RTTY JOURNAL

MARCH 1978

VOLUME 26 No. 3

35 Cents

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RTTY JOURNAL

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

U.S. Canada, Mexico,		*$3.50*
Canada, Mexico, Air Mail		*6.00*
Other Countries	*Surface Mail*	*4.00*
	Air Mail	*12.00*

Australia and New Zealand
$9.00 AUSTRALIAN
AIR MAIL ONLY

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

Subscription rates above.

Business Offices
1155 Arden Drive
Encinitas, California 92024

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Cardiff by the Sea, California 92007

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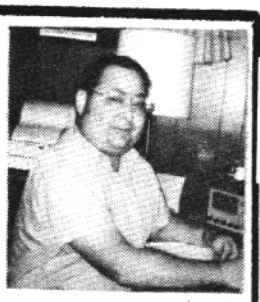
VHF RTTY NEWS



Arny Gamson, K6PXA, 8034 Gentry

N. Hollywood, CA 91605

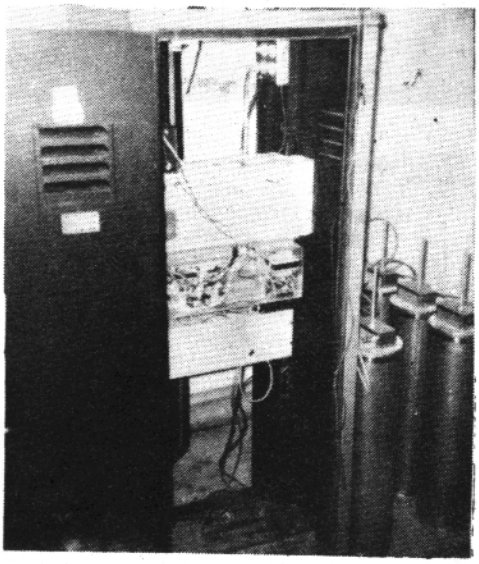
We often hear "How does one set up a (RTTY) repeater?" The answer is about as simple as "How high is high"? Wouls like to relate our Southern Counties Amateur Teleprinter Society called SCATS, experiences in this endeavor Some of it is unique to our location and situation the rest you can benefit from our experience, good and bad. The first step is to secure a site. In Southern California we are dotted with lots of mountains up to a mile high providing maybe 100 miles or more range (200 mile portal to portal). Unfortunately most of these sites are crammed with commercial and Ham repeaters and all the VHF and UHF frequencies are already allocated and crowded. 146.10/70 Mhg. is the usual RTTY repeater frequency used by most but not all Groups nationwise. It is recommended to have a guardband - (unused channel on each side) to avoid adjacent channel interference. The next step is to secure 6 major pieces of equipment; power supply, transmitter, receiver, terminal unit, duplexers and antenna. As a general rule we would recommend securing the very best equipment you can get (Commercial is usual); This to eliminate maintenance and interference problems. We made the mistake of obtaining "economy" Duplexers and a home brew power supply. The transciever is a Motorola Mobile which now has a super-Regulated-Filtered IBM Power Supply. The "Motran" model is total solid state and is clean on a spectrum analyzer when transmitting alone, but we have an intermod Tx. problem when other transmitters mix with it. Some of the answers to eliminate interference generation is better cavities, a circulator and surprizingly a tube Final P.A., as transistors are more susceptible to these mixes. Unfortunately RTTY with its readily identifiable tones will cause other systems hearing them to automatically scream "Clean up your filthy Tx." A computer run of any potential potential mixes and a spectrum analyzer check are certainly desirable. Also keep the deviation of the AFSK Tones from the Repeater (as well as your own) to below 2Khz; and run the R.F. power conservatively as it may often be 100 per cent duty cycle for many hours. We'll go further next issue on the TU and the fun operation to be had with a Computer, Net, Picture, Traffic, Ragchewing, 24 Hr. message service etc. Guess we're biased but we're convinced there is more satisfaction and enjoyment in RTTY than most anything else.

Received the Amateur Radio Research and Development Corp. (AMRAD) newsletter in Washington, D.C. area. Looks like they have a very progressive group of 200 technically-oriented Hams with numerous achievements such as; Computer training courses, Technical Library and on air Computing through their Voice, autopatch and RTTY Repeaters. Their total solid state repeater is the latest state of the art. Not being satisfied with status quo one of their future plams are for a 440Mhz. Repeater for ASCII Computer use (if approved). Keep up the good work!

As recently elected (railroaded) President of S.C.A.T.S. and Editor of our club bulletin "Scatter" we invite you to keep us and the "Journal" posted of your RTTY and club activities for everyones interest. Send us your newsletter. Sometimes wonder about the correspondence we receive though. For example: "Think you've got a great column - Please excuse my writing as they don't allow us anything sharp in this nuthouse."??

C U ENJOY

ARNY -K6PXA



WR6ACA repeater at Contractor's point Southern Califonia, So. Counties Amateur Teleprinter Society
Top Panel: RCVR
Middle (open): TU w/ external AFSK &UART, both XTAL controlled.
Lower: transmitter 20 AMP. PWR supply bottom and duplexers.

THE RM-300 RTTY MODEM

Howard L. Nurse, W6LLO
665 Maybell Avenue
Palo Alto, California 94306

Operating RTTY on VHF FM is a joy. Bothersome fades, static crashes, interfering signals, and drifting VFO's do not stand between you and a QSO with a friend. Whether across town on simplex, or across the state through a repeater, VHF RTTY is a reliable trouble-free mode ideally suited for rag chewing or unattended operation.

The ingredients for a VHF RTTY station include a standard FM transceiver, a teletype machine, a terminal unit (demodulator), an AFSK oscillator(modulator), and a means of sending your call in Morse code as required by the FCC.

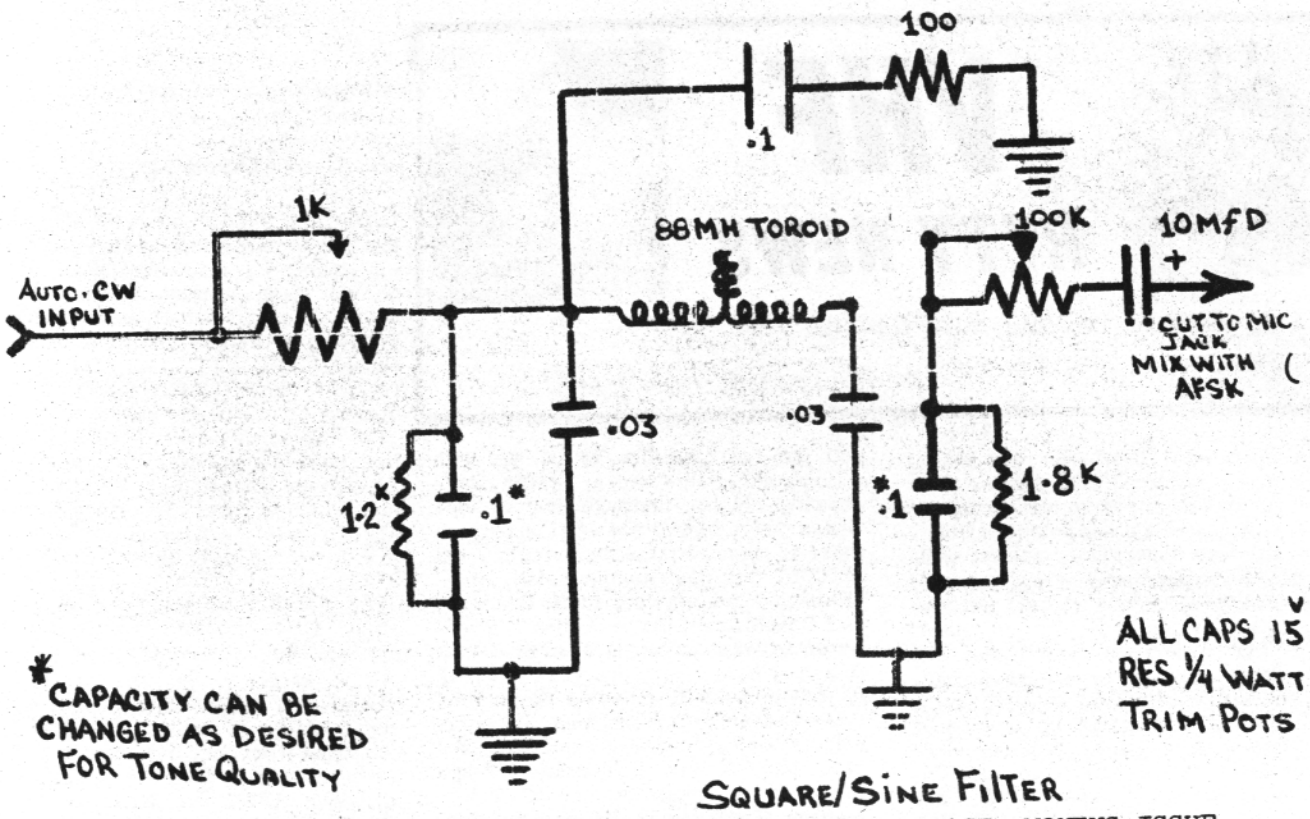
The RM-300 Modem (Modulator-Demodulator wasdevelopedto provide a simple way for those interested in VHF RTTY to get on the air. The RM-300 contains a phase locked loop (PLL) demodulator to convert the 2125/2295 Hz tones from your transceiver's speaker terminals to Teletype keying pulses a stable AFSK modulator to feed the microphone input of your transceiver, a read-only memory CW identifier, and autostart logic, all on a single 4 1/2 x 6" circuit board. A second board, the RP-400, contains loop and low voltage power supplies and loop keying circuitry. A photograph of a completed Modem is shown in Figure 1.

A schematic and board layout for the RM-300 are given in Figures 2 and 3, respectively. The three major functions contained on the circuit board are grouped on the schematic. The demodulator portion is shown in the top third, the AFSK modulator is in the middle third and the CW identification circuitry is in the bottom third of the schematic. Detailed descriptions of connections to and from the RM-300 circuit board are given in Table 1, while a photograph of the board is shown in Figure 4.

DEMODULATOR AND AUTOSTART

Audio from the transceiver is fed to the XR2211 PLL via pin 18 on the board edge connector. The PLL output on U1 pin 7 is at a TTL-compatible high level when the input tone is 2125 Hz (MARK) and low when the input tone is 2295 Hz (SPACE). The frequency at which the PLL switches from high to low is the PLL center frequency as determined by Center Frequency potentiometer, R3.

Continued on Page 6



HERE IS THE SCHEMATIC FOR THE AUTOMATIC CW ID'ER FROM LAST MONTHS ISSUE

FIGURE 1: Front view of a completed RM-300 Modem. The front panel was engraved at an engraving shop for a cost of $.15 per letter.

HITS & MISSES

From The Editor and his Mail

4726 Barbarossa Drive -

San Diego, CA 92115

CHUCK EDWARDS W6MNO

Guess it is time again to see what we can find in our letter box to talk about.

One thing that we are going to try to do from now on is to improve our typing and spelling. We do recognize that we lack a lot in this respect and will do our best to do better with each issue. In the past, we have held our head in shame, at some of the mispelled words and other errors. However, bear with us as we too are learning.

Wonder how everyone likes the new size and format of the JOURNAL? So far, the response has been gratifying. I even had a call from a fellow in New Jersey telling me how hw liked the new size. He said that he was glad that the JOURNAL had at last come into its own.

The nice red color that we had for the cover, last issue was due to our new outside job printer. It seems that he had that color on the press and thought that this was the color we wanted. Well rather than throw the whole batch away and run another batch we decided to go along with it and maybe, in the future look for a nice favor from the printer in return.

We have done one thing though, and I hope that it has been noticed. We were able to get the JOURNAL to the Post Office about two weeks earlier than usual. You should now receive it before the first of the month. Our publisher Dee, and yours truly, made you the promise that we would get it out on time and, by golly, we have.

