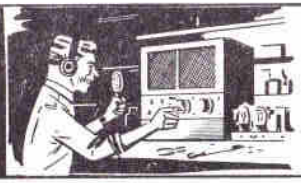

HAM HUM

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

April 1969

Vol. XIX
No. 4

ANNUAL

AUCTION

WHEN:	FRIDAY, APRIL 11, 1969
WHAT:	AUCTION – bring all your excess gear and parts. Terms cash and carry. (See page 4 this issue.)
WHERE:	RED CROSS CHAPTER HOUSE 432 South 39th Street, Omaha
TIME:	Doors will open at 6:30 P.M. Auction will begin promptly at 8:00 P.M.

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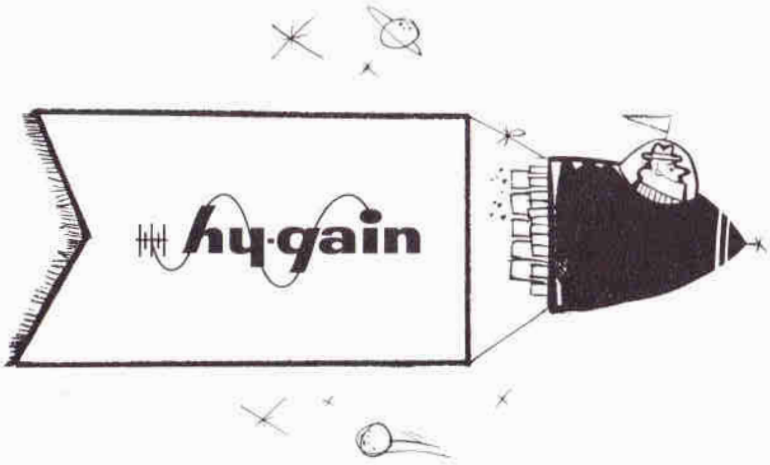

We're Going Places!

HY-GAIN ELECTRONICS CORPORATION NEEDS:

- ANTENNA ENGINEERS AND TECHNICIANS
- ELECTRONIC ENGINEERS AND TECHNICIANS (NO ANTENNA EXPERIENCE NECESSARY)

PHONE, WRITE OR SEND RESUME TO:

Jack Hamilton
Personnel Manager
Phone: AC 402 - 434-6331

HY-GAIN ELECTRONICS CORPORATION

P.O. BOX 868 LINCOLN, NEBRASKA 68501

AN EQUAL OPPORTUNITY EMPLOYER

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

Next copy deadline: April 25th

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PRESIDENT'S CORNER

Attendance at the March meeting was very good. For the first time since we have been meeting at the Red Cross Building we had to dig out a few more chairs. I sure don't want to scare anyone off by indicating the building was full. There was still room available for you so we hope to see you at the next meeting. It would be nice if you could even talk the XYL into coming with you. I think she would enjoy it too, and you wouldn't have to explain why you were late getting home if she was there with you. Last meeting there were six XYL's present. I think they enjoyed the meeting and rag chew as much as anybody. Getting the XYL interested in Ham Radio might have some drawbacks, but it has many advantages too. I credit my wife's account with half of what is spent at our QTH on ham radio equipment. This amounts to quite a savings and lets me get more equipment. It might work for you.

One of the things that has been tried by the Board that seems to be helping attendance is telephone calls to members a day or two before the meeting. If you remember the next meeting date, call five or ten names from the Radio Club Directory and remind them of the time and date. It's surprising how many of them will have forgotten it's coming up.

73s
Royce E. Johnson
WAØKIL
****

SILENT KEY

Rev. M. P. Bollesen, WØFYJ
3051 College Drive
Blair, Nebraska
February 7, 1969
****

WANTED TO BUY

The Red Cross would like to buy several surplus military type telephones EE-8-A or equivalent.

Call Hugh Tinley, KØGHK
391-1257
****

APRIL AUCTION

TERMS: Cash and Carry. A 10% commission will be charged on all consignments, with a maximum commission of $10.00 on any one item. (All items sold at over $100.00 owner will pay only the $10.00 fee.) Minimum bids will be 25¢. No minimum price will be accepted; however, the owner may bid on the item to protect his sale item. If the owner's bid is the final one, the fee will be 10% of the bid – maximum $1.00.

The Auction will be arranged so that the first items brought in will go on the auction block first. Come early so you may look over the selection of ham gear and get your consignments registered. Refreshments will be available during the Auction.

****

JAYHAWK HAMFEST – Sunday May 4, 1969 at George J. Meyn Community Building, Wyandotte County Park, Bonner Springs, Kansas. Registration $2.00 includes hot dogs and soft drinks. Children free. Write Jayhawk Amateur Radio Society, Inc., P. O. Box 1144, Kansas City, Kansas 66117 for further information.

