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AMATEUR RADIOTELETYPE - COMPUTERS - PACKET

VOLUME 34 NUMBER 10 DECEMBER 1986

PACKET PARTY IN LAS VEGAS

PACKET FORUM LAS VEGAS, NV. - NOV. 8, 1986

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RTTY JOURNAL
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ABOUT THE COVER

The Packet forum at Ham-West convention in Las Vegas attracted a large group of interested Hams. The room was not full but considering the entire convention turnout, this was a big group. Danny Wilson's Packet Column this month features this forum. You will find his article interesting and Danny intends to expand on the different Packet aspects covered at this forum. Story pg. 4.

Roy Gould, KT1N
P O BOX DX
Stow, MA. 01775

DX - NEWS

Hello Fellow DXers. I hope Santa has all the items in his bag that you asked for. The new HF rigs, TNC's, RTTY TU's. We should be hearing a lot of new calls on the RTTY bands in the next month as those new units get put through their paces. In addition, when the new Novice enhancements take effect we will be hearing a great deal of newcomers to the digital modes. Lets welcome them and help them as much as we can. Maybe we can even get some of them to go to that rare spot we all need for a RTTY DXPEDITION. hi! hi!

RTTY JOURNAL AWARDS

I have had some requests and correspondence regarding the Journal's awards. At this time all the awards are handled by Dale, so if you have questions or requests, send them to him. (Ed: see Hits and Misses column this issue)

RTTY DX NEWS

I received a letter form Wayne, WB5QBV regarding the C02BB QSL situation. As noted last month in this column, Chod VP2ML, of the DX Bulletin, met Edmund, CO2BB in Argentina at the IARU conference. (not ITU as I stated earlier). Other than that I do not have any ideas or tricks to get a card out of Ed. My card came back in two weeks as did George's, W1DA, and all we did was include IRC's and SAE. Now we worked Ed in the first week he came on RTTY and since then he has made many, many contacts and is probably buried in cards. So Wayne, I have no other info to share with you at this time. I have asked Edmund to send me a photo and a little write-up about himself that I could use here in the column, but nothing to date. Next time I talk with him I will push the QSL issue and see if we can get it straightened out.

Minami Torishima ... W7MI writes that he has worked this station on 7.029 at 0700 UTC. Doc met him on 20 SSB and he was told that at this time he was unable to work 20 RTTY so therefore the 40 meter contact. Chuck, W6JOX writes that he has worked Rick on 20 RTTY at 0125 UTC on the 19th of November, so apparently Rick has the 20 meter problem squared away. QSL this staion to NG7X, Rick, PO BOX 32, MvKenzie Bridge, OR. 97413.

Corsica ... That TK5 station mentioned last month is Jean,TK5CU, he is active and wants QSL cards via his CALL Book address.

Gilbrata .. Walter, DJ6QT appeared from here and was very active during the WAE RTTY contest. His call was ZB2IN. QSL to Walters Call Book address.

Morocco ... CN8EL has been active again recently and now also has a State Side QSL manager, W2PD or via F6FNU.

Moldavia ... UO5OK has been worked recently and asks for QSL's via UT5RP.

UZ3TYL/UP ... was active also during the WAE contest. QSL to UW3TN.

China ... BY1PK was worked on 20 November at 0005 UTC by Chuck, W6JOX. I have not heard this station on RTTY for almost 2 years! Lets hope they come up more often.

Cape Verde ... D44BC, Julio is also active. He likes orderly pile ups (if there is such a thing). If it gets out of hand he QRTs. QSL Julio via his CBA.

A82X ... was also worked by W6JOX at 2115 UTC on the 21st of November. QSL via N5GAP.

The DX Bulletin has been listing RTTY sightings. I input to it as do a number of other active RTTY dxers. It is a weekly DX Bulletin by Chod Harris, VP2ML. Each issue seems to have more and more RTTY BANDPASS. So if you are looking for fast breaking news on a weekly basis, you might drop Chod a note for a sample copy. The Dx Bulletin, 816 Fourth St., Sutie 1001, Santa Rosa, CA. 95404.

Well rather a short column this month. Rushing to get this out, Christmas shopping, and working on the HD8G cards. I still need more input from all of you out there, so send a note and a photo along and let me know what you are doing. How many of you are on HF Packet?? Does a DX info Packet BBS make sense?? What do you think??

See you all next month and a very Merry Christmas to all of you, and a Happy New Year. May the New Year bring you good health, good luck, and much happiness, and may it also bring you that QSL card you need or a new one for the log.

A tip of the DX hat to: W1DA, W6JOX, W7MI, WB5QBV,K6WZ, and the DX Bulletin.