Been getting a lot of responses to my question of a few issues ago. This question related to whether or not a KIM-L Microprocessor or similar type computer was a good idea for just simply communications management. Seems like it was a good idea and have had a lot of really good incoming suggestions. I plan to write an article on all these inputs in the near future. Will have to buy one and play around with it awhile so that I can see and experience all the things that these fellows say can be done with one -- it is amazing what they say can be done, and apparently so simply.

We would surely like to receive technical or amusing articles from our readers. We will run a bit dry here in a short time. With the JOURNAL now requiring over 100 linear inches more than before we need lots of interesting articles. Include such things as field days, conventions, experiences with new equipment, simple or complex building projects, new designs and anything that you think you would be interested to see in print. Send them to my address or direct to the JOURNAL and I will be most happy to go over them and get them into print as quickly as possible. Another thing that we would like is more commentary on what we are doing to your JOURNAL. Shucks, after all, we are doing it for you, so if there are things that you see that could be improved why speak up! ! Can't promise that we will stop the presses or redesign our methods, but we will surely take each suggestion under consideration.

Speaking of articles AMRAD is calling for papers for Amateur Computing 78 Festival. This festival will be held July 22-23 at the Sheraton National Hotel, Arlington, Virginia. Those interested in presenting a paper, participating in a panel discussion, displaying a computer system, or sponsoring a tutorial should submit a letter of intent, along with a one page abstract or outline, by April 15th to:John Miller, Program Chairman, 6921 Pacific Lane, Annandale, VA 22003, or phone (703) 256-5702. Authors will be provided with instructions for camera ready papers which will be due June 1, 1978. John says that topics concerning Amateur Radio applications of microcomputers will be especially welcome.

Information on "Amateur Computing 78" may be obtained by writing:AMRAD PO Box 682, Mclean, VA 22101.

Sounds like an interesting meeting especially to those interested in Amateur Communications applications. Wish i could go!

By the way Listen for the San Diego Teleprinter society netz. This net is on the low bands at 3607.5 plus/minus as necessary to avoid QRM. This will be a weekly net on Wednesday evenings at 7:00P.M. PST. This is a newly formed group of active RTTYers and they plan to spread out all over the USA. So listen in on their frequency and see if you can hear them and check in. It is nice to help a new group just getting started. They plan to have an auto start and sel cal operation on this same frequency, as soon as there are enough operators crystalled up to make it worth while.

See you next month--73 de W6MNO
Chuck.

SOME IDEAS ON AUTOMATIC STATION CONTROL

Jim Eadie, VE3DCX

Anumber of excellent articles have appeared in various publications describing electronic stunt boxes, SELCAL units, and message generators. In the past year or so I have built a number of these units, and finally decided to put the whole thing together in one package. I am about to describe the control and interface circuitry used at my station to combine a SELCAL and message generator for unattended operation of the RTTY station. Some portions of the circuit may find useful applications in other projects you may have in mind. It is suggested if you are not familiar with the "selcal" that the article written by VE6 BV appearing in the February 1975 issue of "73 Magazine" is required reading.

The SELCAL used at this station has 3 independent "character sequence recognizers" each requiring 4 selected characters be received in order to turn on. Two of them are used to activate the message generator, and one for the T.D. The message generator may be activated alone, however, if the T.D. is activated, the message generator must be activated before the T.D. will operate. The message generator contains station identification in both CW and RTTY(see Dec. 75 issue "RTTY JOURNAL"), thus the station will always be identified at the end of a transmission.

The PTT line turning the transmitter off and on is protected with a timer so that the carrier will remain on the air for no more than 2 minutes under any circumstances. Another timer circuit is also included so that the transmitter is not activated until 5 seconds after the received carrier drops out. assuming the SELCAL has been activated. While a signal is being received, input F (Fig.1) is held high. When the carrier drops out, input F goes low, and after 5 seconds elapses the output of U9C goes high, activating gates U11A and U12B.

Jim Eadie, VE3DCX
RR#1
Thomasburg, Ontario, Canada

Continued from Page 3

The PLL output signal is inverted by U4 and applied to the anti-space circuitry (U5 and U6-C) and the keying inhibit gate U2-A.

FIGURE 2 Continued

RM-300 RTTY MODEM PARTS LIST

Description	Reference	Quantity
Integrated Circuits		
XR-2211 FSK Demodulator (Exar)	U1	1
SN7410N Triple 3-Input NAND Gate	U2,U7	2
SN7400N Quad 2-Input NAND Gate	U3	1
SN7404N Hex Inverter	U4	1
SN7407N Hex Buffer/Driver	U5	1
LM339N Quad Comparator	U6	1
XR-2206CP Function Generator (Exar)	U8	1
XR-2240CP Counter/Timer (Exar)	U9	1
6330/N82S23 256-bit PROM	U10	1
SN74151N 8-Channel Mux	U11	1
SN7490N Decade Counter	U12	1
Diodes		
1N914 (or equivalent)	CR1	1
Capacitors (All microfarads)		
.01/50 v Disc	C1,2,10,14,19,20,22,23	8
.1/50 v Disc	C3,4,17	3
10/25 v Electrolytic	C5,6,11,12,13,21	6
.0022 Polyester Film	C8	1
.047 Polyester Film	C9	1
.01 Polyester Film	C7,15	2
1.0/35 v Electrolytic	C16	1
.1 Polyester Film	C18	1
Fixed Resistros (5%, ¼ Watt)		
680	R1	1
5.6K	R4-8,13-16,19,22,25,26 33-35,38,40-54,56	33
100K	R2,11,24,55	4
36K	R9	1
220K	R10	1
3.3 Meg	R12	1
100	R17,20,23	3
33K	(Optional) R18,37	2
4.7 Meg	R21	1
39K	R28,30	2
220	R29	1
560K	(Optional) R37	1
Potentiometers		
830-P-20K Weston	R3,27,31,32	4
830-P-500K Weston	R36	1
Sockets/Connectors		
14 Pin Solder Tail IC		8
16 Pin Solder Tail IC		4
22/44 Edge Connector (.156 Centers)		1
Circuit Board		

In Lakewood, California, a man jogged into the office of the Public Finance Company, pulled a gun, and demanded money from the employees. He took $800 in cash and left the office, still jogging.

Continued on Page 8

FOR SALE: Mits SG-1900 Audio Sweep Generator ket. PCB partially assembled. Cost $130. Sell for $75. MXD triple-headed TD. Sync motor, 60 wpm gears, all 7.42 code $25. FOB Bryan, Texas. Tim Swarthout, WA5QEG, P.O. Box 3692, Bryan, Texas 77801

MITE PARTS- Largest inventory in the World. Phone orders accepted, shipped COD. Also buy Klienschmidt & Teletype Corp. parts and Assy's. Philmar Electronics, P.O. BOX 70 Morrisonville, NY* 12962 518-561-3479

RTTY. UT4 P.C.B.'s available. providing for UART* FIFO's and XB 6 clocks. double sided 8 x 6 main board with power supply board. Drilled with printed legend. circuitry and description. $37.50. Postage extra. Den Michaelson G3RDG. 40, the vale, London, N.W11 8SG. England. Telephone 01-455-8831

Teletype model TT-7/FG model 19 with reperforator less TD. Tabletops 60 WPM page printer checked out & working $75 (also have model 28's RO & KsRs) W. F. Harmon 5628 10th Avenue So Birmingham AL 35222 (205) 592-0835

AUDIO FILTERS. Precisely tuned 88 mH. toroids plus 5 Hz. $3.50 each postpaid. Specify freq. Set of three 22 mH. toroids tuned to make a bandpass filter centered on 2195 Hz. $13.00 per set postpaid. Nat Stinnette Electronics, Tavares, FL 32778.

DOVETRON TSR-200 teleprinter speed converter-signal regenerator is a 5" by 5" card designed as the digital heart of the MPC-1000CR terminal unit. May be simply interfaced to other tus. Consists of programmable UART regenerator, dual crystal controlled clock and a CMOS bilateral steering section. Power requirements: 5/15 volts at 20 mils. Price $99.50 postpaid. Add $15.00 for front panel BCD speed switch and cable. DOVETRON, P.O. Box 267, South Pasadena, CA. 91030. 213-682-3705.

CW-ID UNIT CLOSEOUT. while they last $12.95 kit. With interface for most TU's $16.95. Normally $18.45 together. See past RTTY Journals for description. Add $1.00 for shipping. Quantities are limited. NuData Electronics, 104 N. Emerson St., Mt. Prospect, IL 60056.

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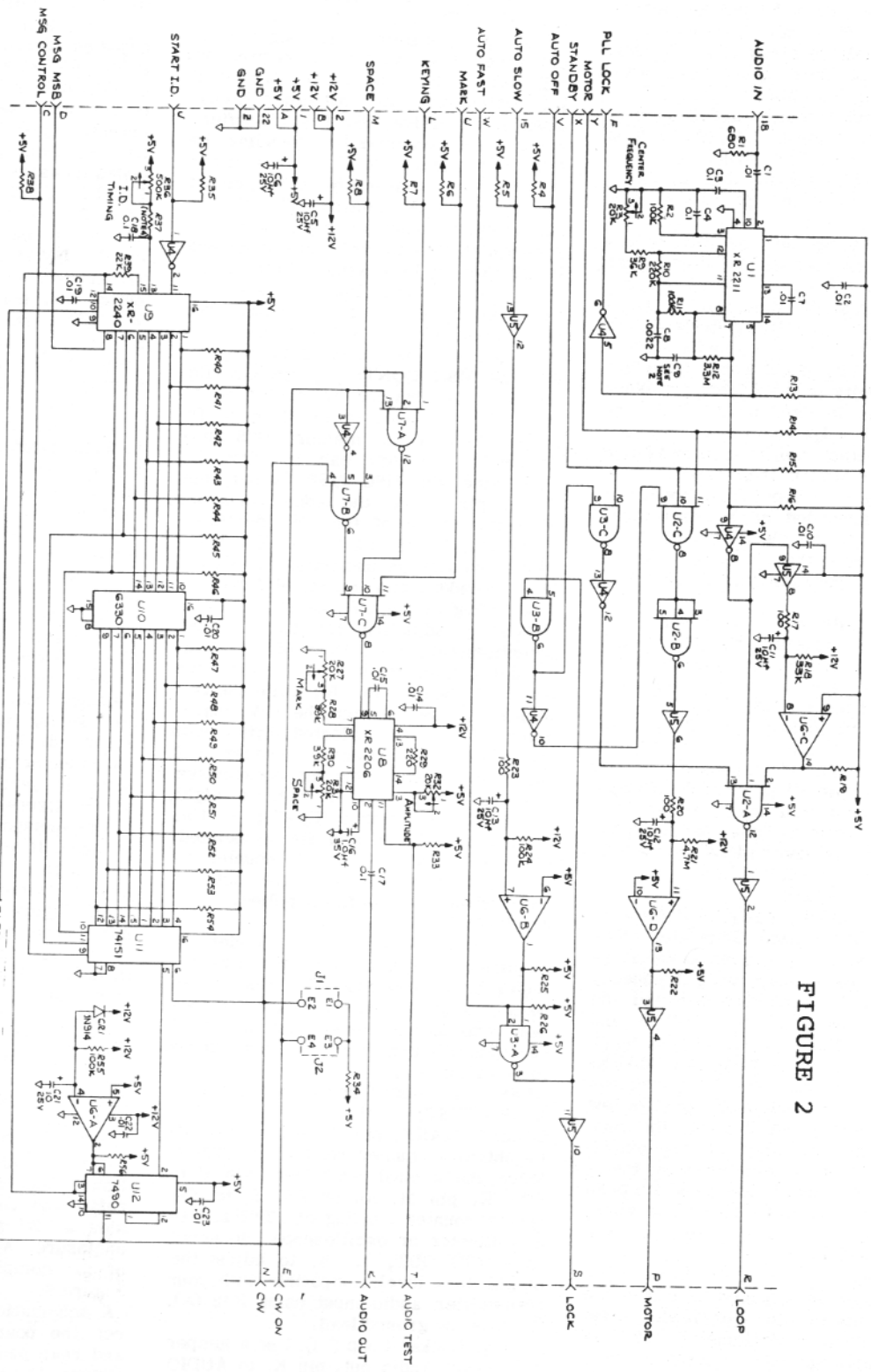

FIGURE 2

ELECTRICAL SCHEMATIC DIAGRAM
RM 500 RTTY MODEM 4-77

NOTES - UNLESS OTHERWISE SPECIFIED:

1. ALL UNMARKED RESISTORS ARE 5.6K
2. C9 IS .047 FOR 45 BAUD (60 WPM)
   IS .022 FOR 75 BAUD (100 WPM)
3. J1 & J2 USED WHEN NO I.D. OR ANSWERBACK CIRCUITRY
4. R37 IS 560K FOR CW I.D.
   IS 33K FOR TTY

Continued from Page 6

The anti-space circuitry prevents - Space tones longer than approximately 200 milliseconds from keying the loop. The output from U5 pin 2 clamps the voltage across C11 near ground as long as the PLL is detecting a MARK tone. A space tone allows the voltage across C11 to rise at a rate determined by R18. If the voltage rises above 5 volts, the output of U6-C goes low, which forces the loop into MARK-hold.

