HORSE TRADES

This page of the Bulletin is for use of amateurs who who have RTTY equipment for sale or trade and those looking for equipment to buy or trade. It is afree service and may be the means of getting someone on the air.

WANTED—W. E. Filter, D. 165628.

FOR SALE—Model 12, minus Keyboard, Toroids, 9 henry centertapped W6HFK

WANTED—Receiving and Transmitting Distributor for Model 12 .... W9HJV

FOR SALE—1 Receiving Distributor for 12, 1 Model 25 Printer, 8 to 12 Toriodial Coils W2EHW

FOR SALE OR TRADE—Kleinschmidt (CW) Perforator, Transmitter Head and Power Supply W7WJ

WANTED—Station Photos or group plates for use in Bulletin .... RTTY

WANTED—Keyboard for Model 19 .... W6AEE

FOR SALE—Model 12 Complete with Keyboard .... RTTY

FOR SALE—Model 15 Complete W6AEE

WANTED—Base for Model 15 .... W2JAV.

WANTED—Tape Off the Floor Copy .... RTTY

RTTY SOCIETY OF SOUTHERN CALIFORNIA
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RTTY

RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY

NEWS OF AMATEUR RTTY

APRIL 1954
25 Cents
Vol. 2, No. 4

A Range Finder for the W6NRM-W9TCJ Electronic Tape Distributor

By ROBERT H. WEITBRECHT*

Introduction

As has been pointed out by W3PYW in his recent paper[1], the range finder as found on a single-magnet printer (Model 14, 15, 26) offers a quick and graphic means of checking for quality of teleprinter operation. The device exerts a direct control upon the "timing of the receiving distributor, thus dictating the exact point at which the start-unit in the received teleprinter signal releases the distributor. A close analogy can be seen in the spark timing function found in the distributor of any gasoline engine. Obviously in either case there is a certain setting which must be used for the most reliable and efficient possible operation of the machinery involved.

The range finder idea has been applied by W3PYW to a transmitting distributor and is described in his paper mentioned above. The idea is not new, however, having been employed for years in devices called " distortion test sets " manufactured by the Teletype Corporation, for one example. Briefly the method is to advance or retard the leading edge of the start-unit in a known and measurable relationship to the rest of the teleprinter signal. (Here, the whole "signal" represents one character sent) As shown in Figure 1, the start-unit length is made adjustable. A control is provided in some manner to adjust this length in a smooth and calibratable manner from one extreme through zero (normal) to the other extreme of the range.

Equipped with such a device, the transmitter has a method of generating a teleprinter signal of known and controllable range settings and is in a position to aid in evaluation of performance of any receiving teleprinter connected into the circuit. By running a series of test involving gradual advancement and retardation, all teleprinters connected can be observed and appropriate adjustments made to obtain optimity for any given printer, same as having a "range finder" on the receiving printer. This is a great convenience especially to owners of model 12's, which have no ready method of determining range tolerances.

The Electronic "Range-Finder"

The device is easily designed into an electronic tape distributor such as the one descibed in a recent paper[2], In simple terms, the adjustment of the start-unit length is accomplished by variation of the length of the immediately-preceding stop-unit. This is done with a one-shot multivibrator circuit to generate the adjustable stop-unit only, and disconnection of the distributor's own internally generated fixed stop- unit. Obviously the distributor has to be operating all the time to preserve time relationships, i.e. scanning all the time.

The circuit presented in Figure 2 consists of a one-shot multivibrator arrangement using a 6SN7GT double-triode. Referring to signal waveforms diagram, Figure 7 of the paper mentioned (2), the tape advance pulse (also the flip-flop reset pulse) gives just the right timing point from which to kick off the new one shot circuit here. The distributor's own internally generated stop-unit is disabled by disconnecting the B plus

1. RTTY, March 1954

*Yerkes Observatory, Williams Bay, Wisc.

