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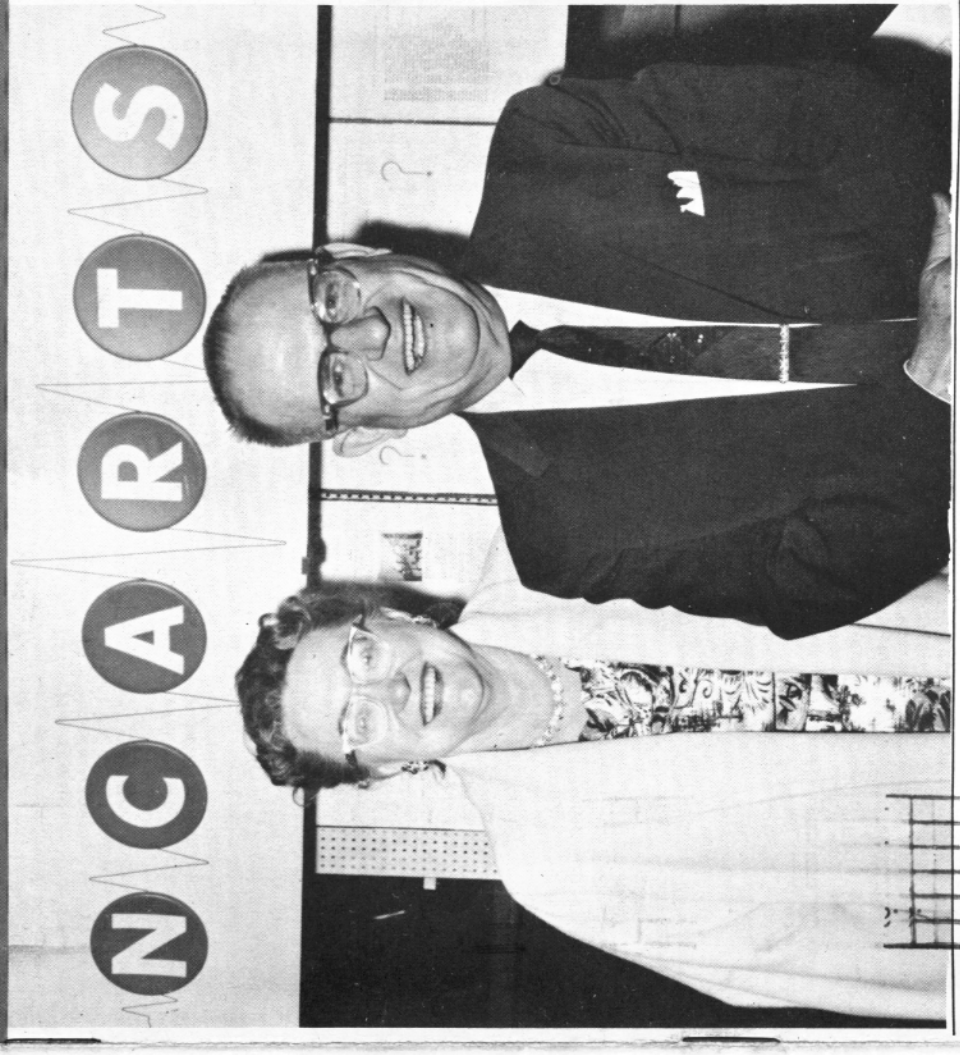

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FOR SALE: 1—R388 with 51-J4 and manual, Panel grey. $550.00 excellent. 1—FRR21 14 kcs. ro 600 kcs, few scratches on case but panel perfect—NEW. $350.00 Schematics, $1.00.
4—Radio Freq. Lab. Model 1601C-TR-transmit (AFSK) and rec converter in following freeq. 425—595—765—935. Integral power supply. 60 ma. $75.00 ea. Schematic, $1.00. Units have never been used.
1—Model 31A printer, nearly new, $75.00. Will crate and ship collect. W2RMB, P.O. Box 328, Norwich, N.Y.

FOR SALE: Or will Trade, SP-600-JX-17 in new cabinet. Perfect. Factory appraised at $700.00 (they may be little optimistic or prejudiced, but since I can't find a Model 17 for sale, I don't know). Would take a Drake 2-B in part trade. K7DSB, 15111 North 33rd Place, Phoenix 22, Ariz.

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FOR SALE: Toroids, uncased 88 mhy, like new, 60c each, or five for $2.50 postpaid in USA. WA6VVR/WA6FKN, P.O. Box 34, Dixon, California.

FOR SALE: Cover for 14 reperfs, has sound deadening pads. Less reel, needs paint, $5.00. Iron horse, works OK with keyboard, tape reel, uses 11/16" tape, $9.00. W9YVP, 11001 South Pulaski, Chicago 55, Illinois.

FOR SALE: Teletype gear part number 97576 for tape gate 60 wpm, brand new, $1.00 PP. Have 200 available. W8MTI, 4761 Baldwin Street, Onondaga, Michigan.

A NEW APPROACH TO TU DESIGN USING A LIMITERLESS TWO-TONE METHOD

FRANK GAUDE, K6IBE
12791 Hickory Branch Road, Santa Ana, Calif.

Progress in radio teletype terminal unit design has been slow. This progress has probably been frustrated by ideas and equipments being essentially a carry-over from the wire services. Radio uses a medium which has properties different from a wireline and this single fact has not always been kept in mind in HF radio TU design. It is believed that this mental block is about to be broken and real improvements in radio TU performance can be expected presently. The design presented in this article will indicate a path which can be followed to realize a reduction in error rates that are experienced on typical HF radio circuits. A brief history of the design approach will be given so the flow of conceptual thinking can be appreciated.

The salient feature of the HF medium is that of selective fade. Wire lines do not exhibit this phenomenon. Let's define selective fade so that we all understand what is being discussed. Selective fade is the phenomenon of the reception of two or more tones whose amplitudes vary with respect to each other even though they were transmitted at the same power level. This ratio between the tone levels is not constant and is time varying. So for any given instant it is hard to say what the exact amplitude ratio is between the different tones or frequencies. This is a characteristic of HF radio and is almost always present. These relative amplitude fades between the mark and space frequencies causes serious trouble and results in errors in the conventional TU of the limiter-discriminator variety. These errors due to selective fade are produced even if the S/N ratio is high for both of the frequencies involved. Most amateur TU designs fall in the limiter-discriminator class—all but the "Gates" unit which deserves special mention. The new approach will turn this selective fade disadvantage for the conventional TU into an actual advantage and provide true frequency diversity reception.

