RTTY

NEWS OF AMATEUR RTTY

NOVEMBER, 1957
25 Cents
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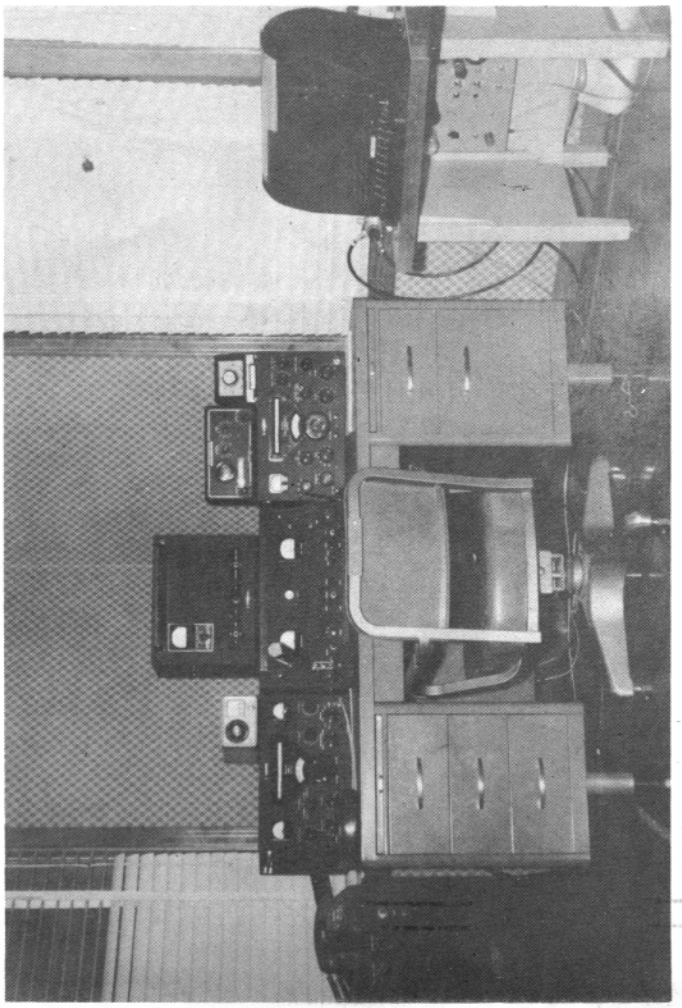

WOYKZ, Wichita, Kansas

RTTY, Inc.
372 West Warren Way
Arcadia, Calif.
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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: 140 Mh, 10 & 200 Mh, 150, 500 & 2,000 Mh Toroids **W5TVG**

WANTED: Auto Freq Control for FGC **W2JTP**

FOR SALE: 77377 Chokes for filters (W9TCJ's) **W6SCQ**

WANTED: RTTY's for 1953 and 1954 ..... **W9CWH**

WANTED: Model 14 TD and 14 Perforator with end of line indicator **W5TD**

FOR SALE: Model 15 Keyboard **W1PIL**

WANTED: Model 14 Typing or nontyping reperf **W9DPY**

WANTED: Articles for use in RTTY Bulletin ..... **RTTY**

COLLINS 75A-4 AFC MODIFICATION

WOYKZ

Wichita, Kansas

After hearing an excellent talk at the Chi-RTTY convention on VFO stability, WOBP was filled with ambition to build a stable VFO. This noble ambition on the part of Beep went the way of most good intentions. While "following" Beep around 40 meters one day I noticed that the fine tuning knob on the 75A-4 was getting a tad loose from wear. I do not think it unreasonable to presume that Beep is just not about to "undrift" his VFO. Therefore we set to work on an AFC unit, which subsequently rendered quite pleasing results.

Close examination of the AFC unit might lead one to believe that it was suggested by the June 1955 RTTY article by KL7CK. Such is not the case. This AFC was flat out stolen from KL7CK! The discriminator portion of the AFC is identical with the one as described by KL7CK and will not be repeated here. The discriminator transformer, built by Bill Gates, and associated error voltage circuitry is located on the chassis of the terminal unit. At the present time the TU is in the breadboard stage. Complete data will be available when the final construction is finished.

The deviation from the usual AFC circuit is in the reactance tube and BFO circuit. The reactance tube controls the Collins BFO directly. The product detector is retained for RTTY reception without the necessity of adding extra switching or rewiring the present switches. The mounting of the majority of the AFC circuit in the terminal unit allows the AFC discriminator to be used for narrow shift RTTY. While copying narrow shift no error voltage is sent to the reactance tube in the 75A-4.

