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DIGITAL JOURNAL™

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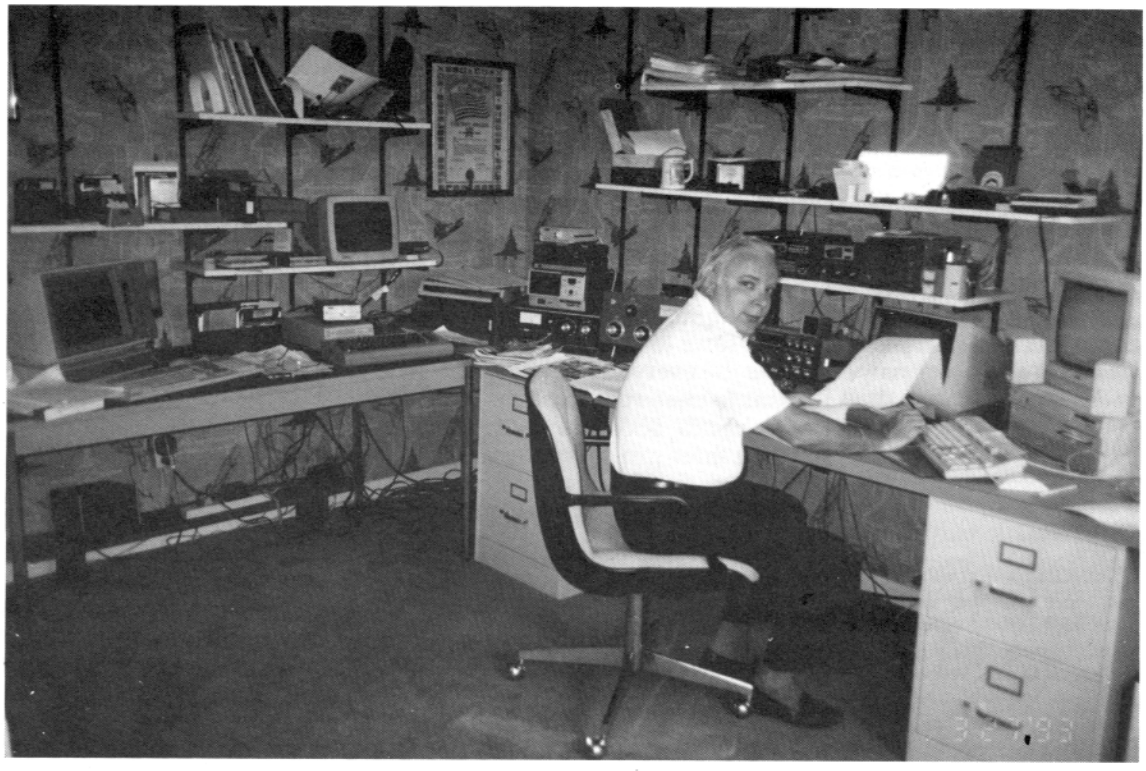
Special Edition

Digital Committee meets in Boston

Report in Hits & Misses column



Roy Gould, KT1N, at the controls of his station. Roy is the CQ/RTTY Journal WW/RTTY Contest Director.

Hits & Misses 2	Armed Forces Day Test 13	RTTY DXpediton of Year 25
Hardware 3	Contesting 14	Results of XXVI Contest 26
DX News 5	ZONE Chart 20	Packet 27
Software 8	TY1PS Scanner Setup Cont. 22	The Link 29
MSOs 11	QSL Routes 25	Classified Ads 31

RTTY DIGITAL JOURNAL

Dale S. Sinner, W6IWO
Owner, Publisher, Editor

All Correspondence:
1904 Carolton Lane
Fallbrook, CA
92028-4614

Phone - FAX
(619) 723-3838

STAFF MEMBERS

Jules Freundlich, W2JGR . . . . . DX News
Jim Jennings, KE5HE . . . . . The Link
Jim Mortensen, N2HOS . . . . . Software
Richard Lawton, N6GG . . . . . Contesting
Richard Polivka, N6NKO . . . . . Packet
Besty Townsend, WV7Y . . . . QSL Routing
Jay Townsend, WS7I . . . . . Hardware
Dick Uhrmacher, K0VKH . . . . . MSOs
Roy Gould, KT1N . CQ/RTTY Contest Mgr.

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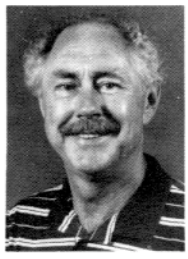


HITS & MISSES

Dale Sinner, W6IWO
1904 Carolton Lane
Fallbrook, CA 92028

The Juggling Act

How do you juggle all the different digital modes in a small space? Now that is a $64,000 question. Every mode and every operator wants his niche of the spectrum. Certainly they all have a right to ask but with such a small amount of spectrum to work with, where do they all fit. The digital modes have grown extensively over the past few years and yet no additional spectrum has been available. Let's examine this case further.

Some say RTTY is dead. Yet, there are presently eight very popular RTTY/AMTOR/PACKET contests each year that attract hundreds of operators. Granted these operators only appear on a contest weekend and the remainder of the week has slow activity but, these operators are a faction to be considered. Then there are the DXers who scan the bands at all hours of the day looking for that new one to complete DXCC or expand their numbers of DX contacts. Another force to be considered. Next we have the everyday keyboarders who want to chat, run pictures, or maybe check into BBS from time to time. These three groups of operators represent a sizeable number of digital Hams. They cannot be forgotten.

Then we come to the semi-automatic and fully automatic operators. The ARRL proposed petition recommends that semi-automatic and fully automatic operators share the same amount of spectrum in special subbands. Is this the answer? I think not. Simply from the standpoint that all the different modes must do this sharing but have a compatibility problem. Just think for a moment; Packet, APlink, Clover, and Pactor all sharing a sub-band. The petition addresses this but the proposed spectrum allocated will not service all these modes. That means, the strongest will survive. But, who is the strongest? Is it the station with the most power, the station with the smallest bandwidth, or the mode with the cleverest method of modulation. Consider this! Packet utilizes approximately 2KHz bandwidth for successful operation, APlink needs about 1KHz, and Pactor uses either 1KHz or 2KHz depending on what Baud rate it is running (100 Baud or adaptive 200 Baud) and then there is Clover which uses only 500Hz spacing.

Simple common sense dictates that all these modes will only create tremendous losses in throughput on the very narrow spectrum recommended. This will occur because all these modes cannot operate successfully in such a narrow area. So maybe the strongest will survive. Is this the answer? Again, I say no, this is not the way to satisfy all modes. Jamming three modes (who knows what new ones are coming along) into such a small amount of spectrum will grind the digital traffic system to a halt. Thousands of messages will go nowhere because movement will be next to impossible. What happens next?

We are on the threshold in advancement of our hobby. We all know that digital is the new kid on the block. It is now being predicted that in not too many years even the voice modes as we see them today may be done digitally. New digital television technology is already here. Digital is here to stay and we are the pioneers who can make a great contribution to its advancement. We must therefore, continue to support this advancement. We must think about how we can share the Amateur spectrum so that all modes can operate satisfactorily. So what should be done?

I am not going to advocate an all encompassing solution to our spectrum problems but let me give you some food for thought. Please do not get too upset with me on this. I am not out on limb here with these ideas. None of what I have to say has not been said before by someone. Pres-

Continued on page 4

HARDWARE

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

Spring has arrived in the great Pacific Northwest. It has been a very long and snowy winter. The ground is just now appearing and it's been since October that we have been snowbound. This month the MailBag is crammed full of letters and notes. The folks at PacComm who have so generously let me test the 9600 baud equipment have sent a letter wondering where the stuff has gone. It's amazing the support that our many equipment manufactures give us in the testing of these units for review. Thanks to all of them for their support to me in 1992.

HERE'S THE MAIL

Bob, AA7LG, wanted some information on the AMTOR modification kit from AEA for the PK232. I have sent him the last one that I had on hand. Bob is busy on AMTOR and RTTY these days. Tom, N9HSI sent a note via Packet expressing his thanks. Had a long letter from Gilbert, WB9TFH, who is looking for some upgrade information on the ROBOT Model 800. He wants to add memory, convert to RS232 and a couple of other things. Are there Robot 800 users that can help Gilbert? If so, drop me a line or to Gilbert directly. I think that the RS232 option would be pretty easy if I had a copy of the schematic. Anyone that can help please drop a line to me. Kantronics sent a press release on the Pactor option which is now available. Jack, NT3B, sent a bunch of stuff in on the band plan. It's nice to see that others have concerns on these issues. Tom, KC8OX, sent a note via packet. Joel, AA5YA, fired in another batch of ideas on the Flesher TU470/HD3030. Look for some future articles from Joel.

I finished the last part of the PacComm experiment. 9600 baud looks to be the frontier and I am pretty sure that we will be moving towards full implementation sometime this spring/summer. Since the PacketCluster in the local area has spread so far we need a little more capacity as we add Salt Lake City, Wyoming, and Montana. I also look for a full node from the Boise area. The PacComm equipment does a nice job and it was certainly a plus that they included schematics. The 440 Mhz 2 watt rigs that we tested in the Integrated Packet Radio look like they will work just fine for us.

Last month the Pactor option from KAM arrived and it awaits review. This month the CLOVER unit from HAL Communications came. Actually, I think Dale Sinner, our venerable editor, is attempting to bribe me into continuing these reviews. It has probably worked! He had AEA, Kantronics, and Hal Communications all set me up with about a year's work. First the HAL, then AEA, then Kantronics. And I still want to look into the Kantronics Data Engine. The PCI-4000 is one that I was eager to get my hands on to see what all this leading edge stuff is about. Several of my readers have also been keenly interested so I will jump right into a short review of the unit.

CLOVER -- PCI-4000

As with most of my reviews this one will take place over several issues and as I write this I have had the unit just a little over ten days. As Betsy and I are leaving for the Galapagos in a few more days I wanted to give you the initial impressions.

CLOVER -- THE UNIT

Having purchased a PCI-3000, the Amtor/RTTY unit from Hal Communications a few months earlier, I was not surprised by the general appearance of the new PCI-4000 (called CLOVER here after). The CLOVER board is a nicely constructed unit with the quality that has come to typify the products from Hal Communications. The CLOVER board is a full size PC board and will require a full sized slot in an AT type computer (a 286 or larger machine). It uses the 16 bit AT bus of the mother board. The rest of the parts included are one premade cable and a connector.

CLOVER -- THE MANUAL

As is not usually my practice, I took the manual, which is in a three ring binder, upstairs and actually read it from cover to cover. With most of my projects I usually just wade in and fire things up. But with CLOVER I thought it prudent to actually get an idea of how this thing works and how to do things. The CLOVER manual is very complete with diagrams, explanations and walk-through procedures. The manual has actually two complete manuals. The PCI-4000 Technical Reference Manual and the PCI-4000 Operator's Manual. It is apparent that a lot of thought, proof reading and careful consideration went into this complete product. Since the CLOVER product is expected to change quite a bit over a period of time everything is geared towards making that easy for the hams who purchased the units. Software is designed to be downloaded from the PC AT Computer into the CLOVER board each time. This means fewer EPROM's needing an update. The CLOVER Manual is loose leaf so that new pages can be inserted. They are carefully dated so that you will know what version is current.

The Technical reference section in the manual gives a detailed discussion of how the product works. HAL suggests that chapters one and two are a must read. They detail the introduction and how to install the board and hook up to the radio. There is a complete chapter on the modulation and protocols used with CLOVER. The last few chapters of the technical reference manual are just a detailed technical discussion. Everything you ever wanted to know about CLOVER I would guess.

The Operator's Manual is basically a step-by-step guide to the software operation of the CLOVER unit. It shows you how to configure the system, how to configure your radio, adjust microphone gain, it has some great pictures containing the steps that illustrate what things will look

like as you do it. This is the point I was doing when I made the first CLOVER QSO. This manual is in my opinion a break through in the amateur market with its ease of use. It is by far and away the best manual I have read in some time for amateur software/hardware.

HAL'S BBS

One of the most impressive things that Hal Communications has done is to develop, implement, and support a complete BBS operation to enhance the CLOVER project. The number is 217.367.5547 up to 9600 baud 8N1. From here on the BBS software is exchanged. Meetings on the air are arranged and discussions and ideas flow. Having previously been aware of this service I found it very useful when attempting to find out different information. Clark, W9CD, gave me a helping hand on making a simple thing work that I thought was a bug in the program. Mark Prather, the Customer Service Manager, does an extremely professional job.

CLOVER SOFTWARE

Probably one of the best kept secrets is that the unit comes complete. For the purchase price you get a software program that most of the other hardware manufactures sell for additional money. If you have used the PCI-3000 software you will have a very small learning curve when moving to the CLOVER unit. Most of the software functions in a manner similar to the predecessor unit. There are a couple of unique things that I will discuss when I get to the first test.

CLOVER -- HOOKING IT UP

This for a change was a snap. The unit comes with a pre-made cable which runs from a DB-9 connector on the CLOVER board to your rig. It has four leads terminated in phono plugs (which seem to be a standard these days). They are labeled, Audio In, Audio Out, PTT (Push to Talk), and Scan. To interface CLOVER all you need to do is hook up these three wires. I choose on the Yaesu FT1000 to use a 'Y' connector from the foot switch for the PTT. I hooked up another 'Y' from the speaker. Lastly, I decided to try the Patch-In connector for SSB Audio. If you do, this, check to be sure the mike is also not hot. In the Yaesu's case I believe they are in parallel so I make sure and disconnect the microphone. Wow, this is the fastest project I have ever hooked up. No cable to make, no solder used. If all digital projects were this easy I wouldn't have to even write this Hardware column.

CLOVER -- SMOKE TEST

I tuned the entire spectrum looking for a signal. Not one signal was to be found so I started playing with the "TEST" function. At the time I hadn't actually figured out how to get it to work, but I later discovered that it functions by hitting the space bar. Since I wanted to set up the various levels of drive as the manual indicated I hit the "CQ" button. Amazingly the thing began firing off with the 'twittering' that signifies CLOVER. The next thing I knew I had a connect! It was JA3BN off the back of the beam who was talking to me. A moment of panic since I hadn't read yet how to even answer him! I quickly swung the yagi to the Northwest in the direction of Japan. I typed a little bit and kept trying to figure out how to switch from transmit to receive. But, it just did it automatically. This ARQ mode is a lot like Amtor but without the change over characters. It went slowly at first as I was unsure how to make it work. I finally typed a bunch (about half a page) and it switched gears and went into a burst mode. It then exchanged a lot of data fairly quickly with JA3BN. My first CLOVER QSO was as big a thrill as anything I have done since my first OSCAR contact. It was amazing that not even knowing how the software worked I managed a DX QSO. I have just received my first CLOVER QSL card which was nice. Thanks JA3BN.

Later as I reviewed parts of the manual I discovered that there isn't a change over character and that small amounts of data go with the overhead of the system and its not until the buffer has more in it that the 'bursts' begin.

We will look next month and in continuing issues how things on CLOVER are actually done. These are but initial impressions. We will look at the W0RLI BBS that is already out for CLOVER. We will go through many of the various modulation and function possibilities.

Hope that I see each of you in Dayton. If not this year then start planning for next year.

73, Jay WS7I/HC8J WS7I @ WS7I.WA.USA.NA or Via APLINK WS7I @ N7CR FidoNet Jay Townsend at 1:346/8 the Think Tank II *n*

Continued from page 2

ently we have sections of spectrum we do not use because they are used by a few foreign countries for specific modes that would be incompatible with our digital modes. This balance of spectrum is unfair. Shouldn't the world body try to provide the best possible use of the spectrum without special privileges for some, over others? Were this to be done, large chucks of frequency could be shared with the digital modes.

Shouldn't we be more realistic in examining our present spectrum usage? Are the frequencies presently assigned to different modes being used extensively or minimally? This is not a new idea either. It has been advanced by many Hams before. If bands and frequencies are not being utilized frequently, then shouldn't we all consider readjusting the spectrum so that the spectrum can be divided up for better usage. We all know what happened to the 220 band. I am not saying that could or would happen to our HF bands but can't we use them more efficiently?

I have only scratched the surface here with a few ideas for you to ponder. There are many other ideas floating around out there in Hamdom. What I have tried to do is stimulate you into thinking seriously about our problems. We all have a tendency to let things slide along as they are and not make waves. But, I argue, we do need to make waves if we are to continue to advance our hobby and technology. Consequently, food for thought. Now it is up to you. Start thinking about our serious problems and talk about them with your friends and most of all your Director. Your input is important! Please don't rely on just a group such as the ARRL Digital Committee to come up with the solutions.

