

DEC 1992

FEEDBACK

THE OFFICIAL NEWSLETTER OF THE
GEORGIAN BAY AMATEUR RADIO CLUB

Sponsoring

VE3OSR FM REPEATER 146.94- Mhz

VE3OST PACKET DIGIPEATER AND NODE 145.01 145.63 Mhz



Season's Greetings

GBARC

The Georgian Bay Amateur Radio Club, founded in 1973, is based in Grey and Bruce counties. The club meets at 7:30 P.M. sharp on the second Tuesday of each month, except July and August, at the Billy Bishop Airport. The club operates a 2 metre FM repeater, VE3OSR, on 146.940 - located at Woodford.

NET SCHEDULE

Sunday 09:30 hrs 3.783 Mhz

CLUB OFFICERS

President _____ VE3XOX Bob Vary
Vice-President _____ VE3IJD Gene McDonald
Sec-Treasurer _____ VE3HIP Ian Trenholm
Technical-Director _____ VE3PCK Carl Styan
Program-Director _____ Vacant
Bulletin Editor _____ VE3TSA Tom St.Amand

FEEDBACK

The official bulletin of the Georgian Bay Amateur radio club, published monthly, except July and August.

Contributions of articles/letters are encouraged and should be sent to

Tom St.Amand, VE3TSA,
1232 3rd Ave. East, Owen Sound, Ont.
N4K2L5

DUES

\$25.00 per year

MEMBERSHIP

VE3AEO TED	VE3MWU NICK
VE3AUB JACK	VE3NEM TOM
VE3BFV JIM	VE3PCK CARL
VE3BIS DICK	VE3RHJ BRAD
VE3BZC ROSS	VE3RLW ROB
VE3CC CY	VE3RSV RALPH
VE3CRV JIM	VE3TDF PAT
VE3CUV ROSS	VE3TFQ JIM
VE3DIQ BILL	VE3TFV KEN
VE3DKF JIM	VE3TSA TOM
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VE3GDH DEREK	VE3TUS BARRIE
VE3HIO RICK	VE3TWI OKKE
VE3HIP IAN	VE3TWJ DAVE
VE3HMZ BILL	VE3TWK JACK
VE3HXX IAN	VE3TWL CATHY
VE3IEV JOHN	VE3TXB JOHN
VE3IJD GENE	VE3TYL JIM
VE3IOD GARY	VE3UIC JASON
VE3IXR MURRAY	VE3VTO DON
VE3JUO DON	VE3WNW BILL
VE3LKD BOB	VE3WWS VIHLO
VE3LPD LAVERNE	VE3XOX BOB
VE3LPT MOE	SWL STAN
VE3MTG LARRY	SWL DAN
VE3MTV NORM	

This Issue:

Minutes of last GBARC Meeting

FROM THE PRESIDENT

DX NEWS

INTRODUCTION TO PACKET RADIO

JOTA

SHORT BITS

SPOTLIGHT ON RS10/11
RS12/13

A FEW PHOTOS..BY TXB

FOR SALES / WANTS

UPCOMING EVENTS

NEXT GBARC MEETING
12 JANUARY 92

BREAKFAST MEETINGS:
12 DECEMBER 1992
26 DECEMBER 1992
9 JANUARY 1993



MINUTES OF THE LAST GBARC MEETING

MINUTES OF THE GEORGIAN BAY AMATEUR RADIO CLUB NOVEMBER 10th 1992 Total of 21 members present and one guest Jack Seaman who is taking the Ham Course at West Hill High School present. Minutes of October 13th meeting accepted with one change by Walt FFN, seconded by Jack DTS. Treasurer reports bank balance at \$855.17.

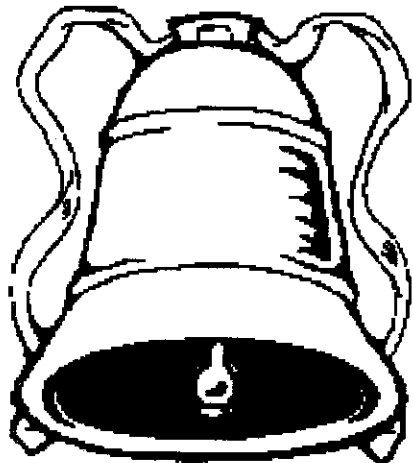
VE3CC Cy, agreed to fill

in for Bill HMZ at the Santa Claus Parade communications, as Bill will not be in town that day. Reported that Carl PCK, will not be using the frequency of 145.290- for his repeater, and this frequency is available to the club. The cans for the Maclean Hunter site were donated to the club by Carl previously so it is not a problem for the club to multicouple to the antenna. Gene IJD gave a report on the Scout Jamboree on the air. A lot of contacts were made and the Kilsyth Troop were the only group that stayed up all night to man the stations. A good time was had by all. The setup could have used more members of the GBARC to assist, if only for a short time. President Bob XOX, gave Doug TDS a call about incorporation. Doug could not get directly involved, however suggested we contact Ted Edwards, in Owen Sound. Ted has started the ball rolling with a search and found no problem if the name Georgian Bay Amateur Radio Club Incorporated be used. He would like to see a cheque for \$1000.00 put in trust for him to continue on. Bob will follow up with him to find out exactly what advantages we gain by becoming incorporated, in addition to the insurance angle, before any club money is put in trust. On TNC's, Walter FFN CAN OBTAIN THE MODEL MFJ's 1270B for \$160.00 each, plus taxes. A model 1274 is approx. \$20.00 more if you plan to use packet on hf. Gene agreed to check on baud rate, 1200 or 4800 for our packet. Could be some conflict on upgrading. Tom ,TSA reported on VE3GBT, 146.895 repeater progress. The old cans we own may give us some oscillations problems when used with the Storno machine. Rick's Dad has a line on some other cans if we need them. Bob,XOX and Don IDS have been working with Jim, CRV to take the UHF stick down and replace with the VHF stick the club owns on the old

McLean Hunter site at Woodford. Jim will give us the heliax cable to use that is now installed. This will give us a tower to use as well as our own antenna and equipment to work on and add to as the club wishes in the future. OSR can then be moved to this site. Other antennas can be added to this tower as the club wishes. This move would get us away from the money hassle the Grey County tower occasionally ask about. Phone patch may be added

New Business.

