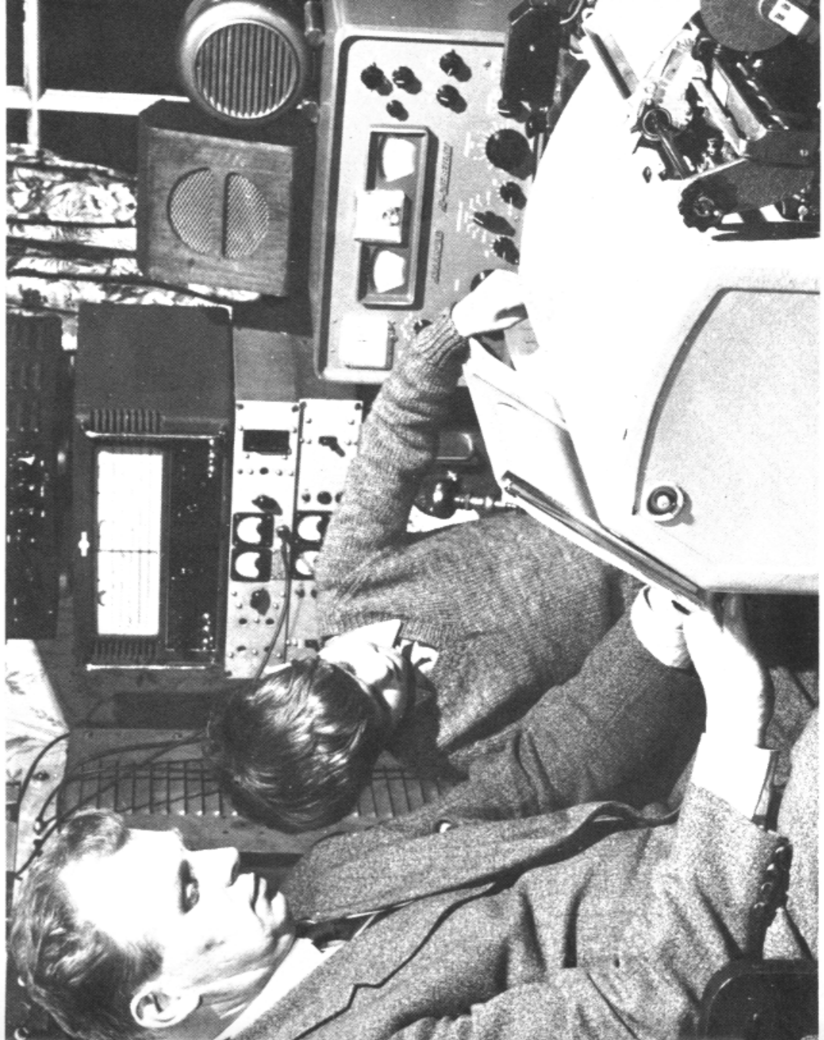
RTTY



G2HIO ALAN WALMSLEY

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NEWS OF AMATEUR RTTY

November 1965
30 Cents
Vol. 13, No. 11

HORSE TRADES

This page of the Bulletin is for use of amateurs who have RTTY EQUIPMENT FOR SALE OR TRADE and those looking for equipment to buy or trade. It is a free service and may be the means of getting someone on the air.

RTTY, INC.
372 Warren Way
Arcadia, California 91007
Return Postage Guaranteed

U.S. POSTAGE PASADENA CALIF. OCT 29'65 05 P.B. METER 497313

FOR SALE: MU-WESTERN Model M-1 Teletypewriter adapter by Mu-Western Electronics, price $89.95 – Brand new and will guarantee to be in perfect condition. W7ARS, 8355 Tanque Verde Road, Route 2, Box 694R, Tucson, Arizona 85715

FOR SALE: Model 14 TD mounted on 15 table in excellent condition with tape out switch, 3-way meter & tape switch on meter $28.00 and waiver. (NCARTS) WA6CTY 5918 Condon Avenue, Los Angeles, California 90056

WANTED: Information and manual for R-531/FCC-3 Receiver telegraph carrier, mid band frequency 1445 cps. Carlos Ginebra, P.O. Box 2081, San Francisco, Cailfornia.

FOR SALE: 44 and 88 mhy toroids, five for $2.50 or 60 cents each. 255A polar relay sockets 75 cents. Polar relays, type 255A $2.00. Sync motors $10.00. Model 14 TD, $30.00. Packing and shipping extra. W5EJV, 804 Shady Lane, Dallas, Texas 75208.

WANTED: Cover for model 14, Single magnet Non-typing reperf, (RPE). W5EJV, Dallas Texas 75208.

WANTED: Obsolete McElroy autotape CW perforator and XTR-442-B type autokeyer. Please give details and best price. W9JJN, 5619 South Dorchester, Chicago, Illinois 60637.

FOR SALE: Model 15 complete with table. Alltronics T.U. Model H. Kleinschmide Typing Reperf, model AN/GGC-3, K1CPX, 617-862-2448, 161 Concord Avenue, Lexington, Mass. 02173.

FOR SALE: Model 15 printer, 60 wpm Sync, communications type $65.00. Model 15 cover glasses, new, $1.00. Magnetic or punched test tape, $2.00, K5BQA, 11040 Creekmere, Dallas, Texas 75218.

SWAP: Two BC 1000's with manual and tubes for Brand new TT-63A repeater or Teletype gear. Dick Clement, 1915 South Franklin, Colorado Springs, Colorado 80906.

FOR SALE: Model 15 keyboards, brand new in factory packing, black wrinkle finish. $11.00, plus postage for 15 pounds. W4NZY, 119 North Birchwood Avenue, Louisville, Ky. 40206.

FOR SALE: R390A receiver in excellent condition, with manual, W6IMQ, 330 North Saltair Avenue, Los Angeles, California 90049.

RT-1 TU

The RT-1 TU was designed by Don Stoner, W6TNS, who is well known to most of our readers. It is a completely transistorized Terminal Unit (TU), which has several new features. It is self contained, and has DC output for operating an AFSK oscillator. It uses printed circuit boards, and parts which are easily obtained at most amateur supply stores. The TU was designed in order to get "dusty old TG-7s" out of the store room and on the MARS networks (AF in AF6TNS's case). Hence it will operate well on lower frequencies as well as VHF. Standard FSK frequencies are used, but can either be modified or "straddle tuned" to copy shifts as low as 70 cycles. It was tested at W6AEE in QSO with W4MGT on 3625kc during evening hours (0500Z) both on 850 cps shift and when copy was found to be poor changed to 70 cycle shift. Result, solid copy for over an hour.

