RTTY Journal ©

EXCLUSIVELY AMATEUR RADIOTELETYPE

VOLUME 32 NO. 6 | JULY/AUGUST 1984 | ONE DOLLAR

ALAIN ROCHEMONT, FG7AR--Manigot, St. Martin

CONTENTS

VIC-20 REPAIR

CONTEST RULES

CONTEST RESULTS

AMTOR

IRL-1000 MODIFICATIONS

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: 619-753-5647

Postmaster send form 3579 to:
P.O. Box 179, Cardiff, CA 92007

SUBSCRIPTION RATES

USA	$ 7.00 per year
CANADA, MEXICO	7.50 per year
CANADA AIR MAIL	8.50 per year
MEXICO AIR MAIL	8.50 per year
FOREIGN	7.50 per year
FOREIGN AIR MAIL	13.50 per year

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 $2.00 PPD.

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 Umenoki, 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. Reproductions of this magazine 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.

DIALTA AMATEUR RADIO SUPPLY
212 - 48th Street, Rapid City, South Dakota 57701
Telephone (605) 343 - 6127

WE SPECIALIZE IN RTTY EQUIPMENT

HAL | INFO-TECH ELECTRONIC EQUIPMENT

Introductory Offer on New HAL DSK3100 Disk System!	Introductory Offer on New INFO-TECH M44 AMTOR Converter
The ULTIMATE Message/Traffic System, HAL MPT3100!!	The ULTIMATE in Multi-Mode Video Demods, M-600A!!
Enjoy AMTOR with the new HAL ARQ1000 Correcting Terminal	All NEW M-700A RTTY/Repeater Mailbox Controller!
Special Prices on CT2200, CWR6850, ST6000, RS2100.	Special Prices, M-70, M-200F, M-300C, M-500 Terminal

OUR PRICES CAN'T BE BEAT
- - - CALL DICK, KØVKH, FOR MONEY SAVING QUOTES! - - -

FREE BROCHURES AND INFORMATION

IRL-1000 ON AMTOR

The IRL-1000 is a well designed terminal unit, and in conjunction with the new AEA-MBA-TOR software and a Commodore 64 computer, it makes an outstanding data communications package for CW, Baudot, ASCII and AMTOR.

The only modification to the IRL-1000 is to disable the keyboard operated PTT to allow faster transmit-receive switching for AMTOR and Morse operation. To disable the keyboard PTT, clip one end of D24 and move the diode so the clipped leads will not touch. If you should want to restore the keyboard PTT later, push the diode back and a small solder blob across the leads will do the job.

A small CW keying circuit is necessary for Morse transmit. The IRL is used as before in ASCII and Baudot and operation on AMTOR requires the wide filter position, as the baud rate is too high for the narrow position. Some practice tuning AMTOR Mode A will probably be necessary. A scope is very helpful.

The IRL was not designed for use on CW, but can be made to operate. Start with the threshold control fully CCW and in the FSK position. Advance the input level until the Mark and Space LEDs flicker, then switch to Space only operation.

Your receiver or transceiver will need passband tuning to get the CW pitch to 2295Hz. also the RIT should be set about 1500Hz high or the receive and transmit frequencies will be offset.

The cable connections for the Commodore 64 and the CW keying circuit are shown in Figures 1 and 2. next month.

A W A R D S

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

DXCC # 102 To: Leo Small, K4AGC, 20 May 1984.

DXCC # 103 JOHN WOOD, WB2VTD, 1 June 1984.

DXCC endorsement #200 I5FLN, Luciano Fusari.. 1 June 1984.

AMTOR - A HANDS ON PRIMER

By Mike Lamb, N7ML
From CQ Magazine November 1983.
with permission.

There have already been articles written on the technical aspects of AMTOR. This article will deal only with the hands-on operation of AMTOR.

BACKGROUND

For the first 25 years of my Amateur radio activity I concentrated my operations mainly in the CW bands. The original reason was rather simple CW would get through when all other modes failed. But not anymore! I have since personally enjoyed error-free contacts on AMTOR under conditions that would have been difficult, if not impossible, for CW. It is hard to believe until you experience it for yourself.

F.E.C. AND A.R.Q.

AMTOR (Amateur Teleprinting Over Radio) is a general term for two subset modes, namely F.E.C. (Forward Error Correcting) and A.R.Q. (Automatic Request). Most, if not all, AMTOR terminal units have designed to include capabilities for both modes. Each mode has its own advantages and disadvantages. The F.E.C. mode will enable far less communication error than normal Baudot or ASCII RTTY, but the A.R.Q. mode is even more accurate. F.E.C. mode is similar to normal Baudot or ASCII RTTY in that the Information Sending Station (I.S.S.) does not receive until his message transmission is completed. F.E.C.mode is useful for traffic nets, CQ's and QST bulletins which are not easily adapted to A.R.Q. mode. F.E.C. mode involves a repeat of each character sent. The repeat character is always sent several characters later so that a long static burst or fading does not destroy both the original and repeat characters.

A.R.Q. mode involves a handshake operation between the I.S.S and the Information Receiving Station (I.R.S) This mode results in the familiar "chirp chirp" sound that is so commonly associated with AMTOR. In A.R.Q mode the two stations in contact must establish precise phase lock between their signals, or contact will not be made. This is, of course, all handled automatically by the computerized AMTOR controller, which of necessity contains some very sophisticated real time operating software. Other stations may monitor A.R.Q. QSO's, but they will not be able to break easily or join in a three-way contact.

In A.Q.R. mode the I.S.S. will transmit his message in three character blocks. The I.R.S. computer analyses the three characters to conform to an expected 4:3 mathematical ratio of mark and space bits. The 4:3 ratio represents 4 pulses of one polarity and three pulses of the opposite polarity. If they do conform, one character will be sent by the I.R.S. to request the next block of characters be transmitted by the I.S.S. If an error is detected, a request for repeat (RQ) will be sent to the I.S.S. until a correct bit ratio is received.

Obviously, if the signals fade below the noise level or are obliterated for a time by QRM, the data rate (message transmission speed) will slow down. However, the important thing is that the message will get through! (What good is it to have a high data rate if it turns into garble at the receiving station?)

GETTING ON AMTOR

The first obvious step to getting on this exciting new mode is to get some AMTOR equipment. At present there are at least three commercially available units on the market. These units are all built by reputable manufacturers, and I **am** sure that detailed product reviews are appearing in the Amateur Radio Journals.

THIS ARTICLE WILL BE CONTINUED IN THE NEXT ISSUE OF THE RTTY JOURNAL. LOOK ALSO FOR THE SCHEMATICS FOR THE ARTICLE "IRL-1000 ON AMTOR" IN THE NEXT ISSUE. EVEN EXPANDED WE HAD NO MORE ROOM--SORRY FOR ANY INCONVENIENCE THIS WILL CAUSE. de DEE, N6ELP

JOE WOOD, AJØX
POB 84
LAUREL, MS 39440

DX

Time to say hello and thanks again for the many notes and "bytes" of information that help keep us informed as to what is going on in the DX World. It is difficult to sit here and try to estimate how many hours are consumed each month by each of us, in search of that elusive country. In the course of doing so, each of us run across other DX that may not be of interest at the moment but certainly may be of interest to your fellow DX'er. If this occurs, jot down the information, callsign, time, frequency, QSL route and any other pertinent info, and send it along to me so that it can be shared. The method need not be a formal letter; simply a card or scrap of paper will do the job. Many of the notes received here are written on the back of QSL cards. The information is edited and placed on a master list that is kept current on a daily basis. This column will be as interesting as you help make it, so participate and I assure you that it will be appreciated, not only by me, but by your fellow DX'er too!

DAYTON....What can I say? If you missed that one, it surely your loss. A great massing of fellow Hams, commercial exhibits, information forums and the ever-loved 'flea market'. My only comment is that the Hamvention should have started on Monday so that I would not have missed a single thing. Rumor has it that at least 25,000 of us walked through the entrance over that two and one hald day period. The RTTY FORUM was directed by Mr. Bill Henry, K9GWT. Dick Uhrmacher, KOVKH, Dee Crumpton, N6ELP and yours truly were honored speakers. Dick spoke on RTTY mailboxes and RBBS, Dee took care of RTTY in general, and I had a shot at RTTY DX. [We were all good too! de N6ELP]. The attendance at the RTTY FORUM was approximately three to four hundred and included some 'real' DX operators as well as a goodly share of those just getting started in RTTY. It is always a pleasure to have our 'out of country' friends join us in such a gathering and a delight to meet them on an eye to eye basis. Such an occasion is not easily forgotten and I personally hope to meet them on a year to year basis. The amount of new gear that is becoming available to us along with the items offered in the flea market is almost indescribable. You will just have to see for yourself next year! The Dayton Hanvention has truly become International and if you would like to see the faces behind the keyboard of some of those distant stations, Dayton is certainly the place to do so. Hope to see each of you there next time around!

Last time I mentioned that Spring had arrived in the deep South. Well, it did not stick around too long as it hurriedly was replaced by Summer. Did get a chance to rework the wire sloper for 80 meters, the 40 meter KLM dipole and, in anticipation of 160 meter RTTY, put up a wire sloper for that band. I would like to have a couple of Beverage antennas for 160 receiving, but with the amount of wire and space required for such a system it is out of the question at the present location. A beverage antenna is certainly the answer to noise problems on 160 and is a worthwhile addition to the station equipment if you can 'swing' it.