Danny Wilson,N6IHQ
4818 Pearce Ave.
Long Beach,CA.90808

PACKET

Ham-West '86, though not as large as the National Convention held in San Diego in September, had a variety of good speakers covering a wide range of topics. The Packet Radio Forum featured Lyle Johnson, WA7GXD, president of TAPR (Tucson Amateur Packet Radio). Lyle's topic was Advanced Packet Radio Techniques. He covered three areas including HF packet, satellite packet, and radio characteristics. (Or what makes a good rig for packet). I will give a general review of what Lyle talked about in the forum. However, a lot of the content will be discussed in future articles here.

Much of the HF Packet discussion centered around the differences in phase lock loop circuitry vs. filtering systems for the HF modems in the TNC's. He explained how the higher data rates utilized by packet make the P.L.L. more useful than at a lower baud rate where filters are used with better efficiency. He explained that tests are being done in Tucson to sort out "claims and counterclaims" and find out exactly how the two differ and where each is most efficient. I will be obtaining the results of these tests and will be including those in a future edition of the Journal. Lyle then went on to talk about more efficient tuning of HF packet signals. TAPR sells an HF tuning indicator that workd with a number of TNCs with P.L.L. circuitry. Also included in the HF presentation was devotion to what frequencies are best to exchange packets, how to set up your TNC for HF operations, some rules as they apply to packet, (there are several restrictions that apply to HF packet that do not apply above 50 Mhz.) and some HF packet procedures.

Fuji OSCAR 12 (FO12) was the highlight of the satellite discussion. The satellite is not available for general packet use at this time. Preliminary tests are still being performed. But they hope to have it fully operational early next year. The satellite will operate Mode JD which is digital mode running AX.25 protocol with Manchester encoding at 1200 baud. The uplink will be on 2 meters FM and the downlink will be on 70 cm. Other tests are being done here on earth with what is called the Fuji Modem. This modem can be substituted in the TNC via the modem disconnect feature. The Fuji modem will give the Manchester encoding on the uplink and accept the PSK signals on the downlink. By the time the satellite is operational, the Fuji modem kits should be available for use with the satellite.

The final topic in Lyle's presentation was radios. What kind of rig would be best suited for Packet use. Although there was no "product review" and no recommendations of what rig to buy, he did explain some things to look for when buying a 'data radio'. A good rig to look for is one with a quick "turnaround" time. (i.e. receive to transmit, transmit to receive.) Working with high speed data rates and crowded channels, the throughput can be affected quite a bit by a rig that turns around slowly. With an eventual upgrade to still higher data rates, the role of radio turnaround will play a bigger part in reaching maximum efficiency. What is a good turn around time? Naturally the faster the better. There are rigs on the market that turn around in 5 ms and some that turn around in 300 ms. You would be doing reasonably well with a rig that is under 100 ms. Frequency characteristics of transmitter audio is also important. The frequency response has to be reasonably good. The optimum response for 1200 baud is from 600Hz to 2800Hz. You want the system to be flat. Some rigs run filters that are designed to enhance small speakers. But receiving data bits with these filters in line can seriously hamper the P.L.L. systems that are receiving at 1200 and 2200Hz tones. Lyle explained that the manufacturers of amateur radio gear are paying attention to the needs of the Packet radio user. It shouldn't be long before the market bears many good rigs for use with Packet.

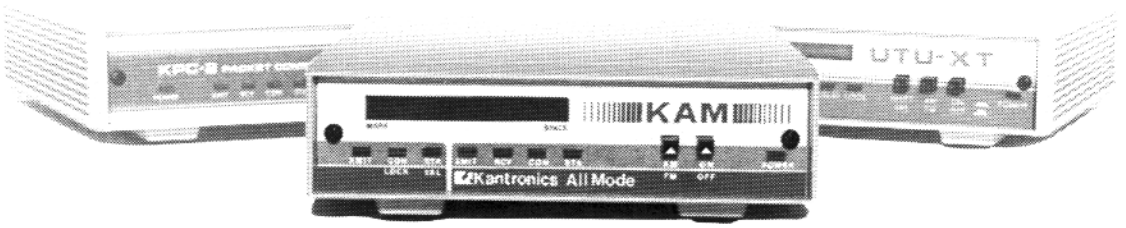
Lyle entertained questions throughout the forum which worked very well with his presentation. He has a wonderful sense of humor and wit that spiced up what easily could have been a dull forum. A very worthwhile hour to spend at a very worthwhile convention.

What's happening on Packet in your area? Is your ARC involved with packet at all? Are there local A.R.E.S. groups using packet in Public Service and emergency communications? Drop me a line and let me know. I'd like to include some of the events happening in and around packet in this column. So if you do more than just sit at home and connect to the local BBS on Saturday, I want to hear about it. Many clubs include a packet SIG, and more use of packet is showing up in Public Service, Emergency Communications, etc.

