

RTTY

APRIL 1982

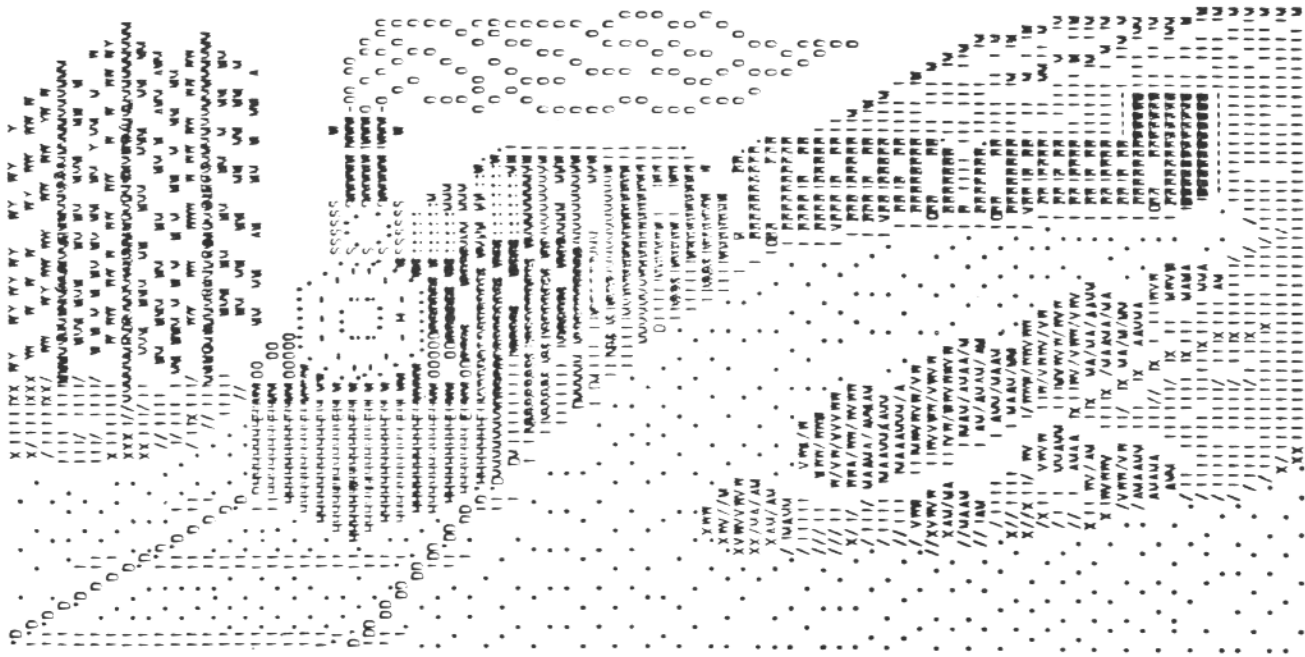
Journal

VOLUME 30 NO.4

75¢

EXCLUSIVELY AMATEUR RADIOTELETYPE

WINNER 1981 WORLDWIDE RTTY ART CONTEST



FIRST PLACE
Jean Carter, KA6HJK, Buena Park, CA

RTTY JOURNAL

DEE CRUMPTON, N6ELP formerly KA6NYW
OWNER-EDITOR
POST OFFICE BOX RY
CARDIFF-BY-THE-SEA, CA 92007

JOHN P. GOHEEN, KA6NYK
ASSOCIATE EDITOR

BUSINESS OFFICE
1155 ARDEN DRIVE
ENCINITAS, CA 92024
TELE: 714-753-5647

POSTMASTER SEND FORM 3579 TO:
POB 179, CARDIFF, CA 92007

SUBSCRIPTION RATES

USA \$ 7.00 PER YEAR
CANADA, MEXICO 7.50 " "
CANADA AIR MAIL 8.50 " "
MEXICO AIR MAIL 8.50 " "
FOREIGN 7.50 " "
FOREIGN AIR MAIL 13.50 " "

BACK ISSUES

A DUPLICATE OF ANY BACK ISSUE MAY
BE OBTAINED FROM RED WILSON, 4011
CLEARVIEW DRIVE, CEDAR FALLS, IA
50613. \$1.00 PPD & SASE.REPRINTS
OF ALL (2) UART ARTICLES \$2.00PPD.

MANAGERS

JEAN HURTAUD, F8XT
CHILLAC
16480 BROSSAC, FRANCE

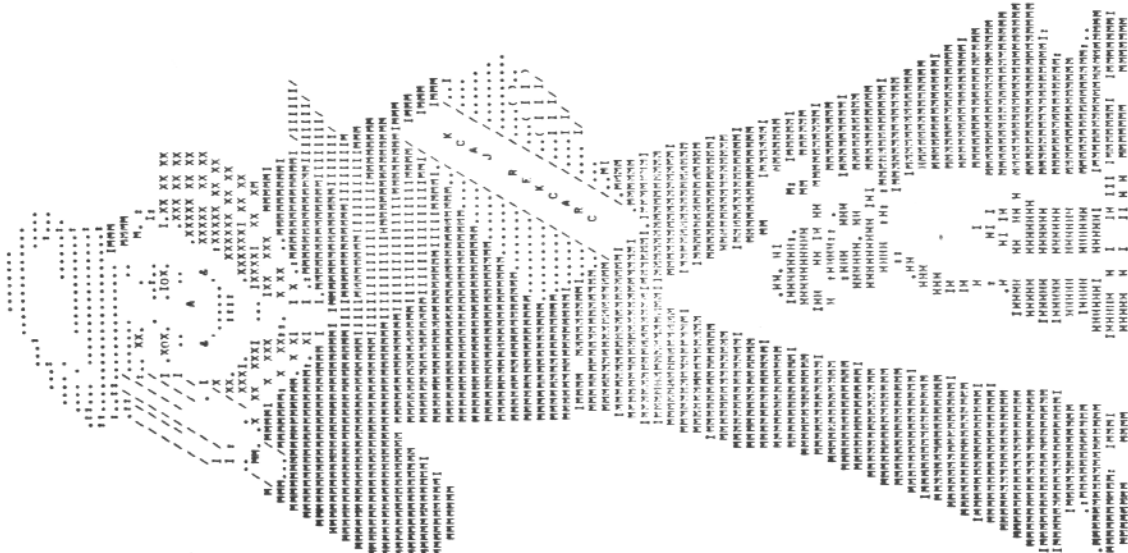
DR. ARTHUR GEE, G2UK
21 ROMANY ROAD, OULTON BROAD
LOWESTOFT, SUFFOLK
NR32 3PJ, ENGLAND

KANJI YAMAMURA, JH2FHX
2-42 UENOKI, IZUMI-MACHI
TOKI-CITY, GIFU-PREF
JAPAN MAIL NO. 509-51

THE PUBLISHER ASSUMES NO RESPONSIBILITY FOR ERRORS, OMISSIONS AND ASSUMES NO LIABILITY FOR SUCH. REPRODUCTION OF THIS
MAZAZINE MUST BE ACCOMPANIED BY CREDIT TO THE JOURNAL AND THE AUTHOR. THE RTTY JOURNAL IS PUBLISHED 10 TIMES PER YEAR
WITH MAY/JUNE AND JULY/AUGUST COMBINED. PUBLICATION WILL BE ON OR ABOUT THE 20TH OF THE MONTH. SUBSCRIPTIONS AND ADS
MUST BE PAID FOR BY CASH, CHECK OR MONEY ORDER IN UNITED STATES FUNDS ONLY.

SECOND PLACE

Alfred LaVorgna, WA20QJ, Hicksville, NY



"A PRIZE IN EVERY BOX"

ORIGINAL BY:
ALFRED LA VORRNA WA20QJ
HICKSVILLE, N.Y. 11801

RTTY BEGINERS HANDBOOK NOW AVAILABLE \$8.00 US PPD

Help I have a Heathkit 89 computer
and a Heath 8 Morse code disk.How
do I get them compatible??N6ELP



DX RTTY

BY BILL

ØLHS SNYDER, 1514 S. 12th Street, Fargo, ND 58103



"THE SOLAR FLUX IS 30!"

W3KV (201/196) summarized the February DX season as "wild!" It all began when XF4MDX sounded the opening gun from Revilla Gegedo. This filled a gap for a lot of U.S.A stations, but many Amateurs around the world were unable to work the island due to the choice of operating hours and poor propagation. There is some confusion as to his QSL address much as there was with FWOBK. Anyone knowing the correct address please communicate it to us.

Then along came Tom, N4FJL, operating a HAL 685A from St. Vincent with the callsign J87FT. Tom, who apparently makes quarterly trips to that island and the St. Martins (PJ7 and FS7) operated for only fifty-one hours and ten minutes. Despite high noise level and QRM, he worked 200 stations, counting 30 countries and 32 states. Tom writes on his QSL that he plans more of the same.

About the same time, VK9NS and VK9NL made their dramatic entrance to the RTTY world. Aided by Gin, JA1ACB (198/197), Jim and Kristi put Norfolk Island on the air. Running only 40 watts, they are radiating an excellent signal to the States, and, for that matter, to the entire world. Jim is planning an expedition to Heard Island, and will take the Iono 7000E along. Both Kristi and Jim are dedicated DXers and they are really being welcomed by the "screen or green key" operators.

Early in February Mic, JA1MIN; Kan, JA1BK, and Martti, OH2BH, put CR9AH (Macao) on the air. But conditions were extremely poor, and although the threesome contacted nearly 100 Europeans, only one American broke the ionospheric barrier. The lucky Yankee was Bruce, KOBJ (121/113).

When, Mic and his crew departed Macao, they left the TONO with Simon, CR9AN. Since then Simon has been very active on 20 meters between the hours of 1000 and 1500 Z. He is running a

FL-2100 linear into a tri-band beam mounted on top a 14 story apartment, so his signal should reach the whole world easily. But geo-magnetic storms have played havoc with polar-path signals from Asia to North America, so many stations still have not worked CR9.

KØBJ reports that there is a possibility that BV2A will soon be active on RTTY just as soon as operating permission is obtained, because OH2BH left RTTY gear with Tim on his way home to Finland.

