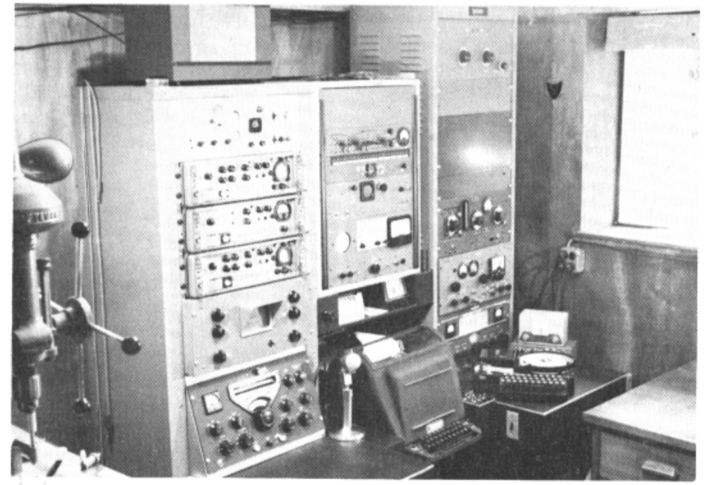
RTTY



OPERATING POSITION AT W2OKO

LEFT BAY TOP DOWN, 2 MTR RTTY STATION, URA 7, PAN ADAPTOR, 75A3

CENTER BAY, PATCH PANELS, AUDIO T.U., X SCOPE AND FREQ METER, #26 MACHINE

RIGHT BAY, REMOTE ANTENNA TUNER, VFO, 150 WATT 2 MTR XMTR, 32V2

ON DESK, SWR BRIDGE AND PART OF REMOTE ANT. TUNER, PERFORATOR, PART OF OPERATION SWITCH BOARD #14 TD IS UNDER DESK, REGEN. REPEATER NOT SHOWN.

RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY

NEWS OF AMATEUR RTTY

MARCH 1961
30 Cents
Vol. 9, No. 3

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: Model 15, sprocket feed, 125.00, W. E. polars 3.50, TH/TCC-1 TU contains sharp AF filters, less polar relays 15.00; with polar-relays 22.00. Hundreds of misc. parts, write for list W9LON

FOR SALE: AN/FGC-1-X 125.00; 4810 Fountain Ave., L.A. 29, Calif. W6DTN

FOR SALE: AN/FGC-1-X 125.00 — W6RCM

FOR SALE: TT-1/TXC-1 Fax Unit complete with power supply, manual and paper 150.00.
RTTY paper, yellow bond, 13.75 case. White 13.25 case, Los Angeles area only pick up — W6AFX

FOR SALE: Model 26 and TU complete 100.00 — W7ARQ

FOR SALE: Model 26 with communications type, and modified for TD operation, including a 24A tape head, and a 14 keyboard perforator. All in operating condx. 135.00 — W6HIF

FOR SALE: Three model TG-7 (Model 15s) P.O. Box 432, Belmont, Calif. — W6OWP

FOR SALE: RF Noise filter kits for 15, 19 kybds. New with instructions 5.00. David J. Goodman, 14315 Milverton Road, Cleveland 20, Ohio.

FOR SALE: Bound 1960 RTTYs 6.00 — RTTY, INC.

WANTED: W2JAV TU or similar good TU, 228 Plummer, Oil City, Pa. — W3LST

RTTY, Inc.
372 WEST WARREN WAY
Arcadia, California
Return Postage Guaranteed

PASADENA
MARCH
RED CROSS MONTH

FREQUENCY SHIFT FOR THE AF-67

By ROBERT S. HATCH, JR.
Lee Del Trailer Court, Columbia, Mo. WØTBL

After a week of tuning and printing RTTY signals, the bug bit and much thought was given to our own use of Frequency Shift Keying. How? That was the question. All articles on the subject that the writer could get his hands on were read and re-read. Finally, it was decided that the little AF-67 with the shift circuit, slightly modified, from the 1958 issue of the RTTY Bulletin would do the job. Now, the addition of the FSK unit had to be done with one major idea in mind; modify without affecting the re-sale value of the transmitter. This means no holes drilled in the Elmac chassis and no changes in the original circuit. The transmitter cabinet was removed and the versatile little Trans-citer was carefully examined for the physical placement and electrical connection of the unit. Wow, this was quite a problem, for the VFO circuit was sealed and completely inaccessable. However, after two days, the solution was found; by using a small sub-chassis mounted on the VFO compartment, short leads could be connected externally to the associated tube sockets.

CONSTRUCTION

The construction of the unit is fairly straight forward. A chassis is formed from a piece of heavy gage aluminum, that is cut and bent into shape as in figure 1. Then the tube socket is installed and the wiring made as short and direct as possible. See the completed unit is figure 2. Note that no terminal strips were used because of space limitations.

INSTALLATION OF THE FSK UNIT

The 6BJ6, reactance modulator tube, is removed and set aside. Then the completed unit is mounted on the top left side of the VFO compartment by removing the screw that holds the band-switching bracket and slipping the edge of the FSK chassis under and then replacing the screw. The filament voltage for the 6AL5 is obtained by a short piece of wire from pin 4 of the 6AL5 socket plugged into pin 4 of the 6BJ6 tube socket. WARNING, remember that the tube socket pins are numbered counterclock-wise from the top of the socket. The second connection is the short lead from the ceramic NPO capacitor to pin 7 (cathode) of the 6AK6 VFO tube. The wire is wrapped around the tube pin and then the tube is plugged into the socket. The power, 250 volts, is taken from the terminal strip beneath the transmitter chassis that supplies voltage to the VFO spot switch. It was taken from this point so that the shift could be set without putting the transmitter on the air. The shift potentinometer can be mounted anywhere that is conveniently located several feet from the transmitter. The leads to the shift pot. are two conductor shielded cable that is run through a ¼ inch hole at the rear of the cabinet. This hole can be sealed with a hole plug when the FSK units is removed permanently. Up to six feet of cable length has been used without ill effects, however, care should be used to make sure that there is a good ground at the end of the cable.

