RTTY JOURNAL

APRIL 1979

VOLUME 27 NO 4

75 CENTS

EXCLUSIVELY AMATEUR RADIO TELETYPE

Carroll WestPhall

CONTENTS

COMING NEXT MONTH-MORE CONTEST RESULTS & UART ARTICLES

Subscription Rates

RTTY JOURNAL

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

The RTTY JOURNAL
SUBSCRIPTION RATES

RATES AS OF OCTOBER 1,1978 WILL BE:
US- $5.00 per year.
CANADA and MEXICO -$6.50 per year
Air Mail $7.50 per year.

FOREIGN AIR MAIL $12.00 per year.

Published 10 times per year, May-June July-August are combined issues.
Second Class permit Encinitas California 92024.

Subscription rates above.

Business Offices
1155 Arden Drive
Encinitas, California 92024

POSTMASTER SEND FORM 3579 to
Post Office Box 179
Cardiff by the Sea, California 92007

New subscriptions and classified ads are cash in advance as we have no method for billing. New subscriptions will be started with the current issue

Please do not ask us to start any further back than this. The JOURNAL is mailed about the 20th of the month preceding the dated month. May and June are combined in one issue and July and August are combined in one issue.

BACK ISSUES

A duplicate of any back issue may be obtained from R. Wilson, 4011 Clearview Dr., Cedar Falls, IA. 50613. $1.00 pp. Reprints of all UART articles, $2.00 pp.

RTTY JOURNAL
PO Box RY
Cardiff by the Sea, CA. 92007

FOREIGN SUBSCRIPTION MANAGERS

THE RTTY JOURNAL AIR SHIPS TO THE FOLLOWING FOREIGN SUBSCRIPTION MANAGERS. CONTACT THEM FOR RATES IN THEIR TERRITORIES.

EUROPE

Jean F. Hurtaud – F8XT
Chillac
16480 Brossac, FRANCE

ENGLAND

Arthur Owen – G2FUD
Gwenarth
184 Hale Road
Hale, Cheshire ENGLAND

AUSTRALIA

Norman Wilson – VK4NP
P.O. Box – 81 a
Albion Brisbane
Queensland 4010-AUSTRAILIA

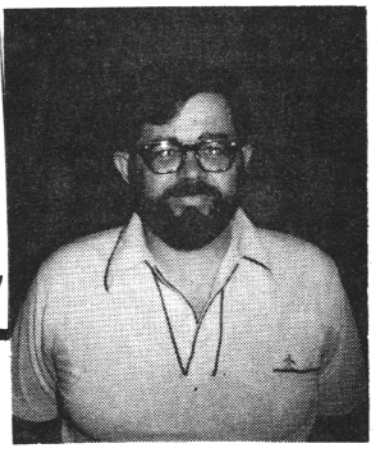
Japan

Toshio Hotta–JA2EFV
4-5-11 Tomida
Yokkaichi City
Mie-Pref., JAPAN 512

• RTTY-DX •

SKIP PRINSEN WB6CYA 714-276-3182

3611 Merrimac, San Diego, Calif. 92117



Greetings to all.....

With summer activities just around the corner I expected more inputs and also more activity on the low bands but the bands have not been really in our favor for this.

Paul HB9AVK reports that Willy will soon be going to Montserrat VP2M land very soon. Paul mentioned that he is hoping to operate from Geneva 4U1ITU and also HB0 again this year.

From Minoru JA1DSI that he has worked the following FG7XT, 8P6UY, 6Y5SS and FP8DF.

Jean F8XT writes that he has finally gotten his 100th card and will be sending them in soon. Jan has built up the AFSK generator that Patrice FY7BI is using on French Guyana. Some of the activity from Jean is 3D2BM, 6Y5SS, FY7BI and 5N2ZBH.

VK25G Syd reports hearing from Europe that a YJ8 station is now on RTTY. H44CD has keying problems and there is a chance that he might be going to a solid state system. V56EK has been back on again and is quite active. Several others Syd reports as active are GD3YEO and 5N2ZBH.

I had a nice chat with Bruce while he was Grand Cayman Island his call was ZF2CM he says to look for him the first part of April as HC2 then a week later as K0BJ/CE0 then in Middle April as VF6BJ the VF6 stop is for sure the others are a possibility.

"The Australian National Amateur Radio Teleprinter Society" runs a Sunday brocast which is the official RTTY brocast in Australia and by the way is only one of four such brodcasts throughout the world. This broadcast is on 45.45 bands at 170HZ shift on international frequencies of 7045KHZ, 14090 KHZ and 146.6 MHZ at 00030GMT on Sunday mornings and 3545KHZ and 146.6 MHZ at 0930GMT on Sunday evenings.

"GB2ATG" the British teleprinter Group has two schedule a summer and a winter I will give you both of them as they should be changing very soon. 0830Z beamed to VK and ZL via long path. 1530Z Beamed to Far East across Europe. 1600Z Beamed to W and VE frequency 14090KHZ their summer schedule 0730Z to VK and ZL, 1530Z to Far East across Europe and 1900Z beamed to W/VE land again all on 14090KHZ.

"W1AW" from American Radio Relay League RTTY bulletins are daily 0200Z, 0500Z and 2300Z and Monday thru Friday at 1600Z on 3,625KHZ 7095KHZ, 14095KHZ, 21095KHZ, 28095KHZ and 147.55MHZ all signals are 170HZ shift 45.45 bands.

The Netherlands is the other country that provides RTTY bulletins but I don't have the information available at present to print it.

The DXCC honor roll will again run in the July/August issue. Please don't wait until the last minute to give me your scores. I have already received a half dozen. If you get any last minute cards a short note or a phone call to me with the updates will do fine. I must have your inputs by Mid June so please don't wait until it's too late. Also don't mail them to the Journal office I see Dee once every month or so. Mail them to the address at the top of this article thanks.

"Dee" phoned me asking that I mention that she is having problems with the printing of Journal. Everything now is being proof read twice at least I know this will make many of you happy (hi hi). The Journal will be back on schedule with the May June issue barring more difficulties.

