



# THE AUTO-MATE 26

BEN WOODRUFF  
W9UE

For those amateur RTTY operators who have 26 printers, this AUTO-MATE 26 will be of interest. It is designed to avoid that pile up of characters at the end of a line, when the CAR RET and LINE FEED is not received. This feature in conjunction with the "unshift on space" function allows an operator of a model 26 to enjoy the same features that are on the latest model of the printers.

Briefly it consists of means to operate the normal line feed function, as well as the normal carriage return function. IT REQUIRES NO MODIFICATION OF THE xxx 26. Installation is very simple.

1. Disconnect the Model 26 from the 115 volt power circuit.
2. Remove the crank, the paper chute and cover from the 26.
3. Place the carriage at about the mid-point of its travel.

Facing the rear of the Model 26—

4. Place the AUTO-MATE in position with the aluminum angle against the two upper ¼-20 threaded projections on the 26 with the switch lever arm of the AUTO-MATE having been passed beneath and up on the front side of the PLATEN HANDLE BRACKET. (This bracket carries a plate reading, "TELETYPE CORPORATION Type 26 Printer," etc.) Secure the AUTO-MATE in place with the two ¼-20 screws and washers provided.

5. Inspect the AUTO-MATE switch lever from the front of the 26 to see that it is free and clear from the carriage stop screw on the 26. Slight movement of the switch level will actuate the switch on the AUTO-MATE.

6. Position the carriage at the end of a printed line to check the switch lever arm adjustment. The switch should click as the carriage moves the last letter space. Loosen the black round-head screw on the switch pressure arm to re-set the arm.

7. BE SURE THE POWER SUPPLY LINE IS REMOVED FROM THE POWER SOCKET.

8. Solder the two AUTO-MATE leads to terminals 22 and 23, if you have the Model 26 schematic. (Counting from the extreme left of the Model 26 these would be terminals 8 and 9, the 115 volt line.)

9. CONNECT THE MODEL 26 TO THE 115 VOLT POWER LINE. The AUTO-MATE leads to solenoid and switch are now on the 115 volt line.

10. Hold the carriage at the end of its travel, closing the switch. The black Allen-head 10-32 cap screw will now be pressing against the LINE FEED BAIL, having spaced one line. The BAIL carries the plate reading, "BELL SYSTEM SERVICE." The 10-32 cap screw is adjusted, with the carriage held at the end-of-the-line, so that the BAIL has been actuated but still has a small amount of free travel left which can be checked by pressing the BAIL. It is not necessary for the solenoid to jam the BAIL hard to the limit.

11. Still holding the carriage as above, check the pin arm on the lower side of the AUTO-MATE to see that the pin has released the 26 CARRIAGE RETURN LEVER. There must be free travel left in the movement of the CARRIAGE RETURN LEVER, which is not to be jammed by the pin arm of the AUTO-MATE. Check with the finger tip.

12. The AUTO-MATE is shipped adjusted for an average machine. Check the adjustments as outlined above. Always be sure the solenoid can close fully. If held from closing it will quickly over heat. Excess clearance between the end of the 10-32 cap screw and the BAIL will result in the solenoid striking the BAIL with a jar or shock, causing the LINE FEED PAWL to bounce and mis-space. Wrap plastic electrical tape around the lower end of the

elbow pin to reduce solenoid travel and excessive BAIL arm clearance.

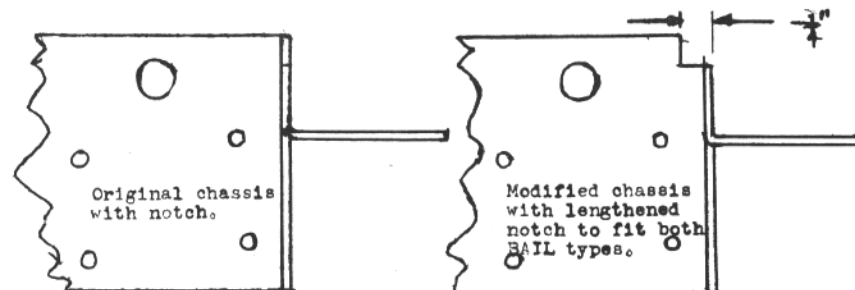
The AUTO-MATE 26 was designed for the late model of the Model 26 Teletype machine. It will not fit the early production of the Model 26.

