

BRITISH AMATEUR RADIO TELETYPE GROUP

The Editor,
RTTY,
372 West Warren Way,
Arcadia, California.
Dear OM,

May I take this opportunity of thanking you very much for all the excellent publicity you have given to the activities of our Group over here in England. It is good of you to have reproduced our News Sheets and I hope your readers have found them of interest. I must say I have been filled with pride to see them reprinted in RTTY, as I in particular, am a very raw beginner in RTTY affairs. As you will have gathered, I have always wanted to see RTTY in operation in this part of the world and throughout my amateur radio life, which began around 1934, I have hoped that ultimately, I too would be on the air with RTTY. At last, through the encouragement and enthusiasm of Jim Hepburn, VE7KX, that has come to pass. We have successfully overcome the opposition to it here and we now only need to encourage more chaps to get on the air.

From previous News Sheets, you will have gathered that we were asked to put a demonstration of RTTY on at the recent Radio Hobbies Exhibition in London. This we did and you will see from the enclosed News Sheet that this was most successful. I enclose a photograph of part of our Stand showing myself (centre of photo) talking to Mr. Frank Baldwin of the "Radio Constructor." The photo was taken by John Rouse, G2AHL, Editor of the R.S.G.B.'s "Bulletin." In front of me is the circuit diagram of the Heathkit VFO modified for FSK as per the RTTY Handbook, which I use at my station for RTTY and on my right is the T.U. to W2PAT's design, which is also used in my station. This I built up specially pushed up for the Exhibition and it was shown working from an HRO receiver. In the foreground of the photo is a Creed Type 3 Tape machine which was provided with the necessary power supplies and was available for the visitors to 'bash' - hi! And did they enjoy themselves on it!

My own RTTY station is a very modest one at present—the aforementioned Heathkit VFO driving a Heathkit DX-40U. Until I have constructed some shift frequency measuring gear, I am confined to one band operation, viz., 80 metres. My RTTY Rx is a BC-348, the stability of which I find better than the other amateur band receiver I have in the shack. So far I have built two T.U.'s, both to w2PAT's circuit. We had quite a lot of trouble at first to find suitable components for the chokes, but that difficulty has now been overcome and we have discovered one or two readily available components which do the job nicely. Several suitable types of relay are also available on the surplus market over here, so there is no excuse now for the boys not to build their own gear. At the time of writing, only three G's are on the air, viz., G3CQE—whose DX activity on RTTY you will know well—GM3KSN, who is on 14100 kcs, and myself. However, a number of others are building and should be on the air soon. We have too, several 'receiving only' members, who have got gear going and have proved most useful in monitoring our test transmissions.

As a result of the publicity you have given us in "RTTY" I have received letters from your readers from all over the world, wishing us well and congratulating us on getting RTTY going in this country. These letters convey the spirit of 'ham radio' in a way which I have not experienced so strongly since my earliest days in 'ham radio.' It has been so refreshing to meet it once again, as in many fields of amateur radio these days, the old 'ham spirit' seems to have disappeared.

Once again, thank you for your interest and for your excellent little magazine, which I look forward to reading month by month. I hope it won't be long before I can get around to a big rebuild here, which will enable me to get on the DX bands and work some of you 'RTTYers' over there in the States.

Dr. Arthur C. Gee, G2UK

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T.O.M. Writes to His Nephew About RTTY SWEEPSTAKES

Hi Son:

Guess I should write you the latest news cuz our skeds sure have been rotten. My ole printer just wouldn't make sense out of your copy. I could tell you did some work on your VFO cuz you were only drifting about 8 Kcs but it's still kind of wobbly. Sort of sounds like that sulphur spring bubbling out of the rocks down on our North forty. Biggest trouble was your shift. It moved around between about 980 and 1050 cycles and was upside down! My ole TU got real dizzy trying to keep up with it. Outside of that, your signal was real clean and much better than our last sked when that CW smart Alec broke in and asked if you was a Russian jamming station.

I heard you on phone last Wednesday but didn't call you because I had a little accident and can't speak very plain until I get a new set of store teeth. It happened like this: I was making a few adjustments on my Model 26 and my face up close to the right hand end of the printer, peering into that mess of levers and springs when I must have accidentally tripped the carriage release lever. The Doc says my new choppers will be ready next week. It was rough, Son. Been living on soup and jello ever since. By the way, my dentist is also a RTTY ham and he is trying to put some of his teletype savvy into his dental work. For instance, he got an idea from the "unshift on space" deal so that he says that my new china clippers will have an arrangement where I can unshift on taffy or caramels. Not bad eh, Kid?

The main reason I wanted to write you was to remind you of the Anniversary Sweepstakes Contest coming up on Feb. 12-14. I recall how you griped last year because you forgot about it until the last two hours of the contest so this year try and get in at the start. Now here's the scoop, Lad. It starts at 6:00 PM EST on Friday, Feb. 12 and runs until 3 AM, Sunday Feb. 14. That ought to make that West Coast gang happy. They are always crabbing about losing the first three hours

of a contest due to working hours. Now I'll bet the East Coasters will moan about having to stay up until 3 A.M. Sunday morning. Oh well, Son, you can't win 'em all. That feller in Arcadia named Swan is a pigeon for these complaints and is sharp as a hawk when it comes to giving the right answers. (That's a joke, Son—get it?) Rules are the same as always; one point for message received and one point for message sent and received for. Multiply total number of message points by the number of ARRL sections (or Countries) worked for your total score. You can work the same guy on several bands and count message points for each band but you can only count each section or country once for the multiplier. Your message should contain the date, time, signal report, frequency band, and section. Remember, Son, like I tried to explain to you last year—it aint necessary to include your full address and your age in every message. That just confuses things and messes the whole deal up. Believe me, you sure had it fouled up last time! Like I told you before; it's real simple and even *you* should be able to figure it out. Biggest thing fer you to remember is not to forget to send your score into W6AEE after the ruckus is over. You won't ever see your call listed in the magazines if you forget to send it in for credit. Don't forget to be looking for that DX crowd during the SS clambake, Lad. They all promised to be on the air looking for the Stateside bunch. Maybe you could even get a real DX QSL card to put in that frame over your final. Like I told you many times before, that card from Catalina in that frame doesn't count as DX—Catalina is still in Los Angeles County.

