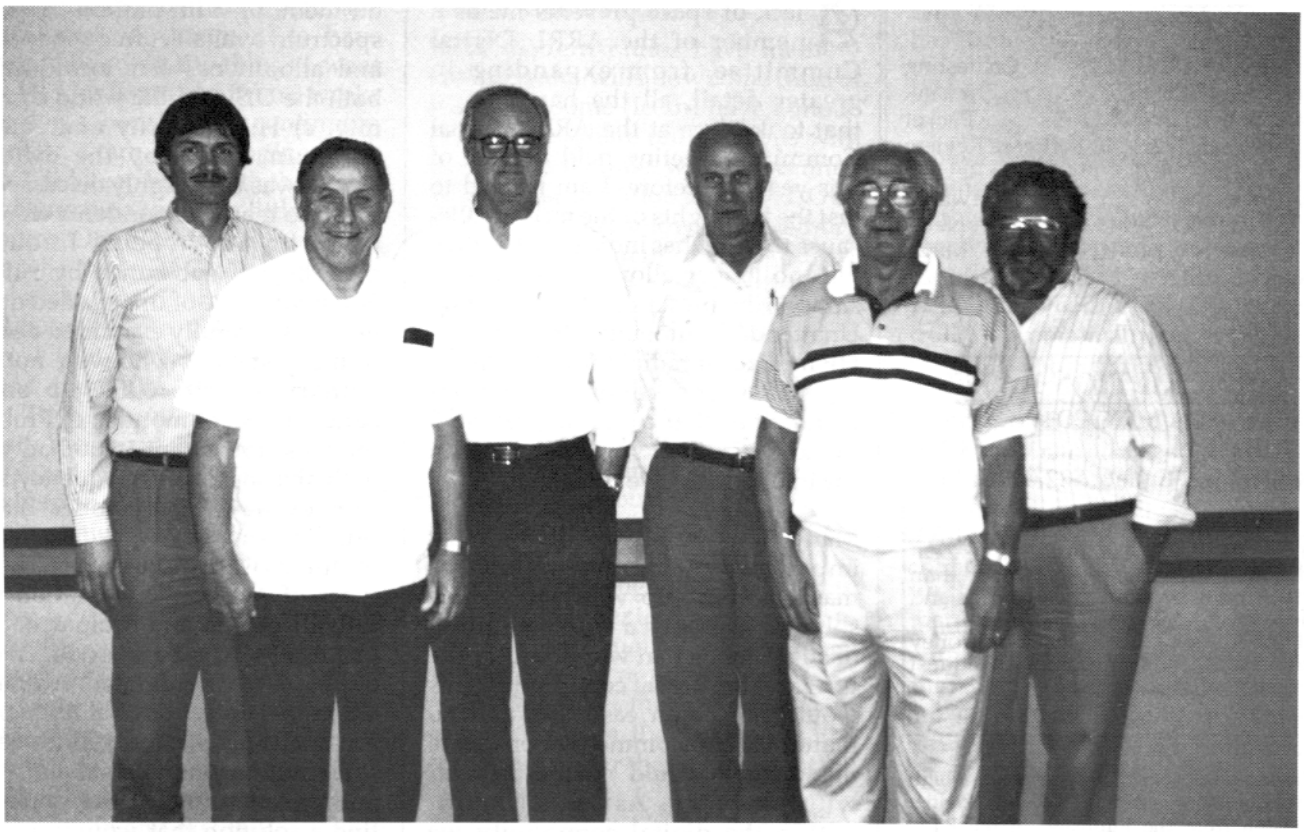
DIGITAL JOURNAL™

Price: $2.95

A Dedicated Digital Publication Since 1953

Volume 40, Number 6, July/August 1992



ARRL Digital Committee members semi-annual meeting in Dallas, Texas. L. to R. Paul Newland, AD7I, Tom Comstock, N5TC, (Board Laiason) Ed Juge, W5TOO, (Chairman) Vic Poor, W5SMM, (Acting Secretary) Dale Sinner, W6IWO, and Craig McCartney, WA8DRZ.(See Hits & Misses)

Japanese RTTY Group Announces WW RTTY Contest

Details page 16.

RTTY JOURNAL

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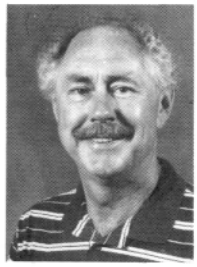
POSTMASTER:
The RTTY JOURNAL (USPS 391850) is published monthly, except combined May/June and July/August issues, for $15.00 per year, by RTTY JOURNAL, 9085 La Casita Avenue, Fountain Valley, CA 92708. Second Class postage paid at Santa Ana, CA 92799-9998 and additional mailing offices.

ADDRESS CHANGES:
Please send all address changes to: RTTY JOURNAL, 9085 La Casita Avenue, Fountain Valley, CA 92708.

ISSN 0033-7161



HITS & MISSES

Dale Sinner, W6IWO
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Fountain Valley, CA 92708

Digital Committee Report

A lack of space prevents me as a member of the ARRL Digital Committee, from expanding in greater detail, all the happenings, that took place at the ARRL Digital Committee meeting held in June of this year. Therefore, I am limited to just the highlights of the meeting. Because the FCC has indicated that they will no longer allow further extensions of the present STA authorizing Unattended Automatic Operation on HF for Packet radio, the entire meeting was spent working on recommendations that could be presented to the ARRL Board of Directors with the intent of resolve this issue.

Many hours were spent on this most important topic and every effort was made to come up with a workable solution or at least a workable group of suggestions that would satisfy the FCC and the digital community. This would not be an easy task and no matter what recommendations were made, they would not be popular with everyone. As we all know, within the digital community we have a very wide diversity of operators operating different modes that are not necessarily compatible with each other. On top of all this, these modes are limited to a very small amount of spectrum. No easy task, to say the least. Nevertheless, the committee did work hard and at all times kept the rank and file in mind. The ARRL survey which was published in QST and the RTTY Journal, helped to guide the committee in making recommendations. It was most unfortunate that so many Hams neglected to respond to the survey. As I reported in the last issue, slightly over five hundred were returned.

Here are the topics that were discussed at the meeting. a) A careful study was made of the survey forms that were returned including those forms that had additional comments on them. b) With limited frequency spectrum available, frequency usage and allocations were examined for both the U.S. and the world community. c) High priority of frequency spectrum usage by the different modes was thoroughly discussed because so many respondents were opposed to any type of frequency allocation of sub-bands by rule. d) Potential abuse of unattended operation was carefully examined because so many stations who were not STA authorized have come up on the bands in recent months. e) Probably the most important issue had to do with sharing of the frequency spectrum by the different modes. f) Amateur operating practices and traditions were discussed. g) The two types of Automatic Operation were fully discussed and evaluated. Since about 60% of all respondents were opposed to Unattended Automatic Operation and to special frequencies for special people, the committee was faced with trying to resolve the STA authorization and at the same time find a solution that would be workable for HF Packet.

At this point, some of us wished we were not on the committee because as I'm sure you can see, there would be no easy solution. Ultimately, the following recommendations were submitted to the League Board.

1. Unattended Automatic Operation below 30 MHz, not be allowed.

2. FCC rules be amended to allow Unattended Semi-automatic Operation of digital stations on any frequency on which digital modes are authorized. This would mean, an operator must be present to initiate a contact. No machine to machine only.

Continued on page 15

THE LINK

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Well, I have been on the road again. It looks like I will have to come out of retirement to have enough time to do the things I want to do, HI. I just returned from 3 weeks in London, where I taught continuing education courses in engineering. While I did keep busy with the work, I had some time to visit a little with a few hams. One of the courses I taught was at the Imperial College which is next door to the Science and Technology Museum. In a visit to the museum, I had the chance to go by GB2SM, the club station at the museum. There I found a very nice facility with nice gear (but sadly no one was operating AMTOR). The capability is there and some of the hams who man the station do run AMTOR.

Scanning

I have been getting many requests for information as to how many of us perform the scanning operation with our APLINK stations. So this month I plan to cover some of the recent things I have done along that line and just talk in general about the scanning type of operation.

In my opinion, scanning is one of the most important aspects of APLINK. It is a very powerful feature which makes any station much more accessible, and hopefully on a clear channel with no QRM. Using all of the HF bands with the scanning has helped me to learn a lot that I didn't know about propagation. I have found that at any time one can usually use either of 2 bands to reliably communicate with someone else, and many times you can use 3 or 4 bands. Having this flexibility really improves your chances of reliable communications.

Most modern radios have memory channels and will allow some form of scanning. Some (Icom) have a mode scan mode where only stations with the entered mode will be scanned when the scan button is pushed. Others (Kenwood) allow the memory channels to be put into banks and you can mark each channel whether it is to be scanned or not.

I have used a scheme for about 2 1/2 years now for scanning that relies on a characteristic of many of the more modern radios. That characteristic is that they start scanning with the simple push of a button on the front panel and they stop scanning upon the initiation of PTT action. That is they stop scanning when you start to transmit. In order to resume the scanning, an additional push of the panel scan button is required. So all we need is a circuit that will close contacts to emulate the pushing of the scan button after the end of a contact. Normally a delay is added so that the remote station can relink if the link has been dropped.

Timing considerations

I have found that there are several timing parameters that are important in this process. While scanning your receiver is listening for your SELCAL. As soon as you decode your SELCAL in your controller, the controller automatically starts the transmitter to chirp back which stops the scanning. However, you must dwell long enough on each channel while scanning in order to receive your SELCAL. In order to guarantee that you receive your SELCAL, you must dwell about 1.5 seconds on each channel. (Actually, it is a little less). While a station is chirping for you, he sends 2 characters of the SELCAL with each chirp. However, the first 2 characters and the last 2 characters are marked differently, so you can receive the 2 chirps in either order.

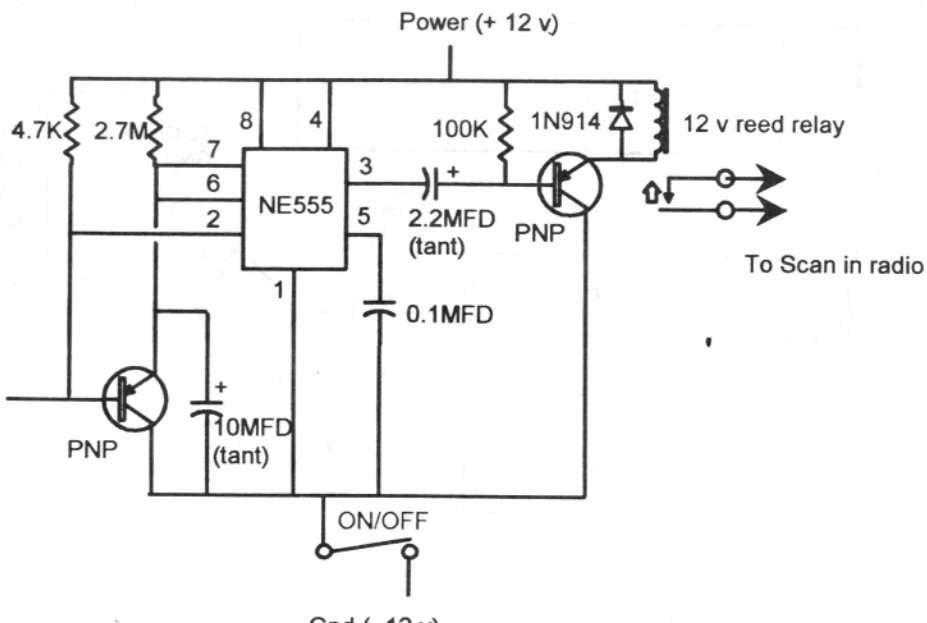

Fig. 1 Schematic of Scan Board

That is you can actually receive the last 2 characters of your SELCAL first.

