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 7 MAY 1981 Number 76

HAMONICS

de WB6QEZ

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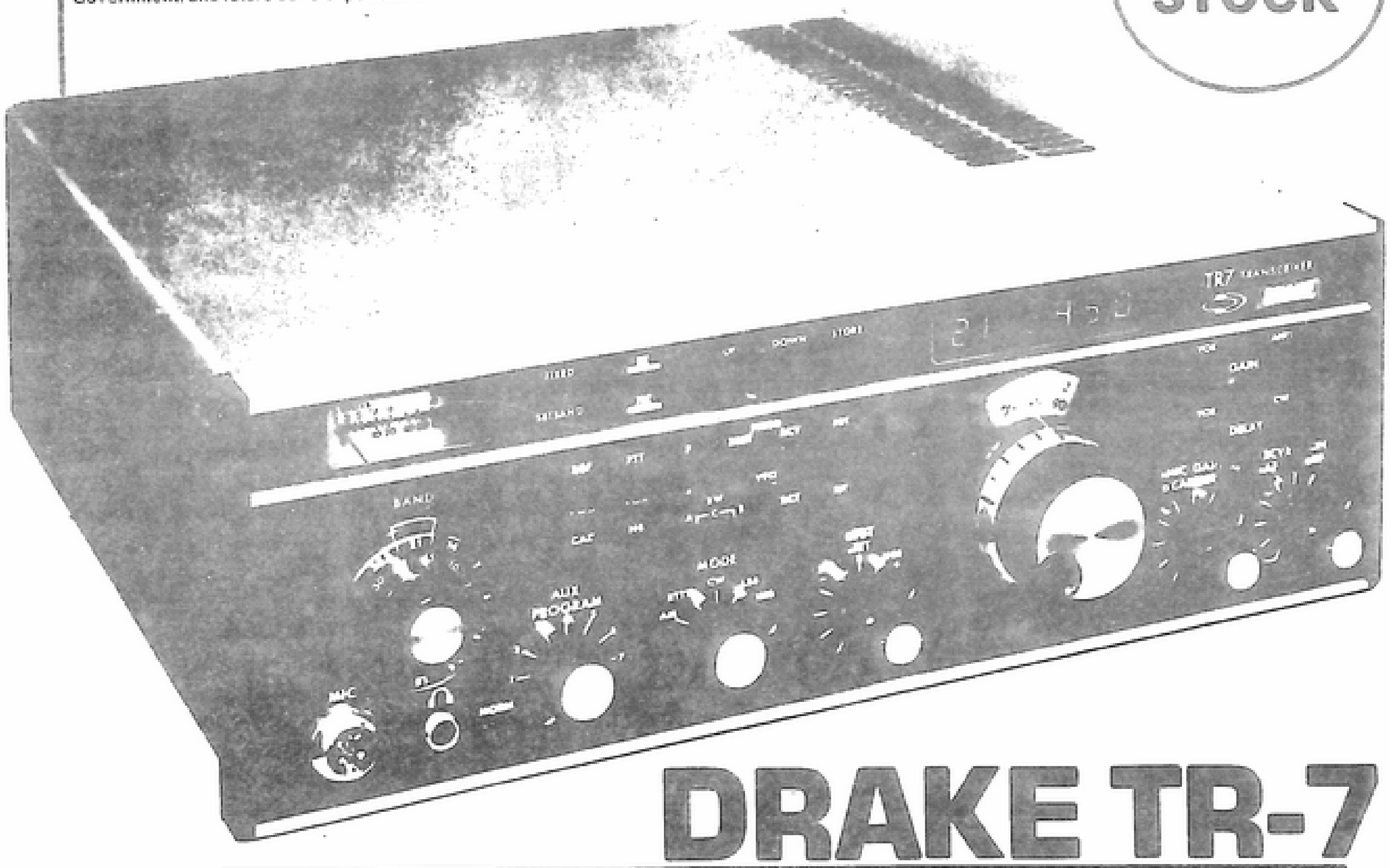

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Central Oklahoma Radio Amateurs

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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1 AERONAUTICAL CENTER ARC

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Pr	WA5CJG	Bob Pace	376-3569
VP	K5KDR	Bill Oliver	329-6333
Se	WB5NSV	Bob Graham	677-8685
Tr	WB5AAY	Larry Bugg	789-4180
EDITOR:		Bob Graham	677-8685

2 OKLAHOMA CENTRAL VHF CLUB

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

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VP	WA5FWO	Bill Noland	354-5018
Se	K5JB	Joe Buswell	732-0676
Tr	W5KE	Ellard Foster	789-6702
EDITOR:		Joe Buswell	732-0676

3 MID-OKLAHOMA REPEATOR, INC.

MEETS: 8:00 PM First Tuesday of month
Okla City EOC, 4600 N Eastern

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VP	W5PDH	Frank Arnold	737-1582
Se	KA5FED	Susie Atkinson	842-8014
Tr	W5KOZ	Sid Gerber	737-1050
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Dues: Sid Gerber, 829 Bouse, MWC 73110

4 OKLA CITY AUTOPATCH ASSOCIATION

MEETS: 7:30 PM Third Tuesday of month
Okla Military Academy, 36th & Grand

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VP	N5IH	Henry Isreal	722-3848
Se	WD5KFT	Clara Storm	495-6228
Tr	WB5QPI	Zach Zachry	732-2888
EDITOR:		Henry Isreal	722-3848

5 OKLAHOMA UNIVERSITY ARC

MEETS: 8:00 PM (Sep-May) 2nd Tuesday
Carson Engineering Center

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VP	KA5COI	Peter Richeson	329-3217
S/T		Peter Richeson	
EDITOR:		Chris Royce	364-3848

6 ALTUS AREA AMATEUR RADIO ASSOC.

MEETS: 7:30 PM 2nd Thursday each month
North Main Fire Station (CD) Altus

Pr	WB5MJS	Charles Smith	477-1098
S/T	KB5FW	Dennis Bonewitz	477-0194
EDITOR:		Mike Schenkle	482-1797

7 BICENTENIAL ARC (THE 76'ERS)

MEETS: 7:00 PM 2nd Tuesday each month
Air National Guard, Will Rogerts Apt.

Pr	KB5BS	Bill Skipper	495-6946
VP	N5AUH	Jerry Sproul	354-2061
Se	N5BEQ	Jim Buswell	236-0368
Tr	WD5BMP	Joe Couch (Guthrie)	282-4353
EDITOR:		Coy Day	691-1194

9 WHEATSTRAW AMATEUR RADIO CLUB

MEETS: 2:30 PM First Sunday of month
Location Varies. See club section

Pr	AD5Z	Roy Barnes	
VP	WD5GLD	Dick	
S/T	WA5PFK	Ralph Wilder	623-5421
EDITOR:		Ted Vanlangenham	262-1675

10 CHOCTAW AMATEUR RADIO CLUB

MEETS: 7:00 PM 2nd Monday, Woods Community Baptist Church, SE 29 & Choctaw

Pr	WD5EVP	Bob Allen	
VP	AB5H	Frank Carter	391-8297
Tr	KA5ALO	Richard Edwards	390-8297
Se	N5BEP	Syrena Standlee	279-3975
EDITOR:		Syrena Standlee	279-3975

11 EDMOND AMATEUR RADIO SOCIETY

MEETS: 2:00 PM 3rd Sunday, Room 205
Science Bldg. Central State Univ.

Pr	KB5RR	Clarence Dollmeyer	341-7163
VP	WD5DGC	Don Brown	737-6141
S/T	KB5QC	Roger Harmon	348-1230
Ad	N5BEQ	Jim Buswell	236-0368
EC	WD5HXR	Ken Stepp	341-4878
EDITOR:		Clarence Dollmeyer	341-7163

12 SHAWNEE AMATEUR RADIO CLUB

MEETS: 8:00 PM 2nd & 4th Tuesday
Shawnee City Hall - EOC

Pr	K5LFZ	Bob Almand	598-5148
VP	KA5FIT	Walter Fultz	598-3984
S/T	KA5FBC	Jim Sullivan	273-3843
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13 KAY COUNTY AMATEUR RADIO CLUB

MEETS: 7:30 PM 3rd Thursday of month
Security Bank Basement, Ponca City

Pr	WB6NBK	Steve Scott	765-7408
VP	WB5SAG	Grady Skillern	765-3411
S/T		Cosby Clarke	765-3105
EDITOR:		Steve Scott	765-7408

CENTRAL OKLAHOMA RADIO AMATEURS

CORA meets the fourth Tuesday of each month. 7:30 P.M. at American Red Cross Use back door. 10th & Hudson, Oklahoma City

ALL CLUBS should send their three representatives to EVERY meeting!

EVERYONE WELCOME

15 SOUTH CANADIAN AMATEUR RADIO SOCIETY

MEETS: 9:30 AM 3rd Saturday each month
Red Cross Bldg. North Campus Norman

Pr	KB5EK	Wade Anderson	794-5144
VP	KC5CU	Charles Warner	364-9561
Se	WA5RPP	Sam Barret	321-6297
Tr	WA5MLT	H. O. Townsend	329-4426
Ed	WB5TZZ	Jack Bickham	329-1311

16 EDMOND AMATEUR RADIO CLUB

MEETS: 7:45 PM First Monday of month
See club section for location.

Pr	WB5UIY	Stan Van Nort	
VP	WB5ISQ	Wendall Cochran	943-4308
S/T	WA5BQX	Bob Shaw	341-4874
EDITOR:		Stan Van Nort	

17 TRI-CITY AMATEUR RADIO CLUB

MEETS: 7:30 PM First Monday of month.
Location varies, see club section.

Pr	WB5UBB	John Warriner	379-3149
VP	WB5VLT	J. B. Bills	379-3992
S/T	KA5FDA	Nancy Haydon	379-6448

EDITOR: Yvonne Warriner, WB5TYW

18 GREAT PLAINS AMATEUR RADIO CLUB

MEETS: 7:30 PM 1st Tuesday each month
Woodward Court House basement.

Pr	N5CNW	Bill Wyatt	256-3248
VP	WD5DFH	Bill Reid	994-2336
Se	N5CCV	Gerald Bowman	994-5381
Tr	WD5DFG	Donna Reid	994-2336
Ed	WB0QGW	Carla Tice	994-2138

19 SOUTHEAST OKLA AMATEUR RADIO ASSN.

Pr	WB5TTV	Ron Henson	326-5418
VP	WB5ULI	George Weldon	326-5672
S/T	WD5FUE	Orville Kaley	326-3640

Club NEWS

EDITOR: Joe Buswell, K5JB 732-0676

MINUTES OF MARCH MEETING

MARCH MEETING WAS HELD AFTER LAST PUBLICATION OF THE C&E. THESE MINUTES ARE THEREFORE ONE MONTH LATE.

MEETING WAS CLLLED TO ORDER AT 8:Ø2 PM BY PRESIDENT RALPH, WD5IRB, WITH 19 MEMBERS AND GUESTS PRESENT. TREASURER'S REPORT AND CORA REPORT WERE GIVEN. AN EXTENSIVE BULL SESSION INSUED ON EXCITING THINGS THAT ARE GOING TO HAPPEN AT HAM HOLIDAY 81. MINUTES FOR FEB. MEETING WERE ACCEPTED AS PUBLISHED IN C&E. RALPH, WD5IRB, IS GOING TO SURVEY INTEREST IN OPERATING W5LOW THROUGHOUT FIELD DAY WEEKEND AND REPORT DURING APRIL MEETING IF INTEREST IS SUFFICIENT. CHARLIE, WA5JGU, JIM, K5VRL, AND RALPH, ARE GOING TO TEST SIMULTANEOUS MULTI-BAND OPERATION ON W5LOW.

BOB, W5HXL, ANNOUNCED THAT BILL, WB5TZQ, HAD DONATED A 15Ø' ROLL OF 8 CONDUCTOR ROTOR CABLE FOR USE AT W5LOW. JIM, K5VRL, ANNOUNCED PLANS FOR ANTENNA PARTY AT W5LOW THE FOLLOWING DAY.

CHARLIE, WA5JGU, IS LOOKING FOR THA ABSENT MINDED PERSON WHO LEFT AN AM/FM RECEIVER AT HIS HOUSE. CHARLIE COULDN'T REMEMBER WHO IT WAS.

RALPH, WD5IRB, PRESENTED JIM, K5VRL A PLAQUE IN APPRECIATION FOR HIS SERVICES AS PRESIDENT DURING 198Ø.

MEETING WAS AJOURNED AT 8:48 PM. JOE, K5JB, SECRETARY

MINUTES OF APRIL MEETING

APRIL MEETING WAS CALLED TO ORDER AT 8:Ø2 PM BY PRESIDENT RALPH, WD5IRB, WITH 26 MEMBERS AND GUESTS PRESENT. HE IMMEDIATELY TURNED THE MEETING OVER TO JOHN NELSON, W5AVK, WHO GAVE A VERY INTERESTING NARRATION OF SLIDES HE TOOK DURING HIS RECENT VISIT TO CHINA. THE SLIDES WERE EXCELLENT AND JOHN'S RECAP WAS QUITE VIVID.

MINUTES WERE READ BY THE SECRETARY AND CHARLIE, WA5JGU, ADVISED THAT THE OWNER OF THE RADIO HAD BEEN FOUND. HE COULDN'T REMEMBER WHO IT WAS THOUGH. ELLARD, W5KE, GAVE TREASURER'S REPORT AND MENTIONED PUBLICITY THAT WAS PREPARED FOR HAM HOLIDAY 81. RALPH, WD5IRB, DESCRIBED RED CROSS TRAVELLING AMATEUR RADIO ROAD SHOW PLANS FOR PERRYTON TX, APRIL 22, WOODWARD OK, APRIL 23, AND PAMPA TX, APRIL 25.

JACK, WB5ZKZ, ADVISED OF OPEN HOUSE AT THE UNION TRAIN STATION, SW 7 BETWEEN HARVEY AND HUDSON, SCHEDULED FOR SATURDAY, MAY 3, TO CELIBRATE THE CENTENNIAL ANNIVERSARY OF RED CROSS.

ANNOUNCEMENT WAS MADE REGARDING AUCTION OF RADIO EQUIPMENT WHICH BELONGED TO BUZZY BROOKS, W5OHH. SEE DETAILS BELOW.

MEETING AJOURNED AT 9:41 PM. JOE, K5JB, SECRETARY

AUCTION - BUZZY, W5OHH, ESTATE - MAY 16

WOULD YOU LIKE TO OWN THE WORLD'S LARGEST LOUD SPEAKER, OR MAYBE TWO OF THEM? TO YOU NEED ANY TEST EQUIPMENT? OR ELECTRONIC PARTS? OR COMMERCIAL TWO-WAY GEAR/ANTENNAS/HARDLINE, ETC? WOULD YOU JUST LIKE TO HELP BETTY BROOKS GET SOME ROOM IN HER GARAGE AND TWO OUT BUILDINGS?

FOR MANY OF US WHO KNEW BUZZY IT IS NOT TOO HARD TO BELIEVE THE QUALITY OF EQUIPMENT HE ENJOYED. WHAT IS HARD TO BELIEVE IS THE QUANTITY. FOR OVER THIRTY YEARS BUZZY HAD MAINTAINED A HIGH DEGREE OF INTEREST

IN ALL ASPECTS OF RADIO AND ELECTRONICS. HE HAD DONE, IN LATER YEARS, SERVICE WORK ON COMMERCIAL EQUIPMENT AND REALIZED THE VALUE OF GOOD TOOLS AND TEST EQUIPMENT. I WAS ASKED BY LARRY WEBER, A PROFESSIONAL AUCTIONEER, TO GO OVER TO BETTY'S AND LOOK AT THE EQUIPMENT HE WAS TO AUCTION FOR BETTY. LARRY IS DONATING HIS SERVICES AND WANTED ANYONE WHO IS INTERESTED TO KNOW ABOUT THE AUCTION. I MET DAVE, K5WMY, CLOSE FRIEND OF BUZZY'S, OVER AT BETTY'S AND DID A QUICK SURVEY OF THE EQUIPMENT. WHAT FOLLOWS IS JUST A SAMPLE. I TOOK FOUR PAGES OF NOTES, ONLY COVERING THE HIGHLIGHTS.

