

# RTTY

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# Journal ©

VOLUME 32 NO. 5

MAY/JUNE 1984

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CONTEST.

**RTTY JOURNAL**

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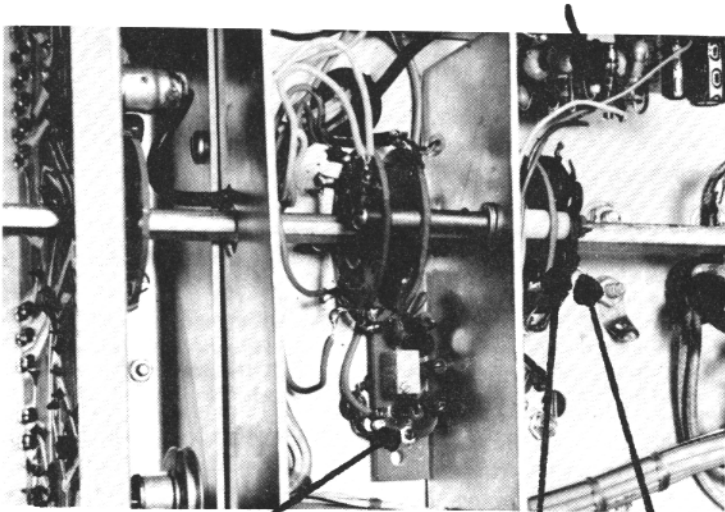
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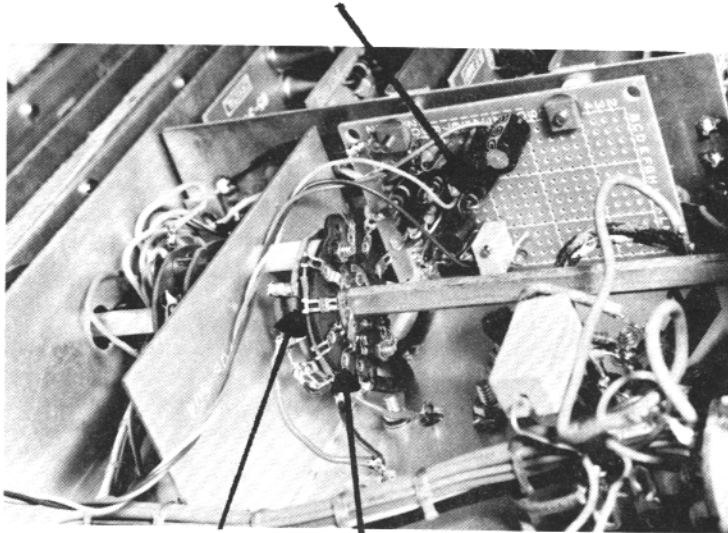
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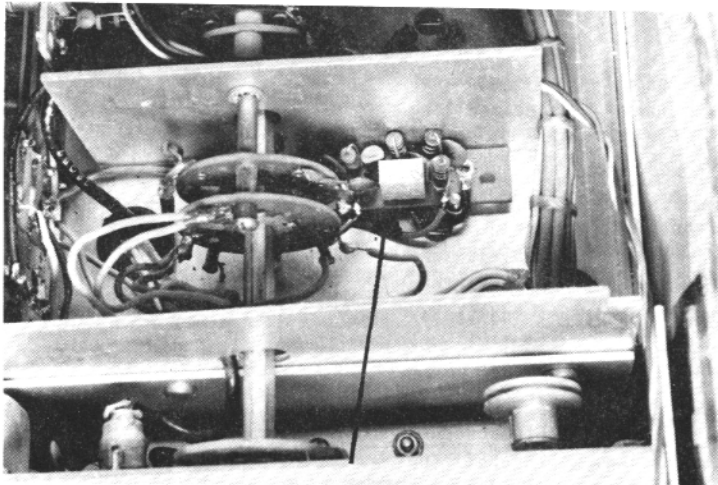
ADDED NOISE BLANKER ON A SMALL PERF BOARD



ADDED I-F AMPLIFIER (A PIECE OF PERF BOARD) MS-1F  
ADDED NOISE BLANKER ON A SMALL PERF BOARD



MS-1F ADDED WAFER



ADDED I-F AMPLIFIER (A PIECE OF PERF. BOARD)

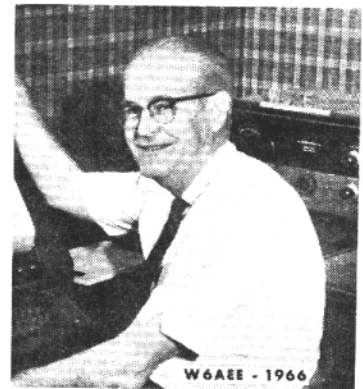
## SILENT KEY MERRILL SWAN, W6AEE

It is with the deepest regret that we inform you of the passing of Merrill Swan, W6AEE, on April 2, 1984.

Merrill Swan was the Editor of the RTTY JOURNAL from its inception in 1953, when RTTY was first allowed on all Amateur bands, until 1967.

Merrill started his Ham career in the early 1920's in Oklahoma as W5ADE and has been active ever since. He was an officer of the IRE, an assistant director of the ARRL for the SW division, an officer in many Radio Clubs in the areas where he lived. He held patents in his name for electronic development in his field of Geophysics. In 1962 he was the recipient of the Dr. Lee DeForest Award for the greatest contribution to Amateur Radio in the Southwestern Division.

