



## W1RBF. KENNETH PAYNE

Plainville, Connecticut

The cover photograph shows the station which is as follows, the machine is of course, a model 12, with a W2BFD design converter mounted between the table legs. To the left of the machine is my HRO-50 receiver with the Teletype scope on top of the speaker using a 3BP1 bottle. To the left of the receiver is the station control panel containing all the relays and miscellaneous controls including an A. C. voltmeter on the line and the receiving selsyn for position indication of my 10 meter rotary beam. To the left of that is my new transmitter using a pair of 6146's in parallel and modulating them with a pair of 807's in Class AB2.

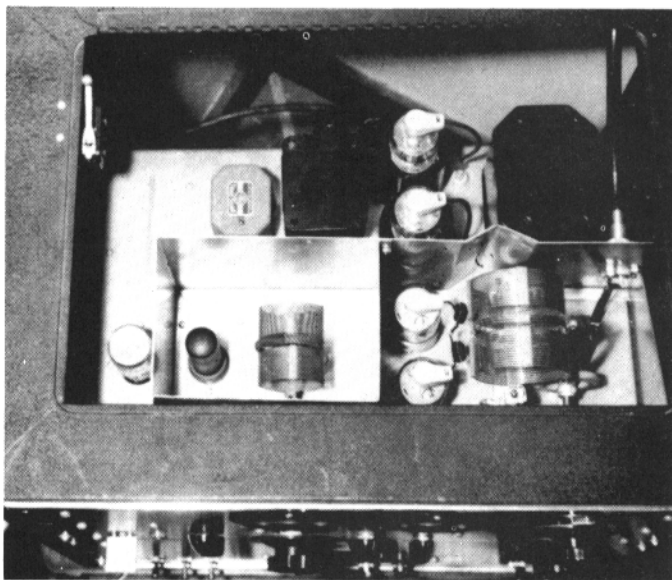
Lower photo shows the top view of the rig looking at the R. F. deck. To the left of the rig is my VFO which is a BC-454 chassis and condenser drive wired into a clapp oscillator circuit. To the right of the VFO and plugged into it is the three band (80, 40 and 20

meter) shifter for RTTY. The shifter is pre-set for each of the three bands and the amount of shift is selected by means of a three position switch. (It's a diode job using a 1N34 crystal diode).

Future RTTY plans include a minor revamp of the receiving converter here, to try to improve the audio selectivity, especially on the high frequency side of the space amplifier—it is especially poor there. Am also dickering for a new receiver—have a Collins 75-A4 in mind! Don't know if it will pan out or not. Of course, I always have my eyes open for some tape gear (at the right price). If you know of a perforator, T.D., Rec. Reperforator, or what have you, I would appreciate the address.

That's all for now. I have been pretty active on 80 but 40 and 20 leave me cold so far. (Had one QSO on 40 which was good though, with WØBP).

Ken—W1RBF



## FSK UNIT FOR THE 32-V TRANSMITTER

WØJRQ, WØWRO, DENVER, COLORADO

With apologies and much thanks to W9TCJ and W6ZNU who came up with the excellent article in May 1954 RTTY, here are a few changes and I believe simplifications on the method of obtaining the necessary shift and as far as I can see may be used with any TU whereas theirs had to be used with a particular TU to drive it.

The variations from the original circuit are mainly that the signal from the keyboard and the HV is introduced at a different point and the B plus and filament voltage are taken from the can to the front of the Collins VFO unit, making it unnecessary to remove the transmitter from the cabinet and it is a relatively small job to take these voltages out of the can thru a small hole that is drilled in the top center of the square can.

Within this can is a 4 terminal jack block reading from left to right, facing the front of the transmitter, terminal No. 2 in the box is the B plus. Terminal Number 4 is the filament voltage. Both of which of course are used in the 6AL5. Usually there is no lead running up from the actual connection of the 4th terminal so it is necessary to run a small wire up to it so it is easily available in top for the lead out wire.

Our experience proved that particular care must be used in selecting the variable condenser. It should be a good one and must be carefully insulated from

the chassis or from the platform. Walt came up with the idea of mounting the entire unit on a thin piece of bakelite and shaping it to fit around the back of the oscillator tube can in such a manner that the leads are very short.