ADJUSTMENT

The adjustment of the unit is quite simple. First, the shift pot. is opened for maximum shift and the 4-30 NPO capacitor is set for about 900 cycles on 80 meters. Then all the shift adjustments are made with the pot. on the higher frequency bands. Note that the setting on 80 and 40 meters is just about the same due to the switching of coils in the VFO. Finally, the frequency calibration of the Elmac may be upset slightly (a few kcs.) and should be checked.

The normal operation of the transmitter on phone and CW remains unchanged, but, the Narrow Band Frequency Modulation has been exchanged for the Frequency Shfit Keying. The transmitter has been used "Barefoot"(?) and as an exciter for an 813 rig, performing well in both applications.

R T T Y-D I N N E R S
Boston,#128 MOTEL at Rt.1
March,18 at 6:00PM,-W1AFN
New York,260 Madison Avenue
March,20,at 5:00PM-W2PEE

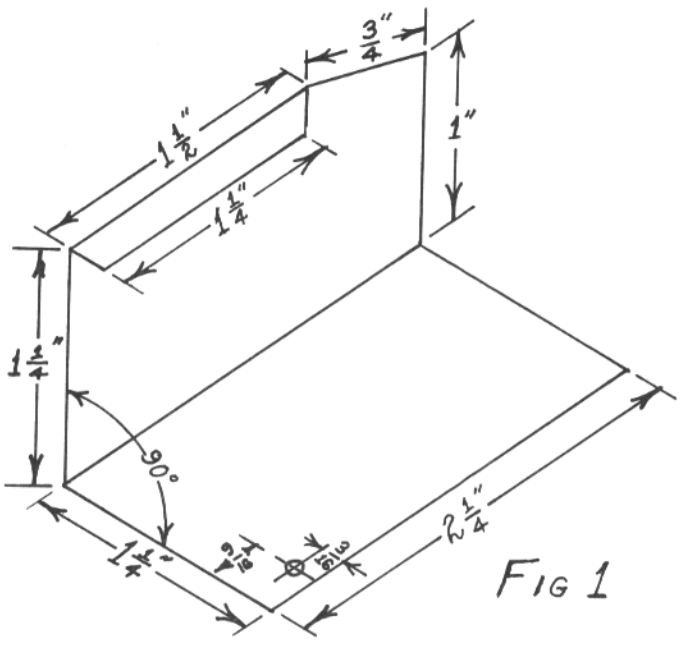
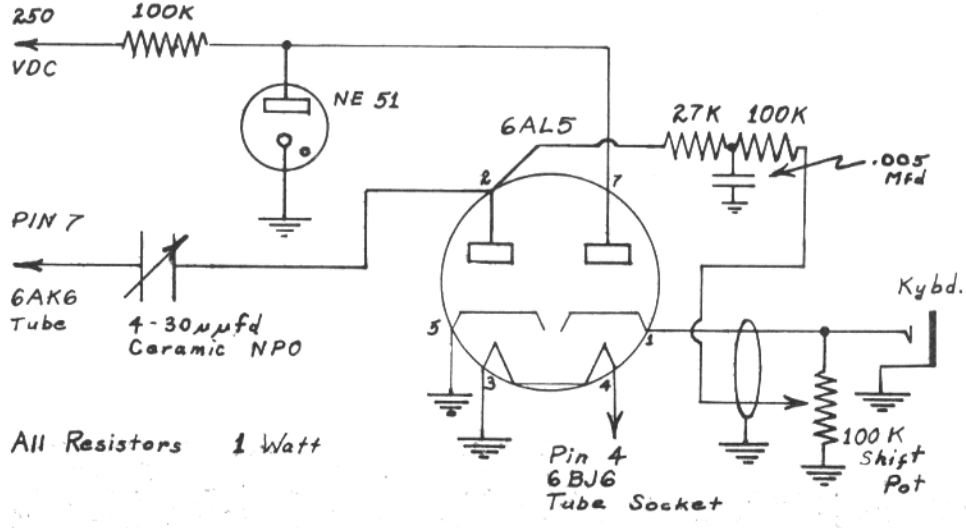
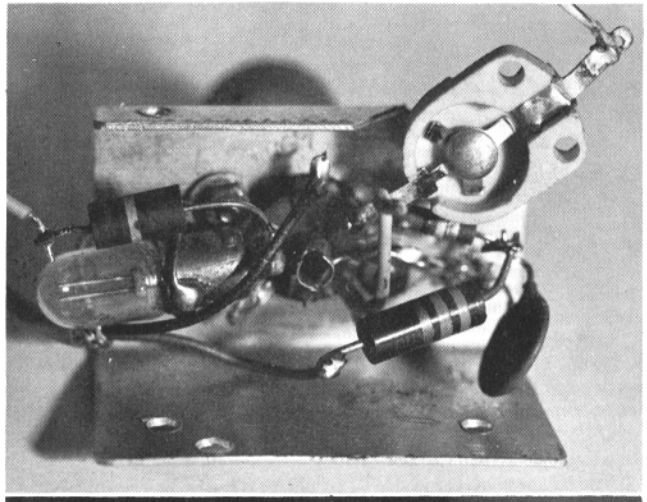
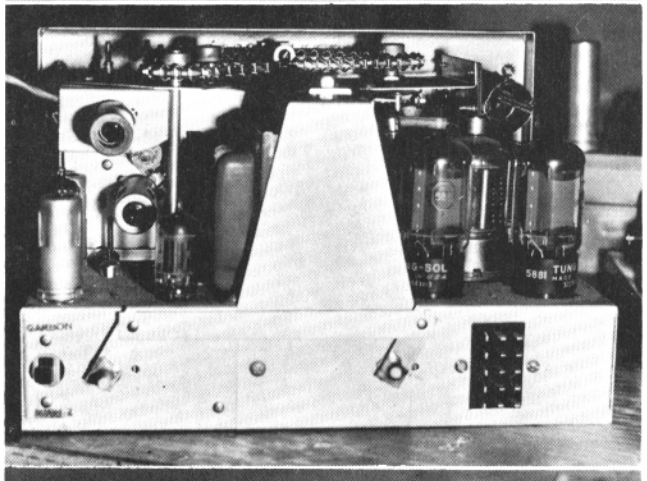


