RTTY

NEWS OF AMATEUR RTTY

SEPTEMBER, 1956
25 Cents
Vol. 4, No. 9

PLANNING THE 1956 RTTY SWEEPSTAKES

HORSE TRADES

This page of the Bulletin is for use of amateurs who have RTTY EQUIPMENT FOR SALE OR TRADE and those looking for equipment to buy or trade. It is a free service and may be the means of getting someone on the air.

For Sale: Teletype paper at $1.50 for a case (12 rolls) FOB Hayward, California. .....F. C. Pratt, 1257 B St.

For Sale: Two Model TG-7Bs complete reasonable....W4UYU

Trade: Model 26 for 14 Perforator.....W4EHU

Wanted: Model 26.....W4AIY

Wanted: 1953 RTTYs all issues, 1954, Jan. Feb. Mar. Apr. May, June, July and November.....W9FQU

For Sale or Swap: WU Distributor with AC Sync Motor WU 7B Transmitter with base, Receiving dist for 12, Model 21A printer.....K2OBJ

For Sale: Model FRF Converter (0-1000 cycles) Model FRC Converter (Dual Channel AFSK) Model FRA Converter Model FSD FSK Keyer with power supply WE 255A Polar Relays, Brand new. Model 12 Complete W2AKE

For Sale: Parts and repairs for RTTY gear.....W9GRW

RTTY Inc.
3769 East Green Street
Pasadena 10, Calif.
Return Postage Guaranteed

PRAY FOR PEACE

RTTY SWEEPSTAKE CONTEST 2-3-4 NOV., 1956

The Third Annual RTTY SS Contest will be held starting Friday evening at Nine P. M., E. S. T. on the 2nd and run through Sunday Morning Three A. M. E. S. T. This will allow Thirty hours of operating for those who can last that long.

Rules are same as in the Anniversary Sweepstakes and the Sweepstakes last year. Contest is open to all RTTY equipped stations, either receiving only or both receiving and transmitting. Score one point for each message copied solidly and one additional point for each message sent and acknowledged. Total number of points multiplied by the total number of ARRL sections worked (regardless of what band worked) will give score for contest. Note that sections worked on different bands do not count as two sections. See QST, page six of any issue for ARRL Sections list. Any type of reporting form may be used, or you can copy the form on page 49 of the November 1954 QST.

In order to be scored, contest entries should be received by RTTY not later than November 18, 1956. Certificates will be given to top scorers in each ARRL Section. Best of luck and see you in the contest.

CONTEST PERIOD

Time	Start	End
EST	2100—2nd	0300—4th
CST	2000—2nd	0200—4th
MST	1900—2nd	0100—4th
PST	1800—2nd	0000—4th
HST	1600—2nd	2000—3rd

PACIFIC DIVISION CONVENTION

FRESNO, CALIFORNIA

Rog Wixson, W6FDJ and Bob Unsworth, W6MTJ, "talked Teletype" and put on a demonstration, actually sending and receiving within the room — two complete two-meter stations were set-up using "Gonset Communicators." Altho "DX" was limited to 60 feet in the demonstration, solid copy up to 60 miles is not unusual with this power on two meters. (Thanks to "Hart" W6VJN, for the loan of some of the station equipment).

Tape equipment was also demonstrated. Two Model 26 printers and a 14 reperf were among the equipment used.

Rog explained the origination of Teleprinting and the basic operation of Teleprinter equipment. He discussed the five-bit code and the method for synchronization between sending and receiving machines. Explained "mark" and "space" and the simplicity of the electrical circuit in Teleprinter operation.

Bob further discussed the "loop", explaining how a number of pieces of equipment could be connected together. A demonstration on two meters was held, including tape-punching and re-transmitting from the tape. The methods of converting VFO units for operation on low frequencies were mentioned. A modified Viking #122 was displayed to show the simplicity of the conversion of this unit.

Several enthusiasts participated in sending and receiving and it seemed obvious that there were a number of converts.

THE NATIONAL ARRL CONVENTION
San Francisco, California

The ARRL National Convention just concluded in San Francisco on July 6th, 7th and 8th was an outstanding success.

Of all the varied activities, we will elaborate on but one phase, the RTTY portion of the Convention, which was prepared and planned by W6AEE, Merrill Swan, the Maestro of RTTY on the West Coast and W6FDJ, Roger Wixson, SCM East Bay Section, who put the spark behind the boys, RTTY-wise, in the Bay Area about 2 years ago.

With an attendance at the Convention in excess of 2000 it was indeed gratifying to count 97 at the RTTY meeting, Saturday July 7th. This represented about 5 percent of the total attendance.

