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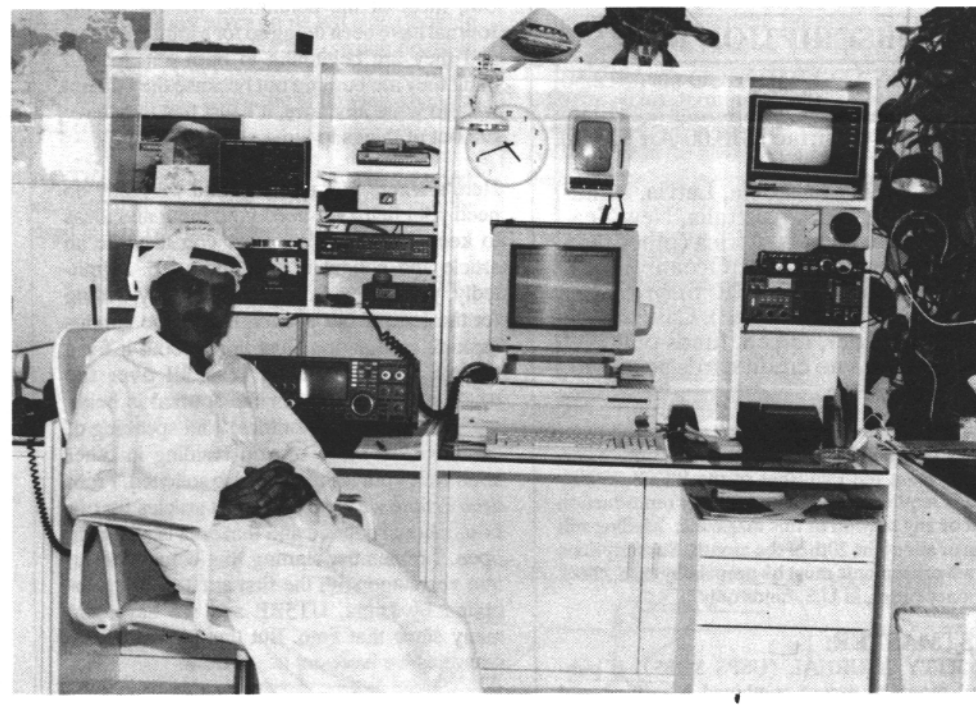
## IN THIS ISSUE



**RY'S, WHY?**

# 9K2EC



*Moshin, 9K2EC shares with us his station setup (see pg. 2)*

**RTTY JOURNAL**

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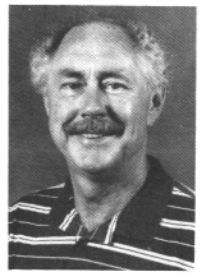


# HITS & MISSES

**Dale Sinner, W6IWO**
**9085 La Casita Ave.**
**Fountain valley, CA 92708**

## TROUBLED TIMES ARE HERE

I don't mind writing about the positive side of things but when it comes to writing about the negative side then I have trouble. Surely everyone who does any writing feels the same way. However, sooner or later the negative must be faced and that's where I'm at this month.

Keeping the Journal interesting is not an easy job and I'm sure most everyone appreciates that fact. The same goes for the writers who write each month for the Journal. They to, must come up with a little something extra each month and they seem to do this without fail. But, most of the columnists writing for the Journal have been doing so for a long time now and they are beginning to burn out. I don't think they are burning out because they do not wish to write anymore, it's just that they have run out of things to write about.

Here's where you can help and we really do need your help. We need your input and ideas to keep us going. We need you to write an article and submit it for publication. Admittedly, you are not going to get rich by writing for the Journal but you might become famous through recognition. Just think about it for a minute. You could be read all over the world and at last count the Journal is being mailed to over 44 countries. And speaking of countries, to those of you residing in other countries, your articles are also solicited. From time to time we have had guest articles for our International column and that area is still wide open. I remember starting that column about two years ago with the first article being submitted by Dima, UT5RP and we have had many since that time. But there is still many countries we have not heard from.

Another area where you can help is to write to the individual columnists and ask them to write about a topic you may have an interest in or better still provide some input that they can use in their column. In this issue you will find a interesting mod submitted by James Sladek, WB4UBD covering the TS-830S radio. Jim is long time subscriber and is sharing his experiences with us all. You to can be a part, if only you will take the time to share your thoughts and ideas with us all. Also in this issue you will read where Dick, K0VKH is pleading for input for his column on MSOs. Dick has been writing for the Journal for nearly seven years now but he to is feeling the sting of burnout.

My fellow Hams, we seriously need your help. But, I'm going to think positive about this and take the position that many of you will write this month to share or submit something for the Journal. I going to think that next month the Journal staff will be bubbling with enthusiasm because each has received many letters from you readers encouraging them with your input and support.

Here's another area where you can help out. You may have noticed that I feature many DX stations here in the Journal. This is not by design, it is simply what I have been receiving from the columnists and what has come to my door via the postal service. I have times when I need to fill space to keep the 24 page format and so I often use pictures with short stories to do this. If you have a short story and some pictures you would like to share with us, please send them to me for publication. I may not use them for a few months but sooner or later they will fit some place. When I have finished using your pictures I will return them to you. Here's your chance to "toot your own horn". Fill my mail box and I'll take it from there.

## STATE OF KUWAIT

With the fall of the State of Kuwait, one of RTTY greats has had to curtail his operating habits. I'm referring to Moshin, 9K2EC whom many have worked in the past. Moshin is a "World renowned RTTYer and a wonderful person", states John Troost, TG9VT who supplied us with this month's cover picture. We all hope that wherever Moshin is at the present time that he is well and we all wish for him to be back on the air real soon. Moshin ran an APlink station scanning all bands and is sorely missed from that troubled area. Good luck to you Moshin and it is our pleasure to feature you on the cover of the RTTY Journal this month.

That's it for this month except for two reports I have submitted, one on page 10 and the other on page 22.

73 de **Dale, W6IWO** ■

# CONNECTIONS

**Cole Ellsworth, W6OXP**
**10461 Dewey St.**
**Garden Grove, CA 92640**

## AT&T MODEL 40 REVISITED

Last issue, you readers may recall the request for model 40 Teletype information. While reading the latest issue of SIGNAL (The journal of the Armed Forces Communications Electronics Association - AFCEA), I noted an advertisement by Telemechanics, Inc., 1636 Fifth Ave, Bay Shore, New York 11706 (516) 231-3833 on all kinds of Model 40 replacement parts and they may very well have manuals available. They also have a toll free number 800-227-7485. Hope this info is of help to someone.

## WE HAVE MAIL

Jim, WB4UBD has provided us with another fine modification article with an RTTY flavor. Thanks Jim, and keep them coming!

## RTTY MODE MODIFICATION TO KENWOOD TS-830S

By: ***James A. Sladek WB4UBD***

The purpose of this modification is to change the TS-830s FIX switch to function as a CW narrow filter enable switch while in LSB mode for improved RTTY reception. NOTE: After this modification, FIX (crystal controlled) operation will not be available.

### PROCEDURE

1. Remove the bottom cover.

2. Remove the VFO assembly (held in place by four 3mm hollow set screws). Disconnect the cable connector on the rear of the assembly and remove the two pilot lamps.

*** CAUTION ***
Be careful not to damage wires in the harness between the bottom of the VFO assembly and the bottom chassis rail during the VFO removal.

3. Looking at the bottom of the transceiver (with the front toward you) locate the mode switch and, referring to Figure 1, make the following wiring changes:

a. Remove jumper between USB and LSB on S18-5.

b. Relocate the white wire with brown tracer (SSB1 from S-18-5-LSB to S18-5-USB.

c. Connect about eight inches of hookup wire to the anode of a diode (1N4148 or equivalent) and connect the cathode of the diode to S18-5-CW.

d. Connect about eight inches of hookup wire to S18-5-LSB.

e. Connect about eight inches of hookup wire to S18-5-USB.

f. Route the three wires to the left then down behind and emerging below the switch assembly located on the right hand side of the VFO assembly cavity.

4. Turn the transceiver on its left side (looking from the front), locate the FIX switch board in the front of the VFO assembly cavity and, referring to Figure 1, make the following changes and connections:

**NOTE:** If the FIX capability must be retained, an externally mounted SPDT switch can be used in lieu of the FIX switch.

a. Cut traces at the following three places on the FIX section of the board - Between J9 (RIT/XIT) and S4 (nc); between EV5 and S4 (com); between FXB and J3 (FIX LED)

b. Connect a jumper from VFB to EV5.
c. Connect the hookup wire installed in step 3 to the switch board as follows:

Connect the wire from S18-5-USB to S4 (nc);
Connect the wire from S18-5-LSB to S4 (com);
Connect the wire from diode anode to J3 (FIX LED)

5. Reconnect connector to rear of the VFO assembly and replace the pilot lamps. Carefully reinstall the VFO assembly making certain that cable harness wiring is not pinched. Reinstall the bottom cover.

The FIX switch, when depressed, will now activate the CW filters while in LSB receive mode and will light the FIX LED indicating the TS-830S is FIXed for RTTY.

Jim would like to acknowledge the cooperation of Virgle Griffith, NI4H who entrusted his rig to Jim for this modification.

## NEW PRODUCTS

PROCO COMMUNICATIONS LTD., 4-175 Nonami, Tenpaku, Nagoya City, Japan 468 has a full-page advertisement on page 199 of the September, 1990 issue of CQ HAM RADIO (Japan) for a new communications terminal, the CT678. This terminal looks a lot like the TONO, which is apparently out of production. And it appears to have some new features, not the least of which is a built-in 40 column printer.

FEATURES: Baudot, ASCII to 300 baud, AMTOR (FEC and ARQ), CW at speeds from 20 to 200 characters per minute. Shift widths

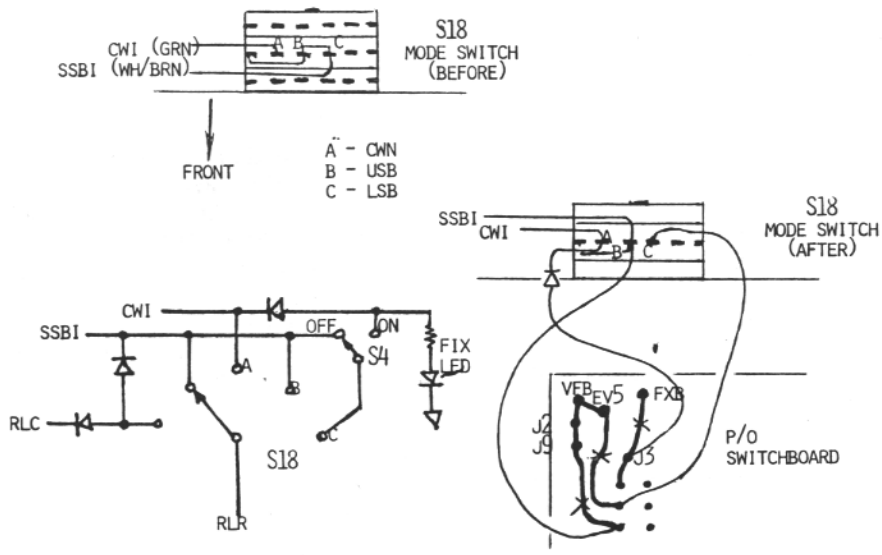



FIGURE 1

include 170, 425, and 850 Hz with low, middle, and high tone pairs. The 40-column display is a 7-inch green phosphor CRT. The 40-column printer is mounted in the front panel.

The terminal also has a front panel tuning display consisting of 13 LEDs in a row. The keyboard is detachable with a coil cord umbilical. The case of the CT678 measures 360 (14) X 340 (13) X 150 (6) mm (inches) high. This terminal requires a 12-volt DC power source for operation.

Total memory is 64 kilobytes. The ad mentions a "backup" capability which I assume to be battery backup of the memory. The terminal has a 300 to 1200 baud RS232 interface for connection to a computer, if desired.

All in all, this little terminal should make the perfect successor to the Tono. The CT678 and a transceiver plus a 12-volt battery or power supply would make a first class Digital DX-pedition setup. All this is not inexpensive as the following prices will attest:

CT678 Terminal, w/keyboard as described is 178,000 yen or at an exchange rate of 139 yen to one dollar, about $1280.00.

The CT677 Terminal with above features but no CRT or printer but including keyboard is 99,800 yen or $718. The CT677 case is smaller, measuring 350 X 310 X 50 mm. This model requires an external display and/or printer.

The CD671 Decoder (receive only) with 2 lines by 40 characters LCD display and printer is 79,800 yen or $574.

The CD670 Decoder (receive only) with 2 lines by 40 characters LCD display without a printer is 54,800 yen or $394.

The CD630 Decoder without any display or printer (uses external display) is 39800 yen or $286.

The terminal and decoders without a display have a video output that would work with a TV or monitor. Forty column lines should be very readable on a TV.

If you are really anxious to get more information or USA dealer name (I don't know of any on this side of the pond) Proco's phone is 052-896-6341 and FAX is 052-896-9130.

Wonder who is going to be the USA importer of the Proco? If anyone knows, let me know and I will put it in this column.

G AND G ELECTRONICS, 8524 Dakota Drive, Gaithersburg MD 20877 (301)258-7373 has bought the rights to the Microlog Corporation products including the AIR-1 program (AIRDISK) for the Commodore 64 or VIC-20. This program will work with your TU. G & G also now provide the ART-1 All mode Communications Terminal for the Commodore 64 (disk) or VIC-20 (cartridge). Complete hardware and software for RTTY, ASCII, CW, and AMTOR.

That does it for this month. Keep those cards and letters and articles coming.

73 de **Cole, W6OXP** ■

# PACKET

**Richard Polivka, N6NKO**
**7052 S. Friends Ave. Apt. J**
**Whittier, CA 90602**

## ABOUT LAST MONTH

Remember last month, when I dropped the question: An RTTY station keys up after checking to see if the freq is clear and starts sending CQ on 14.093 MHz mark and at the same time a packet station set for 14.095 MHz LSB keys up. The transmissions of both stations get fouled so badly that the packet transmission is useless and the RTTY transmission has a few hits. Now who screwed up whom?

In order to explain this issue, please look at Figure #1. The chart shows the radio frequencies of the tones that are associated with the two stations in question. This little process assumes that the packet signal is using a 170 Hz. shift even though there are some units that use a 200 Hz. shift. Since the standard for the HF bands is that data transmissions all be LSB in format, one can see why the space tone is lower in frequency than the mark tone. Here is where the tones fall:

**14.093000 MHz RTTY MARK TONE**

**14.092875 MHz PACKET MARK TONE**

**14.092830 MHz RTTY SPACE TONE**

**14.092705 MHz PACKET SPACE TONE**

You will note that the tones from each station occupy their own independent frequencies. In terms of them occupying the same frequencies at the same time, and based on the keyup senario mentioned above, there is no jamming being done here.

Now let's get into the thick of things here. Any signal that is deviating from one frequency to another frequency whether it be direct FSK (Frequency Shift Keying) or AFSK (Audio Frequency Shift Keying) creates a modulation envelope. This modulation envelope is mathematically described as the sum of twice the deviation of the signal and twice the rate of deviation. Since both signals have a 170 Hz. shift, they are varying in deviation plus or minus 85 Hz. 85 times 2 is equal to 170. That is the first part of the equation. Now for the second part of the equation. If you are sending packet at 300 baud, the actual data rate is one-half that because of the encoding format used. So, we double 150 and get 300. 300 + 170 = 470 Hz, which is the bandwidth of the packet signal. The data rate of a 60 WPM RTTY transmission is 45.45 baud. Double that and it is 90.9. Add that to the 170 from above and you get 260.9 Hz bandwidth. (That is why RTTY users can get away using a 250 Hz. filter while HF packet users need a 500 Hz. filter. If one follows that the bandwidths are overlapping, that is correct. Now who is the jamming station?