Walt encouraged more operators to check in to the Sunday Net. Nov> 28th. date set for the swap and trade show at the O.S. yacht club. Set up 8:00 A.M.;doors open 9:00 A.M. The E.M.O. asked for names of contacts in the area. Gene IJD gave details about a packet radio course he attended in Milton. Instructors of the ham course decided to purchase ARRL antenna handbooks for the students from the student fund and present one to each student. BZC, Ross winner of the 50-50 draw. Move to adjourn by Ross, CUV.



HELLO EVERY ONE, AND WE ARE IN TO DECEMBER ALREADY, AND THE WEATHER IS STILL HOLDING OUT. A COUPLE THINGS HAVE BEEN DONE IN THE PAST FEW WEEKS THAT HAVE BEEN A BIG SUCCESS....I WOULD LIKE TO THANK EVERY ONE THAT HELPED THE CLUB IN THE COMMUNICATIONS END OF OWEN SOUND SANTA CLAUS PARADE. THINGS RAN VERY SMOOTHLY AND IN ORDER. ANY LITTLE PROBLEMS WERE WELL LOOKED AFTER IN THE PARADE PROGRAM THANKS TO THE COMMUNICATION WE WERE ABLE TO GIVE...

FROM THE PRES

OUR VERY FIRST SWAP AND TRADE FLEE SIZED MARKET TURNED OUT TO BE A BOOMING SUCCESS...THANKS TO ALL WHO CAME, PURCHASED, DONATED AT THE DOOR, SET TABLES UP AND WERE VENDORS.... WE HAD A VERY GOOD TURN OUT FOR A SMALL FIRST EVENT THAT HAD VERY LITTLE ADVERTISING. THERE WERE A LOT OF GOOD DEALS AND A WIDE ASORTMENT OF THIS THAT AND THE OTHER THING. WE HAD FELLOW OPERATORS FROM, OWEN SOUND, MARKDALE, PORT ELGIN, EUGENIA, COLLINGWOOD, HEPWORTH, CHESLEY, MEAFORD, PIKE BAY, WIARTON AND PLACES IN BETWEEN. MORE PLACES THAN YOU COULD SHAKE A STICK AT. GREAT TIME GUYS! IF YOU MISSED IT. YOU MISSED A GOOD TIME AND FREE COFFEE. I WOULD LIKE TO GIVE A SPECIAL THANK YOU TO MR. JACK DOHERTY- VE3TWK- FOR SETTING UP THE LOCATION FOR THE CLUB. JACK EVEN SWEEPED UP THE FLOORS AFTER US..THX AGN JACK...



OUR AMATEUR RADIO CLASSES ARE COMING TO AN END IN THE NEXT FEW WEEKS, AND I WOULD LIKE TO WISH ALL A BIG SUCCESS ON THE TEST, AND WELCOME ALL THE NEW AMATEUR OPERATORS TO BE. THATS ABOUT ALL I CAN THINK OF AT THIS TIME. PACKET LINK FROM BARRIE TO KEADY IS MOVING ALONG.. TWO METER REPEATERS ON THE MOVE.. AND CHRISTMAS JUST AROUND THE CORNER...IF I AM NOT TALKING TO ANY OF YOU BEFORE THEN ..PLEASE HAVE A VERY SAFE AND HAPPY CHRISTMAS... HOPE SANTA IS GOOD TO YOU ALL.... BYE FOR NOW .73...BOB...VE3XOX.



Photo of our last GBARC meeting....Ian looks like he's working DX on his Dick Tracy wrist radio

DX NEWS

MOLDOVA, BOSNIA AND HERZEGOVINA JOIN THE INTERNATIONAL TELECOMMUNICATION UNION - The instruments of accession of the governments of the Republic of Bosnia and Herzegovina were both deposited with the international Telecommunication Union (ITU) on 20 October, 1992, bringing ITU membership to 174 countries.

GLORIOSO ISLAND. YOLAND, FR5AI/G, CONTINUES TO BE ACTIVE. HE CAN OFTEN BE FOUND ON 28022/28545 KHZ ABOUT 1300Z AND ON 14256 KHZ ABOUT 1700Z.

NIUE. ZK2XX HAS BEEN ATTRACTING SSBERS ON 10 METERS ABOUT 2100Z. QSL TO ON4QM, THE OPERATOR'S HOME CALL.

MADAGASCAR. 7K1PGO IS SUPPOSED TO BE OPERATING 5R8DE WHEN HE IS NOT BUSY WITH PHOTOGRAPHY UNTIL THE END OF THIS MONTH. JH8JWF, WHO OPERATED 5R8DF LATE LAST MONTH, HOPES TO RETURN IN DECEMBER.

DESECHEO ISLAND. THE GROUP THAT ACTIVATED NAVASSA ISLAND LAST JANUARY PLANS TO PUT /KP5 ON THE AIR FROM DECEMBER 28 TO JANUARY 4. THE OPERATORS WILL INCLUDE AA4NC, AA4VK, KW2P, N0TG AND WA4DAN. QSL TO N0TG'S NEW ADDRESS, WHICH IS BOX 891, DESOTO, TX 75123.

NICARAGUA. KN9P AND FOUR FRIENDS OF HIS ARE GOING TO OPERATE YN0YN FROM DECEMBER 28 TO JANUARY 2. THEIR QTH WILL BE CORN ISLAND. QSL VIA KN9P.

ANTIGUA. JL1MUT TELEPHONED FROM JAPAN TO ASK THE FOLLOWING INFORMATION BE TRANSMITTED. QSL CARDS FOR V2/JL1MUT, V2/JP1NWZ AND V29Y OF LAST MONTH SHOULD ALL GO VIA JR0AMD.

