

MAY-JUNE 1979

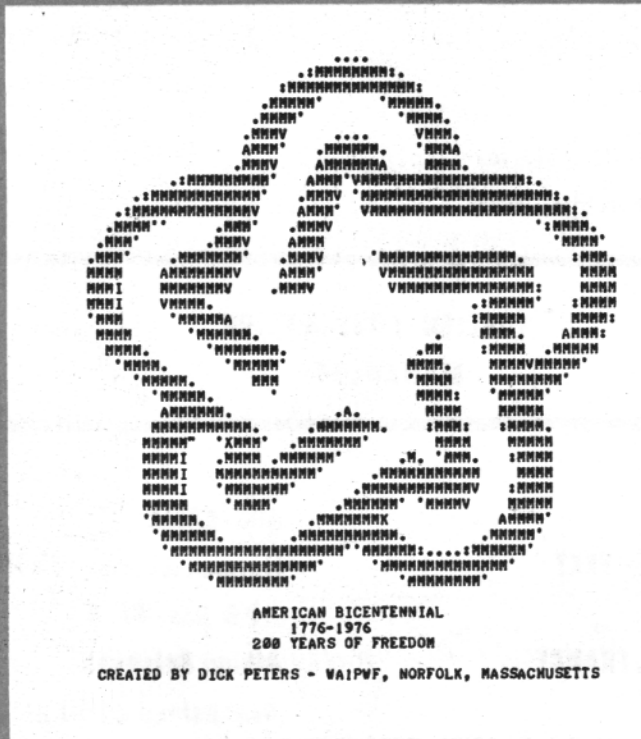
RTTY

JOURNAL

VOLUME 27 No. 5

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CONTENTS

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Dee Crumpton, Editor & Publisher
P.O. Box RY
Cardiff by the Sea, CA. 92007

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July and August are combined in one
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VHF RTTY NEWS



Army Gamson, K6PXA, 8034 Gentry

N. Hollywood, CA 91605

Hi everyone. Thanks for the get well cards but it's going to be a few more months for full recuperation. One of the most unique get wells was a full roll of print on both sides of 2 months of QSOs on the Minneapolis- St. Paul Minnesota simplex and their new Rptr; courtesy of Gary Buda-WA0NDN of the Radio Amateur Tele. Society (RATS). This is ideal spare time reading over a period of weeks. What are they saying?; about the same thing we've seen on other Rptrs. around the Country—technical, rag chewing, pictures with much comment on the sub-zero weather and snow drifts. RATS is planning on sponsoring an International Picture Contest as is the SO. Cal. Amateur Tele. Society (SCATS). Perhaps the two Clubs can consolidate their Contest plans. There is lots of interest in pictures.

Recently received a very interesting Publication "FM RTTY" chock full of technical articles from Jim Labo-KOOST/WD0BZA P.O. Box 842 Denver, Colorado 80201. Jim is Editor of th Metro Amateur FM RTTY Club.

We're making arrangements to have some of these articles for the Journal as they're quite interesting for many more to see. Both of us were recently elected Vice-Présidents (of Publications for me and Membership for Jim) Amateur Radio News Service (ARNS). This is an organization that most A.R. Newsletter Editors belong to or should belong. If you're not familiar with ARNS and are interested please write Jim and me.

Had an interesting chat with Hugh-WB7EVC/6 on the local So. Calif. Rptr. operating Mobile RTTY from his motor home. He has even operated (or at least his XYL has) Mobile in Motion RTTY. Hugh has QSYd from Portland, Oregon where he was very active in the Portland RTTY Society and its RPtr. In fact the Rptr. was his and he gave it to them when he left. Haven't been able to contact Hugh as he obviously doesn't have a phone or even an address. But expect to catch him on the Rptr. again as his mobiling and Rptr. experiences should be very interesting to all of us.

CU ENJOY ARMY

WORLD RTTY CHAMPIONSHIP 1978/79

Sponsored by
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BARTG SARTG CARTG WAEDC GIANT SCORE

1) 13FUE	22	30	30	22	30	112
2) 15MYL	14	30	30		17	91



9th S.A.R.T.G. WORLD-WIDE RTTY CONTEST 1979.

We have the great pleasure to invite you to join the 9th W/W RTTY Contest run by the Scandinavian Amateur Radio Teletype Group.

Rules:

1. Test Periods:

- 1: 0000-0800 GMT Sat. Aug. 18
- 2: 1600-2400 GMT Sat. Aug. 18
- 3: 0800-1600 GMT Sun. Aug. 19

2. Bands: Use all bands 3,5 7 14 21 28 MHz.

3. Classes:

- a) Single operator.
- b) Multi operator, single transmitter. **Note:** Logs from Multi operator stations must contain the names and call-signs of all operators involved.
- c) SWL's.

4. Exchange: RST and QSO nr.

5. Points: QSO with own country five (5) points. Other country in same continent ten (10) points. Other continent fifteen (15) points. In USA, Canada and Australia each call-district will be considered as a separate country. The same station may be worked once on each band for qso and multiplier credits. Only 2-way rty qso's will count.

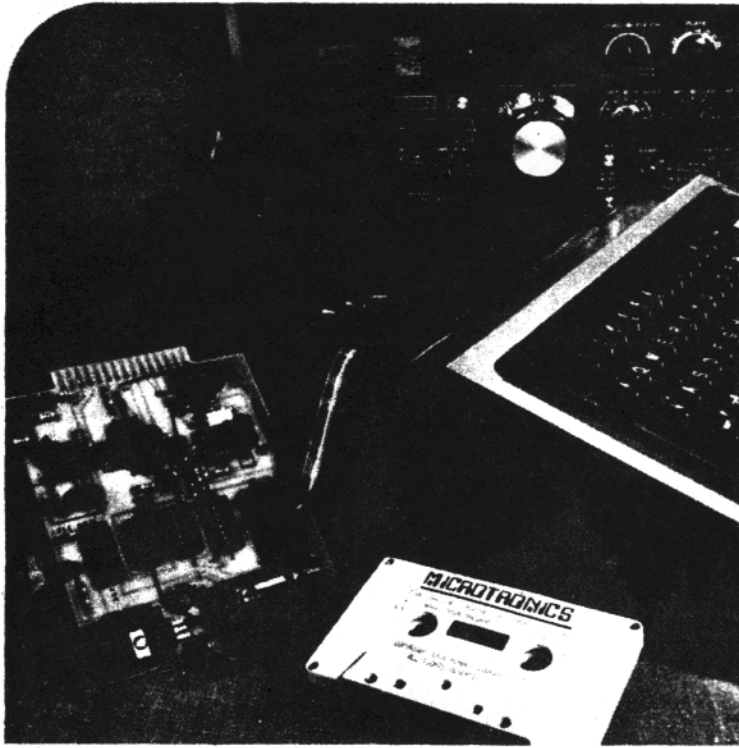
6. Multipliers: Use the DXCO List and each district in W/K, VE/VO and VK. **Note:** Contact with a station which would count as a multiplier must be found in at least 5 logs, or contest log from the multiplier station must be received in order to be valid.

7. Scoring: Sum of qso points x sum of multipliers.

8. SWL's: Use the same rules for scoring, but based on stations and messages copied.

9. Logs: Logs must be received by October 10th 1979. The logs to contain: band, date, time GMT, call-sign, exchanges sent and received, points and multipliers. Use a separate sheet for each band and enclose a summary sheet showing the scoring, classification, call-sign, name and address, and in the case of multi operator stations the names and call-signs of all operators involved. Comments will be very much appreciated. Send your log to: S.A.R.T.G. Contest & Award Manager OZ2CJ C.J. Jensen, Meisnersgade 5, 8900 Randers, Danmark.

