

MODEL 32 TELETYPEWRITER SET  
INSTALLATION

CONTENTS	PAGE
1. GENERAL . . . . .	1
UNPACKING . . . . .	1
PREPARATION FOR INSTALLATION . . . . .	2
2. INSTALLATION . . . . .	3
MOUNTING TYPING UNIT ON STAND . . . . .	3
CODING ANSWER-BACK DRUM . . . . .	5
ELECTRICAL CONNECTION . . . . .	7
ADJUSTMENTS . . . . .	7
PLACEMENT . . . . .	8
A. Without Stand . . . . .	8
B. With Stand . . . . .	8
3. FINAL ASSEMBLY . . . . .	8
GENERAL . . . . .	8
RIBBON INSTALLATION . . . . .	8
PAPER OR FORM INSTALLATION . . . . .	9
A. Friction Feed . . . . .	9
B. Sprocket Feed . . . . .	9
4. OPTIONAL FEATURES . . . . .	11
A. Copyholder . . . . .	11
B. Hand Receiver . . . . .	12
5. TAPE READER . . . . .	12
6. POWER PACK ASSEMBLY . . . . .	13
7. TAPE PUNCH . . . . .	13
8. RESHIPMENT . . . . .	15

1. GENERAL

1.01 This section provides installation instructions for Model 32 teletypewriter sets. It is reissued to add a lubrication chart, and to make corrections. Because it is a general revision, marginal arrows used to indicate changes are omitted.

1.02 References to left, right, front, or rear, etc, consider the teletypewriter set to be viewed from its normal operating position.

1.03 Tools used for set installation are shown in Section 570-005-800TC.

Note: To avoid injury, take special care when working with a teletypewriter set connected to its power supply.

1.04 Leads for the signal line must be furnished by the customer.

UNPACKING

1.05 The teletypewriter set is packed in one carton. Observe all caution and instruction labels on the carton before breaking the seals.

1.06 Cut tape at center and end seams. Open carton and remove four styrofoam corner details and pull stand (if present) straight up and out. Remove cardboard box containing accessories from between cardboard liner and side of carton. Remove cardboard liner which surrounds the teletypewriter set. Carefully lift set with pallet from carton.

CAUTION: TELETYPEWRITERS, DEPENDING ON TYPE, WEIGH FROM 47 TO 61 POUNDS.

1.07 The typing unit and subbase are mounted on a shipping pallet by seven screws. Remove the seven screws, being careful that the typing unit does not fall off subbase. When three hexagon screws are removed, the typing unit is seated only on rubber isolators attached to the subbase.

Note: Retain the forward mounting screw and associated flat washer. This screw is used to secure the typing unit when shipped to another location without its cover fastened in place. The screw and washer may be stored in the TP181104 cable clip (included in bag of hardware with pedestal mounted units) to be mounted on the typing unit frame between the two dashpot mounting screws (Figure 1).

- 1.08 Remove teletypewriter from the shipping pallet.

**CAUTION:** DO NOT TILT THE TELETYPEWRITER AFTER IT HAS BEEN REMOVED FROM THE PALLET. THE TYPING UNIT FLOATS ON RUBBER ISOLATORS AND MAY PULL LOOSE IF IT IS TILTED.

PREPARATION FOR INSTALLATION

- 1.09 Remove the tape from across the top of the cover and take out the cables, platen knob (if not mounted on typing unit), and paper spindle from the paper recess. Unwrap the parts.

- 1.10 Remove the call control bezel, if used, after removing its two mounting screws. Remove volume control knob or power switch rotary knob, if used, by pulling knob forward. Detach the nameplate (Figure 2) by pulling it down and out. Remove the four front and three rear cover mounting screws. If platen knob is mounted on typing unit, remove.

Note: On Automatic Send-Receive (ASR) Sets, remove the screw from the left rear corner of the tape reader cover.

Gently lift the cover from the subbase.

- 1.11 Remove the twist tie holding the carriage to the left side frame and the tissue paper retaining the spacing pawls. Remove two yellow clips from the function drive bail.

Note: If the teletypewriter is an ASR Set with early design tape reader, remove the retaining clip from the tape reader upstop screw (Figure 12). Also, remove the yellow clip under the sensing lever of the tape punch.

