QRP Amateur Radio Club International!

SVI, this is not complete the only thing missing is a copy of the club rules which I sent to one fellow and a copy of the club application form I sent to another- This copy sure made the rounds Hi You may keep these.

QUARTERLY NEWSLETTER - VOLUME 17, NUMBER 3
OCTOBER 1, 1979

EDITOR: WILLIAM W. DICKERSON - WA2JOC, 65 JOHN STREET, RED BANK, NEW JERSEY 07701

THE PRESIDENT SPEAKS:

Now that the summer is over and the antennas are ready, let us return to some indoor work again. The 1980 Board of Directors elections are approaching, and now is the time for nominations. As full and active members, it is up to you to decide who can represent decision making for the club. Therefore, rather than forming a committee, I am requesting your nominations be sent here by October 31st.

Please welcome our new Contest Chairman, Edwin Lappi, WD4LOO. Edwin will begin his new position with the October QSO Party. Also, let's not forget the fine job Sandy, W5TVW, has done with such a responsibility.

Last but not least, lets hear some more activity on our monthly QRP informal QSO parties, the first Sunday of each month. Good luck in the October Party and 73.

NET NEWS: Thom - K81F

The nets have been rolling along, despite band conditions and participation. A special thanks to all NCS and check-ins for holding through for anyone to take a spot for NCS on 80 meters, 2nd and 4th weeks. The 80 meter net has moved to 7.060, Thursday 0100Z since July, and will return to 3.560 October 31st. Please note, that both nets will continue to meet at the same local time for EST, or 0200Z.

80 mtr Wed Nite 9PM 3.560

40 mtr Sat afternoon 1PM 7.060

40 Meters - 7.060, Sat. 1700Z
K9PNG - 1st, WB9LKC, 2nd/5th,
WA32BJ - 3rd, K4JO - 4th
80 Meters - 3.560 Thurs. 0100Z (alt. 7.060)
W2YVQ - 1st/3rd on 80 mtr.
Alternate 7.060
W9LBQ - 2nd/4th on 40 mtr.
Awards: 40 mtr. #8 W9LBQ, #9 WA3ZBJ
80 mtr. #5 AA2R

40 M. #1-WB9LKC, - #2-VE3JHG, #3-W8MGF, $4-WA2JOC, #5-K9PNG, #6-K4JO, #7-W81M, #8-W9LBQ, #9-WA3ZBJ

80 M. #1-W81M, #2-W2YVQ, #3-WA3NTJ, #4-W2EMW, #5-AA2R

40 meters (8-31-79): WB9LKC-62, K9PNG-29, K4JO-28, W8MGF-26, WA2JCC-23, VE3JHG-23, W9LBQ-22, WA3ZBJ-20, WB8SGD-17, K8[illegible]R-14, W3GXT-9, WA2OTC-8, W9NAX-6, W2EMW-6, N2GR-4, W8JKB-4, K4EXC-3, N3AAZ-2, W8DYF-2, K9SW-2, W4RHZ-1, K9KUP-1, W3VW1-1, WB3AJB-1, K2ZR-1, NOWM-3, WB8SYZ-1, WA1RHS-1, K8EX-1, KQDEV-1, WB8PKL-1, N2AWT-1

80 meters (9-31-79) WA3NTJ-39, W2YVQ-37, W2EMW-27, AA2R-20, K4JO-16, K9PNG-12, N3AAZ-11, WD8DWQ-7, W8JKB-7, K8K1R-3, W9LBQ-3, WA2JOC-2, WB8VGE-2, WD4LOO-1, W2NUF-1, K4YFH-1, WB9W1W-1, WB2PSK-1, K9SW-1, WD8JCR-1, KB8JJ-1, WB2STK-1, WA3FNK-1, WN4CKF-1, K9VCM-1, KK4X-1, WB0YVJ-1, K1THP-1

With the logs, I received many nice letters. I am trying to get an answer off to each that sent a log and thank them. thus keeping their interest in the operation on Field Day. I believe that all the hams who went QRP for Field Day were in the spirit of a real Field Day using low power and testing their gear with battery power. Most everyone can go into the field run from a high power gen. and use a 200w rig or rigs to run up a big score, this proves nothing to me, its the ham that goes QRP that proves ham radio can be called on to fill the gap in an emergency and this was what Field Day was started for.

