

THE MAINLINE FSK-B SYSTEM

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INTRODUCTION

There are many ways to adapt transmitters for radio-teletype. Essentially they all do the same thing (shift the frequency of the carrier for HF work on 15-80 meters and shift the audio tone on VHF).

Thus we have audio frequency shift on VHF, and these units feed into the mike input (AFSK); and carrier shift on HF where we normally shift the VFO frequency.

A special case exists for SSB transmitters where occasionally AFSK is used with suppressed carrier. However in a majority of these instances, special tones have to be used on the AFSK since not many modern transmitters will pass the standard space tone of 2975.

In nearly every instance involving either type of FSK method, one normally alternates using a small condenser of some sort—in the circuit for space, out of the circuit for mark.

To accomplish this switching, we most generally use a small diode of a common germanium type. This is put in series with the condenser and when voltage is applied to the diode, it will conduct and effectively place the condenser in the circuit (usually the cathode of the VFO). This will shift the frequency.

It should be pointed out that since the diode is a rectifying device, that even with no DC-voltage intentionally applied that in many circuits the AC-RF component of the carrier will still be rectified to a small extent. This is what causes the mark frequency to vary in most systems when the FSK-shift is changed. It is this phenomena which therefore it makes it difficult to set the correct shift one desires, as both mark and space move while setting the shift, but they move at different rates. The mainline system has always used reverse bias to eliminate this particular effect.

There are two basic methods of controlling the voltage applied to the diode. Until recently (with the introduction of the mainline system) nearly everyone used the "partial conduction" scheme.

In this method, a "shift-pot" was normally used at some convenient remote location from the transmitter—often on the converter (TU) itself. By reducing the voltage, the shift would vary in a rather nice linear fashion. This system had many drawbacks, and offered only a convenient method of changing the shift.

It required for the most part regulated voltage, and usually required numerous components in the FSK keyer attached to the VFO. It also required separating the keyboard from the printer, making it mandatory to use either a polar relay for local copy or else to see what you were sending by correctly tuning the receiver. Both of these systems can and usually do add headaches to what otherwise could be a simple system. It should be noted that W6NRM has very cleverly circumvented this in his Mark IV Series (also previous versions such as the Mark III, etc.) through the use of an ingenious clamp tube circuit which isolates the keyer from the TTY equipment, and retains the keyboard-printer intact. However, this particular circuit is not easily adaptable to existing circuits.

The second system is one on which we have concentrated our efforts in the past. We call it the "saturated-diode" system.

If enough voltage is placed on the diode so that it conducts at least 2 MA., it will be in this saturated region. Small voltage fluctuations will not affect this conduction and the shift will be entirely dependent upon the value of the condenser. This condenser is then made a variable type of some sort, and the shift is set by changing its value.

Since this condenser is usually very close to the VFO, and inside the transmitter, it is difficult to change the shift once the installation is complete. If one were to bring out a control on the front panel of the transmitter, this would of course allow easy access.

However, we have always felt that a system which could not be easily changed had many advantages if it would hold a pre-given shift indefinitely. Thus 850 would be the same every day, etc.

With using pre-set shifters with back-bias, etc. many advantages were realized. Excellent keying with no noticeable transition clicks; no laborious fussing with shift-setting controls from day-to-day; no need for special voltages; no need for regulated voltages; ability to "retransmit" onto VHF or other bands easily; no shielded wires needed; and very simple small keyers required in the transmitter.

Since this circuit had been evolved from the basic system used for years with the shift-pot partial-conduction system, we were still thinking in terms of ordinary keyers.

With the introduction of the two-tone, we got to appraising a modern concept for FSK.

After all, the basic mainline system was not adaptable to the usual AM-CW type of transmitter where the shift must be changed radically from band-to-band. We had made it universal for SSB units by offering a reversing switch scheme. We had added narrow shift CW ID, but even then it was not versatile enough for the older AM-CW transmitters using multiplying VFO's.

Also, the system limited one to 850 CPS. With the newer TU-E converter which uses two excellent filters in a "superheterodyne" tuning system allowing any shift from say 50 CPS to 1000 to be tuned in equally well, we found that one would like to occasionally use shifts other than 850. This posed a problem.

The obvious solution was to either return to the partial conduction system with its inherent disadvantages or else devise a new concept retaining the saturated pre-set shift system. We of course chose the latter.

Since the mainline system uses extremely simple keyers of only three parts, we decided to add keyers to the VFO. At present we have four keyers in the HT-32A. This would be an optimum system, but obviously still only gives four pre-set shifts available.

As a result, we have also combined a new type of partial conduction with the standard saturated multi-keyer system.

Thus was born the new mainline FSK-B system. It is the "new look in FSK" and offers for the first time real versatility not only for the AM-CW man, but also more versatile and accurate shifts for the SSB man.

APPLICATION

Most transmitters (AM-CW or SSB) have the 20M and 80M frequencies used for RTTY (14.090 and 3620) in somewhat different parts of the VFO dial. On some, these are rather far apart.

On one of these transmitters, a different shift will be obtained from one part of the VFO to another, regardless of what band is in use. In the past, with only one keyer, a compromise had to be made, or else the shift adjusted. On the AM-CW types, it was necessary to adjust the shift anyway, so this discrepancy was never noticed.

Also on the SSB units, frequently the shift must be reversed on some bands. For instance, the HT-32 series requires conduction on mark for 80 and 40M but on space on 10, 15 and 20M.

At present there is very little activity on 15M. There is only a small amount of activity on 40M. The number of fellows using narrow shift is increasing, but is still very small in quantity.

