RTTY Journal

EXCLUSIVELY AMATEUR RADIOTELETYPE

TED SLOAN, G14AHP WITH HIS "ITT 2020", DOVETRON, DRAKE AND YAESU

CONTENTS

BACK ISSUES

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

SUBSCRIPTION RATES

USA	$ 5.00
Canada	$ 6.50
Mexico	$ 6.50
Foreign surface	$ 7.50
Foreign Air Mail	$12.00
(except through managers)see below.	
Canada and Mexico Airmail	$ 8.50

MUST BE IN US FUNDS ONLY

RETURNED CHECKS WILL BE ASSESSED $5.00
SUBSCRIPTIONS AND ADS ARE CASH IN ADVANCE
WE HAVE NO FACILITIES FOR BILLING.

CONTACT MANAGERS FOR RATES IN THEIR TERRITORIES

EUROPE

Jean Hurtaud, F8XT
Chillac
16480 Brossac, France

ENGLAND

Dr. Arthur Gee, G2UK
21 Romany Road, Oulton Broad
Lowestoft, Suffolk
NR32 3PJ, England

AUSTRALIA

Norman Wilson, VK4NP
POB 81 Albion,Brisbane
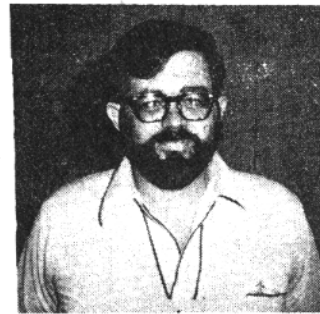Queensland, 4010 Australia

JAPAN

Kanji Yamamura, JH2FHX
2-42 Umenoki,Izumi-Machi
Toki City,Gifu-Pref.
Japan Mail No.509-51

• RTTY·DX •

SKIP PRINSEN WB6CYA 714-276-3182

3611 Merrimac, San Diego, Calif. 92117

Greetings to all..

The DXCC Honor Roll will run again with the January issue. Please do not wait until the last minute to contact me with your scores and then wonder "how come my scores aren't in the listing." The JOURNAL will not carry over your last input until it is updated or has not changed over a one year time period at which time your score may be deleted from the list,so please keep us up to date. Any last minute updates or changes can be made over the fone,a short note or a call to me on the air when you can find me! I found that my computer sure takes alot of my,on the air,time now a days. I should have your inputs by the first of December to insure that I'll get them in time for printing in the January issue. Also, please mail all DX related inputs directly to me at the address in the heading of this column. I will get thru the JOURNAL but it takes up to three weeks longer that way. Here is what I would like to have from you:the number of countries worked,then the number of countries you have QSL cards from, like this: 98/89, which indicates that you have worked 98 countries and confirmed 89 of them.

There is not too much on DX this month. Africa is becoming easier to work all of the time, with 5NODOG on almost daily on all modes. TU2JJ was worked on 15 meters with a not too strong signal, here on the West Coast the first of the month. The ops name is Bill but the print was too poor to get his QSL info, Can anyone help out on this one?

Don't forget that the 10 meter band is still a good DX band. I have called on 10 meters recently knowing that the band was open into Europe and never even so much as heard a carrier in answer. Just listening will tell you if the band is open. UT5RP is now working Statesiders, for some time he was printed calling CQ and then seemed to never hear anyone,

so apparently everything is now in order.

I just received a call by fone from Howard Nurse,W6LLO that has the software package for the H-9/H89 microcomputers. He has a super package for the computer enthusiast for COMMSOFT which is advertised in the JOURNAL. He mentioned that anyone who would like changes to their program, like making the line length longer, write him and send him a disk. This is with the understanding that you have registered your purchase with him when you got the software. I like the program very much and use it most of the time,so if you have a question about it feel free to ask me.

Amtor is a new means of transferring data that the computer type and others should take a long look at. The article for the inventive mode will probably be in next months issue of the JOURNAL.

Several other stations that were noted on the air rhis month were:UV3-FD 14.090 0400Z,CE3CBG 21.090 0240Z, CE3CEW 21.090 0240Z, SL5AR 28.090 1540Z.

That is all for now folks 'til next month.

73 de Skip

GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG

HAM HELPS

VE7CUR,R.D.Bateman,11322 Bond Blvd., Delta BC,Canada VWE1N2, writes that he is getting into RTTY. He has an S-100 bus system using a Z-80 based chip. He is looking for info on both hardware and software.Can anyone give him a hand?Thank you.

3B8DA,P.Alex Mootoo,Clairford #1,Adakin Lane,Vacoas,Mauritius,needs operating info,like books frequencies and times. He has a Creed printer and is hoping to be on the air next year some time. It is possible that he might be able to copy at this time. So anyone that hears him on CW or SSB might be able to get him going.

GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG

page 3

AWARDS SECTION

I�AOF¡Giuseppe Loreti,Via Lucilio 11, 00136 Roma,Italia. Giuseppe has earned WAS on RTTY all on 20 meters.Quite a feat for such a distance. Many Stateside stations have problems in getting this one. Great going Giuseppe.

K4YI¡JAmes Smith,1623 Celeste Dr., Columbus,GA 31907, Jim submitted his cards several months ago for this one but I overlooked it when I was making up the paper work. Jim also got his WAS at the same time and I did not miss that. Sorry Jim. Jim also earned his WAC on multi-bands at the same time.

DJ�WQ, James Clarkston,Rudolf-Diesel-Str.17, 6074 Roedermark,West Germany, Jim also earned Worked All Continents on mixed bands dated 23 September 1980.

JA1DSI,Minoru Tsuda, 6-24,Igusa 3 Chome,Suginami-ku,Tokyo 167 Japan.My good friend has gotten his DXCC this month with 104 countries confirmed. Also Minoru,who is very active on all bands has earned WAC on 10,15 and 20 meter bands.Very nice job Minoru. Minoru's WAC Awards are all dated 23 September DXCC #47,10 meters #11, 15 meters #17 and 20 meters #88.

GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG

"KONTEST KORNER"

WAEDC	8-9 Nov.1980	Sept.80
DARC	15 Nov.1980	Sept.80
Volta	DEC.1980	coming
Europe& Africa Giant Flash		
	Mar.1981	coming
BARTG	Mar.1981	see Feb.1980
VK/ZL/Oceania	Jun.1981	see Jul.1980
SARTG	Aug.1981	see Jul.1980
WAEDC	7-8 Nov.1981	see Sep.1980
CARTG	Oct.1981	see Sep.1980

GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG

KONTEST RESULTS

DEUTSCHER AMATEUR RADIO CLUB

Class A:

Call	Score	QSO	Countries	PREFIX
1. 9G1JX	2703	51	17	36
2. YT2D	1225	35	9	26
3. G3UUP	980	28	11	24

DIGITAL AND LOGIC INTEGRATED CIRCUITS

BY NAT STINNETTE, W4AYV, 890 VIRGINIA AVENUE, TAVARES FL., 32778.....................

The following descriptions of digital and logic integrated circuits are written with the beginner in mind, one who has no basic knowledge of these devices. Those more familiar with these ICs will recognize that only the bare essentials are included for simplicity. It is hoped that this will spur the beginner to explore the theory just a little more. It can be mastered with a minimum amount of study.

In these descriptions the terms "high" and "low" will be used. High means that the voltage is some value above low which is ground. The high is usually a little less than the supply voltage to the IC.

IC This is the abbreviation for integrated circuit which is a solid state device usually contained in a plastic or ceramic rectangular case. Inside are transistors,resistors diodes etc., connected to make up a circuit to perform a certain function. External components are sometimes needed to complete the overall function.

