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The Passing of a Legend

TG9VT 1924-1992

RTTY DIGITAL JOURNAL

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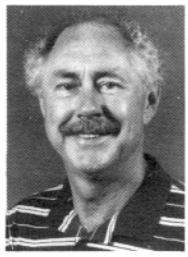

HITS & MISSES

Dale Sinner, W6IWO
1904 Carolton Lane
Fallbrook, CA 92028-4614

John Troost! - John Troost! - John Troost!

In vain we call his name, but he is gone
Though we no longer possess him, still his memory we bear
Those who knew him, shall know him no longer,
For he has ascended to realms on high
There sits a vacant chair,
where once sat an honorable man
We will miss him but he will never be forgotten
His faults we write on the shifting sands
His virtues, on the tablets of Love and memory
Good-bye dear friend

Some of the above words came from a ritual used in the passing of a brother in the fraternal organization B.P.O.E. (Brotherhood of Protective Order of Elks).

Throughout this issue you will find poignant eulogies to John Troost written by RJ columnists. They are all fitting tributes to this popular yet humble Amateur radio enthusiast. His friendships stretched out around the world and number in the thousands. John lived life and Ham radio to it's fullest even when his health was failing him. His dedication to Ham radio is exemplified by his popularity as a DXer, columnist for this publication, APlink SYSOP, ambassador at large for Ham radio around the world, and Elmer to many throughout his many years. Long may he live in our hearts and minds.

DAYTON 93

I still have a few rooms left for the Hamvention. If you plan to go and have not yet made plans for a room, keep in mind they will hard to come by in another month. Call or FAX me immediately if you wish to reserve a room.

To those of you who have already reserved a room through me, and have not heard from me in writing by this time, call me immediately to confirm your room. I don't think I have missed anyone but anything is possible.

PRICE INCREASE

Unfortunately, costs to publish continue to rise. I have tried to hold the cost down but the time has come again where it is necessary to raise the price of each subscription. It has been about two years since our last increase and I cannot think of many things that have not been increased in price during this period. So effective with January 1, 1993 the rates will be increased to $16.00 per year. This increase amounts to about one penny more per editorial page.

The RJ will continue to bring you up to date and timely information that affects our phase of the hobby. Just look through the Index on page 22 and you will see that the RJ has stayed up with state of the art improvements as they have happened. If you enjoy operating the digital modes, then the RJ is your magazine. Nowhere can you find so many pages filled with information for the digital operator. With your continued support, this publishing policy will continue.

A special thanks to our Advertisers. Without their support the price of an RJ subscription would be much higher. The next time you contemplate buying a new piece of gear, give considerable thought to our advertisers first. They also deserve your support. Should you buy a product from one of the RJ advertisers, please mention that you heard about it or read about it in the RTTY JOURNAL.

Happy Holidays to all and a Prosperous New Year.

de **Dale, W6IWO** ■

MSOs

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I'd like to start out this months column by congratulating Dale, W6IWO, on his continuing efforts to upgrade the quality of the "RTTY/Digital Journal". There's a lot of little things that he's added, such as the quality of the paper, the crispness of the photography work, side-bars, column markers, and nice looking schematics. The various type fonts makes it an attractive journal, and the quality of the articles improves steadily. It's not easy to come up with new and exciting material each month, but Dale sure is providing timely and interesting information. Keep up the good work Dale!

IS AMATEUR RADIO YOUR "HOBBY"?

At times I think that we Amateurs lose sight of a very important fact, which causes a very basic misunderstanding of just what the Amateur Radio Service is. Is Amateur Radio a hobby? No, Amateur Radio is a "Service", most specifically as outlined in Part 97.1, "Basis and Purpose", of the FCC Rules. The word "hobby" is not mentioned in this part, or in Part 97.3, "Definitions". So how is it that so many operators fall back on the word "hobby" when they are pressed to define their activities associated with the Amateur Radio Service? Could it be that instead of providing a service they are in fact treating their activities as a hobby? The dictionary defines "hobby" as; "A favorite occupation, topic, etc., pursued for amusement." I must admit that some of the conversations on 75 meter SSB in the evenings are certainly "amusing", but even these meandering, mostly worthless, some quite indecent, QSOs more fill the definition of "service" than they do "hobby". I recently received a very long Packet note from a long time friend, in which he laments about some of the various forms of digital communications which seemingly garner more official attention than others. The basic gist of his communication seems to be that he's not interested in striking out into new, faster and more sophisticated digital modes, because he likes his "hobby" just as it is. His "hobby" happens to be maintaining a very viable APLINK system, which literally passes hundreds (and perhaps thousands) of messages each month. If the dictionary definition is correct, I wonder what he finds "amusing" about that kind of dedication and service? Isn't he really providing a very worthy service to his fellow operators, and also enforcing one of the main purposes of Amateur Radio, namely the requirement to "extend the amateur's proven ability to contribute to the advancement of the radio art?"

Now some of you may think that I'm trying to take all of the "fun" out of Ham radio, and of course I'm not. What I am trying to accomplish is to impress upon you that the FCC Rules spell out a very definite requirement that we Hams provide "service" in our pursuit of our radio activities. Why do we have "Field Day"? Why do we have RTTY, SSB, 6- Meter, contests? Why do we have two-meter repeaters with a sophisticated telephone interface? Why do we have "fox hunts"? Why do we have satellites, QRP transceivers, EME contacts, SSTV, etc? Each one of these activities, as well as being interesting and fun to participate in, "provide for advancing skills in both the communications and technical phases of the art."

Part 97.1(d), of the FCC Rules states: "Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts." Stamp collecting is a very worthy hobby. Lots of folks partake of hobbies from basket weaving to sailboat making. But I wonder how many of these folks could unpack a PK232 TNC, properly configure it, interface it to their VHF/UHF and HF radios, and make it work? Isn't it readily apparent that there's much more to Amateur Radio than just a hobby? Most of us have spent numerous hours preparing ourselves for the different license classifications we hold. We didn't become "Hams" overnight, without becoming qualified to hold that license, and for some of us it was darned tough! The FCC Rules requires us to become "electronics experts", and myself for one, I'm just a tad short of that requirement! But, I am proud of the fact that without Amateur Radio I'd most likely be involved in some other pursuit, not nearly as satisfying and enjoyable.

One only has to take a cursory look at the recent HF Packet STA controversy to relate "hobby" to "service". As I have mentioned in earlier articles, it's apparent to me, as well as others, that high- speed, computer based, linking systems are a must if we are going to handle an ever increasing amount of message traffic. Our mountain-top VHF/UHF packet links are in many cases swamped with traffic, to the point that most "keyboarders" are now disenchanted with packet radio, as they are forced into interminable waits as the system re-tries itself to death! Packet "back-bone" systems, modems at 9600 Baud (and higher), and other enhancements are welcome upgrades, but high-speed, long-haul HF communication systems and networking must be implemented to provide adequate service. Yes, there have been some "PR" problems with HF packet radio, and some questions are yet to be answered. However, let's not forget that one does not approach these problems in an "amusing" way. We approach them because the Rules under which the Amateur Radio Service is constituted requires that we provide a service in return for the very gracious frequency authorizations we have. And, if you don't think there aren't folks out there that would like to carve up our frequency authorizations, then you might want to refer to the recent frequency withdrawals in the 220 MHz area.

Each of us derives an immense amount of self-satisfaction from our involvement in Amateur Radio. There's very few of us out there that really only "take" from this service. Many of us are involved in a local two-meter weather net, being a SYSOP of a packet BBS, teaching CW and radio theory, serving as a VE or VEC, maintaining a APLINK/PAMS/MSO or HF Packet system, involved in local ham radio club affairs, and a thousand other things that provide enjoyment and relaxation from daily affairs. But in the end, we do most all of these things because we like to provide help and assistance to others, and because we feel the inherent need to fit into the scheme of things. This scheme, quite clearly, is service! The next time someone outside Amateur Radio asks why you play around with all of those "radio things", think twice before telling them, "It's the greatest hobby in the world!".

Happy Holidays to all and 73. Keep in touch!

de **Dick, K0VKH** ■

CONTESTING

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RTTY Contests - Coming Events

All rules are in RTTY Contester's Guide

Date:	Contest:
JAN2-3	ARRL RTTY Roundup (USA)
FEB 13-14	EA WW RTTY Contest (Spain)
MAR 20-22	BARTG WW RTTY Contest (England)
APR 17-18	SARTG WW Amtor Contest (Sweden)
MAY 8-9	VOLTA RTTY WW Contest (Italy)
JUN 12-13	ANARTS WW RTTY Contest (Australia)
AUG 21-22	SARTG WW RTTY Contest (Sweden)

Note: EA RTTY Contest Manager, EA1MV writes that the EA RTTY Contest has been moved from the 1st full weekend in February to the 2nd weekend. Please correct your RTTY Contester's Guide, too.

Hint of the Month... Post-contest dupe/mult checks for manual loggers

After the Contest is over and you've sacked out - exhausted, there's the haunting chore facing you when you get back to your senses. Namely, did you diligently and accurately list on the dupesheets ALL stations QSO'ed? And, even more important, did you list each and every multiplier you worked? (I strongly recommend keeping dupe/mult sheets updated during contests.) There's only one way to find out - compare each logged callsign with each callsign written in the dupe/mult sheets.

This is a tedious task for those who had hundreds of QSO's and logged the contest manually. Having done this for more than a hundred major contests over a period of more than 50 years, I have some pointers to help those confronted with this arduous job.

- Using sharpened colored pencils, make small dots in front of, or behind each callsign in the log and each recorded callsign in the dupesheet. When you find a duplicate QSO - and you will - (I always do!) - say, "Oh, for pity's sake!", and draw a line all the way through the dupe in the logsheet, including the point column area. Plainly print "DUPE" in an open area on that line. Then take a deep breath, try to forget how that could have happened, and get on with the task!

- After completing the dupesheet task, the multiplier checksheet is next. Using a different colored pencil, place a dot after each new multiplier you claim in the logsheet, and a dot in front of each recorded in the multiplier checksheet. You will most likely be surprised to find an additional mult or two. I know I always do - and that's always the time for a "Yahhooo-o-o!"

- The routine for adding up the mults and points and using the scoring formula for computing your final score is straightforward. But going through this laborious one-step procedure is what leads up to the accuracy of your final score. Only now do you know for sure exactly what your final score is. And you will have the satisfaction of feeling secure about your score.

The fact that you have taken the trouble to carefully check your log will give the person who checks your log at the contest headquarters visual knowledge that you have done exactly that, as shown by your colored dots. It's worth it, both for your satisfaction and the log checker's, too.

1992 CQ WW RTTY Contest W3LPL style

I received a note from Ed Bruns W3EKT, who operates at W3LPL's fantastic multi/multi station for RTTY contests. He sent a breakdown of their part in the CQ WW RTTY '92 effort. Simply amazing! It bears publishing it here because, from their numbers you'll be able to tell just what you missed by comparing your multiplier numbers with what was the likely ultimate. These guys probably never missed a thing - both in mults and in different stations worked. When you have multi-ops and multi-transmitters, plus packet spotting networks, you are covering it all. And they had 33 HF yagi antennas to use!

Most of us have never operated a multi-op multi-transmitter station, except for the more casual Field Day. And in contests, the single op station really doesn't compete with the likes of multi-ops. Its two different worlds, and its fascinating to see just how they made out. I should also mention that the W3LPL station is designed primarily for CW and SSB contests.

Before delving into these superb results, I'd like to mention the picture of Frank, W3LPL and his impressive station and description that appeared in the November '92 issue of CQ Magazine. Also, a bit about Frank, W3LPL.

I met Frank Donovan, W3LPL, when he dropped in at the Annual NCCC Picnic held at N6RO's super QTH some years ago. (NCCC is Northern California Contest Club.) Frank is one of these gung- ho guys that just can't wait for the next contest. He constantly plans just how to better his last year's score. Enthusiasm is surely his middle name! He's a fine gentleman and a really good CW op. I had worked Frank numerous times in most of the ARRL CW SS Contests in the past 15 years or so. At the Picnic I asked him if he had ever considered changing his call to something else. He laughed and said, "No, never - but why?" I said, "Because every time you call me when I'm running (CQ/QRZing) I have to send your call." Sez he, grinning, "What's so bad about that?" Sez I, "Because everything in your call starts with a "DIT" and each letter in your suffix ends with a "DIT". And all of that's hard to send at 30 WPM in the middle of the night when I'm completely exhausted!"

