

A NEW BRAILLE TELEPRINTER SYSTEM

Ray E. Morrison, W9GRW

A six-unit braille language is in a form which can be adapted easily to teleprinter coding with the new eight level equipment now available. Six levels can be used for intelligence and two for control purposes. Figure 1 shows the alphabet while the character "for" in Figure 3 illustrates the six dot positions.

A study of the braille dot arrangement shows that dot 6 can be added to nineteen of the characters to produce a new character. Thus, the "lower case-upper case" shift feature of the standard typewriter can be used to reduce the number of key levers required. For example, in Figure 2 "A" is dot 1, "CH" is dot 1,6; "B" is dot 1,2 while "GH" is dot 1,2,6, etc. Note that "The" in Figure 3 is formed by adding dot 6 to the character for "S". This shift key for adding dot 6 is labeled "AUX". The associated "AUX" code bar is coded to prevent false addition of the dot 6 by key levers to which this feature does not apply.

Since in braille the numbers are represented by the first ten letters of the alphabet (preceded by the # sign), the top row of the typewriter keyboard is available for the special braille punctuation and composition signs. Key levers for dot 5 - 5,6(LTR) and dots 4,5 - 4,5,6 are added for the two cell combinations. Note the word sign for "time" in Figure 3.

Figure 4 shows a braille keyboard based on the standard typewriter layout and which includes all the 63 different braille characters. One of the new 4 row keyboards was modified with new key tops and with code bars coded for the corresponding braille characters.

Output from the keyboard signal generator is in the form of an eight level 11.0 unit serial signal. This operates a monitor printer in a local circuit and, transmitted by wire line or radio to a distant point, will operate an embossing unit when fed into a receiving

selector. For local embossing, a contact is added to each of the keyboard code bars to obtain an eight level multiple wire output signal for the embosser, or the serial signal from the keyboard signal generator can be fed to a receiving selector as above.

The local monitor printer is of interest. A standard eight level typing unit was used with the type box equipped with special braille type pallets. A sample of the monitor ink printing is shown in Figure 3.

An added feature of this equipment layout is that the standard seven key lever brailler can be used for transmitting by adding a contact to each of the key levers. The output is on a multiple wire basis and can be fed to a distributor to produce an eight level 11.0 unit serial signal for use as above.

For recurrent braille embossing or transmission, a tape reperforator and a tape reader are added to the setup. Thus, once a book or article has been taped it can, at a later time, be reproduced or transmitted to a distant location for embossing as required.

The receiving embosser is under development and when ready will make this system very versatile. All in all, while somewhat involved equipmentwise, this system will increase the efficiency and ease of braille transcribing.

This braille keyboard and associated equipment was developed as a contribution of amateur RTTY to the blind. Correspondence is invited with anyone interested in further work with this method of braille embossing.

This article is based on a paper presented at the Ninth Annual CHI-RTTY Meeting, October 27, 1963, in conjunction with the 1963 National Electronics Conference in Chicago, Illinois.

The Cover picture is by courtesy of the Hadley School for the Blind, Inc., 700 Elm Street, Winnetka, Illinois, and was taken by the Ric Gaddis Photography, 900 South Kensington, LaGrange, Illinois.