The autostart circuitry and the stand-by logic can be used to force the loop into MARK-hold. The PLL contains a carrier detector which has a TTL-compatible output on pin 5 of U1. This output is low when a signal within the lock range of the PLL is detected. The carrier detect output, after inversion by U4, can be used to control the FAST or SLOW modes of the auto-start function. The FAST mode allows the Modem to respond immediately to a detected signal, which gives sufficient noise immunity on VHF circuits. When a carrier is detected by the PLL, the LOCK output (edge connector pin5) goes low. This output can be used to control a LED on the Modem front panel.

If the AUTO OFF input (edge connector pin V) is grounded or a carrier has been detected, and the STANDBY input (pin X) is high, the loop can be keyed by the PLL because pin 13 on U2-A is high.

The open collector loop output from U5 pin 2 is high for MARK and low for SPACE. It can be connected directly to a loop keying transistor or to the serial input of a UART.

The MOTOR output (pin P) is low when a signal has been detected, the STANDBY input is grounded, or the MOTORinput(pin Y) is grounded. The - MOTOR output will stay low for app. 25 seconds after a signal has dropped. This timing is determined by the RC time constant of R21 and C12.

AFSK MODULATOR

The heart of the AFSK modulator is an XR-2206 Function Generator integrated circuit. It produces low distortion sine wave tones at a frequency determined by capacitor C15 and the resistance between pin 7 or 8 and ground,depending on the control input on pin 9. When pin 9 is high (MARK) R27 is used to set the output frequency to 2125 Hz, and when pin 9 is low (SPACE), R31 is used to set the output frequency to 2295 Hz. The output frequency can be monitored at the - AUDIO TEST output (pin T) which provides a TTL-compatible square wave replica of the function generator output waveform.

The output level from the AFSK modulator should be adjusted to match the requirements of your transmitter audio circuitry using potentiometer R32. The output amplitude can be adjusted to a maximum level of approximately 5 volts peak-to-peak.

All control inputs to the AFSK modulator are TTL-compatible. The teleprinter keyboard signals are applied to the KEYING input (pin L). Consistent with the design convention used throughout the board, a high input yields a MARK tone while a low input yields a SPACE tone. MARK and SPACE override inputs are provided on pins U and M, respectively. These inputs can be used to force the AFSK modulator to either state despite information present on the KEYING input. The remaining control input to the AFSK modulator is from the CW identifier.

CW IDENTIFIER

The CW Identifier output signals include the CW keying line, which provides full shift keying, and a CW ON control line which precludes all other keying when it is active. The CW Identifier, started by momentarily grounding the START ID input (pin J), causes either "O" or "." characters to be printed by the receiving station. The timing and memory programming required to accomplish this format were described in the January 1974 issue of Ham Radio.

One new feature, available with the "O" option, is the ability to have two call signs in the read-only memory. One call sign is accessed by grounding the MSG CONTROL, pin C,while the other is obtained by leaving pin C open. If your call is too long to fit in one half of the memory (128 bits) the whole memory can be used by connecting the MSG MSB Output, pin D, to pin C on the edge connector.

On-off control of the CW identifier is accomplished with U9, an XR-2240, which contains as oscillator, an eight-stage divider, and a control flip-flop. The timing of the CW output is established by adjusting the I.D. TIMING potentiometer, R36. Five of the eight divider outputs from U9 address the 32 bytes of memory in U10, while the remaining three extract the CW characters from the selected bytes with multiplexer U11. Decade counter U12 monitors the CW input for consecutive "blanks", and afer it detects eight, turns off the control flip-flop in U9. Comparator U6-A and its associated circuitry resets the decade counter so the counter starts with the correct count when power is first applied.

ADJUSTMENTS

Proper adjustment of the Modem - requires a frequency counter and a voltmeter or oscilloscope. The Modem can be adjusted with help from another station who has a counter or an AFSK oscillator/demodulator which is known to be calibrated.

AFSK Generator: Connect a counter to AUDIO TEST, PIN T.

Ground MARK, pin U. Adjust R27 (M) to obtain a counter reading of 2125Hz. Move the ground lead from pin U to SPACE, pin M. Adjust R31 (S) to obtain a counter reading of 2295Hz. Use a voltmeter or oscilloscope connected to AUDIO OUT, pin K, to adjust the output to a level compatible with your transmitter audio input using R32 (A). Remove the ground lead.

Phase Locked Loop (U1): Use a jumper to connect Audio out, pin K, to AUDIO IN, pin 18. Connect an oscilloscope or voltmeter to Hex inverter U4-8. (This voltage will swing between ground and approximately 3 volts.) Ground MARK, pin U, and adjust R3 (CF) until the Hex inverter output goes high. Remove the ground from MARK, pin U and and ground SPACE, PIN M. While counting turns, adjust R3 until U4-8 just goes low. (R3 should be adjusted in a CCW direction.) Divide the number of turns by two and adjust R3 in a CW direction by that number.

CW Identifier Timing: This adjustment is most easily made with the aid of another station. Initiate an Ident while the other station monitors your signal with his printer. When the timing is adjusted correctly his printer should print OOOOOOOO..... with the number of O's determined by your call sign. If you have selected the Baudot ident option, adjust the timing with R36 until the other mmachine prints the encoded message correctly.

POWER SUPPLY

The PR-400 Power Supply was designed to furnish the voltages required by the RM-300 in addition to an auxilliary -12 VDC supply for other circuitry you may wish to add, such as a UART. Included on the board are:

2 80 VDC, 60 ma loop supplies
1 plus 12 VDC, 100 ma
1 plus 5 VDC, 300 ma logic supply
1 -12 VDC, 100 ma auxilliary supply

A high voltage loop keying transistor is also located on the RP-400 Power Supply board. Aphotograph of an RP-400 board is shown in Figure 5, while a schematic and parts layout for the board are given in Figures 6 and 7, respectively.

The loop supplies run from a voltage doubler consisting of C101, CR101 and CR102. The resulting DC is filtered by C102 before being sent to the adjustable wirewound resistors, R101 and RL)@.

Two suggested ways of connecting your Teletype machine to the loop supplies and keying transistor are shown in Figure 8. The usual connection, with the selector magnets and keyboard contacts in series, is shown in Part A of the figure. Resistor R104 provides a TTL-compatible low level when loop is open. If you desire separate selector magnet and keyboard connections, use the wiring diagram shown in Part B of Figure 8. Split wiring might be used when you wish to use the output of a repeater to provide local copy through a demodulator. By operating in this manner it is possible to tell instantly if you arn't making it through the repeater.

The low voltage power supplies are similar to each other in design. Each has a half wave rectifier, filter capacitor, and three terminal regulators.

CONSTRUCTION

The RM-300 Modem board, RP-400 Power Supply, solid state motor control relay and power supply fit nicely inside a 12" x 12" x 3" "MODULINE" enclosure. A photograph of the inside of the completed Modem is shown in Figure 9.

A schematic showing one way to conect the boards, front panel controls, and rear panel connectors is shown in Figure 10. Variations on this writing Figure 10. Variations on this wiring will be dictated by your own station requirements.

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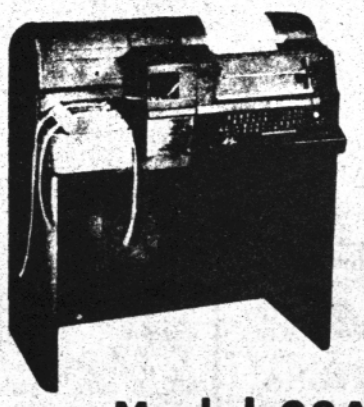
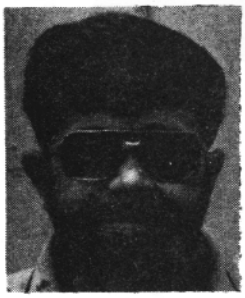


Model 28ASR Model 28KSR

WA6PMA DOUG

RTTY-DX



SKIP PRINSEN WB6CYA

3611 Merrimac, San Diego, Calif. 92117

10th EUROPEAN DX-CONTEST RESULTS

TROPHY WINNERS.

I3FUE - Europe
VE5RG - N, America
YV5GU - S. America
DL2XP/4X - Asia
VK2SG - Oceania

Multi Op
VK3DBG - Europe

SWL
OK25350

Special
W1MX
N. America

Single Op

Call	Score
I3FUE	175,77Ø
IK5GZS	163,Ø98
SM6GVA	1Ø8,941
VE5RG	77,546
DJ6QT	73,144
DJ6JC	71,136
DK1NB	69,738
DM2EDL	61,777
HB9AVK	55,755
SM6ASD	55,322
DL6BI	47,115
DL2XP/4X	47,1ØØ
I2WEG	42,612
HB9BJJ/P	41,5ØØ
DJ9IR	29,116
W3BI	26,79Ø
DL2RR	23,4ØØ
I8JRA	22,68Ø
IØLVA	22,14Ø
I5FZI	21,976
DF5FX	21,Ø56
DM2AYC	2Ø,165
HB9HK	19,781
K6WZ	19,ØØØ
DL8QP	16,28Ø
YV5GU	12,648
WAØTAS	12,284
WB1CRG	11,76Ø
DK4ID	1Ø,8Ø4
DJ2YE	1Ø,16Ø
VK2SG	1Ø,Ø64
DL8KQ	9,72Ø
OK1AMS	8,47Ø
DJ5VI	7,931
DJ4IJ	6,351
SM7AQQ	6,213
DL2ZA	6,118
DJ9CB	5,551
W3KV	5,412
DM2BRN	4,578
G4ALE	3,914
DK8LHA	3,66Ø
DJ8GJ	3,6ØØ
DL1OY	3,276
DJ1QT	3,Ø82
DJ1XT	2,64Ø
DL6WZ	2,4ØØ
OZ8GA	2,278
DK4IS	2,214
OK2BJI	2,Ø4Ø
SM6CAL	48Ø
SM6DGL	44Ø
OF4RH	35Ø

Multi Op

W1MX	114,4Ø8
DK3DBG	1Ø7,579
UK3ACR	88,548
OK1KSL	87,Ø39
IK1COB	86,592
UK2BAB	83,456
G3UUP	69,44Ø
OH1AD	61,74Ø
DKØAE	56,677
DL8YR	51,471
SK6AW	49,28Ø
DKØTU	45,9Ø3
DM3GM	42,534
OK3KFF	4Ø,328
HA5KFN/5	33,768
TF3JRA	27,ØØØ
LZ1KDP	21,384
OH1AR	19,758
OZ2CJ	15,Ø1Ø

SWL

OK2-535Ø	139,821
Niendorf	61,94Ø
I15ØØ71	45,6ØØ
OK1-11857	27,Ø27
UA3-17Ø3Ø5	25,728
DMØ742-F	4,2Ø9
DM-5334-N	3,922

Check Log DJ8BT OK1MP
Contest Manager DJ8BT

"RTTY WORLD CHAMPIONSHIP CONTEST"

I.A.T.G and CQ ELECTRONICA MAGAZINE have donated prizes for contest winners determined from combined scores of :BARTG - DARC - SARTG CARTG - GIANT RTTY CONTESTS. First Prize is a Tri-mode Converter Model 100 and RTTY Keyboard Model 150 both from INFO-TECH.
Second Prize is an ICOM IC215 2 meter FM Transciever from MARCUCCI in Milan.

