RTTY JOURNAL

February 1979

VOLUME 27 NO 2

75 CENTS

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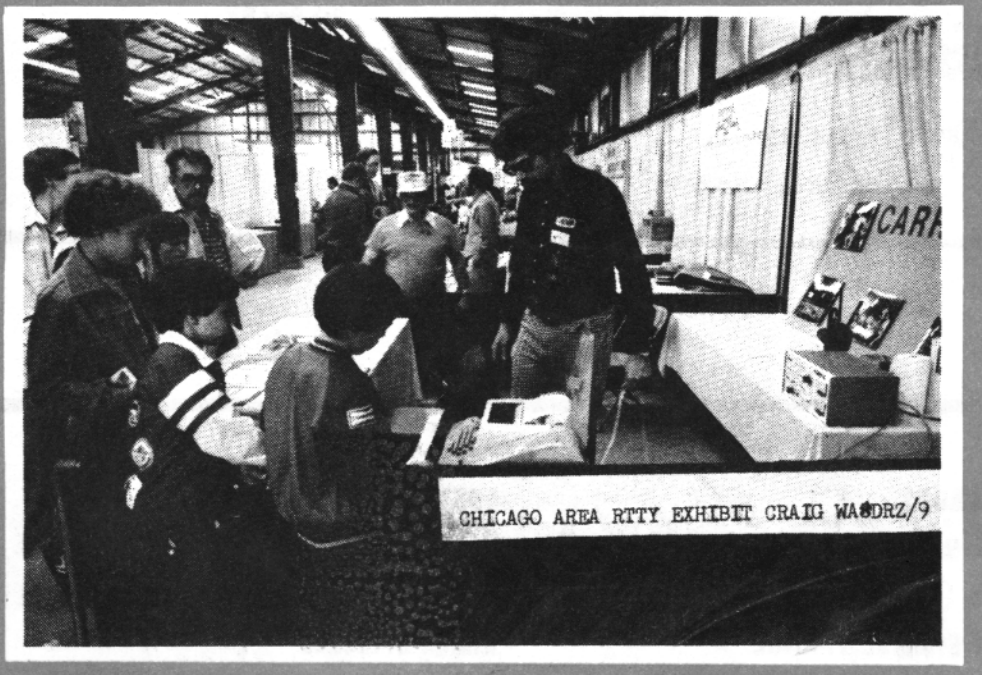

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RTTY JOURNAL

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

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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

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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.

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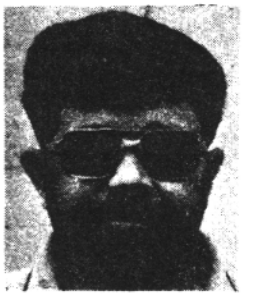


Greetings to All...

The giant flash is over. With poor turn out due to the paper strike here. The Journal never left the printers until the first section was completely over. The B.A.R.T.G is next, and always has a large turnout and is probably the most popular contest of the year. This is the one contest I think that gets the most support. So see you there!

Mac, K7BV, writes that he recently had a letter from Ron, KH6JFI, who will be operating from Kure Island from 12-28 March 1979. He will be on 100 WPM only and signing KH6JFI/KH7 so keep an eye peeled for him.

W3DJZ "Hoppy" Hopple
122 Sunset Dr.
New Cumberland, Pa
17070

Received DXCC indorsement number 150 on 23rd of January 1979. It's sure good to see some of the US stations scores starting to get up there in range with the ON's hi.

W8 JLN Jim West
8605 Pine Ct.
Ypselanti, Mi
48197

Received W.A.C. #70 all on 20 meters on 16 January and also on the same day he earned W.A.S. all on 20 meters. Great work Jim.

G4CTQ may soon be going to 5N2 land, at this time we don't know if he'll be allowed to operate.

Here is a listing of some of the stations that have been active during the past few weeks. FC2CJ, C3LMM, PJ2CR, AL7J, VU2KU, 3D2BM, KH61TD/KG6, H44CD, YBOYE, YBOACB, OX3CO, 5Z4RT, KL7HDS, KL7JHD. N6IV/KL7, PY1YP, PY1ETA, H18KW, F'R7ZN, 9G1JX, ZS6FE, ZS1Z, EA8RP, HP1PM, CP6EE, OZ2X and ZP5CD

QSL managers/addresses.

9Y4VU via W3EVW
EL2AG Carlo Gola P.O. Box 3049 Monrovia Liberia
KL7RW Ronald Wenstron P.O. Box 94 Cold Bay, Alaska 99571
3D2BM Bernie Box 590 Suria Fiji Islands
CP6EE Gilbert P.O. Box 4035 Santa Cruz, Bolivia
ZP5CD Claudio Del Conte Box 1337 Asuncion, Paraguey
FC2CJ Marcel Poli Box 223 Ajaccio Corsica
VE6GBU/SU QSL via DK3CU
C31MM Bruno Clase, Casa Pascol, La Massana, Principlality of Andorra.

73 de Skip

SARTG Bulletin Transmissions and Activity Contests 1979

Due to poorer conditions in the winter months, there will be some changes in the SARTG bulletin transmissions and activity contests for 1979.

In March, April, May, June, July, August, September and October the bulletin will be transmitted as previously, the last Wednesday in each month, at 1730 GMT, Frequency 3.6 MHz followed by the activity contest from 1815 GMT until 1930 GMT.

In January, February and November, the bulletin will be transmitted as above mentioned, but there will be no activity contest this same evening. The bulletin will be repeated, in concentrated edition, each following Sunday at 1100 GMT on 7MHz; i.e. Sunday 4th February, Sunday 4th March, and Sunday 2nd December. The Activities contest will then follow, from 1115 GMT until 1230 GMT on 7MHz. Thus during these 3 winter months, the activity contest will be held on the Sunday instead of the Wednesday, and on 7 MHz.

In December, there will be no bulletin transmission, neither will there be held an activity contest. The number of activity contests are hence reduced to 11 for the year 1979.

With these exceptions, the rules are as follows for : SARTG Activity Contest 1979.

