Price $1.50

RTTY JOURNAL

©

AMATEUR RADIOTELETYPE - COMPUTERS - PACKET

VOLUME 35 NUMBER 2 FEBRUARY 1987

HAPPY FACES FAR AWAY PLACES

THE GANG AT HD8G
(back row) HC2FG & SON, HC5ES, HC5AT HC5AI, HC5JB
(front row) HC5AT, HC5KA, HC5CG

IN THIS ISSUE

RTTY JOURNAL
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SUBSCRIPTION RATES

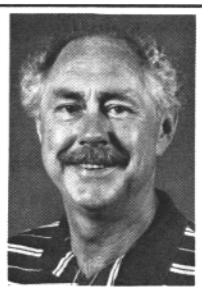
USA	$10.00 per yr.
CANADA/MEXICO surf	$10.00 per yr.
CANADA/MEXICO air	$12.00 per yr.
FOREIGN surf	$10.00 per yr.
FOREIGN air	$15.00 per yr.

All monies in U. S. currency only

POSTMASTER : The RTTY JOURNAL (USPS 391850) is published monthly except May/Jun and Jul/Aug issues which are combined for $10.00 per year by RTTY JOURNAL, 9085 La Casita Ave., Fountain Valley, Ca., 92708. Second class postage paid at Santa Ana, Ca. and additional mailing offices.
Postmaster : Send address changes to RTTY JOURNAL, 9085 La Casita Ave., Fountain Valley, Ca., 92708.
ISSN 0033 - 7161

ABOUT THE COVER

The picture speaks for itself. They are definitly very happy and so I have named the picture "HAPPY FACES - FAR AWAY PLACES". See Roy's DX column for more.



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92708

HITS & MISSES

I'm not going to have much room for my column this month but that's okay because we have a very busy issue for you.

IT'S OFFICIAL! The RTTY forum at the Dayton Hamvention has been finalized. Our time slot is Saturday afternoon from 1300 hours to 1445 hours. I think this is a great spot because if you start early Saturday morning making the rounds, by the time 1300 hours rolls around, you'll be ready for a break and what better way to spend it than at the forum. Also about that time of day on Saturday the crowd in the convention halls are enormous; again what better place to be than at the forum.

I'M EXCITED! The RTTY Journal will be hosting the forum this year and to start with the name is being changed to "DIGITAL DIGEST". And that's just the beginning. There is a super program lined up for those in attendance. I have asked a number of prominent radio amateurs to serve on a panel. As moderator of this panel, I will be directing a two-way question and answer session. Four representatives from industry and four amatuer radio station operators will be on the panel. The hams representing the ham community will be asking questions of the industry representatives. This should make for a lively and spirited forum, don't miss it if you are going to be at the hamvention. Representing industry will be: Dr. Al Chandler, K6DFK (AEA), Bill Henry, K9GWT (HAL), Phil Anderson, (KANTRONICS), and one representative from Trio- Kenwood. Serving on the operator side will be: Dick Uhrmacher, K0VKH, (Rapid City, SD), Jerry Trichter, WA1IUF (New Haven, CT), and Roy Gould, KT1N (Stow,MA).

HIGH POWER! I'm sure you will agree these panelists are all high-powered individuals and the questions will cover the many modes of digital operation. We intend to also allow time for the audience to participate as well, so don't miss out on this chance to ask that question you have been holding back on. Come to the forum and be counted. That's about all the space I have for this month. Will have more next month.

de Dale,W6IWO

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

DX - NEWS

Amazing, how time is flying by, it seems Christmas was last week and here we are at the February issue. The bands seem to be in about the same shape, I guess that few days of nice conditions a few months ago were just that, a few days of nice conditions. Yet for those with patience there seems to be a few new ones out there. Contests are always good time to pick a few new ones, and there is a good Contest coming up in the month of March. It is the BARTG Spring RTTY Contest. Here are some of the details.

BARTG SPRING

The contest will be held 0200 UTC March 21 to 0200 UTC March 23. The rules are printed elsewhere in this issue. I plan to be active in it, that is if I cure my TVI problems. For some reason I am really tearing up the TV which is even on cable, and the family has let it be known --TVI?? No Contesting. Have to get that fixed. So will look for you all in this one, it usually has a great deal of activity.

Ted Double, G8CDW has forwarded some information to me regarding the awards available from the BARTG folks. He announced a new booklet about to be released listing over 60 different awards that are RTTY only or can be endorsed for RTTY operation. It should be released sometime in the next few months and Ted promises to keep me informed. As soon I know, it will appear here in the Journal. Ted is the awards chairman for the BARTG and is also serving as President of the organization this year. There is also a QCA award (Quarter Century Award) available for those having confirmed 2 way RTTY contact with 25 different countries and is endorsable in increments of 25.

Another award offered is a Members Award, for working 25 members of the BARTG. If room permits I'm sure Dale will print the rules for all these fine awards that can be had. If not and you would like information, send me a Large SASE and I will forward the details to you. I also have log forms, and rules for the contest plus membership applications.

HD8G GALAPAGOS ISLANDS

I have processed all the cards on hand for this DXpedition, over 1,700 have been processed so far and I haven't even seen what the bureau is going to bring. The DX gang graces our cover this month and for those who missed this one, here's good news. They are going back again the first week of March and promise even more RTTY activity. So keep your ears peeled for HD8G during this period.

DAYTON

Yours truly will be there again this year and I look forward to meeting many of you. Dale, I am sure will talk about the Journals activities at Dayton in his column.

RTTY DX NOTES

Anguilla VP2EUQ and VP2EYL ... Mort and Claire are planning RTTY activity from this location during summer and I'll keep up posted on the exact times.

Cayman Islands ZF2RR ... Jay WB8ZTY reports that ZF1RR has RTTY gear and waiting for a few more components before being active. ZF1RC has also been active on the keys recently.

Cuba CO2BB and CO2QB ... Dean WA6PJR reports receiving a QSL card recently from Ed CO2BB .. WOW!!! He said, finally came! He opened it up and 'guess what', a card for W6GC instead of his. Oh well, at least the thought was there. He is now trying to find out if W6GC has his card. Also, I recently worked CO2QB on Baudot and he said he is new to RTTY but plans on being quite active.