It has pins extending from each of the long sides. The PINS ARE SPACED I" apart.The number of pins ranges from 6-40. Looking at the top there is usually a dot or notch at one end. Holding this end upright,pin 1 is in the upper left-hand corner under the dot. The pins are numbered,beginning with No.1 down the left side, across the bottom and up the right side. If there are 14 pins (7 on each side) pin No.1 will be opposite No.14. If you look at the bottom view, the pin numbering will be reversed. Pin No.1 will be in the upper right-hand corner and numbering will go clockwise to pin 14. Some ICs also come in small round cans with 8,10 or 12 leads. Looking at the top, pin No.1 is the first one to the left of the tab. Numbering continues in a counter clockwise direction with the highest numbered lead under the tab. This package is seldom used anymore.

BINARY-This refers to the binary system of numbers used extensively in counter circuits,computers,etc. and should be throughly understood. In the decimal system there are 10 numbers 0-9. Each number has a definate quantity such as 4 ohms, 6 volts, 9 dollars. In the binary system there are only two numbers: one (1) and zero (0). These two numbers are only relative and have no definate quantity. They are used to indicate that one is greater than zero and zero is less than one. In practice 1 (high) is usually a plus voltage of some value of 5-12 volts and 0 (low) is ground.

The binary system of numbers is based on the ascending powers of 2. An explanation of this may be a little complex for the beginner so we will choose another easier method. On a piece of paper write down these numbers reading from right to left:8, 4, 2, 1. To convert a decimal number to a binary number put a 1 under the above numbers that add up to the decimal number. The following will show how to convert decimal number 6 to a binary number:

$$\frac{8\ 4\ 2\ 1}{0\ 1\ 1\ 0}$$

You will note we placed a 1 under 4 and 2 which total 6. Zeros are placed under the other numbers of the top row So the binary number for decimal number 6 is 0110. To convert binary to decimal or vice versa always use the sequence 1, 2, 4, 8 reading from right to left. This sequence can be extended beyond 8, the next being 16, 32,

64 etc. See binary table of decimal numbers 0-15 or a total of 16.

BIT-This is a contraction of "binary digit". It means a single binary digit either 1 or 0. The binary number 6 shown above as 0110 contains 4 bits.

AND GATE- See diagram. This device usually has two inputs, although it can have more, and one output. With a high on both inputs the output will be high. To state this another way, with a high on inputs a AND b the output will be high. Any other combination of inputs will produce a low output.

NAND GATE- This means not AND,condenced to NAND. It is the same as the AND gate except that the output is inverted. See diagram. Note the small circle on the output which indicates the output is inverted. The easiest way to determine the output of this device is to remember the output of the AND gate with same specific inputs and make the output just the opposite or inverted.

OR GATE-This is similar to the AND gate in principal except that if either input is high OR both inputs are high the output will be high.

NOR GATE- This is the same as the OR gate except that the output is inverted. The output will be just the opposite of the OR gate with same inputs.

TRUTH TABLE- A table which shows the output obtained from all combinations of inputs. Such a table can be made for all logic and digital ICs.

CLOCK-This designates the input to a flip-flop or any other IC which requires a high/low trigger pulse to cause the output to change state or function.

FF-This refers to a flip-flop which is an IC with one input called the "clock" and two outputs. These outputs are called Q and $\bar{Q}$ (not Q) and always opposite in state. When Q is high $\bar{Q}$ is low and vice versa. On each high/low pulse at the clock input the outputs change state. That is, with Q high, the first high/low transition at the clock input, the Q output switches to low. On the second one, Q switches back to high. So it takes two high/low pulses at the input for Q to go from an initial high to the next high state. Since it takes two input pulses for Q to change back to its original state it can be said that a flip-flop is a divide by 2 device. Several FFs can be connected together to produce a divide by 4, 8, 16, 32 etc.

To get a division by an odd number such as 3, 5, 7 etc., a different type of flip-flop is used. This one has two additional inputs called J and K,also known as a JK FF. These inputs can be connected in such a way that they will inhibit the output on certain pulses. For example,two JK FFs can be connected to divide the input by 3. All FFs have a clear input which when taken high or low (depending on the IC) will clear the FF back to its normal state.

COUNTER-DIVIDER-We have shown how FFs can be used to divide by any number. There is another family of ICs called "counters". These can also be used to divide by 2, 4, 8 etc., which will be explained later. However, their main function is to count up. A counter has the usual clock input and four outputs. These outputs give a binary number corresponding to the number of pulses that have entered the clock. For example, if 7 pulses have entered the clock input the four outputs would be 0111. This is our binary sequence of 1, 2, 4, 8, reading from right to left. In

4. I5CBF	930	30	10	21
5. EA3BLQ	780	26	09	21
6. EA3BQQ	744	24	10	21
7. HB9LP	713	23	11	20
8. I2WEG	504	21	08	16
9. G3VXN	437	19	07	16
10. G3HJC	336	16	07	14
11. I8JRA	252	14	06	12
12. DL2FAR	224	14	07	09
13. DL5TN	221	13	08	09
14. DL4GJ	220	11	09	11
15. DF6ZY	208	13	06	10
16. DL8MY	160	10	07	09
17. DF3NA	140	10	06	08
18. G4HYD	117	09	06	07
19. OK1WEQ	77	07	05	06
20. DL8CX	56	07	04	04
21. OZ1DAF	02	01	01	01

Class B:
1. Ballenberger 368 16 10 13
2. Wuestner 260 16 10 13
3. Ludwig 66 06 10 13
Checklog:EA8RG, DFOBUS
ĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢ

12th Giant Europe & Africa Contest
1. I8AA 15,547,540
2. I5FZI 13,047.300
3. DF7FB 1,584,300
4. KØPJ/6 1,348,200
5. OK3KII 1,051,050
6. G3RDG 809,600
7. HB9Z 756,525
8. HA5KBM 678,200
9. OK3RMW 655,300
10. OZ9GA 639,000
11. DK8LN 89,200
12. OK3RJB 58,300
13. SL3ZR 34,500
14. SM6HCX 29,600
15. HA2MV 26,880
16. SM5AAY 14,400
Check Log: WA6WGL
SWL
1. Ballenberger 3,891,048
2. IV3 13018 2,613,700
3. OK1 11857 1,270,400
4. OK1 20677 57,900
5. OK2 21478 13,200
ĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢ

North & South America   Flash Contest
1. I8AA 18,127,036
2. I2DMI 9,678,800
3. I5FZI 8,609,700
4. VE7CIM 3,599,800
5. VE2AXO 2,279,100
6. KØPJ/6 1,915,100
7. W7MI 1,649,800
8. HA5KBM 1,358,550
VE7DLX 758,400
10. OZ9GA 697,550
11. OK3KII 515,000
12. W6IWO 356,500

13.	305,150
14. K8UFW	253,800
15. OK3RJB	240,200
16. OH2CQ	183,300
17. WA6UFY	171,900
18. G3UUP	144,000
19. UK4FAD	142,800
20. I1TDX	128,800
21. DJ5SQ	114,450
22. SM6HCJ	81,900
23. W8TCO	11,100

SWL's
1. OK1-11857 1,576,200
2. Ballenberger 1,060.484
3. OK1-20677 748.100
4. OK2-21478 25,200
ĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢ

A New Service:FAX-Bulletins from DARC
The DL-Rundspruch as a facsimile broadcast service. Starting in September 1980, DJ8BT,QTH Frankfort,will regularly transmit the DL-Rundspruch of the DARC in facsmile, mode F4, Shift 800 Hz, on the 80 meter,20 meter and 70 centimeter amateur bands.

The information transmitted will be organized according to CCITT-T16-Standard with a drum speed of 120 RPM The transmission time for one Din A4-sized page takes 10 minutes,using a modulus 264. The duration of the +DL-Rundspruch+ usually is 25 minutes. A test chart will be transmitted prior to the bulletin.Schedule:
Saturdays 1800 UTC-3,605 MHZ F4|800HZ
Saturdays 1800 UTC-438,625MHZ F/800HZ (Repeater). Sundays 1000 UTC 14,105 MHZ F4/800HZ . On request other drum speeds are available. We hope this new service will give new life to some long forgotten and dusty Fax-machines.Reports and off-the-air copies from our transmissions will be much appreciated and confirmed by: Hans Schalk,DJ8BT,Hammarskjoeldring 174,D-600,Frankfort 50,FRG.
ĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢ

BROADCASTS-Courtesy of AREWISE....
The Society has a half-hour broadcast every Sunday at the following times and frequencies: 0030 GMT-14090 Khz, 7045 Khz and 146.6 Mhz.
0930 GMT-3545 Khz and 146.6Mhz.

