RTTY

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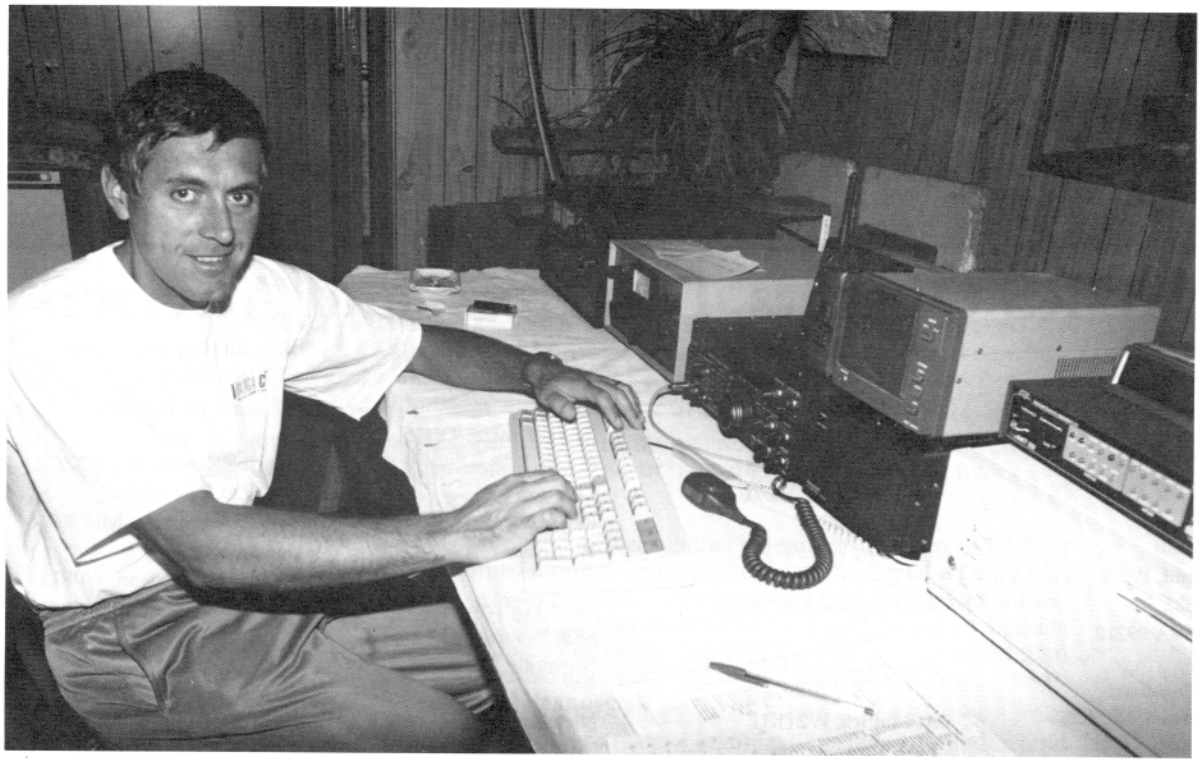

Gilberto Botta, IK1HSR, operating in CQ WW RTTY 1993 Contest, class MOS. Claimed score 376,596 with 473 QSOs

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A Message From The President of ADRS

A WORLD OF WELCOME

This is the first issue of the **RTTY** *Digital Journal* under the ownership of the American Digital Radio Society. With this issue the Society also acquires many new members and the *Journal* acquires many new readers. All of our subscribers are automatically members of the ADRS and all the members of the Society are now subscribers to the *Journal*. A hearty welcome to all!

What are we about? I think the best way to describe the ADRS to our new friends and older members alike is to set forth in a single statement what goals we hope to accomplish. Simply put:

> THE PRINCIPAL GOAL OF THE AMERICAN DIGITAL RADIO SOCIETY IS TO ADVANCE DIGITAL TECHNOLOGY AS IT APPLIES TO AMATEUR RADIO AND TO PROMOTE THE WISEST USE OF THE DIGITAL PORTION OF THE AMATEUR RADIO SPECTRUM. THE ADRS BEST SERVES THE GLOBAL FRATERNITY BY ENHANCING THE OPPORTUNITIES FOR ALL WHO CHOSE TO EXPLORE THE DIGITAL MODES.
>
> Thus the ADRS:
>
> **Provides** a continuing, world-wide forum leading to the improvement of present technology and practice, the development of new modes and the efficient use of the digital spectrum.
>
> **Maintains** a thoughtful, unified representation of the digital community in all regulatory concerns while recognizing that all amateurs have a stake in such proceedings.
>
> **Produces** the **RTTY** *Digital Journal*, the premier source of news and information for all digital activity. The ADRS uses the publication to attract new digital users and to inform all readers about new and more effective operation and procedures.
>
> **Fosters** an atmosphere of enjoyment, mutual respect and support, both on the air and at any occasion when two or more digital users congregate.

This may seem like a tall order, but I am certain that we can and will succeed. When we do, we will have performed a great service, not only to the digital community, but to all amateur radio. We recognize that many hams use the entire range of their license privileges from CW to SSB, AM, even occasional HF AM. And they operate AMSAT and SSTV. We won't impinge on the legitimate rights of these non-digital users in order to procure some esoteric "right" for digital operators, of any sort. We respect all the other modes and their users.

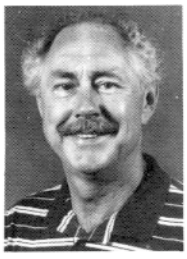
The ADRS was formed because other amateur organizations failed to understand either the technology or the aspirations of the digital user. We need our own voice and we now have it . . . the ADRS and the **RTTY** *Digital Journal*!

I wish the continuing *Journal* Editor and new *Journal* Publisher well. Dale Sinner, W6IWO, has done a superb job in both roles for the last several years and we are lucky to have him stay on as Editor. Jim Mortensen, N2HOS, our new Pubisher and Jay Townsend, WS7I, our new Director of Marketing will join with him and make us all proud of both the *Journal* and the ADRS.

A very Happy New Year to our new and old members and subscribers.

73

Warren, W2NRE



HITS & MISSES

Dale Sinner, W6IWO
1904 Carolton Lane
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THIS IS NOT GOOD-BYE

Since taking over the helm as Publisher, Owner, Editor of the RDJ back in 1986, my life (my XYL also) has been significantly changed. My purpose in the beginning was to fill my idle retirement days with something to do. Instead, I fell in love with this new pursuit and it's many challenges. To this day I am still having fun producing the RDJ for my favorite phase of Ham radio. A phase that has seen a complete revitalization in these past few years. How was I to know that AMTOR was going to make a sudden surge forward to become a popular mode of operation. Nor did I envision the other new modes to come upon the scene. PACTOR and Clover have now become by-words in our every day schedule.

I only saw an opportunity to inform and thus placed my thrust into obtaining Hams who were also interested in helping me pursue this goal. Happily, many stepped forward to assist. Today I feel the RDJ has reached a more prominent position in the circle of Ham communications media. Therefore, I am most thankful to all who helped make this possible, i.e. writers, subscribers, advertisers, and many others who helped spread the word about the RDJ. It is not yet time for me to fully retire. I am not the type you would associate with the proverbial "couch potato." So, when the ADRS asked me to remain as Editor of the RDJ I did not hesitate to say yes.

When the ADRS approached me last September I really had no firm intentions to sell the RDJ. Although I knew that day would come in the not to distant future. Admittedly, I had contemplated the sale for a couple of years. My goal being, to find a good solid home for the RDJ. The ADRS meets this goal. Not only will they bring new ideas and strength to the RDJ, they will also bring formal representation to the digital community. I had already been a strong supporter of the organization and have promoted it's formation whenever possible. In years past, I can remember other groups attempting to form, only to see them fall by the wayside but, times change and so has our phase of Ham radio.

A new era in digital radio has arisen. A great explosion has occurred. In part, thanks to the affordable price of today's computers. Computers have taken us to new heights in digital amateur radio. Our ranks have grown significantly and our technology has leaped forward. Along with growth and advancement comes problems. However, problems are no stranger to us, we have endured many in the past. But this time they have been magnified by our growth and technology. This has brought about the need for change.

WE NEED CHANGES

Our newer modes with all their excitement have also brought about some serious problems. We need to adjust our thinking, operating habits, spectrum usage and our attitudes toward change. The ADRS will provide the leadership needed to address all these new digital problems. They will also provide a proper and permanent home for the RDJ. What more could you or I ask for. I am looking forward to my new association with the ADRS and I hope you will be also. In this issue you will find more information about the ADRS, please read them all with an open mind.

I look forward also, to working with the slate of officers of the ADRS and with Jim, N2HOS, (our new Publisher) and Jay, WS7I, our new Marketing Director. You the reader, will benefit tremendously with this change of ownership. Not only will you see improvements in your magazine but you will be gaining valuable representation for the digital community. Organized representation that will, no doubt, further advance our phase of Ham radio. So, hang in here, we're moving in a forward direction. I can't be more pleased and your continued support will make me even more pleased.

DAYTON

The block of rooms I had booked at the Radisson are now all spoken for and I have a standby list in case of cancellations. Now it is time to start pushing the RTTY dinner that is held each year on Saturday night at the Radisson hotel. On page 24 of this issue you will find the dinner announcement. Please sign up early. We also need your commitment so that we can advise the hotel of how many are going to attend this gala affair. Last year we had an almost a sellout crowd and with all the rooms now gone, I look for an even larger turnout. You won't be disappointed, each year the Radisson crew has provided us with an outstanding dinner menu backed with superb service. Look for more details next month.

All for now. de **Dale, W6IWO** ■

Standing, L. to R. Robert, Marc, and Justin. Seated, L. to R. Hugo, Mary, and Joe. See story in Software column.

HARDWARE

Mike Candy, KI7FX
9111 A Utah Dr.
Fairchild, WA 99011

Greetings once again! The holiday season has passed and another new year is upon us - time for looking at the HARDWARE that makes our hobby so enjoyable. Fortunately for us, we have a real electronic Ace living here in Spokane - if only part time. Rory Davis (N7CR) has been a life long resident of this sleepy Inland Northwest town, and between his travels as a Maritime Radio Officer, he usually provides us with some very interesting circuits and interface projects that benefit the amateur community. Recall Rory's article in the February 1992 RDJ article "555 Timer for Icom 761 and PK232 for APlink" and you will have an idea on Rory's skills. Currently, he is running an APlink/Clover BBS and is always busy forwarding traffic in one direction or another! ! Rory can be reached at the below listed address if you would like more details on his latest project:

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In this issue Rory has providedus with another interesting interface solution. Follows is his control circuit for the APlink/Clover-II BBS

This newly designed system for APlink/Clover consists of a 386DX/25 computer with a HAL PCI-4000 Clover-II Radio Modem, a HAL PCI-3000 Multi-Mode HF Data Modem installed inside, two RS-232 high speed (16550UART) serial ports, 100Mb hard disk, and VGA graphics. For the packet side, a Kantronics KPC-3 TNC is used, and an Icom-761 produces 100 watts for the HF link. Running software includes MS-DOS 6.2, DESQview for multi-tasking, APlink software by Victor D. Poor, W5SMM; and W0RLI PBBS software by Hank Oredson, W0RLI.

This is quite a handfull of hardware and software, but Rory manages to operate it all from his "rolling QTH" - A motorhome parked temporarily at the permanent QTH of Geoff (N7DYX) here in Spokane.

In over a month of operation, there have been a few minor problems encountered. On occasion, the computer would lock up, or not recognize the scan control. Since this article was written, enhancements have been made to the firmware to enhance mode selection and frequency programming as well as converting the ASCII numerical strings to the Icom CI-V format.

PIC SCAN/TRANSMIT MODE CONTROL FOR APLINK/CLOVER-II BBS

The construction of this interface was made necessary by the conditions encountered when running APLINK and W0RLI BBS software simultaneously under DESQview. Here are the problems I encountered:

1. Autoforwarding. W0RLI goes into an Autoforward sequence once an hour, and doesn't care whether the HF transceiver is active or not. This is a problem when it occurs during an AMTOR QSO under APLINK. It manifests as a pulsing of the PTT line to the transceiver, which interferes with the AMTOR link.

2. When the system is inactive (scanning), a way is needed to stop scan, QSY the HF transceiver to the calling frequency when an autoforward is initiated. The W0RLI mailbox software provides for the sending of ASCII codes to a serial port, however the codes used were specified for Kenwood equipment, and were incompatible with my Icom 761.

3. Scan. I needed a way to initiate scan, stop scan when a valid selcal was received on AMTOR, or a Clover link was established. These can be detected by the SEL-CAL signals from the PCI-3000 and the PCI-4000, however, if the PCI-4000 goes into a Clover transmit condition (as when an Autoforward sequence happens), its selcal line becomes active, which can possibly initiate scan.

4. Manual operation. I needed a way to stop scanning and be able to select between Clover and AMTOR modes, to inhibit the one not in use at the time.

- Here's how I addressed these problems

I chose the Microchip Technologies PIC 16C56 RISC microcontroller to accomplish the required tasks. It is a versatile and easy to program device, and has sufficient horsepower in terms of on-chip RAM, ROM and I/O ports (32 bytes of registers, 1K of 12-bit EPROM, and 12 bits of bidirectional I/O), and is relatively inexpensive. I am using a clock speed of 4 MHz, which gives an execution time of 1 microsecond per instruction.

The controller intercepts the PTT and SEL-CAL lines from the PCI-3000 and PCI-4000. It also receives an RS-232 input from the COM1 port from the W0RLI MBO software. It outputs a TTL-Level serial (ICOM CI-V) and a controlled PTT to the IC-761. Receive audio is routed directly to the PCI-3000 and PCI-4000, Transmit audio from the PCI-4000 is routed directly to the IC-761 (through a level-set potentiometer), and the FSK keying signal is routed directly to the IC-761 from the PCI-3000.

HARDWARE DESCRIPTION

- Power Supply -

A 7805 regulator (with appropriate bypassing) provides regulated 5Vdc to all circuitry. 13.5Vdc to the regulator is provided by the IC-761 DC-OUT connector.

- Inputs -

The SEL-CAL and PTT lines (open collector switches from the PCI-3000 and PCI-4000) are connected to inputs of the PIC, and pulled HIGH by an LED/270 ohm resistor circuit connected to +5V. This accomplishes two tasks, one being a visual display of activity by the PCI-3000 and PCI-4000 (Red LED for PTT, Green for SEL-CAL) and providing a logic high during inactivity of those signals.

The RS232 line is connected to an I/O pin of the PIC through a 22K ohm current limiting resistor. The PIC is capable of reading the +/- 12V RS-232 signals directly without the use of a level converter, due to its I/O protection circuitry. The PIC reads ASCII from the RS-232 line at 1200 baud.

A 3 position SPDT toggle switch (Center OFF) is used for manual control input. The center (common) pin is connected to GND, while the two contact closure terminals are connected to I/O pins of the PIC with 20K ohm pull-up resistors.

- Outputs -

PTT - An I/O pin configured as an output is fed to the base of an NPN switching transistor, typically a 2N2222A or equivalent through a 10K ohm resistor. The emitter is grounded. This provides an

open-collector switch to the PTT line of the IC-761 transceiver. A HIGH output on that I/O pin switches on the transistor, keying the transceiver. This is necessary since the PIC does not use open collector outputs on its I/O ports. Additionally, a Red LED/resistor is connected between the collector of the transistor and +5V, which provides a visual indication of PTT output activity.

- - CI-V Serial Port to the Icom 761 -

An I/O pin configured as an output is fed to another NPN switching transistor through a 10K ohm resistor. The transistor's emitter is grounded. Another 10K resistor provides bias for the switch, which outputs +5V to the CI-V line when inactive. The CI-V line goes to a logic low when the transistor is turned on by the I/O pin. The controller sends CI-V data at 1200 baud to the transceiver.

- - LED Output -

Another PIC I/O pin is connected to a Green LED and 5V through a 270 ohm resistor. Controlled by firmware in the controller, this LED is illuminated during SCAN operation, and blinks rapidly in MANUAL operation, alerting the operator in case the toggle switch has been left inadvertantly in one of the MANUAL positions.

- - Scan Output -

A PIC I/O pin is connected through a 10K ohm resistor to another NPN switching transistor, much the same as the PTT output to the transceiver. This open-collector switch is turned on during non-scan activity of the controller, as it is fed to the scan switch controller described in my February 1992 RTTY Journal article. The controller inside the transceiver pulses the SCAN switch contacts on a LOW-to-HIGH transition of this signal after a short time delay for "tailenders". The SCAN output of the controller described in this article follows the same conventions as the SEL-CAL output of the PCI-3000 and PCI-4000 in the "continuous" mode.

PROGRAM OVERVIEW

The controller operates in 6 modes: Scan, AMTOR (drop from scan when called), CLOVER (drop from scan when called), Manual CLOVER, Manual AMTOR, and CLOVER Autoforward

- - SCAN (Normal operating mode) -

The controller scans by sending memory channel commands to the transceiver via the CI-V port at timed intervals. During these intervals, the controller monitors the SEL-CAL and PTT lines from the PCI-3000 and PCI-4000, and the RS-232 input. Any LOW on these inputs will stop the scan, and the controller goes to the appropriate program routine which handles the input.