I have been told that I stirred up controversy last month by publishing opposing views to our problems. The reaction was mixed, but there was

Continued on page 19

DX NEWS

Jules Freundlich, W2JGR
825 Summit Ave., Apt 1401
Minneapolis, MN 55403-3188

Last month, I questioned how well CLOVER and PACTOR perform, in a conversational mode, in a DX environment. There are some who maintain that the emergence of CLOVER rings the death knell for PACTOR and AMTOR. I might ask, also, that with CLOVER and PACTOR BBS's now operating above 14080, 21080 and 28080, should we add RTTY DX to the list of obsolescent modes? It will be a long time before the average "digital ham" can afford CLOVER. But, if CLOVER and PACTOR BBS's continue to creep up into what remains of the RTTY DX slot, we could see a trend toward a premature demise of DX RTTY due to lack of breathing space. Therefore, to give RTTY DX a chance, it would be considerate, if all MBO's using burst type emissions, would, for the present, confine their operation to below .080 on the most used RTTY DX bands. A weak DX signal can not make it when clobbered by a burst type BBS. Is that asking too much? And, by the way, if the FCC adopts the ARRL digital band plan, the above discussion becomes moot. As Jay, WS7I, pointed out in last month's RJ, that plan should provide more spectrum for keyboarders. At least, then, the interference potential between digital modes operating manually will be reduced. Remember "QRL?"?

The price tag on CLOVER precludes its quick adoption by much of the digital radio community. Earl, WA1MPB, placing technical considerations aside, implies that there are many in the hobby who will never be able to go for the more expensive approach. Accordingly, he says, "Don't condemn AMTOR/PACTOR as obsolete...."

While one's disposable income available for ham radio gear will limit any station's ultimate configuration, there is one aspect that must be considered....that is "cost effectivensss." At the present time, it appears that there is a cost ratio of approximately 10:1, or greater, between CLOVER and PACTOR. Does the additional cost justify the improvement in performance? Your answer to that question will affect your willingness, or ability, to opt for the more expensive approach.

If PACTOR proves to be suitable for DXing in the traditional sense, might it supplant RTTY? My informants tell me that PACTOR is a more likely candidate to supplant AMTOR, rather than RTTY. Has any DX station any experience in fighting a PACTOR pileup???

The super-performance claimed for CLOVER will undoubtedly earn it a unique niche in high speed reliable data transfer applications. What about newer modes, still in the heads of their creators?

Speaking of another digital mode, Jack, NT3B, notes that he just received his new "all mode" from Kantronics, and bought the Hostmaster 2 Plus software. He immediately got it running on HF. Not surprisingly, he says "HF packet is a big letdown as far as I can see. When I do hook it up to someone, it is usually a BBS and says not to hook up to it. Also I wait for a long time to receive anything back. Boy, why ARRL wants this mode so bad for automatic operations on HF I will never know." Well, Jack, you confirmed what many have said all along, that "HF packet is not widely considered a reliable conversational mode." But good luck with your new toy in other applications.

DX DOINGS

Quote of the week...."You've got to be in the right place at the right time." (WB0MEJ)

ASCENSION IS., ZD8 - If you haven't yet worked ZD8LII, you have another opportunity to work this South Atlantic outpost since ZD8DEZ is now QRV, and will be active until August. He operates both RTTY and AMTOR.

BANGLADESH, S2 - Several new call signs have shown up on SSB and CW over the past two months, but surprisingly, there have been no RTTY reports from any of the new ones. S21A occaisionally can be found on 20 meters as early as 1200Z. QSL to W4FRU.

BOUVET, 3Y - Keep a sharp lookout for news about a potential operation by a Russian group, signing 3Y/R0L. Check the weekly DX bulletins.

BURKINA FASO, XT - This country, formerly Upper Volta, after being on the dormant list for so many years, has been well represented in recent months by XT2BW. If you can catch him on 10, 15, or 20 meter SSB, he will gladly give you a RTTY schedule. His operating habits span the 24 hours of the day, so check your propagation path. He sometimes chats with his QSL manager, WB2YQH, on Sundays on 14211 khz around 2100Z. Jump in when they have finished.

EGYPT, SU - Ezzat, SU1ER, has given many this country, but he has not been seen on RTTY for quite some time. However, keep your eyes open for SU1AH on 20 meters, early in the UTC day i.e. 0815Z.

ETHIOPIA, ET - Sid, ET3SID made his first appearance on 10 meters at about 1100Z on a Saturday in March (in the middle of the BARTG Contest!). Later, on 20 meters, it was a familiar catastrophic scenario. He was operating transceive, and was soon driven off by the bedlam. A week later, Ros, I8AA, attempted to pass Sid a list of 18 stations on 15 meters at about 1700Z. Predictably, the process was doomed to failure,,, in spite of the fact that Ros exhorted all to behave like gentlemen! The first station on the list never had a chance. This approach is seldom successful on RTTY, and most times just delays the ability of the newly arrived DX station to get into the swing of things. Later on, Sid went on his own, on 20 meters, fielding the pileup, with a small RIT (350Hz) split. Let us hope that by the time you read this, Sid will have caught his breath, and adopted the time tested technique of true split solo operation. Sid's work assignment in Ethiopia is apt to last

for up to two years. I am sure, before long, we will all have him comfortably in the log on all bands! Initially, it seemed that his free operating time would be limited to weekends.

GHANA, 9G - After a lapse of many years, amateur Radio returned to Ghana during late March, when 9G1AA, operated by a group of Dutch amateurs, on medical mission, burst on the scene with several transmitters, operating simultaneously on CW and SSB. this represented a sharp turnabout by the authorities. When the ruling leader was returned to office last November, in a Presidential election that was accomplished by violence and the imposition of a curfew, the change of a liberalized attitude toward ham radio were greatly diminished. It is to the credit of the GAGOE Foundation group that this breakthrough has occurred.

As of 27 March, no RTTY had been reported, but the SSB operator told me that day, that they would be QRV RTTY towards the end of the expedition, i.e. mid-April. If you worked them, QSL to PA2FAS. A contribution for the Hospital fund accompanying your card would be appropriate.

GREECE, SV - Nick, SV2BBJ can be found around 1630Z on 15 meters, or around 2115 on 20 meters. SV8AJN on Leamo Island was reported on 20 meters around 1710Z. SV1LK, in addition to operating 15 meters around 1500Z, may be found on 20 meters around 0730Z.

GUINEA, 3X - Look for a new RTTY operator to be QRV here, in June 1993, for a two year stay.

MADAGASCAR, 5R - Old faithful George, 5R8DG is still a regular on 15 meters between 1400-1700Z. QSL to W4FRU for a sure card.

MELLISH REEF, VK9Z - This remote Coral Sea island will again be activated by a multinational team of operators in September 1993. The group will include VK4CRR, VK2RQ/VK2BJL, P29DX, WA4DAN, and KB7NW. It is planned to have several stations on the air at once, covering 160-6 meters. Beam antennas and amplifiers should assure good signals. To help defray the $30K cost of the expedition, you can send your contribution, payable to "1993 Mellish Reef DXpedition", to Murray Adams, WA4DAN, at 403 East 14th Street, Greenville, NC 27858. In the event the expedition is cancelled, all monies will be returned. Include an SASE with your donation.

MOZAMBIQUE, C9 - A few years ago this East African country was on everyone's most wanted list. Now, the Department of Telecommunications is sympathetic towards Amateur Radio, and is very cooperative. Recent radio classes had seven enthusiatic participants. John, formerly C9RJJ, and others, have just about wiped out the scarceness of this country.

To conform to ITU standards, C9 call areas were recently changed. John is now C91J. C91 prefix is assigned to the Capital City of Maputo. Provincial prefixes include C92-C96 inclusive. C97, C98, and C90 are reserved for VHF and special event operations. Visitors will probably be assigned /C9x calls. Quite a turnabout!

MOUNT ATHOS, SV - There is still hope for a possible operation from the sacred mountain. Doc, JA3PFZ, has sent RTTY gear to monk Apollo. Let's hope he gets permission to use it. Stay tuned.

OGASAWARA, JD1 - We have not seen him, but a resident operator, JD1AMA has been reported on 15 meters at 0245Z. There is no information as to the length of his stay. (Tnx QRZ DX)

PETER I Is., 3Y - Plans for the expedition to Peter I Island are shaping up. Target date for landing on the island is set for 30 January 1994, seven years after this island was first activated as a new DXCC country by Einar, LA1EE, and Kare, LA2GV. The major transportation problem has been solved by contracting for the services of a helicopter equipped icebreaker. (No dunking in the Antarctic surf this time!) Landing permission has been received, as well as a FAX from the Norwegian Telecom, stating that a license will be granted. The multinational team will consist of a core group from the legendary VP8SSI team, with a few additions yet to be named. As with the South Sandwich operation, this will be an all band, all mode effort. QSLs will be handled by KA6V and AA6BB.

It is not too early to send your encouragement, in the form of a contribution to help defray the enormous cost. The Bransons, Jerry, AA6BB, and Joanie, KA6V, will be happy to receive your checks at 93787 Dorsey Lane, Junction City, OR 97448.

SEYCHELLES, S7 - If you haven't gotten this one yet, look for S79PDL. He still likes the lower end of the RTTY slot on 15 and 20 meters around 1800Z. A station signing S75AN was worked by some VK and JA stations. He gave his name as Boris, and said to QSL via HA-land. He gave his QTH as "Nova Garcia" (?). Does anyone have any information regarding the legitimacy of this station?

ST. HELENA, ZD7 - Look for ZD7AY around 1850Z on 15 meters.

SOMALIA, T5 - Brian, KF6BL/T5 has left Somalia, but K3OQF/T5 has been spotted on 15 meters around 1300Z. Incidentally, QSL cards from Brian, via his QSL Manager, KZ6X, started to arrive in mid-March confirming January contacts.

SOUTH KOREA, HL - There have not been too many recent sightings of this Far Eastern country, but listen for HL5FBT on 15 meters around 2230Z.

SOUTH ORKNEY IS., VP8 - Brian, VP8CFM has returned to the U.K. after filling the need for this once rare RTTY DX country. Brian used the gear sent to him by the International RTTY DX Association. The story of how that gear made its way from W6PQS and WA6PJR in California, via the Falkland Islands, to Signy Island in late 1991, is a small saga in itself. We don't know yet, whether Brian's replacement, Clare, VP8SIG will be operating RTTY or not.

TROMELIN, FR/T - Jacques, FR5ZU/T should be active about the time you read this. QSL to VE2NW.

TURKEY, TA - In addition to the very active TA5C, you can also find TA2D on 15 meters around 1315Z.

UGANDA, 5X - We should see a lot of action from Paul, WF5T, as 5X1XB, and James, N3JCL (also 5Z4FV), as 5X1XA, from 27 April-13 May. Paul will be operating RTTY and CW, while James will do SSB. Paul is targeting 1500-2000 RTTY QSO's. They will operate 10-80 meters, running

two 500 watt stations, using a TA-33 beam, and an R7 vertical, plus wires. QSL each to their home CBA ('93 for Paul's). Contributions to help defray travel costs can be sent to Paul.

DX CENTURY CLUB (DXCC)

HOW MANY COUNTRIES IN THE DXCC? - Here is a recap of the DXCC country count, when we looked at it the last week in March.

- 323 DXCC Countries as of 31 December 1992

New DXCC Countries effective 1 January 1993

- 324 9A Croatia 325 S5 Slovenia 326 4N4 Bosnia-Hercegovina

DXCC Country deleted 10 March 1993

- 325 /A, A15 Abu Ail (as of March 1991)

New DXCC Country pending valid operation

- 326 P5 North Korea

New DXCC Countries pending

- 327 OK Czech Republic
- 328 OM Slovakia
- 329 4N5 Macedonia

DXCC Country pending deletion

- 328 OK-OM Czechoslovakia

You can easily modify the numbers if things don't happen in the order listed.

DXING IN THE FUTURE - Do a little crystal ball gazing. What do you think will be the nature of DXing in the next 15-20 years? The DX Advisory Committee (DXAC) would like to know. Share your thoughts with them. Comments are being solicited from DX Clubs and Associations. Send along ideas to your DXAC representative.

QSL POTPOURRI

Quote of the Month..."Working 'em is the fun part. It is the QSLs that are the hard part." (WB9B)

The FR5ZU/G and /E logjam for the September/October 1992 operation has been broken. The address given last month for his new QSL Manager, VE2NW, is a good one. Several of my local friends and I received our missing Glorioso and Europa cards within 10 days. This should put an end to complaints and innuendos. Our thanks go to Jacques for selecting such a responsive QSL Manager. I do not know if the Manager has Jacques' logs from prior operations.

Wonder whatever became of the cards from the 4J1FS operation of May/June 1992, promised on several occaisions by OH2BU.

I have now received replies to ALL the multiple submissions I made to the /HA5BUS operations (ET/, VU/, S2/). I waited in vain for the S2/ card to arrive in time to submit it before the DXCC country count went up, effective 1 January 1993. Therefore I missed making the Top of the Mixed Honor Roll by a few weeks. Incidentally, we heard that the bus operators were denied a license by the FCC to operate W/HA5BUS, because of the lack of a reciprocal operating agreement between Hungary and the USA. Rather than submit to a regular licensing test, they opted to go to Mexico.

Mike, WB9B, would like to know how to get a card out of TI9YO. He tried the manager, but still no response after a year.

MISCELLANIA

For updating your propagation or logging program, here are the coordinates of the new Czechoslovakian republics. These coordinates should be the geographic centers of both new DXCC countries.

Czech Republic - OK

Latitude 49 deg. 54 min. N

Longitude 15 deg. 0 min E

Slovakia - OM

Latitude 48 deg. 42 min. N

Longitude 19 deg. 30 min. E

A couple of months ago we published some guidelines for operators hunting DX. Now we address the DXers who are the victims of pileups. If you are rare, or semi rare DX, and are new to RTTY, consider the following tips. They can make life on the DX bands a little more enjoyable at both ends of the circuit.

1) Start out by listening and working stations on your own frequency

2) When the pileup gets too thick, go "split", listening up 3-5, or 3-10 khz depending on how good your filters are.

3) To thin the pileup, send CQ or QRZ? by call area, or geographic location.

4) If you are operating split, repeat "UP UP UP" after each QRZ?

5) Repeat his callsign at least twice at the beginning, and at least once when signing with him. Send your own call sign at least once when responding.

6) If premature "tail-ending" is destroying your contacts. insert "no breakers please" from time to time.

In addition to following some, or all, of the above tips, you will best have control of your frequency if you have power, and a good antenna. Sounds simple enough, right?

HAVE DX NEWS?

I can be reached directly by dropping mail into my APLink MBO, leaving a message in the APLink box of CE3GDN[1], sending me a packet message addressed to W2JGR @ WB0GDB.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 APLINK listens on 21074 during daylight hours and 14074 at night in the Central Time Zone. Set your chirping to WJGR.

THANKS - Thanks to the following for all the information: AE0Q, C91J, CE3GDN, F8XT, I5FLN, JA3DLE/1, K0IR, NA2M, NT3B, VK2EG, WA1MPB, W2IYX, WB2CJL, WU2K, WF5T, WB9B, WB0MEJ, and ZS5S. Without you, there would be no column.

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

de **Jules, W2JGR** ■

1. CE3GDN scans 7037, 7070, 14066, 14068, 14072, 14074, 14078, 21070, 21072, 21074, 21076, 21078, 24915, 28074, 28135.

SOFTWARE

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

APRIL MEANS DAYTON,

but instead of talking about the new and exciting technology or software, it is incumbent on us to discuss the actions of the organization that purports to represent us. Remember? The ARRL recently conducted a poll of the Amateur community regarding HF digital practices, then appointed a prestigious group to the Digital Advisory Committee. The DAC met, evaluated the results of the poll, thought through the problems and submitted a report. QST carried an editorial extolling the virtues and wisdom of the report. The issue had, the editorial suggested, put the issue to bed ... for good.