Now let's see how the conventional TU gets into trouble when the two incoming mark and space tones are not of exactly the same amplitude. Figure 1 shows the waveform of the mark and space frequencies. If the receive bandwidth was very wide with respect to the on-off keying rate the wave forms would be essentially square, as they were transmitted. Now if receive filters are used ahead of the limiters in the TU, the waves are rounded and in the limit they become triangular waves. The limiters in the TU puts out the frequency that is the larger of the two. The transition from mark to space, called the zero crossing, occurs when the two tones are of the same amplitude. The output from the discriminator is determined by what frequency is driving the limiter. Now in figure two we see what happens when the two tones are not of the same amplitude. The result is bias in the output waveform which must eventually key the teletype machine magnets. This bias causes character errors if it is allowed to get large enough so that the machine selector is in the wrong place at the wrong time.

So we see that it is not enough to just have high S/N ratios to get error-free copy, but we must have the tones of about the same amplitude. During periods of selective fade it is best to have a widebandwidth ahead of the limiters so as to keep the waves square and thus minimize the bias introduction. This is in conflict with our desire to use narrow bandwidths to reduce random noise and QRM. The use of a "comb" filter ahead of the limiters makes things worse from the selective fade error introduction standpoint (W4EHU please note). Tests run by the author indicate that with a mark-space "comb" filter of 200 cps errors begin to appear when the tone amplitude difference is 18 db. Now such a ratio of tone difference is quite common on the HF bands and results with the "comb" will be poor if typical selective fade is present. This type of filter, of course, has its merits when there is no selective fade and QRM of the single tone or CW type is between the received mark and space frequencies. It is also useful when signals are very weak and steady.

It is interesting to note also that the so-called matched filter theory does not apply when the tones are experiencing selective fade. The theory requires tones of the same amplitude or filters which change their gain as the tones vary so as to keep the output to the limiter of equal tone amplitude.

Looking further into the characteristics of the conventional TU, we see that the unit requires that both tones be always at the discriminator output or errors will be produced. If one tone fades to the noise level while the other has high S/N ratio, errors will be made 25 percent of the time. And this is copy that is completely unreadable. Look at it this way: If the mark is good and strong, the output when it appears will always be of the correct polarity. Now if the space is weak or not there for a moment, the ouput will be arbitrarily mark or space. In other words, it will be wrong half the time. The mark was right all the time. So we get 25 percent element error for the case of RY's. The actual character error rate is much larger than this because a character is made up of seven element. The reason the space output was arbitrary was that the limiters ahead of the discriminator made the output random noise for the moment that the space was lost. The level of this noise is the same as the level of the good mark or a good space.

So now we see that the conventional FSK system is far from frequency redundant and has no frequency diversity feature. In fact it is worse than simple on-off keying because it requires both tones to be received, and received of approximately of the same amplitude. The probability of this situation occurring is only one-half as good as getting one tone through that is above the noise. These statements should cause quite some discussion! Just remember that two independent tones go into the noise during fading conditions twice as often as one tone would alone.

The things that I have discussed so far were known as early as 1938. But the philosophy of the wire services prevailed up to 1957, then H. B. Law of England succeeded in his crusade to turn to a better TU system that would take advantage of the characteristics of the HF medium. Credit must go to Law for his "sticking to his guns." When it is realized that one of the main reasons for going to narrow shifts is to combat the selective fade problem one suspects he is on the right track when the design turns fading into an advantage. The closer the two frequencies are, the more they will tend to fade together. This is a characteristic of HF. When they do fade together the situation is called "flat" fading. Of course narrow shift offers more than just selective fade reduction. But that is another story for another time.

The "Gates" TU in principle works differently from the typical limiter-discriminator type. It uses no limiters ahead of the discriminator, and the output from the discriminator is clipped and filtered and then goes to a keyer circuit that drives the printer magnets. As with all designs, the TU has a decision circuit which determines whether the tone is a mark or space. When the two tones are of exactly the same amplitude at the output of the discriminator the decision is arbitrary. This is called the "zero-crossing" point. If there is a little greater mark amplitude then the decision will indicate a mark until the space is great enough to overcome the mark amplitude. The point at which the cross-over from mark to space occurs in time is determined by the amplitude difference between the mark and space tones going into the TU. If the waveform is not bias free at the output of the discriminator, there is nothing that can be done to correct it later downstream. No amount of post detector clipping or limitering or filters can correct for this bias. Once the zero-crossing has been made, zero times anything is still zero. Now this is exactly what happens under conditions of selective fade in the Gates TU—keying bias is introduced, and the situation is the same as was shown in Figure 2.

The important improvement that the Gates TU could have offered is that when one of the two tones was lost because of selective fade there are no limiters ahead of the discriminator to amplify the noise to the same level as the signal. But the discriminator was not of a type that could automatically sense when a tone was lost or was low with respect to the other tone. The zero decision was not of an automatic adjusting nature either. Gates was so close. The author has demonstrated that the Gates unit can slightly outperform the conventional TU if the bandpass filters in the unit are wide enough to not round out the detected waveform too much. The better performance is only obtained under selective fade conditions. Otherwise the Gates TU gives essentially the same performance.

Now let's get down to the new approach. For those who want to know the entire background, it is suggested that they obtain the references at the end of the article. The new method has been given the name "Two-Tone" as contracted to conventional "FSK" converters. The two-tone method requires both frequency and amplitude detectors. No limiters are employed ahead of the detectors so as to preserve the amplitude information in the signal. Regular discriminator techniques are used to separate the mark and space tones int two separate channels. The amplitude of the energy in each of these channels is determined by what is called a "slideback" detector or something that does a similar task, "a ratio corrector." The slideback detector is actually two detectors in one and one slideback is required for each mark and each space channel. One part of the detector develops the keying envelope and the other part detects the fade envelope. These two types of information are added to give a signal that is symmetrically arranged around zero volts, the zero-crossing point. Figure *three* shows what the slidebacks do and how the two are combined to give desirable results.

What are these results? One now has true frequency diversity with only one tone being required to be above the noise to get a correct decision. One can copy using the mark frequency only or the space only. This is a great aid in dodging QRM. You can just drop the channel that has the interference in its passband. Only a small loss in performance results by copying with just one channel. Just what one would expect when you lose half

the transmitted power. Now the "comb" filter can be used all the time even when deep selective fade occurs, giving better over-all random noise QRM rejection. Now the decision circuit works on the channel which has the best S/N ratio, rather than the worse, as is the case with the conventional TU. It works with the channel that has the biggest signal automatically. When QRM happens to be the biggest of the two signals you can manually drop that channel with the QRM. Under deep selective fade conditions you can expect this two-tone limiterless TU to give error rates that are one-tenth that of a conventional limiter type. Under nonselective fade conditions it will be no worse than the conventional. It can be used to copy from the wide 850 cps shift down to the narrow 85 cps shift. This can be done with no adjustment in the circuit.

