RTTY

NEWS OF AMATEUR RTTY

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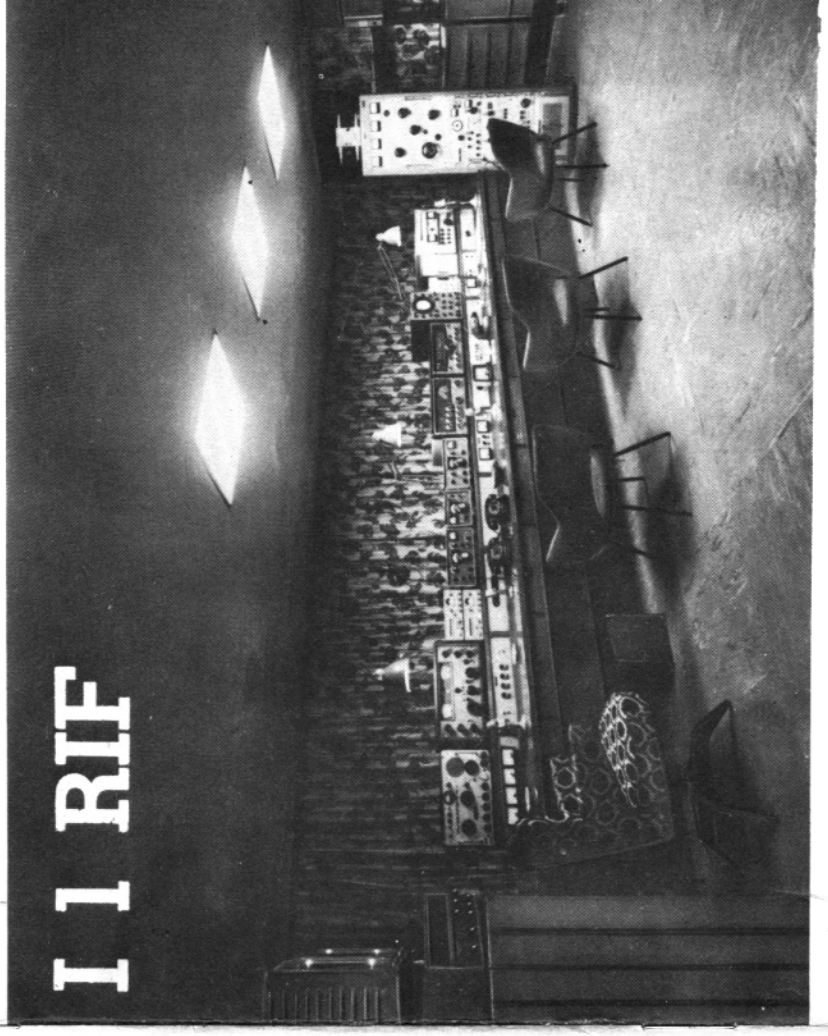

I1RIF, BRUNO RIFFESER, MILANO, ITALY

RTTY, Inc.
372 WEST WARREN WAY
Arcadia, California
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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.

WANTED: W U model 1-A tape head . . . K5CZV.
WANTED: Model 14 TD or equivalent, model 14 reperf, perfer typing reperf with kybd . . . K9MDM.
TRADE: Manual for TG-7 A&B for model 14 typing reperf. George Kasdorf, Sr. W9FSA, Rt. 1, Ligonier, Indiana.
FOR SALE: Model 152 Northern Radio Co., TU, instruction manual and conversion for 850 cycle data, (dual tone converter) $50.00 or trade for? J. C. Larson, W6IMQ, 1371 Baker, Apt. C, Costa Mesa, Calif.
FOR SALE: Model 15 with sync motor, perfect. Model 14 typing reperf with or without kybds, sync motors. Model 14 typing and non-typing reperfs needing minor repairs, recv only bases. Automatic tape rewinders, manual winders. 255 polar relays. 15 covers excellent, model 19 tables. (metal) K9CNG.
WANTED: CV89/URA-8 or single CV89, name your price. . . . K9CNG
FOR SALE: Model 19 complete with page printer, cover, perforating kybd TD, REC-30 pwr supply, and XRT metal table. Good operating cond. S. J. Foster, 733 Portland Ave., Rochester, N.Y.
FOR SALE: Model 26 with TU and controls incorporated for RTTY station including keying circuits for reperf and TD conrtol. Also separate complete TU with keyer and AFSK oscillator ready to go. TS-34/AP 'scope. Everything in working condx. W6NRM, 3941 Brookline Way, Redwood City, California.
WANTED: TS2/TG Brown Fox test set. V. A. Jupe, WOOKH, RFD 4, Box 12, Phillipsburg, Kansas.
FOR SALE OR TRADE: APR 4 recvr with CV-253/ALR converter, 4 band, 5-1,000 Mcs. Need 14 TD w/sync motor or other TTY gear. W8CSH, RFD 5, Athens, Ohio.
FOR SALE: Model 15 keyboards $12.00 each. . . . W2ZKV.
FOR SALE OR TRADE: NC-183 D recvr, good condx with spkr. Will trade for model 19 or 15 machine. W9KON/9, 415 Elmhurst Ave., Valpariso, Ind.
FOR SALE: Schematic for 15 from TM-11-2216. K6ZBL, 2816 Delaware St., Oakland, Calif. Send stamped envelope for copy.
FOR SALE: Model 15s with tables, sync motors excellent condition. $110. RTTY, INC. 372 Warren Way, Arcadia, California.

NOTES ON THE MARK III-B TERMINAL UNIT

By R. H. WEITBRECHT — W6NRM
3941 Brookline Way
Redwood City, California

The Mark III Terminal Unit — described in the January-February 1961 RTTY is now a permanent part of the W6NRM RTTY layout and has been operating over a year with excellent results. It has proved itself to be a thoroughly reliable and stable converter that handles the incoming and outgoing teleprinter signals with accuracy and dispatch. During the period of time modifications were incorporated to further improve its performance under all possible conditions — now resulting in the Mark III-B modifications which will be described. Using the Oscilloanalyzer unit (October-November 1961 RTTY) many bias observations were taken with the TU driving a variety of machines and circuits in its Teleprinter Loop, and data will also be presented.

