

28 KEYBOARD SEND-RECEIVE AND RECEIVE-ONLY  
TYPING REPERFORATOR SETS (KTR AND ROTR)

DESCRIPTION

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1. GENERAL

1.01 The 28 Keyboard Send-Receive Typing Reperforator Set (KTR) is an electro-mechanical apparatus that provides terminal facilities for exchanging messages over appropriate transmission facilities including telegraph lines, telephone networks, and radio channels. An operator sends the messages by typing them on a keyboard which translates the data to a

serial start-stop (teletypewriter) code. The originating KTR set records the transmission on communications-type tape in the form of code hole perforations and printed characters. The distant stations record the transmission on tape, page-width copy paper, or continuous business forms, determined by the facilities of the station. The sets operate at various speeds up to 100 words per minute.

1.02 The 28 Receive-Only Typing Reperforator Sets (ROTR) are similar to KTR Sets, but have no keyboard sending facilities. They are used in applications that require only the reception of messages on tape.

2. VARIATIONS

2.01 The Sets are available in several configurations to meet varying installation and operational requirements:

- (a) Table Model Sets - These cover-enclosed KTR and ROTR Sets rest on any flat surface or a table, which contains space for additional equipment (Figs. 1, 3, 4, and 5).
- (b) Miniaturized Set - Similar to the other table model ROTR Sets, but equipped with a close-fitting cover (Figs. 5 and 6).
- (c) Multiple ROTR Sets - Provide the facilities of three ROTR sets in a single mounting. They are used, for example, in the Receiving and Monitor Groups of the Universal Torn Tape System (Figs. 7 and 8).

3. COMPONENTS

3.01 The component complement of the Sets may vary from one installation to another, depending upon the operational requirements. In general, a KTR Set consists of a typing reperforator unit, a keyboard base, a motor unit, an electrical service unit, and an enclosure. The receive-only base replaces the keyboard in Receive Only Sets; and in the Multiple Sets, it accommodates three typing reperforator units.

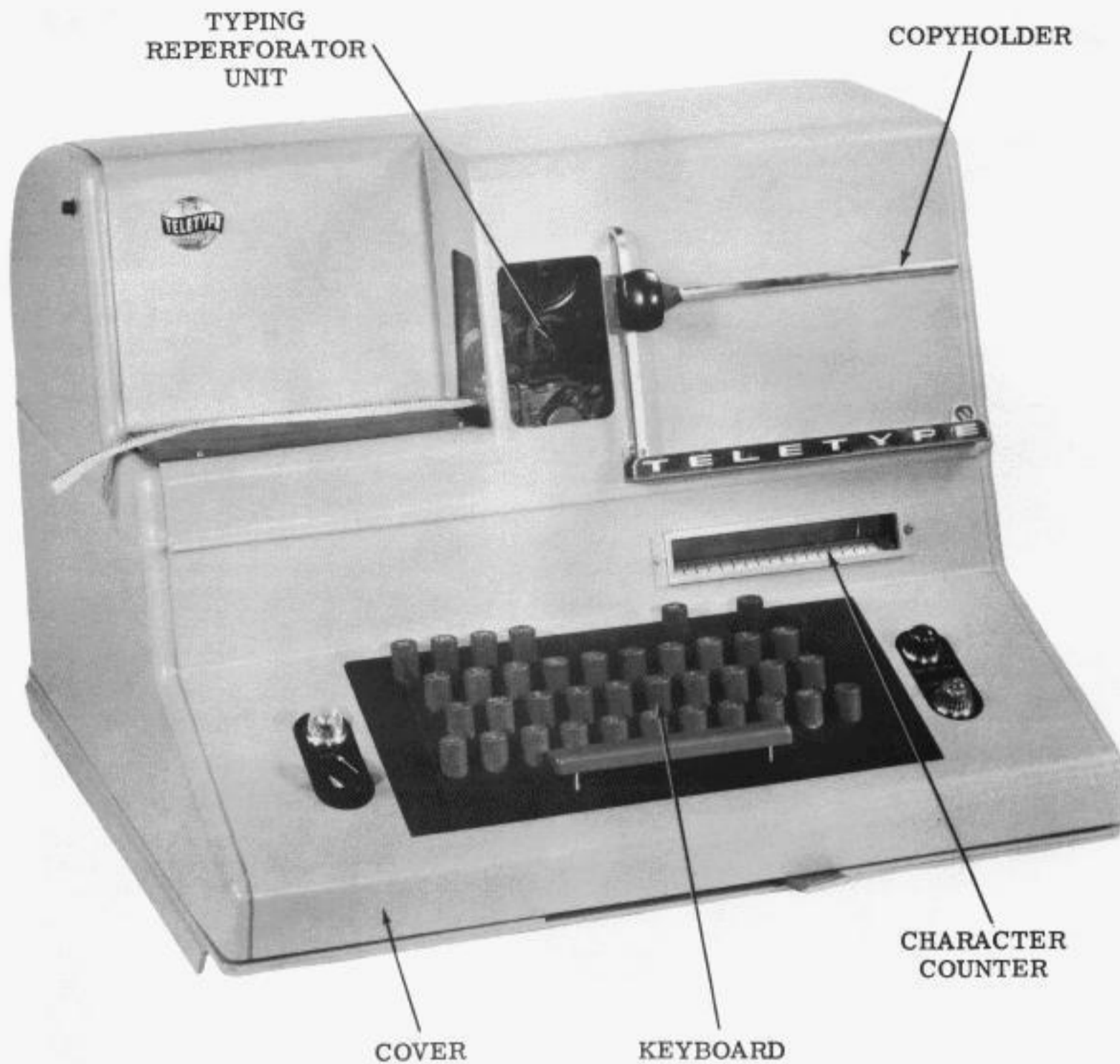


Figure 1 - 28 Keyboard Send-Receive Typing Reperforator Set

A complete description of these components will be found in the appropriate section for a particular component.