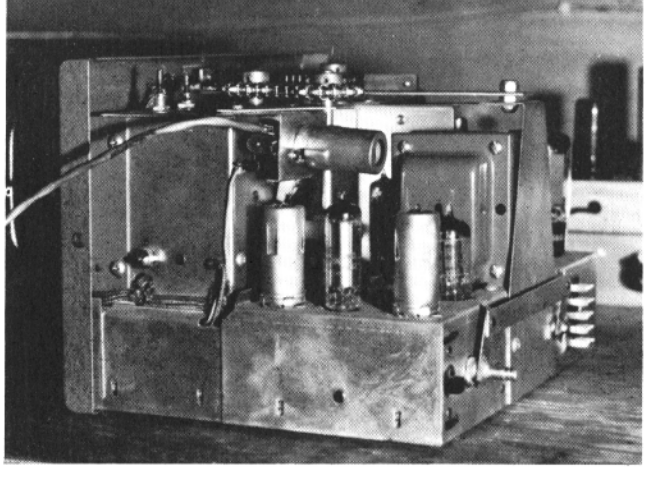
FIG 1



FSK ELMAC - AF67







TWO-METER TELETYPE NET STATION

By R. M. MENDELSON, W2OKO

The equipment to be described was constructed to provide a complete, low power two-meter station for local net operation on RTTY. This eliminated the use of several large pieces of equipment not needed for local rag chews.

The criteria to be met in the station were:

1. Complete receiving and transmitting RTTY station from antenna to printer.
2. Use of as few tubes as possible.
3. Rack mounting with multi-chassis construction.
4. Fixed frequency, four channel receiver.
5. Fixed frequency, four channel transmitter.
6. Autostart
7. Monitoring oscilloscope.

With these conditions set, it was possible to lay out the major chassis and panels and incorporate all the sub-chassis needed for specific functions. This method of construction allows for easy removal of any one section of the station for repair or even replacement by a later design.

The four major chassis are from left to right in Figure 1:

1. Receiver, RTTY converter, AFSK keyer, and modulator.
2. Monitor
3. Transmitter
4. Power supply and autostart.

Figure 2 is a general block diagram, while Figure 3 shows the cable connections between chassis as well as the general layout.

While there are no unique circuits in this station, the general construction is a bit different in the ham shack. By use of a shelf mounted in the relay rack, each part of the 19 inch panel with its chassis may be pulled out for repair or replacement. The use of terminal boards greatly simplifies wiring of the sub-units and further makes for neat wiring.

The receiver is the most complex of the four chassis and will be described first. A crystal controlled front end uses the latest RCA Nuvistor 6CW4 as RF amplifier, another RCA 6CW4 as the oscillator and an RCA 7587 tetrode Nuvistor as the mixer. These tubes were chosen to give a small, sensitive, low noise front end with the minimum of construction difficulty. More on this converter is expected to be published at a later date.

The output at 28 MC is fed to one amplifier stage and is then mixed with the output of a four channel crystal oscillator whose frequencies are chosen to make the receiver tune to the desired net frequencies. The output of the second mixer is at 2 MC for relatively wide band pass to overcome the variation in transmitter frequencies of the many stations in the net. The TNS noise limiter and squelch keep the speaker quiet when no signals are being received. The audio signal is converted to printer pulses by the unit under the chassis as shown in Figure 4. This is the WØACY circuit from CQ, September 1959, and it operates the printer magnets. The audio amplifier is also used in the transmit operation to drive the push-pull modulator. The AFSK signal is generated by the W2JAV unit from CQ, February 1958 and August 1958 mounted on the terminal board above the chassis. Phone transmission is also provided for by a speech preamplifier.

The monitor chassis has not yet been wired, but will have an "X" pattern scope on one tube and a trapezoid modulation pattern on the other.

The transmitter chassis is conventional, starting with an 8 MC crystal multiplied up to 144 MC. The final is a 6360 running about 15 watts input.

The power chassis supplies the DC and heater voltages for all the units. On this chassis is also included a one transistor auto start unit working off the mark tone filter. The holding time is determined by the capacitor across the sensitive relay and is about ½ second pull-in and 3 seconds drop-out after ending of the mark tone.

In general, operation on the Livingston Amateur Radio Club RTTY net has been quite satisfactory and has made the construction effort very worth while.

R. M. Mendelson

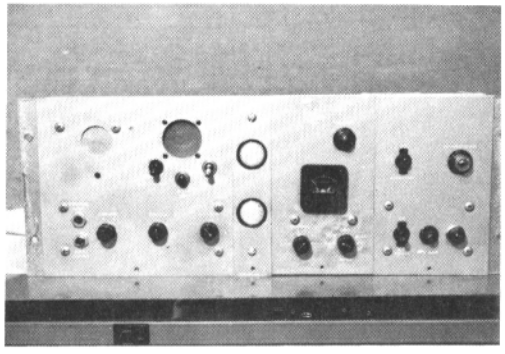


FIGURE 1 — FRONT VIEW, RCVR, MONITOR XMTR, POWER. EACH SECTION SLIDES OUT BY ITSELF ON A SHELF MOUNTED IN THE RACK.