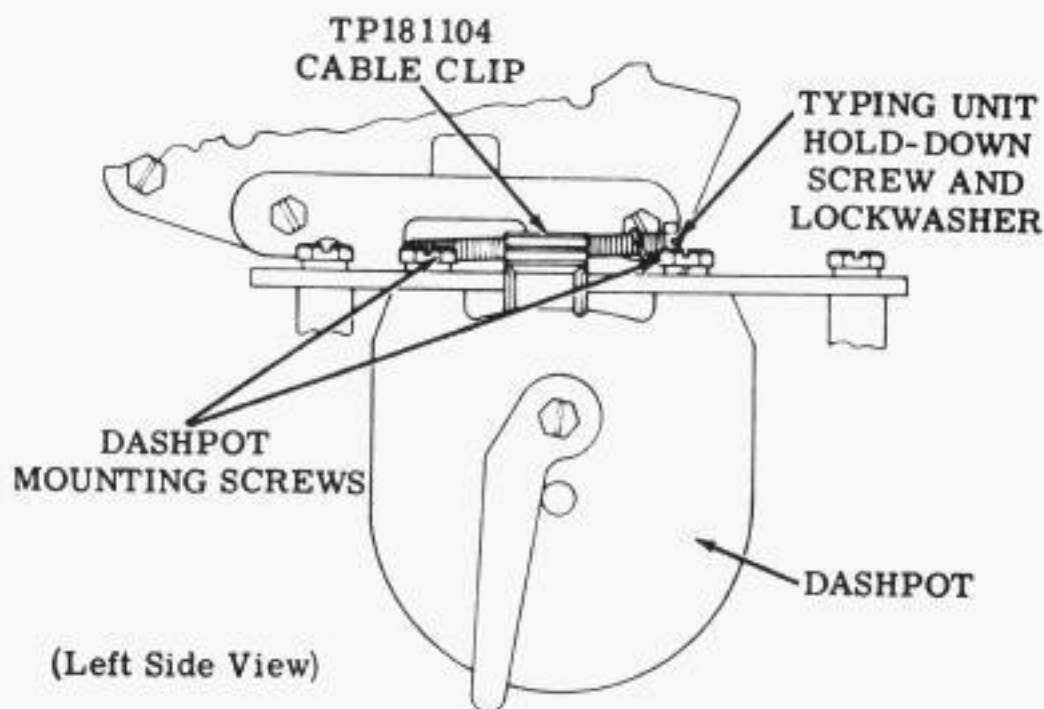


Figure 1 - Typing Unit Hold-Down Screw Storage

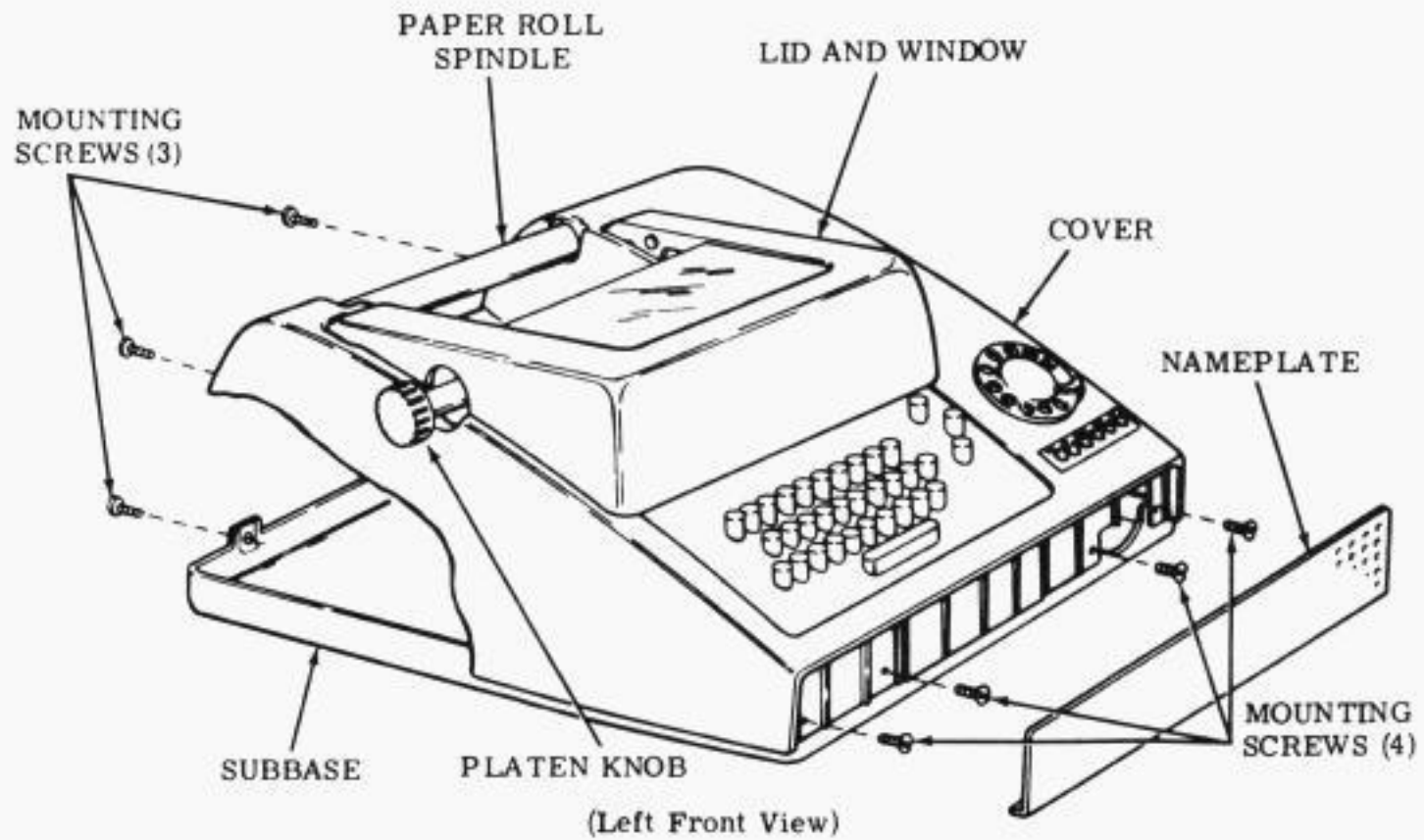


Figure 2 - Cover Mounting

1.12 If a stand is used, remove its two rear panel mounting screws and take panel off. Remove bag attached inside of stand and place its hardware contents on the bench.

1.13 Lubrication intervals for the teletypewriter sets are based on daily use, including idle time. Therefore, lubricate all set components at the following intervals:

LUBRICATION INTERVAL  
(Based on 5-Day Week)

Daily Operation			
Speed (wpm)	0-8 hrs	8-16 hrs	16-24 hrs
60	39 wks	26 wks	13 wks
100	26 wks	13 wks	6 wks
All speeds*	3 wks	2 wks	1 wk

\*Newly installed equipment

Note 1: Reduce lubricating intervals 15 percent for a 6-day week, and 30 percent for a 7-day week.

Note 2: Sets with typing unit serial numbers below 144,000, reduce lubricating intervals 33 percent. Those with serial numbers above 144,000, use chart.

Note 3: For sets operating at speeds between those shown, use slower speed.

2. INSTALLATION

MOUNTING TYPING UNIT ON STAND

2.01 If the teletypewriter set is to be bolted to the floor, remove the front screw in each leg of the stand (Figure 3).

2.02 Install the plug button, included in the bag of hardware, in the forward hole in the bottom of the subbase.

2.03 Place the subbase and typing unit on top of the stand so that its back edge and sides line up with the back edge and sides of the stand. Install the two retaining clips, included in the hardware bag, on the base at the rear (one each end) and snap them in place on the stand. Refer to Figure 4. Mount the base to the stand from the bottom with four TP181237 screws and four TP125928 flat washers.

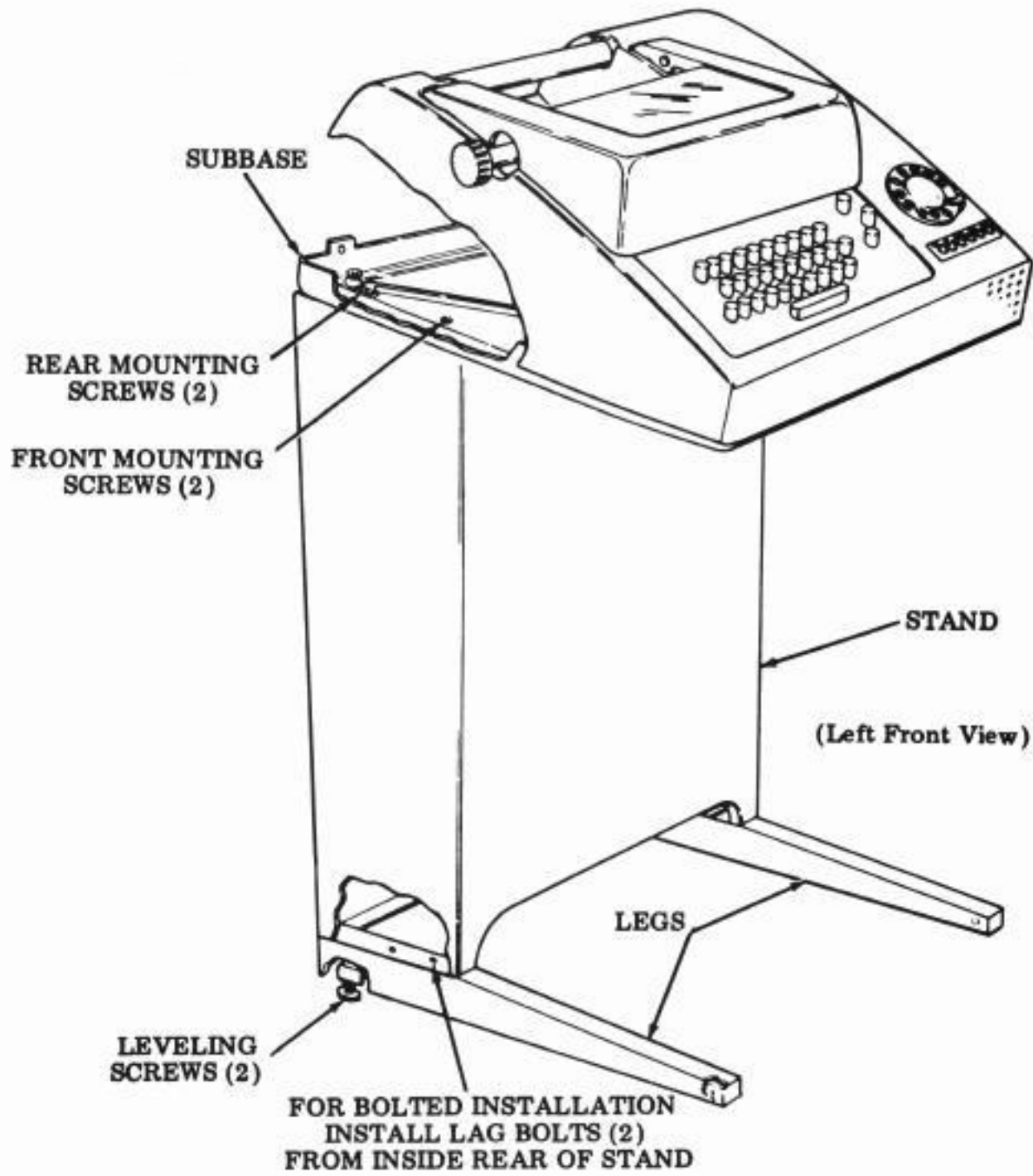


Figure 3 - Stand Leveling and Anchoring and Assembly of Subbase with Typing Unit to Stand

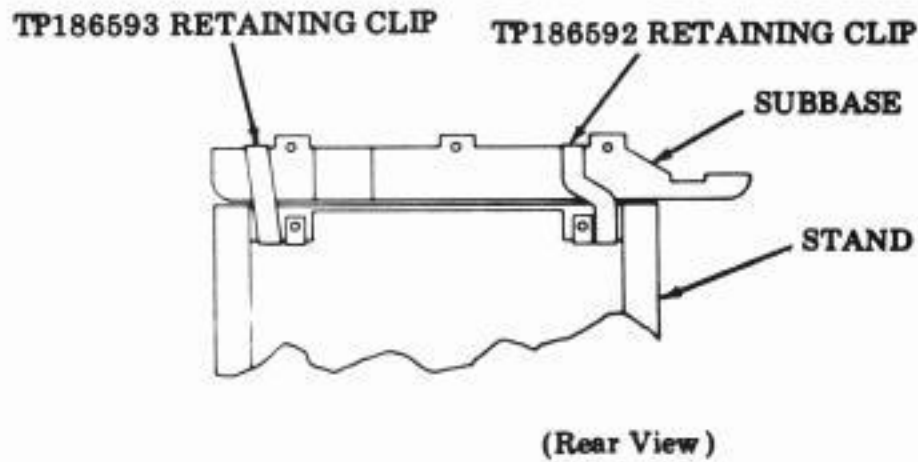


Figure 4 - Installation of Retaining Clips to Subbase and Stand



## CODING ANSWER-BACK DRUM

2.04 To remove answer-back drum for coding, press back and down on the tab portion of the TP180854 brace until it becomes detented in its open position. Lift feed pawl slightly (do not overextend its spring) and remove drum.

