..CLASSIFIED ADS

TELETYPE MODEL 28: 28RO bases, $35.00, three for $100.00. New ribbons, $1.75, typeboxes (WX, COMM, or Fractions). $25.00 ea. Base for LXD TD in ASR, $25.00, base for stand-alone LXD, $30.00. M28 cabinets, gears, gearshifts, reperfs, TD's, keyboards, terminal units, paper, tape, ASR's, KSR's, cabinet parts. SASE for complete listing. Lawrence Pfleger, 532 W. Wilson St., #1, Madison, WI 53703.

MODEL 28 ASR. Remote R-T, ansbk, type. reperf. $875. TT/L with TT-63A. $175. No Shipping. J.A. Prest, 18704 Glastonbury Rd., Detroit, Michigan, 48219 313-538-1204

WANTED - 4-1000-A or 3-1000-Z. Can pick up within 100 miles of Toledo. All letters answered or call collect (419) 833-1374. Bob Scott, W8SFK, 3955 Garling Rd., Luckey, Oh. 43443.

TWO BRAND NEW NEVER USED 35 ASR bases complete with LRPE801 perforator. No motors. Trade each for completed and operational UT-4 with Fifos. Each $250.00 value. Two used 35 ASR bases, one with motor $50.00 each or trade? One model 28 skin tight cabinet new $25.00. Cecil W7VKO 3109 East Roma Phoenix, AZ., 85016 (602) 955-9393.

WANTED: ST-6 WITH HAL CABINET, either home built from kit or factory built. John Dillon, KH6FMT, Box 758, Koloa, Hawaii, 96756.

*****

PC BOARDS FOR THE UT-4, double sided, thru-hole plated, plug-in edge connectors. Write for details. AK-2 kit for $19.95, XK-2 STAL AFSK kit $34.95, ELECTRONIC DEVELOPMENT, INC., P.O. Box 951, SALEM, OREGON 97308 (503) 399-9660

RTTY VIDEO DISPLAY UNIT -- 1000 characters, plugs into loop or logic circuits, ASCII or BAUDOT available. Kit $395, assembled $495. Leland Associates, 18704 Glastonbury Rd., Detroit, Michigan, 48219

WANTED: 32 and 33 ASR's. Also perfs, readers, UCC's, etc. Highest cash prices. PO Box 1219, South Station, Newark, N.J. 07114 (201) 824-1300

"UT-4 PC. BOARDS Set of four plated and drilled G-10 epoxy glass boards (not thru hole plated) 2 7/8" X 7" with provisions for 12 pin edge connectors. Boards include XB-6 Dual Clock, Two UT-4 boards, and power supply board including plus 5 volts, minus 12 volts, and plus 12 volts. All boards are two sided with the exception of the power supply. $15.00 Postpaid. Clyde Keenan, Rte. 1 Box 309, Lakebay, Washington, 98349 1-206-884-3838"

RTTY CLOSEOUT - NS-1 BOARDS (Journal Oct. 1974) $2.75 ppd. A few wired/tested units, still available $29.95 ppd. Nat Stinnette Electronics, Box 1043, Tavares, FL. 32778.

ADDRESS CORRECTION REQUESTED

RTTY JOURNAL
P.O. Box 837
Royal Oak, MI. 48068

FIRST CLASS MAIL

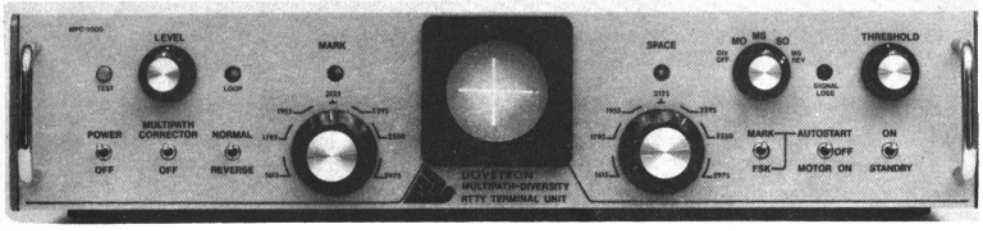
RTTY JOURNAL

December 1975

EXCLUSIVELY AMATEUR RADIO TELETYPE

VOLUME 23 No. 10 — 35 Cents

Bi-Centenial "Worked All States" Contest



DOVETRON - Multipath-Diversity MPC 1000 RTTY Terminal Unit.

3 [Three] DOVETRON MPC 1000 Demodulators -
PLAQUES - CERTIFICATES to the Winners.

Ham Radio's Richest Contest.

SEE PAGE 2 for DETAILS.

CONTENTS ---

BI-CENTENIAL RTTY W.A.S. CONTEST- - - - - - 2
RESULTS- BARTG RTTY DX CONTEST - - - - - - - 2
IMPROVING THE MAINLINE TT/L-2 - - - - - - - 3
AUTO-PRELOAD FOR THE UT-4 - - - - - - - - - 3
RTTY IDENTIFIER - - - - - - - - - - - - - - - 5
DX NEWS - - - - - - - - - - - - - - - - - - - 8
VHF NEWS- - - - - - - - - - - - - - - - - - -10
MINI-COMPUTER CONTROL OF RTTY STATION.Pt.2.11

Bicentennial RTTY W.A.S. Contest.

Several months ago Hank Scharfe, W6SKC, owner of DOVETRON Corp. offered to donate 3 of his MPC-1000 RTTY Terminal Units for prizes in some type of RTTY contest.

a number of ideas were discussed but with 1976 the Bicentennial year it was finally decided to have a "Worked All States" during '76 contest. Along with the 3 Dovetron units the Journal will furnish 5 plaques to be awarded after the terminal units. A Merit Certificate will be given to everyone that completes WAS during the year. With over $1500 value in prizes this contest must rank as one of the most valuable ever in ham radio.

RULES:

The first station to submit proof of two way contact with all 50 of the United States will be the winner.

All licensed Amateur Frequencies may be used.

There will be two divisions of area: United States, Canada, Mexico and Central America will be Division #1.

The balance of the world will be Division #2.

The first two winners in Division 1 will be awarded MPC-1000 terminal units.

The first winner in Division 2 will be awarded a MPC-1000 unit. If no station qualifies from Division 2 the terminal unit will be awarded to the third place winner of Division 1.

The next five winners will be awarded plaques.

QSL cards or proof of contact must be sent to John Possehl, W3KV, PO Box 73, Blue Bell, PA 19422. Postmark of mailing will determine submission time. If no postmark is visible, date of arrival at Blue Bell will be used. It is suggested that after 40-45 cards have been received they be sent in for checking and the balance can then be sent registered, when received so that a postmark is obtained. The RTTY JOURNAL reserves full right to judge on any cards received.

Contest will start January 1, 1976 at 0001GMT and end on December 31, 1976 at 2400GMT. HAPPY HUNTING!

RESULTS BARTG CONTEST

1	I1PYS	221998	11	OZ4FY	141900	21	HB9AVK	88528	31	OK3OBJT	65304
2	W3EKT	219520	12	W1GKJ	132924	22	DL1VR	88128	32	SM5BKA	63984
3	KZ5BH	197100	13	KH6AG	128546	23	W1DXQ	84824	33	PY1 DCB	53382
4	I5GZS	180164	14	K6WZ	122436	24	F9XY	80964	34	W7BCT	51902
5	I8AA	178596	15	I1COB	119280	25	PY2CYK	80256	35	W3KV	51156
6	CT1EQ	170180	16	VE5BX	113880	26	JH1TFF	79112	36	G6JF	45306
7	I5WT	169186	17	IT9APZ	103392	27	WØHAH	75192	37	WAØYDJ/4	44100
8	IT9ZWS	156720	18	XE1LL	99502	28	DJ8BT	70576	38	CE3MA	42714
9	K4GMH	152338	19	WB4ELA	95832	29	SM6ASD	68672	39	WB7APW	41280
10	W4CQI	145530	20	WA6WGL	88700	30	W8JIN	66534	40	DU1POL	39120

CONTINUED ON PAGE 11

Improving the MAINLINE TTL/-2

KEITH PETERSEN, W8SDZ
1418 Genesee Ave.
ROYAL OAK, MI. 48073

Here are some improvements which can be made to the Mainline TT/L-2 FSK Demodulator.