J88AR and V31AB continue to be active and both QSL via WA4WIP, who was responsible for getting both on RTTY. TNX Dick (alias "The Wipper").

AH9AC ... Should be back on as you read this. He had some trouble and now all is squared away, so says Gin, JA1ACB.

Packet ... I have been on HF Packet a bit lately and when in the shack I leave a rig on 14.107. If you have Packet gear drop by and say hello. Bill, W0LHS is also on there and Ted, HC5KA hangs out on 14.103 when he is home. Good way to drop that DX info you want to pass along. The congestion on the Packet frequencies is tremendous, with many retries. I have to agree with Rick, W0TN and Bill, W0LHS that when on HF Packet we should set our TNC's to: DIGIpeat OFF, FRack 10, MAXframe 1, Paclen 40, and NO Beacon.

(cont. next pg.)

(RTTY DX cont. from pg. 3)

AMTOR ... I get on this mode once in awhile and like it. I should also get on more often. If any of you are working this mode regularly, pass along your activities and we'll share them here in the Journal.

I still would like to hear from more of you and please include a photo that we can share in this column. Come on now, don't be shy, like Mort W1UQ!

QSLING TO DXPEDITIONS

As many of you know, I have been Ted's, (HC5KA) QSL manager for over a year. But this is the first time I have ever managed a DXpedition. I have spent a great deal of time looking through all 6,000 plus contacts for people who have had the wrong date, wrong time, wrong mode, and wrong band, trying to straighten it all out. I think one of the more time consuming jobs is to have to handle a given card or envelope more than once, all due to people putting more then one card in an envelope , only sending one return envelope, or more than one QSO on a card. Some of this may be okay for a routine DX contact but NOT for a DXpedition. The reason being, that in many cases more than one person may be checking logs and at different locations. I'm suggesting the following rules that I feel will make it a lot easier for the log checkers and also expedite your return card.

1. Only put ONE QSO on a card.
2. For each QSL card you send, send an SASE.
3. DO include some form of return postage.
4. Be sure you are using the correct UTC date and time.
5. Make absolutely sure of BAND and MODE.
6. Be sure to fold your return envelope in such a way that a letter opener does not cut it in half.
7. If sending to humid areas i.e. Pacific, South America etc. put a piece of wax paper between the glue on your envelope and the flap, or fold the flap so it will not seal itself.
8. Also make sure that at the very least your own card will fit into your return envelope.

So hopefully these simple procedures will make it a lot easier for all us log checkers and help get your return card back to you quicker.

Well, the column is rather short this month. I like many of you have been chasing the 3Y2GV and 3Y1EE stations from Peter I Island. I did manage to work them on 21 SSB but would like a CW contact as well. They seem to be doing a super job. I wonder when they sleep? Wouldn't it be nice if they went to RTTY for the last day.

See you all in the BARTG Contest and at Dayton, I hope. Thanks and a Tip of the DX Hat to: WA4WIP, W1DA, WB1AQA, WA6PJR, W1UQ, K1YL, WB8ZTY, JA1ACB, TG9VT, WB1AEL, W5HEZ, W0LHS, and the DX Bulletin..

de: Roy, KT1N

DXER OF THE MONTH

Claire Bardfield, K1YL, PJ8YL, FG0YL and VP2EYL

Claire is married to Mort, W1UQ, PJ8UQ, FG4EM, and VP2EUQ. Claire first became interested in Ham Radio after meeting Mort, who of course, became her OM. In two years she went from Novice to Extra while maintaining two homes, one in Brookline, MA. and one on St. Martin. between finding time to raise a family including TWINS! Claire has been on a number of Dxpeditions to Africa and many of the Caribbean Islands. She is a Physics graduate and a Mathematics teacher. She enjoys RTTY and along with Mort are active in all of the RTTY contests. They both plan to be on during the upcoming BARTG contest. In this issue you will find a picture of Claire at the operating position but couldn't get one from Mort, guess he is shy and bashful. Both will be in attendance at the Dayton Hamvention this year, so look them up when you have time. QSL's for all their call signs go to W3HNK. (SEE PHOTO PG. 6)

LATE BREAKING DX NEWS

3YIEE Peter I Island ... It was reported to me that W5HEZ, JA1ACB, W2JGR, and others worked this station on January 31 at 0100 on 20 meters RTTY! Yours truly did not. Rumor has it that a few in JA land knew that they would be up at that time on RTTY. If that is the case it is really disappointing that the info was not shared with others on RTTY. I am still looking into it and will report here what I can find out.

VK9Y and VK9X ... Jim VK9NS and Bob W5KNE will operate as VK9YS and VK9YW from Cocos-Keeling from Feb 10-24 and Jim will operate from Christmas Island as VK9XS Feb 24 to Mar 3. They will be on RTTY.

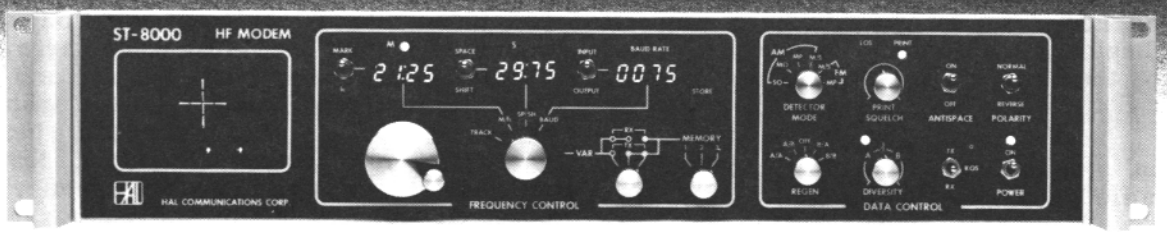
9L1 .. Our friend Walter, DL6QT will be on from here in March so watch for him. Walter always takes care of the RTTY faithful.

