EDITORIAL

The New Year has brought some remarkable changes in things. Like our cover for instance. The cover photo is of John Williams, W2BFD, diddling with his telephone robot. John has a really first class suggestion for improvement in tele-type machines that may have gotten obscured in the tremendous output of ideas from W2BFD. This one is that a new standard for paper width should be set at 4 3/8" since paper is available in that width in large rolls at any grocery store for pennies. Ahem!

With the first day of January our friend Perry Perrell shifted his seat of operations from CQ to the new magazine Popular Electronics. This is put out by the same outfit that publishes Radio and Television News. I understand that Perry will also take a hand in the ham section of Radio News, so we may get a chance to get some TT dope in that magazine some day.

As Perry left CQ with the passing of the old year I stepped into the vacancy and have gathered up the reins with the start of the new. Yep, I'm editor of CQ. So, there you are. And here I am. The whole thing happened pretty fast so I haven't yet decided on any major policy changes for the magazine. Wonder what suggestions you might have. Naturally I would like to see CQ continue to grow at least as fast as it has been growing for the last two years.

Granted that you would like to see a regular RTTY column in CQ. Who is to write it? It is very important to make sure that the work is done by someone who can write well. For some obscure reason this seems to be a qualification that eliminates most hams.

John Williams will have less time available for TT too as he is now Technical Editor of CQ and is putting in a good share of time on the project.

As mentioned in the last Bulletin, the ARTS Bulletin will be continued without a stop, the running of the store being taken over by a committee selected from the local ARTS-NY group. As a matter of fact they have been actively working on the last two issues of the Bulletin so they would be in shape to take over next month when I essentially bow out.

Almost all subscriptions end with the next Bulletin so now is a good time to send in the three dollars to make sure you don't miss an issue. There are some circuits coming up in the next month or two that will be worth the entire three dollars to you, and twice more besides. See the back cover for the address of the subscription department.

My present plans include a quick trip to Los Angeles for the Audio Fair on February 9-12th. I sure would like to meet as many of you as possible there. I will be in room 406 for the duration of the show demonstrating the Karlson Enclosure. We have a new 12" model that will flabbergast you.
W4SQF/KA2SC, Bud Sabel: "I am overseas (Far East). Expect to be back in a year or so, and will again become active. Incidentally, I administer the entire amateur program in the Far East, including call signs and operator authorizations, so if I can be of any help in 'Pushing' RTTY here, let me know. My best 73's to Johnny (ZBFD) and pass my address to him."

W9SPT, George Boyd: "Am building a TD for Model 1-A tape transmitter. Am on 80 with 21-A, electronic distributor, converted 11-A keyboard...Best of luck on the venture to get something fairly permanent and regular into the publishing of TT material."

W1MPQ expects to be on 80 and 2M soon, Model 12 printer.

W1WB, Blackie: "Hope to get on again, but too busy at present

W2CQT, Fred, Belfast, NY: "I am on 50 W phone. I do not have a satisfactory converter yet. I have tried to build a better one. I have trouble with relay points sticking."

W2JTP, Howard Beach, NY, expects to be on 2 M AFSK soon.

K2WAN, Burt: "Re MARS TT, we are available only on Monday and Thursday evenings from 1900-2200 Hours."

W6NFY, KA2CK, Ed Forkner, San Francisco: "As a matter of information, I am 'all set to go' on RTTY except for a converter (receiving adapter) and modifying the transmitter to accept the output of the shifter. I haven't started on the converter as yet, and am looking for a schematic or two to start out on. I am hoping to establish a few trans-Pacific contacts via RTTY prior to leaving Tokyo next June. If I make it, will be running about 600 watts (PP 4-125's) to a 3 element rotary and a BC-754 receiver...P.S. What happened to the W2NSD RTTY articles in QG?...(he took up horseback riding instead- Ed.)

W4BQW: "I'm new in this, but have been interested for some time...am set up for 80, 40, 20M, using Model 26."

W3UWM, Ken Harris: "Am pleased to join ARTS. If it hadn't been for the work of Johnny Williams, Wayne Green, etc., in getting fundamental info in my hands regarding TT, then I sure wouldn't be on the air....have complete setup of page & tape printers, with reperf & tape emitter also....am having troubles with rf noise from moving contacts on dist...can't get the noise down to a respectable level...No 2 meter TT activity in Pittsburgh. Am active on 80, 40, 20."

W3NNV, W. Paul Egleston: "As per your request in Bulletin #54, I am sending you a rundown on what is taking place at this station. Equipment here is a Model 12 with keyboard and a Model 21A printer only. When we finish the W2BFD panel we will then be on the air."