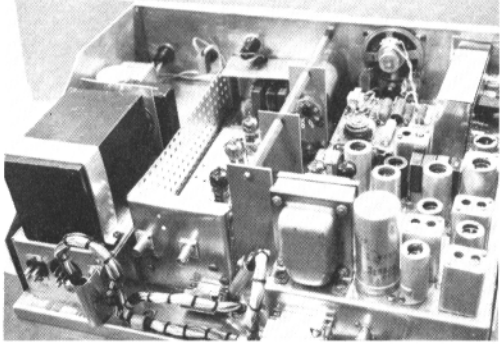


FIGURE 3 — REAR VIEW SHOWING CABLE CONNECTIONS AND GENERAL LAYOUT. MONITOR NOT YET WIRED. NOTE W2JAV AFSK KEYER ON TERMINAL BOARD. THE NUVISTOR 2 MTR. CONVERTER IS IN UPPER RIGHT CORNER.

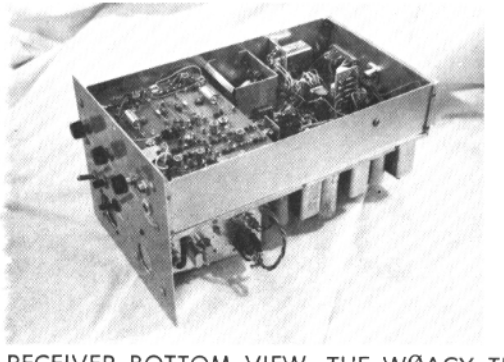
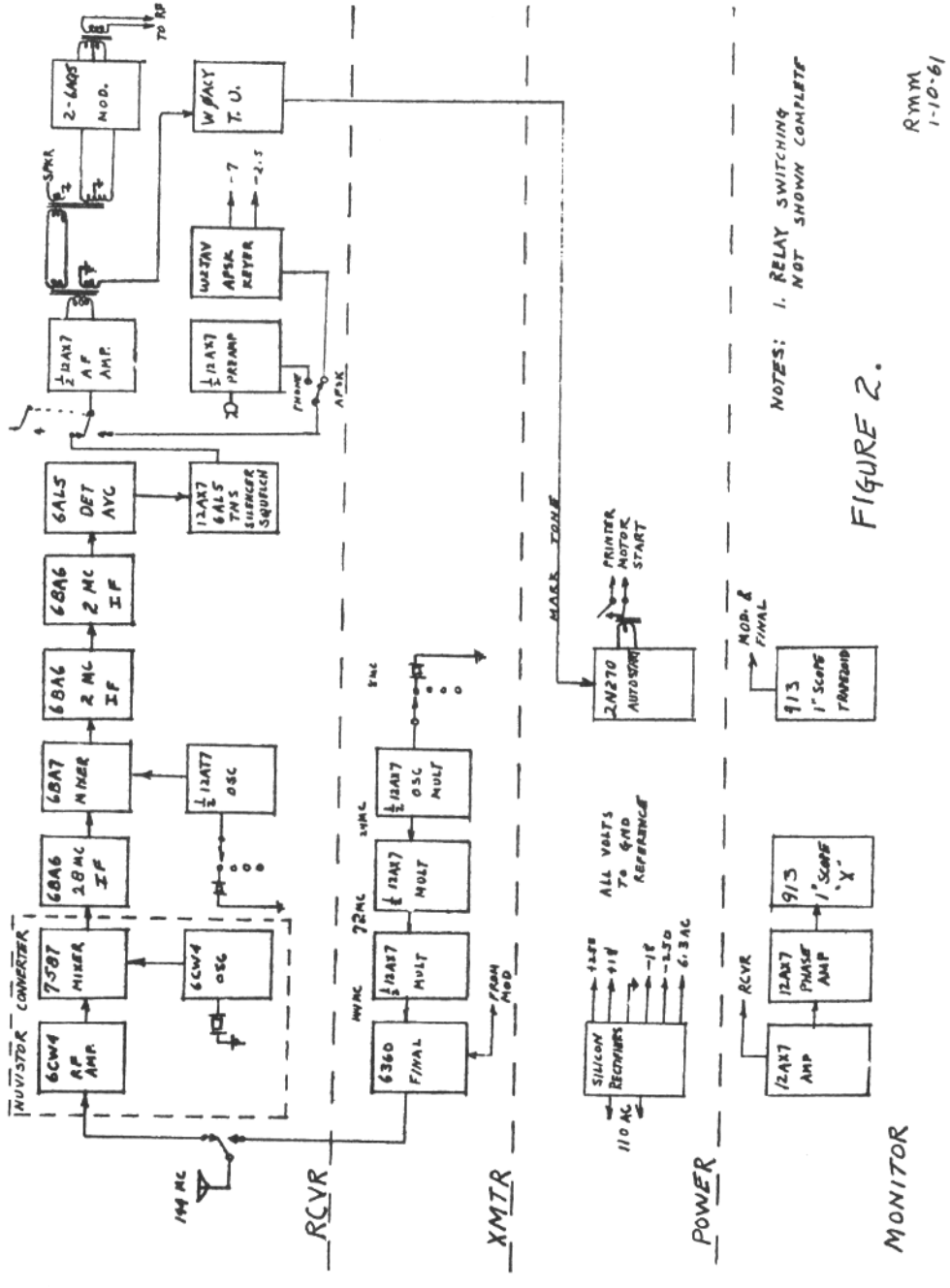
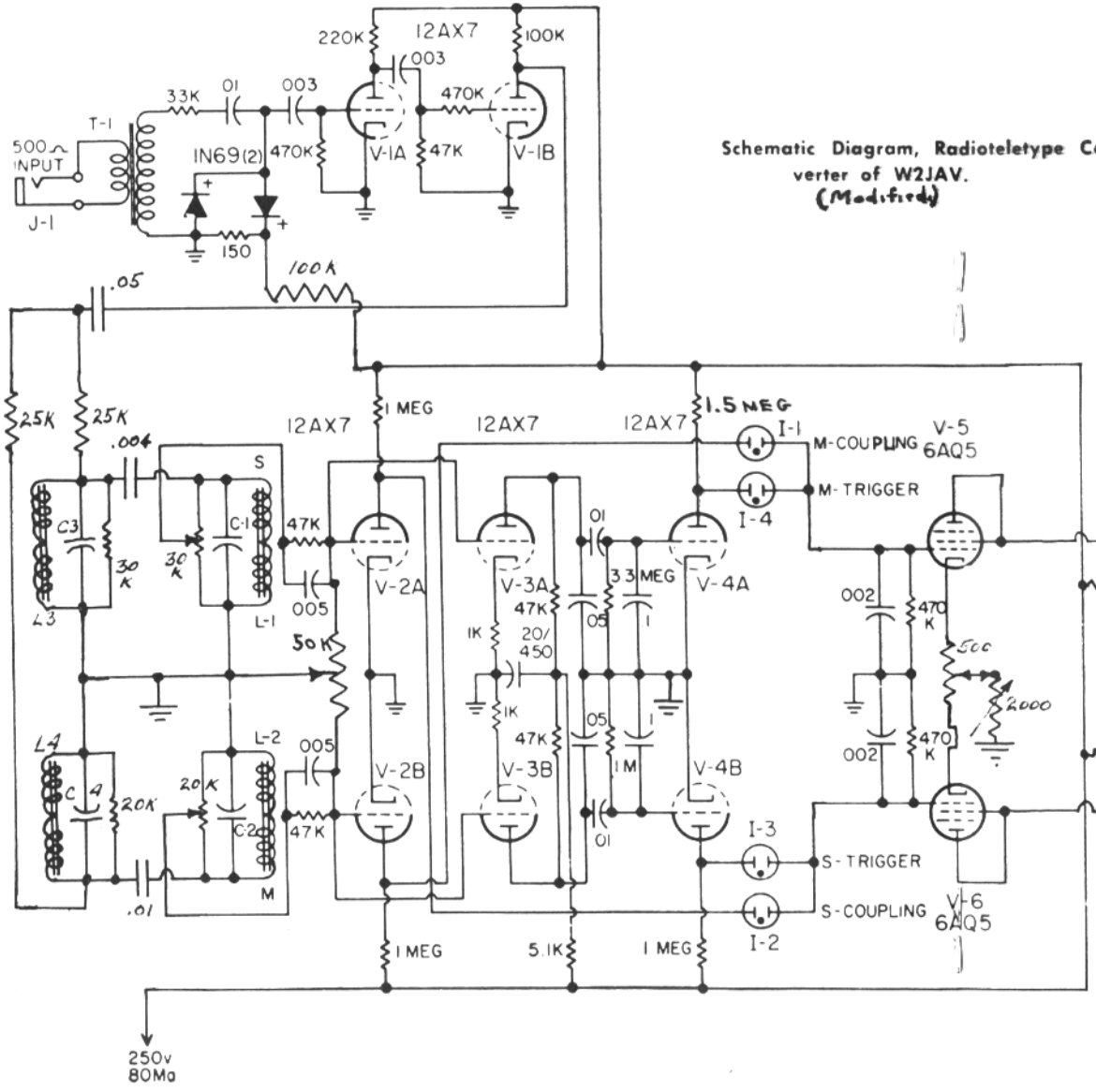
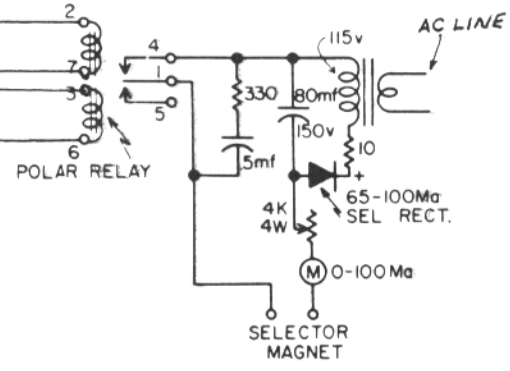