LOWPASS FILTER

The lowpass filter parts values have been more accurately calculated since the original article was published and several areas for improvement were found. A substantial increase in performance at 75 and 100 WPM will result if the new values shown below are used. There are no changes in resistor values but most of the capacitor values have been changed.

SPEED	R-1	R-2	C-1	C-2
60	47K	22K	0.068	0.1
75	62K	27K	0.043	0.073
100	82K	33K	0.025	0.044

R-1 refers to the resistor which is shown on the schematic to the left of the 350HY choke. R-2 refers to the resistor which is to the right of the choke. C-1 refers to the capacitor which is to the left of the choke. C-2 refers to the capacitor which is to the right of the choke.

ANTI SPACE CIRCUIT

In the grid circuit of the anti-space stage you will see a 0.25 mfd. mylar capacitor. Improved anti-space performance will result if this capacitor is changed to 0.33 mfd.

AUDIO INPUT AMPLIFIER

In the plate curcuit of V-1, the 6AB4, break the red lead of transformer T-1 from its connection to the 230 volt line and insert a 2.2K two watt resistor. Add a 20 mfd. 250 volt electrolytic capacitor from the red lead of T-1 to ground. This improves the filtering of the 230 volt supply to the plate of V-1, to eliminate a slight amount of residual ripple in the power source, which would otherwise be greatly amplified by the limiter stages. This modification will improve the weak-signal performance.

BANDPASS INPUT FILTERS

In some schematics, in the bandpass input filters you will see that the draftsman accidentally left off the ground which belongs on the bottom of each set of 88 mh. coils. Without this ground, the bandpass input filters will have no filtering action at all.

ATC/DTC STAGE

In the TT/L-2 articles which appeared in "QST" magazine for May 1969, and in the ARRL publication "Specialized Communication Techniques", in the ATC/DTC stage near S6B you will see a resistor shown as 6200 ohms, 5%. This was a draftsman's error and is incorrect. The correct value is 620K, 5%.

LIMITER STAGE

Check your TT/L-2 to make sure that you have a 0.002 mfd. 600 volt mylar capacitor across the primary (the red and blue leads) of T-2, the transformer in the plate circuit of the first 6BN6 limiter. This capacitor is very important as it eliminates any possibility of the limiter stages oscillating at a very high audio frequency. It also eliminates a slight tendency for the transformer to ring. Some units may already have this modification as it was published in "RTTY Journal" a few years ago.

***

AUTO-PRELOAD FOR THE UT-4

RON LIGHT, WBØNSR
1120 N. Geyer Rd.
Kirkwood, MO. 63122

Wanting to have the UT-4 run closer to machine speed output and not wanting to have a dibble generator, I used existing parts, mostly, of the UT-4 to make an Auto-Preload. The Auto-Preload works so that while the FIFOs have storage, transmission is normal. But if, while typing, the FIFOs become empty the UT-4 will go to a mark-hold condition and remain that way until the FIFOs are once again close to full.

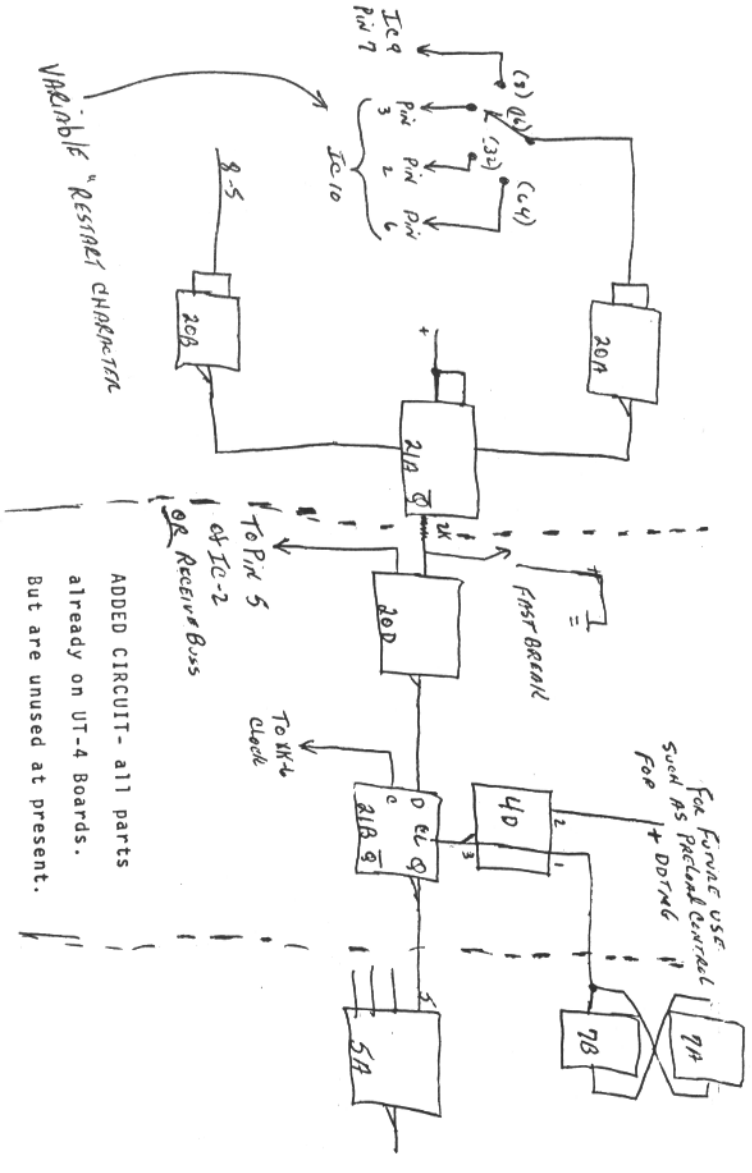
The circuit utilizes the "TD Control" which was of no use to the author. The output of the TD control is fed to the one unused Nand gate of IC-4 which in turn is used to control the transmit one shot control gate.

The author has "on the air" checked this system with several persons and the response has been encouraging. To those that have heard the "diddle generator" on the air, this system has been a pleasurable relief and is no more annoying than a fellow stopping momentarily to collect his thoughts. This device also helps the

fellow fine tune his receiver on the occasional carrier.

The fast break Auto-Preload switch more or less disables the Auto-Preload function for normal UT-4 operation. This is essential for fast break QSO's.

A variable reostat character switch is incorporated to allow the user to select the number of characters before the UART begins to transmitting again. A word of caution for fast typers is not to select the "64" position as a fast typer could easily overrun the FIFOs with that character position. Many thanks to Irv Hoff, W6FFC, for his comments and help.



*****

RTTY IDENTIFIER

Part 1

MIKE SIMS,K4GMH
8408 Cherry Valley Lane
ALEXANDRIA, VA. 22309

WHY

The RTTY Identifier started out as a simple CW identifier for a friend to use on RTTY. Having just completed a more elaborate identification arrangement the idea germinated to see what could be done to accommodate both CW and RTTY identification with one 256 bit programable read only memory (PROM). The result is the RTTY Identifier.

The hams on RTTY using the Model 28 machines with programmed stunt boxes will not need this elaborate CW identification device. However, the majority of hams on RTTY are not so fortunate (Including the author) to have a Model 28 or comparable machine with stunt box feature or "Here Is" capability.

Finally, effort was made to hold down the cost. The ICs can be purchased for under $10.00 including the memory. The RTTY Identifier should be able to be constructed for approximately $20.00. Again, this is for automatic, push button identification on both CW and RTTY.

RTTY IDENTIFIER CAPABILITIES

The RTTY Identifier is capable of generating a station's CW and RTTY identification. Either the CW or RTTY identification can be started from a remote location at the push of a button. Whether the CW precedes the RTTY identification (start of a transmission) or follows the RTTY identification (end of transmission) will depend on which push button is activated by operator.

