35 RECEIVE-ONLY TYPING REPERFORATOR SETS

DESCRIPTION AND OPERATION

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1. GENERAL

1.01 This section provides description and operation for 35 Receive-Only Typing Reperforator (ROTR) Sets. It is reissued to add information on operating temperature, and to provide a general description of the 35 ROTR as used for No. 1 ESS-ADF (ADNET), 85A1, 86A1, and 86B1 Selective Calling. The added information is indicated by marginal arrows.

1.02 The 35 Receiving-Only Typing Reperforator Set is an electromechanical apparatus for receiving and recording on paper tape messages transmitted over various transmission facilities including telegraph lines, telephone networks and radio channels. Messages are received in the form of coded (teletypewriter) electrical signals and recorded on the tape both as fully-perforated code holes and typed characters. It will operate at speeds up to 100 words per minute.

1.03 On most ROTR Sets only the graphic characters are printed in black ink. Printing of control functions (such as EOT and signal bell) and unassigned code permutations is suppressed. On some sets, all characters are printed with the graphics in black and the control functions in red. In both cases, all information received is perforated in the tape.

2. VARIATIONS

2.01 ROTR sets are available in several configurations to meet varying installation and operational requirements.

(a) Individually Mounted Set - a single set with its own cover, base, and motor unit (Figure 1). With minor changes, this set is suitable for either private line or switched network use.

(b) Multiple-Mounted Set - Three typing reperforator units, mounted on one base, all driven by a single motor (Figure 3). A multiple reperforator and base may constitute a complete set, or two multiple reperforators may be combined in one cabinet. These sets, too, may be used for either private line or switched network application.

2.02 The operation of the ROTR Sets may differ from set to set depending on the equipment complement and the application (switched network or private line). Ordinarily, switched-network sets are connected to telephone lines and switching facilities through call control units and data sets, the latter of which convert the incoming tone frequency signals to dc pulses. In private line applications, the ROTR with other teletypewriter sets may be connected either

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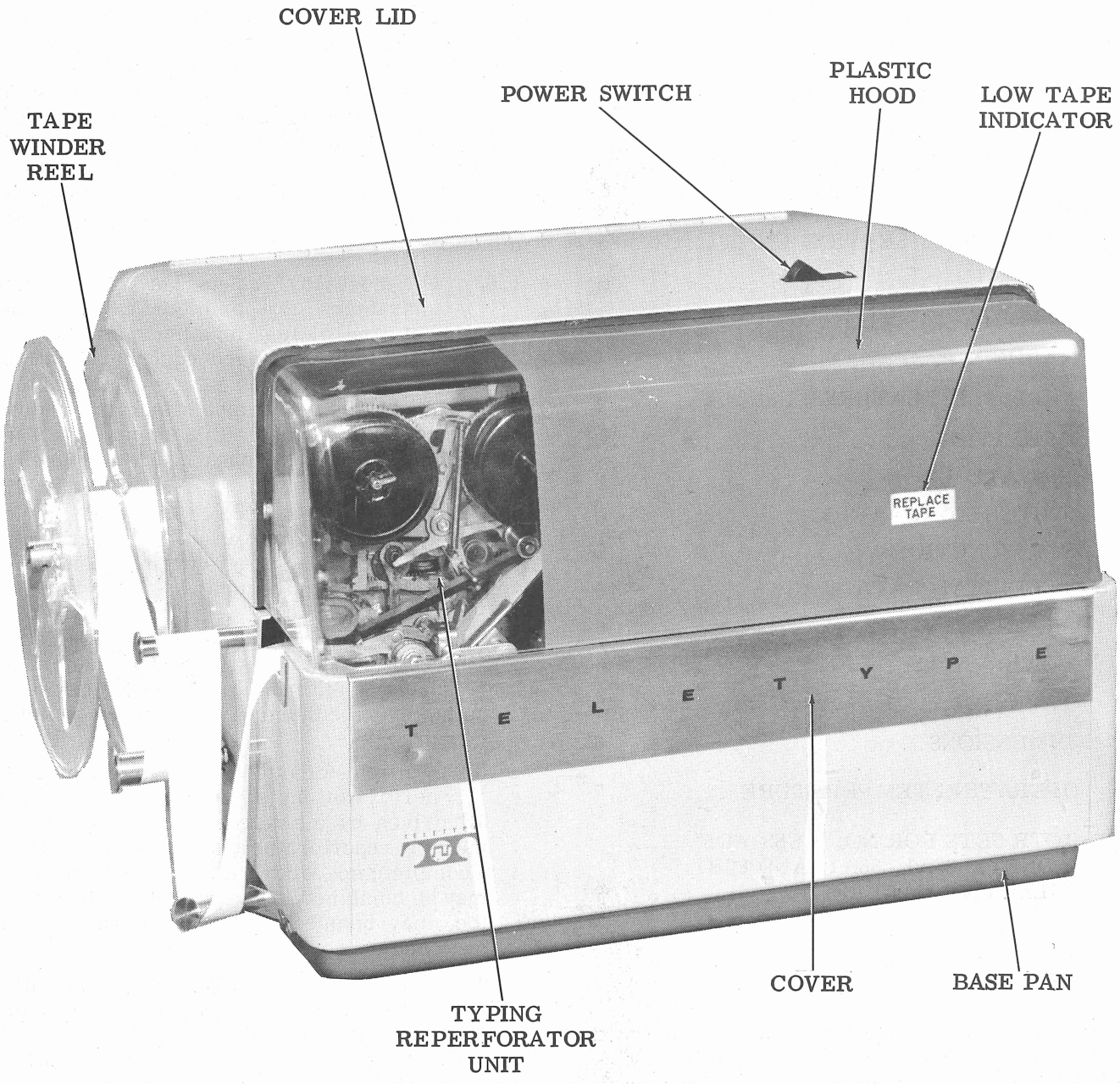