TEST EQUIPMENT INCLUDED HEWLETT PACKARD NOISE FIGURE METER, DISTORTION METER, A PAIR OF 6Ø1 VHF/UHF SIGNAL GENERATIOS PRECISION POWER METERS, ESTERLINE ANGUS RECORDING STRIP CHART AND A COUPLE OF VTVM'S. THERE WERE FOUR WORK BENCHES, WITH DRAWERS, AN OFFICE DESK, METAL SHELVING AND RELAY RACKS. UNBELIEVABLE AMOUNT OF TWO-WAY EQUIPMENT WAS FOUND IN ONE OF THE OUT BUILDINGS, AT LEAST TWO DOZEN MOBILE FM RIGS MANUFACTURED BY MOTOROLA, GE AND OTHERS. THE OLD 34/94 REPEATER WAS THERE. MANY, MANY MISCELLANEOUS SMALL PARTS SUCH AS COAX CONNECTORS, TEST CABLES, TRANSISTORS, VACUUM TUBES, RESISTORS CAPACITORS, AND THOUSANDS OF CRYSTALS WERE CAREFULLY SORTED AND SHELVED BY TYPE VALUE, ETC. THERE WERE BOOKS AND MANUALS OF ALL KINDS, FIVE TV SETS, NUTS BOLTS AND OTHER HARDWARE, PHOTO LAB EQUIPMENT. POWER SUPPLIES, MIDLAND CB RADIO. AND THEN THERE WAS OUTSIDE. ONE TOWER IS 28 ' HIGH, 3' SQUARE-COMES APART IN 4' SECTIONS. IT WAS LOADED WITH 2M AND 45Ø ANTENNAS AND A 3' DISH. SPEAKING OF DISHES I SAW A 6' DISH AND AT LEAST 3 4' DISHES. THE OTHER TOWER WAS 2Ø' OF U. S. SIGNAL CORPS THREE LEGGED TOWER. THERE WAS A ONE KW PORTABLE GENERATOR, A PACKARD BELL STUDIO TYPE TV CAMERA WITH TRIPOD, OVER 16Ø' 7/8" HELIAX, NEW APPEARANCE, A LOT OF ALUMINUM TUBING SUITABLE FOR ANTENNAS, AND A BAND SAW TO CUT IT WITH. EVEN THE OUTBUILDING, MADE FROM PRE-DRILLED AND TAPPED ALUMINUM CHANNEL JOISTS AND RAFTERS, IS UP FOR SALE.

THE ONLY WAY AN AUCTION OF THIS EQUIPMENT CAN BE A SUCCESS IS FOR THE LARGEST POSSIBLE TURNOUT OF INTERESTED PEOPLE. THERE IS WAY TOO MUCH MATERIAL FOR A SMALL HANDFUL OF PEOPLE TO ABSORB SO COME ON OUT AND BENEFIT FROM BUZZY'S GOOD TASTE.

FOR ADDITIONAL INFORMATION CONTACT LARRY AT 732-6857 DURING THE DAY. THE AUCTION IS SCHEDULED TO START AT 1Ø AM ON SATURDAY, MAY 16, AT 28Ø9 MOCKINGBIRD LANE, MIDWEST CITY. MOCKINGBIRD LANE RUNS NORTH OFF OF RENO, ABOUT A QUARTER MILE WEST OF MIDWEST BLVD. JOE, K5JB

A SELECTIVE CALL DECODER, PART 2

ACTUALLY, THIS PART OF THE DECODER PROJECT SHOULD BE CALLED PART 1. THE PART PUBLISHED IN THE PREVIOUS MONTH'S C&E, PAGES 5-7 DESCRIBED THE LOGIC THAT IS CONNECTED TO THE DECODER TO PERFORM A THREE DIGIT SELECTIVE CALL FUNCTION. FOR EXAMPLE, IF IT WAS DESIRED TO CALL THE RED CROSS STATION, AND A SELECTIVE CALL DECODER WAS INSTALLED, THE DIGITS FOR "LOW" COULD BE PUNCHED IN. A RECEIVER WHICH WAS OTHERWISE MUTE WOULD COME TO LIFE FOR THE CALL. THIS SET OF NUMBERS WILL BE USED AS AN EXAMPLE OF HOW THE LOGIC IS WIRED TO DECODE THE NUMERICAL EQUIVALENT OF "LOW" OR 5-6-9.

THE REASON THE PARTS OF THIS ARTICLE WERE PREPARED BACKWARDS IS BECAUSE ALL THE BUGS WEREN'T WORKED OUT OF THE DECODER LAST MONTH. I HAD BEEN MESSING WITH A SURPLUS TELEPHONE TOUCH-TONE ® DIAL AND TRYING TO GET THE COILS AND CAPACITORS IN IT TO DO A RESPECTABLE JOB OF RECOGNIZING DTMF TONES. NOW THE BUGS ARE WORKED OUT AND THE FINISHED PRODUCT DOES A RESPECTABLE JOB. NOT ONE CASE OF FALSING ON VOICE HAS OCCURRED IN A WEEK OF TESTING ON ONE OF THE BUSY REPEATERS.

FIGURE ONE IS A SKETCH OF HOW MY DIAL LOOKED BEFORE MODIFICATION. THE COILS T1 AND T2 AND CAPACITORS C1 AND C2 ARE ALL THAT ARE USED. IT MAY BE EASIER TO REMOVE THESE PARTS AND MOUNT THEM ON A PIECE OF PERF BOARD BUT I WAS AFRAID THAT MIGHT BE A BIT RISKY SO I REMOVED ALL THE UNNECESSARY COMPONENTS AND CUT APPROPRIATE TRACES, REWIRING

TO GET THE CONFIGURATION IN FIGURE 2. CAREFUL EXAMINATION OF THE DIAL CIRCUIT BOARD AND THE SCHEMATIC IN FIGURE 2 IS THE BEST GUARD AGAINST ERRORS IN WIRING. THE COIL TERMINALS HAVE A STRANGE NUMBERING SYSTEM, WHICH I USED SO IT WOULD AGREE WITH A WESTERN ELECTRIC SCHEMATIC ON HAND. MY DIAL WAS MARKED 35Y3A AND THE SCHEMATIC WAS MARKED AS APPLICABLE TO THIS DIAL AND DIALS MARKED 35A3A, 35E4A, 35Y3D, 35A04A AND 35AH3D. OTHER DIALS MAY BE SIMILAR ENOUGH TO WIRE-UP THE SAME, BUT OF COURSE, LATEST DIALS WITH INTEGRATED CIRCUITS WON'T WORK.

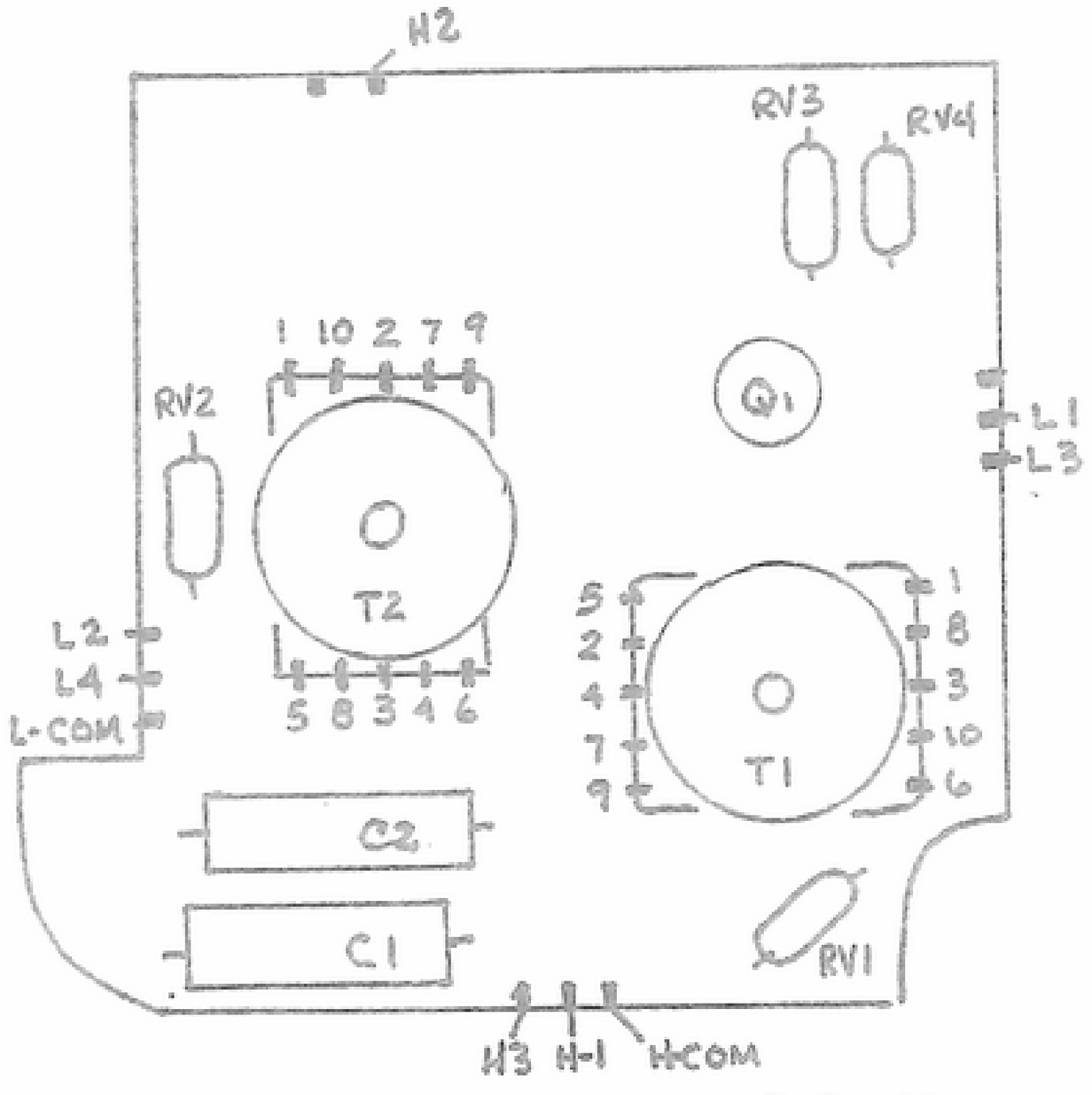


FIGURE 1. 35Y3A CIRCUIT BOARD

MODIFICATION OF THE DIAL IS IN THE FOLLOWING GENERAL SEQUENCE. REMOVE THE DUST COVER, IF ANY. CUT SWITCHES LOOSE FROM CIRCUIT BOARD. REMOVE THREE SCREWS, THREE NUTS, AND REMOVE CIRCUIT BOARD FROM KEY MECHANISM. REMOVE THE 4 VARISTORS, RV1-4, AND THE TRANSISTOR, Q1. REMOVE THE SWITCH BLADES. REMOVE ALL WIRE LEADS. SAVE THEM FOR LATER USE.

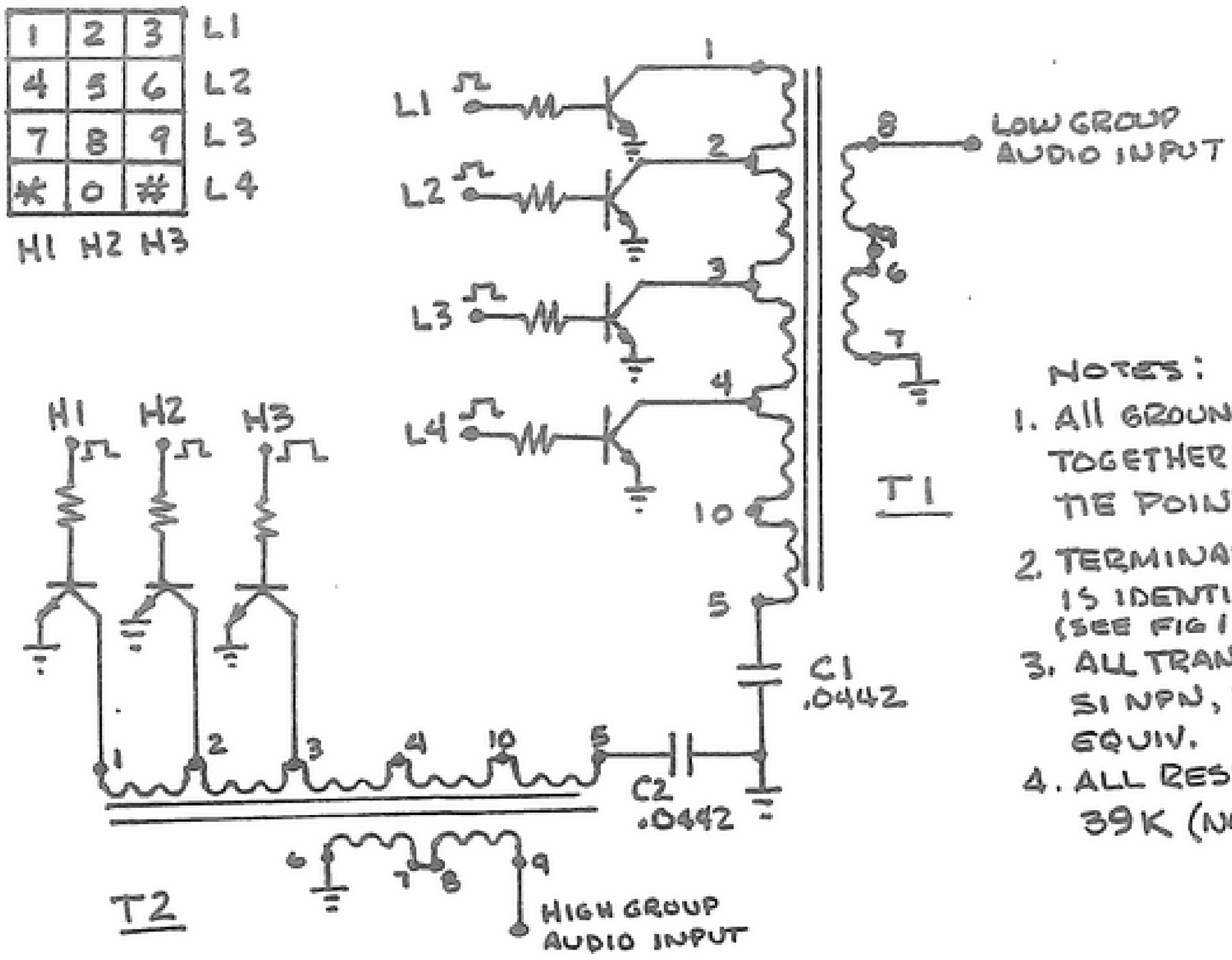
CUT TRACE BETWEEN T1-9 AND T2-8. CUT TRACE BETWEEN C1 AND T2-5. CUT TRACE BETWEEN C1 AND C2. THE LATTER TWO CUTS ARE DONE ON INBOARD ENDS OF C1 AND C2.

CONNECT JUMPERS BETWEEN T2-8 AND T2-7, T1-6 AND T1-9, AND, T2-5 AND C2, INBOARD END. CONNECT OUTBOARD ENDS OF C1 AND C2 TOGETHER AND TIE THIS CONNECTION TO T2-6. THIS WILL BE CIRCUIT GROUND. CONNECT A COLOR CODED WIRE TO ANY OF THESE POINTS OR TO ONE OF THE STUBS IN FIGURE 1 MARKED L-COM OR H-COM. THIS WILL BE THE GROUND WIRE. CONNECT COLOR CODED WIRES, REMOVED EARLIER, TO T1-1, T1-2, T1-3, T1-4, T2-1, T2-2, AND T2-3. IF YOUR DIAL IS LIKE MINE, THESE WIRES CAN BE CONNECTED TO THE STUBS IN FIGURE 1 MARKED L1, L2, L3, L4, H1, H2, AND H3, CORRESPONDING TO THE ROWS AND COLUMNS, RESPECTIVELY, ON THE KEY BOARD. MAKE UP A TABLE AND LIST THESE WIRE COLOR CODES WITH CORRESPONDING ROWS 1-4 AND COLUMNS 1-3. CONNECT A WIRE TO T1-8. THIS IS FOR LOW GROUP AUDIO. CONNECT A WIRE TO T2-9. THIS IS FOR HIGH GROUP AUDIO. MAKE A NOTE OF COLOR CODES OF THESE TWO WIRES. THERE SHOULD BE TEN WIRES CONNECTED TO THE CIRCUIT BOARD.