10. Awards: To the top stations in each class, country, W/K, VE/VO and VK call district.

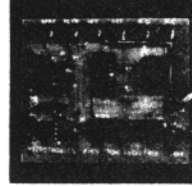


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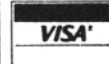
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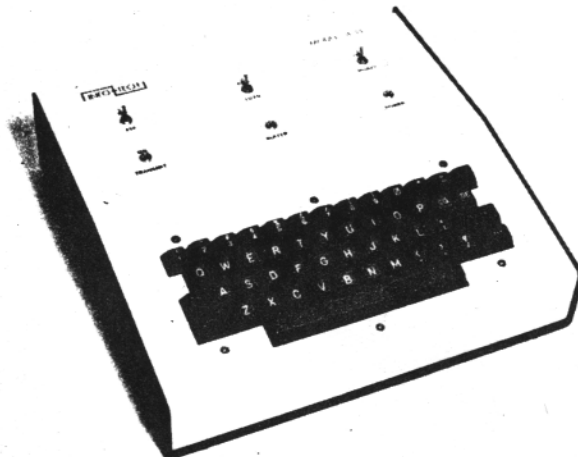


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HITS & MISSES

George Hammon WA6CQW
14215 Pecan Park Lane SP 73
El Cajon, CA 92021

FROM
THE
MAILBAG



The federal communications commission at its February 27th meeting apparently dismissed petition RM-2360 this petition requested that CW ID provision be eliminated. Station identification would be then made by RTTY only. This sure sounded good to me, wonder why it was dismissed?

The B.A.R.T.G. RTTY contest is over for another year. I really enjoyed it. I worked several new countries, one being Ted G14AHP. I received a nice note from him stating he had an info tech keyboard on order and that he received my QSL along with the April issue of the RTTY Journal. I was disappointed in band conditions at this QTH on 10 and 15 meters but what came thru was sure super copy.

Dee our publisher still need articles. This can be long or short articles,

modifications to your gear for RTTY or even station control articles, so how about it put it on paper and let Dee have a look see.

The annual Armed Forces Day Communications test is scheduled for Saturday May 19th 1979. Additional details are in the April issue of the RTTY Journal. Special Commemorative QSL cards will be sent and to those who copy the Armed Forces Day CW or RTTY message from the Secretary of Defense a commemorative certificate will be issued.

The signs of spring are here. My XYL is preparing a list of things for me to do. The Dayton Hamfest is over and the BARTG contest likewise is over. Well I didn't make it to Dayton again this year, each year I promise myself I am going but somehow I never make it. I hope any of you readers who spot something new for RTTY would drop me a line and we will share it with all the readers who can't make it.

I finally got my midland rig on the San Diego teleprinters 220 repeater. I haven't had too much time to work many stations. My work schedule has not allowed it but skip WBGCYA has been most helpful as usual helping me get out the bugs.

I hope in the coming months more and more readers will drop me a line. I have received several nice notes, two from the journals advertisers and thanks keep the mail coming so long for now.

George

Contacts with ones own country count as zero points for multipliers.

LOGS...Logs must show in this order, 1 Data, 2 Time (GMT), 3 Callsign of station worked, 4 Serial number received, 5 Serial number sent, 6 Points claimed.

CLOSING DATE...Logs must be received by the Contest Committee by the 18th August 1979. The address for logs is: Bill Storer, VK2EG, 55 Prince Charles Rd., FRENCHS FOREST, 2086, N.S.W. Australia.

SUMMARY SHEET...Summary sheet must show, callsign of station, name of operator/s, and address of same, bands used (a seperate log is required for each band), the points claimed for each band, number of VK/ZL 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 placings in the contest will be final and no correspondence will be entered into regarding the same. The logs become the property of the Contest Committee on completion of checking.

VK/ZL/OCEANIA DX CONTEST/1979

DATE...16th to the 17th June, 1979.

TIME...1000 GMT Saturday to 1000 GMT Sunday.

BANDS...All Amateur Bands. 3.5MHz through to 28MHz.

CLASSES...Three classes. (a) Single operator, (b) Multi-operator, (c) SWL operators. Logs of Multi-operator stations must be signed by all operators, together with a list of their callsigns. Logs of SWL listeners MUST contain both numbers sent and the number received by the station logged. Incomplete loggings are not eligible for scoring.

NUMBER EXCHANGE...Serial number will consist of (a) RST, (b) Zone number and (c) Time in GMT.

SCORING...As per Zone Chart (CARTG), multiplied by the number of countries worked, multiplied by the number of continents worked (maximum six). Contacts on 80 meters

count triple points, Contacts on 40 meters count double points provided that such contacts are NOT with stations from one's own Continent. Contacts on 40 and 80 meters on same continent count only as normal points.

After the above calculations, world stations add 100 points for each VK/ZL station worked on 14,21,28MHz. 200 points on 7 MHz and 300 points on 3.5 MHz.

Example: 720 points from zone chart x 29 countries worked x 5 continents worked = 104,400 plus 6 VK/ZL stations worked (that is 600 points) giving a grand total of 105,000 points.

A VK/ZL station may be counted only once if worked on 14,21,28 MHz, but may be counted again if worked on 7 MHz or 3.5 MHz.

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, VE/VO and W/K districts count as seperate countries.

INTRODUCING. . .

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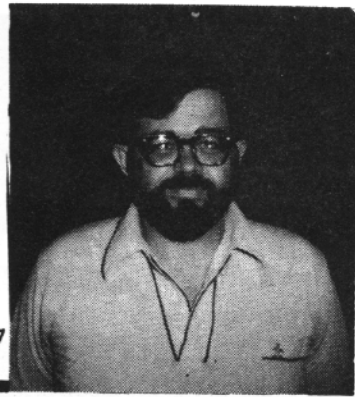
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HAM HELPS

Greetings to all....

With the 1979 BARTG contest over with to the disappointment of many. After talking with several different stations who all commented that conditions just were not as good as last year. My score was much lower than what I had anticipated that it would be.

The DXCC honor roll will again run in the July August issue. Please don't wait until the last minute to give me your score. If you get any last minute changes a phone call or short note to me will update your listing. I must have your inputs by Mid June so please don't wait until its too late. Also don't mail your inputs to the Journal office please mail them direct to me at the address at the beginning of this article. Thank you.

Overseas amateur radio operators may submit their QSL cards to their countries DX awards managers for RTTY in lieu of sending the QSL cards and increasing the chances of their loss in the postal system. I will need two copies of your list of contacts with the information (band, report, date etc.) signed by the manager of your country's such as BARTG SARTG etc.

The long hours at the radio are now starting to pay off for some with three more amateurs earning DXCC during the past few weeks.

F8XT Jean Hurtand
Chillac 16480 Brossac
France

DXCC number 34 Dated 1
April 1979

OH2HN Altti Unkuri
Helsinki 90, Kukkaniiyntie 11C,
00900 Helsinki 90 Finland

DXCC number 35 Dated
10 April 1979

W9RY Hal Beebe
20035 Burr Oak Lane
Mokena, Illinois 60488

DXCC number 36
Dated 16 April 1979

Mac K7BV is hard at work not slowly down a bit was mail his "140" endorsement to his DXCC award and if he continues like this will soon be in the Number 1 slot on the honor roll.

Carl K6WZ earned WAC number three working all on 40 meters. This makes 5 Band WAC for Carl very close at hand.

On the active scene for the past few weeks here is a rundown of some of those printed across the country.