The circuit for the complete TU has the following features. A 600 ohm input transformer steps up the input voltage to silicon diode clippers which holds the level to about 1.2 volts peak to peak. This voltage is applied to the limiting amplifier Q_5. This output is amplified to 24 volts peak to peak, and coupled to the Mark and Space filters thru isolation resistors R_3 and R_4. At this point the Mark and Space tones are separated by the action of the filters, which resonant at 2125 and 2975 cycles, respectively. Impedance matching links on the toroidal cores serve to prevent leading of the tuned circuits and couple a sufficient amount of voltage to overcome the barrier potential of the Class B detector circuits, Q_6 Mark, and Q_7 Space. The output of these detectors consist of a 24 volt square wave which varies in step with the keying signal. The "out-of-phase" detector waveforms are used to key the "flip-flop" (Q_8 and Q_9) through resistors R13 and R15. A meter sums the detector collector currents and indicates correct tuning . . . A small reverse voltage is applied to the meter through R16 and R17 to make the meter read downscale and overcome the residual reading due to the Class B current. The output of the "flip-flop" is a near perfect square wave replica of the original keying information . . . The output pulse voltage varies between zero and plus and is used to initiate conduction of the switch driver, Q_{10}. The switch circuit consists of the driver or impedance matching stage, switch transistor Q_{13} and the Current Regulator Q_{11}. The power supply is a conventional full-wave type employing silicon rectifiers in conjunction with a 40 volt center tapped power transformer such as the Triad TY-90-X. A #47 pilot lamp may be connected to the supply as shown, if desired.

Construction — the unit supplied for test was mounted on a 4½ x 8⅝ inch etched circuit board, including power supply components. The cabinet, fabricated from perforated metal, measures 5″ x 9″ x 2″ high, and is completely self contained. The front panel controls include on-off and normal-reverse slide switches, in addition to the tuning meter.

All parts in the RT-1 TU are standard and may be purchased at major radio parts distributors. Transistors Q5-Q9 are similar to the RCA 2N404A. Q11 and Q13 are similar to the 2N310A. Incidentally, do not substitute any other type of transistor for Q11 or Q13. This type was particularly selected for its extremely low leakage current. This low current is mandatory if the current flow through the printer selector magnet is to be completely cut off.

The toroids are standard 88mhy types, available from a variety of sources. They must be carefully resonated at the proper tone frequencies. If this is not done, the detector summing will be incorrect and the meter will vibrate violently, even with proper tuning. Further, the ability to copy weak signals will be greatly degraded. The "magic figure" for the link seems to be 18 turns of #24 wire. This was determined after considerable experimentation and off-the-air tests. More turns make the magnet rattle with no signal, while less turns produces a "drop-out" during fades. Incidentally, the value of C3 should be .033 mfd, net .33 as shown on the schematic.

To assist those who might wish to build the RT-1 TU, arrangements have been made with W. H. Paulin Co., P. O. Box 122, Upland, California, to supply any parts which may be required. A list of the parts is given below. Complete wired and tested units can be purchased from Mission Ham Supplies in Riverside, California.

Adjustment — Once the terminal unit has been constructed, it should be tested in the following manner . . .

1. With no signal applied, but with the printer connected, set the potentiometer for 60 ma. current through the magnet circuit. Next, make the voltage measurements shown in figure 2. The readings may vary by 10% but any radical difference would indicate a wiring error or defective part. Note that the meter may read down scale slightly but will later move up scale with receiver noise only.

2. Tune in a signal by observing the tuning meter. Three peaks will be seen, i.e., mark only, space only, and both mark and space. The first two signals will cause the meter to vibrate widly while the third condition will produce a relatively steady peak. This indicates correct tuning. Make a second set of voltage measurements with signal. Note that the voltmeter will vibrate quite a bit and any of the readings given in the voltage chart have been averaged.

3. If an oscilloscope is available, the waveforms shown in figure 3 may be verified, if desired. If the signal is still correctly tuned, the printer should be clattering away indicating printing information is being received. If the machine garbles, flip the reverse-normal switch. It is best to use a clean amateur signal around 3620 kcs for testing. The Caribbean Weather Net station on 14.395 mc is also a good dependable test signal and their shift is exactly 850 cycles, something you cannot always depend on with other stations. However, the copy will be quite confused since weather symbols are used.

It is very easy for the beginner to mistake 66 or 75 words per minute for 60 wpm transmissions. Once you have verified that correct copy is obtained on amateur stations you can be certain that if the printer garbles on other stations (in either normal or reverse) then the sending speed can be assumed to be higher than 60 wpm. The chart in Figure 4 shows many of the press stations sending at 60 wpm which may be used for testing or monitoring the news.

Shifts other than 850 cycles may be easily copied on the RT-1 TU by setting it for single channel operation. Simply tune the receiver until the print magnet clatters the loudest. If no copy results, throw the reverse-normal switch to the other position and try again. If it still refuses to produce readable copy, you can assume the speed is higher than 60 wpm.

Naturally this scheme does not result in optimum copy since it make-break rather than frequency shift keying. It is interesting to note, however, that the unit will copy shifts down to 70 cycles or less. To optimize the TU on a shift other than 850 cycles, shunt a suitable capacitor across C3 to retune the toroid to a lower frequency. As an example, a .018 to .022 mfd. capacitor would be required for 170 cycle shift. The exact value is the one which produces the least meter quiver when the signal is properly tuned in.

A plus 24 volt output has been provided to power an AFSK transmitter adapter currently being developed by the author. Those wishing to send FSK are referred to the current RTTY series in QST magazine which, incidentally, is a superbly written and informative discussion. Back issues of RTTY magazine also contain excellent information on modifying transmitters for FSK.

DC VOLTAGE WITHOUT SIGNAL

Trans.	*C*	*B*	*E*
Q5	4.5	24	24
Q6	5.0	24	24
Q7	4.0	24	24
Q8*	7.7	7.6	7.8
Q9*	7.7	7.6	7.8
Q10	23.5	7.8	7.1
Q11	0	3.0	4.0
Q13*	23.5	23.5	24

*Note these transistors are saturated with no signal.

