RTTY JOURNAL

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1988 ANARTS WORLD WIDE RTTY CONTEST RULES

Test period: Saturday 4 June, 1988, 0000 UTC to Monday 6 June, 1988, 0000 UTC

*Not more than 30 hours of operating is permitted for Single Operator stations. Non-operating periods can be taken at any time during the Contest.

* Multi-Operator stations may operate the entire 48 hour Contest period.

*Summary of operating times must be submitted with each score.

Bands: Use all Amateur bands 3.5, 7, 14, 21, 28 Mhz.

Classifications:
(a) Single Operator (one transmitter)
(b) Multi-Operator (one transmitter)
(c) SWL Printer

Messages: To consist of RST, TIME, (UTC) and ZONE

Scoring: As per CARTG Zone Chart, multiplied by the number of countries worked, multiplied by the number of continents worked (maximum six).

After the above calculations, world stations add 100 points for each VK station worked on 14 Mhz, 200 points for each VK station worked on 21 Mhz, 300 points for each VK station worked on 28 Mhz, 400 points for each VK station worked on 7 Mhz and 500 points for each VK station worked on 3.5 Mhz. (Example: 720 points from zone chart X 29 countries worked X 5 continents worked = 104,400 points plus (+) 6 VK stations worked on 14 Mhz (that is 600 points) giving a grand total of 105,000 points)

A station may be worked only once on each band, but may be worked on another band for further multipliers.

Countries: Country count as per ARRL list of countries, except that each VK, ZL, JA, VO, W/K districts count as separate countries. Contacts with ones own country count as zero points for multipliers.

Logs: Logs must show in this order - 1. Date, 2. Time (UTC), 3. Callsign of station worked, 4. Message information sent (RST/TIME/ZONE), 5. Message information received (RST/TIME/ZONE), 6. Points claimed.

Closing Date: Logs must be received by the contest Committee by 1st September 1988. The address for logs is: W. J. Storer, VK2EG, 55 Prince Charles Road, Frenchs Forest, N.S.W. 2086, Australia.

Summary Sheets: Summary sheet must show - callsign of station, name of operator, and address of same, bands used (a separate log is required for each band), the points claimed for each band, number of VK stations worked, total points claimed and signature/s.
Multi-operator station logs must contain the signature and callsign of each operator.

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

The judges decision regarding the standings in the contest will be final and no correspondence will be entered into regarding same. The logs become the property of the Contest Committee on completion of checking.

Contest sponsored by ANARTS, PO BOX 860, Crows Nest, NSW, Australia.

IN THIS ISSUE

RTTY JOURNAL

Dale S. Sinner, W6IWO
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HITS & MISSES

It's hard to believe that two years have gone by since I took over the helm as publisher of the RTTY Journal. But, nevertheless it has, and now as I reflect back to my first issue, I feel the Journal has come a long way. Putting out that first issue was a real nightmare. It wasn't that I didn't have enough time because I had almost two months to get the job done. The problem stemmed from the fact that I did not have the equipment to do the job. Fortunately, I met a man who helped me tremendously in choosing the right piece of gear for the job. With a lot of help from my newly found friend I have learned enough to feel comfortable with this new avocation.

Trying to fill sixteen pages in the beginning was a job but as time went by, more writers have come on board to where now I have trouble making it all fit. With the additional help from more writers with more subjects now being covered, I have been able to stretch the Journal to twenty pages with no increase in cost to most readers. I hope to able to continue this new format of twenty pages bringing you the reader as much up to date digital information as possible. Lately there has been an increase in AMTOR articles submitted by our readership and I'm happy for this. I had been soliciting AMTOR articles for some time and it is now paying off. Keep them coming!

ARE YOU UPSET?

The forty meter frequencies we have been using over the years is being challenged. Not to long ago, one of the ARRL directors made the recommendation to extend SSB down below 7.100 to 7.075. His feeling is that SSB needs more room. It is sad to think that this director has taken a total disregard for the Digital modes which have been growing by leaps and bounds over the past couple of years. I think if someone was to ask for more frequency spectrum, it should be us because of our growth. But, we have not taken that position. Instead we make it all work and have therefore kept peace in the family. However, we cannot stand idly by and let this pass without responding. As a matter of fact, much time has elapsed because we were not watching closely at things which were happening at headquarters even though they had been reported in QST.

I call upon every Digital Ham to write to his Director and make it know you are totally opposed to this recommendation. Pick up a QSL card right now and sit it in front of your operating position and promise yourself you will not operate until you have sent this card off to your director. Your complete support on this issue is of vital importance to all of us. Can you imagine what would happen if this recommendation were adopted? Simply, there would be chaos on forty meters for starters. SSB and the digital modes are just not compatible on the same frequencies and if we were to move farther down the band into the CW portion, again the apple cart would be upset. Now, I hope you are really upset. Please, please, please follow through with this request today and save our operating frequencies and keep happiness in the family. You will find your directors name listed on page 59 of the June issue of QST. Until next month 73's.

de Dale, W6IWO

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

DX NEWS

Things are getting back to normal here, the kids can watch TV Saturday mornings, the new neighbor has stopped calling about his new stereo making strange noises, and the wife is adding to the "must do" list again. What brings all this on you say? It means BARTG is over for another year. This year I tried a multi-op, last year I came in first in the single operator category, and I thought I would give it a go at multi-op. It looks like my old pals Hal, Jay and Betsy may have just nipped us, and if they didn't I think maybe Ted and the gang from HD5G may have just beat us, so with any luck we may have come in 3rd or 4th. We made some routine mistakes, for one I unexpectedly had to travel to New Orleans the Monday before the contest. It was actually a great trip, met Mike W5ZPA, Wondy K5KR, and Angelo W5KSI, chatted many times with Jack W5HEZ but was never able to find the time to get over to Baton Rouge. While I was there they all worked J52US and kind of kept reminding me of it. Getting back to the contest, our biggest mistake was trying to train the other 2 or 3 operators during the contest. If you are going to do a Multi-Op, make sure everyone knows' how to operate the station, especially the computer set up if that is what you are using. And whatever you do, don't try a new razzle dazzle, spiffy computing logging, duping, multiplier checker program for the 1st time!! Other then that it was fun 494 QSO's after dupes (see what I mean about that new program). Also managed a new one J39 on 3 bands! We are going to try another effort in the CQWW RTTY DX this September.

DAYTON....Once again we will be there, Hal has put together a great slide show of our trip to the Galapagos, and the plan is to show it at the RTTY Dinner Saturday night. We will also be announcing the winners of the CQWW/RTTY Journal RTTY DX Contest. This will probably be done at the Contest Forum. Also at about the same time you get this you should be receiving your certificates for participation in same. Don't forget this years, September 24-25.

MARTINIQUE....Stokley AJ3H, dropped me a note to tell me he is the QSL manager for FM5FA, QSL to his CBA. He also adds that Pierre likes 15 meters around 21.090.
Also FM4FH is newly licensed and active, QSL him to: P. O. Box 606, 97260 Fort de France, Martinique.

PS7KM....Karl is planning another trip in June, he is now working on transportation problems, but hopes to give us another new one somewhere off the coast of Brasil, any guesses?

HONDURAS....N4QQN/HR3 has been active - QSL to N4QQN.

GUINEA BISSAU....J52US continues to be active the first part of March but seems to be quiet, he said he was going to try to get on for the BARTG but nothing heard. The word is that he is not exactly thrilled about working RTTY as that is what he does all day!!.

GUATANAMO BAY....KG4EM has been worked on 15 meters at 1500 to 1600 UTC, he says to QSL via the KG4 Radio Club?

RWANDA....**9X5**..9Q5DA will attempt to put this country on for a few days in May, there is also a possibility of 9U, Burundi some time in the near future. BTW 9Q5DA is new to RTTY and QSL's go to KC4NC.

ZAMBIA....9J2KF was worked here at 0210 UTC 25 March on 14.078 BAUDOT. He has also appeared a few times since then. QSL to: Kiyoshi Fujita, PO Box 350103, Chilanaga, ZAMBIA. He says he will be there for one and a half years!! His home call is JG3VOD.

ARUBA....P43SF Ivan, continues to be active on or about 14.090 at 1300 UTC and also 2200 UTC.

LIBERIA....EL7D has been active on AMTOR around 2200 , 14.076.

BARBADOS....8P6RY Carlo is new on RTTY, he has promised to send along a photo of his set up. He was active in the BARTG and has been worked on 10, as 15 as well as 20. QSL direct to Decarlo Howell, Sion Hill, St. James, Barbados, W.I. He also gave me a PO Box, as PO Box 309E.

