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AMATEUR RADIOTELETYPE - COMPUTERS - PACKET

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ON THE ROAD AGAIN

DICK, K0VKH

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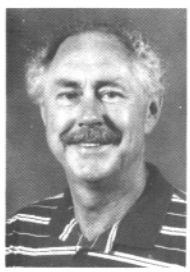
ABOUT THE COVER

This month the cover is dedicated to Dick Uhrmacher, KOVKH who has been writing the MSO column in the Journal for over 4 years. His recent set back due to heart by-pass surgery has slowed him up some but we all know he will soon be back on the road again. Our best wishes to you Dick.



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HITS & MISSES

Summers end has brought me back to the reality that I must get my publishing hat back on. Sure was nice having two months off and not having to worry about the deadline. However, I'm ready to take on the task for another ten issues before Summer rolls around again.

During this summer break, one of our staff writers had open heart surgery. I'm talking about Dick Uhrmacher, K0VKH who does our MSO column each issue. Well all is well that ends well and that is the case with Dick. He is recuperating just fine and thanks to all his many friends for their letters, cards, and thoughts. Dick sent me his article for this issue just before he went into the hospital, now that is real dedication to the RTTY cause. Dick will be back with us for the next issue and we hope he will be able to continue his column each month.

In the last issue I mentioned the success of Dayton this year, both with the Digital Digest and also the RTTY Dinner. This month I have many pictures of Dayton to share with you. You will find them in the center spread of this issue. I would like to give special thanks to the panel members who sat on the Digital digest this year which included, Dr. Alan Chandler, K6RFK (AEA); Bill Henry, K0GWT (HAL Comm.); Craig Martin, KR6T, (Kenwood); Mark Allen, WJ7X, (ICOM), who represented industry and Dick Uhrmacher, K0VKH; Hal Blegen, WA7EGA; Roy Gould, KT1N; and Jerry Trichter, WA2IIUF who represented the amateur community. The Forum was well attended and some questions were fielded from the audience. The questions covered such areas as frequency readouts, noise blankers, shifts, TU design and cost, and AM/FM type demodulators. If you are planning to go to Dayton next year I highly recommend this forum be on your list of forums to attend. This type of forum brings out many questions that might other wise not be asked. It is also an excellent chance to let industry know what our needs and complaints are, so that they may carry the message back to their companies.

The RTTY Dinner was hosted again this year by Jerry Trichter, WA1IUF and he did an outstanding job. The entire evening was a real success. Roy Gould, KT1N made the CQ/RTTY Journal awards presentations to the winners who were present. Hal Blegen, WA7EGA had a great slide and narration show of the CQ/RTTY Contest effort from HC5CQ the Galapagos Islands. Jules Freundlich, W2JGR also gave a slide and narration show of the TG9VT effort from Guatemala City, home of John Troost, TG9VT. Hal Blegen,WA7EGA also presented John, TG9VT with RTTY Journal WAZ award #1. In addition to all of this, there was much eyeball QSOing going on. I have the pictures of the dinner in this issue, so look them over, you may see some familiar faces and then again you may see some faces to go with the calls you have worked back up the log. It was a great evening and if you plan to be in Dayton next year, you won't want to miss this dinner. At the price it is a steal considering the company you will be keeping.

Sparky, W0KUJ dropped me a note recently asking about a listing of commercial and press listings. . I'd like to publish such a list but I think by the time I collected enough frequencies to publish, it would probably be out of date. There are a number of such listings available on the book stands now and Pop Comm magazine publishes RTTY frequencies of all types each issue. I'd be more then happy to publish such lists if you the readers would supply me with the frequencies, times, shifts, speeds, etc. In fact, here is a deal for you all. You send me a list of those you have heard which are current anytime over the next two months. I will collect them all and then publish the listing in the November issue. If nothing is published, then you must understand that I did not get input.

(cont. pg. 17)

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CONNECTIONS

Hello all! Time for another Connections column and, after a two-month hiatus, it is tough to get back into the groove. Summer is vacation time and I managed to take a week off from work and headed North up to Santa Maria, California for a few days.

SANTA MARIA HAM/SWAPFEST

This annual Hamfest was held on June 19th and this was the second time I have attended this well-known get-together. Sponsored by the Satellite Radio Club (Santa Maria, Vandenburg AFB, and Lompoc areas), the Santa Maria Hamfest is famous for serving Santa Maria Style Barbecue which is a gourmet's delight and a dieter's nightmare. I never did get a count on attendance but I know they had 500 pounds of sirloin on the Barbe! Even managed to give away a few sample issues of the RTTY Journal and picked up a subscription or two for Dale. Have to keep trying to rope and hogtie those SSB and CW types who have yet to taste the delights of digital communication. Had the pleasure of meeting an old friend, Lew WF6Y, whom I had not seen for about 16 years. As Lew commented, there was an awful lot of "Junque" on the swap tables. In spite of good intentions, and dire warnings from the XYL, I spent $2 on a military surplus transceiver that was already half cannibalized but still had the most intriguing KW type ceramic bandswitch made by Radio Switch Corp. Awful hard for an old amplifier builder to pass up something like that.

USERS REVIEW OF THE AR-1200 TNC/PRINTER

The trip was an ideal test bed for checking out the Henry Radio AR-1200 combination TNC/thermal printer and test it we did. The AR-1200 is designed to run on 12 volts DC and is very small, about 8-1/4 inches wide by 4-5/8 inches deep and 2 inches high.. I used a Sears S600 battery-operated portable typewriter/terminal to set up the unit and used the S600 keyboard to transmit. The 2-meter transceiver was a Kenwood TR-2600 HT with a 30-watt amplifier and the antenna was a Hy-Gain 5 db gain fiberglass whip mounted on the back bumper of my micro-mini motorhome. The system worked very well and I was able to sit in Fresno in the San Joaquin valley and talk to Los Angeles on packet by going through two digipeaters. Having used a number of different TNCs, I was particularly impressed by the tolerance of the TNC to a wide range of Audio levels from the transceiver. As you know, most TNCs are very fussy about the level of audio input. The AR-1200 is decidedly different in this regard, with about twice as much audio level range tolerance as other TNCs. The TNC/Printer comes with a fused power cable, a special cable for connecting to the radio, and an operators manual. A mounting bracket for mobile use is also provided.

I had no difficulty making up the cable connections to match the HT transceiver and everything worked first time it was tried. This TNC/printer, used with an HT and a small terminal like a Radio Shack model 100 or 200 would make a dandy brief-case portable for trips and for emergency work.
There are a lot of "pro's" going for this unit and only a few "con's". The manual could stand some expansion and clarification in certain areas. This deficiency should be corrected shortly because George has about completed a new and much more detailed operators manual. The printer could use more speed, but what it does, it does well.

The terminal data rate defaults to 1200 BPS, but 300, 2400, 4800 and 9600 BPS are available. Transmitted (and received) data rate is 1200 BPS. The power input is 13.8 vdc nominal with a range of 12 to 16 vdc at 700 ma. The unit contains 32 K of battery-backed RAM and 32K of PROM. The battery is a lithium type. The thermal paper roll width is slightly over 3 inches. The unit has a front panel switch for disabling the thermal printer if you want to use a CRT or LCD panel on a portable computer for display. The TNC employs the full command set of the TAPR TNC2. Because the unit does not require a controller or terminal for receive only operation (after initial setup), it would be ideal for someone who wants to monitor a specific packet station or digipeater while mobile, or in the office, etc. This unit has some obvious non-amateur applications as well. In fact, Henry Radio has a commercial version of this unit. Your friendly Roto-Rooter dispatcher would find that one of these units in each truck would provide a fool-proof dispatching method with a printed record of the truck's work addresses and time dispatched. Police cars could be dispatched to crime-in-progress locations with the advantage that it is very difficult for the criminals to decode the "Braaaapp" on their scanners - a much needed form of security at relatively low cost. **(cont. pg. 4)**

(CONNECTIONS cont. from pg. 3)
Price class is less than $500 and is available from Henry Radio, Los Angeles or the Butler Missouri store. George AB6A can furnish details at (213) 820-1234.

HAL COMMUNICATIONS DIGITAL TIP SHEETS

HAL has published a number of tip sheets for RTTY, AMTOR and PACKET. You may have seen these at the HAL booth at Dayton or at some radio stores. Most of these were written by Bill Henry, K9GWT and cover a wide spectrum of digital communications. Titles include: "RTTY DEMODULATORS (You can't work'em if you can't hear 'em)"; "ASCII, BAUDOT AND THE RADIO AMATEUR"; "R.F. INDUCED PROBLEMS AND SOLID-STATE RTTY TERMINALS"; "HIGH TONES, LOW TONES, MODEM TONES - What they are and what do they mean?"; and a paper on AMTOR, the title of which escapes me at the moment. Also, you may find their latest technical paper on the HAL ST-7000 HF Packet Modem to be very interesting. And, I may have missed some. Anyone who wants copies of these papers may obtain them by writing to HAL Communications Corp., Box 365, Urbana, IL 61801, attention Bill Henry. Please indicate which titles are desired.

SOUTHWESTERN DIVISION CONVENTION

Don't forget the ARRL SW division convention to be held at the Disneyland Hotel in Anaheim, CA in early September. I will be helping Dale staff the RTTY JOURNAL booth and hope to meet some of you fine people during the convention. I promise not to twist your arm too vigorously when we talk about subscriptions. (good grief, I am starting to sound like W2NSD; do you suppose it is a virus and is contagious?)

CALL FOR PAPERS

No, not for the convention, but for the RTTY Journal. Dale's mail (from Frank NM2I for one) frequently mentions that the writer would like to see some construction projects. I used to do a lot of construction and design, but just don't have the time for it anymore. How about some of you builders out there doing a paper on your latest project for the Journal. Dale promises instant national and international fame, if not fortune. Half a page or ten pages (we can serialize it if necessary), anything would be appreciated both by Dale and by the one or more of our readers who has a problem which, by great good fortune, might be solved due to your genius and creativity.

WE HAVE MAIL - Cornell, WB3JZO, 7140 Colorado Ave. North, Minneapolis, MN 55429 asks for information on an IRL FSK-500 Terminal Unit. He would like opinions and remarks on this unit and is looking for IBM compatible PC software that might work with this unit. I have heard of an IRL 1000 but never heard of the 500. WB6ZHN Marty, a long time friend, says that the IRL FSK-500 has outputs/inputs that can be strapped for both RS-232 plus and minus 12-volt levels and for TTL (Transistor Transistor Logic integrated circuits) levels (zero to plus five volts). It also has an optional current loop power supply. It will handle three shifts of 170, 425 and 850 hz, has a reverse switch for upside-down signals and a threshold control. He does not have any idea of where one could obtain software/hookup for an IBM PC to IRL connection. Thanks for the info, Marty.