- - AMTOR (drop from scan) -

If the PCI-3000 (AMTOR) SEL-CAL or PTT input is detected, the controller goes to a routine which simply echoes the AMTOR PTT line to the output PTT. During this time it monitors the PCI-3000 SEL-CAL line for a high. It ignores the RS-232 and PCI-4000 PTT and SEL-CAL lines. When the PCI-3000 SEL-CAL line goes high, the controller returns to the SCAN mode.

- - CLOVER (drop from scan) -

Operation is much the same as the AMTOR (drop from scan) mode, except the PCI-4000 SEL-CAL and PTT lines are utilized.

- - Manual CLOVER/AMTOR -

A low on the manual Clover or AMTOR inputs (SPDT switch is thrown in MANUAL CLOVER or MANUAL AMTOR position) will cause the controller to cease scanning, flash the MANUAL LED indicator, and echo the PCI-4000 or PCI-3000 PTT line to the transceiver PTT. The operation of this mode is much like the drop from scan modes, except the switch closure is monitored instead of the SEL-CAL line. When the manual input goes high, the MANUAL LED stops flashing and the controller resumes scanning.

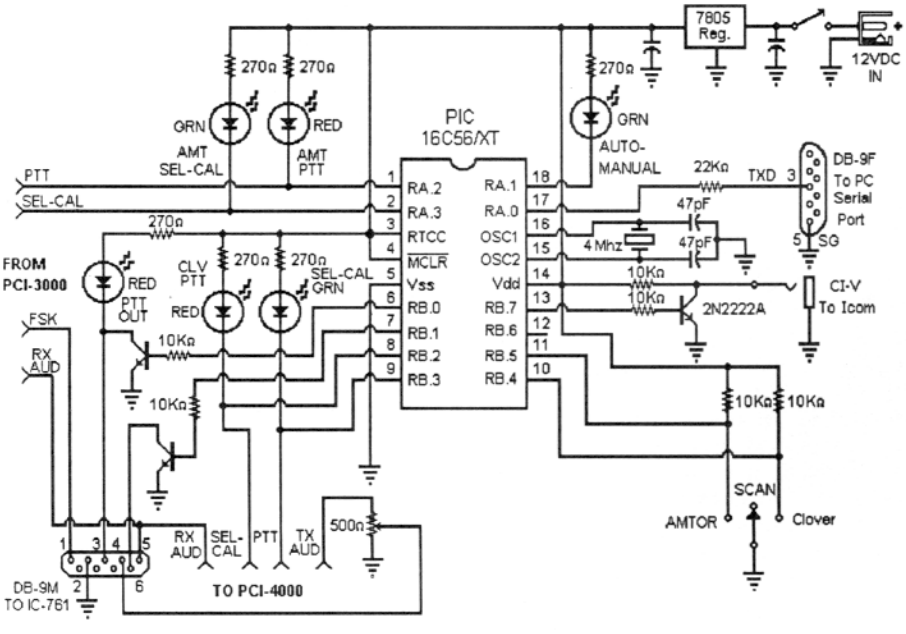
AUTOFORWARD

During SCAN only, if a start bit is detected on the RS-232 serial input, the controller ceases scanning, and reads the serial input. The W0RLI bbs software can be configured to send an ASCII string to a serial port at the commencement of an autoforward sequence. In this case, I have configured W0RLI to send the string "Mxx" where xx is the memory channel number of the transceiver which is programmed to the listening frequency of the MBO I wish to autoforward to. The controller sends the memory channel xx command to the transceiver in CI-V format at 1200 baud, thenechoes the PCI-4000 PTT to the transceiver while monitoring the SEL-CAL, MANUAL, and RS-232 inputs.

With the particular manner of scanning used by my Icom 761, the controller sends a short pulse to the PTT of the transceiver, which stops the scan. After a short delay, the "change memory channel" command is sent via the CI-V port to the transceiver.

At the completion of an autoforward sequence, the W0RLI software can be configured to send another ASCII string to the serial port. I have configured the program to send the ASCII character "S". The controller recognizes the S command, exits from the autoforward routine and resumes scanning.

If either of the MANUAL positions of the toggle switch is selected, the controller immediately goes to the MANUAL CLOVER or MANUAL AMTOR mode as selected, which in effect aborts the autoforward sequence. Once the autoforward sequence times out, the switch



may be returned to the SCAN (center) position, and normal scanning operation may resume.

I tried using the CI-V port to scan the transceiver, however I found that method causes unnecessary wear and tear on the bandpass filter relays and the motors of the autotuner. Pulsing the MIC UP/DWN button lines at the microphone jack would do the same thing. I opted to pulse the front-panel SCAN button of the IC-761, for in the SCAN mode, the IC-761 disables the TX bandpass filter relays and the autotuner. When scan is stopped by a PTT closure, the TX filter relays and autotuner are energized and the transceiver operates normally.

A note about signal time delays through the controller. When scanning, the controller samples the SEL-CAL, RS-232 and manual toggle switch inputs once approximately every 20 microseconds, while in the RCV AMTOR, RCV Clover, and manual AMTOR/Clover modes samples the PTT and manual switch inputs every 15 microseconds. This delay is miniscule compared to the TX switching times of most transceivers, and should have no effect on operation.

A programmed PIC 16C56 microcontroller is available from the author for $20.00 including shipping, at the above address.

Acknowledgements:

"PIC" and "PIC 16C56" are trademarks of Microchip Technology, Inc.

"PCI-3000", "PCI-4000", "Clover", and "Clover-II" are trademarks of HAL Communications Corp.

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"W0RLI PBBS" Copyright 1993 by Hank Oredson, W0RLI.

My thanks go to Hank, W0RLI for his development of the W0RLI PBBS with Clover operation, Vic, W5SMM for APLINK, to Jay, WS7I and Mike, KI7FX for their encouragement and support in the development of this device and the writing of this article.

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1. COM America, "ICOM CI-V Communication Interface - V" document.

2. HAL Communications Corp, "PCI-4000 Clover-II HF Radio Modem Operator and Reference Manuals", Copyright 1992.

3. HAL Communications Corp, "PC-AMTOR PCI-3000 Multi-Mode HF Data Modem Reference Manual", Copyright 1990.

4. Parallax Inc., Source code for RS-232 transmit and receive routines for PIC microcontrollers, 1992-1993.

FINAL WORDS

My thanks to Rory for documenting and writing the details for the RDJ column this month. I hope we can look forward to more goodies in the future! Remember to keep the letters coming - if you have a topic you would like to see covered in the HARDWARE column, or if you just have a question I can help you with, drop me a line! I can also be reached via Internet, packet, or FidoNet.

73, de Mike, KI7FX ■

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ANARTS 1993 WW RTTY

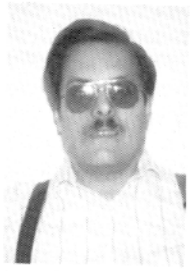
Contest Results

Nr.	Callsign	Score	Qs	Q pts	Mlts	C	VK
Single Op:							
1.	VK2KM*	4,487,616	224	8909	84	6	--
2.	UL9P	1,928,580	196	3030	106	6	1500
3.	OH2LU	1,673,202	235	2343	119	6	300
4.	VK5HB	1,619,700	135	5399	60	5	--
5.	4X6UO	1,273,032	194	3166	67	6	300
6.	JA3DLE/1	1,206,000	142	3540	68	5	2400
7.	AB5KD	1,037,712	230	2188	79	6	600
8.	K8UNP	964,664	237	2264	71	6	200
9.	W1BYH	824,676	173	2081	66	6	600
10.	SV2BFN	813,540	163	3188	51	5	800
11.	KA5CQJ	629,954	240	1719	61	6	800
12.	AH6JF	625,460	132	2599	48	5	1700
13.	VC7SAY	525,790	196	2283	46	5	700
14.	YU7AM	494,625	119	1521	65	5	300
15.	VK6GOM	490,728	99	2921	42	4	--
16.	G5LP	467,934	140	1321	59	6	300
17.	BT2000BJ	324,792	98	1842	44	4	600
18.	SM6BSK	248,080	77	645	64	6	400
19.	W2JGR/0	239,695	104	1113	43	5	400
20.	G4SKA	218,960	89	841	52	5	300
21.	GM0/WN1J	213,392	104	658	54	6	200
22.	K7WUW	212,225	88	1145	37	5	400
23.	SM5FUG	202,365	77	859	47	5	500
24.	WA8FLF	165,250	69	785	35	6	400
25.	A45ZW	145,700	51	910	40	4	100
26.	SP3SUN	128,325	52	625	41	5	200
27.	ZL2JON	115,200	39	1140	25	4	1200
28.	KI4MI	111,980	76	621	36	5	200
29.	JA3BSH	48,424	26	667	18	4	400
30.	W9FFQ	44,935	46	389	23	5	200
31.	VE7VP	40,080	31	470	21	4	600
32.	VK2BQS	39,368	26	703	14	4	--
33.	ON5SV	35,832	45	262	34	4	200
34.	WA4MCZ	25,320	20	314	16	5	200
35.	VK2CTD	10,494	16	318	11	3	--
36.	SP3BGD	10,000	11	198	10	5	100
37.	OM3CPS	9,126	22	169	18	3	-
38.	OH6UP	2,806	13	82	11	3	100
39.	DF5BX	394	12	32	12	1--	

Check Log: LA9FFA

Nr.	Callsign	Score	Qs	Q pts	Mlts	C	VK
Multi-op:							
1.	VK2RT*	4,836,000	300	12,900	80	5	--
2.	VE3FJB	1,366,844	253	3,076	74	6	1100
3.	WF5E	220,660	129	1,024	43	5	500
4.	OM3RJB	28,790	32	334	17	5	400
SWL:							
1.	ONL383*	639,480	156	1,210	88	6	600
2.	ONL4335	86,500	76	384	45	5	100
3.	ONL3997	60,940	75	338	45	4	100
4.	DE0GMH	13,992	29	159	22	4	--

*** World Plaque Winners**



PACTOR

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

*** CONNECTED: KB8LUJ

It's a brand new year and time for another column about PACTOR. The mail box was stuffed, so let me offer thanks to... Bob, AA4PB; Werner, DJ2HZ; Tom, DL2FAK; Peter, DL6MAA; Jim, N2HOS; Ken, N4SO; Ken, N9VV; Joe, W3/G3ZCZ; Paul, W6RSZ; and Fred, VE3ISZ for theircontributions.

There were new arrivals from PacComm, MFJ, SCS, and PakTerm (1.02) The review list just keeps on growing.

PACTOR NEWS

With so much PACTOR activity, I will try to include a short list of current PACTOR news topics every month. This format can work only if I receive constant updates of the latest information. If you have something to share with us, please pass it along to me. Don't be bashful and assume that someone else will do it.

* SCS announces PACTOR-II will be delayed, but the new PTC Plus will be shipping shortly.

* Peter, DL6MAA, will be speaking in Dayton on the topic of PACTOR II.

* PacTerm is now called PakTerm, announces Bob AA4PB

* Werner, DJ2HZ, advises the DK0MHZ BBS suffered a lightning hit and will be out of service for a few weeks.

* Meister-Term (MT.EXE) is now upgraded to level 2.0

* PacComm has revised the front panel of the PacTOR controller for better RFI shielding and promises a major manual rewrite.

* The current version of LAN-LINK is 2.20B, says Joe Kasser W3/G3ZCZ

* MFJ has upgraded the MFJ-1278 and the 1289 software manual.

Of course, look to this column for the most up to date information in the field!

PACTOR II

The PACTOR-II project is still underway. The PTC-II uses the latest Motorola 68360 for DSP technology; but, due to limited market supply of these chips, there is a delay in hardware production. The first units should be available at the Dayton Hamvention.

Meanwhile the Z80 STI chip, building block of the current SCS PTC, has been discontinued. Therefore, a successor to the PTC, called the 'PTC Plus' will be released very soon. Here are the latest features:

* Use of a 68000 CPU with an ADC (analog-to-digital) converter (no DSP as will be used in the PTC-II)

* Up to 256K of RAM

* Much bigger mailbox

* Similar command structure to the existing PTC, but now more commands

* Carrier Detect for RTTY operation

* More comfortable mailbox structure

* A complete host-mode

* .... and even more to be announced.

PACTOR BASICS

Binary File Transfer

One use of PACTOR is the transfer of MS-DOS files, like .COM or .EXE files. These files and certain others (picture, FAX, or stored voice) are composed of arbitrary ASCII characters and are common called binary files. If such files are transferred as normal text files via PACTOR, the random appearance of control characters can disrupt or distort the transfer. To remedy this situation a special protocol is needed transfer these file types.

While binary file transfer as been incorporated into several PACTOR control programs, apparently there is more than one protocol. As a result, unless identical programs are used at each end of the transfer, problems can exist between protocols. In answer to an information request, Dr. Tom Rink, DL2FAK, of Special Communications Systems (SCS), in Germany, provided the following:

Binary Data Transfer via PACTOR with 'MT.EXE'

by, Dr Tom Rink, DL2FAK

"Among its other features, PACTOR provides error free data transfer, even in bad HF conditions, as well as an on-line data compression. It is thus extremely suitable for binary data transfer on short wave. Actually some store-and-forward circuits have already switched to the PACTOR mode due to its greater efficiency in comparison to Packet Radio or AMTOR, especially since the PACTOR-Controller (PTC) is able to transfer the complete ASCII character set without any additional software.

"There are already a few programmes, which provide the capability of true binary data transfer. However, this software is not wide spread and since different protocols are used, there is an incompatibility regarding the binary data transfer between the different programmes. An optimised and generally available standard is therefore required. The implementation of a binary data transfer option in the latest release (V2.0) of the public domain software 'MT.EXE' provided by the creators of PACTOR, SCS in Germany, meets this requirement. 'MT.EXE' is delivered with all PTCs, the original SCS-PTCs as well as the PacComm-PTCs, produced under license of SCS. With the aid of the binary data transfer mode, any given file can be transmitted over a short wave channel, e.g. '*.EXE'- and '*.COM'-files, picture and voice files as well as any compressed files.

"There are two ways to activate the binary transfer mode:

To send an own file to the other station, you have to press the key combination 'ALT-F2'. The file will be opened automatically on the receiving side. The name of the destination file is always the same as the original one.

If you are going to download a file from the station you are connected to, you have to use the MT-command 'RPRG' (Read Program).

"For the transfer, all bytes are divided into half-bytes, so-called nibbles. The first nibble consists of the higher 4 bits of the respective byte and the second one of the lower 4 bits. Depending on the frequency of their incidence in the entire file, these nibbles are assigned to the 16 ASCII characters that are coded with the shortest Huffman characters. '<CR>' and '<LF>' are skipped, since the transfer of these characters may be influenced by the configuration of the PTC. The previous assumptions lead to the following sequence of ASCII characters with the corresponding Huffman codes to be used for the transfer of the 16 nibbles:

'ACE' (10), 'e' (011), 'n' (0101), 'i' (1101), 'r' (1110), 't' (00000), 's' (00100), 'd' (00111), 'a' (01000), 'u' (11111), 'l' (00010), 'h' (000100), 'g' (000111), 'm' (001011), 'o' (010010) and 'c' (010011).

"For example, if 'F' (hex) is the most frequent nibble in the entire file, 'F' is assigned to 'ACE', since this is the shortest character in the Huffman code.

"The new file created by this coding is temporarily saved in the 'TEMP' directory. Although this file consists of twice as many characters as the original one, its transfer is usually at least as fast as a normal ASCII transfer due to the individual coding and the shorter characters of the Huffman code. Picture files, for example, which contain certain characters very frequently, can be transmitted much faster than using standard ASCII or 7plus coding. Since no control characters are transferred there is no risk of negative interactions with terminal or mailbox software, which may occur if ASCII coding would be used. Besides that an additional redundancy check is enabled using the nibble coding, as any received character, which does not belong to the 16 nibbles, terminates the transfer function (see below).

"The protocol of the binary transfer function includes an initial handshake procedure, that already transfers all major information of the corresponding file. This option allows some useful additional features, e.g. the free space on the destination disk can be checked so as not to start any transmission if there is not enough free space to store the file. This handshake is initiated by the following header, which is transmitted to the receiving station:

'#BIN# <FILEAME.EXT> <FILESIZE> >N (0)...N(15)> <HO>'

"'<FILENAME.EXT>' contains the filename. 'ZE' gives the number of bytes of the original file. '<N (0)>' to '<N (15)>' specifies the number of the respective nibbles in rising order, i.e. '<N (0)>' contains the number of '0'-nibbles and '<N (15)>' the number of 'F'-nibbles. The final '<CHO>' (Change Over) changes the transmission direction to the file receiver. After checking the header and evaluating whether there is enough free space to store the corresponding file, the receiver confirms by sending '#OK# '<CHO>'. Now the main file transfer can be started. First of all the transmitting station has to transfer the information about which way the nibbles are encoded in this particular case. For this reason, a second header is created, which is placed in front of the data field. It consists of another 16 bytes and defines the coding of the respective nibbles in rising order. For example, if 'F' (hex) is the most frequent nibble in the entire file, 'F' is coded with 'ACE' (Huffman 10) and therefore 'ACE' is located on the 16th place of this header. If a nibble does not appear in the entire file at all, its place contains a '@'.