Fig. 2

DC VOLTAGE WITH SIGNAL

Q5	10	25.5	25.5
Q6	11	25	25.5
Q7	11	25	25.5
Q8	7.0	15	12
Q9	7.0	15	12
Q10	25	6	5
Q11	10	3.0	4.0
Q13	10	7.0	25

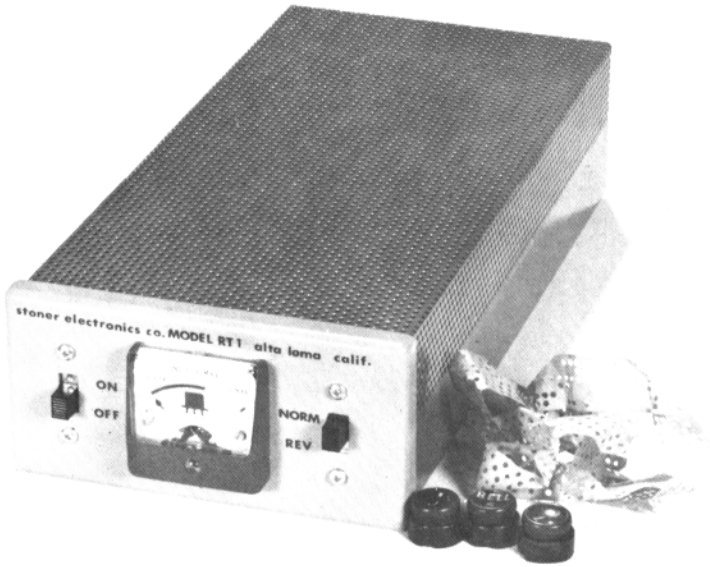
PRICE LIST MODEL RT-1

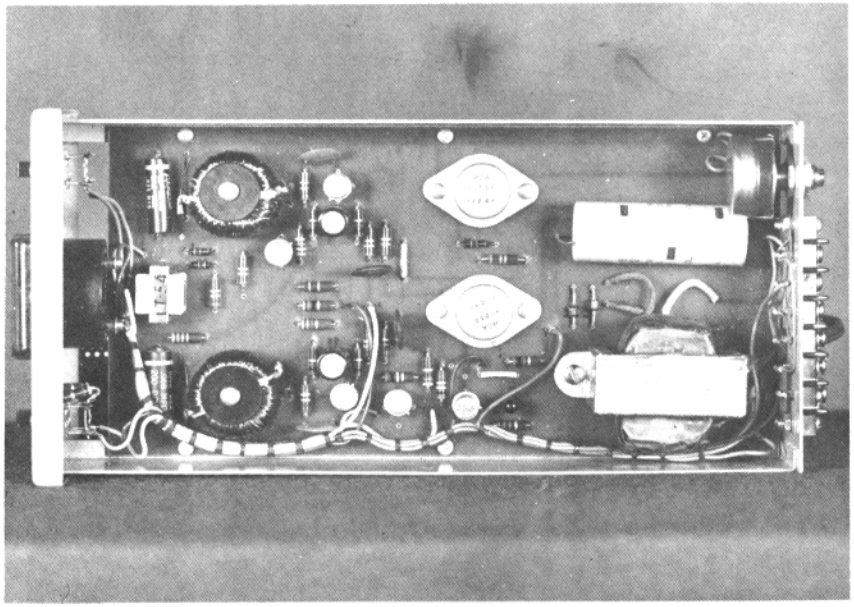
Model RT-1, Wired and Tested	$99.50
Model RT-1, Kit	79.50
Individual Items —	
Circuit Board (Heavy Duty Epoxy)	6.00
Circuit Board (Paper Base)	4.00
Mark and Space Filters (Pretuned)	
per set	6.00
each	3.95
Tuning Meter (M-1)	9.95
Power Transformer (T2)	6.50
Chassis and Cabinet (Screened)	20.00
Matching Transformer (T-1)	2.00
Eight to 500 ohm transformer	2.00
Clipper Diodes (Q1, Q2), each	1.00
Regulator Diode (Q12)	1.00
Rectifier Diodes (Q3, Q4), each	.79
Regulator and Sw. Transistors	
Q11, Q13), each	3.00
Switch Driver Transistor (Q10)	2.40
General Purpose Transistor RCA	
Type 2N404A (Q5, 6, 7, 8, 9), each	.75

A companion unit, the Stoner Electronics Co., Inc. Model RT-2, will be announced shortly. This unit contains two-tone oscillators, switching circuitry for SSB or AFSK operation, a 2,000 to 3,000 cycle bandpass filter and an 8 ohm to 500 ohm impedance matching transformer.

The Model RT-1 is available from Stock and is sent postage paid on prepaid orders by:

W. H. PAULIN CO.
Post Office Box 122
Upland, California





WFA37 7737.5 WFD54 14741.175 WWA65 5247.5 WWA76 6875
WWA87 7682.5 WNA67 7745 WNC21 11115 WNC65 15537.5

IMPROVED "CROSS" SCOPE DISPLAY FOR MARK IV-V TU'S

By: R. H. WEITBRECHT — W6NRM
1966 Woodside Road, Redwood City, California

The W6AEE "cross" display as used in the Mark series of terminal units can be improved so that clean presentations obtain on the usual shifts as used in RTTY communications. In the past, the AC voltages for the horizontal and vertical deflection plates in the cathode-ray tube were obtained directly off the Mark and Space tuned circuits contained in the detector unit. These tuned circuits were heavily loaded in order to present an essentially linear response towards off-shift signals as well as to provide a good rise-and-decay characteristic towards teleprinter tones being demodulated. As a result of low "Q" in these tuned circuits, the old displays were noticeably distorted — having the appearance of a pair of approximate ellipses, at right angles to each other.

The improved display obtains using *separate unloaded* toroidal inductor-capacitor combinations feeding directly into the H and V deflection plates. As there are no loads across these LC's, little driving power results in relatively high AC voltages being developed at resonances — resulting in sufficient output to be useable directly by the CRT's deflecting plates. Shown in the figure is a diagram showing how these toroids are driven by the 3.2-ohm line from the input amplifier circuit. Two-turn links suffice for the lower tuned frequencies (2125 and 2295 cps) while a single turn is employed to drive the 2975 cps tuned circuit. Sufficient power flows in the 3.2 ohm line so as to operate this improved display circuit yet does not affect the Mark-Space Detector Unit in any way.

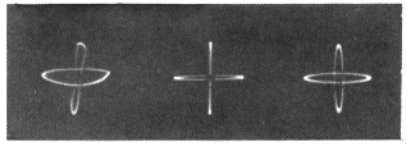
These new LC's must be carefully adjusted to exact resonant points using a calibrated audio oscillator source feeding into the terminal unit's input. It is preferred that frequency be determined by means of an electronic frequency counter, as we would like to utilize this improved display for checking and adjusting transmitter frequency shift. LC calibration is done in the usual way — removal of turns from the toroid coil in question until it peaks at the exact frequency. This turns removal should be watched closely as removal or addition of one turn results in several cycles change of the resonant point.

Three LC's are thus set up for three resonant points (2125, 2295, and 2975 cps). The 2125 cps LC feeds into the vertical deflection plate at all times, while either of the latter two frequencies are selected by means of a single pole double throw switch to feed into the horizontal deflection plate. This provides displays for both 170-cps and 850-cps shifts. The photograph shows old and new displays for these shifts. This gives the reader some idea of the improvement obtainable by the use of unloaded high-Q tuned elements to determine the specific Mark and Space frequency points via the scope. Of course, these extra LC's could be "built in" as parts of Mark-Space Detector Units, thus obviating the need for the SPDT switch.