The entire philosophy of this new method is to take into consideration the characteristics of HF propagation and use it to advantage rather than having it work against you. Selective fade and QRM do not occur in wire line service and we should not necessarily think that the techniques used on wire are also optimum for the unpredictable medium that is radio.

Figure *Four* is the schematic diagram of a limiterless two-tone TU which is offered in the hope that the new method will be tried at many locations. The promise of the new system justifies a thorough trail on the ham bands by many experimenters. This particular design is one that has been worked on for the last six months by Bruce Harris (W5HCS) and myself. This particular slideback detector arrangement is the result of experimentation on about six different types by Bruce and the credit for its excellence goes to Dear Bruce. We hope that improvements will be made by each experimenter who chooses to give two-tone TU design a try. It is possibly the beginning of a new era, and by a little imagination great additional improvements over the conventional TU can be expected.

Since this not to be a blow-by-blow construction article, only a brief description will be given of the particular unit being offered as an example of two-tone techniques. The audio from the receiver goes to a line transformer which drives V1. The audio is also passed along to a WØHZR phase shift tuning indicator. This type of indicator is used because the selectivity of the coils in the plates of V1 is too low to get a usable "cross" type of display. The coils in the plate of V1 form the frequency discriminator portion and one is tuned to 2125 and the other to 2975 cps. Stagger tuning is employed to receive shifts narrower than the 850 cps. The input filter should be a bandpass unit that is wide enough to pass the shift that is being used. For best results a "comb" filter can be used. One output can go to each channel input through a SPST switch. These two switches can be used to drop the mark of the space channel as desired. V2 is straight linear amplification. The transformer in the plates form the slideback detector drives. C1 and R1 form the short time contant to follow the keying rate and C2 and R2 are the long TC for following the fade rate. These two voltages are in series. When the keyed tone suddenly goes away the long TC appears at the top of the detector output and is passed along as a voltage of the opposite polarity to the voltage created by the tone that just went away. In other words, marks are made out of spaces and vice versa. This is the reason that automatic copy can be made with only one channel since both polarities of information come out of one detector. When both tones are of the same amplitude the outputs from the two slidebacks reinforce each other. When one tone goes away completely the output is down to half value. This voltage is passed to the Schmitt trigger for the mark or space decision. It drives the keyer tube which drives the printer magnets. The keyboard and the VFO shifter is also in the plate circuit of the keyer tube. C3 forms a low pass filter at about 70 cps for waveform smoothing.

The Schmitt trigger is adjusted to change states at exactly zero volts to its first grid by adjustment of R3. Short the point at the top of C3 and change R3 until the keyer plate current is half its mark level value. R4 adjusts the neon bulb brightness and interacts a little with R3 so some back and forth adjustments will be required. It is all done with C3 shorted to ground.

The normal-reverse switch is to take care of the situations in which the transmitted signal is "upside-down."

One word of caution. Do not put so much audio from the receiver into the TU to make the amplifier stages clip. If these stages are limiting, one will not get the good weak signal performance that this converter is possible of giving. About two volts peak to peak at the grids of the first tube is the maximum that the unit can handle.

Now there you have the basis of the complete converter. It looks not much different from any other converter but it sure works a lot different.

In the necessarily limited test that the author has run, this two-tone converter has shown to live up to theory when the selective fade is deep and successive. In one such test, copying a commercial news-service station, the two-tone TU produced one-twentieth the character errors compared to a good conventional limiter-discriminator TU. Out of about 50 A-B comparative tests, the two-tone unit only once was worse than the conventional unit. In most of the tests the new unit was from two to 10 times better on an error rate count basis. Under selective fade conditions described by a Rayleigh function,

theory says that the limiterless two-tone should be 10 times better than the FSK type of converter. The reason that in practice this 10 to one number is not always achieved is that you don't always have selective fading of the deep variety, and also the slideback detector has a speed limitation on how fast a fade rate the long time constant can follow. This latter effect puts an amplitude bias in the decision waveform and results in more errors than there should be if the detector could follow the fade. Here is a good area for improvements. Whose first?

It should be noted that receiver AGC is helpful in keeping at least one of the two tones at a constant amplitude during fade conditions. The slideback does most of the remaining amplitude adjustments.

There are three hams who at present are testing the limiterless two-tone method of detection: W6NRM, W4MGT, and W5HCS. They would, I'm sure, be happy to discuss its potential with anyone on the air.

The author wishes to express his extreme gratitude to K5AUM, R. C. "Doc" Martin, for his catalytic action in regards to this article. As in some chemical reaction equations: K6IBE plus typewriter and paper, without catalyst, yields no TU article.

REFERENCES:

J. W. Allnatt, E. D. J. Jones, and H. B. Law: "Frequency Diversity in the Reception of Selectively Fading Binary Frequency Modulated Signals." Proc. Inst. Elect. Engrs. 104, 14, 0-45, Part B (1957).

J. V. Beard and A. J. Whelldon: "A Comparison Between Alternative HF Telegraph Systems." Point to Point Communications, June 1960.

Dames and Tibble: "A Flexible System for Receiving FSK Signals." Electronic Engineering, Nov. 1962.