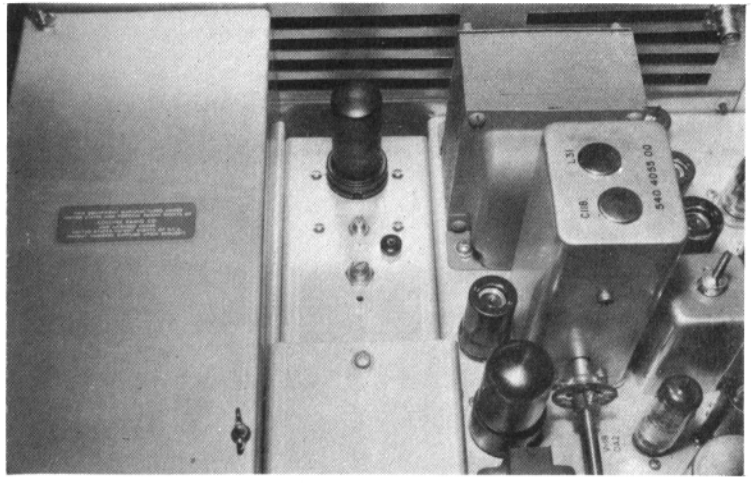
Mr. Collins and associates were very kind in providing a small blank chassis inside the 75A-4 which renders itself ideally for this purpose. This chassis is located in back of the PTO assembly, and is held in place by four machine screws. It is easily removed for constructing the AFC reactance circuit. There is a handy hole already punched in the right main chassis of the receiver through which the necessary wiring can be made. Details of construction are shown in the photographs. The AFC error voltage is fed into the receiver through a miniature *Switchcraft* 41 jack mounted on the receiver rear apron. This is done with sincere apologies to Cannon and Mr. Swan! The modification can be removed from the 75A-4 by replaciing the blank chassis.

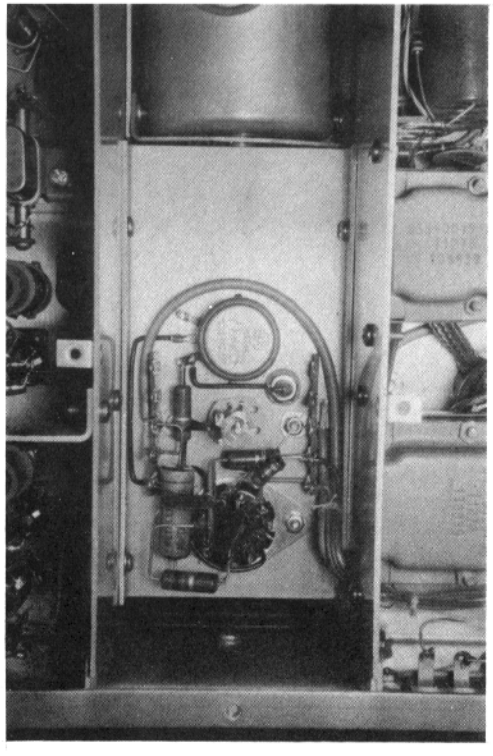
The output of the reactance tube is fed through a 47 uufd NPO ceramic capacitor to the top of the BFO coil. This capacitor provides DC blocking between the 6AG7 plate and the Collins BFO tank, which does not have any DC voltage applied to it.

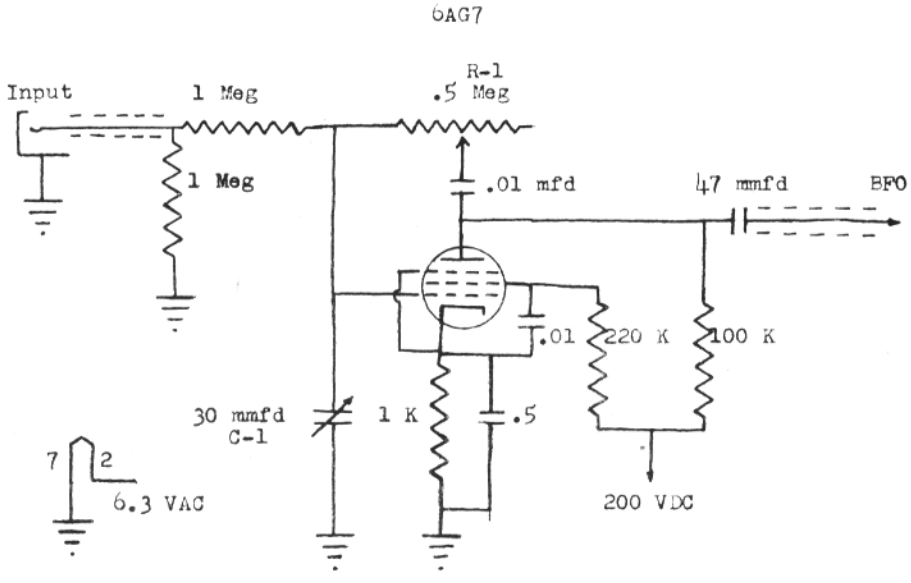
The 1 Meg resistor across the input stabilizes the BFO when the AFC discriminator is not plugged in. Without this resistor the BFO will tend to drift as the .01 mfd plate capacitor heats. The same result can be had by using a jack which will ground the input when the discriminator is not plugged in.

By proper adjustment of R-1 and C-1 the amount of AFC control can be varied from a few hundred cycles to several kilocycles. In this unit the adjustment of R-1 C-1 is set for a variation of 1500 cycles for a 3 volt error signal. This is for the purpose of keeping the received signal within the bandpass of a 3.1 kc filter. Greater amounts of control can be had for wider filters if desired.