The Mark III-B Modifications

The changes involved apply to the FSK Diode Driver amplifier portion. First, it was noted that the NE-48 clamping diode regulator lamp was being driven hard and over a period of time its operating voltage rose from 55 volts to almost 80 volts. This resulted in a gradual drift of the FSK deviation—in other words, the shift became wider and wider over a period of weeks. Of course this was readily compensated by appropriate adjustment of the Shift Control, but the change in operating voltage in the neon lamp was considered excessive and eventually could cause hum to appear due to loss of regulating action. Circuit analysis disclosed that the in certain Output FSK Sense Switch setting, the 12AX7 triode was passing 5 to 7 milliamperes plate current — excessive for the NE-48 which is designed to operate on 2-3 milliamperes.

The FSK circuit was rearranged as shown in Figure 1. The main change was the raising of the current limiting resistance in the 12AX7's grid from 15K to 160K. This helped matters in reducing the plate current to more normal proportions inasmuch as the grid is not driven positive so hard. Furthermore, the FSK Output Control was rewired as shown, and this enabled the entire amplifier circuit to perform well within the NE-48's rating.

However, later on a 51 volt Zener diode was procured and installed in the FSK Diode Driver amplifier's plate circuit, replacing the clamping diode and its NE-48 regulator lamp. This Zener diode, a Hoffman 1N1788A unit, is a 1 watt size designed to pass currents up to 10 milliamperes at an avalanche voltage level of about 50 volts. It is a semiconductor element which functions as an efficient voltage regulator, and moreover it can be cycled millions of times into and out of the avalanche region ("breakdown") without appreciable change in characteristics. Its dynamic resistance, at operating voltage, is quite low, so there appear only a few millivolts change due to change in operating current. This reflects in a well established shift value as well as a stabilized voltage drop for the Bias Meter to run therefrom. The modification needed to install the Zener diode is also shown in Figure 1. Incidentally, the half-section of the 12AX7, formerly used as clamping diode, is now available for use in a future AFSK oscillator circuit.

This completes the modifications to date, and hence constitutes the B initial on the Mark III TU.

Overall Performance of the Terminal Unit

The Bias Meter in the Oscilloanalyzer, operating in conjunction with the Mark III-B TU, has been extensively used in analysis work involving distortions in the Teleprinter Loop due to various teleprinter-keyboard arrangements operating at either of two loop currents, 20 mA or 60 mA. Likewise distortions in incoming signals (through the radio circuit from RTTY stations) were analyzed for possible characteristics in the TU's design as might introduce bias.

It was quite a revelation to note the influence of careful balancing of Mark and Space voltages from the TU's discriminator on teleprinter signal bias. If the voltage levels differed appreciably, for instance −50 volts on Mark and +70 volts on Space, several percent bias resulted. In this connection it may be remarked that in some amateur TU's there exist a control called "BIAS COMPENSATOR" which deliberately unbalances the discriminator voltage levels to overcome biased conditions in some incoming RTTY signals. However I feel that such a Bias Control is debatable as far as its value is concerned and it should not be on a TU's front panel. Its continuous adjustment leaves a question in the operator's mind as to whether it is truly neutral in adjustment when copying zero biased RTTY signals. A better arrangement would be a three position switch marked 20 percent Spacing Bias, Zero Bias, 20 percent Marking Bias so that there is no doubt as to correct TU adjustment under usual operating conditions. All in all, it is best to correct any bias right at the RTTY sending point and thus make the entire RTTY circuit exactly zero bias from the sending keyboard to the typing unit's magnet. This affords maximum range enabling the receiving printer to handle distortions as caused for instance by selective fading yet deliver the best possible copy. Thus the Bias Meter method is an important piece of instrumentation and should be used by every RTTY'er to adjust and align his circuits to exact zero bias. As has been shown, the basic components can be a 0-1 milliammeter as set up in a good quality multimeter together with a high capacity low voltage integrating capacitor, employed with an adjustable series resistor and a regulated voltage source. The teleprinter square waves can be fed in, as outlined, and meter readings taken. Adjustments then can be made to obtain zero bias.

As for the Teleprinter Loop. Careful checks using a variety of RTTY signals of known zero bias characteristics proved the loop circuit to be entirely free of bias, operating on either 60 or 20 mA, driving a variety of teleprinters, whether holding magnet or pulling magnet type. Even then, there was no change in bias as caused by seriesing two teleprinters in the loop — such as operating a page printer and a typing reperforator at the same time. Range checks on both machines showed full 80-90 points range (20 to 100-110). All in all, there exist no distortions as caused by characteristics in the plate-circuit keying system as employed in this Mark III TU, and we may safely assume that it is the correct design. There exist minimum damping effect on teleprinter magnets, and also there is plenty of voltage drop (150 volts) across the 6W6GT and current limiting resistors so they operate freely on both Make and Break points.

The external signal sources used for checking out the audio portion of the TU originated from precision Teletype signal generators, of the type 100-A called "Portable Repeat Character and Dot Transmitter." I am indebted to F. C. Bartlett, W6 OWP, for his help in making available to me such an instrument as used in his regular work. Likewise, I received certain speciat RTTY signals from W. F. Nichols, W6VVF, to verify not only the bias-free condition in the TU but to check the mathematical calculations relative to readings off the Bias Meter. Signals of precisely known bias were transmitted — 20 percent Spacing bias, Zero Bias, and 20 percent Marking bias — over the RTTY circuit to W6NRM, and readings were verified. Again, proof was obtained by checking bias in signals from electronic TD, and from various commercial RTTY signals happening to send repetitive signal such as RY's. Station C K N, on near 6.4 mc, was found to have a consistently 20 percent marking biased signal, resulting in reduced printer range . . . thus beware, not all commercial RTTY signals are "lily-white"!