For those who may not have the November '92 issue of CQ Magazine, here's a brief description (page 109): His 10 acre site is located 30 miles north of Washington, D.C. There are four 190 foot towers and three 100 foot towers supporting 33 HF yagi antennas. All antennas are homebrew, made from military surplus materials. The station layout consists of 2

radios per band (160, 80, 40, 20, 15, and 10M) There are 6 homebrew KW linear amps, each containing a 3-1000A. Two operators operate each band, one for running and one for finding new multipliers. By automatic switching, only ONE transmitted signal can be on the air at a time. Also, each of the 2 operators can select their own receiving antennas separately, consisting of 9 beverages, as well as the transmitting yagis. There's more, but you get the idea.

Now, you'd no doubt think that the scores shown at the bottom of this page would be the world's top score, right? WRONG! Ed, W3EKT, says that P40RY beat them, and they were multi-op, single transmitter. The difference is that P40RY is in Aruba, South America, and so every QSO outside South America counts for 3 points. USA stations split their points with North America (2 points) and the rest of the world (3 points). This is the main reason that Aruba is one of the best DX contest locations in the world. Of course, being a rare country doesn't hurt, and having a good propagation shot to both Europe and USA separately (about 90 degree azmuth separation), helps, too.

In summary, Ed, W3EKT and his guys did a fantastic job putting this super deluxe station through its' paces. And to Frank, W3LPL, congratulations on putting such a marvelous station together, and making it all work!

Footnote: I have participated in all the CQ WW RTTY Contests since its inception in 1987. Unfortunately, I had to miss this one. My wife, Velma, became dangerously ill (congestive heart failure) and spent most of September in the hospital. She has recovered somewhat, but still has a ways to go.

NEWCOMER'S CORNER - Untangling strange signals

This title marks the first of a series of brief articles to help puzzled and frustrated newcomers into the strange and crazy world of RTTY contesting.

Among the puzzling things one observes on RTTY - especially RTTY contesting is the weird tumble of letters that sometimes appear on the screen for no apparent reason. I'm talking about the slipping of numbers into letters. This happens quite often out here on the West Coast. The cause is multipath, and the reason we have it more than most is, that to work Europe, our signal path goes over the magnetic north pole. The stronger magnetic field intensity at the poles tends to distort and bend the reflective ionosphere, creating more than one path for the arriving signal. The resulting erratic and flutter-sounding signal is very pronounced but mostly readable on CW and SSB. However, on digital modes, two or more signals arriving slightly out of phase can actually change the bitcodes required of each letter. The garbled signal appearing on the screen is sometimes completely unintelligible.

Well, take a closer look. Close study will show that a normally readible signal will usually flip into garble AFTER A "SPACE" IS SENT. During an RTTY contest this often occurs when the "RST 599 599 599" is sent. Multipath sometimes makes it come out as "RST TOO TOO TOO".

Now, take a look at your keyboard. Note where the number "5" is located, and where the letter "T" is located. The "T" is just below and to the right of the "5". Same goes for the "9" and the "O". Multipath reception can cause ALL numbers to shift into letters, if proceeded by a space. And they can be deciphered by looking at the keyboard - down one row and half to the right. Thus, "RST 579" will come out as "RST TUO". And if the contest has serial numbers to exchange, look out for "004" to turn into "PPR". This is real Sherlock Holmes stuff - or "PPU" (that's "007" for you baby-boomers out there.)

Here's what can be done to help eliminate the "flips". But it has to be done by the sender. Its simply this: Do NOT send a space before a number. Instead, use a dash. Like, "RST-599- 599". And for the exchange of RST + Zone, send "RST-599/03". For the RST + QSO serial number, send "RST-599/004". If you need to send the exchange twice, press and then the exchange. This is better than using double dashes for separation because when one line is right below the other, it is easier to determine the correct number, especially when **sig**nals are weak. Besides, pressing
creates the linefeed and carriage return signals (LF/CR), and seems to reset the flipping.

It's true, your sending without spaces won't help your receiving, but if most of us did this, then almost everyone would benefit.

There is quite a bit more about unique things appearing on the screen that can be explained by some diagnosis. For instance, picking out calls in a huge pileup. It is an interesting subject and will be covered in a future column.

Incidently, if you have some ideas that might help newcomers to fathom the uniqueness of RTTY contesting, drop me a line. Paraphrasing the U.S. Marine's TV commercial, "We're looking for a few good ideas..."

TG9VT - One of the Greats of RTTY

As I write this, I learned that John Troost, TG9VT, became a Silent Key, on November 14, 1992. One of the stalwarts of RTTY, both in DXing and Contesting, John was always in there, either as a provider of equipment for a rare country or as a DX station himself, giving all of us a TG multiplier or new country.

As DX Columnist for the RTTY Journal he showed us his unique style and pleasant personality. We will all miss John, his big signal, and his genuine caring. A true class gentleman.

73, ... Happy Holidays to ALL!

de **Rich, N6GG** ■

P.S.

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

W3LPL CQ WW RTTY Contest 1992, Multi-op, Multi-transmitter Results:

BAND	QSO's	QSO PTS	STATES	VE	ZONES	COUNTRIES
80	230	307	42	7	12	24
40	356	54	46	7	21	48
20	752	1572	45	9	31	98
15	485	1210	38	6	30	84
10	410	926	36	5	23	72
Totals:	2233	4556	x (207	+ 34	+ 117	+ 326) = 3,116,304 pts.

Operators: W3EKT, WZ3Q, KF3P, N3UN, N3II, KH2F, and Frank, W3LPL on packet.

Notes: On 20M they worked 98 different countries. Their mult sheet showed that 15 more countries worked on the other bands. That means a total of 113 different countries participated in this contest! On RTTY? YES! On 20M they worked 752 different stations! That's 752 DIFFERENT stations!

SOFTWARE

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YEAREND NOTES

John Troost In a hobby populated with many knaves and but a small cluster of knights, TG9VT's lanky frame towered above the crowd. A select number of the round table approached, perhaps surpassed his dominance of the art of RTTY DX. Fewer ranked with him in the tireless effort to scatter that knowledge to any who might join him in the pursuit of yet another new country. A minute group of APlink sysops equaled his selfless devotion to the movement of traffic to and from GI's in the Middle East or plain folks in New Jersey or Tennessee. Several no doubt rivaled his intellectual mastery of the theoretical and practical elements of radio or computers. Few equaled his performance as a constant guardian angel to the bumbling beginner in the digital modes. Surely none invested as many hours at the keyboard. And none, anywhere, contained such a large dose of humanity. Many knew John longer than I, some much better, but few can equal my knowledge of his caring and kindness. His spirit was a gift to me. I shall treasure the warmth and support that flowed in my direction every day and night in hundreds and hundreds of contacts, even when he was in the maelstrom of pain that was his final illness. Such memories will light my path for years to come. Yes, I mourn, I miss John Troost. May the good Lord give him peace and comfort to his family.

Such thoughts make it difficult to pick up the pieces of this column. However, it does remind me that many around the world want to join in some form of memorial to John. Please let me hear from you. Leave a note on my APlink (I scan 7066, 10126, 18105, 14066, 21070 24 hours).

ALL I WANT FOR CHRISTMAS

The holiday season is the ham's best friend. I can't prove it but there must be container loads of FT1000D's, Alpha 87A's, PK-232's, PCI-3000's, new computers and such gear enroute as I write this. If you haven't influenced your spouse's shopping list by now, it is probably too late, at least for this year.

Remember one thing. The heavy duty hardware you receive this year is the boat anchor of 2002! Think of the fourteen-pound 286 laptop with a 20meg hard disk, just three years ago? A 2.75 pound trinket replaced it with twice the power and capacity! The seven pound, sixteen month old 386 notebook that I am using now on this eastbound transcontinental flight gets heavier all the time. Our perceptions change and this machine would have to be under five pounds to be considered light now . . . and maybe under four pounds next year. When I went charging through the airport my seven-pounder felt like the 28 pound Compaq "portable" that started the downsizing movement several years back. The size of my Kenwood HT embarrasses me when I compare it to the teeny-weeny handhelds of the day. Its bulk dates me and suggests to the youthful crowd that I am out of touch with the real hi-tech world. There is no way to win the battle.

Two quick notes and we will get on to software, the purported subject of this column. I am a firm believer in this principle; nobody gives anybody two, three or four thousand dollars worth of ham gear for Christmas without careful coaching. But last January I noted a bargain amplifier listed among the DX Cluster bulletins. I called and this was his story. "My wife gave me this solid-state rig for Christmas. She is not a ham. I did not ask for it, nor any other amplifier. But someone suggested that I might want it. She bought it. I don't care for it. It has been used one hour. I will take 75% of its cost right now." I bought neither the amplifier nor the story. He is a used car salesman, for sure!

Second note. A good friend bought the MFJ QRP rig. He is a CW freak (but I am working on that) and thinks the rig is the best thing since pizza. He now carries it and a mini- antenna wherever he goes. Sounds like fun.

SOFTWARE IS SAFER

Software is easier to buy, simpler to wrap, much easier to carry and is surely kinder to the pocketbook. And there are far more options and a wider price range. Spend five or five hundred dollars and get challenged, excited, improved, amused, empowered or whatever else it is that turns you on. Look at the possibilities.

Don't miss the fire sale of the decade. Top-of-the-line purveyors of products like EXCEL, AMI-PRO, 1-2-3, PARADOX, QUATTRO PRO, ALPHA-4 are selling carloads at giveaway prices. These "Competitive Upgrades," a term that barely covers up the reality of this bitter marketing battle, are everywhere. Imagine buying EXCEL for $97! (I paid $115 plus shipping for the 4.0 upgrade). Most of the prices are about one fourth of the list price. Some prices entice me to point of purchasing the product although I know I will never, ever use the thing. Here is an example. The December magazines sport an ad from a major mail-order house-- Norton Desktop for Windows and Lotus 1-2-3 for $119. I can't believe it. Get Lotus free for buying NDW! So, if you hanker for one of these outstanding products, don't delay. You may never have the opportunity again.

Most everyone ultimately needs some kind of program in each of the major categories, not all need that kind of power. I discovered an interesting alternative quite by accident. My radio 386 came with MS-WORKS on the hard disk. It sat there for months until one day, just out of curiosity, I tried it. I couldn't believe it. The spreadsheet is a stripped down EXCEL, but not stripped very much. The look and feel are identical. No macros nor linking nor data base functions adorn this version but unless you are modeling the national economy they aren't needed. The word processor and data base are equally good. Not outstanding, just good. A bonus terminal program may be a bit primitive, but all the elements link into one integrated whole. This makes the whole worth more than the sum of its parts, and the price is just a bit over $100. There are others, too, including GEOWORKS, but MS-WORKS (in either DOS or Win3.1 versions) gets the better reviews.

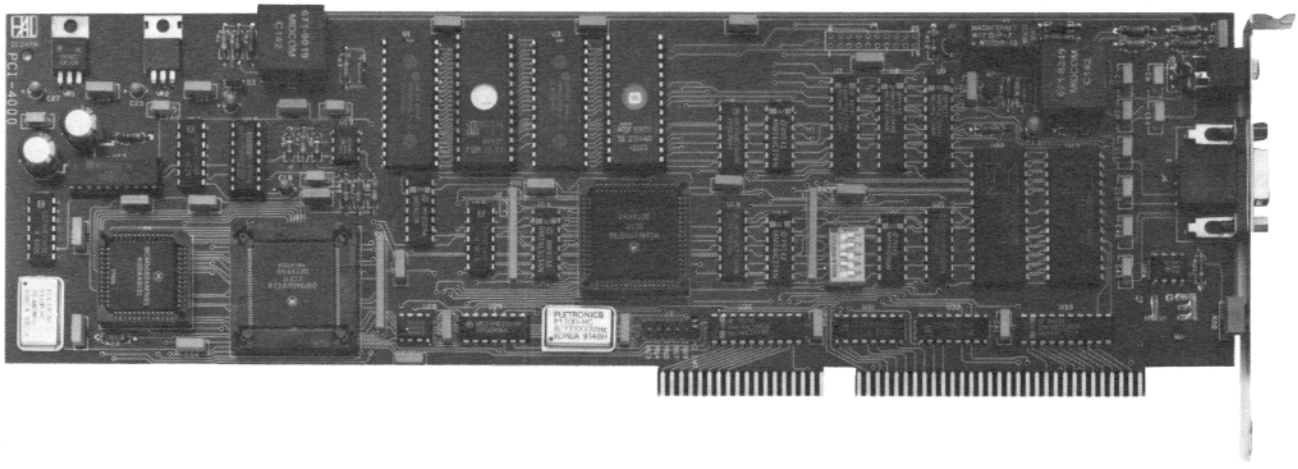
Leaving the basics behind, let me recommend again (if you are going to use Windows) Norton Desktop for Windows. At a little over $100 this super program makes sense out of Windows. Until Microsoft comes out with the next update and encompasses most of what Norton has designed, this piece of software is an essential. The DOS version, by the way, seems every bit as good.