Also the 100K pot should be a good one and it can be mounted in the case in the end of the transmitter so that adjustments are easy to make.

The shift is first adjusted with the condenser for the correct shift on 80 meters and from then on all adjustments are made by the pot when changing to the higher frequency bands.

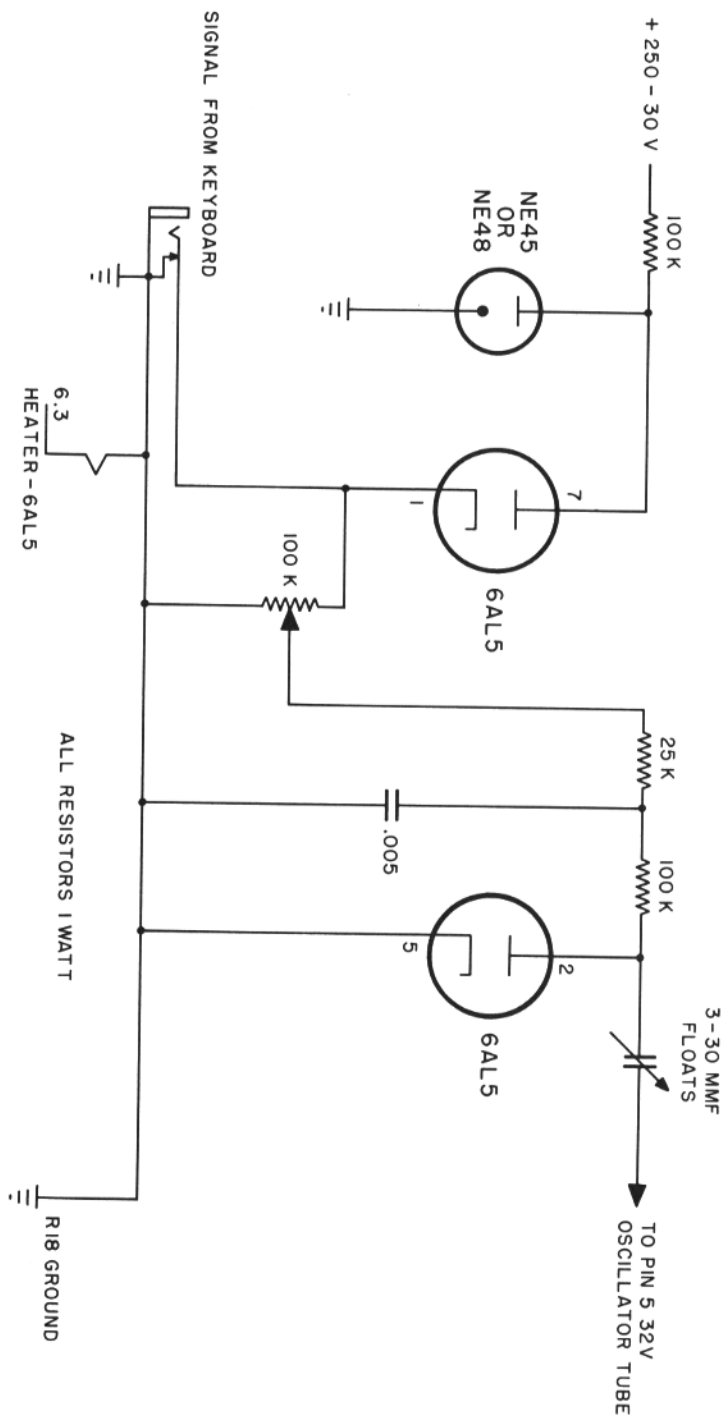
Needless to say, the lead from the oscillator cathode thru the condenser to the plate of the correct section of the 6AL5 must be as short as possible, as well as the lead from the cathode of this tube. The reason of course so as not to upset the calibration of the transmitter.

The other wires can be as long as a well rope.

It makes a nice unit and they seem to give no trouble after installed.

Please understand the changes cast no reflections on the original circuit's ability, but would not work with the Gates TU. It is thought that some of the boys could save a little time by using this modification.

(Diagram on next page)



## SOME THOUGHTS ON TOROIDS

JERRY MCKINLEY, KL7CK, JUNEAU, ALASKA

Having received innumerable letters asking mainly "about those toroids" "where can I get them?" here is the dope.