The Teleprinter Keyboard Circuit

The emphasis on the keyboard is brought up here because of *its contact filter capacitor network*. As all machines placed in the Mark III-B's Teleprinter Loop have their keyboards seriesed with their typing unit magnets, we have a reason to inquire as to possible bias as introduced by the keyboard portions. As found out, the contact filters indeed introduce a certain amount of bias, depending on the loop current — bias being least with the 60 mA. value.

Why are contact filters employed? From discussions with Jack Pitts, W6CQK — a telegraph engineer of long experience — and with others, these filters are mainly for arc-suppression when operating landline teleprinter circuits. Landlines have considerable capacity which cause severe pitting and wear on keyboard contacts unless otherwise protected by suitable R-L-C "filter units" as usually are found mounted say over the transmitting cam as in Model 15 keyboards, or a simple R-C filter at the back of the cam assembly as in Model

26 keyboards. In amateur RTTY work, we have no problem of "landline capacity," and also most RTTY'ers operate their keyboards directly into FSK circuits at a low current level. Therefore these filter networks are disconnected and removed from keyboards. Thus the filter question resolves itself.

It is of interest to determine the bias as introduced by a given teleprinter operated with keyboard as per landline scheme (with keyboard filter intact). Line current charges up this filter when contacts are opened during Spaces, and thus artificially lengthens the Marks, resulting in Marking bias. It then reflects through the entire Teleprinter Loop and via the FSK Diode Driver circuit is measured on the Bias Meter.

Using a standard Model 15 as arranged for landline work, bias readings were taken at two current levels (printer being a Holding Magnet switchable for series or parallel coil operation). At *60 mA* line current, bias was found to be approximately *5 percent Marking*. At *20 mA* line current, *11 percent Marking*. Thus bias is least with the higher current. The keyboard used in this test was brand new and properly adjusted as far as contacts were concerned.

The keyboard filter was disconnected by unsoldering one wire and pulling it off the contact terminal. Measurements were repeated, showing essentially *zero bias with either line current level*. The same check was given a Model 26 printer, and likewise another Model 15 operating 60 mA only (Pulling Magnet). Thus bias does not depend on the kind of magnet used—whether Holding or Pulling. Any bias introduced is caused by *capacity* existent in the teleprinter loop circuit, and the only capacity we have exist in those keyboard contact filters — hence they *must come out* if we are to have no bias in our transmitted RTTY signal.

Thus the modification now required of all keyboards as well as TD's keying into the Mark III's Teleprinter Loop consist of *disconnection of all capacitor filter networks* from across contacts involved. Practically all amateur RTTY'ers have disconnected keyboard filters because of need for operating into FSK circuits operating at very low current levels. Operation of filterless keyboard contacts in the Mark III show no adverse effects insofar as contact wear are concerned. However, a certain amount of contact click is generated which could cause interference to nearby BC radios. The cure is obvious in this case — use shielded leads and possibly by-passing the contacts with very small capacitors, say .005 mfd as well as r-f chokes and all the precautions known to the CW telegraphy fraternity. Actually at W6NRM the key clicks has not proved bothersome to any one.

If desired, the original filter can be left across the keyboard contacts. It is advisable to operate at 60 mA in this case to minimize the bias (5 percent marking). This should be about as good as zero bias under usual RTTY conditions with strong signals and a minimum of disturbances. 5 percent bias causes a reduction of teleprinter range of 5 points, which is not too bad, considering the fact that quite a few amateur RTTY signals have some bias. Even some keyboards themselves may introduce bias due to worn cams, contacts, etc. — on the average amounting to 2-5 percent. One very old keyboard, on the Model 14 reperf at W6NRM, happens to have 5 percent *Spacing bias*—this particular keyboard has pretty bad transition clicks, but it can be adjusted. This is another story, however, and in such adjustment work, the Bias Meter is a wonderful help. Single Marks may be repeated at a time, and the contact involved can be adjusted for exact zero bias. In this way, the five intelligence Mark-contacts can be adjusted, resulting in essentially zero bias with any teleprinter character transmitted.

Remarks

All in all, the Mark III system concept has proved itself, during many months of tests and actual operation on-the-air not only at W6NRM but at other stations, including W6AEE. Merrill Swan operated this TU in conjunction with his Model 28ASR printer unit and Hallicrafters HT-32A-33A equipment for over a month. I am deeply appreciative to Merrill for his comments and criticisms concerning certain features on the TU, and resulting ideas leading to the Mark IV and V designs being built up.

Let us design the Mark IV TU now. This will be the same as the Mark III-B, except for substitution of a two-inch cathode-ray-oscilloscope tube in place of the magic eye and its amplifier circuits. The 'scope unit will display the W6AEE pattern only, it being found to be the most convenient and simplest tuning indicator yet