Credit for this successful modification rightfully belongs to three gentlemen who just couldn't figure things out. To Mr. Art Collins who couldn't figure out what to do with that extra chassis in the 75A-4, to Bill Gates who couldn't figure out what to do with an extra discriminator transformer kicking around the house, and to Beep who couldn't figure out how ot keep his VFO from drifting!







AUTOMATIC FREQUENCY CONTROL MODIFICATION — COLLINS 75A-4

Error voltage input limits — +3 VDC to —3 VDC.
Output to pin #2 of BFO coil.
Adjust R-1 and C-1 for maximum control of BFO.

WOYKZ

A Combination Teletype Frequency Shift Receiver Conversion and V.F.O. Control Unit

J. PHIL NEIL, K6PNW

The FSK conversion circuit here shown, is a combination of previously described (in RTTY) data by W60WP and recently by W4EHU. It also has a few modifications of my own for giving best results.

The receiving portion is relatively straightforward, consisting of the usual audio amplifier, limiter, and rectifier stages, followed by a 6V6 keyer tube. A 6E5 Magic Eye tube is used as indicator. The 6V6 is powered by a separate supply, using a 6.3 volt filament transformer in reverse (1 amp. capacity or more). The purpose as described by W4EHU in July 1957 RTTY is to keep the printer magnet out of the cathode circuit, thereby eliminatiing its exponentially changing bias effect. Though not shown, I do have the built-in 5000 ohm resistor of the Model 26 machiine, shunted across the magnet coils. Actually though as indicated by a scope across a 10 or 20 ohm resistor in series with the grounded side of the magnet, there is no visible difference with or without this resistor in my setup. The control marked Distortion could be eliminated and a fixed ½ (0.25) meg. resistor substituted.

The V.F.O. section is also quite normal with the exception that it is divided so that control is obtained over the amount of shift, from the same panel as the receiving unit. Also an addition alkey jack and control switch have been added to permit quick changeover from T/T operation to CW hand-keying at the end of transmissions. A 6AL5 tube socket was added to the (Johnson) V.F.O., and wired as shown in the small block. The coupling capacitor was actually a small 3 to 25 uuf. adjustable silver ceramic trimmer in parallel with a 7 to 25 uuf. small air-tuned I.F. unit. The latter is mounted such that it can be adjusted from a hole in the rear of the V.F.O. It was set up at about half mesh, and the silver capacitor adjusted to some suitable setting that gives about 850 cps shift.

CONSTRUCTION

An aluminum utility box 8" x 10" x 7" deep, plus a 7" x 9" x 2" chassis comprise the housing for the system. The photo shows the rear view of the unit. Unfortunately the front view photo has mysteriously disappeared so the sketch will have to suffice. In the rear view photo the power transformer and filter choke are at the left side. The rear center tube is the 6X5 GT rectifier. The middle tube in front of it was the now eliminated VR105 screen regulator of the former setup (pre-W4EHU). The 6V6 keyer tube is at the front nearest the panel. Next to the former VR tube is a small aluminum can housing the 80 mh. toroidal (telephone cable loading coil) and its o.1 mfd. shunt tuning caapcitor. At the right rear is Thordarson 500 ohm line to grid input transformer. In front of this transformer are respectively going towards the panel, V1, V2 and V3. V4 the 6E5 is visible above these tubes. Connections at the rear are:—a closed circuit jack for the magnet loop, and phono jacks for the Key, VFO and Signal Inputs respectively. Decals are used throughout.

OPERATION

The tuned circuit of V2 is resonant at approximately 1650 cps, hence sets the operating frequency. A T/T signal is tuned

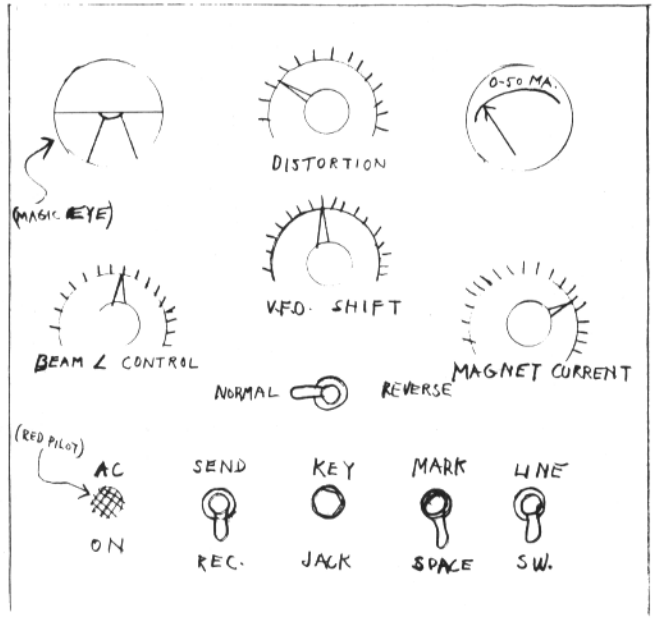
in on the receiver and the BFO adjusted on either side of center, until the magic eye begins to close. If the plug connecting the T.U. to the receiver is pushed into the receiver jack just enough to make contact without cutting off the receiver speaker, the best adjustment seems to be (assuming the sensitivity control has been properly optimized) where audio gain is set for a just audible siignal. The 5K pot adjusts the width of the magic eye pattern until it is just closed with a good signal. The Normal-Reverse switch (really Mark-Space) is marked this way to avoid confusion with another switch actually labelled Mark-Space. This Normal-Reverse switch is used one way or the other, depending upon the transmitting station or which side of zero beat the receiver is tuned. The Send-Receive switch in the Send position, shorts the keyer tube grid so that noise or signals cannot operate the tube; the other half of this switch closes the Key circuit. In the Receive position, the Key circuit is opened so that the VFO will not cause a beat note which would of course, interfere with the incoming signal. Magnet current due to the keyer tube is adjusted by means of the 5K 25 watt pot. This perhaps could be dispensed with because it is adjusted to zero resistance for a maximum current of 32 ma., indicating that the internal resistance of the 6V6 is sufficient alone.

