

Additional Classified on Page 14

SWAP: Motoral handy-talkies, partially ransistorized, for #28, #35, or #37 RTTY gear. also have RTTY. FAX. Demods and other gear. List send free. G.E. White, 5716 N. King's Highway, Alexandria, Virginia, 22303. 703-765-5478 after 9 pm.

Wanted: 1/2 in. paper tape used in a Beehne CW Keyer. Send your price and amount available For Sale to, Robert R. Smith WB6DR 13209 Idyl Dr., Lakeside, California 92040.

NO GLARE WINDOWS for Model 15 & 19 Printers. Cadinum plated & Gold iridite finish. \$12.50 P.P. Check or M.O. Bud WA6UEF, 17114 Sunderland Dr., Granada Hills, Calif. 91344.

FOR SALE: 28KSR, consul cabinet, lesu-with keyboard, like new. Model 28; typing reperf, with keyboard, lesu with table, like new. Model 28; Typing reperf, with keyboard less Lesu, but with power unit and table. 2 Model 28 LBXD T.D.s, all in operating condition. De-Sielvie, 4055 Oakwood Ave. Los Angeles, Cal. 90004. (213)664-8322 after 6 PM.

WANTED - Code bars for 14 typing reperforator, also 14 keyboard. SELL - TM 11-352. Complete manual on Model 15 printer, \$4.50 pp. Navships 93241, complete manual on Model 28 KSR printer, \$7.50 pp. W.H. Bauer, 119 North Birchwood Ave., Louisville, Ky. 40206.

Sell or Trade:-Tektronix 513-D Scope, good cond. \$200.00, UPM-45 Dual Trace Scope \$80.00 also 5" Dumont Scope good condition \$40.00, Central Electronics 100-V excellent condition \$285.00, 51J3/R388 good condition, \$285.00, Technical Materials Corp FRR-502 Communications Receiver with four separate plug in Front ends, covers 2-30 mhz, Tunable, also has xtal control. \$115.00, TT/L-2, built rack and panel, DeLuxe Version with 2" scope as well as tuning eye, loop current meter, Fine unit. \$175.00. All prices FOB. George Tate, W4AIS, 7 Artillery Road, Taylors, S.C. 29687.

"SAROC" Fourth Annual fun convention scheduled January 8-12, 1969, in Hotel Sahara's new space convention center, Las Vegas, Nevada. Advanced registration closes January 1, 1969. Ladies program in Don the Beachcomber. Technical seminars, FM, MARS, RTTY, QCWA, WCARS-7255. Registration \$12.00 per person entitles "SAROC" participant to special room rate \$10.00 plus room tax per night single or double, occupancy, admittance to cocktail parties, technical seminars, exhibit area, Hotel Sahara's late show, Sunday breakfast equal to any banquet dinner, ask any "SAROC" veteran. Brochure planned November mailing for details QSP QSL card with ZIP Southern Nevada ARC, Box 73, Boulder City, Nevada 89005

WANTED: 455KC input unit for CV-57. Elmer Shafer, W8MSG, 3479 Kersdale Rd., Cleveland, Ohio, 44124.

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

First Class Mail --



RTTY

January 1969

JOURNAL

EXCLUSIVELY AMATEUR RADIOTELETYPE

Volume 17 No. 1

30 Cents

**
Happy New Year
**
from the RTTY Journal
**

**Ed, W9WKC**

The Terminal Unit Enigma

W.R. Miller, K4MY1
Rte. 1, Northshore Dr
Concord, Tenn.

Have you ever wondered why no one, in this highly technical age, has come up with the ideal radio teletype terminal unit? Each new design that is published claims features superior to those of its predecessor and leads you to believe that the big headache of selection fading has at last been overcome.

I, too, have felt that a breakthrough along this line was just a matter of time, and recently decided to tackle the problem with both operational amplifiers and logic modules. Since it is possible to produce electronically, an artificial space signal from a mark signal, and an artificial mark signal from a space signal, why not combine one artificial signal with the remaining real signal during periods of selective fading. No less than twelve designs were put on paper, but in every case there proved to be a selective fading condition that each particular design could not handle. This was more than just coincidence, so a close look at the conditions themselves was undertaken.

Ideally, we would like the terminal unit to key when only mark; or space, or both signals are present, since selective fading can produce all three of these conditions. Next, a table was formulated showing the keying action that would be required from the electronics in the TU for these three conditions. The table (Figure 1) looks pretty straight forward until you examine it closely.

Condition Number	Signals Present	Signal State	Required Keying Action
1A	Both	Mark On	On
1B	Both	Space On	Off
2A	Mark Only	Mark On	On
2B	Mark Only	Mark Off	Off
3A	Space Only	Space On	Off
3B	Space Only	Space Off	On

(Figure 1)

Before you read further, can you find the ENIGMA, the "puzzle", that designers of terminal units can't seem to overcome even with the most sophisticated electronic designs? If you look closely you will discover that there are two conditions when no information exists, i.e. when space has faded (mark only) and the mark signal is

off (2B), and when mark has faded (space only) and the space signal is off (3B). But since it is possible to generate artificial signals, why not let them substitute for the signal that has faded? The ENIGMA lies in the fact that during these two periods when no information is present (2B & 3B) we require opposite keying actions!

Here are two moments in time, or to be more specific, two moments during the sending of a train of pulses that designate a character to be printed, when there is no signal information. In one case we desire the selector magnets to be energized, and in the other the selector magnets should be de-energized. Since the preceding pulse gives no hint of what the next pulse is going to be, we are stuck with an ENIGMA.

The designers who have perfected threshold level devices have made a wonderful contribution to the state of the art, but since these devices imply a fixed time constant by their very nature, they cannot handle the wide latitude of time constants that are imposed by selective fading. Please bear in mind that the ENIGMA is a defect inherent in the basic concept on frequency shift keying, and not a lack of imagination on the part of designers of terminal units.

Where do we go from here? Frankly, I don't know. Understanding a problem is half the battle, and from this understanding a solution may be forthcoming. In the meantime I shall be thinking, seriously, about the real problem, the ENIGMA.



Mike, WA7BEU
RTTY JOURNAL

1st 'GIANT' RTTY FLASH Contest....

RULES

The cq elettronica Magazine of Italy, is the sponsor of the first edition of the "Giant" RTTY flash contest. The purpose of this contest is to increase the interest of the RTTY through the radio amateurs. This is a "flash contest" because the total contest time is only 16 hours and exactly 8 hours for each day on February 15th and 22nd 1969 (from 1400 to 2200 GMT).

- Contest dates
1st: 1400-2200 p.m. GMT, feb. 15, 1969
2nd: 1400-2200 p.m. GMT, feb. 22, 1969
for a total contest time of 16 hours.