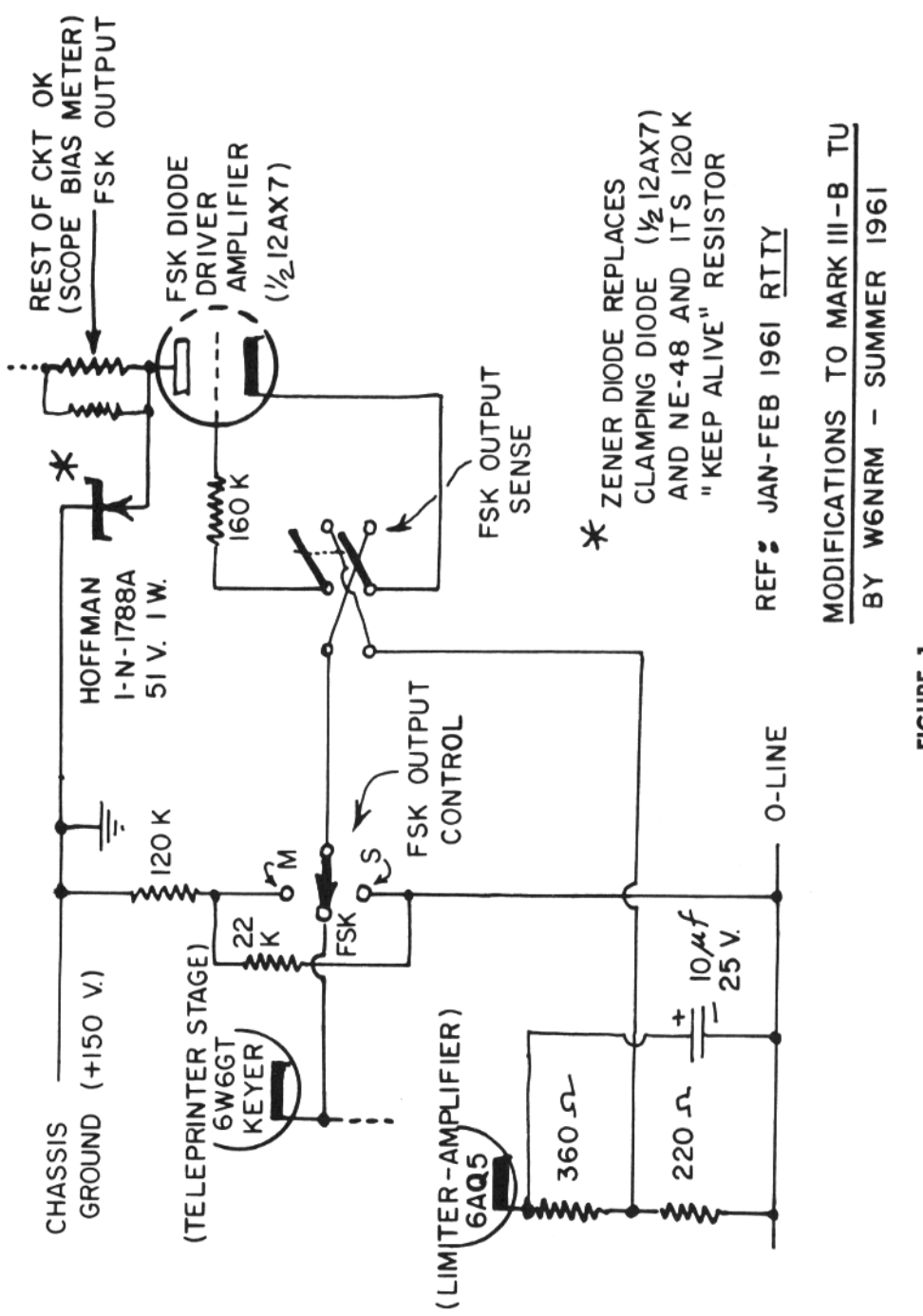

FIGURE 1

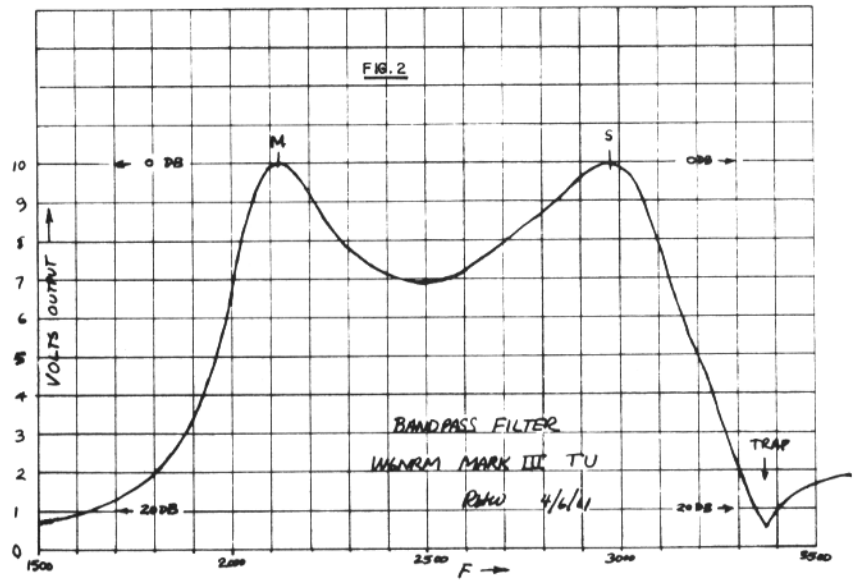

FIGURE 2

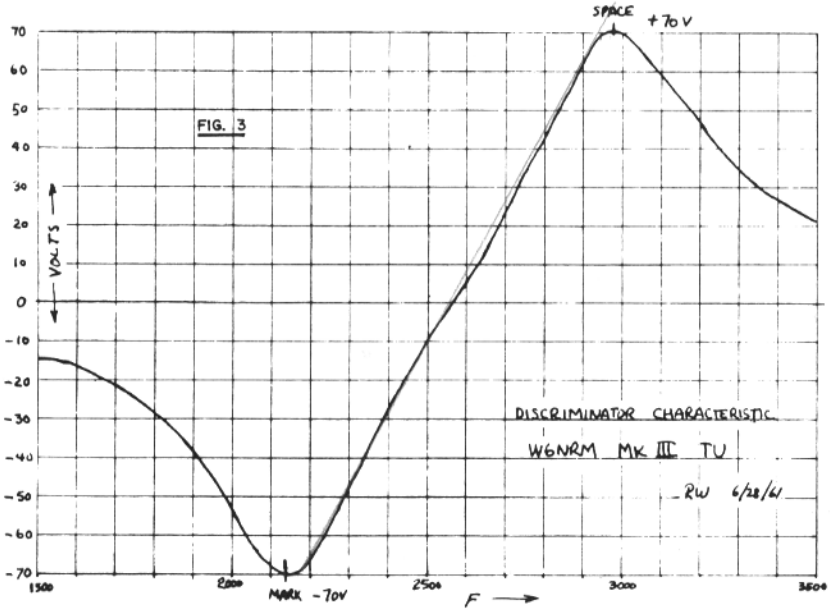

FIGURE 3

ERRATUM, Circuit Diagram of Oscilloanalyzer

(Fig. 1, October 1961 RTTY)