In the case stated above and with the accompanying documentation, it indicates that the packet station is the guilty party in the above situation. Ideally, the TNC should have sensed that there was a transmission taking place somewhere within its bandwidth and not transmit until the bandwidth is clear. Now comes another problem. Devices available on the market now, that replace the tone sense DCD on packet TNC's and replace that with a circuit that looks for proper data transitions between mark and space. If it does not see a signal that matches the required pattern, it assumes that the frequency is clear and sends its transmission out. Consequently, one can have an RTTY signal on the same frequency as a packet signal and the TNC will never know that the frequency is busy. The DCD state machine, as it is called, is great for vhf and above where one can leave their radio unsquelched and have it work normally. Therefore, the listen-before-transmission rule can't be applied, and any packet station that uses the state machine system on HF for DCD can, in my mind, be guilty of de facto jamming of the frequency and not allowing other users a chance to share the spectrum.

I was monitoring an RTTY conversation on 20 meters somewhere between 14.090 and 14.100 MHz. I was receiving perfect copy from the stations involved in the QSO except when I heard a packet station right on top of them. The tones were a few Hz off but nevertheless, the packet station kept sending the same packet over and over again and then quit after retrying out. The two people in QSO knew what was

going on and rode it out.

I do not blame the RTTY stations in this case. If they are in a legitimate QSO, and another station keys on top of them, then that station is the guilty party. It was apparent that the packet station was not hearing the RTTY QSO, or, the packet station could not recognize that the frequencies were in use.

So you see last month's little question could not be answered easily. It also points out my feelings that packet should stay above .100 where they will not be subject to jamming RTTY stations when special circuitry is used in the TNC.

## FISHING FOR FISH IN A FISH-BOWL

I have won another ham over to W6/G0AZT's (AMTOR) way of operating. I have left part of my station consisting of my PK-232 and IC-720A over at Danny, N6IHQ's station. I set up a computer of his with a Com program and from there all the way to his antenna system. I worked a few stations with it and there was no problem. Then he wanted me to show him how to work AMTOR. I sat him down and showed him how to work it all. After a couple of contacts, he described that AMTOR was like "fishing for fish in a fishbowl." He likes it better than working packet on HF. I still like K9GWT's description of HF packet where you send a packet transmission before going to work. Answer that one at lunch and send a third transmission when you get home. NO HF PACKET! USE AMTOR or RTTY!. ( I need to review APLINK.)

## CQ/RTTY JOURNAL RTTY CONTEST

Getting ready for this contest was quite fun. We ran the contest from N6IHQ's place. We had one station running. The station operated 10, 15, and 20 meters off the 3 element beam at 40 feet and 40 and 80 meters using an 80 meter dipole mounted at the top of the tower with the arms running north and south in an inverted vee configuration and fed to an antenna tuner. The hardest part was that the tuner could not get the match below 1.5 to 1 on 80 but on all of the other bands, no problem. That beast has one leg on the property line at the back of his lot and the other leg in the front yard near the property line. I also wrote a logging program for the contest. Now that was fun.

We managed over 300 contacts with the station. I have a feeling for what we had in terms of equipment, we did fine. Look for our score when the results get posted.

One strange comment. We were around 14.095 when a station came on in RTTY saying that the RTTY'ers were screwing up his packet signal. My question, was he in the contest working the packet mode and if he was, then I'm sorry. It was a fantastic contest!!!!!!!

## REVIEW

Courtesy of the gracious people at Kantronics, I am now in the posession of one of their 9600 Station Combo setups. I recieved from them, in a very well packaged box, a Kantronics Data Engine with one DE1200 1200 baud packet modem and one DE9600 packet modem installed. Also in the box was the Kantronics DVR 2-2 2m data-ready radio. I have on order for the radio a set of crystals for 144.99 MHz, which is the 9600 baud channel here in Los Angeles (crossed fingers).

The unit was shipped with the cabling and connectors needed to wire the units together. All I had to buy was a female DB-25 connector and a mini- plug and a submini-plug to plug in the 1200 baud port cable on my HT. The connectors that they sent (DB-15 and DB-9) had gold plated pins and silver shells. However, what was available at the local electronics store, did not come up to the same quality as what I received from Kantronics.

Assembing the units together was very easy. One requirement is that you READ THE FOUR MANUALS SUPPLIED FIRST!!!! Once you understand how the unit is set up, then draw out the connection scheme first before actually starting to wire up the cables to the connectors. One of the more challenging cables is the RS-232 cable to the Data Engine. This is because it is a flat ribbon with a modular style connector on the end that plugs into the Data Engine. All of the other cables used regular multi-conductor cables. Everything worked the first time.

To finish the first installment of the review, I will define the test conditions that will be used for the equipment. I am located about 1330 feet above sea level and the antenna is another 30 feet above that. I have a good view of the Los Angeles basin and down into Orange County. This location has a high RF background level being close to several amateur repeaters and one of the larger county communications sites.

The software that will be running the show will be the TCP/IP software written by PE1CHL and will be configured for dual port operation and work as two nodes; one on 1200 and the other on 9600.

So watch for the rest of the installments of this review.

## NEXT MONTH

I have not forgotten about the Beginner's Corner. I have several letters already concerning what the readers would like to see in it. One of the biggest requests has been how to deal with the operation of NET/ROM nodes. What needs to be covered first is how to get your TNC working right. In my next article, I will be just dealing with the commands to operate NET/ROM nodes. Then the following month, just the commands needed to get the TNC customized to your situation.

I will also include more on the Kantronics 9600 system review. The review has a slight kink at the moment. It seems there is a great deal of ineptness involving the coordination committees for packet and the 2m band. Presently, there still is no frequency for 9600 baud operation on 2m here in Los Angeles. So, I guess that part will be put on hold, temporarily.

73 de **Richard, N6NKO** ■

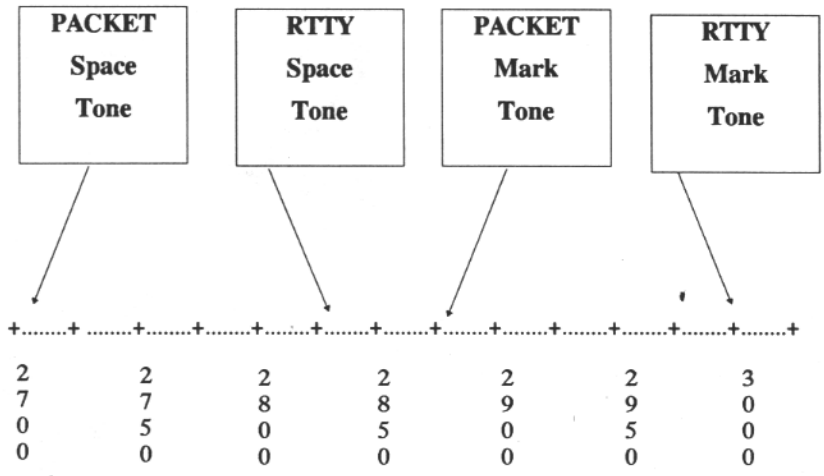



**Figure 1**

# AVES ISLAND

(story continued from last month.)

The next day, April 11th, being well rested, we started to work on the installation of the equipment, in order to operate our radios. We did not have any major problems, nor was it necessary to use a power plant, nor tents, since the module on the Island is big enough and has 3 electrical generators of 10 KVA each, plenty for our equipment.

The commandant of the Island let us use the Non-Commissioned Officer's quarters and with this advantage we could install all the equipment without any problem.

The first thing we did was to install the antennas:

1. Yagi Antenna 3 elements Tri-band TA-33.

2. Dipole, solid 40 mts. of APF Telecommunications.

3. Dipole 3 bands of APF Telecommunications.

Then we installed the radios, computers and all the other accessories as follows:

1. Transceiver JRC-JST-100

2. Drake L-7 Amplifier

3. Commodore 64 Computer.

4. Monochrome monitor, Sanzun 13

5. Monitor Scope, YO-100, YAESU

6. Modem, AEA-CP-1: software Mbator-64

Station 2 was as follows:

1. Transceiver Icom 735

2. Mega Portable Computer (Compatible Clone)

3. Modem AEA-PK 232

At 18 GMT hours we started operation that same day. I had to operate the first 6 hours. The pile-up was fantastic. I had the feeling that I could handle this pile-up well, like Alain Prost drives his "Formula 1" in a race.

The 5 days of the operation went along normally. We had the opportunity to get to know the enchantments of the Island and its birds. At night we had the opportunity to see the sea turtles laying their eggs in the sand in a natural way. All a whole world of paradise, that nature gives us.

When we finished the operation, we managed to do **2,735** QSO, not comparable with other expeditions, but we believe that in the digital world we did a lot QSOs, knowing this type of operation.

QSOs per band were:

10mts: 556 QSO  40 Mts: 240 QSO

15 mts. 730 QSO  Packet Radio: 81 QSO

20 mts: 1,127 QSO  Amtor: 1 QSO

As you can see, in Packet radio and Amtor, there were a few QSOs. We could note that we wasted a lot of time and that it was better to do it on RTTY. In the moments of the greatest Pile-Up we could work 3 stations per minute. The Split was the main strategy to get a lot of QSOs even though there were times that we worked in Transceive. I recall one occasion, that a VE station (Canada) told us that there was no QRM on our TX frequency and that our signal was very strong and that QRM would not affect or block our operation, the VE station congratulated for this operation.

On April 15th, at 23 GMT hours we finalized our successful operation with 72 countries worked. Being well satisfied with these results we packed our equipment for our return April 16th.

On the Island we had the pleasure of meeting 2 reporters of the Audobon Society, who were collecting information from the Island for the magazine they represent.

Their names were: JOHN SFAMAN BAINBRIDGE, JR. AND ROBERT JOSEPH NOOMAN

They were our official photographers, since they were on the Island, which has one Commander, who at this moment was, Fleet Captain Ruben Davila.

In addition to the people already mentioned, there were 17 more, army men plus a biologist, whose function is to protect and mark the sea turtles. With them we shared five days of brotherhood and friendship which we will never forget.

We started our way back home on April 16th, at 10:00 hours YV, a very nostalgic trip, because of leaving such a paradise, but all very content because we had achieved our main objective.

The voyage back was smooth. The wind was in our favor with few waves. April 19th, we got to Higuerote Edo. Mirando exactly at Bays's Pirates Club where me met our families, friends and our radio amateur colleagues.

I would like to finish this report with the following remark: that this expedition serve as an example to the world and to reach all radio amateurs who work on Digital Modes, to make this kind of expeditions, in order to reinforce the Digital activity before the DX Community and the world.

We thank the VCR for sponsoring this expedition and to all our radio amateurs friends who added their grain of sand to achieve our main goal and especially to TG9VT, John, to whom I dedicate these historic notes of the YVOAA Expedition.

Best Regards, **Pasquale Casale, VYV5KAJ**


*Pasquale, YV5KAJ at YV0AA controls*

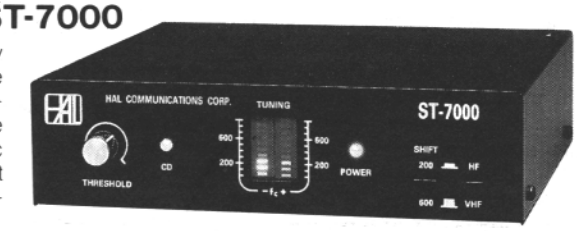
# HENRY RADIO IS THE PLACE
# . . .THE BEST PLACE
# to fill all your data communications needs


## The TEMPO MPP1

. . .a unique new mobile data printer, includes a packet controller and a 13.6 VDC printer that interfaces with any mobile radio. in a recent user test it proved to have about twice as much audio level range tolerance as other TNCs. It is also an ideal unit for emergency work and a commercial version is perfect for dispatching service, emergency and police vehicles.

## HAL Communications' ST-7000

HF-Packet Modem. . .a high performance modem designed specifically for 300 baud HF-Packet. It offers no-compromise performance to assure optimum operation under the most demanding signal conditions. Techniques developed for government and military use are used in the ST-7000. AGC-controlled AM signal processing provides a wide dynamic range. All filters and detectors are optimized for 300 baud HF-Packet. It offers the 200 Hz shift mode and a wider 600 Hz shift mode, each supported by separate 6-pole input filters and a 40 db AGC system.

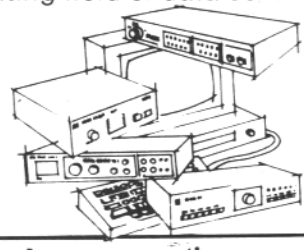




## The PK-232 by AEA

. . .the only controller offering Morse Code, Baudot, ASCII, AMTOR, Packet, and facsimile Transmission & Reception plus the ability to monitor the new Navtex marine weather and navigational system. . .7 modes in one controller. The PK-232 makes any RS-232 compatible computer or terminal the complete amateur digital operating position. All decoding, signal processing and protocol software is on ROM. Only a simple terminal program (like those used with telephone modems) is required to interface the PK-232 with your computer. **Watch for the new and exciting AEA FSTV-430. Have fun on amateur TV!**

*Obviously, we can fill in a system that you have already started. Or we can furnish a complete system to fit your needs and budget. For example, here's some suggestions for the amateur just entering the exciting field of data communications, or: for the amateur who wants the best available.*



**NO. 1** For the fun (and very affordable) mode, VHF Packet, AEA PK-88 with personal mailbox, 8K programmable memory and TCP-1 P compatability.
For serious 20 M world-wide DXing on Packet, 200 or 600 Hz shift. . .add the superb HAL ST-7000.

**NO. 2. . .top of the line!** The HAL ST-8000 or HAL ST-6000 and AEA's PK-232 . . .the winning combination. You can't do better for all-mode, all-band enjoyment of hi-speed data communications.

**If you have any questions concerning these units, or would like to discuss your requirements with a knowledgeable specialist, please call or ask for Fred Daukantas, N6SFD. We also carry a large selection of excellent commercial products for data communications and emergency systems as well as a complete inventory of amateur equipment and linear power amplifiers.**

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# DX NEWS

**John Troost, TG9VT**
**444 Brickell Ave, Suite 51-265**
**Miami, FL 33131-2492**

## THERE ONCE WAS A CONTEST

The ARRL Propagation Forecast said that the high bands would practically be useless during the CQ WW RTTY Contest. Well that proved to be a little pessimistic. Maybe the Solar Cycle is not quite on the way down, as most of us thought. 10 Meters was the best band during the contest. I made more QSOs there than on any other band. All in all the contest had about as good a long haul condition as last year, in some respects better.

Participation by many rare stations did not hurt the fun either. Plus, 40 Meters was not bad, but 80 was kind of a disaster, as may be expected when the high bands are wide open.

In the contest we saw such nice ones as 9M6HF, J39BS, TY1PS, ZF1RY, ZF1RC, FP5DX, J28TY, BY4AA, BY4WNG, BV4VB, 5WIKT, OY9JD, TZ4VV, 4K0ADS (from a train travelling thru the USSR), TR8JLD, UQ0A, NH2/KD7P, 4U1ITU (by F6GMB), 5Z4BI, 9L1US, JX9CAA, HL1SX, JD1/JH1QDB, LY2WW, RH7E, TA3B, UM8MTF, and many others, rare to the degree that you need them to fill out your DXCC.

A casual observer might say, however, that apparently there was basically Europe, populated entirely by Germans, plus a few Italians. There was the U.S.A., entirely located in Ohio. And finally Asia, where there are nothing but stations with a JA prefix, all in Zone 25! Hi!

Funny though: here we have been campaigning for months that the low bands "Have Had It," and all you need is a scintillating contest and those bands are full from edge to edge.

A great contest: hope the one next year be as good and again attracts the rare ones. The CQ WW RTTY Contest seems to have become "THE" digital contest of the year.