- Bands
The contest will be carried on 3,5-7-14-21 and 28 MHZ amateurs bands
- Country status
ARRL country list

- Messages
Message consists in:
a) RST check
b) zone number

- Exchange points
a) Each two-way contacts with stations in one's own zone will receive 3 exchange points
b) Each two-way contacts with stations outside one's zone will receive the points listed on the Exchange Point Table
c) Stations may not be contacted more than once on each band. Additional contacts may be made with the same station if a different band is used for each contact.

- LOGS and score sheets
Use one log for each band.
Logs contain: Band, QSO number, time (CMT), call signs, countries, number sent and received (RST and zone number), exchange points.
Free LOG sheets will be sent upon request.

All logs must be received by March 20th, 1969. Send to:
cq electronics
via C. Boldrini, 22
40121 BOLOGNA - Italy

- Multipliers
A multiplier is given for each country worked.
The same country may be claimed as a separate multiplier, if a different band is used.
One's own country doesn't count as a multiplier.

- Scoring
Total exchange points times total number of multipliers.
- SWLs
This contest is also open for the SWL RTTYers.
For the SWLs the same rules valid for the scoring and a separate list will be made for them.
Their logs will contain: your QSO number, time (GMT) and call signs, countries, number sent of the listened station. Scoring according to table.
- Awards, gold medals, free subscription to cq elettronica.
For: a) general score
b) down 100 W score
c) SWL's

Printing Narrow Shift

Louis Poirrier, K5DAH

As there is an increasing use of narrow shift on the bands some of the gang may be interested in my experience in receiving narrow shift on one of the simple TUs. This trick may be old hat to some but I stumbled onto it myself and not being to well connected with RTTY circles I don't know if it is in common use or not. Here is what I did in case others may be interested.

I built a modified W2PAT T/U from the 1966 ARRL Handbook. One night the only RTTY I could hear was a strong narrow shift signal. I rushed to the workshop (garage that is) and grabbed a spare 88mh toroid, an octal plug and some mylar capacitors and built a Space filter guesstimating a frequency of 2295 cps. I unplugged the 850 cps Space filter and plugged in the hay-wired 170 cps Space filter. My guess as to the correct capacity to resonate the 88mh toroid at 2295 cps must have been close as shortly I was printing that narrow shift signal. Later an audiogenerator was used to center the 170 shift Space filter at 2295 cps. Also another octal socket was installed to take the new 170 shift Space filter and an SPDT switch was installed on the front panel and wired to select either the 850 shift Space filter or the 170 shift Space filter. The modified W2PAT T/U now prints 170 shift as good as it prints 850 shift. The old Space filter could have been used and a new Mark filter built to resonate at 2805 cps.

FSK for the SWAN 350

Don Kadish, W10ER

After trying other methods of keying the Swan 350 with very little success I decided to use the "Tried and True" Mainliner keying system, by HOFF, (RTTY JOURNAL Sept., 1967). The following method assures "right side up" keying on all bands. Notice that 850 and 170 shift are both available. Remove the VOP top cover. Bolt or cement a thin insulated board onto the cover. Mount C1 and C2 on the cover close to the right side of the right side of the VFO can (ensuring a short lead from C1 and C2 to C 1717.) Mount D1, D2, RFC1 and RFC2 also onto the cover as shown in the figure. Small ceramic stand-offs are preferred for connecting the components but not necessary for proper operation. Install and insulated standoff on the right side of the VFO can (viewing the front of the VFO can) and drill a small hole next to the standoff. Unsolder the copper-strap connected to the arm of S4G at the switch. The strap runs vertically from S4G to C1717 and C1706. Wrap two turns of insulated wire (number 20 should work nicely) around the copper strap making

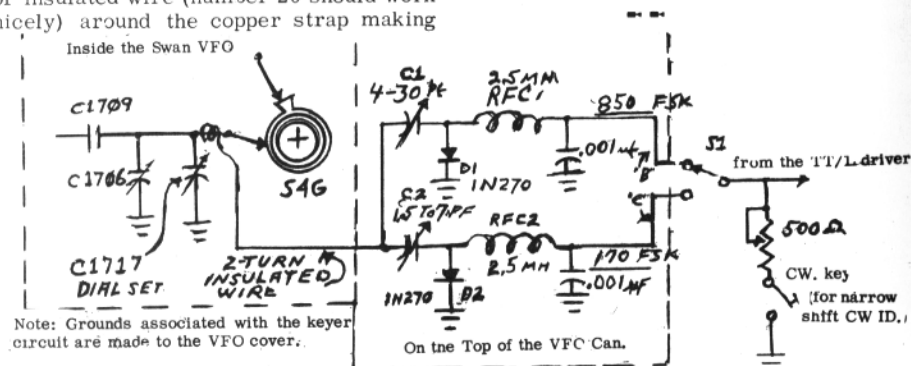
sure that the wire inside the insulation does not short to the strap. The two turns of wire can be formed by wrapping it around a small diameter rod (a pencil is about right) and then insert the copper strap through it. Resolder the strap to the switch. Insert the insulated wire through the hole in the VFO can and solder to the standoff insulator on the side of the can. Connect the wire to C1 and C2.

If it is found that capacitors C1 and C2 are out of the desired range of shift then increase or decrease the number of turns of insulated wire until C1 and C2 are within range.

Wires B and C can be any length. The switch S1 can be external to the Swan along with wires Band C.

Do to the added capacitance the frequency dial calibration on all bands will be changed slightly. This can easily be fixed be a slight adjustment of the trim capacity condensers projecting from the side of the VFO can.

This system has been in use for over a year and produced very satisfactory results. One word of caution - Do not run the Swan at an input greater than 150 watts without a cooling fan on the final.