CIRCUIT DESCRIPTION

Overall Circuit Description

Figures 1. Device Block Diagram, gives an overall view of the RTTY Identifier's circuit. The circuit can be grouped in the following order:

Start/CW Flip Flops (7400-U1)
Oscillator RTTY/CW (555-U2)
Counters (7493 -U3 and U4)
Memory (8223-U5) and Data Selector (74151-U6)
End of RTTY/CW Message Stop Devices (7430-U8 and U9)
RTTY and CW Outputs (7401-U7)
Power Supply (LM 309k)

Start/CW Flip Flops

The Start/CW Flip Flops U1, are constructed from the ubiquitous 7400, quad. NAND gate. When U1B, pin (5) is grounded (S1 momentarily closed), U13 pin (6) goes from "O" (low, 1 volt) to a "1" (high, 3 volts). With U1B pin (6) a "1", U2 will start oscillating. and pin (3) U1A will go from a "1" to "0" enabling the counters, U3 and U4.

The momentarily closing of S2 will cause the previously described actions associated with the grounding of U1B pin (5) plus U1C pin (8) to go from a "O" to a "1". This will enable the output from pin (4) of U7B to be controlled by the pin (5) "Y" output of the Data Selector U6. In addition to turning pin 8 of U1C from a "O" to a "1", pin 11 of U1D goes from a "1" to a "O". This also causes U7C pin 13 to go from a "1" to a "O" introducing the 0.68uf CW capacitor into U2's timing circuit. With U1D pin (11) a "O", pin (1) of U7A will always be a "1" regardless of U6's W, pin (6), output. The Start/CW Flip Flops are returned to their quiescent state when pin 8 of the U8 or U9 goes from "1" to a "0".

U8 (RTTY) will be activated only when S1 is used to "start" the generator. U9 (CW) will be activated when S2 is used to "start" the generator.

OSCILLATOR RTTY/CW

The oscillator (clock) is a 555 that will oscillate with a period of 22 milleseconds when the reset, U2 pin (4), is a "1". When U2 pin (4) is a "Q", U2 stops oscillating and the output U2 pin (3) is a "O". Because the output U2 pin (3), is a "O" when turned "off", the first bit in the memory, U5, must be a "mark" or a "1". The Timing Chart, Figure 2, shows how the first bit is only 11m.sec. long or half the necessary length.

The 0.68 uf CW capacitor is introduced into the U2's timing circuit when U7C's, output, pin (13), is a "O". U7C will become a "O" only when the U1C's pin (8) is a "1". U1C's pin (8) will only become a "1" when S2, the CW "start" switch is momentarily closed. Since the CW speed is not as critical as RTTY, no special attempt was made to adjust the CW speed other than by the selection of an appropriate CW timing capacitor. However, the 0.68 uf. capacitor produces a dot of approximately 88 milliseconds which will keep the machine synchronized (CW is about 18 wpm(.

Counters

The counters, U3 and U4, are 7493 binary counters. A single 1C counter is a divide by 2 and a divide by 8 all in one 14 pin package. For a divide by 16 the output of the divide by 2 section must be connected to the input of the divide by 8 section. In U3, this divide by 16 arrangement is used Pin (12) connected to Pin (1). However, in the U4 counter, the divide by 2 and divide by 8 are kept separate. The divide by 8 section of U4 is used to step the Data Selector, U6, through the Memory's, U5, rows one at a time starting with Bo and going through B7. U4's divide by 8 is increased one count each time, U3 has counted 16, 22 millisecond periods from Oscillator, U2.

MEMORY AND DATA SELECTOR

The Programmable Read Only Memory (PROM), U5 is a Signetics 8223, 256-Bit TTL devices organized as 32 words with 8 bits per word. However, in this design the 32 x 8 organization is not used. Instead the memory is organized in 8 rows with 32 bits per row. Only one row is read out at a time at 22 msec, per bit or 88 msec. per bit in CW.

The Data Selector, U6, selects each row one at a time. Which row is selected depends on the A, B and C output count from Counter U4. The next row is selected on the 32nd "1" to "O" transition seen by Counter U3's pin (14).

The zero Row, zero Bit in the memory is programmed as a "mark" to insure machine synchronization is maintained as discussed previously in the Oscillator RTTY/CW Section. The Data Selector Truth Table (Fig. 3) shows how the Bo-B7 and the A, B and C input influence the "W" output, the U7A output and the ST5/6 Terminal Unit's (TU) MJE340/2N5655 collector output (Loop).

The ST-5/6 is in a standby condition during transmit and its MJE340/2N5655 output transistor is "On" (conducting). The U7A will "sink" the TU output transistor's base current to ground on a "space" signal from the Memory, U5, via the Data Selector, U6. This "sinking" of the TU output transistor's base current will turn "Off" the transistor interrupting the loop current going to the machine and produce a "space" signal on the transmitter FSK line.

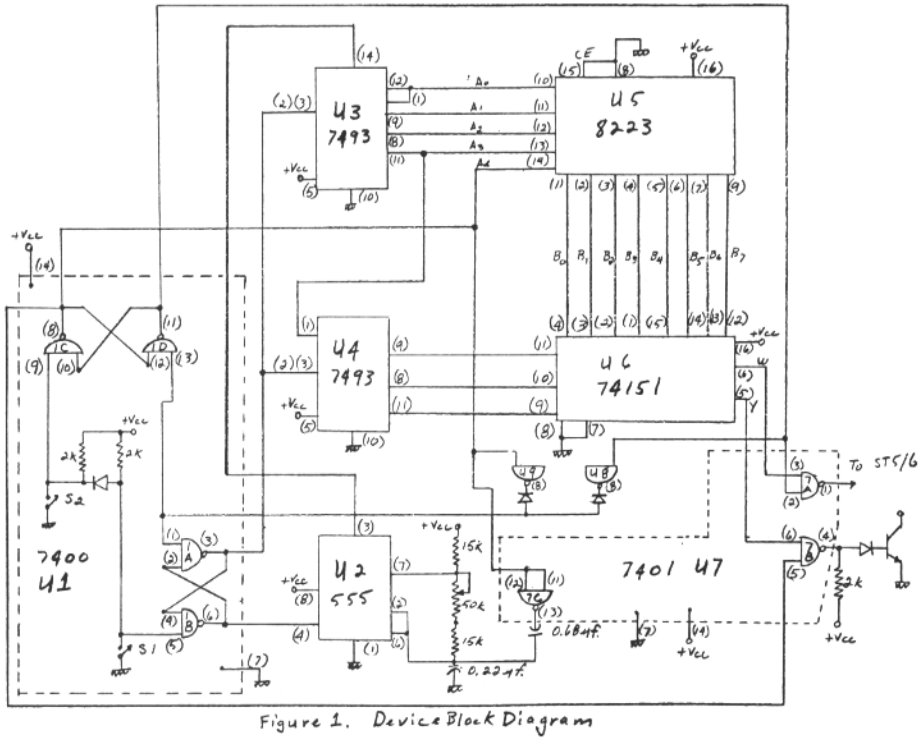


Figure 1. Device Block Diagram

INPUTS TO 74151												OUTPUTS		
C	B	A	STROBE	B_0	B_1	B_2	B_3	B_4	B_5	B_6	B_7	74151	U7A	Loop
X	X	X	1	X	X	X	X	X	X	X	X	1	C	S
0	0	0	0	0	X	X	X	X	X	X	X	1	C	S
0	0	0	0	1	X	X	X	X	X	X	X	0	NC	M
0	0	1	0	X	0	X	X	X	X	X	X	1	C	S
0	0	1	0	X	1	X	X	X	X	X	X	0	NC	M
0	1	0	0	X	X	0	X	X	X	X	X	1	C	S
0	1	0	0	X	X	1	X	X	X	X	X	0	NC	M
0	1	1	0	X	X	X	0	X	X	X	X	1	C	S
0	1	1	0	X	X	X	1	X	X	X	X	0	NC	M
1	0	0	0	X	X	X	X	0	X	X	X	1	C	S
1	0	0	0	X	X	X	X	1	X	X	X	0	NC	M
1	0	1	0	X	X	X	X	X	0	X	X	1	C	S
1	0	1	0	X	X	X	X	X	1	X	X	0	NC	M
1	1	0	0	X	X	X	X	X	X	0	X	1	C	S
1	1	0	0	X	X	X	X	X	X	1	X	0	NC	M
1	1	1	0	X	X	X	X	X	X	X	0	1	C	S
1	1	1	0	X	X	X	X	X	X	X	1	0	NC	M

When used to indicate an input X = irrelevant. C = Conductive. NC = Nonconductive. S = Space. M = Mark.