One sour note only, was that around 14,095 a Packet station was broadcasting in RTTY to get the *(#@% off this frequency, as it was reserved for Packet Traffic Transfers. Some people really need psychiatric care.

## CONTEST NO-NOs

In DXing, but especially in a Contest, people should realize that the Operator is well aware of his own call sign; he knows who is calling him on his frequency, and not someone else. All long strings of the Operator's call sign accomplish is that he tries to copy the call of your competitor, and leave you hanging in the air. My God, how many times did I see strings of a full line of "TG9VT". Please guys, I was tired enough.

This practice is almost as bad as the unending strings of RYRYRY. Maybe they are transmitted to chase me off the frequency, successfully so, as indeed a number of times, I QSYed to another band, as "the Lids have arrived." Please guys and girls, OMs and Young Ladies, use RY only if it is in your call sign: one of the few to use it correctly is VK5RY.. a good Contester and DXer, by the way.

## RTTY BAND SEGMENTS

Over the months we have been complaining about the Packet Incursions into the RTTY portion of the Bands. 20 Meters is essentially useless to RTTY above 14,092 Mark. We won the war with the defeat of the ARRL proposal to allocate the top 10 KC of the RTTY bands on a permanent basis to "STA" stations. (Then no longer "STA," as this means Special Temporary Authority.)

Unfortunately the results of our Victory are practically unnoticeable. There are more Packet Stations and Networks in the RTTY Bands then ever before.

We won the war, but we lost the peace (some peace). As time goes by, these Packet intruders seem ever more to consider that this is their territory and it is going to take a real effort to get them to move.

The next WARC conference is drawing near. Unless we, the Digital Crowd, in fact the Amateur Brotherhood, can present a unified front, it is likely that we may loose more of our hard won Amateur Bands to the Commercial interests, which are sniffing at the door. A big argument about Sub-Band Allocations is not going to help this situation.

Of course the problem, as most problems, is not as simple as it seems. The Competition for Frequency Spectrum is International and not limited to the Amateurs.

Also, within the Amateur ranks, there are regional interests. The Europeans and Latin Americans, for various reasons, really do not want Packet above 14,100. They want this allocated exclusively to SSB. Nice, if there was enough spectrum available, but GOD has fixed the portion which is suitable for DX.

With more Countries approving Codeless Licenses, the demand for spectrum will be even higher and it will not be CW or SSB space these new Hams will be claiming. Digital Space, State of Technology Space, not just RTTY, Packet and AMTOR, but all of the new modes which are just around the corner will be looking for space. Computers are now a part of our lives, not just in the office and the home, but in the Present, and even more so in the Future, of Amateur Radio as well.

Yes, Packet, and New Modes (Paktor, not yet heard of) will demand as much space as they can get. RTTY and AMTOR will be with us for a long time, possible in improved form, and each one needs Space, Space and more Space. But that does not mean that today is the time to step on each other's toes? Stick to assigned frequencies and write your National Radio Society of your feelings and desires. It is they, who will be representing you and me in the next WARC conference and who have to protect us from the greatest danger of all," giving part of our Bands to Commercial Interest." How do you feel about loosing all of 20 Meters to International Broadcasting, the least efficient way of getting a message across?

## SEPTEMBER DX

Besides all the Contest Goodies, the month of September was not too bad. We saw such as ZD8BOB, ZD9BV (Now married, less active? At radio anyway?), FK8BK, VQ9RB, CN8GI, LY1BYL, 5B4NC, HJV3SJ, TK5IU, YS1RJ, FR5ZD, AP2NK, V51P, SU1ER, RF6FC, GJ4YMX, CE0ZIG, SV0AC (Crete) UJ8JCQ, YI1BGD, FR4FR, UM8BC, 3B9FR, S79NBD, V31AE, 9J2BO, UJ8HCQ, 9Q5UN, NOTICEABLE, V51P, TU2BB, V63AR, V85RA, UZ9CZM, JW9MAA, T77A, VP8BFH, OX3CO, EA9MY, JD1/7J1AJD, BX3MG, UG7GWG, 5V7DP, ZS9J plus many others, for which I don't have the space.

Any sighting you may make of a rare one, please drop a note in my APlink BBS on 21074 or 14074 and other frequencies. Your help makes this column. I guess few of us can complain about the month gone by.

## RARE DX, RARE SPOTS

The story of that unusual expedition to AVES ISLAND, YV0AA, (Yes, the QSLs are being mailed) will give you an idea of costs and difficulties involved in reaching and operating from such spots. Not only are they hard to get to, but the raising of funds is almost an impos-

sible task.

Please keep this in mind if you plan to make a contribution, either to the Expedition or to the International RTTY DX Association. In fact IRDXA is just about broke and contributions have been lagging, in spite of the fantastic stations they have are putting on the air. Another fact, IRDXA right now is worth $91.60, that is all. This year they received $1,645 in contributions and spent $1,629 on RTTY gear for rare stations, and the freight to get it to there. Please help if you want to see more of this work. This is the only organization devoted to getting rare RTTY countries on the air.

Please send your contributions or send used RTTY Gear to: 1RDXA, 356 Hillcrest Street, El Segundo, CA. 90245, U.S.A.: FAX your pledges to 213-322-7114 or call in by phone to see what you can do to help to 213-322-7112. Every little thing helps, as long as there are enough little things.

But you might be living in a rare spot and it is still a lot of effort and money to get yourself on RTTY.

Had a very nice letter from Bob, VP8BFH in the Falklands. I excerpt as follows:

"I have been on RTTY for about 9 months and find it a delightful mode. I had some trouble in the beginning, all the usual things. I suppose: very slow typing, rows of RYRYRYRYs between every sentence and frequently getting on the wrong Side-Band. But at long last I seem to be getting it right."

*"The main trouble, if you live in a place, where there are only about seven people operating on HF in the whole country and none of them has never had experience on RTTY, then you have a problem. It is also not possible to ask on the air, because as you cannot set up your rig, you cannot QSO with anyone. It is like a dreaded 'Catch 22' situation. Then came the break: I heard about the RTTY JOURNAL and after the first copy, most things were clear."*

He goes on to say that VP8ALJ will soon also be active on satellite and Packet and that Bob is normally QRV 2200-2300z on 14085-14090, plus weekends on 15 M.

Which shows, even if you live in some exotic place, but have no help to call on, it is not easy to enter the Digital Modes.

## ADIOS Y BUENA SUERTE

How I got this column together this month I don't know. I changed my APLINK AMTOR/Packet Mailbox from the PK232 to the Hal PCI-3000 and with the Health and Welfare Traffic from the Middle East, the box has not stood still. Great piece of gear and easy to install and ideal with the APLINK system. Then KE5HE made me a gift of an excellent scanning device, which makes access a lot easier. But it sure keeps me busy, and when the Box is clicking away on 14,047, it is darned hard to carry on a DX QSO on 14,090 on the other radio.

So, I have been absent for DX, except during the Contest and this column would have been "blank" had it not been for the help from lots of good friends, including, but not limited to: VK2SG, I5FLN, OD5NG, W2JGR, BKILDG, OH2BH, W9CD, UL7PCZ, NT2X, VK2EG, KA2RD, K6WZ, KE5HE, W6PQS, F2JD, W1AX, FP5DX and many others, who fed me information during the month: may GOD bless you guys.

So, look for all the "goodies" coming up and with luck and help of the Lord, I will see you in November.
de **JOHN, TG8VT**, on the Guatemelan Volcanos.

## DX COMINGS by John Troost, TG9VT

The **HK0TU, MALPELO** operation is full go with some 15 operators for early November with No less than seven ICOM 765 XCeivers, loaned by ICOM, plus a Vic-20 RTTY Station from IRDXA. All bands, all modes, including Satellite Packet. RTTY is the province of Raul, KH1LDG, well known Contester and excellent RTTYer as well as HK4BHA. Contributions thus far no where cover costs. Please send help to HK3BED, Arturo Afanador, POB 584, Bogota, Colombia, registered mail, as the mails are a bit tricky.

A big one, we all have been hoping for is in the winds for next year. Martti Laine, OH2BB writes me that he is trying to schedule an expedition to **4JIFS, MALYI VYSOTSKIJ ISLAND**, this one including RTTY. It needs a lot of preparatory work, plus winter is setting in for that region, so it may not become realty until about May or so of 1991.

**SOUTH GEORGIA, VP8SGI and SOUTH SANDWICH, VP8SSI** are still "go" for 22 November to 3 December and 25 November thru 5 December respectively. Each group has RTTY gear donated by IRDXA. One ship takes care of both groups, hence the staggered schedule. Donations please to AA6BB/7, Jerry Branson,93787 Dorsey Lane, Junction City, Or. 97448, U.S.A. It will cost near $140,000 to bring this one off.

FP5DX and VE1KM and possible others will operate from 20 to 30 October from **ST. PAUL ISLAND** as **CY9SPI** and/or **CY9DX**. All modes, all bands, with RTTY on 15 and 20 Meters. Anyone who had the pleasure of observing Patrick, FP5DX can be sure that the RTTY operations are in capable hands.

Robert, **3B9FR, RODGRIGUEZ ISLAND**, indeed received his donated RTTY gear from IRDXA and was reported on the air a few times (Not by me, sorry). Currently he is on a business trip but will be active on his new hobby any time, just look in the right direction at the right time, on the right band..so easy! Hawr!.

Latest news on **P29BT, PAPUA NEW GUINEA** is that the IRDXA gear is being installed and that he will be QRV on RTTY in November.

CE3BFX, F2JD and KL7GRF have all lined up to activate **CE0ZZZ, JUAN FERNANDEZ ISLAND**, about 10 November for about a week. IRDXA is suppling back-up RTTY gear.

**JOHNSTON ISLAND**, AH3C, should be active as you read this ( if you get the JOURNAL in time, courtesy of the friendly printer, who is not always known to be on the dot).

**YEMEN, 707AA**, the Club Station is still looking for an RTTY operator, who is willing to leave his gear there after teaching the Locals. If you wish to gain world fame by bringing an All Time New One on RTTY, please get in touch with F6EXV and/or 15FLN.

The IRDXA is sending RTTY gear to Les, **7Q7LA** in **MALAWI** in October. The results would be on your screen by the end of the year.

Romeo, 3W8RR plans another expedition to **SPRATLY**. He is looking for support, (via NT2X) but if RTTY will be included is not certain: maybe Alex Lebedev of RL8PYL will be needed for that.

As of this writing, please note that all of your **9K2, KUWAIT** friends are alive and relatively well, ready to come back on the air if things clear up a little. Some of them are out of the country and active under reciprocal licenses, but as of now all are "safe," which is of course a relative word in today's Middle East.

**JARVIS, AH3C/KH5J** QSL cards are late. This is due to the delay in "negotiations" with the DXAC regarding New Country Status for Jarvis Island.

A YL, Kyoka, is active as **ZK3KY, TOKELAUS**, all of October, all modes, including RTTY: but she has not been read on any screens as of this writing. Rumors are she will be on RTTY about 0900Z on either 15 or 20 Meters.

Efforts are being made to get **ANGOLA**, D2 back on the air, including RTTY this time. It appears that the road to official permission is long and a barrier of paperwork needs to be conquered.
GL de **John, TG9VT**

## 9th Computer Networking Conference

This year's conference was held in London, Ontario, Canada on Saturday, September 22, 1990. The conference was coordinated by: Harry MacLean, VE3GRO, David Toth, VE3GYQ and Paul Rinaldo, W4RI and hosted by the CRRL AND ARRL respectfully.

Some 130 entrants were in attendance to hear the personal presentation of papers covering many aspects of the digital arena from Packet radio to satellite. A myriad of technical papers on subjects such as channel-access problems, networking protocols, 9600 baud operation, Mac layer for NOS/net, the European Solution (Felxnet), Node networking, PacSat, digital communications on HF and DSP.

The conference papers are available in published form from the ARRL for $12.50. Look for it at your local radio outlet or contact ARRL direct. The title is 9th Computer Networking Conference. You will not be disappointed in this publication. The papers are all done very professionally with diagrams, charts, circuitry, etc. and is about one inch thick.

I was very much impressed with the caliber of amateur who presented papers at the conference. From industry presidents to scientists, all were a pleasure to listen to.

If you are interested in high-level action on digital communications, then I suggest you plan to attend the next conference. The experience gained and the opportunity to meet the presenters will be well worth the expense to attend. I am highly recommending this conference after only attending one.

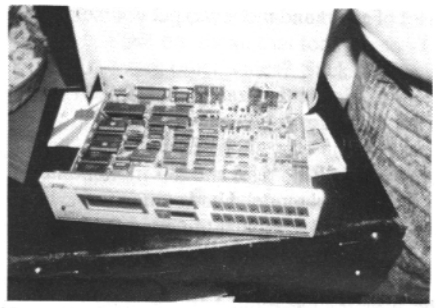
byline Dale Sinner, W6IWO

*Peter, OH2AVP presents Finnish Goodwill flag to Harry, VE3GRO vice-pres CRRL*

*9th Computer Networking Conference, London, Ontario, Canada, 22/09/90*

At the 9th Computer Networking Conference, I caught up with Bob McGwier, N4HY, and Mike Lamb, N7ML, (President of AEA) showing off the new AEA DSP system. This new unit was first introduced at Dayton earlier this year and it's my understanding, production is not far away. Bob is heavily involved with the development of this unit and proudly so, as the picture below exemplifies.

*Bob McGwier, N4HY and Mike Lamb, N7ML*



*New AEA DSP system on display. Canada 90*

## APlink UPDATE

It was reported recently that APlink programs would be available from Paul Newland, AD7I but that has now been changed. Due to heavy work loads, Paul has made arrangements for interested parties to obtain copies of the program in the future from TAPR. So please, do NOT send requests to Paul any longer, this will only delay your request. Copies are available as follows: Send $2.00 (US) for each disk which includes shipping to anywhere in the USA (including APO/FPO) as well as Canada and Mexico to TAPR, PO BOX 12925, Tucson, Az 85732. TAPR phone and FAX numbers are: Tel, (602) 749-9479 and FAX, (602) 749-5636.

For locations outside this designated area additional shipping charges are as follows: to Caribbean, Central or South America add $2.00 per shipment; to Europe, Africa or Middle East add $3.00 per shipment; to Pacific, Asia or anywhere else add $4.50 per shipment. APlink User's manuals (this is not s SYSOP's manual) are still available from Paul for a SASE (9X12 inches minimum). Paul's address is: PO BOX 205, Holmdel, NJ 07733, USA.

# ...Brings You A Better Experience

## Keyers


### The Morse Machine MM-3 Keyer

The Morse Machine has all the features you need in a memory keyer, including 2 to 99 WPM speed selection and over 8,000 characters of soft-partitioned memory. Twenty memories store your messages...as short or as long as you like. Memory can be expanded to 36,000 characters. All memory is backed up by an internal lithium battery.

Comprehensive Morse training facilities are built-in. **A Proficiency Trainer** for random code group practice. **A Random Word Generator** which generates four-letter words and **A QSO Simulator** which allows you to call stations, answer a CQ or listen to realistic on-the-air QSO's.

The MM-3 also features automatic serial number insertion and incrementing in any memory message. Use the front panel knob to adjust your sending speed or enter a precise speed with the keypad, toggling between the two at any time. Exchanges can be expedited by having parts of your message sent at a higher speed. You can even add remote switches for four of the memories to send your response or call CQ. The MM-3 can also be programmed for automatic beacon use. The RS-232 compatible serial I/O port provides computer control of the MM-3 and monitoring of the Morse training features.

