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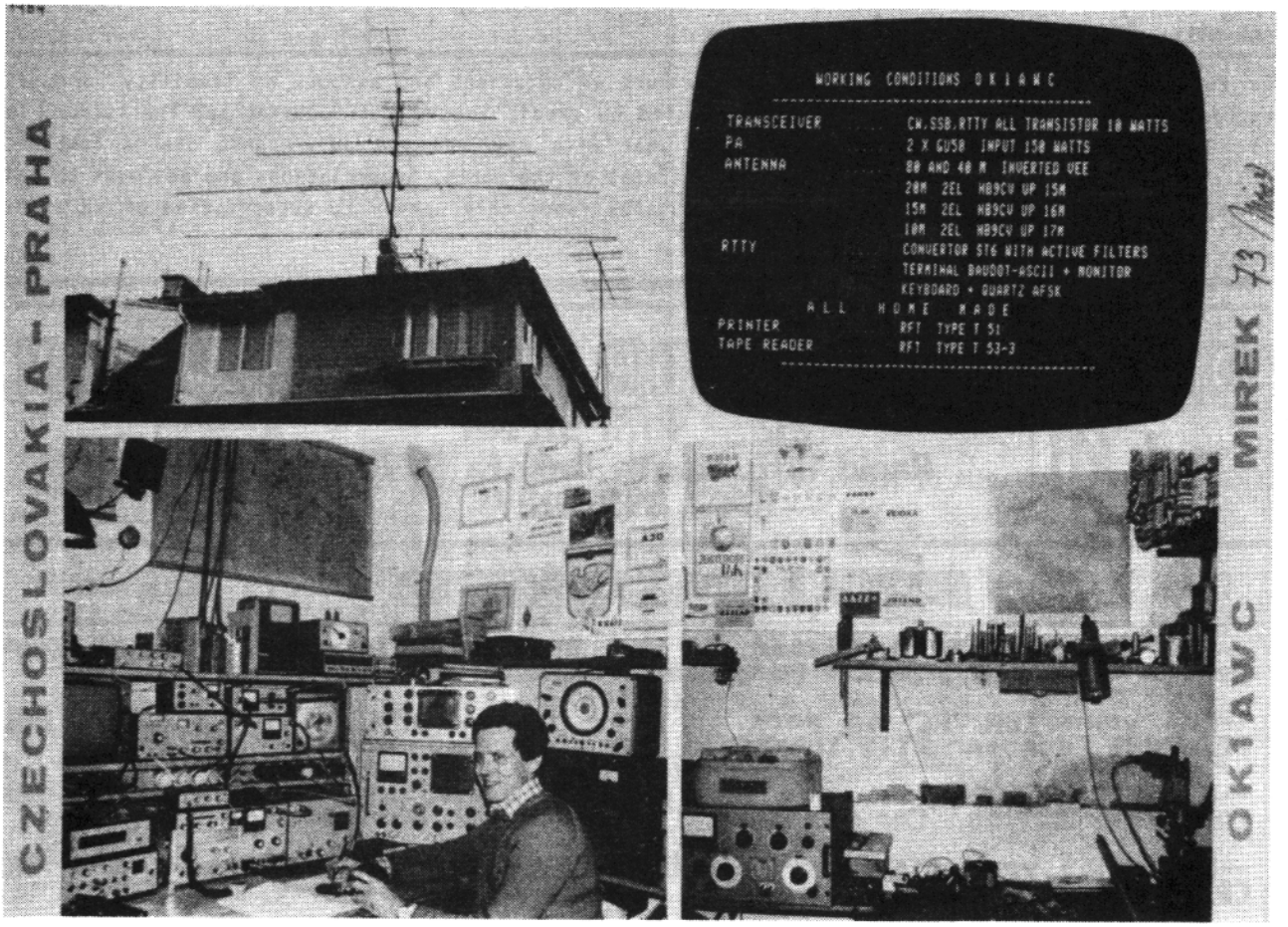

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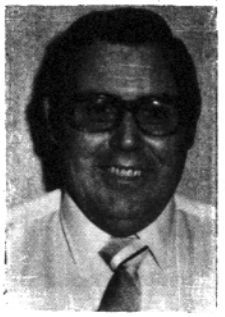
HITS & MISSES



GEORGE HANNON, WA6CQW
14215 Pecan Park Lane Space 73
El Cajon, CA 92021

The ARRL has upped the stakes in its' club challenge for the 80's. High frequency transceivers will be given to three clubs. ARRL affiliated clubs will be divided into three size groups: small, medium and large. The club within each group that recruits the most ARRL members will receive one of the following: Icom IC-735, Heath HW-5400 or Kenwood TS-430. The normal five dollar for every new member will still be paid, plus your club can earn a state of the art transceiver. Contact ARRL headquarters for more details.

YOU KNOW YOU'RE GROWING OLDER WHEN:

You feel like the night before, and you haven't been anywhere.
You get winded playing chess or checkers.
Your children begin to look middle-aged.
You join a health club and don't go.
You look forward to a dull evening.
Your favorite part of QST is "25 years ago".
You turn out the light for economic rather than romatic reasons.
You sit in a rocking chair and can't make it go.
You stop looking forward to your next birthday.
Dialing long distance wears you out.
You just can't stand people who are intolerant.
The best part of the day is over when the alarm clock goes off.
You burn the midnight oil after 9 P.M.
Your back goes out more than you do.
A fortune teller offers to read the lines in your face.
A dripping faucet causes an uncontrollable bladder urge.
Everything hurts and what doesn't hurt-doesn't work.
You begin to outlive enthusiasm.
You begin to outlive all of your friends.
You begin to outlive everything.

COMPLETED PROJECT

The RTTY JOURNAL is always on the outlook for imformative technical/nontechnical articles on your completed project. It you have photos they should be in black and white. Send to Dee, RTTY JOURNAL.

RETIREMENT

The day has come and gone and to all who are retired the emotions of the moment are real and lasting. YL, Jeanne and I left San Diego on July 14th and drove to Las Vegas, parking the trailer at the Hacienda Campground. Jim and Linda Preston WA6UFY and WA6HGA joined us on the following Thursday. Then the real fun began. First a pipe broke in the bathroom. This I was able to fix, but the 118 degree temperature made this easy job harder. Then my main two meter rig shot craps with the handheld following close behind. Jim was kind enough to loan me one of their handhelds for the rest of the trip.

