37 TYPING UNIT (P003 AND HIGHER)

ADJUSTMENTS

CONTENTS

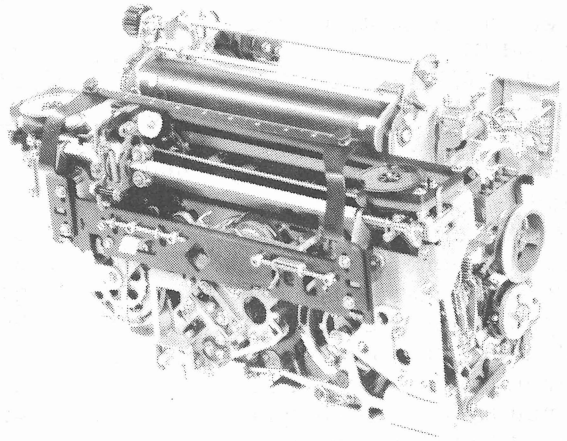


Figure 1 - 37 Standard Typing Unit

Prepared for American Telephone and Telegraph Company by Teletype Corporation

CONTENTS PAGE

Platen Mechanism (Friction Feed)

Platen Mechanism (Sprocket Feed)

Printing Mechanism

CONTENTS PAGE

Retraction Mechanism

Ribbon Feed Mechanism

Selector Mechanism

CONTENTS PAGE

CONTENTS PAGE

CONTENTS PAGE

1. GENERAL

1.01 This section provides adjustment procedures for the standard (Figure 1) and wide platen (Figures 5 and 6) 37 typing units. For similar information about the early design 37 typing unit, refer to Section 574-320-700. Since this section is a general revision, marginal arrows used to show changes or additions have been omitted. Teletypewriter Change Notice (TCN) up through April 1972 have been incorporated into this section.

1.02 The 37 wide platen adjustments are integrated into this section. The majority of the adjustments for the standard units are the same for wide platen units. The major and minor mechanisms for wide platen, with differences and variations, are noted in Figures 5 and 6. When a particular adjustment requirement is used, for both standard and wide platen units, there is no notation in the table of contents. Specific adjustments that are only for standard or only for wide platen units, are noted in the table of contents as standard unit or wide platen unit, after the adjustment title.

1.03 The adjustments in this section are divided into the basic unit and variable features. The basic unit is subdivided into major and minor mechanisms.

1.04 Each adjustment is associated with a mechanism. Both the mechanisms and the subordinated adjustments are indexed in the table of contents. The major and minor mechanisms and the variable features are identified in Figures 2, 3, 4, 5, and 6.

1.05 Tools required to make the adjustments and check the spring tensions are not supplied with the equipment, but are listed separately in Section 570-005-800.

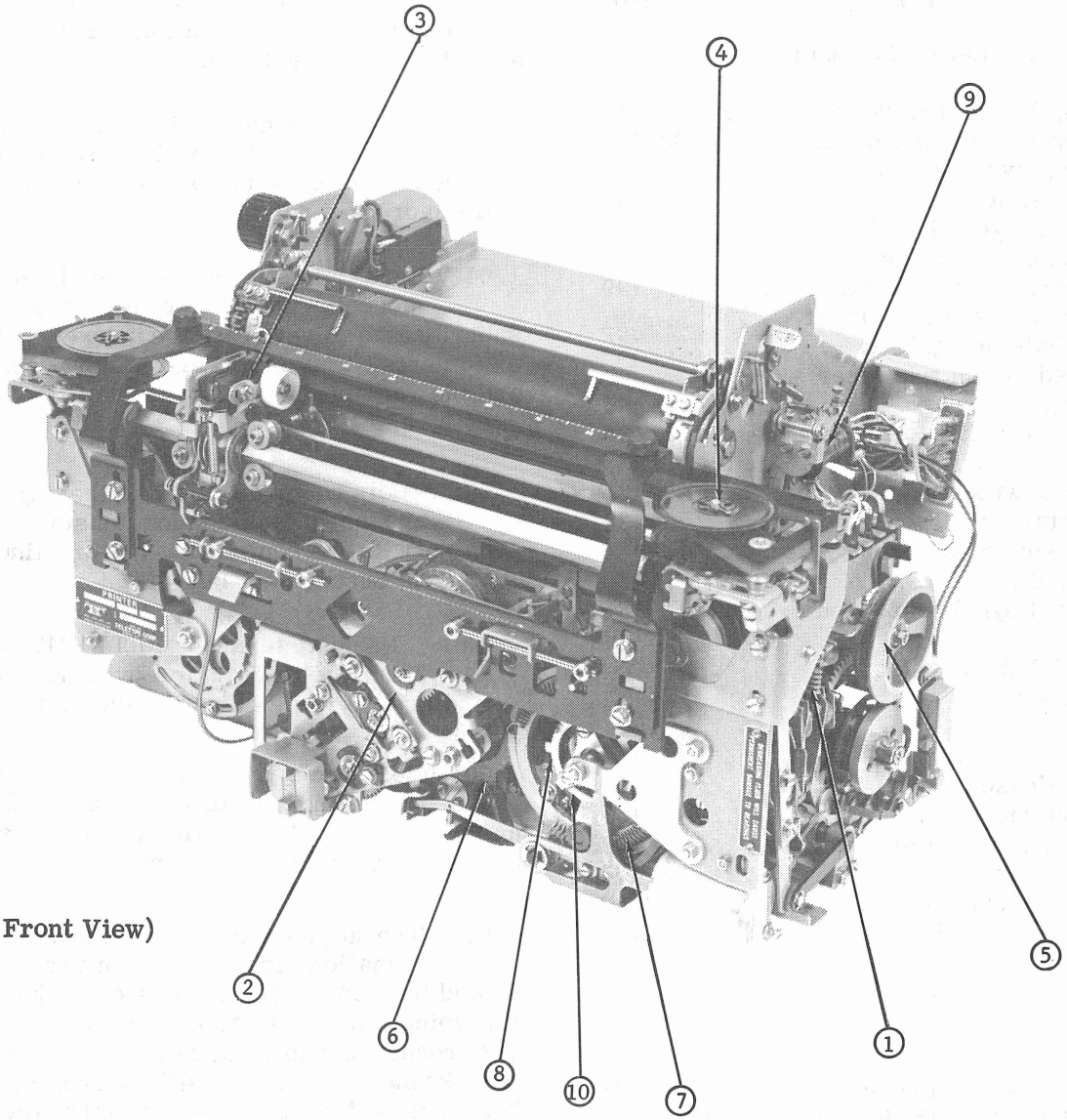
Note: Use maintenance pad TP124828 to protect furniture and floor coverings from oil and grease while adjusting the unit.

1.06 References made to left or right, up or down, and front or rear apply to the typing unit in its normal operating position as viewed by the operator facing the unit.

1.07 The adjustments for the basic unit and variations are arranged in a sequence that should be followed if a complete readjustment of the typing unit is undertaken. A complete adjusting procedure should be read before attempting to make the adjustment. After an adjustment has been completed, be sure to tighten any nuts or screws that may have been loosened to facilitate the adjustment, unless otherwise instructed. If a part mounted on shims is to be removed, the number of shims at each mounting screw should be noted so that the same pile-up can be replaced when the part is remounted.

CAUTION: UNLESS OTHERWISE SPECIFIED, REMOVE ALL POWER FROM THE UNIT WHEN PERFORMING ADJUSTMENTS.

1.08 Some adjustments require that the lost motion (play) between operating elements be removed (taken up) before checking the requirement. Under these circumstances, play is considered taken up whenever a 4-ounce force is applied to the operating elements to create the condition specified in the adjustment.



(Right Front View)

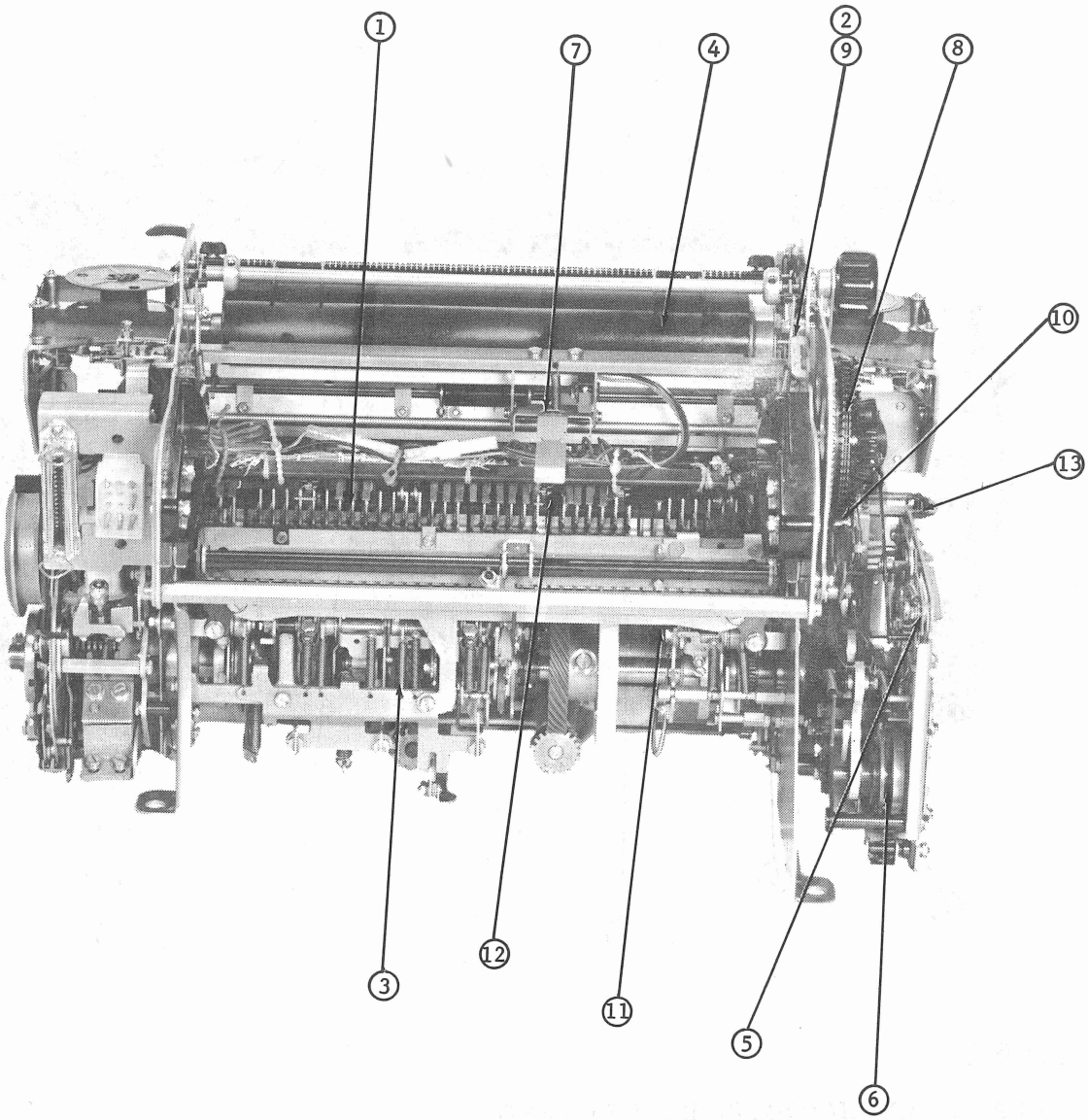
BASIC UNIT

① CODEBAR MECHANISM
② HORIZONTAL POSITIONING MECHANISM
③ PRINTING MECHANISM
④ RIBBON FEED MECHANISM
⑤ SELECTOR MECHANISM
⑥ SPACING AND CARRIAGE RETURN MECHANISM

VARIATIONS

⑦ HORIZONTAL TABULATION MECHANISM
⑧ HORIZONTAL TAB STOP CONTROL MECHANISM
⑨ TWO-COLOR RIBBON MECHANISM
⑩ AUTOMATIC CARRIAGE RETURN — LINE FEED MECHANISM

Figure 2 - Major Mechanisms of 37 Typing Unit



(Rear View)

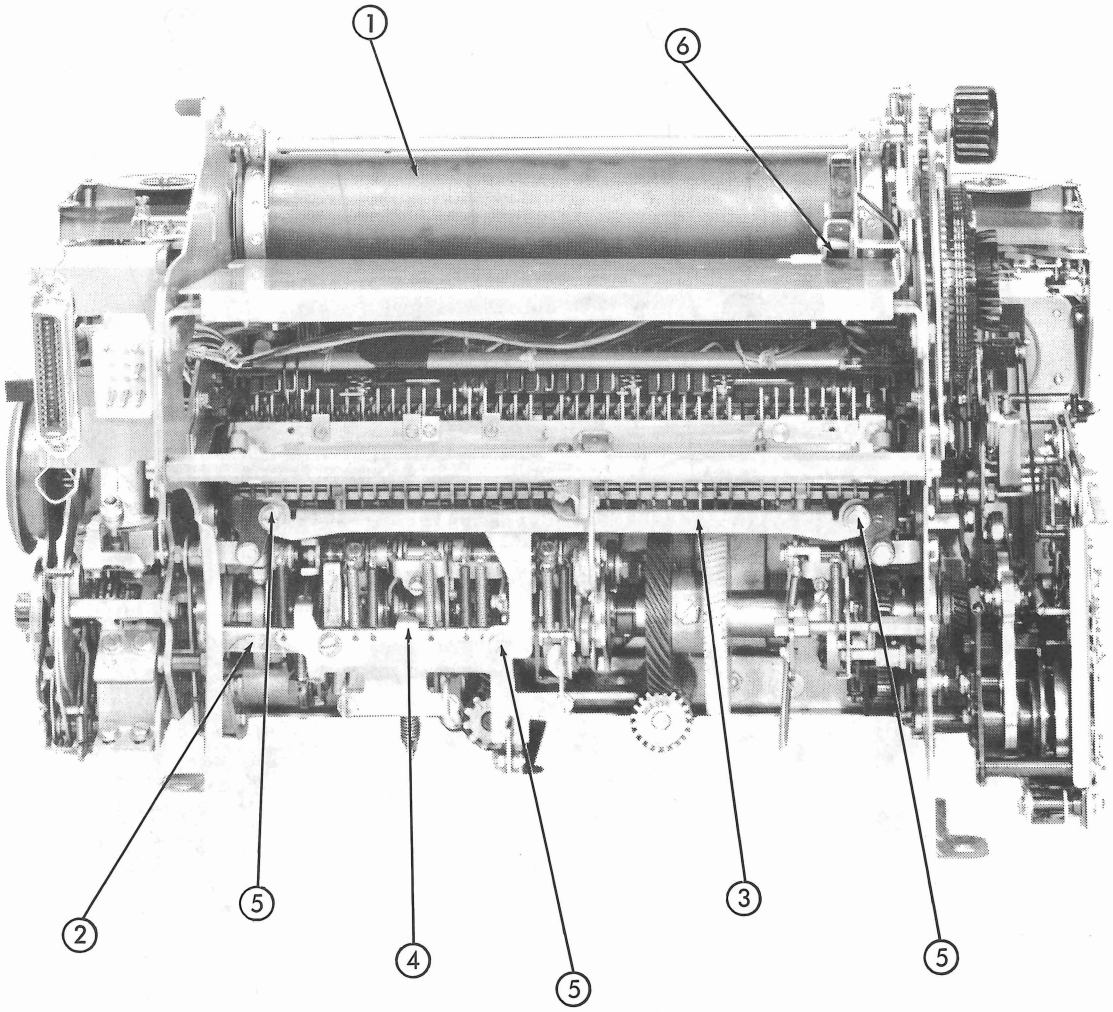
BASIC UNIT

1. FUNCTION MECHANISM
2. LINE FEED MECHANISM
3. MAIN SHAFT AND TRIP SHAFT MECHANISMS
4. PLATEN MECHANISM (FRICTION FEED)
5. RETRACTION MECHANISM
6. VERTICAL POSITIONING MECHANISM

VARIATIONS

7. LOW-PAPER ALARM (FRICTION FEED)
8. VERTICAL TABULATION MECHANISM
9. HALF FORWARD AND REVERSE LINE FEED MECHANISM
10. VERTICAL TAB STOP CONTROL MECHANISM
11. LINE FEED CLUTCH TRIPBAIL MECHANISM
12. ESCAPE SEQUENCE MECHANISM
13. SHIFT-IN — SHIFT-OUT MECHANISM

Figure 3 - Major Mechanisms of 37 Typing Unit



BASIC UNIT

① PLATEN MECHANISM (SPROCKET FEED)

② TRIP SHAFT

③ TRIP SHAFT BRACE

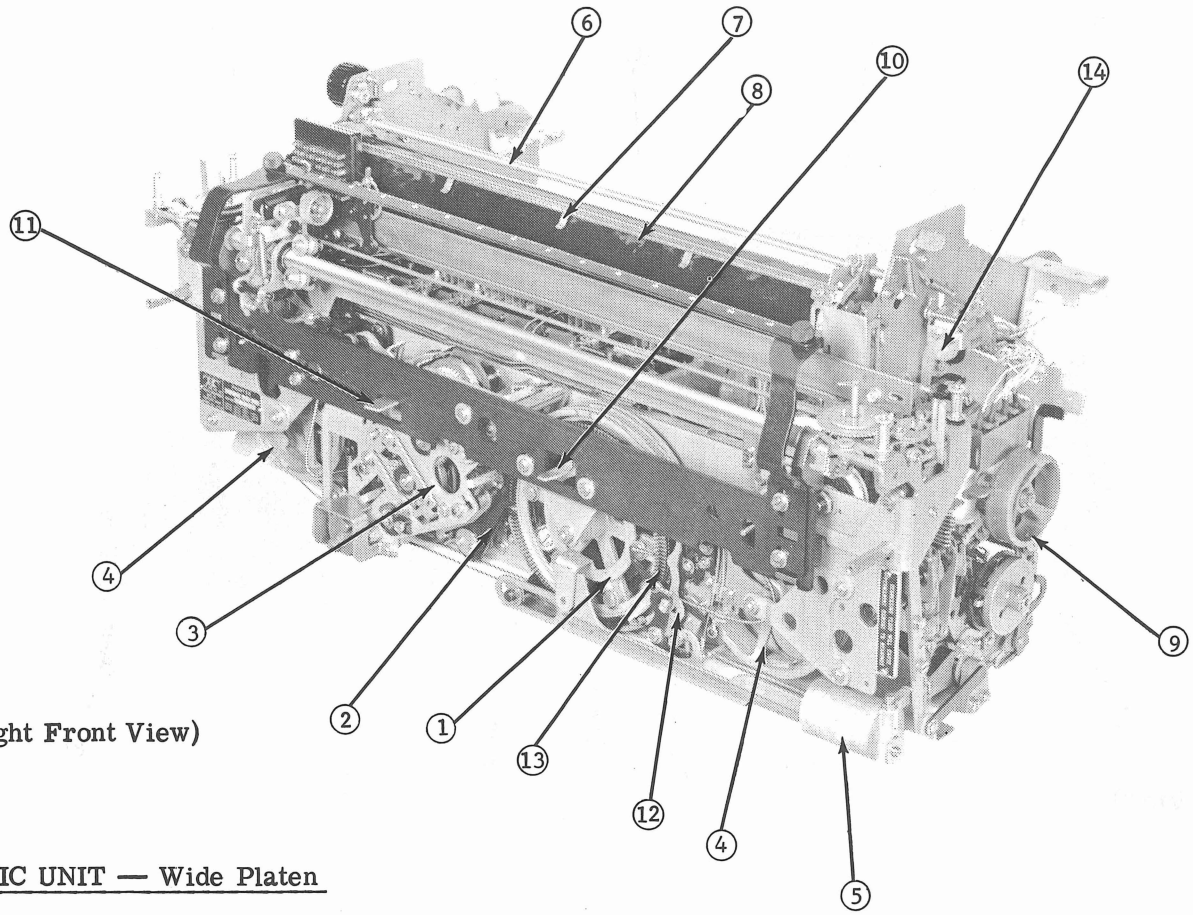
④ TRIP SHAFT SPRING BRACKET

⑤ TRIP SHAFT BRACE MOUNTING SCREWS

VARIATION

⑥ PAPER-OUT ALARM (SPROCKET FEED)

Figure 4 - Major and Minor Mechanisms of 37 Typing Unit



(Right Front View)

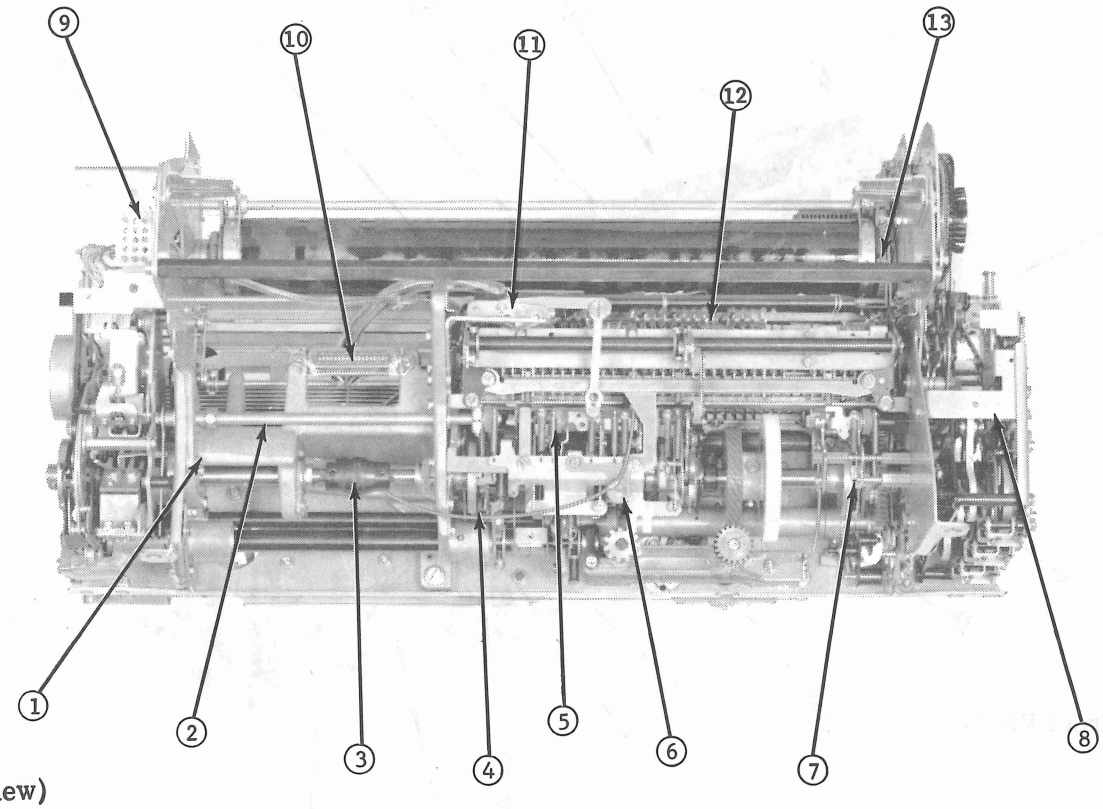
BASIC UNIT — Wide Platen

① SPACING AND CARRIAGE RETURN DRUM
② SPACING MECHANISM
③ HORIZONTAL POSITIONING MECHANISM
④ PULLEY DRUM
⑤ DASHPOT
⑥ PAPER STRAIGHTENER
⑦ PAPER FINGER
⑧ PLATEN
⑨ SELECTOR MECHANISM
⑩ LOCAL CARRIAGE RETURN LEVER
⑪ LOCAL LINE FEED LEVER

VARIATIONS

⑫ HORIZONTAL TAB STOP CONTROL MECHANISM
⑬ HORIZONTAL TAB RING
⑭ TWO-COLOR RIBBON MECHANISM

Figure 5 - Major Mechanisms of 37 Wide Platen Typing Unit



(Rear View)

BASIC UNIT — Wide Platen

① INTERMEDIATE CASTING
② TRIP SHAFT EXTENSION
③ MAIN SHAFT COUPLER
④ HORIZONTAL TAB SENSING CABLE
⑤ TRIP SHAFT MECHANISM
⑥ CABLE MOUNTING BRACKET
⑦ LINE FEED CLUTCH
⑧ SUPPORT BRACKET AND TIMER MOUNTING BRACKET
⑨ SELECTOR/SIGNAL LINE CONNECTOR
⑩ 36-PIN FUNCTION MECHANISM CONNECTOR
⑪ BACKSPACE MECHANISM
⑫ FUNCTION MECHANISM
⑬ LINE FEED MECHANISM

Figure 6 - Major and Minor Mechanisms of 37 Wide Platen Typing Unit

1.09 If an adjustment is changed, be sure to check all affected adjustments. Affected adjustments are listed below pertinent adjustment titles and text. As an example, suppose the TRIP SHAFT CAM FOLLOWER (2.20) adjustment is changed. Under Affected Adjustments the FUNCTION CLUTCH TRIP ARM (2.23) and PRINT HAMMER CLUTCH TRIP ARM (2.24) adjustments are listed. Check these adjustments before considering the TRIP SHAFT CAM FOLLOWER (2.20) adjustment complete.

1.10 The spring tensions given in the section are indicated values and should be checked with proper spring scales. The adjusting illustrations, in addition to indicating adjustment tolerances, show the angle at which the scale should be applied when measuring spring tensions. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced with new springs.

1.11 All electrical contacts should meet squarely. Contacts with the same diameter should not be out of alignment by more than 25 percent of the contact diameter. Avoid sharp kinks or bends in the leaf springs.

CAUTION: KEEP ALL ELECTRICAL CONTACTS FREE OF OIL OR GREASE.

OPERATING CONDITION OF CLUTCHES

1.12 When a requirement specifies a disengaged clutch, the clutch must be fully latched so that the clutch shoes are completely disengaged from the clutch drum. To become fully latched, the trip lever (or stop arm) must engage the clutch shoe lever, and the clutch disc must rotate far enough to permit the latchlever to fall into the notch in the clutch disc.

Note: When rotating the main shaft of the typing unit by hand, the clutches do not fully disengage upon reaching their stop positions. In order to relieve the drag on the clutch drums and permit the main shaft to rotate freely, apply pressure to the stop-lug on each clutch disc with a screwdriver until each latchlever falls into its notch on its clutch disc. Thus, each internal expansion clutch becomes fully disengaged. This procedure should be followed before placing the typing unit on the base and switching on the power.

When engaged, the clutch shoe lever is unlatched (tripped), and the clutch shoes are wedged against the clutch drum.

MANUAL INSERTION OF CHARACTERS

1.13 When a procedure specifies a particular codebar arrangement or character, it must be manually inserted in the selector and codebar mechanisms. To manually insert the particular arrangement, attach armature clip TP321071 on the selector mechanism to simulate a marking condition. Prevent the retraction mechanism from working by stripping the blocking and feed pawls from the ratchet wheel and tying in place. Attach handwheel TP161430 to drum of selector clutch and rotate main shaft until clutch is disengaged. Momentarily move armature down to simulate a start pulse and then rotate main shaft until all push levers are marking and clutch is again disengaged. Set up desired character in selector by moving the push levers, associated with spacing bits, on top of selector levers to simulate a spacing condition (there is no change in the transfer levers).

1.14 Place spring hook TP142554 through the hole located in the selector mechanism frame and just to the front of the selector clutch. Rotate the intermediate arm latch bail toward the rear of the unit to permit the transfer levers to be repositioned.

1.15 To place the character in the codebar mechanism so as to accomplish desired function, engage the codebar clutch and rotate the main shaft until codebar clutch disengages.

Note: Do not release armature in selector mechanism once the desired character is set up. Releasing the armature will result in a new code combination being placed in typing unit.

1.16 Occasionally a procedure will specify that a function be fully selected. A function is considered fully selected whenever the function clutch is engaged (tripped) and the main shaft rotated, until just prior to the time the stripper blade removes the function pawl from its function bar.

CAUTION: AFTER THE TYPING UNIT HAS BEEN IN OPERATION 200 HOURS:

(1) RELUBRICATE ACCORDING TO SECTION 574-320-704.

(2) RECHECK CLUTCH GAPS PER MAIN SHAFT CLUTCH SHOE LEVERS (2.14) ADJUSTMENT.

2. BASIC UNIT

2.01 Selector Mechanism

SELECTOR ARMATURE

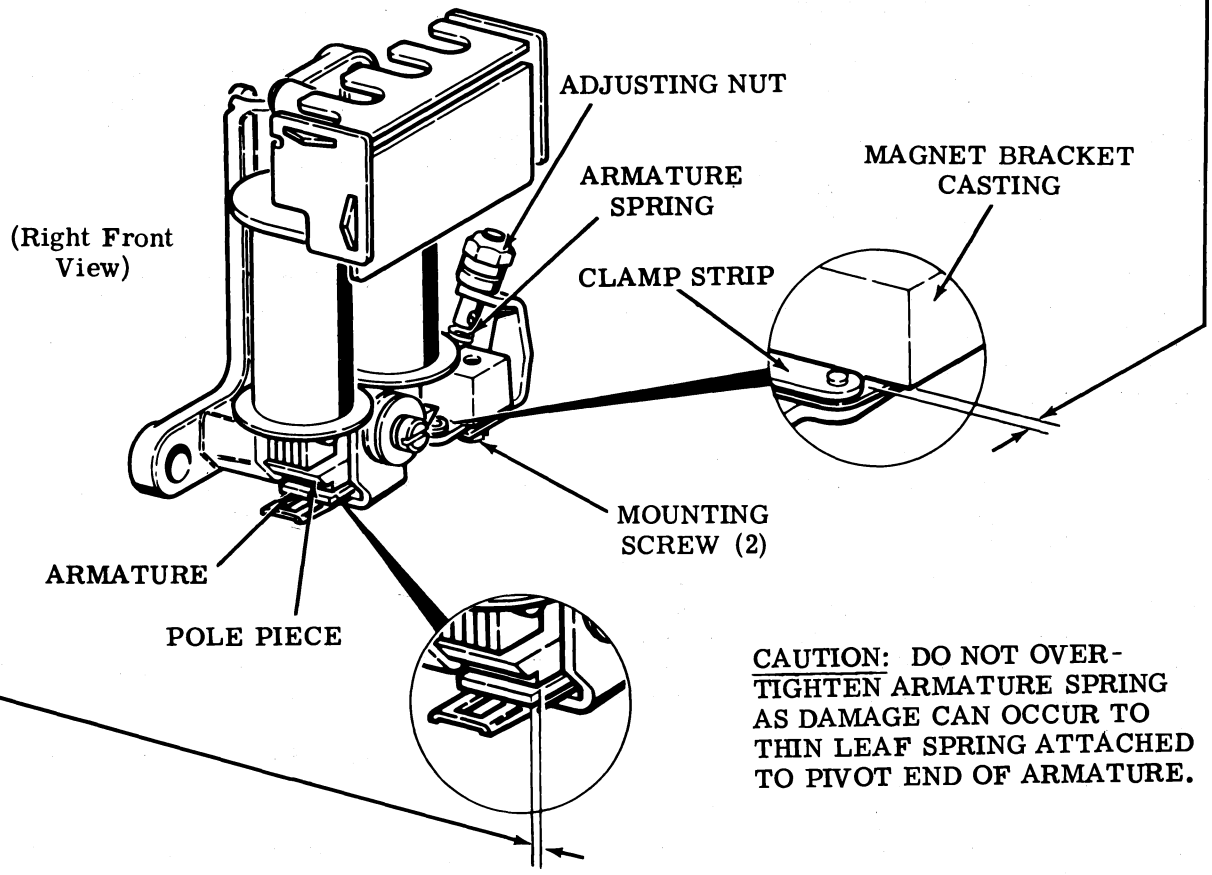
Note 1: Requirement (1) need not be made (nor checked) if SELECTOR MAGNET BRACKET (2.05) and SELECTOR RECEIVING MARGIN (2.10) adjustments are met.

Note 2: To facilitate adjustment, remove range finder assembly and selector magnet assembly.

(1) Requirement
Clearance between clamp strip and magnet bracket casting should be
Min 0.025 inch---Max 0.045 inch

(2) Requirement
Alignment of outer edge of armature with outer edge of pole pieces should be
Min flush---Max 0.015 inch

To Adjust
Position adjusting nut to hold armature firmly against pivot edge of casting. (See CAUTION.) Loosen mounting screws and position armature. Replace selector magnet assembly and range finder assembly. Tighten mounting screws.



CAUTION: DO NOT OVER-TIGHTEN ARMATURE SPRING AS DAMAGE CAN OCCUR TO THIN LEAF SPRING ATTACHED TO PIVOT END OF ARMATURE.

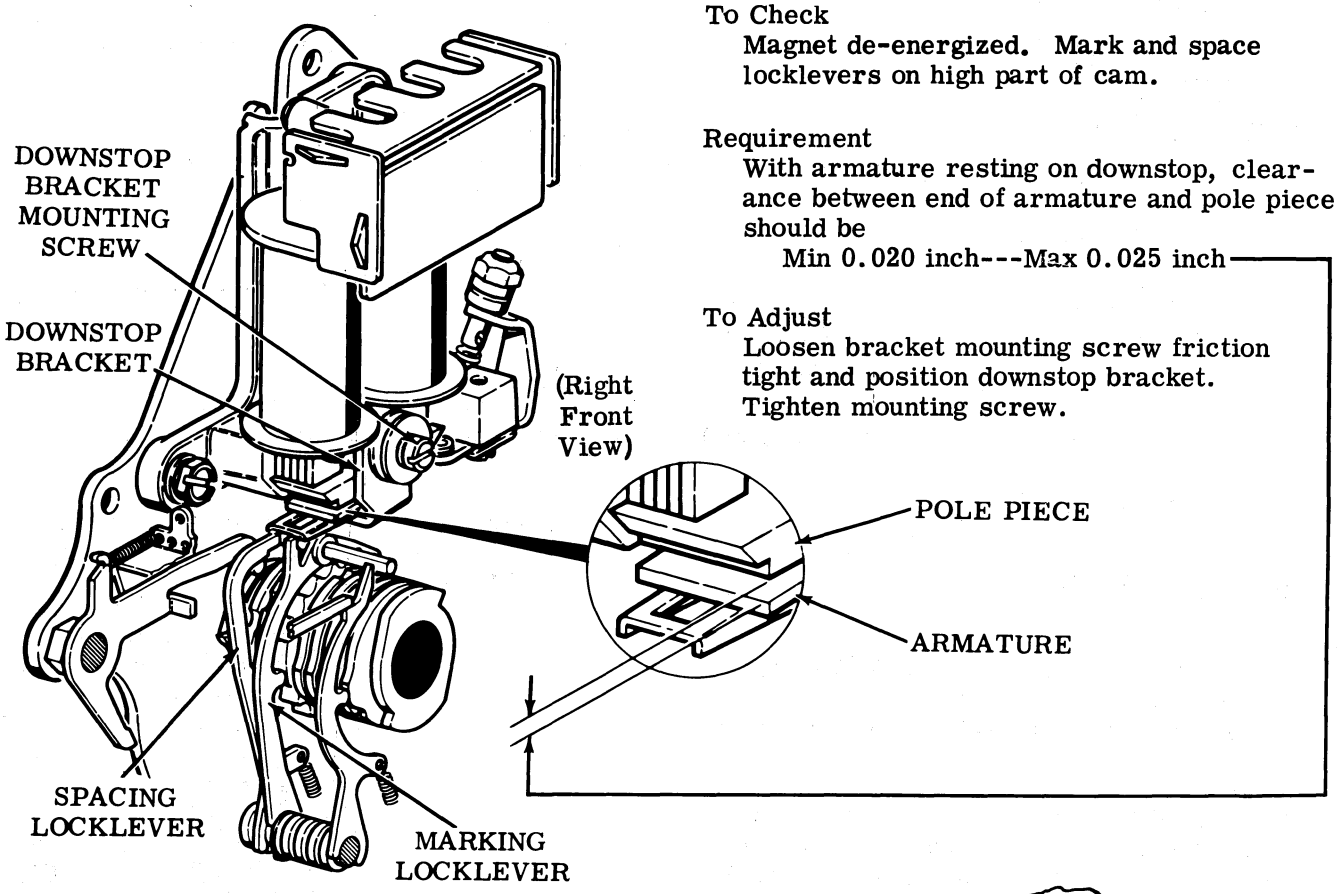
2.02 Selector Mechanism (continued)

SELECTOR ARMATURE DOWNSTOP

To Check
Magnet de-energized. Mark and space locklevers on high part of cam.

Requirement
With armature resting on downstop, clearance between end of armature and pole piece should be
Min 0.020 inch---Max 0.025 inch

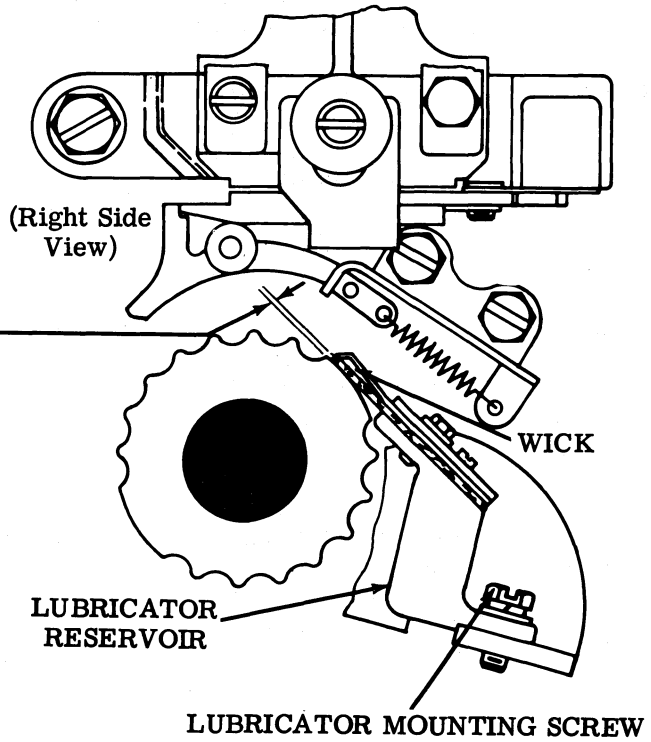
To Adjust
Loosen bracket mounting screw friction tight and position downstop bracket. Tighten mounting screw.



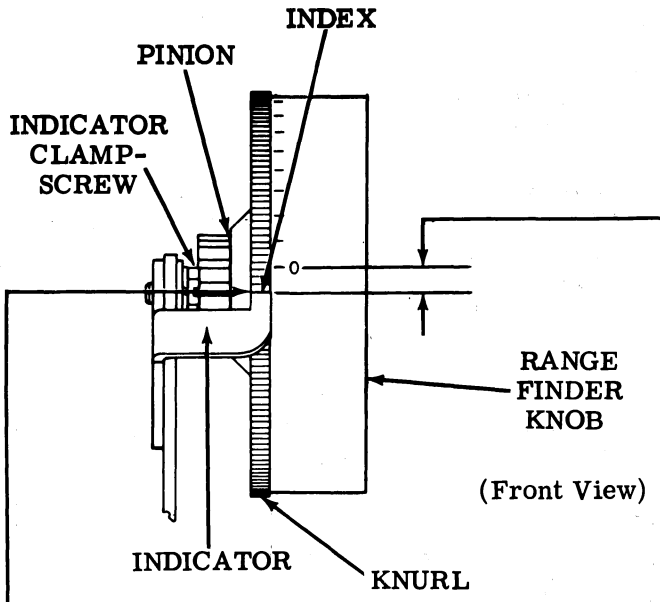
SELECTOR CAM LUBRICATOR

Requirement
Wick should be in contact with high part of selector lever cams but should not be deflected more than
Max 1/32 inch
as gauged by eye.

To Adjust
Loosen lubricator mounting screw friction tight. Slide lubricator to correct position. Tighten mounting screws.



2.03 Selector Mechanism (continued)



INDICATOR POSITION

Requirement
Indicator should permit range finder knob to rest against its flat washer stop and engage knurl so scale setting will not change.

To Adjust
Loosen indicator clampscrew. Make sure range finder knob is against its flat washer stop. Press indicator into bottom of knurl and hold it there. Tighten clampscrew.

SELECTOR CLUTCH STOP ARM

To Check
Selector clutch (disengaged) latched. Selector armature set to marking position and the selector range scale set at 60.

Requirement
Clutch stop arm should engage the shoe lever by approximately a full thickness of the clutch stop arm.

To Adjust
Loosen clampscrew friction tight. Position stop arm. Recycle and recheck the requirement on both sides of the clutch. Tighten clampscrew.

RANGE FINDER KNOB PHASING

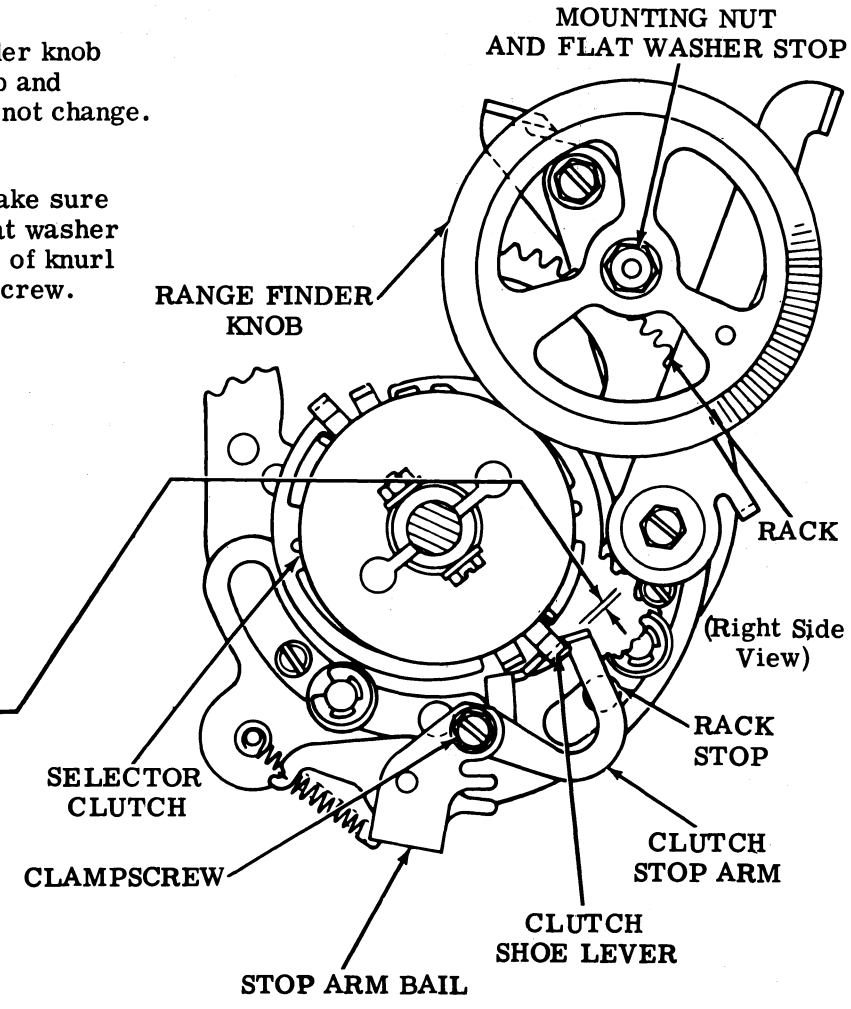
To Check
Range finder knob turned to maximum clockwise position.

(1) Requirement
Zero should be aligned with index within 10 divisions.

(2) Requirement
Rack should be pivoted against rack stop.

To Adjust
Pivot rack counterclockwise against rack stop. Loosen mounting nut and position range finder knob.

Note: Insure adequate motion of range finder knob prior to rack reaching upper and lower limits of travel.



2.04 Selector Mechanism (continued)

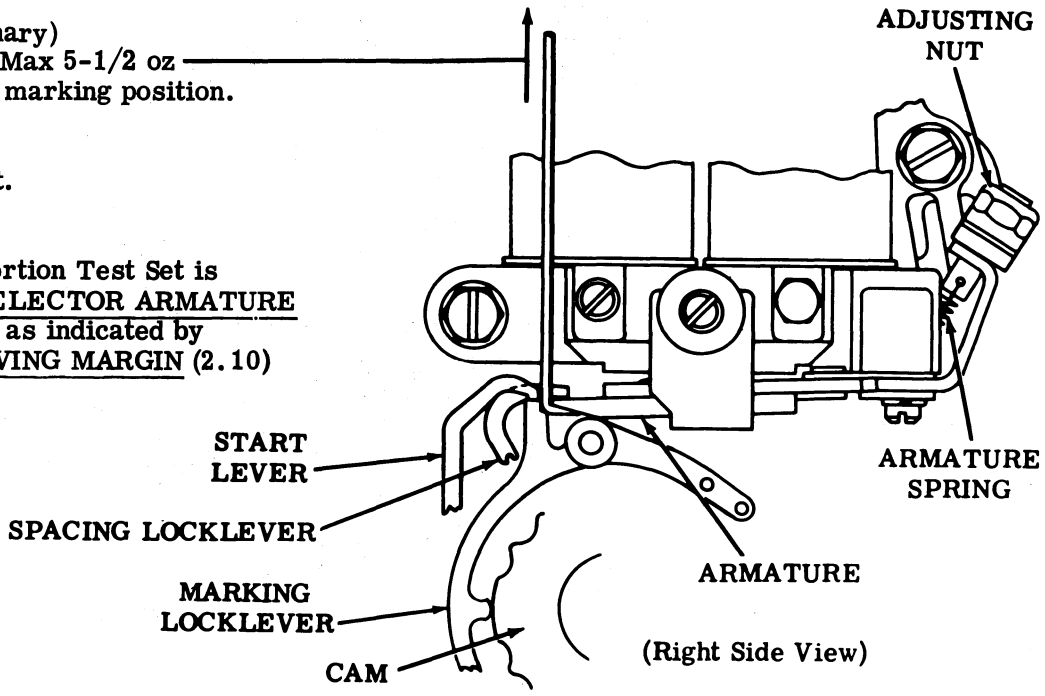
SELECTOR ARMATURE SPRING

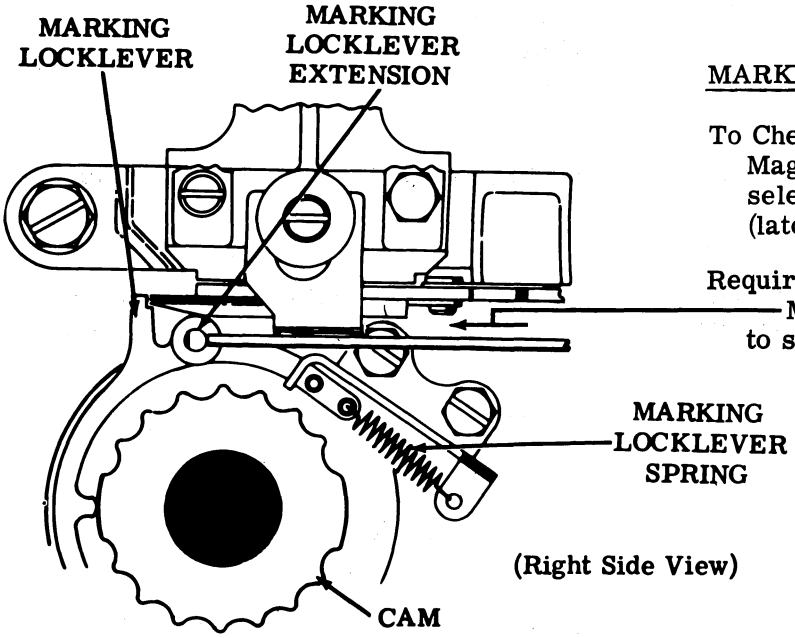
To Check
Marking locklever, spacing locklever, and start lever on high part of their cams.

Requirement (Preliminary)
Min 4-1/2 oz---Max 5-1/2 oz to pull armature to marking position.

To Adjust
Rotate adjusting nut.

Requirement (Final)
When a Signal Distortion Test Set is available, refine SELECTOR ARMATURE SPRING adjustment as indicated by SELECTOR RECEIVING MARGIN (2.10) adjustment.





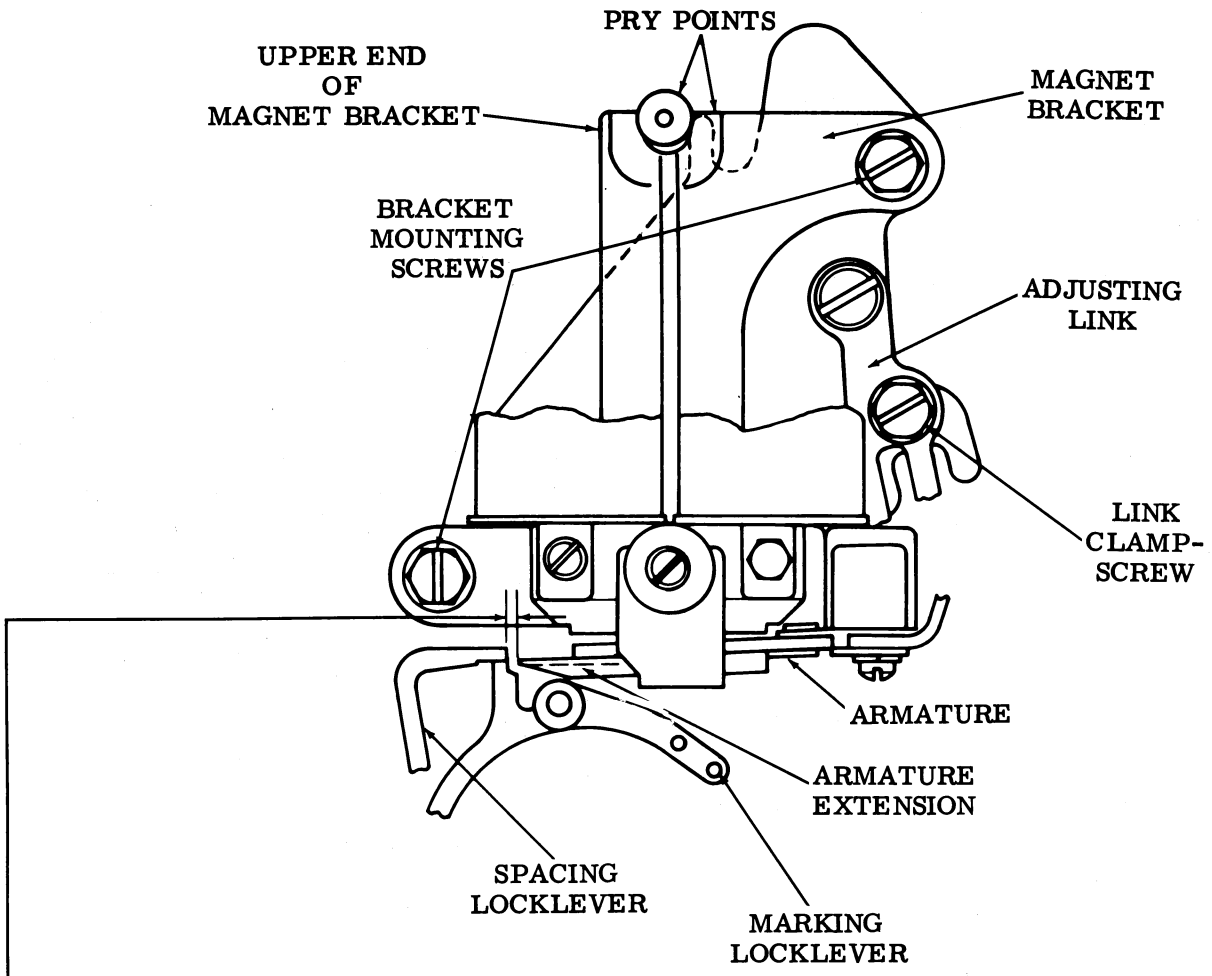
MARKING LOCKLEVER SPRING

To Check
Magnet energized. All marking combination selected. Selector clutch disengaged (latched).

Requirement
Min 4 oz---Max 9 oz to start lever moving.

2.05 Selector Mechanism (continued)

(Right Side View)



SELECTOR MAGNET BRACKET

Note: The preliminary SELECTOR ARMATURE SPRING (2.04) adjustment must be made prior to this adjustment.

(1) To Check

"Delete" (all marking) code combination selected. Main shaft rotated until marking and spacing locklevers are on high part of cam (stop position). Permit armature to assume its spacing (down) position.

Note: Check requirement at both high parts of selector cam.

Requirement

Min 0.009 inch---Max 0.016 inch clearance between end of armature extension and shoulder of marking locklever.

To Adjust

Loosen two bracket mounting screws and link clampscrew friction tight. Position magnet bracket by means of adjusting link. Tighten link clampscrew only.

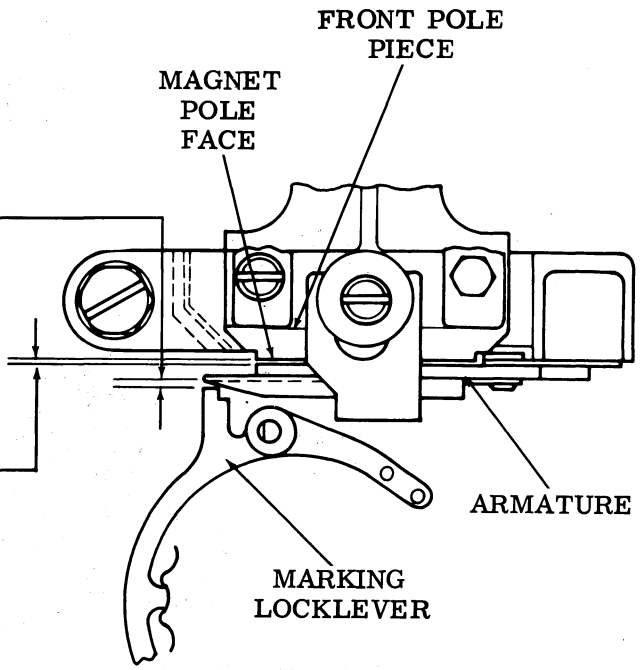
2.06 Selector Mechanism (continued)

SELECTOR MAGNET BRACKET (continued)

(2) To Check
Hold armature in marking (up) position. Rotate main shaft and observe marking locklever movement. If the marking locklever passes freely under armature extension, the "some" part of requirement (1) is met. With armature held in marking position, disengage (latch) all main shaft clutches. Engage (trip) selector clutch and rotate main shaft until no. 8 push lever just falls marking. Check "0.003" part of requirement (1). Permit armature to assume its spacing (down) position. Check requirement (2).

(1) Requirement
Min some---Max 0.003 inch clearance between lower surface of armature and upper surface of marking locklever.

(2) Requirement
Max 0.010 inch between magnet pole face and front edge of armature when armature is resting on marking locklever.



(Right Side View)

To Adjust
With bracket mounting screws friction tight, position upper end of magnet bracket using pry points. Tighten mounting screws. Recheck all requirements for the selector magnet bracket.

(3) To Check
Engage (trip) selector clutch and rotate shaft. Check operation of start lever on armature.

Requirement
Smooth operation of start lever on armature.

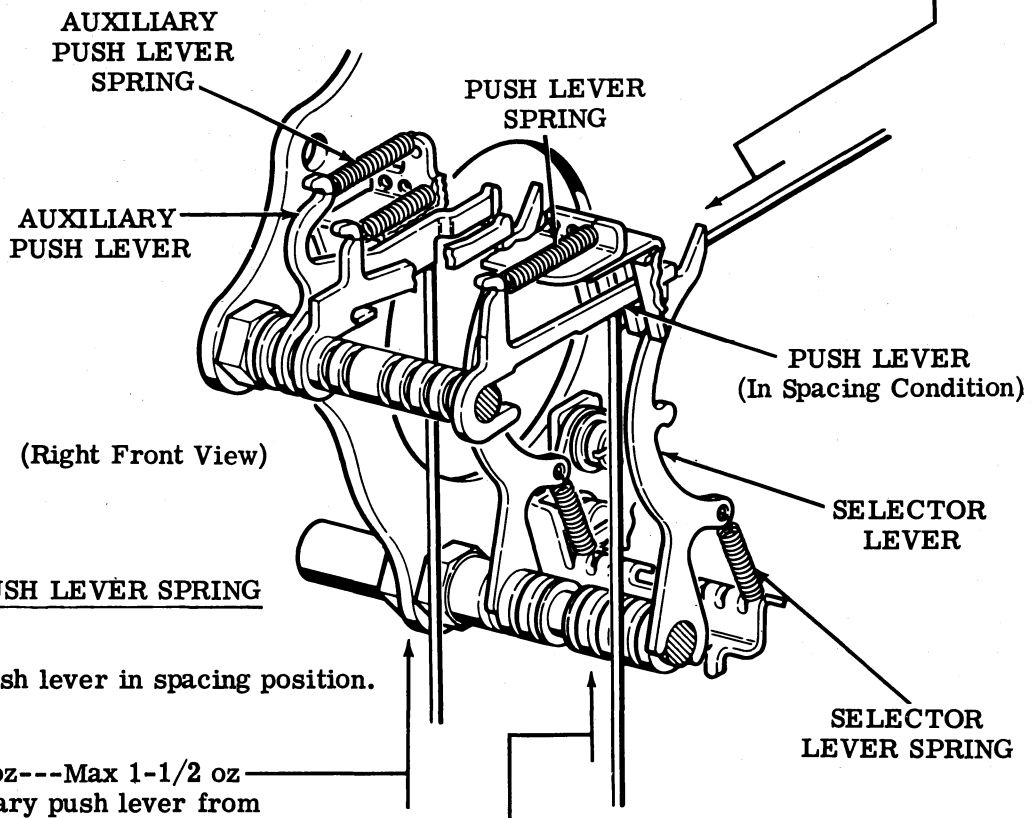
To Adjust
Refine adjustments for all requirements for the selector magnet bracket.

2.07 Selector Mechanism (continued)

SELECTOR LEVER SPRING

To Check
Selector levers on high part of their cams. Push lever reset bail latched on lever guide.

Requirement
Min 1-1/2 oz---Max 2-1/2 oz to start each selector lever moving. Check eight springs.



(Right Front View)

AUXILIARY PUSH LEVER SPRING

To Check
Auxiliary push lever in spacing position.

Requirement
Min 1/2 oz---Max 1-1/2 oz to lift auxiliary push lever from selector lever.

SELECTOR PUSH LEVER SPRING

To Check
Push lever in spacing position.

Requirement
Min 1 oz---Max 2-1/2 oz to lift push lever from selector lever. Check eight springs.

2.08 Selector Mechanism (continued)

START LEVER CAM FOLLOWER SPRING

To Check
Cam follower on high part of cam.

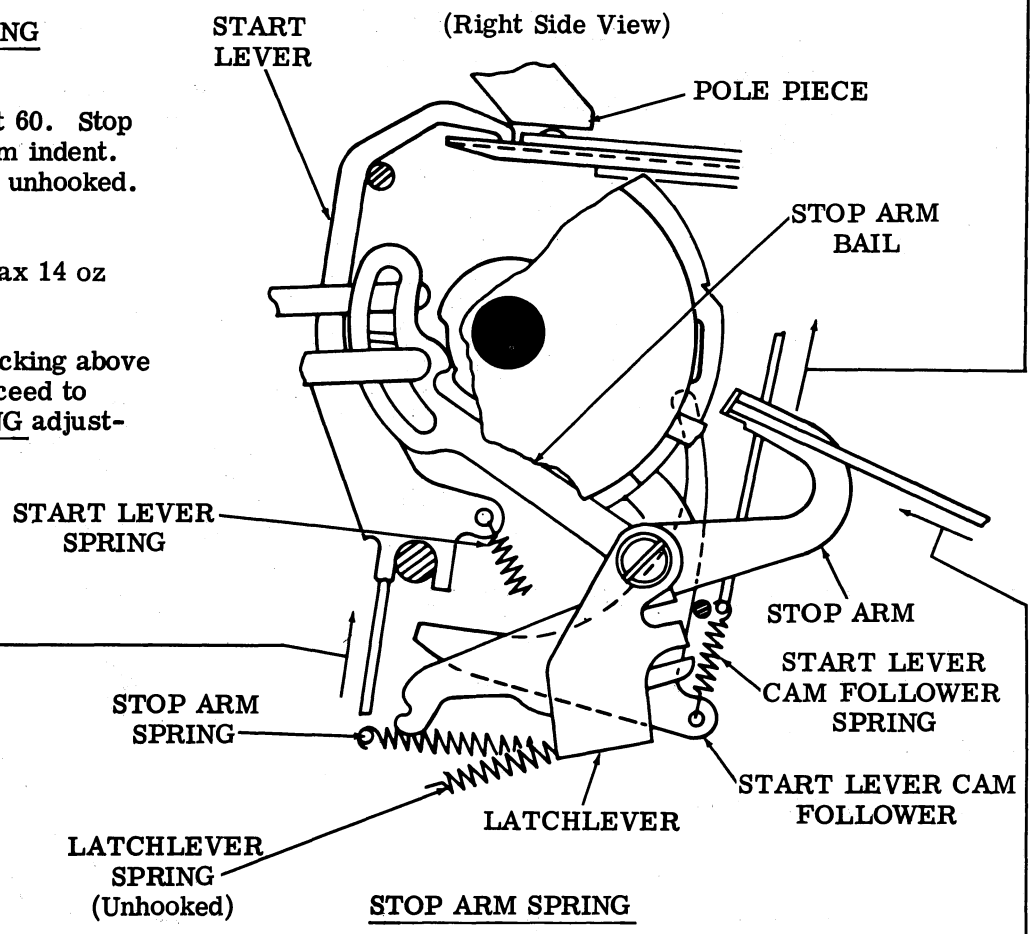
Requirement
Min 3 oz---Max 5 oz
To pull lift lever spring to installed length.

START LEVER SPRING

To Check
Range scale set at 60. Stop arm bail in its cam indent. Latchlever spring unhooked.

Requirement
Min 10 oz---Max 14 oz
to lift start lever.

Note 1: After checking above requirement, proceed to STOP ARM SPRING adjustment.

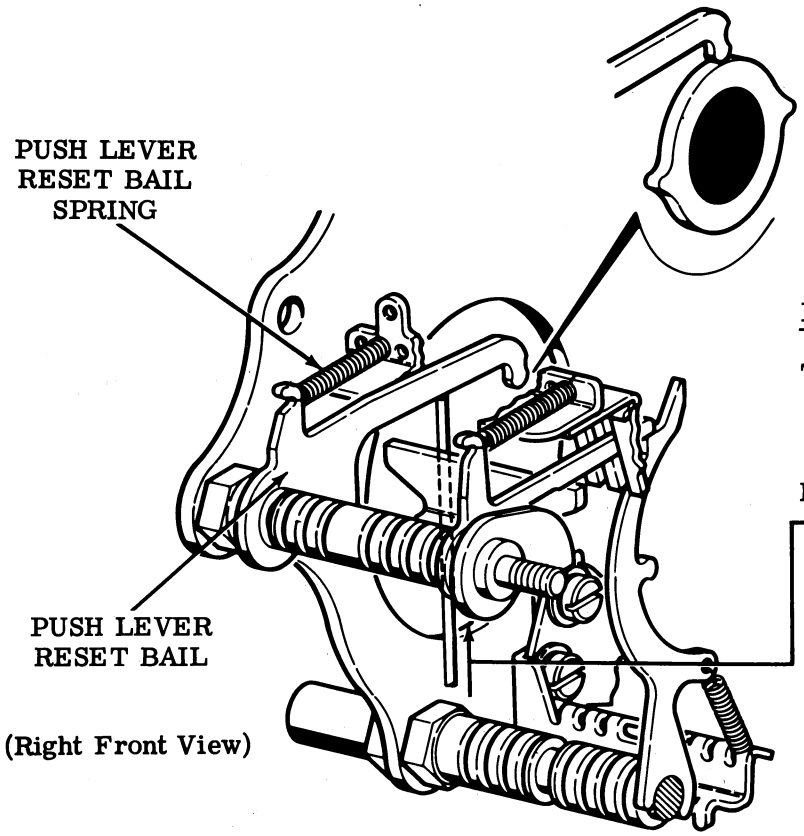


STOP ARM SPRING

Note 2: START LEVER SPRING must be checked and meet its requirement before checking this requirement.

Requirement
Range scale set at 60. Stop arm bail in its cam indent. Latchlever spring unhooked.
Min 9-1/2 oz---Max 13 oz
to start the stop arm moving.

2.09 Selector Mechanism (continued)

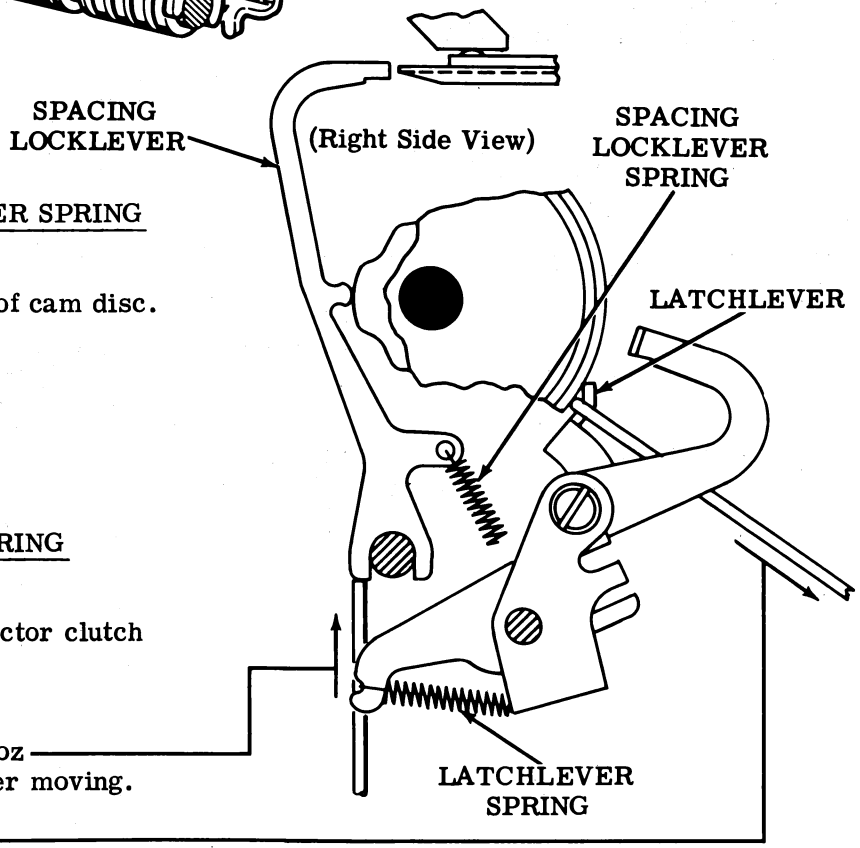


(Right Front View)

PUSH LEVER RESET BAIL SPRING

To Check
Push levers in spacing position. Push lever reset bail on low part of cam.

Requirement
Min 1-1/2 oz---Max 2-1/2 oz to move push lever reset bail from cam.



(Right Side View)

SELECTOR CLUTCH LATCHLEVER SPRING

To Check
Latchlever resting on low part of cam disc.

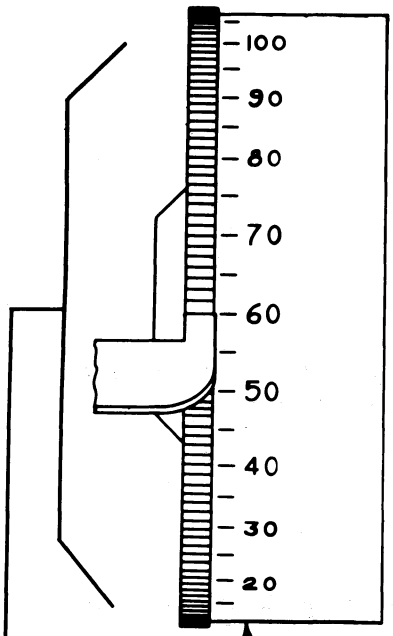
Requirement
Min 2 oz---Max 4 oz to start latchlever moving.

SPACING LOCKLEVER SPRING

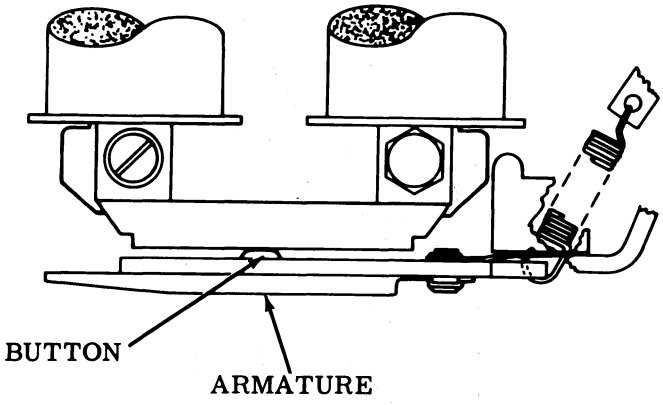
To Check
Magnet energized. Selector clutch disengaged (latched).

Requirement
Min 18 oz---Max 26 oz to start spacing locklever moving.

2.10 Selector Mechanism (continued)



(Front View)



(Right Side View)

SELECTOR RECEIVING MARGIN

Requirement

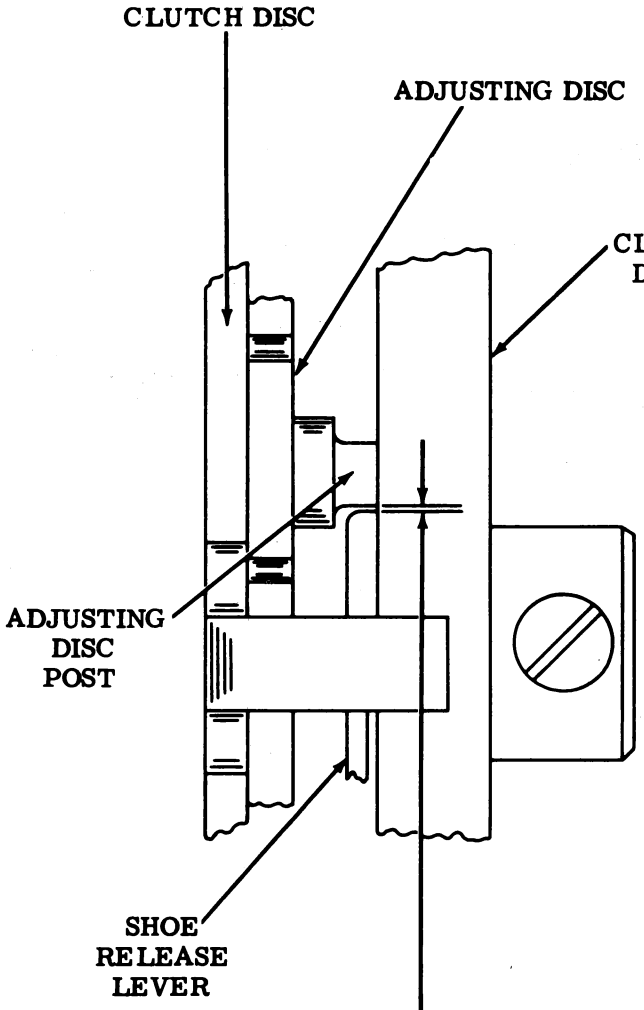
When a Signal Distortion Test Set is available, selector armature spring tension should be refined, if necessary, to meet the following selector receiving margin.

SPEED (WPM)	PERCENT MARKING AND SPACING BIAS TOLERATED	PERCENT MARKING AND SPACING END DISTORTION TOLERATED (SCALE SET AT BIAS OPTIMUM) TOLERANCE WITHOUT RECEIVING SIGNAL REGENERATION
100	35	35
150	25	25

To Adjust

Refine the SELECTOR ARMATURE SPRING (2.04) adjustment. Adjust spring tension for maximum of 5 percent internal bias.

2.11 Main Shaft and Trip Shaft Mechanisms and Vertical and Horizontal Positioning Mechanisms



Note 1: "BIDREC" means bidirectional regenerative clutch.

(Bottom View - Main Shaft Clutches)

(Left Side View - Horizontal Positioning Clutches)

(Rear View - Vertical Positioning Clutches)

CLUTCH "BIDREC" GAP

Note 2: The following requirement applies to all typing unit clutches.

To Check
Engage (trip) clutch. Check gap between adjusting disc post and shoe release lever.

Requirement
Less than 100 typing unit operational hours
— Min 0.002 inch---Max 0.018 inch between adjusting disc post and shoe release lever.

More than 100 typing unit operational hours
— Min 0.002 inch---Max 0.025 inch between adjusting disc post and shoe release lever.

To Adjust
Replace clutch shoes and/or drum.

2.12 Main Shaft and Trip Shaft Mechanisms (continued)

MAIN SHAFT CLUTCH ENDPLAY

(1) Requirement

Min some---Max 0.006 inch clearance between:

Codebar and print hammer clutch assemblies.
Print hammer and spacing clutch assemblies.
Function clutch assembly and collar.

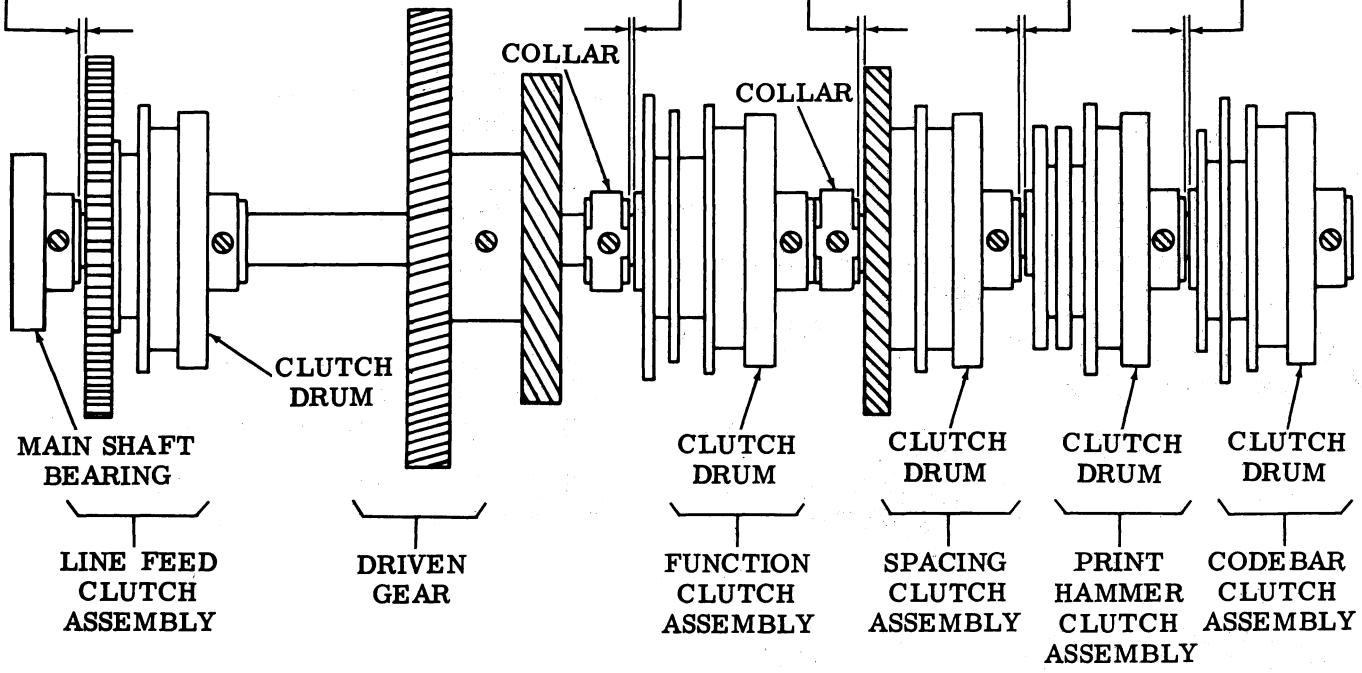
(2) Requirement

Min some---Max 0.015 inch clearance between:

Spacing clutch assembly and collar.
Line feed clutch assembly and main shaft bearing.

To Adjust

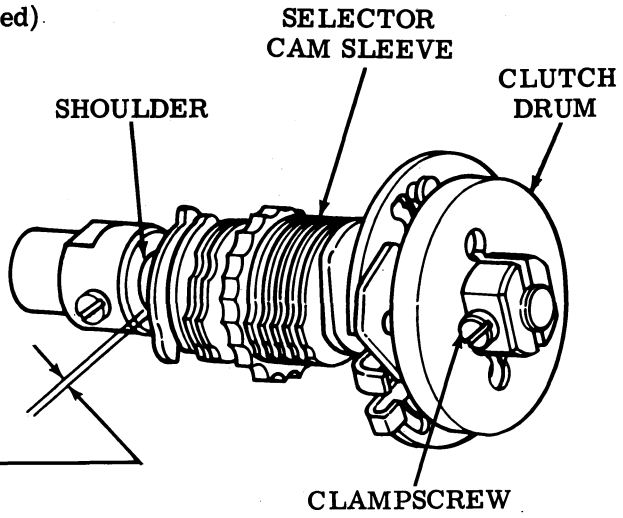
Loosen clampscrew of appropriate clutch drum or collar. Position assembly and tighten clampscrew.



(Bottom View)

Note: When the typing unit is mated with the keyboard, refer to Section 574-321-703 for the required information concerning the adjustment between the main shaft driven gear and the intermediate gear assembly.

2.13 Main Shaft and Trip Shaft Mechanisms (continued)



SELECTOR CLUTCH ENDPLAY

To Check
Selector clutch disengaged (latched). Move selector cam sleeve to left (shoulder) and then to right.

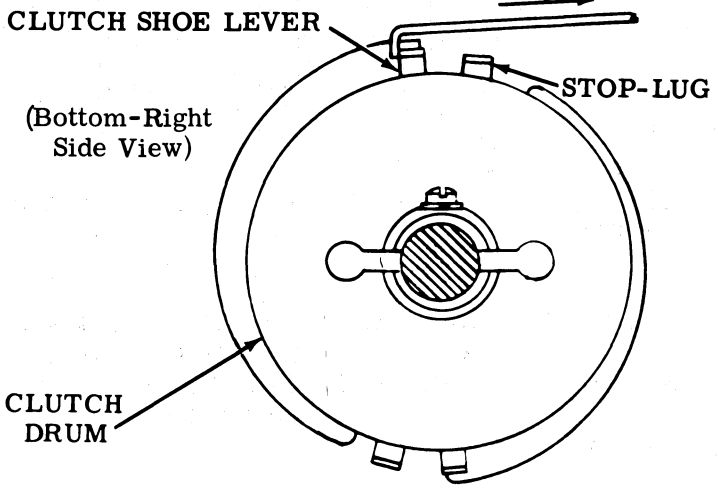
Requirement
Selector clutch should have
Min some---Max 0.012 inch
endplay.

To Adjust
Loosen clampscrew and position clutch drum. Tighten clampscrew.

CLUTCH SHOE LEVER SPRING

To Check
Engage (trip) clutch. Hold the disc. Hook a scale to shoe lever, and pull at a tangent to the clutch.

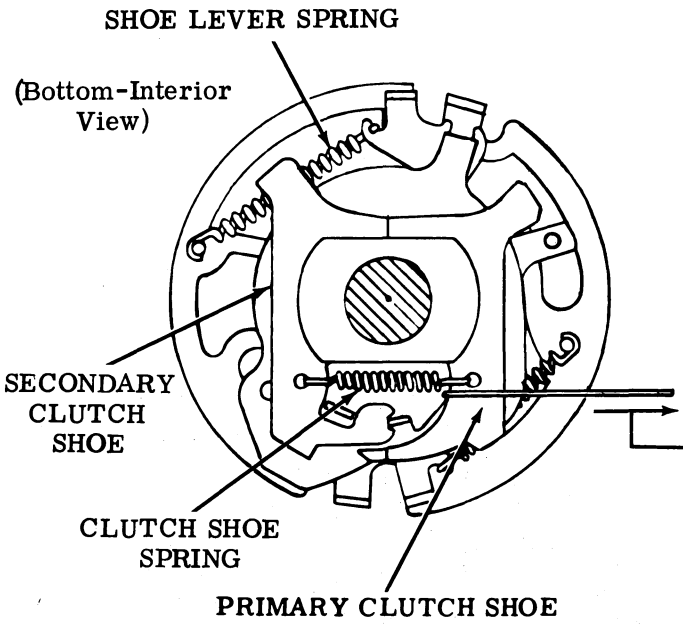
Requirement
Min 16 oz---Max 22 oz
to move the shoe lever into contact with the stop-lug.



Note 1: Line feed and spacing clutches have six stop-lugs and clutch shoe levers equally spaced around the periphery.

Note 2: Offset loop at spring should be hooked over pin on clutch disc.

2.14 Main Shaft and Trip Shaft Mechanisms (continued)



CLUTCH SHOE SPRING

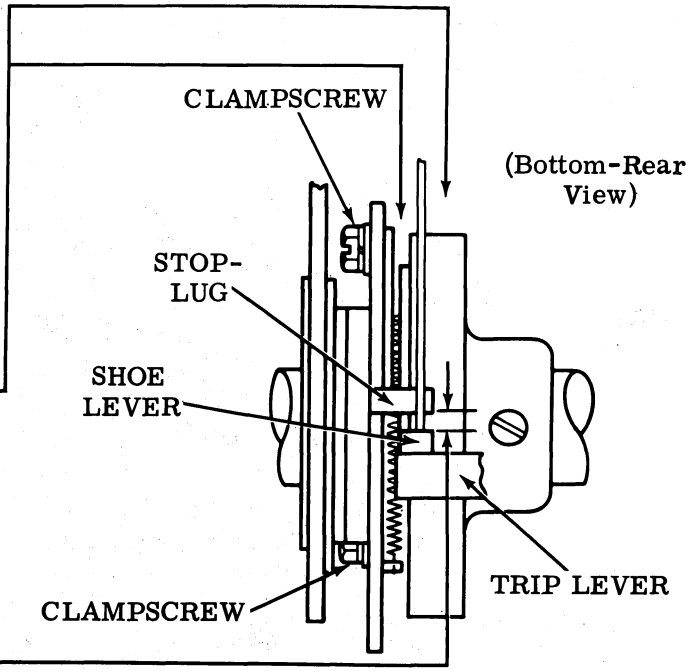
Note 1: In order to check this spring tension, it is necessary to remove the clutch drum. It therefore should not be checked unless there is good reason to believe that it does not meet requirements.

Requirement
Min 8 oz---Max 12 oz
to start primary shoe moving away from shoe release lever at their point of contact.

MAIN SHAFT CLUTCH SHOE LEVERS

Note 2: Check on side of clutch where shoe lever engages shoe.

To Check
Disengage (latch) clutch. Measure gap between shoe lever and stop-lug. Engage (trip) clutch and momentarily place 16 ounces of tension on shoe lever to give maximum gap. Remove tension and measure gap while applying 32 ounces to stop-lug to give minimum gap.



Requirement
New Shoes and Drums:
Min 0.075 inch---Max 0.085 inch
After 200 Hours of Operation:
Min 0.055 inch---Max 0.085 inch
greater gap when clutch is engaged (tripped) than when clutch is disengaged (latched).

To Adjust
Loosen plate clampscrews friction tight. Rotate adjusting plate by means of screwdriver or wrench. Tighten clampscrews.

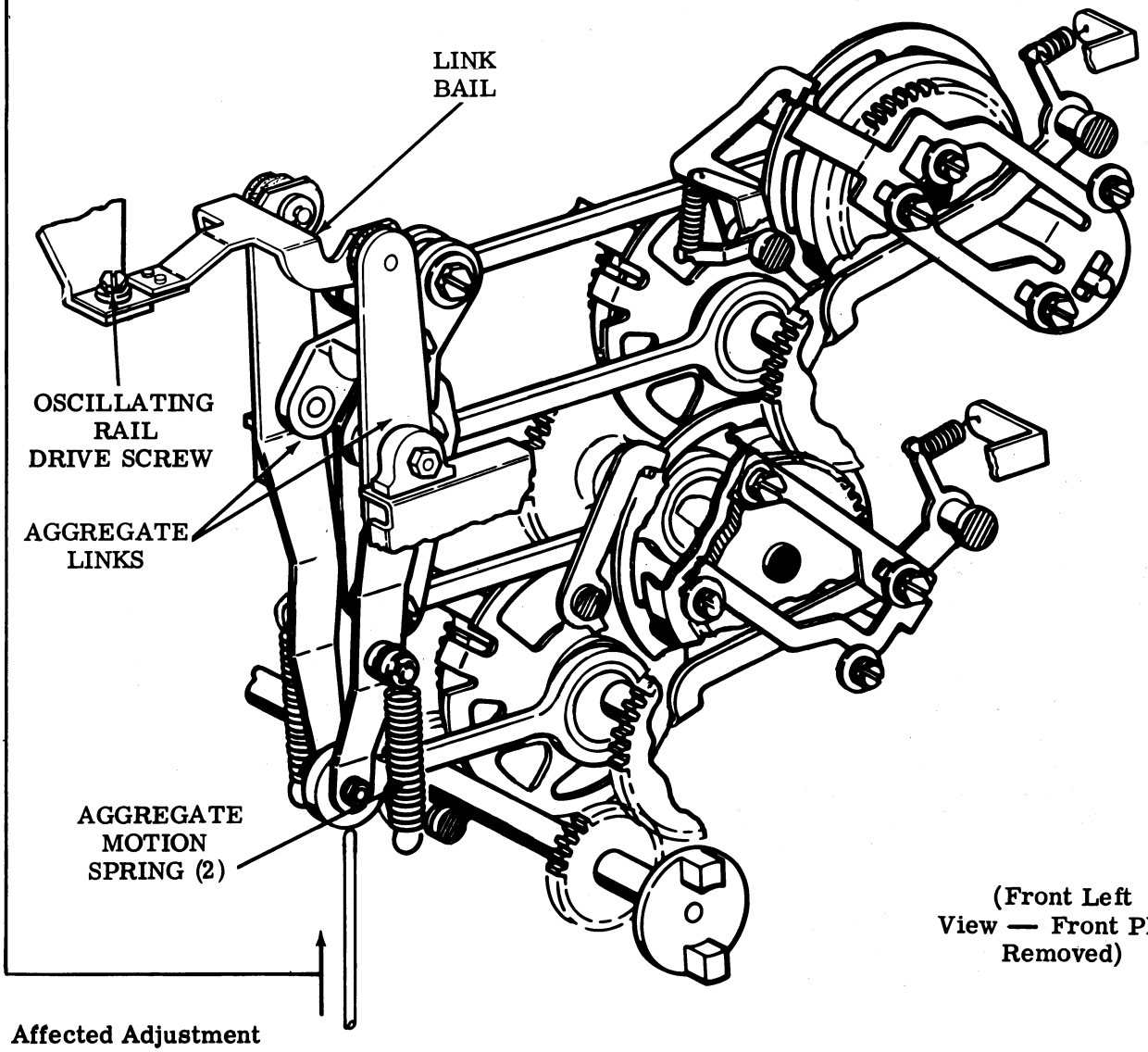
2.15 Horizontal Positioning Mechanism (continued)

AGGREGATE MOTION SPRING (HORIZONTAL POSITIONING)

Note: Do not check this adjustment unless there is reason to believe that these springs are causing operating failure.

To Check
All clutches disengaged (latched). All code-bars spacing. Oscillating rail drive screw removed.

Requirement
Min 38 oz---Max 50 oz
to start links aggregate moving up from track.



