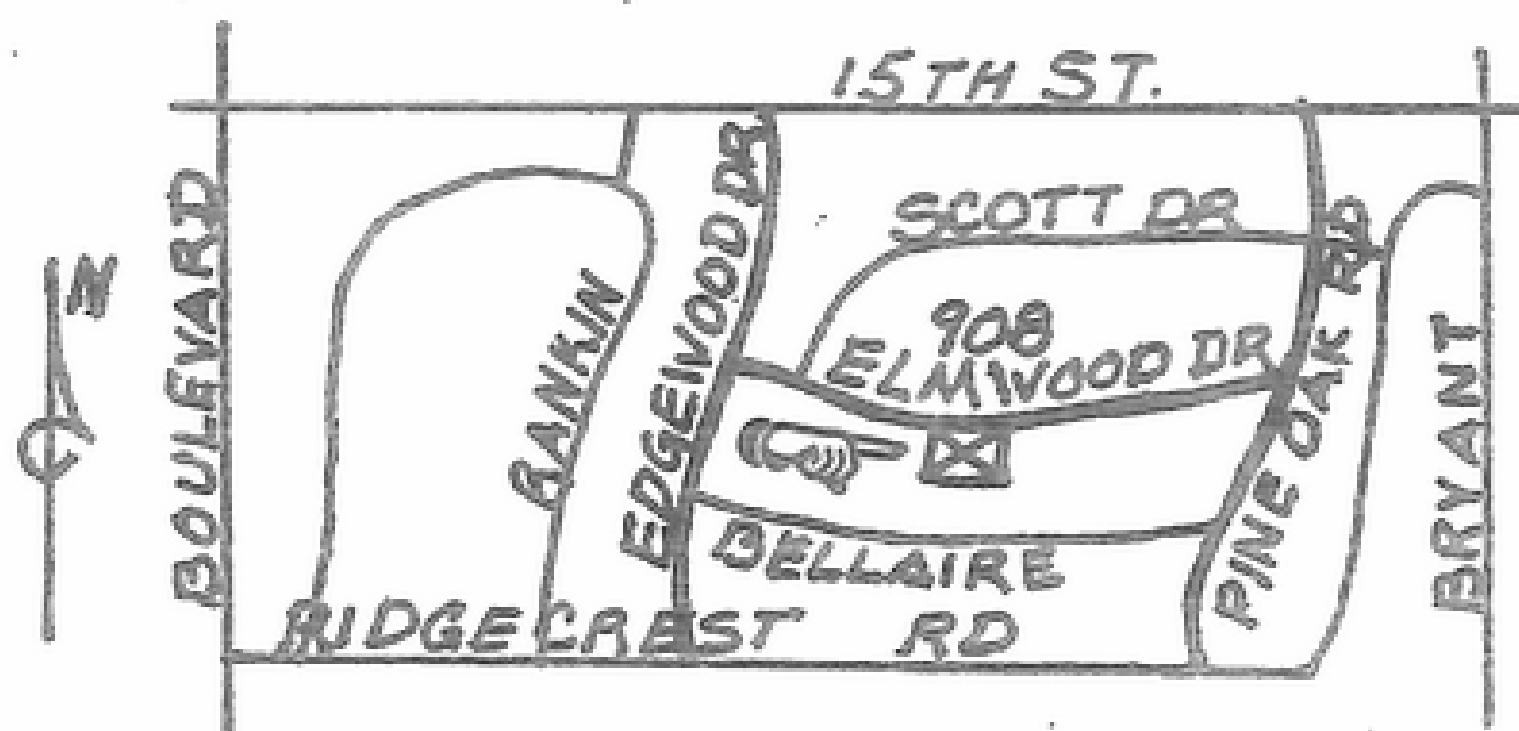
For more information and to volunteer, call Jack Muse, Director, Oklahoma County Chapter Red Cross Disaster Services or Susan W. Clowe, Director, Public Information and Volunteer Services, at 232-7121.

EDMOND AMATEUR

RADIO SOCIETY

147.72/147.12

NEXT MEETING
SUNDAY 20 APRIL 1980
BOB SHAW'S SHACK
908 ELMWOOD DR.
EDMOND
GUEST OF HONOR WILL
BE "OSCAR" THE WAY-
WARD SATELLITE.
BRING A FRIEND



Friends, Romans, countrymen, fellow amateurs, etc., lend me your dollars (only kidding of course). It has come to our attention that some of you still don't know about our repeater. Well what can we say? Our repeater is on 147.72/.12, is located in Edmond on the KCSC radio tower and it works fantastic!!!!!! If you have not tried our machine yet, then waste no time! (In other words -- If you don't have an oil well, get one. You'll enjoy doing business with us.) The repeater is open and you need not feel obligated in using it.

In the last several months the repeater has undergone a lot of change. To eliminate some confusion we will attempt to describe the system as it now stands. The receiver is a solid state Motorola Motrac; RX antenna is a DB 264 mounted up 220 ft; TX is also a Motrac with one transistor for the mic preamp, 5 tube exciter, a double driver, and final amplifier. The TX runs about 30 W; 110 ft of heli-ax feeds a 4 pole Cushcraft antenna at 80 ft. We presently have an autopatch which is open but controlled. Our patch doesn't work quite the same as the others around the area so be sure you get a briefing from Martin Vison (trustee) before using it. We hope to have emergency power soon. In this regard we need some help from members or other philathropically minded people to obtain several 12 volt storage batteries to carry us thru power outages during storms etc. We also need to acquire a 12 volt low power transmitter for use during battery operation periods. An HR-2 would be an ideal unit. Any info on the availability of such items should be communicated to our Pres., Ken Stepp at 341-4874.

In case you have noticed some intermodulation problems lately, be assured that our trusty trustee Martin is right on top of it and is on the way to a solution. In the meantime please resist any temptation to be unkind to any of the .34/.94 folks, it is not their problem. They have been most co-operative in tracking down the bug. Martin has been sunning himself in sunny San Antonio for a couple weeks but will be hard after the problem upon his return.

We have an unparalleled opportunity to obtain a new Motorola Micor R receiver at a ridiculous price. An assesment to purchase it was almost fully subscribed voluntarily at the March meeting. Your opportunity and more details, including the Honor Roll, will be on hand at the next meeting.

WANTED TO BUY: We have an old Ham (well not that old) KØAYS, Charles Frodsham who has recently returned to the fold who needs to purchase some new equipment (new to him that is). Here is his shopping list:

- 1 - Hf transmitter or transceiver (he has a gen. coverage rec.)
- 1 - Hy-Gain 18 HT vertical antenna
- 1 - 2m mobile rig.

Call Charley direct at 348-4264.

Allen Watson, W5ERY, has proposed that the club design and adopt an Edmond QSL card which we can have overprinted for each member station with our own QSL information. Any takers on this? Lets be ready to discuss this at our next business session. That will probably be at the May meeting.

By the time this reaches you we will have made a move toward powering our repeater with solar energy. At the last meeting the membership authorized your scribe and venerable V.P. to submit a Department of Energy Small Grant Application for an Appropriate Energy Technology Demonstration Grant to demonstrate the application of solar energy (photovoltaics) to the operation of communication systems. We may not have a chance but they don't shoot you for trying. The club will be the co-sponsor of the project and will have to serve as the Board of Directors to control the project. More details at the next business meeting.



April 1980

EARS

President Ken, with the help of 7 members, lent a hand with Edmond's Civil Defense siren tests on Saturday 1 March. The Honor Roll is:

K5IRO	WD5BKT	WD5FET	WA5BQX
K5PL	WA5ZGN	WD5IDB	WD5HXX

Sec./Treas. Roger Harmon, KB5QC has encountered a work assignment which will take him out of town for several months making it impossible to discharge his duties. He has resigned and Allen Watson WERY was elected by acclamation to take his place. Welcome to the frying pan Allen.

HOW ABOUT THAT - - THREE MORE NEW MEMBERS

★ Robert L. (Bob) Janda
1901 Edgewood Drive
Edmond 341-2046
Memberships: Autopatch
Interests: CW & Antennas

KA5AFN
Lic. since 1978

★ Arthur Roberts
2941 N.W. 44th
Oklahoma City 947-5347
Memberships: ARRL
Interests: CW, UHF & VHF

W1GOM General
Lic. Since 1960

★ Gerald J. Hensley, O.D.
9404 N. Walker
Oklahoma City 843-3731

K8AFP

FUTURE ACTIVITIES: May -- EARS Station operation from Edmond Plaza shopping Center to publicize our summer novice class. The TG&Y store manager thinks it would be great for us to set up near his entrance and has agreed to supply us with power and space. That is a lot better than being out in the direct sun and having to rig our own shade. We will need members to man the station throughout the day -- and to monitor the station and help keep the traffic up in case it lags. This is a great opportunity to let more Edmond citizens become aware of our club and the opportunities for service and fun in the process. More on this at the April meeting.