UZ3TYL/UF ... To correct my info from last month, operators were UA3TT and UW3TN. The QSLs go to stateside. UA3TT, all others go to UW3TN or of course Box 88 if you like. Some time in 1987 (not necessary spring), they will go to either UD or UG most likely.

(Late breaking Dx news cont. pg. 7)

Wide Dynamic Range and Low Distortion — The Key to Superior HF Data Communications

- Dynamic Range > 75 dB
- 400 to 4000 Hz
- BW Matched to Baud Rate
- BER < 1 X 10^{-5} for S / N = 0 dB
- 10 to 1200 Baud
- Linear Phase Filters



ST-8000 HF Modem

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

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

Write or call for complete ST-8000 specifications.

HAL Communications Corp.
Government Products Division
Post Office Box 365
Urbana, Illinois 61801
(217) 367-7373 TWX 910-245-0784

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

PACKET

In this month's column, I will be discussing an effective packet demonstration at club meetings, and the Beginner's column starts this month. The mailbag has still been pretty empty lately, but I did receive some correspondence from a few with more requests for the Beginner's Column. So stay with the Journal as the basic Packet information will be a regular feature in this column for some time.

Have you ever had the opportunity to attend a Packet radio demonstration at your local club meeting? With this mode growing at the intensity that it is, if the opportunity has not presented itself yet, it should soon! And if you are an avid Packeteer, your club's Vice President (or person in charge of arranging the club speakers) may approach you with two guys on either side of him that look like Sumo Wrestlers and before you know it, you have "volunteered" to speak about Packet at the next meeting. I have seen several demos and participated in just about as many, so I wanted to pass along some suggestions on how to show off an interesting mode painlessly for both you and your audience.

One of the first things that should be done after confirming your speaking arrangements with the club is planning out what you would like to cover in the alloted time set aside for your speech. Is the club well saturated in Packet Ops? This is an important question to answer as you would not want to spend a lot of time on how to connect to another station in front of folks who were discussing bit stuffing and the technical overview of Link Layer Protocol at the coffee break. I think if this were the case, one should be very well versed in the complexities of the mode before agreeing to make a presentation. Assuming that a majority of the hams at your gathering are neophyte Packeteers, or just have a casual interest in Packet, we can continue with a basic format for the show.

Since the main objective of your demo probably will be to gain interest in the mode, the presentation could be broken up into two main segments; 1). The lecture, a brief overview of the technical side of Packet presented "untechnically" and 2). The demonstration (if possible) of actual Packet operations. In the lecture visual presentations such as slides, overhead projection or blackboard and chalk can be used. With the visual aids you can show the breakdown of a packet, basic hook ups of the TNC, terminal device and radio, a block diagram of the TNC, even local and wide area digipeater maps. A good explanation of active frequencies in the area should be in order along with discussion of BBS's, gateways and satellite operations. In the live Packet demonstration direct connect, connecting through a digipeater, using a BBS, and maybe trying a long haul connect to a distant station.

It becomes apparent that providing the audience with all this information can take hours. The best way to curtail large amounts of time spent on each subject is to very basically describe each topic and what is does for the mode. Actual technical breakdowns and lengthy discussions can be learned by either obtaining literature or becoming involved in the mode by individuals interested enough with your presentation. So don't feel as though you need to pass on everything you learned about Packet in an hour of discussion. A reasonable amount of time should be also set aside for questions and answers. Done this way, you can move smoothly through the lecture and not be bogged down with a lot of explanations, as lot of times questions are inadvertantly answered further on in the discussion.

Running more than one station at the meeting is an effective way to demonstrate direct connects and digipeating. It would also be helpful if you can have a Packet Op that lives near the meeting place leave his station on the air for digipeating/connecting purposes, It would greatly extend the range of a 5/8 wave mag mount set outside the room on the floor or put in a window sill.

One of the best demo's I attended was put on by Nick Testa, K6KTS. He really did his homework, had easy to understand overheads, obtained help from 2 other hams to bring equipment and put 5 stations on the air in the room. Needless to say the connect/digipeat segment of the demo was a wonderful way to display Packet capabilities and ease of operation. At last known count, 5 people out of the 50 plus that were in attendance have bought TNC's since Nick's demo.

With a little imagination, some help from other Packet Ops, a well conceived program format, and an absence of Murphy, you can really make an impression on a group of hams and non-hams alike. **(Packet cont. next page)**

(PACKET cont.)

THE BEGINNERS COLUMN

I am keeping this session of the beginner's column short because in future months this segment will be taking most of the column space allotted for my corner of the Journal.

The Terminal Node Controller is one of the most technologially advanced pieces of gear you can buy for your station, and at the same time, one of the easiest to operate. Countless hours went into the developement of hardware and software of this unique piece of equipment. The fruit of this labor is the ability to introduce a highly advanced form of communication to users who, with very little knowledge of the mode, can operate successfully. Selection of a TNC can be easy if you know what your needs are. If you are already set up for other digital modes or only interested in Packet, you may want to stick with a Packet only controller. However if your interests in digital communications starts with CW, ends with Packet and includes everything in-between, you might consider one of the "all mode" digital controllers. Check with your local dealer for particulars of the different controllers on the market for comparsions. The selection is too vast to do an effective comparsion of TNC's in this column. However, for simplicity's sake, the description of operation used will be based on the TAPR TNC2 and clones.

Since the owners manual included with your TNC has (or should have) the basic hook up/turn on/connect with another station information, we will be leaving that up to you to complete. However, starting with last month's Journal, Cole Ellsworth, W6OXP began a series of articles dealing with connecting various pieces of station equipment and he will certainly be covering the Packet radio gear in the series.

That's about all the room I have for this month. Next month's Beginners Column will include setting up your TNC's commands to suit your local area network, digipeating while connected and while not connected, and a glossary of terms we will be using in the upcoming months. So you have a month to get your TNC, get it hooked up and get your sleeves rolled up so we can get to work having fun! **de Danny, N6IHQ**

(Late Breaking Dx news cont from pg. 4)

UZ3AYR .. This is the Moscow Technical University Student Radio club, it sports many aspiring RTTY Dx types including, Jaro, Lync, Vic, Igor, Mike, Andy, Kenny, and Serge. Home operation of RTTY requires a "special permit" in the USSR, so it is very important to answer SWL requests for cards on RTTY because they are part of the requirement for obtaining a permit.