ANTARCTICA. Alex, UA3YAR, has been showing up on 14022 kHz around 0100z signing 4K1YAR. He is operating from the Molodezhnaya Base, home of 4K1A. QSL to his home call.

TUNISIA. A station signing 3V8AS continues to be active. Spots show this station on 28010 kHz at 1630z and 24900 kHz at 1320z.

CROZET ISLAND. FD1NOG is a member of the next crew to operate from Crozet. He will soon be active as FT4WD on all bands with CW and SSB. QSL via F6AXX.

HONG KONG. VS6WO will be active in the CQ WW CW Contest by NA9D, WX3N, AG9A and others. Mike, K9EC, QSL Manager for VS6WO, reports the ONLY route for VS6WO cards is via K9EC, Michael Zeug, 9N317 Corron Road, Elgin, IL 60123. Mike states that the 1992 Callbook address is no longer correct. Dave, WX3N, has been active as VR2/WX3N on 3506 kHz at 1150z, 7004 kHz at 1130z and 2230z, 14167 kHz at 1345z and 21012 kHz at 2300z. QSL via AA0CR.

UPCOMING DX FROM QRZ DX.

JU830C, MONGOLIA NOW THROUGH DECEMBER 31 JD1, MINAMI TORISHIMA NOW THROUGH JANUARY 14 T32BE BY WC5P NOVEMBER 24 THROUGH DECEMBER 7 E28DX DECEMBER 10, 11 AND 12 9G, GHANA JANUARY 1993

RTTY NEWS.

COCOS KEELING. Lionel, VK6LA, will sign VK9CB starting sometime this month. This will be a two or three month stay. Check for him on CW and SSB too. QSL his home call.

BELIZE. Isao, JH1ROJ, will be signing V31RO from November 20 through 25. Check between 085 to 095 kHz, QSX between 100 and 110 kHz.

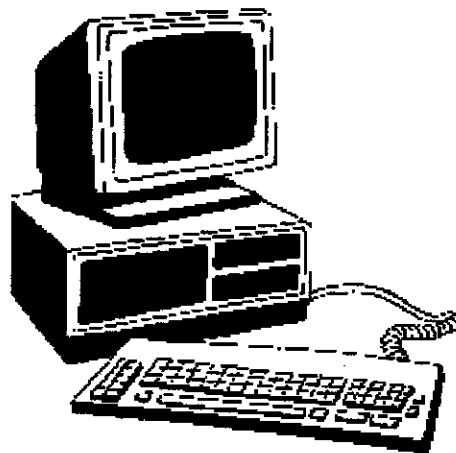
NIUE. JA3JAX and JA3JM will be on as ZK2XI and ZK2XJ for a week starting December 2. They will operate CW, SSB and RTTY. QSL via JA3JM.



An Introduction to packet radio by Larry Kenney WB9LOZ

Over the next 3 issues of feedback will be a set of articles which do a very good job of explaining packet radio. This is good reading for the packeteer as well as the new comer. Even if you don't have a TNC or do and don't seem to get the most of it, read on and take the mystery out of all those wierd commands.....*editor*

INTRODUCTION TO PACKET RADIO - Part 7 - by Larry Kenney, WB9LOZ The network of NET/ROM, THENET and KAM nodes is expanding very quickly and now covers most of the country. New nodes are showing up almost daily. Thanks to all of these new stations and the interconnecting links, you can now connect to stations in many far distant places using your low powered 2 meter rig. Some nodes are set up for cross-banding, and with the introduction of nodes on 10 meter FM, there's the possi-bility of working a station just about anywhere. A complete listing of NET/ROM NODES is available on most BBSs, as well as maps showing how everything is tied together. The lists are updated frequently by Scott, N7FSP, in San Jose. NET/ROM is very simple to use, and I understand that THENET and KAM nodes are very similar. As explained in part 6 of this series, to use NET/ROM, you first connect to a local node. You then have several options -- connect to another station within range of the node, connect to another node, obtain a list of the nodes that are available, check their status, or answer or call CQ. There are only FOUR commands to remember to use the system: CONNECT, NODES, USERS and CQ. The CONNECT command (which can be abbreviated as C) works just like the CONNECT command in



normal usage, except that you can connect from one node to another. For example, you can CONNECT to VE3IJD-7, and then do another CONNECT to VE3TSA-7, another node. Let's go through a simple connection via NET/ROM. Say I want to connect to a friend in Kincardine, within reach of VE3WWD, a node in Whitechurch. I would first connect to my local node, say VE3IJD-7, then connect to VE3WWD, then connect to my friend. Here's what it would look like: C VE3IJD-7 KEADY:VE3IJD-7} Connected to KEADY:VE3IJD-7 C VE3WWD WHITCH:VE3WWD} Connected to WHITCH:VE3WWD C VE3WPB WHITCH:VE3WWD} Connected to VE3WPB You then conduct your QSO, and disconnect in the normal manner. (Go to command mode on your TNC and enter a D.) One disconnect command will disconnect you from the entire network.

You'll note that many of the nodes have aliases, such as KEADY for VE3IJD-7, WHITCH for VE3WWD etc. With NET/ROM, you can connect to the alias identifier, so "C KEADY" would work as well as "C VE3IJD-7".

Once connected to a node, the other commands come into play. The NODES command (which can be abbreviated as N) will give you a listing of other nodes available from the node you're connected to. The USERS command (which can be abbreviated as U) will show you the calls of all the stations using the node you're connected to. The CQ command (which cannot be abbreviated) is, of course, used for calling CQ, but also can be used for replying to the CQ of another station. The CQ command is available only in NET/ROM version 1.3.

There are two other commands, but they're used for status information only. IDENT will simply give you the identification of the node you're on, and PARS (Parameters) is for the owner's use in determining how his station is working.

Using the NET/ROM CQ Command: The CQ command is used to transmit a short text message from a node, and is also used to enable stations that receive the transmission to connect to the station that originated it. The command is: CQ [textmessage] The "textmessage" is optional and can be any string up to 77 characters long (blanks and punctuation are allowed).