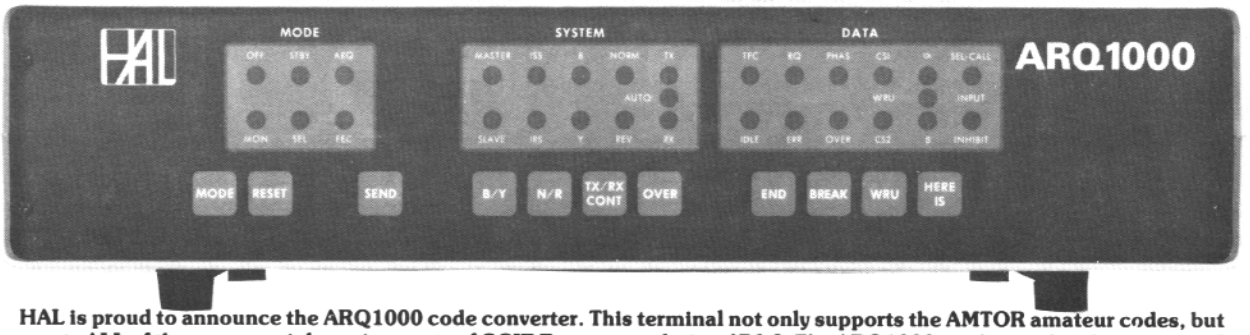
Speaking of additions, I recently acquired an Icom-751 transceiver for RTTY use. I installed the high stability reference crystal (TCXO) and found the frequency stability of the transceiver over a 24 hour period using a commercial frequency and at ambient room temperature only found a 4 Hertz maximum frequency shift in the IC-751. The dynamic range of the 751 is 105 DB and that really helps to reduce front end overload on those close 'loud' stations. I am using it in the AFSK (lower sideband) with an active filter in the audio line to the demodulator. This type of filtering is effective but perhaps not as much as it would be in the FSK mode and the 250 Hertz filter. If anyone out there has tried that mode I will be happy to hear from them. Apart from that I find the unit to be an excellent addition to the station and sure does make operating a lot more pleasurable.

CONGRATULATIONS go out to SM5FUG, JR2CFD, PY6SL, WB2CJL, W9ZR, W6MI and KA7BDB. These stations just made the ARRL DX Century Club RTTY membership list, and with the new ruling by the group at ARRL, will be able to endorse that award after August 1,1984. A number of DXCC members must be holding their breath waiting for that date so they can get their cards in for endorsement. A word of caution is in order...QSLs should be mailed to ARRL so that they arrive on or after the effective date. If they arrive beforehand, they may be returned to you without any processing having taken place. A real waste of time and money on your part if that occurs. In reviewing the new ruling regarding the endorsements, it is noted by this writer, that no, repeat:no provision has been made at this time for Honor Roll listing of those that have (?) or will have totals that are within ten contacts of the maximum number of countries listed in the ARRL countries list. This may not bear any importance at this time, but is something that may need to be addressed at some point in the future.

On to the goodies!!!!!
DX - Heard, Worked and How to get cards to "some of them."

FK8AB	14.091	1150Z	Via buro/CB
9K2DN	21.080	1740Z	Via: POB 25975, Safat Kenuit, Kuwait.
5R8AL	21.086	1310Z	Via WA4VDE
T77V	21.083	1218Z	Via:POB 101 San Marino.
4Z4NUT	21.092	1159Z	Via:WB2FTK.
UK3ACR	14.099	1307Z	Via POB 88, Moscow, USSR.

AMTOR RTTY

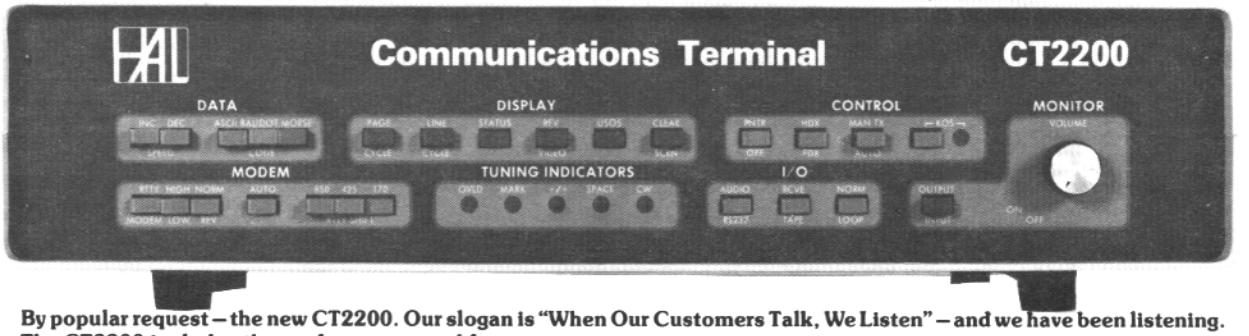


HAL is proud to announce the ARQ1000 code converter. This terminal not only supports the AMTOR amateur codes, but meets ALL of the commercial requirements of CCIR Recommendation 476-2. The ARQ1000 can be used with present and previous generation HAL RTTY products. In fact, any Baudot or ASCII full duplex 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
- 3⅝" × 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.

HAL COMMUNICATIONS CORP.
Box 365
Urbana, IL 61801 (217) 367-7373

LX9CR	14.093	2136Z	Via: LX buro
HP1AW	21.082	1715Z	Via:Callbook
YB1BG	14.094	1131Z	Via:Callbook
VK9NS	21.090	0200Z	Via:Callbook
JY9IU	21.087	1230Z	Via:HB9AHA.
9Y4GX	14.091	0135Z	Via:W7GVF.

FM7BX 14.091 2304Z Via:E.H.Zysset, 205 Eastern Ave., St. Cloud, Florida 32769.

C31NP	14.089	0133Z	Via: EA3BNX.
9M2MK	14.092	1045Z	Via:Callbook
5Z4RT	21.095	1135Z	Via:Sandy

Bauer, POB 6N, Tegernheim, West Germany.

EA6KY	21.092	1733Z	Via:POB 54

Mahon, Menorca, Balaeric Islands.

PJ2MI	14.094	1103Z	Via:Callbook
HK2DUK	14.092	1127Z	Via:POB 1500

Cucuta, Columbia.

ZP5JAL	14.080	1056Z	Via:POB 1311

Asuncion, Paraguay.

FK8BK	14.083	1107Z	Via:Callbook
9M2DW	21.094	1626Z	Via:Callbook
ZL8AFH	21.090	2304Z	Via:168 Mac-

kenzie Ave.,Christchurch, New Zealand.

EA9JE	14.087	0150Z	VIA:Callbook
9H1EY	14.084	1051Z	Via: Villa

Earland, Charghur, Malta.

SV5TH	14.083	0110Z	Via:POB 282

Rhodes, Dodecanese Islands.

KD7P/NH2	14.095	1055Z	Via: Bob

Winters, 68 Betel Palm, S.Finegayn NCWP, FPO, SF, CA 96630.

9H1GD	14.090	2130Z	Via:M.A.R.L.

POB 575, Valleta, Malta.

KL7PG	14.090	1935Z	Via:Callbook
KAØCVR/SV	14.092	1030Z	Via:WB4TDB.
OX5FG	14.095	1355Z	Via:POB 177,

3920 Julianehaab, Greenland.

T2ITA	14.099	0612Z	Via:Callbook

Anyone out there have any information on C30BAF? or 6Y5MC? This is a repeat of the last issue as MAS, W8WYK and Carl, K6WZ are still in need of that info. Also, comes a question from George, W1DA, regarding Russian RTTY activity. He says that he has only worked UT5 and UO5 and wonders if the other areas of Russia are ever active and if so, when is the best time for contacting them. In addition, he asks if the Central Radio Club ever sponsors a RTTY contest to augment activity. Answers to these queries can be sent to me and I will see that they get to the interested parties, who will no doubt appreciate your help.

JR2CFD, Mikio is still looking for a South American station for 40 meter WAC. Our Canadian neighbors would like for all of us to look above 7100 KHz. now and then, especially during contest times. VE cannot yet operate RTTY between 7050 and 7100 KHz. Taka, JA1JDD tells us that JA1ACB sent a Tono to AP2KS, Pakistan. Walt, ND6F from El Toro, CA was talking to Taka and inquired about any info on RTTY operations. Taka said to look for Dee on RTTY and get the RTTY JOURNAL from her. Walt went out to make some tea, came back and there was Dee, Talking to an Australian station. He got the info. Activity from Kermadec is on the upswing with ZL8AFH, Warwick reported on several bands. I received a very nice letter from Juan, LU4EGE he is very active in the DX world and is keeping his eyes glued to the CRT for the very latest DX info for the Spanish edition of the RTTY JOURNAL. We are all pleased to know that RTTY is a growing mode in South America. (His first issue of the Spanish RTTY JOURNAL has been mailed). Juan is presently on 14.072 Auto-Selcal LEGE and LDLE. If you wish to drop Juan a note regarding DX, I'm sure you can reach him on that frequency.

Carl, K6WZ, is of the opinion that we are experiencing something really unprecedented in DX history. After working 5 new ones in the BARTG last August, there was the St. Paul Island DX-pedition, then more for a total of 16 new ones worked in 6 months! Counting all of the new countries reported QRV or upcoming soon, there are about 36 more plus X number that he has never heard about. Carl also reports a QSO with a 16 year old who has been a Ham for 3 years and is now working on RTTY DXCC. THe latest country totals from Carl indicates 150 worked, 127 confirmed. Keep up the good work Mr. Steavenson! Jean, F8XT is really going to town however, he states he has 205 mark and says it is hard to find 'new ones'. I can imagine that it would be hard to find new ones!