Still too much? If you are using Windows and want to upgrade the Program Man-

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!
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ager, look at Metz Task Manager. This "$-thirty- something" software adds much convenience for a small price. Launching programs of any sort becomes a snap. Call up the screen with a double click of the mouse and select the program you want. You might also look for other Metz products, most of which are shareware. I run their digital clock and free-memory indicator all of the time. Good stuff.

The stocking-stuffer category contains interesting possibilities, too. A little company called OsoSoft (1472 Sixth Street, Los Osos, CA 93402. BBS 805 528 3753 8/N/1) has a cluster of $15 items. One, MultiLabel, is a gem of a program that allows you to design and print labels to fit every Avery Laser Label format. Use clip art, all your fonts or line drawings! Someone is going to figure out how to do custom QSL cards with this gem. Another, Fonter, is the best font management program yet for Win3.1. It allows you to print out your entire library anyway you wish. MicroText is another. It prints four pages on one sheet on my laser printer. The 3 point type is perfectly readable. I use it a lot. Look into this vendor.

Freeware is always fun. Two new arrivals on this machine deserve special mention. WINLOAD (Thomas Software CIS 71071, 2166) is a tiny program that does one thing very well. I like that! My Autoexec.bat boots directly to Windows.

There are times, however, when I need to stop at the DOS prompt to do some housekeeping. So, WINLOAD interrupts the boot sequence and gives you anywhere from five to ten seconds to hit any key. It then stops and goes to the DOS prompt.

The other is also a single-minded applet. All of our computers fail to keep good time. I don't care what price you paid or how powerful, the clock stinks. Since Clark W9CD reminds me of my computer's error regularly I decided to do something. Warren W2NRE (NY APlink) sent me TIMESET by Life Sciences Software. Available on Compuserve and other BBS, this is an outstanding piece of shareware. There is no way to time it, but I think it called the Naval Observatory and reset my clock in five seconds! You need this one . . . don't forget to pay for it.

A last word. Get Kaleidoscope. This freeware product is the best manual screen saver I have found. Keep it on your desktop and click it whenever you wish. Use all the options for a visual treat.

There are enough choices out there to keep everybody happy, whatever the budget. And save time and money, too.

LETTERS FROM HERE AND THERE

I goofed. Two months ago in this column I said that MINIPROP PLUS would not run in Windows. Well, it wouldn't on the 486/33 machine that was here at the time. (That machine has been permanently returned to the factory!) Little did I realize that a weird hardware fault created the problem. After I received Shel's letter, I tried it on my current machine. Voila! It works like a charm, and multitasks as well. I apologize for misleading you and will always double check in the future. And thanks, Shel for speaking up. I appreciate it.

Shel admits to his dislike of Windows and sticks to DOS because he feels that a) the Windows platform is too "restraining" and b) "few if not most hams don't have it." We hold a different view of the world, but that is what makes life interesting.

A splendid letter arrived from Bob WA4LYH. It was a well written plea for better software and hardware manuals, and for more and better materials for the beginner. A ham for 55 years, and still learning, he feels that most manuals and articles are written for the near-expert. He is right and his letter is the first of many I hope to receive soon on the subject first mentioned in the October column. What can we do for the beginner and how can we best deliver it? I need your comments, too.

Bob W1VXV is another fine correspondent. The subject, Desqview, ". . . the best money I have spent in recent memory." He has set up a most interesting combination under this task-switching platform. "When I powerup, DV automatically loads PC-PACKRATT, KI6LO's Logging program, and HAMBASE. DV is a dream come true. I can now switch from PACKRATT (while it continues to receive), to the callbook to see if I need the county, or to the logbook to get the operator's name and QTH if we've worked before, and then switch back--each time with a single key stroke. Sure do recommend it." Beat that if you can.

Bob adds that HAMBASE is kind to his old eyes because he no longer needs to read the fine print in the Callbook! The program also prints out labels for easy QSL-ing. I have not yet used the program. Peter Jennings, VE3SUN of J-COMM deserves much credit for this application according to Bob.

Dave K7RH writes about Acuterm. A long term user, he agrees with me about the installation procedure. It needs redoing for the beginner. He complains regularly about the logging functions and feels they should be more intuitive. And he bugs Bill about "43 line display" capability as well. Otherwise, he, too is a dedicated fan.

Finally, my good friend Jules W2JGR, who sits up on top of Minneapolis with a humongous antenna and rules the DX world, writes again about PCI-3000 software. His tests now cover several hundred hours of operating time and compare PC-AMTOR (the HAL software) with PTERM (W9CD's freeware). He uses both and has built an extensive file of his findings. I know he would be happy to discuss the results with anyone--on the air, by mail or via APlink. His current attitude, "I find myself gravitating toward more frequent use of PC AMTOR. Its easy pull-down menus offer a high degree of versatility. Clark has told me that his objective was to write a program that is simple to learn and use, with a minimum of bells and whistles. He has achieved that goal. Meanwhile I continue to enjoy both programs and continue marvel at the performance of the PCI-3000." Thanks, Jules. Please keep us posted.

I continue to use PTERM all of the time, even in contests. And I would remind you that a copy of the latest version is available from Clark. Please include a formatted disk and postage.

That has to be it for now. I am out of space and then some! Have wonderful holidays and get ready for the new year. Next month we will return to the basics and talk about data compression and disk partitioning. Learn through my travail!

73 G/L de **Jim, N2HOS** SK ■

MULTI-MODES for FREQUENCY SCANNING STATIONS

Bill Henry, K9GWT*

During the development of CLOVER, I have frequently been asked if CLOVER could be used in frequency scanning systems like those presently used for APlink (and other BBS systems). When I answered "yes", the next question was "Can I connect both AMTOR and CLOVER to the scanning system and serve either code?" Others want to support AMTOR, PACTOR, and CLOVER in the same scanning BBS. The answers are all "yes", but it will require a few special connections. That is the topic of this article.

Figure 1 shows a CONCEPTUAL diagram of how up to four modems or TNC's might be connected to one scanning transceiver. Please note that this is NOT a construction article. This is also not a description of a planned HAL product. There are several different ways that the concept could be implemented in hardware (and software). I leave it to the engineers and inventors to devise their own "ideal circuit". Since every station's mix of transceiver and modem model numbers vary, there could be quite a large assortment of "optimum" designs.

CONTROL REQUIREMENTS:

A multi-modem radio connection for frequency scan control should have the following characteristics:

1. When the transceiver is frequency scanning, the receiver audio output must be connected to all modem audio inputs.

2. The scan "dwell" time (time paused on each frequency) should be longer than the longest time required to receive a SEL-CAL in any of the modes. A minimum dwell time of 2.0 seconds should work with AMTOR, PACTOR, CLOVER, and packet radio; 1.5 seconds is "iffy" for PACTOR and CLOVER (possibly packet).

3. When a modem receives its SEL-CAL (MYCALL) in its own code, it will activate its PTT (Push-To-Talk) control line output.

4. PTT output activity by any modem should result in: a. The PTT signal should stop frequency scanning. b. The PTT signal should be passed to the transceiver. c. Opeation of all other modems should be suspended

5. A called and linked modem should remain in exclusive control of the transceiver for the duration of the link -until receipt of a formal end (disconnect) command or until time-out of all retries and reconnect attempts of a failed link.

6. When a link is ended (disconnected): a. Restore transceiver PTT to RECEIVE state b. Reconnect all modem audio inputs to the receiver. c. Resume frequency scanning of the transceiver.

SCAN CONTROL STRATEGIES:

I know of at least four different ways that may be used to frequency scan a modern HF transceiver. There are also no doubt many "sub-versions" of these ideas. The major strategies appear to be:

1. Program memories in the radio and use the built-in frequency scan mode of the radio. KE5HE's circuits use this approach and are both simple and reliable. This technique requires that you simulate pressing of the front panel "scan button" - usually by placing a relay in the radio. Internal radio modifications are required. This also assumes that the scan dwell time may either be adjusted or is already appropriate for frequency scanning (about two seconds) - true for some radios but not for others.

2. Program the transceiver's frequency memories, set the radio in memory mode, and use the microphone frequency UP switch input to create your own memory scan mode. K1FJ's circuit in use at WA1URA and WA2MFY employs this idea. It is reliable, does not require modification of the radio, works with most radio models, and gives you total control over the dwell time on each frequency. It is more complicated and usually more expensive than the KE5HE approach.

3. Use a PC to set all transceiver parameters and "scan" between computer generated "memory" parameters. Peter, TY1PS, showed this program in action at Dayton last year; K4CJX uses it on his APlink BBS. WA2MFY and crew are developing this idea for their multi-radio PC and LAN system as well. This approach is is very flexible. For example, you can set different modes and frequencies for transmit and receive - receive in "FSK" using narrow filters but transmit in "LSB" to use AFSK tones. This strategy still requires modem signal switching plus a PC and an interface to the radio. It requires either a dedicated PC or use of multi-tasking software ("Windows", for example). Commands and the command interface vary greatly between radio manufacturers -and even between models from the same manufacturer.

4. In a manner similar to #3, use a dedicated microprocessor controller (8031, 68HC11, etc.) to generate transceiver control commands. Use battery memory so that radio parameters can be changed via PC command, but the PC would normally not be connected for routine operations. This approach is certainly "elegant" and appeals to the engineers among us. It would be an expensive product to manufacture commercially, but a "fun project" for the guys who like to play with digital "stuff"!

PTT and Scan Control:

Regardless of the strategy used in the frequency scan controller, most sense PTT activity to stop and then restart frequency scanning; stopped when PTT activity begins (Requirement 4a) and resumed when PTT activity ceases at disconnect (Requirement 6c). As shown in Figure 1, a multi-modem scan controller also requires logic that will sense which modem is active, connect it to the radio, and disconnect the other modems.

The HAL PCI-3000 (AMTOR) and now PCI-4000 (CLOVER) modems include a "SEL-CAL Output" that provides a positive control signal output for the duration of a link. The SEL-CAL signal may set to produce a continuous "low" logic level during the link or for a 0.4 second "low" pulse signal at the start and end of a link. The two modes correspond to transceiver scan switch modes (continuous For TS-930; pulsed for TS-940). This signal may simplify the design of a multi-modem controller. However, since it is not universally available in all modems (TNC's), it is shown as an "optional" feature in Figure 1.

"Dead-Man" Timer:

If you are going to build a controller, include this circuit. Some modems and TNC's include PTT lock-up protection,

but not all. Why not be safe? Set the time for 1 to 2 minutes and include an override switch for use of FEC and when testing.

Resume Scan Delay:

Due to interference, fades, and other disruptive influences, an ARQ link may fail temporarily and then resume as automatic relinking procedures take over. AMTOR, PACTOR, packet, and CLOVER all include automatic relink capability, but the time required to relink varies. AMTOR uses short ARQ data blocks (.45 seconds) and will relink quickly -typically in a few seconds. PACTOR uses longer blocks (1.25 seconds) and may take longer to re-link. CLOVER uses 20 second long blocks and will need a longer delay time to assure relinking (one block time minimum, 2 preferred). It is desirable to have individual resume scan delays for each mode to be supported.

AFSK Output Connections:

Figure 1 assumes use of LSB mode on the transceiver and AFSK Tones from each modem. CLOVER is a "J2" emission and does NOT use the "FSK" mode in some transceivers. Relays are shown to switch each modem's AFSK output ON and OFF, but this could be "electronic" if you desire. Do NOT count on having "zero" output from an "inactive" modem. Many modems use a XR2206 or XR2211 AFSK generator (PK-232, PCI-3000) and bias it "OFF" when not transmitting. This is not really completely "OFF" -the output is reduced by about 30 dB. The residual output could cause considerable distortion if all modulator outputs were just wired in parallel.

Modem Audio Input:

When the radio is scanning, all four modem audio inputs are connected to the receiver audio output - in parallel. Modem input impedances vary from 10K to 600 ohms; directly wiring the modem inputs in parallel could present a very low impedance to the receiver. This creates a BIG problem if you connect to a high-impedance receiver audio output-for example, the front and headphone jack or a constant level high-impedance output. The "Audio Amplifiers" in Figure 1 provide buffering and isolation. A simple '741-type voltage follower amplifier is all that is needed for each stage (a '4741-type quad OP-AMP will support all four modems).

The relays in the receiver audio path are normally closed (NC) types. The "normal" standby or scanning mode connects all modems to the receiver. When one channel is linked, its relay remains "OFF" and the other 3 relays are activated, disconnecting their modems from the receiver audio output. This is ESSENTIAL to prevent multi-mode simultaneous connection problems.

