HAM HUM

July 1962

Vol. XII
No. 7

JULY PROGRAM

Next meeting will be held on Friday, July 13th, at the 4-H Building, Ak-Sar-Ben Field, at 2000 C.S.T.

First speaker - Tony Schneider, owner of Industrial Electronics of Omaha. He will talk on the use of Industrial Electronics in the Omaha area, commercial of course or amateur. Come out and hear how electronic components are manufactured right here in our town. Guaranteed to surprise and astound you!

Second speaker - Dr. Lynn W. Thompson, KØJBQ. He will talk on the use of phone on the air. This is the subject of a recent article in QST. How do we sound on the other end? Does it make sense? How to make your station an interesting one that will invite a repeat on a QSL? Would you say what you say if you could see the other guy across the table?

Third - Eyeball and eats.

****

SELL OR SWAP - Chrome-Plated Deluxe Luggage Rack for car top.

Bob Miller, KØZLY
553-7005 or
556-3478

****

9 WAYS TO KILL ANY CLUB

1. Don't go to any of the meetings.
2. But in case you do go, go late and make a lot of fuss and noise when you enter.
3. If you should happen to attend, always criticize the officers and members.
4. Never take any office, but criticize the guy who is in office.
5. Don't say anything at the meeting. Do all your beefing afterwards.
6. If asked to do something, refuse. But always yell that the club is being run by a 'clique.'
7. Don't report any complaints, but whisper that the club doesn't take those things up.
8. Tell everyone that nothing is being done.
9. Don't pay your dues but tell everyone that the club is squandering your money.

Adapted from Technician-Engineer by John Snyder, Associate Editor (WØWRT)

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NEW ARRIVAL

John Snyder, WØWRT, and Mrs. announce the arrival of a Junior Op - a boy, Frederick James, born May 20th.

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AERONAUTICAL MOBILE FOR VHF'rs

Sunday, July 15th, two Omaha Amateurs will be working Aeronautical Mobile on six meters utilizing the Douglas-Sarpy County Red Cross plane.

A series of modifications have been made in the aircraft preparing it for service with the Red Cross "air-ground" search and rescue team.

For the July 15th tests, plans call for two transmitters and two antennas. One antenna will be a vertical whip and the second an end fed Zepp. One transmitter will have the absolute minimum of power. The second will be a Communicator. There will be tests of range of the equipment utilizing various combinations of transmitters and antennas.

World Radio Labs is interested in the results of their Tech-Ceiver, one will be in use operated by Al McMillan of WRL, WØJJK. Hugh Tinley, KØGHK, will be representing the Red Cross.

Take off time is 1 PM: the plane will be in the air until 5 PM.

Present plans call for a flight to Des Moines arriving there around two. Some time will be spent over the City and from there the plane will proceed toward Sioux City, from Sioux City to Lincoln, Nebraska and then back to Omaha.

The plane will be at 8 to 10 thousand feet to obtain maximum range on the VHF frequencies. A crystal will be used at 50.5 megacycles and the fellows definitely will be interested in making as many contacts as possible. A map will be used to plot the effective range. The plane will be operating under the call letter of KØGHK.

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June 6, 1962
Cherry Hill, N. J.

Hi Gang:

Sure enjoy Ham Hum so far away from old friends. I am now working on the ComLog Net program as a Logic Engineer with RCA Service Co. The work is Digital Communications, computer controlled. Will send in $'s for Ham Hum when I return to California from school here at home office New Jersey.

73's
Millard Edgerton
WA6VZZ - Ex WØNRT

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By John W. Orr, WØPHW
RTTY Editor

In the first two articles of this series we briefly described the operation of the sending keyboard and the receiving machine. We discussed the code as used by machines to transmit intelligence, receive it and convert it into printed form. The code is a two condition code, current or no-current or, respectively, closed contact or open contact. More generally the terms "Mark" and "Space" are used to describe the current and no-current conditions. At rest the machines are in the "Mark" condition. When transmitting a character the machine generates "Spaces" and "Marks" depending upon the code of the character sent.