3.02 In KTR Sets, the motor unit and typing reperforator unit are mounted on the base portion of the keyboard (Fig. 2). The motor unit supplies rotary motion through a gear set to the typing reperforator unit and the keyboard. Gear

sets may be interchanged to obtain various operating speeds up to 100 words per minute. The transfer of rotary motion from the motor unit to the typing reperforator unit in Receive-Only Sets is achieved through interchangeable gear sets or, in certain Sets, by an optional, variable speed drive mechanism (Fig. 6). In the Multiple ROTR Sets, the typing reperforator units may operate at a common, or at independently varied speeds.

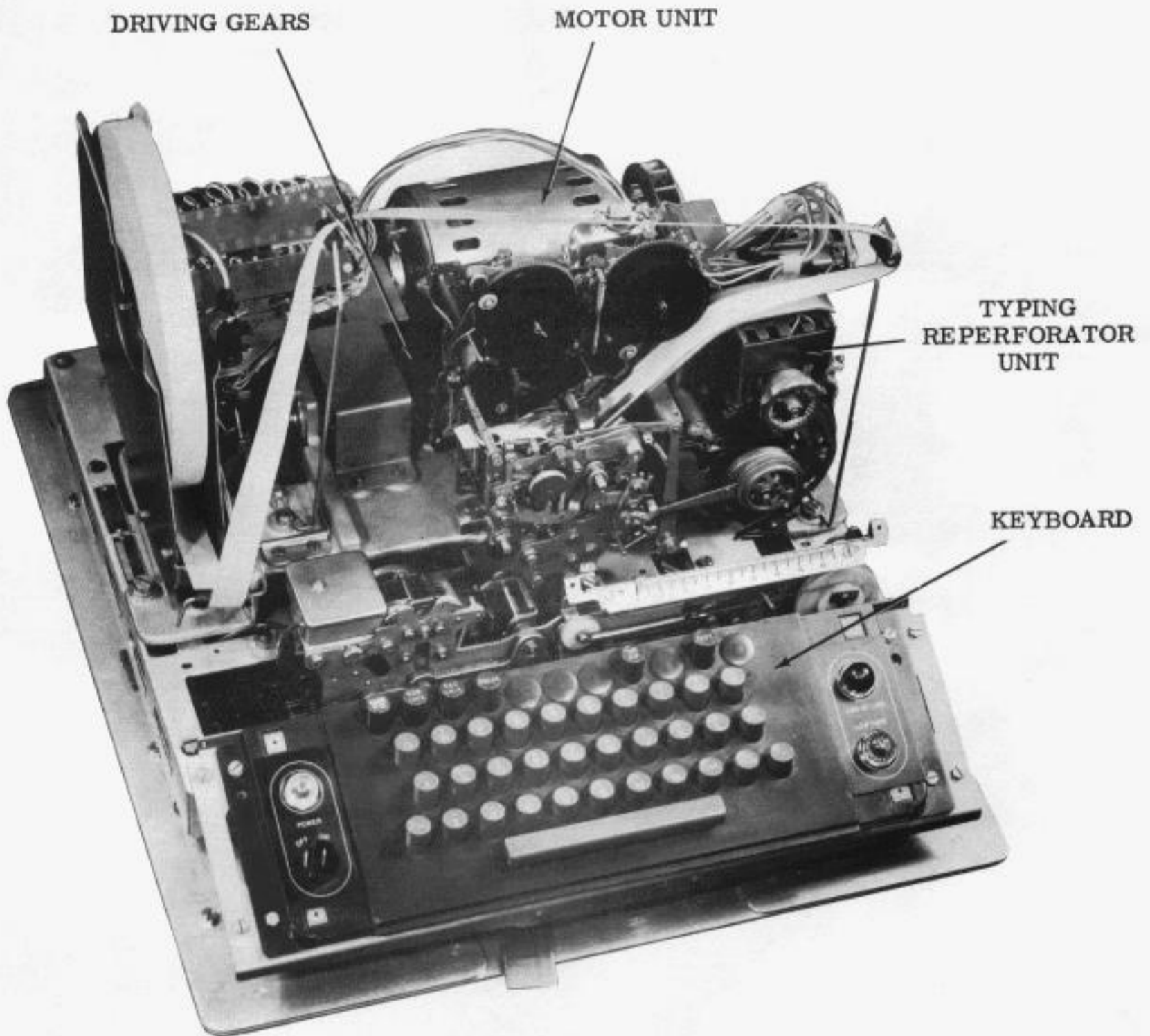


Figure 2 - 28 Keyboard Send-Receive Typing Reperforator Set (Cover Removed)

#### TYPING REPERFORATOR UNIT (Fig. 2)

3.03 The typing reperforator unit contains the mechanisms necessary for translating electrical input signals into mechanical motions that perforate code holes and print the equivalent messages on tape. The unit may be equipped to provide either fully-perforated or partially-perforated (chadless) operation. A function box is included to provide special functions such as unshift on space and signal bell.

#### SEND-RECEIVE KEYBOARD AND RECEIVE-ONLY BASE (Figs. 2, 4, 6 and 7)

3.04 Both the send-receive keyboard and the receive-only base provide mounting facilities for the typing reperforator unit, motor, drive gears, and various mechanism required for control of the set. Unlike the receive-only base, the send-receive keyboard is equipped with mechanisms for generating and transmitting a teletypewriter signal.



Figure 3 - 28 Receive-Only Typing Reperforator Set

#### MOTOR UNITS (Fig. 2)

3.05 The motor units that provide mechanical motion for KTR and ROTR sets are of two basic types: ac synchronous and ac/dc series governed. The ac synchronous motor is used when the power source is regulated; the ac/dc series governed motor operates from either regulated or unregulated power. The latter is required where only unregulated power is

available. The units operate at the same speed and, to accommodate varying load requirements, they are available in standard and heavy-duty horsepower ratings.