Another new RTTY land is Sri Lanka. Ernest, 4S7EA, Has been quite active with a TONO 7000E which was shipped from Japan by JA1ACB and JA1DSI (138/126), QSL to callbook QTH. According to Gin, another unit is on its way to AP2KS in Khalid, Pakistan; so there should be a lot of activity from that corner of the earth. Look for Ernest on weekends. Another Sri Lanka station, 4S7VL, should be on soon. He has been reported in Japan picking up equipment.

VP2EDX plus three other VP2 calls, filled in the ten days between the ARRL CW and Phone contest by making nearly 700 RTTY contacts from Anguilla, Everett, WA8CZS, worked over 600 stations, while VP2EV, VP2ESE and VP2ES accounted for the rest. Everett contacted 48 states (Delaware and KL7 were missed) and 49 countries. He also gave two Hams their 100th country (I was one of them!), and W3KV his 200th. Two stations worked by Everett indicated he was their first RTTY QSO ever! Guess that's how DXers are born!

QSLs from the VP2 DXpedition will be delayed six to eight weeks because Everett, a professional photographer, is preparing a special photo card. QSL with SASE as follows: VP2EDX to WA8CZS; VP2EV to K8ND; VP2ESE to WB4QBB; and VP2ES to K8CV. Everett promises a longer story next issue. The projected trip to PJ7 and FS7 did not

"THE A INDEX IS 50!"

materialize.

The South Pole station of the United States is now on the air with KC4AAA. KOBJ reports that the Antarctic winter season has started and there should be a lot of RTTY activity from 90 degrees south latitude. They have been worked on 20 meters about 0500Z. Activity should include the contests beginning with the BARTG. They are running Model 28's and outputting 400 watts.

FK8AH reports there are five RTTY stations operating in New Caledonia. FK8BK and FK8DD are two other very active callsigns in the islands.

VK2SG (138/128), is back on RTTY from Sydney and Sid says the exciting news from Oceania is ZL4GF's upcoming trip to Chatham Island where he will stay for six months. He is taking a Iono and a beam, so he should take care of the world for that country. Sid also reports Lord Howe is a June possibility for the VK/ZL/Oceania contest.

Many DXers will remember the great RTTY contacts with 5N0DOG from Nigeria. Well, Dave is now pounding the keys from his home QTH K4QX, But there are others in the African country: 5NOKWS, 5NOLED and 5NoWNL.

KG4AH in Guantanamo Bay does most of his operating on 14 MHz, Monday through Friday 1600 to 2100Z. Mike relays information that KG4WS will be on RTTY as soon as he licks a keying problem.

C31CJ is active from Andorra. Rene has been worked on weekends, QSL is via F6GZM.

There are two stations active in Transkei, which is an African Homeland located in South Africa. S83A is the new call of S8AAA, who has been on for some time. Another call now active on RTTY is S83J. There has been some discussion of whether Transkei counts as a country or not. Will report this later.

HC1JX in Quito, Equador is usually continued on page 12

VHF COLUMN

by JOHN

JOHN CUNNINGHAM, WA9WJG
POST OFFICE BOX RY
PERRYVILLE, IN 47974

In the news department, 145.80 is being used for simplex RTTY around Aurora, Illinois. They have a net there on Tuesday at 8 PM with WA9TRG, Frank as net control.

From the Stark RTTY group newsletter, W8AWR Joe, who lives in North Industry, Ohio has a RTTY repeater. It operates on 145.37 RCv and down 600, 60 WPM at 170 shift. You guys in the area stop by the frequency and tell 'em John sent you.

Looking through the file, I found a letter from Rod, K2ADJ, which was not marked as having been included in a previous column. Sorry Rod, it was a slip-up. Rod tells me that the South Jersey repeater is now running full smoke. The frequency is 147.345/.945. Rod sent the repeater brag tape which I will highlight for you. Machine is a Motorola Motran running 20 watts through 7/8" hardline to a Phillips-Dodge PD220, 5.2 DB antenna. Height is approximately 500 feet, coverage is 9 counties. The ARRL's Southern N.J. section. For more info contact Bob, W2HOB, thanks Rod for the info. I really appreciate the letters.

Just received a call from N9BEG, Red of Terre Haute, Indiana. He tells me that the RTTYers in that area are using 146.40 for simplex operation. I have been listening on the frequency and have caught a few of them there.

How about some help for a fellow RTTYer?? WD9EQR, Chuck wants to get his TRS 80 color computer on RTTY. Any info appreciated. He needs help with where to get hardware, software or how to build it. Anything you can help him with should be sent to: Chuck Thompson, R 21 Box 563, Terre Haute, IN 47802.

Last month I was talking about the ways of increasing the range of the station. I did a bit of digging through the reference library on the shelves here. Finally decided that the best way to figure the problem out was to use the ARRL VHF manual.

From the charts and formulas there I determined that my station, as is, should have a range of only 35 miles, 99 percent reliability. This is figuring the other station as having a 10 db gain antenna at 70 feet, an average receiver and RG 8 coax. I used the "99 percent" chart. I am sure glad there are some "better than average" stations out there.

Now to see what the improvements could do. A pair of the nationally advertised 14 db gain antennas would be a 7 db increase over the present system. A 50 watt amp would also be 70 db gain. The added 7 db brings the "99 percent" range up to 55 miles. By adding both the range goes to 65 miles, don't seem to be adding up too fast, huh?

To achieve the 100 mile range I would like to have, with 99 percent reliability, it would take 800 watts and the stacked 14 db beams. This is a bit too much, don't you think? But the figures tell me that I should be able to work the average station 100 miles away, 50 percent of the time, If I add the antennas and 200 watts. This is more reasonable for me.

Look over the charts in the VHF manual and see what it would take to increase your range a bit. Myself, I probably won't make these improvements for awhile but it is good to know just what it will take to get the kind of range you want to have for your station.

I received a letter from Everett Jackson, Jr. WABCZS, telling of a RTTY Dxpedition. Everett, Jeff Maass, K8ND and some others went to Anguilla Fr. St. Martin and Neth. St. Maarten. Well I turned the rig on Tuesday nite March 2nd, to see if I could find them, incredible. Everett answered me the first time I called him, unbelievable. Thanks, Jeff, Everett, HAL Communications (who furnished RTTY gear) and anyone else contributing to the RTTY DXpedition.

I hope to see a lot of you at Dayton. Look for the guy with the black

hat (yeah I'm one of the bad guys) that says "VHF EDITOR RTTY JOURNAL" on it.

Keep the letters coming--73 and CUL on the GREEN KEYS. John, WA9WJG.
000000000000000000000000000000000000
000000000000000000000000000000000000
\$56.99, board alone \$8.95. (6) XB6 clock kit for UART use \$29.95, board alone \$8.95. (7) CW ID Kit w/timer & interface \$27.90, board alone \$8.95 (8) Crystal controlled AFSK kit \$29.95, board alone \$8.95. (9) AFSK tone mixer for CW ID kit (Nov 1979 JOURNAL) \$10.95. Board alone \$3.50. (10) single voltage power supply kit (specify voltage - or +) \$13.95. Board alone \$4.75. (11) RTTY ID Generator kit (please supply what you wish coded, up to 32 positions) \$24.95, Board alone same size as the SI-6 Boards. Sale priced \$2.50. All orders add \$2.00 for shipping/handling. Catalog of over 1000 electronic parts available for a stamp. Visa/MC accepted. Daytapro Electronics, 3029 N. Wilshire Ln, Arlington Hts, IL 60004. Phone evenings 312-870-0555.
000000000000000000000000000000000000

continued from page 12

6D5RCT-Puebla City, Puebla State, POB 517, Mexico.
9K2KA-try via I8YCP.
9M2AX-see 9V1TK as same person.
9Q5GD-via DL9IL in Hanover, W. Germany.
9V1TK-Ross E. Tanaka, 4502 International Plaza, Singapore 0207 or via JA6RIL.
C53CL-Gambia via EA8ZZ, box 814, Las Palmas, Canary Islands.
CR9AN-"Simon", POB 468, Macao (Macau).
EA9JZ-POB 380, Melilla.
FM7CD-"Mike" via F5VU.
FY7BC-"Gerard" Via F9LM.
HC1JX- "John" via K5SW or Box 691, Quito, Ecuador. (no IRC's-mint stamps)
HH2B- Box 38, Port-au-Prince, Haiti, W.I. or KD4VU.
HP1AFL-via HP1XJC (Jose) PSC Box 3004 APO Miami (with 20¢ US Stamp).
J87BT-Via N4FJL, 8 West Pinetree,
continued on page 15

The following letter and article are being reproduced in their original form because we enjoyed them so much we--just could not change one word.

TO Editor RTTY JOURNAL:
Dear Dee,

I have just gone through all kinds of you know what trying to get my stupid receiver crystal-locked to a 20-meter autostart frequency. I'm sure you've seen it before--wrong crystals and all that!

Well, this prompted me to bang out the attached. If you'd like to use it, please feel free. Maybe it will save the next guy a headache!

Keep up the fine work. We key-pounders must stick together!
73...Terry Simonds, WB4FXD/1
P.O.Box 1558
Edgartown, Mass. 02539

CRYSTAL-CLEAR AUTOSTART

There are two ways to set up your receiver to operate in an RTTY autostart net: one- let the receiver warm up for a few days, tune in the net, and lock the dial or, two- check the receiver manual for the formula required for crystal-controlled fixed-frequency operation, order the crystal, plug it in, and-- Eureka! rock-stable operation on the exact frequency (if you did your math right).

Those who have been the autostart route will instantly recognize that neither method will always work, and the second probably won't work the first or second time.

Let's see what happens when the precious crystal arrives. You hastily, but gently, unpack it, carefully insert it in the proper socket in the receiver and wait for the printer to start. You wait, and you wait, and you begin to suspect that all is not well. When someone on the net does start transmitting, you see that the audio from your receiver is far from being that which your TTY demodulator requires. "Must have ordered the wrong frequency," you mutter. "Nope, my numbers are correct. Must be that (expletive deleted) Crystal Company!" (If you asked your friendly local

technician to get the rock for you, maybe you can blame it on him.) So, you place another order and this time you include the receiver cabinet color, the precise room temperature, and even whether you are right or left-handed on the order form. Back comes the new rock, and it's still not right.

Well, This story can go on and on, and I'm sure some of us have heard it before. However, What a lot of us haven't heard is the reason for the error in frequency. Assuming you did receive a good crystal that was cut to precisely the frequency you ordered, then the problem is almost certainly right inside your receiver. Don't junk the rig! There's hope yet!