devised. The Bias Meter could be had using a good quality multimeter connected to a pair of test points on the rear of this TU . . . after all we need not use the meter all the time. An AFSK oscillator would be a part of this system. Six tubes in all, including the CRT . . . an optimized Terminal Unit design useable for all kinds of RTTY application. The Bandpass Filter-Discriminator Units could be plug in from the front panel, so that filters can be made up for other shifts, such as 300 cps, as well as the standard 850 cps. Everything in a TU almost as small as the present Mark III-B unit itself.

What say, we let the story unfold itself, later on?

Best regards de W6NRM
Bob Weitbrecht

October 24, 1961

P.S. For those interested, curves showing Bandpass Filter and Discriminator responses are shown in Figs. 2 and 3 . . . .

An error exists in the diagram of the oscilloscope power supply section. On the +300 volt point of the HV section a 6.8 K resistor is shown — it being a part of additional power supply filtering needed to get purer DC voltage needed for powering the plates of the deflection amplifiers.

Actually the CRT electron gun network is powered from the output side of this 6.8 K resistor — 4 MFD capacitor filter — not from the +300 volt side of the power supply. Therefore move the top end of the 120K resistor from the supply side to the junction 6.8K-4 MFD, on the left.

The electron gun network which includes the deflecting plates pair needs to have additional filtering which is the purpose of the filter mentioned above.

de W6NRM

TAPE OFF THE FLOOR

This is being written in place of the many letters I would have liked to have answered. However, the mail has been so heavy since the World Wide RTTY SS Contest, that I am barely able to keep up with subscriptions, renewals and release of printers. The Contest committee has been given the logs as they are received, to score, both Bud, W6CG and Jerry, W6-TPJ are busy with DX and the contest results. Early results are listed elsewhere in this issue. To those who have written at the bottom of their entries, please don't think that they are not read, and considered, but time does not permit answers to each one. You see, all of us here are employed full time at normal jobs, and we try to do the bulletin "after hours."

Rumors have it that our Canadian brothers are soon to have the requirements for "dual identification" removed as a portion of their FSK authorization. We are looking forward to the action that FCC takes on ARRL's petition. -30- W6AEE

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RTTY Society
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For "RTTY" Information:
W6DEO W6CG W6AEE

HOW AM I PRINTING OM?

By NORM BROOKS, W6WLI/A6WLI
4836 Schuyler Drive
Carmichael, Calif.

Our English Language, both spoken and written, is extremely redundant. That is, there are enough repetitions of sounds, or regularity of spelling, that if a single syllable or letter is lost, we have little trouble understanding what is said or written. When fading or interference causes our RTTY machine to misprint, we can still make out what is sent if less than half the letters are garbled.

Along with the letters in our teletype alphabet, we send some operations, or "stunts." These are FIGURES, LETTERS, CARRIAGE RETURN, LINE FEED and SPACE. When these are lost or garbled in QRM or QSB, there is no redundancy to help us like there is with misspelled word. Instead, we have trouble. A missed CAR RET gives us a pile-up of printing at the end of the line. A missed LINE FEED results in overprinting a line. A missed LTRS or FIGS operation gives us copy in the wrong shift. The least bothersome is a missed SPACE.

Isn't it a pleasure to read "solid copy" from a good clean strong signal? Why? Mostly because the operations are all correct. No overprinting. No figures instead of letters. No pile-ups at the end of the line. But when the signals fade down into the noise, and these stunts are missed, copy quickly becomes bad.

It would help make *our* signal print more reliably on the other fellow's machine if we put in our own redundancy on the operations characters. Then if one stunt is missed, the second one would do the job. And we'd get more reports that our printing is OK. I propose we make it a practice to *always* send two CAR RET, two LTRS and two FIGS. And when the going is rough, extend the repetition to two LINE FEED every time. During these difficult conditions, it would also be wise to send LTRS several times, scattered on each line. It is easy for QRM or QSB to shift the other machine, and the extra LTRS will clear up the copy considerably.

While we're on the subject of shift, let's talk about machines that unshift on space. Too many of the fellows who have these machines forget to use the LTRS key. When they space after a figure, *their* machine shifts back to letters, but the other fellow's doesn't Use that LTRS key! Better yet, modify the machine so it doesn't unshift on space.

In Summary:

For better copy of *your* signal at the other end, make it a habit to: — Always send two CAR RET, two LTRS and two FIGS — Under difficult conditions, send two LINE FEED, and scatter three or four LTRS thru every line.

DX-RTTY

By BUD SCHULTZ, W6CG
5226 N. Willmonte Ave.
Temple City, Calif.

Hi DX'ers:

Writing a DX column this month is like taking candy from a baby!! As a matter of fact all I can do is just skim off the cream because this was by far the wildest, most active month in the history of "DX RTTY." More DX records were made and broken and more "firsts" were established than can be recorded in one column. Many of these events took place during the weekend of the highly successful World-Wide SS but, in general, the entire month was way above average for DX.

One of the top stories comes from G3CQE. Bill had a request for a set of SS rules for I1RIF and LA6J. He decided to put the tape of the rules on the air while he was running off copies for mailing to them. Imagine Bill's reaction when he stood by and I1RIF answered and QSL'ed for the tape. Bill was still in shock when another station also broke in to acknowledge receipt of the rules tape. Yep — you guessed it — LA6J!!! The unusual part of all this was the fact this was the first time G3CQE had ever logged either of these two stations! It will be a long time before anyone tops a coincidence like this.