Toroid coils are wound on a doughnut shaped core of high permeable material and exhibit very high Q, making them excellent sources of inductances for tuned filters. They are practically immune from inductance changes due to temperature changes, small in size, the usual telephone type about the size of a fifty cent piece. They may be mounted spindle fashion on a bolt and there is practically no mutual coupling so they may be stacked. A closed loop mounting system will of course act as a shorted turn. Few turns of wire compared to other inductances are required and those who wish to wind their own on the toroidal form may easily do so by first winding the wire on a notched stick and passing it through the core.

The telephone companies are the users of these coils using them for cable loading. A little reflection will bring to light the fact that the ordinary telephone pair in a telephone cable has a lot of capacity when you consider the long distances the cables run and of course this capacity acts exactly like a large condenser across the circuit with the resultant loss of all the high frequencies and eventual loss of all audio if the cable is quite long. Usual practice is every mile or so to splice in a load pot or as we would call it in radio work to insert an inductance in the circuit thus actually tuning the line. This is standard practice in almost any telephone cable of any length. They may either be encased in a lead sleeve and spliced into the cable or contained in a metal can or box and hung on a pole or structure but in any event they

all contain a toroid for every pair. Each toroid is wound with two coils each taking up half the circumference of the core so that the wires of each pair go thru half the toroid and the DC continuity is not broken but the inductance is added in the circuit. See sketch.

Two adjoining wires are soldered together making a complete inductance for radio work

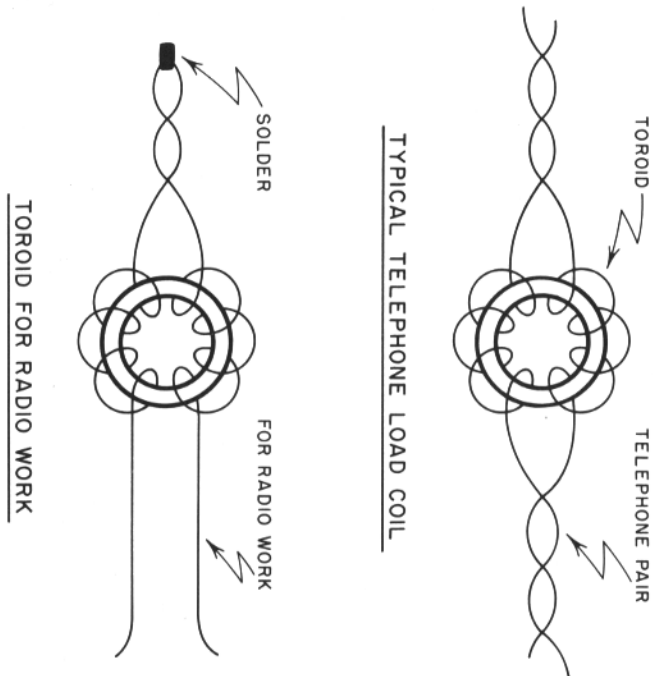
Normally a Q of 200 to 300 may be expected which is far superior to any normal transformer type inductance used in audio work for tuned filters. For those who are mechanically inclined a shaft thru the centers with a piece of Alnico from an old speaker adjustable so the magnetic lines of force can be varied will make the nicest fool proof adjustable tuned coil you have ever used.

Most transformer manufacturers make them, potted or otherwise, in a large range of inductances.

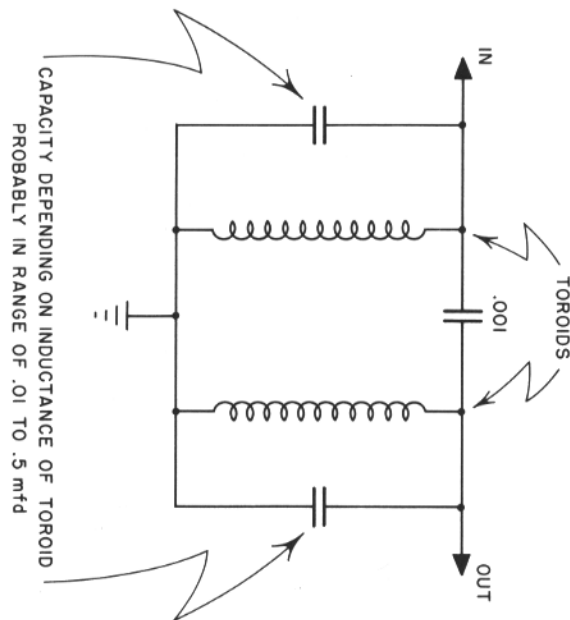
Toroids in the range of 50 to 500 milli-henries will enable you to build very stable high Q tuned filters very easily with the usual .02 to .5 paper condensers and they will far surpass the transformer type.

