

33 TYPING UNIT
DISASSEMBLY AND REASSEMBLY

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1. GENERAL

1.01 This section provides disassembly and reassembly procedures for the 33 typing unit. It is reissued to include engineering changes and make some minor corrections in the section. TCNs 1338, 1433, 1671, and 1692 are included. Marginal arrows indicate the changes and additions.

1.02 References to left, right, front, rear, etc, consider the typing unit to be viewed from a position where the ribbon mechanism faces up and the selector mechanism is located to the viewer's left.

1.03 The disassembly procedure given in this section divides the typing unit into its major assemblies and mechanisms. If further disassembly is required, refer to the appropriate illustrated parts section which shows detailed arrangements of parts. Where it will help in determining location, the numbers of the parts are given in the instructions.

CAUTION: BEFORE BEGINNING DISASSEMBLY, REMOVE CONNECTORS FROM EXTERNAL RECEPTACLES (POWER SOURCE, DATA SET, ETC).

1.04 Most of the mechanisms are mounted on castings by self-tapping screws. Therefore, to remove the mechanisms, do not remove the screws, merely loosen them unless specifically instructed otherwise.

1.05 Retaining rings are made of spring steel and have a tendency to release suddenly. To avoid loss of these rings when removing them, proceed as follows.

(a) Hold retaining ring to prevent it from rotating.

(b) Place blade of screwdriver in one of the ring's slots and rotate screwdriver to increase diameter.

(c) Ring will come off easily in fingers without flying.

SECTION 574-122-702

1.06 All tools used to remove the mechanisms referred to in this section can be found in the 570-005-800 standard tool section.

1.07 All damaged, worn, or distorted parts should be replaced if encountered in the disassembly and reassembly procedures.

2. DISASSEMBLY AND REASSEMBLY

Note: For information concerning the proper procedure to remove the typing unit from the set, refer to Section 574-100-702.

RIBBON MECHANISM

2.01 To remove ribbon mechanism (Figure 1), proceed as follows.

(a) Remove ribbon by removing the two ribbon spools and disengaging the ribbon from the ribbon guide and the TP183545 reverse arm.

(b) Loosen the two TP184067 mounting screws and lift ribbon mechanism from carriage.

(c) To replace ribbon mechanism, reverse procedure used to remove it.

CARRIAGE MECHANISM

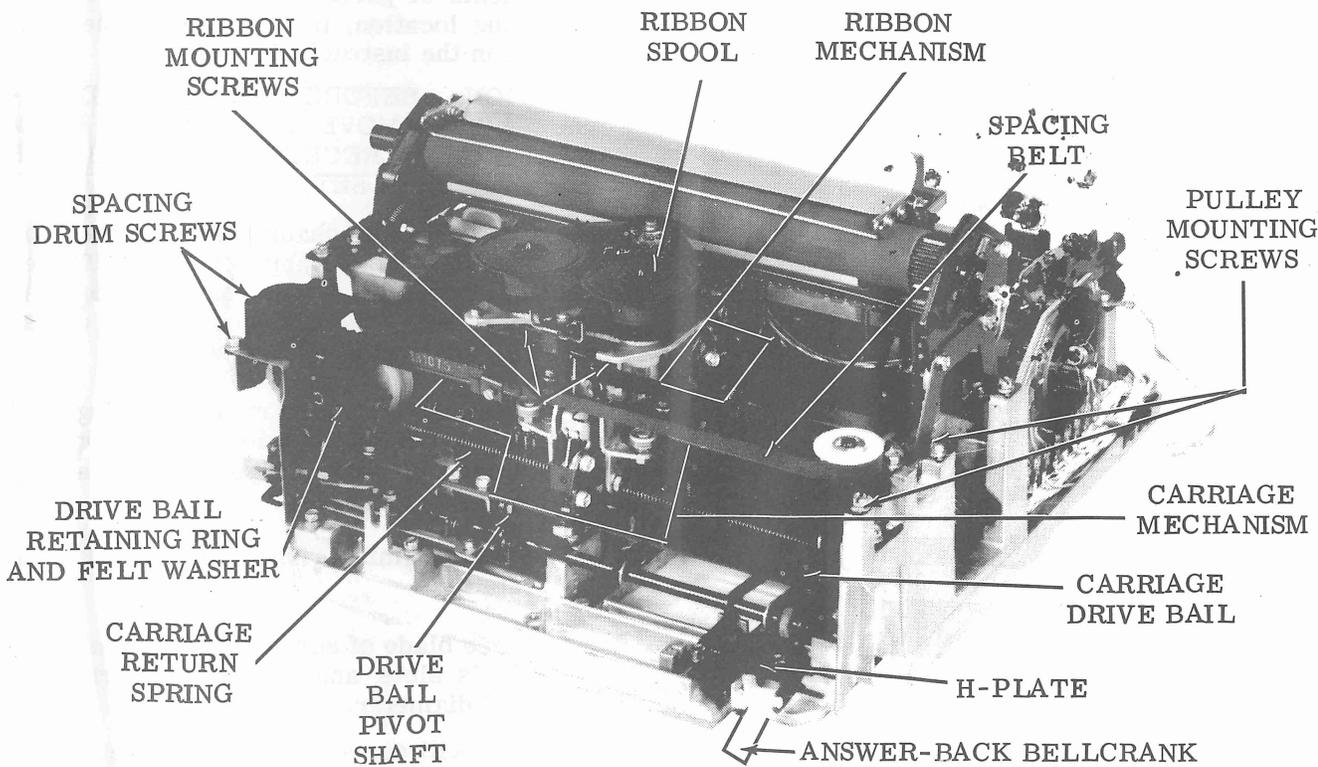
2.02 To remove carriage mechanism (Figure 1), proceed as follows.