Reports are taken after each broadcast.Send printout for QSL. All requests for QSL cards and items for inclusion in the broadcast,should be addressed to "Broadcast Officer",POB 860,Crows Nest,NSW 2065.

The British Amateur Radio Teleprinter Group,BARTG has a regular broadcast beamed to VK and ZL via long path at 830 GMT in winter and 0730 GMT in summer on 14090 Khz. Callsign is GB2ATG.

W1AW has daily RTTY bulletins at 0200 GMT,0500 GMT and 2300 GMT and Monday thru Friday at 1600 GMT on 3625 Khz, 7095 Khz, 14090 Khz, 21095 Khz, 28095 Khz and 147.55 Mhz.
ĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢĢ

Digital & Logic Circuits Continued

practice these are labeled A, B, C, D. Any one of these 4 outputs can be used to divide. The D output,for instance, could be used to divide by 16. However, no division by an odd number can be obtained without additional external circuitry.

You can see that these counter ICs have unlimited possibilities. A digital clock is a good example where the 60 Hz. AC line frequency is divided by 60 to give a 1 Hz. output. This 1 second output pulse is the basis for counting minutes, hours,days etc.

Also, this 1 second pulse is used in frequency counters. It is usually derived from a 1mHz or 10 mHz crystal divided down to 1 second for better accuracy. The 1 second pulses switch off and on the incoming pulses to the clock of a counter circuit so that the outputs, after going through a display circuit,show the number of pulses that entered the counter in a 1 second interval. Thus the readout would show the number of cycles per second or Hz.

Practically all counter circuits count up. However, there are occasions where a count down is needed. There are a few ICs which will do this. They are called up/down counters and will count in either direction. They have a clock input, 4 data inputs and 4 outputs. In addition there are two inputs which determine which way the count will go, up or down. A 4-bit binary is placed at the data inputs. We will say this is 7. The down count input is enabled and the counter starts counting down the input pulses 7 times, after which it clears and starts all over again. The same procedure can be used to up count by enabling the up count input. The outputs are binary numbers.
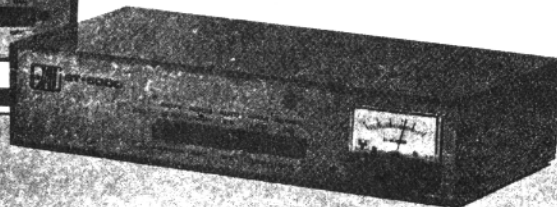
Even WEAK SIGNALS print clearly with a HAL Demodulator.

ST-6000 Demodulator $659.00
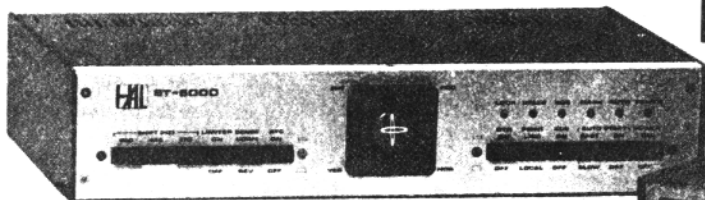
ST-5000 Demodulator $239.00

Pulling in weak or distorted signals with a HAL Demodulator is no problem. Even if the band is crowded.

With high-gain, wide-bandwidth limiters and extremely linear active detector circuits, both the ST-6000 and ST-5000 Demodulators convert RTTY tones into strong, readable signals that display bright and clear.

Tones necessary for transmitting RTTY are conveniently generated and receive filters and transmit tones are accurately set and matched to assure on-the-money transceive operation.

Both the ST-6000 & ST-5000 offer these features:
Internal Loop Supply • Internal AFSK Generator with CW ID Tone • Internal Tuning Indicator • Autostart Motor Control • Line/Local Loop Control • TTY Machine Compatibility • RS-232 type DATA Interface • "High" or "Low" Tones • 120/240, 50/60 Hz Power • Normal/Reverse Switch • 170 and 850 Shift • Active Discriminator • Metal Cabinets for RF Shielding.

Special Features of the ST-6000:
Mark-Hold • Antispace • Automatic Threshold Control (ATC) • Decision Threshold Hysteresis (DTH) • Keyboard Operated Switch (KOS) • MIL-188 and CMOS Data Interface • Oscilloscope Tuning Indicator • Crystal Controlled AFSK Tones • Active Input Bandpass Filter • Pre-Limiter AGC • Three Shifts (170 - 425 - 850)

Write or give us a call. We'll be glad to send you our new RTTY catalog.

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

For our European customers, contact: Richter & Co. D3000 Hannover 1 • I.E.C. Interelco, 6816 Bissone/Lugano • Radio Shack Ltd., London NW6 3AY • Erik Torpdahl Telecom, DK 3660 Stenlose Denmark

HITS & MISSES

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

FROM
THE
MAILBAG

I recently received a QSL card from WA7EGA for our RTTY contact. HAL has a color QSL card with call and a very dramatic photograph of Mt.St.Helens erupting. The volcanic dust is clearly shown and its height and volume is mind boggling. Mt.St.Helens eruption has created many and diverse problems. The latest one is PNEUMONO ULTRAMICROSCOPICSILICOVOLCANOCONIOSIS Webster defines this as:inhaling volcanic dust. The 45 letters of this word make it one of the longest in the Englisk language. This inhaling of volcanic dust certainly is of no benefit to humans,but is causing a software "sickness". The problem affects disks and magnetic tape. This pumice like substance has been carried to many parts of the country and due to its abrasive qualities litterally polishes away the magnetic coating. Keep all disks in their protective containers.

WARC HF AMATEUR FREQUENCIES

I hope the RTTY gang lets the FCC know their desires on the new bands 10.100-10.150, 18.068-18.168 and 24.890-24.900. Last month I pointed out that it appears the 10 mHz band will be for Cw and RTTY,sounds good to me. Write to the FCC and let's give the RTTY gang a share in the new bands.

FCC REFUNDS

Amateurs paying fees of $20 or less but more than $4 for licenses between August 1,1970 and February 28,1975 may be able to get a partial refund. The US Court of Appeals maintains fees were unlawful in that they exceeded commission costs.A SASE to the ARRL will bring you the necessary forms. So if you have money coming file your refund form.

PEN PALS

Steve Mayers,LU8EAR, would like to get in touch with teenagers operating RTTY. Steve's address is: Los Ceibos 120, El Palomar, 1684, Buenos Aires, Argentina.

SAROC

The time is almost at hand for our annual trip to Las Vegas,Nevada. The SAROC will be held at the Dunes Hotel on January 1-2-3-4 1981.Advance regi-

stration is $16.00 per person if received before December 20th.This is for all technical sessions and exhibits. The XYL and I will look forward to an eyeball.See you in Las Vegas.

CONTESTS

The fall contest season is upon us. I wish to thank all the DX stations who have QSL'd this writer. I now have 75 stations confirmed out of 76 worked.The missing one is with Russia.I hope to get DXCC award this fall,so look for me.The bureau was sent 155 cards this month so look for my QSL as my computer is catching up with those not sent.

BIT-BYTER

I received a nice letter from Vic Frump,K8EXJ explaining that he purchased the rights to Bit-Byter from Bob Barnwell,K4ZUY and the RTY-80 program from Jack Hale.

The system was developed to provide the most sophisticated RTTY features available to the amateur wanting to put his TRS-80 on RTTY.