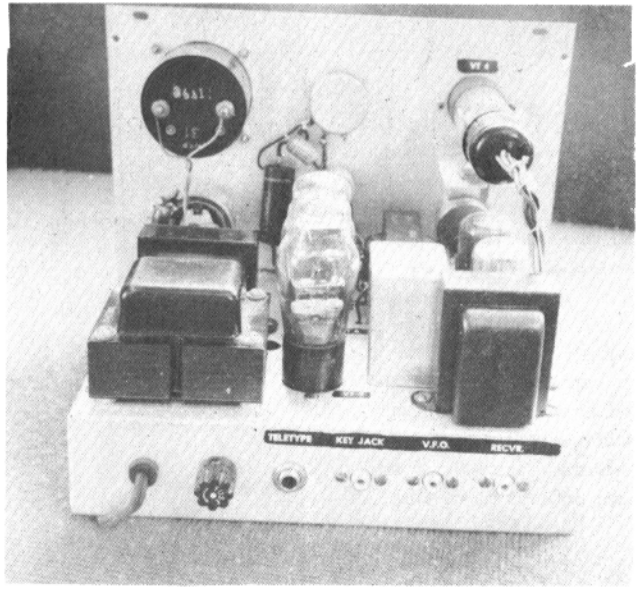
Adjustment of the VFO unit is simple. With the Send-Receive switch in the Send position, key closed, and the Mark-Space toggle switch set at Mark, the receiver BFO is adjusted until the magic eye pattern closes. The Mark-Space switch is then thrown to the Space position. This cuts off the magnet current, puts voltage on the 6AL5 via the NE-48 neon bulb and also connects an extra capacitor in parallel with the 80 mh. tuned circuit. In my case this came to about 0.208 mfd. but it should be accurately pre-adjusted against an audio signal generator for 850 cps down shift. Assuming this capacitor is correct, the 10K F.S. adjustment control on the front panel is rotated until the magic eye again closes (it will open up when the switch is thrown to Space). If a suitable point about mid range for 80 or 40 metres cannot be found, it may be necessary to re-adjust the capacitor between the 6AL5 and the cathode of the VFO oscillator tube. For 20 metres, a new point will be found, not too far from those of 80 and 40 metres. When the VFO shift adjustment has been made, this switch is returned to and left in the Mark position. The shift frequency adjustment should of course be checked before each transmission, until the equipment has all warmed up and drifting has stopped.