Greeting to all

From Erik, SM5EIT the out going traffic manager for SARTG new officers for SARTG: President is SM6ASD, Bo Stjeernberg, Sagspansgatan 21, S41680 Gothenburg. Editor SARTG News:SM6 EBM, Bjorn Garpman, Bjornbarsvegen 12, S-43400 Kungsbacka. ztraffic Manager:SM6GVA, Goran Johamsson,Eriksbergs skola, S- 524 00 Herrljunga.

W7VCM, Jack Taylor is now K700.

WAC RTTY # 52 for I5HZZ and WAC RTTY #53 for I5GZS.

DXCC #3, 13Ø countries confirmed for I5KG, Giovanni has worked 138 to date.

EL2AG has been active on 2Ømeters QSL via PO box 3049 A Monrovia, Liberia, West Africa.

Bad news for RTTY DX'ers that are looking for KM6BI. Pat reports that he is being transferred to KL7 land. Those working him from KM6 can QSL via Pat Shaughnessy, 18245 First Avenue South, Seattle, Washington 98148.

Dusty, WA3IIK reports OD5AO a semi-rare country is putting in a good 20 over S9 signal into the east coast.

DIODES/ZENERS

1N914	100v	10mA	.05
1N4005	600v	1A	.08
1N4007	1000v	1A	.15
1N4148	75v	10mA	.05
1N753A	6.2v	z	.25
1N758A	10v	z	.25
1N759A	12v	z	.25
1N4733	5.1v	z	.25
1N5243	13v	z	.25
1N5244B	14v	z	.25
1N5245B	15v	z	.25

SOCKETS/BRIDGES

8-pin	pcb	.25	ww	.45
14-pin	pcb	.25	ww	.40
16-pin	pcb	.25	ww	.40
18-pin	pcb	.25	ww	.75
22-pin	pcb	.45	ww	1.25
24-pin	pcb	.35	ww	1.10
28-pin	pcb	.35	ww	1.45
40-pin	pcb	.50	ww	1.25

Molex pins	.01	To-3 Sockets	.45
2 Amp Bridge		100-prv	1.20
25 Amp Bridge		200-prv	1.95

TRANSISTORS, LEDS, etc.

2N2222	NPN	(Plastic .10)	.15
2N2907	PNP		.15
2N3906	PNP		.10
2N3054	NPN		.35
2N3055	NPN	15A 60v	.50
T1P125	PNP	Darlington	.35
LED Green, Red, Clear			.15
D.L.747	7 seg 5/8" high com-anode		1.95
XAN72	7 seg com-anode		1.50
FND 359	Red 7 seg com-cathode		1.25

C MOS

4000	.15
4001	.20
4002	.20
4004	3.95
4006	1.20
4007	.35
4008	.95
4009	.30
4010	.45
4011	.20
4012	.20
4013	.40
4014	1.10
4015	.95
4016	.35
4017	1.10
4018	1.10
4019	.60
4020	.85
4021	1.35
4022	.95
4023	.25
4024	.75
4025	.35
4026	1.95
4027	.50
4028	.95
4030	.35
4033	1.50
4034	2.45
4035	1.25
4040	1.35
4041	.69
4042	.95
4043	.95
4044	.95
4046	1.75
4049	.70
4050	.50
4066	.95
4069	.40
4071	.35
4081	.70
4082	.45

— T T L —

7400	.15	7473	.25	74176	1.25	74H72	.55	74S133	.45
7401	.15	7474	.35	74180	.85	74H101	.75	74S140	.75
7402	.20	7475	.35	74181	2.25	74H103	.75	74S151	.35
7403	.20	7476	.30	74182	.95	74H106	.95	74S153	.35
7404	.15	7480	.55	74190	1.75			74S157	.80
7405	.25	7481	.75	74191	1.35	74L00	.35	74S158	.35
7406	.35	7483	.95	74192	1.65	74L02	.35	74S194	1.05
7407	.55	7485	.95	74193	.85	74L03	.30	74S257 (8123)	.25
7408	.25	7486	.30	74194	1.25	74L04	.35		
7409	.15	7489	1.35	74195	.95	74L10	.35	74LS00	.35
7410	.10	7490	.55	74196	1.25	74L20	.35	74LS01	.35
7411	.25	7491	.95	74197	1.25	74L30	.45	74LS02	.35
7412	.30	7492	.95	74198	2.35	74L47	1.95	74LS04	.35
7413	.45	7493	.40	74221	1.00	74L51	.45	74LS05	.45
7414	1.10	7494	1.25	74367	.85	74L55	.65	74LS08	.35
7416	.25	7495	.60			74L72	.45	74LS09	.35
7417	.40	7496	.80	75108A	.35	74L73	.40	74LS10	.35
7420	.15	74100	1.85	75110	.35	74L74	.45	74LS11	.35
7426	.30	74107	.35	75491	.50	74L75	.55	74LS20	.35
7427	.45	74121	.35	75492	.50	74L93	.55	74LS21	.25
7430	.15	74122	.55			74L123	.55	74LS22	.25
7432	.30	74123	.55	74H00	.25			74LS32	.40
7437	.35	74125	.45	74H01	.25	74S00	.55	74LS37	.35
7438	.35	74126	.35	74H04	.25	74S02	.55	74LS40	.45
7440	.25	74132	1.35	74H05	.25	74S03	.30	74LS42	1.10
7441	1.15	74141	1.00	74H08	.35	74S04	.35	74LS51	.50
7442	.45	74150	.85	74H10	.35	74S05	.35	74LS74	.65
7443	.85	74151	.75	74H11	.25	74S08	.35	74LS86	.65
7444	.45	74153	.95	74H15	.30	74S10	.35	74LS90	.95
7445	.65	74154	1.05	74H20	.30	74S11	.35	74LS93	.95
7446	.95	74156	.95	74H21	.25	74S20	.35	74LS107	.85
7447	.95	74157	.65	74H22	.40	74S40	.25	74LS123	1.00
7448	.70	74161	.85	74H30	.25	74S50	.25	74LS151	.95
7450	.25	74163	.95	74H40	.25	74S51	.45	74LS153	1.20
7451	.25	74164	.60	74H50	.25	74S64	.25	74LS157	.85
7453	.20	74165	1.50	74H51	.25	74S74	.40	74LS164	1.90
7454	.25	74166	1.35	74H52	.15	74S112	.90	74LS367	.85
7460	.40	74175	.80	74H53J	.25	74S114	1.30	74LS368	.85
7470	.45			74H55	.25				
7472	.40								

LINEARS, REGULATORS, etc.

8266	.35	LM320K5 (7905)	1.65	LM340T24	.95	LM723	.50
MCT2	.95	LM320K12	1.65	LM340K12	2.15	LM725	1.75
8038	3.95	LM320T5	1.65	LM340K15	1.25	LM739	1.50
LM201	.75	LM320T12	1.65	LM340K18	1.25	LM741 (8-14)	.25
LM301	.25	LM320T15	1.65	LM340K24	.95	LM747	1.10
LM308 (Mini)	.75	LM339	.95	LM373	2.95	LM1307	1.25
LM309H	.65	7805 (340T5)	.95	LM380	.95	LM1458	.95
LM309K (340K-5)	.85	LM340T12	1.00	LM709 (8,14 PIN)	.25	LM3900	.50
LM310	1.15	LM340T15	1.00	LM711	.45	LM75451	.65
LM311D (Mini)	.75	LM340T18	1.00			NE555	.50
LM318 (Mini)	.65					NE556	.95
						NE565	.95
						NE566	1.75
						NE567	1.35

9000 SERIES

9301	.85
9309	.35
9322	.85
95H03	.55
9601	.75
9602	.50

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74S188 (8223)	3.00
1702A	6.95
MM5314	3.00
MM5316	3.50
2102-1	1.75
2102L-1	1.95
TR 1602B/ TMS 6011	6.95
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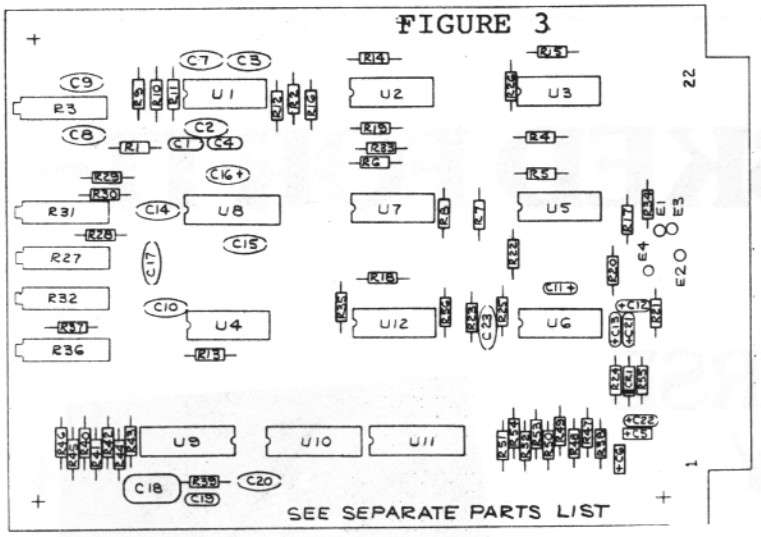
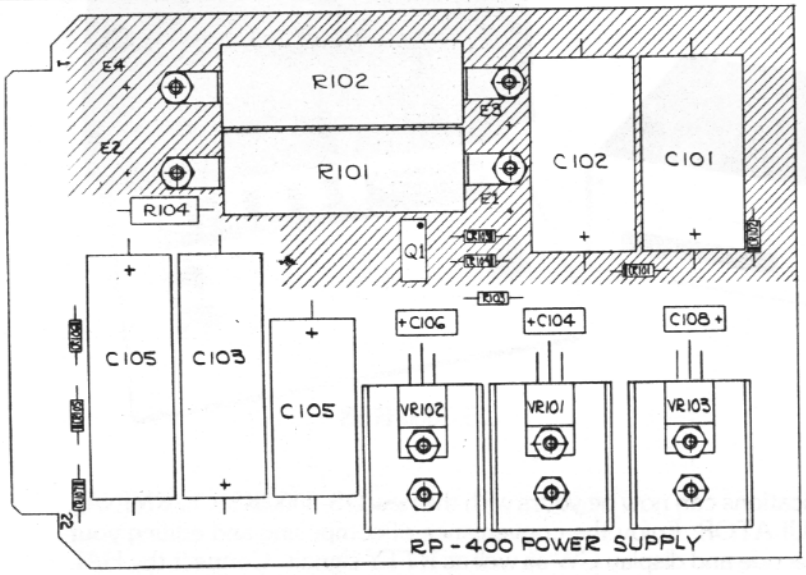
FIGURE 3





(NOTE)

From The Publisher
Dee Crumpton

The roof over the office leaks, the plumbing has finally been unclogged, the basement is no longer an indoor swimming pool, and the unplanned lake in the yard has dried out. Today the sun is shining and everything looks bright as a new penny.