So, if anyone has ever owned or used the FSK-500 or used it with a computer, please drop a line to Cornell if you have any information to share.

MORE MAIL - Joe, WB2LHN, 205 Hudson Ave., Rensselaer, N.Y. 12144 has a Flesher TU-170 that he would like to interface with his Tandy T1000A and Tandy T1000HX. He has been unable to get a reply from Flesher Company (does anyone know if they are still doing business?) and would appreciate any help or information from someone using this unit with a computer. At one time a company named CROWN produced RTTY interface hardware and software for Tandy/Radio Shack computers including the Model III and Model IV. Anyone know if they are still in business and also have Tandy 1000 series adaptors/software?

MAIL FROM OVERSEAS - CT4NS/CU7, Victor Silva, Apartado 76, 9900 Horta, Faial - Azores has a new Amstrad PCW 8256 computer and is looking for a RTTY program that will run on his machine. If this computer is one of the later Amstrad PCs that emulate the IBM PC, then most any IBM pc-compatible RTTY program should run on this machine. If it is not IBM PC compatible (I do not recognize the model number) then he needs to hear from someone with a solution. One you DXers without an Azores QSL card - here is your chance! Thanks to Doc, W7MI for passing along this request.

AND MORE MAIL FROM OVERSEAS - Gin, JA1ACB writes about the problem with current AMTOR Selcal call signs. For example, JA1ACB and JH8ACB, if both are on AMTOR would both have the same Selcal "JACB". My views on this is that with the proliferation of Amateur Radio activity on AMTOR, a Selcal limitation such as this becomes intolerable.

(cont. pg. 19)

Roy Gould, KT1N
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Stow, Ma. 01775

DX NEWS

Is it ever hot here in W1 land, temperatures in the 90's F for most of the month of July. I hope everyone is getting all their antenna work done that was planned and also getting ready for the 2ND annual CQ/RTTY Journal World Wide RTTY contest September 24-25. Log sheets are available from Dale, CQ, or myself, please enclose a large SASE with 2 units of first class postage.

SWL CARDS

I received a note from Ed WA8FLF, he states that he receives a large amount of SWL cards for his RTTY operations. I agree Ed, so do I, and I am sure many of us that are active in contests or just active on the band also do. I answer all of them and I fill them out in the following manner.

In the call sign block I put in the SWL's call if he has one listed, such as SWL-DL or WDE1234 etc. If not I just put his name. On my QSL card it says "confirming 2 WAY QSO", I cross out 2 way and put, "SWL Report". The date time block is as usual and the frequency, but in the RST block I put " TNX SWL Report". And of course you put in the mode that the SWL copied you on. In some countries it is necessary to serve an apprentice-ship as a SWLer before you can become a licensed ham, thus it is necessary to obtain cards from stations you have heard to confirm your activity as a SWLer. So please try to answer those SWL cards. I have also received a few letters requesting a SWL category in the CQWW/RTTY Journal RTTY Contest. At this time we will not be offering that as a category. The RTTY contest follows basically the same format as the other CQ WW contest and there is no SWL Category.

MAIL BAG

George KD1B writes that he is new to RTTY and is looking for a simple inexpensive way to get started. Being semi retired and looking forward to having some fun George asked for advice on gear. Well George I use the C64 computers, they are cheap and readily available and one can also find them used at a reasonable cost. Then all you need is a TU, AEA, Kantronics, Newsome Electronics, HAL, MFJ to name a few have Terminal units and software. They range from Baudot/Amtor type only to those that also include Packet. I would like to suggest to those of you out there who have used gear and are changing units or whatever, is to list it in the CLASSIFIED section of the Journal. George is a subscriber but not on RTTY yet and I bet there are others like him out there.

Carl K6WZ has dropped me a few notes over the last few months. Carl says that since he has moved to Kansas his RTTY DXCC has gone up over 20 new ones!

Waldy CT1AUR, writes that he enjoys the mode and loves to work DX. Waldy is looking for nets or other publications for RTTY DX news. Well the DX Bulletin, QRZ DX and the Long Island Bulletin usually have RTTY notes as inputed by active RTTY Dxers around the world. These are weekly or Bi-Weekly bulletins and are more timely than a monthly publication. Also John TG9VT has an Amtor Mailbox on 14.074 MARK that has "The VK2EG RTTY Bulletin" in it and other DX info. John also has a mail box on 14.0877 Mark on Baudot at 100 WPM. Late breaking RTTY DX news is always in John's Mailbox.

RTTY DXCC

On the agenda of the DX Advisory Committee in September will be the RTTY DXCC Question that we talked about a few months ago. Please get your suggestions and ideas into the DXAC, write DXAC Awards Program, ARRL, 225 Main Street, Newington, CT 06111. Don't sit back and do nothing, let them know. If we don't show them we are concerned it is likely nothing will happen.

DX NEWS

YI1BGD... Iraq, is still on the back burner, so watch for late breaking news on this one. Latest word is near the end of August.

HD8DZ...Galapagos was on the air by Luis HC2DZ from August 1-8. QSL Luis via HC2DZ, PO Box 777, Guayaquil Ecuador.

ZK3YY...Tokelau, was by Yama for the first ever RTTY from here. Yama tells us his own story in the RTTY DXER of the month column. QSL Direct only to: Y.Yamasaki, C/O JOCV Office, PO Box 1625, Apia, Western Samoa. Please include IRC's or appropriate postage and SAE.

UD...Azerbaijan, will be active during the CQ/RTTY Journal Contest as well as a week or so before. The calls will be UD/RW3PW, UD/UZ3PWX, QSL these two calls to PO Box 19, Tula 300,000, USSR. Also look for UD/UA3PW and UD/RA3PW, QSL these two via PO Box 444, Tula-21, 300,021, USSR.

(cont. pg. 6)

(DX NEWS cont. from pg. 5)

JY1..Jordan operated by King Hussein was active at 2145 hours recently on 14.095. We ought to try to get him on for the contest!!
UL...Kazakhstan, UM9MWA will be active from here August 18-22.

6W6JX...Senegal, Jean Luis continues to be very active on the keys usually on 15 meters on 21.089. Look for him from 1700 to 2000 UTC. QSl via F6FNU.

TY..Benin and C5 The Gambia, Jean Louis 6W6JX in a recent QSO said he was planning trips to both of these locations in the coming months!! Emphasis on RTTY !

FT5 Amsterdam and St.Paul, FT5ZB Danny continues to be active from both on 20. Look around 0200 on 14.087 Baudot and also on AMTOR 14.079. QSL F6ESH

TU... Ivory Coast, TU4CQ has been active also. QSL to: Bill Wetherford, Abidjan, Department of State, Wash. DC, 20520-2010.

BY...China, Both BY1PK and BY9GA have been reported worked. 0800 -0900 UTC on 21.092.

ZC...Cyprus Sovereign Bases, ZC4JA reports he will be active for the CQ/RTTY Journal test, he also says he is there til February 1989.
FP...St.Pierre and Miguelon, F2DX as FP5DX starts a 3 year assignment in FP. He plans RTTY operation if he can obtain suitable equipment.

VR6TC...Pitcairn Island, Tom is now active on RTTY thanks to the West Coast RTTY DX group. Tom has been seen both on 15 and 20 at approximately 1930 UTC on 15 and 0200 on 20.

OY...Faroe Islands, if you worked this group QSL via LA4LN. They used the calls OY/LA4LN and OY/LA2SR. I did not hear them, still need it.

UT5RP.. Dima has offered to help get USSR cards for those of need. Send a SAE and a contribution to the UZ9CWA Station via. Box 300, Odessa 27000, Ukraine, USSR. I don't know how to send a contribution but I am sure IRC's would be welcome.

6T2MG...Sudan, continues to be active, but not much luck getting a QSL, many reporting waiting many months and when asking Malik about cards he says he has not received them. Anyone having any luck?

DXER Of THE MONTH
ZK3YY, 5W1GP,JA6HOR.
Y. Yamasaki

I received the following letter from my good friend Toru JG1RVN in Toyko. It is from Yama and he tells us what it was like to operate from Fakaofo Island.

" I operated ZK3YY from June 23 -27 1988, my equipment was a TS680 and a Butternut Vertical. After I decided to go to Tokelau I asked KD6IH and JH4IFF to send me the vertical through "JANET". The antenna came from the USA and was very simple to put together but very heavy. But was very suitable for DXpedition.

AC line conditions were very bad. AC was limited to from 6-10PM each night. It was to short for radio operating. I asked for extra power and with some extra charge to the hotel I asked for 8 hours a day, but still had to be off at midnight.

I worked 1566 stations, but conditions were bad and I was not familiar to Dxpeditions. I wished to make more QSO's but could not. I heard that RTTY operation would be first time from Tokelau. I got TONO-777 from Gin JA1ACB and JG1RVN, JA3MQY and JA9MJR. It was first time for me to operate RTTY and before I went to ZK3, I read "RTTY Beginners Manual" by JA1DSI and story of BV0RY. I got many things from these books. As soon as I hooked up Tono-777, I call CQ from 5W1GP. It was very exciting!! I worked KN6J and N6GG then worked 70 stations before QSYing to ZK3.

Toru JG1RVN told me how to do DXpedition. I am very satisfied with the RTTY operation. It was really smooth! Thank you very much for such nice cooperation on RTTY operation.

It was very heavy pile up my first CQ from ZK3YY. It was astonishment!! I could see nothing on the screen but only heard the big alley of the FSK carrier! I listened on 21.090 before I called CQ and heard nothing. I thought maybe nobody on the band. Then I typed CQ CQ CQ de ZK3YY Pse UP UP and then I listened, 21.092 -21.097 and heard nothing but one big carrier hi hi. My rig had no FSK mode, so I could not use the narrow filter for RTTY. I could not copy any call sign on the screen! But I had to pick up one station. I then tuned the dial using IF shift, then I saw "VN KKK". I thought for sure it was JG1RVN, then I note in log book 0903 UTC JG1RVN, 21 Mhz RTTY called, " JG1RVN de ZK3YY ur 599 First RTTY QSO HW COPY? JG1RVN de ZK3YY pls K". This time it was very clear tone and a pleasant sound from my rig. "ZK3YY de JG1RVN, GOOD EVENING YAMA-SAN, ur 599". OHHH how great, I make first RTTY contact from ZK3!!!