2.05 Code the answer-back drum in a counterclockwise direction (Figures 5 and 6), starting with row no. 1.

Note 1: The ST row is the first row sensed at the beginning of an answer-back cycle. It is coded at the factory for character suppression and must not be recoded.

Note 2: The TP184149 answer-back drum (in which the suppression tine is not factory-removed, as in other drums) requires a coding pattern. When a tine is removed, at least one tine (same level, adjacent row) must also be removed. The coding pattern thus established results in a minimum of two successive removed tines in each area of required tine removal.

The tines of the three unused levels may be left intact since no contact wires sense these positions.

2.06 A particular character is coded by either retaining or removing tines within a row, as illustrated in Figure 5. A tine may be removed by either of the two following methods.

(a) Method 1: Place the end of a screwdriver blade at the base of a tine in the row previously coded. Press the side of the blade against the top of the unwanted tine until the tine breaks off. Figure 5 illustrates this method — pressure applied to base of row no. 18 and against top of adjacent tine being removed from row no. 19.

(b) Method 2: Place the unwanted tine in the slot of a TP161686 tine tool, or grasp the tine firmly with long-nose pliers. With the tool or pliers held stationary, rotate the answer-back drum back and forth until the unwanted tine breaks off near its base. Do not damage adjacent tines.

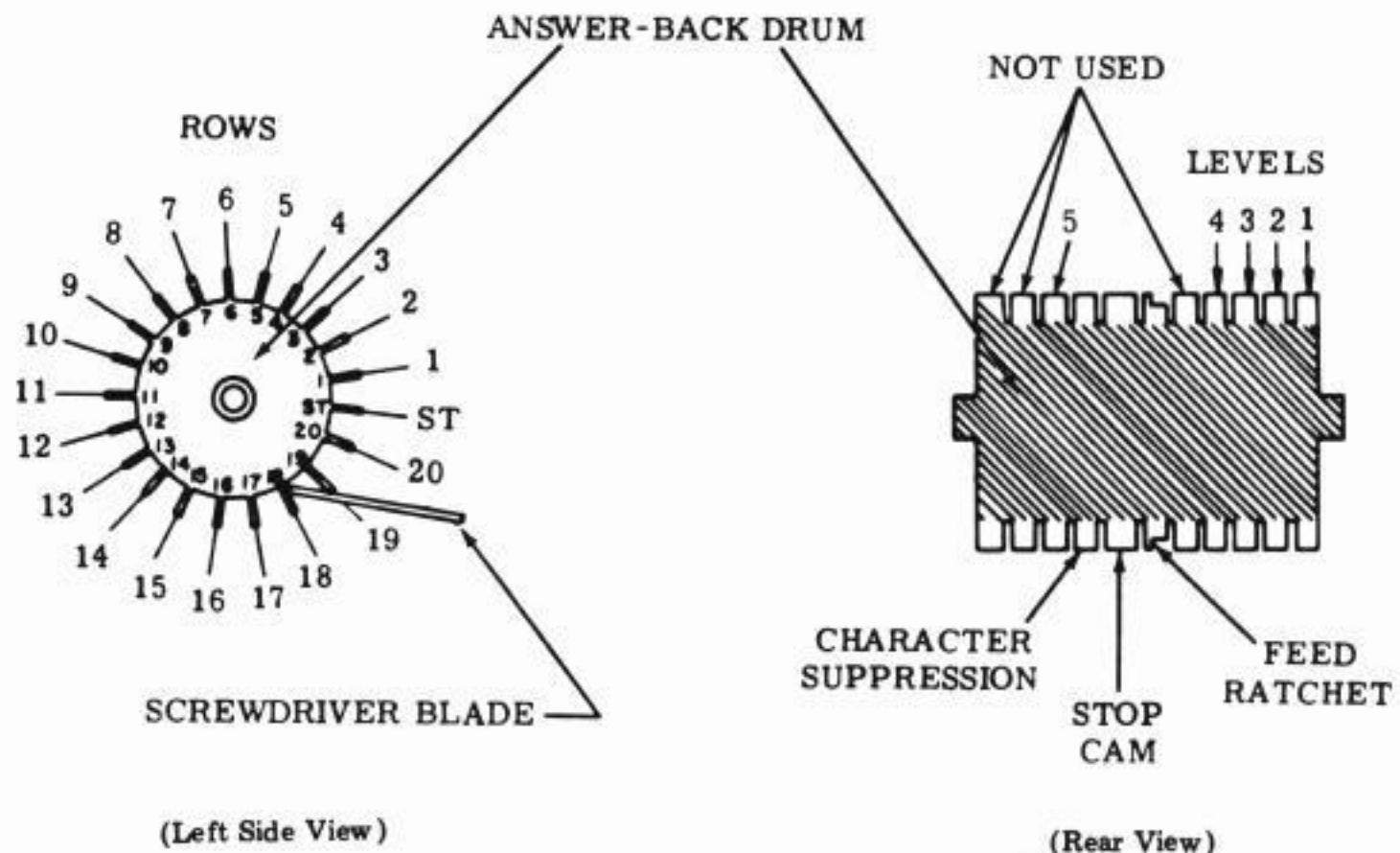


Figure 5 - Answer-Back Drum

LETTERS	FIGURES	CODE LEVELS				
		5	4	3	2	1
A	-	■	■	■	■	■
B	?	■	■	■	■	■
C	:	■	■	■	■	■
D	WRU	■	■	■	■	■
E	3	■	■	■	■	■
F	\$	■	■	■	■	■
G	&	■	■	■	■	■
H	#	■	■	■	■	■
I	8	■	■	■	■	■
J	BELL	■	■	■	■	■
K	(	■	■	■	■	■
L	)	■	■	■	■	■
M	.	■	■	■	■	■
N	,	■	■	■	■	■
O	9	■	■	■	■	■
P	0	■	■	■	■	■
Q	1	■	■	■	■	■
R	4	■	■	■	■	■
S	'	■	■	■	■	■
T	5	■	■	■	■	■
U	7	■	■	■	■	■
V	;	■	■	■	■	■
W	2	■	■	■	■	■
X	/	■	■	■	■	■
Y	6	■	■	■	■	■
Z	"	■	■	■	■	■
CARRIAGE RETURN		■	■	■	■	■
LINE FEED		■	■	■	■	■
LETTERS SHIFT		■	■	■	■	■
FIGURES SHIFT		■	■	■	■	■
SPACE		■	■	■	■	■
BLANK		■	■	■	■	■
1 CYCLE OPER - ROW 6		■	■	■	■	■
1 CYCLE OPER - ROW ST		■	■	■	■	■
2 CYCLE OPER - ROWS 6&17		■	■	■	■	■
2 CYCLE OPER - ROWS ST&11		■	■	■	■	■
3 CYCLE OPER - ROWS 6,13, & 20		■	■	■	■	■
3 CYCLE OPER - ROWS ST, 7, & 14		■	■	■	■	■

■ LEAVE TINE

□ REMOVE TINE

CHARACTER SUPPRESSION →

STOP CAM →

FEED RATCHET →

**Note:** Be sure to allow for any variation from the charted codes above that are unique to the system in which the answer-back drum will be used.

Figure 6 - Coding of Answer-Back Drum

Note: If a coding error is made, or for some other reason it is necessary to suppress (erase) characters from the answer-back drum, remove the character suppression tine from the row(s) affected.

2.07 The length of an answer-back sequence can be varied either by removing the stop cam tine(s) and/or the character suppression tine(s).

(a) For short sequences, code the drum for either 2- or 3-cycle operation by removing the appropriate tine(s) as indicated in Figure 5.

(b) Removal of the character suppression tine from any row prevents transmission from the answer-back mechanism. To shorten the answer-back sequence, remove the suppression tine from any unused row(s) after the end of a message.

