

Keyboard Adaptor for the Electronic Sending Distributor

By ED PHILLIPS—W6IZJ

The unit to be described here adapts the Electronic Distributor described in June RTTY for keyboard typing use. Its principle of operation is more like that of a tape sensing unit than an ordinary keyboard, and it requires only slight modification of the distributor. The use of a keyboard with code bars is recommended, but a system for converting a typewriter keyboard is also outlined. At the time of writing, the typing unit has been in operation for about a month, and has given no trouble to date. The speed of typing is as fast as that of the regular keyboards, although some errors are possible at very high typing rates due to simplification of the keyboard in order to reduce the work involved.

In the following discussion it is assumed that the reader is familiar with the operation of the Electronic Distributor described in June RTTY, and that the circuit diagrams given there are available for reference.

The adaptor unit duplicates many of the operating principles of the tape sensing unit. The code for the letter to be transmitted is set up by closing a set relay contact for each unit impulse in the same manner as the tape sensing unit closes the contacts corresponding to holes punched in the tape. The closing of these contacts is controlled by the keyboard instead. A relay is provided for each of the basic unit impulses, and its normally open contacts are connected to the distributor in the same manner as the contacts of the tape head. The coil of each relay is energized through a corresponding set of contacts on the keyboard code bars. When a keyboard is depressed the appropriate relay coils are energized and the code is set up. The distributor then senses the closed contacts as it does with tape, and sends out the character. The counter unit in the distributor is started each time a key is depressed, and operates as long as the key is held down.

If the operator could time his typing well enough the only parts required for a typing unit would be the contacts on the keyboard code bars. In order to send with this arrangement the key would be held down until the beginning of the stop pulse, and then released before the next start pulse could be sent. If this timing was not followed errors could result

(Continued on page 2)

NEWS OF AMATEUR RADIO TELETYPE

RTTY

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HORSE TRADES

This page of the Bulletin is for use of amateurs who have teletype equipment for sale or trade and for those looking for equipment to buy or trade. It is a free service and may be the means of getting some one on the air.

- FOR SALE: Model 12 complete, WU 1-A Tape Transmitter, also WU Tape Cutter w/line counter. Will include TU is requested. Also 2, 21-A printers W6RL
- FOR SALE—Model 12 with Sync Motor W6CAP
- FOR SALE: 12 Rec. only, with sync motor W6EV
- FOR SALE: 21-A and Rec. Dist — New 25 W2EHW
- Trade 12 TT w/key'd and Keyer for 15 Printer W6HFK
- WILL TRADE—Model 15 Complete (Less Printer) for Model 15 Printer Only W1AFN
- WANTED—Tape Gear W8BYB
- WILL TRADE Model 21-A Printers with Roll of Tape FOR SURPLUS Gear W1AFN
- SWAP—MG Set for Model 12 and WU Performer For a Complete Tape Transmitter VE2ANM
- WANTED—AN/FGC-1 Manual W2VDM
- WANTED—KEYBOARD W9SPT
- FOR SALE—Single Space Gears for Model 12 W9UAV
- Wanted—Model 12 Keyboard VE2AGF
- Wanted—Keyboard for Model 26 VE2ANM

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KEYBOARD ADAPTOR FOR ELECTRONIC DISTRIBUTOR

(Continued from page 1)

either from sending too many impulses by holding the key down until the beginning of the next character period, or from sending too few pulses by letting up on the key while the distributor was still scanning the relay contacts. To prevent this from occurring the adaptor is provided with means for storing the code for the duration of the character period and discarding it at the beginning of the following stop pulse. In addition, the keys are disconnected from the circuit at the beginning of the start period to prevent sending extra impulses by depressing another key before the end of the character period.

By using a keyboard equipped with code bars, the task of building the typing unit is greatly simplified, and such a procedure is recommended. The experimental model uses a keyboard perforator keyboard with each code bar fitted with a microswitch which closes when the bar is operated. An additional microswitch is fitted to the "universal" bar which operates the perforator magnet contacts. The switches are adjusted such that the sixth (universal bar) microswitch operates only after the switches which set up the character code are all closed. The normally open contacts of the switches are used.

As shown in Figure 1, one set of contacts on each of relays RY-1 through RY-5 is connected between the common contact and the corresponding sensing contact of the distributor, in exactly the same way as the tape head is connected. (In the experimental unit the connection is made through a plug and socket so that either tape head or the keyboard unit can be connected.)

In addition to RY-1 to RY-5, three additional relays are used. The coil of RY-A is connected to the drive circuit for the tape advance magnet, and the relay opens for a few milliseconds at the beginning of the stop period. The coil of RY-B is connected in series with the cathode load resistor of the stop tube, and is energized during the stop period, opening quickly at the end. Its contacts are connected in series with the keyboard contacts, permitting the relays to be operated only during the stop period. RY-C is connected to the sixth contact on the keyboard, and its closing initiates

the sending sequence. A description of the sequence of operation in sending the letter "Y" serve to explain the complete operation. When the "Y" key is depressed keyboard contacts 1, 3, and 5 will close, followed by contact 6. At this time the coil of RY-C is connected to ground through the number 6 contact and it closes. Contacts B of the relay then close. These, in series with diode D-6, are in parallel with the number 6 contact, and "lockup" RY-C, causing it to remain closed when the key is released and the number 6 contacts open. The polarity of the diode is such that it presents a small resistance. RY-C will remain closed during the sending of the character, and does not open until the tape advance signal opens RY-A, breaking the holding circuit and allowing RY-C to open.

Returning to the closing of RY-C, as contacts A close the circuit is complete through RY-1, RY-2, and RY-5, their keyboard contacts, and RY-B. The holding contacts of these relays close and they are locked up in the same manner as RY-C, and also remain closed until the stop pulse. The signal contacts of the relays close the circuit to the sensing circuitry in the distributor. As shown in Figure 1, the normally closed contacts of contacts set A, RY-C, are connected to the start-stop circuit is the distributor.