European activity continues at a fast pace. I1RIF has established an all time high for World Wide contacts. Bruno really cuts a wide swath with his "six over six" beam atop a 350 foot skyscraper. I was quite proud of my S-8 report from VK3KF until Eric reported "Sorry, no copy due to you being swamped by 1IRIF!" Other new ones from Europe include DL-6EQ, OZ5EL, LA5IG, GИ3IQL and G3-IVP. All of these have been working into North America with good reports both ways. The old stand-bys such as G3CQE, GM-8FM, G3GNR, G3BXI, PAØFB continue to keep things active on both fifteen and twenty. Bob, G3GNR, has his new linear working and is now up in the top layer but rumor has it that he went and got himself "engaged" so I suspect his activity will be short lived. Congrats, Bob!! I am in receipt of a most interesting letter from Martin, OY7ML. Martin is a good friend of OZ5EL and is very excited about getting on RTTY. OY7ML will be another good one for our expanding Country list.

Edwin, PY1KU, writes from Paris that he is temporarily off the air due to a travelling assignment and the fact that his printer was reclaimed by the Navy. Ed, K3GIF, has a model 15 for Edwin but needs some help in getting it delivered to him. Any assistance on this would be appreciated by all the DX'ers. South America is now well represented by a new one: YV1EM. Frank, YV1EM, has a model 19, 14 TD, KWS-1 and 200V transmitters and a 75A-4 receiver. He is a real asset to the RTTY gang and is very active on all bands. He says that he will soon be joined by Jack Pitts, W6-CQK, so our cause is in good hands down in Venezuela! Bob, TG9AD, continues to grind out contact after contact on all the bands and made WAC-RTTY during the SS Contest. Erosa, XE1BI, another of the old reliables is still doing his bit by being very active on all bands. Joe Sanchez, YV5AFA, paid a visit to K3GIF and Ed reports that Joe will be back on the bands after he gets established in a new QTH.

One of the most consistent of all the DX stations heard on RTTY is Henry, ZS1FD. Every day that fifteen meters is open Henry can be heard passing out African contacts. During the SS Contest he and Ron ZS1NE, enabled many to make WAC. Ed, K3GIF, writes that he worked EL6E who is Brother Phillip of the Holy Cross Mission in Sierra Leone. He told Ed that they have a KWS-1 and a printer with a terminal unit that was left by a former technician and all that is needed is an afsk oscillator. Ed has already mailed the unit to him so keep your ears open for EL6E — he's another rare one! Ed also mentions that he managed the first RTTY QSO with OZ5EL. He says that OZ5EL runs 200 watts, Creed model 7 and an antenna stuck out of the window!!!

Lots of activity brewing down in the Canal Zone. Dale, KZ5DS, George KZ5GA and Jim, KZ5JT all combined to help Ken

operate KZ5KR on a 24 hour basis during the SS. Ken says they all enjoyed it and are looking forward to the next one.

During the Contest week-end the Pacific Area was really a hotbed of FSK noises. Eric, VK3KF, was really making hay while the bands were open for him. He made 14 countries on 4 continents and three bands which is real good going from "down under" at this time of year. Bruce, ZL1WB, and Alec, ZL3HJ, weren't sitting on their hands during the contest, either. Same must be said for Bill, ZK1BS, who was in there really pitching for his WAC. Hope you made it, Bill. Cole at KR6MF did an outstanding job of operating during the SS and because he was the lone Asian representative he was really sought after. KR6MF was the answer to the WAC chasers' prayers and my mail shows that a lot of the gang didn't waste the chance to complete their contacts for this award. Cole air mailed QSL confirmations to every one he worked which is one of the kindest gestures I have heard of for a long time. Ken, KM6BU, put Midway Island in a big bunch of logs with his fabulous signals and managed to start a king size pile-up every time he showed A report on Pacific activity would not be complete without mentioning Nosey, KH6IJ, who as usual, kept rolling from beginning to end on all bands. KH6IJ is not only a ham station — it's an institution!!

Here we are running out of space and I haven't had time to report on the VE gang, KL7FA, KH6DWZ, KH6ANR, and old reliable Nick, KL7MZ to mention a few. They were all in there pitching to help make this the biggest DX month and the biggest SS Contest in our history. However, before I sign clear I must congratulate Jim, W8JIN, and Ed, K3GIF, for achieving their WAC-RTTY awards. Jim is number 12 and Ed can wear a 13 on his back. The Contest Log Committee also tells me that WØNFA, TG9AD, and W5-BGP also worked Six Continents in the SS so guess I'll have to get the XYL busy cutting more ribbons for another batch of certificates! Next month I will try to run the Country Box Score List so get your current totals in to me asap.

BCNU on the band. 73

Bud W6CG

TWO OUTSTANDING EUROPEAN DX'ers
G3CQE PAΦFB

RTTY a howling success stop CW working impossible for 48 hours stop lots of lovely QRM fom RTTY for a change stop SS contest terrific stop don't stop let's have another soon stop is it true that I1RIF has a fixed beam on top of a skyscraper and just arranges to turn the building stop keep it going stop purge out bands of this decadent Morse and tonsil flapping society! stop.

These are but a few of the headlines received over the ticker tape into the office of our official European representative, G3-CQE, since the "First World Wide RTTY Sweepstakes" contest ended.

Comments received by the contest committee were:

KR6MF . . . "Had a ball, let's do this twice a year."
ZS1FD . . . "A most enjoyable battle."
K8BIT . . . "I wouldn't change a rule."
W6HTS . . . "In twelve years of operating, this was the greatest."
W6CG . . . "My receiver is still suckin' wind."
KL7MZ . . . "Don't seem right, me giving away 200 points and only receiving 2."
W1BDI . . . "You guys still counting Vo as a country?"

It's a bit too soon for an official report of the "First WW SS" results, but it appears this contest was a tremendous success. With an estimated fifty percent of the logs already received by the contest committee, the amount of participation and wide acceptance of this all new contest far exceeded our wildest expectations.