## Packet


### PK-88 Packet Radio TNC

Unique operating features with a proven hardware and software design make AEA's PK-88 your best choice in packet radio--now with MailDrop, an 8KByte efficient personal Mailbox. The PK-88 also allows multiple single frequency QSO's, digipeating and networking. It's a superb value, packed with all the most needed packet radio features such as direct interface capability with NET/ROM and TCP/IP. In addition to all the features of a "standard" TNC, the PK-88 offers features not found in any other TNC:

- WHYNOT command - Shows reasons why some received packets are not displayed.
- "Packet Dump Suppression" - Prevents dumping unsent packets on the radio channel when the link fails.
- CUSTOM Command - Allows limited PK-88 customization for non-standard applications.
- Enhanced MBX command- Permits display of the data in I- and UI-frames, without packet headers and without packet headers or retried frames.
- Enhanced MPROTO command - Suppresses display of non- ASCII packets from Level Three switches and network nodes.

## Multi-Mode

### PK-232MBX Multi-Mode Data Controller

With over 40,000 units sold worldwide, the PK-232MBX is the world's leading multi-mode data controller. Combining all amateur data communication modes in one comprehensive unit, the PK-232MBX offers Morse Code, Baudot, ASCII, AMTOR/SITOR 476 and 625, HF and VHF Packet, WEFAX receive and transmit, TDM, as well as commercial standard NAVTEX automated marine information services.

All software is on ROM.

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- TDM Time Division Multiplex decoding
- PakMail™ mailbox with selective control of third-party traffic
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- Two radio ports
- Host mode for efficient program control of the PK-232MBX
- KISS mode for TCP/IP networking protocol compatibility
- 32K RAM lithium battery-backed
- Many features for the digital SWL

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### AT-300 and AT-3000 Antenna Tuners

For tuning perfection, choose AEA's AT-300 (300 watt) or AT-3000 (3 kW) antenna tuners. Quality and exceptional engineering are built-in for maximum performance and long operating life.

The low-pass design provides more harmonic attenuation for lower TVI and allows matching to a much wider range of antenna impedances than common high-pass designs.

The AEA tuners feature a frequency compensated dual-movement SWR meter for ease of tuning with a front panel power range switch. Minimal SWR is achieved by inductors with 18 (AT-300) and 20 (AT-3000) taps. AEA's exclusive patent pending CAM switch design on the AT-3000 provides accurate tuning. The built-in front panel antenna switch allows you to easily select two unbalanced (coax-fed) antennas, a dummy load or a balanced antenna.

Advanced Electronic Applications, Inc. 2006-196th St. SW/P.O. Box 2160 Lynnwood, WA 98036 206-775-7373

# SOFTWARE

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

Slave driver, Dale, W6IWO, has phoned and requested his monthly installment of the continuing software saga. Since I have a terrible case of jet lag, having just returned from HC-land and the 1990 CQWW RTTY contest as single operator of HC5J, we will look at a couple of different things this month.

Betsy (WV7Y my XYL) and I arrived in Ecuador about two weeks early and after repairing one of Ted, HC5K's computers and attempting to set up some software for the contest it has become apparent that I need to provide some more basic information.

Software gives your personal computer its personality. Without software, your PC would be no more useful than a paperweight! PC software is divided into three categories and, just like a cake, each layer supports the one above it.

- APPLICATIONS SOFTWARE
- DEVELOPMENT SOFTWARE
- SYSTEM SOFTWARE

Most of you are familiar with the final layer which contains the application programs. These are the DSRTTY, RTTY-PC, AIRES, and the various other programs that we are running. Some are for communications, others for word processing, some for logging, some for QSL preparation.

The second layer is the development layer and here are found languages such as Pascal, C, Cobol, Basic, and tools like Dbase IV, FoxBase, Clarion, Lotus 1-2-3.

System software is the layer I want to take a brief look at this month, because I have found that many are not setting up some of the basic things on their personal computers that make all rather easy. On most PCs, this layer is DOS (Disk Operating System). It may also be Windows 3.0, Unix, or something else; but most Hams are running plain DOS. The most popular current version is DOS 3.3, but I still think that MSDOS 3.21 is the best version for communication purposes.

When you start DOS, it automatically searches for a file named CONFIG.SYS on your system disk. This file contains special commands that let you set up (configure) DOS. An understanding of them will make your life much easier. CONFIG.SYS contains all the instructions that a PC needs when initially turned on.

Here is a good example of:
**CONFIG.SYS**
**BREAK=ON** (Allows Control-C to interrupt)
**BUFFERS=30** (Disk Buffers, should be about 30)
**FILES=30** (Number of possible open files )
**COUNTRY=001** (Sets Keyboard and date time and currency)
**DEVICE=ANSI.SYS** (Installs device driver into DOS)

You may also see DRIVEPARM, FCBS, LASTDRIVE, SHELL, STACKS, and several different DEVICE assignments. DOS as it comes is very short on FILES and BUFFERS so at a minimum these need to be set. This also leads to one of the major problems that I find on most computers that I use. The MOST important piece of software on a computer is a TEXT EDITOR. If you don't have one--GET ONE !!

Your personal computer looks at another file when you first start it and that is AUTOEXEC.BAT. This is a batch file which runs programs automatically when you start DOS, if found.

Here is an example of:
**AUTOEXEC.BAT**
**DATE** (Sets Date )
**TIME** (Sets Time )
**PATH=C:\;C:\DOS;C:\BIN;C:\CMD** (Sets Search Path for programs)
**SET PROMPT=$P$G** (Sets prompt to see where you are)
**CD \RTTY** (Changes Directory to RTTY )
**MENU** (Runs another Batch File )

***Asst Ed:*** For fun, try this prompt:
Prompt = $e[25;1H $e[0;33;44;1m $p$g $e[0m $e[0;36;1m

The most important parts of AUTOEXEC.BAT are setting the Date and Time (which may be replaced by a CLOCK setting program), setting the search path which tells the computer in which directories to search for programs, setting the PROMPT so that you can tell what directory and drive you are currently on, and finally possibly running some sort of menu program.

## QSL MANAGEMENT PROGRAM

Well now to this month's short examination of a fun little piece of software that is going to come in very handy in filling out QSL cards for this year's contest. I should let Betsy, WV7Y, do this review, since she does all our cards, but as time is short this month .... here I go.

Dale has acquired a QSL management shareware program for me to review this month. Its QQSL by Bill Mullin AA4M/6 at 3042 Larkin Place,San Diego, CA 96123-3026. An SASE Disk Mailer with a 5 1/4 floppy disk will get you a copy. This is a very nicely put together little program that allows you to input information and then print up labels for putting on your outgoing QSL cards. Its the first of this type that I have looked at and I rather like it. The program is like a lot of shareware in that it comes in a limited edition that lets you try in out and then register the program to get a version with more capabilities.

QQSL is a screen driven program with nicely done menu selections bars. This is one of the most effective to the user ways of selecting program parameters. You enter the information of Date, Time, Band, Mode (YES, it does handle Amtor & RTTY), and other details and keep entering different cards until finished. Then it lets you print all the labels at one time. It uses the regular One-up label (which means the ones 1 wide and standard sized. It prints on Dot matrix printers and seemed to work fine on the Okidata 192 I have at work, as well as a Star at home. The print selection is one area that could be improved. With the popularity and access to Laser printers, support for the HP LaserJet series would be a very nice addition. QQSL lets you get the label set correctly with an adjusting print before letting the print job continue.

As Shareware, it comes with a limitation of just 3 labels at a time which is increased upon sending in the $15 dollar registration fee. This fee also gets you updates to the program for a lifetime which is certainly a good deal. Overall, I think that QQSL is a rather nifty little program that is well worth it for sending out some cards as well as filling out the hordes of bureau cards as they arrive.

## FINAL COMMENTS

This month's final comments are on software testing. To those of you out there making up application programs, be sure to test them completely before trying them in a major contest. HC5J nearly had a disaster because of a faulty program and because time was not taken to trouble shoot the software. Time taken testing equipment and antennas kept me from finding a big problem on 40 meters, when RF

came back and locked up the ST 6000 and the computer. Test and Test and Test some more because the program is only as good as its tester!

### NEXT MONTH

Hope to get back to a look at APLINK on the new HAL PCI 3000 board next month. And it's sure a challenge sometimes to set up programs of this nature. Thanks for the kind words from VE7OR, DF2JE, JA1NSU and W4KQS, to whom I must say I have found no good logging softare for the C-64.

73 de **Jay, Ws7i** ■

Packet address is WS7I @ AH6AA.ID.USA

## WV7Y QSL Routes

4K0ADS QSL VIA RW3AH
4L9AG VIA Box 6542, Perm City 614051, USSR
4U1ITU CQWW RTTY was F6GMB via CBA
4U1UN Qsl VIA NA2K
5W1KT says to QSL to Box 1672 Apia, West Samoa
7J1AJD/JD1 QSL VIA KB1BE
9J2BO QSL VIA W6ORD
BY4AA QSL VIA DJ6BU
BZ4DAB, Tang, QSL Box 085-205, Shanghai, China
FW1FM QSL VIA Box 15, Futuna Island
J28TY QSL VIA Box 2417, Djibouti
J39BS Qsl VIA WB2LCH
JH1QDB/JD1 QSL home CBA
JY9SR QSL VIA Box 354, Amman, Jordan
LY1BYL VIA Box 2189, Vilnius 232049, Lithuania, USSR
RO4OA VIA Box 249, Kishinev 277043, USSR
S79NBD is JG1NBD QSL Home CBA
TA3D QSL Box 963, Izmir, Turkey
UA9KCI, VIA Prisk Vostochny, Chukota 686817, USSR
UG7GWG Qsl Box 54, Erevan 375010 USSR
UG7GWY QSL to Box 1, Erevan 375038 Armenia
UH7E/UZ9CWA QSL VIA UZ9CWA
UJ8JCQ QSL Box 1102, 734032 Dushanbe, Tadzhikistan, USSR
UM8MTF VIA Box 1, Orlovka 722231, Kirghizia
V63AR is JA2NVY QSL VIA callbook address
V73AT QSL VIA K2CL
YS1RJ VIA Box 792, San Salvador, El Salvador
ZD9BV QSL VIA W4FRU
ZF1RY P.O. Box 5194, Richmond, CA 94805
ZK1XY Kiyoko Yamashita, Box 3, Toukaimura, Ibaragi 319-11, Japan ZS9J Leo Heinonen, 80 Sixth Street, Parrhorst, 2193 South Africa

# CONTESTING

**Hal Blegen, WA7EGA**
**2021 E. Smythe Rd.**
**Spangle, WA 99031**

I was watching one of the old film classics, Lawrence of Arabia, t he other day. Lawrence, played by Peter O'Toole, makes a macho show of slowly putting out a candle by smothering it with his hand. A young lieutenant then tries it but jerks his hand back with the exclamation, "That hurts like hell! What's the trick?" O'Toole explains, "The trick, William Potter, is in NOT MINDING that it hurts."

Pain is attitude dependent. The mere thought of trying to explain the WAE rules, one more time, has me cringing in anticipation of my mailbox filling with hate letters. But I'm gonna do it anyway.

The Deutscher Amateur-Radio-Club (DARC) presents this year's Worked All Europe (WAE) RTTY on the 2nd full weekend in November, starting at 1200 GMT on the 10th and ending at 2400 GMT on the 11th. To save everyone from a lot of painful mental activity, that's a total of thirty-six hours, from zero-dark-hundred on Saturday morning until dinner time on Sunday night.

There are three categories: Operate on 3.5, 7, 14, 21, and 28 Mhz or just the highest three and say a little prayer that 10 mtrs will open to Europe again this year. Multi-Single band entrees are All-Band only. Single operators pick 30 out of 36 hours with a minimum of 2 hours off required for any rest period. Multi's run the full 36 hours. They give Multi-op entrees extra time so they can explain the rules to all the rest who don't understand them, which, at last count, was approximately 92 percent of all RTTY stations in the known world.

All stations have to spend 15 minutes on a band before they can switch ... except a quick QSY to grab a multiplier. Except for the QTCs, anyone can work anyone with no continental restrictions. The exchange is an RST and a QSO number. You can work the same station on a new band for both QSO and multiplier credit.

All DXCC countries are multipliers, not just Europe. Multipliers count four times on 80 meters, three times on 40 and twice on the three high bands, 20, 15 and 10. Unfortunately, finding a multiplier on 80 and 40 is like getting a New York steak from a restaurant in Baghdad... lotsa luck. QSOs are worth one point each.

The punch line that makes WAE so tough to run is the QTCs. This year's North American results clearly illustrate this. If it were not for QTCs, AB0 Y's 274 QSO total with 174 multipliers would have placed him 8th in the world, overall and well ahead of this year's continental champ, AA5AU. The 200 QTC difference gave AA5AU a 28K scoring edge for a first place.

No one can win without putting full effort into QTC handling. A QTC is a report of a previous QSO. It contains the time, the call and the number received from that contact. You can exchange QTCs with any station NOT ON YOUR OWN CONTINENT, for one point each. You cannot send a report of a previous QSO back to the station who made the QSO, that is, sending OH2LU a QTC that says 1/352/OH2LU/131 won't work.

The sent and received QTC total with one station counts 10. Work a station as many times as you want for QTCs, but he only counts the once per band f or QSO or multiplier points (no number or exchange sent after the first time).

With the technology available at the average station let alone, someone who might be setup for contesting, the handling and reporting of a few QTC's should be a lark.

Here's a typical QSO exchange:
**Hal: "TG9VT DE WA7EGA"**
**John: "I'M NOT IN THE CONTEST."**
**Hal: "AW COME ON JOHN, GIMME A NUMBER."**
**John: "I DON'T EVEN UNDERSTAND THE RULES."**
**Hal: "GIMME NUMBER 001. I'M 599/001, RIGHT? YOU'RE MY NUMBER 599/428. COPY?**
**John: "ROGER, OKAY 599/001 HAL. WHY DO YOU ALWAYS DO THIS TO ME?"**
**Hal: "I QSL 599/001. THANKS JOHN. AAAH, DON'T SUPPOSE YOU'D LIKE TO GO TO 80 METERS?"**
**John: "I'M GOING BACK TO AMTOR"**

Of course, you do this with everyone you can find. Eventually you run onto somebody like Ted, HC5K who is looking for Diego, HC8VB on schedule (Ted is an "off" continent so is

good for 10 QTC points, plus the contact).

**Hal: "HEY TED. KAYPASO! YOUR 599 NR 502 GIMME A NUMBER"**
**Ted: "ANOTHER ONE? YOU DOING ANOTHER CONTEST?"**
**Hal: "ROGER, I QSL NUMBER ONE. I NEED AN RST."**
**Ted: "YOU GOTTA BE KIDDING. OKAY 599."**

**Hal: "OKAY NOW COPY QTCS 5/10... 2114/TG9VT/001..**
**2158/K6WZ/327.. ..**
**.etc. etc. etc."**

(NOTE: The way to keep track of QTCs is to batch them in 5's and 10's. The first batch of 5 QTCs sent to LZ2KIM would be QTC 1/5. Then a batch of 10 sent to HC5K would be QTC 2/10. These can be marked in the log and later sorted out separately for reporting purposes when you send in your log. Prepare separate sheets containing 50 QTCs each and which clearly show the date/time and the call of the station that sent or received each batch of QTCs.)

**Ted: "WHAT THE HELL ARE THESE?"**
**Hal: "THEY'RE QTC'S. WORTH ONE POINT EACH. COPY OKAY?"**
**Ted: "YEAH BUT WHAT AM I SUPPOSED TO DO WITH THEM? I DON'T EVEN HAVE THE PRINTER HOOKED UP?"**
**Hal: "THANKS TED. LETS GO TO 80 METERS."**

The good news is the WAE contest committee sends out REAL PLAQUES to the continental winners. WF5E gobbled one up last year for his Single-op, high band showing. K6WZ and AA5AU take turns and KA3DSX won the NA multi-op class. If we win this year, maybe we can get them to send out inscribed chunks of "The Wall."

Although it is not his first time at the top in the multi class, UZ9CW A's qualifies for high praise as he nearly doubled the score of his closest competitor and his crew, UA9CR, UZ9CU, UA9CGA AND UV9CAF certainly deserve a round of applause for their 421K effort.