Almost all modern communications receivers, Ham gear included, uses some kind of frequency-mixing process to convert the incoming RF signal to audio, and it is in this process that the problem arises. Internally generated signal sources, assumed to be accurate and stable, are used to mix with the incoming signal to produce intermediate frequencies that are further mixed with other signals to produce the audio. The instructions for determining crystal-operating frequencies are based on the fact that these internal signals are accurate in frequency, and precisely what the design engineers intended them to be. When they are not, there is a problem.

I recently ran across this problem when I tried to lock my Drake R4B on one of the 20-meter autostart frequencies. I used the formula in the manual, but the crystal turned out to put the audio out of the TTY demodulator passband. I was about to blast the Crystal Company when all of a sudden it hit me.

Sure enough, I coupled off a sample of the 2nd LO signal through the bottom cover of the receiver and found it to be quite a bit different from that shown on the schematic and that used in the crystal formula. A quick check of the BFO showed it, too, to be off a few Hertz. My receiver, with that rock installed, could never convert to the correct audio.

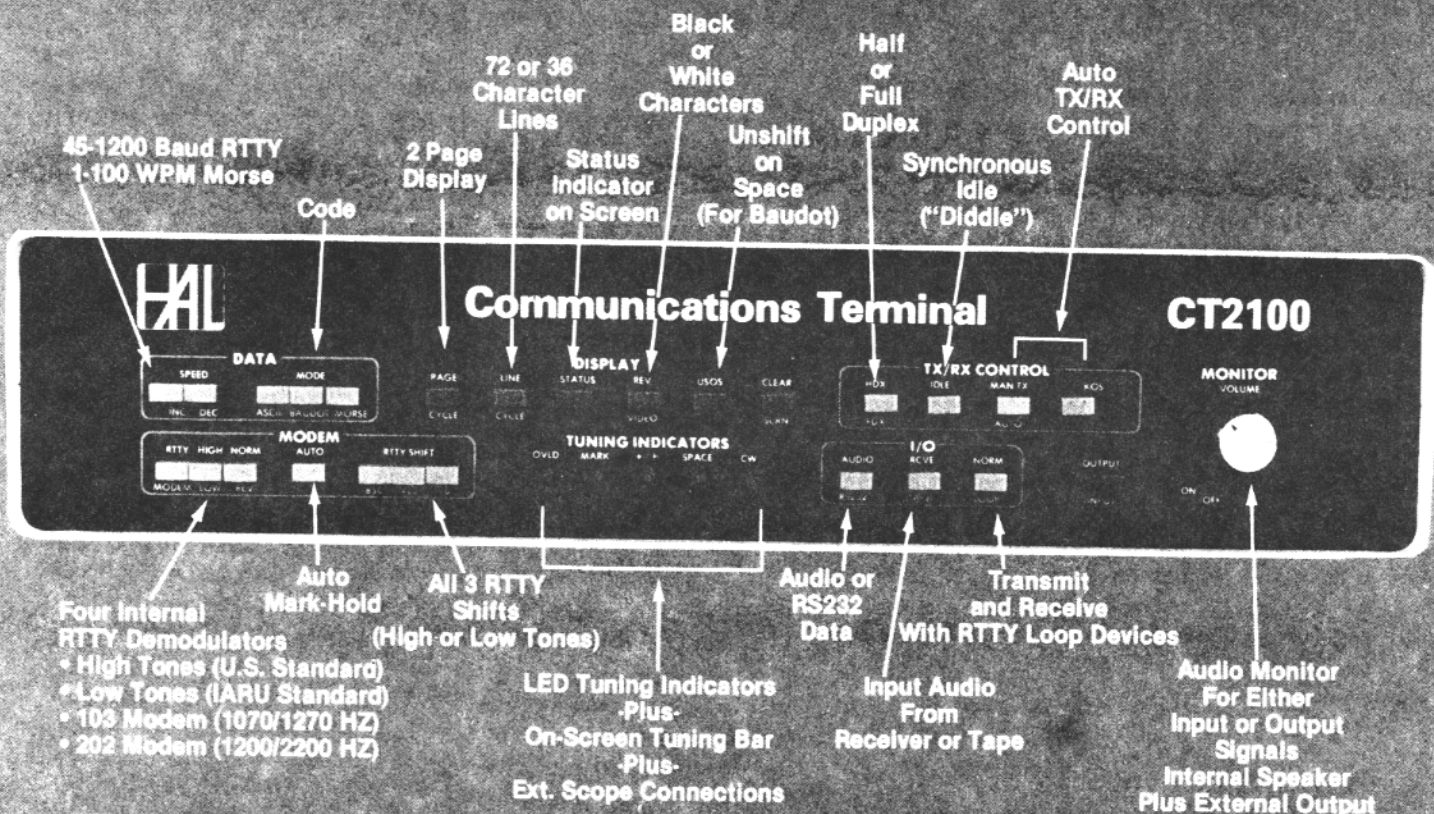
Let's take a look at a typical Ham receiver and see how the various internal frequencies work together to make the right tones come out of the speaker. Figure 1 is the block diagram of a typical conversion subsystem. Yours may be a bit different, but in principle all superheterodyne, multiple-conversion receivers work the same way. The incoming RF is mixed with the last LO in the first mixer. The resulting 1st IF is then mixed with the 2nd LO in the second mixer to produce the 2nd IF. This frequency is applied to a product detector where it is mixed with the signal from the BFO. If the BFO frequency exactly equals the 2nd IF, the result is zero cycles audio. Hence the term "zero beat." Here we have assumed that all local-oscillator values are accurate. To get 2125 from the speaker, we tune the receiver 2125 Hz higher in frequency than the stated "mark" frequency, and if we replace the tuning oscillator (or VFO chain) with a crystal-controlled, fixed frequency oscillator we would be rock-steady and on frequency. Right? Probably not.

Suppose our crystal is precisely on frequency, but the 2nd LO is off by, say, 100 Hz. The conversion process now will produce an audio of either 2225 or 2025 Hz, depending on which way the 2nd LO is in error. This is obviously no good, and will require either another crystal or retuning the 2nd LO. But, which is at fault and how much are the oscillators off? Without an accurate calibrated frequency counter it's going to be difficult if not impossible to find out.

However, there is a foolproof way you can determine the crystal you need without ever knowing what the condition of your LO's are, but you will need a counter. Measure the frequency to the nearest one hertz, of the oscillator that determines the tuning of the receiver when tuned to the correct autostart frequency and the correct tones are being delivered to the TTY demodulator. Then order a crystal that will produce that precise frequency in the fixed-frequency
continued on page 13

CT2100

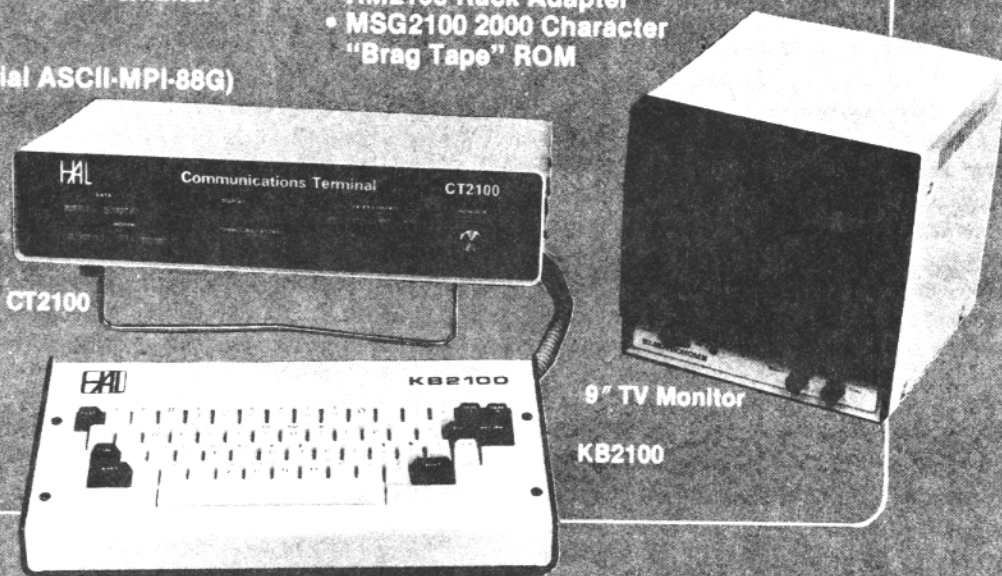
HAL Puts MORE Behind The Buttons



CT2100 System:

- CT2100 Communications Terminal
- KB2100 Keyboard
- Video Monitor
- Printer (300Bd Serial ASCII-MPI-88G)
- RM2100 Rack Adapter
- MSG2100 2000 Character "Brag Tape" ROM

- 24 Line Display
- 2 Pages of 72 Character Lines
- or-
- 4 Pages of 36 Character Lines
- Split Screen (with KB2100)



HAL COMMUNICATIONS CORP.
Box 365
Urbana, Illinois 61801
217-367-7373

**NOW! HAL Equipment is
in stock at leading Amateur
Dealers.**

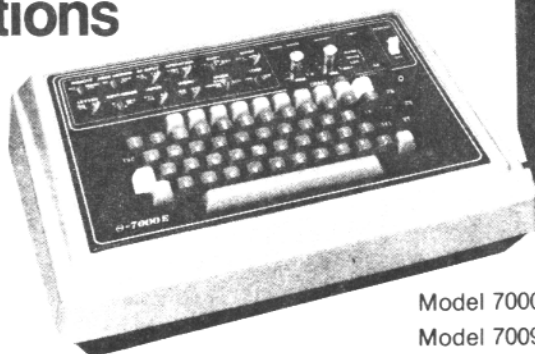
Expand your station versatility....



New versatility
for the old bear
in your station...

DRAKE® Theta 7000E Microprocessor-Controlled Communications Terminal

The perfect addition to any amateur radio installation! Complete, automatic send/receive of Morse code (cw) Baudot code (RTTY) and ASCII code (RTTY). Works with any video monitor.