Telephone suppliers such as Western Electric, Graybar Electric, etc. have them. Also Freed Transformer Co. is a large manufacturer of them. Your connections with the local telephone company should bring to light a supply from the telephone loading coils mentioned above. Several RTTY enthusiasts have advertised them such as W6AEE, W7CO, W6CG, W8DLT, etc.

(Diagrams on next page)



TYPICAL TUNED FILTER FOR RTTY



## Experimental Model of an Adaptor

for Operating Standard 2125/2975 CPS Terminal Unit Off Narrow Shift Signals (1/4 Standard Shift)

Tone Quadrupler Circuit or "Double-Doubler"

ROBERT WEITBRECHT, W9TCJ/W6NRM

This is a circuit somewhat similar to that used in power supply systems, full-wave rectification with resultant frequency doubling per stage, or a total of four times.

It is necessary to use a sine wave on the input for proper functioning of subsequent stages. Square waves (e.g. output from a limiter) result in greatly lowered harmonic generation capability. In use with an ordinary T. U. (2125-2975 cps) the receiver is adjusted so as to produce a tone of 536 cps (mark) or 744 cps (space) and both of these tones are fed into the input of the circuit above. At the output there results 2125 or 2975 cps tones, as a result of four-times multiplication. There, of course, is some insertion loss due to this adaptor, but its amplifier and cathode follower output compensates and yields about the same level as on input.

With this quadrupler in use, the shift is reduced to one-quarter 850 cps or 212.5 cps. So if this adaptor is used with fairly sharp T. U.'s, it will be necessary to use a shift of that value. With broader tuning T. U. (such as W9TCJ's) almost any shift from 150 to 250 cps could be used.

Northern Radio is said to be using a similar circuit, as the tone multiplying system obviates the difficulty of designing proper T. U.'s that will work at considerably lower audio frequencies. There is no "Q" in the above circuit, and hence there is no "ringing" trouble and teleprinter signals are reproducible with a minimum of bias and distortion.

The idea of a tone-multiplying setup was suggested by WØBP, and the experimental model was designed and built by W9TCJ.

(Diagram on pages 8 and 9)

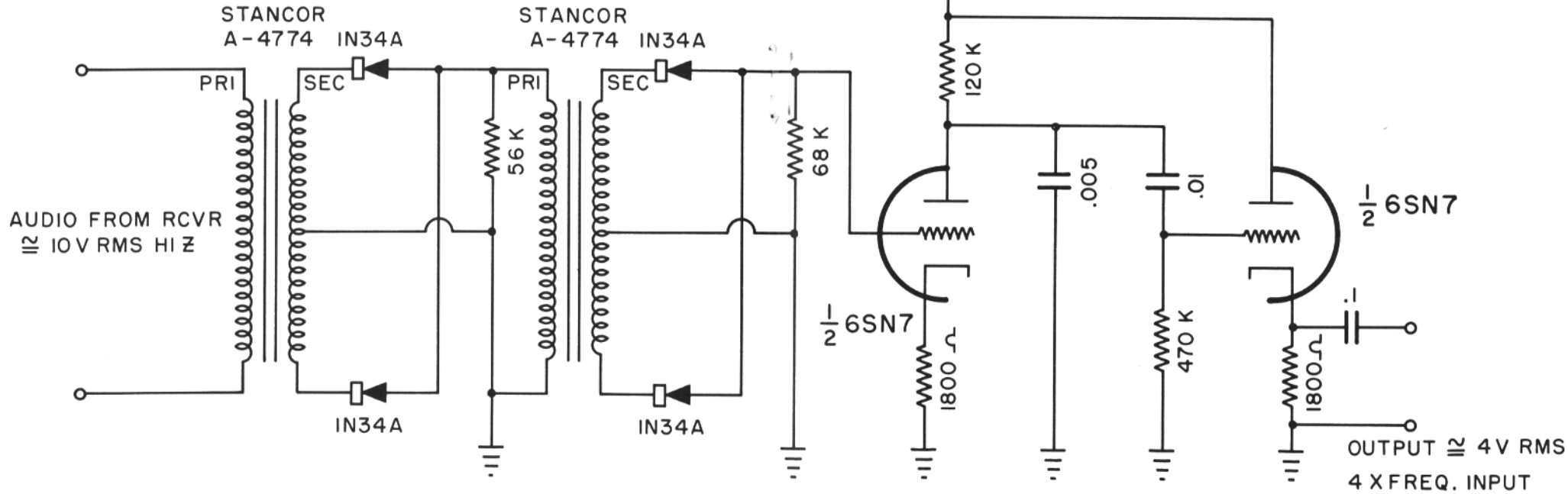
Subscription Rate \$2.50 Per Year  
 RTTY is the Official Publication  
 of the  
**RTTY Society**  
 of Southern California  
 and is published for the benefit of all  
 RTTY Amateurs and Experimenters  
 Permission to copy is granted  
 provided credit is given.