(a) Unhook carriage return spring from carriage.

(b) Loosen the two TP180798 mounting screws in spacing pulley mounting bracket. Rotate and remove bracket.

(c) Loosen the two TP180798 mounting screws in spacing drum mounting bracket. Remove mounting bracket.

(d) Disengage spacing belt from pulley on spacing drum.



(Front View)

Figure 1 - Typing Unit

- (e) Remove front carriage shaft by sliding it to the right.
- (f) To disengage the rollers from the drive bail, slightly lift the front of the carriage. Rotate the carriage to the left and disengage the slide guides from the codebars.
- (g) Lift the carriage from the unit.
- (h) To replace the carriage mechanism, reverse the procedure used to remove it and observe the following precautions.

- (1) Make sure nylon slide guides engage proper associated codebars.
- (2) Make sure two rear rollers engage carriage rear plate.

CARRIAGE DRIVE BAIL

2.03 To remove carriage drive bail (Figures 1 and 2), proceed as follows.

- (a) Remove the carriage mechanism (2.02).

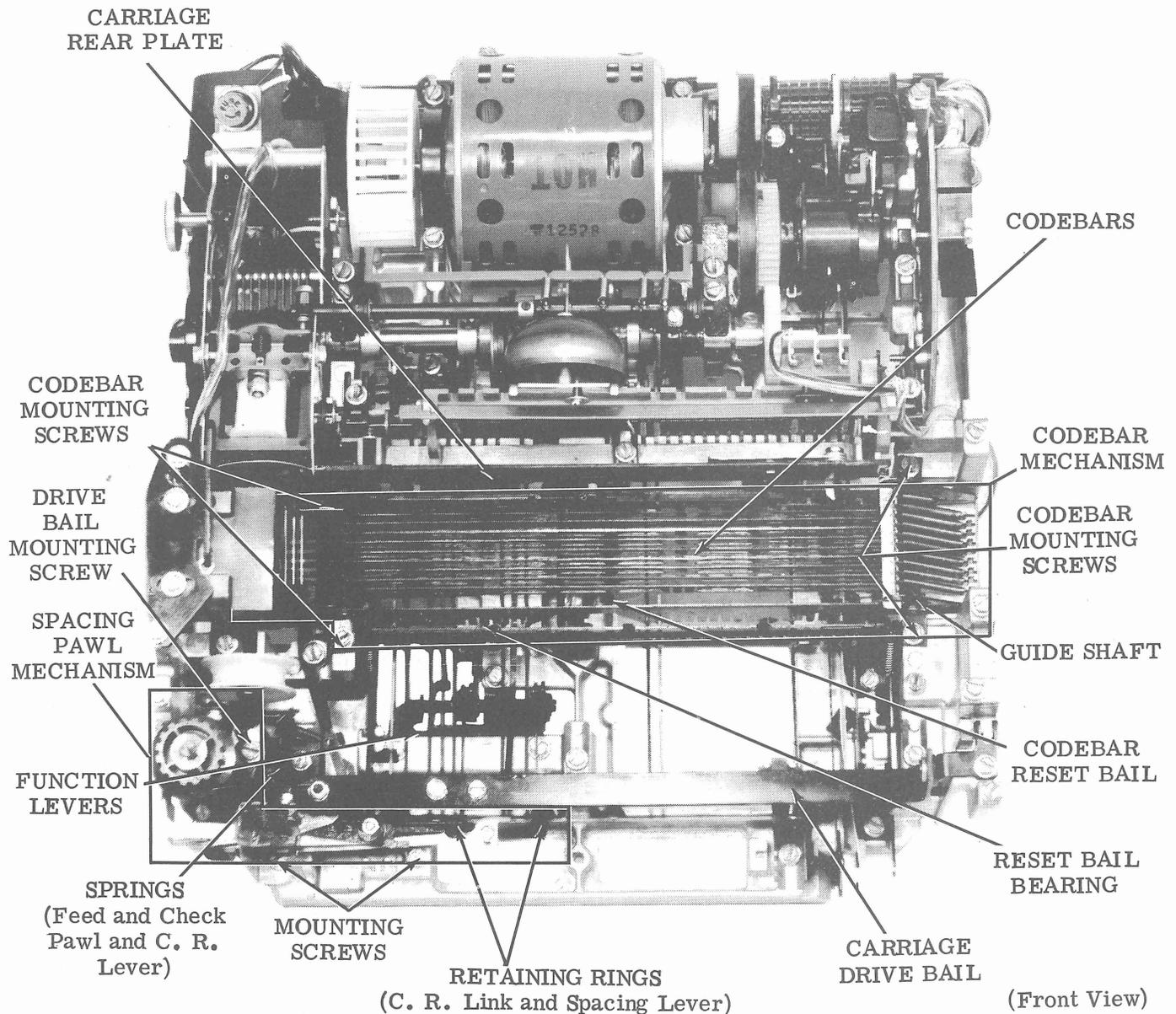


Figure 2 - Typing Unit (Carriage and Platen Removed)

SECTION 574-122-702

- (b) Remove the TP3598 nut from the TP180546 post.
- (c) Loosen the TP180798 mounting screw and remove the TP181230 clamp plate at left end of carriage drive bail.
- (d) Remove the TP119651 retaining ring and felt washer at right end of bail.
- (e) Remove drive bail by sliding it to left.
- (f) To replace drive bail assembly, reverse procedure used to remove it.