To understand why this is important, consider that your scanning station uses a set of 10 well-known frequencies. I call you on 14.071, stop your scan, and we link using CLOVER. Some other station comes along, doesn't hear me or doesn't listen on the channel and calls you in AMTOR, also on 14.071. If the AMTOR demodulator's audio input is still connected, the AMTOR modem will activate and now you have two modems trying to switch your Radio ON and OFF and two sets of transmit tones generating who knows what mess on the air! Eventually all modems will time-out, ut at the expense of lost time and great QRM.

Relays:

Looking at my diagram, an alternate title for this article might be: "Let's See How Many Relays Radio Shack Has In Stock"! Relays are simple to understand and that's the major reason why I show them. However, don't "throw rocks" at the lowly relay. In this application, they may be the best choice. Relay contacts are not polarity sensitive, have high isolation from the control circuit, and present "ideal" ON/OFF resistances (less than 1 ohm when ON and multi-megohms when OFF). They are also very reliable and fast. Tests run on the Magnecraft W171DIP-7 show that it switches in 150 microseconds and it showed no sign of deterioration after over 250 million operations (100 operations/second for 1 month). For simplicity and reliability, a relay is hard to beat.

Conclusion:

I hope this article and diagram have given you some ideas. In fact, I hope it has inspired two or three ham engineers to design their own pet circuits and publish them. I and many others will certainly be interested in your ideas.

Scan Controller Articles:

KE5HE: RTTY Journal, October, 1992; p 4
KE5HE: RTTY Journal, July/August, 1992; pp 3-4
KE5HE: RTTY Journal, February, 1992; pp 13-14
N7CR: RTTY Journal, February, 1992; pp 4-5
KC4ES: QST, September, 1991; pp 24-25
WB7QWG: RTTY Journal, February, 1990; p 20

* HAL Comm. Corp. Urbana, IL 61801

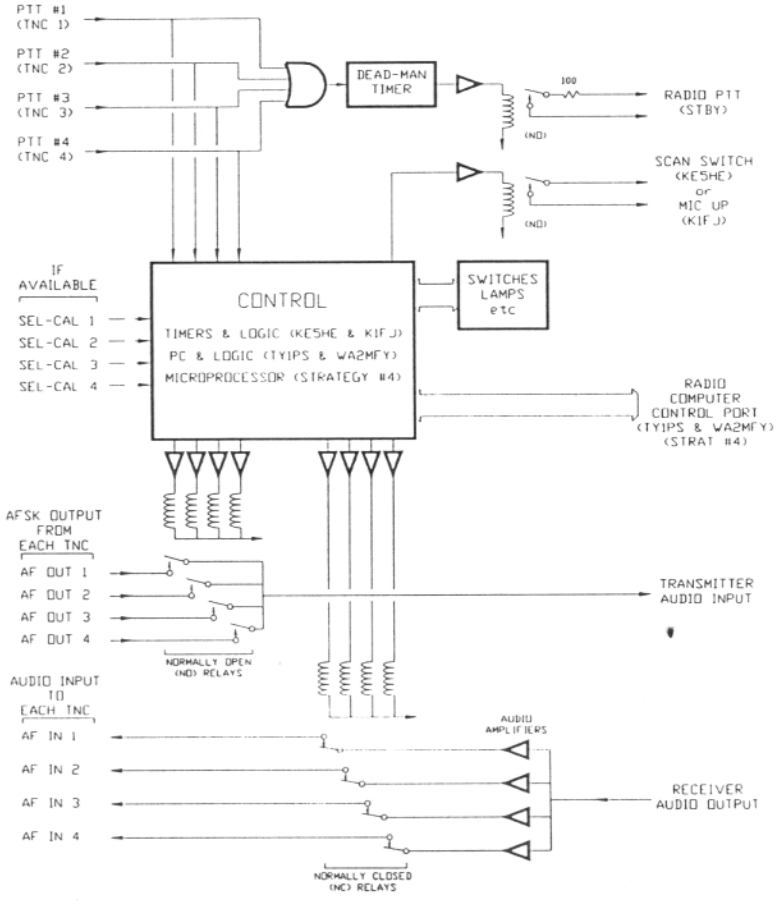


Figure 1

DX NEWS

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

AN APPRECIATION
John Troost, TG9VT
1924-1992

John Troost, TG9VT, became a Silent Key on 14 November 1992. He had been in deteriorating health for a long time. My relationship with John began some 7-8 years ago when I met him at a dinner meeting of the Long Island DX Association. He had stopped in New York on his way home to Guatemala, after a bout with successful brain surgery at the Massachusetts General Hospital in Boston. I found him to be very enthusiastic and sociable. A mutual liking for each other quickly developed. He mentioned that it was extremely important for him to have a means of exchanging personal traffic with New York City on a weekly basis. Fortunately I was able to fill that need and for over a year handled his RTTY messages. He was so grateful for this favor that he invited me to join him at his home in Guatemala to operate with hin in the CQ/RJ RTTY Contests in 1987 and 1988. Thus, on two separate occasions I visited him and his lovely family, his wife Chiqui, and two teen age sons, Juan Alejandro and Christiaan, in their beautiful home in the Guatemala highlands. It was there that John afforded me the pleasure of operating a truly world class amateur station. Others, who later also enjoyed this operating privilege were Gerard, F2JD, Walter, DJ6QT, George, KB2VO and Martti, OH2BH.(See sidebar for a description of the station).

On one of his later visits to New York, my XYL Miriam and I met with John, and enjoyed his gracious hospitality in the company of Laurens, his son by a previous marriage. In turn we were able to reciprocate by inviting them to our home.

If a choice piece of DX was on the air, or in the offing, John was always ready to find me on the air, or if he could not, to leave a message for me in his MBO. And of course I was happy to do the same for him. Even an occasional telephone call, or FAX, was not uncommon. John had reached over the 300 mark on RTTY DXCC. He could see the RTTY Honor Roll in sight and was very very anxious to reach it. That will not be, but his final score is a measure of his determination. Like most of us, in our exuberance, John, on some occasions would suffer a lapse in his on-the-air manners, but was no less a gentleman for it. He was, after all, a human being with the same type of adrenalin as we all have. Incidentally, TG9VT gave me the 100th country for my RTTY DXCC. I shall fondly remember seeing "DE TG9VT DE TG9VT..." so often on my screen.

Both of us enjoyed our first Dayton experience in 1989. We toured the indoor exhibits together. It was like walking with a child through a toy shop for the first time. John's enthusiasm and excitement, when he found something unique or interesting, usually evoked a comment like "Hey!. Look at this, Jules! Ha! I wonder if it's any good." He ended up with enough goodies to warrant sizeable excess baggage charges on his flights home.

It is no secret that my computer knowledge is limited. On innumerable occasions when I had a software problem, John, with what seemed like infinite patience, walked me through the situation and, eventually provided the answer. First, it was mostly by way of SSB, then RTTY, and in the last few years, via AMTOR/APLINK. My enjoyment of the digital aspects of amateur radio today, is in great measure due to his help over the years.

John's influence has touched hundreds, if not thousands of radio amateurs world wide. His activities left their mark on countless others as a result of his support of Coalition forces in the Persian Gulf War. During Operation Desert Shield, his APLINK station acted as a gateway for health and welfare traffic for U. S. Navy personnel in the gulf. When Operation Desert Storm commenced, causing Navy traffic to cease, TG9VT was the focal point for amateur radio contact with 9K2DZ, who was operating under cover, within occupied Kuwait. Much of the traffic he handled was forwarded by others to the U.S. Dept. of State. For his participation, John, and others in the APLINK network, were feted by the Kuwaiti government, in February 1992, on the occasion of the celebration of its National Liberation Day. (See "Last Voice From Kuwait", RTTY Journal, Volume 40, Number 4, April 1992.)

John was planning to go to the hospital in Boston for a checkup during Thanksgiving week. Just two days before his death we were trying to work out how the distribution of the weekly DX bulletins would be handled during that time. He felt a deep obligation to meet his commitments. There was a driving need to satisfy the expectations of all those who had come to depend upon his regular worldwide bulletin transmissions every Friday morning UTC.

John Troost's devotion, generosity, graciousness, and willingness to extend a helping hand to others, embodied the true spirit of our hobby. I, and a host of others who came to love this man, will always be grateful to him for his friendship and support. We will not see his like for a long time, and we miss him terribly.

DOINGS

BANGLADESH, S2 - Saif, S21A is acquiring a PK-232 with the help of John, W4FRU. IRDXA is helping with with freight, operating help, etc.

CENTRAL AFRICAN REPUBLIC, TL - TL8NG is very active. Look for him on 10 meters around 1430Z, on 15 meters around 1700Z, and on 20 meters around 1900Z. QSL via WA1ECA.

CHAGOS, VQ9 - Another one of the Chagos gang is VQ9CR who may be found on 20 meters around 1800Z. QSL via N7NR.

COCOS KEELING, VK9 - VK9CB by VK6LA should be up by the time you read this. He is scheduled to be there for a few months. QSL to his home CBA or via the bureau.

CZECHOSLOVAKIA, OK - As of 1 January 1993, this will be replaced by the Slovak Republic (Slovokia) and the Czech Republic. I would expect "OK" to be deleted as a DXCC country, to be replaced by two new prefixes.

DESECHEO, KP5 - The DXCC has already pre-approved this operation for DXCC credit. Look for RTTY, particularly from KW2P/KP5, between 28 December and 4 January. Bob will be using IRDXA HAL #2. Frequencies will be 3620, 7085, 14080, 18105, 21080, and 28080. It is not too late to send your support to Randy Rowe, N0TG, P. O. Box 891, DeSoto, TX 75123.

GUINEA, 3X - Marcel, 3X0NU has promised to operate RTTY if IRDXA can get gear to him.

HOWLAND ISLAND, KH1 - This expedition is now planned to start at the end of January 1993 and last for a week. A multinational group of 10 operators will be active on all bands and modes. (Tnx QRZ DX).

KINGMAN REEF, KH5K, - This operation, by Pete N0AFW and crew, is now scheduled for about 8 days starting around 26 February 1993. They will be using IRDXA HAL #1 for RTTY.

MADAGASCAR, 5R - If IRDXA can get RTTY gear to 5R8GW, he has promised to put it on the air. Late word is that a modified VIC-20 was enroute from IRDXA at the end of November.

MALAWI, 7Q - Most everyone should have this one by now as 7Q7XX has been very active particularly on 10 and 15. If you still need him look around 1400Z on 10, and around 1840Z on 15. QSL to JH3RRA. If you find 7Q7LA on SSB, he will QSY to RTTY (using his IRDXA gear) on request

MARION ISLAND, ZS2 - The station signing ZS2WM and claiming to be on Prince Edward Island in the Marion Island Group is a pirate according to Syd, VK2SG. Syd says it is believed to be the same station that signed FB8WW earlier this year. He seems to be operating from the Sydney area.

MARKET REEF, OJ0 - A team from the OH3AC club will conduct a 3 day operation from this rock starting February 25, 1993, 160-10 meters, all bands and modes. QSL to OH3AC, Box 74, SF-15141, Lahti, Finland.

MAYOTTE, FH - FH8CB has RTTY gear but blew his TX when he tried to operate it some time ago. IRDXA is working on providing another transceiver for RTTY. Anyone have A TS-120 for a good cause?

MOROCCO, CN - CN8NP, is still a regular. In addition to previous reported spots, he has recently shown up around 0300Z on 20 meters, and 1000Z and 1700Z on 10 meters. QSL to Frank Patris, American Embassy Rabat, PSC74, Box 024, APO AE 09718.

MOUNT ATHOS, SV/A - As of the end of November, there was no further word about the possible operation by Doc, JA3PFZ. Doc is still attempting to obtain a license from the "telecommunications headquarters". Give us a nice Christmas present Doc!

NIUE, ZK2 - If you were lucky enough to catch ZK2XI or ZK2XJ in early December QSL to JA3JM.

PALMYRA, KH5 - Part of the Kingman Reef crew will energize Palmyra at the same time using IRDXA HAL #3.

RODRIQUEZ, 3B9 - 3B9FR is not too active now with his IRDXA gear but will make skeds for RTTY. SAN ANDRES, HK0 - A two man team consisting of Silvano, HK0/KB5GL, and Don, HK0/AA5AU will operate two stations from this Caribbean island from 27 February-7 March 1993. Silvano will operate 20-10m, including the WARC bands, on SSB and RTTY. Don will operate 40-10m, including the WARC bands, on CW and RTTY. QSL Silvano to KA6V, and Don to his home CBA.