BIT-BYTER INTERFACE INSTRUCTIONS

Verify that your terminal unit has a 60ma loop. The interface will be installed in series with the loop. Where you break the loop, determine the direction of current flow with a meter. Connect the - end to the terminal on the barried strip nearest the right side as you face the back panel. The + side of the loop is connected to the next terminal to the left. If this connection is reversed the loop will be closed and equipment damage may result.

Relay contacts (normally open) for "CW ID" and "push to talk" also appear on the barrier strip. The 2 terminals on the opposite end of the barrier strip from the loop are for keying your TU's CW ID narrow shift. The middle 2 contacts are the PTT relay contacts.

If you desire to switch your TU's "standby" control at the same time with your transmission PPT, it will be necessary to isolate those 2 leads from each other by placing a diode

inseries with each lead (PTT & Standby) with the anodes toward the amateur equipment and the cathodes toward the interface unit.With the diodes inserted,both leads may now be connected to the same PPT relay contact on the barrier strip. The other barrier strip terminal for PTT should be returned to the chassis of the TU and the transmitter. Diodes are common switching variety.
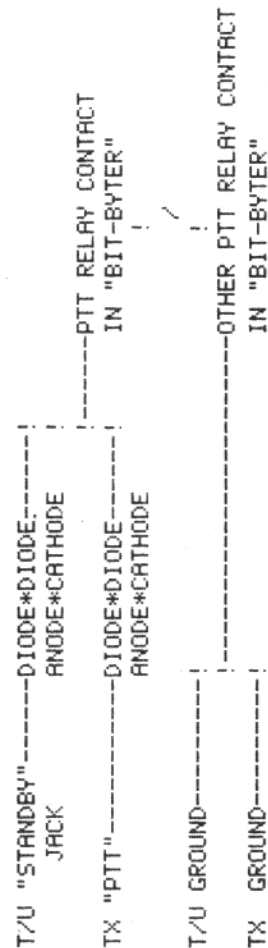
Well gang that's it for this month. See next month for remaining data on the Bit-Bter.See classified for ad.

Hope to work many of you in the upcoming RTTY contests.

SO LONG FOR NOW, GEORGE

Classified Ads

FOR SALE:MODEL 35KSR Teletype machine excellent condition $400. Skip Prinsen,3611 Merrimac Ave,San Diego,CA 92117. 714-276-3182.

WHOLESALE DIGITAL CASSETTES ONLY 79¢. Fully guaranteed!Computer grade.Are you tired of no-loads;had it with poor quality and inflated prices? Obviously you're not using MICRO-80 Cassettes.Send for your wholesale listing today. 24-hour answering service,same day processing. 1-206-675-6143.MICRO-80 Inc.,MICRO-80 Park,R-2665 N.Busby Rd,Oak Harbor,WA 98277.

IF-2 SELCAL-WRU PRINTED CIRCUIT BOARD $15 (73 Mag.p.254,Nov '78).Contains all circuits to control TTY and trans mitter.Programmable to any access code in minutes. Easily interfaced to any station. Connects to UT-4 UART or IF-1 REGENERATIVE REPEATER PCB $12 Complete documentation.Commercially fabricated boards. R.Parry,38 W 255th Deerpath Road,Batavia,IL 60510.

I PAY CASH-KLEINSCHMIDT MODEL TT-98 & TT-76 Call Dave collect (213)-760-1000.

SURPLUS TD PAPER 11/16 carton of 10 $3 WT 13 lbs.11/16 carton of 40 $10 WT 47lbs.7/8 carton of 8 $3,WT.13lbs. 7/8 carton of 32 $10,Wt.47lbs. For Kleinschmidt machines teletypewriter continous paper flat fold 500 sets WT.25lbs $7.50.ADD UPS wt. Harmon, 5628 10th Ave.SO.Birmingham,AL 35222.

NEWS-NEWS-NEWS-AMATEUR RADIO'S NEWS-paper "WORLDRADIO" Trial subscription Two issues for one dollar. WORLDRADIO 2509-F Donner Way,Sacramento,CA 95818

FOR SALE: HAL-DS3000 with matching monitor 12"-ASCII,CW,RTTY.HAL-ST-6000 with monitor scope,package price $1190.Contact WB3FQE,Dworak 30 Blueberry Lane,Perkaise,PA 18944.

CUBEL QUAD HARDWARE,BOOK & SPREADERS, no spreader clamps,2 EL 3 band 20-15-10M $75 + shipping.Ernie Kopp,W9REK, 9101 Massasoit,Oaklawn,IL 60453 (312) 422-0921.

TELETYPE & ALLIED MACHINES & ACCES SORIES.SASE for list.20% off on all pick-ups.10% off on all shipments.B. Goodman,5454 S.Shore Dr.,Chicago,IL 312-753-8342.

COLLECTOR BUYING TELEGRAPH & ALLIED instruments of yesteryear. R.Eichner, 914A Oakcrest,Charleston,IL 61920....

SALE RTTY EQUIPMENT XITEX TU UNIT UDT 170 regular $549,special $449.Macrotronics deluxe TM-650 RTTY and Morse System for PET regular $449 special $398:INFO-TECH M-70 code/speed converter reg.$170 special $149:INFO-TECH 1/0-1 $30:INFO-TECH M-70 code/speed converter cased ready to plug in $275:INFO-TECH keyboard model 10D, Demo $219:INFO-TECH keyboard model 300 used $345:Leedex monitor 12" demo $145.KOYO 9" monitor demo $130:RTTY radio desk by S-F,teak 48" wide reg. $244.95 special $195:regular radio desk 48" long,walnut regular $299, special $225:36"radio desk teak reg. $229 special $175:INFO-TECH M-150 reg $250 special $190: New INFO-TECH TU 200F all speeds variable shift-ASCII, Baudot reg.$575 special $525:KENWOOD R-1000 all coverage receiver special $429.95:ROBOT slow scan model 400 reg $795 special $645:8K PET computer small keys,used perfect $475:32K PET demo large keys full graphics-new warranty reg.$1295 special $949.ALL ITEMS SUBJECT TO PRIOR SALE,ITEMS LI MITED TO INVENTORY ON HAND."YOUR RTTY STORE"Universal Amateur Radio 1280 Aida Dr.Reynoldsburg (Columbus),Ohio 443068.Phone 614-866-4267.

UPGRADE SUCCESSFULLY!!MAKE THE NEXT trip to the FCC count!New 1981 License exam review now available for TRS-80 16K cassette based computers.12 programs totaling 98K for each license class.Specify General,Advanced or Extra.Only $19.95 each.All 3 $39.95PP "SUPER-LOG", the popular logkeeping system,The ultimate only $12.95."MIC ROCLOCK" 19-function timepiece,zones of the world, automatic ID and timer $5.95.MICRO-80 Inc.W-2665 Busby Rd., Oak Harbor,WA 98277.

TELETYPE PARTS WANTED:highest prices paid,old or new models,especially model 15,any quqntity.Send list/call Van W2DLT,Teleprinter Corp.Box 15, Berkeley Hts,NJ 07922 (201)464-5310 Days.

WE "SPECIALIZE" IN RTTY EQUIPMENT and supplies.Authorized dealer for the fabulous INFO-TECH RTTY/CW/ASCII e-quipment,including models;M-100E,video converter:M-300C super Tri-mode keyboard;M-200F tri-mode video converter:M-70 code and speed converter: magnetic tape interface.Also HF transcievers,amplifiers,antennas and other general Ham Radio equipment.Call or write DICK,KOVKH,DIALTA Amateur Radio Supply,212-48th St,Rapid City, SD 57701(605)-343-6127 Special quotes and prices for special people!!

TELETYPEWRITER GEARS,PARTS,Ribbons, tools,manuals,supplies.Also toroids. List SASE Typetronics,Box 8873,Ft. Lauderdale,FL 33310.Cash or trade for unused repair parts,components,klystrous and military connectors.

