

ORC NEWS

MARCH 10, 1982

FROM THE PREZ - WD9FQW

It was good to see so many people having such a good time at the Post Everything Party. It was done very well and a big note of appreciation to Russ & Marty for a great job. Also many thanks to the local emporium - Amateur Electronic Supply - for the door prize donations. If you weren't there, you may well wonder: who was served Gerber food? Who made two hundred autopatches in less than a year? Who is holder of the "Turkey" award? Sorry, I won't tell, but I'll probably see you at the party next year.

I would now like to request input from some of you regarding these proposals:

- 1) Club Station & Possible location (DC bands - remember? Swan 350?? -Ed)
- 2) Group assistance team for antennas, etc.
- 3) 450 MHz. operation - perhaps a repeater
- 4) Club Contact award for working 5-10 club members on 75,40,20,15 or 10 M.

Last note: ARRL memberships are available through the club - support both the ARRL and OZRAD!

73 - Mike Behlen - WD9FQW

REPEATER NEWS & VIEWS - KA9DDN

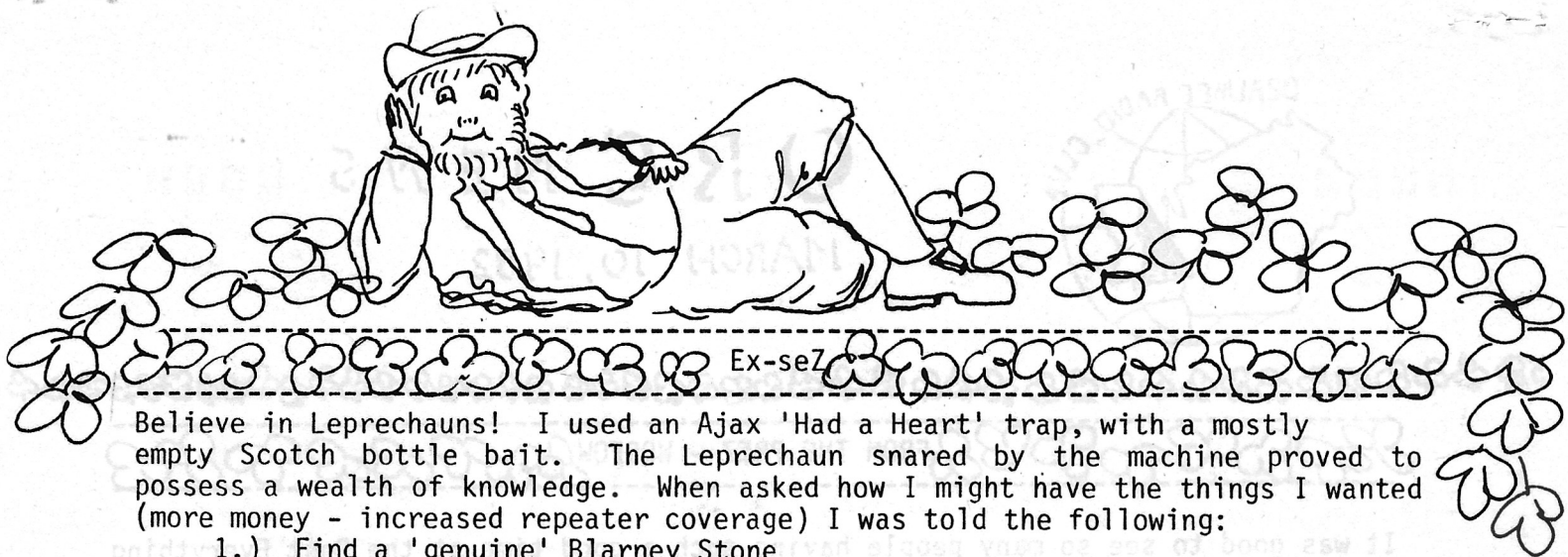
Following the last ORC meeting, the Repeater Group purchased and installed an ICOM IC-30A UHF transceiver for our repeater control link. Thanks to Russ, WB9PAS, for finding the radio for us through AES. He made sure it was in top-notch shape. The radio Russ loaned to the club has been returned to him. Thanks again, Russ.