Well good luck, Son, and I'll see you after the sweepstakes and don't forget to clean out those rectifier jars before you start in the contest—and use some fresh Borax!! You just can't stand any more pink tickets from the radio inspector. Your Aunt Martha says to send her love. 73

T. O. M.

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AN AMATEUR RADIOTELETYPE SYSTEM

By LILBURN RAY SMITH, W5KQS
Texas Technological College
Lubbock, Texas

Introduction

Teletype^o equipment is used by amateur radio stations to provide error-free transmission of data, and as a basis for experimentation. This paper describes an amateur radio Teletype system built and operated by this student. A general treatment of Teletype principles is followed by a description of the equipment used in successful communication with stations in Arkansas, California, and Minnesota.

Basic Principles

The block diagram of Figure 1 shows the basic radio Teletype station. The message is typed on the keyboard, which translates it into code. The keyer modulates the transmitter. The transmitter and receiver connect the two stations with a radio link. The terminal unit converts the radio signals into d-c pulses. Printed messages are obtained from the printer on a roll of paper or on a narrow tape. A photograph of the printer-keyboard assembly with cover removed is shown in Figure 2.

The Teletype printer and associated keyboard are designed to operate in series with a constant-current source connected by a telephone line as shown in Figure 3, the elementary diagram. The desired character is selected by interrupting the current, in much the same way that a telephone is dialed. A five-digit code is used to obtain a sufficient number of functions. The five positions and two possible states (current flow or no current flow) give 2⁵, or 32, selections. The code for the letter Y is diagrammed in Figure 4. In addition to the 32 basic functions, others can be obtained by cascading, such as the shift to upper case to print figures and punctuation marks.

To insure synchronization between the printer and keyboard, the motors run at a speed derived from the 60-cycle line. In addition, a start and stop pulse are transmitted with each character. A total of seven pulses makes up a function code. Five come from the selection code, one from the start pulse, and one from the stop.

If the printer and keyboard are to be connected by radio instead of by telephone wires, a method of recovering the d-c current pulse from the radio signal must be provided. The d-c pulse is recovered in the terminal unit, whose function will be discussed more completely in a later section.

^oTeletype is the registered trademark of the Teletype Corporation.

EQUIPMENT FUNCTIONS

Keyboard

The RTTY (Radio TeleTYpe) keyboard is arranged as shown in Figure 5. Each key, when depressed, allows the distributor to send a seven-unit pulse corresponding to the function selected. The keying action is obtained by a rotating eccentric cam, which opens a pair of normally closed contacts. When the contacts are closed, current can flow. This is called the mark condition. When the contacts are open, current does not flow and the space condition exists. Another type of keyboard uses a diode matrix to obtain the coded pulse. The matrix eliminates the moving parts, and reduces the mechanical requirement to a single lever-operated switch per operation. Williams described the construction of a matrix keyboard from a discarded electric typewriter. (1)

Keyer

Following encoding by the keyboard, the signal must be impressed on the radio-frequency carrier. Since the RTTY code is binary, the obvious method is to use make-and-break keying of the carrier, called A¹ emission. A¹ was used in early Teletype circuits, but suffers from interference and degradation of the signal due to noise. The high signal level required limited the use of this mode to circuits spanning relatively short distances. Another method is the use of a constant carrier, modulated by a keyed audio tone. This mode, A² emission, is essentially the same as A¹. It suffers from the additional limitation that a wider bandwidth is required.