After that QSO I worked JA1ACB, JA1DSI, JA8EAT, and KX6HE, KA5CQJ among the pile ups. I printed I5KG, UT5RP and SM7AIA as if they were in a deep valley.

(cont. pg. 17)

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CONTESTING

CONTEST RULES

I am turning the whole matter over to the SEC. They have laws about insider information and I figure the guys that know the contest date ahead of time ought to get three to five years. Since next year May 1st isn't on Sunday, it should be easier to calculate a date for the 2nd weekend (VOLTA) and maybe I will be able bet on the right horse.

The mailman is still wearing big, thick, asbestos gloves to deliver my VOLTA fan mail so I have become a little gun-shy about contest dates. Then I got the letter from Syd **VK2SG**. The first thing that jumps off the page when I got the envelope open is a line of inch-high print proclaiming, ...NOT MY FAULT..." and here we go again.

Most contests are scheduled to run on set weekends in a given month. The dates vary but the weekends remain the same. Right off hand, until somebody figures that Sunday the first counts as weekend number one, I can think of no exceptions. Since the ANARTS information mailing list is a carefully guarded secret even from themselves and since every year I could remember the ANARTS contest ran on the first weekend in June, I got over confident. Syd explained all that in his letter. It's so simple that I probably should have figured it out for myself. ANARTS runs on the weekend closest to the Queen's birthday. The city library tells me that Liz was actually born in April but to avoid crummy weather they moved it to June where it apparently moves around on some sort of sliding scale based on a weather report. This year it was June 8th. Next year we can celebrate it on the day I pick or they can send me the information before we publish.

I wrote a lot of personal letters trying to expose an otherwise camouflaged contest date and I was pleased to see an excellent turnout for ANARTS. The card I got from Bill, **VK2EG** confirming the receipt of my log said that he had received some really high scores. I suspect that it will take 6 mil plus to win multi-op and at least a third of that to take the single-op category.

SAFEGUARD YOUR LOG

Incidentally, a contest log can represent hundreds of man hours of hard work. Losing the contest log can get you exiled to a dark place with no electricity. Before I abandon the log to a tin box on some street corner, I add a buck taped to a self-addressed envelope to the log package with a note asking the log checker to keep the buck (postage) but mail the envelope. With foreign mails involved, it is usually cheaper than return receipt and sometimes I even get some little tid bits of glowing praise from the contest committee *(Sorry, Hal, wrong date again, better luck next year...).*

ARRL RTTY ROUNDUP CONTEST

THE ARRL IS SPONSORING AN RTTY CONTEST!!!!! John, **W1XX** (Manager of ARRL Membership Communications) recently wrote, "The submitted material, together with our own input, has shaped very nicely into what we feel will be an appropriate digital contest." It should kick off before the Superbowl weekend in January next year and from the preliminary peek I got at the rules, it has all the earmarks of a first-class contest with some new angles for the guys who don't heat their homes all winter with giant amplifiers. Keep the 2nd weekend in January open!!

RUMORS ON THE BARTG RESULTS

(FROM **G4PKP**, JOHN IN LIVERPOOL)

MULTIOP:	SINGLE OP:
1. **WA7EGA**	1. **TG9VT**
2. **NG7P**	2. **UZ9CWA**
3. **HD5G**	3. **SM4CMG**
4. **KT1N**	4. **I2OLD**

W.A.E. EUROPEAN DX-CONTEST RESULTS

1987 MULTI-OPERATOR (CONTINENTAL WINNERS)

EUROPE **LZ1KDP**
ASIA **UZ9CWA**
NORTH AMERICA **KE7PN** (Jay strikes again)

SINGLE OP -- ALL BAND
EUROPE **SM6ASD**
ASIA **UA9FM**
AFRICA **S79WS**
NORTH AM. **AB0Y/4** (congrats Jim)
SOUTH AM. **PT2BW**

SINGLE OP HIGH BAND
EUROPE **PA3DBS**
ASIA **JA2NNF**
OCEANIA **VK2BQS**
NORTH AM. **W2UP** (YEA Barry)

USA SCORES
W2UP 7560
KB2VO 6032
K3KV 1800
WA8FLF 1664
AA5AU 924
K6WZ 720
KE0Y 252

LOOK FOR DETAILED RESULTS AND WORLD SCORES NEXT ISSUE

(cont. pg. 8)

(CONTESTING cont. from pg. 7)
The 18th running of the SARTG contest fired up on the third weekend of Aug. The contest ran in three segments, 0000-0800UTC Aug 20, 1600-2400UTC Aug 20, and 0800-1600 UTC on Aug 21. With eight hours of rest time between segments, a single op was able to compete without being forced into a red-eyed marathon. *(ED: Sorry about not getting these rules published in the last issue; things like this happen once in a while in the publishing business).*

Last year's top single operators (**9H1EL, TR8DX** and **SM4CMG**) beat all the big-time multi-op stations. The keys to winning were multipliers on 3.5, 7 and 28 Mhz. This year, with the flux running an average of 100 points higher than last year, nobody will get much of a location advantage for ten and fifteen meter propagation. Those who are willing to brave the static crashes on the low bands (80 and 40 meters) between 0800 and 1600 Z will be the ones who move up the list. See you on the bands. **73's Hal, WA7EGA.**

HAMCON 88

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ARRL SOUTHWESTERN DIVISION CONVENTION

September 2, 3, & 4, 1988

at the Disneyland Hotel in Anaheim, California

Cut and Mail to: Dick Bruno, N6ISY, Registration Chairman,
HAMCON INC, P.O. Box 3695, Huntington Beach, California 92605

Name: _____ Call: _____
Name: _____ Call: _____
Address: _____
City: _____ State: _____ Zip: _____

☐ Check here if you plan to stay at the Disneyland Hotel.

How Many?

_____ Advance Registration (To Aug. 15th.) ($12.00 at the Door) @ $10.00 ea. _____
_____ Banquet @ $25.00 ea. _____
_____ Ladies Luncheon @ $10.00 ea. _____
_____ Sunday Breakfast @ $10.00 ea. _____

Total Enclosed: $ _____

Make Checks Payable to: HAMCON INC.

Sponsored by the Orange County Council of Amateur Radio Organizations

Exhibit Hours:
Sat., 9 AM - 5 PM
Sun., 9 AM - 12 PM

Prizes:
Advance Registration
Banquet Prize
Hourly Prizes

Banquet Speaker: Dave Bell, W6AQ
Master of Ceremonies: Johnny Grant, WB6MJV

Join us Friday night at the Meet and Greet and Old Timers Night 7 to 9 PM.

Convention activities will include: prizes, ladies luncheon, Woulf Hong, Sunday T-hunt and many activities for the family.

Technical Sessions will include: ARRL & Legal Forums, DX/Contesting Forum, HF Propagation, Antennas, ARRL & Legal Forums, Packet Radio, Voyager Flight Communications, T-hunting, China and Russia Trips, AMSAT, RF Interference, and many more.

VE testing info available upon request.

Convention registration also includes validated parking and special hotel rates. RV parking is nearby. Transportation is available from the surrounding area airports.

Hotel Information:

$72.00 per night up to 4 persons. Call 1-800-MICKEY-1 and mention HAMCON

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- 10 to 1200 Baud
- Linear Phase Filters

ST-8000 HF Modem

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- Split or Transceive TX/RX
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- Variable Threshold Diversity
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- FDX or HDX with Echo
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- 8 or 600 Ohm Audio Output
- Code and Speed Conversion
- Signal Amplitude Squelch
- Receive Clock Recovery
- 3.5" High Rack Mounting

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Government Products Division
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(217) 367-7373 TWX 910-245-0784

RULES
1988 CQ MAG/RTTY JOURNAL WORLDWIDE RTTY CONTEST

Announcing The Second Annual CQ World Wide RTTY Contest, co- sponsored by the RTTY Journal. The first contest had a tremendous turn out and what with band conditions improving all the time we should have a fantastic turn out for this the second annual bash at the keys. There has been a few minor changes to the rules so read carefully; most important is the deletion of the 160 meter band.

Contest Period: 0000 UTC September 24 to 2400 UTC September 25, 1988. The total contest period is 48 hours, but no more than 30 hours of operation are permitted for single operator stations. The 18 hours of OFF time can be taken any time during the contest period, but OFF periods may NOT be less than 3 hours. All ON and OFF periods must be clearly noted in the LOG and the SUMMARY SHEET.

Note 1: A Single Operator MAY operate more than 30 hours, but only the FIRST 30 hours of operating will count toward the official score.
Note 2: Multi-Operator stations MAY operate the full 48 hours.

Operator Class: A. Single Operator - B. Multi-Operator, Single Transmitter ALL BAND ENTRY ONLY, AND ONLY ONE TRANSMITTED SIGNAL AT ANY ONE TIME.

Entry Categories: A. All Band - B. Single Band

Modes: Contacts can be made using Baudot, AMTOR (FEC/ARQ), ASCII, and AX.25 (No Digipeating QSO's Allowed)

Bands: 80, 40, 20, 15, 10. Suggested Frequencies: 3.075 - 3.625, 7.075 - 7.100 (VE above 7.100) also RTTY DX on 7.035 - 7.040, 14.075 - 14.100, 21.075 - 21.100 and 28.075 - 28.100.

Valid Contacts: A given station may be contacted only ONCE per band regardless of the digital mode employed. Additional contacts are allowed for each of the other bands.
Exchange: Stations within the 48 Continental United States and the 13 Canadian areas must transmit RST, State, or VE area and CQ Zone number. All other stations must transmit RST and CQ Zone number.

Countries: The ARRL DXCC and WAE DX Country list will be used. Note: USA and Canada COUNT as Countries.

QSO Points: One (1) QSO point for contacts within your own country. Two (2) QSO points for outside your country but within your own continent. Three (3) QSO points for contacts outside your own continent.