FIG-1



FIG-2



FIG-3

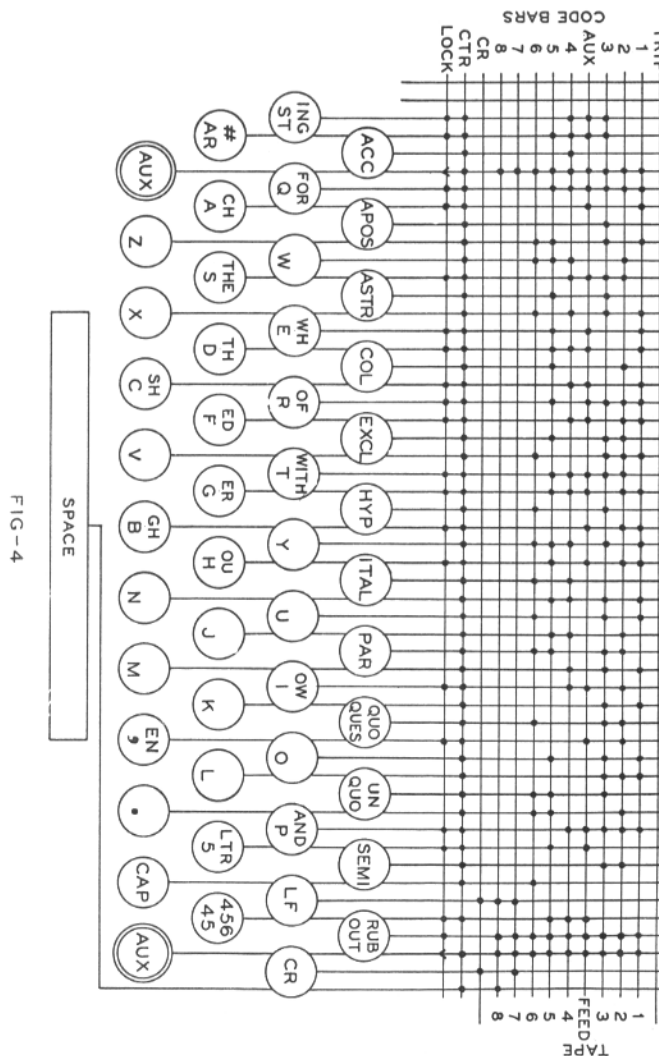


FIG-4



NEWS FROM TELETYPE

TELETYPE CORPORATION NOW OFFERS MODEL KSR32 AND ASR32 TO AMATEURS

Teletype Corporation now has a new line of equipment — the MODEL 32 — which is priced low enough to be of interest to the ham operator. The price of the Model 32 KSR without stand is approximately \$425, while the price of the Model ASR without stand and chad box is approximately \$550. The stand sells for \$11.00 and the Chad Box sells for \$4.00. Prices are f.o.b. Chicago. Delivery can be made 30 to 60 days from receipt of order. Specify 60 speed. Check must accompany order.

Equipment Features Description

Teletype Model 32TG Standard Duty Send-Receive Page Printer Set (General Purpose) with these features:

Five-level code, 7.50 unit basis (1.5 unit stop pulse).

8½" Friction feed platen capable of handling one or two ply paper (Maximum roll diameter 5").

Communications type wheel arrangement with associated three row keyboard layout (CCITT No. 2).

115 V AC 60 cycle synchronous motor unit with gears for 66 wpm (60 and 100 wpm gears available).

Adjusted for 72 character line.
Horizontal spacing 10 characters per inch.
Vertical spacing 6 lines per inch.
Signal bell on upper case "J".

Selector magnet driver can accept .020 or .060 amperes with proper wiring (strapping).

Standard Teletype nameplate.
Copyholder.

Recommended Use

Set design aimed at standard duty applications with average daily duty cycle of two hours (may be operated at higher average duty cycles with proportionally less calendar life).

For heavy duty applications and/or applications requiring a broad range of features, the Teletype Model 28 line of equipment is recommended.

For further information, write Teletype Corporation, Dept. SP36, 5555 Touhy Avenue, Skokie, Illinois.

TELETYPE VALIDATA 100 HAS BUILT-IN EDC

Teletype Corporation has announced the development of the Validata 100, a new tape-to-tape, point-to-point communications system equipped with error detection and automatic correction.

Operating at 100 words per minute (10 characters per second), the system utilizes an 8 level, 11.0 unit message and data communications code.

When equipped with data sets and other optional accessories, Validata 100 units are capable of transmitting data over telephone lines.

Provisions are made in the receiving set for comparing the data transmitted by the sending station. Both terminals check spiral parity after 72 characters have been processed. The receiving terminal also can provide a vertical parity check with optional components, if desired.

Teletype Corporation manufactures this type of equipment for use by the Bell System and others in their message and data communications systems.

For more information write to Teletype Corporation, Dept. SP-34, 5555 Touhy Avenue, Skokie, Illinois.