73

de Skip

WORLD WIDE RTTY ART CONTEST

September 1, through November 30, 1979

1. All worldwide licensed radio Amateurs and members of their immediate families (except as otherwise provided in these rules) are eligible to participate in this contest.
2. Entries must have been originated by means of manual inputs to a teleprinter using a standard communications keyboard, and may be submitted only by the originator of the art, or by the Amateur on behalf of a family member.
3. Submitted art may be of any subject suitable for transmission via Amateur Radio.
4. Entrants may submit as many entries as desired.
5. Each entry shall be given a short title.
6. Submitted art may contain overline shading.
7. Tapes of entries shall be formatted to permit a reasonably short running of time, and to be compatible with machines which do and do not downshift on space. Compatibility with machines which interchange the bell and apostrophe is not required. At least three functions must be used between each line, normally: CAR RET, LF, LTRS.
8. Each line of the art shall be limited to a maximum of 72 characters (including space). Prints must be in one single part,– no splices. Tapes must be limited to a maximum running time of 40 minutes at 60 words per minute for the art itself, exclusive of any other information on the tape.
9. Each entry must have been transmitted for the first time via Amateur Radio after September 1, 1979, and must be accompanied by a confirmation of at least one receipt of its transmission, identifying the title of the art and the call letters of the receiving and transmitting stations. All confirmations must be in writing (not by RTTY transmission), and must have been obtained by the entrant from the receiving station. Entrants may obtain necessary transmission of their entry by any Amateur Radio station.
10. The tape and prints of each entry shall carry the full name of the author, call letters of the submitting station, and mailing address. This information shall be both written upon a beginning leader of the tape and also punched in the tape to appear on page copy when reproduced.

Continued on page 8

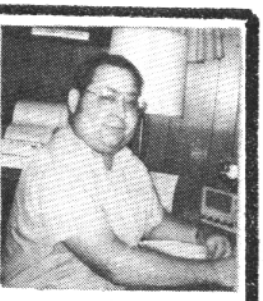
INFO-TECH M-300

THE SUPER KEYBOARD THAT GENERATES:

Morse 4 to 125 WPM
ASCII 110 & 300 Baud
RTTY 4 speeds, 2 shifts using built in function generator AFSK. Built in QUICK BROWN FOX. Built in RY generator. User programmable CWID. Auto CR/LF. 700 character running buffer and 10 recallable message memories of 120 characters each and much more. Price $450.00 F.O.B. factory

Mastercharge & Visa accepted
For more information write:
Info-Tech, Inc.
2349 Weldon Parkway
St. Louis, Missouri 63141

VHF RTTY NEWS



Arny Gamson, K6PXA, 8034 Gentry

N. Hollywood, CA 91605

Glad to see reports of several RTTY Repeaters really developing throughout the country.

The RCA (Corp.) A.R.C. Repeater is now open for RTTY in Indianapolis, Indiana. The WR9ACU Repeater is on 146.28/88 with autopatch. Their Terminal Unit has all the desirable features such as regenerated tones, bandpass filter and crystal controlled U.A.R.T. generator. Shift is narrow (170 Hz.) only and speed is 60 W.P.M. only. Contact WB9ERE for further info.

The Bi-State VHF Teleprinter Society (Iowa-Illinois) — Mike Stone WB0-QCD — is still growing with more than 42 Club Members and over 55 active on their exclusive RTTY Rptr. The Club is currently building an ST-6 T.U. rack mounted, featuring W9IF U.A.R.T. and selcal/WRU circuits and K9WRL MS-5. They had a booth and large display Feb. 25 at the Davenport, Iowa Hamfest.

Sorry to hear that the Portland, Oregon RTTY Society has lost its wide-area coverage repeater site; the owner just asked them to leave. The Club is currently funding for a duplexer and expects to "regenerate" soon.

A Washington, DC area electronic mail box is now in operation by the Amateur Radio Research and Development Corporation (AMRAD) — a club of over 200 radio and computer amateurs.

The electronic mail box is an AMI 6800 computer which may be accessed either via telephone line or by means of an amateur radio repeater in McLean, Virginia.

Telephone access is initiated by dialing (703)281-2125. Any 110 or 300-baud ASCII terminal with standard Bell Telephone model 103 tones (1270 Hz mark, 1070 Hz space) may be used. The user should first type several "returns" to permit the computer to automatically adjust to the user's terminal speed.

Radio access is via the WR4APC 2-meter VHF-FM repeater operating on 147.81 MHz input, 147.21 MHz output. The computer recognizes the call sign WD4IWG when sent using 45-baud (60 wpm) Baudot radioteletype with tones of 2125 Hz (mark) and 2295 Hz (space).

The electronic mail box is similar to the Community Bulletin Board Systems (CBBS) currently in operation:

Atlanta, Georgia	(404)458-4886
Chicago, Illinois	(312)528-7141
San Diego, California	(714)565-0761
Santa Clara, Calif.	(408)246-2805

The AMRAD system responds to the following commands:

H — Help
S — Summarize Messages
R — Read
K — Kill Message
F — Find name or subject
M — Memory left
E — Enter Message
G — Goodbye

The system is self teaching and prompts the user for each message element. A hexadecimal serial number is assigned each time the computer is accessed.

Anyone is invited to access the system via telephone lines. Radio access is limited to licensed radio amateurs with Technician or higher class license. Messages of a commercial nature are not permitted because the message may be transmitted over the air via amateur radio where such traffic is prohibited by the Federal Communications Commission. Messages should be kept reasonably brief because messages are stored in 16k RAM. There are plans to expand the memory sometime in the near future, but for the moment the capacity is about 20 to 30 messages. Also, users should "kill" messages addressed to them as soon as they are received.

For additional information, write AMRAD, 1524 Springvale Ave., McLean, VA 22101. Or phone Bob Bruninga (703)281-2762 eves., weekends, Eastern Standard Time.

Hope to see more pictures and info about activities of your Club and Repeater for publication.

C U ENJOY — ARNY K6PXA

FOLLOWING IS SOMETHING OF INTEREST, NO DOUBT

Drake no longer supplies built in FSK in any of their line. They will build it in if you return your rig but this would not be convenient for most people.

For those who do not have AFSK but use units like the ST-5 or any other unit that puts out plus-minus keying voltage, the vfo may be made to shift very easily.

Remove the three tubes immediately behind the vfo can. Unhook the spring and then slide back the vfo shield can and remove. Our unit had a lug mounted on the front of the vfo which has no connections and we assume this is the lug that Drake used to use. We simply soldered a 2.5 pf. capacitor to this lug, pressed the body of the capacitor against the lug and led the other free end of the capacitor towards the tuning slug. We positioned the free end about a quarter of an inch along side the tuning slug. No physical connection was made to any part of the circuit. Following the above put the vfo shield back on and replace the tubes. Our diode shifter was mounted on a terminal lug and screwed in place on the right side of the vfo. (looking from the front). We have not shown a schematic here as it is common knowledge. The lug only contains a 2.5 choke, a switching diode and a trimmer capacitor. The above arrangement does not alter the frequency of the T4XC and is very easy to set up.

Al Mierau, VE5WZ
1821 Easthill
Saskatoon, Sask. S7J 3C2.

