HAM HUM

Published by
AK-SAR-BEN AMATEUR RADIO CLUB, INC.
Post Office Box 291 — Downtown Station
Omaha, Nebraska 68101

May 1979

Vol. XXIX
No. 5

HAM HUM is the official organ of the Ak-Sar-Ben Amateur Radio Club, Inc., of Omaha, Nebraska, mailed monthly to all members and to others upon request.

Published by:
AK-SAR-BEN AMATEUR RADIO CLUB, INC.
Post Office Box 291
Omaha, Nebraska 68101

President ..... Thomas L. Thiessen, KØPQR
Phone: 556-9120

Editor ..... Dick Eilers, WØYZV
Phones: Res.: 397-3999
Bus.: 342-1402, X-206

Assistant Editor ... John Snyder, WØWRT
Phones: Res.: 556-1538
Bus.: 397-3000, X-3542

Copy deadline for June issue is May 22nd

Dues-Annual Basis
(Due and Payable each January 1.)

New member initiation fee	$ 1.00
Regular member	$10.00
Regular member and spouse	$12.00
Student member	$ 4.00

Dues-Quarterly Basis (For each quarter or part thereof for balance of calendar year.)

New member initiation fee	$1.00
Regular member	$3.00
Regular member and spouse	$3.60
Student member	$1.05

NEXT MEETING

DATE: Tuesday, May 8, 1979

TIME: 7:00 to 10:00 P.M. (See Below)

PLACE: NORTHWESTERN BELL TELEPHONE COMPANY
Switching Center Facility
Southeast Corner, 90th & Western Streets

PROGRAM: A guided tour of the Switching Center. Due to the size of the facility, the NWB personnel have requested that we come in small groups, spaced one-half hour apart. Therefore, we request that the following schedule be adhered to if at all possible:

TIME	CALL LETTER SUFFIX(S)
7:00 – 7:30 P.M.	A, B, C, D, & E
7:30 – 8:00	F, G, H, I, & J
8:00 – 8:30	K, L, M, N, & O
8:30 – 9:00	P, Q, R, S, & T
9:00 – 9:30	U, V, W, X, Y & Z
9:30 – 10:00	Latecomers and anyone who could not come at the scheduled time.

Members without calls and visitors, use first letter of last name. Spouse welcome with spouse.

Refreshments will be available at the conclusion of the tour(s).
I hope everyone enjoys the tour. 73's & see you there. Tom, KØPQR

****

THE PREZ SEZ

This will be a very short column this month. I haven't had the time to even think about Ham Radio this month, let alone get something down on paper. I have been moving for the past two weeks, and the job isn't finished yet! Fortunately, my new home is only seven houses away from the old one, so I don't have to go very far. The new address is: 2736 North 65th Street, Omaha, NE 68104. My telephone number will remain the same.

My personal thanks go to all the members who have helped me with the moving project, especially the guys who carried my 700 lb. tower up the street! I expect to get some of the antennas back up just as soon as I return from the Dayton Convention. In the meantime, I'm pretty much restricted to 2 meter mobile operation.

I would like to comment on the Club Auction held last month. Those who attended are well aware that we had another record year, both in number of items auctioned off and in the length of the auction. We also had some minor security problems with gear that disappeared out the door. Some of our out of town visitors had legitimate complaints about the very early starting time. They are having to get up in the middle of the night in order to get to Omaha by the 8:00 a.m. equipment check-in time. All of these problems are logistical in nature, and certainly can be worked out. Undoubtedly, several rule changes are in order for next year. Jim Sanford, NØAIH, this year's Auction Chairman, and your Board of Trustees will be putting together a list of recommendations to pass on to the people who will run next year's Auction. If anyone has any ideas or suggestions on how to go about solving some of this year's problems, please write to the Club post office box number, and your suggestions will certainly be given serious consideration.

I hope that everyone is prepared for the severe weather season. In taking down my tower, we discovered a large hole in my coax that was probably caused by the lightning strike I suffered last year. Now is the time to check out your grounding system. Don't forget that you definitely need some type of main disconnect on your AC power feed to your equipment. Several local amateurs, me included, found out the hard way last year that severe damage can be caused by lightning induced voltage spikes that enter your gear through the power cord. Also, give some thought to a disconnect on your rotor cable. It makes a real nice path to ground in both directions, to the tower, and to the grounded AC outlet. I had a disintegrated rotor control box last year to prove the point.

In view of the above paragraph, let me close this month with an examination of Sodd's Second Law which states: "Sooner or later, the worst possible set of circumstances is bound to occur. Therefore, all

systems must be designed to withstand the worst possible set of circumstances."

73's
Tom, KØPQR
****

QSL CORNER
By – WØQQN

(5) RADIOGRAMS

The incoming QSL Bureau has been using radiograms to attempt to notify Hams of QSL cards which have arrived in the Bureau. This is of course to those who do not have a SASE on file at the Bureau. We believe the backlog of unclaimed cards is largely a result of lack of understanding of how the Bureau functions. All Zero QSL Bureau workers are volunteers and receive no compensation for their hours of effort to get your QSL cards to you. Last year over 1,000 messages were originated to hams in the Zero area advising of cards and no envelopes. It's a shame when a card comes 10,000 miles and lands in the Zero Bureau and can't make the last 100 miles. This in a way defeats the long standing unique ability of hams to promote international good will. A simple self-addressed stamped envelope to P. O. Box 291, Omaha, NE 68101, preferably of approximately 5X7½" size to fit the larger cards often used by foreign stations, is all that is needed to bring you your QSL cards. More information can be found on the packing slip enclosed with your cards concerning postal rates, remaining envelopes on file, and availability of Bureau furnished stamped envelopes at a savings to you.

****

ADDITIONS TO ROSTER

John E. Amdor, KØZQ
Box 39
Massena, Iowa 50853
Phone: (712) 779-3435

Joyce S. Amdor, WBØZQC
(XYK of KØZQ)
Box 39
Massena, Iowa 50853
Phone: (712) 779-3435

Terry A. Bacon, WBØWIA
4971 Magnolia Street
Omaha, Nebraska 68137
Phone: 895-2176

Darrell J. Bermel, KAØEAS
3111 North 48th Street
Omaha, Nebraska 68104
Phone: 451-3827

LaVern F. Labenz, KAØEAD
5008 Cass Street
Omaha, Nebraska 68132
Phone: 551-5476

Charles T. Peaker, KAØEBD
64 Neptune Place
Carter Lake, Iowa 68110
Phone: 347-6779

Loren G. Wolf, WBØWQH
502 Hogan Drive
Papillion, Nebraska 68046
Phone: 331-0449

****

MEMBER ADDRESS CHANGE

Dean A. Siegenthaler, WDØGNN
1412 Hickory Street
Omaha, Nebraska 68108

****

FIELD DAY – 1979

Preparations are already under way for this year's Field Day. The annual June contest is just around the corner.

Get ready for Field Day, June 23rd – 24th, along with thousands of amateurs who are busily readying generators, planning operating schedules, allocating duties and otherwise impatiently awaiting this official radio-amateur way to start the summer. With emergency preparedness the theme, clubs and groups will take to the field and set up and operate stations independent of normal power facilities. Whatever the outcome, you're sure to gain valuable operating experience under field conditions as well as have a grand time.