Subscription Rate \$3.00 Per Year

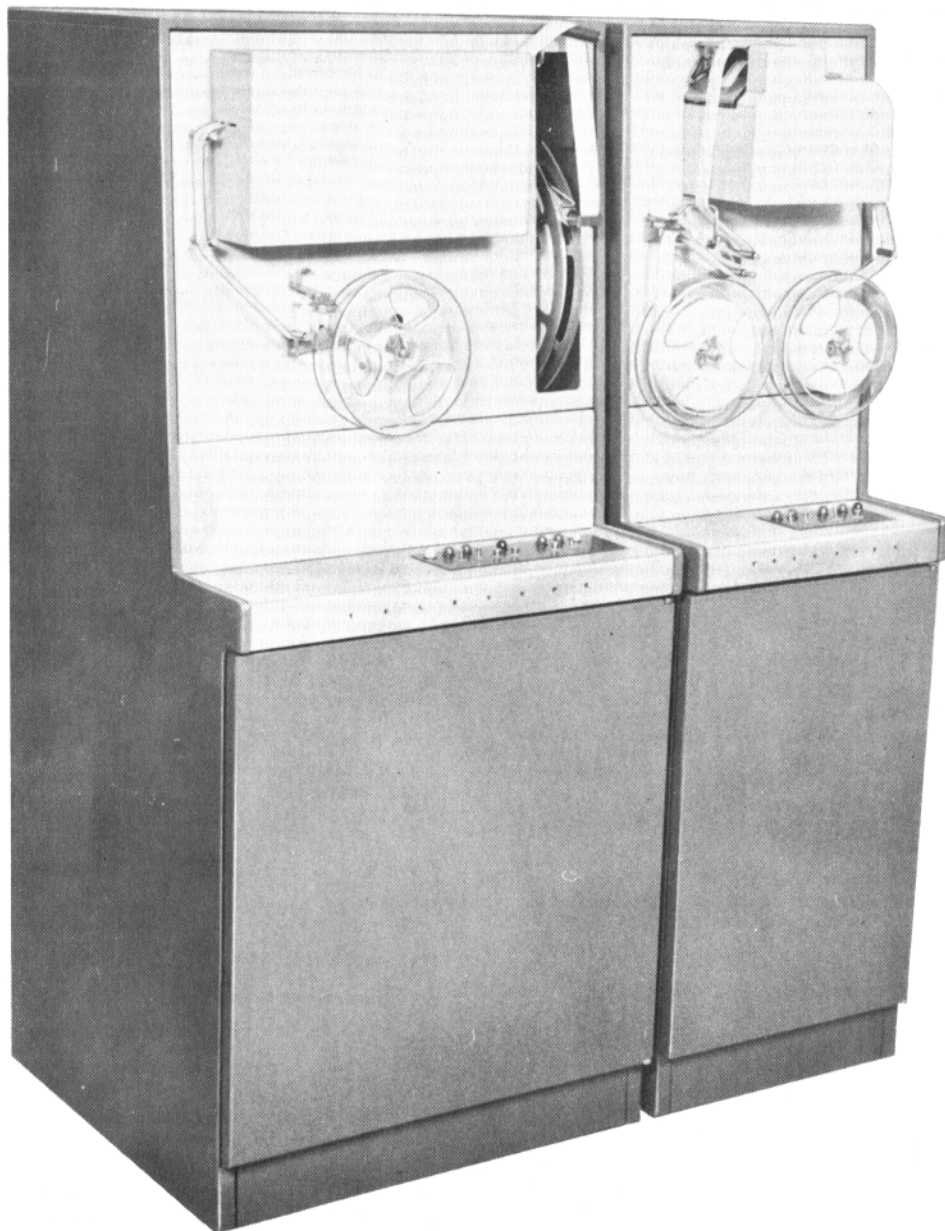
RTTY is the Official Publication
of the

**RTTY Society of
Southern California**

and is published for the benefit of all
RTTY Amateurs and Experimenters

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For "RTTY" Information:
W6DEO W6CG W6TPJ W6AEE



RTTY regrets the late mailing of the November issues, which was due to your Editor being in hospital for an operation. Try to do better next time. Also thanks for the many get-well cards and letters.