#### ELECTRICAL SERVICE UNIT (Fig. 4)

3.06 The electrical service unit serves as the area of concentration for the wiring of

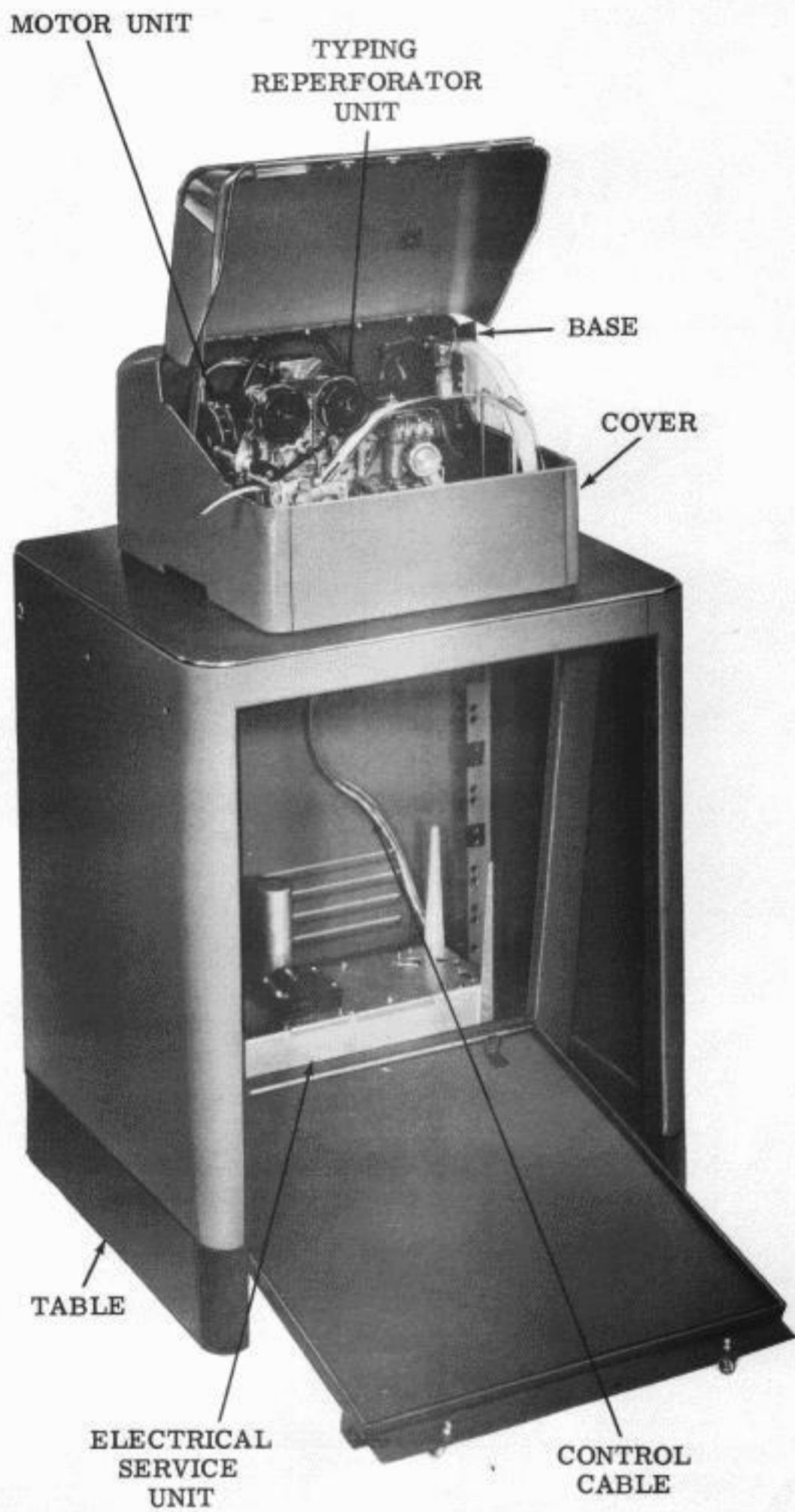


Figure 4 - 28 Receive-Only Typing Reperforator Set and Reperforator Table

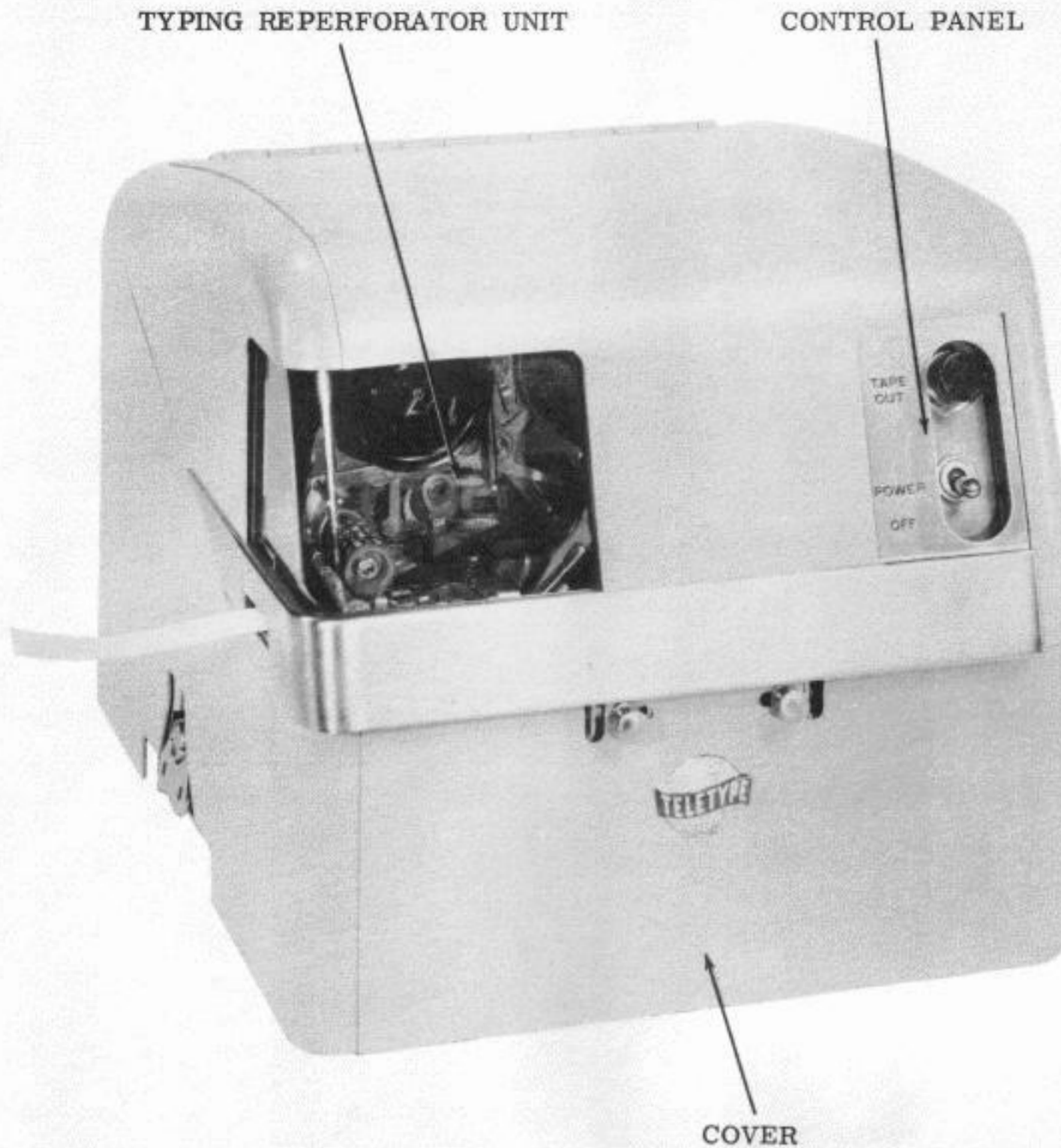


Figure 5 - 28 Miniaturized Receive-Only Typing Reperforator Set

KTR and ROTR sets, and provides mounting facilities for various electrical assemblies and components. It may include such optional assemblies as a line (polar) relay, line shunt relay, rectifier, motor control mechanism, and selector magnet driver. The set's main power switch, convenience outlet and fuse, terminal blocks, and interconnecting cables may also be included.

#### ENCLOSURES

3.07 The components of KTR and ROTR Sets may be housed in the following enclosures: The keyboard send-receive typing reperforator set cover, the receive-only reperforator set cover, the receive-only miniaturized typing reperforator set cover, and the multiple reperforator set cabinets. In addition, tables are available for supporting the cover-enclosed sets.