An activity of this type requires many man-hours of planning and participation. Chairmen for the various "shacks" are as follows:

75 & 10 Meters:	Dick–KØDG
40 & 15 Meters:	Marty–WDØEFZ
20 Meters:	Mike–WØMQ and Mike–NØAON
VHF:	Chuck–KØTVD
Novice:	Mitch–KAØCSO and Charlie–KAØEBD
Cooks:	Phil–WBØWYE and Ed–WDØHBY
FD Chairmen:	Frank–WAØIWF and Dave–WDØDLN

We plan to make a good showing this year, since we have been fortunate enough to have quite a few operators volunteer to help and make it an all out effort.

Come and bring your operating experience, and if you don't have any, bring your effort; we can use all the experience and effort we can find. Please come out to help us and the club. We want to make a good showing in the Midwest.

If you are interested in operating and/or logging in a particular shack, please contact that shack chairman. They will be available to talk to those wishing to participate, after the meeting.

73's Frank, WAØIWF and
Dave, WDØDLN

****

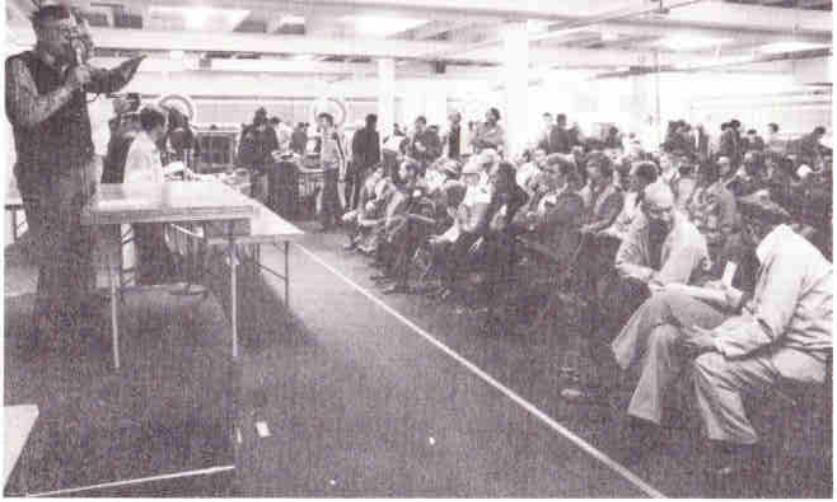
NOTES FROM APRIL 3RD BOARD OF TRUSTEES MEETING

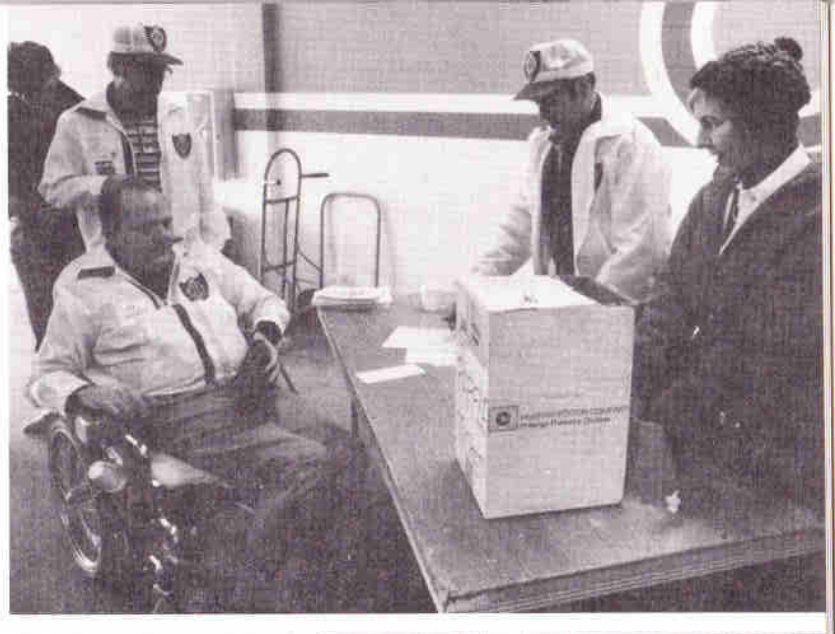
The main concern was the upcoming auction. All board members offered their services if needed.

I would like to take this opportune time to thank everyone who helps our club. We have technical experts in our club who have very generously given countless hours of their services to help teach code and theory classes, maintain equipment, print Ham Hum, serve on committees and Board of Trustees. At this time our club wishes to thank everyone who has in the past and present time given their talents so others can learn. Keep up the good work ladies and gentlemen! Our club needs you to grow and prosper.

Robert R. Chereck, Sr., WBØTVP
Club Secretary

****





PHOTOS – AUCTION
APRIL 8, 1979
By
Dave Hamilton, WDØDLN

ARMED FORCES DAY

This year's observance of Armed Forces Day marks three decades of communications tests between the Amateur Radio fraternity and Military Communications systems. Since 195Ø, this event has been scheduled during the month of May and has emphasized a continuing climate of mutual assistance and warm esteem. Saturday, May 19, 1979 has been designated as the 3Øth Annual Armed Forces Day.

A featured highlight of the nationwide celebration will be the traditional military-to-amateur crossband communication.

These tests give amateur operators an opportunity to demonstrate their individual technical skills and to receive recognition from the Secretary of Defense or the appropriate military radio station for their proven expertise.

The proceedings will include operations in Continuous Wave (CW), Single Sideband voice (SSB), Radioteletype (RTTY) and Slow Scan Television (SSTV).

Special commemorative QSL cards will be awarded to amateurs achieving a verified two-way radio contact with any of the participating military radio stations. Those who receive and accurately copy the Armed Forces Day CW and/or RTTY message from the Secretary of Defense will receive a special commemorative certificate from the Secretary. Interception by short wave listeners (SWL) is not acknowledged by QSL cards. However, anyone can qualify for a certificate by copying the Secretary's message.

Crossband Radio Contacts

The military-to-amateur crossband operations will be conducted from 19/13ØØ UCT (Universal Coordinated Time) to 2Ø/Ø245 UCT May 1979. Military stations will transmit on selected military frequencies and listen for amateur stations on portions of the amateur bands indicated below. The military operator will specify the particular frequency in the amateur band to which he/she is listening. Duration of the contact should be limited to three minutes.

Station	Military Frequency (KHz)	Emission	Appropriate Amateur Band (MHz)
NAV Headquarters, Navy-Marine Corps MARS Washington DC	7385	RTTY	7.Ø5-7.1Ø
	14455	RTTY	14.Ø5-14.1Ø
	13975.5 (13973)	SSTV	14.225-14.25Ø (Note 1)
NNNØNCG US Coast Guard MARS Radio Station Alexandria, VA	4ØØ5	CW	3.5-3.65
	697Ø (6971.5)	LSB	7.225-7.3
	14385 P	CW	14.Ø-14.1
	2Ø988.5 (2Ø987)	USB	21.25-21.45