This circuit is modified from that shown last month, as necessitated by the keyboard unit. As long as RY-C is not energized the circuit is closed to ground through the stop switch in the distributor, and the counter is inoperative with the stop tube conducting. When RY-C is energized the contact opens, the start tube is fired by the next timing pulse, and the sending sequence is started. From this point on the operation of the distributor is identical to that when it is operating with the tape head. If the key is held down until the stop period RY-B will close again and the letter will repeat. If not, the counter will stop and the distributor will wait for next key to be operated.

The diodes in series with the diode contacts prevent current from flowing into the coils of a relay from the holding line if another key is depressed while a letter is being sent. These could be omitted, but doing so will make the circuit more critical as to timing of the typing operation.

To summarize the operation, depressing a key first closes the corresponding code on keyboard contacts 1 through 5.

The number 6 contact then closes and closes RY-C, opening the stop circuit of the distributor. At the same time it closes the circuit through the keyboard contacts to ground, energizing any relays whose keyboard contacts are closed. It also energized its own coil and "holds". Similarly, any of the relays, 1 through 5 is "held" by its holding circuit. The next timing pulse fires the start tube and opens RY-B. This prevents the closing of any other relays while the letter is being sent. The signal contacts of the relays close the circuit to the distributor keying circuit in the same manner as the tape head, and the letter signal is sent.

After the fifth pulse interval the stop tube fires, operating the tape advance thyration, which energizes RY-A and opens its contacts, "unlocking" all relays. This completes the operation of sending a character.

If the key is still depressed when the stop tube fires and closes RY-B the relays will again lock up, and the letter will repeat. If the key is up, operation of the counter will stop when the stop tube fires, and will begin with the first timing pulse after the next is depressed.

With the circuit shown the length of the stop interval is not increased by the condenser in the start tube triggered line as is done with tape sending. This permits an increase in typing speed and does not result in any errors unless a key is held down continuously. Even then the copy is usually solid, although the speed of sending is then greater than the nominal 60 WPM. With normal typing speeds the length of the stop period will depend on the speed of typing, and will be a multiple of the minimum of 22 milliseconds provided by the interval between timing pulses.

The tape head may be left connected in parallel with the keyboard unit if the two stop controls on the head are operated, opening both the magnet circuit and the contact circuit. When this is done the keyboard is ready for sending any time when the start-stop switch is in the stop position. Also, with the wiring of the start-stop switch as shown, tape sending can be done by operating the start controls on the tape head, and then using the distributor start switch.

A few words of comment are necessary concerning the components used. In the original unit RY-1 through 5 are DPDT 28 volts relays, with a coil resistance of about 400 ohms. Almost any 28 volt relays will do, provided the coil operating

power is not excessive. Since the normally closed contacts are not used a DPST relay can be used also. RY-C is similar, except that it must be DPDT. RY-A is operated by the tape head advance pulse, and can be almost any type of low resistance relay, as considerable operating power available. In the unit a 200 ohm relay was used, which closed on 40 ma. RY-B operates on the cathode current of the counter tube, and must close on about 2 ma. A Sigma 5-F relay with 1000 ohm coil is used in the original unit. These have been available on surplus at reasonable prices. If desired a higher resistance relay can be used, such as the Sigma 4-F to 10,000 ohm coil. If this is done the inductance of the relay is sufficient to cause some trouble in the counter circuit operation, and it is necessary to shunt the relay coil with a diode and resistor, as shown in Figure 1. The resistance is determined by experiment, and should be as large as possible without affecting counter operation. A value of 10 k is satisfactory with an 8000 ohm relay. The series cathode load resistor should be adjusted to keep the total resistance at 22 k.

If the distributor is to be used for tape operation with the keyboard unit removed it is necessary to jumper points X and Y on the diagram. X connects directly to ground, and Y is connected through a resistor equal to the resistance of the relay coil.

The 28 volt supply for the unit may be obtained from a 24 volt ½amp. filament transformer, using a 500 ma. half-wave selenium rectifier and a 200 mfd. filter condenser. The output voltage will vary from about 40 volts to 30 volts, depending on the load current, but operation will be satisfactory.

Finally, the diodes in the circuit may be either germanium or selenium. Germanium diodes with 50 volts peak inverse rating were used in the original unit, but a satisfactory substitute can be made by cutting regular half-wave rectifier plates into ¼ inch squares. Two of these are connected in series in each position, and mounted in clips which also serve as contacts.

Figure 2 shows a partial circuit diagram of a keyboard made from a type-writer keyboard. The selection of the proper relays is made by a diode matrix, using selenium diode elements of the type just described. One diode is required for each element of each letter making a total of 80 required for the complete keyboard. These are connected to the