CODE:
RST, name, and QSO nr. Beginning with 01 every month.
POINTS:
Contact with bulletin station gives 2 points, all other contacts give 1 point. All stations, outside Scandinavia, may be contacted.
LOGS:
Logs to be sent to the bulletin editor within 8 days:
LA1LN Einar M. Thomassen
Radyruegen 30
N 3900 Porsgrunn
Norway

The bulletin editor would also be very pleased to receive other information that can be used in the SARTG bulletin.

RESULTS:
The results will be published in the Monthly SARTG bulletin and in SARTG NEWS. The year's results will be calculated according to the nine best of eleven possible rounds in 1979.
AWARDS:
Diplomas will be sent to the 5 best scorers.

BARTG SPRING RTTY CONTEST 1979

WHEN:
0200 GMT Saturday March 24th until 0200 GMT Monday March 26th 1979. The total contest period is 48 hours but not more than 30 hours of operation is permitted. Times spent listening count as operating time. The 18 hours non-operating period can be taken at any time during the contest but off periods may not be less than three hours at a time. Times on and off the air must be summarized on the Log and Score sheets.
WHO:
There will be separate categories for single operators, multi-operator stations and short-wave listeners.
BANDS:
3.5 7.0 14.0 21.0 and 28.0 MHz amateur bands
STATIONS:
stations may not be contacted more than once on any one band but additional contacts may be made with the same station if a different band is used.
COUNTRY STATUS:
ARRL Countries List and in addition each W/K, VE/VO and VK call area will be counted as a separate country.
NOTE- W/K, VE/VO and VK count once only for QCA Purposes.
MESSAGES:
Messages exchanged will consist of
(a) Time GMT - this must consist of a full four figure group and the use of the expression "same as yours" will not be acceptable.
(b)RST and message number. The message number must consist of a three figure group starting with 001 for the first contact.

CONT. ON 4

CONT.

POINTS:
(a) All two-way RTTY contacts with stations within one's own country will earn two points.
(b) All two-way RTTY contacts with stations outside one's own country will earn ten points.
(c) All stations will receive a bonus of 200 points per country worked including their own. Note that any one country may be counted again if worked on another band but continents are counted once only.
NOTE- Proof of contact will be required in cases where the station worked does not appear on any other contest logs received or the station worked does not submit a check log.
SCORING:
(a) Two-way exchange points times total countries worked.
(b) Total country points times 200 times number of continents worked.
(c) Add (a) and (b) together to obtain your final score:
Sample score
Exchange points (302) x Countries (10)3020
Country points (10) x 200 x Continents (3)
6000
(a) and (b) added together to give total
9020
LOGS AND SCORE SHEETS:
Use a separate sheet for each band and indicate all rest periods. Logs to contain date, time GMT, callsign of station worked, RST report and message number sent, RST report and message number received, exchange points claimed. The summary sheet should show the full scoring, the times off the air and in the case of multi-operator stations the name and callsign of all operators involved with the operation of the station.
ALL LOGS MUST BE RECEIVED BY MAY 31 1979 IN ORDER TO QUALIFY
Send your contest or check log to:

TED DOUBLE G8CDW
89 LINDEN GARDENS
ENFIELD
MIDDLESEX
ENGLAND EN14DX

The judges' decision will be final and no correspondence can be entered into in respect of incorrect or late entries and all logs will remain the property of the British Amateur Radio Teleprinter Group.
Certificates will be awarded to the leading stations in each of the three classes, the top stations in each continent and each W/K, VE/VO and VK call area.

Additional notes - If a contestant manages to contact 25 or more different countries on two-way RTTY during the contest, a claim may be made for the Quarter Centuary Award (QCA) issued by BARTG and for which a charge of 3 Dollars US or 15 IRC's is made. Make your claim at the same time as you send in your log. Holders of existing QCA awards will automatically have any new countries added to their records. However, in view of the high volume of work which the contest manager has to deal with, it will not be possible to prepare and send out new awards or up-date existing awards until the final results of the contest have been evaluated and dispatched. Similarly, if any contestant manages to contact stations on two-way RTTY with all six continents and the BARTG contest manager receives a contest or check log from all the operators in these six continents, a claim may be made for the WAC award issued by RTTY Journal. The necessary information will be sent on to the RTTY Journal who will issue the WAC award.

COMMENTS

W9RY
This is the highest number of points that I have ever scored in the SARTG contest and I was only able to work the 2 bands. I did not hear a single signal on 80 or 40 metres here. I was able to operate only 17 hours of the allotted 24 but was kept quite busy. Thanks again for a fine contest and I am making plans for next year and a better score.
P.S. I worked 2 new countries... GW3EHN and EA6EQ and EA6BW. HPOAD/TU Jeff, from 9H1 land were tied up to an offshore drilling platform off the coast of TU land. He said that Alex 9H1ER would be there very soon to take his place and that he would be going back to Matta or England.
0Z2X
It took a lot of beer and time to get the gear going.
G3RED
This is the first go in SARTG contest, it was good fun.
G8CDW
Seemed to be very well supported, especially by the Scandinavian stations. Surprised to find two TF stations other than TF3IRA and also OY1A. Not too many W and VE stations copied although some of these were passing high serial numbers at the end. Several South American countries put in an appearance, big surprise was to print PZ1AP. Not sure how you deal with the HP0AD/MM off the Ivory Coast. I think most people will count it as A TU2. My score is not as high as it might have been as I was only able to listen for 12 hours out of the 24.
WB5QBV
Am rather new in RTTY, and the country and operating procedure shown by all competitors was quite noticeable. A far cry from the CW and SSB contests of late.
K5EV
I like the way you have the activity periods separated into 8 hour segments. This prevents participants from becoming excessively fatigued.
DJ2YA
Unfortunately I realized that the contest was on when the first part was over. I enjoyed my RTTY Contest debut very much.
HB9AVK
The conditions were very good on 20M and 15M, fair on 40M, poor on 80M/DX and very poor on 10M.
VK8HA
Many thanks for my first RTTY Contest.
K6WZ
Unusually good conditions, all directions, especially to EU. Two new countries: GM2CR and KV4AQ (the latter not in the contest).
I2OLW
Nice contest. Thanks for organizing it.
DL1OY
I hope 10 meters will be more frequently used next year.
K4YSB
My first RTTY contest.
W5HEZ
First SARTG contest. Can assure you it will not be my last.
G3HJC
I wish the Italians would not use their kilowatts sending row after row of CQ tape! The XT2 came on late - he worked an SM station and then must have been frightened off when everyone called him!!
DL6WZ
Conditions were very good on 21-3.5 SMHz, activity on 10M was very poor.
VE3OCU
We found 20 meters to be the most lucrative with much DX worked, followed by 15 meters, and due to lack of participation a poor third. The only disappointing aspect of the contest was the lack of participation from Canada and elsewhere on this continent. But the level of 20 meters activity more than compensated. This is our first effort in any RTTY contest.
WA6WGL
The 8 hours, 8 hours off took some getting used to. It makes for some strange operating habits. It also tended to cut down on the 80 meter and 40 meter activity. I was disappointed in the lack of 10 meter usage.
OH1AR
First time we try SARTG; enjoy it very much.
DB8SB
The 10 meter conditions weren't good.
WB2VTD
I am new to RTTY, it was a lot of fun.