We have proved it can be done, with some push from the club for a big Field Day next year, we could show some of the KW boys a thing or two - hi.

Dick - W2YVQ

CALL	QSO	RIG/PWR	SCORE
AD5F	223	Argo./5W	87,416
W6SKQ/6	172	Argo./5W	59,168
W6JTH/6	165	HW8/3W	48,840
WB9LKC/9	51	Argo./4W	10,200
WA2JOC	102	Argo./5W	8,976
K4JO/N4CX	51	Argo./5W	8,568
N5AMA	92	-	8,556
WA3FNK	37	HW8/3W	6,808
K8K1R	35	C21/40W	2,660
WA7NWL/7	15	HW8/2W	1,080
K5VOL/9	15	HW8/3W	960
K81F/8	723	Argo./5W	229,914 - Not eligible

"WHICH WAY DID THEY GO?"

DATE: Sunday, May 6, 1979
TIME: 1517 Zon 7.060 MHZ

All set? Lets see, rig - on. ant.-connecter, keyer - on, coffee - hot. QRV! ... QRL? DE K81F .. silence "OK. here we go" CQ QRP CQ QRP DE K81F K81F/QRP K. K81F DE W9ALM K. "WOW! I got one already?!" W9ALM DE K81F/ORP GM UR 589, Brighton, MI, name is Tom, QRP NR 2287 BK ... BK GM Tom UR 589 in Kokomo, Ind. Name is Bill, what is a QRP NR? BK .... silence

"Here we go again." Its the first Sunday of the month, 1500Z on the QRP frequency, and still - nothing has changed. Needless to say though, things improved a little later. I did work a couple of QRP boys - a couple ... however, this is not the first time that I found this to happen. Included is my log as support to my comments. From it you will see, that out of four hours of operating, I worked 11 stations, 3 of which were non-members, one station had not been an active member since he was a novice! Another active member did not know of our "monthly informal QSO Party". But even better, one fellow thought it was a contest! Remember the "Welcome Letter" you received when you became a member?

No kidding fellas, there is a monthly informal QSO Party the first Sunday of each month 1500Z Sun. - 0300Z Monday, on the QRP frequencies ie 7.060 14.060 etc. So fire up the rig and call CQ QRP! Lets get to know each other and not give the impression that we're a mysterious group who gather April & October with the funny sounding rigs. Don't forget our DX members - I'll bet they wonder where we are too! See you next month! 73

11/7/77 to 1 PM

K81F

MOUNTAINEER MORE STABLE

WA2LAX(JIM): Put 3/4x3/4x1½ can over L2. Had to replace 130 pf cap with 120pf and 320pf in parallel to compensate. Maybe a J. W. Miller #9108 shielded adjustable RF coil would be neat substitute for L2. (Catalog from Bell Industries, J.W. Miller Div. 19070 Reyes Avenue, PO Box 5825, Compton, Cal., 90224) Anybody try it?

K6TBW(SANDY): I can't resist adding a little fuel to the fire of controversy regarding whether power ought to be calculated by means of input or output. I disagree with those who say that measuring input power is archaic and not in accord with the state of the art. Granted that many commercial rigs measure output power, but this doesn't say a thing about how efficient they are. What's so great about running five watts output when you burn up 100 watts of power to do it? Isn't it better to strive for greater efficiency for a given input power? Them's my sentiments!

WA3FNK(TOM): As a new member, I felt I should make a contribution to the Newsletter. My QRP interest all started after reading Ade's CQ column and the info provided on the April QRP Party. I started by working the contest a few hours with a Viking Navigator, power reduced to 2 watts out. The receiver being an NC183D. Had a good time and worked seven states as well as three European countries. All were worked with a 40 meter dipole and MFJ turner. Well after that, I guess the bug really got to me. I requested info from one of the fellows worked who had a QRP# and found to my delight that QRP International offered awards for having such great fun. Three weeks ago I picked up an almost new HW8 at local hamfest. Also purchased MFJ CW-2 to go with it. It really pops the CW sig out when QRM is ruff. A real pleasure to work DX which is really what I enjoy most. My Big Rig has been silent ever since. HI thus far, in less than 3 months I have 42 states worked one being KL7 about a week ago. Also total of ten countries. My Field Day log shows 37 contacts. Not a big effort but I had a school reunion Saturday night and picnic Sunday afternoon. Next year, I be portable on the highest spot in the area. I would be interested in hearing from other club members on simple 20 & 40 meter XTMRS and transceivers. Also any suggestions as to good field day antennas for next year. That's just about it from this QTH. Hope everyone will take time to write for the Newsletter and support the clubs efforts. I am very glad to be a member of such a worthwhile organization. Good QRPing to all.