Bert, N1BNK, reports the following heard: A4XJQ, Tony; ZK1XL, Ron; and CE3FCF, Carlos on the air, with Carlos being the only RTTYer in Chile on AMTOR. ZS1KT, Nico; and LU4EGE, Juan were spotted on AMTOR also. ZS2FP, Piet; SP2WCY, Kit and TI2AEB, Armando were heard during the early hours as well.

A special thanks go out to all of you that sent in info for this months column, K6WZ, JA1JDD, WA6PJR, N4FJL, JR2CFD, W5DOZ, VK2SG, W1DA, N1BNK, and WA6VZG. Take care and best of DX until the next time.

73, Joe, AJØX....SK

NEW! **RTTY TODAY**

MODERN GUIDE TO AMATEUR RADIOTELETYPE

JUST RELEASED!

$8.95
Plus $1.75 Shipping & Handling

"RTTY TODAY"—the only up-to-date handbook on RTTY available, covering all phases of radio-teletype. Answers many questions asked about amateur RTTY. Extensive sections fully cover the home computer for RTTY use.

Authored by Dave Ingram, K4TWJ, a noted authority on RTTY. Written in a clear concise manner, all material is new and up to date and covers the most recently developed RTTY equipment and systems. RTTY TODAY is fully illustrated with photos, diagrams, RTTY station set-ups and equipment. The latest information on the new generation RTTY. Just published.

World Press Services Frequencies

60 Radioteletype Services - 4th Edition
3 Large Master Lists By Time - Frequencies - Country

NEW 4th EDITION

$8.95
Plus $1.75 Shipping & Handling

A comprehensive manual completely covering the field of radio-teletype news monitoring—contains all needed information on antennas, receivers, terminal units, monitors, how to receive, frequencies and times of transmission for most world radioteletype news and press services.

Monitoring these news sources is fascinating shortwave listening.

Be better informed on world events and happenings, hours and even days in advance of radio, TV or newspapers.

Contains three different master lists of times of transmission, frequencies used, plus the ITU list of over 60 different news services in all parts of radio and shortwave listening that everyone can enjoy.

Write For Full Catalog Of RTTY Books & Frequency Lists

UNIVERSAL ELECTRONICS INC.
4555 Groves Rd., Suite 3
Columbus, Ohio 43232
Phone (614) 866-4605

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:

- 100KHz - 30MHz Receiver
- 16 Memories
- 100% Transmit Duty Cycle Transmitter with exceptionally low distortion
- IF Shift AND Passband Tuning
- Receiver Preamp
- 10Hz/50Hz/1KHz Tuning Rates with 1MHz band steps
- Adjustable Noise Blanker (width and level)
- Continuously Adjustable AGC with an OFF position
- Full function Metering with a built-in SWR Bridge
- Optional Internal AC Power Supply

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.

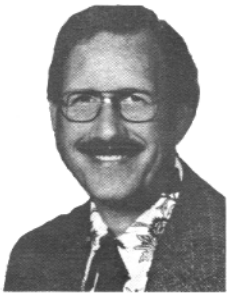
ICOM
The World System

ICOM America, Inc., 2112-116th Ave NE, Bellevue, WA 98004 **(206)454-8155** / 3331 Towerwood Drive, Suite 307, Dallas, TX 75234 **(214)620-2780**

All stated specifications are approximate and subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions.

7451283

MSO'S



by *Dick Uhrmacher,* K0VKH

INSTALLMENT #7

Hi Gang! One of our more famous circus companies has been known as "The Greatest Show on Earth", but I venture to say that the Dayton Hamvention must at least rank second. Another fantastic Hamvention has come and gone this year, and it was nothing less than exciting to see all of our RTTY friends, acquaintances and associates. The weather cooperated fully, the convention floor was knee-deep in manufacturers with every imaginable electronic goodie to tempt attendees, and overall it was one of the more enjoyable sessions of the Dayton Hamvention than I can remember in quite a while.

I'd like to take this opportunity to welcome Joe Wood, AJOX, as the new DX Editor for the RTTY JOURNAL. Joe is recognized as one of the premier DX operators in the world, and most certainly brings a wealth of talent and experience to the DX enthusiasts and readers of the RTTY JOURNAL. Joe also maintains a work-horse MSO on the National Autostart Frequency (14 087 750 Hz), which contains up to the minute information concerning DX and other Ham Radio events on a worldwide basis. If you're into the DX scene, then check Joe's MSO to get the latest.

The RTTY Forum at the Dayton Hamvention was a sell out this year! Not only did we have new facilities in which to meet, but attendance was high compared to years past, with standing room only. Bill Henry, K9GWT provided an excellent overview of RTTY History and operating techniques. Joe Wood, AJOX, painted the DX scene in colors that made us all want to rush home and start programming "CQ DX" into our machines. Dee Crumpton, N6ELP talked about the RTTY scene, including the RTTY JOURNAL. And yours truly gave a few minutes of information and operating procedures on MSOs. A question and answer session followed, in which quite a few good points were brought out, some of which will be included in this months column.

The National Autostart Frequency again this year, hosted a RTTY Dinner at the Imperial House North, with Gaylord and Louise Crawley (WB8ICL and WA8JIB) acting as coordinators and hosts. This annual affair grows each year. MSO Sysop's from several frequencies attended, and if you're planning on attending the Hamvention next year, we'd like to see you at the RTTY Dinner. This author was extremely pleased to be inducted into the world renowned society of "OH-WAH-TAH", including the prestigious "Big Gun Award"! Thanks to Jerry, WA1IUF, and the other members of the 14.097.500 Autostart Group!

It was my pleasure to visit with Paul Rindaldo, W4RI, Senior Technical Editor of QST magazine, and Technical Department Manager for ARRL, at the HAL Communications Hospitality Room. We discussed several items of interest concerning MSO's spectrum utilization, frequency coordination, and operating ethics and procedures, and I found that much to my liking, the ARRL's vision as to what the future holds for MSO's was, what this author had been forecasting (and striving for) for quite some time. Paul expressed the concern that particularly on 20 meters, we share a very small segment of the spectrum for RTTY operations, and that our efforts should be channeled into ways and means of sharing this spectrum with all RTTY interests. This means COOPERATION on everyone's part, as I'm no less than positive that the Ham interested in RTTY rag-chewing derives just as much pleasure from that activity, as does the MSO user/operator from their activities. It's only through common courtesy, well developed operating skills, and a willingness to share our limited spectrum, that digital communications will grow by leaps and bounds, and show these immense strides in technological improvements seen in the last five years or so. Packet radio, digital communications via sattelite, enhanced sophistication in CBMS's, (computer based mailbox systems), etc., will make our present systems seem outmoded in the near future. But, the over-riding concern of all, is that we MUST cooperate with others using this limited spectrum, and share with others who may or may not have our same goals in mind.

I encourage each person interested in RTTY, and especially those involved in MSO/CBMS operations, to carefully read the May 1984 QST, the "Moved and Seconded..." column, starting with the last column on page 59. This report of the ARRL Ad Hoc Committee on Amateur Radio Digital Communications contains some very interesting and vital information, with great insight on the ARRL's position on use and operation of these systems. Particular note should be made of the ARRL's petition to the Federal Communications Commission, to "authorize, specifically, automatic control of digital communications on all Amateur bands.....". Several proviso's are attached to this petition, primarily do to with reasonable and adequate safeguards to prevent accidental or purposeful mis-use of these systems. We've all seen what we consider mis-use of these wonderful machines, and from this author's viewpoint none of the ARRL's suggestions are too far out

PAGE 8 --TO PAGE 18

RESULTS OF THE THIRD ANNUAL RTTY DX - RTTY JOURNAL/73 MAGAZINE- CONTEST HELD FEBRUARY 25, 1984 0000 to 24000 Z

SINGLE OPERATOR ALL BANDS

Peter Rodmell, G3ZRS *	145520
Bo Stjernberg, SM6ASD *	141120
Jorgen Dudahl, OZ1CRL *	136300
John Johnston, W3BE *	132480
Barry Gardner, W3FV #	118340
Perozzo Etienne, ON7EP *	94205
Buraro Detudamo, C21BD *	90475
K.L. Miller, VE7YB *	87400
Vance Fauver, WB5HBR	87360
Andy McLellan, VE1ASJ #	79395
Roy Gould, K7IN	77015
Carl Steavenson, K6WZ	84240
Dave Earnest, HZ1AB *	67500
Mort Toussaint, N7AKQ	64800
Dan Kernan, WA2KOK	60160
Olli Savolainen, OH2BDN *	58650
Roger Simpson, NQ6C	56000
Talma de Barros, PP7GV *	54400
Mrs. E. Farida, LX2EL *	53865
Alle Lofgren, SM7AIA #	53235
Bill Snyder, WØLHS	44745
Clark Constant, W9CD	41600
Denis Mahoney, VE6ZX	40590
Jesus Dominguez, EA1AEB *	37675
Pepe Ferrer, EA5CVR #	33280
John Lee, K6YK	31850
John Possehl, W3KV	31255
Walt Amos, K8CV	30805
Jose Stragia, LU8ESU *	30550
Jack Reed, WA7LNW	30195
Lars Kjellgren, SM7LSU	28575
James Swan, VK2BQS *	23690
T.H. Holtby, VE7VP	22560
Willy Rogg, HB9HK*	22035
Werner Ludwig, DF5BX *	19110
Victor Holyoake, G4OJJ #	17415
J.O. Thomas, GW3EHN *	17000
Chuck Prindle, W6JOX	16740
Robert Miller, KB9SU	16720
Jan Kus, SP9BCH *	15120
Bob Lewis, N4GXP	14070
P.M. Hendricx, PA3DBS *	13650
Jules Freundlich,W2JGR	12420
Edwin Cortes, WP4AVW	10230
John Orton, WA6BOB	9990
Charles LeGrande, AH6CS	9440
Dennis Grinnell, G4MKO	9000
Greg Hanson, KA1ZX	8835
Armando Mateos, EA1AAO	8400
Arpad Sarkezi, YU7AM *	8370
Kurt Wustner, DE1KWD *	7750
Wolfgand Ferrling, DLØDO #	7250
Askene Vestermarie, OZ1GRF#	6750
Jake Meyer, HP1XUL *	5800
Elliot Hamilton, WA9JIQ	5720
Carlos Laroca, PY2CAR #	5460
Zdenek Kasek, OK2BFS *	4590
Roger Bjerke, KCØUM	3600
Juan C. Montalvo,EA2AOV	3465
Neal Morris, KØTIV	3255
Wagner Vlado,YU2CB #	1625
Kryzys Ulatowski, SP2UUU#	1155
Diet Platthaus, DJ6QO	1000