"The file transfer is automatically stopped by the receiving station when the expected number of bytes has been received. Each counter of the 16 different nibbles is decreased once for each corresponding character that has been received. If all counters show zero at the end of the data transfer, the message 'CRC OK' is given by the receiving station, otherwise the message 'NOT OK' appears. Depending on the initiation of the file transfer (directly with '<ALT-F2>' or by remote using the command 'RPRG', a final '<CHO>' may be sent in order to switch the original station back to the transmitting mode.

"The binary file transfer may be interrupted at any time during the entire process by both sides. An interrupt from the file transmitter is usually initiated by pressing '<ALT-F2>' once again. In this case 'MT.EXE' clears the transmission buffer of the PTC and transmits '*BREAK*' to the receiving station. As already mentioned above, the receiving station terminates the binary data transfer when receiving any character that is not used in the nibble coding. For this reason you can also force an interrupt at the transmitting side by pressing most of the other keys, e.g. just '<CR>'. The information that has been transferred so far is lost in these cases. The file receiving station may break off the binary data transfer in the same way after forcing a break-in. In this case 'MT.EXE' also clears the buffer of the transmitting station, thus an automatic break of the transfer is also guaranteed if the link is cut during the binary data transfer by a disconnect or a timeout."

de, **Tom Rink, DL2FAK**

MFJ-1278 REVIEW

The MFJ-1278B is roughly 9 3/8 inches wide by 10 inches deep by 1 1/2 inches high (23.8cm x 25.4cm x 3.8cm) and weighs about 2 pounds. (0.9 kg) It is a Dual-port Multi-mode Data controller capable of Packet, AMTOR, RTTY, PACTOR, ASCII, CW, FAX, Color SSTV, Navtex, and a contest memory keyer. It has 2 each, 5 pin DIN sockets, two 25 pin RS-232 connectors (one RS232 serial and oneparallel printer), a 12 volt DC power connector, three each 1/8 inch phone jacks and one RCA phono jack. It is packaged in a black housing with a polished aluminium front.

INSTALLATION

My 1278 arrived from the factory, courtesy of Jim Shurden. Unfortunately, I heard something rattling around in the box before I even opened it. My curiousity got the better of me and I discovered the back-up battery floating around inside the case and I put it back where it belonged.

Unfortunately there were some minor problems and much to their credit a replacement unit arrived from MFJ two days later.

I hooked things together using the supplied 12 volt power adaptor and radio interface cables. Watch the polarity of the power plug. The center pin requires a positive voltage, which is clearly stated in the instructions and illustrated on the rear of the unit. I used an ICOM IC-761 on port #1 and a Kenwood TR-7400A for VHF packet on port #2. Both interfaces were 5 pin DIN's wired in the standard configuaration. Then I connected the computer using my own 25 pin RS-232 cable. (none was supplied)

The 1278 has two ports. I used an ICOM IC-761 for HF on Radio #1 and a Kenwood TR-7400A for VHF packet on Radio #2. You switch between ports by using the RADIO 1/2 command. I believe in using FSK whenever possible. On most rigs, operating FSK allows you to use the narrow filters, silences the local microphone, and displays MARK frequency. BAUDOT being one of my favorite modes, I wanted a good setup. However SSB (and thus AFSK) operation are necessary for other modes.

To use FSK a wire needs to be run from an accessory jack to the FSK input of the 761. MFJ supplies a plug for this purpose, but it was designed for a wire to be pressed in, and was difficult to make a good connection. I decided to use the dumb terminal mode rather than application software. Of course, control software will be more flexible, however, I wanted to use a uniform measure of comparison.

FIRING UP

The MFJ-1278 was easy to get on the air. The AFSK transmit levels are set through a couple of access holes in the left side, so there's no reason to open the cover. I used the CALIBRA software routine and a separate monitor receiver and the service monitor scope to check on transmitted noise. With the AFSK control on Radio 2 set at minimum, I noticed only a slight amount of noise being transmitted. When the AFSK control was advanced the noise detected was negligible.

I am a nut about grounding. Everything in the shack is tied to a common ground point. I hooked a ground wire beneath one of the side case screws. Adding a ground screw may be a good idea.

TUNING

The MFJ-1278B has a 20 segment LED bargraph. Correct tuning is important, so I used an oscilloscope to check the tuning. I tried each mode, randomly checking the scope and found the display to be very accurate.

THRESHOLD is the only front panel adjustment and adjusts sensitivity. Proper setting causes the YELLOW DCD (data carrier detect) LED to glow when receiving data and yet lets it extinguish with no data present. This keeps 'garbage' from spewing across the screen. With the MFJ-1278B connected to low level discriminator output of the IC-761, a comfortable setting was about 11 o'clock. The control needed a lot of attention, depending upon propagation and especially when tuning weak signals.

FAX/SSTV

Some type of software is required to use these modes. Multi-Com, MFJ-1289, is recommended for this purpose. Since space is limited, and the amount of information on these modes is massive, look for a separate review covering these functions.

HF & VHF PACKET

To transmit on the VHF FM radio connected to port 2, I typed RAD 2. Once assigned, OUTPUT uses that port until redirected. I then connected to the local cluster. (C 'callsign') It was quick and easy to establish a VHF PACKET connection. To disconnect, go to cmd: (CTRL-C) and type 'D'

BAUDOT

To monitor a BAUDOT transmission, type "K" at cmd: prompt to enter the converse mode. A transmission started by typing control-T and is terminated by typing a control-R.

It was a little confusing, having to type a "K" at the cmd: prompt in order to load the type ahead buffer. But after a few QSO's and a little practice, it as easy to master. (One advantage of good software)

ASCII

ASCII commands are the same as RTTY. I couldn't find any one using ASCII, save W1AW bulletin broadcasts. Even with a good signal there were ISI errors.

AMTOR

AM at the cmd: prompt enters the AMTOR module. I connected to APLINK systems, called CQ in FEC mode (FEC starts, then K to enter CONVERSE and ^C then R ends), and made QSOs in ARQ (ARQ SELCALL). Changeover is the usual '+?'. To BREAK (reverse link direction while receiving) type a control-C to receive the cmd: prompt and then type C.

NAVTEX

NAVTEX stands for Navigational Telex. Broadcasts are made, according to the manual, on 518 KHz using Mode B AMTOR (SITOR). I was unable to detect anything on that frequency and could not test this mode.

PACTOR

PACTOR 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 TNCs 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. If a TNC employs an analog to digital converter to measure and assign relative values to bits of a bad frame, accuracy is substantially increased. The MFJ does NOT use an A/D converter in Memory ARQ and has a SUSS of 5 with an efficiency of 74 percent. Frames could be retrieved into noise at times, but not with a big signal nearby. Sensitivity, is related to band conditions, filter sharpness, type of analog to digital Memory ARQ implementation, etc.

I made several contacts in the regular (C 'callsign') and long path (LC 'callsign') modes. Changeover is made by typing CTRL-Y, in the buffer. BREAK is handled by typing a control-C to get to the cmd: prompt and then typing a 'C'. "U1" at the cmd: prompt initiates a CQ (FEC-PACTOR). There is no need to use a 'monitor' command as the unit is always monitoring.

To end a PACTOR QSO, type ^C to get the cmd: prompt and then a 'D'.

In PACTOR, if you see something on the screen, that's what was sent. Repeating names and RSTs is a thing of the past. Sending graphics is possible by sending a file of ASCII text.

HUFFMAN COMPRESSION was forced high and low bit switched. Huffman is a software routine that shortens average character length. When sending text, this can improve throughput by as much as 100%. Huffman works with 7 data bits, so it is automatically bypassed when sending 8 bit characters (graphics). HUFFMAN always decodes whenever compressed data is received.

MORSE

To enter the CW mode, type CW,xx where xx is the speed desired. Typing CW without a speed designation defaults to 20 wpm.

I could tune and copy CW up to 35 wpm without difficulty. Proper tuning is critical. Human ears have more tolerance for a weak signal or a poor fist than digital decoders. Don't expect perfect copy of a poor signal.

To receive, type K at cmd: prompt to enter the CONVERSE mode. Tuning is very narrow and critical. The display needs to flash in synchronization with the incomming CW signal. The threshold control needs to be adjusted, too. Control- U is used to lock the speed of incoming signal.

The unit primarily operates in the full break-in mode, making TX/RX switching unnecessary unless sending buffered information. (Note: Control-T to transmit and Control-R to force receive)

Prosigns are sent from set keys. Typing '*' sends 'SK' or '=' sends 'BT'.

You can sharpen your CW, too by sending random 5 letter groups to the screen.

AUTOMATED SIGNAL ANALYSIS (ASA)

This feature will attempt to analyze a data signal and show the baud rate, probability factor, speed of data modem, number of data bits, and invert. An example would be: 80 baud, 90% Confidence. 75 baud used 7 bits, RXInvert Off It is only effective on HF packet, RTTY, AMTOR FEC, and ASCII.

ENHANCED 32K MAIL-BOX

A 32Kb RAM Easy-Mail mailbox stores BBS type messages. The Mailbox only works on PACKET (VHF or HF) and the cmd: MAILBOX ON allows access.

Mailbox is full service and permits reverse forwarding and routing. The SYSOP command lets sysop read, edit, or delete any message.

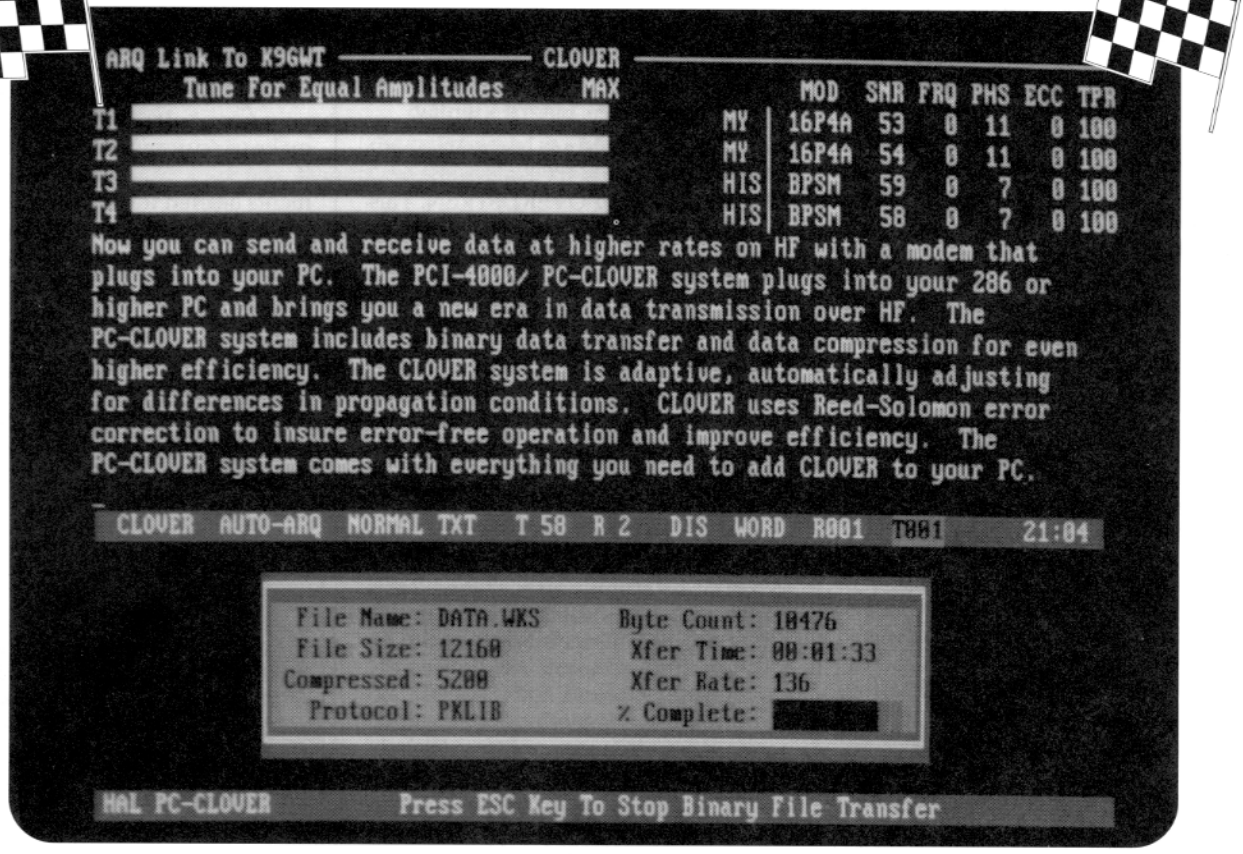
The mailbox can be expanded to as much as 512K with additional memory chips.

I sent a few PACKET messages to myself and others using the TR-7400 on Radio #2 without any problems.

IF I COULD...

There were three instruction manuals supplied. The large MFJ manual was well over 300 bound pages. The 'Fast-Start' instruction manual (including PACTOR update) consisted of 70 pages and the MULTYCOM (MFJ-1289) manual had 87 pages. There is a 7 page Table of Contents, but no index. A deficit in the manual is the specifications, or rather the lack of them. Nothing is mentioned, not even the physical size or power requirements. A better list was on the packing box than was in the manual. Where are specifics on features and benefits?

HAL DOES IT *FASTER*



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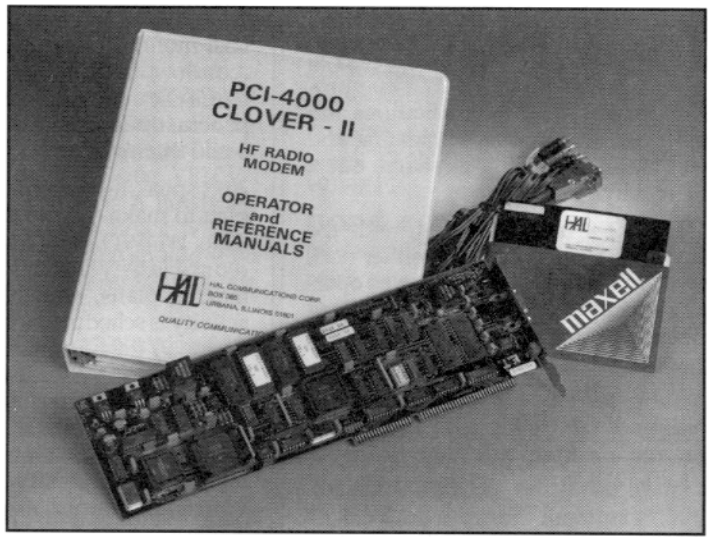

HAL Communications Corp.
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Phone (217) 367-7373
FAX (217) 367-1701

CIRCLE 142 ON READER SERVICE CARD

Another shortage is the lack of a Theory of Operation, or a brief explanation of each mode. (especially PACTOR) There's a lot of information on how to use this unit, but little on the unit itself. Yes, the manual is big, but too often these days, I feel, we lose a sense of some of the basics at the expense of a multitude of modes and features. A 'crib sheet' for easy reference would be nice, too. My typical gripe about manuals applies. All the books were hard bound and it is impossible to insert or remove pages without ripping it apart. I'm always misplacing the supplements.

Grounds and shielding leave a bit to be desired. The spray painted covers do not always make good physical (electrical) connections. Nevertheless a past problem with internally radiated harmonics seems to have been minimized. A ground screw would also be a nice addition.

The PACTOR module seems to have been added as an afterthought. Although it does work, it has a command set of its own. An omission is the lack of ability to 'keep score' on linked modes. It should be 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.

ATTA BOY ...

The MFJ-1278 has many features, some of them exclusive, like Color SSTV, Packet picture transfer, and a built-in printer port. There are so many modes available, the average ham will have no problem finding one of interest.

A 12 volt power supply is provided which delivers 500ma.

It has a large command set and its multiple modes gives a lot of 'bang for the buck!'

HOW DOES IT STACK UP

How does the MFJ-1278B operate? Well it does work; however, it is a compromise between performance features and cost. It does have some interesting and novel features. Tuning is sharp, but a little touchy.

An MFJ-1278 has two ports, with the ability to direct any mode to either port. However, the only one port can be operated at a time. There was no overheating problem after leaving the unit turned on for weeks.

If you're looking for an inexpensive multi-mode controller, with a lot of features and a bargain price tag, check out the MFJ-1278.

For more info call the order desk at 800-647-1800 or 800-647-8324 for answers to technical quesitons. The MFJ-1278B is made by MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762 and has a list price $ 299.95 US.

MORE BANDWIDTH

Some digital operators still have not received the message. Here's a replay:

* PACTOR signals are normally about 500 Hz wide. A PACTOR signal that is2 KHz wide is being OVERDRIVEN. This is usually caused by using the wrong tones on AFSK, overdriving the LSB transmitter, limiting into the ALC, or overdriving a linear amplifier.

* You do NOT need to run 100 percent/full power to communicate on PACTOR. Normally 50 to 100 watts is all that's necessary.

* When setting up PACTOR operation, please carefully consider your signal.

* A 'cleaner' signal passes data faster than an overdriven one.