W9TGN(GEORGE): Have enjoyed the bulletin and QRP operation. Recently acquired a 405 amp to go with my Argonaut but am finding out that I use it only when the going gets tough with QRM and QSB! Biggest thrill yet was to call an OZ5 on 15 cw in a pile up and have him come back and say "the W9 QRP only please" and then have a nice solid 15 minute QSO with him with only the Argonaut and an 80 mtr dipole!

WD4LOO(Ed): With the increase in the number of conversions of AM CB rigs to 10 meters there seems to be a need for a recommended frequency for QRP use with this equipment. I should therefore like to respectfully suggest that the Board of Directors consider adopting one of the 73-ARRL band plan channels for QRP use. The Channel selected should preferably be one which could be used with both 23 and 40 channel converted rigs. I believe that adoption of such a recommendation would further increase the use of 10 meters especially now that propagation is getting better. Thank you for your serious consideration of this suggestion.

VE3EQQ(MC RAE): I have used my Heathkit HW-8 for more than one year entirely on energy collected from the sun. I use a solar panel that is rated at 12 volts, 300 ma. containing 32 solar cells. It sits in a south east window at a 50 degree angle. The panel is connected to a 12 volts lead acid auto battery in the basement. I use the HW-8 in the room next to the solar panel. It is best not to have the rig too close to the panel or the RF energy will destroy the blocking diode in the panel. There has to be a diode in the panel circuit or the battery will discharge back through the panel when the sun is not shining. I have more than 250 QSOs without using any commercial power. This gives me a kind of self-satisfied feeling when I hear our fearless leaders telling us to save hydro. I have another panel that supplies lights in the garage, it

our club realistically appealing to operators in these modes where the KW seems to be the norm. 2) Since becoming active in QRPp (3-5 watts input, 2-3 out) my code speed has fallen. Most QRPp'ers seem to work at 13-18 wpm - even in contests. When, in a contest, I have attempted to move up to 25-30 wpm (a speed at which I have worked many contests) I usually find my QSO rate falling and requests for fills increasing. At the 25-50 watt level most operators seem able or willing to copy a faster speed - but not with the real QRPp level signals. Then about WDØAKB's comments suggesting an A.R.R.L. QRP sweepstakes - let's not expect it. I have written to the A.R.R.L. contest advisory committee three or four times asking that QRPp be recognized in the regular SS - my suggestion for power level categories would be:

Level A - 10 watts or less
B - 11-200 watts
C - over 200 watts

These levels were chosen to correspond with the A.R.R.L.'s FD power categories. My lone voice has not been heard by the CAC, but if even 200 us wrote - maybe CAC would pay attention.

JH1HTK(TAKA): Do you have any handy instrument to measure the capacity of a condenser? I tried to make one with a CMOS inverter. Here is a little information about that equipment because it may interest some of the home-brewers among our members. As you know, the current which flows through a CMOS device changes proportionally to the capacitance of theload. Is it true? Yes! Now, why not use a CMOS device to measure the capacity. One of the simplest circuits of the CMOS C-meter is in Fig. 1. It consists of only 9 parts including an ammeter, but has a high performance. Q2 is for cancelling the background current through the MC 14049B. The measured current I, is as the following equation, I=CxVccXf, where f is the oscillating frequency of the multivibrator by Qic and Qid. Then, this example is for the C-meter with 500pF FS. I will show more advanced model in Fig. 2. This is a multi-range C-meter. The principle is only on dividing the original frequency for reducing the sensitivity in accordance with the above equation. The accuracy was comparable level with a multi purpose bridge sold and used popularly in Japan. Some other techniques concerning with this type of C-meter have been developed at my shack, too. I will show you if necessary. Won't you make one for yourself?