Taking a purely practical outlook, if a person were to build two keyers and place one pre-set 850 shift on 80M and the other pre-set on 20M, he could then with our new system crank down on the integral shift pot to get

15M and 40M or that occasional narrow shift.

The SSB man again is a special exception. These two keyers would enable him to use 80 and 40 with the same keyer and 10, 15 and 20 with the other keyer, and no change would be required for retaining 850 shift. In fact by reversing the diode on one of the keyers during construction, he would need no reversing switch to always be right side up on all bands at all times.

In any case, if it was found that frequent use was being made of a band or shift not covered by the pre-set unit, another keyer could readily be installed.

At K8DKC, we have four such units. Two conduct on space for 10, 15 and 20M and are set for 850 and 170 shifts.

The other two conduct on mark for 80M and 40M and are pre-set on 850 and 170. A switch at the printer selects the shifter (with a bit of imagination, this switch could be perhaps called a "reversing" switch.

On an AM-CW transmitter, we would recommend starting out with two keyers—both would conduct on space as all AM-CW units with normal VFO's do not need to be reversed on any band.

One of these would be set on 850 on 80M and the other on 850 on 20M. Later on, if 170 was used frequently on one band or both, extra keyers could be added.

For reasons of versatility; good clean keying; simplicity; negligible hum, etc. one should regard the shift pot as a convenience factor only, and should not rely upon it for normal use. We have added the shift pot merely to allow one to be able to use that band or shift which up til now has been used only infrequently and in many cases not at all because of the problems involved.

CONSTRUCTION

Only three parts per keyer are needed. A trimmer condenser; a diode and an RF choke.

The trimmer that works quite well and is very easy to use is the Erie 557 series selling for under \$1. Burstein-Applebee has them if your local store doesn't handle Erie.

The diode can be most any germanium, and probably there are many new types that would work very well. We like the IN297, but have used the IN34A; the IN100 and several other types with equal success.

The RF choke would be a miniature 2.5 Millihenry unit. The ones we use are 3-PI section and measure 5/16ths by 5/8ths inch. Burstein-Applebee has some not quite so small but still smaller than most. These are made by Superex and are the smallest 2.5 MH units we could find.

We use regular lug type terminal strips to mount these components on. By viewing your VFO, you can determine how to bend the lugs so that the trimmer is readily reached with a screwdriver for setting the shift before closing the lid on the transmitter.

We often get terminal strips of 8 lugs and then with a hacksaw select those lugs most convenient for the location available.

These little keyers are fastened to the VFO with any convenient screw or nut or bolt already in existence near the VFO tube. Most transmitters have several such locations. The photo with this article shows several such locations, if your eyes are good. There was a 25¢ piece in the picture also, but it doesn't show very well. It was to have given you an idea of the relative size of the keyers.

We have shown three keyers in Figure 1. The first is for conduction on space and is the one most people would use most of the time. The second conducts also on space, but has a smaller trimmer condenser for 20M where less capacity is required on AM-CW transmitters. The third is for use with SSB units requiring conduction on mark on 80M, etc.

Here is a chart with as many transmitters as we are familiar with at the moment:

Most AM-CW units	A	B
Most SSB units	A	C
HT-37; 32; 32A; 32B; 44	A	C
Johnson Pacemaker; Invader	A	C
Collins KWS-1	B	B
Collins KW-1	B	B
Collins S-line and KWM-2°	C	-
Central Electronics 20-A, etc.	A	C
Drake TR-3	A	C
B & W 5100 with or without 51SB	A	B
DX-100, 100-B	A	B
Apache	A	B
Viking 1, 11, etc.	A	B
Other Johnson AM or CW units	A	B
Globe King 500, etc.	A	B

°The Collins units only need one keyer since they conduct on mark on all bands, and the relative portion of the VFO used does not require two keyers. (Unless a second were desired for 170 shift in which case we would recommend substituting a 1.5-7 mmfd. rather than the 3-12 mmfd. unit shown.)

DRIVING THE KEYS

Most modern converters have for a number of years used a keyer tube to directly key the printer. Since Don Wiggins' article in 1957 pointed out the advantages in using the printer in the plate circuit of these tubes, all new designs since that time have offered this feature.

In a few cases of transistorized units, polar relays are still used to control external printing loops. In any event most of these circuits adapt readily to the mainline FSK-B system with proper consideration.

Most of the very latest units offer separate loop supplies in the keyer-tube circuit so that the regular power supply for the converter doesn't need to also furnish current for the printer. This type of converter adapts the most readily. The new TU-E the TU-D;

the original mainline converter of January 1963; the electrocom FSC-250 and several others adapt almost immediately.

Other units will adapt in just a few minutes. If the converter has an integral power supply furnishing the plate of the keyer-tube; lift off that connection and replace with the one shown in Figure 2. Or one could do the same thing in many cases by plugging into the RTTY jack on many existing converters, and then putting the RTTY in series with the new connection.

Figure three shows how to adapt to a polar relay circuit such as the W2JAV units, etc.

In any event, a separate loop supply for the keyer tube-printer will be needed, as the unique point at which this supply is grounded provides the reversing of voltages which is inherent in the mainline system. It is this reversing feature which keeps mark the same frequency regardless of what shift is in use, or what position of the pot has been selected. It is this feature that allows rapid and accurate setting of the shift, and also, incidentally, minimizes the change in calibration of the VFO dial when the FSK systems are installed. At K8DKC, even with four keyers in the VFO, a change in the front panel of less than 1½ kilocycles was noted. Many FSK systems have been reported to change the transmitter as much as 5 or more KC. with introduction on only one shift-pot keyer of the older type in current use.

