

Central Oklahoma Radio Amateurs

COLLECTOR

EMITTER

AND



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25¢

AUGUST 1976

Vol. 2 No. 19

AN INFORMATIVE MAGAZINE
PUBLISHED MONTHLY BY AND
FOR OKLAHOMA RADIO
AMATEURS

AND ANYONE INTERESTED IN
LEARNING ABOUT IT

FIELD DAY FROLICS



Foto by W5HXL

FIELD DAY IS ALL WORK. FIELD DAY IS ALL PLAY. FIELD DAY IS VERY INSTRUCTIONAL. FIELD DAY IS ALL EYEBALLING. - - ALL OF THE ABOVE HAVE BEEN SAID MANY TIMES AND THE PICTURE ABOVE SEEMS TO PROVE THAT THERE IS A LOT TO ALL OF THEM. JIM, K5VRL SEEMS TO BE WORKING. CLYDE, WA5VIL DOES THE EYBALLING. DON, WB5NIY IS LEARNING (SEE PIX INSIDE OF WHY THIS JOB IS NECESSARY). WAYNE, WA5AOB SEEMS TO BE HAVING THE MOST FUN. PICTURES ARE FROM CORA'S FIELD DAY OPERATION BUT THERE WERE OTHERS. IN THIS AREA. DETAILS ELSEWHERE.

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COLLECTOR AND EMITTER



Published monthly by CORA, Inc. 1020 Arthur Drive, Oklahoma City OK 73110. Subscription \$1.50 a year. Address communications to: CORA C&E, Box 15013 Okla City OK 73115. Contents may be reprinted without prior permission if credit is given to CORA Collector & Emitter.

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Club NEWS

W5LOW
The Elmer Goodler Memorial
Station

MINUTES OF THE JULY MEETING

MEETING WAS CALLED TO ORDER 8:05PM, JULY 16, 1976 BY PRESIDENT TOM, W5OZE, WITH 19 MEMBERS AND GUESTS PRESENT.

IT WAS MOVED AND PASSED THAT MINUTES FOR LAST MONTH'S MEETING BE ACCEPTED AS PUBLISHED IN CORA C & E.

TREASURER ELLARD, W5KE, REPORTED THAT THE CLUB WAS SOLVENT.

TRUSTEE KEN, WB5KHU, REPORTED THAT THE CLUB CALL, W5LOW, WAS BUSY AT FIELD DAY AND THAT A GOOD TIME WAS HAD BY ALL.

PRESIDENT TOM REPORTED THAT THE NORTH SHELTER AT WILL ROGERS PARK IS RESERVED FOR WATERMELON PARTY AUGUST 20. THE PARTY, WHICH WILL REPLACE THE REGULAR AUGUST MEETING WILL BEGIN AT 7:30. MEMBERS OF THE AERONAUTICAL CENTER CLUB WILL ALSO BE THERE TO HELP MANUFACTURE WATERMELON RINDS.

IT WAS MOVED AND PASSED THAT THE TRUSTEE CHANGE COMBINATION OF THE LOCK ON THE CLUB RADIO ROOM AND DISSEMINATE THE NEW NUMBER AT HIS DISCRETION.

SECTION EMERGENCY COORDINATOR, LEONARD, WA5FSN, REPORTED THE LATEST ON THE FCC AND HANDED OUT SOME ARRL REPEATER DIRECTORIES. WHEN HE REPORTED THE LATEST ON THE TULSA TOWER ORDINANCE (SEE ELSEWHERE THIS ISSUE), MUCH LIVELY DISCUSSION FOLLOWED. IT APPEARS THAT THE MODIFIED ORDINANCE IS MUCH LESS RESTRICTIVE THAN THE FIRST ONE BUT IT IS STILL RESTRICTIVE, LIMITING HEIGHT TO 60 FEET (WITH ALLOWANCE FOR 10 FOOT ANTENNA ABOVE THAT) AND PLACEMENT TO THE REAR OF THE HOUSE. PLANS FOR HIGHER TOWERS HAVE TO BE SUBMITTED TO THE CITY WITH A \$50.00 FEE (NON-RETURNABLE-APPROVAL NOT ASSURED).

LLOYD, WB5HUP, INFORMED THE GROUP ON SOME OF THE REPEATER CONTROL CIRCUITS HE USES. HIS PRESENTATION WAS EXCELLENT, IN SPITE OF HECKLERS AND THE KNOW-IT-ALL IN THE FRONT ROW WHO CONFUSED HIS SQUELCH TAIL TIMER WITH HIS FILIBUSTER TIMER (SORRY ABOUT THAT LLOYD).

MEETING WAS ADJOURNED AT 9:30 AND THE GROUP MOVED TO THE RADIO ROOM FOR COFFEY AND DONUTS.
JOE, WA5TRS, SEC'Y.

FLASH: CORA C & E GETS SCOOP ON SWR

GENE, W5GC, TELLS US THAT THE FOLLOWING FORMULA IS NOT GENERALLY FOUND IN THE HANDBOOKS SO GET OUT YOUR BIRD AND SCRATCH IT ON THE TOP OF THE CASE.

$$VSWR = \frac{\sqrt{PF} + \sqrt{PR}}{\sqrt{PF} - \sqrt{PR}}$$

WHERE PF IS FORWARD POWER, AND
PR IS REFLECTED POWER

YOU CAN DO THIS ONE IN YOUR HEAD. FOR EXAMPLE, SUPPOSE YOU HAVE 100 WATTS FORWARD AND 4 WATTS REFLECTED. SQUARE ROOT OF 100 IS 10 AND SQUARE ROOT OF 4 IS 2.

$$VSWR = \frac{10 + 2}{10 - 2} = \frac{12}{8} = 1.5$$

CORA C & E DOES NOT PAY MUCH FOR TIDBITS LIKE THIS ONE BUT THE FAME IS TREMENDOUS SO KEEP'EM COMING.
JOE, WA5TRS



Club
NEWS

WSLOW
The Elmer Goodier Memorial
Station

OLD EQUIPMENT REPORT - COAX

ALMOST ANYTHING WORKS GOOD WHEN NEW BUT HOW ABOUT AFTER IT HAS BEEN THROUGH A FEW HASSLES? HERE IS THE RESULT OF TESTS RUN ON SIX YEAR OLD COAX WHICH HAS BEEN OUT IN THE WEATHER. I KNOW IT IS RATHER MUNDANE BUT POOR TRANSMISSION LINE PERFORMANCE IS UNACCEPTABLE WHEN INFINITELY SMALL VARIATIONS IN RECEIVER AND TRANSMITTER PERFORMANCE MAKE FOR LIVELY DISCUSSION ON THE AIR AND DOWN AT THE COFFEE SHOP.

WHEN I FIRST PUT 6 AND 2 METER ANTENNAS AT A RESPECTABLE HEIGHT IN 1970, I NEEDED 125 FEET, OR SO, OF COAX TO EACH ONE. I INSTALLED BELDEN 8214 WHICH IS FOAM DIELECTRIC EQUIVALENT TO RG-8. I DON'T REMEMBER WHAT THE PUBLISHED LOSS WAS WHEN NEW BUT IT WAS SUPPOSED TO BE LESS THAN SOLID DIELECTRIC. SINCE THAT TIME I HEARD MURMURING ABOUT CONTAMINATION OF THE DIELECTRIC BY PLASTICIZER FROM THE OUTER JACKET. AN ARTICLE I READ RECENTLY SAID TO LEAVE THIS TYPE OF CABLE TO THE CB'ERS. SO, EXPECTING THE WORST, I SET UP A TEST TO DETERMINE HOW BAD IT WAS.

USING MY 2M SIGNAL GENERATOR(?), I SET ITS OUTPUT AT 120 WATTS. I THEN PUT THE COAX BETWEEN GENERATOR AND WATTMETER. WITH ONE COAX, THE OUTPUT WAS 60 WATTS. WITH THE OTHER, IT WAS 55 WATTS. THE LOSS WAS THEN 3 dB, OR 2.4 dB PER HUNDRED FEET. I WOULD SAY THAT IS PRETTY ACCEPTABLE!

I DID DISCOVER A BAD ADAPTER DURING THE TEST. A NIPPLE USED TO CONNECT TWO PL-259'S WAS FOUND TO BE GETTING HOT AND WHILE IT WAS IN THE LINE, THE WATTMETER WAS SHOWING 20 TO 40 WATTS. I DON'T HAVE AN IN-LINE WATTMETER, SO I DON'T KNOW WHAT THE GENERATOR WAS PRODUCING DURING THAT TEST. THERE WAS CONSIDERABLE HEAT GENERATED THOUGH BECAUSE POWER WAS ONLY BEING APPLIED FOR A FEW SECONDS AT A TIME AND THE NIPPLE WAS DEFINITELY HOT. THAT ADAPTER FOUND ITS WAY INTO THE TRASH BUT THE COAX WENT BACK ON THE ANTENNAS.

IF YOU HAVE ANY TESTS ON COAX OR OTHER OLD EQUIPMENT, PASS THE RESULTS ALONG AND MAYBE WE CAN CONTINUE TO SCOOP THE LESSER QUALITY AMATEUR RADIO PUBLICATIONS. (OR AT LEAST KEEP'EM BUSY KEEPING UP, HI).
JOE, WA8TRS

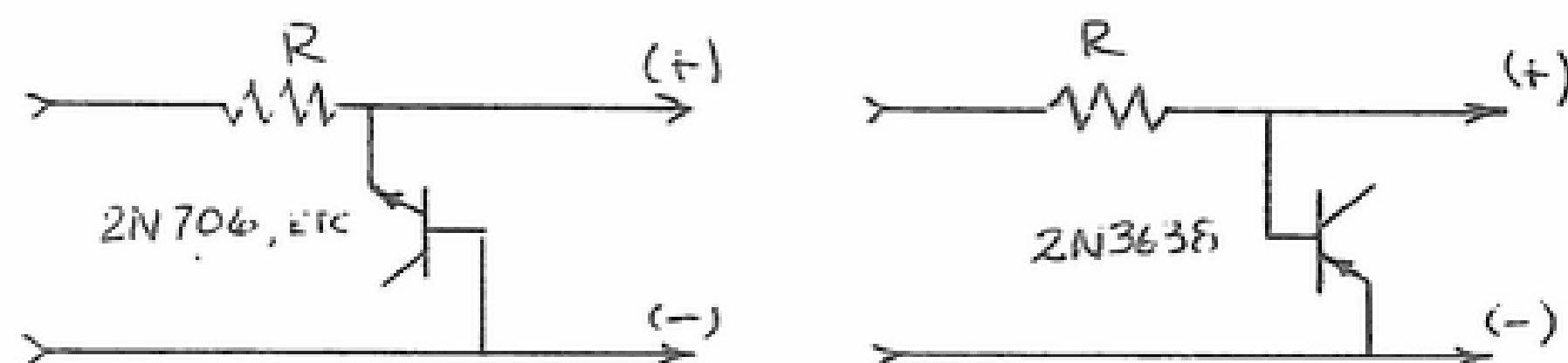
TRANSISTORS AS ZENER DIODES

IT'S MODERATELY WELL KNOWN THAT SILICON TRANSISTORS OF CERTAIN INTERNAL CONSTRUCTION WILL SERVE AS ZENER DIODES. USUALLY THE BASE-TO-EMITTER JUNCTION IS USED. THE FOLLOWING TABLE SHOWS A FEW OF THE TRANSISTORS THAT CAN BE USED, THE CURRENT THAT THEY'LL SAFETY CARRY AND THE MILLIWATTS THEY'LL DISSIPATE:

| TRANSISTOR | ZENER VOLTAGE | MAX. CURRENT | MAX. MILLIWATTS |
|------------|---------------|--------------|-----------------|
| 2N3642 | 7 | 70 mA | 350 |
| 2N3693 | 7 | 30 | 200 |
| 2N3563 | 6.5 | 30 | 200 |
| 2N3638 | 6.5 | 75 | 300 |
| 2N706 | 6.5 | 30 | 200 |

ALL BUT THE 2N3638 ARE NPN.

HERE ARE TYPICAL CIRCUITS.





R IS SELECTED TO LIMIT CURRENT THROUGH TRANSISTOR TO A VALUE WELL WITHIN THE PERMISSIBLE LIMITS.

THIS INFORMATION WAS LIFTED FROM A 1969 VHF CLUB NEWS, AT THAT TIME IT WAS LIFTED FROM AMATEUR RADIO, the AUSTRALIAN COUNTERPART OF QST. HOW ABOUT SOME DATA ON COMMON TRANSISTORS WE USE NOW SUCH AS 2N2222, 2N3904 and 2N3906? JOE, WA5TRS

DE-BUGGING THE HA-201 AMPLIFIER

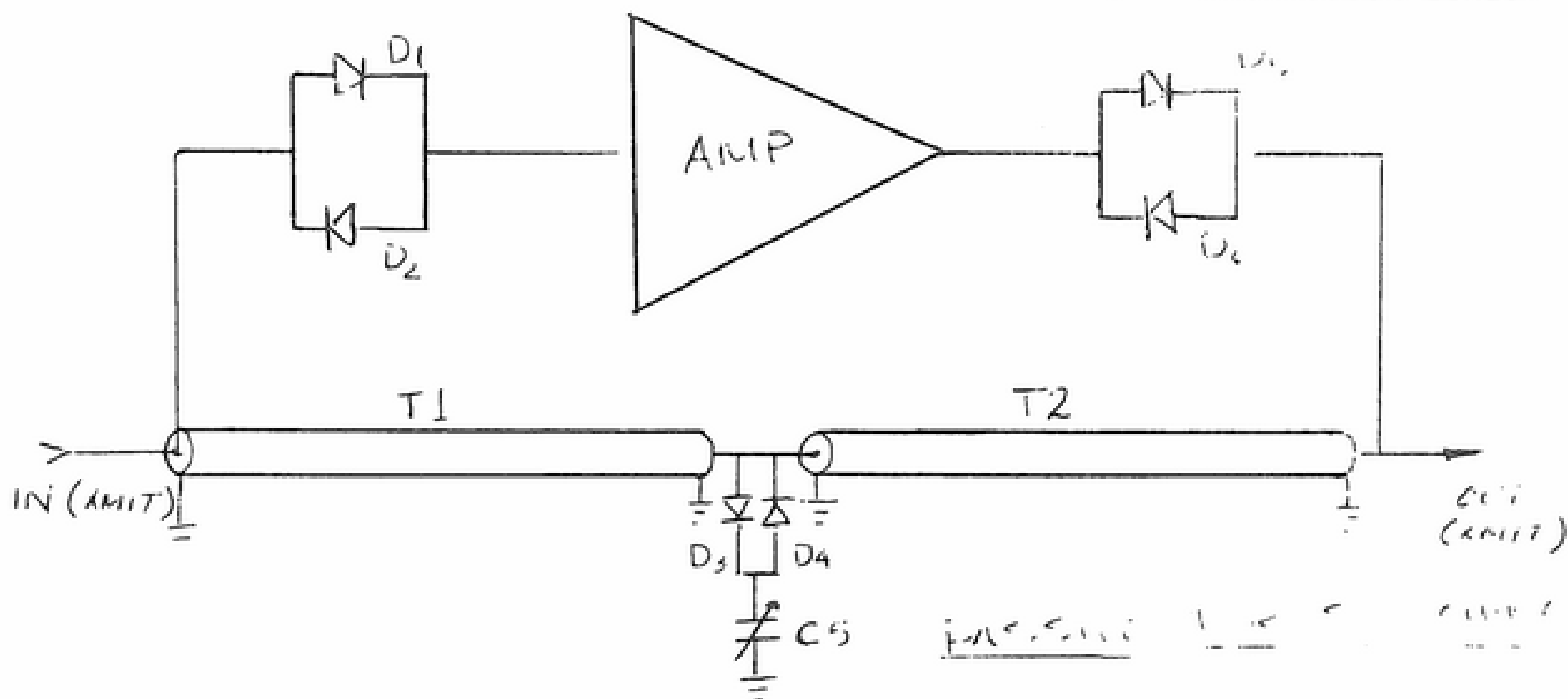
AFTER ASSEMBLING THE HA-201 AS PER HEATH INSTRUCTIONS I FOUND THAT WHENEVER I REACHED THE 6 WATT OUTPUT LEVEL DURING ALIGNMENT THE THING WOULD GO INTO OSCILLATION AND PRODUCE A BEAUTIFUL SQUEAL IN THE OUTPUT SIGNAL. SEVERAL MONTHS LATER, AFTER RECEIVING SUGGESTIONS FROM OTHER AMATEURS, I DECIDED TO TRY AND TAME THE BEAST ONE MORE TIME BEFORE I DEEP-SIXED IT. THE FIX WAS SIMPLE AND THE AMPLIFIER WORKED BEAUTIFULLY.

HERE IS WHAT I DID. REFER TO THE ASSEMBLY MANUAL FOR PARTS IDENTIFICATION. REMOVE AND DISCARD THE TRANSMISSION LINE SECTIONS, T1 AND T2. REMOVE AND DISCARD DIODES D1 THROUGH D6. CUT TWO LENGTHS OF RG-174U SHIELDED CABLE, EACH EXACTLY $19\frac{1}{2}$ INCHES LONG. PREPARE AND FORM EACH CABLE INTO A COIL AS PER HEATH INSTRUCTIONS. INSTALL THE CABLE COILS AND ARRANGE THEM UNTIL BOTH APPEAR AS ONE SINGLE COIL. SECURE THE TWO COILS TOGETHER WITH ONE OR MORE PLASTIC TIES OR FISHING LINE. I APPLIED SILICONE RUBBER SEAL TO THE CABLE COIL TO PREVENT MOVEMENT OR SHIFTING. INSTALL 1N914 DIODES IN D1 THROUGH D6 POSITIONS. NOTE: HEAT SINK EACH DIODE LEAD PRIOR TO SOLDERING. ALIGN THE UNIT AS PER HEATH INSTRUCTIONS.

MY AMPLIFIER WAS EQUIPPED WITH THE MOTOROLA TRANSISTOR AND I SQUEEZED OUT 12 CLEAN, CLEAR WATTS WITH 13.5 VOLTS APPLIED. I HAVE ABOUT 20 FEET OF RG-174U THAT WILL BE CONTRIBUTED FOR THE ASKING. RAY, WB5BTT

MORE ON 2M AMPLIFIERS (OR THE FOOTNOTE THAT GOT CARRIED AWAY)

FOR THE BENEFIT OF THOSE WHO DON'T HAVE HA-201 AMPLIFIERS, THE TRANSMISSION LINES I HAVE REPLACED, ARE PART OF AN INTERESTING PASSIVE SWITCHING CIRCUIT THAT ISOLATES AMPLIFIER INPUT FROM OUTPUT DURING PERIODS OF TRANSMITTING, AND ROUTES SIGNAL AROUND THE TRANSMITTER DURING RECEIVE. THE CIRCUIT IS A CLEVER ONE AND ILLUSTRATES WHAT TRICKERY ONE CAN ACCOMPLISH WITH A LITTLE KNOWLEDGE OF TRANSMISSION LINES.