* denotes first in their country

# denotes second in their country

SINGLE OPERATOR 20 METERS

Dima Slyusarenko,UT5RP*	84240
Larry Bruggensmith,KI4BQ*	39015
Jurgen Bieber,DL9MBZ*	15250
Tomas Asenjo, EA4SB*	14720
David Smith, W6NCR#	12950
Dusil Miroslav, OK1AWC*	12000
K. Tettelaar, VE7ATH*	11220
Paul Clifford, WA2AXO	10880
Leslie Harper, W8CFJ	9990
Joe Hungate, K8OM	7685
Kenneth Cote, VE6BEV#	7155
Kari Syrjanen, OH5YW *	7140
Richard Kriss, KD5VU	3630
Ari Rodrigues, PT2BW*	3225
B. Strandberg, SM6IJF*	1260
Gary Moles, ZL2AKI*	1100

SINGLE OPERATOR 15 METERS

Piero Giacomelli,IK5CKL*	29150
Hiroaki Kubo, JR6YAH*	28380
Norman Buckley, KC7RG*	10880
Miguel Quijano, WA2HLV#	5610
Roger Thering, KE6T	4995
Hirofumi Kondo, JF2PZH*	4725

SINGLE OPERATOR 10 METERS

James Sladek, WB4UBD*	1890

MULTI-OPERATOR ALL BANDS

Mike Bottema,K8EX*	166950
Pasquale Ventresca WB3FIZ #	102225
Radioklub PRI ODPM*	70725
Leicester Polytechnic Society-G3SDC*	65995
Greg Haines, WB4PRU	48900
Radioklub Zvazarm, OK3KGI #	42380
Radioklub, OK3KYR	30140
Guernsey ARC, GU3HFN*	12025
Radioklub J.Murgasa, OK3KJF	6800
Central Radioklub, OK3KFV	5500

MULTI-OPERATOR 20 METERS

Sodermans Regemente, SL5AR *	61920

Check Logs: N6ELP, WB6AQR, Y25DL and F6AUS

Comments: "Due to new TS-930S giving an intermittent RF output under steady key-down condx and the breakdwon of my traps, I regretably had to pull the switch" ZL2AKI "This is my first contest so hope it is OK. The 'dupe sheet' had me baffled". VE6BEV.

"This is my first RTTY contest-enjoyed it very much-hope condx will be better from this QTH next time" VE7ATH.

" Propagation, as usual" always seems terrible here, especially since we at the bottom of the 11 year sun cycle, but I felt that the bands were quite good this weekend. I seemed to get on top of the 'ZS Mail box' for only a short while..Too bad I could not catch anyone there in the contest Many more stations were in the test this year. Had an excellent time and look forward to next year at the bottom of the sun cycle" N7AKQ..

"Nice contest, many sigs from Europe"WA2KOK

"My first RTTY contest. I had my greatest thrill when I worked my first RTTY DX"KØTIV

"All my family are QRV on RTTY now but I did the contest. Just got my license in October". SP2UUU Christopher....

"The opening of 15 meter band was the only thing that prevented a diaster. The legality of FSK on 7050 to 7100 is in doubt due to the VE phone assignment there so no attemp were made. On 80 the skip never got much farther east than Ohio..to the west it was open to KH6 but nothing was heard. On the whole enjoyed the contest, picked up 2 new countries:UKO and GU." VE7VP...

"condx were not favorable at the start of the contest (0300 local) 16 QSO's in four hours. I heard no Africa, but did work all

AEA Announces:

A User-Friendly Software Package Designed For Easy Operation of Morse, Baudot, ASCII, and AMTOR. A Feature-Packed Program Called:

MBA-TOR™

Now Available for the Commodore 64 Computer in Two Versions.
MBA-TOR 64 Software Package Only, at $119.95 Suggested Retail.
MAP-64/2 Software with Self-Contained Interface $239.95 Retail.

Just Look At Some Of The Features:

MAIN MENU SCREEN

```
                    hh:mm:ss

MBA-TOR™
COPYRIGHT 1984 BY AEA

SELECT:
 M. MORSE
 A. ASCII
 R. RTTY
 T. AMTOR
 U. AUTO AMTOR
 X. AUTO CALL
 C. COMMANDS
 O. OPTIONS
```

- CW receive and transmit at 5 to 99 wpm, auto speed track on receive.
- 8 bit ASCII, receive and transmit at 110, 150 or 300 baud.
- 5 bit Baudot, receive and transmit at 60, 67, 75, 100 or 132 wpm.
- TOR, receive and transmit ARQ (Mode A) or FEC (Mode B) and listen.
- Beacon and WRU system, includes QRG check before XMT, won't QRM.
- Message forwarding system, AUTO-AMTOR still functions in this mode.
- Selects command menu.
- Selects options menu.

+ Complete precompose split-screen display with status information.
+ Complete printer control including SELCALL/WRU printer control.

OPTIONS MENU SCREEN

```
                    hh:mm:ss
 I. CALLSIGN       ??????
 S. SELCALL         ????
 T. ARQ TIMEOUT       30
 U. USOS              ON
 M. MORSE FILL (BT)   OFF
 R. RTTY SYNC (NUL)   OFF
 A. AUDIO FEEDBACK    OFF
 C. AUTO CR           ON
 L. AUTO LF           ON
 B. BEACON RECORD     OFF
 W. WRAP-AROUND       ON
 K. CW BREAK-IN       OFF
 O. OUTPUT MODE       WORD
```

- 24-hour clock, shows time in hours, minutes and seconds.
- Allows entry of your callsign for auto operations.
- Derived from your callsign automatically, can be changed.
- Sets ARQ phasing calls from 1 to 99 seconds.
- Unshift on space, toggles on or off.
- Transmits Morse idle character during breaks in KB activity.
- Transmits RTTY idle character during breaks in KB activity.
- Sends short beep through your audio as any key is depressed.
- Sends carriage return the first space after 65 characters.
- Sends a line feed after each carriage return.
- Allows the beacon to be recorded to the QSO buffer for logging.
- Sends CR/LF if there is a space in the last 5 positions on the line.
- Automatic transmit/receive switching during QSO.
- Transmit in word mode (text sent on space) or character mode.

COMMAND MENU SCREEN

```
                    hh:mm:ss

 L. LOAD
 E. EDIT
 M. MOVE
 S. SAVE
 X. SET XMT BUFFER SIZE
 C. SET COLOR
 T. SET TIME
```

+ Break-in buffer on all modes, toggle QSO buffer on or off.
+ CW speed lock and Farnsworth low-speed CW.
+ 10 soft-partitioned™ message buffers plus direct from disk or tape.

- Allows loading of message or QSO buffers from disk or cassette.
- Word processor type edit functions on message and QSO buffers.
- Allows transmission of QSO buffer without disk or cassette systems.
- Allows you to save message and QSO buffers to disk or cassette.
- Set the transmit pre-type buffer to any size you like.
- Chose between any of 16 colors for character, screen or border.
- Lets you set the time of day clock.

+ Insert QSO station's call into any buffer while still copying.
+ Includes a complete manual, keyboard overlays and cables for the AEA Computer Patch™ or Micropatch™ Interface.
+ For more information call AEA, or see your AEA Dealer.

Advanced Electronic Applications, Inc.

P.O. BOX C-2160 • LYNNWOOD, WA 98036 • (206) 775-7373 • TELEX: 152579 AEA INTL

ENGINEERING MAKES THE DIFFERENCE

Production Expertise And Service Integrity Form The Foundation For Your Long-Term Satisfaction

The fact that the Computer Patch Interface unit by Advanced Electronic Applications, Inc. is known as the best value on the market is no accident. The CP-1 was designed by Al Chandler, K6RFK (PHD-E.E.), an active RTTY user since 1963.

Given a cost per unit budget for the CP-1, Al designed as much performance as possible into the Computer Patch, including a unique new tuning indicator, referred to by one of our customers as the "Dead Eye Dick" tuning indicator. This indicator is ideal for RTTY and CW, in that it is both fast to tune and (within 10 Hz) as accurate as scope tuning. It also performs under poor signal to noise conditions in which other indicators provide no useful data.