June -- Field Day. The city parks department has given us a reservation in E. C. Hafer Park located on the east side of Bryant at 9 th Street. There are some problems with this location as the site is rather heavily wooded and stringing antennas will pose some problems. Don't be discouraged. Yours truly has been operating an inverted vee from the midst of the trees for some time and I manage to get out OK. The trees are not very tall and we probably can get a mast above them without too much difficulty. After all, one of the objectives of field day is to demonstrate operation under emergency conditions. In such a case we might not have a choice. If construction work at Chitwood Park is completed before Field Day we may be able to move back there; but don't hold your breath. Has any one watched the progress of a construction job lately? So for now it is Hafer Park until further notice. Dee Mize will need a lot of help on this one so inventory your supply of antenna materials and let him know what you feel you can contribute. Dee hangs out at 348-6535 or 341-6163.

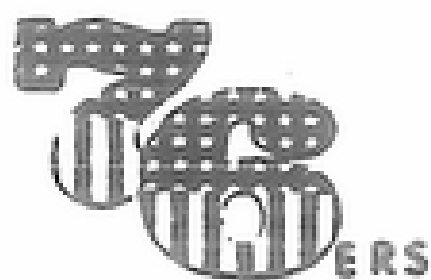
June -- Weiner Roast on Saturday evening of Field Day. We will have the use of two covered pavilions at Hafer Park so get the picnic gear ready to roll.

Your Edmond Amateur Radio Society is alive and growing under our new Pres. and thanks to the good work of those who came before. But who are these people who originally plowed the ground which we now maintain. I am advised that there were eight Charter Members that day back in 1957 when EARS was born. They were:

K5CBA, Preston George	K5SAM, Henry Just
W5WAH, Harold Burke	W5HAX, Noble Wynn
K5KRN, Dale Rains	W5JCY, Bertha Watson
Milton Heflin	W5ERY, Allen Watson

Where are they now and are there any others? Who were some of the other members who comprise our heritage? Please communicate with Allen Watson or Clarence Dollmeyer on any dope you may have tucked away in your memory.

SK EARS DE KB5RR CL



BICENTENNIAL AMATEUR RADIO CLUB

"To Promote Radio Communications"

Sponsored by Oklahoma Air National Guard
ARRL affiliated



"OOOOH"

"WOW"

"GREAT"

"FANTASTIC"

"WONDERFUL"

are just a few of the comments you heard at the last "76er" meeting on March 11. Bob Cooper had a terrific demonstration of the operations on Satellite TV and we got to see, what we didn't see on TV does that make sense? It was very informative and very interesting. For those interested in hearing more, tune in 14.311 at 1900 ZULU on each Sunday afternoon. ("Super-Cooper") Clara, WD5KFT brought some home-made chocolate chip cookies for everyone.

"ACTIVITY IN APRIL"

I received a very nice and interesting letter in the mail last week from Dee Cordry, WD5IRL, he is a "Novice and lives in El Reno, Oklahoma. He reminded me that the Annual Spring QSO Party for all Novices will begin in April. (See below for the dates, times and frequencies) I would like to encourage all of you to check into the Slow Speed Net each day on 3705 and join the activities. I think it will be a lot of fun, so be sure to mark these dates on your calendar.....

"Q R P" AMATEUR RADIO CLUB INTL. 1980 ANNUAL APRIL QSO PARTY

Begins: 2000 ZULU (2:00PM) Saturday, April 5, 1980
Ends: 0200 ZULU (8:00PM) (Sunday evening) April 7, 1980
Frequencies:

CW	1810	3560	7060	14060	21060	28060
SSB	1810	3985	7285	14285	21385	28885
NOVICE	3710	7110	21110	28110		

Thanks Dee....

--- Also ---

April 1 - Happy Fool's Day
April 6 - Happy Easter

"A SPECIAL THANKS"

to Larry Mooney and the National Weather Service for a marvelous program (SPOTTER SKYWARN SEMINAR) last month, February 9, 16 & 23, where we saw colored slides on various cloud formations, what to look for whenever a tornado is approaching and much more.... We also took a tour of the National Weather Service where their operations and the importance of Amateur Radio Service were discussed. For all of those who participated received a beautiful (8½"x11") certificate suitable for framing and displaying. I got mine ---- did you get yours????

"CONGRADULATIONS"

go to three men who went to Dallas, February 12 and came back with some "winning" tickets.

N5AKL	(Freddie)	Advanced
KA5ELM	(Bill)	General
KA5GFI	(John)	General

I know there are many more of you that I didn't mention, but I have heard you and congradulations to you too.

"Fine Business" fellas...



BICENTENNIAL AMATEUR RADIO CLUB

"To Promote Radio Communications"

Sponsored by Oklahoma Air National Guard
Wichita Region World Airport

Best Wishes and wishing a Speedy Recovery to:

W5JJ	(Carl)	released from Deaconess Hospital
WB5TFX	(Ben)	released from Holdenville Hospital 3-11
WA5FIJ	(Mary)	released from So. Community 3-12
W5MCJ	(Jerry)	released and resting comfortably ????
WA5GVH	(Loday)	released and recovering from surgery ????

Well, I guess that about does it for this time, hope to see ya all at the next meeting for the "76ers" April 8, 1980.

Remember Keep those cards, letters, phone calls and articles coming in.....

73

KA5FED (Susie)

Paul, WA5HTL went too far this time.

He arranged to have BOB Cooper's program on Satellite T.V., and Clara, WD5KFT with cookies at the same meeting. After setting up 75 chairs some members still had to stand. Can we top that next month? Don't know but Paul is bringing in high powered talent from South of the border. Micheal Salem, N5MS of Norman. Don't know the topic but it could be anything. Micheal is ham of many talents. Topic may be on how to get in or out of trouble with the law (P.C.C.), or a yarn about some recent biggie Ham Fest or maybe he will tell of late night experiments on the Gig-e-hurts band, show up and find out.

Field Day is the main event of the year for our club, and plans are under way now to make this one bigger and better.

Dick, WB5TMW will be the coordinator again this year. Dick says committee meetings will be held and are open to all members. If you have equipment we can use, let Dick know.

The year is half over and I haven't been impeached "yet." A big, thank you to members who volunteer. They keep the club moving. Some of our new members are missing out on half the fun, so get involved.

I don't know the program for May, but I will find out and let you know.

Paul may be up in Newington inviting Harry Dannals and Wayne Green to drop by together . . . No he wouldn't do that-- ----would he???

Joe
WD5BMP

HELP WANTED: Ye Managing Ed has the use of an IBM Selectric typewriter to be used in re-typing articles that won't reproduce, want ads written on scraps of paper, last minute changes or additions, etc. One little problem! It probably needs a good cleaning or something. When it is "cold" you get two or three characters every time you touch a key. Warm it up and it works good. I will give my salary for this months work on the C&E to some kind volunteer who is familiar with Selectrics and can get it going good. Joe, WA5ZNF

FOR SALE: Swan 500, SS-16 Special, with 117 XC power supply, complete only \$360.00. Dale, K5WUF. 943-5438



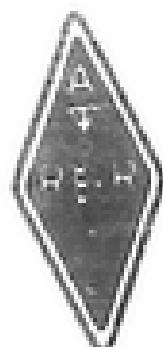
MINUTES

The abbreviated March meeting was called to order by Prez Joe WD5BMP at 7:01 pm at the Air National Guard Center on the 11th with 68 members and guests present.

The minutes of the February meeting were approved as published in the March Collector and Emitter (C&E).

The Treasurer's report was approved as read. Tom KP5E announced he would offer no more than one month's grace period when membership dues become payable. It is, therefore, advisable that club members attend meetings if only to bring their dues up to date.

The Secretary was requested to write ARRL for the necessary forms for Field Day 80, Jun 28 & 29, their reply:



American Radio Relay League

225 MAIN STREET
NEWINGTON, CONNECTICUT, U.S.A. 06111

Dear OM/YL:

Your request for ARRL materials, Field day, is delayed because: ☒ we are temporarily out of stock. ☐ they are out of print.

In certain instances our information is being revised so we can send the latest or most complete data. Please reorder after April.

Thank you,

Special Request Department

It was announced that Ham Holiday 80 has been approved as a State ARRL Convention as well which provides us with League participation in programs and support as in sanctioning.

Oklahoma County's EC, our own Bill KB5BS, announced the Oklahoma Repeater Interconnect System (ORIS) in cooperation with EC's from counties southwest of here. The plan involves linking a two-meter repeater at least as far as Altus with one here in OkC. such as 25/85 via 450 MHz links. The planned completion date is HH80. The many people already giving of their time, effort and funds will still need additional volunteers to aid in checking the system...contact Bill KB5BS or Bob WA5CJG.