FIG.3 DATA SELECTOR TRUTH TABLE.

End of RTTY/CW Message Stop Devices

The hardwire program message stops consists of 2,7430,8 input NAND gates, Figure 4, whose inputs have been connected to the appropriate counters' outputs. Which counter outputs are used will depend on where you want the message to end. The maximum message length for RTTY is 126 bits (1st bit a dedicated "mark"; 128th bit also must be a dedicated "mark" for synchronization purposes) and 128 bits for CW.

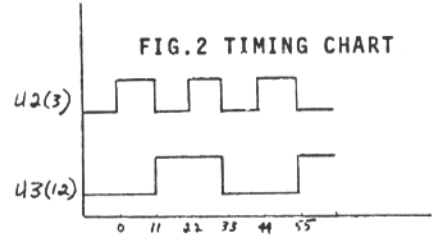
The unused 7430 inputs (one input from U8 will go to U1D pin (11) and one input from U9 will go to U1C pin (8) are connected to plus Vcc via a lk ohm resistor (not shown on Figure 1. Device Block Diagram).

When the programmed count is seen by the wired 7430 inputs (all inputs are a "1") the 7430's output will go from "1" to "O". This action resets the U1 flip flops to their quiescant state. The resetting of U1 resets the counters to zero count output. With the counters reset to a zero count output the 7430's output is returned to a "1" because at least one of the 7430's inputs is a "O".

For those who already have a CW IDER or do not need to identify on CW, the circuit changes in Figure 5, can be made to produce a double RTTY message unit instead of a RTTY and CW message.

The second half of the memory should be the station identification whereas, the first half should be used for preidentification information such as "DE space MIKE space IN space VA Figures letters". This preidentification message should use up the full 128 spaces. Again, note that the first bit in the memory is a "mark" or "1". The second message if used only for station identification will have enough length to accommodate the "one" bit "stop" pulse overflow from the 1st message.

FIG.2 TIMING CHART



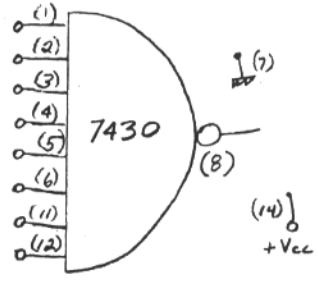


FIG.4. U-8, U-9 HARDWARE PROGRAMMING ELEMENT.

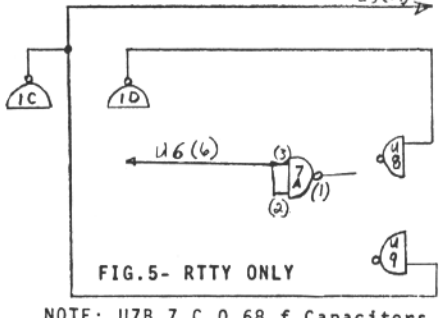
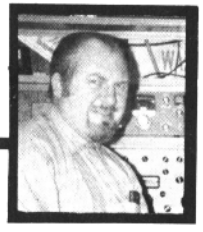


FIG.5- RTTY ONLY

NOTE; U7B 7 C 0.68 f Capacitors 2N2219 and assoc. circuitry not required for RTTY only. All other wiring the same except as shown in this fiure.

CONTINUED ON PAGE 13

RTTY-DX



JOHN POSSEHL - W3KV
Box 73 Blue Bell, Pa., 19422

Hello there . . .

The CARTG Contest took place under mixed conditions, fair in some areas and not so good in others. However, activity was at a high level as always for this Contest and the presence of such rare prefixes such as 4U2ITU, 9H1ER, WA6HMA/KG6, and DU1POL, gave many the opportunity to add a few new countries to their DXCC totals during the course of the Contest. A few of the participants made WAC but by a slim margin as possible Jan, ZS6BBK, was the only African activity. As K6WZ points out, in this contest getting WAC can add roughly 100k to your overall score, depending on your overall standing so it is really something to strive for. This contest should see some keen competition between the multi-op stations. We believe that 4U2ITU, 9HIER, KA2USA, and possibly WA6HMA/KG6 all were in that classification and all were extremely active. KA2USA was a special call obtained for the contest week end only by KA2TS, with the station being manned by Terry and Paul KA2PJ. QSL's for this station go to . . .

Terry Swartz, KA2TS
P.O. Box 625
FPO Seattle, Wash. 98762

4U2ITU was located at Geneva and manned by Hans, DJ8BT and several of the boys of the RTTY Group of the DARC. QSL's for this station go to. . .

Rupert Mohr, DL3NO
P.O. Box 1663
4140 Rheinhausen, FRG

The operating at 9H1ER was done by Alex and Jeff and they are really going to make a great score for a first time contest effort. Cards can go as indicated last month.

Results of the contest may be somewhat delayed this year as at this writing the Canadian Post Office is on strike and mail for Canada is not being accepted until such time as the strike is over.

In addition to the contest activity, October was a month of surprises for the RTTY DX'er. Kei on Marcus Island got his beam going and there was an excellent opening to the Eastern USA on the night of October 21. JD1ABH was booming for a brief period around 2300z and many that happened to be listening at that time made contact with Kei. Cards can go via Mac, JH1ISF as indicated earlier.

DXCC HONOR ROLL - Confirmed.

ON4BX	145 Confirmed		
W3KV	141	W2LFL	114
ON4CK	140	I5ROL	114
W5QCH	131	I5KG	112
DK3CU	128	W8CQ	111
WA3IKK	125	G6JF	110
W5EUN	120	W4YG	100
JA1ACB	118	K8YEK	100
W3DJZ	117	I5WT	100

OVER 50 COUNTRIES CONFIRMED

1.	W4CQI	105/99	17.	ON5WG	85/68
2.	K6WZ	104/96	18.	K4VDM	72/68
3.	W4EGY	99/93	19.	EI5BH	77/67
4.	W2GKJ	97/91	20.	K4YZV	76/66
5.	W3EKT	99/90	21.	CE3EX	76/65
6.	W8JIN	100/89	22.	SM7CLZ	65/61
7.	DL8VX	93/85	23.	WØMT	62/59
8.	OK1MP	87/85	24.	ZL2ALW	63/58
9.	DJ8BT	90/82	25.	K6YUI	64/55
10.	F5JA	90/79	26.	I5CLC	80/54
11.	K3SWZ	81/77	27.	I8AA	69/53
12.	SMØOY	78/77	28.	WØNP	58/53
13.	W2PLQ	79/74	29.	JH1ISF	61/52
14.	OZ4FF	88/77	30.	HB9AKA	62/51
15.	KH6AG	86/69	31.	W7BCT	57/50
16.	G8LT	73/69			

LESS THAN 50 COUNTRIES CONFIRMED

1.	W8CAT	52/49	12.	DLØAK	49/28
2.	HB9ACQ	61/48	13.	WAØTAS	42/28
3.	HB9HK	56/42	14.	WB4MAV	52/27
4.	VK6PG	53/38	15.	W4ZCM	41/25
5.	G3LDI	56/33	16.	PY6HL	33/23
6.	ON5CZ	60/31	17.	DK1NB	67/22
7.	W1MX	46/31	18.	K7MJC	28/20
8.	PAØWDW	54/30	19.	W4ZLH	30/15
9.	W9OEQ	50/30	20.	WAØYDJ/4	38/14
10.	SM6EZD	35/30	21.	WØLZT	33/14
11.	DK4ZF	61/29			

***

At about mid-month the boys were delighted to print the excellent signals coming from HR6SWA on Swan Island in the Caribbean. While this island was formerly under U.S. jurisdiction with a KS4 prefix, it reverted to Honduras control in 1972 and since that time has counted the same as HR for DXCC purposes. We clarify this since many of you already have Honduras confirmed when you made contact with Fred, HR2AFK, back in 1967-69. The best route for a QSL to HR6SWA is to . . .

P.O. Box 120
Grand Cayman Island, BWI

Strange as this may seem, this is not a misprint. Jeep says that all mail for Swan Island is routed via Grand Cayman.