Note: Do not remove the character suppression tine from the last row of each segment of the answer-back drum — row no. 20 for answer-back drums coded for 1-cycle operation — on sets used in systems where a response to each answer-back activation signal must be obtained. The last row can be coded with any other character that is compatible with the particular system.

2.08 The number of rows available for message coding is shown below for 1-, 2- or 3-level operation:

<u>CYCLE OPERATION</u>	<u>TOTAL ROWS</u>	<u>AVAILABLE ROWS</u>
1	21	20
2	10 (11)*	9 (10)*
3	7	6

\*Alternately one, then the other.

2.09 The number of rows available for actual station identification is less than shown above, because each coded message should begin and end with carriage return and line feed (this may be altered in specific applications). This assures that the transmitted message will appear at the beginning of a line of the receiving teletypewriter set and eliminates overprinting.

2.10 To replace the answer-back drum, place the TP180854 brace in its detented open position, and lift feed pawl (do not over-extend its spring). Replace drum with its shaft firmly seated in the contact block slots. Release feed pawl and TP180854 brace. Rotate answer-back drum to assure proper seating of its associated parts. Check that the contact wires are located in their proper slots.

ELECTRICAL CONNECTION

**CAUTION:** MAKE SURE POWER CORD IS NOT CONNECTED.

2.11 Refer to the appropriate wiring diagrams packed with teletypewriter set or to the appropriate wiring diagram section when provided.

2.12 Connect the signal line leads (supplied by customer) to the terminals on the terminal board at the rear of the call control unit as indicated on the wiring diagram.

2.13 Connect power cord to an ac source, 115-volt 60 hertz.

ADJUSTMENTS

2.14 Because altitude may have some affect on dashpot operation, check CARRIAGE BOUNCE (MDA-4) adjustment in Section 574-172-700TC.

2.15 Sets equipped with an answer-back mechanism must be tested for proper response to a predetermined call character such as WRU. The following procedure is recommended for performing this test.

(a) Use a predetermined call character, such as WRU, to call the newly installed set.

(b) The set should establish the connection and automatically transmit the answer-back message.

Note: Set will not respond if the suppression tine has been removed from the last row. See 2.07 (b).

(c) If proper response is not obtained, check and correct the following answer-back area adjustments in Section 574-172-700TC:



- DRUM POSITION (ABA-2)
- TRIP LEVER CLEARANCE (ABA-3)
- FEED LEVER POSITION (ABA-4)
- FEED PAWL POSITION (ABA-5)
- "HERE-IS" BELLCRANK POSITIONING (ABA-6)
- TRIP BAIL POSITIONING (ABA-7)
- CHARACTER SUPPRESSION CONTACT WIRE GAP (ABA-8)

## PLACEMENT

### A. Without Stand

2.16 If a stand is not included, place the teletypewriter set on the surface where it is to be used.

### B. With Stand

2.17 Figure 3 illustrates the facilities for leveling and anchoring the stand.

2.18 Place the partially assembled set where it is to be used. If the set rocks to one side or another, tip it slightly and reposition the leveling screws.

Note: Reaction to the carriage returning to its left position may cause early design teletypewriter sets to move across the floor toward the left. To correct this, either add weight to the stand, arrange to have it bolted to the floor, or drill one 0.328 inch diameter hole into each leg and install TP182285 rubber bumper in each leg.

2.19 If the teletypewriter set is to be bolted to the floor, place stand at the desired location and drive lag bolts into the floor through the front holes in the legs.

## 3. FINAL ASSEMBLY

### GENERAL

3.01 Replace the back panel onto the stand, if used, using the removed screws.

Note: Before replacing an ASR cover, remove the retaining clip (early design units only) from the tape reader upstop screw (Figure 12).

3.02 Replace the cover over the typing unit and onto the subbase (Figure 2). Take care that all seams are tight and that keyboard pushbuttons, dial, etc, are properly aligned. Insert and tighten the cover mounting screws removed during PREPARATION FOR INSTALLATION.

Note: On an ASR Set, insert and tighten the screw at the left rear corner of the tape reader cover.

3.03 Replace the nameplate making sure that the formed lip fits around the bottom of the flange on the cover, that the top edge is behind the small lip on the cover, and that the bottom of the nameplate rests on top of the two small projections on the subbase.

3.04 Replace the volume control knob or the power switch rotary knob, if either is used, by positioning and pushing it rearward.

3.05 Position the bezel, if used, on the cover over the call control unit. Insert and tighten its two mounting screws.

3.06 On friction feed typing units, align the platen knob with the flat on the left side of the platen. Push knob in place. On sprocket feed typing units, install platen knob on left side of platen. Fully seat knob to the right and secure it with the screw provided.

### RIBBON INSTALLATION

3.07 Figure 7 illustrates ribbon threading.

3.08 Raise the cover lid. Remove the spools from the sealed envelope.

3.09 Place the spools on the shafts in such a manner that the ribbon feeds to the rear from the right side of the right spool and from the left side of the left spool. Turn each spool slightly until the spool driving pin engages the hole in the spool. Guide the ribbon around the right vertical post and through the slot in the reverse arm. Place the ribbon in the ribbon guide behind the typewheel. Guide the ribbon through the left side of the reverse arm and around the vertical post. Rotate the spool to take up any slack.

3.10 Single color printing during full-duplex operation may be provided by either of the following methods.

(a) Replace the two-color ribbon with a single-color ribbon.

(b) Install the two-color ribbon with the desired color at the top of the spools. Disable the color selector latch in the printer carriage as follows. Place printer in stop condition; loosen color selection latch clamp screws (2); raise lever which engages R



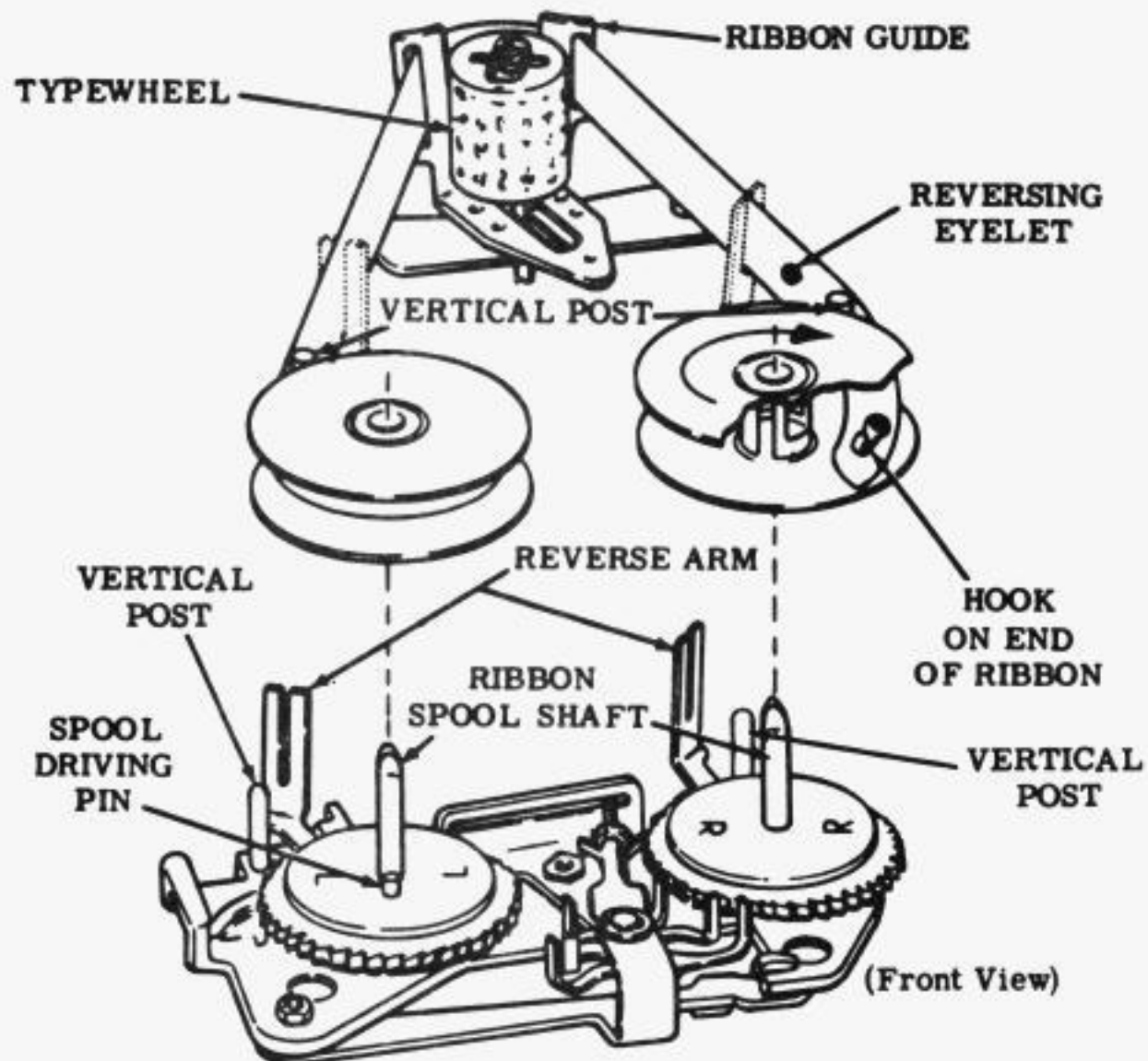


Figure 7 - Ribbon Threading

codebar until all adjusting clearance is taken up between it and the color selection latch; tighten both clamp screws.