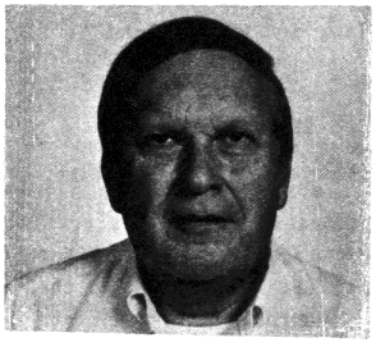
The next stop was Twin Falls, Idaho. The four of us drove to Shoshone Falls. A lot of pictures were shot there and we continued on to Coeur D'Alene. We traveled through some of the most beautiful scenery, but lots of twistee roads. The County Hunters Convention in Coeur D'Alene was sure fun with a boat trip on the lake and a trip to a gold mine. An outdoor barbeque was held and Slim Dosey, a retired singer from the Son's of the Pioneers was a big hit with his western songs. A big thanks to Ken, W7LQT for a fine convention.

We are now back at a lake called Siskiyou and I am writing this with a Blue Jay at my elbow as co-editor. I will close my column this month with this thought..Stop and smell the roses, it sure makes this old world look a lot better.

So long for now George, WA6CQW....

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

Are you a real DXer? Then there is something you might want to know. Hopefully, you are aware of the fact that Russian stations are quite easy to work but it is difficult to obtain their QSL cards. Years sometime go by before you receive that card from "Box 88, Moscow" who is to blame. An alternative is to QSL directly Edward Kritsky, KA2MXO, POB 715, Brooklyn, NY 11230 USA. claims a listing of 200+ Russian addresses and says any profit from the $4.95 he charges for the list is used to send callbooks and other literature to the Soviet Amateurs who cannot otherwise obtain these items. For the update list only Send $1.00 + SASE to Edward.



DX

JOE WOOD, AJØX
POST OFFICE BOX 84
LAUREL, MISSISSIPPI 29440

Howdy Gang! Glad to be back in your shack or favorite reading place with you after another two month lapse. The bands have been very poor and are matching the weather here perfectly. I was of the opinion that conditions could not have gotten any worse during this cycle's declination but I have been wrong before; This has to be the deepest barrel yet because I have lost sight of its bottom if indeed this cycle has a bottom. The lower frequencies have exhibited fairly decent propagation only to be masked in the high QRN levels that we enjoy (?) during the summer months. Late afternoon and early evening thundershowers/storms occur on a daily basis and this keeps the antennas grounded. Couple this with work schedules, civic responsibilities, raising the kids, appeasing the XYL (with her growing list of honey-do'es) or entertaining the YL, following the Tax reforms and the list goes on...one is hard pressed to find time to turn on the Ham gear or even think about Amateur Radio. All of this is understandable and serves to explain, from time to time, the absence of input from you. Remember though that this column is based on that input and can survive only if YOU contribute.

RTTY WORLDWIDE CONTEST 1985

A parting shot..... I have been comparing the results of this contest with those of 1983 and 1984. If you haven't bothered to compare the years, take a look at the following data summary and decide for yourselves.

YEAR	1983	1984	1985
single op all bands			
entries	43	63	43
high score	15,744	145,520	184,140
multi-op all bands			
entries	10	10	12
high score	10,019	166,950	144,500
single op-20 meters			
entries	4	16	30
high score	2,485	84,240	163,095
Year	1983	1984	1985
Multi-op 20 meters			
entries	02	01	00
high score	12,210	61,920	00
single op-15 meters			
entries	05	06	03
high score	8,319	29,150	4,590
single op-10 meters			
entries	01	01	00
high score	100	1,890	00
check logs			
entries	04	04	06
total entries	69	100	94

In summary: less entries, almost total abandonment of those frequencies higher than 14 MHz, higher scores in some categories. Many stations that were heard and worked didn't submit entries (shame on you), concentration was on the lower frequencies and the higher scores indicate the degree of involvement from those operators that did enter the event. This is an excellent contest and with an up-turn of the solar cycle should provide some interesting results. My thanks go out to the RTTY JOURNAL and 73 Magazines for giving us the World Championship Contest. See you next year! Incidentally, the top scorer in this years' contest, Ed, W3EKT was using the old 28 'mechanical monster'! Old they may be, but useless.....no way!

ABOVE 14.100

For several months this column has contained "short burst" comments from a few of the many that have responded with regard to the needed expansion of the 20 Meter RTTY 'gentlemens' agreement to include a part of the spectrum just above 14.1 MHz. This 'writing' will attempt to deliver the feelings of those respondents along with an appeal to the American Radio Relay League to immediately consider and address it with a published endorsement in "QST". To page 5.

DX COLUMN CONTINUED

Why do we need more space? For most, the understanding is clear and doesn't require an "Ivy League" graduate to interpret the need. The last few years have seen an influx of newcomers to the digital communications mode. The ease of obtaining and interfacing 'personal computers' to existing Amateur gear coupled with the ultimate benefits of total flexibility has been delivered to each of us resulting in a dramatic increase of users in all digital modes - RTTY/AMTOR/Packet etc. One only has to listen between 14.080 and 14.100 to observe the results. If one will consider that we are nearing the bottom of a solar cycle and with the poor band conditions that prevail one can imagine what bedlam will occur during the rise in the upcoming cycle if we continue to be sandwiched.