Merrill was one of the most untiring people when it came to helping a fellow Amateur to get started in RTTY. The hours that he spent arranging for machines, fixing home built TUs brought to him with problems, the letters he wrote to anyone asking him for help..With all of these activities he kept the RTTY JOURNAL going for fourteen years. Many friends offered help, but it was his responsibility and he never failed in the 168 consecutive issues while he was Editor. Over such a long period of time many readers might take things for granted but a more loyal group of subscribers has not been found. The RTTY JOURNAL was their bible and Merrill Swan was "Mr. Teletype."



# MERRILL SWAN

HEATH SB-303 RTTY MODIFICATION # TWO

Modifications refresh your brain and keep you young. After having made WB4UBD's modifications to my SB-303, (see December 1983 RTTY JOURNAL), I noticed a few off-band leakages of the CW crystal filter. This is because pin 11 of MS2R is off the ground. Grounding pin 11 was very important to eliminate any leakage from the SSB filter when operating on CW. SO HEATH designed to ground the output side of the SSB filter through pin 11 on CW mode. Try grounding the output terminal of the SSB filter during CW or RTTY reception. You will notice a significant reduction on those off-band ripple and leakage around the center frequency of the CW filter. Leakages are made through the coupling of switch contacts.

Any signal leakage at this small-level stage is further amplified greatly through the following I-F amplifier chain and audio amplifier, thus those are noticeable to your ears. So the grounding of the SSB filter's signal route becomes very important unless you remove or omit the SSB filter and just concentrate on CW or RTTY only.

After the WB4UBD's modifications, I replaced the HEATH CW filter with a sharper Japanese made one which is much better than Heath's, which is identical to the CW filter for the Kenwood TS-520 transceiver.

	HEATH CW filter	DM-33H filter
6db bandwidth	400 Hz.	280 Hz.
60db attenuation	2000 Hz.	620 Hz.
Insertion loss	Negligible	8.3 db
Shape factor	5:1	2.2:1

Static Data

It is not important if the output or input side of the SSB filter is grounded. So I added an extra rotary-switch wafer from a discarded rotary switch to the input side of the MODE

switch just next to MS1F for the input-side grounding purposes. See A

The exact center frequency of the HEATH and Japanese CW filters are different from one another, so I added a 30 pF trimmer capacitor across the 3393.19 kHz RTTY crystal at the BFO. By adjusting this added trimmer capacitor, you can easily get the BFO (beat note) right on the exact center frequency of the CW filter.

I also modified the BFO circuit for CW operations by adding a 3396.0 kHz crystal and the other 30 pF trimmer capacitor across it and cutting the common foil for USB and CW on the power supply/BFO circuit board. The original CW note, common with USB, is a little bit higher than I like it to be. By adjusting the trimmer capacitor, you can easily get a comfortable CW note to your liking by adjusting the SSB carrier point with some trimmers. See Figure B.

It is very easy to do these modifications because the SB-303 still has lots of room.

The sharper the selectivity of the filter, the more insertion loss encountered. So I added a simple I-F amplifier following the newly installed CW filter. See Figure C. This add on I-F amp has a gain of about 15 db maximum and two (2) more S units can be gained than with the SSB mode. The gain of the add-on I-F amplifier is adjustable with the 10 K-ohm potentiometer in the amplifier's collector circuit.

The middle-aged receiver was not equipped with any noise-cancelling system so I added a simple noise blanker borrowed from the schematic diagram of the Yaesu FT-101 transceiver as shown in figure D. This noise blanker acts fine against some kind of noise groups and therefore is worth adding but is not indispensable.

The AM reception with the SSB filter causes headaches, Stomachaches and sometimes even toothaches for

the enthusiastic BC listener so why not try another add-on AM filter by using a discarded and cheap 455 kHz ceramic filter which is 6 - 8 kHz wide when you cannot obtain an appropriate AM filter such as the ones for the Kenwood TS-520. See figure E. The AM filter grounding problems may also occur.

As to the FM mode you might try obtaining some discarded 6 (six) position rotary-switch wafers for the MODE switching, and go to the FM mode also.

You may reject your company duties one day or two in doing some of your projects like this and others but they are fun and do keep those little 'gray cells' working. Good luck!

Hajime Suzuki, "Jim", JA1-3477 SWL  
33-12, Inokashira 2-Chome  
Mitaka-Shi, Tokyo, 181 Japan.....