AT THIS POINT A LITTLE EXPLANATION OF ALL THE BUTCHERING IS IN ORDER. FIGURE 2 SHOWS HOW THE TWO COILS ARE GOING TO BE CONNECTED AND SWITCHED TO CHANGE RESONANT FREQUENCIES. IN THE DETECTOR CIRCUIT, THE WINDINGS CONNECTED TO THE AUDIO SOURCE, LET'S CALL THEM THE PRIMARIES, ARE GOING TO BE IN SHUNT ACROSS THE AUDIO, WHEN THE TUNED CIRCUIT IS OUT OF RESONANCE, THE PRIMARY WINDINGS WILL PRESENT A LOW IMPEDANCE TO THE AUDIO AND THE VOLTAGE DEVELOPED WILL BE LOW. WHEN THE FREQUENCY OF AN AUDIO TONE EQUALS THE RESONANT FREQUENCY OF A SECONDARY, A HIGH CIRCULATING CURRENT IS INDUCED BUT, SINCE LOSSES ARE LOW, THE PRIMARY DEVELOPS A HIGH IMPEDANCE. THE AUDIO VOLTAGE AT RESONANCE IS 10 TO 15 DB HIGHER THAN WHEN AN ADJACENT DTMF TONE IS BEING PLAYED.

TO TEST THE REWIRED FILTER BOARD AT THIS POINT, A DTMF TONE GENERATOR CAN BE CONNECTED TO THE LOW GROUP OR HIGH GROUP AUDIO INPUT WITH SOME SERIES RESISTANCE. A 680 OHM RESISTOR CAN BE WIRED BETWEEN SPEAKER

AUDIO OF A 2 METER FM RECEIVER AND ONE OF THE TONE GROUP INPUTS. IF THE RADIO IS TURNED UP LOUD SO TONES DEVELOP A VOLTAGE OF "0 DB" ACROSS THE TONE INPUT AND GROUND, AT RESONANCE, THE VOLTAGE WILL BE 10 TO 15 DB DOWN WHEN OTHER TONES ARE KEYED. A WALKIE TALKIE WITH KEY PAD CAN BE USED TO GENERATE TONES RATHER THAN WAIT UNTIL SOMEONE COMES ALONG TO MAKE A PHONE CALL WITH YOUR SECRET CODE IN IT. TO SET



NOTES:
1. ALL GROUNDS TIED TOGETHER TO COMMON TIE POINT.
2. TERMINALS ON T1 IS IDENTIFIED T1-5 (SEE FIG 1 FOR LOCATION)
3. ALL TRANSISTORS SI NPN, 2N3904, OR EQUIV.
4. ALL RESISTORS 39K (NOT CRITICAL)

FIGURE 2. TUNED CIRCUIT SCHEMATIC

THE RESONANT FREQUENCY OF THE FILTER BOARD, ALL THAT IS NECESSARY AT THIS POINT IS TO CONNECT THE PROPER TAPS, ONE FROM EACH COIL, TO GROUND. FOR EXAMPLE, DIGIT "1" WILL BE DETECTED IN T1 IF TAP T1-1 IS GROUNDED, AND DETECTED IN T2 IF TAP T2-1 IS GROUNDED.

TO DECODE THREE SEQUENTIAL DIGITS, NOT ALL THE TRANSISTORS SHOWN IN FIGURE 2 WILL BE REQUIRED. FOR EXAMPLE, "LOW", OR "5-6-9", CAN BE DECODED USING FOUR TRANSISTORS AND FOUR DIODES AS SHOWN IN FIGURE 3.

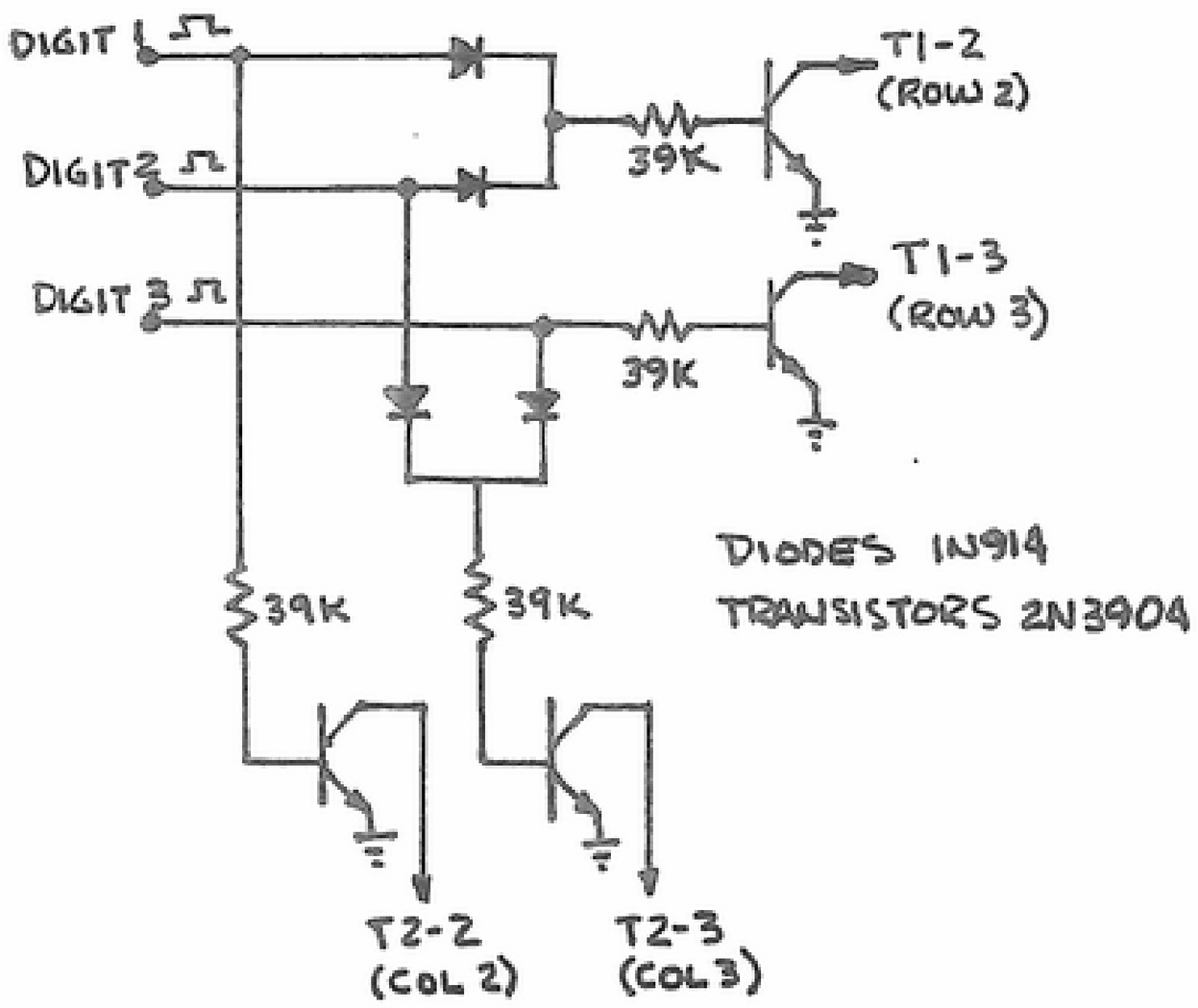


FIGURE 3. DECODER FOR "5-6-9"

REFERRING BACK TO THE TIMING DIAGRAM IN FIGURE 2 OF LAST MONTH'S ARTICLE, DIGIT 1, DIGIT 2 AND DIGIT 3 ARE THREE SIGNALS THAT COME FROM THE SEQUENTIAL DECODER LOGIC. AT REST, DIGIT 1 IS LOGIC HIGH, THE OTHERS ARE LOGIC LOW. THE FILTERS ARE TUNED TO THE DTMF TONE PAIR, IN THIS CASE, L2 & H2, OR, ROW 2 & COLUMN 2, FOR THE DIGIT "5". AFTER A 5 IS DETECTED FOR A SUFFICIENT INTERVAL, DIGIT 1 SIGNAL GOES LOW AND DIGIT 2 SIGNAL GOES HIGH, SWITCHING THE DECODER FILTERS TO

L2 & H3, OR, ROW 2 & COLUMN 3, FOR THE DIGIT "6". THIS SEQUENCE CONTINUES UNTIL DIGIT "9" IS DETECTED AND THE ENABLE SIGNAL GOES HIGH. IF THE R-S LATCH IN FIGURE 3 OF LAST MONTH'S ARTICLE IS CONNECTED AS SHOWN, "5-6-9" WILL PULL THE RELAY IN AND "5-6" WILL DROP IT OUT. IF IT IS DESIRED TO HAVE A MANUAL RESET AND INDICATOR LIGHT, THE R-S LATCH CAN BE CONNECTED AS SHOWN IN FIGURE 4.

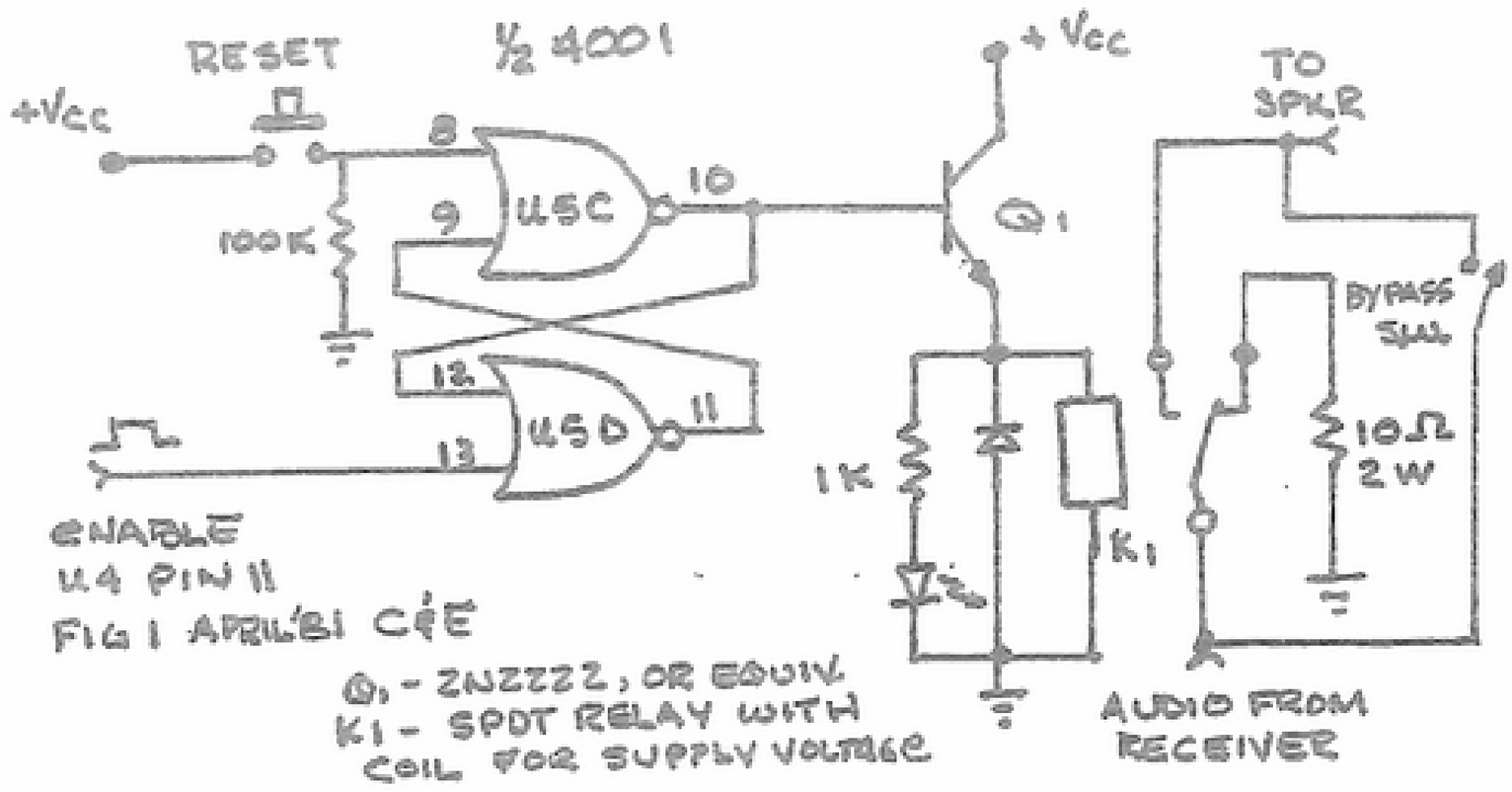


FIGURE 4. LATCH AND RELAY CIRCUIT

THE CIRCUIT IN FIGURE 5 IS USED TO PREPARE SUITABLE AUDIO FOR THE FILTERS AS WELL AS DETECT PRESENCE OF AN ON FREQUENCY DTMF TONE PAIR. NATIONAL LM 3900 WAS USED BECAUSE I HAPPENED TO HAVE ONE, THANKS TO WB5ADN.

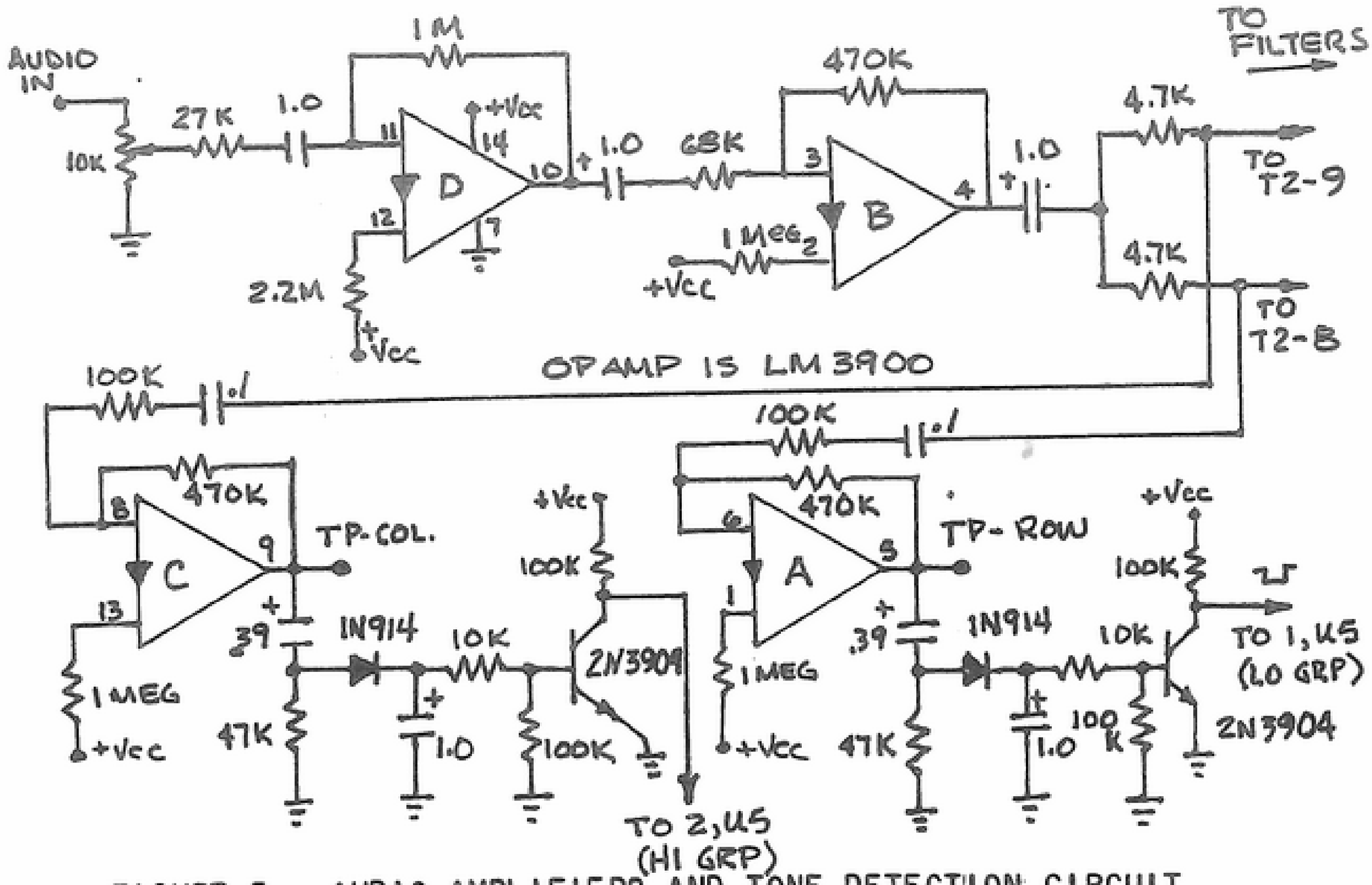


FIGURE 5. AUDIO AMPLIFIERS AND TONE DETECTION CIRCUIT

IT PROBABLY WASN'T NECESSARY TO USE THE FOUR AMPLIFIERS IN THE LM3900 BUT SINCE THEY WERE THERE, I USED 'EM. THIS CIRCUIT HAS ENOUGH GAIN TO CAUSE RELIABLE TONE DETECTION FROM A BARELY AUDIBLE SPEAKER LEVEL. LIMITING ACTION IN THE SECOND OP AMP DOESN'T CAUSE ANY PROBLEM THAT I CAN TELL BECAUSE THE THING STILL DOES A FINE JOB OF DETECTION, WITHOUT FALSING, WHEN IT IS SEVERELY OVERDRIVEN...THOUGH I DIDN'T TRY BLOWING IT UP, YET.