In response to a CQ command, the node transmits the specified textmessage in "unproto" mode, using the callsign of the originating user with a translated SSID as the source and "CQ" as the destination. For example, if user station VE3VTO connects to a node and issues the command: "CQ Anybody around tonight?", the node would then transmit "VE3VTO-15>CQ: Anybody around tonight?"

After making the transmission in response to the CQ command, the node "arms" a mechanism to permit other stations to reply to the CQ. A station wishing to reply may do so simply by connecting to the originating call-sign shown in the CQ transmission (VE3VTO-15 in the example above). A CQ command remains "armed" to accept replies for 15 minutes, or until the originating user issues another command or disconnects from the node.

Any station connected to a node may determine if there are any other stations awaiting a reply to a CQ by issuing a USERS command. An "armed" CQ channel appears in the USERS display as: (Circuit, Host, or Uplink) < ~ ~ > CQ(usercall). The station may reply to such a pending CQ by issuing a CONNECT to the user callsign specified in the CQ(...) portion of the USERS display--it is not necessary for the station to disconnect from the node and reconnect. Here's what a typical transmission would look like: cmd: C VE3OST cmd: *** Connected to VE3OST USERS OWEN01:VE3OST} NET/ROM 1.3 (669) Uplink(VE3XOX) Uplink(VE3IDS) < ~ ~ > CQ(VE3IDS-14) Circuit(WHITCH:VE3WWD VE3EFX) < ~ ~ > CQ(VE3EFX-15) Uplink(VE3TSA) CONNECT VE3EFX-15 OWEN01:VE3OST} Connected to VE3EFX Hi! Thanks for answering my CQ. etc.

Users of the CQ command are cautioned to be patient in waiting for a response. Your CQ will remain "armed" for 15 minutes, and will be visible to any user who issues a USERS command at the node during that time. Wait at least five minutes before issuing another CQ--give other stations a chance to reply to your first one!

NOTE: As mentioned above, the CQ command was introduced in NET/ROM version 1.3. On a node using an earlier version, you will get the message "Invalid command". The USERS command can be used to determine which version a node is using as shown in the example above. If you cannot initially connect to a node using version 1.3, that doesn't stop you from using the CQ command. Once you're connected to a

node you can reach, simply connect to one that has version 1.3.

Give the new CQ feature a try. You might work someone locally, in Phoenix, Seattle, or on the East Coast. You never know where you'll get connected to next! Enjoy!

(Material distributed by Scott, N7FSP, was used in the preparation of this part of the series.)

There is no part 8...editor



INTRODUCTION TO PACKET RADIO - PART 9 - by
Larry Kenney, WB9LOZ

In this part of the series I'll explain, in detail, the various parts of the packet message. The following is an example of what you see when listing or reading messages on a BBS. On some systems, the information is displayed in a different order. MSG# STAT SIZE TO FROM @ BBS DATE/TIME SUBJECT
4723 P 1084 WD5TLQ WA6XYZ N5SLE 0604/1240
Software working great! The message number is assigned by the BBS program when the message is entered and cannot be changed. The numbers are assigned sequentially. Next you find the STATUS of the message which includes several different bits of information about the message. The first letter of the STATUS indicates the TYPE of message: B for Bulletin, P for Personal, or T for Traffic for the National Traffic System. Bulletins are messages of general interest to all users, and are available to be read by

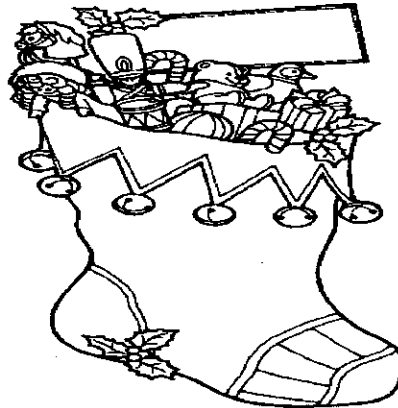
everyone using the system. Personal messages are not listed for anyone except the sender and the addressee, and only they can read them. (Of course, anyone in monitor mode can see a message of this type as it's being sent, because nothing on packet is absolutely private.) Traffic messages, type T, are messages used for handling traffic on the National Traffic System. STATUS also shows if the message has been read, has already been forwarded to all designated stations, is in the process of being forwarded, or is an "old" message. You might see one of these letters: Y - yes, it has been read, F - it has been forwarded, I - it's in the process of being forwarded right now on another port, or O - the message has been on the BBS long enough to become an "old" message. "Old" can be

anywhere from 2 days for an NTS message to 3 weeks for bulletins. The time frame for each message type is specified by the local sysop. The "O" is mainly used to catch the attention of the sysop. The SIZE indicates the combined total of characters, including punctuation in the message. TO, normally, is the callsign of the addressee, but it is also used to categorize messages on particular topics. You might find a message addressed TO AMSAT, TO PACKET or TO ARRL, when it is actually a message about AMSAT, about PACKET or having to do with the ARRL. FROM shows the callsign of the station originating the message. @ BBS is used if you want a message to be forwarded to someone at another BBS or to a specific designator. In the example, the message would be automatically forwarded to WD5TLQ at the N5SLE BBS. You can enter special designators, such as ALLCAN, in the "@ BBS" column for multiple forwarding to specific areas. (See Part 5 of this series for details on using forwarding designators.) Next is the DATE and TIME when the message was received at the BBS. Keep in mind that the date and time are shown in the time used by the BBS, and can be either local time or Zulu. The SUBJECT (or TITLE) is a short line telling what the message is all about. It should be brief, but informative. For bulletin type messages, this is the information that determines whether or not a person is going to read your message when he sees it in the message

list. The parts of the message mentioned so far are all included in the header of the message, and are seen when listing messages. The remaining parts are in the body of the message, and are seen only when the message is read. If a message has been forwarded from another BBS, you'll see forwarding

headers at the top of the actual message. This is information added by each BBS that was used to get the message from its origination point to the destination. Each BBS adds one line showing the time the message was received by that particular BBS, its call sign, and usually the QTH, zip code, and message number. Other information is often added, at the discretion of the sysop there. If you use the RH command, rather than just R, when reading a message, such as RH 7823,