— o —

W6AEE had the pleasure of meeting several of the New Orleans RTTYers while attending a meeting of the Society of Exploration Geophysics. A RTTY dinner was arranged by Jerry W5CME, Jimmy WA5DXP and several of the group there. Macklins served an excellent dinner, which was attended by the following: W5CME, K5GLA, WA5DZH, K5PME, K4DRO, W5IAB, K5USO, K5HHU, K5JZF, WA5BQA, WA5DXP, K5CHC, K5EEI, K5IFJ, WA5BLB, K5WWV, W5MAA, W5LTN (exW8ELR). Several AF and Navy as well as ARMY MRAS members were there along with their amateur calls. Afterwards a tour through WDSU-TV was given, which proved to be very interesting, with latest of TV camera, and other innovations shown the group. Thanks to the gang there.

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The Annual Chi-RTTY meeting was held Sunday the 27th November at the McCormick Palace. It was well attended, by the following list of calls: W2HNG, W2UUI, W4AAS/9, W4MGT, W4NZY, W6AEE, W6CEM, W6TKA, K6RTD, W8BZB, W8GPB, W8RUS, W8SEY, K8DKC, K8OYI, K8TXT, K8VDU, K8YYB, WA8AAV, W9s-ABC, AFY, APO, ATK, AZW, BIU, BQC, CAV, CMC, CQG, CUW, CWH, CYD, DDA, DGV, DMN, DNP, DPY, DRW, EFA, FRU, FSA, FWZ, GKI, GPL, GRW, HPG, HXW, IAW, ILN, IQS, IUU, IYT, JBT, JIN, JRR, KHG, KJP, KUJ, LHN, MSY, OKS, OOX, PBM, QVQ, QXW, RLH, SEK, SRO, SSJ, SWK, SZW, TVN, VOW, VQD, WBE, WJU, WKM, WMR, WNB, YCB, YPC, YUP, ZFA, ZGC, ZNE, ZNF, ZPV, K9s-BBN, BFU, BHM, BRL, DBU, DJR, DOF, ECF, EVM, EWO, EWY, EZN, FNP, FNX, HSL, HTU, JLM, JM, JSG, KRE, LLH, MDM, MUX, OJQ, OJV, PDT, PQU, PTQ, PYV, QPX, RMZ, RVK, SIG, SPF, TDQ, TKW, TOL, TRP, TVN, TVP, VUT, YXW, W0s MPF, WAJ, K0AKQ, CIM, EII, MHB. 15 non amateurs. One family Jim Price K9TVP, Don, K9PDT, Diane K9TRP, Donita K9TVN. Marvin Smith won the KSR 28 given by W9GRW. Talks were given by Sandy Tyser of the Teletype Corporation on Funda-

mentals of Teletype operations. By Mr. Ralph Larrison of Teletype on the new Model 32 ASR and KSR, which is now being offered to amateurs. See other pages of this issue. He also gave a short history of Teletype. A talk by Irvin Hoff, K8DKC on converters and 170 cycle shift. Jon Schmidt, W8BZB talked on the operations of the S.S. Hope which is sailing shortly. An excellent talk was given by Burt Jaffe, K9BRL on a new Electrocom converter for VHF operation. Also discussed the FSC 250 and the TK 100 tone keyers. He gave a demonstration of an automatic identifier for either RTTY or CW, which was most interesting. A big thanks go to Ray Morrison, W9GRW and the CATS and Illiana RTTY clubs.

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Another convention which took place on the 11th and 12th of October at San Diego, had an RTTY breakfast which was attended by W6NTK, and his XYL, K7CEH, and XYL, W7PBV and XYL, W6JCH, W6NSH, W6CQO, and XYL, W6GMW, WA6MQL, WA6KRN, and XYL, WA6MQF, WN6CJW, WB6CJW, W7SQX, W7UKU, K6TVO, W6LDG, W6WGL, K6EOK, W6QID and XYL, K6KDE, WA6PCG, W6QIE, W6EVK, K6TSQ, and XYL, WB6CXE. Don Johnson, W6QIE/N0ASH (and custodian of K6USN) western director for Navy MARS, gave a talk on recent NAVY MARS activity with particular emphasis on the Teletype aspects. Thanks to Lloyd Crawford, WA6PCG, for contributions of several manuals. FB weather and a grand time were had by those attending. W6QID.