#### PAPER OR FORM INSTALLATION

##### A. Friction Feed

3.11 A friction feed teletypewriter set accommodates a standard roll of paper 8-1/2 inches wide and 5 inches in diameter. Figure 8 illustrates paper threading for a friction feed typing unit.

3.12 Insert the paper roll spindle into the roll of paper so that an equal length of spindle is exposed at either end of the roll. Place roll into the cover recess with the ends of the spindle resting in the slots so that the paper will unroll from the bottom.

3.13 Raise the cover lid. Release pressure roller tension by moving the pressure lever forward. Prepare a smooth leading edge of

paper. Pass paper over paper straightener, under platen, and under paper guide. Straighten paper and reapply the pressure roller tension. Close the cover lid.

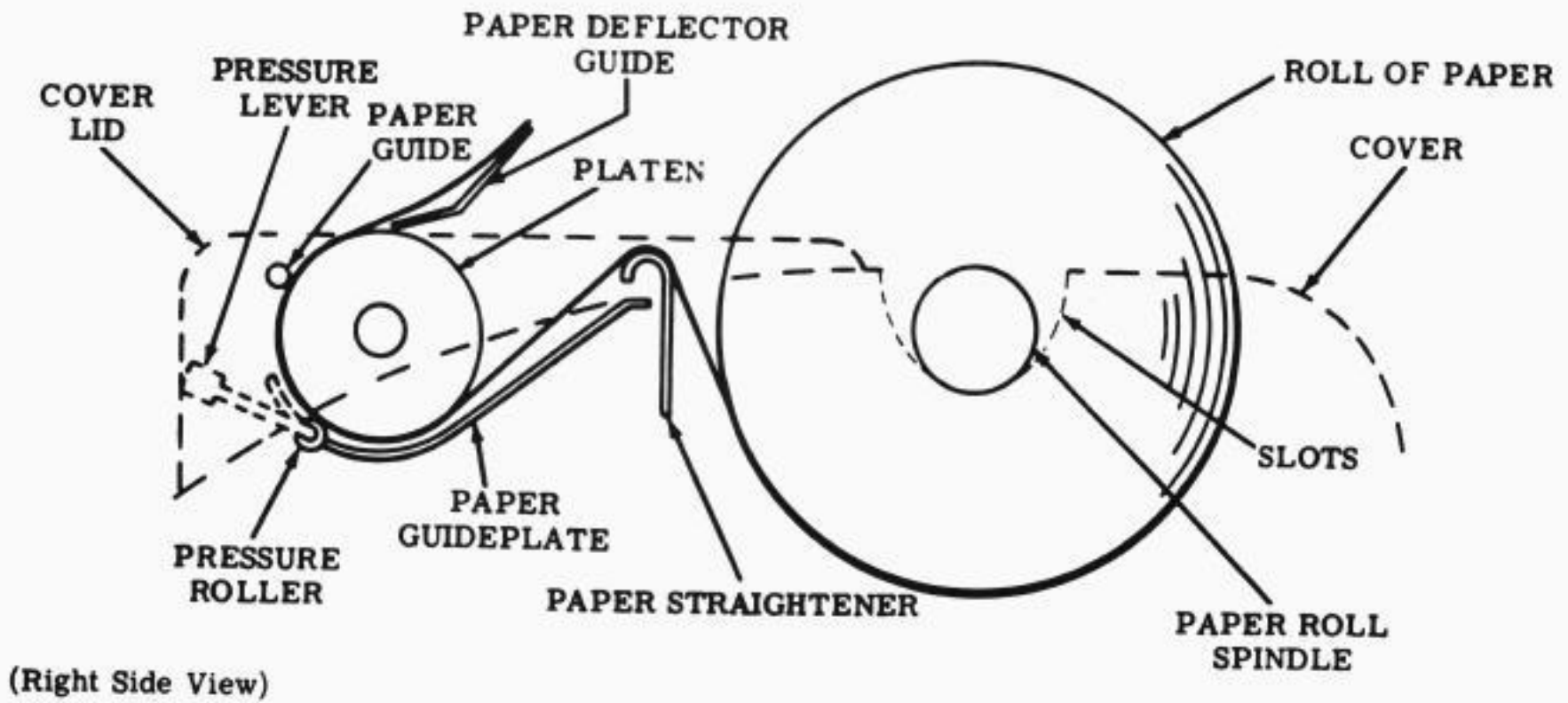
Note: When typing units are stored or out of service for an extended period of time, release the pressure roller tension.

##### B. Sprocket Feed

3.14 A sprocket feed teletypewriter set accommodates forms 8-1/2 inches wide and of various lengths. The forms are normally passed to the typing unit from a conveniently located supply at the rear of the set.

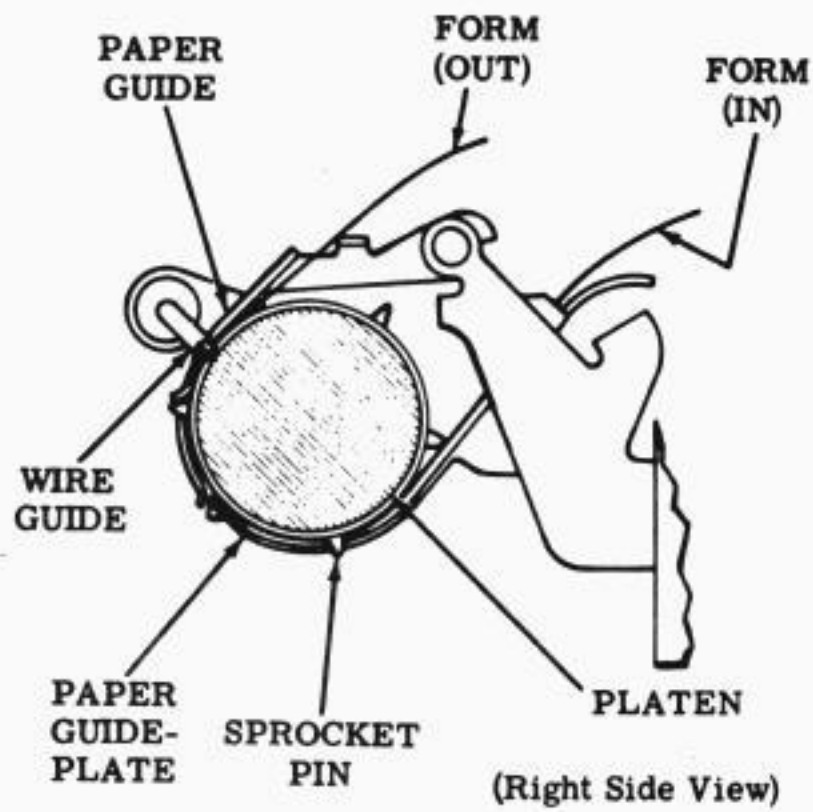
3.15 Place the paper roll spindle into the paper recess of the cover so that it rests in the slots provided.

3.16 Figure 9 illustrates form threading for a sprocket feed typing unit.



(Right Side View)

Figure 8 - Paper Threading — Friction Feed



(Right Side View)

Figure 9 - Form Threading — Sprocket Feed

3.17 **Form Threading:** Raise the cover lid. Pass the leading edge of the first form under the paper roll spindle. Thread the form under the low-paper and paper-out arms, if used, and between the platen and paper guideplate. Guide the form squarely into the platen and rotate the platen until the form is advanced by the sprocket pins. Lift up the wire guide and continue to rotate the platen until the form is under the wire guide and positioned for the first typing line. Lower wire guide and cover lid. After the first form is fed out, lift the form over the paper roll spindle to separate the incoming forms from the outgoing forms.