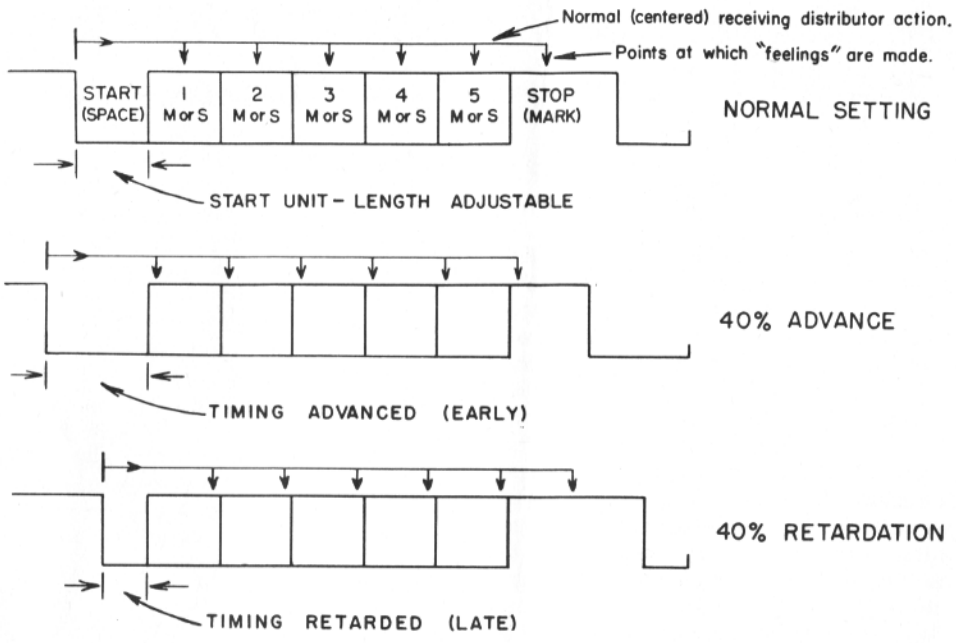

Figure 1

power from the first two top (horizontal) lines in the matrix. Figure 3 and 5 of the previous paper show this matrix, and it is suggested that the disconnection be done with a switch as shown here in Figure 2. With this arrangement it is then possible to use either the adjustable or non-adjustable stop unit feature, as when one desires to use the "range-finder" or not.

The positive rectangular wave from the one-shot is fed directly into the signal collector bus via a neon coupler, thus generating the desired adjustable stop-unit. It is triggered by a negative-pulse from plate number five of the last flipflop stage in the distributor. See Figs. 3 and 5 of paper[2] referred to above). Thus proper placement of the stop-unit in the composite teleprinter signal is accomplished. The length of the stop-unit is controlled by means of a potentiometer which supplies an adjustable voltage into the R-C portion of the one-shot circuit.

Calibration

Now the question of calibration must be considered. On the usual range-finder scale, such as on a model 14, 15, or 26, 100 points represents a full 22-millisecond time interval. We desire to have such a calibration on our transmitting "range finder". The potentiometer is calibrated using an oscilloscope connected so as to display the whole teleprinter signal as it repeats at 6.1 cps (368 OPM). Using the reticule on the scope or a ruler positioned horizontally on the screen, the horizontal gain is adjusted until a 22-millisecond interval fills exactly 100 divisions upon the ruler.

The 22-millisecond calibration is easily obtained using say the first band of the teleprinter signal generating the letter "E" for instance. Or if the before men-

2 Robert Weitbrecht, " The W6NRM-W9TCJ Electronic Tape Distributor , " RTTY, January, 1954.

tioned switch be switched to the fixed stop-unit position, the start-unit itself has an exact 22-millisecond length. Having calibrated the horizontal sweep of the 'scope, one may now determine various settings of the range finder potentiometer in terms of percentages advance and retaration from zero point. This latter is determined by the setting of the potentiometer which yields a normal 22 millisecond start-unit. Now the potentiometer is turned until the start-unit lengthens to 22 plus 11 or 33 milliseconds. This now represents 50 percent advance in timing. Conversely the potentiometer is turned in the other direction past zero-point to a setting which generates a 11-millisecond start-unit, representing 50 percent retardation. The control may thus be calibrated over the range, using intermediate points as necessary, getting the exact start-pulse lengths directly from the 'scope scale. The one-shot circuit should be well warmed up before calibration and use as the calibration itself tends to drift somewhat.