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Another fine Hamfest was held at the Edgewater, in Oakland, California on the 21 and 22 of September. Teletype demonstrations were given by NCARTS, and by the Pacific Telephone and Telegraph, who have been most helpful to the RTTY amateurs on the west coast. Two model fifteens and a model twenty-six were given as prizes by NCARTS. The demonstrations included Teletypes from the model 26 to and including the latest ASR35s. An active on the air RTTY station operated by W6NRM and another by W6FKQ. Jim K6IZY is to be congratulated on the work done by him and his committee. Both Army and Navy Mars were there with complete operational stations K6TCD.

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Just thought I'd scribble a few lines tonight to consume some of your spare time. Enjoyed the last (October) issue of RTTY Bulletin, especially the information on the different tape gear in use, very much. I have a bit of additional information which you may tuck away somewhere until someone asks you about it. It concerns the MXD units. In case anyone (like myself) gets hold of some of the heads marked MXD-33, and wants to use 'em on the ham bands, here is what has to be done: These MXD-33 heads have cams which are cut for 22 ms. stop signals, or in other words, a 7.00 code instead of the 7.42 code which we consider normal. So, instead of having to turn at approximately 368 rpm, they (the cams) must turn at 390 rpm to be compatible or even readable with most of our printers. Soooooo — either of two things may be done. ONE: install pinion #117323, 7 teeth, and gear #117324, 30 teeth to obtain 390 rpm. TWO: install a set of gears from the Model 15, which are #74912-7T, and #74913-30T. In order to accomplish this, either the hub (MXB-#97579) will have to be re-drilled to accept the three screws from the 74913 fiber gear, or the gear will have to be re-drilled to accept the two screws from the hub. Either way works well, if care is taken to have the gear properly centered. Gears for 1800 rpm sync motor only.

So there you have a long paragraph. The things will work with most machines in good shape, but the speed will be closer to 65 wpm instead of the usual 60 wpm. I hope this info may be useful to someone.

73
Army — W8CSH

— o —

After reading WILLY's poetic masterpieces on page 12 of the November issue, I cannot refrain from adding a few of my own, to wit — and I do mean WIT —

Four Quatrains from "The Rubaiyat of Omar the Teletypist (W5IFH version)"

I

Awake! for a Station on the Band tonight
Has sent the Mark that makes the Printer
quiet:

And Lo! the Audio has lit
The Phase Shift Scope in an X of Light.

XX

Ah, my Keyboard, punch the Tape in Scads.
Today my Message send to other Lads.

Tomorrow? — Why, Tomorrow I may be
Myself with Yesterday's Sev'n Thousand
Chads.

XXIII

Ah, make the most of what the Band may
spend,
Before the Signals to the Noise descend;

Noise into Noise, and under Noise, to lie,
Sans Mark, sans Space, sans QSO, and —
sans End.

XXXIII

Then to controlling FCC I cried,
Asking, "What lamp has Government to
guide

Her Monitoring Stations stumbling in the
Dark?"

And — "A Dual-ID Ruling!" Washington re-
plied.

(The Roman numerals indicate the Quatrain of the original that is paraphrased. My sincerest apologies to Omar Khayyam, Edward Fitzgerald, and WILLY.)

In a less lofty mood, I present the following limerick:

AN UNWISE YOUNG TELETYPE ACE
DISABLED HIS UNSHIFT ON SPACE,
2£8:£ :-73\$ £8 :-:£8,3
285£ (36 9! \$-4(&433,
59 048,5 :906 5£-5 2- - \$8&4-.3.

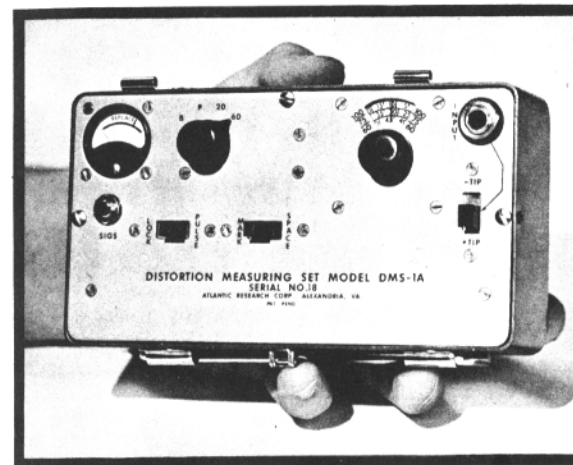
AN UNWISE YOUNG TELETYPE ACE
DISABLED HIS UNSHIFT ON SPACE
WHICH CAUSED HIS MACHINE
WITH KEYS OF DARK GREEN
TO PRINT COPY THAT WAS A DIS-
GRACE.