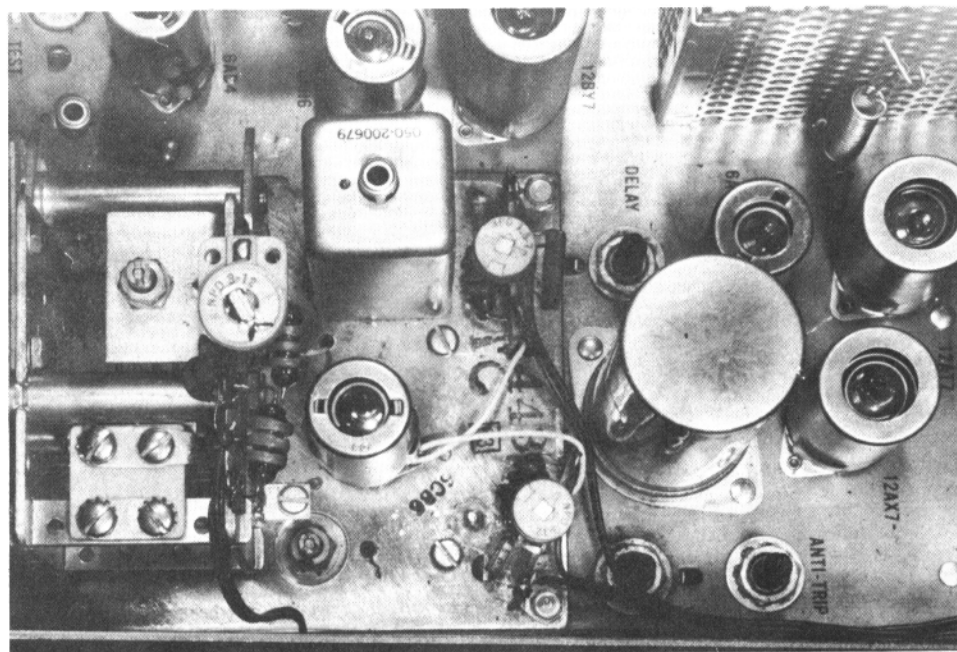
Since in this circuit we use the loop supply to drive the printer and FSK both, when using partial conduction (the shift pot) one always stands a greater chance of small amounts of hum than in circuits where the printer would be completely isolated from the keyer in more complicated and awkward circuits. It is partly for this reason we hope you will regard the shift pot as a convenience and not an everyday working circuit. If you discover you are constantly using the shift pot for a particular shift, we highly recommend adding an additional keyer.

ATTACHING THE KEYER TO THE TRANSMITTER

Both the keyers may be conveniently attached under any bolt, screw nut, etc. In such a fashion the trimmer may be readily adjusted from time to time. The trimmers are connected to the transmitter by lifting the VFO tube and hooking a small wire under the cathode pin and replacing the tube in its socket. Even if it has a shield, the socket has small openings near the base where this can be easily accomplished. This wire can then run to each of the trimmer condensers, etc.

OPERATING RTTY

Many transmitters require the key to be closed in the CW position before carrier can be achieved. This becomes a nuisance on rapid break-RTTY, and usually can be cir-



THE MAINLINE FSK-B SYSTEM BY K8DKC

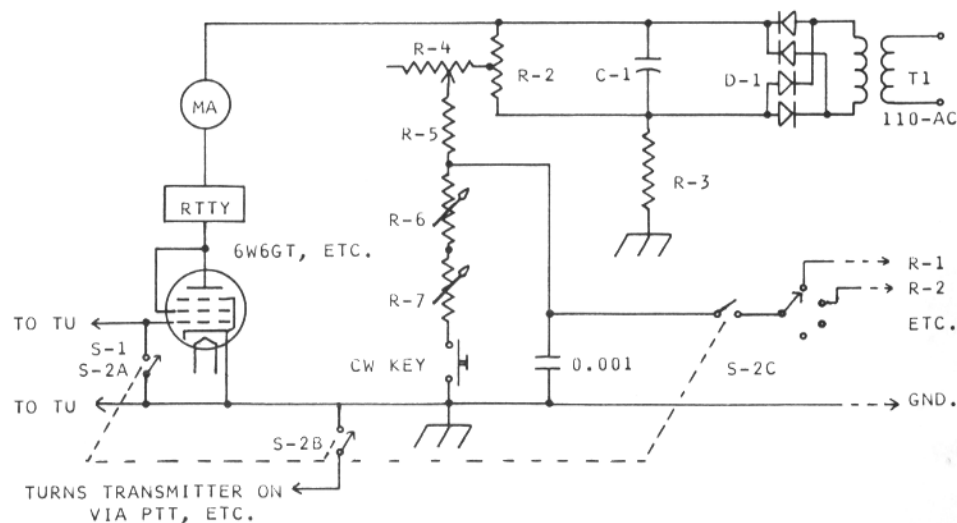


FIGURE 2.

cumvented by use of narrow shift ID circuits where the key is not placed in the transmitter, but in the FSK circuit at the printer or some other convenient location. In the mainline system the CW key is normally open and needs no sidearm to confuse you. It is only depressed during CW identification. With the use of adjustable narrow shift CW, the other chaps know you still have your carrier on and do not attempt to transmit while you are preparing for sending CW, which is frequently the case on some stations. Also another benefit of NFSK CW-ID is that with normally broad filters in the average TU, the printer will not print while the CW is being sent. This of course is very nice as CW never prints intelligence on an RTTY machine, and one would like to keep the superfluous error rate at a minimum.

However, by not using the CW key in the transmitter, this might pose a problem on some transmitters. At least it might for remote operation where you would like to turn the transmitter on and off at the printer, say.