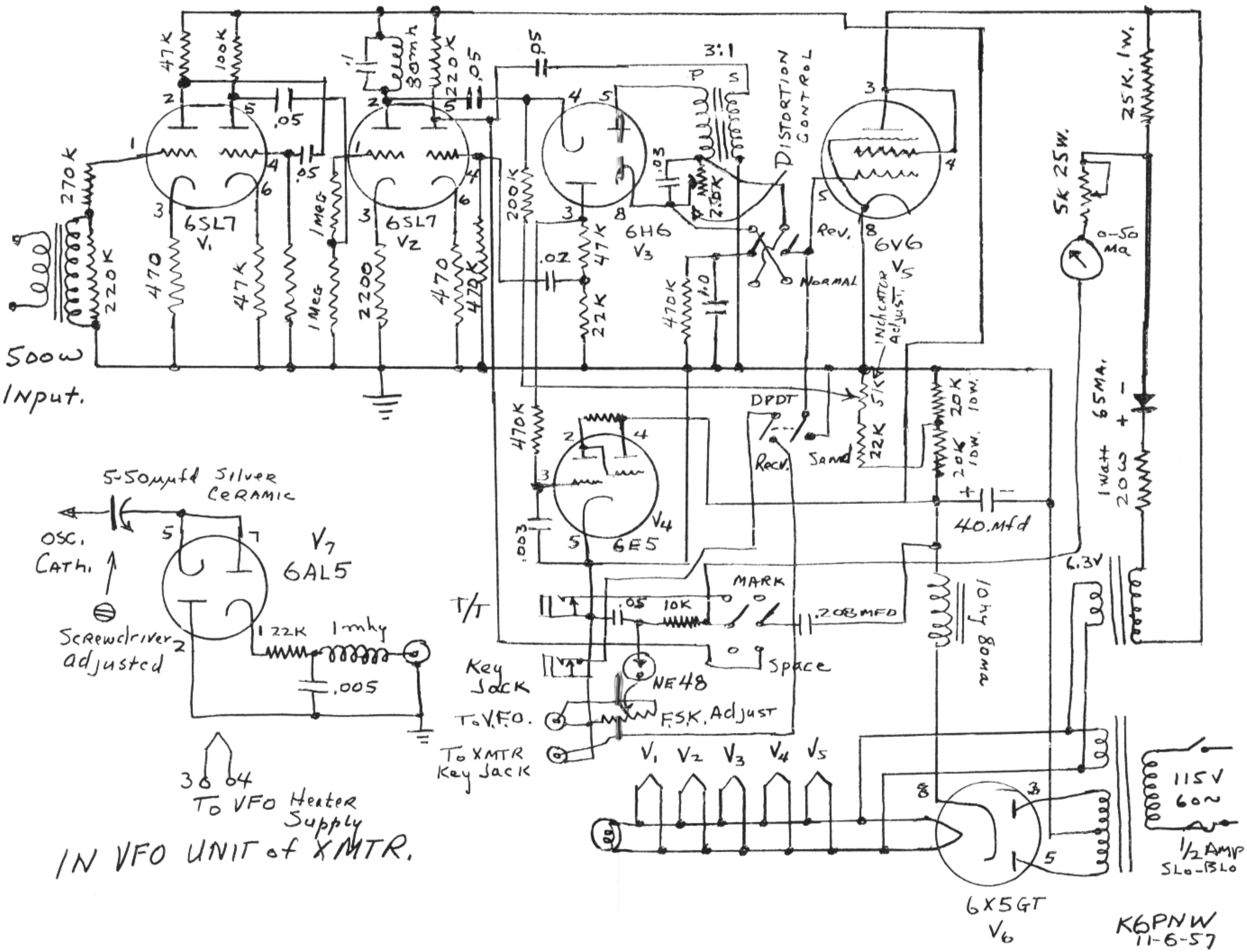
—0—

In passing it might be well to note that a simple RY test for the keyer tube of any T.U. is easily obtained. This consists of an audio signal generator with square wave output and which will go down to about 20 cps. Set it for HI impedance output and max. voltage out, with frequency at around 22 to 23 cps. Disconnect the grid of the keyer tube from the input system, and put the input to this grid across the output of the sig. gen. Actually it will play RY's with since wave too, but not perfectly. It may be necessary to put a grid resistor of at least 0.1 meg from grid to ground (or to the cathode return as the case may be. If the cathode does not go direct to the chassis, the ground lead of the sig. gen. may also have to connect to the cathode instead of the chassis ground.

J. P. NEIL, K6PNW.






500w Input.
270K
220K
47K
100K
.05
470
6SL7 V1
6SL7 V2
1 Meg
2200
80mh
.1
220K
470K
200K
.02
47K
22K
6H6 V3
3:1
P S
.03
250K
Distortion Control
Rev.
Normal
470K
1.0
6V6 V5
Indicator Adjust
5K
22K
DPDT
Recv.
Send
20K 10W.
40.mfd
25K. 1W.
5K 25W.
0-50 Ma
65MA.
1 Watt 20W
470K
6E5 V4
.003
T/T
MARK
Space
.05
10K
.208 MFD
Key Jack
NE48
FSK. Adjust
To V.F.O.
To XMTR Key Jack
10H 80ma
6.3V
V1 V2 V3 V4 V5
6X5GT V6
115V 60~
1/2 Amp Slo-Blo
K6PNW 11-6-57
5-50μμfd Silver Ceramic
OSC. Cath.
Screwdriver adjusted
V7 6AL5
22K
1mhy
.005
3 & 4 To VFO Heater Supply
IN VFO UNIT of XMTR.

W8N1Y

ELKINS, WEST VIRGINIA

Photo #1 is described as follows: Top left shows two RBM navy receivers (one LF and one HF) with power supplies underneath.

Bottom left is rebuilt GO-9 transmitter Center top shelf S.S.B. exciter (phasing type). Next down center is TSC-12 transmitter modified for F.S.K. and souped up also. Next down center unused terminal unit. Next down center TSC-12 receiver. Next down center Power supply for TSC-12 equipment (regulated).

Top right, (on top shelf) RTTY tone standard. Next down, single filter T.U. in use. Next down, Q multiplier, used with TSC-12 receiver. Next down, (no part visable) #14 reperf. Next down, 11-A keyboard with T.D. (distributor) (not visable) underneath and seen on print #2 in fact all of right hand rack can be seen more in detail on #2 print.