(Front Left View — Front Plate Removed)

Affected Adjustment
AGGREGATE-DAMPENER SYNCHRONIZATION (2.54)

2.16 Vertical and Horizontal Positioning Mechanisms (continued)

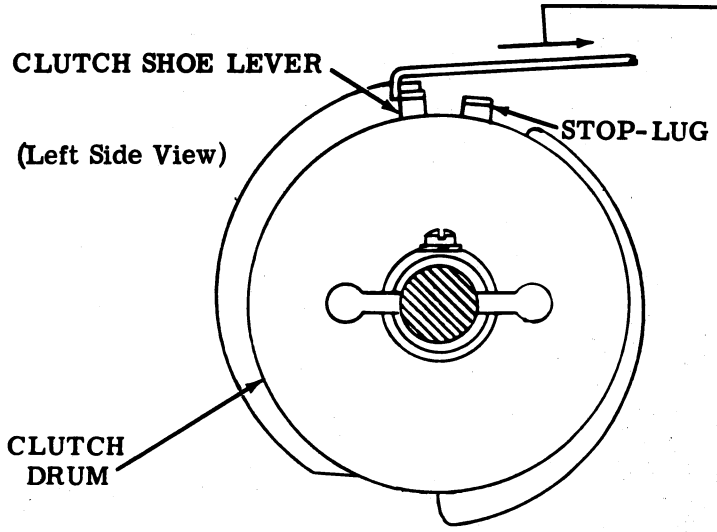
CLUTCH SHOE LEVER SPRING

To Check

Engage (trip) clutch. Hold the disc. Hook a scale to shoe lever, and pull at a tangent to the clutch.

Requirement

Min 10 oz---Max 12 oz to move the shoe lever into contact with the stop-lug.



Note 1: Line feed and spacing clutches have six stop-lugs and clutch shoe levers equally spaced around the periphery.

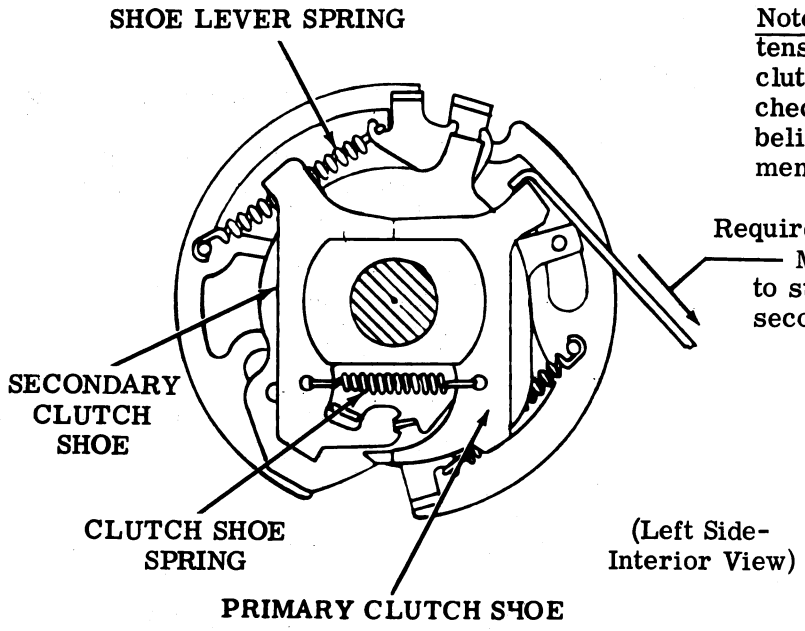
Note 2: Offset loop at spring should be hooked over pin on clutch disc.

CLUTCH SHOE SPRING

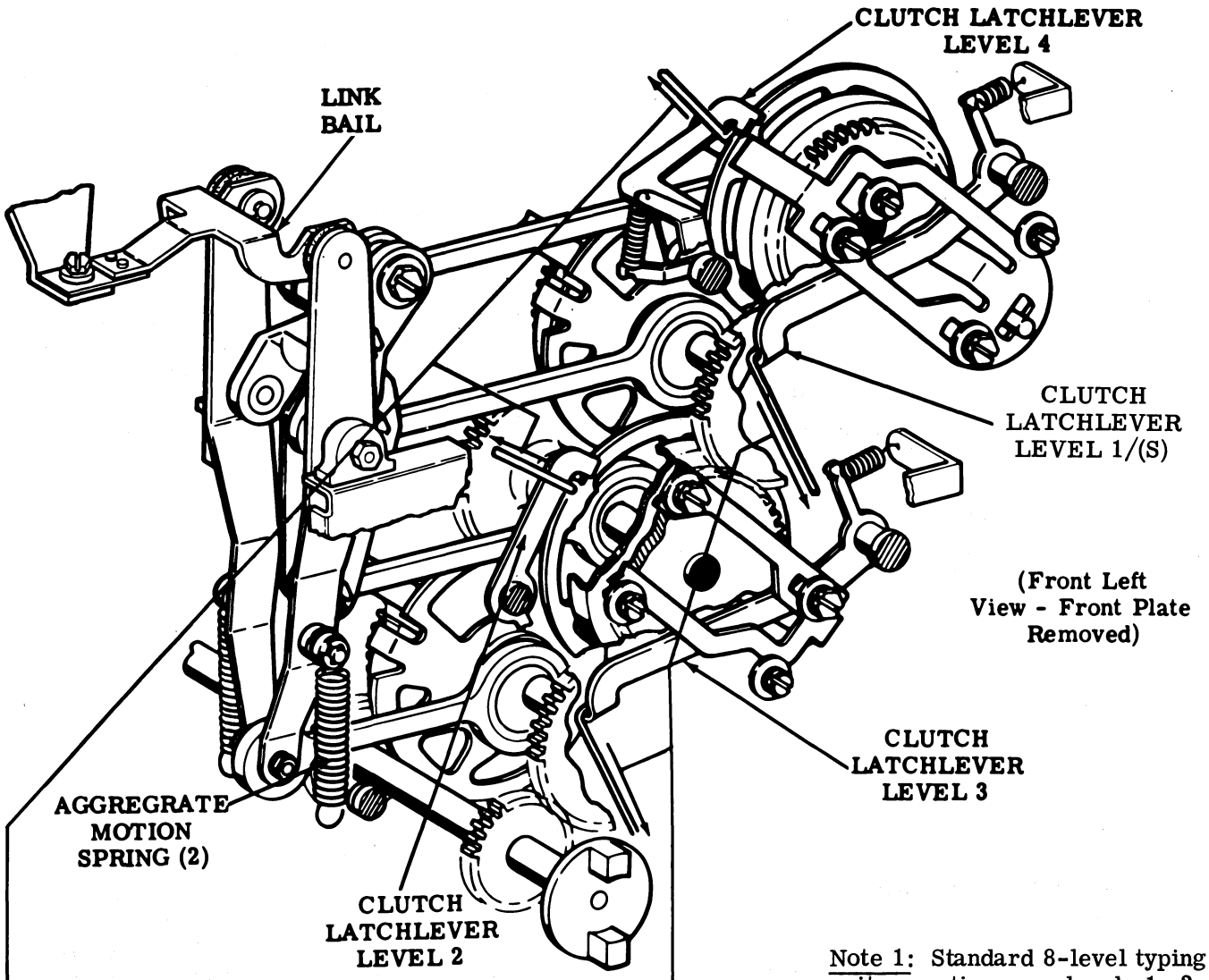
Note: In order to check this spring tension, it is necessary to remove the clutch drum. It therefore should not be checked unless there is good reason to believe that it does not meet requirements.

Requirement

Min 3 oz---Max 5 oz to start primary shoe moving away from secondary shoe at their point of contact.



2.17 Horizontal Positioning Mechanism (continued)



Note 1: Standard 8-level typing unit operation uses levels 1, 2, 3, and 4 for horizontal position; 6-level machines use levels 2, 3, 4, and Shift (S).

CLUTCH LATCHLEVER SPRING (HORIZONTAL POSITIONING LEVELS 2 AND 4)

To Check
Clutch engaged (tripped). Rotate 1/4 turn from stop.

Requirement
Min 4-1/2 oz---Max 6 oz to start latchlever moving.

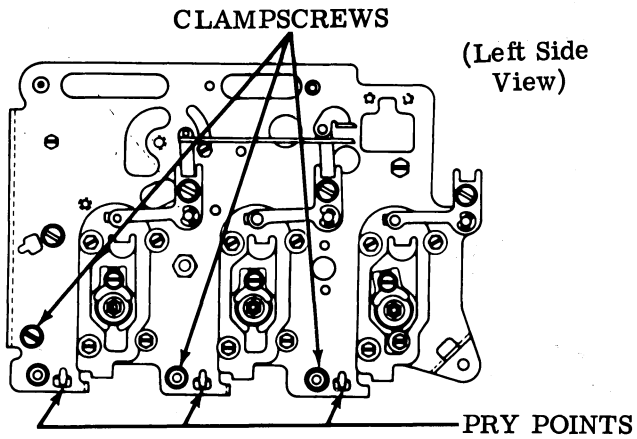
CLUTCH LATCHLEVER SPRING (HORIZONTAL POSITIONING LEVELS 1, (S), AND 3)

To Check
Clutch engaged (tripped). Rotate 1/4 turn from stop.

Requirement
Min 1 oz---Max 2 oz to start latchlever moving.

Note 2: Check level 7 or the shift clutch, when equipped.

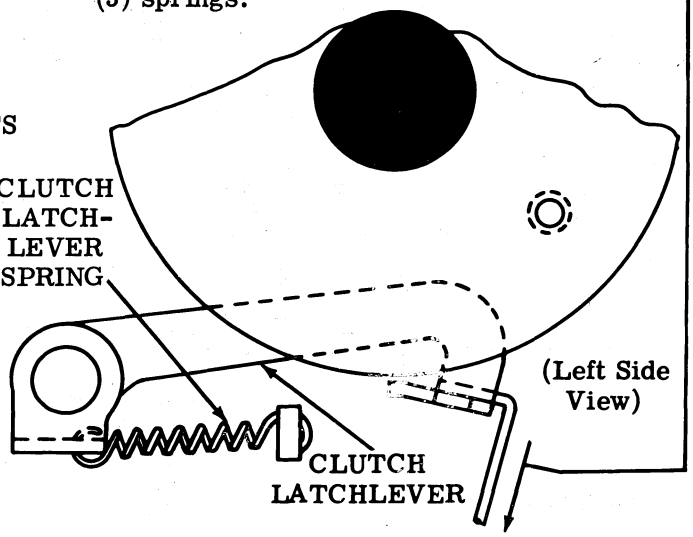
2.18 Vertical and Horizontal Positioning Mechanisms (continued)



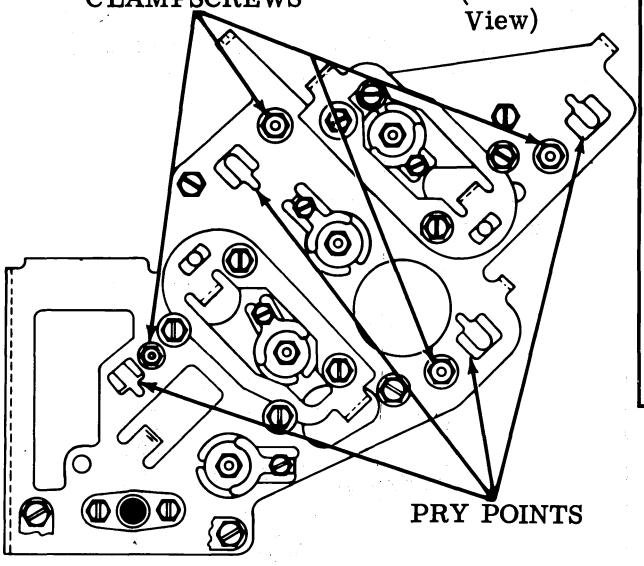
CLUTCH LATCHLEVER SPRING (VERTICAL POSITIONING)

To Check
Clutch engaged (tripped). Latchlever on high part of disc.

Requirement
Min 3/4 oz---Max 1-3/4 oz to pull latchlever from disc. Check three (3) springs.



(Vertical Positioning)

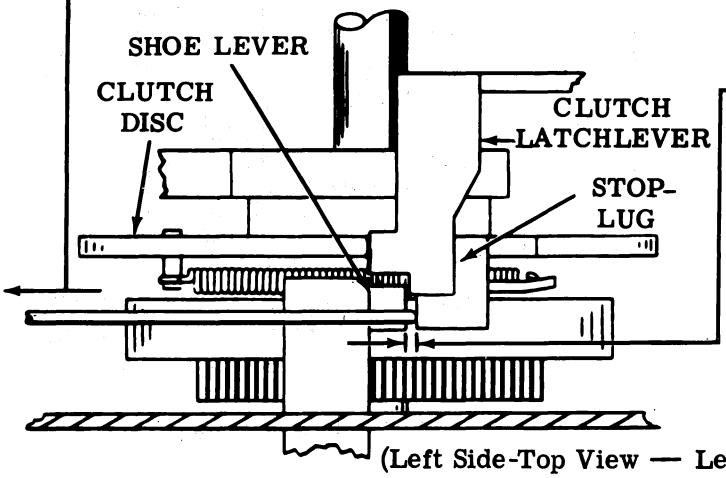


(Horizontal Positioning)

CLUTCH SHOE LEVERS

Note: This adjustment applies to the three vertical positioning clutches and the four horizontal positioning clutches.

To Check
Engage (trip) clutch and momentarily place 32 ounces of tension on shoe lever. Measure gap between clutch shoe lever and stop-lug. Disengage (latch) clutch and remeasure.

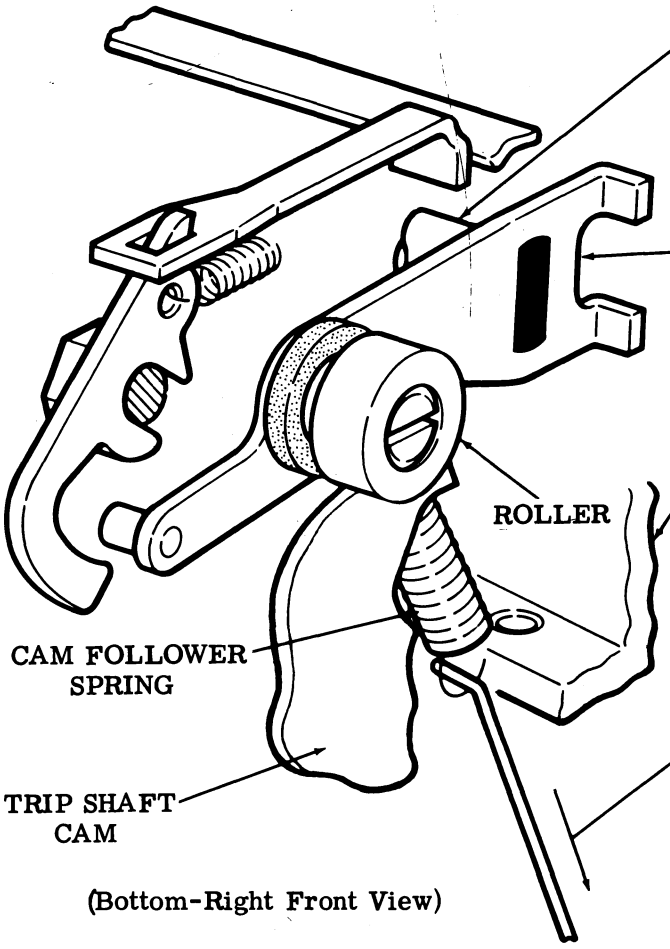


(Left Side-Top View — Level 4)

Requirement
Min 0.040 inch---Max 0.070 inch greater gap when clutch is engaged (unlatched) than when clutch is disengaged (latched). A disengaged (latched) gap of not less than 0.015 inch must be maintained.

To Adjust
Loosen clampscrew friction tight. Position latchlever, while latched, by means of pry point. Tighten clampscrew.

2.19 Main Shaft and Trip Shaft Mechanisms (continued)



(Bottom-Right Front View)

TRIP SHAFT CAM FOLLOWER SPRING

To Check
Cam follower roller on low part of cam. Unhook cam follower spring from its bracket.

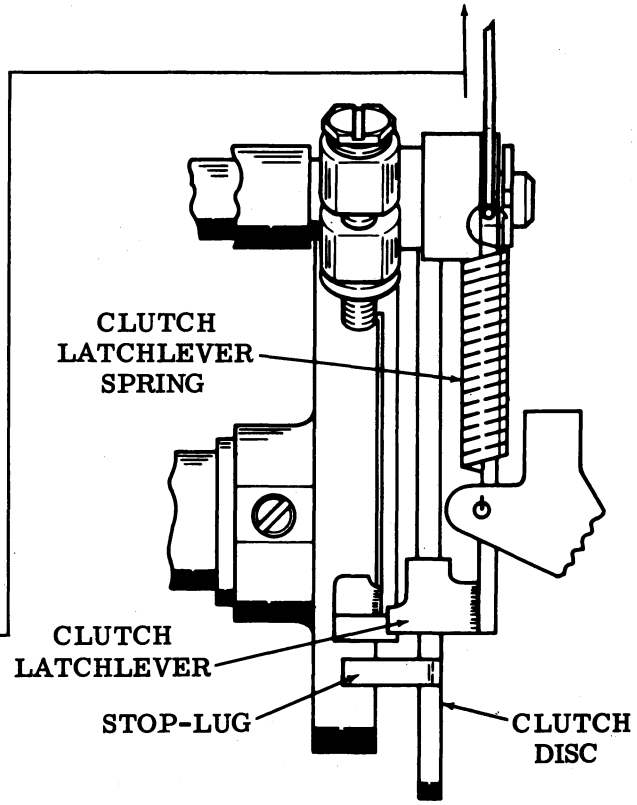
Requirement
Min 32 oz---Max 40 oz to pull spring to installed length.

CLUTCH LATCHLEVER SPRING (EXCEPT SELECTOR)

Note: This requirement applies to codebar clutch, print hammer clutch, spacing clutch, function clutch, and line feed clutch.

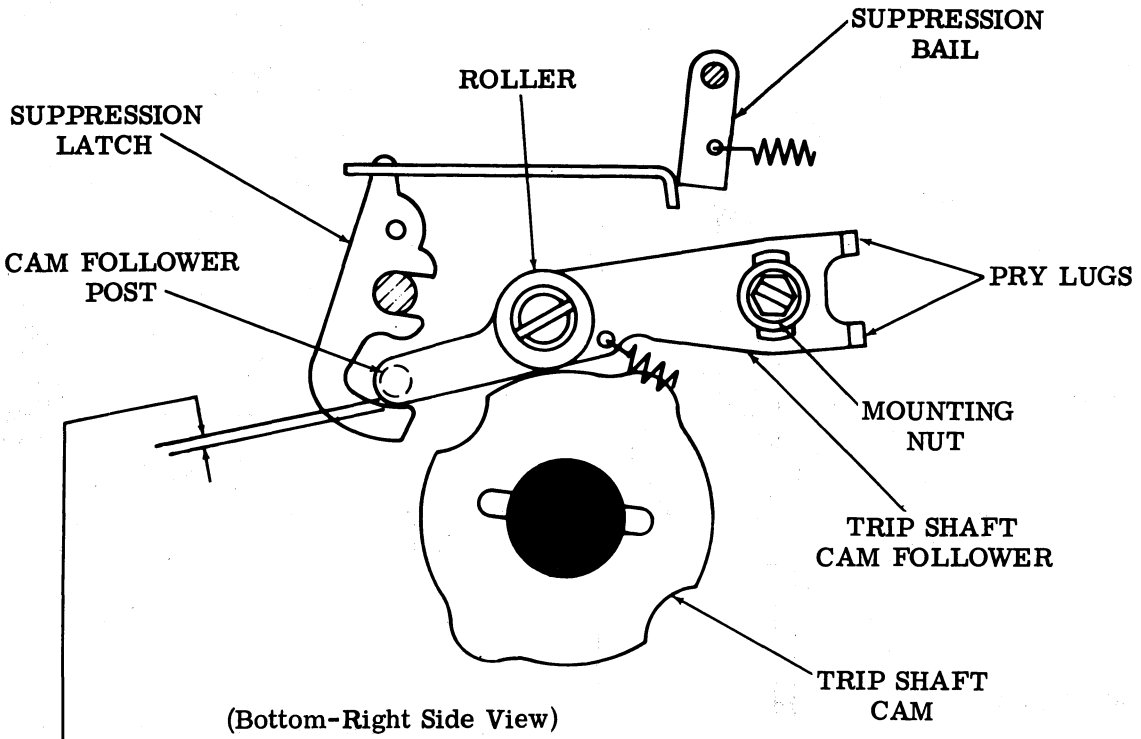
To Check
Clutch latchlever on high part of clutch disc.

Requirement
Min 5 oz---Max 8 oz to pull clutch latchlever spring to installed length.



(Bottom-Rear View)

2.20 Main Shaft and Trip Shaft Mechanisms (continued)



(Bottom-Right Side View)

TRIP SHAFT CAM FOLLOWER

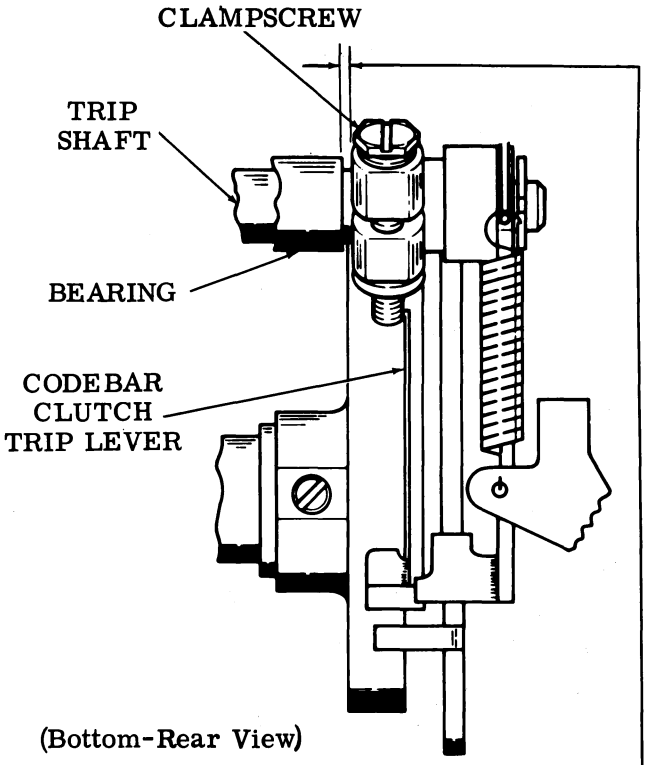
To Check
All clutches disengaged (latched). Push suppression latch under cam follower post.

Requirement
Min 0.010 inch---Max 0.025 inch clearance between cam follower post and suppression latch.

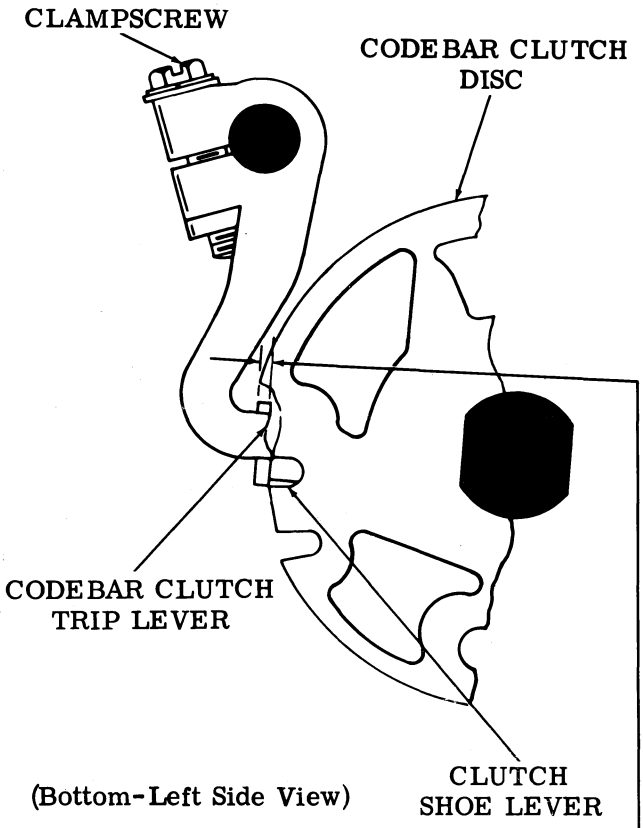
To Adjust
Loosen mounting nut friction tight. Adjust for clearance by prying with a screwdriver between pry lugs and mounting nut. Tighten mounting nut and recheck adjustment. Also check adjustment of second cycle of trip shaft cam.

Affected Adjustments
FUNCTION CLUTCH TRIP ARM (2.23)
PRINT HAMMER CLUTCH TRIP ARM (2.24)

2.21 Main Shaft and Trip Shaft Mechanisms (continued)



(Bottom-Rear View)

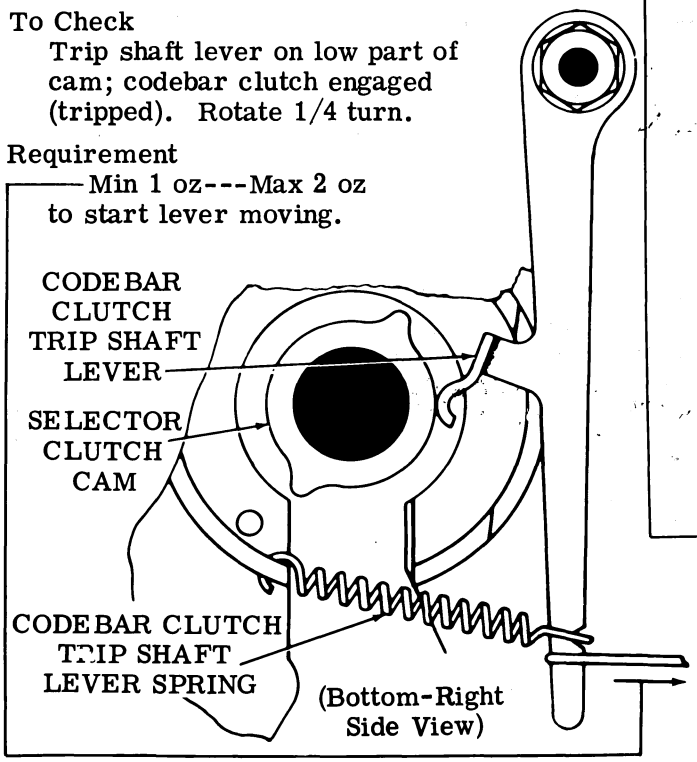


(Bottom-Left Side View)

CODEBAR CLUTCH TRIP SHAFT LEVER SPRING

To Check
Trip shaft lever on low part of cam; codebar clutch engaged (tripped). Rotate 1/4 turn.

Requirement
Min 1 oz---Max 2 oz to start lever moving.



(Bottom-Right Side View)

CODEBAR CLUTCH TRIP LEVER (STANDARD UNIT)

To Check
Selector clutch and codebar clutch disengaged (latched). Check requirement (1) at clutch shoe lever with least bite.

(1) Requirement
Inner surface of trip lever should be
Min flush---Max 0.010 inch
over flush with inner surface of clutch shoe lever.

(2) Requirement
Endplay between bearing and codebar clutch trip lever should be
Min some---Max 0.006 inch

To Adjust
Loosen clampscrew friction tight and position trip lever shaft. Tighten clampscrew.

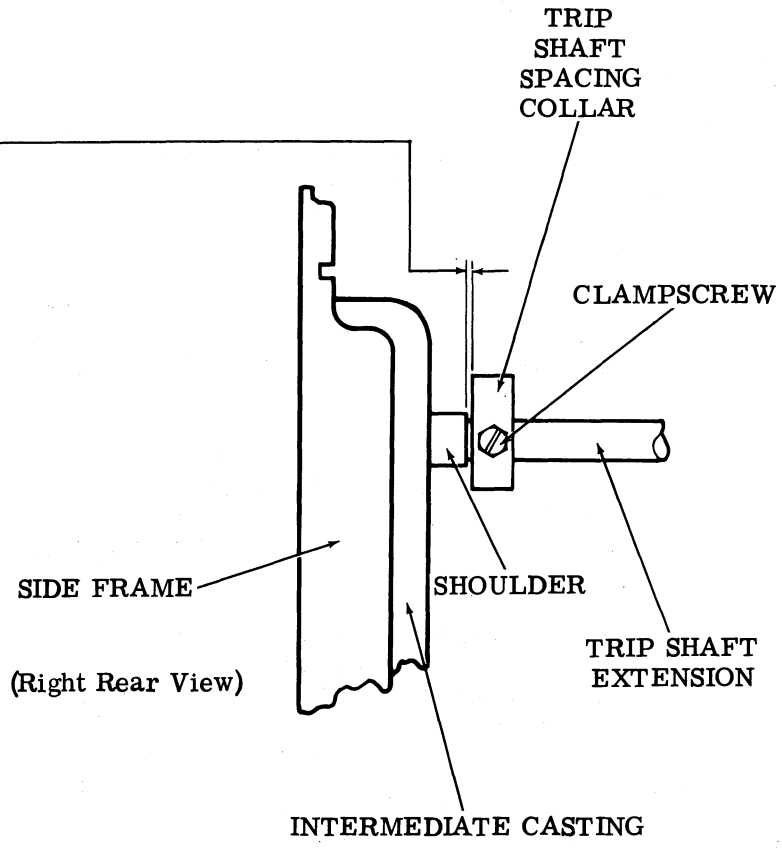
2.22 Main Shaft and Trip Shaft Mechanisms (continued)

TRIP SHAFT SPACING COLLAR (WIDE PLATEN UNIT)

To Check
Selector clutch and codebar clutch disengaged (latched).

Requirement
Min some---Max 0.006 inch endplay between the shoulder and the trip shaft spacing collar.

To Adjust
Loosen clampscrew friction tight. Position spacing collar to meet the requirement. Tighten clampscrew.

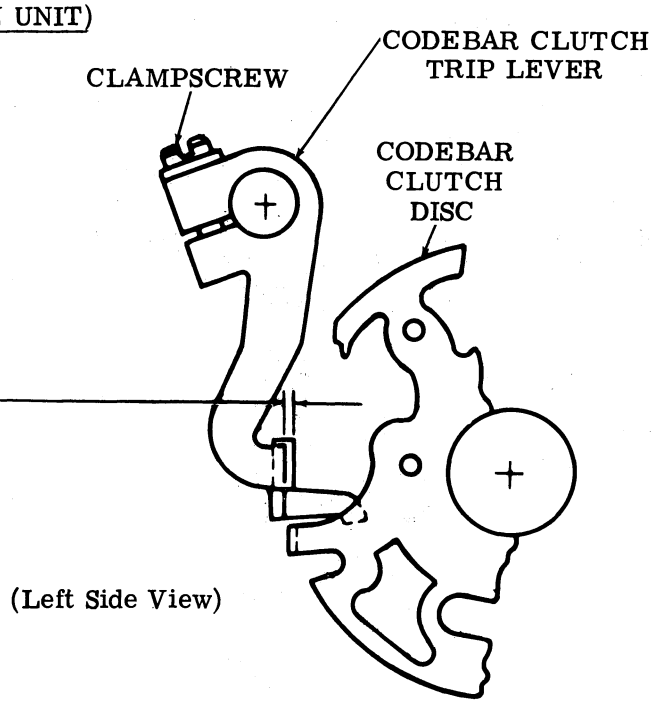


CODEBAR CLUTCH TRIP LEVER (WIDE PLATEN UNIT)

To Check
Selector clutch and codebar clutch disengaged (latched).

Requirement
Min flush---Max 0.010 inch overflush with inner surface of clutch shoe lever.

To Adjust
Loosen clampscrew friction tight. Position the trip lever to meet the requirement. Tighten clampscrew.



2.23 Main Shaft and Trip Shaft Mechanisms (continued)

Note 1: Remove the trip shaft brace and replace its mounting screw (Figure 4) when making FUNCTION CLUTCH TRIP ARM and PRINT HAMMER CLUTCH TRIP ARM (2.24) adjustments.

FUNCTION CLUTCH TRIP ARM

(1) To Check
All clutches disengaged (latched). Play between function clutch trip arm and intermediate lever post taken up to make a maximum clearance.

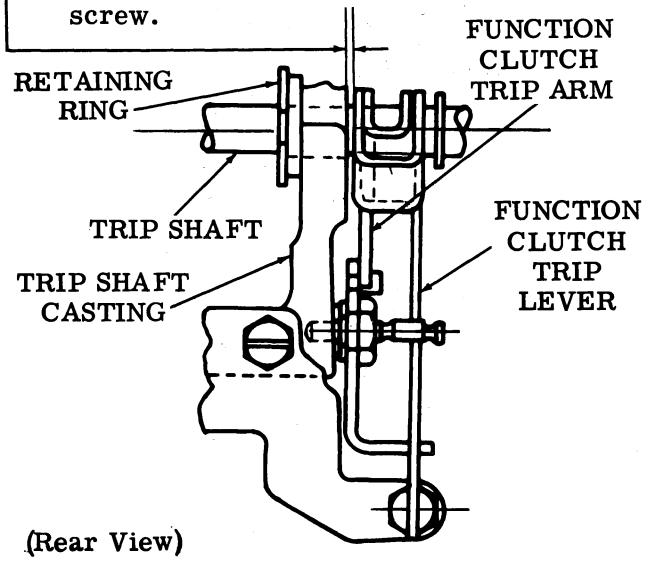
Requirement
Min some---Max 0.005 inch clearance between function clutch trip arm and intermediate lever post.

Note 2: The minimum requirement is considered met when there is no gap between clutch trip lever and backstop screw.

(2) To Check
All clutches disengaged (latched). Play between trip shaft casting and function clutch trip lever taken up to make a maximum clearance.

Requirement
Min some---Max 0.010 inch clearance between trip shaft casting and function clutch trip lever.

To Adjust
Loosen clampscrew and position function clutch trip arm on shaft. Tighten clampscrew.

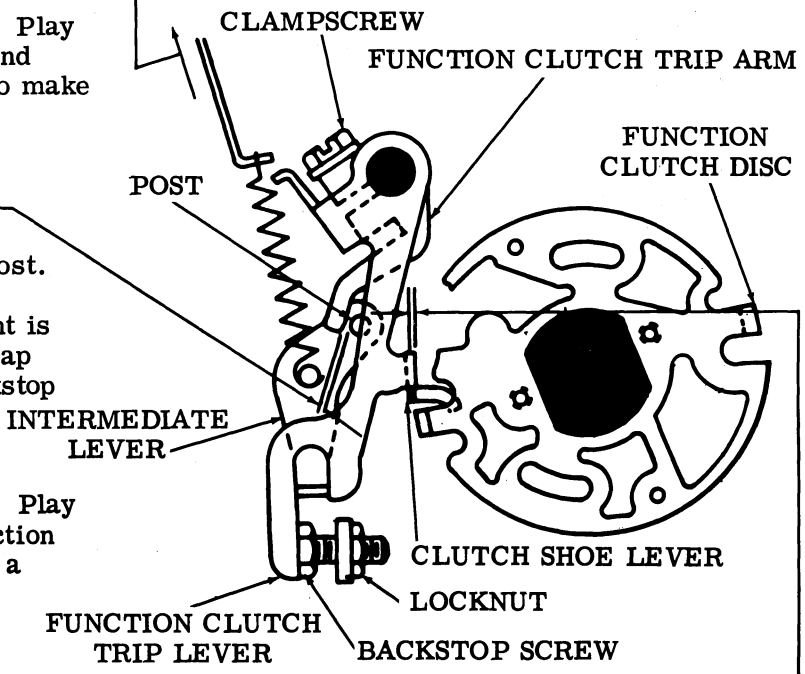


(Rear View)

FUNCTION CLUTCH TRIP LEVER SPRING

To Check
Function clutch disengaged (latched).

Requirement
Min 9-1/2 oz---Max 12-1/2 oz to pull spring to installed length.



(Left Side View)

FUNCTION CLUTCH TRIP LEVER

To Check
All clutches disengaged (latched). Check requirement at clutch shoe lever with least bite.

Requirement
Inner surface of function clutch trip lever should be
Min flush---Max 0.010 inch over flush with inner surface of clutch shoe lever.

To Adjust
Loosen locknut. Position function clutch trip lever using backstop screw. Tighten locknut.

Affected Adjustment
FUNCTION CLUTCH TRIP ARM

2.24 Main Shaft and Trip Shaft Mechanisms (continued)

Note: Remove the trip shaft brace and replace its mounting screw when making FUNCTION CLUTCH TRIP ARM (2.23) and PRINT HAMMER CLUTCH TRIP ARM adjustments.

PRINT HAMMER CLUTCH TRIP ARM

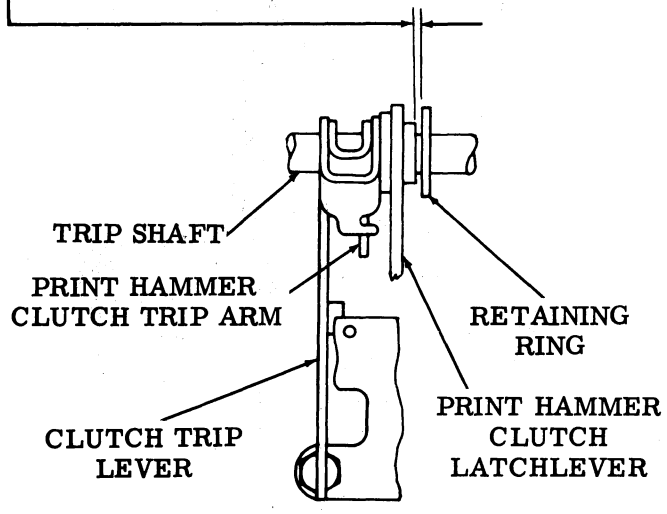
(1) To Check
All clutches disengaged (latched).

Requirement
Min 0.010 inch---Max 0.020 inch clearance between print hammer clutch trip arm and print hammer clutch trip lever.

(2) To Check
All clutches disengaged (latched). Play between print hammer clutch latchlever and retaining ring taken up to make a maximum clearance.

Requirement
Min some---Max 0.010 inch clearance between print hammer clutch latchlever and retaining ring.

To Adjust
Loosen clampscrew and position print hammer clutch trip arm on shaft. Tighten clampscrew. Replace trip shaft brace with its mounting screw. See note above.

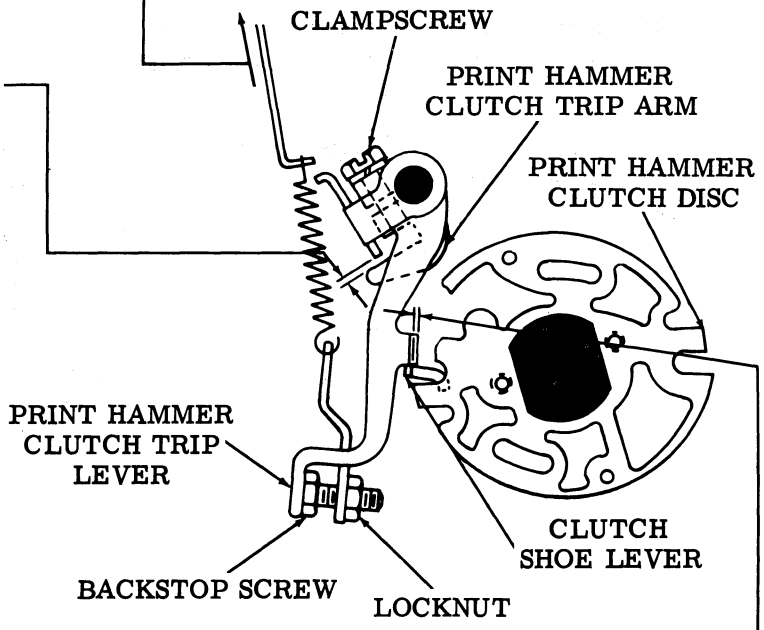


(Rear View)

PRINT HAMMER CLUTCH TRIP LEVER SPRING

To Check
Print hammer clutch disengaged (latched).

Requirement
Min 9-1/2 oz---Max 12-1/2 oz to pull spring to installed length.



(Left Side View)

PRINT HAMMER CLUTCH TRIP LEVER

To Check
All clutches disengaged (latched). Check requirement at clutch shoe lever with least bite.

Requirement
Inner surface at print hammer clutch trip lever should be
Min flush---Max 0.010 inch over flush with inner surface of clutch shoe lever.

To Adjust
Loosen locknut. Position print hammer clutch trip lever using backstop screw. Tighten locknut.

Affected Adjustment
PRINT HAMMER CLUTCH TRIP ARM

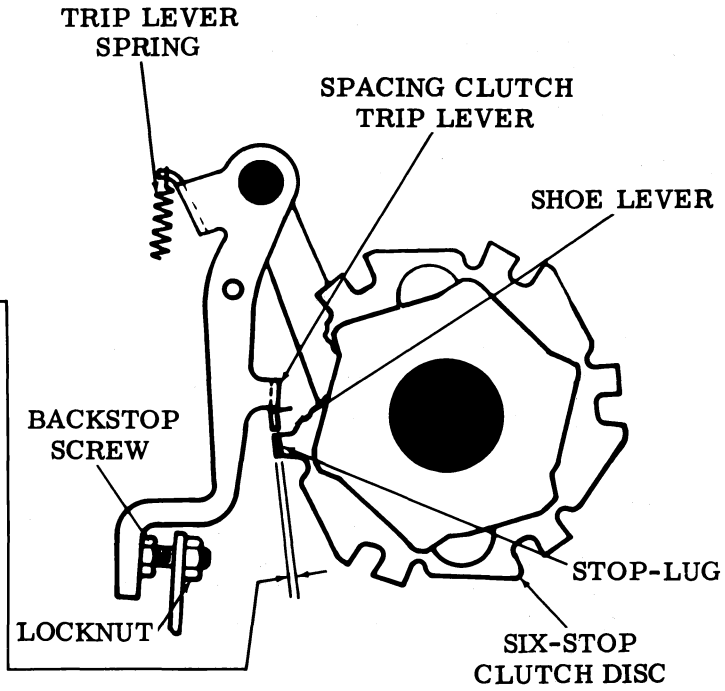
2.25 Main Shaft and Trip Shaft Mechanisms (continued)

SPACING CLUTCH TRIP LEVER

To Check
All clutches disengaged (latched). Check spacing clutch at stop (of the six-stop clutch disc) with least bite.

Requirement
Inner surface of spacing clutch trip lever should be
Min flush---Max 0.010 inch
over flush with inner surface of shoe lever.

To Adjust
Loosen locknut. Position spacing clutch trip lever using backstop screw. Tighten locknut.

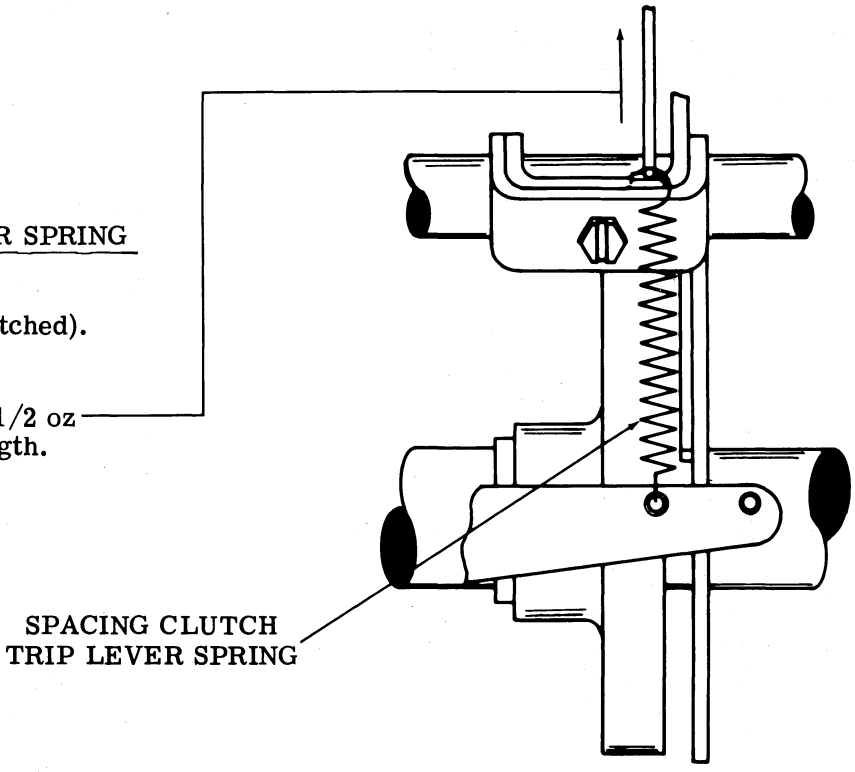


(Left Side View)

SPACING CLUTCH TRIP LEVER SPRING

To Check
Spacing clutch disengaged (latched).

Requirement
Min 13-1/2 oz---Max 18-1/2 oz
to pull spring to installed length.



(Rear View)

2.26 Main Shaft and Trip Shaft Mechanisms (continued)

LINE FEED CLUTCH TRIP LEVER ECCENTRIC POST

To Check
All clutches disengaged (latched). Check line feed clutch at stop (of six-stop clutch disc) with least bite.

Requirement
Inner surface of line feed clutch trip lever should be
Min flush---Max 0.010 inch
over flush with inner surface of clutch shoe lever.

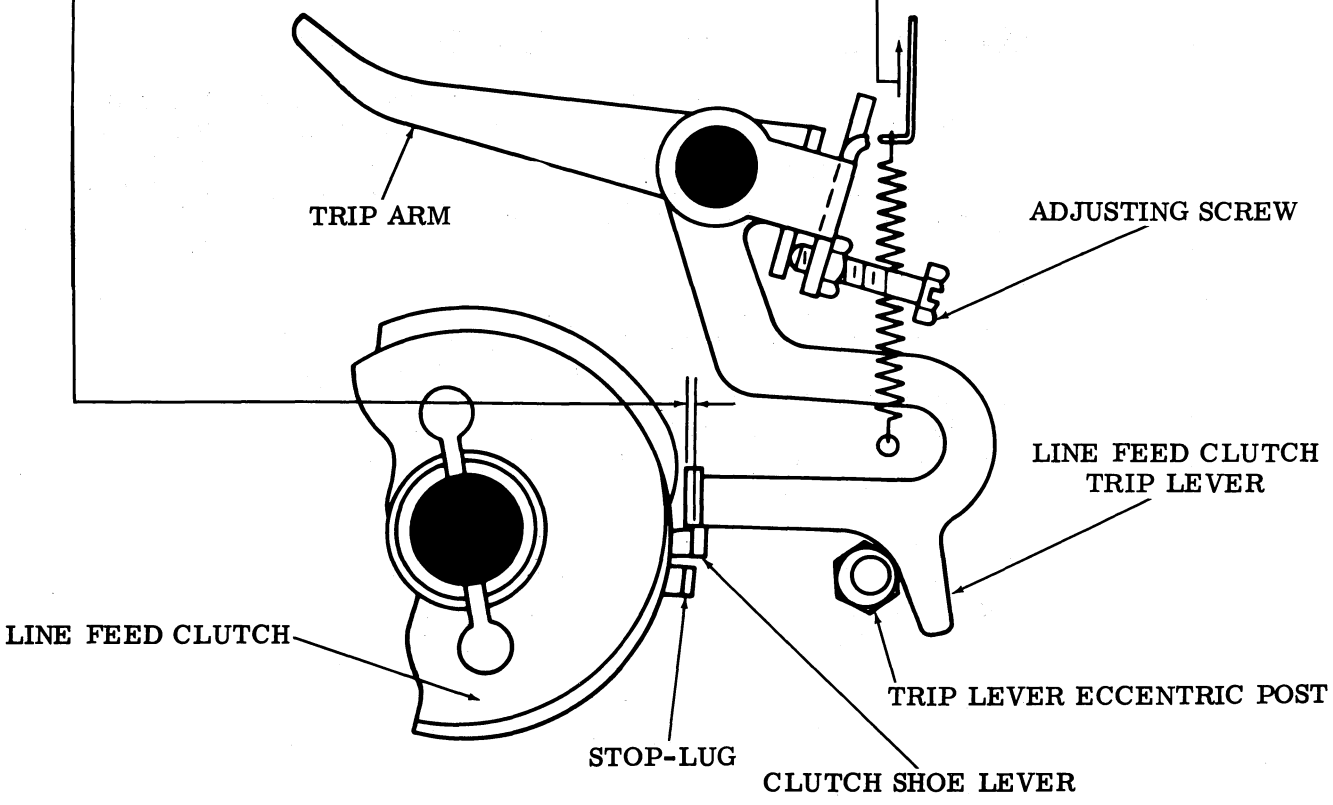
To Adjust
Loosen mounting nut. Rotate trip lever eccentric post keeping high part of eccentric toward bottom of unit. Tighten mounting nut.

Note: If requirement cannot be met, reposition local line feed cable or back out adjusting screw. Do one or the other depending upon which is limiting the travel of the line feed clutch trip lever.

LINE FEED CLUTCH TRIP LEVER SPRING

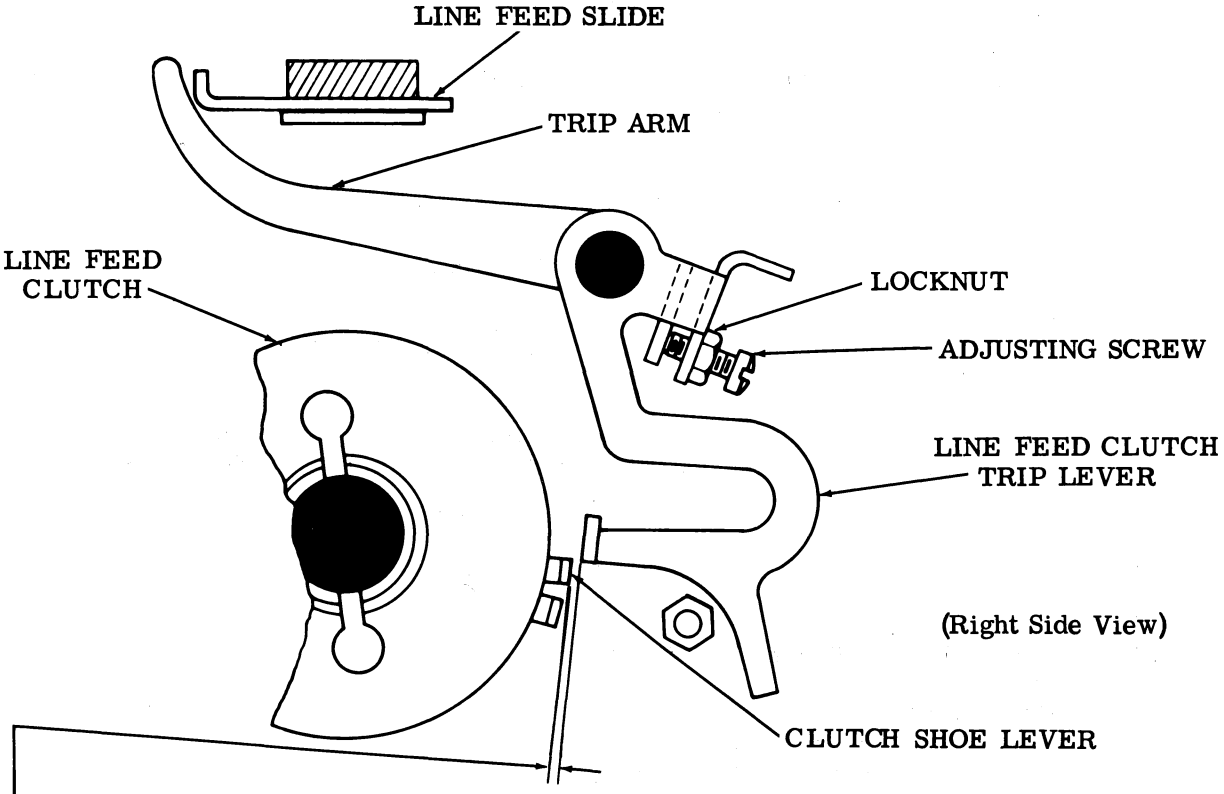
To Check
Line feed clutch disengaged (latched).

Requirement
Min 9-1/2 oz---Max 12-1/2 oz
to pull spring to installed length.



(Right Side View)

2.27 Main Shaft and Trip Shaft Mechanisms (continued)



LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW

Note: If the typing unit is equipped with a line feed clutch trip bail mechanism, (present on unit for vertical tab, vertical tab stop control, horizontal tab, and half forward and reverse and full reverse line feed options); perform the LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW (3.27) instead of this adjustment.

To Check

Single-double line feed lever in double line feed position. All clutches disengaged (latched). Manually trip function clutch and rotate main shaft until stripper blade moves to midpoint of its downward travel. Pull line feed function pawl back to latch on function bar. Continue rotating main shaft until function bar moves to its rearmost position.

Requirement

Min 0.055 inch --Max 0.070 inch clearance between line feed clutch trip lever and clutch shoe lever with least bite.

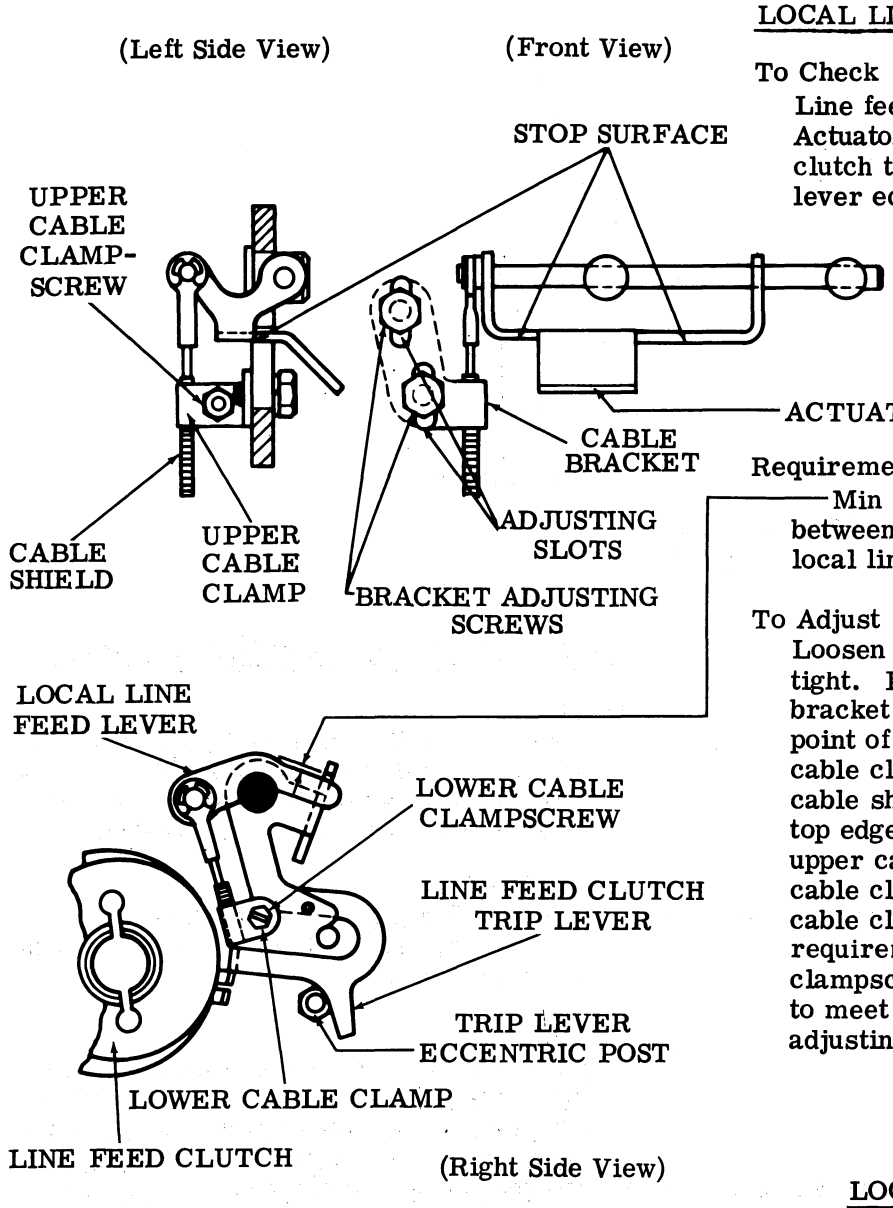
To Adjust

Loosen locknut. Rotate adjusting screw. Tighten locknut.

Affected Adjustment

LINE FEED CLUTCH TRIP LEVER ECCENTRIC POST (2.26)

2.28 Line Feed and Carriage Return Mechanisms



LOCAL LINE FEED (STANDARD UNIT)

To Check

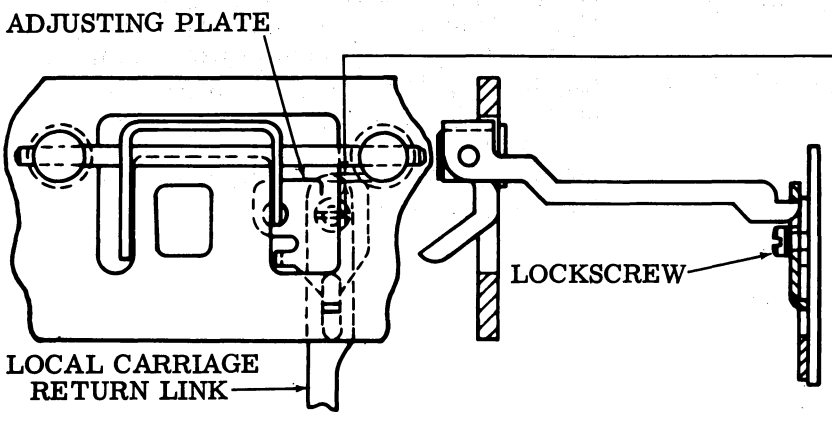
Line feed clutch disengaged (latched). Actuator against its stop. Line feed clutch trip lever resting against trip lever eccentric post.

Requirement

Min 0.005 inch---Max 0.040 inch between line feed clutch trip lever and local line feed lever.

To Adjust

Loosen bracket adjusting screws friction tight. Place cable bracket so that bracket adjusting screws are at mid-point of adjusting slots. Loosen upper cable clampscrew and position end of cable shield approximately even with top edge of upper cable clamp. Tighten upper cable clampscrew. Loosen lower cable clampscrew and position lower cable clamp to approximately meet requirement. Tighten lower cable clampscrew. Now move cable bracket to meet requirement and tighten bracket adjusting screws.



LOCAL CARRIAGE RETURN

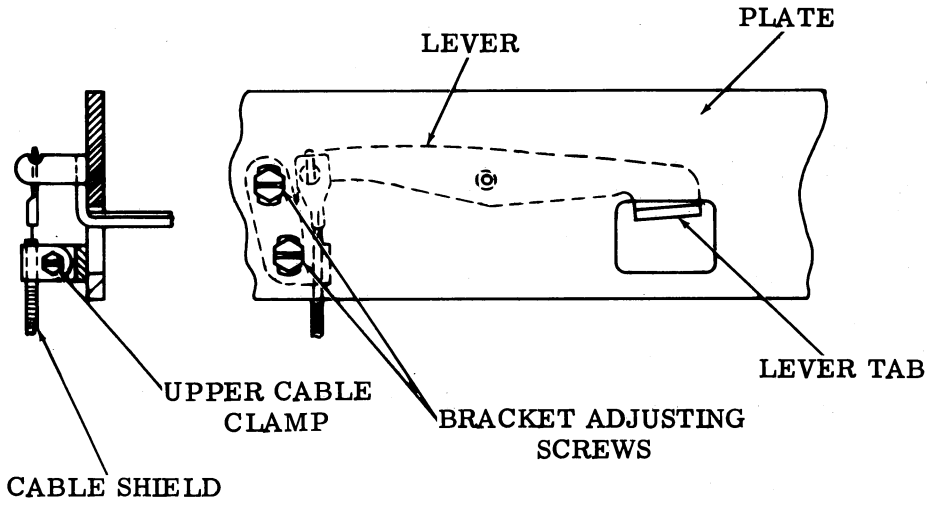
Requirement

The outline of the top of the local carriage return link and the top of the adjusting plate should be approximately even.

To Adjust

Loosen lockscrew and position adjusting plate. Tighten lock-screw.

2.29 Line Feed and Carriage Return Mechanisms (continued)



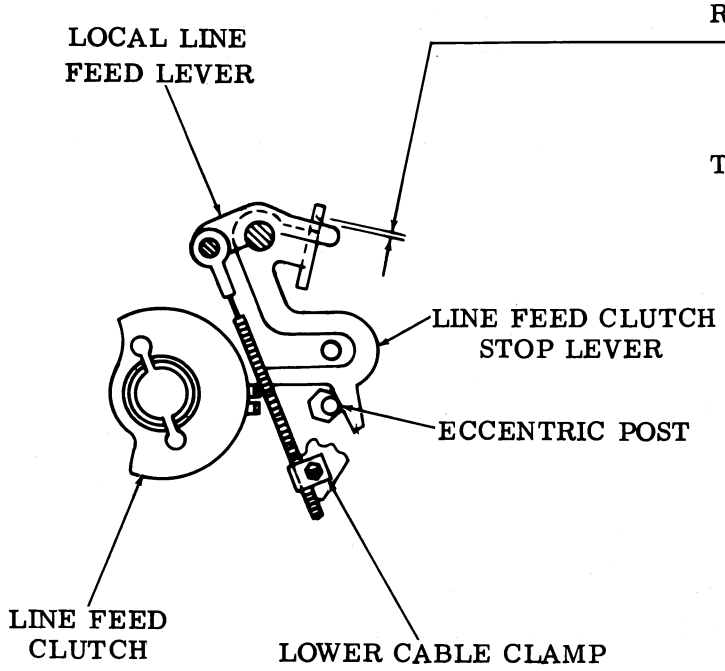
LOCAL LINE FEED (WIDE PLATEN UNIT)

To Check

Line feed clutch disengaged (latched). The lever tab should be up against the top of the plate opening and the line feed clutch stop lever is resting on the eccentric post.

Requirement

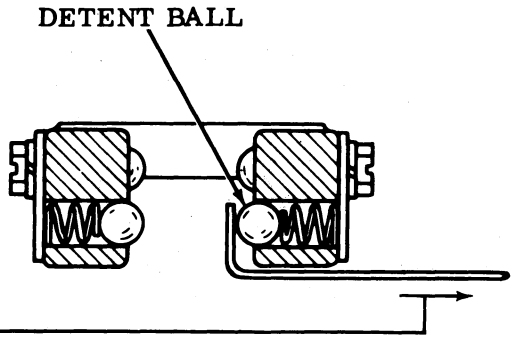
Min 0.005 inch---Max 0.020 inch between line feed clutch trip lever and local line feed lever.



To Adjust

Loosen bracket adjusting screws friction tight. Place cable bracket so that bracket adjusting screws are at midpoint of adjusting slots. Loosen upper cable clampscrew and position end of cable shield approximately even with top edge of upper cable clamp. Tighten upper cable clampscrew. Loosen lower cable clampscrew and position lower cable clamp to approximately meet requirement. Tighten lower cable clampscrew. Now move cable bracket to meet requirement and tighten bracket adjusting screws.

2.30 Codebar Mechanism



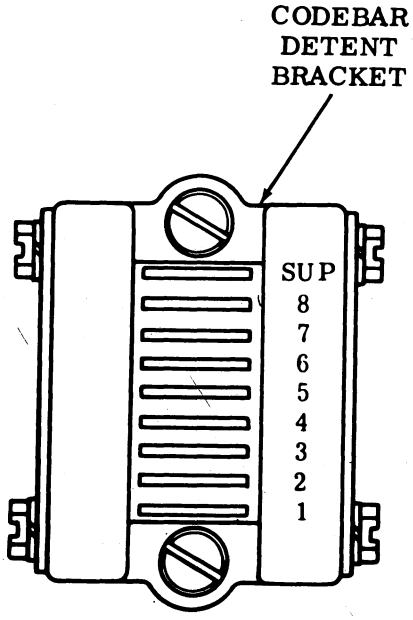
(Top Cross Section)

CODEBAR DETENT SPRING

Note: Unless there is reason to believe that these springs are causing operating failures, do not check this requirement.

To Check
Codebar detent bracket carefully removed. Codebars removed from detent bracket. Scale applied to detent ball and pulled in direction of ball travel.

Requirement
Min 1-1/2 oz---Max 3-1/2 oz to start ball moving against compression of spring. Check each ball.



(Left Side View)

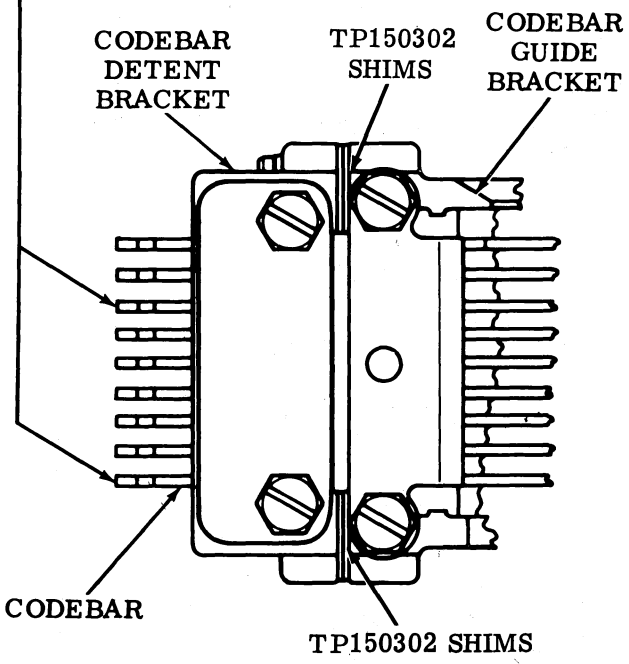
CODEBAR DETENT

To Check
All main shaft clutches disengaged (latched). All codebars spacing. All position clutches (vertical and horizontal) rotated 1/4 turn from stop position.

Requirement
Codebars 1 and 7 (S) should detent equally as gauged by eye.

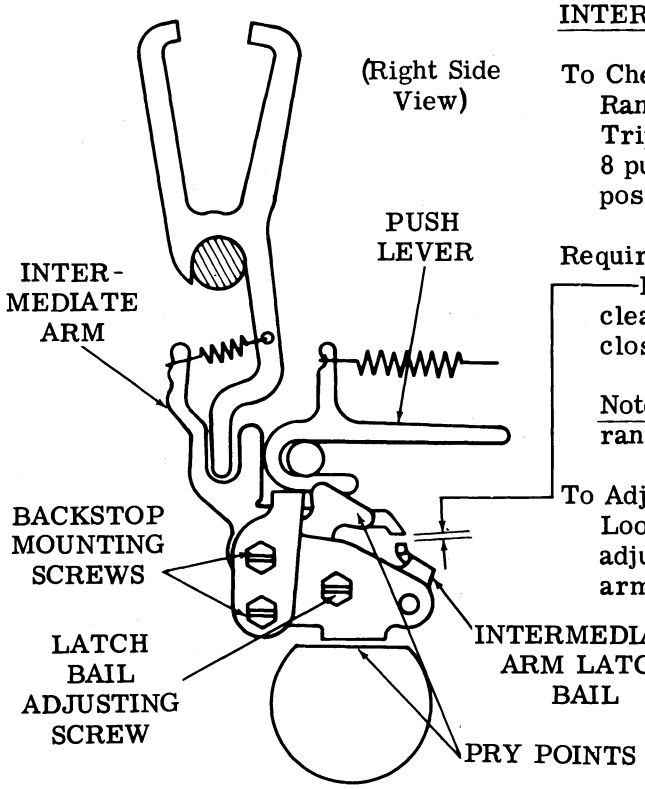
Note: Check codebars 1 and 7 for 8-level typing units; 1 and Shift (S) for 6-level machines.

To Adjust
Loosen mounting screws. Equalize detenting of codebars by adding or removing TP150302 shims between codebar detent bracket and codebar guide bracket.



(Front View)

2.31 Codebar Mechanism (continued)



INTERMEDIATE ARM LATCH BAIL

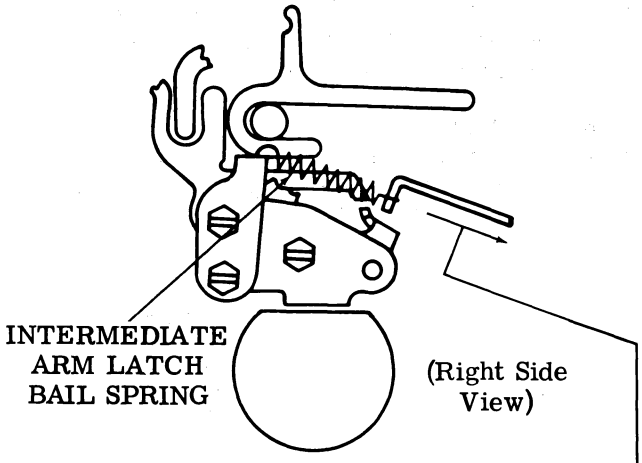
To Check
Range scale set to 0. All clutches disengaged (latched). Trip selector clutch and rotate main shaft until number 8 push lever is fully selected (maximum forward position).

Requirement
Min 0.008 inch---Max 0.015 inch clearance between intermediate arm latching surface closest to the outside frame and the latch bail.

Note: Gap can be viewed through hole in selector range scale plate.

To Adjust
Loosen two backstop mounting screws and latch bail adjusting screw friction tight. Position intermediate arm latch bail by means of pry points. Tighten screws.

Affected Adjustment
INTERMEDIATE ARM BACKSTOP BRACKET (2.33)



INTERMEDIATE ARM LATCH BAIL SPRING

Note: Since removal of selector is necessary to check spring tension, do not check unless there is reason to believe it is causing malfunction.

To Check
All clutches disengaged (latched). All selector push levers marking.

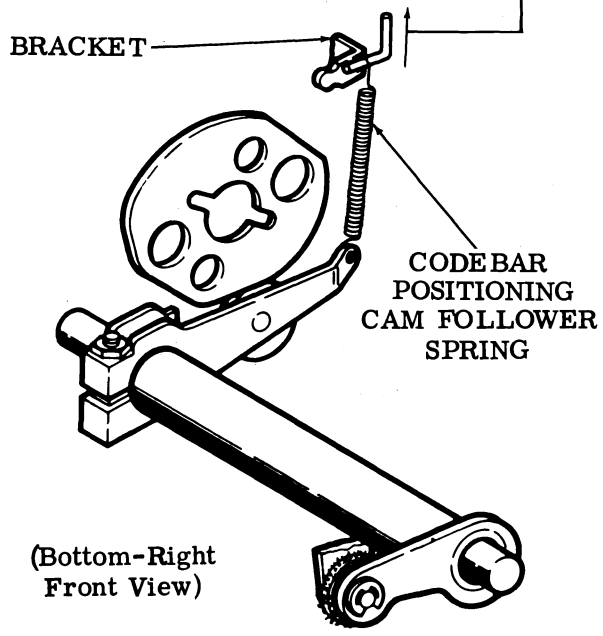
(1) Requirement
Min 3/4 oz---Max 1-3/4 oz to start bail moving.

(2) Requirement
With the small bail held away from large bail
Min 1 oz---Max 2 oz to start large bail moving.

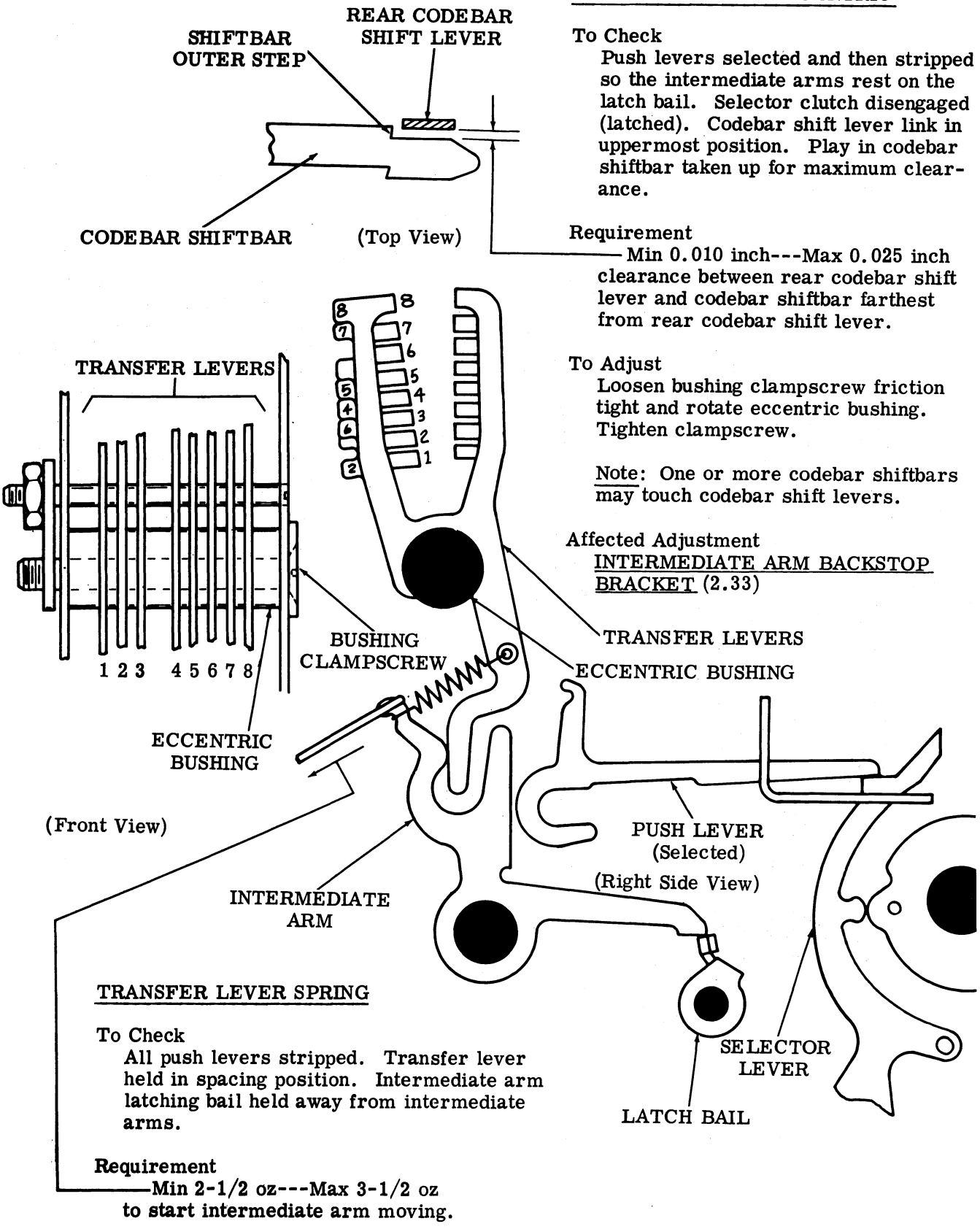
CODEBAR POSITIONING CAM FOLLOWER SPRING

To Check
All clutches disengaged (latched). Unhook spring from bracket.

Requirement
Min 9 oz---Max 13 oz to pull spring to installed length.



2.32 Codebar Mechanism (continued)



TRANSFER LEVER ECCENTRIC

To Check

Push levers selected and then stripped so the intermediate arms rest on the latch bail. Selector clutch disengaged (latched). Codebar shift lever link in uppermost position. Play in codebar shiftbar taken up for maximum clearance.

Requirement

Min 0.010 inch---Max 0.025 inch clearance between rear codebar shift lever and codebar shiftbar farthest from rear codebar shift lever.

To Adjust

Loosen bushing clampscrew friction tight and rotate eccentric bushing. Tighten clampscrew.

Note: One or more codebar shiftbars may touch codebar shift levers.

Affected Adjustment

INTERMEDIATE ARM BACKSTOP BRACKET (2.33)

TRANSFER LEVER SPRING

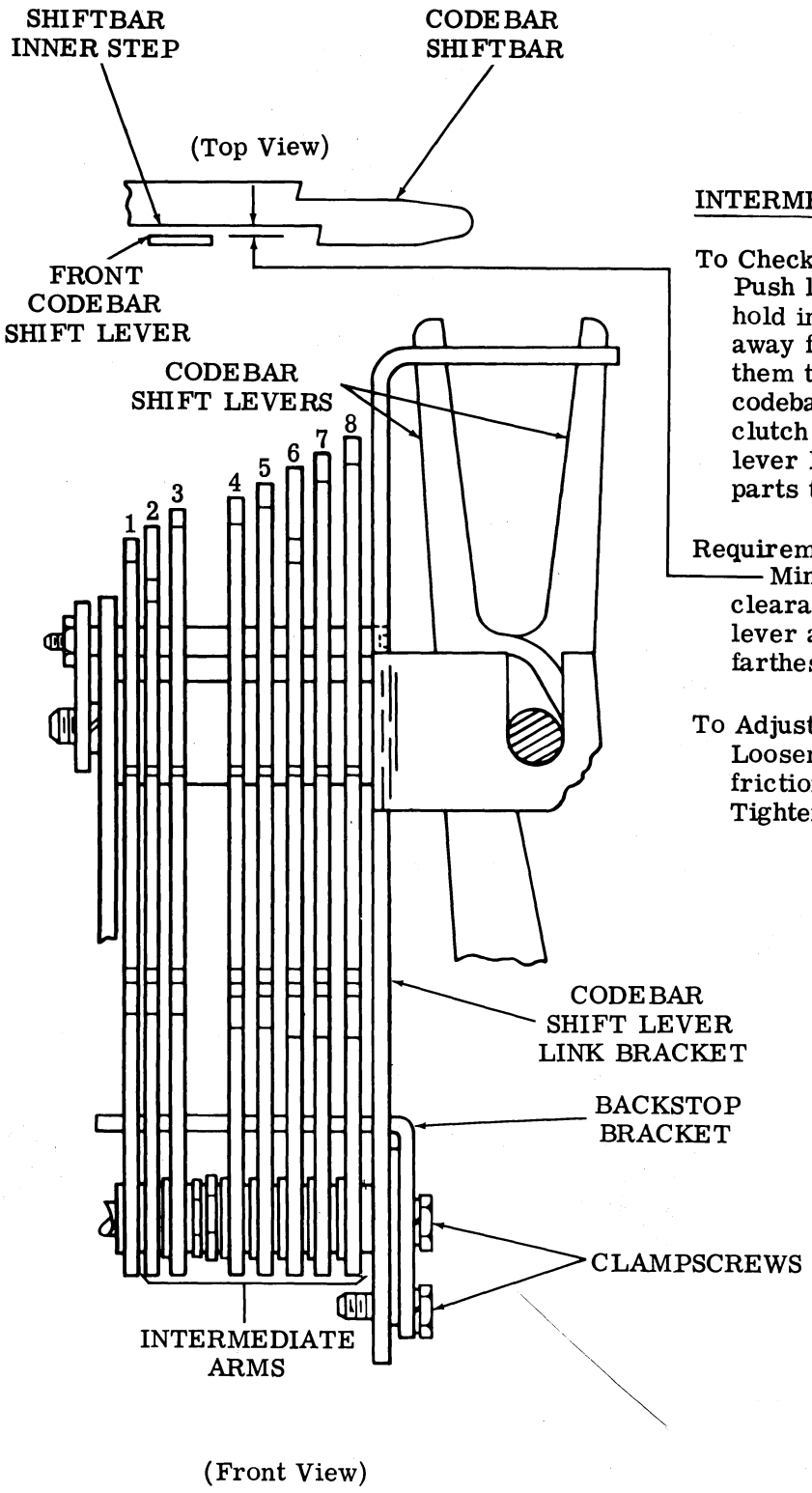
To Check

All push levers stripped. Transfer lever held in spacing position. Intermediate arm latching bail held away from intermediate arms.

Requirement

Min 2-1/2 oz---Max 3-1/2 oz to start intermediate arm moving.

2.33 Codebar Mechanism (continued)



INTERMEDIATE ARM BACKSTOP BRACKET

To Check

Push levers not selected. Momentarily hold intermediate arm latch bail (2.31) away from intermediate arms to allow them to go to unselected positions. All codebar shiftbars to right. Selector clutch disengaged (latched). Codebar shift lever link in lowermost position. Play in parts taken up for maximum clearance.

Requirement

Min 0.010 inch---Max 0.025 inch clearance between front codebar shift lever and inner step of codebar shiftbar farthest from front codebar shift lever.

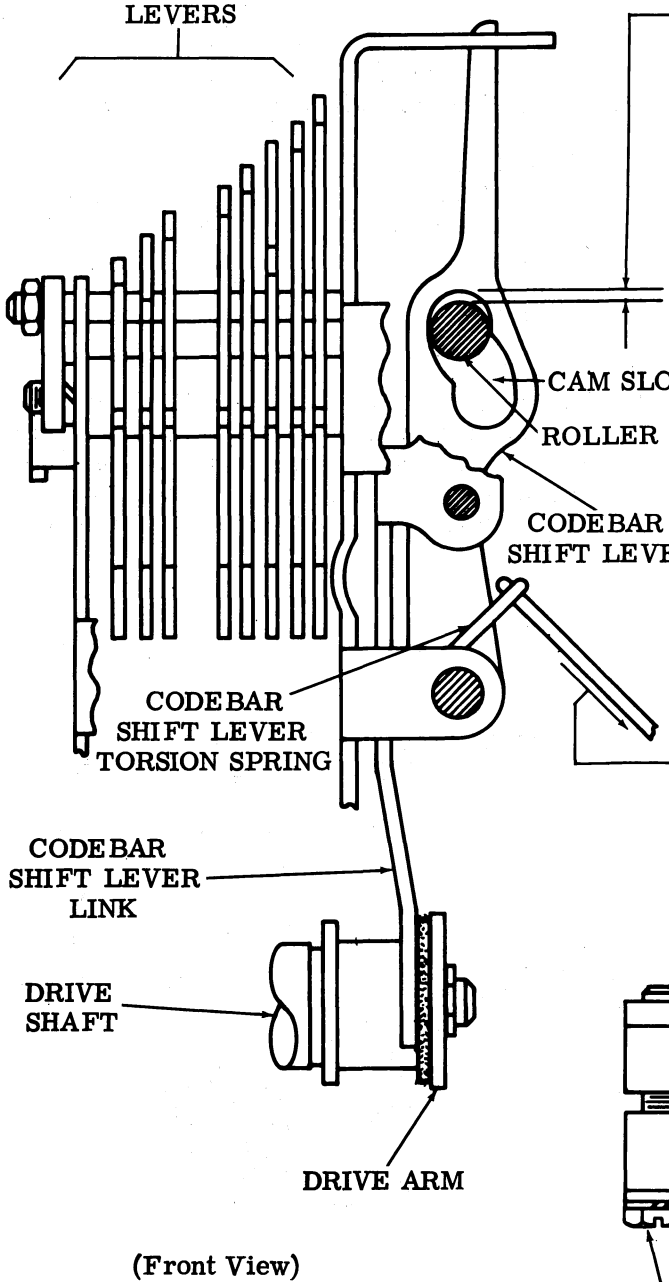
To Adjust

Loosen backstop bracket clampscrews friction tight. Position backstop bracket. Tighten clampscrews.

2.34 Codebar Mechanism (continued)

CODEBAR SHIFT LEVER AND CAM FOLLOWER ARM (EARLY DESIGN)

To Check
Codebar shift lever link in uppermost position. Play in codebar shift lever and codebar shift lever link taken up toward top of typing unit. Check cam slot which gives least clearance.



(Front View)

(1) Requirement
Min 0.010 inch---Max 0.020 inch clearance between upper surface of roller and lower surface of cam slot in codebar shift lever.

(2) Requirement
Min some---Max 0.006 inch endplay of drive shaft.

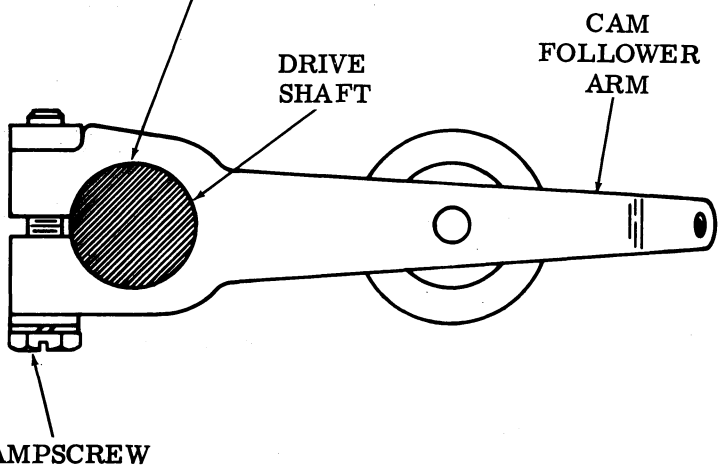
To Adjust
Loosen clampscrew friction tight and position cam follower arm on drive shaft. Tighten clampscrew.

Affected Adjustments
FRONT CODEBAR SHIFT LEVER (2.36)
REAR CODEBAR SHIFT LEVER (2.36)

CODEBAR SHIFT LEVER TORSION SPRING (EARLY AND LATE DESIGN)

To Check
Codebar clutch disengaged (latched).

Requirement
Min 8 oz---Max 16 oz to start spring moving away from codebar shift lever.



(Right Side View)

2.35 Codebar Mechanism (continued)

CODEBAR SHIFT LEVER AND CAM FOLLOWER ARM (LATE DESIGN)

To Check

Codebar shift lever link in uppermost position. Play in codebar shift lever and codebar shift lever link taken up toward top of typing unit. Check cam slot which gives least clearance.

(1) Requirement

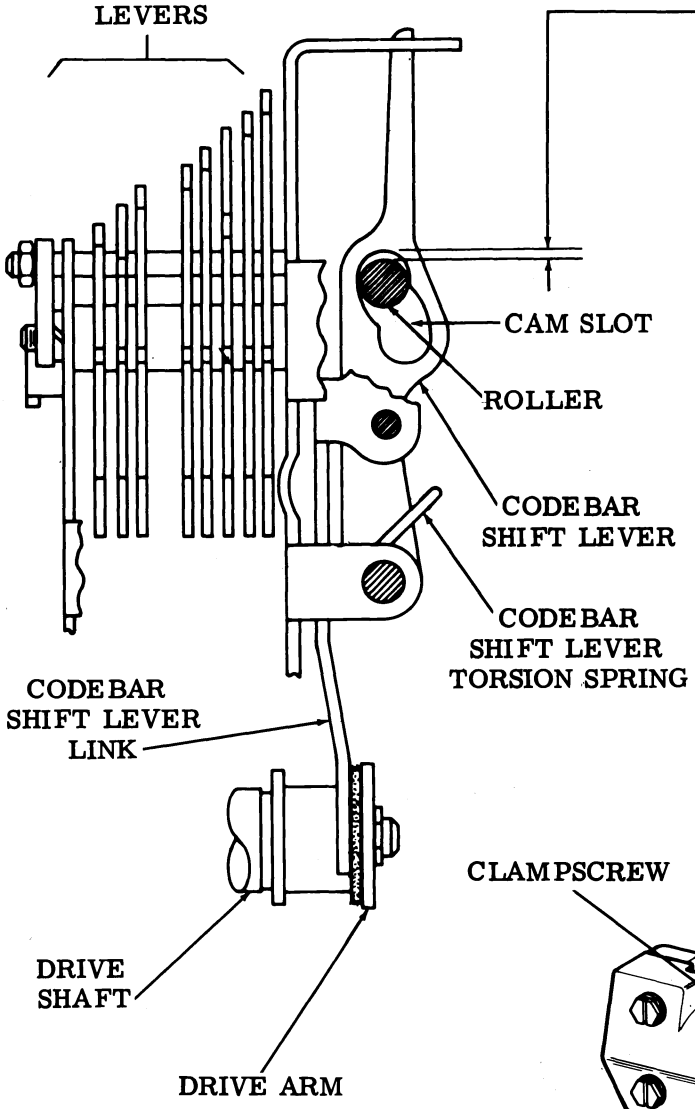
Min 0.010 inch---Max 0.020 inch clearance between upper surface of roller and lower surface of cam slot in codebar shift lever.