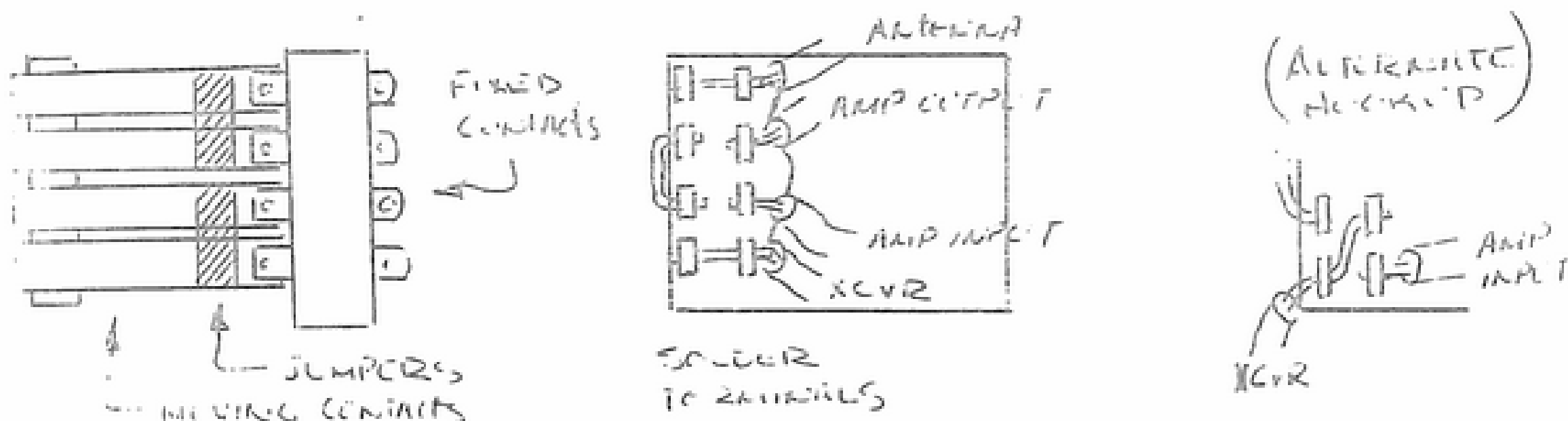


A PARTIAL SKETCH SHOWS THE LINES, T1 AND T2 WHICH ARE DELIBERATELY CUT OVER $\frac{1}{4}$ WAVELENGTH LONG ($\frac{1}{4}$ WAVELENGTH IS APPROXIMATELY 12 INCHES). WHEN A SIGNAL FROM THE EXCITER IS PLACED ON THE INPUT OF THE AMPLIFIER, ALL DIODES GO INTO CONDUCTION. D1 AND D2 ALLOW POWER TO FLOW INTO THE AMPLIFIER, D5 AND D6 ALLOW IT TO FLOW OUT. D3 AND D4 SHORT OUT BOTH TRANSMISSION LINES WHERE THEY JOIN IN THE CENTER. REMEMBERING THAT THE LINES ARE GREATER THAN $\frac{1}{4}$ AND LESS THAN $\frac{1}{2}$ WAVELENGTH, THEY EXHIBIT,

WHEN SHORTED OUT, INDUCTIVE REACTANCES. ADJUSTMENT OF C5 CANCELS THIS REACTANCE BRINGING T1 AND T2 INTO RESONANCE. THE INPUT AND OUTPUT ENDS, AT RESONANCE, EXHIBIT HIGH IMPEDANCE AND THE FEEDBACK IS NEGLIGABLE.

DURING PERIODS OF RECEIVE, THE DIODES HAVE INSUFFICIENT VOLTAGE TO GO INTO CONDUCTION AND T1 AND T2 ACT AS A SIMPLE TRANSMISSION LINE. THERE ARE TWO DRAWBACKS WHICH ARE SLIGHT IN MOST APPLICATIONS. THE DIODES ALL EXHIBIT SOME CAPACITANCE AND SHUNT OUT PART OF THE RECEIVED SIGNAL. PRESENCE OF A SIGNIFICANT AMOUNT OF HARMONIC ENERGY CAN BLOW OUT THE DIODES FROM OVER CURRENT. THIS WAS MY TROUBLE WHEN I TRIED THIS CIRCUIT. MY AMPLIFIER WAS CAPABLE OF BOOSTING THE 294 MHZ COMPONENT FROM MY TR-22 AND MYSTERIOUSLY TOOK OUT THE DIODES AT POSITION D3 AND D4. I ABANDONED THE IDEA IN FAVOR OF A RELAY BEFORE I DISCOVERED THE REAL CAUSE OF FAILURE. INCIDENTALLY, I DIDN'T THINK OF PUTTING C5 IN THE CIRCUIT. THAT CERTAINLY LOOKS BETTER THAN PRUNING THE LINES TO RESONANCE.

THE RELAY I USED WORKED OUT SO GOOD, I MIGHT AS WELL RAMBLE ON ABOUT IT ALSO. THE IDEA WASN'T ORIGINAL. I BELIEVE IT WAS PUBLISHED IN QST BUT IT WORKS SO GOOD I THINK IT BEARS REPEATING. HERE'S HOW TO DO IT.



RELAY MODIFICATION

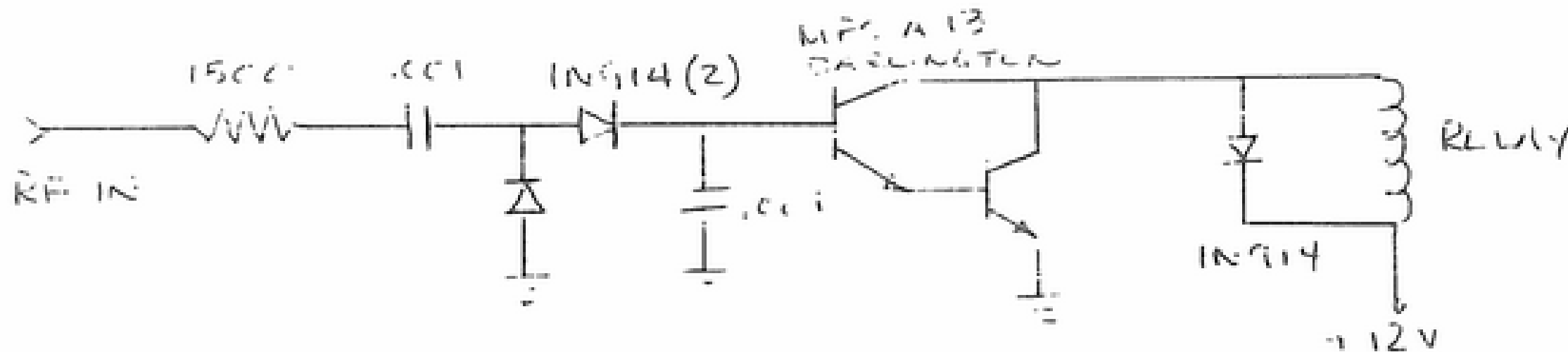
OBTAIN A SMALL 12 VOLT FOUR POLE, DOUBLE THROW RELAY SIMILAR TO THE ONES USED IN TRANSCEIVERS. GET THE ONE WITH A REMOVABLE CLEAR PLASTIC COVER BECAUSE THE FIRST STEP IS TO REMOVE THE CLEAR PLASTIC COVER. REMOVE ALL THE WIRES RUNNING FROM THE MOVING CONTACTS TO THE TERMINALS. CUT SOME THIN BRASS SHIM STOCK, OR COPPER FOIL PEELED OFF OF A CIRCUIT BOARD, INTO 1/8 INCH WIDE STRIPS. CUT TWO PIECES LONG ENOUGH TO LAY OVER ADJACENT MOVING CONTACTS (SEE SKETCH).

SOLDER THE TWO STRIPS AS SHOWN THEY WILL PROVIDE A LOW INDUCTANCE PATH BETWEEN ADJACENT FIXED CONTACTS. MAKE SURE ALL CONTACTS WILL PROPERLY MAKE UP AFTER MODIFICATION.

WIRE THE SOLDER TERMINALS AS SHOWN. IF ANY INSTABILITY OCCURS, REVERSE DIRECTION OF CURRENT FLOW IN ONE SET OF CONTACTS AS SHOWN.

TO REDUCE RECEIVE LOSS TO A MINIMUM, A VARIABLE CAPACITOR CAN BE PLACED IN SERIES WITH THE CENTER CONDUCTOR TO THE TRANSCEIVER. TUNE OUT THE RELAY INDUCTANCE BY PEAKING FOR BEST RECEIVED SIGNAL. THEN, RETUNE THE AMPLIFIER INPUT IF NECESSARY.

KEY THE RELAY WITH A SAMPLE OF THE INCOMING RF. VALUES WILL HAVE TO BE SELECTED IN ACCORDANCE WITH POWER LEVELS YOU RUN. THE CIRCUIT KEYS OK WITH LESS THAN A WATT FROM A TR22.



RELAY DRIVER

THE CIRCUIT IS A VOLTAGE DOUBLER RECTIFIER. THE DARLINGTON REQUIRES 1.4 VOLTS, BUT ONLY A SNIFF OF CURRENT TO TURN ON. THE DIODE ABSORBS THE INDUCTIVE KICK FROM THE RELAY COIL WHEN IT TURNS OFF.

JOE, WA5TRS

CARRIER OPERATED RELAYS OR "A Switch in time makes a Repeater fine"

©1976 Salem

Pundit Harry Golden used to say that, "The idea of sex is older than the idea of prostitution, but only by a few minutes." Likewise, the idea of FM Repeaters is older than the idea of Carrier Operated Relays, but only by a few minutes. There have been many articles written by and for FMers concerning this most ubiquitous circuit, but believe me, that won't stop me from adding one more to the heap. But don't get me wrong. The COR can be put to many more uses than just switching a Repeater transmitter. I am sure that there have been many times that some of us have wanted a switch to close each time a carrier or signal appeared in our receivers. The circuits described herein are an amalgamation of experimentation performed independently by WA5TRS and myself for various projects. We have a circuit for GE Receivers (but probably could be adapted to a variety of other receivers). In addition, Joe has a simple circuit that will fit inside an HT-200 and is useful in that it converts a positive ground radio to a negative ground switched output. There is also a circuit for an IC-230 and a method of adapting same to PL or Selcall use. And finally, I present what I feel is the most versatile COR circuit I have yet seen. It uses a u741 op amp and can be adapted to just about any receiver. This particular version has been in service at AF5AFW for almost 4 years.

So, what can you do with a COR? Lots of things. Many radios for 2 meter FM have COR lights which come on whenever a signal is present. This is one way to have the volume down and know when the repeater is in use. You could use it to run a tape recorder or to switch a light or whatever. I am going to describe (later) the use of a COR as a "BS" or "ALT" filter. First, however, some basic discussion.

The idea of a signal operated switch is a common concept in communications, especially FM. It can be applied to just about any communications mode such as AM, CW, RTTY, or SSB. A vox is nothing more than a signal operated switch which senses amplitude variations and keys your transmitter accordingly. Autostart in RTTY is also a form of SOR (Signal Operated Relay). However, because line noise, lightning and other amplitude modulated signals also produce these changes, the COR or SOR finds limited use in AM Systems. FM, however, with its amplitude clipping and limiting lends itself quite readily to this use. The one constant is the carrier and its presence has made the idea of switching the transmitter in time with it the concept that has launched a thousand repeaters.

The basic squelch circuit in most FM Receivers is noise actuated. That is, white noise received during periods of no signal is amplified, detected, integrated(filtered) and then used to operate a transistor switch to turn the audio stage on and off. The presence of a carrier quiets the white noise and the subsequent loss of rectified noise, a DC bias, allows the transistor to turn off (or on as the case may be) and audio is then allowed to pass to the speaker. Another type of squelch is the amplitude operated switch. The signal is sampled at some point in the receiver. If it exceeds a certain level, the switching action occurs. One of the most important factors to determine when designing a COR or trying to fit a particular circuit to a receiver is picking the proper signal point in the receiver to use as a switch point. You must find a voltage or current that changes in variation to the presence or nonpresence of a signal. If the receiver is equipped with a squelch, then that is the most likely place to start. In some instances, I have found that picking a voltage variation in the early audio stages such as the drivers is a better choice. The reason is that most voltages in the squelch portion of a receiver will vary in a linear fashion with the strength of the incoming signal. If you have a COR which switches when it reaches a certain voltage, then it might be possible for it to turn on and audio still not be present at the speaker. Maladjustment of such a COR could be very obnoxious. Temperature, voltage variations and other factors could cause this circuit configuration to slip out of adjustment. The COR could pop on for random noise, or it could switch on and no audio would be present. By picking your voltage from the audio stage, you

Another important design criteria in building a COR is to be sure that it doesn't affect the normal operation of your receiver. In general, the best way to isolate the COR from the receiver is to use amplification and lots of it so that your loading is insignificant. For voltage operated switches, this means using high input impedances. For current operated switches, you must have as low an input impedance as possible. This can be a significant problem because loading a squelch circuit too heavily could change the squelch action and decrease the effective sensitivity of your receiver. This was an initial problem in AF5AFW in Norman because I chose a point for the COR at the squelch switch. The squelch action was changed considerably. Changing the switch point to the audio driver stage and using a high impedance Op Amp Voltage Comparator solved the problem. Voltage operated COR circuits are generally to be preferred, although I will describe a current operated switch for use in HT-200 receivers.

[illegible]

This COR exhibits the incredible gain of about 10 million or so. Q4 is a power darlington and if properly heatsinked could switch about 10 amps. The switch point for this circuit is about 1.2 volts or the combined base to emitter voltages of Q1 and Q2. This circuit could work for any voltage change from less than the switching voltage to any voltage greater than the switching voltage. If your no signal voltage is greater than 1.2 volts, then put forward biased diodes in the input line to provide a sufficient voltage drop to get below the switching point at the input. Joe said that 1 uamp in is equal to 10 amps out. The circuit, he says, was built to satisfy those who said that a Motorola COR was "no good." This circuit is alive and working in the 01-61 and 81-21 repeaters. You can use the open collector output to switch a relay or other load directly. Just remember that exceeding the switch point voltage turns on the collector of Q4 to ground.

applied proposed by W4VRS is as shown in Figure 2:

Squelch control bias
On = Unsq
First audio amp

To 2nd audio amp

Added circuitry / Break at X

10k

5.6k

10k

Q1 - 2N3904

Q2 - 2N3906

+ PTT (tested at 100 ma.)

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Operation of the circuit is as follows: As the 1st audio amp turns on, it begins to draw current and pulls the collector to -14 V. Since the lead is broken, this current change appears through the base to emitter of Q1 and turns it on. As current is drawn through Q1, the base of Q2 is pulled low, but only as low as the forward voltage across the diode (a 1N914 works fine). Q2 turns on and pulls the PTT line to ground. Going from +12V to a relay to the PTT line will switch the relay on in time with the carrier. If you would like a squelch tail of about 1/2 second, you can remove the 10k resistor from the base to emitter of Q1. Joe added this to quicken the turn off time. You could use a variable resistor here and change it to vary the squelch tail up to 1/2 second. The current drawn at the point of the break in the circuitry is about .6 ma in the unsquelched condition.

Our next circuit features the IC-230. This is a great synthesized rig which lacks a few of the niceties that Icom has sprinkled on their other radios such as the aforementioned COR light. The easiest way to add one is to go to pin 13 of the AF Module (consult your instruction manual) and tack on the following circuit shown in Figure 3a.