Photos #2 and 3 are a before and after gag shots of the contest. Hi.

The old slogan "RTTY'ers build" is greatly in evidence because you see my hobby is entirely self supporting and cash is therefore at a premium.

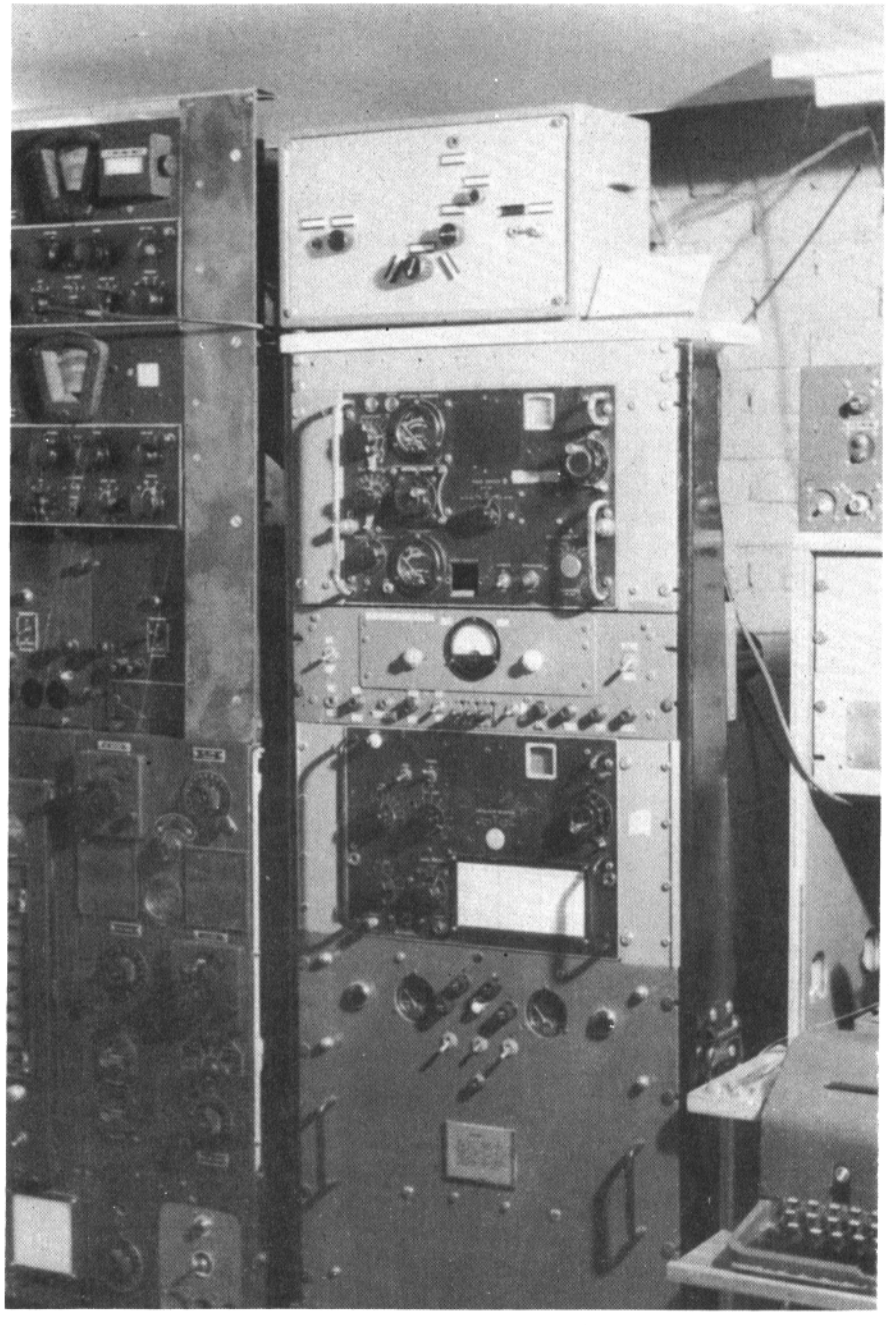
Further introducing myself says I am married, white, have three children (two boys and a girl). The oldest is 22 and married and attending Duke University (not electronics). Next is the daughter, married and the youngest 15 years old (not 15½). He is in High School and thinks in terms of electronics (maybe dad will be succeeded yet) (however tis his life not mine) and two grandchildren—a boy by the oldest boy and a girl by the daughter. The son-in-law is an instructor at the local College "Davis and Elkins" in civil engineering. The oldest son is majorinig in Forestry and finishes this spring with a masters. I am 53 years young. Hi. The Xyl is 9 years my junior. I am employed by the C.A.A. in maintenance of Nav-aids. Formerly was with the Bureau of Standards.

I am not the lone wolf of West Virginia any more because there are two more—one on RTTY and another almost on so we soon will have a pack. The one listed in the RTTY call book has never been heard at this QTH. Don't believe he is active ? ? ?