AMSTERDAM ISLAND....Danny FT5ZB has been active on 15 meters, 21.088 around 1300 UTC. Also been worked on 14.090 at 1700 UTC. He has a PK232 and plans to get on Packet and AMTOR as soon as he reads the manual, Good Luck Danny!!! **(cont. pg. 4)**

(DX NEWS cont. from pg. 3)

EGYPT....SU1ER is active on both 15 and 20 meters.

TAIWAN....BV2B is now on AMTOR. The Digital modes are now legal in Taiwan.

DESECHEO Is.....The cards from the NJ7D/KP5 DXpedition are now out, but as of yet unclear whether they will count as I understand it, it is not clear whether they had permission to land, we shall see!!

KIRIBIBATI and HOWLAND IS. ....I never heard Jim from either Island, lots of the West Coast gang, JA and South Americans worked them, but here on the East coast no luck, when they were on we had no Propagation. Same with the Europeans very few if any worked them. Disappointing to say the least.

DOMINICA.....J73LC's QSL manager sent back a note and no card to Crawford WA3ZKZ, that he didn't know Lambert was on RTTY!!!

KINGMAN and PALMYRA Is..... Stu, WA2MOE will be undergoing TONO training for a few days before leaving for the Pacific. He is not all that familiar with RTTY and TONO gear. He will be operating SPLIT starting Apr. 23 for about two weeks. Frequencies will be 14.085 listening up 5, and 21.085 listening up 5. Same on 10 if its open.

St. LUCIA....J6LGH is new on the bands, he QSL's to WA4WIP.

TRINIDAD & TOBAGO....9Y4GC also active on the keys, QSL to WA3NCP. Also active is 9Y4JRS who like 15 meters, QSL to: PO Box 3495, La Romain, Trindad.

ZONE 18....UV9FM has been worked on 14.083 at 0930 UTC and 1300 UTC

MEXICO....Manuel XE3ABC, says he is on 14.090 at 2100 UTC, Monday, Wednesday and Friday. QSL to: Box 110-D, Merida, Yucatan, 97100 Mexico.

ZL0AAF.... Ray, VE3UR operated with this call recently while visiting his friend Allan, ZL1PA in New Zealand. Propagation was not good to N.A. but for those who did work Ray, QSL to VE3UR direct.

CQ WAZ AWARDS...George W1DA waited at the Post Office for his VU4GDG card that gave him the final zone he needed and turned it right around to W4KA to get the First USA RTTY WAZ. Right behind him was Vance WB5HBR and Ted W2FG. So it looks like this for the first USA RTTY WAZ's:

#6 **W1DA** (mixed band)
#7 **WB5HBR** (mixed band)
#11 **W1DA** (14 Mhz)
#12 **W2FG** (14 Mhz)

Congratulations to all, Well Done!!!

MAILBOX....Received a note from Eddie G0AZT/W6. Eddie points out that are own awards program should be looked at as far as endorsements are concerned. Good point Eddie, I have passed your letter on to Jay KE7PN, the Journals Awards Manager. Eddie of course is referring to last months column regarding the New DXCC.

Also have a letter from Jim WB4UBD who sent along a copy of a letter he sent to the ARRL and the reply he received back. Jim basically asked for a definition of RTTY as it applies to the ARRL DXCC program, i.e. does Packet and AMTOR count as RTTY?

The answer he received back from Don Search W3AZD, DXCC Manager says that Baudot, AMTOR, Packet and ASCII all count towards the RTTY DXCC award. Packet contacts through repeating devices do not count, (digipeaters). The gray area appears to be in DXCC rule 12. Unattended operation of Packet stations beaconing and being worked. Don suggested a review of that will be forthcoming.

Our AMTOR watcher Tom ,VE7VP says that more and more new stations and countries are getting on AMTOR every day. Some new ones Tom has heard and worked, 5H3RB, YV6BTM, V85GA, FP5HL, 7J1ADZ, HD8G. On some days reports Tom, there are more AMTOR signals heard on the band from his location then Baudot!!

And a note from Phil KD2XN, saying tnx for the tip on Christmas Island he read in the column, Phil has become an avid RTTY op and really enjoys all the people he meets and the Journal each month. Tnx Phil nice to have you with us.

That is about it gang, next month we will have the complete results of the, CQWW/RTTY Journal contest. Spring is here, time to make those plans for any antenna work. I hope the winter has not been hard on any of you and all of you have a fun Spring and Summer season. See you on the Bands.

Thanks and a tip of the DX Hat to, W1DA, WA3ZKZ, KD2XN, TG9VT, KP4BJD, VK2SG, G0AZT/W6, WB4UBD, HC5K, VE3UR, THE DX BULLETIN, THE ARRL DX BULLETIN.

de Roy KT1N

Hal Blegen, WA7EGA
12910 E. Broadway
Spokane, WA.
99216

CONTESTING

BARTG REVISITED

I have worked contests which required the perseverance of GUNGA DIN just to stay on the band and fight the crummy conditions. The 30-hour rule was a joke as the bands weren't open that long. This year's BARTG made up for all those times. For a contest weekend, the conditions were the best I have seen in six years and overall the best for any weekend since CYCLE 22 started sprinkling us with sunspots. The flux for last year's BARTG was 77. This year it was 117 with a K INDEX of 0 and 1 throughout the contest. Fifteen meters was a circus. Twenty was cooking all night long and the 40-meter short path signals from Europe sounded like locals. The decision of when to take the rest periods was not one of picking the best times to operate so much as trying to minimize the damage!

Jay and I are scientific about contests. We have developed a bunch of tricky arithmetic which gives us a big advantage. For instance, delicate calculations for BARTG revealed that to win, we needed more points than everyone else. Armed with MUF charts and WWV FLUX reports, we were confident that we didn't need the amp on ten meters. After all, what good is 200 lbs of aluminum if it doesn't eliminate the need for high power? And with a little practice, the jump from 20 to 10 meters was so quick that we figured we could grab a 28 meg multiplier and be back on 14082 before the power company figured out we were barefoot. This is the stuff of which winners are made!!

In the contest, right away Jay found a multiplier on 10. When we plugged in the QSO rate, the secret formula showed a net gain of 1720 points if we could pot the multiplier in under six minutes. I executed the INSTANT BAND CHANGE maneuver, the one where you rub your shoes together three times and whisper, "There's no place like ten". While propagation played the shadow game, I wasted five minutes calling a not-so-rare W4 before frustration set in and I hauled the amp up from 20. Since he was rag chewing with his buddy across town, it took a couple of more tries to bag him. To save face, I tried a few fruitless CQ's. Having traded twelve minutes for one QSO, I gave up and moved the whole wretched mess back to 20 meters where, as planned, we had hardly been missed. The frequency in which I had invested 10 kilowatt-hours ionizing a clear path into Europe was now occupied by **HD5G** who was happily working a giant pileup. Yep... the secret to winning is a scientific game plan... and maybe a no-tune amp.

There was a lot of Stateside activity with QSO numbers in the 200's and I copied very few in the 001 to 010 range indicating a good effort by a lot of stations. One of the surprises was **NG7P** whose first attempt as a multi-op entry logged a startling 641 Q's for the highest numbers seen in the contest. Remember RULE SIX, "Thou shalt not bloody the nose of the multiplier until he is in the log on five bands"! Earl said that a push and shove contest over a 20 meter trap frequency may have cost him four multipliers. As close as the scores are that could be kinda expensive.

When I talked to **TG9VT** just before the contest, he was planning just to give out a few contest points before heading to the beach with his XYL. When I talked to him on the Monday after the contest he had logged well over 500 clean QSOs and was optimistic about both a possible single-op first place and that his XYL would be speaking to him again soon. Good luck on both counts!

HD5G (Ted, **HC5K** running his contest call) told me about working 570 QSOs, long-path. In the rush before the contest, his new 20- meter beam was calibrated wrong and he worked the entire contest pointed 180 degrees out. That's a minus 20 db!

It was a nice surprise to see an old Spokanite, Bob, **7J6CAS**, working the pileups from OKINAWA. His state-side-pointed rhombic made him the only JAPANESE multiplier that a lot of stations could hear on 10 and 40 meters. He quite possibly was the high scorer from ASIA in a what this year was a large and active field of JA's.