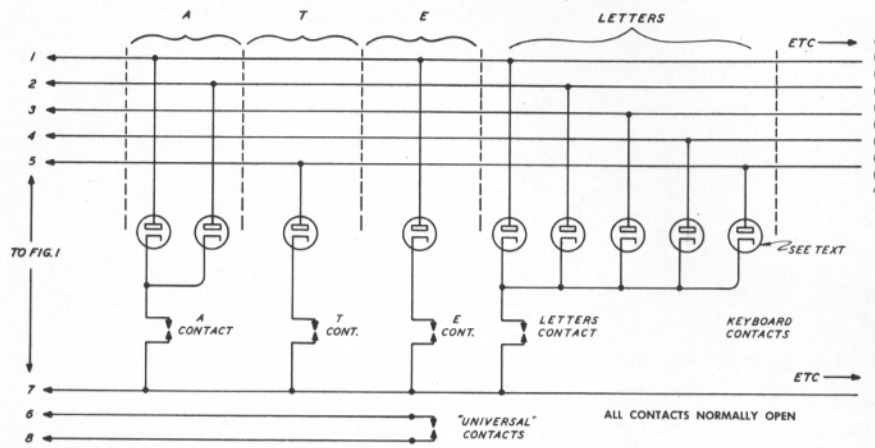
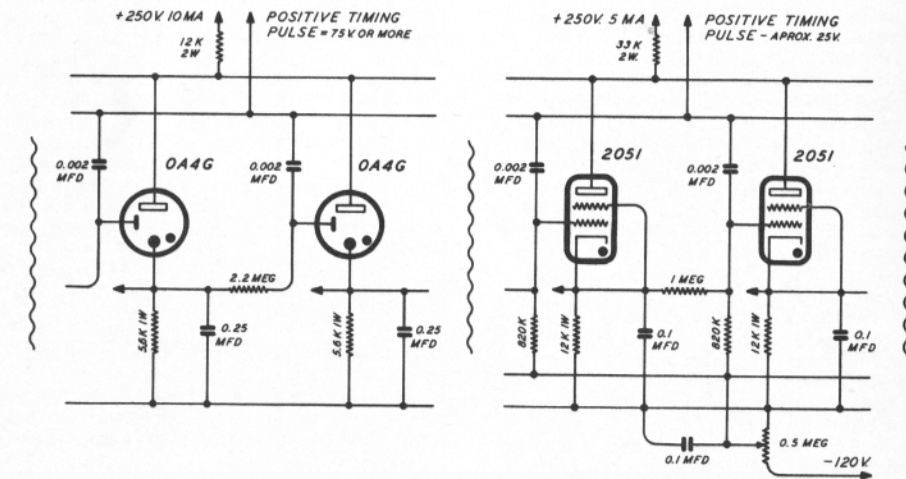


FIGURE 2—DIODE MATRIX KEYBOARD



(a) OA4G

(b) 2D21, 2050, 2051, 502A

FIGURE 3—SUGGESTED COUNTER CIRCUITS

keyboard as shown, with one normally open contact used on each key. It is also necessary to provide a sixth contact, as in the previous keyboard. This can most conveniently be provided by a switch operated by a bar which moves when any key is depressed. The individual key contacts have one side common, and their construction is left to the ingenuity of the builder.

Operation of the circuit is as follows. The coils of the signal relays RY-1 through RY-5 are connected to lines 1 through 5, which connect to the points numbered 1 through 5 in Figure 1. The return line is connected to point 7, and the universal contact leads are connected to 6 and 8, as before. When the letter A is to be sent, for example, the contact on the A key is closed, closing the circuit through the coils of RY-1 and RY-2 and the two diodes, as shown. The operation is identical to that already described, except that instead of closing the circuit through a separate switch for each code element, the circuit is closed through a separate switch for each letter, and the code elements are selected by separate diodes for each letter, permanently connected to the relay coils. The diodes shown in Figure 1 are omitted when using this method.

Whether the first or second type of keyboard is used is a matter of personal preference and equipment availability. The unit using code bars could be adapted to a typewriter keyboard by providing it with a set of code bars, but the amount of work required would be considerable. It is most valuable for converting a perforator keyboard to a typing unit.

The second method requires very simple switches to be built in large numbers, and will probably be an easier job than putting code bars on a typewriter keyboard. It has the disadvantage of considerable circuit complexity and a large number of components, but the material cost is small. If a suitable mounting arrangement is used the job of building a matrix of this sort might be simplified, but in any case it should prove no obstacle to the serious builder.

This concludes the discussion of the keyboard unit. As mentioned in the June article on the sending distributor, the counter tubes are not generally available and some substitution may be required. Two circuits have been designed to use more commonly available tubes, and they are given in Figure 3. The first uses the OA4-G tube, which is available for

about a dollar from a number of surplus houses. It requires a somewhat larger trigger than the original circuit, and a pulse amplifier will be necessary to use it with the same timing circuit. Positive trigger pulses are used, and the amplitude is adjusted in the same way as for the counter using 727A's. The operation of this counter is not as reliable, but it does use cold cathode tubes with the resultant saving in heater power. It was necessary to increase the cathode current to 10 ma. to get reasonably stable operation, and even then some tubes fail to operate. It is possible that a better circuit design would eliminate this difficulty, but time available did not permit further experiments.

Figure 3b shows a circuit suitable for use with almost any of the hot cathode tetrode thyratrons which are plentiful on the surplus market. It has been tested with the 2050, but should also work with the 2051, 502A and the 2D21. Some experimenting with the size of the cathode bypass condensers may be necessary to get best operation with other tube types but the value shown should work well enough to serve as a starting point. The operation of this circuit differs somewhat from the cold cathode circuit in that a negative bias supply is used. The adjustment is made by first setting the trigger pulse amplitude to about 25 volts as checked on an oscilloscope, and then adjusting the bias control for proper counting. The stop switch circuit must be returned to the bias point instead of to ground, and an auxiliary relay contact must be used on RY-C to provide isolation from ground if the distributor is used with the keyboard unit.

(See complete diagram on pages 8 and 9. (Figure 1).

REGULAR MEETING OF THE SCRTS

The next meeting of the Southern Cal. Radio Teletype Society will be held at the home of Ralph Poore, W6OQB in San Marino. Details of the date and instructions on how to get there will be mailed to members by the Committee.

P. S. Ralph reports sitting room on a pool table only.

Teletypesetter Equipment in the Bell System

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M. N. SMALLEY
Telegaph Development

When a news bureau prepares a news item for distribution, it perforates a tape in "justified" line form, which insures that when the message is printed in a newspaper, both margins will be even. The tape is sent from the bureau over telegraph wires and reproduced at the printing office (a) in identical tape form for use in automatic setting, (b) as typed copy on a page teletypewriter, and (c) as both perforated tape and typed copy.

In 1932 the first Teletypesetter* equipments were installed in newspaper offices in Newburgh, N. Y. Since then the newspapers throughout the country, singly and in groups, as well as other commercial publishers, have been using Teletypesetter equipments in increasing numbers until now there are several hundred in operation. With the exception of the so-called news magazines, each installation has until recently been owned and operated by the publisher. Late in 1950 the principal news services decided to take advantage of the economies offered by wide scale use of Teletypesetter equipment, with the newspapers continuing to own the typesetting machine but with the Bell System Operating Companies providing a private-line telegraph network for transmitting the copy, and in most cases owning and maintaining the associated transmitting and receiving apparatus, which is similar to that used in teletypewriter service.