Station	Military Frequency (KHz)	Emission	Appropriate Amateur Band (MHz)
NNNONHA CINCLANTFLT MARS Radio Station Norfolk, VA	7380 (7381.5)	LSB	7.2-7.3
	14440 (14398.5)	USB	14.1-14.25
WAR Headquarters, U.S. Army MARS Washington DC	4001.5	CW	3.5-3.75
	4020 (4021.5)	LSB	3.775-4.0
	4030	RTTY	3.65-3.775
	6997.5	CW	7.0-7.15
	14405	CW	14.0-14.2
N	20994 (20992.5)	USB	21.25-21.45
AIR US Air Force MARS/ SITFA Radio Station Washington DC	4025 (4026.5)	LSB	3.9-4.0
	7305 (7306.5)	LSB	7.25-7.30
	7315	CW	7.025-7.20
	13977.5	CW	14.025-14.20
	14397 (14398.5)	USB	14.275-14.350
NPG Navy Communication Station Stockton CA	4005 L	CW	3.5-3.65
	4010	CW	3.65-3.75
	6989	CW	7.00-7.025
	7301.5 (7303)	LSB	7.225-7.3
	7365	CW	7.050-7.075
	14375	CW	1400-14.025
	20983	CW	21.0-21.2
	20998.5 (20997)	USB	21.27-21.40
NNNOMET USMC Air Station MARS Radio Station El Toro, CA.	7347.5	RTTY	7.075-7.1
	03922.5	RTTY	14.075-14.1
NPL Communication Station San Diego CA	14390.5 (14389)	SSTV	14.225-14.250 (Note 2)

Note 1 – SSTV from NAV will run from 1300-2100 UCT 19 May 1979
Note 2 – SSTV from NPL will run from 1600-2400 UCT 19 May 1979

(Continued next page)

CW Receiving Test

The CW receiving test will be conducted at 25 words per minute. The broadcast will be a special Armed Forces Day message from the Secretary of Defense to any amateur operator desiring to participate. A ten minute CQ call for tuning purposes will begin at 2Ø/Ø3ØØ UCT. The Secretary of Defense message will be transmitted at 2Ø/Ø31Ø UCT from the following stations on the listed frequencies:

Transmitting station	Frequencies (KHz)
NAM P U.S. Navy Communications Area Master Station Norfolk, VA	4ØØ5, 738Ø, 144ØØ
GXH U.S. Navy Communication Station Thurso, Scotland, United Kingdom	7394, 1452Ø
NPG Stockton, CA	4Ø1Ø, 7347.5, 13922.5

RTTY Receiving Test

The Radio Teletype (RTTY) receiving test will be transmitted at 6Ø words per minute. Radio Station "AIR" will transmit using 85Ø Hertz (wide) shift. All other stations will transmit using 17Ø Hertz (narrow) shift. A ten minute CQ call for tuning purposes will begin at 2Ø/Ø335 UCT. The special Armed Forces Day message from the Secretary of Defense will be transmitted at 2Ø/Ø345 UCT. This test is to exercise the technical skill of the amateur operator in aligning and adjusting equipment. Transmission will be from the same stations and on the same frequencies as previously listed for the CW receiving test.

Submission of Test Entries

Transcriptions should be submitted "as received." No attempt should be made to correct possible transmission errors.

Time, frequency and call sign of the station copied as well as the name, call sign and address (including zip code) of the individual submitting the entry must be indicated on the page containing the message text. Each year, a large number of acceptable copies are received with insufficient identification information, or the necessary information was attached to the transcript and has become separated, thereby precluding the issuance of a certificate.

Entries should be submitted to the appropriate military command and postmarked no later than 25 May 1979. Stations copying NAM, GXH, MG or NDT submit entries to:

Armed Forces Day Test
Chief, Navy-Marine Corps MARS
Bldg 13, USNAVCOMMU Washington
Washington DC 2Ø39Ø

Stations copying WAR submit entries to:
Armed Forces Day Test
Commander, United States Army
Communication Command
Attn: CC-OPS-MARS
Fort Huachuca, AZ 85613

Stations copying AIR submit entries to:
Armed Forces Day Test
2Ø45th COMM GP-DONV
Andrews Air Force Base
Washington DC 2Ø331

****

MORE ON CONVERSION

By John, WBØCMC

After reading WØRJA's comments on the cycles per second to hertz conversion (page 11, April issue) I must completely agree. It made me think, and I began to wonder if perhaps there were not some other conversion charts that were rare and could save confusion in other areas. But before I go into what I found, let me expand on the CPS to Hz conversion.

There is a cycle equivalent to hertz. It is the hertz second: one cycle is equal to one hertz second or one kilocycle is equal to one hertz kilosecond. Or, by extension, 146.94 megacycles equals .14694 Hz gigaseconds, and so on, ad nauseam.

Another conversion factor that everyone must get used to (it's been around a long time but nobody used it until the oil companies recent rediscovery of it) is the firkin. One day soon it will be the unit in which gasoline is dispensed. It is equal to 9 gallons. Therefore, the oil companies can charge $6.75 every time they give you a firkin, assuming 75 cents a gallon. One doesn't need a graph to figure that out, however.

On the other hand, it is of interest to express one's transmitter power in horsepower. For instance, my hand held has a nominal power of 1.34 millihorse power, my Galaxy V is about a quarter horse CW or about 10 BTU per minute. I also have a UHF hand held which does about 20 megaergs per second.

But on to bigger and better things. By now, most everyone has the miles per hour to kilometers per hour down pat, but what happens when one must go from kilometers per hour to meters per hour or, worse, to barleycorns per fortnight.

A barleycorn is .84667 cm and a fortnight is 14 days or 336 hours. From this it is easy to see that a km = 1.18×10^5 barleycorns or .118 megabarleycorns. Therefore, 1 km/br + 39.6869 megabarleycorns per fortnight. It is then obvious that 55 mph = 3.514 gigabarleycorns per fortnight and the graph is linear and can be figured out in your head.

****

NOTES FROM TABLE 8

"One of the most marvelous sights in the world, to my mind, is that of the complete cooperation that results in the community antenna raising party...," I was thinking to myself when a ten foot piece of Rohn tower made a crater in the earth beside me.

"Oooops, you okay down there? Sorry, but that jerk Tom let the line go..." came the comment from above.

From that point on, I had a feeling that it was not going to be a particularly "marvelous sight" of an afternoon.

As we wedged the tower section out of the hole it created, we noticed that in its present position, the tower would only clear the power lines by about a foot.

"Aw, it's nothin'. Don't worry," exclaimed Frank, a would-be theorist and famous optimist. According to his figures, nothing could go wrong.

After getting the last piece up so that the tower was a hundred feet high, Tom, who was at the peak doing a tower sitting stunt, decided to come down.

The four of us were amazed at the fireworks that resulted from a huge amount of current flowing through Tom.

Frank just sat going over his figures as we swept up the remains of Tom and took them to the car. Frank gave a short eulogy at the tower base and we decided to move ahead because "Tom would have wanted it that way."

It was a little later that I found out just how many fingers can be sheared off by a loop of guy wire that is suddenly pulled taut by someone on the other end.

Shouts of pain and agony echoed throughout the neighborhood.

By this time, quite a crowd had gathered and an enterprising young lad from down the street was chargi admission to see us.

Trees never seem to appeal to birds if there is an antenna to perch on instead. After getting the beam up, a whole clan of pigeons lighted on the elements and despite our shouting and rock-throwing, they would not leave.

I decided to call my sawed-off .22 into service. I took careful aim, fired, and promptly blew a gaping hole in the rotor box.

"Sorry" I said to Frank. It didn't quite seem to be enough. A crowd applauded as they thought that the rotor box was my target. I was hailed as the marksman of the neighborhood. Fine.