"LIST OF RADIOTELETYPE STATIONS" Second edition.Press agency,commercial, etc.Frequency in Khz,callsign etc.$4. Piere Gagnon,C.P.511 STN-ST-Laurent, Ville St-Laurent,Quebec,Canada.

RTTY 89 for the Heath H89 or H8/H19/ H17 offers full disk I/O disk auto-start,dynamic video graphics,split screen,ASCII or BAUDOT operation. 70 page comprehensive user's manual and prompt card included plus much more. Write for free brochure.Price only $100PPD.Calif. residents add 6.5% sales tax.COMMSOFT,665 Maybell Ave,Palo Alto,CA 94306.415-493-2184.

KITS AND PARTS FOR THE RTTY Amateur, featuring the famous MEG-1 Demodulator,ID-1 CW IDer,and IPT-1 Interface, power supply,and timer.These units available as kits,or fully assembled, plus a wide selection of quality new components,make the Midnight Engineering Group well worth checking out. And don't forget our carbide drill bits,now more sizes available.Send 15¢ stamp for catalog.Midnight Engineering Group,POB 349,Galesburg,IL 61401.

FOR SALE:5th edition of the "LIST OF RTTY STATIONS IN FREQUENCY ORDER",now contains more than 1200 frequencies monitored in 1979-1980 of commercial stations like,press,aeronautical,weather,telex,military,diplo,maritime

etc. on shortwavw. Schedules of around 70 news agency stations and more than 180 special abbreviations are also included.This offset printed list is airmailed to you for $16 or 39 IRC from Joerg Klingenfuss,Panoramstrasse 81,D-7400 Tuebingen 7, West Germany.

RM-300 THE COMPLETE TU AND AFSK generator on one board.Your CW ID generated from onboard PROM.Thinking of VHF RTTY through your local repeater? This premium quality is ideal.Complete documentation $2. RM-300 Board just $21.25.Complete kit (less PROM) $71.25.PROM programmed with your call $7.00.RP-400 power supply (+5v & -12v and dual loop supply) BD.only $21.25. Complete kit with heavy duty transformer and solid state autostart relay $71.25.CAL residents add 6%.Postage & handling $1.ECLIPSE Communications,5 Westwood Dr,San Rafael,CA 94901.

THOUSANDS OF COMMERCIAL RTTY STATIONS are active between the amateur shortwave bands.Many of them can be printed easily with your existing equipment.(Take care of legislative restrictions if applicable!).If interested you need "software",compiled from nonstop monitoring the complete shortwave spectrum.I have up-to-date frequency,callsign,schedule,code lists for press,military,diplo,telex, aeronautical,weather   etc.stations. Write for details.Joerg Klingenfuss, Panoramastrasse 81,D-7400 Tuebingen 7, West Germany.

MODEL 28 GEARS,GEARSHIFTS,PARTS AND supplies for all machines.Two matching metal pieces for M28 stand-alone TD's $37 PP;auto CR-LF kits (with instructions) for M28 printers $22 PP.; wiring diagram packets for 33ASR with 101C modem $6.50PP;M28 motorized paper winders $77 PP;underdome typing reperf for 28ASR single-speed complete $280PP.Model 28 keyboard typing reperfs,stand-alone TD's triple TD's, answerbacks,Model 33 and 35 machines. Send SASE for complete list and prices.Lawrence R.Pfleger,K9WJB,2600 S. 14th St,St.Cloud,MN 56301.

FOR SALE:2nd edition of the "LIST OF ABBREVIATIONS,CODES AND TABLES USED IN RADIOCOMMUNICATIONS",now contains: 170 general abbreviations;260 Q-code groups from QAA to QUZ; 300 military and civil Z-code groups from ZAA to ZZZ;phonetic alphabet;signal reporting codes;symbols for designation of

page 9

emissions from AØ to P9 and for classes of stations;table of frequency allocations from 10 kHz to 150 MHz and common use frequencies.This offset printed list is airmailed to you for $9.00 or 20 IRC from Joerg Klingenfuss;Panoramastrasse 81;D-7400 Tuebingen 7,West Germany.

THE RACK LINE BY DAYTAPRO,for individual or repeater these versatile uniform boards will do the job right.All boards are $4\frac{1}{2}$ x $6\frac{1}{2}$ inches (same as the DT-600 TU boards)G-10 one oz.copper,solder plated with a 22 pin edge connector mounting for easy servicing All kits have the edge connector included.CW ID SYSTEM. Interfaced for digital,FSK or AFSK keying,10 minute timer,variable speed (5-25 WPM),12 or 5 volt use.Kit was $37.90@ NOW ON SALE FOR ONLY $27.90, Board alone $8.95. CW ID.Above CW ID But without timer and interface components.Board is the same as that for CW ID system. Kit was $21.95 NOW ON SALE AT $19.95. UT-2B SPEED CONVERTER,BOARD HAS TRANsitional autostart,on board clocks, parallel buffered outputs,FSK keying output.Boards have two clocks for basic speed conversion (one speed per clock,for multi-speed see XB-6 clock board) May be used for ASCII with slight   modification.Complete   kit $39.49,through plated board alone $14.95.TU-LOOP POWER SUPPLY.If you're looking for the ideal loop supply for your new demodulator board this is it.This board has provisions for a plus and negative supply (12 or 15 volts),a 5 volt supply and a high voltage loop supply.All supplies need not be mounted on the board if operation of one of the supplies is not desired.Loop supply has provisions on board for keying transistor.All supplies have LED's for indication of power.Complete kit (plus and minus 12v,plus 5v and HV 250v loop supply) $56.50,board alone $8.50.DUAL XB-6 UART CLOCK BOARD.Develops 6 baud rates for each side of UART.Complete crystal control.Good for UT-2 and UT-4 systems.Kit $27.85,board alone $8.95. CRYSTAL CONTROLLED AFSK BOARD.Supplies rock solid tones of 2125 for mark and 2295 or 2975 for space.Avoid drift with crystal control.Complete kit $29.50,board alone $8.95.MULTI VOLTAGE POWER SUPPLY.M4D supplies plus and minus 12 volts at a constant 800 ma and 5v supply is crowbar protected to avoid overload of chips.All

supplies have LED indication for voltage presence.Complete kit $33.95, board alone $8.50.M4D3 same as above but with 5v supply expanded to 3 amps $51.95.MS-512 SINGLE BOARD POWER SUPPLY.Where space is at a premium,this single voltage supply fits nicely. Voltage is determined by voltage regulator.Supplies vary from 5 to 24v. with change of regulator and transformer.All parts including transformer fit on the $2\frac{1}{4}$ x $4\frac{1}{2}$"board.Current output 1 amp.May be configured for negative or positive supplies.SPECIFY NEGATIVE OR POSITIVE VOLTAGE,5,6,8,12 13.2,15,18 ôr 24v.Complete kit (5-18 volt $13.95). (24v $14.95) board alone $5.75.Available from DAYTAPRO ELECTRONICS,3029 N.Wilshire Ln,Arlington Hts,IL 60004.Add $1 for shipping. Use your VISA for added convenience.Phone 312-870-0555 evenings.

WANTED:TELETYPEWRITER PARTS & Assemblies for Teletype,Kleinschmidt and Mite Corp.machines.Phil,W4LNW,POB 70 Morrisonville,NY 12962.

The Bit-Byter RTTY System..designed for the TRS-80*,a radioteletype system for the discerning amateur.It is now possible to enjoy sophisticated yet simple RTTY operation without all the mechanics,bulk,cost and noise by putting your TRS-80* to work. Software features..RTY-80:(1)split-screen operation..received information is scrolled across the bottom two-thirds of the screen and the transmit buffer is scrolled across the top third of the screen with a status banner separating them.(2)works equally well with a level 1 or level 2 computer. (3)automatic station operation.PTT and CW ID under software control.Automatic return to the receive mode at end of transmission from keyboard command.(4)Your call..customized into the software to provide:"shift I" sends de xxxxx in Baudot."shift D" sends de xxxxx to the CW ID relay. (new)"shift Q" sends a line of CQ's. (new)"shift Y" sends a line of RY's. (new)"shift T" sends 'the quick brown fox'etc.(5)speed control.keyboard selection (receive or transmit) of 60 or 100 WPM.(6)on-screen status:counter shows amount of transmit buffer used.Mode shows 'transmit'or'receive' Speed selected is displayed i.e 60 WPM or 100 WPM.(7)Word edit.transmits a word when space bar is depressed. Mistakes made in the word may be edited prior to transmission.(8)automatic carriage return.(9)buffer size...