SOUTH ORKNEYS, VP8 - Brian VP8CFM (with his IRDXA RTTY gear) now has company. Look for VP8CKC on 20 meters around 0130Z. QSL via GM4KLO, '90 or later CBA..

SOUTH SHETLANDS, VP8 - Even though this country is among the RTTY Most Wanted, the current operator there of Polish station HP0POL has refused to operate RTTY. Don, CE3GDN will again try to convince the new operator who arrives there early next year.

THAILAND, HS - It's nice to see this country once again active using the PK-232 that IRDXA furnished about two years ago. Be on the lookout for HS0AC on 20 meters. This station has permission to operate digital modes on an experimental basis. The main nights of activity are Wednesday and Saturday betweem 1400-1600Z, although he was reported on 28085 around 0920Z on a Sunday. If you would like to try to make a sked, leave a message for him at JA5TX's APLINK. QSL to G0CMM.

TRISTAN DE CUNHA, ZD9 - ZD9BV has equipment trouble. Try to help if you hear him on SSB. He likes 21313 around 1700Z.

UGANDA, 5X - 5X5WR showed up without prior notice, early in December, on 15 meters, working transceive. In the ensuing mad pileup the operator was exhorted by mnay to "go split", or "go by the numbers." He refused to do either with the result that his QSO rate was about one every five minutes. At times he would take a short list. When he finished with one contact he would say "NOW W5#$%&*#$%*" and was buried in the horde of impatient callers. It was a bad scene from this extremely rare DX country. A few days later it was reported he was listening "two down." Congratulations to the relatively few lucky ones that made it through the dog pile. We hope there will be another RTTY expdition to this place soon. Lots of us still have it on our Needed List. Any volunteers?

PROPAGATION

I recently received from the author, Bob Brown, NM7M, a copy of his 62 page booklet entitled "Long Path Propagation", subtitled "A Study of Long Path Propagation in Solar Cycle 22." The book is a scholarly scientific treatment of the subject, based on Bob's analysis of almost

1700 long path QSOs, made in the early morning hours, from his QTH in the northwest corner of the USA, on 14 MHz CW, from 1 April 1991 to 21 March 1992. Making good use of his computer, Bob correlated his QSO success, or lack of it, with the wealth of solar and geophysical data available from the National Oceanic and Atmospheric Administration (NOAA), and other sources. He then reached a series of conclusions that indicate there is much more to this subject than working DX along the "venerable" gray line. In fact, in more than 200 instances, he had solid contacts with stations in Africa, all with beam headings some 60- 80 degrees away from the gray line. While not denigrating the the importance of the gray line, he shows that many other factors come into play, especially the state of the earth's magnetic field, seasonal effects, and the path through which the signal is passing i.e.the auroral zone, sub-auroral zone, or polar path.

We are treated to a discussion of such subjects as polar cap absorption, auroral absorption, auroral disturbances, magnetic storm disturbances, ionospheric modes, chordal hops, and the equatorial anomaly. Among other things I was particularly fascinated by a term, totally new to me, called "antipodal focusing". If your earth science is a little rusty you may not recall it, but your antipodal point is diametrically opposite you on the other side of the earth. All great circle paths from your QTH pass through your antipodes, so no matter where your beam is pointed, it will always aim at this common point. For Bob's QTH, Crozet Island is close to his antipodal point. It thus provided an interesting reference point in his study. (This subject sparked my curiosity as to where my antipodal point is located. Alas! It is in the middle of the ocean, far from any DX-land.)

Much of what was learned during this study has application to DXing by short path as well as by long path. It is not the sort of work that reads like a "dime novel". To fully appreciate it, it takes a little knowledge of the fundamentals of how HF radio works. Familiarity with basic statistical methods is also helpful. I will admit that I found some of it difficult to follow at first reading. However I kept going back to it time and again, picking out portions on some particular aspect and relishing the material, much as one enjoys chewing on a succulent apple. I do believe it has to be approached as one does a good textbook. Some sections must be read and reread to fully grasp the content. To assist in understanding, the book has many very readable charts, graphs and tables. There is no "chartjunk" here. In addition to his own observations, the author draws upon an international bibliography of some 31 references, some of which date back to 1948. As a serious DXer, if you have an interest in enhancing your understanding of the fascinating subject of HF radio propagation, you will appreciate this treatise..

(The book is available, for $10 postpaid in the US, $11 US in Canada and Mexico, and $12.50 US overseas, from Robert R. Brown, NM7M, 504 Channel View Dr., Anacortes, WA 98221.)

DXCC

If you have gotten back a DXCC confirmation from the DXCC Branch in the last several months you know that DXCC records at the ARRL are now computerized. It was a long time in coming. When the current six month backlog is worked down, we can expect that turn-around time will be more reasonable...a matter of weeks, or even days we hope, rather than months. This whittling down of the backlog should accelerate, now that an evening shift is working at the DXCC Branch.

New dedicated computer hardware has been authorized for the DXCC Branch. I hope that this hardware includes a dedicated printer, and that a new print program will be implemented allowing the reports to be printed on standard 8-1/2" x 11" sheets for filing in a standard folder or loose leaf book. The present reports are printed on wide carriage paper which is not compatible with common filing aids found in the average ham shack. I haven't quite figured out where to stash these reports. They still are buried within themselves with all the multiple folds with which they came.

As expected, three new countries have been added, by the ARRL Awards Committee, to the DXCC Countries List. Croatia, 9A (formerly YU2) and Slovenia, S5 (formerly YU3) have been added for contacts made 26 June 1991 and after. Bosnia-Hercegovina, 4N4, YU4, has been added for contacts made 15 October 1991 and after. Do not submit cards to ARRL until after 1 January 1993,

SUPPORT IRDXA!

As you can see from many of the foregoing "doings", the International RTTY DX Association (IRDXA) is quite active in assisting DXpeditions and resident hams willing to provide contacts from rare DXCC countries. IRDXA has help activate 27 rare ones (e.g. VP8SSI, VK9X, FO8CI, ZL7AMO), including 15 first time ever RTTY DXCC countries. IRDXA operations all cost money. For instance, the equipment and postage for sending the gear to 5R8GW was near $200. If you like working these rare ones, how about doing your share by helping with the expenses? Donations and equipment can be sent to: IRDXA, Don Simons, W6PQS, 356 Hillcrest Street, El Segundo, CA 90245 USA

QSL HELP?

Who has the secret for a stateside person to obtain a QSL card from Cuba, since there is no regular postal service between the two countries? First one with the answer will earn the grateful thanks of dozens, maybe hundreds, of the deserving.

Thanks (no thanks) to those who advised W0HAH that FB8WZ was a pirate. Sorry Bob.

HAVE DX NEWS?

I can be reached directly by dropping mail into my APLINK MBO, leaving a message in the APLINK box of CE3GDN, sending me a packet message addressed to W2JGR@WB0CQG.MN.USA.NA, finding me on RTTY, telephoning me at (612) 377 7269, or FAXing me at (612) 374 8161. (FAX number given here previously was incorrect.) 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 goodies you sent me: CE3GDN, WA4MCZ, I5AAX, I5FLN, KB5GL, KW2P, K6WZ, NM7M, TG9VT, VK2SG, WB2CJL, W5ZPA, and W6PQS. Without your help there would be no column.

See you all next month. I wish you A Very Merry Christmas and A Happy New Year. May all your DX in 1993 be new ones. For now bye bye from Minnesota, PAX

73 de Jules, W2JGR ■

A SHORT BIOGRAPHY OF JOHN TROOST,TG9VT, IN HIS OWN WORDS

(Much has gone out over the air and appeared in print regarding John's contributions to amateur radio and international good will. Here is a capsule summary of his life in John's own words. It was copied by me initially about five years ago and updated by request in the spring of 1992. It was orignally sent in all upper case, but for ease of reading is presented here in upper and lower case.....Jules, W2JGR)

"The name here is John: John Troost: That is a Dutch name, and indeed I was born in Holland, in prehistoric times, at least, so it seems to me.....so long ago, that I cannot even remember.

It was about in the year 1924...long before anyone had ever heard of World War 2....let go of No. 3!!!

The city was Rotterdam, and as a young boy, I can remember it as a lovely antique historic city. It has changed a little since. During WW 2 it was bombed out, and I can well remember, I was about 15 years old on that occasion, and I guess it was my introduction to the real world, instead of the peaceful fantasy I had been living in before, rather regretful.

Of course, Holland was occupied shortly after that, but, being a slippery type, in 1943, I was able to escape and found my way to Sweden, one of the neutrals in Europe, maybe feeling slightly guilty. I had a ball for two years in and around Stockholm learning fluent Swedish (amongst other things). But the objective was to get to England and enlist in the Free Dutch Forces and I finally got there in early '45, enlisted in the Marines and was promptly sent to Camp LeJeune, North Carolina, U.S.A. for Marine Corps training.

By the time I was trained, the war was over, Hiroshima kaput and Holland liberated. So I was given the option, as a wartime enlistee, to get out, or go to the Dutch East Indies and fight Mr. Sukarno.

Well, I had nothing against Sukarno, so I got out and got a job, for the United Nations, searching for lost displaced persons in Germany. I did that for two years and then decided I would like to live in a little more tropical climate, sun, nice climate, exotic bipeds, etc. So moved to Algeria, where I truly loved it. ..but for only a year. then I got a good job opportunity in Libya, and took it. Lived in Tripoli for 1948 to 1951...fascinating, but one year would have been plenty.

In 1951 I immigrated to the U.S.A., lived in New York and Providence, Rhode Island, got a chance to complete my education with an M.S. in Mechanical Engineering and worked most of these years for U. S. Rubber, now known as Uniroyal.

One day, I had an opportunity to go and run a plastics operation in Guayaquil, Ecuador, accepted it and spent from 1961 to 1969 there, had a good job and loved it. Got my first ticket as HC2JT, the first SSB operation from Ecuador. Eventually all Collins equipment, but started with a Viking Valiant and an outboard crystal controlled SSB exciter.

Won first place in the World Wide SB DX Contest in 1964 on 20 meters.

I then moved to San Jose, Costa Rica, in 1968, ran a group of plastic plants, which were eventually sold to United Brands (United Fruit). Operated as TI2JTS, which license I still have, but due to much travel, I was not too active (like now!!!!).

In that time I became Sr. Vice-President of United Fruit Company, and was moved to Boston in 1974, where I languished a couple of years. Actually it was not so bad. Besides Boston is a lovely city, cultured, concerts, expositions, etc. Besides business life was very exciting.

But decided eventually to move back to Central America, settled in Guatemala, a beautiful country, and was able to get into a business, distribution of fertilizers throughout Latin America. Even had to live part time in Sao Paolo for two years to get this business going. Really enjoyed Brazil, one of the most stimulating and dynamic countries I ever lived in. The country of the future!!!!! and I still have a small office there.

Guatemala is a good country to live in. It is lovely, with many folkloric events and remants of the old Mayan culture, but a modern active social life.

I am married to a lovely Guatemalan girl, have two lovely boys, twelve and fourteen years old, a home which we designed and built and fits us perfectly, with a lovely view over the whole Guatemalan central valley, and probably most important, a very active church, to which we belong.

The Lord has treated me well in this life. Consequently a fine radio station. In '84 got a 5BDXCC No. 1715, a RTTY DXCC No. 107, and various WAZ awards. But the altitude of 2200 meters does help..Hi.

Will turn it back to you before I go into more detail de TG9VT, John in Guatemala

(Spring 1992 update follows)

TG9VT has another call sign also, TG4VT. TG4VT is at the farm, about 100 km from Guatemala City.

At TG9VT we are at 2200 meters, run an ICOM-781, an Alpha 87A and all the RTTY gear is the old HAL Series, ST 8000, DS 3100, and an ARQ 1000.

The antenna is a four element cubical quad for 10, 15 and 20, and as the wind never seems to pick up much, this antenna has been up for 10 years now, with a minimum of problems.

We also have a KLM 4 ele 40M monobander on a seperate tower.

For 17 meters the 40M beam seems to work perfectly..Have an R-5 for 12 meters.

Besides we run an APLINK mailbox with a Compaq 386/20 computer and an ICOM 761.. Scan circuit by KE5HE. This is on a Cushcraft R-7.

At TG4VT we use an ICOM 751 and an Alpha 78, plus a TH6DXX, plus some wire antennas, plus a laptop computer with a HAL PCI3000"

(Note that John's modesty precluded his even mentioning, in the update, his contributions to U.S. Navy personnel and to Occupied Kuwait during the Persian Gulf War. He also neglected to mention that in 1989 he won the CQ/RJ RTTY Contest, Single Operator class, All Band, World Wide, with a score of 1,038,015 points, a record for a North American station, which still stands.)