Our emergency autopatch (911 access) developed a minor bug in the dial tone detector circuit. Occasionally, the detector frequency would drift slightly with temperature changes and would fail to trigger the autodialer. We added an amplifier to the circuit which greatly improved the detector bandwidth to allow for extensive drift while still providing reliable performance. Since the modification was made, there have been no failures of the system noted.

Any club members who would like to voice an opinion about how the repeater development should progress, etc., should contact me or Mike (WD9FQW). An informal "steering committee" will meet from time to time as well. Anyone interested is welcomed at these meetings. Listen to the repeater (particularly on Tuesday nets) to find out when they will be held.

73, Skip

Note from WA9UDZ: It has come to my attention that several instances of inappropriate use of the 911 autodialer have occurred. PLEASE NOTE: ONLY EMERGENCY TRAFFIC, DEFINED AS LIFE OR PROPERTY IN DANGER, are to be called into the sheriff in this manner. Stalled vehicles out of traffic do not qualify for emergency autopatch, nor should highway service calls be put through via this mode, since such traffic is properly conducted on the business band.



Believe in Leprechauns! I used an Ajax 'Had a Heart' trap, with a mostly empty Scotch bottle bait. The Leprechaun snared by the machine proved to possess a wealth of knowledge. When asked how I might have the things I wanted (more money - increased repeater coverage) I was told the following:

- 1.) Find a 'genuine' Blarney Stone
- 2.) Rub it while chanting my wishes in Iambic Pentameter

When I told him that just capturing him was supposed to end my money woes he told me that was just so much "green" journalism and full of inaccuracies. Well my mother didn't raise any fools, so I squeezed him real hard, but no coins. I did determine the whereabouts of the nearest 'genuine' stone. Using a borrowed Yiddish curse I cautioned my captive on the consequences of sneaking a fib past me. Feeling confident I could catch him again I released my prisoner and proceeded to Mill Pond Park to polish a rock.

Well I'm here to tell you that I sure must have rubbed Blarney the wrong way - I not only can't afford to re-bait the trap, but shawn and begorra the repeater ain't hearing nun too gud neither.

TABerg - WA9AWO

BITS AND PIECES

One manufacturer estimates that 1,700 commercially made home satellite receive dishes are shipped by industry each month (W5YI Report).

The SOVEREIGN AND MILITARY ORDER OF MALTA (SMOM) is the newest country on the DXCC rolls. It is a walled enclave about half the size of a football field, and has a population of 80 (W5YI Report).

The FCC has declined to change the Repeater Rules to relieve the repeater trustee of responsibility for all transmissions. Therefore, our trustee will continue to receive an earful from Chicago if equipment (or members) go haywire on the air.

Amateur interference to and from consumer equipment and CATV installations is becoming a serious problem. The FCC has recently relaxed its Rules to allow frequencies above 70 MHz. to be used for burglar alarms and remote control devices, and is considering the use of these same frequencies for cordless telephones. The FCC also has under consideration a Rulemaking which would allow the permissible radiation from a cable system to increase substantially. Several municipalities are considering outlawing amateur two-meter activity because of Cable Interference as a "Public Nuisance." Clearly, these matters need our attention - perhaps O.R.C., could prepare a position paper on this matter and send it to the ARRL for support in their various FCC petitions, and also to local newspapers so as to prevent "poisoning of the well" in the future.

Last month, the Berg household received a letter from N9AJ in (usually) sunny Florida. The cold snap earlier this year damaged his garden and papayas. One can tell where his priorities are. Letter received first of March advises that a fifty foot tower is now next to the residence and, with any luck at all, an antenna will populate it soon. More importantly, he has 15 gallons of tomato



wine started, with orange wine to follow, so it is safe to assume that the antenna farm will be toasted in fine fashion.

