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HAPPY HOLIDAYS

Betsy Townsend, WV7Y, XYL of Jay, WS7I, is shown here with a Blue Footed Booby. The picture was taken on the Galapagos Island by Jay. Betsy was with Jay and gave him great moral support as he operated HC5K in the CQ/RTTY Journal WW RTTY contest in 1992. Betsy is not only a ham but also an accomplished photographer. If you are going to Dayton in 94, Betsy will be taking all the RTTY dinner pictures. Betsy has also been doing a super job of supplying us with QSL routes for the past few years. She is active in traffic and also amateur satellite. It's high time a amateur radio lady graced our cover. Betsy, you're the greatest!

RTTY DIGITAL JOURNAL

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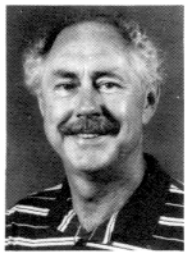

HITS & MISSES

Dale Sinner, W6IWO
1904 Carolton Lane
Fallbrook, CA 92028

Spreading the Word

Those of you who have been subscribers for the past few years, no doubt, have noticed that the name of the RTTY Journal has been altered slightly. The alteration was made to keep pace with the advancements in our phase of the hobby.

You probably also noticed the dramatic changes in content during this same period. RTTY is not the only subject of interest to the digital ham these days. New robust modes are prevalent on the bands today and technology continues to push us forward. The RDJ has stayed in the forefront by keeping you informed, but have we *Spread The Word*?

In the November issue of 73 magazine, Wayne Green, W2NSD/1, stated that the ham community should do more in the digital arena than just RTTY. Obviously, Wayne is not a subscriber and therefore unaware of the advancements being made in the digital arena. He also indicated we should be investigating data compression techniques. But in Wayne's defense, he is informed by the fact that he is very much aware of other new technologies. He is just not aware of what has been happening recently in our phase of the hobby. Who's fault is this? Are there others just like him? I think yes.

The RDJ is *Spreading The Word* but we need more exposure. We also need more help from the other ham publications. Our ham publications cannot generate all the material on all the modes in house, they need input from the readership, those people who are the tinkerers and experimenters. You are the reader as well as the writer. You can help make a difference.

In the November issue of QST, Stan Horzepa, WA1LOU, presented an interesting article written by Walt DuBose, K5YFW. The article analyzed packet radio use on HF and advanced some ideas on how to better utilize that error correcting mode in a hostile environment. The article goes on to relate the work and studies being conducted by both industry and the military toward improving throughput on HF using the digital modes. There have been other similar articles published in QEX another ARRL publication. CQ magazine's Buck Rogers, K4ABT, has written tons of articles on the digital modes. So, you may think, the word is being spread. What am I complaining about? Well, I just believe we can do a better job. When I see Wayne Green not up to date and on the other hand, new advanced technologies being offered in some of our publications, I wonder about all those people who fall in the middle. What do they know; how well are they informed; do they understand the newer technologies? All the ham publicaitons collectively can only do so much. They only provide the mediam by which we keep up to date. But, the information more often than not, must come from you the reader.

I did send Wayne Green some back issues of the RDJ so that he will be better informed about PACTOR and Clover advancements. His response after reading them was, "Now can you explain how it all works in simple terms?" Wayne, the RDJ is trying and will continue *Spreading The Word*.

Please help whenever you can. Spread the word about the digital modes and all the exciting things that are happening in our world of ham radio.

Dayton Reminder

Haven't made up your mind yet about going to the Dayton Hamvention in 1994? I suggest you not wait to long. If you plan on staying in a hotel then you need to reserve a room soon. The RDJ still has rooms available. Don't hesitate any longer, if you want one of these rooms, let me know, because at this writing over half are already gone.

If you are a contester, then you will be happy to hear that Rich, N6GG, will be attending this year. Jules, W2JGR, our DX News columnist, Jim, N2HOS, our Software columnist, Jim, KE5HE, our Link columnist, Jay, WS7I and Betsy, WV7Y, from the staff will be there. Phil, KB8LUJ, will be there, along with Dick, K0VKH. In fact, almost all of the RDJ staff will be attending this year. Don't miss out on this opportunity to meet and have an eyeball QSO with your favorite RDJ columnist. Act today, tomorrow may be to late.

Until next time. 73

de Dale, W6IWO ■

DX NEWS

Jules Freundlich, W2JGR
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Minneapolis, MN 55403-3188

If you read the monthly DXCC listings in QST, as I am sure all you good RTTY DXers do, you will see that there has been a steady increase in the RTTY category, of stations now credited with over 300 countries. The list grows every month.

You may recall that last April I petitioned the DX Advisory Committee (DXAC) to establish a RTTY Honor Roll. The vote taken on this petition by the DXAC was, unfortunately, coupled with a vote for "band unique" Honor Rolls. Accordingly, my petition failed. I believe that had the vote been taken on the RTTY subject alone, the result would have been more to our liking. I am now convinced the "tie-in sale" was our undoing.

Regardless of that negative vote, the justification for a RTTY (or Digital) Honor Roll remains. Digital radio is the fastest expanding mode in amateur radio today. One need only to look at the increase in RTTY contesters each year, to observe the new monthly RTTY entrants to the DXCC, and to listen to the increasingly crowded digital activity on the bands, to realize that more and more hams are now enjoying digital technology than ever before. Furthermore, over 500 RTTY DXCC certificates have been issued, and the number is still growing. The digital mode is one of the three main modes of amateur radio communication, the other two, of course, being CW and Phone. CW and Phone have long enjoyed DXCC Honor Roll status. The time has come to round out the Honor Roll structure with the third member of the "Mode Triumvirate". (Some purists will maintain that CW is the original digital mode, but modern usage of the term "digital" has pretty much obsoleted that notion.)

During the month of November, the members of the DXAC were casting their ballots on the question of a RTTY (Digital) Honor Roll.

Ballots were due to be received back by 29 November, which, by coincidence, happens to be my birthday!

Included on the same ballot was another question: whether HQ should also backdate the start date for CW DXCC to November 15, 1945. The inclusion of this question on the same ballot should have no effect on the RTTY (Digital) question.

We should expect to see an ARRL bulletin around 1 December, announcing the vote re results

results. If the vote is favorable, it must still be concurred with, by the ARRL Awards Committee, before it can take effect.

So when you have finished reading this column, write a letter to your representative on the DXAC, with a copy to your ARRL Director, expressing your support and justification, for the establishment of a DXCC RTTY (or Digital) Honor Roll. Urge your RTTY friends who don't read this column, to do the same. If you don't know the name and address of your DXAC representative, ask the ARRL at (203) 666 1541.

The JARTS RTTY DX contest this year again furnished us with some interesting demographics about RTTY DXers. Including the operator's age as part of the contest exchange gives us an opportunity to learn a little bit about our collective age makeup. Based on the sample of all stations I contacted world wide, I was able to derive some simple statistics again this year. It is interesting to compare this year's results with those of 1992.

The comparison looks like this:

Year	1992	1993
Sample Size, no. stns	74	172
Average Age	52	52
Age Spread*	38-65	30-77
Lowest/Highest Age	28/76	20/84

*2-sigma spread (i.e. approx. 66-2/3% of sample)

Admittedly, this is of limited significance based on my relatively small number of log entries. The JARTS Contest Manager has an extensive data base which could form the basis of a much more exact and significant analysis.

It would be interesting to know what the age makeup is by country, by prefix (where the sample size is large enough to be meaningful), by continent, etc. I hope that JH1BIH's contest committee has a statistically minded member who would find it fun to probe for this type of information. Unfortunately, due to the contest rules, we can only know the age makeup of male RTTY DX contesters.

DX DOINGS

ANGUILLA, VP2E - In an effort to stimulate activity in the WARC Bands (see RTTY ON WARC BANDS below), members of the Central Arizona DX Association were to have been active from here 8-23 November. Shep/AA7MH and Bill/N7OTQ (VP2ETQ) were to have been active on 18 mhz CW, SSB, and RTTY, and on 10 mhz CW and RTTY. If you worked them QSL to Harwood Shepard, P.O. Box 42346, Phoenix, AZ 85080.

ARUBA, P4 - The Quannapowitt Radio Association is mounting a mini-dxpedtion to the island 10-17 January 1994. Operators will be Mike, NW1J, Jim, W1HL, and Bob, AA1M. Callsign will be P4/W1EKT with operations planned for all bands 160-6 meters CW, SSB, RTTY and hopefully some Packet. QSL to Bob Reiser AA1M, 6 Savin Street, Burlington, MA 01803.

BELAU, KC6 - A group of Japanese operators were scheduled to be operating here from 19-23 November with three active stations covering 160-6 meters using CW, FM, SSB, and RTTY. Callsigns to be used were KC6KM, KC6HY, KC6KA, KC6OM, KC6NH, and KC6SH. If you worked any of them, QSL to JK1QHK.

BELIZE, V3 - Glenn, AE0Q, and Leo, WN0B plan to return to Belize to operate RTTY (and skin dive when the bands fold) between 17 and 27 March 1994. Glenn is trying to find another couple of hams to come along. If you are interested, you can phone Glenn at (303) 986 6379 or send him a packet message addressed to AE0Q @ W0LJF.#NECO.CO.USA.NA.

DJIBOUTI, J28 - J28JJ likes 15 meters around 1530-1630Z. QSL to Jean Jacques Chatelard, Box 1076, Republic of Djibouti. He will be stationed here for 3-4 years. J28BM likes 15 meters between 1815-2000Z, but, propagation permitting, may be found on 10 meters around 1130Z. Look for him also on 20 meters around 0600Z. QSL to K1SE, P.O. Box 685, Manassas Park, VA 22111-0685

GABON, TR - TR8MD may be found on 15 meters between 1100-1700Z, often on 20 meters around 1750Z. QSL via F6FNU.

GIBRALTER, ZB2 - Brian, G3MRC was to be activev from the "Rock" on RTTY and CW for three weeks. If he was on schedule, he should have started on 10 November.

GUINEA, 3X - Didier, 3X0DEX, seems to have gotten his act together since we reported on his initial activity last month. He now operates LSB and is quite capable of keeping the dogpile in order. He is generally on 20 meters around 2245Z and on 40 meters (7045 khz) about an hour or so later. Propagatiion permitting, you may find him on 15 meters around 1630Z. He originally gave F6IBA as his QSL manager. His new QSL route as verified on the French DX Net is: HH2HM/F, Box 104, F-22650, Ploupalay, France, or via the French QSL bureau of the R.E.F.

ISLE OF MAN, GD - This place is only occaisionally active on RTTY. You may find GD3HDL on 20 meters around 0955Z. QSL to his CBA.

KUWAIT, 9K - Bob, 9K2ZZ operates all modes and if you catch him on CW or SSB he will generally move to RTTY on request. QSL to W8CNL. Look for 9K2WA on 20 meters around 1700Z.

MACAO -XX9 - XX9AS has returned to RTTY after too long an absence. He is best found around 1630Z on 20 meters.

MALAYSIA, 9M2 - 9M2AX continues to show on 20 meters between 1500 and 1600Z. For QSL try the CBA.

MOUNT ATHOS, SV/A - Monk Apollo continues to tantalize the RTTY community by chatting every so often on 15 meters with his manager, Nikos, SV2WT, but has not seen fit to answer calls from others.

PETER I I., 3Y - Action is accelerating, and measureable progress can be reported in preparation for the DX'pedition to this Most Wanted DXCC Country. Ralph, K0IR, leader of the team provided your reporter this update.

During the month of October approximately one-half of the supplies and equipment were assembled at the QTH of ON6TT. Assisting in the crating and loading were ON4WW, ON4UN, and ON1AVC. Subsequently ON6TT and PA3DUU transported the gear to Bremerhaven, Germany, where it was loaded aboard the ship chartered by the Peter I team. Approximately 3500 pounds of supplies went aboard.

While aboard the ship, ON6TT and PA3DUU had a chance to tour the vessel. They found the ship very much up to the task of cracking through the pack ice if necessary. The captain and the crew were extremely helpful and interested in the expedition. The helicopters were inspected, and their doors and cargo bays measured to plan the transfer of supplies from the ship to the island.

The other one-half of the supplies and equipment were to be leaving the U.S.A. via commercial carriers at the beginning of November. They will be loaded on the ship with the team members on 23 January 1994, the date of sailing from Port Stanley in the Falklands.

The Alpha amplifiers have been checked by ETO and are ready to do battle. Antennas have been preassembled and repacked for rapid deployment. All documents are in order.

Dates remain firm. The team plans to arrive in the Falklands on 18 January, sail as mentioned above on 23 January, land on Peter I on 1 February, and depart on 16 February.

Martti Laine, OH2BH is lending his support to the expedition by offering a free copy of his book, "Where Do We Go Next," with every $50. donation sent to AA6BB, Jerry Branson at 93787 Dorsey Lane, Junction City, OR 97448. Send your support now, if you have not already done so. The Bransons, Jerry and Joanie, KA6V, will also act as QSL Managers, as they did for the South Sandwich operation.

Joanie has assured the team that she and Jerry will continue their participation, as above, despite the major heart attack suffered by Jerry on 20 October. As of the end of October, Jerry, who was in stable but guarded condition at the time, wanted it that way. Many friends and neighbors stand ready to give Jerry whatever assistance he may need.

This expedition is probably one of the most expensive, if not THE most expensive DX'pedition ever. Considering its importance to the DX world (all modes) it truly deserves your support.

REUNION I., FR - Both FR5DX and FR5GS are quite active from this French island in the Indian Ocean. 20 meters seems to be the band of choice between about 1630Z and 1830Z. However, propagation permitting, you may also find either of them on 15 meters before or after that time slot.

RODRIQUEZ IS, 3B9 - Robert has returned after an absence of two years due to the illness of his XYL. If you worked him in 1990-1991, and did not receive an answer to your card, he requests that you reQSL to his CBA. Incidentally, Robert has been worked on 17 meters (18095 khz) RTTY, from the midwest USA around 1805Z. See "RTTY ON WARC BANDS" below.

SINGAPORE, 9V - The current active ones are 9V1JY and 9V1ZM. Look for either of them between 1330Z and 1500Z on 20 meters. For QSL route to 9V1JY see RDJ DX NEWS for September. QSL 9V1ZM via VE3MMB.

SINT MAARTEN, PJ7,8 - The recent trip by Jack, WA7LNW and friends operating PJ7/WA7LNW, PJ7/OH2LVG, and PJ8X netted over 7000 QSOs plus over 500 on RTTY. All contacts with these three stations should be QSL'ed via KE7LZ.

SOUTH GEORGIA, VP8 - Keith, VP8CKB, who was very active on RTTY last winter, had to give up RTTY because of an interference problem. He is however active on AMTOR. As South Georgia is still needed by many, I am trying to find out the nature of the problem that keeps him from operating RTTY. Perhaps when we find out, the gang can offer him some technical assistance. I believe Keith will be there, still studying fur seals, until February 1994, so we still have time.

TADZHIKISTAN, UJ - It's good to see UJ8JCQ back again on RTTY. Look for him on 20 meters between 1200Z and 1630Z.

UK BASES ON CYPRUS, ZC - ZC4ML continues to be quite active. Look for him on 20 meters between 1300Z and 1600Z. QSL via G4LSL.

RTTY ON WARC BANDS

The RTTY community has been remiss in not making use of the spectrum available to it on 30, 17 and 12 meters. These bands often exhibit favorable propagation when the old tried and true ones may be faltering or kaput. With the decline of Cycle 21, 12 meters may not have many openings, but when it is open, the results can be quite remarkable.. Pop in there once in a while to check out 24890-24930 khz. If nothing is heard, a few minutes of CQing may produce some unexpected reults.

17 meters has proved to be a real sleeper and should become quite popular, as soon as the RTTY community realizes what a gem of a band it can be. Although "the band plan" indicates a ridiculous RTTY slot, of only 18100-18110 khz, note that FCC Part 97.305 permits RTTY from 18068-18110 khz, the entire CW segment. Recently DX has been worked at 18095 khz. So let's go where the DX is, if necessary. I recently dropped a short CQ on 18107 khz and was immediately called by a DX station. Check this band out often.

The 30 meter band, 10100-10150 khz, has proved to be popular with CW and other digital modes, and for a good reason. This is a very reliable band, sometimes open around the clock. So "GO WARC" on RTTY. Some patient listening, and a few CQ's from time to time will bring some pleasant surprises. Let's take advantage of the spectrum that is assigned to us.

FUN WITH PROPAGATION FORECASTING

Bob Brown, NM7M who writes the Propagation column for WORLDRADIO, and whose book on "Long Path Propagation" I recently reviewed (RDJ, December 1992), has come up with a neat computer program called SOLAR MAX. He describes it as a DX contest game. It qualifies as a game because it is fun to use. It is more than that, however. It tests your understanding of the role of HF propagation in DXing, and assists in sharpening your skills to optimize your ability to make the Ionosphere work for you.

The format is that of a contest running in 30 minute segments from 0000Z to 2400Z on your selectable date. The algorithm assumes a fine DXing station, a 3 ele-

ment, 8 dbd tri-band Yagi with a 40 meter conversion kit, and the ability to use up to a full kilowatt. Only the 7, 14, 21 and 28 mhz bands are used, as Bob explains, "because the lower bands require magneto-ionic theory, something not in the present F-layer algorithm."

With the CCIR Atlas of Ionosperic Characteristics as a background, Bob has attempted to provide a realistic propagation model. He takes into account F-region, E-layer, and D-region effects. He has even included fluctuations of the instantaneous MUF above and below the predicted 50% MUF availability at the time in question.

This propagation program determines whether the band is open to one of 16 geographical regions, as given in the ARRL Operating Manual, and includes a database with representative numbers for the amateur radio population, as well as the number of prefixes available in each region. It determines what your signal strength would be, in S-units, at the other end when received on a dipole.

Before you run the program, you can set your latitude and longitude, power output level, the date, the Sun Spot Number (SSN), or 2800 mhz Solar Flux, and whether you want the output to go to the printer. I strongly recommend you capture the results on your printer, as you will be able to see immediately where your strengths and weaknesses are regarding your understanding of HF propagation from your QTH. Incidentally, any or all of the above parameters can be easily changed to demonstrate how such changes affect the results.

Running the program is simplicity itself. Commands are limited to keying in no more than two numerics at a time for selection of geographical area and band, hitting the space bar to proceed to the next time segment, keying in "S" to see your current score by band, using "Q" for Quit, or "X" for Exit.