THE HIGH GROUP AND LOW GROUP FILTERS ARE ISOLATED BY THE 4.7K RESISTORS WHICH ARE INSERTED TO GIVE SERIES RESISTANCE ACROSS WHICH VOLTAGE WILL DROP WHEN THE COILS ARE OFF RESONANCE. THE VOLTAGES DEVELOPED ACROSS THE COILS ARE AMPLIFIED BY TWO ADDITIONAL OP AMPS WHICH BRING THE LEVEL UP ENOUGH FOR IT TO BE RECTIFIED AND USED TO SWITCH TRANSISTORS ON. THE TRANSISTORS ARE IN TURN CONNECTED TO THE SEQUENCE DECODER IN FIGURE 1 IN LAST MONTH'S ARTICLE.

TEST POINTS TP-ROW AND TP-COL ARE INTENDED TO PERMIT SETTING OF SIGNAL LEVEL TO GET RELIABLE DECODING. A SIMPSON 26Ø VOM, SET TO MAKE OUTPUT MEASUREMENTS, WAS USED TO ESTABLISH VOLTAGE TARGETS. THE DEVICE DECODES IF A MINIMUM OF 1.Ø VOLTS AC IS PRESENT AT THE TEST POINTS. INPUT LEVEL IS SET BY ADJUSTING THE 1ØK POT WITH THE RECEIVER VOLUME CONTROL SET TO A SUITABLE LISTENING LEVEL AND TONES BEING RECEIVED. THE TONE PAIR MUST BE THE DIGIT PROGRAMMED FOR DECODING. SETTING THE LEVEL SO 1.2 TO 1.5 VOLTS AC IS MEASURED ON THE TEST POINTS SHOULD RESULT IN EXCELLENT DECODING.

THE FINAL PROOF TEST OF PROPER DECODING IS WHEN THE TRANSISTORS IN FIGURE 5 ARE BOTH SWITCHED ON. LED'D AND RESISTORS COULD BE USED INSTEAD OF THE COLLECTOR RESISTORS SHOWN TO GIVE VISUAL INDICATION OF A SUCCESSFUL DECODE. I PUT A 1Ø K RESISTOR AND LED BETWEEN SUPPLY VOLTAGE AND PIN 3 OF U1 OF THE SEQUENCE DECODER TO GIVE AN INDICATION WHENEVER U1 SWITCHED LOW. THIS HAPPENS, YOU REMEMBER WHEN A VALID TONE PAIR IS PRESENT FOR 7Ø MS. THIS LED WILL PROBABLY BE PLACED ON THE ENCLOSURE TO ENABLE LEVEL SETTING WITHOUT INSTRUMENTING THE THING.

THIS APPLICATION OF TELEPHONE DIAL L-C CIRCUITS FOR DTMF DECODING IS A SPECIALIZED ONE WHICH WORKS OUT QUITE WELL IN SPITE OF LACK OF BAND SPLITTING, AGC, SERIOUS LIMITING, ETC. IF A GENERAL PURPOSE DECODER WERE PREPARED BY CYCLING THROUGH ALL THE ROWS AND COLUMNS WITH FOUR AND THREE BIT COUNTERS AT A FAIRLY RAPID PACE, ADDITIONAL SOPHISTICATION MAY BE NECESSARY TO NARROW BANDWIDTHS OF THE FILTERS AND PERMIT SHORTER ANTI-FALSE TIMING. THE TIMING DESIGNED INTO THIS CIRCUIT CAUSES A 7Ø MS DELAY AFTER A DTMF PAIR IS DECODED BEFORE U1 TRIGGERS. I FEEL THIS COULD BE SHORTENED SOMEWHAT. AT THE PRESENT, TO SCAN THE KEYBOARD AT A SLOW ENOUGH RATE TO DO ANY GOOD, THERE WOULD BE AT LEAST 1.2 SECONDS PER SCAN, WHICH MEANS TONES WOULD HAVE TO BE HELD IN MORE THAN A SECOND TO MAKE SURE THEY ARE DETECTED. RATHER THAN SCAN THE DIGITS SEQUENTIALLY, I PLAN TO SCAN ROWS AND COLUMNS INDEPENDENTLY, STOPPING THE SCANS WHEN TONES ARE DETECTED. IT SHOULD BE POSSIBLE TO DETECT A TONE PAIR IN LESS THAN 4ØØ MS USING THAT SCHEME, IF MY THINKING IS RIGHT.

THE SEQUENCE DECODER DESCRIBED LAST MONTH CAN BE EASILY EXPANDED TO DECODE MORE DIGITS IF DESIRED. WITH ABILITY TO DECODE 7 DIGITS, THE CIRCUIT CAN RECOGNIZE A TELEPHONE NUMBER. NOW THAT IS TAKING THE OLD TELEPHONE DIAL THROUGH A COMPLETE EVOLUTION, ISN'T IT?

IN CONCLUSION, THE SEQUENTIAL DECODER IS QUITE RELIABLE AND IS NOT SENSITIVE TO AUDIO LEVELS OR SUPPLY VOLTAGES. IT SHOULDN'T BE TOO SENSITIVE TO AMBIENT TEMPERATURE VARIATIONS AND WOULD PERFORM QUITE NICELY IN MOBILE SERVICE. THE RELAY I AM USING REQUIRES A MINIMUM OF 7 VOLTS TO OPERATE SO MOST OF THE TESTING WAS DONE AT 1Ø VOLTS. THERE WAS NO CHANGE IN OPERATION, EXCEPT FOR THE RELAY, WITH POWER SUPPLY VOLTAGE SWING FROM ABOUT 6 TO 15 VOLTS. AT 8 VOLTS, IT DREW A RESTING CURRENT OF 12 MA. AT 1Ø VOLTS IT WENT TO 15 MA. AT 12 VOLTS IT WENT TO A WHOPPING 17 MA. AT THAT RATE IT SHOULD TAKE A LONG TIME TO DRAW DOWN A CAR BATTERY, HI. JOE, K5JB

DEAR JABBY
... IS MAINTAINING A LOW PROFILE THIS MONTH...GONE TO DAYTON.

BICENTENNIAL AMATEUR RADIO CLUB

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

MINUTES

The April meeting was called to order at 7:08 pm by Prez Bill KB5BS on the 14th at the Air National Guard Base with 42 members and guests present.

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

In the absence of the Treasurer, the club dispensed with a report of the Treasury.

Registration form was circulated for volunteers to man the registration desk at Ham Holiday '81; 24, 25 and 26 July. Co-chairmen for this committee are John Galway KH6JTE and Jim Lawson WA5TDW. If you wish to volunteer, inform either John or Jim of the date and time you wish to serve.

A volunteer form was circulated for Field Day'81, again chaired by Dick Baker WB5TMW, this year to be 27 - 28 June. Whatever you'd like to help with be sure to inform Dick.

The refreshment break was taken between 7:35 and 7:55 pm.

Formal application of three new members in accord with the club's constitution was unanimously accepted. They are Bruce Goff KC5CR, Dale Moore WB5VBE and Wayne Campbell KA5LBF/DL who also upgraded this date. Congratulations to the other upgrades and apologies for not noting all your names and grades.

Congratulations also to Lesta and Jerry Love, N5AWI and N5ABF on the occasion of their harmonic YL: Alicia Eileen, born 22 March 81. Pretty!

The evening's program was a thorough description of ASCII Communication on Amateur Radio with a demonstration on 2-M FM and data sheets presented by Allan Perkins WB5NER ably assisted by Jerry Sproul N5AUH and Phil HallWD5BNT .

The club adjourned to the aftermeeting shortly after 9 pm.

Next meeting will be same time and place, 12 May. CU there,

Jim N5BEQ
Secretary

hr report April 17, 1981

A new bill strongly supporting Amateur Radio was introduced in the U.S.Senate by Sen. Barry Goldwater K7UGA. The Bill, S 929, would provide for point-of-sale control of transmitting equipment, extend the term of an Amateur license to 10 years, and - like the old Vanik bill - give the FCC the authority to set RFI standards for receiving equipment.

Volunteer aid from Amateurs could be sought by the FCC for both exam giving and enforcement efforts, as has been proposed in Rep. Dannemeyer's HR2203, along with lifting of the secrecy provisions of Section 605 of the Communications Act.

Sen. Goldwater is new chairman of the communications subcommittee of the Senate Commerce Committee and most of the members of the subcommittee joined him in cosponsoring S 929.

Mental incompetence is grounds for a license denial, FCC's Chief Administrative Law Judge Lenore Ehrig has ruled in a review of K6EOA's case, the Los Angeles Amateurwho was arrested and jailed after threatening the lives of two FCC engineers who attempted to inspect his station during a jamming investigation in 1979. Federal charges were later dropped after he was judged mentally incompetent and he later pleaded guilty to state charges resulting from the incident. This latest decision came during a hearing on K6EOA's license. The judge also ruled that an applicant for an Amateur license does agree to abide by applicable regulations, including those that concern prohibited communications.

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AGE SAGE: HOW TO KNOW WHEN YOU'RE GROWING OLDER or IS THERE REALLY LIFE AFTER 40 ? : WHEN YOU TURN OUT THE LIGHTS FOR ECONOMIC REASONS RATHER THAN ROMANTIC ONES.'.

jim n5beq

BICENTENNIAL AMATEUR RADIO CLUB

"To Promote Radio Communications"

Sponsored by Oklahoma Air National Guard
ARRL affiliated

76'ers PROGRAMS AND ACTIVITIES

PROGRAM for Tuesday, May 12, 7 PM at the Air National Guard

GETTING TO THE TOP WITH HONOR

Coy Day, N5OK, will share with us his adventures in DX land since 1962. He was first licensed in 1957 as K5LMG. In 1969 and 1970 Coy was DX - operating in Cyprus as 5B4FD and ZC4DA.

DX is defined as "distance", so we gotta be more specific. One specific: Coy gave me a count of 309 countries worked with 308 of them confirmed. Another specific is his work with the kind of antennas one would use to contact distant foreign countries. He has given excellent programs about his antennas.

So, come to the May 76'ers meeting and learn all about DXing.

APRIL PROGRAM. Where were you ? The regulars stayed away in droves. Despite this, the room was full!!!!! We had visitors galore. There were at least some 9's, 8's and 4's as well as a few from right around here. Thanks for visiting. Come back for another visit or to join up. The program was great. We had a couple of terminals talking with each other in ASCII along with explanation of what ASCII is and how to hook up the equipment.

ACTIVITIES. Already in the hopper - support these:

76'ers Field Day, ARRL (Out to win).
Pre registration & Registration for and at HAM HOLIDAY
Repeater Upgrade

As if this were not enough, we voted on some more activities and received a few volunteers. The heavest voting and volunteering candidates were:

Direction Finding - Track Down Hoodlums.
Set up Station at Shopping Mall.
Non-Technical Parties, Picnics.
Demo at Schools, Scout Meetings.

+ + + + + Activities Chairman for 76'ers, Bill, WA5RAQ - - - - - - -

ARKANSAS HAMFEST/SWAPMEET

The Northwest Arkansas Amateur Radio Club, Inc. will hold its 1st Annual Hamfest/Swapmeet on Saturday, May 16 at the Siloam Springs Community Building from 8:00 am to 5:00 pm. Commercial exhibitors free tables; flea market tables $2.00 each. All indoors. Doors open 6:00 am for setting up. Great prizes including Kenwood TS830S, Bearcat scanner, Autek keyer and many more. Also ladies prizes. Refreshments. Free parking. Talk-in on .16/.76 or .52 simplex. For tickets(3 for $5.00 or $2.00 each) write to Bob Harmon, W5SEP, Route 1, Box 13E, Elkins AR 72727. Incluse s.a.s.e. Make chec to: Northeast Arkansas ARC.

GREEN COUNTRY SWAP FEST

Saturday, May 9th starting at 10:00 am. Broken Arrow OK at the Oklahoma National Guard Armory, 637 East College. Swap tables are $4.00 Registration is only $1.00. Again this year the $1.00 registration will go toward "Funny-Money" certificates to be re-circulated in drawings throughout the day. Talk in on .31/.91 repeater. Address: John Thompson, WB5ZMT, P.O. Box A, Broken Arrow OK 74012.

For Sale: Drake, TR4Cw, RV-4C Remote VFO, AC-4 Power Supply, MS-4 Speaker, Drake 7075 Microphone. All for $750.00. Sam K. Morgan, WB5ZOY. 732-5970.

SUPER DEAL!! Motorola VTR-1000, Video Tape Recorder, VHS format, complete with 85 {count 'em} 85 tape cartridges. The machine has recently gone through a shop visit for preventative maintenance, cleaning, lubrication, alignment, etc., and was pronounced in excellent condition. It has a complete front end for VHF/UHF off-the-air recording; a channel 3 module for cable termination, and all the rest of the monitoring goodies. All of the tapes have something recorded on them, and are mostly 2 and 3 hour lengths with some 1 hour sizes. All are boxed, and in new condition. Here is your chance to get in cheap with a life=time tape supply. I understand the tapes alone are worth about $12.00 each. $600.00 buys the whole mess. Robby AA0O 373-1818.

From the estate of Bill Peterson WB5NXO:
Complete Ten-Tec Omni-A station, factory converted to Series "B", with noise blanker, matching remote VFO, Digital display/counter, and metered power supply. The station is complete except for a microphone, ready to go on the air. In excellent condition, with manuals and original cartons. Bill was in the process of placing an order for a Ten-Tec talking VFO unit to plug into the rig when he passed away. The estate is asking $800.00 for the complete station. Robby AA0O 373-1818.

THE BIG SIGNAL NEWS
OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

EDITOR: N5IH

OK DX ASSOCIATION

Our usual scribe-- N5IH--somehow coerced me into writing this month's submission for OK DX. This is my first (and probably last) stab at so-called creative journalism...so here goes nothing.

The April meeting of OK DX was held on April 13 with about 12 amateurs in attendance. As usual, we discussed upcoming DX and recent operations.