WB2CJL ... Is reportedly going on an Island hopping DXpedition in the Pacific beginning with the Hawaaiian Islands in mid March. RTTY will be emphasized!!

5X5GK ... Has been on recently Saturdays and Sundays.

AH9AC ... Likes AMTOR.

RTTY DX MAILBOX ... John, TG9VT operates a mailbox on 14.085.625 (mark), he encourages DX info. Check it out and if you find some, leave some!! Access by typing, GUATMAIL. By the way, it is all 100 WPM.

AMTOR ... Recently heard or worked by George, W1DA include VU2DLX, C6AAA, HA4YF, and VU2IJ.

CU3AA ... Sometimes found on Baudot, is not in CT3 land but CT2 land (Azores).

We did not have room for the Bandpass this month, so will expand it next month. But let me pass along some new callsigns reported on the bands: VU2DLX, OY4HQ, CO2FRC, VU2LO, SV3YY, UV9FJ, VK2KM, Z21FB and 9X5SP were up again on Jan 10 at 2000 UTC 14.091. **de Roy, KT1N**

OPERATING POSITION AT ST. MARTIN
CLAIRE, K1YL, PY8YL

Or This Inexpensive

It Really Shouldn't Be This Easy

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

First, A Good Idea

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

Second, Computer Compatible

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

PAKRATT™ Model PK-64

PAKRATT™ Model PK-232

Third, Performance and Features

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

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

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

Fourth, AEA Quality and Price

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

Prices and specifications subject to change without notice or obligation.

AEA Advanced Electronic Applications, Inc.
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206-775-7373 Telex 6972496 AEA INTL UW

Cole Ellsworth, W6OXP
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This month we will discuss the parallel interface, with emphasis on the most common printer interface, often referred to as a "Centronics" type parallel printer port. This parallel connection derives its name from the company which first defined the interface and made it popular, the Centronics Data Computer Corporation. Although the Centronics interface is not an "official" standard, it has been a de facto standard by virtue of universal use.

The Centronics printer parallel interface is mostly undirectioanl. I say "mostly" because although the printable data flow is one way from the host (computer or other source) to the printer, the printer does send status information back to the host, but not on the same 8 data lines that pass the characters to the printer. Figure 1 is a functional diagram of a Centronics printer interface connection. Note that 8 lines plus a strobe line are required just for the data path. A signal line called ACKNOWLEDGE (ACK) notifies the host that the printer has received that last character and is ready for the next character. ACK is only sent if the printer is busy, that is, it does not have a full buffer, and is ready to accept the next character. Another status line from the printer to the host is called BUSY, and in some cases it is redundant to the ACK signal. Be aware that some versions of the Centronics printer port may provide either BUSY or ACK but not both. In fact some hosts (computers) will have both BUSY and ACK in hardware but the software in the port driver will only recognize one of them. Sometimes this makes one wonder if standards are like New Year's resolutions- made to be broken!

Why use a parallel port when a serial requires fewer lines and will transfer data over greater distances? Speed of data transfer is one reason. For example, a high-speed serial port runs at 19.2 Kilobaud which is about 2000 characters per second. A Centronics parallel port may transfer data at up to 30,000 or more characters per second, which is the equivalent serial transfer rate of 300,000 baud. Another advantage is simple and less expensive hardware requirements for parallel ports.

CENTRONICS PRINTER PORT CONNECTOR

The de facto standard is the 36 position "Micro-Ribbon" connector shown in figure 2. The Amphenol part number for the chassis receptacle is 57-40360 and the number for the cable plug is 57-30360. These part numbers are for the solder terminal type of connection. Insulation displacement connectors (IDC) for flat cable are also available. Almost all printers with parallel ports will have this type of connector.

A REAL WORLD CENTRONICS INTERFACE CABLE

The signals at the Centronics interface are standard Transistor Transistor Logic (TTL) levels and therefore one should not try to use a cable much over ten feet or so in length as compared with the fifty feet allowed for RS-232-C cables. The two ends of a standard Centronics cable (the Centronics 36-position connector on each end) are connected pin 1 to pin 1, pin 2 to pin 2, etc., for each line. However, an interesting variation is the parallel printer port on the IBM PC. Instead of using the 36-position connector, which is relatively large, IBM specified a 25-pin D connector which is the same type of connector used for the RS-232-C ports. This connector is small enough to fit on the back plate of the plug-in card, where the standard parallel connector is too large. It is easy to determine which is the printer port connector, as it is a female connector (DB25-S) while the RS-232-C serial port conector(s) is a male chassis connector (DB25-P). The pin connection configuration of this cable is shown in figure 3.

Table 1 is a listing of the signal paths with their associated pins in the IBM PC-compatible parallel printer cable used to connect a PC to a Centronics parallel port on a printer. Note that one end of the cable is terminated in a DB25-P connector for the end that is connected to the PC parallel printer port, while the other end is terminated with the 36-position Micro-Ribbon cable plug connector which is connected to the printer.

Be aware that some so-called IBM PC compatible parallel printer cables do not have all of the signal lines shown in table 1. For example, I have seen PC type cables that had pin 32 of the Centronics connector floating (not connected). If you use the normal DOS print function such as PRINT SCREEN, no problems arise. However, some Graphics programs have printer drivers that look at pin 32 (IBM calls this pin ERROR) and **(cont. next pg.)**

(Connections cont. from pg. 9)
will give you an error message if the pin is not connected properly. So if you run into similar problems, check the cable against Table 1.

Don't forget to use shielded cables for parallel and serial interfaces. The shielding will help to keep your transmitter RF out of the computer/printer and also help keep the hash from the computer out of your receiver.