Something weird happened on the way to the keyboard. Within weeks, ARRL management seemingly reversed its course, ignored the results of the poll and the recommendations of the DAC. (Can you imagine them throwing out a vote of the DX Advisory Commit tee??) Next, they filed a petition with the FCC requesting that permanent, albeit very narrow subbands be established for automated HF digital operation. While they have every right to take such a step, even when it is a thinly disguised attempt to salvage the wreckage of the STA episode, the threat posed by the document is a clear and present danger to HF digital operations. In short, despite countless protestations to the contrary, our friends in Newington wish to pack all HF Packet, AMTOR, PA CTOR, CLOVER -- automated or semi-automated, wide or narrow bandwidth -- into these narrow slots. This naive step creates chaos, casts out a thirty year tradition, destroys one of the most valuable services in the Amateur spectrum and decimates technological progress in one giant backward step. Please bear in mind that the most significant, if not the only recent technological advances on the HF bands came in the digital area (and I don't mean packet!). Band width reduction, lower power and throughput gain -- these are the elements of technical gain of which we can be most proud. The digital community has steadily advanced the state of the art on all three fronts. This must not be sacrificed to the misguided attitudes of those who think they see the future in a rear vision mirror.

For some months, a group now officially called the American Digital Radio Society (a not-for-profit Delaware Corporation) attempted to put the train back on track. This quiet but substantive effort led to the preparation of an alternate petition, one designed to merge with the ARRL document so that, in combination, the FCC could look at the entire HF digital issue. The ARRL rejected the proposal out of hand, stating that such a move would "only confuse the FCC."

Their action triggered immediate reaction. The ADRS was legally organized on March 22nd. And the petition is about ready to be filed as I write these words. This organization plans a vigorous fight to clarify these existing practices, to maintain an environment in which technology thrives and to avoid the failure inherent in the ARRL proposal. To accomplish this singular goal, ADRS needs your help.

First, the organization needs members. Dues are set at a very modest $15 per year for US licensed amateurs, $10 for all others. But there is no limit on the amount you may contribute to the substantial cost of waging the legal battle. We are fortunat e to have several talented members who have contributed their time, talent and money. Now we need yours. Please send your check and/or contribution to me (the treasurer pro tem) if you wish to become a charter member. Make the check payable to me, until we have time to establish a banking relationship.

Second, CONTACT YOUR ARRL DIRECTOR!!!!! The entire Board has been sent a copy of the ADRS petition and relevant papers. Many if not most of them have now been contacted. Your phone call, letter or visit is a vital necessity. Please invite them to vis it your station. Show them how you operate. (We have reason to believe that there is a limited amount of HF digital expertise on the ARRL Board). Make certain they understand the importance of semi-automatic operation to you and to the digital community. Convince them that there is no alternative method of handling volumes of NTS, private or emergency traffic. Remind them of the worldwide network and the ease of operation. Please don't delay. Your Director's vote at the July Board meeting must go the right way.

END OF EDITORIAL

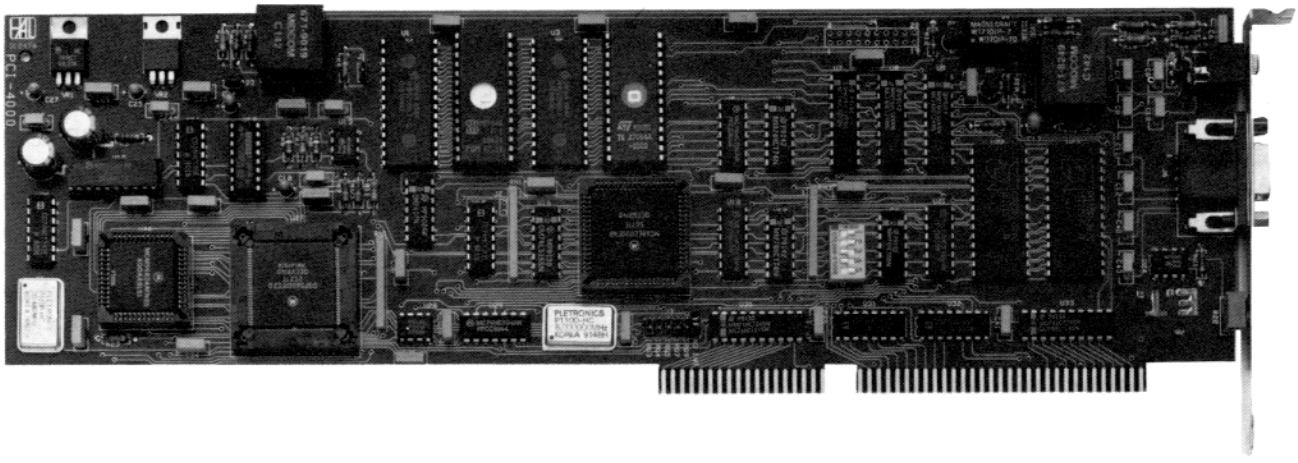
Okay, now let's talk about software. RT Systems, Inc. filled my order for SAM in February. This new product is an updated callsign database developed in and shipped from Lacy Springs, Alabama. It sparkles and has been on my Windows desktop since the day it arrived. Click the icon, or type SAM if you are at the directory's prompt on your main drive and you'll find the cursor blinking in a small box in the center of a pleasant, cleanly designed screen.

Type in the call and SAM brings up the name, address, license class and birth date in about 30 milliseconds on an old 386/20 machine. That is about fifty times faster than it takes me to remember where I put the old US Callbook! Press F8 and up jumps a list of identical or similar last names. Please note that there are far more Mortensens in this directory than in the New York telephone book ... whatever that proves. Keep going. Press F7 and browse the adjoining calls. If your call is NX2T, for example, then every other "2T" combination appears on the list! The next time a friend says "I once had a ham friend with the name of John Smith," hit F6, enter as much of the name as is known. The program responds promptly with a perfect match, if

NEW!

HAL Announces the PCI-4000 PC-CLOVER System

For Fast, Bandwidth-Efficient HF Data



The PCI-4000 uses the latest development in HF data transfer methods–CLOVER-II. CLOVER-II is designed to maximize the amount of data which can be transferred in a narrow bandwidth over HF radio frequencies. It uses a combination of four tone frequencies with phase and amplitude modulation to achieve data transfer rates as high as 60 characters per second–about ten times faster than AMTOR. The PC-CLOVER system incorporates Reed-Solomon error correction, not simply a retransmission scheme. The PCI-4000 is a full-sized PC card which operates in a 80286-based PC or higher.

The PCI-4000 PC CLOVER system features:

- Higher throughput than RTTY, AMTOR, Packet, or PACTOR on similar HF channel
- Simple pull-down menu operation
- Signal bandwidth of 500 Hz (@50 dB down)
- Plugs into your PC (286, 386SX, 386, or 486 machines)
- Easy interface to your transceiver
- Automatically adapts to HF band conditions
- Error correcting using Reed-Solomon error correction

You've read about it in the articles. Now you can operate CLOVER!
Order your PC-CLOVER system today from HAL Communications Corp.

PCI-4000 PC-CLOVER System Only $995.00

HAL Communications Corp.
P.O. Box 365
Urbana, IL 61801
Phone (217) 367-7373
FAX (217) 367-1701

MasterCard

VISA

John Smith (friend-of-your-friend) is still a ham. Otherwise the nearest match is presented for your consideration.

Much more is available, even without buying the five additional modules. My favorite exercise uses the F2 key. The screen presents a list of criteria that allows you to setup a search of the mammoth data base (586,298 entries!). For example, I wanted to find out how many hams there are in Indian Rocks Beach, their callsigns, etc. It couldn't be easier. Fill in six blanks, hit the F2 key, then watch the search progress through the entire deck of cards. The names pop up as they are found. Both callsigns and names are listed, so getting the full address is no effort at all. Oh yes, there are fourteen callsigns listed for Indian Rocks Beach and I have met only one of them!

A single zip code search produces the same result. But, a zip code range can also be setup, a step delivering quantities of data. For example, I ran a search for areas 34635-34644. That's a lot of zips and hams. In something under two minutes on this 20 megahertz machine, the database turned up a file containing the call, name, city and zip code of 205. A hamfest mailing list could be created and printed in about five minutes!

The program includes the interface to link with packet networks and certain logging programs. Logmaster, LOGic and HyperLog utilize this database, just as an example. Thus SAM is adaptable as well as flexible and is a joy to have around. I heartily recommend it. Call them at 205-882-9292 and have your credit card handy. The price is $39.95 plus 5$ shipping. Updates and options are inexpensive additions.

Installation is easy. At the DOS prompt, type A:\install and the 15 megabytes move on to your hard disk with no effort. They suggest putting the directory in your Path statement (in the Autoexec.bat). And they also warn you about data compression. SAM is already compressed to the 15 meg level. The compression utilities recognize that. But there may be a problem in knowing whether or not there is enough space remaining on your hard drive. Be certain that you have at least 17 megs of "real" space available or the installation process might abort. Have fun with this first rate addition to our arsenal of ham software.

OTHER THOUGHTS

Clark W9CD keeps coming up with new ideas and new versions of his recent work. Now it is a Windows version of Pterm, known as PTERMw. He warns about bugs in these early drafts although I found it to work very well. I'm not quite sure that I like it better than the old DOS version, a strange feeling for a Windows aficionado like me! However, my PCI-3000 board can't have two masters on the desktop at the same time. Winlink and PTERMw are a bit like oil and water. Hi! No multitasking for sure.

WF1B software scored again. I ran a few (80, to be truthful) QSO's in the BARTG. I worked a sick Ray who, even by his own admission, should have been in bed with his case of flu! With the manual in hand, I found perfect automation. I worked station after station with a two-keystroke pattern and kept it up while handling more pressing duties on another computer. Picking up the QSO number with the mouse was my most difficult challenge. The success ratio was about 50% or so, far below the rate for the QSO's time. Sounds a bit unusual but I am certain that the next version will improve the hit rate for both. Recommended, again. Buy it at Dayton.

THINGS I LIKE

Statline misleads the casual observer. The "always visible" five inch bar shows, time, date, amount of free system resources, remaining disk space or memory. Five other buttons are easily missed, but that's where the power lies. Those little buttons provide most of what you need to run your system under Win3.1. For example, Quick Menu pops up with a key click and contains the path for your seven favorite applications. Click your spreadsheet or word processor, or whatever, and it comes up at onc.. Exit it and back it goes to Quick Menu for your next use. Set this up with a full path description, as usual. If the program is in your Path statement, merely enter the program name. Launching programs from Quick Menu instead of Windows Startup saves wads of time during the bootup process. By the way, for the program hogs of the world, all seven can be launched at one time, a very efficient way to bring up your day's work. I now put only a few utilities in the Startup Window of ProgMan and save a lot of time during the loading process.

Quick Run sits next door. Any application on your disk can be launched with a double click of the mouse. DOS launches the same way. Since this button brings up a full file tree for each of your disks, and since there is a Delete option under this button as well, you edit or delete as you see fit. Just click on the file and then Delete and the deed is done. Simple, efficient, small -- this button is a dynamo.

Then, there is a mini-notepad. Up to 700 characters can be placed here, moved to the clipboard or pasted into a document. Since the bar is always on top, this feature is accessible at all times, regardless of the program you are using. Unfortunately, not all DOS programs utilize the clip and paste routine of Windows.

Finally, there is a button labeled EXIT. Click it and Windows the program shuts down Windows correctly and returns to the DOS prompt.

This mini-gem is shareware. Get it from James Bell 7 Andover Court, Brookfield, CT 06804. Send $10 for the license only or $15 if you wish a disk with the latest version. This is the buy of the month.

Easy Macro sits on my desktop, too. I discovered it on the local BBS and have used it for over three months now. I am not a macro nut and don't waste time designing the complex macros some use in spreadsheets, database applications or even word processors. There are times, however, when I weary of the repetitive key strokes needed to complete some simple task. Oddly, I often finish the work before realizing that I could do something about it! My recognition skills improve as I use this small uti lity, though. For example, before I typed Easy Macro I pressed F7, typed the words, pressed F7 again. Now all I have to do is press F8 and out it comes ... Easy Macro ... as many times as needed.

I used it the first time out my checkbook in Excel. Reconciling each item

takes seven keystrokes, an infinite number at the end of each month. Now I just type it once and don't worry a whit that the macro isn't saved for use a month later. It would take me longer to find the macro than to type and record the seven key strokes!

There is one limitation. In the Easy Macro, I can't format the Bold type that I might wish to use within the macro. At least not in the current version. Only keystrokes are recognized. The alert among us can find many uses that don't require the cosmetics ...at the digital keyboard for example! Try it. Easy Macro is also shareware and costs little or nothing. Get it by calling Wintronix Inc. at 1-801-532-4865 or write them at 1001 S. 800 E., Salt Lake City, Utah, 84105. This is a good one.

No more space for the last one, but will cover it next month. Most of that column will be devoted to modems, ham BBS' and such, ham shareware programs that look interesting.

Whoops, I can't quit before I mention AEA's Packratt for Windows. A spy delivered a contraband copy of this new venture, which I assume will be on sale at Dayton. From the looks of this it may be that AEA finally got it right! The program first loads with a delightful screen full of TNC front panels. Just click on the picture of the one you use and off you go. Another thing I like at first glance--when you select VHF Packet, up comes a screen complete with mode and baud rate; time in GMT, date; and a tool bar with buttons representing most of the functions needed in the mode. If PcPackratt/W works as well as it looks, we have a major new entry in the field. More later.

See you in Dayton,

de Jim, N2HOS ■

CompuServe 71573,1077

DAYTON SCHEDULE

Thurs. - Meet in Lounge of Radisson hotel anytime after 5:00 PM.

Fri. - Hanvention opens at noon.

Fri. evening - RTTY Journal hospitality suite opens 7:30 PM until ? Suite located across hall from room 1029 at Radission hotel.

More on page 30!!!

MSOs

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

Hi Gang! I feel that strong urge to "head East" again, so the Dayton HAMVENTION must be in the offing! I hope that many of my good friends will be able to make the trip to Dayton again this year, as it's always good to see them, and have some spirited conversations as well. For those of you who may be making the trip for the first time, the "digital crowd" seems to gravitate to The Radisson Dayton, which is located at Needmore and Interstate 75. This is about two miles directly east of Hara Arena, (where the HAMVENTION is located), and there's always something interesting going on at The Radisson during the evening hours.

For example, Friday night, April 23rd, the Collins Radio group will hold its annual "Collins Dinner" hosted by Jay Roman, KB0ATQ, editor and publisher of the "Collins Collectors Magazine". If you're into Collins equipment, believe me there's no more authoritative source of information. The following evening, the premier event, (at least as far as this author is concerned), takes place, with the annual "RTTY Dinner" at The Radisson. This time honored event started back in April 1981, when a handful of us met at The Peerless Mill Inn, in Miamisburg, OH. Where has the time gone, and an even better question, where has Tony, KI4X, Dennis, WB0TAX, Dick, K8ZTT, George, KA9BTX, Chuck, K8EWK, and Ralph, AI4D gone? Unfortunately, several original attenders are now Silent Keys, including Don, K8WZX, his XYL Ruth, and Gaylord, WB8ICL. The attendance at the RTTY Dinner grows with each passing year, and those who have sponsored and hosted this event have made it into an event that everyone looks forward to attending. Although the time for reservations is most likely past, those interested in attending can contact this years host, Steve, K4CJX, at (615) 665-0952, or FAX (615) 320-6144 to see if reservations are still available.

Thanks to several sponsors, including "The RTTY Journal", and "HAL Communications", a Digital Hospitality Suite is also open at The Radisson, on Friday and Saturday evenings. It opens after the supper hour, and usually goes on until the wee hours of the morning! Many lively, stimulating and enlightening conversations take place there, and the real "Who's Who" of the digital world make their appearance. If you've ever had a question about something in the digital area, or wanted to meet some of the "mover and shakers" in digital communications, then plan on dropping in at the Hospitality Suite.

FROM THE MAILBAG:

Even with packet BBS's, APLINK, AMTOR and PAMS (Personal AMTOR Mailbox System), PACTOR, and now CLOVER BBS's springing up everywhere, there seems to be some steady interest in plain, old RTTY mailbox (BBS, MSO, etc), activity. I've had several letters recently, asking primarily about equipment needed to run a MSO (Message Storage Operation, or computer based mailbox system), so I thought I would devote most of this months column to that subject.

I should point out first that the National Autostart Frequency on 20 Meters is alive and well, (14 085 625 Hz, "Mark" frequency, 74 Baud), and currently there are four automated stations there, K0VKH in Rapid City, South Dakota, K4KOZ in Boca Raton, Florida, K5FL in Denton, Texas, and WB8ZRK in Dearborn, Michigan. Anyone else who is interested in providing MSO or CBMS service is more than welcome to utilize this frequency. We do ask that you do not use a "beacon" to attract attention to your system, as they will (and do) interfere with already established communications.