The AUTO-MATE 26 was designed to work on the Model 26 Teletype machine at W9UE. It was checked on two other Model 26 machines for fit. It now develops that there are two very different line feed BAIL designs, the early type and the late type, and, further, that it happened that all three machines used in the development of the AUTO-MATE 26 just happened to be the late type Model 26 Teletypewriters.

In the early type BAIL, the end and lower left flanges are turned to the rear of the machine, while the late model BAIL has the ends and lower flanges turned to point toward the front of the Model 26. The BAILS are interchangeable, so any machine may have either type.

Below is a sketch of the steel plate used in the AUTO-MATE 26, which carries the solenoid etc. Looking down from above it will be observed that the plate has been notched out in the upper right hand corner to clear the BAIL. This notch needs to be extended as shown, to clear BOTH types of BAILS. Carefully notch out your AUTO-MATE 26 as shown with a hack-saw. Coat the edges to prevent rust.

*Editor's Note:* The AUTO-MATE 26 can be obtained from W9UE for \$15.00, which is a good investment for your station.

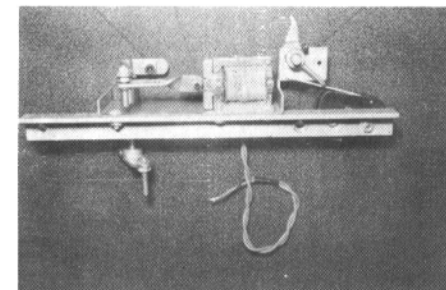


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## WORLD'S ONLY RTTY SWL

DAVID GOODMAN, 14315 Milverton Road  
Cleveland 20, Ohio

Thought you might be interested in a photo and a description of what is probably the world's only RTTY SWL station.

I have been building and assembling equipment for about four years, and now have everything nearly operational.

As a former employee of United Press, I am interested in news and especially in news communications. RTTY SWL-ing gives me the necessary elements to satisfy my news, electronic and mechanical energies.

Viewing the photograph, the equipment is as follows: Top unit in the table top rack cabinet is the printer switching console and power control. Any piece of equipment can be put into any one of three loops. The other unit in the rack is the terminal unit, a U. S. Navy type CV-57, operating with IF input at 455 kc. This is a discriminator type unit with wonderful flexibility (AFC, continuously variable shift, high and low speed filters and oscilloscope signal observation and tuning), which is what I need

for the wide variety of signals that I try to print.

The machine under the shelf is an FRXD3 which is a typing-reperforator-transmitter-distributor in one unit. The six foot rack houses various crystal controlled receivers and an SX-100. As the SX-100 has 50 kc IF's, an outboard 50 kc to 455 kc converter was necessary in order to run the terminal. This is also located in the rack. All receivers are equipped to switch automatically to battery power in the event of a mains failure.

The Model 15 at the left operates at 75 WPM, while the Model 15 on the right runs at 60 WPM.

So far, I have been able to print transmissions from the commercial and press stations of most major countries, including Russia. I would be interested in corresponding with anyone who has questions or information about the commercial stations.

73, Dave



## EXCITER FOR TWO METERS

C. E. KIRK, JR., W6ORS  
1833 S. Vega Street, Alhambra, Calif.

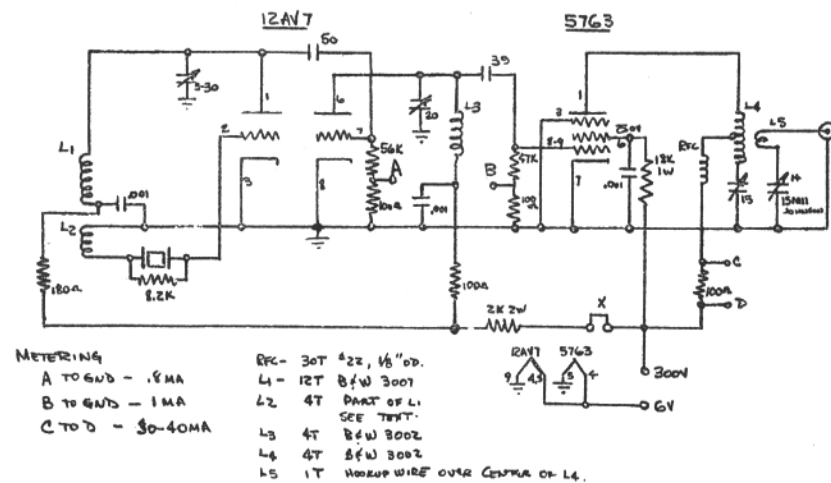
Need a small, compact easy to build 2 meter rig? Accumulated in the diagram below are several circuits found around the VHF stations of far and near. Every VHF man has used one or more portions of this diagram over and over again. So all this one has to offer are some component values and circuit info all condensed into one circuit, where without much difficulty, even the novice builder can "roll his own" and come out on 2 meters.