CODEBAR MECHANISM

2.04 To remove codebar mechanism (Figure 2), proceed as follows.

- (a) Remove the carriage mechanism (2.02).
- (b) Loosen the TP180798 mounting screw and remove the TP180682 or TP182461 upstop bracket. Tighten the TP180798 mounting screw to secure the TP181230 or TP181278 retaining plate to the base casting.
- (c) Remove the TP180788 carriage rear bail.
- (d) Remove the TP180959 bracket.
- (e) Rotate the main shaft so that the TP180751 or TP186412 lever is positioned on the low part of the codebar cam.
- (f) Loosen the four TP180798 mounting screws and remove the four TP180925 clamps. On units equipped with the TP187103 bracket, loosen the four TP180798 mounting screws and remove the three TP180925 clamps. Remove the TP181241 mounting screw and the TP187103 bracket.
- (g) Lift the blocking levers from the guide slots and lift the codebar mechanism from the frame.

(1) To replace codebar mechanism, reverse procedure used to remove it and observe the following precautions.

- (a) Make sure function levers are in proper slots in codebars.
- (b) Make sure codebars reset extensions are to right of TP180928 codebar reset bail and in proper slots of guide.
- (c) Make sure both right and left TP186770 guide shafts are fully seated in their mountings.

- (d) Make sure the TP181070 space suppression lever is to the left of the TP180947 print suppression codebar.
- (e) Make sure the TP180752 print suppression latch lever fits into slot of the TP180923 bracket mounted on the rear tie bracket.
- (f) Make sure that the left ends of the codebars fully engage their respective blocking lever tines.

(2) To reassemble the TP187103 bracket, position the bracket against the function casting and mount with the TP180798 left rear codebar basket screw; then install the TP181241 mounting screw.

CODEBAR RESET BAIL

2.05 To remove codebar reset bail (Figures 2 and 3), proceed as follows.

- (a) Remove the codebar spring.
- (b) Remove the TP125252 spring from the TP180773 plate.
- (c) From underside of base casting, remove the two TP186664 screws from the two TP180930 bearings.
- (d) Lift the TP180928 codebar reset bail from base casting.
- (e) To replace codebar reset bail, reverse the procedure used to remove it. When replacing the TP186664 screws, make sure that one of them passes through the TP180776 spring bracket before it enters the bearing.

SPACING PAWL MECHANISM

2.06 To remove spacing pawl mechanism (Figure 2), proceed as follows.

- (a) Unhook the TP74701 spring from the TP181067 feed pawl, the TP83877 spring from the TP181065 check pawl, and the TP70388 spring from the TP181319 carriage return lever.
- (b) Remove the TP119649 retaining rings from the TP181314 carriage return link and the TP186694 spacing lever.
- (c) Remove carriage mechanism (2.02).
- (d) Remove spacing drum mechanism (2.08).
- (e) Loosen the two TP180798 mounting screws.

