FM GEAR FOR TRADE - Two meter Swan FM2X 12V-110VAC, five channels filled; Motorola P33 five watt handi-talkie, two channels, 12V Nicad and 110VAC supplies; Motorola T53 sixty watt mobile, three channels; Motorola U44 twenty watt on 449.5MC; antennas, control boxes, etc.; Model 15KSR perfect shape -- Want 28ASR, 28KSR with tape gear. - W2CY, 48 South Lake Street, Hamburgh, New York 14075.

SALE: MODEL 14 TD & RO Typing Reperf set, 60 wpm, excellent. $75. 77070, 7.42 distributor, disc for Model 14TD, $4 ea. Model 15's, Model 28 parts. URA-8A terminal unit, $95. 2-freq HT-200, univ. with 6/12 volt vehicular charger, $350 both units. SASE for complete list RTTY equipt for sale. Larry Pfleger, W2ZS S3286 Burnell Dr., Rt. 1, Waukesha, Wisc. 53186.

FOR SALE: MAILING LIST - Government surplus purchasers of teletype equipment, Flexowriters, Paper Tape equipment etc. $1.50. Wanted; Magnetic tape equipment, line printers, keypunches, any data processing equipment. Fred Hatfield, K8VDU, Drawer 27100, Columbus, OH. 43277.

WANTED: F455Q-5 (500 cycle) filter for Collins 75S-1 Rcvr. W6CP, C.M. Barrick, 5177 Oak Meadow Dr., Santa Rosa, Calif. 95401.

TRADE EVEN R390A, TM, PD for either 28 ASR or KWM-2 and 516F-2 postpaid my QTH. Manual needed for SG-44C/URM 25. Jim Harlow, WNØESO, 1760 So. Holly Street, Denver, Colo. 80222.

SALE; AQUADINE TELETYPE CONVERTER. 4 months old, used only few times, reverse-normal switch, mark-space, 850-425-170 shift. Excellent condition $100.00 (140.00 if new). Model RTY-3. Write-Brad Lanes, 33 Idlebrook Lane, Matawan, N.J. 07747.

"SELL MITE with 60-75-100 WPM Gears $160.00 Excellent mechanically and looks new, may need a new print hammer, good range. W4AIS, 300 Thornwood Dr., TAYLORS, S.C. 29687."

FM MOTOROLA SCHEMATIC DIGEST - 136 giant pages 11-1/2 x 17 schematic diagrams, alignment instructions, crystal information, trouble shooting information. $6.50 postpaid. S.M. Wolf, PO Box 535, Lexington, Mass. 02173.

COLLINS 75S2, CLEAN, $270 air mail. HP 425A Microvolt Ammeter, book, probe $80 air mail. Maj. Don Bohart, Det. 6, 1141 SAS, Box 8895 APO NY 09012.

MODEL 28 STUNT BOX, Brand New. Has automatic Carriage return and automatic line feed and non-overline. $25.00. Model 28 multiple T.D. - 100 wpm. $40.00. George Cherney, WA8TND, 4986 Leavitt Rd., Lorain, Ohio.

FOR SALE miscellaneous teletype equipment Kleinschmidt, Mite, Model 32 SASE for list. Standard Electronics, Inc., WA6OWW, 2043 Colorado Avenue, Santa Monica, Calif. 90404.

****

Address Correction Requested
RTTY JOURNAL
P O Box 837
Royal Oak, Mich. 48068

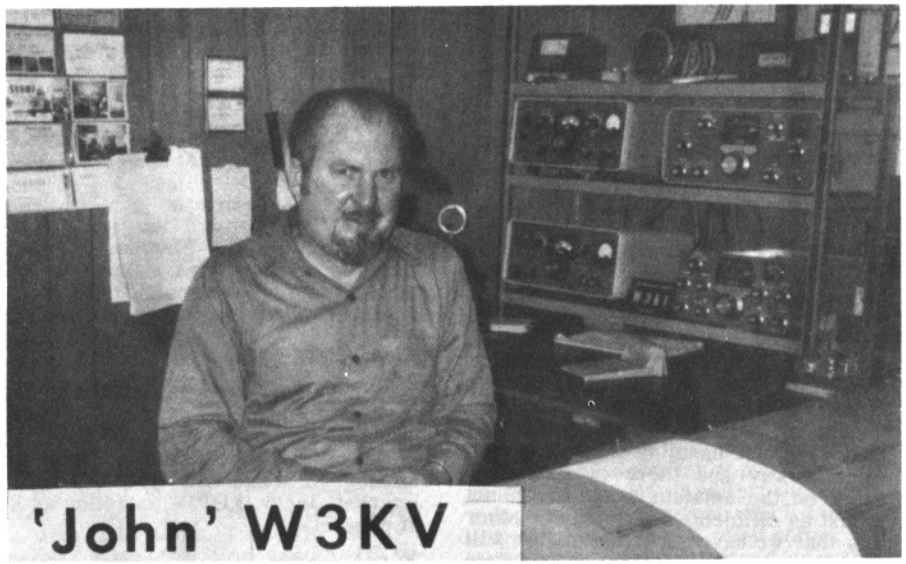
VIA AIR MAIL
FIRST CLASS MAIL

RTTY JOURNAL

JULY-AUG 1972

EXCLUSIVELY AMATEUR RADIO TELETYPE

VOLUME 20 No. 5 30 Cents



'John' W3KV

CONTENTS

SARTG DX CONTEST

THE 2ND S.A.R.T.G.
WORLD-WIDE RTTY CONTEST 1972

1. CONTEST PERIOD:
Starts 1500 GMT Saturday, August 19. Ends 1800 GMT Sunday, August 20, 1972.

2. BANDS:
Use all bands 3, 5 thru 28 MHZ, the same station may be worked on each band for QSO and multiplier credits.

3. CLASSES:
A) Single operator with up to 100 W input.
B) Single operator with more than 100 W input.
C) Multi operator, single transmitter (any power).
D) SWL's.

4. EXCHANGE:
QSO - number and signal report (RST).

5. POINTS:
QSO with own country, five (5) points. Other country but same continent, ten (10) points. Other continents, twenty-five (25) points. Bonus: QSO's with Scandinavians have double value (also for Scandinavians).

6. MULTIPLIER:
Each country worked and each district in W/K, VE/VO, PY, LU, VK, ZL and JA. Use the DXCC and WAE country lists.

8. SWL'S:
Will rcve points, multipliers and final score in the same way (Par. 5-7) but based on stations heard.

7. FINAL SCORE:
Sum of QSO-points times the multipliers from each band sample scoring:

MHZ	QSO's	MULTIPLIER	QSO-POINTS
3,5	5	3	40
7	5	2	30
14	25	15	450
21	15	10	230
28	5	5	50
TOTAL:	55	35	800

Final score: 35 x 800 equals 28.000 Points.

9. LOGS:
Mailing dcadline is Sept. 18th, 1972 to: S.A.R.T.G. Contest Mgr., BO V. OHLSSON - SM4CMG, Box 1258, S - 710 41 Fellingsbro, Sweden.
The logs to contain: band, date/time GMT, call sign, exchanges sent and RCVD, multiplier and points. Use separate logs for each band and enclose a summary sheet showing the scoring, classification, and your call, name and address.

10. AWARDS:
To the top stations in each class, in each country and above call districts. In areas with sufficient participation also 2nd and 3rd place certificates will be given.
All QSO's with Scandinavian are valid for the W S R Y - worked Scandinavia RTTY Award, and points and positions achieved to be included in the 1972 world RTTY championship.
Scandinavian countries/prefixes: LA, JW, JX, OH, OHØ, OX, OY, OZ, SK/SL/SM and TF.

****

RTTY NETS -

Our request for RTTY Nets has brought more responses. We are printing a list of all that we have information on at present. One request that all the nets seem to have is for more traffic and in every case anyone is welcome to check in any of the nets. Most seem to be affiliated with the National Traffic System of the ARRL. Mars has long used RTTY for handling traffic in a very efficient way and there is no reason RTTY on the amateur bands should not be just as efficient. There may be other nets that we have not listed and we will be glad to receive information to include on our list.