RTTY COMMUNICATIONS PROCESSOR V3.0 USERS REPORT BY SKIP WB6CYA.

The COMMSOFT RTTY COMMUNICATIONS PROCESSOR is an excellent work of programming which incorporates most of the features of all of the other software packages that are available for the Apple and the Radio Shack TRS -80 computers. It was very easy for me to get going with my system as I had been operating RTTY for some time and had the computer interfaced. I had the program up and running in les than 30 minutes here. I would guess that it would take several hours to get all of the stuff together and hooked up before being able to get it on the air.

RTTY89 includes the features of the earlier package that is offered by Hug in 885-1023 plus many more. The documentation with the disk is very good,having sections on how to patch changes into certain areas of the program if you did not like certain parts of the program. The directions are step by step so if you have not used patch.abs before it is very easy to do.

Following is a brief outline of the chapters in the manual that comes with the disk. #1 explains the use of the manual and the specs of the program. #2 covers the required system configurations needed to be able to use the program,(the H8/H17/H19 with the serial interface and a minimum of 24k of ram is required to use the program. Or the H89/H88-3 with 32k of ram. Either system requires HDOS to operate.) #3 system start-up procedures. #4 Initialization.(this feature is great in that you do not have to redo the initialization process each time that you call up the program just input the time and go to operating.) #5 explains the operation of the system. A word of warning here READ!!! the manual and then read it AGAIN!!! you can,in no way, learn all of the control codes in one reading and I had to read the manual many times to get all of the features that I wanted to use down pat. And now after a month I find that I still need to read the manual from time to time and that I do pick up new things that I missed when I read the manual last. #6 interfacing and hardware.This section is very well laid out,so that even a beginner will have little trouble in getting his system up and running. This section covers trans-

mitters and receivers and for the beginner, should be followed closely to avoid problems in getting on the air. It explains how to interface you compputer to your terminal unit. and gives a brief survey of the more popular amateur t.u's and the pros and cons of each one. #7 the appendices give instructions on how to change assignments,wru response time,changing character speed tables, changing the buffer empty diddle count,and also it gives the location in memory of the ASCII/Baudot tables so that you can change the tables for copying such things as weather bulletins.

This software has split screen operation with a selectable size for the receive data and the transmit data. Using the 24 lines of the H19 or H89 and the 25th line is used to keep the time and date and other operating data in front of you at all times. Some of the features of the status lines 24 hour time,date,left margin status,righthand justify status,Baud rate,system mode (transmit/receive/ cw id),buffer contents counter,cursor position counter,line counter,logging device (SY0/SY1/LP),log status and also log sectors remaining if using disks to record to.

The split screen allows copying off of the air and allows you to type data ahead while receiving. The screen is 80 characters wide max,of which you can only use 72 characters for outputting data so makes it a bit tough to send pix that are in memory that are over 72 characters long. Another feature that is not good is that it will not give good picture results on overline pix,so for the pix buff this can be a pain.. Tho' I can live with it as I can get by with just the non-overline pix, due to all of the greater advantages I get with the ability to edit the pix with PIE8.ABS and clean up any hits that might have come along.

All of your data received and or transmitted can be put to any of the device drivers that you wish to use. I use disks here and can store one heck of a lot of data on one disk before it gets filled up. If the frequency that you monitor is very busy, you can have just traffic that is meant for your station be saved for your station be placed on disk,cutting down on the read time later.

While data is being output to the disk or lineprinter or what have you, no data is lost as it is put into a buffer and will update the screen when the output data is finished.

There are three permanent messages for testing and calling purposes,they are:quick brown fox,ryryry and cqcqcq strings.There are also 3 user programable buffers 70 characters in length,programmable to what you wish.

Transmitter/Receiver control can be automatically controlled by the computer which is required if the wru is used. The transmit buffer will hold about 50 lines of data with 24k of ram. I am using 56k of ram in my system and have been able to load over 30k worth of characters without any problems.

Transmit edit features character erase,word erase, and also complete line erase. When righthand justification is selected the line is filled with spaces to get all lines to end at the same place on the print. The terminal beeps when 10 characters from the end of the line. Simulated ASCII characters are used when in baudot (example= is.eq. and> is .st) Sequential line numbering or custom left margin can be called into the program. Special letters can be sent such as blank,letters,figures and continuous space for testing and special controlling of older wru systems that can be found in use.

RTTY89 includes: a 73 page manual covering all aspects of amateur RTTY, a prompt card to help when running the program, a vinyl disk storage sheet,the RTTY89.ABS distribution disk,a 3 ring binder to hold the package,free updates for one year,after registration is returned. Cost of the complete package is $100PP.California residents add 6%.

My overall impression of this package is just great. I highly recommend it to one and all. One thing to remember is that,it will take several days of use to get the "hang" of the control features of the program so that you can get it to do what you want it to do.

COMM SOFT, 665 Maybell Avenue,Palo Alto, California 94306.(415) 493-2184

73's de Skip

MODEL 32 ASR WIRING CONVERSION BY NEIL,K9WRL.

3029 Wilshire, Arlington Hts.,IL60004

With new generations of electronic telecommunications equipment appearing in the business market, more and more of the older mechanical machines are showing up on the surplus. One such printer is the model 32ASR made by Teletype Corporation. This machine mostly used in TELEX communications is making a big appearance in the ham RTTY stations. Its attractive styling and reasonable price ($200-200) are just a couple of reasons for this big appearance.

One of the questions commonly asked by a new 32 owner is "How do I hook it up to my loop?" This is a tough question as there are a few ways to wire it to a line. Neutral loop and polar are the two most commonly found in machines from the Telex systems. Let's take a look at each and see how they are identified and then how to rewire them for your system.

WHAT TO LOOK FOR.

A Model 32 used in the Telex system will have four buttons on its right hand side with a rotary dial above them. These buttons are marked:(left to right),Start or Conn, Dial, Local and Stop or Conn. If you do not have this dial and button assembly, your 32 is of a different vintage and this article will be of little help to you

To remove the cover,remove the 3 thumb screws in the rear and the 4 screws behind the face plate on the front of the unit. The face plate comes off by pulling out and down from the bottom of the face plate. Then remove the screw on the side of the TD if you have the ASR. Also remove the platen knob and the paper tape and roll paper. The cover should now lift off the unit. All of your work will take place on the right hand of the unit.

First,if you have a polar adapter assembly it must be removed and discarded. It may be identified by its mounting points,rear of the unit slides under the 2 screws holding the capacitor down at the top of the rear assembly. This is a can type electroyltic capacitor. There is another screw on the right side of the polar adapter located in the front of the CCU. This is found just under the di-

al of a leg that comes off the polar adapter for mounting. Further id can be made from the appearance of the polar adapter. Starting from the back there are 2 gold or gray plastic polar relays, to the right of them is a plate with 3 nine pin molex connectors,in front of the polar relays there is a transformer,also there are 2 electroyltic can type capacitors about the diameter of a quarter.There may be a block with 2 fuses on it and another fuse just behind the edge connector. There are also 2 fifteen pin edge connectors on the front of the polar.

To remove the polar,loosen the 2 screws on the top of the rear assembly of the ccu (also holding down the capacitor) and the one screw on the right hand front just under the dial. Unplug the 3 plugs,P4,5 and 6 from the polar to the main component board below the polar adapter. This main component board is marked 11506A or C or 305698. Next remove the 3 plugs coming from the rear assembly to the polar adapter, also marked P4,5 and 6. Move the polar out to the right from the front and then pull it toward the front of the machine,then pull up from the rear once the slides have cleared the nuts holding down the capacitor. Discard this unit,it will not be used.