Using the "Range Finder"

The operation of the transmitting range finder for generating RTTY signals of known and controllable "range" is best accomplished with a series of runs using a RYRYRY tape loop. Just before each run, the timing setting, whether advanced or retarded and how much, is announced using keyboard transmission. In this way anyone receiving the signal knows what will follow, and if his printer operates correctly during the following run he knows that the printer is within adjustment tolerance that time. The test runs thus continue with gradually increasing and decreasing setting to 50 percent advance and 50 percent retardation.

As printers normally have only a 80 percent "range," at least during some of the runs, the printer will misprint noticeably. In this way, for any given printer, the limits of range between which give perfect printing may be found. These two limits should be near 40 percent advance and 40 percent retardation if the printer's range is propertly centered. If not, an adjustment is obviously needed and easily made upon the receiving distributor.

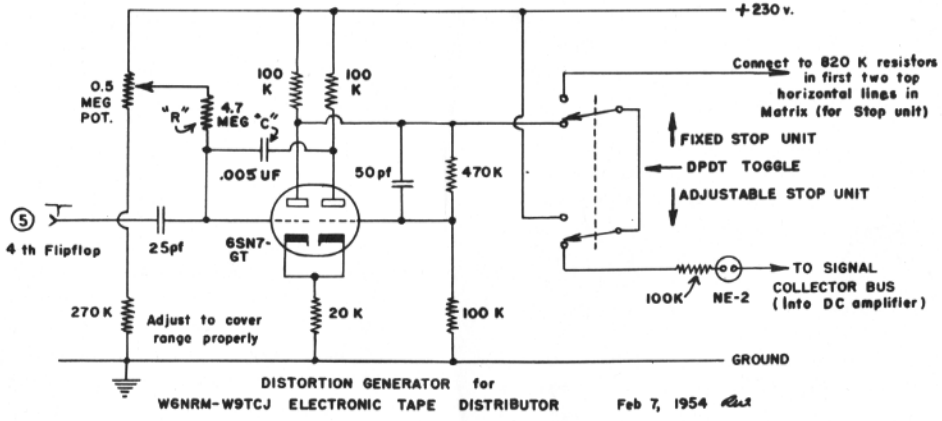

Figure 2

Conclusion

Ranging of the teleprinter signal, whether at the generator or at the receiving end, gives very valuable information as to overall signal quality. In this way various components can be checked and adjusted where necessary. This applies to polar relays, mechanical selector units, transmitting and receiving distributors, converters, and other "links" in the signal chain which represents the transmission of intellegence from one point to another.[3]

The one shot multivibrator circuit presented here is a moderately stable system insofar as calibration holding is concerned. It is suggested that some form of continous monitoring of the pulse length be employed, such as an oscilloscope or a simple meter circuit that reads pulse lengths directly, rather than depend upon a knob calibration. With additional parts the phantastron circuit could be employed if desired, although it is the writer's feeling that a meter circuit is the best way of indicating range settings. With such a means of monitoring, the present one-tube addition to the electronic tape distributor suffices.

References

[1]Frank White, "Intentional Generation of Distorted Teletype Signals and the Use of Range Finders".
—RTTY, March, 1954

[2]Robert Weitbrecht, "The W6NRM W9TCJ Electronic Tape Distributor".
—RTTY, January, 1954

[3]"Effect of Telegraph Distortion on the Margins of Operation of Start-Stop Receivers."
Bell System Technical Journal, July, 1944

Armed Forces Day

A. RADIO AMATEURS HAVE ROLE IN ARMED FORCES DAY PLANS

1. The Army, Navy and Air Forces invites all U.S. amateur radio operators to participate in the Armed Forces Day program for 1954.

The amateur radio activities are co-sponsored by the Military Affiliate Radio System (MARS), representing the Army Signal Corps and Air Force Directorate of Communications, and the Naval Communications Division.

B. RADIOTELETYPEWRITER RECEIVING COMPETITION

1. The radioteletypewriter receiving competition will feature a special joint message from the Chief Signal Officer (U.S. Army), the Director, Naval Communications (U.S. Navy), and the Director of Communications (U.S. Air Force).