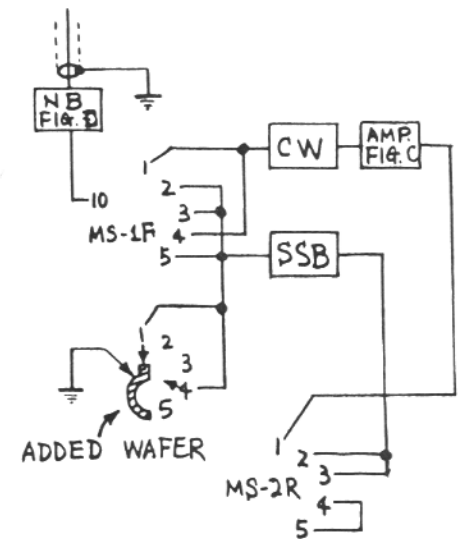


FIGURE A - CIRCUIT MODIFICATION

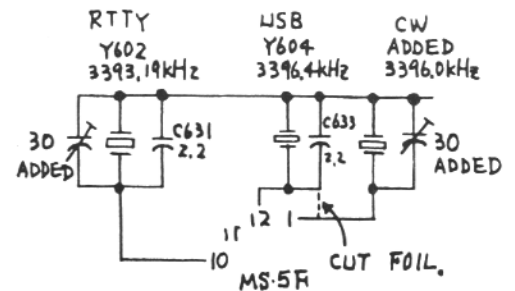
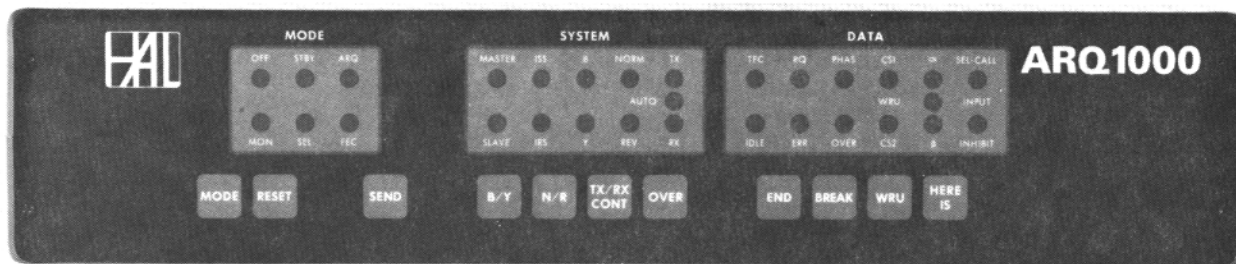


FIGURE B- BFO MODIFICATIONS

See pages 3 and 8 for schematics/pixs

# AMTOR RTTY

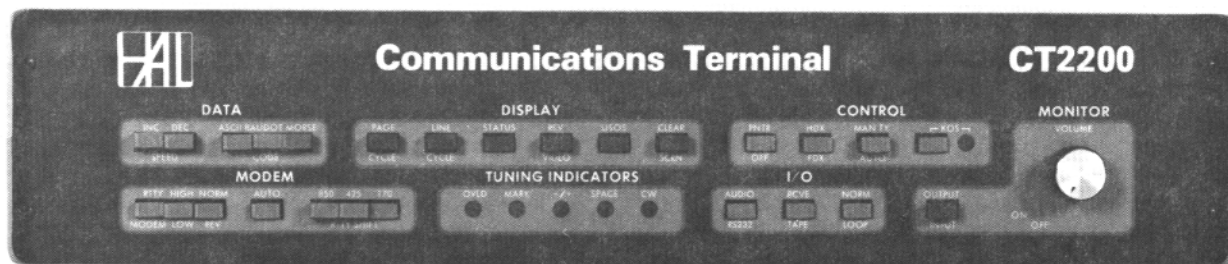


HAL is proud to announce the ARQ1000 code converter. This terminal not only supports the AMTOR amateur codes, but meets ALL of the commercial requirements of CCIR Recommendation 476-2. The ARQ1000 can be used with present and previous generation HAL RTTY products. In fact, any Baudot or ASCII full duplex terminal at data rates from 45 to 300 baud may be used with the ARQ1000. Some of the outstanding features of the ARQ1000 are:

- Send/receive error-free ARQ, FEC, and SEL-FEC modes
- Automatic listen mode for ARQ, FEC, and SEL-FEC
- Meets commercial requirements of CCIR 476-2
- By-pass mode for normal RTTY without changing cables
- Programmable ARQ access code, SEL-CAL code and WRU
- Programmable codes stored in non-volatile EEPROM
- Keyboard control of normal send/receive functions
- 30 Front panel indicators and 11 control switches
- Interfacing for loop, RS232, or TTL I/O
- "Handshaking" control for printer and keyboard or tape
- Self-contained with 120/240V, 50/60 Hz power supply
- Cabinet matches style and size of CT2200 and CT2100
- Table or rack mounting
- Built-in DM170 modem option available
- Encryption option available for commercial users
- 8½" × 17" × 10½"

The ARQ1000 is commercial-quality equipment that will give you the outstanding performance you expect from a HAL product. Write for full details and specifications of the ARQ1000.

## BY POPULAR REQUEST



By popular request—the new CT2200. Our slogan is "When Our Customers Talk, We Listen"—and we have been listening. The CT2200 includes these often requested features:

- New AMTOR connections for use with ARQ1000
- Keyboard programming of all 8 "brag-tape" messages
- Programmable selective call code
- Expanded HERE IS storage for a total of 88 characters
- Non-volatile storage of HERE IS, "brag-tape," and SEL-CAL code
- 3¾" × 17" × 10½"

All of the proven CT2100 features are retained. Some of these features are:

- Tuning scope outputs (a MUST for AMTOR)
- Built-in demodulator for high tones, low tones, "103", or "202" modem tones
- 36 or 72 character display lines
- 2 pages of 72 character lines or 4 pages of 36 character lines
- Split screen or full screen display
- Baudot or ASCII, 45 to 1200 baud
- Full or half duplex
- Morse code send/receive at 5 to 99 wpm
- Send/receive loop connection
- Automatic transmit/receive control (KOS)
- Audio, RS232C, or Loop I/O
- On-screen tuning and status indicators
- Clearly labeled front panel switches, not obscure keyboard key combinations
- Separate convenient lap-size keyboard
- Internal 120/240, 50/60 Hz power supply
- Attractive shielded metal cabinet

In addition, an update kit is available so that all CT2100 owners can update their CT2100's to include CT2200 features. The kit even includes a new CT2200 front panel! Rather than making a proven product obsolete, HAL put even more behind the buttons. Pick up a CT2200 at your favorite HAL dealer and join the RTTY fun. Write for our full RTTY catalog.