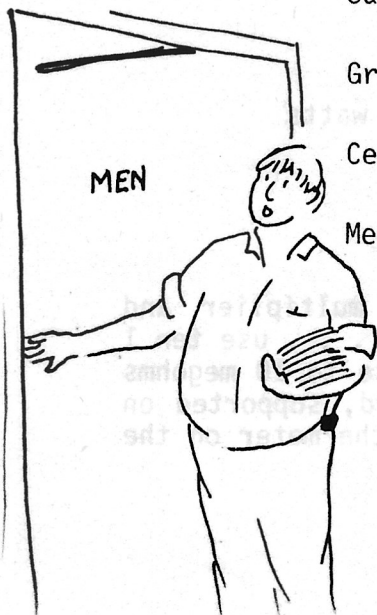
When will we be allowed to use the new WARC Bands? Best guess is about two years for 10.100 to 10.150. 18 and 24 MHz. will take about 2 years longer, since existing services have to be relocated (W5YI Report).

EMERGENCY GOVERNMENT REPORT WA9USA

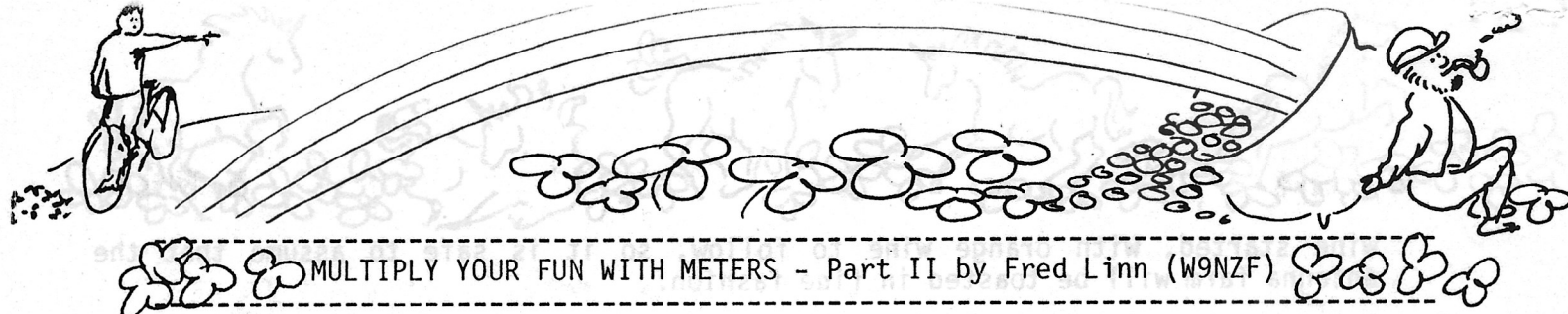
OZAUKEE COUNTY RACES RESPONSE TO POSSIBLE SPRING FLOODING - by Jeff Klopp (WA9USA) director of warning/communications for Ozaukee County Emergency Government:

The approach of Spring brings the possibility of river flooding in Ozaukee County, primarily near the banks of the Milwaukee River. In the event of flooding, it is quite possible that the RACES group will be activated. Since our RACES group has never participated in such an operation, I will try to give you some idea concerning the extent of our involvement. Our main responsibilities would be in assisting the county agencies of Ozaukee Rescue, Ozaukee Sheriff, and the Ozaukee County Highway Department. In addition, Waubeka, Saukville, Grafton and Mequon would possibly require our help. We would utilize the 37/97 repeater and/or simplex channels as needed. Since the Fire, Police, and Public Works Departments share the same frequencies, the radio channels will be extremely congested. Using our repeater system, we could alleviate some of the crowding. If anyone has any questions regarding this operation, please feel free to ask me. The following list of RACES OPS are in charge of their specific city/village/town:

- Belgium Village/Town: Ed Bach WA9BMA 285-3589
Joe Bauer W9WQ 692-2329
- Waubeka: Joe Bauer & Ed Bach
- Fredonia: Joe Baur & Ed Bach
- Port Washington: Harold Aagerup WD9ISS Port Police Pager System
Russ Schreiner WB9PAS Port Police Pager System
- Saukville: Brian Miller WB9NSZ 284-0029
Allen Albinger K9VNM 284-9650
- Grafton: Cesar Saroldi N9APC 377-8554
Mike Behlen WD9FQW 377-6577
- Cedarburg: Barry/Larraine Anderson WB9SFK/KA9HJR 375-0590
Mark Sebern WA9JMS 377-4154
- Mequon & Thiensville: Stan Kaplan WB9RQR 242-6966
Tom Oehler WB9LNL 242-4995

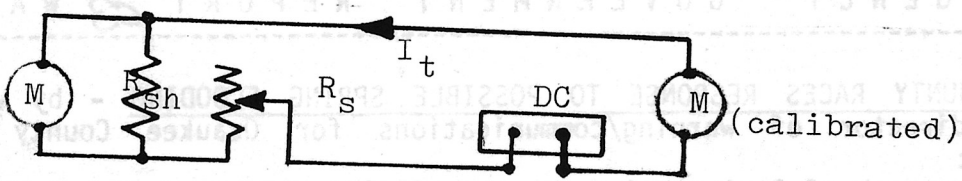


I know Barry said to take flyers everywhere you go, but this is ridiculous!



MULTIPLY YOUR FUN WITH METERS - Part II by Fred Linn (W9NZF)

This month, we will move from concepts to application of meter theory. Assume that your linear needs a 0-1 amp meter, and you happen to have a 0-100 ma meter on hand. Having determined its internal resistance by the methods of last month, one might reason as follows:



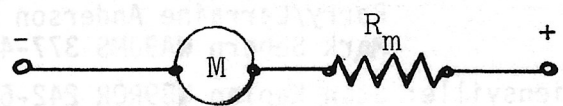
Since the meter movement will only carry 100 ma, the shunt must be able to carry the difference current of 1000-100=900 ma. If, for example, you found the movement to measure 27 ohms, then the shunt must be $27/9=3$ ohms. The current divides inversely as the resistance, BUT keep in mind that the shunt must be capable of carrying 900 ma without appreciable heating, since it will dissipate heat as follows: $W_{sh}=I^2R = (.9)^2 \times 3 = .81 \times 3 = 2.43$ watts.

The manufacture of shunts is a precision operation, and the unit should be made of a material which has a low temperature coefficient. If the builder is not equipped with an accurate resistance measuring device (Wheatstone Bridge, not an ohmmeter), there is a rough-and-ready means for shunt making. Using a meter capable of carrying one amp, connect your 100 ma meter across a low voltage supply. Make up a shunt out of small diameter magnet wire starting at a low value and adjusting upwards until the two meter readings match at about $\frac{1}{2}$ scale. Remember, as you increase the shunt resistance, you drive more current through the meter.

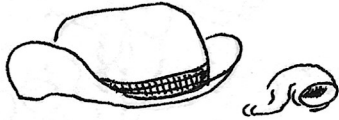
Now lets assume that you have need for a voltmeter to measure 1000 volts full scale, and that you have a 100 microamp meter available. The microammeter will pass .1 ma full scale, and in order to limit the current through the meter, we place a high resistance in series with it. This resistance is called a multiplier, and since its value is quite high, the resistance of the meter movement will be negligible.

$$R_{mult} = E/I = 100/.0001 = 10,000,000 \text{ ohms (10 megs)}$$

$$W_{mult} = I^2R = (.0001)^2 \times 10 \text{ megs} = .00000001 \times 10,000,000 = .1 \text{ watts}$$



NOTE: The entire 1000 volts will be impressed across the multiplier and consequently it should be made up of more than 1 resistance unit . . . use ten 1 meg resistors in series, selecting the 10 units to come as close to 10 megohms as possible. Mount this string on a small piece of perf board, supported on insulators which are suitable for the voltage involved. Place the meter on the



ground side of the multiplier so as to minimize the chance of breakdown and shock.