CONT ON 5

HITS & MISSES

FROM THE MAILBAG

CHUCK EDWARDS W6MNO

4726 Barbarossa Drive
San Diego, CA 92115

We have had no active correspondance this month from you fellers!

By the way, my column in the RTTY Journal, is up for grabs. I just do not have the time to do an adequate job on it any longer. I would like to see some one else get some of the glory in this enviable position. I informed Dee, our publisher, of this a couple of weeks ago. She asked me to write something here and see if there are any volunteers. There is no monetary compensation, but there are a lot of other rewards. Every one that hits the green keys knows who you are and will come back to your "CQ" from places all over the world. You also get your picture shown each month along with your write up. I have enjoyed the time spent and really hate to give it up– but it is one of those things. Distance means very little-for example; I live some 35 to 40 miles away from the Journal office and I do almost all the work by telephone or mail.

I fully intend to continue writing technical articles and users reports as in the past, so there will be no loss there. Unless of course, the new editor has other ideas. Think it over, seriously. Write Dee, our publisher, a letter or call her and discuss possibilities.

We received Info-Tech's brand new Tri-Converter Model 200E a couple of days ago and have hooked it up into my system, it seems to be every thing the manufacturer says it is. I have tried it on ASCII and Baudot RTTY at all speeds and on CW Morse. Each has proven excellent. In fact, the CW capabilities have completely surprised me. I was working a fellow hand keyer the other morning in Florida and we were running about 30 WPM. I copied him perfectly on the video. It looked so much like RTTY that I could not believe that it was CW. I was following the audio CW by ear and watching the CW being converted on the video and it was printing each character perfectly—even copied his errors as well. I plan tc write a comprensive users report on this new Tri-converter in the near future. Bill Henry, of Hal Corp, called the other day and sort of gave us the one two for writing such a beaming report on the Info-Tech keyboard. In answer to this Bill, I would be most happy to write a users report on your excellent equipment also.

Hals equipment, we know, works excellently as does all the other equipment that is advertised in the RTTY Journal. We do not advertise any thing in the Journal that does not meet the projected requirements of our subscribers. It is our firm policy and will continue to be, as long as Dee or I have any thing to say about it. One of these days I plan to set up a laboratory so I can build and test all the hardware discussed in articles submitted by various authors. This way, I can assure our customers, the authors equipment or hard ware will actually perform as he says, prior to submitting it for your reading.

The best we can do now is to look at the schematic and write up, and say-yes it looks feasable or logical and hope it works as the author says.

Being a rather avid net operator I got thinking one day and decided I would work up a program for my KIM-1. This program or software would enable the computer/RTTY/Info-Tech to do all the work of net control for me. I have been using pre-punched tape I have to start and stop precisely and then scribble on a piece of paper all the check ins and those who want to stay for the roundtable and what not.

Hopefully this software will do all the work for me and all I will have to do is to occasionally punch a key or two and the tape will run and stop automatically–the memory will record the check ins, and those who want to round table. It is not perfected yet, however it is working and I have used it once and have been very pleased with the results. It will, of course, take some more changes and additions here and there to make it better.

If any of you RTTY'ers are working on such a scheme I would appreciate hearing from you. I plan to write an article on this scheme as soon as I have it working the way I want it to. Think about it!!

HAVE FUN———W6MNO CHUCK

CONT. FROM 4

YO2IS
Pity that 28MHz was not open at all! Too much QRM on 14 MHz (made by the big QRO's)!

WA9BOW
This is my first contest, hope I did well!

VE2QO
Excellent contest!

9M2CR
No displays of bad manners observed at this end. Activity limited by a power line failure due to a heavy tropical storm which blew down trees; no power for 10 hours of the contest time — hi (2 hours on 19th, 8 hours on the 19th-20th) It was noticed that activity from JA stations was less than usual; a JA friend tells me that at this time of year it is customary for Japanese to visit the homes of ancestors so that many are absent from their stations. Tack sa mycket och lycka til.

W8TCO
FB contest, but had to quit for awhile when lightning knocked my antenna down — hi.

W6JOX
My time was limited this year, so just tried to give the boys a few points.

IS0ESS
I'm sorry that I couldn't get any other stations, but I'm always running QRP with only 35 watts output, so the other OM(?) were cancelling me with kilowatt power. Why not make a QRP SARTG contest?

SM6GVA
Fine conditions, especially on 20M but 15M was also good. I had hoped that 10M would open properly as well, but alas it didn't. 80M and 40M were somewaht under normal, the activity was extremely high.

I1EPJ
My first contest.

LZ2KRR
Bad conditions on 7MCS; very good conditions on 28MCS, but no activity, (there were many EU- and DX stations on CW and SSB)

DK1BX
My first W/W contest in RTTY. It was hard going, but interesting.

WORKED SCANDINAVIAN RADIO AMATEUR TELETYPERS

All who have had 2 way RTTY contacts with the following number of Scandinavian amateur stations can claim for WSRY diploma.