60ØDX is now good for DXCC credit, but apparently only for contacts made after July 28, 1980. If you get a card out of I2YAE, submit it and cross your fingers.

TYA11 (No that's not a typo error!) Benin, has been heard at the bottom end of 2Ø meters as well as 4Ø meter CW around 0400-0500 UTC. CW ops should look around 7.010 Mhz.

ADØS/KH5K, Kingman Reef, Most activity has been SSB on 1Ø, 15 and 2Ø meters--usual DX frequencies with mostly split listening up five to ten KHZ. Also look for ADØS and his running buddies to show up on Palmyra Island and Tokelaus in the next few weeks. QSL to the home calls.

By the way, there are the usual detractors on the bands--commenting about what lousy ops these guys are, etc. None of these comments have come from OKC ops, as far as I know. We all should remember that this is the first DXpedition for these guys--have patience. These guys coughed up $4,000 each to go on this "pleasure cruise". I received an invitation to go on the trip, but couldn't afford to take over 30 days off work...could you??

VKØ, Heard Island is off for this year. Forget it until next winter--which is Summer on Heard. Maybe Jim Smith will make it...someday.

ZK1CE, Rarotonga, South Cook Islands has a sked with his QSL manager and takes a short list each Thursday Ø5ØØ UTC--that's 11:00 p.m. on Wednesday night for the unitiated. Listen around 14.270 Mhz or call me on 147.900 at that time and I'll get you on the "list".

H44SH, Solomon Islands. Look for this chap on 4Ø meters around 7.085 Mhz on Sundays 12ØØ UTC. He is usually quite strong and listens up for stateside.

7x5AH and 7X5CM, Algeria. Not dependable, but also has a sked with the QSL manager on Thursday ØØØØ UTC around 14.225 Mhz.

We cordially invite all operators to monitor 147.900 Mhz (simplex) for fast-breaking news on DX, etc. This is a truly "open" frequency--anyone is welcome to give or request information on any DX stations heard or worked. Greatest activity is during the evenings and weekends, but it is not unusual to bump into another avid DX'er at sunrise working 4Ø meters into Asia! Come join us!

NEXT MEETING! NEXT MEETING! NEXT MEETING! NEXT MEETING! NEXT MEETING!

Please join us on MAY 11 at the Colony Kitchen Restaurant, on MacArthur Blvd. just south of N.W. 63rd Street. Coy Day, N5OK is going to give us some tips and background on Dx! We start as early as 6:30 p.m., but come when you can and stay as long as you like. We do not have a formal meeting— just a relaxed eye-ball. We do not charge dues; we don't even have elected officers...what we do have is a free exchange of information and ideas on HF and DX operating. You are welcome!

Having more things to do and more places to go than he knows where the time to do all them is, Henry asked me to come up with a few lines of wisdom for this month's issue of the C&E. Being the good-natured fellow that I am, I graciously accepted the task, so hopefully, the typewriter won't let me down as I sit here working my brain to come up with something that might be of interest to someone. K5NK

APRIL MEETING: We are having exceptionally good turnouts for our meetings the past few months. Our attendance continues to increase each month. I could be off some, but I believe we had approximately 45 at this month's meeting, which was great. I feel much of this can be contributed to our new meeting place. We are very fortunate to have such a nice place to meet as we do at the Oklahoma City Fire Department training center. We continue to hear remarks from those making their first meeting there since we have changed locations as to how impressed they are. So, if you haven't attended a meeting at our new location, make plans now to attend the May meeting. The training center is on the east side of North Portland just south of the OSU Tech Center, a couple blocks south of NW10th & Portland.

After our normal business type meeting, Mr. Charles Brice, the Director of the Oklahoma County Civil Defense presented the program. Mr. Brice is interested in what we as a club are striving to accomplish and is particularily interested in our weather net. The Civil Defense Unit has been of help to us in the past and hopefully they will be able to give us more financial help in the future.

MAY MEETING: John, K5YGM, has been busy as a beaver putting together a tape of some of the various club activities. It was hoped that John would have this finished by the April meeting, but there are some things he feels need to be added to make it complete. John is a professional at this and only turns out professional quality, so he asked that this be postponed until he is completely satisfied. Hopefully, he will have it ready by the May meeting. If so, he will show it, so let's have every one come out in anticipation of seeingthe tape. We will try to have it announced on the repeaters for everyone's information.

REPEATER UP-DATE: Reuben, WD5FKF brought us up-to-date on the progress being made with our two-meter repeaters. There are some who appear to be griping about lousy signals, both coming and going and how sorry the equipment is working. Now hold on for just a minute and stop your griping. For the information of you gripers, much work has been accomplished on the repeaters. Sure, more work needs to be done and we still need to add some more equipment, but this takes time and money. We have the new feed line installed with the exception of one small run and all the equipment is now down off the tower and in our building. Larry, WB5NYX, Reuben, WD5FKF, Buddy, KA5AQY and Ron, KE5M, have spent countless hours at the repeater site working on the equipment. Larry has designed a new layout for all our equipment and has done more than can be expected of one individual. So, one of these days, everything will be finished and we will have one of the finest set of repeaters in the country.

WEATHER NET: Fortunately, we have only had to call the net a couple of times this spring, but I am sure it will be called several more times this year. Once again, Henry has done a fine job. He has had some good help from Zack, now KC5IS. Henry appreciates the good work from the field and plans to continue to run a tight ship from now on. How about Bob's work at the repeater site? He is doing a very fine job in getting information back out to Henry and the field. Thanks guys.

NEW DIRECTORY: Many members are wanting a current listing of club members, so, we are hoping to run a roster in the June issue of C&E.

FOR SALE: 450 FM! GE high-pwr walkie-talkie with Touchtone, CTCSS. Slide it into the GE mobile rapid charger with mic, spkr, and built-in audio amp and you have a handheld and a mobile for the price of one. $500. Montie, WA5TSL, 685-1839.

FOR SALE: DRAKE..R4C, T4XC, MN 2000 Matching Network, FS4 Synthesizer and Station Console with Scope, ID Timer, etc. Call Chuck Sullivan, WB5YLZ. 721-2814.

For everyone's information, Chuck, K5NK, climbed the Channel 9 tower up to at least the 100 foot level to the elevator platform on heliax hanging day five times. K5NK

OK DX ASSOCIATION, Contd.

Oklahoma City had the honor of a surprise visit from Mister DX, Bill Bennett, W7PHO on April 19. After a little scurrying around, we managed to round up a few hams to meet Bill out at the KOA campground on I-35. N5IH, K5GL, N5SW, KA5KWA, KC5CR, K2GKK and AD1S visited with Bill and his lovely wife Ruth for much of Easter Sunday afternoon and to put it mildly, we had a hell of a grand time. Bill originated the W7PHO "Family Hour" DX nets which operate on 10, 15 and 20 meters. He has helped many hams work some rare ones for new countries. He has been a real friend to the Dx'er for many years and is at the forefront in the battle for expended U.S. phone subbands. Bill and Ruth were enroute through OKC on the way home to Seattle after an 8,000+ mile trip through the southern U.S. Bill showed us his motor-home QTH which included a TRIO TS-130S and a unique Tri-band mobile antenna. Thanks to Bill and Ruth Bennett for a delightful afternoon. We hope that he can give us more notice before his next visit, so we round up more DX'ers to meet him! Good health, Lover Boy!

Do not forget the next meeting of OK DX. Monday, May 11, 6:30 PM, Colony Kitchen Restaurant, N.W. 63rd and MacArthur Blvd. See ya!

NEVER AGAIN, HENRY. De AD1S.

+ + + 30 + + +

For The uninitiated "30" means the end in publishing - in other words there won't be any more comment on the "Ham" - "Amateur" opinions

Joe Harding, WA5ZNF

Although I received several more "Editorial Comments", including one from the original author which started the "comments", I meant the above statement reprinted from the April issue. In other words lets use the old cliche, "Let sleeping dogs lie". No, I'm not calling any one a dog.

Billy Graham's comment below ends it all - well said.

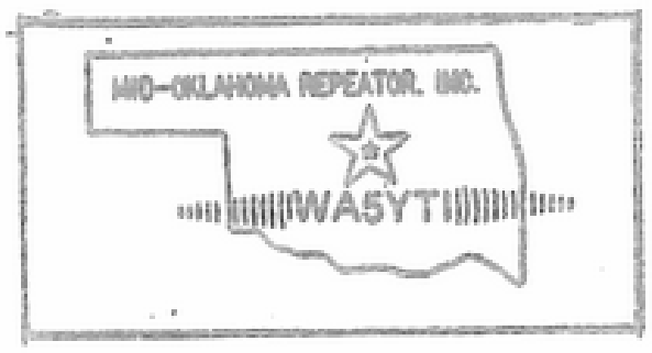
Billy Graham

Defending Against OR FRIENDS Enemies Pointless

Dear Dr. Graham: Why don't you ever seem to defend yourself when people attack you (such as reporters or television commentators)? — P.W.

Dear P.W.: Let me say that for the most part reporters and others in the media have been very fair to me. For many years it has (as you say) been my practice not to strike back at those who may be attacking me, whatever their reasons may be. At times I may privately try to set the record straight if facts have been distorted, but in general I have tried to avoid getting involved in such things.

Joe Harding WA5ZNF
Managing Editor



MORI DINNER MEETING

6 30 8 MAY FRIDAY BOULEVARD CAFETERIA NW 11TH & N WALKER

Looking forward to the Dinner meeting coming up. Its a great place to eat and close to the center of town so the distance wont be too great to travel for most of you. The program will be presented by Frank Arnold and Winnie. They had a great trip to Acapulco!! Don't miss the next meeting. Again...come to the Boulevard Cafeteria at 11th and N. Walker on Friday..Friday,,, the 8th of May ....Notice for this May meeting we will meet on Friday instead of Tuesday. Invite the wife too.. Time is 6:30 to 8:15 a shorter meeting than usual...

Want to thank four great guys for the hèlp they furnished to the American Lung Association Walkathon the fifth of April. They all brought thier mobile rigs and handies and kept track of the some 400 young folk walking to Draper Lake and back... Those helping were:

J. W. Word WA5KFT and his Wife (J. W.'s second year!!

Bob White WB5PWZ (Bobs second year)

Joe Satterwhite WB5RAG and his cute kids...

Al Farrell KA5DFV

Dave Baugh KB5KT is working on our new boards and enjoying a new job at Bolay Communications. Great!

New License upgrades..Harry Weiser, John Clement and Karl Williams Congratulations.

Marty is shbwing his skill in one of his many talents:"Public Relations" His letters to prospective exhibitors for Ham Holiday was a masterpiece. 150 letters went out in early April inviting dealers (in a most persausive way that the place to be this coming last weekend of July is to be with us at Ham Holiday. Thanks, Marty.

FRED KA5CXW

Hi Everyone!

This month I only received one letter in regards to my plea, and I am very sorry that I will be unable to publish it -- I do hope you understand, but Joe (managing editor of C&E) advised everyone there will be no more publicity on that particular subject(s). I do hope you accept my apologies. This particular paragraph does not pertain to all individuals, but I am sure one will know what I am talking about. I do want to encourage you (or any of you to please write something so we can publish it for our column. I know that there must be a lot of information out there, so I will be waiting and hoping to hear from you.

This has been a pretty active month so far, beginning with April 3-5, was the Lawton Hamfest, we went to it on the last day and arrived just a little too late to get in on the banquet, but plenty of time for me to play a few games of bingo (one of my weaknesses) and Fred - KA5CXW to enjoy some of the swap meet (one of his weaknesses).

On the 7th was MORI meeting, and we had the fun we always do, with an exciting program presented by Jack Muse from the Red Cross, also very informative and interesting, and socializing with everyone, etc. One of the big highlights of the meeting was at the beginning when Fred called Jim, (CONTINUED)

K5VRL to the front of the room to receive a trophy on behalf of our current problem of the "intruder" -- Jim and his crew of volunteers have really been working on this, and I personally think they are doing very fine jobs, it has been a little tough at times, but they are beginning to get things organized now.

The 10th of the month, we went to a meeting and got to see a presentation of colored slides from Frank, W5PDH, of his and Winnie's trip to Mexico last year. They sure had some good fish(y) stories, and I was impressed by both of them, but Winnie really told me something interesting, she explained a little about how to save a fish... well, I really should not go on, because she really didnit want me to say anything, but if you need a little more detail, you might ask her...

Well Ham Holiday is just a little over 3 months away, and everyone is busily scurrying around, but I do want to say a great big thanks to Marty - KA5JUJ and Ellerd, W5KE who made preparation of letters to the distributors and have already mailed them. Real good work guys!!!

I left a few days in April, and I am sure there were quite a few activities that I failed to mention, yep, one I almost did forget, not intentionally though, but I hope you all had a very nice Easter holiday, I am sure you know the real meaning of Easter is, for kids its bunnies, eggs, etc., but if you haven't given thought before, think about it,

May is now approaching, and there will be some things going on here too, and the following months, so be sure to read your calendar, or listen to your favorite repeator(s) so that you are not missing anything.

One final note, and this goes to all of my utmost loyal and true supporters out there, who gave me their confidence, etc., about me passing my exam, well I am here to write about it, not talk on 2 meters, HI! In other words, I am sorry to let you down, but I missed it by "2" this time.

"73" KA5FED - Susie

The South Canadian Amateur Radio Society

EDITOR: Jack Bickham, WB5TZZ

329-1311

LEE, W5MCN, HEADS SCARS FIELD DAY COMMITTEE

The South Canadian Amateur Radio Society voted April 11 to hold Field Day on the grounds near the Cleveland County Red Cross building again this year. Lee, W5MCN, was named chairman of the planning group. It's going to make him a busy man; he is also in charge of handling necessary improvements in the W5OU/R repeater.

In other business the club:

Voted to ask the EC to resume use of the telephone calling tree as a reminder of monthly ARES net callups, and suggested that club officers also use the tree to remind members of business meetings and other important events.

Named Sam, WA5RPP, to try to get a complete list of Norman area amateurs for use in a membership effort.

Solicited volunteers for help with the C&E mailing.

Completed plans to work with members of the OU club in that group's holiday message-handling.

Chuck, KC5CU, reminded members to get a QST mailing label to H.O., WA5MLT, immediately. H.O. says he needs these to send to ARRL with the application for club affiliation.

Bill, K5KDR, gave the CORA report.

THE LONG-DELAYED C&E: A FINAL (?) REPORT

Last November, climaxing a year-long hassle, WB5TZZ wrote to the Norman postmaster again protesting the fact that C&E subscribers in the Norman area often get the publication around the 10th of the month. At that time, Postmaster L.F. Woods responded in a nice letter, stating he was putting a four-month "publication watch" on C&E in Norman, and would report at the end of that period.

On the third of April, having heard nothing, TZZ wrote to Mr. Woods again, pointing out that three of the four issues since the earlier correspondence had been as late as usual. On April 7, Mr. Woods called TZZ. He said he had tried unsuccessfully to contact C&E ed Joe Harding by telephone, but wanted to give the following oral report:

According to Mr. Woods, Second Class mailing does not guarantee delivery with the first class mail outside of the post office of origin. In other words, he said, C&E will continue to be handled like Third Class mail in Norman. He said the only Second Class mail that gets handling like First Class mail is that which comes out weekly. As a courtesy, he said, churches or other organizations which drop their Second Class mail into the Norman system as point of origin do get First Class handling; but since C&E starts out in Oklahoma City, the Norman office will not give it any priority.

Asked why C&E should pay the higher Second Class rate statewide if it does not guarantee prompt delivery, Mr. Woods said the higher rate is a benefit to the postal system because it guarantees a certain monthly volume of mail. He was very nice about it, but the bottom line for Norman amateurs getting C&E ten days late every month seemed capable of being summed up in one word: TOUGH.

Joe, the ball is in your court. I give up.

NEW REPORTER DUE FOR SCARS

This issue marks the swan song for WB5TZZ as club reporter for SCARS. I plan to continue submitting material for possible use by the new club reporter, but some personal matters will make it impossible for me to make a set deadline every month. It's been fun...I wish the new reporter all the best...and you'll be hearing from me now and then with some volunteer pieces that I can do when time permits.