PACKET

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

FINALLY!

Ever since I have been in packet, or ham radio, I have gone about things the cheap and not necessarily the most practical way providing it managed to save me some money. Yes, I have saved money with what I have chosen to do and done with the equipment at my disposal. I still, to this day, have only one VHF radio, and that is my ever faithful, trusty, Icom 02-AT Handheld. Mine has through so much abuse such as, ten minute key-down times on RTTY. I wonder how it has survived me. But, it has and is still kicking. I have had to make just about ALL of my cables that plug into the radio except for one that I bought for boom mike/headset combination that had all of the necessary connectors wired up already.

My worst memory about hooking up that HT to a TNC or RTTY TU has been wiring up the microphone jack. This radio uses one of the submini phone connectors. The kind where the connector barrel is about the diameter of pencil lead and just as fragile. What I always hated about the whole process is soldering the wires to the connector and then having the connector break a couple of weeks later when I needed it the most. The earphone jack uses a standard mini plug and they are more reliable than the submini connector.

What I am leading up to is another addition to the problem solving solutions that Oak Bay Technologies has to offer. Recently, I reviewed their "UNI-Cable" for base and mobile radios that use the eight pin mike connector. Now Oak Bay Technologies has come to MY rescue and to all the rest of the multitudes out there that want to "chuck" wiring up those disgusting submini plugs. Their model CA-232HH does all the work. The box and supplied cable will adapt any Kantronics, AEA, MFJ or TAPR TNC2 to Alinco, ICOM, Kenwood, or Yaesu handhelds. I am sure there are several other brands of handhelds not mentioned here but work similar to the models that I mentioned above.

Setup is simple. From the TNC, I have to wire in the receive audio, transmit audio, PTT, and ground wires. These mount to a terminal strip on one end of the unit. Once those wires are attached to the CA-232HH, there are several jumpers that have to be set inside the unit. These jumpers control where the audio leads, PTT and ground wires end up on the plugs that mount to the radio. Think of the box as a crosspoint switch unit with a current stealing circuit to key the ICOM handhelds PTT circuit. The manual has several diagrams that show how to position the jumpers to get the unit to talk with a particular radio. All one has to do is set up the jumpers as pictured, for their particular radio, and that's it.

The unit is guarranteed for one year. I know most equipment have ninety days, so this is a relief. I had no problems setting up the device for my ICOM 02-AT and it worked as billed. If you have several other radios where your TNC may be used, this will be the answer to your connecting problems. I see a great need here for emergency communications setups.

We now have an adaptor to connect between just about any handheld and TNC. Now, my days of soldering submini connectors with the magnifying glass are gone. YEA!

NARA??

This is the first time that I have ever heard of NARA. NARA is the National Amateur Radio Association. They are located out in Redmond, Washington. I received a book from them that was written by Dave Ingram, K4TWJ. The book is called "How to Get Started in Packet Radio" and is copyrighted in 1992 by NARA. The book is softbound and has 128 pages. The coverage starts by explaining how packet radio started out. From there, he explains the way packet works and the breakdown of what is in each packet. This is good for the person who wants to know exactly what is going on. Many books and instruction manuals do not really go into detail of the command set that much. This one does and the explanations are easy to understand and put to practice. He also covers how stations connect to each other and pass the information back and forth. There are two really good sections present that I liked very much. One covered radios on the market and the other was how to connect a TNC to a radios. That was a nice touch. To sum up, Dave covers many subjects clearly and without the puffery that I have seen in other publications. For the $9.95 cost, it is well worth evry penny for both the inexperienced and experienced packet user.

LINUX?

For any serious follower or wannabe when it comes to Un*x, the price has always been a real KILLER! Remember, $1500 upgrade cost from SunSoft for my Un*x system? DOS is still king of the cheap operating systems. Well that can change. There is now available a Un*x lookalike that is, I guess, freeware. It comes with the sources, so you can compile it to make it work. From what I have been able to discern, the package size is over 200 MB, and that includes the source code. The program is called Linux. The bulk of the package was written by Linus Torvalds. Being able to have the sources to your operating system can be a great help for someone who wants to learn how operating systems work. Plus, one can modify the code to fit one's needs. What is so nice is that no royalties have to be paid to use the software. The sources can be compiled for your particular machine, whether it be 16 or 32 bit, IBM compatible or something else. Next month, I will have all of the particulars concerning LINUX and a version of X windows that is available for LINUX.

NEXT YEAR

Well, I am not sure what is going to happen next year. I am looking at moving in the early part of next year to a new residence. I need to get the wife to try for her ham ticket. With a house, I will be back on HF with a vengeance and having lots of fun. I know that there is a proposal floating around to change the Amateur Radio Service licensing structure so there will be less categories of licensing. Maybe this will encourage my wife to get her ticket. I will continue to bring you the latest software sagas. Being able to run more than one program at once is great, at least from this end. It will be a challenge to see what I can do from here with all of the toys. I am looking at doing some serious networking with this machine. It will be a U*IX server with a DOS machine running probably Windows or Desqview/X (which can run Windows-based programs) and maybe another machine that talks to the ham world. Of course, they will all be networked together for communications purposes. This will be fun and interesting. Happy holidays to all.

de **Richard, N6NKO** ■

Packet: n6nko@wb6ymh-2 Internet: {elroy.jpl.nasa.gov}!swc!owlsnest!richardp

THE LINK

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

A NEW APLINK COMPATIBLE - WinLink

Well Vic, W5SMM and author of APLink, has been hard at it. In anticipation of the changes need in APLink in order to accommodate CLOVER, he has written a new MBO system called WinLink. I have been beta testing WinLink with him and it looks like after several days we have something I can keep on the air for a bit while we find out what needs to be done to it. As the name implies, WinLink runs in Windows. Of course this has no effect on the user, only on the SYSOP running WinLink. A 386SX (or better) is required to run WinLink.

From the SYSOP point of view I find WinLink a pleasure to use and set up. The setup is very straight forward if you have any familiarity with Windows. Among the more powerful features are: 1. Forwarding to up to 32 Packet BBSs, 2. More than one Packet port, and 3. The capability to change FORWARD, INTRCPT, and USERS files without shutting down anything. Except for a programming bug which was found very quickly, I have not had a single hang-up of the computer. It appears to be a very stable operating system. I have found that the Packet side of the system is much faster now that I am not running the BPQ node switch. WinLink supports all of the functions that I need without BPQ.

At this time, Vic has only implemented the PCI-3000 AMTOR application. The remaining applications for the PK-232 and AMT-1 will probably follow shortly. We should all thank Vic for doing such a fine job with this major improvement in the APLink type of system. By the way, I have heard reports of at least one and maybe two new APLink compatible systems. One by Mitsuo, JA5TX, and one by Peter, TY1PS, but I have no details and I am not even sure of my information. So things are on the move.

I think that CLOVER will show the way for major improvements in HF digital communications for hams. Many have said that the average user does not need the additional speed that CLOVER will bring, but I think you will see keyboard users find that CLOVER will have a major effect on the way they operate. They will be able to download/upload their traffic from MBOs at much higher speeds.

SCAN/COMBINER for CLOVER/AMTOR

Figure 1 shows the schematic of a proposed design for a scan/combiner that has all the features suggested by Bill Henry, K9GWT, in another article in RTTY Journal. This is a design only, and it has not been built and tested, partly because I do not yet have the CLOVER board. But since the design is composed of modules that I have tested I have no reason to believe that it will not work. I am not an electronics expert by any means but I find toying with this kind of circuit to be a lot of fun. For those of you that would like to try some of it, I suggest you obtain some very simple and easy to understand booklets from Radio Shack called Engineer's Mini-Notebooks. I use 4 of them all the time, one on 555 Timers, one on Digital Logic Circuits, one on Op Amps, and one on Basic Semiconductor Circuits.

The circuit is composed of 3 timer circuits and a couple of other modules. There is a timer for the scan restart delay for AMTOR, one for CLOVER, and a watchdog timer to disable the PTT to the radio should the PTT be held down for more than approximately 2 minutes. The associated chips for these 2 timers are U1, U3, and U4. Each of the timer circuits is wired in what is called a missing pulse detector configuration. Since they all work in the same way, I will only explain the operation of the AMTOR timer.

When the PTT (AMTOR) goes to ground the base of Q1 (and pin 2 of U1) goes to ground. This does 2 things, first U1 immediately changes it's output (pin 3) from low (ground) to high (12 volts). Second, as long as the base of Q1 is grounded it is conducting which causes a short across C3 and holds pins 6 and 7 of U1 low. When the PTT ground is removed, C3 is charged through resistor R2. If the PTT is not grounded again within the time it takes C3 to charge to approximately 8 volts (2/3 of 12 volts), then the timer is reset and pin 3 goes low again. If the PTT is grounded within the time mentioned above the timer is restarted. The delay time for the timer is about 2/3 of the product of R2 (ohms) and C3 (farads). For the circuit shown, it is about 7 seconds. C4 is present to help prevent false triggering and R1 is a pull-up resistor to hold the input high when the PTT is not grounded.

D2 is an LED that will light while the scan is on hold. In addition to D2, there are 2 other sections driven by the output of U1. The first is relay RY1. When the circuit is in listen mode, the receive audio is fed to both the AMTOR and CLOVER controllers through unity gain OP AMP circuits (U2) which act as buffers to prevent undue loading on the receiver output. The transmit audio is not connected from either controller to the radio during the listen mode. When an AMTOR PTT grounding is detected, pin 3 goes high as explained above. This causes RY1 to pull in which disconnects the RX audio from the CLOVER and simultaneously connects the TX audio from the AMTOR controller to the radio. By disconnecting the RX audio of the CLOVER controller hopefully it will not start chirping while an AMTOR contact is in progress. Analysis of the CLOVER timer circuit will show that it works in exactly the same way, except I have taken advantage of the SELCAL output of the CLOVER board instead of using the PTT. The SELCAL output stays low as long as there is a valid link.

Transistors Q2 and Q4 are connected in a digital logic circuit called a NOR gate. The bases of Q2 and Q4 comprise the input to the gate and the output of the gate is the common collector connection. If either, or both, of the inputs of the gate are high, the output is low. Otherwise the output is high. The output of the NOR gate feeds the input of Q5 through C9 and R14. C9 and R14 are connected to forma a differentiator. When the output of the NOR gate goes high, a positive going pulse is sent to Q5. There is no effect on Q5 when the output of the gate goes low. The positive going pulse, whose length is determined by C9 and R14, causes Q5 to conduct for about 1/4 second. This causes relay RY3 to pull in for a brief period to pulse the scan button of the radio and restart the scan. Notice that the outputs of both U1 and U3 must be low for the scan button to get pulsed. Opening SW-1 will cause the scan relay to be disabled.

The PTT from each controller is fed into the Q6/Q7 circuit which are wired as a NAND gate. With no PTT input into Q6/Q7, the inputs of both Q6 and Q7 are high and the output (collector of Q6) will be low. This causes the input of the timer U4 to be low and pin 3 therefore is high. The time in this case is working in the

reverse of the other 2 timers, that is it has been triggered and is waiting for the grounding of pin 2 to be released for more than about 2 minutes so that the output can go low.. When pin 3 of U4 is high, Q9 is conducting. When the input of either Q6 or Q7 (or both) goes low pin 2 of U4 goes high which starts the timing cycle. If the inputs of Q6 and Q7 go high, then the timing cycle is reset. So only if either the input to either Q6 or Q7 goes low for more than 2 minutes Q9 will remain in a conducting state, otherwise it will be turned off and the PTT relay (RY4) will open. Closing SW-2 will cause the watchdog to be disabled.

Transistors Q9 and Q10 form an AND gate. Only if the inputs to both Q9 and Q10 are high will the output of the gate (emitter of Q10) be high. When the output of this gate goes high, the PTT relay is pulled in. So if either PTT goes low RY4 will pull in provided that U4 has not timed out. If either (or both) PTT goes low for more than the set time, the relay will open and stay open until the PTT inputs are ungrounded.

I would like to hear some input from you that know a lot more about these kinds of things than I. I will test this circuit as soon as I get the chance. I decided to print it as I know that a number of you have asked about how AMTOR and CLOVER could be combined and I thought it appropriate to pass along my ideas.