I set my rig to dwell about 1.8 seconds on each channel. With the newer Kenwood radios the dwell time may be set by adjusting the RIT knob while scanning. The second consideration is the number of channels scanned. My advice is to not scan more than 15 channels. With a dwell of 2 seconds, that will be 30 seconds per scanning cycle. That is also the maximum time that someone would have to chirp for you to get linked, assuming that you are not tied up with another station at the time.

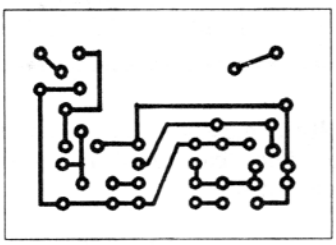

Fig. 2 Full Size View of PC Board Layout

The last timing parameter is the delay time after the end of a link before you start to scan again. I set that time to about 19 seconds. Any value between about 8 and 30 seconds is probably OK.

The Circuit

Figure 1 shows a simple circuit using the NE555 timer for which will close a set of contacts after the end of a link and the appropriate delay. I used 2N3906 transistors and the relay is Radio Shack part number 275-233. All of the parts are available from Radio Shack. I made the printed circuit using the film transfer process and film from The Meadowlake Corp., P.O. Box 497, Northport, NY, 11768. The printed circuit is simple enough that you can also make it using the pen process and materials available from Radio Shack. The circuit board is quite small and may be installed inside your transceiver. (Figure 2)

From the PTT input the signal goes into the base of the first transistor which is held high by the 4.7 K pull-up resistor. The trigger input of the NE555, pin 2, is also held high by the pull-up resistor. The output of the chip, pin 3, goes high (near 12 volts) when the 555 receives a low going trigger input (PTT grounding). The output stays high until the threshold input, pin 6, goes high. At this time the output of the 555 goes low and the discharge, pin 7, goes low which discharges the 10 MFD capacitor. The 555 stays in this state until it receives a trigger low input. The trigger is activated by a voltage less than about 4 volts and the threshold is activated by a voltage greater than about 8 volts.

When the 555 receives a trigger input low, the 10 MFD gets charged through the 2.7 M resistor. The time constant for that RC circuit is 27 seconds, and the threshold level is reached in about 19 seconds. So the delay for this circuit, the length of time between cessation of PTT action and closing of the scan line, is about 19 seconds. The length of time can be increased/decreased by changing the RC values.

The 0.1 MFD capacitor is present to prevent false triggering. When the base of the second transistor, the one connected to the relay, goes low it conducts causing the relay to pull in. The 2.2 MFD capacitor passes a low going pulse when the output, pin 3, goes low. The length of time for this low going pulse is controlled by the RC values of the 100 K resistor and the 2.2 MFD capacitor. For the values shown, this time is about 0.25 seconds. I use an on/off switch on the ground side of the circuit. To activate the scan circuit, I simply ground this point with an external switch. Figure 3 shows circuit board component placement.

You may have to manually start the system after a power off condition. Since I use Desqveiw, I simple use the startup script in DV to start the scan process but sending a momentary FEC idle when APLINK is being brought up after a power failure. This gets the process started automatically.

That's all for now. I'm headed to the mountains of Wyoming and our cabin for a little fishing and relaxation.

73 AND GOD BLESS

de **JIM, KE5HE** AT KE5HE.TX.USA.NA

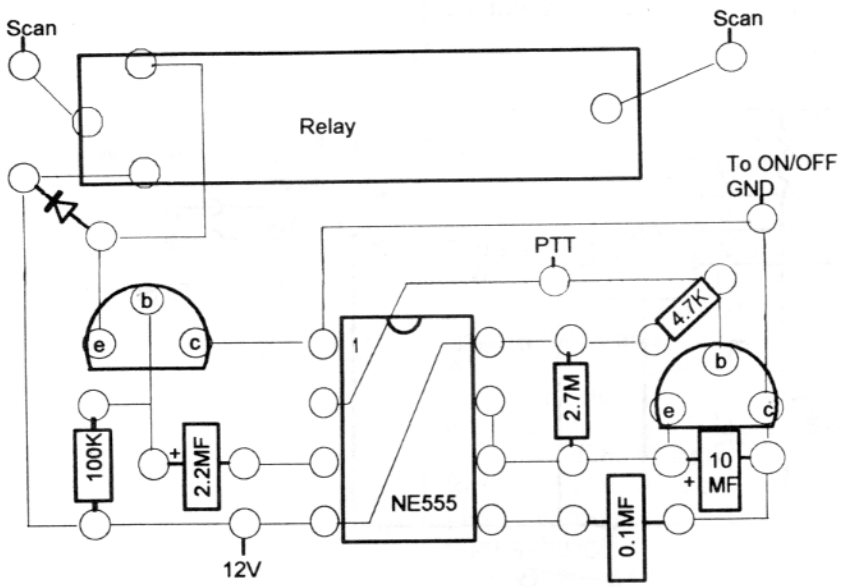

Fig. 3 Parts Placement for Scan Board

A Winning Combination . . .
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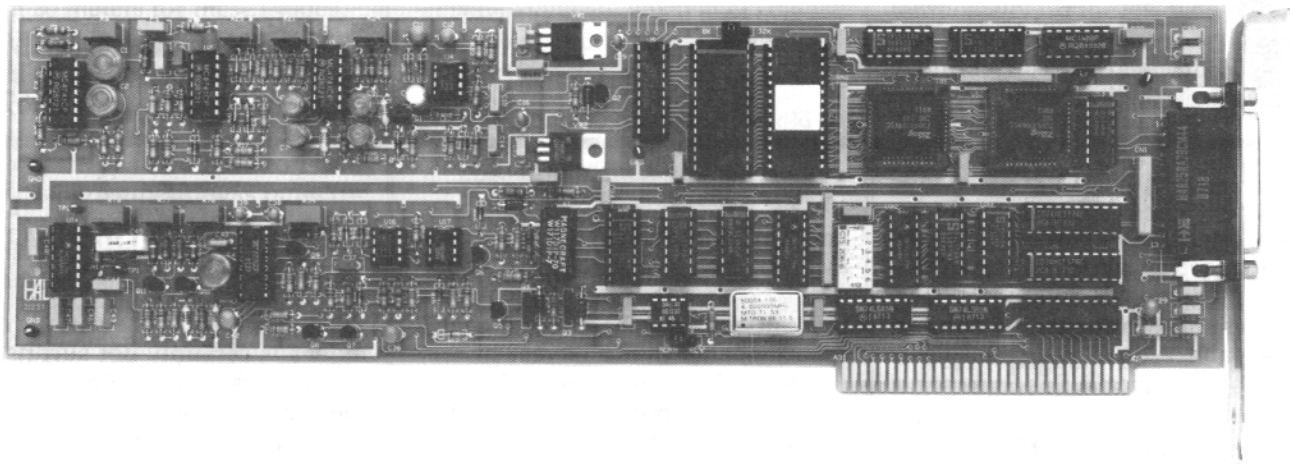

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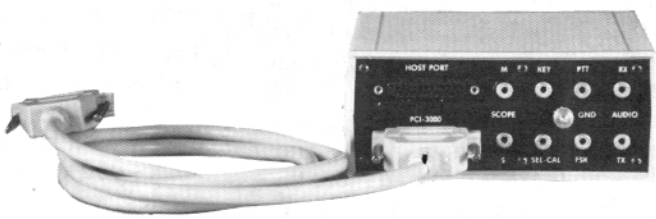

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MSO's

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

Hi Gang! I hope everyone is busily engaged in planning for an exciting and enjoyable Summer. Looks like it is finally Spring out here in the "Hills", and with a little moisture, we're going to have a fine Summer.

1992 DAYTON HAMVENTION IS HISTORY

What a wonderful time we had at the Dayton HAMVENTION again this year. Most enjoyable was seeing and visiting with old friends, meeting new ones, and just generally enjoying all aspects of this time-honored event. It was especially nice to see Frank Bascomb, K4KOZ, MSO Sysop from Boca Raton, FL, Clark Constant, W9CD, Urbana, IL, Larry Workman, KAJRQ, Glenwood, IA, Bill Henry, K9GWT, Urbana, IL, Don Gallagher, K8WZX, Cuyahoga Falls, OH, Jim, W8EXI, Dale Sinner, W6IWO, Fountain Valley, CA, Eddie, W6/GAZT, John, TG9VT, Guatemala City, Guatemala, Steve Waterman, K4CJX, Bob, K1UOL, Jay and Joan Dyer, WB8ZTY/WD8JIH, Wheeling, WV, Bill Snyder, WLHS, Fargo, ND, Bob, WHAH, Minneapolis, MN, Mel Whitten, KPFX, Bridgeton, MO, Tony Prato, WA4JQS, Ferguson, KY, Ken Sartain, KS9I, Urbana, IL, and many others who escape me at this moment! It was my pleasure to finally meet Jay Townsend, WS7I, and his charming XYL Betsy, WV7Y, and I only wish that we had had more time to get better acquainted. If I have any dislikes about the Dayton HAMVENTION, it's that the time goes by too fast, and I never seem to have enough time to visit with friends and acquaintances.

Dale, W6IWO and Steve, K4CJX, did an outstanding job of planning and executing the annual "RTTY Dinner", and if everyone had as good of a time as I did, then it will go down as one of the best. From my rough count of those attending, it had to be the largest attendance in the 12 year history of the RTTY Dinner, and everyone enjoyed the food and festivities. Good times rolled when Eddie Schneider, W6/GAZT, was presented the coveted "Buyaki Award", for excellence in writing and composition. He's probably "tooting his horn" at this very moment!

Unfortunately for those attending this years HAMVENTION, "Mother Nature" did her best to discourage activities in the Flea Market. Most of Friday, and all of Saturday had to be described as "inclement" weather, with strong winds, rain, and even some sleet at times. Bargains were there to be had, but unfortunately most of them were covered up to prevent rain damage. And, when poor weather exists at Dayton, being inside Hara Arena is akin to a salmon trying to swim upstream! I did not see what the "head count" for attendance this year was, but Saturday morning must have established some kind of record. Moving from one end of the main floor in Hara Arena to the other was a formidable task, best described as "flowing with the tide"!