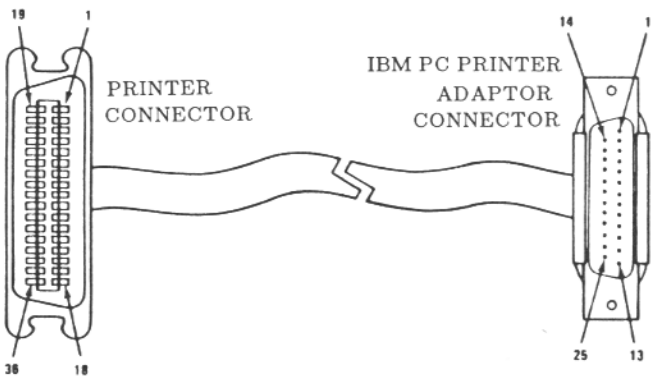
COMMODORE C-64 SERIAL PORT TO CENTRONICS PRINTER PORT ADAPTER

Many amateur radio operators have Commodore C-64 computers. The C-64 is very popular in packet operations. And it is always nice to be able to get hard copy on Packet. The C-64 printer port is a special type of daisy-chained serial interface, with a 6-pin DIN connector. The Commodore printer has a similar connector. If you have a C-64 without the Commodore compatible printer, it is possible to use a standard Centronics parallel port printer with the addition of a special conversion interface adapter made by Cardco, Inc. This is the "Super+G" parallel printer interface that plugs into the DIN connector at the C-64 end of the cable and into the 36-pin Centronics connector at the printer end. I have had one of these adaptors in use on a C-64/PK64 Packet rig for over a year now with very good results on a PC compatible dot matrix printer. The printer is shared between the C-64 and an IBM PC clone (Zenith 160) by means of an A/B selector switch inserted between the interface cables.

Valuable and authoritative data communications reference material may be found in the Black Box Corporation general catalog. Their address is: P.O. Box 12800, Pittsburgh, PA. 15241. They also have a broad selection of data communications, adapters, and converters. Datapro Electronics, who used to advertise in the Journal also carries a number of connection and test accessories.

(de Cole, W6OXP)

(IBM PC is a trade mark of Intenational Business Machines, Inc.)



IBM PRINTER SIGNAL CABLE

fig. 3

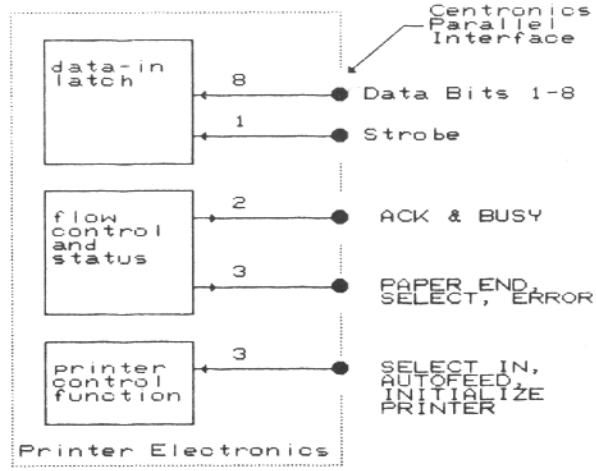
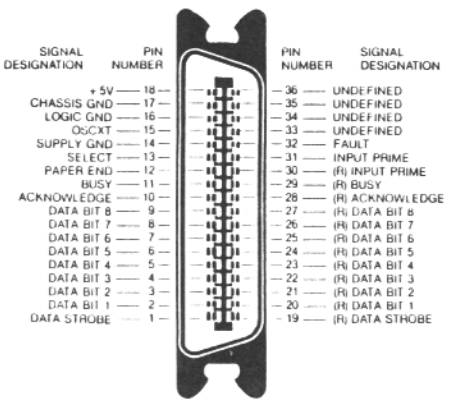


Figure 1. Printer With Centronics Parallel Port.



(R) INDICATES SIGNAL GROUND RETURN

fig. 2

36-PIN connector pin #	IBM PC 25-PIN printer port conn. pin #
1	1 Data Strb*
2	2 Data Bit1
3	3 Data Bit2
4	4 Data Bit3
5	5 Data Bit4
6	6 Data Bit5
7	7 Data Bit6
8	8 Data Bit7
9	9 Data Bit8
10	10 Ack*
11	11 Busy
12	12 Paper End
13	13 Select
14	14 Auto Feed*
32	15 Error*
31	16 Init.*
36	17 Select In*
33	18 Gnd
19	19 Gnd Ret
21	20 Gnd Ret
23	21 Gnd Ret
25	22 Gnd Ret
27	23 Gnd Ret
29	24 Gnd Ret
30	25 Gnd Ret

TABLE 1. IBM PC Parallel Printer Port Cable For Centronics Port Printer. (* = Low True Signal)

BARTG SPRING RTTY CONTEST

WHEN: 0200 GMT Sat. Mar 21 until
0200 GMT Mon. Mar 23, 1987
The total contest period is 48 hours but not more than 30 hours of operating is permitted. Time spent as listening periods count as operating time. The 18 hours of non operating time can be taken at any time during the contest period, but off periods may not be less than 3 hours at a time. Times on the air must be summarized on the Summary Sheet.

WHO: There will be separate categories for SINGLE OPERATOR, MULTI-OPERATOR, and SWL stations

BANDS: 3.5, 7.0, 14.0, 21.0, and 28Mhz Bands

STATIONS: Stations may not be contacted more than once on any one band but additional contacts may be made with the same station if a different band is used.

COUNTRIES: The ARRL DX countries list will be used, and in addition, each W/K, VE/VO, and VK call area will be counted as a separate country. NOTE: W/K, VE/VO, and VK count once each only for QCA purposes.

MESSAGES: Messages will consist of:
(A) Time GMT. This must consist of a full four figure group and the use of the expression "same" or "same as yours" are not permitted.
(B) RST and Message number. The number must consist of a three figure group and start with 001 for the first contact made.

POINTS: Points can be claimed as follows:
(A) All two-way RTTY contacts with other stations within one's own country will score two points.
(B) All two-way contacts with other stations outside one's own country will score ten points.
(C) All stations can claim a bonus of 200 points for each country worked, including their own. NOTE: Any one country may be counted again if worked on a different band but continents are counted only once.
SPECIAL NOTE: Proof of contact will be required in cases where the station worked does not appear in any other contest log received or the station worked does not submit a check log.