The Teletypesetter equipment was designed and developed by the Teletype Cor-

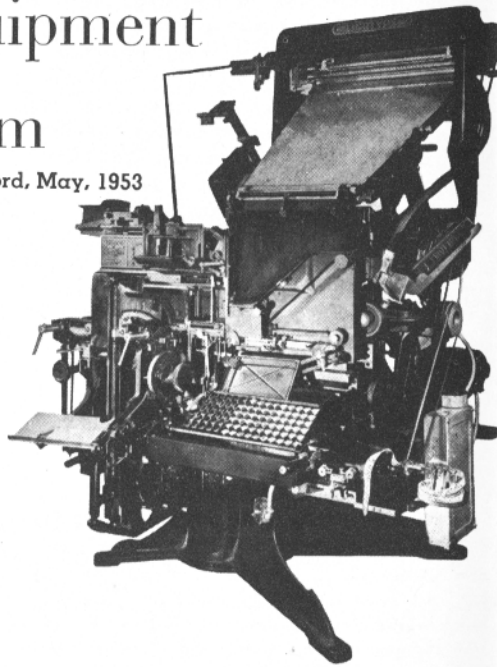


Fig. 1—A Linotype machine equipped with a Teletypesetter control unit, evident at the right with the keyboard.

poration, and is fundamentally based on teletypewriter apparatus designs that have been found dependable over long periods of service. The operating unit attaches to either a Linotype or an Intertype composing or line casting machine, the keyboard of which is slightly modified to receive it. The unit attached to a Linotype machine is shown in Figure 1. The composing machine, so equipped, can be operated continuously and automatically at its top-rated capacity from Teletypesetter tape which had been previously prepared in justified line form on a Teletypesetter perforator. Automatic tape operation of the composing machine produces type at a speed of one hundred to two hundred per cent faster than normally obtained from manual operation. One employee is usually assigned to attend several machines, placing fresh tape in the operating units, removing slugs as the galleys are filled, and the like. Manual operation, when desired, is not interfered with

by the presence of the operating unit.

The Teletypesetter perforator, shown in Figure 2, is a motor-driven portable unit equipped with a typewriter-like keyboard, a perforating and counting mechanism, and an end-of-line or justification indicating mechanism. The keyboard and the tape punching mechanism are similar to those used in the 15-type perforator-transmitter in TWX or private wire teletypewriter service, the principal difference being that they are provided with the additional parts required for a 6-unit selection code instead of the 5-unit code ordinarily used for communications, thus making available sixty-four combinations of current and no-current signal elements instead of the thirty-two of the 5-unit code. When two of these sixty-four are used for shift and unshift the remaining sixty-two, available in either lower or upper case position, provide a total of 124 selections which are sufficient for operating all of the levers of the line casting machine used in manual operation.

One of the distinctive features of the Teletypesetter perforator is the arrangement for equalizing the length of the lines—or justifying the lines as it is called in printing parlance. This is accomplished by

the use of an indicating scale and three pointers, evident at the upper right in the photograph. The counting pointer moves from left to right over the upper edge of the scale in amounts proportional to the width of the characters added to the line as different keylevers are operated. These vary from lower case i or l to the letter m, either upper or lower case, which is three times as wide. Wedge-shaped details, called space bands, in the line casting machine provide equal spaces between the words of any one line, from a minimum of 0.037 inch to a maximum of 0.122 inch, and automatically extend the length of the line to an even right-hand margin provided the last word or syllable of the line ends within certain limits, known as the "justification range." This range is indicated by the space between the two justification pointers on the perforator, which move toward the left with each operation of the space bar, one by an amount corresponding to the thick part of the wedge-shaped space bands or the maximum width of the space, the other by an amount corresponding to the thin part of the space bands or the minimum space width. Thus it will be seen that the more words and spaces there

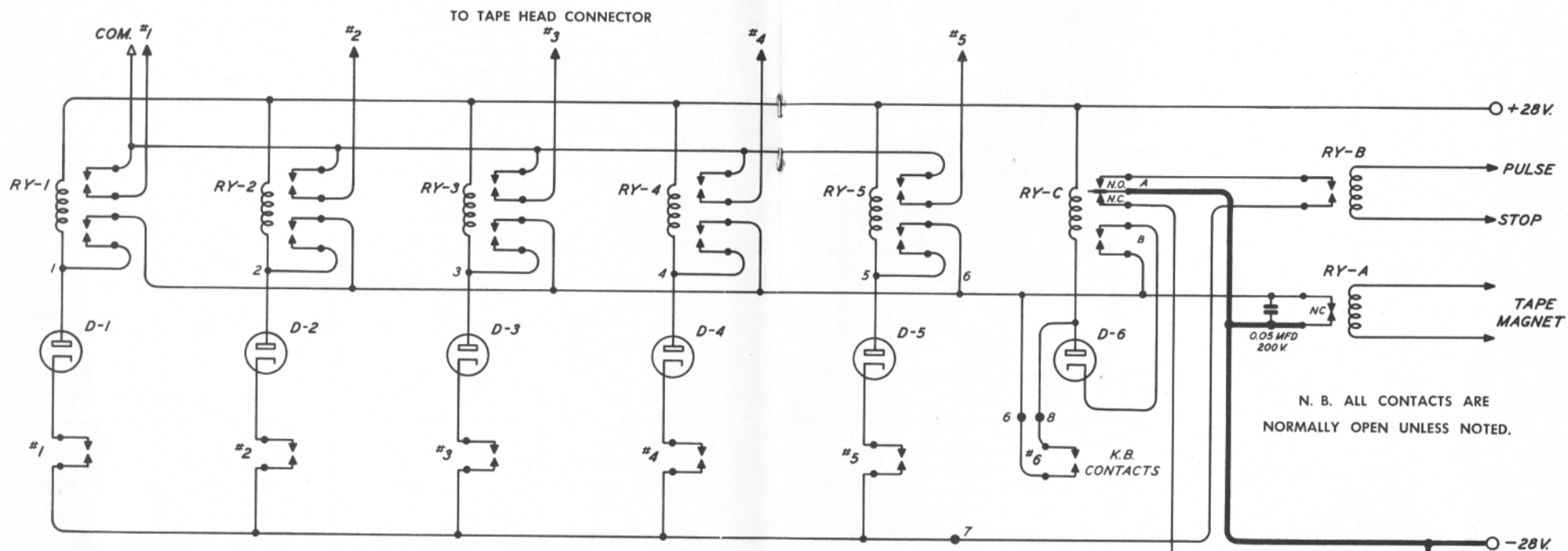
(Continued on Page 10)



Fig. 2—The Teletypesetter perforator.