Starting at the 0000-0030Z 30 minute time segment, you select a geographical area, and a band. The program will respond with a report of your received signal strength at the far end, the number of QSOs made, and the number of multipliers. If the band is dead at that time, to the region selected, you will be duly notified that you have wasted that time segment calling CQ on a dead band. There is no turning back in time. You move on to the next time segment. Program output is contest style points based on number of contacts and multipliers. If you are impulsive in your area/band selections, you can go through the whole UTC day is less than 10 minutes. If you prefer to think a little, and perhaps to refer to the IONCAP curves in the ARRL Operating Manual, for reference, you can take as long as you please. Set your own pace. Obviously the more you think about your selections, the better your score will be.

I was surprised at the number of dead band choices I made when first using the program. Subsequent passes through the program improved my score considerably. (I am a relatively quick learner.) It is clear that this is an effective educational tool besides being fun to use. It ought to be a real help in band planning for contest work. Check your next contest plan against SOLAR MAX. Or better still, try making your next contest plan using SOLAR MAX. (N6GG take note.)

Bring a laptop portable, with your SOLAR MAX disk, to your next DX club meeting and see who amongst you is the Guru of HF Propagation!

Remember that propagation forecasting is not an exact science. but one of probabilities. If you have used several popular propagation forecasting programs, over the years, as I have done, you realize that sometimes two well respected programs may give disparate answers. SOLAR MAX will not substitute for IONCAP, which is the program used to generate the MUF curves in the ARRL Operating Manual. Adding the amateur operator and radio prefix population distribution to the Ionosphere model, as SOLAR MAX does, does make the MUF curves more meaningful.

SOLAR MAX comes in two versions. The domestic version uses the overseas regions listed in the ARRL Operating Manual, but with Antarctica and the U.S.A. omittted. An export version of SOLAR MAX includes the amateur population and prefixes in western, central, and eastern parts of North America.

I enjoy using SOLAR MAX very much. To use it requires no special technical know how, just a general understanding of HF propagation. After using it for an extended period, and comparing the results with the "actuals" of the physical world, we will then know how good a job it really can do. I would be interested in receiving such reports, as I am sure would Bob Brown.

(SOLAR MAX is $10.00 postpaid in the US, and $11.00 US in Canada for the domestic model, while $13.00 US for overseas Air Mail of the export model. Disk size (360K or 720K MS-DOS) should be specified when ordering from Robert W. Brown, NM7M, 504 Channel View Drive, Anacortes, WA 98221.)

DXCC NOTES

The ARRL Awards Committee voted unanimously to accept recommendations of the DXAC to reinstate Eritrea as a DXCC Country effective May 24, 1991. The DXCC Desk will accept cards for Eritrea starting 1 January 1994. Those who have credit for deleted Eritrea need not re-submit cards. Cards submitted prior to 1 January will be returned without action. As of the first of the year, then, the total number of DXCC countries will go from the present 327 to 328.

HAVE DX NEWS?

I can be reached directly by dropping mail into my AMTOR PAMS, leaving a message in the APLink box of W2TKU/4(1), sending me a packet message addressed to W2JGR @ WB0GDB.#STP.MN.USA.NA, finding me on RTTY, telephoning me at (612) 377 7269, or FAXing me at (612) 374 8161. (If you FAX me, please address it with my full name, as that FAX number serves a number of people.) When these high tech approaches fail, the U.S. Postal Service can find me. When I am not chasing DX, my PAMS listens on 14074 khz. Set your chirping to WJGR.

THANKS - Thanks to the following for all your information: AE0Q, DJ3IW, I5FLN, KE6XJ, K0IR, KYOA, NJ0M, VP8BFH, WA1MPB, WB2CJL, WA4MCZ, WA7LNW, ZS5S, 9X5LJ, and QRZ DX. Without you there would be no column.

See you all next month. For now bye bye from Minnesota, PAX....73

de **Jules, W2JGR** ■

1. W2TKU/4 scans 7070, 7076, 14072, 14076, 14078, 21074, and 21080 khz.

HF Band Plans

An Ode to Sanity

The RTTY ops all had their fun,
Up the bands from 081,
They used to go to 099,
And beacons up above were fine.
Then packet came and spoiled the view,
ARRL... it's down to you,
STA boxes came alive,
Wiped out the news on 095.
They're going now .. they had their fun,
Slithering off with damage done,
But packeteers still blip on high,
Retry retry retry and try.
DXpeditions still found space,
With 083 a useful place,
VP8 and ZK2,
Then Pactor chirps came bursting through!
Another new mode on the scene,
Bringing chaos to the screen,
DXpeditions working split?
They haven't got the space to shake a leg.
The moral of this tale is clear,
For all you gentlemen to hear,
RTTY ops are still alive,
From 080 to 095.
Amtor and Pactor .. stay below
The magic line of 080,
And packet must go where it's best,
Out of the noise on UHF!

Anon.

Taken from BARTG Datacom, Summer 93 edition.

SOFTWARE

Jim Mortensen, N2HOS
P.O. BOX 328
Indian Rocks Bch, FL 34635

DOES WIN3.1 WIN?

This legally blind friend, a longtime ham, bought a used computer from me about a month ago. His sight impairment limits his activity though he has some degree of peripheral vision for he can make sense of a computer screen. And he runs his business and does serious work on the PC, writing several letters a week, using Lotus 1-2-3 (version 1.0, I think!). He assured me, when I delivered the 486/25 to his office that he would get no use of the SVGA graphics or the Windows word processor that was on the hard drive and that he "Sure as hell would never use that doggone mouse!" All he wanted was a "Better machine for his DOS programs, so please tell me how to stop booting to Windows."

Of course, George, I said. But while I am here, let me run through a couple of things that might be of interest to you. First, let me show you the best card game ever developed for the lonely computer operator. And I took him through the paces of Win3.1 Solitaire. His only comment, "Show me that again, Jim. I don't understand how you use the mouse to do all that." We did and then I suggested that he look at the word processor. A bit of a trap that, for I had set it up with an Arial font with letters almost an inch high! Then, I showed him how to write the letter in that font, select all the text and print the letter in a normal 12 point. And he said, "Show me how you did that again, Jim." Next came Excel and we pulled the same trick there, enlarging the cells and the font until he was able to see the individual numbers without using the ever present magnifying glass. "Show me again."

George is the founding father of the Saturday morning breakfast gathering so we see each other on a regular basis. The first week I had but a brief report on Solitaire. "Great game." By the third week, the thought of switching everything to Win3.1 was not so repugnant after all, but he assured me he wanted to keep all his DOS stuff. Of course. While he won't yet admit it, there is little doubt that another switch to this beast we call Windows is well underway. And at least in this case, there is absolutely no doubt about it. George should switch with all deliberate speed for the platform brings with it all the visual assistance he needs to use the PC in an almost-normal manner. Be assured he'll find that time heals the wounds suffered by all DOS devotees who make the switch!

WIN3.1?

Given the blessing of normal sight, a reasonably average brain, a modest degree of digital and mental dexterity, a decent hardware budget and an eternal lust for doing something new . . . a description covering most RTTY Journal readers . . . we all must ask whether or not this is the time to switch. Windows sales statistics tend to make it seem as though the entire world did so last year! Millions and millions of copies are "sold" each year because the operating system is installed on the hard disk of almost every new computer sold, particularly the mail-order variety. No one pretends to know (or care) about how many actually use the program at all, how many erase it from the hard disk, how many go merrily on their way using the system they have known and loved (and hated) through the six versions produced to date. But there are some clues. The fastest selling piece of software last month (according to PC Magazine, a poll the accuracy of which is subject to some question!) is and has been the DOS 6.0 version of WordPerfect. The new versions of spreadsheets and data base programs created for the "old-fashioned" platform continue to sell, too. So there must be a sizeable group of diehards who have resisted the trend and, according to my mail, many of them are active amateurs who haunt the HF bands.

Then along comes a program called PC-Packratt for Windows. You read the ad and think how nice it would be to have such a slick interface, to run multiple TNC's, do everything with a mouse (well, maybe you won't stray quite that far!) and to do all this while you are busy stitching together a spread sheet or a letter to your favorite banker regarding that loan you need. You think a few positive thoughts about the niceties, for a few moments . . . and then you cut and run because you just don't want to be bothered with all that trouble, and the stuff you need to know and learn to master a new operating system; don't want to buy a new system yet because prices are really going to come down next year; and don't have any interest in things like CD's or multi-media anyway. Thus DOS wins another round and you stay with those wonderful old key-strokes it took you seven years to learn, those ancient versions of decent law-abiding programs guaranteed to work on a monochrome screen . . . and you snicker at those who take the plunge. You know you are right when you hear the moans and cries from the crowd who waded into the Windows world. Those tales about GPF's, RAM and disk requirements, video accelerators and sound cards, speakers and CD's, scalable fonts, graphics, paint programs, desktop publishing and GUI's reinforce your conviction. You relax and think it will all go away in time.

WIN3.1 REDUX

Sorry, but you have it all wrong. PC-Packratt for Windows is but the latest reason why you no longer have much choice about leaving the cocoon to venture into the world of the graphic interface we call Windows. (If you wish to march to a different drummer, chose OS/2 2.1. It now handles Win3.1 flawlessly and does some other things very well, too). But the verdict is in and even those (like me) who abandoned Windows in the dreadful 3.0 version, now trumpet its virtues to one and all. Love or hate Microsoft, its methods, its billionaire boss, its dominance, etc., the sobering fact remains. Win3.1 arrived, swept the field and deserves to be the platform of choice for any amateur who wishes to do something beyond the most basic of digital communications. It lacks perfection, but so does everything else in this hobby of ours. Be assured it lacks little or nothing in terms of software availability, performance or satisfaction.

Not convinced? Try five reasons on for size. Unless you are into Unix or some other exotic way of managing your PC, convince yourself and jump into the swim with the rest of us! First off, realize that, like the typical teenager, Windows matured while we weren't looking. The crashes, lockups, frozen screens and other disheartening phenomena of yore went on vacation. Even the installation process, one of the more devastating features of the last version, became routine! In a word, Windows blossomed into a stable and forgiving platform with all the power of a mini-work station. MATURITY . . . one good reason for change. I know there is a lot of software for DOS, but the WIN3.1 software stable is now complete. There's more. On balance, the

graphical versions of major software categories blow away the DOS equivalent. Word processors? No contest. Spreadsheets? Bury your version 1.0 of Lotus! Data Base? It's a new world. And, on and on. The programming power of the world focused on this platform for the past several years and their products show it. SOFTWARE . . . a powerful reason for change.

Yes, I raved about task switching software like Desqview. But now I do all that without even thinking about the frailties of DOS. The frequency scanner for the BBS runs on one port, Express 2.0 sits on the desktop, a modem runs in the background as I type this article, I bring up the phone directory or type a label, consult the dictionary and run music in the background on the CD. And I could add more layers at will and never lose track of what is going on. True, it is not real, genuine multi-tasking, but it is probably as close to the real thing as I wish to handle. MULTI-TASKING, a powerful reason to go for it.

There is no need to mention the fact that Windows machines now routinely sell for even less than one grand! And they are loaded with software, endowed with a reasonable hard drive and adequate ram, and even a worthy monitor. PRICE is reason enough to try it.

Finally, you and I need something to keep the brain active. Some might call it an "interest." It is stronger than that. CHALLENGE is a much better word and more to the point. Windows, like amateur radio, is a broad spectrum of opportunities and problems. Jump in with both feet and you will enjoy and suffer in about equal quantities!

PACKRATT

Like the rest of us, AEA experienced the problems of Windows, and like most of us, solved a majority but by no means all of them! PCPW represents their first venture into the Win3.1 world The program reflects that in many little ways. However, PCPW offers a wonderful potential and will be around in later versions for years to come. They didn't reach their promised goal, but the program deserves careful review and serious consideration as an addition to your digital weaponry. The package says, "At last! A true Windows application for your AEA data controller. PCPW makes digital operation as easy as it should be." And they almost, and ultimately will deliver all the goods. AEA deserves high marks for this first iteration of an ambitious effort. But many will look forward to the first upgrade, a not uncommon phenomenon in the world of Win3.1.

Let's review the basics before moving into the installation and operation of PCPW. Some facts confuse the reader. The package states "2MB RAM and 2MB disk space" are required. Open the box, then the book and find "4MB RAM and 3MB disk space." As always, accept the higher number! In addition you need a true compatible AT machine with Win3.1 (or OS/2 2.1) installed, a mouse, VGA or better display and firmware on your TNC dated 1991 or later (call AEA if you need to update your controller). Please note that PCPW is not compatible with DOS versions of Packratt. However, QSO Log is and your old log files can be used in the Windows version.

Inside the package you will find both 5 1/4 and 3 1/2 inch disks, the operating manual and warranty card. As a surprise, since no mention is made on the package, PK-FAX is included as well. This bonus program is not a part of PCPW, is installed separately and will not be reviewed at this time. Remember- -PCPW drives any AEA controller from the PC88 up through the DSP 2232 and PK900. No other brand of TNC's qualify. Overall, the package and contents reflect a serious attempt to develop a first rate program. The price does, too. Expect to pay about $125 for PCPW, an amount at or above the level of the "competitive upgrade" editions of even the priciest commercial software.

THE BEGINNING

There were two ways to install Windows programs. Now there are three. Instead of using the Program/Run routine used by most all suppliers, AEA chooses to go the File Manager in the Program Window. Select the "A" drive (or wherever you put the PCPW disk) and double click Setup.exe. Nothing else is required. Double check your name, callsign and serial number entry! Nothing but grief ensues if you miss this little detail! Double check it when the installation stops to ask you if the information is correct. PCPW inserts your callsign in all the right places and serves to save you time and give AEA a bit of copy protection.

Double click the icon. A screen full of all the AEA TNC emerges. Select OK and move to the configuration screen. Choose the TNC type, comport and baud rate and the program does the rest (provided of course you have the proper cable properly connected between TNC and computer). The next time you open up PCPW, a single controller picture will greet you as in Figure I. Your name and serial number also adorn the image as well.

The TNC is opened from the first program screen. Select Open from the TNC menu and watch a few moments as PCPW loads the parameters into the controller. Pick the mode next (RTTY for example in Figure II) and watch the operating screen develop. And here we will pause to register a few minor complaints about the structure of this key element of the program. First off, as the RTTY window comes up, it occupies far

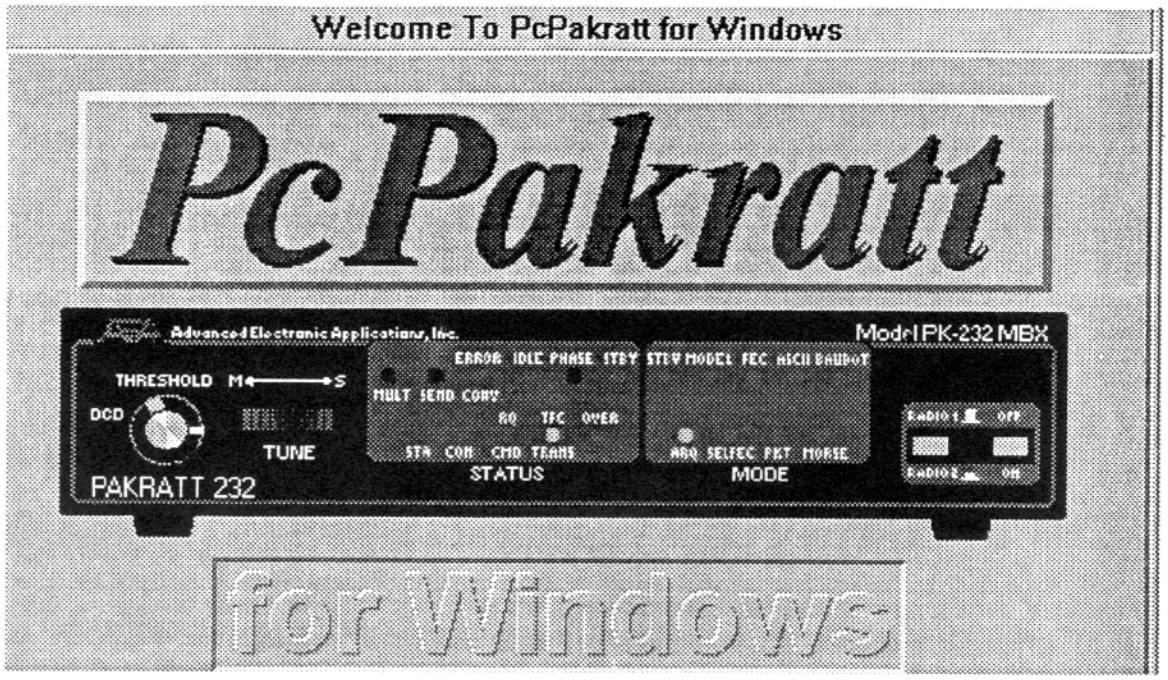


Figure I

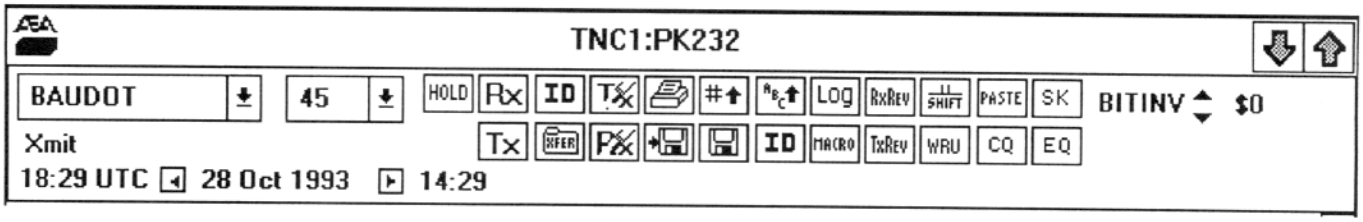


Figure II

less than full screen. In fact, it is minimized to the point where it cannot be used. You must drag the lower right hand of the screen until you are happy with the size, or click it to fill the entire screen. Secondly, while the RTTY and Packet modes arrive in listen or monitor mode, neither Amtor or Pactor do. This is a strange inconsistency. You must click the appropriate button before you convert any these HF sounds to legible print. These omissions are minor, yet both are irksome and needless and should have been corrected during the beta tests.