CONT. 6

Cont. from page 5

	General	Bronze	Silver	Gold
Scandinavian Stations	25 QSOS	50 QSO's	75 QSO's	100 QSO's
European Stations	16 QSOS	35 QSO's	50 QSO's	75 QSO's
Countries Outside Europe	8 QSOS	15 QSO's	25 QSO's	50 QSO's

The general class must be first obtained before bronze, silver and gold.

All bands can be used.

QSL cards for General Class, Bronze and silver are not necessary; just a list containing call, date and time of contacts.

For Gold, it is essential to have contacts with the following prefixes: LA-SM-OH-TF-OX-OY-OZ.

Reference to SARTG contest log or photocopy of the QSL cards is sufficient

FEES:

General Class	10	IRC's
Bronze Ribbon	6	"
Silver Ribbon	6	"
Gold Rosette	6	"

RTTY BANDPASS ACTIVE FILTER

Nat Stinnette W4AYV
890 Virginia Ave.
Tavares, FL 32778

The bandpass active filter to be described here will do wonders toward improving copy of RTTY signals. It was designed to work ahead of the NS-1A PLL Demodulator (HR 8/76) but will perform equally well ahead of any terminal unit. The filter connects between the audio output of a receiver and the input of the terminal unit.

For those unfamiliar with filters, a bandpass filter is just what the name implies. It will pass only a specified band of frequencies and all others above and below that band are attenuated. The trick is to make this attenuation as sharp as possible with practically nothing passed except the particular band we want. This is not always possible without complex circuits so that on the simpler filters like this one there will always be some unwanted frequencies passed but attenuated enough so that they are of no consequence. Also, all kinds of noise and interference are eliminated or greatly reduced. For RTTY we want to pass the standard tones for narrow shift of 2125/2295 Hz. This is 170 Hz. shift so the bandpass should be about 200 Hz. wide, the center of the bandpass being 2210 Hz.

As can be seen from the diagram, Fig. 1, the filter consists of two separate 2-section filters using operational amplifiers which are connected in cascade. It uses only one IC, the LM3900. This IC contains four so-called "Norton" amplifiers. These op-amps will do almost anything the standard op-amp such as the 709, 741, etc., will do. The principal advantage is that the LM3900 requires only a single power supply. Also, the LM3900 differences the input currents, whereas the conventional type op-amp differences the voltages. The non-inverting input function has been made possible by using a current mirror circuit.

Several formulas are used to determine the value of the resistors and capacitors. The nearest standard values of 5% resistors are shown on the diagram. The capacitors can be 10%. Registor R2 sets the Q of the circuit (and also the gain) and works out to be 12.5K for a Q of 11 or a bandpass of 200 Hz. at -3 db centered on 2210 Hz. However, when both filters are connected together the Q goes up making the bandpass too narrow. So the value of 24K was chosen by trial and error to give the best passband.

The complete filter with standard values of resistors actually gives a passband of 160 Hz. at the -3 db point or a Q of 14. This may seen a little narrow for 170 Hz. shift but on the air tests have shown this not to be the case. The bandpass can be widened easily by changing R2 or by stagger tuning one filter 50 Hz. below the center frequency of 2210 Hz, and the other 50 Hz. higher. The -20 db point shows the filter to be about 800 Hz. wide. There is no insertion loss, in fact there is a small gain.

The filter can be built on a small piece of perf. board with .1" hole spacing. * Use only 5% resistors and Mylar capacitors.

Before connecting the jumper between the two filters, tune each filter separately to 2210 Hz. This can be done by feeding in a 2210 Hz. signal and adjusting R3 for peak output using a VTVM or high impedance AC voltmeter. The jumper is then connected. Another method of tuning the filters which is not as accurate is to tune in a strong steady RTTY signal with the filter in the line and adjust R3 on each filter seperately for peak output or best copy.

The transformer is used to step up the input from the receiver speaker output to more nearly match the input impedence of the filter. This can be a small transistor output transformer 1000-8 ohms used in reverse. If you have audio output impedence of at least 500 ohms from your receiver or elsewhere the transformer would not be needed.

A good way to check the performance of the complete filter is to have some means of switching it in and out of the circuit. You will find that sometimes the filter will be the difference between copy and no-copy. High impedence headphones (2000 ohms) connected across the output will enable you to hear what it is doing.

* Complete kit available soon. Send SASE to author for information.

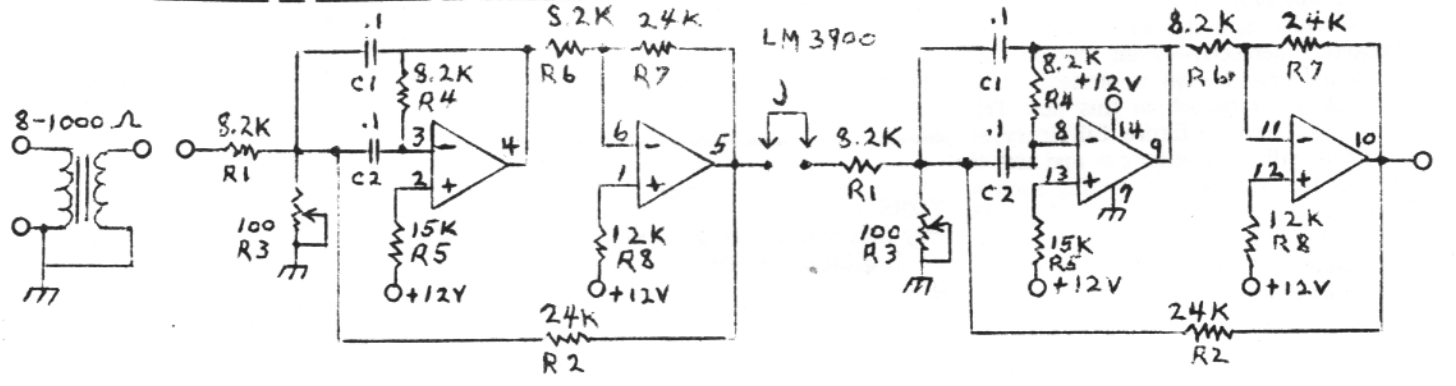
REFERENCES

"Linear Applications," National Semiconductor
"IC Op-Amp Cookbook," Jung
"Active Filter Cookbook," Lancaster

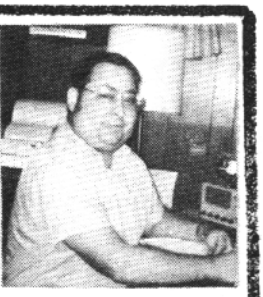
RTTY Bandpass

Active Filter

2125/2295Hz.