3D6AD Al in Swaziland QSL P.O. Box 999 Secunda, TVL, Republic of South Africa S8AAA Garth % Transkei Amateur radio League, Box 821 Umtata Transkii Africa FY7BI to Box 200, Saint Jean French Guiana. 5K3SB to Box 584 Bogata Columbia FR7BE via W4LZZ 121 Algonquin terr, Indian harbor Beach Fla. 32937.

UT5RP up-side down and wider than normal shift but he can copy normal shift. QSL via Box 373 Odessa Ukraine.

K0BJ was active as VR6BJ for several days giving out 196 RTTY contacts while there. He gave out over 60 contacts from CEO. Unfortunately Bruce's visits are of short duration so you really have to monitor the bands.

K4GMH/VQ9 Has been back in the States but will be back again in May, also VQ9MR was also QRV for a short time probably with prompting from Mike.

G4CTQ Sid, we have hopes will soon be in 5N2 land. He will be there for a short survey trip and stopping enroute in Brussels to visit with ON4CK and ON4BX.

OX3CO Chris from Greenland was on and said he would be more active... No QSL manage as yet but is working on that. C5AAN QSL via DJ6QT.

Here is a partial listing of active stations over the past couple of months. CE3CF, PY1ETA, PY1YP, PY2YFG, HK3AQP, HK3SB, HP1PM, LU7DDG, LU1NH, ZS1Z, ZS1CL, ZS6AW, ZS6AKO, ZS6BLV, 3D6AD, UA9PP, UA3AHW, UA4FAD, UK2BAB, EA7YP, EA6FK, EA5FT, EA3BEW, EA4PU, EA8IY, EA8RU, GY5SS, F9SO, VS6EK, VS6GW, FP8DF, 5Z4RT, KZ5JA, VP9HZ/MM YV5CUT, KL7HF, TF3UA, KG6JJY, KG6JHN, HA6KVD, KP4DJJ/T13XE1MKW XE10F, A4XFW, ZE1CE, TG9AC, UK3AAO OE3GSA, EA3NC, F2YT, JA1SA, EA3NC, F8DD, G3PIN, F9RC, SM4GOH, and VK7HK.

Inputs from W3KV, W2PSU, K6WZ, W6KMI, K5OVC and W3DJZ thanks fellars.

13 de skip

Chuck Engstrom, WB3CCZ, RD 3 Box 217 Chestertown Maryland 21620 needs parts and/or manuals for loreny model LO 15B and C. Chuck needs 60WPM gears and for the ELO514B reperf and LS524C TD he needs adjustment instructs. He has a manual for a LO15 and will copy it at cost for anyone needing it.

Skip Prinsen WB6CYA, 3611 Merrimac Ave San Diego CA 92117 needs documentation for UT2 board that was done by Jim Page from Oregon. Thank you.

Alton Teague, 145 Gordon Hall, Texas Tech University, Lubbock, Texas 79406 writes that he purchased a model 15 printer to interface with a computer and is looking for some information or maintenance, modification and interfacing to ASCII code. Alton is an Electrical Engineering technology major and is a sophomore.

Karl Rosenbaum N2KR, 137 Pine Street, East Moriches, NY. 11940 has a model 28KSR and needs on the wiring of the LESU to hook it up to his Collins 75A4 receiver.

Albert Perkins of Midnight Engineering Group, P.O. Box 349 Galesburg, Illinois 61401, writes that he has available a loop supply transformer plus 28 volts center tapped at 500 ma for \$9 plus \$1 for shipping. Sounds like a super buy as he says he has turn around time of 24 hours much better than teletype corporation which takes months.

"KONTEST KORNER"

DAFG 5 May 1979 Rules in Mar 79,
9 June 1979 Rules in Mar 79

VK/ZL/Oceania 16 June 1979

DAFG 4 August 1979 Rules in Mar 79
SARTG 18-19 August 1979

DAFG 9 September 1979 Rules in Mar 79

CARTG 20-21 October 1979
WAEDC 10-11 November 1979

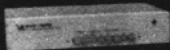
DAFG 24 November 1979

Volta 1-2 December 1979

BARTG MARCH 1980

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1st RTTY
Video Generator



1971

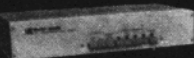
1972



DKB2010
1st RTTY & MORSE
Keyboard

1973

RVD-1005
Improved RTTY
Video Generator



1974



1975

ST6000
High-performance
RTTY Demodulator

DS3000 KSR Version 2
1st Microprocessor
Controlled Amateur Equipment
with Editing for Baudot & ASCII

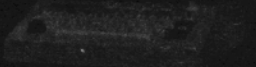


1976

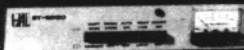
1977

1978

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1979



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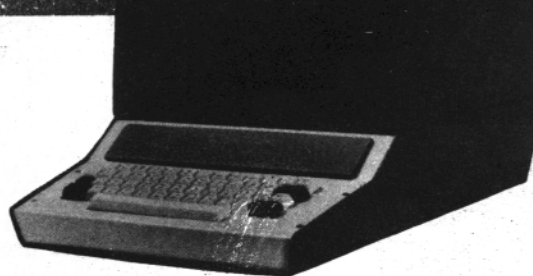
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**RESULTS OF 1978
UK/ZL/OCEANIA RTTY
CONTEST**

1. 13FUE	1,195,180	*	(176)
2. H89AVK	1,179,340	*	(153)
3. KL7GRF/6	1,106,620	*	(121)
4. DJ2YA	1,062,880	*	(128)
5. VK5RY	973,104	*	(112)
6. VE2QO	326,389	*	(111)
7. F8XT	263,900	*	(88)
8. JA2JHR	257,380	*	(55)
9. W3KV	225,384	*	(67)
10. G3RED	179,860	*	(99)
11. VK2EL	147,057	*	(37)
12. PA0CWI	129,104	*	(61)
13. LA7AJ	124,140	*	(69)
14. IS0RUH	111,040	*	(76)
15. VK6VK	103,592	*	(36)
16. SM6ARN	77,040	*	(50)
17. EA3AZX	71,020	*	(47)
18. OZ2X	69,616	*	(46)
19. JA2EFV	58,656	*	(37)
20. VE7DLX	57,825	*	(39)
21. OZ8GA	51,320		(49)
22. JA3AUG	47,680		(31)
23. UK2ATQ	42,228		(23)
24. SM5EIT	41,936		(28)
25. DJ9IR	41,130		(35)
26. EA4XW	38,132		(34)
27. GW3EHN	32,572		(29)
28. G3RDG	31,025		(53)
29. SM6CAL	22,848		(42)
30. VE2ATS	20,876		(25)
31. JA7ML	18,276		(18)
32. JR2TZL	11,290		(13)
33. K08J	10,880		(19)
34. VK2BIS	10,840		(14)
35. DL6WZ	7,840		(22)
36. DJ2YE	6,140		(15)
37. OK3TAB	4,308		(9)
38. OZ6SM	3,880		(9)
39. OK2BJT	2,816		(23)
40. OK1AYX	301		(17)

MULTI-OPERATOR SECTION

1. W1MX	1,724,850	(196)
2. VK2TTY	1,583,265	(131)
3. G3UUP	540,940	(112)
4. OK3KII	246,560	(80)
5. HA5KBM	146,986	(87)
6. HA6KNB	48,700	(42)
7. HA5KFU	2,340	(22)

S.W.L. SECTION.

1. Horst Bellenberger 595,364 Points (136 contacts)
2. G8CDW 67,500 Points (46 contacts)
3. Kurt Weustner, 55,672 Points (51 contacts)
4. OK1-20677 3,240 Points (34 contacts)

Logs from I1-50071, OK1-11857 and OK2-21478 Disqualified due to incorrect logging.

CHECK LOGS.