Figure 1 - Typical 35 Receive-Only Typing Reperforator Set

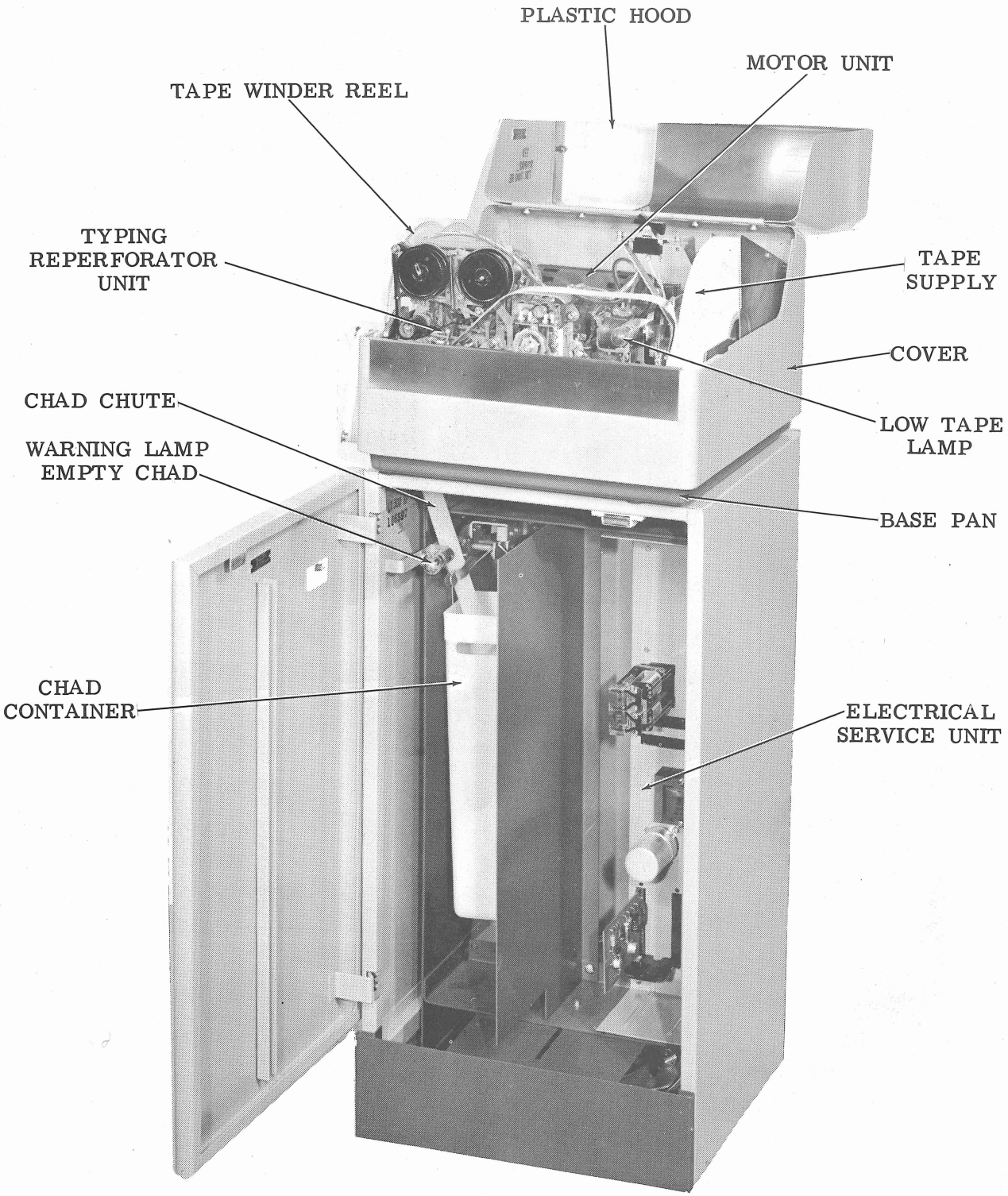

Figure 2 - Typical 35 Receive-Only Typing Reperforator Set With Table

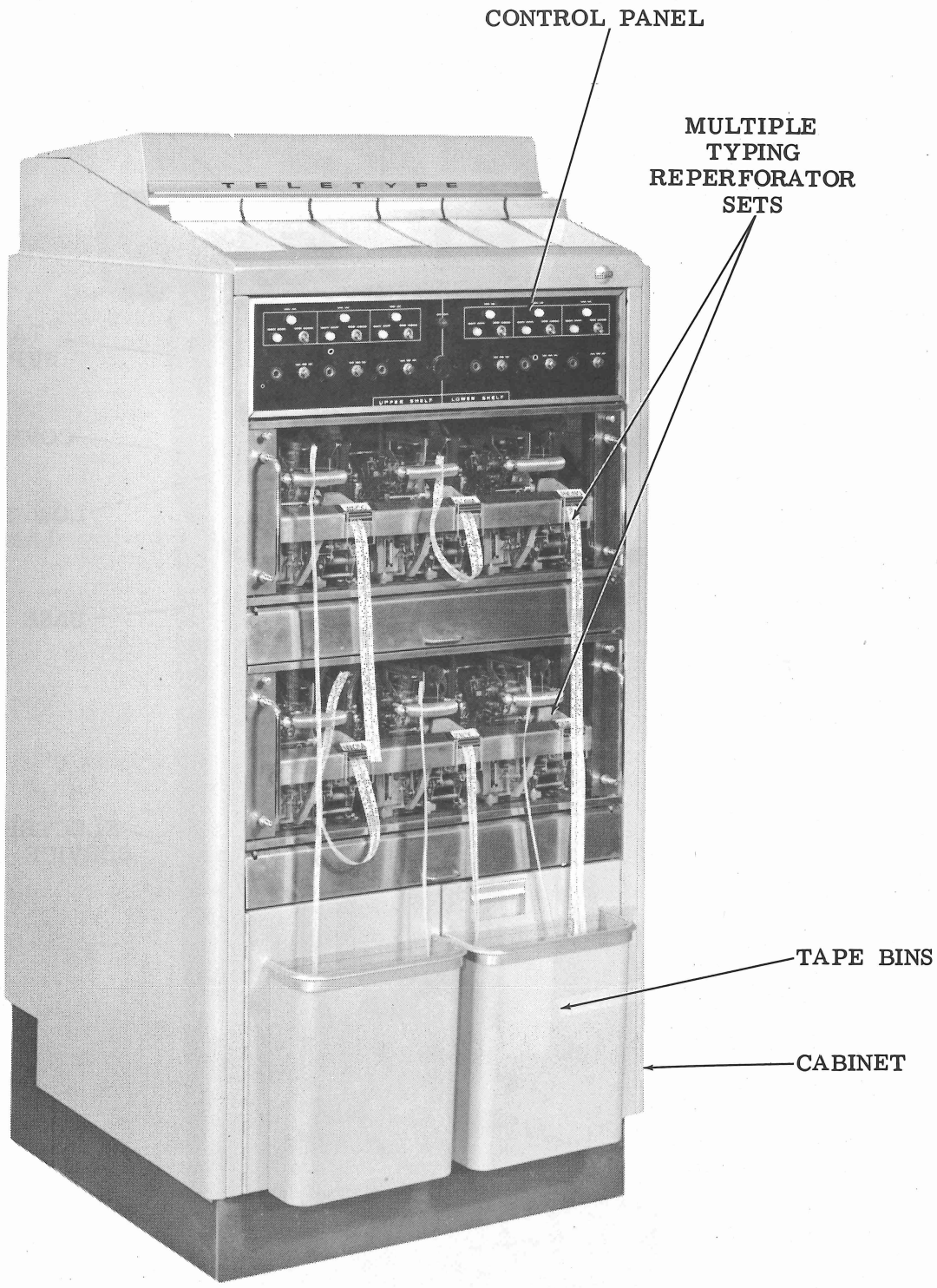

Figure 3 - Typical 35 Multiple Mounted Receive-Only Typing Reperforator Set

directly to a telegraph loop or through a data set to a dedicated telephone line.

3. COMPONENTS

3.01 The component complement of an ROTR set varies with the installation. At a minimum, it may consist of only a typing reperforator, motor unit, and base. However, it may consist of a typing reperforator unit, motor unit, electrical service unit, base, cover, and table. A multiple-mounted set has three typing reperforator units. These various components are each covered in detail in separate sections.

TYPING REPERFORATOR UNIT

3.02 The typing reperforator unit is a combination tape printer and punch. It receives teletypewriter signals electrically and translates them into motions which print and perforate messages in tape. Printing of the graphics occurs in black ink. Functions and unassigned graphics are either suppressed or printed in red ink, depending on the unit. A function box is included to provide special functions such as signal bell and EOT (end of transmission).

MOTOR UNIT

3.03 The motor unit furnishes the motive power for the typing reperforator and a tape winder mechanism where used. A synchronous or a series (governed) type motor may be used, depending on the power source. In a multiple-mounted set, a single motor drives three typing reperforator units.