It should be realized that the older meters, Weston and others, were very good instruments, and although their advertised accuracy was $\pm 3\%$ of full scale, their makers took pride in making them much better than this. If the magnets have weakened over the years, you can always use the zero adjuster to produce accurate readings in the area of interest for any particular application.

73 -- W9NZF

MR. WIZARD'S TELECOMPUTING CORNER - WA9UDZ

The loss due to SWR on a transmission line is one of those subjects which are guaranteed to generate hours of debate should the matter be raised during an otherwise placid ragchew. Following is a short computer program (written in "Applese Basic," which will take the guesswork out of this subject.

```
5 HOME:PRINT "THIS PROGRAM CALCULATES THE TRANSMISSION LINE POWER LOSS DUE
  TO SWR":PRINT:INPUT "ENTER LENGTH OF SOLID DIELECTRIC RG-8 LINE
  EMPLOYED: ";L
6 INPUT "ENTER FREQUENCY IN USE: ";F:INPUT "ENTER TRANSMITTER POWER
  EMPLOYED: ";P:PRINT
7 ML=.166*SQR(F)+.003*F:REM CALCULATE DB/100' MATCHED LOSS
8 R=ML*(L/100):REM CALCULATE TOTAL MATCHED LOSS IN DB
9 PRINT "THE MATCHED LOSS IS ";R;" DB:INPUT "ENTER STANDING WAVE RATIO
  MEASURED ON LINE: ";S:PRINT:IF S lt 1 OR S gt 100 THEN 9
10 E=(.03*S**2.3)*SQR(R)+(.003*S**3)*R+R:REM APPROX TOTAL LOSS WITH SWR
12 PRINT "THE TOTAL LOSS UNDER THESE CONDITIONS IS ";E;"DB"
15 PL=10**(-E/10)*P:REM CALC POWER DELIVERED TO LOAD
20 PRINT "APPROXIMATELY ";PL;" WATTS IS DELIVERED TO THE LOAD"
30 PRINT:GOTO 6
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Note that the total loss calculated by this program is refers ONLY to power dissipated in the line, and does not address the power not absorbed by the load because of mismatch. In other words, we are addressing LINE efficiency, not LOAD efficiency. This program is designed around RG-8 type solid dielectric cable, but can be used for any cable by substituting the correct attenuation formula in line 7. In a future article, I will present a computer program which figures losses at all frequencies for various types of cable.

73 - WA9UDZ

WANTED & FOR SALE DEPARTMENT

WANTED - Information on Bendix Corp's R.F. Power & SWR meter. Have coupling unit model #263.3 : WD9FQW

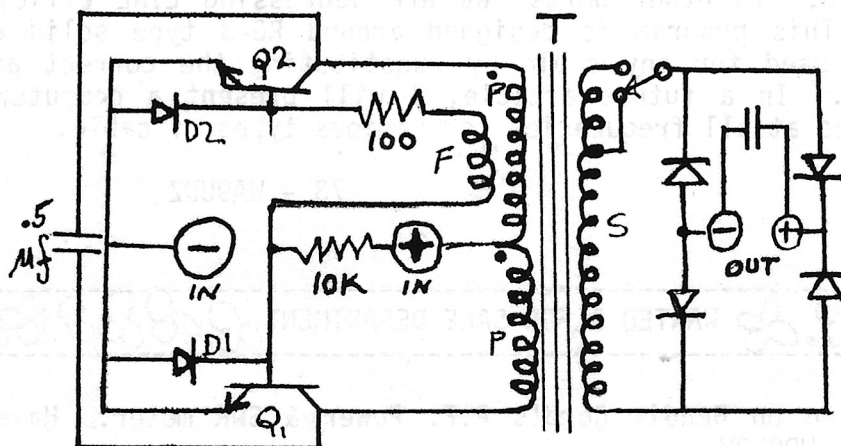


WANTED - One travel trailer or other container on wheels that can be used as a shelter for the secondary CW position on Field Day -- last weekend in June: W9WQ

FOR SALE - WANG Advanced Programming Desktop Computer/Calculator with cassette data and program storage - \$450 : WA9UDZ

SCHEMATIC OF THE MONTH - JOE BAUER W9WQ

Charge your 12 volt HT battery from your car battery! What is needed to accomplish this objective is a black box with red and white polka dots outside and a reasonable number of electronic parts on the inside. Essentially this DC/DC converter consists of two sections, one to change DC from the battery to AC so it can be stepped up with a transformer, then rectified to charge the NICADS. The schematic shows a pair of transistors hooked up as a push-pull oscillator. Turns ratio on the transformer is selected so that the rectified secondary voltage is high enough to provide the desired charging rate for the HT battery. Diodes across the base-emitter junctions eliminate the chances of reverse voltage breakdown, resulting in