When you encounter a very broad PACTOR signal, please let the other operator know about it. There's no reason to be nasty or rude. Chances are they're not aware of the problem, and if you remain silent it will only continue. You can be diplomatic, showing courtesy and respect, and accomplish a lot.

FEEDBACK

I received many inquiries about the PC-PTC, a plug-in PACTOR card for PC's built by SCS. As a result I made a request to Germany and in response, I received more details. So if you want more information send me a note and a #10 SASE and I will send you a copy.

I also received questions about Umlaut (German special characters) and foreign character sets. As time and space permit, I will try to elaborate in a future column.

Last month I mentioned a topic for this month would be hints about building a PACTOR station. Please excuse me if I procrastinate another month, but as usual there's more text than space.

And speaking of procrastination, if you plan to make the trip to Dayton contact Dale, W6IWO, right away if you need a room. He may still have a few left. When making plans, remember initial ADRS activity is scheduled for Friday morning, April 29, 1994, in the second floor banquet room at the Radisson Hotel. (Don't be surprised if it continues into the next day) Also, check out the hospitality suite and certainly don't miss the RTTY Digital Journal dinner on Saturday night. Watch for appropriate announcements.

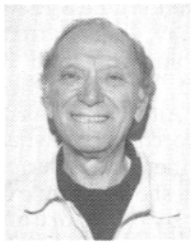
As this column is being prepared, I am trying to take a short vacation in sunny Florida. At the same time I'm experimenting with PACTOR operation in the mobile. I'm sure that's been done before, but I hope to have some interesting observations of my own in a future column.

I must thank you, our readers, for promoting this column and RTTY Journal to your friends. It is YOU, dear reader, who make us so popular. That's only possible if you keep those messages and comments headed this way. I need your help to do a good job! Your feedback is constantly needed and your suggestions are always appreciated.

HAPPY 1994! Thanks for sharing your time with me this month. Until next time.

de **Phil, KB8LUJ**. May God Bless you and yours. Link d-o-w-n..

*** DISCONNECTED: KB8LUJ



DX NEWS

Jules Freundlich, W2JGR
825 Summit Ave., Apt 1401
Minneapolis, MN 55404-3188

"I've got him on my list,
He never will be missed."

.....Gilbert and Sullivan

I've got him on my list also. Unfortunately the list seems to get bigger every time a rare, or semi-rare DX station comes up. I am referring, of course, to the ill-behaved RTTY indididuals who do their best to create mayhem when a DX station is attempting to maximize his QSO rate.

Take the case of the December RTTY operation of XF4CI. Tony, apparently a newcomer to RTTY, was doing his best to satisfy everyone. After realizing that he would have to operate "split", he announced his listening frequency in absolute Mhz, rather than saying "Listening up 3-5", or "Listening Down 3". It turns out that Tony's dial reading was the LSB reading, rather than the "MARK" frequency. So, those whose dials read "MARK" didn't find the right listening frequency for a while.

When the correct listening frequency was found, the people who earned a place on my list jumped on it and called, in spite of the fact that Tony was working someone. This, of course, just slowed things down, while Tony pecked away at his keyboard asking for a repeat. It is to his credit that he kept his cool and stayed with it.

The virtues of jumping on top of an ongoing contact escape me, especially when the DX station is operating split so as to eliminate the QRM on his own frequency. From what I could make out, the intruders never did succeed in capturing Tony's attention by using that tactic.

One way to minimize the effects of such a practice is for the DX station to "frequency jump" over a listening range, rather than working at a single spot. A few days later, when Tony did listen over a "spread", the situation was much improved. When Tony called "CQ ASIA", I did not see any K2's or WA4's answering. Evidently there is still a modicum of discipline left among the brethern.

Honor Roll status for RTTY, encompassing all digital modes, finally became a reality in December, when the ARRL Awards Committee voted 6 "Yes" and 1 "No" to accept the ARRL DX Advisory Committee (DXAC) recommendation to create an Honor Roll for RTTY DXCC. The DXAC vote had been 13 votes "For" and 3 "Against". Qualification for this new Honor Roll is the same as for Mixed Honor Roll, 318 current (not deleted) countries prior to 31 December 1993. As of 1 January 1994, when Eritrea, E3, was added to the DXCC Countries list, this level became 319.

This action makes Honor Rolls for all DXCC "mode" awards. The RTTY DXCC accepts contacts made using Baudot, ASCII, Amtor, and other non-CW digital protocols. Persons who qualify for RTTY Honor Roll will be recognized based on their RTTY DXCC records. No other action is required. If you have outstanding cards that will bring you to the Honor Roll level, send them in!

One thing bothers me about the vote of the ARRL Awards Committee. I understand that this committee is composed of high level individuals at Newington. The fact that there was even one "No" vote indicates that there may be someone up there, in an influential position, who still does not recognize that "digital" is the wave of the future....too bad.

DX DOINGS

BALEARIC ISLANDS, EA6 - To the ever growing list of stations active on RTTY, we can add EA6ABB on 20 meters around 1500Z.

BELIZE, V3 - Leo, WN0B will return to Belize for RTTY, and skin diving, from 17 to 27 March. He will be accompanied by CB, AA0KL. Leo will be using his old call, V31OB, and CB will be using V31CW. QSL via their home CBA's. A newly arrived regular in Belize is Bruce, V31JU. He has been very active, and should soon achieve his goal of RTTY WAS. QSL via WA2NHA.

BURKINA FASO, XT - XT2BW has been on early in the UTC day at about 0745Z on 20 meters. However, Peter is planning a 2-3 month vacation in Ghana, starting in early February, so he may soon show up from 9G. QSL to WB2YQH.

CENTRAL AFRICA, TL - TL8NG continues to be reported on 20 meters, now around 1700Z, but he continues to elude me. QSL via WA1ECA. This is one country I have been chasing on RTTY for a long time, with no success. Now TL8TM has promised to be active at about this time. Maybe this is my chance? QSL route needed.

CEUTA & MELILLA, EA9 - This country is not as active as it has been in the past few years, but if you still need it look for EA9UN on 20 meters around 1430Z. For QSL try the CBA.

CHAGOS IS, VQ9 - Active stations from this Indian Ocean outpost include VQ9FM, VQ9TV, and VQ9WL. All generally show on 20 meters between 1300Z and 1430Z. QSL VQ9TV via W4TV. QSL routes needed for the others.

CORSICA, TK - There has not been too much activity recently, but you may spot TK5ML on 20 meters around 1530Z. QSL route needed.

CYPRUS, 5B - 5B4ABU and 5B4VX both show up on 20 meters between 1315Z and 1530Z. QSL routes are needed.

DJIBOUTI, J2 - J28JJ now appears on 15 or 20 meters around 1300Z. J28BM has been operating ARQ on 21073 as early as 0700Z. For QSL routes, see RDJ DX NEWS for November 1993, p.3.

DODECANESE, SV5 - SV5BVP may often be found on 20 meters around 1300Z. QSL info needed.

EGYPT, SU - SU1AH was reported on 7036 khz around 2230Z. QSL to Hahmed Hassen Ahmed, 40 Al Zahraa Str., Ein-Shams, Cairo

GHANA, 9G - See Burkina Faso above.

GEORGIA, 4L8 - 4L8A has been extremely active, mostly on 20 meters, between 1030Z and 1400Z. QSL to OZ1HPS.

GREECE, SV - Not so long ago, it was not so easy to find an SV on RTTY. Now we have lots of representation by the likes of SV1BJV, SV1BMN, SV1UG, SV2BBJ, and SV2WT. They can be found mostly on 20 meters as early as 0650Z until 1730Z depending on propagation to your location. For Pactor enthusiasts, SV1BJV often shows on 14075 khz around 1930Z.

GUANTANAMO BAY, KG4 - If you work KG4CB on 20 meters, QSL via WB9APE.

HONG KONG, VS - VS6OO was reported on 20 meters around 1915Z. QSL route needed.

IRAQ, YI - Look for YI1HS on 20 meters around 0800Z to 1000Z. QSL route needed. YI1BGD shows around 1700Z. QSL via DF3NZ.

KALININGRAD, UA2F - RA2FB appears quite frequently on 20 meters around 1300Z. His callsign is in the correct block for this DXCC country, but his address in the call book is shown as being in Sovetsk. It is not clear from my maps

whether Sovetsk is indeed in the Kaliningrad oblast. WFWL.

KENYA, 5Z- 5Z4FM works PACTOR on 14069 around 1855Z. Try Jim at Box 34168, Nairobi, Kenya.

KOREA, HL - HL9AX can be found on 20 meters around 0900Z. QSL to W3HCW. HL9KU shows up a couple of hours earlier. QSL to c/o American Amateur Radio Club of Korea, APO AP 96206.

LEBANON, OD - OD5KU and OD5PL have been reported on 20 meters betwen 1400Z and 1515Z. QSL routes needed.

MALAWI, 7Q - Try 7Q7JL on PACTOR on 14069 around 1850Z. QSL via G0IAS.

MALAYSIA, 9M - 9M2MW was reported on 20 meters around 1615Z. QSL route needed.

MARSHALL IS., V7 - V73BN puts in a nice signal on 20 meters around 0730Z. QSL route needed.

MAURITIUS, 3B8 - 3B8FW often operates AMTOR FEC on 21070 khz around 1210Z. Selcal is BBFW. QSL route needed.

MOLDOVA, UO - UO5OC appears almost daily on 20 meters between 1115Z and 1745Z. QSL to I8YGZ. Look also for UO5OED in this same time slot, or a couple of hours earlier..

MONACO, 3A - 3A2LZ can be found on 20 meters around 1100Z. QSL route needed.

MOZAMBIQUE, C9 - Look for C91AI on 20 meters around 1000Z. QSL to CT1DGZ. C91BG works AMTOR on 14073 khz around 2150z.

NAMIBIA, V5 - Gerd, V51GB still prefers 15 meters around 1700Z. QSL to P.O. Box 1165, Tsumeb 9000, Namibia with the equivalent of 5 IRC's for return postage. Do not send IRC's as his Post does not accept them.

NEW CALEDONIA, FK - FK8GS was reported on 20 meters around 0730Z. QSL route needed.

OMAN, A4 - Several stations have recently been quite active on 20 meters.. They include A41KB, A43YY, and A45ZX. Most popular times are between 1230Z and 1300Z, although there have been occaisional contacts as early as 0900Z, and as late as 1500Z.

PETER I Is., 3Y - By the time you read this, the members of the 1994 DX'pedition to this remote Antarctic spot, will be enroute from the Falkland Islands, with an expected landfall 1 February.

The logistics planning has finally all come together, following a last minute near debacle. After over two years of intensive planning , and committing large sums of money, in mid-November, it appeared that due to the uncertain economic situation in Russia, the Russian Antarctic Research Institute ship, responsible for picking them up, could not guarantee the transport back to South America. A three week hectic search for alternatives, by members of the team, as well as interested friends, proved fruitless.

Finally in early December, personal appeals, a quick flight by one of the team, to the Russian Antarctic Institute in St. Petersburg, contacts with the Ministry of Foreign Affairs in Moscow, and the aid of a famous Russian scientist and explorer, produced the desired effect.

The Institute, recognizing "the importance of the expedition, and the international visibility of radio amateurs", committed to pick up the team around 12 February. The pick up will be by the biggest Antarctic Research vessel around, the "Akademik Fedorov". She will sail out of McMurdo Sound base on 2 February, arriving at Peter I on 12 February. The ship will be in contact with the DX'pedition while en route.

This expedition is well equipped to satisfy the hunger of DXers for Peter I. They will be running multiple stations on multiple modes (CW, SSB and RTTY) around the clock, optimizing the operation according to propagation conditions. The callsign will be 3Y0PI. They will transmit RTTY on the following frequencies: 1825, 3680, 7070, 14080, 21080, 28180, and will listen UP. QSL via Jerry Branson, AA6BB.

Again, we encourage you to support the humongous cost of this expedition. If you have not already done so, send your contribution to Jerry Branson, AA6BB, at 93787 Dorsey Lane, Junction City, OR 97448.

Finally, to quote Dorothea, VP2EE, and Dave, VP2EHF: "May the wind be at your back, and all signals loud and clear." Good luck to all.

REUNION IS., FR - Add FR5FI to the list of active stations here on 20 meter around 1500Z. QSL route needed.

SINGAPORE, 9V - Previously noted active stations, 9V1JY and 9V1ZM, have been joined by 9V1VN who shows on 20 meters as early as 0700Z. QSL route needed.

ST. LUCIA, J6 - If you still need this one, look for J68AS on 15 meters around 1420Z, or 20 meters around 2220Z. QSL via N9AG.

SAO TOME & PRINCIPE, S9 - S92ZM has been active on 20 meters as early as 0030Z, and as late as 1740Z. QSL to Glenn Britt, C. Postal 522, Sao Tome DRSTP, via Portugal.

SOUTH COOK Is., ZK1 - A multimode multiband DXpedition by seven members of the Glen Canyon Wireless Association will begin Friday, 4 March from Rarotonga (OC-013), and run until 10 March on that island. They will then move to the island of Aitutaki (OC-083) and operate until 17 March. Except when they are operating in the ARRL International DX Contest, you should be able to find RTTY by Gordon, ZK1AVK/AA7VY, and/or Gary, ZK1AIQ/KD3IQ.

Operations on other modes will be by Richard, ZK1ZYR/N7XYR, Jessica, ZK1ZRD/N7ZRD, and Sally, ZK1AYR/KC5AYR.

QSL via N7WTU, or P.O. BOX CC, Page, AZ 86040. Since the group has not received any funding sponsorship, nor have they solicited contributions, they would appreciate an SAE, with a green stamp or IRC. Note the operator's ZK1 callsign on the outside of the envelope. (Tnx N7WTU.)

TADZHIKISTAN, UJ - Alex, UJ8JCQ still frequents 20 meters around 1200Z. QSL to Alex L. Rubstow, Box 1102, 734032 Dushanbe, Tadzhikistan.

TURKMENISTAN, UH - UH8AAB may be found on 20 meters any time between 0615Z and 1245Z. QSL to Box 117, Ashkabad 744035, Turkmenistan.

TURKEY, TA - TA5C appears frequently on 20 meters around 0930Z. QSL via CBA.

U.K. SOVEREIGN BASES ON CYPRUS, ZC - If you still need this one, ZC4ML can fill your need on 20 meters around 1300Z. QSL to G4LSL.

UZBEKISTAN, UI - RI8ACD has been reported on 20 meters around 1245Z. QSL route needed.

REFLECTIONS

Last month, I mentioned that I was upgrading my station to make it capable in all the digital modes. I am part way there. Creeping my way into the magic of Clover, reminded me of those fearsome days when I first ventured into the RTTY world, a decade ago. It was one thing to learn to tune in a signal, and then copy real words on the screen. The next big jump was to actually transmit. Marvel of marvels...someone could read my typing. And then, some years later, the whole scenario was repeated as I became frustrated trying out AMTOR in the LISTEN mode. But that was soon mastered, and somehow or other I learned how to read AMTOR, and then to transmit it, and to receive acknowledgment that I was understood at the other end.

Now I have installed Clover and am being digital-born (digital borne?) for the third time in my amateur career. As be-

fore, it seems like one must go through the equivalent of a baptism of fire, each time a new digtal mode is attacked. There were days and days of tuning, ever so slowly, as you are warned time and again, without being able to decode a thing. Questions arose, like "Is anybody really out there? "For this I laid out my hard earned bucks?" "Is that Clover or Pactor?". Finally I did recall how Clover sounded when Bill Henry demonstrated it to me last year at Dayton.

Just to prove that the thing really works, I arranged a schedule with Al, W2TKU. In a short QSO, he proved to me I was in business. Then one day, quite by chance, I came across a station working the W0RLI mailbox. Whoosh!! That was fast. Both callsigns showed up on my screen as the transmit/receive sequence changed. Hey, I thought, this is really neat. When the station signed, I turned the antenna west and called W0RLI, and bang, I was connected to a mailbox with a familiar protocol. After I zipped through printing the 10 page Help file, Hank himself came into the (T)alk mode and gave me a few pointers on active stations and frequencies. That was my first "real" Clover contact.

However, my cup was to runneth over. After I signed with Hank, I looked up on my screen and saw I was connected to, of all people, Ray, W7GHM, the developer of Clover. . He had been copying my conversation with Hank. We had a nice short chat. Several days later, I called Ray on 14065.5 and we talked for well over an hour. Ray is not only a clever systems engineer, but he is a born teacher. I got a real on-the-air cram course on operating Clover, using the HAL PC-CLOVER software.

As I write this, at the beginning of January, I have not yet copied a DX station using Clover, but I know they are there, and just have not had the time to spend looking for them. My limited experience, to date, tells me that Clover is one heck of a mode, both for file transfer, and chatting. When carrying on a conversation, it is a good idea to use an "over" convention such as the > sign. Since the system is completely duplex, both stations can be typing at the same time, and the send and receive texts can become interleaved on the screen, tending to cause a bit of confusion.

I still have not implemented PACtor, as I have not yet decided which TNC to use. However, I am on the verge of being digital-born for the fourth time, as I have just installed EXPRESS software by Peter, TY1PS. The saga will continue.