The Business meeting was secured at 7:15 for 20 minutes of coffee, pop, donuts and Clara's Excellent cookies (and socializing).

The program at 7:35 on Satellite TV reception and what one CAN see (si si!) was presented by Bob Cooper W5KHT, Arcadia OK and video tapes of outtakes (what you don't normally see on your home commercially-free tv screen). We discovered that Fred Norman, KOCO-TV meteorologist, has a wry humor, Oriental TV really does speak Oriental language, video tape can be edited and I wonder if they were priced right, as they moved! In concluding his program, Bob announced that he and his YL, Susan N5AVC would be portable/VP for about a month and would work stateside stations at 5 pm daily till 31 Mar on 28.660 MHz. GL.

The Satellite Net meets at 1900Z Sundays on 14.311 MHz.

There being no further business the meeting adjourned to the aftermeeting at 9:01 pm.

Next meeting, same time/place, 8 April 80. Jim N5BEQ
Secretary

kay

C O U N T Y
A M A T E U R
R A D I O
C L U B

It's happened again! Someone stole 20 of the last 30 days, because it is time to come up with another C&E article, and it seems like I just finished the last one. We had the cold weather scare off many of our members for the February club meeting as we only had 8 hearty souls appear. The club voted to proceed with acquiring circuit boards for tone alerts (tone controlled squelch) for club members. We felt this would be a valuable addition to the club as it provides a means of alerting club members to special situations with the repeater without having to listen to all the chatter that is normally present. We will have 11 circuit boards and most of the components available at the next club meeting for the nominal fee of \$10. After the normal reports were presented, we heard an excellent program by Bob Stark, W5IPN, on avionics with demonstrations of some of the test equipment built by Bob under contract to Bell Helicopter.

Some of our club members attended a spotter training session put on by Larry Mooney of the NWS that was held in Blackwell, and found it to be of excellent quality. Larry has done a fine job of preparing these programs and getting the word out around the state and deserves a big hand for his effort.

Since I'm the poor schmuk who wound up making the circuit boards for the Tone Alert units, I thought I would pass along a few tips and suggestions. One of the biggest problems was gathering all the parts for the kits. I wound up ordering from 3 of the suppliers listed in "73" just to get the common things such as diodes, capacitor IC's, ect., and I'm still waiting for some of them to arrive as of this writing. It was interesting what buying all the parts in quantity can do for the price. I built my tone alert earlier and bought the parts in single quantity from Radio Shack, ect., and have about 22.00 invested in parts. Buying in a quantity of 12, we are able to offer the kits at cost for about 10.00, a 55% reduction in price. This was our first experience with photo sensetized PC board and it was interesting to say the least. I painted the circuit pattern on clear celluloid with black model paint. Although the pattern appeared opaque in normal light, in bright light it was transparent as window screen. First lesson, and scratch one board. After painting a second coat on the opposite side of the celluloid, I opted for solar power to expose the board. The instructions called for a 10 minute exposure in sunlight so I let it go 15 just to make sure. Surprise, it was underexposed. Second lesson- the instructions are written for Panama at 12 noon in July! And scratch two boards. Now the project looks desparate. I finally discover that a 10 minute exposure with a movie flood light does the trick. Then comes the developing! The developer is sodium hydroxide, which has more warnings on the side of the bottle than a chemical warfare weapon. Treat it with all the respect it deserves. Then comes the etching process with ferric chloride, another active chemical. It will readily dye your skin, clothes, ect upon contact and does not wash out. There is an ominous warning about ventilation. The chemical reaction should be ferric chloride and copper becomes copper chloride and iron. All neat and tidy, except that some of the chlorine escapes as a free gas during the process, so don't get down and breathe the vapors or you will find that you have etched your lungs. Now you are the proud owner of an etched circuit board that needs to be scrubbed with steel wool. Now you can start drilling the holes with a number 58 or smaller wire bit. Then you can go to the hardware store and buy all the #58 bits in sight as they break if you look at them crooked. That was simple wasn't it??? Now comes the hard part-----explaining how come all your XYLS towels have smelly stains on them, why the house is full of foul odors, and how come the dining room table is now a carbon copy of your garage workbench.

Next month Larry Mooney from the NWS will present our April meeting with spotter training. Hopefully we will have good attendance at this meeting, as it is that time of the year to chase clouds. Till next time-----

73 Chuck WB5DOT

KAY AMATEUR 2M NET CONTROL SCHEDULE

Date	No.	Primary	Backup
03/31/80	167	WA5UBO	W5ZWM
04/07/80	168	WB5DOT	WB5JYC
04/14/80	169	WD5ACK	N5EO
04/21/80	170	W5ZWM	WA5UBO
04/28/80	171	WB5JYC	WB5DOT
05/05/80	172	N5EO	WD5ACK
05/12/80	173	WA5UBO	W5ZWM
05/19/80	174	WB5DOT	WB5JYC

* FOR SALE - Heath SB-200 with 10 meters- Excellent condition. Will deliver

* within 100 miles. \$360 Cosby Clark WB5JYC, Ponca City

* 765-3150

* FOR SALE - Heath HM-2102 VHF Wattmeter. Excellent condition \$30

* Cosby Clark WB5JYC Ponca City 765-3150

Oklahoma Repeater Society Minutes of meeting January 12, 1980

The winter meeting of the Oklahoma Repeater Society met in Woodward, Oklahoma, in the Emergency Operations Center, Courthouse Building, at 1330 on January 12, 1980.

The meeting was called to order by President Dan, K5FVL. Those present were introduced. The minutes of the last meeting were read and approved. The Treasurer reported over \$200 and all bills paid.

A lengthy discussion was held about the interference the Russians have been causing with their "Woodpecker". Car tags were discussed again. Mike Salem, N5MS, gave a report on the special identification card from the Department of Public Safety. You can get an application by writing Mr. Gene Thaxton, Director of Telecommunications, 3900 N. Eastern, Oklahoma City, Oklahoma, 73111.

The frequency list was discussed, challenged and corrected. This resulted in it being current.

Leonard Hollars gave a report of ARRL and the U.S. Weather Bureau has scheduled several meetings throughout the State for the "Sky Warn" Spotting School.

A motion was made and passed to have the minutes of the meeting mailed to the membership in 60 days, along with Special Identification Card applications.

The meeting was adjourned at 1530.



John WB5UOE

Shawnee Amateur Radio Club



W5SXA

N5BWL: That's the new call sign for Bob Barton. The jury is apparently still out on his advanced class license. He's on the air with the last of the red-hot 2036's, however, and is working on an HF capability, also. Oh yes, he got the antenna relay to work, and discovered along the way, the basic rule of radio that if you use long enough mounting bolts you can put a mechanical block on any relay. Aaanny-way, whyncha give him a call - he'll talk to ya.

T-Town Test: Saturday morning, 15 March 1980, a simulated explosion at the Tecumseh High School brought the City's Civil Defense System together for a little training. Both Mission Hill and Shawnee Medical Center Hospitals got a chance to show their efficiency in responding to a disaster. Civil Defense Director, Carl West, staged the show. Pottawatomie County ARES operators provided some of the communications required and recorded the proceedings for posterity. Those involved were WB5ZBA (EC), WB5TZQ, KA5FIT, K5LZF, N5BWL and KA5FBC.

Field Day Changes: Not ready for Field Day? Well you'd better start getting ready. QST Magazine for March 1980, on Page 92 carries a brief description of some changes in FD rules. The most notable change is the limitation of set-up time to 24 hours immediately preceding the 27 hour operating period. Detailed rules will appear in the May issue.

"WITHOUT WARNING" The title of an article in December 1979 QST, Page 66, tells the story. This should be required reading for all amateurs as well as all City and emergency service officials. In just two short pages, author Bill Clede, KLAH, tells of tornado devastation in North Central Connecticut and the response by the amateur community to the emergency. It also hangs out a little dirty laundry, but it is full of tips and ideas that we can all learn from.

POTT. CO. ARES: As promised earlier, here is some more about the county emergency team:

Earl Couch, WB5ZBA, Emergency Coordinator
Bob Almond, K5LZF, Asst. for H&W Traffic
John Owens, WB5ONL, Asst. for VHF Nets.
Jay Tingler, WD5BUQ, Asst. for Training
Walter Fultz, KA5FIT, Asst. for Tecumseh VHF

The State Emergency Readiness Plan has been adapted for use in Pottawatomie County. 146.31/91 is the primary and 146.52 the secondary frequency. There are some 25 amateurs who check in on our Tuesday evening ARES training net at 1900 hours on 146.52 MHz. The roster includes stations in Lincoln, Seminole, Hughes, Pontotoc and Pottawatomie Counties.