This frequency range, arrived at and endorsed by the League some years ago, is further restricted by the placement of several propagation beacoms (CW) on 14.100. For the most, thoughtful and knowledgeable operators steer clear of these useful operating tools by skirting the low side of the beacons by at least two kiloHertz. By gentlemens agreement we are now down to 18 of an available 150 kiloHertz (12%). By contrast, SSB enjoys 200 kiloHertz (57%) and CW 350 KiloHertz (100%) of the allocated 350 kiloHertz on the 20 meter band. In all fairness, it should be noted that virtually all CW operation takes place below 14.080 with occasional operations noted to 14.150, so let's say that CW has pretty much restricted itself to the lower 80 kiloHertz (22.8%) of the band. Observation has noted, with the availability and use of todays very selective equipment, far less station congestion in the CW portion. Is improved technology alone the reason for this? Perhaps a number of those that have been addicted to the CW mode are moving into Digital modes which offer some of the advantages of CW with the greater advantage of greater speed in record communication than any other mode. Curiousity, the adventure of "new frontiers", those wishing to remain technologically current and "well balanced" along with other unmentioned reasons appear to be a part of the rationale for the inclusion of, or the move from CW (and SSB) to, digital.

What about the other bands? Although the need on 20 meters is immediate and should be acted on now, the other bands will have to be considered as well. The Digital Committee should have this as a top priority with input from day to day users, as we are of the opinion that there is insufficient day to day operating experience among the Committee members themselves to allow derivation of sound, unbiased proposals in this area for presentation to the League's directorship.

What about special interests? A number of Mailbox (MSO), Sel-Cal (WRU), and Packet operations co-exist with day to day RTTY/AMTOR domestic and DX operations in the now crowded space. No attempt should be made to relocate or channelize these as they are established, and for the most part, well managed operations. The concept of relocation of MSOs. Sel-Cal and Packet above 14.100 MHz., suggested by several writers has to be discarded in that individual operators have the right to operate on "all" frequencies within the limits of their respective licenses and mode limitations as set forth by our governing agency as well as the responsibility to preclude interference to already established communications, regardless of the mode, or whether it be manually or automatically (remote) activated. It is suggested that any new automatic operation be located above 14.100. This, of course, is optional but highly desirable given the fact that many now exist in the present range and the addition of more would only lead to continued bickering and frustration. The key words here have been, and remain, courtesy, self discipline, education and proficiency coupled with a full understanding of why we are permitted our presently enjoyed priviledges in the first place.

What to do? Breathing space for our newest of modes should be allocated by way of 'gentlemens agreement'. Those addressing the issue, in many letters to me, have suggested that the ARRL seriously consider adopting, supporting and publishing a revised agreement that would expand the present 'allocation' to 14.125 MHz with a new lower limit set at 14.075 MHz. The door leading to this added range is bulging with several having already slipped through into 'no-man's land'. The need is realistic but too late in coming; it was needed yesterday. A peaceful expansion will take place IF the League will move on it immediately. If, after a reasonable period, no sanction has come forth, it is suggested that the expansion be made WITHOUT the League's blessing. We appeal to the League on behalf of today's user and for those that are sure to come. To page 6 please.

NEW A.R.R.L. DXCC MEMBERS

Congratulations go out to: KT1N, W1DA, W2JGR, CE3CEW, and YU2UH. Lots of hard work and we wish you continued success in searching out new ones.

DX REPORTS

From Carl K6WZ, a report that states he received a card from HC8FN Gin, says he sent him a Tono 9000E. Others went to: ZL4DO/ZK2RS/A35RS and ZL3AFH/ZK1WL (latter now QRV). ZL4DO will pass his to ZL7OY. Another went to DJ6OT who lost his gear in Benin (TYØ). Jack, W5HEZ reports 9U5BB 15 meters, callbook address.

In closing, I have to apologize for the lack of DX coverage this month. Two reasons for this: one, almost no input from the field (go back to paragraph one, this column) and two, the "Above 14.100" story had to be told. I shall appreciate any information that you can send along to be shared with all of our readers. Also, whether you agree with "Above 14.100" (the majority did) or not, it will be interesting to read your comments.

My thanks go out to K6WZ and W5HEZ for the DX input. Also my sincere appreciation to each of you taking the time to address the problem of 20 meter congestion, with well thought out suggestions for reducing same. You are far too many to thank individually.

Good luck to each of you and see you next month 73 de Joe, AJØX.....

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

If you are looking for cards from Ron for ZK1XL for North and South Cooks operations, Victor, ZK1CG is no longer answering QSLs but Ron is back home in the States, home call is K6OZL. Ron made 18,950 contacts in the Cook operations.

With the 30 meter band now permanent from 10.1 to 10.15 for RTTY and CW wonder where the RTTYers are? Haven't seen any on 12 meters where I expected to find RTTYers on from 24.890 to 24.930 where CW and RTTY have exclusive rights. Where are you all?

Silent key: KH6OD/5 Fenton E. Martin passed on in late May. Martin was a "fixture" on 14.0975, and will be missed by all who contacted him. His "Super-Ratt" was on the air no matter what time of day. His XYL would appreciate a condolence card: Vera Martin, 941 Valley Falls Road, Jackson MS 39212. de Dee, N6ELP.....

BRITISH AMATEUR RADIO TELEPRINTER GROUP CONTEST

Call	Points	Call	Points
1. ON4UN	915,530	41. WA6WGL	56,980
2. 9H1EL	773,916	42. GW3EHN	55,350
3. KT1N	597,184	43. Y58VA	50,468
4. I2OLW	500,820	44. OZ1IWE	48,246
5. UT5RP	493,614	45. KL7PG	47,760
6. OZ1CRL	481,120	46. PY1WF	45,878
7. W3EKT	467,540	47. PY6ACP	44,352
8. W1DA	443,696	48. Y22UL	43,616
9. SM6ASD	408,464	49. VK2EG	41,104
10. IØZSG	362,880	50. SP9BCH	40,528
11. SM5FUG	329,360	51. OK1DR	39,760
12. VE1ASJ	324,320	52. IV3UT	39,104
13. NG7P	300,846	53. VK2BQS	38,475
14. G3HJC	288,320	54. Y63TI	35,850
15. SM7AIA	279,270	55. SM7ABL	34,452
16. YU7AM	275,340	56. EA3CZM	34,410
17. WB5HBR	239,908	57. ZL2AKI	29,800
18. W3FV	230,526	58. HA8BI	28,582
19. G4SKA	191,952	59. G8VF	28,260
20. EA5CVR	176,778	60. W3AOH	26,416
21. OH2BDN	158,270	61. DF5BX	26,112
22. VE7YB	137,720	62. HB9BPU	25,704
23. OK3KGI	132,500	63. WB1AQA	25,432
24. VK5RY	131,328	64. HL1EJ	22,116
25. KB2VO	127,160	65. PA3DBS	20,580
26. SM7LSU	121,086	66. EA3AEN	20,240
27. K6WZ	120,900	67. FE6BVB	16,500
28. SM5AAY	118,116	68. GM4VDI	16,040
29. W6JOX	108,100	69. GI4TSK	15,770
30. G4CJJ	100,688	70. VK2SG	15,656
31. WA9AKT	98,124	71. HP1AC	13,680
32. W3KV	98,100	72. SM7BGE	10,380
33. LA7AJ	86,500	73. YU2CB	9,800
34. DL3YBL	82,616	74. JA1AYC	9,480
35. JA5TX	79,024	75. G4EMT	8,580
36. DJØJU	73,112	76. G4JLU	6,480
37. WB4UBD	73,008	77. F6GVK	6,400
38. OH1ZAA	66,378	78. FD6IDT	6,050
39. LU4EGE	61,100	79. N3RC	5,852
40. SP1LOP	57,156	80. SM7AIO	5,654