W5IFH —
1802 Edgehill
Pasadena, Texas
77502

MODEL 26 COVER MODIFICATION TO PROVIDE A RANGE FINDER ACCESS DOOR

Charles E. Plimpton, K4QVD
220 Wisteria Drive, Melbourne, Florida

1. Remove the long hinge pin from the piano hinge on the front of the cover and set aside the lid.
2. Locate the center of the hinge on the front cover. Using this as a reference point and the hinge as the top edge, mark out an opening 5½ inches horizontally by 3¼ inches vertically. There should be 2 hinge segments remaining on each side of the marked-out opening.
3. Using a hacksaw carefully cut along the marked lines.
4. Replace the lid and the cut-out section, then replace the piano hinge pin. The cut-out section becomes the Range Finder access "door".
5. Cut a piece of thin aluminum, approximately ⅜ inch larger than the cut-out section, shape it to the contour of the door. Fasten the aluminum plate to the door using screws or, for a smooth neat appearance, use contact cement. This outer plate serves to cover up the saw cuts and provides a means of lifting the door for easy access to the Range Finder mechanism.



PORTABLE
Telegraph Signal

**DISTORTION
MEASURING
SET**

Model DMS-1A

Reliable
**Simply
Operated**
**Wide
Capability**
**Low
Cost**

Completely transistorized (no vacuum tubes or relays).
Not responsive to normal relay bounce or other minor signal discontinuities.
Long battery life—more than 250 operating hours—from single 8-volt mercury cell.
Meter check of battery voltage. Battery disconnected when input plug is removed.
Simple calibration procedure.
Reversing switch changes polarity of input signals without opening telegraph circuit.
Indication that signals are being properly received at input.
Useful as unattended monitor by switching the set to give locked-up indication of distortion measurement greater than a preset level.

The Model DMS-1A is a small battery-operated instrument which fits conveniently into the maintenance man's repair kit. It is designed for simple operation in making teleprinter station measurements. Peak distortion measurements are taken with the DMS-1A by rotating the dial until the meter pulsates and reading the per cent distortion indicated by the dial position.

Atlantic Research Corporation

Alexandria, Virginia

FOR INFORMATION — NOT A PAID AD

DX-RTTY

Bud Schultz, W6CG

5226 N. Willmonte Ave., Temple City, Calif. 91780

Hi DX'ers:

It's a tough job to write a DX column this month without "scooping" the summary of the 3rd World-Wide Sweepstakes which will appear in a later issue. The logs are still coming in from all over the Globe and the results at this moment appear to be better than we expected. Propagation conditions were poor over the entire World during that hectic week-end but surprisingly enough, many of the DX scores were very good. Many of the gang complained that there were no Asian RTTY'ers to work during the SS but examination of the logs received so far shows that at least four representatives of that hard-to-work Continent were on hand for the Contest. As usual, in a contest, Stateside QRM was a big factor in the final results. So far two applicants for WAC-RTTY have been received as a direct result of the Sweepstakes. WAC number 37 goes to Chuck, VK4RQ, and #38 to Herbert, DL1VR. VK4RQ and DL1VR both needed South America to complete their quotas and Chuck managed to grab YV5AVW while Herbert contacted LU1AA. Congratulations to both for a fine job!! DL1VR writes that he is using a 32S3, 30L1 and a cubical quad with a W2JAV converter. Both of these typers put fine, consistent signals into the States and are very active.

My East Coast sleuth, K3GIF, sends in some very interesting news from the DX scene. Ed reports that Bill Ruurds, ZS6UR, is building a new hilltop home and must move from his present QTH by December 1st. Ed suggested to Bill that he get a house trailer and set it up at the new location until the house is completed. The last word is that Bill is seriously considering this idea. Incidentally, ZS6UR is one of the stations that worked all six Continents during the SS! Other news in K3GIF's report is that DL9FO and DL9EX are two new ones showing up from Germany. Ed also tells me that while CP1BH was a recent visitor to his shack he managed to plant the RTTY poison in him. CP1BH has RTTY gear available so something may come of this little incident.