The "RTTY Hospitality Room" at The Radisson has to be the best thing invented since sliced bread! If there ever was a place to meet acquaintances you've talked to on the digital modes, meet new friends, exchange ideas, etc., this place is it. A long established part of the HAMVENTION scene, it's something not to be missed if you are planning on being at Dayton. The sponsors of this neat event, (AEA, HAL Communications and the RTTY Journal), are to be congratulated on providing this well attended function.

20 METER DIGITAL CONGESTION

The popularity of the various digital modes is certainly not surprising to many of us that have been enjoying these modes for a lot of years. One only has to look at recent issues of QST magazine to see that digital modes and ways of exploiting them has become a front-burner issue. The outstanding articles written by Bill Henry, K9GWT, serve not only to remind us "old folks" of what we do every day, (and better ways of doing them), but also serve as a reference and primer for all who may be interested in becoming involved in the digital modes. There has never been any doubt in this authors mind that "digital is where it's at", and although I'm "green behind the ears" compared to some of the real "old timers" on RTTY, I can remember back when one would have to hunt for a RTTY QSO on 20 meters, and long strings of "CQ" were the norm.

Sparse digital signals on 20 meters is certainly not the norm for present times. But unfortunately this very popularity in digital activities is causing congestion to the point that some of the "fun" in operating plain old RTTY is being lost. At times it's difficult for RTTY enthusiasts to conduct a plain, garden variety RTTY QSO, because of the popularity of, for instance, MSO's (Message Storage Operations), AMTOR, APLINK (AMTOR/Packet Link), PAM's (Personal AMTOR Mailbox), and HF Packet activities. (Oh Oh...I think I hear sabres rattling!!). Now you may think that my statement is a little strange, in that I've been the sponsor of a 20 meter MSO since the 1980 era, but in all sincerity I'm certainly not being the slightest bit critical of those who do desire to maintain these

somewhat automated systems. My reference strictly concerns both the popularity of the various digital modes, the variety of use within these modes, combined with what has to be considered as "very limited" spectrum on 20 meters for these modes.

We used to have what was known as a "Gentlemans Agreement" with respect to the lower end of 20 meters, corresponding to the frequencies of (approximately) 14070 KHz to 14100 KHz. This "agreement" was quite informal, was well respected, (and in the majority of cases well tolerated), and satisfied basically three strategies. It first provided a 30 KHz space in the 20 meter spectrum where digital, (almost totally plain old Baudot RTTY at that time), to operate. Secondly, it provided a buffer between the digital modes and the CW portion of this band, and thirdly it protected the area above 14100 KHz, which was at that time, (and still is), utilized by our Canadian friends for phone (SSB) activities.

Todays utilization of this part of the 20 meter spectrum is totally different, and from my viewpoint requires that we re-negotiate the Gentlemans Agreement, primarily because the way we utilize this area has so dramatically changed in the last 10 to 15 years. I hasten to point out that I do NOT have all of the answers, do not have a magic wand, and do want to avoid stressful situations, (as my doctor puts it!). Having said that, I would pose the following questions to anyone who might have the answers.

- **1) What is the relationship between the utilization of the CW portion of 20 meters, (below 14070 KHz), with reference to utilization of the digital portion, (14070 to 14100 KHz), within the years of 1975 to 1992? In particular, how has growth, or declining of growth effected these two areas of the spectrum? If there is a significant decrease in the use of the CW portion of 20 meters, should the lower limit of the Gentlemans Agreement be moved to say 14050 KHz?**

- **2) HF Packet radio, including some stations engaged in the ARRL sponsored Special Temporary Authorization concerning Unattended Digital operations, seem to have occupied frequencies above 14100 KHz, in violation of the current informal agreement. What effects has this operation above 14100 KHz had? Has this invasion, through time of occupation alone, negated the upper limit of the Gentlemans Agreement, and established a new frontier, say at 14115 KHz? Where have the stations that used to occupy this part of the spectrum gone?**

- **3) If we are to condone plain old Baudot RTTY QSOs in the digital portion of 20 meters, where do they fit in with the ever-expanding popularity of AMTOR, APLINK, PAM's, MSO's, PACTOR and Clover II systems, many of them automated and possibly many of them unattended?**

- **4) Should there be a "sub-band" (within the 20 meter digital portion of the spectrum), where automated systems would be required to be located? Or, should there be some tight restrictions on who can, and who cannot, operate a automatic (possibly unattended) station?**

It should be obvious from the questions posed above that we need to explore many various solutions to the over-crowding in the digital portion of 20 meters. We all have our favorite mode of operation, and of course want to protect our current modis operandi. We're resistant to change, especially when we feel we're getting "the dirty end of the stick". However, it appears to me that change is inevitable, especially when I consider the burgeoning digital modes, with reference to 20 meters. I wait with baited breath for the ARRL to release the results of the recent ARRL/RTTY Journal "Digital Survey". It should provide quite a bit of insight into our current operating habits, and hopefully help in justifying additional space for digital activities on 20 meters. I'd like to hear from anyone who has input on the questions I have posed above. What do you think?

MSO RAMBLINGS:

We all hope that Larry Workman, KA0JRQ, Glenwood, IA, has recovered from his recent illness. Since Larry has moved on to APLINK land, we don't hear a lot from him. You know how it is with those APLINK guys! Har! - -Ernie Johnson, W6ZRR, San Luis Obispo, CA, has experienced some transceiver difficulties, and his MSO is temporarily off the air. And, Ernie is presently visiting his old stomping grounds in eastern South Dakota, and will have his MSO back up and operating upon his return. - - Frank, K4KOZ, is at this time on a fishing expedition in Alaska, (I'm green with envy!!), and should return his MSO to operation soon. Frank also has a trip scheduled to New Zealand in the near future, which also should be lots of fun! - - Looking for the ARRL Bulletins, Propagation forecasts, satellite information, time RTTY DX information, etc? Drop in on the K5FL MSO, (14 085 625 Hz, 74 baud, access code MSO5FL), for all of this timely information.

That's all for this time Gang. Enjoy Summer and have fun!

de **Dick, K0VKH** ■

Lee Craner, WB6SSW, is the proud owner of this very nice SSB/RTTY-MSO station which is mounted in oak roll around racks

SOFTWARE

Jim Mortensen, N2HOS
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Indian Rocks Beach, FL 34635

THE ENVIRONMENT -- PART II

Windows 3.1 brings more to the table than a helluva good game of Solitaire.[1] This user-friendly game is an excellent piece of work and sets a software standard toward which several other facets of Windows strive in vain. There are significant improvements but the new version falls far short of the perfection its market dominance suggests. And the realities of the business imply that we are about as far along the development path as we are going to get. Windows will not be orphaned but must now be viewed as a mature product, one with no place to go. There may be cosmetic upgrades of course, but serious investment is focused elsewhere. We are already witnessing the dawn of the new GUI era (that means Graphical User Interface...or Mac like!). At Microsoft it is Windows NT, at IBM, OS2. Both represent quantum jumps in sophistication and hardware appetite. Elsewhere it may be a new Unix. Meanwhile Quarterdeck pursues DesqviewX, an interesting and different approach to the future. Collectively these new, ever more complicated environments will swamp 3.1, just as the 586 (and its 16 megs of RAM and the 300 meg disk) will obsolete then replace our current hardware crop. And it will be sooner than you think, count on it.

Yet, if you ask whether it is worth the $49 for the upgrade, or if it is worth learning and using just because you found it on the hard disk of your new machine, my answer would be a definite "yes." I would hedge that answer only if you do not have the requisite 386SX (or better) for Enhanced Mode. In that mode it is today's best, if not the only game in town. In any event it is high time we learn how to use a mouse and discover the intricacies of a graphical interface. Furthermore, Windows Enhanced Mode provides you with a state-of-the-art digital station. Given the flood of software and utilities now available, Windows is the place to be even if you don't need multi-tasking.

Windows 3.1 is often described as a "robust" environment. Some might think that a compliment but experience suggests the term alludes to a program that is inordinately complicated, sometimes confusing and cantankerous. That's Windows! There is no way to explore this "Mother of All Environments" in two thousand words. However we can examine the product through the eyes of the newcomer who recently purchased the upgrade or a new computer. Let's begin at the beginning.

The Primer

The first step addresses the question of RAM. I couldn't help but notice that many machines marketed by the direct mail firms come with two megabytes of memory, some even one. The ads imply that Windows 3.1 runs with this minimum configuration. Well, Windows *walks* with two megs of memory and can't even *limp* with one. Do yourself a favor and invest the few dollars in two more megs (less than $80 at Dayton for the best). This allows your 386 machine to run in Enhanced Mode, a step that will keep your blood pressure well within the bounds suggested after your last physical examination.

Next, your hard disk. It's not that Windows is a hog (!), but if you have 30 megs of space left on your disk after loading the program, Windows promptly commandeers one half that for its Swap File. Windows likes room to roam but you don't have to cede that much. Go to the Control Panel, click the 'Enhanced Mode', click 'Virtual Memory' and bring the Swap File down to 7.5 megs. While you are at it, you might also put an X in the "32 Bit" box. Unless you have some rare form of hard drive, this option delivers a bit of a speedup in disk access. You will appreciate it.

Swap claims this 7.5 megs for Windows even if less than 15 megs remains on your disk after installation. Windows needs a block that size if it is to run at a decent speed, so don't try to fight city call. Give it up. . . or add more memory. With eight megs of RAM, the Swap File can be reduced to zero so there is a choice. (You are better off with both the 7.5 meg swap file and the extra RAM!. A bigger hard disk and more ram. Isn't that always the case?)

There are compromise solutions as well. If you are severely pinched for space on your hard disk, strip down to the essentials. Review your entire disk and dump those directories and files that have been collecting dust for six months or more. Cut out the games you don't play, then go to work on Windows. Type "del *.fmp" if you don't want to mess around with fancy wallpaper backgrounds for your desktop. Type "del *.wri" after you read or print out the Readme files. Then, if like me you find the Help files a waste of time, type "del *.hlp" and pick up well over two megs. Do the same with other Windows progrms. Delete the EXE files for features that you don't think you will use (the audio system, calculator, terminal, etc). While they can always be reloaded those unused goodies consume enormous amounts of disk

space. A thorough housecleaning produces five or more megs of room every time.

Now that there is an ample playground on the hard disk, bring up Windows by typing **win** at the DOS prompt. After an appropriate delay Microsoft presents its view of the ideal desktop. Sniff around, click a few menus, play Solitaire, open a Windows program if you have one. Sooner or later a light goes on and tells you that something is missing. You need a personal desktop, a reflection of your operating style, one with icons for your programs. Maybe you want a screen that opens your most-used programs on startup. Let's build one. The structure isn't difficult with or without Windows programs.

Let me hasten to point out that there are always at least three ways to do anything under 3.1. The route described below is neither the best nor only way to accomplish the task. But I have found this approach to be "bulletproof" on my computers and I trust they will work as well on yours.