MULTI-OP SECTION

1. LK1KDP	602,096	5. OK3KII	188,928
2. LZ2KRR	312,444	6. LZ1KDA	25,380
3. OH2OT	215,350	7. GM4YNA	8,784
4. OK3RJB	189,878		

SHORT WAVE LISTENER SECTION

1. OZ1KEO	403,648	7. BRS28198	53,898
2. OH2-777	215,350	8. FE-1107	52,150
3. OK2-30662	161,048	9. REF 41758	32,292
4. FE3700	143,072	10. Y2-8301/F47	8,120
5. G8CDW	120,832	11. Y2-11118/F66	2,820
6. DE1GMH	69,936	12. Y2-7111/A58	2,760

Check Logs: SM6LTO, VK2DLK, Y25DL, Y82ZN, SP3LRS, G4YPN, VE2AXO, HA5KAG, HA5FA, HA5XA, HA8DZ,HA8BI.

HAVE RTTY—WILL TRAVEL

Yes, now you can take it with you! The new **HAL CWR-6850 Telereader** is the smallest RTTY and CW terminal available, complete with CRT display screen. Stay active with your RTTY and CW friends even while traveling. Some of the outstanding features of the CWR-6850 are:

- **Send and receive ASCII, Baudot, and Morse code**
- **RTTY and Morse demodulators are built-in**
- **RTTY speeds of 45, 50, 57, 74, 110, and 300 baud**
- **High or Low RTTY tones**
- **Send and receive CW at 3 to 40 wpm**
- **Built-in 5 inch green CRT display**
- **Four page video screen display**
- **Six programmable HERE IS messages**
- **Pretype up to 15 lines of text**
- **External keyboard included**
- **Runs on +12 VDC @ 1.7 Amperes**
- **Small size (12.75″ × 5″ × 11.5″)**

Write or call for more details. See the CWR-6850 at your favorite HAL dealer.

HAL COMMUNICATIONS CORP.

BOX 365
URBANA, ILLINOIS 61801 **217-367-7373**

CoCo RTTY

BY: Mark Spencer, WA8SME/DA1OY
Post Office Box 5889
APO New York, NY 09012

INTRODUCTION

"Are you chasing electrons again?," the (X)YL asks with tolerant disinterest as she enters the shack.

"Yes dear."

"What are you working on? It looks like a hedgehog that's being attacked."

"It's a RTTY demodulator and computer interface for the Color Computer."

"Okay, that tells me a lot. What does it do?"

"It takes serial RTTY signals, converts them to parallel data and prints tha text on the CoCo screen." (Here's where I put my foot in my mouth) "It does the same thing as my Info-Tech M-200E."

"I DON'T need two sewing machines," the fatal parting shot as she leaves me to ponder the hedgehog.

Well, the subject of this series of articles is not quite the same thing as the Info-Tech M-200E. Here I had all of the latest in RTTY gear, but not really sure how it all worked. I set out on this project as a self tutorial, to teach myself about what goes on in these new "Black Boxes" and even try a few twists of my own to improve the performance.

For the last 15 years of RTTY operation, my demodulators have been plagued with printing garbage during noise. Now with solid state equipment, the problem has become a lot quieter and easier to tolerate, but the problem is still there. While digging into the entrails of my computer and trying to learn "on-off" electronics I came across some digital circuits that could be applied to RTTY and add some noise immunity.

The objectives of my project were to: 1. Get my Color Computer on RTTY for receive only; 2. Experiment with active filters and OP AMPS; 3. See if I could reduce the noise susceptibility of a RTTY demodulator through digital techniques; 4. Learn about machine language programming; and 5. Finally, to apply some of the things that I have learned about digital logic and IC chips.

CONCLUSION (FIRST)

Before I get started with the details, let me describe the outcome (follow the block diagram, figure 1). The demodulator/interface converts serial RTTY signals to parallal data, feeds the data into the game port of a Radio Shack Color Computer, and using a short machine language program, prints the text on the screen. Fig. 1 on page 12.

Hardware: Mark and space active filters follow the input amplifier and limiter. The separated signals are fed into an MC1489 IC RS-232 Line Receiver that converts the audio sine waves into TTL square waves. Some low level noise immunity is provided by the line receivers through turn-on threshold response control. Actual rectification of the audio into data pulses occurs in two NE 555 timers configured as retriggerable one shot timers with a period slightly longer than the period of the input audio signals. The TTL mark and space pulses are then spliced together by an OR gate. The logic of this gate offers some noise immunity by "marking" when interfering signals jam either the mark or space signals. The AY-5-1013 Universal Asynchronous Receiver/Transmitter (UART) converts the TTL RTTY stream into parallel data. The internal processing of the UART checks the incoming signal for proper start bit timing; if correct, processing continues, if incorrect the UART awaits a valid start bit. This also offers some noise immunity. The accompanying photos show my finished product. Photo on P.13.