Perhaps the highlight of activity for the month of October was the arrival on the RTTY scene by 8P6GW for the first time from the Island of Barbados. While earlier information led us to believe that 8P6GC would be the first to come on, Delaney, 8P6GW, made everyone sit up and take notice when he started up at about the 25th of the month. He was QRV for only a brief time then but showed up again on 1 November for more sustained activity and many now have him logged. His signal was right on at 170 hz, however his speed was at 50 baud and perhaps made copy a bit difficult for many. This is usually no problem if both parties twist the range knob a bit. The QSL information we have is . . .

Delaney Barker Station Groves
St. George, Barbados

Although the area has been dormant for RTTY activity for a long time there may soon be signals coming from that direction by 8J1RL, Showa Base, Antarctica. The operator is Kato, whom you will remember from Bonin Island last year, and he does have RTTY gear at his disposal with assorted rhombic antennas, the better to hear him by. The QSL would normally go through the JARL bureau but a card to Mac, JH1ISF, will get you faster service. Mac works close to the JARL Hq. and will be happy to rush it through.

Ed Thompson, ex-9J2ED, is now active on CW/SSB from Gaborone. Botswana and it will not be too long before Ed will be on RTTY as A2CED. A TU and AFSK are in the works through the good graces of Ed, W3EKT, and a machine is being negotiated via either South or South West Africa. His QSL manager will be. . .

Charles N. Tido, K4EBY
13702 Kaywood Dr.
Woodbridge, Va. 22191

The "RTTY Good Will Ambassadors", W2LFL, and W2PLQ are now back home after a most successful tour of Europe. They can hardly find the proper words to express their gratitude to all the wonderful hams they met and in the royal way that they were received at all stops along the way. You will no doubt read a detailed account of their travels on other pages in the months ahead.

In response to a query made last month as to the present activity of George, VK9GG/P29GG, we received a very nice letter from Kubo, JA1WC, as to his present whereabouts. Kubo was his Asian QSL manager and reports that George left Madang last Summer and is presently back in the States as WA7IEQ. Those wishing to contact him can do so at . . .

George E. Groat
9210 Densmore Ave. North
Seattle, Wash. 98103

Bill, KZ5BH, wants you to know that those who contacted TG9MR can QSL directly to him at his Canal Zone QTH.

Mickey, VP2AR, no longer answers calls about 2 khz up the band. He recently rigged up a "clarifier" for his transceiver and now answers calls right on his frequency.

Sid, G4CTQ, reports that due to circumstances beyond his control, his anticipated trip to The Gambia has been cancelled. No one could feel worse than Sid at this sudden turn of events as he was looking forward to giving you all a new country from this area. However, it may be that an assignment of equal importance may be in the offing in the near future and we will keep you posted when it happens.

Just last evening we had our first contact with Freeman, KH6AX, in many months. Freeman just recently celebrated his 80th birthday and his signal and happy operating would put most of us to shame. In case you were not aware of it, Freeman went through a rough period during the past year. His yacht brokerage business burned down to the ground and then he was in and out of the hospital several times for serious ailments. This would make many a younger buck "throw in the towel", but Freeman is going stronger than ever. He is again running his business and is active as always on RTTY.

RTTY Awards issued this month go to . . .

WAC 14 mhz Nr. 16 Mass. Inst. of Tech. (M.I.T.) WIMX
Nr. 17 Harold Beebe W9OEQ
Nr. 18 Carl Stevenson K6WZ
WAC 21 mhz Nr. 4 Carl Stevenson K6WZ
WAC (General) Nr. 237 M.I.T. W1MX

The RTTY Journal congratulates all for a job well done.

Those looking for Nevada for WAS

might hunt up WA7YBS, who has been fairly active on 14 mhz.

Contest activity that already happened or about to when you read this, WAE RTTY Contest, November 8-9. . .Volta RTTY Contest, December 6-7. Unfortunately the rules for the WAE arrived too late for inclusion last month and we sincerely regret the omission. For the north American entries to the WAE, the scores and logs can be sent to H.E. Weiss, WA3KWD, 762 Church St., Millersburg, Pa. 17061.

With this being the December issue we would like to take a moment to thank you all for your support and contribution that made this column possible during the past year. It certainly would not be possible without your help and we again look forward to a pleasant association in 1976. We close with Seasons Greetings To You All.

de John

VHF RTTY NEWS

RON GUENTZLER, W8BBB Editor
212 GRANDVIEW Blvd.
Ada, Ohio 45810

In spite of the pleas for information, we have very little to offer this month. We do have quality, but quantity and quality is what we're after. So, PLS, let us know what's going on.

Ted Holmes, VE7CZ, Sidney, British Columbia says that things are happening there: "It's about time our gang on Canada's west coast dropped you a line! The following stations are all on a VHF net operating simplex on 146.100 MHz : VE7XZ, VE7CZ, VE7ARJ, VE7AKV, VE7AKE, VE7BSU, VE7BPX, and VE7BID. We are close enough to work the U.S. north-west coast from Portland, OR north to the Canadian-U.S. border and we would welcome calls from them on either 170 or 850-Hz shift.

"We will have a mountain top repeater located on Vancouver Island (elevation 2350 feet) operating shortly on 146.700/146.100 MHz which should extend coverage considerably."

M. Crosby (Bart) Bartlett, K4EU/9, 5201 Knollton Rd., Indianapolis, In. 46208, is looking for action: "Last night (late SEP.), for the first time, I made QSO contact with WB9GCV, Jim Jeffries; he has a very complete mechanical set-up, including auto-start, UART, and all the trimmings. I, on the other hand, have the HAL system of video readout featuring a Brimstone 144 into a 4-element co-linear antenna system, some 65 feet above ground level. Contact was on 147.48 MHz.

"The distance covered is no great big deal - about 18 miles or so. I am in the northwest corner of Indianapolis, and he is in one of the nearby suburbs to the south of the city. His father, at Knightstown, In. (about 30 miles east) is similarly equipped, and they keep their rigs turned on all day and have constant contact. I, to the contrary, need no autostart, as I have no means of getting hard copy, and an auto-start system would be meaningless, with video readout.

"Several others are on the fringe of operations. I tried to make contact with W9QHO. He was able to print me OK. . . I was unable to print him at all. But that will get fixed up. Our contact was attempted on 146.400 MHz. I know of three others - one or more in Anderson, In., and another in Elwood (some 40 miles to the north of town), and perhaps another in Marion, Ind., who might be interested in joining the group. I am synthesized, and can operate anywhere in the band; so if the boys will put a QSL in the mail, telling me where, when, and on what frequency to meet them, I'll be there with bells on."

Well, we have now heard from two new areas; how about some additional activity there? And how about some news from elsewhere?

The latest copy of the "Static From Murray Hill" arrived recently. It has an excellent article on a CW identifier for RTTY authored by John Sheetz, K2AGI. I am assuming that John will be glad to send copies of the article to anyone interested: John I. Sheetz, Room 7A-202, Bell Telephone Laboratories, Murray Hill, NJ, 07971. Thanks, John.

That's it for this month. The quality is excellent, how about more quantity?

*** 73 ES CUL, RG

Mini-Computer Control of RTTY Station

Part 2.

TOM ASCHENBRENER, WA9EXS/5
6165 VERDE VALLEY
DALLAS, TX. 75242

Another feature is the message store and forward logic. This is useful for those stations that are not equipped with selcall and don't want to monitor a reasonably busy channel all the time. For example, if WB5LID wants to leave a message for WB5LHL he types the following:

WA9EXS/WB5LHL DE WB5LID . . . MESSAGE TEXT . . . (FIG)/all text between the "/" (up to 114 characters as currently set) and current time is stored away at my station. If the message is not queried for within 12 hours from the received time it is automatically deleted, making room for another message. The system can currently store 25 such messages.

At some later time, if WB5LHL wants to find out if there are any messages for him he types the following:

WA9EXS, WB5LHL (CR)

This will cause the CPU to search for all messages left for WB5LHL and if any are found, it will wait for his carrier to drop and type:

RECEIVED 07-10:30
WB5LHL DE WB5LID. . .MESSAGE TEXT. . .
DE WA9EXS/5
12:30:30 07/07/75

If there are no messages found, then it will respond with:

NO MESSAGES
DE WA9EXS/5
12:30:30 07/07/75

in response to his query. If multiple messages were left for WB5LHL by a number of people, then all are dumped when he queries. After the messages are dumped, they are deleted from memory after the appropriate logging is done on a model 28 RO.