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, I5FLN, K6WZ, K9GWT, KE6XJ, NA2M, SP5AA, VP2EE. VP2EHF, W2TKU, W2IYX, WB2CJL, W6GO, W7GHM, W0RLI, ZS5S, and 9X5LJ. 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, 14086, 14078, 21074, and 21080 khz. on AMTOR. On CLOVER, he scans 7066, 7068, 14066, 14068, and 21066 khz.

A RTTY Friend Departs

I am sad to report that Irv Emig, W6GC a member of the Amateur radio community and long time RTTY DXer with well over 200 countries confirmed passed awy today Dec. 21, 1993 of a heart attack. He will be missed by all that knew him. He was born in 1912. He was also a long time member of the Southern California DX Club and a long time member of the DXCC Honor Roll.

Submitted by Larry Mallek, K6YUI

Ed: I knew Irv for many years. He was always a gentlemen's gentleman. I held him in high esteam. Wherever there was a Ham radio event taking place, Irv always tried to be there. I specifically remember my first year at Dayton in 1986. Irv attended the RTTY dinner and gave me moral support in the face of new challange for me. Surrounded by so many new faces, Irv helped make the evening a little easier for me. I shall miss him, as will many others.

PACKET

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

AN UNFORTUNATE BACKTRACK

Last month, I had mentioned that I was going to cover a rewrite that I did to N3EUA's BM mailer program. This allows the program to run in the background and print out mail that arrives at my station. Well, I should have included the following information. This sort of thing happens when you get so busy that the days run together with the weeks and the months....

A BIT OF HISTORY FIRST

The evolution of the NET/NOS package has seen many changes to the package since its inception. The package has added many routines and capabilities. This has demanded many changes to the support files. The biggest change has been to the file that stores the names and IP addresses of systems.

With the NET version of the program, this file is called "hosts.net". The file contents had each station taking up one line in the format, as in the case of this station, "44.16.0.114 n6nko.ampr.org". The first section is the IP address and the second section is the hostname that is associated with the IP address. This allowed for nothing fancy but what is possible with a full UNIX system.

When the program upgraded from what was is known as "NET" to "NOS", this file was renamed from "hosts.net" to "domain.txt". This file follows the UNIX domain files structures. With the change, "44.16.0.144 n6nko.ampr.org" is converted to "n6nko.ampr.org IN A 44.16.0.114'. You will note that the fields from the "hosts.net" are reversed in order and that there are two additions to the line. The two additional fields, that are in the middle are for the added functionality that the NOS program allows for. Some of these added functions will be explained later. First off, I will explain the whole construct of the line.

The first section is the system host name. The standard construct for your hostname is to append ".ampr.org" to your amateur call. As an example, the call "n6nko" plus ".ampr.org" yields "n6nko.ampr.org". If you have several machines that are on line and have assigned addresses under your callsign, a unique indentifier would be appended to the hostname. I have three consecutive addresses assigned to me. If I am using a laptop out in the field for demonstration purposes, the hostname for that machine will be "port.n6nko.ampr.org" and the IP address will be "44.16.0.115". If you plan to put several systems together, then I suggest that you get a set of IP addresses that are consecutively sequenced. This will make life that much easier for you and all concerned.

Now I will address some of the features that are available with the conversion to the different format. Previously, all the "hosts.net" file had was the addresses and hostnames. Now this file can be very important and can be quite useful to a local community.

YOUR DOMAIN

What is your domain? Well, mine here in Los Angeles county is 44.16.x.x. Now hold on and watch what I can do with that domain. This is where the extra fields come into play with this. Witness the following; put the thinking caps on.

The "IN A" section is actually two sections. The "IN" means Internet. This will be included in all records within this file. The "A" means that this record is an address record. Just about all of the records in this file will be of this construct. The exceptions to the rule follow below but with these, you will see the utility and routing value of this system.

The next form that can be used is the "IN CNAME" record. This is an internet record and is a "Canonical NAME" record. This allows for an alias to be used for a system. As an example, let's set up a record that will alias the hostname "n6nko.ampr.org" to something else. My Linux domain name is "owlsnest" as it is on the internet. So, lets set this up to allow "owlsnest" to route to "n6nko.ampr.org". The line would read "owlsnest IN CNAME n6nko.ampr.org". That way, if someone wanted to contact this station on packet radio, they could use either "n6nko.ampr.org" or "owlsnest" to get to 44.16.0.114.

Now the fun is just starting. The next record form that can be used is a very versatile one. It is called the "Mail Exchanger" record, or "MX" for short. This record has one more field to it, as opposed to the "IN A" or IN CNAME" records. This record allows for automated mail forwarding, depending on what system can be reached. For example, there are several computers on a network. Their availability depends on who is on and where. You can tell the system to attempt forwarding to various systems until it finds an accessible system. This forwarding process can be controlled by entries on the MX record lines. Here is a good example. I have three systems networked together. (IP addresses do not matter here, just the hostnames.) The main server is OWLSNEST. There are also three other systems on the network. They are:
UPSTAIRS.OWLSNEST,
DOWNSTAIRS.OWLSNEST,
BATHROOM.OWLSNEST

Yes, there are houses around here that have ethernet ports in the throne room. My main machine is UPSTAIRS.OWLSNEST. I use the other two systems when I am in that area. For the sake of keeping the electric bill down, I shut down all machines when I am not around, except for OWLSNEST.

Now that the systems are defined, here is the setup in DOMAIN.TXT to accomplish the above routing. On the outside, all that is known is OWLSNEST. The rest is transparent to the outside world. The entries would look like this :

OWLSNEST IN MX 5 UPSTAIRS.OWLSNEST

OWLSNEST IN MX 10 DOWNSTAIRS.OWLSNEST

OWLSNEST IN MX 15 BATHROOM.OWLSNEST

First off, any mail addressed to the network OWLSNEST, will be sent to UPSTAIRS first, then DOWNSTAIRS is tried if UPSTAIRS is unavailable, and last but not least, BATHROOM is tried if the above systems are not available. The number just after the MX is the priority level. A record that has a lower priority number will be tried first and so on down the line. If none of the systems are on, OWLSNEST will poll occasionally to see who is available.

Admittedly, this is not what the average packet user would do, but a network that is used for emergency communications could definitely use this. This would pay off when you have a mail server and

several stations that can cover for each other if someone is off of the air according to a predetermined schedule.

That just about covers what would need to be used for setting up DOMAIN.TXT. This whole process can be quite simple or a real migraine causer (me, it's cluster headaches). This can help set up an area for effective networking over packet. Unfortuantely, there is a lack of cooperation which is required for an effective management system to be put into place because of attitudes that are present in the amateur community. If we would all work together we would find that this can be a big asset for the whole community.

THIS SOFTWARE PACKAGE

I have uploaded the complete version to the WB6YMH-2 Ham BBS of the NOS package that will run under Linux. For all of you who like to call hosts that are not close, the phone number is 310-541-2503. I am not sure of which directory it is in but it is a .zip file that has the initials "LNX" in the file name.

On the same BBS, there is a another version of groupware UNIX clone. You can download the files and try out that one also. I will be setting up on the BBS the necessary disks in .zip format to allow you to download a complete set of disks to get Linux running. My next step is to get with WB6YMH to set up a directory for all of the disks necessary. This set will eventually include the compiler (486 compliant) and the X-Windows system. HACK ON!!!!!

THAT TIME OF THE YEAR

As I type this, using Xedit, I am also receiving the latest USENET news. What a blessing and a curse at the same time. I can inflict information overload upon myself anytime that I want. However, why should I? It serves no purpose. But, I guess the only purpose it serves is that I can see what is going on in the world. No man is an island. At least I am not.

This article is a tad on the short time as work has just about monopolized all of my time. Yuck but I need the bucks. 73 and 88 to the ladies.

de **Rich, N6NKO** ■

Packet: n6nko@wb6ymh-2

Internet: swc!owlsnest!richardp@cerritos.edu

Contest Station I2EOW Enters CQ/RJWW RTTY Contest

Operators Don, IK2EG; Erminio, I2EOW, Carlo, IK2CHF, and Georgio, I2VXJ enter the contest as Multi/Single Category, High Power

This was a first time shot at the CQ/RJWW RTTY Contest, for I2EOW and crew, but no stranger to stiff competition.

This station is most commonly known as IR2W in SSB and CW mode. Having made a pretty fair mark for themselves they decided to give the CQ/RJWW RTTY Contest a try. A try indeed! This being their first time out with lousy band conditions, they finished with a H/C score of 1217 QSOs and a 1.3 million score.

Station setup consists of Kenwood TS-940s and Alpha-77s supplied by I2VXJ. They had other radios and linears available for backup.

Antennas: 6 elm. mono-band Yagies on 10-15-20 with 2 elm. Yagi on 40, and a diople on 80. All antennas were designed by I2VXJ using a computer s/w program and installed by the team.

Station location is near Milano at the QTH of I2VXJ who has enough space for the towers and antennas.

RTTY Interface is the HAL PCI-3000 with homebrew scope for tuning. Erminio thinks scope tuning is the best method. Software used during the contest was none other than RTTY by WF1B. As Erminio put it, "very nice software indeed, just point and click the mouse."

Erminio said no matter how the scores turn out in the final results, they had fun and will be back again next year, maybe wit a different call. However, Erminio did mention that he was concerned about the UZ9CWA score. I don't blame them, the crew of UZ9CWA s definitely a group to be concerned about. We didn't receive any High claimed Scores from UZ9CWA or any other Russian station this time. So, we will just have to wait and see how things turn out.

We will be looking forward to contesting with you next year Erminio and congratulations to you and the crew on a very fine effort.

I would like to thank Erminio and crew for sending me information and pictures. Without the participation of good people like this, it would be very difficult to prepare this type of a story.

If you know of a contest station DX or state side Big Gun, even a Little Pistol, that deserves recognition, please contact me.

de **Ron, AB5KD**

■

Words of Wisdom to Contesters,

Big antennas high in the sky, work better than little ones close to ground!

L. to R. Don, IK2EGL, Erminio, I2EOW, Carlo, IK2CHF, Giorgio, I2VXJ. All participated in 1993 CQ WW RTTY contest from I2EOW station shown in picture.

1993 SARTG WW RTTY

Contest Results - Submitted by Bo, SM4CMG

Single Operator

001	LY1BY	1098000
002	IK2BHX	1014600
003	SM5FUG	982940
004	OH2GI	875840
005	DL6ET	83915
006	HH2PK	793690
007	G0ARF	734380
008	I2TQU	709935
009	AB5KD	659880
010	N2DL	654500
011	UN5PR	573540
012	VP5JM	496650
013	4X6UO	488160
014	NO2T	484373
015	ZL3GQ	462570
016	I2UIY	456090
017	DL9YAJ	429660
018	SV2BFN	428125
019	G5LP	412650
020	YU7AM	409400
021	LA7AJ	379220
022	GM0/WNIG	346875
023	I2WEG	343200
024	VE7KD	325000
025	AH6JF	321010
026	IK0CNA	304920
027	OH1AF	304110
028	JA3DLE/1	260150
029	KA5CQJ	254840
030	OK1AJN	253590
031	IV3FSG	246000
032	YO6JN	245810
033	WA7FAB	241920
034	VE6ZX	234630
035	OH2LU	229425
036	K7WUW	228990
037	SP9TCE	225735
038	UB5TAU	221760
039	N6GG	218925
040	IN3XUG	211200
041	VE6KRR	181305
042	SM4AAY	175545
043	SM0TGG	172200
044	SP3PLD	163200
045	EA5FEL	157170
046	W6/G0AZT	150480
047	DJ2YE	137170
048	SM4GVR	126360
049	SM4RGD	125330
050	LLLA0BX	123525
051	KI4MI	119735
052	NA2M	110595
053	NOFMR	109200
054	W1VXFV	108750
055	I2HWI	107030
056	W4IF	010270
057	DK3GI	98155
058	WA1MPB/4	82800
059	WA7LNW	73600
060	JA3BSH	73280
061	LA2IJ	70200
062	W6MTJ	64610
063	JA2NNF	63425
064	KA1CLV	62350
065	KT6V	62000
066	SP4SKA	57375
067	IV3DHD	55815
068	SP4MPH	52800
069	DL3OV	51840
070	VE5SF	49680
071	VE2AAAXO	42840
072	AI0Y	40420
073	NL7DU	36575
074	VK6GOM	35280
075	K8CV	34320
076	K2PS	31960
077	YL2KF	31005
078	DL2BQV	30825
079	W8PBX	30400
080	DK7FP/P	293315
081	DJ9IR	28400
082	IK3ASM	25585
084	SM4RIK	21760
085	VP0HZ	21615
086	OZ6EI	20720
087	W1BYH/1	19980
088	ZL2JON	19520
089	DL5JWL	19500
090	LA6VIA	18850
091	TF3KX	18290
092	KE9CU	15660
093	IK0PHW	15035
094	W2KHQ	13840
095	WA6UFY	14245
096	HB9NL	14000
097	TI1RTTY	13770
098	W6IWO	13650
099	K4FPF	10220
100	W8VLK	9855
101	PA3BBP	9520
102	SP3EJJ	9000
103	G3NML	8375
104	JT1CS	8085
105	SP7FQI	6710
106	KC4IYO	6615
107	LA5RBA	4505
108	DF5BX	3485
109	W1HFN	3240
110	A45ZW	350
111	DK3ML	3040
112	KN4DG/KH2	2405
113	F5RRX/P	2035
114	W4JLS	1440

3.5 MHz

001	IK1HXN	24480
002	G0ARF	20385
003	VE7SAY	13200
004	LA3RIA	2000
005	W1BYH/1	300

14 MHz

001	ES7FQQQ	255300
002	KP2N	179655
003	SP4CHY	150660
004	UN5PR	144000
005	OH2GI	137740
006	JH7QXJ	131040
007	AB5KD	117660
008	BY1QH	109740
009	VE6ZX	103960
010	TA2FT	74295
011	OH2LU	73935
012	VE7OR	68400
013	IV3BKC	68040
014	RI2B/UW9CX	64575
015	VE6KRR	57760
016	JF3LGC	43470
017	JA2NNF	30780
018	DK4EC	27170
019	ON4NG	26400
020	OM3COU	25920
021	VK3EBP	23925
022	YO6CFB	22475
023	OZ7XE	21710
024	IT9IAS	12960
025	KJ6BW	11200
026	YU7AF	9405
027	OZ6QI	5100
028	JA8RJE	4480

21 MHz

001	ZV2BW	207080
002	IK0CNA	95700
003	K7DSR	88750
004	JG2VUQ	55920
005	SM4RGD	51695
006	IN3XUG	51030
007	UB4HQ	46230
008	LU8DKC	44200
009	SM4AAY	29070
010	IV3FSG	48470
011	SM4GVR	17825
012	OH3TY	16480
013	LA0BX	12720
014	SP3BGD	12040
015	OM3CPS	11375
016	JS6HTD	10080
017	HP1AC	5280
018	DF2EY	3675
019	SM4RLD	2365
020	SM7RDX	2365
021	LA5RBA	1485

28 MHz

001	OH1AF	11300
002	SM5EIT	2015
003	SM4CJY	299

Multi-Op

001	OH2BP	1625900
002	WA7EGA	831600
003	PI4COM	771375
004	LY1BZB	542640
005	AA5AU	466165
006	GW5NF	329130
007	VE3FJB	282270
008	VK2RT	230760
009	HA0KLL	186375
010	SP6YFU	121200
011	WN1E	92040