ELECTRICAL SERVICE UNIT

3.04 The electrical service unit is a convenient center for interconnecting and mounting various electrical assemblies and components for the typing reperforator. The unit includes a terminal board and the cable assemblies which connect to it. It may also include the selector magnet driver, used to shape and amplify incoming signals. Generally, a rectifier, tape feed-out relay, and reperforator control relay, which can blind the reperforator to line signals, are also part of the electrical service unit.

BASE

3.05 The base provides a resilient mounting for the typing reperforator and motor unit. It has a pan to catch any oil or grease which might be thrown by the mechanisms. It also includes tape facilities, an ON-OFF switch, and a drive mechanism and timing belt to transfer power from motor to reperforator. It may also have mechanisms to permit changes in operating speed. In a multiple-mounted set, a gear system can be used which will permit each of the typing reperforators to operate at its own speed.

COVER

3.06 The cover encloses the base and its mounted components. A hinged lid with a plastic front provides easy access to the interior for replenishing tape and ribbon supplies. On sets equipped with a tape-out warning system, the words REPLACE TAPE appear on the right side of the plastic front when the tape-out warning light goes on. Some sets have an audible alarm in parallel with the low-tape warning light so that a buzzer sounds when the tape is low. This buzzer can be silenced by operating a switch, but the light stays on until the tape is replenished.

TABLE

3.07 The reperforator table, used with the individually mounted set, supports the set and provides mounting facilities for an electrical service unit and chad container assembly. The chad container holds the chad for up to three 1000-foot rolls of 50% perforated, standard 1-inch tape.

4. VARIABLE FEATURES

4.01 When desired, the basic ROTR set can be modified at the factory or in the field for special operations such as:

(a) Tape Feed Out - to provide a length of blank or rubout perforated tape at the end of a message for convenience in tape handling. Feed out may be interfering or non-interfering, manual or automatic.

(b) Data Set Application - to permit the ROTR Set to operate with data sets requiring the EIA bipolar voltage interface.

(c) Remote Control - to permit the set to be turned on and off from a distant station.

(d) Tape Supply Warnings - to provide visual and audible indications when the tape supply should be replenished.

(e) Chad Container Warning - to provide visual warnings that the chad container is practically full.

(f) Print Suppression - to prevent printing the control and unassigned code permutations and, in some applications, selected graphic characters as well.

5. OPERATION

5.01 ROTR Sets are used in both private line and switched network applications.

PRIVATE LINE

5.02 In private line applications, the arrangement is such that the ROTR Sets always respond to all traffic on the signal line as long as the set is turned on.