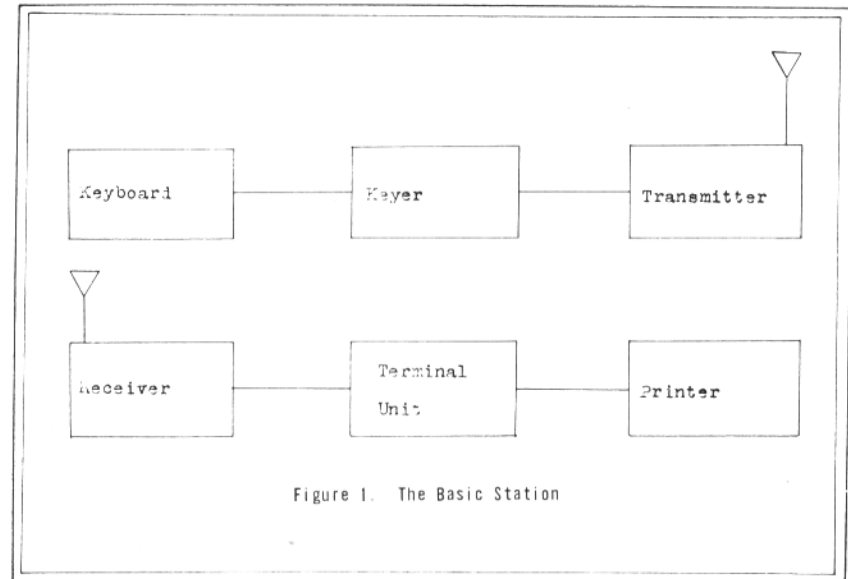


Figure 1. The Basic Station

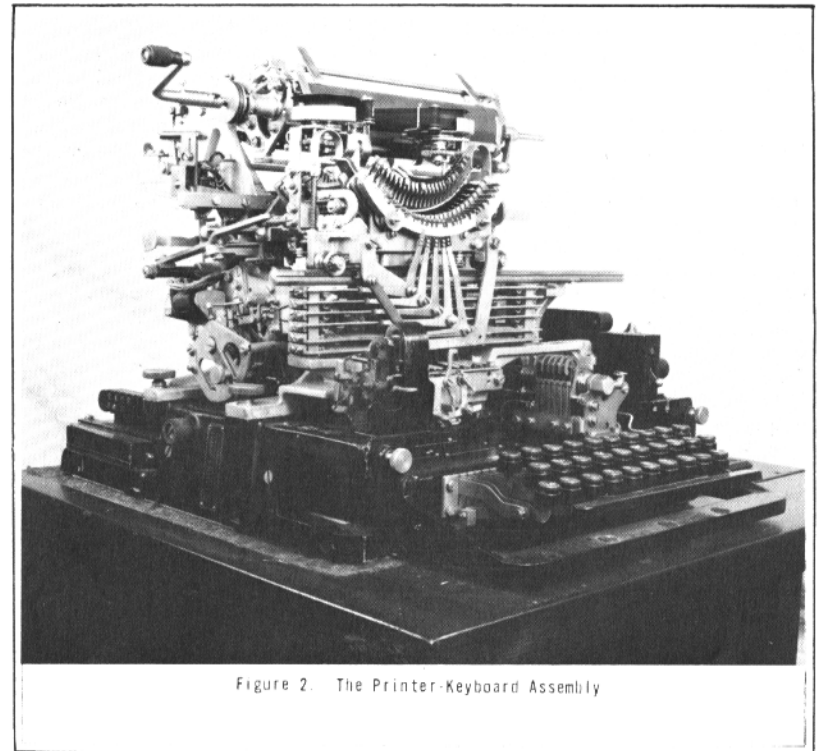


Figure 2. The Printer-Keyboard Assembly

The mode in almost exclusive use on the frequencies below 50 mc. is F_1 , or frequency shift keying (FSK). As the name implies, the frequency of the carrier is shifted downward for space. Advantages of FSK are narrow bandwidth, noise immunity, and interference rejection. One disadvantage is the high order of frequency stability required. Systems which use as little as 20 cps shift cannot tolerate drift. The frequency stability problem can be overcome by the use of audio frequency shift keying (AFSK). The frequency tolerance of the audio tones can be held to a high order of precision. However, the narrow bandwidth and interference rejection are forfeited. The bandwidth of AFSK is greater than that of any of the other methods discussed. It is used only above 50 mc.

Phase modulation is another possibility. At present, however, it is used only in experimental systems.

Transmitter and Receiver

Transmitters for Teletype follow standard engineering practice. Good frequency stability is a prime requisite. Relatively high power is used to increase range and reliability. Receivers must possess good frequency stability and selectivity. A beat frequency oscillator is required by most of the terminal units in use by amateurs. A bandwidth of 1000 cps is ideal for 850 cycle FSK. Since teletype is usually added to an existing station, the receiver and transmitter in use are usually retained for RTTY. This practice results in less than ideal performance characteristics, especially in a receiver designed for radio-telephone.

Terminal Unit

The terminal unit follows the receiver and recovers the current pulses which make up the code. Two basic categories are used: those which operate at the I. F. level, and those which operate at the audio level.

Terminal units which operate at the I. F. level are used with FSK, which can be considered very narrow deviation frequency modulation. Conventional discriminators detect the frequency shift, and the resulting d-c signal is amplified by a tube having the printer selector magnet as the plate load. A high series resistance is used in the plate circuit to obtain a constant-current condition. Otherwise, the back EMF from the selector magnets distorts the pulse. (2)

Audio terminal units can be used with

AFSK or FSK. If FSK is to be received, the beat frequency oscillator is used to obtain audio tones. A number of methods, such as employing filters, counter detectors, and audio discriminators, are available to detect the signal. Following the detector, the operating principle is exactly the same as that of the I. F. unit.

Printer

In the printer, a selector magnet and rotating cam arrangement select the proper function. The printer is primarily a mechanical problem, since the only electrical connections are two wires to the selector magnets. The message is printed either on a strip of paper eight inches wide or upon a narrow tape.

EXPERIMENTAL EQUIPMENT

Model 15 Teleprinter

A Model 15 Teletype was obtained from the RTTY Society of Southern California, an agency which distributes surplus machines to radio amateurs. The Model 15 is a large, rugged machine in wide use in news and TWX service. It is capable of 60 or 75 wpm operation, with a change of machine gears. The paper advance is stationary, and the type bars, in a carriage, are moved from left to right as the machine prints. The keyboard is contained in a plug-in unit driven from the same motor as the typing unit. The printer and keyboard were delivered mounted on a Model 15b base, which contains the wiring for the unit.

However, the telephone company had removed the parts associated with a polar relay circuit used for line operation. The removal of the relay resulted in a number of disconnected wires, which were not color coded and could not be located on the schematic diagram. Since the selector magnet circuits are intimately associated with the polar relay wiring, it was considered advisable to completely rewire the base. The motor circuits were wired with number 18 wire, and the selector circuits, number 22 wire. The revised circuit diagram is shown in Figure 6.

Terminal Unit

Since the audio terminal unit can be used for any of the modes of transmission, this type was chosen. The basic circuit was described in the December, 1958, issue of CQ magazine. The circuit diagram is shown in Figure 7.