The D-D-D-: Going to start me a new clan!! Going to call it the "D-D-D" (rymes with P-P-P) and stands for "Don't Do Diddley". It's cause will be to preserve good old fashioned negativism and complacency. Going to pass out recruiting materials on all the high school campuses. The cadre is already in the area ready to train the new recruits. The Board of Directors will be known as the "MGLMA" for "Moaners and Groaners and Leave-Me-Aloners." We will have an Action Front group - the "Piddle Diddlers". They will run around town making squeaky little noises, staining sidewalks and the walls of buildings; looking like something is going on. The "LGDI" (Let George Do It), membership-at-large, will be trained to sit around contemplating the fronts of TV sets, the aesthetic values of various beverages and their empty containers, fast cars, loud music and which coach gets fired next. All that important stuff. All this civil preparedness has just got to be stopped!!

TRAINING LESSON: Don't forget; Part 97, Subpart A, Paragraph 97-1a.
Get involved!

DID YOU KNOW? There was a foot of snow on the ground and drifting somewhat in Misawa last weekend according to Curt, KA8CP. (I can't believe I've already got his card!) And Valery, UA1CDN in Yakutsk said it was 20 below there on the not-so-sunny shores of the Lena River.

FROM THE OLD PHILOSOPHER: Mark Twain once told me, "Sonny", he said (he always called me that), "if you tell the truth, you don't have to remember anything".

73,
Jay/W5SBUQ

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 C.Y. WB5TKG 232-9005														
		12	1	2	3	4	5	6	7	8	9	10	11	12
M O N	AM							KA5 DCM	WB5 NXO		WB5 TKG			
	PM				WA5 HTL	N5 BEQ		KA5 CXW						
T U E	AM							KA5 DCM	WB5 NXO		WB5 TKG			
	PM				WA5 HTL	N5 BEQ		KA5 CXW						
W E D	AM							KA5 DCM	WB5 NXO		WB5 TKG			
	PM				WA5 HTL	N5 BEQ		KA5 CXW						
T H U R	AM							KA5 DCM	WB5 NXO		WB5 TKG			
	PM				WA5 HTL	N5 BEQ		KA5 CXW				N5 BEV		
F R I	AM							KA5 DCM	WB5 NXO		WB5 TKG			
	PM				WA5 HTL	N5 BEQ		KA5 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					N5 BEQ					N5 BEV		
<p>Whose turn is it <u>now</u>? Not mine, I have had mine, for 6 months. If <u>anyone</u> wants this service to continue, it is <u>your</u> turn. Look over the last 6 issues to see how many helped. - C.Y.</p> <p style="text-align: center;">~~~~~</p>														

Central Oklahoma Radio Amateurs

The C.O.R.A. Board of Directors held its regular monthly meeting at 7:30 p.m., Tuesday, February 26th, with Chuck, K5NK, presiding. A fair amount of business was presented and discussed, with the following results:

WELCOME, GREAT PLAINS AMATEUR RADIO CLUB!! At the last meeting of C.O.R.A., the Board approved a new member-club, pending their formal request to C.O.R.A. for affiliation. Joe, WA5ZNF, reports that the necessary information has been received, and effective the March issue of C & E, the Great Plains Amateur Radio Club was club #18 in the ever-growing Central Oklahoma Radio Amateurs. Again, Welcome!

C.O.R.A. MEMBER CLUBS were recently polled regarding two issues: financial support of C.O.R.A. for Ham Holiday '80 should the need arise, and a special raffle, such as the one last year for the C & E equipment fund. We received unanimous approval on both issues. The C.O.R.A. Board then designated all proceeds from the raffle to go to the C & E equipment fund. Thank you for your support!

HAM HOLIDAY COMMITTEE REPORTS were given, and it appears that Ham Holiday '80 is well under way.

THE LADIES' COMMITTEE reports that all its programs and activities have been finalized, and they are ready to go! GOOD WORK, GUYS! (By the way, OM's, please be sure to notify all those lovely YL's of this information--we're looking forward to another big turnout from the ladies!)

THE PROGRAM COMMITTEE is really on the ball--they already have some definite programs established, and several others are in the mill. Keep us posted.

THE FACILITIES COMMITTEE says everything looks good at Lincoln Plaza--the Lincoln Plaza has been remodeled in some areas since we were there last year, and the improvements that have been made mean an even nicer set-up for us this year. I can't wait!

ALL OTHER committees report that everything is progressing according to plan thus far in the game.

Well, now, wait a minute--how could I forget the PRIZE COMMITTEE?!? They've really been working. They have announced that the Ham Holiday '80 GRAND AWARD will be the "YAESU FT 707", and the PRE-REGISTRATION AWARD will be the "ICOM 260". So, keep those two rigs in mind when pre-registration time rolls around. IT WON'T BE LONG!!!!

THE HAM HOLIDAY BUDGET was established, and each committee knows what it can spend in making this one a fun time for all.

NOTICE: President Chuck, K5NK, has advised this reporter that C.O.R.A. has received ARRL approval for this year's Ham Holiday to again be an ARRL STATE CONVENTION. Remember, this assures us of League programs.

73 and 88. *Kay, WD5DYJ*

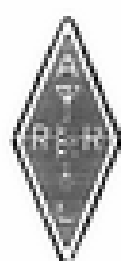
-- SPECIAL CORA NOTICE --

ATTENTION ALL MEMBER-CLUBS AND VOTING REPRESENTATIVES: CORA Treasurer, Ron Recer, KE5M, has been gathering the information necessary for CORA to obtain tax-exempt status. At the February CORA meeting Ron proposed the addition of two by-laws to the constitution, which he feels necessary, and they are as follows:

1. The C.O.R.A. fiscal year shall be January 1 to December 31.
2. Upon dissolution, the assets of CORA shall be divided among member clubs on the ratio of their members to all CORA members.

PLEASE BE ADVISED THAT THE ABOVE PROPOSALS WILL BE PRESENTED AND VOTED ON AT THE APRIL MEETING OF THE CORA BOARD OF DIRECTORS ON TUESDAY, APRIL 22, 1980, AT 7:30 P.M. AT THE RED CROSS HEADQUARTERS, 10TH & HUDSON, OKLAHOMA CITY, OKLAHOMA. ALL VOTING REPRESENTATIVES ARE URGED TO ATTEND.

Kay Northcutt, WD5DYJ
CORA Secretary



ALTUS AREA
AMATEUR RADIO
ASSOCIATION

FEBRUARY

The Altus Area Amateur Radio Association held its monthly meeting February 14 at the North Main Fire Station. The meeting was called to order at 7.30PM by President Loren Simms, WA5CBF. Self-introductions were made. A warm welcome was extended to several guests. Twenty-three members and guests attended. Those present were WB5KRH, WA5OGC, WA5WIC, WB5LTU, WB5AFY, KA5BDB, WB5NRQ, W5VXU, WA5CBF, W3PFV, KA5CES, WD5ISO, KA5FGW, WB5VUM, WB5SSS, WA5TXG, WD5BBV, Ida Meeks, Mary Gilmer, Sue Garrison, Orville Wood and Jack Henderson.

The financial report was presented by Mike Schenkel, W5VXU. The Club has about \$270 in its treasury. Mike is going to make a last effort to contact the people who are delinquent in their dues. Those who have dues collectable more than three months were dropped from the roll.

Loren, WA5CBF, passed out a packet of information on the events that have happened for the last two months. Copies of notes taken from the Jan 10 club meeting, Oklahoma Repeater Society meeting Jan 12 at Woodward, Jackson County CD Weather Watch re-organizational meeting on Jan 22 and copy of the letter by Mr. Larry Mooney, WB5PWY. The purpose is to build interest in the club.

The program was presented by Dwight Dennis, WB5KRH. Wright is the Emergency Coordinator for Jackson County. His program was entitled "Skywatch-80". A video-tape program Twist of Fate, 25 minutes long was first shown. Following this, Dwight spoke on stressing the need for identification cards for hams. He recommended the cards issued by the Department of Public Safety. From reviewing the notes of the April 22, 1979 meeting, he stressed that a field communications command post in a disaster area should be set up. Health and Welfare messages should originate out of and not into the area. Dwight also indicated the need for being prepared by having emergency supplies and items in your vehicle.

The following items were recommended by Dwight as a part of the emergency supplies: AM radio and spare batteries, rain coat, flashlight, and spare batteries, shovel, ax, scanner, length of chain, yellow flashing light, plumber's candles and two-meter rig (19-79, 04-64 and 52 simplex capability).

Following next was a short break for coffee and donuts. The concluding part of the program was a video-tape entitled Path of Destruction, 23 minutes long. Then copies of the Jackson County Amateur Radio Emergency communications Plan were handed out and discussed in part by both Dwight and Loren. In the question and answer session, Dwight spoke of looking forward to the Emergency Coordinators meeting at the community center on the first Sunday of March at Cement OK. Dwight also spoke of the expanded coverage of the weather watch net.