VHF RTTY NEWS



Arny Gamson, K6PXA, 8034 Gentry

N. Hollywood, CA 91605

Hi everyone; Sure is great to be getting back "among the living" after a 3 Month, $20,000 dollar, Hospitalization-tests-operation and recovery ordeal. The rare Disease (Cushings-Pituitary Gland) effects many functions of your body. Similar to a radio with a miltitude of sins; You have so many symptoms you don't know where to start first. Thanks to everyone for the many well wishes via phone and cards-sure helped.

The British A.R. Teleprinter Group (BARTG) Newsletter-DEC. '78 reports the following;

GB3PT

On October 14th at eleven o'clock the first United Kingdom amateur RTTY repeater was switched on. Its callsign — GB3PT. General specification is as follows:

Location—Barkway, Royston
National Grid Ref.—TL 372 364
QRA—AM71F
Elevation—152 metres ASL
Transmitter-frequency—433.3 MHz
-ERP—20 watts
Receiver-frequency—434.9 MHz
RTTY-speed—45.45 Bauds
-code—CCITT No 2
-mode—FMafsk
-mark—1445 Hz
-space—1275 Hz

Access is achieved by sending the repeater callsign **GB3PT** either at your own typing speed or automatically e.g. from a tape reader. You should, of course, follow up with your own call i.e. **GB3PT DE GXXXX.** The repeater will then send mark tone. If you drop carrier at this point the repeater will transmit **KKK** to acknowledge access, you then have ten minutes transmission time. If you cease transmission before the ten minutes is up GB3PT will reply with KKK — the next station then has a further ten minutes of access time (the timer is reset by the KKK sequence).

If, after the repeater has sent KKK, the option to reply is not taken up GB3PT will wait five to seven seconds and then send its callsign, first in CW and then in RTTY. Once the closedown sequence has started it is not possible to access — wait until it has closed down and then re-access in the normal way.

If the calling station has the facility of taking copy off air or "Listen Through" there is no need to crop carrier after access — simple carry on sending.

As an aid to receiving stations, including stations with off air copy of their own repeated signals, GB3PT sends a pip-tone when there is (a) a carrier plus RTTY (or mark tone) on the input (b) station has timed out (c) a station is attempting access or (d) a station has made an invalid access. The pip-tone has a frequency of 727.27 Hz (sixteen times the 45.45 Baud rate). The same oscillator is used as the timing reference for the closedown timing, the ten minute access time and the fifteen minute callsign beacon mode.

The mark and space transmit tones are derived from crystal oscillators — 2.95936 and 2.61120 MHz respectively, the division ration being 2048. The antenna system is comprised of Pye SA 460 aerials separated by about 40 feet which gives an on-frequency isolation of 68 dB. Total isolation of the whole system i.e. with the 1.6 MHz separation is 180 dB.

The transmitter is a Pye T461 followed by a RF amplifier, designed by G4BAO, producing 20 watts. The feeder loss works out to be about equal to the aerial gain resulting in the quoted ERP of 20 watts. On the receive side a Pye R460 is followed by a DT600 demodulator.

All the digital circuitry uses 4000 series CMOS with a AY3-1014A UART to receive and regenerate the RTTY. Note that this means there is no direct audio path through the repeater. It is interesting to observe that GB3PT will accept a low distortion 50 Baud signal and retransmit it at 45 Bauds.

Future plans are based on the use of a microprocessor to provide such features as test messages (RY's and quick brown fox with and without set levels of distortion), a four figure time print out on closedown or on request, auto logging of user stations, again by request. It is also possible to provide a multi-speed feature on a single over basis i.e. always returning to a standard speed. The list can be endless! Some of these ideas may not be desirable but test messages on request are possible with the existing logic and space is available in the logic tray. It is hoped to have this feature operational in the New Year.

GB3PT is the result of much effort by members of the Pye Telecommunications Limited Repeater Group (RTTY). Amateurs directly involved with the project and to whom much credit is due are G4BAO, G4BIK, G8GLB, G8JMC, G8LHD and G8MEI.

DXCC Honor Roll

worked/confirmed			
ON4BX	172/171	W8JLN	67/67
ON4CK	167/167	W8CAT	63/56
I5WT	148/143	WB0PJU	60/55
K7BY	147/139	W2PSU	73/50
I8AA	133/125	W4YZ	58/46
W1GKJ	125/123	K6ZDL	47/44
W8JIN	123/119	WB6CYA	67/38
K6WZ	119/112	K0PJ/16	77/31
F5JA	115/103	N3AI	45/30
K4Y7V	106/101	WB2VTD	39/27
K0BJ	94/84	IS0ESS	54/26
W7MI	89/79	WA6CQW	35/18
JA8ADQ	83/71		

TTY HELPS

Anyone desiring help with getting gear going or whatever, may write in and ask for help and if I don't have the answer I will run it in the journal in hopes that someone can come up with whatever is needed.

Fred Williams, WB4ATM, 2321 N.W., 60thters Sunrise Fla. 33313 has a Kleinschmidt Printer M311 and is brand new to RTTY. He would like to find the manuals for this machine and how to hook-up the machine's terminal block on his mach is labeled S,C,M, 1, 2 and 3, of which C and 1 are jumped together.

"KONTEST KORNER"

B.A.R.T.G.
0200 GMT Saturday 24 March thru 0200 Monday March 26, 1979.

P.S. To/G8LT Robin Addie
who has been under the weather, best wishes and a speedy recovery from G4CTQ, W2LFL, W3KV, GV5TU, G6JF and the gang. It goes for the gang from the Journal also.

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.