I want to take this time and space to thank all of you wonderful Amateur Radio Operators out there. Your cards and letters and telephone calls have all helped me keep my chin up and my spirit intact.

I felt that I had to do something for you in return. So here is the new RTTY JOURNAL. I hope you like YOUR magazine.

Please keep your articles coming in and also pictures of you and your shacks. Black and white glossy pics are the best. We will need a lot of material to keep the JOURNAL at its present size.

The new RTTY HANDBOOK is coming along just fine and will rolling off the press around March 1st.

My staff and I all wish to say that it is great working with and for the greatest bunch of people around.

Best 73's de DEE

DID YOU KNOW:

Yaks give pink milk?

A 16 year old boy in High School was responsible for one of the basic concepts in the invention of TV?

In ancient Cambodia it was against the law to insult a rice plant?

A rat can gnaw through concrete that is 2 feet thick?

Irish potatoes, Jerusalem artichokes, Hawiian pineapples, Boston baked beans, and Spanish tortillas were all foods given to us by American Indians?

The octopus has three hearts?

Continued from page 10

Glenn, K3SWZ is at HI8 land but his Hal gear is down. HI8XDJ will be on again as soon as the gear is working. He is printing but that doesn't help anyone!

EA6CK has been active and into the east coast with a very good signal. KØPJ/6 worked 5T5JD who is only using 80 watts, Paul says he had a good signal so must have an excellent antenna system.

From Gin, JA1ACB comes word of hearing or working a few VS6's, KA 6's and 9M2's. KG6SW on Saipan is active on RTTY on ten meters.

The Giant RTTY Flash Contesr was almost over before I realized that it was on. Some how the information got to me very late. Surface mail takes up to three months to arrive here. As a result very few RTTY'ers in the US were active during this event.

Please note all information pertaining to DX activity should be mailed to me directly as there is another delay of a day or three in getting it from the office.

John, W3KV has many inputs this month. After having had many QSOs with Henri Coste as FO8BS and LU2ESB all will be glad to know that he is again QRV with his home call F9SO.

QSL INFORMATION:

Miguel, EA6BG, Juan Alcouaie, Palma, Mallorca, . Fernando, EA8IY, Box 6, Observatorio De Iyana, Tenerife, Canary Island.

5Z4PD ,Wolfgang Ritcher, Box 14829, Nairobi, Kenya. OY1A, Arne again active but very weak stateside. FP8DF, Peter Box 41, St. Pierre at Miquelon for QSL. The Vatican, HV3SJ with Father Ed at the keys made a rare showing on Christmas Day.

A near future possibility is GJ5TU, John from Channel Island of Jersey.

OD5AD, Ray, in Beirut using Hal DS3000 video QSL via FØDDA.

OD5JW, Wassim, also active, he is also Jy4JW. 3A2FB, Ray is very active using viseo from Monaco.

In late December Paolo,5N2TWO, showed up on 14 MHZ with super signal. Said to QSL TO CTO,Impresit,Backolori Talata, Mafara, Nigeria. Said he would send a Panoranue QSL card.

EI5BH, Paull, about the only station QRV from the Republic of Ireland on HF bands. One other is Jim, EI5C who is in the military in Dublin.

Fantastic activity from remote Reunion Island. Latest QRV is Jean, FR7AB QSL to Box 278, St.Denis, Reunion.

With Roland FR7AB and Michel FR7 ZS also QRV one should have no trouble contacting this rare prefix.

In eastern Canada Zone 2 has always been hard to come by. Usually you had to land a VO2 in Labrador.Now QRV is VE2NL in Northern Quebec Province. A good catch in a contest.

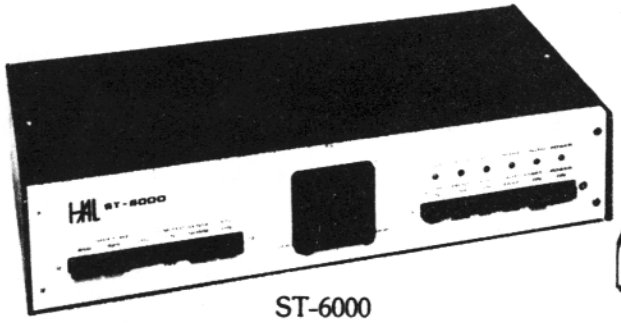
General copy: F6AJL, F6DXY, G4DFX, G4DET,GW3EHN, GM3ZXL, EA3AMZ, EA4CL, EA3NE, ISØpzr, KP4AR,CT1IW, KH6JDF, YV7OU, ZS6AKO, VK6VK, SM 5FUG, SM6BUV, ON6MO, OK3ZAS, KL 7ITC and LA8XS.

Robin, G8LT now has an excellent column on HF activity in the BARTG Publication 'Newsletter'. Thanks John.

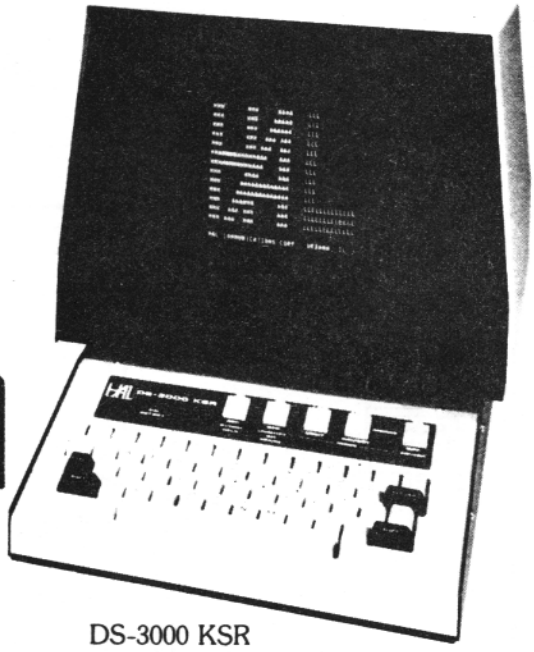
73 de SKIPS

YOU ASKED FOR IT-

BOTH MORSE AND RTTY



ST-6000



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- ATC and DTH
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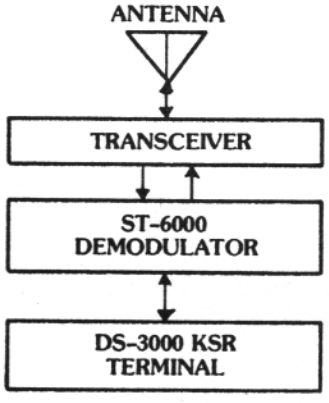
- Scope or meter tuning indicator
- AM or FM limiter modes
- Table or rack mounting
- I/0 interface to current loop, RS-232, MIL-188, and CMOS



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- 8080A microprocessor controlled
- MORSE also output as ASCII or BAUDOT
- I/0 interface to current loop or RS-232
- New streamlined 12 inch display
- On-screen indicators of WORD & PAGE modes

ST-6000M (Meter) **$495.00**
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PRINTED CIRCUIT BOARDS: RTTY SELCAL with TTL logic, (73 Magazine, November 72) $12.00. ST-5A-W/PS (2 boards) $6.25. AK-1, $4.25; CW ID'er (Feb 73, 73 Magazine) $4.75. Logic probe (Dec. 74, 73 Magazine) $1.00. Autostart RTTY encoder and decoder (Jan. 67, 73 Magazine) $11.00. Synthesizer - 75-S Collins Rec. (Dec. 75, Ham Radio) 2 boards $12.50. Instructions and parts list included. S.J. Zalewski, 29307 Red Cedar Drive, Flat Rock, MI 48134. (313) 782-9316.

ATTENTION FAKSIMILE OPERATORS A list with more than 200 frequencies of faksimile weather stations transmitting on SW is airmailed to you for $3.00 or 10 IRC. It includes frequency, callsign, name, drum speed and cooperation index of each station. Write to: Joerg Klingenfuss, Goethestrasse 14, D-7400 Tuebingen 1, West Germany.

PRINTED CIRCUIT BOARD drill bits! You can now get carbide printed circuit board drill bits for a reasonable price. 1/8" shank, approximately 1" long. Two sizes available; .047" (approx. #56 drill), and .030" (approx # 68-69 drill). $1.25 each includes shipping. More sizes available soon. Inquire stating needs. Midnight engineering Group, P.O. Box 349, Galesburg, IL 61401

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RTTY T.U USES ACTIVE filters and digital logic. Complete board (less power supply) $34.95. Send SASE for information. WB4MBL Winford Rister, 709 - Beauvais Road, Pensacola, FL 32505.

TELETYPE BARGAINS, Model 28 ASSR's $325.00, KSR's $165.00, all contained in consoles and ready to go, Modems add $50.00 per unit. Also TWX units, Model- 33's and 35's. Also have a few hundred 15's and 19's (all subject to prior sale). Quantity discounts. SASE for list. Goodman 5454 South Shore Dr., Chicago, IL. 60615. (312-752-1000). Phone day or night.

TELETYPE FOR SALE: Model 28 ASR's, KSR's, typing reperfs, and TD's. New and used parts available including cabinets, tables, -mod kits, gears and gearshifts. Paper, ribbons and supplies. Send SASE for complete list and prices. K9WJB, Lawrence Pfleger, 2141 N. 52nd Street, Milwaukee, WI 53208.

NS-1A Demodulator. Board $3.50; parts $15.00; W/T $24.95. All postpaid. SASE for info. Nat Stinnette Electronics, Tavares, FL 32778

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

TELETYPE TEST equipment, all solid state, like new. 1-distortion analizer, 1-character generator, 1- loop supply, $300.00 for all. Bob WB6WJK (714) 287-1983, 5649 Red River Drive, San Diego, CA 92120.

UT-4 BOARD. Full documantation. Extras include: parallel data buffered outputs, transitional autostart, memory hold, two 3 speed 555 clocks, TD control, MC1408L-6 D-A converter, signal output indicator and edge connection for easy servicing. Size 9 x 5-5/8 inch. $17.95 plus $1.00 for shipping. COMPLETE POWER SUPPLY kit for UT-4 using 78 & 79 series regulators with edge connectors and transformer included, kit $31.50. NuData Electronics, 104 N. Emerson St., Mt. Prospect. IL 60056.

NEW CW ID UNIT. Includes many extras, on board interface for FSK and AFSK plus H.V. Interface, 10 minute timer, variable speed 5-24 WPM, on board 7805 allows 5 or 12 volt use. $37.90 kit. Board alone (same for both units) $9.45 Power supply for above 5V 1A $11.95 kit. NuData Electronics,

RTTY ID GENERATOR as seem in March 1978 Ham Radio. Accepts 5 or 12 volt supplies, 31 characters available, please include ltrs. figs. spaces, etc.
Your pre-programed answer-back must be supplied with order.
Example: DE K 9 wrl Neil Mt Prospect Board same size as ST-6 boards. $34.99 kit, board alone $8.50. 5 V power supply for above $11.95. NuData Electronics, 104 N. Emerson St. Mt. Prospect, IL 60056.

EXPERT REPAIR WORK done on Non-commercial teletype machines. Chicago Area Only. Trouble with working machine $20.00 plus parts. Others by estimate. Call (312) 392-392-2358 and ask for Neil.