Finally, there was a drawing for several "true treasures", a portable light was won by KA5BDB, WB5KRH won some electrolytic capacitors, cable ties were won by KA5CES and WB5LTU made off with a small electric fan.

The meeting was concluded at 2200 and March 13 is the meeting date for the next formal get-together of the club. CUL.

MARCH

The Altus Area Amateur Radio Association held its monthly meeting at the North Main Fire Station on March 13 at 7.30PM. There were 26 members and guests in attendance W5MCP, WA5OGC, WA5ZAR, WA5ZFI, WB5KRH, WB5SSS, WB5MJS, WB5OOB, WD5IQR, WD5IDW, KA5CES, W5UCV, WD5ISC, W5SFR, W5KI, WB5PUF, N5AIP, WB5MMM, KA5BDB, WA5LAF, W5VXU, WB5BBV, WA5CBF, Ida Meeks, Mary Gilmer and George Stevenson.

After introductions and welcoming the guests, Mike Schenkel, W5VXU, Club Secretary and Treasurer reported the Club membership now stands at 34 and the financial situation is good with \$259 in the bank.

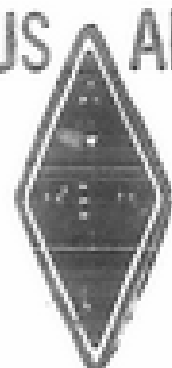
Dwight Dennis, WB5KRH, spoke on attending the Emergency Coordinator's meeting at Cement on March 2. The meeting ran for some three hours with many ideas exchanged between EC's and Asst EC's.

As an added attraction, Dwight showed the membership a method of lightning protection where two regular knots are tied into the AC power cord and he stated that this sets up a kind of choke, useful in combating lightning.

Loren Simms, WA5CBF, reminded everyone of the Hamfests soon to be held in this area, one at Midland, Texas on March 16 and the second at Lawton-Ft. Sill on April 19 and 20.

He handed out packets of information containing notes of the last meeting of the Club and spoke on the special efforts being made to bring more people out for the monthly meetings.

(CARRIVED)



more

With Field Day rapidly approaching, a committee was formed to coordinate and plan this annual event. The committee is composed of Bob Bratton, N5AIP, Major Bailey, KA5CES, Chip Latham, WD5ISO and Loren Simms. We also hope to have the special help of Steve Norris, W5KI.

Chuck Smith, WB5MJS, spoke on the advancing status of the lights for the portable generator and a new, flexible antenna, slightly larger than the usual 'rubber ducky' and which, according to Chuck, has proven to be much more effective when using the hand-held units.

As a sort of introduction to the movie 'Memory Devices' from the Bell Telephone Company, Loren showed a device called a KEPOO. It is a bundle of different lengths of string with a series of knots which was used as a memory aide in Central America some time ago.

We, however, will not discuss just who it was that FORGOT the takeup reel for the film projector.

Following the film there was a short break for coffee and donuts and then the popular drawing for the goodies. Mary Gilmer won the 'brown bag' prize and George Stevenson was the winner of several filter capacitors.

The next meeting is set for April 10 and everyone was reminded to try and bring a friend.

As a final note, it was brought to my attention that D.L. Hunkle, AJ5Q received his CW DXCC recently. Congratulations DL and what's your next goal now?

Loren Simms, WA5CBF



The YL Net is back in session after taking a spring break. Our first session of the month of March was on the 9th with WD5KFT as our net control. We have all been busy this past month with one thing or another. Clara, WD5KFT, has been living in Bethany as part of her therapy. It saves her a lot of driving. Donna, KA5GEP, has been active in a lot of school activities, one of which involved some pigs! Judy, KA5BJS, our net manager, has been helping her OM with classes in her home. Wanda, WD5IHK, has been taking those classes. And me, well, let's just say that I have been staying out of trouble.

We would like to invite all licensed YL's to join us for the YL net. We meet every Thursday evening at 9:00 PM on 146.16/76. We are a very informal group, and would love to have you join us. We are talking about Ham Holiday which is coming up in July, so help us think of some ideas.

We would like to thank the 76'ers for standing behind our YL Net. Remember "Don't be Shy, Join the YL Net".

Syrena, N5BEP

Great Plains A. R. C.

W5HGH Repeater 146.13/73
Woodward, Okla. 73852

Pres. WB5OVT ROD
V.P. WD5DFH BILL
Sec. WD5DFG DONNA

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

The Great Plains Amature Radio Club was formed under a rather unique situation. WA5YQQ-Doyle Houston, WA5YQP-Tyler Todd, WA5YQR-Billy Geerdes (silent key) and WA5YYW-now KB0CP-Wayne Downs, were in the process of acquiring some amature radio equipment, but the fellow they were dealing with did not want to sell to individuals. They got together and formed the G.P.A.R.C., borrowed some money from the bank and the club was in business in 1970. They put a repeater on the air on 146.34/94, and guess what, Enid was already there. They contacted the then Central States V.H.F. Repeater Assn. and were cooridinated the 146.13/73 frequency in 1972. So thanks to them from all of us.

Our regular club meetings are held on the first Tuesday evening of each month at 7:30 p.m. in the basement of the Woodward County Court House on west Main st. There were 19 members and guest at our March meeting. W4ZSL-Wes Duer and his son attended the meeting and said they were moving back to Woodward and expressed ^{interest} in a novice class this fall.

Our service and traffic net is held on the repeater each Mon., Wed., and Fri. at 7:00 p.m. local time. The net manager is WB5OVT-Rod Ford, who is also Fri. evening net control, WD5DFH-Bill Reid is Mon. eve. net control and WD5DFG-Gordon is Wed. eve. net control. The net report for Jan. 80, with 13 sessions had 147 check-ins and 2 routine messages passed. The Feb. net report in 13 sessions was 149 check-ins and 6 routine messages passed.

WB5EGZ-Doug is the C.D. of Woodward County. He is really an asset for our club and the amatures in this area. His offices and the E.O.C. are right next to the County Sherrif's office. He is going to purchase 2 H.T.s on amature frequencies to help cooridinate communications in the area when needed. The area SKY-WARN was presented by WB5PWY-Larry Mooney on the 7th of Mar. in the Woodward County E.O.C.. There were 40 in attendance and about 15 were amature radio operators. I have been to five such training sessions previously and Larry presented a very informative program. He pointed out several things to watch for and diagnose that were really interesting. Several of the amatures and Larry had a nice Q.S.O. over Pizzas and ---- till late into the evening. Thanks Larry for the information on severe storms and reporting procedures.

The club is having an information and training session 18 Mar. on the C.D. amature radio equipment and Radar equipment. Yes we have "our own Radar"!!! The radar is an old weather radar from an old weather airplane. It has been in operation for over two years. It really works, and has been fun and useful. "HONEST". WA5UTO-Steve our E.C. will have charge of the meeting and will present some net and emergency operating procedures.

W5HGH-Lee has a new Tentec Onmi-D and had to ship it back to the factory. He says that he really likes the way it operates and belives that he is going to enjoy it. He is the repeater trustee and has been a "Ham" for over 40 years.

W5OJ-Guido has a new Onmi-D and just received it back from the factory. He is an avid C.W. operator, and enjoys building keyboards, and generally has several projects going. And it may not be very long until a computer shows ^{up} around in his shack.

WB5DGT-Harry also has a new Onmi-D, I think he is trying to wear it out!!! He has a "talking freq. read-out" for it but had to send it in for repairs. Hope you get it back soon, Harry.

WB5EDD-Orin is mainly responsible for a "new" solid state repeater on the air, that is battery powered. It should really be a help in case of power failure or emergency. Orin is also working on his C.W., going to try to "up". He traded a 2 meter rig to ----

WA5PLW-Wendle who has been using the rig "continously" since trading for it. To hear them both talk they both got "skinned". He is also putting together a new frequency counter kit - good luck.

WD5DFH-Bill has a new H.T.-we surely have a difficult time talking about him now! He has one of the best VHF set-ups in the country. He is capable of full legal power into a set of "quads" on top of a 125 ft. Rohn tower, on top of one of the taller hills in Okla. He sez he is thinking of going higher. Ok. city is kinda elusive.

G.P.A.R.C. cont.

WD5DFG-Donna was club sec. last yr. and also this yr., Bill her OM Was pres. last yr., so you know how busy she has been.

WA5OUV-O.C., if the Hams don't know where Logan, Okla. is located, they haven't been listening to H.F.. He is net control or part-time control on several nets; and checks in regularly to several more. He has a new 2 meter rig(last fall) and can tell us when the bad weather is headed this way from the northwest.

WD5BOZ-Rickey from Cestus, Okla. (its 11 miles east of Vici) sez that study activity (ham) has stepped up around his shack---

WD5BPA-Jay (Ricky's brother) is working to "up" and maybe---

KA5FKW-Joan (their mother) is listening around the corner???