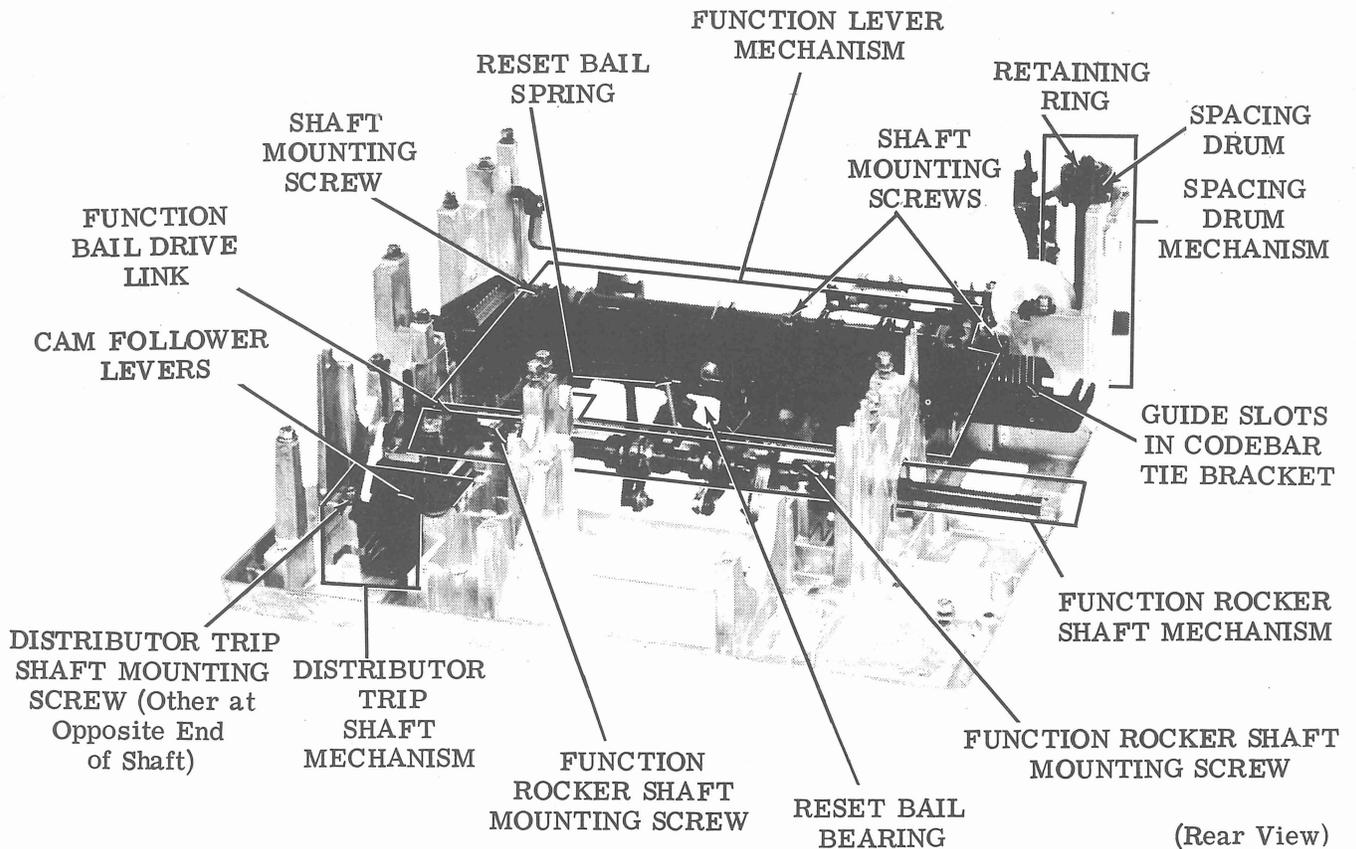


Figure 3 - Typing Unit (A Number of Mechanisms Removed)

- (f) Lift spacing pawl mechanism from base casting.
- (g) To replace spacing pawl mechanism, reverse the procedure used to remove it.

FUNCTION LEVER MECHANISM

- 2.07 To remove function lever mechanism (Figure 3), proceed as follows.
- (a) Loosen the three TP180798 mounting screws and rotate levers pivot shaft so flat side is vertical.
 - (b) To remove any function lever, unhook its spring and disengage lever from pivot shaft.
 - (c) To remove levers pivot shaft, remove the two TP180797 clamp plates and the TP180795 spring bracket. Lift out shaft with two drive links attached.
 - (d) To replace function lever mechanism, reverse the procedure used to remove it.

SPACING DRUM MECHANISM

- 2.08 To remove spacing drum mechanism (Figure 3), proceed as follows.
- (a) Remove the carriage mechanism (2.02).
 - (b) Remove the TP119653 retaining ring from top of spacing drum and remove drum.
 - (c) From underside of base casting, remove the TP112626 nut and lockwasher from lower end of spacing drum shaft.
 - (d) Lift spacing drum shaft from base casting.
 - (e) To replace spacing drum mechanism, reverse procedure used to remove it.

DISTRIBUTOR TRIP SHAFT MECHANISM

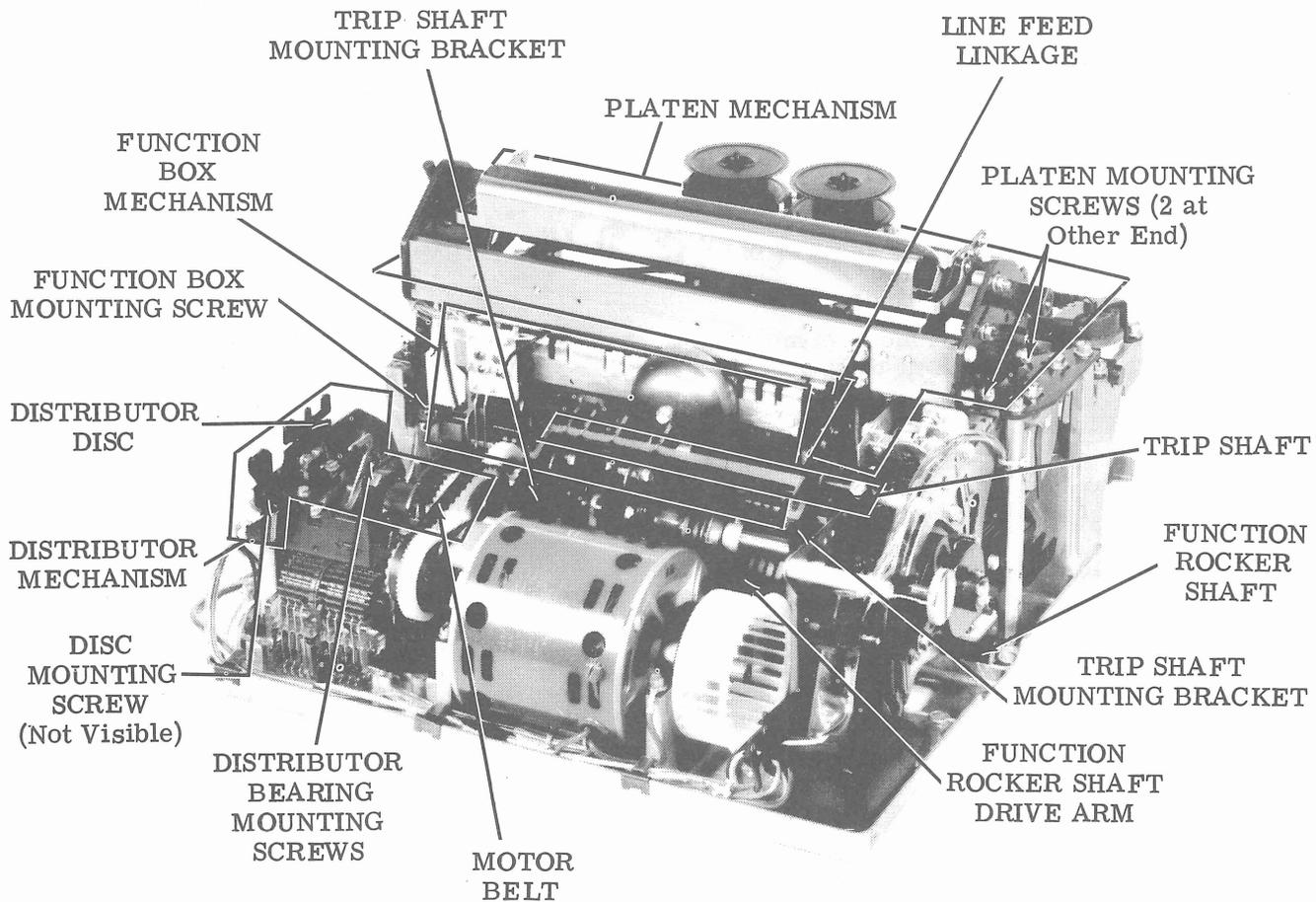
- 2.09 To remove distributor trip shaft mechanism (Figure 3), proceed as follows.