A letter of acknowledgement will be sent to each amateur participant who submits a copy made from the radioteletypewriter transmission of this message. Transmission will be at 60 words per minute on the following schedules:

TIME	FREQ. (KC)	CALL SIGN
1300 (EST)	3497.5	A2USA
	7375	NDA
1300 (CST)	3497.5	A4USA
	7375	NDS
	14405	A5USA
1300 (MST)	7375	NDF or NDW2
	14405	Af6AIR
1300 (PST)	7375	NDW

2. Each transmission will commence with a period of ten minutes of test and station identification to permit amateurs to adjust their equipment. At the end of the test period, the message will be transmitted. The message should be submitted "as received" to Armed Forces Day Contest, Room BE-1000, The Pentagon, Washington 25, D.C. Time and call sign of station copied and name and call sign of amateur receiving the transmission should be included.

Results of Anniversary Sweepstakes Contest

After the transmitters cooled down and new paper had been installed in the printers, a pause to look at the results showed many new contacts. New stations seemed to be the order of the day, and operators finding their equipment would work more stations than had been believed. Conditions were not the best, but this did not cool the avid RTTY man's desires for new contacts.

Contrasted to the November Contest, better equipment and operation on more of the various bands was to be found at most stations. Twenty-seven ARRL sections were represented, with an even distribution throughout the country. All of the Pacific Coast states, Alaska, the Atlantic Coast states from Massachusetts to Virginia, and many of the states between. Canadian RTTY operators were also represented as well. A total of over four hundred and thirty contacts were made during the period of 6:00 P. M., E. S. T., February 19 thru 3:01 A. M., E. S. T., February 21.

Scores of stations reporting, were as follows, Call Sections, Totals Sections.

W1AW	9—324—Conn.
W1BGW	9—288—E. Mass.
W2JAV	15—840—S. N. J.
W2TKO	6— 96—W. N. Y.
W2TLY	3— 18—N. Y. C., L. I.
W3LMC	7—126—Md. Del., DC.
W3PYW	11—626—Md. Del. DC.
W6AEE	12—672—L. A.
W6CG	2— 14—L. A.
W6CND	5— 90—L. A.
W6LDF	8—360—L. A.
W6NCO	9—279—L. A.
W6OWP	12—708—Santa Clara
W6UPY	6—150—L. A.
W6ZBV	2— 26—L. A.
W7HJC	6—120—Wash.
W7HLU	2— 32—Wash.
W7LPM	6—192—Wash.
W8AV	1— 2—Ohio
W8BL	10— 340—Mich.
W8BYB	5—124—Mich.
W8IJV	5—100—Ohio
W8ZM	16—800—Mich.
W9GRW	6—161—Ill.
W9LKK	3— 30—Ill.
W9TCJ	12—528—Wisc.
WØCIH	2— 16—Nebr.
WØNME	5— 50—Nebr.

A large number of stations who took part in the Contest did not send in their logs, among these were:

W1FGL, W2's BDI, BFD, PAT, PAU, K2GQH, W3's ODF, UWM, VRI, W4's RKD, ZC/2, W5's ENH, RJG, W6's AAQ, CGN, DEO, DMK, DOU, DRL, FDJ, FGS, LGO, NYF, PNW, SCQ, SEW, WYH, K6FCT, W7's AXJ, SO, KWB, LU, W8's DVL, GWA, HP, SPN, W9's CNN, RUC, SPT, THE, UAU, ZJE, WØ's BP, FKK, HKF, KØWAW, VE2ATC, KL7CK.

Operations were on eighty, forty, twenty, fifteen and two meters, Frequencies used and number of contacts reported on each were as follows; 3620 kcs—147, 7140 kcs—235, 14150 kcs—6, 21150 kcs—2, 147850 kcs—12.

Quite a bit of QRM from commercial RTTY stations was had on 3620 kcs, some QRM on 7140 from BC stations. However the interference on 7140 did not seem to bother too much, as it is possible to operate between the two stronger BC stations.

Top honors go to Phil, W2JAV, with W8ZM close behind. Next came W6OWP followed by W6AEE, W3PYW, W9TCJ, W6LDF, W8BL, W1AW, W1BGW and W6NCO. Other scores in order can be found from the above listing. The two brothers W8ZM and W8BL seemed to be having their own family competition. Another interesting point is that of the areas in which the largest number of stations took part, ie, Los Angeles and Washington, followed by the Detroit and Washington DC area.