Check logs were received from OK3EW, G6 JF, DK5WJ, VK2NM, VK3KF and LZ1KDP.

AWARDS. Awards will be sent to contestants marked with . Figures in brackets are the number of contacts made by the station.

SUMMARY: The first UK/ZL/Oceania RTTY contest has come and gone and we received 60 logs for our first effort. We consider this a fair participation, although there were a lot of stations that did not submit a log. Comments from stations participating were very gratifying and we hope to see you all again this year. There has been some changes to the Rules (see reverse side) which we hope will encourage the use of 80 and 40 meters. With the increase in VK & ZL activity we hope to have more participating. Thank you all again for your interest and we hope to see you and your friends again this year. 73's and good DX de VK2SG/VK2EG (Contest Committee, for VK/ZL/Oceania Contest)

UART - -

REVISITED

by Irvin Hoff W6FFC
Howard Nurse W6LLO

INTRODUCTION:

Through the years significant developments have occurred that have had important influence on the course of communications. Computers were made with vacuum tubes, but it was not until the introduction of the transistor that the field of communications really started to make gigantic strides. Medium-scale integration (MSI) has provided the integrated circuits that many of us are now using for such things as demodulators and Sel-cal units. Miniaturization has brought the development of the large scale integration chips (LSI) that many of you have seen in the solid-state time clocks. These chips have usually 40 pins and are said to replace around 25 of the MSI chips. Pocket calculators use these LSI chips, as do many of the newer types of small computers. Eventually the prices will come down to the point that everybody can afford his own household computer. As an example the linear op amp 709C was selling for \$30 in 1967, and now may be purchased for less than \$0.50 each at many small businesses catering to hams.

This article will deal with one of these multi-purpose LSI chips that has particular interest for anybody involved with computers or telecommunications, such as amateur RTTY operators.

WHAT IS THE UART?

The term "UART" stands for Universal Asynchronous Receiver Transmitter. You may also see it written as UAR/T. Data is usually transmitted in serial form, and if it has start-stop pulses added, it is called an "asynchronous" transmission.

Computers on the other hand normally have shift registers that require parallel operation. As a result some type of device needs to be used to convert the serial input to parallel after stripping off the start and stop pulses, and then take the output from the computer and change it from parallel to serial, adding the necessary start and stop pulses.

The UART is a 40-pin, single monolithic technology. It takes the place of about 25 or so normal MSI chips. It is called "universal" since nearly all of its functions are externally controlled. It can be used for 5, 6, 7 or 8 level data. (Baudot code that is used now on amateur RTTY is 5-level; ASCII code for computers is 8-level.) Selection can be made of 1-unit or 2-unit stop pulses or an external circuit can be added giving 1.42 units of stop pulse. The device samples the incoming signal for a valid start pulse and rejects those signals not having one. One terminal goes high if the character does not have the expected stop pulse. If desired, this can be connected directly to the master reset pin (21) and the entire character is then rejected. Many of the other pins give information of interest to computer operators such as parity error, status flags disconnect, parity inhibit, even parity enable, etc.

The UART was designed primarily for use with computer circuits but obviously was intended to be used wherever data needs to be received or transmitted. As a result some of the devices, such as the General Instrument Corp. AY-5-1013 are good for 40,000 Baud! Compare this with the amateur speed of 45.45 Baud for our 60-wpm speed!

HISTORY OF THE UART

The device is not particularly new. There will be some who will wonder why it is only now appearing to surface in the RTTY JOURNAL. Like other devices, it often takes time for somebody to actually apply it to the needs of amateurs. Since it was originally intended primarily for computer interfaces, production has been snapped up by large companies wishing to be competitive. It was this desire, in fact that led to the development of the UART.

The background of the UART is a bit hazy, but from what we can find, a small group of engineers split away from the parent General Instrument Corp. and founded a firm called "Solid State Data Sciences". They apparently received a contract from Digital Equipment Corp. (one of the larger computer manufacturers specializing in smaller computer sizes) to develop such a product. The firm went out of business in 1970 and DEC then turned over what SSDS had done to other firms interested in the further development of the device. By September 1971, three firms were advertising UART devices. The SSDS engineers for the most part went back to General Instruments (will be called "GI" in many places in this article for brevity), and thus GI has claimed (probably with some merit) as to having been first on the market with the UART. The GI Corp. by the way is located in Hicksville, L.I., New York. On the west coast two firms introduced UARTS about that same time. The GI unit was called the AY-5-1012, the Western Digital Company of Newport Beach, Ga. called theirs the TR1402A and American Micro-Systems, Inc. (AMI) of Santa Clara (south of San Francisco) called theirs the S-1757.

By December 1971, all three firms were advertising in periodicals read by data engineers. Since that time each company has made updated versions of the original unit. The current list, plus the one made by Texas Instruments would be:

AMI	S-1883
GI	AY-5-1013
TI	TMS-6011NC
Western Digital	TR-1602B

AMATEUR APPLICATIONS:

The most simple and one of the most useful applications of the UART would be as a regenerative repeater. These devices have long held an interest for the advanced enthusiast, and several articles have been written on using them on RTTY. More will be said on this application soon.

The UART is readily turned into a speed converter by merely adding a second clock. Thus the input can accept characters at 60 wpm, for instance, while changing them to 100 wpm characters for the output. As a result the machine may be left at 100 wpm, and all speeds including 100 may be copied by merely changing a switch on the incoming clock speed.

Since the UART converts the incoming signal to parallel, you also have the basic ingredients of an electronic stunt box, or the entire front end of a Sel-cal unit. Throughout all of these applications you retain the features of the basic regenerative repeater.

Used in conjunction with a Silo register (also called FIFO registers for First-in, First-out), you can have storage memory for down-converting. This

will enable you to use the 100 wpm printer to transmit characters at 60 wpm without over-running and losing characters. This has been one of the most-discussed disadvantages with moderate-cost solid-state keyboards sold for amateur purposes. Thus the UART with two clocks and a Silo register becomes an attractive means of stimulating tape speed while typing on a fast, 100 wpm keyboard. The combination would also adapt readily to solid-state keyboards, although in that case you would normally need to add an ASCII-to-Baudot conversion chip as well.

The speed converter would appeal to people who like to copy higher speeds than 60 wpm. It has several advantages over a 3-speed gearshift on a model 28 teleprinter. An interesting speed converter using MSI chips that has many of the features of the UART was designed by Larry Laitenen WA6JYJ.

Paul Satterlee, Jr. is using the UART and large memory buffer as an up-converter, down-converter for his model 28KSR. One of the authors, W6LLO is using the UART with Silo chip plus a "diddle generator" that plays machine speed letters or figures if the memory buffer has nothing to send. The continuous output is similar to that pioneered by Jim Haynes W6JVE mechanically on his 28ASR.

Bill Walters WA5PTR/7 has recently completed a station control system using the UART that is similar in action to the electronic stunt box previously mentioned. It decodes all 32 characters and with only a few IC's he is able to recognize any of a number of specific sequential characters to do various things such as trip off his answerback, ring a bell if his call letters are typed, print only those messages intended for his stations, etc.

These are but some of the applications already being used for the UART. John Lovci W6JFY uses one for transmitting in order to reduce his keyboard distortion to a negligible amount.

Other uses will come to mind as various enthusiasts become acquainted with this versatile LSI device.

BASICS OF OPERATION:

The UART needs about 10-12 mills of -12 VDC (minus twelve volts) and approximately 4-6 mills of plus five volts.