****

FOR SALE

Scout deluxe transmitter, new condition, guaranteed, factory carton and instruction book. Ideal for Novice, Tech or General.

Royal M. Enders, KØLYO
7625 Meredith Ave.
Omaha, Nebr. 68134
391-2681

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OFFICIAL BULLETIN NR 214 FROM ARRL HEADQUARTERS NEWINGTON CONN MARCH 27 1969 TO ALL RADIO AMATEURS BT

Four times a year, during the ARRL quarterly CD Parties, many amateurs become interested in the activity called a CD Party. This operating event is limited to competent radio amateurs in the ARRL Communications Department Field Organization. These appointees serve amateur radio and the public in the many fields of VHF, emergency planning, bulletin transmissions, traffic handling on all modes and signal observance. Only ARRL appointees and League Officials may participate in the quarterly CD Parties. All qualified amateurs are urged to contact their Section Communications Manager, page 6 QST, to see how best they too can serve along the lines of their natural operating interests AR

****

NEWS ITEMS

Byron "Bud" Smith, WAØICK (President 1966) is recovering from a heart attack he had late last year. Here's wishing you a speedy recovery, Bud.

* * *

Ervan D. Heinz, WAØEEM (President 1967) is recuperating at home after being hospitalized for a few days. Happy to learn you are on the road to recovery, Erv.

****

Ole Olson of the Hobby Center

MODEL AIRPLANE CONTROL

Our program at the March meeting was a discussion of model airplane control by Ole Olson of the Hobby Center. He made us feel good immediately as he started by thanking us as radio amateurs for his hobby of model control. He gave credit to hams for developing the gear as the model airplane hobbyist normally knows the airplane portion but does not know

radio theory. In the beginning of radio control, only hams could use the transmitter as there were no other licenses available.

Mr. Olson's first contact with radio control models was about 1939 and then the control was rudder only and with about 3 pounds of equipment in the plane. It was about 1949 when the airplane hobbyist could first get his own authorized transmitter and commercial gear began to be available. However, the receiver was still too heavy until the transistor finally came into use. This permitted the elimination of the heavy B batteries and thus radio control systems were developed to permit more and varied functions. In this experimenting the airplane hobbyists were developing mechanical systems while hams were developing radio systems.

Reed controls were first used, starting about 1950, and with the reed banks in the receivers we could now control the many parts of the flying devices – rudder, elevator, ailerons, motor, etc. At first we were using "full on" or "full off" on most controls. We are now into digital proportion which permits placing the flight control surfaces to precise positions and hold instead of pulsing or fluttering.

During the discussion Mr. Olson demonstrated one of his own plane models and operated the controls of his plane with a transmitter and showed he could place the rudder in any position he desired and hold it there. Since the Red Cross Chapter House is a little small, he could not get the full effect, of course, but he called our attention to the fact the Omahawks R/C Club does have a field located a block north and a block west of Sunset Speedway. A trip to observe these small aircraft in action will be most interesting. More details can be had from Mr. Olson at the Hobby Center, 6117 Military.

Radio control is available in varieties subject to the same economic factors we run into in ham radio. The radio gear for model control will run somewhere between $100.00 and $300.00 depending upon the sophistication of the system, or even more if you wish to go all the way.

After the formal presentation Mr. Olson answered many questions, some of which follow.

How hard are they to fly? Answer: Very difficult, but that is the part of the challenge that puts the real enjoyment in the hobby. This grows on you and you need a lot of help and study.

What is duration of the flight? Answer: From 8 to 15 minutes capability. Average flight is 7 or 8 minutes. We don't like to run out of gas any more than if you were in the plane.

Can more than one plane be flown at a time? Answer: Yes, one for each frequency available. Transmitters are marked by a flag on the antenna so that all in the vicinity will know the frequency or frequencies in use.

Do you run into interference? Answer: Yes we do, and we don't usually know where it comes from. Could be most anything – CB, ham, aircraft. Sometimes we have to cease flying. Perhaps there is too much "glich." (Ed. Note: How do you spell "glich"?)

What kind of planes do you fly? Answer: Rugged. They can be bought complete but most are built. We

usually don't design them as we want to fly as quickly as we can. We have the same problems as you do in your hobby choosing between commercial and homebrew and you don't usually design your gear either. Of course you may become specifically interested in the design of the plane, the radio, or the associated equipment. Our hope is for quite a lot of interest in design as much more development is needed.