(2) Requirement

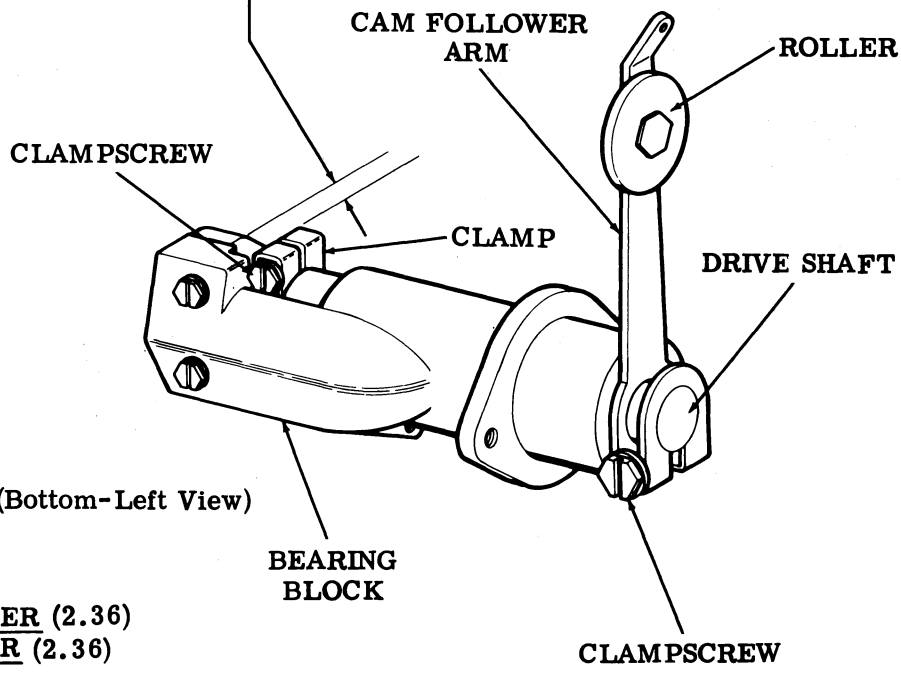
Min 0.045 inch---Max 0.055 inch between bearing block and clamp with endplay of codebar positioning drive shaft taken up toward the bearing block.

To Adjust

Position the clamp on the shaft with the clampscrew loosened until the requirement is met. Tighten clampscrew. Loosen cam follower arm clampscrew. Center cam follower roller on codebar shift cam and tighten clampscrew.



(Front View)

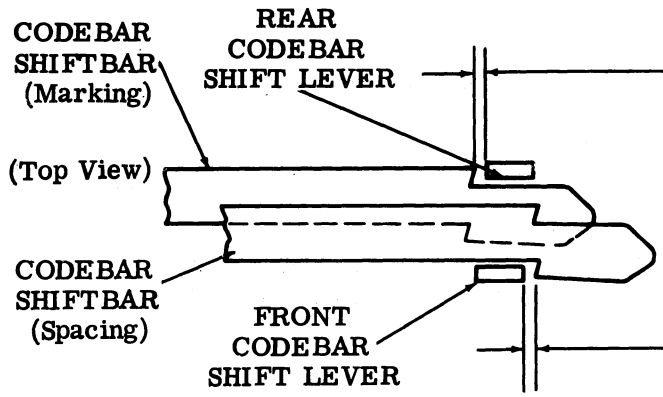


(Bottom-Left View)

Affected Adjustments

FRONT CODEBAR SHIFT LEVER (2.36)
REAR CODEBAR SHIFT LEVER (2.36)

2.36 Codebar Mechanism (continued)

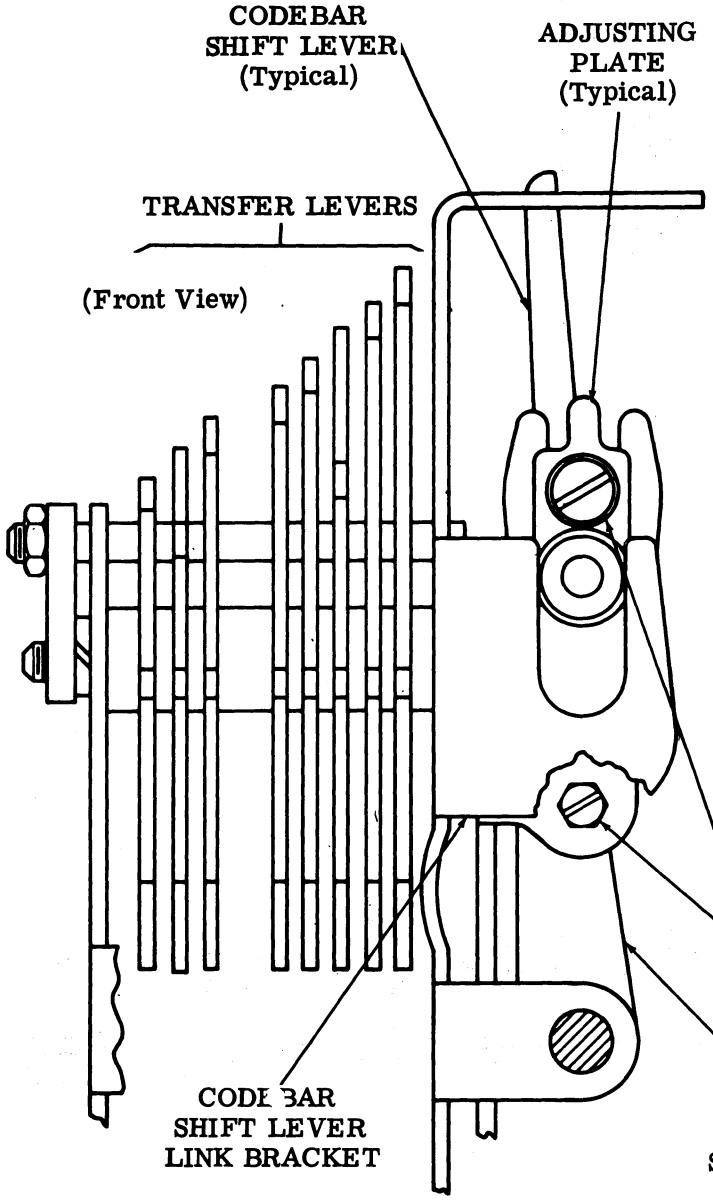


REAR CODEBAR SHIFT LEVER

To Check
Selector push levers marking. Codebar shift lever link in uppermost position. Play in parts taken up to make maximum clearance.

Requirement
Min some---Max 0.012 inch clearance between rear codebar shift lever and shoulder of nearest codebar shiftbar (marking).

To Adjust
Loosen adjusting plate clampscrews friction tight. Position adjusting plate. Tighten clampscrews.



FRONT CODEBAR SHIFT LEVER

To Check
Selector push levers spacing. Codebar shift lever link in uppermost position. Play in parts taken up to make maximum clearance.

Requirement
Min some---Max 0.012 inch clearance between front codebar shift lever and shoulder of nearest codebar shiftbar (spacing).

To Adjust
Loosen adjusting plate clampscrews friction tight. Position adjusting plate. Tighten clampscrews.

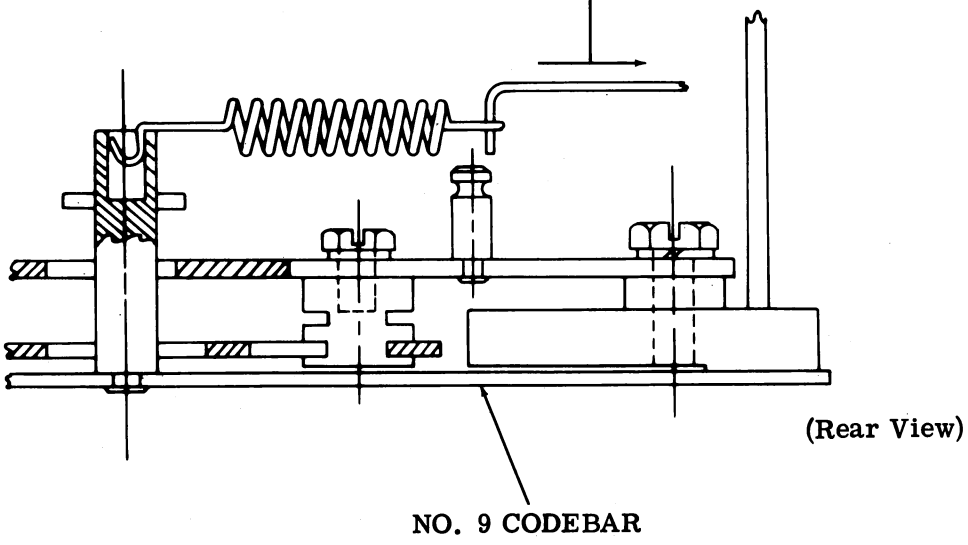
CLAMPSCREWS (Typical)

2.37 Codebar Mechanism (continued)

NO. 9 CODEBAR SPRING

To Check
Codebar shift fork in unoperated position.

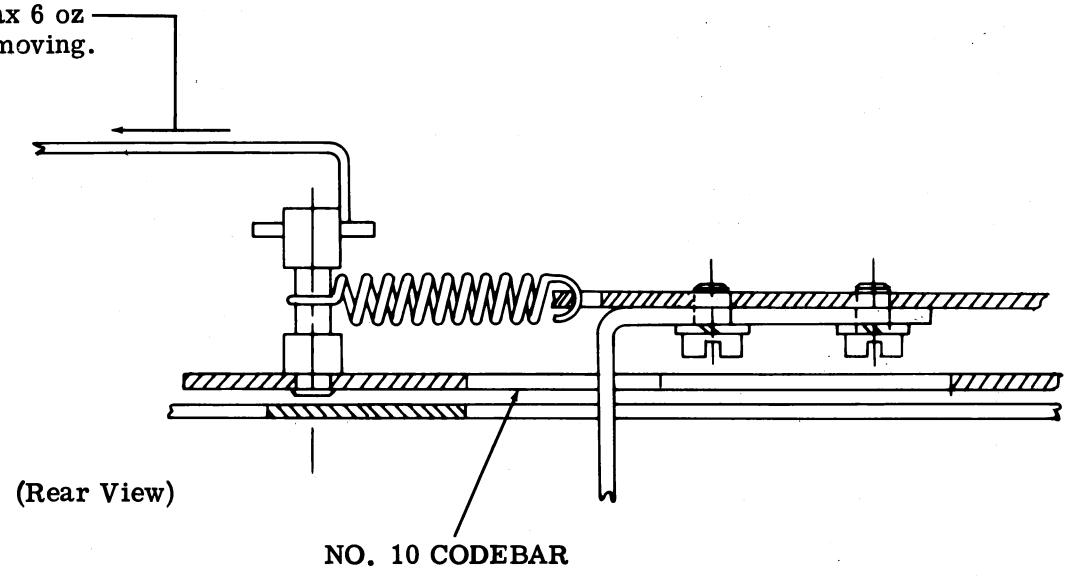
Requirement
Min 4 oz---Max 6 oz
to pull spring to installed length.



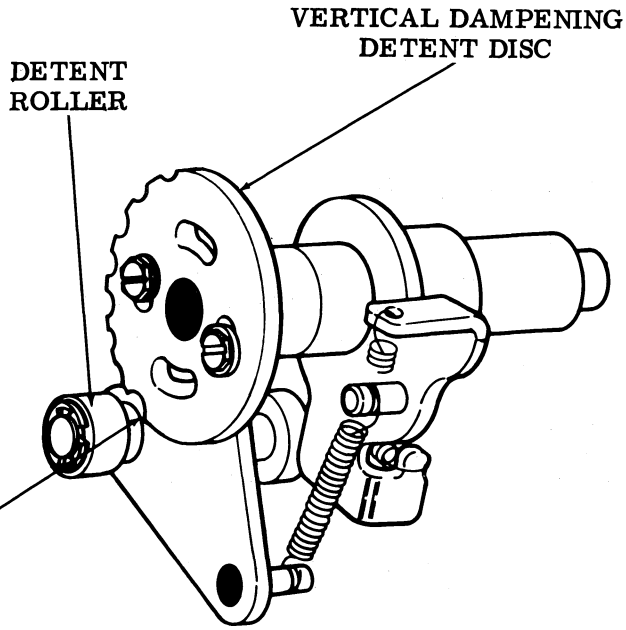
NO. 10 CODEBAR SPRING

To Check
Codebar shift fork in unoperated position.

Requirement
Min 4 oz---Max 6 oz
to start codebar moving.



2.38 Vertical Positioning Mechanism (continued)



(Left Front View)

RACK AND PINION PHASING

To Check

Codebars 5, 6, and 7 (1, 5, and 6 on 6-level machines) marking on 8-level machines. All clutches disengaged (latched).

(1) Requirement

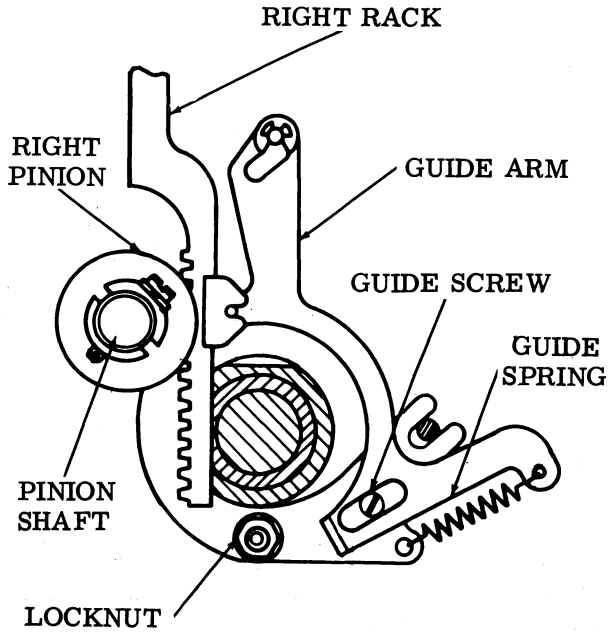
Detent roller should be centered above eighth notch of vertical dampening detent disc (last notch of disc in clockwise direction when viewed from the right).

(2) Requirement

Left and right pinion should engage corresponding tooth in respective racks.

To Adjust

Loosen locknut on left stop plate. Remove guide screw from right stop plate. Remove both left and right guide springs. Disengage left rack from left pinion (push toward rear). Disengage right rack from right pinion (push guide arm upward and toward front). Rotate pinion shaft until vertical dampening detent disc is in required position. See requirement (1). Re-engage left rack and reinstall guide spring. Re-engage right rack in corresponding tooth. Reinstall guide spring and guide screw. Tighten guide screw and locknut.

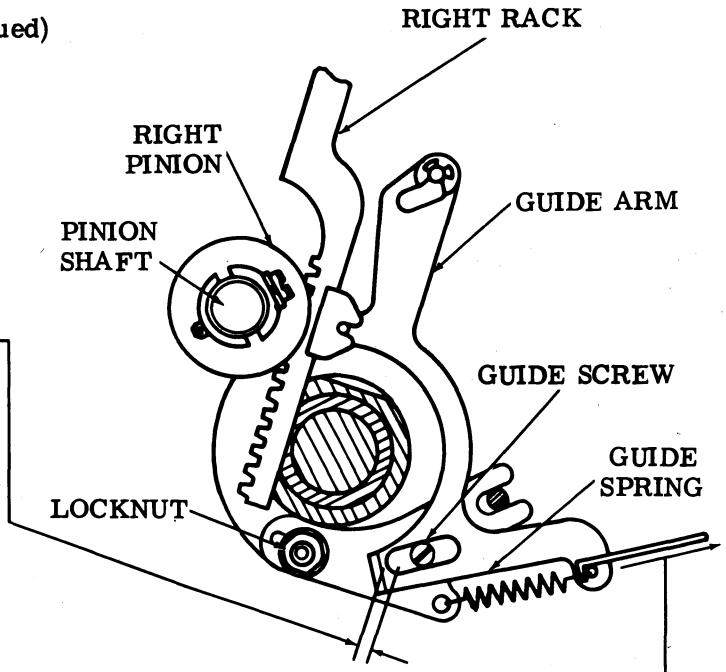


(Right Side View)

Affected Adjustments

LEFT RACK GUIDE (2.39)
RIGHT RACK GUIDE (2.39)

2.39 Vertical Positioning Mechanism (continued)



(Right Side View)

RIGHT RACK GUIDE

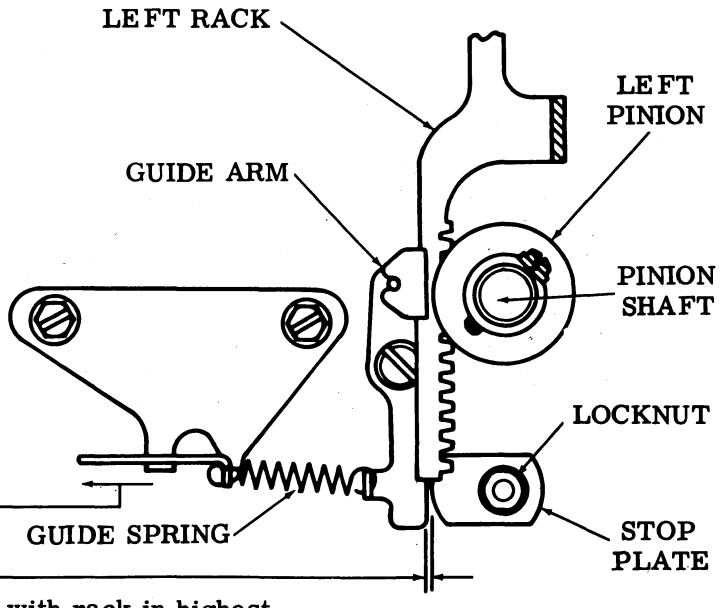
Requirement
Min some---Max 0.012 inch clearance between guide screw and guide arm with rack in highest and lowest positions.

To Adjust
Loosen locknut. Pry stop plate until requirement is met. Tighten Locknut.

Affected Adjustment
RACK AND PINION PHASING (2.38)

RACK GUIDE SPRING

Requirement
Min 22 oz---Max 40 oz
Min 26 oz---Max 46 oz
to pull spring to installed length.



LEFT RACK GUIDE

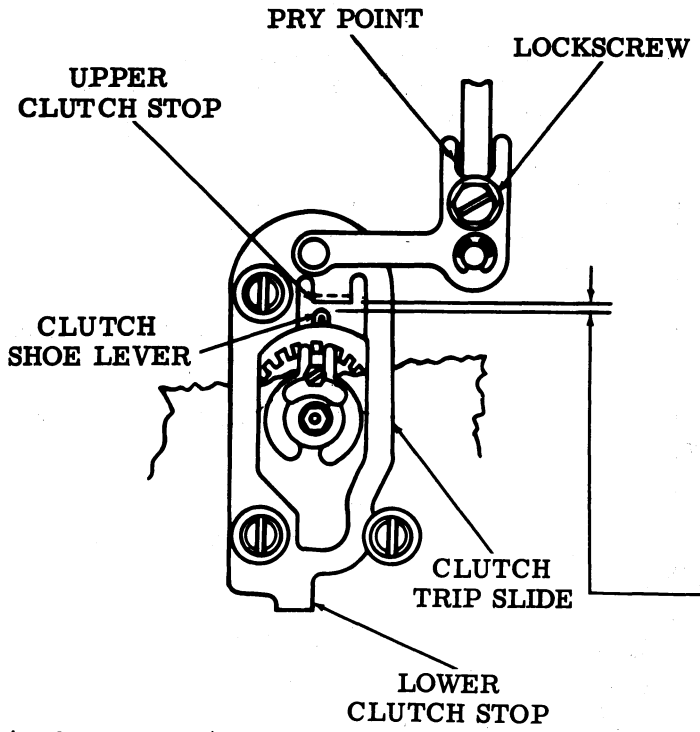
Requirement
Min some---Max 0.012 inch clearance between stop plate and guide arm with rack in highest and lowest positions.

(Left Side View)

To Adjust
Loosen locknut. Pry stop plate until requirement is met. Tighten locknut.

Affected Adjustment
RACK AND PINION PHASING (2.38)

2.40 Vertical Positioning Mechanism (continued)



(Left Side View)

CLUTCH BITE

Note 1: The following procedure applies to the three vertical positioning clutches.

To Check

All clutches disengaged (latched). Engage (trip) one vertical positioning clutch and view clearance between clutch shoe lever and clutch stop. Rotate main shaft and disengage (latch) same clutch on opposite side. Engage (trip) same clutch again and view clearance between clutch shoe lever and clutch stop. Repeat this procedure while checking the remaining vertical positioning clutches.

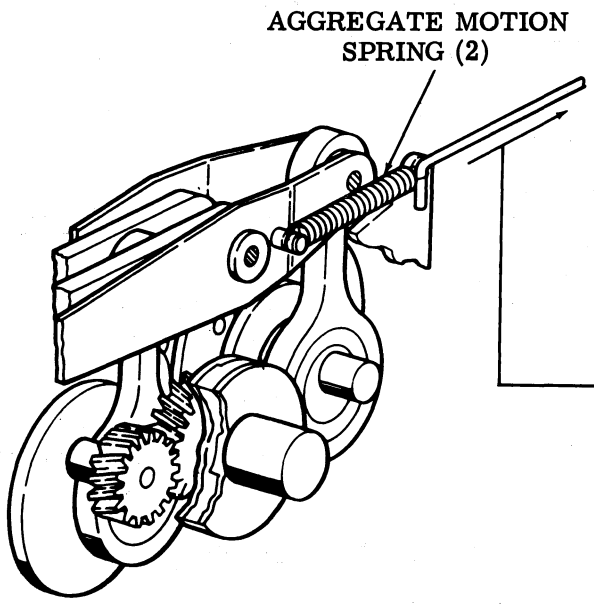
Note 2: When checking, take up play in the parts to make clearance a maximum.

Requirement

Clearances of upper clutch stop and lower clutch stop should be equal as gauged by eye.

To Adjust

Loosen lockscrew friction tight. Move clutch trip slide up or down using pry point. Tighten lockscrew.



(Left Side View)

AGGREGATE MOTION SPRING (VERTICAL POSITIONING)

To Check

Unhook aggregate motion springs one at a time and check (2 springs total).

Requirement

Min 18 oz---Max 22 oz
to extend spring to installed length.

2.41 Retraction Mechanism

RATCHET RETURN SPRING

To Check
Ratchet wheel at maximum feed position (on last tooth). Ratchet return spring unhooked.

Requirement
Min 2 oz---Max 5 oz
to extend spring to installed length.

RETRACTION OVERLOAD SPRING

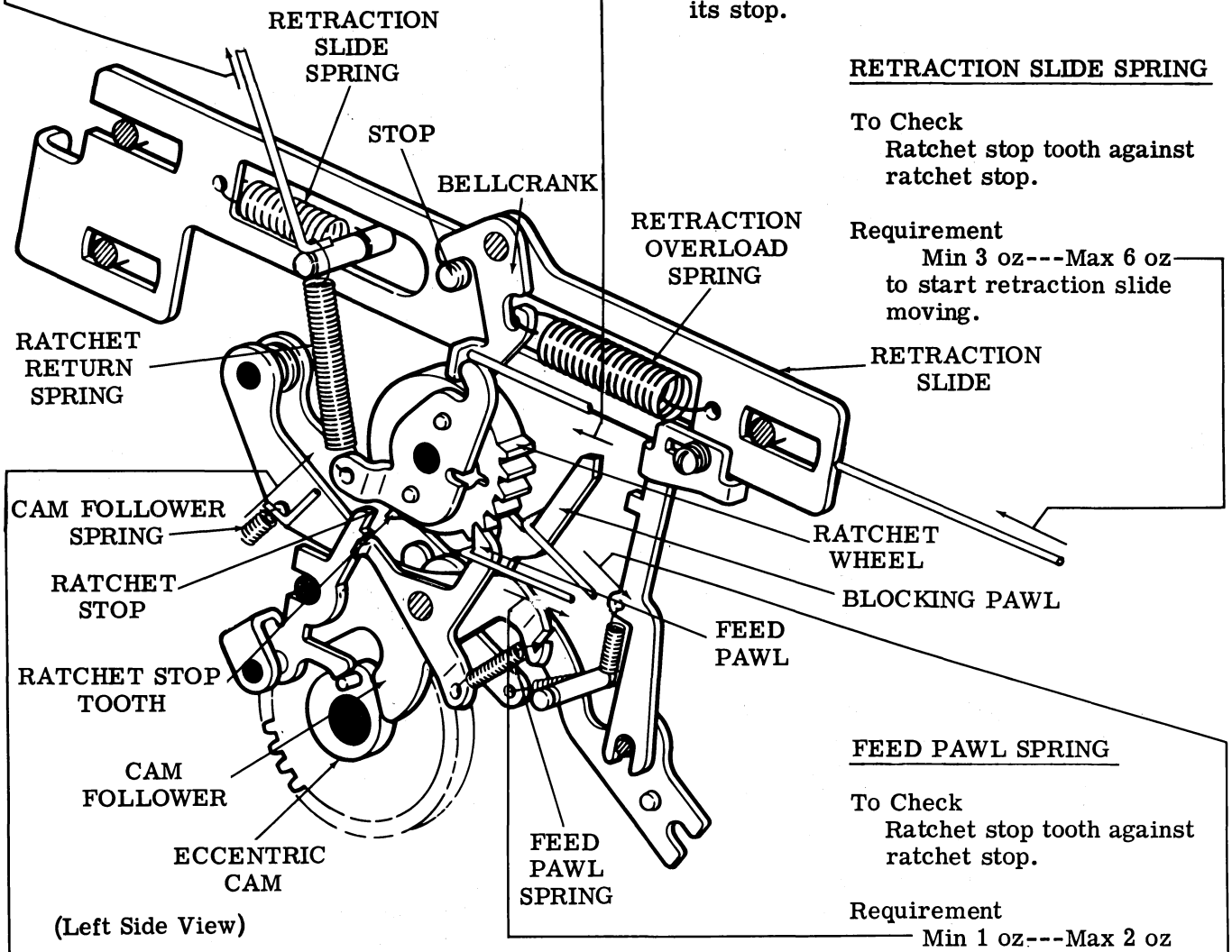
To Check
Ratchet stop tooth against ratchet stop. Retraction slide held manually toward rear of typing unit.

Requirement
Min 5-1/2 lb---Max 7-1/2 lb
to start overload bellcrank moving from its stop.

RETRACTION SLIDE SPRING

To Check
Ratchet stop tooth against ratchet stop.

Requirement
Min 3 oz---Max 6 oz
to start retraction slide moving.



(Left Side View)

FEED PAWL SPRING

To Check
Ratchet stop tooth against ratchet stop.

Requirement
Min 1 oz---Max 2 oz
to start feed pawl moving from ratchet wheel.

CAM FOLLOWER SPRING

To Check
Eccentric cam in maximum feed position. Cam follower spring unhooked.

Requirement
Min 14 oz---Max 20 oz
to extend spring to installed length.

BLOCKING PAWL SPRING

To Check
Ratchet stop tooth against ratchet stop.

Requirement
Min 1 oz---Max 2 oz
to start blocking pawl moving from ratchet wheel.

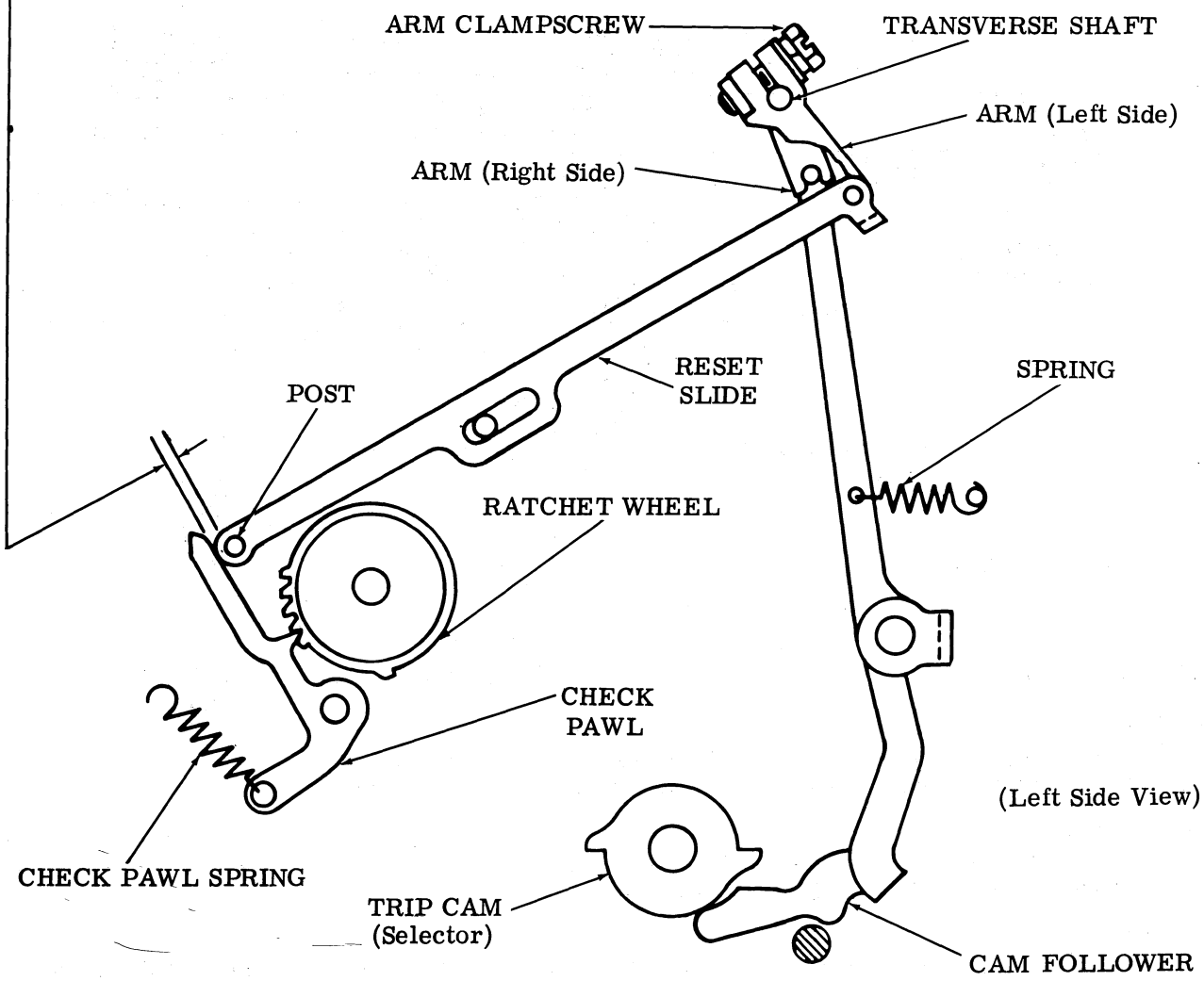
2.42 Retraction Mechanism (continued)

RETRACTION RESET SLIDE

To Check
Selector clutch disengaged (latched). Check pawl fully engaging ratchet wheel. Take up play in reset slide linkage to make a maximum clearance. Be sure that cam follower is resting on selector trip cam.

Requirement
Min some---Max 0.020 inch clearance between reset slide post and check pawl.

To Adjust
Disengage (latch) selector clutch and rotate main shaft at least two complete revolutions. Loosen arm clampscrew and position arm (left side).



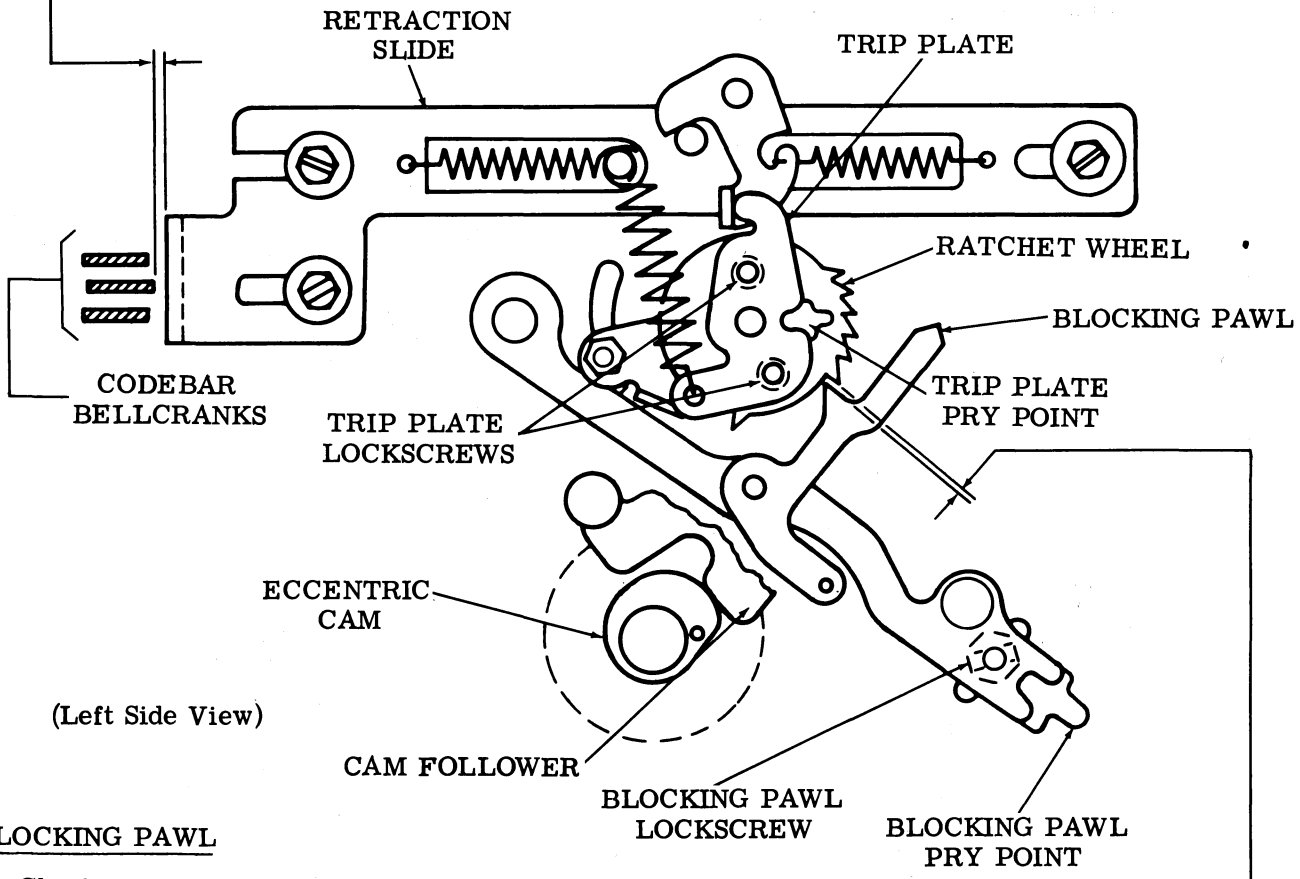
2.43 Retraction Mechanism (continued)

RETRACTION SLIDE

To Check
All codebars in spacing position. Feed pawl engaged with last tooth of ratchet wheel. Eccentric cam in maximum feed position. All clutches disengaged (latched). Play in bellcranks taken up toward front to make clearance a maximum.

Requirement
Min some---Max 0.015 inch
clearance between retraction slide and closest codebar bellcrank.

To Adjust
Loosen trip plate lockscrews. Rotate trip plate by means of its pry point. Tighten lockscrews.



BLOCKING PAWL

To Check
All clutches disengaged (latched). Feed pawl engaged with the last tooth of ratchet wheel. Eccentric cam in maximum feed position.

Requirement
Min 0.005 inch---Max 0.010 inch
clearance between blocking pawl and ratchet wheel tooth.

To Adjust
Loosen blocking pawl lockscrew friction tight. Move the guide bracket upward toward the ratchet wheel and hold. Position blocking pawl using its pry point. Tighten lockscrew.

Note: Failure to hold the guide bracket upward as instructed may cause the blocking pawl to slide past the ratchet during operation and cause a typebox retraction failure.

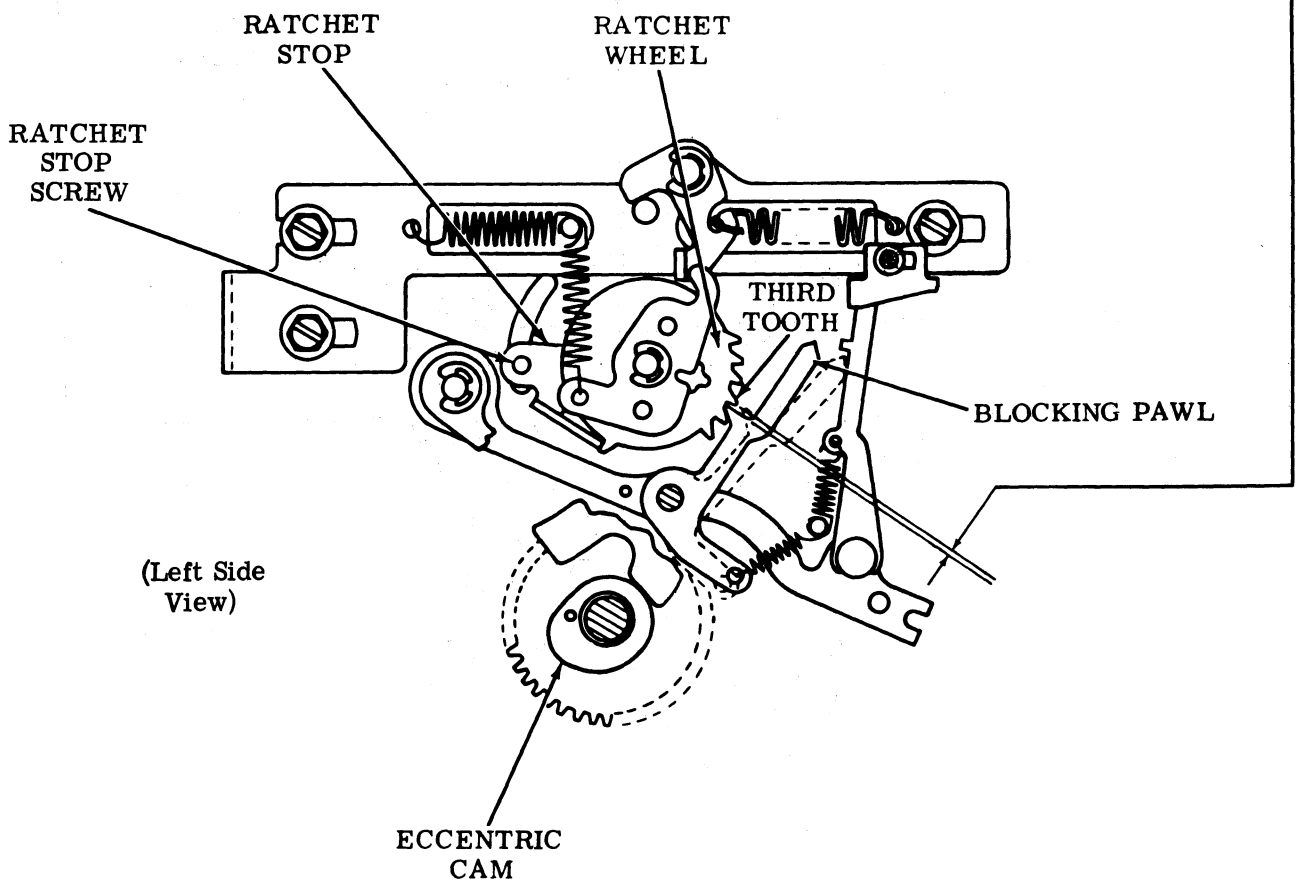
2.44 Retraction Mechanism (continued)

RATCHET STOP

To Check
All clutches disengaged (latched). Eccentric cam in minimum feed position. Feed pawl disengaged from ratchet wheel teeth.

Requirement
Min 0.005 inch---Max 0.015 inch clearance between blocking pawl and flank of third tooth on ratchet wheel.

To Adjust
Loosen ratchet stop screw friction tight. Position ratchet stop. Tighten ratchet stop screw.



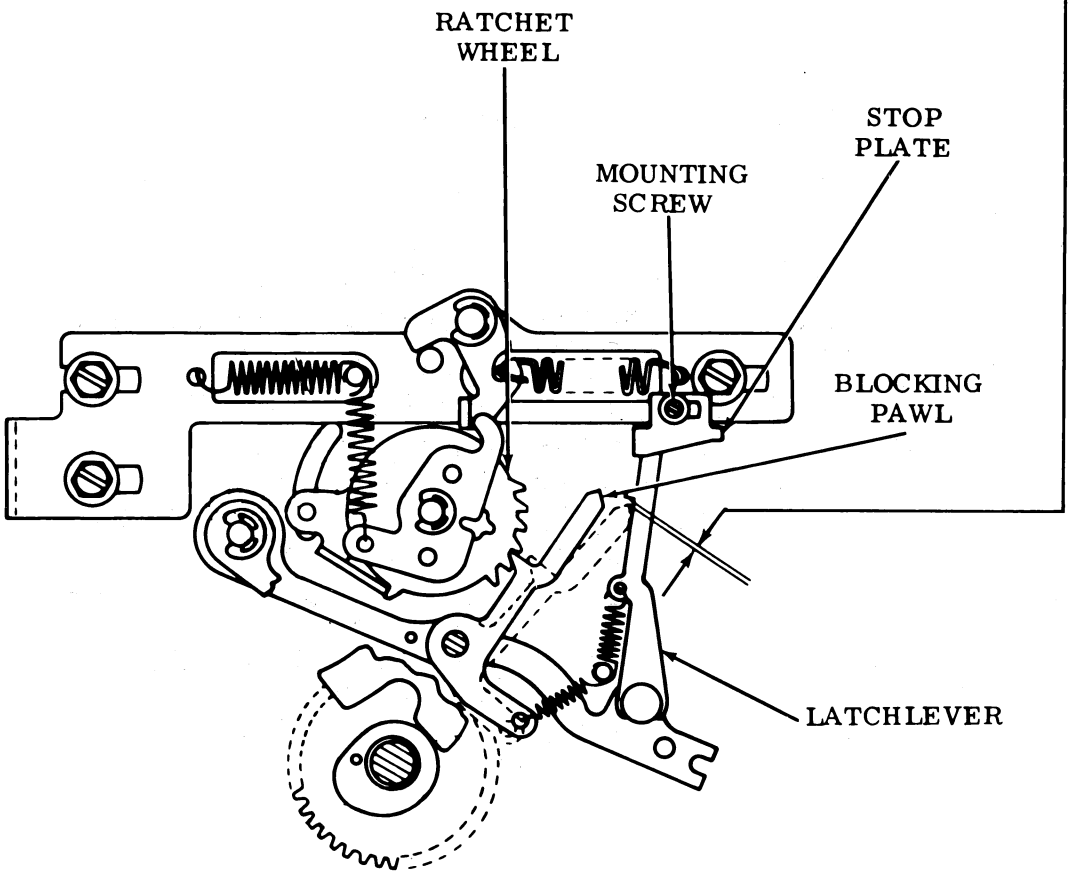
2.45 Retraction Mechanism (continued)

STOP PLATE

To Check
All clutches disengaged (latched). Feed pawl disengaged from ratchet wheel teeth. Manually bring blocking pawl into position.

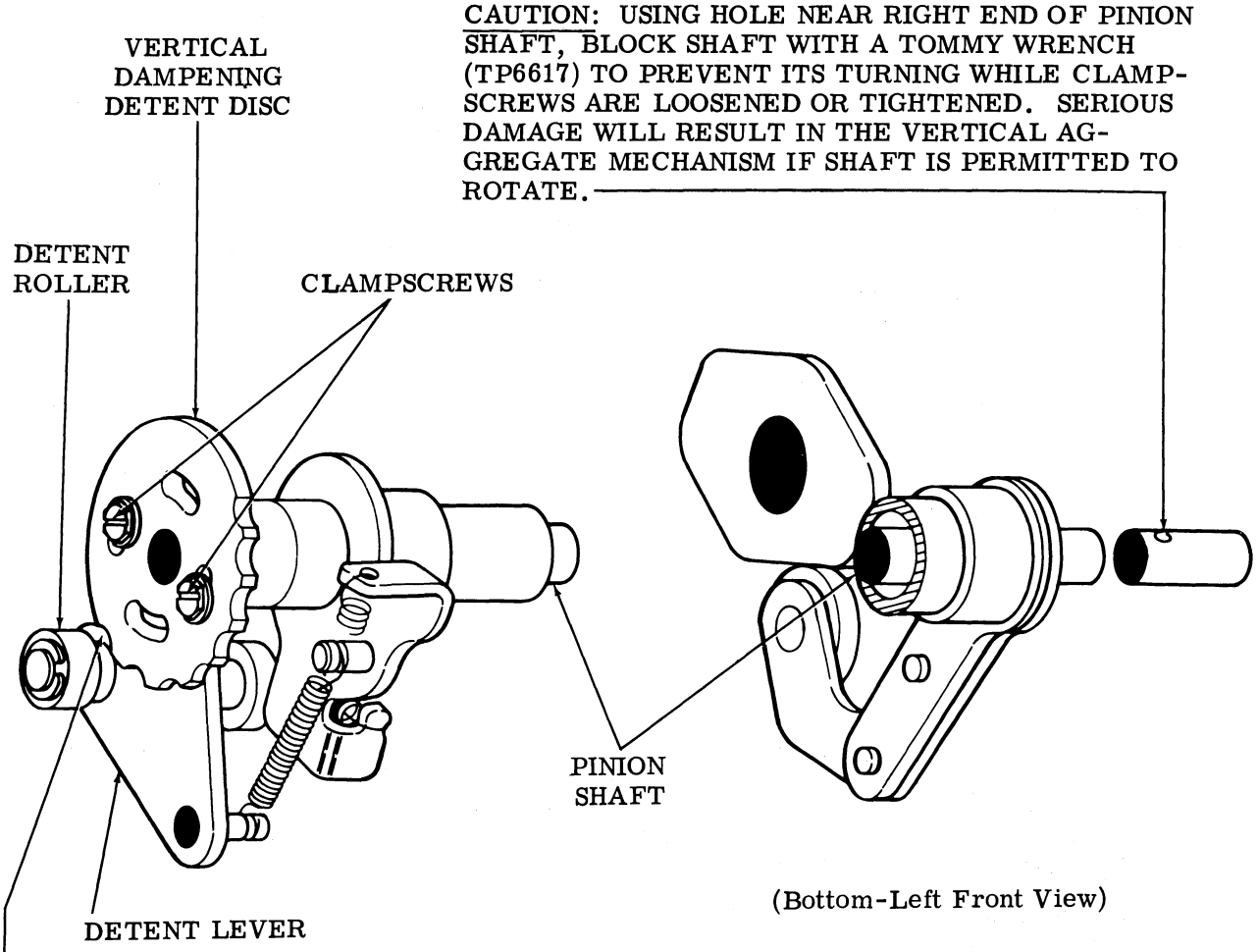
Requirement
Min some---Max 0.010 inch clearance between corners of latchlever and blocking pawl.

To Adjust
Loosen stop plate mounting screw friction tight. Position stop plate. Tighten stop plate mounting screw.



(Left Side View)

2.46 Vertical Positioning Mechanism (continued)



(Bottom-Left Front View)

VERTICAL AGGREGATE - DAMPENER SYNCHRONIZATION

To Check

All codebars spacing. All clutches disengaged (latched). Engage (trip) print hammer clutch. Slowly rotate main shaft.

Requirement

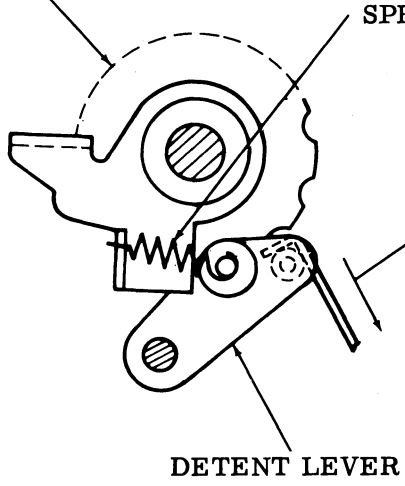
Detent roller should drop squarely into first notch on vertical dampening detent disc (end notch above a web of vertical dampening detent disc).

To Adjust

Loosen clampscrews on vertical dampening detent disc. Rotate disc until detent roller is squarely seated in first notch. Without disturbing unit, tighten one clampscrew. Turn typing unit to a convenient position and tighten other clampscrew.

Note: If this adjustment cannot be met, due to lack of motion in adjusting slots, reset vertical dampening detent disc to center of adjustment and check the RACK AND PINION PHASING (2.38).

2.47 Vertical and Horizontal Positioning Mechanisms (continued)

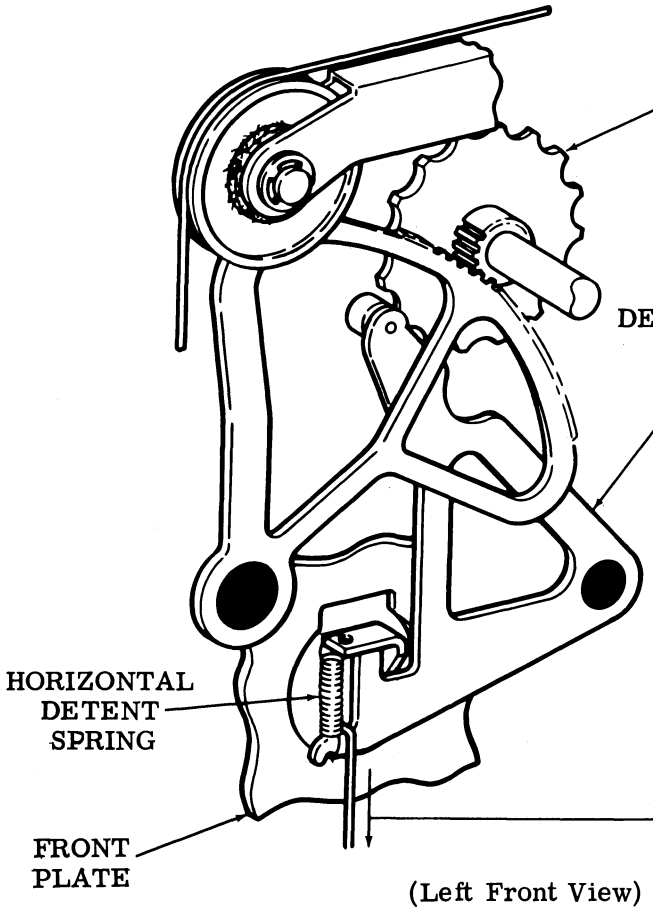


(Bottom-Left Front View)

VERTICAL DETENT SPRING

To Check
Print hammer clutch disengaged (latched). Dampener cam follower on low part of dampener cam.

Requirement
Min 24 oz---Max 32 oz to start detent lever moving.



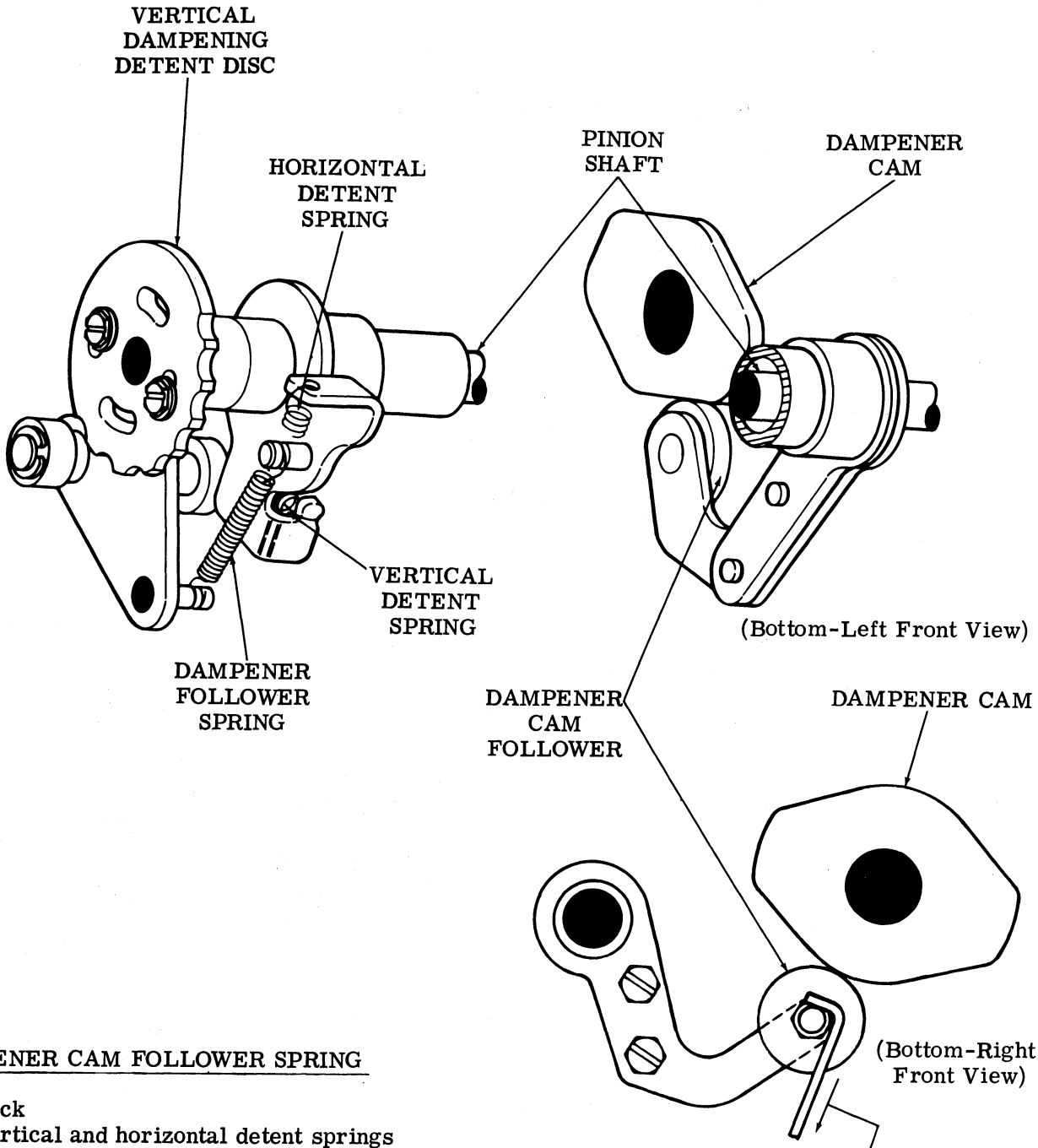
(Left Front View)

HORIZONTAL DETENT SPRING

To Check
Print hammer clutch disengaged (latched). Dampener cam follower on low part of dampener cam.

Requirement
Min 48 oz---Max 64 oz to start detent lever moving.

2.48 Vertical and Horizontal Positioning Mechanisms (continued)



DAMPENER CAM FOLLOWER SPRING

To Check

Vertical and horizontal detent springs installed. Print hammer clutch disengaged (latched). Dampener cam follower on low part of dampener cam.

Requirement

Min 5 oz---Max 8 oz to start dampener cam follower moving.

2.49 Horizontal Positioning Mechanism (continued)

SLED SLIDE CLEARANCE

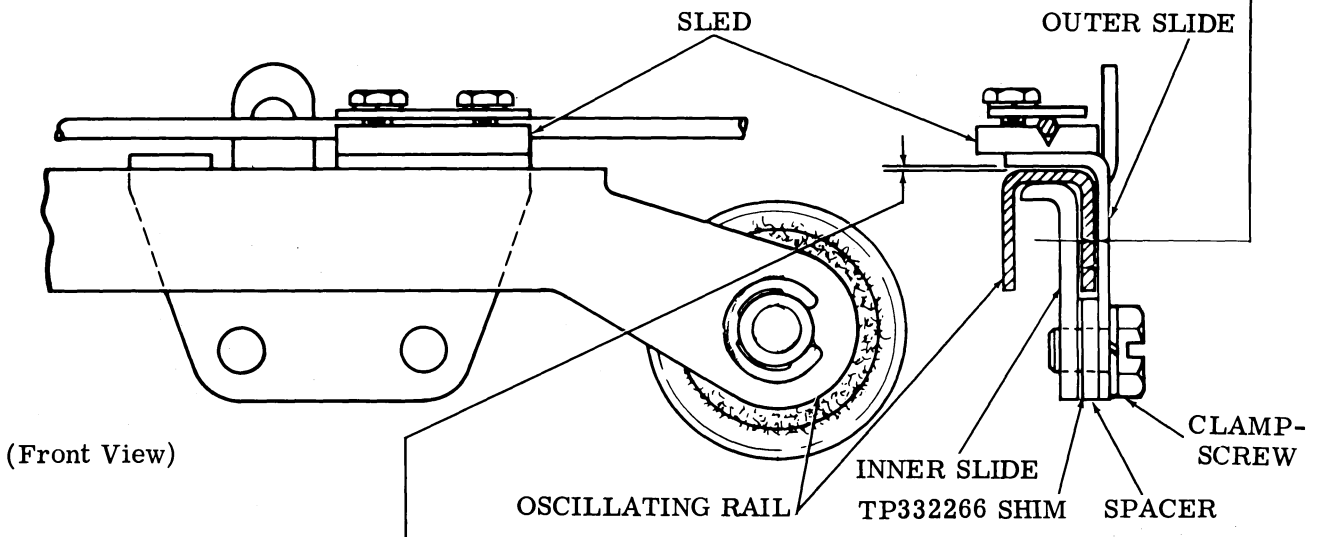
To Check
Inner and outer slides assembled to oscillating rail with spacer and at least one TP332266 shim between the two.

Requirement
Min some---Max 0.003 inch clearance between oscillating rail and vertical slides.

To Adjust
Remove inner slide and add or remove TP332266 shims to make sled slide freely along the oscillating rail. Replace inner slide and position it and outer slide to obtain maximum top clearance between oscillating rail and outer slide. See SLED TOP CLEARANCE.

Note: Use a minimum number of TP332266 shims.

Affected Adjustment
SLED TOP CLEARANCE



SLED TOP CLEARANCE

Requirement
With top of inner slide held against oscillating rail there should be
Min some---Max 0.002 inch
clearance between top of oscillating rail and upper sliding surface of outer slide at a point where clearance is the least.

To Adjust
Loosen clampscrews friction tight. Position inner and outer slides. Tighten clampscrews.

2.50 Vertical and Horizontal Positioning Mechanisms (continued)

TYPEBOX RAIL ALIGNMENT (PRELIMINARY)

Note 1: This adjustment need not be made unless the typebox rail clampscrews are loosened. If this adjustment is changed, check TYPEBOX RAIL ALIGNMENT (Final) (2.112)

To Check

Codebars 1 and 7 spacing. All other codebars marking. All clutches disengaged (latched). Remove shoulder screw and disconnect typebox link from sled. Reassemble shoulder screw to sled. Position sled and typebox carriage to far left side with shoulder screw directly below shoulder rivet on typebox carriage. Take up play between shoulder screw and mounting hole in sled in a downward direction. Check requirement (1). Position sled and typebox carriage to far right side with shoulder screw directly below shoulder rivet on typebox carriage. Take up play between shoulder screw and mounting hole in sled in a downward direction. Again check requirement (1).

Note 2: If necessary, remove indicator bracket of ribbon mechanism to facilitate shoulder screw removal.

(1) Requirement

Min some---Max 0.002 inch clearance between head of shoulder screw and head of shoulder rivet at tooth far left and far right positions.

(2) Requirement

Min 0.002 inch must be maintained between left-hand rack and upper rack guide in both upper and lower rack positions.

Note 3: Before checking, play should be taken up to make a maximum clearance and slowly released.

(3) Requirement

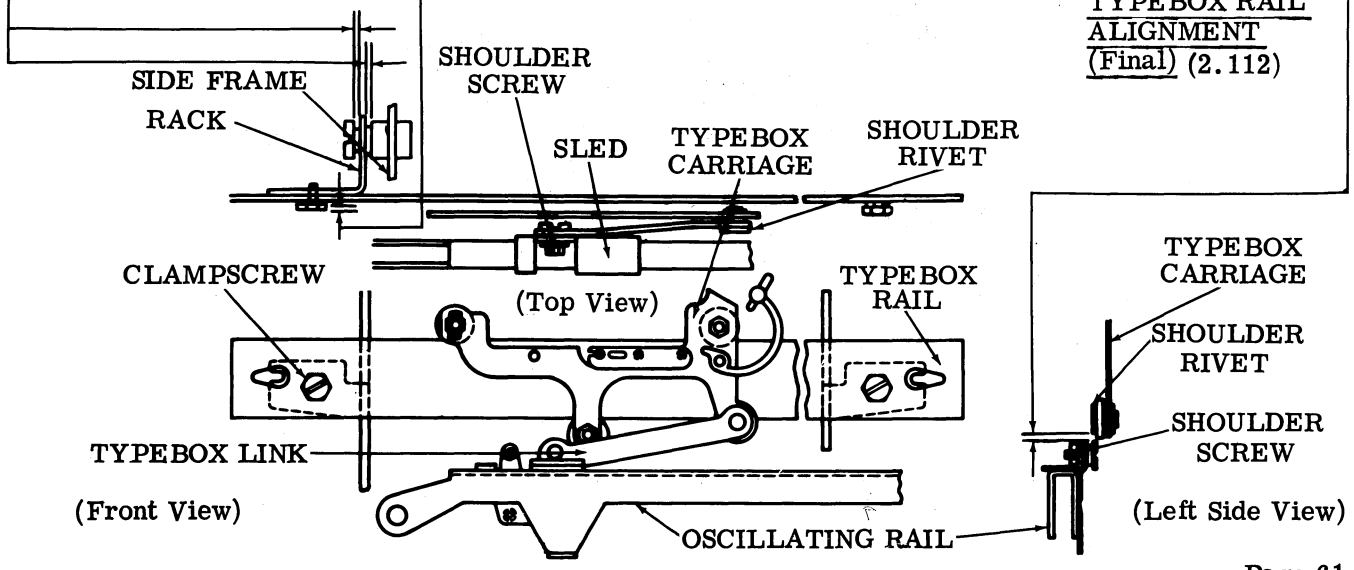
With typebox rail clampscrews tightened

Min 0.010 inch clearance between clampscrew head and backside of typebox carriage at both sides.

To Adjust

Loosen clampscrews friction tight. Raise or lower typebox rail to meet requirement (1). Move typebox rail with respect to rack to meet requirement (2). Tighten clampscrews to meet requirement (3).

Affected Adjustment
TYPEBOX RAIL ALIGNMENT (Final) (2.112)



2.51 Horizontal Positioning Mechanism (continued)

OSCILLATING ARM - DETENT DISC PHASING

To Check

Codebar 1 spacing. All other codebars marking. All clutches disengaged (latched). Spring drum rotated to permit viewing of detent roller and horizontal dampening detent disc through hole provided in front bearing plate.

(1) Requirement

Oscillating arm gear tooth marked with O (third tooth) should be meshed with pinion gear on horizontal dampening detent disc.

(2) Requirement

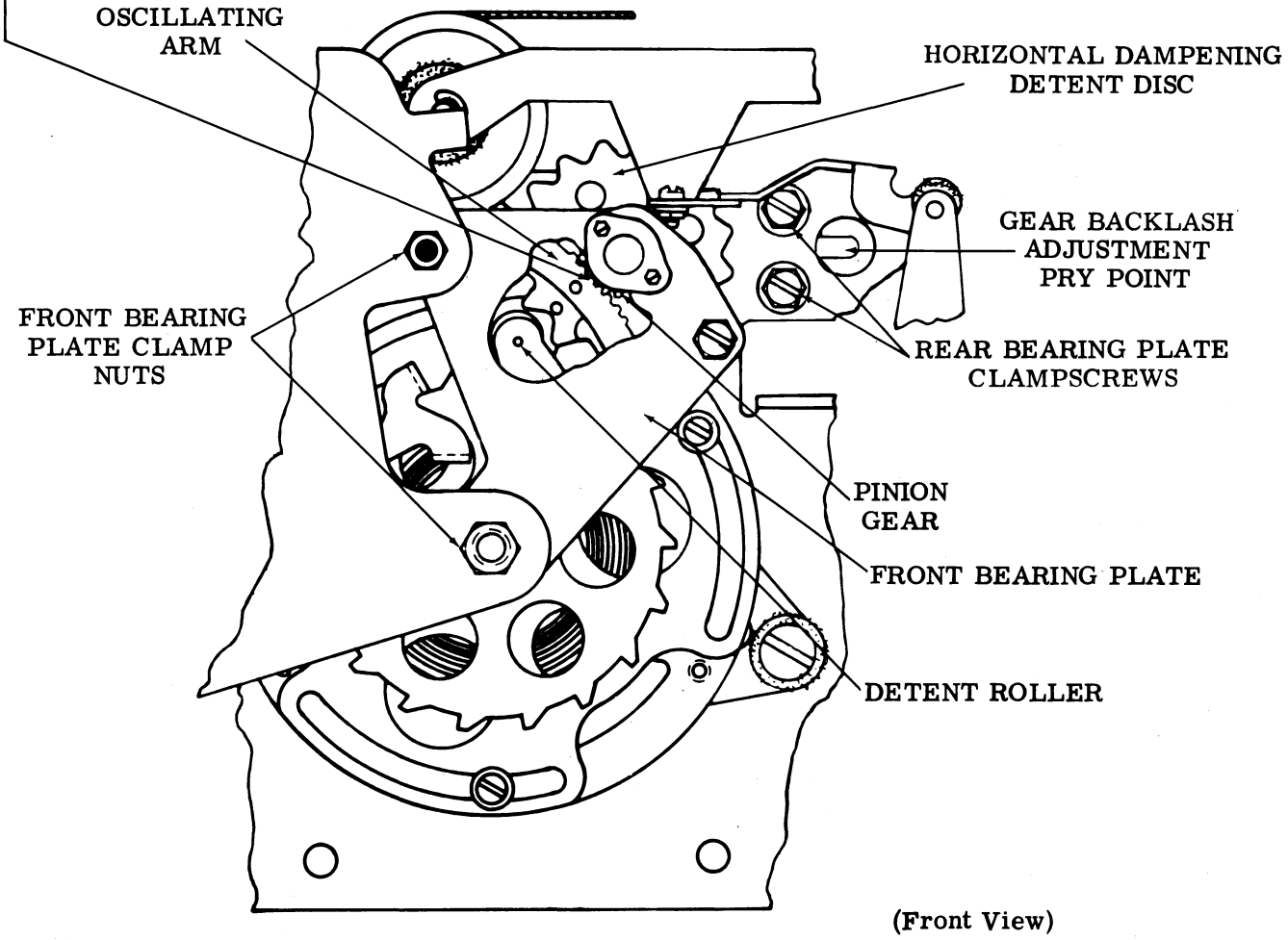
No. 1 notch on horizontal dampening detent disc (notch below small hole) should be centered above detent roller.

To Adjust

Loosen two rear bearing plate clampscrews and two front bearing plate clamp nuts. Separate oscillating arm from pinion gear using gear backlash adjustment pry point. Rephase oscillating arm and pinion gear. Tighten clampscrews and clamp nuts.

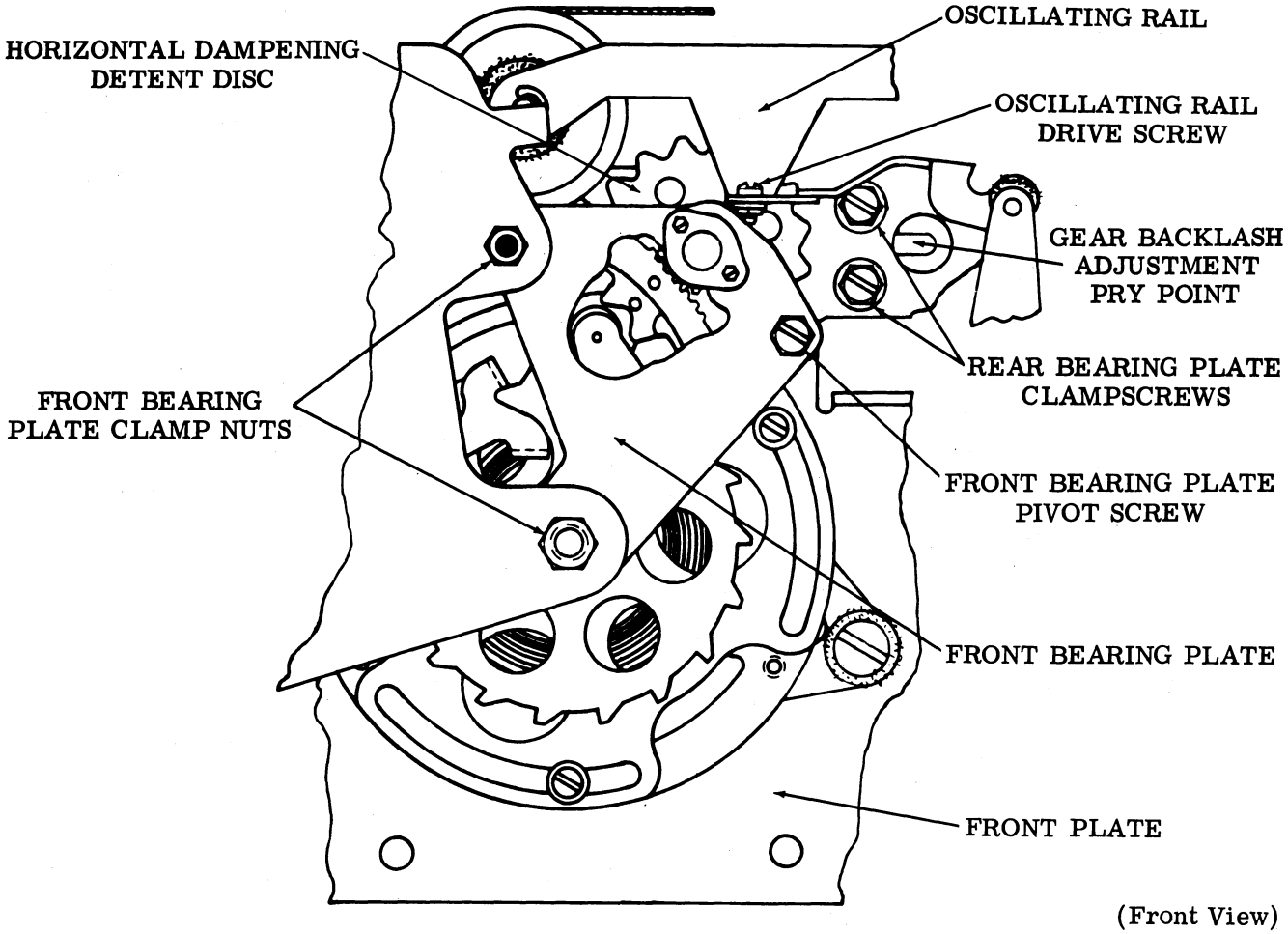
Affected Adjustments

FRONT BEARING PLATE ALIGNMENT (2.52)
OSCILLATING ARM - DETENT DISC GEAR BACKLASH (2.53)



(Front View)

2.52 Horizontal Positioning Mechanism (continued)



(Front View)

FRONT BEARING PLATE ALIGNMENT

To Check

Codebar 1 spacing. All other codebars marking. All clutches disengaged (latched). Oscillating rail drive screw removed.

Requirement

Oscillating rail should move smoothly through its full range of travel without binding.

To Adjust

Loosen rear bearing plate clampscrews. Loosen front bearing plate clamp nuts. Loosen front bearing plate pivot screw. Obtain some backlash in horizontal dampening detent disc - oscillating arm gear set using gear backlash adjustment pry point. Rotate front bearing plate downward about its pivot screw while manually moving oscillating rail back and forth until horizontal dampening detent disc binds slightly on front bearing plate. Rotate front bearing plate upward until horizontal dampening detent disc turns freely. Tighten front bearing plate pivot screw, front bearing plate clamp nuts, and rear bearing plate clampscrews. Do not replace oscillating rail drive screw until OSCILLATING ARM-DETENT DISC GEAR BACKLASH (2.53) adjustment is checked.

Affected Adjustment

OSCILLATING ARM - DETENT DISC GEAR BACKLASH (2.53)

2.53 Horizontal Positioning Mechanism (continued)

OSCILLATING ARM - DETENT DISC GEAR BACKLASH

To Check

Codebar 1 spacing. All other codebars marking. All clutches disengaged (latched). Oscillating rail drive screw removed. Engage (trip) print hammer clutch. Rotate main shaft until detent roller fully seats into a notch of horizontal dampening detent disc.

Requirement

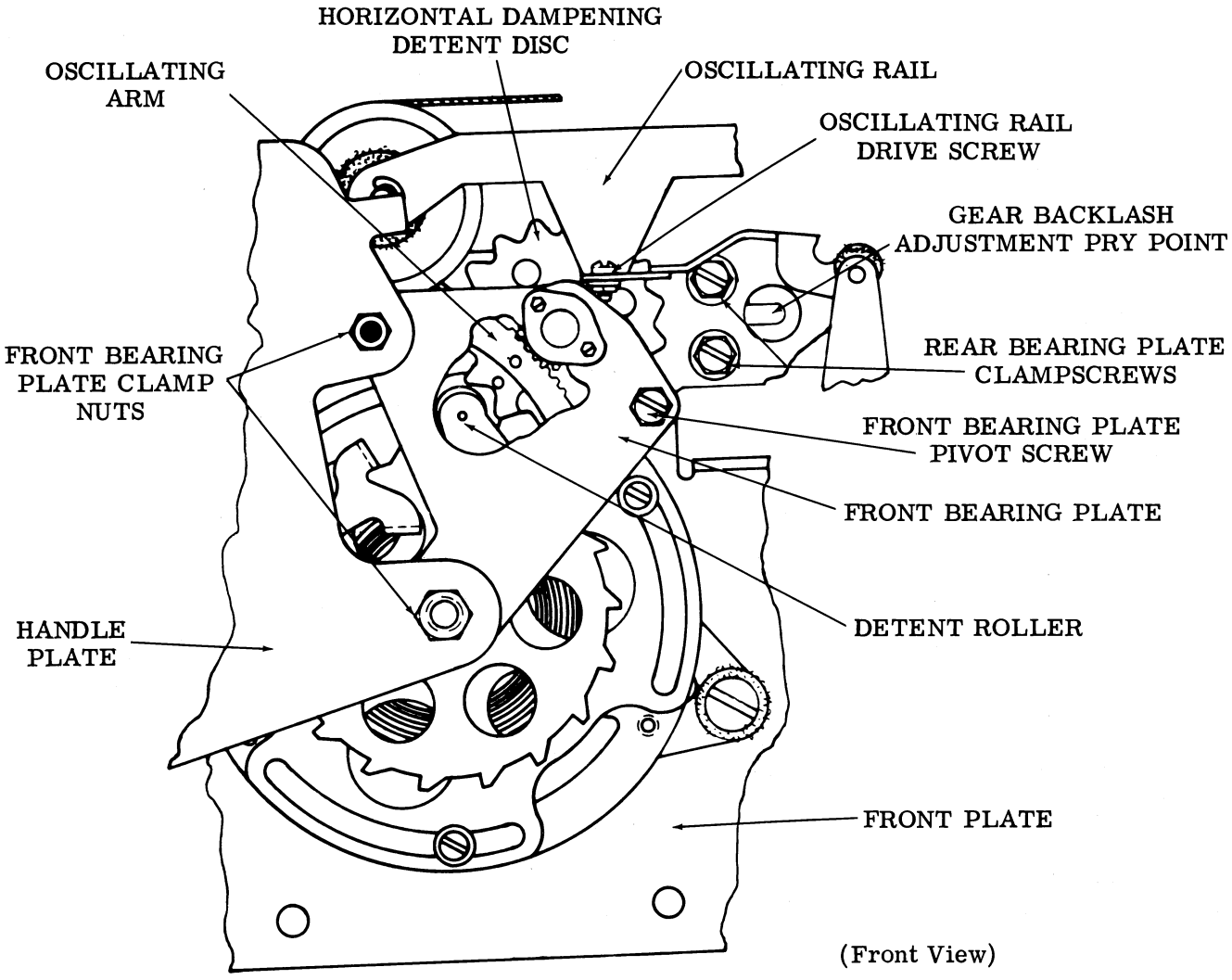
There should be no noticeable backlash in the horizontal dampening detent disc - oscillating arm gear set when pressure is manually applied to oscillating rail. Oscillating rail should move freely when detent roller is retracted.

To Adjust

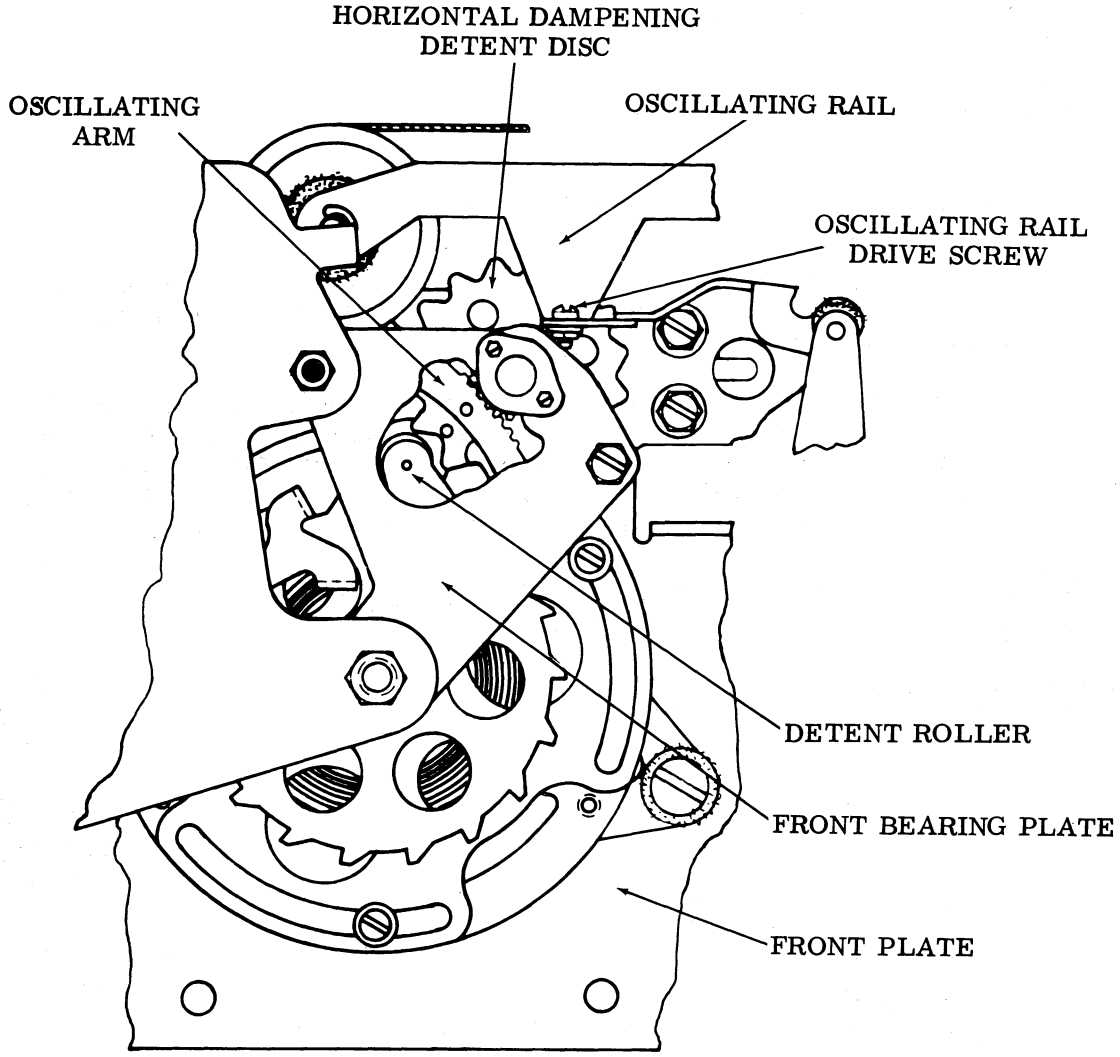
Loosen rear bearing plate clampscrews. Loosen front bearing plate clamp nuts. Close backlash using gear backlash adjustment pry point until slight tooth contact is felt while manually moving oscillating rail back and forth. Tighten rear bearing plate clampscrews and front bearing plate clamp nuts. Replace oscillating rail drive screw.

Affected Adjustment

FRONT BEARING PLATE ALIGNMENT (2.52)



2.54 Horizontal Positioning Mechanism (continued)



(Front View)

AGGREGATE - DAMPENER SYNCHRONIZATION

To Check

Codebar 1 spacing. All other codebars marking. All clutches disengaged (latched). Engage (trip) print hammer clutch and slowly rotate main shaft until detent roller drops into notch of horizontal dampening detent disc.

Requirement

Detent roller should drop squarely into the notch of horizontal dampening detent disc with no deflection or barely perceptible deflection of the detent disc.

To Adjust

Loosen oscillating rail drive screw. Engage (trip) print hammer clutch and rotate main shaft until detent roller is fully down. Without disturbing the setting, tighten oscillating rail drive screw.

2.55 Line Feed Mechanism (continued)

LINE FEED CLUTCH PHASING

To Check
Line feed clutch disengaged (latched).

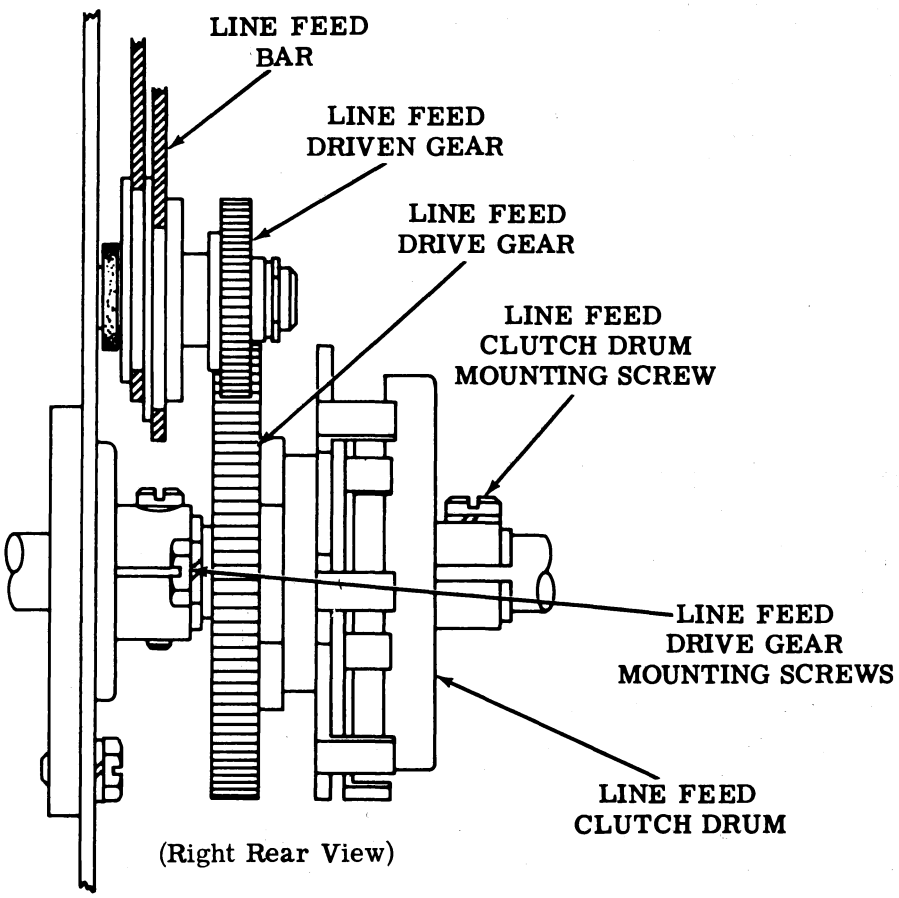
Requirement
Both line feed bars should engage teeth of spur gear.

To Adjust
(1) Loosen line feed drive gear mounting screws. Rotate drive gear until both line feed bars engage teeth of spur gear. Tighten line feed drive gear mounting screws. If this fails to meet the requirement proceed to (2).

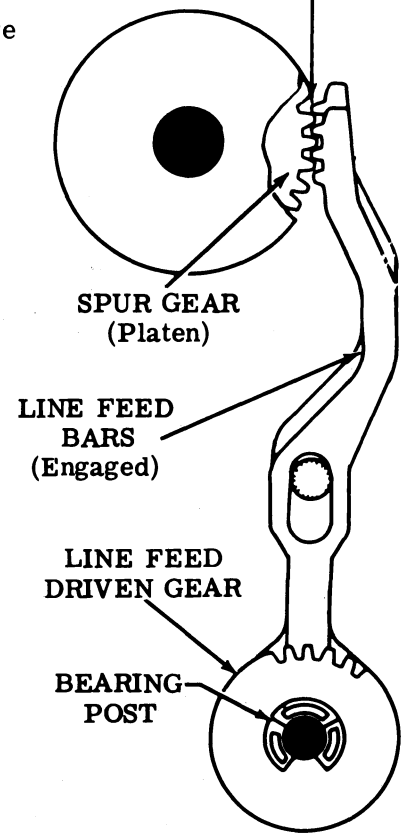
(2) If the requirement cannot be met by adjusting (1), remove line feed clutch drum mounting screw. Disengage the line feed drive gear from the line feed driven gear. Advance the line feed driven gear until requirement is met. Move line feed drive gear and line feed clutch to left as a unit and remesh the line feed drive and driven gears. Use line feed clutch drum mounting screw and remount line feed clutch drum.

Note: When moving the line feed clutch be careful not to disengage the clutch and separate the clutch shoe lever assembly from the drum.

Affected Adjustment
SPUR GEAR DETENT ECCENTRIC (2.56)



(Right Rear View)



(Right Side View)

2.56 Line Feed Mechanism (continued)

PLATEN DETENT BAIL SPRING

To Check
Detent seated between two teeth on line feed spur gear.

Requirement
Min 16 oz---Max 32 oz
to start detent bail moving.

LINE FEED BAR RELEASE LEVER SPRING

Requirement
Min 3 oz---Max 6 oz
to start line feed bar release lever moving.

SPUR GEAR DETENT ECCENTRIC

To Check
Line feed clutch disengaged (latched). Platen rotated until detent stud is seated between two teeth on spur gear. When handwheel is released, manually set teeth of line feed bars into engagement with teeth of spur gear.