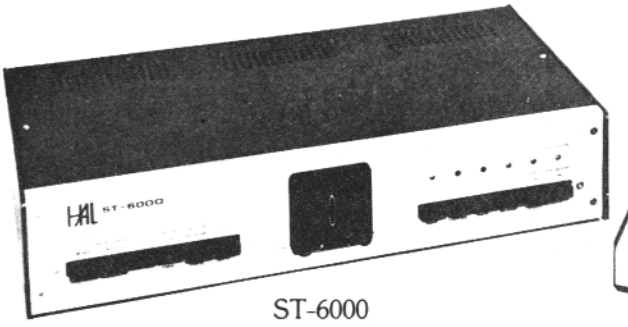
CONTEST OP, PIX COLLECTOR, OR RTTY RAG-CHEWER, YOU OWE IT TO YOURSELF TO EXPERIENCE THE BTA-1 RTTY CONTROLLER.

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

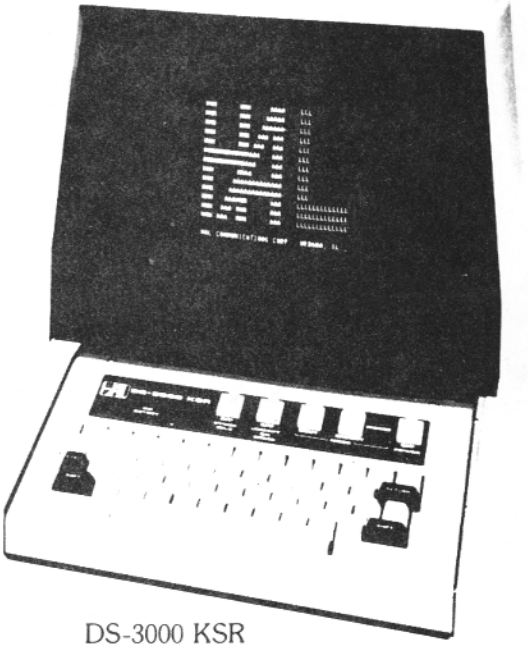
MS COMM - THE COMPUTER CONTROL PEOPLE Box 225 Greenfield, N.H. 03047

YOU ASKED FOR IT-

BOTH MORSE AND RTTY



ST-6000



DS-3000 KSR

The ULTIMATE in coded communications can now be yours with the new DS-3000 KSR TERMINAL (Version 3) and ST-6000 DEMODULATOR. Enjoy the convenience of composing and editing your messages BEFORE transmitting; decode and display CW as well as RTTY signals. Connect the HAL ST-6000 and DS-3000 KSR to your transceiver and antenna and work the world on RTTY and CW.

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- 170-425-850 Hz Shift
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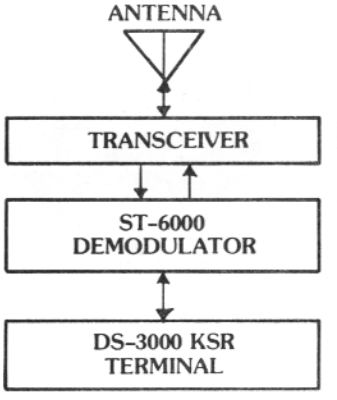
- Active band-pass filters
- Autostart and antispace
- ATC and DTH
- KOS for keyboard break-in
- Scope or meter tuning indicator
- AM or FM limiter modes
- Table or rack mounting
- I/O interface to current loop, RS-232, MIL-188, and CMOS



DS-3000 KSR

- MORSE, BAUDOT, and ASCII codes
- Full 72 character lines
- 16 lines of display
- Word wrap-around
- Edit with WORD, LINE, & PAGE modes
- Keyboard programmable HERE IS message
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- 8080A microprocessor controlled
- MORSE also output as ASCII or BAUDOT
- I/O interface to current loop or RS-232
- New streamlined 12 inch display
- On-screen indicators of WORD & PAGE modes

ST-6000M (Meter) **$495.00**
ST-6000S (Scope)..... **$595.00**

DS-3000 KSR V3 ..... **$1575.00**
DS-3000 KSR V2 (NO MORSE) . **$1195.00**

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Primetek Systems; Handen, Sweden
Radio Shack of London

THE ULTIMATE NON-OVERLINE

Rich Brightwell

If you like to monitor unattended autostart and also receive pictures, this modification is for you. In the monitor mode, your model 28 printer will carriage return and line feed upon receipt of carriage return after something has been printed. After this initial carriage return, it will not line feed again until something has been printed. In the picture mode, it will only carriage return on receipt of carriage return and will only line feed on receipt of line feed. Conversion between the two modes is accomplished by moving a stunt box pawl clip.

The basis for this is from IRV Hoff, W6FFC, who devised what he called the "CR-3 method of non-overline-limited-line-feed." This supplied the basis for this article, in which I expanded upon the original idea and made it convertible. I have used it for two years with excellent results.

This modification requires removal of the stunt box from the machine and addition of parts to the stunt box. Instructions for removing the stunt box and changing parts in it are given in teletype bulletin 217B, section 573-115-702, paragraphs 2.11 through 2.19. What the parts look like is to be found in bulletin 1149B, section 573-115-800, as are instructions for coding the 153440 uncoded function bars. Some of the stunt box slots already have parts in them. Use these slots for reference as to where the parts go. Some further recommended reading is in the new beginner's RTTY handbook, fourth edition, obtainable from RTTY journal.

Start by removing the stunt box from the machine. Now is a good time to replace the existing line feed slide arm with part number 152359. Now install the parts into the stunt box as indicated:

Slot 6
- 153437 Function Bar
- 152642 Function Lever
- 152660 Spring Plate

Slot 7
- 153435 Function Bar (modified for line feed and blank print)
- 152642 Function Lever
- 152660 Spring Plate

Slot 8
- 152667 Function Bar
- 152298 Function Lever
- 154613 Latch

Slot 9
- 153440 Function Bar (Letters and Figures Print)
- 152642 Function Lever
- 152660 Spring Plate

Slot 10
- 153440 Function Bar (Carriage Non Print)
- (Related Parts Already in Slot

Slot 41
- 152668 Function Bar
- 152642 Function Lever
- 152660 Spring Plate

Over Slot 8 install the shift slide. The hole in the 162298 slide fits over the function lever in Slot 8.