ELECTRONIC KEYboard cabinets. Two sizes available in W.D.H. 14x11 .3x3, $14.50, and 14x8.3x3, $13.50 Choice of white or black top with blue base; shipping included. Ten minute timer kit, variable $9.85. Board alone $4.20. NuData Electronics, 104 N. Emerson St., Mt. Prospect, IL 60056

TU LOOP SUPPLY board. Contains all necessary for Plus 12 minus 12 low voltage supply with provisions for high voltage loop supply. Similar to that of ST-5. Ideal for most TU's including DT500 and DT600 units. $5.95 per board plus 85¢ shipping. NuData Electronics, 104 N. Emerson St., Mt. Prospect, IL

MODEL 28 ASR's — KSR's, Repurfs - Keyboards, TD's - Printers, Parts - All priced for Hams. All in excellent condition. A.D.M. Communications, Inc., 1322 Industrial Avenue, Escondido, Ca. 92025. (714) 747-0374

DOVETRON STATION IDENTIFIER TID-100 may be programmed in Morse CW, Baudot or ASCII codes. Output speed is variable from 5 to 20 WPM (CW) and 60 to 100 WPM (Baudot/ASCII). Two LEDS indicate CLOCK RUNNING and CODED OUTPUT for easy visual verification of programmed code. Dual output: One drives FSK/AFSK line and the other may be used to drive front panel indicator. Mounts inside of Dovetron MPC Series terminal units. Requires 1 Ma at 12 volts. Price: $39.95 postpaid. DOVETRON, P.O. Box 267, South Pasadena, CA 91030. 213-682-3705.

FOR SALE: EBC 144 Jr. two meter 143.Ø thru 148.999. Any split also scan with priority channel. Puts out a solid 33 watts-Excellent for RTTY. $300.00. W6MNO Chuck 4726 Barbarossa Dr., SanDiego, CA (714) 582-2739.

FLESHER T.U. $35.00 , AK-1 Tone Generator $25.00 W6RLL, J.W. Young, 16800 Gooduale Rd., Canyon Country, CA 91351. (805) 251-2135.

UT-4 COMPONENT update. GIA-AY5-1013A UART $6.00 as of March1. FC33512DC FIFO $14.00, MC3408-L D/A chip $3.25, 74221 $1.25. ASCII/Baudot programmed PROMs for VE3CTP converter (See Aug.77 Ham Radio) $3.25 each. Following as supply lasts: 7474, 50¢; 74193 $1.00; 2.5K ceramic PCB pot 75¢. Peter Bertelli, W6KS, 5262 Yost Place, San Diego, CA 92109 (714 274-7060.

WORRIED ABOUT unathorised persons in your shack? How about the threat of fire? Invest a few bucks and protect your gear and family from both theft and fire. My double duty alert not only acts as burglar-intrusion alarm but as fire alarm also. Not only protects your gear but home and family also. Send $12.95 ($10.95 each for two or more) to L&E Enterprises, Dept WNF, 63 Taylor St., Deadwood, SK. SD 57732. Try it and see for yourself. 10 day money back guarantee. Sold to Hams by Hams.

MODEL 33 ASR. LIKE new $400.00. Model 33 ASR very good medium time $275. Model 28 KSR rebuilt $175.00 Model 28 ASR rebuilt $300.00. 7400 series IC's. all marked $12.50 for 100 PPD. 88 MHY unpotted toroids 5 for $3.50 ppd. 1000 volt 2 amp rectifiers 10¢ each ppd. Sorry no shipping on machines Pick-up only. Trades considered. Send stamp for bargain list. Fone (412) 863-7006 after 6PM. Gull Electronics, 12690 Rte 30, N. Huntingdon, PA 15642.

M-28, TYPING TAPE perforators with keyboard and stand, all complete (teletype) $75.00 each. Quanty Disct. Goodman, 5454 South Shore Drive, Chicago, IL 60615 (312-752-1000).

YOU NEED INFORMATION ON COMMERCIAL RTTY STATIONS? News Agencies, Telex, Weather . . . on shortwave? I have up-to-date frequency, callsign, schedule, code lists. Write for details. Joerg Klingenfuss, Goethestrasse 14, D-7400 Tuebingen 1, West Germany.

DOVETRON TBA-1000 BAUDOT-ASCII code translator permits an ASCII teleprinter (model 33,35,etc.) and the Heath H-9 video terminal to be used directly with any terminal unit on Baudot RTTY circuits. The TBA-1000 may also be used to interface a 5-level Baudot teleprinter directly to ASCII circuits, such as a microprocessor. When using an ASCII video terminal, hard-copy may be had simultaneously on a Baudot printer. In addition to signal regeneration, speed conversion and 192 characters of FIFO memory, direct keyboard control of the companion terminal unit and transmitter-receiver is also provided. Price: $245.00 FOB. Delivery: November 1977. Complete specifications are available on request. DOVETRON, P.O. Box 267, 627 Fremont Avenue, South Pasadena, CA 91030. 213-682-3705.

MITE ASCII PRINTERS. New 123P (10 cps) and 150P (15cps) ASCII printer mechanisms with full documentation, ribbon and lube kit. While they last; 123P $140, 150P $185. Includes UPS shipping (CONUS). Bank check or M.O. only, COD $1.00 extra. Applied Invention, RD 2 Rt. 21, Hillsdale, NY - 12529. 518-35-3911.

P2102 MICROPROCESSOR 1KX1 memory chips tested good. $1.00 each. Joe Young W6RLL, 16808 Goodvale Road, Canyon Country, CA 91351. (805) 251-2135.

RTTY T.U USES ACTIVE filters and digital logic. Complete board (less power supply) $34.95. Send SASE for information. WB4MBL Winford Rister, 709 - Beauvais Road, Pensacola, FL 32505.

TELETYPE BARGAINS, Model 28 ASR's $325.00, KSR's $165.00, all contained in consoles and ready to go, Modems add $50.00 per unit. Also TWX units, Model- 33's and 35's. Also have a few hundred 15's and 19's (all subject to prior sale). Quantity discounts. SASE for list. Goodman 5454 South Shore Dr., Chicago, IL. 60615. (312-752-1000). Phone day or night.

TELETYPE FOR SALE: Model 28 ASR's, KSR's, typing reperfs, and TD's. New and used parts available including cabinets, tables, mod kits, gears and gearshifts. Paper, ribbons and supplies. Send SASE for complete list and prices. K9WJB, Lawrence Pfleger, 2141 N. 52nd Street, Milwaukee, WI 53208.

RM-300, THE COMPLETE TU and AFSK generator on one board. Your CW ID generated from on-board PROM. Thinking of VHF RTTY through your local repeater? This premium quality board is ideal. Complete documentation $2.00. RM-300 board just $21.25.. Complete RM-300 kit (less PROM) $71.25 PROM programmed with your call $7.00. RP-400 power supply (plus 5v. & plus and minus 12v. and dual loop supply) board only $21.25. Complete kit with heavy duty transformer and solid state autostart relay $71.25. Calif. residents add 6%. Postage and handling $1.00. Eclipse Communications, 5 Westwood Drive, San Rafeal, CA 94901.

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Calif. res.please add 6%sales tax
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RTTY KEYBOARD
Features 4 speeds with 3 shifts
AUTOMATIC CRLF with 72 Character Line, 64 Character Running Buffer
Three Outputs: Loop, AFSK Audio, TTL/Mos Serial
Price - $289.00 ..... F.O.B. St. Louis

For More Information Write
Info-Tech, Inc.
2349 Weldon Parkway
St. Louis, Mo. 63141
(314) 576-5489

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PLUG IN BOARD SAME SIZE AS ST-6 BOARDS.
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AUTOMATIC RESETABLE 10 MINUTE TIMER.
SINGLE PLUG IN BOARD SAME SIZE AS DT-600.
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$15.00 PLUS PARTS. NON-COMMERICAL WORK ONLY
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NAME/PIN NUMBER	DESCRIPTION
AUDIO IN/18	Audio from receiver. 680-Ohm impedance. Input level 10 mV_{rms} to 3 V_{rms}.
PLL LOCK/F	TTL High when PLL locked to input signal.
MOTOR/Y	When grounded causes MOTOR/P to go low.
STANDBY/X	When grounded causes MOTOR/P to go low and LOOP/R to go high (MARK level).
AUTO OFF/V	When grounded forces Modem into receive mode without control by the PLL LOCK/F function.
AUTO SLOW/15	0.5 Second Autostart control line.
AUTO FAST/W	Instantaneous Autostart control line.
MARK/U	When gounded forces AFSK modulator to MARK.
KEYING/L	Normal RTTY keying line. MARK (2125 Hz) is high and SPACE (2295 Hz) is low. This input is overridden by CW Ident cycle.
SPACE/M	When grounded forces AFSK modulator to SPACE.
+12/2,B	+12 VDC at 20 ma max.
+5/1,A	+5 VDC at 200 ma or less.
START ID/J	Momentary ground starts CW Ident cycle.
MSG MSB/D	Logic low for first 128 cycles of CW Ident.
MSG CONTROL/C	When grounded enables first half of CW Ident memory. When high, enables second half.
LOOP/R	Loop control output, high for MARK and low for SPACE. Can sink 40 ma at 15 volts.
MOTOR/P	Output goes low to turn on motor. Can sink 40 ma at 15 volts.
LOCK/S	Output goes low when PLL has locked.
AUDIO TEST/T	AFSK Oscillator test output. 5-volt p-p.
AUDIO OUT/K	AFSK Modulator output, 600-Ohms, 6 v p-p max.
CW ON/E	Output goes low during CW Ident.
CW/N	Output goes low during each Ident key closure.

A complete kit of all the above parts is available from: Eclipse Communications, 5 Westwood Drive, San Rafael, CA 94901. The RM-300 Kit (lessPROM) is 471.25. A PROM programmed with one or two call signs (specify) is $7.00. The RM-300 Circuit board only is $21.25. (The board is double sided with plated through holes and a solder mask on both sides. The component side of the board is screemed with both part numbers and component values.) Please add $1.00 postage and handling on all orders. California residents add 6% sales tax.

ACKNOWLEDGEMENTS
A special thanks is due Herbert Drake Jr., WB6IMP, Rod Roderique, WAØQII, and Alan Bowker, WA6DNR, for their encouragement and suggestions during the development of the RM-300 RP-400 Modem and Power Supply.

FIGURE 9: Photograph of RM-300 Modem interior. Solid state motor control relay is near the power cable at the rear of the chassis. The RM-300 board is below the RP-400 power supply board.