(cont. pg. 7)

Get It *All* Together With

K A M



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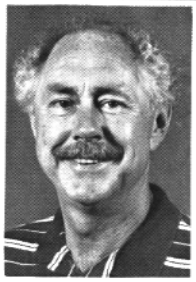

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9085 La Casita ave.
Fountain Valley, CA.
92708

HITS & MISSES

The October issue of the Journal contained the most up-to-date information I had regarding all the RTTY Journal awards. I didn't realize there were so many but not to worry, we intend to continue our awards progarm. There has been some response concerning irregularities in the listing. As I mentioned before, this awards list has changed hands many times over the years. Because of this hands changing there is bound to be some information lost or misplaced. It was certainly not done purposely but nevertheless we want to straighten it all out. So if you feel there is an discrepency, we want to hear about it. The awards list will be updated from time to time and when this is done we will make any corrections that we receive.

All awards requests should be sent directly to me here at the Journal. If you send application requests to anyone else, it will only delay its handling. However, if you are presently applying through your club, please continue to use this method.

Since taking over publication of the Journal, I have received some inquires regarding subscription renewal dates, missing issues, label discrepencies, etc. Please continue to let me know if you have a problem in any of these areas. We want to get them all straightened out but sometimes it takes a little time, so please be patient. While on this subject, if you move or are about to move, please let us know where you going to relocate. I get a couple back each month marked "address unknown" or " no forwarding address". This means I must remove these from the file and place them in a dead file until such time the subscriber contacts the Journal. I cannot over-emphasize this, because we don't want you to miss an issue of the Journal. We will in all cases try to get the back issues to you that you might miss but this takes a little time. Again, be patient, we're doing our best.

A few months back I started a new column called "ELMER" for those who need help. However, there has not been much action so far. There has to some of you with problems. Why not try the "ELMER" column and see if someone can help you out.

This months issue contains an index going back to January 1984. The January 1984 issue also contained an index which went back to January 1981. The index includes only special articles, it does not list our regular monthly columns. In the future the index will be published yearly thereby making it a little easier to look up specific articles.

Our Classified Ad section is pretty slim this month. It seems hard to believe that everyone of our subscribers wants to keep every piece of gear in their shack. Our rates are reasonable and we get to the people who would be interested in your digital gear. Give the Journal a try, you may be pleasently surprised how quickly your gear will sell.

I received a nice letter from Wolf, DL8VX recently. Wolf is Chairman of G.A.R.T.G. which he helped to found with seven other German hams. He tells me their dues are about $25.00 per year. Wolf has offered to help with our awards program and we appreciate his offer. At this time we are doing okay but maybe some time in the future we may need more help. So, will keep your offer in mind until then. Wolf indicated he may be coming to the USA some time within the next year and hopefully we can schedule a place to meet and have an eyeball QSO. He would very much like to meet Carl, K6WZ for one, plus others. Wolf also related that GARTG is getting involved with Packet radio and looking forward to our new Packet radio column.

Mario, I5CW wrote me a nice letter recently to straighten out a subscription problem. He also included information about himself and his station which I'm happy to relate to everyone. Mario is 43 years old, married, and he and his wife have one child (3 years old). Mario's first love is his wife and child but his second love is RTTY and SSTV. He has a number of accomplishments to his credit. He was the first Italian station to operate on AMTOR back in December of 1981. He gives thanks to Peter, G3PLX who helped him reach this goal. The system used was the MK-2, ST-6000, and Apple II computer. Mario was also the first Italian station to operate SSTV. This ocurred on November 2, 1984 using the Robot 1200/C system. Then in December 1985, another first, the first Itatian station to operate Packet radio using a PK-64. Again just recently, Mario tested the new PK-232 on Packet, making him the first Italian to use this unit.

Mario remembers with pleasure his contacts with hams such as Al, N2FHF on AMTOR and K4BYK as a digipeater on Packet radio. His aocomplishments are many and attest to his love for the digital modes. (cont. next pg.)

(HITS and MISSES cont.)
We salute your achievements Mario and hope you have many more. The station equipment at I5CW consists of the PK64/C-64, PKC 2 with TONO 5000XL ties to an Apple computer. The portable station uses the PK-80, M-10 Olivetti computer. Basic station equipment : TR-7, JRC JST 100, Kenwood 430S, 711E, 9130 Antenna (3 element monobander for 20 meters).

That's it for this month. I hope everyone has a **Merry Christmas** and a **Properous New Year.**

(Packet cont. from pg. 4)
These are the events I would like to highlight from time to time in the articles on Packet.

Judging from the response I am receiving from some of you who contacted me after last months article, I will be including some product reviews and basic information on packet that will be geared toward the person thinking about buying a TNC, or the poor soul that has one but really gets frustrated with the little critter for one (or many) reasons. However, if you don't want to wait for the info via articles, drop me a line and I will get you an answer promptly.

Have a safe and happy Holiday Season. 73!