Replace the existing stripper blade slide with the 160576 and 160577 slide and blade.

Remove the 154650 clip from the left end of the suppressor code bar.

Install the modified stunt box into the machine. Check the function reset bail blade adjustment (bulletin 217B, section 573-115-700, paragraph 2.32) and if necessary readjust clearance to 0.018 to 0.022 inches. If readjustment is made, check the adjustment of the FIGS-LTRS shift code bar operating mechanism (paragraph 2.33) and the carriage return lever (paragraph 2.40). Adjust the slot 8 shift fork so that: (1) the top tine of the function bar moves back and the code bar moves across after carriage return has been received, and that: (2) the full width of the top function bar tine in slot 40 rests on its associated code bar tang after carriage return has been received for the second time and the reset bail is at its maximum forward position. It may be necessary to refine the reset bail blade adjustment to obtain the above conditions and also so that the mechanism will stay latched as long as nonprinting characters are received. (it should unlatch upon receipt of a printing character). It may be necessary to have different clearances along the length of the rest bail blade.

From a paper clip homebrew yourself a pawl clip. At the bottom end form a hook to hold the function pawl. Put in the necessary bends to support the clip from the arm upon which is mounted the cable channel. The left side plate and at the end form a loop so that you can conveniently handle it. Install it on slot 40 then slot 41 checking that the clearance between the function bar and its pawl is between 0.015" and 0.060." For unattended autostart slot 41 is to be clipped out and for picture reception slot 40 is to be clipped out. To change modes during operation, turn off the paper winder, open the cabinet, pull paper off the paperwinder until the front of the typing unit is hidden. Lift out the paper roll and reach inside and unhook the pawl clip from the pawl it is hooked on and hook the other pawl (slots 40 and 41 only). Then replace the paper roll, turn on the paper winder and close the cabinet after the slack in the paper has been taken up.

PARTS LIST:

Stunt Box Parts:
- 4703 Spring, function bar
- 72522 Wick (Fits inside 157240 spring)
- 90517 Spring, function lever
- 152653 Pawl
- 157240 Spring, Pawl

You will need six each of the above parts.

Function bars:
- 152672 (upper case S)
- 152667 (Carriage return)
- 152668 (Line feed)
- 153435 (Line feed, print)
- 153437 (Upper case S print)
- 153440 (Uncoded)

You will need each of the function bars except for the 153440 Bar of which you will need 4. If you already have the 153437 Bar in your machine, use it and get only the 152672 to replace the 153437 you "stole" for the modification. If your machine has the 152672 in it, leave it be and get the 153437 bar. If your machine already has the 153435 Bar in it, use it and replace it with the 152668 Bar. If your machine already has the 152668 in it, leave it be and get the 153435 Bar.

More stunt Box parts:
- 152298 Function lever (one required)
- 152642 Function lever (five required)
- 152660 Spring Plate (five required)
- 154613 Latch (one required)

Shift slide parts:

3599 Nut	2 required
103863 spacer	4 "
110743 washer	2 "
125011 washer	2 "
153609 roller	1 "
153644 stud	2 "
155933 plate	2 "
155934 plate	1 "
155935 fork	1 "
162298 slide	1 "

Miscellaneous parts:

152359 arm, line feed slide
160576 slide, stripper
160577 blade, stripper

One each of the above is required.

Rich Brightwell WB6BJA
5650 Cleon Avenue
North Hollywood, CA 91601

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.

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

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 +12v. Complete kit $11.95, W/T $16.95 ppd. Nat Stinnette Electronics, Tavares, FL 32778.

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.

TELEPRINTER parts, manuals, gears, ribbons, paper, tape, converters; toroids. SASE for list. Wanted:TT, KL, parts, 2BP1 etc., tubes. Typetronics, Box 8873, Ft. Lauderdale, FL 33310 WA N7F-N4TT.

UT-4 COMPONENT UPDATE. TMS-6011NC only Uarts available - now $5.00 1% Resistor Pack for AZCD (Sept & Oct 78 Journal) $2.00. See Jan. ad for Proms and others. Peter Bertelli, W6KS, 5262 Yost Place, San Diego, CA 92109. 714-274-7060.

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

Teletype. TD Paper 11/16 oiled & yellow Carton 10 $3.00 wt. 13 lbs. Carton 40 $10.00 wt. 47 lbs. ad UPS wt. Harmon 5628 10th Ave., So. Birmingham Ala.

Klienschmidt TD Paper 7/8" oiled & 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. So Birmingham, Ala. 35222

MODEL 28ASR TELEYPES $350-$375. RO CONSOLES $175. PAPER WINDERS $35. RO-3-SPEED TELETYPES $175. TAPE PERFORATORS $50. MUCH MORE. STATE YOUR WANTS. SEND SASE FOR PARTIAL LIST. GOODMAN 5454 SOUTH SHORE, CHICAGO, IL. 60615 312-753-8342.

CRYSTAL CONTROLLED XB-6 CLOCK BOARDS FOR THE UT-4. SINGLE SIDED PC BOARD HAS PROVISIONS FOR TWO CLOCKS FROM ONE CRYSTAL. MAY ALSO BE USED FOR NUDATA/DAYTAPRO UT4B BOARDS. BOARD SIZE 4½ x 6½ INCHES. PRICE $8.95 COMPLETE KIT $26.95. DAYTAPRO ELECTRONICS, (FORMERLY NUDATA ELECTRONICS), 3029 N. WILSHIRE LN., ARLINGTON HTS., IL 60004.

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.

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.

TELETYPEWRITER parts wanted for all machines manufactured by Kleinschmidt, Mite and Teletype Corp., New only, Also sub-Assembled. I pay shipping. Phil Rickson, W4LNW, Rt. 6, Box 1103G2, Brooksville, FL 33512.