SCORING:
(A) Two-way contact points times the total of countries worked.
(B) Total country points times 200 times the number of continents worked (Max 6).
(C) Add (A) and (B) together to obtain the final score.

SAMPLE

Exchange points (302) X countries (10) = 3020
Country pts. (10) X 200 X Continents (3) = 6000
(C) Add (A) and (B) together to obtain the final score. Sample calculation follows:

Exch. Pts. (302) X countries (10) = 3020
Country Pts. (10) X 200 X Continents (3) = 6000
(A) and (B) added together to give total = 9020

LOG AND SCORE SHEETS: Use a separate sheet for each band and indicate all times on the air. Logs to contain: Date, Time GMT, Callsign of each station worked, RST and Message number sent, Time, RST and Message number received and the points claimed.
NOTE:
1. Logs received from SWL listeners must contain callsign of station heard, report sent bt that station and callsign of the station being worked. Also include the Date and Time (GMT) that the QSO was logged.
2. Incomplete loggings are not eligible for scoring and will be classified as Check Logs.
3. The summary sheet should show the full scoring, the Times on the air, Address for correspondence, and in case of Multi Operator stations, the Names and Callsigns of all operators involved with the operation of the station during the contest.
4. All logs must be received by *May 30th 1987* in order to qualify.

SUMMARY AND LOG SHEETS: Both are available from the Contest Manager at the address shown below. In the U.K. on receipt of a large (A4) S.A.E. All other countries outside the U.K. require no envelope but will need 4 IRC's to cover the cost of postage.

SEND LOGS AND SUMMARY SHEETS TO:

Peter Adams, G6LZB
464 Whippendell Road
Warford
Herts
England WD1 7PT

The judge's decision will be final and no correspondence will be entered into in respect to incorrect or late enties. All logs submitted shall remain the property of BARTG. Certificates will be awarded to the top leading stations in each of the three groups, the top station in each continent and to the top station in each W/K, VE/VO, and VK call area.

ADDITIONAL NOTES: If a contestant manages to contact 25 or more different countries on two-way RTTY during the contest, a claim may be made for the Quarter Century Award (QCA) issued by BARTG and for which a charge of four (4) dollars U.S. or 18 IRC's is made. Holders of existing QCA awards should indicate and list new countries to be added to their existing records. Make your claim at the same time you send in your log. **(cont. pg. 13)**

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

MSO'S

Happy Valentine's Day to you and your sweetheart! This months column will be devoted to some tips and hints on how to make your use of the MSO's a bit easier, including where to find the MSO's, and how to access them. With the multi-mode Packet controllers showing up on the market, I see quite a bit of increased RTTY activity, and some confusion on how to exploit these sophisticated MSO's.

DAYTON RTTY DINNER

For those of you who may be attending the Dayton HAMVENTION in late April, the "International Mailbox Frequency" gang will be hosting the annual "RTTY Dinner" on Saturday night during the HAMVENTION. Particulars and reservatioons can be found in the K0VKH or K4KOZ MSO's on the "National Autostart Frequency", (14 085 625 Hz Mark), or in WA1IUF's Mailbox on the "International Mailbox Frequency"' (14 095 375 Hz Mark). One and all are welcome, but reservations are limited to approximately 50 guests, so early reservations should be made.

RTTY DX MAILBOX SYSTEM

John, TG9VT, reports that we are finally winning the "Cold War", as our RTTY cultural efforts are extending into the Iron Curtain Countries. John has monitored LZ2KIM, which is operating a full disk mailbox system on 14083 khz, (Mark), complete with remote baud rate change, message center, file storage/retrieval, etc. And unfortunately the very Western cultural advancement of an AUTO BEACON! This system is evidently being sponsored by the "Sofia University Student's Club". Thanks John!

NEW CBMS MAILBOX ON THE NATIONAL AUTOSTART FREQUENCY

I'd like to take this opportunity to welcome Greg, KA4LSQ, from Louisville, KY, to the National Autostart Frequency. Greg is using a C-64 Computer, 1541 Disk Drive system, and the some very sophisticated mailbox software. The access code to his system is: //KA4LSQ, being sure to left-justify all commands. His system also contains a very well thought out HELP command, which lists the operating protocol for his system. Give his system a try!

MSO OPERATING HINTS

We've been seeing a lot of new 'faces' on the National Autostart Frequency, so I think it's about time to provide some helpful hints for the newcomers. You'll find all of the SYSOP's quite helpful in teaching the ropes, but here's a few hints to get you started:

1. Be sure to properly identify your station prior to accessing the MSO's, and also at proper intervals while using them. Don't be bashful about giving your callsign, just because you are new to the MSO's.
2. Please LISTEN on the frequency for a few minutes BEFORE accessing one of the MSO's. It's embarrassing when you step on someone who's using one of the MSO's, or a DX contact on or near the frequency! You may not hear a station close to you , but you'll most likely hear the MSO or DX station replying.
3. Most modern demodulators have very 'tight' front ends. More than 30 to 40 Hz off the MSO frequency, and it won't hear you! So, be sure to accurately zero beat the MSO frequency, and if your rig tends to drift a bit, re-zero it frequently with the MSO.
4. One of the most misunderstood features of mailboxes and MSO's is the use of the "carriage return/line feed" character, (CR/LF). In order for commands to the MSO to be distinctive from ordinary RTTY TEXT, two things must happen. First, the command must be "left justified", and secondly the command is preceeded with some distinctive delimiter. The "left justification" simply means that the command must be RECEIVED by the MSO on the left-most margin. You accomplish this left justification by preceeding each command with at least one carriage return/line feed, and preferably two. Whether it's the "ENTER" key on your computer, "NEWLINE" key, etc., place two of them before the command, and they'll work every time.
5. "Delimiters" vary from system to system, but most of the systems on the National Autostart Frequency use a "period", (.). This "period" is placed immediately in front of the command, to make it distinctive from other text, and indicating that a command follows. Some other systems use the double "Slash bar", (//), (i.e. KA4LSQ).
6. A "cariage return/line feed" is used by most all systems to execute the command. If you send the first CR/LF, then the delimiter, and finally the command, without that final CR/LF, nothing happens, as the system will not act upon that command until that final CR/LF is processed. So, here's the way to set up the command to write a file to one of the HAL MSO's: CR/LF CR/LF .WRITE ABC:DEF CR/LF You then continue with your text until you are