Multiplier Points: One (1) multiplier point for each continental U.S. state (48) and each Canadian area (13) contact on each band. One (1) multiplier point for each DX country in the ARRL DXCC and WAE lists contact on each band. NOTE: KH6 and KL7 are country multipliers ONLY and not state multipliers. Also the U.S. and Canada COUNT as country multipliers for the first contacts on each band. One (1) multiplier for each QSO zone worked on each band. A maximum of 40 per band. CANADIAN AREAS ARE: VO1, VO2, VE1 NB, VE1 NS, VE1 PEI, VE2, VE3, VE4, VE5, VE6, VE7, VE8 NWT, VY Yukon.

Final Score: Total QSO points times the total multipliers equals the total claimed score.
Contest Entries: All entries must include a SEPARATE log for EACH BAND, a DUPE SHEET for each band if the total contacts for that band is over 50, a MULTIPLIER check list for EACH BAND, and a OVERALL summary sheet. All logs MUST show date, time in UTC, callsign of the station worked, RST exchanged, state or Canadian area (where applicable), CQ zone, and points claimed per contact.

Disqualifications: Operating in an un-sportsman like manner, manipulating scores or times to achieve advantage, or failure to omit duplicate contacts which would reduce the overall score more than 2% are grounds for disqualification. Decisions of the contest committee are final.

Awards: Plaques will be awarded to the first-place finishers in each of the operator classes. Certificates will be awarded to second and third place. Plaques will be awarded to the first place finisher in each continent. Certificates will be awarded to the first place-finisher in each of the U.S. and VE call areas. Certificates will be awarded to the first place-finisher in each DX country.

Log and Entry Forms: Sample log forms and summary sheets are available from CQ magazine or the RTTY Journal, please include appropriate postage and a SASE, (stamps or IRC's accepted). Note on the outside of your envelope that you are requesting CQ RTTY log forms.

Deadline: All entries must be postmarked NO LATER than December 1, 1988. An extension may be given if requested. Logs should be mailed to CQ RTTY Contest, c/o Roy Gould, KT1N, P.O. DX, Stow, Ma. 01775, USA

WIRELESS DATA RECORDER

AR1200

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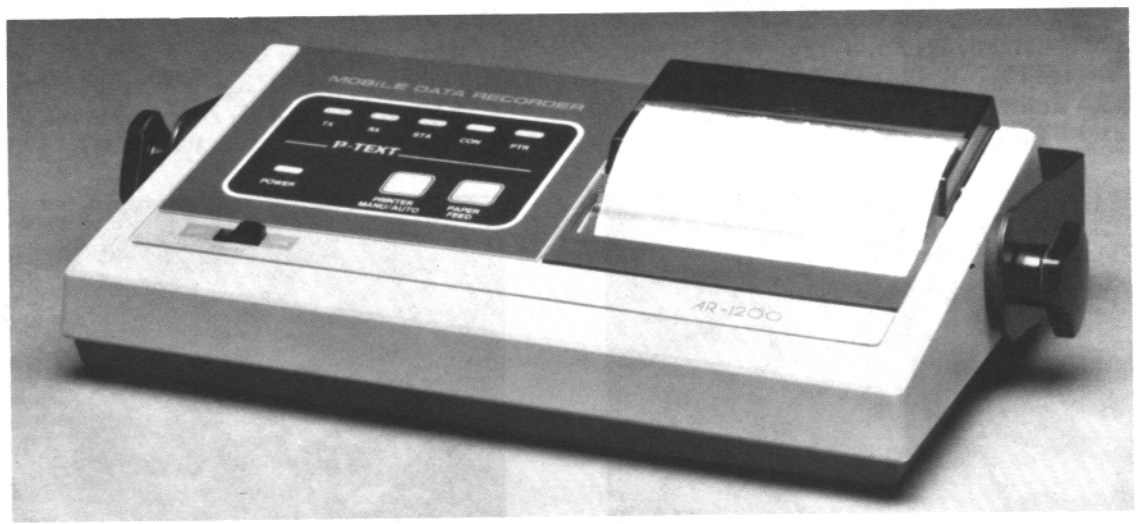


SPECIFICATIONS

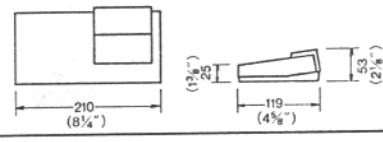
GENERAL

Protocol	AX.25 level 2
Modem	VHF/AFSK
Processor	Z80 Software compatible
Memories	ROM 32K, RAM 32K
Communication speed	1200bps (wireless)
at RS232C terminal	1200bps (300–9600bps rate selective)
Power source	DC–12V +/– 15%
Current drain	700mA average
Operating temperature	0– +40 degree C
Storage temperature	–20– +60 degree C

PRINTER

Printing method	Thermal head
Letter structure	7×5 matrix
Printing space	2 dots
Letter size	2.4×1.1mm Characters/Numerics/Marks
Characters per line	40 characters
Paper	Thermal sensitive only
Paper size	80mm +/– width 40mm diameter of roll

Dimensions: (mm)



Specifications subject to change without notice.

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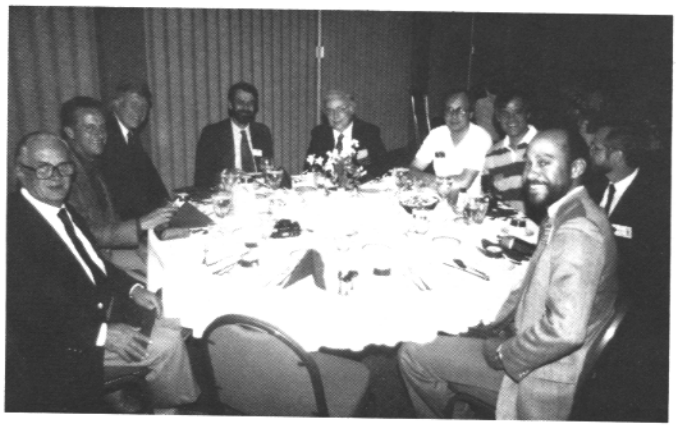
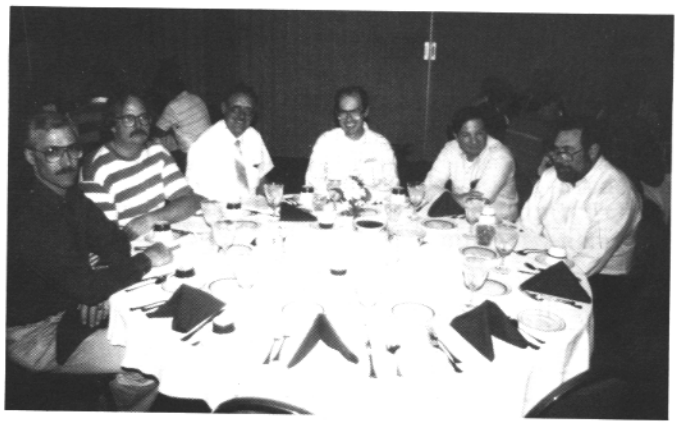
Alan, KA1MTQ- Mel, WA1HJS- Jules,
W2JGR- John, TG9VT- Frank, N2FF
Bob, WA9AKT

Ken, W0UIZ- Larry, KA0JRQ- Al, W8PBX
Gaylord, WB8ICL- Louise, WB8JIB- Ruth
XYL to Don, K8WZX- Carlene, WD9EWV-
John, WA9WJG



George, KB2VO- Ted, HC5K- Hal, WA7EGA
Eddie, W6/G0AZT- Roy, KT1N- Dan, NB2P
Angel, WA2VUY- Ted, W2FG- Cecil, NZ2R

Arthur, XE1LL- John, W3BE- Dee, N6ELP
Bill, K9GWT- Don, N9ALK- Clark, W9CD
Bob, WB7QWG



Rich, KC0KT- Jay, KB0ATQ- Dick, K0VKH
Mel, K0PFX- Curt, W0SN- Tom, KJ4D

L. to R. Ted, HC5K; Jules, W2JGR; Roy, KT1N
& John, TG9VT
All tough compeitors in an RTTY contest

VENTION PICTURES

Digital Digest Forum - L. to R. Dr. Alan Chandler, K6RFK (AEA) - Craig Martin, KR6T (Kenwood) - Bill Henry, K9GWT (HAL) - myself, W6IWO - Roy Gould, KT1N

Digital Digest Forum - L. to R. myself, W6IWO - Roy Gould, KT1N - Hal Blegen, WA7EGA - Dick Urhmacher, K0VKH - Jerry Trichter, WA1IUF

Digital Digest Forum audience

RTTY Hospitality Suite - I'm sorry that I can't give names to all the faces. I hope you can recognize many of them