3.18 Figure 10 illustrates the zeroizing position of the platen drive mechanism for one cam lobe operation. For platen drive mechanisms using more than one cam lobe, see the CAM ZERO POSITION - S (FOA-33) and (FOA-34) adjustments in Section 574-172-700TC.

3.19 **Zeroized Position:** Position a form at its first printing line in the typing unit. Depress the zeroizing button and rotate the

pulley until the index plate is lined up with the pointer. Release the zeroizing button.

Note 1: To initiate the action to feed out a form, depress the FIGS and Z keytops. The form-out mechanism will not respond to successive commands to feed out a form. At the end of a form feed-out, advance the form at least one line before issuing a second form-out command.

Note 2: The typing unit, in an ASR Set, operates one cycle behind the tape reader. Thus, a nonprint fill in code selection is required immediately after each form-out selection for proper set operation.

#### 4. OPTIONAL FEATURES

##### A. Copyholder

4.01 With the line guide facing forward (Figure 11), insert the rear mounting tabs in the lower mounting slots. Pivot the copyholder to align the front mounting tabs above their mounting slots. Push copyholder downward until the tabs are fully seated.

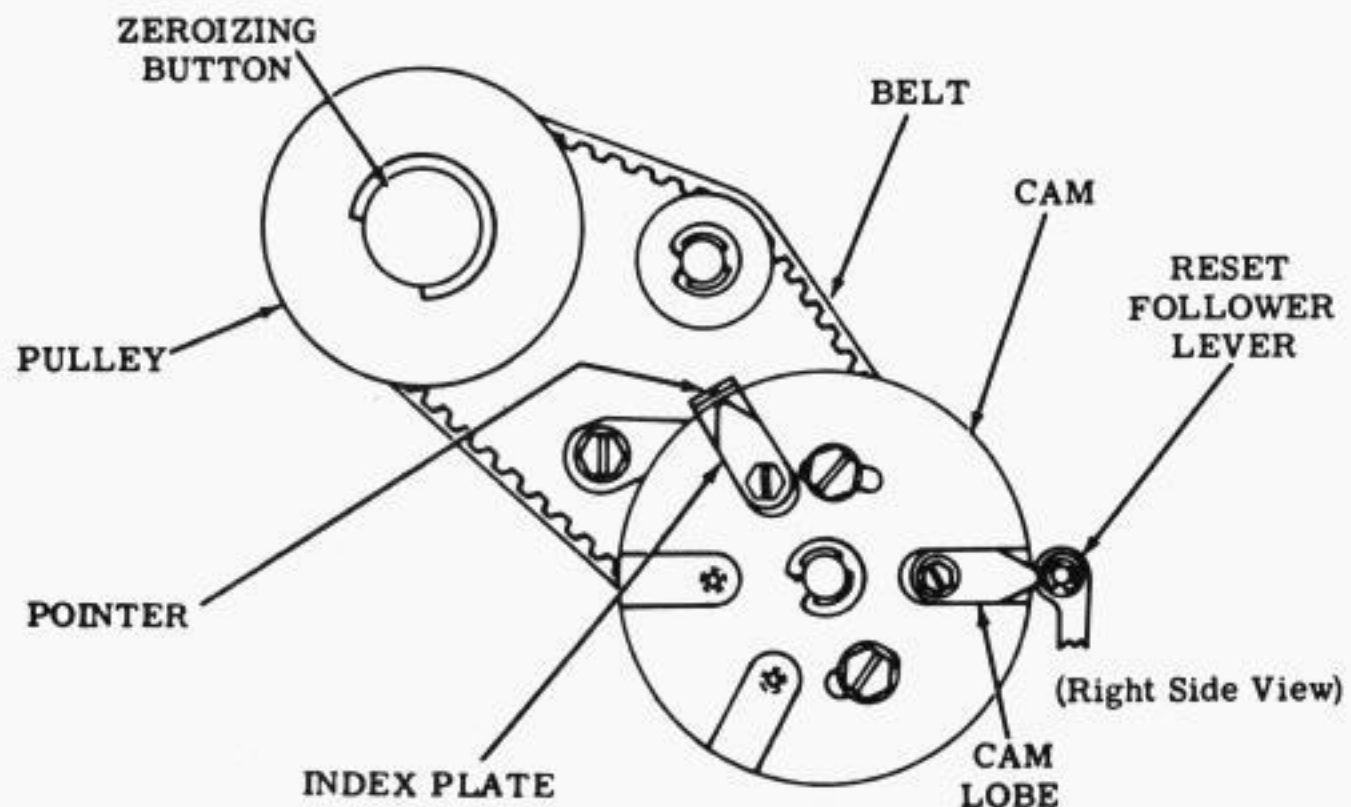


Figure 10 - Zeroizing Position of Platen Drive Mechanism - One Cam Lobe Operation