Reperforator Stand for Model 19

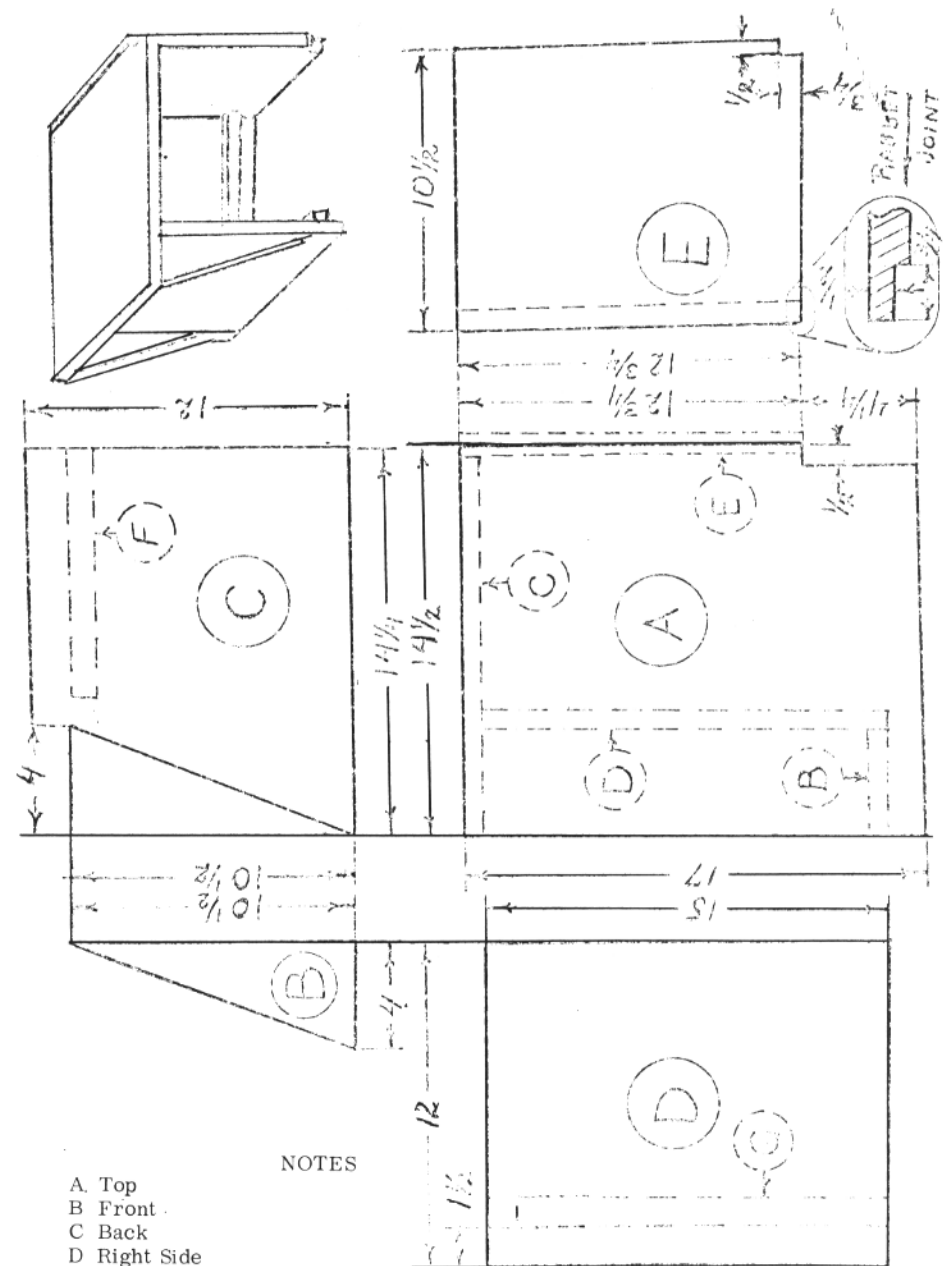
Fred Ghofulpo, W8PYM

Many of the radio amateurs are fortunate enough to have a Teletype Corporation Model 19, but few of us have the stand for the Model 14 Reperforator for the unit. The newer stands are made of metal and quite elegant, but much too difficult for the average ham to build. A much older model by Teletype was made of wood. The

drawing shows the dimensions of the reperforator stand taken from such a model. It should be quite easy for the average do-it-yourselfer to construct one. It is made of 3/4 inch plywood with pieces screwed together. In addition, two 1/2 x 1 inch strip are used for feet. With a little care and paint this should add the finishing touch to your Model 10 Teletype.

Drawing on following page

RTTY JOURNAL



NOTES

- A. Top
- B. Front
- C. Back
- D. Right Side
- E. Left Side
- Above made of 3/4 in. plywood
- F. Back Foot 1/2 x 1 x 8-1/2 inches
- G. Right Foot 1/2 x 1 x 13 inches

Drawn by F. Ghofulpo
W8PYM

RTTY JOURNAL

RTTY theory & applications.

RON 'RG' GUENTZLER, W8BBB

Route 1 Box 30

ADA OHIO, 45810



RTTY FOR THE BEGINNER THE ANATOMY OF A TU

Last month we described the fundamentals of the receiving process for FSK and AFSK signals.

When an AFSK signal is received, the receiver (AM or FM) is tuned to the signal and the tones being sent are heard in the loudspeaker. The frequency of the tones is not affected by tuning the receiver; tuning merely optimizes for minimum noise. When an FSK signal is received, the receiver is operated as it would be for a CW signal (or more accurately, as it would be for an SSB signal). When the receiver is tuned, the FSK signal appears as tones coming from the loudspeaker. The tuning of the receiver affects the frequency or pitch of the tones as well as the relative amount of interference and noise. Therefore, the receiver must be tuned so that the FSK signal has exactly the right pitch.

In either case (AFSK or FSK), the tones coming from the receiver audio output are applied to the input of a TU. The TU has the job of distinguishing the Mark and Space tones, and, ultimately, opening a loop when a Space is received and closing a loop when a Mark is received. The loop is connected to the selector magnets in a teleprinter.

A SIMPLE TU

We are going to describe a simple TU in order to show how a TU converts the audio tones into the opening and closing of a loop. We have selected the Twin City TU for two reasons: 1) It uses vacuum tubes and will therefore be understandable to the maximum number of readers, and 2) It contains all of the absolutely necessary circuitry, but at the same time is simple enough to be easily understandable.

When looking at the circuit diagram it will be noticed that no component values are given. We did this because we are trying to remain neutral in the area of which TU is the best for a particular application.

Anyone interested in building the Twin City TU can find it in: THE NEW RTTY HANDBOOK, Byron H. Kretzman, W2JTP Cowan Publishing Co., 1962.