Software: The machine language program first sets the Non Masked Interupt vector (NMI) to the proper value and then asks whether unshift on space is desired. The computer is then forced into a SYNC state until a character received strobe is sent by the UART. When a full character is received, the UART strobes the NMI input to start the program and presents the received character in parallel form to the gameport. The program first checks to see if the character is RTTY or ASCII, disregards invalid characters (also adding some noise immunity), jumps to the appropriate portion of the program, and prints the text on the screen.

The demodulator does not out perform the Info-Tech equipment during low signal levels, but does have better immunity to random noise.
To page 10 please.

THE STANDARD OF EXCELLENCE

The world of CW, RTTY, and new DUAL AMTOR is as close as your fingertips with the new brilliantly innovative state-of-the-art microcomputer controlled* EXL-5000E.

Automatic Sender/Receiver: Due to the most up to date computer technology, just a console and keyboard can accomplish complete automatic send/receive of Morse Code (CW), Baudot Code (RTTY), ASCII Code (RTTY) and new ARQ/FEC (AMTOR).
Code: Morse (CW includes Kana), Baudot (RTTY), ASCII (RTTY), JIS (RTTY), ARQ/FEC (AMTOR).
Characters: Alphabet, Figures, Symbols, Special Characters, Kana.
Built-in Monitor: 5" high resolution, delayed persistence green monitor — provides sharp clear image with no jiggle or jitter even under fluorescent lighting. Also has a provision for composite video signal output.
Time Clock: Displays Month, Date, Hour and Minute on the screen.
Time/Transmission/Receiving Feature: The built-in timer enables completely automatic TX/RX without operator's attendance.
Selcal (Selective Calling) System: With this feature, the unit only receives messages following a preset code. Built-in Demodulator for High Performance: Newly designed high speed RTTY demodulator has receiving capability of as fast as 300 Baud. Three-step shifts select either 170Hz, 425Hz or 850Hz shift with manual fine tune control of space channel for odd shifts. HIGH (Mark Frequency 2125Hz)/LOW (Mark Frequency 1275Hz) tone pair select. Mark only or Space only copy capability for selective fading. ARQ/FEC features incorporated.
Crystal Controlled AFSK Modulator: A transceiver without FSK function can transmit in RTTY mode by utilizing the high stability crystal-controlled modulator controlled by the computer.
Photocoupler CW, FSK Keyer built-in: Very high voltage, high current photocoupler keyer is provided for CW, FSK keying.
Convenient ASCII Key Arrangement: The keyboard layout is ASCII arrangement with function keys. Automatic insertion of LTR/FIG code makes operation a breeze.
Battery Back-up Memory: Data in the battery back-up memory, covering 72 characters x 7 channels and 24 characters x 8 channels, is retained even when the external power source is removed. Messages can be recalled from a keyboard instruction and some particular channels can be read out continuously. You can write messages into any channel while receiving.
Large Capacity Display Memory: Covers up to 1,280 characters. Screen Format contains 40 characters x 16 lines x 2 pages.
Screen Display Type-Ahead Buffer Memory: A 160-character buffer memory is displayed on the lower part of the screen. The characters move to the left erasing one by one as soon as they are transmitted. Messages can be written during the receiving state for transmission with battery back-up memory or SEND function.
Function Display System: Each function (mode, channel number, speed, etc.) is displayed on the screen.
Printer Interface: Centronics Para Compatible interface enables easy connection of a low-cost dot printer for hard copy.
Wide Range of Transmitting and Receiving: Morse Code transmitting speed can be set from the keyboard at any rate between 5-100 WPM (every word per minute). AUTOTRACK on receive. For communication in Baudot and ASCII Codes, rate is variable by a keyboard instruction between 12-300 Baud when using RTTY Modem and between 12-600 Baud when using TTL level. The variable speed feature makes the unit ideal for amateur, business and commercial use.
Pre-load Function: The buffer memory can store the messages written from the keyboard instead of sending them immediately. The stored messages can be sent with a keyboard command.
"RUB-OUT" Function: You can correct mistakes while writing messages in the buffer memory. Misspellings can also be erased while the information is still in the buffer memory.
Automatic CR/LF: While transmitting, CR/LF automatically sent every 64, 72 or 80 characters.
WORD MODE operation: Characters can be transmitted by word groupings, not every character, from the buffer memory with keyboard instruction.
LINE MODE operation: Characters can be transmitted by line groupings from the buffer memory.
WORD-WRAP-AROUND operation: In receive mode, WORD-WRAP-AROUND prevents the last word of the line from splitting in two and makes the screen easily read.
"ECHO" Function: With a keyboard instruction, received data can be read and sent out at the same time. This function enables a cassette tape recorder to be used as a back-up memory, and a system can be created just like telex which uses paper tape.
Cursor Control Function: Full cursor control (up/down, left/right) is available from the keyboard. Test Message Function: "RY" and "QBF" test messages can be repeated with this function.
MARK-AND-BREAK (SPACE-AND-BREAK) System: Either mark or space tone can be used to copy RTTY.
Variable CW weights: For CW transmission, weights (ratio of dot to dash) can be changed within the limits of 1:3-1:7.
Audio Monitor Circuit: A built-in audio monitor circuit with an automatic transmit/receive switch enables checking of the transmitting and receiving state. In receive mode, it is possible to check the output of the mark filter, the space filter and AGC amplifier prior to the filters.

CW Practice Function: The unit reads data from the hand key and displays the characters on the screen. CW keying output circuit works according to the key operation.
CW Random Generator: Output of CW random signal can be used as CW reading practice. **Bargraph LED Meter for Tuning:** Tuning of CW and RTTY is very easy with the bargraph LED meter. In addition, provision has been made for attachment of an oscilloscope to aid tuning.
Built-in AC/DC: Power supply is switchable as required; 100-120 VAC; 220-240 VAC/ 50/60Hz + 13.8VDC.
Color: Light grey with dark grey trim — matches most current transceivers. **Dimensions:** 363(W) x 121(H) x 351(D) mm: Terminal Unit.
Warranty: One Year Limited

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CoCo RTTY Continued

WHAT NEXT ?

In the next imstallment of this series, I will present the input OP AMP amplifier and limiter. The following article will describe the active filters (I have included a program written by B.E. Taylor, WD4HPC and adapted it to make the calculations a breeze with the CoCo). Next comes a discussion of the detectors, metering circuits and splicer. The last hardware article will cover the UART, clocks, and connections to the computer. The last in the series will briefly discuss the programs. Details of the programs are documented on the programs themselves in comment lines.