The "Wolf" was tacked on to me by Bob W9TCJ. He says quote: "Rolfe the Wolf" hi. It follows that the "Wizzard of Wisconsin' does not want to be lonely. hi. Have never met Bob personally but he seems 5 square—good guy, and ambitious.

About QSL's. I still have not found my stack. Im in process of getting some more made and was shooting too high—wanted a sooper dooper personalized card made and they only quoted $23.00 per hundred so I'm going to settle for some "run of mine" ones for now and you are high on the list when I get them. Have patience. Its so I hesitate to get on the air for fear of being hit for a back card hi. WAS RTTY seems to be a hot item these days—Hi. I can't get "steamed up" over it tho!

Nice to know my tape gear is OK because I've had reports to contrary. It works perfectly locally and so should on the air because the parameters are the same as the keyboard and it gets out. WOBP says "KR6AK in Okinawa copied me while I was working "W6MTJ" during the contest. I was only putting eighteen watts into the antenna all during the contest with the TSC-12 transmitter. This was on 40 meters.



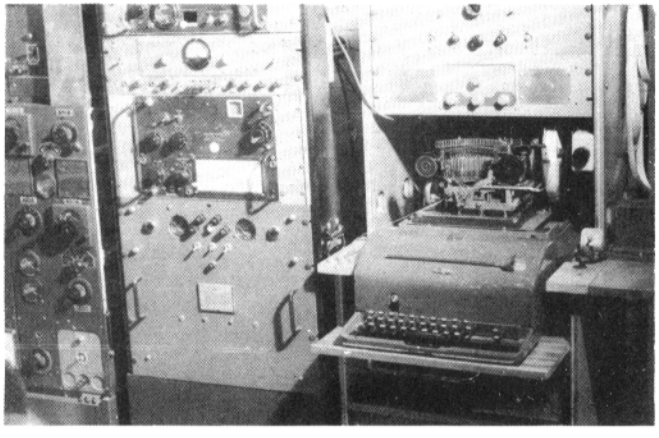
Want to give 20 a lick when I "murderfy" the TCS-12 some more. Don't feel obligated to answer this—I just wanted to get my money's worth out of the stamp that carries the photo's Hi.

So

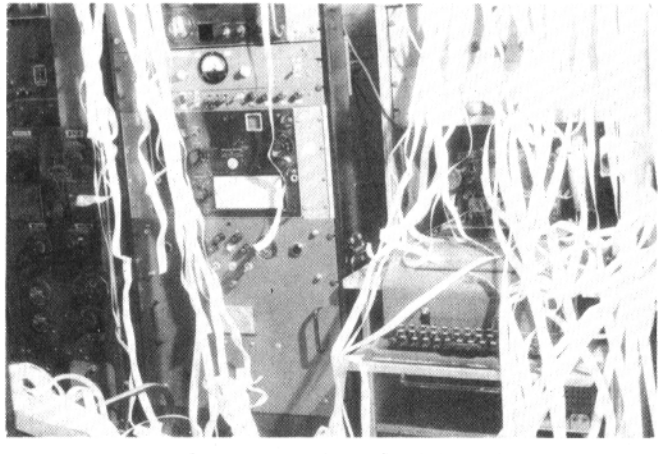
73

—Rolfe

* * *



W8N1Y BEFORE S. S. CONTEST



W8N1Y AFTER S. S. CONTEST

Have been having a bit of trouble with WOHRZ's auto car ret and line feed. The adjustment of that trip-off for the car ret is just a little touchy. W9UE here in Chicago has installed a slightly different system, using two solenoids. Will ask him to write it up and send it out to you for publication some time. Plenty of ways to do that job, but maybe some will turn out to be a bit easier than others.

Installed the "bell-break" system couple of weeks ago after hearing W9TCJ using it with W8SDZ. Sure fine way of switching back and forth. Also have almost all of Bob's "conference" circuit installed and need only to provide mark return and provision for me to break him. Whole set-up here is now full of relays for automatic control. Takes six relays to get me on the air ! !

See you then, Merrill, and don't fight it too hard . . . 73. GEORGE, W9SPT

RYRYRYRYRYRYRYRYRY

One of the most enjoyable ncards field trips was concluded by the group attending the government automatic tape relay center near Winters, which had been arranged for and sponsored by W6VVF thru the Sixth US Army Headquarters at the Presidio of San Francisco.

After luncheon at the "Nut-Tree" on Highway 40, the group was split into three parties with a guide assigned to each group. The transmitter building, the emergency power building and the automatic tape relay building were visited followed the general orientation talk given by the installation tape relay instructor using the electronic training demonstration board.

Of the many guests attending was W6AK and XYL who flew his plane to Vaccaville in order to take in the trip. Many requests from those not able to make this trip promise for another one if arrangements can be made in the near future. Our grateful thanks to Nick, W6VVF for his hard work and giving up his day off to handle this trip. —BUCK, W6VPC.