In this case it has been found that by using the "AM" position rather than the CW position that one can turn the carrier on and off externally with only one switch at the printer. This same switch would also mute the converter for transmitting, so that the incoming signal from the receiver would not try to trigger the keyer tube while you were typing.

Most SSB transmitters offer push-to-talk and most AM units can be used in a similar manner. Be sure the mike is disconnected so that it won't pick up room noise and in the case of SSB units so that it won't trip the vox system.

One final comment regarding this switch. (S-2) on many AM-CW units clicks may be gotten in the receiver during reception of RTTY signals since the FSK system is running even for receiving. (This is the reason "retransmit" on VHF or other bands would be possible.)

If clicks are heard, one might wish to break the FSK line during receive with the same switch just mentioned. It would then become a three-pole single throw switch. When closed it would:

1. Complete FSK circuit to transmitter
2. Mute converter for transmitting
3. Operate push-to-talk; plate transformer, or otherwise cause transmitter to turn on.

An additional switch (SPST) hooked in parallel with the terminals of the main transmit switch (section two above) would be used to good advantage to mute the converter during periods you did not wish to receive—such as during CW ID, loss of signal, tuning, etc. Many converters have such a switch, (S-1) but this one could be placed right at the printer, if desired, since many times the converter is not real handy for this purpose.

Many variations will probably come to mind with this circuit. In fact, as shown, zero shift is impossible. However, we assume that a circuit which goes to zero shift would be overly "touchy" and in fact becomes somewhat complicated to retain the proper amount of reverse bias to keep mark frequency from moving during adjustment. Also we feel that shifts less than 85 are too difficult to properly receive even on the best converters to make their use standard. The circuit as shown will go around 50-60 CPS and is not critical at all. In fact, if shifts of less than 170 would not be required, a much smaller pot could be used, and would give even less touchy, smooth action. You can determine this for yourself.

For the TU-E, a special circuit called the mainline FSK-E has been developed. It is only for those conducting on space (not requiring any type "C" units) and for those who would like to go completely to zero shift. It gets additional voltage from the TU-E itself. It therefore is not universal, but might still appeal to some using the TU-E. However, the FSK-B system was also developed for use with the TU-E, and is much more simple, as well as being universally adaptable to nearly any converter. You can take your pick from the comments shown.

PARTS LIST

- T-1 Stancor PA-8421 or similar
 R-1 22 ohm surge resistor 2W
 C-1 200 MFD 250 WVDC or 300 MFD 150 WVDC
 D-1 Silicon type at least 400 PIV 400 MA or more
 R-2 10K 10W adjustable tap*
 R-3 Depends on your "whim". You can use a fixed resistor or adjustable. For fixed: 20-30 MA. 5K 10W 60 MA. 2500 25W
 For adjustable: 20-30 MA. 7500 adjustable 25W 60 MA. 3K 25W adjustable
 R-4 This is the shift pot. For SSB types, use a 3 Meg. left hand log 20% or 10%. For AM-CW types you might prefer a 5 Meg. left hand log type 20% or 10%. If you can't find that type of log taper, use the right-hand log 20% or 10%, or finally you could if necessary settle for a linear audio taper.
 R-5 This is an isolating resistor which limits the amount of current one could possibly get in the keyer. Use an 18K 2W and if you cannot get the 3-4 MA. in the keyer we recommend, you could reduce the size of this resistor somewhat.
 R-6 500 ohm pot used for setting amount of narrow shift for CW ID. This works on full shift when R-4 is not in use.
 R-7 25K pot used for setting amount of narrow shifter for CW ID. This works during the time when the shift pot is in use and the requirements are different. Can

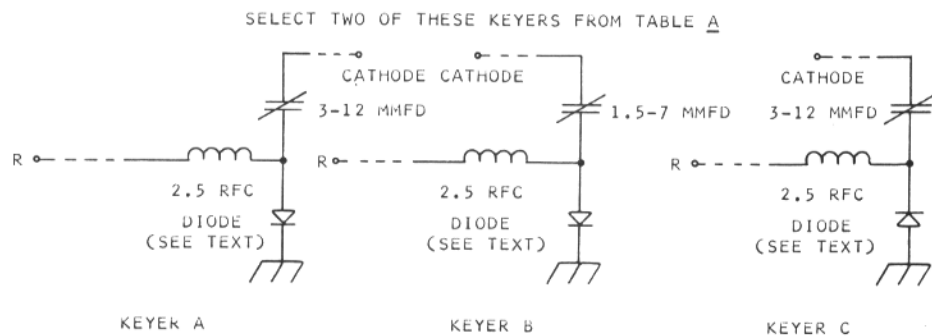
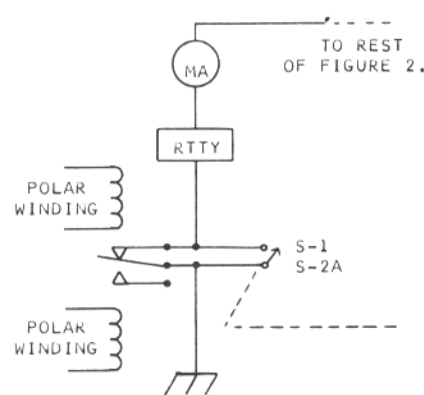


FIGURE 1.

ADAPTING THE MAINLINE FSK-B SYSTEM TO A POLAR RELAY



YOU WILL NOTE THE TUBE HAS BEEN BY-PASSED IN FAVOR OF THE POLAR RELAY IN THIS DRAWING. THIS ALSO WORKS FOR REGENERATIVE REPEATERS, ETC.

FIGURE 3.

be eliminated entirely if the shift pot will only be used rarely.

S-1 Used in conjunction with S-2 for transmit. This is a muting switch that blocks the TU from operating the printer when such action is not desired.