The third complaint is more significant. Look at the top portion of the RTTY screen again in Figure II. There are twenty three buttons across the top that, in theory, bring you one mouse click away from doing anything you ever wanted to do while in the RTTY mode. In fact, it is serious and confusing overkill. Oh, I don't object to having the buttons available. What I want is the privilege of building my own button bar with the six or eight or maybe 10 functions I want to use. Further, I want to be able to move those buttons anywhere on the screen--either side or the bottom. This same pattern exists in the other modes as well. When we ante up this kind of price for a program we expect and are entitled to the programming niceties generally available in the Windows interface tool kit. Perhaps the first major upgrade will add that feature.

We will continue with this next month, get into the operation of each mode and leave the subject with a final evaluation. I will call on Bob NJ7H to give me a hand. He spent an inordinate amount of time reviewing the entire command structure of PCPW, pinpointing bugs, inconsistencies and "idiosyncrasies." Bob kindly shared his work with me as well as with AEA and you will benefit from his labors in the December issue. In the meantime, if you have had any experience with the program, please get in touch with me. Use the address above, CompuServe 71573,1077 or drop by the Clover BBS. I monitor 7066, 10135, 14064, 14065, 18104, 21066 (all LSB) twenty-four hours a day.

Happy Thanksgiving, for indeed we have much to be thankful for!

73 de **Jim, N2HOS** SK■

(813) 596 3105 FAX (813) 596 7473

New Release **BMK-MULTY** **Version 3**

Multi-mode software by G4BMK for your IBM-PC or compatible.

Brief Description

BMK-MULTY is an advanced "standalone" software package for amateur radio use that provides superior transmit and receive performance on AMTOR, PacTOR, RTTY and CW with an ordinary RTTY terminal unit (dumb T.U.) such as CP-1, CP-100, TU-170, TU-470, HD-3030, ST-6, ST-5000, ST-6000, CRI-100, CRI-200, Interface II, Dovetron, FSK-1000, etc. An integrated callsign/QSO database for on-line logging is included. A TNC is not needed as the data processing functions of a TNC are performed in software running in the PC. (However, we do have an adapter board that allows direct access to the modem part of a PK232, bypassing the data processor in the PK232 entirely. MBX option is not required.) Additional modes, included in the extended audio package, are Audio Spectrum Analyzer, HF WEFAX reception, and SSTV reception.

Numerous operator convenience features. Simple function key usage. Informative status lines. Automatic callsign capture. User-programmable ALT keys. Shell out to DOS. Run other programs from BMK-MULTY, such as a text editor. Automatically call another program at intervals.

Version 3 is a major re-write of the software, and makes what was an excellent package even better and easier to use. PacTOR performance is dramatically improved. Now includes an internal ANSI interpreter for display of color pictures and graphics.

AMTOR, RTTY and CW

The BMK-MULTY AMTOR implementation has long been recognized as the best available. The software implements an advanced algorithm which synchronizes exceptionally rapidly even without idles/phasing characters, with retrospective printing of characters received while synchronizing, and remarkable resistance to false locks. Will copy a brief CQ call that pops out of the noise. Monitors both sides of an ARQ QSO without missing a single character from either side. Automatic selection of MODE-L, FEC or ARQ-QSO mode eliminates risk that incoming calls will be missed due to your system being in MODE-L, as with other AMTOR systems.

RTTY and CW modes have their own unique multi-sampling algorithms and highly effective autoprint which minimizes garbage on screen without loss of valid data.

PacTOR Operation

BMK-MULTY's PacTOR performance is now on a par with BMK-MULTY's unmatched AMTOR performance, and we invite performance comparison to *any* other PacTOR system. BMK-MULTY PacTOR includes a unique multi-path compensation feature for performance superior to other PacTOR systems under typical HF amateur band conditions where fading and multipath dispersion are present.

BMK-MULTY PacTOR is licensed by the German developers of PacTOR, but goes beyond the original implementation. BMK-MULTY's unique Multi-Path Compensation feature attacks the commonest problem that affects especially analogue memory-arq systems. Such systems rely on repeated packets arriving at an accurate time interval after the preceding packet. Unfortunately, under all-too-common multi-path conditions which are prevalent on the HF amateur bands, *even when signals are apparently strong,* a repeated packet may arrive a few milliseconds earlier or later than its expected time. A conventional analogue memory-arq system will accumulate energy levels for a particular bit which really belong to the previous or next bit. The process of deriving a valid frame then becomes slow or impossible. BMK-MULTY uses a totally new digital idea which accommodates packets arriving up to 10 milliseconds earlier or later than expected.

Integrated Callsign/QSO Database (Logger)

The entirely new "Logger" module adds a database for keeping a record of callsigns and QSOs for on-line access. The logger is tightly integrated with BMK-MULTY. Screen line 3 instantly reports brief details where a captured callsign is already in the database, and a single key selects a pop-up window for entering and editing QSO data. Included in the package is a separate off-line database maintenance program with additional functions, including export and import capability.

Extended Audio Package

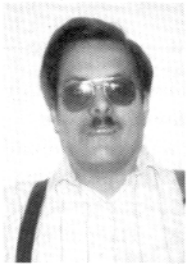
The optional extended audio package implements sophisticated audio analysis within the PC. Only a simple interface is needed (a single op-amp) to present raw audio from your receiver to the PC. The software directly measures the period of each cycle of the incoming audio signal and thus determines the frequency on an instantaneous basis. The extended Audio Package includes an on-screen Audio Spectrum Analyzer (Tuner), HF WEFAX reception and SSTV reception. The audio spectrum analyzer provides very useful audio analysis capability at low cost. The HF WEFAX and SSTV reception options provide economical introductions to these modes.

Price and Ordering Information

- Base communications package including AMTOR + RTTY + CW + Logger: $95.00.
- Base communications package + Pactor: $145.00
- Extended audio package also includes Audio Spectrum Analyzer and reception of HF WEFAX and SSTV. Base communications package + Extended audio package: $140.00.
- Base communications package + Pactor + Extended audio package: $175.00
- Pactor alone: $50.00.
- Manual only. Credit against subsequent order: $10.00.
- PK232 adapter board: $49.00.

Above prices include disk and printed manual (100 pages). (No printed manual for Pactor alone; manual on disk only.) Add $3.00 for shipping to U.S. addresses. VISA and MasterCard accepted. North Carolina residents please add 6% sales tax. Amateur callsign required with order. Please specify 5¼ or 3½ inch disk format. Additional information available. Order current version through authorized U.S. distributor:

Schnedler Systems AC4IW
25 Eastwood Rd.
P.O. Box 5964
Asheville, NC 28813 (704) 274-4646



PACTOR

Phil Sussman, KB8LUJ
P.O. BOX 31
Clayton, OH 45315

*** CONNECTED: KB8LUJ

Welcome to another column on PACTOR. Once again there was mail in the box. Thanks to Mac, K0DM; Jim, N2HOS; C.W. Hamm, W3IVY; and Ken, N4SO for your contributions.

One writer complained he couldn't stay ahead of his 'type ahead' buffer as with BAUDOT and AMTOR, and that was discouraging him from using PACTOR. The simple explanation is, of course, that PACTOR moves data much faster than most of us can type. While we can't control the transfer speed, there are ways to improve the situation. Here are a few suggestions. Use keyboard macros to parrot commonly used expressions, such as "de MYcall", "What do you think of that?", "Band conditions are deteriorating.", "Your signal strength is still good.", etc. Using a text editor you can create files to store common information, like a 'Brag file' for your station description, a 'QSL file' for your QSL info, a 'Hello' file, a 'QTH' file, graphics files, an 'Area Info' File, a 'QRT' file, etc. Then, during a QSO, you merely send the appropriate files to supplement your own typing. To avoid having 'stale' QSOs by using the same info repeatedly, try building a file library or routinely updating files.

GET IT RIGHT

There is some confusion about digital signal bandwidth. A frequent complaint is that many signals are far broader than 500 Hz. Digital signals as broad as 2KHz can be found when tuning 20 meters. In most cases, it is the result of an OVERDRIVEN signal. Although noticeable with RTTY (Baudot) and AMTOR, it is more prevalent with PACTOR and CLOVER, because of their higher baud rates. The cure is easy. If you use AFSK (LSB) be absolutely sure to stay BELOW the ALC threshold level. When an ALC indication is not available, try operating at 40 to 50 percent of full SSB power.

If you use a linear amplifier, keep the input level down to avoid overdriving the amp. It's very easy to do when employing digital modes.

It is far better to have a clean signal than a distorted one, and that's good for your rig or amp as well. A lot of power is not always necessary. Your data might start flowing faster, too.

MORE PACTOR BASICS

Another feature of PACTOR is HUFFMAN COMPRESSION. It is a scheme to transmit more characters in the same amount of time by changing character length. The idea is to reduce the number of bits of more common characters and increase the number of bits of less common ones, similar to the structure of Morse Code. This increases the number of words per minute (WPM) transmitted at the same baud rate. The more rigorous the compression, the more WPM can be sent.

Huffman requires a 7 bit ASCII character length, so it is ineffective when transmitting high bit (eighth bit set) characters, such as graphics. Most PACTOR TNCs recognize high bit characters and automatically disable HUFFMAN.

All PACTOR TNCs also automatically decode compression whenever it is received, but not all TNCs set HUFFMAN on. That only affects encoding, so those TNCs will decode compression but will not transmit compressed HUFFMAN characters until turned on. The common command is PTH, PTHuff, or MOde. AEA products initialize PTH as 0, and in order to turn it on you would type PTH 1 at the command prompt. KAM uses a typical PTH ON/OFF structure. SCS PTC and PacComm use the command MOde 1. In any event, setting HUFFMAN to 'on' allows you to transmit data up to 100% faster.

It is claimed that compression is most effective on lower case characters, and not so effective on upper case characters. Units by AEA, KAM, and MFJ judge whether or not HUFFMAN will be effective and switch it or out on transmit accordingly (with PTH set on). Such variables as buffer and frame length, the speed of characters flowing into the buffer, and the number of high bit or upper case characters enter into that decision process. Others, like PacComm and SCS PTC invoke HUFFMAN more rigorously, leaving it on a majority of the time, while disabling it to pass high bit characters.

There are two schools of thought as to which method is better. One believes that making a switching decision allows the most efficient method of transmission to be employed. In that way maximum transmission speed is achieved. The other position is that due to complexity HUFFMAN coding, it is difficult to determine when it is best to switch, so the decision process wastes RAM memory and increases CPU processing time. (With no effect on over- the-air time) By leaving HUFFMAN set on most of the time, some characters are lengthened, but a majority are shortened. The overall transmission speed is increased by system efficiency. That is, the time it takes to decide to turn HUFFMAN on and off, along with the time it make the switch, coupled with the number of switches made, cancels any advantage saved by switching it on and off too rapidly.

It is difficult to say which implementation is superior. Everyone has their own opinion. The fact that a COMPRESS or HUFFMAN light is on during receive, does NOT mean that overall throughput is actually being increased, only that HUFFMAN was engaged by the sending station.

For example, it is claimed as the baud rate between the computer and TNC is increased, compression is more likely to occur. So, operating at 9600 baud may be preferential to operating at 1200 baud. Another area to investigate is whether or not you type a majority of your characters in upper case. This may be slowing down your transmissions. Experimentation and observation are the best tools for you to determine if you are achieving the best throughput possible with your particular unit.

PACTOR HINT

Ever see an odd character appear in the text when reading a foreign message? Some TNCs change text characters that fall in the high bit range (ASC 128 to ASC 255) into the low bit range (ASC 000 to ASC 127). One such translation concerns German special characters (Umlaut). Table I illustrates the conversion.

As you might have guessed, this change allows these characters to pass without defeating HUFFMAN COMPRESSION.

MORE JAWS

I have received several responses concerning my editorial about operating frequencies in the JUL/AUG edition of RJ. Comments were about evenly split into three fields, those who agreed, those who felt I was too critical and those who felt I was not critical enough. However, there is some confusion about PACTOR, frequencies, and MSO systems.

Original ASCII character	Is translated to	May appear on screen as
CHR 132 ($84) ä	CHR 014 ($0E)	^N CTRL-N or
CHR 148 ($94) ö	CHR 015 ($0F)	^O CTRL-O or
CHR 129 ($81) ü	CHR 016 ($1A)	^P CTRL-P or
CHR 142 ($8E) Ä	CHR 020 ($14)	^T CTRL-T or
CHR 153 ($99) Ö	CHR 021 ($15)	^U CTRL-U or
CHR 154 ($9A) Ü	CHR 022 ($16)	^V CTRL-V or
CHR 225 ($E1) ß	CHR 023 ($17)	^W CTRL-W or

Table I

HAPPY

HOLIDAYS

from the

RDJ Staff

1. Nobody 'assigns' MSO frequencies. An informal 'Gentlemans Agreement' is all that exists. The FCC has NO control over foreign MSOs or their frequencies. The need for standards is apparent; but, the FCC only regulates activity within its jurisdiction.

2. PACTOR is the fastest growing digital mode. BUT the increasing numbers of PACTOR users have nothing to do with the bandwidth of a PACTOR signal, only with frequency congestion. See "GET IT RIGHT", above.

3. The American Digital Radio Society, ADRS, is an organization that was formed to help create standards, and represent the interests of digital operators. If you are serious about digital, consider joining ADRS. All digital operators are welcome, no matter their favorite mode of operation. It is a unique forum attempting to create solutions out of chaos. Look for information on ADRS elsewhere in this issue or contact Jim, N2HOS.

I am gathering material for a future articles on hearing or speech impaired individuals and minority/disadvantaged youth using digital. (esp PACTOR) If you have any information to share, I'd love to hear from you.

This month we celebrate Thanksgiving in the USA. One freedom we should never forget is that amateur radio gives us the ability to transcend many boundries.

Next month we look into the future of digital communications.

Thanks to all who contribute and to make our column so popular. Keep your messages and comments headed this way. Your continued help is always needed and appreciated.

Happy Thanksgiving and many thanks for sharing your time with me. Until next time, de Phil - KB8LUJ. May God Bless you and yours. Link d-o-w-n..

***** DISCONNECTED: KB8LUJ**

HOTEL ROOMS FOR DAYTON 94

ORDER NOW!

All rooms are at the Radisson Hotel. This is where the digital gang stays. The RDJ Dinner is held here and the hospitality room is also here. Everything exciting happens at the Radisson. If you are going to be there and need a room, now is the time to reserve one. The RDJ has a block of rooms available but they will not last. Don't wait to reserve a room. You must reserve through the RDJ not the hotel.

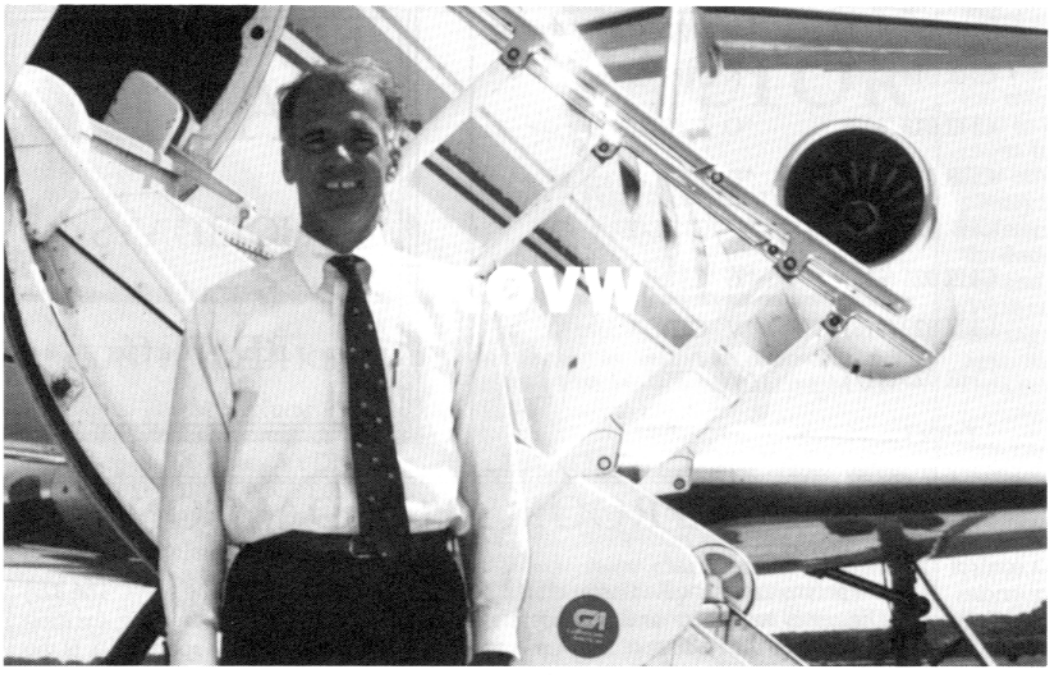
Most of the rooms are two bed rooms, so if you wish to share a room with someone, your cost will be reduced. I must know if you want a room NOW. I do not need deposit money as this time.

Room rates: $86.00 per night. A $80.00 deposit will be needed. You will be advised when and where to send the deposit money.

The room rates are slightly higher this year but the Hotel has not raised their rates to us for a long time. The hotel also ran a survey of competing hotels in the area and this slight increase is in line and comparable to what is being charged by their competition.

Hamvention dates are: April 28, 29, and 30, 1994

Please order your rooms immediately either by Phone/FAX or letter.



Turning Point

by John J. O'Neill, K0VW[1]

I've been thinking a lot about our future lately; probably because I'm wondering where it is taking us. I've just finished reading another article, in the digital press, castigating one mode or another while, in effect, calling for a return to the "good ol' days." What's the deal?

Aren't we supposed to be the avant guarde -- the wild and crazy gang willing and even anxious to tackle the most daunting tasks? Where did we loose our way? If memory serves me reliably, it was shortly after computers became our friend, enabling us to get <u>really</u> serious about this digital communication business.

If the computer is our pal now, why all the hassle? Answer: overload. We are being victimized by success -- everyone is coming to appreciate the thrill our mode provides. Our sub-bands are beginning to show the strain.

We should have had the foresight to see what opening the pandora's box of technology would do to our beloved digital bands. Military and commercial services saw the danger of an approaching "Tower of Babble" and set standards which ensure compatibility. It's still not too late for us to do the same, but so far we haven't done anything about it.

I wish that I could have a dollar for every comment heard advancing a favorite mode, or bashing an unfavored one. Think of it, haven't you heard the same? Constructive suggestions are few, negative remarks are frequent, and results, so far, are nil.

My guess is that we have gone about this all wrong. Instead of trying to make "them" more like us, maybe we should find out what we need to accomplish and establish a plan which will carry us there. Think about it: the problem is not technical as much as managerial.