A lot of thought was given to the contest rules by eight active RTTY stations in five different countries. After four months of work drawing up new rules, setting up imaginary contacts and calculating the scores, we thought we had a workable set of rules which would be equal and fair for everyone. The main objective in changing the original SS rules was to make it possible for a DX station to win, along with creating enough activity to keep him interested. Now, the only thing left was to try this new system and see the results. We received publicity in every major amateur magazine throughout the world, sent tapes to every continent to be sent on the air during the last few days before the contest date. Everyone should have been informed of the new rules. Most of the stations read the new rules before the contest. A few stations did not as was apparent from the message exchanges giving the date, section and band, which had been eliminated to speed up the contest because of the DX activity. Regardless of whether you read the rules or not, the contest rules worked the way we had planned. It stimulated the DX inerest, kept the stateside boys busy and almost everyone had a good time.

Most of the negative comments, and there were few, were about the complexity of the rules and calculation of the final score. Actually we would have liked to have had an all DX RTTY contest, but due to the limited number of active DX countries, this was impossible. The original SS contest did not create enough participation for the DX stations because not enough of the U.S. stations would take the time to dig into the noise and QRM to work the DX for just another section multiplier. The DX stations went "begging" for contacts. We needed a contest that would combine both SS and DX operations to keep everyone busy and still let the DX stations compete with the U.S. by giving them an advantage on the exchange points. We also needed to give the U.S. stations a little incentive to dig for the DX in the form of a COUNTRY/CONTINENT multiplier. When you try to take into consideration all of these things, it means you really have to make two sets of contest rules and two sets of calculations for the final scoring. We also had to protect the rest of the countries in the world by keeping the exchange points the same as the U.S. for the countries in North America and Hawaii. These countries had the advantage over the rest, as they could work into the U.S. on a 24 hour basis. To give these countries 10 points for each exchange would have been disastrous to the rest of the countries. If you will look over the contest rules and remove only those portions that pertain to your own continent or country, you will find that it is not as complicated as it seems at first.

The scoring for this contest actually is very simple. Because this is a SS and a DX contest combined, there was a need for two calculations for the final score. The first being almost the same as the original SS contest. The only difference here is that states are used instead of sections as the multiplier. This was done to eliminate the confusion in other countries of what constitutes a section. They already know about states. You arrive at this part of your score by multiplying your exchange

points by the number of states you worked on ALL bands. Now, here is where we added that little incentive for you to take the additional time to look for that rare DX station. Very simple; just work as many countries as you can on each band, give yourself 200 points for each and multiply that times the number of continents you contacted. (A maximum of six) You can't claim your own country, but you had to claim your own Continent and State for W.A.C. and W.A.S. Add this "DX" score to your "SS" score and you have your final contest score.

No changes in the format of the contest rules are anticipated at this time, however a slight modification on the South American exchange points along with some adjustment of the 200 points per country may be in order for the next battle.

A few of the letters received by the committee, made mention of the un-shift on space function of our machines. We should all get together on this and settle on some standard. Personally I like the un-shift on space arrangement so I won't get a string of numbers when I miss the other fellows "LTRS" key operation on fast fades. If your machine is set up to un-shift on space don't use the space bar to come back o letters after sending numbers. Hit that "LTRS" key just in case the other station is not set for un-shift on space. If two sets of numbers are to be sent with a space between, hit the "FIGS" key again after hitting the space bar just in case the other machine is set for un-shift on space.

In a contest of this sort, the competition is fantastic. That's exactly what we had hoped for and received. It's the type of test that will show the faults in your T.U., antenna, receiver and operating technique. Anyone can have perfect copy on a band that's open and free from QRM with just fair equipment. If you experienced trouble getting contacts during the contest, it may have been you're just not geared for competition. Start NOW to improve that equipment, get the antenna out of the attic and sharpen up that T.U. If you run low power and your antenna isn't the best, that's no reason not to enjoy the contest. Move out to the edge of all the pile-ups and remember your exchange counts too for that high scoring station down the band knocking off the big ones. Sooner or later he will be hunting for you. Don't try to tackle a big pile-up, it's murder! If some of the DX stations had moved away from the middle of all the activity and played the edges a little more, there would have been many more contacts to the States. There were times when I know the band was open to Europe from W6 and we just couldn't hear them because of the QRM. If you hear a station you want, and move in to contact him, after you are through move off the frequency and find your own "rock to fish" with that CQ SS tape. There may be a dozen waiting for that station you just finished with. You're going to get your toes stepped on once in a while. Heck, that's where the word COMPETITION came from!

The contest scores listed in this issue are from the logs received thus far and represent UNOFFICIAL high CLAIMED scores only. Scores below 10,000 are not listed. The complete OFFICIAL scores will appear in the next issue of RTTY. It is interesting to note that the top scoring station, so far, did not make the highest number of contacts. He did have the highest number of States, Countries and Continents. A lesson to be learned here, is do a little bit of "selective calling" and listening for those extra multipliers.

Don't forget he SS contest coming up in Februrary. The rules will be the same as in past years. Remember to set your clocks back to local time for this one. Hope you'll be there, I know I will and the rougher the competition the better I'll like it!

WØNFA	99	31	23	6	33,738
W7ESN	127	30	19	6	30,270
TG9AD	84	27	21	6	29,574
W6TPJ	100	27	23	5	28,319
I1RIF	53	22	17	4	25,620
W5BGP	40	9	20	6	24,684
KH6IJ	123	21	22	4	22,766
K3GIF	54	16	19	5	20,728
KR6MF	42	9	18	4	18,135
W6CG	50	16	19	4	16,800
W4BOC	52	20	18	4	16,460
W7FEN	71	25	14	4	14,750
VK3KF	33	10	14	4	14,350
W5EUN	77	28	12	4	13,940
W8CLX	67	20	13	4	12,960
VE4BJ	54	18	12	4	11,526
ZK1BS	24	6	15	3	10,440
G3CQE	33	16	8	3	10,410
Call					
Contacts					
States					
Countries					
Continents					
Score					

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W6TPJ

M.A.R.T.S. Information Sheet.