Frank was sobbing uncontrollably on his knees. The crowd dispersed at sundown. We worked long into the night securing feedline and tightening bolts.

Now Frank is getting 5-9-plus reports constantly. It is amazing because I remembered that I forgot to connect the feedline to the beam. I suppose I should tell him sometime.

Well, with only one casualty and a few sheared off fingers, we hams completed another fine effort.

By the way, if you're wondering what Frank's last name is so you can see his fine set-up, it's Murphy; Fra Murphy. Yes, I remember that day w

You know, one of the most marvelous sights in the world, to my mind... ... ...

de WBØQPP, Scott

****

TOP QUALITY MOBILE ANTENNAS

FROM

G & C Communications

- **Stainless Steel Radiator**
- **Heavy Nickel-Chrome Plated Brass Base and Fittings**
- **Mounts Come with 17' RG-58AU and PL-259 Connectors.**
- **Compatible with Motorola TAD and TAE Mounts.**

When ordering, suffix "T" indicates complete antenna assembly with trunk lid mount. Suffix "M" indicates for ¾" hole mounting.

BM-2700T — 27-31 MHZ ¼ wave base-loaded. 200 watt rating. Covers 10 meters or CB. Great mobile antenna for converted CB rigs. 49" at lowest frequency and is approximately 42" when cut for ten meters. Complete with trunk lid mount assembly. **$29.95**

BM-MATH — Extra whip (Cut one for 10 and one for CB) **$5.00**

BM-4700T — Same assembly except for 47-54 MHZ **$29.95**

BM-5800T — 144-174 MHZ ⅝ wave gain antenna. 200 watt rating. Complete **$29.95**

BM-MAT 58 or **BM-MAT 22** — ⅝ matching coils (these coils with whips allow same mounting assembly to be used on different bands) **$14.95**

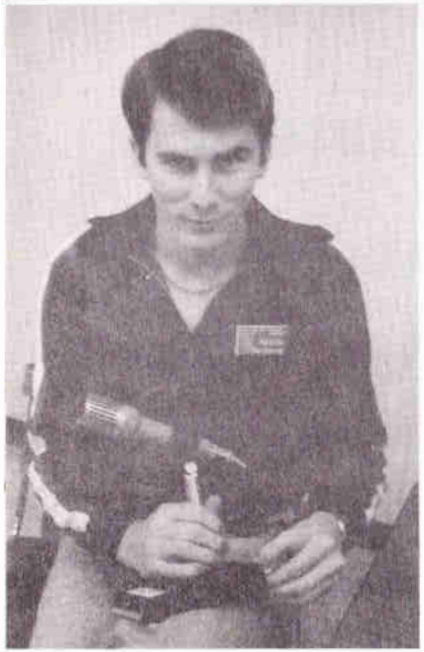
BM-5822 — 220-225 MHZ ⅝ wave gain antenna **$.29.95**

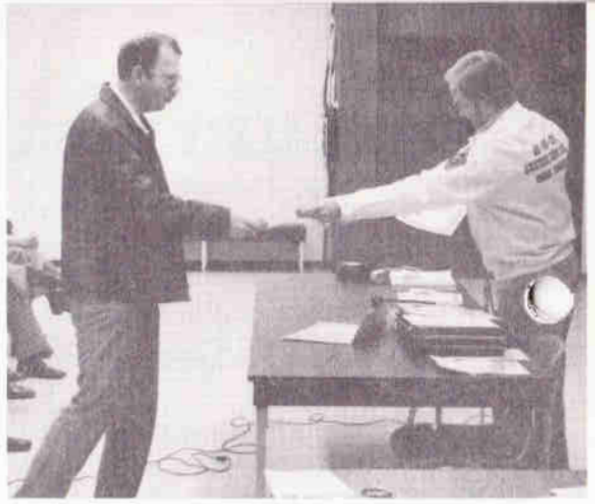
Note: Deduct $4.00 from "T" price for "M" assemblies.

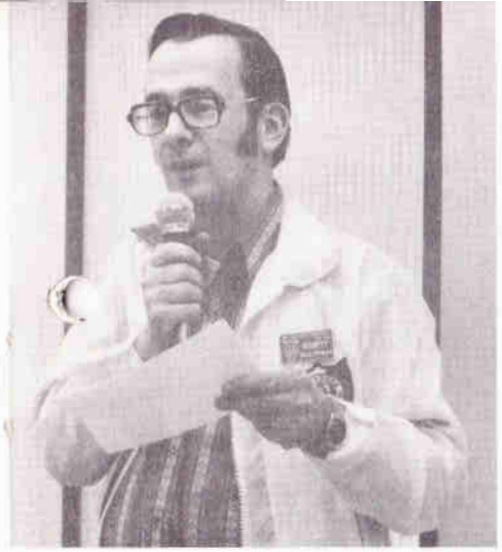
Additional Information On Other Antenna Models Available

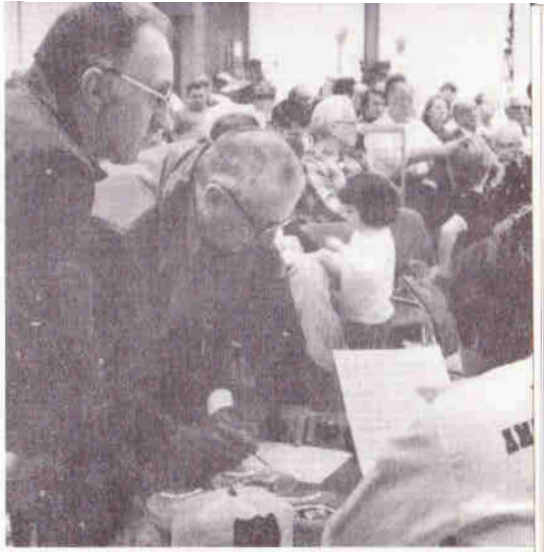
Bill, WØBM Chuck, KØNG Mike, WØMQ

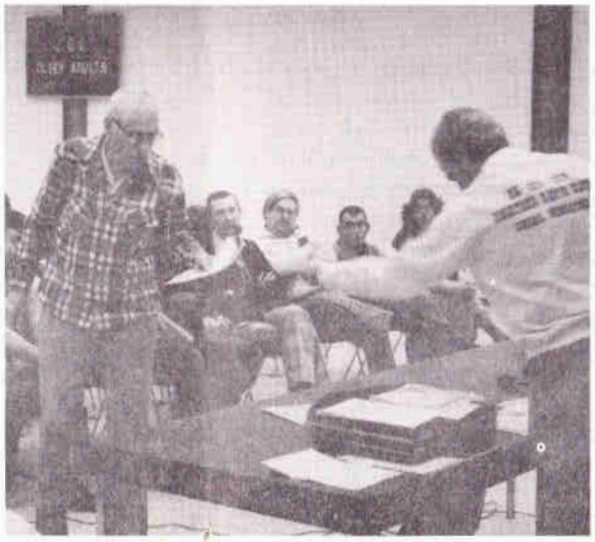
G & C Communications
Dept. HH
730 Cottonwood
Lincoln, NE 68510