In an effort to be fair, remember that advocates of each mode or service involved in the current digital controversy have reason to believe that their's is the best. No doubt, they are all at least partially correct. We ought to consider their input valuable intelligence and fertile ground to build upon. Turf battles aside, let's listen first. Collecting enough right answers surely will lead us in the right direction. We aren't so flush with resources that we can afford to discard anything.

Instead of working on a quick fix, look farther ahead; say 25 years. Banning one mode or another will not cure the fundamental problem...QRM. Recognize that, from now on, new modes will abound, Amateur population will increase, and spectrum space will become more scarce. Accepting that, strategic thinking becomes easier; It isn't "them" against "us" anymore. Our survival depends on collective creativity.

Let's be realistic -- forget your prejudices; after all, you could be stonewalling progress. Start with a fresh piece of paper and list the requirements of the digital ham of the next century. Here is my list:

• **QRM-free Operating Environment.** Possibly channelized, the digital spectrum should offer a quiet spot to operate at all times. Technology will be the engine making this possible. I would expect that a frequency agile system will be needed for this critical necessity to be possible.

• **More Standardization of Modes.** As with the Military and commercial services, better commonality needs to be provided. When speaking of modes, more is definitely not better. Communication, after all, is what we hope to achieve and is still our most fundamental objective.

• **Realistic Band Plan.** Looking ahead from here, I see two core needs in our digital bands: One-on-one communication, e.g., ragchew, testing, and experimentation -- and BBS/store & foreword automatic stations. We must continue to support these activities to ensure the value of digital communications in the future. Because of special activities taking place on the bands such as contests and DX-ing, separation of the activities is advisable.

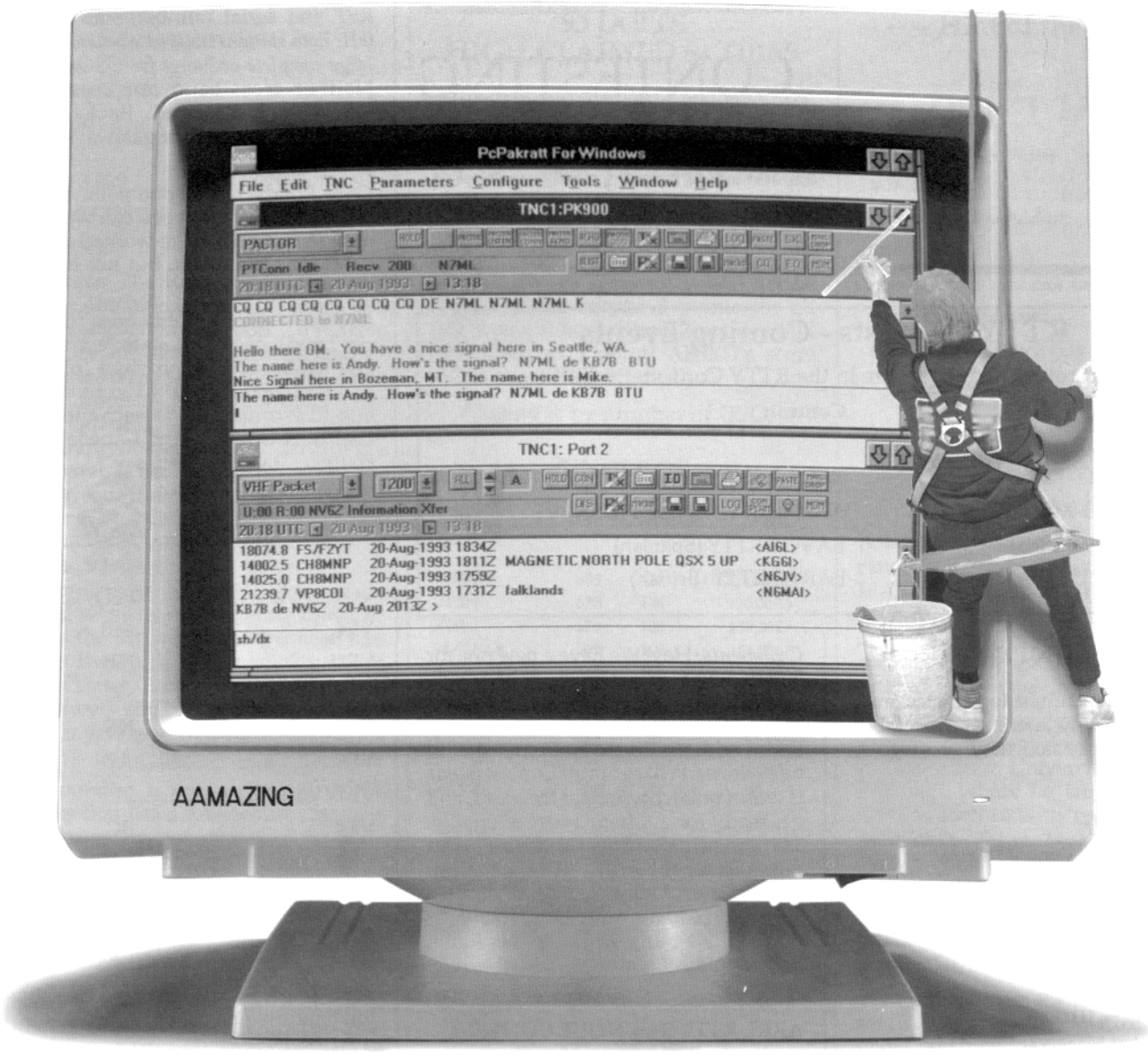
Change, while never easy, is the only avenue which helps us improve. Amateur Radio is in the middle of dynamic change -- and thus is presented with an occasion to become better than ever before. Recognizing this opportunity is central to success; we can't fail by running back to the comfort of the past.

So, with all this in mind, I encourage all of our stake holders, the ARRL, Digital Committee, Board of Directors, concerned readers of the ***RTTY Journal***, and digital Hams worldwide, to take the large view of our opportunities and, looking ahead, manage these assets in the most creative and effective manner.

It's tempting to think that today's problems are just like many in the past. Failing to see the difference, we risk chaos.

de **John, K0VW**

1. 13532 Fordham Ave., Apple Valley, MN 55124



We Do Windows™

Tired of being controlled by your data controller software? Take control with PC-Pakratt for Windows. PC-Pakratt for Windows lets you do all the things you wanted to do in DOS but were afraid to try—or couldn't remember the command for.

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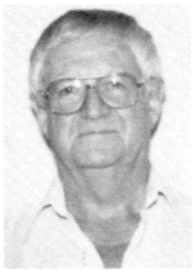

CONTESTING

Richard Lawton, N6GG
14395 Bevers Way
Pioneer, CA 95666

RTTY Contests - Coming Events

All rules + logsheets are in the RTTY Contester's Guide

Date:	Contest:
DEC 11-12	TARA 2nd Annual RTTY Sprint (USA)
JAN 8-9 1994	ARRL RTTY Roundup (USA)
FEB 12-13	EA WW RTTY (Spanish)
MAR 19-20	BARTG RTTY (British)

-- -- -- REMINDERS: -- -- --

CQ WW RTTY Contest log entries must be postmarked no later than December 1, 1993. An extension may be given if requested.

Mail logs to:
Roy Gould, KT1N
CQ WW RTTY DX Contest Director
Box DX
Stow, MA 01775 USA

JARTS Deadline: Logs must be received by December 31, 1993.

Mail logs to:
Hiroshi Aihara, JH1BIH
JARTS Contest Manager
1-29 Honcho
4 Shiki Saitama 353
JAPAN

-- -- -- COMING UP: -- -- --

TARA 2nd Annual RTTY Sprint Contest

December 11-12, 1993

Sponsored by

Troy Amateur Radio Association

Contest period: Starts at 2100 UTC on December 11 and ends at 0100 UTC on December 12. Contest is 4 hours long. All scoring, rules, bands, etc. are exactly the same as ARRL RTTY Roundup. (See below)

Deadline: Logs must be received by January 17, 1994.

Mail logs to:
Bill Eddy, NY2U
c/o TARA
2204 22nd Street
Troy, New York 12180

Comments: Hey! We have a new one for RTTY! RTTY Sprint? This sounds like fun. I've participated in the CW Sprints but... Well, why not on RTTY? RTTY Sprint with the Roundup format should be a winner. What a Sprint Contest needs is lots of publicity. Spread the word, and get ready for a 4 hour burst of energy. This can help you fine tune your operating skills for the ARRL RTTY Roundup 4 weeks later. And you can use the WF1B RTTY contest software as is, fooling it into thinking it's working the ARRL Roundup! PREPARE!!

ARRL RTTY ROUNDUP CONTEST

January 8-9, 1994

Sponsored by ARRL

Contest period: Starts at 1800 UTC Saturday and ends at 2400 UTC Sunday. Operate no more than 24 hours of this 30 hour period. Two rest periods (for a combined total of six hours) must be taken in two single blocks of time, clearly marked in the log.

Bands: 80, 40, 20, 15, and 10M (five bands).

Modes: Baudot (RTTY), ASCII, AMTOR, or Packet (attended operation only).

Operator Classes:

a) Single op, unassisted, all bands:

1) less than 150 watts output.

2) more than 150 watts output.

b) Multi op, single transmitter. Once station has begun operation on a given band, it must remain on that band for at least 10 minutes.

Exchange: U.S. stations: RST and state. Canadian: RST and province. All others: RST and serial number, starting with 001. *Both stations must receive and acknowledge complete exchange for QSO to count.* Neither cross-band nor cross-mode QSOs are permitted. Packet QSOs through digipeaters or gateways are not permitted.

QSO Points: Count one point for each completed QSO (anyone can work anyone). A station may be worked once per band for QSO credit, but not for additional multipliers.

Multipliers: Count only **once** (not once per band), each U.S. state (except KH6 and KL7), each VE province (plus VE8 and VY1) and each DXCC country. KH6 and KL7 count only as separate DXCC countries. The U.S. and Canada do not count as DXCC countries.

Canadian Multipliers:

Prefix	*Province*
VO1/VO2	NFLD/LAB
VE4	MB
VE1	NB
VE5	SK
VE1	NS
VE6	AB
VE1/VY2	PEI
VE7	BC
VE2	PQ
VE8	NWT
VE3	ON
VY1	YUKON

Final Score: Total number of QSOs times total multipliers.

Awards: Certificates will be awarded to: Top scoring low power and high power single operators and multi-op scorers in each ARRL/Canadian Section; Top low power and high power single operators and multi-op scorers in each DXCC country (other than W/VE); each Novice and Technician entrant; each entrant making at least 50 QSOs.

Logs and Summary: Logs should contain the suggested standard format: BAND, MODE, DATE/TIME, ON/OFF TIMES, CALLSIGN, EXCHANGE SENT/RECEIVED, MULTIPLIERS (marked the first time worked). Entries with more than 200 QSOs must submit duplicate check sheets (an alphabetical listing of stations worked). A Summary Sheet must show: claimed score tally, class of operation, your call, name and address. Multi-ops stations please include names and callsigns of all operators.

Deadline: Entries must be postmarked no later than 30 days after the end of the contest (February 8, 1994).

Mail entry to:
ARRL RTTY ROUNDUP
225 Main St.
Newington, CT 06111

Recommended Operating Frequencies (MHz):

3.580 to 3.620	14.070 to 14.095
7.040 – RTTY DX	21.070 to 21.090
7.080 to 7.100	28.070 to 28.150

Comments: The Roundup is the most popular domestic contest. It's much like the SS contests on CW/SSB. To make a high score one must concentrate on high QSO rates and lots of CQing. There are no band multipliers, meaning that once you work Utah on 15M, you will not get another multiplier for working Utah on any other band. If maintaining a high rate is just not your thing, you can set yourself another goal: see if you can work all states or provinces in the 24 hour period. In past sessions, all states have had RTTY stations on the air. This goal is especially exciting when using contesting software, such as the the WF1B RTTY contest logging software. It automatically keeps track of states/provinces worked and always shows you on the receiving screen whether you need that particular station for a new multiplier.

The Roundup is one of the few RTTY contests that has a low power category. This means that there should be more activity, primarily on the high bands. (Low power stations have a harder time cutting through the D layer absorpsion and QRN (static) on the low bands.) Those operating low power RTTY should pay close attention to picking out a frequency to start CQing. On RTTY it is difficult to find a clear spot on a crowded band, and when running low power, you just get clobbered easier when you're a bit weaker. You can't always assume that everyone has sharp filters in their radios. And on the high bands you can't always hear stations within the skip distance of your QTH. Sending a "QRL? BK" is a good way to interrogate whether the frequency is in use, just as in CW and SSB. It really helps when skip distances are long. And it shouldn't upset anyone - unless the frequency IS in use, and the time between the "QRL?" and the CQ is less than one second!

-+- -+- SINGLE OP'S SLOGAN? -+- -+-

We're all in this together -
by ourselves.

- Lilly Tomlin

'93 JARTS HIGH CLAIMED SCORES

gathered by Ron AB5KD, and Jay WS7I

(AB5KD put this out on CQ-Contest Internet on 21 OCT 93. Most of these scores were gathered on 14088 right after the contest was over.)

This was JARTS 2nd Annual RTTY contest with little or no software for this test as yet, so most score totals will not be correct. Some scored 3 points for all QSOs, and others scored 2 points. (Still others scored 1 point) AB5KD's score didn't count VE QSOs at all.

(Listing is by number of QSOs)

-- – -- SINGLE OP -- -- –

Call	QSO's	Mults	Score
AB5KD	685	138	205,000 @
KP2N	625	136	190,000 #
K0RC	570	128	218,000 *
WA7FAB	500	109	163,000 *
N6GG	444	124	131,000
N2DL	432	124	189,000 *
AA5AU	376	136	122,000
KF9AF	358	71	25,000
KI5GF	326	68	22,000
W7LZP	282	51	34,000
W6/G0AZT	279	?	?
N0FMR	180	55	?
KJ6TC	134	?	?
AA4NC	125	?	?
W6MTJ	109	?	?
KD4WEN	94	?	9,000
WS7I	73	?	6,000
K0BX	64	?	?
JN3TMW	44	?	4,000

-- -- -- MULTI-OP – -- --

KB8LUJ	300	?	?
K7WUW	?	?	30,000

NOTE: "@" did not score all QSOs.

"#" scored 2 points on all QSOs.

"*" scored 3 points on all QSOs.

For future RTTY contests the High Claimed scores will be gathered on 14088 by WS7I, and on 7088 by AB5KD, both on RTTY. 3830 SSB had too much QRN.

Thanks to all that sent in scores. When I get more scores I'll post them.

73 de **Ron, AB5KD**

NOTE: The above was the first try at gathering scores immediately after the contest. As this was rather spontaneous, and had virtually no previous notification, these results were far from ideal. Let's get the word out for future contests so that those who have scores to report can do so. At least you'll know where you stand in the ratings. And you'll get a better night's sleep, won't you?

-- -- -- Hint of the Month -- -- -

DON'T THINK!

If you think you are beaten,
you are.
If you think you dare not,
you don't.
If you know you can win,
but think you can't,
It's almost a cinch you won't.

- Unknown

-+- SOLAR MAX -+-

- a game for DX Contesters

Bob Brown, NM7M, has come up with a clever game for your PC called SOLAR MAX. As Bob puts it: "It is a game, not a toy, with a purpose: to raise the level of appreciation and understanding of the role of HF propagation in DXing in general, and DX contesting in particular."

(Bob is the HF propagation columnist for WorldRadio Magazine. He is a retired professor from University of California, Berkeley, where he taught ionosphere physics. He's recently written a book on long path DXing, based on long-term studies of his personal experiences.)

In playing SOLAR MAX, a DXer is equipped with a fine station, a 3-element, 8 dBd tri-band Yagi with a 40 meter conversion kit, and a 1 KW amplifier.

Your adversary is the ionosphere. In essence, you set the solar flux, date, and your QTH (Longitude and Latitude), and SOLAR MAX takes it from there; it a) divides the world into 16 areas, b) assigns proper number of prefixes to each area, c) allows you to select any of 4 bands (40, 20, 15, and 10) to operate for the next 1/2 hour into the contest, starting at 0000 UTC. The contest period is 24 hours long, divided into 1/2 hour segments. It takes about 10 or 15 minutes per game.

The contest begins when you select which of the 16 areas you wish to work during the next 1/2 hour, and the band you wish to operate on. SOLAR MAX contains a sophisticated propagation program that determines whether the band is open to the region you selected and will tell you your signal strength in S-units picked up at the other end with just a dipole. Your signal strength will determine how many QSOs and mults you'll make in that half hour. If you made a poor choice, the program will display a chiding message, such as, "THAT PATH WAS CLOSED AND YOU JUST WASTED A HALF HOUR CALLING CQ DX ON A DEAD BAND!" A ticker-tape display at the bottom of the screen tells you your present

score after each 1/2 hour. Hard copy of the whole contest is available if your printer is turned on, and the printer option is selected in the menu. The scoring is: 3 points for each multiplier, times the number of QSOs.

Variations on SOLAR MAX

Here's some ways you can enjoy and profit from SOLAR MAX:

■ Make a dry-run of your bandplan for the next DX contest.

■ See what its like to use a SSN (sun spot number) of 200. WOW!

■ Try using a QTH far removed from your own, just to see if you really do understand world-wide propagation.

■ Select the same band each time to simulate a single band DX contest.

■ Compare running 1 KW to 100 watts, using the same bandplan.

Comments: I LIKE this program! It's clever, unique and logical. I've already installed it on my hard disk. It's gotta be good to get on my hard disk! And it only takes 218K of space. I plan to use it before each DX contest to set up my band plan.

The decisions one makes in this program are based solely on propagation conditions at your QTH... not on QRM conditions from other areas. There are no calls or prefixes to enter. In fact, no typing skills are needed to run SOLAR MAX. You'll only use SPACE BAR, "Q" for QUIT, "S" for SUMMARY, and "X" for EXIT. The rest is numeric selection of the band and desired region to work... and the ENTER key. SOLAR MAX gives one an entirely different outlook on just what is happening when we contest. **Warning:** Be sure you make a backup disk before you try using this program. I always make backups, and in this case I'm glad I did. Using the backup when I first fired up the program, I managed to wipe out my QTH file. It was an easy fix (copy the SITE.DEF file from the original) but I couldn't have done it without having a backup.

The disk I received from Bob is a beta copy for comment and review. He plans to add a few more items to this ingenious game before he releases it to the public. It's a winner! Great $10 Christmas present!