AL7BB, a big entry from Alaska said he was sending me his log and the smoking parts left over from his linear which failed the QSY test from 15 to 20. He worked better than 400 QSOs. **(cont. pg.6)**

(CONTESTING cont. from pg. 5)
His last words to me were "You got me into this, you figger out the log!"

Although I may have missed a few, going into the final hours, the single-op leaders were **TG9VT, WB5HBR, I2OLW, K7LXC** and **SM4CMG**. In the multi-ops it looks like a photo-finish between **NG7P** (641 QSOs), **HD5G** (570 QSOs), and **WA7EGA** (560 QSOs). A great contest effort by everyone. Lets get this turnout for VOLTA on May 9th!

NEW TOY DEPARTMENT

I am always a little intimidated by articles about equipment that are accompanied by pictures of oscilloscope traces and formulae full of Greek notation with integral signs. As if to confirm my suspicions, the by-line usually has the dreaded "PH.D." sandwiched between the author's name and his original-issue, low-alphabet, one-by-two call. They never use words like, "won't work", "rip-off", or "damdifino". They say things like, "...manifested an inherent, potential instability when it was energized without effective cosine phasing of the rapgouger circuitry "

A while back I said that Jay and I had tried most of the inexpensive terminal units for RTTY and that for contesting, the narrow IF filtration improved the copy much more than any particular brand of TU. That's still true but recently I got my hands on one of the expensive toys made by the people in Lynnwood, Washington, an AEA ATU-1000 and I am beginning to see why some of the boys are willing to sink the price of a new transceiver into a terminal unit.

The amplitude modulated (AM) design behaves differently from the FM units that Jay and I have been using. The banana-shaped scope patterns for mark and space are gone. The cross display is just straight lines. When signals are properly tuned, the lines get longer but there is no rotational information to show either how close to or which side of the center you are on. In this respect the LED bar graph tuning indicator is about as effective as a scope but critical tuning requires practice.

At first I was very unimpressed with the way it handled noise and polar flutter. Even though it has its own front-end AGC, I find that it is input-level sensitive. The crummier the signal, the more the copy is improved by reducing the receive audio level. I get almost perfect copy on signals that are giving my FM unit 5 and 10 character dropouts by using the low- level, detector monitor output from the ICOM-751 instead of the speaker audio. This allows me to set the amplitude on the speaker line for proper operation of the FM unit while keeping the level to the ATU-1000 so low that you can barely hear the tones on a set of earphones plugged into the audio jack on the TU. Even at that level it still shows full scale on the bar graph tuning indicator.

There is no ice cream. It can not copy what isn't there. By the time an unsettled, northern path gets done corkscrewing the pulses, some signals are beyond help. From my QTH during an early European opening, signals are fluttering on and off the scope and they're not yet on the S-meter. For these conditions, the FM TU is still the biggest bang for the buck. My old $150- Flesher TU-170 trots right along beside the AEA getting the same or sometimes better print on warbly, unstable DX. The Flesher is not exactly a stock circuit as I added an extra 4-pole, 28 HZ low-pass filter for noise suppression and a threshold correction circuit designed by Mike, **N7RY** which he specifically developed to improve unstable signal reception.

Depending on how bad the signals are, the ATU-1000 will take single-character hits with increasing frequency until the copy becomes garbage but up until that point, even when it stumbles, it doesn't wander off into never-never land for ten characters like my FM unit.

On all other types of signals, especially the selective fading common on the lower bands, the copy is so much improved that I immediately mailed AEA my check. The mark or space can completely disappear with no effect on the copy. For the first time since I entered the program, despite the mechanical and atmospheric distortion, I am able to get file-perfect copy on all the 2 and 4 MHZ frequencies we use on NAVY MARS.

Setting up a transceiver for RTTY requires a counter. All the counters that I have used were finicky about speaker audio and required messing with the levels and input impedances before the count would settle down. A front-panel-operated counter which reads the input audio at the push of a button is like finding **BY9GA** all alone calling CQ CONTEST. **(cont. pg.10)**

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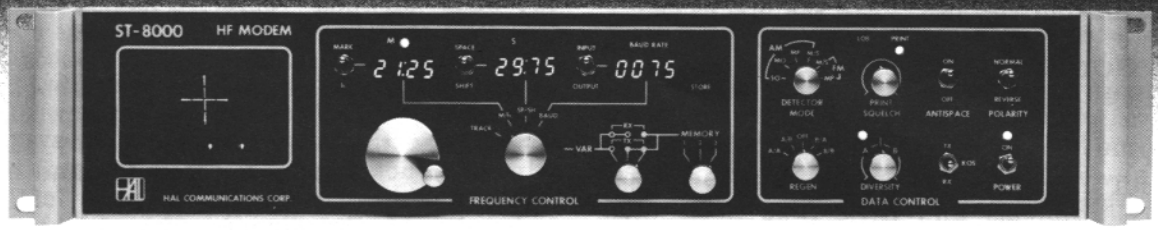

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Write or call for complete ST-8000 specifications.

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ED: Richard, N6NKO and Danny, N6IHQ have both written the Packet column for the Journal over the past two years and have become good friends in the process. They decided to try the BARTG contest as a Multi-op station and after conspired to do the Packet column this month.

DIGITAL HUH?

Well, this column may be devoted to packet but there are times that other experiences should be covered. Read on and I am sure that you will see what happens when two Packet fans (N6NKO and N6IHQ) get together for a good time in a RTTY contest.

WAIT 'TIL NEXT YEAR

(a popular saying amongst the also-ran's)

Are you are thinking about working an RTTY contest on the lowbands?? Read on and then you will find out the secrets to the black magic that it takes for the also-ran's to compete with the BIG GUNS of RTTY Contesting.(are you listening Hal and Roy???).

We were thinking about running in the BARTG RTTY contest, however we were faced with many problems and little time to resolve them due to the fact that this was an untried combination of equipment. So, here is where the learning takes place.....

THE EQUIPMENT

First, you make sure that the rig is working fine and putting out what it should. At N6IHQ, there is a PC clone, a Radio Shack Model 4P computer, an ICOM IC-730, ROM-116 RTTY controller, and a ST-6 TU. The PC was used for the duping (a story in itself), and the 4P was used to run the ROM-116 and the TU. We had fired up the combination for the first time and found that the ROM-116 would lock up on transmit with the radio. So that was traced down to the radio needing more current than the ROM-116 could handle. The little relay inside was welding itself on. So, being prone to overkill and quick-and-dirty solutions, we installed a BIG transistor out of the parts box. This made the current liveable for the TU. Now that the radio will go in and out of transmit easily, it was time to see if there was any output.

The radio was tested on a 20 meter dipole and we were getting about 20 watts out. Mind you that this is out of a rig that should be putting out 100 watts easily. The RF power was up all the way and so was the MIC gain. Well, it was time for another quick-and-dirty fix (more baling wire and sealing wax). A pre amp was built to boost the output of the ST-6 from about 80 mV to about 1.2 V. Now we had all of the drive needed to bring the radio into serious RF generation. Now, how to get it out into space effectively on all of the bands. Since Danny is in the current vicious circle of selling his old house and buying this new one, the antenna farm leaves a lot to be desired and a 20 meter dipole by itself is not going to cut it in any contest that we can think of.

THE ANTENNA

Its approaching contest weekend. We're looking for some sort of multi band antenna that will go together easily, take less than 10 people to put in position, tune, and perform reasonably well. Not a very tall order to fill and it was decided that a vertical would be the best bet in lieu of the yagi at 70 feet that will be here by summertime (if wishes were horses, beggars would ride). Everyone in the "who's who" of amateur radio verticals we talked to said the Butternut HF6V was the one that would fill the bill. It's reasonably priced but unfortunately the buck stopped there. After 52 phone calls (Ma Bell loves 800 numbers that get used) to 27 different amateur radio supply houses the best response we got was "they are back-ordered and we should have "em next week". Next choice was the AP-8 Powerwave by Cushcraft. Almost struck out there too but found a supply house on the East Coast with 1 left. It was ordered and the fingers were crossed hoping UPS would deliver before starting time (Sound familiar Hal?). It did arrive on schedule. 15 minutes after the truck left we were in another dilemma. When fitting together the pieces of the antenna, we found an incorrectly machined swage. A quick call to Cushcraft and a corrected version of the piece was on it's way via UPS but would not arrive by BARTG. So it was hacksaws and hose-clamps. (Murphy and Mickey never had it so good). Aside from the flaw of the one piece, the AP-8 was easily assembled, ground mounted (another contest quickie) and tuned.