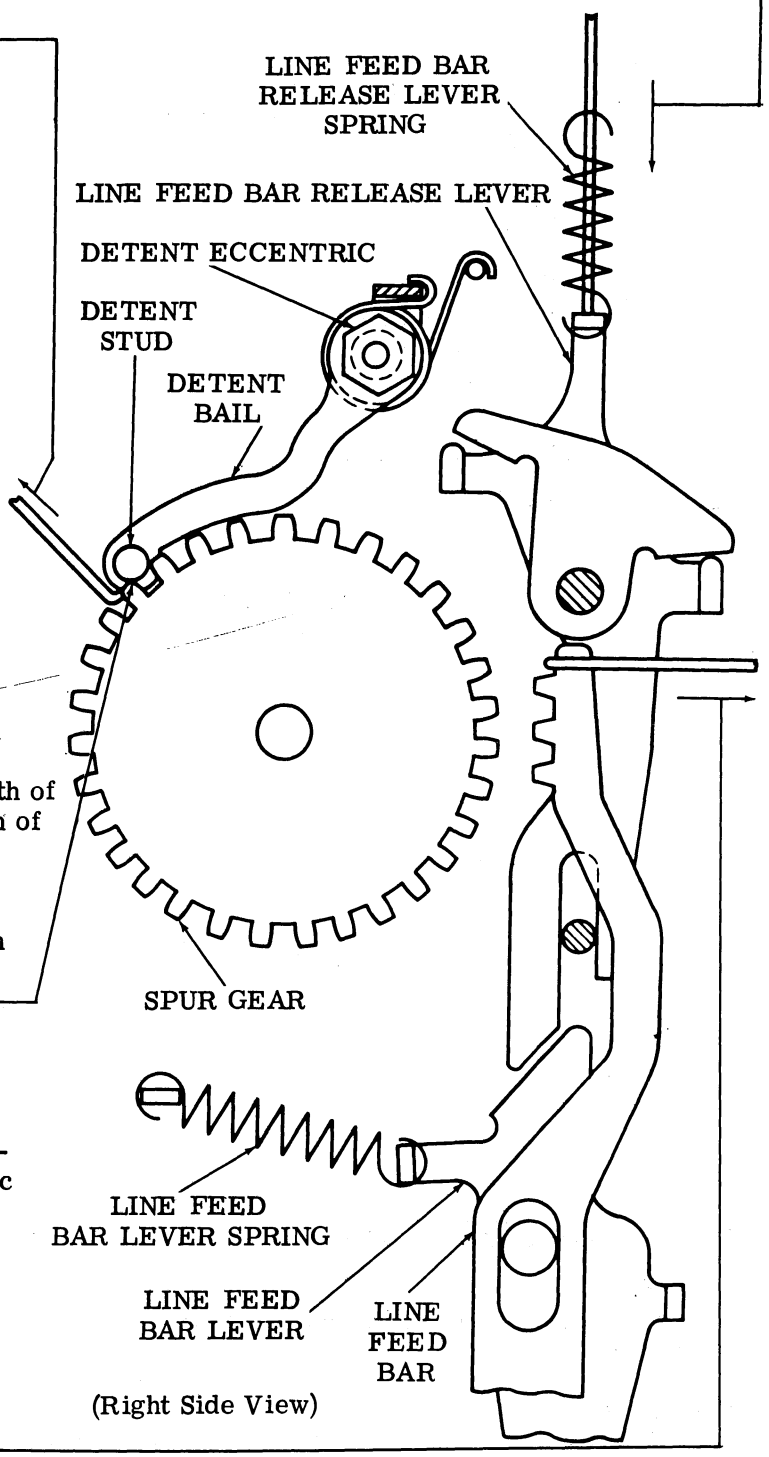
Requirement
Detent stud should contact one gear tooth and be
Max 0.010 inch
from other gear tooth.

To Adjust
Loosen detent eccentric mounting screw and rotate detent eccentric until requirement is met. Keep high part of eccentric upward. Tighten mounting screw.

LINE FEED BAR LEVER SPRING

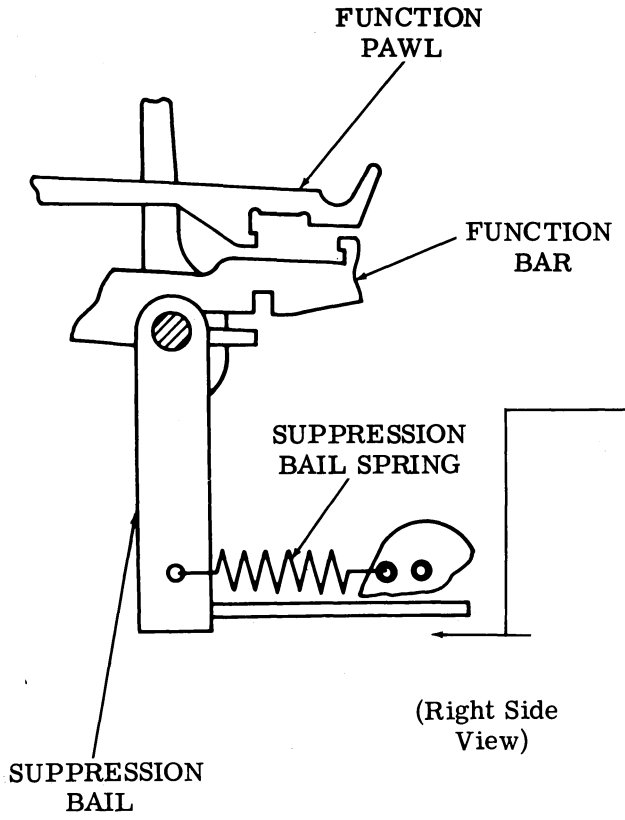
To Check
Left hand line feed bar in rear position.

Requirement
Min 20 oz---Max 26 oz
to start line feed bar moving.



(Right Side View)

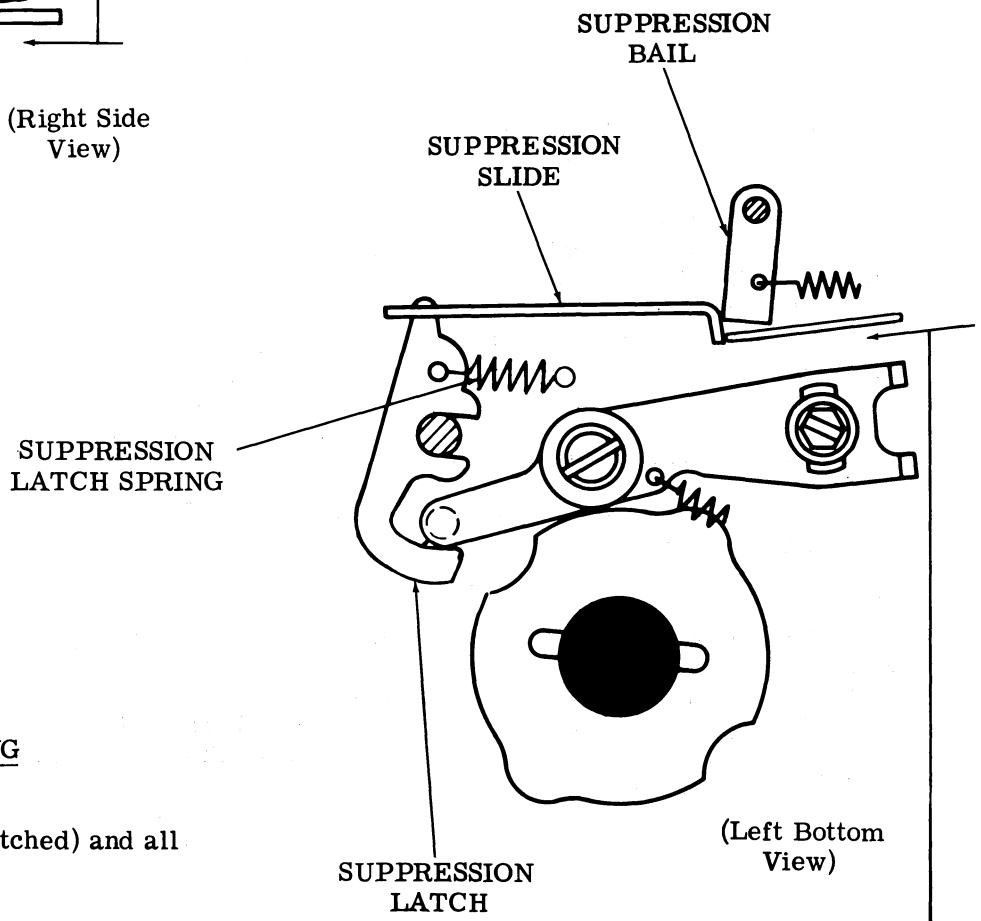
2.57 Function Mechanism



SUPPRESSION BAIL SPRING

To Check
All clutches disengaged (latched). Suppression slide held toward front of unit and all function pawls stripped. Unit in normal operating position. Apply scale near middle of suppression bail.

Requirement
Min 1-1/2 oz---Max 3 oz to start suppression bail moving.



SUPPRESSION LATCH SPRING

To Check
All clutches disengaged (latched) and all function pawls stripped.

Requirement
Min 3 oz---Max 5 oz to start suppression slide moving toward front of unit.

2.58 Function Mechanism (continued)

CAUTION: SEVERE WEAR TO THE POINT OF OPERATIONAL FAILURE WILL RESULT IF THE TYPING UNIT IS OPERATED WITHOUT EACH FUNCTION PAWL HAVING EITHER A RELATED FUNCTION BAR OR, WHERE A FUNCTION BAR IS MISSING, A RELATED FUNCTION PAWL CLIP TO HOLD THE FUNCTION PAWL AWAY FROM THE STRIPPER BLADE.

FUNCTION LEVER SPRING

Note: If a function lever operates either a contact or a slide, hold the contact or slide away from the function lever when checking the spring tension.

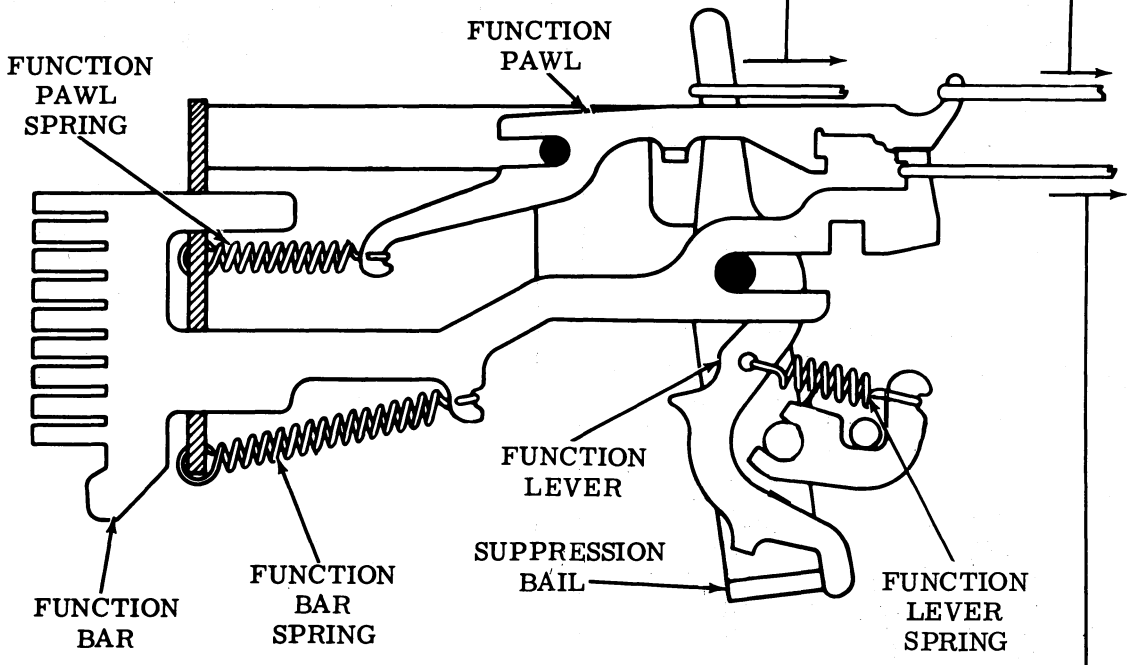
To Check
Function lever in unoperated position. Suppression bail held forward. Check each function lever spring.

Requirement
Min 1-1/2 oz---Max 2-3/4 oz to start function lever moving.

FUNCTION PAWL SPRING

To Check
Rear end of function pawl resting on function bar. Check each function pawl spring.

Requirement
Min 3 oz---Max 5 oz to start pawl moving.



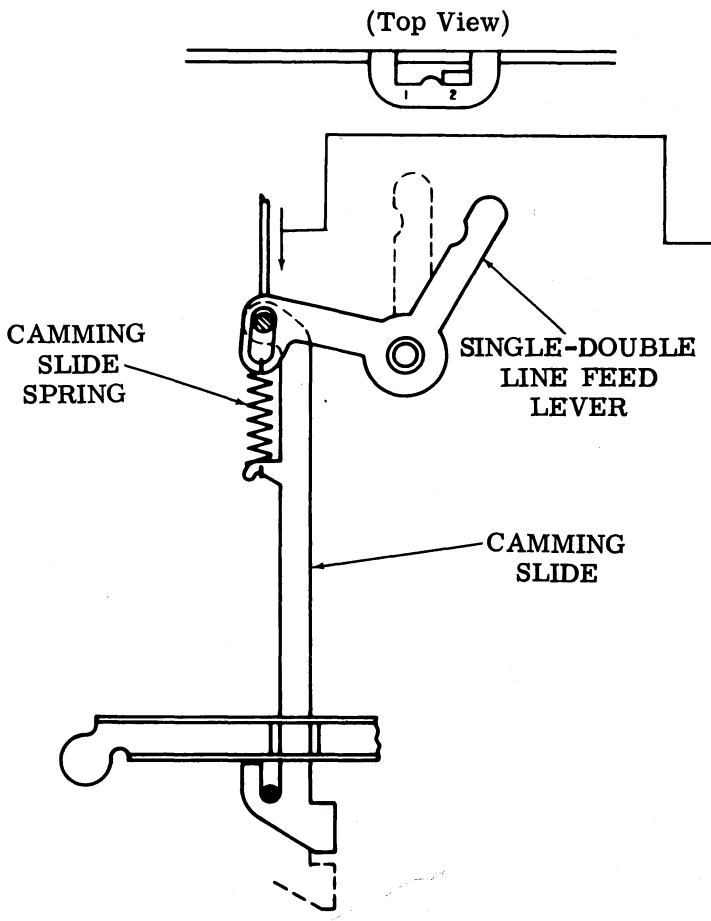
(Right Side View)

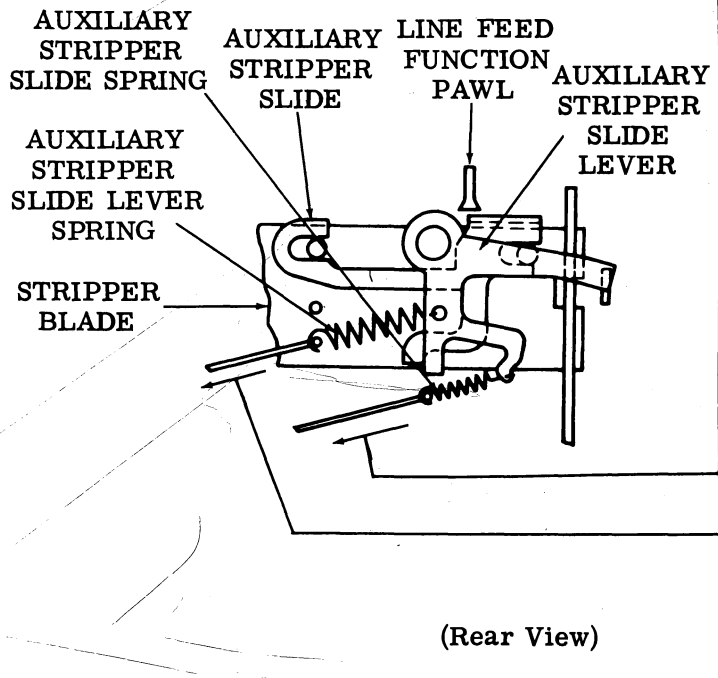
FUNCTION BAR SPRING

To Check
Function clutch disengaged (latched). Function pawl held away.

Requirement
Min 2-1/2 oz---Max 3-1/2 oz to start function bar moving.

2.59 Function Mechanism (continued)





SINGLE-DOUBLE LINE FEED SPRINGS

(1) To Check
Line feed clutch disengaged (latched).
Single-double line feed lever in double line feed position.

Requirement
Min 9 oz---Max 12 oz
to start camming slide moving down.

(2) To Check
Line feed clutch disengaged (latched).

Requirement
Min 3/4 oz---Max 1-1/2 oz
to extend auxiliary stripper slide spring to installed length.

(3) To Check
Line feed clutch disengaged (latched).

Requirement
Min 3 oz---Max 4 oz
to extend auxiliary stripper slide lever spring to installed length.

2.60 Function Mechanism (continued)

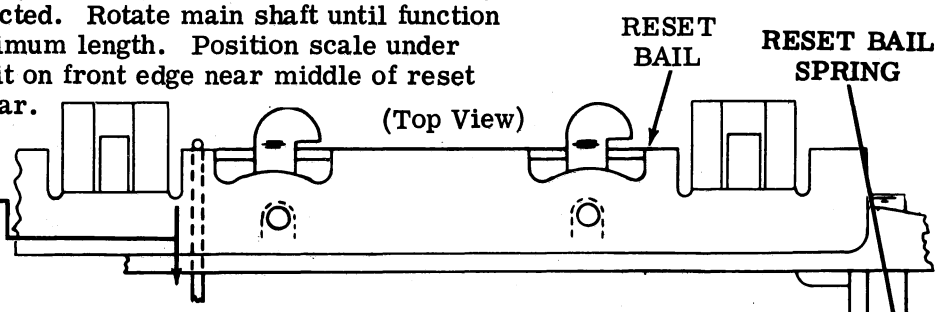
FUNCTION RESET BAIL SPRING

To Check

With typing unit upside down, hold suppression codebar marking so that no function bar is selected. Rotate main shaft until function reset bail springs are minimum length. Position scale under suppression bail and hook it on front edge near middle of reset bail. Pull scale toward rear.

Requirement

Min 7 oz---Max 20 oz to start reset bail moving.



FUNCTION RESET BAIL BLADE

Note: Measure clearance of function bars located in slots 1, 4, 11, 18, 23, 33, and 41. If there is no function bar in a designated slot, use the nearest function bar in higher numbered slot. (Slots are numbered from left to right when facing typing unit from rear).

To Check

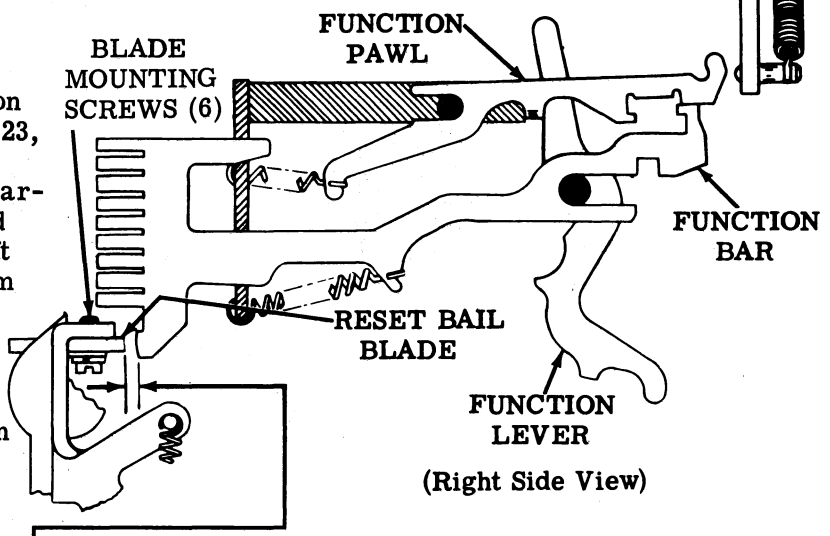
All clutches disengaged (latched). Function pawls unlatched. Function bar held in maximum rearward position.

Requirement

Min 0.015 inch---Max 0.025 inch clearance between function bar and reset bail blade.

To Adjust

Loosen reset bail blade mounting screws friction tight and position blade on reset bail. Tighten mounting screws.



FUNCTION PAWL

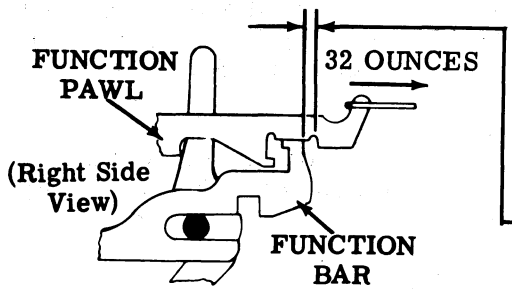
To Check

Position function clutch so that stop-lug on clutch disc is toward bottom of typing unit. Function pawls unlatched. Hold function lever in maximum rearward position (do not apply more than 2 pounds of tension on lever) and hold function pawl toward rear with a tension of 32 ounces. Repeat for each function bar in function box.

Note: As function bar load on reset bail affects overtravel, do not latch more than one pawl at a time.

Requirement

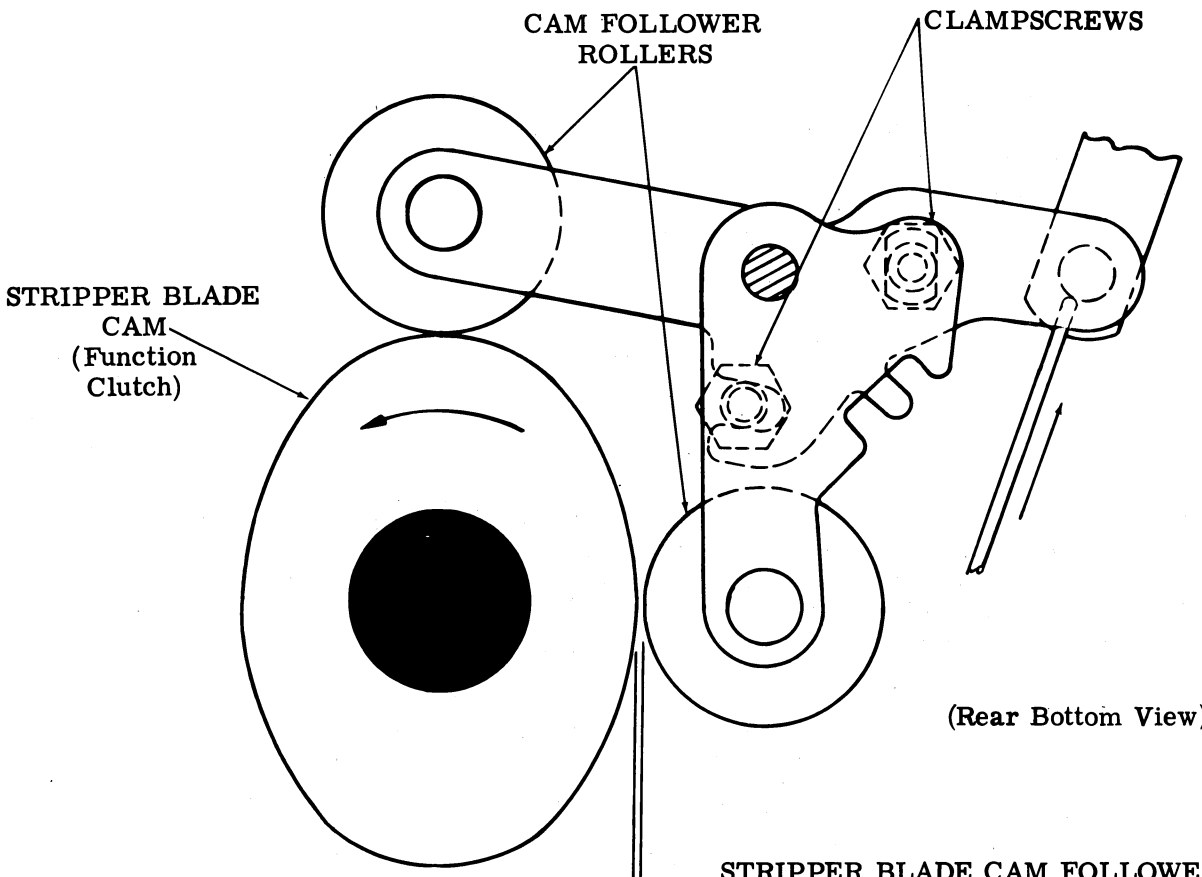
Function pawl should overtravel function bar by Min 0.002 inch



To Adjust

Refine FUNCTION RESET BAIL BLADE adjustment.

2.61 Function Mechanism (continued)



STRIPPER BLADE CAM FOLLOWER

To Check
Hold one cam follower roller against stripper blade cam. Check requirement. Repeat for other cam follower roller.

Requirement
Min some---Max 0.002 inch clearance between second cam follower roller and stripper blade cam.

Note: The "some" requirement is considered met when cam follower roller being checked turns freely while a 16-ounce force is applied upwards at end of lever.

To Adjust
Loosen clampscrews friction tight. Position cam followers. Tighten clampscrews.

Affected Adjustment
STRIPPER BLADE (2.62 or 2.63)

2.62 Function Mechanism (continued)

STRIPPER BLADE (EARLY DESIGN — STANDARD UNIT)

To Check

Single-double line feed lever positioned in single line feed position. Function clutch disengaged (latched). A function pawl pulled back and held down against stripper blade.

Requirement

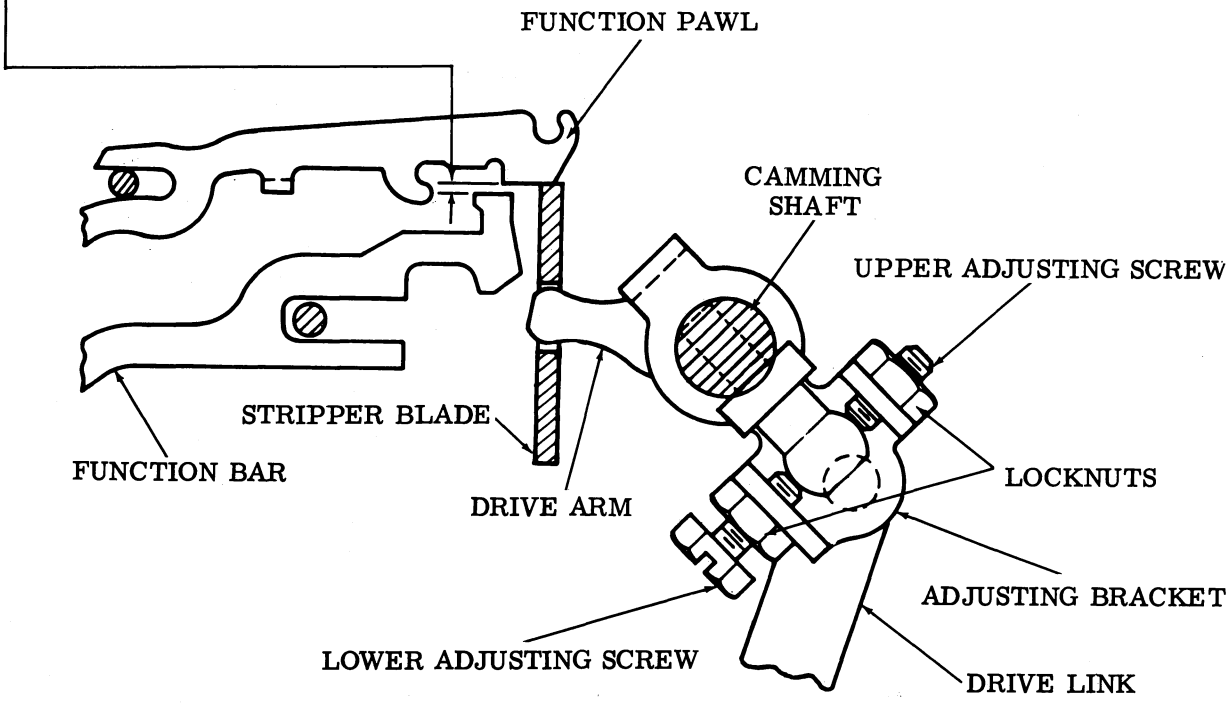
Min some---Max 0.015 inch clearance between function pawl and function bar when the play is taken up to make clearance a minimum. Take up play by applying a 32 oz downward force on the stripper blade.

Note: The some condition is considered met when the function pawl is resting against the stripper blade and allowed to move forward without catching on the function bar.

To Adjust

Loosen locknuts. Rotate adjusting screws. Tighten adjusting screws and locknuts.

CAUTION: DO NOT TIGHTEN ADJUSTING SCREW SO HARD AS TO DEFORM ADJUSTING BRACKET. CHECK CLEARANCE AT BOTH ENDS OF FUNCTION (STUNT) BOX.



(Right Side View)

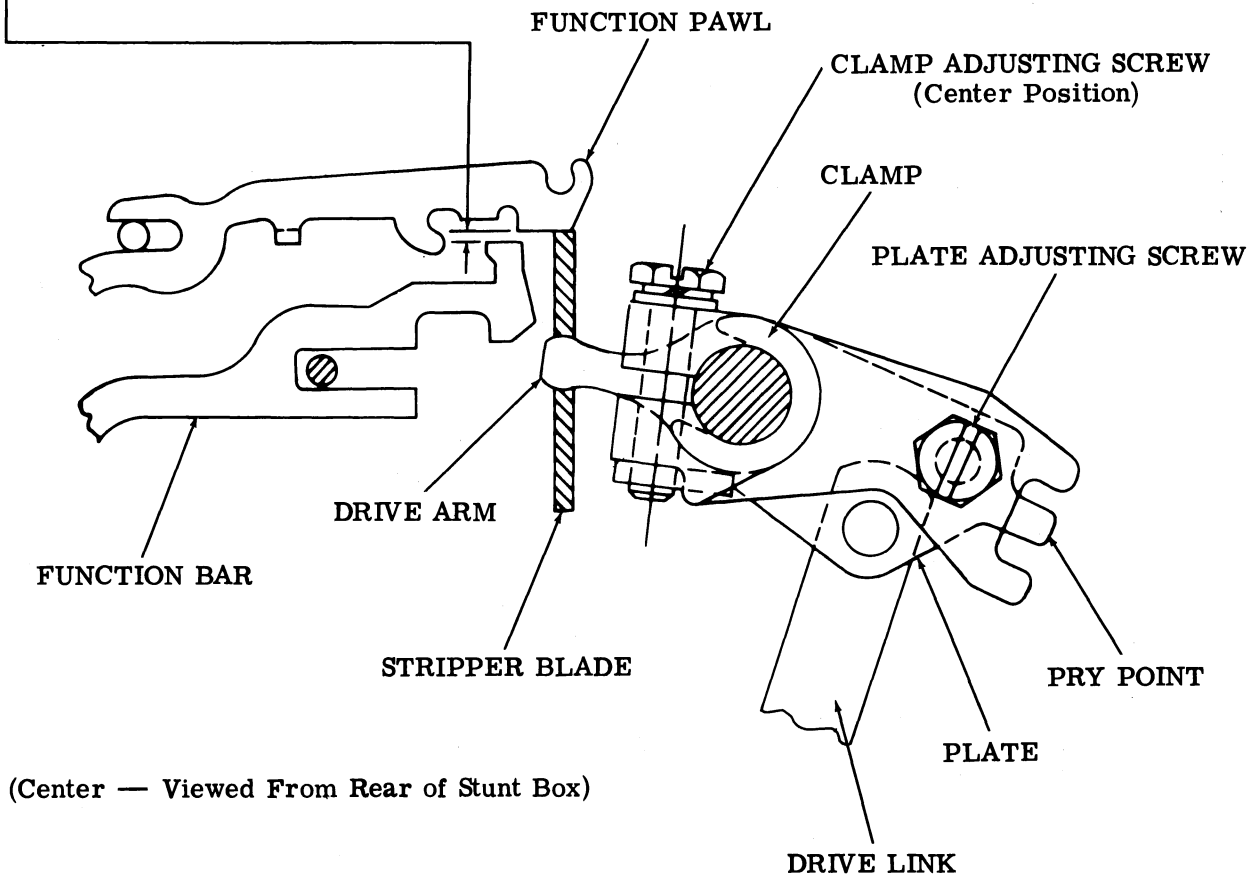
2.63 Function Mechanism (continued)

STRIPPER BLADE (LATE DESIGN — STANDARD UNIT)

To Check
Single-double line feed lever positioned in a single line feed position. Function clutch disengaged (latched). A function pawl pulled back and held down to rest against stripper blade.

Requirement
Min some---Max 0.015 inch
clearance between function pawl and function bar when play is taken up to make clearance a minimum. To take up play apply a 32 oz downward force on the stripper blade. Check at left and right ends of stunt box.

Note: The some condition is considered met when a function pawl is resting against the stripper blade and allowed to move forward without catching on the function bar.



(Center — Viewed From Rear of Stunt Box)

(1) To Adjust
Loosen clamp adjusting screw and tighten plate adjusting screw with pry point in center position. Latch function pawl on right side of stunt box. Raise stripper blade until function pawl is stripped. Then tighten clamp adjusting screw.

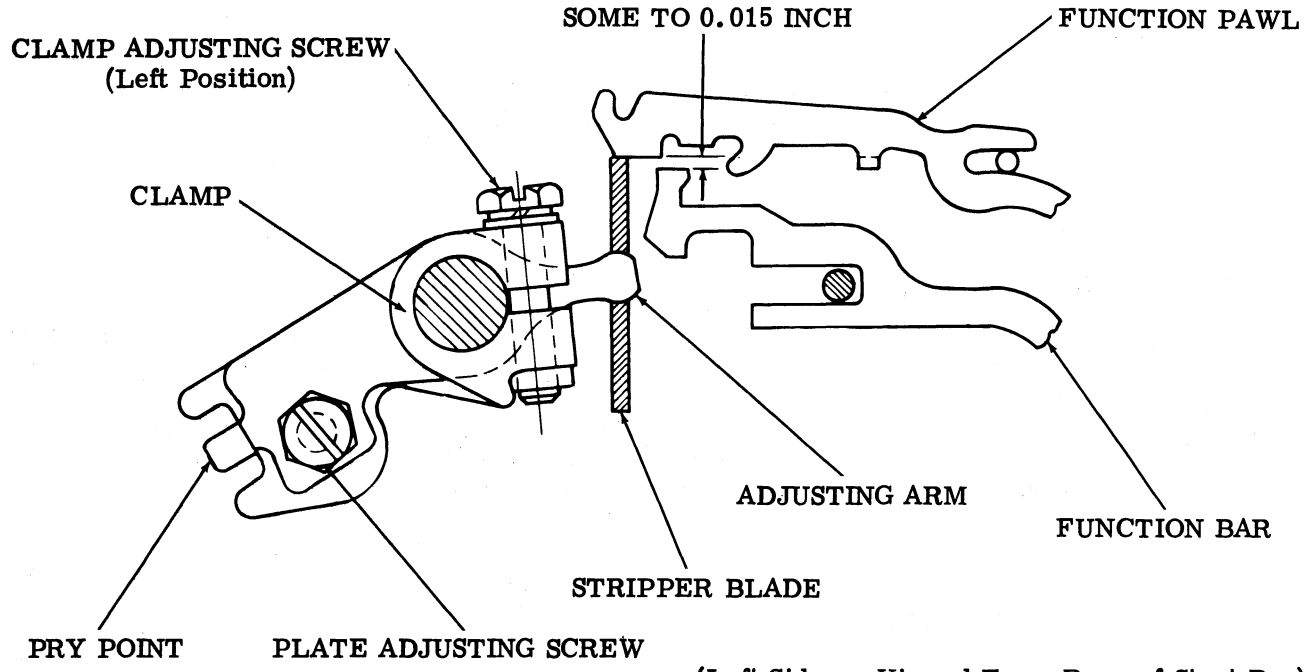
(Adjustment continued on following page.)

2.64 Function Mechanism (continued)

STRIPPER BLADE (LATE DESIGN — STANDARD UNIT) (continued)

(2) To Adjust

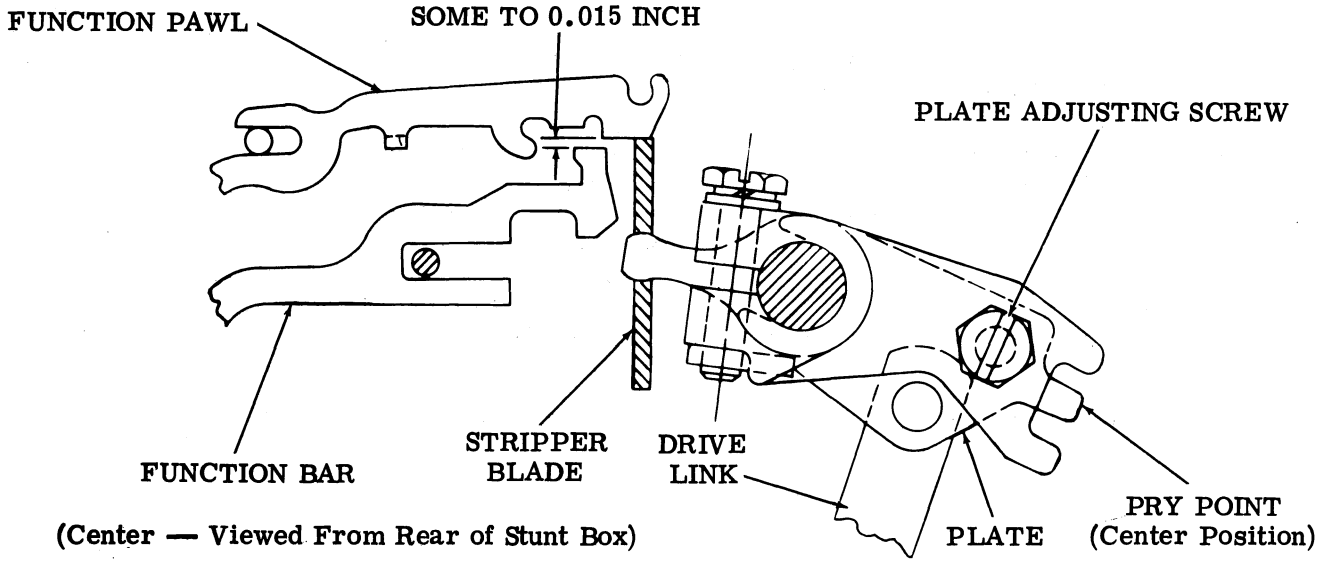
Loosen clamp adjusting screw and tighten plate adjusting screw with pry point in center position. Latch function pawl on left side of stunt box. Raise stripper blade until function pawl is stripped and then tighten clamp adjusting screw. Loosen plate adjusting screw. Use pry point to adjust function pawl to clear function bar by some to 0.015 inch. Tighten plate adjusting screw.



(Left Side — Viewed From Rear of Stunt Box)

(3) To Adjust

Return to the center stripper blade position, loosen the plate adjusting screw, and use pry point to adjust function pawl to clear function bar by some to 0.015 inch. Tighten plate adjusting screw.



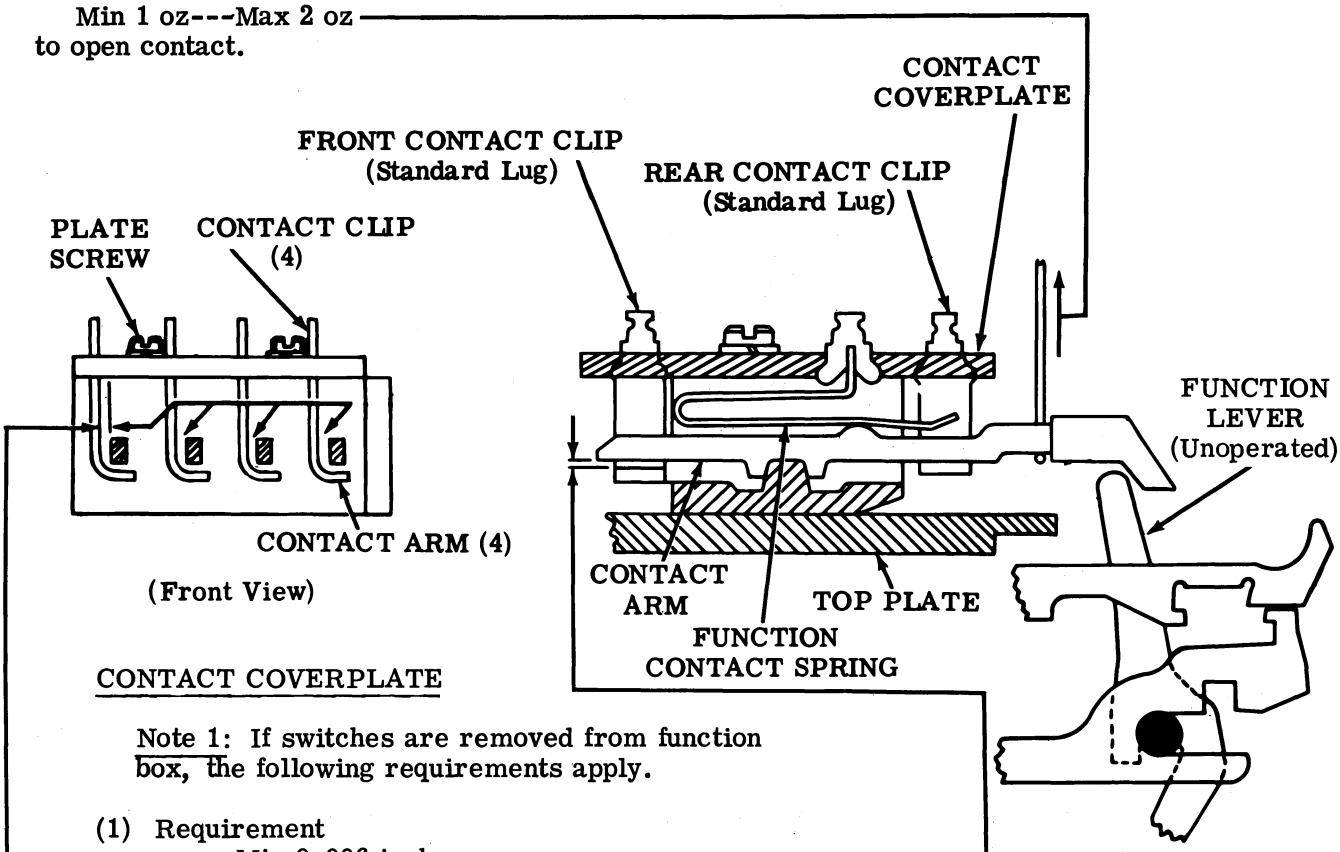
(Center — Viewed From Rear of Stunt Box)

2.65 Function Mechanism (continued)

FUNCTION CONTACT SPRING

To Check
Function lever in position shown to close contact.

Requirement
Min 1 oz---Max 2 oz to open contact.



CONTACT COVERPLATE

Note 1: If switches are removed from function box, the following requirements apply.

(1) Requirement
Min 0.006 inch clearance between contact arm and vertical portion of contact clip.

Note 2: If switch has front and rear contact clips, clearance applies to both front and rear.

(2) Requirement (for switches with front and rear contacts)
Min 0.008 inch gap between formed-over end of front contact clip and bottom of contact arm when rear contact is closed.

To Adjust
Loosen plate screws and position contact coverplate.
Tighten screws.

Note 3: If requirement (2) cannot be met, replace switch.

2.66 Backspace Mechanism — Wide Platen Unit

Note: The backspace mechanism for wide platen has a specific group of adjustments. The removing adjustments for wide platen are integrated with the standard adjustments.

BACKSPACE LATCHLEVER

To Check

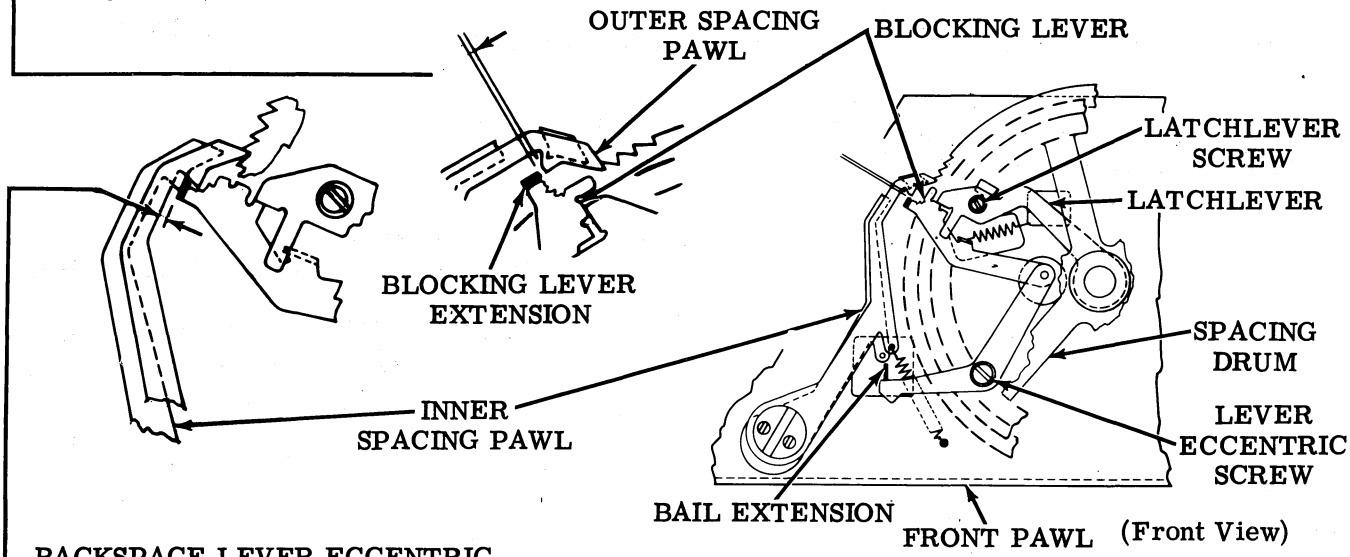
All clutches disengaged (latched). The typebox carriage should be approximately in the center of the platen. Select the backspace function (4 and 8 marking) in the selector. Trip the codebar positioning clutch and rotate the main shaft until the blocking lever just latches on its lower latching surface. The outer spacing pawl should be positioned higher than the inner pawl.

Requirement

Min 0.030 inch---Max 0.045 inch
clearance between the blocking lever extension and the outer spacing pawl at the point of least clearance.

To Adjust

Loosen the latchlever screw friction tight. Position the latchlever to meet requirement. Tighten latchlever screw.



BACKSPACE LEVER ECCENTRIC

To Check

All clutches disengaged (latched). With the typebox positioned in the center of the platen and the backspace function (4 and 8 marking) in the selector, trip the codebar positioning clutch. Rotate the main shaft slowly until the blocking lever just latches on its lower latching surface.

Requirement

Measure the clearance between the top of the blocking lever extension and the outer spacing pawl. Record this clearance.

Min some---Max 0.015 inch
reduced clearance when the main shaft is rotated for maximum travel of blocking lever.

To Adjust

Loosen lever eccentric screw nut friction tight. Turn eccentric to meet requirement. Tighten nut on eccentric. The high part of the eccentric should be to the left.

Note: Recheck requirement.

2.67 Backspace Mechanism — Wide Platen Unit (continued)

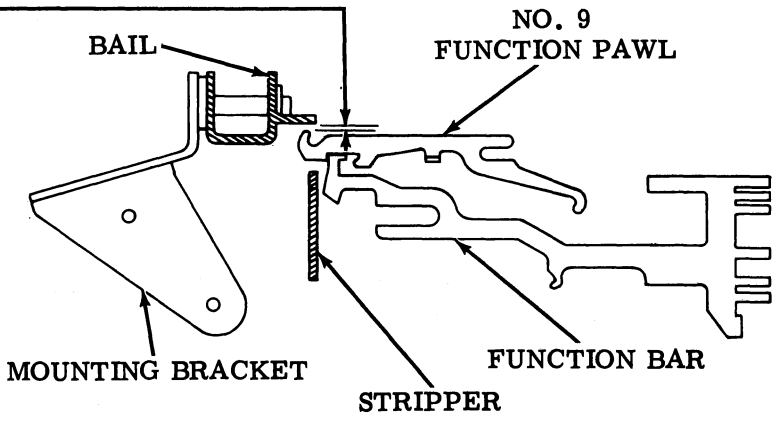
BACKSPACE BAIL EXTENSION CLEARANCE

To Check

All clutches disengaged (latched). Select the backspace function (4 and 8 marking) in the selector. Trip the codebar positioning clutch and rotate the main shaft until the no. 9 function pawl is fully selected.

Requirement (Preliminary)

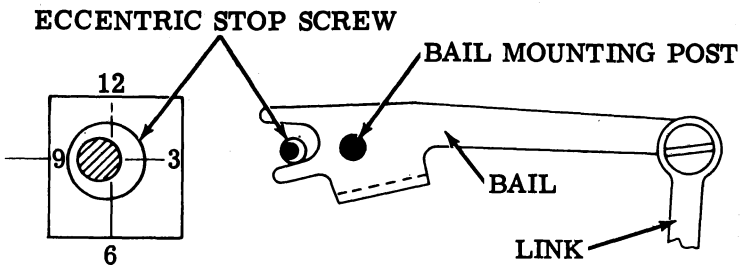
Min some---Max 0.020 inch clearance between the end of the function pawl and bail extension with the stripper blade away from the function pawl.



To Adjust

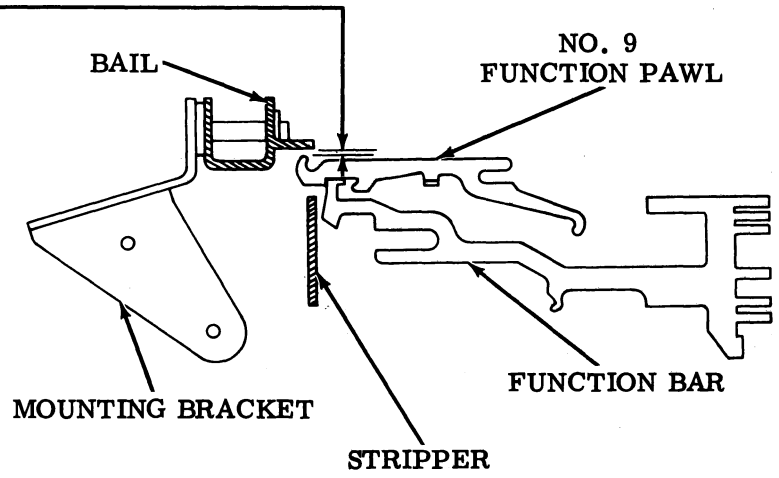
Locate the highest part of the eccentric stop screw at the 3 o'clock position as viewed from the rear. Loosen the bracket mounting screws and position the mounting bracket to meet the requirement. Tighten bracket mounting screws.

Note: The link through its eccentric should be positioned so that it does not interfere with the adjustment.



Requirement (Final)

Min 0.002 inch---Max 0.008 inch clearance between the end of the function pawl and bail extension with the stripper blade away from the function pawl.



To Adjust

Loosen eccentric stop screw friction tight. Rotate the eccentric stop screw to meet requirement. Tighten locking nut.

Note: Recheck the requirement. The high part of the eccentric should be toward the bail mounting post.

2.68 Backspace Mechanism — Wide Platen Unit (continued)

SPACING CLUTCH STOP BAIL

To Check

All clutches disengaged (latched). Apply a spring hook over the no. 9 function pawl, and pull the pawl between the bail extension and the stripper blade, to its rearmost position. The spring hook shaft should ride the underside of the spacer rod when pulling the function pawl.

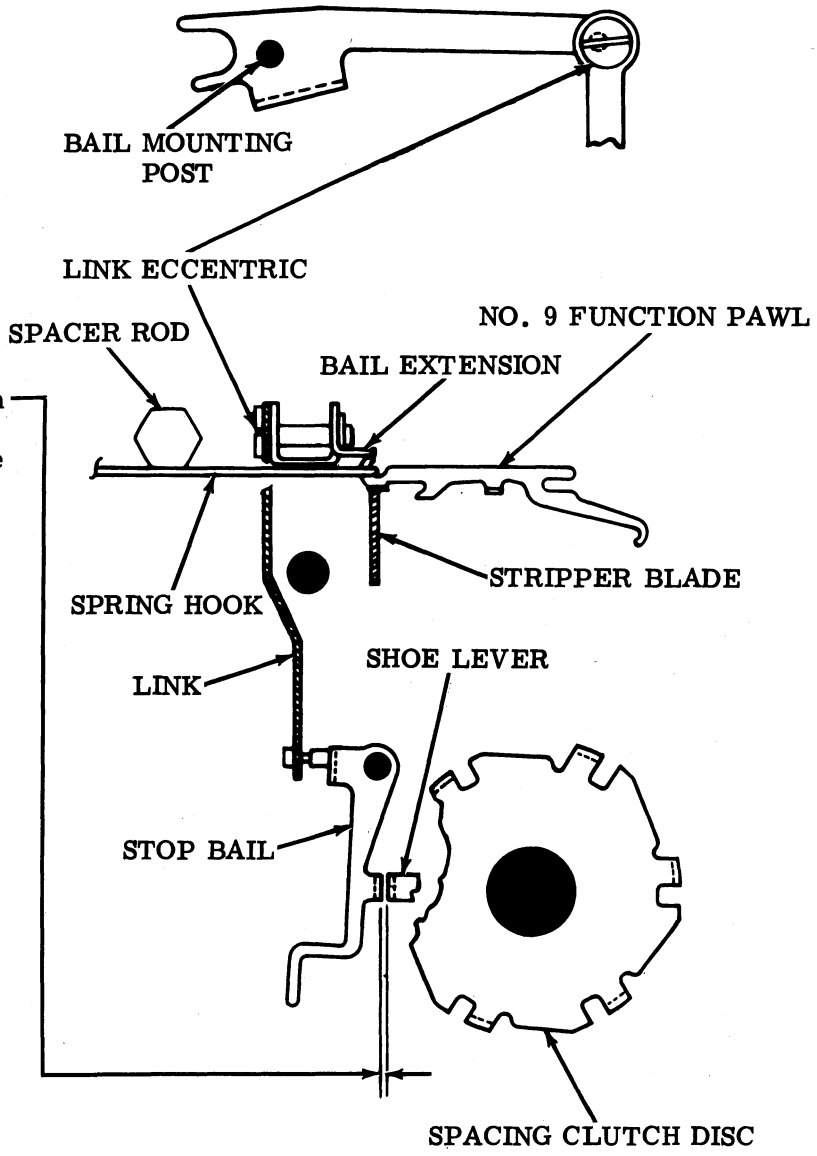
Requirement

Min 0.010 inch---Max 0.025 inch clearance between the lug on the spacing clutch stop bail and the shoe lever of the spacing clutch.

To Adjust

Loosen link eccentric friction tight. Rotate the eccentric to meet the requirement. Tighten the locknut. The high part of the eccentric should be away from the bail mounting post.

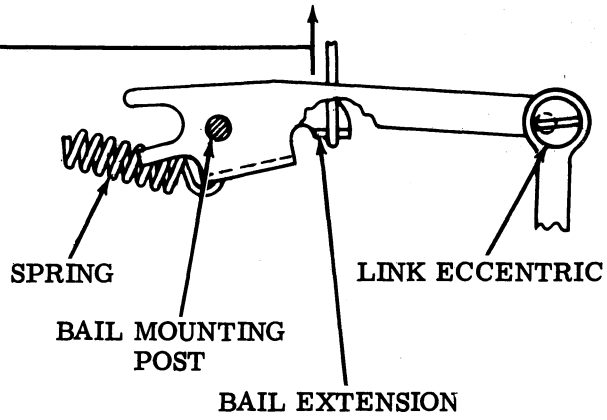
Note: After tightening eccentric locknuts, recheck all backspace adjustments.



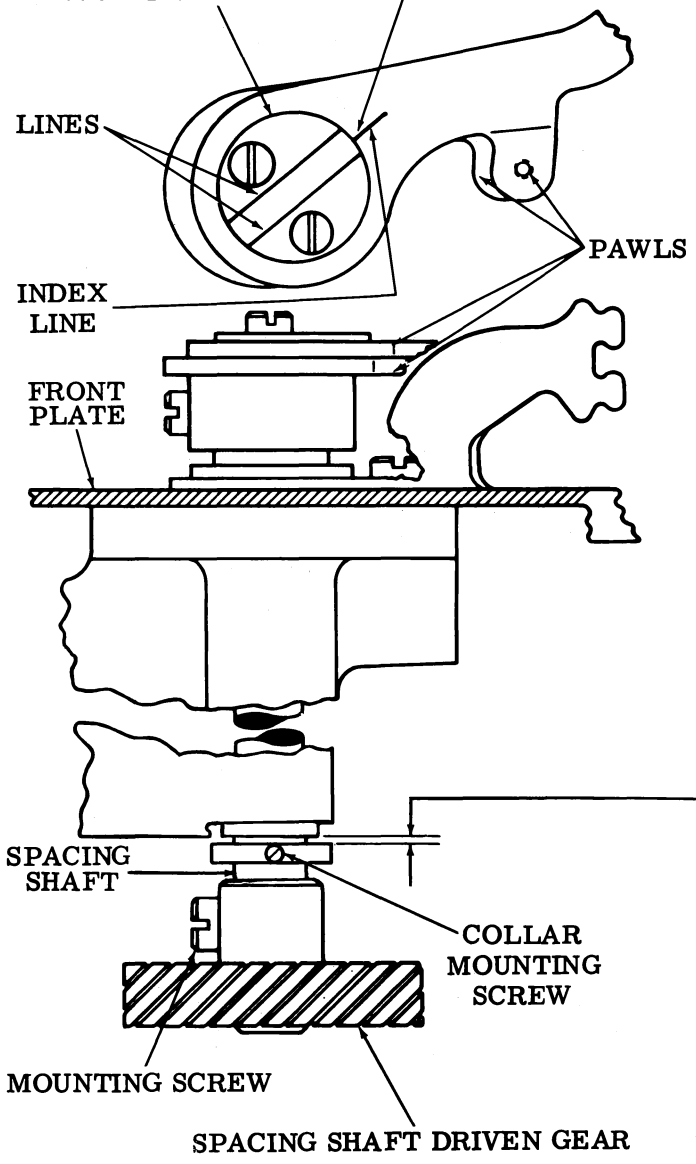
BACKSPACE BAIL SPRING

Requirement

Min 1-1/2 oz---Max 3 oz to start the bail moving.



2.69 Spacing Mechanism



SPACING GEAR PHASING

To Check
Spacing clutch disengaged (latched).

Requirement
Index line should be as near as possible to center of two lines on pawl retaining washer.

To Adjust
Remove mounting screw from spacing shaft driven gear. Hold pawls in alignment and engage spacing shaft driven gear with spacing drive gear at a point where spacing shaft driven gear mounting screw hole is in line with tapped hole in spacing shaft. Start, run down, and tighten mounting screw.

Note: If requirement cannot be met, engage (trip) spacing clutch and rotate main shaft to next stop. Disengage (latch) spacing clutch and repeat adjusting procedure.

Affected Adjustment
LEFT HAND MARGIN (2.86 and 2.87)

SPACING SHAFT ENDPLAY

To Check
Take up play in spacing shaft toward spacing gear.

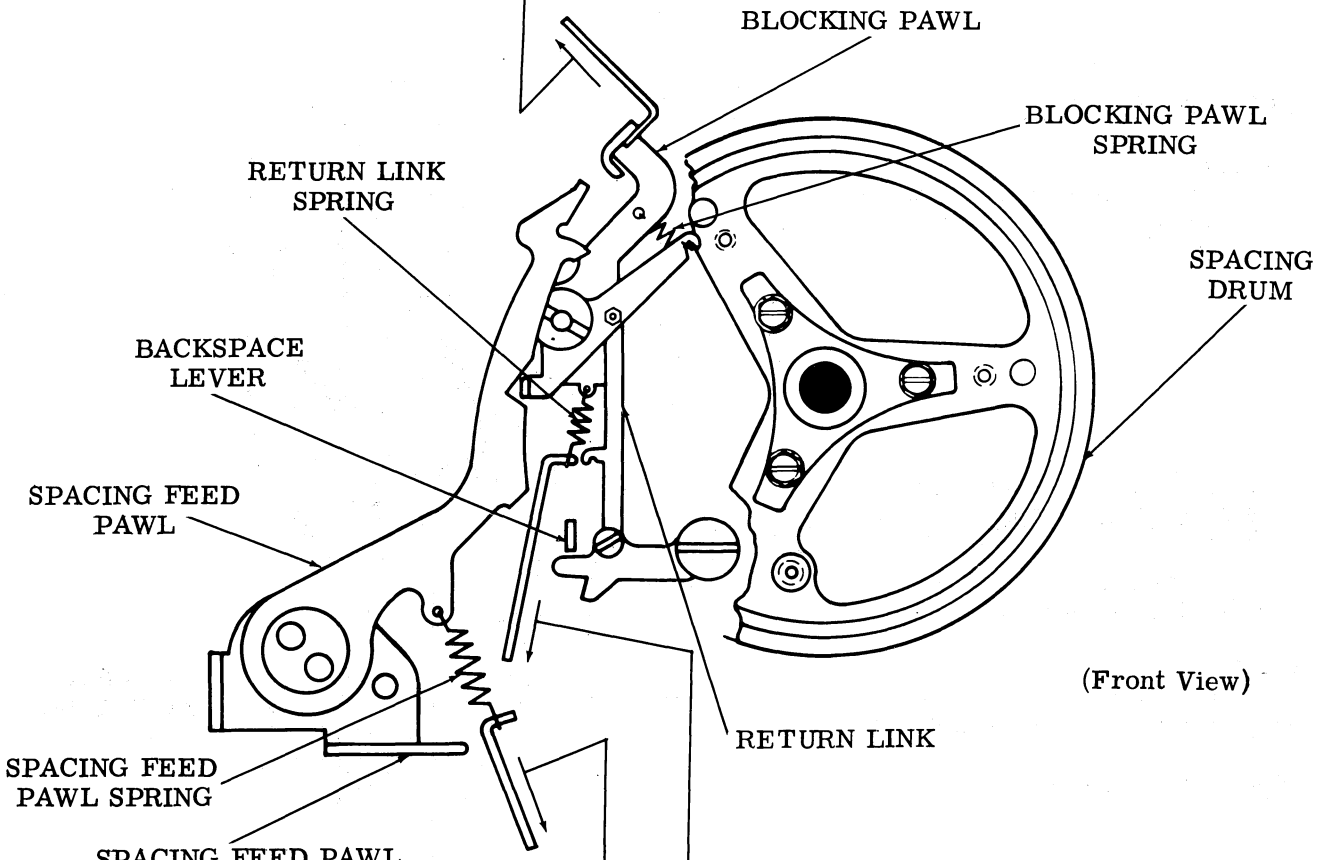
Requirement
Min some---Max 0.010 inch between bearing and collar.

To Adjust
Loosen collar mounting screw. Position collar to meet requirement. Tighten mounting screw.

2.70 Spacing Mechanism (continued)

BLOCKING PAWL SPRING (EARLY DESIGN)

Requirement
Min 8 oz---Max 10 oz
to start blocking pawl moving.



SPACING FEED PAWL SPRING (EARLY DESIGN)

Requirement
Min 3 oz---Max 7-1/2 oz
to pull spacing feed pawl spring
to installed length.

Note: Check two springs.

RETURN LINK SPRING (EARLY DESIGN)

Requirement
Min 4 oz---Max 6 oz
to pull return link spring to
installed length.

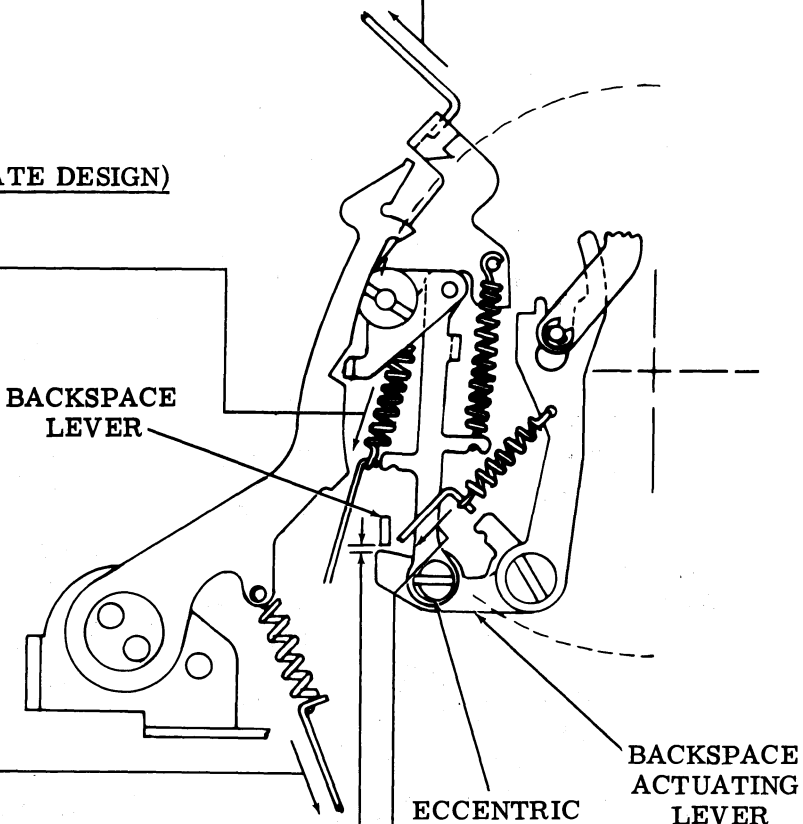
2.71 Spacing Mechanism (continued)

BLOCKING PAWL SPRING (LATE DESIGN)

Requirement
Min 16 oz---Max 26 oz
to start blocking pawl moving.

BACKSPACE RETURN SPRING (LATE DESIGN)

Requirement
Min 18 oz---Max 30 oz
to pull spring to its installed length.



SPACING FEED PAWL SPRING (LATE DESIGN — STANDARD UNIT)

Note: Refer to 2.73 for Wide Platen Unit adjustment.

Requirement
Min 6 oz---Max 7-1/2 oz
to pull spring to installed length.

Note: Check two springs.

BACKSPACE ACTUATING LEVER (LATE DESIGN)

To Check
All clutches disengaged.

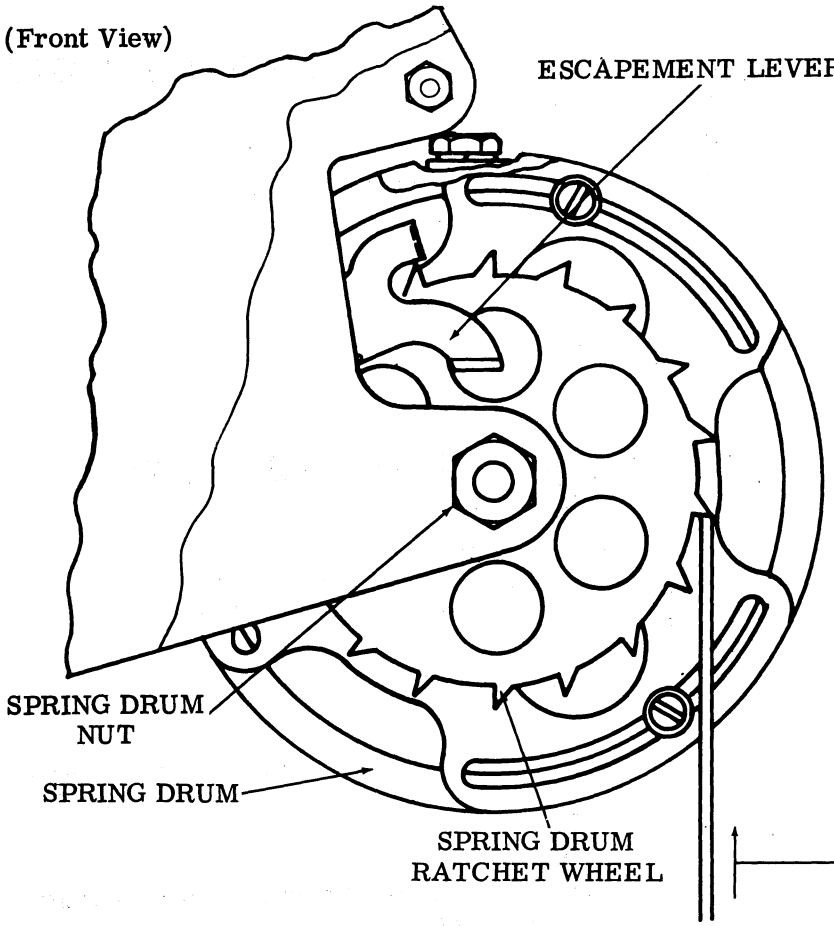
Requirement
Min some---Max 0.020 inch
between backspace bellcrank and the backspace actuating lever.

To Adjust
Loosen nut on eccentric screw. Turn eccentric screw to meet requirement. Tighten nut on eccentric.

BLOCKING LEVER SPRING (LATE DESIGN)

Requirement
Min 6 oz---Max 10 oz
to pull spring to its installed length.

2.72 Spacing Mechanism (continued)



CARRIAGE RETURN SPRING (STANDARD UNIT)

Note: Refer to 2.73 for Wide Platen Unit adjustment.

To Check
Spacing drum fully returned.
Spring drum nut removed.

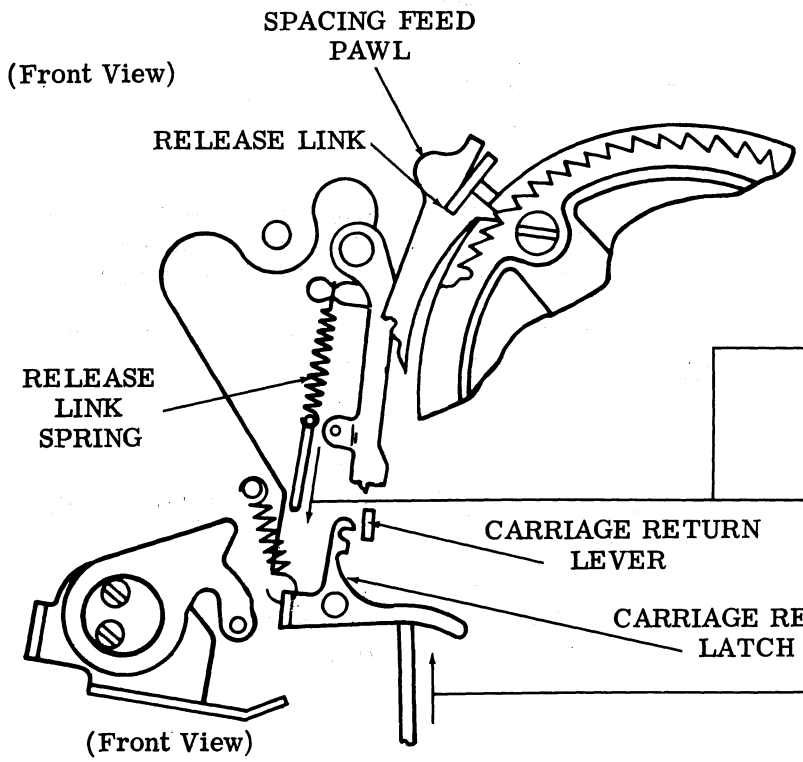
Requirement
Min 5-1/4 lb---Max 5-3/4 lb to start spring drum ratchet wheel moving.

To Adjust
Rotate spring drum ratchet wheel to increase tension. Operate escapement lever to decrease tension. Replace spacing drum nut.

CARRIAGE RETURN LATCH SPRING

To Check
Carriage fully returned.

Requirement
Min 1-1/2oz---Max 3 oz to start carriage return latch moving.



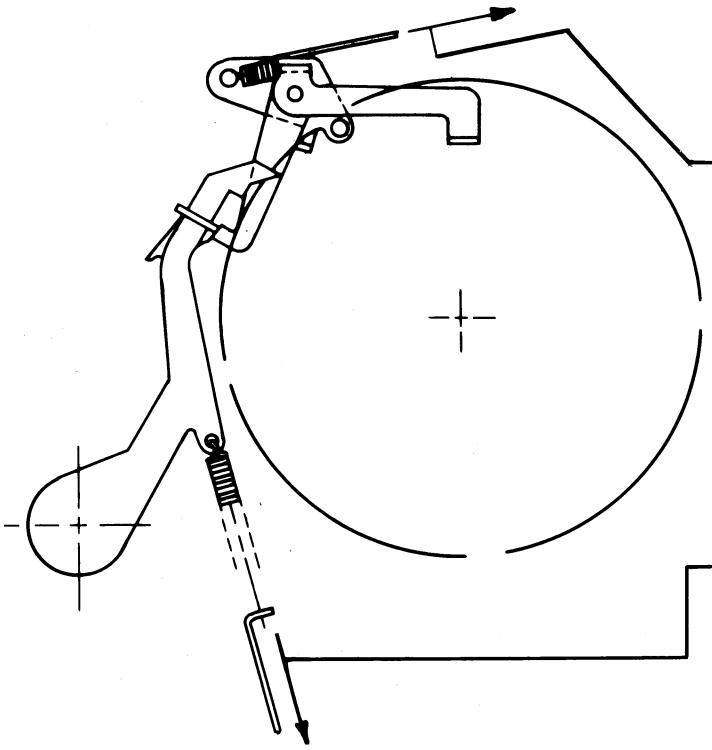
SPACING FEED PAWL RELEASE LINK SPRING (STANDARD UNIT)

To Check
Carriage fully returned.

Requirement (Early Design)
Min 2 oz---Max 4 oz to pull release link spring to installed length.

Requirement (Late Design)
Min 5 oz---Max 10 oz to pull release spring to installed length.

2.73 Spacing Mechanism (continued)



MANUAL CARRIAGE SPRING (WIDE PLATEN UNIT)

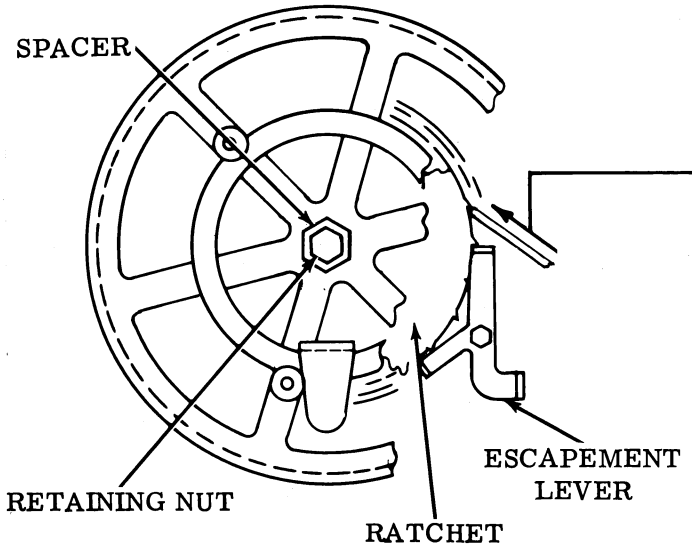
Requirement
Min 2 oz---Max 4 oz
to start bail moving.

SPACING FEED PAWL SPRING (WIDE PLATEN UNIT

Requirement
Min 5 oz---Max 7-1/2 oz
to pull spring to installed length.

Note: Check two springs.

CARRIAGE RETURN SPRING (WIDE PLATEN UNIT)



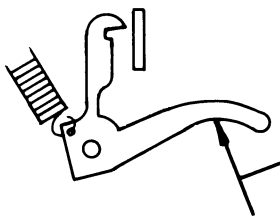
To Check
Spacing drum fully returned. Spring drum nut loosened.

Requirement
Min 5 lb---Max 5-1/2 lb
to start ratchet wheel moving.

To Adjust
Rotate spacer counterclockwise to increase the tension. Operate escapement lever to decrease tension. Tighten retaining nut.

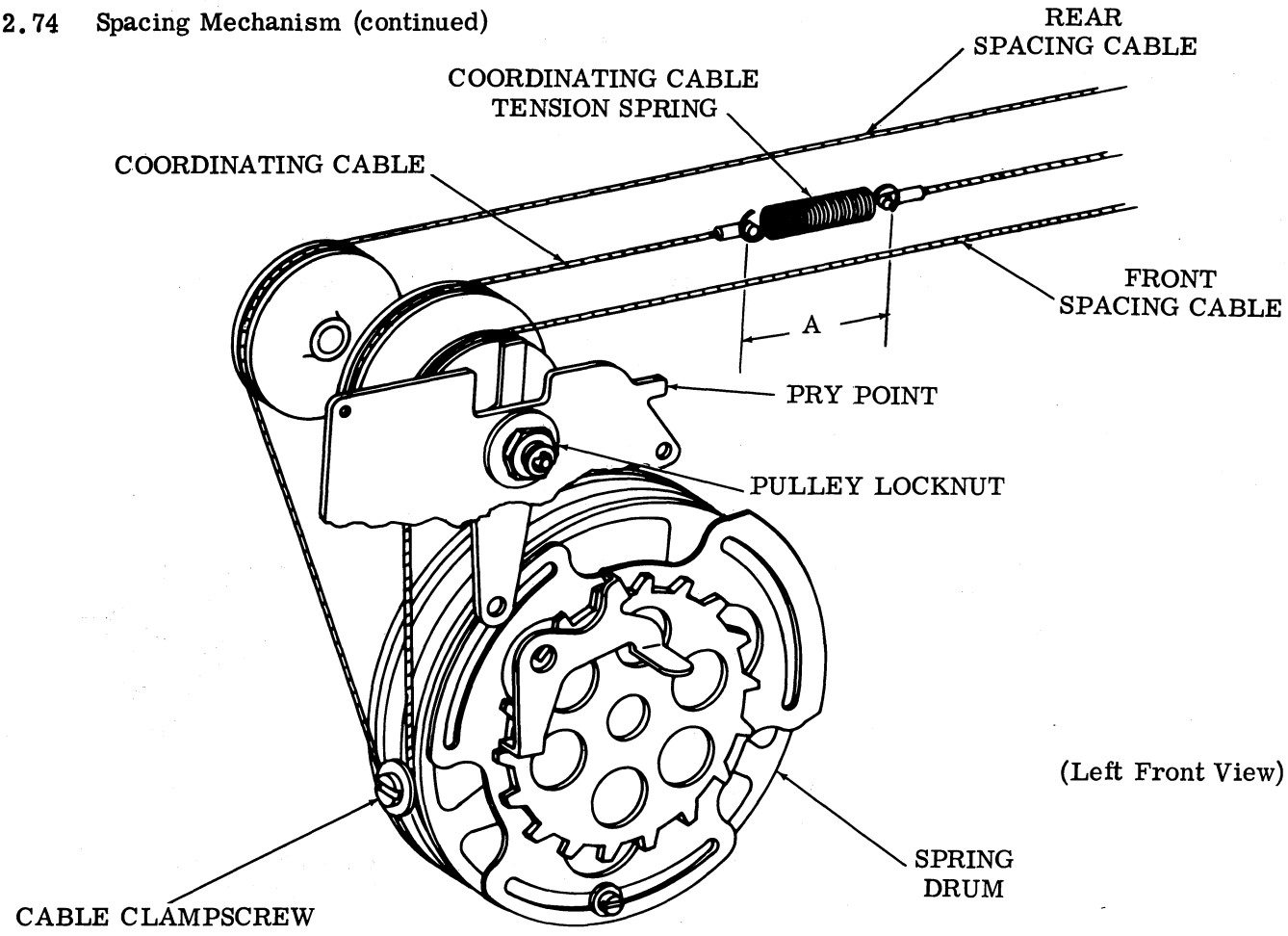
Note: Check CARRIAGE RETURN LATCH SPRING adjustment (2.72).

CARRIAGE RETURN LATCH SPRING (WIDE PLATEN UNIT)



Requirement
Min 1-1/2 oz---Max 3 oz
to start latch moving.

2.74 Spacing Mechanism (continued)



COORDINATING CABLE SPRING TENSION AND EQUALIZATION (STANDARD UNIT)

To Check
Carriage at left hand margin.

(1) Requirement
Length "A" (see illustration) should measure 1-1/2 ±1/32 inches.

(2) Requirement
Tension in front and rear spacing cables should be approximately equal.

To Adjust
Loosen cable clampscrew and pulley locknut. Using pry point, apply tension to the cables until requirement (1) is met. Equalize tension in front and rear spacing cables by lightly pulling on cable that is the tightest. Tighten pulley locknut and cable clampscrew.

Note 1: Cable spring tension should be removed before removing print hammer mounting plate.

Note 2: Coordinating cable tension spring should require 7 ±1/2 pound to extend it 1-1/2 inch.

Affected Adjustment
LEFT HAND MARGIN (2.86, 2.87, and TABLE A)

2.75 Spacing Mechanism (continued)

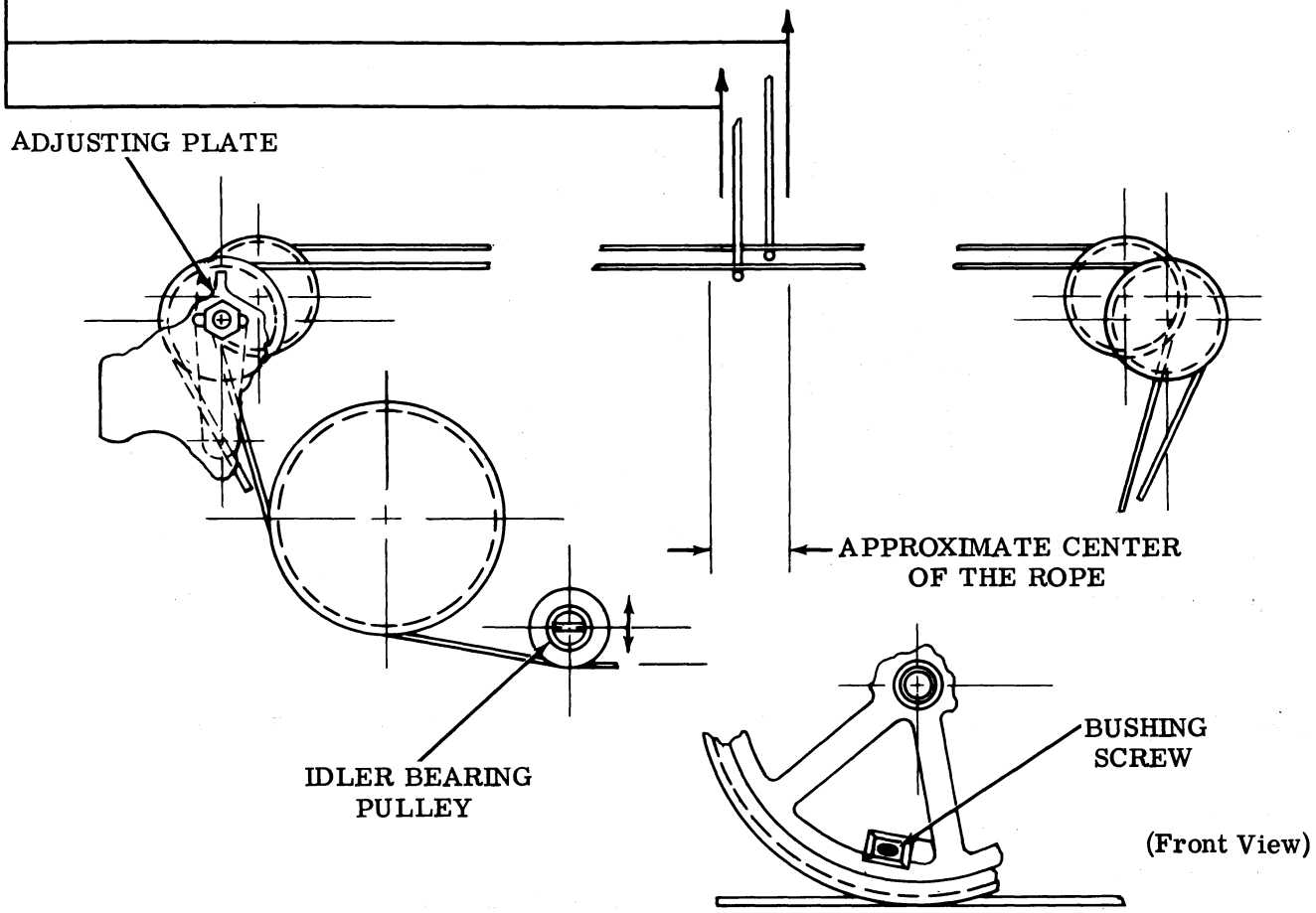
CABLE TENSION — TWO CABLES (WIDE PLATEN UNIT)

To Check

Print hammer carriage fully returned to the left.

Requirement

Min 14 oz---Max 18 oz to pull the cable up a distance of 3/8 inch when measured at the approximate center of the cables.



To Adjust

Place the adjusting plate and idler bearing pulley in the center of their respective slots. Loosen the screw that secures the bushing that the cable pivots around. Increase or decrease tension on the rear cable to meet the requirement. Tighten bushing screw. Loosen adjusting plate nut, and using pry lug, increase or decrease tension on the front cable to meet the requirement. Tighten nut. Refinement may be accomplished by moving the idler bearing pulley.

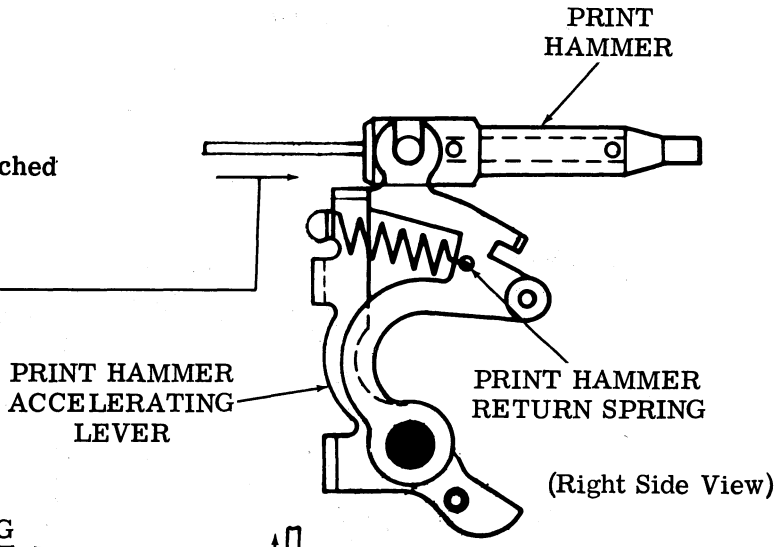
CAUTION: NEVER ALLOW THE PULLEYS TO BE POSITIONED SO THE CABLE ASSEMBLIES TOUCH THE UNDERSIDE OF THE TRANSFER SLIDE.

2.76 Printing Mechanism

PRINT HAMMER RETURN SPRING

To Check
Print hammer accelerating lever in latched position.

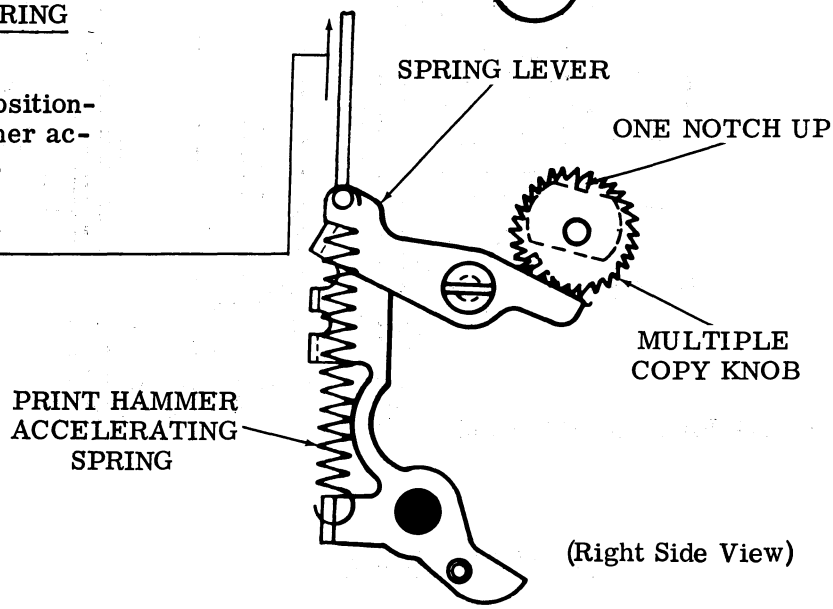
Requirement
Min 1-1/2 oz---Max 3 oz
to start print hammer moving.