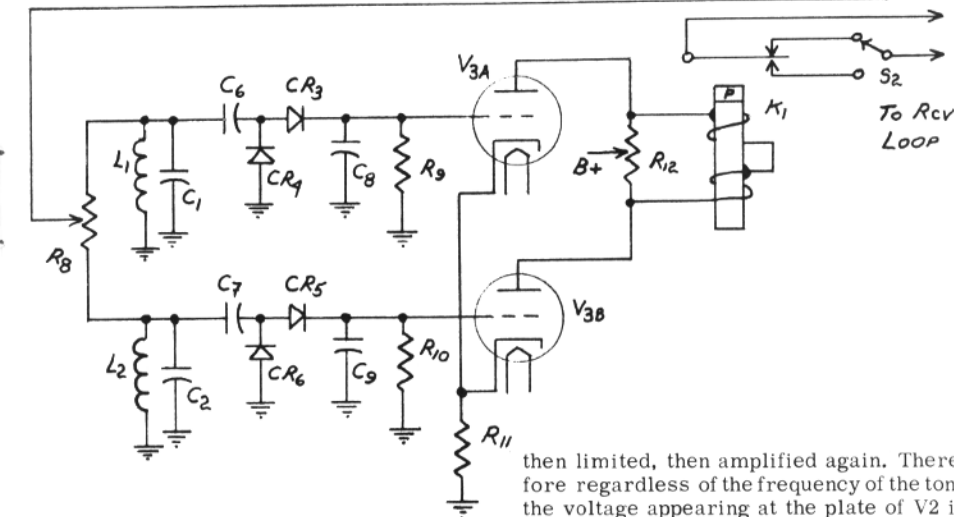
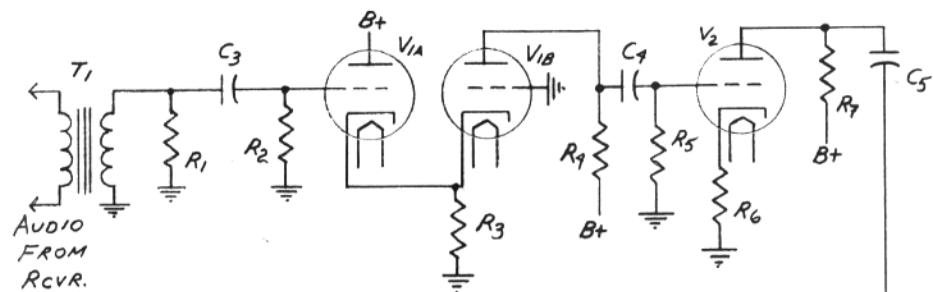
The circuit can be divided into several separate and essentially independent portions as follows: 1) Input "amplifier" and isolation (T1, R1), 2) Limiter (C3, R2, V1, R3, R4), 3) Amplifier (C4, R5, R6, V2, R7), 4) Space and Mark filters (C5, R8, L1, C1, L2, C2), 5) Space voltage doubler rectifier (C6, CR3, CR4, C8), 6) Mark voltage doubler rectifier (C7, CR5, CR6, C9), 7) DC amplifier (R9, R10, R11, V3, R12), and 8) Loop keyer (K1).

1) The input "Amplifier" and isolation is obtained by means of transformer T1. The AFSK signal obtained from the loudspeaker terminals of the receiver is relatively weak. By running it thru a transformer the signal voltage can be increased many times. Also, the input transformer provides isolation thus preventing possible introduction of noise due to "Ground loops".

2) The purpose of the limiter is to provide to the rest of the unit, especially the DC amplifiers, a signal relatively independent of the strength of the tones coming from the receiver.

3) The amplifier composed of V2 and its associated components is needed to increase the constant but relatively weak signal coming from the limiter to a magnitude large enough to insure that the DC amplifiers have adequate signal. The output from the amplifier V2 consists of the same audio tones that came from the receiver output; the processing of the signal to this point simply amplifies the tones to a constant level.

4) The signal from the amplifier is delivered to the Space and Mark filters thru R8. R8 serves the purposes of effectively isolating the filters from each other, and, because it is variable, permits compensation for differences within the two filters. The Space filter composed of L1 and C1 is



a simple parallel resonant circuit tuned to the Space frequency of 2975 Hz. At resonance it has a relatively high impedance, but off resonance the impedance is relatively low. If a constant-amplitude, variable-frequency signal is fed from V2 to the L1-C1 filter, the voltage across the filter will be a maximum at its resonant frequency and smaller at other frequencies. For example, when a 2975 Hz tone is fed from the plate of V2, the audio voltage across L1-C1 may be about 10 V, but when a 2125 Hz voltage of the same value is fed from the plate of V2 only about 1/2 volt will appear across L1-C1. This is similar to the action of any tuned circuit. The Mark filter composed of L2-C2 acts in exactly the same manner except its voltage is maximum when a 2125 Hz tone is present and quite small when a 2975 Hz tone is present.

Before continuing, we will summarize operation up to the filter outputs. The audio signals from the receiver are amplified,

then limited, then amplified again. Therefore regardless of the frequency of the tone the voltage appearing at the plate of V2 is the same. The signal from the plate of V2 is split by means of R8 and is applied simultaneously to the two tuned circuits composed of L1-C1 and L2-C2. L1-C1 is tuned to the Space frequency, 2975 Hz, and L2-C2 is tuned to the Mark frequency, 2125 Hz. Therefore, when a Space tone is received the voltage across L1-C1 is relatively large (10V) and the voltage across L2-C2 is relatively small (1/2 V). When a Mark tone is received, the voltage across L1-C1 is relatively small (1/2V) and the voltage across L2-C2 is relatively large (10V). Because of dissimilarities within the circuit, the voltages may not be exactly as stated. This can be partially compensated by adjusting R8.

5) The Space voltage doubler rectifier circuit (C6, CR3, CR4, C8) converts the audio frequency voltage appearing across the Space filter into a positive DC voltage which is approximately proportional to the audio voltage appearing across the Space filter.

6) The Mark voltage doubler rectifier

rectifies the audio voltage appearing across the Mark filter and delivers a positive DC voltage approximately proportional to the audio voltage appearing across the Mark tuned circuit.

7) One portion of the DC amplifier (V3A) amplifies the positive DC voltage appearing from the Space voltage doubler rectifier and the other half (V3B) amplifies the DC voltage from the Mark voltage doubler rectifier. The common cathode resistor R11 serves the purpose of making one of the DC amplifiers discriminate against the other one. For example, when a Space tone is received, the voltage appearing on the grid of V3A may be about 20 volts and the voltage appearing on the grid of V3B may be only 1/2 volt. (These are voltages measured to ground). Because the grid on V3A is being driven rather hard, the plate current on V3A will increase significantly and this will increase the voltage across R11 making both cathodes more positive with respect to ground than they were with no signal. The Space tone resulted in about 1/2V appearing from the Mark circuit on the grid of the Mark triode (V3B). However, the cathode voltage on V3B has increased thereby cancelling the effect of the small Space voltage appearing on the Mark grid. When a Mark tone is received, the Mark triode V3B receives the larger voltage and it (V3B) discriminates against V3A. The net result is that the plate current in the triode receiving the signal will be about 10 mA and the plate current in the other triode will be about zero mA.