- (a) Remove the distributor mechanism (2. 10).
- (b) Remove the retaining ring from link connecting posts to each of following cam followers levers: TP180985, TP180820, and TP180821.
- (c) Unhook five springs from the TP180988 spring bracket.
- (d) Loosen the TP180798 screw and TP182264 post, and remove the two TP180972 buffer clamps.
- (e) Remove distributor trip shaft mechanism from base casting.
- (f) To replace distributor trip shaft mechanism, reverse procedure used to remove it.

DISTRIBUTOR MECHANISM

2.10 To remove distributor mechanism (Figure 4), proceed as follows.

- (a) Remove the TP181242 screw and TP180980 brush holder.
- (b) Loosen the three TP180989 distributor disc mounting screws. On sprocket feed units, remove the TP3606 nut fastened to the TP187126 stud.
- (c) Remove the TP180798 mounting screw and the TP180850 clutch trip magnet bracket and then remove the clutch trip mechanism.
- (d) Loosen the TP180798 screw and remove the TP180998 distributor shaft clamp.
- (e) Loosen the TP151630 screw and remove the TP182263 bracket.
- (f) Loosen the two screws that mount the TP181023 right bracket.



(Rear View)

Figure 4 - Typing Unit

- (g) Remove the belt from the motor.
- (h) Lift the distributor mechanism from the base.
- (i) To replace distributor mechanism, reverse procedure used to remove it. Make sure leads are inserted into proper connections on disc. (See the appropriate wiring diagram.)

FUNCTION ROCKER SHAFT MECHANISM

- 2.11 To remove function rocker shaft mechanism (Figure 3), proceed as follows.
- (a) Remove the clutch trip lever mechanism (2.16).
 - (b) Remove the form-out mechanism (2.15).
 - (c) Remove the main shaft mechanism (2.18).
 - (d) Remove the TP119651 retaining rings from posts at rear of the TP180769 left and TP180770 right function bail drive link.
 - (e) Loosen the two TP180798 mounting screws and remove the left and right function rocker shaft bearing clamp plates.
 - (f) Lift the function rocker shaft mechanism from the base casting.
 - (g) To replace the function rocker shaft mechanism, reverse the procedure used to remove it.

FUNCTION BOX MECHANISM

- 2.12 To remove function box mechanism (Figures 2, 4, and 7), proceed as follows.
- (a) Remove the carriage mechanism (2.02).
 - (b) Remove the platen mechanism (2.13).
 - (c) Unhook the TP125252 spring (connects to TP180928 codebar reset bail) from the TP180773 plate.
 - (d) Loosen the two TP180798 mounting screws and remove the two TP180796 clamp plates. On units equipped with the TP187103 bracket, remove the TP181241 mounting screw.

- (e) Lift function box mechanism from base casting.
- (f) To replace function box mechanism, reverse procedure used to remove it. Make sure function levers are in their proper slots and aligned with their respective pawls.

PLATEN MECHANISM

A. Friction Feed

- 2.13 To remove platen mechanism (Figure 4), proceed as follows.
- (a) Remove the TP119651 retaining ring and the TP90615 spring from line feed linkage.
 - (b) Disengage the TP181176 link from the TP181168 bellcrank.
 - (c) Loosen the four TP181242 mounting screws in the two platen side plates.
 - (d) Lift platen mechanism from typing unit.
 - (e) To replace platen mechanism, reverse procedure used to follow it.

B. Sprocket Feed

- 2.14 To remove platen mechanism (Figures 4 and 5), proceed as follows.
- (a) Loosen the TP3598 nut on the TP187097 idler post. Back off the two TP183341 idlers and slip the two TP183379 belts off the sprockets.
 - (b) Loosen the four TP181242 mounting screws in the two platen side plates.
 - (c) Lift platen mechanism from typing unit.
 - (d) To replace platen mechanism, reverse the procedure used to remove it.

FORM-OUT MECHANISM

- 2.15 To remove form-out mechanism (Figures 4 and 5), proceed as follows.
- (a) With the typing unit removed from sub-base, remove the TP181242 mounting screw which secures the TP180980 brush holder.
 - (b) Remove brush holder and brush.