you'll receive complete headers. With just the R, headers are reduced to a list of the BBS callsigns. Complete headers are useful if you want to determine how long it took a message to be forwarded from the source to destination, and they can be used to determine the path the message took to reach you. The TEXT of the message contains the information you want to convey to the reader. It can be of any length. When entering a message into a BBS, use carriage returns at the ends of your lines, as if you were using a typewriter. Do not allow the automatic wrapping of lines to occur. A message entered without carriage returns is very difficult to read, as words are cut at improper points, lines vary drastically in length, and blank lines are often inserted. You complete the text with either a Control-Z or these three characters: the "slash" (/) plus the letters "EX". On some BBSs this must be on a line by itself. This tells the system that you've finished entering the message. Messages that are going to be forwarded to several BBSs or across a long distance should be limited in size. Extremely long messages can tie up the forwarding system unnecessarily, so users are advised to break up long messages into parts, keeping them to a length of 2 - 3 K each. ---(In the next part of this series, we'll be discussing tips on how to make your packet operating time more enjoyable.)



**INTRODUCTION TO PACKET RADIO - Part 10 - by
Larry Kenney, WB9LOZ**

Here are some tips to help make your packet operating a little more enjoyable. Whether it's while making local QSOs, checking into a BBS or mailbox, or working DX, there are a few things you should take into consideration that will help eliminate waiting time and increase your throughput. When connecting to another station, don't use a digipeater unless you have to. Each digipeater you add to the chain increases the time required to get your signal to its destination and to get an acknowledgement returned. It also increases the chance for interference and for collisions with other packets. You'll be amazed at the difference in throughput when comparing a direct connect to one with just one digipeater in the path. Also, if you have a choice, use a frequency that doesn't have a lot of other traffic on it. It makes sense that the more stations there are on frequency, the more chances there are for collisions and retries. A path that will work perfectly without a lot of traffic, can become totally useless under heavy traffic conditions. Dr. Tom Clark, W3IWI, has determined that for EACH HOP, the loss of packets can vary anywhere from 5% to 50% depending on the amount of traffic. Remember, each digipeater and node adds a hop, so multiply those percentages by the number of hops, then multiply by 2 to account for the acknowledgement, and you can see how quickly the path deteriorates as traffic increases and digipeaters and nodes are added to it. Another consideration, especially if working over a long distance, is atmospheric conditions. You might

not have experienced this before on VHF, but with packet's high sensitivity to noise, a slight change in signal strength can mean the difference between getting your packets through or not getting them through. An example of one path that is very vulnerable to conditions due to its distance is from W6AK-1 on Mt. Vaca to WB6AIE-1 on Bald Mountain in Yosemite National Park on 145.05 MHz. Most of the time, packets go between these two digipeaters without any problem, but there are times, especially when it's a hot summer day in the Sacramento Valley, when it's impossible to get a packet from one to the other. In the Bay Area, the fog has a drastic affect on VHF signals. When a fog bank is moving in off the Pacific, it can act as an excellent reflector. Signals that are not normally heard can reach signal strengths of 40 over S9. NET/ROM, TheNet, and KA-Nodes, as discussed in previous articles in this series, do a great deal to help you get your packets through, but you must remember that they, too, are affected by the number of hops, the traffic load and the atmospheric conditions between you and the destination station. The big advantage to NET/ROM is that the acknowledgements do not have to return all the way from the destination station. Packets are acknowledged from node to node, so that eliminates a large part of the problems encountered. Getting the original packet through, however, remains to be as much of a problem for the nodes as it is for you when using digipeaters. _ _ _ In the next part of this series we take a look at some of the more obscure TNC commands and how you use them. 73, Larry, WB9LOZ



THANKS

JUST A WORD OF THANKS TO ALL WHO DONATED THEIR TIME AND ENTHUSIASM TO CLUB FUNCTIONS...FIELD DAY....JOTA...SANTA CLAUS PARADE....FLEAMARKET...HAM CLASS....WITHOUT THE HELP OF THOSE PERSONS INVOLVED THESE EVENTS WOULD NOT HAVE BEEN AS SUCCESSFULL AS THEY WERE. LETS TRY TO GET MORE OF OUR MEMBERS INVOLVED IN THESE EVENTS...PARTICIPATION IS THE WORD.

JOTA

From : VE3IJD 25-Nov 22:25

HELLO, I USED THE COMPUTER TO WRITE A LETTER TO SCOUT NATIONAL HEADQUARTERS IN OTTAWA. THIS IS A ROUGH COPY FOR THE BULLETIN. I KNOW THAT WE ALREADY HAD SOME SCOOP ON IT BUT LETS RUB IT IN. THIS REPORT WILL GO ON TO WORLD HEADQUARTERS IN GENEVA. 73 GENE

TO WHOM IT MAY CONCERN

WELL ANOTHER J.O.T.A. HAS COME AND GONE AND ALL THAT REMAINS IS TO SIT DOWN, WRITE TO NATIONAL AND LET THEM KNOW HOW THINGS WENT AGAIN THIS YEAR.