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# DX

JOE WOOD, AJØX

POB 84

LAUREL, MS 39440

Greetings fellow RTTY DXers! Up front, I would like to express my appreciation for the mail and especially your comments regarding this column. I am glad that you are enjoying the time that I am spending with you via this medium and of course, the information that is derived from it. I hope that the letters will keep coming because this is your department and it thrives on input. I would hope that the input is of a nature that will be of interest to others and if it contains criticism that is okay also. I learn from criticism, not praise! I was a little disconcerted to see my ZIP code was in error, but typos do occur and I trust it will be correct in this issue. Nevertheless, I believe that all of the mail sent to that zip code did arrive, after taking a rather circuitous route.

Spring has arrived, at least at this QTH, and with the milder days thoughts must be turning toward all of those antenna projects that occupied our minds during the Fall and Winter months. If your thinking has been in that direction then you are on the right track. I feel that the single most important part of any station is the antenna. If you are chasing DX with a dipole then give some thought to a three or four element yagi. You will pick up seven to ten or more db of signal at a price far less than some of the amplifiers that exist on today's market. Consider too, that the received signal is enhanced and as the saying goes, "you can't work 'em if you can't hear 'em". If you are already there with a satisfactory array then think about maintenance as a target. Weather, especially that in the Northern latitudes, and the environment of coastal locations, reaks havoc with antenna

hardware, which in turn has a deleterious effect on performance measured, mostly, by the ability of the antenna to continue to perform as it did the day it was installed. Whatever the circumstances at your particular location, now is the time to take care of the most important part of your station equipment.

CONGRATULATIONS are extended to KA5CQJ, HB9AAG and DK1RV. Their calls were added to the ARRL DX Century Club RTTY membership list. This was a one shot deal in the past but now is destined to take on more of a meaning in terms of accomplishment in the future. For those that have not heard, I would like to pass on to you the following excerpt from Bulletin Number 25, dated March 28, 1984:

The ARRL Board of Directors has directed that endorsements for RTTY DXCC shall be available beginning August 1, 1984 for contacts made on or after November 15, 1945".

This is the end of a long, arduous, up-hill effort and the RTTY DXers, especially those that hold the Century Club award, are elated that, at last, their accomplishments will be recognized equally with those that operate other modes. Our thanks to all that played a part in this decision.

Now that I have all of this out of my system, let's move on to the meat of this column and the reason why you are reading it in the first place!

DX-Heard, Worked, and Where They Are!

T77J 21.000 1700Z QSL:via Buro  
 OH3SR 14.090 1730z QSL:callbook  
 VK3GQ 14.096 1200Z QSL:callbook  
 XE2CI 21.080 QSL:via buro

9V1UC 14.087 1500Z QSL:16 River Valley Close 17-22, Singapore 0923.  
 ZK1XL 14.089 0600Z QSL:Via ZK1CG. (Note:Ron may be QRT at this reading).  
 EA9JE 14.093 1500Z QSL:callbook (also active on ten meters)  
 T32AB 14.090 0800Z QSL:via N7YL. (Also active on 15 at about 2300Z).  
 6W1CC 21.090 1900Z QSL:Via F6CVE or direct to:Box 1258, Dakar, Senegal, Africa).  
 9H1EY 28.088 1800Z QSL:Villa Earland, Charghur, Malta.  
 5W1EJ 21.090 0150Z QSL:Via WØWP, Tom Lingren, 1260-13th Ave., Marion IA 52302.  
 HA5KAG 21.090 1900Z QSL:Callbook  
 C21BD 14.087 1450Z QSL:POB 225, Republic of Nauru, Central Pacific.  
 4U1UN 14.094 1500Z QSL:Via W2MZV. (active weekends and holidays).  
 CX4AAU 14.087 0300Z QSL:Callbook.  
 VK9ZW 14.083 QSL:Via VK6YL, (Willis Island activity).  
 FH8CR 21.079 1300Z QSL:POB 97610, Dzaodzi, Mayotte Island, Africa.  
 KE5IZ/PJE 14.086 0500Z QSL:Via WA5ZVZ. (Seven year stay).  
 UT5RP QSL:POB 373, Udesa 27000, Ukraine, U.S.S.R.  
 VU2VIM QSL:Via B-170 east of Kalish, New Delhi.  
 KG4DX QSL:Callbook or via WB2CPV.  
 EA9JZ QSL:POB 330, Mellilla, Africa  
 XT2AU QSL:Via WA1ZEZ or DJ5RT.  
 HK1KU QSL:POB 50878, Barranquilla, Columbia South America.  
 F08KS QSL:POB 5252, Pirae, Tahiti.  
 6W1CK QSL:Via DL1HH.  
 VP2MIX QSL:Via HB9AHA.  
 U05OWS QSL:Via UT5RP..  
 JY9IU QSL:Via HB9AHA.  
 C21FS QSL:POB 83, Republic of Nauru, Central Pacific.

Others worked or heard and known  
 Continued on PAGE 8....

# ICOM IC-745

## 160-10 MTR 100W XCVR / 0.1-30MHz RCVR



The IC-745 represents a major breakthrough in the ham industry...a full featured HF base station transceiver with a combination of standard features found on no other transceiver in its price range.

**Compare these exceptional standard features:**

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IC-PS30 System Power Supply

IC-SM6 Base Mic

**Other Standard Features.**

Included as standard are many of the features most asked for by experienced ham radio operators: dual VFO's, RF speech compressor, tunable notch filter, all-mode squelch, program band scan, memory scan (frequency and modes are stored), receiver and transmitter incremental tuning and VOX.