improved efficiency, lower base bias current, and longer life for the transistors. The 0.5 mf capacitor across the primary tunes the system to about 15 KHz, resulting in a reasonably clean sine wave. Transistors are NPN silicon, approximately 5 watts collector dissipation so that no heat sinking is required. For the transformer, obtain a telephone cable loading coil. There are still plenty of these available from various sources. Remove all the windings (the #28 wire is a bit skimpy for re-use). For the primary, use 20 bifilar turns of #22 or #24 wire. Connect starting end of one wire to the finish end of the other for the positive input lead. The number of turns is not very critical - I stopped when I had one full layer put down. For the feedback loop, use 5 turns of wire, the same gauge as the primary, but, again, size is not critical. You may need to reverse connections on this winding if your first guess results in non-oscillation. For the secondary, use 30 turns for the full winding, with the tap at 22 turns. Some adjustment of turns numbers may be advisable, depending upon the charge rate desired. A capacitor across the bridge recifier output will reduce the 30 KHz. ripple if you plan on using the HT with the charger running. One or two microfarads should be sufficient.





MINUTES of the 10 February 1982 Meetings:

Repeater meeting started by KA9DDN at 7:22PM local.
FINANCIAL STATEMENT - Received from club treasury, \$40.00 for 2 tower light inspections, \$97.50 in 1981 dues, \$525 in 1982 dues, total is \$662.50. Expenses, \$80 for phone bill. Net Cash Flow is positive \$582.80. Checking Account, \$613.68, Savings account, \$86.10, for total of \$699.78.
SKIP asked out newly elected president to comment on the steering committee meeting held Sunday the 7th at his home. Mike gave a brief rundown on proposed procedures for emergency use of the repeater. Principally we intend to disseminate information at frequent intervals as to the nature of an emergency on the repeater. This should minimize confusion, interference, provide for enlisting the help of those so disposed.
A DISCUSSION followed on the 450 MHZ receiver used for control purposes. The one presently used is on loan from AES and could be reclaimed at any time. There is one available for purchase at AES, priced near \$200. Move by WD9ISS and Second by WB9SFK that purchase be authorized. Motion Carried.
N9APC made a statement of thanks to those who voted for him in last month's election for repeater VP. He dwelt at length on the subterranean dissension in the club that led to the contested election for repeater VP. General consensus is that such differences should be brought up face-to-face at meetings rather than over the air as person-to-person gripes. KA9DDN stated that it's time to bury the hatchet. He again repeated his standing offer to accept any help that club members are willing to offer. DISCUSSION on repeater spurs, apparently problems brought up at January meeting have been corrected. Help was received from WA9UDZ and his spectrum analyzer; thanks Ralph. County now has the responsibility of maintaining the RF portions of the repeater (they own it). Those who do work in the repeater location are admonished to keep the place in order, particularly, don't interfere with Lorain's access to their equipment.