The REALLY good news is that you don't have to compete against anyone outside your own continent, so it really doesn't matter if somebody in Europe, or Asia beats the pants off you. All you gotta do is this year is beat, Carl, Don, Jack or me. Come and join us this November.

Good luck! ... and when you're done, send your logs to:
WAEDC CONTEST COMMITTEE
P.O. BOX 1328
D-8950 KAUFBEUREN, FRG

de **Hal, WA7EGA** ■

# 1989 WAE CONTEST RESULTS

## ALL BAND SINGLE OPERATOR

| CALL | QSO | QTC | MX | SCORE |
|---|---|---|---|---|
| DJ6QT | 357 | 329 | 260 EU | 178360 |
| OE2DAN | 250 | 245 | 281 EU | 139095 |
| PA3DBS | 303 | 255 | 183 EU | 102114 |
| LZ2KIM | 320 | 101 | 233 EU | 98093 |
| SP3SUN | 247 | 113 | 268 EU | 96480 |
| HA6PX | 277 | 192 | 190 EU | 89110 |
| AA5AU | 230 | 259 | 173 NA | 84597 |
| K6WZ | 199 | 278 | 146 NA | 69642 |
| AB0Y/4 | 267 | 60 | 174 NA | 56898 |
| SP2UUU | 154 | 84 | 167 EU | 39746 |
| SP9BCH | 147 | 60 | 149 EU | 30843 |
| UB0QQ | 140 | 50 | 132 EU | 25080 |
| GW0ANA | 124 | 0 | 133 EU | 16492 |
| SP2DDX | 107 | 10 | 114 EU | 13333 |
| DF5BL | 87 | 0 | 121 EU | 10527 |
| JA2NNF | 39 | 79 | 67 AS | 7906 |
| IK1DFH | 65 | 0 | 77 EU | 5005 |
| SM6BUV | 45 | 8 | 72 EU | 3816 |
| DK5KJ | 51 | 10 | 52 EU | 3172 |
| P3RBT | 25 | 10 | 43 EU | 1505 |
| YO6FDE | 14 | 0 | 32 EU | 448 |

## SINGLE OPR. HIGH BAND (10/15/20)

| CALL | QSO | QTC | MX | SCORE |
|---|---|---|---|---|
| YU2W | 516 | 506 | 178 EU | 181916 |
| 4M5RY | 198 | 250 | 170 SA | 76160 |
| FF1NZH | 349 | 113 | 156 EU | 72072 |
| OA4ZV | 215 | 265 | 140 SA | 67200 |
| WF5E | 219 | 149 | 158 NA | 58144 |
| HB9DCW | 306 | 142 | 122 EU | 54656 |
| KI4MI | 110 | 160 | 128 NA | 34560 |
| SP6AOI/A | 161 | 51 | 118 EU | 25016 |
| Y24MN/A | 145 | 68 | 112 EU | 23856 |
| W6/G0AZT | 131 | 71 | 104 NA | 21008 |
| K8CV | 70 | 99 | 88 NA | 14872 |
| OH9SV | 135 | 0 | 110 EU | 14850 |
| DJ9IR | 90 | 64 | 96 EU | 14784 |
| DK6KI | 104 | 29 | 104 EU | 13832 |
| HP1AC | 119 | 16 | 102 NA | 13770 |
| UA3TN | 118 | 0 | 110 EU | 12980 |
| DL3BCQ | 114 | 48 | 76 EU | 12312 |
| VE7ARS | 106 | 46 | 70 NA | 10640 |
| WA4SSB | 53 | 99 | 70 NA | 10640 |
| SP2FN | 81 | 20 | 101 EU | 10201 |
| YO6JN | 119 | 9 | 76 EU | 9728 |
| OK2BXW | 100 | 18 | 56 EU | 6608 |
| KD8GC | 63 | 25 | 74 NA | 6512 |
| DF6ZY | 58 | 20 | 68 EU | 5304 |
| EA5FHE | 77 | 0 | 66 EU | 5082 |
| WA8FLF | 45 | 30 | 62 NA | 4650 |
| F6GTH | 68 | 20 | 52 EU | 4576 |
| VK4BQQ | 45 | 30 | 58 OA | 4350 |
| JA1WYQ | 34 | 39 | 58 AS | 4234 |
| OH9RP | 52 | 0 | 80 EU | 4160 |
| RA3DX | 51 | 5 | 70 EU | 3920 |
| EA8RA | 72 | 0 | 50 AF | 3600 |
| EC1CXI | 77 | 0 | 44 EU | 3388 |
| DJ2YE | 45 | 0 | 56 EU | 2520 |
| Y48MN | 39 | 0 | 62 EU | 2418 |
| Y22GC | 41 | 0 | 56 EU | 2296 |
| ZL2AKI | 21 | 41 | 34 OA | 2108 |
| Y22HF | 50 | 0 | 33 EU | 1650 |
| SM4CMG | 27 | 0 | 40 EU | 1480 |
| YO7FT | 34 | 0 | 36 EU | 1224 |
| K2RYI | 20 | 19 | 28 NA | 1092 |
| I2HWI | 26 | 0 | 40 EU | 1040 |
| SP9MAX | 24 | 0 | 36 EU | 864 |
| LZ1KKR | 20 | 10 | 22 EU | 660 |
| Y21GO | 20 | 0 | 28 EU | 560 |
| WD4JBL | 17 | 0 | 26 NA | 442 |
| WB4UBD | 14 | 0 | 24 NA | 336 |
| Y23YE | 10 | 0 | 10 EU | 100 |
| ZK2RY | 5 | 0 | 8 OA | 40 |
| I0KHP | 4 | 0 | 8 EU | 32 |

## MULTI OPERATOR

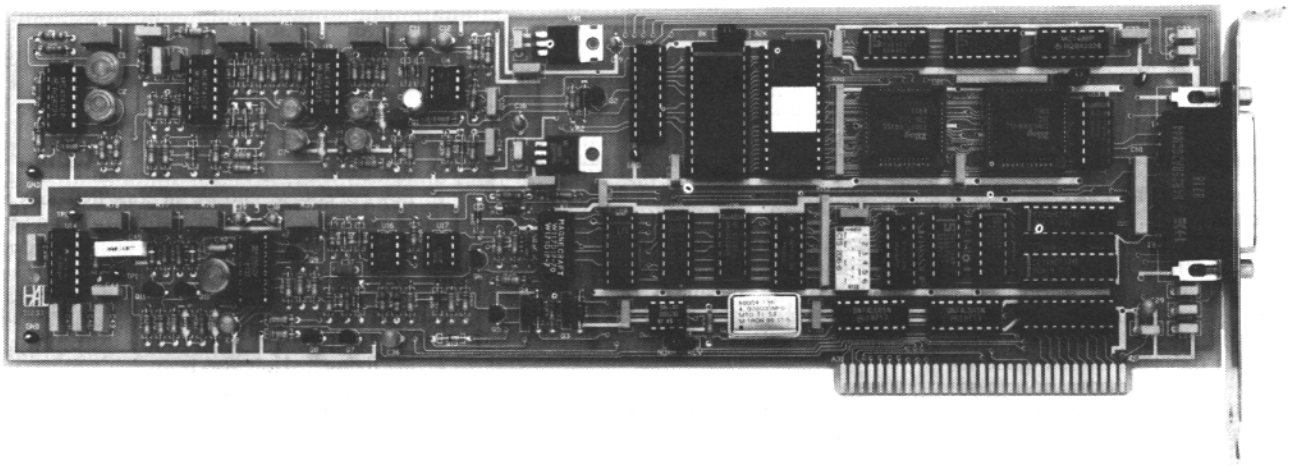
| CALL | QSO | QTC | MX | SCORE |
|---|---|---|---|---|
| UZ9CWA | 443 | 883 | 318 AS | 421668 |
| LZ1KSP | 407 | 430 | 300 EU | 251100 |
| RL8PYL | 465 | 190 | 256 AS | 167680 |
| LA3T | 235 | 80 | 150 EU | 47250 |
| SP1PBW | 151 | 83 | 176 EU | 41184 |
| UZ3DWH | 235 | 0 | 164 EU | 38540 |
| HB9DJU | 152 | 223 | 84 EU | 31500 |
| YU4ECT | 62 | 20 | 62 EU | 5084 |
| KA3DSX | 28 | 50 | 50 NA | 3900 |

### APlink UPDATE

It was reported recently that APlink programs would be available from Paul Newland, AD7I but that has now been changed. Due to heavy work loads, Paul has made arrangements for interested parties to obtain copies of the program in the future from TAPR. So please, do NOT send requests to Paul any longer, this will only delay your request. Copies are available as follows: Send $2.00 (US) for each disk which includes shipping to anywhere in the USA (including APO/FPO) as well as Canada and Mexico to TAPR, PO BOX 12925, Tucson, Az 85732. TAPR phone and FAX numbers are: Tel, (602) 749-9479 and FAX, (602) 749-5636.

For locations outside this designated area additional shipping charges are as follows: to Caribbean, Central or South America add $2.00 per shipment; to Europe, Africa or Middle East add $3.00 per shipment; to Pacific, Asia or anywhere else add $4.50 per shipment. APlink User's manuals (this is not s SYSOP's manual) are still available from Paul for a SASE (9X12 inches minimum). Paul's address is: PO BOX 205, Holmdel, NJ 07733, USA.

# A Winning Combination . . .
# The PCI-3000 and SPT-2 from HAL!



The HAL PCI-3000/PC-AMTOR system is designed to put your PC on the HF bands with outstanding performance at an affordable price. Amtor allows you to get through when other methods fail. If you've ever been DX-ing with someone on Amtor when 20 meters dies out in the evening, you know what we mean. Things may slow down, but you can usually keep up the QSO!

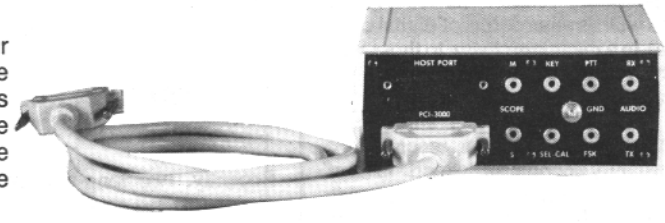
The PCI-3000 doesn't limit you to Amtor. You also get high-performance Baudot and ASCII RTTY, CW, and Search Mode. Search Mode lets you simply tune in the signal—we take it from there. The PCI-3000 automatically finds the correct code, speed, and polarity. No more guessing!

If you want to communicate on HF, do it right with the PCI-3000! Call HAL Communications—your AMTOR source—and put your PC on the air today!


## SPT-2 Spectra-Tune:

For ease of tuning your PCI-3000, add the SPT-2 Spectra-Tune. The Spectra-Tune lets you tune in CW and RTTY signals quickly and accurately with a calibrated linear 30-segment bar graph. The bar graph represents a 600 Hz range of the audio spectrum, centered at 2210 Hz for RTTY and AMTOR, and 800 Hz for CW. Calibrated marks indicate the proper frequency for AMTOR, RTTY, and CW tuning.

A cable is included with the SPT-2 for providing power and control from the PCI-3000. The rear panel of the SPT-2 provides convenient "RCA" phono connectors for all radio connections. This avoids having to make radio connections directly to the PCI-3000. Enhance your PCI-3000 system with the SPT-2 Spectra-Tune Today!

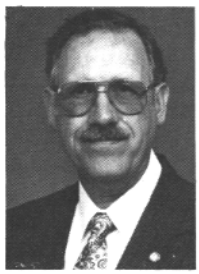



**HAL Communications Corp.**
**P.O. Box 365**
**Urbana, IL 61801**
**Phone (217) 367-7373**
**FAX (217) 367-1701**

PCI-3000/PC-AMTOR with software **$395.**
SPT-2 Spectra-Tune with cable **$169.**
FIL-1 Amtor/RTTY filter (installs in SPT-2) **$69.**

(Low tone export models available.)

CIRCLE 58 ON READER SERVICE CARD



# MSO'S

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

Hi Gang! Can it really be Fall so soon? Where has Summer gotten off to? Time really flies when you're having fun! MSO activity has been a bit less than usual during this past Summer, although, in the past few weeks, it seems to picking up again. Some of the old "regulars" have been showing up on the National Autostart Frequency, (14 085 625 Hz), and it's good to see them! Illness has claimed a couple of MSO's in the past few months, but I'm happy to report that problem is in the past!

## DALE SINNER, W6IWO, JOINS THE ARRL "DIGITAL COMMITTEE"!

Although I'm probably going to steal a bit of Dale's thunder with this segment, I want to be one of the first to congratulate Dale on accepting the ARRL's offer to become an active member of the ARRL Digital Committee. As many of you know, I've been beating the drums for quite a period of time for more adequate representation for RTTY and AMTOR on this committee. And finally it appears that this will come to pass.

It may seem to some that this will be a plush appointment for Dale, hob-nobbing with the ARRL Headquarters Staff, being privy to "inside" information, and being one of the kingpins in formulating ARRL policy, with respect to digital communications. But, I hasten to point out that it will be a lot of WORK as well! This is not an appointment that provides remuneration, blank checks, credit cards, and fancy hotels! It will be a sacrifice for Dale in time spent away from his home and family, time otherwise spent on The RTTY Journal, etc.

The positive side of this appointment however, is that Dale will have the opportunity to present facts and positions relative to RTTY and AMTOR (as well as other forms of digital communications) in a meaningful way to those who make policy and decisions concerning these areas. It's at this point where you and I get involved in helping Dale! As he pointed out in a conversation with this author recently, it's difficult to instantly become an "expert" in all of these areas, to the point where he can provide meaningful input. It will be up to you and me to provide input to Dale concerning the areas and aspects of digital communications that we use on a day-to-day basis.

It is apparent to me that those of us involved in digital communications do have a voice in what happens concerning the rules and regulations applicable to this aspect of Amateur Radio. The recent activity concerning "unattended digital systems" demonstrates this quite adequately. But now, we have one of our own on the Digital Committee, and it's important for us to support him in any way we can. Good luck to Dale on his appointment, and let's keep him informed on our suggestions and ideas.

## UPDATE ON JERRY TRICHTER, WA1IUF

Frank Moore, WA1URA, and his family recently visited Jerry, WA1IUF, in Connecticut, and provides the following information concerning Jerry's state of health.

Jerry is presently residing in the Branford Health Center, 189 Alps Road, Branford, CT, 06405. His condition is slightly improved, although Jerry still has a long way to go. His short term memory is still the biggest problem, although Jerry remembers things five years past, and from the World War II era. Jerry enjoys watching TV, and visiting with friends, and dearly loves to hear from his friends and associates. We can all make Jerry's days a bit brighter by dropping him a short note or card in the mail, to the address listed above. Take a few minutes to drop him a line, as it is very important for him!

## W6ZRR MSO BACK ON THE AIR

It's good to see Ernie Johnson's (W6ZRR) MSO back up and running on the National Autostart Frequency. Ernie has had a bit of bad luck with his health in the past couple of months, but is now feeling much better, and returning to daily activities. His MSO in the San Luis Obispo area has provided service for many years, and we're glad to see it back up and running once again. Hang in there Ernie!

## INTERESTED IN RUNNING A MSO?

Recently, two long-time MSO sysop's have decided to sell their HAL MSO systems, and here's a chance for others to purchase what has to be the best in dedicated MSO Systems. Both Jay, KB0ATQ, and Don, W5QXK, have their HAL MPT-3100 systems up for sale. Information about the systems may be found in their MSO's on the National Autostart Frequency. Both Don and Jay will remain active in the MSO area however, although with computer based equipment. Jay runs MSO's on both 10 and 20 Meters, (uses DoubleDos and the W9CD MSO software) and Don is heavy into the Packet BBS scene. For further information concerning these systems, contact the individuals concerned.