What is the smallest radio control plane? Answer: About 15 to 18 inches wing spread using extra light controllers. They are usually larger, however, as there is a practical limitation. The aircraft becomes less efficient as it gets smaller and must, therefore, carry proportionately less weight.

How fast do they fly? Answer: The speed record is almost 200 miles per hour and this is not model speed but actual speed. Usually, however, they are flown at 40 to 50 miles per hour or less. The faster they go the quicker they can get out of sight and we do have to see them to control them.

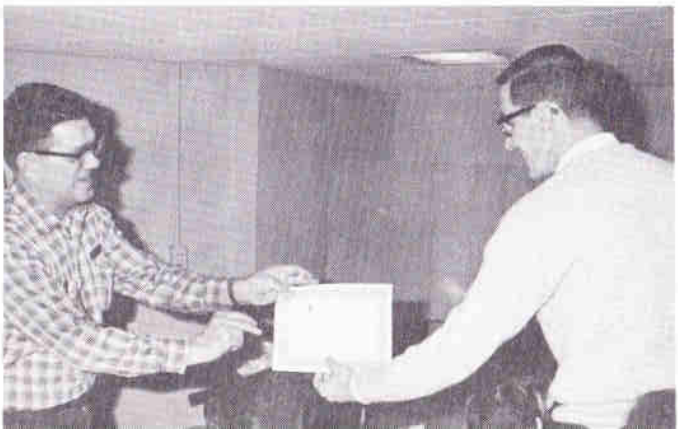
Can you do acrobatics? Answer: We can do anything a regular airplane can do and more.

What new is coming? Answer: Who knows. I hear they are even thinking of flying model helicopters and this won't be easy as it would be very difficult to relate yourself to the aircraft. In the conventional aircraft you have a wing and a fuselage and can see to determine the position or attitude. Not so in the helicopter as you have only the fuselage and that usually only a skeleton. What we will need is some automatic stabilizers or something to assist the pilot.

How do you learn to fly? Answer: You usually get an experienced hand to put the airplane up for you, then take over the controls and do your learning. Then if you get in trouble, you toss the transmitter to your friend saying loudly "help."

Mr. Olson is not only a flying hobbyist and a member of the Omahawks R/C Club, but is also engaged in the sale of the equipment. He is in good position to assist you should you have the desire to apply your radio knowledge to these small monsters. Our thanks to him for a most interesting program!

President Royce, WAØKIL, presents membership certificate to Robert H. Schellhorn, WØYSX.



Bob Lockwood, WAØDHU, was Mr. Ak-Sar-Ben at the March meeting. The third person to shake his hand and win the bill file was Roy Kydney.

****

PINE RIDGE AMATEUR RADIO CLUB 15th Annual Hamfest–June 1, 1969–Chadron State Park, Chadron, Nebraska. Door prizes and awards . . pot luck lunch . . bring a covered dish . . pop and coffee will be provided by PRARC. Contact KØOAL or WAØJKN for further information or if accommodations for cabins or motels are desired.

****

MESSAGES TO SERVICEMEN

By – Bob Lockwood, WAØDHU

The Ak-Sar-Ben Radio Club will again this year set up a Messages to Our Servicemen booth at the Southroads Shopping Center. This event will occur on May 10th – the Saturday before Mother's Day.

Last year we were asked if we were interested in this project just two weeks before the event. This was very short notice, but the Club responded with vigor to make the event a real success.

This year we were again asked if we were interested in setting up a booth to take messages for our servicemen. We have plenty of time to get organized and we should be able to handle a large volume of traffic. This will put a smile on the face of a great number of servicemen, many of whom are in Vietnam. There is something special about receiving an encouraging word from loved ones at home. These boys need our support!

We will set up our station at the Southroads and relay messages from the site to those who can in turn feed the traffic into MARS circuits. We will operate on 6 and 2 meters.

Here is a grand opportunity to take part in a very worthwhile project. The booth will be open from 1:00 P.M. to 5:P.M. on Saturday, May 10th. We will have more information on our "Messages from Mothers, Wives and Sweethearts" campaign later. Plan now to participate!

****

The man at the top gets to the bottom of things. – Lou, WØVLI

****

FIELD DAY 1969

By – Bob Lockwood, WAØDHU

Field Day 1969 is approaching fast and your Field Day Committee is hard at work getting things set for Ak-Sar-Ben's best ever.

The biggest news is that your Committee went to the new site to look it over and liked what we saw. Erv Heinz, Jim Anderson and XYL Sharlene, Norv and Connie Bowen, and I braved the cold, blustery winds to observe a nice high location – perfect for VHF, with a beautiful view of the Platte River, and miles from power lines and other sources of QRN. An ideal site for both HF and VHF operation with plenty of room for HF antennas. We firmly believe this site will prove to net us ideal propagation conditions. Again we express thanks to Norval and Connie Bowen for the use of this site.