PRINT HAMMER ACCELERATING SPRING

To Check
Multiple copy knob in single copy position-on knob, one notch up. Print hammer accelerating lever in latched position.

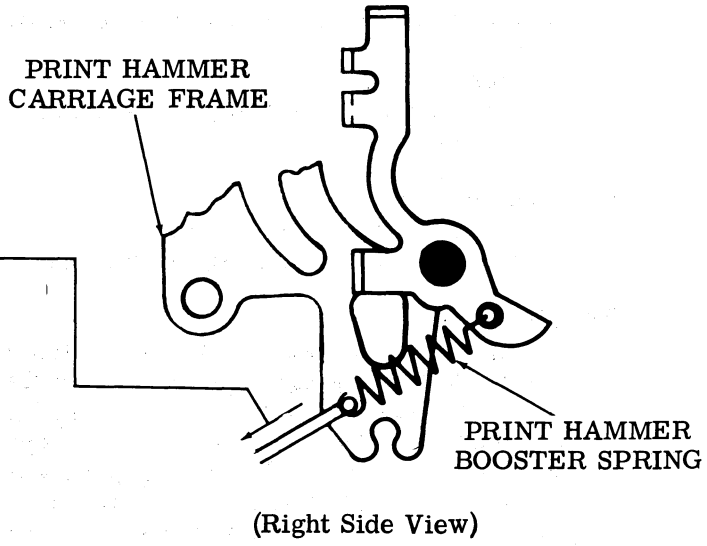
Requirement
Min 25 oz---Max 32 oz
to start spring lever moving.



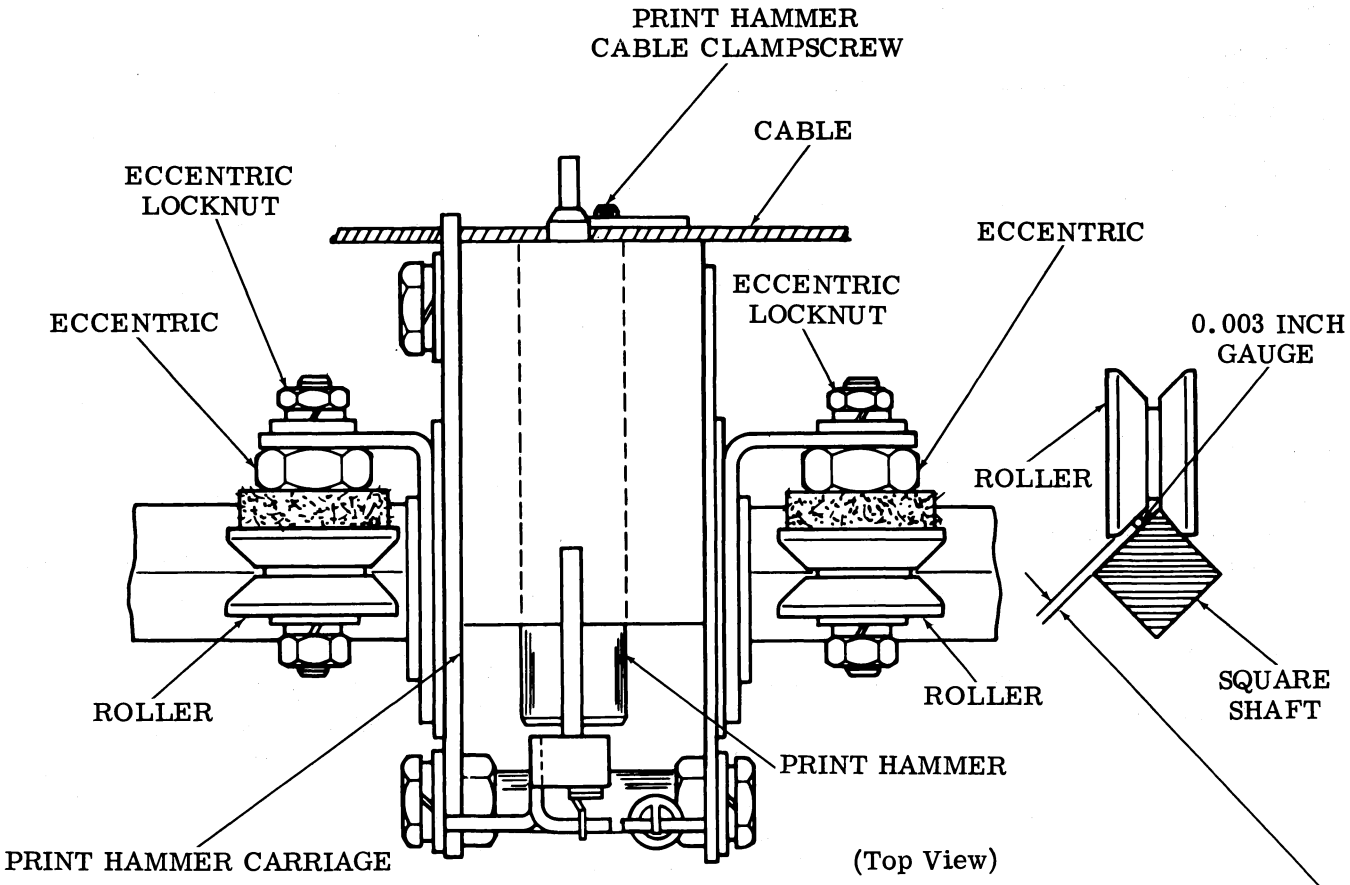
PRINT HAMMER BOOSTER SPRING

To Check
Print hammer accelerating lever in unlatched position. Print hammer booster spring unhooked from post.

Requirement
Min 30 oz---Max 40 oz
to extend print hammer booster spring to installed length.



2.77 Printing Mechanism (continued)



PRINT HAMMER ROLLERS

To Check

Print hammer clutch disengaged (latched). Loosen print hammer cable clampscrew. Move print hammer carriage over its entire square shaft travel.

(1) Requirement

Print hammer carriage should be free from all binds over entire square shaft travel.

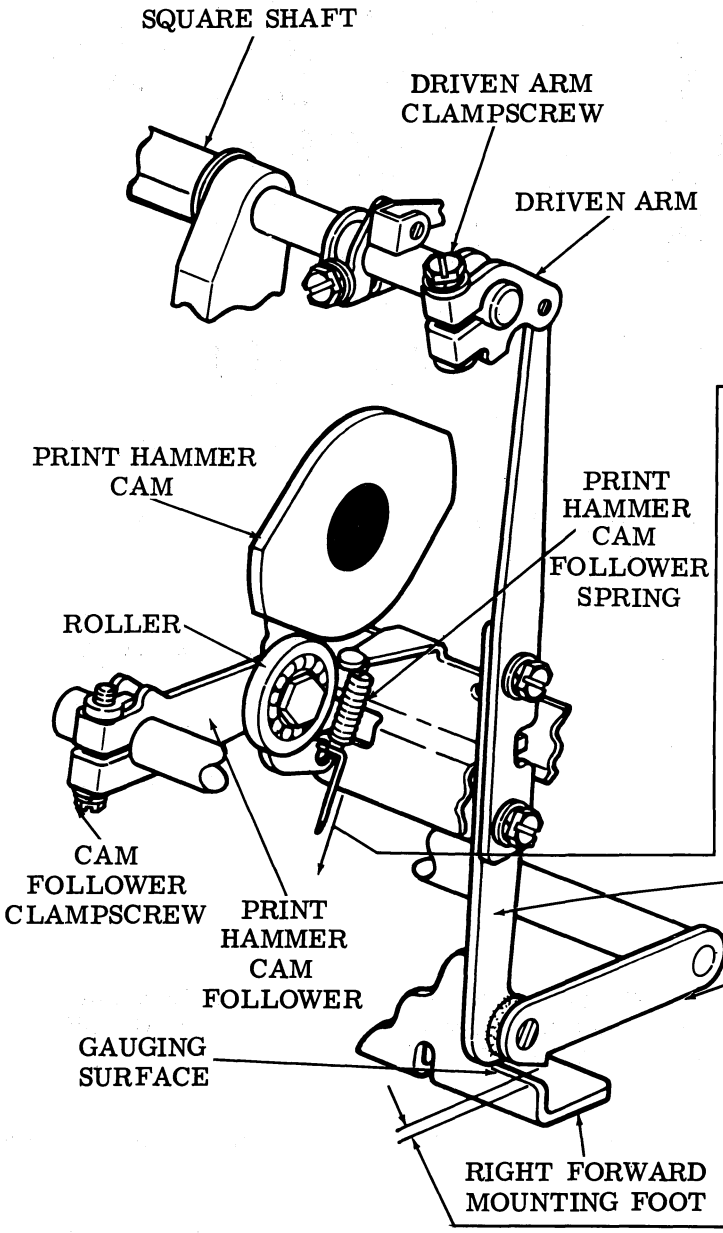
(2) Requirement

Min some---Max 0.007 inch play between print hammer carriage rollers and any portion of square shaft.

To Adjust

Loosen both top eccentric locknuts. Rotate left eccentric for maximum clearance. Place 0.003 inch gauge between right roller and square shaft. Rotate right eccentric until print hammer carriage binds. Tighten right hand eccentric locknut. Move print hammer carriage over its entire square shaft travel. Refine adjustment if necessary. Place 0.003 inch gauge between left roller and square shaft. Rotate left eccentric until print hammer carriage binds. Tighten left hand eccentric locknut. Move print hammer carriage over its entire square shaft travel. Refine adjustment if necessary.

2.78 Printing Mechanism (continued)



(Right Front View)

PRINT HAMMER CAM FOLLOWER SPRING

To Check
Drive link removed. All clutches disengaged (latched).

Requirement
Min 36 oz---Max 50 oz
to pull print hammer cam follower away from print hammer cam.

SQUARE SHAFT DRIVE ARM

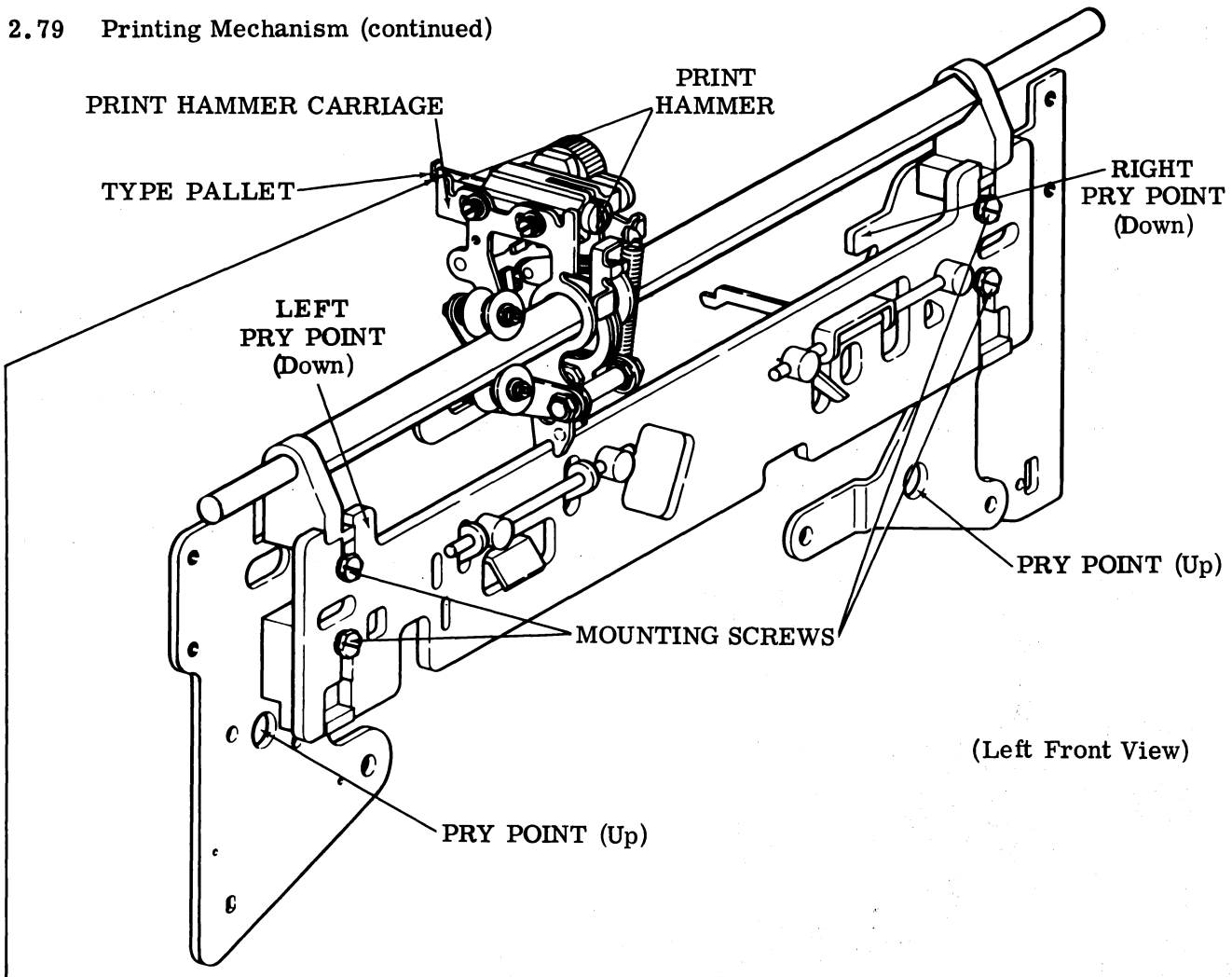
To Check
Print hammer cam follower on low part of its cam.

Requirement
Min 0.050 inch---Max 0.070 inch
clearance between gauging surface and lower portion of drive arm.

To Adjust
Loosen driven arm clampscrew. Loosen cam follower clampscrew. Rotate drive arm to meet requirement. Tighten cam follower clampscrew and driven arm clampscrew.

Affected Adjustments
CONNECTING ROD (FINAL) (2.94)
FEED PAWL DRIVE CLAMP (RIGHT) (2.92)
FEED PAWL DRIVE CLAMP (LEFT) (2.93)
PRINT HAMMER LATCH (2.80)

2.79 Printing Mechanism (continued)



VERTICAL PRINT HAMMER ALIGNMENT

To Check

Codebars 1 and 7 marking. All other codebars spacing. Horizontal and vertical positioning clutches disengaged (latched). Engage (trip) print hammer clutch and rotate main shaft until print hammer clutch stop-lug is towards bottom of typing unit.

Requirement

Print hammer should strike center of type pallet within 0.015 inch at both ends of print hammer carriage travel.

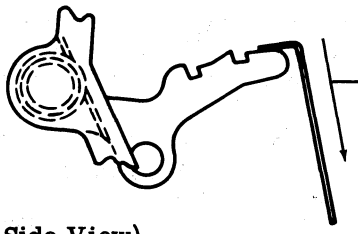
To Adjust

Loosen four support plate and four ribbon feed bracket mounting screws friction tight. With print hammer carriage and typebox carriage fully returned, engage (trip) print hammer clutch and rotate main shaft until print hammer cam follower is on low part of print hammer cam. Place print hammer to center of a type pallet using left pry point. Position print hammer and typebox carriage to the extreme right. Place print hammer to center of same type pallet using right pry point. Tighten four mounting screws. Return both carriages to left hand margin. Recheck requirement. Refine if necessary.

Affected Adjustments

FRONT SPACING CABLE ALIGNMENT (2.85)
PRINT HAMMER LATCH (2.80)
CONNECTING ROD (FINAL) (2.94)
FEED PAWL DRIVE CLAMP (RIGHT) (2.92)

2.80 Printing Mechanism (continued)



(Left Side View)

PRINT HAMMER LATCH SPRING

Requirement
Min 3/4 oz---Max 4 oz
to start print hammer latch moving.

PRINT HAMMER LATCH

Note: Start adjustment with drive link pry point at center of its adjustment. If it is not there, loosen drive link adjustment screws and pry it into position. Tighten drive link adjustment screws.

(1) To Check
All clutches disengaged (latched). Engage (trip) print hammer clutch and rotate main shaft until print hammer cam follower is on high part of print hammer cam.

Requirement
Min some---Max 0.010 inch clearance between print hammer latch and print hammer lever.

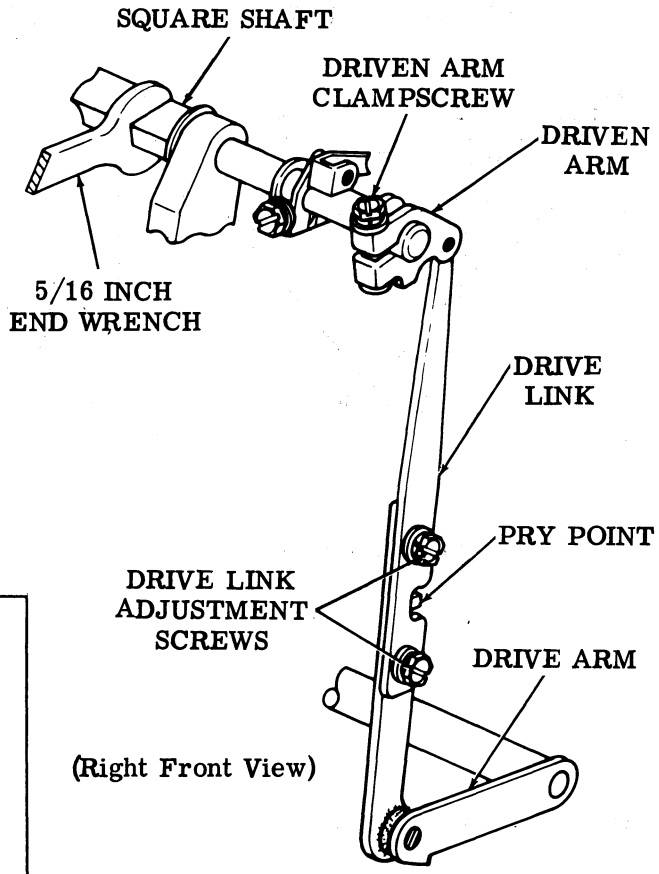
To Adjust
Loosen driven arm clampscrew. Rotate square shaft using 5/16 inch end wrench. Tighten driven arm clampscrew.

(2) To Check
All clutches disengaged (latched). Multiple copy knob in single copy position. Engage (trip) print hammer clutch and rotate main shaft until print hammer cam follower is on high part of print hammer cam.

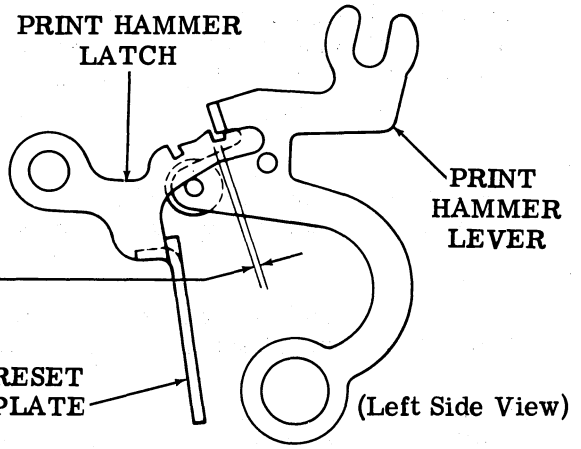
Requirement
Min some---Max 0.010 inch clearance between print hammer latch and print hammer lever.

Note: The "Min some" is considered met if a maximum of 18 inch ounces of additional torque applied to the square shaft causes the levers to latch.

To Adjust
Loosen drive link adjustment screws friction tight. Position drive link using pry points. Tighten adjustment screws.



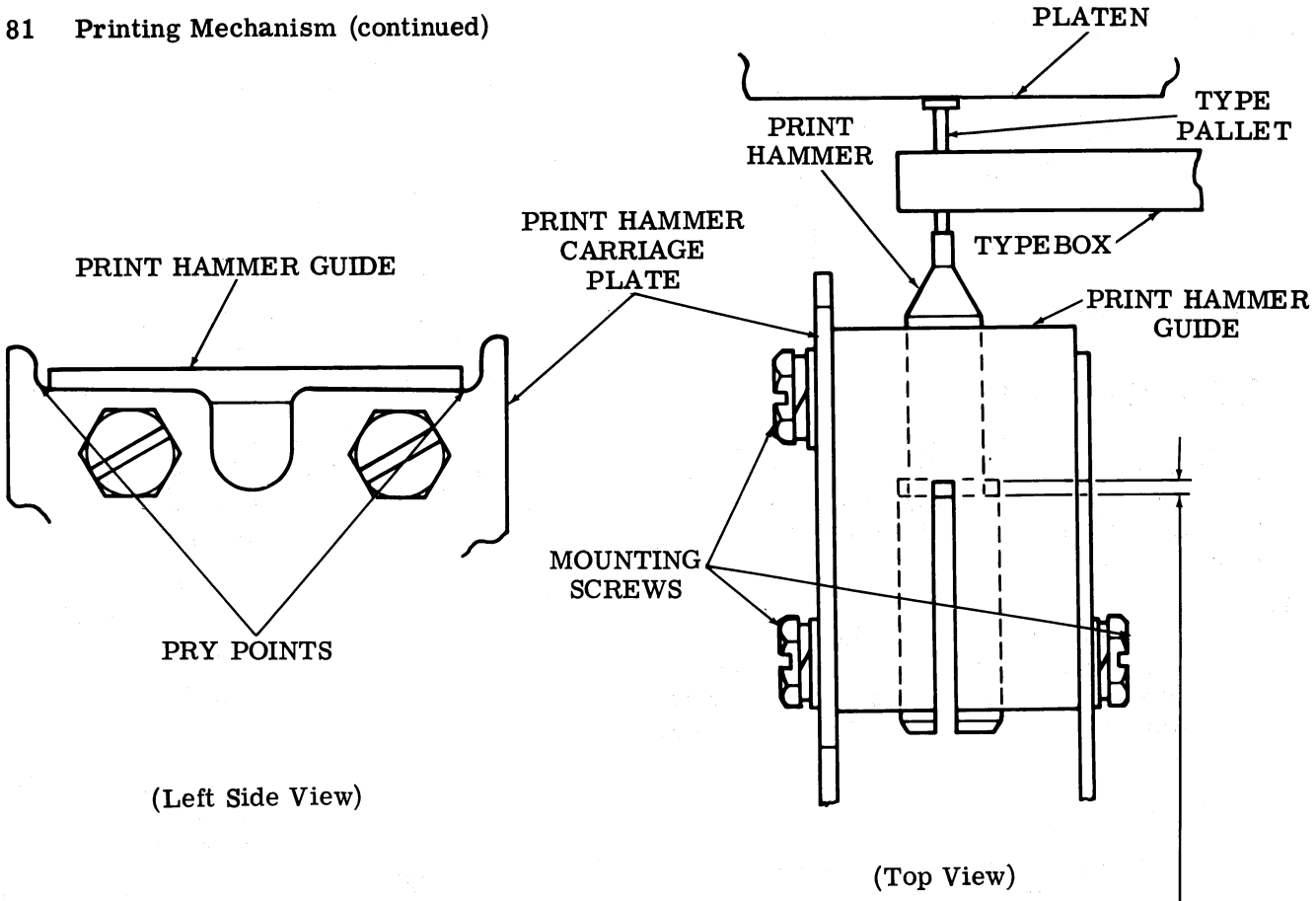
(Right Front View)



(Left Side View)

Affected Adjustments
FEED PAWL DRIVE CLAMP (RIGHT) (2.92)
FEED PAWL DRIVE CLAMP (LEFT) (2.93)
CONNECTING ROD (FINAL) (2.94)
CHECK PAWL (LEFT AND RIGHT) (2.95)

2.81 Printing Mechanism (continued)



PRINT HAMMER GUIDE

To Check

Any type pallet selected. All clutches disengaged (latched). Engage (trip) print hammer clutch and rotate main shaft until a print hammer clutch stop-lug is toward bottom of typing unit. Depress print hammer toward rear of typing unit so that type pallet engages platen.

Requirement

Min 0.030 inch---Max 0.050 inch clearance between stop on print hammer and print hammer guide.

To Adjust

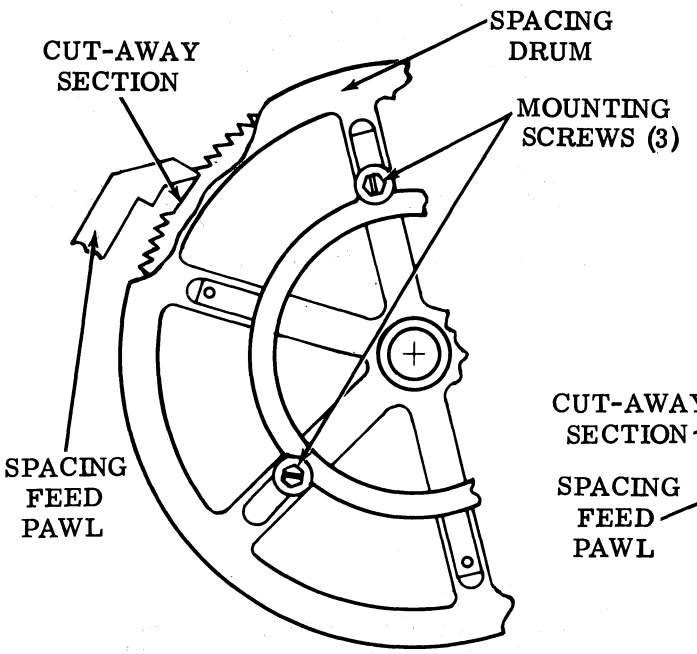
Loosen three print hammer guide mounting screws. Position print hammer guide using pry points. Tighten mounting screws.

Affected Adjustments

VERTICAL POSITION OF INDICATOR BRACKET (2.97)
HORIZONTAL POSITION OF INDICATOR BRACKET (2.98)

2.82 Printing Mechanism (continued)

Note 1: Right and left hand margin adjustments for Wide Platen Units are the same as Standard Units.

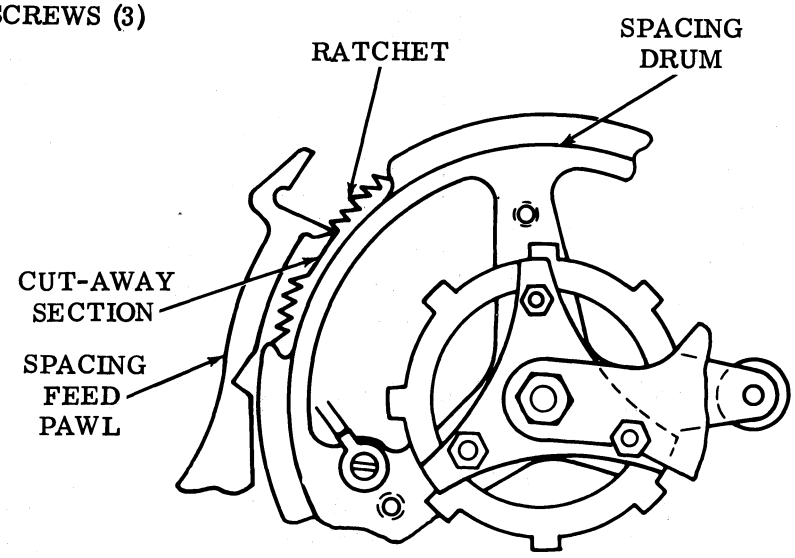


Wide Platen Unit

RIGHT HAND MARGIN

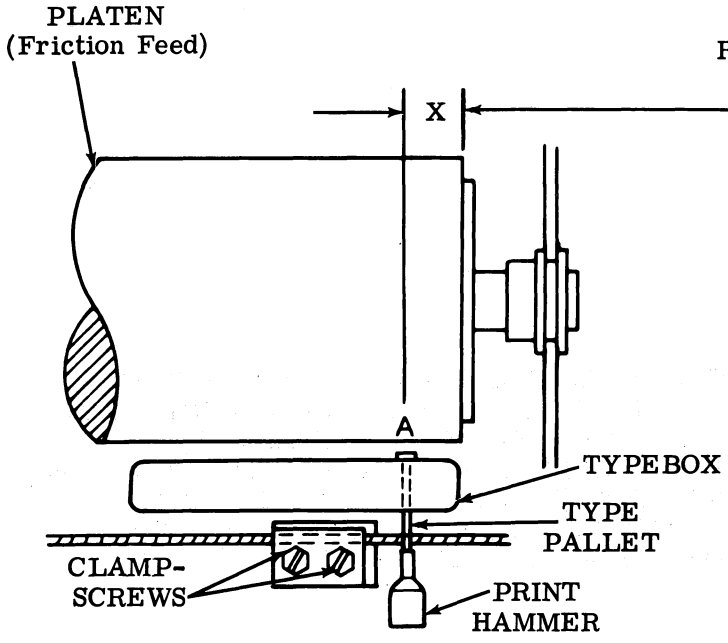
To Check

Spacing clutch disengaged (latched). Spacing feed pawl furthest advanced engaging ratchet tooth immediately above cut-away section. Codebars 1 and 7 marking. All other codebars spacing.



(Front View)

Standard Unit



(Top View)

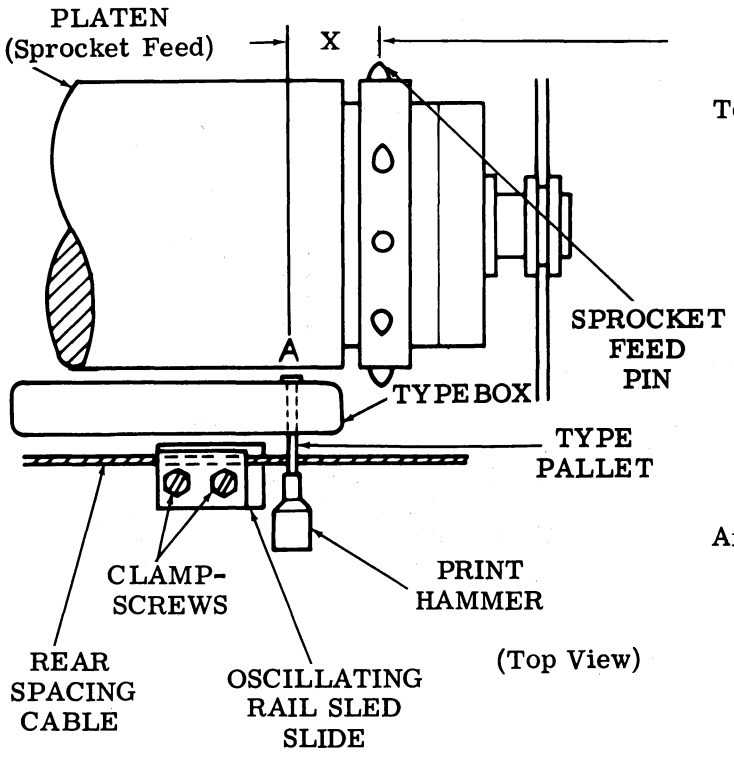
Requirement

Friction Feed:

The distance from the right edge of the platen to the center of type pallet located in upper right hand corner of typebox (see Note 2) should be "X" +0.025 inch (see Note 3). -0.050 inch

(Adjustment continued on the following page.)

2.83 Printing Mechanism (continued)



RIGHT HAND MARGIN (continued)

Requirement (continued)
Sprocket Feed:
The distance from the center of right sprocket feed pins to the center of type pallet, the character "A" (see Note 1) should be "X" +0.025 inch
-0.050 inch (see Note 2).

To Adjust
Loosen clampscrews and position typebox and oscillating rail sled slide on rear spacing cable. Tighten clampscrews.

Affected Adjustments
PRINT HAMMER POSITION (2.84)
LEFT HAND MARGIN (2.86, 2.87)

Note 2: Check requirement at type pallet located in typebox at junction of sixth horizontal row from bottom and first vertical row from right.

Note 3: See LEFT AND RIGHT HAND MARGIN TABLES A OR B for "X" dimension; use Table A for Standard Units and Table B for Wide Platen Units.

CAUTION: IF THE RIGHT HAND MARGIN (X DIMENSION) IS CHANGED, THE LEFT HAND MARGIN IS CHANGED A CORRESPONDING AMOUNT. EXERCISE CARE WHEN RETURNING THE TYPEBOX AND PRINT HAMMER MECHANISM TO THE LEFT HAND MARGIN. POSSIBLE INTERFERENCES MIGHT OCCUR AT THE FOLLOWING AREAS: (1) THE RIBBON GUIDE PASSING IN FRONT OF THE SPROCKET PINS (SPROCKET FEED ONLY), AND (2) THE TOP OF THE PRINT HAMMER MECHANISM STRIKING THE LEFT CHARACTER COUNTER MOUNTING BRACKET. REPOSITION THE CHARACTER COUNTER MOUNTING BRACKET IF INTERFERENCE OCCURS.

2.84 Printing Mechanism (continued)

PRINT HAMMER POSITION

To Check

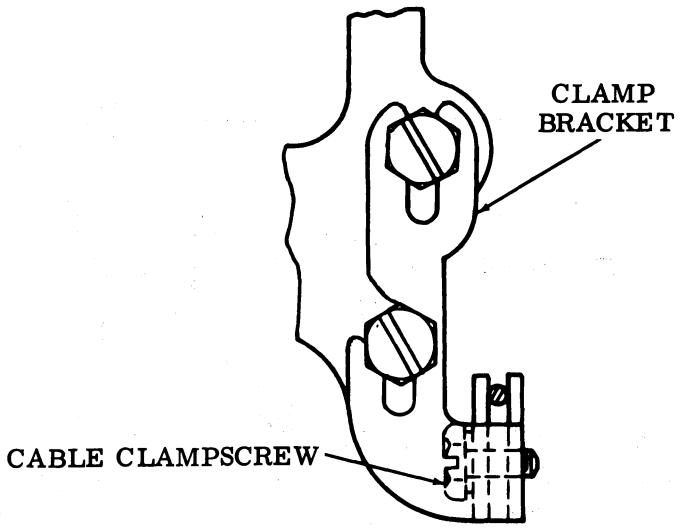
Codebars 1 and 7 marking. All other codebars spacing. All horizontal and vertical positioning clutches disengaged (latched). Engage (trip) print hammer clutch. Rotate main shaft until stop-lug is toward bottom of typing unit.

Requirement

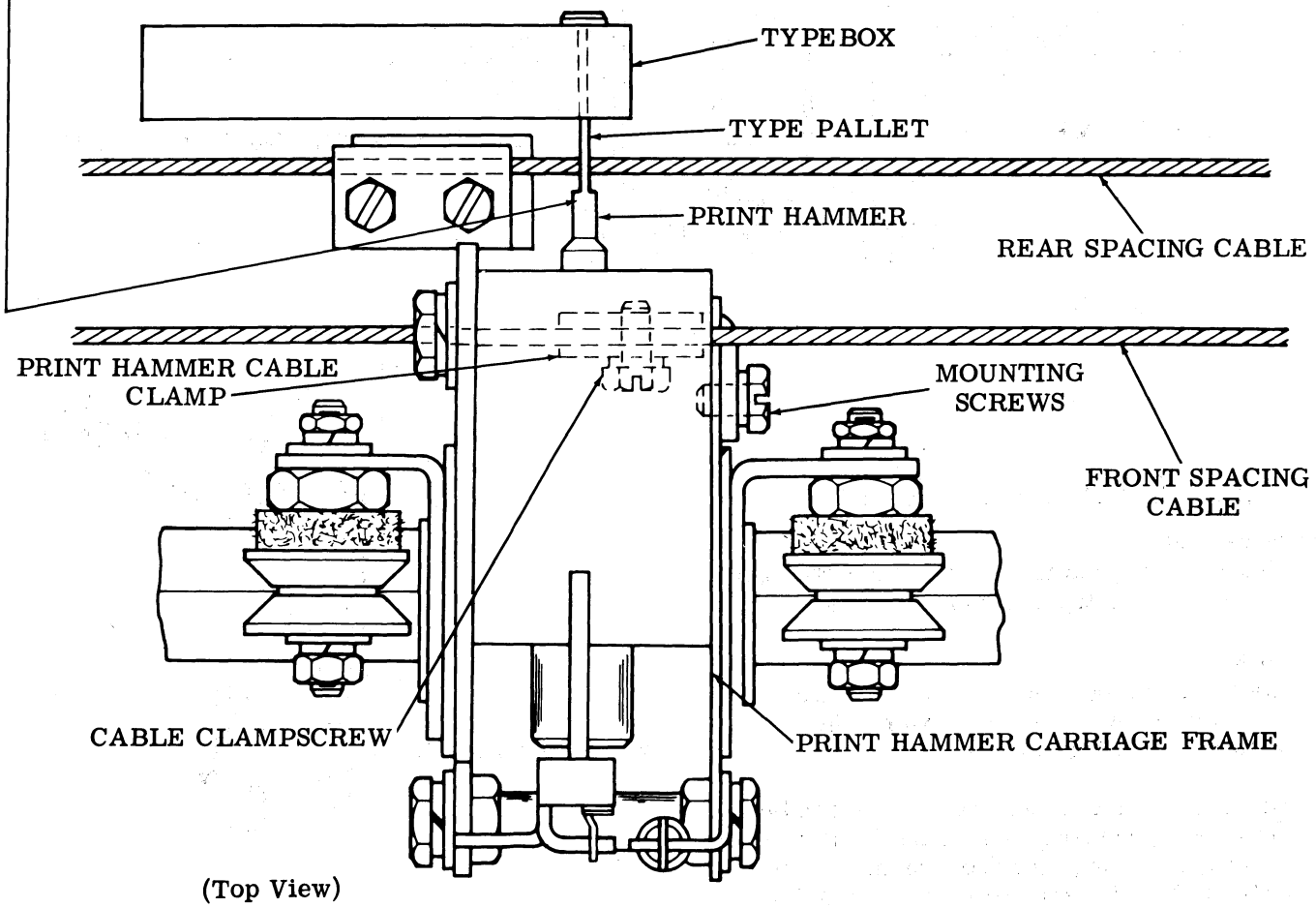
Print hammer should line up with type pallet located in typebox at junction of sixth horizontal row from bottom and first vertical row from right.

To Adjust

Loosen cable clampscrew. Position print hammer carriage on spacing cable. Tighten cable clampscrew.

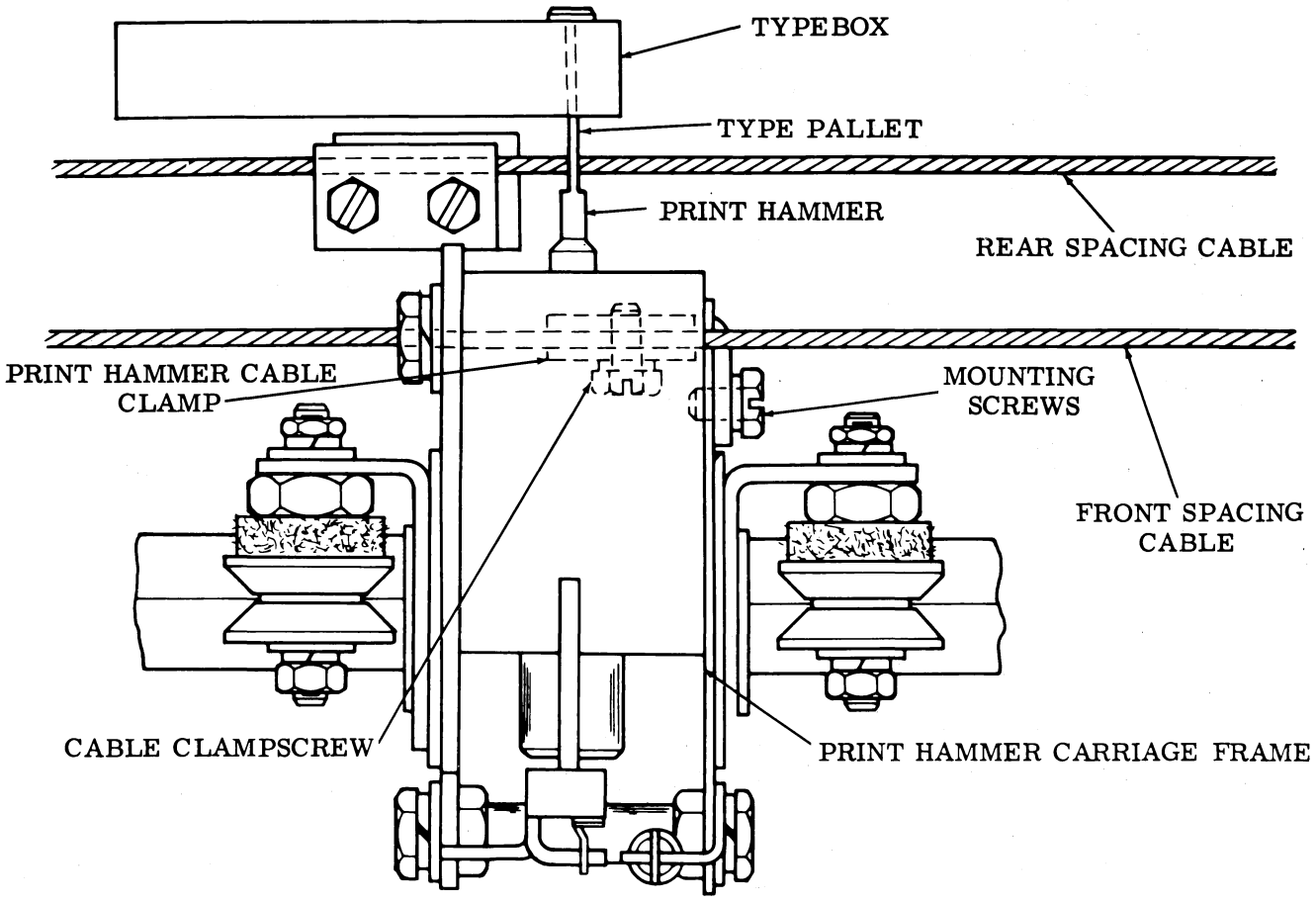


(Right Side View)

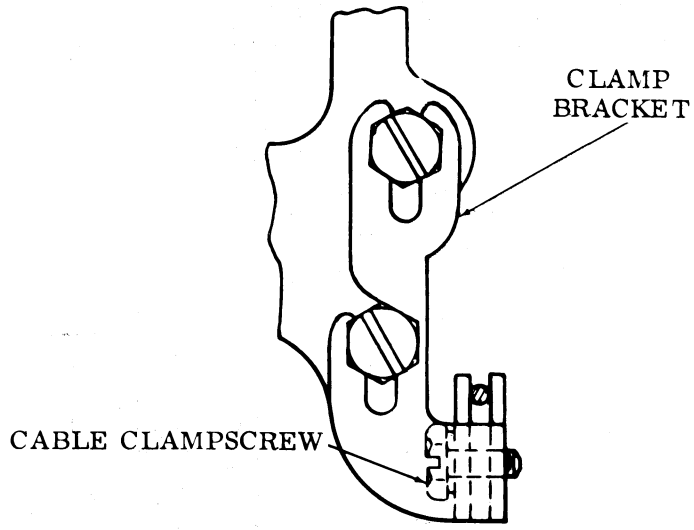


(Top View)

2.85 Printing Mechanism (continued)



(Top View)



(Right Side View)

FRONT SPACING CABLE ALIGNMENT

Requirement

Front spacing cable should form a straight line tangent to top of its two pulleys.

To Adjust

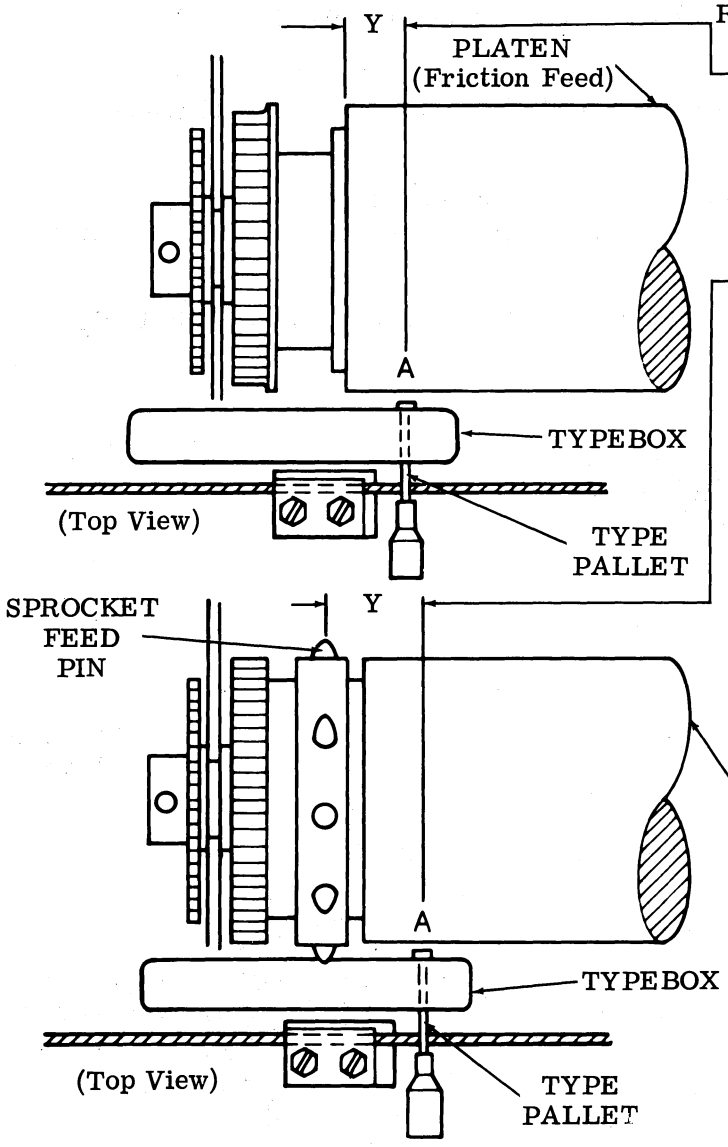
Loosen two mounting screws. Permit clamp bracket to seek its own height. Tighten mounting screws.

Note: Access to mounting screws can be obtained by rotating square shaft after removing retaining ring from print hammer drive link and print hammer lower drive shaft.

2.86 Printing Mechanism (continued)

LEFT HAND MARGIN

(1) To Check
Codebars 1 and 7 marking. All other codebars spacing. All clutches disengaged (latched). Carriage fully returned.



Requirement
Friction Feed:
The distance from the left edge of the platen to the center of the type pallet located in upper right hand corner of typebox (see Note 1) should be "Y"
+0.025 inch
-0.050 inch (see Note 2).
Sprocket Feed:
The distance from the center of left sprocket feed pins to the center of the type pallet located in upper right hand corner of typebox (see note 1) should be "Y"
+0.025 inch
-0.050 inch (see Note 2).

Note 1: Check requirement (1) at type pallet located on typebox at junction of sixth horizontal row from bottom and first vertical row from right.

Note 2: See LEFT AND RIGHT HAND MARGIN TABLES A OR B for "Y" dimension; use Table A for Standard Units and Table B for Wide Platen Units.

PLATEN
(Sprocket Feed)

(Adjustment continued on following page.)

CAUTION: IF THE LEFT HAND MARGIN "Y" DIMENSION IS CHANGED, THE RIGHT HAND MARGIN IS CHANGED A CORRESPONDING AMOUNT. EXERCISE CARE WHEN MOVING THE TYPEBOX AND PRINT HAMMER MECHANISM TO THE RIGHT HAND MARGIN. CHECK FOR AND CORRECT ANY POSSIBLE INTERFERENCES.

2.87 Printing Mechanism (continued)

LEFT HAND MARGIN (continued)

(2) To Check

Spacing clutch disengaged (latched). Front spacing feed pawl farthest advanced. Spacing drum fully returned. Play in spacing shaft gear taken up clockwise.

Requirement

Min some---Max 0.010 inch clearance between spacing feed pawl and shoulder of ratchet tooth immediately ahead.

Note 4: To Check for "some" requirement, apply a 3-pound force counterclockwise to spacing drum. The spacing pawl farthest advanced should move freely in and out of ratchet.

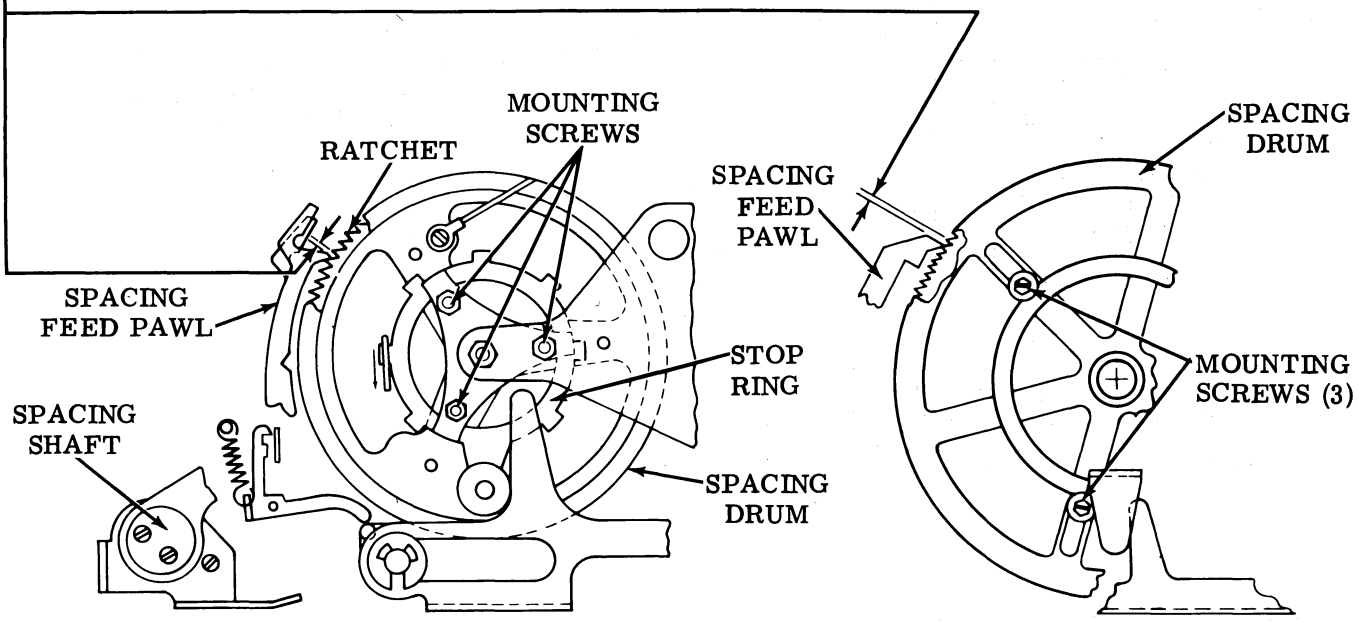
To Adjust

Return print hammer carriage to its left hand position. Loosen three stop ring mounting screws. Hold stop ring in its counterclockwise position and locate typebox per requirement (1). Tighten mounting screws.

Note 5: The number of characters in a line may vary by one more than is indicated in LEFT AND RIGHT HAND MARGIN TABLES A OR B.

Affected Adjustments

RIBBON GUIDE POSITION (2.98)
VERTICAL POSITION OF INDICATOR BRACKET (2.97)
HORIZONTAL POSITION OF INDICATOR BRACKET (2.98)



(Front Views)

Standard Unit

Wide Platen Unit

2.88 Printing Mechanism (continued)

LEFT AND RIGHT HAND MARGIN (TABLES A AND B)

Note 1: The following table provides requirement information for RIGHT HAND MARGIN (2.82 and 2.83) and LEFT HAND MARGIN (2.86 and 2.87) adjustment procedures. Dimensions are in inches.

Note 2: For line lengths or margin other than those shown in the table, the margins may be set to any desired point on the platen width within the following limits:

	"Y" DIM	"X" DIM
FRICTION FEED	0.400 MIN	0.200 MIN
SPROCKET FEED	0.600 MIN	0.300 MIN

TABLE A

LEFT AND RIGHT HAND MARGIN TABLE FOR STANDARD UNITS

CHAR LINE 10/IN.	SPROCKET FEED PAPER WIDTH	"Y"	"X"
60	9-1/2	1.450	1.650
60	8-1/2	1.450	0.650
69	9-1/2	1.150	1.050
69	8-1/2	0.600	0.600
72	9-1/2	1.150	0.750
72	8-1/2	0.600	0.300
80	9-1/2	0.600	0.500
77	9	0.600	0.300
67	8	0.600	0.300
62	7-1/2	0.600	0.300
57	7	0.600	0.300
52	6-1/2	0.600	0.300
51	6-3/8	0.600	0.300
49	6-1/4	0.600	0.300
47	6	0.600	0.300
45	5-3/4	0.600	0.300
42	5-1/2	0.600	0.300
37	5	0.600	0.300
32	4-1/2	0.600	0.300
31	4-5/16	0.600	0.300
30	4-1/4	0.600	0.300
27	4	0.600	0.300

CHAR LINE 10/IN.	SPROCKET FEED PAPER WIDTH	"Y"	"X"
19	3-5/8	0.600	0.300
12/IN.			
80	9-1/2	1.000	1.400
80	8-1/2	1.000	0.400
95	9-1/2	0.600	0.550

CHAR LINE 10/IN.	FRICTION FEED PAPER WIDTH	"Y"	"X"
60	8-1/2	1.300	1.550
69	8-1/2	1.000	0.950
72	8-1/2	1.000	0.650
80	8-1/2	0.400	0.450
12/IN.			
80	8-1/2	1.000	1.150
95	8-1/2	0.400	0.500

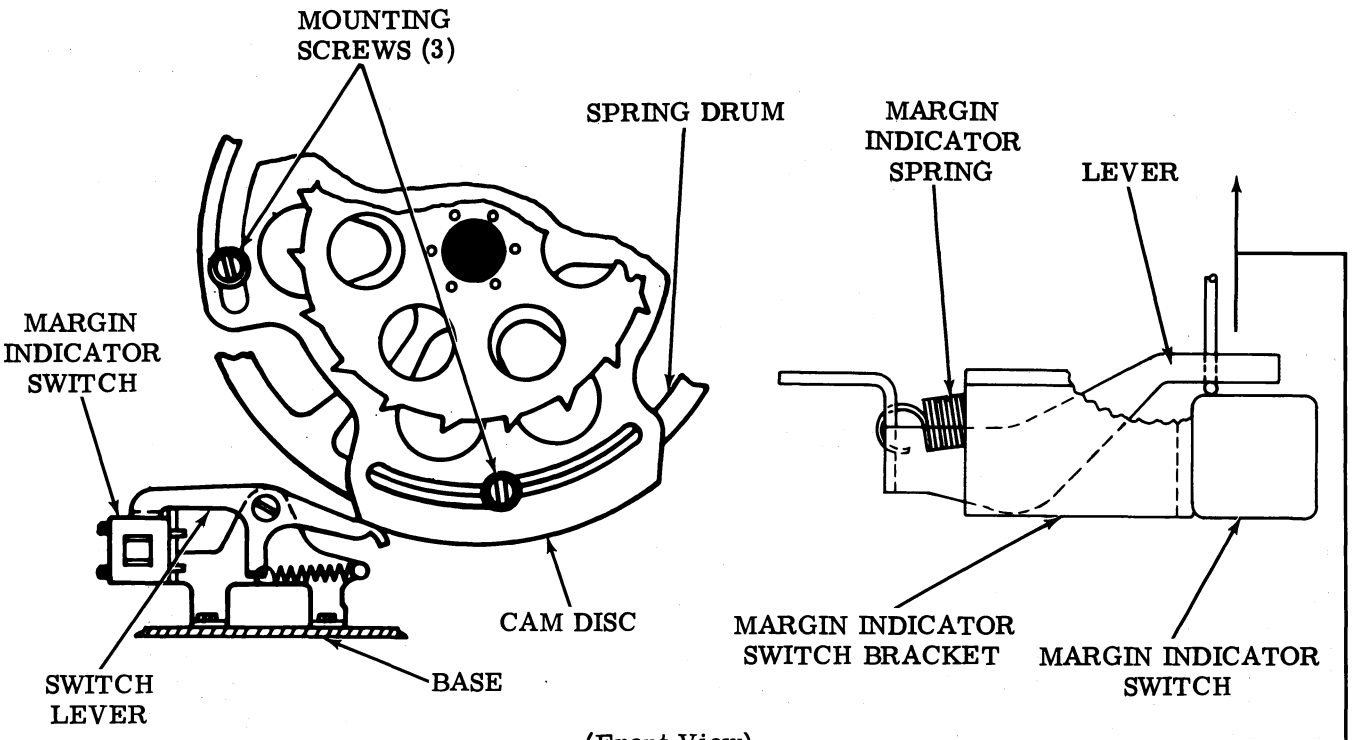
TABLE B

LEFT AND RIGHT HAND MARGIN TABLE FOR WIDE PLATEN UNITS

CHAR LINE 10/IN.	SPROCKET FEED PAPER WIDTH	"Y"	"X"
132	14-7/8	0.600	0.650
136	14-7/8	0.600	0.300
12/IN.			
158	14-7/8	0.600	0.650
163	14-7/8	0.600	0.300

CAUTION: IF EITHER THE LEFT "Y" OR THE RIGHT HAND MARGIN "X" IS CHANGED, THE MARGIN AT THE OPPOSITE END IS CHANGED A CORRESPONDING AMOUNT. EXERCISE CARE WHEN RETURNING THE TYPE-BOX AND PRINT HAMMER MECHANISM TO THE OPPOSITE MARGIN AND WATCH FOR INTERFERENCES. IF INTERFERENCES ARE FOUND RELOCATE THE INTERFERING BRACKET OR PART SO AS TO NOT INTERFERE WITH THE PRINTING CARRIAGE MECHANISM.

2.89 Printing Mechanism (continued)



Note 1: The typing unit must be placed onto its base prior to making this adjustment. For instructions on assembling the typing unit onto its base, see Section 574-301-702 (Removal and Replacement of Components).

MARGIN INDICATOR LAMP (STANDARD UNIT)

To Check
Print hammer carriage positioned to print eighth (± one character) character from right hand margin.

Requirement
Indicator lamp should light.

To Adjust
Loosen three mounting screws. Position cam disc on spring drum so that margin indicator switch just opens. Tighten mounting screws.

Note 2: If a line shorter than 72 characters is required and the range of rotation with mounting screws in one set of tapped holes is not enough, remove cam disc screws and insert them into adjacent tapped holes.

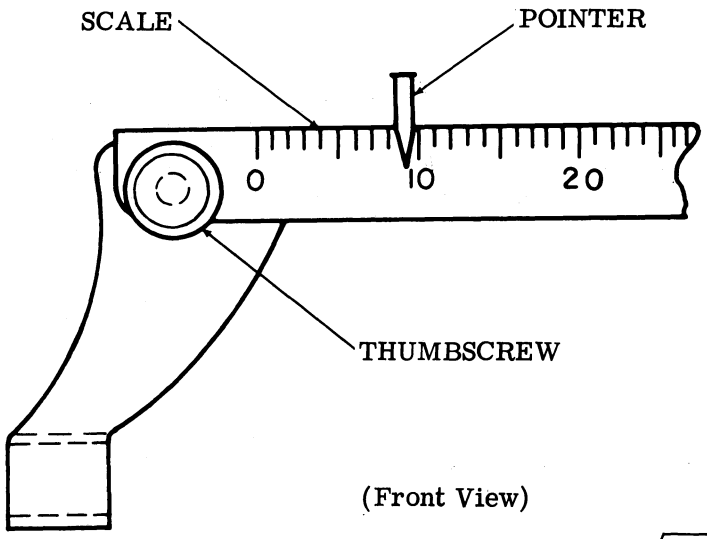
MARGIN INDICATOR LAMP (WIDE PLATEN UNIT)

To Check
Print hammer carriage positioned to print seventh (± one character) character from right hand margin. The margin indicator lamp should light.

Requirement
Min 5-1/2 oz---Max 8 oz
to move lever away from margin indicator switch.

To Adjust
Loosen margin indicator switch bracket screws. Position bracket to meet the requirement. Tighten bracket mounting screws.

2.90 Printing Mechanism (continued)



(Front View)

PRINT POSITION POINTER

To Check
Carriage fully returned.

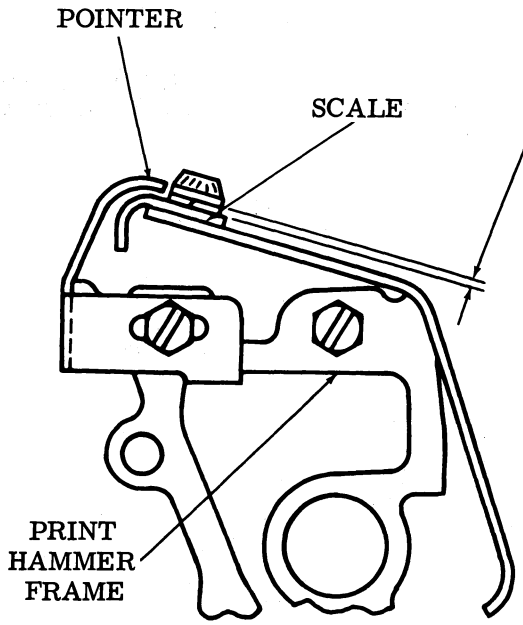
Requirement
Pointer should be approximately over line number corresponding to left hand margin as shown in Tables C and D.

To Adjust
Loosen thumbscrews at both ends of scale. Position the scale left or right. Tighten thumbscrews.

POINTER CLEARANCE

Requirement
Min 0.062 inch clearance between pointer and scale. Check both end and center.

To Adjust
Bend pointer to meet requirement.



(Left Side View)

TABLE C

STANDARD UNITS

FRICTION LEFT MARGIN ADJUST	LINE NO.	SPROCKET LEFT MARGIN ADJUST	LINE NO.
10/IN.			
0.400	3	0.600	3
1.000	9		
1.300	12	1.150	9
		1.450	12
12/IN.			
0.400	4	0.600	5
1.000	11	1.000	10

TABLE D

WIDE PLATEN UNITS

SPROCKET LEFT MARGIN ADJUST	LINE NO.		
10/IN.			
0.600	6		
1.000	10		
1.150	11		
12/IN.			
0.600	5		
1.000	10		

2.91 Ribbon Feed Mechanism

RIBBON FEED BRACKETS (LEFT AND RIGHT)

Requirement
The bracket extension should rest on the lower surface of the cut-out of the sintered bearing bracket. The top surface of the main bracket must be parallel to the square shaft as gauged by eye.

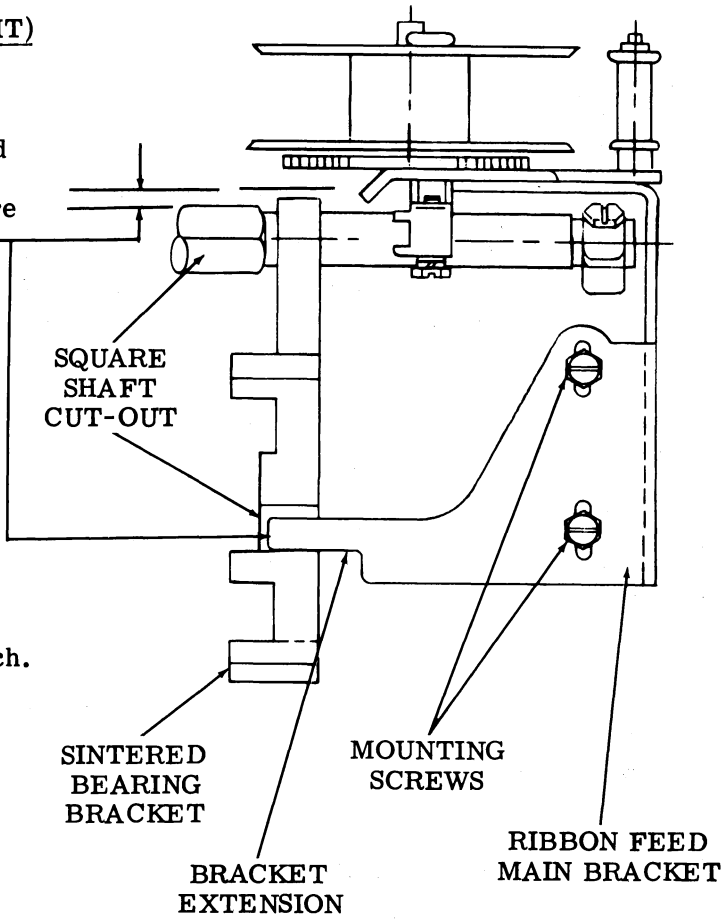
To Adjust
Loosen mounting screws friction tight. Position the bracket. Tighten screws.

CONNECTING ROD — (PRELIMINARY)

To Check
The left and right connecting rod must be assembled to the turnbuckles.

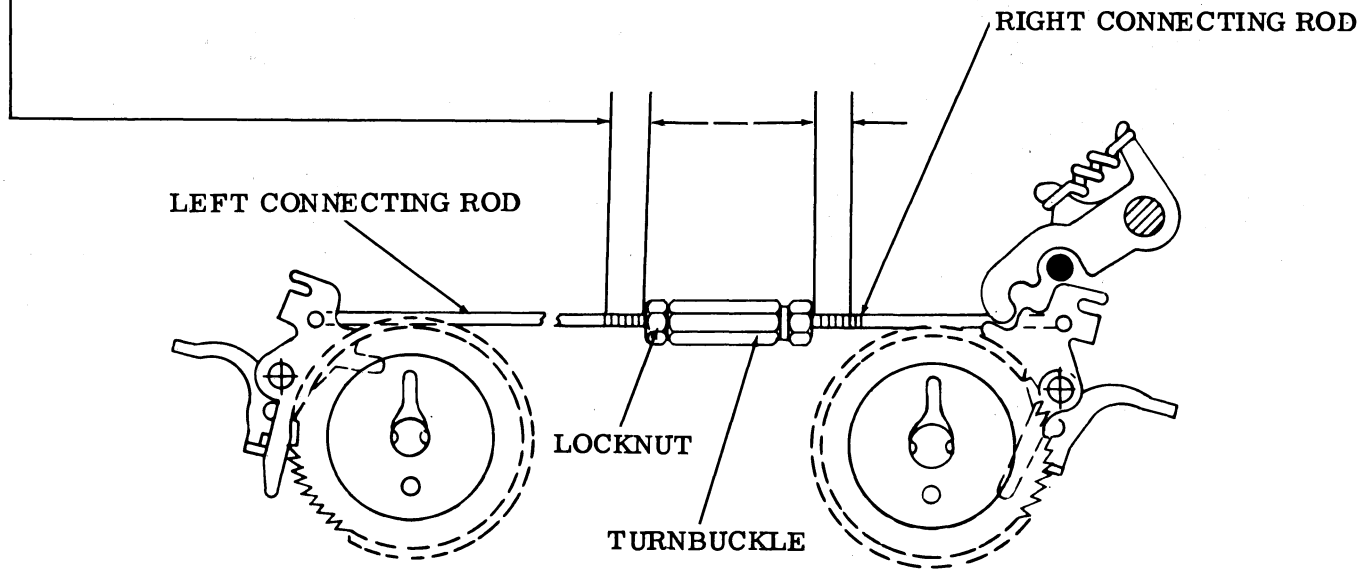
Requirement
The visible thread on each side of the turnbuckle should be approximately 1/4 inch.

To Adjust
Rotate the turnbuckle.



(Front View)

Note: After adjusting the ribbon feed mechanism, check for proper ribbon feed and ribbon reverse during unit operation and if necessary refine adjustments.



(Top View)

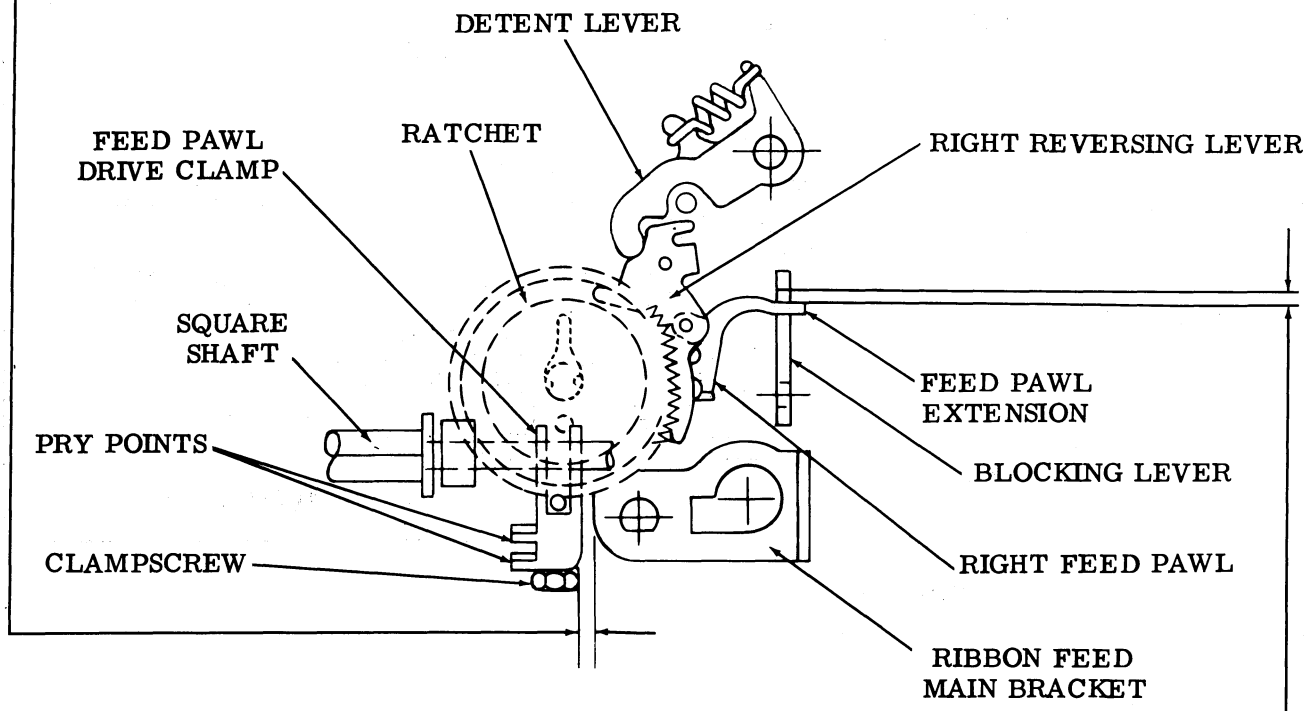
2.92 Ribbon Feed Mechanism (continued)

FEED PAWL DRIVE CLAMP (RIGHT)

(1) To Check
Take up the play in the square shaft to the left to make clearance maximum.

Requirement
Min 0.060 inch---Max 0.080 inch
clearance between the drive clamp and the ribbon feed main bracket.

To Adjust
Clampscrew friction tight. Move the drive clamp sideways to meet requirement.



(2) To Check
Hold the right reversing lever in the detented position; the right feed pawl should be away from the ratchet. Trip the print hammer clutch and rotate the main shaft until the print hammer cam follower is on the high part of its cam. Move the blocking lever up to the feed pawl extension.

Requirement
Min 0.010 inch---Max 0.030 inch
clearance between the latching surface of the blocking lever and the feed pawl extension.

To Adjust
Clampscrew friction tight. Rotate the drive clamp to meet the requirement. Tighten clampscrew.

Note: The tightening of the clampscrew should not restrict the endplay of the square shaft. If the endplay is restricted, refine requirement.

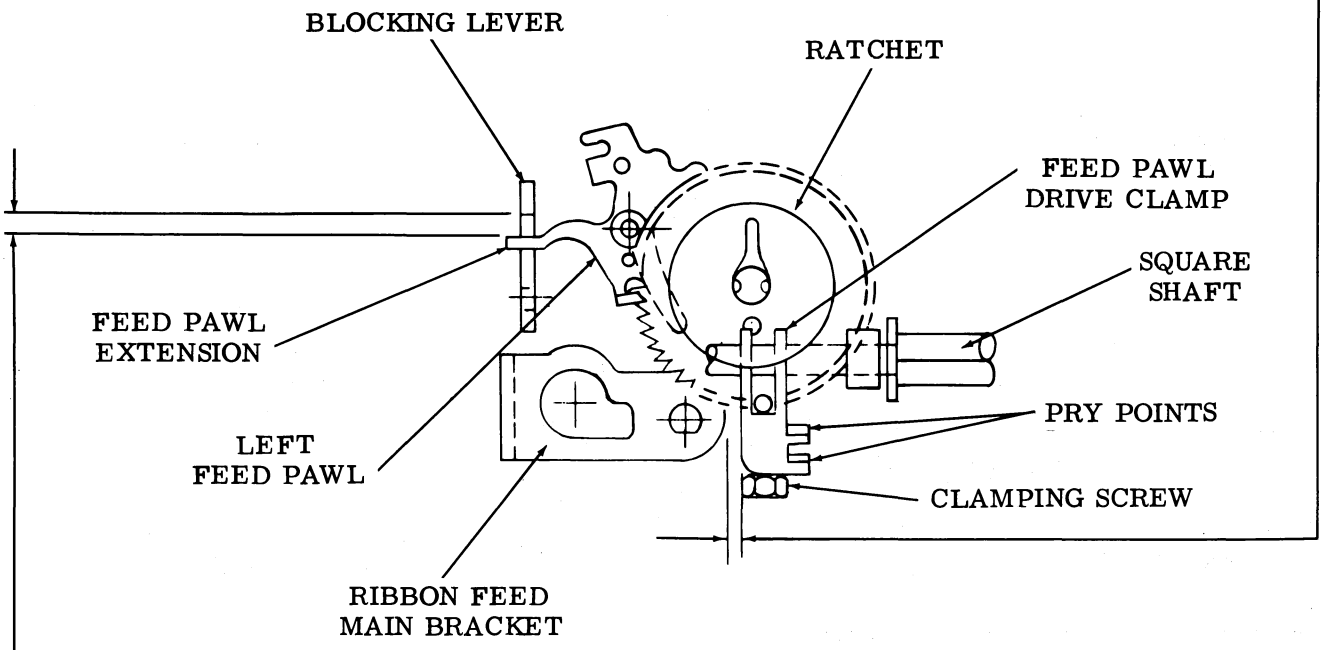
2.93 Ribbon Feed Mechanism (continued)

FEED PAWL DRIVE CLAMP (LEFT)

(1) To Check
Take up the play in the square shaft to the right.

Requirement
Min 0.030 inch---Max 0.050 inch
clearance between the drive clamp and ribbon feed main bracket.

To Adjust
Clampscrew friction tight. Move the drive clamp sideways to meet the requirement.



(2) To Check
Hold the right reversing lever in the detented position; the left feed pawl should engage the ratchet. Trip the print hammer clutch and rotate the main shaft until the print hammer cam follower is on the low part of its cam. Move the blocking lever up to the feed pawl extension.

Requirement
Min 0.040 inch---Max 0.060 inch
clearance between the latching surface of the blocking lever and the feed pawl extension. when the feed pawl is fully engaged with the ratchet.

To Adjust
Clampscrew friction tight. Rotate the drive clamp to meet the requirement. Tighten clampscrew.

Note: The tightening of the clampscrew should not restrict the endplay of the square shaft. If the endplay is restricted, refine requirement.

2.94 Ribbon Feed Mechanism (continued)

CONNECTING ROD (FINAL)

To Check

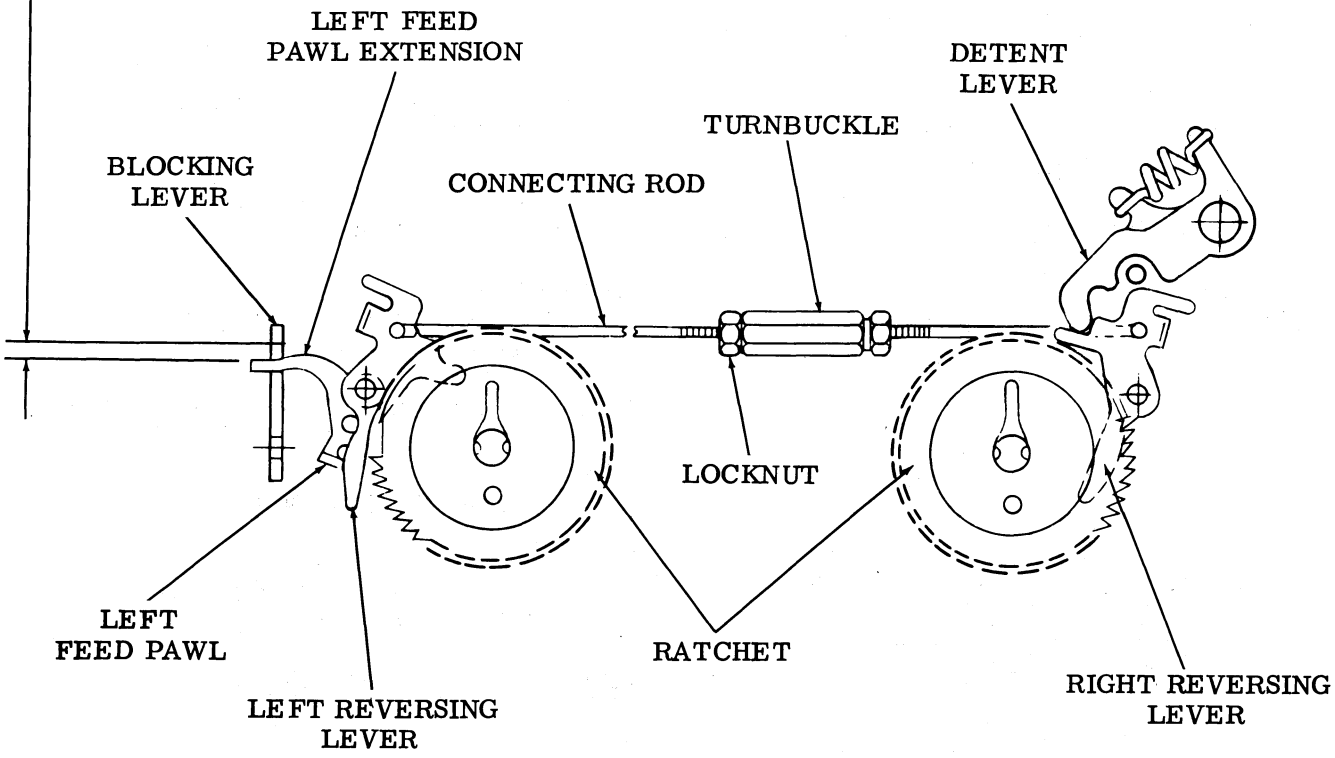
All clutches disengaged (latched). Hold the right reversing lever in the detented position; the left feed pawl should be away from the ratchet. Trip the print hammer clutch and rotate the main shaft until the print hammer cam follower is on the high part of its cam. Move the blocking lever up to the feed pawl extension.

Requirement

Min 0.010 inch---Max 0.030 inch clearance between the latching surface of the blocking lever and the left feed pawl extension.

To Adjust

Back off locknut and rotate the turnbuckle to meet the requirement. Hold turnbuckle and tighten the locknut. Hold detent lever in position shown (fully detented).



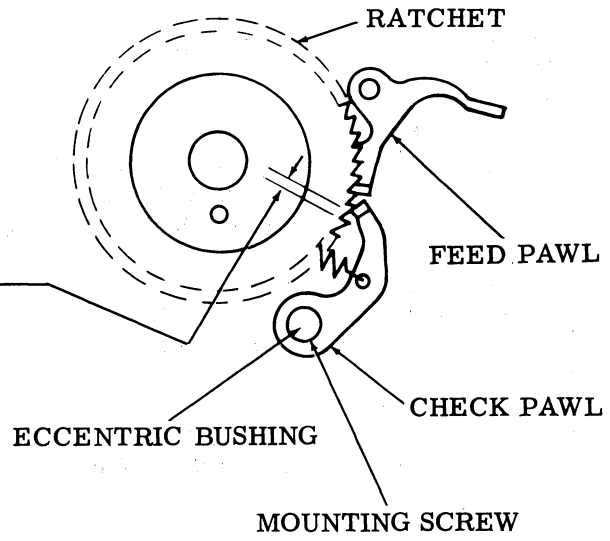
2.95 Ribbon Feed Mechanism (continued)

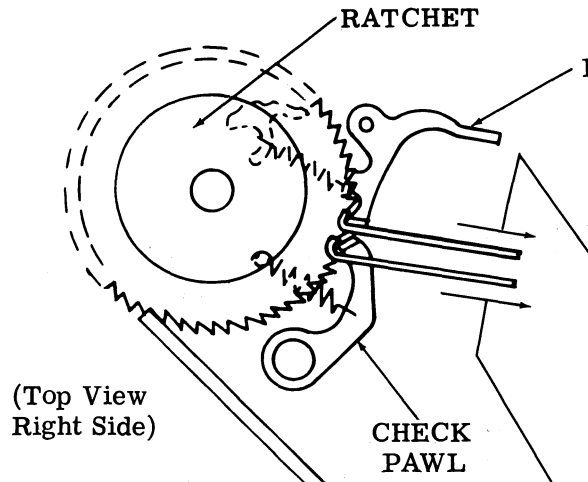
CHECK PAWL (LEFT AND RIGHT)

To Check
Print hammer cam follower on the high part of its cam, and the feed pawl engaging the ratchet.

Requirement
Min 0.010 inch---Max 0.030 inch clearance between the check pawl and the second tooth from the feed pawl.

To Adjust
Mounting screw friction tight. Rotate eccentric bushing to meet the requirement. Tighten screw.





(Top View Right Side)

FEED PAWL SPRING (LEFT AND RIGHT)

To Check
Printing clutch disengaged, and feed pawl engaging the ratchet.

Requirement
Min 15 grams---Max 30 grams to start feed pawl moving.

CHECK PAWL SPRING (LEFT AND RIGHT)

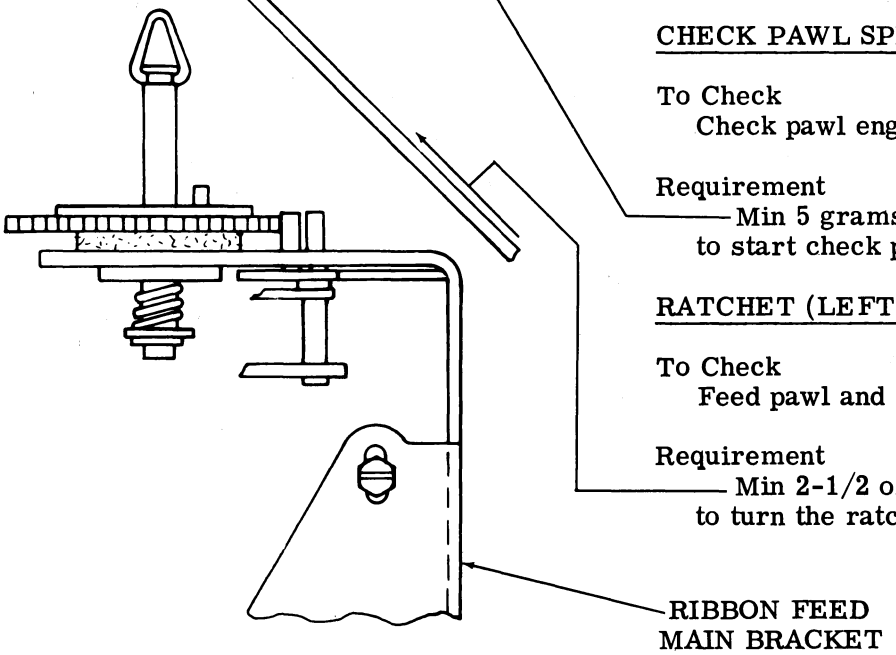
To Check
Check pawl engaging the ratchet.

Requirement
Min 5 grams---Max 20 grams to start check pawl moving.

RATCHET (LEFT AND RIGHT)

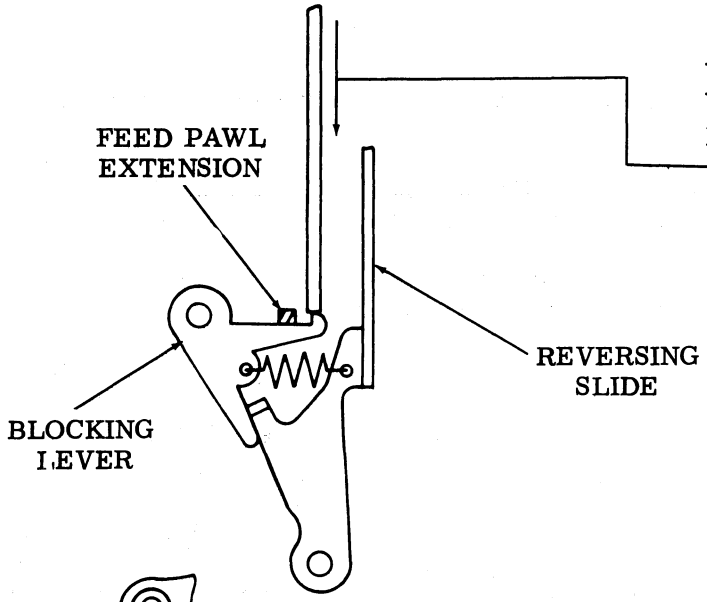
To Check
Feed pawl and check pawl disengaged.

Requirement
Min 2-1/2 oz---Max 6-1/2 oz to turn the ratchet.



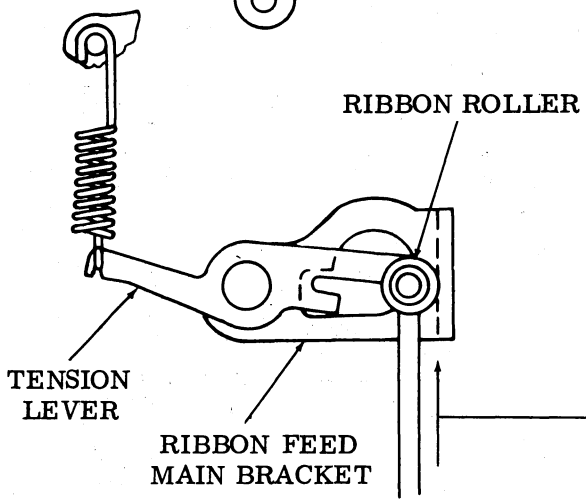
(Right Front View)

2.96 Ribbon Feed Mechanism (continued)



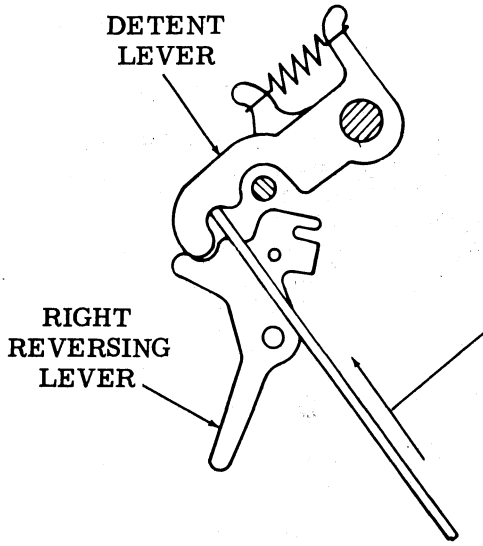
BLOCKING LEVER SPRING
(LEFT AND RIGHT)

Requirement
Min 10 grams---Max 30 grams
to start blocking lever moving.



TENSION LEVER SPRING (LEFT AND RIGHT)

Requirement
Min 1-1/2 oz---Max 3 oz
to start tension lever moving.



DETENT LEVER SPRING (RIGHT SIDE ONLY)

Requirement
Min 3 oz---Max 4-1/2 oz
to start detent lever moving.