Please include in next net directory new RTTY net this area x Name quote forty RTTY net unquote designation 40 RTTY x starting two PM CST Sundays coverage approximately sixteen states Ohio to Kansas to Montana x Purpose traffic comma bulletins comma preparedness for emergency high volume messages as only teletype could handle comma liason encouraged with all nearby nts nets comma and technical exchange of information on RTTY or rag chewing after conclusion of roll call and traffic x I will act as net manager pending elections and propose rotation of NCS after well established x Midwest net on eighty disbanded May 1956 and have had many inquiries regarding resumption on forty for greater range x Starting time two PM Sunday, November 24 on 7140 KCS x Any publicity will be greatly appreciated x 73

BOYD "BEEP" PHELPS, WOBP

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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

Jack Patton, VR2AC, has returned to the Fiji Islands with a Model 26 machine. Ken W6WIS says he got a note from Jack that he is about all set to get on the air with RTTY.

Another "narrow shift party" is contemplated for the entire week-end of March 14-15-16. Get the gear ready and watch for further details.

Good to work you in the contest—the best ever—I felt punk and couldn't figure out why until the next day when I came down with the "Le Grippe"—twelve hours was all I could take hi Hope to see you soon on the air. —JOHNNIE, W2RTW

I purchased some C 114 loading coils the other day. I found an easier way then cutting them with a hack saw. Just heat them over an open flame till they get pretty hot and the bottom will pull right off. Then hang them over a can till they drip clean. I was planning on using them as a filter between the receiver and the W2PAT TU. I do not wish to rebuild my TU. Do you have any suggestions as to values and such usings these filters? Any suggestions would be appreciated. ANDY, W7CSC

° ° °

Frank Taylor W2KXT of Dewitt, New York will give us a working demonstration and the fundamentals of RTTY (radio teletype). A group of locally interested hams will help Frank set up and demonstrate.
R-A-G-S REVIEW

° ° °

Climaxing RTTY activity in the Bay area for the spring and summer and a prelude of what's to come RTTY wise, was the NCARTS meeting held at "Joe's at Westlake" San Francisco where we were furnished the best in service, meal and private dining room for the gang.

Our guest of honor, ZLIWB, Bruce Rowlings of Onerahi, New Zealand captured the hearts of all who met him and he is looking forward to his visit to Chicago for the ARRL convention and the tours planned for him by WOBP, W9TAJ and W9GRW, with the greatest anticipation.

The meeting was attended by 61, the largest and finest NCARTS meeting since its inception. Arrangements for the meeting were made by W6VVF and XYL, Isabel, but unfortunately, Nick was required to undergo an emergency operation and they both missed meeting Bruce.

Of the prizes donated by WPVVF, the ladies door prize was won by none other than Margaret Swan, other prizes donated by Eimac, W6GGC, and W6EFT, were many and good and brought many happy smiles to the faces of the winner. The first prize, a Model 26, was won by W9NOE, Dick Cortwright of Niles, (Chicago) Illinois.

We all enjoyed the talks by ZLIWB, W6AEE, with the speech and illustrated talk of the evening being given by Tommy Lott, VE2AGF of Operation Polevault thru the Canadian Arctic.

Many pictures were taken by W6ASJ, with W6CBF assisting. Look for them in future issues of RTTY.

Our little gal Sunday, W6LFF, Gin, XYL of Bob, W6MTJ took the minutes of the meeting in shorthand and a complete resume will be mailed NCARTS members shortly.

One of the unbelievables of ham radio occurred when VR2AC, Jack from Fiji Islands, a guest of W6WIS, was introduced to Bruce, ZLIWB. They both work for CAA and work each other on CW but had to come to San Francisco to finally meet one another. Jack, VR2AC will be on RTTY shortly after his return.

The goodbyes were said at 11:30 p. m., climaxing five hours of good fellowship and fun. BUCK, W6VPC

° ° °

September issue of Scientific American has an excellent article on Multi-vibs by W5BZY where he uses them to regulate a clock. —W7DDY

° ° °

THE NEW "FORTY RTTY NET"

In response to numerous requests for a time that many RTTY stations in the upper mid-west can contact each other to exchange messages, be organized to handle the huge volume of emergency traffic as only RTTY could handle, for bulletins, and for social and technical exchanges of information (after traffic), there is being organized the "forty meter teletype net." WOBP will act as net manager to get things started with elections later, and while it is planned to rotate net control, WOBP will be NCS for a while. To cover the wide areas involved forty meters seems best, and the most universal leisure time with minimum of DX-QRM indicates Sunday afternoons for meeting time. So let's pass the word and get on 7140 KCS at two P.M. Sundays, starting Nov. 24th, 1957.
BOYD "BEEP" PHELPS, WOBP

° ° °

NEWS ITEM:

Okinawa (near China coast) took part in the November RTTY sweepstakes!

"Cas" there, signing KR6AK, printed stations as far east as Rolfe W8NIY in West Virginia and worked Bob W6MTJ. Look for him on 7147 weekends . . .

° ° °

TO OUR READERS . . .

Please take a look at your name and address on this issue, you will note a date below the town and state. If it shows a date before current date, this will be last issue mailed you. Costs of printing the bulletin are too high to continue carrying subscription beyond expiration date.