Autostart

There are three auto start nets-not used for traffic but general use and members machines may be turned on at any time and a message left. Usually the call sign is used to turn on the printers but this varies and the best way is to break in during a QSO and ask for information. All these nets are on 170 shift - at 3617.5 - 3637.5 and 14075.5.

New York

The New York Region RTTY Net operates nightly on 3613 at 1930 local time-EST or EDST. It primarily covers New York State but stations from any state are welcome. It is affiliated with the ARRL National Traffic Net.

Florida

SCM of Eastern Florida, W4ILE in Miami is pushing for a statewide RTTY traffic and rag chew net - to tie in with the National traffic system.

Virginia

Another net we have just heard about is the "Virginia RTTY Net" operating on 3625kHz daily at 0100 GMT. The net is loosely affiliated with the NTS and looking for more QNI/QTC to increase interest. Jerry, KØPIV, is acting as RM at present.

West Coast

A west coast net has been operating for about three years at 3620 at 0300 GMT, Monday through Friday. Net control stations are changed daily and check ins are regularly made from along the entire west coast and Canada. Any stations that can copy are cordially invited to check in.

Ohio

The Buckey RTTY Net meets every day of the year including holidays. 60 wpm - 850 shift at 3605. Traffic is the primary purpose but check ins and rag chewing is welcome after the traffic is passed. This net is also affiliated with the National ARRL Traffic System. Gene, W8SZU is the present net manager.

***

A Simple - Useful Test Jig --

LARRY WALROD VE7BRK
Box 248
WAXHAW, N.C. 28173

The author has recently been involved in the construction of a number of TTL Sequential Selector units for use in radio-teletype work. Most of the work went pretty smoothly but occasionally we ran across a completed circuit board which gave us considerable trouble. One of the problems was that the extremely narrow clock pulses, our retriggerable one shot multivibrator oscillator (74122) was putting out, were difficult to detect by ordinary means. They would not give any display on a good scope which was useful up to 25 Mhz. In addition to the clock pulses, our shift and decode pulses were also of the same duration and, with ordinary means we could only tell they were there by the results they produced. (see figure 1 for a condensed version of the circuits involved) Since there were several ICs involved in the production of these pulses, it is a great advantage to be able to determine just where along the line the pulse in question stops and it is also an advantage to determine the relative strength of the pulse where it is in evidence. A pulse which is just barely strong enough to be over the minimal requirements may not be quite strong enough under certain adverse conditions.

Figure 2 shows the schematic diagram of the test jig we devised to help us with this work. The 74107 IC is a master slave flip flop which will reverse its Q and Q outputs after an 0 to 1 followed by a 1 to 0 transistion at the clock pulse input. This is provided that the J and K as well as the reset inputs are all held high. The 74107 will flip on a very narrow input pulse or a very wide one so it will give an audible indication from the phones in this circuit even with an input pulse of about 20 nanoseconds. Therefore pulses which cannot be seen on an ordinary scope can be heard by employing this jig.

The bank of resistors was added to the input probe so that we could determine the relative strength of the pulse we were working with. We first tried an ordinary pot in this circuit but found that we had difficulty calibrating it precisely so the arrangement shown in fig 2 was employed. By employing increasing amounts of resistance in series with the input probe we were able to determine the relative strength of the pulse we were working with by noting the position our switch was when the pulse failed to be strong enough to flip the 74107.

After working with this jig for a while we found it more useful than we first anticipated. By placing the probe on our data input line we could tell if the signal was coming in to our equipment properly. By placing the probe on the shift pulse line we could tell when we were getting the required six pulses per teletype character. Placing it on the decode line we could tell when we were getting the one necessary pulse per character. Also by placing it on the decode line, with a constant "space" input to the unit; we got a regular pop - pop - pop in the phones in synchronism the character rate of our teletype signal. The frequency of our clock pulse generator could be checked and adjusted, if necessary, by listening to this at the same time we were listening to the noise our nearby printer was making with "repeat" and "ltrs" characters depressed. Although we have not yet tried it, the thought crossed our minds that this might be done very precisely by attaching a set of contacts to the printer mechanism in such a way as to give one pulse per revolution. An additional set of phones could be connected to a small battery through this switch to give a signal which could be compared with our flipflop output. This business could be displayed on a scope for even more precise adjustments.

It would be well to bear in mind that loading the CP input of our 74107 with any appreciable amount of resistance will detract from the ability of the flipflop to work properly. There is no doubt that a better input circuit could be employed. We found the arrangement shown in Fig. 2 to be the simplest method on hand that met the requirements we had. Using this jig has saved us a great deal of time in our work.

Another item worth noting is that it is relatively easy to design equipment with much wider clock pulses than the ones we are dealing with but in order to get the best possible performance from our units the narrow clock pulse was indicated. Using these

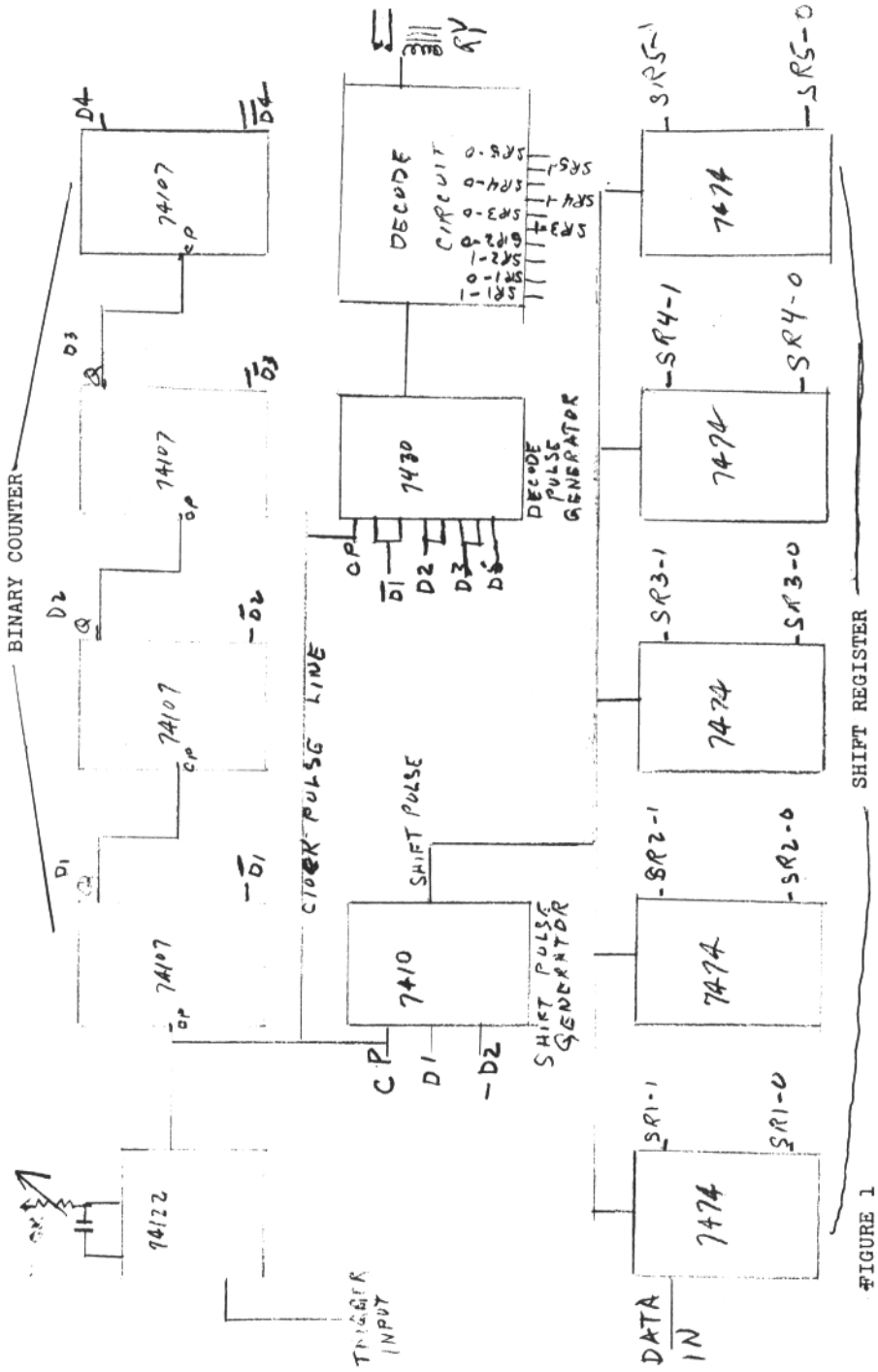
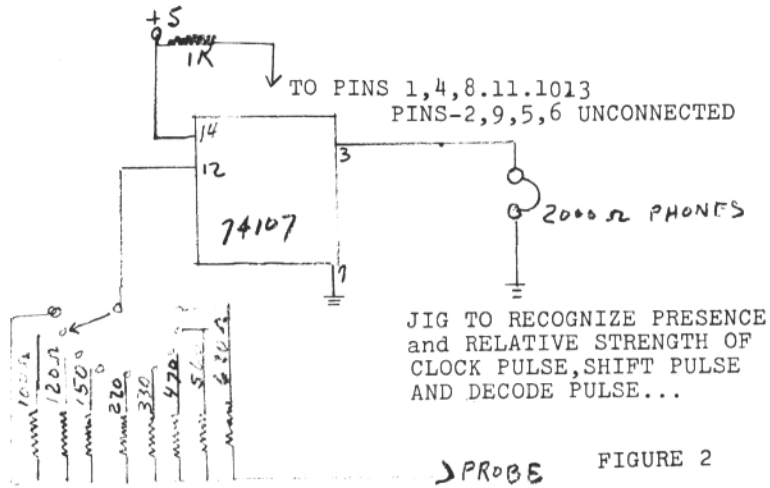