Now remove the dial assembly from the front of the unit. To do this remove the 3 screws,one on either side and one in the front of the button assembly. The screw on the left hand side of the button/dial assembly may be obstructed by a coil. You may find it necessary to remove the coil before you can get to the screw on the left hand side. Unplug P1,2 and 3 and remove and discard the button/dial assembly.

Next we remove the 11506A,B or C,or 305698 main component board. There are plastic stand offs around the board which may be removed by gently lifting up on the PC board and pulling the stand off out to the side of the board. Once all have been released you will find there is one edge connector toward the back of the unit To avoid damage to the 181604 SMD card it is best to remove its edge connector at the back of the main component board. Save this 181604 card. Now lift the front of the main

component board up in front and pull it toward the front of the machine as far as possible, then gently lift up in the middle bending the board and lifting it out of the back stand off. You may now discard this main component board. What you have left is a metal housing at the rear of the ccu with 3 plugs (p4,5 and 6) and a SMD card.

Examine the 181604 SMD card. Notice that it is actually two independent pc cards on one board. Pins one thru five comprise a motor timer which will not be used. Pins six thru fifteen comprise the SMD (selector magnet driver card. This part of the circuit supplies a 500 mil loop to the printer and must be retained.

Undo the 2 screws holding down the edge connector for the SMD card and undo the hex type nut/screws that the SMD screws came out of. This will free up the bottom half of the front side of the rear housing. Now undo the 2 screws holding the fuse plate on the front part of the housing. Undo the screws holding the capacitor at the top of the housing. All the parts, Front plate, Fuse block and capacitor should be hanging loose now. This will allow you access to the wiring harness and other molex connectors located in the back of the ccu.

Locate Molex plug P4 and look closely at the side where the wires go in. There are very small numbers in the plastic, which run from one to nine. These numbers are hard to read so you may need a good light source and a magnifying glass to read them.

You will have to track most of these wires back to where they terminate. Where possible, colors will be given but keep in mind they can vary from one unit to another. A color listed as white brown is a white wire with a brown stripe.

Plug	Wire Color	Pin #	Notes
P4	White/Blue	1	Remove this and leave hang
P4	White/Red	2	Goes to plug D # 3.Remove & discard both ends.
P4	Orange/slate	3	To R2 Plug #11. Remove both ends and discard.
P4	White	4	To SMD edge connector #2.Remove both ends discard

the software "discovers" how much memory you have.4K..greater than 1,400 characters available.16K..greater than 14,000 characters available.Hardware features.."bit-byter" interface: (1)simple installation..just put in series with your 60 ma loop.(2)completely shielded..This cannot be over emphasized.(3)complete loop isolation through opto-isolators.(4)CW ID relay sends required CW ID.(5) PPT relay controls transmitter status.Can be used with external diodes to control terminal unit too.(6)interface unit keys loop from computer and reads the loop into the computer.It is essential that your AFSK unit be keyed from the loop.(7)self-contained regulated power supply.(8)Assembled and tested.(9)metal cabinet matches your TRS-80.Order from Vic Frump,K8EXJ. Phone 304-372-2047,UHF Sales & Service CO,Rt.1,Box 52A,Evans,WV,25241. Specify:name,address,call letters and level 1 or level 2.Cost $129.*trademark of the Tandy Corp.

HAL ST-6 FOR SALE,Mint,works perfectly,Manual included.$250.I'll ship. K2GA,Mike Ward,16 Sunset Dr.,Voorhees NJ 08043, 609-429-2385

TELETYPE EQUIPMENT & SUPPLIES. New gear shift mod kit for LXD TD $100. Paper & Punch tape.SASE for 1980 list P.Andersen,115 Boyhen Rd.,Rochester, MI 48063.313-652-3060.

MAGNETIC TAPE REPERF/TD,Wiltek Model DS-2.19" rack mount.Stores Signals digitally on magnetic tape.13 printed circuit boards plus heavy regulated power supply/In/out speeds set electronically.I paid $150 for it,but need the space now.Yours for $100-PP UPS. Jim Cooper,W2JC,Box 73,Paramus,NJ 07652.

FOR SALE:FREDERICKS 1202 RA Multi-channel VF RTTY demodulators ±42.5Hz for copying commercial FDM systems and ±85Hz shift for copying Hams,commercial etc.$200;Stelma DAC V TTY distortion analyser with scope and test pattern generator 3D-9600 BD $375;M33ASR with EIA $350;M33KSR with 60 MIL Loop $250 (local pick-up only printers);Digitech DT625R compact solid state TTY distortion analyser $225;TMC 5 RTTY demod-uantable shift with built in scope $100.All FOB.TUN-HO Inc,RFD 1,Box 152N,Skillman,NJ 08558.609-466-0721

WANTED:FREDERICKS 1204 or similar twinplex demodulator;any Sitor,Tor or Spector equipment as Fredericks

1620;Fredericks 1550 synthesizer;Fredericks 1203 demod;Fredericks 1616 ARQ monitor.F.Burt,RFD 1, Box 152N, Skillman,NJ 08558

RTTY BIBLIOGRAPHY AT THE PRINTERS NOW ORDERS BEING ACCEPTED-SEND ONE DOLLAR AND SASE (#10) TO THE JOURNAL FOR ONE.

Model 32 Wiring Continued from page 11

Plug	Wire Color	Pin #	Notes
P4	Yellow	5	Remove this wire and see next step
P4	White/Black/ Purple	8	Splice together with P4#5 or route to P4#5's termination which is SMD edge connector#7.P4#5 may then be removed from edge connector.
P4	Heavy Orange	6	Goes to terminal strip in rear of ccu #3,Remove and discard both ends.
P4	White/Purple	7	Goes to P5 #6.Remove and leave hang.
P4	Brown	9	Remove from plug 4 and route to rear of set. Mark it "loop" 60 ma.For connection to your TU.
P5	Gray	1	Remove this wire,leave hang.
P5	White/red	2	Goes to R2 plug #8.Remove ends and discard.
P5	Green	3	Remove from plug.Disconnect from edge connector SMD #5 & K4 relay mounted on front plate of rear housing.Also remove K plug in rear of #2.Remove and discard all connections.
P5	Gray	4	Goes to P5 #1 which we left hanging.Remove and discard.
P5	White/Black	5	Remove from plug and route to rear with wire from P4#9.This is the other side of your 60 ma loop input.Should be wired to your TU.
P5	White purple	6	Goes to P4#7 left hanging.Remove & discard.
P5	White blue	7	Goes to P4#1 left hanging.Remove & discard.
P5	White/orange/ red	8	Goes to D plug #2.Remove and discard from both ends.
P5	White	9	Goes to plug #3.Remove both ends & discard.
P6	Green Xfmr.	1	Remove and leave hang.
P6	White/yellow	2	Track to SMD edge connector #4 and O plug in rear #2.Remove and discard all leads.
P6	White/orange	3	Goes to terminal strip in rear of ccu.#8.Remove both ends and discard.
P6	Green Xfmr.	4	Remove and leave hang.
P6	Heavy blue	5	Goes to terminal strip #6 in rear.Remove and discard both ends.
P6	Black Xfmr	6	Remove and leave hang.
P6	Red Green	7	Goes to terminal strip #9in rear.Remove & discard both ends.
P6	Red blue	8	Goes to SMD edge connector #1.Remove both ends and discard.
P6	Green/yellow Xfmr	9	Remove from plug.Disconnect other black lead from transformer to fuse block and remove transformer from set.This is about 36v CT if you wish to save.