One hardly needs to look further than the Classified Ad Department in the "RTTY Journal" to find some good buys on older RTTY equipment, some of it specifically designed to provide MSO type service. And, just because it happens to be "old", doesn't mean that it's completely unsophisticated equipment, (when compared to some of the newer, gee-whiz equipment). In fact, some of my conversations lately with reference to some of the newer

modes, leads me to believe that plain, old 74 baud RTTY is not only just as fast in many cases, but also a lot more fun, less critical to tune, and a heck of a lot less expensive to get up and running.

If there's one "standard" in the digital industry for demodulators, then the HAL Communications Corporation's model ST-6000 meets and exceeds it. Not only is this terrific demodulator the heart of any RTTY digital receiving system, but it can be easily adapted for use in the traditional HAL MSO system, and also with a plain IBM personal computer, into a CBMS, (computer based mailbox system). I've had the opportunity to compare the ST-6000 with most other demodulators on the market, and it will get down in the dirt and dig out RTTY signals when the others have given up. It has digital, high-voltage loop, and RS232C inputs, which makes it useful in a variety of systems, (including old-time page/line printers for you "collector" buffs). So, whether you are thinking of a system to ragchew with, or if you're starting a RTTY mailbox, look for a used ST-6000 Demodulator. Although

Computer Revolution takes Over!

the LED type of "tuning bars" are quite popular these days, the CRT type monitor scope built into the ST-6000 really can't be beat. Such things as shift, multi-path distortion, hum, etc., can be easily detected with the ST-6000 monitor scope, whereas reading LED's and interpreting them can be quite difficult.

There's no doubt that the "computer revolution" has overtaken Amateur Radio. Most every ham shack has some kind of computer in it these days. However, that does not mean that old, dedicated RTTY systems are not useful, or productive. Designed to be the premier RTTY, CW and ASCII system, coupled with dedicated MSO features, the HAL MPT-3100, (DS-3100 with the Message Processor Terminal-MSO features), is just plainly hard to beat. Early 1980's technology, proven performance, ease of maintenance, sophisticated features and down-right "user friendly" operation, make these systems a real find on the used market. Interated with the ST-6000 demodulator, and the DSK-3100 Disk Drive system, the Message Processor Terminal system is a fully integrated RTTY mailbox, capable of day-to-day MSO operations without a lot of SYSOP attention. My MSO, consisting of this very setup, has been in daily operation since 1980, and still performs flawlessly every day.

One might be concerned about maintenance on older equipment such as this, but fortunately the operator and maintenance manuals furnished standard with this equipment is second to none. Factory support is also available, although owner troubleshooting and repair is usually quite effective.

Ah yes.....but you say I want to work AMTOR as well! Well, keep your eyes on the "Yellow Sheets", the Classified Ad's in the "RTTY Journal", and in QST, for a HAL ARQ-1000 AMTOR terminal. Again designed to be utilized with the MPT-3100 system, the ARQ-1000 was a mainstay at such well known locations as TG9VT in Guatemala. It also fully integrates with the MPT system, and will provide excellent AMTOR operation. Yes, it is older technology, but let's face facts, AMTOR is AMTOR, and the ARQ-1000 can be found at some real bargain prices.

At last years Dayton Flea Market, I must have seen a dozen used HAL PCI- 2000 boards for sale, some at ridiculously low prices. This predecessor of the current PCI-3000 system is an ideal candidate for use in a RTTY MSO mailbox system. Fortunately for the amateur community, there are some very talented computer programmers out there, writing freeware (no cost to you) software for this very purpose. One is my good friend Clark, W9CD, of Urbana, Illinois, who has authored and supplied a variety of software programs designed to get you into the MSO mailbox business. Utilizing his MSO software, coupled with a used PCI-2000, and a very basic personal computer, gets your MSO up and running in a hurry, and at a very reasonable cost. And, keep your eyes open at Dayton this year, and I'll bet you can find a good, used PCI-3000 system as well, and of course Clark's software will make this system run like the wind. Clark's only request when requesting software from him is a set of formatted floppy disks, a return "floppy mailer", and sufficient postage to cover the return mailing. Clark can also be found occasionally on the National AutoStart Frequency, so feel free to drop him a note in one of the systems there, with any questions you may have.

You may want to build up a really basic computer system, designed specifically for MSO type service, yet having very low maintenance requirements. Considering the price of AT (286/386) motherboards these days, one can build up a floppy drive MSO computer, with high density 2.88 MB floppies, a PCI-2000/3000 board, and a plasma/LCD monitor, very economically. No hard drive to worry about, no power-hog monitor to run up the utility bill, yet very sophisticated MSO service on a budget. If you'd like some details on that very type of system, contact Jay, KB0ATQ, in Rapid City, SD, as he's been down that road very successfully. If you're into packet radio, he, (as well as this author), pick up their mail at: K0VKH @N7RCL.#WSD.SD.USA.NA, or K0VKH @ VE6PD.AL.CAN.NA on APLINK/PAMS/AMTOR.

One word of advice. Starting out to provide MSO service, or any automated service for that matter, should not be a spur-of-the-moment decision. If you're going to make a half-hearted attempt at providing this service, it's better that you be a "user", than a SYSOP. Remote users who utilize your service come to depend upon it. They inform their friends where to find messages for them, they arrange their schedules to coincide with MSO service, and they look for public service bulletins, DX information, technical tips, etc., found on your service. If your MSO is a "hit or miss" affair, it's likely that you won't attract a lot of users to start off with. But, if you do attract a group of faithful users, you should be conscientious in your dedication to a continuing service.

Finally, I would like to take this opportunity to congratulate my long-time friend Frank Bascomb, K4KOZ, on his upcoming marriage! As well as being a dedicated MSO Sysop, Frank is one of the last real gentlemen. We all wish him and his new bride all of the luck, happiness and health in the future, and we're looking forward to seeing both of them at the Dayton HAMVENTION. Congratulations Frank!

That's it for this month Gang!. Let me hear from you, and if there's any questions I can answer, please don't hesitate to drop me a line. --73--

de **Dick, K0VKH** ■

ARMED FORCES DAY 1993

44th Anniversary of the Annual Armed Forces Day Communications Celebration

The Army, Navy, Marine Corps and Air Force are co-sponsoring an Amateur Radio Program in celebration of Armed Forces Day, featuring the traditional military-to-amateur cross band communications test and message receiving test. The tests give amateur radio operators and short wave listeners an opportunity to demonstrate their individual technical skill and to receive recognition from the Secretary of Defense or the appropriate military radio station for their proven expertise.

The proceeding will include operations in CW, SSB, and RTTY. Participating military radio stations will award commemorative acknowledge (QSL) cards to amateur radio operators achieving a verified two-way radio contact. Special commemorative certificates will be awarded to anyone who receives and accurately copies the Armed Forces Day CW and/or RTTY message from the Secretary of Defense. All contacts must be acknowledged by QSL card or certificate to validate military interest in these operators. (ED: Primarily only digital frequencies are being published in the RJ.)

Military to Amateur Cross Band Test

Military to amateur cross band operations will take place from *15/1300Z (UTC) to 16/0200Z (UTC), May 1993*. Military stations will transmit on selected military frequencies and listen for amateur radio stations in the amateur bands indicated below.

Military stations will announce the specific amateur band frequencies being monitored. Duration of each contact should be limited to three minutes.

AAE

ARMY HF/MARS Radio Facility
Fort Sam Houston, TX 78234
RTTY/LSB 40 mtrs 7358.5 KHz

AAH

ARMY HF/MARS Radio Facility
Fort Lewis, WA 98433
RTTY/CW 40 mtrs 6988.0 KHz
RTTY/CW 15 mtrs 20995.5 KHz

AAR

ARMY HF/MARS Radio Facility
Ft. Bragg, NC 28307
RTTY/CW 40 mtrs 7309.5 KHz

AIR

89th Communications Group
Andrews Air Force Base
Washington, DC 20331
RTTY 20 mtrs 13986.5 KHz

NAM

Naval Communication Detachment
Norfolk, VA 23511-6898
RTTY/CW/SSB 80 mtrs 4005.0 KHz
RTTY/CW/SSB 40 mtrs 7393.0 KHz

NAV

HQ Navy-Marine Corps MARS
Bldg 13, NAVCOMMDET Cheltenham
Washington, DC 20397-5161
RTTY/CW/USB 40 mtrs 7365.0 KHz
RTTY/CW/USB 30 mtrs 10259.5 KHz

NAV-8

DIRNAVMARCORMARS REG EIGHT
530 Peltier Ave.
Honolulu, HI 96818-3753
Various 80 mtrs 4008.5 KHz
Various 20 mtrs 14820.0 KHz

NMH

MARS Operator
US Coast Guard Information System Center
Alexandria, VA 22310-3999
RTTY/CW/USB 80 mtrs 4015.0 KHz
RTTY/CW/USB 40 mtrs 7346.5 KHz

NMN

Commanding Officer
US Coast Guard CAMSLANT-NMN
NAVSECGRUACT N.W.
Cheasapeake, VA 23322
RTTY/CW 40 mtrs 7393.0 KHz

NPL

DIRVANMARCORMARS REG FIVE
Naval computer and Telecommunications Station
937 North Harbor Dr.
San Diego, CA 92132-5100
RTTY/CW/USB 40 mtrs 7382.5 KHz
RTTY/CW/USB 20 mtrs 14385.o KHz
RTTY/CW/USB 15 mtrs 20625.0 KHz

NZL

MARS Radio Station Station Operations and Maintenance Squadron
Marine Corps Air Station
El Toro, Ca 92709-5020
RTTY/CW/USB 40 mtrs 7375.0 KHz
RTTY/CW/USB 20 mtrs 14480.0 KHz
RTTY/CW/USB 12 mtrs 24805.0 KHz

WAR

HQ Army MARS Radio Station
Fort Detrick, MD 21702
RTTY/CW 20 mtrs 13992.5 KHz

Radioteletypewriter Transmission Test

Two radioteletypewriter receiving test will be transmitted. The first will be at 60 words per minute using 170 hertz (narrow) shift. A 10 minute call for tuning purposes will begin at 16/0300Z (UTC) May 1993. The Secretary's message will be transmitted at 16/1310Z (UTC) May 1993, and the second will be at 100 words per minute using 170 hertz (narrow) shift. A 10 minute call for tuning purposes will begin at 16/0330Z (UTC) May 1993. The secretary's message will be transmitted at 16/0340Z (UTC) May 1993 from the following stations on the listed frequencies.

AAE - 7358.5 KHz

AAH - 6988.0 - - 20995.5 KHz

AAR - 7309.5 KHz

AIR - 13986.5 KHz

NAM - 4005.0 - - 7393 KHz

NAV - 7365.0 - - 10259 KHz

NAV-8 - 4008.5 - - 14820.0 KHz

NMH -4015.0 - - 7346.5 KHz

NMN - 7393.0 KHz

NPL - 7382.5 - -14385.0 - -20625.0 KHz

NZL - 7375.0 - - 14480.0 - - 24805.0 KHz

WAR - 13992.5 KHz

Transcriptions of the CW and/or RTTY receiving tests should be submitted "as received." No attempt should be made to correct possible transmission errors. The time, frequency and call sign of the military station copied as well as the name, call sign, and address (including zip code) of the individual submitting the entry must be indicated on the page containing the test message. Each year, a large number of acceptable entries are received with insufficient information or the necessary information was attached to the transcription and was separated, thereby precluding the issuance of a certificate. Entries must be postmarked no later than 25 May 1993 and submitted tot he respective military commands as follows:

Stations copying AIR: Armed Forces Day Celebration 89CG/DOJB, Andrews AFB Washington, DC 20331-6345

Stations copying NAM, NAV, NMH, NMN, NPL, NZL and NAV-8: Armed Forces Day Celebration HQ Navy-Marine Corps MARS Bldg 13 NAVCOMMDET Cheltenham Washington, DC 20397-5161

Stations copying AAE, AAH, AAR, and WAR: Armed Forces Day Celebration Department of the army US Army Information Systems Command Attn: ASOP-HF Fort Huachuca, AZ 85411-5000

CONTESTING

Richard Lawton, N6GG
14395 Bevers Wy
Pioneer, CA 95666

RTTY Contests - Coming Events

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

Date:	Contest:
MAY 1-2	ARI International DX Contest (Italy)
MAY 8-9	VOLTA RTTY WW Contest (Italy)
JUN 12-13	ANARTS WW RTTY Contest (Australia)
AUG 21-22	SARTG WW RTTY Contest (Sweden)
SEP 25-26	CQ/RTTY Journal RTTY Contest (USA)
NOV 13-14	WAE RTTY Contest (Germany)

NOTE: A new RTTY contest has been added; the ARI International DX Contest. It used to be CW and SSB only, but now has RTTY mode, too. See below.

REMINDER

The April 17-18 SARTG Amtor Contest logs must be received by June 10.

Mail to:
SARTG Contest Manager
Bo Ohlsson, SM4CMG
Skulsta 1258
S-710 41 Fellingsbro
SWEDEN

COMING UP

May 1-2 The ARI International DX Contest Sponsored by the Associazione Radioamateuri Italiani.

Starts: 2000Z Saturday; ends at 2000Z Sunday (24 hours).

Bands: All six bands, 10 through 160M.

Classes: Single op, all band; single op, mixed; multi op, single tx, mixed.

Exchange: Italian stations; RST + 2 letters to identify province. Others; send RST + serial number starting with 001.

Mode: There are 4 modes; CW, SSB, RTTY, and mixed.

Multipliers: Each DXCC country (except I & IS0) counts as one multiplier on each band. All Italian provinces (95) count as one multiplier on each band. QSO with own country counts for one multiplier per band, but zero QSO points.

QSO Points: QSO with own country; zero points. QSO with other stations in own continent; one point. QSO with other continents; three points. QSO with any Italian (I & IS0) station counts ten points. NOTE: QSO with same station on same band but different mode will count only the first QSO as multiplier credit.

Scoring: Sum of QSO points times sum of multipliers = TOTAL SCORE.

Awards: A plaque and certificate to the top scorers in each class. Certificate awards will go to number 2,3,4, & 5 top scorers in each country and class.

Logs: Use separate logsheets for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN, MESSAGE Sent and Received, MULTIPLIERS and QSO POINTS. Summary sheet must show full scoring, class, YOUR CALL, NAME, and ADDRESS, and a signed declaration that all contest rules and regulations for your own license have been observed. For multi-op stations, all calls or names of all operators should be listed. Duplicate QSO's must be plainly marked in the log and points marked with 0. A summary sheet is required showing all the scoring details on each band, class of entry, name, callsign, full address, and callsigns of other operators, and a signed declaration of rules complicity. Logs must be mailed by June 2, 1993.

Mail logs to:
ARI Contest, I2UIY
P.O. Box 14
27043 Broni (PV)
ITALY

Please enclose your station's description and your comments. A picture will be much appreciated.

Comments: This is a 24 hour contest. It has been an annual CW and SSB contest but this year they included RTTY, too. If you are after a high score, and have CW and SSB capabilities, consider going for the "mixed" catagory. You will have a definite advantage over the CW and SSB diehards because you have RTTY skills that they do not have, and will pick up RTTY multipliers, too. Note that there are 95 (!) Italian province multipliers to count on each of the 6 bands, (including 160M), and 10 points for each Italian QSO, in addition to DXCC country mults. EA RTTY logsheets can be horsed to use in this contest.

May 8-9 VOLTA RTTY WW Contest Sponsored by SSB and RTTY Club of COMO and A.R.I. (*Associazoine Radioamatrore Italiani*), honoring Italian discoverer of electricity, ALESSANDRO VOLTA.

Starts: 1200Z Saturday, and ends at 1200Z Sunday, a total of 24 hours.

Bands: 80, 40, 20, 15, and 10M.

Classes: A1) Single operator, all bands; A2) Single operator, single band; B): Multi-operator, single transmitter; C: SWL.

Exchange: QSO number + RST + Zone.

Multipliers: DXCC Country List + each call area in VK, VE, and USA. DO NOT COUNT VK, VE, or USA as separate country. (USA stations with callsign from one district but are now living in a different district should give proper identification, such as: K6WZ/0.) The same multiplier

counts again on a new band. An additional multiplier is given for each INTERCONTINENTAL COUNTRY worked on at least four bands. Contacts between stations within the same country will not be valid, such as: A W2 station can work W1, W3, W4, etc. but not W2. Contacts made OUTSIDE one's own continent on 80 or 10M are worth double QSO points. A contact with a station that would count as a multiplier will only be valid if that station appears in at least 4 other logs, or a contest log is received from that station.

Scoring: Use Exchange Points Table to determine points scored for each QSO. Final score: Total QSO points x total multipliers (band multipliers + each INTERCONTINENTAL COUNTRY worked on 4 bands) x total number of QSO's.