* Registered Trade Mark.

FIGURE 1—SCHEMATIC DIAGRAM, KEYBOARD STORAGE UNIT



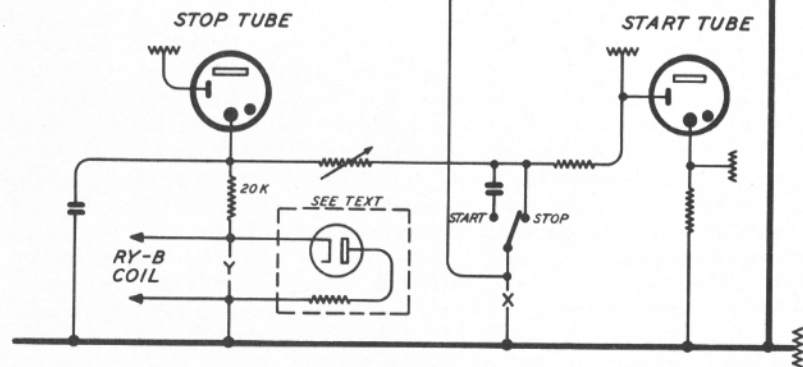
D-1 TO D-6—Germanium Diodes, 50 PIV,
OR SELENIUM, (SEE TEXT)

RY-1 TO RY-5 DPST, N. O.—28V D.C., 400 OHMS
OR GREATER

RY-A—SPST, N. C.—28V D. C., 200 OHMS OR LESS

RY-B—SPST, N. O.—2 MA., 2000 OHMS OR LESS (SEE TEXT)

RY-C—DPDT, 28V D. C., 400 OHMS OR GREATER



are in a line, the wider the justification range and, accordingly, the greater the opportunity for the operator to add another word or syllable after the counting pointer enters this range. Conversely, with a narrow justification range the addition of a final word or syllable may make the line too long for even the narrowest portions of the space bands while without this word or syllable the line would be too short for even the widest portions. In this case the operator omits the extra letters and lengthens the line by operating the "thin space" key, to insert a "thin space" with each space band in the line and, in extreme cases, between the letters of one or more words of the line.

In the simplest installations the perforated tape is prepared on a Teletypesetter keyboard tape perforator located a short distance from the line casting machine, but preferably in a quiet location free from the noise and confusion of the composing room. As it is punched, the tape can be automatically wound in rolls ready for use in the operating unit of the line casting machine. In the more extensive installations of the large news associations, where copy is edited in a central news bureau for use by a number of newspapers, the tape is prepared at the bureau and, by means of a 20-type transmitter-distributor, the copy is sent by telegraph wire to each paper, where it is received by a 20-type reperforator, which produces a duplicate tape.

As copy is sent from the transmitter-distributor in the main news bureau, a home copy is usually made in page form on a 20-type teletypewriter. In newspaper offices to which copy is sent, it is received simultaneously by the tape reperforator and by a monitoring 20-type teletypewriter. By referring to the typed teletypewriter copy, the local editor can readily determine what material he wishes to delete, to print at once, or to save in the form of perforated tape for future publication—the latter applying especially to weekly papers.

The 20-type transmitter-distributor and the 20-type reperforator are the same as the corresponding 14-type teletypewriter units except that they are arranged to transmit and receive the six-unit selection code. Similarly the 20-type teletypewriter is es-

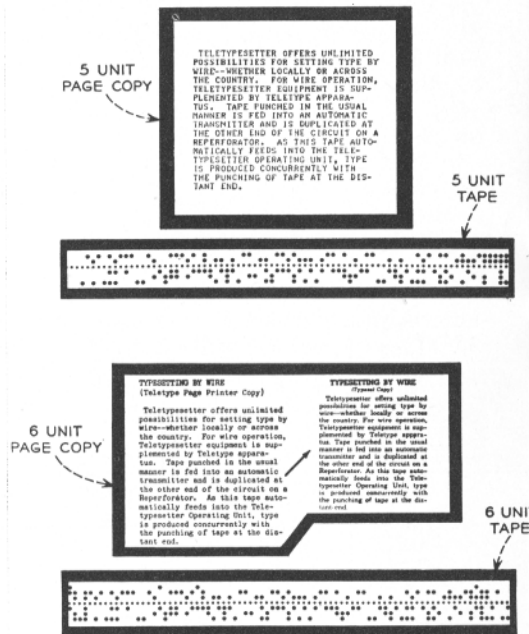


Fig. 3—Five-unit and six-unit code tape, with the perforated message as printed on the No. 15 and No. 20 teletypewriters and the justified typeset copy.

entially a 6-unit 15-type teletypewriter with 43 type bars instead of the 28 available with the 5-unit machine. In addition, the monitoring teletypewriter can be equipped with a contact for remotely cutting the associated reperforator off and on, thus permitting use of the teletypewriter for communication purposes without punching tape. This feature, which was originally developed for the 15-type teletypewriter, required considerable modification to adapt it for Bell System use on the 20 type. The Laboratories cooperated with the Teletype Corporation in this work.

Figure 3 shows the same message in five different forms: in 5-unit code and 6-unit code perforated tape, as printed on the No. 15 and No. 20 teletypewriters, and as justified typeset copy.