We are in need of suitable shelters for our rigs and request anyone who has one to call me – Bob Lockwood, WAØDHU, phone 451-7233 – or any Board member. We express thanks to those who have already responded. When we made the decision to use this new site, we expressed confidence in our fellow club members to get behind this thing and push together. We can still use more shelters, so if you have such a vehicle, please let us know about it.

We plan that the June meeting will be a big "pep rally" for our team. This meeting will be a big one so plan now to attend it. At that time we will lay out plans for the big event and show films of previous Field Days.

We will keep you posted on our progress in planning for Field Day this year. We welcome comments and ideas so don't hesitate to state your ideas. Remember it is your ideas which make the Club tick. It is up to the Board and Committees to fulfill the wishes of the members. This is your Field Day. Let's make Field Day 1969 a real success both in competition and as the first of our Hamfests.

****

99% PURE

Two men were seated in the lobby of a blood-donor station. One was an Eastern tourist, the other an Apache Indian. After staring a few minutes, the tourist could contain his curiosity no longer.

"Are you a full-blooded Indian?" he asked.

"Well, no," replied the Apache thoughtfully, "I'm a pint short."

****

ARE YOU READY ? ? ?

Are you ready for an emergency?? Can you ever be ready? Well maybe not – but just thinking that something could happen where your help is needed is a start. In fact, most of us are more ready than we think.

We do have a knowledge of communications; we have equipment; and most of all, we have the desire to help others when they need help.

You know what it takes to get your mobile or emergency equipment ready for operation. So in the next few days, take the time to check it out and YOU WILL BE READY.

If this spring turns out to be half as tough as the past winter – you can be sure there will be a need for our services. Thank you for being ready!

Fred Fischer
WØEGP/VP

****

1969 ARMED FORCES DAY COMMUNICATION TESTS

Each year on the third Saturday in May, the Department of Defense sponsors the observance of Armed Forces Day. As a part of this observance the Departments of the Army, Navy and Air Force annually conduct communication tests designed to demonstrate to the world the close partnership and mutual respect enjoyed between U.S. amateur radio operators and the U.S. military. This year's program will be conducted on Saturday, May 17, 1969, and all licensed radio amateurs are encouraged to participate.

The Radio Amateur's contributions to communication training, international goodwill, military morale and emergency services are recognized by every echelon of the military services. The Armed Forces Day Communication tests are designed to be a tangible demonstration of the firm and long standing Department of Defense policy to encourage and support amateur radio activity. On this twentieth observance of Armed Forces Day, all radio amateurs are invited to participate and demonstrate to the world the close partnership and mutual respect that U.S. amateurs and U.S. military enjoy.

Once again this year, several military radio stations will participate in communication tests which include military-to-amateur crossband operations and receiving contests for both continuous wave (CW) and radiotelegraph typewriter (RTTY) modes of operation.

Special QSL cards confirming crossband communications will be forwarded to those amateurs who establish two-way contact with participating military stations. Certificates will be awarded to those who aptly demonstrate their operating ability and technical skill by receiving a perfect copy of the Secretary of Defense originated "CW" and/or "RTTY" message(s) transmitted during the receiving contest portion of the communication tests. Interception by short wave listeners (SWL) will not qualify for a QSL card in confirmation of crossband communications. However, anyone who has the equipment and abilities may copy the Secretary of Defense messages and receive a certificate.

MILITARY TO AMATEUR CROSSBAND TEST

Military radio stations WAR, NSS, NPG and AIR will be on the air from 1714ØØZ GMT to 18Ø245Z GMT. During this test of crossband operations, the military stations will transmit on specified military frequencies while amateur stations will transmit in the indicated portions of the amateur bands. Contacts will consist of a brief exchange of locations and signal reports. No traffic handling will be permitted.