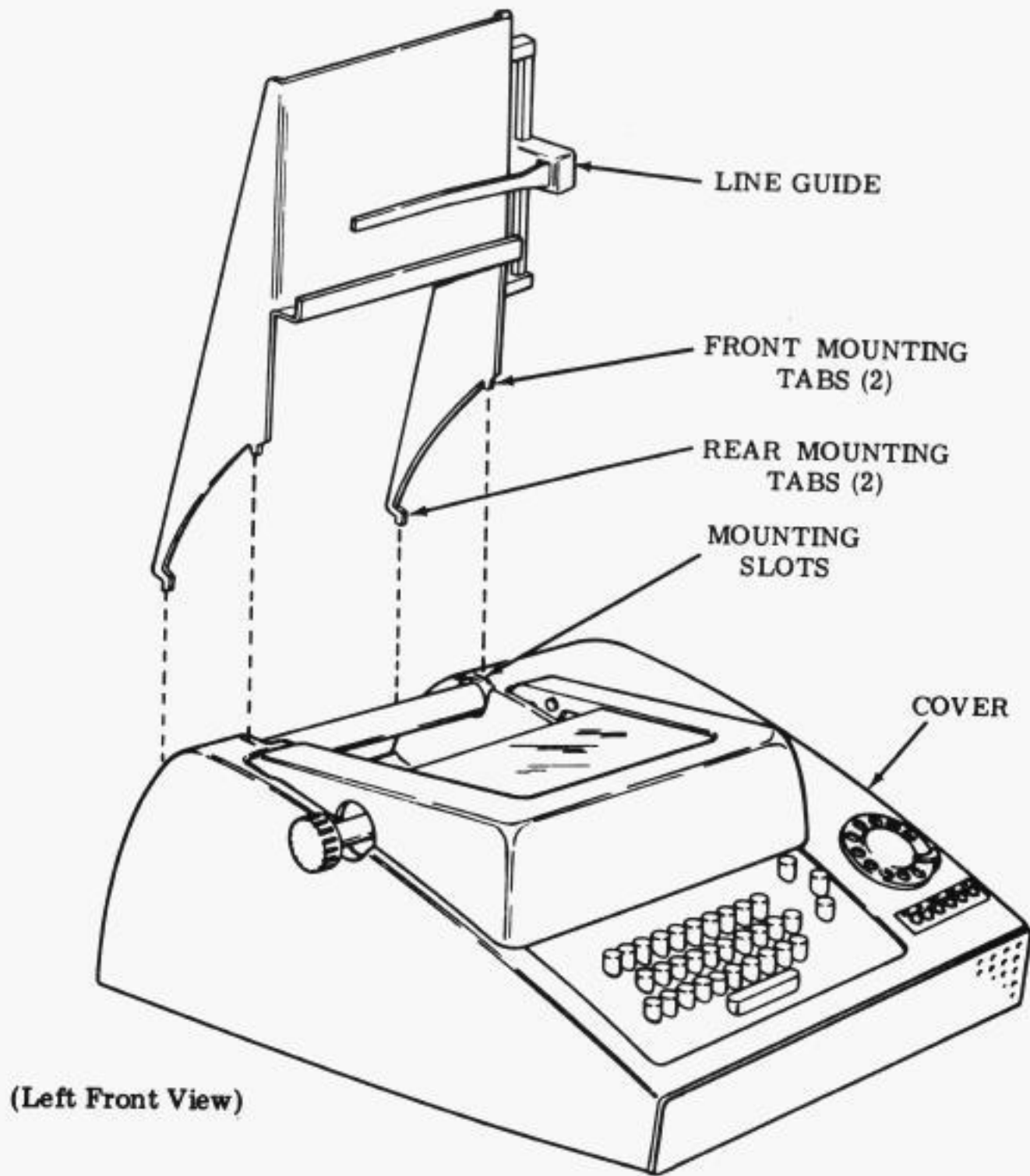


Figure 11 - Copyholder

B. Hand Receiver

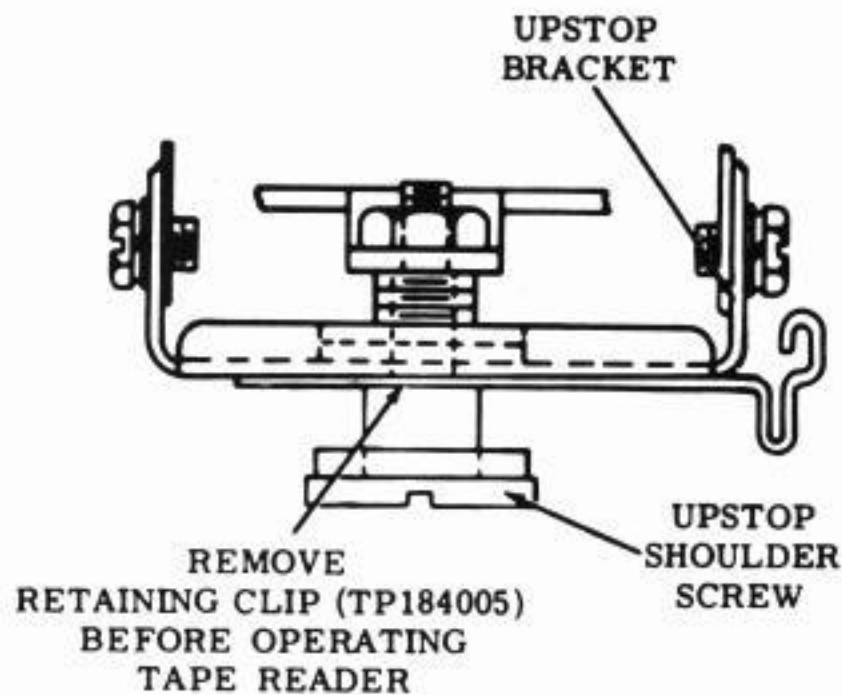
4.02 To install the hand receiver, connect the two white wires to terminals no. 5 and 6 on the 9-point terminal board.

5. TAPE READER

5.01 A retaining ring or clip (Figure 12) is assembled (on early design units) to the upstop screw to prevent the sensing pins from being dislodged during shipment. This retaining clip must be removed before placing the tape reader in operation.

5.02 When inserting tape into the tape reader prior to operation, allow enough slack in the tape between the tape punch and the reader so that the reader lid can be easily closed.

**CAUTION:** THE TAPE READER OPERATES UNDER HIGH VOLTAGE. PRECAUTIONARY MEASURES SHOULD BE TAKEN WHENEVER POWER TO THE TAPE READER IS TURNED ON. HIGH VOLTAGE FROM THE POWER PACK WILL CONTINUE UNTIL APPROXIMATELY 10 SECONDS AFTER THE TAPE READER HAS BEEN DISCONNECTED.



(Rear View)

Figure 12 - Tape Reader Upstop Bracket Retaining Clip

5.03 Do not place the control lever beyond the STOP position while the tape reader is operating under power. The reader must come to a complete stop before placing the control lever in the FREE position.

## 6. POWER PACK ASSEMBLY

6.01 Clip the power pack to the front panel inside the stand (Figure 13). Position the power pack approximately 1/2 inch from the right panel.

6.02 The auxiliary ASR power supply is mounted in the enclosure of the stand. It is used in the off-line mode to provide 115 volts on the tape reader, answer-back, and distributor contacts when a tape reader is used. When the tape reader is not used, a plug with a jumper wire is inserted in position R2 at the rear of the call control unit.

## 7. TAPE PUNCH

7.01 The tape punch, drive link mechanism, baseplate, and plastic cover are assembled at the factory.

7.02 Figure 14 illustrates the proper installation of a tape spool in a tape roll.

- (a) For 2-inch inside diameter tape rolls, use the tube-type spool.
- (b) For 1-inch inside diameter tape rolls, use the 2-piece spool.
- (c) Place the tape and spool into the tape punch cover so that the leading edge of the tape is at the top of the roll.

7.03 Figure 15, illustrates the chad box installation.

- (a) Assemble the chad box under the tape punch pan by inserting the back of the flanged surface between the stand and the typing unit subbase.
- (b) Push the chad box toward the rear until the bent surface located at the front of the chad box engages the stand. An embossing located on the front bottom surface of the flanged surface engages an oblong hole in the stand and holds the chad box in place.