This little rig, designed to drive some of the well known VHF low power (20 watt) tubes, is shown built on an aluminum plate,  $\frac{1}{8}$ " x  $2\frac{1}{2}$ " x  $6\frac{1}{2}$ ". The XTAL stage is known as a regenerative oscillator, using feedback from the output back to the input crystal circuit. The inductor portion of the circuit is constructed from 16 turns of coil stock such as the B & W 3007 or Air Dux 516T by splitting at the 12th turn without breaking the plastic support bars. Thus the coil becomes L1 and L2 with one end of L1 attached to Pin 1 of the 12AV7, the other end tied to B+, with a .001 condenser hooked between the cut turns. This end of L2 ties to a ground lug at the tube socket, or onto a GND buss, as shown in the photo-

graph. The other end of L2 ties to the XTAL socket. 24MC output is coupled to Pin 7 of the 12AV7 (the first section tripling) with a test point "A" for checking the oscillator operation. This adjustment is semi-critical and should be made so that the OSC operates every time power is applied. Approximately .8ma should be read at this point.

The output of the second section of the 12AV7 will be at 72MC (this section also tripling) and coupled to the grid of the 5763 HF Pentode. Point "B" is the 72 MC test and should read about 1ma drive. At the output of this stage we are doubling to 144 MC and link coupling either to a coax line to the final, or in an emergency, output to an antenna. The unit can be modulated (even when doubling) by breaking the lead at "X" and modulating the screen and plate of the 5763. "C" and "D" are used to check final current.

This rig has been on the air using Heising Modulation and produced good results. A coax dipole stuck out of the shop window here in Alhambra brought 59 plus signal reports by a mobile station on Mt. Wilson.



## JULY MEETING OF RTTY SOCIETY OF SOUTHERN CALIFORNIA

Starting at Three P.M., July 12th, with a swimming party for those who had brought suits. Followed by inspection of W6AEE's station, some 78 members and wives spent the afternoon and evening for the July meeting. Art Addaway our good expert on Teletype gear served as cook, specializing on barbequed hamburgers, potato salad, special sauce for the burgers, cooked to a turn. Refreshments and lots of personal QSOs. Picture taking, tape recorders going helped to pass the time, until it was time for the Technical portion of the meeting.

An excellent talk was given by Ted Swift, W6CMQ on the use of NOISE GENERATORS for adjusting VHF receivers. He demonstrated operation with a TAFE TONE VHF converter into a RAT 13.0/21.0 mcs receiver. Ted's talk was followed by one by Gene Clark, W6TD on a modification of the ARR-1 for a two meter amplifier to bring in the weaker

ones. Corky, W6ORS gave a talk on a small two meter exciter, which will be found on page five of this issue.

Bruce Rowlings, ZL1WB gave a talk on his visits across the United States, which was most interesting. He has had the opportunity to visit more RTTY stations than any one of our own members, and was able to pass along many items of general interest. Bruce left for his home the latter part of July and should be heard on various of the low frequency bands soon.

Bob Weitbrecht, W6NRM/6, exW9TCJ drove down from San Mateo to be with us again for one of RTTYs meetings. W6NAT drove up from Vista (near San Diego) to be with us and to play the new organ at W6AEEs. Really does a swell job at the console.

Photos of the meeting were taken by W6RCM George Jackson. Movies were taken by W6AFX Dick Mortimer.



**ZL1WB**

**K6HMS**





### QST DE WOBP 7140/21090 KCS

Ray W4CVU spent a few days in Winston Salem helping Charlie W4HKB get going on RTTY and together they visited Burt and examined his 28 at K4RRG (EX-W9OCV). Rhode Island is back on the RTTY map with Paul W1ZXA working W4HKB and WOBP again Tuesday on forty. The Thursday Transcon Traffic net on 14340 with W1BDI - WOBP - K6GZ worked fine except for the little detail of no traffic, tho later Bob is usually loaded with MARS orient MSGS and looking for an east coast outlet that can be on around eleven P.M. or later. New or infrequent stations worked the past week by WOBP were K6ZBL, W7HRC, W7MEV and K9JKL around U.S.A. In addition to the others mentioned above.