## UPDATE ON GAYLORD, WB8ICL

I had a very nice RTTY QSO with Gaylord Crawley, WB8ICL, recently. Gaylord is still fighting a battle with cancer, and is making very good progress in defeating it. Gaylord continues on chemotherapy, but his doctors have told him that he is in full remission. That's very good news of course, and we all hope that he is back to good health in short order! As many of you know, Gaylord has removed his MSO from the National Autostart Frequency, and also discontinued his AMTOR BBS. But, he certainly hasn't been idle! Gaylord has finished building his new ultralight aircraft, and has been enjoying flying it. He's also been doing some camping and fishing. Keep up the fight Gaylord, and we look forward to seeing you more often on RTTY!

## RTTY DX NEWS

As many of you know, the WB8ICL MSO contained the RTTY DX news for several years. Now that this MSO is no longer active, the DX NEWS can be found in both the KA0JRQ (MSOJRQ) and K5FL (MSO5FL) MSO's on the National Autostart Frequency. Thanks guys for picking up the ball!

## AUTHORS PLEADINGS

It's quite difficult for any author to prepare 10 columns a year concerning a specialized area such as MSO's. I'm sure that I'm not the only one who has set forth this complaint! But, this column is written for your consumption and interest, and not to increase my popularity or status in the Amateur community. Without some significant input from those of you involved in the use, maintenance and operation of MSO's, I run out of things to say in a hurry. So, I'm down on bended knee, asking that you provide me with little tidbits now and then about what you are doing in this area. Have you made any changes in your MSO equipment, software, operating hours, etc? Do you have some ideas, complaints or better ways of accomplishing tasks associated with MSO's? Would you like to see "how to" articles concerning equipment, procedures, etc? Without some reader input, I, alone, make the decisions as to what appears in each issue concerning MSO's. WITH reader input, I provide input relative to what YOU want to see in the column. So, I ask that you take pen in hand, and drop me a line about what you are doing in the MSO area. It doesn't have to be elaborate, typed text, just your thoughts on what's happening! If you are a MSO Sysop, and you'd like to have your MSO featured in this column, send me some information, and especially some pictures.

That's it for this month gang! Ol' Man Winter is just around the corner, so now's the time to spruce up those antenna's, etc. See you next month! de **Dick, K0VKH** ■

# ARRL RTTY ROUNDUP SCORES FROM 1990

SEPARATED BY CLASS AND WORLD CLASS

## LISTED OPERATORS AT MULTI OP STATIONS

KA3DSX (+KA3HNM)
KO0Z (+NF0Q)
KY1F (+KA1RJJ,KD3HN)
LZ2KIM (LZ2MP,ops)
N0BG (+KA0KPB)
N2DCP (+KA4WJP)
N4UNE (+KF4WB)
NW0F (+KA0REN, N0FMR)
SP2ZCD (SP2UUU,SP0s 289GD,313GD,ops)
UZ9CWA (UA9s CFV,CGA,UV9CAF,UZ9CU, ops)
VE3UR (+VE3s AXJ,IW,NIT)
VE7ZZZ (VE7s ARS,AV,DRS,DSN,EME,SK,SSS,ops)
W3/VK1GN (+WD4KYI)
W5VZF (KB4HB,WA4DDE, ops)
W7ZAC (+ops)
WA7EGA (+K7DSR,N7KRG,WB7AVD)
NOTE: WA7EGA is in Eastern Washington section

### MULTI-OPERATOR DX 3

| Call | Score | PTs | MX | HRS |
|---|---|---|---|---|
| UZ9CWA | 48500 | 500 | 97 | 24B |
| LZ2KIM | 33670 | 370 | 91 | 24B |
| SP2ZCD | 340 | 20 | 17 | 24A |

### MULTI-OPERATOR W/VE 13

| | | | | |
|---|---|---|---|---|
| WA7EGA | 60819 | 627 | 97 | 24 B |
| VE7ZZZ | 55091 | 619 | 89 | 24 B |
| N0BG | 48633 | 559 | 87 | 24 B |
| KY1F | 27375 | 365 | 75 | 13 B |
| N2DCP | 21842 | 326 | 67 | 15 A |
| W7ZAC | 16065 | 255 | 63 | 18 B |
| VE3UR | 12358 | 167 | 74 | 24 A |
| W3/VK1GN | 11700 | 195 | 60 | 24 A |
| N4UNE | 6936 | 136 | 51 | 23 A |
| KA3DSX | 6837 | 129 | 53 | 17 B |
| NW0F | 2666 | 86 | 31 | 10 A |
| KO0Z | 1533 | 73 | 21 | 11 A |
| W5VZF | 8272 | 176 | 47 | 22 A |

### SING.OP STATIONS H.Pwr DX 14

| | | | | |
|---|---|---|---|---|
| 5K1R (HK1LDG, op) | 52116 | 516 | 101 | 24 B |
| KL7XD | 48598 | 517 | 94 | 21 B |
| AL7BB | 29100 | 388 | 75 | 24 B |
| 9J2AL | 26720 | 334 | 80 | 24 B |
| OH2LU | 25160 | 296 | 85 | 16 B |
| EA8RA | 10384 | 176 | 59 | 23 B |
| SP9BCH | 8085 | 147 | 55 | 24 B |
| CE3BFZ | 5734 | 122 | 47 | 24 B |
| HP1AC | 3741 | 87 | 43 | 24 B |
| SM4GVR | 2208 | 69 | 32 | 8 B |
| 9Y4BU | 2016 | 63 | 32 | 10 B |
| KE9A/DU3 | 1386 | 63 | 22 | 4 B |
| SM4CMG | 840 | 42 | 20 | 3 B |
| SM4CJY | 456 | 24 | 19 | 7 B |

### SING OP. H. Pwr. W/VE 48

| | | | | |
|---|---|---|---|---|
| WS7I | 64315 | 677 | 95 | 24 B |
| W3LPL (W3EKT, op) | 62933 | 611 | 103 | 23 B |
| NJ0M | 58045 | 611 | 95 | 24 B |
| WF5E | 56932 | 662 | 86 | 24 B |
| KB1EM | 50313 | 541 | 93 | 24 B |
| W4HBK | 46092 | 501 | 92 | 24 B |
| K6WZ | 40970 | 482 | 85 | 24 B |
| N6GG | 40572 | 483 | 84 | 23 B |
| AB8K | 40320 | 420 | 96 | 20 B |
| AA4TH | 33136 | 436 | 76 | 24 B |
| W3FV | 32718 | 399 | 82 | 24 B |
| N8ABW | 30788 | 358 | 86 | 22 B |
| NO2T | 30770 | 362 | 85 | 24 B |
| NT3B | 30627 | 369 | 83 | 22 B |
| AA4M/6 | 30266 | 409 | 74 | 21 B |
| N2FF | 22437 | 277 | 81 | 20 B |
| NO3X | 20232 | 281 | 72 | 24 B |
| W6JOX | 17068 | 251 | 68 | 22 B |
| WK5M | 15660 | 261 | 60 | 24 B |
| K0BX | 13794 | 209 | 66 | 20 B |
| NQ0I | 12954 | 254 | 51 | 8 B |
| AI7B | 12528 | 216 | 58 | 24 B |
| N2HOS | 12496 | 176 | 71 | 24 B |
| I2KYM | 11088 | 168 | 66 | 7 B |
| WF5T | 10296 | 143 | 72 | 11 B |
| WA2USA | 10192 | 182 | 56 | 20 B |
| KC7QR | 9636 | 146 | 66 | 17 B |
| KA1LMR | 7869 | 129 | 61 | 14 B |
| WA8FLF | 6728 | 116 | 58 | 21 B |
| W0LHS | 5883 | 111 | 53 | 24 B |
| W2YRH | 5772 | 111 | 52 | 24 B |
| WC4E | 4410 | 105 | 42 | 24 B |
| WD4JBL | 4368 | 112 | 39 | 18 B |
| W2JGR | 4300 | 100 | 43 | 7 B |
| KN4CG | 3984 | 83 | 48 | 12 B |
| K2LCK | 3952 | 104 | 38 | 24 B |
| W8CNL | 3840 | 80 | 48 | 12 B |
| W9FFQ | 3654 | 87 | 42 | 11 B |
| KA9DZM | 3600 | 75 | 48 | 24 B |
| WA0GMX | 3534 | 93 | 38 | 24 B |
| WA2SYN | 3240 | 81 | 40 | 9 B |
| WX8X | 3185 | 91 | 35 | 8 B |
| NT3C | 2520 | 60 | 42 | 9 B |
| WA5VBE | 2277 | 69 | 33 | 6 B |
| N0IWL | 2145 | 65 | 33 | 24 B |
| W0BKS | 1550 | 50 | 31 | 24 B |
| NA2Q | 520 | 26 | 20 | 2 B |
| WB5YLT | 425 | 25 | 17 | 5 B |

### SING. OP. L. Pwr. DX 29

| | | | | |
|---|---|---|---|---|
| 4M5RY (YV5KAJ,op) | 52427 | 509 | 103 | 22 A |
| EA9JV | 28835 | 365 | 79 | 24 A |
| G0ATX | 27924 | 358 | 78 | 24 A |
| EA8AKQ | 18462 | 181 | 102 | 15 A |
| G0ARF | 17537 | 247 | 71 | 22 A |
| PA3DBS | 16848 | 234 | 72 | 24 A |
| AL7BK | 16120 | 260 | 62 | 15 A |
| SP3SUN | 13802 | 206 | 67 | 24 A |
| SM6ASD | 13481 | 221 | 61 | 24 A |
| HA5CP | 9954 | 158 | 63 | 16 A |
| JA3DLE/1 | 9350 | 170 | 55 | 14 A |
| WH6I | 5566 | 121 | 46 | 9 A |
| G4MKO | 5418 | 126 | 43 | 18 A |
| DK3EA | 5229 | 83 | 63 | 10 A |
| AL7LD | 4935 | 105 | 47 | 14 A |
| GW0ANA | 4859 | 113 | 43 | 21 A |
| IO0KHP | 4004 | 91 | 44 | 13 A |
| YO2IS | 2937 | 89 | 33 | 24 A |
| UA3TN | 2928 | 61 | 48 | 14 A |
| ON9CEB | 2800 | 80 | 35 | 14 A |
| AH6IX | 2079 | 63 | 33 | 10 A |
| LA0BX | 1980 | 55 | 36 | 10 A |
| F6GVK | 1404 | 52 | 27 | 7A |
| ZP6XDW | 1344 | 48 | 28 | 24 A |
| OZ7FN | 1092 | 42 | 26 | 7 A |
| VK2BQQ | 1008 | 48 | 21 | 12 A |
| JA3BSH | 546 | 26 | 21 | 12 A |
| PY4HH | 476 | 28 | 17 | 9 A |
| JA1WYQ | 300 | 20 | 15 | 4 A |
| UA1OT | 2 | 2 | 1 | 1 A |

### SING.OP. L. Prw. W/VE 143

| | | | | |
|---|---|---|---|---|
| KE0KB | 48598 | 517 | 94 | 20 A |
| KG5EG | 46371 | 533 | 87 | 23 A |
| AA5AU | 45150 | 525 | 86 | 24 A |
| E6ZX | 36176 | 476 | 76 | 23 A |
| KC2FD | 32648 | 424 | 77 | 24 A |
| NO1Y | 32120 | 365 | 88 | 20 A |
| WB7RBJ | 31995 | 395 | 81 | 24 A |
| VY9CC (VE3JPC,op) | 31902 | 409 | 78 | 24 A |
| NU1E | 27540 | 324 | 85 | 24 A |
| WJ7S | 27120 | 339 | 80 | 23 A |
| W6/G0AZT | 27075 | 361 | 75 | 24 A |
| K4IBP | 27060 | 330 | 82 | 24 A |
| K4IBP | 26811 | 331 | 81 | 24 A |
| WB7Y | 25740 | 396 | 65 | 23 A |
| K4JYS | 23940 | 285 | 84 | 16 A |
| W7LHO | 22997 | 377 | 61 | 24 A |
| KD4W | 21284 | 313 | 68 | 22 A |
| NZ7D | 20235 | 285 | 71 | 20 A |
| W9KDX | 19275 | 257 | 75 | 24 A |
| K5LTW | 19175 | 295 | 65 | 24 A |
| VE4GV | 17856 | 279 | 64 | 24 A |
| KC4CSD | 17696 | 224 | 79 | 20 A |
| W5NBI | 16524 | 243 | 68 | 13 A |
| N0GYN | 16284 | 276 | 59 | 16 A |
| WB6SSW | 16128 | 252 | 64 | 24 A |
| WW8Q | 15960 | 266 | 60 | 24 A |
| WA2PNI | 15820 | 226 | 70 | 23 A |
| WA7PVE | 15759 | 309 | 51 | 24 A |
| KD2XN | 15696 | 218 | 72 | 21 A |
| W1BYH | 15675 | 209 | 75 | 17 A |
| W8PBX | 15368 | 226 | 68 | 18 A |
| WB8WRY | 15314 | 247 | 62 | 20 A |
| WB8EJN | 15080 | 260 | 58 | 16 A |
| KM3V | 15042 | 218 | 69 | 15 A |
| NM3E | 14981 | 211 | 71 | 24 A |
| WA3ZKZ | 14868 | 236 | 63 | 18 A |
| WB3DDF | 14701 | 241 | 61 | 23 A |
| KA0SIX | 14580 | 270 | 54 | 20 A |
| K1HKI | 14460 | 241 | 60 | 20 A |
| WA6SDM | 13920 | 232 | 60 | 24 A |
| W9XU | 13826 | 223 | 62 | 15 A |
| KD8GC | 13764 | 186 | 74 | 17 A |
| WM2U | 13740 | 229 | 60 | 21 A |
| W8LNK | 13608 | 216 | 63 | 19 A |
| KI4MI | 12104 | 178 | 68 | 19 A |
| N1FJG | 11956 | 196 | 61 | 23 A |
| WO0E | 11816 | 211 | 56 | 15 A |
| WB2ZQP | 11590 | 190 | 61 | 18 A |
| WE0Q | 11501 | 217 | 53 | 20 A |
| KD4MM | 11440 | 176 | 65 | 22 A |
| KA1QFU | 11408 | 184 | 62 | 24 A |
| VE2OWL | 11275 | 205 | 55 | 22 A |
| KB5FDV | 11041 | 181 | 61 | 23 A |
| KA1SDI | 10976 | 196 | 56 | 22 A |
| W1HFN | 10920 | 168 | 65 | 18 A |
| N0HYG | 10812 | 204 | 53 | 21 A |
| WA3UXZ | 10710 | 210 | 51 | 24 A |
| W9HLQ | 10675 | 175 | 61 | 22 A |
| W4TOY | 9932 | 191 | 52 | 18 A |
| WB9CEP | 8745 | 159 | 55 | 24 A |
| WA0QIT | 8680 | 155 | 56 | 18 A |
| W1AX | 8640 | 135 | 64 | 6 A |
| N5OVV | 8424 | 156 | 54 | 18 A |
| W2PDT | 8415 | 153 | 55 | 19 A |
| VE3CZ | 8294 | 143 | 58 | 18 A |