THE SUPER DUPER

Good 'Ol Richard...computer programmer extraordinaire. Worked a few hours in Basic, coined a few new cusswords and came up with a neat little duping program we used in the test. One major flaw we noticed during the BARTG will be discussed a little later on in this column.

READY, SET.....

Everything was ready to go about 3 hours before the contest. A couple of contacts revealed the system was getting 599 reports to the East Coast (with no smoke). So we accomplished in a week and a half what should have been done in one afternoon.

THE TEST

0200Z-TG9VT first contact on 20 meters. We were thinking about maybe getting close to a WAS on the contest weekend but knowing at least Mr. Troost could hear us maybe the bands would be in good shape and we would have a

(cont. pg. 9)

(PACKET cont. from pg. 8)
good chance to work some DX. As it turns out we may get a neighborhood award- WATV's.

0600Z-Things have smoothed out and we seem to be making headway. We are learning some of the tricks of the contest trade by being the victim of the "Kilowatt Stomp", the "QRG Steal" and other "fun" ways of garnishing contacts. But our "Little Pistol" station keeps firing away....and we are having a heck of a good time.

0913Z-zzzzzzzzzzzzz.....

1500Z-Wondering if it was really worth it to get up this early. A quick check of the band confirms that it was not.

1730Z-Coffee and doughnuts abound as we continue with our quest for contacts. It is becoming apparent by our score that maybe we should have taken up Banana Slug Racing instead of contesting.

1930Z-or 11:30 AM. Computer hash is in competition with S9 signals from the EU stations. A ritual is started in the back yard antenna farm involving H2O on dry radials.

0310Z-Break time. Radio off, still hearing 170 Hz shift.

2138Z-15 Meters: TG9VT 446, N6IHQ 56. Must be doing something right.

2145Z-Wondering what happened to the South Pacific. It appears from our logs that either band openings were not happening or they all had a different strategy for the test.

2330Z-7J6 on 10 meters. Pileup!! Study pattern....we both fall off chairs when he comes back to us after second try. Maybe there is hope for us neophyte contesters yet. Current Score: Radio 2, Computer Hash 30.

0158Z-Last contact. Time to lick wounds, patch strained relationships, pay the electric bill.....

THE DUPER

When we worked a contest previous to this one, all that was required was just a record of the band and the contact. Well, this one was DIFFERENT. You need the call, band, RST sent and received, and the serial number sent and received. We had "Pie in the Sky" dreams for this one but the clone had other ideas. How about not enough memory. You have 640K to play with and the interpreter says you have only 60K for storage. The next largest storage space is the Hard Disk. So, write routine, test routine, rewrite routine, invent new words conveying the level of frustration generated by casting doubts on the computer's heritage, etc. Finally, it gets running. Now it comes time for the fly swatter to track down the bugs and remove them. As with all great (?) software projects, the bugs that are missed are removed on the fly and the program restarted. The program, when displaying your past contacts with another station, also displays the data exchanged on the previous contacts. That way you can check your performance against the other stations and also can supply fill if it is requested. As a result of the program's display, we can sit there and bask in the glory when we pull up someone who has made less contacts than us. On the other hand, we were served a piping hot piece of Humble Pie when we would find stations that had a higher QSO rate than us. As the contest went on, the program was edited and modified on the fly. So, as the program grew larger and more powerful, a significant problem started to creep up. We can sum it up in a few words... 4 lines of code. The biggest delay that was experienced was waiting for the program to retrieve the past contacts made with that station from the hard disk. Interpreters are great but compilers are a godsend. The program has withstood the fire and brimstone of a contest and will be compiled for the next contest to rid the problem of the four lines of code. Watch out, this station will have one of the best duping programs out there. Now, our only problem will be the expertise and PEP to get enough contacts in the Duper to really enjoy the fruits of the labor.

THE END

Well, the final results: Out of the 30 legal hours of the contest we managed to completely rewrite a duping program, rebuild an audio amplifier, hold off the dog, re-guy a weak Mickey Moused Vertical Repair Job 14 times, drink 71 cups of coffee, drink 73 beers, and make 72 contacts. All of the contacts were made with hard sweat, several kilowatt-hours of electricity and a whole bunch of perseverance. The beer and coffee drinking came with years of experience. We were hoping to at least have a score to boast about and be proud of. It looks like it will take about 600+ contacts to make it to the top of the pile in this contest. Our weak 72 will no doubt be turned in as a check-log. Not much to boast about, but very proud that we gave it a try and did not quit in the thick of the battle (on or off the air). For those of you who have read this far and never tried a contest, we can honestly say that WINNING AIN'T EVERYTHING!

(cont. pg. 10)

(PACKET cont. from pg. 9)
We throroughly enjoyed ourselves and look forward to VOLTA in May. Please join us?

A special thanks to the people at Cushcraft. The AP-8 is a good vertical. It makes it even better when the folks that make it will support it. We also want to thank the YL's involved with this operation. Connie, who had to put up with us at the QTH and Vickie, who had to put up with the hubby not being at home.

Watch out BIG GUNS! Little Pistols have the ability to grow up and turn into BIG GUNS. So, now to get that 70-foot tower, a kilowatt... Wait 'till next year.

PACKET???

I received a letter from Dan Fleming, KE6TM, in San Gabriel, CA. His question is rather interesting. Dan wonders why there is so much digipeating and not much conversation on the VHF band. Well, to answer the first part. VHF, by its own nature, is line-of-sight. The topology here does allow for long distance communications if you are located on the top of a hill. If you get any noise on the signal when transmitting the packet, the TNC may not interpret the data correctly and throw out the packet because of checksum failure. So, with that, you need a strong signal at the receiver to hopefully cancel out the noise and give the TNC something to work with. There are times that I myself will get on packet and get a good ragchew going but there is a problem there and it depends on how much you let it bother you. Everyone is used to "Realtime" communcations where the conversation flows smoothly without much hinderance. With RTTY, Morse, and Voice, you are not competing with anyone else on the frequency when you are talking. Well with packet, there are many users on at once on the channel and everyone hopefully gets a fair slice of the pie. Therefore, it will take longer because so much information is being passed on the channel and the channel can only hold so much. On VHF, the data rate is 1200 baud which is about 120 character a second. Considering the overhead associated with a packet, switching times for the TNC's, etc., the actual data rate is quite less than 120 characters per second and if there are repeats of packets because of noise and collisions, the speed even goes down further. But it all comes back to real time again. If the channels were not used as much as they are now, conversations would be longer plus I think the current users are not that really interested in getting into a good 30-40 minute ragchew (which I miss). I hope that answers your question and I will be continuing with the BBS usage next time. **de Richard, N6NKO and Danny, N6IHQ**

(CONTESTING cont. from pg. 6)
A one-knob mark/space adjustment on the input filters allows tuning weird shifts with no selectivity trade off. This is a useful feature for copying the likes of the KH1 who's best effort was 51 HZ wide and for the locals who transmit 200 HZ shift. The front-panel adjust on AFSK tones is also a nice touch but it probably won't improve your contest score. The mark-only and space-only option, on the other hand, could give a contest station an edge. Anything that improves copy through QRM will save time on repeats and add score. The filters are so sharp that you can actually peel a pileup as you would a MUX signal since seldom are all the stations on exactly the same frequency.

I talked to Mike Forsyth who is the sales manager for the Amateur Division at AEA. Due to a general lack of buyers for this model, the company has virtually abandoned the ATU-1000 project. "It's an expensive box that we can't afford to discount and most hams aren't willing to pay for the extra quality", he said.

Mike is probably right. Unless you are selling to Uncle Sam, an expensive terminal unit which requires precise tuning, a knowledgeable operator and which still won't copy the impossible is probably not going to generate much excitement. The trend is toward less expensive, easily tuned units that are used mostly on VHF.

Personally, I hate to see AEA shelve their work toward a better HF unit. But no company can afford a lot of charity research and development. When Mike was telling me that he had only a couple of units left from a limited production run on the ATU-1000 and that he had no active marketing plans for them, I kept thinking about that Marine officer back in 1775 who only needed a few good men. If I discover the formula for ice cream, I'll let you know. **de Hal, WA7EGA**

ABOUT THE COVER

There was not enough room in this issue to make it all fit, so had to use the cover for news instead of some special headlines and pictures.

ABOUT YOUR NAME/ADDRESS LABEL

If you would like to check your renewal date, it follows your name on the first line. It is a good idea to check this each time you renew to make sure we have done it right. We do make mistakes from time to time. Keep us honest.