Using this improved display, one can set one's transmitter shift rather precisely. Just tune in the signal on the receiver, feeding into the TU's input to actuate the scope circuit. Flip between Mark and Space while adjusting the shift control until an exact shift is obtained. During reception on other RTTY signals, off-shift signals are quickly noted by the unsymmetrical responses of vertical and horizontal traces on the CRT screen. On shifts considerably off the value set up for the scope, the trace amplitudes decrease considerably, so it is well to straddle-tune using the flipping-line display. This procedure is indicated by one-month's experience on-the-air using the new display setup; however one can still tune RTTY signals with precision on either cross or flipping-line display. Who wants to go back to the old ellipses, anyhow?

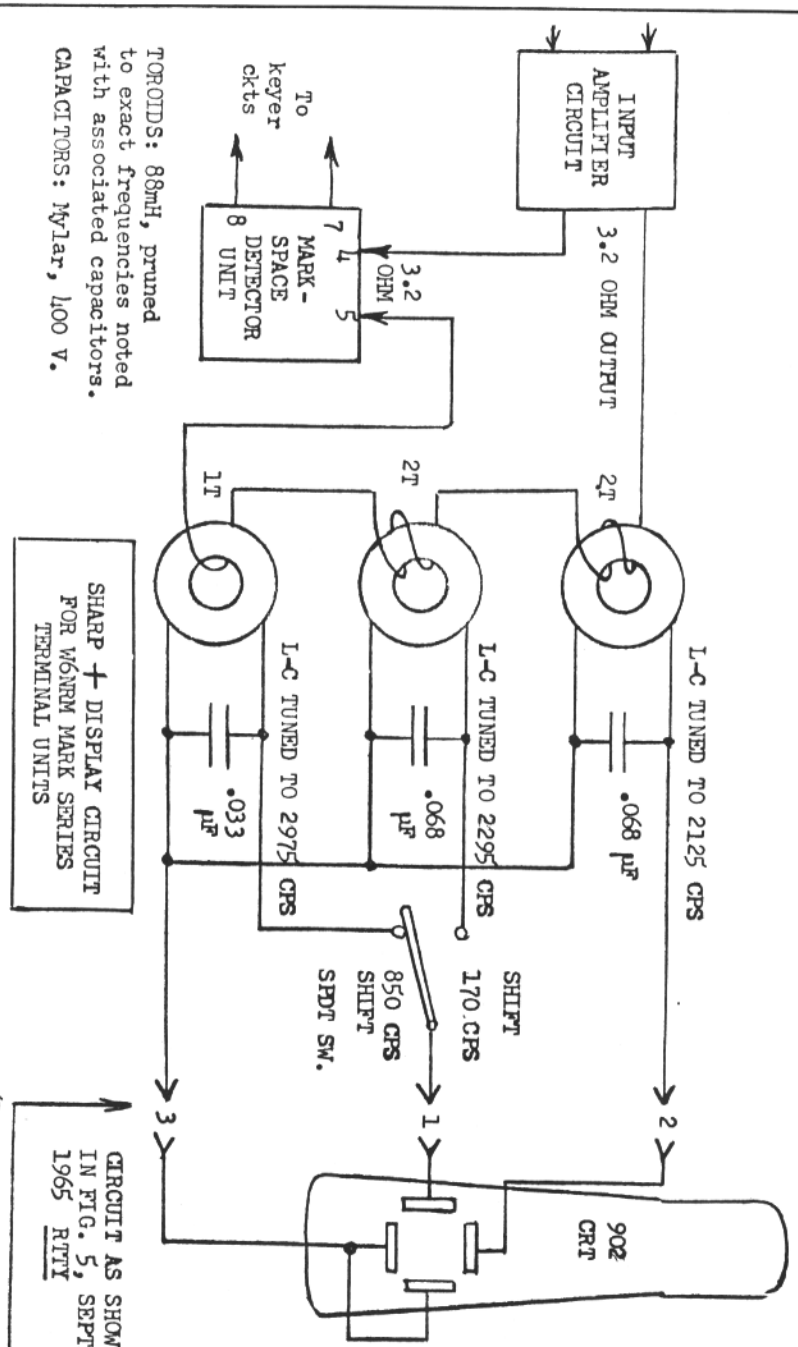
———

ERRATUM: Fig. 8, Mark V Article, Oct. 1965 *RTTY*. Table of Zero Bias Values: For Space bar, reversed value should be 0.675.



OLD DISPLAY 850 CPS SHIFT | NEW DISPLAY 850 CPS SHIFT | NEW DISPLAY 170 CPS SHIFT

W6NRM MARK SERIES TERMINAL UNITS



ADDITIONAL NOTES ON

THE SUPER TWIN CITY TERMINAL UNIT

JERRY HALL — K1PLP

Hopkins Street, Wilmington, Mass. 01887

The March 1965 issue of the RTTY bulletin contained an article describing modifications to the Twin City TU to provide improved operation in the High Frequency bands. An optional 1275-2125 cycle bandpass filter was described, to aid in the rejection of adjacent frequency interference. Of most significance in the article was the presentation of a pulse inverter stage, to provide improved operation in the presence of selective fading.

Subsequent correspondence between the writer and other amateurs incorporating the pulse inverter circuitry indicate that a few worthwhile points were passed over lightly in the original article. These points are presented here to aid those using the modification, having to do with the construction layout and the types of components used.

CONSTRUCTION LAYOUT

The grid circuitry of the pulse inverter stage, with 1 megohm series resistors, represents a very high input impedance. Consequently, the inverter stage is prone to pick up and amplify stray pulses, notably those radiated from the printer loop leads running between the relay socket and the output connection of the TU. This, of course, may contribute to erratic operation. In the modified unit, the printer loop leads should be dressed away from the inverter tube circuitry, and the 1 megohm resistors should be mounted right at the grid pins of the inverter tube socket. Although shielding was not used by the author, twisted pairs dressed close to the chassis were used for the printer loop leads, wiring between the relay windings and the driver tube plates, and leads from the relay windings to the current monitor jack.

COMPONENT SELECTION

Apparently the author originally obtained an unusually good batch of general purpose diodes for use in the "OR" gate circuitry, with respect to front-to-back ratio. In a subsequent unit built, and from correspondence with other amateurs, it has been found that run-of-the-mill general purpose diodes are inadequate for CR1, CR2, CR4, and CR5. Back leakage contributes to erratic action of the pulse inverter circuitry, causing the stage to act something like a multivibrator due to cross-coupling from one plate to the other grid. High back resistance diodes, such as types 1N63, 1N67, 1N67A, 1N68, or 1N98, should be used.

Diodes CR3 and CR6 should be capable of withstanding current surges, or frequent burnout may be experienced. The writer is presently using Motorola type HEP154, with excellent reliability. This type is a small diode, capable of conducting 1 amp, and is listed by the manufacturer as a direct replacement for types 1N536, 1N599, 1N1217, 1N1217A, 1N1701, and 1N1707.

Leaky coupling capacitors from the plates of the inverter tube may cause trouble, by biasing the relay driver tube positive so that TTY impulses have little or no effect on relay operation. Highest quality capacitors, such as mylars, with at least a 400 volt rating should be used.