Model 7000 Drake Theta 7000E Terminal
Model 7009 Drake TR-930 Video Monitor

7-Channel Battery Back-Up Memory, the Theta 7000E has seven keyboard-selectable, non-volatile, random access memory channels each of which can hold 64 characters. Data in these memories is alterable at any time and is retained when power is removed. Messages in these memory channels can be repeated 1 to 9 times via keyboard command. All channels may be daisy-chained for continuous read-out. Channel number in use is indicated on display.

Wide Range of Transmitting and Receiving Speeds, 5 to 50 wpm in Cw with autotrack on receive. Standard RTTY speeds of 60, 67, 75, and 100 wpm Baudot code and 110, 150, 200, and 300 Baud ASCII code.

Self Contained Demodulator, three-step shift selects either 170 Hz, 425 Hz or 850 Hz shift with manual fine tune control of space channel for odd shifts. High/low tone pair select. Mark only or space only copy capability for selective fading.

CONVENIENT KEYBOARD FEATURES, automatic keyboard-operated transmit, (KOX) or manual keyboard transmit. **Unshift on space**, reverts to LETTERS case after reception of each space character in Baudot code. **CR/LF is automatically inserted** every 60, 72 or 80 characters while transmitting. **Cw identification**, in RTTY mode. **Echo function**, prerecorded cassette tapes can be read and transmitted. **Test messages**, "RY" and "QBF". **Transmit word mode**, characters can be transmitted in word groupings.

Crystal Controlled AFSK Modulator:

	Shift	170 Hz	425 Hz	850 Hz
High Tone Pairs	Shift	170 Hz	425 Hz	850 Hz
	Mark	2125	2125	2125
	Space	2295	2550	2975
Low Tone Pairs	Shift	170 Hz	425 Hz	850 Hz
	Mark	1275	1275	1275
	Space	1445	1700	2125

- **Printer Interface for Hard Copy**, all modes for parallel ASCII printers. Loop keyer for conventional teleprinters.
- **Composite Video Output**, for any standard video monitor.
- **Kansas City Standard AFSK Output**, KCS tone pair for ASCII.
- **Large Capacity Display Memory**, two page display memory contains 32 X 16 lines per page.
- **Split-Screen**, with a keyboard command, the display can be divided in two; the upper half for transmit and the lower half for receive. Messages can be composed while receiving.
- **Buffer Memory**, 53 character type-ahead keyboard buffer.
- **Word Wrap-Around**, in receive mode, word wrap-around prevents the last word on a line from becoming split in two. Moves whole word to next line.
- **Automatic Letters Code Insertion**, if desired, LETTERS (diddle) code can be transmitted continuously in a pause of transmitting from the keyboard.
- **Audio Monitor**, a built-in audio monitor circuit with automatic transmit/receive switching enables checking of the transmit/receive tones.
- **Transmitter Keying Circuitry**, keys either grid block, cathode keyed, or solid-state transmitters.
- **Power Requirement**, The Theta 7000E requires only 13.6 Vdc @ 1 amp. Plugs into 13.6 Vdc accessory jack on PS7 or PS75 power supplies.
- **Effective Packaging for RFI Protection**, well designed metal cabinet and protective circuits prevent RFI.
- **Terminal Size**: 15.8" W x 11.8" D x 4.7" H (40 x 30 x 12 cm)
- **Weight**: 11 lbs (5 kg)
- **Monitor Size**: 8.7" W x 9.8" D x 8.9" H (22.1 x 24.1 x 22.6 cm)
- **Weight**: 11 lbs (5 kg)



Model 1230 **LA7 Line Amplifier**

Line output, input levels as low as 15 mV rms (47 kilohm) will result in an output of 1 mW nominal into a 600 ohm balanced line. Output level adjustable by internal pre-set level control. Interfaces low level audio to RTTY

terminal unit or phone line that requires a 600 ohm balanced/unbalanced input. One 36" phono to phono cable supplied. • **Size**: 4.5" L x 1.3" H x 2.5" W (11.4 x 3.3 x 6.4 cm). • **Weight**: .3 lbs. (.14 kg).

Specifications, availability and prices subject to change without notice or obligation.

R. L. DRAKE COMPANY



540 Richard St., Miamisburg, Ohio 45342, USA
Phone: (513) 866-2421 • Telex: 288-017

THE EPSON MX-80F/T PRINTER,
AND THE HAL DS-3100 ASR TERMINAL
BY: S. Dick Uhrmacher, KOVKH
212 - 48th Street
Rapid City, SD 57701
(605) 343-6127

The modern day dot matrix printers are not only one heck of a lot quieter in the Ham Shack, but much more versatile than the traditional page and line printers. If you are interested in interfacing an Epson MX-80 F/T Dot Matrix Printer to your HAL DS-3100 ASR, then this article will provide a bit of insight for you.

The Epson MX-80F/T Dot Matrix Printer easily interfaces with the DS-3100 ASR Terminal, and provides excellent service as a general purpose printer, and also in a word-processing mode. As it comes from the factory/dealer, it has a parallel ASCII input, which is unusable with the DS-3100. A serial interface board must be purchased and installed. This is a plug-in board, which is easily installed and configured for the DX-3100. At the present time, there are three serial interface boards for use with the Epson MX-80F/T, only two of which are suitable for use with the DS-3100 ASR.

-8141- Serial Interface Board:

Not usable with the DS-3100 ASR. It contains no buffer memory, and consequently loses approximately five characters at the first of each line as the printer carriage returns and line feeds. (At this point, it is important to note that the RETRANS-DATA port is the ONLY port useable for driving ASCII printers. It does NOT have "handshaking", and consequently the data being sent from this port must be saved in a buffer on the serial board, while the carriage is returning and line feeding. The Modem port on the DS-3100 is NOT useable for driving an ASCII printer, if data from the RECEIVE buffer is to be printed. If data from the MSO ONLY is to be printed, then the Modem port, with handshaking, can be utilized, without benefit of buffer memory on the serial interface.)

-8150- Serial Interface Board:

This serial interface board has

2048 bytes of buffer memory on board, and is completely useable with the DS-3100. It will accept baud rates from 300 to 19,200, and has a built in self-test procedure. Data from the DS-3100 (pin six of the Switched Outputs plug for data, and pin five for system/data ground) are connected to the serial interface card on pins three (RS-232C data input), and pin seven for system/data ground. A male DB-25 connector must be purchased by the user to connect the cable from the DS-3100 to the serial interface board. The baud rate DIP switches on the 8150 board must be set at 300 baud to match the output of the DS-3100.

-8145- Serial Interface Board

This is a new board by the Epson folks, and it is designed to replace the 8150 board. The only basic difference between these two boards is that the 8145 board will accept data at speeds LESS than 300 baud. Additionally, it has "current loop" capabilities on the board. (The 8150 board also has "current loop" capabilities, although this portion of the board is not populated). At the time I am writing this article, the 8145 board is not available. However, I am told it will be in approximately 30 to 45 days).

Once you have the serial board installed, the cable from the RETRANS-DATA output hooked up, and paper in the printer, you should be ready to do all kinds of neat things. All of the features of the printer are available through use of the ASCII Control Codes are sent to the printer. Once your favorite print style has been selected, you can then return the DS-3100 to either the Baudot or CW mode, and it will print very nicely for you. Such things as condensed print, emphasized print, double sized print, TAB settings (both vertical and horizontal TABS), and other features are easily accessible through use of the ASCII Control Codes.

The TAB setting command routine used with the Epson must be modified slightly in order for it to function properly. The following command se-

quence will set the TAB to print position 20. (Any number of TABS can be set by inserting the correct binary number in the command routine. This "binary number" is the decimal equivalent of various ASCII codes. For instance, DC4 is a decimal 20; Shift-CTRL-N equals a decimal 30, and the capital letter "F" equals decimal 70. By inserting the appropriate binary number (via the correct ASCII code), you can require the printer to TAB to various print positions).

TAB Command Setting Routine:

1. Printer power on, and printer "on-line". DS-3100 in ASCII mode and Xmit Inhibited. Type the following commands on the screen:
 - a. Cancel (CTRL-X)
 - b. ESCAPE D
 - c. CTRL-DC4 (Binary 20 for TAB position)
 - d. Null. (Shift-CTRL-P).
 - e. Cancel (CTRL-X)
 - f. NEWLINE (CR/LF)

2. Cycle FN-XMIT keys to send command routine to printer.

3. Cycle the "on-line" switch on the printer will cause the printer to "lock-up".

4. It should also be noted that the ASCII "NULL" character will disappear from the command routine, once it has been sent to the printer. Be sure to re-insert it in the string, prior to attempting to re-set a TAB function.

Good luck in using your Epson printer with the DS-3100 ASR. It is a very sophisticated and flexible printer, and it should serve you well. If I can be of any assistance to anyone in answering questions about the Epson MX-80F/T and the HAL DS-3100 ASR, I would be most happy to oblige. If a written answer is required, a SASE would be appreciated. Best 73 Dick, KOVKH.....

00000000000000000000000000000000

P.S. If using the -8141 Serial Interface Board make sure that the board has all jumpers in place. It was my experience to have three missing jumpers on the board I purchased here in San Diego. After that discovery and the remedial steps taken everything worked very well.

de DEE, N6ELP.....

DEUTSCHER AMATEUR-RADIO-CLUB EV

Mitglied der IARU

REFERAT BILD- UND SCHRIFTÜBERTRAGUNG

EURD

The "Deutscher Amateur Radio Club, DARC e.V." issues the "Europäisches RTTY Diplom, EURD", to promote amateur RTTY activities. The award is available for all radio amateurs and club stations, holding an official RTTY-license. It is based on two-way RTTY contacts with different European countries and their prefixes.