Dick Uhrmacher
K0VKH
212 48th ST
Cedar Rapids, SD.
57702

MSO'S

Hi Gang! As I sit here in the midst of two feet of snow, with 60 MPH winds kicking it up into small Himalayan replica, it's hard to believe that Spring is just around the corner. And, with the arrival of the first Robins, comes the annual trek to the Dayton HAMVENTION, a ritual of great expectations. As in years past, we are looking forward to seeing many of our RTTY friends again, and attending the annual RTTY dinner. For any of you who may attend the HAMVENTION, and desire to also partake in the RTTY dinner, see the files pertaining to this event in the K0VKH or K4KOZ MSO's, or the WA1IUF CBMS, (14 085 625 and 14 095 430 Hz Mark), respectively.

WB8ICL RTTY MSO AND PACKET BBS STATION

One of the pioneer 20 meter MSO stations, (over 10 years in operation at this juncture), is that of Gaylord and Louise Crawley's, WB8ICL/WB8JIB, from Yellow Springs, Ohio. I just received a very nice description of his digital system, which follows.

Since March 1987 Louise and I have been using an IBM clone computer not only for RTTY MSO activities on the National Autostart Frequency, but also for two Packet BBS stations, all three operating simultaneously from the same computer. Several very helpful persons have aided me in setting up this system, Clark Constant, W9CD, is the author of the RTTY MSO software, WA7MBL wrote the Packet BBS software, Joe, AD8I modified the RS-232C and CGA cards within my computer, and Bert, N8NN helped install the BBS software. The RTTY MSO runs on Port COM1, the Packet BBS's are on COM2 and COM3, which leaves me with COM4, to which I am hoping to add a fourth Packet BBS in the future.

The RTTY MSO program was modified specifically for Louise and I by Clark, W9CD, which allows us to share the same MSO software, yet have individual and distinct systems. This very popular MSO program has many neat features, including the capability to allow the remote user to change the system baud rate, and to leave computer (basic) programs at 110 baud, in ASCII format. And, since the Packet and MSO systems share the same computer, we are able to transfer computer files between the systems, by using DOS commands.

We are at present running two video monitors, a monochrome monitor on the RTTY MSO, and a color monitor on the Packet BBS's. I am able to set the colors of the Packet BBS's programs differently, so that I can tell at a glance which Packet BBS is in operation. I can view both monitors at the same time, and with a simple keystroke go to either program and communicate, without interfering with the other.

I use a multi-tasking program called "DOUBLEDOS", which allows us to run two separate computer functions at the same time, sharing things like computer RAM memory, disk drives, hard disk, etc. This very sophisticated operating system allows us to load the MSO and Packet software in different parts of the computer RAM memory, have two video monitors operating simultaneously, etc. The only disadvantage to this operating system is that it is limited to addressing 640K of RAM memory. If a SYSOP desires to run larger programs, (requiring more than 640K of RAM), then he should consider using "DESQVIEW" or some similar operating system that will allow for larger RAM memories.

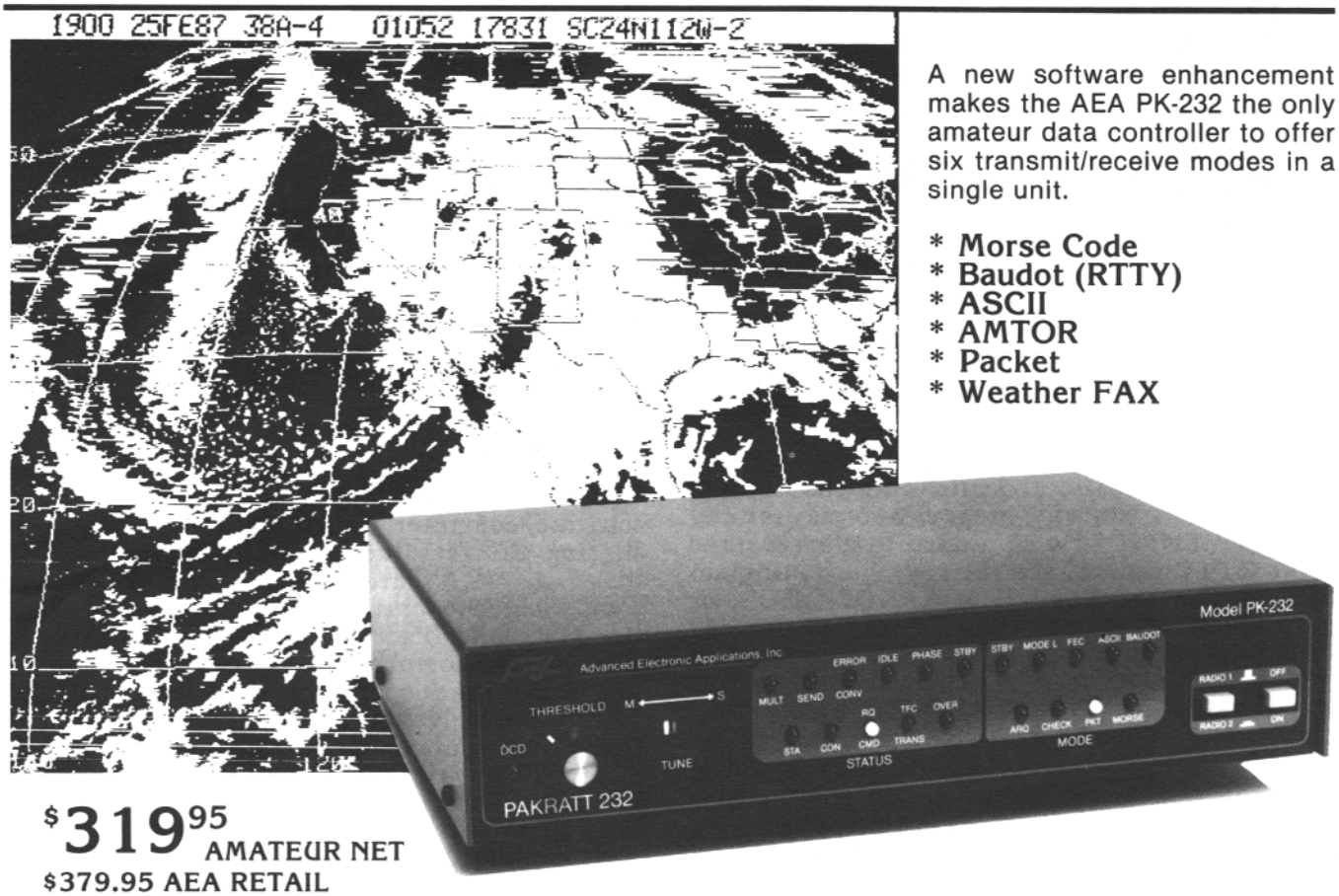
Here's the basic equipment line up: Beltron 'XT' clone computer, 640K RAM, two 360K floppies, and a 20 MB Hard Drive. Two double RS232 cards, mono card, CGA color card, multi I/O card, and printer port. W9CD MSO Program on RTTY, with a HAL ST-6000 demodulator, and a Kenwood TS-820S transceiver, utilizing crystal control and FSK, operating on the National Autostart Frequency, (14 085 625 Hz Mark).

The Packet BBS system utilizes the WA7MBL software, MFJ-1274 and MFJ- 1270B TNC's, Kenwood TM-2530A Transceiver on 145.05 Mhz, and Clegg FM DX transceiver on 145.07 Mhz.

If anyone has any questions or desires information, they may contact Gaylord and Louise at 1688 Clifton Road, Yellow Springs, Ohio, 45387, phone (513) 767-1692. Thanks for the description of what certainly is a super digital station. **(cont. pg. 15)**

New PK-232 Breakthrough

Six Digital Modes - Including Weather FAX



A new software enhancement makes the AEA PK-232 the only amateur data controller to offer six transmit/receive modes in a single unit.

* **Morse Code**
* **Baudot (RTTY)**
* **ASCII**
* **AMTOR**
* **Packet**
* **Weather FAX**

$319.95 AMATEUR NET
$379.95 AEA RETAIL

Your home computer (or even a simple terminal) can be used for radio data communication in six different modes. Any RS-232 compatible computer or terminal can be connected directly to the PK-232, which interfaces with your transceiver. The only program needed is a simple terminal program, like those used with telephone modems, allowing the computer to be used as a data terminal. All signal processing, protocol, and decoding software is in ROM in the PK-232.