ICOM's proven transceiver designs and technology are used in the IC-745 all ham band transceiver which includes SSB, CW, RTTY, AM receive and an optional FM plus a 100KHz to 30MHz general coverage receiver.

**ICOM System.**

The IC-745 is compatible with ICOM's full line of standard HF accessories.

Accessories available include the IC-PS15 base supply, IC-PS30 system power supply (switching), IC-PS35 internal power supply, the IC-2KL linear amplifier, AT100 automatic antenna tuner, AT500 automatic antenna tuner, HP1 headphones, and HM12 hand or SM6 base microphone.

**Options.** The EX241 marker and EX242 FM module, plus a wide variety of filters for sharp audio reception are available.

Filter	-6dB Width	Center Freq. MHz
FL45	500 Hz	9.000
FL53A	270 Hz	9.000
FL44A	2.1 KHz	0.455
FL52A	500 Hz	0.455
FL54	250 Hz	0.455

The IC-745 is the only transceiver today that has such features standard...the number of options and accessories available...and such an affordable price.



IC-745 Shown with IC-PS35 Internal Power Supply.







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# MSO'S

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by Dick Uhrmacher, K0VKH

## INSTALLMENT #6

Hi Gang! Another month has sneaked past, and I hope that in the next issue of the MSO Column, I'll be able to report on seeing many of you at the Dayton HAMVENTION, and I'll tell about all of the new equipment. Technology is changing at such an increased rate that it's getting more difficult all of the time to keep abreast of it. How about a New Equipment Editor in the RTTY JOURNAL? Let Dee, N6ELP know about your desires in that area!

I'm most happy to report upon, and be involved in, a new service being supported by the MSO's and RBBS stations. It's called "CORPSMAN", and it is one of the more worthy endeavors that I have had the pleasure to be associated with. CORPSMAN stands for "CHILDRENS ORGAN REPLACEMENT PROGRAM SPECIAL MEDICAL ALERT NETWORK". It was founded by the Fire and Police departments of the city of Hialeah, Florida, and its official statement of purpose is, "to facilitate the identification and location of donors which will help end state vital organ recipients, in LIFE THREATENING situations, and to create the appropriate educational programs for the general community. "

It should be pointed out that CORPSMAN was developed only to assist when the child is hospitalized in an Intensive Care Unit, has been diagnosed as terminally ill, now in critical state --life or death situation, and has been evaluated and accepted by a medical facility for transplant operation.

Medical "alert" bulletins are now being carried by several of the MSO's

and RBBS stations. When these alert bulletins are issued by CORPSMAN, Len KA4MGH in Miami, Florida, places the bulletin in several MSO's and RBBS's. They are further disseminated by SY-SOP's. Here's where YOU get into the picture! In order to be successful, maximum dissemination of the Medical Alert information is necessary. It is YOUR actions that may mean the difference between life or death for a small child.

Whether or not you are a frequent MSO/RBBS user, a small amount of your time is needed. Read the "Medical Alert" message, copying down the essential information. Immediately call your local Fire Department, Rescue Squads, Ambulance Service, Police Department, and Hospital Emergency Room Supervisor, to alert them of the organ requirement, should one become available in the area. As you will note in the "Medical Alert" messages, time is extremely short in most of these cases, and your prompt action can only give an additional edge to the medical personnel, much less the child involved.

Advance preparations and co-ordination with local law enforcement and medical personnel with reference to CORPSMAN activities can only assist in getting the word around much quicker. If you have a designated person or department to notify, minimum time will be expended to properly disseminate this vital information.

The CORPSMAN project is one of the few times where we as Amateur Radio Operators can really provide a much needed service, and provide it on a timely basis. Can we count on you for your support and involvement?

MSO HINT OF THE MONTH. Don't give up too easily when you are attempting to 'close' an MSO file with the .ENDFILE command, and you receive the 'idiot treatment' from the MSO. Quite often QRN, QRM, QSB, etc., ad nauseum causes the command to not be received properly by the MSO. If silence is all you receive after sending the .ENDFILE command, send it again, maybe even a couple or three times, to see if you can get the MSO to close off your file and write it to memory. If after several attempts you still are not successful, you will most likely have to start your message over again.

Here are some additions to the 'MSO List' that was published in the January 1984 issue of the RTTY JOURNAL. Good hunting!

<u>CALLSIGN</u>	<u>-ACCESS CODE-</u>	<u>QTH-</u>	<u>FREQ.-</u>	<u>BAUD</u>
TG9VT	GUATMAIL	Guatemala	14087750	74
N2CKA	MSOCKA	New York	14087750	74
NIAPI	MSOAPI	Conn.	14087750	74
K5FL	MS05FL	Texas	14087750	74
KB1S	MS0B1S	Mass.	14087750	74
W6ZRR	MSOZRR	Calif.	14087750	74
W5QXK	MSOQXK	Texas	14087750	74

How about hearing from the RBBS SY-SOP's? We're interested in hearing about your systems, and from what I have seen, there are some nice ones! The sophistication of the 'personal computer', when exploited properly, is hard to beat, and we would like to hear about your favorite system.

We keep hearing good and bad things about using ASCII on both VHF and HF circuits around the country. What's your experience been? Exchanging computer programs via Baudot is just not an exciting way to spend your time. But we have been told that using to PAGE 12 please.....