INTRODUCING. . .

COMPUTERIZED RTTY

INCREASE YOUR RTTY OPERATING PLEASURE WITH THE BTA-1 MICROPROCESSOR CONTROL CENTER FROM *MS COMM* - THE COMPUTER CONTROL PEOPLE SPECIALIZING IN AMATEUR RADIO PRODUCTS.

Our system directly interfaces to your existing Baudot or ASCII equipment - there is nothing else to buy. The BTA-1 exceeds the capability of the "FIFO-UART" system you're probably using now, while providing complete BAUDOT to ASCII and ASCII to BAUDOT conversion capability. The BTA-1 is easily installed. You don't have to be a microprocessor expert, as our device connects between your terminal unit and loop peripherals for complete RTTY control.

CHECK OUT THE BTA-1 STANDARD FEATURES

- UTILIZES STATE-OF-THE-ART 8085 MICROPROCESSOR DEVICES
- PROVIDES FULL BAUDOT-ASCII CONVERSION - USE AN ASCII KEYBOARD AND DISPLAY, OR CONVERT YOUR PRESENT FIVE LEVEL EQUIPMENT TO ASCII INSTANTLY WHEN THE F.C.C. ACTS
- CRYSTAL CONTROLLED SPEED GENERATOR ALLOWS "ON-LINE" 60 wpm TO 100 wpm CONVERSION
- UART QUALITY CHARACTER GENERATION IS PROVIDED BY THE BTA-1's TWO SERIAL-PARALLEL DEVICES. BOTH RECEIVE AND TRANSMIT SIGNALS ARE PROCESSED
- UNIQUE 1024 CHARACTER BUFFER (FIFO) ALLOWS MESSAGES TO BE PRELOADED-ALARM SOUNDS WHEN OVERFILL THRESHOLD IS REACHED
- AUTO ID - SENDS YOUR CW ID UPON DEMAND, OR EVERY TEN MINUTES WHILE YOU'RE ON THE AIR
- CANNED MESSAGE CAPABILITY ALLOWS INSTANT RECALL OF 165 CHARACTERS. MESSAGE IS ENTERED FROM YOUR KEYBOARD AND A FLIP OF A SWITCH PLACES THE ENTIRE MESSAGE ON THE FIFO FOR TRANSMISSION - ELIMINATES "RY" TEST TAPES AND EQUIPMENT OR PIX LISTS
- LED DISPLAY INDICATES AVAILABLE INTERNAL BUFFER SPACE
- 'SELCAL' AUTOSTART CONTROL - YOUR PRINTER REMAINS OFF UNTIL A PREDETERMINED FIVE CHARACTER SEQUENCE IS RECEIVED
- ALL FUNCTIONS ARE CONTROLLED BY TOGGLE SWITCH ACTION

The BTA-1 accepts FSK voltage level input available from most amateur terminal units and interfaces either 20 or 60 mA RTTY loops. All external connections are optically isolated for maximum safety and noise immunity. The BTA-1 RTTY control unit is available in kit form with quality 5″×8″ PC board and complete instructions. A fully assembled and tested unit is also available. Power requirements are +5, +12 and −12 Volts.

CONTEST OP, PIX COLLECTOR, OR RTTY RAG-CHEWER, YOU OWE IT TO YOURSELF TO EXPERIENCE THE BTA-1 RTTY CONTROLLER.

Send us your QSL card for additional information about the BTA-1 and other microprocessor amateur products.

MS COMM - THE COMPUTER CONTROL PEOPLE Box 225 Greenfield, N.H. 03047

TS-520+RTTY

RTTY WITH A TS-520S THE RIGHT WAY

Any owner of a Kenwood TS-520S who wishes to get on RTTY is left with two options: (1) use AFSK and LSB or (2) modify the rig for FSK operation.

While workable, the increasingly common method of using AFSK and LSB on the HF bands for the generation of RTTY is at best very marginal. One has only to tune the banks almost any evening and an RTTY signal with several spurious emissions, in close proximity, can be found. The use of a tranceiver in this mode only compounds the problem since one cannot monitor his own signal while transmitting. Some signals have been heard on the air with significant amounts of AC hum or even shack background noise from an open Mic.

Another disadvantage is that when receiving an RTTY signal on a receiver with the LSB function selected, the 2125/2295 tones are not centered in the receiver passband; therefore, the signal is attenuated. This also means that the CW filter, often a very needed item, cannot be used.

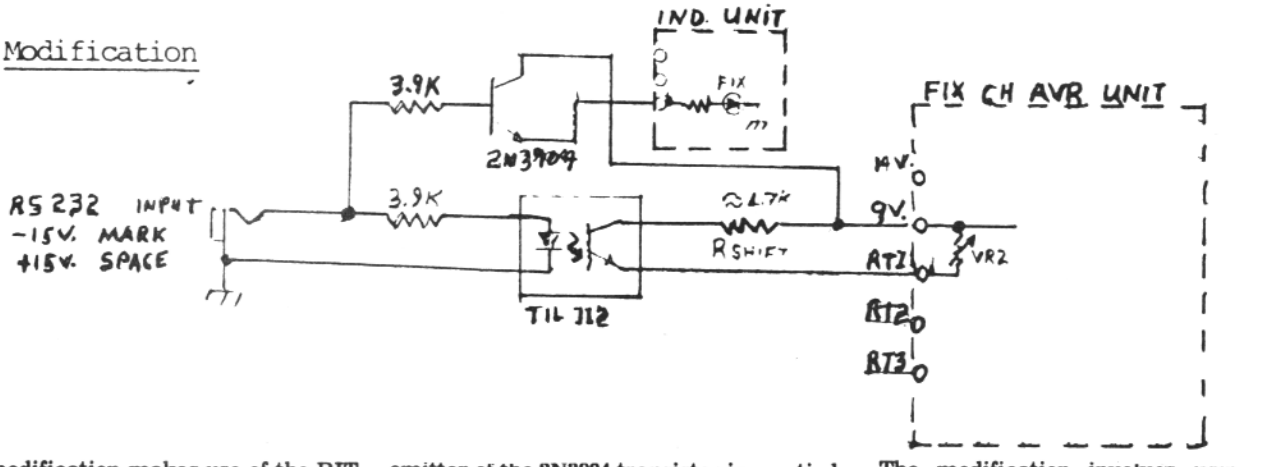
ATV ACTIVITIES

One of the problems we will need to address while trying to transmit and receive video signals is the loss of signal in the feedline. RG 8 will lose approximately 4.5 db per 100 feet at 450 MHZ. Most of us will be using from 60' to 100' of coax, so we can watch half of our power disappear. One possible solution to this, that we are working on now is, Alumafoam, 3/4", 75 OHM aluminum coax with only 1.5 db loss per 100 feet at 450 MHZ. This type coax has been available in this area for several years from the cablevision people, scrap rollends etc; but how to connect it to our rigs and antennas, has been the question along with impedence matching. Bob, W5HOS, is working on a stripline matching section and I have found a way to affix "n" type connectors to it for about 45c. For more on this contact W5HOS or W5DFU or WB5DIT.