- The EURD will be issued in 4 classes:
EURD III, EURD II, EURD I, EURD TROPHY
- EURD III: Written confirmations (QSL) from at least 20 different countries (regardless of the band used) and a minimum of 100 prefix-points are required.
 - The European countries are determined by the "European country list" (WAE-list).
 - Each official European prefix counts for 1 prefix-point per each band.
EURD II = 150 prefix-points in 30 countries,
EURD I = 200 prefix-points in 40 countries,
EURD Trophy = 250 prefix-points in 50 countries.
- All amateur bands, also VHF, may be used.
- All QSL's must confirm "RTTY" and in this case, Radioteletype comprises all operating modes like "HELL" and "AMTOR" for example. QSL's shall be dated after or on January 1st, 1965.
Any altered or forged confirmation will result in disqualification of the applicant.
- Contacts during the EUROPEAN DX CONTEST, WAEDC, RTTY-part, can be used for EURD-endorsements, provided the log of the requested station has also been received. Therefore, claims should not be made before the publication of the annual contest results. Requests must be stated within two years after the respective contest.
- The fee for each certificate is DM 10.- or 15 IRC's.
- Send both a list confirmed by your official Radio Club and the fees to:
DARC-RTTY-Manager
Klaus K. Zielski, DF7FB
P.O.Box 1147
D-6455 Erlensee
West Germany

DARC „CORONA“ 10 Meter – RTTY – Contest 1982

The DARC e.V. has the great pleasure to invite the Radio Amateurs worldwide to participate in the annual 10 Meter-RTTY-Contest, which is held to increase the RTTY-activity on the 10 Meter-Amateurband. There will be four tests throughout the year. Each test scores separately.

- SCHEDULE**

1st Test March,	06th	11.00-17.00 UTC
2nd Test May,	02nd	11.00-17.00 UTC
3rd Test September,	04th	11.00-17.00 UTC
4th Test November,	07th	11.00-17.00 UTC
- BAND:** The recommended portions of 10 Meters
- CONTEST CALL:** CQ CORONA TEST
- EXCHANGE:** RST / QSO-Nr. / Name
- POINTS:** Each Station has to be contacted once only. Each complete 2 x RTTY – QSO is worth 1 point.
- MULTIPLIER:** Use the WAE-and DXCC – countrylist, add each district in W/K, VE/VO and VK
- SCORING:** Total multipliers times total number of QSO's.
- CLASSES:** A – Single or Multi OP
B – SWL – Printer
- LOGS:** Must contain Name, Call and full address of participant / Class / Time in UTC / Exchange / Final score. SWL-printers apply according to the rules.
- DEADLINE:** Each entry shall be received by the manager within 30 days after each test.
- MANAGER:** Klaus Zielski, DF7FB, P.O.Box 1147
D-6455 Erlensee, West Germany
- PLAQUES:** Will be awarded to the leading stations in each class, according to a reasonable score present.
- WAE-countrylist**

C31 – CT1 – CT2 – DL – EA – EA6 – EI – F – FC – G – GC – GD – GI – GJ – GM
GM Shetland – GW – GU – HA – HB9 – HB0 – HV – I – IS – IT – JW – JW Baer – JX
LA – LX – LZ – M1 – OE – OH – OH0 – OJ0 – OK – ON – OY – OZ – PA – SM
SP – SV – SV Crete – SV Rhodos – SV Athos – TA1 – TF – UA 13456 – UA2 – UA
Franz Josef Land – UB5 – UC2 – UO5 – UN1 – UP2 – UQ2 – UR2 – YO – YU – Y21
ZA – ZB2 – 3A – 4U – 9HI

RESULTS OF THE 14TH EUROPEAN DX-CONTEST WAEDC 1981 RTTY

Single Operator				
Call	QSO	QTC	Multi	Score
1. 15FZ1	237	501	207	152766
2. LU1HCE	269	466	174	127890
3. Y39XO	249	454	158	111074
4. OZ1CRL	251	434	155	106175
5. SM6ASD	233	415	156	101088
6. IC8POF	202	388	157	92630
7. IZDMI	194	360	151	83654
8. 1B3RA	154	252	150	60900
9. W3FY	134	245	160	60640
10. IZWEG	163	269	140	60480
11. 4Z4K8	152	241	129	50697
12. KØJH/4	124	182	127	38862
13. DL1VR	103	172	111	30525
14. DK8FS	101	171	107	29104
15. KJ2N	98	175	105	28665
16. YU7AM	115	93	115	23920
17. DL8QP	86	174	88	22880
18. YK2RT	102	71	130	22490
19. OE2SNL	101	185	74	21164
20. AK1B	75	160	69	16215
21. DJ9MH	68	95	95	15485
22. WA1YEC	126	134	57	14820
23. AL70	90	101	73	13943
24. DK9CK	72	156	61	13908
25. K6WZ	144	134	47	13066
26. Y33TA	72	134	59	12154
27. YJ8T	100	03	116	11948
28. G14KQA	65	74	82	11398
29. EA3BLQ	77	182	41	10619
30. UV3FD	80	85	58	9570
31. ØØ7CC	76	85	56	9016
32. ØK2BJT	65	104	49	8281
33. UA3HR	110	28	50	6900
34. DF6ZY	44	88	48	6336
35. SV0AN	102	0	42	4284
36. DJ2TI	42	33	49	3675
37. DJ9IR	43	42	42	3570
38. DJ1XT	34	55	40	3560
39. NØAKF	34	62	37	3552
40. ON6NL	24	89	26	2938
41. KØBJ	31	38	41	2829
42. ON7EU	46	37	33	2739
43. EA1TA	65	0	41	2665
44. Y56YF	32	73	25	2625
45. DJ2YE	42	0	47	1974
46. JA7ML	26	12	48	1824
47. F9CE	29	13	36	1512
48. DL8CX	43	0	30	1290
49. DLØGL	16	35	20	1020
50. UA4LAB	33	0	17	561
51. DK41S	32	0	17	544
52. Y03AC	18	0	22	396
53. TI2D0	11	0	21	231
54. Y37UF	19	0	11	209
55. DJ10Q	14	0	11	154
56. Y3Z2F	17	0	09	153
57. AG9E	08	0	16	128
58. OZ1DAF	10	0	12	120



TROPHY WINNERS	
Single Operator	
LU1HCE	South America
Y39XO	Europe
W3FY	North America
YK2RT	Oceania
ØØ7CC	Asia
Multi Operator	
G3UUP	Europe
S W L	
Stig Kahr	Europe

Multi Operator				
Call	QSO	QTC	Multi	Score
1. LZ1KDP	332	660	202	200384
2. G3UUP	271	500	177	136467
3. ØH2AA	293	485	175	136150
4. UK3DBG	243	352	142	84490
5. UK2BAB	197	359	104	57824
6. ØHBTA	167	166	99	32967
7. UK3ACR	125	239	81	29484
8. JAZ3RT	60	158	58	12644
9. Y63ZI	70	144	55	11770
10. ØK3RJB	80	13	70	6510
11. Y4BZJ	40	09	26	1274

S W L		
Name	QSO	Score
1. Stig Kahr (ØZ)	314	104380
2. Ivan Gombos (ØK)	298	94940
3. ØB5-Ø77-1167	195	62176
4. H. Ballenberger	211	54112
5. ØB5-Ø72-129	146	45994
6. Werner Ludwig	145	35417
7. Vaclav Cesak (ØK)	134	26680
8. Ted Double (G)	126	25856
9. Manfred Behnke (Y2)	82	4346
10. Jindrich Bozek (ØK)	45	3150
11. F.v. Oostenbrugge(PA)	37	1443
12. Rolf Gräfe (Y2)	40	1120
13. UC2-009-389	02	04
14. Erwin Rauch	02	02

Tnx for Checklog to: DK1ZX, SM6CQV, T2JTN, LU3DSU, ØB5-Ø70-331, Y44XI and DE1KW0.
Contestmanager: DF7FB, tnx to DE1KW0

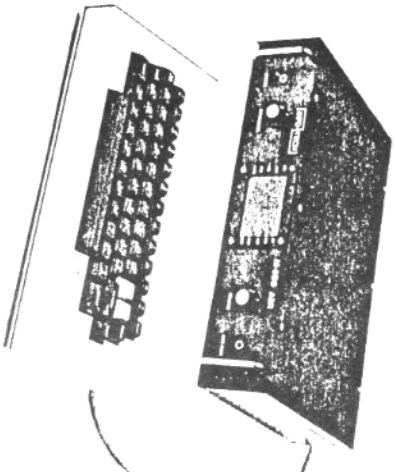
15TH EUROPEAN DX-CONTEST WAEDC 1982 RTTY

- TEST PERIOD:** Saturday, November 13th, 00.00 UTC to Sunday, November 14th, 24.00 UTC
- Single OP-stations should not exceed 36 hours total operation and take not more than 3 breaks for time off.
- BANDS:** Use all bands 3.5 7 14 21 and 28 MHz
- CLASSES:** Single OP - All bands
Multi OP - Single TX
SWL - printer
- MESSAGES:** To consist of RST and progressive QSO-number.
- POINTS:** One point for each confirmed QSO. A station may be worked only once per each band. Each confirmed QTC, sent or received, count one point also.
- MULTIPLIERS:** Use country status according to the EUROPEAN- and ARRL-countrylist, in addition each JA, PY, VE/VO, VK, W/K, ZL, ZS, UA9-Ø call-area count separate.
Contacts on 3.5 MHz may be multiplied by 4, on 7 MHz by 3 and on 14/21/28 MHz by 2. Contacts between all continents and one's own continent are permitted.
- NOTE:** Contacts within one's own continent count for ONE (1) multiplier for each band (incl. 80 and 40 m) only. QSO as well as QTC-traffic with one's own country or call-area is NOT allowed. SWL-printers apply according to these rules.
- SCORING:** Final score will be computed by total QSO- plus QTC-points multiplied by the sum of all band-multipliers.
- QTC-TRAFFIC:** A QTC contains the time, Call and QSO-number of the station being reported, i.e. 1310/K7BV/123. The QTC should be reported only once and not to the originating station. A maximum of 10 QTC to the same station (all bands) is allowed only. Keep a list of sent and received QTC with serial numbers, i.e. QTC 4/10 indicates: 4th serie, containing 10 QTC.
- LOGS:** Should contain all necessary information and operating times. It is suggested to use the official log sheets only. Send SASE to the manager for your copies.
- DEADLINE:** All logs must be received by December 15th 1982 in order to qualify.
- MANAGER:** Klaus Zielski, DF7FB, P.O.Box 1147, D-6455 ERLENSEE, West Germany
- AWARDS:** Certificates for high scores in each class and country. Continental leaders will receive the WAEDC-plaque.

A TRUE STATE-OF-THE-ART COMMUNICATIONS TERMINAL!