# AEA Brings You The RTTY Breakthrough

## NEW MBATEXT™ \$109.95 VIC-20 MBATEXT or C-64 MBATEXT



**MBATEXT™** is the most advanced MBA (Morse, Baudot, ASCII) software plug-in cartridge available for the VIC-20 or Commodore 64 computer. Compare our outstanding features and price to the competition.

- KEYBOARD OVERLAY instructions to avoid constant referral to the manual • RTTY and ASCII SPEED ESTIMATE MODE • BREAK-IN CW MODE • QSO BUFFER RECORD TOGGLE
- WORD PROCESSOR style insertion, deletion, and correction in TEXT EDIT MODE • CW AUTO SPEED TRACKING plus SPEED LOCK • BREAK-IN BUFFER that is easy to use • Low speed FARNSWORTH CW TRANSMISSION (between 5 and 14 WPM) • RE-TRANSMIT

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## VHF COLUMN

BILL WRIGHT, K4YZU  
4120 SOUTH SECOND STREET  
LOUISVILLE, KY 40214

Well Hi gang, this is my first attempt at writing her so hope that we can have some fun here. So I will start with some background on me.

I have been a Ham for over 25 years if my memory is correct. I picked up my Novice ticket in 1958 after leaving the USA with the U.S. Army and finding someone to give me the required 5 wpm and written test.

I have been into most phases of Amateur Radio but prefer SSB traffic nets and DX. Since 1962 I have been on RTTY most of that time spent on HF bands. Since the advent of VHF repeaters and MSO's have come about in this area I now am an avid RTTYer on VHF frequencies.

Since you have been reading the fine articles about MSO and their uses, by Dick, here in the Journal, I thought to give you some information on the local VHF MSO and repeater would be the way to start this column.

We have seven VHF repeaters in the Louisville area but only one is for RTTY/Computers/MSO's. Most of the Hams using the RTTY repeater have Apple computers and Apple MSO programs. I am the only one that has a Heathkit MSO program going, running at 110 ASCII (everything runs at 110 ASCII to be compatible on this frequency). [You left out your frequency there Bill]. One other MSO program is used with the TRS-80 computer using the ROM 116.

I just moved to a new QTH so in the future I hope to be able to put more in this column. By the way, this is your column so if you have some input or information please send it to the address at the head of this column for inclusion. Anything pertaining to VHF, packet or computer will be appreciated very much as I am not much on writing but I will give it a good Ham try.

See you next time, Bill K4YZU.....

## SCANNING WITH THE TS-930

Bill Snyder, WØLHS  
1514 South 12th Street  
Fargo, ND 58103

The following modification was made by Wayne Reindollar, WB3FNP, to his Kenwood TS-930. This mod will activate a scanning feature with eight memory channels on each of the two VFOs.

To make the changes and add the scanning feature plus the 8 extra memory channels, you need two switches to supply ground to two different pins on the digital board. (This board is located under the speaker.) Wayne decided to mount the two SPST switches inside the little compartment that houses the battery backup and VOX controls.

Looking in from the front, on the right hand side, there is enough room to drill and mount the two switches. This will allow enough space to put your finger in and flip the switches on and off. This assembly has to be removed to gain access to the digital board, so no extra work is involved in that area.

The GROUND that is needed can be picked up on the board right beside where you mounted the toggle switches. Now all that is needed is to run a wire from one of the toggle switches to pin 5 of connector 7. This will give the eight extra memory channels. Next, run a wire from the other toggle switch to pin 3 of connector 8. This will give the scanning feature. (NOTE: Connector 7 and 8 are located on the lower right hand side of the digital board when looking in from the front of the TS-930S. Pin 5 of connector 7 and pin 3 of connector 8 are vacant pins, so you just put your wire into a vacant area.)

After re-assembling and applying power you are ready to test the unit. Start with both switches in the 'OFF' position. Rig should operate as it always did with the switches off. First turn on the switch for the memory channels. Take note that you now have eight extra channels that you can program as the first eight

were programmed.

After you have programmed the second eight memory channels, you can scan either group of eight, but not both groups at the same time.

To start scanning, the VFO/MEMORY switch has to be in the VFO position, and the FUNCTION switch has to be in either 'A-R' or 'A' position. Turn the toggle switch to start scanning. The scanning function will stop on each channel for approximately two seconds before going on to the next channel. Turn the other toggle switch on or off to scan either group of eight memories.

NOTE: This modification does not interconnect with AMTOR gear for use in auto-start operations. If you wish that modification, it will be published in the RTTY JOURNAL in future issues. Contact Wayne, WB3FNP for queries on this modification.

73 de Bill, WØLHS....

---

### MODIFICATION OF THE SAGEM TX-20 FOR RTTY

Ian Eddy, VK2IE  
C/P.O.  
Waterfall N.S.W.  
Australia 2233

For those who do not know the SAGEM TX-20, it is a French built 6802 based multi-speed dot matrix Baudot printer with tape facilities. With all machines there are the usual problems of getting it up on RTTY. The first problem is the input/output as it is normally of high voltage, working (+/- 50 volts) designed to work into the TELEX system. The other problem is the speeds the machine are in standard form of 50/75/100 bauds. The third operational problem is in its' printing. A normal printers type keys hit a stationary platen to print on the paper sandwiched between them, on the TX-20, the printing head being stationary. The platen is turned backwards so the characters can be printed, then after a short adjustable delay the platen is fed showing up the printed characters, in effect to PAGE 13 please.....

## MSO COLUMN CONTINUED

ASCII has some major faults, especially with some of the 'personal' type computers. Although the MSO group on the 'National Autostart Frequency', (carrier frequency 14 087 750 Hz), did do some testing with ASCII prior to converting to 74 baud, not enough experience was gained to form a solid opinion.