Bob plans to have SOLAR MAX available starting November 1. Price is $10 postpaid in the US and $11 to Canada (domestic model) and $13 for overseas Air Mail of the export model. Disk size (360K or 720K MS-DOS) should be specified when ordering.

(Bob Brown NM7M, 504 Channel View Drive, Anacortes, WA 98221)

((73))... and Happy Holidays!

See you in the pileups,

de **Rich, N6GG** ■

P.S.

Drop me a line with an idea to share,
Or, drop me a line with an item to air.
Drop me a line with anger to bare...
But don't drop ME... 'cause I care!

LOOKING BACK

23 +/- Years ago in RDJ

- Simple terminal unit (demodulator) using 5763 tube is described.
- ON4CK describes flipping line tuning scope using 3 inch CRT.
- FG7XT heads DX Honor Roll with 95/84. Larry Filby, K1LPS, activates Guam on RTTY via KG6NNA.
- FCC cites RTTY operators for improper CW ID procedures.
- ET3USA active on 20M RTTY operated by K8IRC. FB on East coast.
- WAC Nr. 133 issued to Gin, JA1ACB.
- ON4BX pulls ahead of FG7XT with 98/92. Jean, FG7XT, has 101/91. Extra effort required to get QSL cards. WB6RXM reports 44/43.

Next time - 22 years back

Correction Notice

C. Brown, N4SO, reports the following corrections to the article for modifying the **Kenwood 520, 520S, and 520SE**. Refer to page 17 of the October issue of the RDJ and make the appropriate changes or notations.

1. The price of the CW filter is $75. The reference number is 101.

2. The carrier oscillator is in a holder marked HC-6/U.

3. The Xtal frequency is marked X3 in the TS-520SE manual. There are some differences in the manual of the other models.

4. The carrier unit number should be X50-0009-01.

5. The reference to page 32 of the manual is for the TS520SE. The other radio manuals may not show these same pictures.

Charles goes on to add: A frequency counter was not available at home, so an alternate method of tuning the LSB crystal was employed. Use of the tuning bar on the PK-232 was the substitute. Attach an audio cable to the PK-232 and note the noise position on the tuning bar. Take a plastic screwdriver and tune the crystal adjustment so that the "noise" is in the middle of the tuning bar. No other adjustment was necessary.

When ordering fixed channel crystals, the following advise will be helpful. Charles wanted a crystal for 14.065 LSB and ordered according to the formula but received a crystal that was to low. He found it necessary to add .00066 to the Mark calculation i.e. 14.065 minus .002210 equals 14.06279, plus .00066 equals 14.063450. Use this figure for calculations. Example; 19.5015 minus 14.063450 equals 5.438050. Therefore, the crystal ordered and put into service for 14.065 was 5.43805 MHz.

PacComm's PacTOR Controller

- Licensed from the German inventors.
- PACTOR, AMTOR, and RTTY modes, Packet option
- Error-free data transmission
- Up to four times faster than AMTOR
- Complete ASCII character set supported
- Memory-ARQ with analog to digital converter restores bad data packets
- On-line data compression. (Can be disabled)
- Automatic speed adaptation 100 or 200 baud data rates
- UNPROTO mode (FEC)
- Listen mode to monitor PACTOR QSOs
- CW Identification capability
- Built in Message System
- Automatic logbook function which is accessable over the air and locally
- LED digital tuning display
- 16 status LEDs
- Selectable for either 'High Tones' or 'Low Tones'
- Terminal programs included
- VHF packet card may easily be added internally at low cost
- One year warranty, 30 day return privelege.

PacComm's PacTOR Controller, Front View

See the reviews of PacComm's PacTOR Controller:
January 1993 issue of **QST**, and February 1993 issue of **Ham Radio Today** (UK).
Call or write PacComm for a reprint of these articles.

Why Can't It All Be Done In Software?

One of the key features of the PACTOR mode is Memory-ARQ. Copies of corrupted frames are saved and correlated with frames received later.

The key to proper Memory-ARQ operation is an analog to digital converter (ADC)- an item of hardware.

The ADC converts the actual strength of each received bit into an 8 bit value which is stored in memory for later comparison. Thus each bit can have an exact representation of its received value. If Memory-ARQ is attempted without the ADC, the value of each bit must be rounded down to a zero or up to a one and the 'marginal value' of the signal is lost.

Beware of cheap 'software only' PACTOR implementations. They are NOT recommended by the German inventors of PACTOR. Most anyone's implementation of PACTOR will work fine under good conditions. When the QRM is tough and the band is fading, the PacComm PACTOR will continue to decode signals too weak to hear.

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The **TINY-2 MK-2** TNC. Over 14,500 in service. A TNC-2 compatible for network node or personal station use. Includes KISS, DED host mode, and PacComm's Personal Message System.
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REVIEW

PacComm & SCS PACTOR Units

by Phil Sussman, KB8LUJ

This month we cover the German SCS PTC and the PacComm PacTOR Controller. (built under license from SCS) These units are not entirely identical; but, they do have similarities. Although the circuit boards are different, the firmware is the same. As a result, both use the same command structure and can be controlled with the same software. The primary difference between these units is physical construction. Both have a low profile, but the PacComm is slightly wider, deeper, and heavier. The SCS PTC is 6.6 x 4 x 1.6 in (16.8 x 10.1 x 4.1 cm) and is housed in a polished aluminum case weighing in at about 16 oz. (.45 kg). The PacComm is 7.4 x 5.9 x 1.8 in. (18.7 x 14.9 x 4.4 cm) and constructed from light gray anodized aluminum with a weight of about 40 oz. (1.1 kg) Both have eight LEDs in a row for a tuning bar, but the SCS PTC has 12 status LEDs and the PacComm has 16. (ARQ, FEC, Phasing, and Listen are added) Power consumption for either unit is less than one half amp. Both use the same 12 volt jack, but PacComm includes a 12 volt power supply. The SCS PTC uses a 5 pin DIN jack, wired in the usual way. The computer interface is a NON-STANDARD DB-25. Pin 9 can be used for 12 volt power input. Pins 11 and 24 are MARK and SPACE (scope) outputs. Pin 13 is used set high tones (see install). Pins 12 (dot) and 25 (dash) are used to connect a CW paddle for ELBUG. (See Note 1) The PacComm employs an 8 pin DIN, but only the first 5 pins are used. A 5 pin (or 8 pin) DIN plug will also fix in the socket. The computer interface is a STANDARD DB-9. An 25 pin adapter cable is also provided.

INSTALLATION

As usual, I am tempted to rush hooking up and get on the air. Both units require a 12v source and can receive power from the external power jack or pin #5 of the DIN socket. (jumper BR-3 on either) The SCS PTC can also use pin #9 of the DB-25S. (jumper BR-7 on SCS PTC) Wiring to the rig with the 5 pin DIN is pretty much conventional. (AFSK/FSK=pin #1, GND=pin #2, PTT=pin #3, Audio In=pin#4) The PacComm easily connects to a computer COM port with a standard DB-9 or using the DB-25 adapter cable supplied. The SCS PTC requires more care, as only pins 2 thru 8, 20, and 22 of the DB-25 need be connected to the computer. Pins 9, 11, 12, 13, 24, and 25 must NOT 'passed through' or damage to the SCS PTC may result. (See Note 1) The baud rate between the computer is determined by jumpers BR-4 and BR-5 on either unit according to the following:

Data Rate	BR-4	BR-5
9600	Open	Open
4800	Open	Closed
1200	Closed	Open
300	Closed	Closed

Both units ship configured for AFSK. Moving jumper BR-8 will change to FSK, removing audio from pin #1 of the DIN and substituting FSK keying. You may select one or the other, but not both. The German SCS PTC arrived set for low tones (1400/1200Hz) with 200 Hz shift, a common European setting. That's great if you're using SSB and AFSK. In order to use FSK and narrow filters, you need to switch to high tones (2300/2100Hz) by connecting pin #13 of the DB-25 to +5vdc. I installed a small jumper from pin #8 to pin #13. Then, per section 13.2 of the manual, I used the built-in calibration mode (ME *). Potentiometer P1 tunes the higher and P2 sets the lower tone filter frequency. The test automatically generates the correct frequencies based on the jumper setting. The PacComm arrived preset for high tones. (2295/2125Hz) Reversing jumpers BR-7 and BR-9 changes from high to low. (1445/1275) The same built-in calibration mode is used to change filter frequencies; however, PacComm uses 170Hz shift. In my test set-up, I used an ICOM IC-751 wired for FSK and high tones. I used a control program called Meister-Term (Master-Term, MT.EXE) vs 1.6. The first order of business was to check communication with the computer and configure the program. I initialized at 9600 baud, installed MYCALL, and revised the change-over character from Control-Y to Control-Z.

TUNING

The PTCs use a 8 LEDs as a bargraph, the PacComm horizontally and the SCS PTC vertically. Correct tuning is important, so I checked tuning using an oscilloscope. It was sharp and accurate. The SCS PTC centered about 200Hz shift, while the PacComm favored 170Hz. The PTC's are limited to four modes, RTTY (Baudot), AMTOR, PACTOR, and ELBUG (an electronic keyer). I chose each mode and tested each function. In most all cases, the SCS PTC and the PacComm operated identically. A log of the last 16 contacts is held and can be viewed with the LOg command.

AMTOR

From cmd: prompt, 'AM' selects AMTOR STBY, 'MON' selects AMTOR LISTEN, 'FEC' initiates an FEC transmission, C 'selcall' starts an ARQ link, and CTRL-B forces letters in receive. In AMTOR the command set is slightly different and it is necessary to type an ESCape to get a cmd: prompt.

AMTOR links worked fine. I connected to APLINK systems, called CQ in FEC mode (FEC starts and ^D ends), and made QSOs in ARQ. Changeover is the usual '+?'. To BREAK (reverse link while receiving) just type CTRL-Y anytime. Operation was smooth and straight-forward.

The Upper/Lower case convention (SEE NOTE 2) worked very well on these units; however, when copying ARQ QSOs (not linked) it was sometimes necessary to use CTRL-B to restore case sense. Perhaps future software can defeat the U/L case convention on demand. When a ^D is encountered in the buffer, the link is terminated. At the cmd: prompt, 'DD' (dirty disconnect) causes an immediate shutdown.

BAUDOT

From the AMTOR cmd: prompt, BAU selects BAUDOT (RTTY). CTRL-B forces letters in receive. To begin a BAUDOT transmission, type CTRL-Y. A transmission is terminated by a CTRL-D in the buffer, or by typing "DD" at the cmd: prompt. BAUDOT uses the AMTOR the command set and you need to type an ESCape to get a cmd: prompt. BAUDOT is one of my favorite modes, and operating the PTCs on RTTY was a chore at times. I was continually typing CTRL-B to force letters. Although RTTY does operate I would not use a PTC in a RTTY contest.

PACTOR

PACTOR is the PTCs forte. It combines the best features of PACKET and AMTOR and is designed for HF communications. Data frames are sent by one station and received by another where they are error checked. Correction is made using a protocol called Memory ARQ. One reason PACTOR TNC's function differently under adverse conditions is the implementation of memory ARQ. As storage accuracy improves, so does frame reconstruction. If each bit of a bad frame is assigned an analog value (say 0 to 8) rather than merely a logic one or a logic zero, more accurate representations can be made. The PTC's employ an 8 bit analog to digital converter and both have a SUSS of 20.

I made contacts in the regular (C 'callsign') and long path (C '!callsign', an

exclamation point precedes the call) modes. Changeover is made by typing CTRL- Z, in the buffer. (It was initially CTRL-Y, but I changed it to CTRL-Z in the interest of my sanity)

BREAK works identically to AMTOR by typing CTRL-Y. "U" at the cmd: prompt initiates a CQ (FEC-PACTOR) and "L 1" monitors all PACTOR traffic. You only need to type ESCape in PACTOR mode to receive the cmd: prompt during a link. The software responds to connect requests in either STANDBY or LISTEN modes.

Like AMTOR, a (^D) in transmitted text or the letters 'DD' at the cmd: prompt terminates a link.

In PACTOR, if you see something on the screen, that's what was sent. Repeating names and RSTs is a thing of the past. Many times I completed a PACTOR QSO, with the S-meter (I leave the meter in the SWR position, so anything shown is an S reading) reading ZERO. Nevertheless printing still scrolls across my screen.

In another QSO, I linked with a PACTOR station operating about 800 Hz away from an AMTOR signal. The AMTOR station was about S-9 plus 25 db while the PACTOR station was about S-2. Using an FSK narrow filter, PACTOR data continued to flow without interruption, most of the time at the 200 baud rate.

Sending graphics is possible by sending a file of ASCII text.

The implementation of HUFFMAN COMPRESSION was rigorous. Huffman is a software routine that shortens average character length. When sending text, this can improve throughput by as much as 100%. When MOde is set to 1, (default) Huffman is transmitted most of the time. Huffman requires 7 data bits, so it is automatically bypassed when sending 8 bit characters (graphics). Some manufacturers engage HUFFMAN less rigorously than others. There are two schools of thought on which is more efficient, but that's beyond the scope of this review.

HUFFMAN always decodes whenever compressed data is received. MOde only determines whether TRANSMITTED data may be compressed.

PACTOR memory ARQ yielded a sensitivity 2-3db better than a PK-232MBX and only slightly better than an AEA PK-900. PACTOR frames were retrieved well into noise, at times even with a big signal nearby. Sensitivity, is related to band conditions, filter sharpness, type of analog to digital Memory ARQ implementation, etc. Every db is important; but, exact measurements can be misleading. My typical test: "does it work for me?" In this case, YEP!

An interesting PTC feature is the ability to measure and evaluate links.

Typing SHow at the cmd: prompt gives current link state:

```
- LINK STATE -
ERROR-PACKETS: 24
REQUEST-PACKETS: 2
TRAFFIC-PACKETS (INCL. MEM-P.): 83
MEMORY-ARQ-PACKETS: 2
ERROR-CONTROLS: 7
REQUEST-CONTROLS: 10
TRAFFIC-CONTROLS: 178
```

Typing Phase at the cmd: prompt gives you current link phase shift:

```
*** TOTAL PHASESHIFT (X 0.045 ms): -34
*** INTERNAL CLOCK ADJUSTMENT: -5 /
DEFAULT: +0 PPM
```

REMOTE

Another feature is the REMote command. When set on (REM 1) it allows mailbox access and the PTC to be remotely interrogated. Some common commands are:

```
//Time //Read //Write //Phase //DAte //DELete
//DIR //FRee //HElp //LOg
```

Remote commands start on a new line, are preceded by two slashes, and end with the 'over' key. (\\HE ^Z) If REM is on, the PTC will respond appropriately and reverse the link back.

MAILBOX

A small personal mailbox with about 20Kb of static RAM is available in the PACTOR mode. The maximum number of files permitted is 31. It may be accessed remotely only when the REMote command is on.

Messages (files) are entered using filenames of less than 8 alphanumeric characters, (those in excess are ignored) and are uploaded or downloaded using the Write or Read commands. Local messages being entered are ended with the ESCape key. Uploaded messages are saved when the link is reversed or terminated.

Messages are reviewed by using the DIRectory command. I tested the message system and noticed no problems storing/reading either text or files.

ELBUG

Elbug is an expanded and improved electronic keyer program with some unique capabilities. It is integrated into the AMTOR/RTTY control functions and can also be used as an alternative to the keyboard.

When parameter LOCal is set to 0, keyed text is decoded and sent to the terminal for display. (Unknown characters appear as $) PTT output of the PTC is keyed by the CW code generated. A 500Hz sidetone is given through the internal buzzer. It is activated by setting parameter BUG to a value greater than zero. The value would be the CW speed in characters per minute. Setting BUG back to zero (BUG 0) turns ELBUG off.

ELBUG can operate AMTOR and RTTY modes by remote control CW (ERC), but this requires a lot of practice and is not for the faint of heart.

MY WISH LIST

The manuals could be better. Both assume you have proficiency with installing accessories and familiarity with digital modes. PacComm has given more thought to the manual organization with respect to installation by proceeding in a logical order. However, a few more diagrams would be nice. Neither manual has an index and my typical complaint about fixed binding applies, too. PacComm has a nice addendum about jumper settings and I'm sure to lose it.

I am a nut about grounding. Everything in the shack is tied to a common ground point. Neither unit has a ground screw; however, a lug can easily be placed beneath one of the rear cover screws for that purpose. Adding a ground screw may be a good idea. RF grounds on the PacComm could be a little tighter.

AMTOR operates OK, but RTTY could use some improvement. USOS implementation and U/L case switch should be added. AMTOR/RTTY seems isolated from PACTOR.

In PACTOR, it would be nice to see a display of the total path time, much as shown in the AMTOR mode. The SCS PTC that I received did not include cables or a power supply. It was a demo unit, so I do not know if they are routinely packaged with new units.

ATTA BOY!

The PTC's are built to run PACTOR, no doubt about that. The use of DSP, accurate tuning, good filters, robust Huffman, and excellent Memory ARQ, offers superior performance.

The ability to 'keep score' on PACTOR is great! It is possible to count the number of errors, the number of REQ's, the number of transmitted frames, or the number of Memory-ARQ reconstructed packets.

PacComm supplies cables with connectors as well as a power supply. Another plus about the PacComm is the availability of a plug-in VHF Packet option. All that's needed is a plug-in board and a new front panel escutcheon.

HOW DO THEY STACK UP

How do the PTC's operate? Very well, I would say. Good filters, superb Memory ARQ error correction, and rigorous Huffman implementation are the keys to the excellent PACTOR operation of these units. The analog Memory ARQ has a

SUSS of 20 with an efficiency of about 93 percent. Overall sensitivity is better than average. Tuning is sharp and easy.

There were no problems with either unit overheating after leaving them turned on continually for weeks. Neither unit locked-up at any time during a QSO.

The American made PacComm is more hardware friendly than the SCS PTC. External jacks are on the back to connect a CW key, or a scope. Also adjustments are available without opening the cabinet and there is a rear power (mode) switch. The German SCS PTC is more austere with only three jacks on the rear. There are no external adjustments or switches. From an RF point of view, the SCS PTC is more solidly constructed, with good metal-to-metal bonding and better grounds. You won't see much RF leakage into or out of the box.

Both units are rock solid when it comes to PACTOR. Baudot and AMTOR are there, but these units were designed for the PACTOR enthusiast. If PACTOR is your main mode, you won't be disappointed with one of these units in your shack.