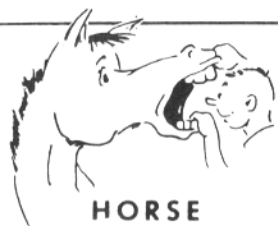
Several reports have been received concerning a ZE7 station on FSK but no one has come up with any details. If you know anything about this one please let me have the word. W6QID had two contacts with KA9MF Hokkaido about 1700 GMT on 14,090 kcs. This is the first reported activity from Japan in several years. Back in the late 50's a number of GI stations in Japan were

very active. Hope this starts a trend for more activity from the Orient.

Martin, OY7ML, writes that he has a Lorenz type T-36 tape printer and should be active by the time this gets to the printer. He is having a bit of trouble with his W2JAV converter but hopes to have his troubles all cleared up shortly. Martin is looking for a Model 15 to equip OY8RJ for RTTY operation. If you have one to sell at a reasonable price drop him a line. OY7ML's inquiry about a printer brings me an opportunity to touch on a subject that I have wanted to discuss for a long time. Most of you have no idea of the intense interest being shown for RTTY in almost every corner of the World. Almost every day the mail here at RTTY, Inc. brings inquiries getting started on this facet of ham radio from a new spot on the Globe. The two biggest obstacles facing these lads are first, licensing restrictions and second, availability of suitable equipment. The first mentioned problem is becoming less formidable as more and more governments are permitting their hams to use the F-1 mode of operation. The unavailability of equipment is still a tough hurdle and one that all of us may be able to help overcome. I do not mean to give the impression that these overseas hams are seeking "gift" shipments of TTY gear. On the contrary—most of them are willing to pay a reasonable price for the things they need. However, when one considers that they must pay packing, shipping and customs fees it still can be a mighty expensive proposition.

If any of the DX group over here is interested in helping some of these overseas hams to secure RTTY gear please let me know and I will try and put you in touch with them. Some of the RTTY Societies here in the States have recently taken on a project of sponsoring some deserving ham in a country not presently active on RTTY. This is an excellent idea and will go a long way toward furthering our cause. It was brought to our attention this month that Bruno, IIRIF, is working with Olivetti to have them release all teleprinters traded in, at a reasonable price to the hams. Previously these machines have been rebuilt at the factory and sold at a much higher figure. I also have been informed that several South American countries have recently lifted all customs fees on RTTY gear purchased by ham radio operators!

As further proof of the ever increasing interest in our mode of ham radio among the DX group it may surprise you to know that "RTTY" has over 43 foreign countries represented in our regular subscriber list.