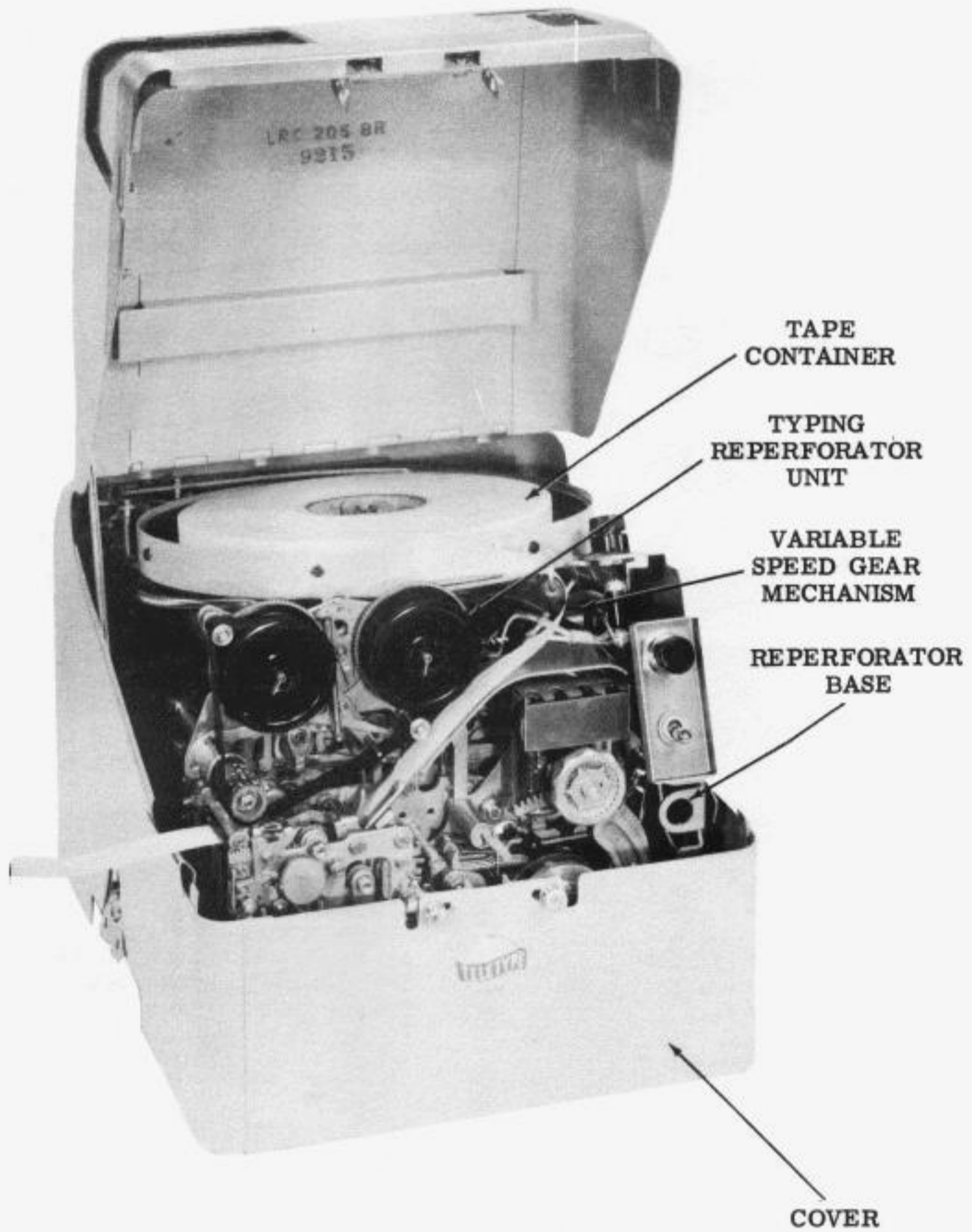


Figure 6 - 28 Miniaturized Receive-Only Typing Reperforator Set (Cover Open)

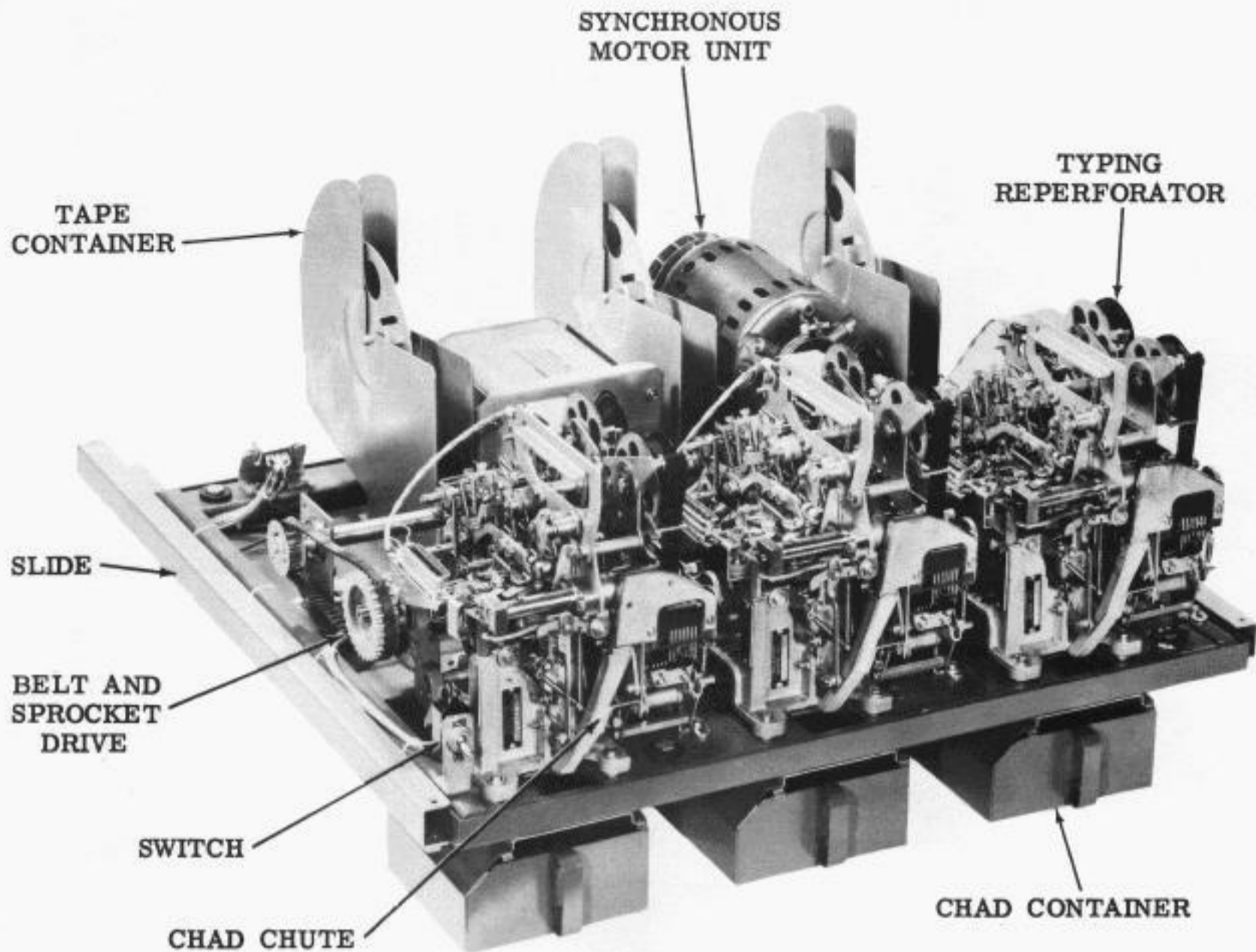


Figure 7 - 28 Multiple Typing Reperforator Set

#### 4. VARIABLE FEATURES

4.01 A wide variety of optional features are available with the equipment. These features, which provide special operations or control facilities, or which serve as an aid in operation, are in most cases readily installed in the field. Some of these features are described briefly below.

(a) **Tape Feed Out Mechanisms** - These mechanisms operate automatically or manually to step-out a length of blank or letters perforated tape for convenience in tape handling. Feed out may be interfering or non-interfering.

(b) **Back Space Mechanisms** - Operated manually or with power-drive, the mechanism retracts tape back through the punch block to allow erroneously perforated data to be obliterated by replacement with the letters code combination.

(c) **Variable Speed Drive Mechanisms** - Used in place of single-speed gear sets on certain Receive-Only Sets, this feature permits the selection of operating speeds by means of a manually operated lever. Typically, speeds of 60, 75, and 100 words per minute are available.

(d) **Motor Control Mechanisms** - Starts or stops the set's motor in response to predetermined signal line or separate line conditions.