Awards: A SPECIAL trophy will be awarded to the top stations in each class. In addition, a certificate with special sticker to all entrants.

Logs: Use separate logsheets for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN and MESSAGE Sent and Received, POINTS and NEW MULTIPLIER PREFIX. Summary sheet must show full scoring, and list of multipliers worked.

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

Logs must be received by July 30, 1993, to qualify.

Send logs to:
Francesco Di Michele, I2DMI
P.O. Box 55
22063 Cantu
ITALY

Comments: This is a 24 hour contest. The QSO points are determined by the EXCHANGE POINTS TABLE . This table, based on the 40 CQ Zones, is arranged so that the further away the QSO is from your zone, the higher the points scored. (Please note: CQ zones DO NOT count as multipliers.) The Table is on page 24 of the RTTY Contester's Guide. It also appeared in the March 1992 issue of the RTTY Journal, page 22. Since W/VE/VK call areas count as separate countries on each band, CQing will be the best way to make a good score for W/VE/VK ops. Band multipliers will spread out the CQing, too, and will make the low bands more active. Don't forget to try working DX on 40 and 80M, as QSO's with countries on other continents will increase your multiplier if you manage to work those countries on the high bands. Also, QSO's outside your own continent on 80 and 10M are worth double QSO points. This contest uses the number of QSO's as an additional multiplier, making for astronomical scores... millions!

June 12-13 ANARTS WW RTTY Contest Sponsored by Australian National Amateur Radio Teleprinter Society

Starts: 0000Z Saturday, and ends 0000Z Monday, a total of 48 hours. Not more than 30 hours of operating time allowed for single op stations. Off times may be taken at any time during contest period. Multi-op stations may operate the entire contest period. Summary of operating times must be submitted with each score.

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

Classes: (A) Single op; (B) Multi-op; and (C) SWL.

Modes: All digital modes permitted; RTTY, AMTOR, FEC, Packet.

Exchange: RST + Zone + Time (UTC).

Multipliers: Each ARRL DXCC country, and each call district of VK, JA, VE, and W count as separate countries on each band. QSO's with one's own country is not valid for multiplier count. (W6 may work W7 or W5 for mult, but not W6)

QSO Points: Use Exchange Points Table to determine QSO points. (See the "Comments" piece in the above VOLTA Contest about the Exchange Points Table.)

Scoring: Total exchange points times total multiplier count times the number of continents worked. (maximum of 6) After the above calculations, world stations add 100 points for each VK QSO on 20M, 200 points for each VK QSO on 15M, 300 points for each QSO on 10M, 400 points for each VK QSO on 40M, and 500 points for each VK QSO on 80M.

Awards: Awards will be issued for 1st, 2nd, and 3rd place on world basis, and also on a country basis.

Logs: Separate logsheets required for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN, MESSAGE Sent and Received, MULTIPLIERS, and QSO POINTS. Summary sheet must show: Your callsign, name and address of operator, bands used, points claimed for each band, number of VK stations QSOed, total points claimed, and signature/s. Multi-op station logs must contain the signatures and callsigns of each operator

Logsheets, summary sheets, multiplier and dupesheets, EXCHANGE POINTS TABLE, and a Band Use Chart for recording ON/OFF TIMES are all available for copying from the RTTY Contester's Guide, published by the RTTY Journal.

Logs must be received by the Contest Committee by September 1, 1993.

Mail to:
Contest Manager, VK2EG
Bill Storer P.O. Box 860
Crows Nest, N.S.W. 2065
AUSTRALIA

Comments: For single op stations, this is a 30 hour contest (out of the 48 hours). QSO points are determined by the EXCHANGE POINTS TABLE . This table, based on the 40 CQ Zones, is arranged so that the further away the QSO is from your Zone, the higher the points scored. (Please note: CQ Zones DO NOT count as multipliers) The Table is on page 24 of the RTTY Contester's Guide. It also appeared in the March 1992 issue of the RTTY Journal, page 22. VK/JA/VE and W call areas count as separate countries on each band. This contest counts band multipliers, making the low bands more active, and giving more bonus QSO points, too. Don't forget to work all six continents for additional mults. Try to keep track of your operating time. Your Summary sheet requires to list your TIME ON/OFF records.

Some Thoughts on ARRL's "Considerate Operator's Frequency Guide"

I received a letter from a friend, an East Coast RTTY operator, telling me that he received an ARRL Official Observer (OO) Advisory Notice . He was heard working European RTTY stations during the EA (Spanish) RTTY Contest with his 50 watt rig on 7040 kHz last February. The OO No-

The PacComm PacTOR Controller

PacTOR WORKS!

..... The most significant thing I found was early one morning on 80 m, as the band was 'closing' to European propagation. I was downloading a file from the German mailbox DK0MHZ when I found the going was starting to become slow. Turning the receiver volume up showed that *absolutely nothing* except receiver noise was audible, yet every third or fourth (inaudible!) pactor frame was resulting in another batch of error-free characters coming up on my screen!

Excerpted from Review - PacComm Pactor Controller by Chris Lorek, G4HCL, February 1993 Ham Radio Today.

PacComm's PacTOR Controller, Front View

PACTOR is a new ARQ radioteletype mode developed by German amateurs, especially DL6MAA and DF4KV. The protocol has been described in CQ-DL and QEX magazines.

Why PACTOR?

PACTOR was designed to overcome the shortcomings of packet and AMTOR in HF operation.

The AX.25 packet protocol works very well on VHF FM but suffers from several problems on HF. First, the 300 bps rate and large frame sizes commonly used by amateur packet operators are very succeptible to distortion by fading and multipath propagation and QRM. Secondly, the amount of non-data overhead in each packet transmission reduces efficiency.

AMTOR (based on SITOR) was specifically developed for HF radio text communication. Even during very poor signal-to-noise conditions a useable connection can be maintained when a packet connection would be impossible. But this mode also has several shortcomings. Since a 5-level code is used, it is cumbersome to transmit the entire ASCII character set or binary data. Secondly, the error detection features of AMTOR are rather weak leading to difficulty in sending non-text files without corruption. Finally, effective throughput is only 35 bauds.

PACTOR provides a more rugged error correction scheme and better throughput than AMTOR. The synchronous transmission format and short frame size features of AMTOR are retained which makes a

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 are correlated with frames received later.

The key to proper Memory-ARQ operation is having 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 to be stored 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. The 'software PACTOR' units will have long since lost the connection.

When evaluating 'low cost' software approaches - remember that the low price is possible because of compromises in the design philosophy. Doing it 'right' costs more, but the performance improvement is worth the cost.

much more robust protocol than packet under poor propagation conditions.

The result of this new protocol design is a hardware/software system which gives a four-fold throughput increase over AMTOR while allowing the data flexibility packet users have become accustomed to.

PACTOR requires an HF radio capable of changing between transmit and receive modes in 130 milliseconds. Any AMTOR capable radio will operate properly with PACTOR.

Call or write for additional technical information on PACTOR.

PacComm's PacTOR Controller

The PacComm PacTOR Controller is produced under license from the developers. It uses the German firmware (all commands and messages in English).

The PacTOR unit also supports AMTOR and RTTY operation making it ideal for all modes of HF operation. PacTOR will accept a call in either PACTOR or AMTOR and automatically respond in the correct mode.

PacTOR commands are similar to packet commands and are easy to learn and use. Complete amateur callsigns are supported. The AMTOR and RTTY modes use conventional commands.

Terminal Programs

PacTOR is designed to be used with conventional RS-232 ASCII terminals or personal computers running terminal emulator software.

PacComm supplies a diskette with each PacTOR unit which contains two public domain terminal programs specifically designed for the PacComm PacTOR unit. Select the one which you prefer, run the installation program, and you're on the air with PacTOR.

Packet Adapter

PacComm's PacTOR Controller comes prepared to accept an optional packet modem card to allow VHF packet operation as well as the HF modes.

The packet upgrade kit consists of a pre-assembled and tested packet modem card and a new PacTOR front panel (and new switch cap). Installation requires only a #2 Phillips screwdriver, no soldering!

A separate radio connector is provided for the VHF FM packet radio. Merely press a button to switch between packet and PACTOR.

PacComm's PacTOR Controller Features

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

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

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 13,000 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.
4413 N. Hesperides St.
Tampa, FL 33614-7618

Order Line: (800) 486-7388
Switchboard: (813) 874-2980
Facsimile: (813) 872-8696
BBS: (813) 874-3078

tice stated that; "Operating below 7080 is considered out of the band and causing interference, violating the digital mode bandplan." He asked me if this was a no-no.

I immediately sent a letter back, referring him to the January 1993 issue of QST. On page 64 it clearly shows that CW, RTTY, and data, are allowed to use 7025-7150 kHz. It is NOT against FCC laws to operate RTTY below 7080, as that OO implied in his Notice. In fact, RTTY is allowed everywhere that CW is allowed. Furthermore, as most RTTY ops already know, 7035-45 is the "RTTY International Window" for the whole world. I told him that I intend to QSO our foreign friends on RTTY at 7035-45 kHz until the FCC says no-no.

Then I noticed in the January 1993 issue of QST, starting on page 57, there is a "Handy Reference" Section. In the "Considerate Operator's Frequency Guide" , page 61 there are some conspicuous errors. For instance, no mention is made of AMTOR frequencies on ANY band! Evidently ARRL now considers AMTOR to be RTTY, as the regular AMTOR frequencies are combined with RTTY on ALL bands. That is a serious and inconsiderate mistake . Anyone who has tried to operate RTTY on the same frequency band as AMTOR can tell you that sharing the band simply creates needless QRM, because AMTOR cannot communicate with RTTY. The same goes for RTTY with HF Packet. Is ARRL now attempting to force AMTOR and RTTY to actually share the same frequency bands? Remember the chaos that occurred when ARRL attempted to jam HF Packet onto the RTTY frequencies?

Since QST didn't show the AMTOR bands, here are the usual AMTOR frequencies on 40, 20, 15, and 10M: 7070-80, 14070-80, 21070-80, and 28070-80 kHz. Evidently the person responsible for the QST list hasn't even listened on the digital modes, because that's where AMTOR IS! Note the 7070-80. Out of the band? NOT!

Regarding RTTY frequencies: The usual frequencies on 40, 20, 15, and 10M are; 7035-45, and 7080-95, 14080-095, 21080-095, and 28080-120 kHz. Note That 7035-45 is the "RTTY International Window" . It has been in use for many years. That choice was made based on the least QRM from SW broadcast stations who share our amateur band. Since Europeans are, obviously, much more aware than we are of interference problems with SW broadcast stations, they chose the best compromise they could. Their kind of "Considerate Operator's Frequency" should command strong consideration from ARRL's order list, shouldn't it? We, in the USA, have been working Europeans, South Americans, Asians, virtually all the rest of the world, simplex, on 7035-45 for years. Now, suddenly, ARRL does not list it as a "Considerate Operator's Frequency." And worse, according to that OO, AMTOR or RTTY is no longer allowed below 7080 kHz. Who made THAT decision? The OO? Certainly not the FCC. And what happened to the AMTOR band? Has ARRL ordered OO's to violate us for operating below 7080? It looks like ARRL is trying to keep USA RTTY ops from working DX on 40M!

Obviously, ARRL seems to be out of touch with what's going on in the digital world of RTTY and AMTOR. They don't have an RTTY/AMTOR column in QST. Or even a digital department. ARRL appears to have little knowledge of existing USA or worldwide RTTY and AMTOR operating frequencies. Yet, here they are, dictating new "Considerate Operator's Frequencies." to us. And you must obey or else be violated by their OO's. Evidently we RTTY/AMTOR operators have absolutely no say on this. Excuse me, but what ever happened to using surveys and polls?

When much of the world is reaching out for QSOs with USA, partly because of their desire to learn American grammar/spelling and not feeling self-conscious about accents, RTTY and AMTOR is clearly the best way to go. Computers and keyboards is the wave of the future. And what better way to enjoy learning our crazy American lingo than friendly QSO's on RTTY and AMTOR! To ARRL: Please - don't destroy the most gratifying and educational of all amateur radio modes!

Hint of the Month

Multipath Receiving Antennas - a New One To Try

The March '93 issue of CQ Magazine has an interesting antenna article by Bill Orr, W6SAI. Though he didn't mention anything about polarization diversity reception, I think this simple antenna has much to offer for RTTY/AMTOR ops to help conquer multipath problems that plague HF digital modes.

In essence, a ferrite line isolator is placed 1/4 wave down the coax feedline from a horizontal dipole, forcing that 1/4 wave to act as a vertically polarized antenna. When combined with the horizontal polarization of the dipole, the whole antenna becomes both horizontally and vertically polarized. Since multipath reception is randomly polarized, this configuration could help decide whether combining antenna polarizations will improve overall thruput.

Three other ideas come to mind with this configuration; a) Would thruput improve if this antenna was used for BOTH reception AND transmission? b) What about having this configuration at BOTH ends of the path, for BOTH reception AND transmission. And c) How about making a yagi beam out of this? The support mast would have to be non-conductive, or included as part of the coax feedline. Intriguing! Lots of possibilities! Antenna tinkerers: ERECTION TIME!

NEWCOMER'S CORNER

Is the band open?

There are times when you may wander into the shack, turn on the rig, and just tune around to see what's happening. If you start listening on RTTY, sometimes you may not hear much activity. But on AMTOR there always seems to be some station(s) on. But consider this; on AMTOR, both ends of the link are on simultaneously. Though you may not hear one end chirp to the other, you'll hear continuous chirping anyway. Not so on RTTY. During a QSO, only one station is on at a time. You may not hear the other one at all.

Here are two things you can do to help decide whether or not to turn on the computer. a) Listen to the NCDXF beacons on 14.100 MHz. They identify each minute from ten different QTH's all over the world. b) Listen on the low end of the CW bands. The CW ops in this area are usually working DX, and the QSO's are very short. That makes callsign identifications

quick and often. Depending on what area of the world you are interested in, you can soon determine what areas are open. Set the beam and go back to RTTY. Turn on the computer and listen. If the band is quiet, and you know the propagation is there, try a CQ. There's no telling what new experience, or new friend, awaits your quest!

((73)) for now...

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!

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Continued from page 4

reaction. Maybe I did not satisfy some who read the RJ but if I did stir up controversy then I have done my job as your editor. You are now thinking, please don't stop. Whenever we collectively begin to think and react to a situation, we have started the process of change. Change is what is needed, so please continue to think and suggest ways to make our digital frequencies more palatable for all.

If you have read this far, by now, you are either steaming mad or pacified by what I have written. Remember, controversy is not adversity. Controversy stirs action and action we need. So the ball is in your court, REACT!

Digital Committee Report

On Sunday March 28, 1993 the DC met in Boston to discuss the issues presently before us. Of particular concern was our charge from the BOD to re-visit semi-automatic operation. There is great concern about this issue because it was deleted from the recent recommendations to the BOD by the DC. In the last issue of the RJ I published several viewpoints on this subject. Again this month I express concern which I outlined at the beginning of this column.

There are factors that must be considered with regard to semi-automatic operation. One factor is growth. What is to happen if semi-automatic operation is adopted and allowed to operate where all other modes and methods of operation are used? If a sudden growth takes place of semi-automatic stations, then keyboarders, DXers, etc. could experience some interference. This may not be a criteria though when you consider a station that elects to become a BBS must devote a complete system to such an operation. The operator then loses his ability to be just an ordinary operator. I for one, am not ready to dedicate my station to this type of operation because I like to keyboard, work some DX and enter digital contests.

Another issue that should be considered is the amount of traffic that is now handled and what will be handled in the future. There is no doubt that traffic will increase in the future. Many systems are overloaded now and in some areas there is a shortage of Packet BBSs. If there is a need to move more traffic and we do not have enough stations to handle the load, coupled with the lack of spectrum needed to utilize more stations, one can see we are headed for overload. What to do about this situation?

The DC is developing recommendations that will address several issues, including: 1) the need to ensure operating space for the non-message relayers noted above, 2) the need to encourage the development of new technology and, 3) the need to allow for the growth of message handling in the future.

The recommendations that are currently being developed center around 1) restricting semi-automatic stations to spectrum efficient modes (500 Hz bandwidth is being considered), 2) the development of DC sponsored operating guidelines for both fully-automatic and semi-automatic stations to improve HF spectrum efficiency (such as the use of HF relayed bulletins, beacons, forwarding routines, automatic closedown parameters), 3) the development of landbased wire relay systems to help absorb the message relay load.