WB5LCM-Phil is our activities chairman, and has changed jobs and has moved to Shattuck. He needs to get his tower and antennas moved also-- good luck and check in soon.

K5SCX-Leroy is our early warning weather station, lives in Shattuck, which is about 35 mi. southwest of Woodward, does a good job for us and checks in regularly.

K5JJC-Austin-also from Shattuck, checks in on 2 meters and 75 meters when he can.

WB5MZZ-Ross from Shattuck, checks in and attends most meetings, but young fellows have other things to do sometimes??

KA5BCO-Bill hasn't been as active lately, even on 2 meters. He has a new job and is building a new house; just with the help of relatives and friends. Whenever he gets the house completed it will be pretty hard to get him out of his new carpeted shack!!

KA5EKV-Gerald had some feed line problems--sez don't leave your coax open and unprotected on the upper end of an inverted Vee!! He made three contacts Mar. 16 with UA9ODV, OR7VA, and OZ1FRR a xyl. The non-hams around here think it strange that a really nice guy goes out with a hat that is too small and shirts that the buttons won't stay on and his feet about 6 inches off the ground???

W5ZUS-Cal has a new Tri-Bander and a new 2 meter Boomer up. He also got a new power supply for his 2 meter, so he can use it in his shack. He took a group of young folks skiing last week. He said it was no problem skiing, but it was difficult to stop with "dignity"?

WA5UTO-Steve moved into Mooreland a while back, put up an 80 ft. Rohn tower all together at one time---we almost lost it. He has a Tri-Bander and home brew 2 meter beam on top. I think every guy wire is a HF sloper antenna.

WB0PGD-Ron has been living near Vici, has purchased some land near Mooreland and plans to be moving soon. Uses 2 meters a lot when talking to XYL and when he runs out of gas. Does methanol really work in a pickup.

WB0QGW-Carla our only active XYL on 2 meters at this time. Teaches school in Woodward. When these two get moved into Mooreland we will almost have one amature for every 100 population!!!

WB5VHQ-Ronnie very active in the club, needs to get on the air more.

WN5LUI-David has been working some C.W. lately. He also got his 2nd class phone licence.

N500-Willis from FT. Supply, helps a lot on weather watch, has been more active on 2 meters. I think he is getting the itch for a new rig.

WA5YQQ-Doyle was the first and second Pres of the club. He has a new 2 meter rig with digital read out and a new D-2100 linear. I bent his ear for a while, talking about the club beginning and old times. Thanks for the visit and the information, Doyle.

WB5OVT-Rod our club Pres. for this year. It's said if you have something to do get a busy man to do it. Well he tells us that he's busy, he is on the town board of Gage, volunteer fireman, also is certified to teach fire training classes, a Major in the Marine Reserves, active in the Mars nets, American Legion, the Gage Marathon run, the manager of our service net and Fri. evening net control, and much more. He has recently purchased a new computer, but can't get it away from the game players!!!

73's & CUL De WD5DFF AR

FOR SALE -- Drake T4X, R4A, w/ac. power supply and tranistor mike, will ship in Okla. Lee Rodgers W5HGH Box 348, Buffalo, Okla. 73834 (405) 735-2400 call after 5:00 pm.

STREET LEGAL RADAR JAMMER OR "TOOTING YOUR OWN HORN" TO SAVE A TICKET --A COLLECTOR AND EMITTER EXCLUSIVE

The story can now be told. Based upon some recent research that K5JB and I have conducted over the last several months, it appears that Police Radar may have sounded its last harrah. Actually, the uses and abuses of police radar are steadily being documented and a recent report issued by the National Bureau of Standards has indicated that certain manufactured radar devices now in use by Police and Highway Patrols across the country are subject to a variety of unreliable operations. (See following story regarding the NBS report)

So what am I talking about and what does it mean when I say that the use of radar may be going down the tubes? Just that. Every motorist has within his grasp the ability to defeat police radar. This all started when WB5FZD got a genuine police radar set from a friend to play with. He let me fiddle with it and we ran some tests as to accuracy, range and resolution. I didn't stop there and did some more reading and eventually collected some radar manuals that described the basic operation and design of these devices. This actually has been no secret to anybody, especially since I published two articles in the July and August 1979 issues of C & E detailing some of my research into the operations of Police Radars. My interest was further peaked when I purchased a 10.25 Ghz Gunn source at the Dayton Fleamarket. My experiments in developing my own radar system led K5JB to get interested and we both began some heavy experimenting prodded by WB5FZD. The story can now be told in this exclusive C & E article about a simple yet effective technique for confusing the bejabbers out of those little black boxes that sit atop the policeman's dash and earns the local county considerable revenue many times in excess of the cost of the radar. For those of you whose memory needs jogging I refer you to the aforementioned articles. For those of you too lazy to shuffle through the past issues of C & E, I will digress and briefly review.

Most, if not all radars transmit unmodulated carriers. They operate on the principle of the Doppler Shift which simply stated says that if you shoot a radio signal into the air and if it bounces off a moving object, when it comes back to you, its frequency will have been changed by an amount proportional to the speed of the moving object. The police radar works by mixing a little of the transmitted signal with the returning signal and counting the difference signal that results. This difference signal is an audio signal. After the two signals are processed, you need nothing more complicated than normal audio amplifiers and counters to display the speed result.

Again, without deriving the Doppler Shift formula, I diagram the circuit of the radar and provide the formula as follows:

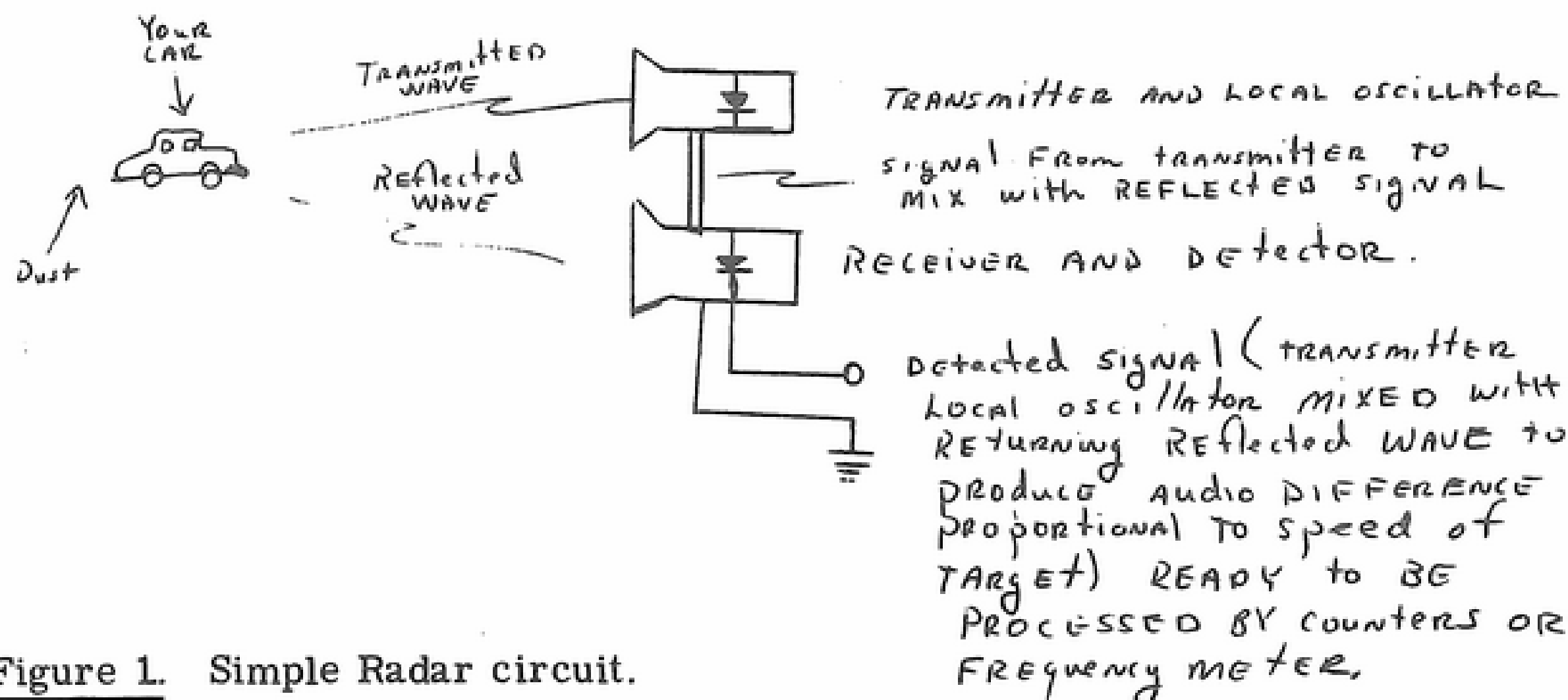


Figure 1. Simple Radar circuit.