FIGURE 1



JIG TO RECOGNIZE PRESENCE and RELATIVE STRENGTH OF CLOCK PULSE, SHIFT PULSE AND DECODE PULSE...

FIGURE 2

narrow pulses allow our clock and count down string to start operating almost the same instant the start pulse is presented at the beginning of each teletype character.

An ordinary sewing needle serves nicely as a test probe in this application. It can be insulated with a short length of spaghetti tubing. The wire lead from the probe to the jib should be as short as possible -- about 3 inches. The jig itself is mounted on 4 insulated standoffs so it can be placed right on top of the circuit board under inspection. Short flexible wires are soldered to the ground and plus 5 of the main board.

One thing to bear in mind is that this jig, when there is resistance in series with the input, is more sensitive to positive going pulses than to negative. We noticed, however, that it was considerably more sensitive to negative going pulses when we reduced the input voltage from 5 to 4.8.

Commercial equipment is available which will give a visual indication of a narrow clock pulse. The circuits involved expand the pulse to one long enough to light a light emitting diode or even a panel bulb. However, our proposed jig is very inexpensive and provides an extra service in that the operator can hear the expanded pulse at the same time that he is watching where he is positioning the probe.

******

RTTY WEATHER SKEDS.

Keith Petersen, W8SDZ has sent us the following schedule of Weather teletype transmissions. We understand that it is at 60 wpm. TBUS - has something to do with satellite tracking - we don't know what - but if you are interested you probably will...

Miami - to 40S and 30W to 105W

WBR	0000-2400 GMT	4,061.5 kc/s
	0000-2400	8,140 kc/s
	0000-2400	13,624 kc/s
TBUS1	1930	

Miami - to equator and 50W to 120W

	5937.0 kHz	
	8130.0	
	10,950.0	
	14,395.0	
	16,440.0	
TBUS1	1910 GMT	

New York - to 30E and 15N to 75N

WSY	0000-2400 GMT	5,948.5 kc/s
		8,110 kc/s
		13,620 kc/s
		16,250 kc/s
		20,907 kc/s

Canberra - equator south, 90E to 170W

AXM 32	0000-2400 GMT	5,100 kc/s
AXM 34	0000-2400	11,030 kc/s
AXM 35	0000-2400	13,920 kc/s
AXM 37	2200-1000 GMT	19,690 kc/s
AXM 38	2200-1000	27,750 kc/s

Offenbach - Europe, Africa (north of Equator)

DDA 2	0700-0900 GMT 1700-1900	13,882.5 kc/s
DDF 2	2100-0600 GMT	4,583 kc/s
DDF 3	0000-2400 GMT	7,880 kc/s
DDF 5	2100-0500 GMT	5,859 kc/s
DDF 8	0600-2100 GMT	11,638.3 kc/s
DDF 9	1900-0700 GMT	9,880 kc/s
DFM 28	1514-1533 GMT	12,287 kc/s

******

A Minimum-Component Oscillator.

CHARLES BROCKMAN
630 N. McClurg Ct.
CHICAGO, ILL. 60611

After seeing an audio oscillator using 38 components on these pages (1), I recalled a circuit brought to light by Ronald Doctors (2) in the January, 1972 issue of Electromechanical Design. Using only six components including the power supply, Ron's circuit will perform the same function.

The oscillator (see figure 1) consists of one integrated circuit operational amplifier ($0.62 on the surplus market), one capacitor, one resistor, and one potentiometer. The power supply can be a pair of penlight cells or two nine volt batteries. Only a few milliamperes are required. For long operation a line-operated - 15 volt regulator is suggested. If you would like a single-polarity power supply, that will require extra components. Use a resistor divider network to split the potential.

The output is generally a square wave at lower frequencies depending on the size of the capacitor. I've had this arrangement oscillating from 500 KHz to one cycle every few seconds. At the low end of the range the output voltage swing is about equal to the power supply voltage. A triangular waveform is available at the inverting (-) input to the op. amp. The components sit comfortably on a one-inch square piece of Vectorboard.

The operational amplifier is a 741 or similar that is commonly available at low cost. You might like to try some of the newer designs, though. A Fairchild uA776, for instance, will draw only microwatts from the power supply.

The frequency of oscillation is given by f - 1/2 RC Ln ((1+k) / (1-k)) where Ln is used to signify the natural logarithm and k is the ratio of the two parts of the 10K potentiometer split by the wiper arm. k is between one and zero.

A little varying of the values of the capacitor and fixed resistor will move the oscillator's range. The values shown in the illustration enable the circuit to cover the audio spectrum.

References

1 **A Junk Box Audio Generator,** Crawford MacKean, RTTY JOURNAL, March, 1972, page 11.
2 Ronald Doctors, General Industries, Medical Products Division, 969 Barcelona Drive, Santa Barbara, California 93105.

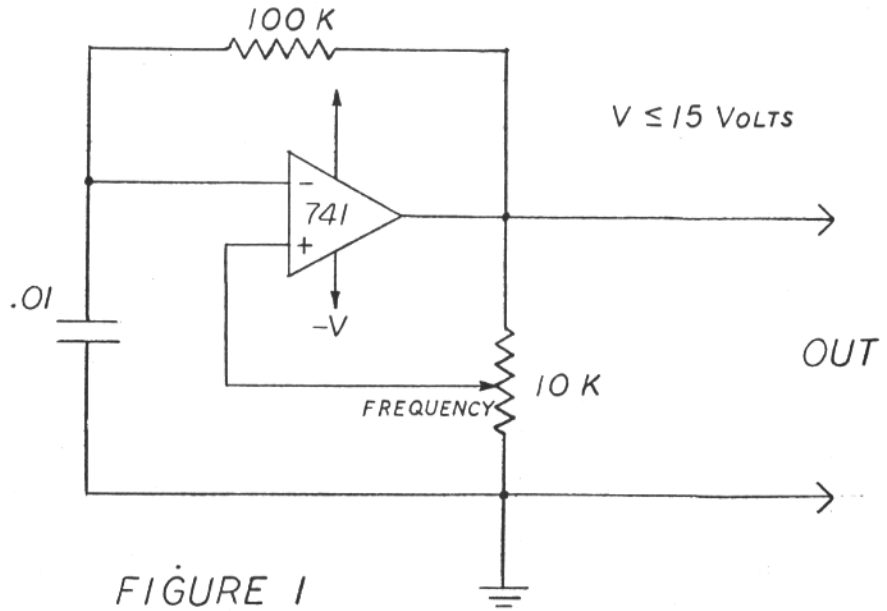


FIGURE 1

Notes on the K4EEU Digital T.D.