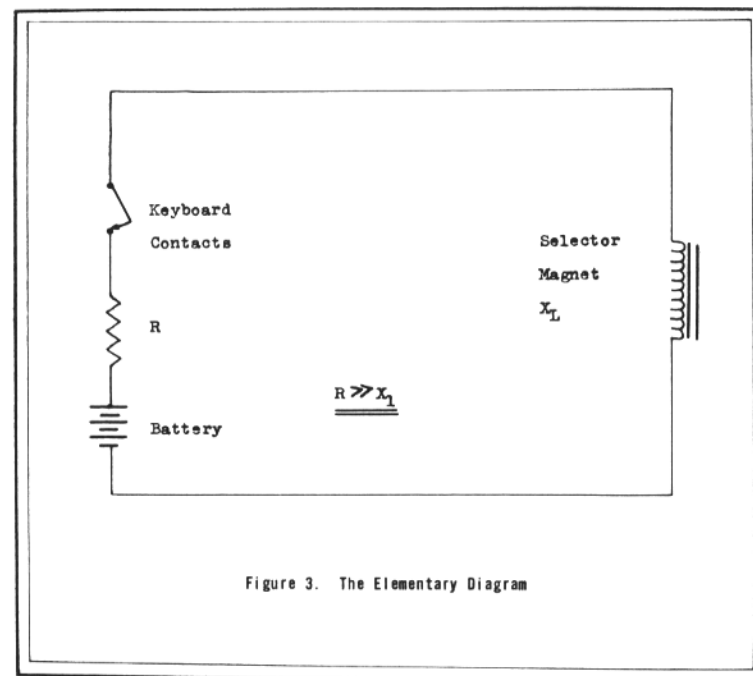


Figure 3. The Elementary Diagram

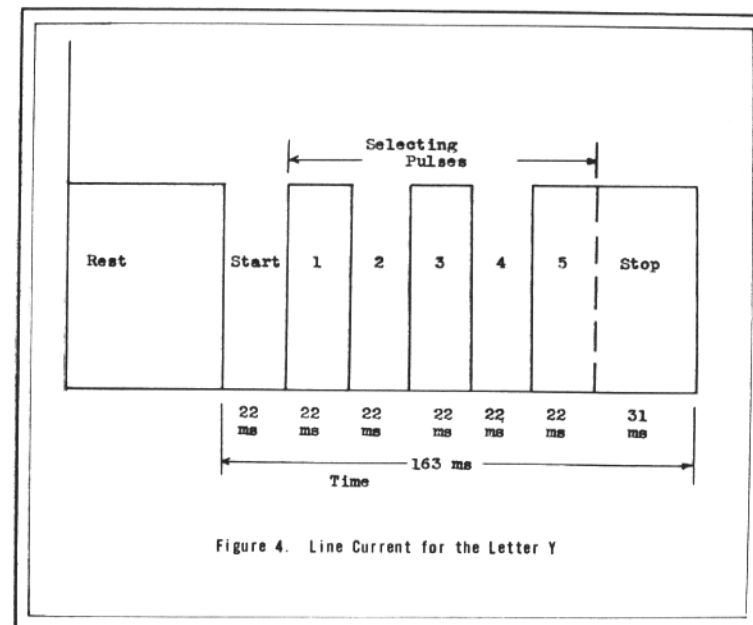


Figure 4. Line Current for the Letter Y

The 12AX7 limiter compensates for the variations in amplitude of the signal due to fading. The input impedance of the limiter is high, permitting bridging of an audio line without loading the line. In this station the 500 ohm unbalanced tap on the receiver output transformer is used.

After being limited by the 12AX7 stage, the signal is transformer-coupled to the discriminator. The original circuit was modified to permit the use of an available transformer. A low impedance input directly into the discriminator was also added. The tuned circuits were modified to provide a higher Q. The d-c output from the discriminator is amplified by the 6C4 stage, and the 6AQ5 keyer is operated from the output of the 6C4. The 6AQ5 is always in either full conduction or cut off. Plate load for the 6AQ5 is the selector magnet-2000 ohm resistor series combination. The high series resistance compared with the impedance of the magnet provides constant-current conditions to the magnet.

The power supply furnishes 250 volts and minus 105 volts from a 350 volt supply due to the ground return in the voltage divider. (See Figure 8.)

FSK Network

The universal use of FSK among the amateur fraternity dictated the choice of a frequency shift keyer. The frequency shift for FSK can be obtained in many ways. The most obvious method is to use the keyboard contacts to switch a capacitance across the tuned circuit in the oscillator. However, the scheme results in inverted keying. Also, the leads to the keyboard are at a high radio frequency potential. Stray capacity effects, often variable, ruin the frequency stability of the oscillator.

A relay can be used to invert the keying and eliminate variable stray capacity effects, but the keying relay must be in perfect adjustment, or distortion will result.

A less complicated and more successful keying device consists of two diodes in a variable-reactance circuit. The diagram is shown in Figure 9. Adjustment of the one megohm potentiometer controls the amount of shift. Standard amateur practice sets the shift at 850 cps, plus or minus 50 cps.

The FSK network was built on a small angle bracket mounted as close as possible to the VFO tube. The oscillator was recalibrated with the keyboard on mark, using a low frequency oscillator in zero beat with WWV as a frequency standard.

Adjustments and Tests

Interconnections between the units were completed and power applied to the equipment. The commercial stations operating in the 21 mc. range were used as test signals for receiving before any attempt was made to transmit. The receiving equipment functioned perfectly. Very acceptable copy was obtained from the Honolulu news relay station.

By a coincidence, the Sweepstakes contest for amateur Teletype was in progress when the station was completed. Stations in Arkansas, California, and Minnesota were contacted and excellent results were obtained, except that the receiver frequency stability was found to be wanting, and the tuning dial often had to be adjusted.

SUMMARY

A Model 15 Teletype was purchased. A terminal unit of the audio type was added to the existing receiver, and a silicon diode modulator was added to the existing transmitter. Commercial stations were monitored. Amateur stations were contacted and engaged in two-way communication.

REFERENCES

1. Williams, John *The Junkeyboard*, CQ Magazine Oct., Nov., 1954. Published by the Cowan Publishing Co., New York.
2. Wiggins, Don, *Vacuum Tube Keyer Circuits*, RTTY Magazine, July, 1957. Published by the RTTY Society of Southern California, Arcadia, California.