S-2 Operates the transmitter; closes the FSK; blocks the TU for transmit.

*The tap on R-2 should be adjusted to give about 3-4 ma. conduction. Try the tap at about 40% up from the bottom to start with. Then adjust for about this current flow. If you use the combination of keyers A & C, set this tap to give about equal conduction on keyer A during space and keyer C during mark. If 3-4 ma. cannot be reached in both cases, change the value of R-5.

CONCLUSION

This circuit works quite well and has been in use at K8DKC for a number of months undergoing evaluation. It also adapts to the Heath Marauder as has been shown in a separate article. It has many advantages and minor disadvantages (requiring more than one keyer). We feel it will replace most of those in current use, as it is simple, reliable, uses no mechanical parts, no relays, no shielding necessary, offers retransmit to and from VHF, etc., and best of all gives great flexibility on nearly any transmitter used by amateurs today with no modifications or alterations to the transmitter.

The pre-set shifters give instant correct shift for the band selected, and make it possible to easily and conveniently operate many bands or shifts rapidly and with confidence. It also readily adapts to nearly any existing TU-transmitter combination with superior results.

Please use the four rectifiers in the bridge circuit shown in order to get better DC filtering and regulation. This is necessary for the best operation during use of the shift pot.

DON'T FORGET TO SEND IN YOUR RTTY DX LOGS TO RTTY, INC., 372 Warren Way, Arcadia, California 91007. Pronto.

RTTY, INC., wishes to express the thanks of all of the RTTYers for making the Lettera 32 (Olivetti) available as a prize to the winner of the RTTY DX Contest this year, to Bruno Riffeser, IIRIF of Malino, Italy and the Olivetti Company.

"RTTY TIPS"

A simple tape rewind mechanism which I have found to be particularly useful for tapes of average length consists of a small 16mm motion picture rewind, such as is commonly found on home movie film splicing kits. This can be conveniently mounted somewhere near the operating position. The 100 foot plastic 16mm film spools make ideal tape "cores" if one flange of the reel is removed, (using a scissors). The tape is simply rewound on the plastic core which is then inverted over a 100 foot film can, and the core removed for further use. I have found an AB Dick mimeograph machine cabinet excellent for this general purpose, and a rectangular hole cut in the table top, between the reperforator and the TD provides a ready storage bin until fed into the TD.

Incidentally, a large (2000 foot), 16mm film reel will make a satisfactory tape storage reel for larger quantities of tape provided one flange is again removed and washers or spacers of some kind are used to widen the hub before replacing the flange. This is essential since RTTY tape is slightly wider than 16mm motion picture film.

de K9PTQ, ex W8NSX

"NEW"

1810 Inspiration La. SE Huntsville, Alabama September 28, 1963

Dear Merrill:

An announcement that I wish you would print—I'm again an ARRL OBS, this time in the Alabama section. My QTH here is 1000 feet above the surrounding countryside, and I have a 100 mile optical horizon in all directions. Therefore, I am attempting to maintain bulletin schedules on VHF from this location, although RTTY activity in this part of the country is rather sparse. At the present time, I am transmitting the current ARRL official bulletins, excerpts from the NCARTS bulletins, gleanings from electronics news, etc., simultaneously on six and two as follows:

Wednesday evening at 8 p.m. CST (0200 GMT Thursday) on 52.600 MC frequency mod., and 146.70 MC amplitude mod.

The six meter frequency is fixed-tuned receive (ex-com'l rig) but I will tune two meters for any reply. I hope to extend the broadcasts soon to a second evening. Any comments or QSL's are welcome at the above address.

73, Van WA4OCY, EX-W3DTH

C W WITH 14TD

Here is the procedure:

Write out the message to be translated, one word per line double space.

W 6 A E E

Place the morse code translation under it:

. - - - - - . . .

Draw slashes through the dots and put parenthesis around the dashes.

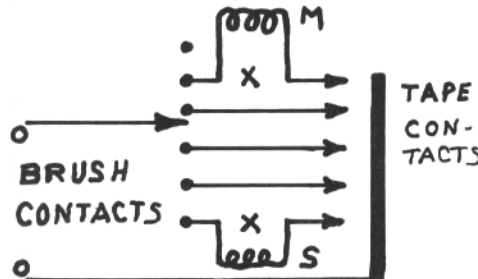
/(-)(-) (-)//// /(-) / /

When you punch the tape just punch the slashes and parenthesis

/((-) (-) () / / / / / (-) / /

Place a space before each character (of text) and a carriage return and line feed after each word.

To read the tape as Morse Code: Recalling the old TD diagram:



Place the mark coil in line #1, the space coil in line #5. Key the Morse Code circuits with the mark contacts.

For a 60 WPM tape reader the "THE QUICK BROWN" comes out at about 14 WPM.

Naturally if you have a series motor the code speed is adjustable.

Even a Polar Relay with large bias should work in this circuit if it is still capable of "sticking" to Mark and Space with no current. So the Polar Relay is saved from the garbage can even if electronic keying is better for our RTTY circuits HI!

More elaborate circuits and coding will work at 28 and 35 WPM and can be used with newer tape readers.

I'm in favor of low speed CWID 13-15 WPM, transmitting stations call signals only, once every 10 minutes. This amounts to about 1% of the operating time (WB6CXE takes about 6 seconds).

Here is why:

To create a favorable atmosphere among CW operators. All passed 13 WPM with FCC. Any staying with CW will probably copy faster. When they hear a nice clean clear 14 WPM, they will be sure to understand the call, can then look it up in the book and call the RTTY on the land line if they

wish and he is local. This clearly distinguishes us from other RTTY signals creeping into the Ham Bands and puts the CW OP more on our side in getting rid of them. By putting out a speed lower than the CW OP limit (regardless of his ability) we avoid any conflict with his ego. This should lead to better understanding and less CW interference. CW is not the place for RTTYers to compete.