CLIFFTON PITTELKAU, SV0WO/W4CQI
Rte 1 Bethal Rd.
WARRENTON, VA. 22186

The digital tape distributor designed by Bert Kelley, K4EEU, and described in the December, 1971 issue of RTTY Journal was of particular interest because we lacked a suitable TD while operating overseas. The Model 14 TD had been left in storage because of the usual motor and gear problems involved when converting to 50 Hz operation. The following comments may prove helpful to anyone contemplating building the unit, and to anyone who had had similar problems during construction and operation.

The same type TD as described in the article is used. It was decided to use three circuit boards; a magnet supply board containing also the transient filter and tape advance transistor, a low-voltage supply board on which a Magnecraft W103MX-2 reed relay is mounted, and the electronics board for the IC's and 2N697 keyer.

Only the magnet supply board and the power transformer (Stancor PA-8421) are mounted in the TD head. The electronics board and low-voltage supply board were mounted inside a 7 x 7 x 2 inch aluminum chassis, with the TD mounted on top. The stop-run and AC switches, fuse holder and pilot lamp were also mounted on the chassis.

Prior to assembling all units, the magnet supply was checked out first. I had substituted a 2N3440 for the MJE-340 due to its availability, but the 2N3440, with only ten watts dissipation ran too warm. The 500 ohm dropping resistor was changed to 750 ohms, reducing the solenoid current from 300 ma. to about 200 ma. Even with less current, the tape advance mechanism operates satisfactorily with considerably lower transistor case temperature.

The electronics board was checked out using a regulated power supply set at 3.6 volts. Clock speed was much too fast, approaching something close to 100 WPM. Changing the clock resistors from 12K to 18K put the clock within range of adjustment for 45 baud operation. I used Bourns 3006P miniature "Trimpots" for both the clock and stop pulse circuits for ease of adjustment.

With the PA-8421 transformer, the low-voltage outputs were found to be considerably higher than required; 16 volts for the keying relay and about 4.2 volts for the IC's. Although the 16 volt supply for the 2N697 is not excessive, the 4.2 volt output caused the clock to run too fast. Changing the 10 ohm dropping resistor to 22 ohms brought the voltage down to nearly 3.6 volts. The 3.6 volt supply should preferably be regulated since line voltage variations will cause the baud rate to change appreciably.

The TD operated very nicely for about three weeks until the reed relay contacts keying the 60 ma. loop started to stick. I changed the TD over to keying the AFSK directly, which is easily done in my case by means of a switch on the local loop control unit. It is doubtful that most reed relays are really suitable for keying a 60 ma. loop. If a future version of this TD is constructed, I would use a better type, such as a mercury-wetted relay.

With multi-speed operation now approved by the FCC, it would seem entirely feasible to adapt the digital TD to various speeds by merely switching resistors and/or capacitors in the clock and stop pulse circuits. A TD of this type, along with an electronic keyboard and a Model 28 printer with electronic speed conversion, would make for a versatile RTTY station.

***

Converting Model 28 Shift

LARRY KLEBER, K9LKA/W9CPD

In order for the #195154 three speed shift to operate at 60-75-100 WPM rather than at 60-67-100 WPM it is necessary to remove gears #195263, 22 teeth, and #195264, 49 teeth, and replace them with #145369, 24 teeth, and #145374, 47 teeth. Teletype price on #145369 is $3.85 and #145374 is $6.75. To remove the Roll Pins, holding the 67 WPM gears on their shafts, use a pin punch slightly smaller than the pin and drive out with light taps. If done carefully, so as not to burr the ends of the pins, you can reuse the pins. The mounting for the shift is cast aluminum so use extra care in supporting the assembly before driving the pins.

Larry Kleber W9CPD

***

VHF RTTY NEWS

RON GUENTZLER, W8BBB Editor
Route 1, Box 30
Ada, Ohio 45810

This month we have some VHF operating and miscellaneous information.

Hans Jurgen Schalk, DJ8BT, GARTG VHF Manager, 6 Frankfort/ Main 50, Heddernheimer Ldstr. 254, West Germany, reports that their 2 meter RTTY repeater now has a "name" - DBØYF. (See this column, RTTY, 1972 MAR, p. 9, for details).

Hans also reports: "DK4LI, Emil in Scheggerott near Flensburg worked last autumn some interesting RTTY stations. On 1971 SEP 20 OK1MBS and OK1ALV in Prague, distance 610 km, RST 539. On 1971 OCT 06 G3MOU, distance 820 km, RST 589. On 1971 OCT 30, SM4CMG, distance 685 km, RST 599. Emil runs 120 watts output to a 4 - 10 element Yagi." Thanks Hans.

Hank Riekels, Jr., WA8GVK, Muskegon, MI, writes: "Relative to the comments in your column in RTTY concerning 146.7 operation:

We monitor 146.700 MHz most evenings around 0100 GMT up here in Muskegon and have pointed the beam toward Chicago, Milwaukee, Lansing, etc. Vertical polarization. Autostart.

'WA8ABT in Grand Rapids also monitors. So there is some activity up here.

"Would suggest that if some of the readers run a tape now and then and (when using directional antennas) try different directions, around 0100 GMT we might just encounter some activity." Thanks Hank.

Dick Oberholtzer, W9ZPV, in Milwaukee, WI, reports: "Our nets are on 146.880 MHz Sunday and Wednesday at 8 p.m. We are being QRMed with a repeater in Madison and Chicago on long nauls. Not with local copy. We have about 20 stations on frequency, 6 to 10 check in reguarly.

"Many of us have or are making counters, photo etching of boards, etc. I am on the second counter of new design ... This gives us a common discussion topic. Most of us have two or more TUs...

"We have not switched to 146.700 MHz because of a AREC freq. of 146.67 on which there are over 100 stations. We are asking our frequency coordinator to select a frequency that we can change to." Thanks, Dick.

On the topic of frequency coordination, see QST, 1972 MAY, pp. 64-68; also, the editorial in QST, 1972 JUN.

For those readers who are new to VHF or the upper portion of two meters, the following may introduce the concept of "frequency coordination." Until a few years ago, two meters from 146 MHz on up was essentially a "vast wasteland". There was some use of 146.700 MHz for RTTY, 146.940 MHz for FM voice, and some FM around 147.3 MHz, but not much else. There was a total of about 3000 hams on FM on two meters.

Suddenly, repeaters caught on - possibly because of the availability of the FM, all solid-state, plug it in, put a coathanger in the antenna jack, and yak, transceiver. The problem of what frequencies to use has become serious or critical. (It has been this way for a few years in some areas, but it seems that the problem is almost universal now.) Also, FM operation is always (or very close to it) crystal-controlled (xmt and rcv) on "channels" spaced 60 or 30 kHz apart starting at 146.940 MHz counting downward. In order to make some sense out of what could become (or has become) complete chaos, voluntary "frequency coordinators" have become a necessity. In effect, pairs of frequencies (repeater in and out) are being "assinged" by these coordinators in order to assure a clear channel for each repeater. The article in QST (1972 MAY) gives the details.

The following lists some recent papers that might be of interest. Shigeo Kubota, Tsutomu Honma, and Takeski Tsuchiya, "Chinese-Character Printer with Electrostatic Recording," IEEE Trans. Electron Devices, vol. ED-19, pp. 569-579, 1972 APR. F.J. Kamphoefner, "Ink Jet Printing," pp. 584-593. In fact, the whole issue is interesting.

That's it for now. 73, ES CUL, RG.

RTTY-DX

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

Hello there . . .

Time is a funny thing. You can't stop it, add to it, or stretch it, but it does seem like a LOOONG time since we last met here and I hardly know where to start. Since the beginning is as good a place as any, here we go.