STATION	MILITARY FREQUENCY KHZ unless otherwise Noted	EMISSION	APPROPRIATE AMATEUR BAND (MHZ)
(Army Radio Wash., D.C.)	4001.5	CW	3.5 – 3.65
	4020	CW	3.65 – 3.8
	6992.5	CW	7.0 – 7.1
	7325	CW	7.1 – 7.2
	14405	CW	14.0 – 14.2
NSS (Navy Radio Wash., D.C.)	3385	CW	3.5 – 3.65
	4012.5	RATT	3.65 – 3.8
	4040	LSB	3.8 – 4.0
	7301	CW	7.1 – 7.2
	7336	LSB	7.2 – 7.3
	7380	RATT	7.0 – 7.2
	13940	RATT	14 – 14.1
	14385	USB	14.2 – 14.35
	14400	CW	14.0 – 14.2
	21500	CW	21 – 21.25
	*143.820 MHZ	AFSK/RATT/AM	144.0 – 145.5

*Provided it is consistent with operational and training commitments, this frequency will be keyed from a U.S. Navy aircraft flying between Washington, D.C. and Boston, Massachusetts during the major portion of the time allotted for military to amateur crossband contacts. The flight path will be over Baltimore, Philadelphia, New York City and Hartford, Connecticut. The call sign NSSAM will be utilized from the aircraft.

NPG (Navy Radio – San Francisco, Calif.)	4001.5	LSB	3.8 – 4
	4005	CW	3.5 – 3.65
	4016.5	RATT	3.65 – 3.8
	7301.5	LSB	7.2 – 7.3
	7347.5	RATT	7.0 – 7.2
	7495	CW	7.1 – 7.2
	13922.5	RATT	14. – 14.1
	13975.5	CW	14.0 – 14.2
	14356	USB	14.2 – 14.35
	20954.5	CW	21 – 21.25
	21600	USB	21.25 – 21.45
	**143.700 MHZ	AM	144 – 148
	#148.410 MHZ	AM/FM/AFSK	144 – 148

#To be operated from Mt. Diablo.

**Provided it is consistent with operational and training commitments, this frequency will be keyed from a U. S. Navy aircraft flying between Los Angeles and Seattle during the major portion of the time allotted for military to amateur crossband contacts. The call sign NPGAM will be utilized from the aircraft.

STATION	MILITARY FREQUENCY KHZ unless otherwise Noted	EMISSION	APPROPRIATE AMATEUR BAND (MHZ)
AIR (Air Force Radio Wash., D.C.)	3347	RTTY	3.5 – 3.8
	3397.5	CW	3.5 – 3.8
	4025	LSB	3.8 – 4.0
	6997.5	CW	7.0 – 7.2
	7305	LSB	7.2 – 7.3
	7315	RTTY	7.0 – 7.2
	13995	CW	14.0 – 14.2
	14397	USB	14.2 – 14.35
	20994	CW	21.0 – 21.1

CW RECEIVING CONTEST

A "CW" receiving contest will be conducted for any person capable of copying International Morse Code at 25 words per minute. The "CW" broadcast will consist of a special Armed Forces Day message from the Secretary of Defense addressed to all radio amateurs and other participants. The schedule for this broadcast is as follows:

TIME	TRANSMITTING STATION	FREQUENCIES (KHZ)
17 May 1969		
18Ø3ØØ GMT	WAR - Army	3347, 6992.5, 14405
1723ØØ EDST	NSS - Navy	3385, 730l,14400, 21500
1719ØØ PST	NPG - Navy	4005, 7495, 13975.5, 20954.5
	AIR - Air Force	3397.5, 7315, 13995
	A6USA - Army Radio San Francisco	6997.5

RTTY RECEIVING CONTEST

A radioteletypewriter "RTTY" receiving contest will be conducted for any individual amateur or station possessing the required equipment. This is a test of the operator's technical skill in aligning and adjusting

his equipment, and serves to demonstrate the growing number of amateurs becoming skilled in this method of rapid communications. The "RTTY" broadcast will consist of a special Armed Forces Day message from the Secretary of Defense to all radioteletypewriter enthusiasts. The message will be transmitted at 60 words per minute in accordance with the following schedule:

TIME	TRANSMITTING STATION	FREQUENCIES (KHZ)
17 May 1969		
18Ø335 GMT	WAR – Army	3347, 6992.5, 14405
172335 EDST	NSS – Navy	4012.5, 7380, 13940
172135 CST	NPG – Navy	4016.5, 7347.5, 13922.5
171935 PST	AIR – Air Force	3397.5, 7315, 13995
	A6USA – Army Radio San Francisco	6997.5
	A5USA – Army Radio Fort Houston, Texas	4025

SUBMISSION OF COMPETITION 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 (if any) and address of the individual submitting the entry must be indicated on the page containing the text. Each year a large number of perfect copies are received with insufficient information, thereby precluding the issuance of a certificate.

Completed entries should be submitted to the Armed Forces Day Contest, Room 5A522, The Pentagon, Washington, D.C. 20315, and postmarked no later than 31 May 1969.