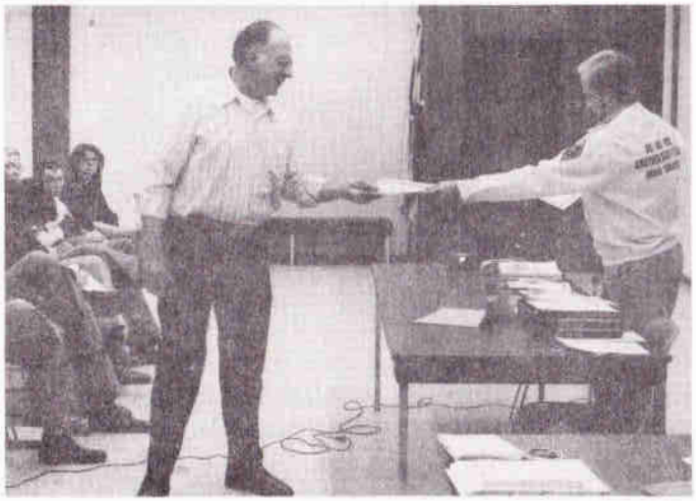


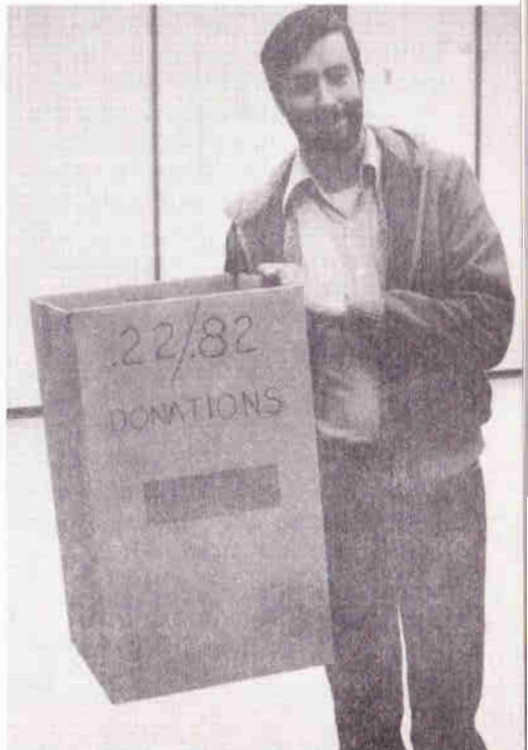




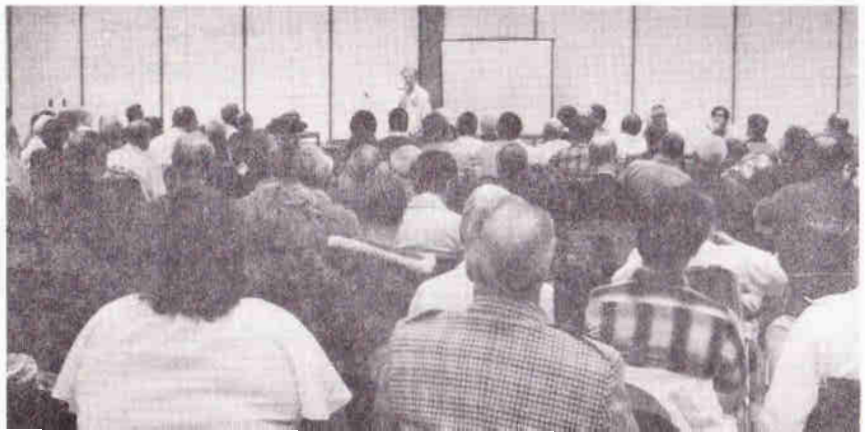








PHOTOS
APRIL 10, 1979
MEETING
By
Dave Hamilton, WDØDLN



WHO CARES...ABOUT DX?

Well 10, 15 and 20 meters are still rolling along about the same. Ten has been up and down day after day with the solar flux floating between 175 and 190.

This nice weather has probably prompted a lot of antenna erections. Some hams like to revamp and reposition their existing antennas that survived the winter. Some like to add new ones. I'm adding a Hytower for 40, 80 and 160, and a 5 element monobander for 20 meters. Hopefully this will extend my ears.

Spratly was on and off with hardly any notice. It is reported that IS1DX nabbed over 12,000 QSOs starting at 0300z on April 12. QSL to Harry Mead, VK2BJL, Box 85, Round Corner, New South Wales, 2158 Australia.

Bangladesh has been heard on the air Saturdays at 1300z and Sundays at 1200z. The call is S2BTF. QSL to Box 108, Dacca, Bangladesh.

Liechtenstein will definitely be active on May 26 to June 3. The call sign used will be DA1WA/HBØ. All 7 bands will be exercised. 80 meters thru 70 cm! Keep tuned in for this one.

Madagascar, 5R8AN has been heard around 21,400 KHz. QSL to K4IE.

Macao, CR9AJ lurks on 21.230 KHz around 0030 UTC. He's a regular. QSL to W7PHO.

Aves Islands, for sure April 28 to May. YVØAA will be the call.

Angola, heard occasionally near 14207 from about 2100 UTC is on by 0K3TAB/D2A. QSL to OK3ALE.

For those of you who have as much trouble as I do remembering the new Pacific prefixes, here is the list again to refresh your memory.

KH1 ... Baker, Canton, Enbury and Howland Islands

KH2...Guam

KH3...Johnston Island

KH4...Midway

KH5...Kingman with a "K"suffix. Palmyra and Jarvis with no "K"suffix.

KH6...Hawaii

KH7...Kure

KH8...American Samoa

KH9...Wake, Wilkes and Peale Islands

KHØ...Northern Marianas

One question asked me was if a cross mode contact counted for ARRL awards. I thought no...but can't prove it. Does anyone have a reference for this?

I think I've got the new record for the most heard statement in one day. I heard it in Kearney at the convention last month. As some of you know, many, many people showed up to take the FCC exams. About once every 15 minutes for the next day I heard "I only missed it by one." Well, for the record, I missed it by 24!

73's es gud DX
Bob Grinnell, WDØFDE
****

160 METERS

Have had an East Coast station, W3YKQ, say that they are not hearing much from the Midwest on 160 meters and they invite us to try harder for a contact.

It was especially mentioned that use of a Beverage antenna for receiving, drops the noise level very drastically. It is usually insulator wire—over 300 ft. long, between 6/10 ft. above ground—no more. Use another, preferably a vertical, for transmitting. The Beverage receives end on.

de WØJJK, Alan McMillan
****

THE ULTIMATE – HF MOBILE

Editor's Note: Frank, WAØIWF and Dave, WDØDLN recently attended a National Association of Broadcasters convention in Dallas, an organization Frank is involved with through his business. For the trip they decided to try something new to both of them in amateur radio – HF mobile.

On a recent trip to Dallas, we decided to take along more than just the normal 2M FM rig and a CB for smokey reports. After numerous hours of pre-planning and advice gathered from the local (old-timers) mobile HFers, the decision was made to take some HF equipment along. The DXpedition was planned to coincide with a business trip – leaving late Friday night.

The mobile station would consist of an Icom 701-100 watt transceiver, a Hustler mobile vertical with resonators for 75 and 20 Meters, and a Dentron Jr. Monitor antenna tuner (for fine tuning). A Wilson WE-800 2M FM rig with a magnetic mount antenna rounded out the equipment list. The initial installation of the "shack" took place Thursday night, with Friday left for last minute problem solving. Equipment testing proved that the installation was operating, although jury rigged. A discussion followed with some new approaches planned. Textbooks always stressed ground systems, so we elaborated and ran separate ground leads from the antenna mount to the car body, and a ground lead between tuner, transceiver and frame. It was decided that a new mast was necessary for the antenna, since the old home-brewed ones dependability was questioned.