Due to the use of pull-up resistors on the inputs, if nothing is hooked to pin 20, the UART thinks it is receiving a mark signal. Grounding the input (pin 20) makes it think it is seeing a space signal. Thus a simple open-collector transistor or IC device across the input is all that is needed. This is illustrated on the schematic for hooking the unit to the ST-6, for instance. The output on pin 25 is also normally high for mark and low for space. The output is only able to pull a maximum of one mil or a bit more, so some discrete components are normally needed for the 3-4 mills the typical keying transistor needs.

THE RECEIVER SECTION:

The clock speed runs at 16 times the normal Baud rate. For usual 60 wpm (45.45 baud) this would be 727.3 Hz. Each pulse is then divided internally in 1/16th bits and used for internal timing purposes.

Whenever an initial reversal comes along that causes the input to go low, the unit starts its counting. When 8 of these "mini-bits" have gone by, the level is sampled and if still low, the unit thinks it has seen a valid start pulse so accepts the rest of the character, sampling each pulse every 16 mini-bits later.

At the time the stop pulse is expected, the pulse will set the "framing error" flag (Pin 14) if no stop pulse is present. (a low instead of a high.) This pin 14 can be used to dump the entire character if the user so desires. In any event the UART is then free to immediately start checking for the next reversal. As a result, the UART only takes one mini-bit over 6.5 normal pulses before it can look for the next start pulse. Thus input signals with bad distortion can be readily sampled. Without going into the math involved, most companies claim signals with up to plus-minus 47-48 per cent bias can be handled with perfect output timing being generated in the transmit section.

Once the character has been accepted, it is stored in the receiver holding register while the next character is being received into the receiver shift register (two different registers). When the first character was complete, a flag is set telling the transmit section another character is ready for the first character prior to the completion of the second character the "over-run" flag (pin 15) is set. This might occur if using the unit as a down-converter and typing too rapidly. In this case the 2nd character will be lost. The transmitter can accept the first character and when it has been transferred, the receiver holding register can accept the second character, etc. The transmitter section will add a start pulse, stop pulse and put the entire character out in serial form, perfectly regenerated with less than 1 per cent bias. Thus incoming signals with great amounts of bias can be handled, and retransmitted at the same character interval with virtually zero bias, or transmitted at a faster Baud rate, again with no bias. While one character is being transmitted, the transmit section can load another character into the transmit holding register. This process enables very high Baud rates of interest to RTTY operators.

Since the characters are held momentarily in the various registers, you experience a most unusual "echo" effect if having two printers running from the same source simultaneously -- one with the UART and one without!

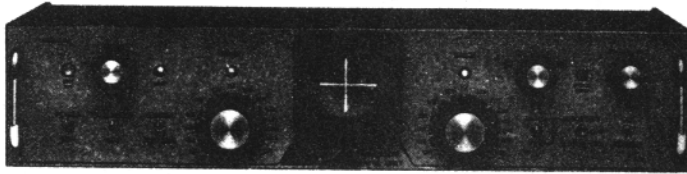
11° "GIANT" RTTY
Flash Contest

	Points	Mult.	n° QSO	Handicap	Score
1) 13FUE	1.309 x	95 x	189 = 23.503.095	(-4%)	22.562.972
2) F9XY	1.78	69	173 = 12.868.086	(-2%)	12.610.724
3) DJ2YA	976	72	143 = 10.048.896		10.048.896
4) DK1NB	912	69	134 = 8.432.352	(-4%)	8.095.058
5) HB9AVK	928	62	132 = 7.794.752		7.594.752
6) I5MYL	774	65	133 = 6.691.230	(-4%)	6.423.581
7) SM6ASD	781	57	126 = 5.609.142	(-2%)	5.496.960
8) G3UUP	684	56			5.439.168
9) DK0OW	627		108 = 3.250.368		3.250.368
10) K8NN	989	32	82 = 2.595.136	(-2%)	2.543.233
11) WA2OQO	1.168	27	74 = 2.333.664		2.333.664
12) DL0BI	551	48	87 = 2.300.976		2.300.976
13) WA9AKT	1.155	27	69 = 2.151.765		2.151.765
14) W2NZ	844	33	74 = 2.061.048		2.061.048
15) I2WEG	394	45	108 = 1.914.840		1.914.840
16) IC8POF	538	38	91 = 1.860.404		1.860.404
17) VE2AXO	863	26	53 = 1.189.214		1.189.214
18) VE2QO	610	30	54 = 988.200		988.200
19) I2ZGP	467	32	58 = 866.752		866.752
20) HA5KBM	309	31	84 = 804.636		804.636
21) OK3RMW	295	34	80 = 802.400		802.400
22) EA4XW	278	35	65 = 632.450		632.450
23) IOKYG	375	27	51 = 516.375		516.375
24) DK0TU	318	28	50 = 445.200		445.200
25) DK2WH	279	26	57 = 413.478		413.478
26) DK5WJ	191	33	47 = 296.241		296.241
27) I2FZA	257	22	51 = 288.354		288.354
28) I8JRA	227	27	45 = 275.805		275.805
29) DJ9IR	282	23	41 = 265.926		265.926
30) G3RDG	208	21	56 = 244.608		244.608
31) OK3KTY	237	22	41 = 213.774		213.774
32) OZ7XE	191	20	55 = 210.100		210.100
33) OK3KGQ	146	21	57 = 174.762		174.762
34) OK3RJB	169	18	43 = 130.806		130.806
35) OK2BJT	113	20	39 = 88.140		88.140
36) DL8MY	161 X	17 x	32 = 87.584		87.584
37) OZ1BGQ	136	14	32 = 60.928		60.928
38) VE7DLX	216	11	16 = 38.016		38.016
39) DJ8BT	86	17	26 = 38.012		38.012
40) SM6CAL	74	9	24 = 15.984		15.984
41) UK4FAD	111	7	20 = 15.540		15.540
42) OY1M	58	8	25 = 11.600		11.600
43) DF7FB	67	7	20 = 9.380		9.380
44) SM5EIT	67	10	11 = 7.370		7.370
45) DL1OY	98	6	7 = 4.116		4.116
46) PA0MUN	33	12	7 = 2.772		2.772
47) ON7AZ	39	4	14 = 2.184		2.184
48) OY1A	23	7	10 = 1.610		1.610
49) SM5AAY	38	7	15 = 266		266
50) DJ2YE	15	2	4 = 120		120
51) ISOESS					

SWL

1) Paul Menadier	1.596 x	59 x	138 = 12.994.632	(-4%)	12.474.847
2) Mario Tosolini	933	75	154 = 10.776.150	(-2%)	10.560.627
3) Cech Lubos	881	68	166 = 9.944.728	(-4%)	9.546.940
4) Barry Niendorf	733	65	151 = 7.194.395	(-2%)	7.050.508
5) Jaroslav Dedic	711	63	152 = 6.808.536		6.808.536
6) Ferruccio Rossi	740	47	135 = 4.695.300	(-2%)	4.689.120
7) Roberto Giarnello	560	49	100 = 2.744.000	(-2%)	2.689.120
8) Kurt Wustner	298	34	98 = 992.936		992.936
9) Harold Wienbeck	375	22	55 = 453.750		453.750
10) Beniamoni Di Natale	300	28	61 = 428.400		428.400
11) Jindrich Bozeck	252	10	97 = 244.440		244.440

DOVETRON

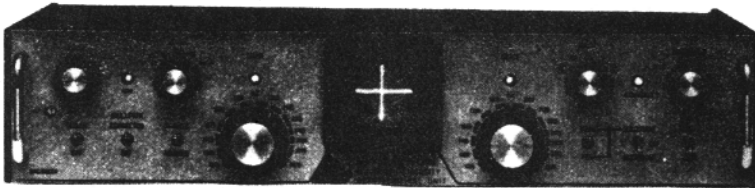


MPC-1000C

Multipath Correction
In-Band Diversity &
AFSK Tone Keyer

Amateur Net: \$545.00

Standard features include CONTINUOUSLY tuneable Mark and Space channels (1000 Hz to 3200 Hz), Dual Mode (MARK or FSK) Autostart and internal high level neutral loop keyer (20 to 60 ml). Both EIA and MIL FSK outputs are provided for direct interface to microprocessor and video terminal peripherals.