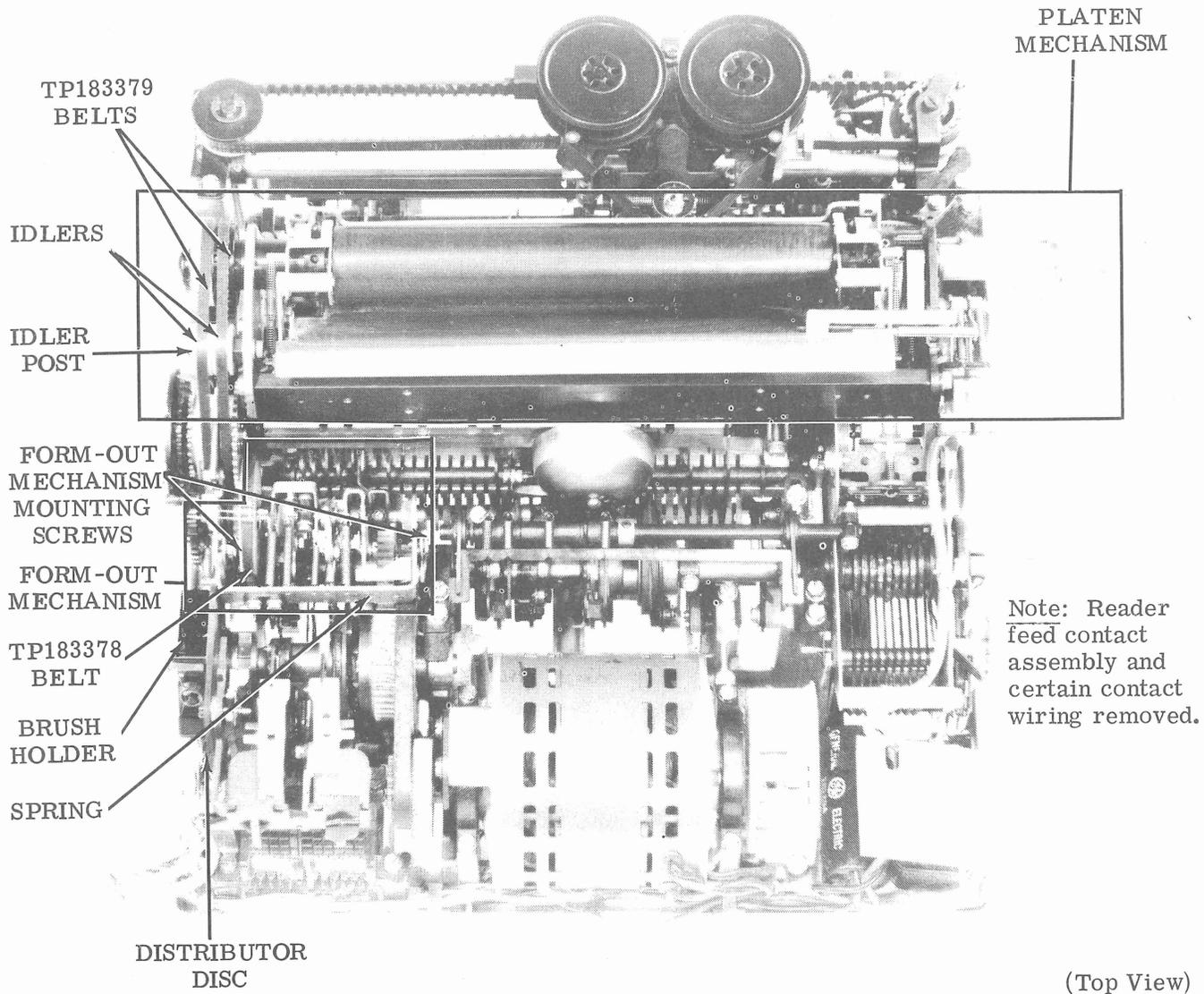


Figure 5 - Typing Unit

Note: On Automatic Send-Receive Teletypewriter Sets, remove the front TP152893 and loosen the rear TP152893 contact bracket mounting screws which secure the tape reader feed magnet contact assembly to the typing unit. Rotate the tape reader feed magnet contact assembly out of the way clockwise, as viewed from the right.

- (c) Remove the TP3606 nut and the two TP180989 distributor disc mounting screws and pull the distributor disc out of the way.

Note: It is not necessary to remove wires from the distributor disc.

- (d) Loosen the TP3598 nut on the TP187097 idler post. Back off the two TP187097 idlers.
- (e) Slip the two TP183379 belts off the sprockets.
- (f) Loosen the three TP184006 form-out mechanism mounting screws.
- (g) Slip the TP183378 belt off main shaft sprocket.
- (h) Disengage the TP74701 spring from form-out latchlever assembly.

- (i) Gently work form-out mechanism upward and remove it.
- (j) To replace the form-out mechanism, reverse the procedure used to remove it.

Note 1: When tightening the three distributor disc mounting screws, be sure that the longer edges of the TP180676 speed nuts are horizontal with the base casting.

Note 2: The TP186747 downstop bracket (Figure 6) is for factory use only. If the form-out mechanism is removed from the unit as an assembly and the TP186747 downstop bracket is not removed or its mounting screw loosened, the form-out mechanism may be reinstalled in the same unit, using the TP186747 downstop bracket as a stop against the TP183433 bracket. However, if the TP186747 downstop bracket is removed or its mounting screw loosened, it is recommended that the downstop bracket, mounting screw, and flat washer be discarded.

CLUTCH TRIP LEVER MECHANISM

2.16 To remove trip shaft mechanism (Figure 4), proceed as follows.

- (a) Loosen the four TP180798 mounting screws, two in the left and two in the right mounting bracket. Push inward on brackets and lift mechanism from base casting.

- (b) To replace trip shaft mechanism, reverse procedure used to remove it.

SELECTOR MECHANISM

2.17 To remove selector mechanism (Figure 7), proceed as follows.

- (a) Install the TP184098 selector cam removal tool as described on instruction label.
- (b) Remove the TP150040 mounting screw with lockwasher from selector clutch.
- (c) Remove selector clutch from main shaft by pulling clutch to left and rotating it back and forth.
- (d) From underside of base casting, remove the TP180798 mounting screw from bottom of left platen support post. Loosen the TP180798 screw in top of post and remove post. Remove dashpot cylinder by removing two mounting screws.
- (e) Loosen the TP181246 mounting screw in the TP180648 follower arm. Slide arm off trip shaft.
- (f) Loosen the TP180798 mounting screw and remove the TP180682 upstop bracket. Tighten screw to secure the TP181230 retaining plate.
- (g) Remove the three TP187000 mounting screws with the TP145968 speed nuts from selector plate.

