35 KEYBOARD SEND-RECEIVE TAPE PRINTER TELETYPEWRITER SET DESCRIPTION AND OPERATION

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1. GENERAL

1.01 This section contains the description and operation of the 35 Keyboard Send-Receive Tape Printer Teletypewriter Set (Figure 1). It is being reissued to update technical information and to change the format. The sets are used in central office locations as monitoring or test sets.

1.02 The basic set consists of a tape printer keyboard, tape printer, motor unit, and cover assembly. The sets are capable of sending or receiving messages at 100 words per minute using the eight-level United States of America Standard Code for Information Interchange (ASCII). All received messages are typed on 3/8-inch wide paper tape.

1.03 The tape printer keyboard is capable of generating the eighth intelligence pulse marking, where required, to achieve even-parity transmission and will also generate the escape (ESC) code permutation.

1.04 The tape printer is also capable of two-color printing; shifts from black to red printing of all control (CTRL) characters.

2. COMPONENTS (Figure 2)

KEYBOARD

2.01 The keyboard is mounted on the cover subbase, and provides support for the motor unit, tape printer, intermediate gear assembly, and tape supply reel assembly.

2.02 The keyboard incorporates code selecting and signal generating mechanisms, and signal line circuits. Motive power for activating the keyboard is derived from the motor unit through an intermediate gear and shaft arrangement on the base. The keys are positioned in a four row arrangement with most punctuation marks and control symbols indicated as upper keytop characters. An explanation of the character code arrangement for the keytop control and graphic symbols will be found in Section 574-231-100 covering the eight-level data interchange code.

2.03 Various tape printer keyboard models are available for general applications. Some models operate from a standard ac power source and others operate from a 48 v dc power source. All electrical inputs are routed into the keyboard by the customer through terminal blocks located at the left rear corner of the unit. In general, all of the models incorporate the following features:

(a) A power on-off switch

(b) End-of-line and low tape indicator lamps

(c) A 6-volt indicator and copylight power source.

(d) Character counter for operator use during transmission

(e) Break key and repeat key.

2.04 The tape printer keyboards intended for central office switch locations and private line switchboard applications, operate from an ac power source and incorporate the above features.

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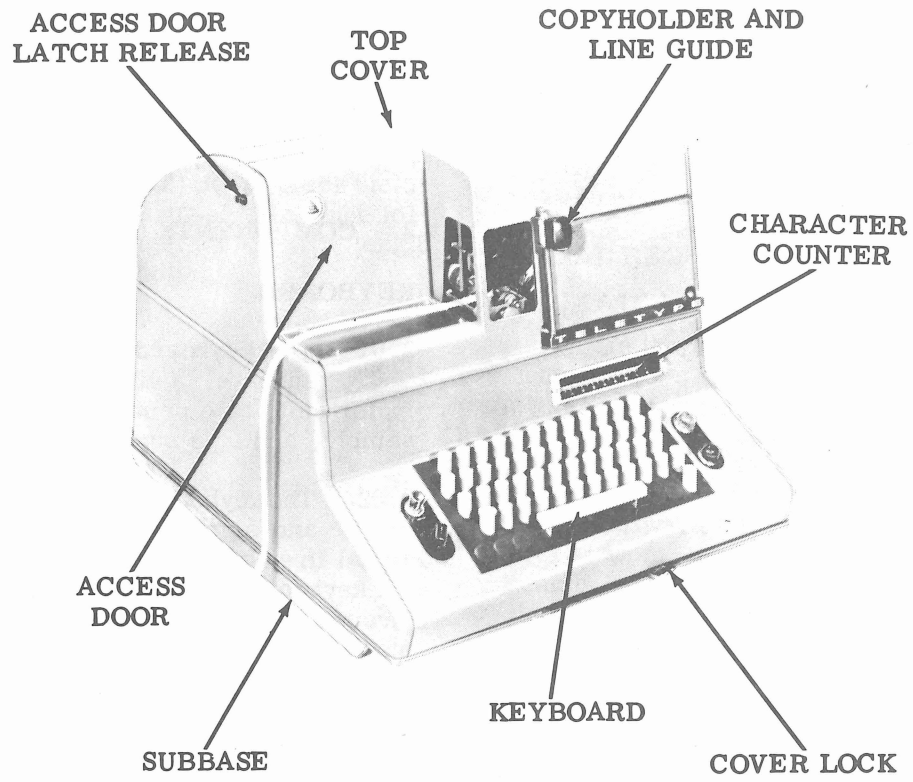

Figure 1 - 35 Keyboard Send-Receive Tape Printer Teletypewriter Set

2.05 A second tape printer keyboard, intended for switchboard locations, has the same features listed in 2.03 except that this unit operates from a 48 v dc power source.