Ops. at Multi-stations

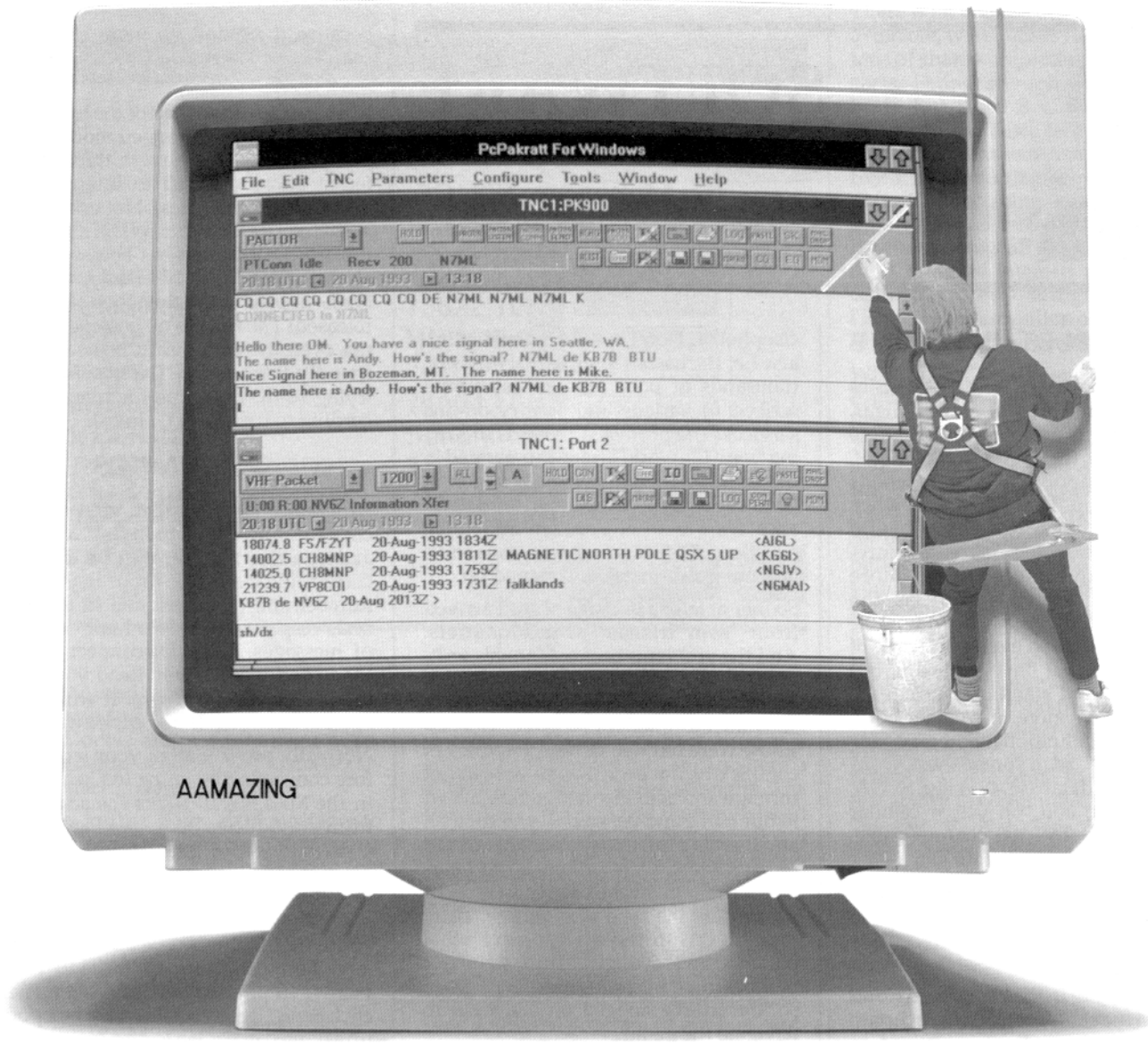
OH2BP: RW9CF, UA9CGA, OH2BP
PI4COM: PA3ERC, PA3GBQ, PA3BBP, PAAA3EWP
DL0HFC: DF5BX, Sabine
VE3FJB: VE3FJB, VE3EKF, VE3VSM, VE3NDA, VE3MKX, VE3OYM, VE3THR, VE3ABG, VE3SNN
AA5AU: AA5AU, and DX Cluster
LY1BZB: LY1FF, LY1FR, LY2BKF
SP6YFU: SP6NVK, SP6OPE
GW5NF: GW5NF, GW4JBQ, G4VXE
WN1E: WN1E, N1JAC
WA7EGA: WA7EGA, WS7I
HA0KLL: Bela, Istvan, Istvan, antal
VK2RT: VK2RT. Benjamin

SWL

001	ONL 383	578340
002	I3-60771	370920
003	G8CDW	143910
004	YO6/13838-HR	123900
005	I7-1237/BA	74240
006	SP4-208	53070
007	DL/M30-2089779	28390
008	F-10024	16065
009	DE0GMH	10665

Check Logs:

GD3HDL, SM4CMG, SM4CJY, SM6APB, SM6BS, YL2GD



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SOFTWARE

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THE STAPLES--PART ONE

The term staple means "one of the basics . . . a requirement as in coffee, sugar, flour, salt, beans and rice." What a fine description for the 1900's and it might, perhaps, even apply tothe 1930's when I was growing up. That was a time when staples might have been described(in our current phraseology) as "strategic resource initiative ingredients." More often it was known simply as the makin's of a meal. Fine and memorable meals they were; and even now some of those fundamental flavors remain! But tastes, habits and standards change. In our enlightened, more convenient, complex time, the definition might read "one of the basics . . . as in spreadsheet, word processor and database, 486 chip, SVGA, big hard disk; and, oh yes, a cellular phone, 40 inch TV, 100 channel cable, BMW and a nearby deli, four star

restaurant, supermarket and oh I almost forgot, a 27 cubic foot refrigerator with both cubed and crushed ice." We have come a long way . . . I guess!

Whether you are in the kitchen, on cloud nine, or at the computer, there are certain irreplaceable ingredients required to achieve the end result. And since this journal devotes itself to something other than home economics (that quaint term once used to describe what happened to girls when the boys went to "shop" classes) we chose to focus on the staples of computing success and happiness. More specifically the subject for the next several columns (not necessarily in sequence) will be staples in the software cabinet. Hardware, for the most part, will be left to others. So, follow me around the hard disk and learn about some of the large and small programs and/or utilities I consider basic pieces of the N2HOS computer pie. Please let me not speak alone. Write letters, articles; send FAX or CompuServe notes; use the telephone or meet me on the air. But do it and help build a library of staples others can think about or try.

WINCIM

We begin with a modern miracle, a triumph of software design, a medicine able to wipe out the dreaded interfacia cisophobia. Don't run for your dictionary. Let me hasten to explain. For years, thousands of poor modem users subscribed to various and sundry on-line services. The promised rewards of linking "with the world" were enumerated in thousands of advertisements and millions of pieces of direct mail. Free packages were a dime-a-dozen and huge numbers of the more adventurous souls laid out good money and signed up.

Sooner or later a package of stuff arrived from "your friends" at headquarters. And the problems began. Manuals written for those few who took their doctorate in modem theory and operation, software designed for NASA engineers--those were but two of the symptoms of complexity. But even then some of us got through and actually made a link, typed in our name and password, and then . . . and then as a full fledged member of this secret society, were presented an interface written in Swahili. On most screens of the day, the type was only partially visible even to those with exceptional patience and eyesight. This was early monochrome at its highest level. Even so, the sturdy slogged on and tried to navigate the menu.

The menu! yegods, the menu! Some worked their way through thirteen layers of screens before they, in an act of final desperation, cut their telephone line to disconnect the damned link. Others reached their target the first time out, then found themselves unable to duplicate the success ever again. Some never made it beyond square one. A few true hackers survived the obstacle course and actually did something meaningful. But hordes of ordinary, self-respecting citizens signed off, tried to get their subscription cancelled and looked around for a better way to fulfill this basic need. Then, CompuServe (CIS from now on) dropped a bombshell on the new competition that had cropped up, competition surviving primarily because of their use of a simpler interface. The first version was DOSCIM, a graphical interface for CIS users devoted to that ancient platform. And it was a runaway success. But it paled in comparison to WINCIM, the CIS product for the masses of folk who could just barely get around a Win3.1 screen with a mouse. And it worked because it needed no more skill than that! The CIS designers deserve a standing ovation.

By the way, on one shelf of the local book store, in a section arranged more-or-less alphabetically, there were thirteen different books devoted to Internet (talk about tough interfaces). Not one has yet been written about WINCIM even though the program has been out there almost a full year. Normally, the new books appear at the time the software is released! The truth is no book is needed, not even the material furnished by the friendly folks at CIS. (Now someone is trying to do the same for Internet, according to today's NY Times).

THE BASICS

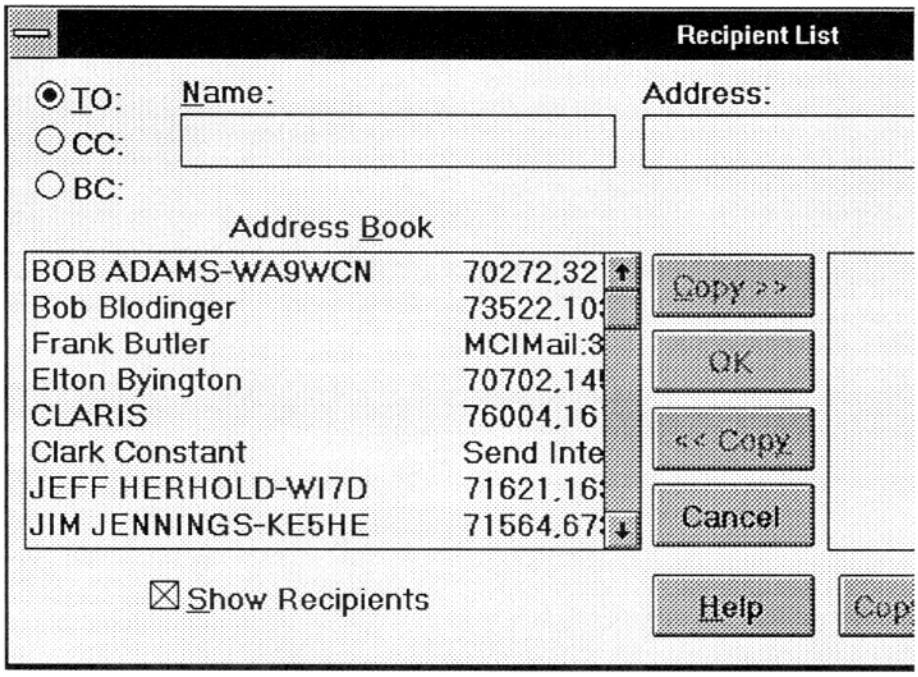
Experience simple! Open the program, click the Mail menu, then Get New Mail and you are through. Wincim dials the correct number, links, drops in your CIS number and password and in few seconds responds with "No Mail," or a list of messages. Click Disconnect in File menu and it is all over. Read your mail at your leisure, or answer it while connected. Each step is one click away!

Normally prepare all of your letters before connecting by going to Create Mail in the Mail menu. Select the addressee from the Address Book (See Figure I for a partial view of the screen) and go to work on the message. Put the letter in the Out Basket while working on the next one. Send a file the same way. Pick the addressee, fill in the File blank (any file, anywhere in your system), add comments and put it in the Out Basket. Then click Send/Receive All Mail, a box pops up asking if you wish to disconnect automatically. Select Yes and you are through. Wincim dials, sends and receives and then breaks the link--E-Mail as it should be.

EVEN MORE

The Address Book is well done. You can, of course, type in the name and CIS number of any of your friends. Or, you can use the Search Member Directory, type in the name, city, state and country and find anyone who is an active subscriber. Then, instead of writing down the name and number, just say Yes and the entry goes into the Address Book. It couldn't be easier.

We went through the process of selecting an addressee before. But suppose you want to send a copy of the message to six other people in your Address Book. Easy! Select the primary addressee, click Copy>, then select (each name is highlighted as the mouse clicks on their line) all of those who are to receive the copy. Click Copy> one more time, then OK. Wincim takes you to the Create Mail Box,



shows the total number of recipients, and invites you to fill in the Subject and Text boxes. Double check the number of recipients before sending, just to make certain all the moves were correct.

Simplify further. If you send messages to a set group on a regular basis, Wincim has an answer. Go to the Address Book and select Add Group. Pick out your targets and name the group. The new group is listed in the Address Book and one click puts the entire bunch in the Create Mail Box. And away you go!

NOT PERFECT

There are a few pitfalls here and there, but remarkably few for a program that carried the BBS from the caveman era to the forefront of ease-of-use. The notable one relates to text files. The problem has nothing to do with Wincim's capabilities. Rather it deals with the never-ending problem of language. If I have a Word Perfect 6.0 (Win3.1) text file (like this article) and I decide to send it to Joe in Cheyenne, I face a dilemma. Can he convert a WP file? Would he know how if he could? There is no way to tell unless you have had previous experience. I have no bullet-proof solutions. Sending an ASCII file (in Word Perfect save as ASCII Text (DOS)) as a Text rather than a Binary file seems best, though some seem to have difficulty with that. Text from a DOS word processor seems promising but I have yet not devoted a lot of time to that question. If anyone out there has a perfect solution, let us hear from you.

Setting up the program is a piece of cake. Under the Special menu, select Session Settings, fill in the blanks and you are on the air. All you need to know is your number, password, com port, baud rate and the local number for CIS. And here is a weakness and a great strength. The password! Type it in and the asterisks fill the blank. You link, no problem. But if you share my characteristics, you forget to write down the password, forget to hide it away in that special place where you keep all passwords and combinations for all those locks and safes and keyless entries, burglar alarms and unlisted phone numbers. So, when it comes time to put the program on another computer, your laptop for example, all you can do is take the time to get a new password. Technology is wonderful!

QUICK SUMMARY

If we were to go no further, if Wincim did nothing else, the less-than-20-dollar price (usually refundable in time charges) would be worth it. Few if any BBS operations of any kind rival this sleek design. Ah, but you think the monthly charges will eat up all the grocery money. Surprise! The bill for basic services is $7.95 per month. Yes, you can spend more if you want to use the for-hire services, want investment advice, travel agency services, or whatever. All right, there are some extras. This month the bill was $10.45 but I plead guilty to passing several large files (100K or better) around the country and world. An example, a 160K compressed file cost sixty two cents to send to Peter in Benin. Postage for the same thing on a disk would be at least two dollars!

There is an endless array of exotic things available, warehouses full of knowledge, tons of shareware, access to experts of all sorts--listing enough to fill a sizeable book. But there is almost as much included in the basic fee. Dozens of software and hardware manufacturers run free forums, offering help, advice and updates. The shopping mall, weather, stock quotes, and so forth. I won't attempt to list them here. CIS appeals to a tremendous range of interests and they all receive coverage in one segment or another. I leave the investigation of all the services to you or others who wish to pursue it.

Wincim qualifies as a staple because of its E-mail power. I use it one, two, three or four times a day, probably run well over 200 messages a month, in and out, and would have a hard time doing without it. We concentrated on this facet of the program because we feel strongly it belongs on your list as well. Wincim is a basic building block here and should be for you. As amateur radio operators who believe in the power and the glory of direct keyboard-to-keyboard communication we face the ultimate truths. First, the more we communicate the more we want to communicate. And that creates the second, and this is fundamental to the global village, the demand for communication grows at a rate equal to or greater than our ability to communicate. Thus caught between these forces, we seek better, more reliable methods to connect with our friends. Wincim makes the grade, deserves a trial subscription and warrants a complete examination by any one seriously interested in the art of connecting with the world.

MORE MORE MORE

Good friend George, KB2VO (who announced to me in an exclusive interview that he will be at Dayton '94, much to my delight) called to add his comments about Packratt for Windows. He confirmed the feeling that the author lacked any understanding of the RTTY mode. The Quick Exchange macro allows no editing, no insertion of the Pse KKK, or whatever else the operator wishes to add. This should definitely be corrected in the first revision. George, who loafed the summer away in Sweden, will have a large quantity of stories to tell when he gets to the Radisson next April.

Jim W5UFI reports more serious problems. While typing, the cursor fails to stay up with "my slow typing, then jumps to catch up." Then, says Jim, the program freezes and while the mouse pointer moves, the keyboard and mouse button die. Rebooting is the only answer. This borders on the problems others have reported. And, as I related to Jim, my early experience with the program required major surgery. I deleted both Windows

and Windows/System, then reloaded Windows 3.1 in order to get away from the demon guilty of disabling the mouse. AEA could not help me at that point. Perhaps, since Jim gave them a full description of the problem, we will soon hear better news. Ah, the joys of the first version of a Win3.1 program!

Bi, N2KXT strongly endorses the custom tool bar idea. The itty bitty icons bother him as well. However, Bi, who is struggling with the code necessary to get him into the mainstream of digital communication (ie, 20 meter Clover) thinks that OS2/2.1 is the ultimate answer. He suggests that I may be a "closet OS2/2.1 user," but, as of 9 December, I deny any such tendencies!

Brownie, K5FL reports other strange problems, but with Express, not Packratt. Brownie suggests that Express discriminates in favor of 486 machines. Dick, K0VKH, a very good friend of Brownie's, found that Express 2.03 loaded beautifully on his more powerful computer, but delivered an error message on the 386, despite the availability of most of the 386/40's resources. While there could be a glitch in the Setup1.EX_, no one else reported the problem to date. Please let us know if you hear of a similar problem.

SHAREWARE GEM

Dave, a close friend from way back, chose to be a volunteer fireman, fire chief and fire marshall, rather than a ham. He also graduated from the Emergency Medical Technician school (plus refresher courses), then served in a volunteer ambulance corps with distinction. Like so many of his kind, we fail to appreciate the endless hours of study and service rendered to the community. Dave, though, had other interests as well. Writing software, particularly word processing software, filled his free hours. Ten years or more ago he developed PowerText, a DOS product that remains as one of the best ever written. Last week he decided to offer it as a shareware product and it is now on the ADRS BBS (212 698 2102). This gem does all the work for you. Whether you or some member of your family are doing a letter, a term paper, a play, a TV script or a newsletter, you do the typing and PowerText does the formatting. PT is a magic piece of work and even this Windows aficiona !o is once again using the DOS product, this time on the laptop. It is so much less demanding of the system resources, so much faster that I can't resist. There is no better way to write. Just download Pwrtxt.exe from the BBS and try it. You will soon want to register as a user and get the full range of features and the 300 page manual as well.