An earlier claimed score will be found in QST, in which some of the above scores will be found somewhat larger. This was due to a misunderstanding on the part of some operators, and the contest committee had to throw out some of the higher scores, due to operating beyond the contest period. However, comments on some of the logs sent in mentioned this. Their comments seemed to range along the line of "too much fun to stop," etc.

RTTY would like suggestions as to future contests, how much time to be allowed, type of operations, and any other comments.

MODIFICATION OF SIX UNIT TAPE KEYER

BY W4RTJ

The six unit tape keyer has eight segments and rotates at approximately three hunrded and twenty (320) revolutions per minute. It is designed for use in connection with the "Teletypesetter" perforator or for other uses where more functions are desired than is possible with a five unit type of machine.

It may be converted for ham use by cutting the lead to the seventh segment, taping it and jumping the seventh and eight segments; this results in automatic tape transmission at the rate of about fifty-five words a minute, but that is still faster than I can type.

CORRECTION

I've passed the word around that I made a mistake in listing two resistors in that diagram, but best I drop the info to you in case it was not forwarded on the two-meter circuit. The plate resistors for the 6SL7 should be 100K instead of the 10K I specified. My origional diagram is correct. I made an error in copying and missed on the double check.

73's BART—W6OWP

TWIN CITY RTTY CLUB HOLDS MEETING

The Twin City RTTY Club met Feb. 16th at the Laboratory of WØ BP and a comparative demonstration of receiving equipment was made. WØHZR brought his Model 12 with new converter containing a Clipper, Limiter, Thordarson Band Pass Filter, L-C Discriminator, Cathode Follower, DC. Restorer, Schmidt Trigger, et al, for comparison with the older equipment of WØBP consisting of his Model 12, and W2BFD type amplifiers except for one torroid. An old Super-Pro fed both converters and conditions were very poor as signals faded violently often with total fade-outs of either Mark or Space Frequencies on Commercials. Under such conditions and especially thru noise, WØHZR made much better copy. On the other hand under some amateur conditions, especially with a heterodyne frequency about a kc either side, WØBP made good copy while WØHZR was blocked cold due to less sharp audio filtering.

SUMMARY: Both are rebuilding again! PROGRESS, eh???????

RTTY is the Official Publication of the

RTTY Society of Southern California

and is published for the benefit of all RTTY Amateurs and Experimenters.

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For Information regarding the Society contact the following:
W6CLW—Ed Simmons
W6AEE—Merrill Swan
W6SCQ—Lewis Rogerson

For Traffic Net Information:
W6FLW W6IZJ

For "RTTY" Information:
W6CL W6CLW
W6DEO W6AEE

"Well, tiz I again with a little bit of info on whats going on in old AZS's shack out here in the BOOM DOCKS or should I say up here in the BOOM DOCKS By looking out the window one can pert near say that the spring thaw is just around the corner, which corner? Well your gess is as good as mine, but we are beginning to have some nice days now. I gess the winter weather has something to do with me in the way RTTY is concerned. That is I feel like an old bear coming out of hybernation. It's been about 4 months since I have listened across the bands for you fellows down ther. Seems that all I do 8 hours a day is tune in TTY and Mux sigs. for good old Uncle Sam and that might be some kind of an answer why my interest has strayed."

—Bill, KL7AZS

RYRYRYRYRY

"Merrill the bulletins sure has the stuff and you shall be receiving some from me shortly. I look forward with great eagerness every month to receive this little booklet which is just full of the stuff I long to read. Keep up the wonderful job "RTTY". It's here to stay and don't think I'm not trying to create greater interest in this hobby of ours I'm on the brink of success I hope."

—Bennie, VE2AKT

RYRYRYRYRY

"I received the 1953 issues of RTTY and think they are terrific. I am on single side band now would like to find out how some of the boys are getting along by combining RTTY and SSSC. This seems to me like a very simple way to get the frequency shift. Once you get your oscillator set on the nose, shift would be very accurate and would be the same on any band. Sounds too easy, must be a catch."

—J. P. Isaacs, W6PZV

RYRYRYRYRY

"Ronnie really did get excited over RTTY when I showed him a lot of copy down at the IRE convention the other day. Scottie has his converter going and it is now over at Ronnies house. They have been trying to get on TTY with the Collins KW-1 belonging to Ronnie."