finished, and then close that file in the MSO with: CR/LF CR/LF .ENDFILE CR/LF.
7. In the example above, the "FILENAME" is simply ABC:DEF. The filename can be anything of your choosing, but simplicity is best. In the example it simply means that a file has been written to ABC, from DEF. Using the last three letters of your callsign is usually more than adequate, unless you have some specific title in mind to convey the contents of the file.
8. Note in the example in paragraph 6 above, there is a mandatory "space" character between the "write" command, and the "filename". It must be included, or the system will reject the 'write command'.
9. Each of the MSO's contain a HELP command that lists the various commands used to operate that system. Referring to it will save a lot of "fishing" time. If you have a hard copy printer, please turn it on so that you have a permanent record of these commands.
10. Please be sure to deactivate the MSO or CBMS when you are through using it. Having two MSO's up at the same time causes LOTS of problems!

MSO RAMBLINGS

Don, W5QXK, has returned to the airwaves with his MSO, after purchasing a HAL MPT-3100 and associated equipment. Welcome back Don!

Brownie, K5FL, is the proud new owner of a IBM "clone" computer, and is deep into learning all of the "ins and outs" of this system. Good luck Brownie, and let us know when you have it all figured out!

Clark, W9CD, continues to make improvements to his IBM MSO Program, such as availability of different baud rates, etc. Contact Clark through his MSO for particulars.

That's it for this month! Take care, and 73's.
de **Dick, K0VKH**

(ED: See Dick's 'National Autostart Frequency' listings elsewhere in this issue)

(BARTG CONTEST cont. from pg. 11)
However, in view of the high volume of work which the contest manager will have to deal with, it will not be possible to prepare and dispatch any new awards or to up-date any existing records untill the final results of the contest have been evaluated and published.

Additionally, if any contestant manages to contact stations on two-way RTTY within each of the six continents and the BARTG contest manager receives either a contest log or a check log from each of the six stations concerned, a claim may be made for the WAC award issued by the RTTY Journal. All necessary information will be sent to the RTTY Journal after the contest results have been evaluated and dispatched. The RTTY Journal will issue the WAC award free of charge direct to the station concerned.

The Commodore C-64/AEA PK-64 in Emergency Communications

Robert S. Hoover, KA6HZF
1875 Monte Vista Drive
Vista, CA. 92084

(continued from last month)

INTRODUCTION of the AEA "Pakratt" r

In the fall of 1985, Advanced Electronic Applications, Inc. of Lynnwood, WA., introduced a packet controller designed specifically to work with the Commodore C-64 personal computer. This was a valid marketing strategy as the C-64, with more than 5 million units sold, has proven to be the most popular computer in use by the amateur radio community.

The AEA PK-64 "Pakratt" takes full advantage of this dedicated design philosophy to fully utilize the features of the C-64. The necessary software to make this team work at maximum efficiency is included in the PK-64 in the form of 'firmware' ; pre-programed read-only memory chips. And like most modern communications equipment, the PK-64 uses 12vdc.

With the introduction of the Pk-64 the amateur radio community was given a de facto input/output software standard. With the Commodore C-64/AEA "Pakratt" package, stations across the country now had identical software suites, including user-friendly provisions for mass file transfer.

THE 'USER FRIENDLY' SYSTEM

With the introduction of the AEA "Pakratt" a high degree of computer literacy on the part of the user was no longer required to assemble a working system; the PK-64 TNC had only to be mated with a C-64 computer and a suitable transceiver to be on the air and working.

The C-64 computer system supports floppy disks and cassette tapes for mass data storage; it may also be used with a variety of printers. AEA naturally preserved these functions of the C-64, allowing them to be used in conjuction with their PK-64. The system makes it very simple to read lengthy data files from either tape or disk and transmits them essentially error-free to a specific designation, a critical requirement for emergency service.

The net result of the C-64/PK64 marriage is a

(cont. next pg.)

system of outstanding utility for the average amateur and a tremendous boon for the emergency communicator. Having a readily available digital system with a standardized suite of I/O software, amateurs using the PK-64 could now concentrate on applying packet to useful applications. The tools had been forged; we could now put them to work.

BEYOND PACKET -- RTTY, AMTOR and CW

As a bonus, the PK-64 also contains most of the features of earlier AEA digita communications products, allowing modes other than packet. The PK-64 supports AMTOR, RTTY, (both Baudot and ASCII), as well as CW operation. And all software is built-in to the system. Data collected locally using VHF/PACKET may be re-transmitted by HF/AMTOR using the same terminal unit and software. Locally collected data may be filed for later transmission or printing, just as incoming information could be filed to disk, printed or distributed over other frequencies. All of these features are embodied in the standard suite of software provided with every AEA PK-64 "Pakratt".

ACHIEVING PORTABILITY

The only problem with this vast improvement in our high speed digital capability was the fact that the Commodore C-64 computer and its associated disk drive, the model 1541, were not 12vdc compatible.

In recognition of the tremendous potential for emergency communications embodied in the AEA "Pakratt"' I began investigating the possibility of developing a low-cost, easily installed 12 vdc conversion of the C-64/1541 as soon as AEA announced their Pakratt. Such a conversion was brought on-line in December, 1985, and has operated reliably since.

In hopes of seeing the conversion widely used I spent several months preparing an illustrated conversion manual. It isn't exactly Heathkit, but anyone who can read and solder should be able to convert their C-64 to operate from a car battery.

The conversion manual is due to be published by CTM Magazine. I've also provided copies to California RACES, with permission to distribute on a non-profit basis. For information on how to obtain a copy of the manual I suggest you contact your local RACES organization or the editor of this magazine.