W9SPT, George M. Boyd, 3540 N. Seeley Ave., Chicago 13, Ill. has instruction books for Model 25-A Printer-Perforator, complete with prints. Cost is $3.00 to defray cost of 20 sets of photostats.
A system has been developed for W2BFD's tape reperforator which has now been adopted as standard in the New York area. Any standard is better than no standard at all and, for that reason, it is suggested that this method be used wherever remote operation of the reperforator is desired. In the six months preceding the writing of this bulletin this system has performed extremely well. Stations equipped with remote reperforator control may now relay third-party traffic punched into tape in the absence of the receiving operator in addition to being printed on the regular station printer. The messages not requiring relay or storage are not perforated. The arrangement has worked so well at W2BFD that the manual switch is no longer used even for making a tape from local typing because it is easier to use the keyboard for starting the reperforator.

The reperforator control signal

The repunch starting signal must be one not occurring in normal typing or false starts will result. The signal finally adopted, for several good reasons, was a series of six or more rapidly-sent carriage-return impulses. Any other characters transmitted along with the carriage-return impulse prevents starting of the reperforator.

The reperforator motor secures its AC, through the contacts on the reperforator remote control relay, K-2, from the same source as the teletypewriter motor so a special reperforator "stop" signal is not a necessity. The same "stop" signal will shut down everything. This requires the sending of the non-reperforated portion of the traffic first, followed by the "reperforator start signal". An elaboration of the system would be a selective stopping of the repunch by a series of six or more rapid transmissions of the "figures" code.

How it is accomplished

A microswitch is mounted so that it presses against a portion of the typing unit mechanism that is operated for a small portion of the time that is allotted to the transmission of the carriage-return signal. In the Model 12 printer, for example, a type "W" microswitch is fastened, by two long 6-32 machine screws, underneat the pullbar for the carriage-return function. Inverting the typing unit will disclose that the right side of the printer base casting has no obstructions at this point near the center of the pullbar and a couple of pillars will space the microswitch from the casting sufficiently to permit the "feeler" of the switch to press upward on the pullbar.

The "feeler" must be adjusted so that the normal upward motion of all of the pullbars, when the depressing bail rises, will not click the microswitch but the additional upward motion of the carriage-return pullbar, when it rises, into the five lined-up notches in the codebars, will operate the switch. This is not a critical adjustment. Note that the microswitch does not impede the pullbar in any way. In fact it actually helps the pullbar spring in aiding the bar to rise. The forward and backward motion of the pullbar is not used.

On the model 15 mechanism the microswitch can be operated by the carriage-return function lever. All of the other models have places where such a switch may be installed. Merely remember that operation of the switch is only desired for one third or less of the 163 milliseconds required to send any teletype character. Switch must be open when printer is at rest.
TWO RELAYS ARE REQUIRED FOR PROPER OPERATION. RELAYS K-1 AND K-2 (SEE BLUEPRINT ARTT-83), IDENTICAL TO THE SEVEN USED IN THE "NEW" W2BFD CONVERTER, ARE IDEAL FOR THE PURPOSE (1200 OHMS, DOUBLE-POLE DOUBLE-THROW 3 M.A. TYPE SUCH AS OBTAINABLE FROM WIAFN AND TALLEN CO. IN BROOKLYN, N.Y.).

THE CARRIAGE-RETURN MICROSWITCH PULSES A SOURCE OF 120 VOLTS D.C. (OBTAINED FROM THE TELTYPE CONVERTER PANEL) TO THE WINDING OF RELAY K-1 WHICH IS PARALLELED WITH A SERIES COMBINATION OF 5 MFD AND 330 OHMS. EITHER THE RESTORING SPRING TENSION OF THIS RELAY OR THE EXACT VALUE OF THE CAPACITOR CAN BE VARIED SO THAT THE RELAY WILL NOT DROP OUT DURING THE INTERVAL BETWEEN TWO SUCCESSIVE RECEPTIONS OF THE CARRIAGE-RETURN IMPULSE BUT WILL DROP OUT IF CARRIAGE RETURN IS ONLY RECEIVED ON ALTERNATE SELECTIONS.


PERMANENT CLOSURE OF K-1 FOR A PERIOD OF TIME EQUAL TO 6 TIMES 163 MILLISECONDS RESULTS IN K-2 ATTRACTING ITS ARMATURE. ONE GROUP OF CONTACTS ON K-2 PERFORMS THE FOLLOWING FUNCTIONS: (1) PARALLELS THE CONTACT PAIR ON K-1 ENERGIZING THE WINDING OF K-2 AND (2) DISCONNECTS THE CONTACT ON K-1 SHORT-CIRCUITING K-2 DURING NON-OPERATED PERIODS OF K-1. THE SECOND GROUP OF CONTACTS HANDLES A.C. TO THE REPERFORATOR MOTOR.