8) The combination of R12 and K1 translate the varying plate current from the two halves of V3 into loop opens and closures. K1 is a polarized (polar) relay such as the 255-A. When current flows thru the windings in one direction, the armature operates in one direction and when current flows thru the windings in the other direction the armature moves in the opposite direction. For example, when a Space tone is received, current flows from B thru the top half of the R12 into the plate of V3A and from B thru the bottom half of R12, up thru the relay windings, and into the plate of V3A. This operates the armature in one direction. When a Mark is received, the current flows from B thru down thru the bottom half of R12 and into the plate of V3B; it also flows from B thru up thru the top half of R12, down thru the windings of K1, and into the plate of V3A. Because the current is now flowing down

thru K1, the armature moves in the opposite direction closing the opposite contact. The armature of K1 and only one contact are inserted into the local loop. Therefore, when the armature of K1 is operated in one direction the loop is closed, and when operated in the other direction the loop is open. By operating switch S1, either relay contact can be used to close the loop. This permits interchanging Mark and Space in case the signal being received is "upside-down".

SUMMARY

We have just described the operation of a simple TU. The performance of this unit is comparable to any of the more complex units (and much better than some of the all transistor units) When a good signal is presented (proper tone frequencies, no noise, no interference, and no fading). However, when conditions are other than ideal, it suffers from various problems. Next month we will describe some of the problems and possible ways to overcome them. Of course, a more complex unit will result.

SO WHAT'S NEW?

We have recently received from Raymond C. Dick, WA1DPX/WA1HDQ, several pages of information of interest to those interested in RTTY, especially newcomers. This month we are running a bit long, so will defer printing some of the details. Anyone interested should write to him at 6 Herbert Road, Arlington, MA 02174. He lists 30 RTTY stations operating in the Boston area on 51.192 MHz, AFSK on AM, horizontally polarized.

73 ES CUL, RG.

Check Your Renewal Date

Check your address stencil for expiration date of your subscription. The month and last numeral are the month and year of your expiration.

On your address stencil the month and year of the expiration of your present subscription are coded by an abbreviated month and figure. The figure being the last digit of the year. Dec. 8 - means the last issue on your subscription is December 1968.

BROAD MINDED

USE NARROW SHIFT

RTTY JOURNAL

RTTY-DX

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



Hello there. . . .

Band conditions have continued to be spotty, and perhaps more bad than good. However, in some areas things seem to be doing great. Stan, WB6QFE, reports a new one active from Guam, KG6AAY, a Navy club station, is putting out a very good signal from a tri-band beam up one hundred and two feet and they have under construction four phased verticals on 40 meters that will be pointing toward the USA. They are really getting around too as they have since worked VK3NR and G6JF and I am sure many more by this time.

Recently Mort, VE5DR, was in QSO with Sako, JA1MP on 14 mc, and we have printed KA2DO on the same band so I guess it is safe to say that the regulations in Japan have changed to allow F-1 on frequencies other than above 29 mc., although we have not run across anything about it in any of the publications as yet.

In last months round-up of awards we missed W2UGM and W8CAT for the QCA 25 listing. These came to light in a list that Bill, G3CQE sent to Dusty. Bill also points out that it would be helpful if you put on the card "2XRTTY" or some other such identification when making out a QSL. He has had many cards come in for QCA credit that have no indication that the contract was on RTTY.

The latest copy of the BARTG Newsletter (Nr. 38) recently arrived and it is always interesting to read what's going on across the sea. One of the more active stations on the DX bands is Robin, G8LT, chairman of the BARTG Committee. Robin certainly does have a very distinctive cw i.d.

Quite active on Fifteen meters of late has been GB2SM, The Science Museum of London. They really have some beautiful equipment and a signal to match. They are set up with the communications exhibits and have a remote ROPage printer located so that the visitors can read the copy. The next time you contact them you may

very well have a few dozen eyes focused on what you are saying.

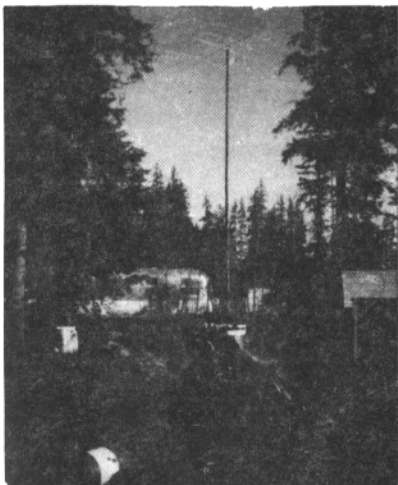
A fairly new station active on Fifteen is VO1EE. John has been on RTTY for about a month and puts out an excellent signal. He is using a HT-32 transmitter into a Quad and while his shift was a bit off at 450 hz. John promises to have that corrected shortly. John is also using a TT/L2 convertor. His QTH, Port Elizabeth, is a small island a few miles off the mainland and should be a good DX location.

Arriving too late to make last months column was notice of the 1968 Alexander Volta RTTY DX Contest sponsored by the SSB & RTTY Club of Como, Italy. The rules remain the same as last year and apparently everyone that has submitted a score in the past has received by mail the rules and log sheets for this years Contest. If you receive this issue before Contest time give it all the publicity that you can on the bands. The Contest period is 1400 GMT December 21 to 2000 Gmt December 22.

In a recent QSO with Bob, ON4CK, he was explaining his outgoing QSL procedure and as it may also apply in many other instances we will briefly review it. Bob answers QSL's 100 percent. The ones received via the bureau are answered via the bureau. The cards received direct are answered direct if there is at least one IRC enclosed, if not, it is answered via the bureau, which will take some time. As Bob says, during a contest he may QSO seventy-five or more USA stations and they all send him their QSL air mail. It is quite impossible to answer them all by the same method because, as Bob says, his small change box is not so big! So fellows, an IRC or two to a DX station may get a faster response.

John, KL7DRZ, up at Auke Bay, Alaska recently sent along some very interesting information that I would like to pass on to you. For two seasons now John has been conducting a "mail" service between Alaska and Byrd and South Pole Stations

in Antarctica via RTTY. This is during the approximate period May through October when winter conditions down there preclude any outside contact except via radio. This season John says that the results were very gratifying as 634 Hamgrams were received and 486 Hamgrams were sent to Antarctica via John's station.



John, KL7DRZ

This year John replaced his fixed wire array with a 107 foot stick. The pole had a track and winch arrangement to allow for fairly rapid raising and lowering of the antenna to make changes and adjustments. He had five different antennas before settling on a five element Yagi on a 46 foot boom. Here is an excerpt from KC4USN copy that will attest to its effectiveness. Quote "Couldn't copy you better than if you were next door. You are running 40 over S 9" Unquote.

John also says that after exhaustive tests they found that a shift of 200 cycles was the most accurate at 45 baud between the two locations.

The weather down in Antarctica can be best illustrated with another quote from some page copy. Quote "It's a hot and humid minus 102 degrees at the South Pole today", and at another time, "It got down to one hundred and twelve below and for four days it was around minus one hundred and ten" unquote.