--WB5TZZ

GREAT PLAINS A.R.C.

W5HGH Repeater 146. 13/73

EDITOR: Carla Tice, WBØQGW

Easter is here and gone and I hope everyone had a most enjoyable Easter with the family.

Our April meeting had ten members and two guests present. The club decided that the president will appoint the E.C. It was voted on and approved. We will be purchasing cavities for our 13/73 repeater. We have already had two donations and the club sure thanks both of the donaters.

The club is participating is the one hundredth birthday celebration of the Red Cross and also the tornado thirty-two years ago at Woodward April 23. We are also participating in the Woodward Home Show activities April 24 and 24 with a booth. Come see us!

A movie was shown at the meeting called "Twist of Fate". It was about the Woodward tornado and was very interesting.

Heard In Passing.....WA5YQQ, good to hear you on the air..... WB5NGZ is busily coordinating the Red Cross celebration coming up... ...WA5PLW has had his toes turned up (been sick) but he is up now. It's hard to keep a good man down.....KØCIO is about ready to move into his new ham shack.....WBØPGD is quite a carpenter.....WD5DFH was about wiped out completely by lightening. That's rough! ..... N5CCV and WBØQGW were judges at the Vicl Hootenanny.....WD5BOZ was in the hootenanny. Played the guitar.....WD5BPA got married.

EDITORIAL COMMENT

Comments From The Forgotten Corner Of The State

I would like to reflect my feelings on the FCC's plans to do' mway with the logging requirements for Amateur Radio.

Let's look into what a log is: something to fall off of when crossing the creek, a piece of wood to carve yours and your girl friends name on, the basic material to construct a log cabin, and finally an account on communications made by Ham Radio. To me, not logging radio traffic is like crossing a creek with out a log to walk on, you're bound to get your feet wet.

Now I know you're all saying think how much easier it would be. No log book to spill coffee on or burn a hole in with a cigarett or have your son come in with his colored pencils and make entries and last but not least, think how much time it would save. You say I could keep track of it on scratch paper. Boy, you're more organized than I am. Ok, we've saved time and eliminated an always lost or misplaced book that gives us a record of what has taken place on the ham bands. But, have we really eliminated or saved anything? Time, I suppose; maybe 30 seconds per QSO, paper, you'll spend more on solder a year than a log book costs, a permanent record of who you talked to for the time you've been a ham.....wait a minute, you say, I don't have a record of who I've talked with. That's right my friend. Oh well, I never look back in my log book any way so I guess that's no real loss.

You say you never look back. Don't you feel a little guilty sending QSL cards to someone who says he talked to you on a certain date and needsyyourstate for W.A.S. with out looking back in the log to see if you actually did? Ok, that's easy to solve, just keep all the calls and dates in a notebook. Fine, but, he is working on W.A.S. 40 meters. Well, we'll add the frequency to the note book, no problem. Alright what do you put down for a name? He says his name is Bob, Ok, that was easy. Now then, RST, we can just make something up. What do we care if he is working on a new antenna and would like to know how it

G P

sounds! Lets see, we've put down in our note book his call, the frequency, the date, and maybe a name, we almost have the log, again this time in our store bought note book. Lets see, we said something about a record of the time we spent on the air, that isn't very important unless..... Remember the fellow down the street that saw you putting up your antenna and made some comment about TV reception? You didn't think much about it until yesterday your neighbor said you have been interfering with his TV and he is going to take you to court and get your radio. Now what are you going to do? You try the filter angle and a few other things, no help. Finally, he says, "Look fellow, I've got a tape recording of you last night and I'm going to my lawyer." Last night, well I wasn't even on the air?? If only I had a accurate up to date log..... In court a log book could be enough to save your rigs.

This does not mean your log book is going to keep you out of trouble or prevent problems with interferance complaints. However, it is a record of what your station has done in the past, provided you keep your log accurate and complete. In a last attempt to persuade yourself you don't need a log you say VHF mobil communications hasn't been logged and that doesn't seem to cause any problems. Maybe not, but if the FCC does relax the logging requirements, please, please give long and honest consideration before you relas your logging skills.

Bill Wyatt N5CMW
President GPARC

WSPAA

EDITOR: Bob Graham, WB5NSV 677-8685

MINUTES OF THE APRIL '81 MEETING OF THE ACARC

The meeting was called to order at 8:01 PM by President Bob Pace, WA5CJG. There were 30 members and guests present. Accompanying the usual round of self introductions were several April Fool jokes, which were only understood by a few (HI). Following the introductions were several announcements and reports. A brief summary follows:

President Pace announced that the May meeting of the ACARC will feature an excellent program on windpower. He encouraged all to attend.

It was announced that the annual ARRL dues are going up to $25.00 per year.

The CORA report was given by Holly Holcomb, N5ABL. Holly reported that Ham Holiday '81 plans are progressing well. The annual banquet this year will be held on Saturday instead of on Sunday as it has been in the past. H.H. prices were discussed and may be found elsewhere in this issue.

President Pace gave the Ladies Program Committee report. He reported that the Ladies Grand Prize this year will be a Litton microwave oven! Many programs are already scheduled, and our ladies should be happily entertained again this year.

The repeater and computer reports both followed. Both are up and working well (knock on wood). The repeater fans have been turned on for the summer, and should be keeping everything cool.

At this point President Pace opened the meeting for any new business. A motion was made by Gene Halley, WB5SQC, and seconded by Bill Oliver, K5KDR, that "the Aeronautical Center Amateur Radio Club immediately remove the requirement that an ACARC member must hold membership in the American Radio Relay League." This motion was amended to include an ACARC constitution change removing article 3, paragraph 5. The motion carried.

A second motion was made by Bob Graham, WB5NSV, and seconded by Bill Noland, WA5FWD, that "in view of this constitution change, our affiliation with the American Radio Relay League be maintained even though not at the 100 percent level." The motion carried.

The program of the evening was a video taped introduction to the microprocessor in a control environment. It was enjoyed by all present.

The meeting was adjourned at 9:36 PM for coffee and donuts.

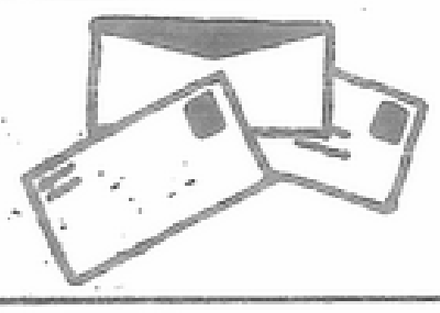
73, Bob Graham, WB5NSV, Sec.

RANDOM WORDS FROM THE PRESIDENT:

:HERE WE GO AGAIN,THAT IS THE WIND MAY BLOW, THE RAIN MAY FALL,AND MAY
:THINK THE SKY IS GONING TO FALL,BUT COME MAY THE 1st AT 8:00 P.M. AT
:THE AERONAUTICAL CENTER WE WILL HAVE THE REGULAR MEETING OF A.C.A.R.C.

THE PROGRAM WILL BE PRESENTED BY MR. BERGEY ON THE GENERATION AND USE
OF WINDPOWER.MR. BERGEY IS A VERY IMPRESSIVE SPEAKER AND REALY KNOWES
:HIS STUFF ABOUT WINDPOWER.SO EVERYONE COME ON OUT AND JOIN US FOR A
:VERY INTRESTING MEETING AND A VERY GOOD PROGRAM

FOR SALE--From the estate of Bill Peterson WB5NXO. Complete Ten-Tec Omni station. Includes: Omni-A (analog) factory converted to Series B, Noise Blanker, Remote VFO, and Ten-Tec metered power supply. The station is complete with all cables, manuals, and original factory cartons, ready to go on the air. In excellent condition. Robby AAØD, 373-1818. Price $800.00 or reasonable offer.



letters to the editor

19th March 1981

Dear OM:

Thank you so much for mailing to us here in South Africa your very nice Collector & Emitter. I hope you get ours as well regularly. Today we received the September 1980 copy.

I included a few words about us here in South Africa, that might be of interest to your readers. When in the U.S.A. last year I had the opportunity to give a few talks about amateur radio in Africa at various clubs and at the convention in Seattle end of July 80.

Amateur Radio in Johannesburg, South Africa

The Johannesburg Branch of the South African Radio League has about 600 members, and is the largest in South Africa. SARL-Jhb. established a permanent clubhouse during 1978. Besides a fully equipped amateur radio station (HF, VHF & OSCAR), a technical reference library and a range of most modern test equipment is available to club members and visitors. The clubhouse offers other activities such as RTTY, CCCV SSTV, OSCAR and project evenings. Open two to three evenings per week and by arrangement different interest groups can pursue their own fields.

Lectures for newcommers to the hobby are being catered for in three different courses starting each six month. The total number of seats available is about 300 per year and are all fully booked out. A beacon on the two meter band and a repeater on 145,050/650 cater not only for the members but to the 'greater Johannesburg' area. Building projects are offered regularly and can be requested by mail order from ' out of town' members. A club magazine called "ZS6TJ CALLING" is mailed each month.

Membership in the SARL and participation in lectures is open to all race groups. A special lecture program for Blacks was started this year in their own residential area to overcome transport problems.

As the most inovative hamorganisation SARL-JHB. was chosen by the importer of Radio Shack computers as a test case and received a brand new TRS-80 system with VDU, cassette player, books and other accessories as a donation, for the club house, to enable members and visitors to learn basic.

SARL-JHB is currently assisting amateurs in other parts of Africa to start lectures, assist with equipment when available and provides info to overseas visitors wishing to visit countries in Southern Afric except for the Rep. of South Africa. Visitors to the Rep. of South Africa can obtain guest license information from the headquarters of the S.A.R.L. at PO Box 3911, Cape Town 8000. Visitors from the U.S.A. can obtain permission to operate their stations in Botswana, Swaziland, Zimbabwe, Transkei, Bophutatswana, Venda and the Rep. of South Africa without a reciprocal agreement. Applications should be made 90 days before the intended date of arrival in Africa.

This report written by: R. J. W. (Peter) Strauss, ZR6MI/A22PS, (ARNS Member), P.O. Box 35461. Northcliff, 2115, Rep. of South Africa.

ALTUS AREA AMATEUR RADIO ASSOCIATION

EDITOR: Dennis Bonewitz 477-0194

The March meeting of the Altus Area Amateur Radio Association got underway at 1730 on March 12th. Fourteen members and guests attended. Chuck, WB5MJS, led the round of introductions, and the financial statement was read.

Mike, W5VXU, reported that plans had been finalized for operating from the Mangum Rattlesnake Derby on April 25th. Space to set up two HF rigs has been obtained near the Bratton Drug Store. Mike and Bob, N5AIP, will operate the lower end of the General portion of each HF band, conditions permitting. Dennis will be on hand with VHF, .19/.79 and .52. To cut costs, the QSLs won't be printed until after the event. A motion was made and carried to support some of the costs with club funds.

Dwight, WB5KRH, reported that it would be two more weeks or so before the ANX machine was back up on the mountain, due to slow delivery of some needed components.

The members also discussed having a club patch drawn up. The design for this, plus a suitable manufacturer, are being looked into.

Dennis, KB2FW

FOR SALE: Two 11-element 2-meter beams. Can be used separately, or phased with harness. $30 apiece, or $75 for both with boom & harness. Charlie, KA5BDB. 482-4278

The April meeting of the Altus Area Amateur Radio Association took place in the North Main Fire Station. Chuck, WB5MJS, president, opened the meeting and began the introductions. The attendees were:

Chuck, WB5MJS	Dwight, WB5KRH	David, KA5KKO
Mark, WAØLIT	A.L., WA5MCR	Bob, N5AIP
Loren, WA5CBF	Charles, W5UOV	Joe Don, WA5MCS
Lyn, KA5KKQ (harmonic of W5UOV)		Ralph, WD5BBV and XYL Mary

Everyone welcomed Charles, W5UOV, as a new member.

Bob, N5AIP, reported that all was set for the Mangum Rattlesnake Derby. He'd gotten a batch of QSLs printed up at no cost. The card is a color print showing the town square during last year's derby. (Saturday, 25 April is the big day).

Loren, WA5CBF, showed a club patch design he'd drawn up. The members voted to proceed with having it made up in cloth form. Joe Don, WA5MCS, will look into this.

The final topic of discussion was the WR5ANX repeater. Dwight, WB5KRH, announced (in case anyone didn't already know) that the machine was back up on the mountain and operating so well that he was considering charging long-distance rates for some of those far-off stations. Hi!

The meeting adjourned at about 2115, and almost everyone re-assembled at the Friendship Inn across the street for coffee. The May 1981 meeting will be on the 14th, also at the Fire Station.

Dennis, KB2FW

OMAHA OMIGOSH (Or A Funny Thing Happened on the Way to the SAC Race)

It started with a suggestion from K5JB that we might want to fly up to attend the Omaha hamfest in March. I checked the calendar and casually mentioned to him the next time I saw him that there didn't appear to be any such event. He said, "That's right, it won't be a hamfest until we get there." Actually the opportunity he mentioned was a trip to visit Hoss WA5ZAI and Bob NØBIX in Omaha. Hoss is a displaced Oklahoma Cityite who worked with Joe many years ago and got licensed as a result of that association. We usually took the opportunity to renew the acquaintance every year during the Dayton Hamfest and Joe and Hoss (and I, periodically) keep a weekly schedule on 4Ø Meters.

I had to demur to a trip on March 14th because of previous business commitments, but countered with an offer to go on March 21. Of course, the weather was perfect on the 14th and during the next week I silently wished that similiar weather would exist the next week because if we couldn't go because of the weather the next week, Joe would be difficult to live with. I met the schedule on the 14th and apologized to Hoss for not being able to go. Joe gave a glowing weather report. I did check the forecasts very carefully the next week. Looked like everything would be go, but a low pressure was moving over Kansas. Still didn't appear to be anything serious.

On Saturday morning, it was partly cloudy, but very broken and definitely windy. Our was to get to Norman Westheimer International and plan wheels up about 9:00 a.m. or so. Joe had consented to taking my plane since there was some question about the availability of the 182. Heh, Heh, just a slick opportunity for me to sit left seat. Unfortunately, for some reason the airplane had to be handpropped. We strapped the plane on and taxied out in 20 knot winds. Fortunately, the winds would be tail winds, but only if we stayed about 2500 to 3000 feet or so. No problem except it was bouncy, bouncy, bouncy and hot. Up to Ponca City, then Manhattan, Kansas, but we finally got under some cloud cover about 100 miles or so outside of Omaha. Also, with the rain, the visibility went to Hell quickly. Our plan was to land at Millard Airport and meet Hoss and Bob there. Joe was in contact with Hoss and Approach Control at the same time. No mistakes either. He never once gave his call letters to approach control and never once mentioned the airplane tail number to Hoss. He can also rub his stomach and pat his head at the same time. We got to within a mile of the airport before getting a good look at it and our tail wind had become a headwind for the last hundred miles as we passed up the east side of the Low pressure. On landing, it was a stiff crosswind.

After tying down the plane, I made arrangements for fuel and the only tragedy of the trip occurred when Joe got out of the plane and opened the door to see his UHF Motorola Slimline plunge 5 feet to the concrete taxiway. Ugh! The radio had worked its way off his belt and lodged between the door and the seat. When the door opened, it was bombs away and a perfect one point landing. The landing left a dent in the case, but the radio blew squelch and appeared to transmit. No doubt about it, Motorola radios are tough. I dropped my omni UHF the other day and broke the touchtone pad off, but didn't hurt the radio.

Bob and Hoss arrived at the airport a few minutes later and took us to eat at a world famous restaurant, McDonalds. Hoss promised to do much better for dinner. Our next stop was Bob's house to see his station. It was definately a cut above the average with an Icom 701 and Heath SB-200 amplifier. He also has the companion Icom two meter rig and an assortments of other gadgets and assorted goodies all built into a desk. Bob and I are at opposite ends of the spectrum in terms of radio gear. He disdains surplus and used equipment with a passion. I can't live without it. He goes to Dayton to look at the programs and actually yawns in the flea market. I scour it with a passion and have yet to see a program. Bob will barely admit it in an audible whisper that he

purchased his amplifier in a moment of personal weakness in the (gasp) flea market. I am proud to label my equipment as to its heritage (preused). To him, buying used equipment is buying someone else's problem. To me, that problem just brings the price down below reasonable.