THE 330 OHM RESISTOR PREVENTS "WELDING" OF THE MICROSWITCH POINTS BY THE CHARGING CURRENT OF THE 5 MFD CONDENSER YET PERMITS ALMOST INSTANTANEOUS OPERATION OF K-1 WITH DELAYED DROPOUT.

THE MICROSWITCH IS BYPASSED, DIRECTLY AT THE SWITCH, WITH A .01 MF MICA CONDENSER TO PREVENT RADIATION OF NOISE TO THE RADIO RECEIVER. AN RF CHOKE CAN BE ADDED IF DESIRED ALTHOUGH TESTS HAVE SHOWN THAT NO NOISE RESULTS IF CONDENSER IS MOUNTED ON SWITCH WITH SHORT LEADS.


IT WILL BE RECOGNIZED THAT THIS CONTROL CIRCUIT MAY BE USED FOR SPECIAL PURPOSES OTHER THAN THE REMOTE STARTING OF A REPERFORATOR AND SOME TRICKS OF AN UNUSUAL NATURE HAVE BEEN PERFORMED SINCE THE INSTALLATION OF THE REMOTE CONTROL. 73 DE W2BFD
THE ELECTRONIC KEYBOARD FOR FACILITATING LESS TIRING, CHEAPER AND QUIETER OPERATIONS OF TELETYPETE PRINTERS WAS DESIGNED AND CONSTRUCTED BY W2BFD IN 1951. THE ORIGINAL REASON FOR THE DEVELOPMENT OF THIS DEVICE WAS OCCASIONED BY THE THEN EXISTING SHORTAGE IN MECHANICAL KEYBOARDS. HOWEVER THE APPARATUS WAS FOUND TO HAVE SUCH DEFINITE ADVANTAGES OVER MECHANICALLY CODED SENDING KEYBOARDS THAT IT WAS DECIDED TO PUBLISH IT AND IT APPEARED IN TWO INSTALLMENTS IN "CQ" MAGAZINE SEPTEMBER AND NOVEMBER 1954. THE SOCIETY WILL CONTINUE TO FURNISH PACKAGES CONTAINING A SET OF BLUEPRINTS, FIVE LARGE 8" X 10" PHOTOGRAPHS AND A COMPLETE SET OF CONSTRUCTIONAL INFORMATION FOR THE SUM OF FIVE DOLLARS. (PAYMENT WILL ONLY BE ACCEPTED AS POST OFFICE MONEY ORDER MADE OUT TO: V.H.F. TELETYPETE SOCIETY OR TO J.E. WILLIAMS). THIS AMOUNT INCLUDES POSTAGE.

ALTHOUGH NO PARTICULAR TROUBLE WAS EXPERIENCED IN NEW YORK CITY IN OBTAINING USABLE BASES FROM REMINGTON MODEL 10 TYPWRITERS FOR SUMS RUNNING FROM 50 CENTS TO 4 DOLLARS FROM SCRAP-METAL YARDS AND USED TYPWRITER STORES, LETTERS HAVE BEEN RECEIVED EXPLAINING THAT THE WRITERS HAD TO COMPROMISE ON ANOTHER MAKE OF MACHINE. ALMOST ANY TYPWRITER BASE CAN BE UTILIZED WITH SLIGHT MODIFICATION.

A COMMON COMPLAINT IS THAT THE TYPWRITER BASE HAS NO EQUIVALENT TO THE "UNIVERSAL BAR" OF THE MODEL 10. A VERY SATISFACTORY SUBSTITUTE CAN BE HAD FOR THIS PART BY THE FOLLOWING TECHNIQUE:

STRETCH A CLEAN BARE COPPER WIRE OF ABOUT 18 GAUGE HORIZONTALLY BENEATH THE KEYBOARD FROM LEFT TO RIGHT, ARRANGED SO THAT THE KEYLEVERS, WHICH HAVE BEEN Sanded CLEAN WHERE THEY CONTACT, WILL STRIKE THE WIRE. SUPPORT THIS WIRE WITH A BIT OF INSULATION FASTENED TO THE INSIDES OF THE LEFT AND RIGHT WALLS OF THE BASE CASTING. AT ONE END OF WIRE INSTALL A STEEL SPRING TO KEEP A MODERATE TENSION OF A FEW OUNCES ON THE WIRE SO THAT IT DOES NOT SAG. SINCE THIS "UNIVERSAL" CIRCUIT IS A GROUNDED ONE IT WILL BE NECESSARY TO EMPLOY A SMALL RELAY, KEYED BY THE "UNIVERSAL WIRE" SYSTEM, WITH ITS CONTACTS IN THE DISTRIBUTOR START MAGNET CIRCUIT.