(e) **Contact Mechanisms** - A number of electrical contacts are available to provide control of external equipment or for other special applications. These include code reading, timing and letters-figures contact mechanisms.

(f) **Accessories** - Various accessories are available to facilitate tape processing and handling including tape bins, chad chutes, low tape and tape out alarms, and tape winders.



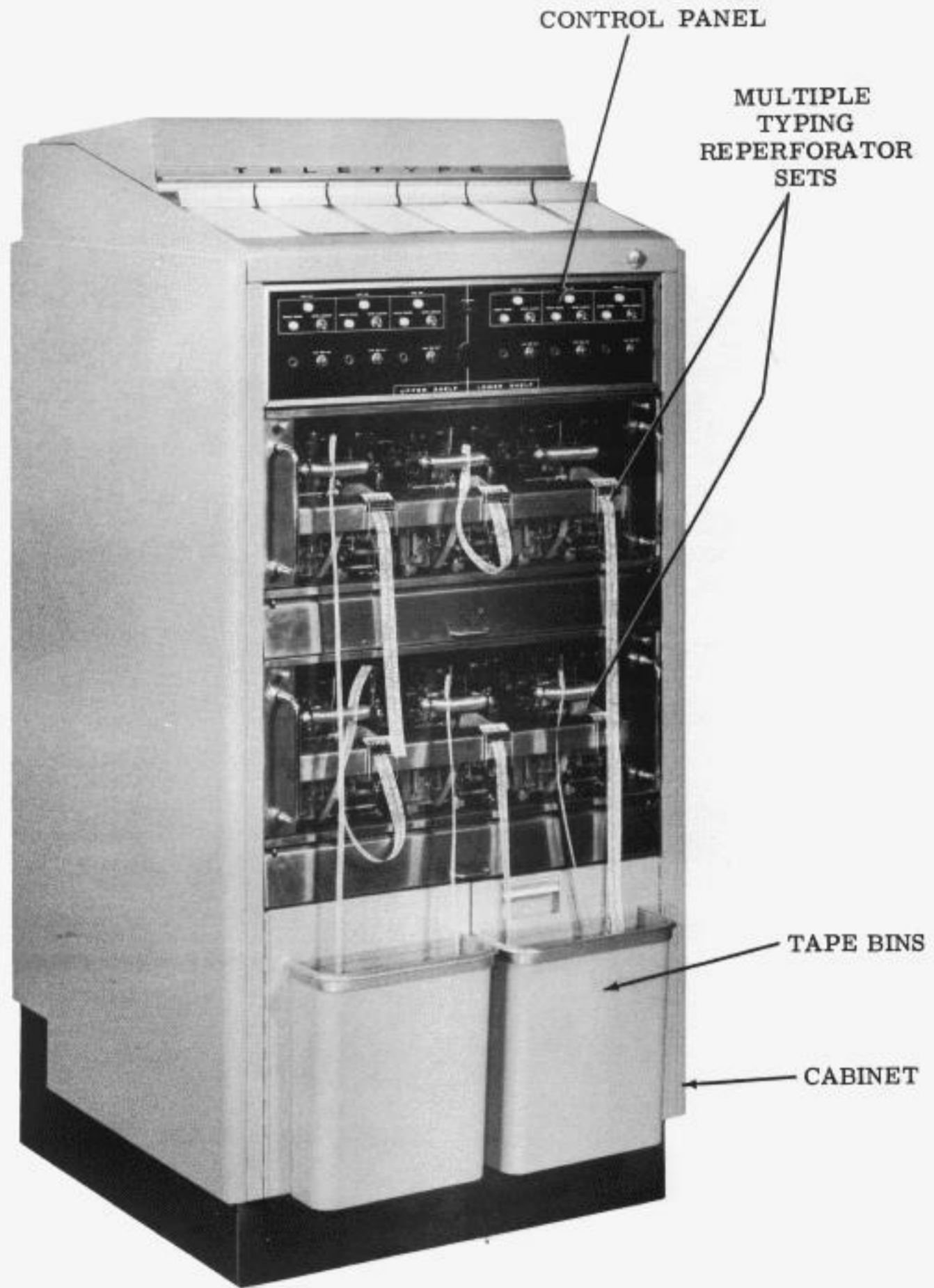


Figure 8 - Typical 28 Multiple Reperforator Set Cabinet

## 5. TECHNICAL DATA

## WEIGHTS AND DIMENSIONS

SET	APPROX. DIMENSIONS (INCHES)			APPROX. WEIGHT (POUNDS)
	Height	Width	Depth	
Keyboard Send-Receive Typing Reperforator Set	13-3/4	17	18-3/4	119
Receive-Only Typing Reperforator Set	9-1/2	13	14-1/2	48
Receive-Only Miniaturized Typing Reperforator Set	9-1/4	10	12	40
Typical 28 Multiple Reperforator Set Cabinet (Includes Multiple Typing Reperforator Sets)	57-1/2	25-1/2	32-1/2	270
Table	35	20-1/2	18-1/2	50

SIGNALING CODE . . . . . Sequential five-unit start-stop

LINE CURRENT . . . . . 0.020 or 0.060 ampere

SPEED (operations per minute and words per minute) . . . . . 368 opm (60 wpm),  
 (Other speeds are also available) . . . . . 404 opm (67 wpm or 50 baud),  
 460 opm (75 wpm) or 600 opm (100 wpm)