With all new items installed and the grounding configuration improved, we again attempted testing the station out. After some initial coax problems, the station was checked out again, and our first QSO from the new "shack" resulted in a call from Kentucky with a 59 report from W4EGN! All things were GO!! A few more contacts with 4-land hams confirmed that the "shack" was working super and everything was now ready for the trip!

Experimentation with the antenna system (75 Meter resonator and Dentron Jr. Monitor) provided us with quite a bit of good information for this and future mobile expeditions. We were able to work all bands 80-10 Meters, using only the 75 Meter resonator and the antenna tuner, with a flat SWR across each band.

We embarked on the DXpedition in the early morning hours and proceeded south. Our first hours on the road in the "shack" were spent becoming familiar with the operation of the rigs and keeping track of the route. Daylight found us on the Kansas turnpike involved in what we later found out to be the WPX contest! Can you imagine working a contest on 10 Meters in a mobile traveling at turnpike speeds (55+ mph on cruise control) and communicating with other hams thousands of miles away – absolutely fantastic!! The next QSO, with KB6IL near San Francisco, resulted in the passing away of an hour and almost 100 miles of travel. Pete was utterly amazed with our "shack" and excellent signal.

During the course of the day we racked up better than 50 QSOs in the

contest, with stations all over the western half of the United States, 2 Canadian provinces, 2 Hawaiians, Guatemala (TG7), Belize (VP1), Dominican Republic (HK), and Mexico (XE1, 4C1, 6J1). To our amazement, one of the Mexican stations, who undoubtedly was a big contestor (we were his 2027th QSO), stopped for a moment during the frenzy to comment and congratulate us on our excellent 59+20dB mobile signal – propagation was really great.

When we arrived in Dallas, we had an eyeball QSO with about a thousand hams, who were also delegates to the convention we attended, at a special reception for amateur radio operators.

HF operation from the motel room was made possible by famous ham ingenuity! We brought some insulated hookup wire along, which was about 130 feet long, and stretched it across the parking lot and into the room and rig via tuner. As expected, the mess worked great! We had a few really nice QSOs and no TVI!

We tipped a few with fellow hams, G8OGR, G8ANJ, and non-ham friends. These British fellows really enjoyed our American hospitality and, to say the least, we enjoyed playing the hosts!

Good times end quickly. The few days we were there slipped by us, and we regretfully packed up for the trip home.

We again set up the mobile "shack" and plotted our course for home. Our efforts again proved fruitful, contacting stations in Washington, Montana, Indiana, Michigan, and Nebraska. Driving on into the evening and early morning hours, we landed QSOs with stations in Ohio, Kentucky, Arkansas, Wyoming, West Virginia, Alaska, and an almost-completed contact with a Hawaiian station who was plagued by S-9 QRM, all on 75 Meters!! Not too bad for a roving mobile.

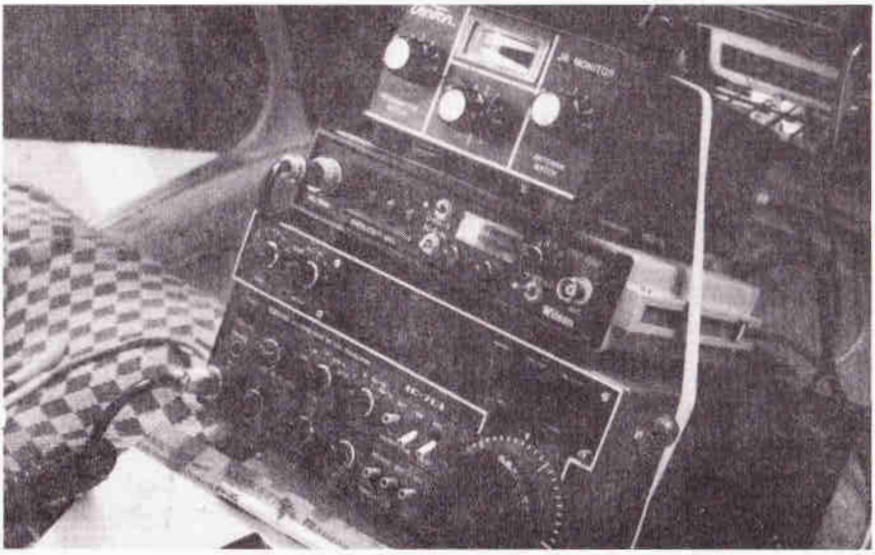
A few hours later we arrived back home, with a lot of wonderful memories of good QSOs and good people.

73s, Frank, WAØIWF and Dave, WDØDLN

Left to right: Frank–WAØIWF, John–G8OGR, and Dave–WDØDLN

Operating in the motel room

"Mobile "Shack"



The mobile installation

RECENT CONTRIBUTORS

Ham Hum Postage

Hollis S. Banning, Union, NE
Janice G. Nelson, KAOBJX

Repeater 34/94

Larry F. Caccomo, WONMN
John H. Lapsley, WAOTIF
Gaylord M. O'Hara, WAORWW
Charles E. Rodgers, WOQQN

Repeater 22/82

Gaylord M. O'Hara, WAORWW

Repeater 40/00

Earl K. Bacon, WBOWYA
Gaylord M. O'Hara, WAORWW
Brian Zdan, WAOAJI

Thanks to you all!

****

THE DEMISE OF MARINE RADIOTELEGRAPHY

by Bill Welsh (W6DDB)

As a former radio officer aboard American Merchant Marine ships, I have been following the recent trend toward eliminating radiotelegraph as the primary communication mode for ships at sea.

It may be surprising for many readers to learn that about 90% of all messages to and from oceangoing vessels is still handled via International Morse Code. Poor communication conditions occasionally (rarely) delay delivery of vital messages past the times when they are useful. It was my experience that shipboard operators are too proud to let this sort of thing happen when it can be avoided. As an example, I never received or sent a message too late for it to be

useful during six years at sea and a few years as a shore station operator.

It is interesting that the radiotelegraph operator aboard many foreign ships is the wife of a ship's officer. I found that this situation was very common aboard Scandinavian and Russian ships.

Although oceangoing ships continue to rely primarily on code for message handling, ships in the Great Lakes have handled more than 98% of their messages by voice (phone patch) since before World War II. Both Canada and America operate more ships on the Great Lakes than on the high seas.

Hughes Aircraft Company has built three maritime communication satellites (MARISAT) to handle communications with ships operating over most of the Northern Hemisphere of the Earth. The principal MARISAT owner and operator is the Comsat General Corporation. RCA Global Communications, ITT World Communications, and Western Union International also have interests in MARISAT.

These satellites relay high quality voice, Telex (Western Union teleprinter), facsimile, and other communication data between shore stations, ships, and offshore oil platforms. The Atlantic and Pacific MARISATS have been used to handle Navy communications since 25 March and 1 July 1976, respectively. These two MARISATS have been used to handle civilian commercial communications since August 1976.

MARISAT communication satellites were launched in February (Atlantic Ocean), June (Pacific Ocean), and October (Indian Ocean) of 1976. These satellites have been placed in Earth synchronous orbits at a height of about 22,300 miles.