Representatives of the DC will meet informally with the BOD at some point before the Board meeting in July. Hopefully, this will take place the day before the meeting. This meeting will make it possible for the BOD members to ask questions of the DC about their recommendations. The DC is confident that this chance to meet with the BOD members will be productive.

With all the work being done by the DC, the members still would like input from the rank and file. If you have an opinion on the issues presented please address them to: David Speltz, KB1PJ, Chairman, ARRL Digital Committee, 9 Heather Lane, Amherst, NH, 03031.

You should also contact your Director to express your views. Remember, he cannot properly represent you unless he knows of your desires. The ARRL Petition submitted to the FCC has not yet been assigned an RM number, so until that happens, you may find the best source of information is from your Director. Once an RM number has been assigned ask your Director for a copy of the petition so that you can become more fully informed on this important issue.

Sorry for the need to have you swtich to so many pages to read my column this month. All for now. 73

de **Dale, W6IWO** ■

EXCHANGE POINTS TABLE / YOUR ZONE	CORRESPONDENT ZONE																																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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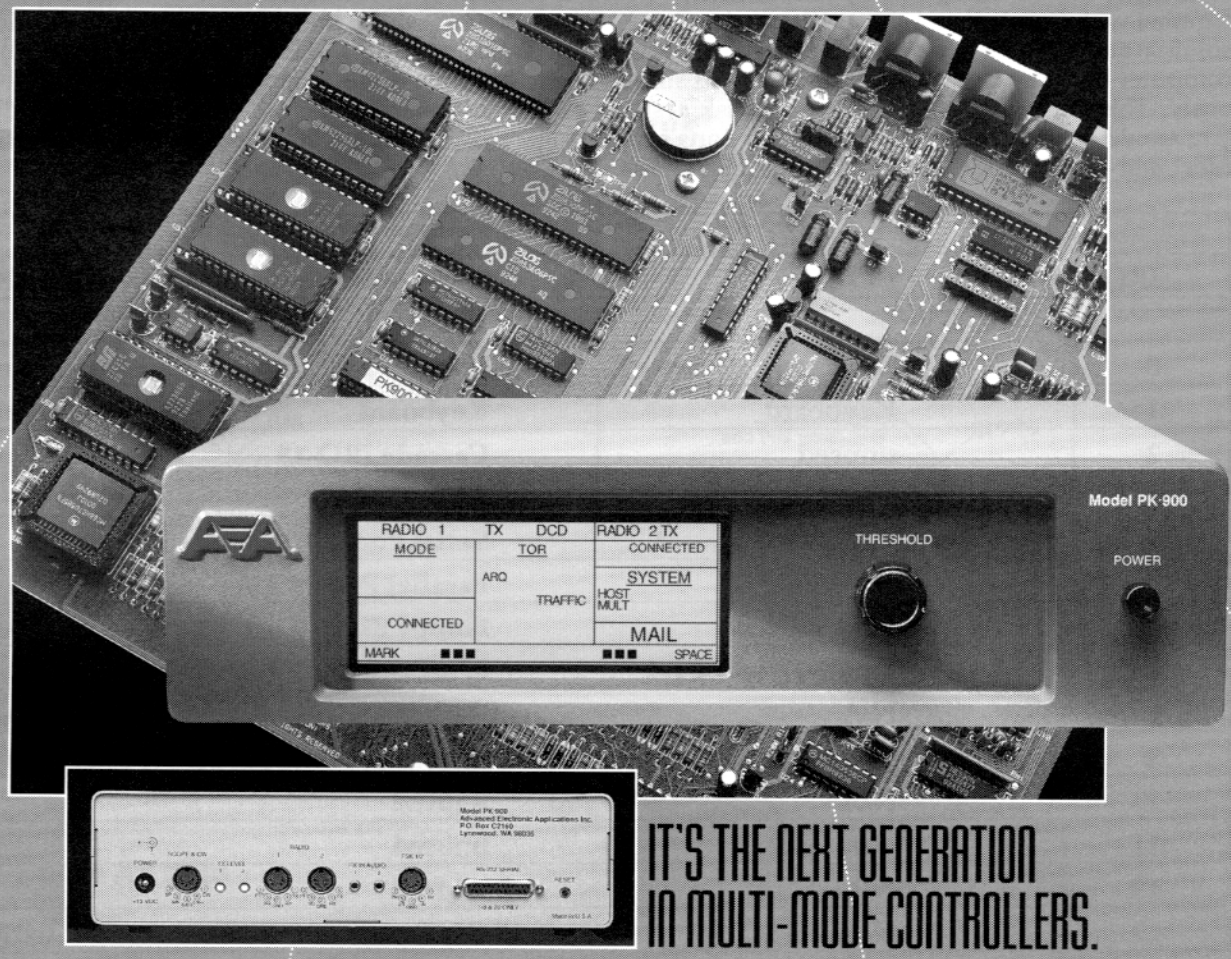
40	15	6	20	14	13	22	22	18	21	29	27	34	34	6	8	9	12	14	16	12	19	24	20	25	25	29	30	34	44	48	28	50	10	16	20	24	28	32	32	2

INTRODUCING THE PK-900... NEW FROM THE INSIDE OUT!



IT'S THE NEXT GENERATION IN MULTI-MODE CONTROLLERS.

Now, there's a new standard of excellence in multi-mode digital controllers...the new PK-900 from AEA. It incorporates all of the features which made the PK-232 the most popular multi-mode controller in the industry. But that's just the start. AEA's new PK-900 also features dual port HF or VHF on either port; low cost 9600 baud plug-in option; memory ARQ and VHF DCD state machine circuit; powerful triple processor system; zero crossing detector for the sharpest Gray Scale FAX you've ever seen; and many other new software selectable features.

Inside and out, the new PK-900 from AEA is what other multi-mode controllers will now be measured against.

- Processors used: Zilog 64180, Motorola 68HC05C4, Motorola 68HC05B4
- Data rates: 45 to 1200 baud standard, up to 19.2K baud with external modems
- Dimensions: 11.75" (29.84cm) x 11.75" (29.84cm) x 3.5" (8.89cm) Weight: 4.6 lbs. (2.08 kg)
- Power requirements: 12 VDC at 1.1 amps

Connect with us for what's new in multi-mode controllers.
Call our literature request line at 1-800-432-8873.

Advanced Electronic Applications, Inc.

PO Box C2160, 2006 - 196th St. SW, Lynnwood, WA 98036

Connect with us

TY1PS Scanner Setup (Continued from March 1993 issue)

Running more than 2 ports simultaneously on a PC

The original IBM PC and most of its 'compatibles' allows the use of only 2 serial ports (Com1 and Com2). Some later designs added two more serial ports (Com3 and Com4). These ports got their own addresses, but due to the relative small number of IRQ lines in the PC they share these lines with the already existing serial ports. (Com3 uses IRQ 4 together with Com1; Com4 shares IRQ 3 with Com2.) this solution allows you to connect up to 4 serial devices to the computer but only two of them may be used simultaneously. This was adequate for non-multitask systems as you would seldom access more than two ports at a time. Most add-on cards for additional ports follow this concept. With Microsoft Windows as a multitasking environment the need arises to use all four serial ports at the same time. To accomplish this, each port must not only have its own designated I/O address (that is where the data goes to and from the port to the computer) but also its own interrupt line IRQ (that is a signaling line used by the port to indicate to the processor that a character has been received and needs to be fetched before (!) the next one arrives). A closer look at the use of the IRQ lines in the computer reveals that usually one or two line should be unused and therefore, could be used by serial ports.

IRQ	PC/XT	AT/386/486	REMARKS
0	Timer	Timer	do not use
1	Keyboard	Keyboard	do not use
2	unused	Cascade IRQ-15	do not use
3	Serial Port 2	Serial Port 2	
4	Serial Port 1	Serial Port 1	
5	Hard disk	Parallel Port LPT-2	see text
6	Floppy disk	Floppy disk	do not use
7	Parallel Port LPT-1	Parallel Port LPT-1	see text
8	N/A	Real time clock	do not use
9	N/A	Redirected IRQ-2	do not use
10	N/A	unused	
11	N/A	unused	
12	N/A	unused	
13	N/A	Coprocessor	Ok without 387

The above table shows that there are several unused IRQ that may be assigned to a serial port. It lists only standard devices in your system, additional cards for networks, scanners, mouse, etc. may use up IRQ lines as well. IRQ 5 and IRQ 7 that are reserved for the parallel ports can usually be taken safely as most programs (including Windows) don't need the interrupts to use the printer and printing still works perfectly. This is not possible under OS/2.

Once you have determined the IRQ you want to use, you have to correctly set-up the hardware and configure Windows.

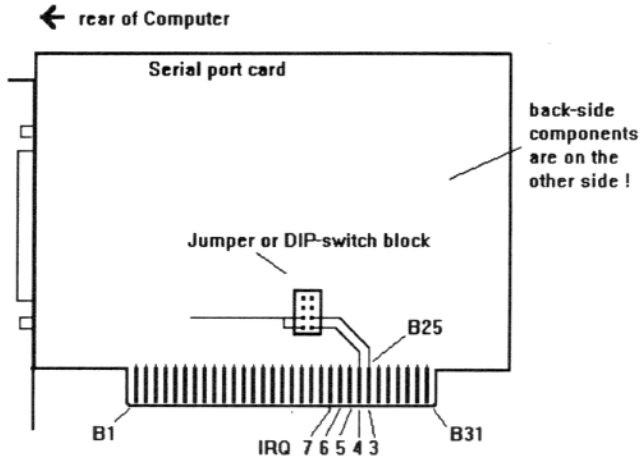
Hardware set-up for serial port cards

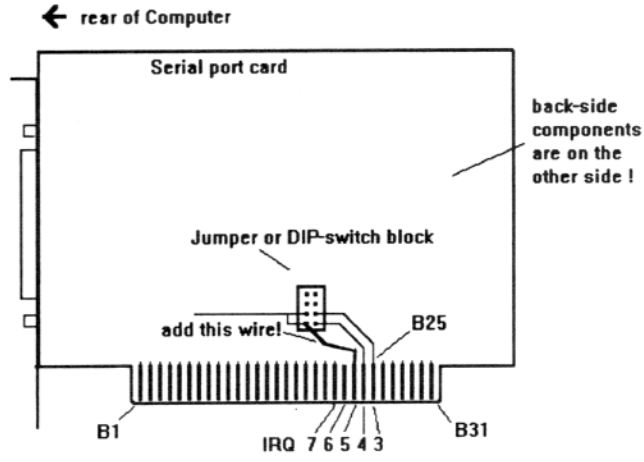
In order to use a serial port other than Com1 and Com2, you need to obtain a interface card that contains one or more additional ports. Usually these ports can be configured to be addressed as Com1 to Com4 at their respective addresses but the choice of IRQ lines is limited to IRQ4 and IRQ3. If you are about to buy such a card try to find one that allows you to use the other IRQ lines as well. Unfortunately, it is hard to find such a card or they are unreasonably priced. A closer look at some of the standard cards reveals that a minor modification to the card can be made to access the IRQ you want. Let's have a look at the basic circuit of the serial port. All these cards use either the 8250, 16450 or 16550 UART circuits. This is the circuit that actually handles the serial port. In addition, you will find some TTL or Cmos circuits that interface the UART to the PC bus system. The IRQ selection is done by a block of jumpers or small switches that connect the IRQ lines coming from the PC bus connector to the port circuit. A typical

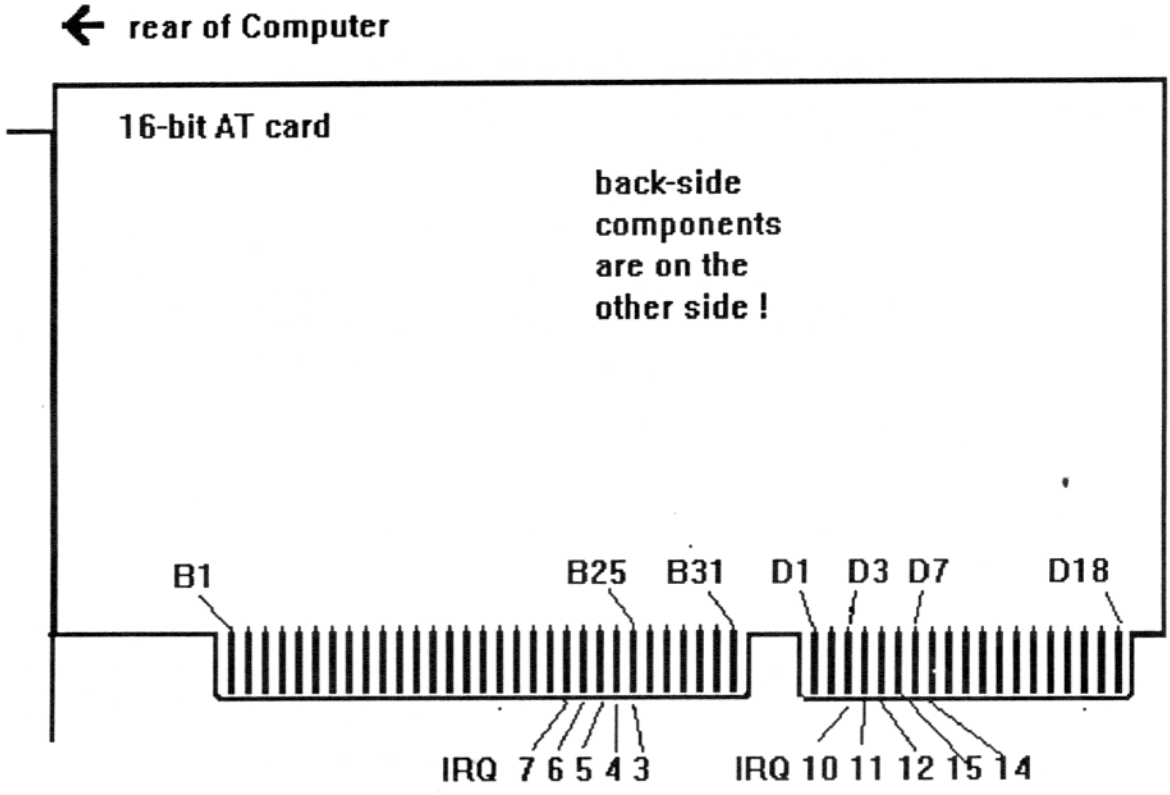
board is shown below, upper left and a modfied board on the upper right.

As you can see the IRQ lines 3 and 7 are available on the PC bus connector. All it takes to use them is to remove the IRQ select jumpers for this port or set the switches to open. Then you add a wire that connects the desired IRQ line to the serial port circuit. The example on the right shows the wire added to use IRQ5.

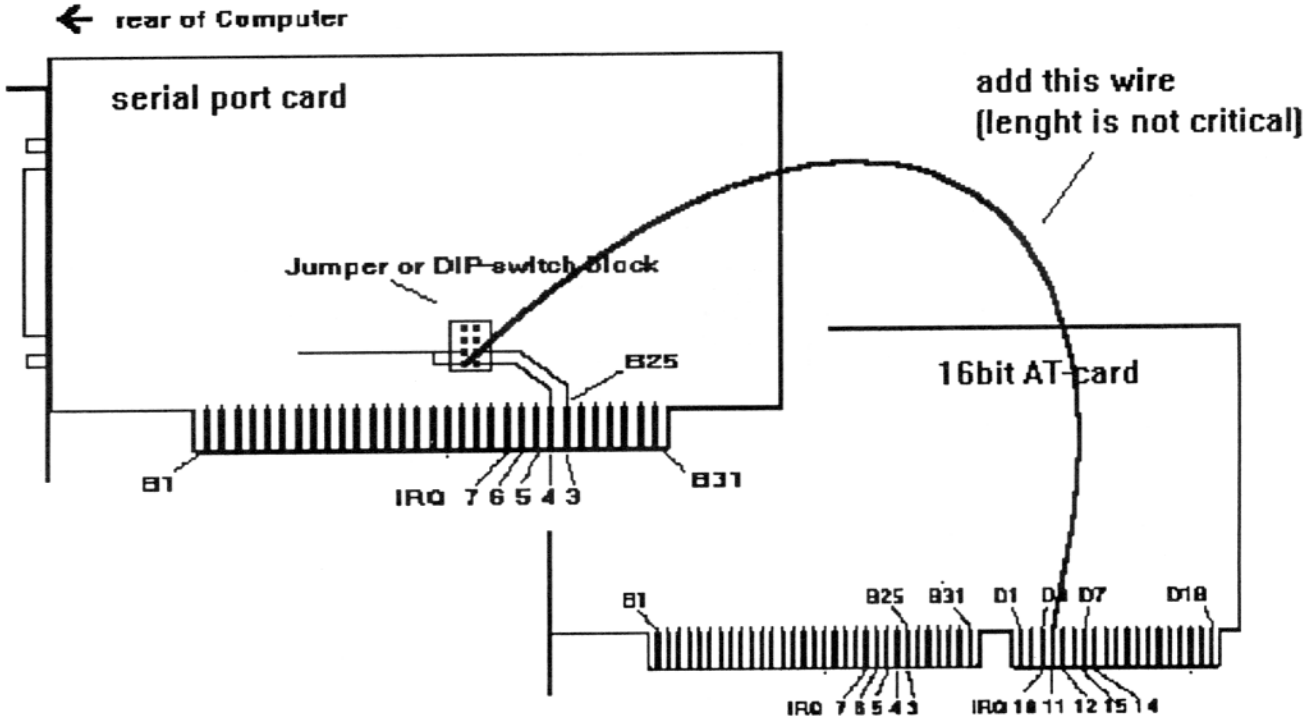
Remember, only IRQ 3 to 7 are found on the PC bus connector of 8 bit cards. The other IRQ lines are only available on extended AT bus connectors. As most serial port cards are 8 bit cards, we cannot access the extended lines IRQ 9 to 15. Thus in order to make these IRQ lines available to our 8 bit card we need to run a longer wire to any 16 bit card, picking up the IRQ line there. You may use any 16 bit card, such as the VGA or Hard disk controller card. This doesn't change the operation of these cards at all; we merely use them as a "plug" to access the IRQ lines on the AT bus. A typical 16 bit card is shown at the bottom of this page.