By far the most simple method of RTTY transmission is carrier on-off. Connecting the keyboard contacts to the key jack of the radio transmitter will cause carrier to be transmitted for a "Mark" and no carrier for a "Space" condition. To receive this signal we need simple equipment. The receiver is tuned to the carrier of the transmitter, the BFO turned on and adjusted to produce a tone. About 1000 cycles would do. A tone for a "Mark" and no tone for a "Space." The tone may be fed into a diode rectifier circuit to produce a voltage which will operate a sensitive relay. The contacts of the relay would be connected to the machine. See figure one.

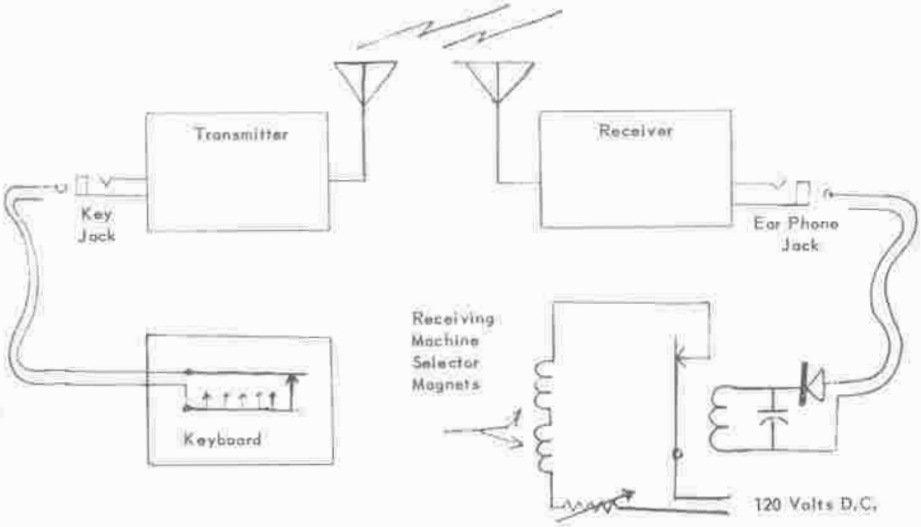


Figure One

This system will work; however, there are some important disadvantages. Since we are receiving a signal for a "Mark" and relying upon no signal for a "Space" we may not always have a no signal condition due to noise. Noise present during a "Space" condition will be rectified and may tend to operate the relay. The noise present during the "Mark" condition will aid the signal "Mark." If the noise level is too high we may never be able to release the relay and receive a "Space" condition. This type of transmission relies upon amplitude signal and is similar to AM modulation.

To overcome the effects of noise let's look at FM transmission. Instead of turning the carrier on and off we can shift the frequency as is done in FM. Noise is cancelled and is not effective in our received signal.

With the keyboard connected to our transmitter as shown in figure two, when the contacts are closed a capacitor across the oscillator crystal will lower the crystal frequency. When the contacts open for a "Space" condition the oscillator will change frequency upward to its natural frequency. This is known as Frequency Shift Keying (FSK). When this circuit is used a relay is often placed between the contacts and the capacitor to eliminate the machine circuit capacity.

The capacitor is adjusted for a shift in frequency at the antenna of 850 cycles. We will discuss shift later; 850 is the most common shift used.