The Atlantic MARISAT is at 15° West Longitude and it provides communications between Southbury, Connecticut and vessels as far away as the Persian Gulf.

The Pacific MARISAT is at 176° East Longitude and it is used to communicate between Santa Paula, California and ships as distant as the Malacca Strait, which separates Malaysia and Indonesia.

The Indian MARISAT is at 73° East Longitude and it is used to handle Navy communications. This MARISAT can be repositioned over the Atlantic or Pacific in case either of those satellites fail.

Twenty-six ships from 11 countries are equipped with the four foot diameter antennas and the compact terminals used to communicate via MARISAT. Participating vessels sail under the flags of America, Belgium, Canada, Panama, Sweden, and the United Kingdom. EXXON is using MARISAT to communicate with five of their tankers (ships) and they report that message delivery time has been reduced from about five hours (messages routed thru radiotelegraph stations) to just a few minutes (for communications handled via MARISAT).

It is sad to know that the position of radio officer is closer to becoming extinct aboard ships of our merchant fleets, just as it did aboard airplanes that operated in transoceanic passenger service. There is no better job for a single young man than that of a merchant marine radio officer. The quarters, equipment, food, and pay, combined to make this a fine working experience. Marine radiotelegraph operators can be justifiably proud of their lifesaving performances during countless disasters at sea.

It is good to know that one can now "dial up" ships located over a large part of the Earth's seas. I

just wonder what happens to communications if these MARISATS are destroyed during a war? I think I'll keep my handkey and bug ready, just in case!

W6DDB – de LERC
de Lockheed ARC, Burbank, CA

****

NEW MICROWAVE APPLICATIONS

By John Gebuhr, WBØCMC

(Editor's Note: Due to technical complications, we were unable to print this article in the April issue of HAM HUM. So if you will, let's consider this a supplemental page to last month's issue.)

Microwave ovens have come into their own in recent years. The housewife (and many a bachelor too) is becoming aware of the cooking capabilities of these centimeter waves. Not a few children are finding out they can dry out their pets after a bath, then wonder why they must throw them away. A few experimenters are finding that a light bulb placed inside will light brightly for a few mintues, and then begin to produce bits of molten copper, aluminum, tin-lead alloy and other trace metals.

Only one person, however, knows that he can slice bananas in them while still unpeeled.

First of all, the banana has a unique cellular structure that turns almost liquid when heated. Therefore, if one had a very hot dull knife, it would slice a peeled banana as though it were butter. Second, let us review standing

waves. Since microwaves are electromagnetic energy, they will behave as any other such energy in a conductor. They follow ohms law, such that power = I^2R and $I = \frac{E}{R}$. Since this energy develops a potential on a nductor in its path (an on any antenna) it will dissipate heat in that conductor, inversely proportional to its Q. Most food is a conductor, poor compared to metals, but good compared to insulators. The average hot dog has a few tens to a few hundred ohms per foot long and therefore has a low Q, as do most other foods. Typically, the average is less than 1. It then follows that most food items are very lossy conductors. In other words, resistors.

One finds that in microwave ovens, food does not always heat evenly. This is due to standing waves. Consider an ideal case of a dipole (Fig. A) in an electromagnetic field.

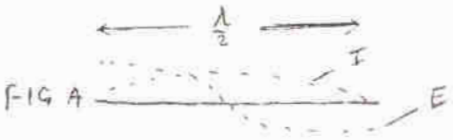
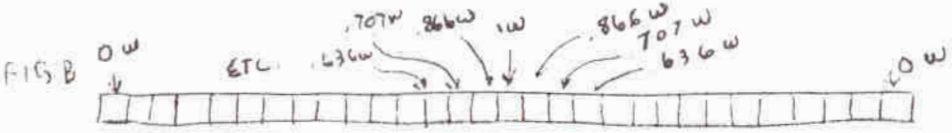


FIG A

Everyone remembers from basic antenna theory that current is maximum at the center, and zero at the ends. (It has no place to go.) From ohms law, we may have voltage without current if the circuit has infinite R, or is said to be open. If R on the other hand is finite and a voltage exists across it, work is done in the form of heat. Suppose our dipole above is a relatively poor conductor, say 1 ohm per inch. If the electromagnetic field induces a maximum current of 1 amp at the center, it will produce a heat of 1 watt in the center inch, somewhat less in the inch on either side, and so on, such that the end 2 inches dissipate nothing significantly. (Fig. B)



For the mathematically minded experimenter, under ideal conditions:

(Eq. 1) $\frac{dP}{dl} = \frac{sI^2R}{4f} K$ Where $\frac{dP}{dl}$ = Power differential with respect to distance.

I^2R = Power at the center. f = Operating frequency. s = Distance from center,

and $K = \frac{.159}{2\pi}$

It is therefore easy to see that a hot dog of proper dimensions with respect the operating frequency, would have hot spots while other spots would be cold. It then follows that should this happen, one should bite off .268 inches of the warm end (cold dogs taste terrible) to upset the ideal condition and produce a non-resonant hot dog. Thus, the E-I relationship is upset and I is relatively uniform.

Bananas, on the other hand, exhibit a unique difference from the hot dog and other foods, in that their peculiar cell structure at microwave frequencies cumulatively resonates the entire fruit,

regardless of the oven's individual frequency, and provided it is over 1.393 GHz, and assumes an electrical integral multiple of a half wave length. It is this effect, known as the Burbank-Carver effect, which gives rise to a second effort known as the Cleft-gutt effect, named after its discoverer, Cleft Guttenberg. Since a current node is produced every half wave length, and the banana is physically longer than it is electrically, those nodes will be approximately $\frac{.328}{2f}$ apart. From this is can be seen that, were it not so lossy, the banana would make a very good delay line until it spoiled.

From the above discussion, each node will produce a large amount of heat, whereas the areas in between will remain relatively cool until thermal conduction from the nodes also warms them up. Since the oven has a fairly large amount of power, the cross sections at the nodal points will become hot enough to break down the cell structure leaving a slice and an unbroken skin. More than 5 seconds is not recommended to produce slices, however, because as the cell structure is broken down, the fruit rapidly loses its self resonant properties and may run out all over the table when the skin is broken. Normally, 3 to 5 seconds is sufficient to produce sharp slices all the way across without making the whole thing mushy.

The breakdown time from a well defined slice to mush is stated by:

(Eq. 2) $t = \ln \int_{a}^{cc} \frac{I^2R \; w \; h \; d(g)}{g}$ Where t = time in seconds, I^2R = Mean power of oven in watts, $w = 2\pi f$ in radian Kilohertz, h = planks constant, d(g) = Conductance differential.

This formula is provided just in case anyone really wants to figure it out.

To the date of this writing, no one has determined a useful purpose for this other than it is a good way to awe and amaze one's friends. It has been suggested that it may be easier to hold the banana over one's cereal and let the slices drop in as it's peeled rather than peel it and slice by hand over the bowl. After all, the latter way can be dangerous if the knife is sharp. Besides, I can think of nothing worse than biting into a finger when a banana was expected.

****

Wage slave: "Could you give me a raise, sir? There are three companies after me."
Boss: "What three are they?"
Wage slave: "Light, telephone and water."

Scottish Rite News

****

POSSIBILITY OF STRANGE SIGNAL ON 50 MHz BAND

by John B. Power, W2AXU
Tnx: "Cheesebits"
Mt. Airy VHF Club

The age of solid state digital electronics is upon us. We all must have a digital clock in the ham shack these days. It's the in thing. And one that uses a crystal controlled time base instead of the 60 Hz line frequency will provide very accurate time for so little money.