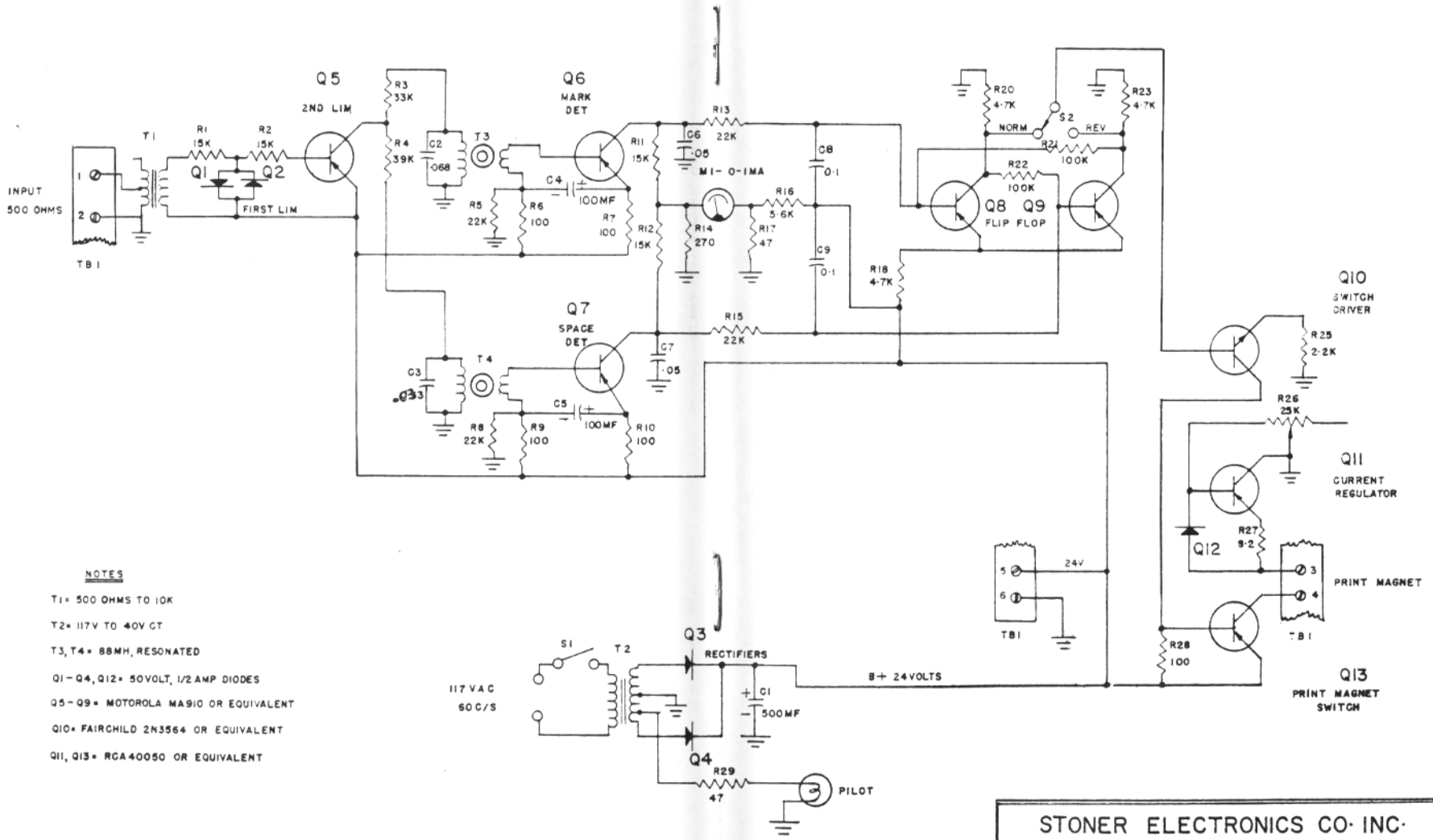
OPERATIONAL NOTES

The author's original article in the RTTY bulletin suggested a method of adjusting the audio balance control and polar relay bias control. Although these procedures are quite adequate for healthy signals, operation on marginal signals can be improved slightly by using one or the other of the following procedures.

This first procedure is more exacting, but requires the capability of monitoring your own transmitter with the receiver and TU. Transmit into a dummy load, or use the oscillator section only of the transmitter. Decrease the transmitter coupling or reduce the receiver gain control so that the signal is below the limiting level of the TU. With an 850 cycle shift and the receiver properly tuned to the signal, transmit an RY tape from the TD. With an A.C. voltmeter, measure the A.C. voltage at each grid of the relay driver tube, and adjust the audio balance control of the TU for equal voltages at the two grids. (The slight difference in ON times for mark and space is hardly measurable, but to be absolutely precise, one could invert the transmission when shifting from one grid to the other.) If a TD is not used at your station, a repeat on space function may be used, but the transmission must be inverted when moving the meter lead from one grid to the other. Adjusting by this procedure compensates for any non-linear audio response at the receiver output, as well as for any slight unbalance in the TU discriminator and the pulse inverter circuitry. If you have no TD and cannot invert your transmission, use the alternate procedure below.

As an alternative procedure, use an RF test signal injected into the receiver, or a 100-kc calibrator signal. Reduce the receiver gain

Continued . . .



NOTES

T1= 500 OHMS TO 10K

T2= 117V TO 40V CT

T3, T4= 88MH, RESONATED

Q1 – Q4, Q12= 50VOLT, 1/2 AMP DIODES

Q5 – Q9= MOTOROLA MA910 OR EQUIVALENT

Q10= FAIRCHILD 2N3564 OR EQUIVALENT

Q11, Q13= RCA40050 OR EQUIVALENT

STONER ELECTRONICS CO. INC.

ALTA LOMA – CALIF. U.S.A

DESIGN D. STONER	FREQUENCY SHIFT TERMINAL UNIT
DRAWN BY A.R.H.	MODEL RT-1
CHECKED D.L.S.	
APPVD D.L.S.	

TU 5R6*

MICHAEL "MIKE" MELLINGER — WA6USU

1226 East Comstock Avenue, Glendora, California 91740

Amateur RTTY has in past years, more or less settled on a limiter-type TU. But during recent years there has been considerable departure from this traditional type towards a limiterless type. The TU I have been using for a month is such a unit. It is designed and put on a printed circuit by DL6EQ and is based on the K6IBE design. It uses what is known as a slideback detector to provide true-diversity reception virtually eliminating severe effects on reception which often accompanies selective fading.

The slideback detector is two detectors combined: one to develop the normal keying pulses and the other, with a long time constant determines the amount of signal energy. These signals are combined to form a signal that is one polarity on mark and the other on space. This is fed to a Schimitt trigger adjusted to switch state on either positive or negative pulses. This is fed to a conventional keyer circuit.