The Primer Part II

Assemble your desktop from the core out. Let's assume that your basic, everyday use of the 386 computer requires two programs--RTTY and LOG. A true fanatic, you want this "no-frills" RTTY machine to deliver the two DOS programs in separate windows, ready to run, whenever you boot the computer. No problem. Let's do that and a bit more after we look briefly at the difference between DOS and Windows programs.

If RTTY was written for Windows you would open the Startup folder and select 'New' from the Program Manager's 'File' menu. Click 'Item' in the dialog box, then enter two items in the Properties box. The 'Description' would be the icon title--RTTY; and the 'Command Line' would be RTTY.EXE. Delete the check mark in the 'Run' Minimized box and you are through. The next time you boot, the program will be in a window ready to run.

This magic happens because during installation the program's code informed Windows general management as to its whereabouts, its video and memory requirements and its peculiarities. Ah, but RTTY is a DOS program and none of that internal communication is present. You provide the knowledge to Windows and do it through a Product Information File (PIF). Once informed, Windows is perfectly happy to manage the DOS program as it would one of its own. This is the essential difference between the two types of programs as far as desktop management is concerned. Don't misunderstand me. The PIF does not change a text-based program like RTTY to a graphics program like Paintbrush. Such an evolution takes mountains of new code and a concept built from the bottom up. But the PIF does allow almost any DOS program to function effectively in a window, to multitask alongside other DOS or Windows programs and to continue to run when Minimized in an icon on your desktop.

Let's Go

Programs in StartUp execute from left to right, starting with the first row. So we will begin with LOG so that it will be the window behind RTTY. Go to the Main Window of Program Manager. Double click PIF.EDITOR. The 'Program Filename' is the EXE or COM file that launches the program. Here type LOG.EXE, then type LOG as the 'Window Title'. The 'Startup Directory' is C:\LOG. The default minimum memory requirement (128K) should be adequate. Click in the 'Windowed' and 'Background' boxes, actions that will bring up the program in a window and in a sharing frame of mind. No, you are not through yet.

Click 'Advanced'. Make certain that both Foreground and Background priorities are set at 50. This setting will allow most programs to function without conflict in a multi-tasking world. Then, be sure to save the PIF file. Save it as LOG.PIF. Chances are that Windows made a default PIF file for LOG if you installed Windows after your program took up residence on your hard disk. If so, make sure that you overwrite the old file as you leave the program. At this point you should find a standard DOS icon in the StartUp window. If you wish you can change that by going into the Properties box but we will leave that chore to your imagination. No, you are not through yet.

Now that Windows knows all about LOG, we can treat it the same as we would a Windows program. Open the Startup window, click 'New' in the Program Manager's 'File' menu, select 'I tem', then fill in the information in the Properties box as we did for the RTTY Windows program. Voila! Now we are through, except you have to do the same thing all over for RTTY. Start with the PIF file and do exactly as you did before.

Now, Boot It!

Exit Windows and reboot your computer. Bring up Windows (or put **win** in your Autoexec.bat) and watch the programs pop up on the screen. If the window seems a little small for a program with a busy format, don't worry. Hit Alt-Enter and the window will go to full screen. When you wish to get to your log, tap the same keys again and it will retreat to window size. Then click the LOG window and go to work.

Finish off your desk top by adding your word processor, database, spreadsheet or whatever via the same process. There is one difference. Be certain to put an X in the 'Run Minimized' box (in Properties) so that only the icon will appear on the screen. Line the bottom or side of your desktop with programs and any accessories you wish. Click 'Save' Settings in the Options menu once you are pleased with the arrangement. When you boot up next time everything you need will then be within a double click of the mouse. Try it, you'll like it.

Is it enough?

I recently reformatted my notebook's 80 meg hard disk (yes, it was because of my own mistake!). I resolved to try to make a go of it with plain vanilla 3.1. My struggles taught me a lot about Windows and even more about its little faults. Within two weeks though, my weakness led me to reinstall Norton Desk Top for Windows 2.0. Both my computer and I are happy again. NDW rationalizes the Program Manager, adds an excellent Backup facility, Scheduler, Screen

Blanker, Macro Builder, Virus detection and a File Viewer that is second-to-none; then throws in Disk Doctor. My desktop sparkles, at least for me, at least on the notebook 386. NDW is a fine product and I recommend it general purpose computers.

Despite my fondness for NDW, Windows rules the roost when it comes to the radio 386. There, three programs run around-the-clock in a multi-tasking mode. Hangups or crashes are rare and usually happen either because ConEd interrupts the power or I do some foolish thing. APlink and its accomplices don't need Norton, nor would I add it.

So, take your pick. It is your use of your computer that should lead you to the proper environment. Don't overpower your needs with an operating environment that gobbles up your resources. Most of us even now are in a situation where the actual data...that is program content like spreadsheets, letters, data bases, etc...comprise substantially less than 10 percent of the hard disk space occupied by the environment and programs that create the data. This wasteful ratio will worsen in the years ahead. But don't blame Solitaire, it only takes up 181K!

End Notes

Ham software for Windows arrived from Canada! Sadly, it is only for Kenwood, but it offers that select group complete radio control and logging. Without a Kenwood I am at a disadvantage here. If there are any users out there, please get in touch me right away. The program is offered by Brian VE3BGB and it costs $39 +$4SH (USD). Hopefully, more later.

Last item....DR DOS. Some months ago I gave up on Stacker and switched to DR DOS for data compression on the Toshiba laptop. It is now operated by Al H44AP. It works like a charm. There are some problems installing it after Windows, but there is an updated product available now. Perhaps it will solve the problem.

Next month...Lan-Link. Please get your comments to me pronto.

73 gl de **Jim, N2HOS** ■

1. Can anyone out there top 7510 points in 102 seconds?

DX CHALLENGE

I, Cliff, KR4M, challenge all my DX-loving friends across the U.S. and around the world (and especially my old-freinds) to match my personal contribution of $40 toward Jim Smith's, VK9NS, proposed Dxpedition to VK0 - Heard Island this winter. This could be the last chance as sunspot cycle 22 declines. If possible, I'd like to work them on 10 meters and the WARC bands, wouldn't you? Maybe this will be the last chance for a long time, guys. Send to VK0NS, Box 90, Norfolk Island 2899, Via Australia. Also, clubs, foundations, associations and dealers: Out-do us little guys and get your Logo on the QSL card! Thanks.

de Cliff, KR4M

Mark your contribution: HEARD ISLAND FUND ONLY

CQ/RTTY JOURNAL World-Wide DX Contest All-Time RTTY Records

By Jay W. Townsend, WS7I

Column legend: YR= year, MHz= band, Call= callsign, T.P.= total points, Qs= QSOs, Q.P.= QSO points, Z= zones, C= countries, S= states

Single Operator/Single Band

World Record Holders

YR	MHz	CALL	T.P.	Qs	Q.P.	Z	C	S
1988	3.5	HB9DCQ	6,120	90	180	6	26	2
1989	7	HB9DCQ	48,865	224	515	19	49	23
1989	14	YU2W	246,272	598	1,664	30	64	54
1991	21	4M5RY	242,858	533	1,577	27	79	48
1991	28	ZS6BCR	307,746	742	2,214	26	71	42

AFRICA

	3.5		No Entry					
1988	7	EA8AKQ	12	2	6	1	1	0
1990	14	EA8RA	104,451	315	941	25	46	40
1990	21	EA9JV	171,360	412	1,222	7	69	44
1991	28	ZS6BCR	307,746	742	2,214	26	7	42

ASIA

	3.5		No Entry					
1987	7	JA8EAT	1,911	35	8	8	5	
1987	14	4X6MH	96,726	351	22	53	1	
1989	21	JA3EOP	49,541	162	463	27	48	32
1990	28	JR1IJV	123,066	328	954	28	59	42

EUROPE

1988	3.5	HB9DCQ	6,120	90	180	6	26	2
1989	7	HB9DCQ	48,865	224	515	19	49	23
1989	14	YU2W	246,272	598	1,664	30	64	54
1990	21	HB9DCQ	189,758	442	1,201	31	79	48
1990	28	4U1ITU	236,842	547	1,499	32	79	47

NORTH AMERICA

1990	3.5	WA8TXT	3,108	73	84	3	3	31
1991	7	KB8LUJ	18,722	207	253	11	15	48
1990	14	ZF1RY	209,635	673	1,625	21	59	49
Op. G0AZT								
1989	21	KE0KB	138,205	468	1,055	26	65	40
1990	28	AB8K	96,250	312	770	29	67	29

OCEANIA

	3.5	No Entr						
	7	No Entry						
1990	14	VK3EBP	62,964	198	583	24	48	36
1990	21	YC1YMN	116,051	344	1,027	25	50	38
1989	28	KX6OI	49,572	206	612	18	37	26

SOUTH AMERICA

	3.5	No Entry						
1991	7	HJ4QIM	21,634	129	373	8	11	39
1990	14	4M5RY	238,650	536	1,591	28	74	48
1991	21	4M5RY	242,858	533	1,577	27	79	48
1991	28	ZP5JCY	235,884	599	1,787	23	57	52

Single Operator/All Band Assisted

YR	MHz	CALL	T.P.	Qs	Q.P.	Z	C	S
	AF	No Entry						
	AS	No Entry						
1990	EU	SM0DJZ	153,012	243	622	70	129	47
1990	NA	WA7EGA	669,693	932	1,767	70	151	158
	OC	No Entry						
	SA	No Entry						

World Record

1990		WA7EGA	669,693	932	1,767	70	151	158

Single Operator/All Band

1991	AF	CT3M	1,075,584	941	2,801	82	213	89
Op. DJ6QT								
1990	AS	JH1QDB/JD1	544,101	683	1,857	68	127	98
1990	EU	TQ6JD	1,157,308	1,030	2,809	79	181	152
Op. DJ6QT								
1990	NA	TG9VT	1,142,946	1,090	2,702	91	182	150
1990	OC	KG6DX	591,839	633	1,867	80	134	103
1990	SA	HC5J	1,364,972	1,143	3,362	89	185	132
Op. WS7I								

World Record

1990		HC5J	1,364,972	1,143	3,362	89	185	132
Op. WS7I								

Multi-Operator/Single Xmtr.

1988	AF	EA6MR	284,919	485	1,301	47	88	84
1991	AS	UZ9CWA	1,793,925	1,205	3,417	118	313	94
1991	EU	UW2F	1,524,978	1,172	3,087	108	275	111
1991	NA	V2/G0AZT	1,680,607	1,577	3,743	78	180	191
1989	OC	VK2RT	126,629	309	911	43	66	30
1989	SA	HD8EX	2,290,860	1,697	4,895	89	212	167

WORLD RECORD

1989		HD8EX	2,290,860	1,697	4,895	89	212	167

Multi-Operator/Multi Xmtr

	AF	No Entry						
1990	AS	JL1ZCG	315,806	409	1,174	69	115	85
1991	EU	LY2WW	927,710	916	2,285	87	236	83
1991	NA	W3LPL	1,968,600	1,787	3,281	106	266	228
	OC		No Entry					
	SA		No Entry					

WORLD RECORD

1991		W3LPL	1,968,600	1,787	3,281	106	266	228

de Jay, WS7I.