Doppler's Formula

$$F_{\text{dop}} = \frac{2 V}{C} F_t \quad \text{Equation 1}$$

F_{dop} = Doppler Frequency in Hertz

V = Velocity of the target in miles per hours (or whatever convenient unit you might want to use like kilometers or something)

F_t = Transmitter frequency in Hertz (In our case, roughly 10.25 Gigahertz)

C = Speed of light in miles per hour

If you want to run through the numbers, that's fine. For those of you who want to skip the fine print, take my word that the frequency of the return signal is shifted 31.4 hertz for each mile per hour that the target vehicle is traveling. This means that 20 miles per hours would correspond to 628 hertz, 1727 hertz is 55 miles per hour and etc. The frequency is counted and displayed either on a meter or digital readout. Like I said previously, most of the electronics is dedicated to counting these return audio signals. It is possible that you could send a trooper with perfect musical pitch out with just a small microwave source and return receiver, and, of course, his ticket book and cherry lights. (Now, let me see, a middle C would be 30 miles per hour? Or is that B_b?)

Now that we have reestablished the scientific principles for the gentle reader, what can disturb those readings? Well, actually, just about anything. I found that I could get close to the microwave source (the radar head) and just whistle and see the meter move off scale. It was actually possible to whistle a particular speed. (Don't trust a radar patrolman who whistles). Jangling keys in front of the transceiver would similarly take the readings to never-never land. Street lights, the cars airconditioner, and yes, Handie-Talkies would all drive the radar batty just like you would expect for any audio device.

Humm. How could I shift the radar signal and fool it? Well, I thought of a few ideas, but serendipity being what it usually is, I discovered a solution one day when WB5FZD drove up and I was outside playing with my radar speed detector. I pointed the Gunn source at John as he pulled up in his small foreign car and watched his speed drop. He responded to this bombardment of radiation by giving me a couple of long toots from his cheap foreign automobile horn. What? The speed meter jumped up to 25 miles per hour. I asked him to do it again further back. Humm, still read 25 miles per hour. I drug out a small audio amplifier and the frequency counter and measured the frequency of the horn and found it to be 785 hertz. Well, that's exactly right. I then noticed that John's horn sounded differently from previous times I had heard it. He indicated that he had disconnected one of the horns and it was producing a single tone must like a taxi cab horn (fleet buyers don't particularly want to spend a lot of money on such frills as automobile horns.)

I sent John down the road and had him whiz by me at 40 miles per hour honking his horn. The radar unit still read 25 miles per hour. Had we stumbled onto something? Could this be one of the greatest discoveries since deep frozen Nobel Prize winners? A few more experiments confirmed the previous results. We tested a variety of speed and changed the pitch of the horn. Each test result corresponded to the Doppler formula exactly except that the radar unit was reading was reading the horn frequency instead.

John, Joe K5JB, and myself sat around and scratched our heads on this one for awhile and finally concluded that if I could whistle a pure tone and drive the radar unit insane, then perhaps the horn honk could similarly lead us to the promised land. And, except for a possible violation of the noise ordinance in Norman, and perhaps a set of worn eardrums by the gendarme behind the radar gun, this jammer was street "legal."

John WB5FZD spread the word among a few of his students at the University to further test our theory. We chose a select group who disabled all but one horn of their auto horns. We then scoured around Norman to find a couple of radar traps and sent our troops through them at breakneck speed, horns ablazing. In 8 out of 10 cases, they made it without trouble. One student told of glancing in his rear view mirror and seeing the officer slam his hand into the side of his unit in disgust, apparently at having just lost a choice victim.

A proper defense must, however, be accurate, 10 out of 10 times. I could not resist the challenge to experiment further. I took an old speaker cone and lined it with aluminum foil. I then got a 20 watt mobile audio amplifier and powered it from the cigarette lighter and ran the output to the front bumper where I had mounted the aluminum coned speaker. John and I again set up our own personal speed trap and ran some tests. This time, the results were perfect. I further experimented and found that the best results came with silver painting the entire speaker cone to form a single conductive surface. I got best results with a 10 inch woofer. Anything larger represented too much of a wind load. Aluminum is much cheaper than silver paint (what with the state of the economy), so I crudely reconed a speaker with aluminum foil (seems like I recall a mention last month in the C & E about someone who recones speakers, could be a thriving business there in making up the necessary aluminum cone speakers). It took quite a bit of power to drive the aluminum cone speaker because of the weight of the cone and lack of flexibility, but it seemed to work best of all. I designed up a simple 555 oscillator to drive the audio amplifier which is reproduced below:

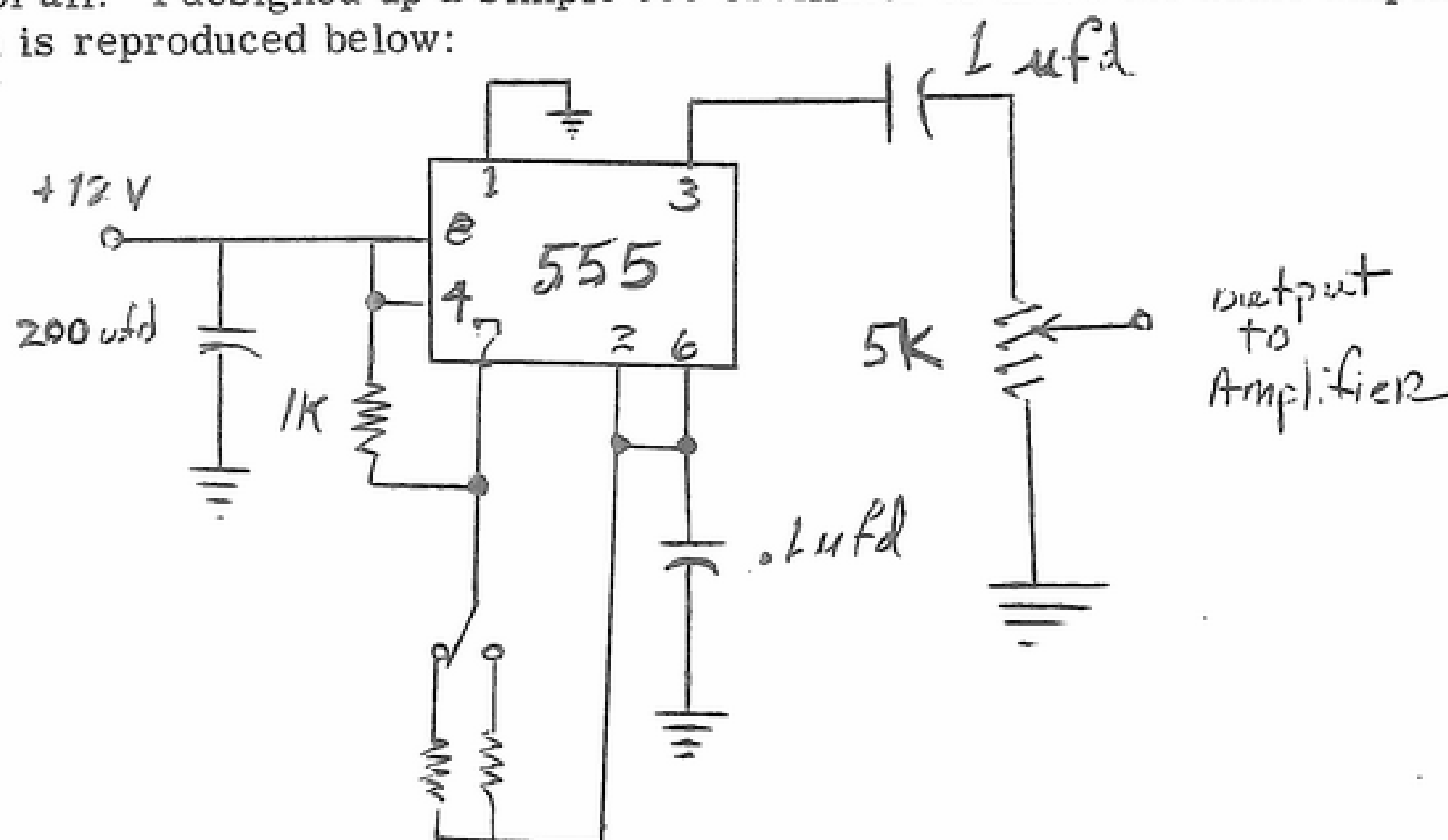


Figure 2. Oscillator for the strictly "street legal" radar jammer.

The circuit is pretty straight forward is nothing more than a NE555 in the astable configuration. You may need to select the two resistors on the SPDT switch to conform to the speed you want to drive the speaker cone with. Remember the formula is 31.4 hertz times the speed in miles per hour.