FIGURE 4 — RECEIVER BOTTOM VIEW. THE WØACY TERMINAL UNIT IS ON THE TERMINAL BOARD AT THE FRONT. THE NUVISTOR 2 MTR. CONVERTER IS IN THE LOWER LEFT OF THE PHOTO.

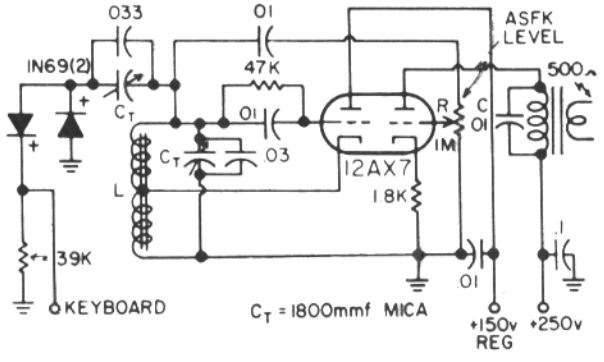




Schematic Diagram, Radioteletype Converter of W2JAV. (Modified)



Polar Relay Supply.



AFSK Oscillator Schematic Diagram.

"Modifications for the W2JAV Converter As Originally Described in the April 1958 Issue of "CQ" Magazine"

By WM. H. CARTER JR.
W5ANW/AF5ANW Houston Texas

These modifications were made in two general circuit areas:
FIRST . . .