The PK-232 also includes a no compromise VHF/HF/CW modem with an eight pole bandpass filter, four pole discriminator, and 5 pole post detection low pass filter. Experienced HF Packeteers are reporting the PK-232 to have the best Packet modem available.

Operation of the PK-232 is a breeze, with twenty-one front panel indicators for constant status and mode indication. The 240 page manual includes a "quick start" section for easy connection and complete documentation including schematics. Two identical back panel radio ports mean either your VHF or HF radio can be selected with a front panel switch. Other back panel connections include external modem disconnect, FSK and Scope Outputs, CW keying jacks, and RS-232 terminal interface.

The RS-232 connector is also used for attaching any Epson graphics compatible parallel printer for printing Weather Fax. Weather maps and satellite photos, like the one in this ad, can be printed in your shack.

Contact your local AEA dealer today for more information about the one unit that gives you six modes for one low price, the PK-232.

AEA Brings you the Breakthrough

2006-196th St. SW
Lynnwood, WA 98036
(206) 775-7373

Cole Ellsworth, W6OXP
10461 Dewey Dr.
Garden Grove, CA.
92640

CONNECTIONS

Spring has sprung and daylight savings time with it. And I have spring fever with all its attendant indolence, not helped in least by the year's first bout with allergies from desert pollen borne on Santana Wind which burns and dusts these Southern climes. (Fortunate Readers - my Muse just left me hanging here, so best get on with things).

WE HAVE MAIL

SELECTOR MAGNET DRIVERS - Received a letter from Russ, W6ONK/7 about running more than one set of selector magnets in a 60 ma loop (as from an ST-6). He wants to connect as many as three model 28 machines to this loop. The loop driver of the ST-6 was designed to drive a single machine's selector magnets. The loop voltage is about 100 to 120 volts in the marking condition with a constant current of 60 ma. The loop circuit is designed with the idea of providing the least amount of distortion or bias on the keying signal. Thus, if you take the range of a model 28 typing unit (by moving the range selector knob from one end to the other while noting where garble stops and good print begins and then continuing until the print garbles again and taking note of the maximum range of good print, you may find that you have a range of say 90 points at 60 wpm. If you try it again at 100 wpm you may find it has a range of only 80 points. Now go back to 60 wpm and add a second machine to the loop. Now you have twice as much inductance in the loop but the voltage and current are still the same. This added inductance adds distortion to the loop and reduces the range. Perhaps you will get only 70 points of range at 60 wpm with the increased inductance and even less range at 100 wpm. These are only examples plucked out of the air and not necessarily indicative of an actual situation. But they serve to illustrate the point. Teleprinter system designers overcome this problem by use of selector magnet drivers. (Fig. 1 pg. 17) shows how selector magnet drivers are connected to the loop and to the individual teleprinter selector magnets. Teletype Corporation manufactured a selector magnet drive that sensed the voltage drop across a low-value resistor in the loop circuit. This voltage was amplified and controlled a high-voltage switching transistor to key the integral auxiliary loop with self-contained loop power supply. The sense resistor (Rn) is about 82 ohms for a 60 ma loop. This value will provide almost five volts to the SMD input circuit with current flowing in the loop. R1, the 2.5K resistor should be a variable at about 20 watts. This will allow setting the loop current precisely. I have used several of these selector magnet drivers in the past with excellent results as they add no distortion to the main loop.

Another method, perhaps the best method, of sensing the mark/space transitions in a main loop and driving auxiliary selector magnet loops is by using a LED opto-coupler for sensing. This method has the advantage of complete isolation of the auxiliary loop(s) from the main loop, even as much as 2.5 kilovolt potential isolation. With solid state keyers, one does not want any stray AC floating around in sensitive circuits and the opto-coupler is an excellent method of preventing this type of problem. (Fig. 2 pg. 17) illustrates how this type of selector magnet driver is connected to a main loop.

KANTRONICS 2.8 NEW UPDATE EPROM - Through the thoughtfulness of Don, WA6HNC, of Upland, California. we have a user's viewpoint of the Kantronics 2.8 update Eprom that adds, among other features, the WEFAX capability to the Kantronics KAM, KPC-4, KPC-2, KPC-1 AND THE KPC-2400. Don responded to my request in a previous column, for users viewpoints on updates and new equipment.

Don says he is very pleased with the update and had no problems with installation and use. He said the included instructions were clear and easy to follow. He included the instructions in his letter so I could see what he meant. And I must agree with him, as the instructions are not only complete, but give excellent background information to assist the new user on what to expect from WEFAX, the basic technical configuration of WEFAX signals, and also provides a short list of active WEFAX stations and frequencies.

Note that the complete update consists of the new 2.8 Eprom and MAXFAX which is a program on a diskette. The program is configured for the C64/C128 (MAXFAX-64/128) or for PCs and compatibles (MAXFAX-PC).

(cont. pg. 14)

(CONNECTIONS cont. from pg. 13)
MAXFAX claims to have the following features:
1. Screen display weather facsimile charts.
2. Store in RAM, then to print or store to RAM, then to diskette. For printing, the Epson Graphics format is assumed, such as the Epson LX-80.

The 2.8 Eprom update also provides a new packet function, KA-NODE, for Kantronics TNCs which appears to be similar to NETROM in that the mode parameters and soft switches can be set to permit a packet transfer that is acked by the first digipeater in a string of digipeaters. This makes for much increased efficiency because end-to-end acks are not required. (compatible with netrom???, or only with other 2.8 kantronics??) Thank you, Don, for sharing your impressions on this update.

REQUEST FOR HELP - A letter from Mr. R. E. Givens, 5 Birchwood Rd., Holliston, MA 01746 and who is a new subscriber to the Journal, asks for some advice on selecting a terminal unit to operate with a model 28 teleprinter and a Commodore C64 computer. First of all, the model 28 probably requires a 60 ma current loop so perhaps the easy approach is to use an AEA CP-100 terminal unit (which has its own current loop supply and keyer) with MBA-TOR software-in-a-cartridge for the C64. This works great for RTTY, AMTOR, and CW. Dale, W6IWO, has been using this setup for several years and he has been very happy with it. I believe that both Kantronics and MFJ also make terminal units that will drive a current loop and with appropriate software will work with a C64.

MORE HELP NEEDED - Jack, K7YNY, P.O. Box 280, Stanford, Montana 59479 writes that he has been off RTTY for some time and is just getting back into the game. He recently acquired a Teletype Corp. Model 33 machine and needs help in getting it going. The model 33 is an ASCII machine and usually requires a 20 ma current loop to drive it. It runs at 110 baud (10 characters per second). So it is reasonable to think that Jack needs a schematic of the current loop circuit or at least current loop connection information. A greater problem may be finding a terminal unit that will output 110 baud ASCII even though the input to the terminal unit is Baudot code, CW, or ASCII. I believe the INFO-TECH 200F terminal unit will do this. There are also probably other TUs that will work. How about someone who has used the model 33 grabbing a pencil or typewriter and let Jack or us at RTTY Journal know how they had things connected and what they used for the overall configuration?

AN OFFER - Dale passed on a portion of a note from Roy Dancy, N4AN, ex WA4GTA of 518 Rosemont Dr., Dothan, AL 36303. Roy has adapted a machine language (ML) program from the Commodore VIC 20 for use with the Commodore C64 computer. The program is in usable form but has a few bugs. It has a type-ahead buffer as well as receive memory and built-in messages for CQ, QTH, NAME, etc. Roy will supply the ML program for the C64, including the source code files to anyone sending him a self addressed stamped disk mailer and a disk. The source files are in LADS64 format. He cannot supply the assembler program as that is a commercial copyrighted program. Roy will also include the original VIC20 program on the disk, but the original source code for the VIC20 will take an additional $1.00 postage and a large manila envelope. The VIC20 source listing is on 14-inch paper.

Roy hopes that someone will finish the debugging (Roy claims he is not a programmer) and place it in the public domain for the rest of us. Thank you, Roy, for your generous offer and there must be a number of folks out there willing to give it a try . Seems I recall someone out there looking for a VIC20 RTTY program - here is your chance.