The WAE Contest came off as scheduled the last weekend in April and since there were five weekends in the month this year it allowed us to get into it as it did not conflict with the big HamVention in Dayton, Ohio. Unfortunately, the conditions were really terrible on all bands here with very few openings for any real DX activity. This is one way this fellow Murphy has of getting to everybody every once in a while, I suppose, only we call it conditions. This sad state of affairs did not seem to cut down on the activity however as you could find plenty of action during the short openings that did occur. All Continents were available with such choice DX as YA1OS, 4X4MR, PJ2CR, CR6CA, JA1ACB, KG4FK, KX6IT, KH6AG/KC6, 9J2ED, KL7GRF, KH6AX, PY2CBS, UK2GAX, ZK2ALW, VK2FZ, all in there to give the boys a much needed multiplier on several bands. The "QTC" message also made use of those extra things on a lot of machines, the tape punch and tape reader. I would say that the height of frustration for us was to print W5QCH in QSO with Paul, KH6AG/KC6, and us not being able to hear even a tone from Paul. In a letter we received from Paul later he said that he heard us a few times and called but with the terrible conditions and one way skip we never did make contact. He also heard quite a few European stations during the Contest but no QSO's. His DXpedition went QRT in early May but he did leave his Mite printer and TU with KG6SV, John, who is on Saipan full time so some of you fellows should be hearing him soon, if you have not already. Paul goes to Tokyo in early June for a visit with Gin and the JA gang, and then back to Honolulu. On his trip he had a total of only 24 contacts. As he says, a linear would have made a big difference as he was hearing many RTTY stations but they were not hearing him.

On May 1st the long awaited permission for the hams in Finland to use RTTY was granted and one of the first stations to get going was from a really rare DX spot in any mode, Aland Island. Sigge, OHONI, fired up immediately but only made a few contacts before the machine broke down. This caused a few days delay but by that time the word had been passed around and you can just imagine the pile-up Sigge faced when he got going again. This activity was closely followed by OH2NA in Helsinki, a club station, and by Kuri, OH6TI. QSL cards for these stations can be sent as follows. OHONI - Sigurd Mansnerus, Skillnadsgatan 37. SF-22100, Mariehamn, Finland. OH2NA - Sarkilinnan Radioamatoorit Ry, Sarkilinna, Helsinki, 21, Finland. OH6TI - via. I.V.R. Ry c/o Santama Ilmavk 8C13, Tikkakoski, Finland.

After some delays due to printer damage in shipment Rudol,a, 8R1W fired up with a beautiful signal on May 7th. For Rudy it was a whole new ball game. You may recall his activity from PZ5RK last year and the King size pile-ups (no pun intended!) he caused everytime he got on the bands. Same thing all over again. You may have noticed the excellent way that Rudy disposes of the mob. He pauses on the turn over and then calls the next station he has printed on the bk bk. The QSL can go to-- Rudolph King, P.O. Box 449, Georgetown, Republic of Guyana. This is of course the first activity from the Republic of Guyana, however, there was some brief activity for a time several years ago from VP3AA, when it was British Guiana.

That very same day we were astonished to print another new country. YN1CW using Fifty Baud, a 425 hz shift, and upside down. We were able to get Gun adjusted to the more conventional 170 hz shift but the inversion

lem. Gun was using a Model 32, a commercial TU, and 400 watts into a fixed array on Europe. He seems to have several machines and promised to put one on 45 baud shortly. In the mean time, if you print garble crank around the range finder on your printer as Gun can copy 45 ok. His QTH is as follows-- Guenter Zaenker - P.O. Box 227, Managua, Nicaragua.

In early May we were alerted of activity from Korea by Dave, HL9KL, located in Pusan. Shortly after firing up Dave went QRT to move to a different QTH. After a few days he returned using a KWM-2 and a dipole but put in a very good signal here on the East Coast. He will shortly have a Quad and a linear in action and he had been on 14 mhz most days at around 1200z. He also monitors the auto-start frequency, 14075 khz. Send cards to-- Maj. David LeJeune - Army Logistics Det., Joint Military Advisory Group, APO San Francisco, Ca. 96259.

Arthur, ON4BX, worked a new one recently, R3V90, but is still trying to find out where it is. In the ITU the block RAA thru RZZ is assigned to the USSR, however, a few days later we printed him giving his name as Bill, and QTH in Greece!!

Of course it is nice to be able to report new RTTY stations as they become active but it is quite another thing to have to report the closing down of RTTY stations. In addition to SVØWO reported last month we are sorry to say that we must add the following to the list. KS6DR, CT2AA, 9J2ED, and YBØAAO. KS6DR requests that you QSL to his home QTH if you still need a card and that is-- Aaron Farr, W7HJK, 1229 E. 2100 North, Logan, Utah 84321. Bill, CT2AA, indicates that CT2BG may soon be active in his place. Ed, 9J2ED may possibly settle in Botswanna (A2C--) in a few months. His home call is G3WKJ. In one of his last contacts Ed indicated that there may possibly be some RTTY activity from Rhodesia soon as a quantity of surplus printers have been released by the National railroad there for the huge sum of Three Dollars each. There seems to be no one to take up after Fred, YBØAAO, leaves Jakarta but he has sent a TU to VK9JV so we may possibly be hearing from there soon. This reminds us that as far as we know there is as yet no reported activity from George, VK9GG, who was due to be QRV around the end of May.

Dusty received a letter from 9K2CA stating that he would be on RTTY both 15 and 20 meters the latter part of August or September. This would be another new and rare one. Address is - H.D. Sento, Box 69, Aminol, Kuwait, Gulf of Arabia.

Via Charlie, W5QCH, we hear that sked times and frequencies with VP8ME on South Orkney have been changed to 21080 khz at 1700z on Saturdays and if the conditions are not good look again the following day. Please hold your calls until after the traffic is completed.

Could it be possible that we may have RTTY activity from Zone 23! OK1AGW is in Mongolia and licensed as JTØAE. Gin, JA1ACB, is trying via Milos, OK1MP, to get something going there but we will have to wait and see what develops in the weeks ahead.

The balance of the Summer should be very interesting for RTTY-DX. Joe, DL2AK, has his license for Andorra and will be operating from this rare spot from August 29th to September 10th. The call is C3IFR and all bands will be used, narrow shift. Along with Joe will be Rainer, DL5PN; and Julian, I3GMF, so there should be plenty of action. The QSL address will be-- DL2AK - 56 Wuppertal 1, Katernberger Str 8, West Germany.

Wolf, DL8VX, along with F5TA hope to be QRV from the Channel Islands (GC) in July or August. Details were not available at this writing but should anything further develop listen for QST tapes on 14 mhz.

Still another possibility. JA1BKX now has one of those portable Mite printers and has his eyes focused on Macau (CR9). It is not too far from Japan and it is reported that licensing is not too difficult to obtain.

Frank, 9Y4VU, reports some additional possibilities from Trinidad. 9Y4RZ and 9Y4AR both have machines and the latter station may be active very soon.

The RTTY activity from Ireland has increased by one recently with a beautiful signal from EI8BZ. Yos is located near Dublin.

As there will be a fairly long time until our next meeting I wish to remind you of the RTTY Contest coming up in August sponsored by the SARTG. The rules can be found on other pages of this issue and it is a good opportunity to build up your country totals and at the same time to apply for the "Worked Scandinavia RTTY Award" (WSRY) and also the WAC Award.

Congratulations are in order to the following who have recently received the WAC Award.

Nr. 185 John F. Gallagher W2VAQ
Nr. 186 "Knobby" Walsh W2PLQ

remains, which is of course no problem.

In closing we wish you all a pleasant Summer above the Equator and hope that those below will not have too cold a Winter.

The words that have transpired were made possible through the efforts of your fellow RTTY-DX'ers, some of whom are, DK3CU, DL2AK, DL8VX, FG7XT, I5MPK, JA1ACB, K3SWZ, ON4BX, W4YG, W5EUN, W5QCH, WB6RXM, ZS3B, 9Y4VU.