How does it work? Well, like I said, we went 10 out of 10 in our actual road tests and have had innumerable passes by my homemade radar speed unit. I am not sure whether there is a more effective device. It seems to respond to both K and X band radar units equally well. Since the doppler shift is greater in the K band because of its higher frequency, the radar will actually show a lower speed than with X band for a given audio modulating frequency. Drive by the local county mounty revenue agent at 55 while he reads 25 and you can be certain that he will take the unit back to the shop for recalibration.

Why does this circuit and technique work. Remember that the audio signal produced by mixing the transmitted signal with the returning signal is proportional in frequency to your speed. When the transmitted radar signal arrives at your car and reflects off the vibrating aluminum speaker cone, it is modulated with the same rate as the speaker cone. If you care to remember your high school trigonometric formulas, you can see that this modulation is nothing more than a multiplication of two sine waves. Let's approximate these two signals (the radar and audio signals) as two Cosines and modulate them:

$$(\cos X) (\cos Y) = 1/2 (\cos (x+y) - \cos (x-y)) \quad \text{Equation 2}$$

where $\cos X$ is the radar signal and $\cos Y$ is the audio modulating tone. Looking at the right side of the equation, AHAH, we find a $\cos (x-y)$ which is still a RF signal. The second term is $\cos (x+y)$, also a RF signal. These are, of course, merely sidebands, much as AM has sidebands. When these two sidebands arrive back at the radar receiver, they then mix with the $\cos X$ signal which is actually a small part of the transmitted signal and produce the audio beats as follows (I will take only $\cos (x-y)$ term, the result will be essentially the same for the $\cos (x+y)$ term):

$$\cos (x-y) \cos X = 1/2 ((\cos(x-y-x) - \cos(x-y+y)) \quad \text{Equation 3}$$

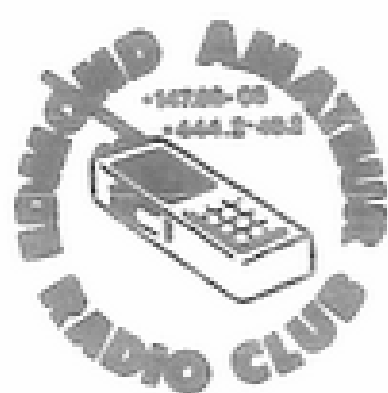
$$= 1/2 (\cos (-y) - \cos(x)) \quad \text{Equation 4}$$

where we can see that we have recovered the term $\cos(-y)$ which is equal to $\cos y$ since it is an even function which is the same modulating audio tone that we were using to drive the speaker. The radar unit picks up this audio tone and produces the corresponding speed on its display. Nifty, huh.

Remember, I am not encouraging anybody to break the law. Recall that the use of radar is a big money making business and millions of dollars have been appropriated by the federal government to buy the locals their very own units for local revenue sources. I know that these units are not all highly engineered for minimum error. In fact, a recent National Bureau of Standards report commissioned by the National Highway Safety Administration points to the fact that there is no correlation to the use of radar and saving lives.

Now, we know that there is nothing illegal about driving down the street with your horn ablazing (actually, some laws forbid the use of the horn except for emergencies, but I would suggest that you smile and wave to the officer as you go past him so that he might think that you are someone he knows) or with an amplifier. There could be a problem in Norman since they passed the local noise ordinance. I intend to do a little more study on this for another article in C & E, probably next April. A couple of us are planning on printing bumper stickers consistent with our campaign that say "HONK IF YOU HATE RADAR." Could bring a whole new meaning to the expression "Honk and Holler."

Micheal Salem N5MS



Edmond Amateur Radio Club
P.O. Box 76292 / Okla. City, Ok. 73147

HAPPENINGS AND NEWS

The March business meeting of the Edmond Amateur Radio Club was held at 7:30 p.m. at the T. G. & Y. National Headquarters. The meeting was called to order by our president, Harold Plunk. As the secretary-treasurer was not in attendance, the minutes nor financial report were given and no old business was taken up.

New business discussed concerned the design and production of a window decal using our new logo. A motion was made and passed that the president document the necessary expenses for said decal and will provide this information at our May meeting.

The president provided us with a grand tour of T. G. & Y. Headquarters, including the brand new conference room. (Looks like a great place to hold a meeting to me! How about it Mr. President?)

ATTENTION! ATTENTION! Our family meeting for the month of April will be held on Monday, April 7th, at a place yet to be announced. Please monitor the machine for this important announcement for the time and place.

QST

QST

QST

We're planning another Dayton trip and will have room for three more. Anyone in the club interested in having a great time as well as the opportunity to pick up some new goodies at the Dayton Hamvention, please call Bob Robert or Wendell Cochran. Let us know as soon as possible because April will be upon us before we know it. The past two trips have been a ball so don't miss out on this opportunity. (April 25, 26, & 27th.)

WE MISS YOU! Attendance at our business meetings is not nearly what it should be. We need your help -- we need your support, so please put out the effort and come to the meetings.

In this issue of the C & E you will see our new Logo which was designed by Bill Moore, K5HTF. Bill is a commercial artist and designs work for most of T. G. & Y.'s advertising. We would like to thank you Bill for your time & effort. It looks great!!!

If you noticed the inside cover of the C & E the club officers have not been updated yet. However, the current officers are still in effect and working. Sorry about that Mr. Plunk, your still our President.

Submitted by Bob Shaw & Stan Van Nort

Bus Structures -- Reported this month in Radio Electronics was the following report. The California District Federal Court has ruled on the level of integration in integrated circuits, found it inadequate, and will enforce mandatory bussing beginning immediately. The judge in the case denied taking payoffs from wealthy IEEE Bus Company executive Carmen Getitt, claiming they were campaign contributions only.

WB5NSV

Also reported in Radio Electronics this month was the following-- Taxless Instruments has announced a new level of miniaturization resulting in an under-three-hundred-dollar home computer, complete with keyboard and voice synthesis capabilities, small enough to fit on the head of a pin. Company miniaturization director V. Pryss, wearing a cloth over his head, explained to newsmen that only two problems remain before the new computer can be introduced to the public. First, keyboard entry seems to be a problem with the tiny, quarter-pinhead size keyboard. Second, they can't remember which pinhead they left it on. Meanwhile, several newsmen in the garden reported hearing a small voice crying "Help me! Help me!"

Also--Fashion-designer Coochy has attacked what he finds as a major disadvantage to the pocket calculator. "Putta the dumma thing inna yor pocketta anna you no see what she says," complains Coochy. The answer is in his new line of shirts with transparent calculator pockets, including cutouts for keyboard access. The fashion world has acknowledged this as another Coochy coup.

Also-- Ohio inventor Emma R.T. Sullivania has announced stero for one ear. The new advance is said to require only one amplifier, one speaker and is compatible with everything from current television audio to old 78-RPM records. Called EMMA Naural after its inventor, the new advance is not expected to be commercially available in Parma until sometime in the next millenium.


Renrinted from Radio Electronics (April 1980) by WB5NSV, Bob

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See individual club sections for times, places & details.

APRIL HAM HAPPENINGS

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	METRO EMERGENCY TRAINING NET EACH MONDAY EVENING 9 P.M.	ALL FOOLS DAY GREAT PLAINS A.R.C. M.O.R.I.		GRADY/CADDO ARES NETS ON THURSDAYS YL NETS ON THURSDAYS	A.C.A.R.C.	
EASTER	EDMOND CLUB SOCIAL NIGHT GTH TBA TRI-CITY	ARC 76ERS SHAWNEE		ALTUS A.T.V.E.S. CANCER SOCIETY \$ PICK-UP		WALK-A-THON SEE PAGE 11, 17 HERE'S YOUR CHANCE FOR PUBLIC SERVICE/
WHEATSTRAW	CHOCTAW	AUTOPATCH I.R.S. DAY	HAPPY BIRTHDAY K2GKK	KAY COUNTY	VHF	SCARS EDIT C&E BROTHER WALK-A-THON SEE PAGE 11 LANTON HAMFEST
EARS		SHAWNEE			SOME OKIES GONE TO DAYTON, OH. 26, 26, 27	AUTOPATCH MAILS C&E
LANTON HAMFEST		CORA				
		DON'T FORGET TO SEND YOUR CENSUS FORMS THIS MONTH BE SURE YOUR HARMONICS ARE COUNTED!		MARK YOUR CALENDAR NOW FOR HAM HOLIDAY '80 JULY 25, 26, 27		

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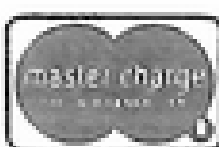
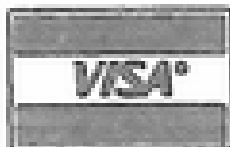
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