Thru splendid cooperation of Sixth Army MARS, the National Guard, W6AEE, W6MTJ and his operating committee, the exhibit at Larkin Hall of the Civic auditorium contained a Model 28, Model 26 together with Model 14 reperf and TD Uunits handling tape transmissions between Larkin Hall, the Mobile National Guard Unit and the Two Meter RTTY station which was operating from the lobby of the Hotel Whitcomb. The exhibit booth also contained the complete Model 26 and AFSK unit which went as a prize to the lucky winner.

Copies of the first national RTTY Call Book were brought here by W6AEE who thru the RTTY of Southern Calif., had worked day and night to secure calls and names of nationally active RTTYers in time for the printer. Thanks to ARRL, CQ, ARTS, Clay Cool, and many others, quite an impressive list was assembled. In addition, what we feel is the first embryo RTTY handbook of 12 pages was prepared by the newly formed NCARTS of the Bay Area for distribution. Hundreds passed thru the RTTY booth during the day and many new converts to RTTY were made.

The RTTY meeting on Saturday was presided over by W6FDJ who paid tribute to the unselfish and tireless efforts of Herb Hoover, Jr., W6ZH, Merrill Swan, W6AEE and others on the West Coast who furnished their time, money and assistance in obtaining equipment to start the RTTY activity in this area. Ed Handy, W1BDI of ARRL Headquarters, told of the RTTY activity at ARRL headquarters and the work that is being done to establish a transcontiental RTTY traffic net. Roger Bunce, W6EPT, gave a talk and distributed a 6 page booklet on construction of FSK converter, Electronic Keyer and oscillator circuits.

Wayne Green, W2NSD, told of the activity on the East Coast, paying tribute to the work done by W2BDI, W2BFD, W2EBZ, W3PYW and many others.

Merrill Swan spoke briefly of the start of activity on the West Coast and since the formation of RTTY we are now being furnished equipment as it is available with distribution points of RTTY in So. Calif. W9GRW in the Chicago area,

WØWRO in the Mountain States, W7-HRC in the Seattle area and W6VPC in the Bay Area.

WØBP and W9TCJ, gave a talk and description of their system of auto call and auto start for use on the low frequencies FSK. W7HRC spoke of the two meter activity in the Seattle area. The winner of the last national RTTY sweepstakes, VE7KX of Lulu Island, B. C. was introduced.

W6FZC told of the newly formed NC-ARTS which held their first board of directors meeting during the convention, electing W6FZC as President, W6EFT, Vice-President, W6VPS, Sec'y-Treasurer, and W6FDJ, W6VVF and W6NKP serving as members of the board.

We would be remiss if we did not mention the splendid cooperation which has been received thru Sixth Army Mars in putting out the information on all of the Sixth Army Nets as quickly as RTTY becomes available in this territory and in appreciation for this, Major Ivey, K6OUR, Mars Director, Sixth Army, was introduced and gave a brief description of Mars Activity.

For activity on Sunday, July 8th, Tours had been arranged thru RCA communication center by W6FDJ and thru Press Wireless transmitter by W6OWP. The day started off with a breakfast at the Sea Horse Cafe across from RCA building in San Francisco, Reservations for 40 had meen made by the breakfast committee consisting of W6DNX and K6-GYA but with the splendid showing at the RTTY meeting the previous day, reservations were increased to 60 and we ended up with 84 for breakfast, with representatives from each of the ten call districts as well as KH6 and VE lands. After breakfast we adjourned to the RCA building and placed in charge of Messers. Malone and Santes of RCA ending the tour with 95 participating and with the feeling of having experienced a trip that few are fortunate enough to take. The elaborate RTTY equipment and operating positions with the varied tape gear, automatic relay systems made our mouths water.

Upon completion of the RCA tour a motor cavalcade, headed by W6FDJ went to Belmont, 20 miles from San Francisco, where we were placed in charge of W6OWP of Press Wireless and taken thru their remarkable transmittting station and shown the rhombic antenna farm where we felt that we could really work some DX if only with a pair of PP 19's.

On concluding the Press Wireless tour we were conducted to Perkins on Bayshore, (The Cafe of Bay Area Mobileer Breakfast Fame) and a grand luncheon and rag chew was had, the auld lang synes were said and the RTTY portion left with the feeling that this National ARRL Convention, just ended, had been the high spot in our ham radio careers.

COVER PHOTOGRAPH

Six better known RTTY operators plan the forthcoming SS Contest at the home of W6OWP (who took the photo) in Belmont during the National ARRL Convention in 1956.

Left to right: Howdy, W6GRW; Bud, W6CG; Merrill, W6AEE; Bob, W9TCJ and Jin, VE7KX, with W6OWP at the camera.