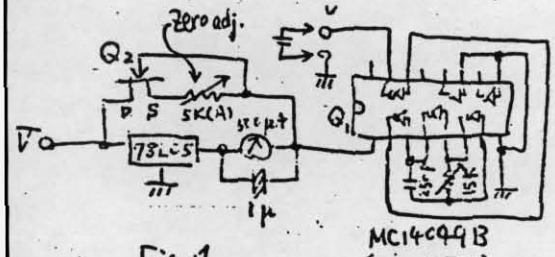


Fig. 1

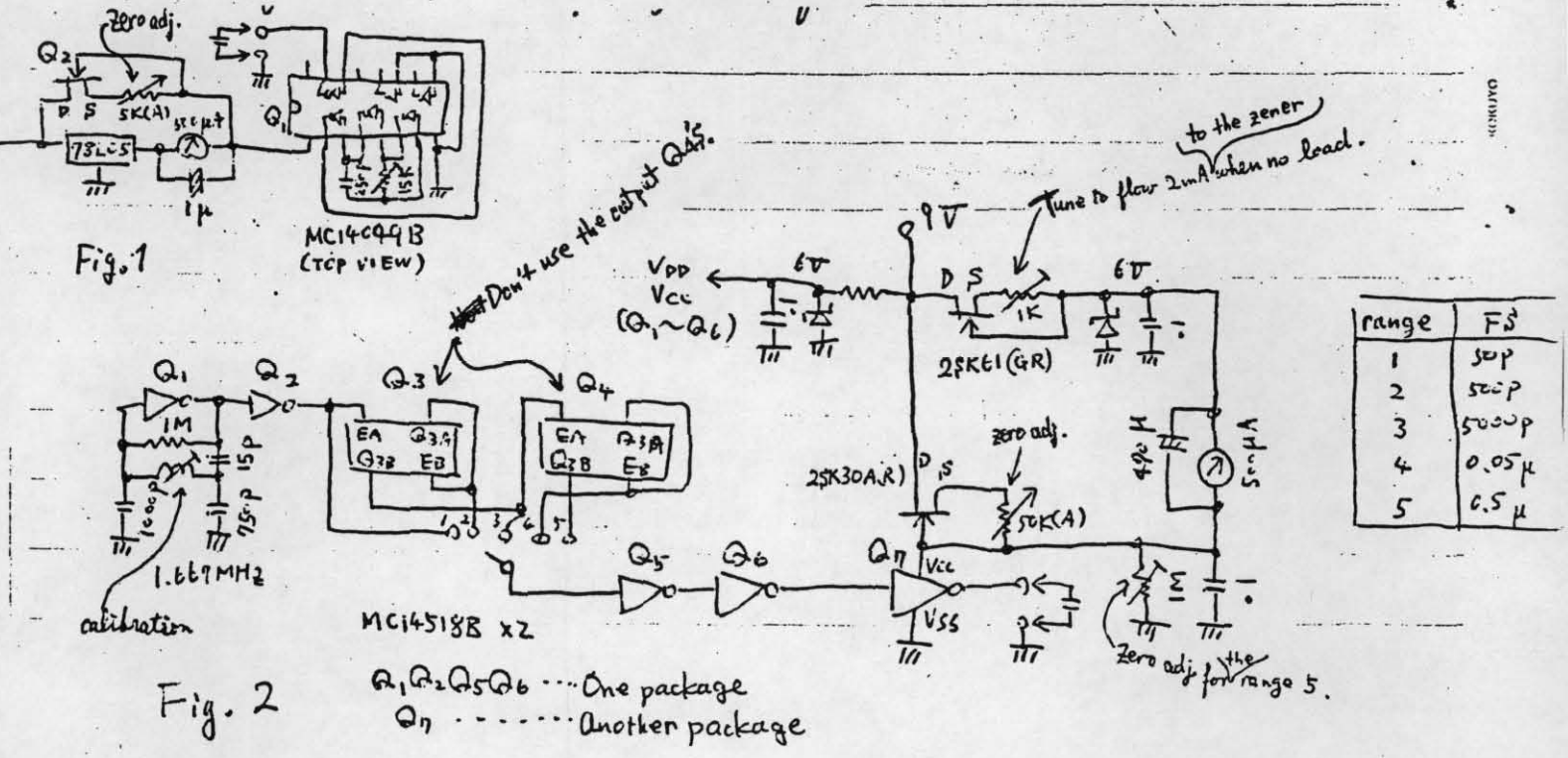


Fig. 2

Q1Q2Q5Q6 ···· One package
Q7 ------ Another package

VE5JQ(JOHN):
hundreds of Europeans in the last year, only one QSO was 2-way QRPp. Hopefully the the DL-AGCW QRP contest this July will be another step to increasing the number of 2-way QRPp intercontinental QSO's.