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W6SCQ — Lewis Rogerson,

For Traffic Net Information:
W6FLW W6IZJ

For "RTTY" Information:
W6DEO W6CG W6AEE

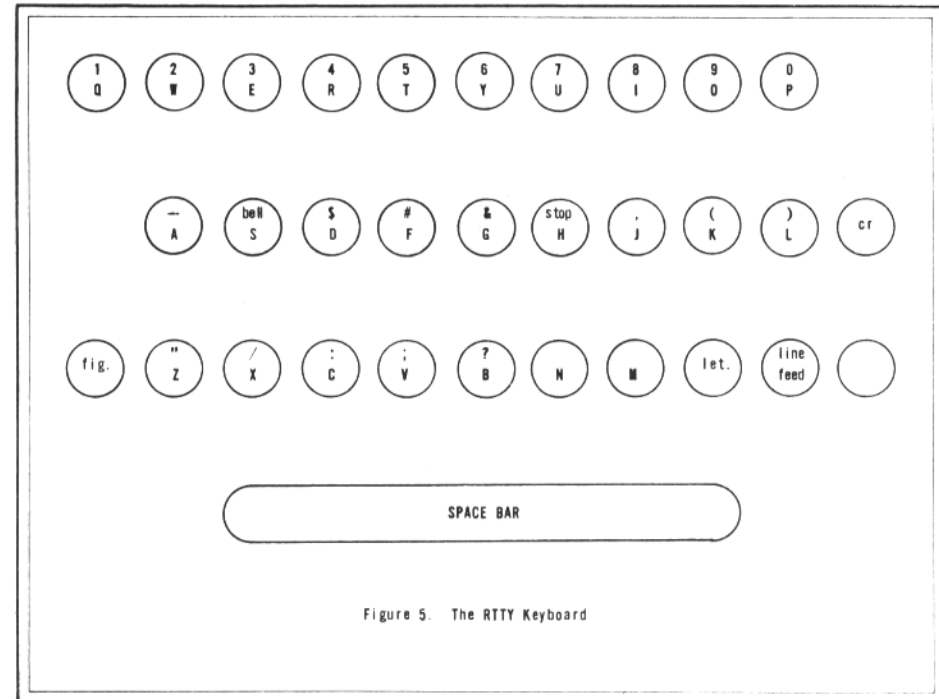


Figure 5. The RTTY Keyboard

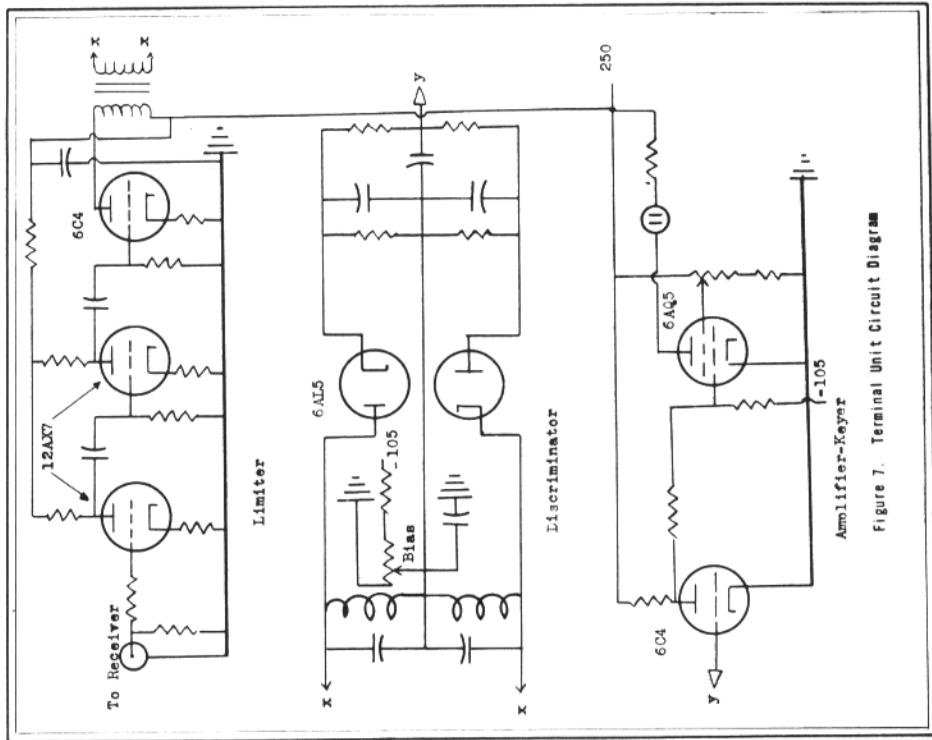


Figure 7. Terminal Unit Circuit Diagram

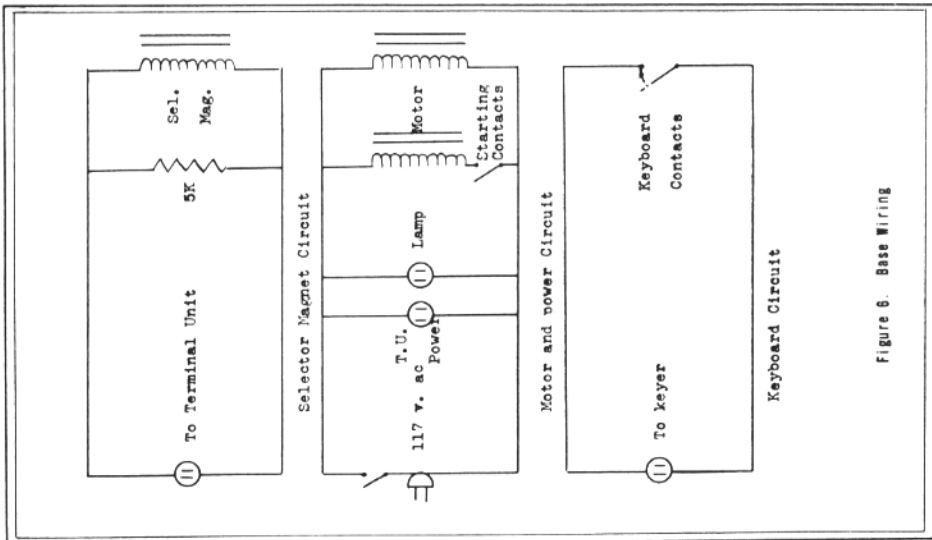


Figure 6. Base Wiring

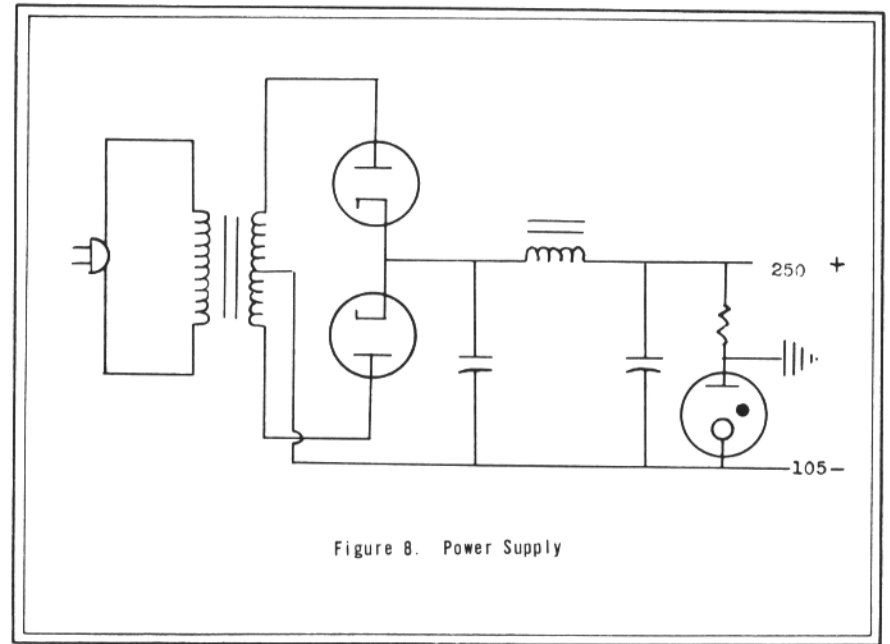


Figure 8. Power Supply

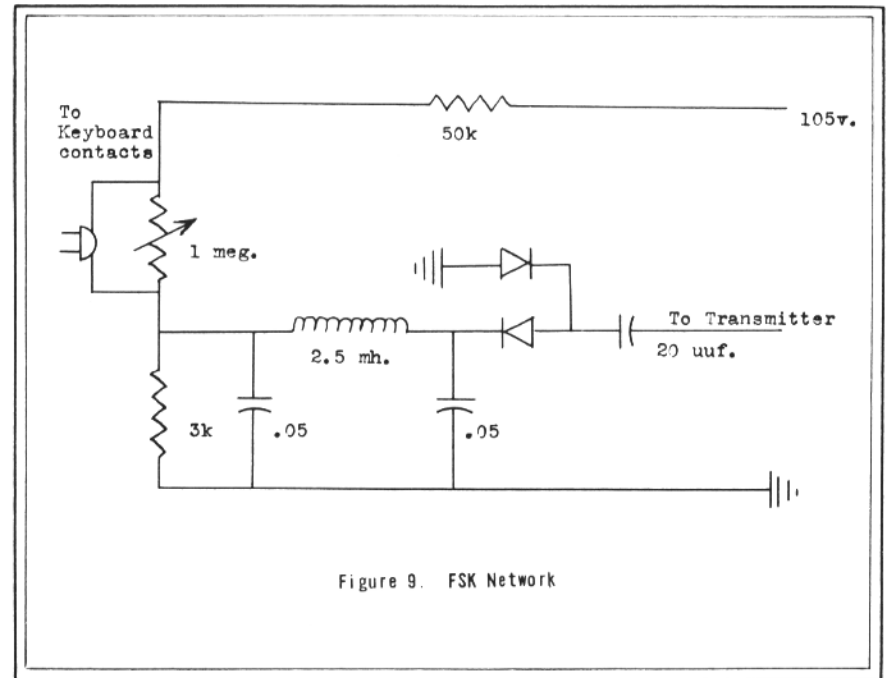


Figure 9. FSK Network

RATS - NEWS

The Minneapolis/St. Paul contingent of the amateur radio teletypewriter enthusiasts, known in some circles as the RATS now has an active membership of nearly thirty hame, plus an associated following of twenty or so. The retiring officers are Bob Wesslund, WØAUS, Otis Rood, WØDFP, and Bob Fincke, KØAKG. The annual election will be held in January. The club plans to incorporate and to expand its activities.

A Boyd Phelps WØBP Memorial Station is being established near the Twin Cities International Airport with the cooperation of Air Force MARS personnel. Also underway is a station to support Red Cross communications by providing RTTY facilities. Interest in this part of the country is not lagging, but none of us can do the job that old BeeP did.

Your correspondent is as interested as ever in developing new apparatus to improve the RTTY arts, but there is less time than ever before to do it. It is very difficult to pursue one full-time hobby when the family has so many interests and not one of them is ham radio. It is expected that when the WØBP Memorial Station is established, about six members of the Twin Cities RATS will participate in getting out the Sunday Bulletins as old BeeP used to do. Maybe then too we can get together to iron out some technical problems.