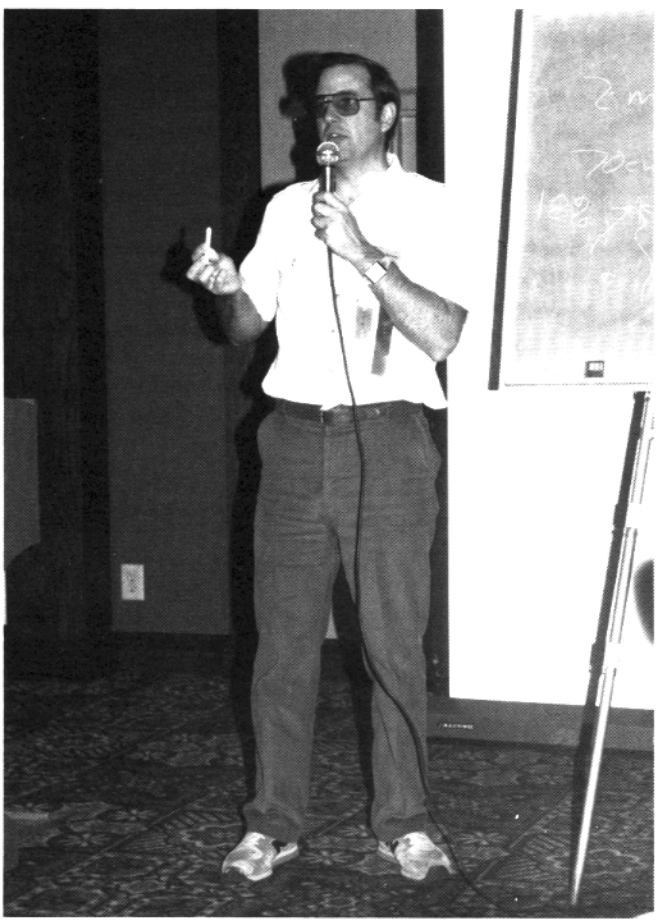
AMTOR MAILBOX FREQUENCIES (cont.)

I2VJX	IVJW	14077	
KA4OPZ	KOPZ	14077	14075
		14073	14068
		10140	
KB6BT	KBBT	3688	
NV7L/DU9	NVDU	14079	
OX3CO	OXCO	14076	14075
		14074	14073
		10146	7030
		3588	
SM0EYX	SEYX	14075	14072
		10147	
VE2ATD	VATD	14075	10145
		3625	
W3GL	WWGL	14073	

Good hunting gang, and I'm sure that Craig would be interested in hearing about new stations and systems as they become active.

RTTY BANDPASS

CALL	FREQ	TIME	DATE
A82X	14....	2115	112186
BY1PK	14....	0005	112086
CN8EL	21096	1500	113086
D44BC	14....	2030	112486
DU1RP	14....	0045	111586
EA8ZD	14084	2000	110186
FR4DL	14097	1728	110786
FY7AN	14093	2120	111086
HL1IID	14....	0015	112386
IS0MVE	14088	1600	111186
KH2/KE4FE	21095	2100	110186
OA4ZV	14085	2345	110986
TI2OY	14084	0019	110986
TK5CU	14083	1415	112986
UO5OK	14082	1145	112386
UZ0CWW	14094	0015	110986
VU2KYX	14084	1430	110386
Z21AB	14082	1900	111086
4Z4AB	21097	1423	110886
5N8ALH	14088	1900	110186
8P6JG	14088	1600	110286
9K2DZ	14083	1500	110386
7J1ACH	14....	0125	111986



Lyle Johnson, WA7GXD explaining the downlink method used by the Fuji satellite.

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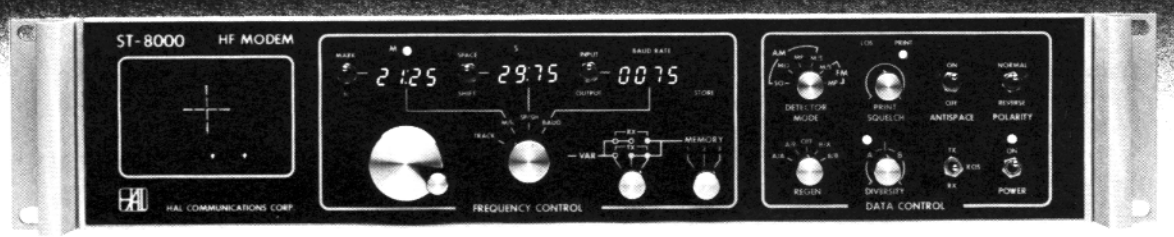

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Real HF radio teleprinter signals exhibit heavy fading and distortion, requirements that cannot be measured by standard constant amplitude BER and distortion test procedures. In designing the ST-8000, HAL has gone the extra step beyond traditional test and design. Our noise floor is at -65 dBm, not at -30 dBm as on other units, an extra 35 dB gain margin to handle fading. Filters in the ST-8000 are all of linear-phase design to give minimum pulse distortion, not sharp-skirted filters with high phase distortion. All signal processing is done at the input tone frequency; heterodyning is NOT used. This avoids distortion due to frequency conversion or introduced by abnormally high or low filter Q's. Bandwidths of the input, Mark/Space channels, and post-detection filters are all computed and set for the baud rate you select, from 10 to 1200 baud. Other standard features of the ST-8000 include:

- 8 Programmable Memories
- Set frequencies in 1 Hz steps
- Adjustable Print Squelch
- Phase-continuous TX Tones
- Split or Transceive TX/RX
- CRT Tuning Indicator
- RS-232C, MIL-188C, or TTL Data
- 8, 600, or 10K Audio Input
- Signal Regeneration
- Variable Threshold Diversity
- RS-232 Remote Control I/O
- 100-130/200-250 VAC, 44-440 Hz
- AM or FM Signal Processing
- 32 steps of M/S filter BW
- Mark or Space-Only Detection
- Digital Multipath Correction
- FDX or HDX with Echo
- Spectra-Tune and X-Y Display
- Transmitter PTT Relay
- 8 or 600 Ohm Audio Output
- Code and Speed Conversion
- Signal Amplitude Squelch
- Receive Clock Recovery
- 3.5" High Rack Mounting

Write or call for complete ST-8000 specifications.

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Dick Uhrmacher
K0VKH
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Rapid City,SD
57702

MSO'S

Hi Gang! Let me take this opportunity to wish each and every one of you a very Merry Christmas, and a Happy New Year! As I look back across 1986, it looks like a good year to me, filled with a lot of fine QSO's, happy events and good times. And, I hope that 1987 brings you good health, happiness and prosperity!

AMTOR MSO'S

The popularity of MSO's and CBMS's (computer based mailbox systems), continues to grow, and with it, expanded technology. Many AMTOR systems not only are sophisticated enough to allow storage and retrieval of messages, but several now have the additional capability to scan different bands and frequencies as well. This allows stations at varying propogation distances the opportunity to utilize these sophisticated systems, nearly any time of the day. Those of you desiring to obtain information relative to scanning systems for some of the more modern transceivers should contact John,TG9VT. His MOS can be found during the daylight hours on the National Autostart Frequency on 20 meters. John utilizes an ICOM 751 transceiver, with the HAL RTTY MSO and ARQ-1000 AMTOR unit. There are of course several other AMTOR stations utilizing this scanning technique, and a little on-the-air questioning should provide adequate information on this subject.

And, while I'm on the subject of on-the-air operations, let me approach a sensitive subject concerning good operating habits. I've recently been informed from several sources that one of the more active U. S. mid-western AMTOR operators tends to openly criticize and degrade other AMTOR operators on a variety of subjects. Constructive criticism, properly formatted, is normally a welcome source of information that provides some educational benefit, and assists in improving overall operating conditions. However, when this criticism becomes personal in nature, highly critical of an individual or his equipment, directed in an unusually forceful manner, or a personal vendetta for whatever reason, its usefullness is destroyed, and hard feelings occur. Let's not forget that in the beginning each of us was a novice at whatever operating mode we now use, and in the spirit of Amateur Radio, friendly assistance and help, rather than harsh criticism, is the right path!

KD4XK IS SILENT KEY

It is with a great amount of sadness and regret that I report that Bill Magie,KD4XK, became a Silent Key on October 4, 1986. Bill had major surgery in the Rapid City,SD, Regional Hospital, and died following complications.

Bill was an avid Amateur Radio Operator, very active on RTTY, and seen frequently on the MSO/CBMS frequencies. Bill was a gentleman and a friend, and I'll miss him!

"FOR SALE" OR "WANTED" ITEMS IN MSO'S, CBMS'S OR BBS'S

Although we have covered this area quite adequately in past issues of the "MOS Column", recent actions taken by the Federal Communications commission relative to this subject makes it a timely subject.

It was recently reported to me that the FCC Belfast Monitoring Station, Belfast,ME., issued a citation to an East-coast Amateur Radio Station, for violation of "third party traffic involving material compensation". (Please refer to Section 97.114(b), of the Commission Rules). This violation was issued when the Commision's monitoring station noted a "For Sale" message being downloaded on a Packet Radio BBS.

The FCC has had a long-standing policy concerning "for Sale" or "wanted" items being discussed on Amateur Radio, and it appears that they are now putting some teeth into this policy, and enforcing it. I might point out at this juncture, that their policy is equally applicable to RTTY, SSB, MSO's, CW, Packet Radio and all other modes in which Amateur Radio operators participate. I'm sure that we all have heard the various "Swap Nets" on SSB, and seen MSO/CBMS's that contain "for sale" and "wanted" items. They are quite plainly a violation of the Commission's Rules, and those participating in them may well be placing themselves in jeopardy. Paricularly, MSO/CBMS/BBS SYSOP's should scrutinize their policies concerning use of their systems!

The commission has stated for years that "discussions between two Amateur Radio operators relative to the sale of Amateur Radio equipment, is allowed." Note however that this policy does NOT include a third party.
(cont. next page)

(MSO's cont.)