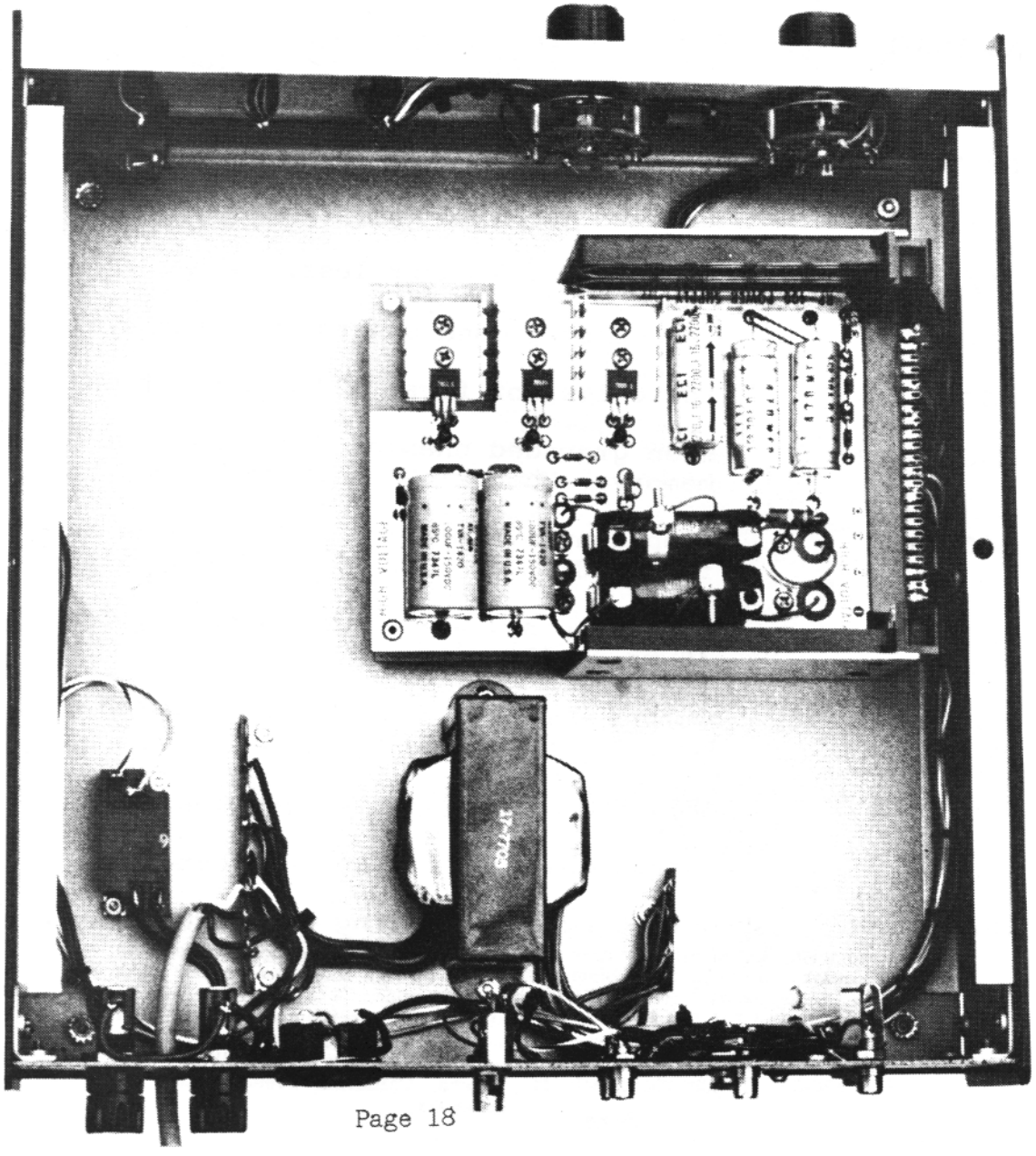


FIGURE 5: Photograph of RP-400 Power Supply circuit board. The board is 4½" x 6" in size. See parts list for RP-400 Kit information.

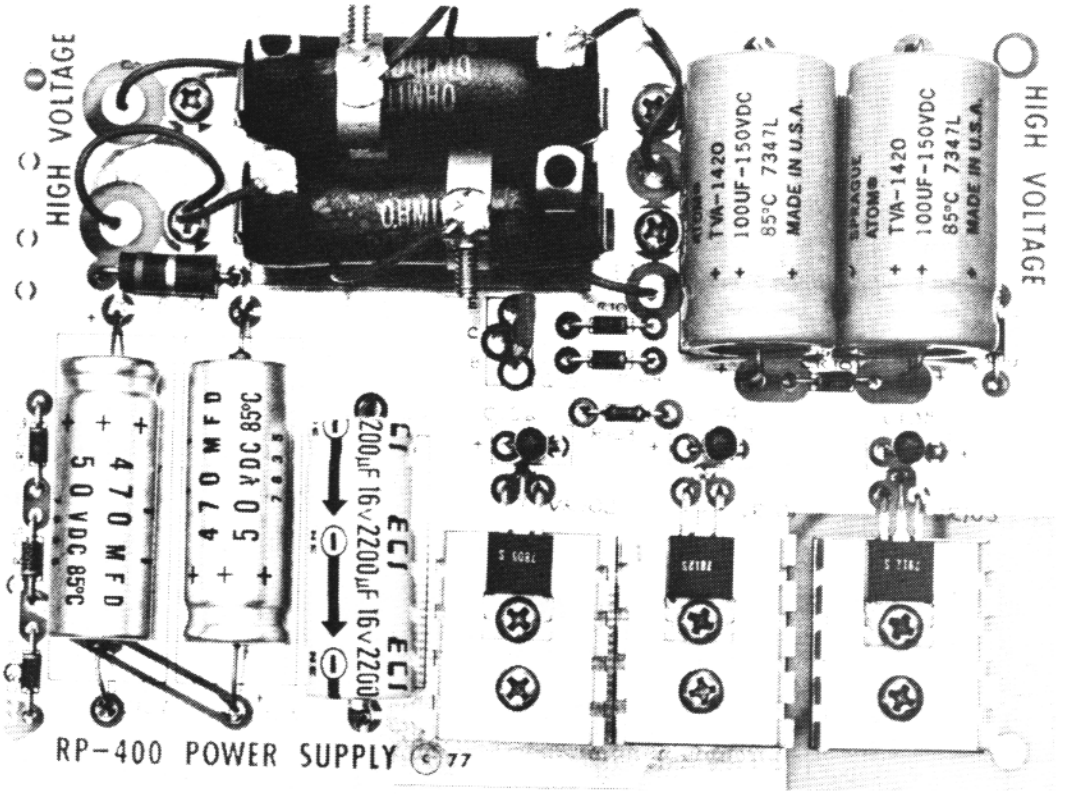
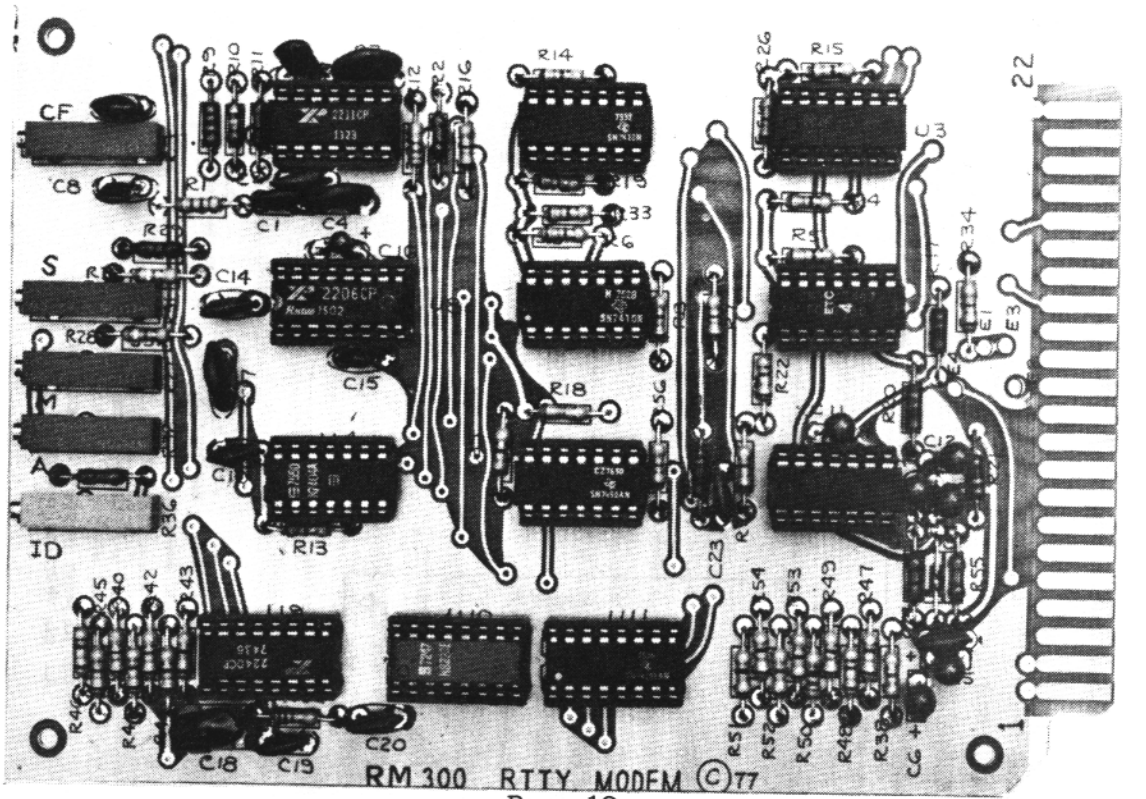


FIGURE 4: Photograph of RM-300 Modem circuit board. The board is 4½" x 6" in size. See parts list for RM-300 Kit information.