DX was up and down the past week. Eric VK3KF of Melbourne was worked by W6CG and WOBP rather poorly Friday evening but Saturday Eric and Beep each had S-7 Landline Printing for over an hour on 21083 kcs. Eric still has the borrowed fifteen printer for a week or two before it being needed on a new circuit which he has been observing from home as well as testing narrow shift with a new unit that receives shifts down to 100 cps.

FLASH! ! Another new DX country on RTTY. VS1HU repeat VS1HU is the KRANJI WIRELESS STATION CLUB, believed near Singapore in Malaya Southern Asia. They are understood to have worked Cas KR6AK three times and Eric VK3KF once. When they can get adjusted down from 66 words per minute they will be looking for USA contacts. Offhand the error between their 20 millisecond pulses and our 22 MS pulses might not seem great, but it is cumulative beginning with the start pulse so there is a half BAUD overlap on the fifth and utter confusion on the sixth altho the seventh stop pulse is seldom a problem with slow keyboard sending. Eric started out the same way in

his first contacts with us and we found that knob twisting in our terminal units to insert intentional space bias helped, but Eric got a speed counter and adjusted to match American standards. Many countries have 50 cycle power mains and in working with amateur signals below one microvolt signal strength it is a hassle keeping the noise down from the commutator and governor. It is therefore with reluctance that "BUTTON PUSHER" is setting up a fifteen for 65 WPM and again tackling the hash problem, but if it will encourage activity with UNITED KINGDOM countries it will be worth the effort. . . .

Previous bulletins mentioned retirement of MARS, sixth area director, Major Francis D. Ivey, known to us over the air as Frank K6OUR, who is also vice-president of that hot keyboard group known as NCARTS. Beep mailed Frank a bulletin copy ten days ago with a marginal note, "Going My Way?" An immediate reply was a positive "yes." The loss to the Bay Area gang will be the gain of the Midwest, for he will move to COUNCIL BLUFFS, IOWA to become acclimated to rough civilian life, he says. But before his promotion from MAJOR to CIVILIAN FIRST CLASS, the War Dept. will send him to the RTTY CONVENTION in Washington, D.C. to present the greetings from NCARTS.

As expected, the SCARTS meeting at the shack of W6AEE was a huge success, preceeded by swimming in his pool. Merrill gave Bruce ZL1WB another model 26 to give away "DOWN UNDER," and Ben W9UE gave Bruce an "AUTO-MATE 26," automatic carriage return/line feed gizmo for his own machine, and Bruce is very appreciative. He uses his return flight ticket at 11 A.M., July 28th from San Fran, stopping off to visit Jack Patton, VR2AC at FIJI where Jack has had a printer a year. ZL1WB is expected to resume skeds August sixth. He has not as yet received the authorization for FSK on fifteen meters

so initially he will have to use "MAKE AND BREAK" sending probably the space pulses only, with noise or local terminal unit bias furnishings the mark. Rumor has it that Bruce has over a thousand pounds of donated RTTY gear which will not reach New Zealand before middle September. He says, "If I live for a thousand years, I could not possibly thank all of you enough for the many expressions of kind assistance that have been showered upon me." Unquestionably all USA is pleased that Bruce ZL1WB enjoyed his stay in this country. We surely enjoyed his company and the almost daily arguments/heated discussions about RTTY at WOBP for nearly seven months will long be remembered. "Figs UE" Bruce NBCNU.

Harold Wolfi in Minneapolis is still looking for RTTY fellers to share expenses for an economical trip to the convention in Washington. It would be kinda silly to drive your own car and then win the big mobile prize which we understand is complete with station wagon.

We have a guest on the program today, none other than Frank White, W3PYW, Chairman for RTTY at the upcoming NATIONAL CONVENTION you read about in JULY QST. No doubt you will recognize Frank's handwriting in the taped transcription. But lets identify first just in case Frank gets long winded.

We sincerely hope you will again enjoy the fellowship and friendliness of another NCARTS meeting this evening. We extend our thanks to the guests who are in attendance this evening for you are the ones we anticipate meeting and having become an active RTTY'ER whether you become a member or NCARTS or not.