Al's variable shift tuning was designed to move the space filter center frequency from 2225 Hz to 3125 Hz without changing the bandwidth (by varying the Q of the filter). All this is accomplished using a precision ganged potentiometer to assure proper tracking of the multiple filter stages. We could have used a pot costing a tenth as much by simply using a two-pole filter design, but we feel the advantage of a sharper filter reduces the noise bandwidth significantly and allows the variable shift control to be used like passband tuning for extra elimination of adjacent channel interference.

Some manufacturers are concerned that amateurs might try calibrating their own equipment and, therefore, have used non-adjustable components, which results in sub-optimal performance. Although more costly, trimpots used in AEA equipment allow factory adjustment for performance to design specifications. Competently designed active filter circuits need not be adjusted after leaving the factory; however, for specialized use the owner can easily change filter parameters.

Mindful of the fact that many of our customers are new to RTTY, Al made the CP-1 tuning as forgiving as possible, while providing the most critical operator a piece of equipment in which he could be proud. Even old "pro's" are surprised at the poor signal conditions under which the CP-1 will still provide good copy.

You can now experience the BEST RTTY, CW, and AMTOR offered. Couple the CP-1 with our new AEASOFT™ software packages designed for the MARS, SWL, or amateur radio operator, and you will feel a pride reminiscent of what "made in U.S.A." brought in years gone by. Please do not hold the low price of the CP-1 against us. This is one case where you get much more than you pay for relative to any of the competitive units. For more information send for our FREE catalog. Better yet, see your favorite dealer.

AEA Brings you the Breakthrough!

Advanced Electronic Applications, Inc.

P.O. BOX C-2160 • LYNNWOOD, WA 98036 • (206) 775-7373 • TELEX; 152579 AEA INTL

CONTEST CONTINUED

other continents. Had a long path on 20 and picked up a few new states. Actually have more confirmed on 160 than anything else..HZ1AB..

"Wonderful contest". W3BE...

"My first RTTY contest, very nice. made nice QSOs with everyone and the condx were good." PA3DBS....

" almost WAC on 10 meters." K6WZ....

" Have been on RTTY for 3 months and having a ball, sorry it took 25 years to get into RTTY." KT1N....

" My first RTTY contest Enjoyed it very much." EA5CVR...

"enjoyed the contest very much, will have to get an amp for next year, low power on 40 is no answer, and 80 was a complete wash out." VE6ZX...

"Good test." ON7EP Steve...

"The afternoon hours on 20 and 15 meters exceeded everything I have experienced so far in RTTY contesting. What fantastic activity. Almost 20 contacts per hour. 10 meters was good but little used. Looking forward to seeing you in the next test and in the next and...." Bo, SM6ASD..

"My very first contest," WP4AVW/EA4..

"tnx fer test, am ready for 1985"... CT1AV....

"QRT on 28 and out of test due to power failure. Know I missed many... sorry. Will do better in 1985" GW3EHN

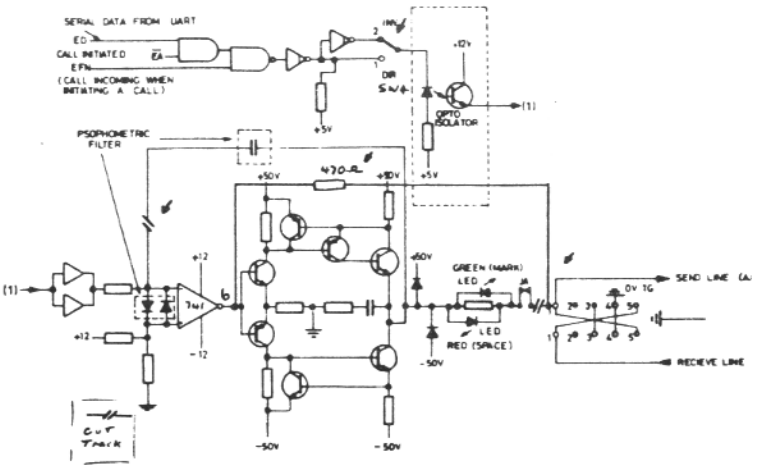
"Glad to activate 'GU' on RTTY, a rare one on RTTY." GU6JST.(GU3HFN)...

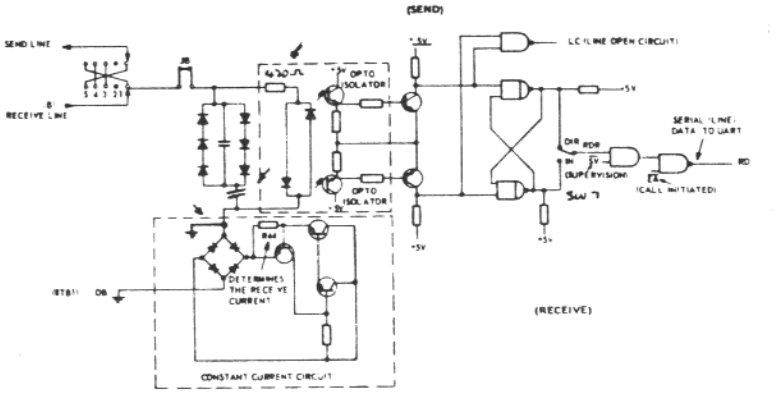
"My wife,KA3GIK and I throughly enjoyed the contest. Good DXing" WB3FIZ

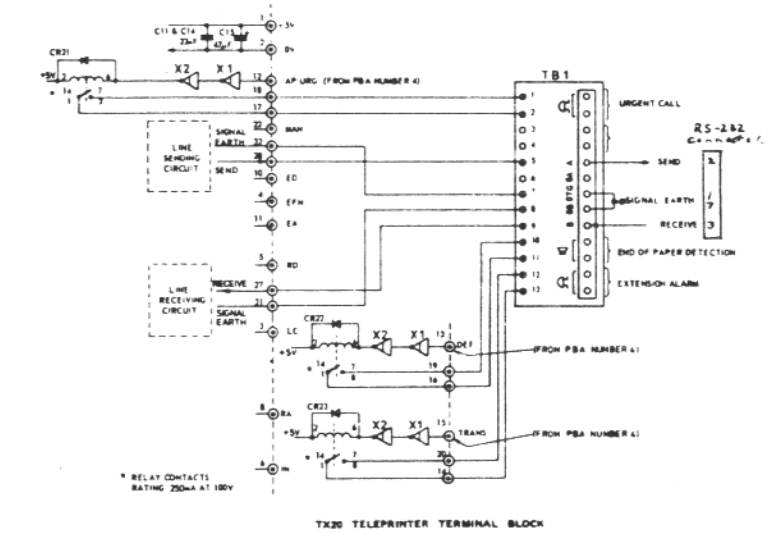
"This was our 2nd year, not as many DX countries this year,still a good time was had by all.See you 1985,K8EX

"It was fun, a lot of work, a lot of headaches (compiling the test results) and would do it all over again anytime (almost!). See you all next year???? N6ELP and RTTY JOURNAL staff

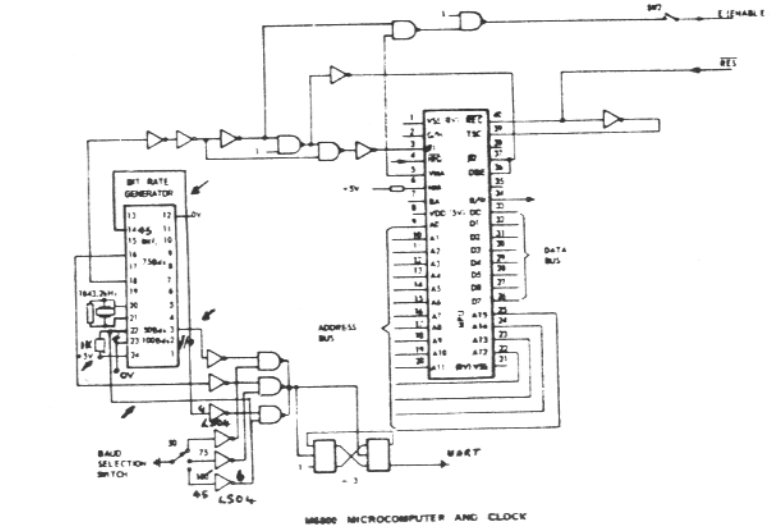
NOTE: Contest logs were received long after the closing date. Two were received on June 5th and used for check logs only. Too bad one had a very good score...







TX20 TELEPRINTER TERMINAL BLOCK



M6800 MICROCOMPUTER AND CLOCK

Here are the schematics for the article last issue on Modification of the Sagem TX-20 For RTTY BY Ian Eddy, VK2IE, C/P.O Waterfall, N.S.W., Australia 2233. If you would like a copy of these schematics in a much larger version (each on 8 x 11 sheet) please send $1.00 to the RTTY JOURNAL office with a S.A.S.E. and we will be happy to send them to you. The are beautiful, but unfortunately we did not have any more room in this issue for them..De Dee,N6ELP.

by GEORGE

HITS & MISSES

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

In my columnn last month, I discussed keyboard data entry. The importance of consistent data entry was stressed. This month I will start out with the report entry.

A convenient feature built into the "Logger" is a repeat entry. A repeat of the last data entered by a null response at the prompt line for these fields. This feature coupled with the default values for RST makes contest, field day etc. entries quite fast and simple.

Once a complete log entry has been made, you will be given the opportunity to edit that entry before it is written to the data base. An edit prompt will appear near the bottom of the screen.

Select the field to change (if any) by entering the corresponding number of the field which appears at the far left of the screen. Edits are made just like the original entry. When all fields are as you wish, make a null response to the edit prompt. The log entry will be recorded in the data base and a fresh entry prompt screen will appear. When you are through making entries for the time being a null response at the station prompt line will terminate the function.