NEW M-500 ASR

from INFO-TECH



\$1475.00
(with 12" Monitor)
\$180.00
MEMORY EXPANSION BOARD (contains mailbox systems) (10K of Memory)

For use by amateur radio operators in the transmission and reception of RTTY (ASCII & Baudot) and Morse code. Microprocessor controlled with 20K of memory (8K ROM, 8K RAM, 4K video RAM).
User programmable messages; Sel-Call, WRU, mailbox, real time clock, large running buffers, buffers for printers, basic word processing for on-screen editing, full and half duplex, cassette tape interface, split screen formats, ASCII or Baudot printer outputs, auto-start, push to talk, accessory switches, provisions for battery back-up, many other features.

The M-500 consists of three parts:
1. KEYBOARD Connected to mainframe by 5-ft. umbilical cord for maximum operating flexibility. Entire system keyboard controlled.
2. MAIN FRAME Houses 95% of the electronics, all I/O jacks, power supplies, modulator, demodulators. Metal frame cabinet is table top or rack mounted.
3. 12" VIDEO MONITOR High quality to insure undistorted video, provide flexibility for operating position placement.

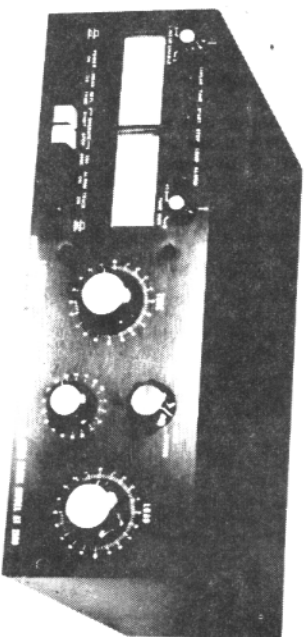
Order direct or from these dealers:

Caplan 5840 S.W. 118th Ave Miami, FL 33156 (305) 271-3673/3713	Data Amateur Radio Supply 212 48th St. South Ocala 37701 (605) 343-6127	Gifer Associates, Inc. 52 Park Ave. New Jersey 07056 (201) 391-7887	M & G Distributing 4201 NW 12th St. Miami, FL 33142 (305) 592-9855, 163-8170
Camera Products 14900 Beachview Ave. White Rock, B.C. Canada V4B1N8 (604) 598-3058	Electronic Equipment Bank 516 Mill St. Vienna, Virginia 22180 (703) 998-3350	Global Communications 506 Cocoa Isles Blvd. Cocoa Beach, Florida 32931 (305) 783-3624	Radio World Terminal Building Orlando County Airport Orlando, FL 32817 (312) 728-0470
	Ham Radio Center 8343 Olive Blvd. St. Louis, MO 63121 (314) 352-9500/63132	Ham Radio Center 5100 S.W. 135th Ave. Miami, FL 33176 (305) 448-5358	Ray 1 Amateur Radio 1450 1st Ave. N.E. Cleveland, Florida 33516 (813) 535-1415
	Michigan Radio 38270 Mast Mt. Clemens, Michigan 48045 (313) 499-4659	Universal Amateur Radio 1780 Ada Dr. Reynoldsburg, Ohio 43068 (614) 968-4267	

Manufactured by:
DIGITAL ELECTRONIC SYSTEMS, INC.
1633 Western Court • Englewood, Florida 33533
813-474-9518

INFO-TECH ELECTRONIC EQUIPMENT

New Automatic Antenna Tuner Auto-Track AT 2500



Designed and Built by J. W. Miller Div.

Check these state-of-the-art specifications

- Power Capability: 2500 W PEP.
- Frequency Range: Continuous 3.0 to 30 MHz (including WARC Bands).
- Impedance Matching: 10 ohms to 300 ohms to 50 ohms resistive.
- Direct Reading SWR Meter: 1:1 to infinity.
- Direct Reading Power Meter: Two meter scales from 0 W to 250 W and 0 W to 2500 W; front panel switch selects FWD or Reflected Power (illuminated panel meters).
- Power meter displays RMS with continuous carrier and automatically displays PEAK when driven with SSB signal.
- Average "Automatic" tune-up time: 15 seconds or less.
- Tune-up time not affected by power level; can be as low as 1 W (5-10 W preferred).
- Power requirements are 115/230 VAC 50-60 Hz, 10 W operating/5 W standby; or 13.5 VDC, 1 A operating/5A standby.
- Antenna tuner packaged in cabinet 17"W x 5 3/4"H x 14"D (front panel handles or rack mount optional at extra cost).

Write for literature.

Specifications subject to change without notice.

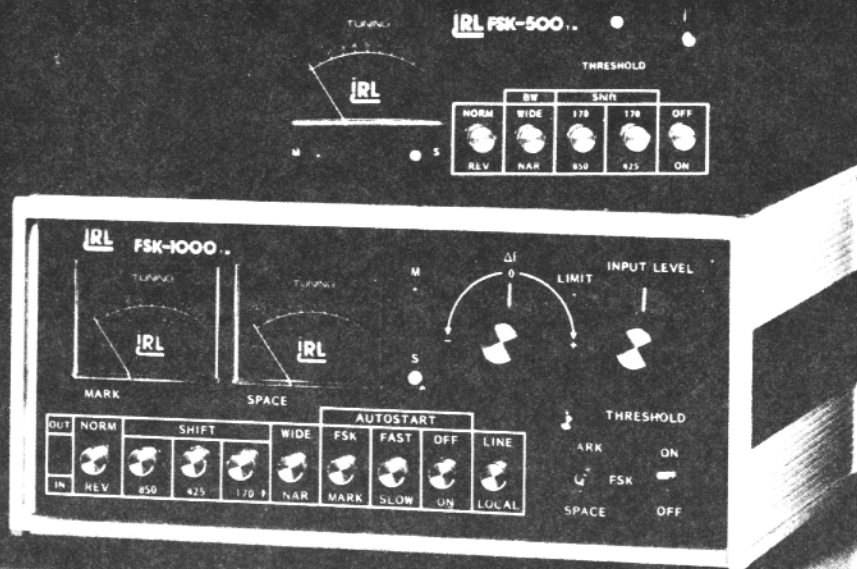
Dealer Inquiries Invited



J. W. Miller Division
BELL INDUSTRIES

19070 REVES AVE. ■ P.O. BOX 98295
COMPTON, CALIFORNIA 90224

A RTTY DXers' Dream



IRL
T.M.

700 TAYLOR RD.
COLUMBUS, OHIO 43230
(614) 864-2464

VISA OR MASTER CHARGE ACCEPTED
IMMEDIATE DELIVERY

At IRL, we believe that the RTTY ham should be limited by his skill as an operator—not by his demodulator. The FSK-1000 and FSK-500 were conceived and specifically engineered for use on the crowded HF ham bands, to give the serious DXer, contest operator, or MARS station a competitive edge when the QRM gets rough.

CHECK THESE OUTSTANDING FEATURES!

FSK 1000 TERMINAL UNIT

- Unparalleled selectivity achieved with sophisticated true limiterless design
- Ultra sharp active filters
- Tuneable shift (80-1000hz)
- Selectable bandwidths (100/55hz)
- Three mode autostart
- Positive dynamic range indicator
- Extruded aluminum enclosure
- Rugged commercial quality
- Adjustable "mark hold"
- Keyboard activated transmit
- Optional AFSK keyer
- Internal loop supply
- RS232 or TTL
- Full one year warranty

FSK 500 TERMINAL UNIT

- Superior selectivity
- Selectable bandwidths
- All standard shifts
- 3 shift AFSK keyer included
- Narrow shift I.D. included
- Preselector included for QRM suppression
- Economically priced
- Fully wired and tested
- Compact size
- RS232 or TTL
- Full one year warranty
- Optional loop supply

Both the FSK-1000 and FSK-500 are easily interfaced to your APPLE, TRS and HEATH computer.

Call for further details.

DX Continued

on Saturdays using the ten meter band. John asks that people wishing cards do not include IRCs but rather send mint stamps from any country. He can swap them, or in the case of US stamps, use them when he returns to America.

MAC, K7BV (196/194) has been doing the RTTY DX group a very big favor with his QST broadcasts about upcoming DXpeditions. He only broadcasts information supplied by the principals of the DXpedition, so it is authentic. We thank you Mac!

Carmen, CE3CEW, indicates that the Chilean Radio Club is planning a second Easter Island Junket, as well as another to Juan Fernandez and San Felix. Carmen or her OM, German, CE3-CBG can be found on 15 meters around 2000Z. They also work the other bands.

For newcomers to the RTTY world, the little number after a call sign indicate the worked/confirmed QSO score of the call. For example: WOLHS (100/82). Periodically we run an Honor Roll, and we solicit a score from everyone who chases the elusive pasteboards. The scoreboard is part of the fun!

K4XP, a newcomer to the Green Key world (2 Weeks), missed XF4MDX simply because Kieth got so excited he called on 20 meters while hooked up to the 15 beam.

Another little drama which crossed the screen: ON4UN, after nine weeks on RTTY, needed Idaho to complete his W.A.S effort. So, he called CQ Idaho. Back came W7ORK who stated he was in Boise. The Belgium station was elated, but when he stood by for a second transmission from the Idaho station there was silence. Then Fred, W1NVY/7 (103/90), who had been sitting by his rig while a broken leg mends, broke in and typed: "There is no W7ORK in the latest call book, John." When ON4UN came back he slowly typed, "Well, anyway, it was a good joke!" (John completed the 100 countries and all fifty states in three months. Is that a record?)

PJ2EE is another op that does not like IRCs. He asks for a Curacao stamp, or a green stamp. The call

book address is okay.

000

A RTTY DITTY:

Nothing makes you feel so dumb,
As typing "Joe", when his name is
"Lum!"

000

My thought for the month...Work is
the curse of the RTTY Ham!

000

XF4MDX operated split, that is, listening 2 to 5 kilocycles up from his transmitting frequency. From what I could observe, this worked very well. In fact, I got him on my first call during the first hour of his last day on the island. It has been suggested by a number of RTTY DXers that we do something like the CW gang do, and set aside one little corner of the sub-band just for DXpeditions and stations with limited time to operate, 14099 has been suggested as the basic frequency with the DX station listening up 2 to 5 kilohertz. With the growing band population it seems like a good idea and would tend to isolate the DX station from message center operations, and general rag-chewing. I solicit your comments.

While on the subject, perhaps we should generate a special set of sign off signals, different than the usual AR, SK, KN, etc. The purposes is to really know when to call a DX station because many times you cannot hear the station with which he is in contact. A special signal would avoid unpleasanties by preventing you from calling a station before he is really finished with the other. Any suggestions? My idea is to select signals which would be moderately garble-proof in bad conditions.