The appropriate logic was designed in to prevent abnormal circumstances such as carrier fades, aborted transmissions and input errors from adversely effecting the program operation. All of this logic has been in operation for 3 months now and has been "pounded on" by the best in the Dallas area. A few minor problems were found, but all were fixed in 15-20 minutes via program changes.

All of the above station logic and store/forward logic is inplemented in assembly language and amounts to 800 instructions. Future additions will include the ability of the remote stations to play "Black Jack" with the CPU and some other "service" functions.

This article was an attempt to show some of the flexibility gained by moving all logic inside the CPU and only utilizing the hardware to input/output data to it.

If there is any interest, I will explain in more detail any of the portions of the station in future articles. I would be interested in hearing from other people that are working on similar methods. I would be especially interested in hearing from people doing work in the statistical error correction area. I have done some work which appears to enhance received copy and will be further tested by trials on 20 meters.

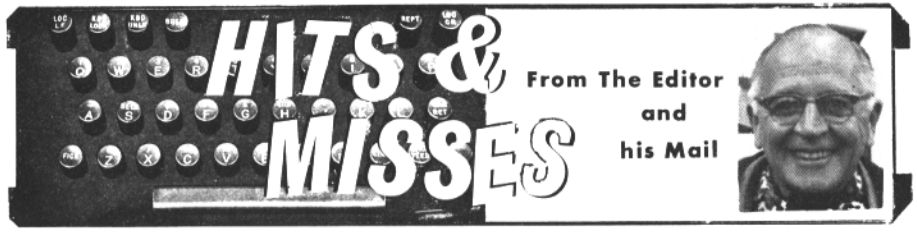
BARTG Contest Results.

CONTINUED FROM PAGE 2

41	KZ5OD	36250	66	VK5RY	12096
42	JA3JEW	34650	67	SM6EBM	11798
43	DK3BJ	34398	68	OZ4XR	10914
44	JH1ISF	33750	69	K2RYI	10112
45	CE3EX	32800	70	W6AEE	9220
46	K4GJW	31900	71	SM6EDH	8316
47	DJ1QT	30472	72	K8KAG	7600
48	ON6HF	30464	73	OZ4EDR	6970
49	VK6CT	29376	74	F6BEX	6160
50	PAØWDR	28392	75	LA3PP	6094
51	OK3CMP	28188	76	SM5EEY	5980
52	I2OLW	22204	77	DK3NK	5808
53	W7CBY	21240			
54	G3ZWW	20448			
55	W1ZXA	20406			
56	SM7BGE	19950			
57	I8JRA	19210			
58	VE3GUH	18900			
59	G3RDG	18544			
60	LA2IJ	16674			
61	SL5AR	16492			
62	SMØOS	16008			
63	SM6CDG	15810			
64	VE7BDQ	14280			
65	G3FRV	13800			

SHORT WAVE LISTENER

K1LPS/18		163150
Larry Filby		
Wolfgang Geller		
DL-SWL		152640
R. Giarnello		
I3 13018		150600
H. Ballenberger		
DL-SWL		132770
M. Tossolini		
I3 14258		122650
A. Marchesini		
I4 14707		98098
P. Menadier		
USA		79740



We have had no audible complaints about the subscription price increase. We have honored a number of new subscriptions at the old price because of the short notice of the increase. When a magazine has been $3 a year for over 20 years, it does take time for the new price to get around. We have a lot of renewals due this month and suggest you check the new rates if you missed them last month.

***

The postmans strike in Canada started the day after we mailed the last issue. Back came all Canadian mail and we are holding it for the embargo to lift. Strikes seem to pay off for those participating but can sure be a headache for the general public. Remember the old army saying -- "I got mine - how did you come out". . . It is assumed that CARTG logs will be accepted for several weeks after the strike ends.

***

Our post office tells us that ALL 1st class mail is now going via AIR and no need for extra stamps. We are not sure about Hawaii, Alaska and other Islands. Canada and Mexico still require AIR postage and of course all other mail out of the country.

***

If every cloud has a silver lining, we sure missed it this past month. First we were away for a week, came home with some kind of a virus; we didn't feel badly as long as we could procrastinate until "Manana". After a week of this we finally got started on a stack of mail that had piled up to the clouds. We are still working at it but so far haven't found the silver lining. Have patience . . .

***

We are the worst place in the world to write for advice. We get a lot of letters asking what - where - or how do I hook such and such a piece of equipment or where can I get a certain item. Our only answer has to be I don't know - and we don't, or check the classified ads. We hate to ignore letters or requests but with the backlog of mail this past month, our stack of unanswered mail is growing. The beginners RTTY Handbook was designed to answer many of these questions but obviously can not be all things to all people.

***

Another request we continually get is where and how can I copy commercial press stations. We have run a number of lists and frequencies of commercial stations but they continually change, not only frequencies but shift-speed and sometimes baud.

If anyone could write us an article on how they copy press, at what speeds and shifts and list of a number of readily heard stations sending at certain speeds, in English, I am sure it would be welcome. Just a narrative type of article telling how they do it.

***

Not too early to start making plans for Dayton, April 23-24-25. Our hospitality room will be at the same place - Kings Room (formerly the South room) at the Imperial North Motel, Needmore Rd. and I-75, Dayton, Ohio. An early room reservation is suggested.

***

***

BACK ISSUES -

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 and one back issue, if requested. Please do not ask us to start any further back than this. Back issues - if available - may be ordered at 30¢ each at time of subscription. The JOURNAL is mailed about the 20th of the month preceding the dated month. May and June are a combined issue and July-August is a combined issue.

The ONLY back issues available are listed below. 30¢ each.

1972-SEPT.-OCT.-NOV.-DEC.[4]
1973-ALL ISSUES [10]
1974-FEB.-NOV.- [2]
1975-JAN.-JULY.-OCT.-NOV.[4]

RTTY BINDERS-- -$4.00

SUBSCRIPTION RATES

RTTY JOURNAL
Box 837
Royal Oak, MI. 48068

Editor & Publisher "Dusty" Dunn, W8CQ

U.S. Canada -Mexico	1st Class	$3.50
	Air Mail	$4.00
Other Countries	Surface Mail	$4.00
AIR Mail South-Central America		$7.00
AIR Mail - Other Countries ---		$8.00

*****

RTTY Identifier -

CONTINUED FROM PAGE 9

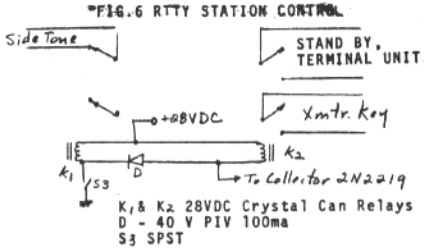
RTTY and CW Outputs

The RTTY output, U7A, and the CW output, U7B, are contained in the open collector 7401 IC.

U7A is enabled or will respond to changes from the DATA SELECTOR U6, when U1D, pin (11), is a "1". U7B is enabled when U1C, Pin (8), is a "1".

U7A is used to sink the base current of the ST-5/6's Terminal Unit (TU) output transistor. When the ST-5/6 is in standby (normal transmit condition) the TU output transistor is supplied base current to conduct (mark condition). By using U7A's open collector output to sink the TU output transistor's base current, the transistor can be cut off (Space condition).

U7B is used to sink the base current of the 2N2219. The 2N2219 can be used to key a relay (s) or other keying devices. The circuit of Figure 6 will control most RTTY stations.



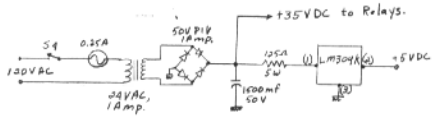
The circuit is made up of 2 relays. One relay turns the transmitter on and places the terminal unit in standby. The other relay breaks the sidetone line that is normally included in various transmitter/receiver combinations or transceivers. The sidetone disabling relay eliminates the annoying noise in the shack when transmitting, but only during a RTTY transmission as the relay is just used for RTTY.

Surplus, 28 volt DC, crystal can relays are adequate for the average transmitter/exciter, receiver combination (Drake equipment is controlled by these type relays at K4GMH).