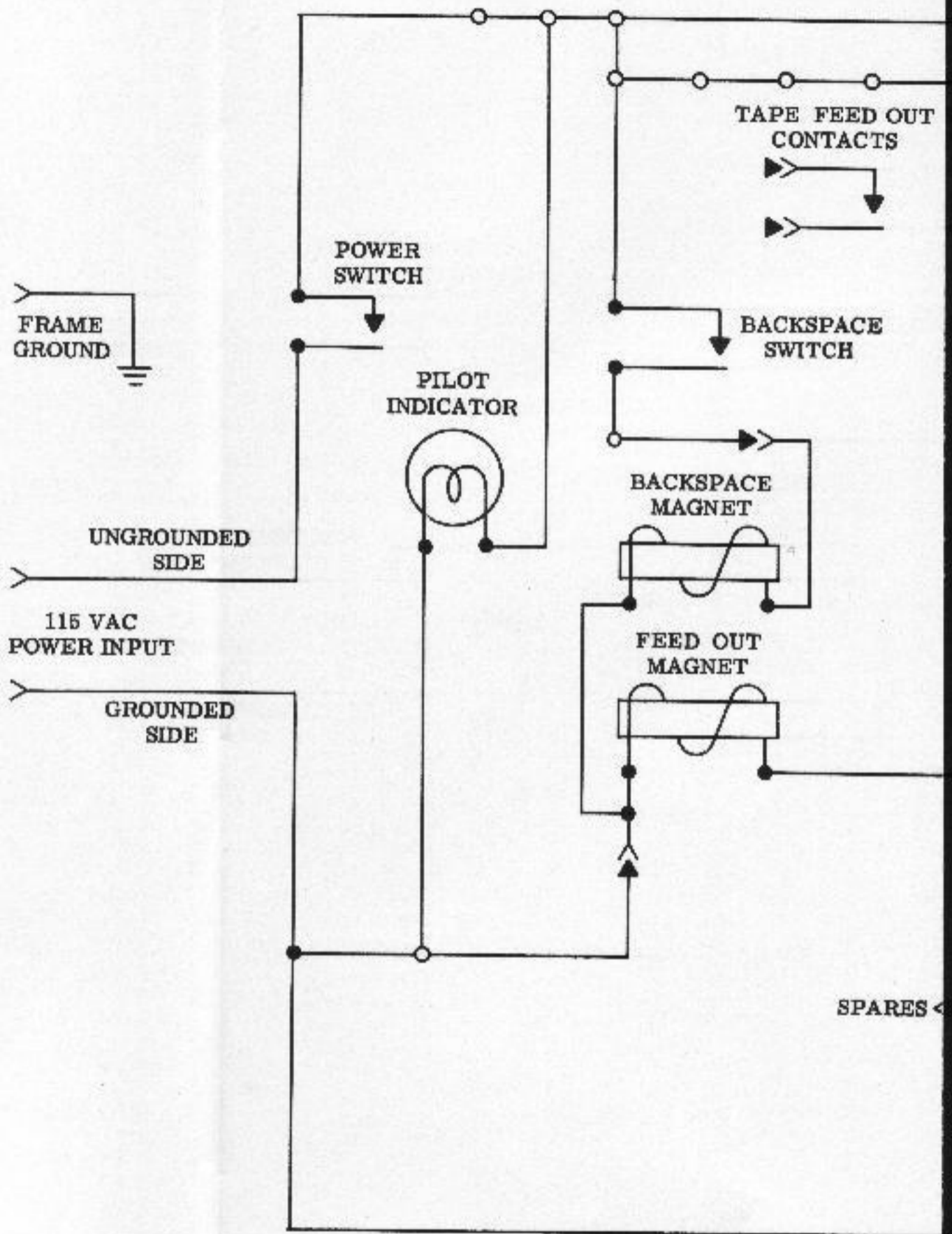
## TAPE

Type . . . . . Standard communications  
 Width . . . . . 11/16 inch  
 Code perforations . . . . . Chadless or fully perforated  
 Characters or feed holes per inch . . . . . 10

## PRINTED CHARACTERS

Height . . . . . Chadless, 0.120 inch; fully perforated, 0.100 inch  
 Width . . . . . Chadless, 0.075 inch; fully perforated, 0.450 inch  
 Location of printing . . . . . Along upper edge of chadless perforated tape;  
 between feed holes on fully perforated tape