THE "PORTABLE PAKRATT"

The high speed digital station consists of the Commodore C-64, the 1541 disk drive or Datasette (i.e. cassette), the AEA PK-64 Terminal Node Controller, a small portable (12vdc) television set to serve as a video display, and a suitable tranceiver. In converting the computer to 12vdc it was found most practical to provide a small out-board chassis on which to mount the 5vdc regulators, various switches and indicators, and to serve as a tie-point for the power distribution cables.

To facilitate the use of the installation with more than one transceiver, as well as "local mode' (i.e. voice) a small switching unit is usually provided by the person making the conversion. In my own case, by using a slightly larger out-board chassis, I was able to install everything in one box. It's possible to switch between transceivers and to switch between digital and voice, at the push of a button.

VIC-20 AS A DATA ENTRY DEVICE

Under optimum conditions it would take about eight typists to satisfy the input demand of a 1200 bits-per-second packet station.

The precursor of the C-64 was the VIC-20; an earlier design of lessor capability and capacity. As a marketing strategy, Commodore made the C-64 media-compatible with the earlier machine, although not program-compatable. (The physical similarity between the C-64 and the VIC often leads to confusion, especially with regard to packet. The VIC is an entirely different machine and will not work with the PK-64.)

Media compatability is of tremendous value to the emergency communicator since it allows the inexpensive VIC-20 to be dedicated to the role of data-capture, serving as a keyboard for message traffic which may then be spooled onto disk for later transmission by the C-64/PK-64 system. Although the VIC-20 is no longer manufactured, it is commonly available at garage sales and flea markets for as little as $25. Conversion of the VIC-20 to 12vdc is less difficult than with the C-64, and both the disk drive and Datasette (tape cassette unit) may be used with either the C-64 or the VIC-20.

(To be continued in a future issue)

CLASSIFIED ADS

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

RTTY FREQUENCY LISTS AND BOOKS: We have a complete selection of worldwide RTTY frequency books and lists. Press, weather, government, clandestine etc. Write for free catalog. Universal Electronics, Inc. - 4555 Groves Road, Suite 13 - Columbus, OH. 43232 (614) 866-4605

FOR SALE: Heathkit HD-4040 Packet TNC $125.00, Hal ST-5000 Demodulator TU $150.00, both in top working order. KB7DA, Bob 16617 S. E. Blanton, Milwaukie, OR. 97267, (503) 659-7843

FOR SALE: Real-Time HF WEFAX Maps on a dot matrix printer. Available for Commodore, IBM, Apple, Atari, and Coco. See March 86 QST magazine for circuit details. Kit $28.15, Assembled $39.95 - Software for Apple, Atari, and Commodore $10.00, IBM $15.00 plus $2.50 shipping. For info, large SASE to: A & A Engineering, 2521 W. La Palma #K, Anaheim, CA. 92801. (714) 952-2114

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

FOR SALE: Dovetron MPC-1000CR Transmit - Receive RTTY unit, all frequencies, multipath correction, in-band diversity, signal regeneration, audiostart, scope, plus more features. See Dovetron Ad on back cover this issue. Mint condition and full warranty, cost over $1200.00, price $545.00 plus shipping. If you want a Dovetron, THIS IS IT!
M-6000 MULTI CODE TERMINAL UNIT. Nothing compares with this modern up-to-date unit- all codes, all speeds. New $895.95
HAL ST-5000 Terminal unit, $129.95 - Fredericks Terminal unit, $99.00. - INFO-TECH M-150 RTTY keyboard, $84.95 - INFO-TECH M-300C RTTY keyboard, $149.95 - HAL DKB-2100 with memory option, $99.95. - HAL DS3000 KSR Terminal with monitor, new condition, used only as demo, $239.95. Contact: Fred Osterman, Universal Amateur Radio, Inc., (614) 866-4605 - (800) 431-3939

NEWS - NEWS - NEWS - Amateur Radio's Newspaper "WORLDRADIO" One year subscription is $11.00. Contact: WORLDRADIO P.O. BOX 271309, Escondido,CA. 92027-0770

SELL FAST WITH AN AD IN THE JOURNAL!!

FOR SALE: Complete HAL Deluxe system. DSR-3100 Terminal, MPT-3100 MSO, DSK-3100 Message Storage System, ST-6000 Demodulator. Complete with factory cables and manuals. Asking $2250.00. Contact: Bill Wright, W4NVC (301) 941-7480 bus. or eve. 392-4174 after 7 PM

FOR SALE: Dovetron MPC-1000R. Mint, in original box, first $550.00 gets it. TYPETRONICS, Box 8873, Ft. Lauderdale, FL. 33310. Buying unused Teletype repair parts, M-28 and later. Send SASE for list of teletypewriter gears, paper, etc.

FOR SALE OR TRADE: Commline-64 BBS Software by Ray Bacon. Version 6.6, never used, $25.00 PPD - Western Electric 108J Data Set with instructions, make offer. Henry Galbraith, 1214 South Alvord, Evansville, IN. 44714. (812) 476-7601

NATIONAL AUTOSTART FREQUENCY
MSO LISTING

"CARRIER"	Freq.	14 087 750
"MARK"	Freq.	14 085 625
"SPACE"	Freq.	14 085 455

ACTIVE MSO's

ACCESS CODE	QTH	SYSOP
MSOICL	Yellow Springs,OH	Gaylord
MSOVKH	Rapid City,SD	Dick
MSOKOZ	Boca Raton,FL	Frank
MSO9CD	Urbana,IL	Clark
MSOAPI	Meriden,CT	Al
MSOZRR	San Luis Obispo,CA	Ernie
MSO5FL	Denton,TX	Brownie
GUATMAIL	Guatemala (TG9VT)	John
MSOIQO	Scottsdale,AZ	Bob
MSOJRQ	Glenwood,IA	Larry
MSOZTV	Moundsville,WV	Don
MSOKFX	Hollister,CA	Harry
MSOQXK	Kaufman,TX	Don
MSOLSQ	Louisville,KY	Greg

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