| Call | Score | Pts | Mx | Hrs |
|---|---|---|---|---|
| WA4BHK | 8001 | 127 | 63 | 13 A |
| KK4DK | 7860 | 131 | 60 | 18 A |
| WA4MCZ | 7695 | 135 | 57 | 12 A |
| AB4GR | 7400 | 148 | 50 | 22 A |
| KC3ST | 7398 | 137 | 54 | 18 A |
| N3GLE | 6858 | 127 | 54 | 24 A |
| KA1IFE | 6732 | 132 | 51 | 18 A |
| N1FIO | 6650 | 133 | 50 | 10 A |
| ND2K | 6273 | 123 | 51 | 10 A |
| NJ7H | 6210 | 115 | 54 | 16 A |
| KA3LNA | 6118 | 133 | 46 | 10 A |
| KB7FNI/T | 6109 | 149 | 41 | 14 A |
| KD2BW | 6000 | 125 | 48 | 19 A |
| N8APA | 5995 | 109 | 55 | 14 A |
| K1CGJ | 5824 | 112 | 52 | 12 A |
| K7GS | 5772 | 148 | 39 | 8 A |
| KA9ZVI | 5760 | 120 | 48 | 10 A |
| WA9YII | 5719 | 133 | 43 | 17 A |
| W2KHQ | 5564 | 107 | 52 | 13 A |
| KM4IG | 5424 | 113 | 48 | 20 A |
| NU7F/4 | 5355 | 105 | 51 | 11 A |
| KB9ATR | 5290 | 115 | 46 | 10 A |
| KN3P | 5253 | 103 | 51 | 10 A |
| KC1JP | 5184 | 108 | 48 | 19 A |
| KL7TF/4 | 4992 | 104 | 48 | 14 A |
| K9RRB/3 | 4692 | 102 | 46 | 14 A |
| K0DJW | 4635 | 103 | 45 | 17 A |
| VE6EZ | 4326 | 103 | 42 | 13 A |
| K0VW | 4240 | 106 | 40 | 9 A |
| W8AKS/6 | 4140 | 90 | 46 | 8 A |
| KB5ILS | 3492 | 97 | 36 | 7 A |
| N1DM | 3420 | 90 | 38 | 12 A |
| W1UBG | 3344 | 76 | 44 | 8 A |
| K0WM | 3296 | 103 | 32 | 11 A |
| W2ZPO | 3276 | 78 | 42 | 11 A |
| VE3JAN | 3120 | 65 | 48 | 20 A |
| WT2Y | 3040 | 76 | 40 | 22 A |
| KC9UU | 2775 | 75 | 37 | 24 A |
| KG5QG | 2665 | 65 | 41 | 12 A |
| N4ONQ/T | 2345 | 67 | 35 | 6 A |
| WA4DYD | 2343 | 71 | 33 | 24 A |
| N6RJB | 2318 | 61 | 38 | 3 A |
| KB7M | 2266 | 103 | 22 | 5 A |
| K4FPF | 2211 | 67 | 33 | 9 A |
| W9FXV/1 | 2211 | 67 | 33 | 13 A |
| KE2JY | 2046 | 62 | 33 | 7 A |
| WD6FYJ | 2046 | 66 | 31 | 19 A |
| NS1Z | 1947 | 59 | 33 | 8 A |
| NY1V | 1947 | 59 | 33 | 10 A |
| N2FTR | 1802 | 53 | 34 | 7 A |
| N2KAW/T | 1728 | 54 | 32 | 14 A |
| KD7H | 1701 | 63 | 27 | 18 A |
| WB2VTD | 1666 | 49 | 34 | 15 A |
| NF1J | 1584 | 48 | 33 | 6 A |
| VK3EBP | 1560 | 52 | 30 | 20 A |
| WR0M | 1512 | 54 | 28 | 11 A |
| WA9AQE | 1479 | 51 | 29 | 6 A |
| W3/G3ZCZ | 1450 | 50 | 29 | 10 A |
| WB0IBZ | 1428 | 51 | 28 | 10 A |
| WB8WTS | 1421 | 49 | 29 | 2 A |
| VE2GDZ | 1378 | 53 | 26 | 8 A |
| W3TUX | 1344 | 42 | 32 | 7 A |
| WA3SDV | 1188 | 44 | 27 | 14 A |
| W1UDB/4 | 1134 | 42 | 27 | 8 A |
| KA1SSU/T | 1092 | 39 | 28 | 9 A |
| N6RY/7 | 1014 | 39 | 26 | 6 A |
| KA2WYE/T | 814 | 37 | 22 | 13 A |
| N8IRS/T | 620 | 31 | 20 | 12 A |
| KB2GKY/T | 612 | 36 | 17 | 11 A |
| KB8HZE/N | 522 | 29 | 18 | 8 A |
| WA8IMF | 468 | 26 | 18 | 7 A |
| AB4SF | 456 | 24 | 19 | 7 A |
| VE2FFE | 450 | 25 | 18 | 4 A |
| WB0QIR/T | 384 | 32 | 12 | 7 A |
| W0EGV | 200 | 20 | 10 | 8 A |
| WA3VIL | 182 | 14 | 13 | 7 A |
| KA3AFY | 117 | 13 | 9 | 4 A |
| KC1HH | 80 | 10 | 8 | 10 A |

## TOP TEN WORLD SCORES, MULTI-OP.

| CALL | SCORE | PTS | MX | HRS |
|---|---|---|---|---|
| WA7EGA (+Ops) | 60819 | 627 | 97 | 24B |
| VE7ZZZ (+OPS) | 55091 | 619 | 89 | 24 B |
| N0BG (+KA0KPB) | 48633 | 559 | 67 | 24 B |
| UZ9CWA (+OPS) | 48500 | 500 | 97 | 24 B |
| LZ2KIM (+LZ2MP) | 33670 | 370 | 91 | 24 B |
| KY1F (+OPS) | 27375 | 365 | 75 | 13 B |
| N2DCP (+KA4WJP) | 21842 | 326 | 67 | 15 A |
| W7ZAC (+OPS) | 16065 | 255 | 63 | 18 B |
| VE3UR (+OPS) | 12358 | 167 | 74 | 24 A |
| W3/VK1GN (WD4KYI) | 11700 | 195 | 60 | 24 A |

## TOP TEN WORLD SCORES, SINGLE OP (HIGH POWER)

| | | | | |
|---|---|---|---|---|
| WS7I | 64315 | 677 | 95 | 24 B |
| W3LPL (W3EKT, op) | 62933 | 61 | 103 | 23 B |
| NJ0M | 58045 | 611 | 95 | 24 B |
| WF5E | 56932 | 662 | 86 | 24 B |
| 5K1R (HK1LDG, op) | 52116 | 516 | 101 | 24 B |
| KB1EM | 50313 | 541 | 93 | 24B |
| KL7XD | 48598 | 517 | 94 | 21 B |
| W4HBK | 46092 | 501 | 92 | 24 B |
| K6WZ | 40970 | 482 | 85 | 24 B |
| N6GG | 40572 | 483 | 84 | 23 B |

## TOP TEN WORLD SCORES, SINGLE OP (LOW POWER)

| | | | | |
|---|---|---|---|---|
| 4M5RY (YV5KAJ,op) | 52427 | 509 | 103 | 22 A |
| KE0KB | 48598 | 517 | 94 | 20 A |
| KG5EG | 46371 | 533 | 87 | 23 A |
| AA5AU | 45150 | 525 | 86 | 24 A |
| VE6ZX | 36176 | 476 | 76 | 23 A |
| KC2FD | 32648 | 424 | 77 | 24 A |
| NO1Y | 32120 | 365 | 88 | 20 A |
| WB7RBJ | 31995 | 395 | 81 | 24 A |
| VY9CC (VE3JPC,op) | 31902 | 409 | 78 | 24 A |
| EA9JV | 28835 | 365 | 79 | 24 A |

## RTTY ON MALDIVES ISLAND

Florence Mellet-Faurez F6FYP and Sylvio, F6EEM earlier this year were operators of stations 8Q7DC and 8Q7DB from the Maldives Islands. If you worked these operators, then you know this was a first time for RTTY from this location. The station was set up on the Island of Makunudu which is located in the north-eastern part of the archipelago. They made 2500 contacts on all modes of which many were with RTTYers.

In a letter to John Troost, TG9VT, Florence related that they were involved with the publication of MEGAHERTZ Magazine in France. She indicated a desire to exchange publications with the Journal and that has been done. The picture below shows Florence at the keyboard as operator 8Q7DC. Many thanks to Florence and Sylvio, F6EEM, for giving us this rare one on RTTY.

*DXers Hiro, JA2EZD and Ken, K6IR at contest winning station of K3ZO in Temple Hills, MA. 1990*

# B.A.R.T.G. 1990 HF CONTEST RESULTS

### MULTI-OPERATOR

| | CALL | QSO | CYT | CNT | SCORE |
|---|---|---|---|---|---|
| 1. | WA7EGA | 6048 | 222 | 6 | 1,427,856 |
| 3. | ZB2/HB9DCQ | 7250 | 163 | 6 | 1,377,350 |
| 4. | LZ2KIM | 5168 | 161 | 6 | 1,025,248 |
| 5 | G3UUP | 4270 | 142 | 6 | 776,740 |
| 6. | UZ0LWC | 3406 | 128 | 6 | 589,568 |
| 7. | OK2RJB | 2492 | 104 | 6 | 383,968 |
| 8. | A3T | 1800 | 92 | 5 | 257,600 |
| 9. | Y5lCF | 612 | 31 | 5 | 49,972 |
| 10. | SP9KVF | 524 | 30 | 3 | 33,720 |
| 11. | Y62CJ | 190 | 13 | 2 | 7,670 |

### SINGLE OPERATOR ALL BAND

| | | | | | |
|---|---|---|---|---|---|
| 1. | W3LPL | 5034 | 189 | 6 | 1,178,226 |
| 2. | SM5FUG | 4680 | 150 | 6 | 882,000 |
| 3. | HA6PX | 4782 | 145 | 6 | 867,390 |
| 4. | FDlLVW | 4182 | 143 | 6 | 769,626 |
| 5. | OH2L | 3852 | 152 | 6 | 767,904 |
| 6. | I2HEO | 4022 | 147 | 6 | 767,634 |
| 7. | I8KFR | 3798 | 138 | 6 | 689,724 |
| 8. | K6WZ/O | 3524 | 138 | 6 | 651,912 |
| 9. | NOlY | 3344 | 138 | 6 | 627,072 |
| 10. | DFlIK/P | 3422 | 131 | 6 | 605,482 |
| 11. | TA3B | 4180 | 109 | 6 | 586,420 |
| 12. | NTOV | 3100 | 131 | 6 | 563,300 |
| 13. | N6GG | 2244 | 153 | 6 | 526,932 |
| 14. | I2TQU | 2734 | 132 | 6 | 519,288 |
| 15. | IA5PLB | 3230 | 108 | 6 | 478,440 |
| 16. | N8ABW | 2908 | 114 | 5 | 445,512 |
| 17. | HA5CP | 1502 | 107 | 6 | 396,114 |
| 18. | ZC4NC | 2822 | 98 | 6 | 394,156 |
| 19. | ZL3GQ | 1920 | 110 | 6 | 343,200 |
| 20. | CU2CB | 2910 | 87 | 5 | 340,170 |
| 21. | SP9BCH | 2276 | 97 | 6 | 337,172 |
| 22. | Y24MN/A | 2110 | 107 | 5 | 332,770 |
| 23. | WB6ZHN | 1836 | 104 | 6 | 315,744 |
| 24. | W2JGR | 1952 | 104 | 5 | 307,008 |
| 25. | JY9SR | 2600 | 85 | 5 | 306,000 |
| 26. | WlBYH | 1686 | 101 | 6 | 291,486 |
| 27. | IV3UT | 1714 | 108 | 4 | 271,512 |
| 28. | KI4MI | 1574 | 104 | 5 | 267,696 |
| 29. | G0ARF | 1834 | 80 | 6 | 266,992 |
| 30. | VU2NBT | 1952 | 77 | 5 | 227,304 |
| 31. | IV3ZDO | 1658 | 79 | 6 | 225,782 |
| 32. | IK8HCM | 1546 | 96 | 4 | 225,216 |
| 33. | N9CCI | 1680 | 83 | 5 | 222,440 |
| 34. | HA6VV | 1656 | 76 | 6 | 217,056 |
| 35. | W8CNL/4 | 1432 | 89 | 5 | 216,448 |
| 36. | G3XVF | 1080 | 91 | 6 | 207,480 |
| 37. | HPlAC | 1730 | 76 | 5 | 207,480 |
| 38. | HA6NA | 1524 | 75 | 6 | 204,300 |
| 39. | GOIXE | 1420 | 78 | 5 | 188,760 |
| 40. | WB6SSW | 1212 | 75 | 6 | 180,900 |
| 41. | IK1NDB | 1012 | 81 | 6 | 179,172 |
| 42. | I4IBR | 1228 | 76 | 5 | 169,328 |
| 43. | W8PBX | 1226 | 81 | 4 | 164,106 |
| 44. | WA8FLF | 1224 | 72 | 5 | 160,128 |
| 45. | W7MI | 1164 | 73 | 5 | 157,972 |
| 46. | JR4GPA | 1250 | 70 | 5 | 157,500 |
| 47. | I4XQG | 1370 | 79 | 3 | 155,630 |
| 48. | LAOBX | 990 | 67 | 6 | 146,730 |
| 49. | LA3YU | 1512 | 63 | 4 | 145,656 |
| 50. | IKOCNA | 1484 | 57 | 5 | 141,588 |
| 51. | JA2NNF | 926 | 73 | 5 | 140,598 |
| 52. | JHlBIH | 1032 | 68 | 5 | 138,176 |
| 53. | IK4BZR | 964 | 69 | 5 | 135,516 |
| 54. | VE6CNV | 1250 | 62 | 4 | 127,100 |
| 55. | Y32WF | 842 | 67 | 5 | 123,414 |
| 56. | VE7DTA | 830 | 68 | 4 | 110,840 |
| 57. | VE7BTO | 1000 | 50 | 6 | 110,000 |
| 58. | WA3ZKZ | 886 | 64 | 4 | 107,904 |
| 59. | AA4M/6 | 852 | 58 | 6 | 107,416 |
| 60. | GI4TSK | 1100 | 63 | 3 | 107,100 |
| 61. | SM7BGE | 990 | 52 | 5 | 103,480 |
| 62. | G3VLL | 750 | 59 | 5 | 103,250 |
| 63. | SP3PLD | 712 | 64 | 4 | 96,768 |
| 64. | IKlHSR | 964 | 49 | 5 | 96,236 |
| 65. | W8LNK | 822 | 59 | 4 | 95,698 |
| 66. | VK2SG | 578 | 53 | 6 | 94,234 |
| 67. | WB4UBD | 602 | 51 | 6 | 91,902 |
| 68. | WB5YLT | 872 | 52 | 4 | 86,944 |
| 69. | OZlFGS | 1320 | 41 | 4 | 86,920 |
| 70. | KB3TS | 868 | 59 | 3 | 86,612 |
| 71. | AH6JF | 742 | 55 | 4 | 84,810 |
| 72. | VE2KRR | 992 | 52 | 3 | 82,784 |
| 73. | VE4SF | 602 | 51 | 5 | 81,702 |
| 74. | VE3IDJ | 742 | 52 | 4 | 80,184 |
| 75. | EA3GCJ | 812 | 46 | 4 | 74,152 |
| 76. | SP9MAX | 652 | 51 | 4 | 74,052 |
| 77. | HB9AWS | 680 | 49 | 4 | 72,520 |
| 78. | W6MTJ | 550 | 46 | 5 | 71,300 |
| 79. | GM4VDI | 812 | 48 | 3 | 67,776 |
| 80. | LZlKNP | 650 | 52 | 3 | 65,000 |
| 81. | JAlWYQ | 530 | 46 | 4 | 61,180 |
| 82. | IOKHP | 540 | 48 | 3 | 54,720 |
| 83. | SP9AUV | 504 | 36 | 5 | 54,144 |
| 84. | IKlDFH | 424 | 33 | 6 | 53,592 |
| 85. | DF5BX | 520 | 43 | 3 | 48,160 |
| 86. | KA9DZM | 510 | 40 | 3 | 44,400 |
| 87. | W3FTG | 340 | 33 | 5 | 44,220 |
| 88. | DK5KJ | 520 | 38 | 3 | 42,560 |
| 89. | IK2IKW | 456 | 38 | 3 | 40,128 |
| 90. | K8CV | 680 | 31 | 3 | 38,130 |
| 91. | SP4KEV | 590 | 30 | 3 | 35,700 |
| 92. | EA3GCV | 572 | 29 | 3 | 33,988 |
| 93. | OHlMDR | 410 | 27 | 4 | 32,670 |
| 94. | DL2HAJ | 344 | 25 | 4 | 28,600 |
| 95. | PAOYN | 340 | 28 | 3 | 26,320 |
| 96. | YO5CY | 320 | 22 | 4 | 24,640 |
| 97. | OH5VL | 340 | 26 | 3 | 24,440 |
| 98. | DL4XO | 332 | 25 | 3 | 23,300 |
| 99. | JA3BSH | 292 | 21 | 4 | 22,932 |
| 100. | TU2UI | 300 | 18 | 4 | 19,800 |
| 101. | WA3JXW | 150 | 14 | 4 | 13,300 |
| 102. | K5JJ | 160 | 16 | 2 | 8,960 |
| 103. | N6RY/7 | 180 | 14 | 2 | 8,120 |
| 104. | SM4CDA | 160 | 13 | 2 | 7,280 |
| 105. | Y22HF | 160 | 11 | 2 | 6,760 |
| 106. | SM4CMG | 70 | 5 | 2 | 2,350 |