—Mac, W5ESV

RYRYRYRYRY

"This location is nothing like the QTH down at Atascadero where I had the wide open spaces. Here I am restricted by the KING SIZED redwood trees that grow too close together and not enough space in between to put even a quarter wave on 80 meters."

—George, W6UEV

RYRYRYRYRY

"Have copied you and other W6's without any trouble here in BEERTOWN, from the short time that I have been FSK it seems to me that the CW boys are deliberately trying to jam any TTY QSO's, any way it sure looks that way. No matter where I or many of the other TTY stations may move, some CW signal is bound to follow, maybe the answer is hi-power."

—Norm, W9SKF

Better TU is a partial answer and the hi-power last,HI—Ed.

"Spent a very nice evening over at W2JAV's last night. Please sign me up for a year of RTTY."

—Edwin C. Mutzer, KN2EDF

RYRYRYRYRY

"Hope you receive the meeting notice that I sent you. We had our first meeting the other night and had an excellent turn out. Approximately 25 fellows showed up, of which about 19 were fellows with machines and others were very interested parties. Incidentally thanks for the fine movies."

—Pete, W6PYH

Movies were from our good friend W3 LMC, Howard—Ed.

RYRYRYRYRY

"Here is my subscription for 1954 RTTY's. I sure get a lot of information out of them. Incidently I have my model 26 on the air now but it is on 80 meters. I have too much RF floting around the shack on forty and it makes my equipment run wild HI HI."

—Don, W7KWB

RYRYRYRYRY

"Iam SSB for the past year with home made gear and KW peaks, but would like to find out what goes on the teletpye frequencies, which is a job to figure out from tail end station ID's."

—Harry, W8LEX

RYRYRYRYRY

"By the way, while still a couple of days out to sea from the states on our return trip from out 2nd tour of duty in the far East. I was tuning around the band and happened to get a signal that just about blasted out the receiver here on the ship. The signal of none other than ole "W4OYG" in Louisville Kentucky, he had a 5 by sig., and the model 15 here went just about nut's. Enclosed find portion of W4OYG's test."

—J. W. McGuire, RMSN ex WN3VAZ

"I heard you on 40 meters during the contest but couldn't work you. Seems like we just weren't getting out on 40 at all. Too bad too, because I had such a good start on 80 with 21 contacts in 11states. Sure had fun though and am looking forward to the next one."

—Chuck, W9THE

RYRYRYRYRY

"I still haven't figured out a way to FSK, the Viking 11. Do any of the fellows out there have Vikings? If so, how do they go about it? I tried a couple of ways on the Viking VFO but no luck. I couldn't get enough shift. I would like to use the VFO, but don't know how."

—Herman, W9HJV

See the March 54 RTTY—Ed.

RYRYRYRYRY

"Enclosed find some more Tape Off The Floor. Hope you can use some of it, will be looking for you at 11 p.m., our time on 7140. Gotta rush now as lunch hour is over but will write soon and may have some photos."

—Jack, W1BGW

Some of our other RTTY operators send in your Tape Off The Floor—Ed.

RYRYRYRYRY

"Have this model 26 working like a dream, sure is a fb deal, as the wx gets better here, will try to get a better skyhook for 80 and 40. I still have not finished the BIG FINAL. I need a wopper of a variable condenser for the class "B" 304-TL (at least 150 mmfd per section at 3,000 volts)."

—Phil, W2JAV

Can any one help him out?—Ed.

"Just a few lines to let you know I received the RTTY bulletin with the picture of your layout in it and it looks mighty FB. The one thing I noticed was that your 15 was setting on the table and looked rather crowded. So I hooked onto a 15N TTY table."

—Everett, ex W5ADE

Brother of ex W5AEE—Ed.

RYRYRYRYRY

"The amount of RTTY activity is certainly gratifying. I have worked many new stations the past month with seemingly some new calls heard or worked —nearly every "session". KZ5EA was printing FB hr last night and I may have contacted him. He wasn't to CW on transmissions so in change overs I missed for certain whether he was talking to me or someone else. HI, his shift was very narrow, less than 200 cps. But at least we have KZ5 on the air."