J.O.T.A. WAS VERY SUCCESSFUL HERE IN OWEN SOUND, ONTARIO. JUST SHORTLY AFTER LUNCH, APPROXIMATELY 40 SCOUTS FROM THREE TROOPS GATHERED IN A LARGE PARK CALLED HARRISON PARK TO START WITH THE PUTTING UP OF ANTENNAS AND TOWERS. FOUR MEMBERS OF THE GEORGIAN BAY AMATEUR RADIO CLUB HAD VOLUNTEERED THEIR TIME AND EQUIPMENT SO THAT THE AREA COULD TAKE PART IN THIS INTERNATIONAL EVENT. SNOW WAS FALLING HARD NOW, AND EVERYTHING WAS WET AND COLD. THE TWO LARGE BEAM ANTENNAS WERE BEING ASSEMBLED ON THE GROUND BY THE SCOUTS THEMSELVES. OTHER SCOUTS HELPED TO PUT THE NUTS AND BOLTS INTO THE VARIOUS TOWER SECTIONS THAT WOULD HOLD THE BIG BEAM ANTENNAS. COAXIAL LINES WERE SORTED OUT AND LAID ON THE GROUND. SOON WE WERE READY TO HOIST UP THE TWO TOWERS AND TIE THEM TO TREES SO THAT THE HEAVY WINDS WOULDN'T BLOW THEM OVER DURING THE JAMBOREE. INSIDE THE STONE BUILDING, THE RADIOS AND EQUIPMENT WERE BEING SET UP. A COMMODORE C-64 WOULD SOON GRAB THE INTEREST OF NOT ONLY THE SCOUTS BUT SOME OF THE PARENTS WHO HAD STAYED TO WATCH THE AFTERNOON FRENZY. SOON THERE WAS EXCITEMENT FROM THE ONE GROUP OF SCOUTS. THEY HAD JUST TALKED TO P.E.I. AND THE AMATEUR RADIO OPERATOR OUT THERE ON THE ISLAND KNEW ONE OF THE SCOUTS GRANDFATHERS WHO ALSO LIVED ON THE ISLAND. SMALL WORLD. DURING THE AFTERNOON, CONTACTS WOULD BE MADE INTO MOST OF CANADA AND THE

UNITED STATES. THESE INCLUDED VOICE MESSAGES WITH OTHER TROOPS AND PACKET RADIO MESSAGES AS FAR AWAY AS CALIFORNIA, FLORIDA AND NEW YORK, JUST TO NAME A FEW. BECAUSE OF OUR LOCATION IN A VALLEY WE KNEW WE WOULD BE LIMITED TO SHORT DISTANCES, SO WE HAD ONE OF OUR FELLOW "HAMS" LEAVE HIS RADIO EQUIPMENT TURNED ON AT HIS HOUSE AND THIS ENABLED US TO TALK INTO SOUTH AMERICA ON THE COMPUTER. DUE TO THE INCLEMENT WEATHER ONLY 10 SCOUTS FROM THE KILSYTH GROUP AND 2 SCOUTS FROM OWENSOUND TROOP STAYED FOR THE NIGHT. THEY AWOKE EARLY IN THE MORNING TO FIND 5cm's OF SNOW ON THEIR TENTS. SOON THEY WERE INSIDE THE BUILDING GETTING BREAKFAST READY AND FINDING OUT HOW EARLY OTHERS WERE WAKING UP AROUND THE COUNTRY. TWO OF THE STATIONS WE HAD TALKED TO, ONE IN CALIFORNIA AND ONE IN TEXAS HAD LEFT GOODMORNING MESSAGES FOR THE SCOUTS TO READ. ALTOGETHER WE TALKED TO AT LEAST 50 DIFFERENT STATIONS AND LISTENED IN ON ANOTHER 50 MORE. WE HAD DINNER THERE AS WELL AND WERE PULLING DOWN THE TOWERS BY NOON, SUNDAY. OUR TROOP HAS AN INSIDE TRACK WHEN IT COMES TO J.O.T.A. JASON MCDONALD, THIRTEEN YEAR OLD PATROL LEADER HAS HIS AMATEUR RADIO LICENSE. HIS CALL IS VE3UIC. JASON'S FATHER GENE MCDONALD, WHO IS THE SECTION TROOP SCOUTER IS VE3IJD. THE SCOUTS CAN REALLY GET THE RADIO FEELING WHEN ONE OF THEIR OWN AND THEIR AGE HAS HIS "TICKET" SPECIAL THANKS TO TOM VE3TSA, BOB VE3XOX AND ROBERT VE3LKD FOR USING THEIR WEEKEND TO ENTERTAIN THE SCOUTS. WE ARE PLANNING NEXT YEAR ALREADY. THE SCOUTS NEVER DID

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SWEDISH STUDIES ENCOURAGE LAWS ON POWER LINES-CANCER - Sweden may soon become the first country to set strict limits on exposure to electromagnetic fields, following the release on September 30 of an epidemiomagnetical study by Karolinska Institute and by Sweden's National Institute of Occupational Health. The studies found that children exposed to average EMFs of 3 milligauss or more in their homes had close to four times the expected leukemia rate for the population as a whole. Nancy Wertheimer, an epidemiologist at the University of Colorado Medical Center in Denver, said she expects that details of the Swedish studies (which are not yet available) will "make it possible for the researchers to work in this field without unwarranted put-downs from the scientific establishment." (From the New York Times and the Associated Press) The ARRL Letter October 1992

FLORIDA GOVERNOR COMMENDS HAMS FOR HURRICANE EFFORT - Florida Governor Lawton Chiles has recognized the work of Amateur Radio operators in Florida following Hurricane Andrew in August. Chiles wrote the following to the ARRL: "On behalf of the state of Florida, I am writing to thank the many amateur radio operators who assisted in the Hurricane relief effort. Scores of amateur radio operators rallied to South Florida from across the United States, helping to provide desperately needed communications to local, state, and federal agencies. They provided moral and physical support to local amateur radio operators, many of whom had suffered severe damage to their homes, yet provided around-the-clock communications at emergency operation centers, food distribution centres, and field medical facilities. Hundreds more assisted at their home stations around the country, passing health and welfare messages to concerned relatives of south Floridians. The amateur radio service can be proud of its members, who time and time again serve the country unselfishly. The state of Florida owes them a debt of gratitude and thanks." The ARRL Letter October

Scanner bill passed. Section 302 of the 1934 Communications Act has been amended by an amendment to HR6191 and S1579 by Senator Larry Pressler (R-SD) known as the "900-number bill". 180

Days after this bill is signed, the FCC will deny certification to any scanning receiver that: 1. Can receive cellular telephone frequencies, 2. Can be readily modified to receive cellular telephone frequencies, 3. is equipped to de-scramble new "digital-cellular" calls into analog (clear speech) Apparently, this means that scanners capable of receiving the 800-Mhz cellular bands will no longer be manufactured, probably after January to March of 1993. The full article appears in the November 1992 issue of the Monitoring Times Newspaper. (hint: if you want an "800-Mhz scanner" better get it now...)