I am certain Bill that many of the above points I have raised have been raised before but being new on the scene I am unaware of what has gone on before.

Lastly, I wonder if any reader has any experience in using a speech processor with an Argonaut. I ask this as I wonder if the P.A. transistors are up to taking the increased duty cyle involved with processing.

CHANGES IN MEMBER INFORMATION

K3RXK - Address change to 9408 Erin Ave., Walkersville, Md. 21793
WBØQQW - Address change to 2592 Braun Court, Golden, Colo. 80401
WD9CWY - Address change to 3 Glen Road, Sloatsburg, N. Y. 10974
WN7NWL - Call change to WA7NWL
N7BE - Address change to 1048 163rd Ave., S. E. Bellevue, Washington 98008
KH6JUO - Call change to KH6GB
W3TOS - Call change to N30S
WBØGRJ - Address change to 1526 Linda Dr., Cedar Falls, Iowa 50613
WL7ADG - Address change to General Delivery, Shishmaref, Alaska 99772
WB8AZN - Call change to AJ8P
K3NGN - Address change to 779 Woodlea Rd., Rosemont, Pa. 19010
WAØCZA - Address change to Rt. 2, Box 3995, Pensacola, Fla. 32506
VE1BQQ - Address change to 9 Doyle St., Bedford, Nova Scotia, Canada, B4A 1KA
W3FLA - Address change to 1125 East 11th St., Ogallala, NE. 69153
W9SCH - Address change to Box 171, Albany, Wis. 53502
K4KJP - Address change to 129 Sotir St., Ft. Walton Beach, Fla. 32548 —