- **Corrections are requested.**

PACTOR STATION DESIGN CONCEPTS

By Peter M. Detwiler, WA2MFY[1]

Having been active in Digital Modes, both in Amateur and Marine Radio for the best part of twenty years, I have observed certain phenomena that have become even clearer to me as I set about getting several new Pactor stations on the air using the new German designed and built PTC. As these observations have been helpful to me, they may be helpful to you as you set up your Pactor station for the first time. Once you have tried it, Pactor is pretty hard to resist.

Pactor is a new communication technology combining a number of known concepts into new hardware and software. This was accomplished by a group of talented and motivated German amateurs over the last five years. While most people were content with slow, error prone Amtor and Sitor (commercial Amtor) these individuals found a way to:

- **Make Amtor and Pactor accessible on a single TNC**
- **Create Pactor with a data thruput four times that of Amtor**
- **Use the full ASCII character set**
- **Send traffic with no errors (that I have ever seen).**
- **Pactor does this in the following way:**
- **It uses a synchronous format with data send pulses much longer than Amtor (like Packet but not as long) with a brief control signal after each data pulse like Amtor**
- **Uses "internal" error correction within the packets themselves (this is language sensitive)**
- **Uses data compression**
- **Runs at two speeds depending on the error rate (adaptive)**
- **Uses half the overhead that Amtor does.**

As a result we have been given a whole new technology, and a belief that there are many advances still to come.

SETTING UP

Some of the observations and conclusions I have used in setting up the stations which I run are as follows:

I. Run Pactor in a way that enables the use of narrow receive filters (500 hz., typically, in FSK mode):

An increase in the signal to noise ratio decreases the "Bit Error Rate"(BER) by one order of magnitude for each 1 db. change[2]. Get the signal to noise ratio as high as possible without introducing distortion in the process. This is a tricky process and one's own powers of observation should be used. An overly sharp filter which rings will undo all the filtering benefits. My experience in this field has been with Icom amateur and commercial and Harris commercial equipment. These have all had docile filters, fortunately.

Thus, I have found that receiving in LSB due to useless extra bandwidth, as opposed to FSK mode, will admit much more noise, say 6-8 db. more noise, to the TNC to be sent through filters probably not narrower than 100 to 150 hz.

This S/N improvement is discernable to the ear but distortion may not be. Since there is error correction involved in the processing of traffic, watch for the level of error correction to determine if this improvement is just audible or real.

Some will say that the TNC will do this filtering, but allowing the noise to progress this far can overload the TNC input with useless noise. The best place to remove "gross" noise is as far upstream as possible so as not to overload downstream processor circuits.

Try using Fast AGC to best control the signal to the TNC. Also, running wide-band allows much extraneous noise into the AGC circuit. Interference and noise outside the needed pass band (500 hz.) will reduce the AGC gain and hence the signal output to the TNC even though it may have no relevance to the wanted signal.

II. Do not run the PTC in AFSK if you can possibly avoid it (use FSK):

The PTC has a spectrally impure modulator.In this case your transmitter may have a better modulator inside it in the FSK mode. The external modulator's job is only to provide pure mark and space tones so as to not disperse the transmitter's power in useless energy. Such energy only reduces the usable signal and creates noise which in turn has to be removed on the receive end or may increase the BER. A careful reading of the PTC manual confirms this fact; it recommends FSK instead of AFSK for "spectral purity". A spectrum analysis plot demonstrates the above. FSK is generally easier to run and one less thing to think about.

Frequently, external modulators are preferred due to the fact that they can offer greater spectral purity and other advantages, due to their specialized purpose, than the radio's own modulator can. Indeed, the radio's FSK modulator may never be used by many operators (non-digital persons) so it may not be optimum.

III. Run 170 hz. shift in your radio in Pactor; do not bother with 200 hz. shift:

System 1 at WA2MFY (a multi terminal Pactor/Amtor Mail Box) runs on 170 hz. shift, while System 2 runs on 200 hz. shift. There is no practical difference in speed or performance in Pactor or Amtor with these different shifts. Indeed, the PK - 232 runs Amtor at 200 hz. shift in 170 hz. Amtor mode and no one even notices it. Some of the reasons for this are as follows:

A. There is a well accepted relationship between baud rate and bandwidth. If the baud rate goes up, the bandwidth required increases at the same time. Applying an accepted rule with 100 baud Amtor, the filters (for both mark and space) must each be 100 to 120 hz. wide at -3 db. points. Pactor runs at 200 baud so these filters should be wider still. In any case it is easy to see that with such a wide bandwidth 30 hz. differential assigned to Amtor vs. Pactor is not material.

B. Many radios will not read out to 10 hz. in the first place. Most equipment tunes only to the nearest 100 hz. This alone provides a frequency ambiguity of, say, 50 hz.

C. There is generally a moment to moment frequency ambiguity of up to 10 hz. or more due to changing circuit path length.

D. Transmitter and receiver stability at each end of the link may account for 10 or more hz. offset, although most good Amateur and Marine equipment has a frequency tolerance of +/- 15 hz., over a wide temperature range, for a total ambiguity of 30 hz. Actual uncertainty is much less than 30 hz. due to a fairly steady temperature ambient usually present in living areas where most, but not all, equipment is located.

Taken together, these factors greatly exceed the mere 30 hz. shift difference between Amtor and Pactor protocols and can be ignored as a practical matter with improved performance due to a significant improvement in spectral purity with FSK.

IV. Both antenna gain and power gain are very important:

As discussed above, the signal to noise ratio can be enhanced by narrow filters on the receive end to reduce the BER. On the transmitter end the signal to noise ratio can be enhanced by running more power to or greater gain at the antenna.

Gain directional antennas are difficult for mailboxes to run as they may exclude much larger geographic areas of the world than they include. Thus, power is a desirable way to uniformly increase coverage and range for a mailbox under less desirable propagation conditions. When conditions are good on higher frequencies, powerprovides little or no advantage. For example, a 9 db. Yagi antenna at a 120 watt station aimed at a 1 kw. omni directional MBX antenna provides roughly the same effective radiated "destination" power to each receiving station.

A station running 120 watts into a 9 db. gain ntenna provides about 960 watts directed to the receiving station. Thus, there is rough power reciprocity.

At WA2MFY MBX, System 1 (1000 watts) gets more than twice the use that System 2 (100 watts) does. System 2 has three more bands than System 1, but System 1 radiates one order of magnitude more power than System 2. Both systems are omni directional with low "take off angles".

V. Power at both ends of the link need not be the same:

Public Coast Stations (Sitor - identical to Amtor) have used this concept for years to great advantage to speed traffic flow. For instance, WLO, WCC, KPH (major ship to shore radio telex stations in the US), and others throughout the world all run 10-30 kw. even though the vessels they are communicating with generally run 100-150 watts. The FCC limit for most vessels is 250 watts, but private coast stations running Sitor are licensed for 1 kw. Large ships, such as passenger vessels, run more power, about 1 kw. In other words, vessels generally run much less power then their counterpart shore stations due tothe problem of saturating a vessel's other communications, navigation, and electrical systems with RF in a confined area. Further factors can be lack of electrical power for such purposes, and the benefits provided by good grounding conditions in salt water.

Shore stations run more power with good logic even though their equipment and electricity costs are greatly increased. The reason is that these shore stations are MBX stations too, and that ships generally are unable to use directional antennas, and many use vertical whips for structural durability. If one side of the link (the vessel) has few signal received errors (whether control signal or data send) while the other side has many errors, the link will go faster than if both sides have significant errors. If both sides have many errors the overall link error begins to compound and the link deteriorates in an exponential sense. This is fairly obvious, once one thinks about it.

A frequent commercial practice is for the stronger station, the shore station, to initiate the link (master and control timing) to have the most effective link possible. This is fairly obvious also.

Therefore, saying that data (Amtor/Pactor) is always a low power mode is only true on clean circuits without serious multi-path (often near the "MUF" curve).

VI. In the future, software will not only control link speed, and thus control the BER based on the error rate, but will provide adaptive power control based on circuit conditions. In this way, transmitter power will be controlled so as to effect the best data rate at the least power. Both ends of the circuit will use only that power needed for that particular link. Unfortunately this technology is not available yet, and such control has to be manual.

VII. "ALE" is on the way.

Automatic Link Establishment will provide for "smart linking". Say A wants D, but there is no High Frequency circuit from A to D. If A can connect with B and B to C and C to D, then the traffic will go through the most efficient link automat-

ically, somewhat like "adaptive" digipeating. Harris Radio makes such a system[3] for command and control for the military, marine and commercial use. This technology will filter to amateurs in due course.

Once you have everything working in your new Pactor station, try to experiment with various techniques. For instance fast AGC makes some receivers "pump". If so try another way around controlling and getting the best signal to the TNC. This is a new field and there is much to be learned by all.

As to the future in medium and high frequency radio, it seems to me that we are at a point almost as important as when Marconi sent the first trans-Atlantic radio message in 1901. Digital communications have always been difficult in this spectrum because the medium is not homogeneous like a fiber optic, copper wire, or satellite circuit. But for the long haul there are still carrier pigeons, satellites and high frequencies. High frequencies remain the least costly traffic path: no satellites and earth stations, no launches and so on. The problem has been that to use this medium effectively in digital modes requires increasingly complex "processing" tasks. This is something computers do well if we tell them "what to do". The powerful and fast PC's are legendary in their capability. Now they are ubiquitous too.

We just need to put our brains to work and find a better way with the tools at hand the way the Germans did. Clover will be along soon with a new complex technique that has ten times the traffic thruput as Amtor. For the 100 baud technology that we have had for 50 years these are changing times. Why not run four Clover circuits in parallel and now you have a high frequency modem at 2,400 baud in a voice width SSB phone channel. If you can digitize data in high frequencies then you may be able to create fast practical systems for voice, music and so on. Thus, we are indeed in a new era.

de Peter, WA2MFY ■

1. P.O. BOX 360, Gladstone, NJ 07934

2. see "QEX", July 1992. p 3. et seqq.

3. Harris Model RF-3272 Automatic Link Establishment (ALE) Controller for use with their RF-3200 Series Marine and Commercial HF Radios.

HARDWARE

Jay Townsend, WS7I
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Spokane, WA 99210

Your columnist is still with you from his QTH in the wild Pacific Northwest. Things are relatively quiet, and I like it that way. Summer has brought a lot of time spent on the packet end of things which I will relate to you as I ramble along this month.

My mail bag now goes back almost to Dayton and I will catch up here this month. Paco, EA7CX writes that he has a Siemens T1000S teleprinter and is having trouble interfacing to his Kenwood TS 430S. Can someone that is familiar with the unit drop me a line so that I can give Paco some help?