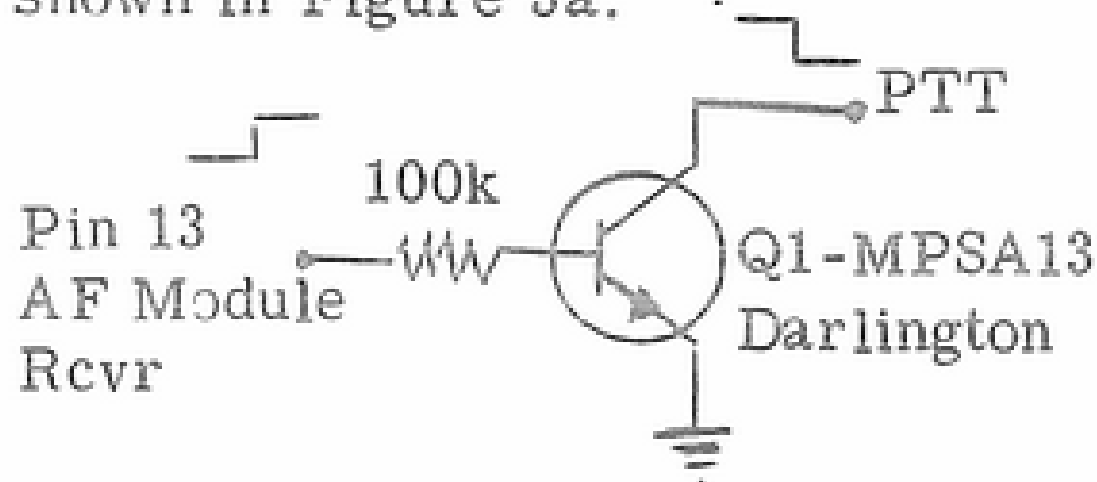


Figure 3a. IC-230 COR

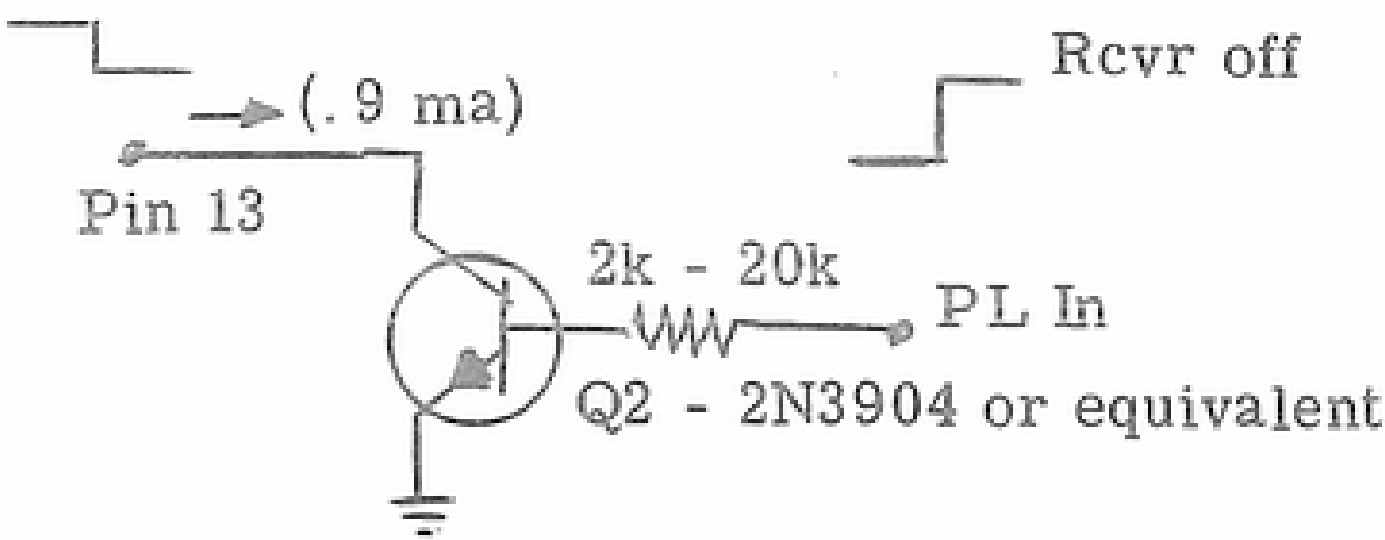


Figure 3b. PL or Selcall Adaptor

Figure 3a shows a darlington connected so that the voltage on pin 13 of the AF Module is high in the unsquelched state. This, in turn, switches on the darlington and brings the PTT line to ground. Incidentally, this change is not coincident with the squelch, but is controlled by it (a fine distinction, perhaps). You can also use pin 13 to control the audio output or squelch condition by the circuit shown in Figure 3b. Here we have added another transistor to hold pin 13 low unless a signal is received allowing PL In to go low. Since the output of a PLL 567 tone decoder goes low when in lock, this would be ideal to drive the circuit. My suggestion would be to bring pin 13 to one of the output pins on the side of the radio (disconnect one of the oscillator outputs or something) and accomplish all of the above circuitry outside the radio.

The final COR circuit to be presented had its genesis in the July 1972 73 Magazine. K2OAW discussed using a voltage comparator op amp (741 variety) COR which sort of clicked in my mind as something very useful for this kind of caper. Pete had a voltage point which went from 9 volts to 8 volts when a carrier was present. I wanted a circuit which would work when the voltage went from about 4 volts to 9. By quickly rearranging his circuit and experimenting with a few parts values, I had my circuit. I show both configurations in Figure 4a and 4b.

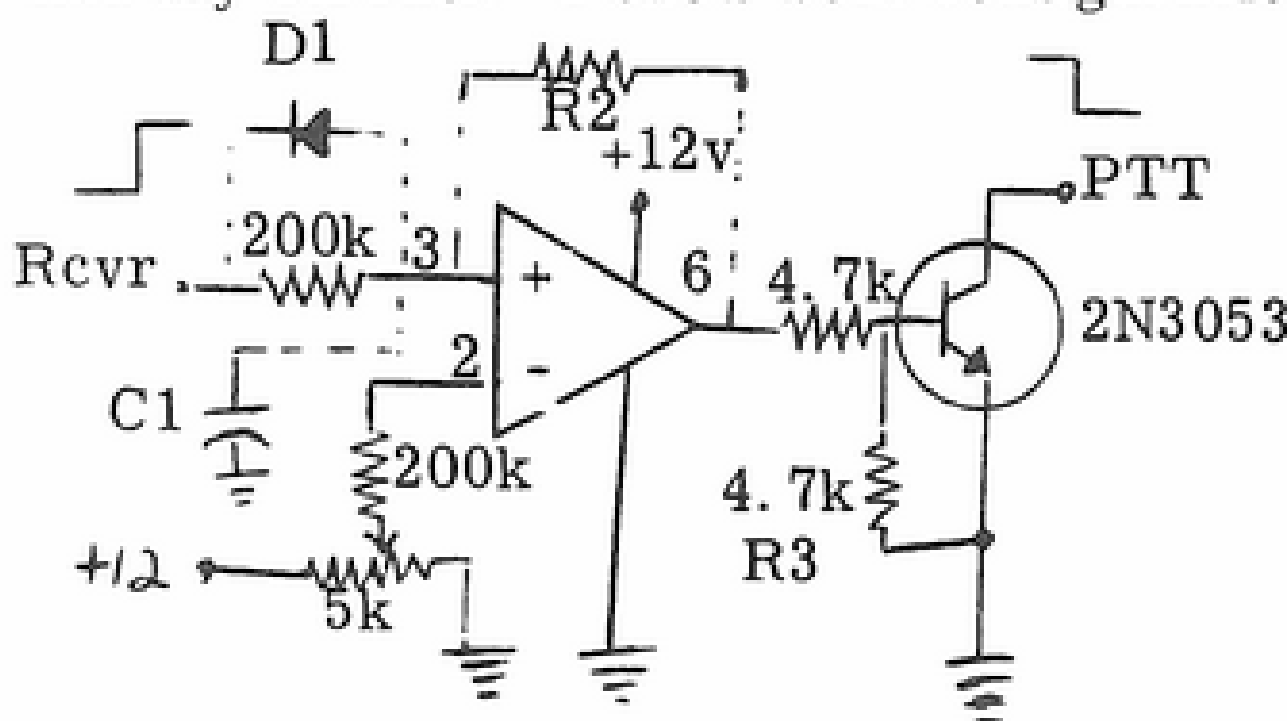


Figure 4a. My adaptation for positive going voltages. Dotted line circuitry explained in text. R3 helps bring the off-set voltage of the 741 below .7volts.

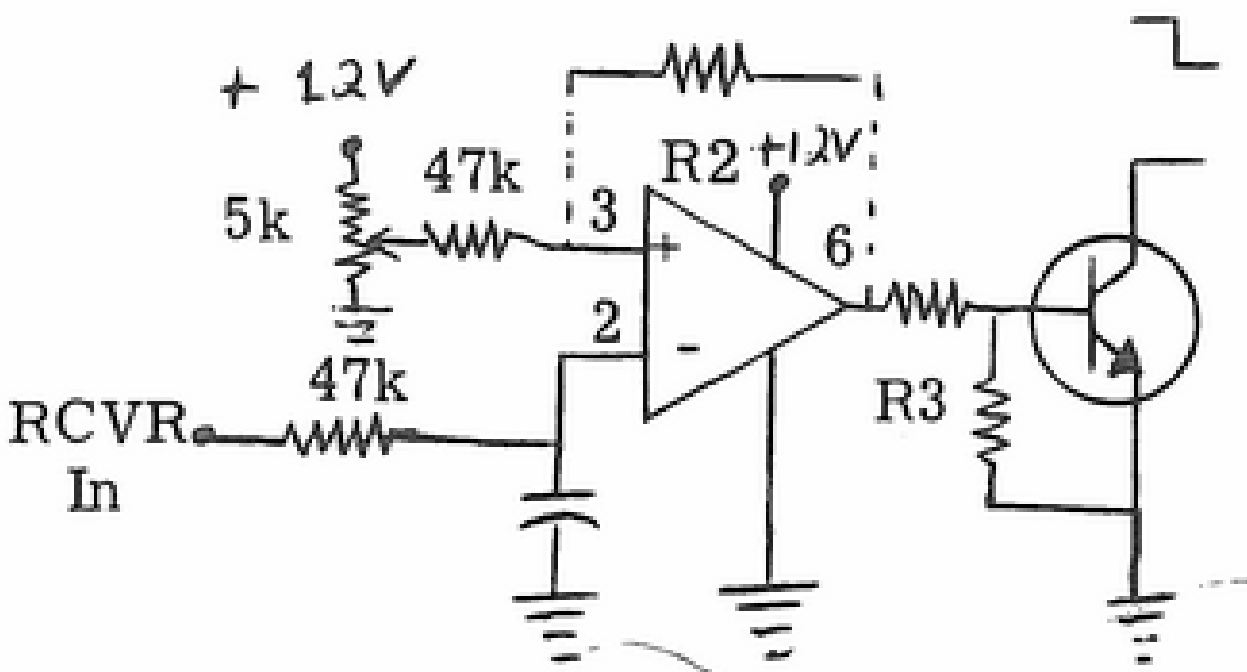


Figure 4b. K2OAW original circuit. (modified for transistor output). This circuit for use with voltages which decrease when signal is present.

I heartily recommend this circuit to anybody who want a general purpose COR which will work with a multitude of voltages. The operation is quite simple. The 741 is operated with no feedback resistor to reduce the gain. Thus gain is open loop gain and is quite high. As long as the voltage on the + input is less than the voltage on the - input, the output will be low. However, if the + input goes even slightly higher than the - input, the output goes into saturation and turns on the transistor. The collector can swing to within .3v or so of ground and current can be conducted through the transistor. By setting the voltage on the potentiometer, you can set the COR to trip at any voltage change and it can be quite sensitive. The input impedance is whatever size resistor you want to make it. I chose 200k, but I have used up to a meg. There is a voltage drop across the input resistor and also for the resistor which goes to the pot. If you increase the input resistor, do not change the resistor going to the pot to prevent the voltage drop from decreasing the available switching points. In fact, the resistor going to the pot could be removed altogether if desired or reduced to 1k or so. This will allow the COR to operate at low voltage variations since the voltage drop across the resistor is gone. What is R2? Well, it is a feedback resistor which adds some "hysteresis" to the switching points. This means that the COR will switch on at some particular voltage, but when it does, the output voltage is fed back to the + input which means that it increases. The input voltage could then swing back below the switching point and there would still be enough voltage being fed back to keep the COR on. This means that your COR could conceivably follow the signal down into the noise without switching off. The voltage would have to go back to the initial state in order for the COR to turn off. The amount of hysteresis is determined by the value you pick for R2. Experimentation is necessary, but I would suggest something from 10 to 20 times the input resistor for starters. I have also shown a capacitor from pin 3 of the 741 (Fig 4a) to ground. This a variation of the circuit that I have used in a special application. I just recently finished installing a pair of UHF commercial radios for my father's business. He and my mother had been using a pair of CB radios to which I had fitted tone actuated squelches so they wouldn't have to listen to all the normal drivel. I also used the squelch to honk the horn in my dad's truck by driving a relay. They wanted the same with the UHF equipment. I took the circuit in Fig. 4a and installed the PC Boards in both radios. I also installed the capacitor to pin 3. This slowed down the time for the COR to activate to about 3 seconds before an output would honk the horn. The reason for this was a tendency of the radios (even though equipped with PL) to "burp" a little random noise. Well I knew that this would be no way to be remembered in the will if my father had to hustle over to the truck to find that he was called by nothing more than noise probability function. The capacitor was the solution. The only problem then was that it took some time to discharge (about 10 mfd or so) after the COR went back off. The solution was the diode shown which was installed across the input resistor. When the RCVR voltage went back to a no signal condition, the voltage at pin 3 was much higher because of the capacitor and thus the diode became forward biased and discharged the capacitor to the no signal voltage of the receiver. The output of the COR is tied to some relay logic which honks the horn for about 1 second and then shuts off. This feature is disabled when normal communications is being conducted. How does it work? Quite well. They now have coverage of about 15-20 miles radius with the capability of being summoned by PL.

This is one practical use to which you can put your COR. There are others, which I think are just as useful. Besides the more obvious lights, bells and whistles, you could also use a COR to start a tape recorder or as a "BS" and "ALT" filter. To those of us who listen to the repeater quite a lot, it can become quite fatiguing to listen to endless hours of drivel. But you still may not want to miss that important call or even occasional call. The solution is the "BS" and "ALT" filter shown in Figure 5. The filter makes use of a NE555 which is activated when the PTT of the COR goes low. The 555 begins timing and provides receiver audio for about 5 to 10 seconds depending upon the setting of R1. After that period of time, the 555 times out and the hours of endless conversation are

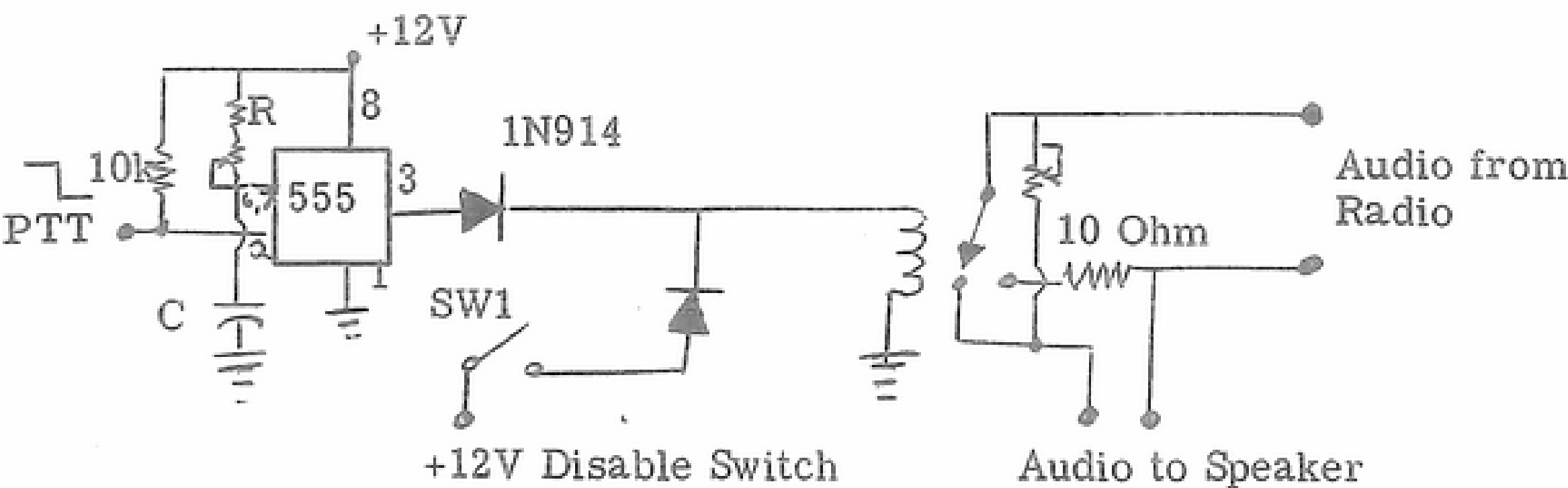


Figure 5. "BS" and "ALT" Filter using NE555.

conveniently disipated into useful energy in the 10 ohm resistor and the volume is reduced according to the adjustment of the pot placed in series with the audio lead. The circuit can be disabled by the switch which places +12V on the relay continously. Chose the time you want the filter to be activated by the formula $T = 1.1RC$. Each time the PTT line goes high, the filter activates again, so you should always be able to hear the first few seconds of every call, including your own. To those of you who know what a "BS" and "ALT" (or even "AALT") Filter is, congratulations. To those of you who could guess, WA5TRS suggests I refer you to March C & E, p. 11.

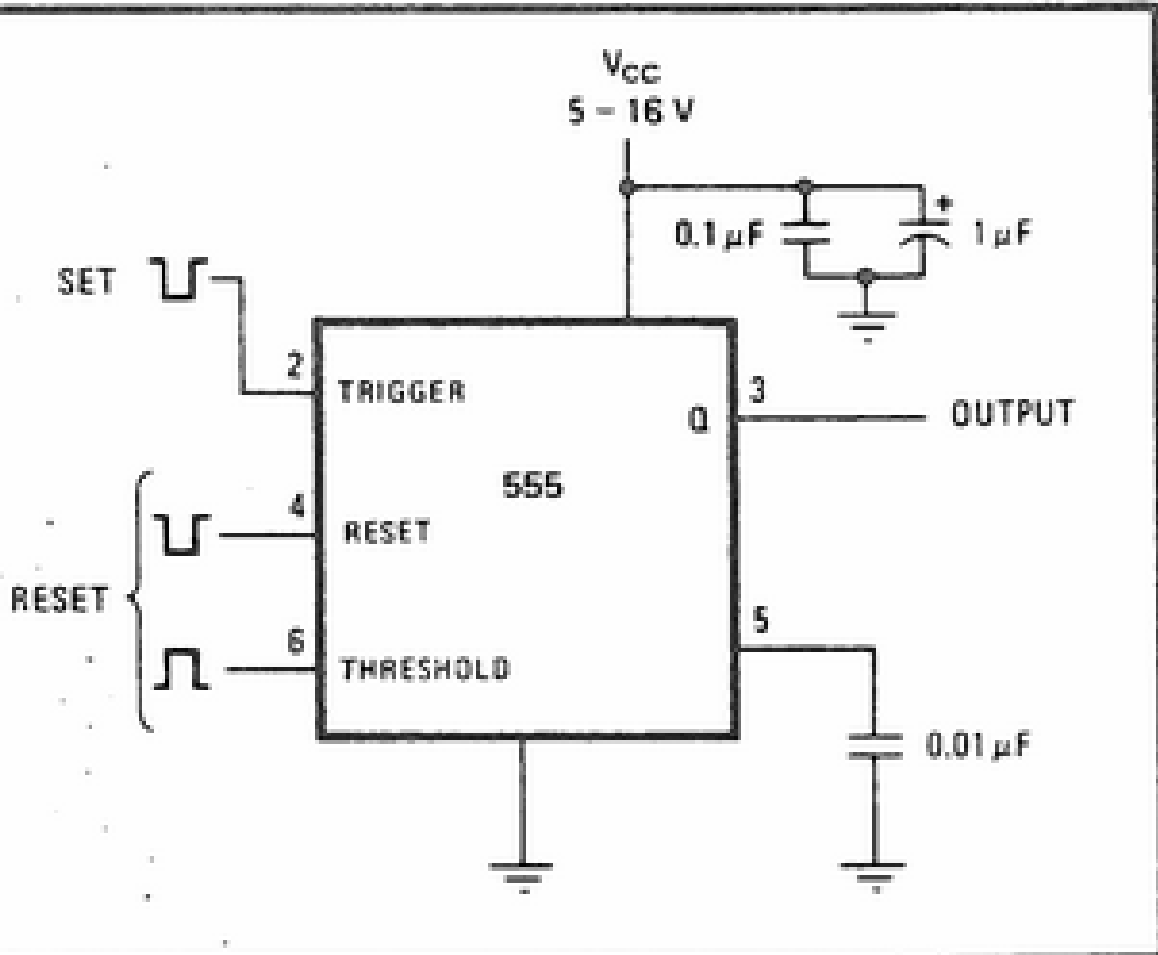
If you have any questions, let me know. If you have a circuit, write it up. There is always room in the C&E for it. A hearty "hiho" to Joe, WA5TRS for his circuits.