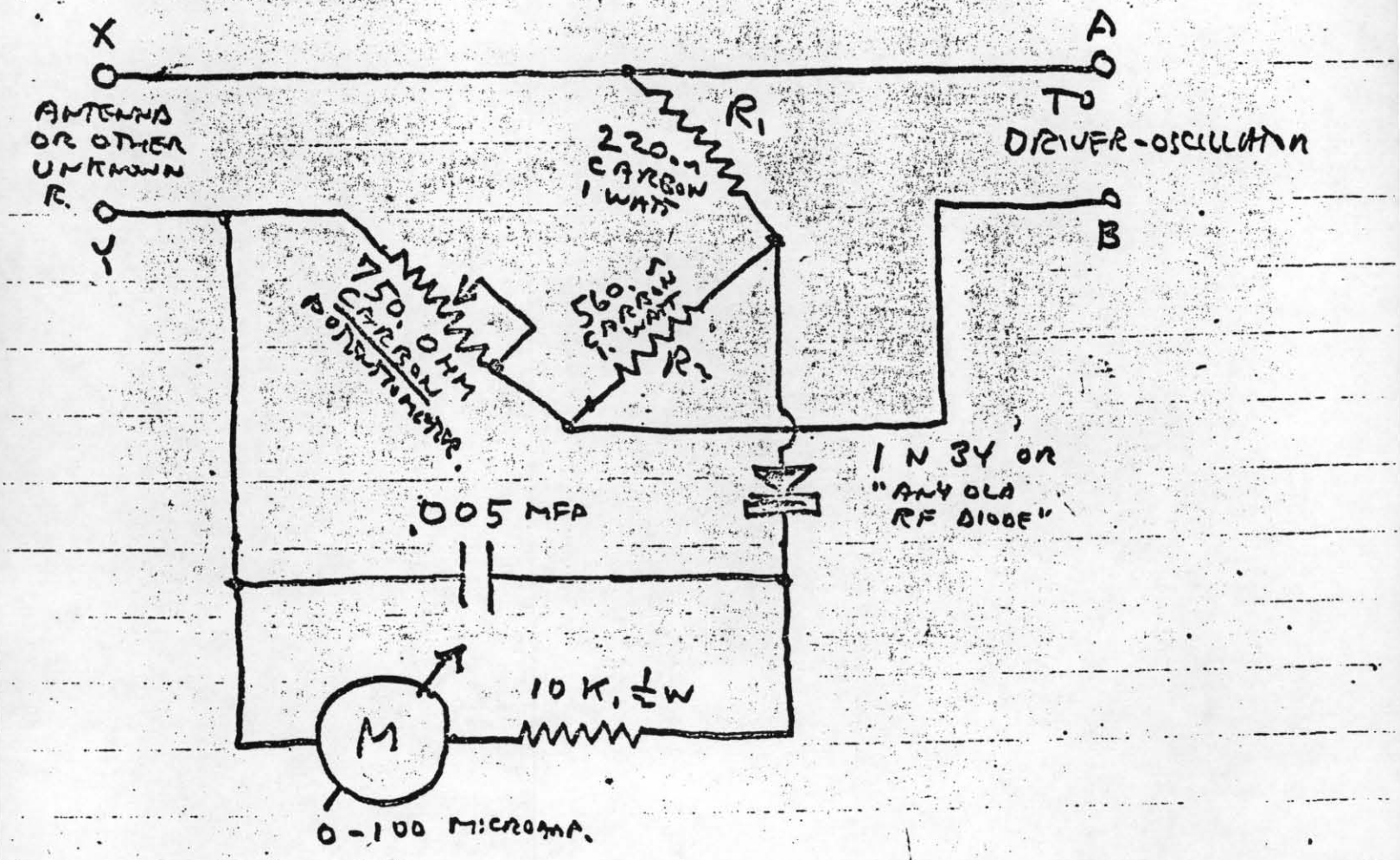
WELCOME TO NEW MEMBERS 4238

AD1C - James J. Reisert, 17 Mansfield Dr., Chelmsford, Mass. 01824 -4316
N9TW - Thomas D. Watkins, 265 Herbert Street, Alton, Ill. 62002 -4317
N5ARB - George M. Gilgore, 13477 N. Central Expressway, Dallas, Texas 75243
KA7ABF - Harold M. Wynne, 18560 S.E. 362nd Drive, Sandy, Ore. 97055 -4319
WD8OJC - Stephen A. Rish, 2607 Mt. Holyoke Road, Columbus, Ohio 43221 -4320
JH8DEH - Akira Miyata, 4-19 Nishidouri Kino, Otofuke, 080-01 Japan -4321
N8BEA - Mike Cameron, 817 Garfield Street, Port Huron, Mich. 48060 -4322
WA2AUZ - Jerome C. Deibel, 400 Orbanus Lane, Williamstown, N.J. 08094-4323
KA3BRG - David G. Hetzler, 305 Elwood Place, New Castle, Del. 19720 -4324
K6YGN - George H. S. Williamson, 2535 Norm Place, Anaheim, Calif. 92806-4325
K2GBH - Herbert R. Sweet, RD 2, Box 341, Hyde Park, N.Y. 12538 -4326
WBØW1W - Leslie G. Green, Rt. 4, Wardsville Road, Jefferson City, Mo. 65101 4327
K7LYT - Herbert D. Williamson, 2305 N.E. 9th Street, Renton, Wash. 98055-4328
K3AEM - Walter J. Wilson, 14249 Eden Street, Marshall, Mich. 49068 -4329
WB3CQD - Frank E. Malec, 22 R. Spring Street, Korn Krest, Wilkes-Barre, Pa. 18702-4330
WBØVZ1 - Jerry L. Voelker, Rt. 2, Box 128AA, Madison, Minn. 56256 -4331
W6RES/4 - David S. Ross, 505 S. Pine Island Rd., Apt. 206, Plantation, Fla. 33324-4332
WB2STV - Thomas Cook, 1137 Hughes Drive, Trenton, N. J. 08690 -4333
KF4S - Garry L. Murphy, 11443 Scott Mill Road, Jacksonville, Fla. 32223 - 4334
AD3U - James F. Ness, 10237 Prince Place, Apt. 206, Upper Marlboro, Md. 20870 - 4335
WD9EGW - Charles W. Kuhn, 7005 N. Tobi Lane, Peoria, Ill. 61614 - 4336
W2UXB - John Heraptha, 420 Richfield Blvd., Syracuse, N.Y. 13211 - 4337
WB9WBB - Michael P. Zeglen, 111 Kickapoo Court, Marquette Heights, Ill. 61554 - 4338
WD8MFP - Peter H. Meier, 36724 Ellis Road, New Boston, Mich. 48164 4339