—Bart, W6OWP

RYRYRYRYRY

"I was a member of an Eastern Teletype Society, which was folded. (My Luck) Due to the distances involved in transaction of business, I was unable to obtain a printer. Being very interested in TTY, I would be very inbebted to you if you could direct me to a printer. Any model or condition."

Edward R. Aguiar, W6DHO

See Horse Trades—Ed.

RYRYRYRYRY

"On RTTY, I liked the bleed "RTTY" down the left front in the vertical direction, as you used up until the last issue. The blue ink also. Merrill, don't give up your marks of distinction, go back at least to the blue ink."

—Ray, W8KFA

Would any others like to see us go back to the blue ink?—Ed.

"I am building the W6NRM/W9TCJ converter in issue No. 4. Please mail me via parcel post 7 of the No. 7737 chokes for the filters as prescribed in this issue."

—W4LRR

RTTY is out of these fine chokes now, sorry—Ed.

RYRYRYRYRY

"Received last week your Bulletin information 1953 of the Southern California Radio Teletype Society. I find them very interesting and translate easy your copy. Some abreviation was new for me but I read and understand your articles. The hard for me was the plentiful of Model existing in the States. I hope work RTTY in VHF with audio frequency shift keyer with tone for Mark and Space time in five combination.

I have now some ideas in this work.

A few years ago I work only in C. W. the DX but now the DX band is still the same. The only California I work was W6MUR located in desert. And another W6MVQ near San Francisco.

Well Mr. Merrill excuse me for my bad letter and say to all member of RTTY Society good luck.

Many, Many thanks,

Sincerely yours

Luis Guillermin, F9OG

—Dijon, France

CORRECTION

Photo on page 2 of the March issue was of JACK BERMAN W1BGW—sorry the error slipped in.

IN THE NEXT ISSUE

MODIFICATION OF THE 32V FSK EXCITER UNIT

VE3GL, Rube Hadfield, reports 2 hour solid copy with F7BM in Paris on 14150 kcs.

* * * *

. . . . This is W4OYG, W4OYG, W4OYG Louisville, Ky. testing RYRYRYRYRY RYRYRYRYRYRY. This is W4OYG.

* * * *

FLASH FROM CHINA!

Confucius say: "RTTY Ham who tinker with distributor may have bad time."

* * * *

"Left W9BP/WRRR to return to W0BP for a short visit and went on air during sweepstakes without a copy of January RTTY, and wow what activity —Felt like the proverbial sparrow that flew into a badminton game before I could get free I had exchanged messages with W6OWP, W6AEE, W9SPT, W8BL, W3PYW, W8HP, and W9THE".

—73, Beep

* * * *

Beep is happy that he got his old call W9BP back again for Rockford, Ill. where he spends most of his time now. Any similarity to his initials BP or WØBP (exW2BP) is purely intentional. Starting as a spark coil "Brass Pounder," then, "Bum Phone" he has advanced to the sublime degree of "Button Pusher."

Traffic Net News

EMILE DUVAL, W6FLW

The RTTY Society of Southern California Net operates every Tuesday evening at 8:00 p. m. on 147.85 mc.

Activity for the month of March

March 9—W6CAP, N. C.—14 Checkins

W6AEE	W6ZBV
W6CL	W6ICS
W6EV	W6CYR
W6FLW	W6IIV
W6IZJ	W6CAP
W6SCQ	W6TRX
W6NWM	W6NAT

March 16—W6CL, N. C.—10 Checkins

W6CAP	W6IIV
W6CL	W6KNI
W6CLW	W6SCQ
W6EV	W6ZBV
W6FLW	W6IZJ

March 23—W6CLW, N. C.—12 Checkins

W6AEE	W6KNI
W6CAP	W6RL
W6CLW	W6SCQ
W6DEO	W6WYH
W6EV	W6NAT
W6IZJ	W6KNI

March 30—W6EV, N. C.—17 Checkins

W6AEE	W6PNW
W6CAP	W6RL
W6CL	W6SCQ
W6CMQ	W6UPY
W6DEO	W6WYH
W6DMK	W6ZBV
W6EV	W6KNI
W6IIV	W6FLW
W6IZJ	