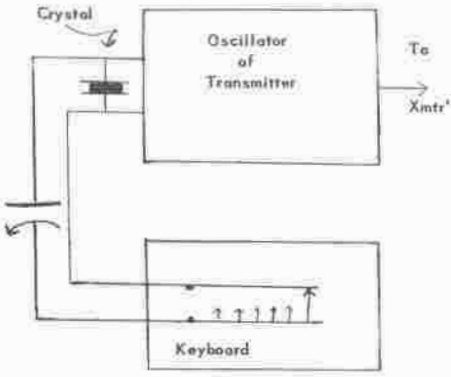


Figure Two

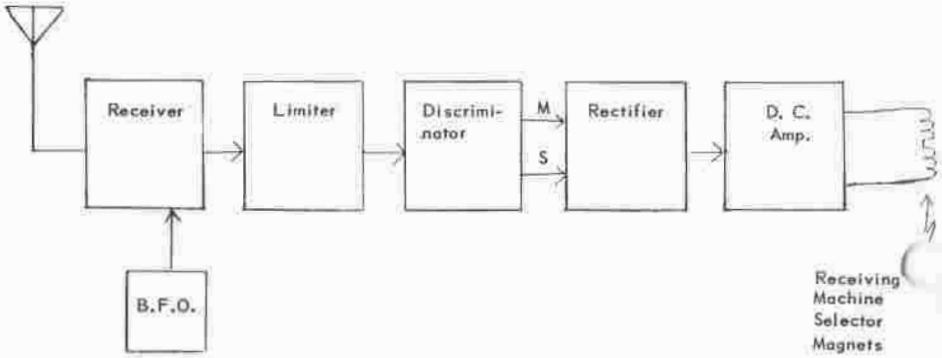


Figure Three

By Royal Enders, KØLYO,
1962 Club President

CQ CQ DE KØLYO BT

Ak-Sar-Ben Radio Club, Inc., bows deeply and congratulates The Sioux City Amateur Radio Society, and its President, Jim Edgerton, on their splendid performance during the 1962 ARRL Field Day Contest. The Field Day Trophy will be presented to the "Soo-Land" Club in the near future, and soon afterward will be displayed at a membership meeting of Our Club.

The exact point scores of the two Clubs have not been finally audited, but here is the way it stacks up at the moment:

Ak-Sar-Ben	4266 Points
Soo-Land	4854 Points

Our Field Day Operations scored like this:

40 Meter CW	86 Contacts,	Multiplier 3x3	774 Points
20 Meter SSB	255 Contacts,	Multiplier 3x3	2295 Points
15 Meter SSB	25 Contacts,	Multiplier 3x3	225 Points
6 Meter AM	79 Contacts,	Multiplier 3x3	711 Points
2 Meter AM	29 Contacts,	Multiplier 3x3	261 Points

ARRL Rules and Regulations provide for a Multiplier of 3 for the exclusive use of emergency power service, and an additional Multiplier of 3 for the use of input final power of 30 Watts or less. Sioux City had the emergency power Multiplier of 3, but, since they used final input power of over 30 Watts, but less than 150, their other Multiplier was 2. They scored their big point score on 15 and 20 Meter CW, using some veteran CW operators with real good and real fast "Fists". Again, our Congratulations to Sioux City.

For 1963 ARRL Field Day, the Trophy will again be at stake, and we hope that our Omaha Club can claim possession of it for the following year. Sioux Falls also will be in the 1963 Competition, so we will want to be "On The Ball" and make sure that we are not out-pointed by the "Up-River" Clubs.

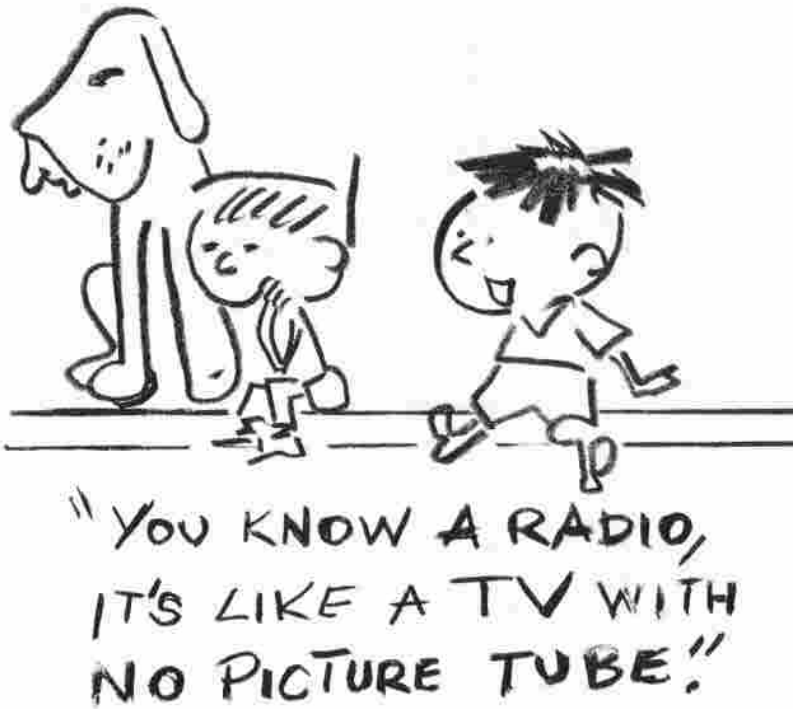
The Board of Trustees will meet at the call of your President on Friday evening, July 20, at Prexy's QTH, for the purpose of planning the September Picnic, and appointing the necessary Committees, as well as transacting other Club Business.