The filters and the associated circuits were modified as follows:

(1) Remove all three connections to the 5ØK balance control, (R-1) and reconnect it so that the ends of the resistance pot. got to the grids of V-2A and V-2B directly, and the arm goes to ground.

(2) Remove the connection to the center tap of L-1 and L-2 toroids. Install a 3ØK Pot. across L-1 and attach the center or arm to the junction of the resistance-capacity (47K and .ØØ5) which had been attached to the mid point of L-1. Install a 2ØK control across L-2 with the arm connected in a like fashion.

(3) Remove the 47K resister across L-1 and remove the 22K resister across L-2.

(4) Add two additional Toroid sections as follows: tune two 88 MH Toroids to 31ØØ CPS and two to 225Ø CPS (the original L-1 and L-2 are disconnected and used as two of the above). Connect the two added Toroid filter sections ahead of the present modified sections by connecting the cold end to ground with the present units and connecting the hot ends thru .ØØ4 MFD for space (31ØØ) and .Ø1 for mark (225Ø). Add a 3ØK resister across the space input section and a 2ØK resister across the mark input section. — NOTE — It is important that the filter sections be tuned to the frequencies given above as independent sections before they are coupled together or before the resisters are added across the input or output.

(5) Connect the hot end of each of the new filter sections thru a 25K resister thru the .Ø5 coupling condenser to the plate of V-1B.

The above filter results in a flat top of 25Ø CPS for mark and space, each centered at the proper point (2125 and 2975). The controls across the outputs of the filters can be used to set the level of mark and space independently and the balance control can be adjusted to copy any combination of mark or space when QRM is bad.

The output circuit is changed as follows:

(1) All connections are removed from the plates, screens and the cathodes of the 6AQ5 output tubes. (V-5 and V-6)

(2) The plates and the screens of these tubes are tied together and pins 5 and 6 of V-5 are tied to terminal #2 of the polar relay. Pins 5 and 6 of V-6 are tied to terminal #6 of the polar relay.

(3) Terminal #3 and terminal #7 of the relay are connected together thru two 5Ø OHM resisters in series. The center tap of these resisters is connected to the plate supply positive terminal.

(4) A milliameter is connected between terminals #3 and #7 to read differential plate current (center zero meter) of the output.

(5) The cathodes of V-5 and V-6 are tied together thru a 5ØØ OHM variable bias balancing pot.

(6) The arm of the above pot is tied to ground thru a 2ØØØ OHM variable bias control resister.

The output circuit functions so that when a mark signal appears on one grid, the other tube is driven beyond cut-off (by high cathode bias on the common cathode resister), while the driven tube is saturated by a high positive voltage on the grid (which overcomes the high cathode voltage.) Thus one tube is cut-off while the other is at saturation. The bias control allows the two tubes to draw the same saturation current.

This arrangement prevents both the mark and space signals from operating the output tubes at the same time. The balance control on the grids of the rectifier stage allows the signals to be balanced or allows a printing from either mark or space or any combination of the two.

W5ANW

INTERCONNECTION OF AMERICAN AND EUROPEAN TELEPRINTERS

By ELIEZER EROSAL RABIEN — XE1UNM

The growing interest in working DX through RTTY, present us some problems, not too serious but that can be an obstacle. Doc, G2UK, in a recent article in QST makes mention of some of them, putting emphasis in the speed differences.

The only expedient here is to make both machines to work at the same speed. The simplest solution is to reduce the speed in the European machine . . . or to increase it in the American one. There are two methods we can use. In the governed motors units we can make an adjustment in the speed governor; when so doing, we must remember that the governor is designed to regulate the *original* speed with close tolerance that we can't expect in the new one, at least without further changes. We will have some misprints due to speed variations.

It is best to change gears. My personal experience with the Siemens 37H is that the factory is one step ahead and can supply gears for the American speed at a very nominal cost. In case you own a Siemens 37H the gears are catalog Nrs 6498 and 6499. If the machine has the regulated motor running at 1500 rpm. There are also available gears for their new T-printer model 100.

In case you want to make the cure in the model 15 (Teletype) equipped with sync motor (1800 rpm at 60c/s) you have two choices, one pushing the range adjustment high at 80-85 with reduced range. As the FCC makes legal a deviation in speed of plus-minus 5 wpm from the nominal 60, old Beep worked some high maths and came with the answer: use gears number 84105(pinion) and a number 84106. These gears are for 75 wpm speed from a 2100 rpm motor. Their use in 1800 will give a speed of 64.3 wpm, close enough to the European speed and well inside FCC regulations with the added advantage of better range.

Trouble with speed variations, in the Siemens 37H have been traced: at two points: the receiving clutch (felts must be well oiled) and governor contacts in bad condition. Complete revision of machines requires looking to the keyboard. The European machine has some slight differences, as the bell in upper-case J, and the answer-back feature in upper-case D. If you don't worry about losing the bell and make upper case D to print, locate blocking lever for these functions and remove corresponding notches.

I want to thank Mr. Johann Greppmair from Siemens Mexicana for his help in this matter.

Subscription Rate $3.00 Per Year

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RTTY Society of Southern California

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W6SCQ — Lewis Rogerson
For Traffic Net Information:
W6FLW W6IZJ
For "RTTY" Information:
W6DEO W6CG W6AEE

DX-RTTY

BUD SCHULTZ, W6CG
5226 N. Willmonte Ave.,
Temple City, California

Howdy Gang: The chief Ed just informed me it's time for another DX roundup so let's run this past months collection of goodies thru the hopper and see what we come up with! Two more WAC-RTTY Awards were sent out this month, making a grand total of eight so far. These twe went to Phil Catona, W2JAV and to the WØBP Memorial Station in the Twin Cities. Phil qualified with cards from CE3AGI, CN8JF, KR6AK, ZLIWB, DL4AT. Nice going, Phil, welcome to the club! The Award for WØBP was sent to Byron Kretzman, KØWMR, for presentation to the Twin Cities group. The committee is looking forward to getting a lot more requests for this award in the next few months so check thru your DX cards and see if you can qualify.