As this applies to MSO's, CBMS's, BBS's etc., Two SYSOP's could quite legally discuss the sale of Amateur Radio equipment, BETWEEN THEMSELVES. However, if a SYSOP allows a third party to store a file in his system relative to selling anything, it is a violation of paragraph 97.114(b), and BOTH the SYSOP and the party storing the note can be cited by the Commission. The National Autostart Frequency has had a long time ban on "for sale" and "wanted" items, and I would encourage all other parties to become aware of their responsibilites in this area.

HAL ARQ-1000 OPERATING HINTS

John, TG9VT, informs me that he has discovered some helpful hints in interfacing and utilizing the HAL ARQ-1000, AMTOR Error Correction Terminal. Since this very flexible unit is designed to be utilized in both the Commercial and Amateur Radio markets, there are some ways to fully exploit the unit peculiar to Amateur Radio. John's MSO on the National Autostart Frequency, (access code GUATMAIL), contains the file "ARQ1000 TIPS", which outline his description on how to more fully use this unit.

MSO RAMBLINGS

Don, W5QXK, reports that he has removed his HAL MSO from service, but hopes to be active again soon on the National Autostart Frequency. --- Larry, KA0JRQ, has completed his move to Glenwood, Iowa, and has his new tower and beam installed. Congrats on the fine signal Larry! --- Clark, W9CD, reports that he may be on the trail of the root causes of those long-troubling DSK-3100 disk "crashes". Much testing remains to be done, and we will report his findings here in this column as they occur. --- Gaylord, WB8ICL, reports that he's now operating three MSO/CMBS's. One on the National Autostart Frequency, (20 meters), and two on VHF frequencies in the Yellow Springs, Ohio, area.

AMTOR MAILBOX FREQUENCIES

Both Russ, K1DOW/4 and John, TG9VT, provided me with information relative to frequencies that AMTOR mailboxes are now operating on. This information was obtained primarily from the AMTOR Mailbox maintained by Craig, WA8DNZ/6, Redwood City, California, and those interested should periodically review this list in his system to stay current on the various systems operation.

That's it for this month Gang! Have a very happy Hoilday Season, and I'll look forward to seeing all of you next year! DE: Dick,K0VKH

AMTOR MAILBOX FREQUENCIES

CALLSIGN	SELCAL	FREQUENCIES
A4XFW	AXFW	28075 21075
		14080 14079
		14078 14075
DK0TV	DKTV	21115 21075
		14081 14078
		14075
G3PLX	GPLX	28076 28075
		21076 21075
		14078 14077
		14076 14075
		3589 3587
HB9AK	HBAK	14075 14072
		10146 7030
		3588 3585
K4CZ	KKCZ	3647 7047
K0KXR	KKXR	3645
LA9OK	LAOK	14075 14073
		7030 3588
PA0RYS	PRYS	28075 21075
		14077 14075
		14073 7030
		3588 3583
PA2AGA	PRYS	14077 14075
ST2SA	STSA	14078 14077
		14076 14075
		14074 14073
		14072
TG9VT	TGVT	14073
		(0330-1100UTC)
VE7BOH	VBPH	3645
VK2AGE	VAGE	14073 14074
		14075 14076
		14077 7045
WA6HTP	WHTP	3627
WA8DRZ/6	WDRZ	14072 14073
		14074 14075
YB0AQT	YAQT	14075 14079
		14077 14073
		28075 21075
		21077 7045
SV7JS	NGJX	21115 21110
		14080
9K2KA	NKKA	14070
AG0N	AAGN	14073
		(part time)
DJ0OW	DJOW	14070
DJ4KW	DJKW	14078 14075
		3589 3588
DK4PR	DKPR	14075
G3MHF	GMHF	14080

(cont. pg. 7)

Or This Inexpensive

It Really Shouldn't Be This Easy

Remember just a few years ago, how it took a roomful of equipment just to work RTTY. And if you wanted more than one mode it took a dedicated computer system costing thousands of dollars. The new AEA Pakratts are proving it doesn't take lots of equipment or money to enjoy working all bands in five different modes.

First, A Good Idea

The idea behind the Pakratt is very simple. One controller that does Morse, Baudot, ASCII, AMTOR, and Packet, and works both HF and VHF bands. Of course the decoding, protocol, and signal processing software must be included in the unit, and connection to the computer and transceiver have to be easy. The unit also has to be small and require only 12 volts, so it will work both in the shack and on the road.

Second, Computer Compatible

It doesn't matter what kind of computer you have, we have a Pakratt for you. The PK-64 works with the popular Commodore 64 or 128, and the PK-232 works with any other computer or terminal that has an RS-232 serial port. The PK-64 doesn't require any additional programs. Simply connect to the computer and transceiver and you're on the air. The PK-232 needs a terminal or modem program for your computer. The one you're using with your telephone modem will work just fine.

PAKRATT™ Model PK-64

PAKRATT™ Model PK-232

Third, Performance and Features

The real measure of any data controller is what kind of on-air performance it gives. While the PK-64 and PK-232 use different types of modems, both give excellent performance on VHF. The optional HF modem of the PK-64 uses independent four-pole Chebyshev filters for both Mark and Space tones, and A.M. detection. The HF option can be factory or field installed.