For those who want all the diagrams and the program listings (programs won't be printed in the JOURNAL because of the length) can obtain copies from Dee, N6ELP, c/o the JOURNAL office for $1.50 postage and handling, foreign add appropriate postage. A word about the programs. I have made the programs in two forms; 1. A basic tape loader; 2. An editor/Assembler listing for RAM with instructions to modify the program to allow burning it into a ROM for game cartridge like performance. Feel free to hack away and adapt the circuits and programs that I have authored. I hope you will read on, will find some insight into the "Black Boxes" and find some utility for portions of the circuit in other projects. CUL.

CLASSIFIED ADS-30 words $3.00 additional words 5 cents each. Cash with copy.

OH NO! Not another RTTY program for the Heath H8 (Z80) and H89 running on HDOS (Version 2)! But this one is different - it has a built-in screen editor tailored for editing text and PIX files (handles overprinted lines!) Compose your PIX, save it on disk, and send on the air! Edit and receive RTTY simultaneously! Split screen conversation modes with full buffering! Features too many to mention here. Write for free info. Sells for $35 (5¼" hard-sectored disks.) Price may be low, but what the heck, I am having fun! 73! Richard E. Lucka, WD8BNR, 64 Fanchers St.,Pickerington, OH 43147. 614/837-8446 weekday nights and Sundays.

NEWS-NEWS-Amateur Radio's Newspaper "WORLDRADIO". 1 year subscription is $9.00. Send to:Worldradio, 2120 28th St., Sacramento, CA 95818.

AUCTIONFEST 24 November, 8-5 PM, $2.50 advance, $3.50 at door. MARC, POB 73, Massillon, OH 44646.

#35 KSR and ASR Teletypes, contact Lewis, W6RQK, after 5 PM. 619/560-8247.

WANTED TELETYPE repair parts, unused. Any quantity. Send SASE for list of parts, supplies, manuals. TYPETRONICS, Box 8873, Ft. Lauderdale, FL 33310. Phone 305/583-1340 after 9PM. Fred Schmidt, N4TT.

ANTIQUE TTY MACHINE. Morkum-Kleinschmidt, Chicago late 20s or early 30s. Free to someone who will understand it and give it a good home. Phone 818/790-1725. Jay, W6EJJ.