Our first experience in ham radio as an SWL opened up vistas of enjoyment we little thought possible. Many remained SWL's and, to them, it affords the ultimate in enjoyment. To the more adventurous, they acquired their novice ticket, comparable to graduating from grade school, For those who envisioned the happiness and enjoyment to be derived by surmounting the obstacles of securing their general license, the additional work and

study "paid off." They had graduated from high school of ham radio and could now enjoy the freedom of all bands.

But, as in every day life, there are always the more aggressive, the ones who can visualize the happiness, enjoyment and better living that a college education will offer. To the hams in that category, their equivalent was RTTY and only until you have overcome the trials and tribulations necessary in building up your T. U. and FSK and getting on the air with your RTTY can you say you have finished your college education in ham radio.

Even then, there are so many other things such as multi-channel TTY transmission and FAC-SIMILE operation to challenge us, we find there is still the intense desire to become more proficient in RTTY operation to attain the complete enjoyment from our chosen hobby.

To those, not yet active RTTY'ERS, always feel free and welcome to attend the NCARTS meetings but only those who have gotten their equipment on the air can get the full appreciation out of their membership in NCARTS, as most of our projects and reports are initiated in the weekly bulletins which are broadcast via RTTY.

Thru the effort of VE2AGF/6 many of us secured the RDJ pulse-analyzer. Thru the kindness and work on the part of W6CBE, negatives of the manual have been made. An organized group will shortly avail themselves of Clydes generosity for the use of his equipment and laboratory and print themselves a manual for this unit.

Many of you have seen the works of Art in the form of greetings, etc. as transmitted via TTY. K6ZBL has been appointed chairman of this committee and will shortly announce a contest to take place with suitable prizes for the best RTTY art display as decided by the judges after receiving such entries over the air or in the form of tape mailed to the committee.

For the DX minded RTTY'ER, Reggie Tibbetts, W6ITH, will have his RTTY gear on hand in French Saint Martins Island about Sept. first at which time he

will be operating RTTY on the 15 meter band under the call FS7RT. He also holds the call VPORT for Anguilla Island and plans 15 meters, RTTY only, operation shortly after his arrival to give the RTTY'ERS a chance for a "first" with a new country, he being the only licensed amateur on that island.

NCARTS has been co-ordinating the list of available RTTY gear from those who have such gear to dispose of and will shortly have the list completed for distribution.

The last four model 26's were released to NCARTS this week from PT&T CO., these machines evidently having been held for replacement equipment until all 26's had been taken from service. They are all late serial numbers and look like new equipment. These are now available but, to those receiving them, a word of CAUTION, do not attempt to use them for any length of time without complete oiling and greasing as they have not yet received lubrication.

For those interested, NCARTS will shortly receive two hundred rolls of paper for your printer. W7HRC and the group in Seattle secured a considerable amount on surplus and our cost for Seattle averages 15 cents per roll, the requirement being we have to take one roll of single and one roll of double. The estimated cost of transportation to Oakland will still permit you to get this for under fifty cents a roll.

To MAJOR IVEY, we extend our heartiest wishes to a continued success in the field of electronics and ham radio at the location of his choice. Our hope, that when he gets located we may still avail ourselves of his help in our enjoyment of RTTY operation.

To Bruce, ZLIWB, we extend our wishes for bon voyage. The pleasure you have afforded us by your visit to the UNITED STATES makes us regret that you must leave.

Elliott S. "Buck" Buchanan, W6VPC  
Sec'y.-Treas., NCARTS

### NCARTS "OPERATOR OF THE WEEK"

W6VVF, William E. "Nick" Nichols, 543-46th Ave., San Francisco, Calif. born March 24, 1900, Rockford, Iowa. Served in World War I in Marine Corps and U. S. Army.

Graduated Iowa State College, in 1924 with degree of Electrical Engineer.

Member AIEE, Western Society of Engineers, AF&M, Scottish Rite and Shriner, MARS, NCARTS and ARRL.

Employed by Western Electric, Bell Lab and Signal Corps since 1924. Presently Chief Engineer Signal Section Sixth United States Army, Presidio of San Francisco.

First on air from 1914 to 1917 with Spark Coil Gear, issued call W9TSD in 1930 and W6VVF in 1944, custodian W6USA 1945 to 1947.