Dot

B, Q, W, X, Y, Z, Ltr, Fig, ?, 1, 2, /, 6, ", Any of these

Dash Start

A, D, E, F, J, K, S, U, -, \$, 3, !, ', (, Bell, 7, Any of these

Dash Stop

G, H, L, M, O, P, T, V, &, £,), ,, 9, Ø, 5, :, Any of these

Space

C, I, R, Blank, Cr, Lf, Space, :, 8, 4, N, ,, Any of these

Spaces between Dash Start and Dash Stop will cause prolonged dashes to be transmitted. Preferred:

SPACE/()SPACE() () ()SPACE ()/()CR LF SPACE ETC.

For machines which Letters shift on Space (like mine does, lost the lockout) then KL and X can be used. Letters and Figures should not be used to shift case as they produce dots. Spaces, Line Feeds and Carriage Returns are quite appropriate. We can think of this 1% of the total operating time as "advertising" to get along with the CW ops the FCC and any would-be RTTYers.

I guess to be honest I should mention the selfish reasons too: I can't copy much better than 15 WPM and sometimes my printer garbles quite a bit also. When I've been copying along and then the printer garbles the call sign and I get a quick burp of a bug, I have unpleasant thoughts.

If we get FCC to permit our own call only to be CW identified, and have a means of doing this slowly and automatically I think we will get along the best until that day when everyone has RTTY (then we will be too crowded to work HI!)

73 Bob Ebert WB6CXE & KØACH/6

THE KL XXXX X
 QUICK KKKLKKL XXKL XX KLXXKL KXKL
 BROWN KLXXX XKLX KKKLKL XKLKL KDX
 FOX XXXLX KKKLKL KLXXXL
 JUMPED XKLKLL KLKL KKL XKLKLX X KLXX
 OVER KKKLKL XXXKL X XKLX
 THE KL XXXX X
 LAZY XKLXX XKL KKLXX KKKLKL
 DOG'S KLXX KKKLKL KKLX XKLKLLKLX XXX
 BACK KLXXX XKL KLXXLX KXKL
 12345 XKLKLLKL KLKLKLKL XXXKLKL XXXXKL XXXXX
 67890 KLXXX KLKLXXX KKKLKLX KKKLKLKLX KKKLKLKL
 TIMES. KL XX KLKL X XXX XKLXKLKL

WB6CXE /()() ()/// ()//// ()/()/ ()//() /
 KØACH/6 ()/() ()()()()() /() ()/()/ //// ()//() / ()////

Dot B,Q,W,X,Y,Z,Ltr,Fig,?,i,2,/,6," Any of these
 Dash Start A,D,E,F,J,K,S,U,-,\$,3,!,',(,Bell,7, Any of these
 Dash Stop G,H,L,M,O,P,T,V,&,L),.,9,Ø,5,;, Any of these
 Space C,I,R,Blank, Cr,Lf, Space,:,8,4,N,, Any of these

Spaces between Dash Start and Dash Stop will cause prolonged dashes to be transmitted.

Preferred: Space/()Space()()()Space()/()Cr
 LfSpace etc.

Telefax

WESTERN UNION

PM

Telefax

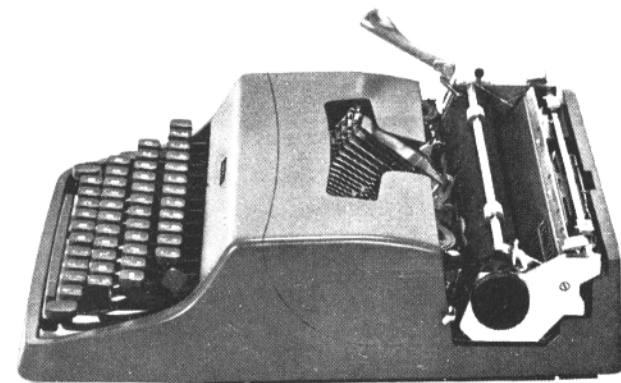


1251P PDT SEP 30 63 0A217 LA343
 L L9C099 (L CDV038 LC138 LSH06A MA) 51 PD INTL CD MILANO 02177
 VIA COMMERCIAL 30 1600
 LT MENRIL SBAM RTTY

372 WEST WARREN WAY ARCADIA (CALIF)
 OLIVETTI HAPPY CONFIRM AWARD LETTERA 32 AS SIGN SIMPATY TO
 RTTY AMATEURS STOP TYPEWRITER WILL BE MADE AVAILABLE IN MILANO
 MYSELF WILL BE HAPPY TO SUPPORT FORWARDING TO WINNER AND CUSTOMS
 EXPENSES IN HIS COUNTRY STOP LEAFLET OF LETTERA FOLLOWS T3
 BRUNO III

372 32 RTTY T3
 (43).

72521



Olivetti Lettera 32

O'SHAUGHNESSY'S C Q TAPE

W I L L Y

Another selection from "My son the amateur radio teletype operator" which as everybody knows contains all the old cliches in sparkling new RTTY settings.

O'Shaughnessy held that the three versus three C Q was too empty and dry.

The callup should somewhat more personal be—

—Should give you a glimpse of the guy.

In teletype tape he embodied his soul,
Exposing his heart and his mind.
He punched out as weird and fantastic a roll
As ever you'd happen to find.

His lineup, begorra, was first interspersed
Between the C's and the Q's.
Rainy, unseasonable weather he cursed,
Followed by Kennel Club news.