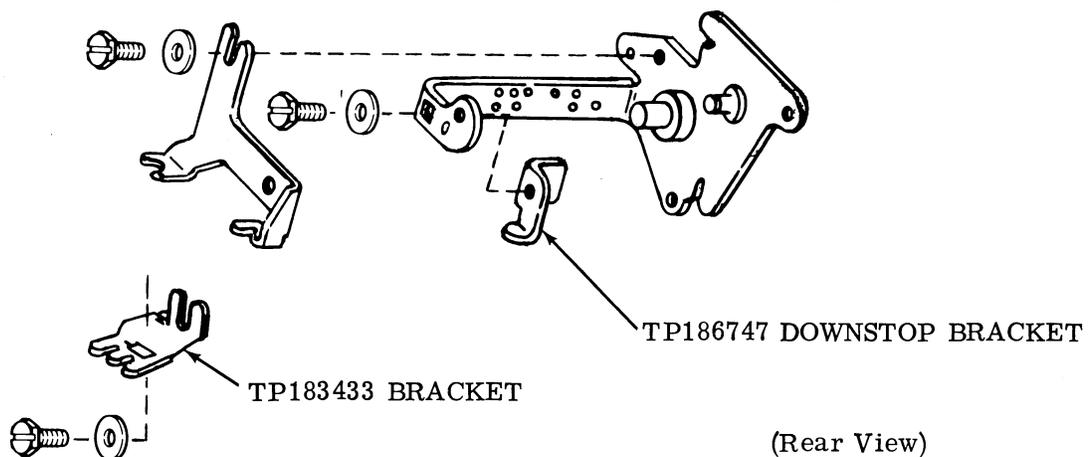


Figure 6 - Downstop Bracket on Form-Out Mechanism

- (h) Remove the two leads from the selector magnet.
- (i) Remove selector mechanism.
- (j) To replace selector mechanism, reverse the procedure used to remove it but with following precautions.

(1) Make sure blocking levers are properly seated to guide slots in the front TP180950 codebar tie bracket.

(2) To prevent right plate from bending, make sure it is properly fitted around the TP181001 bearing on main shaft.

MAIN SHAFT MECHANISM

2.18 To remove main shaft mechanism (Figure 8), proceed as follows.

- (a) Remove clutch trip lever mechanism (2.16).
- (b) Remove selector mechanism (2.17).
- (c) Remove motor (2.19).
- (d) Remove form-out mechanism (2.15).
- (e) Remove the TP3598 nut and flat washer from the TP180546 pivot shaft on carriage drive bail. Disengage front end of the TP181005 drive link from pivot shaft.