Every Club Member should put a big red circle around September 16, Picnic Sunday.

73 CUL BT Royal

OFFICIAL BULLETIN NR 852 FROM ARRL HEADQUARTERS WEST HARTFORD, CONN. JUNE 15, 1962 TO ALL RADIO AMATEURS BT

Attention DXers. CR8AB is now active from Portuguese Timor. Portuguese Timor previously has used the prefix CR1Ø. QSLs for CR8AB should go to W4QCW with self addressed stamped envelope AR.



become an active member of the AK-SAR-BEN RADIO CLUB

FILL IN - CUT OUT, AND PASTE ON THE REPLY

Please submit my application for membership in the Ak-Sar-Ben Radio Club, Inc. I am interested in Amateur Radio.

Name _____
Address _____
Call _____
Bus. Phone _____
Res. Phone _____
Employer _____
Date of Birth _____

The method used to receive a frequency shift signal is somewhat more complex. A block diagram of such a circuit is shown in figure three. The receiver is tuned to the FSK signal with the BFO on. This will produce a shifting tone in the receiver output. The tone will be shifting 850 cycles. Usually the BFO is adjusted so that the tones are 2125 cycles for a "Mark" condition and 2975 for a "Space" condition. This is necessary since later in the circuit we will use filters tuned to these frequencies.

The output of the receiver is fed to a "Limiter" circuit. This is an arrangement which will amplify weak signals and limit strong signals. The output of the "Limiter" is at a constant level for both the "Mark" and "Space" conditions. This circuit will also compensate for some signal fading. It prevents overloading the "Discriminator" stage. From the "Limiter" the signals are fed into a "Discriminator." This circuit will separate the "Mark" and "Space" tones. This circuit consists of two filters or two tuned circuits as filters, one for "Mark" and one for "Space."

The output of the "Discriminator" for "Mark" and "Space" signals is fed into rectifiers where the A.C. tones are converted into D.C. signals. One rectifier is arranged to produce a positive voltage for a "Mark" and the other rectifier arranged to produce a negative voltage for a "Space."

The voltages produced by these rectifiers usually must be amplified to operate the machine. A D.C. amplifier is used. With the proper circuit the selector magnets of the receiving machine may be connected directly in the plate circuit of the D.C. amplifier. The positive "Mark" voltage will cause the amplifier to conduct and the magnets will become energized. The negative voltage will cause the amplifier to non-conduct and de-generize the magnets.

The advantage of this type of operation is that noise present in both signals will aid each signal and thus effectively cancel itself. It is push-pull operation in that we push the amplifier to conduction and pull it to non-conduction. The circuitry external to the receiver and machine, i. e., limiter through D.C. Amp is called the RTTY converter.

Another type of transmission is Audio Frequency Shift Keying (AFSK). The keyboard contacts shift the frequency of an audio frequency oscillator. This signal is fed into the modulator of an AM transmitter. The resulting two audio tones are received with the BFO off and fed into the receiving circuit described above. AFSK is used on the higher frequency bands where it is difficult to shift the carrier a small amount. It may also be used in FM operation.