2.97 Ribbon Feed Mechanism (continued)

VERTICAL POSITION OF INDICATOR BRACKET

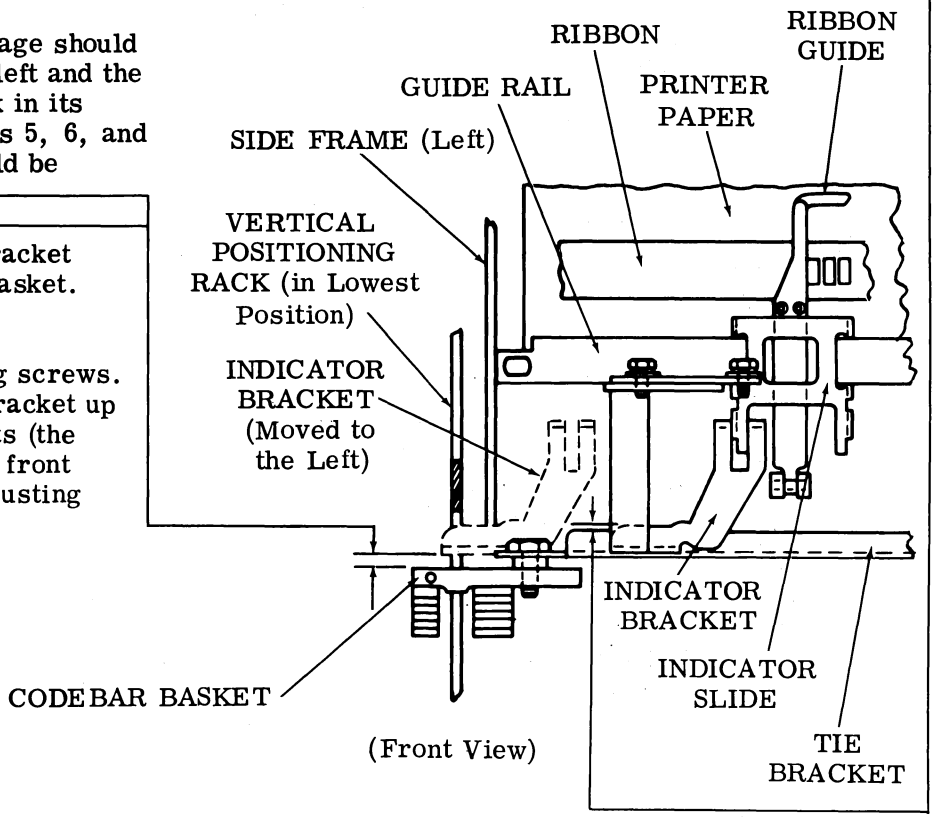
(1) Requirement
Edge of indicator bracket should be even with the top edge of tie bracket as gauged by eye.

To Adjust
Loosen the two adjusting screws. Position the adjusting bracket up or down by the pry points (the bracket pivots about the front screw). Tighten the adjusting screws.

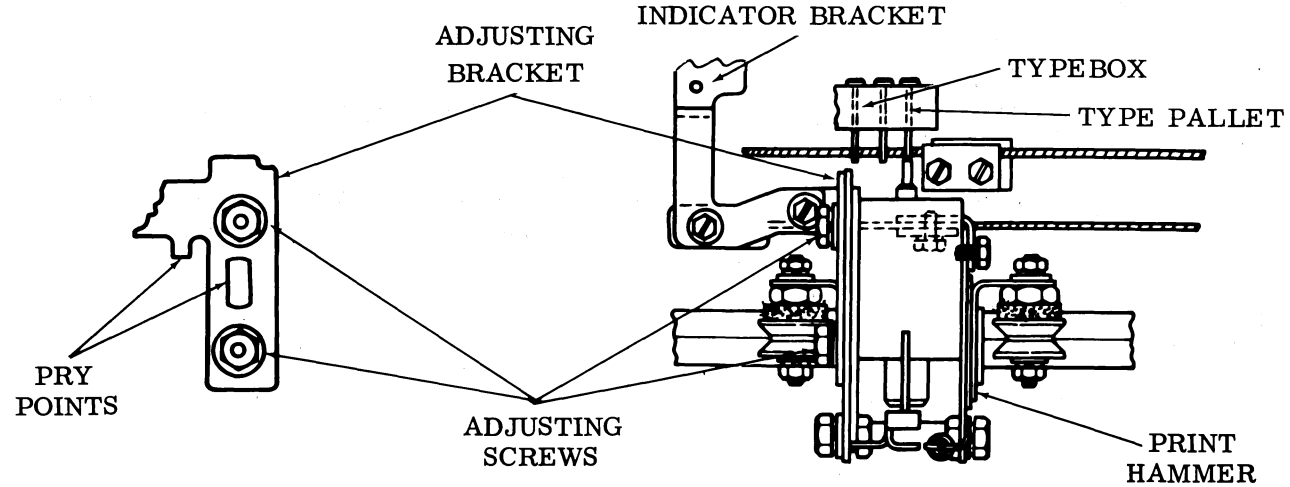
Note: Perform requirement (2) if the indicator bracket passes under the vertical positioning rack when the print hammer carriage is fully returned to the left.

(2) Requirement
The print hammer carriage should be fully returned to the left and the vertical positioning rack in its lowest position (codebars 5, 6, and 7 spacing). There should be
Min 0.015 inch
Max 0.060 inch
between the indicator bracket and the top of codebar basket.

To Adjust
Loosen the two adjusting screws. Position the adjusting bracket up or down by the pry points (the bracket pivots about the front screw). Tighten the adjusting screws.



(Front View)



(Top View)

2.98 Ribbon Feed Mechanism (continued)

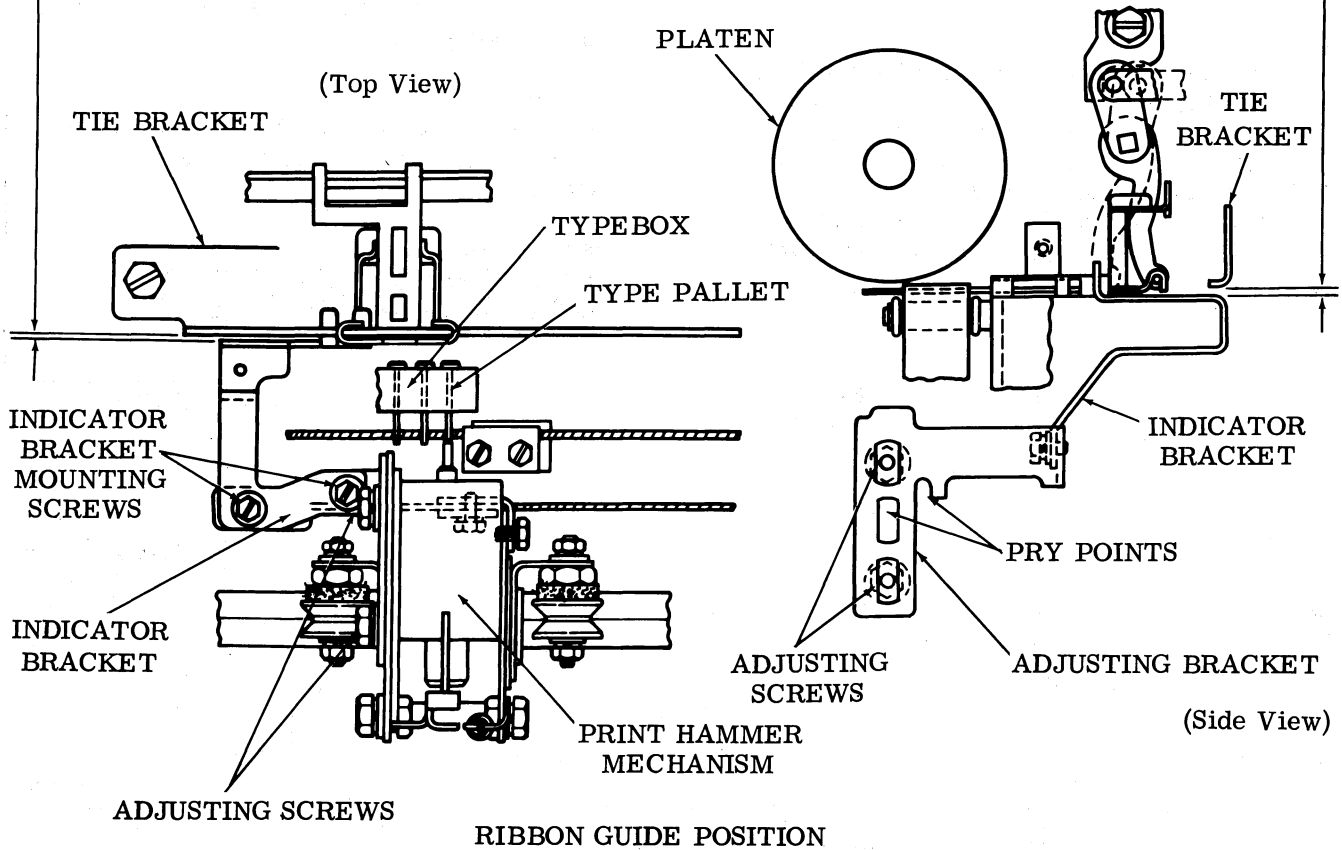
HORIZONTAL POSITION OF INDICATOR BRACKET

Requirement

Min 0.015 inch clearance between the codebar tie bracket and the indicator bracket.

To Adjust

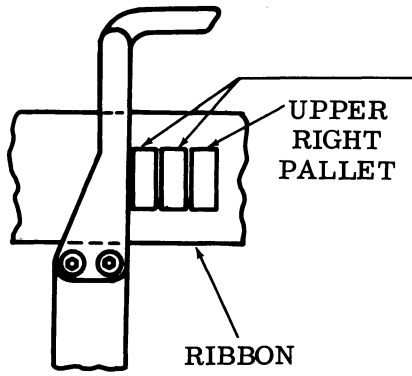
Loosen the two adjusting screws. Position the adjusting bracket forward or back by the pry points, to meet the requirement. Tighten adjusting screws.



RIBBON GUIDE POSITION

To Check

Position typebox so the upper right pallet is presented for printing.



Requirement

A space of two pallet widths between the upper right pallet and the right edge of the ribbon guide.

To Adjust

Loosen the two indicator bracket mounting screws. Position ribbon guide sideways to meet the requirement. Tighten indicator bracket mounting screws.

Note: Recheck VERTICAL POSITION OF INDICATOR BRACKET (2.97) and HORIZONTAL POSITION OF INDICATOR BRACKET adjustments.

2.99 Ribbon Feed Mechanism (continued)

RIBBON GUIDE TO PLATEN

To Check
Ribbon guide in uppermost (print) position. Ribbon in position and under tension.

Requirement
Min 0.025 inch---Max 0.040 inch clearance between ribbon guide and platen.

To Adjust
Loosen screw that secures slide block to each side frame. Pivot slide blocks until requirement is met along entire travel of ribbon guide. Maintain position of slide blocks and tighten screws. Be careful that the lower rear portion of the indicator bracket does not touch codebar tie bracket. Refine front and rear if necessary.

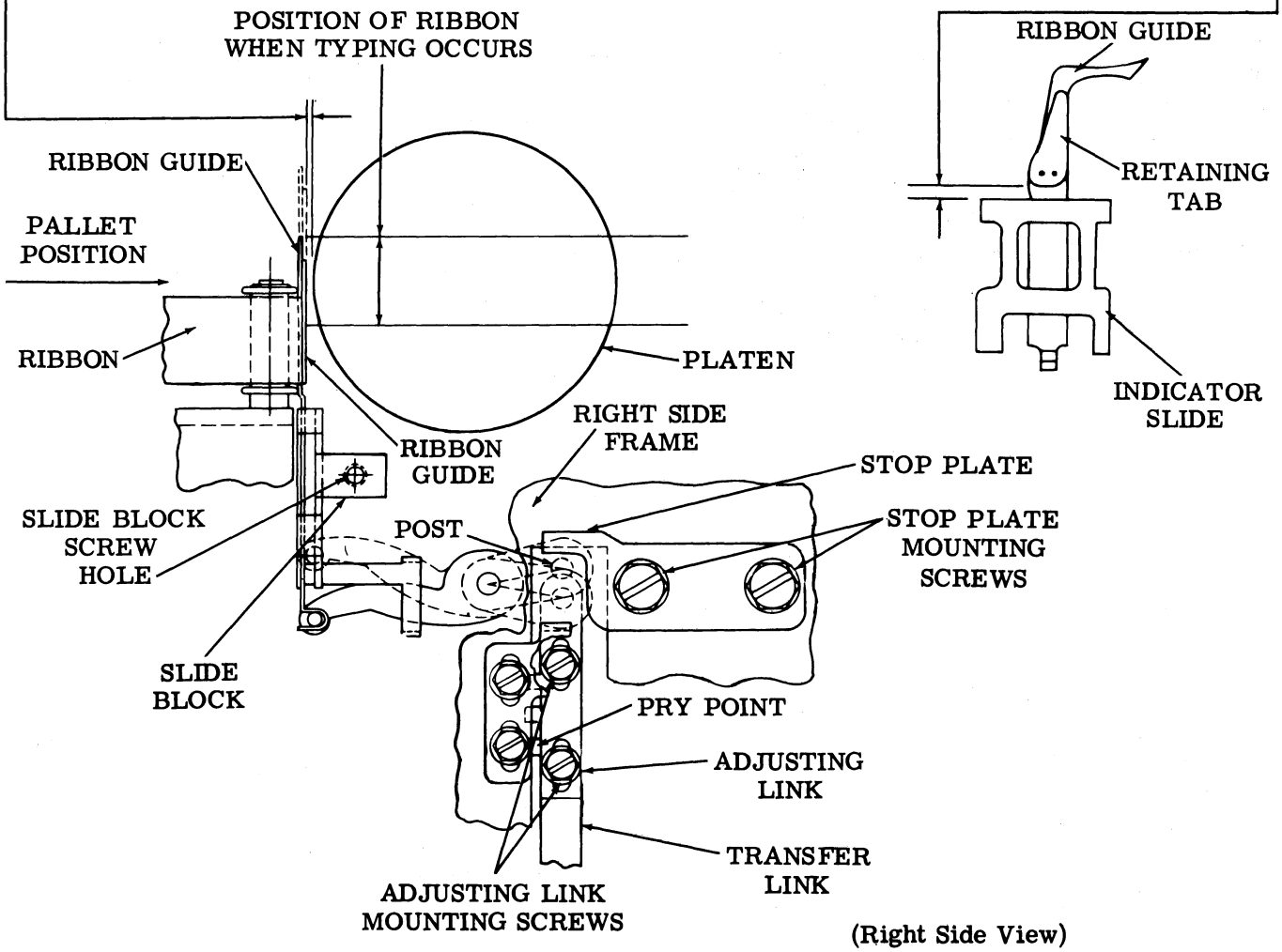
RIBBON RETRACT POSITION

To Check
Print hammer clutch disengaged (latched). Take up play in ribbon guide in a downward direction.

Requirement
Min 0.020 inch---Max 0.040 inch clearance between the top of the indicator slide and the bottom of the retaining tab of the ribbon guide.

To Adjust
Loosen the two screws that mount the stop plate. Position the stop plate and then tighten screws.

Affected Adjustments
RIBBON PRINT POSITION (2.100)
OSCILLATOR DOWNSTOP (2.100)



(Right Side View)

2.100 Ribbon Feed Mechanism (continued)

RIBBON PRINT POSITION

Requirement
When typing occurs, type pallet should strike about center of ribbon.

To Adjust
Loosen two stop mounting screws. Raise or lower stop to meet requirement. Tighten stop mounting screws.

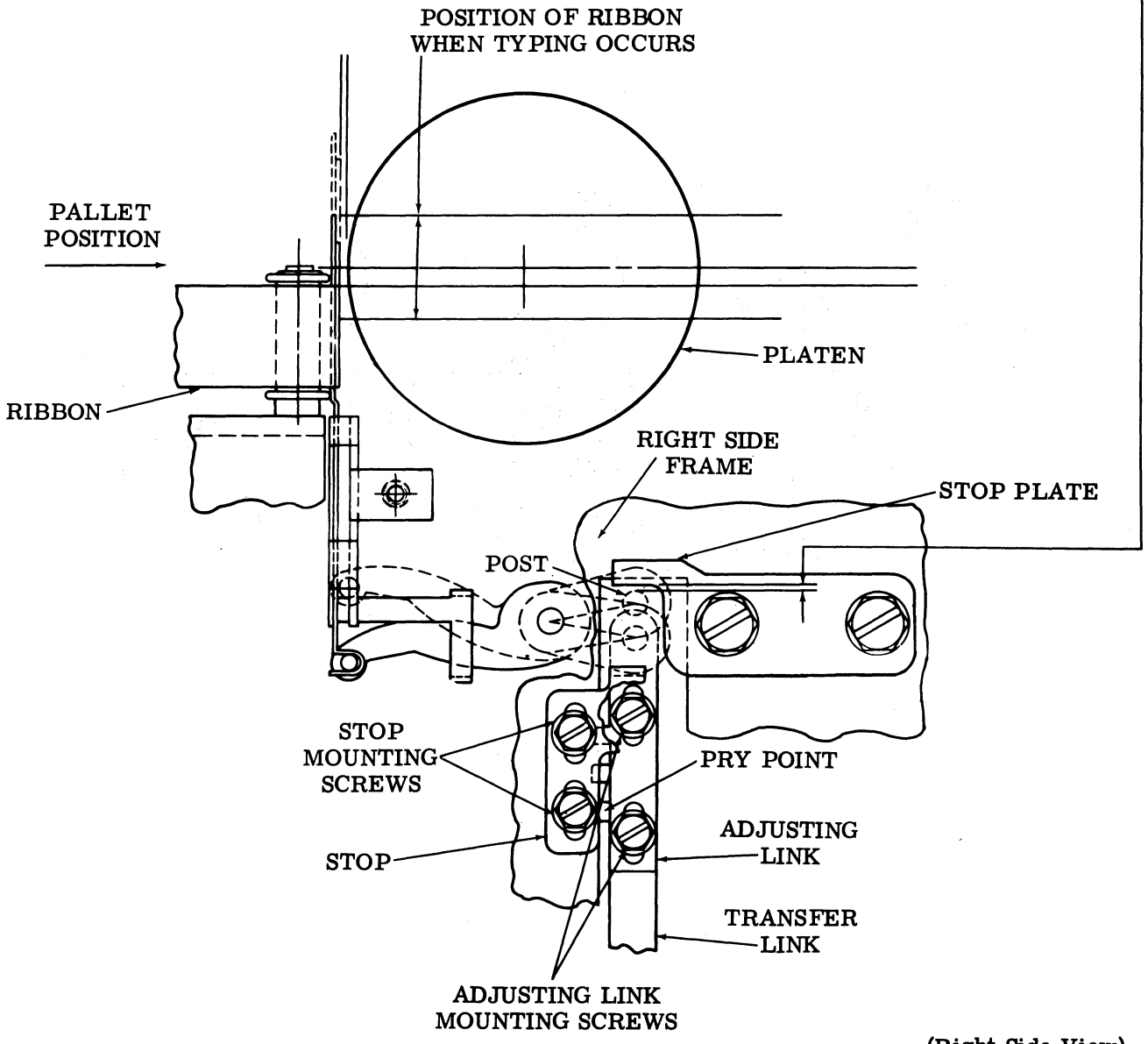
Affected Adjustment
OSCILLATOR DOWNSTOP

OSCILLATOR DOWNSTOP

To Check
Print hammer clutch disengaged (latched).

Requirement
Min some---Max 0.010 inch clearance between post and stop plate.

To Adjust
Loosen adjusting link mounting screws. Position the post using pry points. Tighten screws.



(Right Side View)

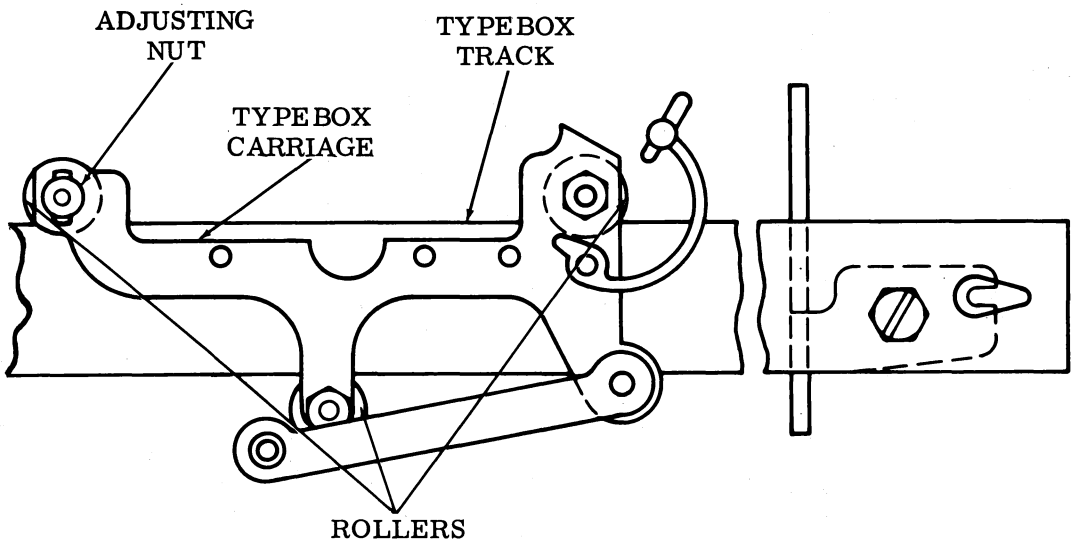
2.101 Printing Mechanism (continued)

TYPEBOX CARRIAGE ROLLER

(1) Requirement
Typebox carriage should ride freely on typebox track.

(2) Requirement
Minimum play between rollers and typebox track in both vertical and front and rear directions.

To Adjust
Loosen adjusting nut and position roller in area where typebox track is widest. Tighten adjusting nut. Check for excessive play or binds along entire length of typebox track. Refine if necessary.



(Front View)

2.102 Printing Mechanism (continued)

TYPEBOX ALIGNMENT

(1) To Check
Several characters printed.

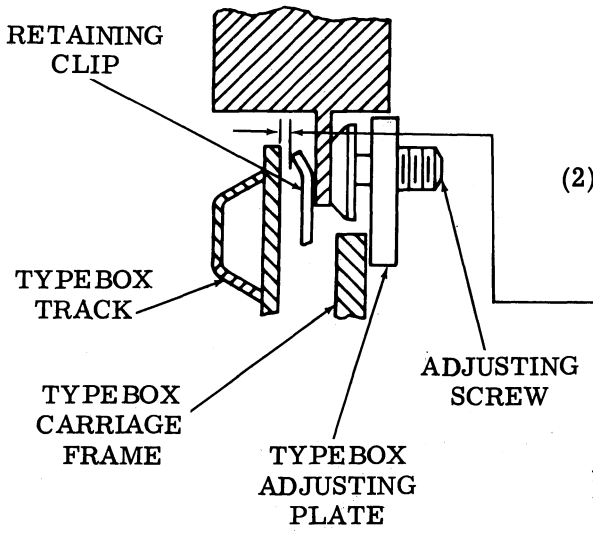
Requirement
Printed impression of characters at top and bottom should be equal as gauged by eye.

To Adjust
Operate typing unit under power. Alternately select type pallet in top and bottom row. Turn adjusting screw in or out a quarter-turn at a time.

(2) To Check
Typebox removed.

Requirement
Min 0.030 inch between typebox retaining clip and typebox track.

To Adjust
Refine (1) To Check requirement.



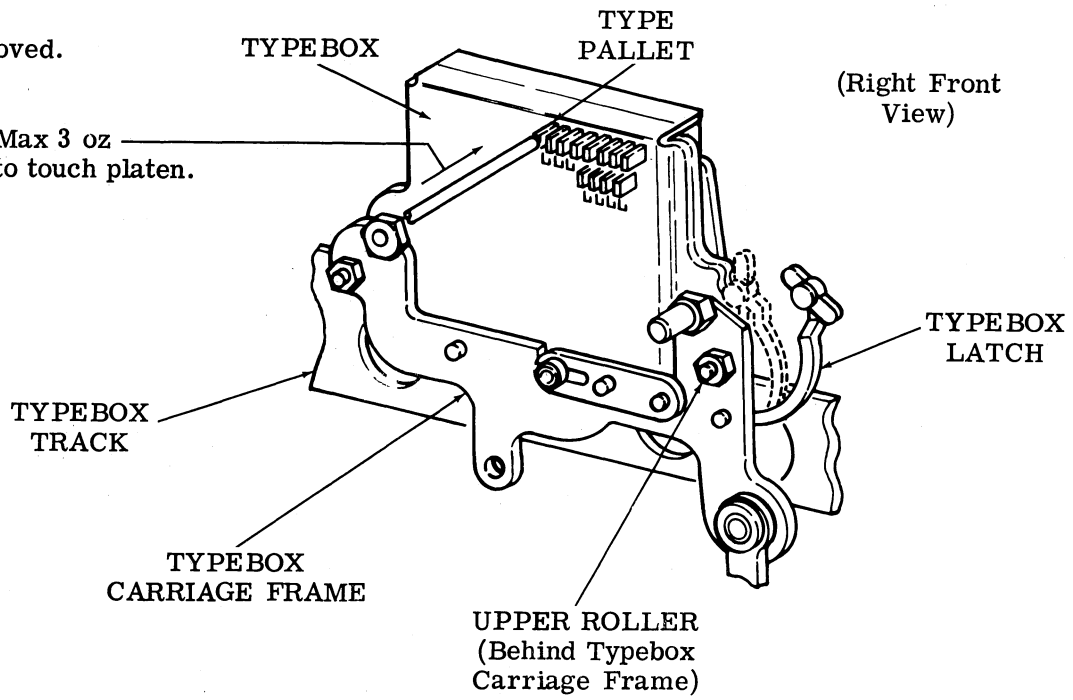
(Left Side View)

Note: When more than one typebox is used in the printer, adjust the typebox for proper printing density rather than adjusting the printer each time the typebox is changed. The adjustment can be made by bending the tab on the bottom of the typebox. (If the printed copy is light at the bottom, bend the tab toward the front of the machine. If the copy is light at the top, bend the tab toward the rear of the machine.)

TYPEBOX PALLET SPRING

To Check
Ink ribbon removed.

Requirement
Min 1 oz---Max 3 oz for type pallet to touch platen.



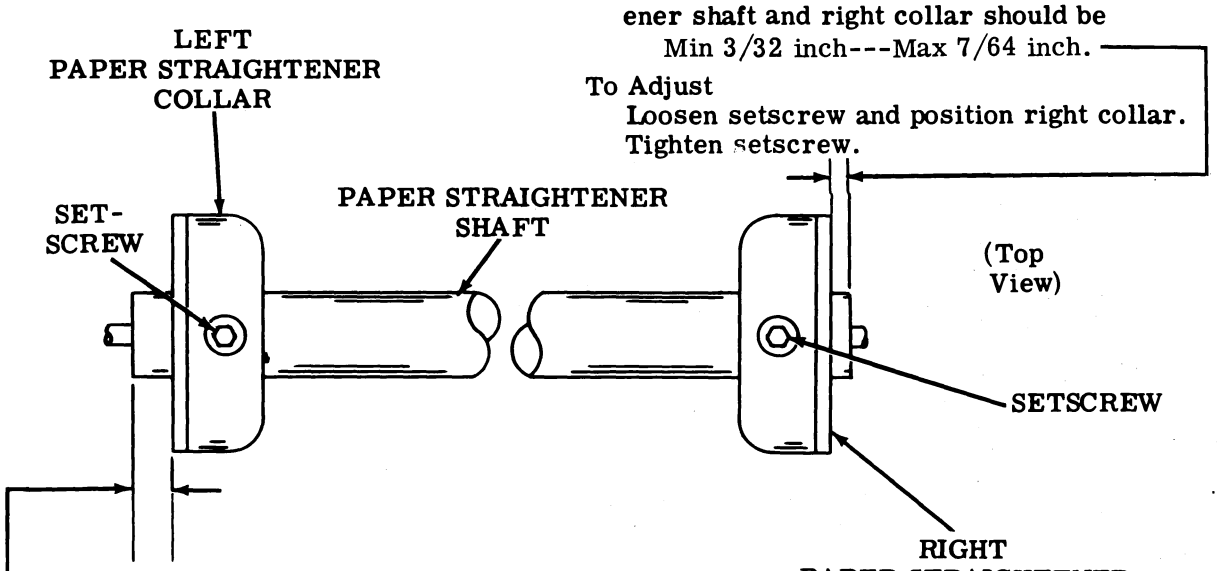
(Right Front View)

2.103 Platen Mechanism (Friction Feed)

RIGHT PAPER STRAIGHTENER COLLAR

Requirement
Space between right shoulder of paper straightener shaft and right collar should be
Min 3/32 inch---Max 7/64 inch.

To Adjust
Loosen setscrew and position right collar.
Tighten setscrew.



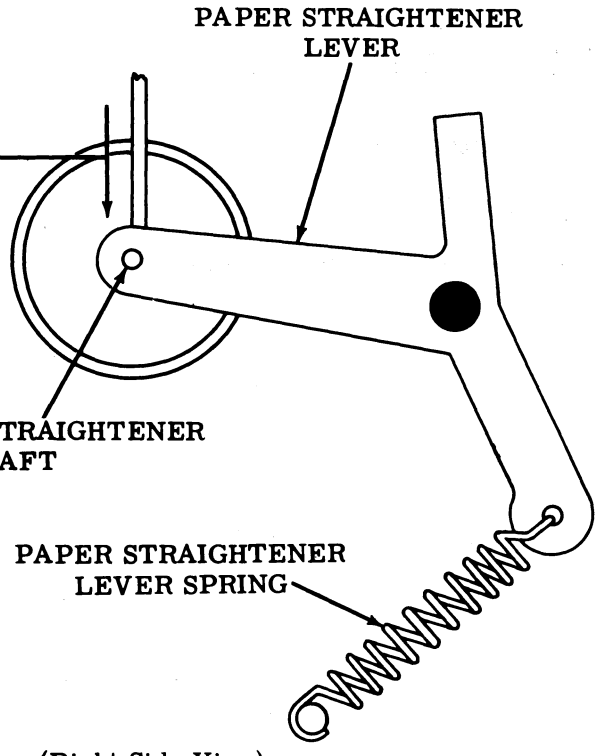
LEFT PAPER STRAIGHTENER COLLAR

Requirement
Space between left shoulder of paper straightener shaft and left collar should be
Min 1/4 inch---Max 19/64 inch.

To Adjust
Loosen setscrew and position left collar.
Tighten setscrew.

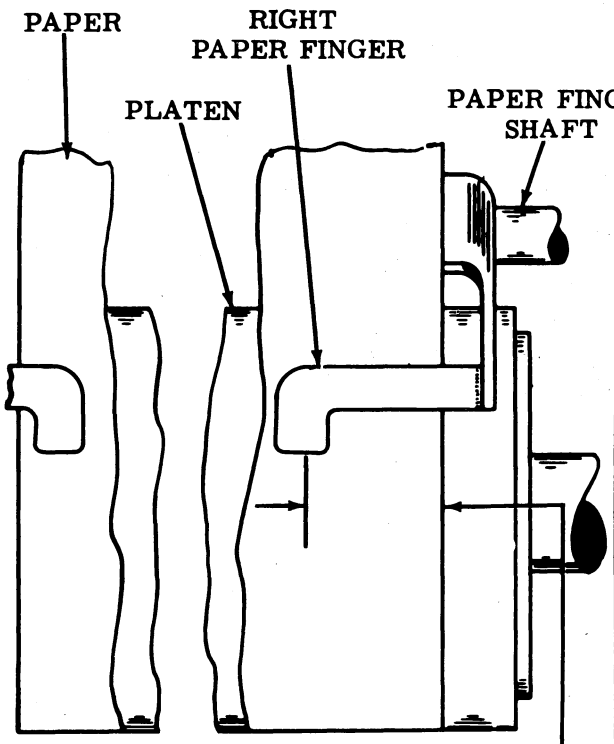
PAPER STRAIGHTENER LEVER SPRING

Requirement
Min 3-1/2 oz---Max 6-1/2 oz
to start lever moving.

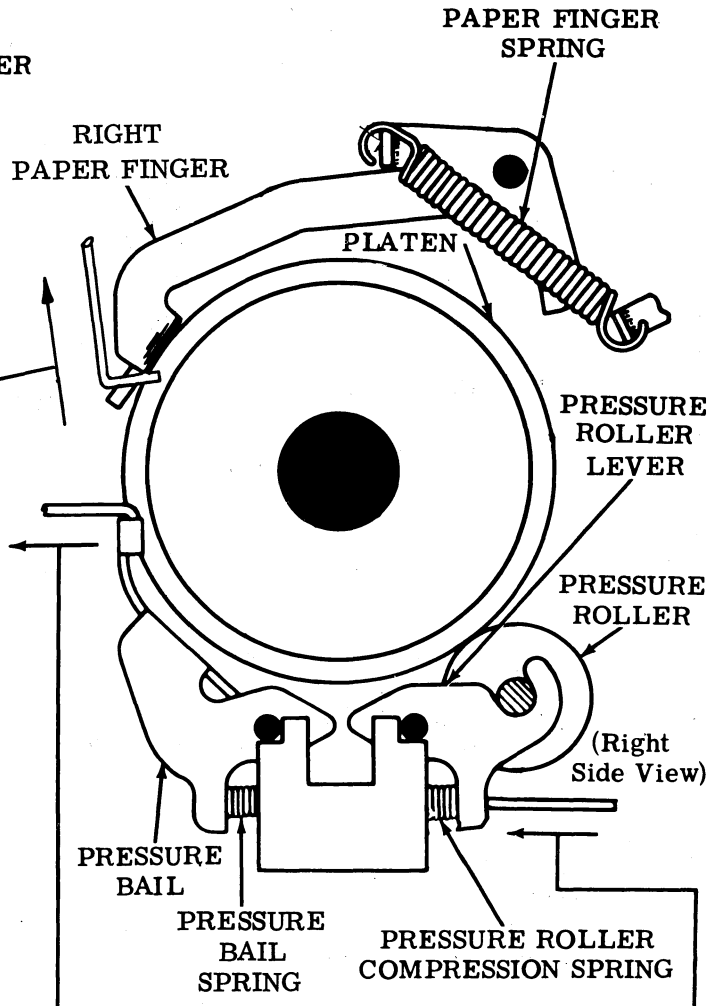


(Right Side View)

2.104 Platen Mechanism (Friction Feed) (continued)



(Front View)



PAPER FINGER

Requirement
Pressure end of paper fingers should overlap paper by
Min 3/8 inch---Max 1/2 inch.

To Adjust
Position paper fingers by sliding them on their shaft.

PAPER FINGER SPRING

To Check
Pull upward on right paper finger.

Requirement
Min 3 oz---Max 6 oz
to start left paper finger moving from platen.

PRESSURE ROLLER LEVER SPRING

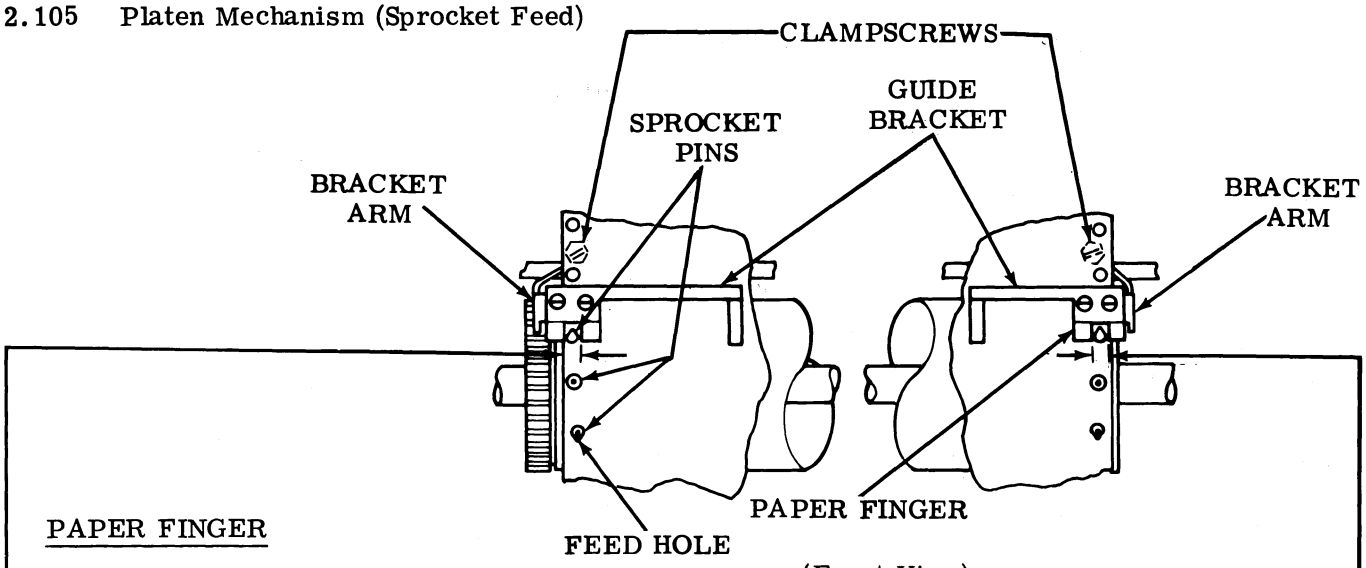
Requirement
Min 28 oz---Max 36 oz
to start each center lever moving alternately.

PAPER PRESSURE BAIL SPRING

To Check
Scale hooked over pressure bail at each end of platen.

Requirement
Min 42 oz---Max 56 oz
to move pressure bail from platen.

2.105 Platen Mechanism (Sprocket Feed)



PAPER FINGER

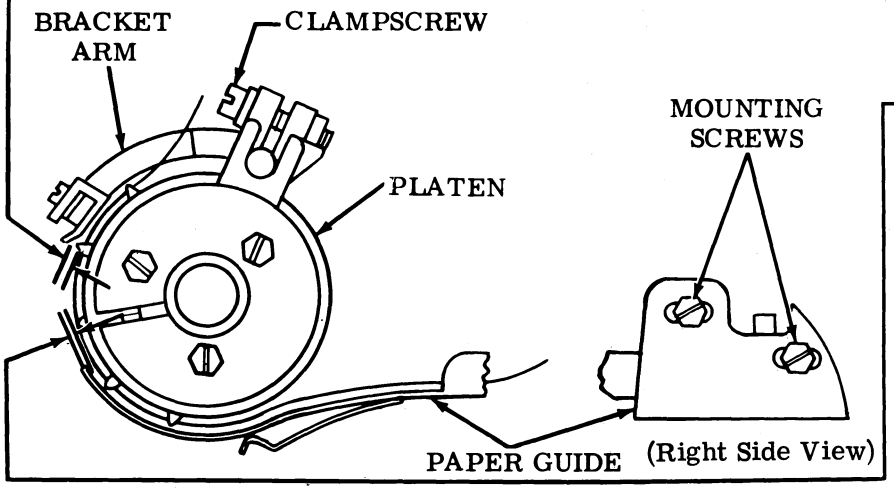
To Check
Guide bracket down in latched position.

(1) Requirement
Sprocket pins should be centrally located in guide slot.

(2) Requirement
Gap between platen and paper finger should be:
Stapled Multiple Copy;
Min 0.050 inch---Max 0.105 inch
Single and Unstapled Multiple Copy;
Min 0.020 inch---Max 0.060 inch

To Adjust
Loosen clampscrews. Position guide bracket horizontally to meet requirement (1). Rotate guide bracket to meet requirement (2). Tighten clampscrews.

Note: The desired clearance should be the minimum which will pass stationery freely.



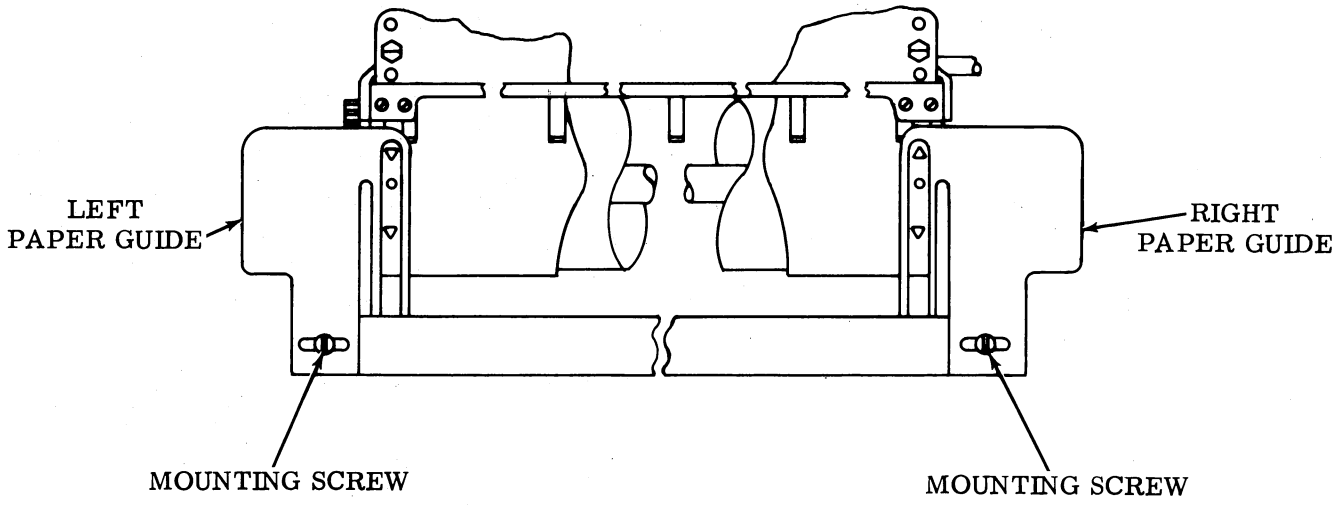
PAPER GUIDE TRAY

Note: When a paper-out alarm is used on the paper tray, the sensing arm extension should not touch the platen. The close condition normally happens when the tray is adjusted to accept stapled multiple copy.

Requirement
Clearance between platen and front edge of paper guide should be same as requirement (2), PAPER FINGER adjustment.

To Adjust
Loosen mounting screws and position paper guide tray. The clearance should be the same, as gauged by eye, across the length of the platen. Tighten mounting screws.

2.106 Platen Mechanism (Sprocket Feed) (continued)



PAPER GUIDE (WIDE PLATEN)

Note 1: This adjustment has no counterpart for standard units.

Requirement

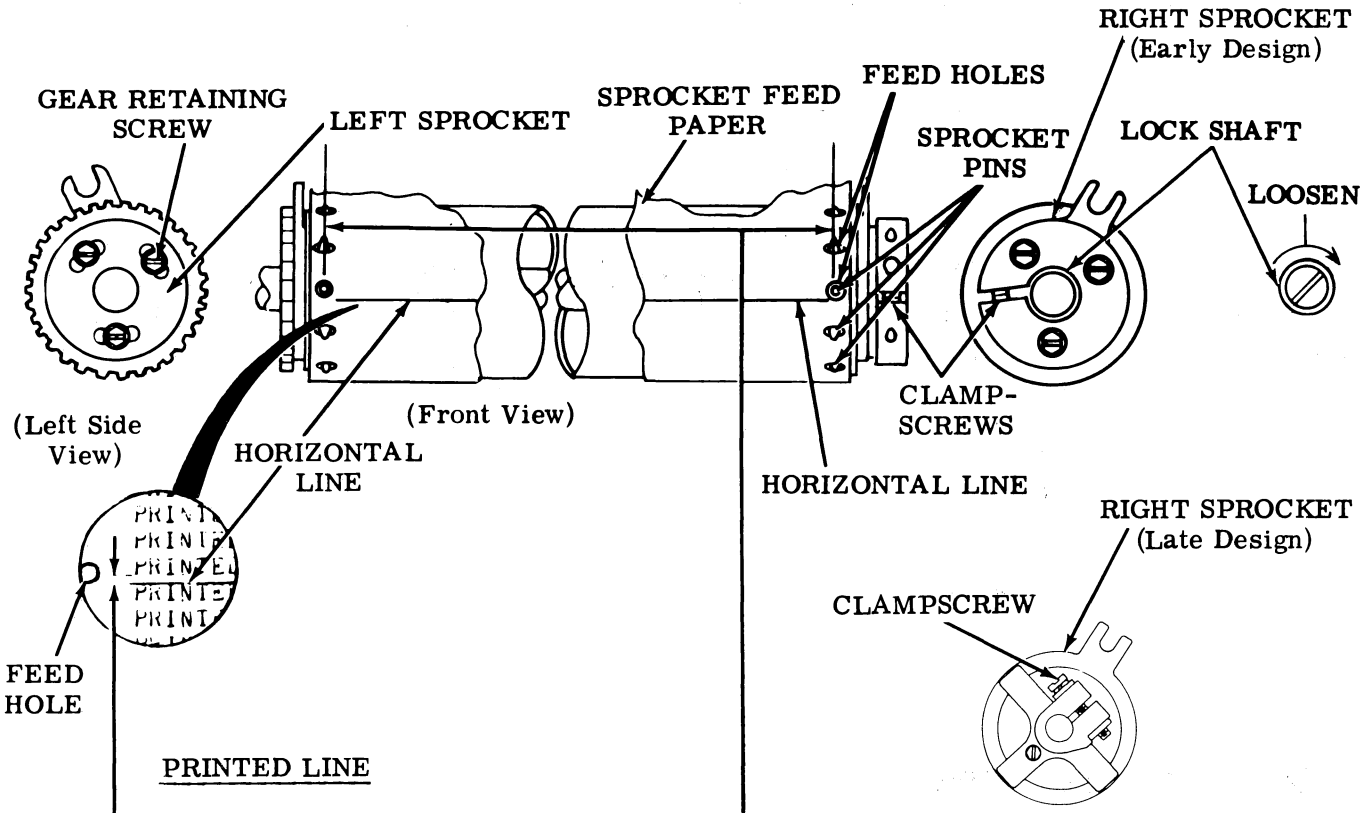
Position the left and right paper guides so the slotted opening is centered over the sprocket pins.

To Adjust

Loosen mounting screws and position the guides left or right to meet the requirement. Tighten mounting screws.

Note 2: The left paper guide may have to be biased left of center to insure that the ribbon guide does not hang up on the paper guide when red ribbon selection is made. The left guide should never be biased so far to the left as to interfere with the sprocket pins. Should interference persist, check the RIBBON RETRACT POSITION (2.99) and OSCILLATOR DOWNSTOP adjustments (2.100).

2.107 Platen Mechanism (Sprocket Feed) (continued)



(Right Side Views of Early and Late Design Right Sprocket)

PRINTED LINE

To Check
A standard sheet of sprocket feed paper on platen, type a printed line. Draw a horizontal line on sprocket feed paper even with bottom edge of first feed hole below printed line.

Requirement
Bottom edge of printed line should be 1/32 inch ±1/64 inch above horizontal line plus a multiple of 1/6 inch if required.

To Adjust
Loosen gear retaining screws and position left sprocket. Tighten gear retaining screws.

Note: If nonstandard paper is used, a readjustment in PRINTED LINE and SPROCKET PIN SEPARATION requirements may be necessary.

SPROCKET PIN SEPARATION

To Check
A single sheet of sprocket feed paper on platen.

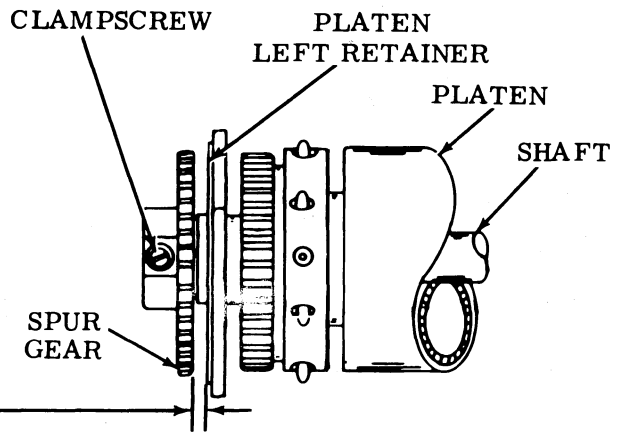
(1) Requirement
Sprocket pins should be centrally located in feed holes of paper.

(2) Requirement
Printed line should be parallel to a line drawn perpendicular to edge of sprocket feed paper (±1/32 inch).

To Adjust
All Except 9-1/2 Inch Form Width:
Loosen clampscrew and position right sprocket. Tighten clampscrew.
With 9-1/2 Inch Form Width:
Loosen lock shaft and rotate right sprocket to required position.
Hold right sprocket hub in position and tighten lock shaft.

Note: The 9-1/2 inch platens do not use a clampscrew on the right sprocket.

2.108 Platen Mechanism (Sprocket Feed) (continued)



(Front View)

PLATEN ENDPLAY

To Check
Line feed bars disengaged.

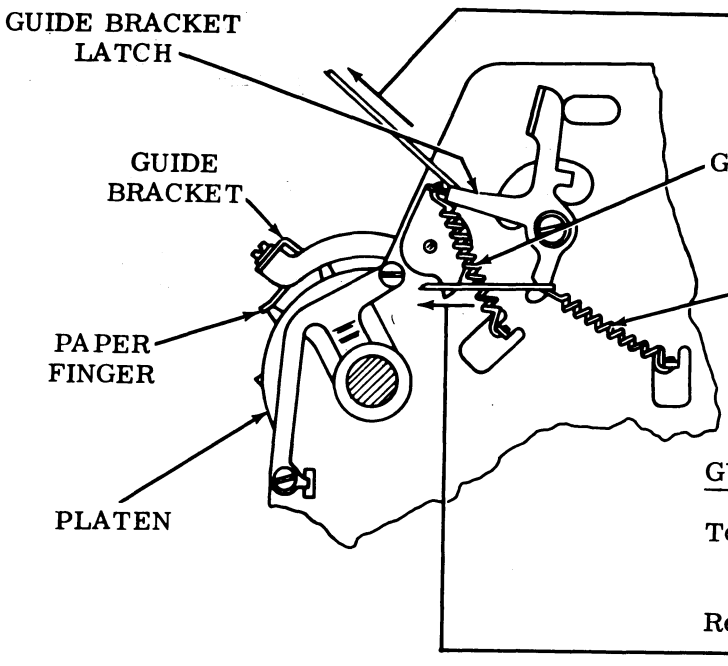
Requirement
Min some---Max 0.010 inch endplay in platen shaft.

To Adjust
Loosen clampscrew and position spur gear.
Tighten clampscrew.

GUIDE BRACKET SPRING

To Check
Push guide bracket latch to release guide bracket.

Requirement
Min 6 oz---Max 10 oz to move paper finger of guide bracket against platen.



(Right Side View)

GUIDE BRACKET LATCH SPRING

To Check
Hold guide bracket against platen.

Requirement
Min 8 oz---Max 12 oz to start guide bracket latch moving.

2.109 Spacing and Carriage Return Mechanisms (continued)

BOUNCE ELIMINATION — PRELIMINARY (WIDE PLATEN UNIT)

Requirement
The left hand margin should be consistent line to line and the margin to the position it was adjusted.

To Adjust
Loosen locknut. Turn the top vent screw in until it bottoms out, and then turn out two complete turns.

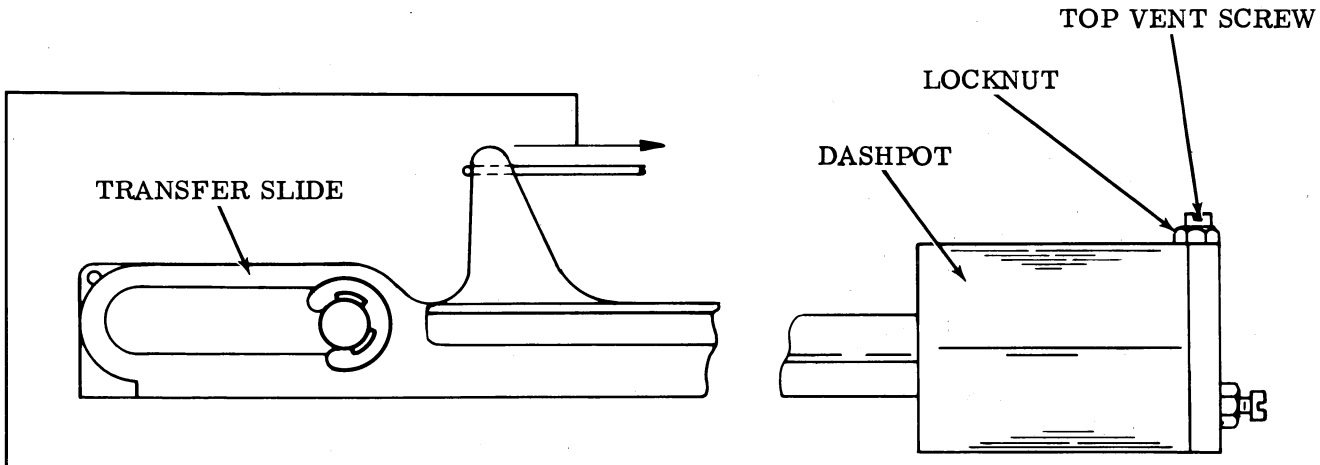
CAUTION: TO BOTTOM OUT TOP VENT SCREW, TURN CAREFULLY.

Note: Never adjust lower dashpot screw.

BOUNCE ELIMINATION — FINAL (WIDE PLATEN UNIT)

Requirement
The unit should be operated under power in order to adjust for consistent left hand margin.

To Adjust
With locknut loosened, turn top vent screw in or out in 1/2-turn increments. (Turn in, if bounce is mechanical, and turn out, if bounce is pneumatic.) Tighten vent screw locknut, but do not overtighten.



DASHPOT SPRING

To Check
Position the transfer slide to the left.

Requirement
Min 4-1/2 oz---Max 7 oz
to start the transfer slide moving.

2.110 Spacing and Carriage Return Mechanisms (continued)

DASHPOT CLEARANCE (WIDE PLATEN)

To Check

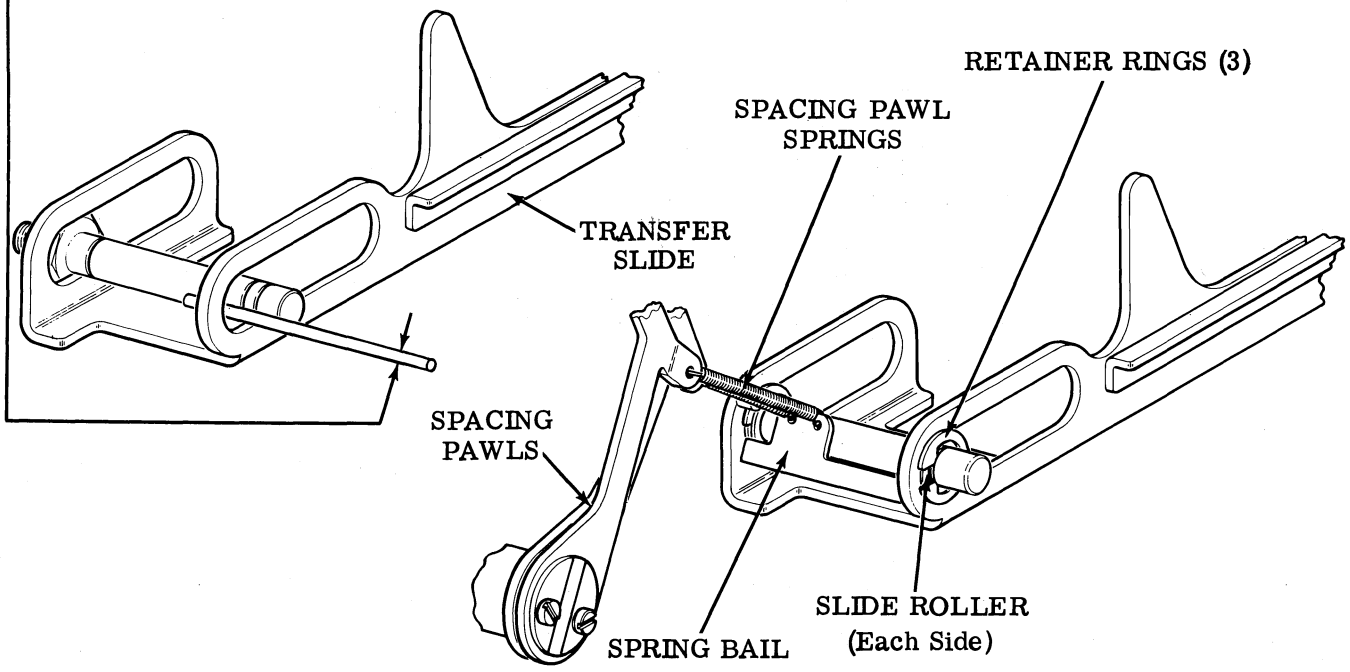
Disconnect spacing pawl springs at the spring bail. Remove the retainer rings, dashpot spring, slide rollers, and spring bail.

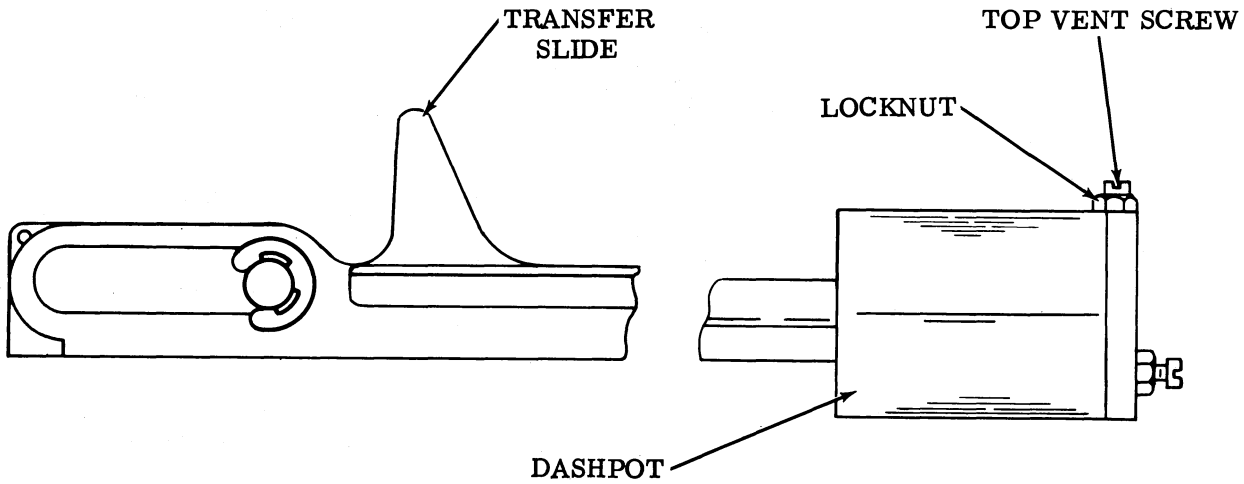
Requirement

Place a 0.065 inch gauge between the transfer slide and post when the two slide rollers are removed, and the transfer slide is to the extreme right.

To Adjust

Loosen dashpot mounting screws in three places. Insert gauge per requirement. Position dashpot to the left to take up any clearance while holding transfer slide against gauge and post. Tighten dashpot mounting screws. Replace the removed parts and connect spacing pawl springs.





2.111 Spacing and Carriage Return Mechanisms (continued)

DASHPOT AND SIDE VENT SCREW (STANDARD UNIT)

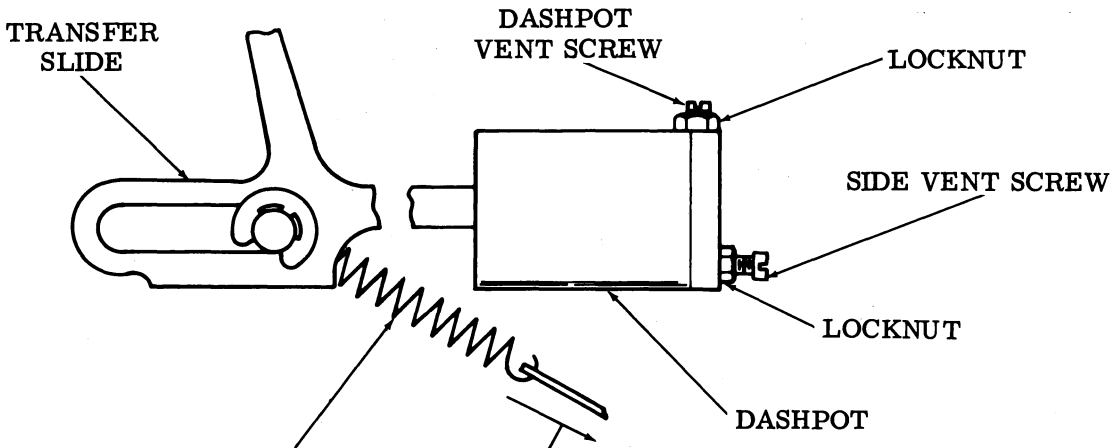
Note: Before checking this adjustment, see that distance from end of side vent screw to side of dashpot is 5/16 inch. Also check that dashpot vent screw is started and run down seven turns into tapped hole.

To Check
Return carriage from various points along line of travel. Note carriage bounce as carriage returns to left hand margin.

Requirement
Typebox carriage should return from any length of line without bouncing.

To Adjust
Turn dashpot vent screw until slight carriage bounce is seen. Back off screw until effect disappears. Back off screw a quarter turn more and tighten locknut. If this procedure does not fix the trouble, turn side vent screw a half turn at a time and repeat adjustment of dashpot vent screw. Tighten side vent screw locknut, but do not over tighten.

CAUTION: THE SIDE VENT SCREW SHOULD NEVER BE REMOVED UNLESS CARRIAGE IS SECURELY TIED TO PREVENT IT FROM RETURNING TO LEFT HAND MARGIN.



TRANSFER SLIDE SPRING

To Check
Transfer slide in extreme left and spring unhooked.

Requirement
Min 1-1/2 oz---Max 2-1/2 oz to pull spring to installed length.

2.112 Vertical and Horizontal Positioning Mechanisms (continued)

TYPEBOX RAIL ALIGNMENT (FINAL)

Note: First check TYPEBOX RAIL ALIGNMENT (PRELIMINARY) (2.50).

To Check
Hold retraction reset arm to rear of typing unit to disable typebox retraction mechanism. Print "EuEuEu" across page. Consider left and right halves of page separately.

Requirement
Printed characters should be evenly spaced as gauged by eye.

To Adjust
Loosen typebox rail clampscrews friction tight. If printed characters are offset as follows:

(1) E uE uE uE where "u" is misplaced to right — raise typebox rail using pry points.

(2) Eu Eu Eu Eu where "u" is misplaced to left — lower typebox rail using pry points.

Tighten clampscrews. Recheck requirement and refine if necessary.

3. VARIATIONS

3.01 Low-Paper Alarm (Friction Feed)

SWITCH POSITION

Requirement
Low-paper switch should be in lowermost position in its mounting holes and parallel with actuating lever.

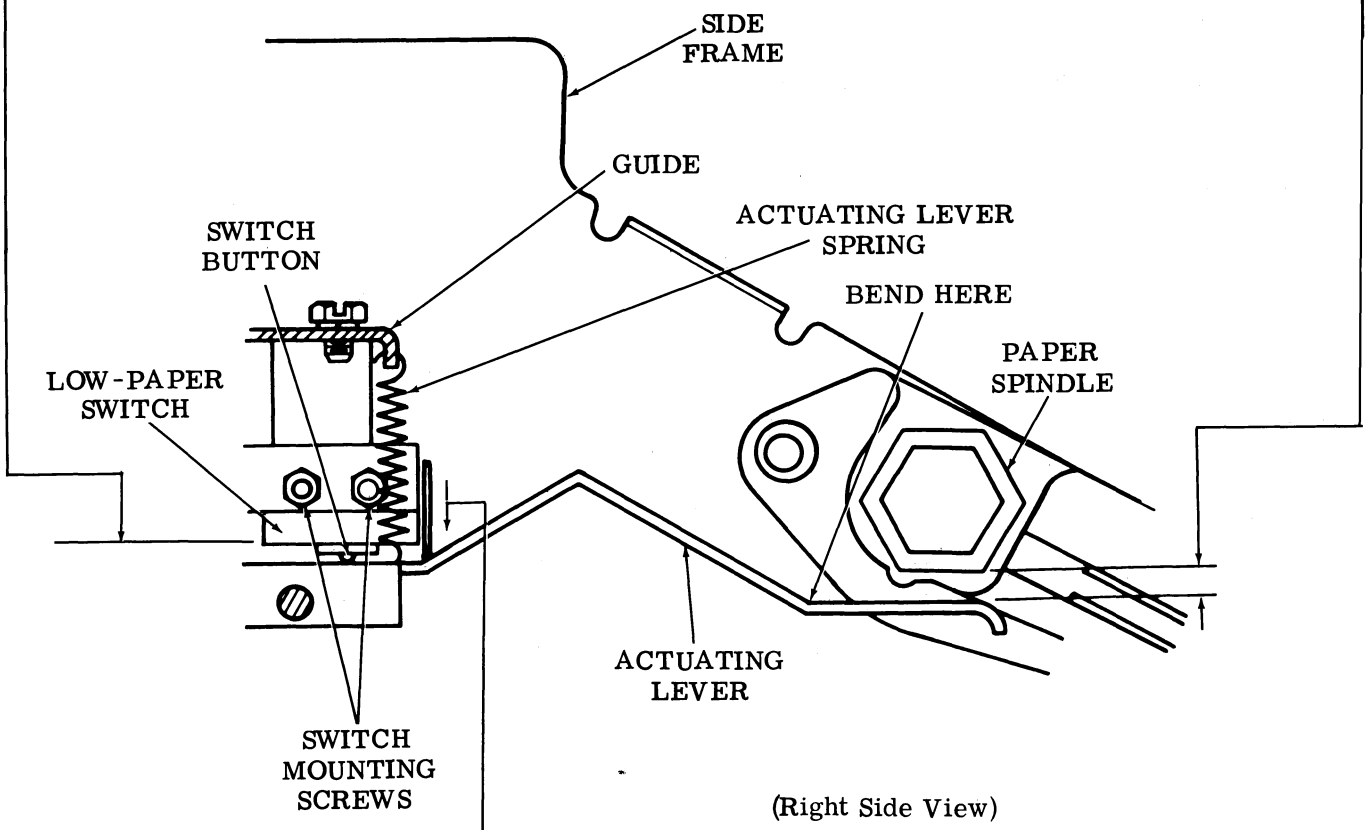
To Adjust
Loosen two switch mounting screws and move switch to lowermost position. Visually align the switch parallel with actuating lever. Tighten mounting screws.

ACTUATING LEVER CLEARANCE

(1) Requirement
Actuating lever extension should be parallel to flat surface of empty paper spindle.

(2) Requirement
Actuating lever should be about 1/4 inch below flat surface of empty paper spindle.

To Adjust
Bend actuating lever at point indicated.



(Right Side View)

ACTUATING LEVER SPRING

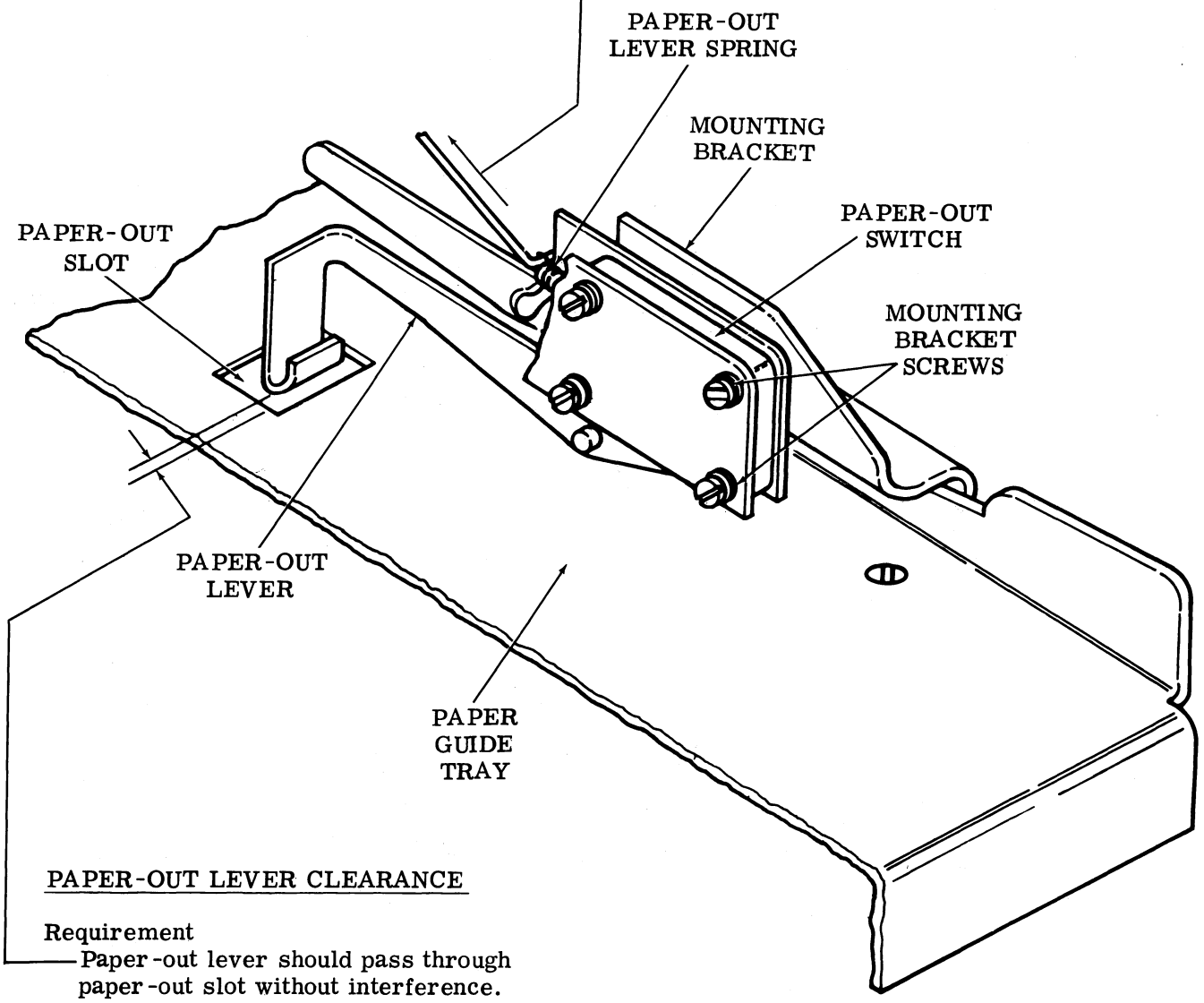
Requirement
Min 2-1/2 oz---Max 4-1/2 oz to move actuating lever clear of low-paper switch button.

3.02 Paper-Out Alarm (Sprocket Feed)

PAPER-OUT LEVER SPRING

To Check
Paper-out lever in paper-out position. Paper-out lever spring unhooked from spring post.

Requirement
Min 3/4 oz---Max 1-1/2 oz to pull spring to installed length.



PAPER-OUT LEVER CLEARANCE

Requirement
Paper-out lever should pass through paper-out slot without interference.

To Adjust
Loosen two nuts of mounting bracket screws. Align mounting bracket with respect to paper guide tray. Tighten mounting bracket screw nuts.

(Right Rear View)

3.03 Horizontal Tabulation Mechanism

SENSING ARM

To Check

Four tabs set on tab wheel (approximately equal distance between tabs). Carriage positioned with selected tab stop just past tabulator pawl. Spacing feed pawl on high part of eccentric cam engaging ratchet. (Check by moving spacing feed pawl on low part of eccentric cam away from ratchet.) Spacing clutch disengaged (latched). Push back operating lever extension link until it is blocked by blocking lever.

(1) Requirement

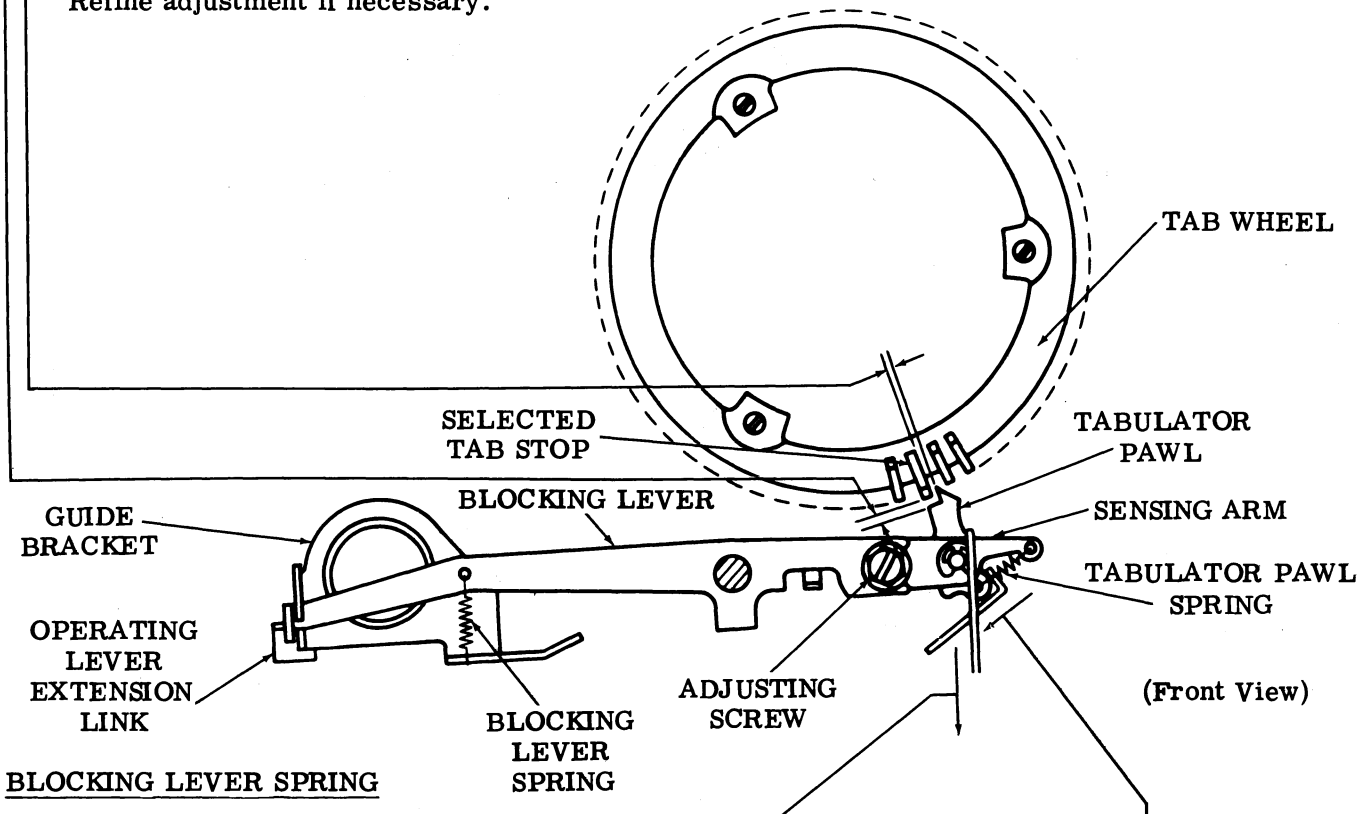
Min 0.045 inch---Max 0.055 inch clearance between head of selected tab stop.

(2) Requirement

Min 0.002 inch---Max 0.025 inch clearance between side of selected tab stop and tabulator pawl.

To Adjust

Loosen adjusting screw friction tight. Position sensing arm. Tighten adjusting screw and recheck requirements. Check requirements for each of the three other tab stops previously set. Refine adjustment if necessary.



BLOCKING LEVER SPRING

To Check

Operating lever extension link unblocked by blocking lever.

Requirement

Min 2-1/2 oz---Max 4-1/2 oz to move blocking lever away from its stop on guide bracket.

TABULATOR PAWL SPRING

Requirement

Min 3 oz---Max 5 oz to move tabulator pawl away from its stop.

3.04 Horizontal Tabulation Mechanism (continued)

CABLE ROUTING (WIDE PLATEN UNIT)

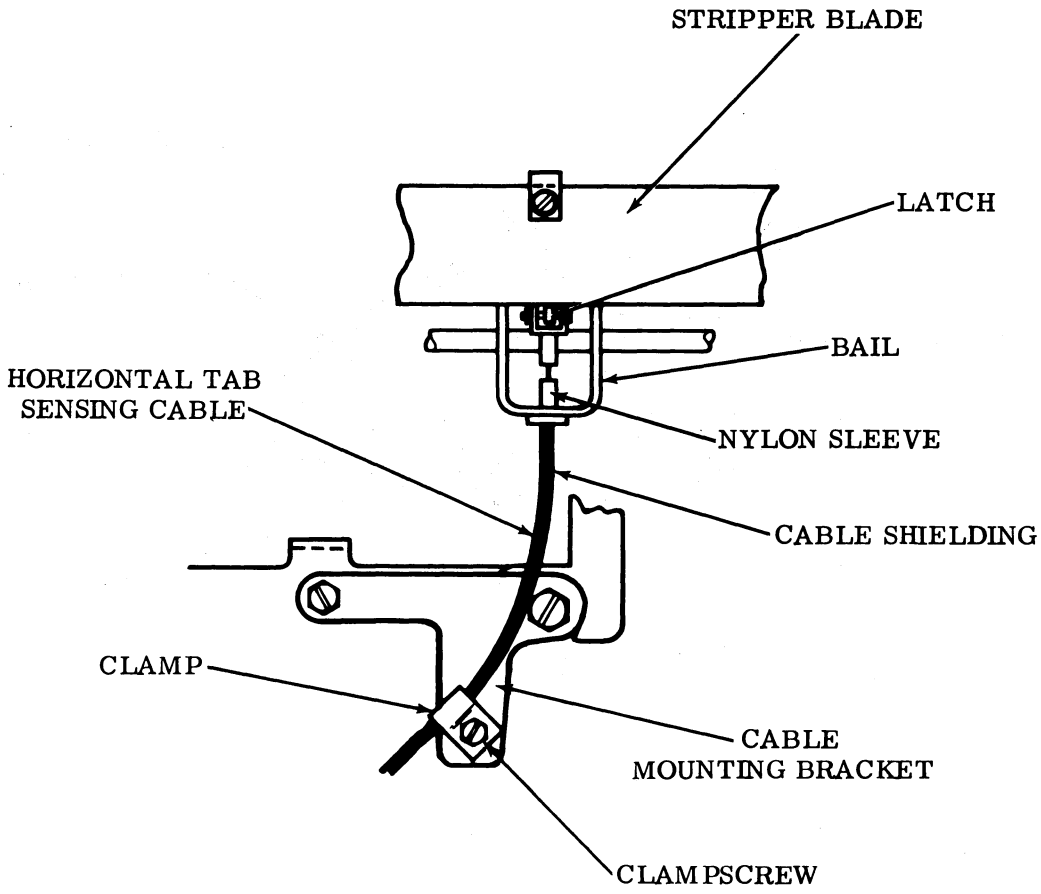
Requirement

The cable should be positioned such that it enters the stunt box as shown, and the cable shielding should be flush against the nylon sleeve.

To Adjust

Loosen the screw that secures the cable clamp to the spring bracket, and position the cable to meet the requirement. Tighten the clampscrew.

Note: Check related adjustment TAB WHEEL — FINAL (3.06)



(Rear View)

3.05 Horizontal Tabulation Mechanism (continued)

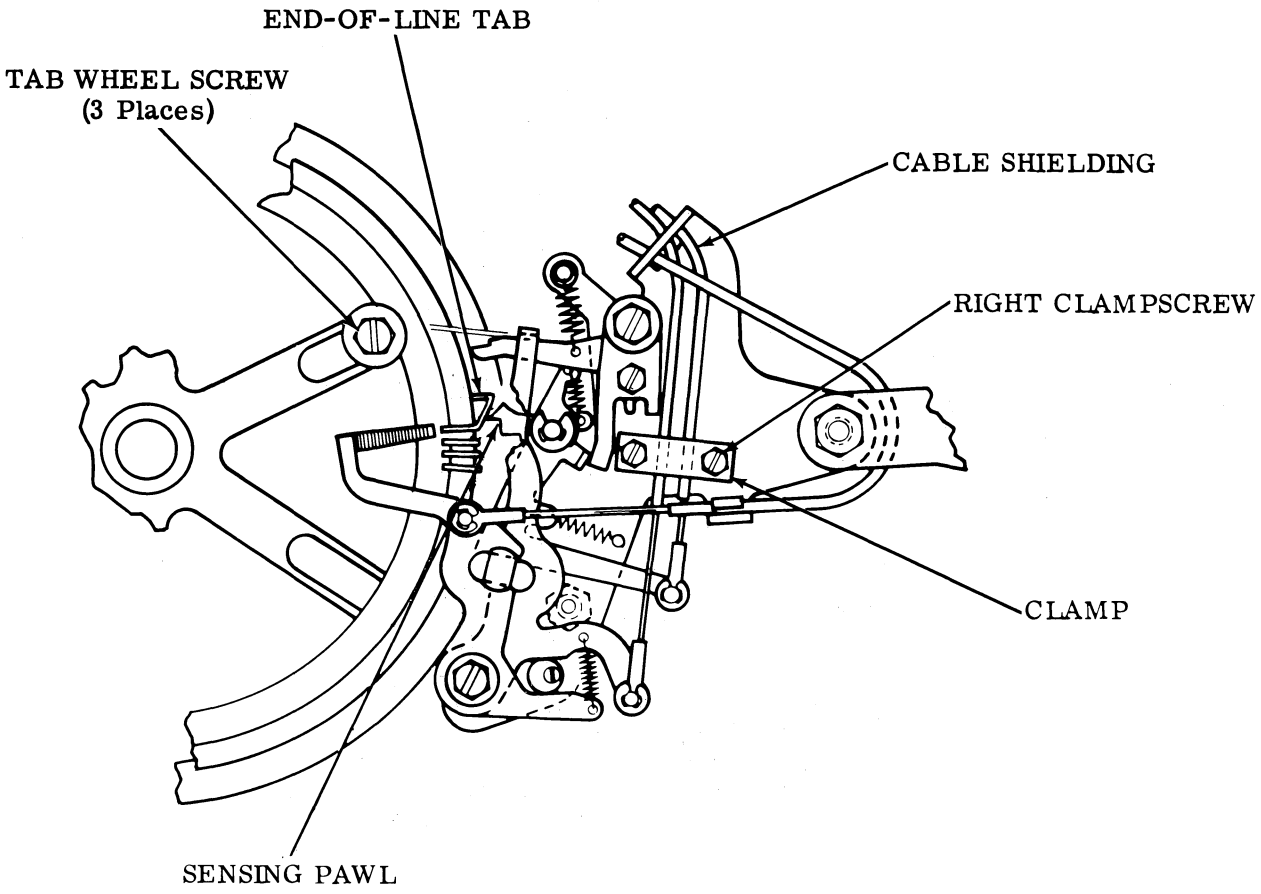
TAB WHEEL — WIDE PLATEN UNIT (PRELIMINARY)

Requirement

With the spacing drum positioned to the right hand margin of the unit, and the spacing clutch disengaged, the sensing pawl should sense the end-of-line tab in the approximate center of the tab.

To Adjust

Loosen the three screws that secure the tab wheel to the spacing drum and position the wheel to meet the requirement. Tighten the screws friction tight.



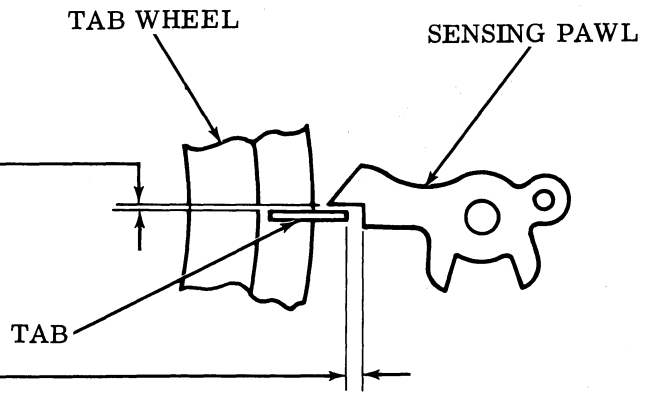
3.06 Horizontal Tabulation Mechanism (continued)

TAB WHEEL (WIDE PLATEN UNIT) (FINAL)

To Check
Trip the spacing clutch to place the active spacing pawl on the high part of the spacing eccentric. Disengage the spacing clutch and set four tabs at approximately equal divisions on the tab wheel assembly. Position the spacing drum so that the second tab is adjacent to the sensing pawl. Check requirement.

Requirement
Min 0.002 inch---Max 0.010 inch clearance between the sensing pawl and the tab when measured between the sides of each part.

To Adjust
Loosen the three tab wheel screws and position the wheel to obtain the clearance. Tighten adjusting screws. Check requirement at the remaining three set tabs.



SENSING PAWL (WIDE PLATEN UNIT)

To Check
Set up horizontal tab (1 and 4 marking) in the selector. Trip the function clutch until the horizontal tabulation function lever is fully selected in the function box. The associated tab on the tab wheel assembly should be set prior to checking the clearance.

Requirement
Min 0.030 inch---Max 0.045 inch clearance between the notch on the sensing pawl and the end of the tab when the horizontal tabulation function is selected.

To Adjust
Loosen the right clampscrew that holds the cable shielding secure. Move the shielding to meet the requirement. Tighten the screw.

3.07 Horizontal Tabulation Mechanism (continued)

SPACING CLUTCH TRIPBAIL (WIDE PLATEN UNIT)

To Check

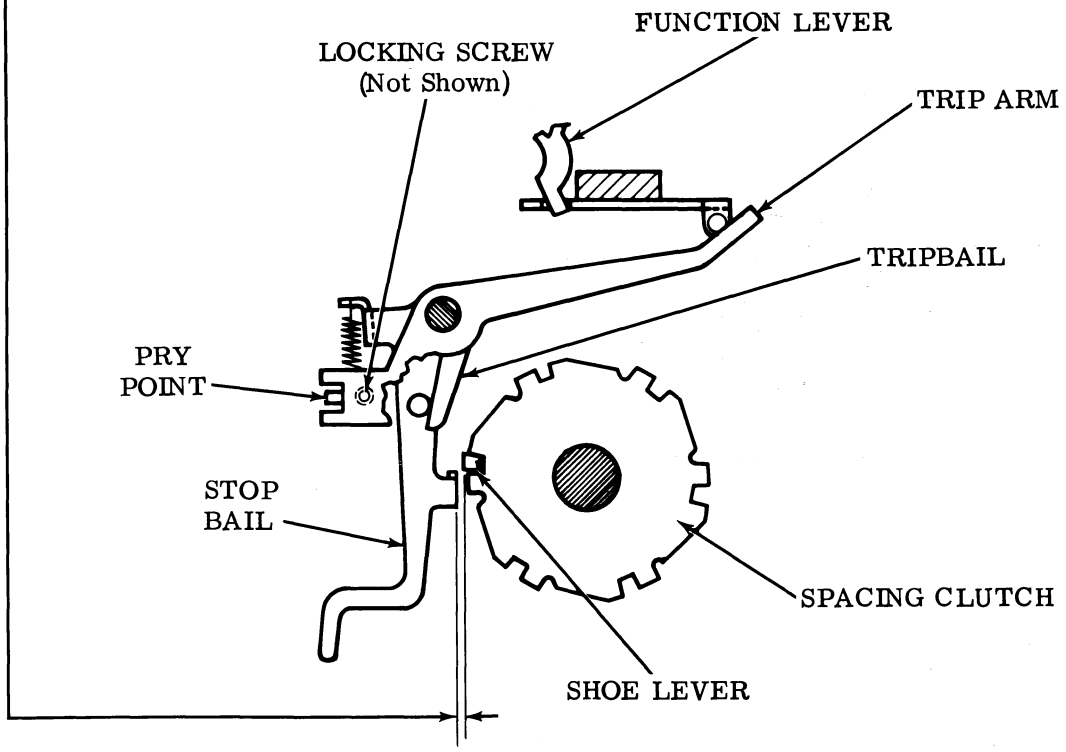
Clear tabs and set up horizontal tab (1 and 4 marking) in the selector. Trip the function clutch until the horizontal tabulation function lever is fully selected in the stunt box.