Micheal Salem WA5EPK

MORE INFO FOR 555 FREAKS

DEVICES MADE BY DIFFERENT MANUFACTURERS HAVE SOME SUBTLE DIFFERENCES THAT SHOW UP WHEN UNCONVENTIONAL CIRCUITS ARE TRIED. HERE IS AN EXAMPLE SHOWING THAT THE THRESHOLD OVERRIDES THE TRIGGER ON NATIONAL LM555H BUT TRIGGER OVERRIDES THE THRESHOLD ON THE SIGNETICS NE555V. THE DIFFERENCES MAY BE IMPORTANT AND ALLOW SOME CIRCUIT TRICKERY IN PULSE/MISSING PULSE DETECTORS. FROM ROBERT W. BOCKSTAHLER, ELECTRONICS FEBRUARY 19, 1976.

| INPUTS | | | OUTPUT | |
|----------------------------------|---------------------------------------|------------------------------------|--------------------|---------------------|
| PIN 4 (RESET) (ACTIVE-LOW) | PIN 6 (THRESHOLD) (ACTIVE-HIGH) | PIN 2 (TRIGGER) (ACTIVE-LOW) | NATIONAL LM555H | SIGNETICS NE555V |
| | 0 | 1 | RESETS (L) | RESETS (L) |
| | 1 | 1 | 0 | 0 |
| | 0 | 0 | | |
| | 1 | 0 | 0 | |
| 1 | | 1 | RESETS | RESETS |
| 1 | | 0 | | 1 |
| 0 | | 1 | 0 | 0 |
| 0 | | 0 | 0 | 0 |
| 1 | 0 | | SETS (H) | SETS (H) |
| 1 | 1 | | 0 | |
| 0 | 0 | | 0 | 0 |
| 0 | 1 | | 0 | 0 |



555 TIMER USED AS A SET/RESET FLIP-FLOP

AND A GOOD TIME WAS HAD BY ALL

THAT WAS THE STORY TOLD BY EVERYONE WE TALKED TO AFTER LAST YEARS HAM HOLIDAY AND GOING BY THE TWO PAGES OF PICTURES OF LAST YEARS ACTIVITIES WHICH APPEAR ELSEWHERE IN THE PAPER IT MUST BE SO.

THE PROGRAM COMMITTEE HAS BEEN BEATING THE BUSHES AND HAS COME UP WITH SOME SUPER ATTRACTIONS

AS WE FOUND OUT THE LAST COUPLE OF YEARS MOST OF YOU ARE PRONE TO DO A LOT OF EYEBALLING SO THE

PROGRAMS HAVE BEEN SPREAD OUT WITH MORE TIME BETWEEN THEM SO YOU WON'T MISS ANYTHING

WE WILL HAVE AN ARRL SPEAKER FROM NEWINGTON, CHARLIE CARROL, WHO WILL HAVE TWO TECHNICAL PROGRAMS - ONE ON 220 MHZ REPEATERS AND THE OTHER ON LARGE YAGIS FOR DX.

LOTS OF LADIES WERE PRESENT LAST YEAR AND THIS YEAR THEY WILL HAVE THEIR OWN HOSPITALITY ROOM AND SWAP TABLES

FOR CRAFT WORK AND SO FORTH BUT NO RADIO GEAR.

THEY WILL ALSO HAVE SPECIAL LADIES AWARDS THAT WON'T HAVE TO BE TRADED TO THEIR HUSBAND OR BOY FRIEND BUT WILL ALSO BE ELIGIBLE FOR THE OTHERS PLUS PRE-REGISTRATION AND GRAND PRIZE - THAT'S IT TO THE LEFT - A 50 FOOT ROHN 25 TOWER.

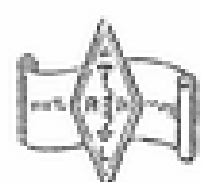
THE GOOD FOOD WE HAD LAST YEAR IN THE BUFFET LINES WILL BE THERE AGAIN AND AS OF THE TIME THIS IS BEING PREPARED THE SAME LOW PRICE OF \$2.95 WILL HOLD.

ONCE AGAIN WE PROMISE - NO SPEECHES - BEFORE THE AWARDS ON SUNDAY. COME EARLY AND EAT THEN BE PREPARED TO CARRY THE LOOT HOME. IF A CREW CAN BE ROUNDED UP TO ERECT IT THE 50' ROHN TOWER WILL BE USED FOR THE TALKIN FREQUENCIES OF 146.34/94 & 146.22/82 AND THEN THE LUCKY PERSON WILL GET TO TAKE IT DOWN - HOPE THERE IS HELP AVAILABLE. HI!

PRE-REGISTRATION FORMS WITH SPACE TO RESERVE MOTEL ROOM - WE WILL DO IT FOR YOU OR JUST CALL OR WRITE SOUTHGATE INN.

SWAP TABLES IN THE FLEA-MARKET ARE AVAILABLE TO REGISTRANTS-NO COST.

SEE YOU AT SOUTHGATE INN, I-35 SOUTH & 51st, AUGUST 8 & 9



W5PAA

MINUTES OF THE AERONAUTICAL CENTER AMATEUR RADIO CLUB MEETING OF JULY 9, 1976

The meeting was called to order by President Prince at 2015 with 40 members and guests present. The following are comments gleaned from the round of self-introductions. Jerry, W5MCJ, read a letter from the Norman Red Cross to Gary England at Station KWTW. Bob, W5HXL, has been working and playing with building power supplies at high current. Don, WB5RAX, is looking for an HW16 to buy. Ed, K5LIL, and Kermit, K5JEA, are still listening for DX. Pat, WA0TTW, is a visitor from Omaha, going to school at OU this summer. Bill, WA4MBM, is a student at the FAA Academy from Atlanta. Joe, WA5ZNF, is talking up Ham Holiday. Gil, W5RB, has been winding on 80M tank coil. Elmer, W5BKN, will have some gear for sale at Ham Holiday. Tom, W5OZE, has been working the Altus repeater. Al, W5TJL, worked thru the Texarkana repeater on vacation. Dorothy, WB5ELG, attended the Hamfest at New Brunfels, Texas. Ken, WN5RTZ, intends to take the General Exam at Tulsa in August. Carl, W5JJ, wrote up a proclamation for amateur radio week which was signed by the Governor. However, the proclamation did not receive very much publicity from the press. Ivan, W5HFU, worked a former club member George Farbel, located in Alabama. Howard, W5WSW, attended his first Red Cross class and learned a lot about life saving.

Bill, K5OCX, is working on 2M now. Charlie, WA5JGU, sent a letter to Gary England too. Virgil, W7JTG, has moved back to OKC area from Arizona. Todd, WA5VAQ, brought some equipment to give away, it was quickly snapped up. H.O., WA5MLT, talked up the upcoming ARRL contests to be held later this month. Lloyd, WB5HUP, planned to put his repeater (37-97) atop the South Community Hospital (which was indeed accomplished two days later). Gene, W5GC, told some tall tales. Jef, WB5GWB, said forms had been sent in to incorporate the OKC repeater, so they can take in some money to help pay expenses. Gene, WB55QC, has his FM144 back from the factory and it works fine. Al, WB5KCU, has been batching for 2 weeks and has been working some on 20 meters.

George, W5NTL, has been unable to get in touch with P.K. Enterprises, but still plans to get a frequency counter.

The ACARC has been requested by FAA to include the following three items in its constitution.

1. Provide for adequate bonding of club officers who handle funds.
2. Provide for periodic financial reporting to club members.
3. Provide for periodic evaluation of activities and audit of expenditures to insure safe and authorized handling of funds.

The motion was made and passed to include the three amendments to the constitution.

George, W5NTL, scheduled an Antenna Party for Saturday morning at 9:30 to install a new vertical antenna for 2 meters.

The problem of station operation interfering with the security radio was discussed. George, W5NTL, said properly loading the transmitter would eliminate the problem.

A motion was made and passed to have the August meeting ACARC to coincide with that of the VHF Club on August 20. This meeting will be a watermelon feed at Will Rogers Park with the two clubs to share expenses.

Joe, WA5TRS, is lining up people to help with radio classes to be taught this fall.

A motion was made and seconded to buy two sets of antenna traps (10 thru 80 M) for portable operation.

MINUTES (Contd)

President Prince appointed the following as ACARC directors: Gene, W5GC, Bob, W5HXL, and George, W5NTL.

The books sent for binding have returned and are in the bookshelves.

The meeting was adjourned for refreshments at 2130, after which Charlie, WA5JGU, showed some slides of his visit in eastern Oklahoma with Mel Hood, WA5VMQ, and family, Margaret and Melanie.

Bill Oliver
Secretary/Treasurer

K4DP reminds us that transient damage from voltage spikes may be minimized by using GE-750, GE-MOV Metal Oxide Varistor, cost about \$4.00 (obtained from Trice Electronics), or a Heavy duty house protector DCB002, cost about \$15.00 (obtained from G.E. Supplies, 1801 W. Reno). Both Supply houses are in Okla. City. The above will tend to protect our Amateur Radio Equipment, Air Conditioning Equipment, Refrigerators, ETC. The GE-750 goes across the primary of our transceiver, and the GE-DCB002 is to be connected across the power panel in our home and will tend to protect all of our equipment. When the GE-DCB002 is used the GE-750 is no longer required. Another Heavy Duty House Protector is GE-9L1500P001. K4DP has lost his Amateur Radio Station twice because of voltage transient damage.

K5HFU



AT OVERHOLSER

There was plenty for everyone. No formality, just move in and help yourself. These are some of the Early Birds--I should have forgotten pictures and dived in.

AT OVERHOLSER

Lloyd's water-mellon was very much appreciated. Looks like "Someone" is really stuffing it in, Guess who? Clyde wants to see that he has enough.



LOST OR MISPLACED: At Lake Overholser picnic in June, a Fineline Shaeffer pencil, black with silver top and eraser on top. This was a present and has high sentimental value. If you can help locate it contact Guy Stratton, W5GEZ, 721-3521.

FOR SALE: TR-22 with 34/94, 94/94, 76/94, 52/52, 07/67 and 22/82. Mint condition \$175.00

Heathkit Shawnee 6 meter transceiver, 20 watts AM, 115v or 12v DC power supply built in. Separate VFO for transmitter and receiver, tunable 50 to 54 MHz.

A good AM transceiver \$45.

Heathkit 2'R with 145.1 MHz crystal \$25.

Bob W5HXL 942-5375

TECHNICAL REVIEW

QST, Jul, has the second part on receivers, an excellent discourse on 'scopes, a construction article on a simple receiver, and much more.

CQ, Jun, tells how to make IC projects work, how to build a low cost 14 MHz beam, how to make several 3.5 MHz "sloper" antennas, and how to locate RF noise sources.

73, Aug, offers the DDRR antenna, yet another electronic keyer, ideas on making a circuit board, much info on the 7400, and the continuing saga of the ancient aviator.

RADIO COMMUNICATION, May, has a very detailed article on the suppression of interference to mobile radio operation....a real classic! There's a short introduction to PLL, too. "Technical Topics," as usual, has the cream of the world's technical press for your reading.

IEEE Spectrum, Jun, continues the tale of how the IRE/IEEE came into being.

HAM RADIO, Jul, belies its pejorative title by publishing very scholarly treatises on frequency synthesizer design and VHF/UHF antenna matching techniques. In addition, there are other excellent articles on a transistor tester and a receiver for WWV plus many other subjects.

POPULAR ELECTRONICS, Aug, describes the construction of a "simple" electronic keyer. Also, there are ideas on how to keep lightning out of your electrical gear.

ELECTRONIC COMPONENT NEWS, Jul, has a detailed article on fixed capacitors.

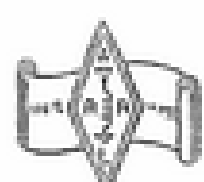
SHORT WAVE MAGAZINE, Jun, reviews the IC-202, describes an active AF filter, ditto a DC millivoltmeter, ditto a quad antenna for 2-m, and ends up with a timing circuit.

W5JJ

QUOTED WITHOUT COMMENT

The following is extracted from FCC document 76-357 41127 issued in conjunction with the rule making resulting from Docket 20282:

"8. However, our experience with the volunteer examination program has shown that it has been abused. Our routine call-in program of Technician (C) and Conditional Class licensees has shown that over 90% of such persons either fail to appear for re-examination, or if they do appear, fail the examination. Such results tend to confirm the suspicion that some such licensees obtained their licenses fraudulently."



THE PRESIDENT'S CORNER

Things are almost back to normal at this Qth, Daisy has returned from her visits to Rochester and Dayton, and I got the housework completed just in time. Maybe I will have some pictures to show of the twin grandsons, so I can compete with the slides shown by Charlie of his grandson. Thank you Charlie, WA5JGU, for taking time to put together the slide program for the meeting, after a busy day of operating at the powder-puff derby. We enjoyed seeing the beautiful scenery of eastern Oklahoma, and the Qth of Mel K5VWQ, Margaret, and Melanie. Looks like everyone enjoyed a very pleasant visit.

The Field Day turned out to be very exciting, especially when Don, WB5NIY, cranked the PE-75 power supply engine and instead of exhaust, got a column of rusty water from the exhaust stack (see picture on cover). So, after a couple of hours looking at this project, it was abandoned for the use of the cook's (W5HXL) generator, so another position could be put into operation.

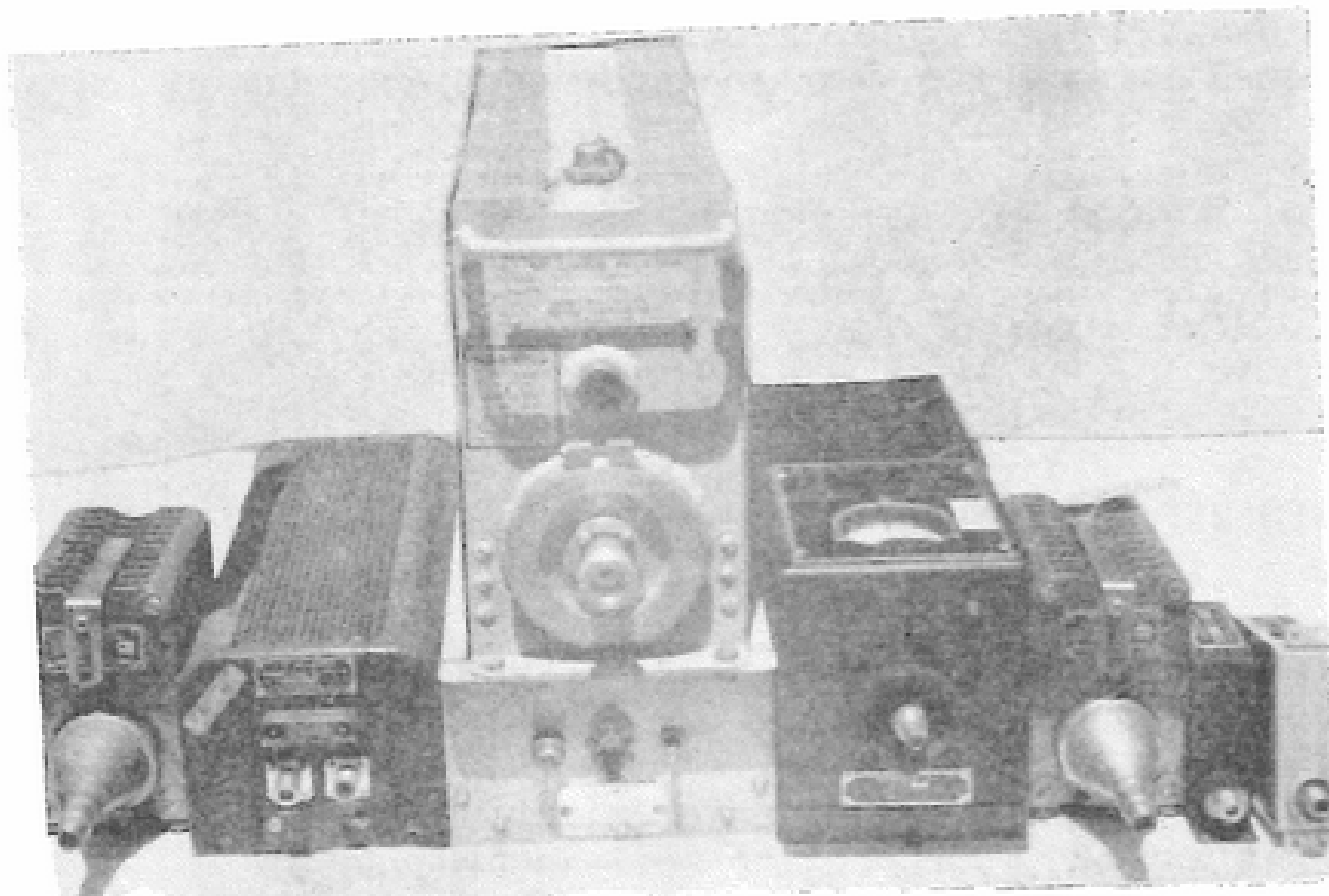
And did you get a good look at the menu posted at W5HXL's CORA cook-shack? Hamburgers, hamburgers, and more hamburgers! Prices varied at the whim of the management, and a good time was had by all.

And then, last Saturday, we held an Antenna Party at the Aero Center Club for the repair of the two meter beam and installation of the Ringo antenna. Thanks to Bob W5HXL, George W5NTL, Bill K5KDR, and Gene WB55QC who almost made a sky-hook of himself to get the mast back into the top of the tower.

Looking forward to Ham Holiday. See you there!