DID YOU SCATTER YOUR SIDEBANDS?

BY R. COUPPEZ—85-15 139th Street, Jamaica 35, New York

In 1953, I was extremely interested in narrow shift operation using a type 152 converter, as described in ARTS Bulletin No. 25. Since then, my interest has increased to the utmost.

In order to receive the 850-cycle shift on such converter, I was using a 6BE6 pentagrid mixer to beat the incoming 2125 and 2975 cps with a stiff (steady) frequency of 2520 cps (taken from the 60-cycle mains, by multiplication by 7, 3 and 2, or selection of the 42nd harmonic). The output of the mixer was 395 cycles for Mark or 455 cycles for space. The shift was 60 cps only, a very good value and the equipment operated PERFECTLY.

Then, fearing somehow that these two frequencies (395 and 455) were a bit too low, I replaced the 6BE6 mixer by two successive stages of flip-flops yielding square pulses at either 531.25 cps for Mark or 743.75 cps for Space, corresponding to a shift of 212.50 cps. The converter operated without failure on good signals, but started to fail on some weaker signals, because the shift of 212 cps is about the widest it can take. However, the tone after some filtering was much more pleasant to listen to. The main idea of these experiments was to send directly over a telephone line (or any landline) the 2125 and 2975 cps, after some frequency reduction. Local telephone lines are generally not able to handle well frequencies above some 2 kc.

Then came the question of the inverse operation: That is; receiving the signals from the landline and sending them directly on the air, after an adequate upward frequency conversion. Notice that all this is done DIRECTLY without any relay nor repeating equipment.

The first experiment failed immediately. I had made a basic mistake which is worth to relate here, because it will show, once more, that radioteletype amateurs cannot afford to TINKER, and must always investigate carefully what good Mother Theory says about their ideas.

I had built a nice double-doubler with two successive stages of 6SN7 tubes operating as plate detectors, their grids were biased to cut off and connected in PUSH-PULL, while their plates were connected in PUSH-PUSH, using ordinary push-pull audio transformers borrowed from the "junk" box. The output signals from the system seemed to be perfect reaching a voltage of 100 peak about. There was nothing to argue about them. Nevertheless, the Printer, which is the Judge in the whole darn thing, refused bluntly to print anything civilized, except when I did use some limiting, pulse shaping, flip-flopping after the frequency conversion.

I understood my error and replaced my doubler-doubler (which was a multiplier) by a group of 6BE6 mixers operating as ADDERS. You will understand that you can pass from 1 to 4 by multiplying 1 by 4, but you can make the

same trip also by adding 3 to 1 and you will get 4 too!

I entertained several fellows with the story of my failure and how I solved the problem. In the Autumn of 1953 I made it very clear that a MULTIPLICATION BY 4 was NOT TO BE USED. Consequently, I am still wondering now why and how the Minneapolis narrow-shifters just followed the wrong path.

A little thinking will show the very cause of the whole trouble, and here is the story:

The 60-speed teletype keying of 531.25 or 743.75 cps yields SIDEBANDS. I apologize once more for mentioning those ugly things again in public, but we can't live without them... These sidebands are respectively 68.1 cps and 113.6 cps below and above each of the two "carriers" 531.25 cps and 743.75 cps.

Although some of the boys do not want to hear about them, the EXISTENCE of these sidebands is proven by heavy mathematical developments, which I would be glad to give here if I were assured that the Editor of this bulletin would survive the difficulty he would face in printing them with or without typographical errors. To follow these mathematical developments, you would have to go back to your trigonometry and higher Mathematical Analysis textbooks that you had when you were in College.

The keying of the Mark tone contains at least the frequencies of

417.62 cps A
463.06 cps B
531.25 cps C
599.43 cps D
644.88 cps E

while the keying of the Space tone contains at least the frequencies of

630.12 cps F
675.56 cps G
743.75 cps H
811.93 cps I
857.38 cps J.

It is helpful to notice that the sidebands B and D and the sidebands A and E are respectively 68.1 and 113.6 cps below and above the carrier C, and that the same situation exists for the sidebands G and I and the sidebands F and J with respect to the carrier H.

The figures of 68.1 cps and 113.6 cps are respectively the third and the fifth harmonics of 22.72 cps, which in turn is the frequency of the keyboard keying. Theoretically an INFINITY of ODD such sidebands should be considered, but as their respective amplitudes decrease quickly while their rank increases, we may limit the discussion to an acceptable approximation, and use only here the two most important of them: the third and the fifth ones. However, this alters some how the good squareness of the keying pulses.