Bob also had his Apple computer on line with disc drive and new (of course) video monitor. As we walked in, his son was diddling with the game package. (Who says the modern generation is not science minded?) We had a quick demonstration and explanation. I dunno. I am not a big computer fan. I actually don't need the temptation of proliferation of more equipment around my house. Desk space is already at a premium. My TI-59 and printer does all the number crunching I need (or could need) and I have fiddled on occasion with my 6502 based KIMlike processor board. As to games packages? Yecch. I already have enough toys in my collection.

After leaving Bob's house, we wangled a trip out to the Air Force Base to see the Strategic Air Command's Global Weather Center where all weather information for the entire SAC operation funnels into a single building. Our tour guide was a friend of Hoss and Bob's who is licensed and responsible for maintenance in the building. We checked the weather maps for the return trip on Sunday and talked to the big boys as if we were jet jockeys. The outside looks like a satellite dish convention. When we left, Hoss drove us by general's row where all the SAC command generals live. The spectrum went all the way from one to four stars and there must have been about 10 or so. Each lives in a section of a converted multistory barracks. Very nice and impressive. Haven't seen so many stars since the last time I visited the planetarium.

Hoss redeemed himself for lunch that evening by steering us toward a local excellent steakhouse. Our lunch faded into the background as the waitress brought breadsticks, salads, and finally steak and lobster. Knowing Hoss' penchant for cigars, I had brought him one of the big ones from my collection and we sat around making fog and IFR conditions the rest of the evening. Hoss had also arranged for dinner companionship from the local group and all of us had a great time.

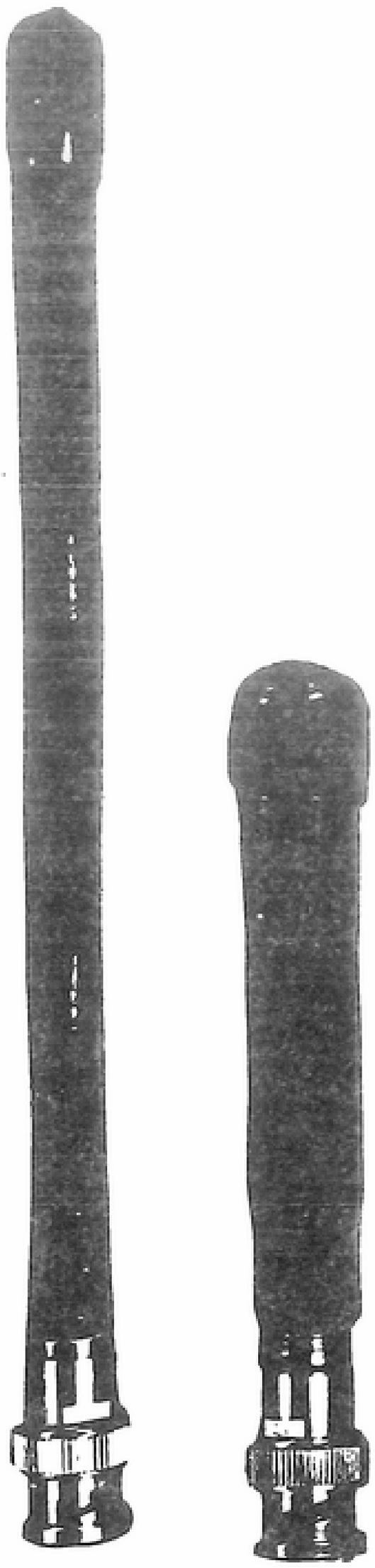
Back at the Hotel Hoss and after a bit of a bull session, I crashed for the evening. Up the next morning, the sky had cleared and Hoss went down to rig to meet his regular sunday morning 2Ø meter schedule with Keith WA8ZWJ and others in Dayton. Hoss' station is also an Icom 701 and amplifier and supplemented by his Apple computer and disc drive set up for RTTY and CW. After cleaning up, we went out for breakfast with Bob, Bryce and Debbie, part of our dinner companions from the previous evening. A check of the weather showed that the low pressure had moved further east and would give us a bit of a tail wind for the trip home. The bad news was that it also would contribute to some bad weather conditions along the Nebraska-Kansas border. Conditions were suppose to be a little mucky and Wichita had airborne fog and haze. We waited until about 3:00 or so and headed out to the airport, loaded up and left Millard heading south. Lots of haze and after climbing about 4000 feet, forward visibility was exactly the greatest. Those clouds predicted for the Kansas-Nebraska border were actually 1 state south and I was pretty glad to finally get to them since the haze disappeared and the visibility improved. It cooled off a bit and the rest of the flight was a milk run until we got cut off in the pattern by the unannounced national guard King Air apparently bootlegging an approach. He never said squat.

The next stop for JBMS airlines is (TADA!) Dayton!! I had to scrub plans to go back to Omaha the second weekend in April. JB wasn't able to make it either. Hoss, Bob, Joe and I plan to converge on Dayton on Thursday evening. I sure hope we get by Mendelson's the next day before heading out to the flea market. Onward through the fog!

Micheal Salem N5MS May 1981

A RUBBER DUCKY'S DUCKY

Part of the fallout from the trip to Omaha with K5JB came in the form of a new squat type rubber duckie manufactured by Centurion International in Lincoln, Nebraska. These antennas are short helically loaded and slightly larger in diameter than the normal ducky. The actual radiating length is only 3 1/4 inches and judging from the number that I saw it Omaha, it is all the rage.



The story that I got from NØBIX, who ran a few studies on the short ducky, is that it is a fairly good radiator compared to a regular ducky, but he still carries a Centurion loaded 1/4 wave antenna for the long haul. Centurion's plan was to shorten the antenna as much as they could until there was a serious degradation of radiation. The antenna is almost exactly one/half the length of the regular duckie that came with my IC2AT. Check it out by comparison to the photo's shown at the right. Remember that copy for the C &E is reduced before printed.

The local amateur store was closed and JB and I could not get a couple of the antennas for testing purposes, so Hoss and Bob graciously consented to transplants and vowed to buy new short duckies the very next day for replacement. In the month or so that I have had the antenna, I have not been able to tell that it is that inefficient. Inefficient, that is, when compared to a regular ducky. My Motorola comprehensive range chart indicates that ruckies (rubber duckies) are about 7 db below a quarter wave (make that 17 db when the antenna is on a walkie talkie on your hip), but as the old saying goes, 100% of nothing is still nothing. The antenna is a fair performer and I have been pleased (and slightly amazed) at the results.

I received some information from Centurion the other day by bingoing a card in a communications magazine and found out that they make a whole host of antennas, ducky style, from a VHF 1/4 wave low band helical to a UHF 1/4 stubby. The short duckie is called a Mini-VHF 1/4 wave high band antenna and is available in frequency bands from 118-174 Mhz. Their accessories also include a variety of adaptor cable assemblies and right angle adaptors. In addition, they also have several portable mobile antennas made out of stainless steel.

The helical antennas are basically the same, but Centurion has a wide variety of connector configurations including compatible connectors for Motorola, GE, Ritron, Sonal, Tempo, Johnson, Repoco, Federal, Aerotron, Standard, Harris, Halicrafters, Wilson, Tempo, Yaesu, Kenwood, Pace and others, including miniature plug and microplugs. They even have several configurations of the standard Motorola HT thread including the older knurled knob which Motorola quit selling several years ago after introducing the insulated base antenna. Nifty.

Micheal Salem N5MS

RADAR BILL STILL PENDING--A Gigahertz in Time Saves 10.5 (Gigahertz)

I checked the other day on the status of Senate Bill 243, the so-called "Fuzz-buster" bill designed to outlaw the use of radar detectors and jammers on Oklahoma Highways as a means of "boosting" trooper morale. You bet trooper morale is down. This bill could downright take all the sport out of owning a fuzzbuster. It also poses some serious problems for amateur radio operators in that it might also ban the possession and use of 10.5 Ghz transceivers. I made an inquiry of two of the local state representatives (my letter to local state senator Lee Cate went unheeded, apparently since the Senate had already sneaked the bill through and sent it to the House). One response came from Representative Cal Hobson who indicated that he appreciated my bill and would let his colleagues know of my views when it came through the House. That's a nice safe answer since I don't know whether he agrees with me or not. Representative Cleta Deatherage (a truly fine person and an excellent representative) told me that she was also concerned that the Bill might be unconstitutional and also gave me the names of Representative Carl Twidwell, Chairman of the Public Safety and Penal Affairs Committee and Representative Robert Henry, Chairman of the House Judiciary Committee to whom the Bill had been assigned. I dashed off a couple of letters to them and received no response.

Why am I concerned? Because this bill could ban or make it difficult for me to use equipment in a band that I have become very fond of, 10.0 - 10.5 Ghz. Most of the police radar equipment is really sick and subject to interference from the most trivial sources. The usual detector is a simple diode in a cavity with no bandpass filtering. An amateur transmitter operating less than half a gigahertz away would drive these devices bananas.

The bill represents, nothing more or less, another assault upon the right of the citizen to equal access, for purposes of reception, to the electromagnetic spectrum. It is easy to get tired of efforts made to curtail that freedom under the guise of "law enforcement."

It was the Highway Patrol and local county officials that made a game out of radar speed detection. Radar receivers were a defensive means used by the citizens to protect themselves from improperly operating and operated radar equipment. Blind reliance upon radar results by both officers and judges is an affront to the Oklahoma Citizen who cannot afford the kind of expert witnesses and investigation it would take to challenge an improper speeding ticket. This is an action by the government against the citizen that occurrs thousands of times a day with no practical recourse by the citizen. They normally just pay the fine and curse under their breath.

As to radar transmitters, it is already illegal to use a radar transmitter to "jam" any radio reception. The FCC issued a Public Notice on July 7, 1980 (reprinted in the C & E) that flatly warned against the use of jammers. Additional legislation in the area is superflous. And what about the legitimate use of such equipment by the properly licensed amateur? No telling from the bill.

So along comes another article in Electronic Engineering Times for Monday March 30, 1981 that indicates that the National Highway Traffic Safety Administration (NHTSA) has filed a Notice of Proposed Rulemaking to set up strict guidelines for technical specifications for police radar sets. The rules resulted from a three year joint study by the NHTSA and the National Bureau of Standards. There are presently no standards for regulating the quality of police-radar units, or for training the officers who use them. The proposed rules provide installation and operation requirements, manufac-turing design and performance criteria, and rigid test procedures to ensure

a radar initial and continued compliance with the NHTSA rules.

It appears that the rules may virtually write X-band radar out of the market. Most X band gunn diodes operate on 10 volts, but the new rules would require the radar devices to operate accurately down to 10.8 volts and that is really just too low to properly regulate the voltage to the gunn diode. K band radar diodes operate on 5 volts, which would be ideal for the nominal 12 volt system.

The NHTSA rules also propose the elimination of the automatic self-lock and recall-speed functions. Automatic self-lock when in operation locks the device to the highest retained frequency and locks it in until manually reactivated and cleared. The recall-speed function allows a radar operator to recall the most recent speed displayed, even after it has been blanked out of the display window. According to the NBS study, these two features lend themselves to potential abuse or error by the operator. The new rules propose that the radar operator manually press a speed-lock switch to retain a speed reading, thus requiring positive identification before locking the display.

To properly calibrate the radar, each new radar unit must be accompanied by a tuning fork. When a moving radar is calibrated, the operator must use two tuning forks, one higher in frequency than the other. Both must be simultaneously struck and placed in the path of the radar transmitter.

The currently available radar units were determined to be susceptible to a number of extraneous signals and interferences. The proposed standards would require each unit to be free of these types of interference including CB radios and police radios. Interference can also occur from automotive noise, alternators, windshield wiper noise from motors, air conditioners, heater fans. It was determined that travelling through underpasses tends to confuse the radar devices by producing additional doppler signals. The radio signal undergoes a doppler shift each time it bounces off another surface. This would mean that a radio signal that bounces off a large metal sign, hits a car, then reflects back to the radar unit would have undergone two different doppler shifts and display a speed depending upon the speed of the patrol car, the angle of each reflection and the speed of the target vehicle.

One of the biggest inaccuracies listed was transmission-frequency inaccuracy. The proposed standard is to use crystal controlled to compare the return signal. If the frequency should shift up, then the indicated speed would also go up. An inaccuracy of 5% high would change the speed of a 55 mph by raising it 2.75 mph. This would mean that a 10.525 Ghz signal would need to shift about .5 Ghz to approximately 11.0513 Ghz to show this inaccuracy. Is this possible with a wide variety of temperatures and ±20% voltage variations? You bet. Especially if the temperature goes down so that the size of the cavity gets smaller and frequency consequently goes up. I haven't had the opportunity to test what happens to frequency when voltage variations occur, but I do know that output goes down or distorts. Some of the Gunn sources that I have seen are nothing more than cast iron cavities and certainly nothing special.

The manufacturers will be required to include specified test equipment with the device. Required test gear includes an audio-frequency synthesizer capable of 300 to 10,000 Hz, microphone (for coupling tuning fork tones into an amplifier or oscilloscope), environmental chamber, anechoic chamber, frequency counter, field-intensity meter, isotropic probe containg three orthogonal dipole antennas and a photometer. Sounds good to me. By the way, some sources within the NHTSA said that few of the more than 100,000 radar units in the U.S. meet all of the proposed standards.

Micheal Salem N5MS

UNIVERSITY OF OKLAHOMA

AMATEUR RADIO CLUB 146.28/.88

Easter Traffic

Several OU club members including KA5COI, WB5QLF, WB5RQB and KC5CU handled Easter-related traffic as a service to OU students. About forty messages were received from students at the Cate Center cafeteria on 9 April and were relayed within the next couple of days on HF nets. Messages were delivered to nineteen states and to Israel and Trinidad.

Keys

If you have a key to the former station, Carson Engineering 419, you should return it. Keys should be given to Peter (KA5COI): Peter Richeson, 842 S. Flood, Norman, OK 73069.

Some OSCAR Experiments

FATE, meaning "First Americans, Tomorrow's Engineers," is a program that is hosted by the College of Engineering at the University of Oklahoma each June. This year (last?-Ed.), the program hosted thirty-one native-American highschoolers for a two week period. During this time, the participants were divided into five groups, each of which specialized in some form of engineering and conducted in-depth studies of a particular field.

One such group, known as the STARS (for Satellite Tracking and Relay Systems) spent the two week period studying orbital satellite parameters by using the OSCAR satellites 7 and 8. This article has as its purpose the presentation of some of the results which were obtained by the students and the description of some experiments they performed which may be of general interest to the amateur community. This article was prepared by members of the STARS under the supervision of Dr. and Mrs. Bill Walker.

EQUIPMENT

It is not necessary to have a lot of complicated equipment in order to work with the satellites. We made use of two satellite systems, one with downlink on 10 meters and the other with downlink on two meters. Both were equally successful with over-the-counter stock equipment and modest antennas.

For ten meter downlink work we employed a Kenwood TS-820S without pre-amp. The rig belongs to the OU Amateur Radio Club. The antenna was a trap dipole on the roof of the engineering building. In testing the radio, the same rig worked quite well with a trap vertical antenna in an apartment building.

The two meter station consisted of an ICOM 260A connected through 110 feet of RG-8 to a HiGain 14 element yagi on the roof. The yagi was mounted on an az-el mount, consisting of two rotators (which were kindly donated by TET, Inc.) mounted at right angles to each other. This proved very satisfactory, although our experiments later showed that we could have done about as well by using only an azimuth rotator and just slanting the yagi up about 30 degrees or so. This brings the antenna farm well within reach of the average amateur.