5.03 Putting the power switch ON puts the motor into operation and turns on the set. Turning the power switch OFF shuts off the motor and the set. Since the selector magnet driver is energized whenever the signal line is idle, switching does not cause the reperforator to punch spurious characters.

5.04 Sets operating on private lines can be remotely controlled by adding a motor control relay in series with the line. In this case, the power switch is kept ON during operating hours, and the set is remotely controlled through the motor control relay. The sending station turns on the set by sending a BREAK and turns it off by sending the EOT (end of transmission) code.

SWITCHED NETWORK

5.05 In switched network applications, transmission is by means of tone (or frequency) modulation, and the ROTR set is connected to the line through a data set and call control unit. The data set converts the modulated signals to dc pulses. The call control unit permits the ROTR set to be called by rotary, pushbutton, or card dialing, depending on the equipment.

SET FUNCTIONS

5.06 The function box, a built-in switching device, provides means for remote control of the equipment. Of the six control functions available, two are programmed for the BELL and EOT code permutations, and four are for the customer's specific applications.

5.07 When the BELL function is received, the signal bell is operated through contacts in the function box.

5.08 In sets equipped with an electrical motor control assembly, receipt of the EOT code causes function box contacts to energize the motor control stop magnet. Where a data set is used, the EOT code causes the data set to provide a disconnect without introducing bit characters.

6. TECHNICAL DATA

SIGNALS

→ Code	8-level American National Standard Code for Information Interchange (ASCII)
Characteristics	11-unit, equal bit code consisting of a start bit (always spacing); 8 intelligence bits (the eighth always marking except where the set is equipped to provide even parity); and a two-bit stop pulse (always marking)
Line Current	
DC Signal	0.020 or 0.060 ampere, marking; 0 ampere spacing
Modulated Signal	0.020 ampere furnished by data set which demodulates tone signal
Output of Selector	
Magnet Driver	0.500 ampere

POWER

Requirement	115v ac ± 10%, single phase, → 60 ±0.45 Hz
Fuse	4 ampere time delay for set; 3/8 ampere for primary of selector magnet driver transformer

TAPE

Width	1 inch
Perforation	Fully perforated
Character Count	10 per inch
Printing	Between feed holes

DIMENSIONS

Set Height	34"
Table Width	13"
Table Depth	14"
Table Height	25-1/2"
Base Width	13-9/32"
Base Length	12-13/16"

OPERATING TEMPERATURE

This equipment is intended to be operated in a room environment within the temperature range of 40°F to 110°F. Serious damage to it could result if this range is exceeded. In this connection, particular caution should be exercised in using acoustical or other enclosures.

7. ROTR SETS FOR NO. 1 ESS-ADF (ADNET), 85A1, 86A1, AND 86B1 SELECTIVE CALLING

7.01 A 35 ROTR used in a No. 1 ESS-ADF (ADNET), 85A1, 86A1, or 86B1 Selective Calling Service includes a special electrical service unit and related components which permit it to operate as a terminate only receiver or an auxiliary receiver. The type of service is determined by strapping options, cabling, and adjunct equipment.

7.02 A terminate only ROTR is interfaced, through appropriate cabling, to two data auxiliary sets: an 820 type, used as a station controller and an 804 type used as an attendant set. The ROTR is controlled by the attendant set, and is the only receiver of the station.

7.03 When used as an auxiliary receiver, the ROTR is connected by cable to a primary 35 RO or ASR. The auxiliary ROTR receives its signals from the primary, and must be called in manually or by appropriate line control signals.

7.04 The power switch on the electrical service unit has two positions used as follows: A MAINT. ON position permits operation of the terminal for test purposes without energizing the motor start relay. In the NORMAL ON position, the motor start relay must be energized by the data auxiliary set in order for the motor to turn on.

7.05 The ROTR provides a non-interfering tape feed-out upon depression of the manual tape feed-out button. When the ROTR is used as an auxiliary receiver, a measured tape feed-out can also be initiated by the primary station. The various options are covered in the station description BSP.

7.06 The selector of an ROTR used in this service is equipped with auxiliary contacts used as a lost character detect feature. The normally closed contact opens for each character received by the printer, and serves as an indication that the character has been processed. If for some reason the contact does not open, a character is lost and the controller is alerted to the fact that the message is incomplete.

7.07 Test jacks are provided for connecting test equipment.