We hope the following information will be an aid in your getting on the air or perhaps an addition to your existing station.

MUST: RTTY Handbook $3.00 from Byron Kretzman 108 W. Teresa Dr. W. St, Paul, Minn.
MUST: RTTY $2.75 Year from RTTY 372 W. Warren Way Arcadia, California.
For the newcomer-Take a long look at "Teletype Without Tears" CQ Dec. 1958 pg 36.

MONTH	YEAR	PAGE	TITLE	MAGAZINE
August	1946	15	Know Your QRM	CQ
November	1946	18	Oscillator and Convertor (W2RFD)	"
December	1951	20	Basics of Teletype	"
September	1952	25	Convertor (W4OLL)	"
December	1952	32	Convertor (W6AEF)	"
June	1952	46	Polar Relays, FSK	"
April	1952	18	Diode FSK	"
November	1955	76	AFSK Oscillator	"
October	1952	37	709D-1 FSK Exciter	"
January	1953	29	Tone Standards	"
April	1953	28	FSK Oscillator	"
November	1955	56	Automatic Frequency Control for RTTY	"
December	1955	43	Narrow Shift	"
May	1956	27	Audio Frequency, Tuning Fork Standard	"
January	1956	45	Narrow Shift, FSK	"
May	1956	46	FSK Tuning Indicator	"
June	1956	40	FSK Convertor	"
December	1956	62	Linear Dectector for FSK	"
March	1957	82	Audio Tone Filters	"
April	1957	62	Tuning Fork Standard	"
July	1957	80	VFO for RTTY, (W6CQK)	"
October	1957	84	RTTY Keying and Patching Circuit	"
November	1957	38	RTTY the easy way	"
December	1957	62	Band Pass Input Filter	"
"	1957	63	Notch Filter	"
January	1958	72	W2JAV Audio Frequency Meter	"
February	1958	80	Tone Generator (W2JAV)	"
March	1958	81	Diode Shifter	"
April	1958	43	Convertor (W2JAV) (Good)*	"
"	1958	75	Polar Relay Tester	"
May	1958	62	Convertor I.F. (W2JTP)	"
June	1958	74	Converter, Transistor	"
January	1959	78	Auto Start Circuit	"
February	1959	106	Convertor (W2JAV)	"
March	1959	73	Convertor, Transistor	"
"	1959	46	Convertor, limiter and filters	"
March	1959	44	AFSK Detector	"
April	1959	70	Filter Combination	"
June	1959	66	AN/FGC-1, Conversion	"
August	1959	78	Convertor, Transistor (WØACY)	"
October	1959	68	FSK Code Circuit Identification	"
November	1959	72	RF Phase Shift System	"
October	1955	46	RTTY Regulator Circuit	QST
July	1958	39	Filterless Terminal Unit for FSK	"

The RTTY Monthly bulletin has far too many to list at this time and it is doubtful that all issues would be available at this time, therefor these were not mentioned as to issue dates and numbers. We hope you will find something in the above articles that will help you decide on your convertor or expansion program.

MONTH	YEAR	PAGE	TITLE	MAGAZINE
January	1960	4	Improving Accuracy of Audio Frequency Measurements	RTTY
February	1960	4	An Amateur Radioteletype System	"
March	1960	4	A Crystal Shifter for Teletype Use	"
"	1960	11	Axis Restorer for RTTY	"
May	1960	2	Terminal Units	"
"	1960	12	The DM-430 Diverse Adaptor	"
June	1960	7	Modification of the Collins 75A4 for FSK RTTY Signals	"
"	1960	14	Local Loop and Printer Circuit	"
July	1960	5	Explaination of the Electrocom FSC-250 Converter	"
"	1960	14	Remote Diode Tuning for the FRR 3 Receiver	"
August	1960	2	A Sure Fire F.S. Keying System (Part 1)	"
"	1960	14	Morse Identification Simplified	"
September	1960	2	A Sure Fire F.S. Keying System (Part 2)	"
"	1960	10	Re Terminal Units	"
October	1960	2	The Local Loop	"
November	1960	14	Tuning Unit for RTTY	"
"	1960	15	DX-100 FSK Keyer	"

Plus many more articles of interest.

February	1960	75	Transistorized Electronic Keyer for a Model 26	CQ
April	1960	88	A Fork Standard Oscillator	"
June	1960	63	A Remote Control 80 Meter V.F.O. for RTTY	"
"	1960	77	An RTTY Station	"
July	1960	82	Machine Theory	"
"	1960	82	An AFSK Station	"
August	1960	92	A Discussion of Page Printers	"
September	1960	52	Automatic Keyboard Switching	"
"	1960	88	Tape Equipment	"
October	1960	84	F.S.K. Discussion	"
"	1960	84	Heath DX-100 Circuit	"
"	1960	85	Central CE-458 Circuit	"
"	1960	85	Diode Switching FSK Circuit	"
November	1960	110	Polar Relays	"
December	1960	72	RTTY Station Control	"

Plus the CQ Editor's Report of the RTTY activity each Month.

January	1960	32	Radioteletype Conversion from Receiver I.F.	QST
December	1960	11	Radioteletype Reception by Tone Conversion	"

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RTTY

Radio amateurs have pioneered highly technical aspects of radioteletypewriter communications. Their dedication has been the causative factor in bringing into being many outstanding achievements.

As for the long history of close association between Navy, Naval Communications and Amateur Radio, this is now significant tradition.

The Navy always welcomes opportunities to participate in amateur events. As I assume duties as the Navy's chief Naval Communicator, I extend my best wishes to the entire amateur fraternity and look forward to continuation of existing cooperation.

Rear Admiral Bernard F. Roeder, USN
Director, Naval Communications