73 de John

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Dayton Hamvention--

We have been extolling the Dayton Hamfest for a number of years now and there isn't much more we can say about it. With over 5500 paid registrations, probably the largest display of amateur equipment in one place at any time and a flea market covering literally acres - 440 tables this past year -(and boy are they lucky as the sun always shines) it has to be the greatest concentration of amateurs in the country at one time. Our only complaint is that there is too much to see - too many friends to meet and chat with in too little time.

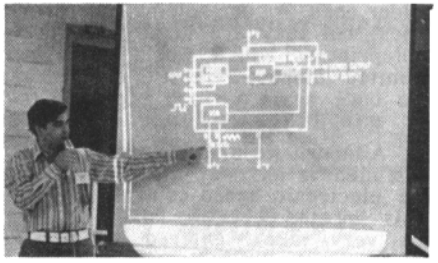
Our hospitality suite at the Dayton Sheraton was crowded and this year highlighted by a flying trip from Hawaii of KH6AG, Paul, who arrived Friday afternoon, complete with fresh pineapples to munch on along with the Kool Ade. Paul left immediately after the convention for home and then a flying trip among the trust islands in the Pacific, taking RTTY equipment with him. Although he was on from several islands poor conditions limited the contacts back to the states.

The RTTY forum, a three hour session was moderated by JOURNAL columnist Ron Guentzler, W8BBB and included interesting talks by George Henry, K9GWT on the ST-6 demodulator made by Hal Devices. The new RTTY TV display and the RTTY electronic keyboard were covered by George Perrin, W9KOI and Paul Tucker both of Hal Communications Co. One of these complete electronic RTTY units was also operating at the Hal Communications booth in the exhibit hall and had a crowd around it continuously. Ed Webb, technical editor of 73 Magazine ended the meeting with a talk about the Phase Locked Loop demodulator.

Our suite was decorated by a gallery of RTTY pictures brought along by John, K2AGI, including some "very interesting" playgirl pix originated by Don, WA6PIR, The Saturday evening get together also developed some interesting pictures taken by Jordan Kaplan W9QKE. But as this is a RTTY magazine, we have only printed a couple on the more serious side.

Paul, KH6AG W3KV W8CQ John, K2AGI

A comment was made that there wasn't an up-to-date long hair in the crowd so we took care of that in the pix below.



ED WEBB talks on PLL Demodulator.

Plan now for next year-

***

C.A.R.T.G. DX SWEEPSTAKES

We have received the rules and dates for the 12th RTTY DX WORLDWIDE "MAPLE LEAF SWEEPSTAKES". This fall contest is the most active of all DX Contests and starts off the new season. Dates this year are October 14-16 so make your plans now. Next issue will carry a complete set of rules and pictures of the beautiful plaques and medallion awards.

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HITS & MISSES

From The Editor and his Mail

It seems that a regular feature of this column is our plea for articles. Feast or famine seems the rule and right now we are on slim rations. Lots of promises but for this issue we kinda scraped the bottom in several places. Right now we have a good supply of pictures but nothing much else. We know what a chore it is to write an article and make suitable drawings and we often wonder why anyone takes the trouble but they are appreciated not only by us but several thousand RTTY fans. We like variety - always get requests for FSK on popular exciters - right now anyone using the Yesu exciters on RTTY could help us with their experiences and any other exciters. A simplified wiring diagram of model 28 machines would be helpful. Anything you have had problems with and solved will probably interest others and of course we especially appreciate articles on new items or modifications of older ones. We are holding several articles, but they are mostly on foreign teleprinters which would be of very limited interest to most of our readers. So once again we are begging------.

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Although we are personally not acquainted in any way with the concern, an electronic speed control offered in this months classified ads intrigues us very much. Offered by the QPL Corp., with W6SKC as president it is called a DOVETRON controller. At the price offered it is cheaper than a 3 speed gear set for a 28 plus having the advantage of any speeds between the normal gear sets. It is probably adaptable to most model printers but all we know is information stated in the ad. If interested write to the manufacturer. Delivery has been stated as starting in early July.

***

Our request, several years ago, to the ARRL to include a RTTY division in the Fall Sweepstakes drew a complete blank from the contest committee. Recently however the CARTG (Canadian Amateur Teletype Group) through their director have renewed the request. We have also written again and see no reason why it should not be included. It might take several years to work up a large participation but the increasing popularity of RTTY deserves some recognition from the ARRL. A nice part of the Sweepstakes would be an opportunity for those not able to work the DX bands to participate in some contest and it would be an ideal contest to work those missing states for a WAS certificate on RTTY.

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We were surprised at the number of comments we received on our retirement, all we can say so far is that old bromide, that we wonder how we ever had time to work. It has been wonderful and I think the nicest day of all is Monday when other people start back to work and we just get up - when we feel like it - to another week of doing things we enjoy.

***

You might think photos should' be easy to keep straight but we made not one mistake but two in the May issue- On page six the call should be K3SWZ instead of W and on the last page the name of SM5QV should be Gunner - not Ole. Shows what happens when I try to use my memory.

***

We had a short but enjoyable meeting with Guy, KZ5LF recently when he was in Detroit with the XYL and his son to pick up a truck to pull his trailer. Guy was hooking on the trailer at Denver, and then driving to Oregon, down the west coast and into Mexico and back to Panama via the Pan-American Highway. Quite a trip we would say. Guy expects to visit some RTTY fans on his trip through the states and in Mexico. He should be home in time for the SARTG contest in August. Guy is with the FAA in the Canal Zone.

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Speaking of Mexico, XE1WU he wondered if there would be any interest in a trip to Mexico by RTTY fans. He would be willing to check on special rates on Air Mexicano and also arrange for hotels and several meetings for hams. Otherwise it would be a sort of "do what you want" while there. We have been talking about a Mexico visit and this would offer an opportunity to meet friends with a common interest as well as seeing the country. If anyone is interested Paco would be glad to hear from them. Nothing is definite so let him know your thoughts and ideas. The trip would probably be next winter although again nothing definite.

***

Teletype Surplus Parts Sale-

We received a list of excess inventory that the Teletype Corp. is offering at sale prices. It is too long to include here but I am quite sure a letter to the company will bring a copy.

Further information regarding the sale and those parts being offered can be obtained by phoning the Service Representative 312-593-1500, or writing to Teletype Corp. Service parts division, Dept 7777J, 1325 Pratt Blvd. Elk Grove Village, IL. 60007.

It has also been brought to our attention that when ordering parts much faster service will be obtained by sending the order direct to - Sales Administration & Service, 1325 Pratt Blvd., Elk Grove Village, Ill. 60007. Parts ordered received at the Skokie address must be sorted and then sent to Elk Grove with a usual delay of a week or ten days. (Courtesy Larry Kleber K9LKA).

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HOMEBREW RE-INKER

The following article by Marvin Cook, WA2RDO is reprinted from the CARTG RTTY News.

Quote... "It is easy to make your own re-inker for the Model 15, the Model 14 Reperforator and similar RTTY gear. There are two spindle ribbon guides on the ribbon feed assembly. Cut a thick piece of felt from an old hat to the approximate dimensions of 3/4 x 1-1/2 inches. This should fit neatly around the spindle. It may be affixed permanently with a needle and thread (XYL). On the same side as the installed felt, cement (Duco) a small piece of wire or wood (toothpick) across the top of the slotted ribbon guide (arm that reverses ribbon) just barely above the ribbon. This crosspiece will prevent the ribbon from rising over the felt inker.

RE-INKING. To re-ink the ribbon, old or new, heavily saturate the felt inker, using an eyedropper and make at least two passes (two reversals) of the ribbon. The use of a "CQ" or "RY" tape will help speed up this process considerably. Maintain the felt in a saturated condition while re-inking as the ribbon initially will absorb a lot of ink. Thereafter, the re-inker should be kept saturated by adding a few drops of ink each week." (Special ink has been manufactured for this purpose.)

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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.

1966-Oct.-Nov.-Dec.- [3]
1967-None.
1968-March-May-[2]
1969-Oct.-Nov.-Dec.-[3]
1970-None
1971-Jan.-May-June-July-Sept.-Oct.-Nov.-Dec.-[8]
1972-Jan.-Feb.-March-April-May-[5]
May-June and July-August are combined issues.