73

A1 WB5KCU



EXCESS ELECTRONICS

ELLARD'S EX EL

PHONE 789-6702

5905 NW 42ND

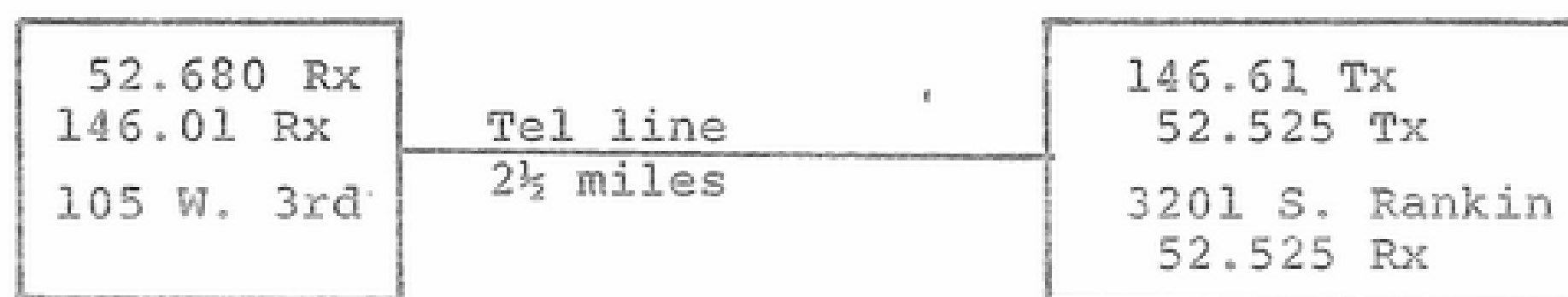
OKLAHOMA CITY

ELLARD'S EX EL (W5KE) WILL HAVE LOADS
OF GOODIES AT OKLAHOMA HAM HOLIDAY



The next meeting of the E.A.R. will be on Saturday September 4 at 10:00 A.M. at General Electric 3228 N. Santa Fe. The events the club are working on are the six meter and two meter link repeaters. The two meter repeater is sponsored by the Edmond Amateur Radio Club Inc. and is on 146.01/61. The six meter link is on 52.680/525. and is sponsored by the Oklahoma City Autopatch Association Inc. The receivers are located at 105 W. 3rd. st. in Edmond. The transmitters are at 3201 S. Rankin st. in Edmond.

Both sites are in excess of 100 ft. high, the six meter antenna being the highest. The alternate input will be 52.525 and that R.X. will only turn the two meter transmitter on and alternately serve as a guard to inhibit the 52.525 transmitter. Until the 52.525 R.X. is installed, the activity on two meters should be limited to those with six meter receive capabilities to prevent interference on 525 direct. When I get the system going completely you can QSO on 52.525 direct from 146.01/61 or talk to somebody thru the repeater input.



BLOCK DIAGRAM OF 01/61/525

There is a new addition to my family of whom I am very proud and I am sorry I have neglected the duties of Trustee and Equipment Maintenance but I can't get away from her. Jamie Lynn Orcutt was born on June 20 1976. That is why the last issue had very little content from our club. Joe Buswell WA5TRS did the only input for us along with his other activities in C.O.R.A.. We appreciate his help.

Joe also helped modify my patch so you could further benefit from the system without the patch timing it out. He put some transistors in the place of worthless reed relays. He is quite an engineer. August will be Joe Buswell month in our club in gratitude.

Jamie D. Orcutt



REPEATER MOD

...for the balky repeater. Trustee pushes secret code on his touchtone* pad and everything in the box what ain't workin' right starts to.

© Buswell 1976

SOME THOUGHTS ON FIELD DAY

For some unexplained reason, Field Day did not spark much enthusiasm among CORA members this year. No one stepped forward to assume responsibility for organizing the operation. The CORA officers, therefore, decreed that there would be a Field Day operation and made assignments to assure minimum equipment and facilities for two stations would be at the Lake Overholser site. The philosophy was to see what would happen.

By noon Saturday, two stations were set up and operating. Joe, WA5TRS, set up the VHF clubs TR-3 for the SSB station and Bill, W5UGZ, set up the ACARC clubs T-4/R-4 for HF CW operation. Bob, W5HXL, had the refrig in the "porta-shak" well stocked with COORS, Cokes and hamburger fixin's. Jim, K5VRL, and Charles, WA5JGU, picked up the tents, tables, PE 75, etc from Leon's.

After minor de-bugging, both stations operated very well with many contacts on all bands, 80 through 10. The initial operators ran out of steam about 10:00 p.m. Relief operators failed to show up so that was the end of the operation. The few "old faithfuls" dismantled Sunday afternoon and returned the gear.

What did we learn? Two things, (1) we could set up under emergency conditions and carry on effective communications, and (2) we were doing many things the hard way with plenty of room for improvements.

1. Untangling the elements of a multiband inverted "V" is a tedious process - and what happened to the string used to tie off the elements? The ACARC has purchased two pairs of traps to make up two each all band trap dipoles. This should be a big improvement.
2. When Don, WB5NIY, pulled the VHF's PE-75 through to s-e if it would run, he was startled by a gyser of dirty water shooting up 6 or 8 feet from the exhaust pipe. Scratch one power plant! The only operating units were the one loaned by Red Cross and W5HXL's.
3. Gasoline - only had one 1 gallon can. Had to raid the parked cars with an "Okie" credit card!
4. Hardware, tools, coax fittings, etc were in short supply - mostly scrounged from the "porta shak".

Conclusion: If we are serious about being prepared to serve "in the public interest", we need to get a little better organized, assemble the bits and pieces needed in a box ready to go, and check it out occasionally to be sure everything needed is available and operating properly. Or - maybe it would be easier to let the CB'ers do it.

W5HXL

MOTOROLA HEP
SONY SUPERSCOPE
SPRAGUE
AmpereX
3M
Wahl
marantz
Belden
SUPERSCOPE
BIC
SHURE
ATLAS SOUND
SONY
XCELITE
AKTRON
master charge
Kelly's
DISCOUNT ELECTRONICS
4221 N. MacArthur
PH: 787-0822
Oklahoma City

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



FIELD DAY 76

Before you do anything there has to be a lot of "planning". Looks like two people are planning and the rest are "panning".

FIELD DAY 76

Don did not strike oil when he pulled the PE-75 through after a long lay up. That is mud and water spouting up. After a lot of work--it did too.



FIELD DAY 76

Don't you ever get hungry and/or thirsty? With all the planning being done in another picture Bob surely had a time keeping up with the demand



WANTED: TRI BANDER. CALL KEN, WB5ECJ, 751-4917.

FOR SALE: LIMITED QUANTITY (ONE ONLY) MOTOROLA 41V, MOBILE 2-M TRANSCEIVER, SOLID STATE POWER SUPPLY. CONTAINS 34/94 AND 94/94. (CAN BE SYNTHESIZED). EQUIPMENT INGENUOUSLY DESIGNED TO BE LOW THEFT RISK, ONLY PART IN PASSENGER COMPARTMENT IS LOW COST CONTROL MODULE. ROCK CRUSHING, 10,000 MW OUTPUT. SEE IT TO BELIEVE IT. INSTALLED AND WORKING WILL DEMONSTRATE. WILL BE SOLD TO FIRST ONE TO COME UP WITH \$50.00. STAN, WA5YFI, 733-2239.

LEARN ALL ABOUT RADIO

NOW IS THE TIME TO START ADVISING FRIENDS WHO ARE INTERESTED IN ATTENDING LICENSE CLASSES. PLANS AREN'T FIRM YET BUT THERE ARE ENOUGH RESOURCES AVAILABLE TO HAVE SEVERAL CLASSES STARTING SIMULTANEOUSLY IN SPETEMBER FOR NOVICE AND TECHNICIAN/GENERAL/ADVANCED CLASS LICENSES.

WE ARE GOING TO LEARN ALL KINDS OF THINGS. FOR EXAMPLE, DID YOU KNOW THAT A P-N JUNCTION IS A ROADSIDE REST AREA? OR THAT A SEMICONDUCTOR IS A TRUCK DRIVER? OR THAT SILICON IS A GOOFY PRISONER AND THAT GERMANIUM WOULD HAVE BEEN A FLOWER EXCEPT THAT SOMEONE MISSPELLED IT?

IF YOU WANT TO HELP (WE NEED EXPERIENCED INSTRUCTORS MOSTLY) AND HAVEN'T ALREADY VOLUNTEERED, CONTACT ME AT 732-0676 OR CATCH ME AT ONE OF THE MEETINGS. IF YOU HAVE PROSPECTIVE STUDENTS LINED UP, GET THEIR NAMES TOGETHER BECAUSE ENROLLMENTS WILL BE LIMITED. THERE WILL BE A REGISTRATION FEE OF \$4.00 WHICH WILL BE RETURNED TO PROSPECTIVE NOVICES WHEN THE EXAM IS TAKEN AND TO OTHERS, IN THE FORM OF A CHECK TO THE FCC, WHEN LICENSE APPLICATION IS MADE. JOE, WA5TRS



CROSS CHECKING

*Who has the M's?
I have a guy
named Murgetroid.
The bunch at the
big table must
be thinking some
of these last
names up. Now I
have a "Q".*

WILLING HELPERS

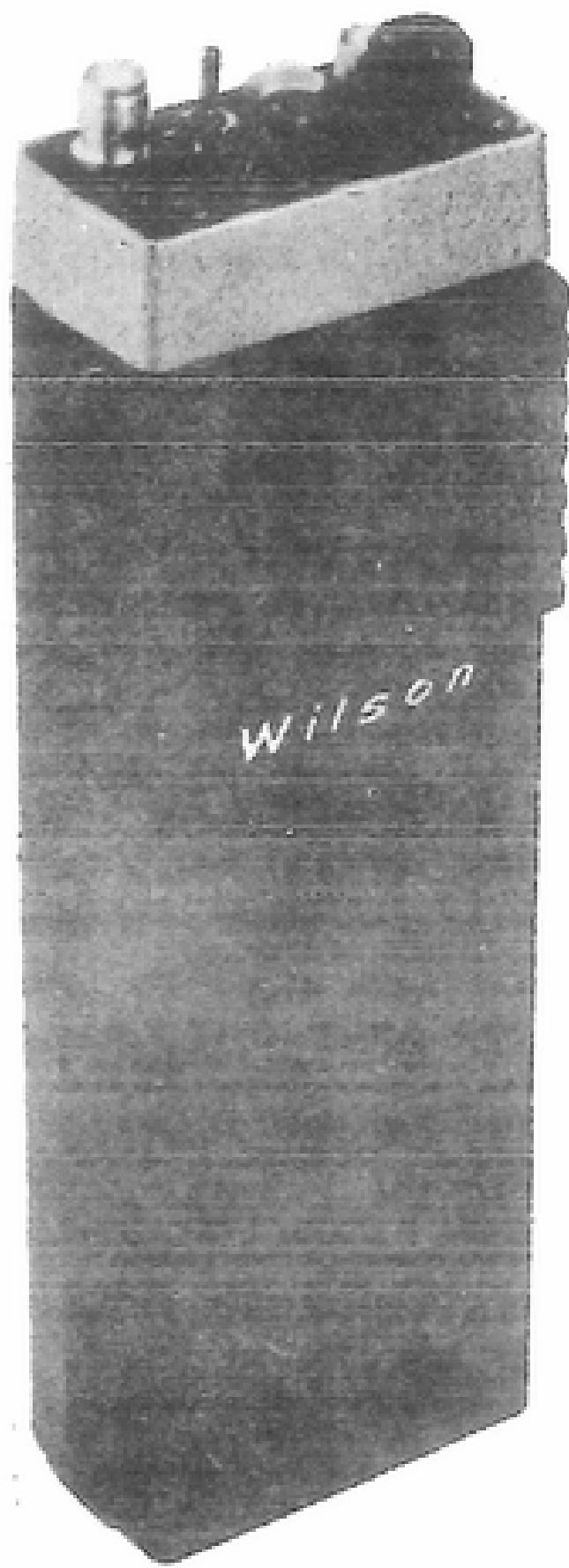
*400 samples of
CORA C&E requir-
ed a lot of mail-
ing list cross
checking and a
crew of 26 show-
ed up to help.
THATS WHAT MAKES
CORA CLICK.*



THIS
CAN
BE
YOURS

1405SM
HAND HELD
5 WATT
TRANSCIVER
144-148 MHz

- 6 Channel Operation
- Individual Trimmers on all TX/RX Crystals
- All Crystals Plug In
- 12 KHz Ceramic Filter
- 10.7 and 455 KC IF
- .3 Microvolt Sensitivity for 20 dB Quieting
- Weight: 1 lb. 14 oz. less Battery
- Battery Indicator
- Size: 8 7/8 x 1 3/4 x 2 7/8
- Switchable 1 & 5 Watts Minimum Output @ 12 VDC
- Current Drain: RX 14 MA TX 400 MA (1w) 900 MA (5W)
- Microswitch Mike Button
- Unbreakable Lexane Case



TEAR ON THE DOTTED LINE, OR SEND THE WHOLE PAGE, TODAY

PRE-REGISTRATION FOR OKLAHOMA HAM HOLIDAY

SOUTHGATE INN - OKLAHOMA CITY - 7 & 8 August 1976

NAME _____ Call _____ Lady _____

Street _____ City _____ State _____ Zip _____

Mail check (\$3.00 per person registered) to HAM HOLIDAY, Box 20567, Oklahoma City OK 73120. Letter must be postmarked NO LATER THAN 2 August to be eligible for the pre-registration award for which you are eligible whether you are in attendance or not. Register as many people as you wish. Just list and enclose \$3 for each.

FREE Fleamarket tables will be reserved by number. Non-Commercial only. RESERVE ME A FLEAMARKET TABLE. ☐

We will stay at Southgate Inn. Reserve (Single) (Double) for me. Dates _____ ☐

We expect to utilize the BUFFET Saturday evening. _____ ☐

We WILL make the BUFFET Sunday before the awards. _____ ☐

YOUR TICKETS WILL BE HELD AT THE RESERVATION DESK UNLESS YOU SEND s.a.s.e.!

Monday, July 12, 1976, EDMOND SUN,

Ham Operators Transmit Powder Puff Messages

Edmond Amateur Radio Society served a vital role in providing necessary communications for the Powder Puff Derby All-Women's Transcontinental Air Race coming to a close today.

During the race they set up their ham radio equipment and antennas at the Will Rogers World Airport to receive and transmit messages regarding the position of each of the women racers.

Operating as part of a coast-to-coast radio net-

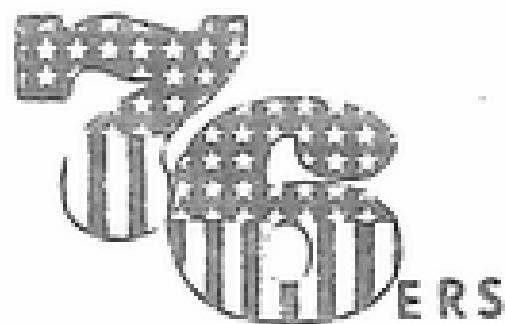
work they relayed the time and location of all the aircraft in the race across the country along the race route from Sacramento to Wilmington, Delaware.

Race rules dictate that the pilots fly only during official daylight therefore each pilot must be accounted for after sundown each day. This is where the ham operators were so invaluable. Operators at each station compiled and relayed information to the next station.

In addition the ham operator network maintains a running tally on how each racer is doing. They are available to relay emergency information to the racers or their families if necessary.

Norma Vandergriff, Edmond, is among the women racers in the Derby. She received her license in 1967 and is a member of the 99's.

EARS president is John Keeling, vice-president is Gene Nailon and secretary is J. D. Keeling.



THE BICENTENNIAL AMATEUR RADIO CLUB



On June 26, 1976 The Bicentennial Amateur Radio Club entered into it's first field day. Like any new club, we were slightly disorganized. For instance, one of our first exercises was to put up a 40 ft. mast, however, we forgot one small detail, to put the antenna on top of it before raising it.

Early Saturday morning, the equipment started finding it's way to our operating site, which was a baseball field at Woodson Park in southwest Oklahoma City. Among the equipment that showed was a KWM-2A, SB-102, two HW-101s, an IC-230, etc. Our timing was about right. By the time we finished setting up, it was time to get on the air. At the last minute we decided to use K5LMG /5 for the field day call. Of course there was the usual madhouse for the first couple of hours, then we started making the contacts.

We had four operating tents, phone, cw, vhf and novice. The antennas we used, varied from a simple long wire to a carefully engineered 80 meter inverted vee. The tents were loaned to us by WN5TMW's Boy Scout troop. In the center of our location was a tent trailer used for cooking, storage and fellowship. Some fine hamburgers, hot dogs, etc. were carefully prepared by Judy, K5LMG's XYL.

We had quite a few visitors for our first field day. One of our main attractions was at the cw tent. Especially when Bill, K50CX, showed up with his Accu-memory keyer. Using the Accu-memory keyer made for flawless transmitting and helped make nearly 400 contacts from the cw tent. For the 24 hour period, we made approximately 1100 contacts (Coy is still digging out from the logs). We are all making plans on how to do better next year already.

The novice tent was a pretty busy place since we had about 15 guys with new novice licenses. The call they used belonged to Dick, WN5TMW, who received his license the day before. The novices got quite a work out making 152 contacts and helping out in all phases of the field day set up.

Well, as you can probably tell, we are proud of our little club and are glad to have this opportunity to tell someone about it.

Ken, WB5ORY
Activities Chairman

TULSA TOWER TALK

9622 E. 26th Street
Tulsa, Oklahoma 74129

Dear Friend,

This is to inform all persons who supported our fight against the neighbors and the City of Tulsa over the erection of our tower here in Tulsa.

Beginning back in July of 1975 when we were informed that our building permit had been appealed by the neighbors who objected to the 69 foot ROHN model 45 fold-over tower being built on the side of our new house. In mid-September, the Tulsa County Board of Adjustment interpreted the city ordinance to say that an "aerial" could be any height but a supporting structure for an antenna or aerial could be no higher than 26 feet. We appealed the ruling to District Court and the ham support began to roll in---both with ideas, research, and financial contributions (one check came in from a ham in Germany).

A group of amateurs began working with the City Commissioners attempting to alter the ordinances to not exclude hams. One part of an ordinance said, in effect, that a tower for a C.B. antenna or a T.V. antenna was OK but excluded amateur radio. It looked as though the Commissioners were willing to make the alteration. The Commissioners submitted the proposal change to the staff of the Tulsa Metropolitan Planning Commission as standard procedure. The TMAPC decided, however, to re-write the whole ordinance.

Tulsa area hams went through two public hearing sessions in April of 1976 with the Planning Commission who was notably against hams. Their recommendation to the City Commission was to allow an antenna up to 25 feet above the roof level (anybody got a 75' tall pitched roof?)