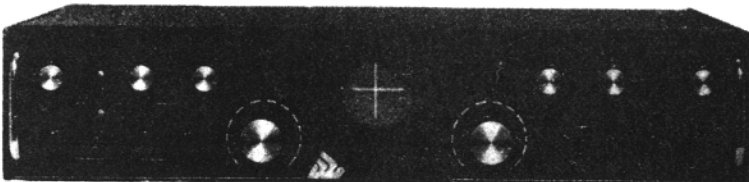


MPC-1000CR

Signal Regeneration &
Speed Conversion

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A front panel switch permits internal TSR-200 Signal Regenerator-Speed converter assembly to electronically "gear-shift" between 60, 67, 75 and 100 WPM. All incoming and outgoing signals are regenerated to less than 0.5% bias distortion. Also available with DIGITAL Autostart (TSR-200D): Amateur Net: \$695.00



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Dual UART Regeneration,
Speed Conversion, 200
Char. Memory, Word Cor-
rection & DIGITAL
Autostart

Amateur Net: \$895.00*

The MPC-1000R/TSR-500 provides Preloading and Recirculation of the 200 character FIFO Memory, a keyboard-controlled Word Correction circuit, Variable Character Rate, Tee Dee Inhibit, Blank/LTRS Diddle, a Triple Tone-Pair AFSK Tone Keyer and a Character Recognition/Speed Determination DIGITAL (DAS-100) Autostart mode.

*The MPC-1000R is also available without a TSR assembly and functions as a MPC-1000C with a Triple Tone-Pair AFSK Tone Keyer. This "Basic-R" permits future expansion with a TSR-100, TSR-200, TSR-200D or TSR-500 by simply lifting the lid and plugging in the appropriate TSR assembly: Amateur Net (Basic-R): \$595.00

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The display itself consists of high intensity (4 millicandelas), red, rectangular LEDs (Light Emitting Diodes) arranged in the traditional cross pattern and operated in a bargraph mode.

The two LEDs that form the apex of the cross are tied into the terminal unit's logic in such a way that they extinguish if the TU is improperly tuned to the incoming tones, or if the incoming signal is up-side down in respect to the "sense" of the terminal unit.

A separate LED in the upper left quadrant of the cross display monitors the two input channels and flashes in the presence of time or frequency dispersive multipath distortion, indicating that the MULTIPATH CORRECTOR should be turned on.

Separate LEDs in two other quadrants monitor the status of the internal loop, the Signal Loss circuit and the Send/Receive mode of the terminal unit, making the SSD-100 a convenient display center of the various functions. A light sensitive photocell in the fourth quadrant monitors the ambient light conditions at the operating location and automatically adjusts the display's light output. Under normal conditions, the SSD-100 may be read comfortably from 75 feet.

The new front bezel contains an anti-glare optical filter and provides 30% more viewing area than the original CRT bezel.

A retrofit kit (SSD-100K) is available to update existing CRT-equipped terminal units in the field. Your inquiry will bring complete details by return mail. DOVETRON, 627 Fremont Avenue, (PO Box 267), South Pasadena, California 91030.

FOR SALE: KSR-35, \$350.-/offer. ASR-33, \$395.-/offer. Both ASCII. Call Joe WB6PMV, after 1900 PDST at 408-732-6757.

YOU NEED Information on Commercial RTTY Stations? News Agencies, Telex, Weather...on shortwave? I have up-to-date frequency, call sign, schedule, code lists. Write for details. Joerg Klingenfuss, Goethestrasse 14, D-7400, Tübingen 1, West Germany.

UT-4B KITS NOW AVAILABLE, All logic, resistors, capacitors, diodes and transistors to fill board, edge connector included. See November 1978 RTTY Journal for users report. Kit 109.95, UT4B Board alone \$17.95 M4D POWER SUPPLY for UT-4B, Kit \$32.50, Board alone \$8.50

DUEL XB-6 OPTIONAL CRYSTAL CLOCK for UT-4B, Kit \$26.95 Board alone \$8.75. Additional information available with a stamp. DAYTAPRO ELECTRONICS, INC. 3029 N. WILSHIRE LN, ARLINGTON HTS., IL 60004

RTTY ID GENERATOR. Accepts 5 or 12 volt supplies, 31 characters available, please include letters, figures, spaces etc. Your pre-programmed answer-back must be supplied with order. EXAMPLE: DE K9WRL NEIL ARL HTS ILL. Board same size as ST-6 boards \$34.99 Kit. Board alone \$8.50. 5v Power supply for above \$11.95 DAYTAPRO ELECTRONICS (FORMERLY NUDATA ELECTRONICS), 3029 Wilshire Ln., Arlington Hts. IL 60004.

TELETYPEWRITER parts wanted for all machines manufactured by Klein-schmidt, Mite and Teletype Corp., New only, Also sub-Assembled. I pay shipping. Phil Rickson, W4LNW, Rt. 6, Box 1103G2, Brooksville, FL 33512.

MODEL 28 "UNDERDOME" typing reperfor set for mounting above TD in ASR, fully perforating, complete - with 60-75-100 wpm gearshift, \$375, single speed, \$275. Model 28 ASR's, KSR's, Stand-alone reperfs and TD's, gears and parts for Model 14, 15, 19, 28, 32, 33, and 35 equipment, ribbons, auto CR-LF kits for Model 28 printers, \$12.75 ppd, answerback devices, more. Send SASE for complete list and prices. Lawrence R. Pfleger, K9-WJB, 1715 E. McPherson St., Kirksville, MO 63501.

Ham Radio Magazine - The no-nonsense state-of-the-art technical magazine. Dozens of exciting projects and an emphasis on quality unmatched by any other radio magazine. Subscribe now and see for yourself. 1 year. \$12.00. 2 years \$22.00 and three years. \$30.00. Ham Radio Magazine, Greenville, NH 03048.

The DOVETRON Binary Bit Processor (BBP-100) provides high-performance axis-restoration in the TEMPEST Model MPC-1000T and BASEBAND terminal units. This plug-in assembly is now available as a retrofit kit (BBP-100K) and may be easily added to existing MPC Series terminal units. In addition to Selectable Bandwidth and Automatic Multipath Correction, the BBP-100 has shown error rate reductions on weak and noisy signals in excess of 30 times. Your inquiry will bring full details by return mail. BBP-100K: \$145 postpaid. DOVETRON, 627 Fremont Ave., South Pasadena, CA., 91030.

The DOVETRON TBA-1000 Baudot-ASCII Code Translator is designed to interface Baudot and ASCII circuits. I/O may be low level polar (EIA RS232C or MIL 188C) or high level neutral (active or passive). Parallel ASCII is also available. A pre-loadable 192 character buffer prevents character over-runs when down-converting baud rates. ASCII Control characters may be used to command peripheral equipment and functions. Features such as Unshift/Space, LTRS Only, Blank Diddle, Variable Character Rate, LED Memory Status Indicators and TD Inhibit are standard. Baudot speeds of 45, 50, 57 and 75 bauds are front panel selectable. ASCII baud rates of 110, 150, 300, 600, 1200, 2400, 4800 and 9600 bauds are internally selectable via a BCD coded DIP switch. All baud rates are crystal controlled and programming instructions are etched on the PC board. The 3.5" x 9.0" x 17.0" package is self-contained and available as a table top or rack mount unit. Power requirements are 115/230 VAC, 40-400 Hz, 10 watts. A bypass option is available. Amateur Net: \$295.00 FOB. DOVETRON, 627 Fremont Avenue, South Pasadena, CA., 91030.