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OFFICIAL BULLETIN NR 213 FROM ARRL HEADQUARTERS NEWINGTON CONN MARCH 20 1969 TO ALL RADIO AMATEURS BT

On March 19 FCC issued a notice that there is no longer any objection to communications between its amateurs and those stations in Thailand which use their United States call letters followed by the slant HS indicator, with the concurrence of the Thai government. Contacts with HS prefix stations remain prohibited. Additional information reveals that Indonesia and the United States have agreed to permit amateurs of one country to operate their stations while visiting in the other, effective immediately. Other banned country and reciprocal operating information appears in IARU News, April QST AR

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Following form picked up from Ra Ra Rag as an additional reminder that if you wish to operate away from home, this information should be sent to the FCC District Engineer before operation begins.

Portable-Mobile FCC Notice

Use this form, or a copy, to notify FCC of intended portable/mobile operation.

NOTICE OF OPERATION AWAY FROM HOME

To the District FCC Engineer-in-Charge Re: Section 97.97

_____District(s)

a. Name of licensee_____b. Call_____

c. Authorized fixed transmitter location_____

_____

d(1) Portable____or temporary fixed____or new permanent location_____

(Check one of the above and put in address here)_____

_____

d(2) Or insert mobile itinerary here:_____

_____

_____

g. Vehicle:_____Registration Number_____of_____State

f. Address at which, or through which, the licensee can be reached:

_____

_____

e. Dates of beginning and ending these portable or mobile operations:

_____

Remarks:_____

NOTE: This form should be mailed early enough to reach all the FCC engineers concerned before operation begins. However, the amateur need not wait for a reply.

ARRL Form S-43(a) 6802 Printed in the U.S.A.

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THE BAND SPANNER

By Pat Fennacy, W6YEP

This month: VHF FM Activity in Central California.

Want more "talk" distance for the least amount of scratch $$$$$? Go VHF FM. Tired of battling TVI? Why piddle around with traps, loading coils, 1000 lb. beams, miles of wire and power-sucking linears? Go VHF FM. Why get stomped on by an out-of-state station during an in-state (regional or local) QSO? VHF FM gives you a direct "pipeline" to a particular party using rugged, reliable and inexpensive equipment. With VHF FM, it is not necessary to construct a religious shrine in the corner of your shack in order to pray for good band conditions. On VHF FM, conditions are great all the time, and with a little technical know-how you can make them even better.

VHF FM Tech Specs

On the HF bands with its conglomeration of transmitting modes, one often hears the old familiar phrase, "Someday we've got to get organized!" But when? VHF FM is doing it now.

VHF FM activity is practicing "birth control" in the two meter band by spacing common operating frequencies 60 KHz apart, thus developing truly QRM free channels. Eventually, the spacing may be reduced to 30 KHz between channels within the next ten years as more narrow band equipment starts appearing on the air. Presently the standard is about 10 KHz deviation.

A review of FM MAGAZINE, Sept. '68, reveals the more actively standardized frequencies across our nation. They are as follows: 146.34, −.40, −.46, −.52, −.58, −.64, −.70, −.76, −.82, −.88, and 146.94, plus a few misc. channels in the 147 to 148 region. Locally, activity has been logged on 146.34, −.40, −.52, −.70. K6OPG (Tulare Repeater) is on 146.94 and is considered to be the most active and reliable frequency in case of an emergency.

Presently, there are approximately 19 active chaps on FM in the two meter band in the Central California area. There is no six meter FM activity in our area except for one or two repeaters on channels around 53.8 to 53.9 MHz. There is some activity around 440 MHz but a majority of it is for control of remote bases.

Powerwise, our local boys run anywhere from 5 to 100 watts, base and mobile, with fantastic results. For example, Al Hilditch, WB6HYL, carried on a solid Q-5 chat for 2½ hours with a mobile barreling south on the freeway from Fresno to Lebec, a distance of over 130 miles. Surely one could do the same thing with an expensive SSB rig, but this feat was accomplished with just a $35.00 surplus clunker with squelch action (wife approved). This is pretty routine stuff on two meter FM, but not so on AM. Puny-power-pushing prize winners include Bob Massie, WA6VFU, and Bill Magee, W6CXY, for their ¼ watt to ¼ watt walkie-talkie QSO on

146.94 MHz between Fresno and Huntington Lake!

Local Organization

As obviously noted, the interests of the avid VHF FM operator and the HF SSB or CW operators are not the same except for the desire to communicate on a particular band with a particular mode which he feels is most efficient. It is possible for the local HF DX fellows to organize a local VHF FM net in the 147 MHz portion of the band in order to exchange DX info or to establish a local DX alarm. Also, it is possible for the active VHF FM man to use a HF frequency as a talk-link when field testing experimental long range FM units.