Several questions have been raised about the different types of selector mechanisms used by the Teletype Corp. machines model 14 and 15. There are two mechanisms: the older mechanism was a pulling magnet selector; the newer mechanism is known as a holding magnet selector. The holding magnet selector will operate at higher speeds. Both mechanisms will give satisfactory Amateur service. The pulling magnet selectors should be operated

with 60 milliamp. The holding magnet selectors may, however, be operated with either 60 or 20 milliamp. With the magnet coils in series use 20 milliamp and in parallel use 60 milliamp. All model 26 type machines have holding magnets.

To identify the pulling magnet, notice that the armature does not move when all power is disconnected and the motor rotated by hand. The armature of the holding magnet will move to its operated position and release six times during one rotation of the mainshaft. Some machines equipped with the holding magnets have a toggle switch, others a terminal strip located above the selector on the left side of the unit. When the magnets are connected in series a 5000 ohm resistence is connected across them to reduce inductive kick.

Please address questions to:
Ak-Sar-Ben Radio Club, Inc.
RTTY
P. O. Box 291
Omaha 1, Nebraska

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June 23, 1962

Dear Sir:

Would like to be included on your mailing list of Ham Hum.

Also our Tri-City Amateur Radio Club Picnic will be Aug. 12 at Pioneer Park, Scottsbluff, Nebr. Everyone welcome.

Thank you.

Wayne Dotson, KØPIU
610 Bluff
Scottsbulff, Nebr.

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FOR SALE:

CHF-62 Hibander - $80.00. Call Cecil DeWitt, WØRMB - 556-4619.

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S. 2361

I have received a letter from Representative Glenn Cunningham of the Nebraska 2nd. District in which he states "I would be pleased to lend my support to S. 2361 and appreciate your calling this measure to my attention."

For those who still do not know what S. 2361 is, this is the reciprocal licensing bill which evidently needs the support of every amateur in our Club. For further information, see recent issues of QST, CQ or 73 magazines. This is backed up by ARRL and most radio clubs across the nation. Don't procrastinate - write your U.S. senators and represenatives today.

73,
John Snyder, WØWRT
Assoc. Editor

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June 17, 1962

Dear Dick:

Many of your Ak-Sar-Ben members have requested and received our DEAR MABEL XYL AWARD. We still have many more for the asking. Thanks for the donation to help pay for the mailings. It helped mucho' Enjoyed your June HAM HUM. It is always "clean, neat and full of good news."

Good luck in FD. By the way, our AREC Manual will be out shortly. Does your EC or SEC want a copy?

73,
Andy Clark, W4IYT
Editor
Florida Skip, Inc.

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DX NEWS

Sorry the news has been rather slim from this QTH for a while, but I found the feather duster and waded through the dust, paper and cobwebs to spin the dial on the hearing aid this month.

20 meters has been so-so in the mornings. You either hear 9+ DX signals or the W4 talking to the W9 or vice versa. Several mornings this month we have heard DU1TO 14183 and DU1AN 14178 AM working state side as well as KC6BK-SB 14345. Also some mornings Africa has been coming in long path such as ZS5CZ-SB 14280.

There seems to be more JA nationals on all the time both AM and SB, such as JA1ERK AM 14153. Yours truly even was able to remember where the plate switch was in the maze of knobs to snag JA1 who would QSL through the bureau and was very interested in receiving my Nebraska QSL.

VK9YT AM 14138 lays in a very beautiful signal along with the usual other VK's and ZL's.

Yours truly and family took off last April 11th for the DX land of W7CTC in Seattle. Roy has a very nice location and home on the southern side of Seattle out by the airport. If you think we hear a lot of KL7's here you should listen out there.

While in Seattle went to the World's Fair and enjoyed it very much. There is K7USA on the fair grounds in the Alaska exhibit. Also the local TV and radio stations broadcast from the grounds so there are always hams around. Keep an eye out for K7USA AM & SB as he has a special pasteboard for your collection.