2.06 A third tape printer keyboard, intended for test board locations of the central office, operates from an ac power source. However, this unit incorporates the following additional features:

(a) Restrain lamp

(b) An electrical service assembly which provides:

(1) A signal regenerator circuit for improvement of the signal transmitted from the keyboard

(2) A selector magnet driver circuit and power supply for amplification of the incoming line signal to operate the tape printer selector magnets

(3) A motor control relay

(4) Copylight and low tape circuit connectors

(5) Two 12-point terminal boards.

TAPE PRINTER

2.07 The tape printer is mounted in the right center area of a tape printer keyboard. Motive power is furnished to the printer from a motor unit through an intermediate gear and shaft arrangement. The tape printer is an electromechanical device capable of receiving coded electrical signals from the line and converting these signals into mechanical motions which result in a printed message on 3/8-inch paper tape. The tape printer is also capable of two-color printing; shifts from black to red printing of all control (CTRL) characters. The incoming signals are applied to a two coil selector mechanism through a selector magnet driver circuit. Means are provided to orient the selector mechanism with respect to the incoming signals for achieving optimum signal reception.

2.08 Tape is supplied from a container mounted at the left rear of the keyboard (Figure 2). The tape is routed up and over the tape

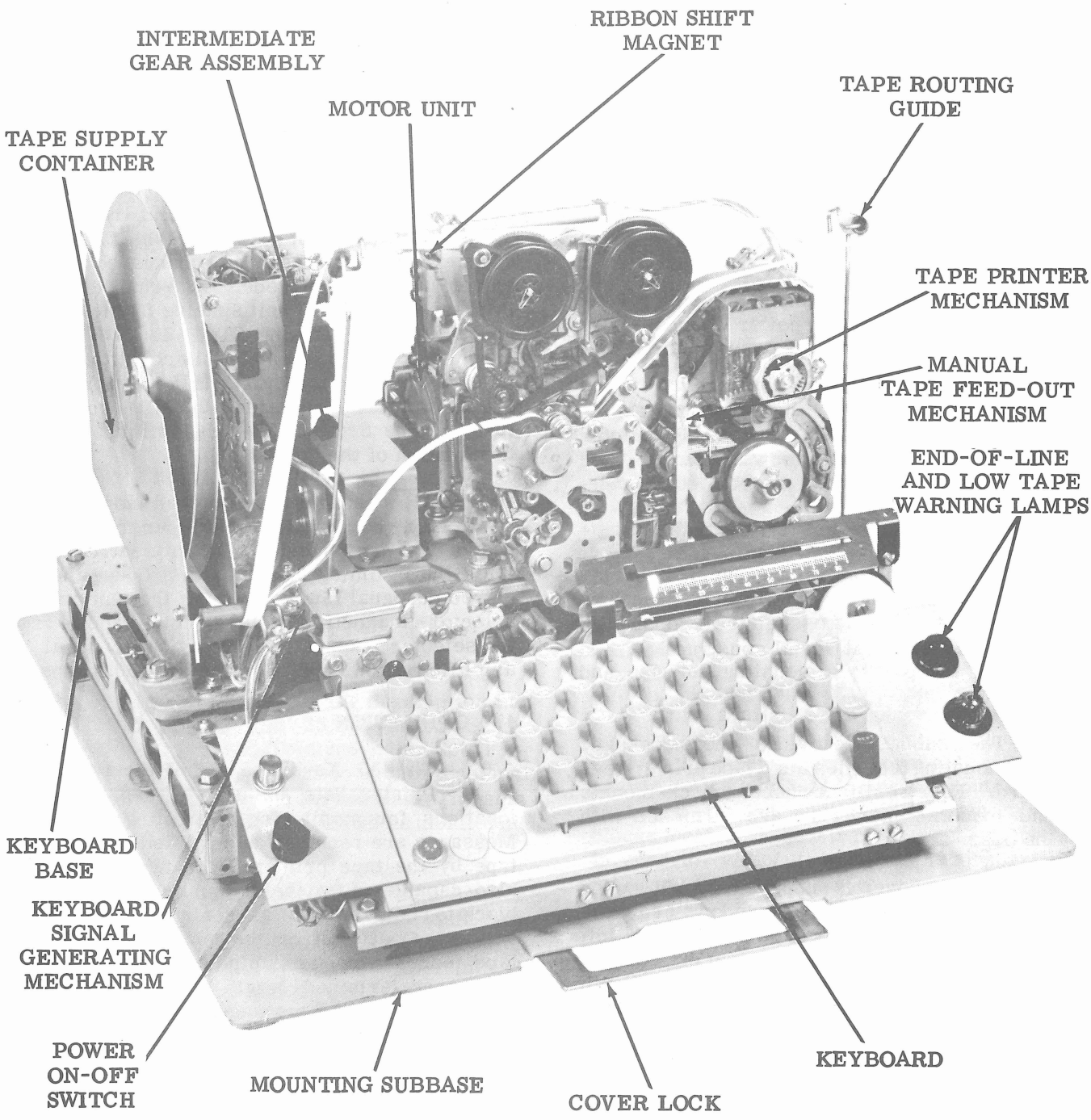

Figure 2 - 35 Keyboard Send-Receive Tape Printer Teletypewriter Set
(Cover Removed)

printer, so that it enters the unit from the right. The message is printed on the tape at the left side of the printer, just before the tape emerges from the keyboard tape printer set.

2.09 The manual interfering tape feed-out mechanism (Figure 2) permits the inclusion of a predetermined length of blank tape following the end of a message. The extra length of tape facilitates tape handling.

MOTOR UNIT

2.10 A 115 v ac ± 10%, single phase, 60 hertz ± 0.5 hertz, 1/20 horsepower synchronous motor is used with the tape printer keyboards operating from ac power sources. See Section 570-220-100 for a more detailed description of this motor unit.

2.11 A 48 v dc, 1/15 horsepower, series wound motor is used with the tape printer keyboard operating from dc power sources. See Section 570-220-100 for a more detailed description of this motor unit.

COVER (Figure 1)

2.12 The cover is designed to provide enclosure and mounting facilities for the tape printer keyboard and its associated components. The cover is of sheet metal construction, and consists of two parts: a mounting subbase and a top cover.

(a) The subbase provides the necessary mounting facilities for a tape printer keyboard. Four resilient rubber shock-mounts and mounting hardware are furnished with the base.