The family tree of O'Shaughnessy's clan;
A lecture on too-narrow shift;
An off-color story of Sidebander Dan;
A circuit for lessening drift.

Greetings for every season of year
Were next on O'Shaughnessy's list.
The Chamber of Commerce's "Why settle
here,"
And technical details he'd missed.

A plea for a call; a prayer for dead souls;
And, added to fill out the shape,
A want ad for toroids completed the holes
On O'Shaughnessy's C Q tape.

—o—o—o—o—

THE RUBAYYAT OF
OMAR THE TELETYPEIST

I
Come, throw the switch,
And let your signal ring!
The sweepstake bird has but a day to flutter
—Three hours, this opening!

II
The teleprinter types; and having typ,
Moves on. Not all your toroid art nor wit
Shall lure it back to cancel. For you see,
No back-space lever can be found on it.

III
I sometimes think we never find so little noise,
As where some power boy has played;
That all our flawless solid copy joys
Come in a notch some kilowatt has made.

IV
Ah, love! could we with FCC conspire
To grasp this sorry spectrum plan entire,
Would not we shatter it to bits—and then
Give FSK the clear slots we desire!

V
A teleprinter, and a stein of brau;
A solid copy QSO; and thou
Beside me coiling up the tapes—

—Ah, teletype were paradise, and how!
VI
Alike to those who go for Morse alone,
And to the rest who follow only phone,
The Muezzin from the green-keyed tower
cries,
"Fools! Five-level printing is the one!"

—o—o—o—o—

A SONNET OF SOLID COPY

You're printing solid copy here old man—
No garbles, overprints, or skips.
That signal burns a hole if any can—
Such landline typing, my heart flips!
We go firstclass receiving all the way:
Notch and comb, mark only, and the works—
—TU DIGS signals from beneath the bay.
Poor reception is the mark of jerks!!
Oh, say, we had some local motor noise
That gave you trouble here and there.
A little bother from the hand-key boys—
—If we could get them off the air!!
Please tell me if I'm right on call and name—
Repeat address and lineup in this frame.

—o—o—o—o—

LSMFT; or,

A LOWER IS HIGHER THAN AN UPPER

There's no room for confusion
Which is high and which is low.
I'll get it—just a minute—
We've a slogan which can show
Which way it is in tones,
The opposite for FSK.
—Or is the slogan for the shift?
I had it just the other day.
J K L M N—no wait—
That's not it—now let me see
Or A B C D goldfishes—
—Which magic letters could it be?
S E R U T A N ?
M Y O B ? or P D Q ?
Now don't rush to get a book.
I'll make it clear as day for you.
There's no room at all for confusion
Which is mark and which in turn is space.
(The way these kids ignore wise adult help—
—It's become a national disgrace!)

—o—o—o—o—

EMERITUS

If you've a massive stock of reper tape
Stored in your shack;
If odd and sundry hued page printer rolls
You never lack;
If toroids lurk in every nook,
And on the wall
Punched tapes and page-sized QSL's
Look down on all—
Polar relays, half a score;
Old TU's, three or more—
Rigs and receivers modified,
Now worth a song—
If you know all the answers without doubts,
You've played this game too long!!!

—o—o—o—o—



W2RUJ, SKIPPER, LOCKPORT, N. Y.

DX-RTTY

Bud Schultz, W6CG
5226 N. Willmonte Ave.
Temple City, Calif. 91780

Hi DX'ers:

How about taking pot-luck with me this month? Having just returned from a month's vacation I find that I'm out of touch. Guess most of you are better informed about the DX goings on at this time than your DX editor. The mail bag is crammed full and time will only allow me to skim through a few of the reports that are piled up here on the desk. The first one I opened was a real shocker from Bill Stunden, VE4BJ, pointing out that there was a discrepancy in the dates and GMT times of the DX Sweepstakes!! I will offer no alibis for this except to say that it was a stupid error on my part and I am truly sorry. The Boss tells me that he has already had a bunch of static concerning this boo-boo and all I can say is please get off his back and get on mine! If any of the top ten highest scorers are affected by this mistake the committee will accept the best 48 hour operating period in determining their scores. After that rather negative start concerning the DX Contest, here is some real exciting news. Last year's winner, Bruno, IIRIF, is awarding a Lettera 32 (Olivetti) typewriter to the winner of this year's contest. Bruno states that he will cover all forwarding and customs expenses involved in getting this fine machine to the winner. This is indeed a most generous offer and the committee is very pleased to publicly thank IIRIF for his continual help in furthering the interests of RTTY.

Here are some quotes from an interesting letter from Henry, ZS1FD: "—the fact that you haven't heard me for a while does not mean that I have lost interest, quite the contrary is true. However during May/June I went to Europe on business and on my return found band condx very poor. They begin to improve now and I have worked Ed, K3GIF, now and then and even had a QSO with LU1AA. The latter has an excellent signal here—also I am busy with a new TU (who isn't these days?) with active bridged-Tee filters and two tone and (I hope) AGC working on the input stage. I saw in England several Creed 76, a real honey. The carriage stands still. It does not have a type basket but instead a plastic cylinder on the circumference on which are moulded the type in six levels. On selection this cylinder both turns and shifts up and down. It results in very fast operation because of the light mass and is almost noiseless; really a snazzy piece, costing around \$900 when new. I did not get time to contact Bill Brennan, G3CQE, who, I believe, was busy shifting QTH at the time. I may get to Palo Alto next year in which

case I shall not fail to look you up."

Next from the mail bag is a letter from Ib, OZ8US. Here's what he reports: "As you know, there is still very little activity here in Denmark due to lack of printers. At the moment only three stations are on the air: OZ5EL, OZ5JT, and OZ8US. OZ7OU has been active for some time this summer, as well as OZ9DR, but both are unfortunately off the air right now."