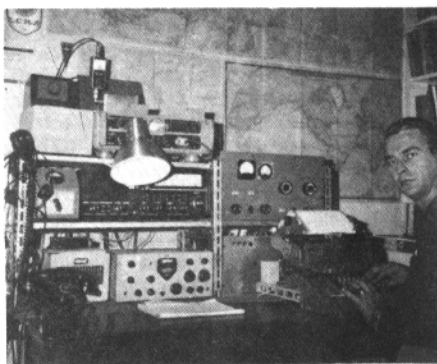
Well, I guess that cures me from talking about the cold weather around here anymore John is certainly to be commended for his public service in maintaining schedules with the fellows at KC4USB and KC4USN. The winter crews at those locations run at an average of 21, fourteen Navy personnel and seven civilians.

In a recent QSO with Jean FG7XT, I gave him an S 8 report, much less than his usual booming signal but which I attributed to poor conditions. Imagine my surprise when Jean informed me that he was only running five watts input. Jean has been trying the QRP with the object of building a complete solid state transmitter for possible portable use. Incidentally, if his plans work out Jean will again be on Martinique on the last day of December and the first day of the New Year. It may be a little difficult for some of us to find the keyboard on New Years day however.

Due to the licensing changes here in the states you may hear some new calls on the band that are really old buddies in disguise. A few that come to mind at the moment are, Henry W4MCT, now K4CZ - Edd W6LDA, now K6EV - and Ed K3GIF, now W3UN.

Short on news this month but that's the way it goes. Hope that the New Year will be THE year for you.

73 de John



Fred, HK3SO
RTTY JOURNAL

RTTY JOURNAL Annual PX AWARD

AWARD

For some months now we have been trying to come up with something to accomplish two things on RTTY. First, to promote increased activity from both a DX and domestic standpoint, and a second, to try to spread the activity around a bit. Among RTTY'ers there seems to be some averseness to operating on Forty, Fifteen, or Ten except during a contest.

What follows will describe an annual event in which, it is hoped, all Rtty'ers will participate. The object of the game is to make contact with, and get confirmation from, as many amateur prefix throughout the world as possible in a one hour period.

Here are the rules.

1. Start - 0000 GMT Jan. 1, 1969
End - 2400 GMT. Dec. 31, 1969
2. Bands - 3.5 - 7 - 14 - 21 - 28 - Mc. amateur bands. All contacts must be two way RTTY.

3. Points - One point for a confirmation of QSO made on EITHER the 3.5 or 14 Mc. band OR two points for a confirmation of a QSO made on EITHER the 7, 21, or 28 Mc. band. Please note that only one confirmation from a prefix will count in the scoring but it is to your advantage to get the extra point by trying for a contact on one of the three bands noted above. Confirmations may be in the form of the conventional QSL card or by letter containing all the pertinent information. The "type picture" sent over the air is not acceptable.

4. Explanation of Prefix - The prefix is that preamble to the call authorized and issued by the licensing authority of the country contacted, K1, W1, WA1, WB1, are all separate prefix as are G2, G3, G4, G5, etc. W2XXX/KH6 counts as Hawaii W2XXX/MM counts as W2. KE1YJ and 4A1YJ, although held by the same operator count as two prefix if QSO'ed at different times and two QSL's are received. G2HIO/a/Wales would count the same as Gw2.

5. Scoring - Do not send any QSL's until requested to do so. Between Jan. 1, and Jan 31, 1970 send a letter to the DX Editor showing the following information.

- A. List of prefix confirmed (call letters)
- B. Frequency of the QSO.
- C. Total points claimed.

QSL cards will be requested for final determination of the winner and all cards will be returned.

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6. Prizes - One prize will be awarded. It will be in the form of suitably engraved plaque to be retained permanently by the winner. A similar award will be presented to the winner each year. A certificate will be awarded winner on each individual band.

50 States A Year AWARD

In the hope of increasing interest and activity the RTTY JOURNAL will award a plaque to each station that works All States during the calendar year. Starting Jan. 1, 0000GMT through December 31st, 2359 GMT. QSL cards should indicate two way RTTY contacts. Any bands may be used and QSL cards must be received by March 1st of the following year to be eligible.

Remember there is no limit to the winners, (maybe we are sticking our neck out) so lets get started. It will be called the 50 States a Year Award.

So here we go. Everyone starts off equally and a new contest starts every year. GOOD LUCK.

--

Correct Voltage Checks

for the TT/L-2

Keith Petersen, W8SDZ

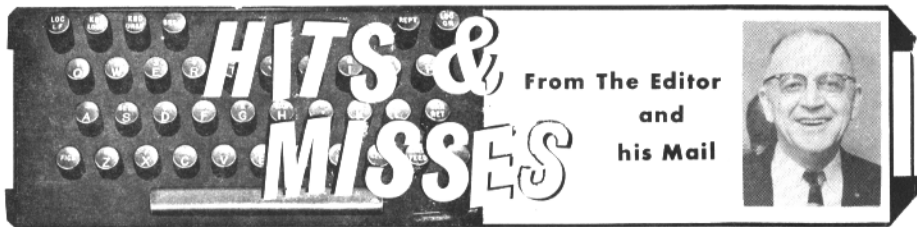
With a 1.5V P-P 2125 CPS tone at the grid of V1, there should be about 40V P-P at the plate, approximately 10V P-P at the grid of V2, 45V P-P at the grid of V3, 40V P-P at the center of R-15 and the plate of V-4. There should be around 120V or so at the secondary of T-3.

D.C. voltages are present from this point on. Grid of V-6A is approximately minus 50V. with the ATC/DTC switch at DTC and about minus 28V at ATC. All other voltages are with the switch at DTC. Cathode of V-6A minus 50, grid of V-7A minus 45 approximately. The grid of V-8 (6W6) should be about zero to minus .2V with mark and minus 45 to 50 with space. Diode D-15 should have the same positive voltage on each side. The far side of NE-1 should have about plus 10 volts on mark and around minus 45V on space. The grid of V-8 cannot go very far positive as the cathode is at ground potential.

--

RTTY JOURNAL Binders-

\$2.50 -pp.



At least we can say he "Used to work for us for nothing---" We have just learned that Jerry Hall, K1PLP will be joining the ARRL headquarters full time as a member of the technical staff. Jerry has furnished us with some of our best articles in the past and we hate to see him go but the ARRL is getting an excellent man. Jerry is one of those rare good technicians that can also explain it to a peon like me. Jerry has promised the last article on his series of toroid filters as soon as he can get organized but in the future he will be writing for a much larger audience in QST. Good luck Jerry.