HH2B is another newcomer to the 20 meter mode. He is the second station on from Haiti, and has shared his rig with HH2JR on occasion.

John, W3KV, sends a nice string of worked or printed: 4U1ITU, HP1XJZ, HP1XUL, TI2DO, YB2AG, SV7IW, CN8AT, ISOHSI, TR3WR (15). John also printed A7IAM on 15, but the DX station did not answer calls. A7 is assigned to Qatar in the Persian Gulf, But so far

this station is a mystery.

F8XT Jean, received a card from 8Q7CC in Maldive to make it 171/161. Jean also reports EI4EH, OD5ET, VS6-KS, and C53CL. ON4UN adds OD5MN, FP8-HL, KQ6QC, PJ3SF, JB7BTI, FC2CJ, FB8-GX, VU2RAK, and HC1JX.

Watching the screen is a fascinating hobby...and now and then we see things that make you feel good...like this line from YV5ANE: "There is still a lot of the old Ham Radio spirit among RTTY operators.."

73 de Bill WØLHS

Thanks to the above stations plus:
JA1JDD, N9CCI, W5HEZ, N4FJL, W2LFL, K1NVY/7.

000

	"WHOSE ON"	
5N2LED	0100	14090
8P6FX	1230	14093
9K2EC	0030	14094
9K2EM	2400	14090
9Q5GD	1840	14085
C31CJ	1730	28085
CP8AZ	1900	21090
EA6CE	0100	14095
EA8EV	0100	14085
EA9JZ	0030	14085
FK8AH	1020	14093
FK8BK	0800	14093
FK8DD	0700	14085
HI8KW	0100	14090
ISØAWP	1550	28095
ISØHSI	1730	28090
KC4AAA	0530	14090
KP4FKG	1700	28100
OD5ET	0800	21090
PJ9EE	0130	21090
TF3KC	2300	14087
UT5RP	0400	14090
VK9NL	0500	14095
VU2NKR	1400	14095
Y25DL	1630	28100
Y44VI	1740	21093
YJ8TT	0400	14090
ZE1EK	1750	14090
ZS1CX	0550	14085
ZS3L	1900	21098

000

QTH LIST AS OF MARCH 8, 1982
4S7EA "Ernest" to callbook QTH
4U1ITU QSL Direct to ITU Geneva
6D5M Valentin Sanchez, XE1M Box
113-0, Mexico D.F. 03300.

continued on page 4

continued from page 5

oscillator. You'll have to check the manual and/or schematic to determine which internal oscillator is involved, on what the crystal formula is based, and how the crystal frequency relates to the oscillator output frequency (fundamental, harmonic, etc.)

For the Drake R4B, I would suggest the following:

1. Tune in the frequency you want with the receiver VFO so that the proper tones are being delivered to your TTY demod.

2. Connect an accurate calibrated counter to the "INJ" jack on the rear chassis apron and read the frequency to one Hertz. This is the 1st LO and is sufficiently buffered internally to permit direct connection to the counter without isolation.

3. If the autostart frequency is above 9.355 MHz, order a crystal frequency equal to one-half that obtained in step 2. If the autostart frequency is below 9.355 MHz, the crystal frequency should be equal to that obtained in step 2.

4. The Drake factory recommends 32-pF loading for the rock. Refer to the R4B manual for other crystal information.

The second LO in the R4B is routinely pulled off frequency when the "Transceive Alignment" procedure outlined in the T4XB Transmitter manual is performed to align the two for use in SSB-transceive operation. This is fine for SSB'ers, but sure raises havoc with the normal conversion scheme of the receiver!

The moral? Even if you have a new rig right out of the box, you can't be assured that its LO's are exactly what they should be. Even if there is a "trimmer" in the crystal-oscillator circuit to correct for small frequency errors, pulling the crystal too far may cause it to become unstable and drift. So check your LO frequencies first, then order the rock accordingly. You'll be right on frequency and you'll stay there..... Now,---if I could just learn to type!

Hopefully this has cleared up a few of the mysteries. If not, an SASE may bring further enlightenment. WB4FXD/1

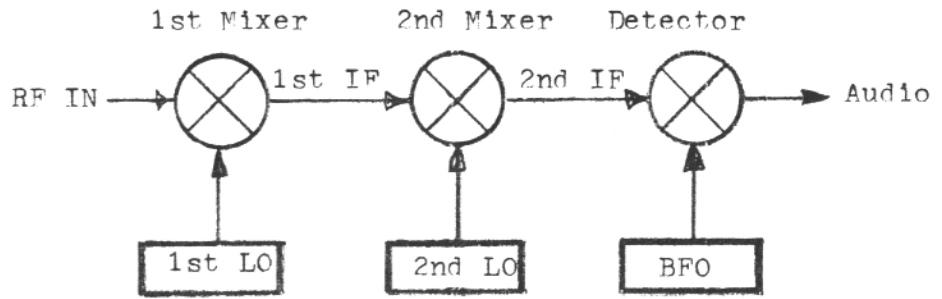
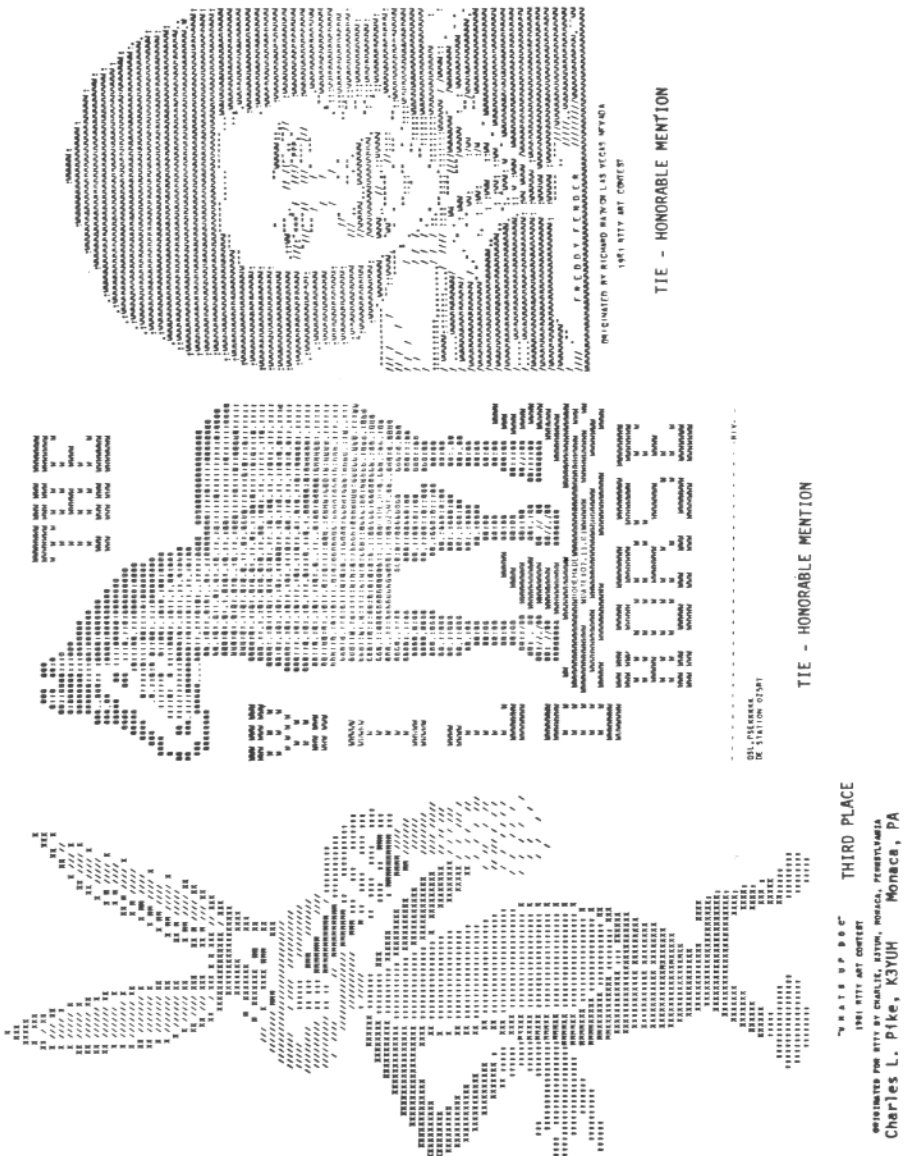


Fig. 1. Typical Receiver Conversion Subsystem

00



CLASSIFIED ADS

30 WORDS \$3.00, ADDITIONAL WORDS 5¢ EACH CASH WITH COPY--DEADLINE 1st of month for following month.

HAL DS-3100 ASR Terminal Unit and HAL ST-6000 Demodulator. Original boxes. Original cables. Used 15 hours maximum. Mint condition. Steve C. Zondlak POB 9061, Livonia, MI 48151. Phone 313-420-3156.

FOR SALE: COLLINS 51J4, Excellent condition, only mods are product det. and slo/fast AGC. No holes on chassis or panel \$350. FOR SALE: TRS-80 Mod 1, Basic 2 expansion interface 48K. Centronics 779 printer. All cables, many programs, including Scripsit. Matching printer stand and table for computer. Mint condition \$2200. NO shipping-will deliver within 100 mile radius or may be picked up. Win Brown K6EVB, 1480 N. Wilson Ave, Pasadena, CA 91104. (213) 794-9627.

SELL: TELETYPE #151989 modification kits. Input power/attenuates RF. Instructions included. Boxed, brand new quantity 1 @ \$7.50 2/\$13.00 PPD. Texasinstr. Thermal paper roll 8.5" w x 5". Good for any heat sensitive printer-computer use. Each \$6.50 add approx. postage. D. Testa, 390 Lincoln Ave. R.J., Nwk., NJ 07104.

WANTED: SPARE PARTS FOR TELETYPE Corp Kleinschmidt Corp., and Mite Corp. machines. Please send list. Phil Rickson, W4LW, POB 70, Morrisonville NY, 12962.

KLEINSCHMIDT REPERFORATOR Model TT-107, 100 word and gears 50 words. Checked out and working Okay. Sample test tape if desired. W.F. Harmon, W4CDT, 5628-10th Ave. S., Birmingham, AL 35222.