The relay on the inner front plate of the rear housing has some green and purple wires tied to it and some other places. You may remove all the leads from their distant terminations that come from the coil of this relay. The relay may then discarded. The two heavy leads used on the poles of this relay may be run to a switch which will serve as an on/off switch for the AC motor power. If you have any wires left on 1 thru 5 of the SMD edge connector you may track them down and remove them. Re-assembly consists of remounting the front plate with the two hex nuts/screws,then mount the SMD edge connector, next remount the top can type electroyltic with the clamp to the top of the rear housing and slide front plate under the screws and tighten down. Re-insert the 181604 SMD card. When connecting the loop if the set runs open,reverse loop connection and it should close up.It should now key from the 32 keyboard or td or from your TU. Replace cover and you are ready to go.

clock ——

Q

Q̄

Flip-flop

a
b
——— c

2-input NAND gate

Truth Table

a	b	c
L	L	H
H	L	H
L	H	H
H	H	L

a
b
——— c

2-input NOR gate

Truth Table

a	b	c
L	L	H
L	H	L
H	L	L
H	H	L

Telecommunications for the Deaf Inc (RTTY) is an organization based in Silver Springs,MD (814 Thayer Ave.) devoted to providing printed communications for the hearing impaired. The executive director is Barry Strassler Bob Bruninga,WB4APR has had a lot of experience in this area and has written many articles for AMRAD Newsletter.Write to Bob for past copies and check out what your VHF teletype club could do in this area! Other AMRAD news;The 1st 1200 baud ASCII contact was made over the AMRAD RTTY Repeater WD4IWG/R between WB4JFI and K4JUM at 2030 EST on 28 March 1980. Modems were used on both ends and were Bell 202 compatible. Congratulations Terry and Joel!Any other ASCII systems up and going on VHF? AMRAD newsletters can be obtained by contacting Paul Rinaldo,W4RI,1524 Springvale Ave,Mc-Lean,VA 22101. Want to get fancy?Call the AMRAD S-100 Computer Hotline at 703-734-1387 (WB4JFI) and run 110,300 450 or 600 baud ASCII using Bell 103 modems. The Chicago CARRS RTTY System announced slight delays in interfacing their computer project to the already established VHF WB9WIC/R 144. 71-145.31 system. They need more time to lay out the Intel SBC 80/20 micro system boards and expect to be back on schedule by December. To access the Windy-City repeater,send a minimum of 5 seconds of Mark tone-8-10 LTRS or BLANKS-4 more seconds of MARK then type away. This method prevents false non-RTTY keyups of the repeater transmitter. Albert Storz,W3FVC of Pottstown,PA wrote and suggested that RTTYers give consideration to the idea of using the more flexible ASCII mode over Baudot but at reduced speed that would eliminate much of the data lost during HF transmissions. Al suggests speeds of 45,50 and 56 Baud be used and termed slow ASCII. Sounds like an interesting idea that might be the answer to a lot of problems. What do you think?Write Al at RD2, Pottstown,PA 1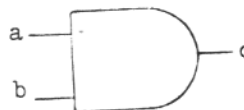9464. The Ham Radio Net for 6800 owners is running regularly on Sundays at 14.250Mhz at 0100 GMT (Summers) or 0200 GMT (Winter). Check ins have been K6AEP,HP1XAW,K500U,9Y4-JW,9Y4RB and J6LOV. Another frequency to look for 6800 owners is 21.260 Mhz at 0100 GMT Friday and Saturdays. Regulars there are VK3UM,VK2AIT and VK-4XV.(Miss your SSTV on ten Clay). Got a model 32 and can't figure out how to wire it all up? Write to Neil for a copy of an article he wrote this summer.

The JOURNAL was represented at two midwest hamfests recently with the result of some new subscribers.Peoria Illinois "Superfest" and Cedar Rapids Hamvention in Iowa.

Keep sending me reports on VHF RTTY activity and what your club and repeaters are doing. This is your column and I report only what I hear from you! Let's get some more activity on 6 meters.

73's MIKE

a
b
——— c

2-input AND gate

Truth Table

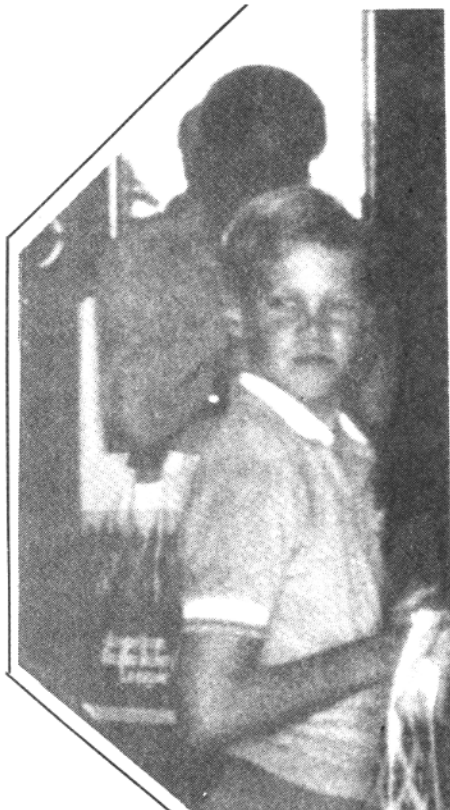| a	b	c
L	L	L
H	L	L
L	H	L
H	H	H

a
b
——— c

2-input OR gate

Truth Table

a	b	c
L	L	L
L	H	H
H	L	H
H	H	H
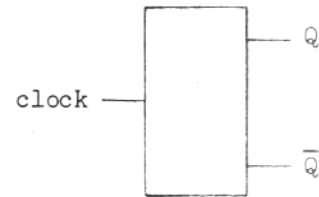
Decimal	8	4	2	1
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

4-bit Binary Table

THE YOUNG MAN HOLDS A GENERAL
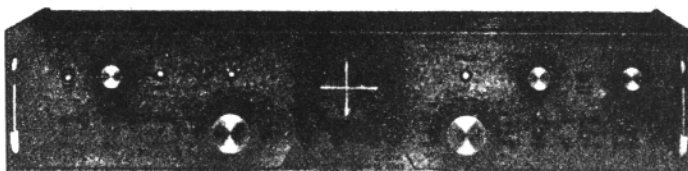LICENSE-AGE 10.

IRV HOFF AND FRIENDS OF RTTY

SOUTHWESTERN ARRL CONVENTION
LOS ANGELES-1980

DOVETRON
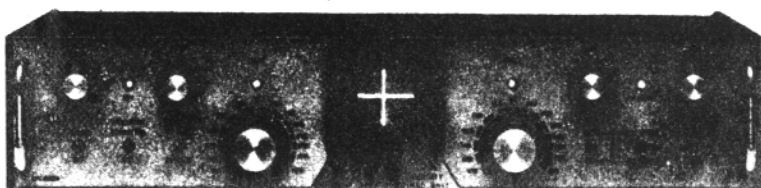

MPC-1000C

Multipath Correction
In-Band Diversity &
AFSK Tone Keyer

Amateur Net: $545.00

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

MPC-1000CR

Signal Regeneration &
Speed Conversion

Amateur Net: $645.00

A front panel switch permits internal TSR-200 Signal Regenerator-Speed converter assembly to electronically "gear-shift" between 60, 67, 75 and 100 WPM. All incoming and outgoing signals are regenerated to less than 0.5% bias distortion. Also available with DIGITAL Autostart (TSR-200D): Amateur Net: $695.00
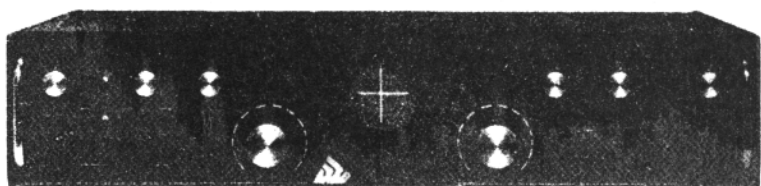
MPC-1000R/- TSR-500

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

Amateur Net: $895.00*

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

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

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

DOVETRON

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