Before the final proposal got to the Commission our trial came up in District Court (May 17-18). With the City's Attorney and the neighbors with their lawyer in as intervernors, it was obvious that the case had been decided before we even got started. The points of asthetics and property marketability were big in the trial.

It is interesting to note that a week after our trial the same judge refused to close a nightclub featuring nude dancing because he said, "beauty is in the eye of the beholder". We had used the same argument in court. He believed it for nude dancing but not for ham towers. Hm-m-m-m! He also stated in the nightclub ruling that neighbors must learn to co-exist together. He seemed to believe it in one case but not in the other.

The judge ruled that we must take the tower back to 26'. Legal opinion seemed to indicate that we had a very poor chance in an appeal to the State Supreme Court. We have 30 days to comply.

Meanwhile, election days had provided an almost completely new City Commission. Other hams working with this group explained amateur and CB needs in antennas and towers. On Friday, June 4, the City Commission rejected the TMAPC's suggestion of 25' above the roof line and chose to enact an ordinance allowing antennas to 60 feet with a 2 meter whip-type antenna above that. Towers would not be allowed in the side yard which hurt us badly. Any variation from this would require a variance before the Board of Adjustment. If after a B. of Ad. hearing which would include all neighbors within 300 feet of your property, their was no opposition you could erect a tower in a side yard or go to an unlimited height. This was not what we wanted but was generally better than it looked like we could expect for quite some time.

In our case we will take the 69 footer down on the side of the house, remove a section, and re-erect it in the back of the house. I will hopefully have the task completed by mid-summer and will finally be back on the air.

In closing, I am so grateful for all your help and support. The hams have been terrific and the encouragement from so many helped us to weather the storm. Maybe I'll be able to talk with some of you on the air and tell you some of the other details. Again---thanks

JIM PICKETT, K5LAD/WB5IRP

Open Session

Where Readers Have Their Say

Short contributions, brief and to the point, are most likely to be printed. Opinions expressed are the contributor's own, but we reserve the right to cut or condense long contributions. Write on one side of the paper and sign your name -- no anonymous letters printed. No manuscripts returned.

Dear CORA:

I wonder if this has happened to others? I passed an FCC exam on my birthday - 25 April 76 and the effective date on my license is on my wife's birthday, 1 June 76. Has that happened to any of you? Odd, isn't it? I would like to obtain, or borrow, manuals for HW-32A (Heathkit 20m SSB Xcvr) and for a 22-A (Heathkit 40m SSB Xcvr). I'm trying to make operable some Teletype gear, similar to a model 15 and a TM11-2225 - CV89/URA-8A converter. Anyone have knowledge of them?? I have some Remote Control gear that I might trade for an all band transceiver or will sell. Will have to eyeball each others stuff to decide if anyone is interested. The R/C is for airplane, cars, boats, etc.

JOE, WB5RAG Phone 672-0409

Dear CORA:

A couple of items have crossed me this month that I thought I'd pass to those who might be interested.

1. Sample questions for General, Advance and Extra may be obtained by writing: FCC, Washington DC 20554. Bulletin # 1035 is the Extra bulletin.
2. I tuned across the 20m phone band and was dumbfounded that the FT owners had a net. I find that incredible that that rig has so many problems that they have to have a net to resolve them. The moral of this must be "BUY AMERICAN".
3. How does one get to be an expert on the value of used gear? We heard that one OKC amateur (2 letter call) was remarking that several pieces of equipment in the local store were priced too high. This is out of place in anybody's place of business and also he obviously had not checked comparable gear in the available ads.

Nice job on the CORA Collector & Emitter. Will send more later.

ED, K5L1L

FOR SALE: \$5000.00 worth of Ham gear - Sound Equipment, Experimental parts and Test equipment for only \$500.00. Elmer Fields W5BKN, phone 943-4979.

FOR SALE: Galaxy V MK-3 Transceiver, RV-1 remote VFO, CAL 35 100kc calibrator, VX-35 VOX, F-3 400 cycle CW filter, Deluxe speaker console which includes SWR bridge, speaker, phone patch & digital clock, AC-35 power supply, DC-35 power supply, Mobile mounting bracket. Complete package \$495. Contact George Garbett, WB5QNU Phone 745-2832

WANTED: Communications receiver for CW. Bill Devin phone 524-0460

ADDITIONS - CORRECTIONS TO OFFICIAL CORA ROSTER

| | | | | |
|--------|----------------|-------------------|---------------|----------|
| A | Jerry Sproul | 128 Ranchwood | Yukon OK | 354-2061 |
| A | Robert Moore | 2721 N Meridian | Okla City OK | 946-5713 |
| W5AAR | Frank Wildboor | Box 176 | Croswell MI | |
| A | Forrest Ladd | 4301 NW 59 Ter | Okla City OK | 946-8670 |
| K5EUT | Nathan Parsons | 1101 N Norman | Moore OK | 794-6135 |
| W5HHJ | Bill Robbins | Rt 6 Box 436 | Okla City OK | |
| WB5LJQ | Mike McCrary | Box 460 | Shreveport LA | |
| W5OUZ | Richard Kerns | 313 NW 80 | Okla City OK | 842-7209 |
| W5QLL | Charles Tucker | 5020 NW 27 | Okla City OK | 942-6766 |
| WB5PMG | Betty Gilliam | 1400 Adams | Altus OK | |
| WN5RXZ | Ken Hutchison | 2010 Crestmont | Norman OK | 364-3001 |
| AB5TKG | C Y Chandler | 1833 1/2 NW 7 | Okla City OK | |
| W5ZVB | Paul Freeland | 1604 Markwell Ave | Okla City OK | 789-7534 |
| WA5ZKI | Woody Bell | Rt 2 Box 173A | Minco OK | 352-4112 |

SAM, W5HAZ

ED SANDERS

DISTRIBUTOR OF QUALITY HAM RADIO EQUIPMENT

MARINE RADIOS - - CITIZENS BAND RADIOS AND ACCESSORIES

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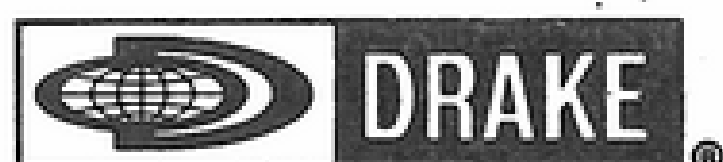


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OKLAHOMA CITY



EXECUTIVE DEPARTMENT

Proclamation

WHEREAS, the State of Oklahoma recognizes the valuable services performed by thousands of its residents who are licensed operators in the Amateur Radio Service, who are largely self-trained and self-disciplined, over a period of many years repeatedly have demonstrated their capability of providing reliable and highly valuable communication services in times of natural disasters or other emergencies; and

WHEREAS, in close collaboration with the Red Cross, radio amateurs have provided both the equipment and the skilled manpower needed to transmit official communications and messages relating to health and welfare; and

WHEREAS, radio amateurs affiliated in a voluntary capacity with the Army, Navy, Air Force, and Coast Guard provide a back up to and an expansion of the communication facilities of those services, and in addition, they form a valuable reservoir of pre-trained technicians and communicators; and

WHEREAS, the many intrastate and interstate communications networks operated daily by radio amateurs provide free message service to the public and training for enhancing operator proficiency and for maintaining equipment in operational status; and

WHEREAS, these radio amateurs have qualified for and have merited their operating privileges by demonstrating their technical qualifications to the Federal Communications Commission; and

WHEREAS, radio amateurs as dedicated experimenters have contributed appreciably to the technical development of electronic communications from the early days of "wireless" to the present day use of communications relay satellites in earth orbit;

NOW, THEREFORE, I, DAVID L. BOREN, GOVERNOR of the State of Oklahoma, in recognition of past services and in confident anticipation of continuing valuable services, do hereby proclaim June 20 - 26, 1976 as

"AMATEUR RADIO APPRECIATION WEEK"

in the State of Oklahoma.

In Witness Whereof, I have hereunto set my hand and caused the Great Seal of the State of Oklahoma to be affixed.



I gave at the Capitol, in the City of Oklahoma City, this 20th day of June, in the Year of Our Lord one thousand nine hundred and seventy-six, and of the State of Oklahoma the sixty-eighth year.

Jerome W. Byrd
SECRETARY OF STATE

David L. Boren
GOVERNOR

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THE OKLAHOMA STATE CW TRAFFIC NET, 0LZ HAD 218 CHECK-INS IN JULY AND HANDLED 55 MESSAGES.

OUR TUESDAY NIGHT NCS HAD TO RESIGN DUE TO THE PRESS OF HIS NEW BUSINESS. DICK, WBSKVQ IS STARTING A GEOLOGICAL CONSULTING BUSINESS AND WILL BE OUT OF TULSA CONSIDERABLY. WE WILL MISS HIM VERY MUCH?

CHECK-INS FOR JUNE ARE AS FOLLOWS:

| | | | | | | | | | |
|---------|-------|-------|-------|----|-----------|-------|--------|-------|----|
| W5ADC | . . . | REEDY | . . . | 17 | WB2KCG/5. | . . . | RANDY | . . . | 2 |
| W5BYC | . . . | ED | . . . | 5 | K5JGZ | . . . | LEE | . . . | 2 |
| WBSKGP | . . . | KEVIN | . . . | 7 | WB5LHG | . . . | AL | . . . | 7 |
| WBS EAY | . . . | FAY | . . . | 17 | W5YZA | . . . | RUSS | . . . | 1 |
| W5FW | . . . | DICK | . . . | 7 | K5QHM | . . . | HOWARD | . . . | 1 |
| K5OCX | . . . | BILL | . . . | 3 | WB5NKC | . . . | ARLEY | . . . | 2 |
| WBSHQX | . . . | MIKE | . . . | 11 | WB5NKD | . . . | PAT | . . . | 25 |
| WA5JGU | . . . | CHAS | . . . | 7 | WB5NXO | . . . | BILL | . . . | 27 |
| WBSKVQ | . . . | DICK | . . . | 3 | WA5OGC | . . . | OLIVER | . . . | 11 |
| WBSOYU | . . . | TED | . . . | 11 | WB5PVL | . . . | PHIL | . . . | 11 |
| WBSRLR | . . . | DAVE | . . . | 11 | W5RB | . . . | GIL | . . . | 22 |
| K5ZDB | . . . | WALT | . . . | 1 | | | | | |

IT WAS A PLEASURE TO VISIT HOWARD, K5QHM. HE HAS HEATH GEAR AND A VERY BUSINESS LIKE STATION. HOWARD HOLDS 1ST. TELEGRAPH AND 1ST. TELEPHONE TICKETS IN ADDITION TO AMATEUR EXTRA CLASS. HE ALSO MAKES A FINE CUP OF COFFEE! I AM HOPING THAT HE WILL START CHECKING INTO THE CW NET.

THE CONDITIONS FOR THE REGION NET, RNS ARE A LITTLE ROUGH. THE MOVE TO 7095 KHZ FOR THE SUMMER PUT US INTO A BUNCH OR A-3 QRM. IF YOU DON'T HEAR RNS EARLY SESSION ON 7095, THEY MAY HAVE QSY-ED BACK TO 3645 KHZ FOR THAT SESSION. BY THE TIME JULY AND AUGUST ARE OVER, THE OPERATORS WILL BE LOOKING FORWARD TO GOING BACK TO 80 METERS.

AN 0LZ NET CERTIFICATE WAS MAILED TO PHIL, WB5PVL ON JUNE 4TH. HE IS OUR SUNDAY NIGHT NCS.

THAT WRAPS IT UP FOR JUNE. HOPE TO SEE YOU ON THE NET.
GIL, W5RB

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RADIO ELECTRONICS



ASSOCIATE STORE



- CITIZEN BAND RADIOS
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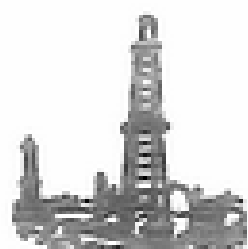
WE HAVE MOVED



5858 NW 50TH

789-1430





MID-OKLAHOMA REPEATER INC.

DIRECTION FINDER Pat, WB5JYK, submitted two sketches of a direction finding system for printing in the C & E. I have redrawn them and they are on pages 29 and 30 of this issue. Some omissions were made and there could also be some errors due to the poor copy available. Because of the importance of direction finding right now, the information is presented with the hope that it will do some good to those working in this area. + + + + WA5RAQ - - - -

AMATEUR CAR TAGS Your APPLICATION FOR AMATEUR RADIO OPERATOR IDENTIFICATION PLATES must be filed before October 1. Use form OTC 718-R and comply with instructions therein. The fee is \$2.30 in addition to the regular car tag fee.

NO MORI MEETING IN AUGUST because of the close proximity of HAM HOLIDAY. Everything is shaping up great for HAM HOLIDAY which will be on August 7 & 8.

LICENSE CLASSES will be starting up soon, maybe September. Two of those present at the July meeting testified that previous classes made it possible for them to get their licenses. Contact JOE, WA5TRS, if you want to help instruct.

NEW REPEATER DIRECTORIES FREE TO ARRL MEMBERS. From July, 1976 QST: "New Repeater Directories are now ready, complete with information on over 2000 'machines!' This year the directory will be furnished without charge (FREE!) as an ARRL membership service. For your free copy by first class mail send an s.a.s.e. of at least 6 X 9 inches with 46¢ U.S. postage, third-class mailing requires 24¢ postage. . . for one copy, of course. "

From July, 1976 CHEER, courtesy of W5PDH:

OUR FLAG

As red, white and blue stripes and 50 stars furl in the breeze it might be appropriate to ask: "What does it stand for?"

It is Francis Scott Key standing aboard a British vessel on September 13, 1814 watching the Redcoats pouring 1,500 to 1,800 shells, rockets and bombs on Fort Henry ...

It is Betsy Ross sewing together the first flag for the Revolutionary Army...The colors of the Union Army flying in the Civil War; the charge up San Juan Hill.

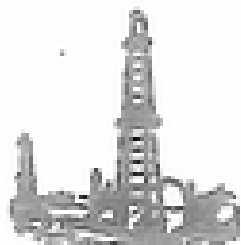
It is the Argonne, the Boxer Rebellion, Chateau Thierry, the war with Mexico and the banner of yellow-ribboned calvarymen chasing Indians in the great Southwest or pursuing Pancho Villa into Mexican mountains.

It is the symbolic raising of the flag at Iwo Jima in World War II and its unfurling over the liberated cities of Italy, France and Germany.

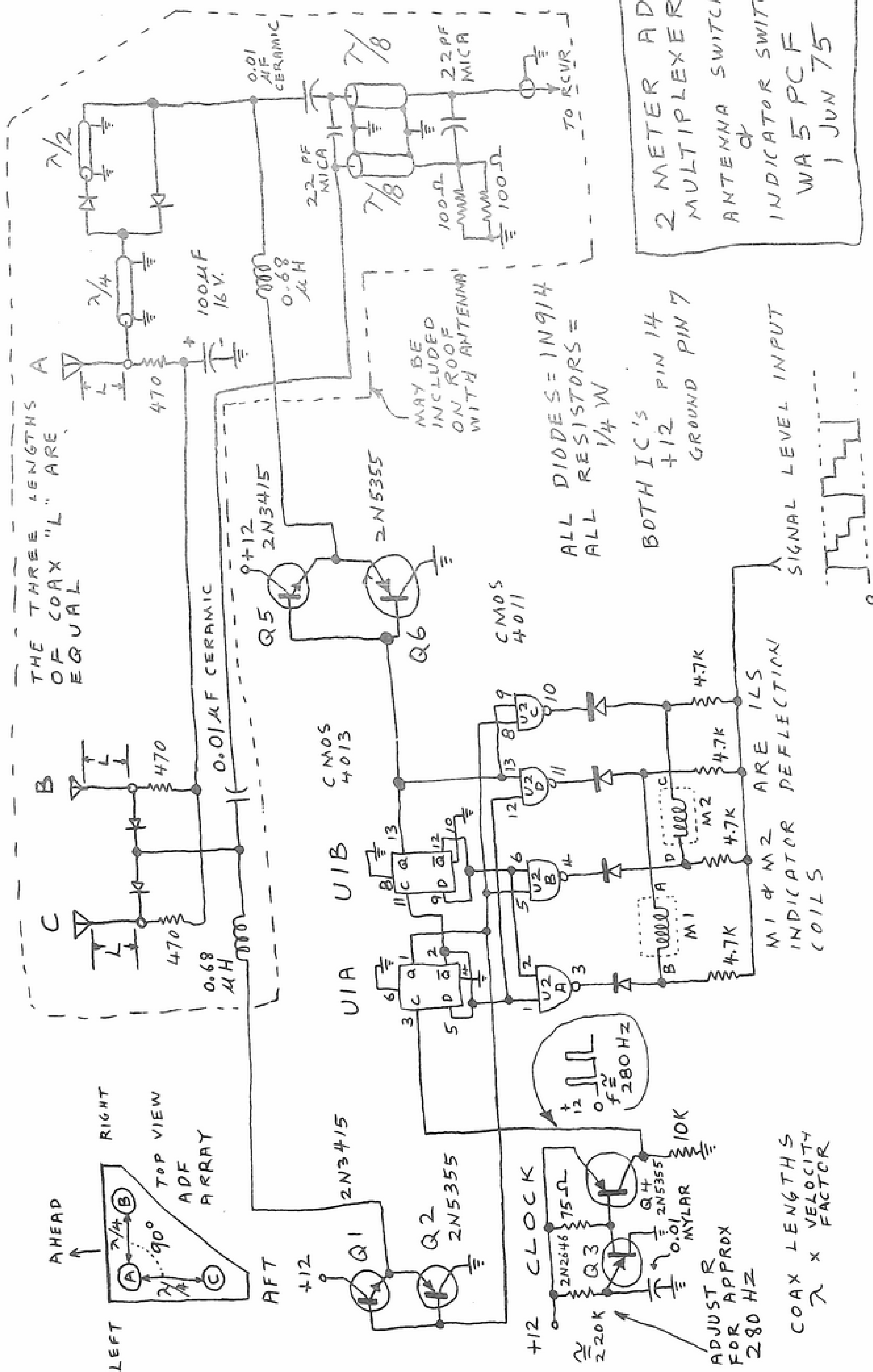
It's the love of the country for which it stands; the love of the land itself, the love of liberty, freedom and the symbol of what humanity may do when wars are over...