For Information Regarding the  
 Society Contact the Following:

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

For Traffic Net Information:  
 W6FLW W6I7J

For "RTTY" Information:  
 W6CL W6DEO W6AEE



EXPERIMENTAL MODEL OF AN ADAPTER FOR NARROW SHIFT SIGNALS

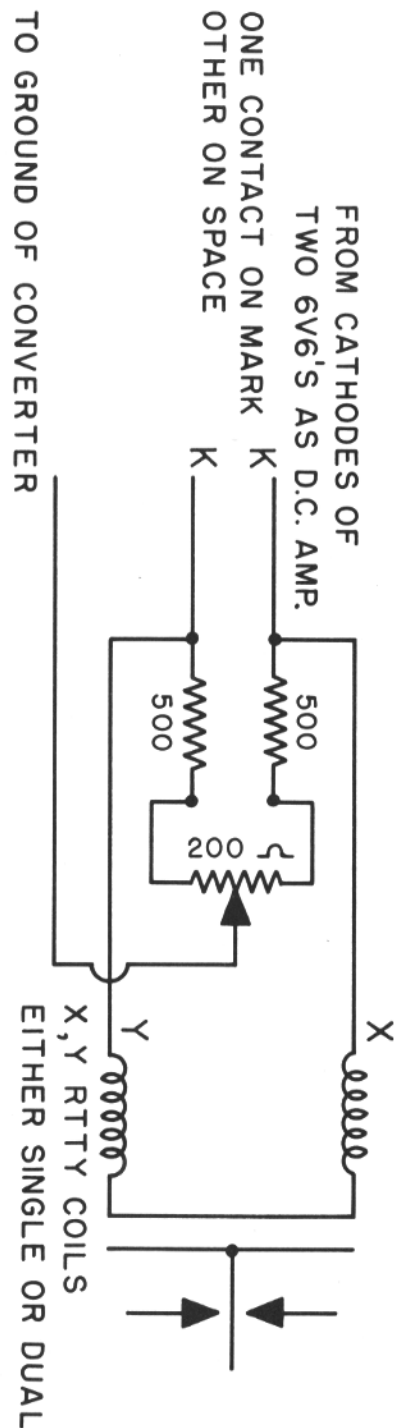
## SIMPLIFIED CONVERTER FOR MODEL 12

R. BRYANT, W8KVV  
Columbus, Ohio

I got an old Model 12 that was on land line but was in good shape however. Built up a converter using peaked audio transformers made up of two chokes placed "back to back." Had to experiment for a while to get polarized relay to work. Ended up using circuit as shown. It operates with either single coil or dual coil such as the Model 12 has. I have copied a few hams on 75 (3670 kc) and 20 meters and about 25 others from 2 mcs thru 14 mcs. I have not connected the Keyboard to transmitter yet but see no difficulty in this respect.



*Seasons  
Greetings*



"Here is some Tape Off the Floor for RTTY. Have been expecting to Hook up with you on the air, but havent heard you. I guess our operating hours clash. Hear that you will be at Wescon. I go every year, so will probably see you there. I havent heard too much activity on weekends but think that is band conditions mostly. Will try to send you a station photo one of these days. K6BWH, W6CMU and W6DNT are now on in this area."