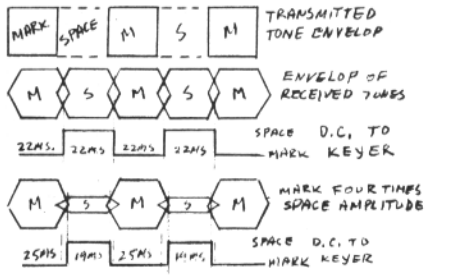


FIG. 1 SLIGHT BIAS INTRODUCTION DUE TO WIDE FILTERS & SELECTIVE FADE

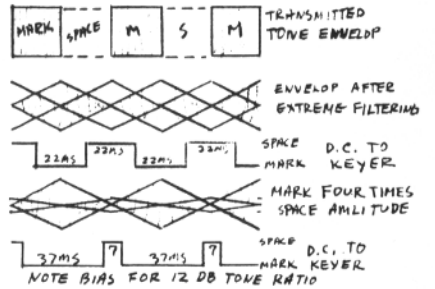


FIG 2. BIAS INTRODUCTION DUE TO FILTERING WITH SELECTIVE FADE

CIRCUIT Pages 8 & 9

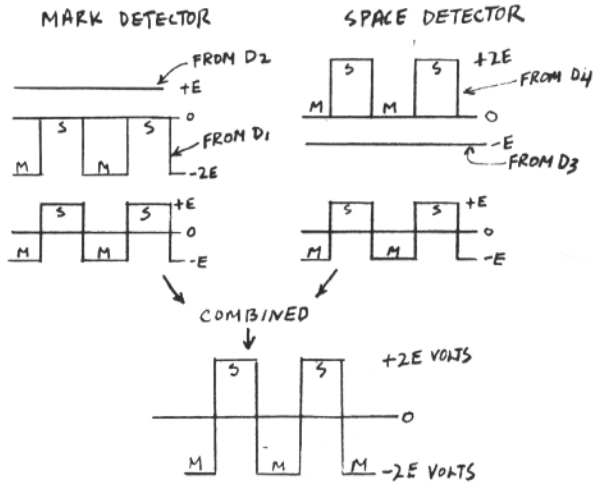


FIG. 3 OUTPUT DETECTOR VOLTAGES VS. TIME (SLIDEBACK)

CW WITHOUT HANDS

KENNETH N. SAPP, A4AWY
Charleston, South Carolina

While not required on MARS frequencies, the requirement of CW identification on the Amateur bands at the beginning and end of each RTTY transmission is very annoying. At the present time the calls of both the transmitting station and the station being worked must be given, but it seems probable that in the not-too-distant future this may be reduced to the call of the transmitting station only. If and when this becomes effective it will become practical to use a mechanical device to key the transmitter with the CW identification of the transmitting station, and the logical thing for a RTTY station to use is naturally its TD. Actually, it is not too difficult to make tapes with both calls. It is also conceivable that other uses may be found for taped CW.

Before a TD can be used for CW, some provision must be made to eliminate the automatic stop and start of the tape mechanism, but this is not difficult. It is simply a matter of disconnecting the "STOP" contact from the coding contacts with a switch so that it can be switched in and out of the circuit. The TD at rest, in the CW position, will then have an open circuit instead of the normally closed circuit.

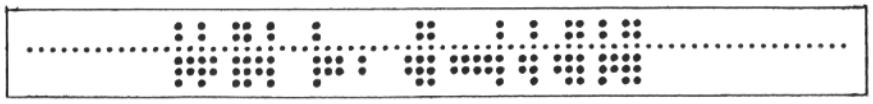
With the normal stop-start mechanism out of the circuit, we have only the five coding contacts in operation and can work out a keying code to create Morse characters. There are seven units of time in each cycle of the TD cam, and two of these are now open circuits. The other five from the coding contacts we can make either open or closed circuits. Suppose we let two consecutive units be closed and the other five of the seven be open, and call this a dot. Then for a dash we use five consecutive closed circuit units and two open circuit units. For a space element between letters, words, etc., we use seven open circuits or multiples thereof.

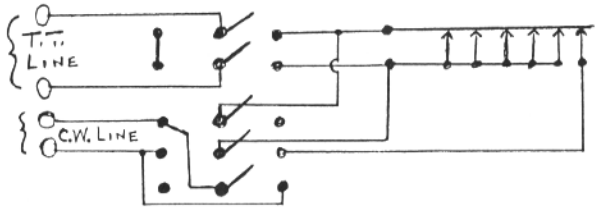
If you will refer to your teletype code chart, you will note that the letter "N" meets the requirements for a dot, the "LTRS" for a dash, and the "BLANK" for a space. Now let's see what it looks like on tape. The specimen CW tape below would be "CQ DE W4AWY":

SWITCHING: If it is desired to use normal shift FSK for CW keying, but from space to mark rather than the usual mark to space, the only switch necessary is a SPST between the "stop" contact and the "coding" contacts, as shown in the schematic below for FSK-CW. When switch is open the TD is in CW position. However, if it desired to completely isolate the TD unit from the RTT circuit a multiple section two-position switch is necessary. A suggested switching arrangement for make-break CW is also shown below.

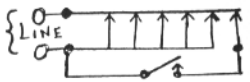
The arrangement for make-break CW keying leaves the RTT circuit closed and the CW circuit open until keyed by the TD when the switch is in CW position. In RTT position the CW circuit is closed to put the carrier on the air. The switching can be varied to suit individual needs, the basis requirement being only that the "STOP" contacts be out of the circuit when using the TD for CW.

*Re-printed by permission of A4AWY.





FOR MAKE-BREAK CW 5 CKT.-2 POS. SWITCH



FOR { FSK C.W. / NORMAL SHIFT

SPST SWITCH

TAPE WINDER

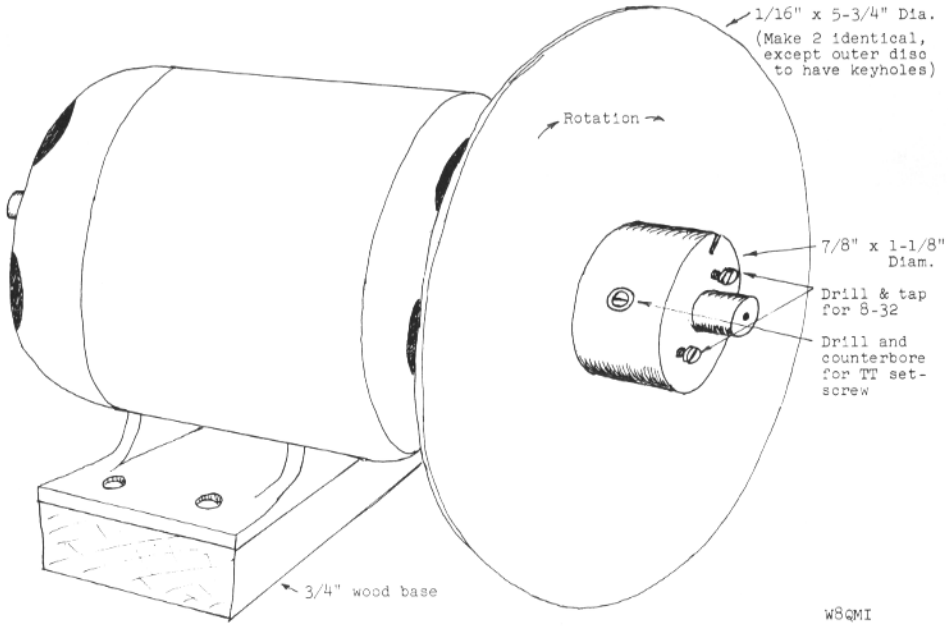
E. W. KOCH, W8QMI
2911 Dartmouth Drive, Midland, Michigan