If we make the mistake of using a double-doubler such as mine or the one proposed on page 8 of RTTY for November 1955, all those frequencies from A to J will be MULTIPLIED BY FOUR and will become respectively:

1670.48 cps A'
1852.24 cps B'
2125.00 cps C'
2397.72 cps D'
2579.52 cps E'

for Mark, and

2520.48 cps F'
2702.24 cps G'
2975.00 cps H'
3247.72 cps I'
3429.52 cps J'

for Space.

It is now obvious that the sidebands A' to J' are not any longer below and above their respective carrier BY THE SAME AMOUNT AS before, because the respective differences are now FOUR times greater. This is simply disastrous.

According to the theory of the Series of Fourier, the series expansion representing a square pulse was the one giving the sidebands A to J. According to the same theory the expansion in series is UNIQUE (see for instance Waveform Analysis, by R. G. Manley, Page 247, Wiley Editors, New York). This uniqueness means that there is no means to represent a square pulse by another series, you must use the only one which has given the first result A to J. Now the situation is completely different. We have made the blunder of SCATTERING THE SIDEBANDS, the sidebands are now four times further than what they should be. We have destroyed the elements carrying the squareness of the signal, these elements are like evaporated or filtered out. We have other sidebands, but they do not contain (directly at least) elements of squaring the pulse. They contain even probably elements preventing any squaring. A further study would be necessary to clear the thing up.

If you do not agree too well with all that thinking, just feed your double-doubler with an excellent crystal microphone in which you scream the name of your wife, and wait to see whether she will hear from the loudspeaker that you call her.

You may still receive and print something, maybe, but this will be due to accidental distortions, limiting, or others, which happen to give your printer some chances of selecting the right letters, after all the printer needs only about the fifth of a square pulse to print. This may work on local closed circuit or on good signals where the levels are between certain limits which help those distortions to be produced, but this will always be FREAK reception and very critical to adjust on weaker signals.

As far as the width of the shift is concerned, I want to emphasize here that thousands and thousands of commercial and military stations DO normally operate on shifts scuh as 60, 85, 100, 120 and 170 cps, using carriers of the order of 1000 cps preferably. I have been experimenting very successfully shifts as low as ½ cycle (using phase detectors) or of a few cycles, such as 6 cps. There is consequently NO reason at all why the amateurs should be afraid of reducing their very old-fashioned shift of 850 cps to a much more efficient, much more civilized and modern one. Why stay backwards? However, I must warn them that any tinkering (as too many of them still do) cannot be permitted because the equipment must be designed and built according to the best engin-

eering practices based on thorough understanding of principles such as the ones mentioned here.

In this respect, we have been flooded with articles on filters which are absolutely too narrow, or with articles on converters full of bugs or errors. These circuits are UNFIT for GOOD operation but may suffice for certain operations of lower efficiency.

The general trend is now: Narrow shift and a center frequency in the order of 1 kc. Consequently from now on, no signal will be printed at my place, if it shifts by more than 170 cps, which I do consider as already very wide. For the same reason, the mid-chanel frequency has been standardized here at 1020 cps.

There are different ways to convert the shift, and many of us are now going to build shift converters. A good shift conversion can be done as follows: 2125 is mixed with 3060 to give 935, while 2975 is mixed with 4080 to give 1105. This operation reduces the shift to 170. Take notice that 3060 and 4080 are both harmonics of 1020 and also that 1020 is at the same time the 17th harmonic of 60 and the 12th harmonic of 85 which in turn can generate 425, 2125 and 2975. Thus all these frequencies, the old fashion ones and the new ones can be linked to the 60 cycle taken from the mains. I do suggest that we all use the mains in that way (or an equivalent way) to synchronize our frequencies, this would bring a great improvement in our discipline. There will be then no excuse for drifting, being off frequency or not having the right shift. This will also make it possible to go VERY NARROW shift (an exciting thing) or use phase-modulation keying, something that could become compulsary by law some day.

Another way of converting the shift is as follows:

The two frequencies of 2125 and 2975 cps are mixed with 2635 cps in a first 6BE6 tube. The beats are 510 and 340 cps and are then sent to a low pass filter whose design requirements are not critical (because of their broadness), they are finally applied to a second 6BE6 tube and mixed with 1445 cps to give 935 and 1105 cps respectively. The 2635 cps and 1445 cps are respectively the 31st and 17 harmonics of 85 cps. The shift will be 170 cps.

The same equipment, slightly modified will yield a shift of 85 cps by only reducing the frequency of 2635 cps to 2592.5 cps. The two beats will then be 467.5 and 382.5 cps, which after mixing in the second 6BE6 tube operating on 1445 cps as before, will become respective ly 977.5 and 1062.5 cps. The mid-chanel frequency is always 1020 cps.