RTTY JOURNAL
Box 837
Royal Oak, Mich. 48068
Editor & Publisher - 'Dusty' Dunn, W8CQ

SUBSCRIPTION RATES

U.S. Canada- Mexico	1st Class	$3.00
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AirMail South-Central America		$5.50
Air Mail	All Other Countries	$6.00

CLASSIFIED ADS Rates-$1.- 30words. ADDITIONAL Words 3¢ ea.

CLOSING DATE FOR ADS- 1st of month.....

NEW HAM MAGAZINE!! Interested in public services, humanitarian actions and international friendship? Sample issue free. Published every three weeks. Worldradio, 2509 Donner Way, Sacramento, Calif. 95818 WB6AUH

MORE RTTY! THAT'S RIGHT. In 1970 there were more feature RTTY articles in HAM RADIO Magazine than any other general amateur magazine. You need RTTY Journal, but you need HAM RADIO also. $6.00 per year; $12.00, 3 years. Ham Radio, Greenville, N.H. 03048

BACK ISSUES - RTTY JOURNAL - Have all issues from Vol. 1, No. 1, will reproduce any issue for $1.00 PP. John Isaacs, 3175 Val Verde Ave. Long Beach, Cal. 90808.

TM11-2223 FULL Scoop on M 14 typing and non-typing reperfs, $6.50. (Previous price in error). Many more teletype & Kleinschmidt manuals, parts, supplies & machines. SASE for list. Typetronics, Box 8873, Ft. Lauderdale, FL. 33310. W4NYF. Wanted-your excess parts.

IC's - DTL 900 series $0.12 to 0.18 each. PC Boards and Kits - 2M. Preamps, 2M. Transmitter, Phase Locked Loop RTTY Converter, R-Y Generator, 8 channel scanner and 8 channel oscillator deck. Write for flyer. Signal Systems, Inc., Box 1963, Colo. Spgs., Colorado 80901

WANTED-COLLINS 399C-1 PTO Console. 32W-1 exciter. National HRO-7 receiver. All in any condition. G.S. Naniwada, JA1ACB. 3-4-8, Izumi, Hoya, Tokyo 188, Japan.

TTL SELCAL drilled Fiberglass P.C. Boards. See RTTY Journal DEC 1971-JAN 1972. Double sided, solder coated. Shipped with instructions. $15 each. K7WJC 7234 East Papago Drive, Scottsdale, Arizona 85257.

BUYING? SELLING? TRADING? Don't make a move until you've seen our new publication. Free sample copy! Six issues $1. HAM ADS, P.O. BOX 46-653J, L.A., Cal. 90046.

WANTED: TELETYPE #28, 32, 33, 35 page printers, keyboards, cabinets, covers for 28 Reperforators. Cash, or trade for new Drake equipment. Sell LRX #28 typing reperforator-transmitter with two 3 speed gear shifts. $100. checked out $145. LRP #28 Typing reperforator without cover $49. checked out $69. Alltronics - Howard Co., Box 19, Boston, Mass. 02101 (617-742-0048).

TT 337/UG TRANSMITTER-DISTRIBUTOR code LBXD-9, fixed hand multi contact, identified by a stationary tape sensing head and a single distributor, each capable of being actuated independent of the other by local or remote control. Always used in conjunction with a punching unit, because the pivot reader can move the tape reader and transmit the last character punched. Principal application of this climbing up-the-tape feature is in situations where punched information is to be transmitted in continuous tape form, without the need for tearing perforated messages from the punch head. Special customized controls are available. Consists of three Model 28 Trans- Dist. and a synchronous motor. $125.00 each. Atlantic Surplus Sales, 580 3rd Ave. Brooklyn, N.Y. 11215.

"RTTY TU-CUSTOM, homebrew version of the W2JAV TU. rack mount, separate AFSK osc. (2125, 2295, 2975 cps) local loop power supply, scope outputs, used approx. 30 hours, perfect cond. must be seen, $95 f.o.b. send $1 for photos and additional info. Pete Graulich, WB2NRU, 1157 Concord Drive, Haddonfield, N.J. 08033, 609-795-1065."

WANTED - FOR USE BY DEAF PEOPLE - TELETYPE MACHINES Model 15-19-26-28-32. Must be in reasonable condition, complete with keyboards. Can pick up anywhere. Send information to R.H. Weitbrecht, W6NRM, PO Box 555, Belmont, CA. 94002. Phone numbers - 213-793-4780 - 415-592-1622.

TYPETRONICS NEEDS YOUR unused surplus teletype parts. M 14-15- & 19 as well as M 28 and later. Please write what you have and asking price, cash or trade, to Fred Schmidt, W4NYF, Typetronics, Box 8873, Ft. Lauderdale, FL. 33310.

WANTED WANTED Model 28 ASR .. Sprocket feed paper or conversion of a Model 15 to friction feed ... 6 meter and 2 meter convertors transistor into the Broadcast Band ... Ed Galovic K8OXO, 86 Egbert Rd., Bedford, Ohio 44146.

TTY - KLEINSCHMIDT TT-4A/TG lightweight (43 lb.) portable page printer (KSR) with both gear sets (60 & 100 WPM), 20 & 60 mil operation, control panel with Range, Bias, Loop current adjust, Loop meter. Standard dust cover, watertight cover, packing case, AC-DC motor, filtered motor and keyboard circuit, motor stop function, line break, CR manual override, copy lamp. Ideal as first, second machine, 100 station, mobile, portable, field, emergency. Typing unit and frame are of Model 150, TT-100 design, Mfg. by KLI and NCR. All units cleaned and checked for 100% Mech. and electrical function. We stock all parts. $48.00, weight 80 lbs. in case. We will ship below cost, $10 W. of Miss., $20 E. of Miss. Cal. residents add 5% sales tax. Mark/Space Systems Co. 3563 Conquista Ave., Long Beach, Cal. 90808. 213-429-5821.

ESSCO COMMUNICATIONS INC. Announces availability of a phone-TTY modem....an acoustical coupler ATC-3 which when connected to a teleprinter and an ordinary telephone enables you to communicate with the printed words with another similar coupler. Used by deaf people nationwide. Compatible with other modems in deaf network. ESSCO ATC-3 is only $129.95 FOB. ESSCO Communications Inc., 150 Marlton Ave., Camden, N.J. 08105. Phone 609-365-6171.

MODEL 28 MOTORS; Complete and checked out. LMU-3 for KSR, etc. $12.00 LMU-12 for ASR $15.00, plus postage for 12 lbs. F.K. McGinnis, 4304 McFarlin Blvd. Dallas, TX. 75205. (214-528-4499)

WANTED; TELETYPE MACHINES - Model 15 and 32 in large quantities. In good condition for use by deaf people. Will accept donations or pay fair prices. Can be picked up anywhere - Lee Brody, N.Y.-N.J. phone TTY for the Deaf. 201-796-5414 evenings. 15-06 Radburn Rd., Fair Lawn, N J) 07410.

SALE; MODEL 28 TypingReperforator (RT) mounted on a tape handling stand which includes large tape take-up spool and supply reels as well, as an intermediate storage bin. OA/dimensions 36" high, 20" long, 8-1/2" wide. Both LAXD transmitter distributor and LPR typing reperf come equipped with three speed gear shift. Allowing down as well as up speed conversion. Synchronous motor LMU-12. Excellent-$150.00. ea. Atlantic Surplus Sales, 580 3rd Ave. Brooklyn, N.Y. 11215.

GEAR SETS; for model 14 TDs, Sync 1800 RPM, 60WPM felt clutch, unused $5.00 set. Gear sets (2) for model 14 reperforator, sync 1800 RPM 60 WPM, used excellent $4.50 per set. Teletype sprocket wrench 5/16 with 12" long handle unused $1.00 each. Tuning fork; 120VPS unused. $2.00 each. Atlantic Surplus Sales, 580 3rd Ave., Brooklyn, N.Y. 11215.