Now some very exciting RTTY news in a note from Wayne, W8SEY: "I had a real good QSO with FG7XT today. I was on RTTY, and he on SSB. He has a model 28 printer, 14 reperf, and a 14 TD. He expects to be on RTTY before the end of the year. He also says F9RY/FC expects to be printing by the end of this month, as well as two Paris amateurs, and they all expect to be transmitting RTTY as soon as they can obtain the OK." One of the French stations referred to in Wayne's letter is F8K1 which was reported in this column last month.

The only word this month from down under is a letter from Bill, VK2EG, who is still trying to locate a model 15 (with a brush motor) to replace the model 26 that was broken up by a prowler last summer. If any of you have one for sale please drop him a line. Eric, VK3KF, should be back in business by this time, having been busy moving into a brand new ham shack with all the trimmings. My weekly supply of New Zealand magazines assures me that Bruce ZL1WB is still active. You sure made the old Mail Sack heavy this month, Bruce—thanks a meg. In case anyone is in doubt—Bruce is the number one publicity man for pointing out the wonders of New Zealand.

Because this is being written a couple of days before the DX contest and won't appear in print until after the big wing-ding is over I won't indulge in any snide remarks other than the sad commentary at the opening of this column. By next month we should be able to wade through the post mortems up to our collective knees. Please send in your reactions, gripes, complaints, suggestions etc. so the committee can make use of them before next year's jamboree. And don't forget to send in any fotos you may have around the shack. Who knows—you may see yourself on the front cover of "RTTY"—and then the little Woman will be proud of you.

Thanks for putting up with this "make-shift" effort and I promise to do better next month.

73

Bud, W6CG



HORSE TRADES

- FOR SALE:** AN/FGC-1 Terminal unit, complete with manual, spare tubes, tools, etc. Unit is like new in perfect operating condition, \$100.00. W7SMB/6, 1928 West Elm Place, Anaheim, California.
- WANTED:** Model 14 type keyboards, K8VDU, 6200 East Broad Street, Columbus, 13, Ohio.
- WANTED:** Model 20 keyboard, K9FHR, 2428 Morse Avenue, Chicago 45, Illinois.
- WANTED:** DX-40 transmitter for any type of small Teleprinter or Teletype. K4YGM, 314 East 8th Street, Cookeville, Tenn. 38501.
- FOR SALE:** Collins 706A2, two channel diversity (audio) converter, \$200.00. Collins octal base plug-in mechanical filter, 455kc, 1.2kc b/w, \$35.00. Times Facsimile radiophoto recorder, 352 index, 60 rpm, \$100.00. BC-221 VFO, gang tuned multipliers 5-20 megs, power pack, \$25.00. Two, 2kc fork oscillators, self contained power packs, commercial forks, each, \$25.00. Audio Development Co. relay rack mount 48 jack strips with Fahnestock ±218 closed ckt jacks, each, \$10.00. Heathkit V-6, \$10.00. K2RM, 1530 Glenwood Drive, Dunellen, N.J.
- FOR SWAP:** Three new 4CX300A in sealed bags plus 2C39's. What have you? Lee, 1246 Manhattan Beach Blvd., Manhattan Beach, Calif.
- FOR SALE:** Standard 11/16" Teletype tape with 2" core, \$8.00 per case, FOB, WA5ECV, 3210 Bluebonnet, Houston, Texas 77025.
- FOR SALE:** 1 Model 19 complete, \$175.00. 2 Model 15s, \$100.00 each, 2 Model TD's, \$50.00 each. 3 sync motors, \$20.00 each. All rebuilt to commercial specs, top condition. WB6DRY, 2135 Oxnard Blvd., N. Oxnard, California.
- SELL OR TRADE:** Teletype 14 typing reperforators. Want Lab, Test Gear, GR, etc., catalogs, W4NYFX, 405 NW 30 Terrace, Ft. Lauderdale, Fla.
- FOR SALE:** Model 14 set consisting of TD with cover, base, sync motor, 60 wpm gears; Typing reperf with cover, kybd, tape holder, sync motor, 60 wpm gears, EOL indicator; Teletype steel table; Also 14 narrow strip tape printer. K9MVX, 134 North Varisty Dr., South Bend, Indiana.
- WANTED:** Northern Radio Keyer Type 105, Model 6, with or without power supply. Cover for CV116/URR. Multi-speed shift unit for Model 28 KSR. W1LVW, 99 Water Street, Millinocket, Maine.
- FOR SALE:** Special!! 88 mhy Toroids, 5 for \$3.75 postpaid. RTTY Parts. Please order by Teletype number. Gears for 15 and 14 TD \$6.42. RA-87 power supply, \$9.00. Reperfs, \$39.00. FGC-1 sections; power supply, \$12.00, jack strip, \$6.00. Fuse strip, \$6.00, Terminal bay, \$5.00, remainder, \$10.00 section; cabinet, \$15.00, 11/16" tape, \$8.00 per case. Single copy page paper, \$2.00 per case. Send for free list FOB. W5LCU, 7031 Burkett, Houston 21, Texas.

Even if you are not an ardent DX'er, plan on participating in this once-a-year confusion marathon. I will guarantee that it will make all the other 51 weekends of RTTY operations seem like "a moment of softness." Start training now so you will be in top shape!

In closing, I cannot resist a quote I recently read in "DX" and credited to W8IBX — "Confucius say: Self-appointed policeman running kilowatt often make more QRM than lid running 50 watts." If you don't believe this, wait until the contest starts.

73

Bud, W6CG

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