The PK-232 uses an eight-pole bandpass filter followed by a limiter discriminator with automatic threshold correction. The internal modem automatically selects the filter parameters, CW Fc = 800 Hz, BW = 200 Hz; HF Fc = 2210 Hz, BW = 450 Hz; VHF Fc = 1700 Hz, BW = 2600 Hz.

The PK-64 uses on screen indicators to show status, mode, and DCD (Data Carrier Detect) while the PK-232 uses front panel indicators. Both units use discriminator style tuning for HF operation. And that's just the tip of the iceberg. Features like multiple connects on packet, hardware HDLC, CW speed tracking, and other standard AEA software features are included in both the PK-64 and PK-232.

Fourth, AEA Quality and Price

Not many manufacturers like to discuss quality and price at the same time. AEA thinks you want high quality and low price in any product you buy, so that's what you get with the Pakratts. Ask any friend who owns AEA gear about our quality. The people who buy our products are our best salespeople. As for price, the PK-64 costs $219.95, or $319.95 with the HF option. The PK-64A, an enhanced software unit with a longer flexible computer cable, costs $269.95 or $369.95 with the HF option. The PK-232 costs $319.95 with the HF modem included. All prices are Amateur Net and available from your favorite amateur radio dealer. For more information contact your local dealer or AEA.

Prices and specifications subject to change without notice or obligation.

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P.O. Box C-2160, Lynnwood, WA 98036-0918
206-775-7373 Telex 6972496 AEA INTL UW

3 RADIOs TO 2 TUs
HOW I DID IT

Hams have asked why I have not been on the air lately. Well, the answer is simple, you see, I have all these radios, TU's, computer, etc. and to connect them all together ends up in a maze of wires. All is fine untill I go into transmit. Strange things happen in transmit, like the bending of the video screen, locked up keyboard, and the color TV in the house goes black and white. Sound like a familiar story to some of you?

I knew what my problem was, I just had not got around to solving it. Besides, I was lazy and thought someone would come along with an answer to my problem that would only require me to plug things in here and there. The answer never came. So taking the bull by the horns, here is how I solved my problem. I hope others will find this method useful.

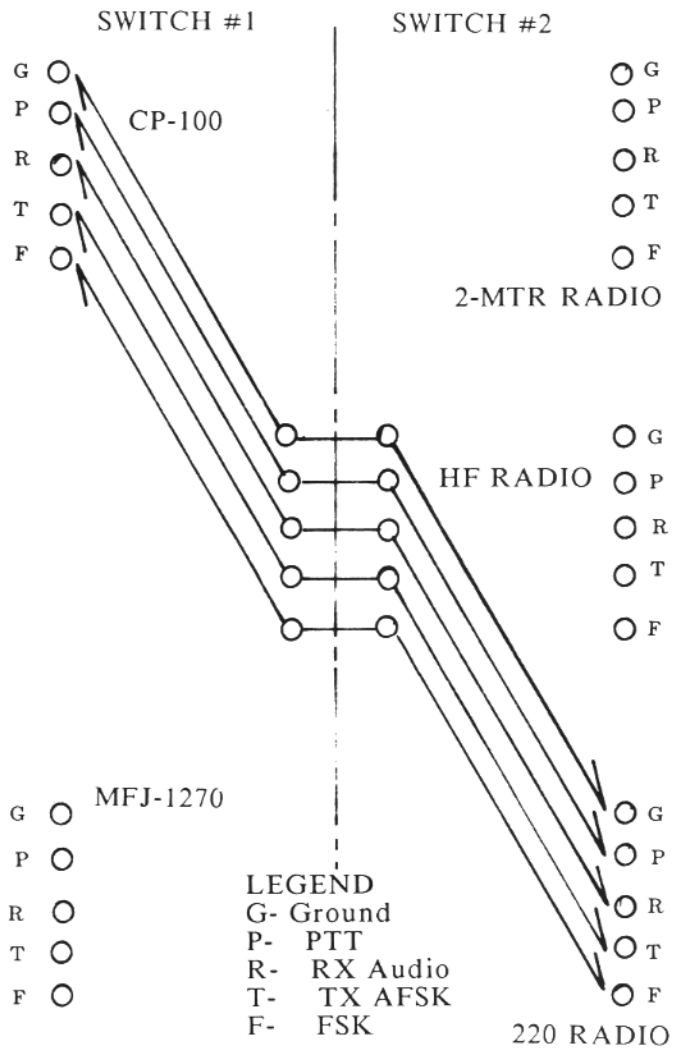
My solution consists of a small switch box, two rotary wafer switches, computer cable, and nine pin sub-minature connectors. It costs a little more to use the computer cable and connectors but in the long run it elliminates separate wires with RCA type plugs. In this way, one shielded cable can carry many wires thus cutting RF exposure considerably. This method also eliminates the maze of wires which always become tangled and hard to identify.