Reading an extract file is the method by which data may be "batched" into your data base. Instructions that appear on your screen must be followed. No intervention is required or is possible. There are no processing options. All data on the extract file will be loaded except in the case where the data base becomes full before loading is complete. This function and the write extract file function are normally used to split a large data base into pieces for whatever purposes the user desires.

When it is desired to change only a few entries or where the changes to be made are unique to each entry, this function should be selected. The prompt screen will appear which is identical to the keyboard add screen. **You** should respond to the station prompt with the ID of the entry you wish to edit (up to ten characters followed by a return). The "Logger" will check the data base for the existence of the specified record. Failure to locate it will result in a highlighted advisory near the bottom of the screen. If found the contents of the specified record (log entry) will be displayed. At this point a second prompt line will appear near the bottom of the screen.

(H) C (S)kip (P)rocess (R)eturn

The "Logger" supports duplicate station specifications. Therefore, the user should ascertain the displayed record is the one intended. If it is not, enter (S) for skip and the program will resume searching for additional records with the same ID. A fresh prompt screen will appear if none is found.

Once the intended record is located and displayed enter (P) for process. The "Logger" will respond with an edit prompt as in keyboard add. The station ID cannot be changed. Log entries with incorrect station ID's must be deleted and re-entered. Edits are made in an identical manner with keyboard add and are completed by making a null entry at the edit prompt line.

Prior to selecting (P) for process, two other options may be exercised:
(H) for Hard Copy
(R) for return
(H) causes the current record values as displayed on the screen to be sent to the printer. This is useful in making a 'before' image of the record about to be edited.

(H) causes a return to the sub menu without further processing. This is useful in escaping back to the menu when a record has been retrieved and no changes are desired.

Writing extract files is a powerful function which will create a standard DOS 3.3 sequential text file of the qualified data base records. This file may be read by any Apple soft program, thus giving the user the ability to do external processing on his records. If he wishes, the "Logger" will reload an extract file into the data base using the facilities of the add function. The record format of the extract file is as follows:

POSITION	LENGTH	FIELD
1	10	station
11	4	date
15	4	time
19	4	band
23	4	mode
27	3	RS(S) sent
30	3	RS(T) received
33	25	comment
58	1	QSL status

When creating an extract file, the "Logger" copies the selected records from the data base to the extract file, rather than moving them, that is, the original records remain in the data base.

HITS AND MISSES COLUMN CONTINUED

Furthermore, when an extract file is being created, the "Logger" checks for the existence of a previous extract file on the disc in the second drive. If one is found, the newly extracted data is appended to the existing data. If no previous file is found, a new one is created.

I will close out my column for this month and will conclude my series on the "Logger" in my next column.

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

CORRECTIONS TO THE ABOVE SERIES ON THE "LOGGER".By Bob Jackson,AG5X....

Orders and info inquiries should be addressed to me, Bob Jackson, NOT Ladybug Systems.

The program DOES NOT require an 80 column card in the Apple. The only 80 column requirements are for the printer, if the user has one. This is an important point as many Apple owners don't have 80 column cards..I don't. The program was written for the basic Apple. Many copies have been sold to Apple IIe owners with no problems reported.

This program is sold on an unprotected diskette so that the user can make backup copies as needed. I'd also be interested in your readers' comments regarding the desirability of versions of the program for other computers, such as the Commodore 64.

Bob Jackson, AG5X
P.O. Box 57304
Webester, TX 77598

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CORRECTION TO DIAGRAM IN APRIL 1984 ISSUE-TU CIRCUIT FOR ZX-81

Shown is a two position switch to allow for 'inversion', but an additional position is recommended to keep it from messing up tape loading. The LED is used as a tuning indicator and works well on 170 Hz shift signals. It will go out then the PLL is locked on frequency. A scope should be used for tuning shifts above 425Hz.

Above is the station of Dr. Ben Grokett, KR6E, and friend. Look for his article on RTTY Programs For the Heath/Zenith Computers, in the next issue of the RTTY JOURNAL. Also articles on Amtor and the irl 1000 modification for AMTOR. A passive RTTY scope and more Modifications for the Kenwood 930S will be featured in months to come. Keep the articles coming as it is the one way you may be sure of 'sharing the wealth' of info out there with others of like mind.....Look for the RTTY JOURNAL in South America and other Spanish speaking countries geared to our Hispanic RTTYers in the Spanish language. If interested in obtaining a subscription, in Spanish, contact Juan, LU4EGE. The RTTY JOURNAL is growing, but still needs your help, as always, with new information, DX info etc., RTTY DIT DIT de N6ELP.

OOOOOOOOOOOOOOOOOOOO

THE STANDARD OF EXCELLENCE
EXL-5000 COMMUNICATIONS TERMINAL
• RTTY • ASCII • DUAL AMTOR* • CW •

***DUAL AMTOR - COMMERCIAL QUALITY: THE EXL-5000 INCORPORATES TWO COMPLETELY SEPARATE MODEMS TO FULLY SUPPORT THE AMATEUR AMTOR CODES AND ALL OF THE CCIR RECOMMENDATIONS 476-2 FOR COMMERCIAL REQUIREMENTS.**

NEW!

1 YEAR LIMITED WARRANTY

EVERYTHING BUILT-IN NOTHING ELSE TO BUY

Code	Morse (CW: contains Kana), Baudot (RTTY), ASCII (RTTY), JIS (RTTY), ARQ/FEC (AMTOR)
Characters	Alphabet, Figures, Symbols, Special Characters, Kana
Speed	Morse Receiving: 5-100 Words/Minute (AUTOTRACK) Transmitting: 5-100 Words/Minute (weight 1:3-1:6) RTTY (Baudot, ASCII, JIS) 12-300 Baud TTL (Baudot, ASCII, JIS) 12-600 Baud ARQ/FEC 100 Baud
Input	AF Input Impedance: CW and RTTY 500 ohms TTL Level Input: Common to CW, RTTY, ASCII
Time Clock	Displays month, date, hour and minute on the screen.
Color	Light grey with dark grey trim — matches most current transceivers.

Display Output	5" high resolution, delayed persistence green monitor — provides sharp clear image with no jiggle or jitter even under fluorescent lighting. Also has a provision for composite video signal output.
Interface for printer	Centronics Compatible Parallel Interface
Number of Characters - Displayed	Screen Format/Page: 40 characters x 16 lines x 2 Pages
Battery Back-Up - Memory	72 characters x 7 channels, 24 characters x 8 channels
Buffer Memory	160 characters
Power Supply	AC 100-120V/220-240V 50/60Hz + DC 13.8V, 2A
Dimensions	363(W) x 121(H) x 351(D)mm: Terminal Unit

EXCLUSIVE DISTRIBUTOR: DEALER INQUIRIES INVITED

AMATEUR-WHOLESALE ELECTRONICS

8817 S.W. 129th Terrace, Miami, Florida 33176

FOR YOUR NEAREST DEALER OR TO ORDER:

TOLL FREE . . . 800-327-3102

Telephone (305) 233-3631 Telex: 80-3356

VISA MasterCard

MANUFACTURER

TONO CORPORATION

98 Motosoja Machi, Maebashi-Shi, 371, Japan

CONTEST RESULTS-C.A.R.T.G 23rd RTTY

DX	"COMMUNICATIONS"	SWEEPSTAKES
1.	I2OLV	2,736,480
2.	K4AGC	1,899,752
3.	ISØVSG	1,728,372
4.	W3FV	1,623,088
5.	OZ1CRL	1,609,500
6.	UT5RP	1,399,380
7.	SM6ASD	1,002,168
8.	WB5HBR	991,942
9.	IK5CKL	944,256
10.	HZ1ABI	916,176
11.	IØZSG	703,438
12.	K1LPS	696,624
13.	K6WZ	599,400
14.	W3KV	595,526
15.	VE7YB	502,658
16.	JA1BYL	487,180
17.	JR2CFD	464,172
18.	W6JOX	402,760
19.	VE2JR	381,870
20.	I8JRA	358,450
21.	VE8CM	226,384
22.	VE2AXO	145,996
23.	WB4UBD	143,500
24.	VE3FJB	118,888
25.	YO8FR	104,890
26.	W2KHQ	86,700
27.	GW4EHN	56,904
28.	VE7EJ	42,624
29.	KD8GC	39,056
30.	SM7LSW	38,810
31.	DF5BX	36,920
32.	I5FZI	36,647
33.	KE6T	35,500
34.	TI2DO	17,365
35.	NN6F	14,780
36.	Y7GWN	8,736
37.	JF2PZH	7,272
38.	PY1DCB	7,104
39.	SM7BGE	4,310
40.	VE7DDQ	536
41.	W8TCO	260

Multi-operator

1.	LZ1KDP	3,107,912
2.	VE3UR	438,200

S.W.L.

1.	DE1GMH	162,240

Check Logs

W1ZXA, SM7AIA, Y2SDL, VE3GQV, G4EMT..

AWARDS-ENGRAVED PLAQUES ISSUED....

VE7YB- "President CRRL Award" for Canadian High Score.

K4AGC- "RTTY JOURNAL Award" U.S.A. high score. Leo from Vienna, VA.....

LZ1KDP- Multi-Operator High score "CARTG member plaque".

DE1GMH- S.W.L. Plaque "CARTG".

K4AGC- 25 contacts 2-way RTTY with Canadian stations plaque-VE2JR.