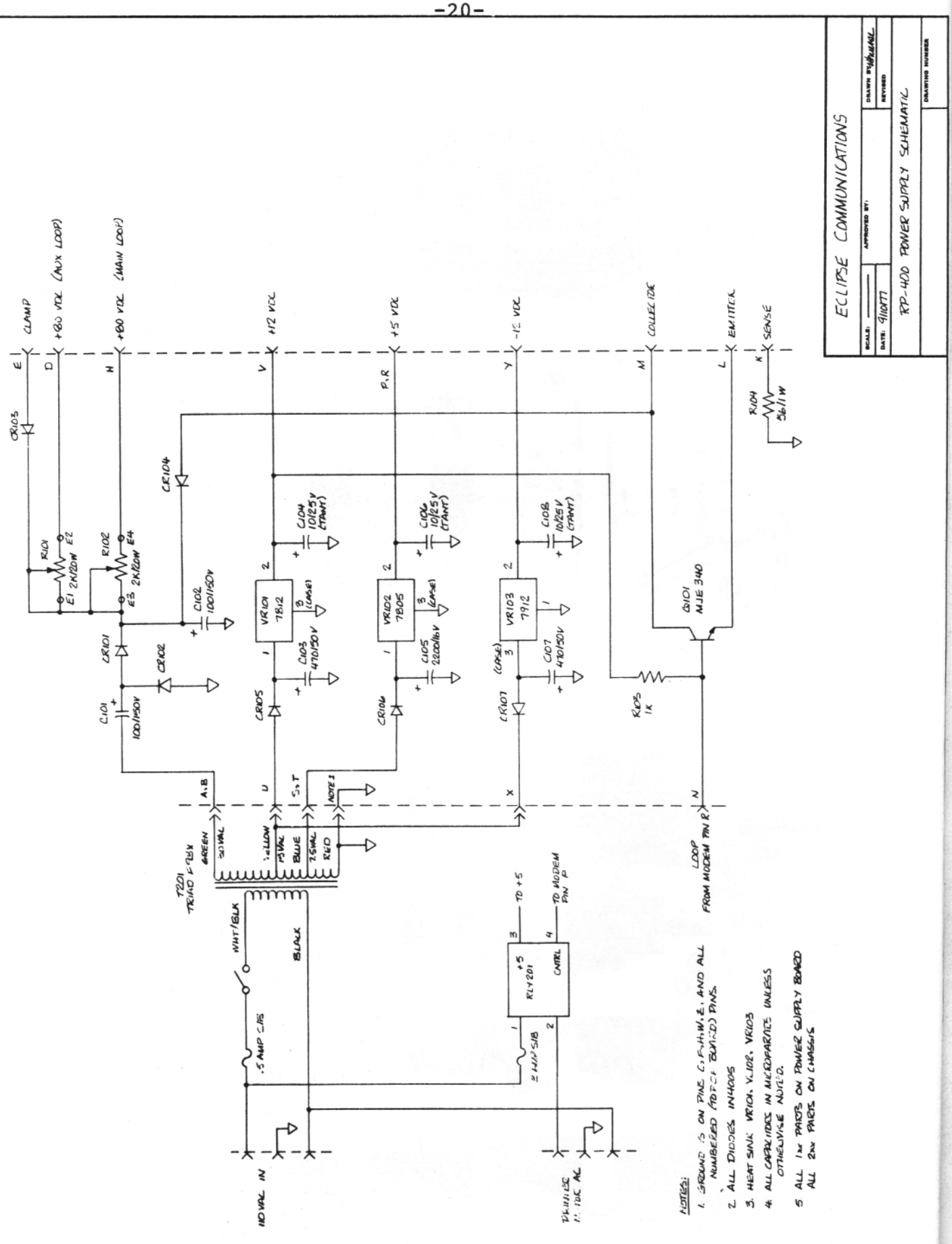


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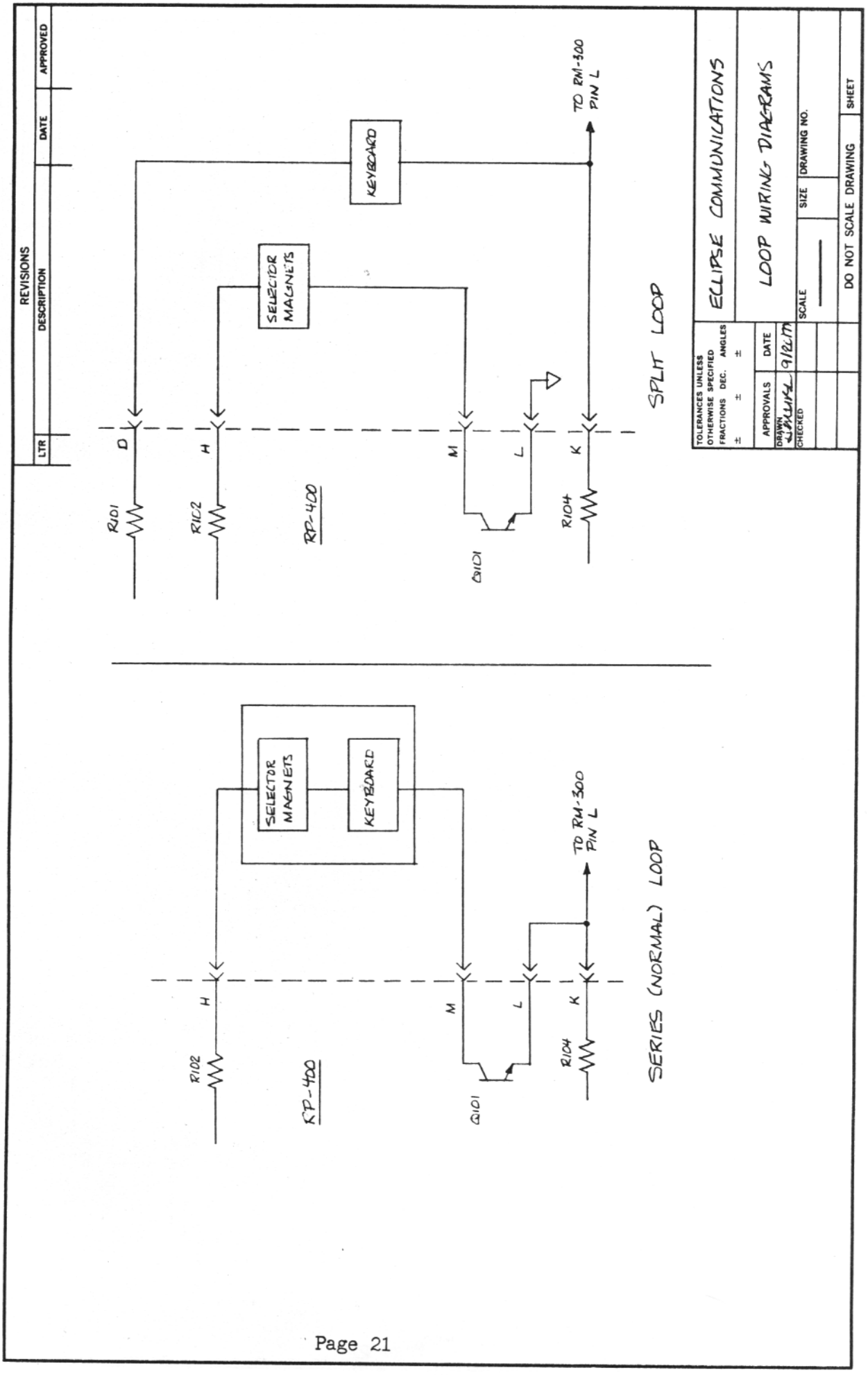
FIGURE 6


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
SPLIT LOOP
KEYBOARD
SELECTOR MAGNETS
TO RM-300 PIN L
R101
R102
D
H
M
L
K
RP-400
Q101
R104
SERIES (NORMAL) LOOP
SELECTOR MAGNETS
KEYBOARD
TO RM-300 PIN L
R102
H
RP-400
M
L
K
Q101
R104
TOLERANCES UNLESS OTHERWISE SPECIFIED
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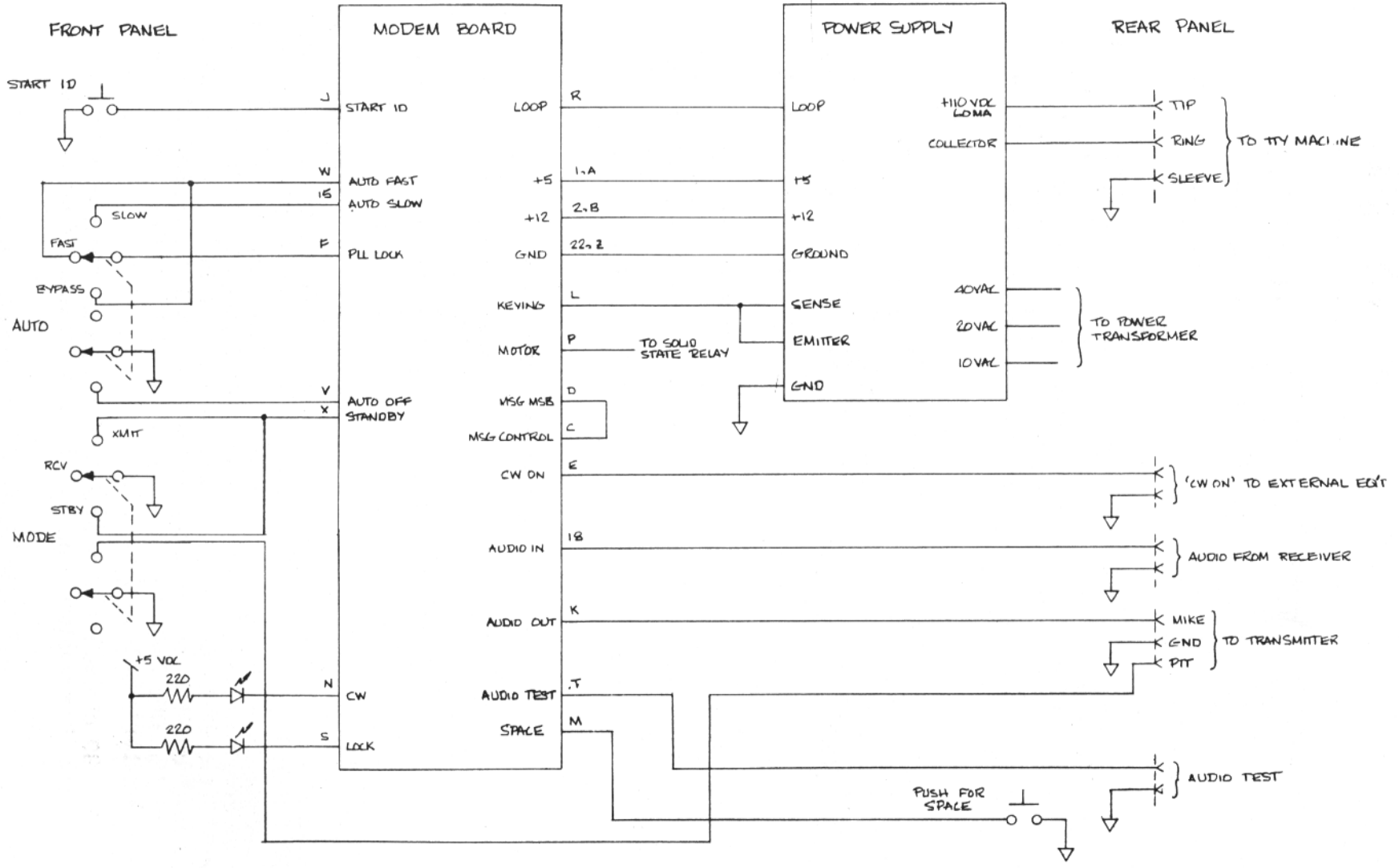
SHEET



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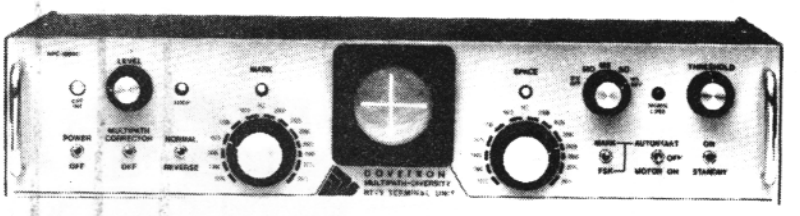

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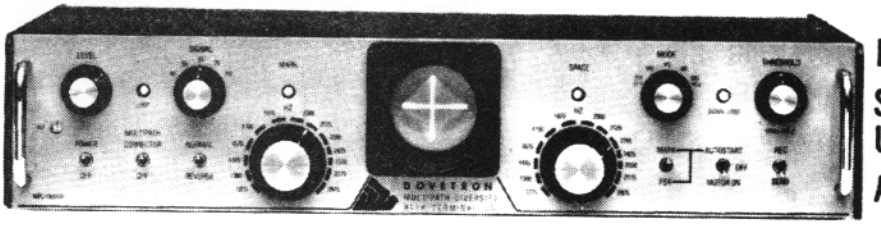

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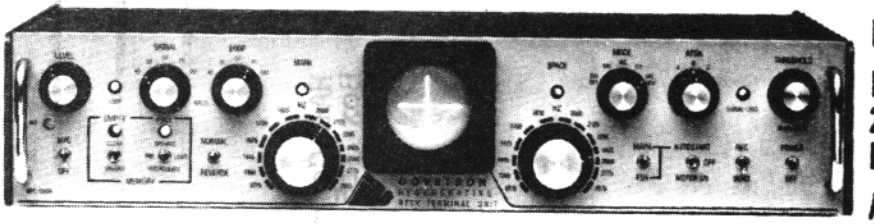
The MPC-1000CR combines all the features of the MPC-1000C with the TSR-200 SPEED CONVERTER-REGENERATOR. A front panel SIGNAL SPEED switch provides electronic "gear-shifting" between 60, 66, 75 and 100 WPM speeds. All incoming and outgoing signals are regenerated by a CMOS UART and a crystal-controlled DUAL-CLOCK to less than 0.5% bias distortion, providing an extremely low error-rate on weak and badly distorted signals.



MPC-1000R
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The MPC-1000R combines the features of the MPC-1000CR with the TSR-500 SPEED CONVERTER-REGENERATOR and offers 200 characters of FIFO MEMORY, a DUAL-UART REGENERATOR that also provides local copy during all PRELOAD-RECIRCULATE functions, a WORD CORRECTION circuit that permits an incorrect word to be erased from memory by depressing the local keyboard's BLANK key, VARIABLE CHARACTER RATE and automatic BLANK/LTRS DIDDLE. Character OVERRUN during down-speed conversion is prevented by an automatic CHARACTER RATE OVER-RIDE and TEE DEE INHIBIT circuit. Three preset AFSK TONE/SHIFT combinations are selectable from the front panel.

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

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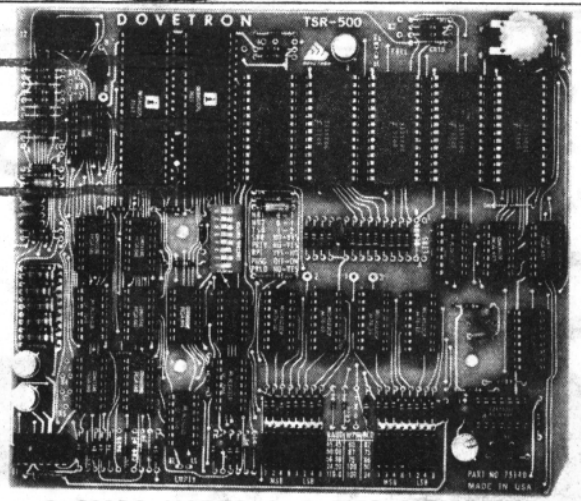

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