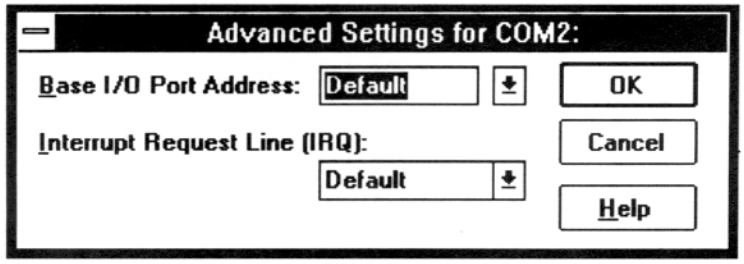


The modified 16 bit card is shown below using IRQ 11. The additional wire runs from your serial port card to a IRQ line on the connector of any 16 bit card in your system. Nothing needs to be modified on the 16 bit card, just add the wire. The length of the wire is not critical and you may keep it rather long to easily insert the cards. Once you have the hardware ready you still need to declare the new ports to Windows which is outlined at the bottom of this page.



Declaration of Serial Ports under Windows

Windows 3.1 will support up to 4 serial ports. To use them correctly you have to declare the addresses and IRQ lines. This configuration is done through the Control Panel in the "main" window of the Program Manager. Select the ports icon then click on the port you want to configure. Click "Advanced" to access the advanced settings window as shown below.



Here you select the I/O address and IRQ line for each of your serial ports. Remember, Windows supports up to 4 ports. The standard addresses for Com1 to Com4 are:

Port	Address
Com1	3F8
Com2	2F8
Com3	3E8
Com4	2E8

Choose the IRQ lines according to your hardware settings. Changes will take effect after you restart windows.

That completes this series on "Scanner" and its implementation. Good luck and happy scanning to you.

de Peter, TY1PS ■

1. Peter Schulze, BP. 06-2535, Cotonou, Rep. of Benin, W. Africa

QSL ROUTES

Betsy Townsend, WV7Y
P.O. BOX 644
Spokane, WA 99210

It seems like we need some more RTTY Dxpeditions because the routes are harder and harder to dig up each time. With your help we can all get the QSL routes we need -- just drop me a note via mail or packet. WV7Y @ WS7I .WA.USA.NA or via the N7CR Aplink and I'll pass them along in this column.

I hope to see many of you at Dayton in the hospitality room at the Radisson Inn. This year I hope to see more of the flea market so look for me with my RTTY Journal Badge.

73 & 88,

de **Betsy, WV7Y** ■

The latest QSL routes. Note that some have changed!

4X6UO Qsl via WB3CQN

ET3SID Qsl Via G4CTQ

FR5ZU/E Qsl Via VE2NW

FR5ZU/G Qsl Via VE2NW

HC5K is still via KT1N not direct

HC8J Qsl Via WV7Y SASE, No Buro

1993 BARTG HK0/AA5AU Qsl via AA5AU

HK0/KB5GL QSL via KA6V KH

5K/N9NS Qsl Via N9NS

KH5/N0AFW Qsl Via N0AFW

OD5PL Qsl via HB9CRV

S0RASD Qsl Via EA2JG

VQ9CR Qsl Via WV7Y, P.O. Box 644, Spokane, WA 99210

ZL7AA Qsl Via ZL2AL

ZL9LM Qsl Via DJ5CQ

VE2NW, Zaren Amadouny,18 Nisko, Dollard Des Ormeaux, PQ H9G 2R5, Canada Sept, Oct 1992

RTTY DXpedition of the Year

The International RTTY DX Association (IRDXA) is pleased to announce it's first RTTY DXpedition of the Year Award. This award was previously sponsored by the RTTY Journal.

DXers had expected '92 to be a beginning of the end as the Solar Cycle declined. However, in a burst of activity, '92 turned into an unusually exciting year with major RTTY efforts including:

KP1/KW2P - Navassa Island by Bob

VK9XM - Christmas Island by W5BOS

FO0CI - Clipperton Island by N0AFW and others

YA5MM - Afghanistan by Romeo on a return visit

VK9CK - Cocos-Keeling by F6IMS

8Q7PY - Maldives by JJ2VFY

VP8SSI - South Sandwich Islands by Tony, WA4JQS and associates

C9RTC - Mozambique by IK4QIZ

S2/HA5BUS - by the Globex gang

D2EL - Angola by EA7EL (not really a DXped, but noteworthy)

FR5ZU/G - Glorioso by Jacques, a pure RTTY expedition

FR5ZU/E - Europa by Jacques, more pure RTTY DX...!

5R8DF - Madagasgar by ???, not heard in US

ZL7AMO - Chatham Island by Ron, ZL1AMO

5X5WR - Uganda by Baldur, DJ6SI

5T5EV - Mauritania by Joe, WB8FLO

Choosing just one DXpedition from such an impressive list is not easy. We, therefore, established the following criteria to help narrow the selection.

1. Rare RTTY DX - they all qualify

2. Difficult to reach - clearly VP8SSI

3. A supreme effort to work RTTY DXers - clearly FR5ZU/G, /E

Faced with the impossible choice, we have taken the cowards way out and decided to award a dual award... to both VP8SSI and FR5ZU/G, /E

Clearly no one in their right mind would go to the South Sandwich Islands. However, Tony, WA4JQS, readily agreed to take the IRDXA RTTY gear when offered. He then promptly got on the air to become a competent RTTY operator before leaving for VP8. He and his group braved gale force winds, blowing snow and salt spray, growling sea lions and those popular Cabelas shredding tents to pound out a few Qs including a fair run on the keys. While we would have preferred more time and better propagation, those who stayed up all night, probably got their VP8SSI RTTY QSO. Most men would have said to heck with it and checked into the nearest Hilton. Our grateful appreciation to Tony and his slightly frozen compatriots in the South Sandwich Island Summer crowd for sharing their truly daring and difficult adventure.

The Glorioso and Europa trip by Jacques Qulliet, FR5ZU, marks the first time I ever heard stations on Baudot asking "when SSB?" Jacques "RTTY ONLY" DXpedition had people rumaging in the closet for long forgotten RTTY gear and probably more than a few new MIXED entries are from FR5ZU/G and FR5ZU/E contacts. Jacques worked the bands well to give everyone a chance. He also responded to long path requests for those with poor short path propagation. In spite of the well know mail problems in the Indian Ocean, most operators got prompt, and very beautiful QSL cards. VE??? now has the logs and can respond to requests. Thank you Jacques for a GREAT OPERATION... we look forward to hearing you from Tromelin.

Good RTTY DX to all...

de **Don Simon, W6PQS**, for IRDXA

IRDXA NEWS BULLETIN

The recent ARRL "Digital Modes" Petition for Rule Making to the FCC suggests the need for an organized and "formal" voice for RTTY DXers and Contesters.

The AMTOR/PACTOR, Clover and Packet groups are well represented in the scramble for our spectrum. DXers, who depend on a little quiet spectrum in the pursuit of weak signals, are not being heard.

The .080 to .100 KHz portions of the HF bands, traditionally used by RTTY DXers and contesters are being invaded by burst mode operators ... often not recognizing the interference they cause to ongoing RTTY DX operations. They don't understand that to RTTY DXers, silence is golden.

The time has come for IRDXA to include the advocacy of RTTY DXer spectum needs before the ARRL Digital Committee, and, if necessry, before the FCC. For complete details, please read the formal announcement on APlink and RTTY BBSs.

de W6PQS at CE3GDN.STG.CHL.SA

Results of the XXVI Volta Contest

Class A1: Single Op All Bands

CALL	QSO	PTS	3.5	7	14	21	28	TOT	SCORE
01 I2TQU *	167	2322	8	9	38	21	1	78	30,246,372
02 VP5JM	164	2692	1	5	25	22	11	64	28,255,232
03 4M5RY	149	2244		23	35	16		74	24,742,344
04 G0ARF *	185	1616	6	7	33	30	2	79	23,617,840
05 G4SKA	162	1783	2	2	39	22	1	66	19,063,836
06 W1BYH	95	1169	6	9	20	18		53	5,885,915
07 AA5AU	117	1007	3	8	19	17	1	48	5,655,312
08 N6GG	92	1219	1	6	17	10		34	3,813,032
09 AH6JF	79	1383		3	18	6	1	28	3,059,196
10 7Q7XX	70	1801			9	23		32	4,034,240
11 HA0HG	85	750	3	3	16	19	1	42	2,677,500
12 N2HOQ	72	1049			15	19		34	2,567,952
13 W2KHQ	55	813		7	18	13		38	1,699,170
14 RY0H	72	601		1	21	16		38	1,644,336
15 JA3DLE/1	48	1265			17	5	2	24	1,457,280
16 WA6VZI	51	712		4	19	9		32	1,161,984
17 WA8FLF	45	752	1	3	15	10		29	981,360
18 K6HGF	49	596			19	7		26	759,304
19 IT9DWO	50	552			16	8	1	25	690,000
20 LA5RBA	48	207		2	12	9		23	228,528
21 EA1JO	36	312		3	9	7		19	213,408
22 AM6ZS	38	240			15	10		25	228,000
23 KC9UU	29	302	2	5	10	6		23	201,434
24 IK8HCM	30	220	2	1	10	11	1	25	165,000
25 DF5BX	25	205			10	9		19	97,375
26 WB0YJT	22	224			10	5		15	73,920
27 KE9CU	19	206			10	4		14	54,796
28 EC3DCR	18	140	1			10		11	27,720
29 IV3WNP	17	114			8	5	1	14	27,132
30 LZ1FX	13	62	1	1	7	1	1	11	8,866
31 SM3MID	15	60			7	1		8	7,200
32 VK3EG	3	90			1	1	1	3	810

Class A2: Single Op Single Band 21 MHz

01 IV3ZDO	89	1568				32		32	4,365,664
02 LU8ECK	54	1790				28		28	2,706,408
03 EC1CTH	50	551				40		40	1,102,000
04 N2CQ	53	1000				19		19	1,007,000
05 RA9LR	46	535				19		19	467,590
06 IV3KCB	34	529				20		20	359,720
07 UV9CC	36	339				15		15	183,060
08 WA4MCZ	15	301				10		10	45,150
09 JE2UFF	17	410				9		9	62,730
10 IK5MEQ	14	246				10		10	34,440
11 EC1DKL	23	135				10		10	31,050
12 I3BIP	10	161				10		10	16,100
13 I2FUM	1	2				1		1	2

Class A2: Single Op Single Band 3.5 MHz

01 YB2OK	45	1055	31					31	1,471,725
02 YU3BQ	38	148	18					18	101,232
03 SP3SUN	35	97	16					16	54,320

Class A2: Single Op Single Band 7 MHz

01 JA2NNF	3	64		3				3	576

Class A2: Single Op Single Band 14 MHz

CALL	QSO	PTS	3.5	7	14	21	28	TOT	SCORE
01 YU3HR	155	1848			52			52	14,894,880
02 IV3FSG	99	1260			41			41	5,114,340
03 WA3MME	67	966			29			29	1,876,938
04 I2KFW	70	827			29			29	1,678,810
05 KI4MI	40	388			22			22	341,440
06 W6/G0AZT	32	418			18			18	240,768
07 VK3EBP	18	636			15			15	171,720
08 ON5SV	28	173			17			17	82,348
09 IK4LZO	27	229			11			11	68,013
10 SP3XR	30	103			10			10	30,900
11 I4IBR	11	100			6			6	6,600
12 AM25GGR7/B	14	67			7			7	6,566
13 IV3MWF	10	57			7			7	3,990
14 HA6ZQ	8	26			5			5	1,040
15 JA2ESR	1	18			1			1	186

Class A2: Single Op Single Band 28 MHZ

01 SP3BGD	3	57					3	3	513

Class B: Multi Op Multi-Band

01 LZ5W	331	5759	5	8	51	34	1	99	188,716,671
02 UZ9CWA *	317	3661	7	10	48	24	2	94	109,090,478
03 OH2AG *	161	712	9	12	24	15	1	63	7,221,816
04 OK3RJB	20	67	2	1	9			12	16,080
05 DF0BUS	8	69			4	3		7	3,864

Class C: SWL

01 ONL 383	97	807	7	6	29	14		56	4,383,624
*Jean-Jacques Yergannian									
02 13-60771	82	600	10	5	24	6		46	2,263,200
*Saverio de Cian									
03 ONL6945	66	476	9	5	22	11		48	1,507,968
Marc Somen									
04 G8CDW	55	304			16	8	1	25	418,000
Ted Double									
05 BRS 27239	43	224	6	4	13	5	1	29	279,328
David R. Hare									
06 ONL 3997	39	287			13	11		24	268,632
J.J. Peeters									
07 DE0GMH	37	286			12	11		23	243,386
Werner Ludwig									
08 17-1237-BA	25	118			11	7		18	53,100
MassimoCaldaola									
09 ONL 4335	15	54			9			9	7,290
De Kerf Marcel									
10 ONL 4003	10	43			8			8	3,440
Egbert Hertsen									
11 SP 181-GD	7	30			4			4	840

Control Logs: VK2BQS, SM6BSK, I2DJX, I2DMI, N2CQ, SP3BGD

(*) indicates extra multiplier for DX on 4 bands

PACKET

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

SWEATIN' IT

Who me.....sweatin' it? You betcha!! I am quite sure that you have heard about the BIG winter storm of 1993 that affected the whole east coast of North America. Yes, this was a beaut. I have relatives in Pittsburgh, PA. that received 26 inches (66 cm.) of snow. I know there are areas that recieved over 48 inches (122 cm.) of snow. Now, you are asking, how does that affect me here in LA land. Well, this month's article is based on getting some software from a server at MIT. The package that I am speaking of is a freeware, not public domain, version of UNIX. For all who may not know, UNIX is no longer owned by AT&T. It is now owned by Novell. But back to the other package. The name of the package is Linux. This system can be classified as groupware. The original kernel was written by Linus Torvalds. The small package that he started blossomed, with the help of many, many other people, into a viable operating system package.

This package has a multiple user kernel, supports libraries, a freeware version of Adobe Postscript, the GNU C/C++ compiler which has tighter coding checks than most compilers on the market, support for X-windows release X11R5, and a text processing package. The whole package takes up thirty disks of either 1.44MB or 1.2 MB in size. Since there are many packages out there that have the source code available for compiling for your own system, this is a great idea.

DETAILS, DETAILS, DETAILS....

Now comes the details to the whole process of getting the package. I know there are people who do not have access to internet so an option will be presented. But for the people who have internet access, the package can be had off of tsx-11.mit.edu from /pub/linux/packages.

The first two disks are the fun ones to organize (tongue is sticking through hole in cheek). Both of these disks, as received, are not disk files but disk images. Think of a disk image as a bit by bit snapshot of the whole disk, all files and tracks, including formatting information. This disk image has to be written to the floppy disk by using a image copying program. In my UNIX package, I have a program called 'dd' that will do disk image copying. There is a program called 'RAWRITE.EXE' in the MS-DOS world that does the same thing. After the first two disks are built by using the image copying program, the rest of the package is installed by copying the remaining files to DOS formatted disks. Twenty eight disks have to be done in this manner that constitutes the whole package.