CONSTRUCTION

The TU is constructed on a printed circuit board available from DL6EQ, there are a few mistakes on the board but I believe Rudi has corrected these now.

The circuit differs from that shown in July RTTY in that the diode across the keyer tube is in backwards and R13 and R14 are 2.2 K. The filters are also available from Rudi pretuned, but any standard filters should suffice. The circuit will key up to 100 ma.

ADJUSTMENT

Adjustment is simple. Here is the technique suggested by G3CQE.

"(1) Temporarily connect point M3 shown on the diagram to earth,

(2) Adjust the slider of P3 to about one-third of its travel away from the cathode.

(3) Set the slider of P2 at the bottom (ground) end of its travel,

(4) Gradually move the slider of P2 up from the ground end until a point is reached at which the two neons ignite; note this setting carefully.

(5) Return the slider of P2 gradually towards the ground until the neons are extinguished. The correct setting is midway between these two points.

(6) Remove the temporary connection from M3 and apply a sall negative voltage between this point and earth. This should be no more than 1½ volts and should cause the neons to light at once. The neons should be glowing with moderate brightness but if not, the neon current should be adjusted by varying the pot P3. If any adjustment is necessary then the steps (1) to (5) must be repeated; if not, remove the 1½ volt test voltage.

The adjustment of the controls P2 and P3 interlock but it should be only necessary to repeat the steps once."

OPERATION

Care should be taken not to overload the unit, it will handle voltages down to .2 volts and still provide readable copy. A 600 ohm input impedance is necessary. If the unit is overloaded it will tend to act as a limiter thus defeating our entire purpose. Operation is the same as any other TU except that once the balance control is set, it seldom needs changing.

I have used this unit for a month and can say truthfully that I, a beginner with no previous experience in RTTY, have yet to find an amateur RTTY signal that my ear can even hear that I cannot pull at least good copy out despite any fading, aside from completely fading out.

I have also found that this unit is remarkably tolerant of QRM.

In closing I would like to thank Rudi, DL6EQ for the help he gave me with this unit. G3CQE for his article in the British "Short Wave" Magazine on it and last but certainly not least: Merrill, W6AEE for the unit itself and more help than I thought possible.

For people interested in this unit, Rudi's address is:

Hch. and Rud. Brumm
6550 Bad Kreuznach
Traubenstrasse, 3 Killianstrasse,
West Germany

*Circuit, July 1965, page 13, RTTY

It is with regret that RTTY announces the death of Doc Martin, K5AUM, on September 29, 1965. Doc will be missed by many who knew him well. (W5HCS)

TRANSMISSIONS OF OFFICIAL BULLETINS

Sat.	3625 KC.	2245 EST	
Sun.	14095 KC.	2015 EST	
Mon.	3625 KC.	2015 EST	and 2245 EST
Tue.	14095 KC.	2015 EST	and 2245 EST
Wed.	3625 KC.	2015 EST	and 2245 EST
Thur.	14095 KC.	2015 EST	
	3625 KC.	2245 EST	
Fri.	14095 KC.	2015 EST	
	3625 KC.	2245 EST	

VE3GK – VE3AYL

85-Fifeshire Road, Willowdale, Ontario, Canada

Here is the snap I promised you in my July letter, of our station here in Toronto. VE3GK — Sid, and VE3AYL — Gwen. As you are possibly aware we are new at RTTY. The last snap I sent you of the rig was taken before RTTY took over, and since the middle of last April all this has happened. I thought it might be of some interest to the readers of "RTTY" magazine to see a Canadian Station. We are both active RTTYers Hi! and VE3AYL has her own rig at the same location, in the same den. Besides having two operators, we have nearly two of everything.

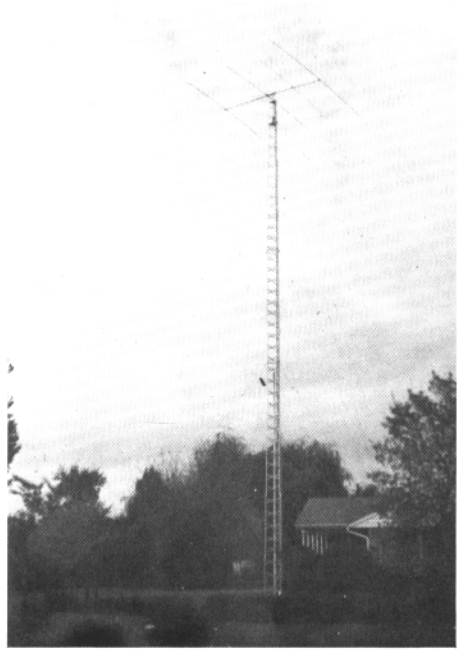
The station consists of . . .

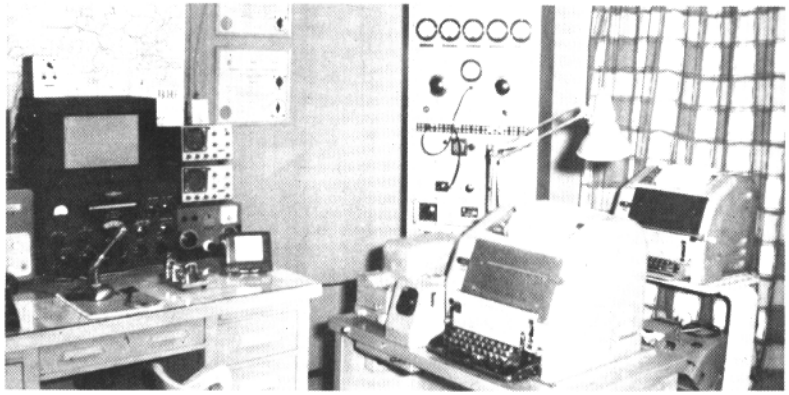
2—Valiant 2 transmitters.
2—Collins receivers, 75A4 and 75S3.
2—Terminal Units . . . One Technical Materials CFA1; One VE3BAD Terminal Unit.
1—19 Composite Set.
1—15 Printer.
1—14TD.
1—14 Reperforator.
1—Regenerator, SFO2 . . . Technical Materials.
2—HO-10 Heath Scopes.
1—IG82 Heath Audio Generator.
Antennas: Hy-Gain TH4 Tri-bander 75 feet high. 80-40 meter trap HQ Doublet.

I hope these snaps will interest you for use negatives of them I can send them to you. If you put the pictures side by side you can see the layout of the station. If you want any further information, let me know.

The final in the top rack consists of a pair of 354s PP Class C, modulators 805. We average 200 watts for RTTY, using the Valiant 2s with a two diode FSK unit in each with 2 IN270s.