At the last RATS meeting Bob Wesslund, WØAUS, who is VP in charge of engineering at Transistor Electronics Corp. here in Minneapolis and retiring "Quick Brown Fox" in the RATS gave the gang an inspired lecture and demonstration of transistors and transistor circuits. Bob really has a knack of making things understandable. We got a lot out of it. For a few hundred bucks I presume he would be glad to visit some other club and enliven their meeting also. Hi . . . Maybe he could be talked into contributing a transistor theory and applications section to some future RTTY handbook.

I have noted a lot of RTTY signals (FSK) with very heavy bias that makes them virtually unreadable in spite of adequate signal strength. It is necessary to push the teletypewriter range adjustment clear down to twenty or thirty to get decent copy. A couple of the local boys have traced such

trouble to stray capacity in very high impedance diode modulator circuits. I refer to the type of circuit in which the RF from the transmitter oscillator charges the frequency-shifting capacitor to the a-c peak voltage via the diode path. It can take several milliseconds to complete the charging process, all of which time the oscillator frequency is being altered. When the polar relay or keyboard contacts close, they encounter a very small static charge and are required to carry a current very much less than that for which they were designed. In this "dry circuit" the contacts often become contaminated with oxides and oil film, further decreasing circuit reliability and chopping up the keying with noise and missing pulses.

To cure these troubles it is suggested that the diode modulator be converted from the passive high-impedance type to the active low-impedance type that provides hold-off bias and keys at a voltage high enough to break down insulating films on the keyer contacts. One example appears below:

The keying contacts operate at close to 100 volts and carry 15 milliamperes, enough to keep them clean. Inside the diode modulator the potentiometer is the shift adjustment, and either L_1 or C_1 may be the frequency-shifting reactance, depending on whether the keying contacts are the teletypewriter contacts or the reverse contacts of the polar relay, respectively. L_1 is not an RF choke but a reactor comparable to that in the oscillator tank. It is used with a blocking capacitor, which makes C_1 large (.001) . . .

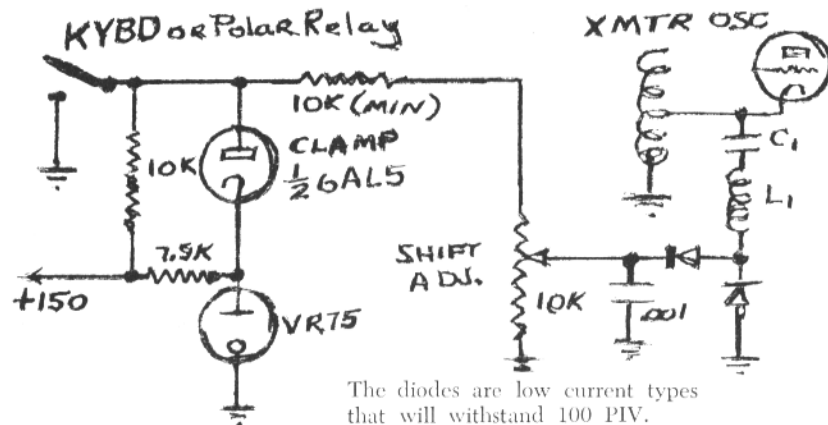
If C_1 is the reactance element it may have a capacity of about 33 mmfd and L_1 can then be omitted (jumpered).

Failure to observe these rules will put the signal on the air "upside down" with the marking signal lower in frequency than the spacing signal.

In this circuit the VR tube and the diode clamp insure fast keying and a consistent shift. They are not required if a voltage regulated power supply is used, but the above arrangement permits the same power supply to run the printer selector magnet.

Bruce L. Meyer, WØHZR.

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The diodes are low current types that will withstand 100 PIV.

MARS STATION AF7MEV

Thought you might be interested in the RTTY layout in the Ham Shack here. Will enclose a couple of Photos to clew you in.

In the cabinet at the left of the picture you will recognize an O5/B Exciter for FSK, at the top, next is a switch panel, followed by a home brew T.U. which features a Transistor tone generator which is fed into the Northern Radio Demodulator just below and the output of that, keys the printer magnets of the Model 19.

A Super-pro does the receiving for the equipment in the rack and below that is a Conelrad monitor and Power supply panels.

The O5/B keys the Viking at about 150

watts and I use the Millen VFO into the O5/B for the Ham bands.

Just about out of the picture on the right is a Model 26 which is keyed by an FRA Converter and is used just for receiving. The National 183 is used for receiving on this set up.

This station is Net Control for the Air Force MARS Northwest Radtel Net with member stations in the states of Oregon and Washington. Next project is the installation of a AN/FGC Terminal Unit if I can get it into the Shack, HI.

Keith L. Beck, W7MEV (AF7MEV)
927 S. W. Bridge St.

State Coordinator, Air Force MARS

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M7MEV — AT WORK

RTTY DX

By **BUD SCHULTZ, W6CG**

Due to very erratic conditions on the higher Frequency bands this past month there was a marked decline in DX activity on the usually busy RTTY channels. Coupled with this fact was an almost complete "black-out" of info from this department's usually reliable foreign correspondents. The result: not too much to tickle the palate of our erstwhile DX seekers. Nevertheless, we'll have a go at it. Here's what we have in the hopper.

After years of almost no RTTY activity, our Latin-American neighbors are really starting to get underway — and fast! Every week brings news of new stations on RTTY from Central and South America. In a letter to the Editor in Chief from Fred Macklin is news of TG9AD and TG9PS about to embark on FSK from Guatemala City. They are seeking FSK conversion data for KWS-1 and Viking 500 rigs so it looks like this is no Junior League operation. No dope yet as to what freqs they will use but will report it to you as soon as it's available. CE3WD in Chile is another new one reported by W6AEE. He is expected to show up at any moment now. Unfortunately, like the TG stations, no exact frequency dope is at hand, but I will put my agents to work and try to give a complete run-down next month. While on the subject of CE stations I still find several requests for the QTH of CE3AGI/CE3WZ. For those of you who missed it last month here is a re-run:

David L. Thompson CE3AGI/CE3WZ
NASA Project Vanguard
C/O American Embassy
Santiago, Chile.