PENPAL

Marjoke (Mary) ZS5V rates as my number one foreign correspondent. Her husband Joost (Joe), ZS5S writes a fair letter as well. But the feminine eye for interesting detail paints a complete picture for me of the village of Howick, the family, the monkey in the tree, baby birds being attended to by one of the four good looking but sometime irksome sons, the trials and tribulations of school and vacation, the flowers and trees, computers and radios--and the weather. We go back a long way. Some years ago, I was sitting beside the motor home in Lake City, Florida (just south of I10), looking for a QSO on 15 meter phone. The R4 antenna up on the roof performed well that day and delivered this pleasant voice from Howick. And we talked and talked.

Some years later, once the digital link was established, we renewed the acquaintance. Then there were letters and pictures and telephone calls (remember, the more you communicate, the more you want to communicate!). While propagation limits the keyboard contacts these days, there is no slowing down the exchange. Bless her, she is one of those who remembers birthdays and anniversary. And Gen and I look forward to each letter, announced by her distinctive handwriting and an interesting RSA stamp.

The picture of all six of the family was taken in April 1993. L. to R. are Robert, Marc, Justin, Hugo, Mary and Joe. All hams, all Dutch, all wonderful friends. We are better off because of their presence in our lives.

Enough, perhaps too much! Let me hear from you on CompuServe 71573,1077 or at the Florida address.

73 de Jim, N2HOS

N2HOS

December 30, 1993

RTTY Journal January 1994

OPINION column

(The following letter was received by Jim N2HOS. The subject of this thoughtful letter from Howard N6HM is worthy of serious discussion. Amateurs have been accused of being appliance operators ever since the dawn of the solid state transceiver. Howard suggests that the same ease of operation needs to be extended to the digital arena, at least so far as packet radio is concerned. Is he reading the tea leaves correctly? Your OPINION is invited. Your answers will be included in this column--within space limitations, of course. You are also invited to submit your OPINION on any other subject--even those controversial ones--you feel needs to be discussed. Address your comments to Dale W6IWO).

Dear Jim,

I read your article in the November RTTY Digital Journal and Dale's editorial with much interest. The Windows version of the AEA PcPackratt program is certainly not for beginners. Where are the simple programs for beginners? I think we who use digital modes are rapidly becoming an elitist group. Young high school kids can catch on very quickly. However, the older hams not brought up on computers are being left behind. It's too bad for they are the ones with the discretionary income necessary to fund packet by purchasing all the "toys."

I have several friends like that. They can use a FAX machine and they can use a typewriter--and that is all! I try to put them on packet and it simply does not take. Even with a so-called simple communications program like ProComm some of them cannot tell when they are connected to a mail drop, BBS or individual station.

If packet is ever to become commonly accepted in our life time it has to start catering to that level of capability. Anyone who can handle a microphone or a stand-alone FAX machine should be able to operate packet. Software and operating systems must be simplified.This new AEA program goes just the other way.

73, Howard Krawetz N6HM.

THE LINK

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A WinLink TUTORIAL

This month I will give a brief tutorial on WinLink for those of you that have yet to try it out. Maybe Santa brought you a new controller and you want to see what is going on in the MBO community. Maybe I can entice some newcomers. I will only discuss the AMTOR and Clover ports on WinLink as those are apparently the most commonly used. The two modes are very different. Clover is much more like Packet, in fact the user commands on WinLink are the same for both Packet and Clover.

GETTING STARTED AS A WinLink USER

Almost all WinLink stations use the AMTOR mode on HF and most use PACKET on VHF or UHF and many use Clover. PacTOR is also available on some systems. I have found that when the going is rough, as it is much of the time when I am operating out of my travel trailer, AMTOR always wins out of the other modes. When the conditions are more normal Clover and PacTOR can really speed things up. If you happen to be close enough to be able to connect with an WinLink station on PACKET, you will find that WinLink in that mode looks very similar to most PACKET BBS's. Most of you will be familiar enough with that to get by for a while, so this month I will concentrate on the HF or AMTOR side of the system.

USING THE ARQ MODE

Linking with WinLink on AMTOR requires the use of the ARQ mode. Since each of the different controllers, i.e. PCI-3000, PK-232, KAM, AMT-1 etc., have their set of commands, I will leave it up to you to become familiar with the operation of your particular controller and the associated software on AMTOR. I find that it is best to start by working with a buddy who is familiar with AMTOR. Try the FEC (Forward Error Correcting) mode first, then go to ARQ (Automatic Repeat reQuest). ARQ is sometimes disturbing if you haven't used it before because of the pulsing nature of the mode. Most hams get concerned with their transmitter pulsing on and off. A little patience will have its reward.

In the process of getting familiar with ARQ, you will learn about the SELCAL. The SELCAL is a 4-letter identifier that is used by the controller while in the ARQ mode. Normally the SELCAL is the 4 letters of your call. If your call has more than 4 letters, it is the first and last three letters. If your call has less than 4 letters, the first is repeated. There are no numerals in the SELCAL. You will also have become familiar with the tuning of an ARQ signal. This is a very important step in using AMTOR. A scope is the best tuning device for the digital modes. If you don't have a scope, learn how to precisely read your tuning indicator so that you can get on frequency. In addition, you will have learned the dial reading on your radio that corresponds to frequency of your mark tone. If you are running AFSK and using LSB on your rig, you will add 2.125 kHz to the desired mark frequency. That is, if you want to call someone on 10128 khz mark, you will set you dial to read 10130.125 khz. If you are using FSK, most radios read the mark frequency on the dial, so in the above example you would simply dial in 10128 khz.

LOGGING IN ON A WinLink MBO

In order to check in on an WinLink station, you need to get on a frequency that the MBO scans and chirp (ARQ call) his SELCAL. For example, chirping WNPX on 10128 mHz mark should bring up the W4NPX MBO. in Charlottesville VA. However, before doing that you should set the answerback response in your controller so that you can take advantage of the automatic login procedure of WinLink.

The automatic login procedure of WinLink works with registered stations having the automatic answerback (AAB) enabled. When you first link with the system, it seizes the link, identifies, sends a 'WRU' character (FIGS-D), and waits for an answerback response. The expected response is: 'QRA CALL SELCAL+?' or 'DE CALL SELCAL+?'. For example 'QRA KE5HE KEHE+?' or 'DE KE5HE KEHE+?' are typical responses. Such a response must be set in your controller as the answerback text in order for the automatic login to work properly. Refer to the manual for your controller to make the proper settings.

The first time you check into an WinLink station or if you don't have the AAB enabled, the system sends a manual login request followed by the +? sequence. At this point the user should send either 'LOGIN (CALL)(CR/LF)' or 'LOGON (CALL)(CR/LF)'. CALL is simply your call letters and CR/LF is just ENTER or RETURN on your keyboard. The system will ask you to confirm your CALL. Answering 'YES' will cause the call to become registered and the login procedure will be automatic on subsequent links with that MBO.

AFTER THE LOGIN

Using W5HAM as the call of the user and K5MBO as the call of the MBO, the MBO sends the following line after it recognizes a valid LOGIN:

W5HAM DE K5MBO QRU GA+?

or

W5HAM DE K5MBO QTC 3 GA+?

The first line above indicates that the MBO has no traffic for the user while the second indicates that 3 unread messages are on the system for the user. Each line also indicates the call of the user, if that is not your call, you should login again on the next line. The 'GA+?' is the 'GO AHEAD' prompt followed by the standard +? ARQ changeover command which puts the user as the Information Sending Station (ISS). WinLink always sends the 'GA+?' prompt when it is ready to receive a command. The sysop of the MBO may also put a system message containing important information in the above response.

SENDING A COMMAND ON AMTOR

The following commands have been implemented on the AMTOR port of WinLink:

A -This is the Abort command and is used to abort a listing process. Lets say that you have asked for a listing of all bulletins and you found the one you want and want to stop the continued listing from the MBO. To do that you must first seize the link using the ARQ break-in command for your controller. Then send the A followed by CR/LF.

Cancel -This command is used to cancel a message that you have entered on a MBO. The message is still available to the SYSOP and will be archived. You will not me allowed to cancel a message you did not create. You should not try to cancel a message after you have read it, the system automatically takes care of that.

CNCN- This command should be used with caution. It may be thought of as a "reset" command as the effect is to cause the system to stop what it is doing, even if in KSR mode, and prepare to receive a command. It is most used when entering a message and you find that an error has occurred. Sending CNCN on a new line will have the effect of canceling what has be done a the system will ask for a new command.

H, HELP - Returns a brief list of available commands.

I - Returns the contents of an information file about the AMTOR port on the system you are logged into.

L - Lists all unread message on the system. This command may not be available at the discretion of the SYSOP. Some system have a very long list of message and listing them all on AMTOR takes a long time.

LH- Lists all help files

L **(call), LTO (call)** - Lists all messages addressed to (call).

L **(call), LFM (call)** - Lists all message from (call).

Note: *On the 2 preceding commands if (call) is omitted your call is assumed.*

LB - Lists all bulletins on the system available to AMTOR.

LN- Lists all new (unread) messages to you.

LM- Lists all messages addressed to, at, or from your station, regardless of whether you have read them or not.

LOGIN (your call) - Logs you in.

LOGON (your call) - Same as login.

LOGOUT, LOGOFF - Logs you off the system and readies the system to accept a new user. You should always use this command to exit the system.

NCNC - Puts the MBO into the KSR mode. This command should be used only when you know an operator is available at the keyboard of the MBO.

NTS - Lists all NTS traffic on the system.

R # - Read message #.

RH- Read all Help messages on this port.

RM - Read all messages on the system addressed to you, even if you have read them before.

RN - Read all new messages on the system

S, SP - Send a private message. This command is of the form: S (to call) at (at call) Where (to call) is the call sign of the station to which you are sending the message and (at call) is the MBO/BBS home address of (to call). All after (to call) is optional, but if it is left out the system assumes that you do not wish to have the message forwarded to any other MBO/BBS.

SB - Send a bulletin, normally bulletins created on AMTOR are not forwarded.

ST - Send a NTS message, use the normal NTS address format.

T - Signal the SYSOP (rings a very quite bell at the MBO console).

V - Read the version number of the WinLink system running on the MBO.

OPERATING ON Clover

Operation on Clover requires the PCI-4000 controller by Hal Communications. If you are new to this mode read the manual carefully. Tuning is a bit touchy, but this is simplified considerably with the tuning indicators on most of the software. WinLink stations operate on indicated LSB frequencies on Clover, so you just need to be sure that your rig is properly calibrated.

SENDING A COMMAND ON Clover

The commands on the Clover port of a WinLink station are the same as the Packet port of WinLink and are the same as you will find on many Packet BBS's. The following commands have been implemented:

B - Disconnect.

CANCEL # - Cancel message #.

H - Read the primary help file.

I - Read the station information file.

L - List all unread messages on the system.

L # - List message numbers greater than #.

LB - List bulletins.

Note: *Each time you issue this command you only get the bulletins newer than the last one you have listed, to see all bulletins use the command:* LB 0.

LB # - List bulletin numbers greater than #.

LH - List help files.

LL # - List last # messages.

LM - List messages addressed to, from, or at your station.

LN - List new messages to you.

LT - List NTS messages.

L **(call)** - List messages to (call).

L **(call)** - List messages from (call).

L@ **(xxxx)** - List messages with (xxxx) in the AT field.

R # - Read message #.

RN - Read new messages to you.

S - Send a private message.

SB - Send a bulletin.

SP - Send a private message.

ST - Send an NTS message.

T - Signal the sysop.

V - Read the system version number.

WRAP UP

I hope this helps those of you getting started with MBO's a bit. There are getting to be more and more DX MBO's available. This is a handy way to communicate with your DX buddies. You don't always have to be able to reach the DX MBO, just send the message to any WinLink station and it should be forwarded for you.

New Years Resolution: Let us all resolve to listen carefully before transmitting to determine if the frequency is in use. This is especially true when you are on an MBO frequency. It is possible to communicate when the signals can barely be heard with the ear, so if you hear anything at all then move to another frequency. It is not like SSB when you can communicate with someone when the competition is "down in the mud". Someone may be trying to remove his messages from an MBO and you coming on top can cause the link to be lost. As a result there is just more bedlam on the frequency. Clover has made the problem even worse as there can be transmitting gaps of up to 25 seconds or so when a station is sending a long file. Even then you will only hear a very short burst. So not only do you have to listen closely, you have to listed for about 30 seconds to determine if the frequency is in use.

I hope you all have a very prosperous New Year.

73 and GOD BLESS de **Jim, KE5HE** ■

Annual RTTY Dinner

Regency Room, Radisson Hotel - Dayton, OH

Saturday April 29, 1994

Dinner Price: $23.00 per person

Tickets must be ordered in advance. Last year' attendance surpassed previous years. It's seems everyone was there. You will not want to miss this gathering. Order your tickeet today from Steve Waterman, K4CJX. Make your check or money order payable to:

Steve Waterman, K4CJX

5828 Beauregard

Nashville, TN 37215

Phone: (615) 665-0952

A buffet dinner will be again employed this year. Look for the menu in the next issue of the RDJ.

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
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- 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.

PacComm Offers the Most Complete Line of Amateur and Commercial Packet Radio Equipment

The **HandiPacket**. A complete battery powered TNC in a cigarette pack sized case. Full Featured!
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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PacComm Packet Radio Systems, Inc.
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Tampa, FL 33614-7618

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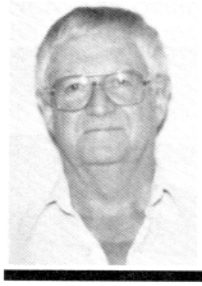

CONTESTING

Rich Lawton, N6GG
14395 Bevers Way
Pioneer, CA 95666

RTTY Contests - Coming Events

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

Date:	Contest:
FEB 12-13	EA WW RTTY (Spainish)
FEB 19-20	DARC HF RTTY (German) NEW!
MAR 6	DARC CORONA 10M DIGITALNEW!
MAR 19-21	BARTG RTTY (British)
APR 16-17	SARTG WW AMTOR (Swedish)
MAY 14-15	VOLTA RTTY DX (Italian)

NOTE: We have 2 new contests: FEB 19-20 and MAR 6. (See below)

-- -- REMINDERS: -- --

ARRL Roundup Contest log entries must be postmarked before February 9, 1994.

Mail logs to:

ARRL RTTY ROUNDUP
225 MAIN St.
NEWINGTON, CT 06111

-- -- COMING UP: -- --

EA WW RTTY Contest

February 12-13, 1994

Sponsored by Seccion Territorial Comarcal De Aranda De Duero.

CONTEST PERIOD: From 1600Z Saturday to 1600Z Sunday. (24 hours)

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

CLASSES:

A) Single op, all band

B) Single op, single band

C) Multi-op, all band

D) SWL

EXCHANGE: EA stations: send RST + province prefix

All others: send RST + CQ Zone

MULTIPLIERS: Each DXCC Country and Spanish Province on each band. Spanish Provinces are: A, AB, AL, AV, B, BA, BI, BU, C, CA, CC, CE, CO, CR, CS, CU, GC, GE, GR, GU, H, HU, J, L, LE, LO, LU, M, MA, ML, MU, NA, O, OR, P, PM, PO, S, SA, SE, SG, SO, SS, T, TE, TF, TO, V, VA, VI, Z, ZA. (There are 52 EA provinces)

NOTES:

- 1. All multipliers count once per band (Band Multipliers).
- 2. First QSO with EA station on each band counts as an additional multiplier, along with province.
- 3. CQ Zones do NOT count as multipliers.
- 4. QSOs with stations in your own country are valid for multiplier credit but have ZERO QSO point value.

QSO POINTS: On 20, 15, and 10M: Count 1 point for each QSO on your own continent, and 2 points for the rest. On 80 and 40M: Count 3 points for each QSO on your own continent, and 6 points for the rest.

FINAL SCORE: Total QSO points x total multipliers.

AWARDS: Plate to winner in each class. Certificate to winner in each DXCC country in each class. (Must have 50 or more QSOs.)

LOGS: Use separate logsheets for each band. Include a Summary sheet to show scoring and other essential information. Logsheets, summary sheets and multiplier and dupe sheets are all available for copying from the **RTTY Contester's Guide,** published by the RTTY Journal.

DEADLINE: Mailing deadline is April 9, 1994.

Mail entry to:

EA RTTY Contest Manager
Antonio Alcolado, EA1MV
P.O.Box 240
09400 Aranda de Duero (Burgos)
SPAIN

COMMENTS: This is a 24 hour DX contest. The rules have been changed slightly from last year: the Exchange still includes sending your CQ Zone, but CQ Zones do NOT count as multilpliers. Point bonuses encourage low band operation. This contest uses band multipliers - work the same country on different band gives a new multiplier. Count 1 DXCC mult for QSO with your own country on each band, but the QSO has ZERO QSO point value. Use separate dupesheets and multiplier sheets for each band. Handy tip: make an alphabetical checkoff list of EA Provinces for each band, as they can get confusing when changing bands.

DARC HF RTTY Contest

February 19,20, 1994 - Part 1.