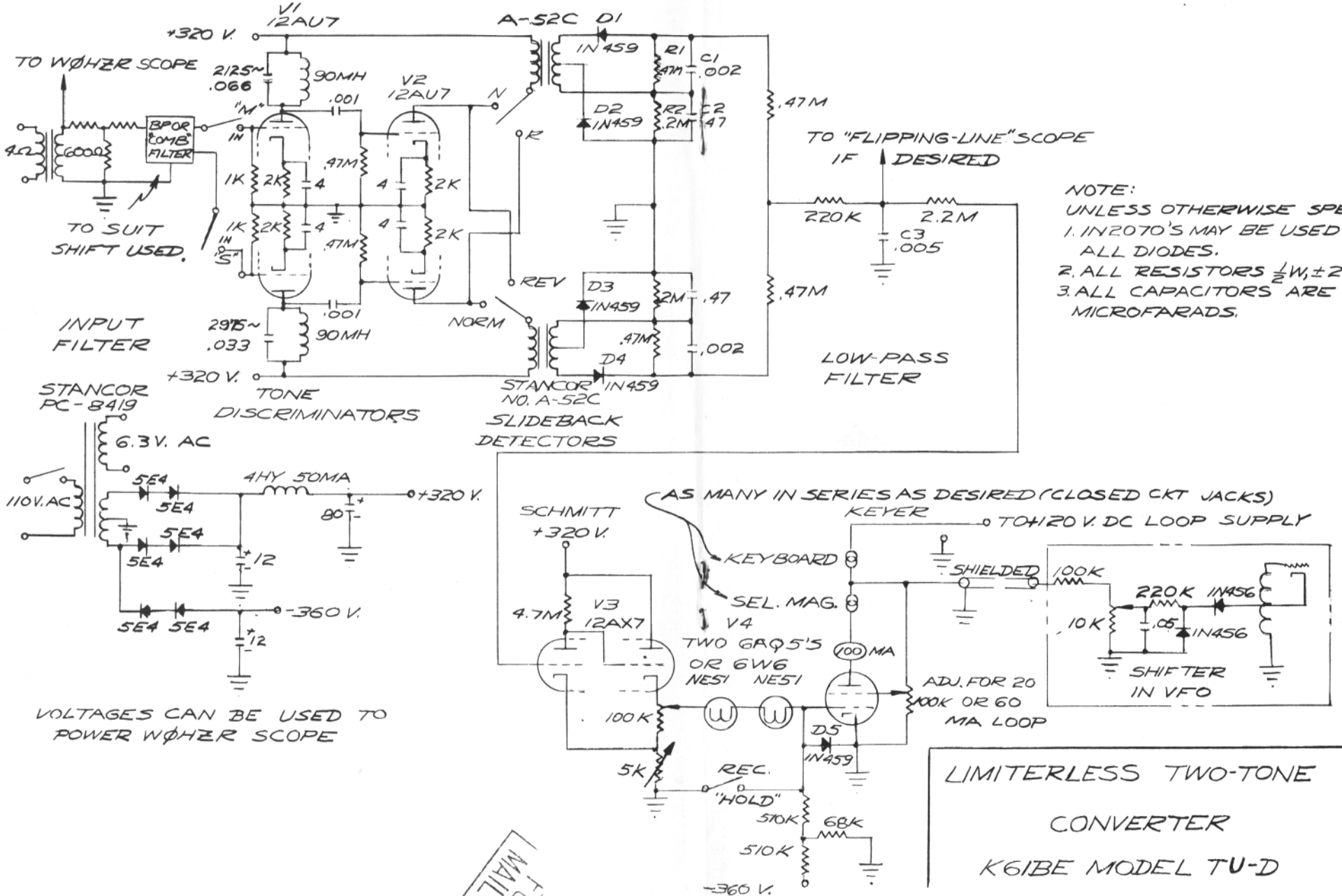
For years I have used the figure-eight method of rolling up tape. This method, however, is unsatisfactory for the long tapes. I find that a series governed AC Teletype motor fed with about 60 volts will do a good job of winding tape. In addition to the motor, only three major parts are needed—two discs and a hub. The inner disc, as shown in the drawing, is permanently bolted to the hub, which in turn is fastened to the motor shaft by a setscrew threaded into the shaft. The outer disc is equipped with keyhole slots to permit easy removal from the hub. A ¼" deep slot in the hub, inclined in the direction of rotation, provides a starting grip for the tape. The surface of the hub circumference should be highly polished to allow the tape to slip off readily.

To roll up a tape, first put a crease in the tail end of it about 3/16" from the end. If the tape has the chads punched out, it can be rolled either side down, but with chadless tape be sure to have the chads pointing toward the reel hub—this will permit the tape roll to be tightened up. First roll the tape loosely, then grasp the front end of the tape and hold it back against the pull of the reel. A loose roll of tape is apt to slip into a cone shape and the interlocking chads will prevent realigning it.

To remove the tape roll from the reel, shut off the motor, grasp the roll to prevent it from rotating while the reel is rotated by hand in the direction opposite to that of the motor. This loosens the roll enough to allow it to slip off the reel.

I find it handy to operate the reel with a variac as this permits varying the speed to suit the occasion. Keep a careful watch for kinks and twists.





LIMITERLESS TWO-TONE CONVERTER

K6IBE MODEL TU-D

Federal Communications Commission
Washington 25, D.C.

In the matter of:

Amendment of Section 12.82 of the Commission's rules to Modify Identification Requirements for Amateur Radio Teletype Stations.

PETITION FOR RULE MAKING

(EDITOR'S NOTE: The above was received by RTTY, INC., April 22, 1963 from W8DTY. Printed as information, only.)

It is respectfully requested that Section 12.82 (a) (2) of the Commission's Rules and Regulations be amended so as to make it unnecessary for amateur radio teletype stations to transmit the call sign or signs of the station or stations being called or communicated with by telegraphy using the International Morse Code.