(b) The top cover is supported by and locked to the subbase. Two windows are provided for viewing the tape copy. The left window provides an edge for tearing the tape and permits illumination of the tape copy. An access door, with two spring latches, swings forward and down to permit changing of the typing ribbon and tape supply. A 6-volt copy-light and character counter light are mounted on the access door. A window for viewing the character counter scale is also provided on the top cover. Cutouts in the cover allow clearance for the keyboard keys, control keys, and indicator lamps.

3. POWER REQUIREMENTS

3.01 The 35 Keyboard Send-Receive Tape Printer Sets utilizing the ac tape printer keyboards operate on 115 volts ac ± 10%, single phase, 60 ± 0.5 hertz. No power cords are furnished with the sets.

3.02 The 35 Keyboard Send-Receive Tape Printer Set utilizing the dc tape printer keyboard operates on 48 volts dc ± 10%. No power cord is furnished with the set.

SIGNAL REQUIREMENTS

3.03 Messages are received and transmitted in the form of an eight-level data interchange code. The data interchange code is an eleven-unit, equal bit code. Each character code is preceded by a one unit spacing START pulse, and a two unit marking STOP pulse (for synchronization purposes). In this code, the eighth level is always marking. At an operating speed of 100 wpm, each bit is 9.09 milliseconds in length. See Section 574-231-100 for a detailed description of the code.

3.04 All messages are received and transmitted via a data set (not a part of the keyboard tape printer set). The data set demodulates the incoming ac signal to produce the required dc signal for operation of the tape printer selector magnets. Before being applied to the selector magnets, the dc marking signal is amplified from 0.020 ampere to 0.500 ampere.

4. OPERATION

4.01 The 35 Keyboard Send-Receive Tape Printer Sets are used in central office locations for monitoring or testing purposes. Messages are received and printed on 3/8-inch tape by the tape printer. The tape printer is also capable of two-color printing; shifts from black to red printing of all control (CTRL) characters. Operation of the manual interfering tape feed-out mechanism permits the inclusion of a predetermined length of blank tape following the end of a message. The extra length of tape facilitates tape handling. A low tape warning lamp is provided to notify the operator when to replenish the tape supply. An ON-OFF power switch is located at the left of the keyboard.

4.02 An end-of-line lamp (amber, upper right) and a character counter are furnished to aid the operator when transmitting to a page printer unit from the keyboard. Where required, a red RESTRAIN lamp is mounted in the lower left corner of the keyboard. When communicating with a slower speed station, the RESTRAIN lamp provides a warning to the operator to reduce typing speed.