### SINGLE BAND 14MHZ

| | | | | | |
|---|---|---|---|---|---|
| 1. | 4UlITU | 4832 | 73 | 6 | 425,736 |
| 2. | YU3HR | 3322 | 65 | 6 | 293,930 |
| 3. | W6/GOAZT | 2062 | 61 | 5 | 186,782 |
| 4. | VK3EBP | 852 | 45 | 6 | 92,340 |
| 5. | BV4VB | 990 | 39 | 5 | 77,610 |
| 6. | SP3XR | 830 | 34 | 5 | 62,220 |

*BARTG Scores continued next page*

# HI-SPEED CW? IS IT FOR REAL?

*The world of radio is like a great book, of which they who never stir from home read only a page. (Stolen from Augustine 354 A.D.)*

*byline:* **Wayne Renardson, NZ4W**
**1112 Woodvale Dr. Nashville, TN 37204**

The joys of high-speed CW are known to only those willing to put forth the time to learn what a unique world exists on the bands. While CW is as old as radio, high speed CW for the masses did not become a reality until digital communication in the form of the keyboard became available. Prior to the keyboard, CW was sent manually, and many of you have memories of operating with a straight key. Some of you also recall making some contacts and being excited to copy the basic information about the sender. But operating Morse code was probably viewed as an obstacle in the way of obtaining a higher class ticket in order to enjoy RTTY or other modes rather than as a stepping stone to a world enjoyed by those who use it regularly. The world of digital and the CW keyboard has forever altered the Morse landscape. It has improved communication on our amateur bands by altering the 2 parameters that are paramount to CW...accuracy and speed.

When operating Morse code, accuracy counts. When dealing with any digital code, every dit matters. How simple to turn.... . _.._ into ... . _.._, and as Mark Twain reminded us, the difference in lightning and lightning bug.

The keyboard has given the CW user far greater accuracy than any of its predecessors, the main criteria for enjoyment of communication. Most of the keyboard users find hitting a key on a board much more accurate than manually keying an analog device, particularly after several hours of operation. And most would prefer working a station that was accurate at 5 WPM rather than one that made constant errors at any speed. It is, somehow, easier on the mind.

Although the parameter of speed plays a secondary role, it is important. When the bug was introduced and speed increased, there were straight key users who decried the sound. Some believed real CW operators would use nothing but the venerable straight key. With the introduction of the electronic keyer in the 1950s, many bug fans moaned at the use of electronic gadgetry, mimicking their straight key cousins.

Today there are many who decry the digital modes, referring to them as dehumanizing machines conversing in an unknown language. But the CW keyboard has enhanced, not weakened the dialogue.

Along with greater accuracy and speed, the keyboard introduced the buffer which gave the user an opportunity lacking with real-time analog...time to think about what it is they wish to say. The buffer, in addition to allowing for spelling correction, no small consideration, gives the sender several seconds to select the right word, one which will more correctly convey meaning, which as Twain said... The world of high-speed CW evolved as the keyboard became more prevalent. By 1977, Bill Eitel, WA7LRU/W6UF(SK), formed the Five Star group, CW operators who qualified at speeds of 80 WPM. The charter members in the order they qualified were:

- Gene Farthing, K4KHT
- Gene Lombardi, W2KFA (SK)
- Florence Majarus, W7QYA
- Ray Antinolfi, W2YS
- Jack Halprin, W6ADK
- Paul Evans, K5AT
- Tom Davis, WB2TEN
- Bill Eitel, W6UF (SK)
- Bob White, W6PY
- Herb Shear, W6WVQ

After qualifying ten members, Bill closed the membership because he no longer had the necessary time to find candidates.

In 1979, a group of high-speed CW operators formed CFO. Organized as a loose-knit group of friends, it soon grew to encompass over 900 members, holding annual gatherings at Dayton or Nashville, and enjoying the pleasures of operating with other high speed aficionados.

Like AMTOR, CW is conversational. Prior to the development of effective QSK, CW contacts took the form of two monologues. Station A would pass traffic while station B copied with no opportunity to interject comments. The process would then reverse itself, the monologues continuing.

## *CFO Meets on 7.033 KMz*

QSK permits interjection and comment, allowing the parties involved to carry on a dialogue rather than two monologues, making CW conversational. QSK also serves as a safeguard against those few inexperienced operators who choose to fill their buffers and carry on ad infinitum.

Several years ago, high speed Morse was defined as 20 WPM, the upper limit to obtain the highest amateur ticket. Today the CIA requires only 13 WPM of its radio operator applicants . But, the digital keyboard has raised the ante, making accurate CW possible at speeds unheard of in the past. Just as the other digital mode users are concerned with higher baud rates, so does the CW operator strive for higher rates of speed to increase data exchange over a given time frame. Listen to some of the operators around 7.033 MHz where you will hear such people as Dan, KU2D, Paul, W9CQ, Ray, W0GHX, and others, operating at 100 WPM, who are contributing to the enhancement of the art.

Inspired, try some CW with your digital equipment. You will discover it is far removed from what your recollection may be from your analog days. ..._._

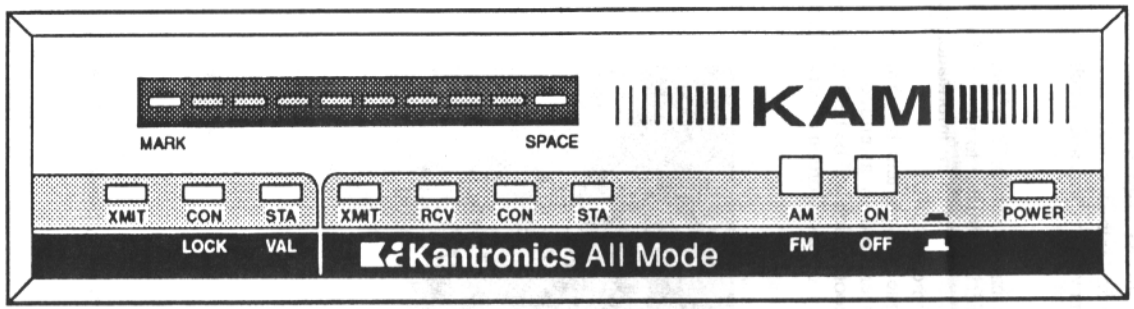
de **Wayne Renardson, NZ4W** ■

## BARTG SCORES 1989 Continued

| | CALL | QSO | CYT | CNT | SCORE |
|---|---|---|---|---|---|
| 7. | EA8RA | 890 | 29 | 5 | 54,810 |
| 8. | OK2BXW | 510 | 28 | 5 | 42,280 |
| 9. | SP6CYV | 440 | 24 | 3 | 24,960 |
| 10. | UA9FAR | 320 | 24 | 3 | 22,080 |
| 11. | OK1ZTW | 270 | 18 | 4 | 19,260 |
| 12. | VK2BQS | 172 | 16 | 4 | 15,552 |
| 13. | EA5FYJ | 82 | 5 | 1 | 1,410 |
| | **SINGLE BAND 21 MHZ** | | | | |
| 1. | GOATX | 3534 | 62 | 6 | 293,506 |
| 2. | VE6ZX | 3320 | 45 | 6 | 203,400 |
| 3. | SM4AAY | 1632 | 44 | 5 | 115,808 |
| 4. | UW9CY | 1130 | 35 | 5 | 74,550 |
| 5. | NOFMR | 726 | 34 | 5 | 58,684 |
| 6. | SP2UUU | 110 | 11 | 4 | 10,010 |
| | **SINGLE BAND 28 MHZ** | | | | |
| 1. | SM3MID | 390 | 23 | 4 | 27,370 |
| | **SHORT WAVE LISTENER** | | | | |
| 1. | 0NL383 | 4274 | 187 | 6 | 1,023,638 |
| 2. | BR527239 | 1860 | 108 | 6 | 330,480 |
| 3. | J. ZILLMAN | 1762 | 115 | 5 | 317,630 |
| 4. | Il-ll69-GE | 1184 | 95 | 6 | 226,480 |
| 5. | G8CDW | 1540 | 81 | 5 | 205,740 |
| 6. | DEOGMH | 980 | 75 | 4 | 133,500 |
| 7. | R. MCKINNON | 1068 | 69 | 4 | 128,892 |
| 8. | I1-21171 | 634 | 56 | 4 | 80,304 |
| 9. | JG7LBN | 438 | 30 | 5 | 43,140 |
| 10. | I4-71209 | 592 | 29 | 3 | 34,568 |

**CHECKLOGS**

G4MKO, G4SKA, G4YPN, I2HWI, LA7AJ, RA9JB, SL5AR, SM4CJY, SM5APS, SP3DFB, UZ9CWA,




# KAM
# Kantronics All Mode

## Packet/RTTY/ASCII/AMTOR/NAVTEX/CW/PBBS/Host/Gateway/KA-NODE/Wefax/KISS

- **Packet** – 2 radio ports: simultaneous VHF and HF Packet. When doing other modes on HF, PBBS, KA-NODE, and digipeater are still available on VHF
- **RTTY/ASCII** – MYAUTOST command allows MARS calls for unattended RTTY/ASCII operation
- **AMTOR** – Preprogrammed 170, 425, and 850 Hz shifts, plus user definable shift (mark and space tones). AMTOR 625 provides for 7 character or 9 digit selcals, relinking, and compatibility with 4 character operation (476)
- **NAVTEX / AMTEX** – Using NAVTEX mode you can copy the ARRL bulletins of your choice, using the AMTEX format.
- **CW** – Selectable CW bandwidth and center frequency
- **Personal Packet Mailbox (PBBS)** features: programmable size, reverse forwarding, capability of rerouting connects to PBBS, optional Battery Backup will store messages when unit is turned off, optional SmartWatch will store messages, and keep date and time when unit is turned off.
- **Host Mode** – Allows special terminal programs access to all TNC features in the packet mode.
- **Gateway** – Unique MYGATE callsign allows packets received on one port to be digipeated onto the other port.
- **KA-NODE** – Provides a relay station that handles acknowledgments between it and an end user, or another node.
- **KISS Mode** – for TCP/IP
- **Weather Facsimile (WEFAX)** Reception (optional special computer program needed.)
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- **Full duplex** capability
- Compatible with any computer having an asynchronous serial I/O port using standard ASCII, RS-232 or TTL voltage levels jumper selectable (can be used with RS-422). Computer must be running a terminal program.
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- Bar graph tuning indicator
- 12 pole switched capacitance filter
- 32K RAM
- Indexed manual set, pre-punched for 3-ring binder – allows easy updates
- Reliable, fast acting AGC eliminates the need for a manual threshhold adjustment
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- Requires 12 VDC at < 300 ma
- Made in U.S.A.

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# ARRL Digital Committee Report

On September 23, 1990 I attended my first Digital Committee meeting in London, Ontario, Canada. The Committee was chaired by Paul Rinaldo, W4RI and the meeting was well attended by personal from the committee and a number of other interested parties including some from industry. Being the new 'Kid on the Block', I elected to keep my mouth shut and do a lot of listening. Maybe this is not the right approach but as it turned out, I really didn't have anything constructive to contribute.

## Subjects covered:

### ARQ-9

This is a relatively new experimental mode which makes it possible to transmit nine characters instead of three if conditions permit. It was first introduced by the USSR and they have done most of the work on this mode. There seems to be great interest in this new method because of the increase in throughput which can be obtained. The Soviets have claims of increases anywhere from 21% to 60% throughput which is outstanding gain. You will be hearing more about this method in the future. Hopefully, we will have an article in the Journal soon on this new method.

Throughput on HF frequencies suffer considerably because of QSB, QRM, and multi-pathing of signals. Packet transmissions suffer more so than others and a method which would increase throughput is welcome news to all. As we enter the down side of propagation over the next few years, throughput is of major concern on HF. Hence, the reason the Committee has such a great interest in new methods of moving traffic faster and in larger amounts

### ARQ 625

This protocol was discussed briefly in regard to some of the differences between how industry is taking an approach to some of the different commands. No conclusions were reached but it appears that the industry people need to resolve this issue amongst themselves.

### AX.25 V2.1

I'm not familiar with this new version and the only discussion was about it's introduction which is to be soon. I will have more to report later on this subject as I learn more about it.

### HF PACKET

The emphasis here was again on throughput for Packet radio.One of the suggestions made was to compress messages such as we do now with computer files and programs. Some work is being done is this area now on amateur satellites.

Discussion was held regarding protocols now being used by Packet radio. More work can be expected in this area. Also, Bill Snyder, W0LHS submitted a paper in this regard.

### FREQ. LOSS

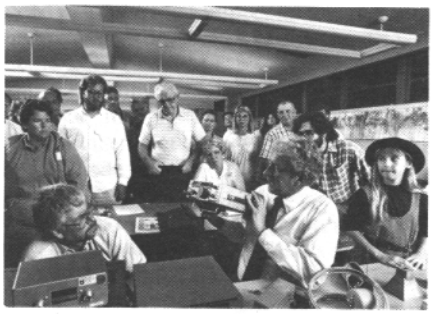
Discussion was held regarding UHF frequencies which may be subject to loss at the next WARC meeting. The Committee is suggesting that we all band together to protect our frequencies no matter where they are located in the spectrum.

### FEMA Funds

At present, not many amateurs have taken advantage of this offer. These funds are available through the ARRL for experimentation in various areas. For more information on this program, contact ARRL headquarters.

Being a member of the Digital Committee has enlightened me to the extent that I feel as time goes by, I'll be able to contribute on the behalf of our phase of the hobby. However, I'm no expert and I will be needing lots of help from all ofyou. Please write to me and let me know what you would like to input to the Committee and I'll take it from there. Thanks for your support.

**de Dale, W6IWO** ■



### NEW SCHOOL ANNOUNCEMENT

Gordon West, WB6NOA, has just released information on his new school for Instructors and Elmers. Gordon West Schools have been famous for many years giving us a hoard of new Amateurs. But, Gordon has taken it a step farther now and you to, can join the ranks of Gordon and others who do the teaching. This school will take you through the paces and prepare you to become a full fledged instructor and the best part is, it is FREE.

This is a 3 day school on a weekend to make it easy for those who have weekday committments. You will learn marketing skills, where to obtain textbooks, code tapes, free maps, frequency charts, etc. and much, much more.

There is one catch though. You must be a registered ARRL instructor to attend. If you are not and would like more information on how to become qualified, contact Rosalie White at League headquarters. If you are qualified and interested in attended one of Gordon's schools which will be held throughout the country, contact Gordon direct at (714) 434-0666.

*Digital Committee members and guests assemble for meeting in London, Ontario, Canada. 23/09/90*

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