A message from PY1KU operating PY1LM reports that their first Stateside QSO was with WØAJL on Dec. 31st. PY1LM is running a 32S-1 into a dipole, a model CFA converter and a 15 printer. PY1LM reports they are eagerly looking for more Stateside RTTY contacts on 14,085 KCs. Erosa, XE1UNM, has his new W6NRM - Mark III converter working like a charm and has been very busy around 21,085 trying to keep up with all the "breakers." Erosa says he will be on quite regularly now so watch for him each day around 1900 GMT. No word from Bob, TG9AD, this month but will try and find out how he is making out before next column.

Africa continues to be a real "hot spot" of RTTY activity with more stations showing interest each week. Henry, ZS1FD, has one of the most consistent DX signals on the 21 MC band and nearly every day he can be heard working the RTTY gang around 21,095. Henry reported thru K3G1F that ZS1SP has his old TU and will soon be active and ZS1TP is also getting set for FSK operation. While ZS1FD was engaged in a three way QSO with W6TPJ and W6CG he was surprised to have his old friend ZS1NE break into the QSO. Henry was especially pleased by this "breaker" because it gave him a new RTTY country and Continent worked; Africa!! ZS1NE runs a KWM-2 and has an excellent FSK signal on 21Mes. Your DX Editor also had the pleasure of a fine QSO with Ossie, ZS6CR this past month. Ossie has been limping along on one filter in his TU and has some problems copying the weaker RTTY'er but Ed, K3GIF, has shipped him some toroids to help clear this problem up. Thanks a million, Ed! K3GIF also reports that Marty, EL1C, in Liberia has ordered an Alltronics TU and is hoping to get on RTTY very shortly. This will be another new one for you DX hounds to drool over. Word comes from W9EWC that ZS6KD is temporarily on a trip to Europe and is off the RTTY frequencies for the time being.

Lots of news from "down under" this month. Bruce, ZL1WB, announces the formation of a new South Pacific Radio Amateur Teletype Society. The organization is known as S.P.R.A.T.S. Bruce aptly puts it this way; "Southern Pacific Radio Amateur Teletypewriter Society — non-profit — non-commercial, of . . . by . . . and for the experimental radio amateur, especially interested in the operation and development of radio-printing telegraphy, and the acquisition of apparatus and information for the advancement of radio-teletype communication." The group has eleven members at present and promises to be a very "live-wire" organization. All of us send our very best wishes for the success of your very worthwhile enterprise. Alec, ZL3HJ reports that he has accepted a job with the NZBS in Christchurch and will be off the air until he can get some wire up. He finally liberated his Model 19 from Customs and says his model 26 went to ZL3RT who will be active very soon. Eric, VK3KF, returned from his extended trip thru the Islands to find the bands in poor shape to the States. He did manage a few good FSK contacts and is looking forward to Spring when things should "pick-up" for him. Eric has done very well this winter making contacts with the UK gang and with ZS1FD so he is not complaining too bitterly. Eric is taking his old TU to VK2AAB to help get the lad under way on FSK.

The mail has been so heavy the past couple of months, that your Editor has not been able to answer each one, as in the past. Your suggestions are most welcome, and will attempt to take care of as many as is possible in the near future.

Note that an error slipped into the drawing on Page 4 of the December 1960 bulletin, fig. 7. The 2N404 lower element should be the emitter, the arrow was not shown on original. Sorry.

A sheet from SPERA ELECTRONICS, Long Island City, N.Y., list a complete AN/URA6 Frequency Shift Converter, complete for $295.00 FOB.

I wish I had enough space available to print in its entirety a long letter from Bill Brennan, G3CQE. Bill's letters are true masterpieces. At the moment his biggest frustration seems to be getting an RTTY contact with some station in Asia so he can qualify for his WAC-RTTY. Anyone knowing the whereabouts of an Asian RTTY station can almost name his own terms as far as Bill is concerned. Bill says unless something happens soon to relieve this problem he is going to revert to black magic! The UK lads are mighty interested in 7 and 3.5MC RTTY contacts so if you want to give it a try — write em for a sked. G3CQE, G3GNR and G3LET tried a 7MC sked with K3GIF last month and although they were able to copy Ed's signals the QRM was just too much at that particular time. G3CQE reports that G2RM is the newest recruit over there and he expects to have him printing shortly. Bill also reports that PAØFB's beam and his long wire antenna suffered damage in a recent storm and he is temporarily confined to eighty meters only.

Well, Gang, that's about the crop this time and in the meantime drop me a line If you have any scoop or DX rumors. Remember this is *your* column. Help! Help!

73 and cheers

Bud W6CG

Erosa XE1UNM, writes that he can probably assist those with S&H Printers with parts, thru an agent in Mexico City. Also mentioned gears for changing to US speed runs a little over 10.00 a set.

A letter from WØAJL states that KC4USV should be on the air during their winter, some time in March 1961. Any one heard them yet?

Out of a letter received with SS log, "One gripe from this end, I don't like the way some of the regulars start to zero in on the stations with final on the air before the message has been sent. Missed several good ones on that account. It's bad enough bucking the regular QRM without that." Note: Your Ed found the same thing happening far too often, Hi.

Another states "My apologies to all who called me that I could not answer, due to the various troubles."

"I have been discussing with some of the fellows, the proposition that on forty meters, the RTTY boys should move down in frequency from 7140 due to QRM etc. Why not try say, 7090kcs? " Sounds like a reasonable idea, let's have your comments on this matter, Ed.