Sponsored by Deutscher Amateur-Radio-Club e.V. (DARC)

CONTEST PERIOD: Part 1: Third full weekend in February (FEB 19,20, 1994)

Part 2: Third full weekend in July (JUL 15-16, 1994)

Part 1: Saturday: on 20, 15, and 10M: from 1000Z to 1600Z (6 hours)

Part 1: Sunday: on 80 and 40M: from 1400Z to 2000Z (6 hours)

MODE: RTTY (Baudot) only

BANDS: 80, 40, 20, 15, and 10M

CLASSES: A - Single op B - Multi-op C - SWL

EXCHANGE: USA stations: send RST + QSO nr. + name + State

All others : send RST + QSO nr. + name

MULTIPLIERS: Each DXCC/WAE country, and each USA State, and each call district in JA, VE, and VK, (NOT USA), regardless of band. (NO band multipliers) For USA stations, count only the FIRST QSO with a USA station as a DXCC/WAE country mult, regardless of band.

QSO POINTS:

Count 1 point for QSO with own country (States of USA are not counted as countries)

Count 2 points for QSO outside your country but within continent.

Count 3 points for QSO outside your own continent.

FINAL SCORE: Total QSO points x total of multipliers.

AWARDS: To top stations in each class, country and district mentioned above.

LOGS: Logs must contain: Date, Time UTC, Callsign, Message sent/received, name, US-state, first-time-mult prefix, and QSO points. Also required is a Summary sheet with a list of claimed multipliers. If entry is multi-op, please list names and callsigns of all ops. Comments are very much appreciated.

DEADLINES: Part 1: May 1, 1994. Part 2: September 1, 1994.

Mail entry to:

Werner LUDWIG, DF5BX
P.O. Box 12 70
D-49110 Georgsmarienhutte
GERMANY

COMMENTS: There are 2 separate contests here: Part 1 is in February and Part 2 is in July. Each part is identical except for the date, and the bands to operate on. In addition, each part is divided into 2 distinct time segments, each 6 hours long. The "**Saturday segment**" of Part 1 is for operation on 20, 15, and 10M, and runs from 1000Z to 1600Z. The "**Sunday segment**" of Part 1 is for operation on 80 and 40M, and runs from 1400Z to 2000Z. Part 2, in July, reverses the band operation for Saturday/Sunday segments. Got that? GOOD!

NOTE: There are no multlipliers for USA call areas. Just the STATES count for mults. Also, NO band multipliers. This means that only your FIRST USA QSO in the contest will count for a DXCC/WAE country mult, along with the State mult.

No mention was made in the official rules about how to count KH6/KL7. Are they USA states or separate countries? Most contest rules count them as separate countries. I plan to do just that. It makes more sense and is less confusing, especially when counting the QSO points.

DARC CORONA 10M Digital Contest

March 6, 1994

Sponsored by Deutscher Amateur-Radio-Club e.V. (DARC)

CONTEST PERIOD: Sunday, March 6, from 1100Z to 1700Z (6 hours)

NOTE: Contest will take place on the first Sunday in March, July, September, and November of each year.

MODES: RTTY, AMTOR, PACTOR, and CLOVER (No HF Packet)

BANDS: 10M ONLY

CLASSES:

A - Single op

B - multi- op

C - SWL

CONTEST CALL:

for RTTY:

"CQ CORONA TEST DE ....."

for AMTOR/PACTOR:

"use FEC (mode B) for "CQ CORONA TEST de sellcall XXXX"

Use ARQ (mode A) for answering and contest exchange. Contest exchange in any other mode is subject to disqualification.

EXCHANGE: USA stations: send RST + QSO nr. + name + State. All others: send RST + QSO nr. + name

CONTACTS: Additional QSOs are allowed with same station on different mode after a 15 minute interval, or after a QSO with another station.

MULTIPLIERS: Each DXCC/WAE country, and each USA state, and each call district in JA, VE, and VK, (NOT USA). Count only the first QSO with a USA station as a DXCC/WAE country multiplier.

QSO POINTS: Count 1 point for each completed QSO.

FINAL SCORE: Total QSOs x total multipliers.

AWARDS: To top stations in each class, country, and district mentioned above.

LOGS: Use separate logsheets for each mode. Logsheets must contain: Date, Mode, Time UTC, Callsign, message sent/received, name, USA-State, first-time multiplier prefix, and QSO points. Also required is a Summary sheet with a list of claimed multipliers. If entry is multi-op, please list names and callsigns of all ops. Comments are very much appreciated.

DEADLINES: All logs must be received by 60 days after the Contest.

Mail to:

Werner LUDWIG, DF5BX
P.O. Box 12 70
D--49110 Georgsmarienhutte
GERMANY

COMMENTS: This is an all-digital 10M contest, except for HF Packet, and it is 6 hours long. It occurs on Sundays, 4 times a year. There are no multipliers for USA call areas. Just the STATES count for mults. This means that only your FIRST USA QSO in the contest will count for a DXCC/WAE country mult, along with the State mult. No indication was made about counting multipliers again after changing digital modes. No mention was made in the official rules about how to count KH6/KL7. Are they USA states or separate countries? Most contest rules count them as separate countries. I plan to do that. It makes more sense and is less confusing. With the propagation forecasts looking rather poor for 10M, this Contest will actually be a 6-hour challenge. Let's see if a few of the super high power stations can ionize some paths for us. Stay tuned (up).

BARTG WW RTTY Contest

March 19-21, 1994

Sponsored by British Amateur Radio Teledata Group.

CONTEST PERIOD: from 0200Z Saturday to 0200Z Monday (48 hours)

Maximum operating time allowed: 30 hours for single op and SWL entries.

Multi-operator stations may operate the full 48 hours. The 18 hours of rest periods may not be less than 3 hours each. Times off operation must be shown on contest summary sheet.

MODE: RTTY only

BANDS: 80, 40, 20, 15, and 10M

CLASSES:

A) Single op, all band
B) Single op, single band
C) Multi-op, all band
D) SWL

EXCHANGE: Send: RST + QSO number + Time in UTC

MULTIPLIERS: Each DXCC country, including first QSO with W, VE and VK, counts as a multiplier on each band. Each call district in W, VE, and VK will count as an additional multliplier on each band. Also, each continent (6) will count once, not once per band.

QSO POINTS: Count 1 point per QSO

FINAL SCORE: Total QSOs x total multipliers x number of continents (max 6)

LOGS: Use separate logsheets for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN, MESSAGE Sent and Received, COUNTRIES and POINTS claimed.

Summary sheet must show full scoring, times of operation, and address for correspondence.

Logsheets, summary sheets and multiplier and dupesheets are all available for copying from the **RTTY Contester's Guide**, published by RTTY Journal.

DEADLINE: Logs must be received by May 25 to qualify.

Mail logs to:

BARTG c/o John Barber, G4SKA
32 Wellbrook Street
Tiverton, Devon
EX16 5JW, ENGLAND

COMMENTS: This is a 48 hour contest, but only 30 hours operating time allowed for single ops. The time off periods must be 3 hours minimum length and listed in the summary sheet. This contest gets great activity from all over the world. Try to plan your off times to be during the least productive time of day, such as when propagation does not favor your area. The fact that W/VE/VK call areas count as separate countries on each band means that CQing should be the most productive way to make a good score for the W/VE/VK ops. Also, band multipliers helps to alleviate the QRM on the high bands by spreading out the CQers to other bands. Finally, don't forget the WAC bonus of six multipliers.

-+- High Claimed Scores -+-

'93 TARA RTTY SPRINT

High Claimed Scores

(gathered by Ron AB5KD, and Jay WS7I)

Call	QSOs	Mlts	Score	Pwr
AB5KD	134	39	5,226	Hi
N2DL	10	33	3,333	Hi
WS7I	90	37	3,330	Lo
K2TW	94	34	3,290	Hi
WA6SDM	88	32	2,816	Hi
K7GS	82	31	2,582	Hi
N4ROL	58	36	2,204	Lo
VE7IRA	69	29	2,001	Lo
W6/G0AZT	6	29	1,914	?
K7WUW	66	25	1,716	Lo
NY2U	65	26	1,690	?
WA1VEZ	66	25	1,650	?
WA8WRY	45	20	900	?
N2IBZ	29	11	319	?

NOTE: Immediately following each RTTY contest, Ron AB5KD, and Jay WS7I, will collect high claimed scores at 14088 and 7088 kHz on RTTY.

Scores may also be sent to AB5KD via:

E-Mail: ron481@austin.relay.ucm.org

Packet: AB5KD@N5LJF.#AUS.USA.NA

U.S. Mail:

Ron Stailey, AB5KD
504 Dove Haven Dr.
Round Rock TX 78664

-+- Hint of the Month -+-

High SWR and All-Band Contesting

Does one of your antennas have a higher-than-normal SWR? When band-hopping in the contests its one more thing to contend with: carefully re-adjusting the final amp's pi network to compensate for excessive reactance presented by the poor match. When you are chasing some rare multliplier that has just popped up on your poor-matched band, you have to stop and carefully retune the amp. It can be down-right annoying - something that can make you say, "Oh, for pity's sake!" a few times.

Here's a partial solution for those who would rather not take a tower walk when its cold outside, merely to adjust a beam matching system: Simply change the length of the coax feedline. While this will NOT correct the SWR, it will change the reactance presented to the pi network. Most likely just a few feet is all that's needed. Experiment using random pieces of RG-58/U coax. Be sure to use good coax connectors. When you find a length that gives the pi network a less-than-weird setting, measure it and install a permanent length of your regular coax. (The velocity of propagation factor must be the same.)

I know that changing the feedline length has worked for me. My 5 element yagi has a 1.5 to 1 SWR on 20M RTTY. That's not really bad. But now there's a neat coil of coax sitting in the corner of the shack that is quietly doing its job.

While antenna pundits expound about why high SWR is not a serious problem (they're talking mainly about power loss), here are four reasons to strive for a really good match, other than the above. First, with a poor match the coax feedline will radiate somewhat. As a good portion of it is vertical, and so has a low angle of radiation, your RF can find easy ways of getting into the no-no land of RFI/TVI. Second, with a poor SWR the low pass filter in your coax feedline cannot perform properly, and will increase the likelihood of your transmitter to cause TVI. Third, on receiving, the vertically polarized coax feedline will be inclined to pick up more interference from local TV sets, man-made noise, and power leaks. Fourth, feedline pickup will tend to spoil the depth of the side null of your beam as you turn it to reduce undesirable signals that clobber the weak DX you absolutely MUST copy.

((73))

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!

THE LAST WORD

From the Publisher

Webster says a publisher is "one who makes generally known . . . as in the release of news, music or literature." I accept that and do indeed hope to help make the RDJ more "generally known" than it is now. There is more to it than that, or so it seems to me, though I am reminded of publishers known, or known of, who tried to fill smaller shoes. Some carried the title with few talents and qualified for the job only because they were a) an incompetent not otherwise employable (and not, for some reason or other, subject to termination) b) a mistress with presumed talents c) a relative, most often without experience d) an owner who, given great wealth, bought the publication of his/her choice or d) a retired politician who seemingly brought great connections or prestige to the front page. Some succeeded but predictable failure clung to most of the appointments.

I can't fill any of the above categories (nor can I offer any specific "publisher" experience on my resume') so must, at the very beginning, define my role as I see it or face some future firing squad of critics not yet known to me! My role requires that I spend equal amounts of time on 1) editorial direction 2) editorial quality and 3) the business side of the Journal. Or, to put it another way, I must plan and execute in such a way that the RDJ knows where it is going in terms of editorial content, deliver magazines of high quality and, finally, accomplish both within the confines of the real world of budgets and dollars. Or, to put it even more bluntly, to deliver what you want and need from this publication, and do it in a sound financial manner! Or else! (I wonder how they calculate severance pay for unpaid publishers?).

The first two elements are not difficult because I have resources like Dale and Jay and a cluster of RDJ columnists who are second-to-none. Each month they bring their experience to bear on common digital issues ranging from basic instructions to future modes. What else is this publication all about? While there will be new features added as we move forward, this basic strength of the RDJ will not change, nor should it.

Be that as it may, I need lots of help from you on part three of the job description--finance. Please remember two things. First, this is a pure "start from scratch" operation as far as capital is concerned and, second, you are the owners of this publication. I don't own it, nor do the directors, nor any other group. In the ADRS newsletter it was explained that "a majority of directors and a few friends" loaned the Society the money (interest-free) for the down payment. Wonderful news, but the loan has to be repaid after the other debt is retired! Meanwhile, we have the task of taking over and running the Journal with little or no cash on hand. And like most businesses, the expenses come before the revenue. Furthermore, our biggest suppliers, the printer and the Post Office, don't offer convenient credit terms! So you can play an important role in solving the problem and help substantially reduce the "job related" stress around this place. Let me list the ways.

First, extend your subscription for three years. The special offers listed elsewhere in the Journal are too good to pass up--for you or the ADRS. As an example, the three year basic North American rate is $43 instead of the $60 you will pay if you fail to take this step.

Second, give a gift subscription. And save more. If you extend your subscription for three years and give a one year gift subscription, take $2 off your bill! Give a friend a Valentine.

Third, get new members. Spread the word wherever hams congregate and sign up those who practice any aspect of the digital arts.

Fourth, support the advertisers and help us get new ones. Mention the RDJ whenever you spend your hard-earned cash. The Journal offers the best and most efficient way to reach the influential members of the digital community around the world.

Fifth, contribute to the BOOTSTRAP FUND. Money donated to this fund will be used exclusively to service and reduce the debt arising from the purchase of the Journal. No, it is not tax-deductible. The ADRS is a not-for-profit corporation but not a charity! However, to ease the pain we have an even better offer. If you contribute $25, you can send a two issue trial subscription to any ham in the USA. For $50, five issues to anyone in North America and for $100, five issues (via airmail) to any DX friend in any country in the world! Bonuses like that sure beat the heck out of the interest rates on certificates of deposit. So, take your cash out from under the mattress and put it to work where it will earn a great return, and make a friend for life!

All of us are anxious to get the debt retired so we can invest more into the process of expanding the RDJ in size and scope. Some want color, others more photographs and graphics, or slick paper or more issues and additional pages. All of the above is a consideration in the long term plan but little of it can be achieved until we have the full use of our resources. Your help will make it come about and will be most appreciated. Thanks, in advance.

Finally, let me add that we are looking for more unpaid workers. If you have a yen to get into some aspect of the publishing business, and are willing to learn, let us know. If you have direct experience in the field, please call right away. We need to borrow from your expertise.

See you in the same corner next month.

de **Jim, N2HOS** SK ■

RDJ Publisher

FACTS You Should Know About the ADRS

The following excerpts were taken from the American Digital Radio Society NL#8, dated Jan. '94:

HELP WANTED: If you are interested in getting involved in any aspect of the Journal's publishing cycle from desktop publishing, writing, Hamfest promotion, sales, data-base management or mailing practices, please call or drop one of us a line. This is a big undertaking on a small budget so we need the help of people with experience who will lend their expertise, or those without experience who are willing to learn. We guarantee hard work and fun in equal proportions. Phone numbers are Jay, (509) 534-4822, Dale, (619) 723-3838 and Jim, (813) 596 3105. Call today. We will appreciate it.

More help need! The ADRS has the right (ant the intent) to pay off the debt relating to this purchase ahead of schedule. Each dollar removed from the balance due reduces by substantially more than a dollar the future liability of the Society. When the debt drops to zero, the total resources can then be focused on improving and growing the Journal. More pages, more issues, more graphics, color--all are definite possibilities when the debt is gone. According to the contract it will take four years to reach this stage. Together we can cut that time in half or even more.

To help us get there we are establishing the ADRS Bootstrap Fund. Contributions will be dedicated to the servicing and payment of the debt and for no other purpose. The ADRS is a not-for-profit organization, but your contribution will not be deductible because we are not a charitable organization. But to help ease the pain, and because the contributed dollar is worth much more than a dollar, here's a suitable reward: for a $25 contribution, you can send a two-issue sample subscription to any one of your choice in the USA; $50 gives you the privilege of sending a six month membership to anyone in the USA (five issues under the current publishing Schedule); $100 allows two of the USA memberships or one DX airmail six month membership. Make your choice and get your check in without delay. You can't get a return like that in any bank these days.

While all of the information about subscriptions will be repeated here and in the next issue of the RDJ (which you will all receive) let's touch briefly on one unique aspect of the problem. If you are a member of the ADRS and NOT a subscriber to the RDJ -- two things happen. First, you will begin to receive the Journal with the January issue. Second, your subscription will expire on June 30, 1994. Here is the point ... rates go up on June 1, 1994. However, you may extend your subscription (and your membership in the ADRS) for one, two or three years at the current rate or even less. See below.

For all of you this is a very special offer indeed. The basic ADRS subscription/membership for US/Canada/Mexico rate increases to $20 on June 1, 1994. First class North America and foreign surface increases to $25. Foreign airmail to $35. These increases are required for a very good reason. The Journal evolves to twelve issues per year in 1995 and, according to current plans, to more pages as well. So the new rates must pay the postage as well as the anticipated increase in rates.!

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IMPORTANT! From this date onward, all RTTY Digital Journal correspondence should be addressed to PO Box 2465, New York, NY 10185. This is a new and permanent address. There will be a difficult transition as we begin to operate transcontinentally! Please help by making a note of this important change now.

The first annual meeting of the ADRS will take place on Friday 29, 1994 at Dayton in the Radisson Ballroom. Jim, KE5HE, and Jay, WS7I, promise a first class meeting, the details of which should begin to emerge next month.

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