More RTTY Hospitality Suite

RESULTS OF 1987 SARTG RTTY WORLD WIDE CONTEST

Class A Single Operators

NR.	CALL	QSO	PTS	3.5	7.0	14	21	28	T. SCORE
001	9H1EL	452	5175	11	21	54	33	22	729,675
002	TR8DX	346	5150	9	13	46	46	6	618,000
003	SM4CKG	316	3580	18	22	54	25	16	483,300
004	HB9BNP	303	3385	14	22	47	19	10	379,120
005	SM5FUG	267	2880	16	18	40	27	15	334,080
006	G5SKA	274	3045	16	16	43	26	7	328,860
007	EA3OL	326	3950		6	56			244,900
008	Y43BER	217	2325	12	15	38	24	8	225,525
009	PA3DBS	200	2250	10	7	33	31	12	209,250
010	KB2VO/4	223	2640	1	5	53	16		198,000
011	Y79XN	184	1950	15	9	34	25	8	177,450
012	SP2UUU/1	187	1900	12	15	28	24	8	165,300
013	LA7AJ	170	1870	6	11	46	21	3	162,690
014	AB0Y/4	157	1900	4	14	48	13		150,100
015	4X6RA	175	2575			38	18		144,200
016	OK2BRP	205	2180			44	12	9	141,700
017	W2FG	165	2105			56	11		141,035
018	WB5HBR	168	1920	1	14	40	18		140,160
019	AA5AU	179	2015		6	41	20	1	137,020
020	OZ4FF	151	1600	13	7	34	19	5	124,800
021	IN3XUG	174	1775		16	34	15	5	124,250
022	SP9BCH	186	1955	11	1	34	14		117,300
023	OZ4DZ	135	1380	14	11	23	17	11	104,880
024	HA6NL	130	1280	10	11	26	11	11	88,320
025	I8RFD	123	1295		9	38	6	15	88,060
026	CT4NH	120	1380		8	29	18	8	86,940
027	OH2LU	123	1365			30	18	13	83,265
028	K6WZ/0	135	1455	4	8	34	11		82,935
029	HA6PX	125	1215	10	7	29	12	9	81,405
030	IV3UT	116	1195	3	9	27	16	13	81,260
031	G4MKC	123	1285	11	4	17	22	4	74,530
032	SM6FZD	134	1420			36	16		73,840
033	N6CG	121	1405	1	4	39	8		73,060
034	N9AW	108	1275		6	47			67,575
035	YO5BLA	104	1095	6	1	20	20	10	62,415
036	W3AOH	88	1055			47	11		61,190
037	Y22HF	102	1045	4		24	20	8	58,520
038	IV3ZDO	91	900	6	11	24	12	11	57,600
039	OK2FD	90	965	11	6	21	15	6	56,935
040	W7MI	104	935		11	39	3		49,555
041	W2JGR	105	1055			44			46,420
042	JA1BYL	90	1130	1		33			38,420
043	I4IBR	73	770		8	22	14		33,880
044	W0LHS	88	975			33			32,175
045	W2KHQ	60	825		4	25	9		31,350
046	KD4OM	53	695			29	15		30,580
047	SM4AIO	79	795	8	7	19	13		29,414
048	VE7YB	63	795			35			27,825
049	SP3HWN	42	640		10	13	19		26,880
050	Y27AO/A	69	710	6		24	7		26,270
051	F6BVB	61	620			19	13	8	24,800
052	SM7ABL	57	580	17	2	21	16	1	22,040
053	SM7BGE	68	660	9	2	17	5		22,780
054	SM3MID	57	565	2	4	12	14	6	21,470
055	ZL2AKI	47	660		3	26	1		20,100
056	WA8FLF	47	565	4	3	25	3		19,775
057	VK2BQS	55	790			25	1		19,750
058	SP1AAQ	56	585			14	15		16,965
059	KA1LMR	41	505		7	21	3		15,655
060	DF8WS	50	505			14	9	8	15,655
061	PU7RGW	40	585			26			15,210
062	K4JYS	33	495		1	25	3		13,860
063	YO2IS	49	525			11	15		13,650
064	W8LNK	47	530		8	17			13,250
065	KL7PG	46	550	1	4	19			13,200
066	W6CN	46	435		29				12,615
067	JA1DFQ	41	545			20	2	1	12,535
068	OZ7XE	52	520			16		8	12,480
069	K8CV	40	425			27			11,475
070	LA9RY	50	490	8		9	5		10,780
071	K0BJ	35	400			22			8,800
072	K2PEQ/4	26	365			24			8,760
073	EA5FHE	43	450			19			8,550
074	DL1EK	38	395			21			8,295
075	WA6AHF	29	330			25			8,250
076	3G2Z	39	575			14			8,050
077	YO6CFB	32	345		6	16			7,590
078	I0KHP	31	305			17	7		7,320
079	VE3ARU	25	315		5	12	6		7,245
080	YU3MJ	32	320			20			6,400

Class A Single Operators (continued)

NR.	CALL	QSO	PTS.	3.5	7.0	14	21	28	T. SC.
081	G4JLU	32	320			18			5,940
082	EA1AW	24	285			13	6		5,415
083	KA9NSD	30	320			14	4		5,120
084	N0FMR	31	320			15			4,800
085	VE6ZX	26	300			14			4,200
086	HB9NL	20	205			6	9	5	3,690
087	JA1DI	16	240			15			3,600
088	EA8AKQ	14	205			7	7		2,870
089	JA2NNF	17	245			17			2,450
090	Y32ZF	21	210				10		2,100
091	CT1BKK	16	160	1	1	9			1,760
092	HB9DCW	16	130		1	3	6	3	1,690
093	SP9GNP	16	155			9			1,395
094	YO2DNO	14	135	10					1,350
095	Y31IB	16	160			8			1,280
096	OZ9ZQ	14	140			8			1,120
097	VE7BDQ	10	120			8			960
098	SP2FF	9	80	2	2	1	2	2	720
099	Y31ZB/Y38NG	11	110		1	5			660
100	KD0CA	10	80		1	6			560
101	AG4T/KL	10	100			5			500
102	WA6OGO	5	60			3			160

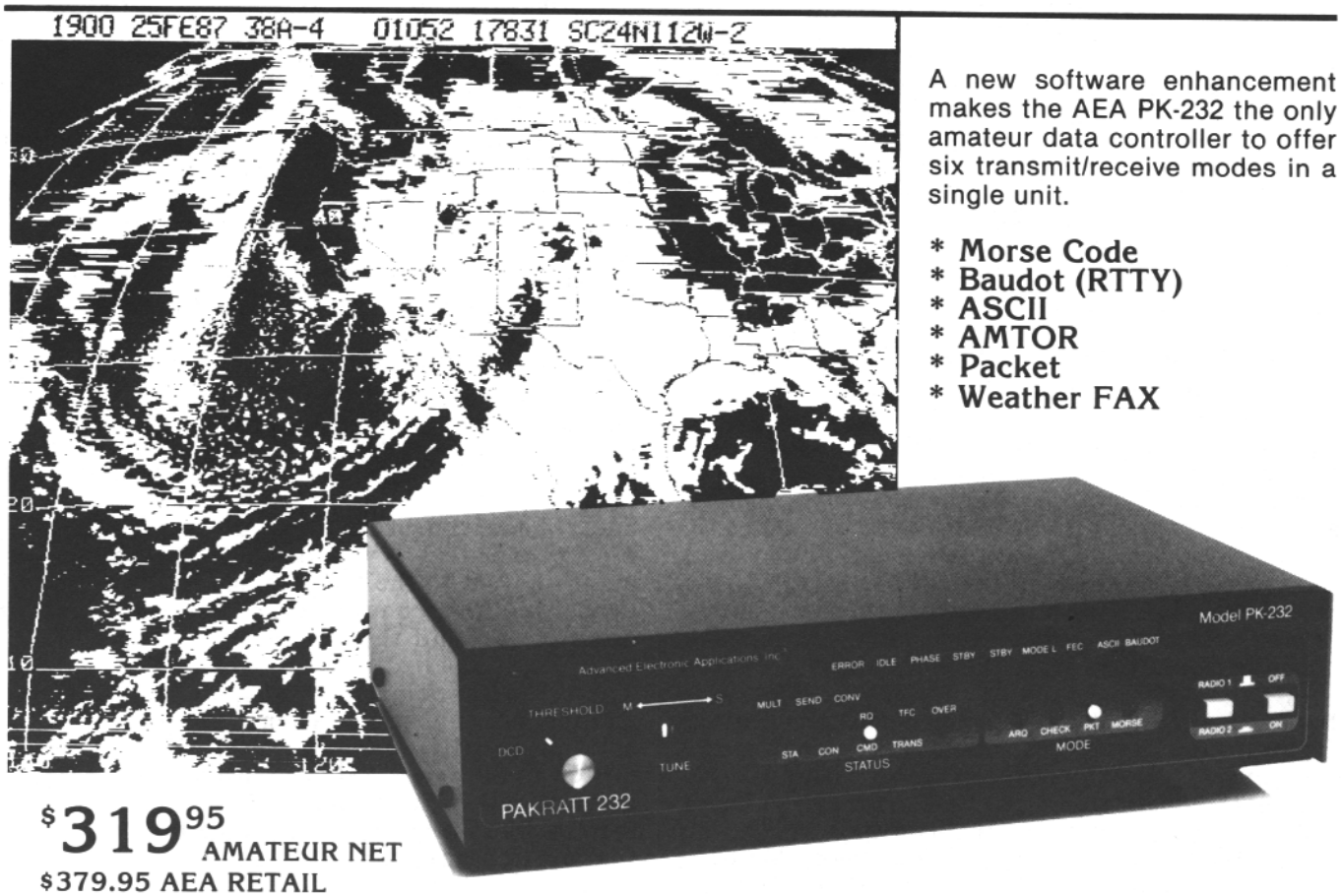
Class B Multi Operators

NR.	CALL	QSO	PTS.	3.5	7.0	14	21	28	T.SC.
001	LZ1KSP	325	3550	16	13	47	30	18	440,200
002	YU7KMN	250	2720		6	48	19	15	239,360
003	WA7EGA	266	2905	7	16	49	7	1	232,400
004	UZ9CWA	203	2955	10	7	40	17		218,670
005	OH2AY	216	2350	9	11	35	15	14	197,400
006	OK1KQJ	184	2000	13	14	36	22	8	186,000
007	G0ATX	193	2150	12	6	35	19	9	174,150
008	DL0EJ	224	2630	9		53			163,060
009	YU4EZC	141	1520		10	31	24		98,800
010	OZ7SAC	117	1315	3		35	15	4	74,955
011	Y51ZF	109	1055	15	10	27	8		63,300
012	OK3KSK	41	410	7		18			10,250

RESULTS cont. pg. 23

New PK-232 Breakthrough

Six Digital Modes - Including Weather FAX



A new software enhancement makes the AEA PK-232 the only amateur data controller to offer six transmit/receive modes in a single unit.

* **Morse Code**
* **Baudot (RTTY)**
* **ASCII**
* **AMTOR**
* **Packet**
* **Weather FAX**

$319.95 AMATEUR NET
$379.95 AEA RETAIL

Your home computer (or even a simple terminal) can be used for radio data communication in six different modes. Any RS-232 compatible computer or terminal can be connected directly to the PK-232, which interfaces with your transceiver. The only program needed is a simple terminal program, like those used with telephone modems, allowing the computer to be used as a data terminal. All signal processing, protocol, and decoding software is in ROM in the PK-232.

The PK-232 also includes a no compromise VHF/HF/CW modem with an eight pole bandpass filter, four pole discriminator, and 5 pole post detection low pass filter. Experienced HF Packeteers are reporting the PK-232 to have the best Packet modem available.

Operation of the PK-232 is a breeze, with twenty-one front panel indicators for constant status and mode indication. The 240 page manual includes a "quick start" section for easy connection and complete documentation including schematics. Two identical back panel radio ports mean either your VHF or HF radio can be selected with a front panel switch. Other back panel connections include external modem disconnect, FSK and Scope Outputs, CW keying jacks, and RS-232 terminal interface.

The RS-232 connector is also used for attaching any Epson graphics compatible parallel printer for printing Weather Fax. Weather maps and satellite photos, like the one in this ad, can be printed in your shack.