But what about the guy who is strictly interested in, and is able to, operate only from 145 to 147 MHz in the Central California area? It is very difficult for a club with the size and diversified interests of the Fresno Amateur Radio Club to actively sponsor an all-out program to promote VHF FM within the club. So, the next best thing is to promote VHF FM outside the club. There are SSB, DX, Rag Chewers, VHF'ers (SSB experimental), and out of town clubs, so why not a FM club, independent of FARC, yet promoted with its blessings?

What's holding back the existence of a VHF FM club in the Fresno County area? A charter? What does it take to get a charter from the state? A lot of devoted members with a few bucks for legal expenses and you're in. What do you gain? Access to modern communications equipment, an actively monitored repeater with tremendous range and modern technical know-how. There is an urgent need for a club such as this. It would be ideal for either the apartment dweller or hill'n'dale op. It would be extremely useful for restricted regional traffic, civil defense and special events. Five years from now, it will be possible to communicate a thousand miles down the line of repeaters with only five watts to a little 19 inch whip. This is no "pipe dream." It's actually happening right now on a smaller scale over all the nation. It will eventually expand into satellite communications. Be in on the ground floor by forming a specialized club devoted to this particular facet of ham radio. This doesn't mean that by forming or eventually joining the FM Club you completely alienate yourselves from the FARC or ARRL or degrade them. Stay associated with a hybrid interest social club such as FARC, yet take the opportunity to specialize in the interest of your choice, one of which I hope will be the new and rapidly growing field of VHF FM radio.

Do you need advice on equipment, who has it, and what is it, test signals or club information? Call Al Hilditch at 439-0209, or Phil Fish, WB6GGY, at 486-0409. Both will be of great help to you as they were to me in preparing this article.

Don't let anyone kid you about VHF FM being like CB. When the chips are down in a highway emergency or civil disaster, VHF FM will be on top.

Pat, W6YEP
de Fresno Skip

(Editor's Note: In the Ak-Sar-Ben Radio Club there is a special committee for handling the VHF

Repeater on 2 meters. Thus any member who desires is automatically a member of the VHF Repeater Club. If you wish to serve on the committee, you have only to make your desires known. If you wish a special meeting of the VHF group, this can also be easily arranged. Make your desires known to the committee which currently consists of Fred Fischer, Jim Droege, Bob Lockwood, Harold McClenahan, John Snyder and Dick Eilers.)

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MILLION DOLLAR HAM/TVI LAWSUIT

One of the most unusual lawsuits involving ham radio is taking place in Sarasota, Fla. Several months ago, Ansel "Grid" Gridley, W4GJO, was sued by his neighbor–claiming $1,000,000 damages–for alleged interference to TV reception.

The suit was filed regardless of the efforts of the FCC, Sarasota Amateur Radio Association and Grid to resolve the problem. W4GJO is world-renowned for his interest in UHF-VHF propagation and the equipment in Grid's ham shack meets or surpasses all FCC Standards for interference suppression. However, his neighbor has refused to permit any device or filter to be connected to his TV receiver to increase the receiver's ability to reject radio signals outside the TV channels.

The plaintiff in the lawsuit has also used paid advertisements to literally "damn" the existence of radio hams. This was in addition to other more tangible harassments. When served with a restraining order and injunction, the plaintiff allegedly threatened Grid's life.

The eventual outcome of this lawsuit may have long-standing effects not only on hams but on CB'ers and anyone else using radio transmitting equipment. Should the court find in favor of the plaintiff, it would enable any TV viewer to decide when and how a transmitter might be used.

This lawsuit has cost money to defend and donations are being solicited by the Sarasota Amateur Radio Association, P.O. Box 3326, Sarasota, Fla. 33578. Any contribution will be appreciated. We will keep you informed of developments.

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OWENSBORO, KENTUCKY – Practically every tube found in any piece of electronic equipment, including AM, FM, or television, is listed in the newest edition of General Electric's popular "Essential Characteristics" Reference Manual now available to service technicians, design engineers and hobbists.

Prepared by GE's Tube Department, this "one source" Reference Manual has been updated to include 270 additional new receiving tube types.

The "Essential Characteristics" Reference Manual (ETRM-15N), which includes the handy Basing Diagrams supplement (ETRM-15N-1) can be obtained for only $1.00 through any GE Electronic Components distributor or by mail from General Electric Company, Department "B," 3800 N. Milwaukee Avenue, Chicago, Illinois 60641.