Construction is simple. I used ribbon cable inside the box to connect the different terminals together. A colored ribbon would be best at this point because there are many connections to be made. One 2 position - 6 pole rotary switch and one 3 position - 6 pole rotary switch will be needed. Five pole switches can be used but a little harder to find. This is not of particular importance here because if you want to hook up more radios to more Tu's it would only be necessary to buy the right switches to do the job. With my station, I wanted to switch and HF radio, two meter radio, and 220 radio between my CP-100 and MFJ-1270.

As you can see, both interfaces serve different purposes and meant to use either I would have to make many wire changes. The switch box elliminates most of these problems and reduces RFI drastically. The wiring is simple but meticulous attention to each pole connection is essential. I have layed out a simple drawing (fig. 1) to simplify the wiring of the switch box.

Once the box is finished, you can build up the individual cables that go between the components. I used nine pin "D" sub- minature connectors then six pair shielded cable (only need five wires) was employed from the switch box to the different components. On HF I use FSK, so the AFSK line on this radio was not hooked up. On VHF the FSK line is not used and therefore not hooked up to either the 2 meter or 220 radio.

The switch box works just fine and that maze of wires behind the radios is now gone. The only connecting necessary now at my station is the cabling between the two interfaces and the computer which only takes a minute. I don't need to crawl around under the operating table to get to cables and wires any longer, thus helping my back and risking the possibility of getting electrocuted. Good luck with this little project and good operating. de Dale, W6IWO.



POSITION SHOWN = 220 RADIO TO CP-100

fig. 1

1986 RTTY 73 magazine WORLD CHAMPIONSHIP

CONTEST RESULTS

Thanks to all the participants in this fine contest. Next year this contest will be held around September. As soon as we have a date we will publish it so you can make your plans to participate again. Look for the date in an upcoming issue of the Journal and other publications. Good Luck and Good Dx to all. ED: A special thanks to Dee, N6ELP, for her help in providing these contest results.

ALLBAND SINGLE OPERATOR:

1.	OZ1CRL	123,840
2.	UT5RP	70,800
3.	KE7NF	58,560
4.	K6WZ	57,860
5.	G4SKA	57,855
6.	N5DSK	56,535
7.	WB5HBR	52,095
8.	SM5FUG	44,720
9.	W9KDX	41,310
10.	AB0Y/4	38,160
11.	N4GXP/8	36,025
12.	UA3TT	32,980
13.	W6JOX	29,580
14.	SP9BCH	27,750
15.	HB9BW	26,320
16.	W7MI	23,650
17.	WB5QBV	17,380
18.	F6HUS	15,210
19.	VE7YB	10,150
20.	AH6CS	8,410
21.	K6YK	7,520
22.	WA9ZOJ	7,000
23.	GW2EHN	6,720
24.	KA2CDJ/4	6,075
25.	SM7AIO	3,780
26.	Y37TA	2,405
27.	WA4DYD	2,090
28.	DF5BX	1,885
29.	WA3JXW	1.430
30.	Y36SG	40

20 METERS - SINGLE OPERATOR

1.	I0VIQ	72,480
2.	VE1ASJ	62,415
3.	LU2HP/ON6J	58,800
4.	OH1AF	51,240
5.	PT2BW	49,880
6.	WB1AEL	47,685
7.	EA5FKI	46,530
8.	NC2V	40,940
9.	KT7H	34,425
10.	PY6ACP	34,320
11.	W3AOH	29,000
12.	JR1AIB	28,980
13.	YU7AM	25,245
14.	XE2NNZ	21,600
15.	W2JGR	21,060
16.	I2VXJ	19,570
17.	Y39TO	17,820
18.	DL9MBZ	15,470
19.	AB8K	14,570
20.	EA7EVD	13,920
21.	I2TZU	12,870
22.	DL6LAM	12,640
23.	VE6ZX	11,400
24.	K14BQ	11,310
25.	YO3RF	7,500
26.	PA3DBS	6,090
27.	K0TIV	5,940
28.	EA7XD	5,035
29.	ZL2AKI	4,505
30.	VK2BQS	4,360
31.	K6EID	3,567
32.	EA1BFZ	3,220
33.	HP1AC	2,800
34.	YU2CB	2,730
35.	JF4GJB	1,980
36.	W3KV	1,885
37.	KB7M	1,575
38.	JA1PIG	1,495
39.	VE2QO	1,380

ALLBAND MULTI-OPERATOR

1.	LZ2KIM	146,800
2.	WB3FIZ	101,460
3.	OK3RJB (ODPM)	61,120
4.	OK3KGI (ZTS)	36,465
5.	OK3KII	18,040
6.	UZ0LWW	13,760

20 METERS MULTI-OPERATOR

1.	GU3HFN	41,860
2.	JA7YFB	2,660

SWL

1.	ONL620	1,950

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3 radios to 2 TU's

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