Finally, by just replacing the first mixing frequency by 2580 cps, the two intermediate beats will become 455 and 395, and after the second mixing (always at 1445 cps) they will become respectively 990 and 1050 cps. The shift will now be 60 cps. All these frequencies are standard in commercial operation and are in use all over the world. Commercially built filters are available for all these frequencies, they come with a wide choice of bandwidths.

To summarize: By beating the two incoming frequencies of 2125 and 2975 cps with a frequency chosen, AT WILL, between 2550 and 2635 or so, it is possible to convert such standard signals to any narrow shift desirable and thanks to the second mixing (a very clever trick, indeed!) always at 1445 cps. ONLY ONE good converter can be used for all types of signals or shifts. It will thus not be necessary to build new or special converters for each type of shift. On the top of that the said converter can be used DIRECTLY on landlines on the 935-1105 cps system or any other centered at 1020 cps.

I think it will do us a lot of good not to scatter our efforts as we did for some sidebands and that we agree on the proposed frequencies to attain some standardization of our signals and transmissions that will make amateur operation up to date and proudly comparable to the commercial or military systems.

I submit the foregoing to your appreciation and approval.

Subscription Rate $2.50 Per Year

RTTY is the Official Publication of the

RTTY Society of Southern California

and is published for the benefit of all RTTY Amateurs and Experimenters
Permission to copy is granted provided credit is given.

For Information Regarding the Society Contact the Following:

W6CLW—Ed Simmons
W6AEE—Merrill Swan
W6SCQ—Lewis Rogerson

For Traffic Net Information:
W6FLW W6IZJ

For "RTTY" Information:
W6CL W6DEO W6AEE

Traffic Net News

By EMILE DUVAL, W6FLW

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

ACTIVITY FOR THE MONTH OF AUGUST 1956

August 7—W6CK, N. C.—24 Checkins

W6ADD	K6IHG
W6AEE	W6IZJ
W6BPG	W6JAU
K6BPI	K6JDN
K6BTK	W6LDG
W6CKS	W6MOY
W6CLW	W6OJF
W6CMQ	W6QHR
W6CZ	KN6QQV
W6DYB	W6SCQ
W6EV	W6VAD
W6FLW	W6ZBV

August 14—W6CK, N. C.—26 Checkins

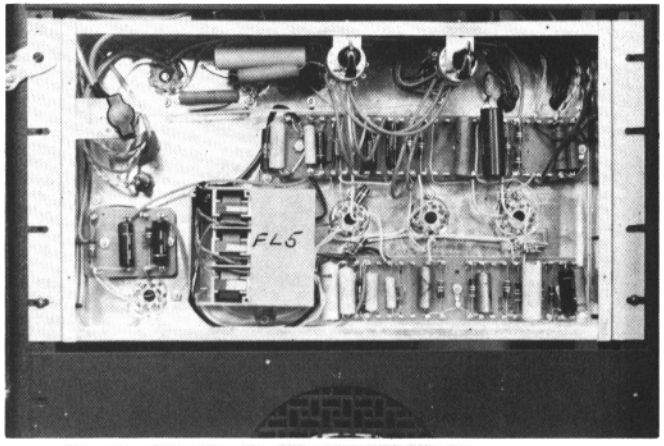
W6ADD	W6EV
W6AEE	W6EBF
W6BPG	W6FLW
K6BPI	W6IOK
K6BTK	W6IZJ
W6BWG	W6LDG
K6CHU	W6OJF
W6CK	W6PZV
W6CKS	W6SCQ
W6CLW	W6VAD
W6CMQ	W6WCH
W6CZ	W6ZBV
W6DYB	W6ZVO

August 21—W6CK, N. C.—24 Checkins

W6ADD	K6IHG
W6BPG	W6IZJ
K6BPI	W6JAU
K6BTK	W6LDG
K6BWG	W6OJF
K6CHU	W6PZV
W6CK	W6PWB
W6CKS	W6SQM
W6CMQ	W6SCQ
W6CZ	W6WCH
W6DYB	W6ZBV
W6FLW	W6ZVO

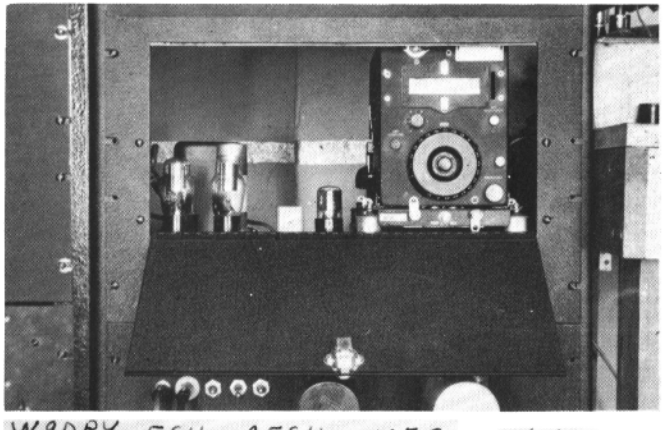
August 28—W6LDG, N. C.—21 Checkins

W6ADD	W6KUM
W6AEE	W6LDG
W6BWG	W6OJF
K6CHU	W6PZV
W6CK	W6QHR
W6CKS	KN6QQV
W6CMQ	W6SCQ
W6FLW	W6ZBV
K6IHG	W6ZVO
W6IZJ	K6JDN
W6JAU	