THE INSTALLATION....

Aieeeee!!!!! Installation of an operating system. Where are the adult beverages? I need a stiff one first...NOT REALLY!!!! There is no need for anything higher in octane to do this than plain old water. The package is almost self installing in nature.

What I did first here was a trial run. I went to the CMOS configuration before startup and told the system that there were no hard drives attached to the system. This would allow me to run the disks through their paces and not have to worry about trashing a hard drive. Before you try to do this, make backup copies of any disk that you are going to stick in your computer and load off of the backups and not the originals.

You have to boot from a floppy that was labeled or built as 'a1'. The display will come up and say "Loading.....". From there, it asks you if you want to change the screen resolution. I changed mine to 132x44. That is a nice font size on the ATI VGA Wonder + card. Being able to have more than 25 lines on your screen is a nice feature.

After the display selection and switch, the operating system goes through your computer and sees what is there. It saw the one comm port configured as COM1 and not the HUBcard that is also present. It found the one printer port that is on the machine. The software found my ATI card bus mouse - nice touch. The program detected no SCSI units, which is true here for the present time. The last item that it found was the presence of the 80387 coprocessor that is here. Now comes the time to load the kernel.

The kernel was loaded into memory. After that and a few more gestures, it was time to switch disks to a2. Following the directions on the screen, I switched the disks and then told it which disk drive the disk was in. And away we go.

Now we are running under Linux. The system is in single user mode at this time. So far, so good. From this point, if I was going to install the software, I would follow the directions given and place the software on the hard drive. Let's stop here and pursue another nasty subject...

DISK PARTITIONING

Oh yuck! I have to deal with that. The answer to that is ... yes. Warning time; only low level format MFM/RLL drives. If you low level a IDE drive, use it as a doorstop or a paperweight. All IDE drives are using propriatory formatting and trying to low level format one of these drives kills the formatting and makes the drive useless.

First off, you have to figure out what part of the drive you want to partition off for Linux or DOS. With that little decision made, just follow the on screen directions that are presented and just do what it says. It will get you set up for the loading of the software.

The disk partitioning software is very versatile. There are some packages that recognize only a few systems but this one is probably the most capable of the packages that I have seen for partitioning and low level formatting of a disk. The menu system, as presented, is quite extensive and can

walk you through the process safely. All you really need to know is the architecture of the disk and how much you want to allocate to each partition.

After allocating each partition, and following the directions as presented, continue loading the software. The loading system that is used is quite user friendly (cliche, sorry) and that allows you to perform the rest of the work without much hassle or hair pulling, nail biting, chomping at the bit, etc.

Alas and alack, I will have to stop here. It is too close to the deadline and I have not received all of the software needed to complete the initial loading of the base operating system. I can blame the delays all on MOTHER NATURE. So, hopefully, I will pick this up next month.

ORANGE NOMEX FIRE SUIT ON

Whenever one of us from work has to visit one of the many oil refineries in the Los Angeles area, as part of the safety equipment we wear a nomex fire suit. This is for protection in case of a fire or explosion. Well, I have on my symbolic fire suit because I am going to dive into a fire pit at this point. And that fire pit is ...

SEMI-AUTOMATIC v. AUTOMATIC FORWARDING

I can hear you now ... not again ... more marlarkey ... etc. Well, the biggest problem that I see, IMHO, is that passions are running too rampant, just like a boy whose hormones are coming on full blast and taking over control. I have not seen a well prepared dissertation on the subject of Semi-automatic vs. Automatic forwarding of packet traffic on HF.

For lo these many years, there has been an STA (no longer, yea!), that has been in force to gather up data concerning the feasibility of using packet radio on HF frequencies for long-haul traffic handling. From what I have seen of the results of the study, packet lengths are 32 characters in length and a framing count of one is being used. On VHF and higher, framing counts are higher and so are the packet lengths.

The X.25 format was meant to be used on a nearly ideal medium, wireline, microwave, and the like. That way, the packet is not encumbered by the transmission medium interjecting its own quirks and biases toward the signal. Regular packet has to be received perfectly or the whole packet is repeated.

On VHF and UHF, where FM is the boss, getting a good, solid signal is simple. On HF, there are so many variables that are present that a good, solid signal is a rarity. Anyone who has worked HF knows that the propagation capability of the ether varies from second to second and hour to hour. These propagation variations inject their own qualities to the transmitted signal. This can result in multipath fading, selective fading, complete loss of the signal, and a host of other anomalies that can be present on a transmitted signal. When the band is open, all is peaches and cream, especially when the sunspots are cranking out their magic upon us. When the band is bad or closed, all bets are off in getting a good solid signal.

Now how does the above relate to packet on HF. Well, packet, by nature, is a mode that relies on PERFECT copy of what is sent to be able to be decoded back into the original form. There is no error correcting built into the packet transmission. All that is present is a technique to detect that an error exists and to trash that particular packet and request a resend. As the band conditions worsen and frequency usage increases, the percentage of resends to total traffic increases. This is not good.

Now, how does this affect automatic vs. semi-automatic packet forwarding on HF? This situation affects everything and so does the very nature of packet help to make it a poor mode on HF. First off, all packet channels are shared frequencies. This means that there are more than two users on one pair of radio frequencies. That helps to lower the throughput of a pair of frequencies to start. This is because as you add more stations to a given frequency, each station has less free chances to transmit per unit of time. This problem is brilantly presented on a VHF channel that has a packet conference node present and is being used by many people in a roundtable discussion. The throughput of the channel drops miserably when you have many users on it trying to talk at the same time and the conference node is spitting out what it has received to all connected users. The channel throughput goes down the tubes with retries and from the sheer amount of traffic that it is trying to handle.

On HF, the many user problem is there. The twist that is presented is that the stations appear and disappear with the changing ionosphere. Selective fading can make a station not to appear but you can still hear it. Noise from atmospherics can make a station not to appear. The appear and not to appear problem is related to the TNC, not our ears. If the TNC can't decode the packet or even recognize what is received is a packet, it thinks that the station has disappeared. This causes multiple retries and when the retry timer times out, the connection is history.

HF is congested. The largest portion of HF bandwidth is devoted to voice operations. The digital users just have a small slice. On HF, packet is undeniably a bandwidth hog. That has been proven time and time again. Now remember, I have my orange nomex fire suit on here. I still say, that packet should not be on HF because of its demanding nature on the transmission medium. There is NO WAY that the ether is a QUIET and FREE of disturbances as a piece of RG-58 cable or fiber optic line linking two or more computers in a network. Realistically, there will be packet on HF. I can't change that. The system is managed by people and these people hold the opinion that packet should be on HF. The big question is how and where. The ARRL Digital Committee was charged to handle a few aspects of the whole packet question and try to seek a balance between all viewpoints, both domestic and foreign. They have the terrible job of formulating a plan to allow traffic flow on HF packet plus where and how to do it. This is a question that can't be answered overnight. There are so many sides to the issue with so many passions driving the issues that a satisfactory conclusion will be hard to reach.

What I am saying is, present your viewpoints. Do not attack anyone personally because of their viewpoint. Because now your view will only lose creditability. My statement that packet does not belong on HF

attacks no one. It is an opinion. Your opinion weighed with others can result in a final conclusion. We all have to get along with what we have until the perfect data communications mode for HF is invented. This is a fact of life.

YES, THIS IS APRIL

There will be no April Fool's joke here. Enjoy packet and use it for what it is. Operate courteously and pay attention to all others on the band. We are all in this together and must live together. So, let your fingers do the talking and your brain be the guide.

de Richard, N6NKO ■

Packet: N6NKO @ WB6YMH-2 internet: elroy!swc!owlsnest!richardp

THE LINK

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

Again there has been a lot of activity the past month. As many of you may know by now, I reluctantly decided to close down my APLink operation after over 3 years of operation and some 75,000 messages handled. Even though it had operated faithfully several times for months at a time without a close watchful eye, I felt that my travel schedule in the near future was such that I should not continue with the operation. We have been lucky to find Scott, N5DST, in Houston. I have given him permanent loan of all my APLink equipment and he has the setup operating now. Scott as you may recall was the SYSOP on board the USS Kennedy during Desert Storm and handled some 6000 pieces of traffic over about a 4 month period while in the Red Sea. Let's all give Scott a warm welcome. I will continue to work with him to keep his system at the leading edge of this developing technology.

There are many new things going on with the APLink (now really WinLink) system. Many former APLink SYSOPs are running CLOVER with WinLink and are moving traffic even more efficiently than before. Of course, those of you that are keyboard users may find this an inconvenience because it may make it a little more difficult to check into your favorite APLink because he is busy off somewhere moving traffic on CLOVER. Vic now has WinLink drivers for the PCI- 3000, AMT-1, and PK-232 on AMTOR. He is currently writing a PACTOR driver for the PK-232, so in a month or so you should be able to check into a WinLink system using AMTOR, CLOVER, PACTOR, or VHF Packet. By any measure this is a highly effective HF message handling system. Things are just beginning to pop with digital communications on HF, I feel there will be much more to come over the next few years.

Believe it or not, I have used Peter's, TY1PS, software called Express to pass binary (executable) files on HF CLOVER with success. I have found this difficult to do on VHF (packet) except with a direct connection. This software will not only do files transfers, but also has compression built in. With a good link, the effective data rates are high, over 1000 baud. There is no doubt in my mind that the digital explosion is just starting, I expect that all HF radios 10 years from now will be digital (DSP) radios whether the communication is voice, image, or data. Only the bandwidth of the transmitted signal will be changed to accommodate the information. Think about it, if we can move data at 750 baud on a 500 Hz bandwidth as we now do with CLOVER, it doesn't take much imagination to realize that digitized voice could be moved in not more than 2 KHz bandwidth. The benefit of course is that the received voice would be free of any QRM. Amateurs experimenting with CLOVER and other new modes are leading the way in this exciting development.

As I write this column the Digital Committee is meeting again to respond to the charge given them by the ARRL Board. They are to report back to the Board by their next meeting on a way that semi automatic operation can be used without causing unwanted interference with any existing communication using other modes. It will be interesting to see what the Digital Committee comes up with on this, as a discussion on that issue was reported in detail in the DC's June 92 report. The whole thing is what I call a red herring. Not a single one of the respondents to the ARRL survey mentioned interference as a problem. There has been semi automatic operation going on world wide since the early 60's. Much of it has been unattended, obviously with the full knowledge of the ARRL and FCC. As far as I know there has never been a single instance of anyone being issued a citation for interference or even illegal operation.

Those opposed to the semi automatic operation bring up the question of the hidden transmitter, that is station A calls APLink B and when B transmits he interferes with station C who is not heard by A. While this situation can obviously occur it has not been a problem in my experience except when A wants to deliberately interfere. The reason is that while B interferes with C, C also interferes with B and that data flow from B to A is slow if at all. As a result, A just drops the link and moves to another frequency which B is scanning to find a clear channel. This is exactly what is done with any mode even if there are operators at both ends. I see so many instances of deliberate interference on the bands that no one seems to be doing anything about that it seems ludicrous to slow down progress because someone is concerned about very minor accidental interference. Why try to fix something that is not broke?

At a minimum, I would personally have to say that the policy of the League seems to me to be somewhat two-faced. I have been trying for 3

years through my director to get the League to assist us in legitimizing semi automatic operation. The reply I have always gotten is "Now is not the time to bring this issue up. No one is going to bother you, etc." Since I have had little direct communication with anyone at the League, I am at somewhat of a loss as to what their objective is. I have been told that their position is that no MBO/BBS operation should be allowed on HF, only forwarding of traffic by a selected few stations. Such a goal would disenfranchise all those hams using digital communications and do not have access to or care to use the VHF/UHF packet system. Certainly, having the League tell you how you must communicate using digital modes is unprecedented.

Even with all the League bashing that I have been doing, I am firmly convinced the League is the vehicle that we must use to establish our rules for the future. I am disappointed in the actions of the Board and feel that some of the directors have responded to the political issues rather than becoming informed and making their own honest judgment on the technical issues. These technical issues are getting very complex, and as a result those that govern must rely on advice of trustworthy and skilled technical people. The League created the Digital Committee which is composed of some of the best minds in Amateur radio. They have spent many hours debating and discussing all of these issues. And yet the word I get is that none of these experts have been allowed to address the Board or to even respond to technical questions that a director might have (in a Board meeting). I am sorry, but I must ask the question "What is going on?" One would have to assume that the DC did not come up with the recommendations that were wanted so the committee has been muffled. If I were a director, I would be insulted to find out that information that I needed to make an informed vote had been withheld from me. If you are a digital operator, please make sure that you contact your director and help inform him of what is going on and what your interests are. Our directors are for the large part just Amateurs like you and I. I do not expect them to be technical experts. Because of the amount of time they spend in tending to the political aspects of their jobs and attending meetings, I am sure that they have to give up a certain amount of operating and therefore do not gain the insight in the leading edge of developments first hand. Balancing all of these complex issues is certainly a difficult task, but I am certain that each director wants to lead the League in an informed positive direction,

Besides the semi automatic issue, there is another related issue that should be discussed. It is the Petition submitted to the FCC by the League on the first of February. First let me say that I am in full support of the concept of fully automatic operation, but I am opposed to the Petition. The reason for my opposition is that the plan promulgated by the Petition is unworkable in the end. Except by limiting the fully automatic operation to a few (~100) stations, operation within the proposed subbands without any protection from interference will eventually result in stations using higher power in order to communicate. This in turn will result in fewer stations being able to operate efficiently and they will move out of the subbands. Amateurs will abide by rules that make sense, but they will ignore rules that do not make sense. I have already been told by some stations that they do not plan to stay within the subbands. This leads me to conclude that fully automatic operation with the current technology will cause everyone serious problems. The price we will pay for it is a loss of a portion of our already crowded HF bands. To propose that we communicate under unworkable conditions, and at the same time prevent the legitimization of technology that has been the focal point of developments such as CLOVER, scanning, and PACTOR doesn't make any sense unless you just do not want any digital operation on the bands at all. Any subband on HF will eventually result in less effective use of the spectrum. Take as an example the subbands now set aside for Expert Class license holders. Except for contest weekends, the top 20 KHz of these subbands are the least used spectra from 3 to 30 MHz. Amateur radio has been very effective in the past in spreading different modes out within the bands without the requirement of rule imposed subbands. Again, "If it ain't broke, why fix it?"

I will paraphrase what Bill Henry has said to the League. "The time has come when amateur radio must decide to either lead technology - or get the heck out of the way. If we do not embrace new technology, ham radio will die of old age." I can't help but believe that there is a bit of CW/digital controversy going on here. It reminds me of the days when SSB was getting started and the controversy between AM and SSB. Many of the digital operators have come from the CW ranks just as many of the SSB operators came from the AM ranks. Much of the development of SSB came through Amateur radio, just as much of the development in new digital technology will come through Amateur radio and I feel the League should be leading this development rather than putting obstacles in the path of development. I certainly hope that all of this conflict is not a CW/Digital conflict. If it is, I have no doubt what the final outcome will be. With some 400,000 controllers having been sold along with the necessary computers, there is a sizeable investment that people will just not walk away from. Such a conflict will cause some very deep and distinct lines to be drawn which will eventually cause substantial change in amateur radio. We don't have to move into the future in that way. It certainly does not have to be a question of either CW or Digital. Both can exist. But the philosophy of keeping ahead by trying to keep everyone else behind always fails in the end.

See you in Dayton.

GOD BLESS and 73

de Jim, KE5HE ■

DAYTON SCHEDULE

(continued from page 11)

Sat. - Digital Digest forum 12:00 noon in room 4. Speakers: Ray Petit, W7GHM, speaking on Clover and Peter Helfert, DL6MAA, speaking on PacTor.

Sat. evening - RTTY Journal dinner. No-host cocktails 6:00 PM, dinner promptly at 7:00 PM. Dinner speaker, Bill Henry, K9GWT, speaking on the evolution of digital modes.

Sat. evening after dinner - RTTY Journal hospitality re-opens until ?

Sun. - Back to Hamvention and then home.

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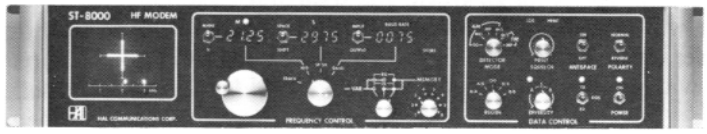

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