Requirement

Min some---Max 0.015 inch clearance between the lug on the spacing clutch stop bail and the shoe lever of the spacing clutch.

To Adjust

Loosen the locking screw that secures the trip arm to the stop bail and adjust, using the pry point to meet the requirement. Tighten the locking screw.

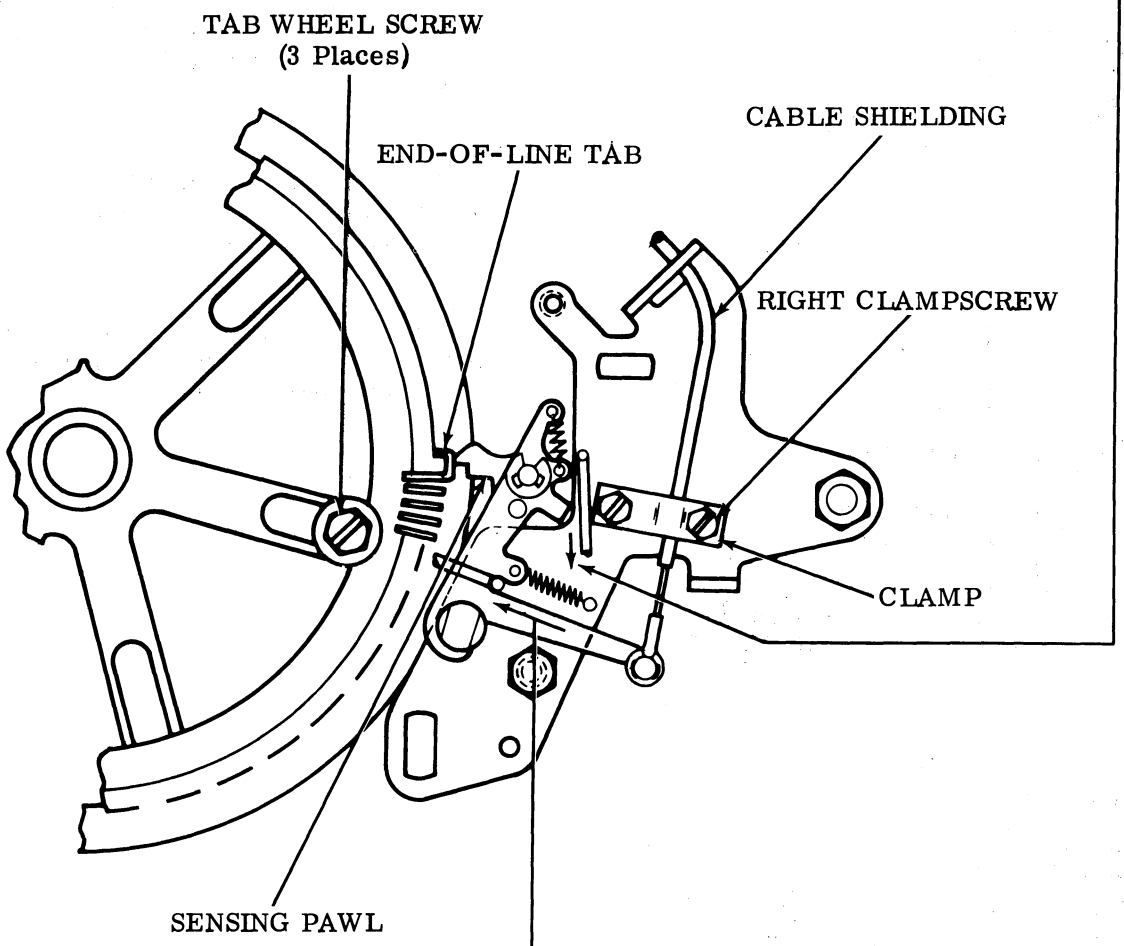


3.08 Horizontal Tabulation Mechanism (continued)

SENSING PAWL SPRING (WIDE PLATEN UNIT)

Requirement

Min 1 oz---Max 2-1/2 oz
to start moving the sensing pawl away from its stop when the hook end of the spring scale is placed on the spring end of the pawl.

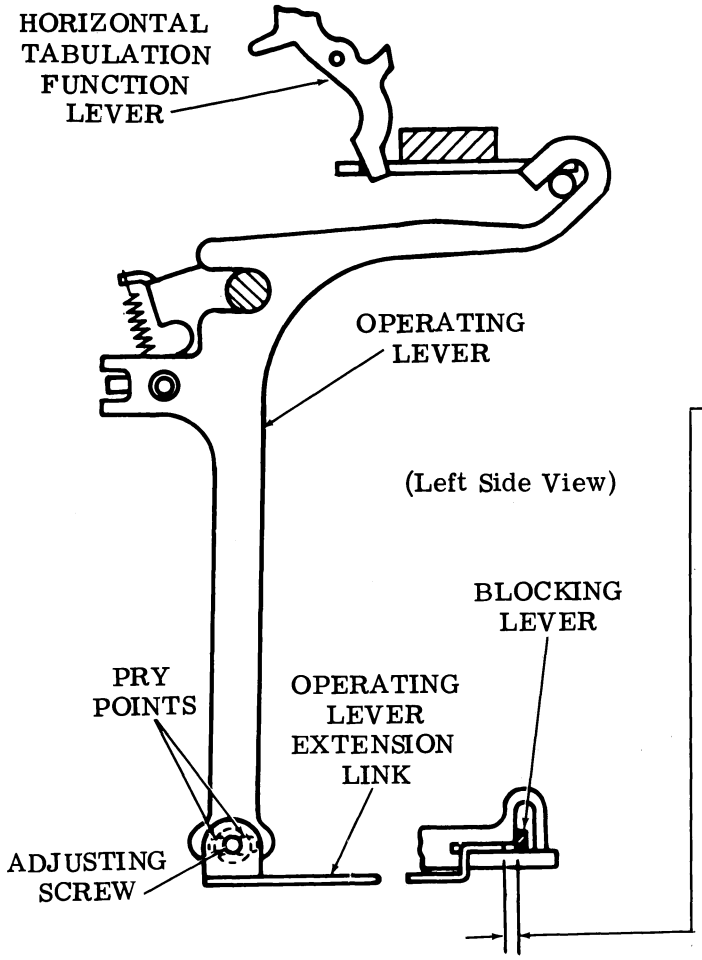


SENSING ARM SPRING (WIDE PLATEN UNIT)

Requirement

Min 2 oz---Max 3 oz
to start the arm moving when the hook end of the spring scale is placed at the point where the spring is attached. The cable assembly should be removed and any other load held away during the measurement.

3.09 Horizontal Tabulation Mechanism (continued)

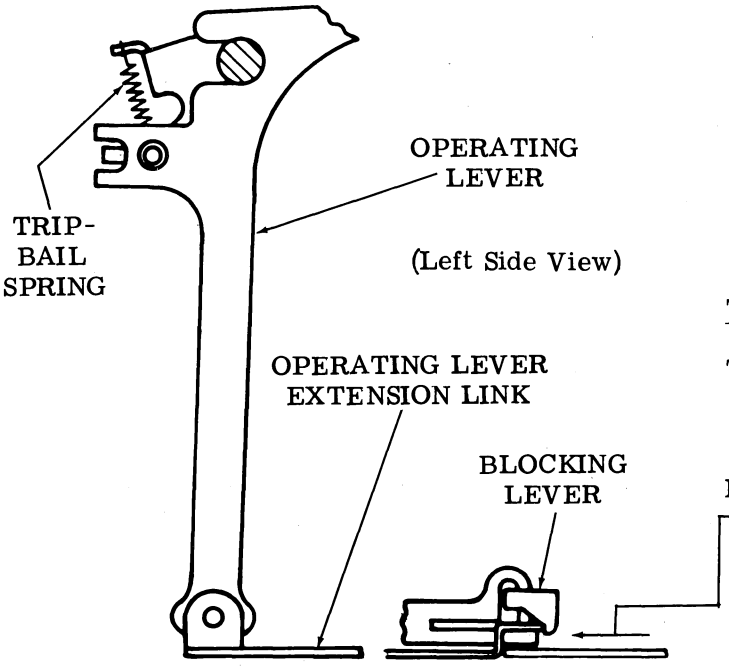


OPERATING LEVER EXTENSION LINK

To Check
Codebars 1 and 4 marking and all other codebars spacing (HT). Engage (trip) codebar clutch and rotate main shaft until horizontal tabulation function lever is fully selected. Take up play in blocking lever to make gap between operating lever extension link and blocking lever a minimum.

Requirement
Min 0.006 inch---Max 0.030 inch gap between operating lever extension link and blocking lever.

To Adjust
Loosen adjusting screw. Position operating lever extension link using pry points. Tighten adjusting screw.



TRIPBAIL SPRING

To Check
Operating lever extension link unblocked by blocking lever.

Requirement
Min 2 oz---Max 4 oz to start operating lever extension link moving.

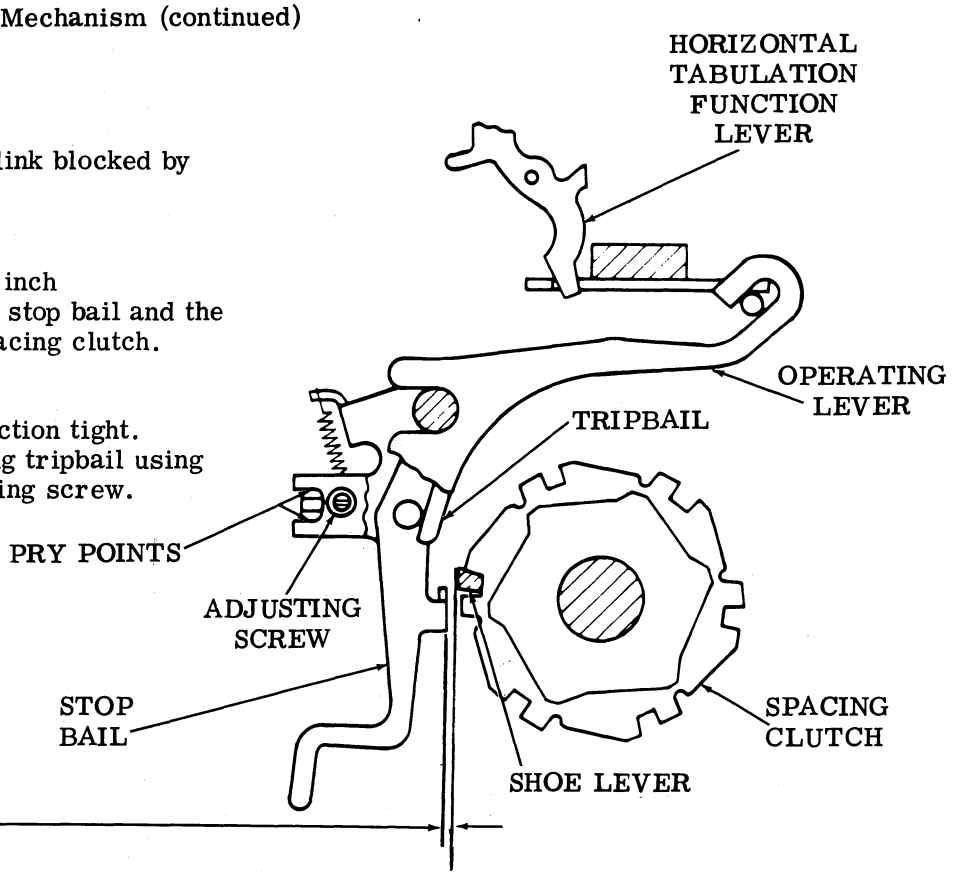
3.10 Horizontal Tabulation Mechanism (continued)

TRIPBAIL

To Check
Operating lever extension link blocked by blocking lever.

Requirement
Min some---Max 0.015 inch gap between spacing clutch stop bail and the stop pry bars (6) on the spacing clutch.

To Adjust
Loosen adjusting screw friction tight. Position stop bail by moving tripbail using pry points. Tighten adjusting screw.



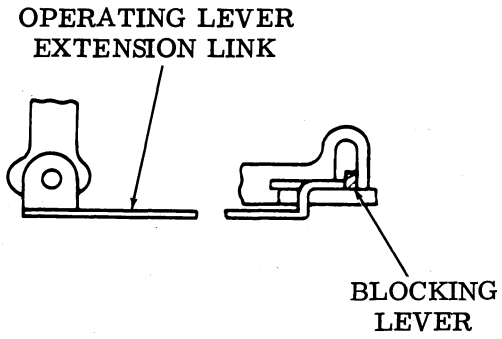
3.11 Vertical Tabulation Mechanism

SLIDE RETAINER

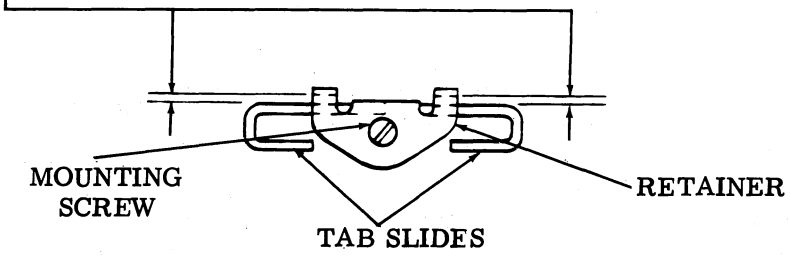
Requirement
Min some---Max 0.004 inch clearance between tab slides and retainer.

To Adjust
Loosen mounting screw. Position retainer to meet requirement. Tighten mounting screw.

Note: Tab slides should move freely through their full length of travel.

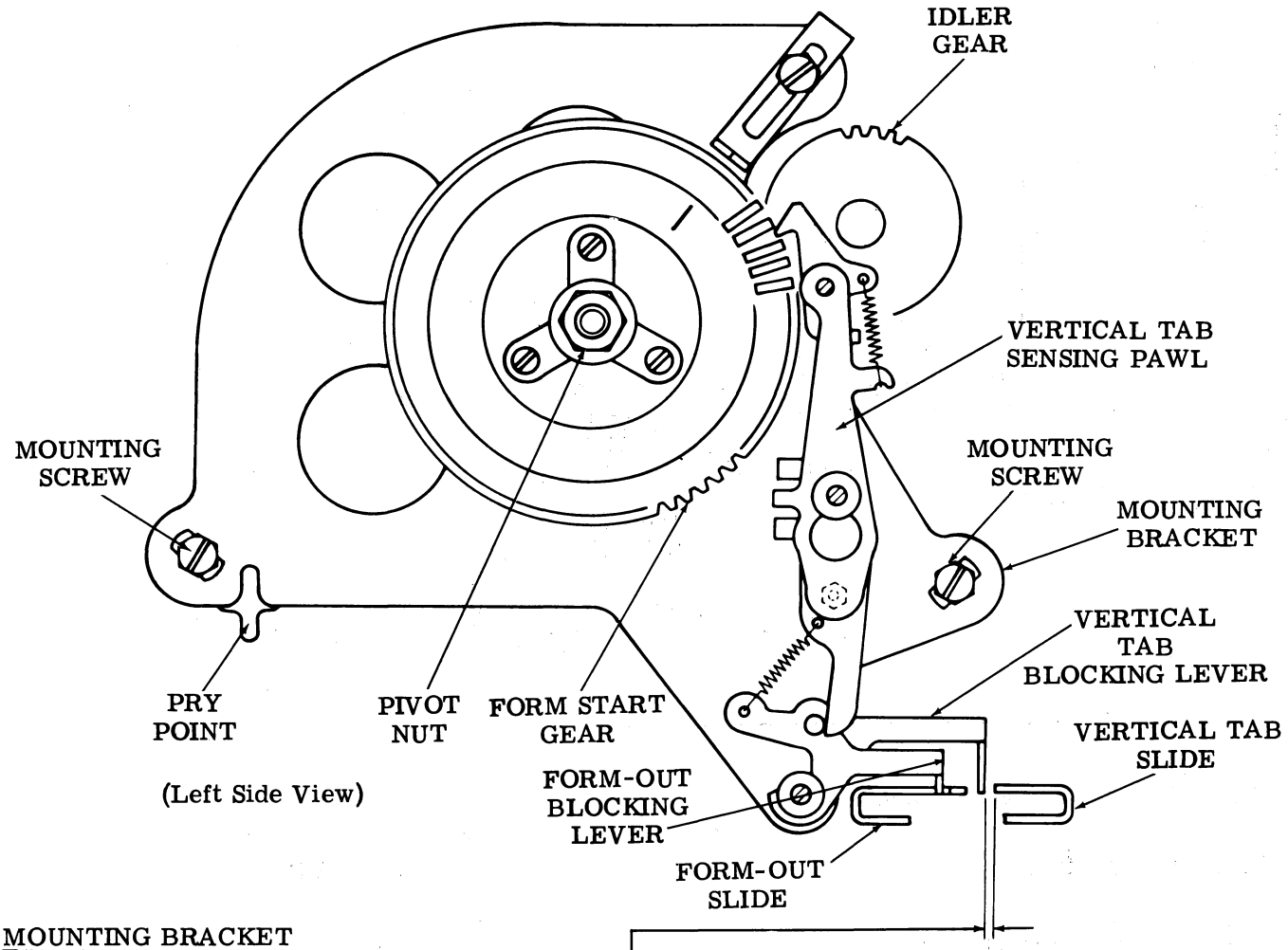


(Left Side View)



(Left Side View)

3.12 Vertical Tabulation Mechanism (continued)



MOUNTING BRACKET

To Check
Vertical tab function lever fully selected. Measure clearance between vertical tab slide and vertical tab blocking lever.

Requirement
Min 0.010 inch---Max 0.025 inch clearance between the vertical tab slide and blocking lever.

To Adjust
Disengage (latch) all clutches. Select code combination for vertical tab (1, 2, 4, 8 marking, all others spacing). Trip the function clutch and turn main shaft until the stripper blade just touches the selected function pawl on its way up. Loosen three mounting bracket mounting screws. Position mounting bracket to meet requirement. Tighten mounting screws.

FORM START GEAR BACKLASH

Note 1: MOUNTING BRACKET adjustment must be made prior to this adjustment.

To Check
Hold the idler gear stationary and check backlash in tab wheel. Check in four positions approximately 90° apart by turning platen knob to change positions.

Requirement
Barely perceptible backlash between idler gear and form start gear.

To Adjust
Loosen pivot nut. Position form start gear to meet requirement. Tighten pivot nut.

Note 2: The form start gear should remesh properly when checked in at least three positions (120° apart).

3.13 Vertical Tabulation Mechanism (continued)

POINTER

Note: FORM START GEAR BACKLASH (3.12) and TAB WHEEL adjustments must be made prior to this adjustment.

To Check
Line feed clutch disengaged (latched). Detent bail fully detenting line feed spur gear. Form-out tab stop spaced just beyond sensing pawls.

(1) Requirement
Pointer should be in line with tab wheel mark.

(2) Requirement
Pointer should clear form-out tab stop about 1/16 inch.

To Adjust
Loosen pointer mounting screw. Position pointer to meet requirement. Tighten mounting screw.

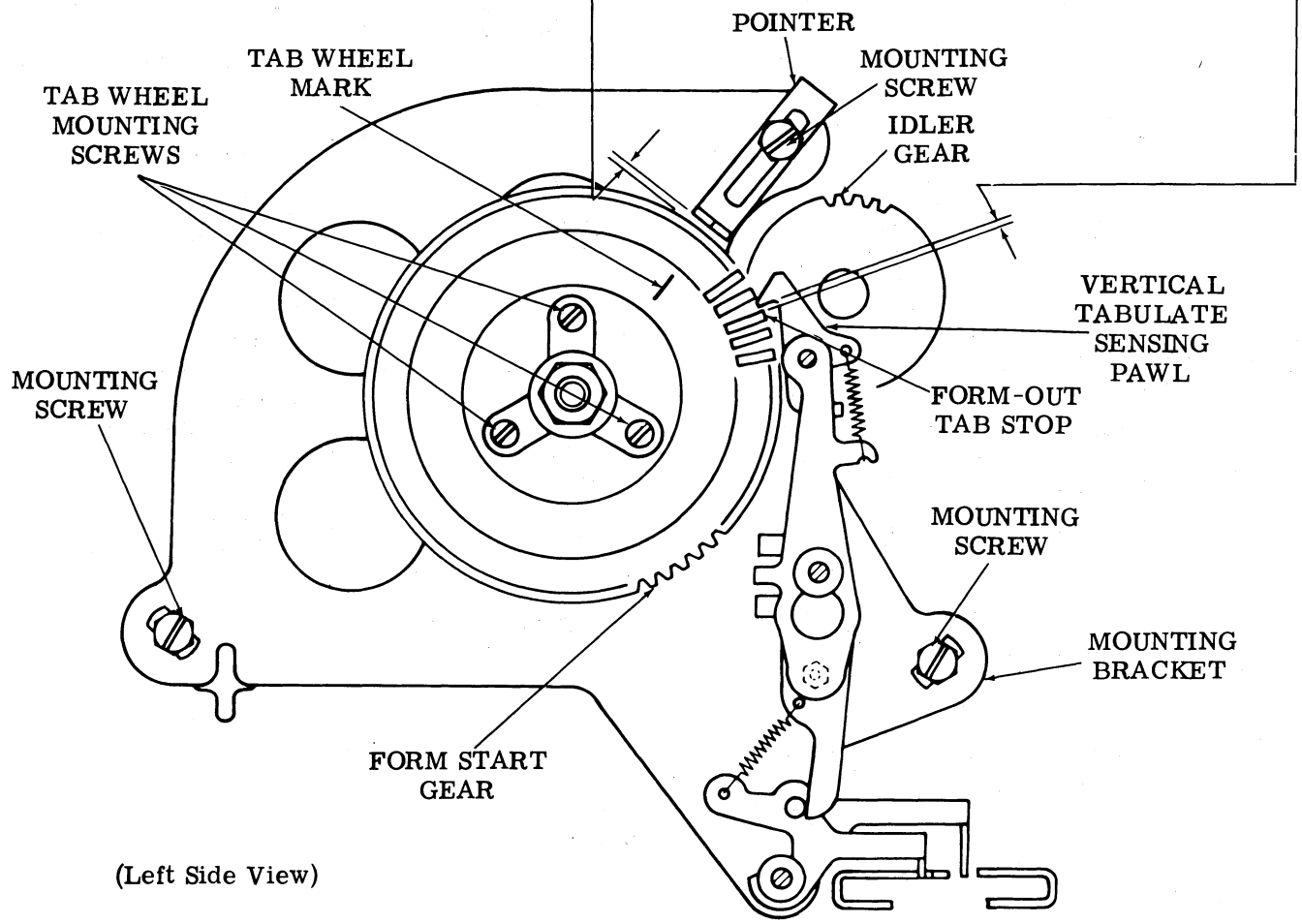
TAB WHEEL

Note: MOUNTING BRACKET (3.12) and FORM START GEAR BACKLASH (3.12) adjustments must be made prior to this adjustment.

To Check
Line feed clutch disengaged (latched). Detent bail fully detenting line feed spur gear. Gear play taken up to make clearance between form-out tab stop and sensing pawls a minimum.

Requirement
Min some---Max 0.005 clearance between form-out tab stop and sensing pawls.

To Adjust
Pull form start gear out of engagement with idler gear. Turn tab wheel clockwise and locate form-out tab stop under sensing pawls. Loosen three tab wheel mounting screws and position tab wheel to meet requirement. Tighten mounting screws.



(Left Side View)

3.14 Vertical Tabulation Mechanism (continued)

SENSING PAWL SPRING

Requirement

Min 1 oz---Max 3 oz to lift each sensing pawl off form-out tab stop.

Note: Check each sensing pawl spring.

TAB WHEEL SYNCHRONIZATION

Note: SLIDE RETAINER (3.11), MOUNTING BRACKET (3.12), FORM START GEAR BACKLASH (3.12), TAB WHEEL (3.13), POINTER (3.13), and BLOCKING LEVERS (3.15) adjustments must be made prior to this adjustment.

Requirement

Tab wheel should be synchronized with paper form after each paper insertion.

To Adjust

Position paper form in typing unit so that it will print in first typing line of the form. The printing line is outlined by the pointer in front of platen. Disengage (latch) line feed clutch. Detent bail fully detenting line feed spur gear. Pull form start gear out of engagement with idler gear. Turn tab wheel clockwise and locate form-out tab stop under sensing pawls. Remesh form start gear with idler gear. Turn platen knob to allow the sensing pawl to settle to its proper position.

TAB SENSING ARM SPRING

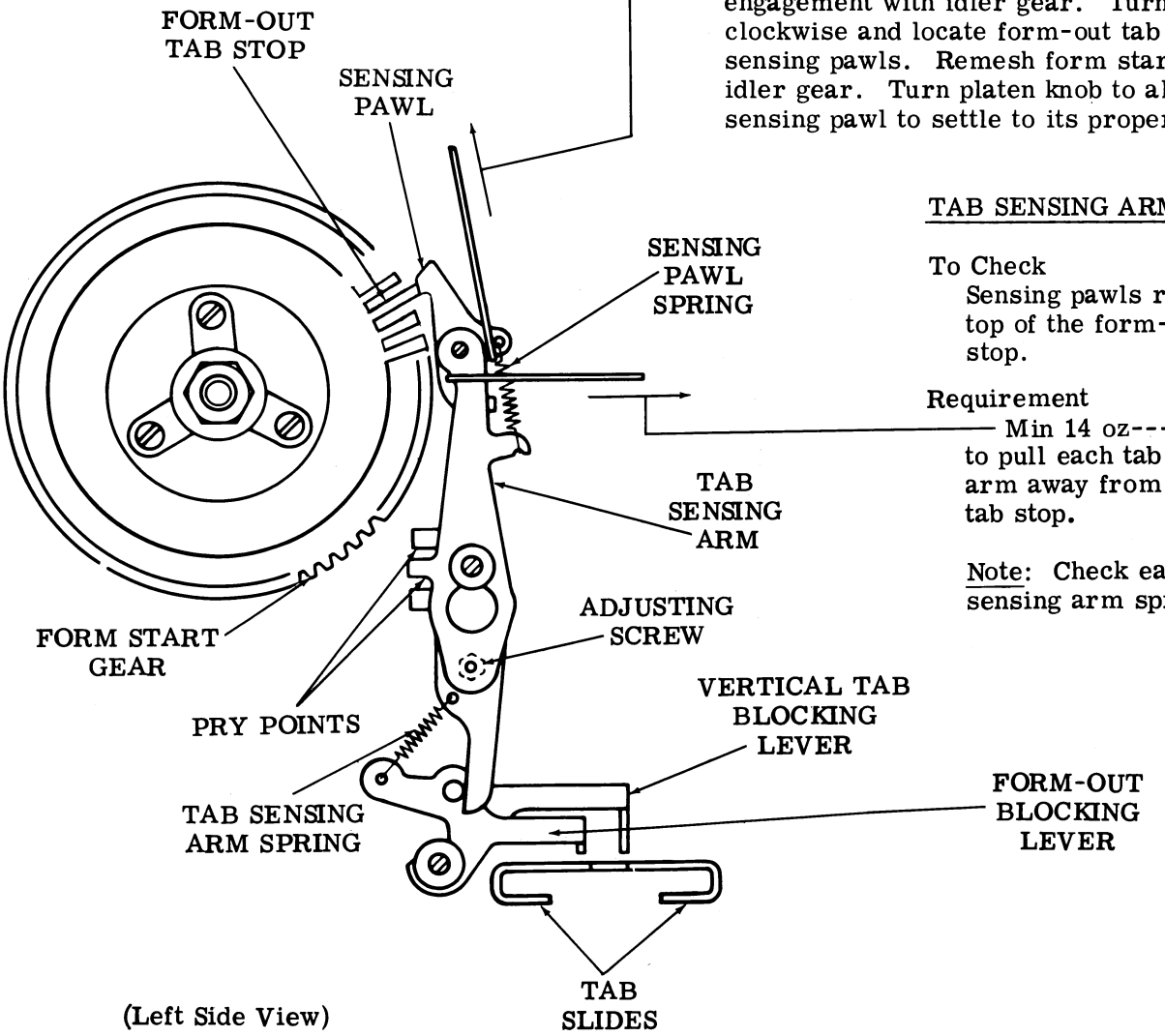
To Check

Sensing pawls resting on top of the form-out tab stop.

Requirement

Min 14 oz---Max 18 oz to pull each tab sensing arm away from form-out tab stop.

Note: Check each tab sensing arm spring.



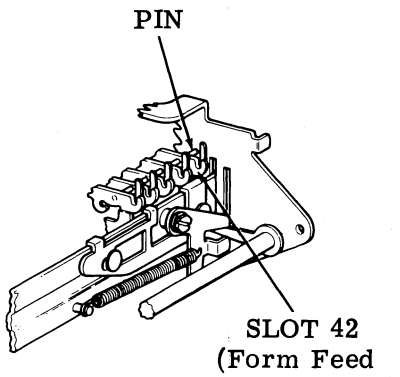
(Left Side View)

3.15 Vertical Tabulation Mechanism (continued)

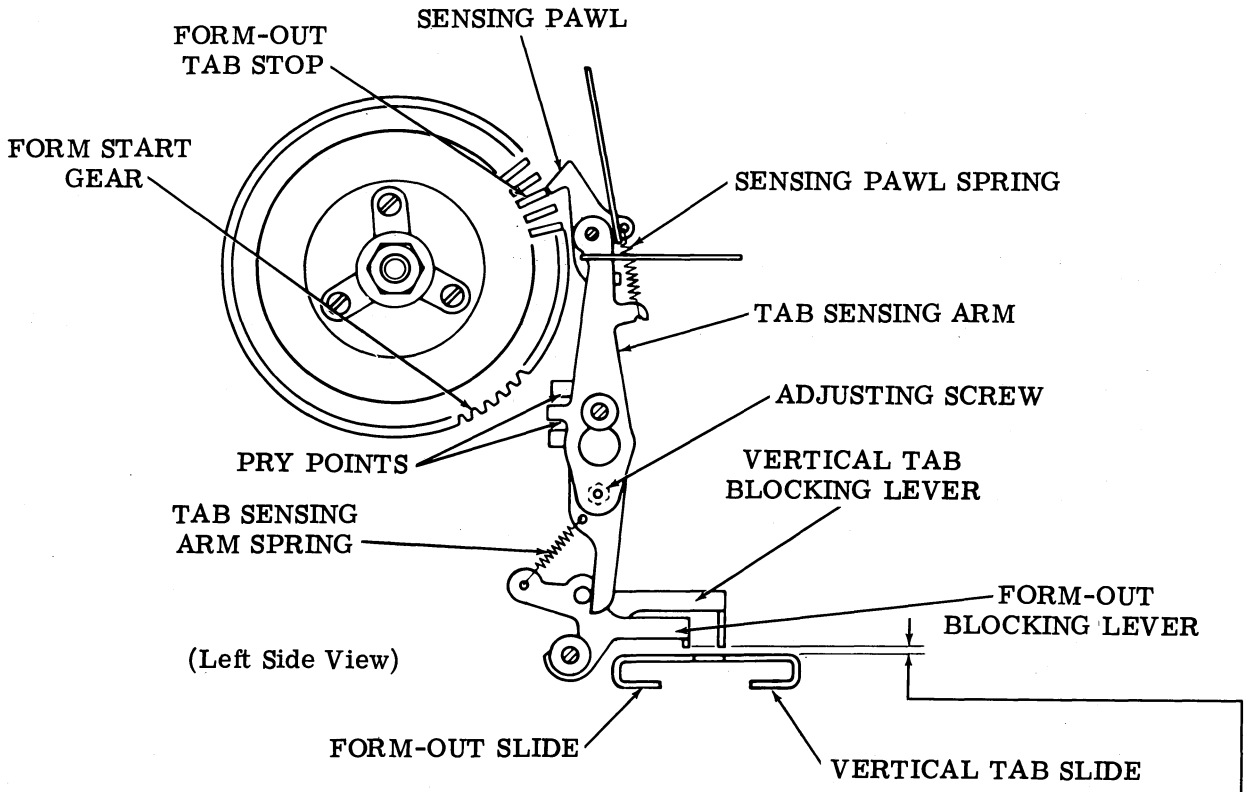
BLOCKING LEVERS (EARLY DESIGN)

Note 1: SLIDE RETAINER (3.11), MOUNTING BRACKET (3.12), FORM START GEAR BACKLASH (3.12) adjustments must be made prior to this adjustment.

Note 2: View the stunt box facing the rear of the unit and observe the type of function pawl latch lever used in slot 42. If a pin extends from the side of the pawl, the unit is equipped with a Nonrepeat Form Feed Function Pawl Latch Lever and should be adjusted according to the BLOCKING LEVERS (EARLY DESIGN) adjustment. If the function pawl is not of the type illustrated, the unit is equipped with the Nonrepeat Form Feed Function Bar Blocking Lever. Adjust by using the BLOCKING LEVERS (LATE DESIGN) (3.16) adjustment.



(Right Side — Viewed From Rear of Stunt Box)



To Check

Sensing pawls resting on top of form-out tab stop. Play in tab slides taken up against retainer to make clearance between blocking levers and top of their respective tab slide a minimum.

Note 3: On units with only one form-out tab, check a vertical tap approximately 180° from the form-out tab.

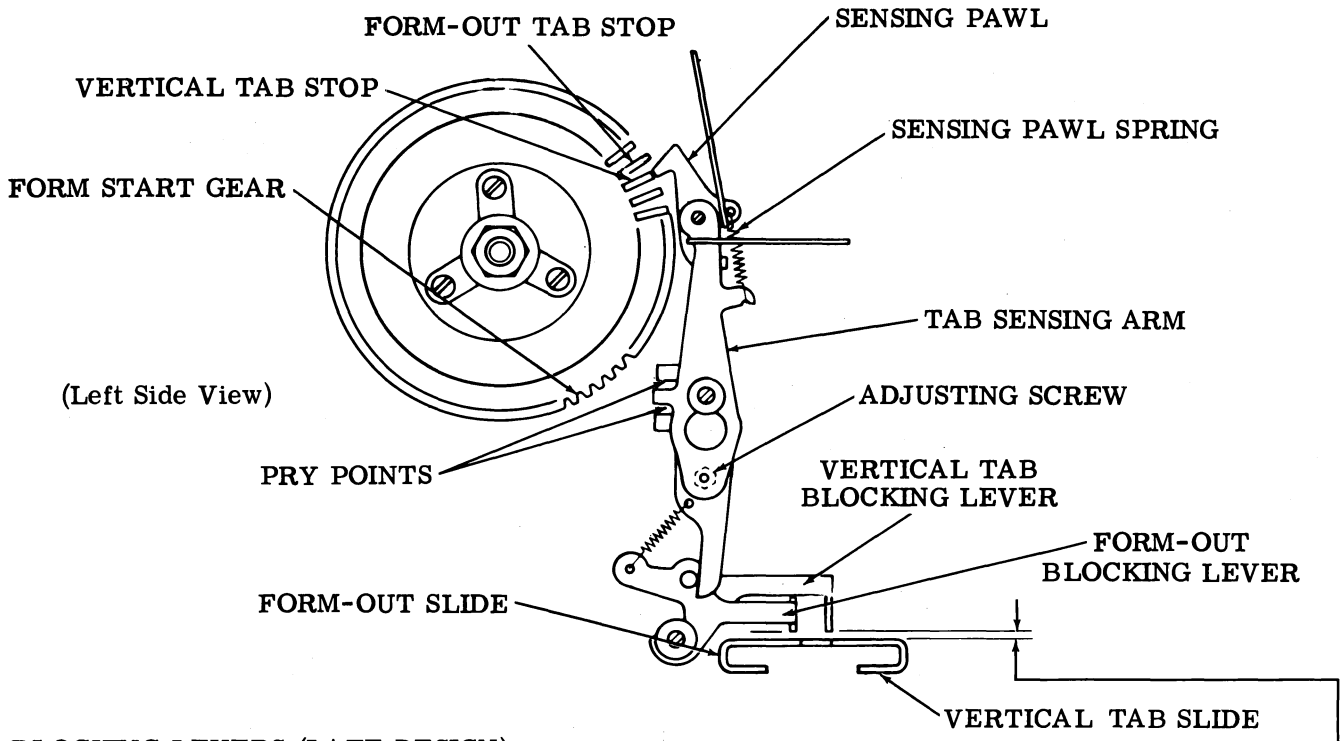
Requirement

Min 0.015 inch---Max 0.030 inch clearance between blocking levers and top of their respective tab slides.

To Adjust

Line feed clutch engaged (tripped). Rotate main shaft until both sensing pawls come to rest on top of form-out tab stop. Loosen adjusting screw on both tab sensing arms. Position tab sensing arms using pry points. Tighten adjusting screws.

3.16 Vertical Tabulation Mechanism (continued)



BLOCKING LEVERS (LATE DESIGN)

Note 1: SLIDE RETAINER (3.11), MOUNTING BRACKET (3.12), FORM START GEAR BACKLASH (3.12) adjustments must be made prior to this adjustment.

Note 2: To identify early from late design parts affecting the making of this adjustment, see note 2 in (3.15).

(1) To Check

Sensing pawls resting on top of a vertical tab stop. Play in tab slides taken up against retainer to make clearance between blocking levers and the top of their respective tab slide a minimum.

Requirement

Min 0.015 inch---Max 0.030 inch clearance between blocking lever and the top of the vertical tab slide.

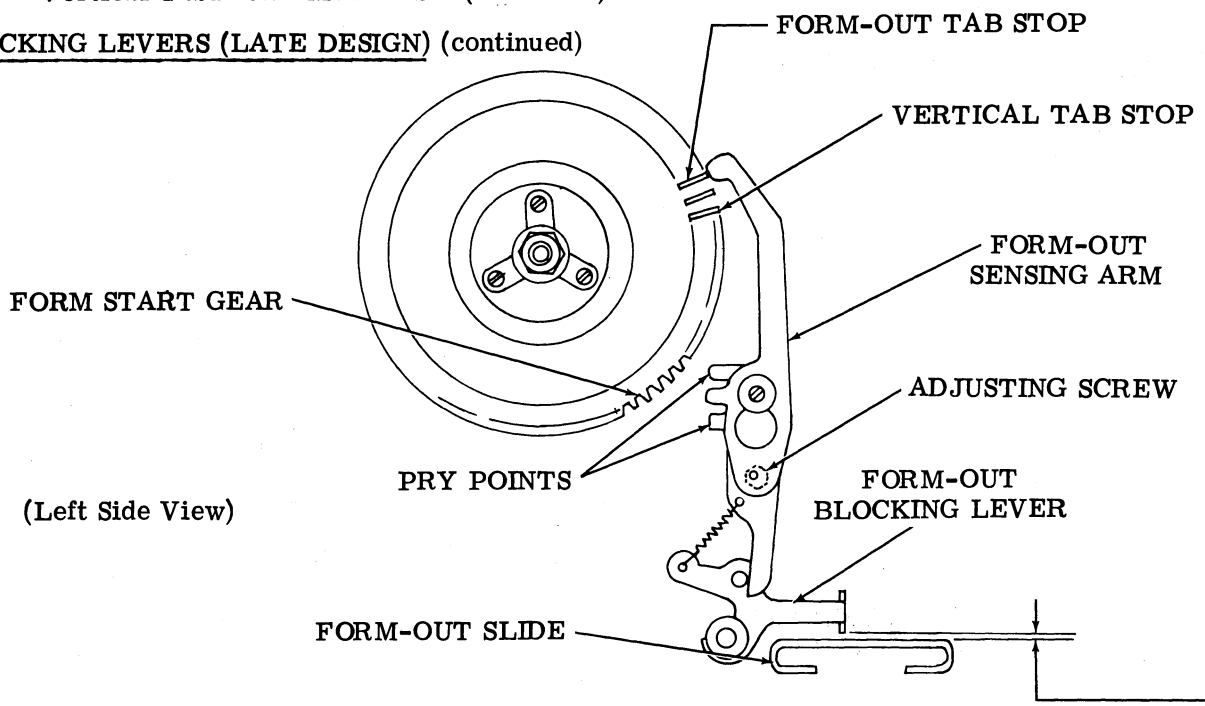
To Adjust

Rotate the platen knob, in a direction that would cause the paper to advance, until the pawl comes to rest on top of the vertical tab stop. Loosen the adjusting screw on the vertical tab sensing arm. Position arm using pry points. Tighten adjusting screw.

(Adjustment continued on following page.)

3.17 Vertical Tabulation Mechanism (continued)

BLOCKING LEVERS (LATE DESIGN) (continued)



(Left Side View)

(2) To Check

Sensing pawls resting on top of form-out tab stop. Play in tab slide taken up against retainer to make clearance between the blocking lever and the top of the form-out tab slide a minimum.

Requirement

Min 0.025 inch---Max 0.035 inch clearance between the blocking lever and the top of the form-out slide.

To Adjust

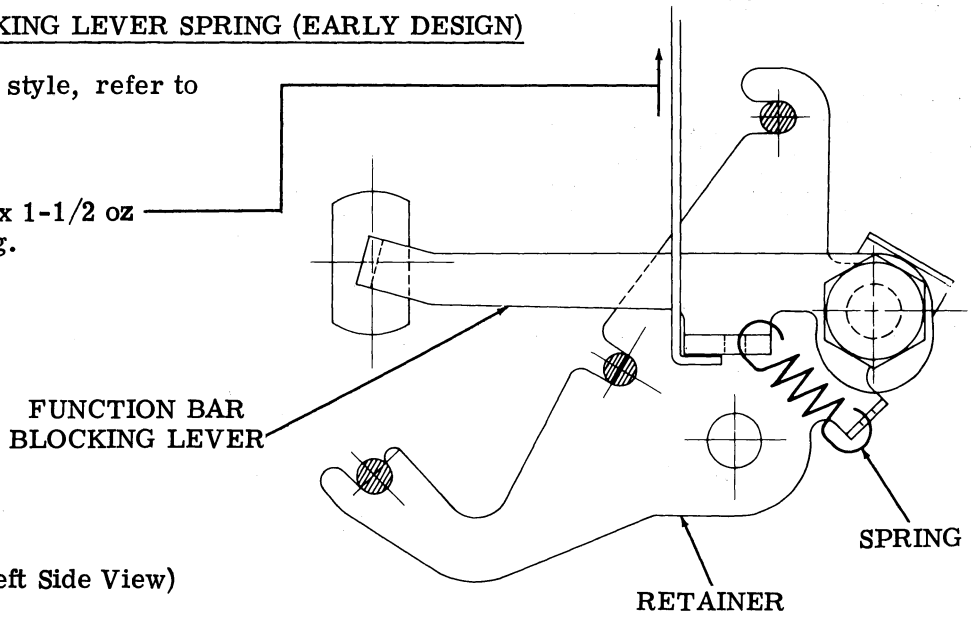
Rotate the platen knob, in the direction that would advance the paper, until the pawl rests on top of the form-out tab stop. Loosen the adjusting screw on the vertical tab sensing arm. Position arm using pry points. Tighten adjusting screw.

FUNCTION BAR BLOCKING LEVER SPRING (EARLY DESIGN)

Note: To determine style, refer to Note 2 in 3.15.

Requirement

Min 3/4 oz---Max 1-1/2 oz to start lever moving.



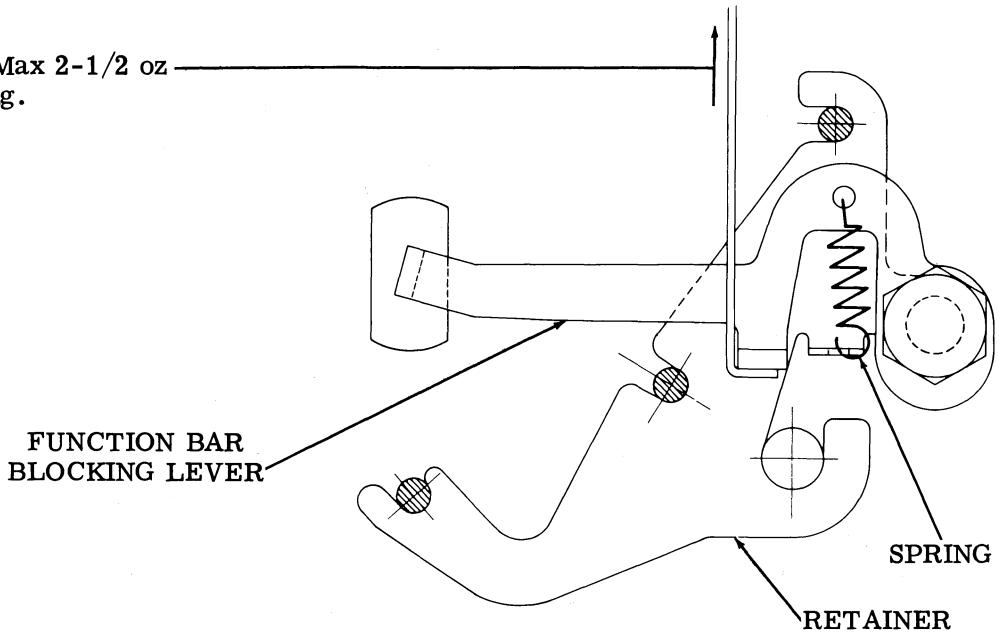
(Left Side View)

3.18 Vertical Tabulation Mechanism (continued)

FUNCTION BAR BLOCKING LEVER SPRING (LATE DESIGN)

Note: To determine style, refer to Note 2 in 3.15.

Requirement
Min 1-1/2 oz---Max 2-1/2 oz to start lever moving.



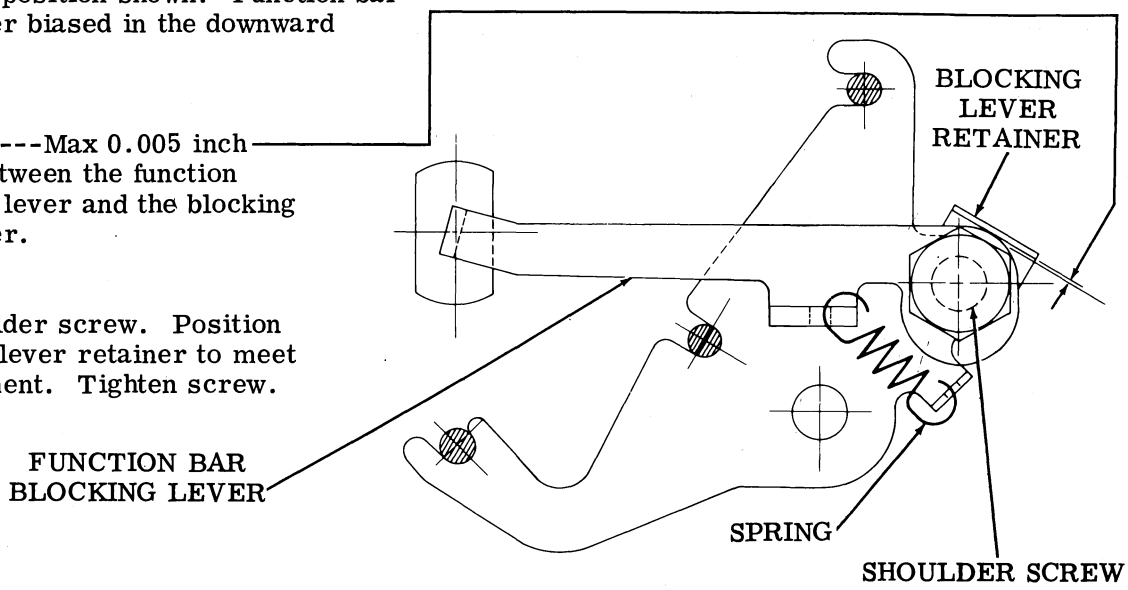
BLOCKING LEVER RETAINER (EARLY DESIGN)

Note: This adjustment only applies to old style blocking lever, refer to Note 2 in 3.15.

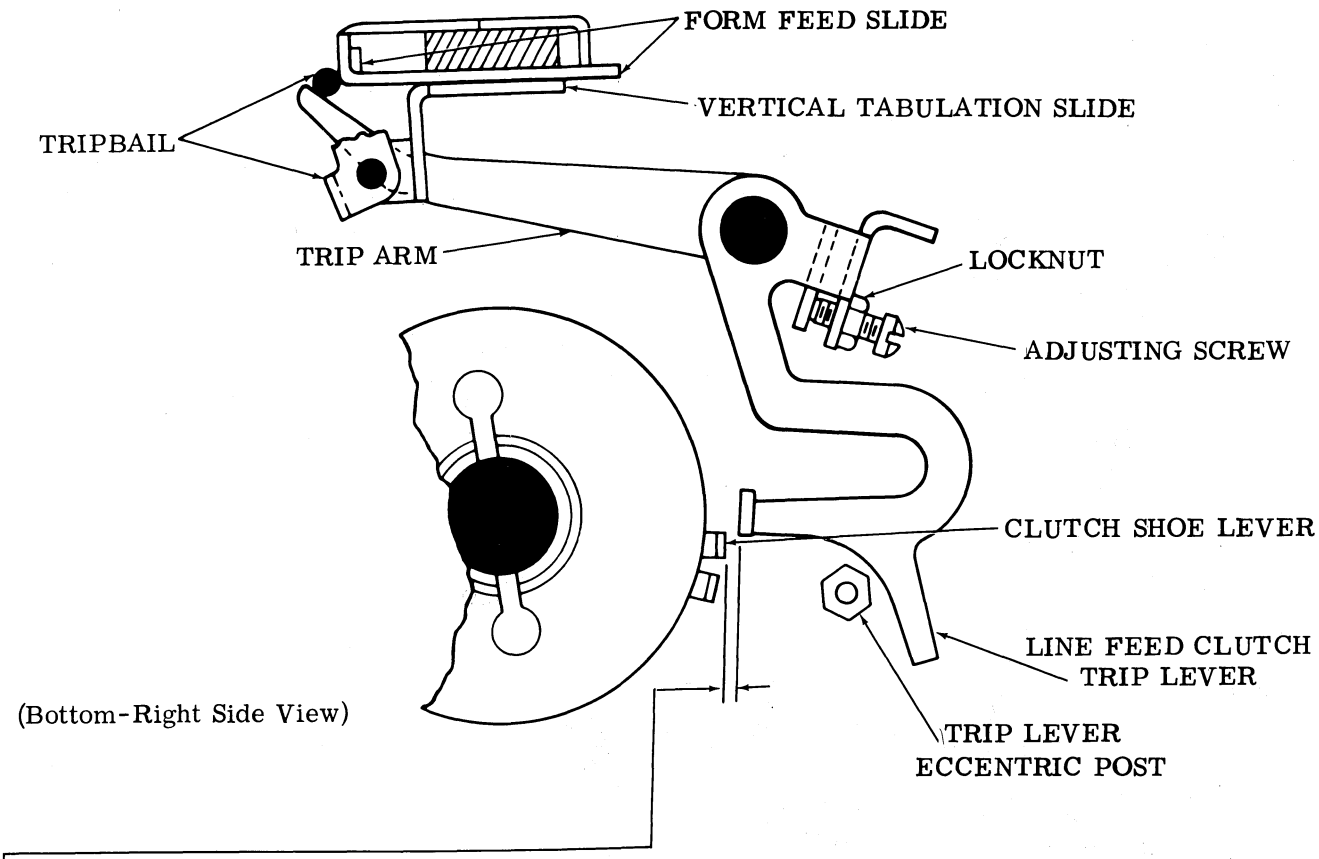
To Check
The blocking lever retainer should be in the approximate position shown. Function bar blocking lever biased in the downward direction.

Requirement
Min some---Max 0.005 inch clearance between the function bar blocking lever and the blocking lever retainer.

To Adjust
Loosen shoulder screw. Position the blocking lever retainer to meet the requirement. Tighten screw.



3.19 Vertical Tabulation Mechanism (continued)



LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW

(1) To Check

All clutches disengaged (latched). Codebars 1, 2, 4, and 8 marking and all others spacing (vertical tabulation). Engage (trip) codebar clutch and rotate main shaft until vertical tabulation function pawl is stripped by stripper blade.

Requirement

Min 0.005 inch---Max 0.008 inch clearance between line feed clutch trip lever and the next clutch shoe lever.

(2) To Check

All clutches disengaged (latched) codebars 3 and 4 marking and all others spacing (form feed). Engage (trip) codebar clutch and rotate main shaft until form feed function pawl is stripped by stripper blade.

Requirement

Min 0.005 inch---Max 0.008 inch clearance between line feed clutch trip lever and clutch shoe lever.

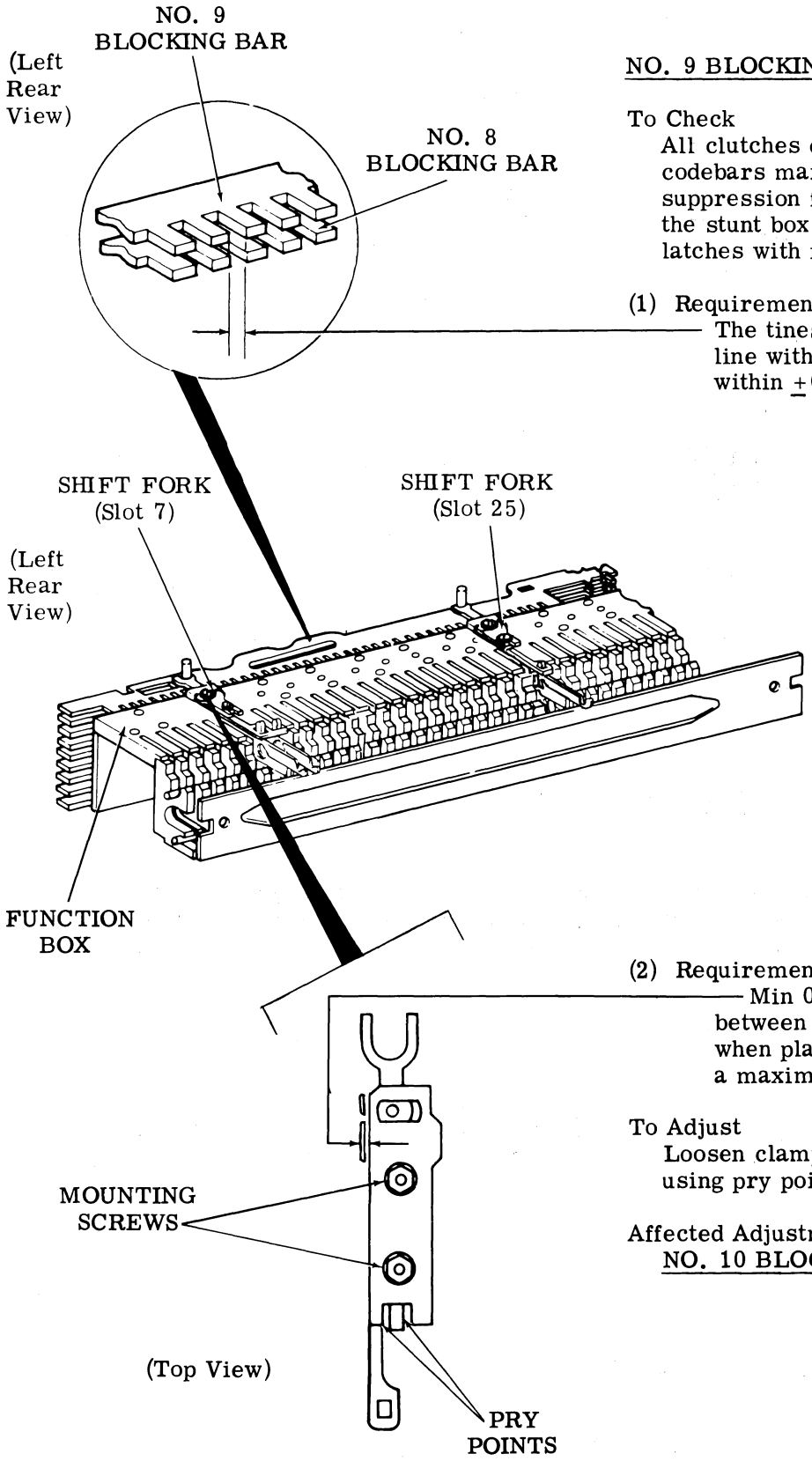
To Adjust

Loosen locknut. Rotate adjusting screw. Tighten locknut.

Affected Adjustment

LINE FEED CLUTCH TRIP LEVER ECCENTRIC POST (2.26)

3.20 Escape and Suppression Sequence Mechanisms



NO. 9 BLOCKING BAR

To Check
All clutches disengaged (latched). All codebars marking. Manually select the suppression function bar in slot no. 7 of the stunt box and pull it rearward until it latches with its stripper blade latch.

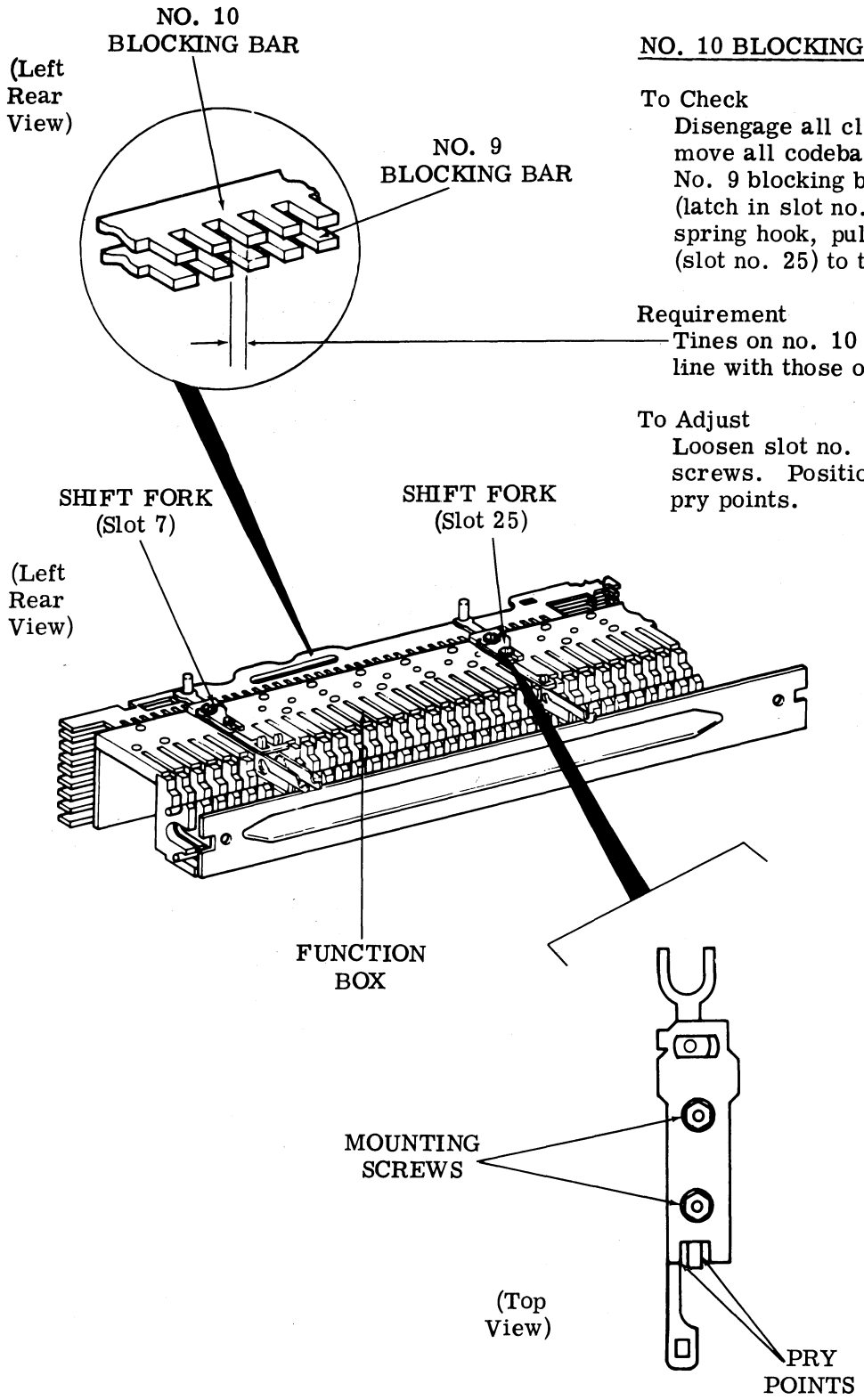
(1) Requirement
The tines in no. 8 codebar should be in line with those of no. 9 blocking bar within ±0.010 inch.

(2) Requirement
Min 0.002 inch between guideplate extension and slide when play is taken up to make clearance a maximum.

To Adjust
Loosen clamp nuts. Position guideplate using pry points. Tighten nuts.

Affected Adjustment
NO. 10 BLOCKING BAR (3.21)

3.21 Escape and Suppression Sequence Mechanisms (continued)



NO. 10 BLOCKING BAR

To Check

Disengage all clutches (latched). Manually move all codebars to marking position. No. 9 blocking bar in unshifted position (latch in slot no. 7 unlatched). Using a spring hook, pull escape codebar shift slide (slot no. 25) to the rear until it latches.

Requirement

Tines on no. 10 blocking bar should be in line with those of no. 9 blocking bar.

To Adjust

Loosen slot no. 25 shift fork mounting screws. Position no. 10 blocking bar using pry points.

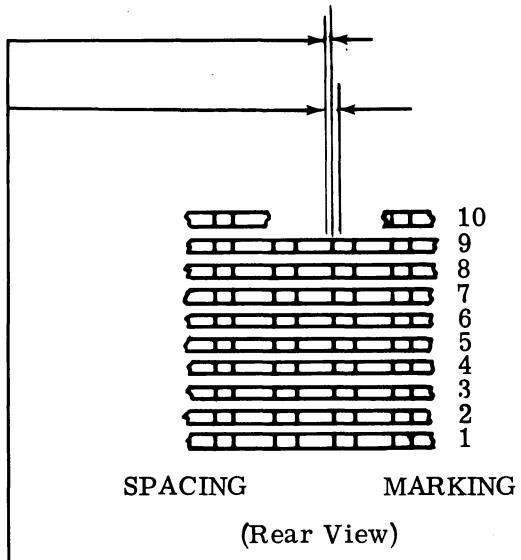
3.22 Print, Space and Function Suppression Mechanism

SHIFT FORK MECHANISM (SLOT NO. 7 AND 22)

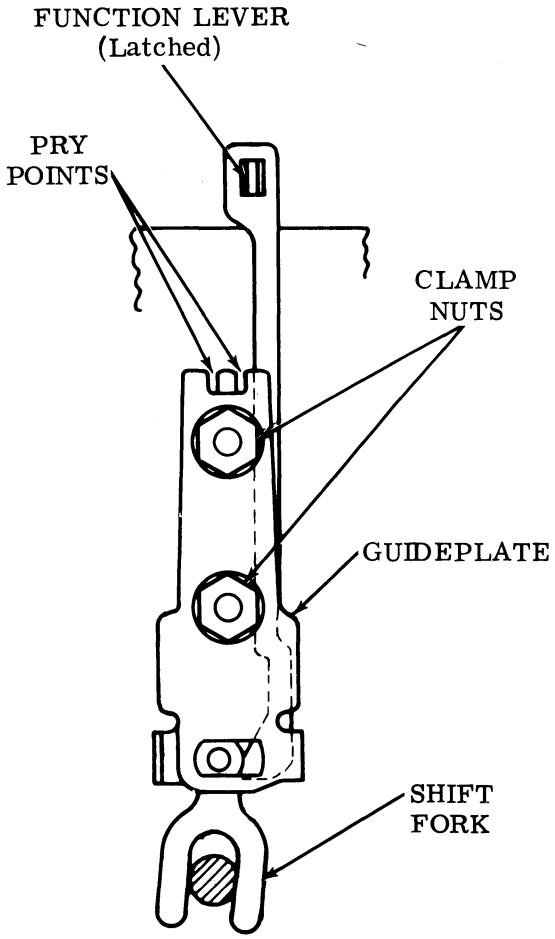
(1) To Check (Slot no. 7)
All clutches disengaged (latched). Number 8 codebar marking. All function levers unlatched. Manually latch the function lever of slot no. 7 by pulling back approximately 1/8 inch at top of lever.

(2) To Check (Slot no. 22)
All clutches disengaged (latched). Number 8 codebar marking. All function levers unlatched. Manually latch the function lever of slot no. 22. Function lever of slot no. 7 should be unlatched and magnets in the energized (attracted) position.

Requirement
The tines in the no. 9 blocking bar should line up with the tines in the no. 8 codebar within $\pm$0.010 inch.



To Adjust
Loosen clamp nuts in slot no. 7 and 22. Position guideplates to meet the requirements by using pry points. Tighten nuts.



3.23 Print, Space and Function Suppression Mechanism (continued)

FUNCTION LEVER TO LATCH (SLOT NO. 22)

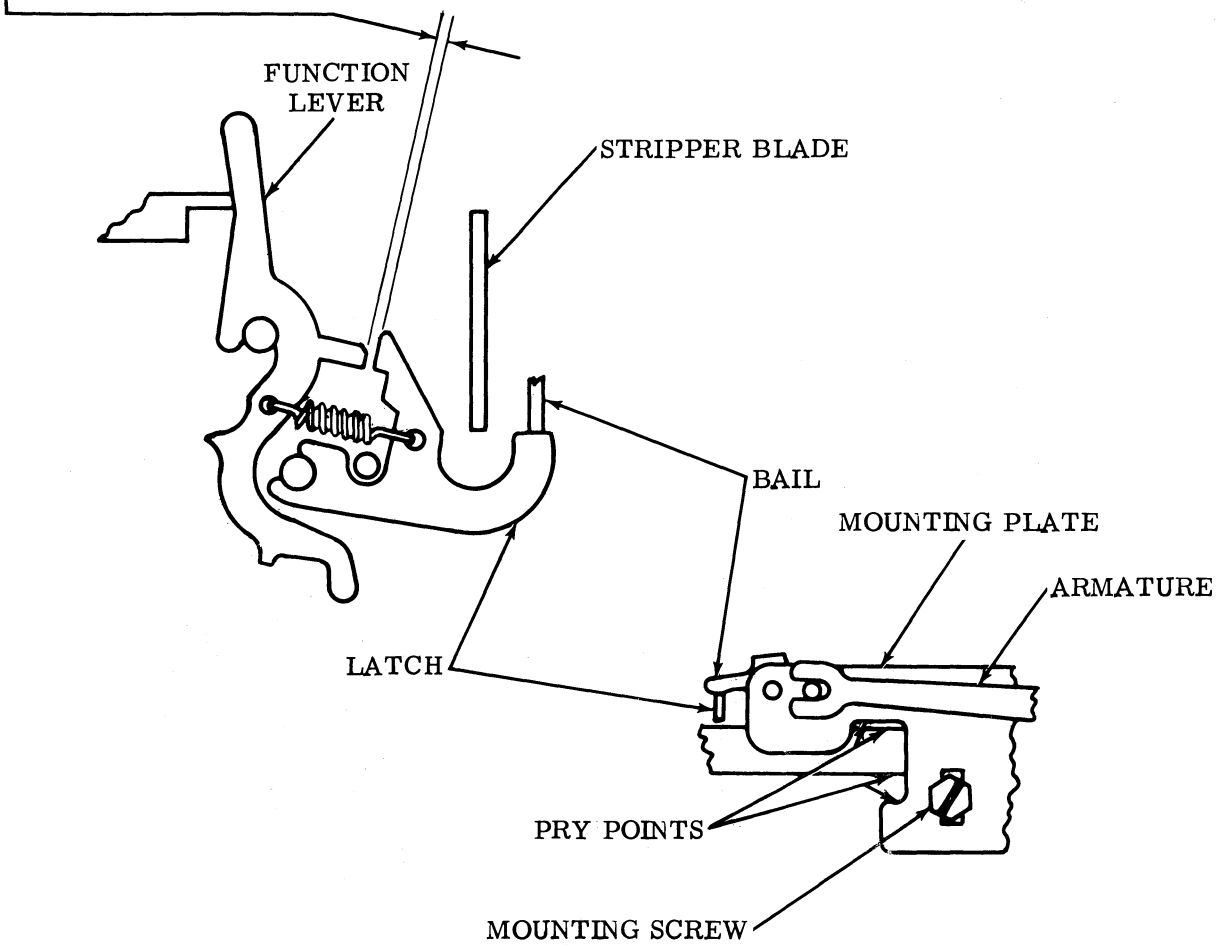
To Check
All clutches disengaged (latched). Function lever of slot no. 22 in the unselected (unlatched) position. The armature in de-energized (unattracted) position.

Requirement
Min 0.005 inch---Max 0.020 inch between the function lever and the latch.

Note: For units equipped with ESCAPE 10, this gap should be the same within 0.008 inch of the FUNCTION LEVER TO LATCH (SLOT NO. 25) adjustment (3.24).

To Adjust
Loosen mounting screws friction tight. Position mounting plate to meet requirement. Tighten screws.

Affected Adjustment
FUNCTION LEVER TO LATCH (SLOT NO. 25) (3.24) or BAIL TO LATCH (SLOT NO. 22) (3.25).



3.24 Print, Space and Function Suppression Mechanism (continued)

FUNCTION LEVER TO LATCH (SLOT NO. 25)

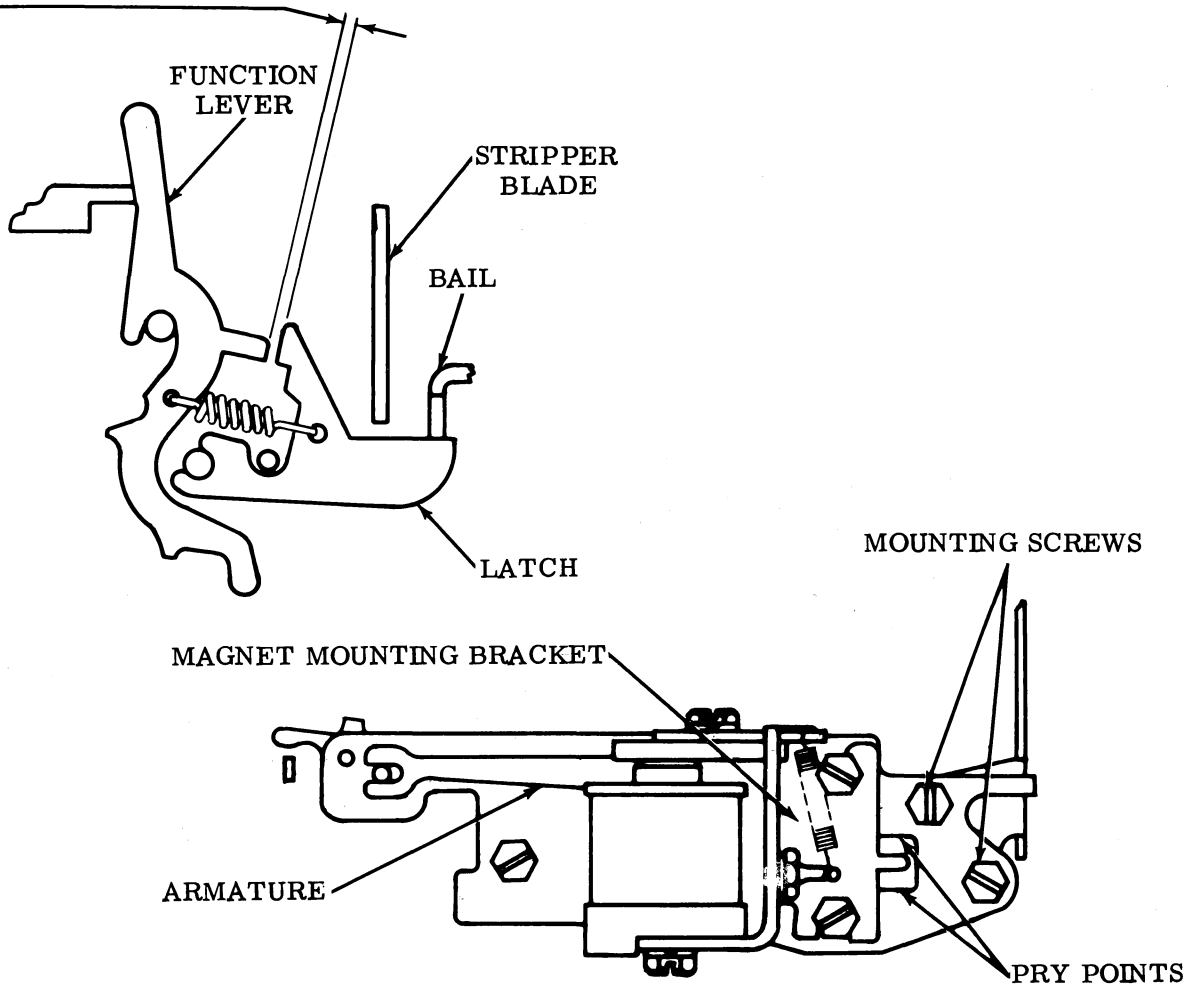
Note 1: This adjustment applies for function boxes having ESCAPE 10 in slot no. 25.

Note 2: For units not equipped with ESCAPE 10 in slot no. 25, refer to BAIL TO LATCH (SLOT NO. 22) adjustment (3.25).

To Check
All clutches disengaged (latched). Function lever of slot no. 25 in the unselected (unlatched) position. Armature held in energized (attracted) position.

Requirement
Min 0.005 inch---Max 0.020 inch between function lever and latch.

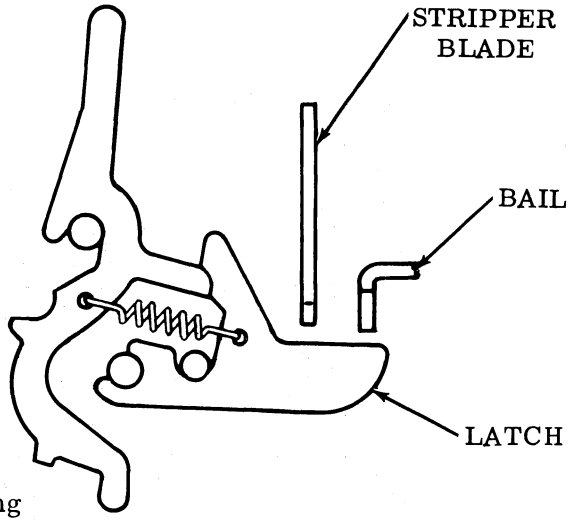
To Adjust
Loosen mounting screws friction tight. With the armature held in the attracted position, position magnet mounting bracket to meet the requirement. Tighten screws.



3.25 Print, Space and Function Suppression Mechanism (continued)

BAIL TO LATCH (SLOT NO. 22)

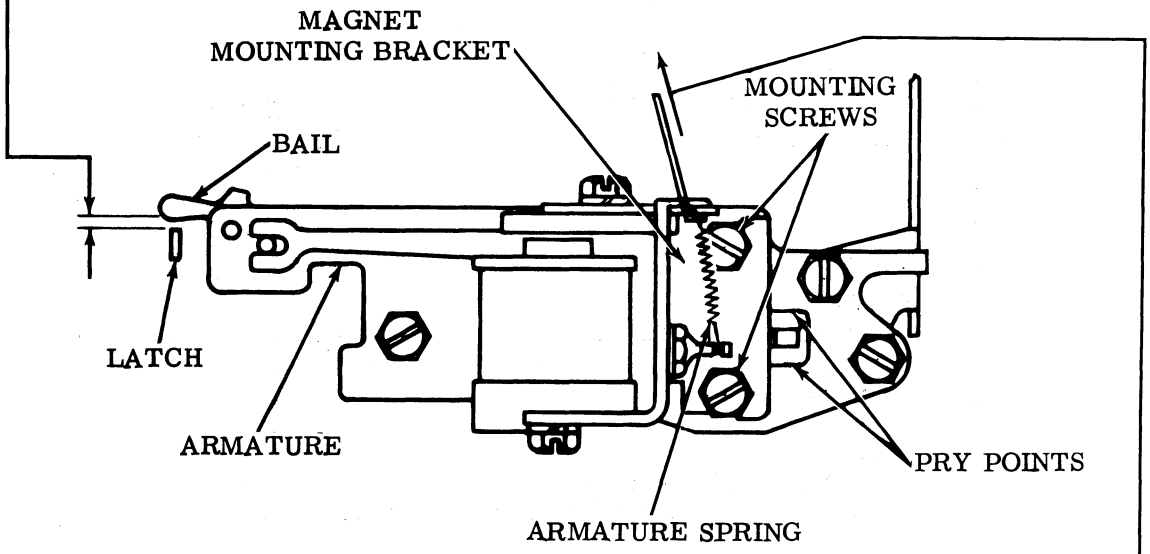
Note: This adjustment applies to units without ESCAPE 10 in slot no. 25.



To Check
All clutches disengaged (latched). Armature held in energized (attracted) position.

Requirement
Min 0.005 inch---Max 0.020 inch gap between bail and latch.

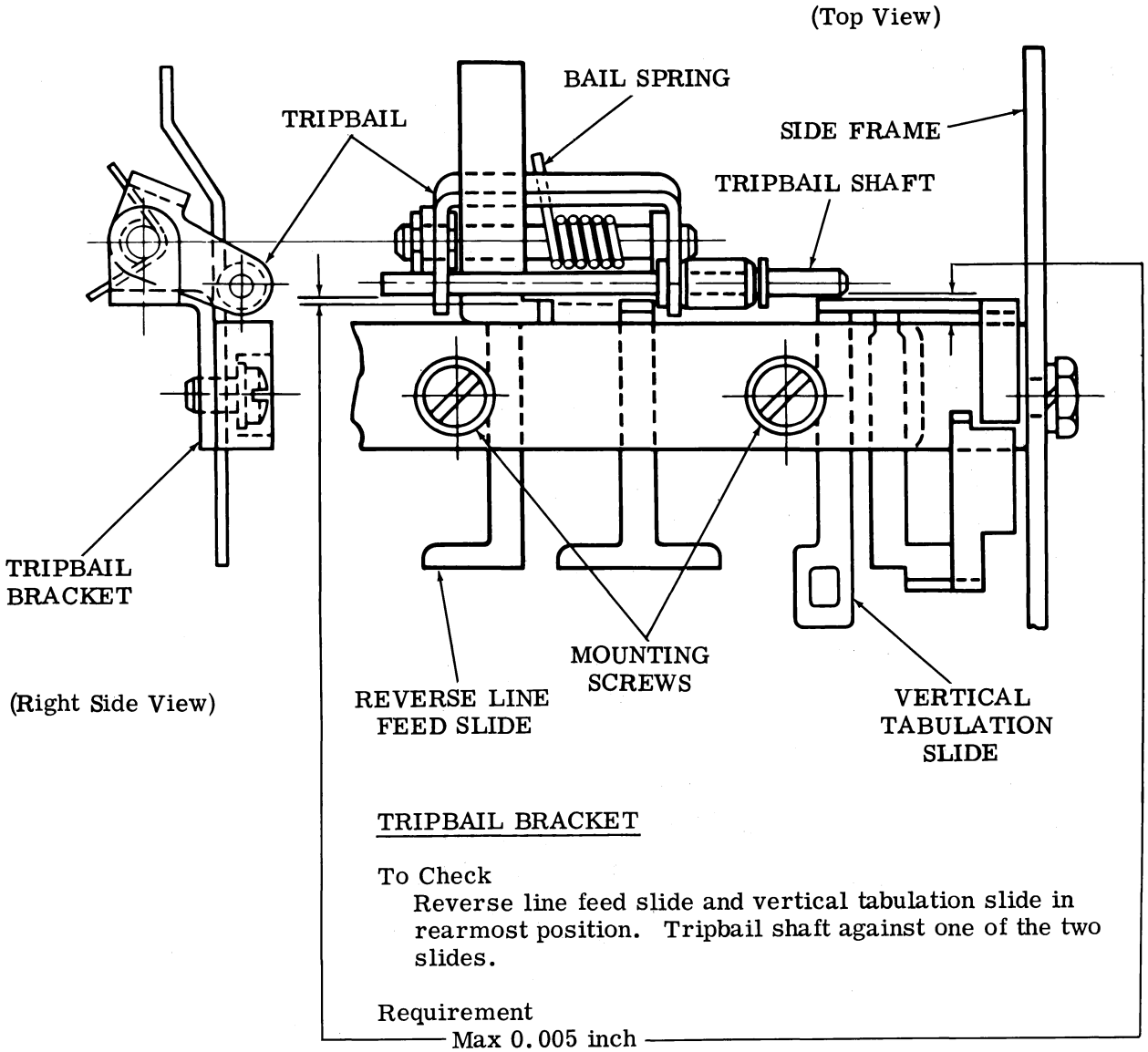
To Adjust
Loosen mounting screws friction tight.
With the armature attracted, position magnet mounting bracket to meet requirement. Tighten screws.



ARMATURE SPRING

Requirement
Min 48 oz---Max 58 oz to pull the armature spring to its installed length.

3.26 Line Feed Clutch Tripbail Mechanism



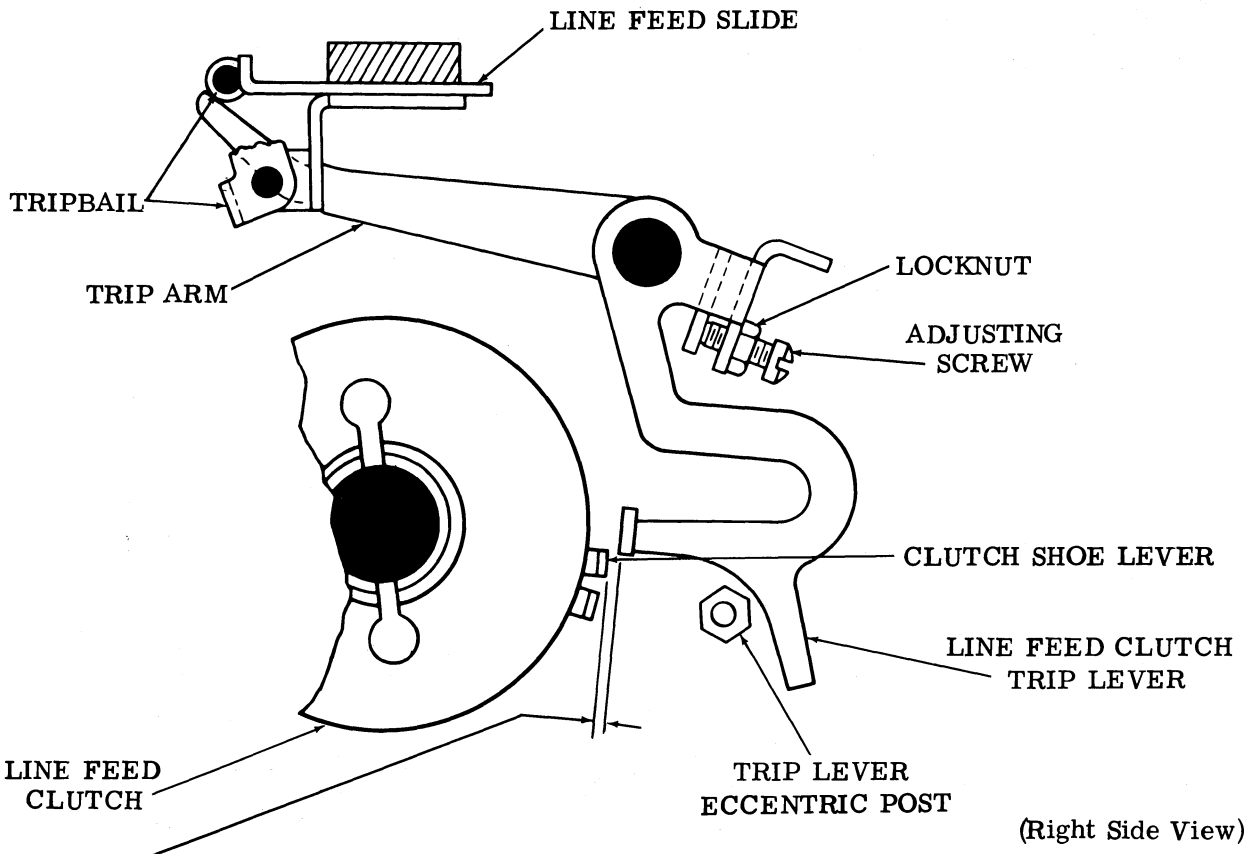
TRIPBAIL BRACKET

To Check
Reverse line feed slide and vertical tabulation slide in rearmost position. Tripbail shaft against one of the two slides.

Requirement
Max 0.005 inch clearance between other slide and tripbail shaft.

To Adjust
Loosen tripbail bracket mounting screws. Position tripbail bracket. Tighten mounting screws.

3.27 Line Feed Clutch Tripbail Mechanism (continued)



(Right Side View)

LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW

Note: This adjustment is preliminary when typing unit is equipped with vertical tabulation mechanism. For the final adjustment, see LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW (3.19).

To Check

Single-double line feed lever in double line feed position. All clutches disengaged (latched). Manually trip function clutch and rotate main shaft until stripper blade moves to midpoint of its downward travel. Pull line feed function pawl back to latch on function bar. Continue rotating main shaft until function bar moves to its rearmost position.

Requirement

Min 0.015 inch---Max 0.025 inch clearance between line feed clutch trip lever and clutch shoe lever.

To Adjust

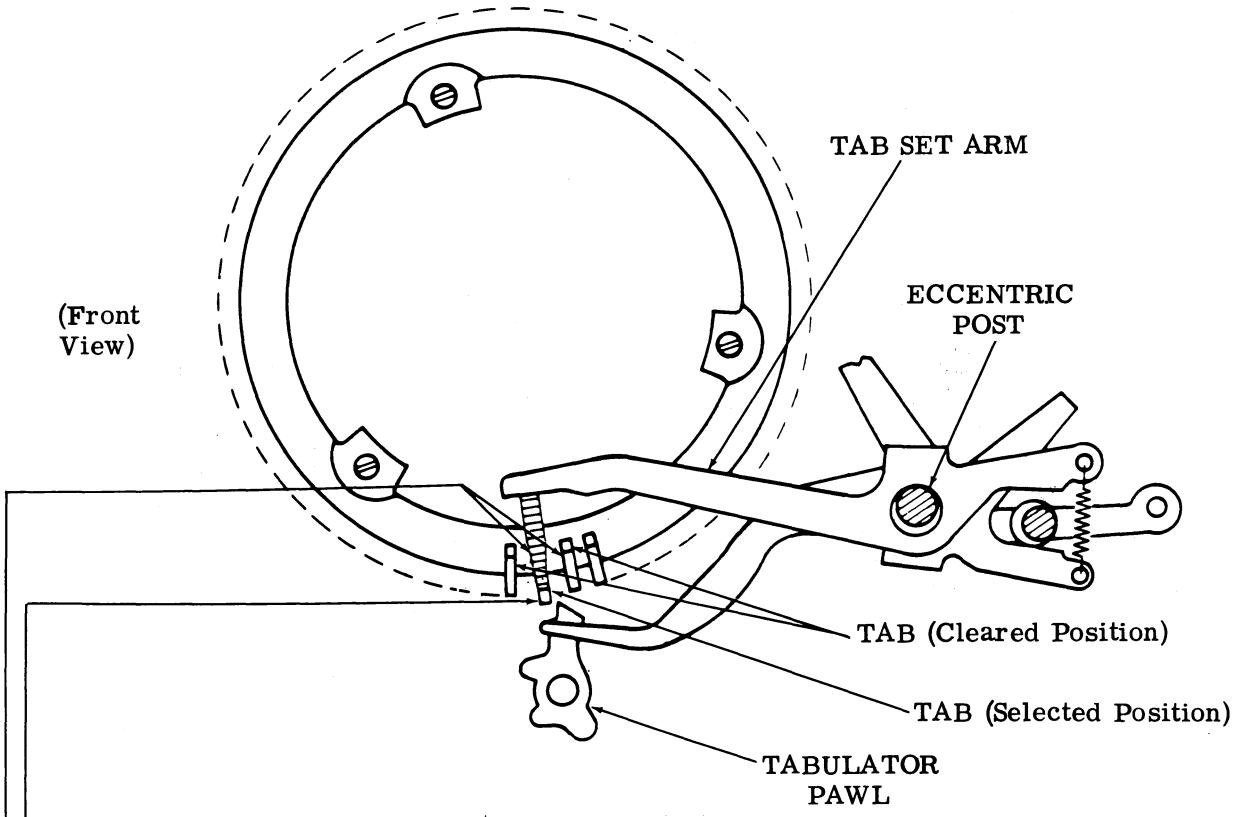
Loosen locknut. Rotate adjusting screw. Tighten locknut.