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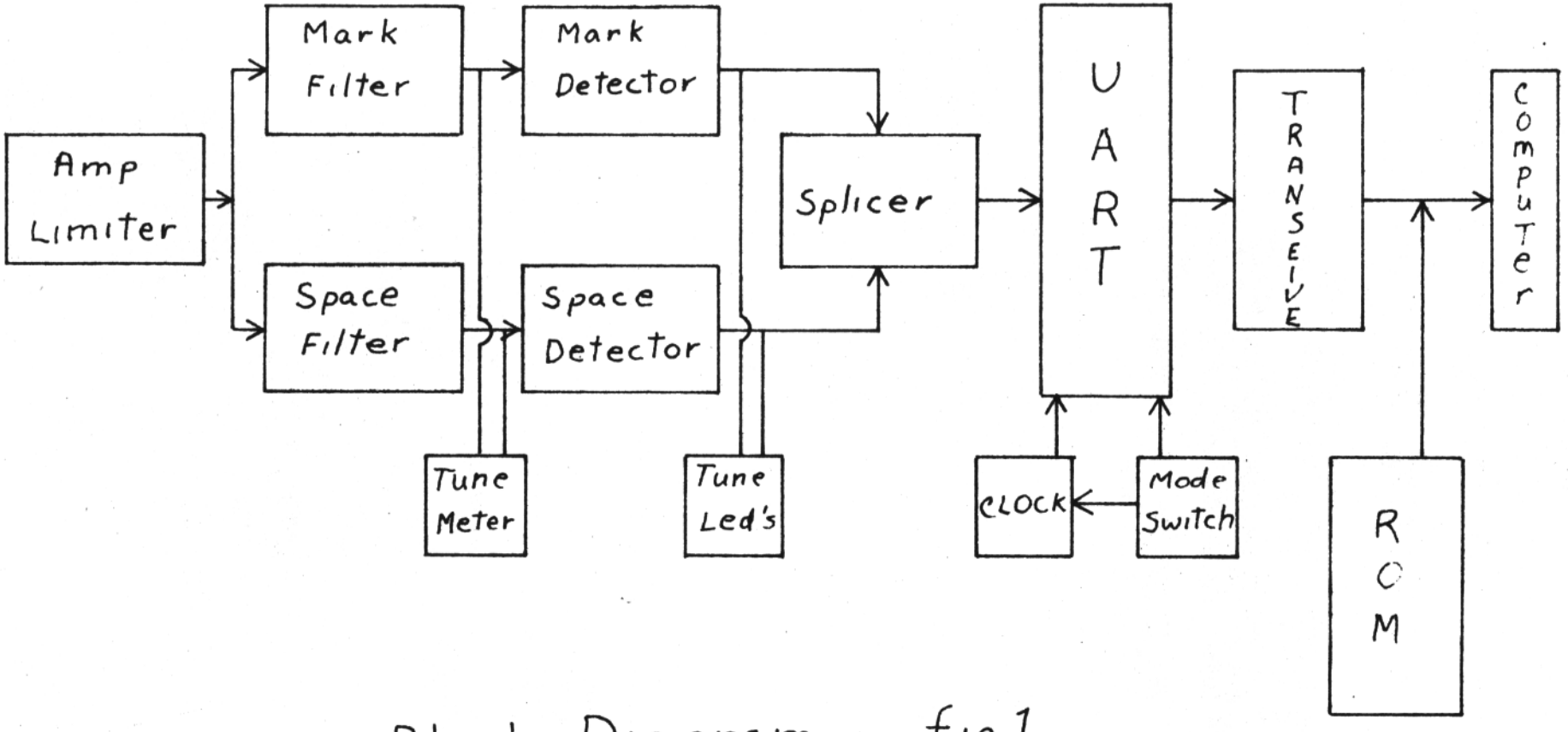
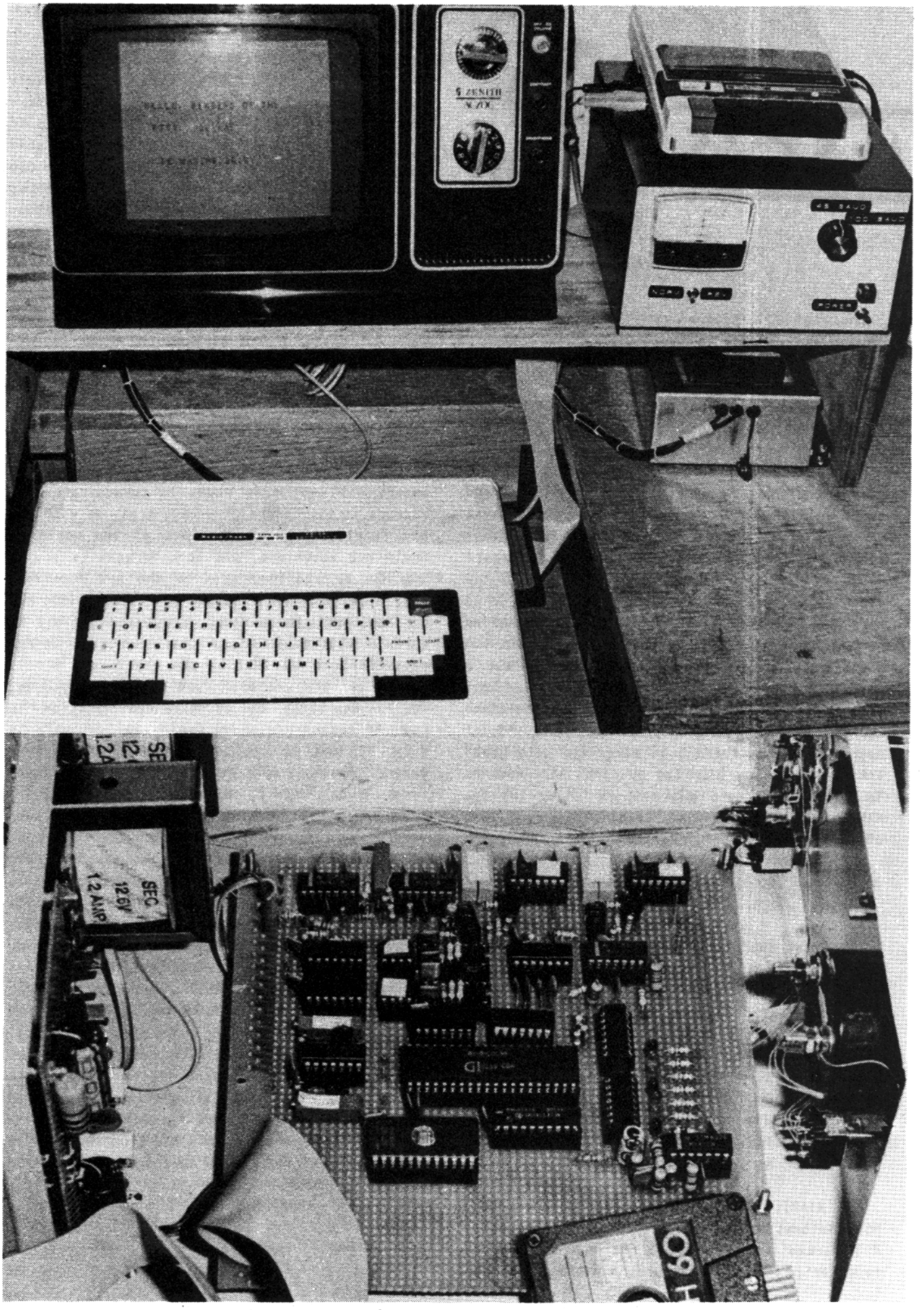


Block Diagram fig 1


SEC
12.6V
1.2 AMP

MSO'S

by *Dick Uhrmacher,* **K0VKH**

Hi Gang! The Dayton HAMVENTION for 1985 is behind us, Summer is proceeding in an orderly fashion, Fall will be here before you know it, and band conditions are still horrible! I hope that each one of you have had an exciting Summer, great vacations and good times.

The 1985 Dayton HAMVENTION was once again a plethora of new equipment, crowded booths, and meetings with old acquaintances. The weather man co-operated fully this year, and a nicer convention I couldn't imagine. The 14097.5 Autostart Group hosted the "Annual RTTY Dinner" at the Imperial House North Motel this year, and a grand time was had by all. This once-a-year gathering of friends and acquaintances is altogether too short , and it wouldn't surprise me to see a "mini-convention" evolve in the future. Next years' "RTTY Dinner" will be hosted by none other than Dee, N6ELP, (and the RTTY JOURNAL), and, of course, we look forward to attending with great anticipation. How blocking out that last weekend in April 1986, and planning on attending the HAMVENTION? And attending the RTTY Dinner instead of the Banquet?? You'll certainly enjoy yourself.

MSO RAMBLINGS

The Great Society of "OHWHATAH" met once again this year at Dayton, in all of its' regalia, and this author was once again privileged to attend its' conclave, with of attendant rights and ceremonies. Included this year was the bestowing of significant head gear, designed to portray the inner workings of this society. Thanks again to Jerry, WA1IUF, for all of his consideration in this area! (Those wishing more info on this society should contact Dick,K0VKH or attend the RTTY Dinner at Dayton, preferably the latter.ED)