Joe, AA5YA, sends along a lot of data on interfacing the Flesher TU470 to the BMKMULTY program along with the Baycomm software. I can send it out to anyone that is interested. Joe is also looking for Flesher TU170 information. I can send you the manual Joe as soon as it comes back. The BMKMULTY man has my 170 and hasn't returned it yet. Must get after him I guess. Received a nice letter from Bill, W6OWQ, about his frustrations with the ARIES-2 program and the ST-6. He wants to know about all the guys that used to write articles on the "how to projects". (I would like to know also.) If anyone help Bill with his ST-6 and ARIES-2 problem, please drop him a line direct or through me. Bill I think your solution is to outboard the ST-6 on the PK232. It will work fine. This will easily solve all of your problems without any problems. The AEA mods sure do help, but as long you have the ST-6, why not use it.

Jack, UA3RCS writes from Russia that he is looking for some DX oriented things such as old newsletters, etc. The final piece of mail at the bottom of the bag was from Carl, K6WZ, who sent a couple of great shots of his new Amp. It looks like a pair of 3-500s with real beefy parts. Look for Carl to light up the bands in the upcoming contest season

HOSTMASTER II +

Well I have rambled on enough I guess. This month I will combine a review of the KAM from Kantronics along with their HostMaster II+ software. I had spent a lot of time prior to Dayton with the Kam and their software. As you may remember I dropped the KAM from the side of a computer case on the concrete floor of Dayton (splat !!). It showed up here recently, completely repaired with a new front bezel and good as new.

I have been using the KAM for quite a while as I do some packet monitoring and node hopping. Packet here in the Specific Northwest is still rather limited. People have short views and we are in constant turmoil as more and more users join the circuits. A good book on Packet should be published. I have seen a bunch of stuff from the NEDA folks and their ex-president has showed up in the Seattle area. But some of what works on the East coast is a little foreign to us in the west with tall mountains and long, long paths.

Anyway, to make a long story straight and short. The May 18th version of HM2PLUS is not quite as stable as previous versions. This program doesn't run on a 8088 with whatever old serial card I have in it. I have an April version of Host Master II+ that does work fine. This brings up a rather interesting problem. The manufacturer just can't be expected to have each and every computer and serial card that is out there. With a million clones and brands its just impossible to catch every little software problem. Kantronics to their credit has a BBS where you can leave a message or possibly download a updated version of their programs. I haven't tested their BBS yet but anyone out

there has, how about sharing your experiences with us.

A discussion with Bill Henry of HAL Communications enlightened me on EPROM problems and all the costs involved with supporting their PCI 3000 updates. They also have a BBS to handle EPROM updates. Most hams can find an EPROM (erasable programmable read only memory) burner and the EPROMs are pretty easy to burn. However, I must admit that software without version numbers is pretty hard to track. You must use the date on the executable file.

The KAM works quite nicely on my setup. I run an old Santec HT on 2 meters on the VHF side and one of the Icom 751s on the HF side. I setup the tones for 170 Hz shift and run FSK on the HF side. It copies pretty darn good and with a VGA color screen you can monitor packet or connect to the PacketCluster and get a lot of things done at the same time. This combination of hardware and software is gaining in popularity here in the Specific Northwest and I have seen several new buyers who want to have one computer that can do it all.

The only abnormality I have is that each and every time I turn on the KAM and the computer it comes up with the autobaud question and something about frames being received. Probably with the 250 Hz filters on the HF rig it is always receiving garbage. I should look some of this stuff up in the book. Another small problem is that without some background in packet the parameters that the KAM and software start with are a bit less than desirable for many conditions. In fact I change most of them. It has a nice procedure for loading up what you want when it starts, that I use to its full advantage.

Menus in the HostMaster II+ are nice and crisp. Some of the internal functions of the program that I do not care about are the bells that it receives while in monitor mode. Might be able to turn them off, but I haven't figured out how yet! I particularly like the stop and go buttons that are used to transmit on RTTY. Works very nicely with a positive feel and control.

This is basically an update on the KAM and the HostMaster II + since I did the original some time back. Next month we will be looking at Interflex's KAM-Gold program in some detail. Since our software editor doesn't have a KAM and since there is a lot of demand for these products our Editor, Dale has asked that I give 'em a once over.

Pacomm's hardware hasn't arrived yet up here in the rainy part of the country and I had hoped to do some of the new 440 Packet gear for you this month. We also have a review of several parts coming up on the AEA DSP 2232 and modems. Interesting that as I wrote the first part of this column the temperature was 72 degrees and raining. Today it approaches 100 degrees. Ah, weather in the Specific Northwest if you don't like it wait five minutes it will change.

Another little short review. KIY Computer interface. The KIY (Kenwood Icom Yaesu) is used to connect your computer's serial port (RS232) to your radio. I picked this little device up in Dayton and for those who don't like a construction project it's simple enough. Comes complete with DIP switch control and will run all of the above radios. I get a little tired of changing cables myself. Its actually a pretty simple device, that converts the voltages between RS232 and TTL. It is well made and all you do is solder on the cables for the specific radio. It's from K1CC, Rich Assarabowski, 306 Vernon Avenue, Vernon, CT 06066 Tel/Fax 203.875.0166 and is in the $50 class. It works well with the K1EA CT program and NA by K8CC. Hope that some of the RTTY software authors get with the PacketCluster craze.

The hot tip of the month is that the BuckMaster CD on Ham Calls has a few bugs. If you don't check both HCALL and ICALL you might find some missing calls as well as out of date addresses. Try KB6GHX for example.

Well it has been a long rest for this columnist and I, like you, am ready for a more exciting Fall. The Flux has dropped 80 points and is under 100 once again. HF packeteers are up in arms about the Digital Committees report and in fact one state, Ohio supposedly has a boycott. I need to kick start myself and get some more QSOs into the log. Until next time drop me a line.

73 de **Jay, Ws7i** ■

Hits & Misses continued from page 2

3. FCC rules should be amended to allow the use of modem- dependent codes for the purpose of efficient data compression and error control on HF radio channels. The bandwidth of such signals should be restricted to 500 Hz below 28 MHz and 2000 Hz between 28.0 and 28.3 MHz.

4. The League publish a comprehensive tutorial style guide for HF radio operations clearly defining acceptable operating practices.

5. The League should publish technical standards or guidelines for the characteristics of signals generated by digital mode stations for the purpose of achieving the best possible use of the HF spectrum.

No doubt the above recommendations will for some be good news and for others not so good. I am told the Board adopted most of the recommendations as suggested. It will be their responsibility to either have a Petition drawn up to present to the FCC or maybe send it back again to the committee for further refinements. At the present time, it seems there is much discussion on the air about the recommendations with some threats and innuendos. As predicted, no matter what recommendations the committee was to make they would not be popular to all. Let me quickly point out, those of us on the committee are not gods, we are ordinary people like yourself from many walks of life. Please ask yourself, how would you have handled this very important subject. Please also keep in mind, the committee had to make some recommendations because the present STA is not going to be renewed again in 1993 by the FCC. Right or wrong we must all be guided by what the majority would like, not what we alone might like. This does not mean the committee does not have an open mind, to the contrary, your comments and criticisms are most welcome.

Let the committee know how you feel. This is not the end of the world. Be assured the committee is trying its best to satisfy the entire digital community.

That's all for this issue. 73

de **Dale, W6IWO** ■

JARTS WW RTTY CONTEST 1992

Sponsored by JARTS (President JA1ACB)
Co-Sponsored by Japanese CQ Magazine

The Japanese Amateur Radio Teletype Society (JARTS) is pleased to announce it's inaugural RTTY Contest. All Amateur radio operators are invited to participate.

Contest Period:

0000 UTC Saturday, October 17th thru 2400 UTC Sunday, October 18th. This is a 48 hour contest with no rest periods. In succeeding years, this contest will be held on the 3rd weekend of October.

Bands:

3.5, 7, 14, 21, 28 MHz

Mode:

Baudot only

Classes:

A) Single Operator, All Band
B) Multi-Operator, All Band (Single TX only)
C) SWL

Message:

RST and Operator age (00 acceptable for YL or XYL)

QSO Points:

QSO with own country, one point. Outside own country, two points. Outside own continent, three points.

Note: All JA/VK/W/VE districts are to be considered countries. Each district may only be counted the first time regardless of band.

Example: JA1ACB contacts JA1JDD, this is "in country" and qualfies for one point. JA1BIH works JA3AUQ, a different district, considered a different country, and qualfies for two points. JA3DLE/1 contacts W6IWO, a different continent and qualifies for three points.

Scoring:

Total QSO points times countries worked (per DXCC list) = score.

Example: 750 QSO points X 50 countries worked = 37,500 claimed score.

SWL:

Same rules apply as above.

AWARDS:

1st place plaque to top winner in all three classes. 1st thru 5th place certificates, all three classes in each continent. Special award for the 11th from last in all three classes.

Note: Awards will issued based on participation of 20 or more entries in each class. ***All stations submitting Contest Logs will be issued a Special Certificate for participation in this inaugural contest.**

LOGS and SUMMARY:

The logs to contain Band, Date/Time UTC, Callsign, Message sent and recieved, and Points claimed. Use a separate sheet for each band and include a Summary Sheet showing the scoring, class, your call, Name and Adress. Multi-Op stations include Names and callsigns of all operators. Please request Logs and Summary Sheet from JH1BIH, (Contest Manager).

Deadline:

Logs must be received by December 31, 1992 to qualify.

Send Logs to:

JARTS, Contest Manager
Hiroshi Aihara, JH1BIH
1-29 Honcho 4 Shiki - Saitama - 353 Japan

Log of ________ for JARTS RTTY CONTEST DATE:__________ BAND_____ page___ of___

DATE	TIME UTC	STATION	RST/AGE		NEW MULT	PTS		
			SENT	RCVD		1	2	3

DATE	TIME UTC	STATION	RST/AGE		NEW MULT	PTS		
			SENT	RCVD		1	2	3

Totals This Page: VALID QSO's: [ ] MULTIPLIERS: [ ] POINTS: [ ]

Sample Log for JARTS RTTY Contest. Prepared by Rich, N6GG.

PACKET

Richard Polivka, N6NKO
5800 South St. #221
Lakewood, CA 90713

UNIX

How many types of personal computers are out there? Well, we have the IBM PC compatible machines running the Intel 80x86 processors, Apple machines based on the 680x0 chip set, the Commodore systems, and the Atari system. To wit, each one of these machines has its own form of operating system to make the computer work. With the IBM compatible systems, the most popular operating system is generically referred to as "DOS". This is put out by two manufacturers right now, Microsoft and Digital Research. Just about everyone who has used an IBM-based personal computer has used DOS in one form or another. DOS, by default, is only capable of running one program at a time on one machine with only one user to a machine. Admittedly, there have been several manufacturers of software to allow a DOS based machine to run more than one task at a time. Probably the rank of most well known goes to either Windows or to DESQview. Which one is the leader at this time is not known to me. This software still allows one machine to have one user but is able to run several programs at once. Windows is graphical in nature and DESQview is character based when it comes to the user display. They are both memory pigs requiring large amounts of RAM to function adequately (4 MB).