Now, a strange CW signal shows up on the low end of 50 MHz around 50.113 MHz. It can be a bit puzzling for a while, until you get the digital calculator out and start strumming the key board.

The crystal for the clock time base is usually 3579.545 KHz. This is also the TV color burst frequency. The

crystal is operated into an oscillator divider chip, a MM6369, the output of which is 60 Hz. It is a 60 Hz square wave. The 3579.545 KHz is also present and it is also a very excellent square wave. We all know that square waves are rich in harmonics and so is this one. The 14th harmonic of the 3579.545 KHz crystal is 50.11363 MHz, and, incidentally, the 41st harmonic is 146.76134 MHz. There will also be signals in other parts of the radio spectrum as well every 3579.545 KHz. These frequencies will be very accurate and, therefore, can be used for calibration purposes.

There is a means to calibrate this crystal as well as other crystal standards via your color TV set. The method was developed at the National Bureau of Standards in Boulder, Co. about 1968. It makes use of the extremely accurate color burst frequency transmitted in a network program transmission. This frequency is checked weekly by NBS for each network and the results published. If you use the color burst frequency method of calibration, your instrument calibrations can be traceable to the National Bureau of Standards.

de RARA RAG

****

COAXIAL CABLE DATA

(By—Bill Welsh (W6DDB)
de Lockheed ARC, Burbank, CA

(Continued from April Ham Hum)

In summary, use coaxial cables which are manufactured to current military specifications and which have Class IIA jackets. Do not use coax with (non-gas) foamed insulation and Class I jackets. The better coaxial cables usually cost no more than their less useful counterparts. It is often easier to use RG-58/U in lieu of RG-213/U for the various short interconnections required in the station. RG-58C/U is smaller, cheaper, and more flexible than RG-213/U. RG-58C has about twice as much loss as RG-213/U so it should not be used for long transmission lines, such as between the station and an outside antenna.

If you need additional information, you can request it from coaxial cable manufacturers such as:

Amphenol Cable Division
6236 South Harlem Avenue,
Chicago, Illinois 60638

Belden Corporation,
Electronic Division (1)
Richmond, Virginia 47374

Cablewave Systems, Inc.
2900 Mead Avenue,
Santa Clara, California 95051

Columbia Electronic Cables
New Bedford, Massachusetts 02744

Dearborn Wire and Cable Company
9299 Evenhouse Avenue,
Rosemont, Illinois 60018

Essex, Telecommunications
Products Division
6235 South Harlem Avenue,
Chicago, Illinois 60638

(Continued on Page 27)

HAM HUM SWAP

NO CHARGE FOR SWAP ADS (NON-COMMERCIAL) SUBJECT TO SPACE LIMITATION. MUST BE SUBMITTED IN WRITING TO P.O. BOX 291. SEE COPY DEADLINE PAGE 2.

FOR SALE: HW8, new – $90.00
WANTED: Tempo 8120
Bill Bechtold, NØWB, 7429 Frederick,
Omaha, NE 68124; phone 402/397-2461

FOR SALE: Cheap good used tubes:
4 each, 4-400A; 7 each, 4-125.
Glenn Pollock, WAØFMY
Phone 541-4460 days; 571-6230 nights

FOR SALE: Kenwood 820, remote VFO–$825.00
Atlas 210X AC vox console N.B.,
mobile mount, mint – $675.00.
Jay C. McAleer, WAØLLQ, 839 Polk St.,
Papillion, NE 68046; 402/339-3448

****

(Continued from Page 26)

National Wire and Cable Corporation
136 San Fernando Road,
Los Angeles, California 90031

Standard Wire and Cable Company
2345 Alaska Avenue,
El Segundo, California 90245

Tensolite Division, Carlisle Corporation (2)
West Main Street,
Tarrytown, New York 10591

Times Wire and Cable Company (3)
Wallingford, Connecticut 06492

Notes

Design Guide for Electronic Wire and Cable is an excellent publication available from Belden.

(2) Coaxial Cables Bulletin 116 is a very useful booklet available from Tensolite.

(3) Times has an extensive assortment of application notes covering all facets of cable design, manufacture, use, specification, application, and limitation.

(More next month)

****

Smith: "What are you cutting out of the paper?"

Jones: "A report of a man who got a divorce because his wife went through his pockets."

Smith: "What are you going to do with it?"

Jones: "Put it in my pocket."

Masonic Mercury

****

SAVE GAS
SHOP BY MAIL

Hi Inc.

P. O. BOX 864
1601 AVE. "D"
COUNCIL BLUFFS, IOWA-51501

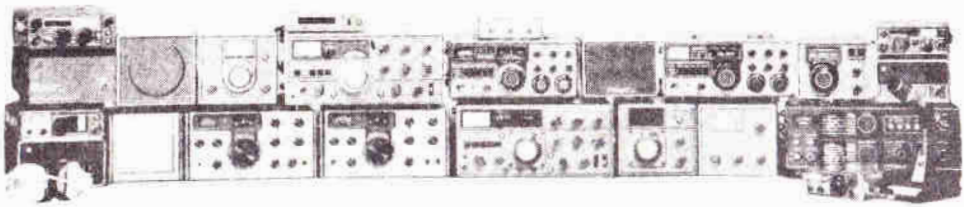
PHONE: (712) 323-0142

The Great REBATE of '79 from KENWOOD

(Good April 15, 1979 through June 15, 1979)

PLUS HI SAVINGS

TS-820S..Pay HI $949.00*–collect $50 REBATE (Add $9.00 for UPS delivery)
R-820..Pay HI $989.00*–collect $50 REBATE (ADD $9.00 for UPS delivery)
TL-922A..Pay HI $1149.00*–collect $50 REBATE (Truck collect, underinsured)
TS-700SP..Pay HI $724.00*–collect $35 REBATE (Add $6.50 for UPS delivery)
R-300..Pay HI $259.00*–collect $20 REBATE (Add $3.ot for UPS delivery)
TR-7600..Pay HI $345.99*–collect $20 REBATE (Add $3.00 for UPS delivery)
RM-76..Pay HI $118.00*–collect $20 REBATE (Add $2.00 for UPS delivery)
BOTH ABOVE.Pay HI $459*–collect $40 REBATE (Add $5 for UPS delivery)



Dear Valued Customer:

As our way of saying thanks for buying KENWOOD, we have instituted a rebate offer on certain equipment that can mean a return to you of from $20.00 to $50.00. To qualify, just fill out this coupon, and, along with your dated sales receipt and product warranty card, mail it to us. TRIO-KENWOOD COMMUNICATIONS, INC., P.O. Box 7065, Compton, California 90224. We'll do the rest!

KENWOOD

pacesetter in amateur radio

TRIO KENWOOD COMMUNICATIONS INC
1111 WEST WALNUT COMPTON CA 90220

√CHECK MODEL NUMBER

☐ TS-820S / $50.00 Rebate
☐ R-820 / $50.00 Rebate
☐ TL-922A / $50.00 Rebate

☐ TS-700SP / $35.00 Rebate
☐ TR-7600 / $20.00 Rebate
☐ RM-76 / $20.00 Rebate
☐ R-300 / $20.00 Rebate