Al, N1API, SYSOP of the Meridan, Connecticut MSO, informs me that he is leaving his two-meter MSO parked on 146.955/355 MHz, on the "Morris repeater", in his area. And additionally, that there is an "Apple" based RBBS system also on this repeater, with the access code of ":WA1MVJ". AL's HF MSO continues to serve the Northeastern corner of this country in fine fashion, and if band conditions ever improve, we might be able to hear him out West! If, by chance, you can QSO AL, he'll send you a QSL card that really shows the inside story at N1API. A finer Ham station would be hard to find!..By the time you read this, the K9KUW MSO, (presently in Kenny, IL), will most likely have been off the air for a couple of weeks, and, hopefully, back in operation at Red's new home in Bloomington, Illinois. Red and Charline had planned on moving permanently to Mesa, Arizona, but have had a change of plans, and are now moving to the Bloomington, Illinois area permanently. Red will have a forty foot tower, with a Cushcraft R-3 vertical antenna for the HF MSO system, a Hustler 4BTV vertical for the HF phone station and a HAL MSO on two meters with which he hopes to communicate with friends in the Champaign/Urbana area. We wish Red and Charline all of the luck in the world on their new adventure, and look forward to seeing his MSO up and running from the new location. Joe, AJ0X, has not returned to the air since his difficulties with a storm, which damaged his HF antenna system. We hope that Joe gets things repaired soon so that he can rejoin us. (It is in the process and will soon be up. :ED). John, TG9VT, has been on an extended vacation in Europe, and should be returning to Guatemala in July. We look forward to his booming signal from Central America, and hope he had a super vacation.--Dick, WD4MTC, has been involved in a physical rehabilitation program for the past several months, and I'm happy to report that he is doing very well. Dick tells me that he feels better now than he has in the past several years, and we all hope that he continues to improve! Dick's MSO will be returning to active service later on this year, and after the lightning season ceases to cause problems in Southwest Florida. -- Both Ernie, W6ZRR, and Brownie, K5FL, have the new Kenwood TS-940S transciever, in MSO service, and have been duly impressed with its' abilities on RTTY. Sems like the Kenwood folks have solved the 'power drop off' problem, (with the TS-930S), and with the additional cooling in the TS940S, it should make a super RTTY rig.---Don, W5QXK, has removed his MSO from service for a couple of months, while he and Marie build and move into their new home north of the Dallas area. We'll miss that big signal from down his direction!

MSO COLUMN CONTINUED

NEW MSO'S

I'd like to take this opportunity to welcome two new MSO's to the National Autostart Frequency. Harry Hollister, W6KFX, recently joined us with his new HAL Disk MSO system, and he has a fine signal into the Mid-west. Harry is a long time communicator, and we certainly enjoy having another west coast MSO to utilize. And, Larry, KAOJRQ, from Council Bluffs, Iowa, has joined us as well. Larry has been in the RTTY field for a long time, and is a dedicated RTTY traffic handler, and just recently upgraded his equipment to the HAL Disk MSO system. Larry also maintains a two-meter MSO on the 'River City Net", and is quite active in other Ham radio pursuits. Welcome aboard to both of you.

DAYTON RTTY FORUM

The 1985 Dayton HAMVENTION "RTTY Forum" was very well attended again this year. I would estimate that approximately 250 guys and gals heard presentations by several speakers. Bill Henry, K9GWT, spoke on items of general interest to all RTTY'ers. Dee, N6ELP; Jerry, WA1IUF; Bob, WB7QWG/9 and this author spoke on MSO's, computer based mailbox systems, and items relating to their use. Dee, N6ELP, asked the most significant question, "How many of you use MSO's?" and it appeared to this unbiased (??) reporter, that 99% of the audience raised their hands! (100% by this count :ED). A short question and answer period revealed an active interest in RTTY, MSO's, CBMSs and particularily in operating activities. All of the speakers at the RTTY Forum spoke in relation to good operating habits while using remotely activated RTTY systems. NOTE: For those of you planning to attend the 1986 Dayton HAMVEN TION, and desire staying at the Imperial House North, where all RTTYers gather, NOW is not too early to make your reservations!!

MSO HINT OF THE MONTH

The WB8ICL MSO, (SYSOP Gaylord), has a very unique and useful feature that can be exploited for close-in relay of MSO traffic. The command ".relay" causes Gaylords' CBMS to start storing all further data in memory. The command ".repeat" then causes his system to output this same data, including any MSO commands that may be imbedded in the text. His CBMS will not respond to these imbedded commands, but of course they will have the desired effect on other MSO's, which may be in a skip zone that you cannot copy. One area of caution when using this 'relay' mode. Be certain that Gaylords' MSO responds to your ".repeat" command, or it will continue storing text, and when it is commanded to repeat, you will be in for a very long file!

COMPLAINT DEPARTMENT

I have received some correspondence recently that asks questions about the contents of some CBMS's. It appears that rather than providing some 'service' in radio, some CBMS's exclusively contain ethnic jokes, racial slurs, and off-color stories, and that many of these files are offensive to many RTTY enthusiasts, much less to those nationalities and races mentioned in the files. One of the very basic tenets of our society in these wonderful United States is freedom of speech, and the right to pursue our hobbies and interests as we see fit. However, this author questions the use of our already crowded RTTY bands to promolgate this type of stories and jokes, instead of what would normally be some better defined service to Amateur Radio. I enjoy a good joke as well as the next person, but I question the use of CBMS's or MSO's for this type of activity, where the system does not provide any other more redeeming service. How do you feel about it?

That's it for this month gang. This is YOUR column as much as it is anyone else's. So drop me a line or two, either via my MSO, or the US mail, with your thoughts and ideas, news or gossip, concerning MSO's. I hope you are all having a wonderful summer!

Best 73-- DE:Dick, KØVKH

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

RTTY JOURNAL AWARDS

DXCC #105 to Dee, N6ELP, 11 February,1985
DXCC #106 to Jim, WB4UBD, 1 May, 1985
DXCC #107 to Mitsuo, JA5TX, 15 May 1985
DXCC # 108 to M. Kosaka, JA1BYL, 1 June,1985
SWL DXCC # 2 to Hajime, JA1-3477, 1 June,1985
DXCC 160 endorsement to Jean, F5JA, 1 June, 1985
DXCC 220 endorsement to Luciano, I5FLN 6-30-85
W.A.C. to Lars, SM7LSU,15 June, 1985
W.A.S. to Bill, WA6VZG, 15 June, 1985
W6JOX-170/164 confirmed; JA5TX, 140/100; JR6AG, 130/130; WA9WJE, 102/102; F5JA, 160/160; K6WZ, 162/147; Congratulations to all de Dee, N6ELP....

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