With the advent of microprocessors that have large data word lengths (32 bits), a whole new ball game has started. These new processors are much faster than their predecessors and can perform a given task faster. Because of this development, the use of a minicomputer to mainframe operating system has taken hold. These operating systems allow for many users to run many programs at once. One operating system that is being used is called UNIX. Now I am hearing people say that it is too complicated and expensive to run. Let's see, you can buy many machines and network them together for many people for a large sum of money. Or, you can spend the money and get one machine that can handle many people at once and just hook up terminals to the main system. I will let you figure out that one.

Now what does this have to do with someone who runs packet? Well, lets say that I wanted to run a packet BBS, a landline BBS, and have a personal system. I could run three separate computers, each one dedicated to it's task. In terms of hardware, that would be expensive. However, with UNIX, I could have the packet BBS, landline BBS, and my own system all running off of one machine. I would also be able to do more processes, more efficiently, than with three machines all running separately and tied together by a network.

So, I have gone the way of UNIX here. It allows me to run several programs at once and on one machine, if I desire. The version of UNIX that I am using is sold by Interactive Systems, which is now part of SunSoft. I managed to pick up an obsolete copy of UNIX SVR3.2 from Leo Electronics in Torrance, CA. The price was quite reasonable and I did not have to pay full list price. This package also included a set of software that allows me to run DOS-based programs in a multi-programming, multi-tasking environment.

Rudy Hartmann of Leo Electronics has several different packages of UNIX based software. They are not the latest and greatest as he dabbles in buying obsolete software and reselling it in the original packages at a discount. His operation can't really provide on-line assistance to solve problems because of their size. I honestly suggest that you look into this. I realize that OS/2 2.0 is out but as it stands now, there is little software that is out for OS/2. I know that there are BBS programs, TCP/IP programs, etc., that are available for UNIX. If you want to get your fingers on a real operating system for your 386 or 486 machine, check this out. Leo Electronics can be reached at 310-212-6133 inside Ca., or, 1-800-421-9565 elsewhere.

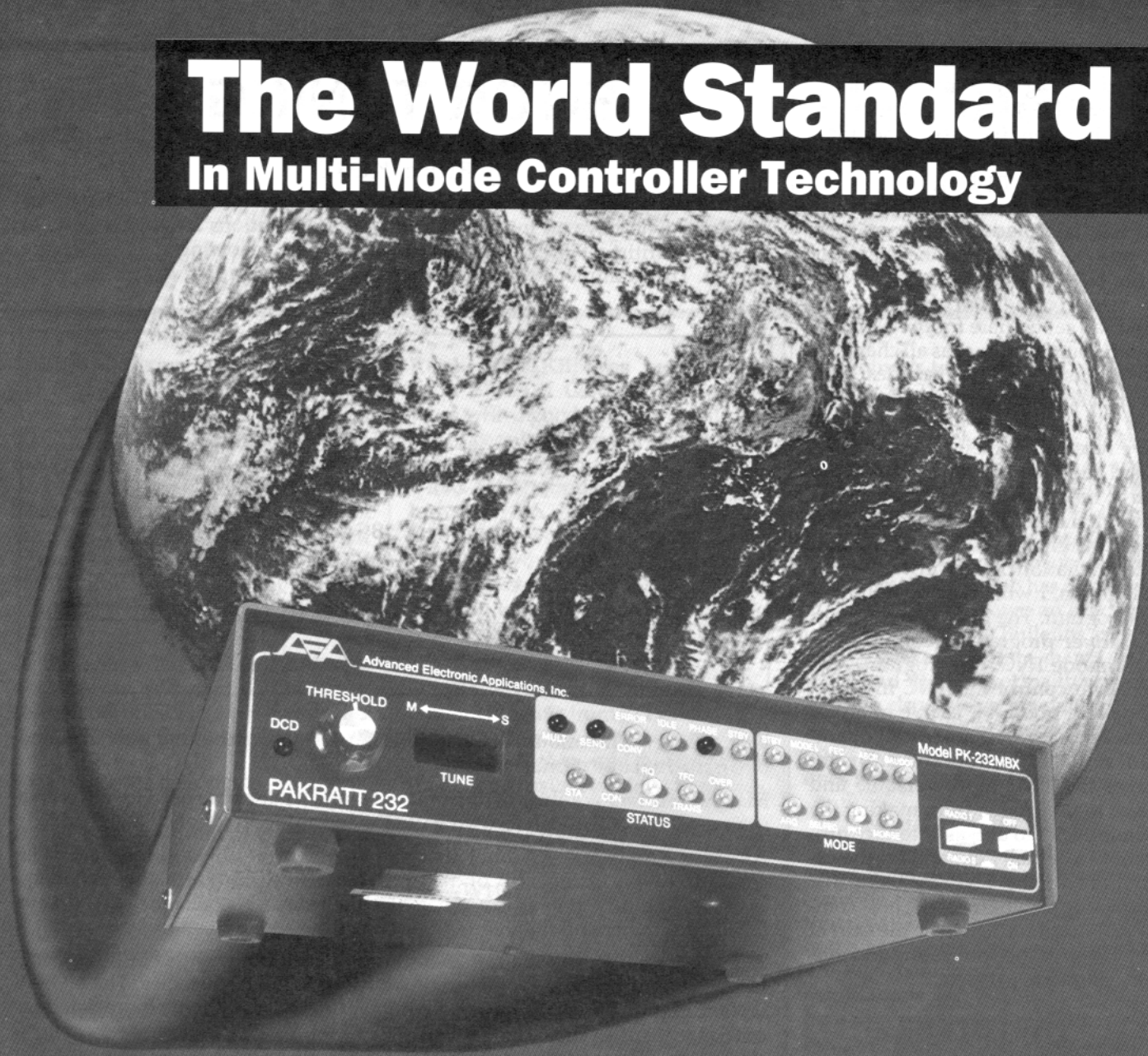
HF PACKET REDUX

Many times I have espoused the nonvirtues of operation of packet on HF. The medium does not support the requirements needed for accurate transmission of packet information. All it takes is ONE bit to be wrong and the packet is trashed. Well, this could be eliminated by the following product. Space Research Technology of Houston, Texas is now marketing the SRT-241203 and the SRT-24INT chips. These chips perform FEC and interleaving/deinterleaving of data that is presented to them. According to the documentation, the chip pair can correct burst errors from 9 bits in length to over 12 kbits in length.

These chips could help out the thruput on the HF bands for any of the digital modes, except CW. Of course, a system configured with these chips would be non-compatible with a regular packet system. I guess that is the price of technology. I know that the FCC would have to be involved with this because it would cause the transmission of an unrecognizable code. Since the interleave rate can be specified, the FCC would have to specify which interleave values are to be used. This specification would be similar to the pseudo-random number and feedback tap restriction for the randomizer for spread spectrum communications. Now to start ex-

The World Standard

In Multi-Mode Controller Technology



The PK-232MBX is the undisputed leader in multi-mode controllers. Here are a few reasons why:

Filtering. With a high-quality front-end filter (seventeen-pole effective filtering), the PK-232MBX gives you the best HF performance of any multi-mode controller.

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Modes. The PK-232MBX can transmit and receive AMTOR, Morse, Baudot, ASCII, Packet, and WEFAX. In addition, it can receive NAVTEX (NAVigational TelEX) and TDM (Time Division Multiplex) for a total of eight different types of signals.

AMTOR and Packet Mailboxes. The only controller with a mailbox for both packet and AMTOR is of course the PK-232MBX.

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perimenting with this. This system could be a big help to communications over HF links by patching up errors that occur because of the ether.

SOFTWARE

The best laid plans of mice and men oft go astray. I feel like the character in the Lil' Abner cartoon that always has a storm cloud over his head. I had things all set up here for the next two months but that now has all changed. I have just received the latest and greatest software release from Inter-Flex Systems. The program that I have received is their PkGOLD Ver. 7.25. I received this on August 2nd, and I have not had a time to go through the whole package yet. What I will cover first is the documentation and installation of the software. After installation, I will cover operation of the program. The PkGOLD program is a driver program to control your multi-mode TNC. The program is designed to control the TNC in "host" mode and present a usable interface to the operator. The host mode operation and the appropriate software makes the TNC more versatile and easier to use. Aside from making the system easier to use, an interface program can actually expand on the capabilities of the TNC by using the processing capability of the host computer. Next month, will be the start of the review of this interesting and versatile software package.

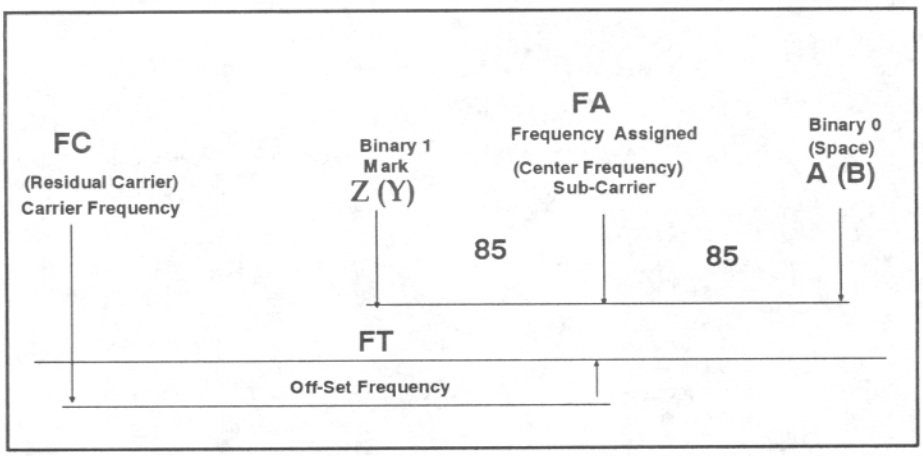
THE FUTURE

Who knows what lies in the future for packet radio? I had a discussion with a computer hardware designer I know personally and our discussion centered on what it would take to improve on the design of a receiving radio. The consensus was that if you take off all of the glitz, you still have amplifier, oscillator, mixer, and filter sections. It is a nasty thought when you reduce something that far and it makes you think what improvement or major redesign could be done to something that simple. We came up with practically none. I am afraid that packet radio may be the same way. I know that we will always try to send something different using packet radio, but packet radio will stay the same. Now if FDDI could be sent over radio. de **Richard, N6NKO** ■

SITOR TUNING

by Bruce, KO5T [1]

For those who have an interest in tuning SITOR stations for the purpose of copying Maritime TELEX channels or weather, the following suggestions are offered. The example used is for station WLO but will apply to other stations as well.



Transmitter -- The amount of Offset (FT) is a design variable and is determined by an internal or external modem.

Marine Receiver -- Values of transmitter FC and FT are of no need to the receive system which will match its own FT to the incoming "frequency assigned."

Amateur Receiver -- An amateur radio can monitor either side of a SITOR communication, using LSB or RTTY modes. Add 85 Hz to the frequency assigned and tune it in as the Mark. Maritime ship Telex channels (ARQ) are listed by number and the frequency assigned for ship and shore.