S3 turns on the transmitter, enables the terminal unit's standby line and breaks the sidetone line. When the 2N2219 conducts the transmitter is turned on and the terminal unit is placed in standby.

Almost any NPN transistor with a Vceo of more than 40V and capable of dissipating 1/2 Watt will work in place of the 2N2219.

POWER SUPPLY



The LM309k is a TO-3, 5V output regulator. The 125 ohm, 5W, resistor is to drop the filtered voltage to the LM309k's input to approximately 10V, at 200 ma. This resistor may have to be adjusted to accommodate the actual filtered voltage. The LM309k's input voltage must be above 7V in order for it to regulate.

Although the relays are marked 24-28V, no problem has been encountered from operating them at the higher voltage.

The LM309k should be mounted directly to the metal cabinet or chassis.

CONTINUED NEXT MONTH

***

CLASSIFIED ADS-- 30 words $2. Additional words 4¢ ea.

Cash with copy, Deadline 1st of Month.

MORE RTTY! ONLY HAM RADIO MAGAZINE consistently brings you more RTTY articles and better RTTY articles than any other general amateur magazine. You need RTTY Journal, but you need HAM RADIO also. $7.00 per year, $14.00 for 3 years Ham Radio, Greenville, NH 03048.

ST-5 DEMODULATOR, NEW switchable 170/850, meter, loop supply, all usual features plus autostart, vinyl woodgrain finish case. $125 UPS prepaid 48. Fred Firestone, WB9IEE, 806 N. School St., Normal, IL 61761 309/452-4032.

HAL COMMUNICATIONS CORP. is closing out the RKB-1 RTTY Keyboard. A limited number of unassembled units are available. Write for details of this offer. HAL COMMUNICATIONS CORP., Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

DOVETRON MPC-1000 MULTIPATH-DIVERSITY RTTY Terminal Unit with automatic Multipath Corrector, Full In-Band Diversity, 2 inch CRT cross display, continously variable mark and space channels (1500 to 3200 Hz), active integrated circuit filters (no toroids), noise correlator, dual autostart (Marking or FSK RTTY), phase continuous-sine wave AFSK tone generator, EIA and MIL FSK voltage level outputs, CW ID provisions for AFSK and FSK, internal RY generator, automatic mark-hold, anti-space, anti-CW, antifade, adjustable internal 180 volt loop supply, signal loss indicator (LED) loop keyer monitor (LED), provisions for Uart/FIFO interface. 17" x 3.5" x 9", 10 lbs., 110/220 vac, 50-400 Hz $495.00 FOB stock to 30 days ARO. Your QSL will bring complete specifications. DOVERTRON, P.O. Box 267, 627 Freemont Avenue, South Pasadena, Ca. 91030. (213-682-3705).

ANY ISSUE OF RTTY JOURNAL reproduced $1.00 PP. I have a complete file of all issues. R. Wilson, WBØESF, 4011 Clearview Dr. Cedar Falls, IA. 50613

HAL COMMUNICATIONS CORP: Headquarters for electronic RTTY equipment. In demodulators, choose from the incomparable ST-6 or, for a low cost beginning in RTTY, the ST-5. Tailor either to your requirements by selecting the 425 Hz press discriminator, the XTK-100 or AK-1 AFSK oscillators and the ST-5AS autostart for the ST-5. Full details available in our current catalog. Compare before you buy. BankAmericard and Master Charge plans available. HAL COMMUNICATIONS CORP., Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

TELETYPE PARTS, MISCELLANEOUS, etc. DXD4 Test Set 60,75,100 wpm gears, Towaco distortion analyzer 5 & 8 level, M14 tape printers, etc. SASE list, C.R. Wall, 858 W. 2nd, Lansdale, Pa. 19446. Thank you.

FOR SALE: 28 ASR's. Good working condition. 40 units available at $999 each. Call Henry Holder, (817) 429-3021.

WANTED, COMPUTER KEYBOARD and 8 level page printer with keyboard. ASCII to RTTY/CW/SSTV circuits - all postage refunded. VK3CCC, Post Office, Sunbury 3429, Victoria, Australia.

MORSE TO RTTY CONVERTER CLOSEOUT. . . This is the original Petit logic MT-5 Morsaverter - not factory seconds or rejects. Production has been stopped on these items so I bought the entire inventory. When these are gone there will be no more. Fully guaranteed of course but at terrific price reduction. Semi kit $95.00., full parts kit $225.00, fully assembled and tested (2 only) $380.00. Also baudot loop to ASCII kits now $59.00, and baudot loop to Morse (with 64 character buffer) for $135.00. Power supplies, switches, and chassis not supplied with any kits. SASE for details. Bill Walters, 2820 N. Newell, Oak Harbor, WA. 98277

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

1000V AMP DIODES 10/$1.00. PC Trimpots 5/$1.00 values available 100, 500, 1K, 2.5K, 5K, 10K, 25K, 50K, 100K, 500K, 1M. NuData Electronics, 104 N. Emerson St., Dept. B, Mt. Prospect, IL 60056.

SAROC ELEVENTH LAS VEGAS NATIONAL CONVENTION, January 8 - 11, 1976, Hotel Sahara Space Convention Center. Advance Registration $12.00 per person; with midnight show $22.00; with dinner show $29.00; Special Hotel Sahara Safari airfare packages from selected cities with scheduled airlines serving Las Vegas. SAROC special rate extended only to those who advance register or register at the door. Send for details, SAROC, POB 945, Boulder City, Nevada 89005.

SALE: FEMALE JACK Panels containing 144 jacks to a 19 inch panel. . .$14.00; Female jack panel containing 24 Jacks, Fahnestock type 218A. . .$5.00; Rack cabinets 24 inches wide 82 inches high 26 inches deep, open front and rear door, Blue with Aluminum trim $50.00; Tuning forks 96.19 vps or 120 vps unused $2.00 each; Mite motor, type PD/82U 115 VAC 60 Cy Unused $28.00; TT socket wrench 7/16 inch on 12 inch handle 1.00; Kleinschmidt allen wrench on 12 inch handle 1.00; Gears for model 14 T.D. with 1800 rpm syn motors 60 wpm unused $8.50 Set; Model 14 Typing Reperf. 60 wpm gears $7.75; Perforator tape 11/16 inch, Box of 10 rolls 4.90 or case of 40 rolls $14.90; Red and Black ribbons nylon, 6 for $6.00 or dozen for $9.00; Roll paper $2.00 per roll; Copyholder for model 28 printer unused $3.95; Distortion test set, type TDA-2 containing scope $39.00; Model 15 platen unused $5.50. Also available model 14, 15, 19, 32, 33 machines. Send us a list of your Teletype requirements. Atlantic Surplus Sales Co. 3730 Nautilus Ave., Brooklyn N.Y. 11224 Tel. (212) 372-0349

OA-5 SOLID-STATE TU includes autostart and AFSK oscillator. See February and September 1974 issues of "RTTY Journal". Drilled and plated boards, $15.00; board with parts, $110.00; completed unit, $225.00. FOB. Ken Simpson, WA8ETX, 3700 Mountview, Alliance, Ohio 44601.

HAL COMMUNICATION CORP: Replace those machines with the HAL electronic RTTY RVD-1005 Visual Display Unit and DKB-2010 Dual Mode Keyboard. You'll have a quiet, reliable system allowing you to transmit and display Baudot code at all four standards speeds. Full details available in our data sheets. HAL COMMUNICATIONS CORP., Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

HAVE 28ASR. WANT METAL LATHE. Prefer local. Jim Kirkpatrick, 17 N.E. 9th St., Faribault, MN. 55021

NEW TTY ROLL PAPER; 4 1/2 inches diameter, 12 roll case - $16.00. 5 inch diameter - 12 roll case - $19.00. Assemblies wanted; LMU 3 & 12 motors. LESU 13s, LXD TDs; typeboxes; gears, page printer, reperf, TD. 50-75-100 speed; model 29 page printers, friction feed mod. kits, parts or LP's for friction feed parts. Misc. 28 parts and assemblies. Model 28 parallel data perfs, readers, mod. kits for use with speed converters. Write for information. K8JOF, 2448 N. Wilson, Royal Oak, MI. 48073 (313) 398-5922.