ELECTRONIC KEYBOARD CABINETS. Six sizes available. Depth 8.4 in. Height 3 in. WIDTH 14 in. $15.20, WIDTH 17 in. $18.35, WIDTH 20 in. $19.25. Depth 11.4 in. Height 3 in. WIDTH 14 in. $16.50 WIDTH 17 in. $18.80 WIDTH 20 in. $20.75. ALUM TOP AND BASE. Shipping included in prices. Blue base with choice of black or white top. 10 Minute timer kit, Variable 1-20 minute $8.95 Kit. Board Alone $3.95
Daytapro Electronics, (formerly Nudata Electronics) 3029 WILSHIRE LN. ARLINGTON HTS, IL 60004

TU LOOP SUPPLY BOARD. Contains all necessary for +12 -12 low voltage supply with provisions for high voltage loop supply. Similar to that of ST-5. Ideal for must TU'S including DT500 and DT600 units. $5.95 Per board plus .90 for shipping. Daytapro Electronics, (formerly NuData Electronics), 3029 Wilshire LN. Arlington, Hts., IL 60004.

RTTY ID GENERATOR. Accepts 5 or 12 volt supplies, 31 characters available, please include letters, figures, spaces etc. Your preprogrammed 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.

NEW CW ID UNIT. Includes many extras, on board interface for FSK and AFSK plus H.V. Interface, 10 Minute timer, variable speed 5-24 WPM, ON BOARD 7805 allows 5 or 12 volt use. $37.90 kit. MINI VERSION OV ABOVE, ID only with 7805 Regulator $21.95 Kit. BOARD ALONE (same for both units $9.45. Power supply for above 5V at 1 Amp $11.95 Kit. Daytapro electronics, (Formerly NuData Electronics), 3029 Wilshire Ln., Arlington Hts. IL 60004.

UT-4 KITS NOW AVAILABLE. Enough components to fill board. All necessary logic, resistors, diodes, transistors and capacitors. Complete documenation. Commercially made boards. Price $109.95. UT-4B BOARD alone $17.95 with documenation. Special mini parts package for UT-4 BOARD includes resistors capacitors, diodes and transistors. Price $8.95. M4D POWER SUPPLY for above. Kit, $31.95. Add $1.00 for shipping. Daytapro Electronics, Formerly NuData Electronics, 3029 Wilshire Ln., Arlington Heights, Il. 60004.

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RTTY terminal - Hal RVD 1005 with 9" TV monitor, excellent condition, $300. Northern Radio dual channel demod, both channels centered 170 or 850, and variable shift between, scope, variable loop supply, exc condx, $110. Also Frederick Model D3, 850 hz shift, scope and loop supply, exc condx, $100. All packing shipping extra. Frank W4JFE, 6775 Bison St., Springfield, Va. 22150.

Mod 28 KSR, 60 wpm and Mod 28 TD, both exc condx, $250. Mod 14 Typing reperf good condx. $35. Packing and shipping extra. Frank W4JFE, 6775 Bison St. Springfield, Va. 22150.

(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.

HAL-DS-3000 KSR FOR SALE:
CRT Display, ASCII and Baudot. All manuels included. Mint Condition. 4 months old. Must sell, need money. Phone 1-416-281-9454, Bill VE3KDM, 36 Keeler Blvd., Scarbourough Ontario. M1E-4KS.

GOING VIDEO: FOR SALE:
MODEL 15 Printer/Keyboard complete 60 MA LOOP.
MODEL 28 Typing Perferator (Fast Keyboard.)
MODEL 28 Tape Distributor (Stand-Alone-60 and 100 gears)
Package Deal $150.00 pick-up only.
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15451 MERRILL ST.
SOUTH HOLLAND, IL. 60473
PHONE 312-841-0772

IF-2 SELCAL-WRU circuit board, $15. (73 mag. Nov.78). Contains all circuits to control TTY and transmitter. Programmable to any access code in minutes. Easily interfaced to any station. Connects to UT-4(UART), or IF-1 regenerative repeater PCB, $12.00. Complete documentation. Commercially fabricated boards. R. Parry, 38 W. 255 Deerpath Road, Batavia, IL 60510.

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MODEL 28 KSR Clean - 150.00
Flescher TU/Demod/w. UT.4, CW ID, Timer all in one unit, clean. - 200.00
UT-4/w power supply clean - 100.00
Will sell separate or as a package. Contact at COIT ELECTRONIC SUPPLY, INC.
509 Commercial St., Klamath Falls, Oregon 97601 PO Box M
503-883-3545

DOME REPERF FOR MODEL 28. 3 SPEED 60-75-100 WPM. WITH PRINTING REPERF. 150.00 INCLUDING SHIPPING. MODEL 28 ASR COMPLETE 275.00 PICK-UP ONLY. MODEL 33 ASR 385.00 PICK-UP ONLY. MODEL 33 KSR 225.00 PICK-UP ONLY. MODEL 28 KSR 135.00 PICK-UP ONLY. WANTED GOOD MODEL 12 FOR MY COLLECTION. M. WEINSCHENKER K3DPJ 12690 RTE 30 N. HUNTINGDON, PA. 15642. PHONE 412-863-7006 AFTER 6 PM.

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.

DDTMG BY W1HAB. January 1976 '73. Interested? If sufficient response is shown, P.C. boards and parts kits will be made available. Send QSL or equivalent to: J.W. YOUNG, W6RLL, 16808 Goodvale Road, Canyon Country, CA. 91351.

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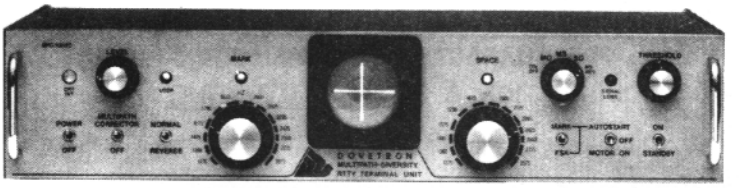

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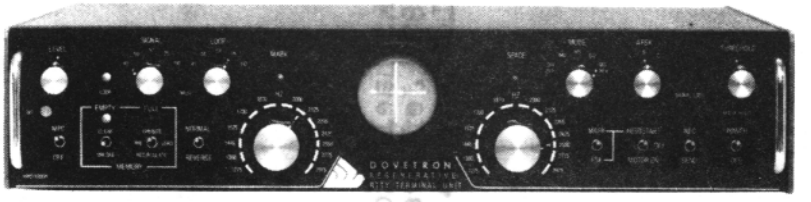

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