W9DPY Rec T.U. 1/1/56

W9DPY 1-1-56 TU



W9DPY FSK - AFSK - VFO 1/1/56

FIGURE 3-1, An Amateur RTTY System

This Diagram was Inadvertantly Omitted in the August Issue

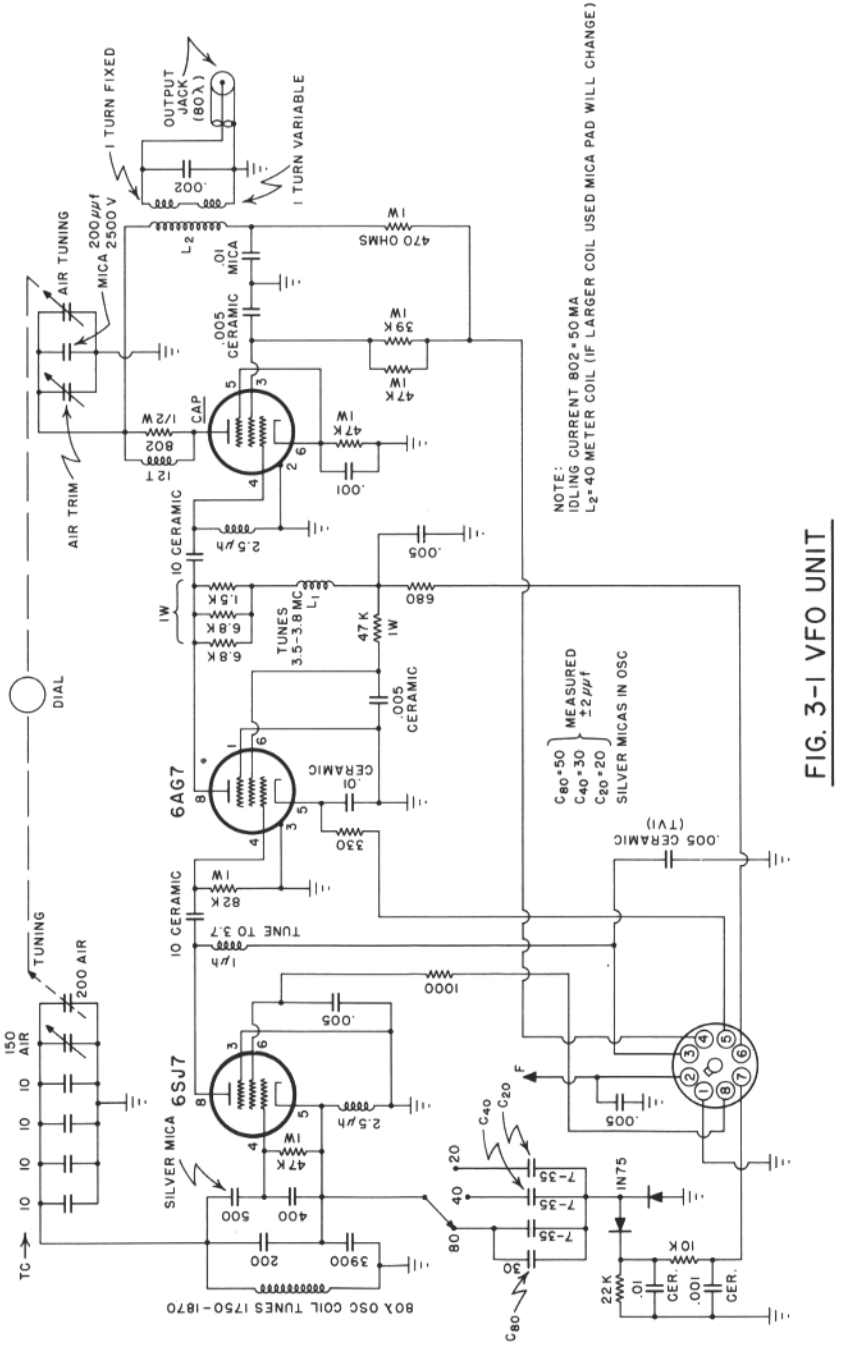
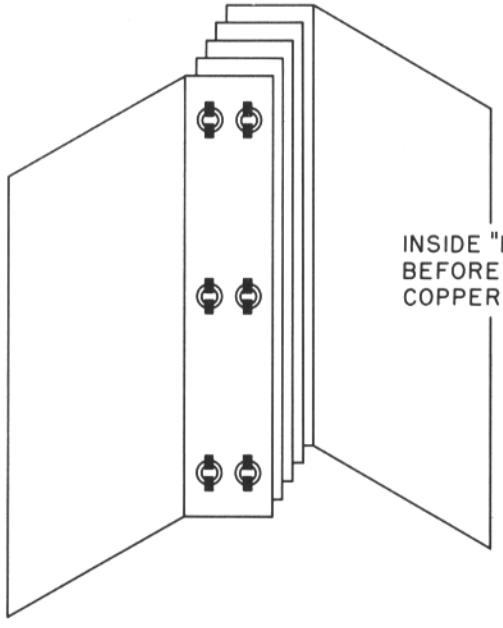
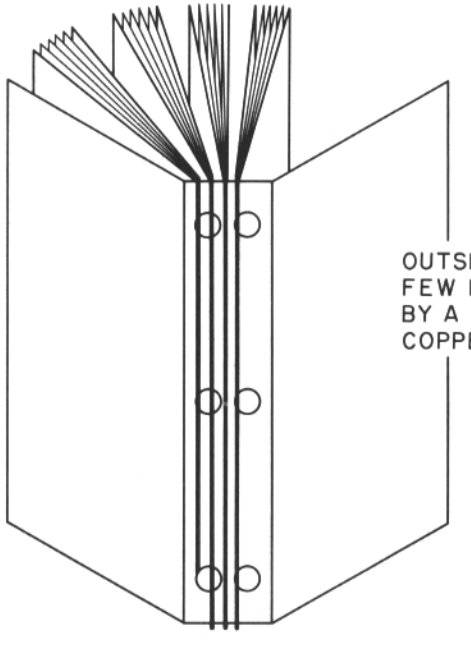