The PacComm PacTOR Controller is available from PacComm Packet Radio Systems, 4413 N. Hesperides Street; Tampa, Florida 33614-7618 USA. Phone: 813-874-2980, FAX 813-872-8696, Tech support 813-875-6417, Orders Only: 800-486-7388. The advertized price is $295.00US and includes cable and power supply. An optional VHF Packet adaptor card is priced at $75.00US.

The SCS PTC is available from SCS Special Communications Systems, GmbH Roentgenstr. 36, D-63454 Hanau, GERMANY. Tel/FAX: 6181-23368. It is available as a complete unit for $339.00US or on a PC card (PC-PTC) for $295.00US.

Thank you for reading.

73 de **Phil, KB8LUJ** ■

May God Bless you and yours.

1. The X1 socket interface chart on page 57 of the SCS PTC manual was found to be incorrect. The correct pins are noted in the text.
2. For info on AMTOR Upper/Lower Case, see RJ, Jan 92, Vol 40, No 1, pp 4.

THE LINK

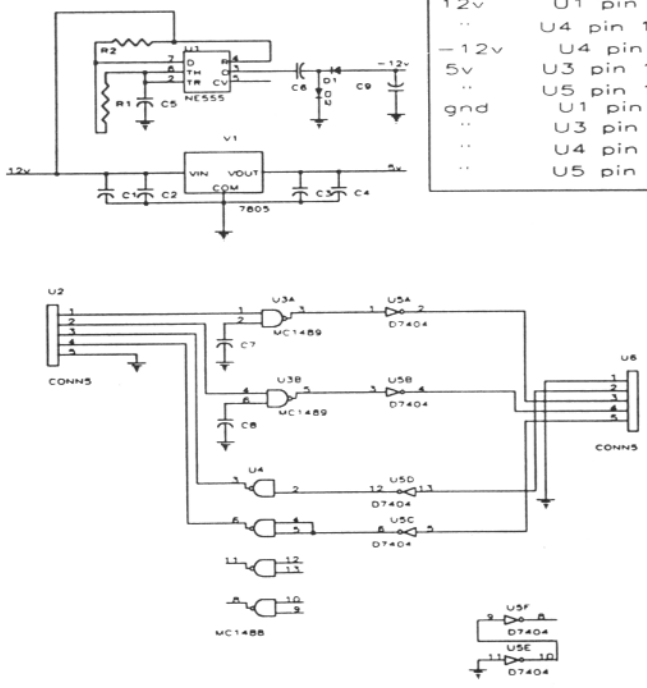
Jim Jennings, KE5HE
Rt 2 Box 165E
Hearne, TX 77859

Computer Control of Your Transceiver

More and more software in use by hams today has the capability to communicate with your radio. EXPRESS by TY1PS is an example. In addition Peter has written a SCANNER program to enable a scan feature. Both of these programs communicate to the radio through one of the serial (COM) ports on the computer. One of the obstacles in doing this is that the radio usually uses TTL levels on it's communication port and the computer uses RS-232 levels on it's port. There have been several articles in the past in the various ham magazines showing how to build a voltage converter that overcomes this obstacle. A suggested circuit is shown in the Help file of the SCANNER program. This month I will show a circuit suggested by Gary Kalata, KC4ES, in QST (SEP and DEC 1991) with minor modifications. In addition I have prepared a printed circuit layout in case you want to go that route in the construction of such a board.

Voltage Level Conversion

RS-232 signal levels are nominally -12v for a 0 and +12v for a 1. TTL levels are nominally 0v for a 1 and +5v for a 1. There are 2 relatively simple ways to make this voltage conversion. The first is to use the MAX232 chip. The circuit in the SCANNER help file uses this approach. I have made 2 voltage converters using that chip and they work fine. However the chip may not be easy for everyone to obtain. The other method utilizes the MC1488 Quad Line Driver and MC1489 Quad Line Receiver. These chips are stocked by Radio Shack. In order to use the MC1488 a -12v supply is required. An on board DC to DC voltage converter can be made rather simply using a NE555 timer chip. I will use the MC1488/1489 chips in the converter presented this month.



12v	U1 pin 8
..	U4 pin 14
-12v	U4 pin 1
5v	U3 pin 14
..	U5 pin 14
gnd	U1 pin 1
..	U3 pin 7
..	U4 pin 7
..	U5 pin 7

U6 Connections

pin	Signal to Radio
1	gnd
2	TxD
3	RxD
4	CTS
5	RTS

U2 Connections

pin	Signal to Computer
1	TxD
2	RTS
3	RxD
4	CTS (see Text)
5	gnd

Ports List

R1	10K
R2	100K
C2, C3	0.01MFD
C5	0.001MFD
C1, C4, C6, C9	10MFD
C7, C8	330pFD
D1, D2	1N4001
U1 Timer	NE555 (276-1718)
U2, U6	5 pin connector
U3 Line RCVR	1489 (276-2521)
U4 Line DRV	1488 (276-2520)
U5 Hex INV	7404 (276-1802)
V1 5V REG	7805 (276-1770)

Figure 1

Voltage Converter, RS-232 to TTL

The Radio Requirements

The requirements for the Yaesu and Icom are different from the Kenwood. The Yaesu and Icom use normal signals while the signals to the Kenwood must be inverted. A 7404 Hex inverter is included on the board to provide for the inversion required by Kenwood radios. The same board may be used for Yaesu or Icom by removing the 7404 chip and replacing it with a 14 pin header adaptor on which pins 1-2, 3-4, 5-6, and 12-13 (4 jumpers) are connected. Refer to your radio manual for the connections to the computer port. The signals to the radio are on U2 as described in Figure 1.

The Circuit

U1 operates as an oscillator at about 7 kHz delivering a sawtooth voltage waveform to the output (pin 3). This is rectified by D1 and D2 and smoothed by C9 to make the -12v needed for U4. Regulated 5v is provided by V1 and associated circuitry. U3, a MC1489 line receiver, changes the level of signals coming from the computer, from RS-232 to TTL. Similarly U4, a MC1488 line driver, changes the level of the signals going to the computer from TTL to RS-232. U5 is a hex inverter that inverts the TTL signals for compatibility with the Kenwood radios. Again, this inversion is not needed for Yaesu or Icom. Unused inverter inputs, pins 9 and 13 of U5, should not be left floating but connected as shown in the schematic.

Making the PC Board

I use a material sold by Dyna Art Designs, 3535 Stillmeadow Lane, Lancaster, CA 93536, phone (805)-945-4746. A package of 5 sheets costs' $14.95 plus shipping of $4. This is an iron on material that I find works very well on small boards. You copy the circuit (Figure 2) to the paper with a Xerox type copier or Laser printer. I cut a small piece of the material and tape it to a blank sheet of paper so that I don't use too much of the material. After reading the instructions for the material, iron the circuit on a clean copper-clad board. The paper backing is then dissolved off by placing the board and paper in water for a minute or so. The etching is done in the usual manner. Parts placement is shown in Figure 3.

Connecting to the Computer

It seems that about every application needs different signals from the computer. If you use EXPRESS, hook up only TxD and RxD at the computer end. However, DSR on the computer (pin 6 of the DB-25) needs to be held high. This can be done by connecting pin 6 of the computer connector to 12v through a 4.7K ohm resistor. For this option, make no other connections to the DB-25 except for ground. These connections also work with version 2.08 of the SCANNER program, but I understand that is soon to change.

If you wish to interface with programs that need to use hardware handshaking (they use RTS/CTS), then hook up all 4 lines to the computer. In addition put a jumper at the voltage converter end to connect pin 6 (DSR) of the computer to pin 5 (CTS) of the computer. To get a better understanding about what the different RS-232 signals do get the RS-232C and COMPORT booklet published by the RTTY Journal. It is listed in the Classified Ads.

Summary

I hope you have success with this circuit. If you use your computer along with your radio you will have fun. Try writing some simple Basic programs to control your radio. You will find that it is fun.

73 and GOD BLESS

de **Jim, KE5HE** ■

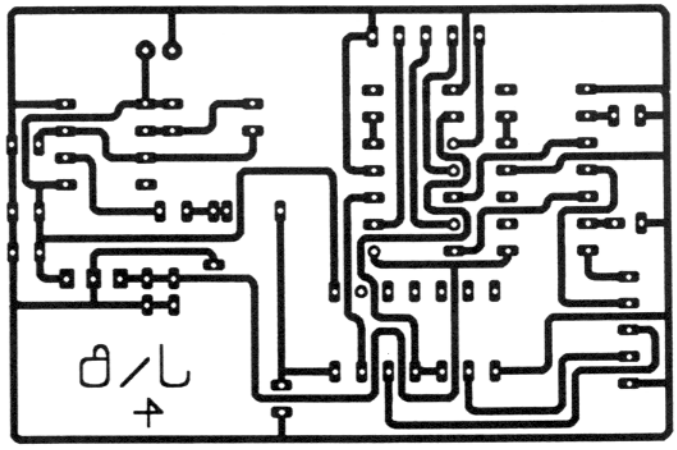


Figure 2
PC Board Layout

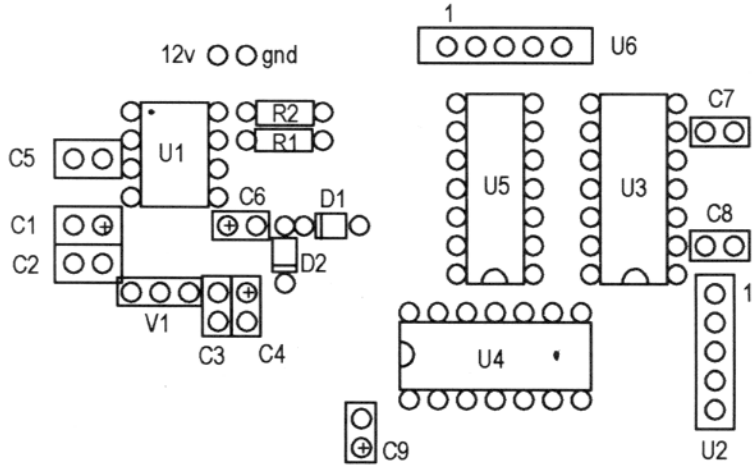


Figure 3
Parts Placement, Voltage Converter

For Macs Only

A Review of Marathon 2.0 Software for Macintosh Computers

by Tom Delano, NR1J[1]

There are times in Ham radio when being a Macintosh enthusiast can be lust plain frustrating. For me, one of those times was four years ago when I heard Ken Wolff, K1EA, speak to the Amateur Special Interest Group of the Boston Computer Society. I listened to Ken describe using CT, the leading Ham radio contest program for DOS computers, in the 1987 CQWW CW Contest and I was swept over with feelings of envy and regret. Envy for Ken's magnificent station and antenna system that was all tied together with CT that allowed Ken to take top US honors in the single operator, all band category. Regret when Ken answered "never" to my question "When will CT for Macintosh be released?" Hearing Ken's answer that evening almost convinced me to sell my Macintosh and buy a DOS computer. Fortunately, however, I came to my senses and about a year and a half later my patience was rewarded with the release of the first version of Marathon, The Amateur Radio Contest Software for Macintosh. Marathon was written by Kevin Krueger, N0IOS, with the help of his son Tim, N0ILS.

System Requirements And Capabilities

Marathon 2.0 presently supports the following contests: ARRL DX Contest (phone and CW); ARRL Sweepstakes (phone and CW); ARRL Field Day; ARRL 10 Meter Contest; CQ WW DX (phone and CW); CQWW WPX (phone and CW); IARU HF World Championships; JARL All Asian contest. The ARRL RTTY Roundup and the CQWW RTTY Contest were added to Marathon 2.0 with all digital modes except PACTOR supported.

Marathon will run on any Macintosh computer running system 6.0.2 or higher with 1 MByte of RAM and 3 MBytes of hard disk space. I run Marathon on both a Macintosh Classic (4 MB/80 MB HD) and a PowerBook 180 (9 MB/80 MB HD) under system 7.1 and have found it to be very stable and runs at about the same speed on both computers. The reason, I believe, Marathon runs fast on both Macs is that Kevin originally wrote Marathon on a Macintosh Plus using Symantic's Think C development software and so the code was optimized for the slower 68000 based machines. This is good news for hams on a limited budget since many of the older 68000 based Macs (Mac Plus, SE, Classic) are now widely available on the used market for around $500. Marathon has many of the same features CT users depend upon such as: separate and sizable windows for log pages, dupe sheets, countries, zones, sections, and QSO rate per hour; real time dupe checking with automatic dupe display; interface with Kenwood and Yaesu rigs for reading frequency and mode data; packet interface for DX spotting; RTTY/CW interface with PK-232, KAM, MFJ-1278 and other mutimode controllers; numeric keypad memory for contest exchanges; standard printed reports and graphs for each contest; file export for electronic submission of contest results to ARRL or CQ. These features and others will be discussed in greater detail later in this review.

Pre - contest Setup

A day or so before a contest I usually spend a half hour preparing Marathon for the contest. This involves opening Marathon to the first screen and selecting the contest icon and creating a new contest log file. Marathon will ask at this point, if the new log is for phone or CW if it is a multimode contest. A Marathon log file, by the way, will store up to 9,900 log entries-far more than I need! The entry window will next come on the screen for entry of all contest exchanges. I next scroll down the Contest Menu and enter my station setup which caries by contest but usually includes: call; name and address; entry category; power class; ARRL section or CQ zone; license class etc. I then scroll down to Time Setup and set the contest start and stop dates and times and the UTC time difference. Setting up the Rig interface menu is straight forward - just select the rig (TS-940 in my case) and serial port (I use the printer port) and click "OK" and mode and frequency are displayed in the entry window. The setup of the RTTY/CW interface is quite easy also. Just select the serial port (modem port in my case), and Baud rate, data bits, stop bits, parity, flow control and local echo and click "OK." Marathon sends straight ASCII characters to your multimode controller which is set in RTTY, AMTOR or CW mode. Since Marathon acts as a "Dumb Terminal" you must make sure your multimode is not in KISS or Host mode. Unfortunately, most Macs have just two serial ports, so depending on the contest and how you wish to operate, you will need to choose the serial port functions (rig interface, RTTY/CW, or Packet DX spotting). Setting up the Packet interface is identical to setting up the RTTY/CW interface and Marathon will work with all of the popular Packet TNCs.

Numeric Keypad Memory

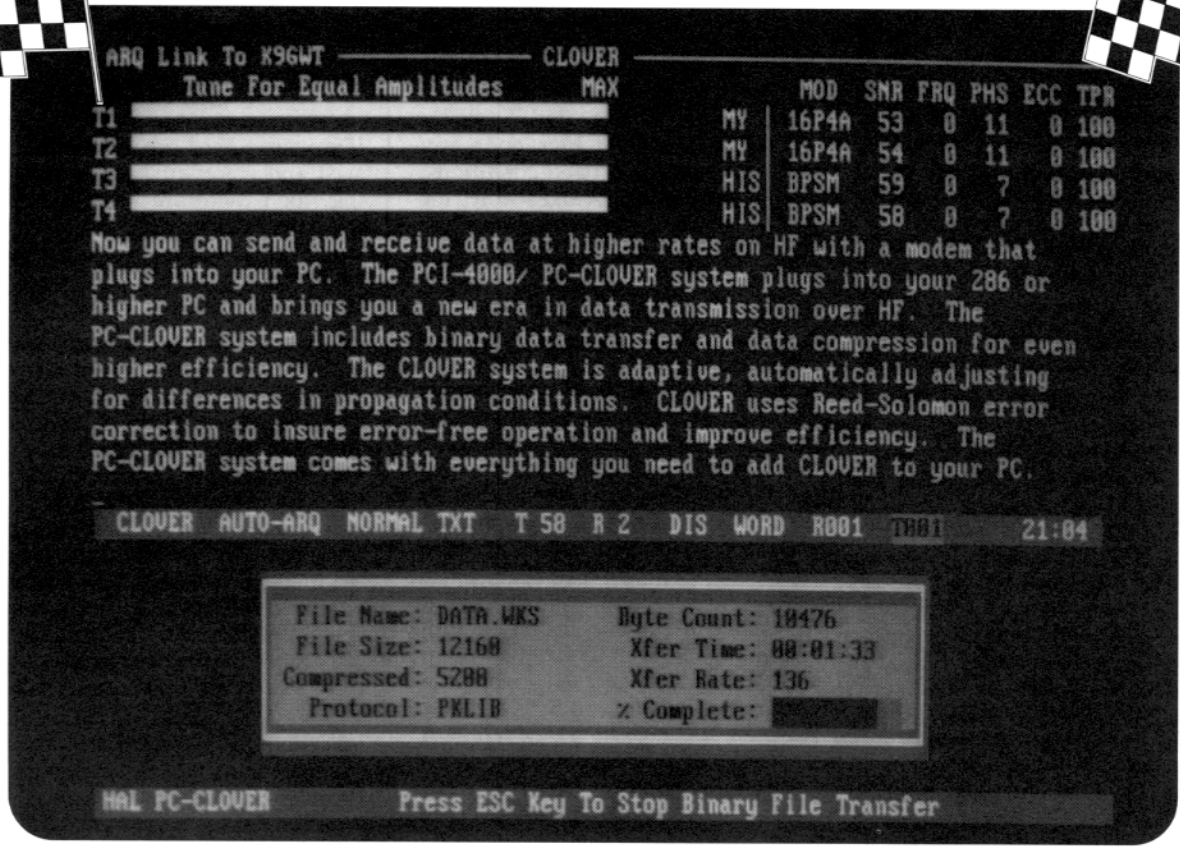
A powerful feature in Marathon is the ability to create and save text strings that may be recalled using the keys on the numeric keypad or with the mouse. In RTTY and CW contests I store the exchange; long and short CQs; QRZ and so on. When "@" and/or "$" are included in the memorized text string, Marathon will automatically insert the other station's callsign and report in the exchange. Marathon allows you to include control characters in the memorized text string so you can issue commands to your multimode controller (transmit or receive for example) or to insert a CR/LF or space. Lastly, you can set up the memorized text string so that text or multimode controller commands may be entered directly from the keyboard. This feature can be used to change the CW sending speed of a PK-232MBX for example, by issuing the MSP command and then typing in the sending speed in words per minute.

RTTY or CW Contest Use

After the pre-contest and keypad memory are set up you are ready for the fun to start. I position the entry window at

Click & Drag Feature Enhances Program!