### MSO OF THE MONTH

This month we go 'down south' to feature a very fine MSO, owned and operated by K5FL, W. L. "Brownie" Brown. Brownie has been with us for quite a spell on the 'National Autostart Frequency', and runs a fine system, from down in Denton, Texas. He normally monitors 14 087 750 Hz from about 0730 (local) until 20 meters goes out. He also monitors and uses the Dallas RTTY repeater, (146.10/70 MHz), and is a participant in the Denton County Amateur Radio Club RTTY repeater, (146.58 simplex), where he maintains and updates the latest ARRL bulletins.

Brownie's equipment consists of the HAL MPT3100 System, DSK3100 Disk Drives, ST6000 Demodulator, and an Oki-Data 82A printer for hard copy. His HF equipment is the popular Kenwood TS930S transceiver and a Hy-gain TH6DXX Tri-band Beam. (no wonder he always has a BOOMING signal.) For VHF RTTY Brownie utilizes a Kenwood TR-7400A transceiver, and an eight element Hy-gain beam. Some of Brownie's ex-calls are: W5BJD, W9PFL, W4SIY, W5NRD, VP7NW, and KX6IQ, Well travelled I'm sure! Brownie is retired from Western Electric Company and has been married to his same sweetheart for fifty-one years. Now that's a record to be proud of. Keep up the good MSO work Brownie, as we sure enjoy having your system to use.

### TECHNICAL HELP NEEDED

Many of the popular HF transceivers in use today have a "FSK" position on the "mode" switch, but this particular function seems to be seldom used, It's quite easy to drive AFSK tones down the microphone input,

and with the increased carrier and side-band suppression, output signals that are comparable to FSK signals. However, there are some advantages to using "FSK", the prime one being that I.F. filtering is available in some units in FSK, (and not available in LSB, AFSK). If you have found a method of using FSK with the modern transceivers, which allows use of installed filters, we would appreciate hearing about your way of doing things. Of particular interest is your method of keying FSK systems, (RS232C, TTL etc.), cabling to and from the transceiver, RTTY equipment, and demodulator, etc. You can either address your information in care of the 'MSO Column', or perhaps you would like to try some literary efforts on your own, and I'm sure that the "RTTY JOURNAL" would publish YOUR article covering this subject!

NOTE:YOU BET WE WILL!

That completes this months column. Hope that 'Spring' is well underway at your house! Have fun on RTTY!  
DE: Dick, KØVKH.....

---

Sagem TX-20 Modification continued  
when receiving, the line that is being printed is hidden from view.

I run a Ferguson Big Board computer, a modified Dovetron and an Amtor unit, all of which have RS-232 connections so each and all can be plugged up in the minimum of time. The printer then had to be set up for RS-232. The transmitter side of the machine outputs from a UART in TTL to a 741, this in turn drives the high voltage transistor drivers out to line. The receive side of the machine receives from line through two opto couplers, back to back, (one for mark detection, the other for space) then a current limiting circuit to ground. To start the modifications, look at the 'TG4' board (the single board located to the right of the printer mechanism). As can be seen in the diagram (in next issue) the output is taken from pin 6 of the 741. The output lead of the transistor driver circuit is cut, the

741 output is fed to the switch side of the cut in the PCB track through a 470 ohm resistor. The switch SW4 is thrown so the output will be right side up for the RS-232.

The receive circuit is modified as in the diagram and R25 is increased to 470 ohms. The center of the two opto's is earthed switch SW7 and is switched over. A 25 pin plug (RS-232) was mounted on the output connection box and the send and receive connected to it (see diagram). It is important to pick up the earths of the connection box OA/OTG/OB and wire these to the 25 pin connector as these are the earth returns for the machines' send and receive.

The second problem of machine is found on board number 6, located to the back of the machine. It is switch adjustable for 50/75/100 bauds from the TG4 board. As can be seen, the baud rate generator is connected to three AND gates, divided by three, then output to the UART. By dividing a 134.5 baud output by 3 it results in a baud rate of 44.83, which is not too bad for RTTY. As can be seen the circuit can be modified as shown. This results in the baud rates of 50/75/44.8. As shown there are two parts to this section (1) is to rewire the 100 baud feed to where the 45 baud output 'will be'. (2) Reconfigure the baud rate generator to output 45 baud when selected. Step 1 as shown, is to rewire the 74LS04 pin 9 from MC14411 pin 2 to pin 14. This now will set the baud rate to 2.8 bauds, (part 2 changes the speed to 44.8 bauds). Step (2), when looking at IC MC14411 pins 22 and 23 will both be earthed. Cut the trace to pin 22, connect a 1K ohm resistor from pin 24 to pin 22. Strap pin 22 to 74LS04 pin 6. This will reconfigure the baud rate generator providing an output of 44.85 bauds.

These mods have been done to my machine and work well. See the next RTTY JOURNAL for all schematics. Good luck and happy DXing...Ian, VK2IE...

---

NOTE: Also in the next issue will be the correct schematic for the SinclairZX81 TU circuit.de Dee, N6ELP...

# CLASSIFIED ADS

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

IBM-PC RTTY. CompRtty is a comprehensive RTTY communications program for the IBM-PC. Features include: all standard ASCII and Baudot speeds, Selectable parity, split screen display with status, hardcopy, diskcopy, key-string detect for autostart/stop, text file transfer, autologging, 12 programmable messages. Ideal for traffic handling. Requires 64K PC-DOS 1.1 or 96K PC-DOS 2.0, disk, IBM compatible serial port and an RS-232C compatible TU. \$50. David Rice, KC2HU, 7373 Jessica Dr., N. Syracuse, NY 13212.