FIG. 3-1 VFO UNIT



INSIDE "EXPANDED" VIEW BEFORE ATTACHING COPPER WIRE



OUTSIDE VIEW WITH A FEW ISSUES SECURED BY A FEW TURNS OF COPPER WIRE

A Cheap, Efficient Binder For "RTTY" Files

BY JOHN LONGLEY, W2ANB

The cover of the latest issue of RTTY brought forcibly to my attention the fact that the total number of issues of this swell little journal is fast increasing. Since a good many of the gems of literature, logic and technique contained in the back issues will continue to be reference material for a long time in the future, and single copies can get lost so easily, there is a distinct problem of what to do with the increasing collection.

One solution of the problem is to have back numbers bound by a bookbinder. That is expensive and takes away money that could better be spent on more equipment. Another suggested solution is to place the numbers in one or another of the various types of commercial binders that are available. Some of these have springs, some rings or pins and some have wires. However, I wanted particularly to bind the copies so that none of the written matter or circuit diagrams was hidden and I also wanted to be able to open two pages apart, and have them stay that way while I consulted some information contained on them. No satisfactory commercial binder was found that could do these things, though some are probably available. The thought then arose that maybe I could devise something myself.

The solution that I hit upon seems so simple and is so satisfactory to me, that at Merrill Swan's suggestion I am passing it along for your information. Like an article on building a converter, the ideas can be modified to suit the material at hand.

As in the illustration, two common fiberboard covers, used for binding loose leaf sheets, were cut down to a size of 6-in. x 9-in. and were rivitted together on the folding center portions. In between the joint, in order to stiffen it, I put three thicknesses of the fiber cover remaining from the trimming. A piece of about No. 14 gauge aluminum would probably do a better job, as this stiffened binding edge has to be good and unbending. I used several soft copper rivets to hold this edge together.

The end of a piece of about 40 feet of No. 18 enameled wire was then secured around one of the rivets, the first issue was opened at its center, and a turn of wire was made around the stiffened edge and the issue, then a second issue was added and "wired" in and so on for the rest of the issues placed in the binder. I placed 18 issues in my first binder, but 12 or even 24 should work about equally as well. The final end of the wire was, of course, also secured to a rivet and the binder was then ready for use.

To dress the job up a bit, a piece of self-sticking plastic cloth was neatly placed over the exposed lengths of wire on the binding edge and the title RTTY was cut from Merrill's last letter and cemented to the cover. (I bet you that if you were to send Merrill a stamped and self-addressed envelope he would send you some of those RTTY letterheads, particularly if you were to enclose some news along with your request). Last but not least I put my name and call, so that when someone borrows the binder it shouldn't get lost.