Frequencies -- During the last 25 minutes of each hour, with FEC, following traffic list and WX info, you can copy a list of WLO frequencies. The NOAA WX is updated every 6 hours, and ARQ Maritime Telex channels are listed by traffic frequencies such as:

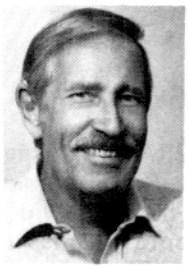
WLO Freq. Assigned	Amateur Mark
6416.0	6416.085
8514.0	8514.085
12886.5	12866.585

Technical - SITOR uses USB with binary one (Mark) the lower emitted signal. Since the Mark is closest to the carrier in both AMTOR and SITOR, the lower tone is generated in each case. If LSB is used to monitor a USB SITOR transmission, the Mark will be the farthest from the carrier and generate the highest tone, but the polarity does not need to be reversed from that of AMTOR. An amateur radio can also use USB to monitor SITOR. FA your FT (usually 2210) = FC. Use reverse polarity.

Good Luck and happy monitoring.

de **Bruce, KO5T**

1 Bruce Hoff, KO5T, 1007 W. Ninth , Freeport, TX 77541



DX NEWS

John Troost, TG9VT
P.O. BOX 52463
Miami, FL 33152-4263

First of all, congratulations to Gin-San, JA1ACB, the first RTTYer to make it to the Honor Roll of DXCC on RTTY. Great job Gin-San and the many years of work.

The one thing I don't understand is why the ARRL elects to call it "Mixed Honor Roll": Is it not just "RTTY Honor Roll?" In any event nothing detracts from this Great Achievement.

And it seems that Luciano, I5FLN, is not far away, with near 120 Countries confirmed on RTTY. So, finally we have RTTY on the Honor Roll: Great!

SUMMER HAPPENINGS

It has been a summer with pretty poor propagation, after all the Sun Spot Cycle is on its way down. Doubtful that we will see the great conditions of last year for another seven or eight years, if we live that long.

Yet there has been some fabulous **RTTY DX.** Here were the group from Hungary, on an around the world bus trip, licensed to sign **S2/HA5BUS** and doing a great job of it. A very exclusive adventure that is: and I met those people in Budapest some years back and when they told me about their World Wide Bus trip, I had to smile: just could not believe it: but look at what they have been able to accomplish.

And then there was **FR/DJ3OS** operating from **GLORIOSO**: Seemingly first RTTY operation from that island ever. His signal was not very strong but he made lots of people happy on five continents. To work him, as TG4VT, I had to get up at three in the morning, but was happy to get a long path opening at 1044Z on the 18th of May: hope the QSL will follow.. Great going!

Keith, **VP8CKB**, was very active from **SOUTH GEORGIA**, not always with a good signal, but making lots of people happy and will be there for another few years. And Gavin, **VP8GAV**, continues to make people happy from **Antarctica**, as Bob, **VP8BFH**, from the **FALKLANDS**. Quite a group of RTTYers down there: guess the VP8SSI expedition did a lot to instill the spirit and their QSLs are a little quicker then the SSI Group.

VR8BX has been and continues to be extremely active from **PITCAIRN ISLAND**, a country, not so long ago one of the rarer in the world, but Brian has made it accessible to almost anyone. Thanks Brain.

And Jim Smith,VK9NS, made a great operation from **WAKE ISLAND** as **KH9/W1RZ**. He continues on his journeys and is currently QRV from **BANGLADESH** as **S21ZA**. He has plans for **HEARD ISLAND**, if the money can be found: That is an expensive venture and any help will be appreciated. This goes also for his planned operations from VK9M, MELLISH REEF and VK9W, WILLIS ISLAND, scheduled for later this year: the cost is just to prohibitive for one group to bear it alone.

Jaques, **FR4ZU** has been quite active on this wonderful mode. He says that he plans an Indian Ocean trip in September and plans to activate **GLORIOSO, EUROPA** and **JUAN DE NOVA**. Hope that the trip comes off without hitches; that will make a lot of RTTYers happy.

And **AP/WA2WYR** continues to do his very best to make sure that no RTTYer would be in need of **PAKISTAN** anymore. That one has been a real boon for many.

Of course a myriad of other rare and semi-rare stations have been active this summer, just too many to name. Best thing is to keep tuned on to the Weekly RTTY DX Notes, edited by Syd, VK2SG or sometimes by Luciano, I5FLN. Syd, as I, is getting along in years and has sudden summons from doctors and off he is to the hospital for a week or so and during that time Luciano has been good enough to take over the job, in spite of the fact that Luciano has a full family life and holds down an executive job. The RTTY DX Bulletins can be readily picked up from many ARQ, RTTY and VHF Packet mailboxes and recently also on several satellite BBSs. Reading that will make sure that you don't get your information on new ones when it is already history.

NEW COUNTRIES

There is no doubt North Korea will come on the Air sooner or later and that it will be a "New One" for everybody, any mode. Lots of discussions are held behind the scenes but the negotiations are not easy. I would hate to predict when it will happen, but one thing is for sure, when a properly authorized operation comes on the air, the DXCC Desk will accept the cards for DXCC credit. This year? Next year?

There was a lot of activity from **SNAKE ISLAND, 4K5ZI**, an island in the Black Sea, the Country Status of which has not yet been properly tested. It is claimed by Russia, but separated from that country by the Ukraine. the DXAC will surely receive an application for Separate Country Status.

The DXAC will have a voting meeting on 24 August to decide on the Status of the countries now recognized by most World Organizations and the U.S. Department of Sate, i.e. **CROATIA, SLOVENIA, BOSNIA-HERCEGOVINA, MACEDONIA** and possibly a Change in the Country

Status of YUGOSLAVIA. 9A1CCY has been active on RTTY from Croatia.

At the same time the DXAC will examine if **ABU AIL** still merits separate country Status, considering the recent changes in administration of the Light House. Also the status of **4U1VIC** in Vienna is up for re-examination.

And, finally, **BANGLADESH** seems to be opening up with a big bang: many different operations at the same time, and we hope it will stay like that.

On the other hand, the controversy about **MOUNT ATHOS** seems to continue. The monk Apollo, **SV2ASP/A** has sent an open letter to the **ARRL**, stating he would discontinue any further operations, unless the **DXCC** status of Baldur, **DJ6SI**, for his Athos operation were to be classified as illegal, and that only Permits bearing a Greek Signature would be considered for a Mt. Athos license. Is there never and end to the Mt. Athos controversy?

GOD BLESS YOU ALL

This was a short summary of about a pile, three inches thick of notes, accumulated during the summer. But who is interested in things long passed (wish I were there). So will leave it at this. One could write forever about RTTY DX happenings, but I cannot write any more. I have gotten to a point, even though retired from work, where I no longer have the energy, nor health, nor eye-sight to keep up writing this Column. Besides, I have to spent more time with my family and to take care of my health. Hence, regretfully, this is the last column I present to you, unless my health changes drastically in the near future. It has been a pleasure serving you all this time and I hope I can resume the work, if the Lord lets me. See you on the air anyway.

I was very gratified with the readers response on the story of Tom, OD5NG: thank you all. Hope we see Tom on the air from some out of the way place soon.

Many thanks to all those, who have spoon-fed me DX information over these years: without you this column would not have been possible. Special thanks go to VK2SG, I5FLN, W2JGR, KB2VO, WB2CJL, K6WZ, W6PQS, OH2BU, and many others. May the Lord bless you all and give you health, happiness and a lot of DX.

I will miss you all!

de **John, TG9VT**, still on my mountain top. ■

To: John Troost, TG9VT

From: the Publisher

If you have read John Troost's Column this month, then you know that he is no longer going to be our DX News Editor. John has done an extraordinary job with the column and will be sorely missed. Even though John's health has not been up to par for the past year or so, being the trooper that he is, he has carried on with his column. There were a few gaps when John was in the hospital but other than that, he has stayed in here knocking our socks off with his pertinent information each month. Now that era is closing and just a simple "thank you" doesn't seem appropriate but it is all we have to offer. But the thank you comes from deep within our hearts and is the warmest and most sincere. We all salute you John for keeping us posted with your timely news each month.

Behind the scenes, you have also worked with the IRDXA to help bring new countries to us. On and on it goes, so many accomplishments, from your DX News APlink files to RTTY Contest awards; you have had a lot of fun from Ham radio. May you continue to enjoy this great hobby for many more years to come.

We will not say good-by John that sounds to final. Instead we just say "so-long", we will see you on the air or in person real soon.

John, as I humbly try to express the appreciation we all have for you and your contribution to RTTY and Ham radio, may you continue to attack DX as if it were a tiger, grow healthier each day, enjoy the fruits that life has placed before you, and we all wish you happieness for the rest of your days on this plentiful planet.

Adios Amigo! Que te vaya bien.

Dale, W6IWO

DX NEWS FLASH

Christmas in September?

YES, Indeed! as T32RA, Bob Artigo (KN6J) and T32RS, Bob Summers (N6OXR) head up a first class Multi-Multi operation fromChristmas Island for CQWW-RTTY the last weekend in September. Look for lots of T32 activity on 9 bands and all modes, as the entire crew, which includes W6OTC (T32GV), WU6A (T32WS), NI6T (T32CW), KE6FV (T32SS) and KE6GG (T32GG), arrives on the island on September 22.

The focus will be on DX and world-class Bonefishing during the week as the team tune antennas by Cushcraft, radios by Icom and TNCs from AEA in preparation for the big contest effort. You shouldn't miss T32 this time with this DX team in operation around the clock, and especially, make it a point to work T32RA RTTY on Saturday and Sunday. Antennas include mono-band yagis for the high ones and lots of wire for the low ones...with enough power to let us be heard.

QSLs will be handled by each operator direct with top-notch cards planned by all. Listen to the operators for some "Special" Certificate awards as well, for most T32s, most bands worked, and so forth...73's...CU from Christmas.

de **Bob, T32RS es Bob, T32RA** ■

PACKET RADIO PRIMAR

The National Amateur Radio Association announces their new book intitled, "How to Get started in Packet Radio." This new book was created by world famous author Dave Ingram, K4TWJ.

Dave is an instuctor and understands how to explain complex subjects in simple terms.

This new book sells for $9.95 and is available from most Amateur radio dealers or direct from NARA, P.O. BOX 598, Redwood, WA 98073-0598 or via telephone 1-800-GOT-2-HAM.

CLASSIFIED AD DEPARTMENT

First 30 words $7.50, additional words 10 cents each. Cash with Ad. Deadline for ads is the 1st of month of publication.. (Example - Ad arrives by the 1st of September, will appear in the September issue.)

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

FOR SALE - HAL ST-6000 terminal unit in excellent condition. Includes manual, all connectors and shipping. $325.00, Joe, W6RLL, (602) 364-8616

FOR SALE- AEA CP-1 RTTY/AMTOR/CW Terminal unit with BMKMULTY software by G4BMK. Includes customized cable for interfacing with IBM PC or compatible. Mint condition, $125.00 OBO for both. Butch Tonolete, N6NSM/4, 10260 Greystone Rd., Manassas, VA 22111. (703) 335-9352

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