In all conflicts there have been some Americans who have disagreed; a few who were traitors. But that very flag that they have disgraced or desecrated is the symbol of their American right to disagree. -

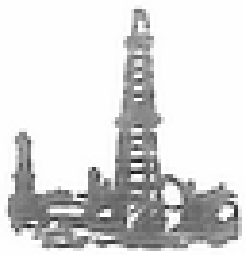
FOR SALE: SB-102 in excellent condition with A.C. power supply and speaker. \$400. SB-220 2kw linear, like new. \$400. Coy, K5LMG, 691-1194.



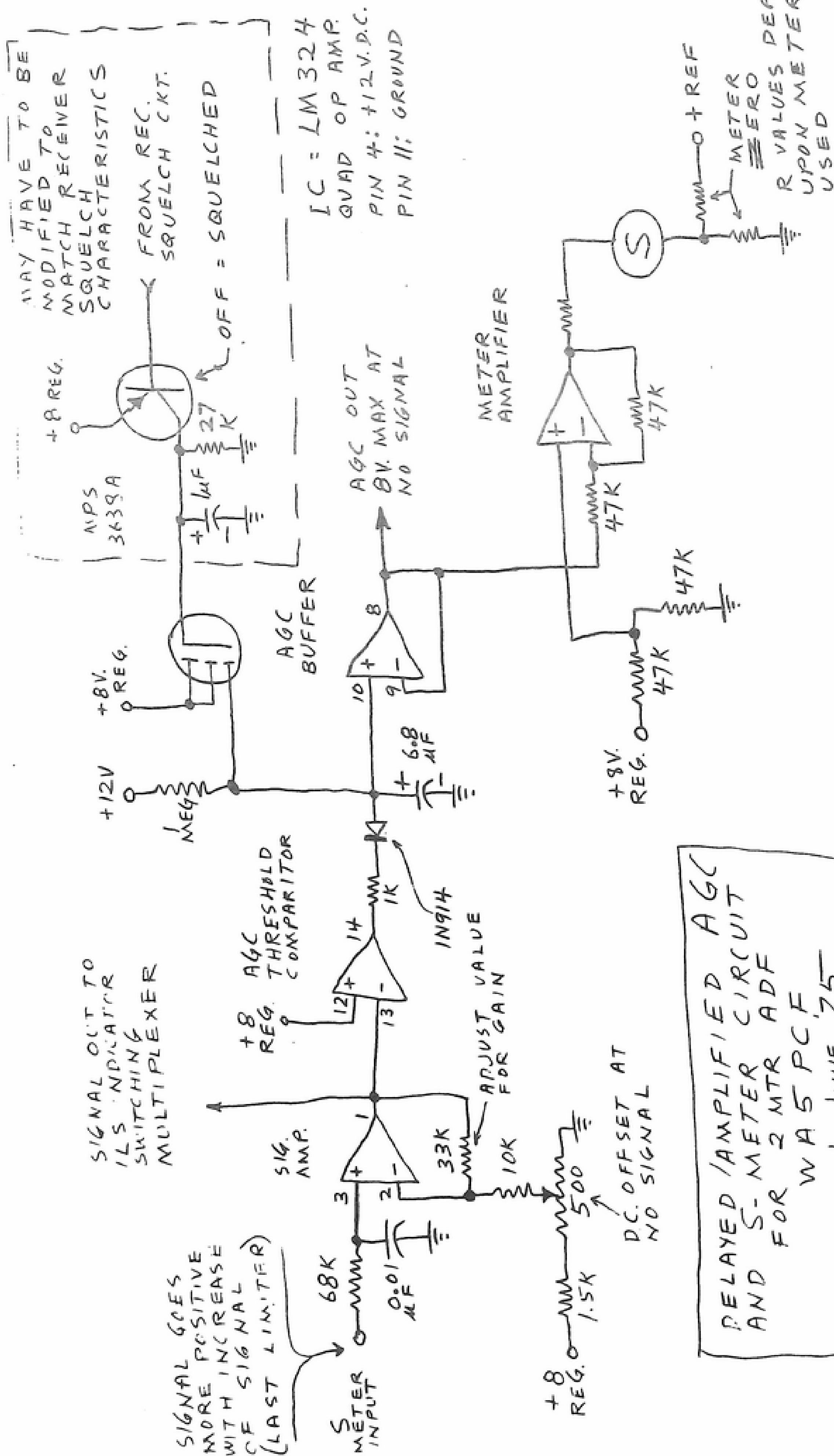
MID-OKLAHOMA REPEATOR INC.



2 METER ADF
MULTIPLIER
ANTENNA SWITCHING
or
INDICATOR SWITCHING
WA 5 PCF
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MID-OKLAHOMA REPEATER INC.





A BIT OF HUMOR

HOW TO ACQUIRE AN XYL PAINLESSLY

THIS ARTICLE IS BEING WRITTEN IN HOPES OF HELPING SOME POOR, UNFORTUNATE HAM WHO IS AN UNWILLING BACHELOR TO ACQUIRE AN XYL. I HAVE EMPLOYED IT VERY SUCCESSFULLY, ALTHOUGH SOMETHING WENT WRONG AT THE LAST MINUTE. FOR THE HAM WITH A YL WHO WISHES TO REMAIN A BACHELOR, APPLY THESE STEPS IN REVERSE.

IF YOU ARE A REASONABLY YOUNG, AND NOT TOO REPULSIVE OM, YOU HAVE AN EXCELLENT CHANCE OF WINNING THE HAND OF A YL, THERE ARE SEVERAL STEPS TO BE TAKEN, HOWEVER, BEFORE YOU START YOUR SEARCH.

AFTER SEEING TO IT THAT YOU YOURSELF ARE ABOVE REPROACH IN ALL RESPECTS, START RENOVATING YOUR SHACK, CHARIOT ETC. REMOVE THE MOBILE RIG AND STORE IT AWAY FOR FUTURE USE. THIS OF COURSE IS TO AVOID FRIGHTENING A YL OFF, BEFORE YOU EVEN GET STARTED. MOBILE RIGS ARE NOTORIOUS FOR DISCOURAGING YLS.

IN THIS COUNTRY, THERE ARE LAWS AGAINST KIDNAPPING, AND TO INDULGE IN THIS ACTIVITY MAY EARN YOU THE OPPORTUNITY TO OPERATE AS W3XYZ/P, P STANDING FOR PRISON. THEREFORE, YOU MUST USE A MORE SUBTLE APPROACH.

WANDER AROUND YOUR OFFICE, RADIO CLUB MEETING, COMPANY PICNIC, ETC AND TAKE STOCK OF THE SITUATION. DECIDE WHAT TYPE OF YL YOU WOULD LIKE TO MEET. AFTER YOU HAVE DISCOVERED WHICH TYPE OF YL YOU WISH TO ATTRACT, YOU ARE READY FOR BATTLE. HERE IS HOW TO GO ABOUT IT FOR BEST RESULTS.

USE ANY POSSIBLE MEANS TO MEET A YL OF THIS TYPE. A MARRIED MEMBER OF YOUR RADIO CLUB MIGHT BE WILLING TO INTRODUCE YOU TO AN OLD FLAME. PERHAPS HIS XYL HAS A FEW SINGLE GIBL FRIENDS SHW COULD INVITE OVER FOR DINNER SOME EVENING. THERE ARE UNLIMITED POSSIBILITIES. WHEN YOU MEET THE YL, BE SURE TO MAKE A LASTING IMPRESSSION. TURN ON THE CHARM, ACT A BIT SHY, AND LET HER BELEIVE THAT THIS WAS ALL HER IDEA. AT THIS POINT, DECIDE ONCE AND FOR ALL, WHETHER YOU WISH TO WITHDRAW OR NOT. AFTER THIS IT MAY BE TOO LATE.

ONCE YOU HAVE ESTABLISHED A SOLID FRIENDSHIP, THE BATTLE IS ON. I HAVE FOUND BY EXPERIENCE THAT IF YOU CAN MAKE HER FEEL SORY FOR YOU, YOUR CHANCES ARE GREATLY IMPROVED. A WOMANS SYMPATHY CAN CAN BE ALMOST UNBEARABLE. THERE ARE MANY WAYS TO DO THIS. A CW MAN MIGHT SUDDENLY DEVELOP A TWITCH IN HIS WRIST, OR POUND BRASS WITH AN IMAGINARY KEY AT DINNER. WHEN SHE NOTICES THIS, AND AND ASKS WHAT YOU ARE DOING, LOOK SHOCKED AND SAY "OH IT'S NOTHING. DON'T WORRY ABOUT IT". BE SURE TO CREATE THE IMPRESSION THAT YOU DON'T WISH TO TALK ABOUT IT. REPEAT THE PERFORMANCE FROM TIME TO TIME, AND THEN FINALLY BREAK DOWN AND TELL HER THAT YOU ARE A HAM OPERATOR. DON'T CARRY THIS TOO FAR, AS SHE MAY THINK YOU ARE REALLY OUT OF THIS WORLD. FOR THE PHONE MAN AN ALTERNATE SOLUTION MIGHT BE TO MURMUR HI OCCASIONALLY. BE SURE TO TIME THINGS RIGHT, SO THERE CAN BE NO DOUBT IN HER MIND THAT YOU WERE NOT TALKING TO ANYONE IN PARTICULAR.

BE CERTAIN TO MAKE IT LOOK LIKE YOU ARE INTOWARDS YOU, AND WOULD NOT DREAM OF HURTING YOUR FEELINGS. NOW YOU ARE READY FOR STEP NUMBER TWO. INVITE HER UP TO THE SHACK, SO YOU CAN SHOW HER YOUR STATION. IF YOU CARE TO OPERATE AT ALL, BE SURE TO USE PHONE SINCE IT MAKES MORE OF AN IMPERSSION ON UNINFORMED PEOPLE.



(HOW TO ACQUIRE AN XYL CONT)

BEFORE SHE ARRIVES, PREPARE THE SHACK FOR HER VISIT, SO THERE WILL BE NO DOUBT IN HER MIND THAT YOU NEED A WOMAN IN THE PLACE. HANG ALL OF YOUR CERTIFICATES UNEVENLY, THROW A FEW ISSUES OF A RADIO MAGAZINE AROUND ON THE FLOOR, SPREAD STRAY QSL CARDS AROUND THE ROOM, AND PUT A FEW EMPTY BOTTLES OR CANS ON THE OPERATION DESK. YOU MIGHT ALSO TAKE DOWN THE CURTAINS AND REMOVE THE LAMPSHADES SO SHE CAN SEE WHAT A DREARY, BLEAK LIFE YOU REALLY HAVE.

BE CERTAIN TO MAKE IT LOOK LIKE YOU ARE INVITING HER ON THE SPUR OF THE MOMENT. THEN SHE WILL KNOW THAT YOU HAVE NOT HAD TIME TO PREPARE FOR HER VISIT. WHEN YOU SHOW HER AROUND, APOLOGIZE FOR THE APPEARANCE OF SHACK, STARE OFF IN THE DISTANCE, AND SAY SOMETHING LIKE "IWISH THIS PLACE WAS NICER, BUT I'M SO LONELY HERE, I CEN'T SEEM TO DO ANYTHING TO MAKE IT MORE COMFORTABLE AND HOMEY." IF YOU SOB SLIGHTLY, OR LET A FEW TEARS RUN DOWN YOUR CHEEK, IT WILL HELP IMMENSELY.

I MIGHT MENTION, BEFORE YOU FOLLOW STEP TWO, THAT THERE MAY BE REASONS TO REGRET IT LATER. A CLOSE FRIEND OF MINE RECENTLY SUCCEEDED IN CONVERTING A YL TO XYL. WHEN HE RETURNED FROM WORK ONE EVENING HE FOUND THAT HIS CERTIFICATES HAD BEEN TAKEN DOWN, AND REPLACED BY LANDSCAPES AND SEA VIEWS. THE MESSY ANTENNA TUNER HAD BEEN TAKEN DOWN AND STORED IN THE ATTIC. HIS OLD LOG BOOKS, WHICH LOOKED UNSIGHTLY DUE TO THE DIFFERENT COLORED INKS USED TO FILL THEM OUT, HAD BEEN THROWN OUT AND REPLACED BY CLEAN NEW ONES. THINGS WOULD HAVE BEEN FORGIVABLE, BUT THE NEW XYL HAD PAINTED HIS NICE NEW RECEIVER BLACK TO MATCH THE OLD TRANSMITTER. WHILE HE WAS IN THE HOSPITAL RECOVERING, HIS OW DECIDED HAM RADIO WAS BAD FOR HIS HEALTH AND SOLD ALL OF HIS EQUIPMENT.

IF YOU HAVE GOTTEN THIS FAR NOW IS THE TIME TO MAKE YOUR PITCH. DEVOTE LESS AND LESS TIME TO YOUR FAVORITE BAND, AND MORE TIME TO THE YL. START CLEANING UP YOUR SHACK AND CHARICL, ETC., SO SHE CAN SEE THAT YOU ARE TRYING TO TURN OVER A NEW LEAF IN ORDER TO BE WORTHY OF HER. IT MAY BE WISE TO RE-INSTALL THE MOBILE RIG AT THIS TIME, SO THAT SHE CAN GET ACCUSTOMED TO IT. IF YOU WAIT UNTIL AFTER THE CEREMONY, SHE MAY LAY DOWN THE LAW.

LET THINGS CONTINUE AS THEY ARE FOR A FEW WEEKS, WHILE YOU DEVOTE SOME TIME AND CASH TO THE PURCHASE OF NEW EQUIPMENT YOU MAY NEED. BE SURE TO DO THIS NOW SINCE IT WILL BE A LONG TIME BEFORE YOU BUY NEW GEAR, AFTER THE CEREMONY. REMOVE A FEW KNOBS, SCRATCH THE CABINET, AND STORE IN A DUSTY PLACE. LATER, WHEN YOU REMOVE THE GEAR FROM IT'S HIDING PLACE YOU CAN CLAIM THAT IT IS JUST SOME OLD STUFF WHICH HAS BEEN LAYING AROUND FOR AGES.

NOW YOU ARE READY TO POP THE QUESTION. DRIVE TO A DARK, LONELY SPOT AND KEEP YOUR MOUTH SHUT. CLAM UP COMPLETELY, AND STARE OFF IN THE DISTANCE. YOU SHOULD BE QUITE PROFICIENT AT THIS, BY NOW. WHEN SHE ASKS WHY YOU ARE SO QUIET, ASSURE HER THAT IT IS NOTHING AT ALL, AND RESUME STARING, INVARIABLY, SHE WILL ASK AGAIN.. NOW YOU CAN EXPLAIN THAT YOU CARE SO MUCH FOR ETC., BUT THAT YOU CAN'T BELEIVE THAT ANYONE AS NICE AS HER COULD POSSIBLY CARE FOR YOU. IF SHE IS AT ALL NORMAL, SHE WILL ASSURE YOU OF YOUR FEELINGS, AND YOU CAN POP THE BIH QUESTION WHILE SHE IS FEELING ROMANTIC AND SYMPATHETIC. AT THIS TIME IF YOUR APPROACH HAS BEEN RIGHT, YOU STAND A VERY EXCELLENT CHANCE OF GETTING A FAVORABLEANSWERI IMMEDIATELY. WHEN YOU HAVE THE ANSWER YOU WANT, TAKE HER HOME BEFORE SHE REALIZES WHAT SHE HAS LET HERSELF IN FOR, AND PLAN THE CEREMONY AS SOON AS POSSIBLE.

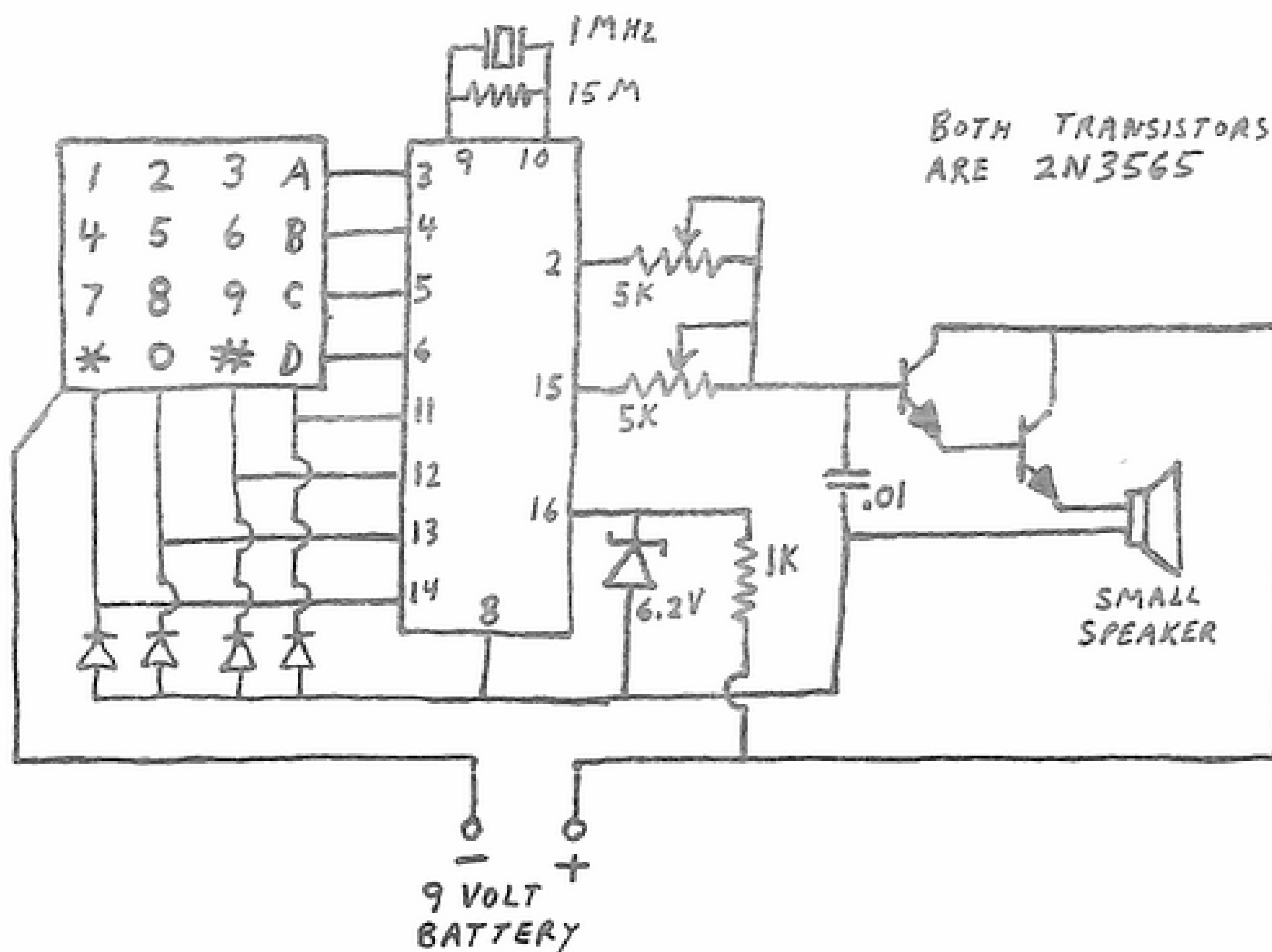
NOW MIGHT BE AN EXEELLENT TIME TO SIT DOWN AND CRY, SINCE YOUR DAYS OF DX CONTESTS, QSO PARTIES, AND OTHER ACTIVITIES MAY BE CURTAILED FOR SOME TIME TO COME.