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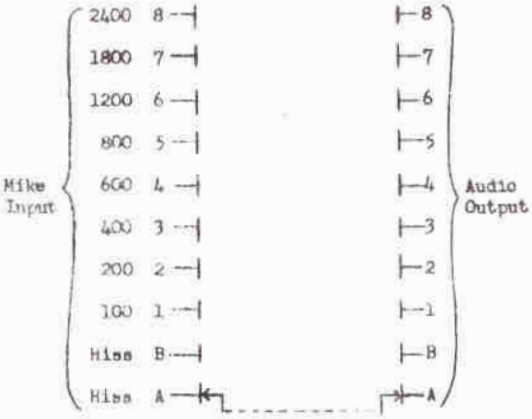
DIGITAL COMMUNICATIONS

Andy, KØNL

A couple of issues ago we made a one sentence prediction that the next radical development for amateur radio communications would be digital communications. We still think so, and feel that within a matter of perhaps ten years, the first digital communications will enter the amateur bands and gradually take over like SSB swamped AM.

What is digital communications? Like many other things it is very complex, but perhaps the fundamentals of it can be illustrated by diagram:



On the left we have a microphone and associated voice equipment. This signal is fed into a series of ten filters, labeled A, B, 1 – 8 on the diagram. On the right we have a series of audio oscillators, which correspond in frequency to the filters on the left side. The line with the arrows represents a distributor system, such as we have in Teletype, except that there are ten "segments." Filter A and B are "hiss" filters, and are used with sounds such as "s" and "c." Filters 1 – 8 are individual frequencies. Suppose that at any particular instant of time, a signal is present at filters A, 2, 3, 6 and 8. The distributor, in sweeping from the bottom to the top will find the binary signal 1011100101 (which will be backwards to some readers). As the distributor of the receiving end follows the sending end, we will have the hiss oscillator A, pitch oscillators 2, 3, 6, and 8 keyed on, and the original signal will be reproduced. As previously stated, this is about as simple as we can get and a neophyte can find plenty wrong with it, but maybe it will give one the idea of how it works.

Actually, although a mechanical distributor is shown, the sampling must be at a very high rate, and electronic distributors are required. If the sampling is done at a high rate per second, good quality is evident. In fact it is remarkable how good the quality can be for the few number of digits sent!! One's voice loses its identity (unless great bandwidth is used) but it is easily understood.

The remarkable thing about digital communications is that, because of the digital form, many things can be done to the signal that are unthinkable with ordinary audio. A telephone signal, instead of being repeatedly amplified as it is now, will be regenerated instead of "repeated." Like teletype transmissions, theoretically a signal could be sent around the world forever without deterioration!! A plain shielded cable pair will carry a hundred times more voice channels for the simple reason that one does not care about a "bit" being distorted, weak, a little out of phase, etc. etc.

just so it's there it can be regenerated into a perfect pulse. Digital systems can be enciphered, thus solving insurmountable problems of analog type scramblers. Error correction codes can be employed, such as are now in use on circuits carrying computer signals wherein errors are electrically corrected without the operator even being conscious that an error occured!

To understand the application of digital communications to amateur radio, the closest example we can think of is two RTTY circuits in which narrow shift is employed with very narrow filters. These two RTTY circuits will print perfectly even though the two signals are only a couple of hundred cycles apart!! In the 3 kc/s normally alloted to one voice channel, it would be possible to put many phone signals, all operating without interference to another!! Presumable it would be possible, using moderately sophisticated equipment, to separate the loudest signal while rejecting all the rest, so a completely interference-free signal would emerge from the speaker, even though there was the usual "crud." And think what would happen to the noise figures!!

The advantages of digital communications are fast being exploited by the telephone companies. It's not coming, it's here! It's waiting for the amateurs to climb on the bandwagon. We stand on our prediction that not more than a decade will see digital communications the amateur bands.

Any comments?

From Auto-Call

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OFFICIAL BULLETIN NR 211 FROM ARRL HEADQUARTERS NEWINGTON CONN MARCH 6 1969 TO ALL RADIO AMATEURS BT

With the coming of the travel season, amateurs will be taking advantage of reciprocal operating agreements. Amateurs traveling across the Canadian United States border should apply for an operating permit 30 to 40 days in advance. W/K licensees apply to the Post Office Department, Century Building, Lisgar Street, Ottawa, Canada or its six regional offices. Canadians apply to the FCC, Washington, District of Columbia 20554. Travelers visiting elsewhere should allow at least two months for processing of requests. Write to ARRL headquarters for details on a particular country AR

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Operating Aid 14 continues to be a popular and useful ARRL aid. The convenient perforated form includes the RST system, a time conversion chart, ending signals, the ARRL and ICAO phonetic alphabets and steps to follow in an emergency. To get your free copy, send a stamped self addressed envelope to ARRL, 225 Main Street, Newington, Connecticut 06111 AR

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