Model 28 (free standing) reperforators with keyboards. Use as is or on line with your set \$75 delivered. Loads of teletype machines and accessories. SASE for list. C.B. Goodman, 5454 South Shore Dr., Chicago, IL 60615 (312) 753-8342.

TELETYPE PARTS WANTED. Any quantity, any models, highest prices paid. 201-464-5310 Van, W2DLT, Box 217, Berkeley Heights, NJ 07922.

FOR SALE: 7th edition of the LIST OF RTTY STATIONS IN FREQUENCY ORDER, now contains 2067 frequencies monitored in 1980-81 of commercial stations like press, aeronautical, weather, telex, military, diplo, maritime etc. on shortwave. Schedules of 88 news agencies on 741 frequencies are included, plus an alphabetical index to these press service stations. This offset printed list is airmailed to you for \$17.00 (check or cash) from Joerg Klingenfuss, Panoramastrasse 81, D-7400 Tuebingen, West Germany.

HAM RADIO MAGAZINE. The no nonsense state-of-the-art technical magazine. Subscribe now and see for yourself. 1 year \$16.50, 2 years \$28.50, 3 years \$38.50. HAM RADIO Magazine, Greenville, NH 03043.

REPERFORATOR PAPER 7/8"- 32 rolls \$15.50 buff and oiled. Black unoled \$7.50. Harmon, 5628-10th Ave. S., Birmingham, AL 35222. (205) 592-0835.

WORLD PRESS SERVICES FREQUENCIES LIST AND MANUAL. (new 3rd edit) A comprehensive manual completely covering the field of Radioteletype news monitoring-contains all needed information on antennas, receivers, terminal units, monitors, how to receive, frequencies and times of transmissions for most world radioteletype news and press services. Monitoring these news sources is fascinating shortwave listening. All listed stations transmit in English. Contains three different master lists of times of transmission frequencies used plus the ITU list of over 80 different news services in all parts of the world. \$8.00 PPD. Universal Electronics, 1280 Aida Dr. #J, Reynoldsburg, OH 43068 (dealer inquiries invited.)

CALLSIGN LIST OF UTILITY STATIONS 7th edition. All RTTY stations, all services worldwide, more than 3,000 call signs in alphanumeric order. All types of stations are listed. 213 utility stations mnemonics and name

and name abbreviations. Abbreviations for regional states in Australia, Canada, USA and USSR. All ITU country geographical symbols. Table of allocation of international call sign series, as decided at WARC 1979. Regulations for the formation of call signs. \$6.00 PPD. Universal Electronics, 1280 Aida Dr. #J, Reynoldsburg, OH 43068.

LIST OF WORLDWIDE RADIOTELETYPE STATIONS IN FREQUENCIES ORDER. (7th edition-Klingenfuss) Over 2067 frequencies of stations which have been logged in the last part of 1981. Frequency, callsign, name of the station ITU country symbol, times of reception and details are included. All types of stations are listed, including schedules of 88 news agency stations on 741 frequencies. 178 special RTTY operation abbreviations are listed. A list of 208 GENTEX destination indicators is attached. Covers all RTTY stations from 3 MHz to 30 MHz, air, metro, government, military diplo services. The only accurate RTTY list in existence. A must for the serious enthusiast. \$12.00 PPD. Universal Electronics, Inc., 1280 Aida #J, Reynoldsburg, OH 43068. Dealer inquiries invited.

FOR SALE-Johnson Thunderbolt AMP, Hypersol plate trans, solid state rect. used in RTTY service \$300.00 or best offer. Dale, W6IWO, 9085 La Casita Ave., Fountain Valley, CA 92708. Tele 714-847-5058.

QUALITY RTTY KITS AND PC Boards available for all applications. The RACK LINE Boards are all 6½ x 4½ with edge connector mounting for easy servicing. Choose from the following kits and boards. (1) UT4D Uart speed converter kit \$109.95 board alone \$22.95 (2) UT2 Regen Repeater Kit \$39.95, board alone \$13.95 (3) TU Loop Supply Kit \$31.99. (4) TU LV Supply Kit \$34.99 (5) Complete TU supply kit

continued on page 4



HITS & MISSES

by GEORGE

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

Editors note-We finally got George to stand still enough to take a good picture of him.

DX DATA BASE

I will have in my column next month how to set up a data base. I think if you are like me and operate RTTY CW and SSB in all of the contests, the need to organize your records becomes a matter of necessity. The design of the Data Base is suited to my needs, but is flexible enough to shape it to fit your specific needs. I think you will enjoy this and perhaps it will make the chore of sending out QSL cards less painful and also less expensive.

APPLE DISK

I hope everyone enjoyed my article on the Egbert RTTY Program for the Apple Computer. A lot of readers have contacted me stating how much they enjoyed it. A large number of those contacting me are not yet on RTTY but with the purchase of the Egbert Disk will join us on the "Green Keys."

33RD ARMED FORCES DAY

This years Communications Test between the Amateur Radio Fraternity and the Military will be held on Saturday May 15th, 1982. Special Commemorative QSL cards will be awarded to Amateurs completing two radio contacts with any of the participating Military Radio Stations. The usual Armed Forces Day Message will be sent via RTTY and CW. Those copying this accurately will receive a Special Commemorative Certificate from the Secretary of Defense. This message may be copied by SWL's and will qualify for a certificate.

The Military to Amateur Crossband Operations will be conducted from May 15th 1300 UTC to May 16th 0245, 1982.

Station	Military Freq.	Amateur Band
NAV	7385 KHz	7090-7100KHz
NMH	14440 KHz	14080-14250K
NPG	13827.5 KHz	14080-14100K
NPL	7380 KHz	7090-7100KHz
NZL	14403.5 KHz	7090-7100KHz
WAR	14403.5 KHz	14080-14100K

All of the above are RTTY emissions.

(This station will be on RTTY 1300-1500 hours 1900-2100 hours and 0100-0300 Hours). The above listed information only applies to RTTY. Needless to say a full schedule of SSB, CW and SSTV is also planned. For more information see February 1982 RTTY JOURNAL.

The RTTY receiving test will be transmitted at 60 wpm. Station "AIR" will transmit using 850 hertz (wide) shift, all others will use 170 (narrow) shift. A ten minute CQ call for tuning purposes will begin on May 16th at 0335 UTC with the special message from the Secretary of Defense following at 0345 hours UTC.

NORTHERN RADIO COMPANY

I recently purchased a Northern Radio F.S. tone keyer at a local swap meet. The unit rack mounts. The model number is 2 and the type is 153. I wonder if any of you readers might have additional information and or a schematic. I will reimburse any costs including postage.

TRS-80 MICROCOMPUTER NEWS

The first 20 issues of Radio Shacks TRS-80 Microcomputer News has been compiled into a special volume called

"Microcomputer News Letter Reprints". This volume costs \$4.95. For more information contact Radio Shack 1800 One Tandy Center, Fort Worth, Texas 76102.

I will close out my column for the month. Thanks for the nice letters and keep them coming.

The new Beginners Handbook is finished and Dee has done a fine job.

I hope to see you at SAROC. Too bad it is the same weekend that the RTTY contest will be held.

So long for now....George

000

DX COLUMN CONTINUED

QTH LIST

- Lake Worth, FL 33463.
- K7ZJD/KH2-POB 4426, AAFB, Guam 97912.
- KC4AAA-POB 40 FPO San Francisco ZIP?
- S83A-(S8AAA)Garth Laaks, Post office staff, Umtata, Transkei, S.A.
- S83J-Manual Cardoso, POB 750, Umtata, Transkei, S.Africa.
- TR8WR-Via F6ERG.
- VK9NS & YL "Jim & Kristi", box 90 Norfolk Island, Australia 2899.
- VQ9DO-Via WB3HUT/6, 1172 W. McKinley, Sunnyvale, CA 94086.
- VS6KS-Julian via W1UWB.
- ZP9AA-Box 99, Ciudad Presidente Stroessner, Paraguay.

000

AWARDS SECTION

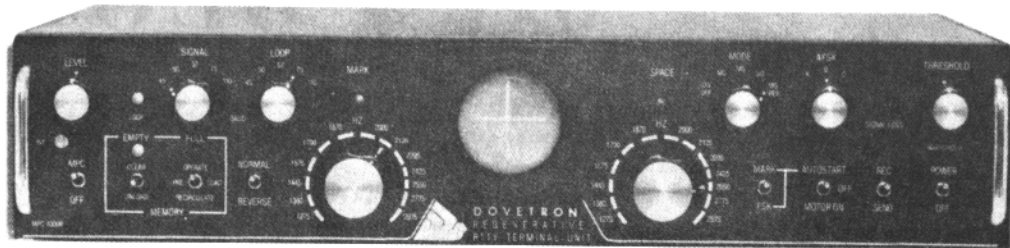
W.A.C. #13 (all on 28 MHz) Dated 1, March 1982 to John Chandler K4VDM.

W.A.C (mixed) dated 1, March 1982 to Jochanan Agam 4X6CV.

000

MPC-1000R BY DOVETRON

MULTIPATH CORRECTION, IN-BAND DIVERSITY, SIGNAL REGENERATION,
UP-DOWN SPEED CONVERSION, 200 CHARACTER FIFO MEMORY,
KEYBOARD-CONTROLLED WORD CORRECTION & DIGITAL AUTOSTART



THE MPC-1000R REGENERATIVE RTTY TERMINAL UNIT

The DOVETRON MPC-1000R is a complete Transmit-Receive modem designed for optimum radio teleprinter communications on land, sea and in the air.

Standard features include a high level loop supply and keyer (neutral or polar), EIA and MIL FSK outputs, a phase-continuous AFSK Tone Keyer with three selectable Mark - Space - Shift tone pairs, Mark, FSK & Digital Autostart, Automatic Markhold, an internal RY Generator for terminal unit Self-Test and circuit adjustment, and a Signal Loss Alarm circuit.

The MPC Series is available in six different models to meet your exact requirements.

**Complete specifications are
available on your request,
or call 213-682-3705.**



**627 Fremont Avenue
South Pasadena,
California 91030, U.S.A.**

RTTY Journal

PO BOX RY

Cardiff by the Sea, CA. 92007

**SECOND CLASS PERMIT PAID
AT ENCINITAS, CA 92024**