To provide for transmitting the six-unit code signals over Bell System circuits, it was necessary to adopt operating speeds that would produce dot-frequencies very

nearly the same as those of the five-unit code signals. This permits the 118C telegraph transmission measuring set^o and the 119C1 telegraph signal distorting set to be used in transmission tests of lines and apparatus. It also permits use of the 143A2 regenerative repeater† without special tuning. For the standard five-unit speeds of sixty and seventy-five words per minute, the corresponding six-unit speeds, from a dot-frequency standpoint, are fifty-three and sixty-six words per minute respectively. The gear ratios for units operating at these speeds as well as the stroboscopic targets for use with governed motors were determined by studies made by the Laboratories.

Material requirements and maintenance

^o RECORD, December, 1943, page 174.

† RECORD, December, 1949, page 436.

ADDITIONAL ACTIVE LOW FREQUENCY STATIONS

CALL	NAME	LOCATION	TRANSMITTER	PRINTER	Tape	Rep.
W9GRW	Ray	Chicago	200 watts	14	Yes	21A
K4USA		Washington, D.C.	1000 watts	19	Yes	Yes
VE3AXX		Toronto, Ontario	100 watts	12		
W5QDD	Floyd	Lordsburg, N. M.	100 watts	12		
W8BYB	Rod	Detroit, Mich.	300 watts	26		

Correction—K4WAR, Camp Gordon, Georgia, sorry fellows.

EQUIPMENT INFORMATION

(See Issue 1, Vol. 1 RTTY)

AN/SCG-1—A single channel AFSK terminal set. Housed in a 19"x10" enclosed cabinet. Uses 700 CPS "Mark" tone and 500 CPS "Space" tone. Power required, 110 volts 60 cycles.

AN/FRA—A single channel FSK receiving converter. Housed in a 12"x19" enclosed cabinet. Uses a locked oscillator and discriminator for reception of signals. Shift may be of any magnitude from 100 (±50) cycles to 1,000 (±500) cycles. Power required, 110 volts 60 cycles.

Model 104—A page printer built and used by Western Union for light intermittent service. Construction is similar to that of a model 15, except that typing basket is stationary and the carriage moves from side to side. It is a single magnet printer with a mechanical selector. Usually has a sync motor and has the Bell on upper case "J" key.

and wiring information for the 20-type apparatus have been prepared in the form of Bell System Practices in the P39 series. These include ordering information for the six-unit perforator tape and for the packages of spare parts which have been made available for the various units.

As of January, 1953, the Long Lines Department had installed for the Associated Press, the International News Service and the United Press Association transmitting and receiving apparatus, including perforators, reperforators, transmitter-distributors and teletypewriters, on forty-three press circuits covering most of the country and involving over 1500 stations. In addition there are thirty-seven stations on eleven press circuits other than those of the three customers mentioned above.

RTTY is the Official Publication of the Southern California Radio Teletype Society

and is published for the benefit of all Radio Teletype Amateurs and Experimenters.

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For Information regarding the SCRTS contact the following:

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

For Traffic Net Information:
W6FLW W6IZJ

For "RTTY" Information:
W6CL W6CLW
W6DEO W6AEE

Armed Forces Day Radioteletypewriter Broadcast

Armed Forces Day found WWV announcing W-2 conditions (very poor). In spite of this, a very creditable showing was made by amateurs who copied radioteletypewriter broadcasts.

The broadcast from NDC, Norfolk, Va., was copied by K1NAI, W1UDX; W2's KLD, SKK, TFT, WCE; W4's MOP, NIS, ZCA; K4NRY; K5NRL; W8's BYB, NTE, and W9's AKP, TCJ. Of these, W2WCE, W4MOP, and W4ZCA made perfect copy.

NDS, Great Lakes, Ill., was copied by W2's JAV, KLD, PAI, PAU; K2NRS; W3's PYW, USA; K4NRY; W4OLL; W5USN; K5NRL; K5AIR; W9's GRW, TCJ, THE; and W0's QHG, CIH. Of these, K5NRL, W9GRW, W9THE, and W9TCJ made perfect copy.

Ten stations copied NDW2, Salt Lake City, Utah. Apparently this station was not adjusted for standard shift. However, W6ITH, W6PQ, K6USN, and K6USA made perfect copy and the following made readable copy: W6CLW, W6FLW, W6LIJ/7, W6YDK, K7NRR, and W0UVL.

Conditions on the West Coast appeared to be fairly good; nine stations submitted perfect copy of the broadcast from NDW, San Francisco, Calif. These were W6's BV, DOU, EV, FCS, ITH, KY, NSS, OWP, ZH. Good copy was submitted by W4TAC/6, W6's AEE, CLW, FLW, NYF, SCQ, and W7LQC/W7GPR.

An interesting feature was reported by W6CMQ. Official duties in the Navy prevented him from participating in reception of the broadcasts in the HF band. However, the text of the broadcasts was relayed to him by W6CLW on 147.85 MCS. This VHF transmission was received during his absence on "automatic" start equipment. W6CMQ states, "This equipment is common in the Los Angeles area. The reception of the Armed Forces Day test message by this means indicates another phase of amateur preparedness to meet emergency communication requirements."

The text of the message was the same for all transmitting stations except that the word "MAJOR," in Major General Back's title, was transmitted "MJOR" by NDC, and the word "opportunity" was

transmitted "oportunity" in one portion of the broadcast from NDW2.