WHAT! THE ST-5 improved? You bet! The MEG-1 RTTY Demodulator is designed to be built by the beginner, modular, and easy to work on. Curious? For information and prices write to the Midnight Engineering Group, PO Box 349, Galesburg, IL 61401.

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ASCII/BAUDOT Converter semi-kit available for the two-way code converter. See article in 73 Magazine, Sept. 77. Use an ASCII TTY or terminal to receive and transmit at 60, 66 75 and 100 wpm in Baudot code. Semi-kit consists of PC board, 1702 EPROM-programmed and tested, sockets for EPROM and UARTS and assembly instructions. \$55.00 (US FUNDS) including shipping. FIFO buffer memory option for above board. Features include adjustable output speed and automatic tape control. Semi-kit consists of PC board, interconnecting cables and instructions. \$19.50 (US funds) including shipping. VE4LOGIC, POB 77, Dugald, Manitoba, Canada ROE OKO.

MODEL 28 ASR's, geared for 100 WPM, excellent, \$300. Model 35 RO's, clean, low use, \$350, Model 33RO's \$250. Can ship. Gaston, 2117 Westlake Drive, Plano, TX 75075.

SOLID STATE TIME Delay relay. 10 MW input signal can control up to 1 kilowatt of load power. Great for teletype users in the Microcomputer and/or Amateur Radio environments. Plans or PC Board \$5.00, information \$.50. Keith Ryan, Dept. RTTY, Box 3103, Ottawa, CANADA KIP 6H7.

ST-5X Terminal unit. Copies all shifts, auto start, copies reverse or normal shift keying, provisions for CW ID. Board alone \$12.00. Kit \$49.50. ST5X power supply. Includes FSK keying & provisions for CW ID. Board alone \$6.50 Kit \$19.50 less transformer. ST-5X AFSK. Crystal controlled solid state dual tone generator. Can be used as a stand alone board with any type T/U including computer units and electronic keyboards. Board alone \$12.00. Kit \$49.50. RTTY scope amplifier. Perfect cross display on any scope. Amplifies signal 100 times. Board alone \$5.25. Kit \$17.50. WRU. Complete on one board. Turns transmitter and other equipment on and off, fail safe timer, fully automatic CW-ID and RTTY-ID, can be triggered with just a pulse to ground-manual or selcal or stunt box, uses pre-programmed proms available at a modest charge. Board alone \$18.00. Kit \$64.50. Mini T/U. Portable, can be powered with 9V battery, 170 shift only. Board alone \$4.50. Kit \$29.50. Mini AFSK. Can be powered with 9V battery, 170 shift only. Board alone \$4.50. Kit \$19.50. CW-ID. All solid state, requires +5V from keyer, T/U, etc. Great for RTTY-ID also. Board alone \$9.00. Kit \$39.50. Bomark, INC., 7532 Roosevelt Street, POBox 7116, Hollywood, Florida 33021, 305-962-7219. Send cashier's check or money order plus \$1.50 for shipping and handling. Please write for price on assembled kits.

FOR SALE: 3rd edition of the "List of special RTTY and CW alphabets and codes", now contains code tables for Arabic, Cyrillic, Hebrew, third shift Cyrillic, Greek, Korean, Amharic, and Thai 5-units CCITT3, and SITOR codes. Detailed descriptions of the "decoding" of Arabic and Cyrillic transmissions received on a normal machine, and of ARQ/SITOR/FEC error protection systems are included. Arabic, Cyrillic, Greek, Hebrew, and Japanese morse codes are also listed. This offset printed list is airmailed to you for \$11.00 or 28 IRC from Joerg Klingenfuss, Goethestrasse 14, D-7400 Teubingen 1, West Germany.

THE RACK LINE BY DAYTAPRO, for individual or repeater these versatile uniform boards will do the job rite. All boards are 4½" X 6½" (same as the DT-600) G-10 1 oz copper solder plated with a 22 Pin edge connection. All kits have edge connector included.

CW ID SYSTEM, interfaced for ditital, FSK or AFSK keying, 10 minute timer, variable speed (5-24 wpm) 12 or 5 volt use. Kit \$7.90, Board alone \$8.95.

MINI VERSION OF above CW ID (CW ID only) Kit \$21.95.

M4D POWER SUPPLY, Plus 5 volts at 1 amp with crow bar protection, Plus 12 volts at 1 amp and minus 12 volts at 1 amp. Each fused and has LED indication. Kit \$32.50 BOARD alone \$8.50.

DUEL XB-6 CRYSTAL CONTROLLED CLOCK for UAR/T control develops 6 baud rates each. Kit \$26.95 board alone \$8.50.

CRYSTAL CONTROLLED AFSK. Now enjoy rock solid frequency with no drift. Kit \$28.49 BOARD ALONE \$8.75.

TU-LOOP POWER SUPPLY. Low voltage supplies (+5, +12 and -12) all rated at 800 mls each with a high voltage loop supply with the keying transistor located on board. Also has a 20 mil loop driver and keying provisions, input keying need be only 5 volts and ground. Kit \$52.49 Board Alone \$8.50.

EXTENSION BOARDS (available in July, 1979.) Two types, Stright for rack testing and 90 degree angle for cabinet testing. With Edge connector Kit \$13.95.

UT2B SPEED CONVERTOR (Available in October 1979) Write for additional information.

UNIVERSAL BOARD (Available in September 1979) Write for additional information. DAYTAPRO ELECTRONICS, INC., 3029 WILSHIRE LN, ARLINGTON HTS, IL 60004. PHONE 312-870-0555 EVENINGS.

TELETYPE 43 KSR RS-232 \$999.95 Factory New. Postpaid USA. Data Mart, 914 Waverly, Arlington Heights, IL 60004, 312-398-8525. 6-11 PM CST.

TELETYPE MANUALS — Model 28ASR, 3-volume set \$24.50 plus \$1.00 postage. Manuals also available for Model 15, 19, 32, 33, 35, plus thousands of others on military surplus receivers, transmitters, test sets. Send 50c (coin) for large list. S. Consalvo, W3IHD, 7218 Roanne Drive, Washington DC 20021.

ELECTROSENSITIVE FAX paper \$4 roll (19" x 450') TS-1060 (\$25), HO-10 (\$50), HP-400 (\$25), HP-415 (\$20), HP-430 (\$20), RCA voltohmism (\$30). ALL FOB. W6UBS, (714)462-6316.

IF-2 SELCAL-WRU circuit board, \$15. (73 mag. Nov.78). Contains all circuits to control TTY and transmtttr. Programmable to any access code in minutes. Easily interfaced to any station. Connects to UT-4(UART), or IF-1 regenerative repeater PCB, \$12.00. Complete documentation. Commercially fabricated boards. R. Parry, 28 W. 255 Deerpath Road, Batavia, IL 60510.

SELL: HAL DKB-2010 keyboard with 128 key memory, \$325, HAL RVD-1005 video converter, \$325. Package deal \$625. K8NN, John Limbach, 6600 Pine Ridge Avenue., Enon, Ohio 45323 (513) 864-2146.

BANDPASS ACTIVE FILTER 2125/2295 Hz. Easily tuned. Requires +12v□ Complete kit \$11.95, W/T \$16.95ppd. Nat Stinnette Electronics, Tavares, FL 32778.