Keplerian Elements for the Moon Updated Keps for use with Orbits2 or other Programmes which do not have built-in Moon sub-programmes. Epoch Year 92 Epoch day 274.0 Inclination 23.5558 R.A.A.N. 347.0749 Eccentricity .0549005 Arg. of Perigee 160.0508 Mean Anomaly 79.2642 Mean Motion .0366011 Decay rate 0.0

A NUMBER OF ISRAELI AMATEURS were at the annual **AMSAT-UK** Colloquium at the University of Surrey in England. About 130 participants from around the world were present to hear and speak about developments in the Amateur Satellite program. Shlomo 4X1AS announced that AMSAT-Israel shall become an affiliate organization of AMSAT-UK, drawing cheers from the participants. Much was spoken about the Phase III-D satellite project. The bird in the works will weigh half a ton and will cost 3.8 million dollars, supported by donations from Amateurs all over the world as well as a grant from the German government. The Spanish Amateur Radio Organization has pledged 10,000 pounds sterling for the project. Many amateurs are benefitting from Ham-Sats unknowingly. A lot of international packet radio forwarding is being done over a few of the "micro-sats" and thus side-stepping the fickle and congested High Frequencies. Thus we would do well by offering our financial support to our nearest AMSAT organization which shares the responsibility for the building and launching of these satellites which have done so much to enhance amateur radio in the 90's. *from HAGEL INTERNATIONAL November 1992*

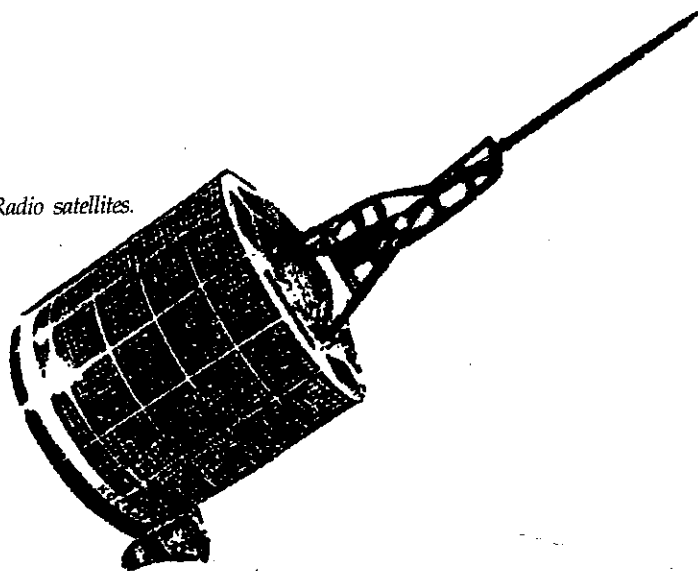


Spotlight On: RS10/RS11 and RS12/RS13

[This article is part of a series of reports on currently active Amateur Radio satellites. In this issue of *The AMSAT Journal*, KD2BD shines the spotlight on RS Satellites.]

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Internet: kd2bd@ka2qhd.de.com
kd2bd%ka2qhd@ocpt.ccur.com



Radio Sputnik (RS) satellites are favorite starting points on the road to Amateur satellite communications. These satellites provide consistent service, strong downlink signals, and have very sensitive transponders, making them easily accessible to even the most modest Amateur satellite ground stations.

Spacecraft History

The first group of RS satellites were launched back on October 26, 1978. RS-1 and RS-2 both contained "Mode A" linear transponders that were 40 kHz wide. The term "Mode A" refers to the fact that these transponders had uplink passbands in the 2-Meter Amateur band, and downlinks in the 10-Meter Amateur band. Since the Russians were limited to only a few watts of transmitter power on the 2-Meter band, the Mode A transponders carried on their RS satellites had to have very sensitive uplink receivers. Experience with RS operation proved the reliability of Mode A operation, especially during periods of low solar activity. Prior to the launch of RS-1 and RS-2, AMSAT-OSCAR-6, AMSAT-OSCAR-7, and AMSAT-OSCAR-8 all had been available for general use, and all supported Mode A linear transponder operations.

On December 17, 1981, six new RS satellites were launched together on a common launch vehicle. RS-3 and RS-4 were experimental satellites and did not contain transponders for general use. The remaining satellites contained 40 kHz wide Mode A linear transponders. In addition, RS-5 and RS-7 both contained "autotransponders" called ROBOTS. Autotransponders made it possible to carry on a CW telegraphy contact with the ROBOT computer carried on the satellite. Upon calling the satellite on a ROBOT uplink frequency, the spacecraft would respond with a short message and issue a QSO number.

The autotransponders made it possible to carry out a CW contact on the satellite even if there were no ground stations available on the transponder at the time.

One Common Malady

Unfortunately, all these early Radio Sputnik satellites suffered with one common malady. Their 1700 km altitude circular orbit subjected the satellites to a great deal of radiation by flying through the lower levels of the Van Allen belts. The Van Allen belts surround the Earth at an altitude of between 1600 km and 8000 km and are comprised of high-energy sub-atomic particles that can damage sensitive electronic devices carried on satellites at this orbital altitude. Because of the radiation exposure, some RS satellites experienced unexpected transponder switching and hardware damage which made the satellites less than reliable.

After RS-5 and RS-7 had ceased operating, RS-10 and RS-11 were launched into a safer 1000 km altitude circular low-Earth orbit. Both RS-10 and RS-11 share a common power bus and space platform with COSMOS 1861, a Russian navigation satellite. Like their predecessors, RS-10 and RS-11 both contain 40 kHz wide Mode A linear communication transponders and ROBOTS, but they also contain new "Mode K" and "Mode T" transponders which have uplink passbands in the 15-Meter Amateur band. No other Amateur communications satellite had used 15-Meters for an uplink before.