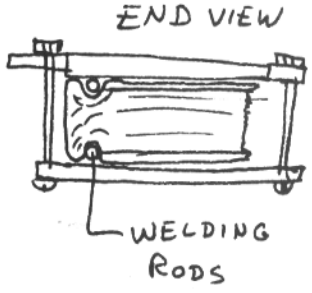
THE 1956 BOBEEP EXPEDITION

Last year Bob Weitbrecht, W9TCJ and Boyd "Beep" Phelps, WØBP-W9BP flew to the New York RTTY dinner and FCC in Washington. This year the BOBEEP expedition "flew lower" in Beep's Station wagon on an expense shared basis to the National ARRL Convention in San Francisco, but more than that, by careful planning some 28 RTTY stations were visited along the southern route to Pasadena, in California, and along the northern return route via Seattle, Spokane, etc., as will be apparent from the list of calls below, many of whom had been contacted by RTTY on 80 or 40 meters previously.

Bob and BeeP probably could write a book on their expedition, experiences, and descriptions of ham RTTY shacks. Like gypsie horse traders they bought machines and sold them in sparsely settled areas of the country, but at no profit, and the station wagon always groaned under the weight of raids to surplus emporiums where gear was purchased up and down the coast because it seemed cheap, or possibly usable, but seldom both reasons. Inland, toroid coils were swapped for relay jack bases, some RTTY Call Books sold, copies of papers by W6FDJ and W6EFT distributed, information exchanged, problems discussed, gallons of coffee absorbed, mobile contacts made, and a grand time was had by all. Bob and BeeP wish to extend thanks to everybody concerned for efforts to entertain and especially the hospitality over several days in the Pasadena and San Francisco areas. Unfortunately a few stations were missed due to being off the route, unusual hour of passing thru, or vacations, but the following chronological roll call lists those shacks visited with no attempt to record many fine hams met in person or over two meter nets.

WØLFH—Algona, Iowa
WØRAC—Algona, Iowa
WØFQW—Des Moines, Iowa
WØDW—Grand Island, Nebraska
WØNME—Stratton, Nebraska
WØBTV—Yuma, Colorado
WØJRQ—Denver, Colorado
WØWRO—Denver, Colorado
W5MYI—Santa Fe, New Mexico
W5HJ—Albuquerque, New Mexico
W7FKK—Phoenix, Arizona
W6AEE—Pasadena, California
W6CG—Temple City, California
W6OQB—Arcadia, California
W6SCQ—San Gabriel, California
W6OWP—Belmont, California
W6MTJ—San Francisco, California
W6VPC—Oakland, California
W6CBF—Oakland, California
W6FDJ—Oakland, California
W6FZC—El Cerrito, Calif.
W7MEV—Grant's Pass, Oregon
W7MZT, Seattle, Washington
W7ULL—Spokane, Washington
W7HCJ—Spokane, Washington
W7RZY—Livingston, Montana
W7YHS—Billings, Montana

I see from the date on the latest RTTY that I owe you another $2.50. It is still the "only" source of info on the subject! I see that you are offering a bound volume—a very good idea. I had planned to bind all of mine someday. It's not too difficult to do your own! All you need is a clamp, a couple of 12x12x1-in. pieces of lumber held together by 4 bolts. A couple of small welding rods help to form the 2 ridges



to give it that professional look. I bound a volume many years ago which worked fine as I remember. I have been away from home and quite busy for the last six months. By Fall I hope to be settled down and on the air again. Hope to see you on RTTY.

73—Neal, W4ZPZ

ED NOTE: The Bound Volumes of RTTY are all gone. Sorry, there's no more.

The 1956 Conference of the Institute of Radio Engineers, Professional Group on Vehicular Communications, will be held in Detroit, Michigan, on the 29th and 30th of November, 1956, at the Hotel Fort Shelby, 525 West Lafayette. Technical papers and a show of the latest in communications equipment will be had.

—W8HP

———RYRYRY——

To all radio amateurs:

Call attention to the following Army MARS RTTY Nets operating in the Sixth Army; A6FZC/B on two meters, 148.01 mc at 900 p. m. PST each Tuesday night. A6VPCBXA, on 3245 kc at 900 PM each Wednesday night. All making copy of these two nets are invited to drop the above named stations a card advising as to reception in your area.

—de Buck

———RYRYRY——

To all radio amateurs;

ZL1WB advises that he copied W6FDJ, W6NKP and W6WIS on RTTY on 7150 kc and has, therefore, oredred RTTY equipment and will be active from New Zealand on RTTY in the near future.

—de Buck