Hobbies: Obedience training of dogs, past president San Francisco Dog Training Club, Inc. Ham radio, FONE, for both A. M. and SSB, RTTY and CW. President NCARTS 1958.

Married 1928, XYL, Isabel, while in Panama Canal Zone. Isabel is typical ham martyr (Ed. note: But always obtains gorgeous ladies prizes for NCARTS meetings.)  
Buck, W6VPC

Well, I do hope to be back in RTTY pretty soon. Have had everything all torn down for a month or so getting my switching system put in (fondly known around here as the Confusion Switch!). And it's not all done as yet, altho we did make a haywire setup for Armed Forces Day but didn't contact anything. Following is a "delayed eyewitness of the event."

"It takes four of us to operate the station tonight! W5GXH is seated in front of the transmitter keying the transmitter on, signing in CW, and ready to push the off button in case our gassy 807 starts taking off. K5GOP stands in front of the terminal unit and shoves a pencil into the polar relay when we are transmitting, as we have everything tied in one loop for this haywired operation. K5KIB is operating the keyboard and twisting the receiver knobs, and K5GRT is logging." Almost as frantic as the first time we got on RTTY,

but of course when we get the permanent installation tied in the operation will be really smooth.

Speaking of standards, I have noticed that a lot of RTTY'ers say in various publications that unshift-on-space is not desirable for ham use, and should be disabled on machines fitted with it. In fact, I saw this in some astute publication quite recently. As we discussed over the air one night, unshift on space is highly desirable, since it prevents having a whole line come out in upper case when a shift occurs accidentally or an unshift is missed. And, the two ways of doing things are completely compatible if proper operating procedures are used; i.e., always send Figs after a space if it is desired to stay in upper case, and always send Ltrs after a space if it is not desired to stay in upper case — simple enough. Perhaps you should publish something to this effect in RTTY so that a lot of people don't have to remove it and then struggle with a lot of translating when an unshift is missed, and so the guys who don't have it will give us signal reports like "599 599 599" instead of "599 TOO TOO." My feeling is that unshift on space is definitely desirable for those who have it, and that nobody has to worry with incompatibility if he will just follow the simple rule of sending the shifts and unshifts when he wants the functions to take place, and sending the appropriate functions when he does not want a function to take place.

73, Jim W5YM

I am, as far as I know, the only amateur using RTTY in the United Kingdom, and also I believe, using almost the same type of equipment as yourself.

I have a TG-26 outfit running from an FGC-1 terminal. I have the FRR-3 equipment but it is not yet fixed up. At the moment, I am using three AR-88 receivers. I also have an FS-C1 adaptor which is not yet fixed up.

The FGC-1 terminal provides signals in addition to the TT, to a UG-6 Marconi Undulator (which is similar to a Boheme recorder) and it also operates a GNT Wheatstone 3 unit reperforator, which

feeds a Creed 3 unit Printer. On high speed commercial morse, which is too high a speed for the reperforator, I put it on tape on a Magnetophone type B recorder. This is a variable speed machine from 2/50 ft. per second and has sonic motors supplied from a built-in high power oscillator for speed variation. The instrument is fitted with a revolving playback head which has the effect of "slowing" the speed of the signal without altering the pitch — a most ingenious device. I can then play back the morse at a speed the reperforator and printer can handle.

I have recently acquired, and it is the only one I have ever seen, a British Reception Set R-212. This is a single-side band Receiver made by Standard Telephones Company over here, and uses no less than 138 valves and takes 2KW from the mains. I bought it from a Junk Yard and am busy rehabilitating it. Quite a task. It is a triple diversity job and is almost the same as your Western Electric D-99945, only is somewhat larger, having three 6 ft. bays, weighing 2,300 lbs. I have a lot of other equipment I have never seen in use privately elsewhere, including an Alden facsimile printer, a PD-1, Sound Scriber 5 channel microgroove recorder, an Amertype 35m/m embossed film recorder ,etc.

To obtain this equipment has taken years visiting junk stores over the country. I am taking some photographs of the equipment and will send you some copies.

73, H. Harris, G3JNG

April issue RTTY, Page 9, unsigned letter, the author refers to my article on I-97A BIAS METER CONVERSION. If he will re-check the diagram, he will see I mention the "HEATHKIT AO-1 OSC or EQUIVALENT." Any 20 cycle source sufficient to drive a polar relay is OK — 73 JACK.

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