On February 5, 1991 the latest group of RS satellites, RS-12 and RS-13, were launched along with COSMOS 2123, another Russian navigation satellite. These RS satellites are virtually identical in capability to RS-10 and RS-11. All four Radio Sputniks are alive and well and in operation at the present time.

Satellite Operation Made Easy

RS satellite operation is simple. For Mode A operations, just a few watts of transmitter power and a small 2-Meter antenna are all that are required for the uplink. A dipole antenna and a receiver capable of tuning the 10-Meter Amateur band are all that are needed for the downlink. Most operators use their existing HF station equipment for copying Mode A downlink signals. Converted CB rigs and portable 10-Meter transceivers lend themselves very nicely to portable Mode A operation. Uplink signals should be CW or USB voice. With a transponder bandwidth of only 40 kHz, there's not much room for FM signals on the satellite, so those operations are very much discouraged. Many 2-Meter FM rigs can be keyed for CW operation if appropriate connections are made within the transceiver. In fact, a large number of CW contacts have been made by keying the push-to-talk button on a 2-Meter handheld transceiver, although keyed FM transceivers tend to produce "chirpy" CW notes.

For Modes K and T, usually less than 100-watts of transmitter power and a dipole antenna are needed for the uplink. Regardless of the transponder mode, most of the emphasis should be placed on the the sensitivity of the downlink receiver, because "if you can't hear 'em, you can't work' em"!

Proper operating practice dictates that the transmitter or receiver operating on the highest frequency band be tuned in-compensation for Doppler shift during a QSO. This means on Mode A, the transmitter VFO should be adjusted while the downlink receiver remains fixed. On Modes K and T, the transmitter VFO should remained fixed while the downlink receiver is adjusted for proper performance.

This practice not only applies to RS

satellites, but remains valid for ALL Amateur transponder operations, and helps to avoid collisions between ground stations at geographically diverse locations as they experience varying magnitudes of Doppler shift.

Almost everyone who gives RS satellite operation a try is hooked after their first contact. After the pass is complete and the log book has been updated, you'll find them plotting out their strategy for the next pass. Since the RS series of satellites are in a circular orbit, orbital predictions are easy using OSCARLOCATORS or simple orbital prediction software.

RS Transponder Summary

Now let's look at the currently active group of RS satellites in detail. Figures 1, 2, 3, and 4.

The beacons transmit CW telegraphy and provide spacecraft telemetry, ROBOT downlinks, and "Codestore" messages carrying news bulletins from the spacecraft command station RS3A.

At the present time, RS-10 is active on Mode A, while RS-12 is operating on Mode K. During periods of high solar flux, many satellite enthusiasts worked other stations a half a world away through RS-12 Mode K while the spacecraft was well below the horizon of each station. These sub-horizon contacts were made possible through layer propagation.

ROBOT Operation

When active, an autotransponder calls CQ and provides the uplink frequency being monitored. For example, RS-10 might be heard transmitting:

"CQ CQ DE RS10 QSU 145820 KHZ AR"

after which the ROBOT will listen for calls on 145.820 MHz. Calling the ROBOT is easy. Simply call the satellite, give your callsign, and end with AR. For example:

"RS10 DE KD2BD AR"

The ROBOT uplink passband is several kilohertz wide, so extreme uplink frequency accuracy is unnecessary. Even chirpy CW signals have been found to work well. If the ROBOT does not copy your callsign correctly, it may ask for a repeat and respond with "QRM", "QRZ", or "RPT". Successful contacts are rewarded with a ROBOT response complete with a QSO number, such as:

"KD2BD DE RS10 QSO NR 386 OP
ROBOT TU USW QSO NR 386 73 SK"

High-speed CW works best for calling the ROBOT. The ROBOT will respond at the speed it is called.

Fig. 1 - Satellite: RS-10 NASA Catalog Number: 18129

Analog Transponders:

Uplink	Downlink
Mode K : 21.160 - 21.200 MHz	29.360 MHz - 29.400 MHz
Mode T : 21.160 - 21.200 MHz	145.860 MHz - 145.900 MHz
Mode A : 145.860 - 145.900 MHz	29.360 MHz - 29.400 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.357 MHz, 29.403 MHz, 145.857 MHz, 145.903 MHz	
Robot Uplinks: 21.120 MHz, 145.820 MHz	

Fig. 2 - Satellite: RS-11 NASA Catalog Number: 18129

Analog Transponders:

Uplink	Downlink
Mode K : 21.210 - 21.250 MHz	29.410 MHz - 29.450 MHz
Mode T : 21.210 - 21.250 MHz	145.910 MHz - 145.950 MHz
Mode A : 145.910 - 145.950 MHz	29.410 MHz - 29.450 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.407 MHz, 29.453 MHz, 145.907 MHz, 145.830 MHz	
Robot Uplinks: 21.130 MHz, 145.830 MHz	

Fig. 3 - Satellite: RS-12 NASA Catalog Number: 21089

Analog Transponders:

Uplink	Downlink
Mode K : 21.210 - 21.250 MHz	29.410 MHz - 29.450 MHz
Mode T : 21.210 - 21.250 MHz	145.910 MHz - 145.950 MHz
Mode A : 145.910 - 145.950 MHz	29.410 MHz - 29.450 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.408 MHz, 29.454 MHz, 145.912 MHz, 145.958 MHz	
Robot Uplinks: 21.130 MHz, 145.830 MHz	

Fig. 4 - Satellite: RS-13 NASA Catalog Number: 21089

Analog Transponders:

Uplink	Downlink
Mode K : 21.260 - 21.300 MHz	29.460 MHz - 29.500 MHz
Mode T : 21.260 - 21.300 MHz	145.960 MHz - 146.000 MHz
Mode A : 145.960 - 146.000 MHz	29.460 MHz - 29.500 MHz
Mode KT : 21 MHz uplink into 29 and 145 MHz downlinks	
Mode KA : 21 MHz and 145 MHz uplinks into a common 29 MHz downlink	
Beacons : 29.458 MHz, 29.504 MHz, 145.862 MHz, 145.908 MHz	
Robot Uplinks: 21.138 MHz, 145.843 MHz	



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