SALE; MODEL 14 TYPING REPERFS - send receive, complete with cover, sync motor, keyboard, end of line indicator, excellent $37.50 Model 14 transmitter - distributor, complete with cover, sync motor, excellent $20. ea. Model 28 type box, complete, excellent $15. Platen for model 15 teletypewriter rubber covered, unused, $4.00 Tuning Fork (speed indicator) 96.19 V.P.S. with instructions sheet for using tuning fork to set motor speed of teletype equipment to operate at speeds of 368 O.P.M. and 404 O.P.M. Unused $2. ea.-3 for $5. Drum, fascimile, key design 12-1/2" long, 6" dia. unused $8. ea. Atlantic Surplus Sales, 580 3rd Ave., Brooklyn, N.Y. 11215.

28KSR FOR SALE; with communications type and keyboard - excellent condition - $150.00 plus shipping. James Scott, W9CWH, 706 North Elmhurst, Mt. Prospect, Ill. 60056.

DESPERATE!!! Need manual or schematic C-E Multiphase Modulation Monitor, Model MM-2. Buy for cash, or borrow for copying with guaranteed return. QSL??? G. Seymour, WA7SWV, 2402 Navajo, Glendale, AZ 85301.

SALE MODEL 28 Synchronous MOTOR PD67/U, code LMU-12 1/12 hp. 3600 rpm, 115 VAC 60 cycle, 1 phase, used excellent, $18.50 ea. TT334/UG model 28 transmitter - distributor, high speed, 8 level, adaptable to 5 level code LBXD-9, used excellent, $40.00 ea. TT315/UG model 28 typing reperforator, code LPR35BWA tape data; 11/16 with chadless or full perforated, part of AN/UGC-13 (M28ASR) used, excellent $40.00 ea. Atlantic Surplus Sales, 580 3rd Ave., Brooklyn, N.Y. 11215.

SALE: 100 WPM TYPING REPERFORATORS - Kleinschmidt TT-230, good condx, $25.00. Add $5 and I ship UPS. Frank Fallon WA2YVK, 118-43 228th Street, Cambria Hgts., N.Y. 11411 - 212-525-4493.

EARLY VACATION? Then tear up that ticket to Tahiti. There'll be more fun at the ARRL Hudson Division Convention, October 21-22, Hilton Motor Inn, Tarrytown, N.Y. Exhibits, Lectures, 2-Meter FM, RTTY, Contests, Gabfests, New York Sightseeing, Fun! No charge for a suntan. Info: Dave Popkin, WA2CCF, 303 Tenafly Road, Englewood, N.J. 07631.

ELECTRONIC TELEPRINTER SPEED CONTROL

Four position front panel switch permits instant selection of 60-67-75-100 WPM operation of any Model 28, 32, 33, 34 or 35 teleprinter (KSR, ASR or RO) equipped with the standard LMU-3 or LMU-12 (60 CPS Synchronous) or similar motor. Teleprinter should be equipped with 100 WPM gears. Second front panel control provides (1) Electronic range finding for improved copy of weak or badly distorted signals, (2) Exact synchronization of teleprinter's speed to the speed of the incoming signal from an improperly adjusted teleprinter, and (3) Copy of any speed between 50 and 150 WPM, including Navy speeds of 65, 71 and 106 WPM. Third front panel control permits direct operation of teleprinter from power mains. Controller may also be used with typing reperforators, auxiliary reperfs, Tee-Dees, BRPE tape punches, etc., equipped with the above noted motors and gears. Transformer coupled output provides electrical isolation between teleprinter and power mains offering additional protection to equipment and operator. May be used on any line frequency between 40 and 400 CPS. May be used on XC or DC mains. 25 CPS operation available on special order. Power requirements: 110 volts, 3 amps. Size: 8"W x 8"H x 11"D. Weight: 10 lbs. Delivery: 30 days or sooner after receipt of order. Specify preferred method of shipment. UPS available to most eastern states. Commercial accounts: Net 30 days. Individual accounts: Cash with order. Price: $99.50 FOB South Pasadena. California residents add $4.98 sales tax. DOVETRON, 1015 Fremont Avenue (PO Box 267), South Pasadena, California, 91030.

FOR SALE Model 28KSR, $275-Model 19 complete with brand new KBD, $125 Model 14 strip printers with syncmotors, $25 K8CRE Paul Hoerlein 9120 Cole Rd., Vassar, Michigan 48768. Phone 517-827-2901.

SALE; KEYBOARD FOR MODEL 15, with 'here is Answer Back Attachments' 21 characters to set up identifications, complete with all key tops, springs and gear - excellent $11.00 each. FRXD-10 Combo; combining typing reperforator, a reader and distributor, on one base. The unit can be used separately or together, syncronous motor, no tape container or cover, used good, $20.00 each. Parts for most teletypewriters also gears and motors including Mite teletypewriter parts. Atlantic Surplus Sales, 580 3rd Ave., Brooklyn, N.Y. 11215.

TT/L-2, FINE CONDITION, used only 8 months. See picture in April 1971 RTTY JOURNAL. Must sell now, Make offer. R. Wanat. WB4RKA, 443 Atlas Dr., Madison, AL. 35758.

FOR SALE; CV 116C/URR FSK converter companion unit for R390A RCVR, like new with manual $80.00. Isotopes solid state digital DC voltmeter, 0-1000 VDC in four ranges, automatic decimal and polarity switching $150.00. LM-13 with AC supply-no book $30.00. H-P 523B 1 mHz counter w/ manual $125.00. H-P 524B w/525A plug in 100 mHz w/ manual $150.00. H-P 200D audio oscillator $40.00. TEK probe P6006 new, $10.00 (one) H-P probe 10008A new, $10.00 (two). L.F. Carbaugh, PO Box 398, New Cumberland, PA. 17070.

WANTED: 500KHZ FILTER #526-9367-000 for 75S-1. 902A Scope Tube. M28 Mark III Printer-Keyboard. QST, CQ, 73 Binders. FOR SALE: 60-75-100 WPM Gearshift for Model 28KSR. Mint. Best Offer. 4-1000A Single Band 20M linear with tube. Easily converted to 15-40M. Illustrated article CQ July 1970. $95.00. Two 4,000V, 750MA power supplies. One solid-state, one bridge 866s. Custom built heavyduty transformers and chokes. Cost over $200.00 each to build. Sacrifice $97.50 each. F.O.B. HP-24 Kilowatt Mobile Power Supply Heathkit unassembled. $49.95. Larry Kleber, K9LKA/W9CPD, Belvidere, Illinois 61008.

HOT AS A FIRECRACKER! That's the upcoming ARRL Hudson Division Convention, Hilton Motor Inn, Tarrytown, NY. October 21-22 are the happy days. So spend your July 4th weekend anticipating exhibits, lectures, 2-Meter FM, RTTY, contests, gabfests, New York sightseeing, fun. It's a blast! Write Dave Popkin, WA2CCF, 303 Tenafly Road, Englewood, N.J. 07631. He'll fire off the info to you.

TT-4A/TG KLEINSCHMIDT portable page printer w/kbd, retired from military service, used - good to very good condition, price $48.00. including 60 and 100 wpm gear sets. Continental U.S. motor freight $10. west of Miss., $20.00 east of Miss. Inquire arrangements for Parcel Post or International PP (44 lbs countries). AC-DC governed motor, dust cover, cover, all standard KSR functions. Units cleaned and tested at speeds you request. Parts are in stock. Mark/Space Systems Co. 3563 Conquista Ave. Long Beach, CA. 90808. (213-429-5821) John, WA6TAO/6.

SALE; SYNCHRONOUS MOTOR for Mite teletypewriter, 115 VAC, 60 Hz. 1 ph. unused, excellent $27.50 ea. Parts for Mite teletypewriter such as selector magnets, arms, cams, level assembly, latch assembly, blocks, modification kits, surtches, platens, pinions, etc. Unused excellent - send us your requirements. Reperforator, TT16/FG includes tape perforator, typing unit, range finder, tape reel, sync motor in metal square cabinet, used good, $35.00 ea. Atlantic Surplus Sales, 580 3rd Ave., Brooklyn, N.Y. 11215.

Aditional Classified on Page- 16