The message used in the radioteletypewriter broadcasts was as follows:

"IT IS ESSENTIAL TO THE NATIONAL DEFENSE THAT RADIOTELETYPE CIRCUITS ACHIEVE A DEGREE OF RELIABILITY AT LEAST EQUAL TO THAT OF RADIOTELEGRAPH X AN IMPORTANT FACTOR IN ACHIEVING THIS RELIABILITY IS A SOURCE OF PERSONNEL WHO ARE FAMILIAR WITH THE TECHNIQUES AND EQUIPMENTS USED IN RADIOTELETYPE COMMUNICATION X WITHIN THE LAST FEW YEARS THERE HAS BEEN A GROWING INTEREST IN RADIOTELETYPE FOR AMATEUR RADIO COMMUNICATION X THE INDIVIDUAL AMATEUR HAS PROVED THAT THE SKILL AND KNOWLEDGE GAINED FROM THE PURSUIT OF HIS HOBBY STAND HIM IN GOOD STEAD IN BOTH INDUSTRY AND IN MILITARY SERVICE X WHILE THE NUMBER OF AMATEURS WHO ARE ABLE TO COPY THIS MESSAGE IS COMPARATIVELY SMALL COMMA THE RECENT ACTION OF THE FEDERAL COMMUNICATIONS COMMISSION COMMA IN OPENING ADDITIONAL AMATEUR BANDS TO FREQUENCY SHIFT KEYED TRANSMISSION COMMA HAS PROVIDED A NEW OPPORTUNITY FOR AMATEUR ACTIVITY X WE ARE CONFIDENT THAT RADIO AMATEURS WILL MEET THIS OPPORTUNITY WITH THEIR USUAL ENTHUSIASM COMMA AND INGENUITY X GEORGE I BACK MAJOR GENERAL USA CHIEF SIGNAL OFFICER WB AMMON REAR ADMIRAL USN DIRECTOR NAVAL COMMUNICATIONS GORDON A BLAKE BRIGADIER GENERAL USAF DIRECTOR OF COMMUNICATIONS"

Comments from Readers

"I see the plug in W2NSD's bulletin and also about the forthcoming article on Electronic Distributor. I got a 21-A awhile ago and am still trying to get it to work right."

—Charley, W2DWU

"If any of the boys have dope on how to operate the page printer the same time as the transmitter is being keyed by the model 12 keyboard, I would appreciate receiving said info. As it is now I am forced to monitor my own outgoing signals, which is not so hot as it has a tendency to block the receiver. For your information this station is on almost every evening (7185 kcs) with 600 watts of RTTY at 7:00 p. m. Eastern Daylight Saving Time. The equipment here is a Model 12 printer and keyboard and home-made converter from QST, January 1953."

—VE3GL

(Chief Pilot Trans Canada Airlines. Ed)

"P. S. They're 4 of us here in Meriden who want to build converters. That explains the quantity ordered."

—Bob, W1BCK
(28 Lil Gems, Ed.)

"We have started up a little ham teletype club locally and the gang are very enthusiastic. I am enclosing a write up of our first meeting and ask that you give it some publicity in your magazine. There may be several readers that we do not know about that we would like to have with us. Most of our gang read RTTY but a few that attended the meeting wrote down your address and you should be hearing from them. Thanks for the sample issues, and best of luck."

—73, BEEP, W0BP

(Beep has the right idea, get your gang together once a month or so and exchange ideas. The SCRTS has enjoyed their bi-monthly meeting very much. We all benefit by such get-togethers. Ed.)

"Enclosed is a money order for \$1.80. Please send RTTY monthly bulletin as per May 1953 CQ ad."

—Julian Kately

"Please find enclosed my check for RTTY subscription. Didn't realize I hadn't sent it off till I got the May issue this a. m."

—John Towsee, W3FU

"Am enclosing cash for the RTTY Bulletin, which is very interesting and enables me to keep up with the latest developments of the RTTY gang. I haven't been too active myself due to the fact that for one thing we have been in the process of rebuilding and rearranging the ham station here. You know how that is, a time consuming process if a fellow wants to do a good job. Then of course there are the many things that drag a ham away from his hobby, such as working for a living, hi and the odds and ends that need attention around a home. However I hope to be on one of these Saturday mornings when it seems most of the activity is on 40 meters."

—Rich, W6RZL

"Your thoughtfulness in sending me the RTTY magazine is very much appreciated, and I am enclosing my check to cover the subscription."

—Tom G. Banks, W5HJ

"I have requested RTTY be subscribed to by this station, and think it is a good deal. I have a nice set-up and can get on 40, 20 and 75 but not 2 meters, and am VFO. Have some good antennae and want to schedule any stations who are interested in passing traffic cross-country or for any long distance skeds that it is possible for us to work. Have efficient fone net on 75, so most interested on 40 and 20 RATT skeds for traffic. We have outlets stateside and overseas and planning to sked W4USA and KA2MB as soon as all the details can be ironed out. Building an antenna to work Japan at the present."

—Larry,

"Received my copy of RTTY today. Checked notes on it with W2JAV, Phil Catona in Hammonton. He was very tickled with the article on the Model 21 distributor—has had a 21 and didn't like the noise it put out."

—73, Frank, W3PYW

"Enclosed please find two dollars, for which please enter my subscription to RTTY."

—Dale Hammersly, W6JIE

"Thanks fellows for ending me those copies of your very fine Bulletin. I like it very much . . . Keep up the good work and hope I can send you fellows some dope sometime."

....H. W. Snyder, W3LMC

"Please send me back issues as far back as you have them. Of course I am particularly interested in the May issue, as Wayne mentions that there is some dope on an electronic distributor for the 21A. I have one of the 21As but have not yet got it working.

—John Longley, W2ANB

"Enclosed find a check for a years subscription to RTTY. If you have some recent back issues available, you can start my subscription with them. Otherwise, start with the current issue. I hope to be on RTTY soon. I have a line on a model 15 but don't know if it will come thru. If you should hear of a 15 out there, let me know.

—73, Gene Wille

"Enclosed is our check for \$1.80 for a year's subscription to your RTTY bulletin. May we have this starting with the April issue?

—C. A. Mitchell, W9THE

"Enclosed please find \$1.80 for RTTY monthly bulletin. Please start with back issues as I would like a complete file and let me know cost if you have passed Vol. I.

—73, George M. Hannah, W3AFR

"I'm attaching a money order for \$1.80 to keep me on the mailing list for RTTY. Thanks for the entry in a couple of earlier volumes in Horse Trades for me. I connected with W6HFK through it and may be able to get my model 12 keyboard yet."