Before leaving Latin America I think a few excerpts from a long letter over the signature of Erosa, XE1UNM to Merrill Swan would be of real interest. To quote from Erosa's letter directly: "The input filter makes wonders." Have also been checking resonance of the tuned filters etc. First day I copied meteorological advices from

Miami (14395). I used more than 21 feet of paper!! I gave the copy to a fellow and he could only find one misprint! And that fellow knows about such things, as he is Director in Charge of the Weather Bureau. Before I added the input filter I was unable to copy when my "poor" neighbor was transmitting. He is XBA(6973 and 13824-Kcs and 4.5 Kw) at less than 250 feet."

"My copy of the meteo. was shown to the Secretary of Communications, by Manuel Medina XE1N, and past president of the LMRE for twenty years. Walter Buchanan was very surprised to know that it was a ham's copy and received the news with interest. So, they know that we hams are operating RTTY. Medina will approach Buchanan with a project of authorization for RTTY, that we have made jointly. So I expect that in more or less than three months our rules will include this. By the way Buchanan is XE1K." Erosa concluded his letter by stating that the following hams are anxiously awaiting their printers to get on the RTTY spectrum; XE2AM, XE2AL, XE1AK, and XE1YJ. It would appear that things are looking up "down Mexico way."

For the first time in many months there was not a single word from our stalwarts "down under." Not a single report reached this desk of anyone working Bruce, ZL1-WB. This seems very unusual because even under the poorest band condition Bruce usually manages to "break through" at least once a week. Eric, VK3KF, as reported last month has lost his printer and is temporarily grounded. Due to the unavailability of Teletype gear to the hams in Australia he is up against a very difficult situation. In the past, several attempts to get some gear into Eric by devious routes have ended in failure. At the present time there is a well organized attempt being made to send Eric a printer through regular channels. Any of Eric's old friends who would like to participate in this worthwhile project can get the details by contacting W6AEE, W6CG or W6NRM.

Things from the European side have been very quiet—but only because band conditions have been so poor. Bill, G3CQE, now has his Model 26, after long month's of waiting. Bill's daily skeds with VE7KX and W6CG on 21,015 Kcs have fallen off to almost nil in the past month. This decline due partly to bad propagation conditions and partly because Bill had his shift at the Broadcast Station changed. Seems that unfortunately his work is interfering with his hamming.

The "Maritime Mobile" gang are still as active as ever. W6DTN/MM on the "S. S. Golden Bear" managed to make stateside for the holidays. Bob still protesting a bit about lack of activity from the Stateside gang. Bud, W6KUY/MM, on the "S. S. Pacific Transport" again putting in a tremendous signal after spending five months on the beach. Bud's signal on 7140 from the Mid-Pacific is phenomenal. Bud reports that during a stopover at Midway Island he managed to plant the RTTY poison in the gang from KM6BI. They came aboard to see a demonstration and Bud obliged by having a real solid contact with W4DGW/MM off Brazil—solid print on both ends. That did it! Now the Midway gang are real busy getting stuff together for an RTTY set-up. Congrats, Bud, on a real good job—well done.

Vern, W7GEK, spent a week in January at the shack of Nick and Geri (KL7MZ-ALZ) in Rabbit Creek. Nick put Vern up in his CD trailer and Vern slept completely surrounded by every kind of teletype gear one could imagine. Model 15's, 14 reperfs and TD's, TT4's and fancy IF terminal units. Now Vern's got a real bad case of TTY fever and is going to really give his 26 a workout. Vern took his "longies" along on the junket but never got a chance to use 'em—they had a heat wave in Anchorage the entire week he was there! That's life I guess.

Jim Hepburn, VE7KX, forwarded a request from Danny Weil of Yasme fame for some RTTY equipment to install on the Yasem III which leaves on a world-wide Dx-pedition about February 1st. Dave Evans ZL1AV, a member of the Yasme crew is himself an enthusiastic RTTY advocate and was hoping to take some teletype gear along on the cruise. Unfortunately, on such short notice such obstacles as building a converter, obtaining a printer (or the funds

for same) seem insurmountable so the situation has not been resolved at the time this is being written. Anyone interested in contacting Danny Weil or Dave Evans can reach them through Dick Spenceley, KV4-AA.

Guess that's 30 for this month, Fellers, but please (I'm really pleading with you) send in your DX box scores. See last month's column for details. Be seeing you in the contest. 73

Bud W6CG

LAST MINUTE FLASH!! Just as the Editor in Chief stopped by to take this drivvel to the printer, an airmail from G3CQE came in with scads of DX news. Details next month but here's the highlights; New RTTY DX Record! On Christmas Eve Bill worked ZL3HJ after having another ZL3 route him out of bed. The distance officially is 11,960 miles. Fine work, fellows!! Bill also reports he worked Skipper, W2RUI on 7950 Kcs. and printed him on the 3.6 Mc. band. QRM on the latter band prevented a good two way RTTY contact. Here's a few quotes from Bill's interesting letter. "Think one or two DL's may be on soon. The DARC have gotten permission for RTTY operation and several permits have been issued. The UA's have been made conscious of RTTY it seems. Jim (VE7KX) has told me that several UAs have said that a mention of Jim and I was in their Dec. magazine. Whenever a UA calls me after one of my RTTY CQs—I go back to him for ten mins on RTTY. HI Have done this just to let em know that something was happening and some interesting QSO's have resulted. 15 Metres is open to W almost every day 1600-1800 GMT. Tell the gang I am on 15 every possible day listening on 21,090 for RTTY—1400 to 1900 GMT. Anyone wanting me has only to put out a long RTTY CQ and then *listen*." Nuff said.

The Chief Ed is tearing this out of the machine so this is *really* 30 for this time.

Bud W6CG

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