We are still looking for a small solid state TV receiver for our repeater if you have one or, know of one please contact one of the ATV group.

Clint, WB5DIT

XMTR Modification



This modification makes use of the RIT function on the 520 to perform the FSKing of the XMTR. In addition, a method for moving the BFO frequency low enough to place the 2125 Hz tones into the passband of the CW filter is also described.

The value of Rshift determines the amount of frequency shifting which occurs for a space. A trim pot in this location may be desirable and a second circuit with a larger value could be used for "small shift CW ID."

THE RT1 terminal is tied to the XMIT side of the T/R relay while the RIT control is tied to the RCV side of the T/R relay and to RT3. By raising the voltage on RT1 slightly during the space, the VFO oscillator frequency is pulled low.

The "FIX" led is used as an RTTY "Space" indicator. Remove the two wires from the bottom terminal post on the indicator unit and attach them together. The emitter of the 2N3904 transistor is now tied to the post.

NOTE: Since most terminal units put out an FSK signal during receive as well as transmit, the "FIX" led can also be used as a tuning indicator.

If this is the case, however, the transceiver must be kept in the RIT position. Otherwise, the FSK input will shift the receive frequency.

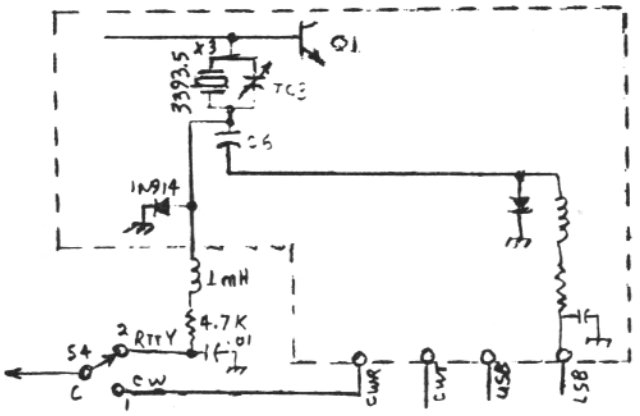
Now that the XMTR section has been modified, the TS-520S will xmit FSK quite well but it will be immediately apparent that a great deal is lacking in the RCV department. Unless the receiver mods are made, it is necessary to switch to LSB and move the RIT control about a kHz to receive the RTTY. This is less than optimum since it places the RTTY tones on the edge of the SSB filter and the signal is somewhat attenuated. This also makes using the CW filter impossible.

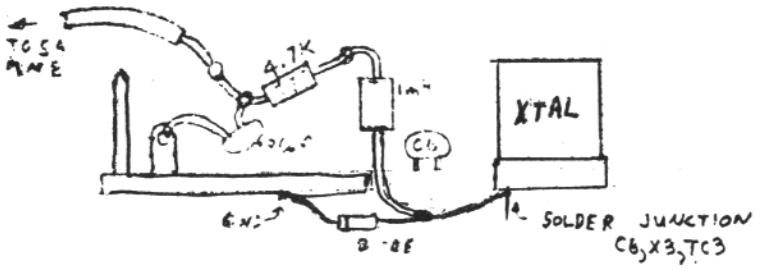
The modification involves using two positions of the FIX CH switch to select between RTTY and CW when the MODE switch is in the CW position.

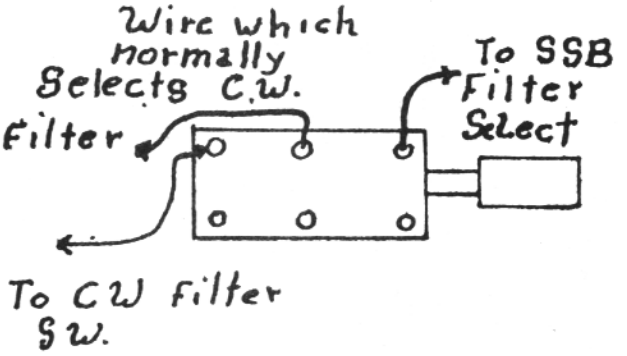
The "CWR" line is broken and routed through the FIX CH switch. All wires on SW4 should be removed (FIX CH operation will no longer be possible). The common is the right most connection when viewed from above the front. One and two are the left two connections respectively.

In order to attach the choke and diode, the car unit board mounting screws will need to be removed so that the underneath side of the PC board can be reached. Drilling a small hole in a clear area near C6 and clear of any etch will allow for the interconnection of the choke with the resistor and cap topside.

Top of next page.







RF ATT. SW. N5TM

By enabling the LSB XTAL ahead of C6 the frequency is pulled lower than normal by just the right amount to place the RTTY signal in the center of the passband.

Now, the whole thing can be made even better by making the CW filter selectable for easier tuning. (Sometimes, a nice feature on CW too).

The RF ATT switch can be used for this modification. Merely connect directly the two ends of coax which occupy the switch and remove the "pad" resistors.

NOTE: It will probably be necessary to remove the front panel in order to gain proper access to the mounting screws on the RF ATT switch.

RTTY ART CONTEST, continued

11. Entrants must submit one (1) five-level paper tape and five (5) prints of each entry and by such submission agree that the tapes and prints may be used, duplicated and published for any purpose.

12. Tape, prints and transmission confirmation information should be securely packaged and sent to: RTTY ART CONTEST, c/o Norm Koch, K6ZDL, Post Office Box 1351, Torrance, California, U.S.A., 90505. Entries must be postmarked on or before November 30, 1979. Entries will not be acknowledge nor returned. Winners will be announced as soon as possible after the closing date. (Since mail damaged tape will be of little use, it is suggested that tapes be wound tightly upon a hard core.)

13. Entries will be judged on the originality of the author in selection and subject matter, on excellence of technique in producing the art and formatting the tape, on overall appearance of the art when viewed from a distance, on suitability for publication, and on the entrant's compliance with these rules.

14. A committee of judges, made up from those amateurs who have exhibited an interest in RTTY art, will select first, second, third and honorable mention winners. Winning entrants will receive a plaque for first place and certificates for other places. Winning entries will be published in later specified Amateur organs. The decision of the judges shall be final, and no correspondance will be entered into regarding their decisions.