—Frank Ford, VE3AKO

"It was nice to talk to you on the phone the other evening. I must tell you I like the RTTY. Keep it up and let us know when you need more for the subscription."

—Ray, W9GRW

"Included you will find the sum of \$1.80 for which please put me on the subscribers list beginning with the May issue of 'RTTY.'"

—J. P. Berube, VE8AV

"I am enclosing Postal Money Order No. 827026 for \$1.80 for yearly subscription of your magazine."

—M/Sgt. Roberto Flores, Hav. Cuba

One difficulty I have with my Model 12 printer when copying a Ham signal is that some of the fellows don't hit the letters key after sending a figure or period, etc. Then I get a string in upper case while I try to get the machine down in lower case. It seems that this machine I have has had the shift bar removed from it and it will not then drop down into lower case when the spacing bar is hit. I noted in "Horse Trades" in the April Bulletin that W6CAP wants an "Unshift lever bar for Model 12." I suppose this is the same animal that I need in mine. Perhaps you have some suggestion as to making one of these bars, maybe one of the fellows could make up a diagram in one of the issues of the Bulletin so us fellows that need the Unshift bar could make one?"

—Rich, W6RZL

"I have seen a copy of your new publication 'RTTY' and would like very much to subscribe, beginning the subscription with the first issue."

—W. H. Higginbotham, W2BOI

"Sure did appreciate the last few bulletins that you sent me 'free gratis' so am enclosing \$1.85 for a years subscription. I am on 80 meters quite often and also 40. The rig here is a single 813 running 300 watts and the machine is a model 26. I have no tape equipment but sure would like to get my hands on some, so if you would please write me up in your wanted column for some tape equipment. Thanks again and I will be looking forward to future editions of RTTY with as much excellent material in them as they have had in the past."

—Rod Buszard, W8BYB

"Postal money order for \$1.80 enclosed. Please send me a year's subscription to your RTTY bulletin, starting with May issue if possible. Am interested in Electronic Distributor for the 21A printer.

—George Ben Forster, W8QDW

"Having introduced myself a little, wish to announce my desire to get your bulletin. Read the sample copy you sent John Miller, KL7AKD up in Fairbanks, on a recent trip up there. He works for the same company I do, only in Fairbanks. You will find enclosed \$3.00. Would appreciate receiving the back copies of RTTY and be put on the list for getting it regularly.

—Jack M. Walden, KL7BK

.... W6QDD, W5QDD, W5QDD and the gang de W9TCJ, Williams Bay, Wisc.

.... OK Bart on your having to leave for a half hour or so. Hope that you get back as you always seem to have something of interest for the gang

Still haven't heard a signal from that station W6ILW whose tone trans. went out before he ever got on the air. He got a replacement but I guess someone will have to go over and put it in for him. Do you need any help Steve?

Have to cut this short as we are running short of space this month.

Traffic Net News

EMILE DUVAL, W6FLW

The Southern California Radio Teletype Society Net operates every Tuesday evening at 7:30 p. m. on 147.85 mc.

Activity for the Month of June, 1953 was as follows:

June 2—W6IZJ, N. C.—15 Checkins.

W6AEE	W6EV	W6SCQ
W6CMQ	W6KNI	W6ICS
W6CYR	W6NAT	W6IZJ
W6DEO	W6OQB	

W6CL—(Checked in Through W6NAT)

W6PNW—(Checked in Through W6EV)

W6RL—(Checked in Through W6EV)

W9TCJ—(Checked in by W6AEE via 7 mc).

June 9—W6CLW, N. C.—8 Checkins.

W6CLW	W6IZJ	W6SCQ
W6EV	W6RL	W6WYH
W6CYR—(Checked in Trough W6CLW).		
W6PNW—(Checked in Through W6EV).		

June 16—W6IZJ, N. C.—8 Checkins.

W6CL	W6NWM	W6SCQ
W6CLW	W6KNI	W6WYH
W6EV	W6IZJ	

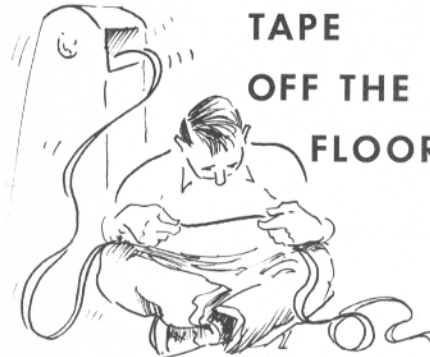
June 23—W6KNI, N. C.—11 Checkins.

W6AEE	W6CYR	W6EV
W6CAP	W6EFE	W6SCQ
W6CL	W6WYH	W6KNI
W6CLW	W6IZJ	

June 30—W6IZJ, N. C.—9 Checkins.

W6AEE	W6CYR	W6IZJ
W6CAP	W6EFE	W6ICS
W6CL	W6EV	W6NSS

TAPE OFF THE FLOOR



There have been several new stations heard this past month and some more prospective stations getting under way. W6FXF is just starting a terminal unit after picking up a model 12 printer with keyboard. Karl (W6FXF) is running a KW on 40 and intends to give the low frequencies a whirl with teletype also has two meter gear, so we should hear from him shortly. Among the new stations that came on the teletype frequencies are W6ICS, John Peoples and W6ZGC, H. R. Meche. Will have some more dope on other new stations next month, as we would like to report the type of equipment as well as the Station Call.

" " " " " " " " " This is W6EV
... Rabbit tracks, where is my gun?
W6EV de W6KNI.

W6EFE, Al Freeman is also back on the two meter band with a mighty fine signal. He is at present modulating the 829 buffer, but has about 500 watts available at any time he chooses.

... I haven't heard any SSB to test it out with and I tried to copy FSK and it worked fine, so that much is done anyway. Been in the shop all day and it seems as if I am going to be there for a time, hi. de W6KNI

We reported W6CAP with his new 60' pole and made an error on the type of antenna that is on top of it. The antenna is a Gonsett Twin 6 instead of the coaxial we reported.