Locally, Mac, YVV has been doing his DXing from the 40 ft. to 50 ft. levels working on towers and antennas. Jerry Novotny has moss all over his bug - it's almost walking with no activity. Bill Mashek called and has been busy and golfing. Curt Hicks has been working on his beam and rotator - keep trying, Curt, and you will make it.

Ferris Kramer had a real good opportunity to DX on one Saturday morning as his neighborhood twin boys of five or six years of age got him up at 5:00 A.M. Ferris just can't take the hours, I guess.

73 and DX
Jerry, WØNKG

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FOR SALE:

Factory Wired Viking Valiant. Used little. Looks brand new. I am going to Creighton next year so I need the money. $370.

KØUAF, Art Leritz
Box 2758
Sioux City Iowa.
Ph. 6-2155

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OFFICIAL BULLETIN NR 851 FROM ARRL HEADQUARTERS WEST HARTFORD CONN JUNE 8 1962 TO ALL RADIO AMATEURS BT

The following high scores were claimed for the 1962 ARRL DX Contest held last February and March. Highest single operator CW scores were HC1AGI 826,677,

W4KFC 728,856, W3ECR 665,873, W3GRF 642,252, K2DGT 571,896, W4DQS, W8FGX, K4TML, W3ALB, WOAIH, VE3 and CW multioperators W3MSK 1, 114,440, W4KXV, W6RW, K6EVR, and W3TMZ. Highest single operator phone scores were W1ONK 374,730, K2GXI 348,445, XE1CV 327,510, K5MDX 259,530, YV5AGD 252,180, W4KFC, W4BVV, HC1AGI, HI8DGC, KP4AWH and phone multi-operators W3MSK 384,153, W1HKK, W8NWO, K6EVR, and W3GRF. More high claimed 1962 ARRL DX Contest scores will appear in July QST AR

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OFFICIAL BULLETIN NR 853 FROM ARRL HEADQUARTERS WEST HARTFORD CONN JUNE 21 1962 TO ALL RADIO AMATEURS BT

The end of Oscar II presumably occurred between 0910 to 1031 CMT June 20 1962 probably over northern Europe during revolution 295. Last stations to hear Oscar II were WØLER and WØPAM of Minneapolis Minnesota. A south to north pass was recorded with the temperature more than 130 degrees F. Final orbital periods were 87.24 minutes. Amateurs worldwide are requested to report any reception of Oscar II. Reports from Scandinavia are especially valuable, as satellite death was in the vicinity of Helskini Finland. Send reports to Project Oscar Assn., P. O. Box 183, Sunnyvale, Calif. AR

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OFFICIAL BULLETIN NR 854 FROM ARRL HEADQUARTERS WEST HARTFORD CONN JUNE 29 1962 TO ALL RADIO AMATEURS BT

For all DX workers and amateurs interested in the ARRL Countries List, the following information with effective dates of change in that list is now announced.

Announcement is made of two additions and one deletion. The additions are 1, Ruanda, 2, Urundi. The deletion is Ruanda-Urundi. Confirmations for credit with either Ruanda or Urundi must be dated July 1, 1962 or after. Deletion from the Countries List of Ruanda-Urundi is effective June 30, 1962. DXCC credit claims for either Ruanda or Urundi will not be acceptable until November 1, 1962. For a more detailed announcement of the above see DXCC Notes September 1962 QST AR

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Dear Sirs:

I would like to run the following ham-ad in your fine magazine: Hallicrafters SX-100 with spkr, $185; Hallicrafters S-85, $60; Hygain 14AV vertical with radails, $15; General Crystal five band doublet with coax, $15; Globe AT-3 antenna tuner modified with coax output, $10; homebrew 10 mtr gnd plane, $10; Heathkit Cheyenne mobile transmitter with mic and HP-20, $115; and a Regency ATC-1 transistorized converter, $55. Please address all replies to KØKGO, Frank Brodale, 708 1st. Ave. So., Humboldt, Iowa. Thank You. 73

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