Kind regards,
Gwen Burnett, VE3AYL
Sid Burnett, VE3GK





DX-RTTY

BUD SCHULTZ, W6CG
5226 N. Willmonte Avenue
Temple City, Calif. 91780

Hi DX'ers:

This should mark the start of the biggest DX season that the RTTY gang has ever seen. After all my griping about poor conditions the bands have suddenly come alive and if things continue like they have during the past two weeks it should be a real record breaker! As I sit here typing this deathless prose the time is 2230 GMT and DX'ers like DJ6ZBA, OZ7T, I1WT are all rolling in here on the West Coast with fine copy. Fifteen meters has also opened up here and Europe, Africa and Asia are coming through in good shape for the first time in many a moon. Not much RTTY on 15 so far and what a shame!

After spending two weeks operating the rig at K3GIF I felt pretty much like selling all the gear here at W6CG and taking up stamp collecting! Ed has a beautiful DX location and the signals from every part of Europe come piling in hour after hour nearly all day long. Here's a partial list of a representative four days of operation at K3GIF: DL3DT, DL3YL, OE2SI, FG7XT, DJ6ZBA, I1OK, I1GMF, I1ZZG, DL6YH, F8KI, F3PI, VO1BL, G2HIO, DL3IR, YV5AFA, G3SZN, I1DV, ON4CK, ON4LI, I1RIF, I1AHN, SM6CSC, I1WT, I1CQD, OZ7T. Again I must repeat that this is only a partial list of what was worked. Many more were logged but space is too short to include a list here. Ed and I spent a great deal of time trying to re-establish his RTTY skeds with Africa but were not successful in this chore. Perhaps by the time this gets in the mail the African typers will be back on the beam. Ironically enough – while I was drooling over all the S-9 signals from Europe – Ed was spending time carefully tuning the band for signals from VK3KF, ZL1WB who normally bomb in here on the West Coast like locals! We could hear many Europeans calling VK3KF but nary a sign of him at K3GIF – so I guess the old saying about one man's meat is another man's poison holds good on RTTY also. During my two week stay at K3GIF I had the opportunity of talking at length with Alan, G2HIO, Sergio, I1AHN and several others concerning the DX contest rules, etc., which proved very helpful. Without a doubt we can expect some major changes in the rules for contest scoring in the future. Our discussions concerning the rules brought out the fact that nearly everyone agrees there are certain inequities in the scoring but the big problem is how to make them fair to every part of the World without making it so complicated that the DX'ers will be discouraged trying to figure out their totals. It will take a lot of head scratching and brain picking to accomplish a good working set of rules but I'm sure it can be worked out.

As usual a number of new ones are either already in operation or will be on soon. Jean, FG7XT, reports working EL8B in Liberia for the first contact with this African country. Jean says that EL8B has some trouble with his shift but expects to have things under control very soon. Activity in Italy is picking up like a snowball going downhill. I1II is a new one from there with a fine signal into the States. ON4LI is a new comer to RTTY and has a real potent signal from Belgium. SM5KV, Olle, reports that 9H1AA in Malta is coming on with a DX-100 as soon as he can lick the drift problem in his VFO. Olle also has heard from OK1KUL that he is expecting his RTTY permit any day now. Max, KP4AQL, writes that Sandy, KP4AXM, was transferred by the Navy to Scotland but he will try to keep KP4 active in Sandy's absence. Word comes from Roy, WA4GTA, that he is aboard the USS John King and expects to be on from the Mediterranean as /MM during the coming months. He expects to spend Christmas in Naples and New Years in Athens. Keep your eye peeled for WA4GTA/MM – Roy may get a bit homesick and you can cheer him up a bit with a QSO. There have been some persistent rumors about a 5U5 in Mauretania who is expected to be FSK'ing shortly – according to Jean, FG7XT. Also two MP4 stations are said to be ready to try the green keys. Sorry I cannot give more details on these last two items but as soon as I can get more definite information I'll let you know. If any of you have any info on any new ones please drop me a card.

Thanks to G2FUD I am able to correct a grievous error in the August DX column. I should have credited Alec, G3MWI, as being the first UK station to work UB5AC rather than Colin Jones. Sorry, Alec, but am very pleased to put the credit where it belongs. Also in the mail bag this month is a fine letter from Harold, ZD8HL, who writes that they will have ZD8AR in operation from Ascension Island during the contest with some borrowed gear. The boys there would like to purchase a machine for a reasonable price so they can keep ZD8 on the air with RTTY. If you can help out on this one, address your info to H. L. Lund, ZD8HL – RCA Ascension, Box 4187, Patrick Air Force Base, Fla. A salute this month to two XYL's who turned

Continued . . .

DX-RTTY Continued . . .

up on RTTY – namely – Margot, DL3YL, and Carol, KG4CM; they are the wives of DL3DT and KG4CG – respectively. Eric, VK3KF, completed his new final amp. just in time to see the band conditions to the States on 14 Mcs take a flop – but while operating from K3GIF we heard many Europeans piled up trying to work VK3KF so evidently the new project was a big success. Bruce, ZL1WB, ("old faithful") has lots of good news this month of a big surge in NZ activity on RTTY. Bruce reports that the following "Zedders" now have RTTY gear and some are already active: ZL1JT, ZL2AQT, ZL2ALW, ZL3VP, ZL2AKH, and ZL1ADL! Along with Alec, ZL3HJ, who has been active for years, it would appear the "down under group" is now starting to come on strong. This should really be a boost for the RTTY DX cause. Speaking of the Pacific area – Congrats are in order for Arnold, KW6DS, on taking the number 69 spot in the WAC-RTTY scroll. KW6DS continues to put in a tremendous signal from Wake Island so watch for him – the best time is around 0200 to 0500 GMT on 14 Mcs.

I'm running out of space and I know I have overlooked some of the news that I had hoped to include. Next month will be a "post mortem" on the SS contest so send in your news and help me out. Before I close I again want to thank Ed, K3GIF, and his XYL, Mary, for giving us the opportunity to study the DX situation from that part of the country and to meet so many of the East Coast RTTY group. It was a big thrill to have "eyeball" QSO's with Phil, W2JAV, Frank, W3PYW, Vic, K3NIO and many others. I promised you that I would let you in on the secret of Ed's success after I returned and here it is: good equipment, good location, good operating practices and last but not least – an understanding XYL. A combination like this can't be beat!

By the time you read this everyone should have recovered somewhat from the headaches they suffered during the hectic 48 hours of the contest. It may make you feel better to know that ours are just starting – the logs are filling the mail bag and that means lots of midnight oil!

73
Bud, W6CG

THE SUPER TWIN CITY Continued . . .

control so that the audio output is below the limiting level of the TU. With the receiver main tuning adjusted to place the test signal first in the TU mark channel and then the space channel, adjust the TU audio balance control for equal D.C. readings at the grids of the relay driver tube. This alternative procedure compensates for any non-linear audio response at the receiver output, and for any slight unbalance in the TU discriminator.

With either of the above methods of audio balance adjustment used, the polar relay bias or D.C. balance control should be set at zero during normal operation, just as described in the original article published on the Twin City TU.