MODEL 35 ASR \$500 (Pickup). New model 35 typing unit, \$200. Model 28 ASR answer-back (mounts on TD base), \$50. Model 28 N4LDH gear-shifts, KSR \$75, ASR \$125. Mac McGinnis, 4215 San Gabriel, Dallas, TX 75229 (214) 352-5143.

(70) TTY Solid State Keyboards with Baudot Output. Made By C.P. CLARE for Texas Inst. All units have never been on line. PARRELL Output & Double shot keytops. These units are first class. \$26.00 pp R.C. JOHNSON, E. 16109 LONGFELLOW, SPOKANE, WASH. 99216 TELETYPE SUPPLIES, Technical manuals, equipment. 11/16" and 7/8" perforator tape. Page paper. New ribbons. Teletype Corp. maintenance manuals. Let me know what you need. Send 75 cents postage for 3 current catalogs. JIM COOPER, W2JC/W2BVE, Box 73, PARAMUS, NJ 07652.

MODEL 28ASR TELETYPE \$350-\$375. RO CONSOLES \$175. PAPER WINDERS \$35. RO-3-SPEED TELETYPE \$175. TAPE PERFORATORS \$50. MUCH MORE. STATE YOUR WANTS. SEND SASE FOR PARTIAL LIST. GOODMAN 5454 SOUTH SHORE, CHICAGO, IL. 60615 312-753-8342.

NEWS-NEWS-NEWS-Amateur Radio's Newspaper, "Worldradio". Trial subscription - Two issues for one dollar. "Worldradio", 2509-F Donner Way, Sacramento, California 95818.

UT-4B KITS Now available, All logic, resistors, capacitors, diodes and transistors to fill board, edge connector included. See November 1978 RTTY JOURNAL for users report. Kit \$109.95, UT4B Board alone \$17.95 M4D power supply for UT-4B, Kit \$32.50, Board alone & 8.50. Duel XB-6 Optional crystal clock for UT-4B, Kit \$26.95, Board alone \$8.75. Additional information available with a stamp. DAYTAPRO ELECTRONICS, INC. 3029 N. Wilshire Ln., Arlington Heights, IL 60004

Manuals for Creed 75 for \$4.50, Creed 75 teletypewriters, RO, ASR for sale. What offer? W.M. Kelly, 7620 - 42 Ave., Edmonton, Alta, T6K OY2, Canada.

SELL OR SWAP: Model 28 stand alone TD. \$110.00. Rycrom UHF RCVR 100.00 W/M. Wanted: Model 28 ROTR with gear shift and manual. Kleinschmidt TT-76A/GGC good cond. Dale Mitchler, WB9YCO, 813 Oviatt St., Kaukauna, WI 54130.

TU POWER Transformer. 115 volts primary, 250 volts center tap at 60 ma and, 28 volts center tap at 500 ma secondaries. \$10, includes shipping. Midnight Engineering Group, P.O. Box 349, Galesburg, IL 61401.

The MEG-1 RTTY Demodulator is a low priced, high quality unit designed to be built and used by beginners and advanced amateurs. For information and prices write to the Midnight Engineering Group; P.O. Box 349; Galesburg, IL 61401.

The Midnight Engineering Group offers a large line of quality new components, including 1/2 and 1/4 watt carbon film resistors; electrolytic, mylar, tantalum, disc, and silver mica capacitors; trimpots; miscellaneous other items including enclosures, and Printed Circuit Board Carbide Drill Bits. 1/8" shank, 1" long. Four sized available; .047" (approx. #56 drill), .043" (#57), .033" (#66), and .030" (approx. #68-69). \$1.25 each, or set of one each size, \$4.50, postpaid in North America only. Minimum order \$2.50. Illinois residents add 5% sales tax. For catalogue sent 15 cents stamp. Midnight Engineering Group; P.O. Box 349; Galesburg, IL 61401.

SURPLUS TD PAPER yellow & oiled of 32 \$12.00 Wt. 48. 7/8 Blk. carton of 8 \$3.00 Wt 13, carton of 32 \$10.00 Wt. 48, Add UPS wt. Harmon, 5628 10th Ave. So. Birmingham, AL 35222.

TELETYPEMODEL 19-Printer, keyboard, tape perf & TD- complete

and in excellent condition-\$150 firm (Flesher TU also available -\$50- not sold separately) Bill, WB6UXF-330 Via de la Paz, Pacific Palisades, CA 90272. (213) 459-2192

UT-4 COMPONENTS as listed in April ad except changing to AY-5-1013A Uart at same price. Everything postpaid including courtesy airmail overseas. Expect to start inventorying down on all items except Fifo's and Uarts. Peter Bertelli, W6KS, 5262 Yost Place, San Diego, CA 92109. 714-274-7060.

For sale-Complete Bell System Practices covering the Model 28 Teletypewriter. Clean and in balck fibre covers. I..A Stapp, 2903 Ash, Hays, KS 67601.

TELETYPE EQUIPMENT and supplies. Specializing in Model 28's. Limited quantity of excellent 28 RO's (friction feed) \$225. Special clearance on console cabinets. KSR/RO \$15. ASR less TD sheet metal \$20. ASR with LXD sheet metal \$60. 20 fo each type to choose from. Pick-up and save packing and shipping charges. Fresh roll paper \$19 per case of 12 4 1/2 inch diameter rolls (plus shipping). SASE for equipment list. Wanted: gears for all Teletype machines. P. Ander sen, K8JOF 115 Boyken Rd., Rochester, MI 48063. 313/652-3060.

Dope on the UT-4

Alberto Gherardi, I5BSM
P.O. Box 177 - 150100 FIRENZE, Italy.

I assembled about one year ago a UT-4 using some beautiful PC boards supplied by Clyde Keenan (K7WTQ) and I have had excellent results. The only problem I have had is with the power supply of +5 V. With the advice of Pete (W6KS) I modified the power supply circuit as shown in the diagram. Now everything works to perfection.

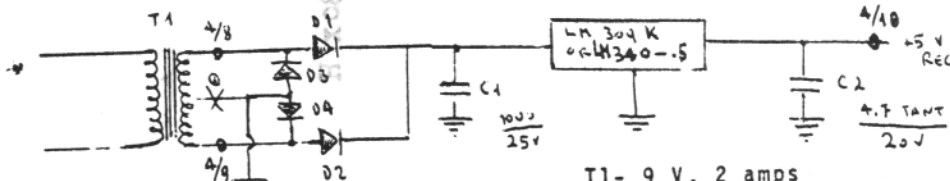
*I have also added the "repeat switch S-8": I cut the interested printed conductors and I connected them with insulated wires to a "3 lead socket connector" (miniature type) which had been fastened to the PC board. With a proper plug I connected the 3 leads to the circuit as described in the RTTY

*To regulate the voltage at pin 2 of IC-1a, I used a "23 turn pot" (10K) in place of the resistor of 8200 Ohm.

*To be able to control the "lock" of the TU unit, I use the Dovetron MPC 1000, with the T/R switch (S-3), I changed the ST-6 standby NPN transistor (2N2222A) with a HEP 706.

*Recently I have assembled another UT-4 using the same PC boards supplied by Clyde. I noticed that on board n1, labelled Mod. 2., between pins 13 and 14 of IC 5 (7420) there is no bridge. I had to make the connection for proper function.

*I also added a resistor of 4700 Ohm 1/4 W between pin board connector "K" (pin 12 IC 5b) and "D" (+V) of the PC board (Uart/FIFO's) because it was missing.



*D1- D4= 50 PIV, 2,5 A Diodes-Hep 170-

T1- 9 V, 2 amps
(or better)- 8 V, 2 amp
* Do not use center tap.

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KEYBOARD-CONTROLLED WORD CORRECTION & DIGITAL AUTOSTART



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