It is hoped that the two achievement awards announced in this issue will offer a challenge and promote more activity during times when there is no contest on. During contests activity is at a peak then everybody disappears until the next one. And speaking of DX contests some different method of scoring, other than the zone system, will have to be evolved before a W or VE will have much chance to win. A lone DX station in country X can work 100 stateside stations for 1000 points but the 100 stateside stations each end up with 10 points and who is left for them to work. It is a very tough job to find a method of scoring that is fair to all, possibly the answer is division winners only. Anybody have ideas.

Mention last month of our disappointment in the apparently low interest in the SWL division, of the RTTY Trophy Week End, brought in some logs and letters from SWLers. Apparently we were negligent in not being more specific on how to submit a log, a number of SWL did listen and would like another chance. We are pleased to note that two future contests have included SWL sections.

The Volta contest of which we received no information in time to include last month, and the contest is being held on the 21-22 of December, probably after you have read

this. A new contest "Giant-Flash RTTY Contest" (details in this issue) has also included a division for SWL. In both these contests a "Zone Scoring Chart" is used but a little studying of the rules should help the SWL to figure his score from the chart. A copy of the chart is on page 4 of September RTTY JOURNAL and also published in QST at about the same date. Keep your information on the station you are listening to, if you can copy both sides of the QSO it is two entries. Here is a chance to compare your abilities with others, lets have your comments.

One thing we have become very good at since publishing the Journal -- digging out coins that have been taped to cardboard or paper. We never knew there was so many kinds, colors and sizes of tape - all of it tough and sticky. We'll tell you our secret, forget the tape, dig from the back through the paper and then yank the coin from the tape. Don't go crossing us up by taping both sides.

I suppose every publication receives notices of "Silent Keys". Having a rather exclusive circulation some of these turn out to be acquaintances and some of them very good personal friends. In several cases of personal friendship we have wanted to extend our sympathy through this column. However, there are cases we do not hear about and do not know, and as the grief and loss is equal we have made a policy of omitting such notices in the Journal.

We hear that the Air Force MARS has converted it's Trancon net to narrow shift and expects all AF RATT to be converted by July 1969. Broad minded these boys!!!

Do we have an ambitious reader that likes detail? Letters of inquiry ask - what issue was -- in ? We dunno and have to sit down and go through them all. If someone

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would make up an index of the past two years I know it would be appreciated, not only by us but many of the readers. If anyone wants to tackle the job let us know. Like all our other authors the payment is only satisfaction in helping the RTTY fraternity.

Following is part of a letter received from Arthur, ON4BX upon his return home from an extended trip around the U.S.

I would appreciate if you could mention in the Journal the following lines to let me say how I appreciated the hospitality of all RTTY fans. First of all to John W3KV, you know already how long I stayed with him and his nice family, also I appreciated the hospitality of Bob, WA6WGL, like you he spent a couple of days with me, arranging schedules with the California gang. I was by example honored meeting personally W6AEE and W6CC. Bob, his XYL and myself were for a day in Disneyland. I also send thanks to Ed, K3GIF and his XLY for hospitality and technical support and let me say his fine organ music is still on tape. I will add that my trip was monitored day after day by John and then Bob on the west coast. My contacts were with Rene, ON4JP, located a mile from my home and had the privilege of contacting him almost daily from the following stations, W3KV, K3GIF, W8CQ, W8SH, W9DPY, K0MIC, WA6WGL.

I would like to end these lines with a list of the hams I have met personally, W2YNK, W3KV, K3GIF, WA4JCD, W8CQ, K8QLO, W8SH, W9DPY, W0HFX, K0MIC, WA6WGL, WB6QFE, W6AEE, W6CC, W6DDQ, WB6JSY. I am sorry to have forgotten several others but everyone was very hospitable. I also had the pleasure to talk by landline to Irv, W6FFC. I thank them all, in making my trip such a pleasure.

We hear that Freeman, KH6AX who keeps daily RTTY skeds with the hospital ship "Repose" in Viet Nam waters lost three of his antennas during a 100 MPH storm. He is still continuing with his lone remaining antenna however.

BACK ISSUES —

Only back issues available are July through December 1966. February 1968 to date. Copies are 30 cents each. RTTY JOURNAL Binders are available at \$2.50 each. Postpaid.

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TELEX in JAPAN

Paul Haire, WILLY

Two engineers from the Nippon Telegraph and Telephone Public Corporation presented a paper at the 1968 IEEE International Conference on Communications, describing the new TEX-A3 teleprinter which has been developed for telex (subscriber teleprinting) service in Japan. From the paper and from the accompanying photographs, it appears that the machine is a well-made "ASR" configuration looking much like a Model 32. Since the reperf (non-typing) and TD are very compactly arranged at the left side, the TEX-A3 is only slightly larger than a 32 KSR. Instead of a type basket or turret, the printer uses an octagonal type wheel, about an inch in diameter and six inches long.

Of more interest to RTTY readers is the fact that in Japan a telex instrument must provide not only the 26 letters of the Roman alphabet, ten Arabic numerals, and a fair assortment of punctuation marks and control functions, but in addition, the 40 letters of the Katakana phonetic alphabet. The TEX-A3 prints 116 characters. To accomplish this, Japanese telex uses a 6-level code rather than the familiar 5-level Baudot. There are four character rows on the keyboard (making a total of 64 keys if you include all control and signalling functions), and there are not two but THREE SHIFT POSITIONS.

We may hope that as the Tex-A3's replace the TEX-2 instruments, the older machines will be made available to Japanese amateurs, as some of the corresponding Model 26's were made available to U.S. hams. If 6-level to 5-level converter-buffers became a necessary prerequisite for an RTTY contact with Japan. Wouldn't we have fun inventing them!

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"Dusty" Dunn — W8CQ

Editor & Publisher

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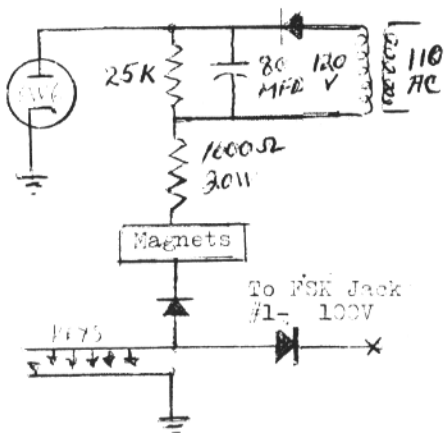
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FSKING the 100V with the TT/L

Tony Sperduti, WB2MPZ

I found that all the circuits that have been printed so far have changed the shift pot adjustment on the 100V. In fact they have changed the pot so much that it has been impossible to get narrow shift (170) out of it.