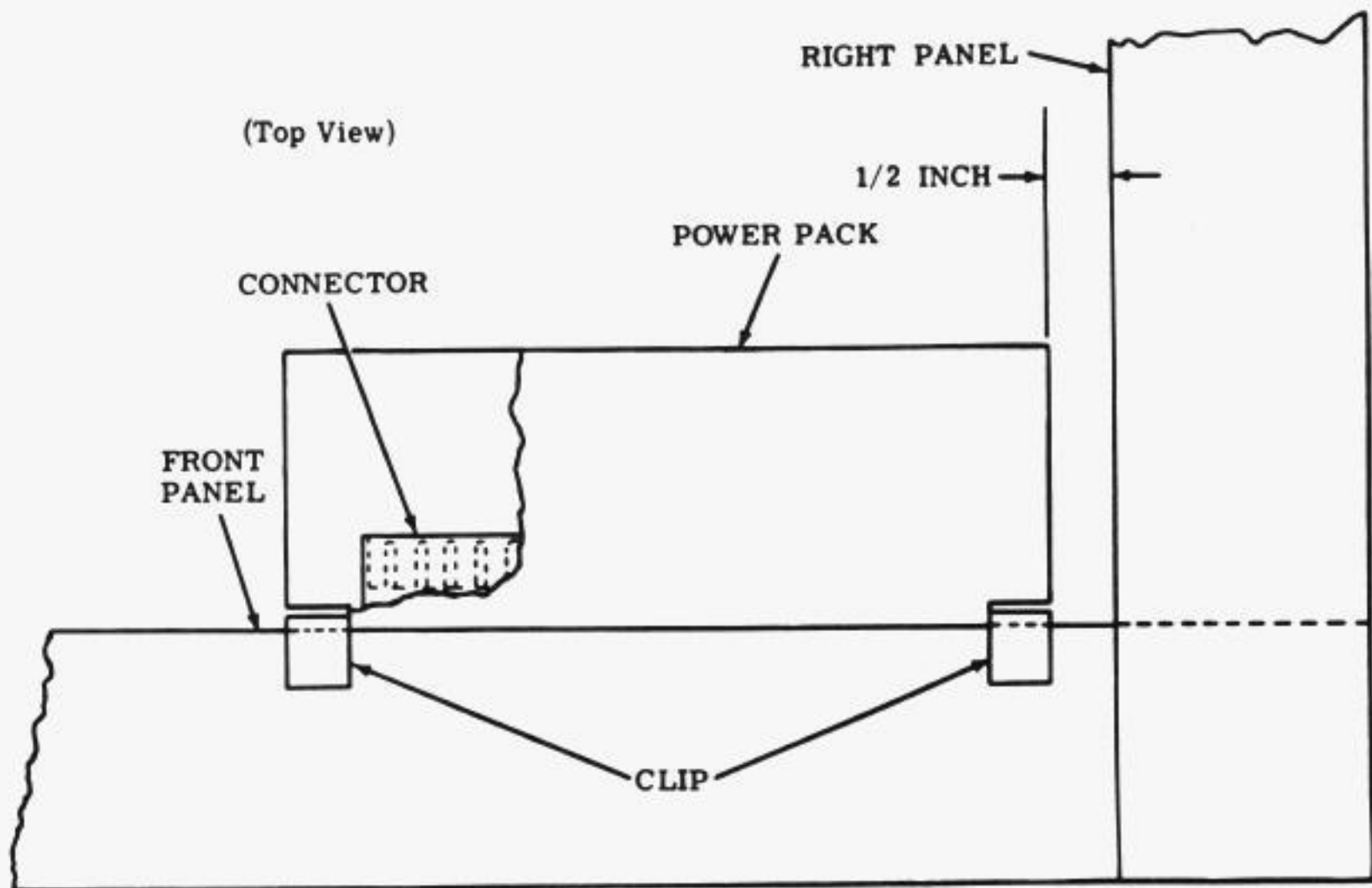


Figure 13 - Power Pack Assembly

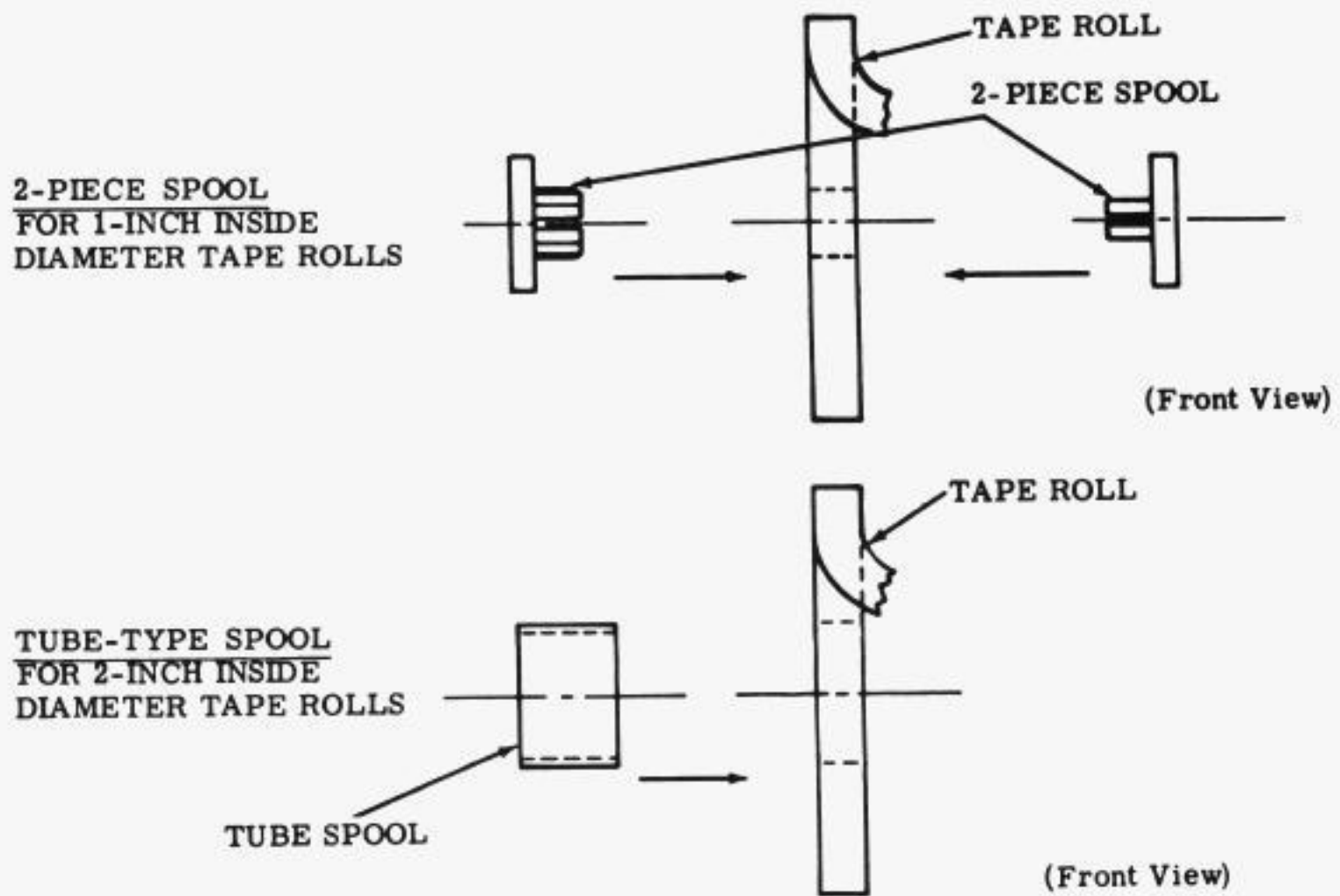


Figure 14 - Tape Roll and Tape Spool Assembly



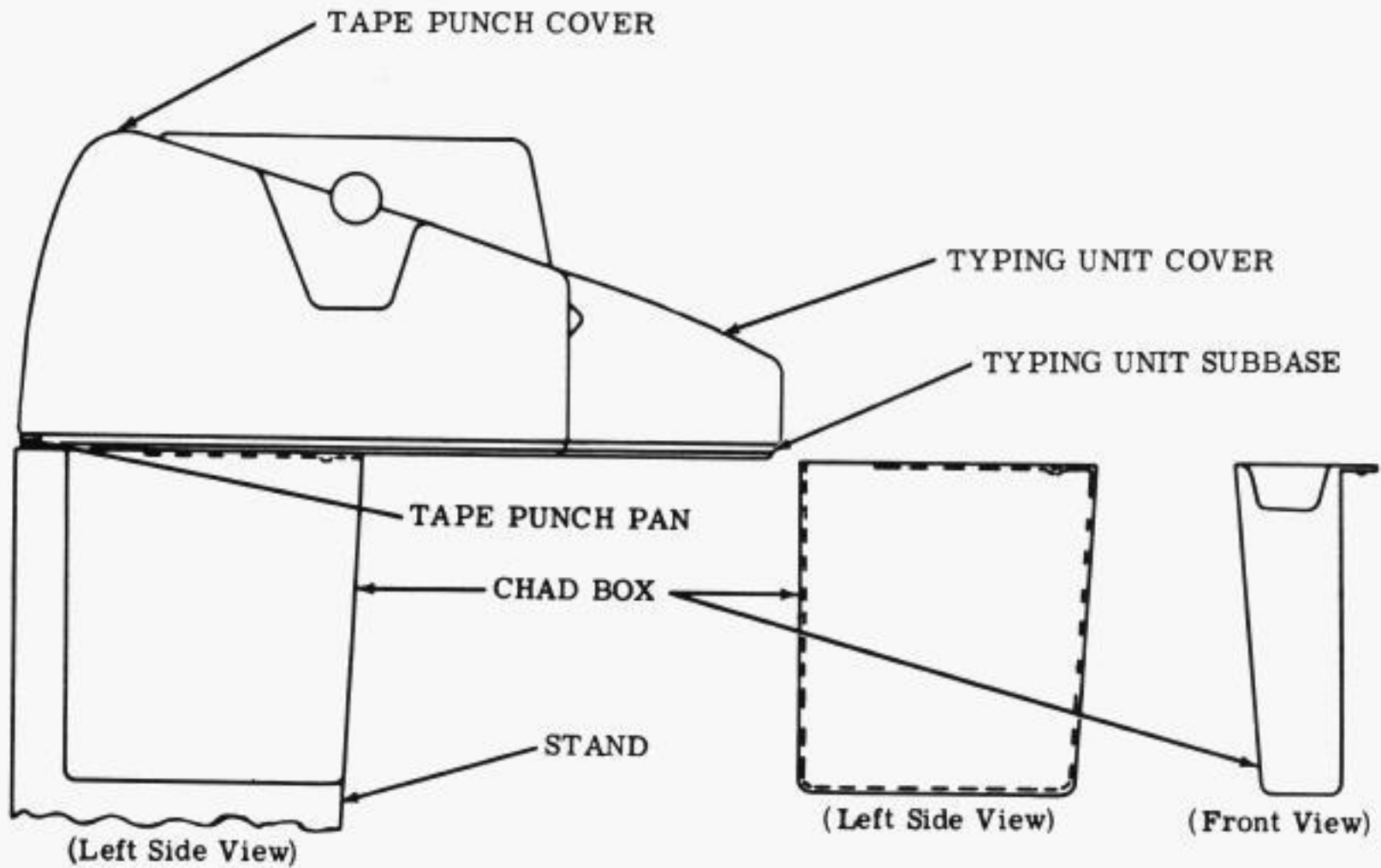


Figure 15 - Tape Punch Chad Chute Assembly

(c) To empty the chad box, lift the front slightly and pull the chad box toward the front until it becomes disengaged.

## 8. RESHIPMENT

8.01 If the teletypewriter set is to be shipped to another location without its cover, the following must be done to avoid damage to the typing unit.

(a) Remove subbase and typing unit from the stand.

(b) Remove the plug button from the forward mounting hole in the bottom of the subbase.

(c) Secure typing unit to the base by inserting and tightening the screw and washer previously stored in the TP181104 cable clip (1.07). Do not damage the typing unit by overtightening the screw.

(d) Store the removed plug button in the TP181104 cable clip.