15. Officials and judges of this contest and members of their families shall not be eligible to participate herein.

This year's BARTG VHF RTTY contest attracted a somewhat smaller entry than last year, partly due, perhaps, to a clash of dates with other contests. In particular, the continental entry was much reduced, although the UK section was well supported.

The battle for first place was very closely fought, and after careful scrutinising of the logs, GW3UUP/P, operated from a site near New Radnor is declared winner, with a lead of just nine points over last year's winner, G4BPO/P. Congratulations to the Ealing and District A.R.S.

In third place is G4FRJ, the only fixed station in the top four places. Only six stations operated on 432 MHz, although it was the respective 432 MHz scores which decided the first and second places in the contest overall.

Conditions were generally commented on as fair on the Saturday, but below average on the Sunday morning. Several stations commented on the lack of activity on the Sunday morning, although the leading stations were still able to make significant numbers of contacts.

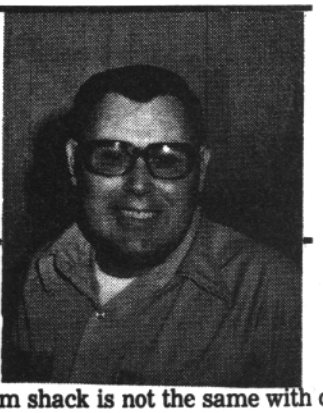
Stations in UK appearing in the logs of entrants, apart from other entrants were: G2AJS, G3AJS, G3DZW, G3EFP, GW3EHN, G3MYY, G3ODR, G3OZM, G3PEJ, G3TTC, G3VZZ, G3WIP, G3XYC, G3YQC, G3YYD, G3ZQU, G4AEU, G4AOF, G4BEL, G4CQR, G4CRJ, G4CWS, G4DEL, G4DSF, G4DTL, G4ERR, G4ERX, G4EWK, G4FFJ, G4FJD, G4GTH, G4HTJ, G8AGH, GM8BJJ, G8BNE, G8CDL, G8CDV, G8CDW, G8CIU, G8CJL, GW8ELR, G8EHU, G8EIN, G8HHO, G8HPU, G9HUE, G9HYA, G8IGQ, G8IKW, G8JXG, G8KBA, G8MGS, G8MXX, G8MYE, G8NDP, G8NOP, G8NPM, G8PKD.

This is a total of 60 stations, other than entrants, who were on the bands at some time during the contest.

HITS & MISSES

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

FROM
THE
MAILBAG



The FCC waiver on the sale of linear amplifiers with the ten meter band expires April 30, 1979 and it appears the ARRL will go forward with its appeal court case ARRL V, (FCC 78-1853). I hope the amateur fraternity will write and support the ARRL in this matter. The logic of the FCC in this case escapes me. With their full throttle approach to deregulation. Why create a ban on linears with ten meters which unnecessarily penalizes amateur and those who serve amateurs.

I just put the finishing touches on a modification to my Info-Tech M200 terminal unit which allows me to not only use the LEDs to tune with but also scope tuning with my Kenwood SM220. The cost is about three dollars. I will try to have the article ready for the next issue.

I was listening the other night to the RTTY bulletin (W1AW) and the propagation cycle 21 is sure bursting at the seams. Anyone who was not around in 1959 for the fun is in for a real treat over the next couple of months. It is expected that ten and fifteen meters will open earlier and close later. It is hoped in the coming B.A.R.T.G. contest the results will bear this out with all time high scores.

There must be a good reason why the ARRL quit standing by at the end of their RTTY bulletins for general calls. I worked W1AW on RTTY in March 1968 and prize the QSL I received to confirm the contact. In addition to stateside stations, many DX stations monitor the broadcasts. It sure seems to me a positive way to promote goodwill.

COLD TURKEY! Yes sir, that's the word this month as I have given up the habit of smoking. So if you see me chewing gum or a toothpick you know the reason. The ham shack is not the same with clean ashtrays and the blue haze is gone. The XYL used to open the window in the shack to let the smoke out and panic the whole neighborhood into thinking the house was on fire. So no more two packs a day, hmm I wonder if she will let me get that new rig with the money saved.

Since the Bi-centennial year the worked all states program has slowed down. I will be glad to pass information in this column on hard to get states and help anyone receive the RTTY JOURNAL WAS Award. So write and give me your input.

So long for now, George.

ANNUAL ARMED FORCES DAY COMMUNICATIONS TEST

This year's observance of Armed Forces Day marks three decades of communications tests between the amateur radio fraternity and military communications systems. Since 1950, this event has been scheduled during the month of May and has emphasized a continuing climate of mutual assistance and warm esteem. Saturday, May 19, 1979 has been designated as the 30th Annual Armed Forces Day.

A featured highlight of the nationwide celebration will be the traditional military-to-amateur crossband communication tests. These tests give amateur operators an opportunity to demonstrate their individual technical skills and to receive recognition from the Secretary of Defense or the appropriate military radio station for their proven expertise.

The proceedings will include operations in radioteletype (RTTY).

Special commemorative QSL cards will be awarded to amateurs achieving a verified two-way radio contact with any of the participating military radio stations. Those who receive and accurately copy the Armed Forces Day CW and/or RTTY message from the Secretary of Defense will receive a special commemorative certificate from the Secretary.

CROSSBAND RADIO CONTACTS

The military-to-amateur crossband operations will be conducted from 19/1300UCT (Universal Coordinated Time) to 20/0245UCT May 1979. Military stations will transmit on selected military frequencies and listen for amateur stations on those portions of the amateur bands indicated below. The military operator will specify the particular frequency in the amateur band to which he/she is listening. Duration of the contact should be limited to three minutes.

STATION	MILITARY FREQUENCY [kHz]	EMISSION	APPROPRIATE AMATEUR BAND [MHz]
NAV	7385	RTTY	7.00- 7.050
Headquarters, Navy-Marine Corps MARS Washington, D.C.	14455	RTTY	14.25-14.35
WAR Headquarters, U.S. Army MARS Washington, D.C.	4030	RTTY	3.65-3.775
NNN0MET USMC Air Station MARS Radio Station El Toro, CA	7347.5 13922.5	RTTY RTTY	7.075- 7.1 14.075-14.1

Continued on page 10

ANNUAL ARMED FORCES COMMUNICATIONS TESTS

RTTY RECEIVING TEST

The Radioteletype (RTTY) Receiving Test will be transmitted at 60 words per minute. Radio station "AIR" will transmit using 850Hertz (wide) shift. All other stations will transmit using 170 Hertz (narrow) shift. A ten minute CQ call for tuning purposes will begin at 20/0335 UCT. The special Armed Forces Day message from the Secretary of Defense will be transmitted at 20/0345 UCT. This test is to exercise the technical skill of the amateur operator in aligning and adjusting equipment. Transmission will be from the same stations and on the same frequencies as previously listed for the CW Receiving Test.