THE EPIC ENDS

At last! Gin, JA1ACB, came through with the explanation of syntax and function of the NEC N88-Basic statement that I had been having such difficulty with the past months. Then, a few days later, Goro, JA1BFK, in Chiba-ken (ken means prefecture in Japanese) sent me essentially the same information, which he had obtained from a NEC Computer Store showroom close to his office. It was interesting to learn that Japanese hams have similar problems to mine when it comes to getting information from overseas. Goro notes that out of five letters of inquiry he sent to USA computer mail order stores, only one was answered and it only said that "We do not Export". Four inquiry letters were sent to ham shops in USA and only one reply, from Ham Radio Outlet in Anaheim (Jim Rafferty, N6RJ, is not one to miss a possible sale; how else do you think HRO was able to start seven stores?). It is difficult for me to believe that our USA stores are so busy and flush that they can ignore exporting to overseas customers.

(cont. pg. 15)

(MSO's cont. from pg. 11)

MSO RAMBLINGS

John Troost, TG9VT, reports that his "AMTOR" mailbox is again active from 0300 to 1200 UTC daily. The Mark frequency is 14074.0, and he leaves his beam pointed in a southeasterly direction from Guatemala.

John also reports that the Australian government has relented on their strict interpretation of what constitutes "third party traffic", and now allows this type of traffic between two Amateurs, on behalf of a third Amateur operator. The very popular VK2AGE AMTOR mailbox has returned to service with this interpretation. This author has had some correspondence with Syd, VK2SG, on this subject, which I will include in this column at a later date. Thanks John!

Bob, W7IQO, has had some equipment difficulties recently, and has been missing from the National Autostart Frequency. We hope that his soldering iron makes short work of the problem, so that he can rejoin the gang on 20 meters.

SSB INTRUSION

Russ Tower, K1DOW/4, of Arcadia, Fl, brings to my attention a very serious matter for all Digital Mode operators. Two ARRL Directors have proposed a SSB intrusion into the digital portion of the 40 Meter band. Russ has written a notice concerning this information, and has been entering it into various MSO's. CBMS's and PBB's. This proposal, currently before the ARRL Board of Directors, is to petition the FCC, to allow the present RTTY, AMTOR, Packet and CW section of the 40 meter band, (7.075 to 7.100 Khz), to be utilized by Advanced and Extra Class operators on SSB. The full details of this proposal are on page 53 of the March 1988 issue of QST, (4th paragraph, upper left hand corner).

Russ makes the point that unless we are prepared to share this portion of the 40 Meter band with Stateside SSB operators, we must contact, write, phone, etc., our ARRL representatives immediately. Let your area Director know that you are opposed to this mixing of SSB and Digital signals, and as we all know, they are very incompatible. It seems to this author that with the great increase in interest and use of the various Digital modes, we need MORE spectrum for these modes, not LESS! There is some speculation that a downward expansion of the SSB portion on 40 Meters would mean a loss of frequencies to the "CW ONLY" portion of that band, meaning a compacting of the CW portion. Unless we oppose this unrealistic proposal now, digital enthusiasts will see a reduction in operating frequencies, versus a needed increase! Let's all get together and oppose this proposal now!!!

That's it for this month Gang! I hope to see many of you in Dayton soon. Best 73

de Dick, K0VKH

(CONNECTIONS cont. from pg. 14)

True, it takes some extra effort to do the paper work but the US Commerce department has recently simplified the paper work needed for export licenses in order to encourage export. I realize that communication is sometimes a problem with export operations (most of us here speak only English and many overseas hams know only enough English to exchange radio reports. But this was certainly not true in Goro's case. His letter to me was neatly typewritten and his English syntax and grammar were better than many present day high school graduates in this country. Although I have not heard of any complaints from Europe or other countries on this score, no doubt they have run into similar situations. At any rate, our collective experience in this matter proves that manufacturing and vendor public relations can stand a very large amount of improvement on both sides of the ocean. And before the vendors start complaining that I don't know their side of the story, let me say that I was in the Ham Radio Retail business for about four years here in California and we did quite a bit of export, especially to South America. And I also know that ninety nine percent of the customers are great people, but that last one percent cannot be satisfied no matter what you do!

So, thanks to Gin and Goro, I now have the ICOM remote control program translated from NEC N88-Basic to a compiled high-level language that runs fairly well on a PC and my IC-751 HF transceiver. Many changes and improvements have been made to the program but there are still a few minor bugs to swat (you programmers out there know those last few bugs are always the most difficult to iron out). Wonder what I will use for column filler after this?

COMING UP - Next month (the May-June issue) look for a full page of good information on problems and fixes for several packet TNCs including the PK-80, the PK-232, and the TAPR TNC-1. All this through the courtesy and efforts of Clark Constant, W9CD, Until then, very 73

de Cole, W6OXP

ARMED FORCES DAY 1988

The annual Armed Forces Day Communications Test is set for Saturday 21 May 1988 and marks the 39th anniversary of this event which emphasizes a continuing climate of mutual assistance and warm esteem between military and amateur radio communities. The traditional military-to-amateur cross band operation and broadcast of the Secretary of Defense message are the featured highlights and include operations in CW, SSB, RTTY and Packet radio.

These tests give both amateur radio operators and short wave listeners (SWL) the opportunity to demonstrate their individual technical skills. Special commemorative acknowledgment (QSL) cards will be awarded to those amateur radio operators achieving a verifies two-way radio contact with any of the participating military radio stations. Interception of these contacts by SWLs are not acknowledged by QSL cards, however, anyone who receives and accurately copies the Armed Forces Day CW and/or RTTY message from the Secretary of Defense can qualify to receive a special commemorative certificate from the Secretary.

CROSS BAND CONTACTS - The military to amateur cross band operations will be conducted from 21/1300 UTC (Universal Time) to 22/0245 UTC May 1988.

MILITARY STATIONS PARTICIPATING IN CROSS BAND OPERATIONS

AAE
HF/MARS Radio Facility
Fort Sam Houston, Tx

AAG
Army HF/MARS Radio Facility
Presidio of San Francisco, Ca

AIR
2045th Communications Group
Andrews Air Force Base
Washington, DC

NAM
Naval Communications Area
Master Station LANT
Norfolk, Va

NAV
HQ Navy-Marine Corps
MARS Radio Station
Cheltenham, Md

NPG
Naval Communications Station
Stockton, Ca

NPL
Naval Communications Station
San Diego, Ca

NMH
Coast Guard Radio Station
Alexandria, Va

NMN
Coast Guard Communications Station
Portsmouth, Va

NZL
Marine Corps Air Station
El Toro, Ca

WAR
HQ Army MARS Radio Station
Fort Meade, Md

Military stations will transmit on the below listed frequencies and announce the specific amateur band frequency being monitored.

FREQ	EMS	STA
4001.5	LSB	NPG
4010	CW	NPG
4015	CW	NMH
4018.5	LSB	WAR
4025	LSB	AIR
4028.5	LSB	AAE
4033.5	LSB	AAG
6970	CW	NPG
6988	RTTY/CW	AAG
6995.5	CW	AIR
6997.5	CW	WAR
7301.5	LSB	NPG
7315	LSB	AIR
7346.5	LSB	NMH
7358.5	LSB	AAE
7365	CW	NPG
7372.5	RTTY	NAV
7375	RTTY	NZJ
7382.5	RTTY	NPL
7393	USB/RTTY/CW	NMN
10259.5	CW	NPG
13927.5	RTTY	NPG
13975.5	CW	NPG
13986.5	RTTY	AIR
13992.5	RTTY/CW	WAR
13994.5	USB	AAE
13997.5	CW	AIR
14375	USB	NPG
14385	USB	NPL
14389.5	USB	NAV
14400	USB/RTTY/CW	NAM
14403.5	USB	WAR

(cont. pg. 17)

(ARMED FORCES DAY cont. from pg. 16)

14408	USB	AIR
14400	RTTY	NMH
14480	USB	NZJ
14488.5	USB	AAG
14665	RTTY/CW	AAE
20937.5	USB	NMH
20992.5	PACKET	AAE
20994.5	USB	WAR
20998.5	CW	NPG
21460	USB	NPG
27992.5	USB	AAE

RECEIVING TEST

The CW and the RTTY broadcast will be special Armed Forces Day messages from the Secretary of Defense to any amateur radio operator or SWL desiring to participate. A 10 minute tuning call will precede each transmission. The CW Broadcast will be transmitted at 25 WPM beginning at 22/0300 UTC May 1988. The RTTY broadcast will begin at 22/0345 UTC May 1988 and transmitted at 60 WPM using 170 Hz shift. Both the CW and RTTY broadcast will be transmitted from the following stations on the listed frequencies:

TRANSMIT STATION

AAE
HF/MARS Radio Facility
Fort Sam Houston, Tx.
Freq: 4018.5, 6988, 6990

AAG
HF/MARS Radio Facility
Presidio of San Francisco, Ca.
Freq: 4021.5, 7309.5, 13994.5

AIR
2045th Communications Station
Andrews Air Force Base
Washington, DC
Freq: 6995.5, 13997.5

NAM
Naval Communications Area
Master Station LANT
Norfolk, Va.
Freq: 4005, 7393, 14400

NAV
HQ Navy-Marine MARS Radio Station
Cheltenham, Md.
Freq: 7372.5, 14389.5

NPG
Naval Communications Station
Stockton, Ca.
Freq: 4010, 7365, 13975.5

WAR
HQ Army MARS Radio Station
Fort Meade, Md.
Freq: 4028.5, 6997.5, 14403.5

SUBMISSION OF TEST ENTRIES

Transcriptions of the CW and/or RTTY receiving tests should be submitted "as received". No attempt should be made to correct possible transmission errors. The time, frequency and call sign of the military station copied as well as the name, call sign and address of the individual submitting the entry must be indicated on the page containing the test message. Entries must be postmarked no later than 28 May 1988 and submitted to the respective military commands as follows:

STATION COPIED

AIR
Armed Forces Day Test
2045CG/DOJM
Andrews AFB
Washington, DC 20331-6345

AAE, AAG, WAR
Armed Forces Day Test
Commander, USAISC
Attn: AS-OPS-OA
Fort Huachuca, Az. 85613-5000

NAM, NAV, NPG
Armed Forces Day Test
Naval Communication Unit
Washington, DC 20397-5161

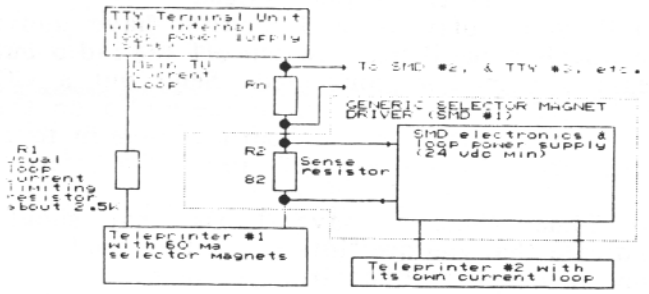


FIGURE 1. TTY TU AND PRINTERS WITH SMD AUX LOOPS

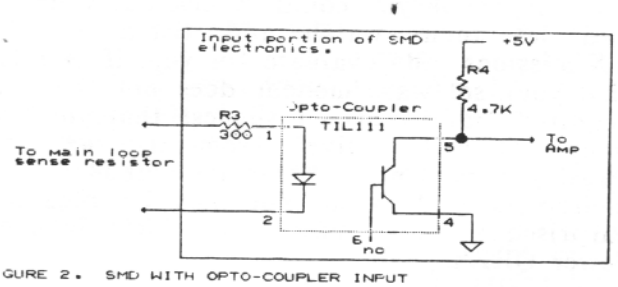


FIGURE 2. SMD WITH OPTO-COUPLER INPUT

AMTOR TIPS BY EDDIE SCHNEIDER, G0AZT/W6,

1826 Van Ness, San Pablo, Ca. 94806

I do not claim to be an "expert" on the workings of AMTOR, having only been licensed since March, 1985, but as AMTOR is my preferred mode and the fact that I have been lucky enough to have worked 79 countries from the U.K., using 60 watts and a G5RV, should convince you that I am an "AMTORITE". (Now there is a new word for the Ham Dictionary)

Tip #1. Many stations need to check their software when in FEC (Mode- B). 80% of stations I have listened to, calling CQ in FEC, do not have sufficient "idles" DURING the CQ call. This means that when you initiate a call, you MAY (?) let the TX "idle" before you hit the CQ call buffer, to allow initial synching, BUT unless a receiving station is tuned dead on your frequency at the beginning of your call, he will usually miss your callsign, selcal etc., and just get "Pse KK", at the end, if he is lucky.

The reason for periodic "idles", during your FEC transmissions, is to allow the RX station to maintain sync, even if he comes on the frequency after your initial start-up or QRN/QRM hits part of your transmission. If you have been QRZ'ed a few times after CQ-ing, or you do not get many replies, you most likely do not have enough "idles", and the RX station missed all or part of your transmission.

To check your system:

a) If your software and monitor have audio feedback capabilities, switch off the radio but leave the modem connected. Send out a CQ call, "off air", and listen to the audio on the TV/monitor. You should hear a change in tone, idles, around about every 20 to 40 characters.

b) Some modems have LEDs that should indicate that you are "idling" in FEC mode. An "on air" check will confirm, yea or nea.

c) Next time you link in ARQ with someone, ask him/her if you could check out your FEC and let them watch and listen to your TX-missions and evaluate for you. If you find that your software/modem does not have the required "idles", may I suggest that you type your CQ call "live" from the keyboard, pausing momentarily, after about 20-30 characters, and so on. You may be pleasantly surprised at the results. More ARQ links and fewer QRZ's.

Tip #2. DO NOT use the good old "steam RTTY" favorites. Two or three lines of RY's and CQ's. (Yawn!). Both are a total waste of time, R.F. and very non- informative. Instead, send a couple of CQs and take up the rest of the TX time with your callsign, and more important, your SELCALL. Put the boot on the other foot, how many times have you seen lines of RY and CQ (more Yawn!) and you are just DYING to find out WHO the person is.

Tip #3. PLEASE call more than once if you do not get an immediate response. I am sure you would call CQ, two, three or more times on CW or SSB. Use the old adage; if you do not succeed, try, try, and try again. No reply after 3 CQ calls? Well, the band may be closed, your antenna may not be plugged in, or possibly, you should change your brand of deodorant!!

Tip #4. If your radio does not switch from TX to RX and vice versa, fast enough, 20 ms or less, is par for the course, then get it modified, as you may have difficulty being the Master (the one who initiates the ARQ call).

Also as SLAVE, there may well be many errors and RQs, if the MASTER is switching a lot faster than your rig is. If you have switchable AGC, leave it in the FAST position, and do NOT have the rig in VOX, R.I.T., or the processor on.

Mods. are available from the rig manufacturers, various MSOs, or from AEA Inc.

If I could get an old Yaesu FT-101ZFD, with relays the size of half bricks, to switch at 15ms, there is hope for your rig.

Using the software timer, in my opinion, is a waste of time. To date, I can recall only having to change my software timing 3 or 4 times, and that was only to "check-out" the other station, to see if it was to slow for successful ARQ.

Tip #5. If the ARQ link breaks down totally, let the MASTER station try to re-establish the link FIRST, either in ARQ or FEC. There is nothing more frustrating than when BOTH stations "fire-up" at the same time. One calling in FEC and the other trying in ARQ. The band will close before you can link successfully.

That is only the tip of the iceberg, good "chirping" to those of you who realize that AMTOR is THE best mode for "error free" traffic, under adverse conditions, on HF..

Possibly a little later on, I will have an article on Beacons and the use of Linear amplifiers.

Thanks for your time, 73's **Eddie,G0AZT/W6**

CLASSIFIED ADS

30 words $3.00, additional words 5 cents each. Cash with copy.
Deadline for copy is 1st of month for following month

FOR SALE - Complete HAL RTTY System: DS-3100AR, ST-6000 TU, ARQ 1000 AMTOR terminal $2100.00. I crate, you pay shipping Plse call: Ervin, 213-271-6691 After UTC 2400

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NEWS - NEWS - NEWS Amateur Radio's Newspaper "WORLDRADIO". One year subscription is $11.00. Contact: WORLDRADIO P.O. BOX 189490, Sacramento, Ca. 95818

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FOR SALE: - HAL DS-3000, $200.00; HAL ST-6 $150.00. Contact: John O'Neill Jr., K0VW, 13532 Fordham Ave. Apple Valley, Minn. 55124, (612) 432-7817

BACK ISSUES: A duplicate of any back issue of the RTTY Journal may be obtained from: Red Wilson, WB0ESF, 4011 Clearview Dr., Cedar Falls, Ia. 50613, $1.50 PPD & SASE. Reprints of both UART articles $2.00 PPD

HAM RADIO magazine: The no nonsense "State of the Art" technical magazine. Subscribe now and see for yourself. One year $22.95 USA, $31.00 Canada and Foreign surface, $37.00 AIR to Europe, Africa, Japan areas. Contact: HAM Publishing Group, Greenville, NH. 03048

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