POWER REQUIREMENTS . . . . . 115 volts ac, single-phase,  
 60 cycles



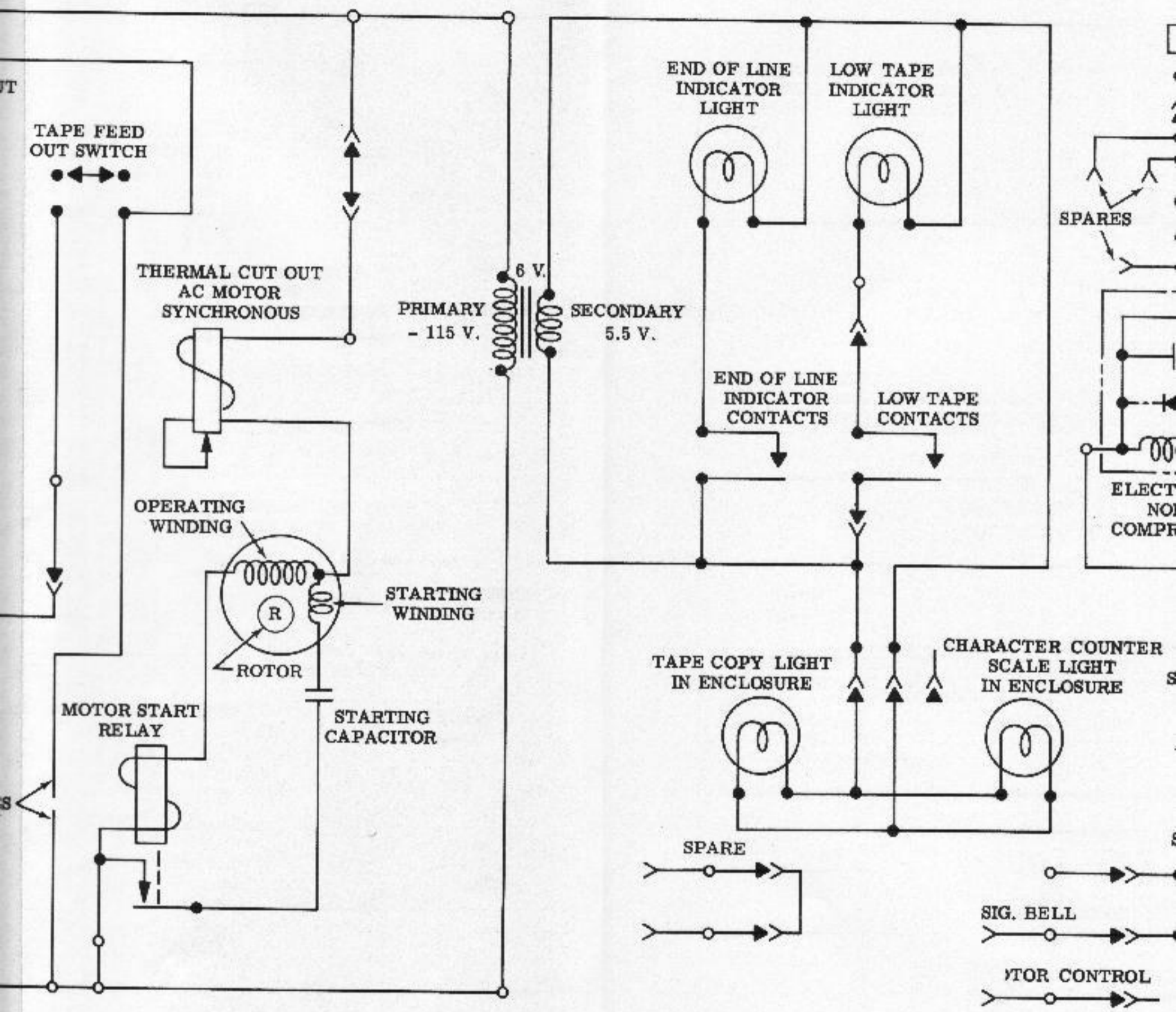


Figure 9 - Typical 28

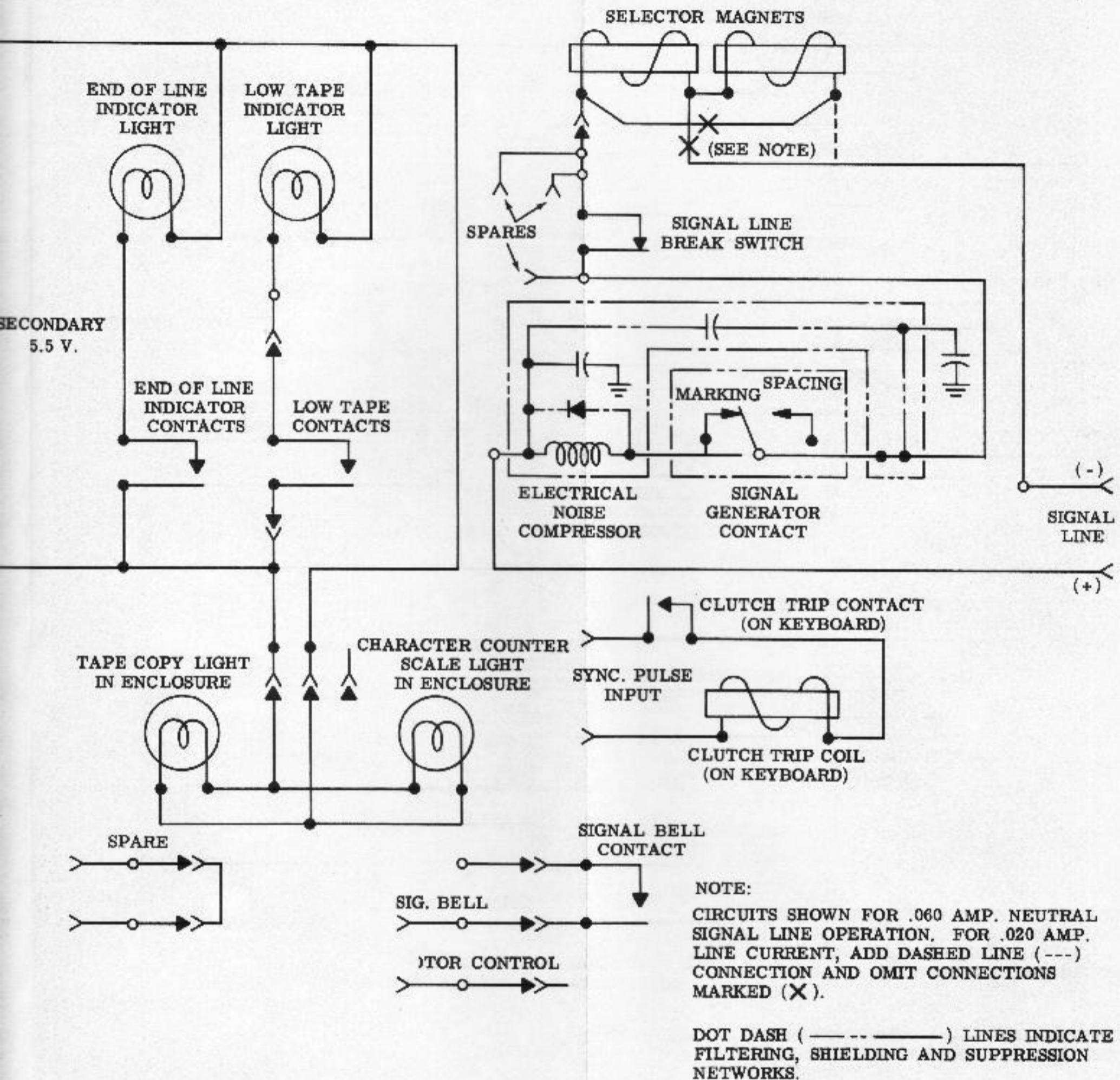


Figure 9 - Typical 28 Typing Reperforator Set Schematic Diagram