—73 CU Reg., W6JUE

RYRYRYRYRY

"Nothing new here Lou except that Al, W1FGL and myself are all set and working on 2 meter ASU. We are both using the ASU job described in Feb. '52 issue of RTTY. The one using the 6SL7 tube and it sure is working out FB. We have lots of fun with it and there should be other stations on before long. Tom Howard may get on before long.

Went to the DXCC meeting (New England Annual DXCC meeting) yesterday and sure was surprised that all the guys there knew me as the teletype boy, hi. Guess things get around even in DX circles."

—73, Jack

"Have had some very nice QSO's from here. Several on CW and several on RTTY—with W5LOL, W5JBW, W2BDI, W6AEE, (of course). I have been making CQ calls on RTTY at noon and at about five p. m. CST, these times are best for me, and only Amos seems to respond to a five pm call. So I am more or less taking it easy on RTTY from here."

—73 de W9TCJ/5, W6NRM

RYRYRYRYRY

"Have learned quite a few things from Fritz Frankie and hence the VFO part of the new exciter is being improved. I found that the drift caused by heater voltage variation on the Clapp oscillator could be eliminated, and heater voltage (or current) regulation dispensed with if both heater leads are isolated from ground by rf chokes. Cathode is connected to one side of heater, which is fed by one rf choke. Other lead is fed by another rf choke. Inasmuch as the two large capacitors, between grid-cathode-ground are 500 mmf. each, computation with the reactance slide rule showed that the rf chokes can be considerably smaller, and now am using 110 microhenry rf chokes instead of the one 2.5 choke formerly used. That also helps the problem of resistance in the chokes."

—Bob, W9TCJ





... W1BGW Boston de WØFQW Des Moines, Iowa. OK Jack, solid on that transmission also band is good on this path now. Believe even stronger sigs than few minutes ago. I didnt hear Marvin come back at all that time. I used to talk to W1REP, Bob there in Canton, Mass, a sub of Boston, about every week for the past year or so, think that he is on 21 meg now, havent heard him lately, spouse that you know him. We have been RTTY now for since last February, lots of fun with it. The rig is in the garage here at the back of the lot and the temp has been up high here too. Temp was 99 last Saturday then Sunday a. m. the Temp was 40, after a cold front pasted thru here. Temp about 85 today here, nice fall day. Wud like to QSL with you Jack as you are the first RTTY in Mass for me. Heard a Belmont station on the other night but thats about all the Mass stations that I have heard. Well back to the east to you Jack!

\* \* \* \*

... W6MSG, W5JBW, W2BDI de W1BGW, Boston Mass. Roger all the way around. FB Amos, copying you OK again but not as good as before that darn BC station put their carrier on the old freq. Bob, W6MSG copying you OK here although not solid. Sure glad to work you for the first time. And Ed, W2BDI sure glad to hear you on again. Guess you must have just got back from your vacation in Canada. Missed you on the East Coast RTNET drills. You have a strong signal here so guess condx kind of funny with two types of skip. Bob, FB on your describing the contests of the latest issue of RTTY magazine which I also received today. If you should bump into Merrill tell him that we think its a FB job again. Well won't keep it too long so will turn it over to you Ed with that husky sig of yours, after you it goes to Bob, W6MSG unless there are others breaking in hi. So take it Ed.

## 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 SEPTEMBER, 1955

Sept 1—W6RCM, N. C.—19 Checkins

W6AFX	W6ICS
W6BPG	W6JAU
W6BWQ	W6IZJ
K6CHU	W6JQR
W6CMQ	W6LDG
W6CND	W6NWM
W6CZ	W6RCM
W6EGZ	W6SCQ
W6EV	W6TLI
W6FLW	

Sept. 6—W6CND, N. C.—22 Checkins

W6AFX	W6FNW
K6BTK	W6IZJ
W6BPG	W6JAU
W6BWQ	W6LDG
K6CHU	W6NWM
W6CK	W6RCM
W6CKS	W6SCK
W6CMQ	W6SCQ
W6CND	W6TLI
W6DYB	W6VAD
W6FLW	W6ZBV