The power radiated by an antenna is given by the product of antenna current times radiation resistance. But the radiation resistance of the typical 160-meter "Marconi" antenna is small, not often over five ohms, while the total RF resistance is often as high as 50.ohms. The additional resistance consumes power from the transmitter as heat but makes no waves. Thus, given a piece of wire in a fixed location, anything we do to reduce the total RF resistance pays-off in better station performance. But to know the value of this resistance and whether any changes have reduced it, it must be meanred. Here's how:

To measure the RF resistance of a grounded monopole ("Marconi") antenna you will need: 1) An RF resistance bridge, 2) A driver-oscillator and 3) A series coil-capacitor combo, to tune the system to resonance at the measurement frequency.

An RF resistance bridge for the lower frequencies (1.8 MHZ.) is easy to build, and unless you can afford kilobucks for a professional instrument, you must build it. The so-called "bridges" sold to amateurs (SWR, "noise", etc.) are useless to us here. The diagram follows:



This is the bridge we used. It is imperative that a carbon potentiometer be used. Use the lowest-resistance carbon pot. you can get, but it is difficult to buy one of less than 1000.ohms. (You can tell a carbon pot. from a wire-wound one by turning the knob. The wire-wound pot. feels "bumpy", the carbon smooth...). If you use a different pot. size, R_1 and R_2 must be changed. To find the corresponding value, use the equation:

resistance to find the correct antenna resistance at the measurement frequency. Repeat this measurement technique carefully about 0.1 MHZ from about 1.5 MHZ to 3. MHZ. Do not expect these to be equal, indeed the resistance should drop to a minimum value somewhere between the extremes.

Good technique indicates that you enter the frequency and corresponding antenna resistance into a data-table, just like you did back in science-lab. Then you can plot a curve of this data. Plot resistance, in ohms, on the vertical and frequency, in MHZ on the horizontal axis (see our curve for example). The plotted point should lie somewhere along a smooth curve that looks like a distorted script-letter vee. Draw the best smooth curve you can among the points, do not merely slavishly connect them. You are looking for the true trend of the data, the little bumps will be due to the expected experimental error. (Unless you're either a genius or just sickeningly lucky, there will be a "wild point" or two. This happens in the finest scientific circles.)

Finally find the fundamental frequency of your antenna system by removing the measurement gear entirely and connecting antenna and ground (or counterpoise) together through a small pilot lamp-bulb, say a no. 49 or 49. Then loop one of the leads loosely around the driver-oscillator tank coil and tune for the brightest glow. The corresponding frequency is the fundamental frequency of the system.

Now that you have made the measurements and plotted the curve for your own antenna, a few comments may be in order:

1) It is the minimum resistance of your antenna that best indicates its quality, not necessarily that at the operating frequency. Knowing that the radiation resistance of such antennas is low, it is probably safe to say that the lower the minimum resistance, the better the antenna. But how low is low? Shipboard antennas, over salt water, have a minimum resistance of two or three ohms (why not? they have three-quarters of the earth's surface for a low-loss ground-plane!) The antenna of an old U.S. Navy land station, where lots of tax-dollars were spent for a good ground system, had a minimum resistance of about one and one-half ohms. The flat-top job at the old U.S. Burea of Standards did about as well as a typical land-based installation can do, at about thirteen ohms. From our own, limited experience it would appear that a minimum resistance of about twenty ohms is expected for a good, typical 160-meter "Marconi" antenna. (This is without a buried radial system, of course, with no trees or buildings in its near field, and a good set of radials beneath, less than ten ohms might be reached.) It is safe to say that a minimum resistance of 30. ohms, or more, indicates that some work on the system is called-for. (Drive more ground-rods; put-up a counterpoise; cut down that old pine tree ...)