"Keep up the good work. Would like to see you print a 'poor man's version' of the new Hammarlund HX-500 using their principle for FSKing!"

"Just a short note to let you know that we are not dead here in Montana. Several new ones coming on from Billings, K7BON and W7MBV. Running ARRL bulletins Tuesday, Wednesday and Thursdays on 3620 at 7:30 p.m. MST. W7RZY"

Pasadena City College W6BAB and Oakland City College W6YM make RTTY qso via amateur radio RTTY. W6BNB operated W6YM. They would like skds with other City Colleges. Write either station for arrangements.

"How about some articles on RTTY TEST GEAR? W3YRB"

"Wish some one would transistorize the FB TU in the January 1961 RTTY. 73 George"

Just got hold of a Model 15 typing unit and have been busy putting it into shape. Have sent to MARTS for a base and cover and will have it going soon I hope. I am planning on using it on the VHF bands here (AFSK) while the venerable Model 26 keeps the bulletins rolling. Incidentally, bulletins now are broadcast at 1800 CST instead of the former 2200 hours, Mondays, Wednesdays and Saturdays. Figured skip would favor central area copy on the new hours. The frequency is still 7140, or close by.

— Ken, WØKXB

Here is an idea that I hit upon that may be of interest to other RTTYer's for whom paper has become a problem:

I went up to our local weekly newspaper office and bought a tag end of a newsprint roll. This was 32 inches wide, so I rigged up a simple jig to rewind it onto four 1-inch mailing tubes, each eight inches long, while simultaneously drawing the paper across a bracket with three razor blades positioned equidistantly to slit the paper into four 8-inch strips.

These 8-inch rolls can be used in the usual way, or they can be cut into 40- or 50-foot lengths and loosely fanfolded into a box on the floor. Then, after running a strip through, if there is nothing on it to be preserved it can be turned over and run through again.

This reduces the economics of paper to the vanishing point. For example, a roll I bought was 32 inches wide and 650 feet long. Cut into four strips and used on both sides, this gave me more than a mile of paper for $1.55.

— 73, Joe Kotzum

A couple of items may be of interest to you. First, the Model 15 that was purchased for the Boys Republic Radio Club, K6ZJR, is now installed and working. It is an ideal teaching aid for working with these lads (between 15 and 18 years of age) as it helps to convert a natural interest in mechanical things to the more refined hobby of radio. We are using a limiter-to-pulse-counting-detector type of TU.

The second item concerns limiter action in audio type terminal units. A great many circuits employ semi-conductor diode limiters. The normal approach to this is to bias the diodes to establish limiting peaks. In a system that I am now working on, it is desirable to establish limiting peaks without using a DC voltage because of toroid filters used at the input. To do this, I am using two identical zener diodes, back to back, across the signal line (600 ohms from the receiver). In my particular instance I am using 1N747 diodes (Texas Instruments) to hold the signal below 3 volts RMS. This technique, while simple, is one that I don't remember seeing in any of the RTTY periodicals or columns. It might be worth passing along. The zener diodes are fairly cheap and easy to get. It doesn't matter whether they are placed cathode-to-cathode or anode to anode because, during any particular half of the cycle one diode is "not seen" by the signal voltage while the other is regulating.

73 — John W. Corr W6QLB

Please keep RTTY coming! Almost forgot about renewing!

Bob's article on the TU, Jan. issue really fine, however I feel that more emphasis should be placed on the careful tuning of the filters. Two sets of filters made up here per Bob's specs did not have the beautiful characteristics that Bob's have, which of course is due to the tolerances available in the by-pass condensers. Slight turns changes on the toroids remedied the situation.

We used a "band spreaded" old Heathkit oscillator which we calibrated against the Hammond organ. This oscillator uses a 4 gang tuning condenser in a Wein bridge circuit. Simply by disconnecting two of the gangs and substituting 400 mmf. condensers (silver micas) the dial was spread to cover 1900 to 3200 cycles! Works FB.

73 — Ted Hildebrand W7YZQ

First two-way RTTY QSO on 1215 Mcs.! What is believed to be the first two-way RTTY contact on 1215Mcs. was accomplished on February 11, 1961 at Ø8Ø5 GMT when W6TPJ, Rosemead, California, made a solid 3Ø minute RTTY QSO with W6CG, Temple City. W6TPJ followed this by a second contact with K6OWQ also in Temple City. The equipment used at both ends of this QSO was APX-6/1FF jobs converted by W6TPJ for use on the 1215Mc. band and the antennas were of the corner reflector type. A F S K (F-2) emission was used for the RTTY transmissions.

Following is a tape of the first transmissions made during the above mentioned QSO. . .

W6CG W6CG DE W6TPJ W6TPJ in Rosemead California testing and in QSO on the 1215Mc. band probably the first 1215Mc. RTTY QSO.

L. M. DIVINIA, AFØVBK, WØVBK
DON DIVINIA (Son), KØVSK

115 South Battin Street **Wichita 18, Kansas**

Equipment:

RTTY:

W2JAV - Converter
Model 15 Page Printer
Model 19 W/T.D.
Model 14 Typing Reperforator

Transmitters:
KWS-1 - ARC 3 - HT 37

Receivers:
75A4 - ARC 3 - BC 312 - HQ 110

Antennas:
Beams on 2 - 10 - 15 & 20
Dipoles on 40 & 75

Awards:
DXCC - WAZ - DUF - OHA - CCC - WAC - TPA - WBE - 101 - RUBEN DARIO - BERTA - CAA

Club & Societies:
ARRL - RTTY, Inc. - MARTS - RSGB - OTC - etc.

Principal Activities:
RTTY - MARS & CW DX