SECOND METHOD

DO NOT INSULATE THE WIRE FROM GROUND. FASTEN LEFT SIDE OF THE WIRE TO A SPRING, THE OTHER END OF THE SPRING ATTACHED TO THE BASE CASTING. THE RIGHT SIDE OF THE WIRE SHOULD PASS THROUGH AN OPENING DRILLED IN THE RIGHT WALL OF THE CASTING AND BE ATTACHED TO (BUT INSULATED FROM) ONE LEAF OF A SPRING-CONTACT PAIR REMOVED FROM A TELEPHONE RELAY OR SIMILAR DEVICE. BEND CONTACT SO THAT NORMAL PULL OF THE "UNIVERSAL" WIRE DOES NOT CLOSE CIRCUIT BUT THE ADDITIONAL TENSION OCCASIONED BY THE DEPRESSION OF A KEYLEVER AGAINST THE WIRE WILL MOVE THE CONTACT THE ADDITIONAL 1/64" NEEDED. NO RELAY IS REQUIRED WITH THIS SYSTEM SINCE BOTH CONTACTS ARE INSULATED FROM GROUND. IN BOTH SYSTEMS THE HEIGHT OF THE WIRE SHOULD BE ADJUSTABLE AT BOTH ENDS TO PERMIT THE KEYLEVERS TO STRIKE THE WIRE IMMEDIATELY BEFORE TOUCH THEIR CODING CONTACTS.

A VARIATION IN THE METHOD OF CONSTRUCTING THE CODING MATRIX MAY INTEREST BUILDERS OF THE ELECTRONIC KEYBOARD AND OTHER DEVICES FOR WHICH AN INEXPENSIVE CODING NETWORK IS REQUIRED. THIS METHOD OF CONSTRUCTION IS AS FOLLOWS:-

AN INTERESTING POINT IS THAT THE ELECTRONIC KEYBOARD SYSTEM CAN BE BUILT INTO A TYPewriter WITHOUT INJURING THE TYPewriter FOR NORMAL SERVICE. SUCH A DEVICE BECOMES EXTREMELY USEFUL FOR "DUPLEX" RTTY. THE NORMAL STATION PRINTER PRINTS THE INCOMING SIGNAL AND THE TYPewriter MAKES AN INKED COPY OF OUTGOING MESSAGES. THIS SAVES HAVING TO USE AN ADDITIONAL TYPING UNIT FOR "LOCAL COPY". 73 DE W2BFD
SPECIAL THIS ISSUE:

UTC FILAMENT TRANSFORMER
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None can deny that amateur radioteletype would have been less popular if it had been necessary for members to secure equipment at new Teletype or second-hand commercial prices. Prices in the 600 to 1200 dollar range would have restricted printers to a relatively few "well-heeled" amateurs.

Another source of expense is the transportation. Where possible your society makes arrangements for amateurs to pick up equipment in the cities where it is declared available by the wire services. Failing that it is shipped the minimum distance, even if this requires the occasional skipping of a name on the "waiting list." (Misunderstanding of this factor has often raised complaints of "partiality.") When an amateur is impatient to get his equipment we urge him to state in his request for apparatus that he will accept delivery from any point. In this way his turn will not be skipped to save him transportation costs.

Amateurs in the New York City area will be able to avoid crating and freighting charges on a number of page printers becoming available through the closing of a large news-service office. Another group of page printers are being released in New Orleans and will be available to amateurs willing to provide their own transportation.

For information communicate directly with V.H.F.T.S. Headquarters at 38-06 61st Street, Woodside 77, N. Y.

Members are urged to watch for the "spread" on amateur radio scheduled to appear in "POPULAR SCIENCE MONTHLY" next April.

Popular Science had planned to have it in print this fall but have decided to hold off until the 1954 Edison Award to the outstanding radio amateur of the year has been made. That doesn't occur until February so the story won't be able to get in print until April.

Pictures and/or a story of amateur radioteletype will be included in the makeup of this article and have already been setup in type.

Many of the telegraph and wire companies have some time ago disposed of their Model 26 printers. Just before the founding of V.H.F.T.S. in 1946 one of the news-wire outfits destroyed over 500 of these single-magnet printers. Although more modern than the Model 12 many companies got rid of the Model 26 machines first because of the greater reliability of the twelves in commercial service.