C.A.R.T.G "MAPLE LEAF" SWEEPSTAKES SATURDAY OCTOBER 20th 0200 TO MONDAY OCTOBER 22,1984 -- 0200 GMT

No more than 30 hours of operating is permitted for single operator stations. Non-operating periods can be taken at any time during the contest. Multi-operator stations may operate the entire 48 hour contest period. A summary of operating times must be submitted with each score.

Bands: 3.5, 7, 14, 21 and 28 MHz.

CLASSIFICATIONS: single operator (one transmitter) Multi-operator (one transmitter) S.W.L. operator.

MESSAGES: To consist of RST, GMT time and Zone.

EXCHANGE POINTS: All two-way RTTY QSOs with ones own zone counts two (2) points. All other contacts will receive points as listed on CARTG Zone Chart.

MULTIPLIERS: Country status as ARRL Countries list, KL7, KH6, W/K, VE/VO, VK districts counted as separate countries. Stations not to be counted more than once on any one band. Additional contacts counted on different bands. One's own country counted as a multiplier.

SCORING: Total exchange points X number of countries contacted X number of Continents (maximum 6). Two hundred (200) bonus points added to final score for each Canadian contact.

LOGS: Logs to contain band, date,times GMT, RST, Callsigns, Exchanges sent and received. Use separate log for each band. Multi-operator logs must be signed by each operator. Send SASE or IRC's to CARTG for Log sheets and Zone charts, etc. Logs must be received before January 1, 1985 to qualify.

AWARDS: Engraved plaques for top ten scores, Green RTTYer, Top Canadian, and station contacting the most Canadian stations, top multi-op score and SWL high score.

Canadian Amateur Radio Teletype Group VE3RTT, 85 Fifeshire Rd., Willowdale, Ontario, Canada M2L 2G9.

GWEN BURNETT, VE3AYL

It is with sadness that the RTTY JOURNAL reports that Gwen is looking for a replacement to continue the work of the CARTG, especially the bulletin. Gwen has been the guiding light of CARTG for the past fourteen years and says it is about time for her to retire. Anyone interested in trying to do the job Gwen did so well for so long, should contact Gwen at the CARTG office address given above.

Gwen, you will always be "A Young Lady."

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

DARC "CORONA" 10 METER RTTY CONTEST

SCHEDULE: September 1st-1100-1700 UTC
November 3rd 1100-1700 UTC

CONTEST CALL: CQ Corona Test

ENCHANGE: RST/QSO#/Name (US stations will also give their state.

POINTS: Each station has to be contacted only once. Each complete RTTY-QSO counts for one (1) point.

MULTIPLIERS: Use latest WAE and DXCC list, count each VE/VO/VK call area and each US state as a separate country.

SCORING: Total QSO points X Total multipliers.

CLASSES: A=single/multi-operator;B=SWL

LOGS: recommended using official log forms. Logs to contain:Name, Call, and full address of participant, Class, time in UTC, exchange and final score.

DEADLINE: Each entry must arrive within 30 days after the test.

Manager: Klaus Zielski, DF7FB, POB 11-47, D-6455 Erlensee, West Germany.

AWARDS: For the leading stations in classification.

ADAPTING MODERN TRANSCIEVERS TO FSK

Carl Steavenson, K6WZ
13638 Sproule Avenue
Sylmar, CA 91342

In the May-Junr issue of the RTTY JOURNAL, Dick, KOVKH, asked for inputs regarding adapting modern transceivers to FSK, one advantage being that sharper I.F. filtering is available with some units when operated in the FSK or CW (?) mode, as opposed to the LSB mode.

I don't even have an immodern transceiver but I see no reason why the usual diode shifter should not work just as well with a solid state VFO as it does with a vacuum tube VFO. For the many Hams not having access to past JOURNALs, a diode shifter is sketched following the article.

The next question might be one of where to get the voltage to key the diode. Most terminal units developed for use with teleprinters should provide a small keyed voltage, probably divided down from the loop supply.

But it appears that the great majority of operators are using some form of commercially produced interface unit and a computer.

I recently added the AEA CP-1 and a Commodore to the shack and, after a few successful trials using the AFSK output, I still wasn't comfortable hearing even the low level carrier and unwanted sideband from the 75A-4 receiver. Having always operated FSK, the two modifications described in the AEA manual were tried with the following results.

The first mod given in the manual involves adding a 2N2222 and three resistors plus cutting the track to the DEMOD OUT jack, J5 (see also Product review, QST April 1984). This mod worked for the author of the QST article and two other people I worked and may work fine for many others. But it does not provide a keying voltage--only conduction (high) on mark and low on space. The 2N2222 keyed both my 32S-3 and KWS-1 VFOs perfectly without the need for a diode, but the shift was "upside down" and there was need to be concerned about stray capacity effects from the connecting leads. Another inverter stage at the VFO would have given proper shift and provided some degree of isolation.

The other modification given in the manual is much simpler. It calls only for lifting the middle (base) lead of Q13 and connecting the lead to pin 2 of the TTL jack, J6. That is all... unless the track has been cut, as I mistakenly did. But with a solder bridge across the cut track, about 4.4 volts mark and Ø space are available at the DEMOD OUT jack. Adjusting the trimmer capacitor shown in the schematic gives the proper shift, spur-free.

In case someone wants to continue using the FSK voltage from an existing T.U., as I did, (to permit also using machines for hard copy and tape transmissions), the mark high space low from the CP-1 turned out to be the opposite obtained from the old Mainline TT/L. This called for the diode to be reversed in polarity for the CP-1 keyer. Separate keyers were also necessary because of the different levels of keying voltage provided. Each keyer is adjusted to give essentially the same shift and no difference is reported except the keying from tape or TTY keyboard is slightly "harder."

AEA also describes modifications for operating a printer directly from the CP-1, but I have not tried that.

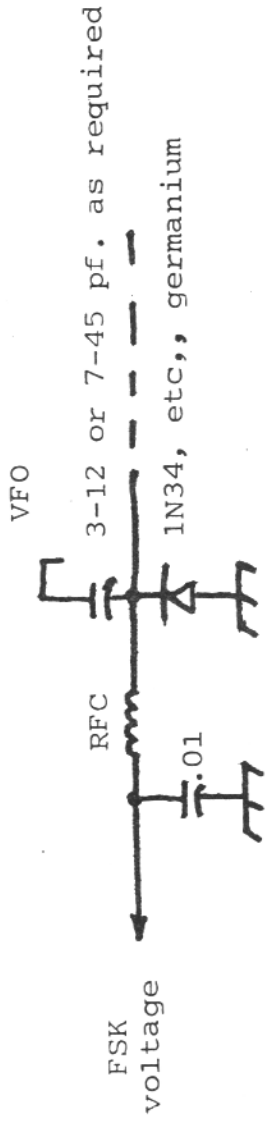
I have no idea whether the diode shifter approach will work with synthesized VFOs but do know that an ordinary crystal oscillator can be shifted in the same manner and may require a combination of inductance and capacity as with a VXO.

A snag to be recognized is the fact that many stations are not equipped with a separate receiver or monitor, or a counter with which to make shift adjustment convenient. I've been able to help four or five operators adjust their AFSK during QSOs using only the 3AP1 built into the T.U. Others were not able to make the adjustments immediately.

Perhaps someone can come up with a one-or two-transistor regenerative monitor (receiver) that could be used to get the shift into the ballpark.

The CP-1 modifications discussed apply to serial numbers 1100 and higher. Mods for earlier serial numbers are slightly different. (My unit is 4811). I wonder what the beginning serial number was?

Will be happy to answer any questions that I'm able to but an S.A.S.E will be appreciated.



VIC-20 REPAIR: -1

Harold Thurlow, K8BCV
939 Kaypat Drive
RR#1 Hope, MI 48628

Here are a couple of repairs that I made to my Vic-20.

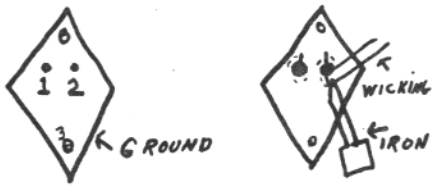
Recently, when it quit and the screen went blank I removed the top section by taking out the three screws on the bottom, tipping up the keyboard assembly, then when turning on the Vic I checked the voltage at the center capacitor and it showed about 11 volts. I then checked the 5 volt line and it showed about 3 volts. I then removed the regulator (it looks like a large metal transistor). To remove the board, remove all of the cable plugs (they are polarized so don't worry about putting them back wrong). Next carefully peel up the copper tape from the circuit board and leave it intact, attached to the VIC. Now take out the board mounting screws, lift out the board and take the voltage regulator. BE VERY CAREFUL in taking out the screw that goes through the rectifier blockas I ruined the screw in mine and had to replace it with a slightly larger one and had to drill a larger hole for it in the rectifier block. After removing the heat sink parts unsolder the pins on the voltage regulator by using a small wattage pencil iron and copper solder wicking to soak it up. The wicking will only absorb a small of solder at a time so clip the saturated end off and continue until the holes are clean and the regulator will drop out of the board. Put a new 1 amp regulator in and continue to asseble the VIC. Before you put the copper tape back on the board put the mounting screws in. You can get a replacement regulator at Radio Shack and other suppliers.

VIC-20 REPAIR:-2

The second repair I made was because of a mistake I made. I accidentally reversed a plug I used for a homemade interface unit and promptly ruined one of the MPS 6522 support chips. To check them out if the recorder does not work or load right, switch them around. If you get different results then one is bad. Get a new one and find which one is bad by replacing each of the chips, one at a time. You will see which is good, unless they are both bad, an unlikely situation.