With the above audio and D.C. balance control settings and a received signal in the clear, it should be possible to manually switch out either the mark or the space channel discriminator outputs, and except for switching transients, continue with essentially perfect copy without having to touch any controls.

It is difficult to overcome the tendency to overdrive the TU after this modification is performed. Best results will be obtained if the signal is just being limited during normal reception. Actually, this modification places the TU more in a "limiterless" class, because operation is not now using full limiter capability.

NEWS

There is a point regarding terminal units that has been bugging me for a long time. This first became evident when I was using an old Model 26 printer (See June 1961 RTTY magazine for my switching system) when I was bridging the input to the terminal unit on the 500 ohm leads to the speaker. Garble was occurring for no apparent reason in the presence of strong signals. Disconnecting the speaker would clear up the garble.

It was evident that the speaker was picking up the mechanical noise of the machine and feeding it into the terminal unit. Scope tests proved this to be true so for a while I operated without the speaker. I installed a 6SN7 as a two stage amplifier in the terminal unit and mounted a small speaker on the panel. With the amplifier connected at the input of the TU I could still get plenty of audio monitoring and the isolation of the amplifier prevented mechanical noise from causing garble. This audio monitoring feature has been built into all of the many terminal units built here since that time.

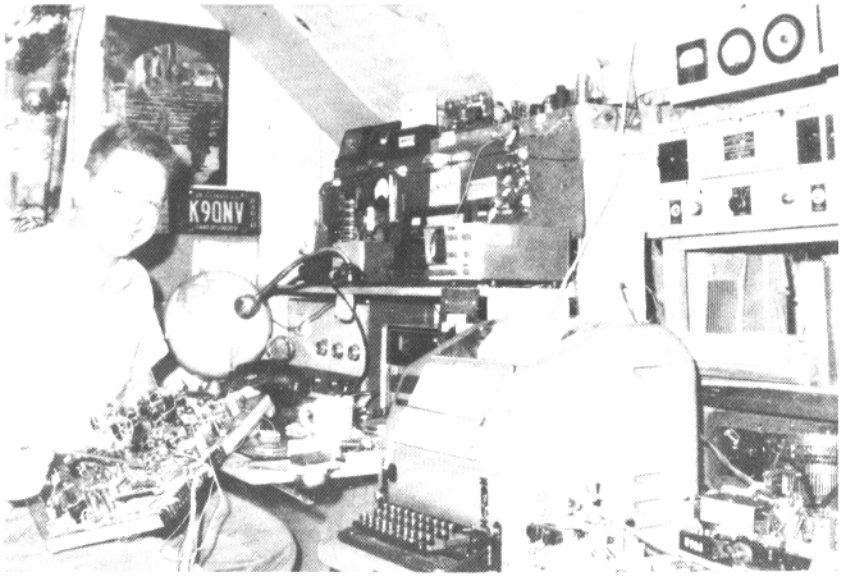
The Model 26 and the Western Union gear has been replaced long ago with Model 14, 15 and 19 gear, but the monitoring amplifier is still with the TU.

I have never seen this idea in print before and thought that you might be interested in passing it along for what it is worth.

Good luck with your publication and long may it run.

W. Leemon, W8TLW
4239 W. 211th Street
Fairview Park, Ohio 44126

Sandy, KP4BRY operating KP4AXM



John Foss, K9QNV, Grayslake, Illinois

HORSE TRADES

FOR SALE TELETYPE PAPER 8½" yellow canary, single or two copy carbon. New, only $0.90 a roll or $8.00 case of 12. REC29/RA-87 loop supply, 110VDC at 400 ma, $6.00. RCA Senior Voltohmyst like new, $25.00. Waveforms 510B widerange (20 cps to 2 mc) oscillator. Professional test equipment, like new, $75.00. Model 101 printer in working condition, $35.00. Model 19 sets, reconditioned, $125.00. Surplus 803's, new $3.00. 4X150A, $4.00. 829B, 832A, 5894, 5763, 4-250A, 6146, others. Write for list. W2DLT, 348 R Essex Street, Stirling, N.J. 07980.

FOR SALE: Covers, one model 14 and 15, $5.00 each. Model 14 typing reperf, recv only, excellent $25.00. Model FRXD, good $30.00. Model 15 base, motor and gear, fair, $10.00. All with 60 wpm gears and sync motor. Recvr, 2-6MC, BC-652 in new cond. to swap for like cond. BC-603 or BC-604. K8DDC, P.O. Box 251, Chillicothe, Ohio.

WANTED: Table model cabinet for model 28 typing unit for model 28 keyboard base and/or receive only base for model 28-Gothic style and/or weather style type box for model 28. Good surplus converter, CV-89 etc. K3AUD, see address below.

FOR SALE: (4) LARP Multi-magnet reperf and TD combination model 28 style (non- typing) less motor, good condition—$35.00 each. K3AUD, Box 524, Republic, Pa. Phone (412)-785-6329 after 4:00 P.M. EDST.

FOR SALE: Synchronous motor for model 14, or 15, $10.00 each. For model 28, $20.00 each. Send for free RTTY catalog. Atlantic Surplus Sales, 250 Columbia Street, Brooklyn, N.Y. 11231.

FOR SALE: Model 15, including tables and power supply. $70.00. Model 19 including table, 14TD, power supply $145.00. Model 14TDs, MXD. 14 typing reperfs. Model 14 strip printers, incomplete for parts only, $10.00. RO Model 28, KSR28 ASR28s. Model 15 auto line feed and carrage return kits $17.50. Write for list. W6VPC, 1067 Mandana Blvd., Oakland, California 94610 Phone (415) 44-5410. . .

FOR SALE: RT-1 TU described in this issue. Wired and tested, $99.50. Mission Ham Supplies, 3316 Main Street, Riverside, California 92501.

FOR SALE: RT-1 TU complete or components, see write up this issue. W. H. Paulin Co., P.O. Box 122, Upland, California.

NEWS

I am a new subscriber to RTTY and this may have been covered before, but I'll pass it along for what it is worth.

It seems that a cheap supply of paper is a problem for RTTY people. I have run across a cheap supply, but it requires a little work. Newspapers that have a press that use paper by the roll have left over what are known as "roll ends." These roll ends may have as much as an inch of paper left on a four inch core. These ends, however, are almost five feet long. I cut mine to eight and one-half inches with a common hacksaw. If a band saw is available, that would also work fine. A saw with a fine cutting edge is required to get a smooth end. These four inch cores are too large for the machine directly. The paper may be rerolled by hand or an external roll holder may be mounted on the machine table (I made one out of my daughter's tinker toys.) I pay between fifteen and fifty cents for these roll ends depending on how much paper is left on them. It is common for papers to sell these to the public for such uses as wrapping paper.

I hope my experience may be of help to some other RTTY buffs.

Sincerely,
Hugh S. Greig
P.O. Box 157
Estherville, Iowa 51334

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