Contact your local AEA dealer today for more information about the one unit that gives you six modes for one low price, the PK-232.

AEA Brings you the Breakthrough

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Lynnwood, WA 98036
(206) 775-7373

MOTU KIRITIMATI DXPEDITION

by Don Simon, W6PQS, 356 Hillcrest St.,
El Segundo, Ca. 90245

MOTU KIRITIMATI, REPUBLIC OF KIRIBATI

Christmas Island was first sighted by Captain Hernando de Grijalva in 1537, however he did not land. The captain was later killed by his crew after many fruitless attempts to sail into the prevailing easterly wind to rejoin Cortez in Mexico. The island was uninhabited when Captain James Cook, sailing the Resolution, landed in 1777 to take turtles for food and search in vain for water. Later, 1300 miles to the North, Cook discovered the Sandwich Islands (now Hawaii) where he died at the hands of the natives. Explores 0, Others 2.

Christmas Island is the largest of the Line Islands, just 119 miles North of the Equator. It is the largest coral atoll in the world, sitting atop the remnant of a long extinct, volcanic island. Many attempts to discover quano and raise coconuts failed in the 1800's. By 1911, the island was again uninhibited when an ex-preist named Rougier began the first successful coconut plantation with 200,000 palms.

Between 1945 and 1965, Britain and the United States tested numerous nuclear devices in the atmosphere downwind of the island. No residual radiation exists today. Upon independence from Great Britain in 1979, the Line Islands (T32) including Starbuck, Malden, Christmas, Fanning and Washington became part of the Republic of Kiribati (pronounced "kir-ah-baas"). The Republic includes the Gilbert (T30) and Phoenix (31) island groups.

Kiribati is a socialist country, using the Australian dollar as currency. The local population subsists largely on green coconuts and a lagoon full of fish. Christmas Island generates hard currency thru the export of copra (dried coconut meat), the leasing of fishing rights (most recently to the Russians), the presence of a Japanese tracking site and lately tourism. For the tourist, flyfishing for bonefish and bird watching are the main attractions. Air Tongaru provides weekly flights from Honolulu and operates the Captain Cook Hotel on the island.

On this, my second trip to Christams Island, I carried two fly rods, a Kenwood TS-930S, Robot 800HC, 9" monitor and MFJ "T" tuner. A G5RV dipole was stretched 20 feet above ground level, between two existing poles in a field near my bungalow at the Captain Cook. Later, a Hygain TH3-Jr./S, three-element, tri-bander was set up on a 15 foot mast. The G5RV performed flawlessly, in spite of being installed with the 300 ohm section parallel to the ground. The beam was good on 15 meters but should have been at lease 30 feet above the ground to provide any directivity on 20 meters.

Christmas Island is too small to produce its own weather, so the temperature is a pleasant 80 degrees, day and night. Unfortunately, the equatorial sun cooks the D layer into a giant dummy load early every morning and there is little or no propagation until approximately 1400 local time (0000 UTC).

I consoled myself by fishing until noon, enjoying a leisurely lunch and then firing up the rig after a little siesta. The late start made 20 meter contacts with the East Coast and South America difficult. But 20 and 15 were excellent to the entire Pacific area, often as much as 6 hours after sundown. I don't think that I missed too many RTTY DX stations in the U.S., Japan, Australia, and New Zealand. John, TG9VT spent hours drumming up business for me in the Caribbean, Latin and South American areas. Most did not know that a RTTY expedition was on T32. We gave a one month notice to the U.S. DX media, but that was probably not enough time for the news to circulate around the rest of the world.

The big disappointment was no propagation to Europe on any band. When I ran out of RTTY action, usually around 1000 UTC I would switch to 80 meter SSB and usually generated a good pileup of U.S. and Atlantic stations. Forty meters was un-usable due to the big solar storm that hit February 20th.

Controlling RTTY pileups was surprisingly easy. After a CQ or QRZ, I would load the call of the first station copied into the buffer and use three other buffers to key in my full message (e.g. - W6GC W6GC de T32BG T32BG - UR SIGNALS 579 579 579 - ON CHRISTMAS ISLAND QSL? - W6GC W6GC DE T32BG T32BG KN KN). As soon as the pileup died down a little I would transmit again; using the QSO station's call at the end of the transmission insured that he would get a second chance to see it and repeats were seldom necessary. After the QSO station replied, I would confirm his contact and send my QRZ line (e.g. - WA6PJR WA6PJR DE T32BG T32BG -QSL THE 569 TNX - QRZ QRZ DE T32BG UP 2 PSE K). Having suffered the anxiety of having a RTTY DX confirmation stepped on by another station, I determined that all contacts would be good solid exchange. If an overzealous operator spoiled the confirmation, I did not have to do that many times before the pileup got the message that the fast way, was my way. I used split to advantage, only on the first day, after that I was able to control the situation with my "routine" calling sequence which made it pretty clear that I wanted a full exchange.

(cont. pg. 17)

(DXpedition cont. from pg. 16)
While on the island, I had a chance to visit my old friend Phil Wilder, T32AN, and found him in good health and spirits. Phil is a real gentleman and host, not to mention excellent quitar player. Phil does not presently have a QSL manager and prefers to be scarce on the bands. His tropical fish business is flourishing again.

Kazu Nakamura (JJ1TZK) was also on the island the same week as T32ZK. He pounded out CW contacts at an incredible rate. The first night I completed about 50 RTTY contacts and he made 800 on CW. Kazu has also been on from C21, T30, KX6, KC6, T21, 3D2, A35, 5W, KH8, ZK2, NH0, ZK1, and KC6. He knows how to waste his vacation!

The only operational hazards were expensive beer and a slightly irregular power supply at 125 VAC, 63 Hz (plus or minus something or other). Every afternoon, during a QSO one generator would shut off, and the other started five to ten minutes later, leaving some poor RTTY op in a state of shock!

All in all it was a great experience and well worth the modest cost. I would highly recommend Christmas Island as a vacation spot for a flyfishing/amateur radio operator but leave your wife at home! She will not be pleased! **73, Don, T32BG (W6PQS)**

(HITS & MISSES cont. from pg. 2)
Back in May I was invited to attend a luncheon with Taka, JA1JDD which I accepted. (see pix this page) Also in attendance was Cole, W6OXP and Ed, K6EV. We all had a nice eyeball with Taka and some good food as well. Taka has written for CQ Japan magazine in the past and is active as much as he can be considering his job which requires him to do some traveling. Since that date, Taka has been back here on the West Coast and spent an afternoon here at my home. We hope to see him again in the near future.

The Central American and Panama Radio Clubs are planning a convention Sept. 16th thru 18th in San Jose, Costa Rica. For more information about this convention, contact Oscar, T12OEB at P.O. BOX 268-1300, San Jose, Costa Rica.?

A note from Chris, SP2UUU advised me that his mother Barbara, SP2FF is the first YL on RTTY from Poland. Congratulations to Barbara and to her 102 countries with 80 confirmed.

That's all for this month. **de Dale, W6IWO**

(DX NEWS cont. from pg. 6)

Before the power stopped that night I had worked 40 stations. Total RTTY stations was 211; 118 on 20, 91 on 15 and 2 on 10 meters. Again thank you for all the kindness from all the RTTY Dxers.

ZK3 is a small Island surrounded by a white reef. People are very kind. Through out my stay many people came to see the Amateur Radio at my guest house, bringing taro-potatoes and fish. If I asked them for water, they would climb up the palm trees and make me a fresh Yashi-Palm juice. There is a marine blue sea, reefs, many Palm trees on a little Island with a Big Blue Sky and really kind and friendly people. I was kept busy eating coconut and crabs. I think ZK3 is a paradise.

QSL cards will be mailed end of September, Please send direct to me: Y.Yamasaki, C/O JOCV Office, Po Box 1625, Apia, Western Samoa. If no return postage I will send Via JARL.

So I say to all "FAKA FUED" for now. Which means "THANK YOU ALL" in the Tokerau language."

Well that is it for this month, next month I will high-light a trip to Sweden by George KB2VO/4. George just returned and visited many of the SM RTTY Gang and has lots of nice photos. Thanks and a tip of the DX hat to: TG9VT, KB2VO, VK2EG, JG1RVN, 5W1GP, K6WZ, WA3ZKZ, WB4UBD, WA8FLF, VE7VP, KD1B, The DX Bulletin and The ARRL DX Bulletin. **73 de Roy, KT1N**

L. to R. Cole, W6OXP - Taka, JA1JDD
Dale, W6IWO - Ed, K6EV - Lucheon
in Los Angeles May 1988

Richard Polivka, N6NKO
7052 S. Friends Ave. Apt J
Whittier, Ca. 90602

PACKET

THAT TIME OF THE YEAR

It is now late (!) July as I am writing this and a lot has happened since I last wrote a column. We have moved to a larger place in a different city. I haven't had the time to get the whole station up yet but I have the Packet station running. Not with the Ringo Ranger but with an old stand by, the dipole. The antenna is pointing North and South and it is amazing what you can and can't hear when you move up on a hill. It will take some tome getting used to.

REQUEST TIME

A good friend of mine, Tom, WR6G, asked me one day if I would give him an overview of how to use the Nodes and how they differ from using a digipeater. So Tom, this one is for you.

Let's first describe how a digipeated signal works. While the digipeater is listening to the frequency, it receives a packet that has its call in the digipeat section. When the frequency is clear, it just and retransmits the packet.

The big problem with this is that there is no error checking and the next station to receive it can't tell the digipeater to repeat it. This can only be done by the two end stations. A couple of the timers that one sets up in the TNC help to determine if a packet did not go through. If the transmitting station does not get an ACK or NAK back, the transmitting station has to ASSUME that the receiving station did not get the packet and has to transmit it again and sometimes again, again, and again. It will keep up this relentless procedure until one of several things happen. You will exceed the RETRY setting and the TNC will automatically and unceremoniously say that the retry count has been exceeded and the TNC is in the disconnected state. From there you can try a better path as luck was not on your side. You can give up thinking that the other station is not on the air, especially if you are trying to connect to a station thinking that he is not on the air when, in reality, your packets are being trashed by collisions. Or, you can just keep on trying to get through.