W4NPX has tested a new scan circuit that I designed this month. It is one that works on the principle of pulsing the MIKE-UP button to change memory channels. This sort of scheme will work with many radios. Each of the schemes has their advantages and disadvantages. I will go over that in more detail next month. A yet another way to do the scanning is by computer control through the COM port on the radio if it has one. As I have mentioned in the past Peter, TY1PS, has written such a program. This is a very flexible scheme, however it uses up another usually sorely needed COM port on the computer. I guess a 4th method mentioned briefly by Bill ,K3GWT, is to build a stand alone processor (say one of the 68HC11 series) to do the job. Anybody want to write the code for that?

I think I had better quit while I am ahead. I hope you had a very nice Thanksgiving and will have a beautiful Christmas and Holiday season. In closing, I would like to tell John, where ever he is, that I think about him almost daily. We were lucky to have such a fine person spend so much of his time in helping us enjoy our hobby.

73 and GOD BLESS

de **Jim, KE5HE**, at KE5HE.TX.USA.NA

KE5HE Scan/Combiner for CLOVER-AMTOR
Dec 1992 RTTY Journal

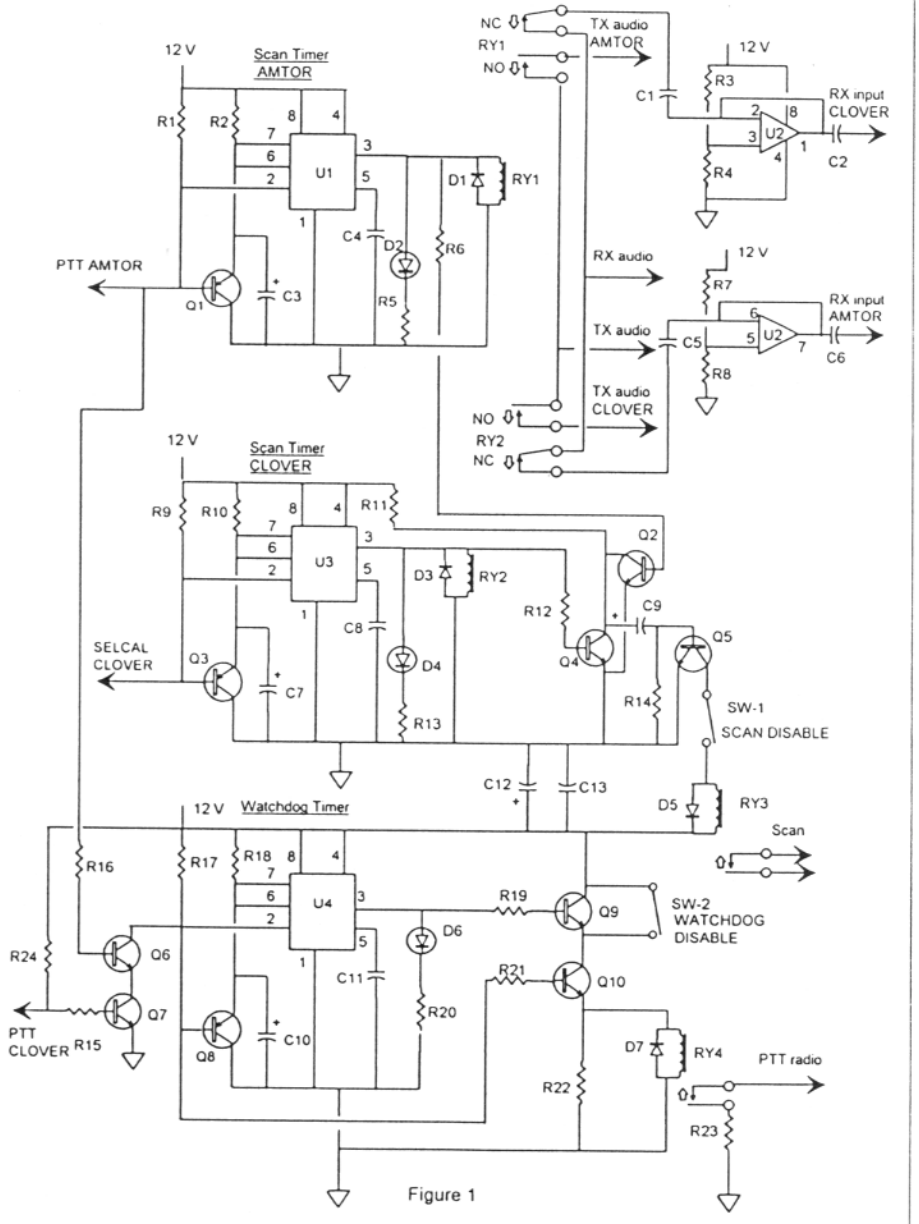


Figure 1

Parts List KE5HE SCAN/COMBINER DEC 92
(All resistors 1/4 watt)
(All Caps 15 volt or better)

R1, R9, R11, R17, R22, R24 = 4.7 K
R2, R10 = 1 M
R3, R4, R7, R8 = 47 K
R5, R13, R20 = 1 K
R6, R12, R15, R16, R19, R21 = 10 K
R14 = 100 K
R18 = 2 M
R23 = 100

C1, C2, C5, C6 = 0.47 MF
C3, C7 = 10 MF (TANT)
C4, C8, C11, C13 = 0.1 MF
C9 = 2.2 MF (TANT)
C10 = 100 MF (TANT)
C12 = 100 MF (ELECTROLYTIC)

D1, D3, D5, D7 = 1N914
D2, D4, D6 = LED

Q1, Q3, Q8 = 2N3096 (PNP SWITCHING TRANSISTOR)
Q2, Q4, Q5, Q6, Q7, Q9, Q10 = 2N3094 (NPN SWITCHING TRANSISTOR)

U1, U3, U4 = NE555
U2 = 1458 (DUAL OP AMP)

RY1, RY2 = DPDT RELAY (RS # 275-249)
RY3, RY4 = SPST REED RELAY (RS # 275-233)

Rules, 5th ARRL RTTY Roundup

Packet-RTTY-AMTOR-ASCII

1) **Object:** Contact and exchange QSO information with as many stations as possible on digital modes. Any station may work any other station.

2) **Contest Period:** First full weekend of January. Begins 1800 UTC Saturday, January 2, and ends 2400 UTC Sunday, January 3, 1993. Operate no more than 24 hours. Two rest periods (for a combined total of six hours) must be taken in two single blocks of time, clearly marked in the log.

3) **Modes:** Baudot RTTY, ASCII, AMTOR, and Packet (attended operation only)!

4) **Bands:** All Amateur bands 3.5-30 MHz (excluding 10, 18 and 24 MHz).

5) **Entry Categories:**

(A) *Single Operator, multiband* - One person performs all operating and logging functions. Use of spotting nets (operating arrangements involving assistance through DX-alerting nets, etc) is not permitted. Single operator stations are allowed only one transmission signal at any given time.

1. less than 150W output
2. 150W output or more

(B) *Multi-operator, Single transmitter only* - More than one person operates, checks for duplicates, keeps the log, etc. Once the station has begun operation on a given band, it must remain on that band for at least 10 minutes; listening time counts as operating time. Multioperator stations are allowed only one transmitted signal at any given time.

6) **Exchange:**

US: Signal report and state
Canada: Signal report and province
DX: Signal report and serial number, starting with 001. *Both stations must receive and acknowledge the complete exchange for the contact to count.*

7) **Scoring:**

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

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

8) **Miscellaneous:**

(A) Crossband and crossmode contacts are not permitted. Packet radio contacts made through digipeaters or gateways are not permitted.

(B) The use of non-Amateur Radio means of communication (eg.telephone) for the purpose of soliciting a contact (or contacts) during the contest period is inconsistent with the spirit and intent of this announcement.

9) **Reporting:**

(A) Entries must be postmarked no later than 30 days after the end of the contest (February 3, 1993). Any entry making more than 200 total QSOs must submit duplicate check sheets (an alphabetical listing of stations worked). No late entries can be accepted. Use ARRL RTTY Roundup forms, a reasonable facsimile or submit entry on diskette. Send entries to ARRL Contest Branch, 225 Main St., Newington, CT 06111.

(1) Official entry forms are available from HQ for an SASE with two units of First Class postage.

(2) You may submit your contest entry on diskette in lieu of paper logs. The floppy diskette must be IBM compatible, MS-DOS formatted, 3 1/2 or 5 1/4 inch (40 or 80 track). The log information must be in an ASCII file, following the ARRL suggested Standard File Format, and contain all log exchange information (band, mode, date, on and off times, time in UTC, call sign of station worked, exchange sent, exchange received, multipliers (marked the first time worked) and QSO points). One entry per diskette. An official summary sheet or reasonable facsimile with a signed contest participation disclaimer is required with all entries.

10) **Awards:** Distinctive certificates will be awarded to: Top high-power single-operator and multioperator scorers in each ARRL/Canadian Section; Top high-power and low-power single operator and multioperator scorers in each DXCC country (other than W/VE); each Novice and Technician entrant; Each entrant making at least 50 QSOs.

11) **Conditions of Entry:** Each entrant agrees to be bound by the provisions as well as the intent of this announcement, the regulations of his/her licensing authority and by the decisions of the ARRL Awards Committee.

12) **Disqualifications:** For excess duplicate contacts and call sign or exchange errors. See January QST for complete details.

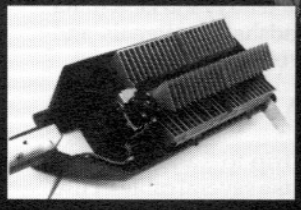
IRDXA AWARD

The IRDXA will soon announce details of a new award they will sponsor in the name of John Troost, TG9VT. Don Simon, W6PQS, and Dean Showalter, WA6PJR chief coordinators of IRDXA will officiate this award. According to Don Simon this award will go to the most outstanding RTTY operator of the year or RTTY DXpedition of the year. The award will be annnounced each year in late January, early February. Those interested in learning more and/or supporting this new award should contact IRDXA, Don Simon, W6PQS, 356 Hillcrest St. El Segundo, CA 90245.

In concert with this announcement, the RTTY Journal will drop it's RTTY DXpedition of the year award in favor of this new award.

FREEDOM OF SPEECH

The IsoLoop 10-30 HF Freedom Antenna frees you from restricted areas.



The IsoLoop 10-30 HF Freedom Antenna frees you from antenna restrictions.

AEA's engineering team has put together the most efficient small loop antenna you'll find for HF performance. It's the technical answer needed to send and receive from your apartment, condo or anywhere zone restrictions apply.

The reason you get such big performance in a small package is the efficiency of the IsoLoop 10-30: it's 72% on 20m, rising to 96% on 10m. Your IsoLoop delivers lower SWR and extended frequency coverage because the loop is isolated from the feedline. Your radiated power goes into the antenna, not into the shack.

Electrically, the large diameter main loop serves as an inductor and is tuned with a 10,000 volt variable capacitor to form a very high Q resonant circuit. That gives you the added benefit of suppressing both transmitted and received off-frequency signals. The capacitor itself is a heavy-duty, split stator design.

The 35" main loop is made of Iridited aluminum and is welded to the tuning capacitor to reduce loss. All welded connections and the custom capacitor further minimize losses. The very low impedance of the radiating loop (typically 0.06 ohm) is matched to 50 ohms using the technique of mutually coupled air core inductors—essentially lossless impedance matching.

Technically speaking, the IsoLoop 10-30 HF is the big value in small antennas.

To connect with the AEA dealer nearest you or for product sheets, call (800) 432-8873.

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HARDWARE

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P.O. BOX 644
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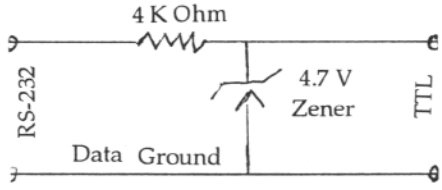
Feliz Navidad, from Eastern Washington and the snow covered testing fields where Ws7i lives. This is of course the "Hardware" column of the RTTY Digital Journal. Just in case Dale thought I missed it in two inch block letters last month.

The mailbag contained my Flesher TU170 back from Schneider and all setup to run BMKMULTY. Don Warburg, WA6HNC sent in a note about Dave, WB8MWG and his operation on PACTOR in Michigan. I plan on contacting Dave one of these days soon. Joel, AA5YA I have the Flesher manual back and will be detailing the information you wanted in a letter soon. Joel is interfacing the TU170 and some rigs. Carl, K6WZ continues working lots of DX with his new Amp. We have had a request for some information on wire and connectors so take a look in the operational details that follow for the specifics.

Hardware find of the month is for the contesters. Industrial Communication Engineers Ltd. at P.O. Box 18495, Indianapolis, In 46218 with a telephone number of 1-800-ICE-COMM. (don't you hate having to figure those out?) That's 800.423.2666. They have some of slickest filters on the market. This is the place to buy band pass filters for contesting. If you are doing multi-single or multi-multi these are the devices. They have a bunch of other stuff also in the lightning protection area.