I hope this information is useful.

Here follows a sketch of the regulator and how the wicking is used for unsoldering. Do not use a soldering gun as the magnetic field may ruin the other chips.



Bottom Views

1. 11 volts DC in
2. 5 volts regulated out
3. ground

FROM PAGE 8

MSO COLUMN CONTINUED

of line. Some may require resourceful thinking and engineering, but in the long run will provide the safeguards necessary.

Recent information concerning misuse of MSO's, has shown that the FCC will not tolerate business communications, or other inappropriate communications, written to, or relayed by, MSO/CBMS's. Significantly, it was the MSO/CBMS Sysop who was cited, not the individual who originally filed the message, the remote operator who read the message. Take heed....if it's a message that should not be stored in your MSO, delete it without question, as the SYSOP will be held responsible. We all know what constitutes a business message, or other inappropriate data, and traditionally Amateur Radio can point with pride to a highly successful system of self policing. So, ask yourself the question, "Would I want this traffic in my MSO?", and if not, then don't file it.

MSO OF THE MONTH: This month we feature the WØLDO RTTY Repeater, which is sponsored by the St. Louis Amateur Teleprinter Society, St. Louis, MO. This repeater is located near Hillsboro, MO., and consists of a completely solid state repeater, and an "INFO-TECH" M-700 Microprocessor Control System and Mailbox. All RTTY operators are welcome to utilize this system, and for detailed information contact Bill Kordik, WØLDO. This full featured Mailbox system is highly sophisticated, and has a "Help" feature for the novice user. The Teleprinter Society meets once a month, has 55 members, and encourages anyone interested in RTTY in the St. Louis area to join them! Thanks to Bill, WØLDO, for telling us about this fine system.

MSO HINTS OF THE MONTH: As we see more of the CBMS's come into service on the various Ham bands, it's apparent in many cases that the software author hasn't spent a lot of time with an active MSO. Many of the remote users still prefer to monitor MSO traffic with hard-copy, and some of the software being written has enough carriage return/line feeds (CR/LF) imbedded in them to pretty well bankrupt the average Ham, as his printer spits out copious quantities of blank paper. It may look nice to see that data scrolling up the video monitor at something less than the speed of light, but be considerate of the guy using the printer, and delete those unnecessary line feeds! Also...on-the-air time is precious. If your "help" file, or "Brag" list runs like Funk & Wagnels Dictionary, consider cutting it down to some reasonable size. My experience is that "smaller is better" in that department, as most Hams are smarter than the average bear, and only need a little prompting to catch on to how to use your system!

Do you have a favorite MSO, or CBMS?? Some exciting RTTY MSO happenings in your area you'd like to tell the world about? Well, we'd like to help...so just drop me a line at the above address or to the RTTY JOURNAL, and we'll sure spread the word. That's it for this month. Enjoy RTTY! DE DICK, KØVKH.....

CLASSIFIED ADS

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

VIC 20 & C-64 USERS!! Now you can own your own MSO-With your VIC-20 or C-64 and any of the popular interfaces and our MSO software, you will have a highly efficient machine language MSO that has a HAL compatible command structure. Our software works with or without a disk drive. The MSO software will allow you and your users to perform the following operations: List the directory of messages Scan the directory, Write messages, Read messages, Delete messages, Access a Help menu and also allows you or your users to select the different baud rates including 110 ASCII. The MSO also includes automatic date and time keeping, automatic identification of your call letters, memory used and remaining indication. $49.95 plus $1.90 postage for Kantronics interfaces add $5.00. MSO package includes:Manual, cable and diskette or cassette. VID-Com Communications.3131 Foothill Blvd., La Cresenta, CA 91214 Ph 1-818-957-7550.

KANTRONICS HAMTEST FOR VIC-20 $50, New 8874's $160, new 8874 $295, UHF TAC TEC, PL $125, Heath HM10A Grid dipper $30, New SK800B socket $75. W9ZR. 1-414-434-2938.

FDM RTTY DEMODULATORS. Frederick 1202R series. Useful for AP/UPI news on HF radio, Commodities News Service on FM SCA broadcasts and UPI "one state per channel" sattelite FM/SCPC transmissions. Four models available in various conditions, $35 to $350. Call/Write for full brochure. Electrovalue Industrial, Inc., POB 376-RJ, Morris Plains, NJ 07950. 201-267-1117.

WORLD RADIOTELETYPE FREQUENCY LIST-9th edition by Joerg Klingenfuss (FRG). New list of 2463 frequencies monitoried in 1983. Frequency, callsign, name of station, ITU country symbol, times of reception and other details are included. All types of RTTY stations are listed-press, aero, wx, telex, military, diplo, maritime and others. New 9th edition now has hundreds of commercial SITOR-SPECTOR (AMTOR) and FEC stations listed. 86 meteorological stations on 279 frequencies are included. 438 RTTY abbreviations. Authorized by Klingenfuss in USA. $12.95 PPD USA and Canada. Send for free RTTY list of publications, Universal Electronics, Inc., 4555 Groves Rd., Suite 3A, Columbus, OH 43232.

FRED SAYS:"Cash in those unused teleprinter repair parts." Trade,too. Send SASE for list of parts, supplies gears, manuals, tools, toroids. Fred Schmidt, N4TT, Typetronics, Box 8873, Ft. Lauderdale, FL 33310. After 9 PM phone 305-583-1340.

PC BOARDS-VERSATILE CKTS-RTTY and SSTV. Highest quality double sided plated through hole PC boards with silk screened legend. GUARANTEED. Complete instructions and parts ordering information. Assembly service available. Send SASE for information to: DYNAMIC SPECIALTIES, POB 20903, San Jose, CA 95160.

NEWS-NEWS-NEWS Amateur Radio's Newspaper "WORLDRADIO". Year subscription is $9.00. Send to WORLDRADIO, 2509 F Donner Way, Sacramento, CA 95818.

HAM RADIO MAGAZINE.The no nonsense state-of-the-art technical magazine. Subscribe now and see for yourself. 1 year $19.50 in USA. Canada and foreign surface $21.50. Europe, Africa & Japan $28.00 Airmail. Ham Publishing Group. Greenville, NH 03048.

MODEL 33 ASR FRICTION FEED. Mint condition. Used with IBM system 7 computer (also available). Make an offer to:Wayne Ganson, Vergennes Union High School, Vergennes, VT 05491. 802-877-2938.

QUICK DISPOSAL BARGAIN SALE. Complete 100 speed 28 ASR $50 aand 28 RO $20. Floor cabinets, little used. Prefer pickup;also make offers. John Longley W2ANB, Slingerlands (Albany County), NY 12159. 518-439-2862.

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 A.Rice, KC2HO, 7373 Jessica Drive, North Syracuse, NY 13212.

WANTED: IBM-PC OWNERS to contact me, object:to compare notes etc. Herb, W6GQC,1057 Moana, San Diego,CA 92107.

FOR SALE: ROBOT MODEL I 800 RTTY Demodulator/Keyboard Combo. Excellent $499.95. Dovetron MPC1000CR Demodulator like new only $774. Digital Electronics Info-Tech M-300 Keyboard $164 HAL KSR-2050 (NEW demo unit) $640. HAL DS-3000 used, only $574. HAL DS-2000 KSR (with CW receiver) $349.95 good condition. HAL ST-6 (with AFSK XMIT board) factory assembled $274.95 Also New Info-Tech M-600A's on sale! Call for BEST PRICE. Universal Amateur Radio, 1280 Aida Dr., Reynoldsburg, OH 43068. Call:614-866-4267.

M28KSR THREE SPEEDS, M28 Paper winder UA-15 Paper winder, AEA MBA-RO Reader, small sonic cleaner, 103A3 Data Set, SSTV CRT's. GR megohmeter. Galbraith, 1214 S. Alvord, Evansville, IN 47714. 812-476-7601.

WANTED: Current address of WB2LRS, Bruce Peters, think he is an old Army buddy. Callbook no good. Vern, K9POU.

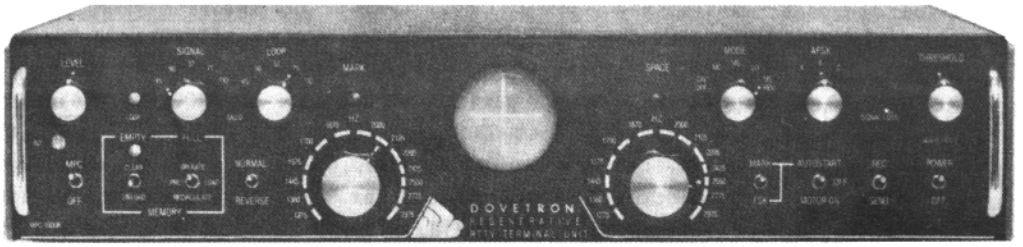
FOR SALE: COMPLETE RTTY Station. HAL ST-5000 Terminal unit, Model 28KSR Teletype with winder, one case of paper, and all manuals. $200 or make offer! WB6UUT, Lynn 714-497-2671 eves

FOR SALE: MIDLAND 13-509, 220 rig. Excellent condition. Care of RTTY JOURNAL Office. 619-753-5647.

Central Penna Repeater Assoc. Hamfest on August 26. Registration $3.Tim Fanus, WB3DNA, 6140 Chambers Hill Rd. Harrisburg, PA 17111. 717-564-0897.

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.

DOVETRON

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

RTTY Journal

SECOND CLASS PERMIT PAID
AT ENCINITAS, CA 92024

PO BOX RY

Cardiff by the Sea, CA. 92007