Being narrow Minded I have come up with this circuit. It does not change the shift pot adjustment on the 100V. I have also been able to put a Perferator and another machine in the circuit without bad results. Another advantage is you don't have to be on the other fellows frequency. The Diodes are 400Volt 200 Mills.



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CLASSIFIED ADS

Rates - \$1.00 30 words - Additional words 2¢ ea. Closing date 1st of month.

WANTED: Teletype #163359 (or Equivalent) three speed (60-75-100 WPM) transmission for model 28KSR Teletype. State condition and price. E. Rowekamp, 8850 West M. dland Drive, Greendale, Wisconsin, 53129.

Wanted: one good teletype machine Model 15, 19 or 28 complete or pieces. Will trade 32V3 with three shifters. Rather have local deal to prevent shipping. But will consider anything. K QWG, Jim Lynch, 101 Story, Boone, Iowa, 50036.

TYPEWRITER RIBBON REINKER, Hand operated model now only \$3.00. K575 or K764 -ink/available at all National Cash Register Co. stores at 75¢ per tube. Walter Nettles WARS-8355 Tanque Verde Rd. Tucson, Ariz. 85715.

SELL: DECADE SCALER PLUG-IN'S. Good to 100Kc. Beckman. \$8.00 Unused Mod. 15 Page Printer \$75.00 in crate. Complete station, SB-34. Aluminum Inst. case. Ants. Etc. \$275. 6.5 kva 4 cyl. gen. 110-220 on trailer, just rebuilt \$380. R.M. Ellis. 1356 Elizabeth St. Las Vegas. Nev. 89109.

AVAILABLE NOW; MAINLINE TT/L-2 with or without scope phase indicator. Accessories, AK-L AFSK unit and choice of filters. ST-3 terminal unit and other TU units, all types of accessories including filters. Whatever your needs contact J*J Electronics Communications Specialists. Canterbury, Conn. 06331.

RTTY GEAR FOR SALE. List issued monthly. 88 or 44 mhy toroids-5 for \$2.00 postpaid. Elliott Buchanan and Associates, Inc. 1067 Mandan Blvd. Oakland, Cal. 94610.

CLEANING UP (!): TEKTRONIX 511-AD 10Mc oscilloscope, serial 3212, perfect, \$200; Model 19 TTY, just reconditioned inside and out, perfect, \$125; PRXD REPERF/TD, W/cover. \$45; Northern Radio 105 model 4A FSK exciter w/P.S., perfect, \$60; HALLI-CRAFTERS SX-100 receiver, \$140; HEATH IG56 sine/square generator, \$35; Eico VTVM w/uniprobe, \$20; PLATE EXFRMR, 7000vct 1 amp, (!) for RTTY KW, \$50; ART-13 xm'r, \$25; COLLINS pto, 2-3mc, linear, #70E2, \$10; WC tape reader, \$7.00, \$1.00 for slip base; 14 RCTR cover, gloss black \$5; 14RCTR, needs work/or for parts \$10; have assorted junk like K.W. plate caps, loading caps, jack bays, relays, etc. write or phone Gerry Block, WA2YJD, 35 Amherst Road, Great Neck, Long Island, 11021, 516-487-2331.

KITS UNFINISHED - INCOMPLETE - Problems - waiting for time-? Send them to J-J Electronics, communications specialist, licensed engineer with lab equipment. -Ham rates - Fast, efficient service. Canterbury, Conn. 06331.

FOR TRADE: 28KSR in excellent operating condition, low hours, adjusted to manufacturer's specification. With ESU, but without cabinet. Will buy cabinet and assemble for the right offer. WANTED: quality receiver transmitter, transceiver. S. DALY 105 Bentley Ave., Old Bridge, N.J. 08857.

ORDER; SIMPLEX Auto-CR & LF kit for model 15 and 19 printers. Completely mechanical, with complete instructions \$7.50 PP. No postal money orders please Robert Zelenka, W8TMO, 14446 Swanee Beach Rd. Fenton, Mich. 48430.

NEWEST RTTY RIBBON INK: Scientifically formulated, intense black. Dries instantly, paper and tape; never on ribbon. Tremendous ribbon life. Two ounces, \$1.00. Foreign, \$2.00. Guaranteed! Marv. Cook, WA2RDC, 1992 Windsor Street, Westbury, New York 11590.

FRXD COMBINATION (typing reperforator and transmitter distributor) with synchronous motor. This is an exceptionally flexible unit combining reperforator, a reader and distributor on one base. All three units can be used separately or together, taking the place of a reperforator and trans-distributor. Used with a model 15 page printer it will provide all the functions of a model 19 with much more flexibility. See Feb 1964 CQ for schematic and additional information, used, good condition. \$32.00 ea. TT63A regenerative-repeater with all the tubes and cable, used, excellent, \$18.00 ea. Synchronous motor for model 14, 15, 19 or trans-dist. used, checked out \$8.50 ea. Relays W.E. 255A used good \$1.50 ea. Transmitter-distributor, model 14 used, good, \$18.00 ea. Keyboard for model 15, all keytops, used good. \$5.00 ea. Send us your requirements. Atlantic Surplus Sales, 300 7th Street, Brooklyn, N.Y. 11215

FOR SALE - AN/URA-7 Dual Diversity Teletype Converter, 50kc input. Two CV71/URR and one CM14/URR complete with rack, cables, spare parts and manuals. Built by RCA for USN. Includes home-bru 455 to 50 kc converter and polar relay output. Prefer "local" sale and pickup only - no crating or shipping. Will consider delivery to Connecticut or R.I. to points close to Route 95. \$100 takes all. Paul Boivin Jr. K2SKK, 319 So. Orange Ave., Livingston, N.J. 07039.

2125 and 2975 CPS dual tuning fork assembly \$33, .05% stability, 68 to 86 F. Transistor fork drive circuit kit \$10; assembled circuit \$16. Data available. RIVERBANK LABORATORIES, Box 65, Geneva, Illinois 60134.

LARGE TT/L-2 DRAWING- 15x 30. \$1.00 postpaid. Keith Petersen, W8SDZ, 1418 Genesee, Royal Oak, Mich. 48073. Phone 313-585-4431

FOR SALE: TELETYPE MODEL 14 TD, 75WPM. Easily changed to 60WPM by simple change of gears available from RTTY Journal advertisers or Teletype Corp. Good Used: \$20 FOB Detroit. Immediate shipment upon receipt of order. Keith B. Petersen, W8SDZ, 1418 Genesee Ave., Royal Oak, Mich. 48073. Phone 313-585-4431.

WANTED: ONE HAMMARLUND SPC-10 SSB converter for use with SP-600 Receiver. Robert Reed, WA4HSR, 3003 Eleanor Ave., Louisville, Ky. 40205.

Additional Classified on Next Page