In support whereof, the following is respectfully submitted:

1. Section 12.82 (a) (1) of the Commission's Rules requires amateur radio stations to transmit the call sign or signs of the station or stations being called or communicated with at the beginning and end of each transmission or series of transmissions, at least once every ten minutes or as soon thereafter as possible during a series of transmissions between stations having established communication, and at least once every ten minutes during any single transmission of more than ten minutes duration. Section 12.82 (a) (2) reads as follows:

"(2). The required identification shall be transmitted on the frequency or frequencies being employed at the time and; in accordance with the type of emission authorized thereon, shall be by either telegraphy using the International Morse Code, or telephony. In addition to the foregoing, when a method of communication other than telephony or telegraphy using the International Morse Code is being used or attempted the prescribed identification shall also be transmitted by that method."

2. It is recognized that dual identification, using both teletype and telegraphy or telephony, was made a requirement in order that the Commission could properly monitor and regulate the use of the frequencies assigned for use by radio amateurs. It is further recognized that positive identification is a most essential element particularly with regard to cases of interference or suspected interference on the part of radio amateurs.

The Commission's stand on this point was detailed in a memorandum opinion and order (FCC 62-214; 22 RR 1573) released February 26th, 1962, in response to a petition submitted by the American Radio Relay League. The pertinent portion of the Commission's opinion is as follows:

"4. The dual identification requirement is necessary for the Commission to properly perform its duties. Amateur stations are not assigned specific frequencies, and as a consequence, the interference resulting from the overlapping of signals makes identification difficult at best. Infraction notices are issued only upon positive identification. Without the dual identification requirement, positive identification would be very difficult for the monitoring stations, and practically impossible for the Commission's mobile units which are not equipped to receive radioteletype transmissions. It appears to the Commission that the advantage to the Amateur service as a whole in having proper and prompt enforcement of the Amateur Rules and Regulations outweighs any possible advantage to be gained from the relaxation of the present identification requirements."

3. While recognizing the regulatory objectives of the Commission, it is respectfully submitted that identification by means of transmitted signals is still subect to interference regardless of the number of modes employed to transmit such identification. It is further submitted that an alternate means of positive identification (other than dual identification), and not subject to interference, can be used which will meet the requirements of the Commission and also facilitate the use of the automatic aspects and benefits of radioteletype communications by amateurs.

4. It is submitted that positive identification can be facilitated by amending the first and second sentences of Section 12.82 (a) (2) as follows:

"The required identification shall be transmitted on the frequency or frequencies being employed at the time and with the type of emission authorized and being employed thereon. In addition to the foregoing, when a method of communication other than telephony or telegraphy using the International Morse Code will be used at any amateur station, the station operator will submit a prior written notice to the Federal Communications Commission district office having jursidiction in the area where such operation is contemplated."

5. It is requested that the following provisions also should be added to Section 12.82 (a) (2):

"Except for the first such notice of intent which must be submitted thirty days in advance of such operation, an additional notice will be resubmitted each December for the following year in which such operation is contemplated.

The notice must contain the station call sign, station location, and the amateur bands which will be used for transmissions other than by telephony or telegraphy using the International Morse Code. At such time as the station changes facilities, adds bands of operation, or discontinues such transmissions, a change to the original notice must be submitted to the FCC district Engineer-in-Charge."

6. It is the position of this petitioner that operation other than by the method specified is and will continue to be carried out by a minority of radio amateurs. Such an amendment should not, therefore, place any administrative burden upon the district offices of the Commission, and will indeed help their monitoring efforts through such special registrations. In the case of suspected interference by an amateur using a mode of operation other than telephony or telegraphy, the district Engineer-in-Charge would have immediate access to a list of amateur stations participating in special forms of transmission and communications.

WHEREFORE, the premises considered, it is respectfully requested that the Commission institute a rule making proceeding to amend Section 12.82 (a) (2) as set forth herein.

Respectfully submitted,
EDWIN B. BRUENING, W8DTY
1611 Creal Crescent
Ann Arbor, Michigan

10 April 1963

TRAFFIC NET NEWS

QST QST QST RATTS NET DE W6CAL RY RY RY RY RY RY RY RY RY RY RY RY

Amateur RTTY stations are urged to monitor RATTS Net for traffic and bulletins. Regular net frequencies are 3,625 and 14,090 kcs.

The scheduled eighty meter net times are:

Monday .....9:00 to 9:30 A.M. PDST
NCS—K6DYX

Thursday .....9:00 to 9:30 P.M. PDST
NCS—W6CAL

Friday .....9:00 to 9:30 P.M. PDST
NCS—K6DYX

The scheduled twenty meter net times are:

Monday through Friday
2:00 to 2:30 P.M. PDST
NCS—W6JXK

Messages shall be listed by destination and held ready on tape for immediate transmission. Net control will also accept third party traffic for distribution on this net or for relay via the National Traffic System.

To assure the speedy clearing of traffic: Please—No QSO's or general comments until after net time. TNX DE W6CAL

NCARTS DINNER CEREMONY HONORS MARIBEL AND "BUCK" W6VPC BUCHANAN

NCARTS members and associates filled to overflowing the banquet room at Spenger's in Berkeley, California, on the evening of March 30, 1963, to do honor to Maribel and "Buck" W6VPC Buchanan in appreciation of their untiring efforts given in behalf of Amateur Radio Teletype activties in the Greater Bay Area.

NCARTS, as an organization of active amateurs, interested in the advent of radio teletype, were inspired and aided in their efforts to "get on the air" and spread the teletype word to the far corners of the earth by the methods used and the example set by none other than Ol' Buck.

Only those of us who saw amateur radio teletype get its start in the Northern California area can appreciate Buck's activities. It is appropriate to say that had it not been for Maribel, the understanding and helpful wife of that intrepid usurper of her every nook and corner for teletype gear, there might not have been an NCARTS organization at all.

Buck would have delivered to his home a truck load of '26 machines in questionable condition. Between Maribel and himself, these were hauled up a rather steep incline to their rumpus room where immediate day and night tender and loving care was bestowed upon these tired old machines. In the matter of a few weeks he would announce these Model 26 machines were ready to run again in first class shape. The clan gathered with that hungry look in their eyes and watched intently as Ol' Buck placed the serial numbers of the machines in a hat for the evening drawing. In the meantime, Maribel was busy serving the specialties of the house, cookies, cake and coffee. Came next the drawing for the machines and the loading of these prizes into the back of cars for the trip home. No one knows how strong a ham is until one witnesses the perfect ease he displays when picking up a machine all by himself, carrying it down a precipitious hill and loading it unaided into the trunk compartment of his car.