This has been a great month for getting stuff working in my shack. After a long struggle I got the CT contest program from K1EA working with the Yaesu FT1000 and the PacketCluster and the KIY interface. This is the little box that I discussed a couple of months ago. Guess that Yaesu or KIY couldn't quite get the details on the voltage specifications quite right. You see there are standards for TTL (transistor-transistor-logic) and RS232 that should allow all devices that follow these specifications to transfer data. Evidently there was a problem. It is interesting to note that you can usually go from TTL and key a RS232 device but the other way destroys most chips. CMOS type chips can't take 12 volts.

One of the most frequent requests is for a simple RS-232 to TTL converter schematic. Here's one:



There are of course a bunch of other ways to do this sort of thing and the Max 232 chip is the most elegant. 1488 and 1489 chips are common and many circuits exist for these usage.

PacComm 9600 Baud the Experiment.

The project was detailed last month to hook up a RS232 port of the DRSI Packet card to a 9600 Baud DFM modem and then on the hill top to hook a IPR-NB96 (Integrated Packet Radio and 9600 TNC) to a node stack. Let's see what we have done so far. The IPR side was the first step of the project so that I could get it in place on the hill before the snow got six feet deep. As usual it didn't work and I wasn't there to help out. Seems that in shipping a couple of things happened. The power connector inside the unit came undone and it didn't have any power. I quickly discovered this problem and resolved it. Another thing I discovered in resolving the first problem was, in my opinion, a bad idea on the part of the manufacturer. They had used a standard 2 pin header clip normally used as connector shorting devices on many types of computer boards. Only problem was that this was hooked to a spot on the DFM board where it could go across 2 pins or on either of 2 connectors. As the power supply drew 15 amps I knew very quickly there was a problem. I will suggest to PacComm that they epoxy over one of the holes on the connector.

Finally I had power to the device and I put it all back together and fired up the unit. It transmitted on 440 just fine and I monitored it on Betsy's Yaesu 736R and all sounded fine. Proceeded to hook it up as a node with my Tiny-2 on 2 meters. All looked fine but after a couple of hours they hadn't exchanged node broadcasts. I tried a lot of things to no avail. Finally I called PacComm and left a message for some help and they told me about the BBS number. One of their staff then spent several sessions with me trying to debug the situation. Since DCD (data carrier detect) is required to have a node broadcast we knew quickly that the problem lay in this area. Chuck, one of the PacComm technicians sent me a number of messages detailing where to look.

I had to break out the scope finally in order to trace down the problem. Using just the volt meter wasn't working. Everything was fine on the modem board and I finally traced the problem to a faulty wire in the 25 pin flat computer wire. One of the wires hadn't been pierced by the little hooks that are on the "snap-in" connector. This problem wouldn't normally be detected since it only made the node's broadcast not work and didn't effect anything else in the device's normal functioning.

So at this point I finally had the IPR all working and hooked to the other Tiny-2 and I had a node on 145.01 and one on 440. They were talking and all was well on one half of the project. The other part of the project was hooking the 9600 Baud modem to the DRSI card. It wasn't quite as much challenge other than following the cable pin outs and making a couple of headers. Headers are devices that usually take the place of a chip. In this case we pulled the 1488 and 1489 which, in the DRSI card, uses TTL signals and converted them to RS-232 by jumping them. TTL as you might remember is greater than 0 volts and less than 1.5 or greater than 3.5V and less than 5 Volts. Typically .4 volts and 4.7 volts while RS-232 is -12 and +12 volts. Still another standard exists which is MIL 188 and uses +6 and -6 volts. These various voltages represent the Mark and Space tones that we use in the digital world. They correspond to states 0 and 1 in the computer world or OFF and ON, if you will. Usually Mark equals ON or high voltage and Space LOW voltage. Control signals such as DTR (data terminal ready) and DSR (data set ready) are handshaking signals and usually active or voltage high when on.

THE PARTS RUN

I made the usual trip to Radio Shack to buy the parts to make several cables. I use the heavy metal shields that they sell as well as some of their typical cables. Typically, wire is 24 AWG with 7 conductors and shielded with a solid aluminum foil type material and usually includes an additional ground wire. Mohawk Wire 24 AWG comes to mind. I also use a couple of other expedient type cables. Telephone wire works just fine as long as you don't break it. If you buy the cable that has 4 wires in it, you can do most computer cables. However, shielded is better. I buy a lot of pre-made cables at Radio Shack and then change the ends. Buy an 8 or 12 ' and you can make several cables from it.

Well as things turned out I still don't have

the DFM device talking to the DRSI card. This usually means I have screwed up somewhere along the line, which means a call to the manufacturer for some more assistance. This gets a little tricky since I have two boxes or in this case, one box and a card made by different folks. The symptoms are no PTT (push to talk) and the DCD doesn't seem to be working. Can't even tell if the 440 transmitter works or not. Cabling is probably once again the culprit so I will start with PacComm and then to DRSI. A better method might be to hook up the DFM to the Tiny-2 and see if that works. But it requires a lot more work than a telephone call.

That's the latest in the continuing PacComm saga. A couple of things I have noticed about their products, they are well made and the books contain most of the needed information. But be prepared to do a bit of studying. The schematics are much easier to read and that I think will be my next step (read the schematic).

Have a Merry Christmas and a Happy New Year and we will continue next month by shifting to the first of quite a few columns on the AEA PK2232 and the PK1232. I will also relate to you the final result of the PacComm 9600 Baud story and look at using the PK2232 at 9600 to talk to these same terminal units. Oh, one more thing, my BBS is no longer in service. I ran out of time to support it.

73 de **Jay, Ws7i** ■

WS7I @ WS7I.WA.USA.NA

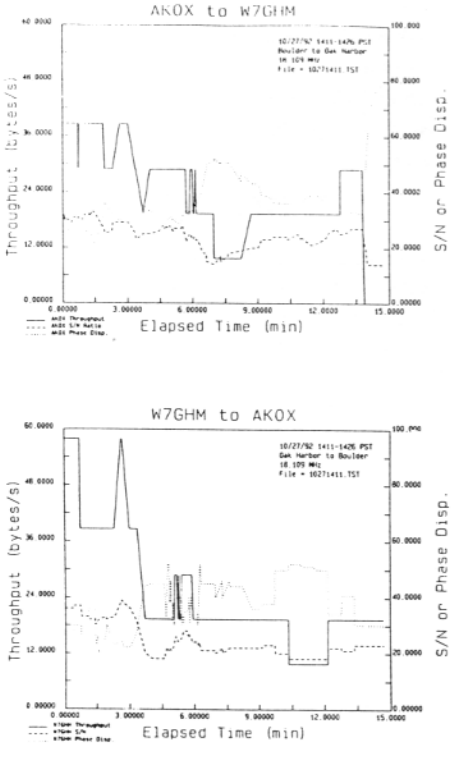


Figure 1

CLOVER-II Preliminary Test Results

Ray Petit, W7GHM, and Ed Bixby, AK0X

CLOVER-II includes a statistics file feature which may be used to record propagation conditions and ARQ link performance. The following graphs present data from three test runs of CLOVER-II. All tests were between AK0X (Ed Bixby) and W7GHM (Ray Petit). AK0X is near Boulder, CO and used a TS-940s running 50W max. with a beam (14 MHz) or delta-loop antenna (10 & 18 MHz). W7GHM is in Oak Harbor, WA and used an IC-735 running 50 W max. with tuned wire antenna. The path length is approximately 900 nautical miles.

The curves all show "throughput" in bytes-per-second. CLOVER's adaptive ARQ mode adjusts the transmitter's modulation in response to variations in Phase Dispersion and S/N (Signal to Noise ratio). Six modulation modes and five throughput rates are available in adaptive ARQ.

10/27/92 Data graphs (Figure 1)

This is a 15 minute ARQ link at 18.109 MHz, very close to the "MUF" (Maximum Usable Frequency). Signals at the start of the link were moderately strong and reasonably high throughput rates were possible. As time passed, receive conditions at W7GHM ("AK0X to W7GHM") deteriorated and the band "closed" to him 14 minutes into the link. Note that adaptive ARQ quickly compensated for variations in S/N (dashed curve) and Phase Dispersion (dotted curve).

11/03/92 Data graphs (Figure 2)

These four graphs show a continuous 2 hour Adaptive ARQ link during late morning hours of November 3rd operating on 14.083 MHz. Next to the highest throughput (38.6 bytes/sec.) was maintained for most of the link in both directions - about 6 times faster than AMTOR's top throughput (6.67 cps). The highest rate (57.9 bytes/sec.) was used several times on the AK0X to W7GHM path and for extended periods on the W7GHM to AK0X path. S/N and phase dispersion data were not available for this run.

11/04/92 Data graphs (Figure 3)

This is nighttime data at 7.083 MHz - a typical "multipath" situation. At the W7GHM receiver, phase dispersion was high, signals weak, and the adaptively selected throughput is lower than in previous graphs. But, CLOVER-II consistently passed data over the 900 mile path 1.5 to 3 times the character rate of AMTOR. Note that the path from W7GHM to AK0X had lower phase dispersion, higher S/N, and higher throughput; propagation conditions were NOT symmetrical. CLOVER adaptive control functions independently for each direction, easily compensating for asymmetrical conditions.

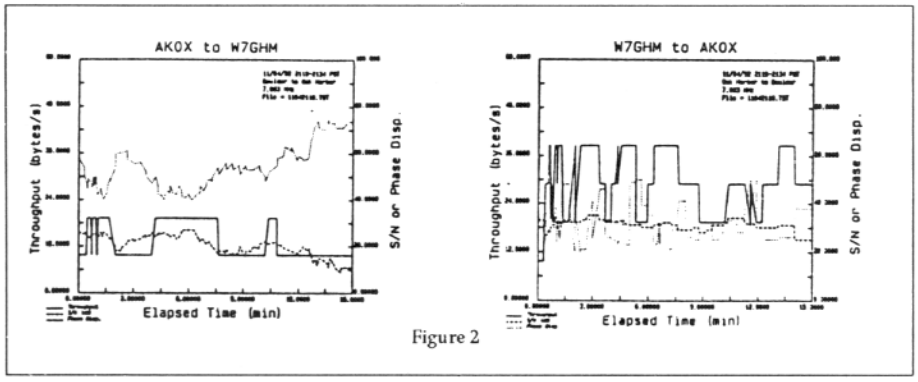


Figure 2

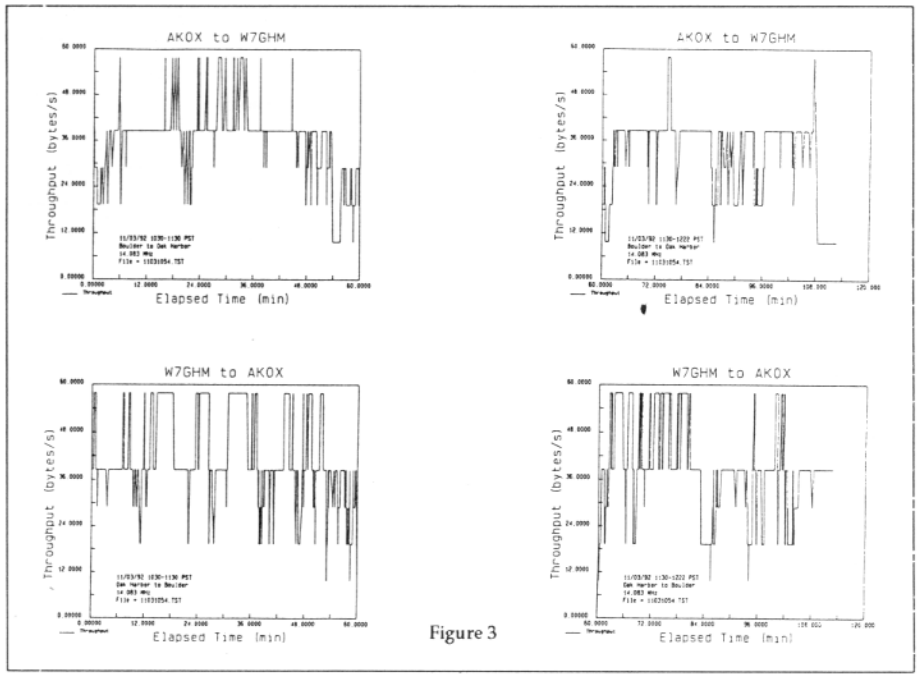


Figure 3

1992 INDEX

JAN 92

FEB 92

MAR 92

APR 92

MAY/JUN 92

JUL/AUG 92

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