We made no effort to reduce standing wave ratios on anything. Literally, we plugged it in and fired it up. Signal strength on 10 meters was well above S9, and on two meters we were able to copy SSB and CW signals without difficulty. The two meter set-up even managed QSO-quality signals through the satellite without further ado.

EXPERIMENTAL PROGRAM

We approached the project in several steps. Since finding the satellites may be a difficult task, we first wrote several computer programs to assist us. One program for each of the two operational satellites is presented in Figure 1. These programs are written in BASIC, which the students learned as part of the two week course. They should run on almost any machine that utilizes floating-point arithmetic. Any machine equivalent to a Radio Shack TRS-80 with level II BASIC should suffice. With more machine you can have more capability, of course.

```
10  REM  THIS IS OSCAR 7
100  PRINT "GIVE REFERENCE TIME AND DEGREES"
200  INPUT T,R
300  PRINT "TIME           DEGREES"
400  FOR X=1 TO 15
450  H = INT (T/60)
460  M = ((T/60)-H) * 60
500  PRINT H;" ";M;" ";R
600  R = R+28.74
700  T = T+114.945
750  IF R>360 THEN R = R - 360
800  NEXT X
```

Figure 1. BASIC program to compute OSCAR 7 position. For OSCAR 8 change line 10 as you wish, change line 600 so that the value added to R is 25.8 and change line 700 so that the value added to T is 103.22.

One simply runs the appropriate program for the particular satellite and enters the "reference orbit" parameters from a recent issue of QST. Note that the reference time must be entered in minutes, and hence, for example 0130 UTC should be entered as 90 minutes. Output of the programs consists of somewhat more than 24 hours of data. This is deliberate, since conversion from UTC to local time causes early morning-satellite passes to fall on the previous evening locally.

Our experiments indicate that in the Oklahoma City area we can expect to hear passes that occur between about 70° and 130° of longitude (Oklahoma City lies at about 100°). Because of the antenna configuration that we used (and local obstructions) the passes close to the horizon (close to 70° or 130°) were more productive on two meters and passes overhead were most productive on 10 meters.

The program indicates the time that OSCAR will enter ascending mode (i.e. cross the equator) on a particular orbit. Depending on the longitude of the pass, we acquired the signal (AOS) up to five minutes later that the indicated time. We also noticed some atmospheric propagation of the signals.

Loss of signal (LOS) occured about 12 minutes after AOS for our modest equipment. Since we could hear the satellites for only a few minutes and wanted to get the most out of each pass we set up a team monitoring effort as described below.

RECORDING A PASS

During each pass each student performed an individual job. One student called a time mark every thirty seconds while other students served as record keepers to record various readings at each time mark. A fourth student tuned the receiver while a fifth and sixth manned tape recorders and antenna rotators. The antenna was moved about 5° per minute from south to north. The student manning the receiver attempted to keep the pitch of the received tone constant, and thus his frequency readings served as a rough measure of the Doppler shift which the satellite exhibited.

In this fashion, two consecutive passes were recorded for each of the two satellites. We were able to detect the time of closest approach (TCA) for each satellite by averaging the times between LOS and AOS for two consecutive passes. The difference between two TCA's gave us the period (time it takes for one orbit) for each satellite.

We were able to compute many things from this period. A table which depicts some of the things that we were able to determine is presented in Table 1.

Table 1. Some calculations.

	OSCAR 7	OSCAR 8
measured period (minutes) (P)	114.94	103.22
computed altitude (miles)	907.25	570.56
$h = \left\{\left[\frac{P^2}{4\pi^2} \times 5.0688 \times 10^{19}\right]^{1/3} - 20903520\right\}/5280$		
orbital velocity (mph)	15960.79	16543.34
$V = \frac{2\pi(h+3959)\times 60}{P}$		
miles traveled per day (Vx24)	383058.92	397040.16
radius of radio "footprint" (miles)	2456.73	2008.59
$= 3959 \times \arccos\left\{\frac{3959}{3959+h}\right\}$		

Using only the period we were able to determine the satellites altitude on that particular orbit and, by using this number, we were able to calculate the distance which the satellite could "see" (i.e. the radio horizon for the satellite).

We were also able to measure the orbital velocity for each of the satellites using the observed data and the apparent altitude. As a matter of curiosity, we determined the distance that each satellite travels in a day and the distance traveled since launch for that particular satellite (Ed.-latter not presented).

TELEMETRY

By recording the Morse telemetry of OSCAR 8 we were able to determine many conditions in space. This telemetry is presented in frames of six 3-digit numbers surrounded by the word "HI." A short computer program allowed us to convert the numbers into meaningful parameters (Figure 2). The only complication was that the telemetry is sent at about 20 wpm and none of the students had ever heard Morse before. In order to solve this problem we first spent an hour or two drilling on numeric Morse characters and then ran the output of the tape recorder into an old strip recorder which printed the output on a paper chart. This chart was easy to decode. An alternative would have been more Morse code practice or to use a two-speed tape recorder and just slow it down.

By graphing the telemetric data from several consecutive frames we were able to determine when the satellite fell into shadow and the tumbling rate of the satellite. Channel 1 (total solar array current) was especially useful in this regard. Moreover, one of the other FATE groups, whose main interest was solar flux, utilized our data since they were having trouble finding a completely cloudless day in Norman on which to conduct their experiments. The measured value in space was slightly less that we thought it should be. We attributed the low reading to a change in the efficiency of the solar cells on the spacecraft. An original assumption of 8% was evidently somewhat high. The telemetry on OSCAR 8 includes:

channel 1	total solar array current
channel 2	battery charge-discharge current
channel 3	battery voltage
channel 4	baseplate temperature
channel 5	battery temperature
channel 6	435 MHZ transmitter power output

A typical frame of telemetry might appear as: HI 101 247 381 450 546 611 HI.

The first digit of each three digit number indicates the channel that the data describes. When the program (Fig. 2) asks for channel 1 data we would reply "01." When asked for channel 2 data we would reply "47", and so forth. We found that some of these parameters vary a great deal while others hardly vary at all.

CONCLUSIONS

Using only very simple equipment and taking only very primitive measurements we were able to measure many useful orbital parameters for OSCAR 7 and OSCAR 8. These measurements agreed rather well with published figures. The programs which the students wrote can be polished to reflect the needs of an individual amateur and his computing facilities. There is nothing in the programs that could not be handled with a hand calculator. In the environment in which we worked we found that the use of a computer was almost essential to the work that we wanted to do. The use of the computer added a great deal of fun to the entire project and could well form the basis for a separate FATE program in the future. In the meantime, we were amazed at the amount of data that we were able to collect and process and at the amount of knowledge that we were able to acquire in only two weeks. This article is presented in the hope that some amateurs may find our work interesting, informative and worthy of improvement. Give OSCAR a try-you could be as suprised as we were.

Students - Fred Anderson (Apache-Cherokee, Kansas), Lyle Benally (Cochiti-Navajo, New Mexico), Renee Dennison (Navajo, New Mexico), Chaz Gray (Navajo, Arizona), Roxy June (Navajo, Arizona) and Regina Watson (Navajo, New Mexico). Supervised by Dr. and Mrs. Bill Walker (University of Oklahoma). This article was written by this group.

Editor's note - Figure 2, the second computer program, will be printed in the next issue of C&E. Omitted here due to lack of space.

- Chris Royce KB5QU

OKLAHOMA SPECIAL OLYMPICS
1981 State Track & Field Meet
Schedule of Events

Wednesday, May 13, 1981

2 STATIONS: 0830-2pm and 0830-6:30 pm

	9:00 a.m. - 2:00 p.m.	Arrival & Registration - Broncho Field House
1 "	11:00 a.m.	400m Relays & Mile Runs
	1:00 p.m.	Softball Throw (20-29) (30+)
	3:00 p.m.	Coaches' Meeting - Broncho Field House
	4:30 p.m. - 6:00 p.m.	Dinner
2 "	6:00 p.m.	Report to Parade Area - Wantland Stadium (North End)
	7:00 p.m.	Opening Ceremonies
	8:00 p.m. - 10:00 p.m.	Carnival - West Side of Broncho Field House
	11:00 p.m.	Lights Out

Thursday, May 14, 1981

	6:30 a.m. - 8:00 a.m.	Breakfast
	7:45 a.m.	Report to Stadium
2 "	8:00 a.m.	Begin Track & Field Events
	8:00 a.m.	Swimming Coaches' Meeting - Broncho Field House
1 "	8:45 a.m.	Begin Swimming Events
	10:00 a.m.	Equestrian Clinic - South of Tennis Courts
	11:30 a.m. - 12:30 p.m.	Lunch - At Stadium
	12:30 p.m.	Resume Events - Begin Pentathlon
	1:00 p.m.	Equestrian Clinic - Wheelchair & Crutches Athletes Only - South of Tennis Courts
	3:00 p.m.	Vaulting Team Demonstration - South of Tennis Courts
	4:30 p.m. - 6:00 p.m.	Dinner - At Stadium
2 "	6:15 p.m.	Board Buses for White Water - Parking Lot West of Broncho Field House
2 "	7:00 p.m. - 9:30 p.m.	White Water Recreation Park
	9:30 p.m.	Board Buses for Return to Campus

Friday, May 15, 1981

	6:30 a.m. - 8:30 a.m.	Breakfast
2 "	8:00 a.m.	Resume Events
	9:00 a.m.	Super Soccer Clinic - Field West of Stadium
	9:00 a.m.	Equestrian Clinic - South of Tennis Courts
	11:00 a.m. - 1:00 p.m.	Lunch

Well, at last, here 'tis, the firm schedule for this year's State Special Olympics Finals, Wednesday, Thursday and Friday, 13, 14 and 15 May.

Central State University Campus, Edmond, OK

If you're interested, available and willing to help provide emergency communications if it's needed for this very fascinating and worthwhile event, contact Hobe Burgan WB5MLN or myself and let us know when.

Please note that one location will be the White Water Recreation Park in OKC between Portland , Meridian, Reno and I-40 W. for the amusement of the contestants Thursday evening. All other events and sites will be within three or four square blocks on the CSU campus in Edmond.

R.S.V.P absolutely no later than 11 May JIM N5BEQ

WHEATSTRAW ARC ®
01-61

Editor: Ted WD5JNT 262-1675

Had a very good meeting at the Canton Community Center. Thanks to our Host KA5DUO Leo and his wife Darla and AB5Z Ray and his wife Sue we had plenty of low calorie snacks and ice tea. We had 33 members and a couple of quests from the Woodward area Gerald Bowman N5CCV his wife and 2 kids and we had to put up with .. KB5XI Gordon Richmond and his wife.

Didn't have a lot of business, the technical committee is awaiting the return of the duplexer so they can peek up the equipment getting it back to the better performance we are use to. But not working to bad considering the condition it's in. There is some maintance needed on the tower hopefully we can have a full report on that at the next meeting.

The Ham Holiday program committee is coming right along. We have several good programs lined up. It should be a well rounded schedule enjoyed by all. The Saturday night of the convention there will be a banquet, it will be a' smorgasbord they will serve us the meat but the proportions of the rest will depend entirely on the size of your plate. We will be honored to have as a quest speaker W2HD Harry J. Dannals President of ARRL.

After the banquet the wall will be removed revealing one of the best Country and Western bands available. There will be plenty of dance floor space and there might even be some lessons for us youngsters that never learned the Cotton-eye-Joe or the Two Step.

Our next meeting will be a BIGGIE. The Calumet group will host a covered dish picnic at Red Rock Canyon the first Sunday in May. They have reserved shelter #4. This is the shelter at the South end of the canyon just before the black top ends on your left. This is a covered shelter in the event the blue skys and sunshine that has been ordered is back orderedso we will not get wet. Bring your frizbees, softball, mountain climbing shoes or just a lawn chair, but don't forget your favorite covered dish and your largest plate and fork.

Some of the members of the wheatstraw club are much better them a few others about checking into our wednesday night net. Some of the members with the most checkins during 1980 are

K5GBN	Johnny	96%	WB5PFW	Ralph	85%
WA5PFK	Ralph	94%	K5RMI	Butch	83%
WA5FSN	Leonard	92%	W&5JHB	Marvin	75%
K5GGL	George	91%	WD5JNT	Ted	75%

Checkins from visiting stations during 1980 was 46.
We always welcome any visitors who would like to checkin with our wednesday night net. at 8:00 PM

Ted, WD5JNT

JAMMER IS FINED

The commission's Field Operations Bureau, under delegated authority, has fined Donald L. Rhoads of San Francisco $750 for deliberately interfering with the operation of an Amateur Radio 2-meter repeater station located on nearby Grizzly Peak.

An amateur repeater station, ususally installed at a high elevation, is designed to receive weak signals from low power amateur stations and rebroadcast them over a wide area.

Rhoads, whose station was unlicensed, falsely identified it by using a call sign belonging to a licensed Amateur Radio operator, transmitted obscene,indecent, and profane language, as well as music and party records, which jammed the repeater and prevented its use by authorized Amateur Radio operators.

Engineers from the Commission's San Francisco District Office, using sophisticated direction-finding equipment, traced the jamming signal to Rhoads,apartment and closed the illegal station down.

REPEATER QUIZ

1. The proper way to enter into a QSO on a repeater is to:
(a) say "breaker seven-six".
(b) Just say, "break".
(c) insert your call during a pause.
(d) just talk over the other guy; you're at a base station anyway.

2. The main purpose of a repeater is:
(a) to keep technical types on their toes.
(b) to enhance the range of mobile stations.
(c) to provide a soap box for long, one-sided monologs.
(d) to allow non-amateur housewives to keep track of their wandering husbands, or anyone else for that matter.

3. One of the most important uses of a repeater is to:
(a) provide good mobile-to-mobile communicatoins when driving adjacent to each other on the expressway.
(b) enhance the range of base stations located less than three blocks from each other.
(c) extend the range of mobile and low-power portable stations.
(d) none of the above.

4. You should sign your call letters:
(a) any time the spirit moves you.
(b) after every other word.
(c) at the beginning and end of each transmission.
(d) once coming on and once leaving the frequency, and once every 10 minutes.

5. You are required to mention at least one of the call letters of the stations with whom you have been talking:
(a) at the beginning and end of each exchange.
(b) at the beginning and end of a series of transmissions, and once each 10 minutes during the exchange.
(c) only at the end of a series of transmissions, when signing off.
(d) none of the above.

6. It is permissible to sign off, "W9MOL signing off":
(a) when you can't remember the call(s) of the station(s) with whom you were talking.
(b) after making an autopatch call.
(c) After calling another station and hearing no response.
(d) none of the above.

7. Repeaters:
(a) don't cost anything to operate as everything is donated.
(b) cost a bundle, but are paid for by a small group of wealthy amateurs and supporters.
(c) cost a bundle and are financed by club members dues and contributions.
(d) shouldn't expect any donations from users since the air-waves are free.

8. When you talk to a regular user of the repeater who is not a member of the club or a financial supporter, you should:
(a) tell them they are deadbeats and refuse to talk to them.
(b) notify the control operator to turn off the repeater.
(c) try to find out if they understand how the club/repeater operates and invite them to participate.
(d) try to embarrass them into paying or leaving.

Reprinted from World Radio, Feb. 1981

Additional Comments: No. 1 – Great idea in theory but quite another in practice. It would be most appreciated if those operators engaged in a QSO would pause *long enough* for someone to follow the correct procedure!

Answers to Repeater Quiz: 1. c, 2. b, 3. c, 4. d, 5. c, 6. d, 7. c, 8. c.

Consult individual club sections for specifics.

MAY '81 HAM HAPPENINGS

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					ACARC 1	2
Wheatstraw, 3 RED ROCK CANYON	EARC, TRI-CITY 4	GREAT PLAINS, 5 MORI	6	ATV, ALTUS 7	SCARS? 8	FLEA MKT. 9
10	CARC, USAFMARS 11	OU, Shawnee, 12 76ers	SPECIAL OLYMPICS, CSU 13	Kay County 14	VHF, 15 EARS	WSOHH AUCTION See p.4 16
17	ARES 18	OCAPA 19	20	EDIT C&E 21	22	23
24/31	25	CORA, Shawnee 26	27	76ers MAIL C&E 28	29	30