MOD-U-LINE CABINETS ST-6 style. Example: ST-6 Cabinet MCP3-17-12, $24.11. All sizes and styles available. Send your size needs and SASE for quote. NuData Electronics, Dept. B, 104 N. Emerson St., Mt. Prospect, IL 60056.

CLASSIFIED ADS-

HAL COMMUNICATIONS CORP. announces the availability of the RVD-1005A ASCII Video Display Unit. Serial or parallel data input, 110 or 300 baud, loop or RS 232 C levels. Request data sheet for full information. HAL COMMUNICATIONS CORP., Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

TELETYPE MODEL 28 KSR's: Good working condition, over 200 available at $350 each. Call: Henry Holder, (817) 420-3021.

WANTED: Model 32 or 33 TTY. Any quantity, any condition for cash or will trade. Call: Ken Payne, (214) 252-7502.

DRILLS - DRILLS - DRILLS Carbide and high speed steel for PC board work. Send SASE for Information. Bob's Electronics Box 393 Bay City, MI 48706.

TECH MANUALS -- $6.50 each: TT63A/FGC, CV-591A/URR following manuals $8.50 each: TT-47/48, R-388/URR, USM-50, 51J4, FR114/U; following manuals $10.00 each: R390A/URR, SRR-11, 12, 13, USM-32, URR-35C. Special manuals (limited quantity): TM-03315-15 TGC-14/14A $10, Navships 95898 TT-298A/B, TT-299A/B $12.50, Navships 0967-170-8010 UGC-38, 40, 41 $12.50. Model 14 TD manuals $2.50 each. Thousands more in stock. Send 50¢ (coin) for large list. W31HD, 7218 Roanne Drive, Washington, DC 20021.

MAGNETIC MEMORY DRUM manufactured by Magne-Head, division of General instruments, Hawthorne, Calif.; Model 8C-161. Size 17 inches x 14 inches x 12 inches, weight about 40 pounds. Drums appear to be in excellent condition complete with connectors. Price $275.00 each. Magnetic memory drum cabinets 24 inches x 82 inches x 26 inches complete with Drum Model 8C-161, 4 power supplies providing plus and minus 12 volts, printed circuit cards, and blower unit. Cabinets appear to be complete and in very good condition. Magnetic Memory Drum with cabinet. . .$390. Photo available for $1.00. Atlantic Surplus Sales Co., 3730 Nautilus Ave., Brooklyn, N.Y. 11224 Tel: (212) 372-0349

HAL COMMUNICATIONS CORP. announces the DS-3000 and DS-4000 series of KSR Video Display Terminals for Baudot and/or ASCII code. Offering error correction capability, multi-speed operation, and 20 lines of 72 characters per line, these terminals employ the 8080 microprocessor in what we believe is the first microprocessor based product offered to the amateur radio communications market. Request data sheet for full information. HAL COMMUNICATIONS CORP., Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

EXPERT REPAIR WORK. Any Teletype Corp. model. Repair work $15.00 plus parts no matter how long it takes. Rebuilding by estimate. Write K9WRL or phone (312) 392-2358, ask for Neil. Chicago Area.

WANTED: MITE CORP. MODEL TT-299B/UG in MINT condition; Model 28KSR Mark III in MINT Condition. SELL: Henry 2K amplifier, late series, mint condition, $425. Ronald Ott, 528 Bonita Avenue, Pleasanton, California 94566 (415-846-1459).

UT-4 COMPONENTS still available from stock. Everything postpaid by return first class mail. GI-AY-5-1013 UART $8.00; Fairchild 33512 FIFO $13.00, 2/$25; Motorola MC-1408L-6 $6.50; JAN crystal for XB-6 clock $3.50; Set of 4 edge connectors for K7WTQ boards $6.00. See prior ads for others. Peter Bertelli, W6KS, 5262 Yost Place, San Diego, CA., 92109. 714-274-7060.

AFSK-1 "SIMPLE AFSK KEYER" kit from Ham Radio August 1975 by Bill King, W2LTJ G-10 board and components $16.95 postpaid. Varco Devices Drawer 8 Stirling, N.J. 07980.

HAL COMMUNICATIONS CORP. announces the XTK-100 AFSK oscillator for those applications requiring the extra stability of crystal controlled tones. Tone pairs may be anywhere in the range from 1000 Hz to 3300 Hz with high or low tone pairs standard and others optional at extra cost. Constructed on a 3" x 6" PC board with pin-out identical to the AK-1 so that the XTK-100 is a direct plug-in replacement for the AK-1. Request data sheets for full details. HAL COMMUNICATIONS CORP, Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

THE FOLLOWING EQUIPMENT IS OFFERED for sale. I-KSR 28 teletypewriter complete, $350.00. 1-110 to 110v voltage regulator transformer, $10.00 2-regenerative repeaters w/mercury relays (as is) $15.00. 1-6 ft. Bud relay rack, $10.00. 1-RCA fixed frequency crystal receiver, 7-12 kc $25.00. 1-51J3 Collins receiver, $450.00. If interested contact WOEGA, Bill Haley, at (712) 255-8332.

CIRCUIT BOARDS: Universal Frequency Standard, February 1974 Ham Radio. The best standard you can build. Self contained power, up to eighteen output frequencies for markers, net frequency spotting, counter time bases, etc. Epoxy plated undrilled board with diagram, parts list, picture. Also CW IDer in October 1974 Journal. Includes power, side tone, 128 bit reprogrammable memory, same info included as with standard. Either board $8 postpaid First Class. Bert Kelley, 2307 S. Clark Ave., Tampa, Fla. 33609

MODEL 15 KSR's $35.00, 19KSR's with perforators, character counter, TD, Power supply, table with connectors, $75.00. Patch panels with 80 jacks $25.00. Milliampere meter units $10.00. Panel rack cabinets $25.00 and $50.00. Xeroxed copies of 15, 19, and 28 manuals $5.00 Kleinschmidt TPR-311 manuals $25.00. NO list so send SASE for reply. Assorted tables and much miscellaneous teletype equipment (cheap). (312) 752-1000 anytime. Goodman, 5454 South-Shore Drive, Chicago, IL. 60615.

TRADE - SINGLE CHANNEL VHF RECEIVER 108-152 MHZ Ex-FAA Crystal Control Squelch Double Conversion Want R390 or R389 or R648. Bob Rose, 6821 Sally Lane, Edina, MN. 55435.

TECH MANUALS -- $6.50 each: TT-63A/FGC, CV-591A/URR, TS-2/TG; Following manuals $8.50 each: TT-47/48, R-388/URR, FR-114/U, USM-50, 51J4; following $10.00 each: R-390A/URR, SRR-11, 12, 13, USM-32, URR-35C; Model 14 TD manuals $2.50 each. Other manuals now available: (limited quantity) UGC-38, 40, 41 $12.50, TT-298A/B, TT-299A/B $15.00, WRR-2/FRR-59 $18.50, WRR-3A $16.50, UPM-70, 70A $20.00. Immediate delivery. Prices postpaid in USA only. Thousands more in stock. Send 50¢ (coin) for large list. W3IHD, 7218 Roanne Drive, Washington, DC 20021.

COMPLETE RTTY VIDEO DISPLAY SYSTEM: HAL Communications Corp. RVD-1005 Visual Display Unit; HAL RVD-2110 9 inch TV monitor; HAL ST-6 Demodulator with AK-1 AFSK Oscillator and 850, 425 press, 170 Hz Discriminators. All above in perfect shape, only 4 months old; will sell all together only for $995 firm. Also have R390A HF receiver in perfect shape for $750. Prefer pickup if possible. Write Robert Adams, 438 Henryton South; Laurel, Maryland 20810.

RTTY PICTURE PERF TAPES. Over 400 to choose from. Chad (fully punched, no lids) 11/16 inch standard Amateur 5-level tape. Guaranteed COMPLETELY error-free. Run times from 2 minutes to 10 hours. Wide range of subjects including works of art, landscapes, pinups, animals, cartoons, as well as all of the 1974 RTTY Art Contest entries. Send 16¢ in STAMPS for listing. Joe Dickens, WA9UGE, 601 S. Dodson St., Urbana, IL. 61801

Additional Classified See Next Page -