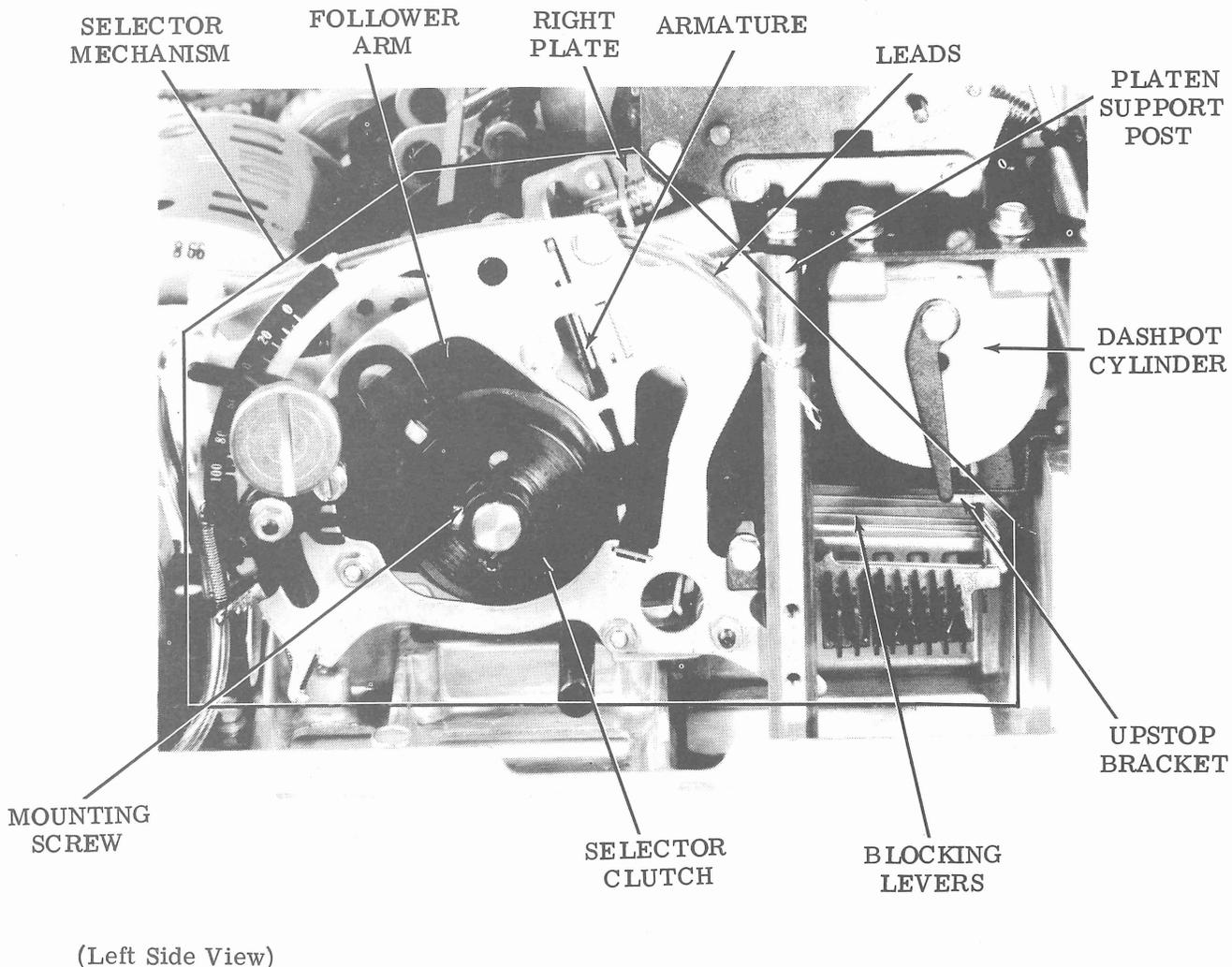


Figure 7 - Selector Mechanism

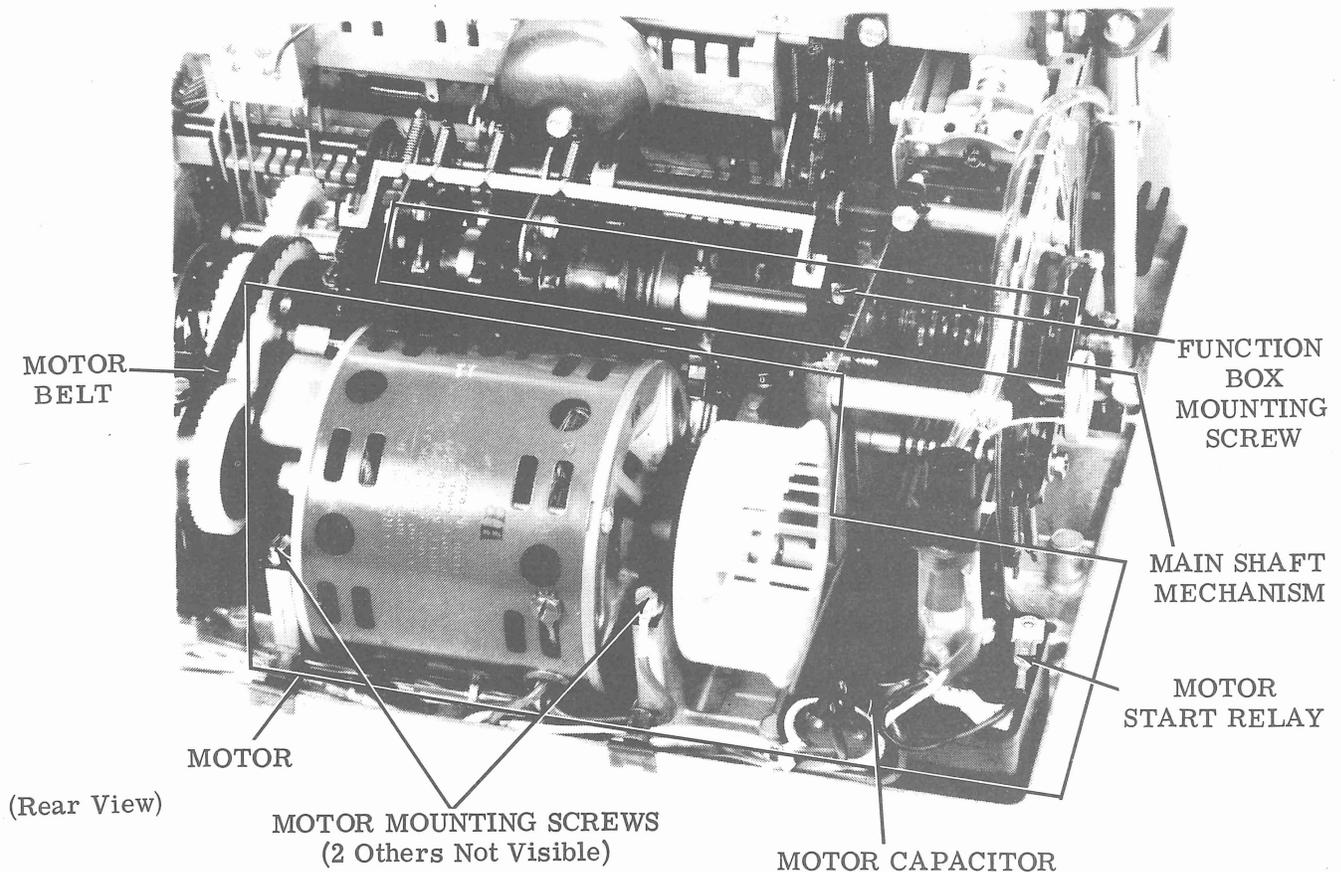


Figure 8 - Typing Unit

(f) Remove the TP119651 retaining ring from function rocker shaft TP180774 drive arm. Disengage the TP180746 arm on function rocker shaft from drive arm.

(g) Position main shaft mechanism to the right and lift it from base casting.

(h) To replace main shaft mechanism, reverse procedure used to remove it. Make sure distributor shaft is properly positioned to left against pressure of brush spring.

MOTOR

2.19 To remove motor (Figure 8), proceed as follows.

(a) Remove the four TP180798 mounting screws and the two TP181383 motor clamps.

(b) Disengage motor belt from gear pulley mounted on motor housing.

(c) Loosen the TP180798 screw in motor start relay.

(d) Remove motor, motor capacitor, start relay, and associated wiring.

(e) To replace motor, reverse procedure used to remove it.