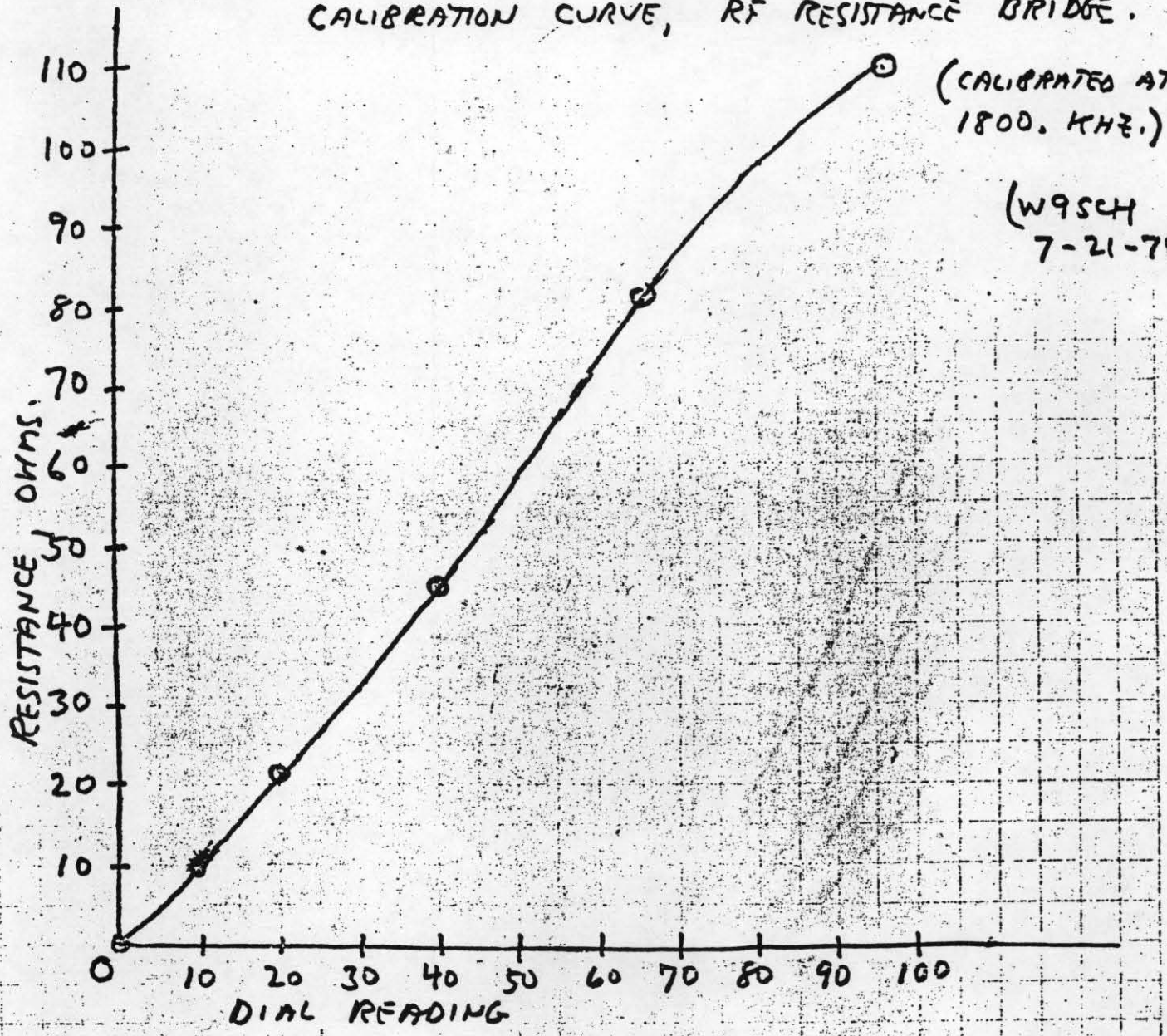
2) You may be surprised to find that the fundamental frequency of your antenna is not also the frequency at which minimum resistance occurs. Indeed, the fundamental is always higher than the minimum resistance frequency. This is because the reactance of a typical antenna varies over a much wider range than does the resistance, and thus its effect predominates. The resonant frequency is that at which the reactance, not the resistance, is zero. All of which suggests that, if a good antenna tuner (transmatch") is used, there is no particular virtue in cutting a "Marconi" antenna to resonate at the operating frequency. Even if you are sure that you are using the best possible 160-meter antenna already, it will be worthwhile to run a resistance-curve on it. There is deep, personal satisfaction to be found in measuring a physical quantity, in solving the problems therein and transcending the petty difficulties... That's what science is all-about.

SUBMITTED BY:
Rock, W9SCH
1124 Camille Ave.
Deerfield, Ill. 60015

CALIBRATION CURVE, RF RESISTANCE BRIDGE.

(CALIBRATED AT 1800. KHZ.)

(W9SCH 7-21-78)



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