HAL DOES IT *FASTER*



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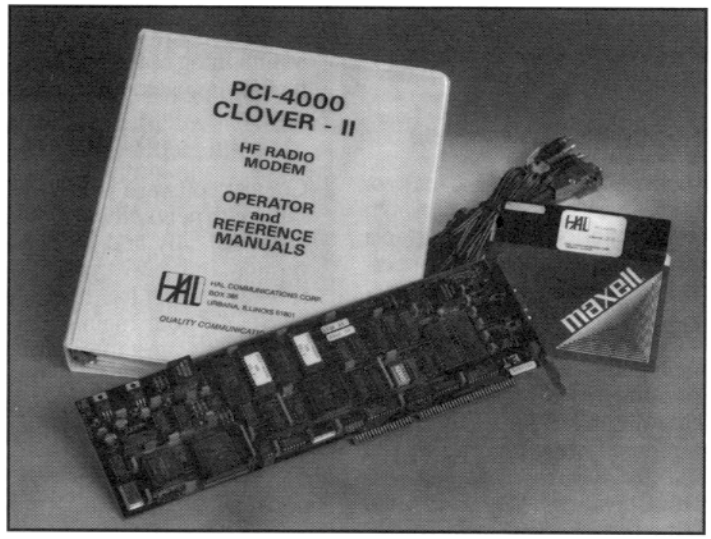

HAL Communications Corp.
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FAX (217) 367-1701

CIRCLE 140 ON READER SERVICE CARD

the top of the screen and the RTTY receive window right underneath the entry window. The keypad memory keys are a part of the RTTY window and memories may be activated either by keyboard or using the mouse. Kevin incorporated the "click and drag" feature in version 2.0. This powerful feature allows you to highlight text in the RTTY window such as the calling station or your report and click on it with the mouse and drag it to the corresponding field in the entry window. Instead of dragging the highlighted text, you may also use a command key equivalent to move the highlighted text to the entry window field.

Using keypad memory and "click and drag" together in the 1992 CQWW RTTY contest proved very effective and allowed me to sustain QSO rates of over 60 per hour on 15 Meters with the beam on Japan. The typical exchange was a QRZ from me followed by a JA calling. I highlighted his call with the mouse in the RTTY window and then typed "Command 5" to move his call to the station field in the entry window. I then pressed the number 2 on the numeric keypad to send my exchange with his call and report embedded in the text string. Once I received the other station's exchange and typed in my report, I would hit enter key, log the contact and then the number 3 on the numeric keypad to send out another QRZ to start the next contact. If the station happened to be a dupe, Marathon would alert me and bring up the log page showing our previous contact. Hunting for multipliers is fun with Marathon, since it shows you each new multiplier as soon as the call is entered into the station field. Partial call lookup is possible if only part of a call is copied. During the contest, log pages may be edited at anytime and rest periods may also be inserted.

Using Marathon in CW contests is much like RTTY contests. The "click and drag" feature is of less use because I type into the entry window the station and report information.

Post-contest Reporting

The real benefit, it seems to me, of programs like Marathon and CT comes in the post contest period. These programs have removed the drudgery of paperwork that kept people like me from actively contesting. I deal with paperwork all day at the office, so why do I want to spend my evenings doing more paperwork when what I really want to do is operate? Marathon has for each contest, all of the report forms required by the contest sponsor. Kevin has done an excellent job at creating electronic forms that are virtually identical to the paper forms that have been used for years. Once the contest is over, you simply print the forms, sign the summary page and put them in an envelope for mailing. The contest log file may be exported to a formatted DOS disk using Export menu item. I use the AccessPC software from Insignia to format a DOS 3.5: floppy disk in the SuperDrive found in all Macs sold in the past 4 years. Another nice feature in Marathon is the Note Pad. I usually record, as soon as the contest ends, any thoughts I have about band conditions, operating technique, DX and so forth for future reference. These comments are saved with the contest log file.

Documentation and Support

Marathon comes with an excellent 50 page illustrated manual that covers all aspects of its use. The manual is very well written with supporting illustrations of key dialog boxes, menu choices and windows placed within the text. In the appendix is found: a summary of the contests supported by Marathon; a listing of ARRL/CRRL sections; a listing of states and provinces; a listing of keyboard command keys. Since connecting the Macintosh to devices through the serial port is still somewhat of a "black art", Kevin includes in the appendix a brief review of the Macintosh serial interface with cabling diagrams for Kenwood and Yaesu transceivers and the Kantronics KAM.

When you place your order for Marathon, Kevin asks for the coordinance of your QTH and your call. He then ships your copy with this information embedded in the software so that beam headings, distances (both mi. and km) and your grid square will appear in the entry window when the DX call is entered in the station field. Packed in with Marathon is an application program that allows you to calculate new beam headings and distances should you ever change your operating location.

Maintaining Marathon country and prefix files is covered in the manual also.

Wish List

Contest software is a rapidly evolving field with new software features appearing constantly and Marathon is no exception. In the two years it has been for sale, Marathon has had one major upgrade and four maintenance upgrades, so it is also constantly evolving and improving. After using it in twelve contests in the past years, I have put together a wish list for future Marathon upgrades:

- Expand the contests supported to include the ARRL 160 Meter Contest, BARTG and SARTG.
- Add a feature to allow the printing of QSL labels directly from Marathon
- Expand the export file format options to include such formats as K1EA.RES and DX-Base
- Add support for color as more and more low price color Macs find their way into Ham shacks.

Conclusion

If you are a hard core Macintosh enthusiast and enjoy amateur radio contesting, then there are very few amateur radio contest programs for you to choose from. Marathon is with out doubt the best contest program presently available for the Macintosh.

Kevin sells a demo version of Marathon with the manual so you can see yourself the many features of Marathon. The demo software alone is available on America Online and many Mac-oriented PBBSs. The demo version is exactly like the full version except it is limited to only 25 records in each contest file. Should you wish to trade up from the demo to the full version of Marathon, Kevin will credit the $8.00 price of the demo against the $59.95 price of the full version. So far, the charge for major upgrades of Marathon has been very reasonable - just $12.00

Marathon can be ordered directly from: Kevin Krueger, N0IOS, 1780 Ruth St., St. Paul, MN 55109

I enjoyed this project and I look forward to doing more of this type of report as time permits.

de **Tom, NR1J** ■

1. 97 South St., Duxbury, MA 02332

About the Author

First licensed in 1969 as WA0WWM, in Minneapolis, MN. Active on digital modes since 1970 when a ham friend was drafted for military service a left Tom a Model 15 TTY machine and Twin City TU for safe keeping and use. Current ham activities include rag chewing, contesting, and chasing DX as time permits. When not in the ham shack, Tom is Director of Planning and Development for D.C. Heath & Co. Heath is a major publisher of textbooks for elementary schools, high schools and colleges.

ED: Thanks Tom for submitting this fine article for Macintosh users. I'm sure everyone appreciates your efforts. I also hope this article will spur other Mac users to share their experiences with us. How about it guys and gals?

CLOVER

Jay Townsend, WS7I
P.O. BOX 644
Spokane, WA 99210

So long Dick! Its rather ironic that after reading someone's column in the RDJ for a number of years and then meeting them in Dayton, you really don't think of a parting. Lucky for me, Dick and I should be having keyboard to keyboard VHF packet QSOs before long.

The mailbag is totally empty this month. However, I did receive a couple of notes from Charles, N4SO on MciMail and he was interested in getting some info on the various land line BBS systems and how to use them. I have passed that along to Mike, KI7FX, and he has promised to review using the ADRS BBS and the HAL Communications board.

ADRS BBS Hints

Here are some experiences from N4SO; downloading files from ADRS is a bit confusing! These ideas might help. When connecting to the ADRS BBS the main menu does not give the file menu. The letter "F" will bring up the file menu listing, the letter "L" will list the files, and the letter "D" will do a download. At the command prompt hit "D" for download. You will see file # 1 ... It is looking for a file name. If you want to download WIN.EXE, type WIN.EXE. You will then see, please begin your Xmodem download now... Hit the key to begin downloading that is appropriate for your software. You may also automatically logoff by hitting enter, DE N4SO NNNN.

The ADRS BBS choice of Wildcat doesn't exactly sit well with me. I plan to beat up on the sysop when I meet with him in a couple of weeks! But like all things it takes a while to get complicated systems established and many are using the ADRS BBS daily.

The News

Had my monthly search out for the breaking news in the Clover World but haven't seen much. Hank, W0RLI has been working hard on a couple of new things. One is compression and this improvement is ready for release. My sources indicate that Hal Communications is busy working on cleaning up some of the Clover source code and nothing else is new or expected in the coming quarter.

Hope that all of you saw the fantastic new Hal Communications Advertisement. That's a real speedy looking new campaign to go with quite a speedy digital product.

CLOVER was used in at least a couple of cases in the Simulated Emergency Test in September. Spokane originated quite a batch of traffic that came from officials and ARES (Amateur Radio Emergency Services) groups here in Spokane and the eight surrounding counties. As an OES (Official Emergency Station) here at WS7I it was quite an exercise and CLOVER performed without flaw in moving the traffic. Thanks WA7SJN.

Each of you CLOVER operators not involved in the daily moving of traffic should reach out and establish contact with a CLOVER station across the state or in a neighboring state. That way you can have all the necessary paths for forwarding established in case of emergency. I would be interested in any emergency or SET details from CLOVER users.

AA4RE BBS

This month I want to take a look at the AA4RE PBBS (packet bulletin board system) and how it's working with CLOVER. This is one of the long time standard BBS systems that has been used in Packet for both HF and VHF for many years. Roy Engelson, AA4RE is the author of the program. This program is currently in beta form which means it probably has a few remaining "gotchas".

Where To Get it

AA4RE software can be obtained by downloading from the following telephone BBS systems: WA6RDH BBS 916-678-1535 at 300-9600 N81 V.32/V42/V42.BIS/MNP5. WB3FFV BBS 410-661-2475 at 1200-14400 N81 V.32/V.32BIS/V.42/V.42BIS/MNP5/ HST. User login is "BBS". The software is also loaded onto the following server accessible thru the Internet at ucsd.edu.

Hardware

In order to run AA4RE with CLOVER you will need the following hardware: Computer clone AT 286 or above with at least 640K of memory. TNC for the VHF side must have WA8DED Host Mode EPROMS (available for TNC-1,TNC-2s (+clones), AEA PK-87) or AEA PK232, PK87, PK88 or DRSI PC*PA card and software. Plus the Hal Communications PCI-4000 for CLOVER.

Software

You need the following software: DOS 3.0 or a later version. I would recommend at least DOS 5.0. If you have a KAM or other TNC not on the list or if you want your TNCs in KISS mode, use the G8BPQ Node software instead of MBBIOS. I plan to discuss the G8BPQ node software in an upcoming column.

AA4RE comes with a number of document files which explain in rather great detail setting up the files for the system and modifying the various parameter files and forwarding files. The most important initial help files is install.doc.

A hint that is contained in the documentation is to establish communications with your TNC at a speed of at least 4800 baud. I would urge all of you to use at least 9600 baud and if possible even higher. It's time the world of digital communications to get used to ordering serial ports which have the 16550 instead of those 16450s. I think serial card problems are the reason why the majority of "modern" users have such difficulties.

AA4RE Changes

The beta changes are: with his new DPMI mode you can break the 640K barrier, Binary messages, New parameter (HOLD_DUPLICATE_MIDS) which allows improved duplicate checking without risk of losing a message, and CLOVER is included.

Clover & AA4RE

Quoting directly from the AA4RE doc's "AA4RE BBS now supports the HAL-4000 CLOVER card. A typical port would look like the following.

Port:

```
port_type              = HAL4000-CLOVER
addr                   = $360
max_connect            = 1
max_channel            = 2
call_set               = AA4RE
no_busy_fwd            = yes
max_pac                = 230
speed                  = 9600
max_pending            = 1
monitor                = yes
time_out               = 180
fwd_min                = 0
minimum_class_allowed  = new_user
remote_sysop           = Y
upload_download        = Y
broadcast              = n
port_name              = Clover
monitor_color          = 121
disconnect_delay       = 10
default_forward_order  = TA
new_user_display_format= 0
remove_ssid_addresses  = y
```

Endport

The following commands are available:

** These commands take a parameter of a callsign*

C xxxxx -- Connect normal to xxxxx

CN xxxxx -- Same as C

CR xxxxx -- Connect robust to xxxxx

I xxxxx -- Set callsign

** No parameters allowed on these commands*

D -- Disconnect

CQ -- Start ARQ CQ

FEC -- Begin FEC mode

ANSWER -- Answer ARQ CQ

ID -- Send CW ID

** Query Commands (no parameters)*

Q CSDN -- Query channel spectral data (narrow)

Q CSDW -- Query channel spectral data (wide)

Q CSTAT -- Query channel statistics

Q LS -- Query link state

Q VSB -- Query voice subband

Q WAVE -- Query clover waveform

Q DSPV -- Query DSP software version

Q CSWV -- Query controller software version

Q EPROMV -- Query EPROM version

Q EPROMC -- Query EPROM checksum

** Monitor -- special parameters*

M N -- Monitor off

M xxxx -- Monitor on. xxxx can be one or more letters from list below:

L -- Link status

S -- Channel status

I -- Data from other QSOs but only when not connected

Wave form setting -- special parameters

WAVE CWID -- These set the waveform

WAVE 2DFSM

WAVE 4DFSM

WAVE FSM

WAVE 2DPSM

WAVE BPSM

WAVE QPSM

WAVE 8PSM

WAVE 8P2A

WAVE 16PSM

WAVE 16P4A

WAVE SIZE nn -- Set the blocksize to 17, 51, 85, or 255

WAVE FEC nn -- Set the error correction to 60, 75, 90, or 100 %

** These commands set a numeric parameter*

P n -- Set chat threshold

RLRM n -- Set robust link retry maximum

NLRM n -- Set normal link retry maximum

CCBRM n -- Set CCB retry maximum

VSB n -- Set Voice subband

BIAS n -- Set bias

SCAN n -- Set scan mode

** These are on/off commands.*

b = 1 or Y or YES or ON

b = 0 or N or NO or OFF

Y b -- Allow connect

RCS b -- Report channel stats

ARPA b -- Automatic Remote Power Adjust

ACWF b -- Adaptive Clover Waveform

CWID b -- CW ID every ten minutes

LISTEN b -- Enable monitor of FEC

EMS b -- Enable Monitor Status

TEST b -- Start/stop Clover test

The version of AA4RE that I have been setting up is 2.13K which I downloaded from Internet. I have been attempting to reach the author to determine what the current version is which I assume is a later date. Next month I will report on how the AA4RE stacks up on an actual installation.

This CLOVER column has already worked through the available software and I have been reporting all the latest news as I find it. Price decreases have made more and more boards available to those of you out there in digital land. With the mailbag pretty empty I will be moving along to discuss other items of interest in this column over the coming months. January of 1994 will mark a new year and there are many things that I find of interest and have been working on. Some of the upcoming things will be a series on Packet for the newer user, a look at G8BPQ, and of course the latest in CLOVER will always be the main focus.

73 from the left coast.

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HARDWARE

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Greetings once again to all RDJ Readers. I hope this months HARDWARE column finds you well. Nancy and I would like to wish everyone a Happy Thanksgiving and pass along our best wishes for the upcoming holiday season. We hope that you have much to be thankful for this year, as we do. It sure has been an eventful year for us, and next year can only be better!

Well, my mailbox is fast becoming the highlight of my day (second only to the UPS guy), as I have received quite a few letters from RDJ readers. Thanks to all who took the time to write with your questions and suggestions. I will answer all personally, and will design a few HARDWARE columns around those items that are of interest to all of us. Keep those (QSL) cards and letters coming!

Although the propagation gods haven't given us everything we have asked for, there have been a few openings of notable significance. Unfortunately, they haven't been within the last month or so. This months HARDWARE column was originally planned for a down and dirty review/comparison of the AEA PK-232 and the Kantronics KAM Plus, but I must hold off on a final decision for another month. I just haven't had enough opportunity to analyze signals. You know, Murphys Law - When you need DX, you won't have any. When the HF bands start folding, it's time to move up a little in frequency.

I have finally completed my satellite station and am happy to report my first QSO through OSCAR-13. It took place on October 30th at 0443Z with Roger (ZF1RC) in the Cayman Islands. Immediately after talking to Roger, I contacted Manuel (C9LAJ) in Mozambique. Working the satellites is a lot of fun and it is just like working any other DX, only it's "predictable DX" - You know WHEN the satellite is in view and what it's doing at any given time. This is certainly a fun mode and I hope to get digital on the birds soon. While waiting for the sat's to make a pass, I tried to tune in VE3ONT's Earth-Moon-Earth (EME) signals during the first week of October and again the first week of November. I am happy to report that on both occasions I heard VE3ONT's signal bounce from the moon on 432.05 Mhz, but was unable to make a successful QSO with them. This has been a busy month for VHF/UHF work around here. With Space Shuttle Mission STS-58 just ending, there were numerous opportunities for an FM QSO during their orbits. Did you get a chance to talk to them? Another easy "space" contact is the MIR space station on 145.55 Mhz (Packet). Just tune your radio to the correct frequency and wait. Without using any space tracking system, it is not possible for you to tell exactly when MIR is overhead, but if you leave your packet rig up and running, you WILL hear it (use an outdoor antenna of any type). Try and connect to R0MIR-1 when you hear it's packet bursts. Remember that MIR's mailbox can only handle one user at a time and numerous "connect" requests slows the system down for everyone. Just like HF - If you can hear 'em, you can work 'em!

This month, I am not going to review any particular HARDWARE product or device but instead will give a brief discussion on navigating and using land line Bulletin Boards, and specifically, the ARRL BBS in Newington, CT. This may be an old hat to some, but there are others who are a bit intimidated by logging on and using a BBS that is unfamiliar to them. For some, logging on to a new BBS is like driving through the shopping district at high speed during rush hour. Believe me, BBSs are not so bad, and in all cases, they understand and encourage new users. The first call is always the worst! Two things to remember that apply to all BBSs: You can not, damage the BBS you are calling by pressing the "wrong" keys. If you type something that the BBS doesn't understand, it will tell you. Don't be worried about pressing the wrong key and getting the System Operator (Sysop) upset. The second rule of BBSing is that you are a guest in someone else's computer and you should conduct yourself accordingly. Some BBSs have limits on the files you can receive (download), while others don't care. Just remember to be sensitive to your host's requests.