HORSE TRADES

- SWAP:** Boehme 4-D keying unit with 3-E keying head for CV-89 Converter. W5HPB, 4002 Levonshire, Houston 25, Texas.
- TRADE:** One 861 or new 304-TL for a model 14 printer perforator. Sell SX-11 and Adventurer both for \$175.00. W6ERV, 2711 Marengo St., Los Angeles, Calif. 90033.
- WANTED:** One CV-89A converter with manual. Also manual for CV278, Converter. K4GJ, RR#2, Winchester, Ky.
- WANTED:** 19ASR complete with TD, table, power supply, etc. Will pick up within 500 miles. Send details, condx, and price. K0GXL, 2822 S.W. 9th, Des Moines 15, Iowa.
- FOR SALE:** Teletype sync motors AC 110V 60 cycles 1 ph, 1/40 hp, 1800 rpm, complete with fan, base, and plate like new. \$10.00 ea. Frank Agnello, 181 Sackett Street, Brooklyn, N.Y. 11231.
- FOR SALE:** Model 26 with W9UE auto-matecar ret/line feed, table, and manual. Good condx, non-waiver \$65.00. **WANTED:** F-500B Series Collins mechanical Filters for 51-J-4. State condition and price in first letter. K8COI, P.O. Box 247, Wilmington, Ohio.
- FOR SALE:** Kleinschmidt TT4A/TG, page printer in good condx, \$100.00. Also Model 14 typing-printer, reperf, sync motor \$100.00. All units with covers. Also brand new model 15 (not rebuilt) \$275.00. W4AIS, 7 Artillery Road, Taylors, S.C.
- TRADE:** Model 28 manual for model 26 manual. W5KOL, 5306 Indigo, Houston, Texas 77035.
- FOR SALE:** Model 19 or 14 tape containers, complete with retainer, reel, and cover, green wrinkle finish. W9YVP, 11001 South Pulaski, Chicago, Ill. 60655.
- FOR SALE:** KY-58/GRT keyer and modulator in 36" cabinet \$100.00. Single copy while Teletype paper 90¢ roll, \$9.95 case. Standard 2" core tape, \$8.00 case. Model 15 with table \$125.00. Model 19, Model 14 TD, and table \$175.00. Model 14 strip printers \$35.00. 255A polar relays and socket, \$3.45. Sync motor for 15s \$10.00. 88mhy toroids \$1.00 ea. five for 3.95. Send for flyer. All shipments FOB W5EZE, 1508 McKinney, Houston, Texas 77002.
- FOR SALE:** Model 28 sync motor, \$20.00. Model 14 RD brand new, requires waiver, with slip base, sync motor, 60 wpm gears, tight tape sw. immaculate, \$95.00 ea. Model 14 typing reperf, sync motor, 60 wpm gears, keyboard base, comm type, reel, with back space, end-of-line, rapid feed out, tape out bell, tape retainer, tape reel cover, cover with glass (typing unit and base Brand new - requires waiver) \$100.00. Model 15 page printer, sync motor, 60 wpm gears, aluminum frame, auto line feed, car ret, comm type paper spindle, cover with glass, table \$125.00. K5BQA, 2101 N.E. 34th Court, Pompano Beach, Florida, until

FOR SALE: Mu-Western Model M-1 Teletype converter, new factory sealed cartons, regular amateur net—\$111.50, SPECIAL PRICE, \$89.95. Also SPACE GUN ANTENNA, Add 40 M to your present 20-15-10m beam. One space gun element tip attaches to each end of the present driven element of existing beam, extending overall length of 14 feet. Works with all beams fed directly or through Beta Match from 52 ohm co-ax line, giving excellent SWR and figure 8 directional pattern on 40. Constructed of high strength aluminum, regular price \$39.95, SPECIAL PRICE \$29.95. FOB, Denver, Colorado, Burstein-Applebee Company, Ham Dept., 1237 16th Street.

FOR SALE: Teletypewriter Regenerator Model SFO-2, \$35.00. Model 14 (FPR17) \$40.00 used. Model 14 (FPR21) Typing reperf, rcv only, \$35.00. SE13 (SE200AA) line station selector for model 15 sets. Tables steel for model 15, XAT 115, used, good condx \$20.00. Keyhead drive, Boehme type 4D with DC motor and 3E keying head, used, good condx \$30.00. Write for flyer. Atlantic Surplus Sales, 181 Sackett Street, Brooklyn, N.Y. 11231.

FOR SALE: Model 14 keyboard perf \$25.00, 88 or 44 mhy toroids five for \$1.00 plus postage. W6VPC, 1067 Mandana Blvd., Oakland, California.

FOR SALE: Model 19 keyboard \$25.00. Model 14 Typing Reperf, sync motor, keyboard and cover, \$75.00. F.O.B. W6CC, 5226 Willmonte Ave., Temple City, Calif.

FOR SALE: Teletype parts, order by Teletype part number, RA-87 \$9.00. FCC-1 \$75.00. 11/16" tape \$8.00 per case. Single copy paper \$2.00. Reperf \$39.00. 88mhy toroids 1.00 ea. five for 4.00. FOB W5LCU, 7031 Burkett, Houston 21, Texas.

WANTED: Schematic for AC power supply for Motorola FMTRU-80D transmitter-receiver or else a used power supply already built up. W7MBV, Ryegate, Montana.

By next month I should be able to give you some clues as to who cut the biggest swath in the Contest — so far it's still anyone's guess. The official results won't be ready until our annual DX edition in February. Now before I put "thirty" to another column let me thank all of you who have been such a big help during the past 11 months in keeping this column rolling. Actually you do all the work — all I have to do is sort it out and put it down. Seasons' Greetings to everyone and happy DX'ing in '64.

73
Bud, W6CG