SUBMISSION OF TEST ENTRIES

Transcriptions should be submitted "as received." No attempt should be made to correct possible transmission errors.

Time, frequency and call sign of the station copies as well as the name, call sign and address (including zip code) of the individual submitting the entry must be indicated on the page containing the message text. Each year, a large number of acceptable copies are received with sufficient identification information, or the necessary information was attached to the transcript and has become separated, thereby precluding the issuance of a certificate.

Entries should be submitted to the appropriate military command and postmarked no later than 25 May 1979.

Stations copying NAM, GXH, NPG or NDT submit entries to:

Armed Forces Day Test
Chief, Navy-Marine Corps MARS
BLDG 13, NAVCOMMU WASHINGTON
Washington, D.C. 20390

Stations copying WAR submit entries to:
Armed Forces Day Test
Commander, United States Army
Communication Command
ATTN: CC-OPS-MARS
Fort Huachuca, AZ 85613

MSG-1 BAUDOT MESSAGE GENERATOR

JOE YOUNG
W6RLL

INTRODUCTION

This article describes a simple baudot message generator designed to operate in either a manual or automatic (answerback) mode. The circuit features an isolated loop interface, transmitter on/off control, LED output indicator, and a number of TTL status signals.

The basic circuit was designed by WA5IAT, and has been tested recently by W6BXR.

DESCRIPTION

The basic circuit has been modified to add a loop keyer, transmitter control and status signals; and to allow selection/deletion of a "NNNN CR LF LTRS" terminator.

A sample message generated by the MSG-1 is:

THIS IS RALPH K6IUP NNNN

The sample message prints:

THIS IS RALPH K6IUP NNNN

and turns up a new line.

The message is coded:

CR LF LTRS THIS IS RALPH K FIGS 6 LTRS IUP NNNN CR LF LTRS

and uses all of the 32 character field.

The message can be a maximum of 32 characters, but the last 8 characters are reserved for "SPACE NNNN CR LF LTRS." This leaves 24 characters for the user message.

NNNN SELECTION/DELETION

To select the "NNNN" terminator, switch pin 6 of the PCB to ground. Use this mode for a WRU message or for terminating a typed message. To delete the "NNNN" terminator, switch pin 6 of the PCB open. Use this mode for initiating a typed message.

HARDWARE

The circuit uses 9 chips including the clock and the optoisolator.

ASSEMBLY AND TEST

The MSG-1 P.C.B., power supply P.C.B., and parts kits for this project are available from the author. See the ad in this issue.

After installing all parts except the 74S188, apply +5Vdc and set the output of U1 (Pin 3) to 45Hz.

Momentarily ground the "start" input. The LED monitor should flash for about 11 seconds, then remain on.

Turn off the 5Vdc, install the 74S188, (**using a socket) plug the loop output into your loop, and turn on the 5Vdc.

With your loop active, (T.U. on standby) again momentarily ground the "start" input. Your message should print on the local printer.

**PREPROGRAMMED PROMS ARE TESTED AND GUARANTEED TO BE CORRECT. USE OF THE PROM WITHOUT A SOCKET VOIDS THIS GUARANTEE.

PROM

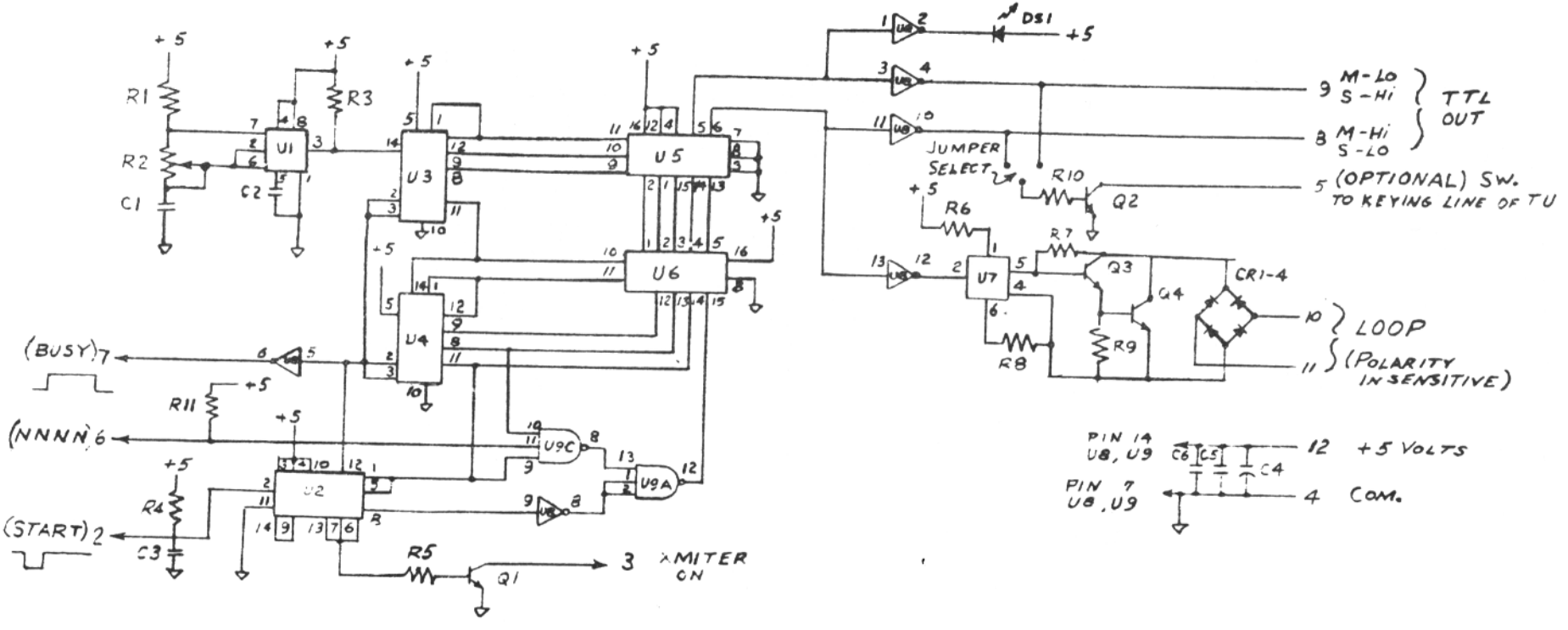
The 74S188 is a 32 by 8 device. Programming sense is:
1 = MARK
0 = SPACE