Another problem arises here in that digipeaters don't do any handshaking. This is where a Node comes to the rescue. Digipeaters never had or will have it so good. Basically, a Node is a store and forward device that does handshaking and error checking. Here is how it works. You first connect to the Node. That establishes the first part of the link. This link will have the error checking and handshaking of a normal, direct Packet link. Once that is established, you tell the node what to do next. You can connect to another Node or to another station. If you decide to talk to another Node, you just connect up to that Node. You do not have to worry about the message getting trashed, because the Nodes do all of the error checking along the way. Once connected through a Node to a station, the Node will see your call differently. As an example, if I were to connect up to a Node using the call of N6NKO, the station that I want to connect too, would see this call come across as N6NKO-15.

A bit of explanation here. The "-15" is what is called a Secondary Station ID or SSID. This allows an amateur to have up to 16 separate stations and still use his own call. The calls would range from the amateur's regular call (N6NKO) thru N6NKO-15. The number following the dash is called the SSID. It is entered with the amateurs call using the MYCALL command when setting up the TNC. The retransmitted SSID from the node will follow the formula:

Retransmitted SSID = (15 - received SSID)

Where the received SSID is from the sending station to the Node and the retransmitted SSID is broadcast from the Node. As an example, if I was using the call N6NKO with an SSID of 4, so that the transmitted call from my station reads as N6NKO- 4, the Node will change that to N6NKO-11 using the above mentioned formula. This is assigned by the Node to prevent conflicts.

There are three basic commands that are the most useful to the operator and user of Nodes. In order to use these commands, you first have to connect up to the Node itself. It is just like you are talking to someone on simplex. It is just like you were connecting up to a station direct. You type "C" and the call of the station that you want to connect to and the Node takes care of the rest. The Node will let you know if the link can't be made or it will tell you that the connection is working. If the connection is made between the Node and the called station, the Node assumes a transparent role and the link acts like you are talking to the other person simplex even though the Node is re-transmitting what you have typed. The next command that the Nodes have is the command NODES. This command lets you know what other Nodes the Node can use. If you want to talk to one of the Nodes listed, just type "C" and either the Node call or name.

(cont. pg. 19)

(PACKET cont. from pg. 18)
When you receive the connected message, you can call a station in the area that is served by that Node by just typing "C" and the call of the station you wish to talk with. The last command is USERS. This command lets you find out who is using the node at that time. One other thing; to disconnect from the system, just put your TNC into command mode and type "D" and when you are disconnected, the Node or Nodes will take care of the rest. That in a nutshell is how nodes work. If you would like for me to go into further detail, drop me a line and I will comply based on your response.

TWO TNC's

A couple of weeks ago, an emergency communications organization I belong to held one of their quarterly drills. I had set up a Packet station at the central station of operation but this one had a difference. There was a terminal for sending traffic out connected to a TNC and a serial printer hooked up to another TNC for receiving traffic. Here comes the interesting part. Both TNC's were connected to the same radio. The PK-232, which I was using has some of the display light leads coming out of the RS-232 jack in the back. This is how they hook up a parallel port printer to it using the front "status" and "mode" lights as the parallel port. Well, on pin 16, the SEND light comes on and sends an active high when the TNC is transmitting. I took this signal and fed it into the SQUELCH input of the PK-232 so that it would know when the other was transmitting. The TNC's had their SQUELCH command set to "no" so that the TNC would not transmit upon receiving an active high on the SQUELCH input. So, both of them were connected up together like that with the audio in and audio out wires paralleled into the radio.

It was a great feeling to see the whole thing work right the first time and to be sending traffic out from one TNC and receiving traffic on the other TNC while sharing one radio. I am sure that this can be used on the TNC-2 type TNC's with just a little modification. This type of operation requires the TNC's to have two different calls. You can use your amateur call but just change the SSID on one of them. Then you let the group know that they are to connect to the one that has the printer and not to the other one that has the terminal. Also, set the TNC that has the printer to USERS 1 or you may have problems. There would be a problem with this setup if you were using a parallel port printer because there would be no way of knowing when the TNC with the printer was sending. What could be done to fix this, is to run the SQUELCH wire from the other TNC to the PTT line of the printer TNC. Then set the SQUELCH command in the printer TNC to "ON" so that when it sees the PTT line grounded, it knows the other radio is in transmit. I hope this gives you an idea to two on how to connect two TNC's to one radio. You can hook up more than two by using an outside logic network.

PROGRAM

I have now available for the Apple Macintosh (tm), a program that will turn the computer into a semi-dumb terminal. It has available in it receive and transmit buffers and the capability to dump the receive buffer data to the printer. It uses the BASIC interpreter at the moment and I plan to have a compiled version soon. This program uses the RS-422 port in the back of the unit to talk to the attached unit, whether it be a modem, TNC, or TU, providing the other unit uses the RS-232 interface. It is available for $5.00 and a 3 1/2" disk from me. The cost is to cover the shipping and transfer time only, plus a little to keep me in coffee.

MAIL

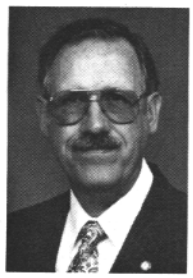
If you wish to contact me with information regarding Packet or this column, do so, via the U.S mail system or leave the info on the WESTNET BBS WB6YMH-2 addressed to my call, N6NKO. Till later, happy DX and don't forget the DXpedition to Know Nothing Atoll on April 1, 1989. **de Richard, N6NKO**

(CONNECTIONS cont. from pg. 4)
It seems about time to overhaul the AMTOR specifications and requirements and modernize things a bit. After all, AMTOR is derived from some relatively ancient TOR and SITOR architecture. How about you AMTOR experts and aficionados getting together and, among other things, come up with a system that will allow at least a six character alpha numeric call sign. Is there any technical reason why this cannot be done? If we can come up with a modernized version I am sure the IARU and the FCC will go along with it. A new standard might be confusing for a while, but the current problems are going to get worse, not better. Moreover, an update of the standard is necessary if we want to automate this mode. If someone wants to get things going, drop me a card and I will see that it is published and can act as a clearing house until an Ad Hoc Committee is set up. Any mail, pro or con, is welcome on this subject.

COMING UP NEXT ISSUE

A review of the latest AEA PK-232 PROM software update and a review of the AEA PC-FAX program for the IBM PC and PK-232. Also a discussion of interfacing the IBM PC serial ports and how to obtain more than the 2 serial ports currently provided for by DOS in these machines. Until then - very 73

de Cole W6OXP



Dick Uhrmacher
K0VKH
212 48th ST
Rapid City, SD.
57702

MSO'S

ED:*Dick has undergone heart bypass surgery and will be recuperating for a while, consequently his very popular column each month may be a little bit sporadic over the next couple of months. However, Dick is recovering very nicely and thanks everyone for their thoughts and letters, etc. In this month's column, Dick has asked me to continue the second part of the Louise Gaylord, WB8JIB article on MSO operation. I want to add that Louise has done an outstanding job outlining the basic principals of using an MSO. Some of you may ask, why is this subject being covered again? The answer is very simple, each year we are gaining more and more Hams interested in the digital modes. Many are unaware of how to access an MSO and the commands to use. So even though the subject may be old hat to some, there are many who welcome this information. So here we go!*

Part II - MSO Operation by Louise Gaylord, WB8JIB

How do you access or activate a mailbox? What do you do if you do bring up one? Don't panic, you can't break it! The mailboxes are user friendly and you need to know only about half a dozen commands. First, regardless of any frequency you are on, RTTY operates on LOWER sideband. Yes, lower sideband even if you are on 10, 15 or 20 meters. Have you switched to LSB? Are you on the exact frequency? Is the frequency in use? If so, wait until you no longer hear tones and then ask for the frequency. If the frequency is clear, power up the transmitter, make **2** or **3 C/R** (carriage returns will left-justify your next command), and type **DE** and your call for identification, another **C/R** and then type **MSOJIB** and another **C/R**. Power off the transmitter. Now just sit back and wait for the MSO to become activated and present itself to you on your monitor. When the mailbox is accessed and is shown on your monitor, the last thing in the message is the word "**Next?**". It is now asking you for another command.

You probably want to take a look at the directory to see what messages there are, so power up the transmitter, give a couple of **C/R**'s (remember, this left justifies your cursor which is mandatory) and now type .sdir - notice the period preceding the command, and a **C/R**. Power off. Now the MSO responds with the directory and the last thing it asks is "**Next?**". You saw a message in the directory from JIB to you and want to read it. Power up, **2 C/R**'s and type **.Read XXX:JIB**. (This period ended the sentence and is not part of the command.) **C/R**. Power off. Again, notice the period preceding the command and the exact name (letters AND spaces) of the stored message as it was given in the directory. The MSO selects the message you asked for and places it on your monitor with the last question of "Next?"

Now you probably want to print it out for a hard copy if you have a printer and then you will want to delete it from the MSO. Power up, **2 C/R**'s, and type .del XXX:JIB C/R - Power off. If you wish to leave a message, the procedure is : Power on, **2 C/R**'s, **.write AAA:BBB C/R** (AAA=last 3 letters of call you are leaving message for :BBB=last 3 letters of your call). Type this command 2 separate times to eliminate the possibility of a glitch. Proceed with typing in your message and when you have completed it, give **2 C/R**'s and type **.End C/R** - you may leave as many messages as you please AS LONG AS EACH ONE BEGINS WITH THE .WRITE COMMAND AND STOPS WITH THE .END COMMAND. Power off. The MSO will now tell you that your messages have been stored and asks "**Next?**". Now you no doubt want to get out of the MSO so power on, **2 C/R**'s and type **.Exit C/R** -this will allow the MSO to de-activate and turn itself off. If you forget to exit, some MSO's will time out after 5 minutes, but others won't so you must always remember to exit a machine or it will be left waiting for a legal command making that particular mailbox unusable to others. if, during a QSO on the auto-start frequency, or while you are storing a message for someone, and you need to mention the name of a mailbox, you must write the name with a space between each letter, such as, M S O J I B. Otherwise, it will trip itself and cause all kinds of confusion. If this happens to you, use the .Exit C/R command and start all over.

Briefly then here are the 7 commands:

MSOJIB (left - justified, no period)

.sdir (left - justified, preceded by period)

.read (left - justified, preceded by period, use exact name as in directory)

.del (left - justified, preceded by period, erases message)

.write (left - justified, preceded by period, to store message)

.end (left - justified, preceded by period, to end message you wrote) **(cont. pg. 21)**

(MSO's cont. from pg. 20)
.exit (left - justified, preceded by period to deactivate MSO properly)

Note: All commands MUST be followed by C/R as indicated in the preceding paragraphs. Remember, you do not really type C/R, you use the "return" of "enter" key.