TAKEN FROM AN ARTICLE WRITTEN BY KH6CMM

ACOUSTIC COUPLED TOUCH TONE

THIS ACOUSTIC COUPLED TOUCH TONE PAD IS SIMMULAR TO THE ONE THAT APP-
EARED IN THE MARCH C&E. THE MAJOR DIFFERENCE IS THAT THE ON/OFF
SWITCH IS NOT REQUIRED AS CURRENT FLOWS ONLY WHILE A KEY IS PRESSED.

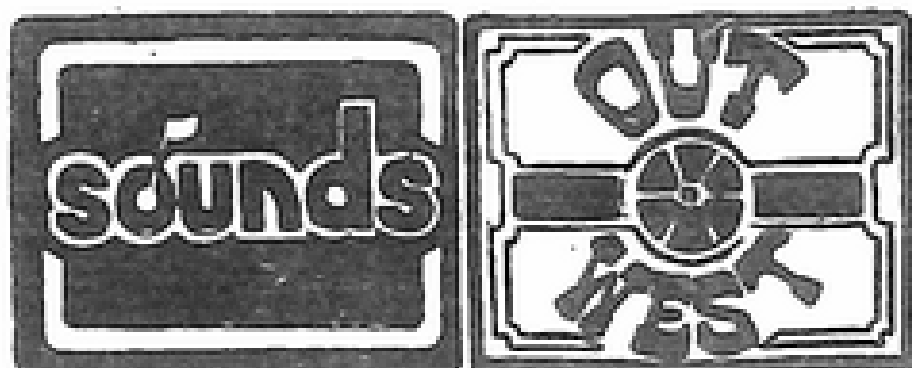
ANOTHER DIFFERENCE IS THAT IT REQUIRES FEWER PARTS AND CAN BE BUILT
IN A SMALLER CABINET. RAY WA5LWZ



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THE ZANY NEWS FREQUENCY

Joe, WA5ZNF

TULSA HAMS FOUGHT CITY HALL - AND WON - You will probably recall that CORA C&E published a story about the threatened ordinance in Tulsa that would limit all towers to 26 feet. After about eight months the problem has been "solved". I quote from TRO We are now allowed to erect a 60 foot structure. (The decision was in terms of aggregate height.) An exception was granted to us allowing as much as 10' vertical above the 60' level. That is better but see the letter from Jim, K5LAD elsewhere for a full story.

Congratulations to the Tulsa amateurs who stood up for their rights.

* * * * *

DO YOU NEED A "COMPLETE" ROSTER OF AREA AMATEURS? - - I have a few copies left over from the June issue and while they last you can have one by sending a business size s.a.s.e OR 25¢ to handle mailing costs.

* * * * *

DO A FRIEND A FAVOR - - Frank, WB5JBL, came up with a good idea the other night. There are quite a few amateurs in the area who do not belong to a CORA affiliated club, for whatever reason, who might have their interest re-kindled if they received the CORA Collector & Emitter each month. Since they don't get it why not invest \$1.50 for a years subscription for them. He backed the idea up by paying for a subscription for someone. That sounds like a good way to spread the word to me, I even shook loose and subscribed for someone. If you have a friend or acquaintance who is worth a dollar and a half contact me and if he isn't a subscriber they will be added to the list when the \$1.50 shows up. How about serious CB'ers?

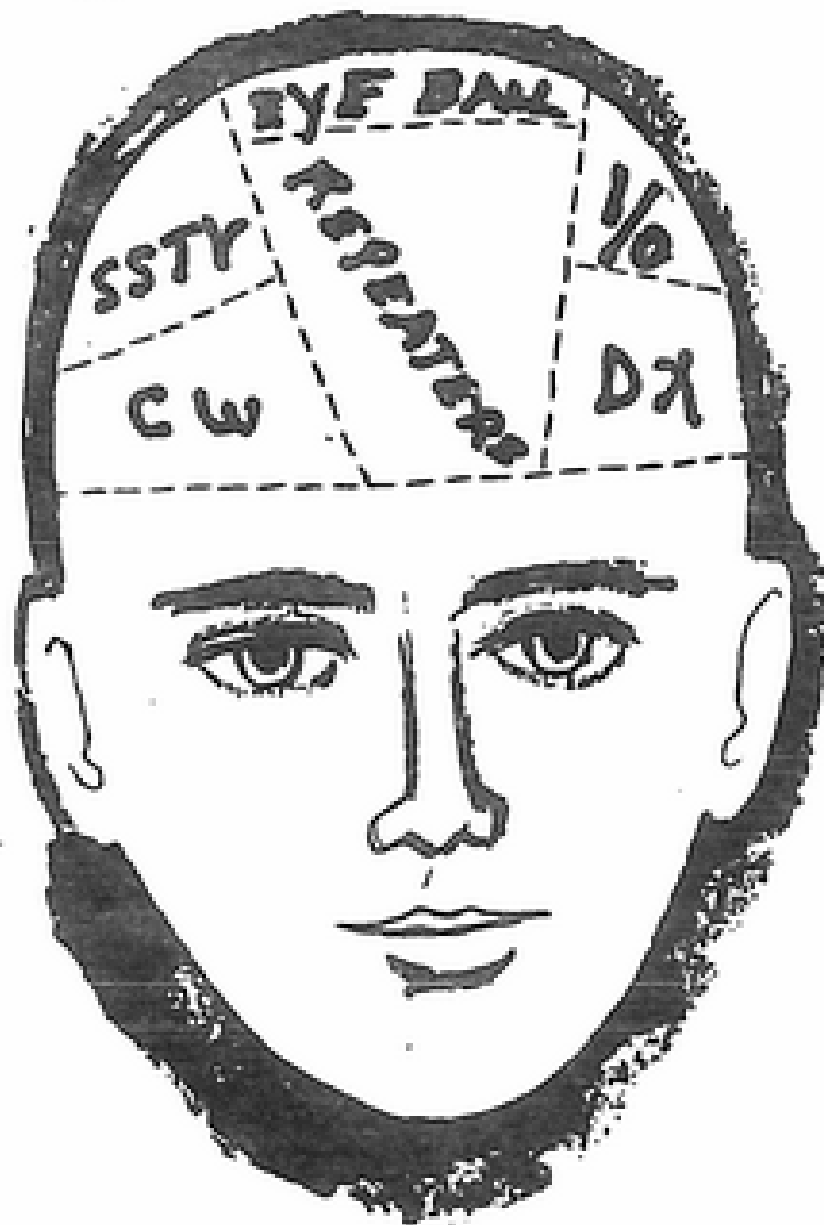
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HAM HOLIDAY IS JUST A FEW DAYS AWAY - - So if you haven't pre-registered yet you still have time, there is a form in this issue, and who knows, you might be the one to carry that Wilson Handy Talkie home. (PAGE 2)

Area club papers have been spreading the word, The Pittsburg Repeater Parer called it to everyones attention and the Chisholm Trail ARC "Turning Rod" even re-printed a copy of a HAM HOLIDAY pre-registration form. According to the Altus bulletin they will be represented. Also a story about forming a FUZZ BUZZ operation.

* * * * *

CALL SIGN LICENSE PLATES - - Since I had plates last year the tax commission sent me an application for '77 plates. I bought a money order for \$2.30 and mailed it in. If you can't find an application at club meetings write to Okla Tax Commission, Motor vehicle Dept., 2501 Lincoln Blvd, Okla City OK 73194 and they will send you one. One guy wouldn't get call sign plates because it advertised that he had a mobile radio in his car. Som CB fancier who didn't know the difference but saw an antenna, tore his 2 meter rig out by the roots. If they know it is "ham" maybe they will leave it alone. You have until Oct. 1. Send a copy of your license. Under the new structure it appears that any renewable license class, except Novice, is eligible.



WHAT DO YOU HAVE ON YOUR MIND ?

At the left is a 'scanograph' of the mind of a very wide interest amateurs mind. I'm sure you know a few who are interested in 'everything' and a few who are only interested in a single phase, say CW or DX. From the eyeballing I have done most fall somewhere in the middle and are interested in several phases. Which brings up this point. We need someone to submit on a regular, or irregular, schedule a column on CW (Lots of people are scared of it), on DX (I would be an avid reader as would others I have talked to), on SSTV, on I/O (Microcomputers) and just plain eyeballing (constructive gossip - who has been doing what?) Bill, WA5RAQ has offered to help you on style and wording. If it isn't libelous and you sign your name and call we will print it.

OKLAHOMA

HAM HOLIDAY

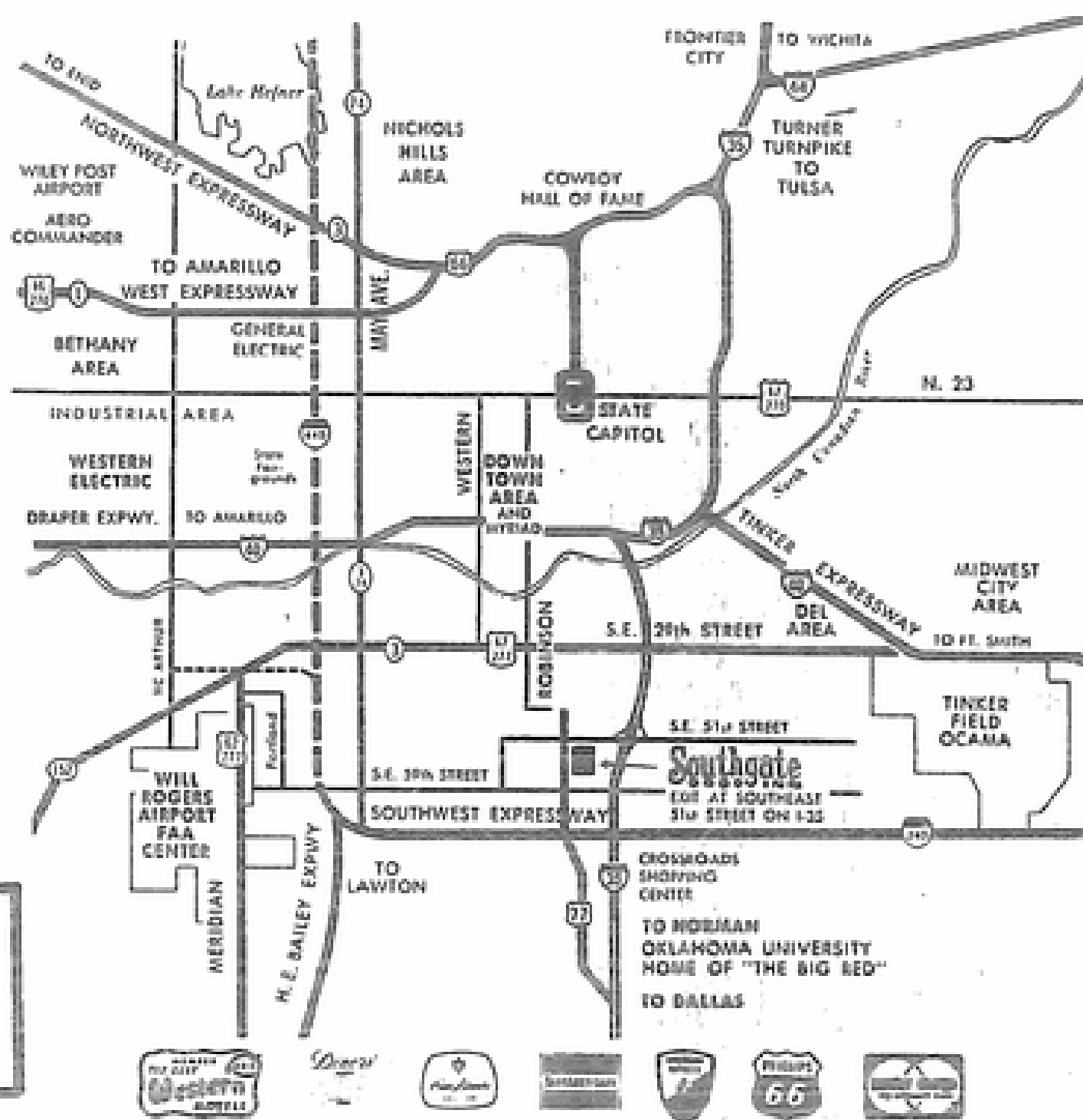
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HOLIDAY NOTES: - -

As in the past there will be awards galore (CORA, Inc. is strictly NON-PROFIT, the clubs don't make a dime and neither does anyone else.) - - In addition to their being eligible for the general awards there will be more awards -- just for the gals - - ladies awards - -not radio gear.

As always awards will be made after each program during HAM HOLIDAY with the really big ones going Sunday after lunch. The PRE-REGISTRATION AWARD IS A ONE-TICKET DRAWING. You or your ticket do not have to be present. We will get it to you, someday. All the other awards will require your identification ticket to be presented - so - if something prevents your being present leave the ticket with a friend.

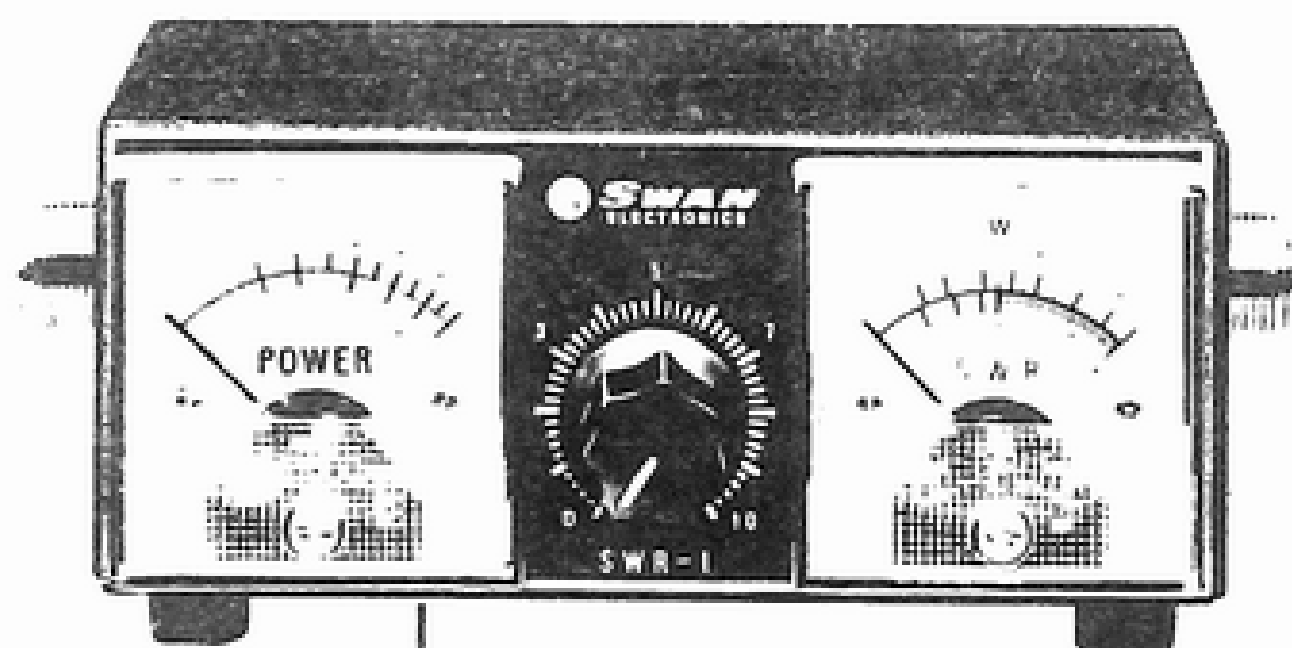
There are a couple of changes from previous years - - If you want Flea Market space you will have to reserve it on a pre-registration slip - - there is one in this issue.

You may eat ala carte in the restaurant at any time, in case you are dieting or can't make the buffet line.

DO IT TODAY - PRE-REGISTER FOR HAM HOLIDAY

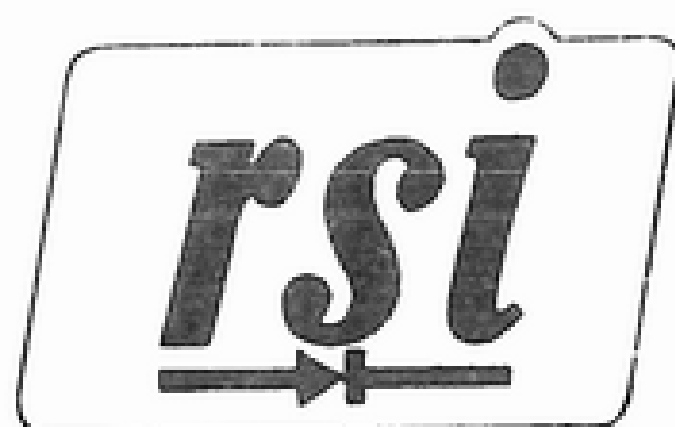
| AUGUST HAM HAPPENINGS | | | | | | |
|--------------------------|-------------------|---------------------------|--|-------------------|---------------------------|----------------|
| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
| ARMY MARS LAST DAY | 2 | NO MORJ | 4 | 5 | NO ALARC | HAM HOLIDAY |
| HAM HOLIDAY | 9 | 10 | 11 | 12 | LUCKY 13 | 14 |
| 15 | 16 | AP UA TT OC H | 18 | 19 | WATER MELON FEST | 21 |
| 22 | 23 EDIT C+E | 24 | 25 | 26 MAIL C+E | CORA MEETS ELECTION | 28 |
| 29 | 30 | 31 | SEE PAGE 2 AND CLUB SECTIONS FOR DETAILS HAMARANA - TEXOMA - OCT 29-31 | | | |

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