The other thing you will need to access a BBS is a telephone modem and a number to call. As for the modem, there isn't any excuse for not having one these days. Any respectable computer user should have a modem, right? A 2400 baud modem these days can be picked up for 30 bucks or less. I know of one Ham who has quite a few 2400 Bauders just gathering dust. Don't worry about 2400 Baud being too slow, it's plenty fast for most systems. If you are planning on doing a lot of file and message transfers, a high speed modem would definitely be the better way to go, but again, not necessary. If you are considering the purchase of a high speed modem or are thinking of upgrading, there are some real bargains on 14.4K Baud modems. I have seen high quality Modems selling for less than 130 dollars. I recommend you skip over the 9600 Baud modems and go right for 14.4K Baud. Check with your local computer retailer for the latest prices. If 14.4K Baud is more than you need, a 2400 baud is still a respectable modem at a fraction of the cost of high speed models. About 70 percent of my callers dial in with 2400 Baud modems, so they are still quite popular. I remember when 300 baud was pretty fast. As for finding a local number to call, again, check with your computer retailer or Ham club. They will have numbers of BBS's that you can access without long distance charges. Once you are into a system, check for a "Local BBS Listing" or something similar and write down numbers of BBS's that look interesting to you. There are BBS's that cater to Hams, Poets, Animal Lovers, Computer Wizards, Game Players, or just about any other topic you can imagine. Be adventurous and try different systems - it is a lot of fun!

* THE ARRL BBS *

Let's take a look at the ARRL BBS. First of all, you will need a terminal program for your PC. Usually, when you buy a modem, there is a communications program of some sort included with the purchase. If not, check with other Hams in your area for a Shareware terminal program - There are hundreds of them. If you use MS-Windows, you have the TERMINAL program already on your system. They are very easy to get up and running. Start your terminal program and set the communications parameters to 2400 (or faster if your modem supports it), No Parity, 8 Data Bits, and 1 Stop Bit (2400 N-8-1). The telephone number for the ARRL BBS is (203) 666-0578.

```
FILES MENU
* * *  American Radio Relay League  * * *

Q uit to Main                 L ist Available Files      D ownload a File
                              N ew Files Since [N]       V iew a ZIP File
M essage Menu                 T ext Search for Files     G oodbye & Logoff
R ead a Text File             S tats on Up/Downloads     H elp Level
I nfo on a File               J oin a Conference
E dit Marked List             F ile Transfer Info        ? Command Help
```

When you initially log on to this, or any BBS, they will ask you a few questions about yourself. This information is requested only so the System Operator (Sysop) knows who you are and what type of terminal settings his systme can expect. Once this step is complete, you will not need to re-enter this information again. You will see bulletins and other welcome information, and will be placed at the MAIN MENU area. Take a few minutes and look at the main menu as it will determine where and how you can navigate through the entire system. Most systems have areas for MESSAGES and FILES as a basic minimum. The ARRL BBS for example (pictured), lists separate Message and File Areas in addition to quite a few other choices. The ARRL uses "Wildcat" BBS software, produced by Mustang Software, Inc. Most Wildcat systems look and act the same, so if you log into one Wildcat system, you will be familiar with other Wildcat systems.

As you can see from the MAIN MENU, you can branch off into numerous different areas of interest. No matter where you navigate into the BBS, or how far you get, you can always return to the Main Menu, usually with a single key (like "Q" for "Quit to Main Menu" as shown). Additionally, if you don't understand a particular feature, you can always request help - enter a Question Mark a help file will be displayed. Select the "Message Menu" and you will be presented with some new choices for accessing messages. A Ham BBS's message base is one of the greatest resources we can have. If you have a question about a particular topic, there is a good chance someone else around the world has asked the same question. Don't overlook the Message Areas!

From here, we can Read Messages, Scan Messages, Enter a New Message, etc. I recommend you begin by selecting "R" to begin reading messages on the system. The BBS will ask: "Starting From [1-300]" and you can enter a random message number to start reading from, or just select number 1 to start with the first message. From here, you can just keep hitting the "enter" key to continue reading messages. When you find something of interest to you (and I am sure you will), Just enter an "R" and Reply to the message. The prompt at the bottom of your display will always give you the valid options to select (including Help).

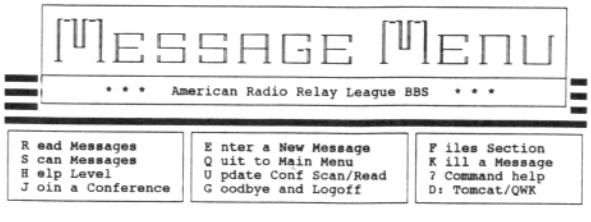
* OFFLINE MESSAGE READERS *

A nice feature of the ARRL and most other BBS's is the use of an offline message reader (Item D: Tomcat/QWK). The offline reader allows you to pack up messages from your areas of interest, download them, then read and reply to them later, while you are logged off the system. You then call back and upload your "reply bundle" (when the rates are cheaper). You will need offline reader software to perform your reading and replying. The ARRL BBS offline reader supports any QWK format reader, and BlueWave seems to be the most common. The QWK format is widely used and you will find your reader will also work with PC Board, Maximus, Remote Access and other BB Systems. Two other popular offline readers are SLMR and OFFLINE. You can get an off line reader in the File Area of the BBS. These readers greatly reduce your online time and make reading and replying to mail much easier.

For most people, accessing thousands of Shareware (try before you buy) and Public Domain computer programs is the main reason for calling a BBS in the first place. The ARRL BBS has hundreds of files available for downloading (receiving in your computer). From the Main Menu, select "F" and you will be presented with the Files Menu.

The first thing you should do is find a file you want by "Listing Available Files". Select "L" and the BBS will ask which file area you want to see. Most BBS's have numerous file areas, sorted by topic or some other method of organization. The ARRL BBS has 16 different File areas to select from:

1) UPLOADS
2) IBM PROGRAMS
3) UTILITIES
4) GENERAL
5) BULLETINS
6) ARRL SECTIONS FILES
7) NEWSLETTERS AND RELATED FILES
8) CONTESTS
9) EMERGENCY COMMUNICATIONS AREA
10) AMATEUR RADIO EQUIP 4SALE
11) LOST/FOUND/STOLEN
12) THE AMATEUR SATELLITE SERVICE
13) THE ARRL FIELD ORGANIZATION
14) AMATEUR RADIO PAINTBRUSH FILES
15) TCP/IP
16) Technical



Once you have found a File Area you are interested in (or just hit enter to list files in ALL areas), you will receive a two line listing of each file and a description of what the file is all about. When you see something that interest you, write down the name exactly as it appears. Always keep an eye on the status line at the end of each page of information that is coming into your terminal. It will tell you to hit "C" to continue or "S" to stop (plus other options). Pick out as many files as you would like to try out. The nice thing about ShareWare is you can try it out without putting out your hard earned money. Once you have written down all the files you would like to receive and returned to the File Menu, you can select "D" and download (receive) the file you want to your computer.

This is where it can get a little tricky, but it is by no means hard to do. After you have requested to Download a file, the BBS will ask you to enter the file name of the program you want to receive. Enter the file name exactly as you wrote it down earlier, including the file name extension. It will search through it's files, and report the size and the time it will take to download the file. It will then ask if you want to automatically log off after the download, and you can make your choice with either a Y or N. At this point, a lot of people get confused when asked about the (File Transfer) Protocol. Just about all comm programs (Telix, Q-Modem, Procomm, etc) support what is called X-Modem Protocol. It is not the fastest, but it is easy and the most common. If your terminal software supports Z-Modem or other high speed transfer protocols, I recommend you use it. For the sake of this discussion we will use the old reliable X-Modem protocol.

Please select a protocol:

[A] Ascii
[X] Xmodem
[C] Xmodem/CRC
[Y] Ymodem
[Z] Zmodem
[O] Xmodem1k

Select X-Modem (or Z-Modem if your terminal supports it). Once the BBS has accepted your request, you will see a command that says "Please begin your Zmodem download now, Ctrl X to abort..." Now you MUST put your terminal in the file receive mode. Different terminals require different keystrokes,

but the most common are by pressing Alt-D (for Download) or the PgDn (Page Down) key. You are prompted to enter the file name again, but this time your terminal is requesting the name so it knows where to store the file on your computer. Again, type the name exactly as before and hit enter. The file is now on it's way to your computer. If you are using Z-Modem or similar high speed transfer protocols, you can skip the above step as the file will automatically start to download. You can usually watch the status of the file transfer and the terminal will beep to let you know it is complete. At this point, you can continue looking around the BBS, or log off and check out the new software you just received!

* FILE COMPRESSION *

Just about all files stored on this and other BBSs are compressed to save transfer time and disk space. The most common compression method is PKWare's ZIP, which is a utility available on the ARRL BBS under the file name "PKZ204G.EXE". Files compressed with PK-ZIP are easily identified by ".ZIP" as their file extension (i.e. FILENAME.ZIP) I recommend you download this file first, and copy it to your DOS or other directory that is in your PATH statement. If you are not sure of DOS's PATH, just type the command PATH at any C:\ prompt. PKZ204G is a self-extracting ZIP file, so to uncompress it, simply enter the file name PKZ204G and hit enter. From this point, you can go to the directory with your .ZIP file and enter the command PKUNZIP [FILENAME] and your file will be un-compressed and ready for use.

There just isn't enough space to cover every feature of the ARRL's BBS or all the other systems available. I have discussed only the two most popular features and I could go on for days. The best way to learn about BBS'ing is to log on for yourself and try it out. Like I said earlier, you can't hurt anything so feel free to experiment. Try it with a local system first to get comfortable with navigating around the menu structure and commands. Call the long distance boards after you have practiced a few times on a toll free one! I have taken up enough space this month and I hope to continue hearing from you. Remember, I also run the Think Tank II Ham BBS at (509) 244-3511 all day, all night 14.4K Baud. Thousands of Ham radio related files and messages. 73 for now,

de **Mike, KI7FX** ■

PACKET

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A CONTINUANCE

The NOS program comes without any form of identity at startup. It will attempt to fire up and run but you will not be able to do anything with the program until you tell it "who it is" and "what to do." The function of giving the NOS program its identity is left to a file named "startup.nos". This file contains the information needed to configure NOS for a particular runtime configuration.

At the close of this column you will find the startup.nos file that I use on my system. There are some lines that will have to be changed to reflect your situation, but for the most part, no other changes are necessary.

The first three lines are mandatory. As a convention, your amateur call appended with the SSID of '-3'. This indicates that the station is capable of TCP/IP connections. The resulting call is placed on the 'ax25 mycall' line. The program has to identify the station as the TNC is in KISS mode and is acting as a plain, old, dumb modem. The second line gives the system a name. This has a convention too. This is a combination of your amateur call and the suffix '.ampr.org'. The 'ampr' stands for AMateur Packet Radio and the 'org' simply means organization. The third line is the digital domain address. The '44.' is assigned to the worldwide amateur community. You can get the complete digital address from your local coordinator at no charge. Each address will be assigned a name of your choosing. This is handled through your local IP address coordinator.

The next section tells the program what port to use to communicate to the outside world and how to do so and with what attributes to use for the communication process. The 'attach asy' command configures the serial communications port of your choice. The order and requirements are specific on the line. The 'asy' means to the program that you want to use an asynchronous serial port. The 'cua1' refers to port /dev/cua1. The program appends the '/dev/' for assignment purposes. The '-' is just a place holder here. This position is usually used for the interrupt line number. Since Linux handles the interrupt services in the kernel (THE CORRECT WAY), we have no need to fool with it. The 'ax25' defines the protocol that the port will use. There are several options available for the port, but this will the most widely used option. The 'v' is the label that will be used to reference the port to program users. This can be anything you desire. I prefer 'v' and 'u' for VHF port and UHF port, respectively. The '4096' sets aside 4k of memory as a recieve buffer for the program. The '256' sets the mss (maximum segment size) that is used at the TCP level. The '9600' sets the port speed. If you are running only a 1200 baud modem, there is no need for this speed. Since I am set up for 9600 baud operation, I will run the port speed at 9600 baud.

The next two lines are not required but are there for convience of operation. The 'ifconfig v description' line is setting the broadcast address to the whole amateur packet community range.

The rest of the settings configure the program for operation to my tastes and requirements. I have segmented the file to make it easier to demonstrate to people and maintain. This file can get to be real hairy for a large system. The next section sets up the ax25 parameters. These settings are pretty standard. The last line will cause some discussion. You can have a linear or exponential backoff. There will be long and passionate discussions over the setting of this. I suggest that you set this to whatever your user community recommends.

The next four areas contain generic setup information and does not really need to be changed. The 'start' section deals with the process servers. When NOS starts up, none of the resident servers are engaged. You have to tell the program which functions you want it to provide for you and the potential users of your machine. You will probably want to fire up all of the servers listed with the exception of the netrom server. If you are going to provide service as a netrom node, then you will want to start the netrom server. If not, delete the line and any of the lines that deal with the netrom server's operation.

The next section deals with the setup of the BBS. The first line lets anyone who connects that I am not at the keyboard. This is necessary because most of the time

the system is running, I am not at the keys. The answer will come when the user tries the 'Operator' command from the BBS command prompt line. 'Mbox timer' limits the connect time when a user is not doing anything with the BBS. If there is no activity for 300 seconds (5 minutes), the BBS will disconnect the user from the system. The 'mbox maxmsg' limits the number of messages for each person in their mailbox. The 'mbox jumpstart' command is an interesting one. The way the BBS code is written and interfaced with AX.25, the BBS code needs to see a carriage return before it spits out anything after the connect. This command kicks the BBS into operation as a replacement for the carriage return and all starts normally. This can be changed according to needs and who is connecting to you. Of course, qth and zip are mandatory. The 'mbox newmail on' informs users that there is new mail to be read in one of the public mail groups. 'Mbox smtptoo" tells the BBS to include the SMTP headers in the mail. 'Mbox convers on' allows the conference bridge to be accessed through the BBS command line.

The bulletin commands that you see here set up some of the handling parameters for bulletins coming through the system. Since this box is not attached to any forwarding network at all, it makes no difference here, for now. If this was a full blown BBS, this would be of some significance.

The convers server setup is for the packet channel's nemesis, the 'babble box'. This is the feature that allows for packet rountables or free-for-alls. I frequent one of the local systems that runs this now and then. The 'convers host' line affixes a location name for the BBS. In the case of my situation, I am using the city name where I live. This is a good idea because this lets people know where it is located. You can assign a separate callsign to the conference server for AX.25 connects. In this case it is N6NKO-6 by using the 'convers mycall' command. The 'convers t4' command specifies the number of seconds of inactivity before the conference server disconnects them. Here, mine is set for 1 hour. The 'convers interface' command sets which interfaces the server is available on. You can have the server appear on one port and not the other. A classic example is a station that has a user port on one frequency and a backbone frequency on the other user port. You would not want the convers server to be available on the backbone frequency.

The RSPF (Radio Shortest Path First) system is used to find the shortest distance from one point to another. This involves sending out probe packets to locate name servers in the area. The function is not implemented here because of the randomness of what frequency serves what area, I have it disabled. You could use this facility providing your local area is set up sanely, not like Los Angeles.

The netrom information is a bit technical to discuss in one column. There are so many routing variation capabilities available depending on how the system is set up. If one was to set up a NetRom system, a nightmare could ensue when setting up for AX.25 and TCP/IP routing. The best way to set this up is to use what I have here as a basis and move on from there. If you need help in setting this up, contact someone in your area. They will be best able to let you know what is where and who talks to whom.

WRAP UP

This will get you up and running. Remember, there are a few things that you have to set up for your particular site. The presented startup.nos file is a template, so use it as such. The ham calls and IP addresses presented are assigned, so do not use them, even for testing. Good luck and have fun.

Next month, I will be covering Bdale Garbee's BM program and how to modify it for auto printout of received messages.

Until then, happy typing!!!!!!

de **Richard, N6NKO** ■

packet: n6nko@wb6ymh-2

internet: owlsnest!richardp@swc.uucp

```
# ------------------------------
#
#Startup.nos for the Linux version of WG7J NOS v. 1.09 #
ax25 mycall n6nko-3
hostname n6nko
ip address 44.16.0.114
#
#Attach interfaces and configure
#
attach asy cual - ax25 v 4096 256 9600
attach kiss v 1 u 256
ifconfig v description "145.36-, 1200 baud, 40 watts, 20' A.G.L." ifconfig v broadcast 44.255.255.255
ifconfig u description "440 port - no radio yet."
ifconfig u broadcast 44.255.255.255
#
#Set up AX25 parameters
#
ax25 version 1
ax25 digipeat v off
ax25 maxframe 1
ax25 paclen 108
ax25 retry 10
ax25 window 1024
ax25 irtt 4000
ax25 t3 0
ax25 t4 600
ax25 timertype linear
#
#Set up IP parameters
#
ip ttl 25
ip hsize 0
#
#Set up TCP parameters
#
tcp mss 216
tcp window 432
tcp timer linear
#
#Set up domain name server parameters
#
domain translate on
#
#Set up SMTP parameters
#
smtp quiet on
smtp batch yes
smtp timer 120
#
#Start the servers up
#
start ax25
start convers
#start netrom
start telnet
start ftp
start smtp
start ttylink
start finger
start echo
start discard
start finger
start rip
start pop2
start pop3
#
#Mailbox Setup
#
mbox attend off
mbox timer 300
mbox maxmsg 200
mbox jumpstart on
mbox qth "Lakewood, CA"
mbox zip 90713-1334
mbox newmail on
mbox smtptoo on
mbox tmsg "This is a developmental system."
mbox convers on
bulletin date yes
bulletin check yes
bulletin return yes
#
#Convers setup (The babble box)
#
convers host Lakewood
convers mycall n6nko-6
convers t4 3600
convers interface v on
#
#RSPF (Radio Shortest Path First) setup
#
#commented out until all routers are found out
#and what goes where....
#
#rspf interface v 1 32
#rspf rrhtimer 900
#rspf suspecttimer 2000
#rspf timer 900
#
#Set up miscellaneous components
#
attend off
motd "This is a developmental system. Do not expect it to be reliable." ftptdisc 300
third-party yes
trace v 111
log users.log
#
#NetRom setup stuff
#
#attach netrom
netrom interface v 192
netrom interface u 192
netrom alias owl
netrom call n6nko-4
netrom hidden on
netrom derate on
netrom nodefilter mode none
netrom promiscuous on
netrom window 4
netrom retries 10
netrom timertype linear
#
#Set up default routing information
#
route add default v
route add 44.16.0.21 netrom wd6ehr
arp add wd6ehr netrom wd6ehr-3
netrom route add LACONF wd6ehr-3 v 142 wb6ymh-4
```

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