DATA CYCLE

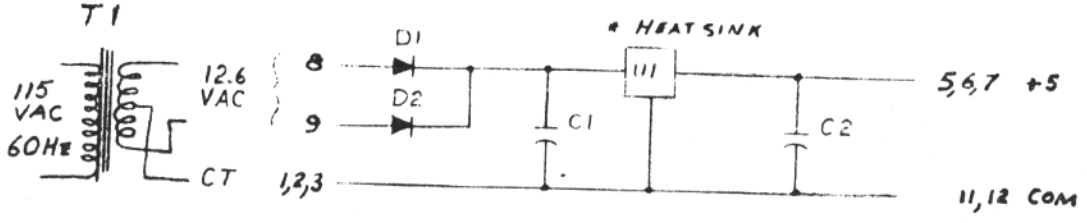
When the "start" input line is momentarily grounded the data cycle begins. The "busy" signal goes high, the "XMTRON" output becomes active and 32 "letters" are sent at 45 baud. This provides the delay necessary when using the MSG-1 as a WRU. Following the 32 "letters," the PROM message is sent (74S188); and upon completion of the PROM message, "busy" goes low, "SMTRON" becomes inactive, and the system resets. An on-board LED monitors the data line. The MSG-1 can be removed from service by turning off its 5Vdc supply.

PIN	FUNCTION	DESCRIPTION
1	N/A	
2	START	Momentary low input
3	XMTRON	Q1 conducts during data cycle
4	COMMON	5Vdc common
*5	DATA	(Optional) for ST-5,6 etc. keyer
6	NNNN	Ground to enable "NNNN"
7	BUSY	TTL HI during data cycle
9	M DATA	TTL Mark HI
9	S DATA	TTL Space HI
10	LOOP	Primary system data output-plugs into 60
11	LOOP	MA TTY Loop
12	VCC	+5Vdc Power, 170 ma

*For those who are already interfaced to their T.U. (internal) loop keying transistor.



C1	0.22 MYLAR	U1	N555	U8	7404	R3,4,11	1K
C2,5,6	0.01 DISC	U2	7473	U9	7410	R5,10	10K
C3	0.05 DISC	U3,4	7493	Q1,2	2N2222	R5	220
C4	22µf 10V	U5	74151	Q3,4	MJE 340	R7,9	100K
DS1	5V 3MA DIALCO 555-2007	U6	74S188	R1	20K	R8	470K
		U7	FCC 810	R2	100K POT.	CR1-4	IN4005



C1	1000µf 25V	D1,2	IN4005	HEATSINK - WAKEFIELD
C2	4.7µf 20V	U1	LM 309K	T1 TRIAD F-70

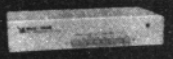
5VDC PWR. SUPPLY

MSG-1

FROM THE COMPANY WITH A LONG LINE OF RTTY FIRSTS

1971

RVD-1002
1st RTTY
Video Generator



1972

DKB2010
1st RTTY & MORSE
Keyboard

1973

RVD-1005
Improved RTTY
Video Generator

1974

1975

ST6000
High-performance
RTTY Demodulator

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

1976

1977

1978

DS3000 KSR Version 3
1st 3-mode Amateur Send-Receive Terminal
for Baudot, ASCII, and MORSE

1979

ST5000
Low-cost, Big-performance
RTTY Demodulator

AND NOW...

DS3100 ASR

The FIRST Automatic Send-Receive Electronic Terminal for Baudot, ASCII, and MORSE

- Type and edit your message **while** receiving
- 200 line storage
- 24 line screen
- Non-volatile and programmable HERE-IS
- Internal real-time clock
- RTTY **and** CW ID
- WRU answer-back
- Upper **and** lower case ASCII

$1995.00
Call or write
for complete
new catalog

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

In Europe contact:
Richter & Co.; Hannover
I.E.C. Interelco; Bissone

Classified Ads

30 words $2.00. Additional Words 4 c ea. ***Cash with Copy - Deadline 1st of Month.***

THE DOVETRON SSD-100 solid state cross display replaces the conventional CRT and accociated high voltage power supplies as the tuning indicator in the MPC-Series RTTY terminal units.

In addition to "instant-on" operation and a predicted reliability in excess of 100,000 hours, the solid state display out-performs the original CRT in every instance.

The absence (or deactiviation) of the high voltage supplies and the resultant decrease in heat generation increases the MTBF (Mean Time Before Failure) of the terminal unit more than 10 times.

The display itself consists of high intensity (4 millicandelas), red, rectangular LEDs (Light Emitting Diodes) arranged in the traditional cross pattern and operated in a baragraph mode. The two LEDs that form the apex of the cross are tied into the terminal unit's logic in such a way that they extinguish if the TU is improperly tuned to the incoming tones, or if the incoming signal is up-side down in respect to the "sense" of the terminal unit.

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

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

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

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

KLIENSCHMIDT TD paper. 7/8" oiled and yellow. Carton of 8 $3.75, wt 13, 7/8" carton of 32 $12.00 wt. 47 lbs. Add UPS wt. HARMON, 5628 10th Ave., S. Birmingham AL 35222.

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

NS-1A PLL Demodulator W/T $26.95 ppd. Complete kit $19.95 ppd. SASE for info. Nat Stinnette Electronics, Tavares, FL 32778.

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

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

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

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

6800 MICROPROCESSOR OWNERS — RTTY operating software for SWTPC or similar processors. Transmit Baudot or Morse and receive Baudot Code. Written for on the air use — keyboard selection of pre-loaded messages or CW ID. Can also be used as buffered CW keyboard with keyboard speed control. For more info and price send brief description of your system to K9AR, 742 So. Vail Ave., Arlington Hts., ILL. 6005.

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

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

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

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

PRINTED CIRCUIT Board drill bits! You can now get carbide printed circuit board drill bits for a reasonable price. 1/8" shank , approximately 1" long. Four sizes available; .047"(approx. #56 drill), .043" (#57) , .033"(#66), and .030" (approx. #68-69). $1.25 each, includes shipping, Minimum Order Is Two Drill Bits. Illinois residents add 5% sales tax. Midnight Engineering Group P.O. Box 349, Galesburg, Il 61401.

FOR SALE: MODEL 28 KSR, RO, 3-speed Reperf and TD. Galaxy/Hy-Gain R-1530 receiver (10khz-30mhz) with speaker and all filters. HAL ST-6 TU, with all shifts and AFSK unit, DKB-2010 Keyboard, RVD-1002 Visual system. Bearcat 101 scanner. Write or call: Mark T. Regan, 7356 Lee Hwy # 104, Falls Church, VA 22046, (703) 560-6752, for price quotes and condition of equipment.