These forays to Bucks' home in Oakland for teletype equipment were the highlight of a ham's paradise for many months. In the meantime Maribel and Buck were spending the wee small hours preparing countless tapes for teletype bulletins that were forwarded and relayed all over the world for individual amateur information and bulletin board display in leading electronic supply centers. About 35 copies of these tapes were prepared and either mailed or relayed by others over the air on all of the available radio amateur frequencies. The response was such to spur Buck into greater efforts to foster and acquaint the entire radio amateur society with this mode of transmission. To this end, Buck gave just too much of himself and was forced to take things a bit on the easy side, or else.

High lighting the dinner in honor of Maribel and Buck, were letters of congratulations from all corners of the world, ARRL, RTTY Society of Southern California, The Military Affiliate Radio System and others. These letters and exhibits were individually encapsulated between transparent sheets in a beautiful book suitably engraved—"To Maribel and Buck, W6VPC for Your Teletype Memoirs."— from Buck's many friends in Colorado he received a beautiful Colorado Buck, a 1921 silver dollar minted in Denver and imbedded in a clear plastic block which was engraved "A Colorado Buck for 'Buck' from the Colorado Gang."

During the course of the ceremony several of the past presidents of NCARTS summarized and recalled the outstanding work both Maribel and Buck have performed for the benefit of NCARTS and all new radio amateurs interested in securing help and assistance in either teletype or any other phase of radio activities. Many of the testimonial letters were unanimous in saying that no other individual has done more for amateur radio teletype than has Buck.

As fitting for an expression of loyalty to NCARTS, a beautiful engraved life membership certificate to NCARTS with paid up dues card was presented to Buck. To this he responded in his own inimitable way to the delight of the group. Climaxing the dinner meeting, there was presented to Maribel and Buck a large shield shaped plaque mounted on solid walnut and inscribed—Maribel and "Buck" W6VPC for Your Outstanding Efforts in Organizing and Supporting NCARTS — and dated March 30, 1963. A standing ovation was then given the honored member of NCARTS and Maribel who so well deserved the plaudits.

DE W6VVF

RESULTS TENTH ANNIVERSARY SWEEPSTAKES FEBRUARY 1963

Here are the results of the RTTY Sweepstakes held earlier this year. Not too many submitted their logs, however, going over those sent in, the list which follows the "comments", indicates a wide interest in contests such as this one. Some confusion arose due to the manner in which the contest period was stated. The dates February 15, 16 and 17 are correct when one considers GMT time rather than local time. We will attempt to clarify it for the next contest, to be held this fall. Two members of the contest committee were unable to serve this year, one due to illness of his wife, and the other lucky amateur is in Hawaii on a vacation. He probably will call on some of the KH6 lads.

If your call is incorrectly listed, please excuse it, this scorer is unable to read some of the logs, too much like his own writing. Also if your score is not shown, how's about submitting yours along with these who did send in logs. Our thanks to ARRL Headquarters who were most kind in forwarding several logs which were sent to them, rather than to RTTY, INC. Awards will be mailed in the near future.

W1BGW—1140
K1CPX
W1EFZ
W1FSH—374
W1GNS
W1KKP
W1LLY
W1OHF
W1OUG
W1TLZ
W1UYK/1
W1YDA
K5JIC/1
WB2CVN
W2FAN
WA2GNL
K2HWL
W2IGO
W2JAV
WA2LKF
K2LXH
W2OKO
W20YX
W2PBG
W2RUI—7070
K2SKK—1386
W2UGM
K3AMC
W3BOC
W3CA
W3CRO
W3DJZ
W3DTH
K3GIF
W3IJF
W8UJB
W8UUS
W8VAJ
K8WNE
K8WXR
K8YEK
W8ZCK
W8ZCT
K8ZWI
K9BAR
K9BRL
W9CRC
K9DAS
W9DJE—476
W9DRN
W9EWC
W3ITO
W3KYR—119
K3LDQ
K3PYY
W3PYW—6966
K3RZX—1344
W3TLA
W3TZA
K4ACY
W4AIS
W4BOC—616
W4DQQ
W4DFU
W4DGW—782
W4EAW
W4EBH
W4EGY—6408
K4EQT
W4GJY
K4JXG—5024
W4KH
W4MGT
W4MXA
K4QVD
K4RRG
K4YYO
W4ZTJ
K5CKS
W5CME—4526
W5DQK
W5DWB—308
K5FXW
W5GYJ
K5OFH
W5OLG
WØFQW
WØHFX
WØHJZ
WØNH
WØOM
WØOSO
WØTUO
WØZVJ—390
DL1VR
DL4IA
DL4UC
GM3GNR
KH6COY/KW6-45
KH6CRW
KL7DTR
K5KQA/KL7
K5OYG
W5PJS
K5QBU
K5RAV
W5SGJ
W5SJV
K5VCZ
W5WI—98
W5WVY
K5ZCA
W4CHK/5
W6AAN
W6AEE—2520
W6CAL—1120
W6CEM
W6CG
K6DYX—1562
W6ECP
W6GFI
W6GSX
W6IMQ
WA6JYJ
W6LDF
WA6MRK
W6MTJ
W6NRM
WA6QDY
W6UGA—9752
W6ULL
W6VVF—434
W6WF
W6WLI
W6ZFT
WA6ZZK
K4CHE/6
W9FRU
W9HJV—594
K9IIJ
W9KHG
W9MSY
W9PPW
W9QAH
W9RDJ
W9SPT
W9TWU
K9UHR
WØABA
WØAJL
WØCVJ
KØDOM
WØDOP—2580
WØUMG/6
W7CBY
K7CET
W7CJB
W7ESN—6327
W7FEN—1140
W7GVF
W7IE—1932
W7JPY
W7LPM
W7RGD
K7RSM
W7STC
W7YFO
W7ZDS
W7ZSB
W3ZWA/7
W8BDK
K8BSV
W8CLX—4356
K8CSG
W8CSH—748
K8DDC—660
K8DKC
W8HQW
K8HTS
K8IQY
W8IXZ
K8JTT
W8KDW
W8KJK
W8LZV
W8PHG—6279
W8QMI
W8SDD
KP4AEB
KR6BQ
OA4BR
VE2HY
VE2SS
VE3BEH
VE3BIJ
VE3DTY
VE4BJ—969
VE7MT
VE7YC
YV1EM—8
ZS1FD—60
ZS1NE
ZS6ARL
ZS6UR—108

DX RTTY

BUD SCHULTZ, W6CG
5226 N. Willmonte Ave.
Temple City, California

Hi Gang:

It's a lead pipe cinch to compose a DX column when band condx are as hot as they have been this past month! DX from all parts of the world, with the possible exception of South Africa, has been extremely good for nearly six weeks and appears to be holding up in good shape. For the first time in several years – European RTTY'ers are consistently strong here on the West Coast with many of them showing better than S-9 signal strength. The best time seems to be from 1500 to 1730 GMT on 14 Mcs and about 1900 to 2000 GMT on 21 Mcs. Rene, DL3IR, is one of the newcomers from Europe that is putting in very fine copy out here. He is using a completely "homebrew" set-up with a transistorized converter. In his first ten days of operation he has managed contacts with four Continents and is hoping for his WAC-RTTY award as soon as he can corral a contact from Oceania and South America. Another new one heard very consistently is LA6VC who puts in fine copy out here on the West Coast. Also consistent is OZ5JT, who is really putting Denmark on the RTTY map. He has been showing up regularly for the past several week-ends (sometimes with OZ5EL at the keyboard). DL4IA is still very active judging by the reports and DL6EQ writes in to ask about arranging some skeds with the Western States on RTTY. There is a rumor that SVØWT has packed up and left Crete but I am unable to confirm this. Bruno, I1RIF, is moving operations to his home QTH for the summer where he has a Telrex six over six and should continue to burn out antenna coils here in the States! He is looking for some scoop on converting his "Invader" for FSK. Any help would be appreciated. Bill, G3CQE, has an excellent column on RTTY in the current issue of "Short Wave Magazine". In a fine letter to K3GIF, Bill reports he is very busy digging up TTY gear for the UK group with good success. Arthur, G2FUD, writes that he is still having his weekly FSK chats with G3CQE, G6CW, GM3GNR and G2UK. He wants to know what has happened to the 21 mc activity(?). Doc Gee, G2UK, reports in the current issue of the BARTG news sheet that the paid up membership is now 104! It is apparent from Doc's summary that activity in the British Isles is really "jumping".

There have been three or four new ones reported on from South and Central America during the past few days. Al, W6UGA, worked TG9DM who is new to this column. Another newcomer is PY2BCD (this could be a new country for a lot of you DXers). OA5G is back on the active list. Other South Americans still showing up are YV1EM, OA4BN and OA4BR.

The Pacific Area continues to pound into the States nearly every day with fabulous signals. Bruce, ZL1WB, is available every day around 0500 GMT on 14,090 Kcs with ear splitting signals. He is still in the process of getting his new QTH in shape for the coming winter season. Eric, VK3KF, evidently gave up his resolve to desert RTTY until he completed his new shack. Each week-end he hauls all his gear into the XYL's laundry and after two hours of blood, sweat and tears manages to get on for several hours of operating before he has to tear the whole mess down to make room for the usual clothes washing deal. ZL3HJ is temporarily off due to changing his QTH. VK4RQ is still making occasional appearances on the band. KR6BE is now quite consistent and is usually available around 1600 GMT each day on 14 Mcs. Cas, HL9KK, is back in Korea after his short leave Stateside and is putting in a fine signal nearly every day about 0300 GMT. Those needing Asia for WAC should watch for these two.–Speaking of WAC-RTTY: Nr. 30 went to Al, W6UGA this month. Still have a few certificates left so get your order in soonest.

As this is being typed, the printer at my elbow is recording a fine contact between Henry, W4MGT and Doug, 5A2TC, in Tripoli! The copy indicates that Doug is looking for some of his old Pals from Ft. Worth. Here's your chance to latch on to a rare one if you happen to be in Ft. Worth!!

EAVEDROPPINGS: Bill Scarborough, ZK1BS, has all his RTTY gear packed up and is preparing to leave Rarotonga for keeps. No clues as yet telling where he is headed. Dick, W7LPM has 26 countries confirmed on RTTY and just needs Wyoming and R.I. to finish up his WAS. Irv, K8DKC has worked W9AC/OA2 a total of 164 times and has received an achievement plaque from United Airlines for outstanding community service as a result of this fine work with the S. S. Hope. Bill, G3CQE, reports that ON4's will shortly be OK for RTTY and that ON4UB hopes to broadcast a weekly RTTY Bulletin soon.

That's 30 for this month – BCNU

73

Bud, W6CG

IRA C. BECHTOLD – A CITATION

"Ira C. Bechtold distinguished himself by exceptionally meritorious service to the United States as Military Affiliate Radio System State Coordinator for California, as Civilian MARS Director (Western States) and as Net Control Station, Army MARS, during the period 24 February 1956 through 1 May 1962. For his voluntary contribution of time, service and personal resources far beyond normal expectations, in support of the Department of Defense, and for his outstanding accomplishments in development of the Military Affiliate Radio System, this award is made in grateful recognition of patriotic service generously given."

(Citation accompanying United States Department of Defense Medal for Distinguished Public Service awarded Mr. Ira C. Bechtold of 1987 Skyline Vista Drive, La Habra, Calif., at official ceremonies held in the greater Los Angeles Press Club, Los Angeles, Calif., Wednesday 8 May 1963, the presentation being made by Brigadier General Andrew B. Cannon, United States Air Force.)

COMMENTS

"Would like to suggest certificates as follows: 1 Contest Winner, maximum points; 10 winners of the various ten call districts; State winners as presently specified.

During this last contest I was impressed by:

1. Willingness of those fellows who were *not* in the contest to accept and return messages. Even to be careful to return message in proper format. It's those lads who just get on for a few contacts or hours who make it possible for the contestors to pile up a score.
2. Operating practices – generally seemed quite gentlemanly.
3. Disappointed at not hearing W1AW during contest.
4. Suggest we all try to spread out a little further in coming contests, utilizing 3600 to 3650 instead of packing in between 3610 and 3630. Don't know how to accomplish this, perhaps some advertising would help." W8PHG

"Enclosed is the log of K3RZX–the club station of the U. S. Bureau of Mines, 4800 Forbes Ave., Pittsburgh 13, Pa.

The station is located at an experimental facility about 13 miles south of the downtown section of Pittsburgh at Bruceton, Pa.

Membership is composed of employees of the Bureau and currently consists of six General Class licensees and six Novices and an equal number of interested individuals (six that is).

Needless to say, we had a good time in spite of bad band condx, compromise antenna, etc. But it was a great opportunity for the gang to become acquainted with RTTY operating practices. Gear in use at the station is Model 19, AN/TGC-3, six head mxd, 14 reperf used as a perforator, transistorized JAV T-U, DX-100, Drake 2-B and most of the time standing room only hi.

Looking forward to the next episode."

73, W3MHD, Trustee of K3RZX

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For "RTTY" Information:
W6DEO W6CG W6TPJ W6AEE