From time to time batches of these machines in quantities ranging from ten to seventy have been released to radio amateurs through the society but several of the companies have been "holding out" on us. Negotiations are in the final stages on a batch of sixty Model 26 printers and some action may be expected within a few weeks. Members desiring one or more of these machines may place their requests now so that shipment from their present mid-western location can be planned in advance.

For information communicate directly with V.H.F.T.S. headquarters at 38-06 61st Street, Woodside 77, N. Y.

If you wish to be kept advised of the periodical releases of equipment to amateurs by the commercial outfits furnish a stamped self-addressed envelope to acting secretary W2BFD.

NEW CAPACITOR: Styracron "F" capacitors for critical applications in high-Q tuned circuits, timing circuits, computers, bridge circuits, has polystyrene plastic film dielectric. Leakage is above a million meg-ohm/microfarad. Operating range is up to 85°C. Details are given in Engineering Bulletin 250 available on letterhead request. Sprague Electric Co, Dept RT, Marshall St, North Adams, Mass.
W6BSC, Mac, Santa Barbara, Calif.: "I am in possession of a Model TG-7A (15) teletype printer. After much experimental probing, I finally discovered how to make it print by holding down the control slide rails. But other than that, it remains more or less a mystery to me. Here are some of the questions I am puzzling over: Can it be used as a typewriter? If so how is it connected and what voltage does the relay require? I can't find the relay terminals—where do they go? What are the 2 connecting cables, one with a red and one with a black PL55 plug on the end? If you have available a schematic for this model it would certainly be very much appreciated....

There are also other things that confuse me—like the bell ringing when the proper combination for S is depressed. Several of the other figures/letters seem to be similarly reversed. Also it won't space. When the #3 rail is held down for a space, it makes with a big arc between a pair of contacts near the front of the machine and all the room lights start flickering. (Trade you a 12 for it, hi.)

The machine appears to be in excellent condition other than for the above mentioned peculiarities, and one of these days I hope to find time to start work on a receiver converter for it. Who knows—someday I may even decide to hook it up to my transmitter."

FOR SALE: TG7B-T2, Automatic Printer with Keyboard, like new and unused. ...$75. W2AKE, 116-32 132nd St., South Ozone Park, L.I.N.Y.

MAN, DO WE NEED NEWS

Yes indeed we do. If there isn't any more news available in the TT field than I have seen in RTTY or in this Bulletin then it is little wonder we haven't had any column in QST or much reason for one in CQ. You know, I was looking back over the letters that Perry received in answer to an editorial of his asking people to write in and say what they liked about CQ and what they would have improved. Quite a few of the letters were asking about RTTY and wanted to have the column continue. Still more letters expressed the feeling that TT was of interest only to the wealthier amateurs and that it is a very expensive proposition. Obviously a lot of people are sadly misinformed. One thing that would counter this notion would be for more of you fellows to write in to the bulletin and give some sort of idea what it actually cost you to get on the air on RTTY. At any rate we would all like to know what is going on around the country so how about dropping a note to Clay Cool, W2EBZ, 163 West 13th Street, N.Y. 11, NY.

If you are at all interested in hi-fi it would be a good move to drop a card to Karlson Associates, 1683 Coney Island Avenue, Brooklyn 30, N.Y. and ask for Bulletin 60, a new 32 page booklet I have just completed writing. I'm sure you will enjoy it.
1955 TT SWEEPSTAKES CONTEST

In commemoration of the opening of the low frequencies to amateur radioteletype operation February 20th has been selected as the day for the Amateur Radioteletype Sweepstakes. The object of the contest is to contact as many TT stations in as many ARRL sections as possible. Two points are scored for each exchange of messages, one point if the message is sent only one way. Messages should contain call letters of both stations, contact number, section, time and date. Send your results to Merrill Swan, W6AEE, 3769 East Green Street, Pasadena 10, California. A station may be worked once on each band, I might add.

500 MISSING RADIOTELETYPERS

The Bulletin needs the cooperation of ALL the TT gang. There are, according to John Williams, about 2500 hams around the country that have received printers. My files show about 2000 subscribers to the Bulletin...therefore there are some 500 or so TT'ers that are dragging their feet. Tell you what: show any of your friends that are in this category the Bulletin and get after them to subscribe. We want to have 100% communication among the gang.

SEND SUBSCRIPTIONS AND RENEWALS TO

A.R.T.S. Subscription Department
Andrew G. Stavros, W2AKE
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South Ozone Park, L. I., N. Y.