Sept. 13—W6CMQ, N. C.—18 Checkins

W6AEE	W6FLW
K6BTK	W6FNW
W6BPG	W6IZJ
W6CK	W6JAU
W6CKS	W6LDG
W6CMQ	W6SCQ
W6CND	W6WYH
W6CZ	W6ZBV
W6EV	W6ZVO

Sept. 20—W6ZBV, N. C.—22 Checkins

W6AEE	W6JAU
W6AFX	W6NWM
W6BPG	W6RCM
K6BTK	W6SCK
W6CMQ	W6SCQ
W6CZ	W6TLI
W6DYB	W6ZVO
W6EGZ	W6MOY
W6EV	W6NCP
W6FLW	W6CYR
W6IZJ	W6ZBV

Sept. 27—W6SCQ, N. C.—25 Checkins

W6AFX	W6LDG
K6BTK	W6MOY
W6BWQ	W6NCP
W6CG	W6NWM
K6CHU	W6RCM
W6CKS	W6RL
W6CMQ	W6SCQ
W6CND	W6TLI
W6CZ	W6WYH
W6EV	W6ZBV
W6FLW	W6ZVO
W6IZJ	W6EGZ
W6KMT	

Oct. 25—W6AFX, N. C.—23 Checkins

W6AFX	W6ICS
W6BWQ	W6IZJ
K6CHU	W6JAU
W6CK	W6LDG
W6CKS	W6LGO
W6CMQ	W6MIC
W6CND	W6NWM
W6CZ	W6RCM
W6DYB	W6RL
W6EGZ	W6SCK
W6EV	W6SCQ
W6FLW	

\* \* \* \*

## Mars Net News

E. C. (Buck) Buchanan, W6VPC  
Oakland, Calif.

The first Mars Net in the Sixth Army on the 80 meter band was activated as the A-6VPC/A net operating at 0200Z. Thursday or in plain language 7:00 PDST each Wednesday evening.

Authorization was given for operation on 3275KC with F-1, A-1 and A-3, primarily the intention is to operate the net with RTTY Mars stations.

The first drill was held May 4th with the following participating; A-6VPC, NCS, A-6ASJ, A-6FZC and A-6WAP.

Now we have the following members on this net, A-6VPC, NCS, A-6MSG, ANCS, A-6ASJ, AA-6EAD, A-6FDJ, A-6FLW, A-6FZC, A-6MZO, AA-6WAP. With applications pending from A-6ZSS, A-6ZNU and several others.

With increased activity it is planned to activate additional nets according to the time and date available and which would be most acceptable to the participating members. Mars Director Sixth Army has several other available frequencies on the 80, 40 and 20 meter bands as well as intermediate frequencies in vicinity of 5 and 6 megs.

We would be pleased to have any Mars members or prospective Mars member interested in joining or forming an RTTY net drop a line to Mars Director, Sixth Army Presidio of San Francisco for application blanks and request for assignment, if already Mars member.

### ACTIVITY FOR THE MONTH OF OCTOBER, 1955

Oct. 4—W6CK, N. C.—19 Checkins  
(Pine Cove, California)

W6AFX	W6JAU
W6BPG	W6MOY
K6BTK	W6RCM
K6BPI	W6SCQ
K6CHU	W6TLI
W6CND	W6WYH
W6EGZ	W6RL
W6EV	W6JQR
W6FLW	W6CK
W6IZJ	

Oct. 11—W6IZJ, N. C.—28 Checkins

W6AEE	W6NWM
W6BPG	W6RCM
K6BTK	W6SCK
W6BWQ	W6SCQ
K6CHU	W6WYH
W6CKS	W6ZVO
W6CMQ	
W6CZ	Excused:
W6DYB	W6AFX
W6EGZ	W6CG
W6EV	W6CND
W6FLW	W6JQR
W6IZJ	W6KMT
W6JAU	W6ZBV
W6LDG	W6SZO

Oct. 18—W6RCM, N. C.—24 Checkins

W6AEE	W6IZJ
W6AFX	W6JAU
K6BTK	W6LDG
W6BPG	W6MOY
W6CKS	W6NWM
W6CMQ	W6RCM
W6CND	W6RL
W6CZ	W6SCQ
W6EGZ	W6VAD
W6EV	W6ZBV
W6FLW	W6ZVO
W6ICS	W6TLI