Meeting adjourned at 7:45PM

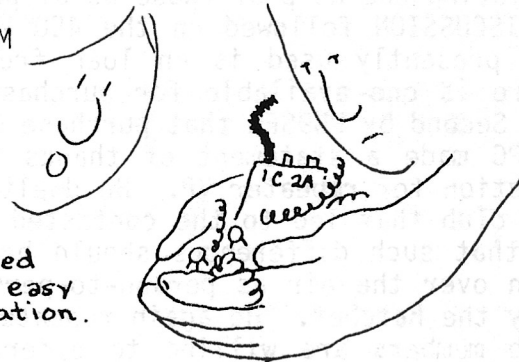
REGULAR MEETING opened at 7:47PM by President Mike Behlen, WD9FQW. Minutes of the previous meeting were accepted as published in the Newsletter.
TREASURER'S REPORT delivered by KA9HJR. Receipts: 1982 dues, \$646.52, Kitty \$30.35, Drawing \$2.25, Swapfest \$33, Savings account interest \$48.22, Patches \$3.75, Total of \$764.09. Disbursements; Avenue Flower Shop (WA9DOT) \$27.04, Heritage printing \$3.12, Lyons Safety \$58.97 (climbing belt), W9VQD dues overpayment refund \$13, KA9KUE dues overpayment refund \$5, January refreshments \$23.22, Newsletter postage \$13, Dues transfer to Repeater group \$525, Patches \$3.75, Total \$672.10. Cash flow is plus \$91.99.
Assets: Checking Account \$596.04, Savings Account \$1079.68, Patches \$60.75, Total is \$1736.47. Motion to accept report by W9ATK, Second by WA9AWO, Carried.
POST EVERYTHING PARTY: WB9PAS solicits reservations. SWAPFEST: WB9SFK reports distribution of flyers at Arlington Park Swapfest on Sunday last. It appears that in order to nail down the future reservations at the Circle B, it will necessary to post a \$150 deposit for 1983 in order to guarantee us the date. Moved by WA9JMS and Second by KC9CJ that Barry be authorized the funds necessary to do this Motion Carried. W9VQD reports that flea market spaces at the Dayton Hamvention are going for \$15 each, IN ADVANCE!
ARRL AFFILIATION: KC9CJ has volunteered to handle this matter. Capitol Court Project: KC9CJ reporting for W9NHE; 36 inquiries, and 75 messages handled. -25 temperatures held down the crowds.
NEW BUSINESS: N9APC gave a brief rundown on a solid state portable repeater capable of being battery powered. WA9USA mentioned acquisition of a late model

MasterPro receiver for the repeater, a 1/1 isolation transformer for lightening protection, both items supplied by Ozaukee County. DISCUSSION led by WA9AWO on club station repeater licensing matters. With the near future departure of W9LO trustee of W9CQO, plus loss of WR9AAE repeater call sign upon renewal, his thoughts are to have one person trustee for both. Moved by AA9W and Seconded by W9VQD that W9CQO be used on the repeater and as club station call. Motion Carried. WA9USA read letter of thanks from the Wisconsin Electric Power Company to the Emergency Government communications personnel for assistance rendered during the recent weather emergency. AA9W has some QSL manager lists for distribution. WA9AWO reports that his 449.975MHZ repeater is on the air. WD9FQW reports that the club now has a climbing belt for loan to members. W9VQD gave a report on ham operating fees in western European countries. WA9USA prompted a discussion on security/cleanliness in the courthouse auditorium. Moved by WD9ISS and Seconded by WD9JIB for adjournment, Motion Carried, meeting adjourned at 8:52PM.....Respectfully submitted, Joe Bauer W9WQ Secretary.

A G E N D A 10 March 1982

- 1.) Presentation by Weather Bureau @ 7:30PM
- 2.) Break - Refreshments @ 8:15PM
- 3.) Secretary & Treasurer's Reports
- 4.) O L D B U S I N E S S
 - a. Swapfest
 - b. Climbing Belt Release Forms
 - c. Post Party Report
 - d. W9CQO Trustee
- 5.) N E W B U S I N E S S

It looked like an easy modification.



Ozaukee Radio Club
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