K7WTQ UT-4/XB-6 boards. DIP sockets & all parts mounted except on P.S. board. Meter, card sockets, cabinets & documentation. $77.50 PPD. SASE for more info. LL. Filby, K1LPS, 97 Parker Ave., St. Johnsbury, VT 05819.

MODEL 28 ASR'S, rewired for amateur use, geared for 100 WPM, excellent, $300. Model 35 RO's, clean, low use, $350, pick-up only. Gaston, 2117 Westlake Dr., Plano, TX 75075.

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

UT-4 COMPONENTS. TMS6011NC UART $5.00, FC33512DC FIFO $12.00, 1408L-6D/A $3.25, 74LS221N $1.25, MJE-340 $1.25. ALSO: programmed Proms (74S288N tri-state $3.25 each) for following: VE3CTP ascii/Baudot/Ascii converter (Ham radio Aug 77) (also OK for SWTP converters); Scan or Decode proms for TVT-6 video displays for KIM-1 micro; HEX to 7-segment LED decoder/driver (73 Magazine Nov 78). Resistor pack for AZCD (Sept & Oct 78 RTTY JOURNAL) $2.00. Peter Bertelli, W6KS, 5262 Yost Place, San Diego, CA 92109. 714-274-7060.

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

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

TELETYPE TD paper 11/16 oiled ans yellow. Carton 10 $3.00 wt. 13 lbs. Carton 40 $10. wt. 47 lbs ADD UPS wt. Harmon, 5628 10th Ave., S. Birmingham, AL 35222.

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

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

CW ID SYSTEM, interfaced for ditital, FSK or AFSK keying, 10 minute timer, variable speed (5-24 wpm) 12 or 5 volt use. Kit 37.90, Board alone $8.95.

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

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

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

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

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

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

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

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

HELP need information on wiring of 28ASR also schematic for the ST-5 or where one is available cheap. K80X0

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

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

HAL DS-3000 KSR, RTTY & CW. Used six months. Cost $1575.00 Sell for $1,175.00. Still in warranty. T.H. Bright, W5ESX, Phone (405) 732-6635.

FOR SALE: Two new Model 37 typing units (only) will trade or sell outright. Gordon Weiler, W9ZQK, 4843 N. 90th St., Milwaukee, WI 53225. (414) 464-9089.

GONE COMPUTER, like new (5 hours use) Info-Tech M-150 electronic RTTY keyboard. All Standard shifts and baud rates. $265. K5DUT, Don Winfield, 6080 Anahuac Ave. Ft. Worth, TX 76114.

MSG-1 PARTS. 4"x6" P.C.B. drilled and tinned $5.50. All parts except PROM, I.C. Sockets and edge connector $10.50. 74S811 PROM programmed with your message $5.00. MSG-1 assembled and tested $29.95. Power supply P.C.B., 4"x6" drilled and tinned $4.00. All parts (including heat-sink), except XMFR & connector $3.00. 12.6 VCT, 1A, XMFR $5.00 Power supply assembly and tested $16.00. Please add $1.00 or $2.00 for postage and packaging depending on the size of your order. J.W. Young, W6RLL, 16808 W. Goodvale Rd., Canyon Country, CA 91351. (805) 251-2135.

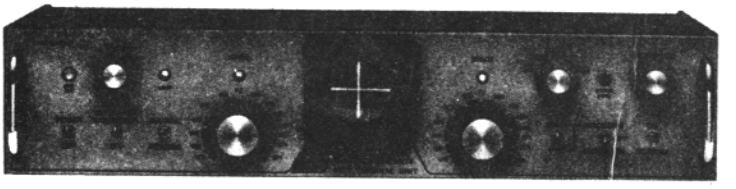
(70) TTY Solid State Keyboards with Baudot Output. Made By C.P. CLARE for Texas Inst. All units have never been on line. PARRELL Output & Double shot keytops. These units are first class. $26.00 pp R.C. JOHNSON, E. 16109 LONGFELLOW, SPOKANE, WASH. 99216

TELETYPE SUPPLIES, Technical manuals, equipment. 11/16" and 7/8" perforator tape. Page paper. New ribbons. Teletype Corp. maintenance manuals. Let me know what you need. Send 75 cents postage for 3 current catalogs. JIM COOPER, W2JC/W2BVE, Box 73, PARAMUS, NJ 07652.

MODEL 28 ASR Teletypewriters $350-$375. RO Consoles $175. Paper winders $35. RO - 3-speed teletypewriters $175. Tape perforators $50, much more. State your wants. Sens SASE for partial list to:GOODMAN, 5454 South Shore Chicago, IL 60615, (315) 753-8342.

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

DOVETRON

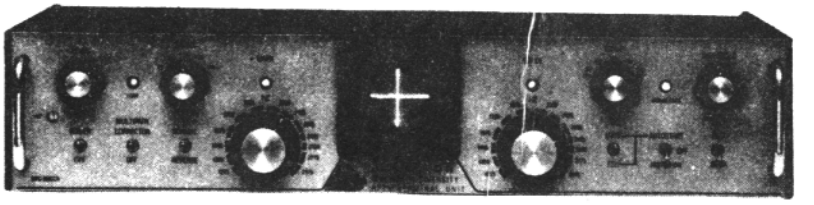


MPC-1000C

Multipath Correction
In-Band Diversity &
AFSK Tone Keyer

Amateur Net: $545.00

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

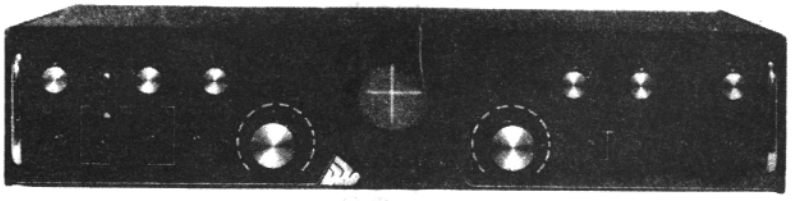


MPC-1000CR

Signal Regeneration &
Speed Conversion

Amateur Net: $645.00

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



MPC-1000R/-TSR-500

Dual UART Regeneration,
Speed Conversion, 200
Char. Memory, Word Correction & DIGITAL
Autostart

Amateur Net: $895.00*

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

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

Your QSL will bring complete specifications, or call: 213-682-3705.

DOVETRON

627 FREMONT AVENUE
(P. O. BOX 267)
SOUTH PASADENA, CA. 91030

RTTY Journal

PO BOX RY

Cardiff by the Sea, CA. 92007

SECOND CLASS PERMIT PAID
AT ENCINTAS, CA 92024