A few random facts about mailboxes - if you can not access the MSO you want because of improper distance or band conditions, access one that is available to you, write your message, then leave a SEPARATE message to the SYSOP asking him to forward it. He/she will be happy to do so. Bear in mind that a QSO on a mailbox frequency is not illegal, only inconsiderate. If you wish a QSO with a specific person, make a sked by leaving a message in the mailbox, meet on the mailbox frequency and then QSY up or down. Most of the mailboxes have for your convenience stored messages called MSO HELPER 1, MSO HELPER 2 and MSO HELPER NEWCOMER. These contain some of the information in this article and if you have a printer, may be printed out for you to use as guides. If you don't have a printer and would like hard copy info, leave a message for me in the MSO and I will see that you get it via the mail system.

Now that you know how, what and why of the mailboxes, is that all you can do on RTTY? Heavens, no. You may operate on 10, 15, 20, 30, 40, and 80 meters. By mutual agreement, RTTY activity is centered in certain portions of each HF band. 80 Mtrs.= 3.600-3.630, 40 Mtrs= 7.080-7.100, 15 Mtrs.= 21.080- 21.100, 20 Mtrs.= 14.080-14.100, 10 Mtrs.= 28.080-28.100, 30 Mtrs.= entire band with the exception of 10.109-10.115. On each band in addition to the MSO's you will find RTTY traffic nets, RTTY DX, AMTOR, and just plain rag-chewing. I believe I have covered the essential material necessary to becoming familiar with MSO operation. The MSOJIB is at this time on the air and ready for use. The rest is up to you if you want an MSO for YL use. Spread the word to your YL friends who use RTTY. Experiment, play with it - remember we said before, "You can't break it". Most SYSOP's will be very helpful to a newcomer and will do everything they can to help you, altho some SYSOP's will turn their MSO off IF THERE IS NO PROPER IDENTIFICATION MADE AT THE TIME OF ACCESS. Try it! You just may discover a very compatible side of radio that will give you great pleasure.

ED: *Thank you very much Louise. I'm sure there will be many Hams both male and female using your easy to follow instructions. And to Dick, we all hope you will be back with us* again real soon. *73's de Dale, W6IWO filling in for Dick,K0VKH.*

Eddie Schneider
W6/G0AZT
1826 Van Ness
San Palo, Ca. 94806

Well, I opened my mouth, put pen to paper and look where that got me! Dale has kindly offered me a place on the "unpaid" staff of the JOURNAL, and asked me to try and write a regular monthly article on AMTOR. This move has cost me a haircut and "mug-shot" type photo, not a pretty sight, as I am sure you will all agree!

A little information about myself. I am 48 years young, and I was born in Cape Town, ZS-1 land. (Maybe THAT is why I type with a South African accent??).I went to Northern Rhodesia in 1950 and moved "Out of Africa", in 1958, to join the R.A.F. for 12 years. I was in Air Traffic Control and Operations and "visited" Aden, Oman, And West Germany, courtesy of H.M. the Queen. In late 1984, I got interested in Ham radio, and managed to pas the U.K. license exam and code test in March 1985. My "Elmer" was active on AMTOR at the time, and after seeing the mode in operation, and hearing those "hypnotic chirps", Iwas "hooked". Well, that is basically it, and now, hopefully, on to more interesting things.

Maybe I should have begun these articles with the "modus operandi" of the two modes available in AMTOR. I will now try to explain the workings of, FEC (mode-B), and ARQ (mode-A).

FEC stands for Forward Error Correction. This mode is used to initiate a CQ call, in the hope that someone will "link" with you in ARQ. FEC should also be used if the conditions are not too good, one or both stations have tx/rx switching problems, or if the "distant" station is being worked "long path". FEC does not have a "hand-shake" protocol or error correcting capabilities like ARQ, but FEC DOES require phasing or synchronizing, hence the reason for periodic "idles" during the CQ call AND during an FEC QSO.

In FEC, each character is sent TWICE, the receive computer picking out the one with the correct 4:3 ratio. The second character is sent 350Ms after the first. The theory being, if one character does not make it, then the second one should! If both characters are "hit" or the 4:3 ratio is incorrect, nothing will be printed.

The recommended FEC protocol is: Ten or more idles PRECEEDING any text, to allow for

(cont. pg. 22)

(AMTOR cont. from pg. 21)

initial sync-ing, then each character and it's repetition. After approximately 28 characters of text, a further sequence of 5 idles, to ensure continued sync-phasing, then another 28 characters, and so on.

Sorry to KEEP "harping" on the subject of "idles", but it is necessary folks and very obvious "on-air", that the majority of software available, lacks the above protocol.

AMTOR THEORY

As you all probably know, TOR means "Teleprinting Over Radio". AMTOR is a derivative of the commercial SITOR, modified for Amateur radio purposes by G3PLX (Peter Martinez).

ARQ (Automatic Retransmission Request) Mode, uses a seven bit synchronous code that provides for error checking. Encoding of each character is made up of four ONES and three ZEROS, allowing the computer to check the 4:3 ratio required. If the receive computer detects anything other than the 4:3 ratio, it "queries" the 3 bit group sent by the transmitting station and "asks" for a repeat, the process is then repeated by the transmitting station, until an acceptance code is sent by the receive station, indicating that all is well. The transmitting station will then continue to send the next three bits and the sequence starts all over again.

Transmitting speed, for Amateur use, is normally 100 baud and 170hz shift. Characters are sent in blocks of three by the transmitting station. This takes 210Ms, there is then a pause of 240Ms, to allow the receive station to check the 4:3 ratio and send back an acknowledgment that all is well. The overall time for each block plus a reply, takes 450Ms, so if your changeover to receive is too LONG, the MIMIMUM working distance will INCREASE, making an ARQ link to a "nearby" station, almost impossible. Under these circumstances, there is some merit in the MASTER delaying the TX timing via the software. However, INCREASING the delay, will REDUCE the MAXIMUM working distance for DX work in ARQ.

OPERATING TIPS

(continued from last month)

TIP #6. Get your rig to switch at 20Ms or less and leave the software timer alone, UNLESS the other station is very close and you are both having "link" problems. (Don't forget to re-set your timing to 20Ms, after that QSO, for the "DX" stations.)

TIP #7. The MASTER station chooses the frequency, so it is up to the SLAVE to "net" onto him, using the MAIN VFO.

TIP #8. If you both drift apart or there is a small frequency off-set, then the MASTER should "tune" with his RIT. The SLAVE should "tune" with his main VFO.

TIP #9. If you are the MASTER, please do not "sweep" the frequency, in an attempt to link with the SLAVE! If you are moving up and down the band, the SLAVE will have a hard time trying to "lock-on" to you.

TIP #10. Keep your "mike" gain down so as not to overdrive the audio input. Do not use the "speech" processor, for the same reason. Distorted tones sound much worse than overdriven speech and can make "copy" impossible.

TIP #11. This one will upset quite a few people and will probably make me unpopular. Hi. The use of a linear amplifier is not really needed in the ARQ mode. If you don't believe me, have a QSO with AH6V, Jerry, he runs solar power and FOUR watts!!

The "key-clicking" produced by some stations using an amplifier, is really unbelievable, even with 500Hz filters and tight audio filtering. These signals can be heard "clicking" away, well into the Baudot part of the band. We have little enough of the bands for AMTOR use, so how about the "minimum power needed to maintain a QSO" rule, folks.

I would appreciate some input from the "flock", and I thank the two gentlemen who wrote to me in response to my first article. MORE, MORE please! I had better end here before this becomes an epistle, and Dale has to use even thinner paper and more pages for a very good Journal.

Next Month: AMTOR Mailbox Hot List.

Tnx, 73 GL and enjoy "chirping".
de Eddie, W6/G0AZT

L. to R. Ulrich, DL1HM - Wolf, DL8VX
Paul, DL8HAP - Christian, DF4UN

CLASSIFIED ADS

30 words $3.00, additional words 5 cents each. Cash with copy.
Deadline for copy is 1st of month for following month

WANTED - Teletype picture tapes. Also need 4-1000 tube - Donald J. Spreeman, 542 E. 20th St, Kaukauna, Wi. 54130

NEWS - NEWS - NEWS Amateur Radio's Newspaper "WORLDRADIO". One year subscription is $12.00. Contact: WORLDRADIO P.O. BOX 189490, Sacramento, Ca. 95818

FOR SALE - COMPLETE RTTY OUTFIT, perfect for beginner (worked 195 countries). TI-99/4A computer, Hamsoft plug-in cartridge, AEA computer interface CP-1, GE cassette tape recorder, 12" Zenith ZVM-123 monitor, all cables including parallel printer cable. Orginal cost over $550. $325.00 plus shipping. Jules, W2JGR (516) 593-8050

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1987 SARTG CONTEST RESULTS continued from page 14

Class C SWL Operators — Multipliers

NR.	CALL	QSO	PTS.	3.5	7.0	14	21	28	T. PTS.
001	ONL383	249	2720	14	16	42	33	17	341,840
002	F11ARR	217	2465	6		48	30	15	244,035
003	Y51-01-M	155	1635	13	2	32	26		199,355
004	F11ADB	127	1350	6	13	32	19	9	106,650
005	Y33-09-O	137	1400	5	11	27	23	5	99,400
006	DE1HFE	119	1180	10	5	23	17	8	74,340
007	ONL2652	76	810			26	16	12	43,740
008	G8CDW	16	190				14		2,660
009	JL3AMK	19	170		1	9			1,700
010	Y32-08-F	14	150			10			1,500

FROM SARTG:

Thanks to all participants of this years SARTG Contest. The standard pf log-keeping has greatly improved due to the Summary Sheet for SARTG Contest. I hope all will continue using the Summary Sheet, noe necessarily this one but one similar, as long as the score calculation and multipliers are shown clearly. Thanks also for the comments, they are very much appreciated. Next years 18th SARTG World Wide Contest will run as usual the 3rd week-end in August, please reserve this week-end and please help to inform as many RTTY - Hams as possible.

We hope to see your log again next year. Thanking you in advance

vy 73 yours sincerely, OZ1CRL

CHECK LOGS: CT1AUR - EA1DCQ - EA2XX - G2BUY - SM6EZI
SP2UU/1 - SP3XX - SP7FWJ

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