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WANTED 11/16 TTY tape. Any quantity. Jim Rappe, KOHAA, Box 260, Mina, SD 57462.

28 ASR/Gearshift/Reperf \$175; 28 ASR/Reperf \$100; paper winder \$25; Model 19 (mint) \$70; 15 pedestal \$10; 14 reperf \$30; 550 picture tapes/cabinet \$50; Oscilloscope \$30; InfoTech M200F/300/9" monitor \$600; SWTP Baudot terminal \$30; 12" monitor \$20; 120 VDC/5A supply \$5; DT600 \$40; UT4/XB6 \$120; UT2 \$20; crystal AFSK \$20; 2APIA/Bezel/filter/shield \$20; 500mHz couunter \$60; audio generator \$30; 5-88 MH toroids \$5; VTVM \$15; Sonar 10W 2 meter FM/PS \$70; 60' crankup tower \$100; metal desk \$10; 6' x 19" rack cabinet/AC strip \$35; high current +12v/-12v/+5v supply/crowbar/current limiting \$50. Call Dave, K3KD 215-754-6286.

WANTED: RE-INKER KITS for Model 14, Model 15, and Kleinschmidt machines. Any quantity. Also replacements felts. Bill Johnston, N5KR, 1808 Pomona Dr., Las Cruces, NM 88001. 505-522-2042.

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## GOOD NEWS

ARRL HAS FINALLY DECIDED TO ALLOW RTTYERS THE SAME PRIVILEGES AS ALL OTHER AMATEURS, NAMELY, THE ABILITY TO ADD ENDORSEMENTS TO THEIR DXCC AWARD FOR CONTACTS MADE ALL ON THE RTTY MODE.

A lot of hard work went into this project and thanks should be given to those that worked so diligently on it. There are too many to be mentioned in these pages, but, you know who they are.

A tip of the hat and our sincere thanks.....de Dee, N6ELP.....

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DXCC # 101 to Tomohiko Kawaguchi, JH2PDS, April 4, 1984.....

DXCC endorsement to KC6CM 'Skip' Prinsen, March 28, 1984 for 110.



by **GEORGE**

---

# HITS & MISSES

---

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

My column last month began a series on the "Logger". I will attempt this month to show how to add data into the "Logger".

There are two ways to enter data into the "Logger's" data base; thru the keyboard on a one time basis and by batching the data in by reading a previously prepared extract file.

Keyboard addition is the one you will most likely use when entering data. When this function is selected, a prompt screen will appear which you will use to fill in the blanks for each log entry.

1. station
2. MO/DA/YR
3. UTC
4. Band
5. mode
6. RS(T) sent
7. RS(T) recd
8. comment
9. QSL status

Each field must be entered by typing in the desired value and pressing the return key. The maximum number of characters allowed for each field is indicated by a string of underline characters. Less than the maximum number of characters may be entered but not more.

Let's look at each field for data entry.

STATION: A maximum of ten characters is allowed, when entering a portable contact, enter as follows: KH6/WA6CQW. This will greatly facilitate search operation.

MO/DA/YR: Besides station, this data field is the only other mandatory

entry. The data entered must be in the format shown, that is, the first two numbers must be in the range 01 to 12, the middle two numbers in the range 70 to 99. The earliest date that can be entered without modification is 01/01/70 and the latest is 12/31/99.

U.T.C. Four characters are allowed for time. The use of military time format (0000-2400) is strongly suggested.

Band: Four characters are allowed for band specification. It should be noted that the "Logger" treats this and all entries except the date as character data and not as numeric data. It is suggested, therefore, that band information be stored as the integer part of the frequency (1, 3, 7, 14 etc.) or that customary wave lengths be used (160, 80, 75, 40, 20 etc.), most importantly, do not mix specifications, to do so may cause unreliable results.

Mode: Four characters are allowed for mode. As with other fields, it is important to be consistent with your entries. CW and C W are not equivalent so be consistent.

RST: Two fields of three characters each are provided for your reports. One each for sent and received. If the mode is SSB the "Logger" will default to 59 and CW and RTTY will default to 599 by hitting the return key.

Comment: Up to 25 characters are available for whatever notes etc. you care to enter.

QSL Status: One character is allo-

cated. This will accommodate well over fifty different specifications (any character that can be entered from the Apple II+ keyboard). It is strongly suggested that the user establish some convention and then stick to it.

I will end my column for this month. I hope you can begin to see what a really nice program the "Logger" is. Next month the series will continue with field changes, reading extract files, local edit etc.

I am still fighting the flu, the price we Californians pay for all of this sunshine.

So long for now..George, WA6CQW...

---

## DXing from the U.S.S. COD

N.O.A.R.S and the U.S.S. submarine COD will be on the air again this summer. Starting around the first of May and continuing daily through September, operations will be on RTTY on twenty meters, also some slow scan TV.

QSL cards picturing the U.S.S. COD and NOARS station will be sent out confirming all contacts. A special 8 X 11 certificate will be available upon request with QSL confirming the two way contact and \$1.00 for handling and postage. Send to: WD8RZG.

The U.S.S. COD is on permanent display as a War Memorial to honor the men of the silent service, located at the port of Cleveland between East 9th street pier and Burke Lakefront airport. Guided tours are given.

# MPC-1000R BY DOVETRON

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