Affected Adjustment

LINE FEED CLUTCH TRIP LEVER ECCENTRIC POST (2.26)

3.28 Horizontal Tab Stop Control Mechanism

Note: Horizontal tabulation mechanism adjustments (SENSING ARM (3.03), OPERATING LEVER EXTENSION LINK (3.09), and TRIPBAIL (3.10)) and escape sequence mechanism adjustment (NO. 10 BLOCKING BAR (3.21)) should be completed before making the following adjustments for the horizontal tab stop control mechanism.



ECCENTRIC POST (STANDARD UNIT)

Note 1: This adjustment has no counterpart for Wide Platen Unit.

(1) Requirement
Tab set arm should set tab to left of tabulator pawl.

(2) Requirement
Tab set arm should be centered between adjacent tabs.

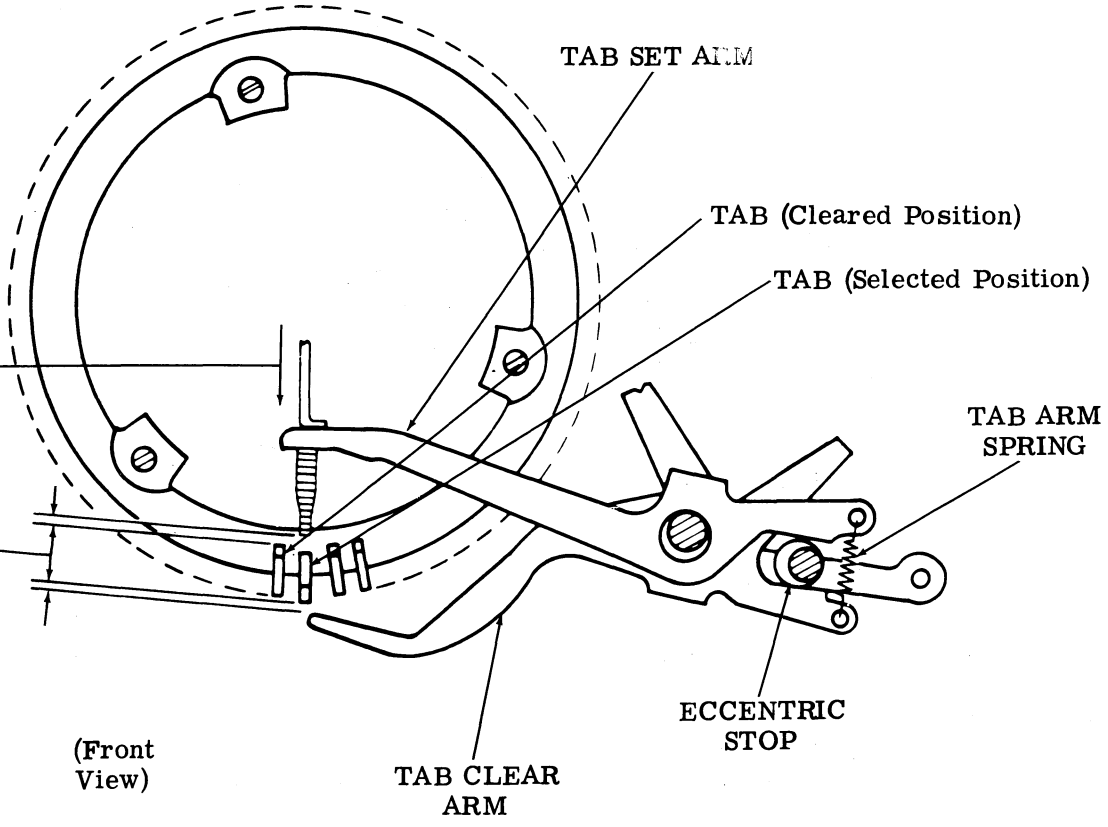
To Adjust
Position carriage at about the center of platen. Engage (trip) spacing clutch and rotate main shaft to advance carriage at least one space. Disengage (latch) spacing clutch. Loosen nuts at both ends of eccentric post. Turn eccentric post to meet requirements. Tighten eccentric post nuts.

Note 2: The eccentricity of the eccentric post should be positioned downward.

3.29 Horizontal Tab Stop Control Mechanism (continued)

TAB ARM SPRING (STANDARD UNIT)

Requirement
Min 1/2 oz---Max 2 oz
to start tab set arm moving away from eccentric stop.



ECCENTRIC STOP — PRELIMINARY (STANDARD UNIT)

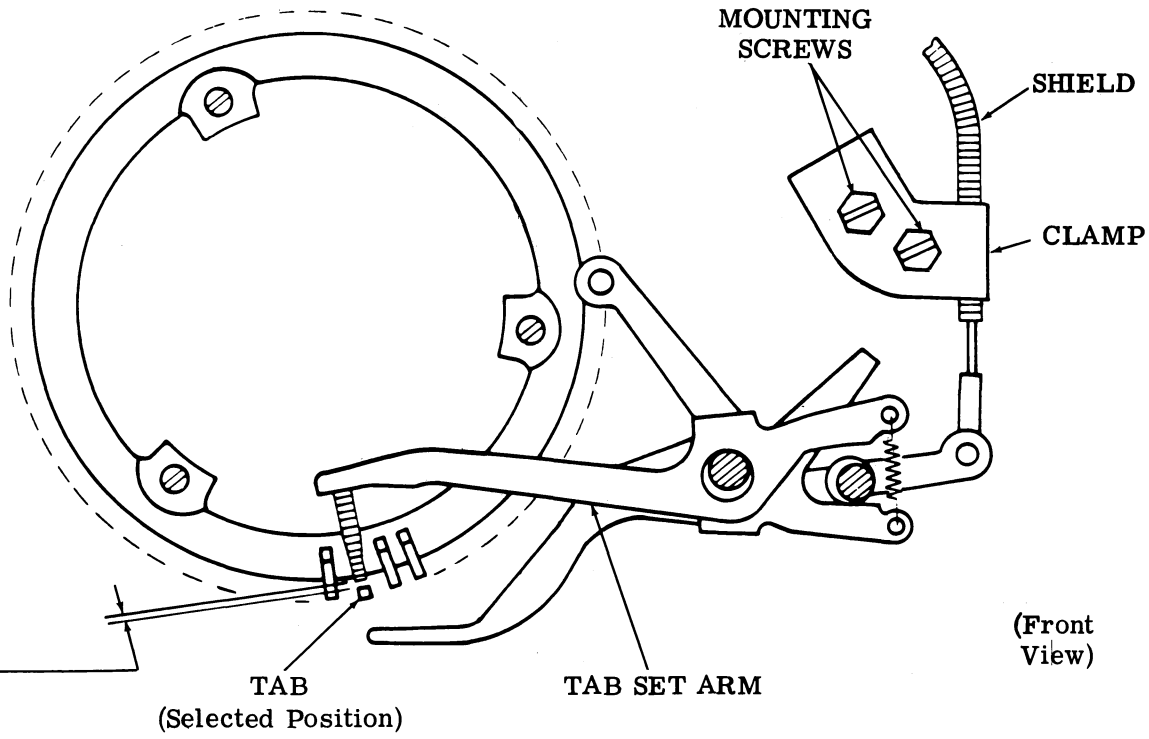
Note 1: This adjustment has no counterpart for Wide Platen Unit.

Requirement
Equal clearance, as gauged by eye, between tab set arm and head of a tab in cleared position, and between tab clear arm and the head of a tab in selected position.

To Adjust
Loosen eccentric stop mounting nut and turn eccentric stop to meet requirement. Tighten mounting nut.

Note 2: The eccentricity of the eccentric stop should be positioned towards the left.

3.30 Horizontal Tab Stop Control Mechanism (continued)



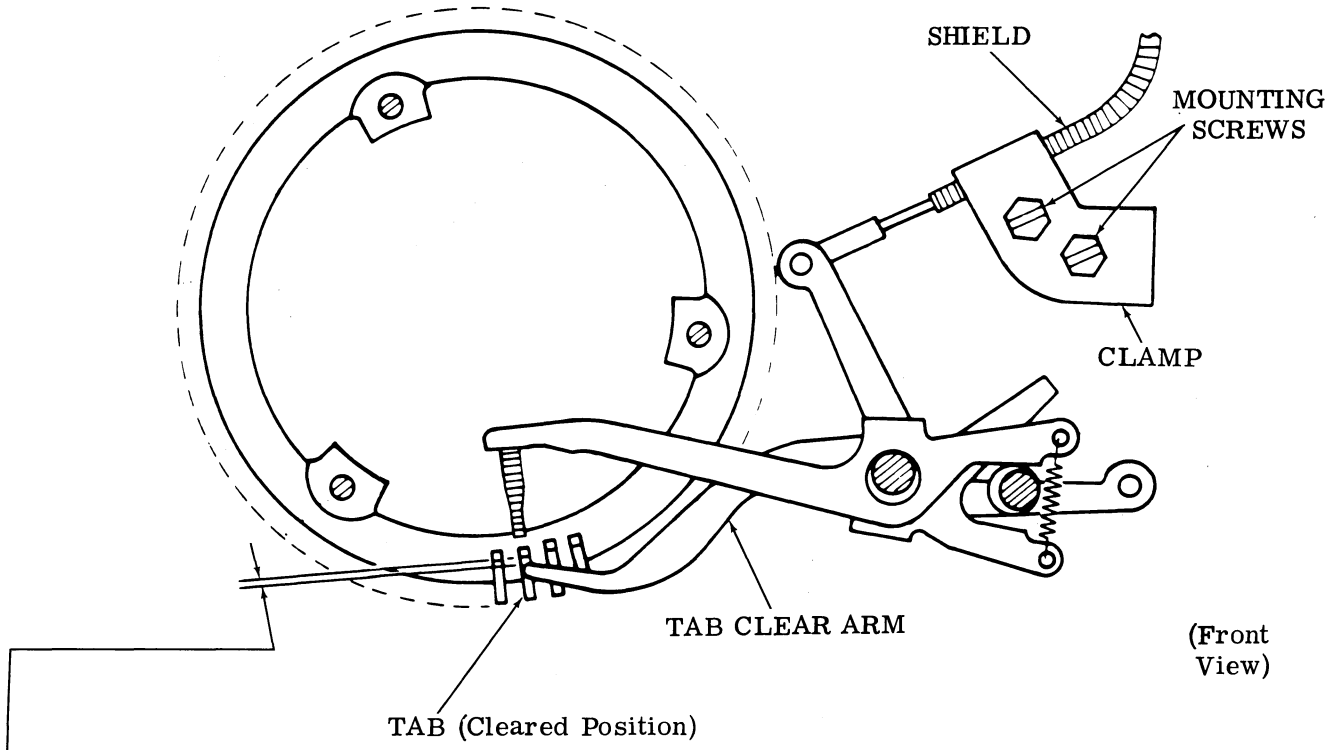
TAB SET ARM (STANDARD UNIT)

To Check
Tab set arm fully selected from function box.

Requirement
Min some---Max 0.020 inch
clearance between tab set arm and head of the tab in selected position.

To Adjust
Disengage (latch) all clutches. Position carriage to about the center of platen. Engage (trip) spacing clutch and turn main shaft to advance carriage by at least one space. Disengage (latch) all clutches. Shift no. 9 and no. 10 blocking bars by manually selecting and latching function levers in function box slots no. 7 and 25. Set up character "1" in selector (levels 1, 5, 6, and 8 marking; levels 2, 3, 4, and 7 spacing). Engage (trip) codebar clutch and rotate main shaft until tab set function lever in function box slot no. 15 is fully selected. Loosen clamp mounting screws and position shield to meet requirement. Tighten clamp mounting screws.

3.31 Horizontal Tab Stop Control Mechanism (continued)



TAB CLEAR ARM (STANDARD UNIT)

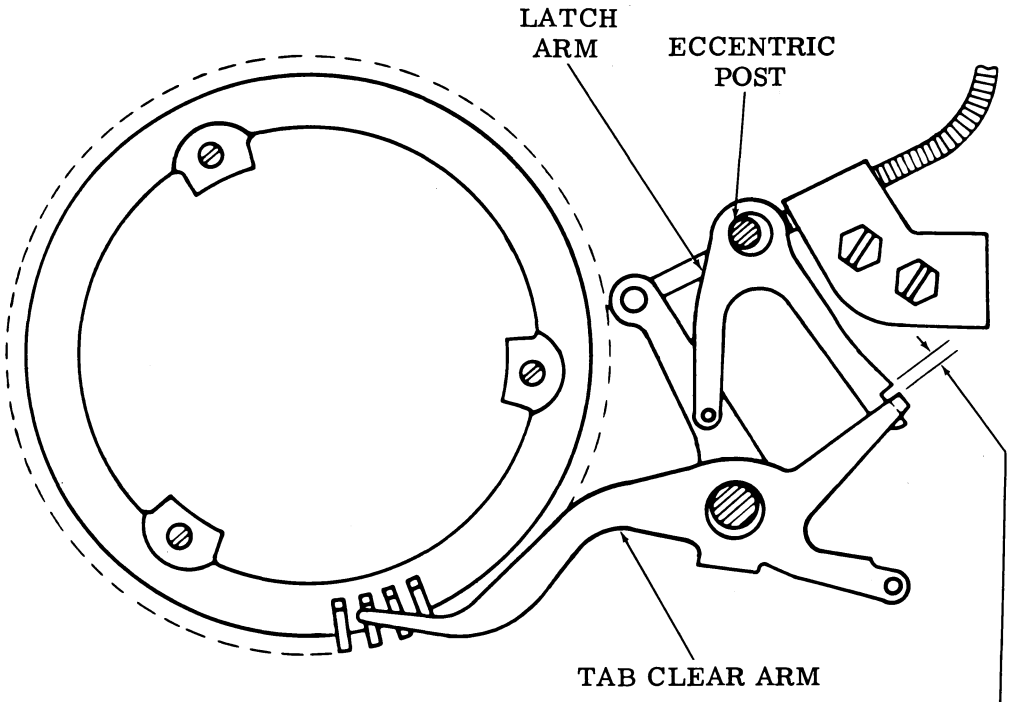
To Check
Tab clear arm fully selected from function box.

Requirement
Min some---Max 0.015 inch clearance between tab clear arm and head of tab in cleared position.

To Adjust
Disengage (latch) all clutches. Position carriage to about the center of platen. Engage (trip) spacing clutch and turn main shaft to advance carriage by at least one space. Disengage (latch) all clutches. Shift no. 9 and no. 10 blocking bars by manually selecting and latching function levers in function box slots no. 7 and 25. Set up character "2" in selector (levels 2, 5, 6, and 8 marking; levels 1, 3, 4, and 7 spacing). Engage (trip) codebar clutch and rotate main shaft until tab clear function lever in function box slot no. 16 is fully selected. Loosen clamp mounting screws friction tight and position shield to meet requirement. Tighten clamp mounting screws. Recheck TAB SET ARM (STANDARD UNIT) (3.30) adjustment.

Note: When making above adjustment, be careful not to disturb TAB SET ARM (STANDARD UNIT) (3.30) adjustment.

3.32 Horizontal Tab Stop Control Mechanism (continued)



LATCH ARM (STANDARD UNIT)

To Check
Tab clear arm fully selected from function box.

Requirement
Min 0.005 inch---Max 0.010 inch clearance between tab clear arm and latch arm.

To Adjust
Disengage (latch) all clutches. Position carriage to about the center of platen. Engage (trip) spacing clutch and turn main shaft to advance carriage by at least one space. Disengage (latch) all clutches. Shift no. 9 and no. 10 blocking bars by manually selecting and latching function levers in function box slots no. 7 and 25. Set up character "2" in selector (levels 2, 5, 6, and 8 marking; levels 1, 3, 4, and 7 spacing). Engage (trip) codebar clutch and rotate main shaft until tab clear function lever in function box slot no. 16 is fully selected. Loosen nut on eccentric post. Turn eccentric post to meet requirement. Tighten eccentric post nut.

Note: The eccentricity of the eccentric post should be positioned towards the right.

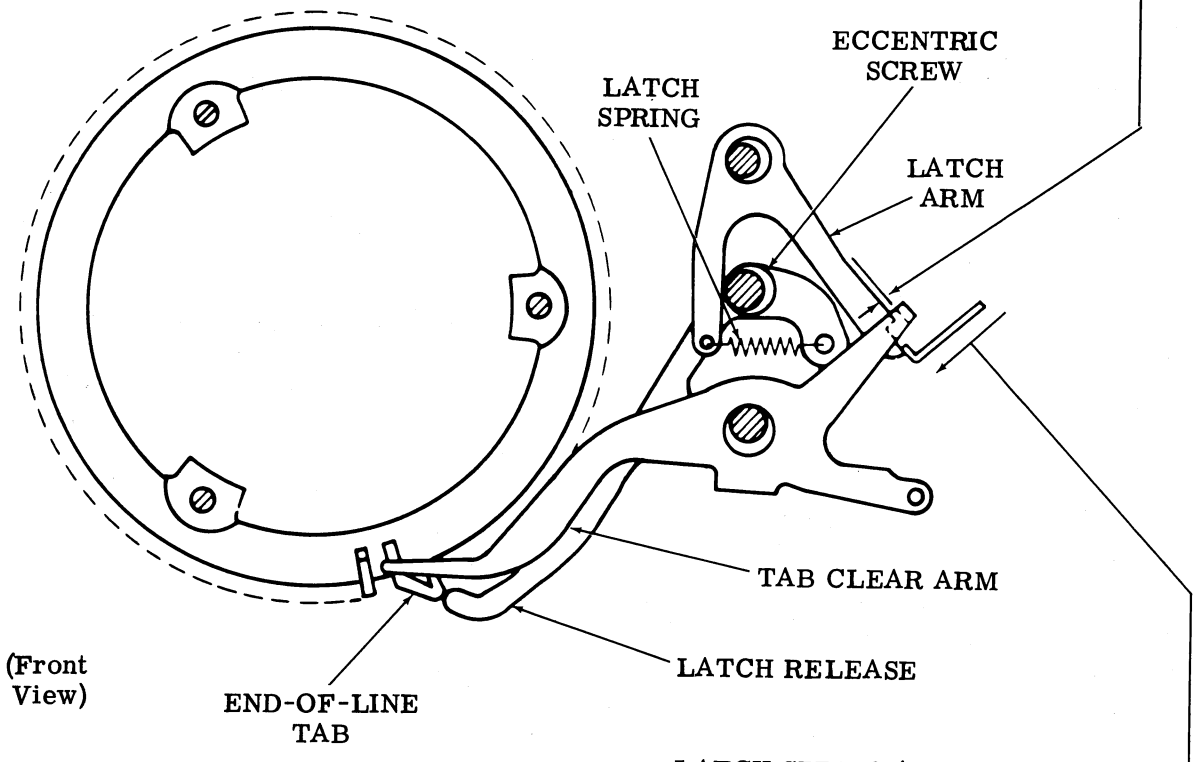
3.33 Horizontal Tab Stop Control Mechanism (continued)

LATCH RELEASE (STANDARD UNIT)

To Check
Carriage spaced fully to right hand margin. Spacing clutch disengaged (latched).

Requirement
Min 0.005 inch---Max 0.015 inch clearance between tab clear arm and latch arm.

To Adjust
Space carriage fully to right hand margin. Disengage (latch) spacing clutch. Loosen nut on eccentric screw and turn eccentric screw until requirement is met. Tighten nut.



LATCH SPRING (STANDARD UNIT)

Requirement
Min 1 oz---Max 3 oz to open a gap between latch arm and tab clear arm.

3.34 Horizontal Tab Stop Control Mechanism (continued)

TAB SET AND CLEAR POSITION (WIDE PLATEN UNIT)

Requirement

The tab set actuator spring should operate a tab through the clear to set position with the spring centered on the head of the tab with the center of the clear arm cam surface approximately in line with its adjacent tab.

To Adjust

Loosen the screw that retains the set arm and clear arm shoulder bushing. Position the shoulder bushing up or down to meet the requirement. Tighten the screw. In order to satisfy the in and out requirement, loosen the screw on the back side of the front plate that secures the adjusting post. Turn the adjusting post to position the mounting plate in or out to satisfy the requirement. Tighten the screw.

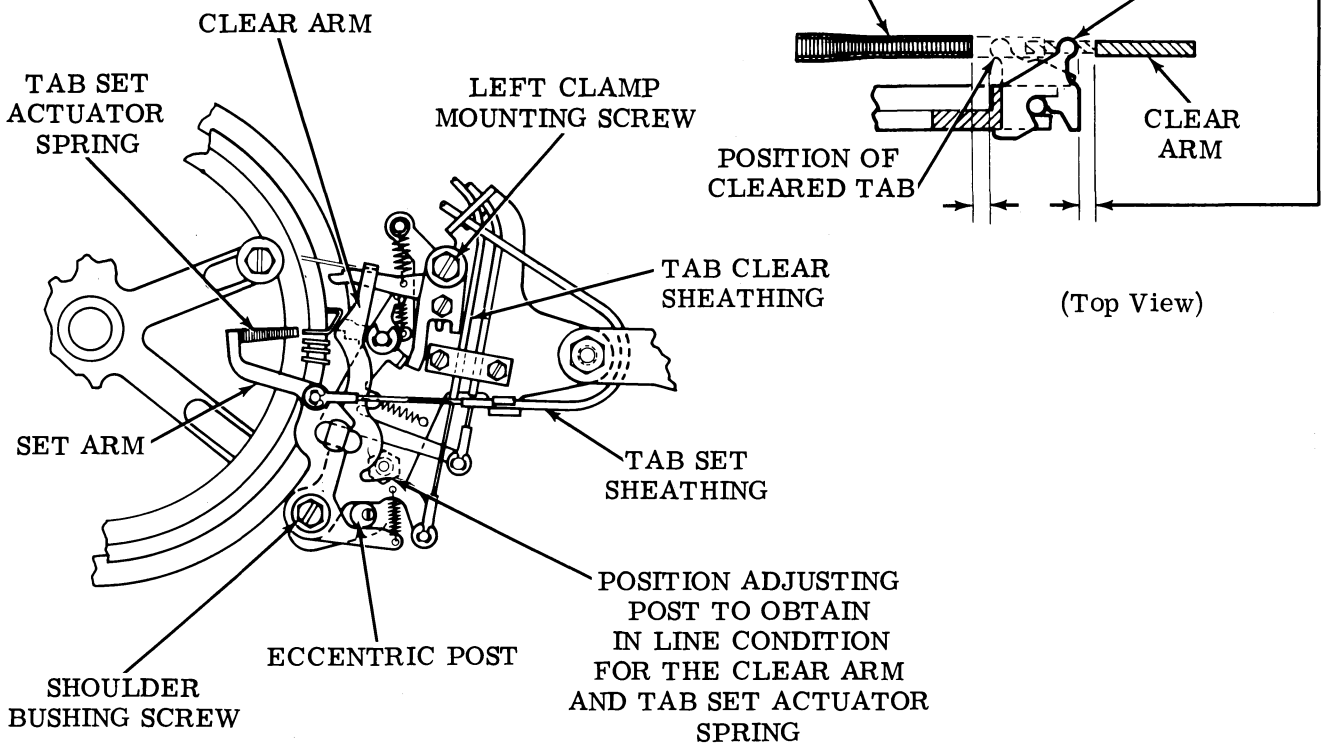
TAB CLEAR AND TAB SET CLEARANCE (WIDE PLATEN UNIT)

Requirement

There should be equal clearance, as gauged by eye, between the tab set arm and the head of a cleared tab and between the tab clear arm and the head of a set tab.

To Adjust

Loosen the eccentric post mounting nut and turn the post to meet the requirement. The high part of the eccentric should be toward the left. Tighten the nut.



3.35 Horizontal Tab Stop Control Mechanism (continued)

TAB SET ARM (WIDE PLATEN UNIT)

Requirement

Min 0.020 inch---Max 0.040 inch clearance between the tab set arm spring and head of tab when the tab is fully set.

To Adjust

Disengage all clutches. Position the carriage to the approximate center of the platen. Trip the spacing clutch and rotate the main shaft to advance the carriage by at least one space. Shift the 9 and 10 codebars by manually selecting and latching the function levers in slot 7 and 25 of the stunt box. Set up one (1, 5, 6 and 8 marking) in the selector. Trip the codebar positioning clutch and rotate the main shaft until the tab set function lever in slot 15 is fully selected. Loosen the clamp mounting screw and position the sheathing of the tab set arm cable assembly to obtain the clearance. Tighten the screw.

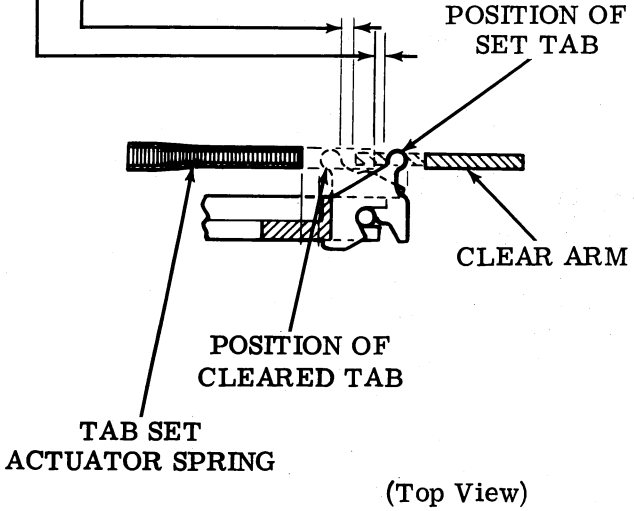
TAB CLEAR ARM (WIDE PLATEN UNIT)

Requirement

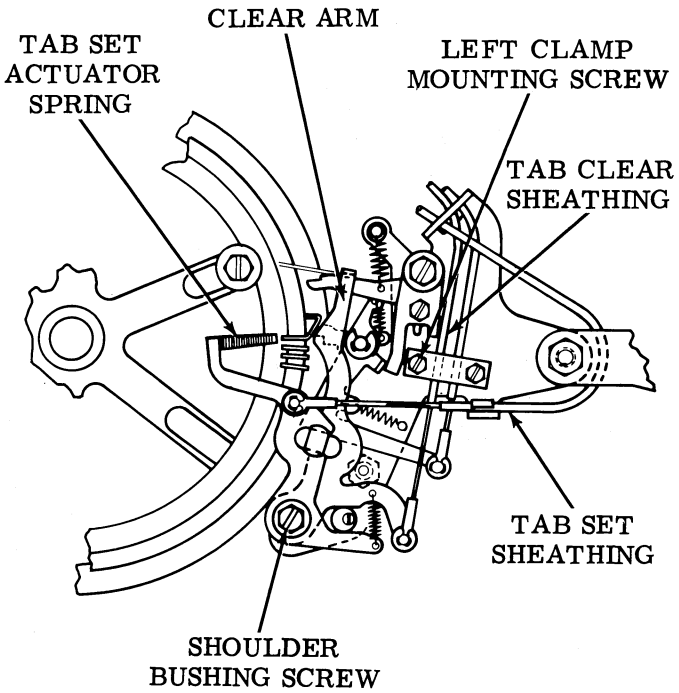
Min 0.030 inch---Max 0.050 inch clearance between the tab clear arm and head of the tab when the tab is fully cleared.

To Adjust

Repeat procedure followed in tab set arm adjustment except select two (2, 5, 6 and 8 marking) in the selector to operate the tab clear function lever in slot 16 of the stunt box. Loosen the left mounting screw of the two cable assembly clamp and position the sheathing of the tab clear arm cable assembly, to obtain the clearance. Tighten the screw.



(Top View)



(Front View)

3.36 Horizontal Tab Stop Control Mechanism (continued)

LATCH ARM (WIDE PLATEN UNIT)

Requirement

Min 0.005 inch---Max 0.010 inch clearance between the tab clear arm and the latch when the tab clear arm is fully selected.

To Adjust

Condition the machine as in the tab clear arm adjustment (3.35). Loosen the pivot bushing screw and move the bushing along the slot in the mounting plate to meet the requirement. Tighten the screw.

LATCH RELEASE (WIDE PLATEN UNIT)

To Check

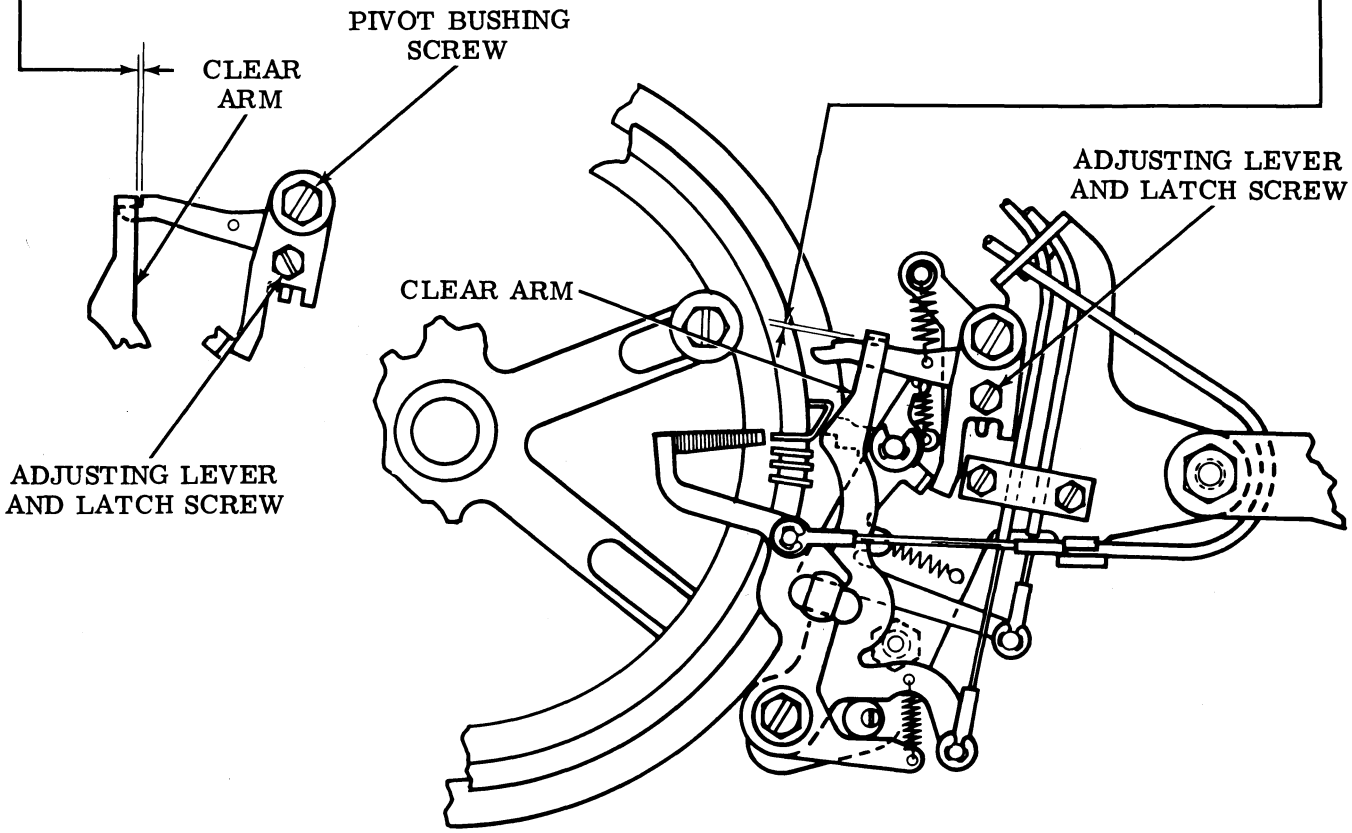
With spacing clutch disengaged (latched), space the carriage fully to the right hand side.

Requirement

Min 0.005 inch---Max 0.015 inch clearance between the tab clear arm and the latch arm.

To Adjust

Loosen the screw that secures the adjusting lever and latch. Adjust by using the pry lugs to meet the requirement. Tighten the screw.



3.37 Horizontal **Tab Stop** Control Mechanism (continued)

TAB ARM SPRING (WIDE PLATEN UNIT)

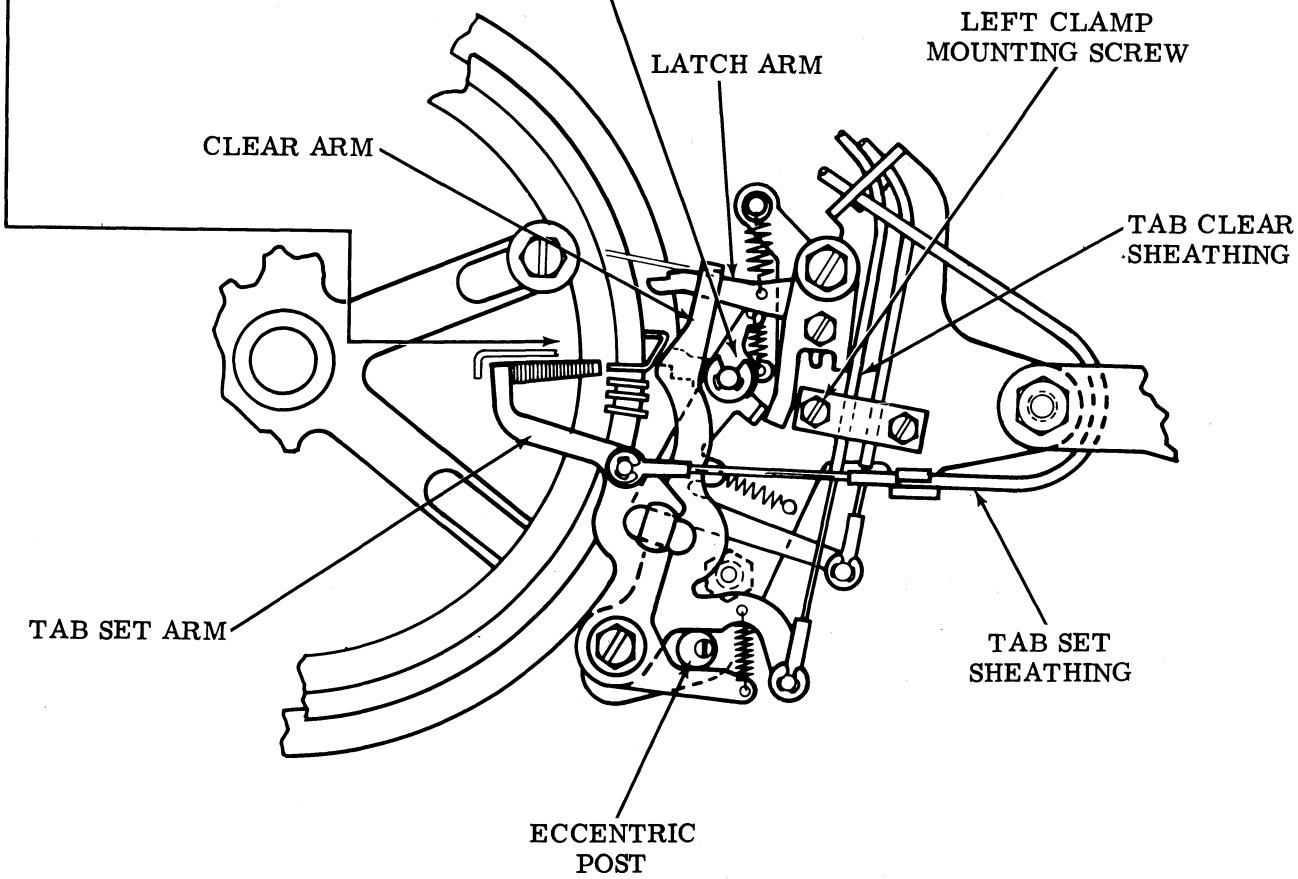
To Check
The tab clear arm and tab set arm should both be biased against the eccentric post. Hook an 8 oz spring scale at the end of the set arm and pull in line with the set spring to measure.

Requirement
Min 3 oz---Max 5 oz
to separate the tab set arm away from the eccentric post when the spring scale is applied to the tip of the tab set arm.

LATCH SPRING (WIDE PLATEN UNIT)

To Check
Hook an 8 oz spring scale over the latch arm and pull down to measure.

Requirement
Min 3/4 oz---Max 2 oz
to open a gap between the latch arm and tab clear arm.



3.38 Vertical Tab Stop Control Mechanism

Note: Vertical tabulation mechanism adjustments SLIDE RETAINER (3.11), MOUNTING BRACKET (3.12), FORM START GEAR BACKLASH (3.12), TAB WHEEL (3.13), POINTER (3.13), BLOCKING LEVERS (EARLY DESIGN) (3.15) or BLOCKING LEVERS (LATE DESIGN) (3.16), TAB WHEEL SYNCHRONIZATION (3.14), escape sequence mechanism adjustment NO. 10 BLOCKING BAR (3.21), line feed clutch tripbail adjustments TRIPBAIL BRACKET (3.26) and LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW (3.27) should be completed before making the following adjustments for the vertical tab stop control mechanism.

MOUNTING PLATE — PRELIMINARY

Requirement

Some clearance, within 0.025 inch between tab set arm and head of tab in cleared position and between tab clear arm and head of a tab in selected position when both levers are resting on post on mounting plate.

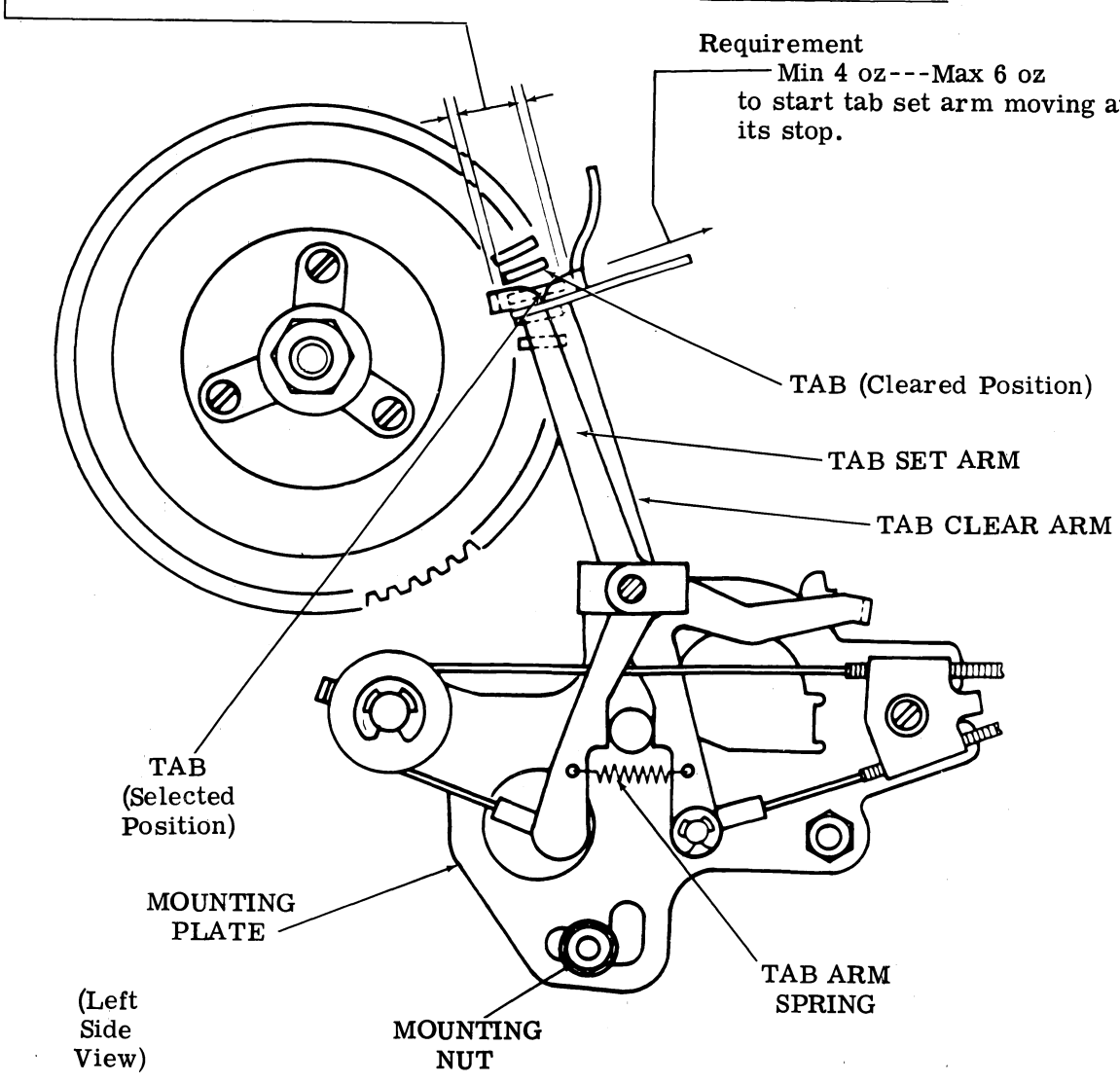
To Adjust

Loosen mounting nut and position mounting plate to meet requirement. Tighten mounting nut.

TAB ARM SPRING

Requirement

Min 4 oz---Max 6 oz to start tab set arm moving away from its stop.



3.39 Vertical Tab Stop Control Mechanism (continued)

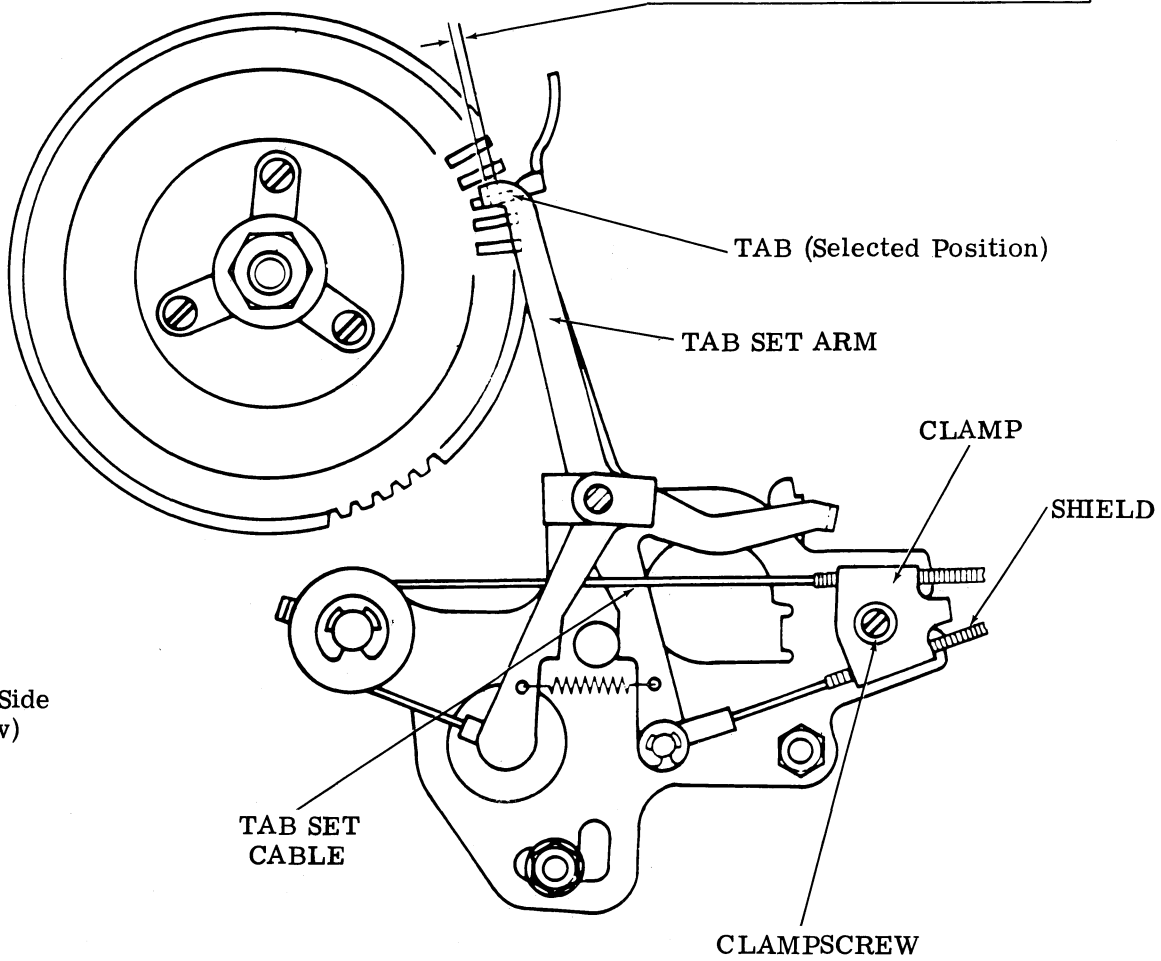
TAB SET ARM CABLE

Note: All tabs are in the selected position before making this adjustment.

To Check
Tab set arm fully selected from function box.

Requirement
Min some---Max 0.030 inch clearance between tab set arm and head of a tab in selected position.

To Adjust
Disengage (latch) all clutches. Set codebars 1, 3, 5, and 6 marking. Manually shift no. 9 and no. 10 blocking bars by latching the function levers in slots no. 7 and no. 25 of the function box. Manually trip the function clutch and rotate the main shaft until the stripper blade just touches the selected function pawl (slot 39). Loosen clamp-screw and shift the shield on the tab set cable to meet the requirement. Tighten clamp-screw.



3.40 Vertical Tab Stop Control Mechanism (continued)

TAB CLEAR ARM CABLE

To Check
Tab clear fully selected from function box.

Requirement
Min some---Max 0.015 inch clearance between tab clearance arm head of a tab in cleared position.

To Adjust
Disengage (latch) all clutches. Set codebars 2, 3, 5, and 6 marking. Manually shift no. 9 and no. 10 blocking bars by latching the function levers in slots no. 7 and no. 25 in the function box. Manually trip the function clutch and rotate the main shaft until the stripper blade just touches the selected function pawl (slot 40). Loosen clampscrew and shift shield on tab clear cable to meet requirement. Tighten clampscrew. Recheck TAB SET ARM CABLE (3.39) and TAB CLEAR ARM CABLE adjustments.

Note: When making above adjustment, be careful not to disturb TAB SET ARM CABLE (3.39) adjustment.

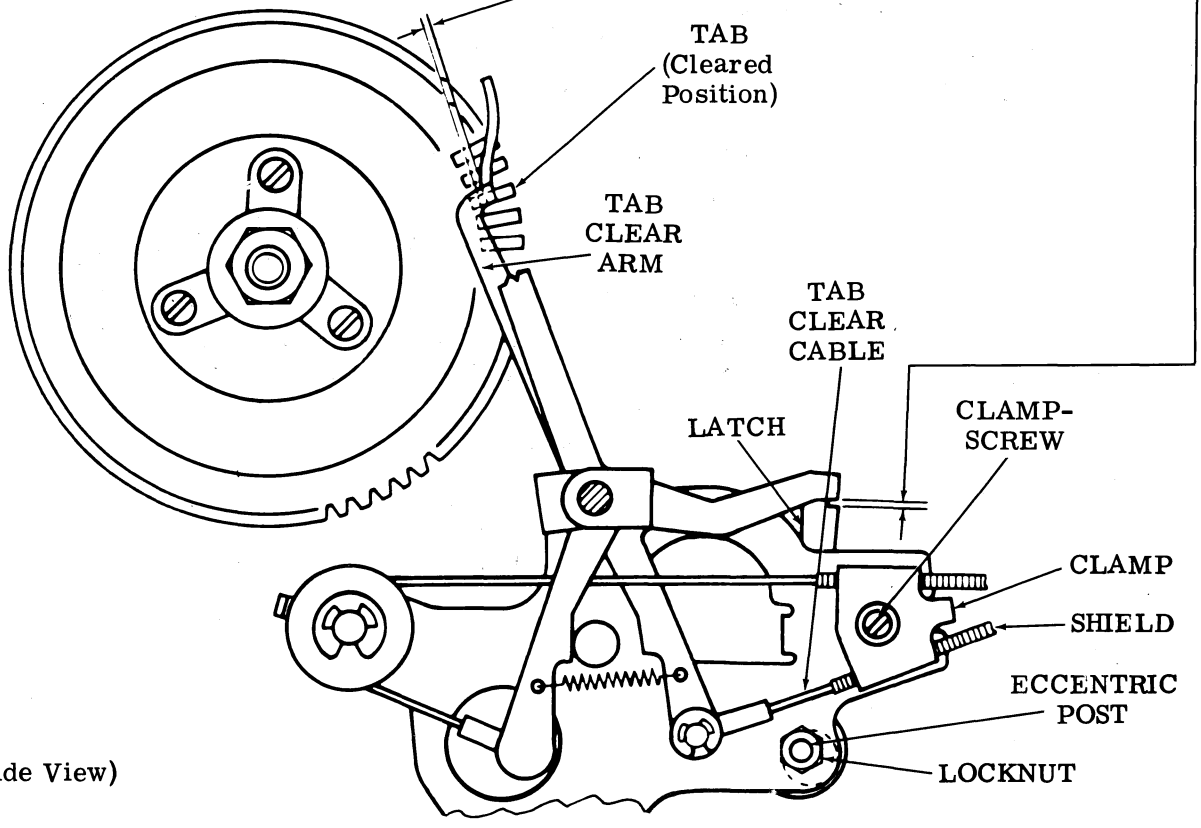
LATCH

To Check
Tab clear arm fully selected from function box.

Requirement
Min 0.005 inch---Max 0.015 inch clearance between tab clear arm and latch.

To Adjust
Disengage (latch) all clutches. Set codebars 2, 3, 5, and 6 marking. Manually shift no. 9 and no. 10 blocking bars by latching the function levers in slots no. 7 and no. 25 in the function box. Manually trip the function clutch and rotate the main shaft until the stripper blade just touches the selected function pawl (slot 40). Loosen locknut on eccentric post. Turn eccentric post with a hex key wrench to meet requirement. Tighten locknut.

Note: The eccentricity of the eccentric post should be positioned toward right.



(Left Side View)

3.41 Vertical Tab Stop Control Mechanism (continued)

LATCH RELEASE

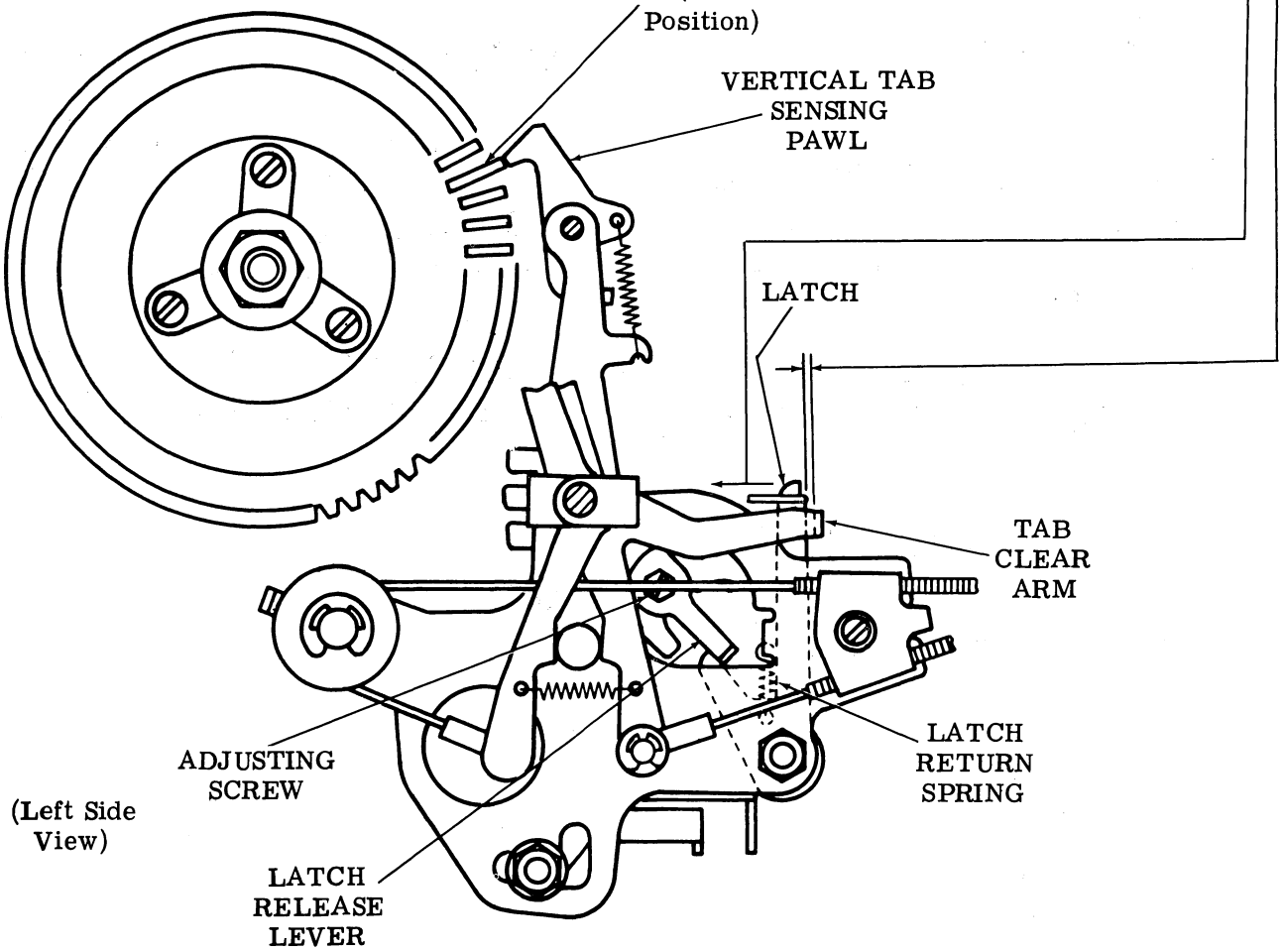
To Check
Vertical tab sensing pawl resting on top of selected tab.

Requirement
Min 0.005 inch---Max 0.015 inch clearance between tab clear arm and latch.

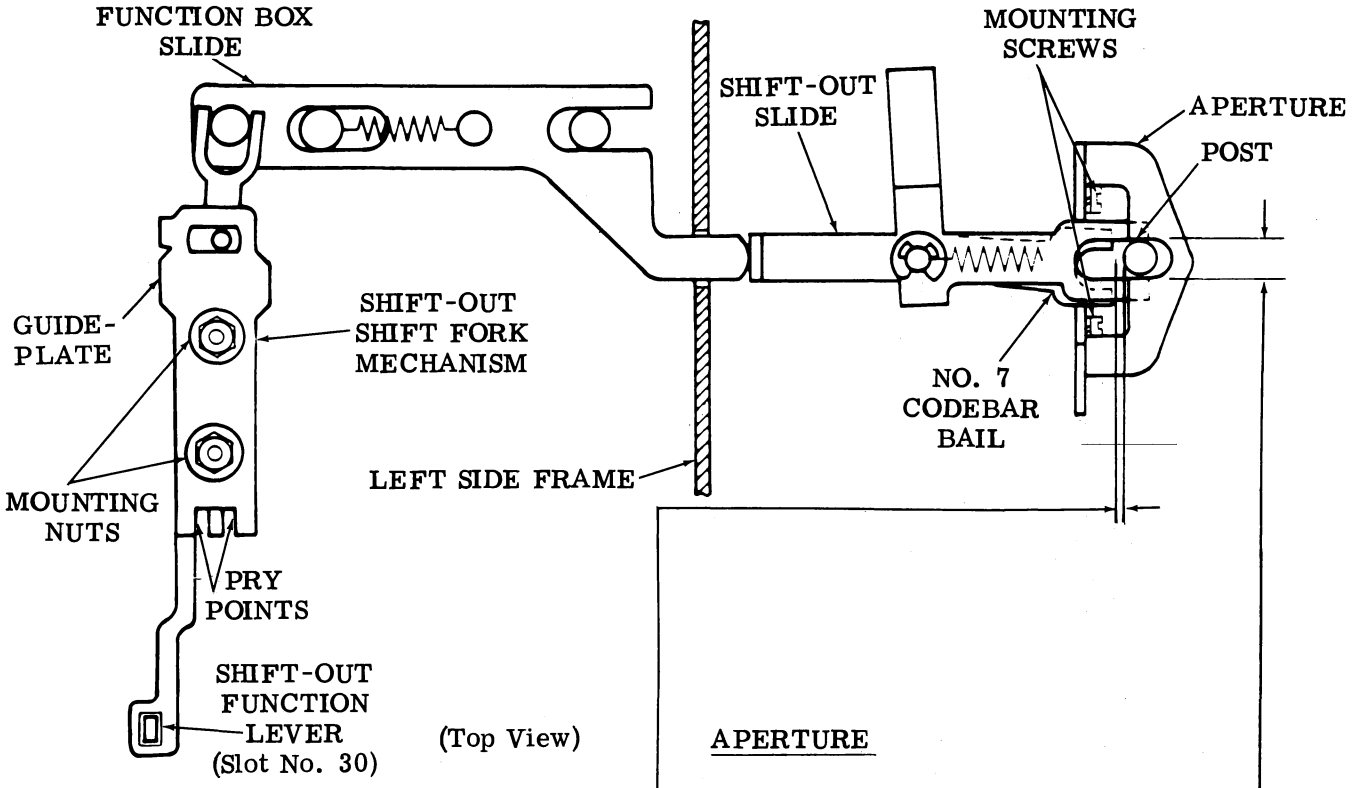
To Adjust
Turn platen knob until vertical tab sensing pawl comes to rest on top of selected tab. Loosen adjusting screw and adjust latch release lever to meet requirement. Tighten adjusting screw.

LATCH SPRING

Requirement
Min 1/4 oz---Max 1 oz to pull latch away from tab clear arm.



3.42 Shift-In — Shift-Out Mechanism



SHIFT-OUT SHIFT FORK MECHANISM

To Check
Shift-out function fully selected from function box.

Requirement
Min 0.005 inch---Max 0.010 inch clearance between no. 7 codebar bail and post on shift-out slide.

To Adjust
Disengage (latch) all clutches. Manually select and latch shift-out function lever in function box slot no. 30. Loosen mounting nuts and adjust guideplate using pry points. Tighten mounting nuts.

APERTURE

To Check
No. 7 codebar in spacing position.

Requirement
Post on shift-out slide should line up with slot in aperture.

To Adjust
Position no. 7 codebar spacing. Loosen mounting screws and position aperture to meet requirement. Tighten mounting screws.

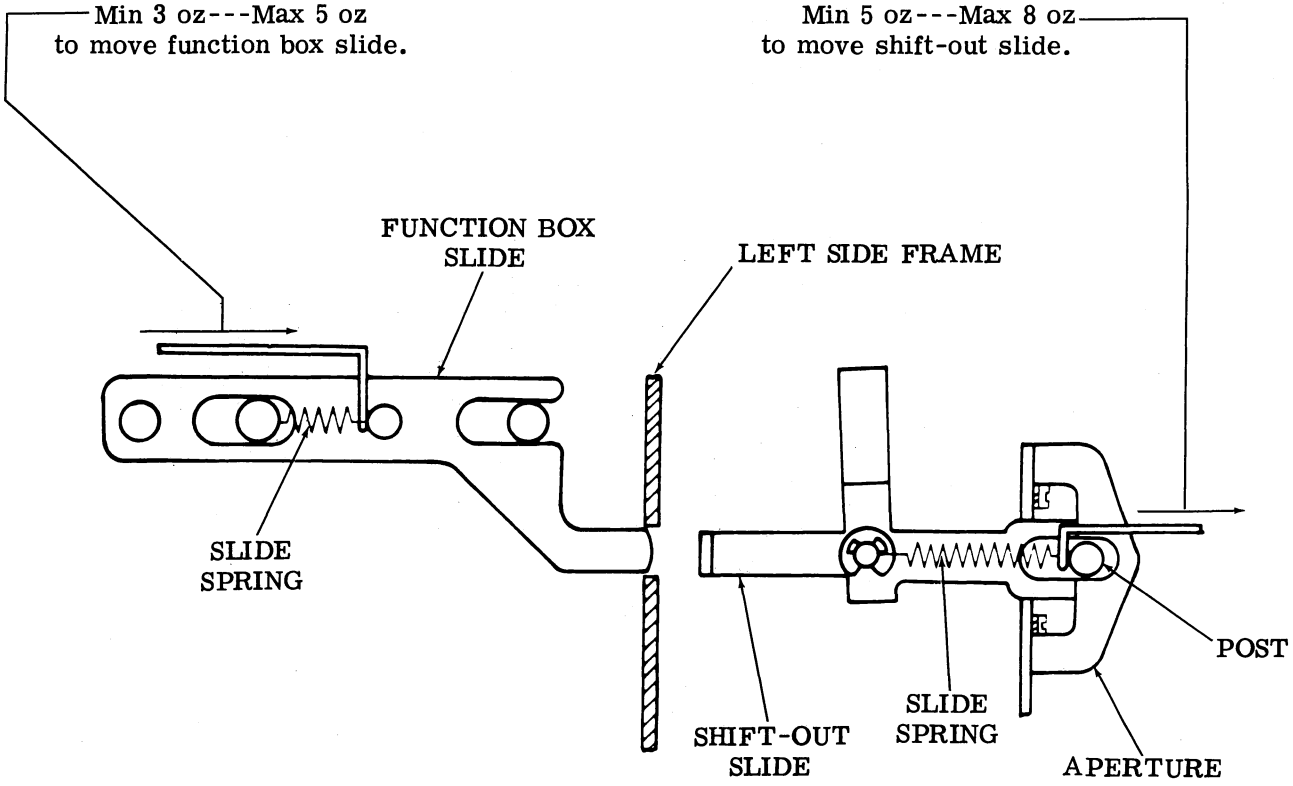
3.43 Shift-In — Shift-Out Mechanism (continued)

FUNCTION BOX SLIDE SPRING

Requirement
Min 3 oz---Max 5 oz
to move function box slide.

SHIFT-OUT SLIDE SPRING

Requirement
Min 5 oz---Max 8 oz
to move shift-out slide.



(Top View)

3.44 Half Forward and Reverse Line Feed Mechanism

LINE FEED CLUTCH PHASING

To Check

Line feed clutch disengaged (latched) and platen detent disabled. Both line feed bars engaging teeth of platen spur gear. Line feed bar in lower position offset toward front. Manually move blocking roller into slot in lower end-of-line feed bars.

Requirement

Min some---Max 0.005 inch clearance between blocking roller and nearest slot surfaces when the feed pawl in the low position is offset in a forward direction.

To Adjust

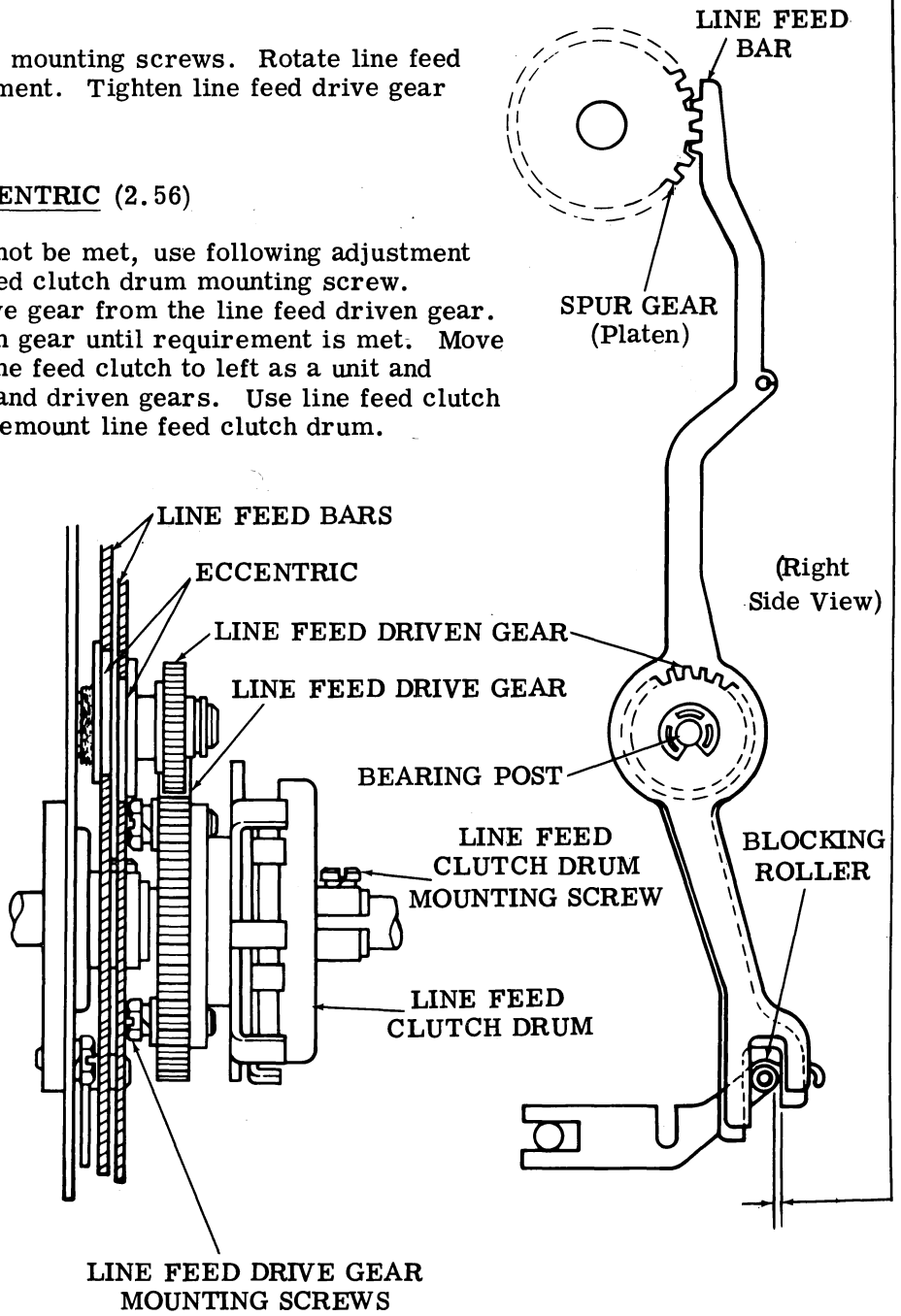
Loosen line feed drive gear mounting screws. Rotate line feed drive gear to meet requirement. Tighten line feed drive gear mounting screws.

Affected Adjustment

SPUR GEAR DETENT ECCENTRIC (2.56)

Note 1: If requirement cannot be met, use following adjustment procedure: Remove line feed clutch drum mounting screw. Disengage the line feed drive gear from the line feed driven gear. Advance the line feed driven gear until requirement is met. Move line feed drive gear, and line feed clutch to left as a unit and remesh the line feed drive and driven gears. Use line feed clutch drum mounting screw and remount line feed clutch drum.

Note 2: When moving the line feed clutch, be careful not to disengage the clutch and separate the clutch shoe lever assembly from the drum.



3.45 Half Forward and Reverse Line Feed Mechanism (continued)

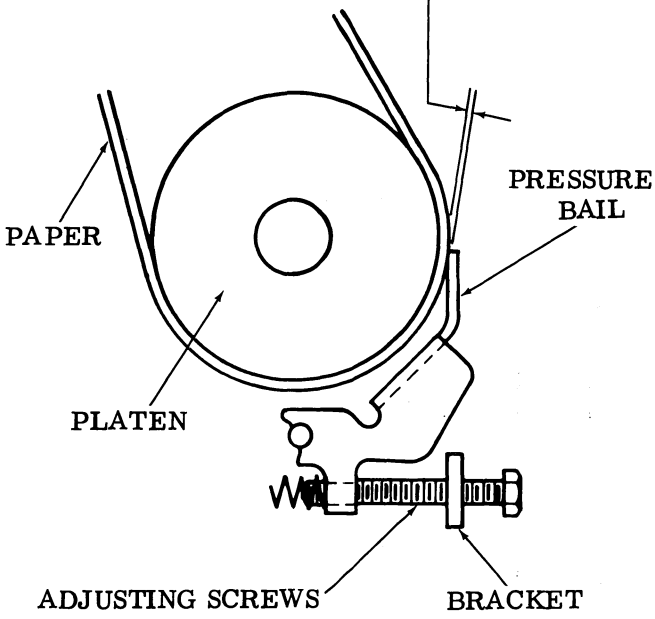
PRESSURE BAIL

Note: This adjustment applies only to friction feed typing units.

To Check
Paper inserted in platen. Paper release lever fully forward.

Requirement
Min some---Max 0.005 inch clearance between pressure bail and paper at the point where the clearance is the least. The clearance at both ends should be approximately equal.

To Adjust
Rotate adjusting screws to meet requirement.



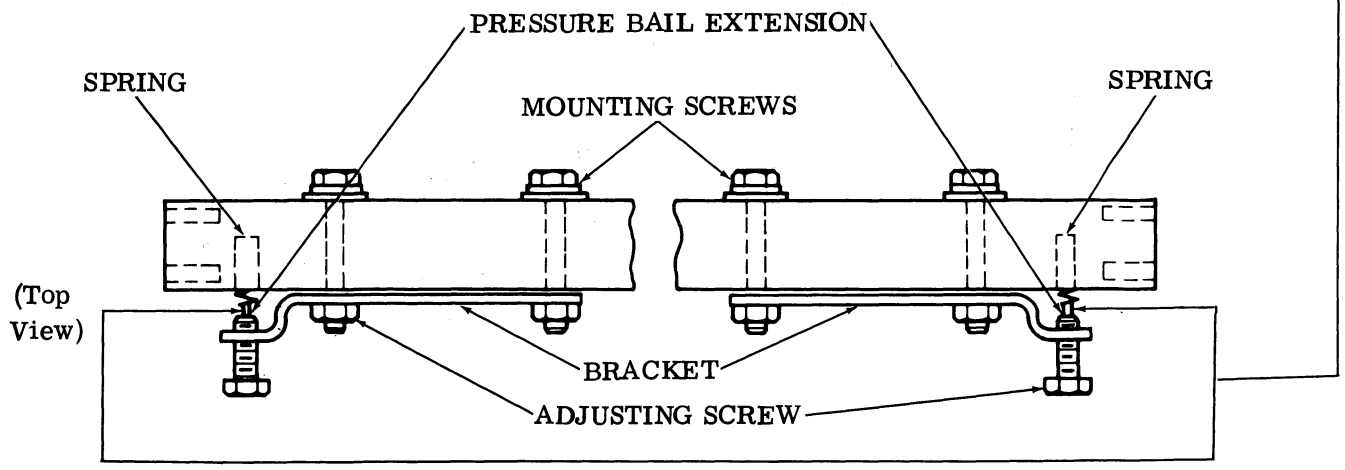
(Left Side View)

BRACKET LINE-UP

Note: This adjustment applies only to friction feed typing units.

Requirement
Adjusting screws at both ends should be in line with pressure bail extensions as gauged by eye.

To Adjust
Loosen mounting screws friction tight. Position brackets to meet requirement. Tighten mounting screws.

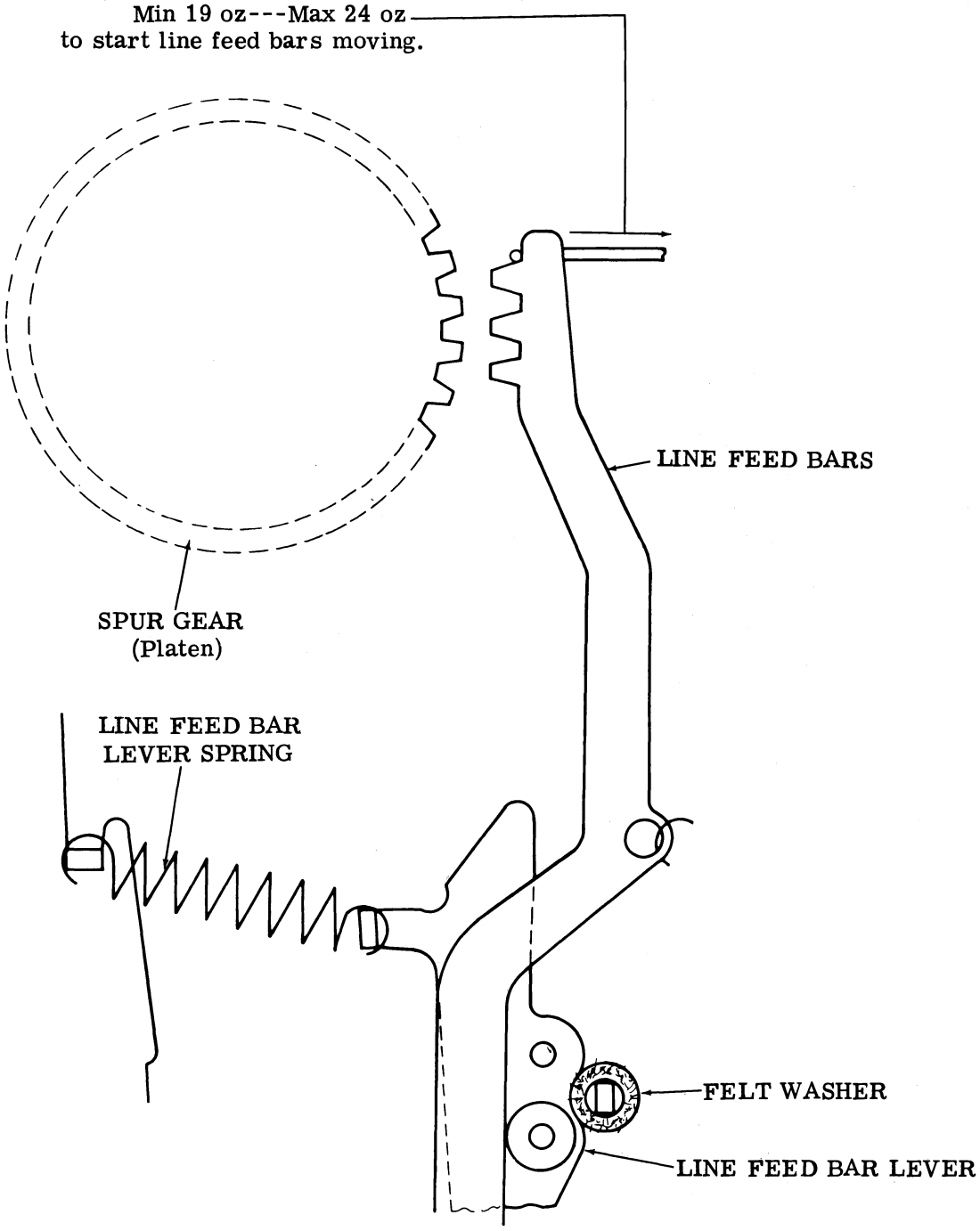


3.46 Half Forward and Reverse Line Feed Mechanism (continued)

LINE FEED BAR LEVER SPRING

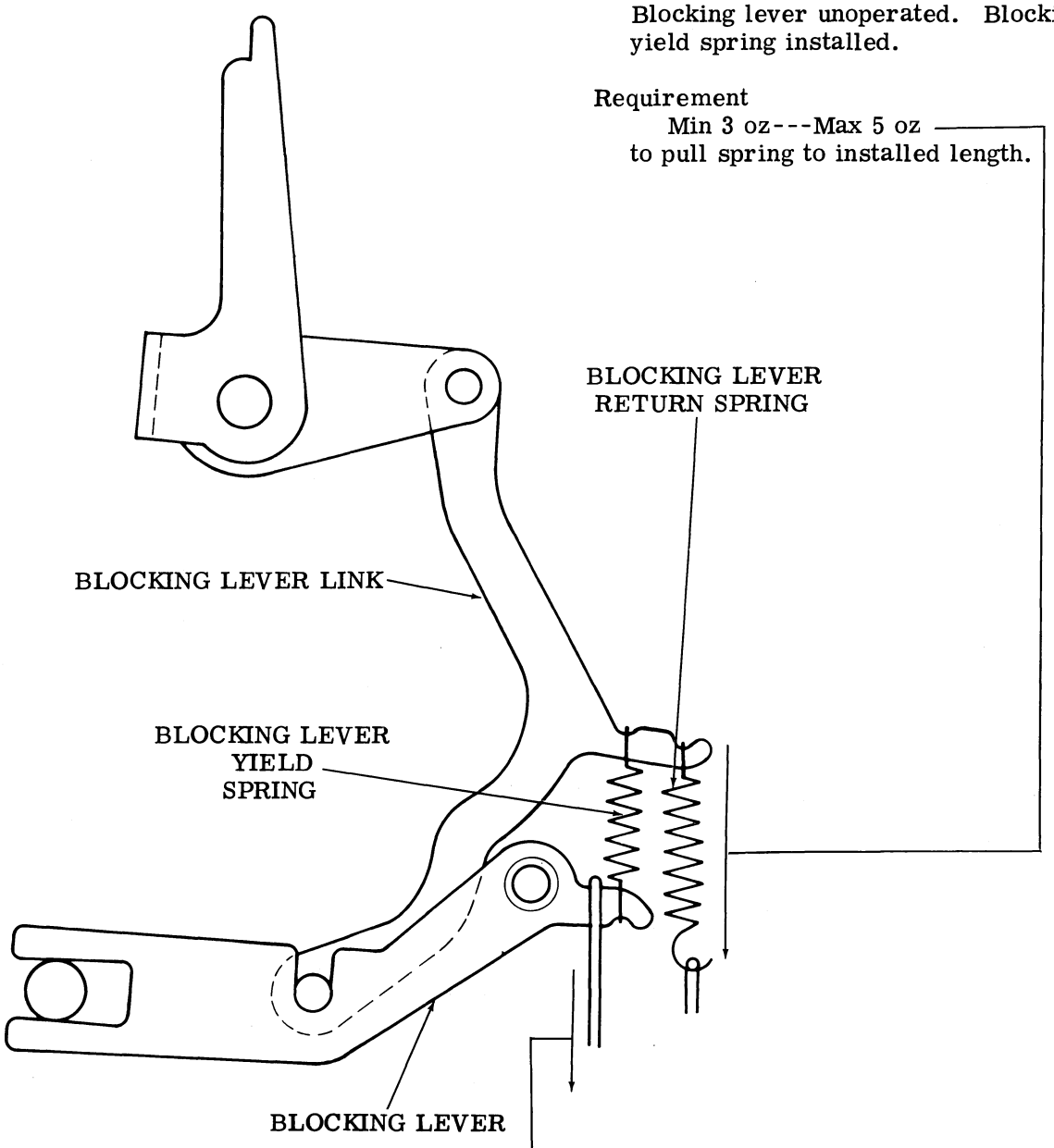
To Check
Line feed bar springs attached. Blocking levers unoperated.

Requirement
Min 19 oz---Max 24 oz
to start line feed bars moving.



(Right Side View)

3.47 Half Forward and Reverse Line Feed Mechanism (continued)



(Right Side View)

BLOCKING LEVER RETURN SPRING

To Check
Blocking lever unoperated. Blocking lever yield spring installed.

Requirement
Min 3 oz---Max 5 oz
to pull spring to installed length.

BLOCKING LEVER YIELD SPRING

To Check
Blocking lever unoperated. Return spring unhooked.

Requirement
Min 3 oz---Max 5 oz
to separate blocking lever from blocking lever link.

3.48 Two-Color Ribbon Mechanism

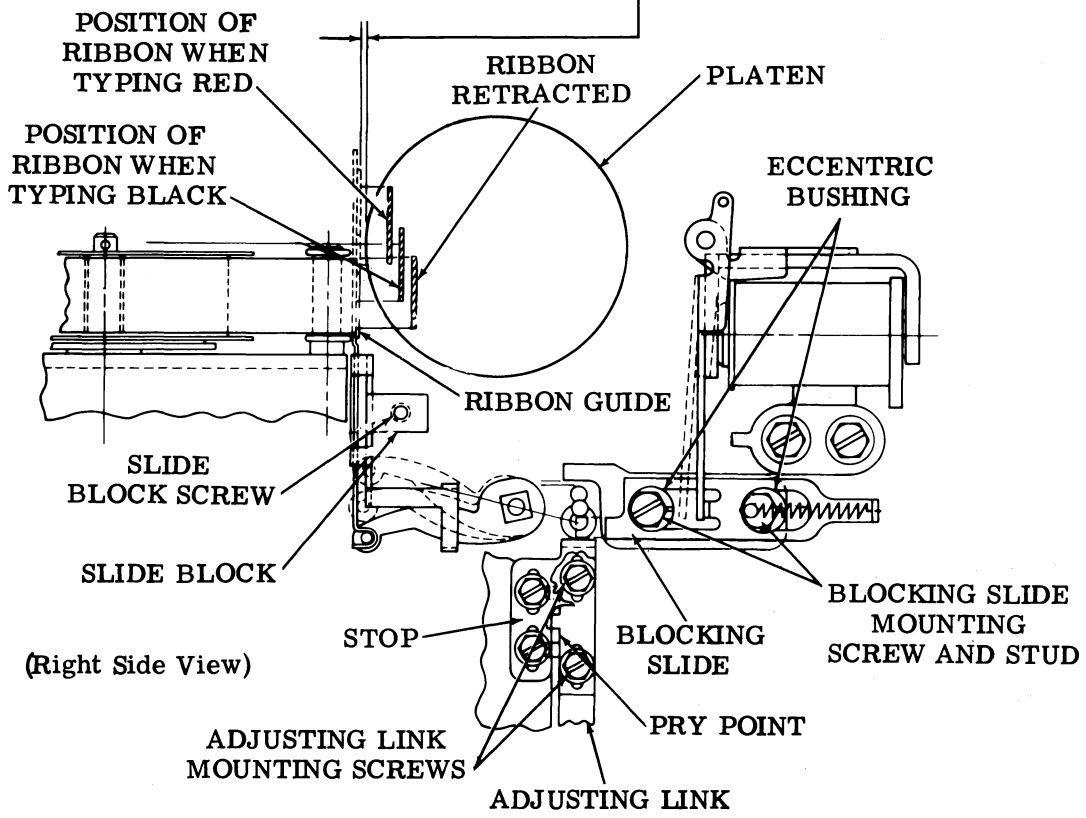
RIBBON GUIDE TO PLATEN

Affected Adjustment
RIBBON RETRACT POSITION (2.99)

To Check
Ribbon guide in uppermost (red) print position. Ribbon in position and under tension. Play taken up to make clearance maximum.

Requirement
Min 0.025 inch---Max 0.040 inch clearance between ribbon guide and platen.

To Adjust
Loosen slide block screws (one on each side of frame). Pivot slide blocks until requirement is met along entire travel of ribbon guide. Maintain position of slide blocks and tighten slide block screws.



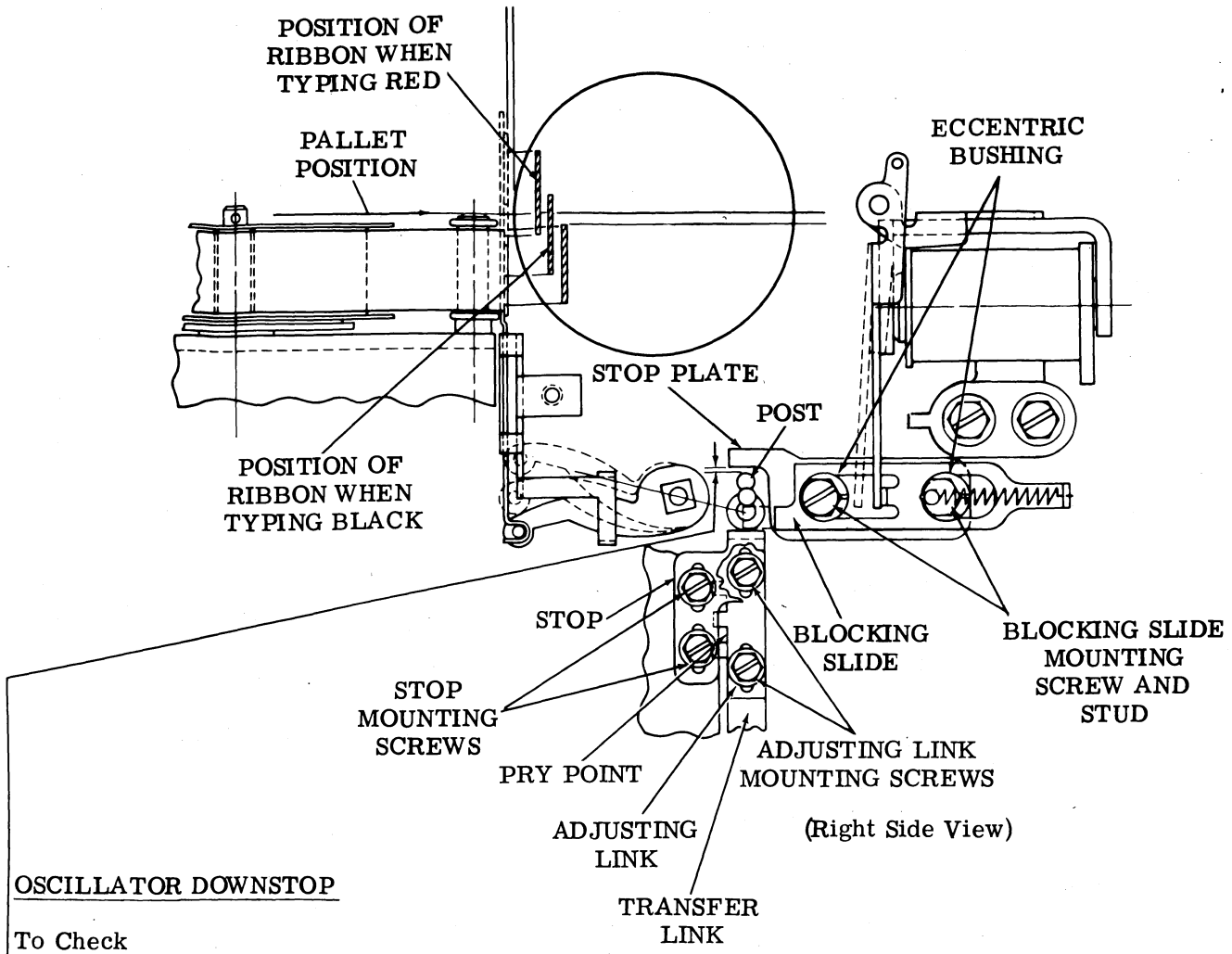
RIBBON PRINT POSITION — BLACK

Requirement
When typing occurs, type pallet should strike about center of black portion of two-color ribbon.

To Adjust
With blocking slide in blocking position, loosen blocking slide mounting screw and stud. Rotate eccentric bushing to meet requirement. Tighten blocking slide mounting screw and stud.

Note: The eccentricity of the eccentric bushings should be positioned towards the rear.

3.49 Two-Color Ribbon Mechanism (continued)



OSCILLATOR DOWNSTOP

To Check
Printing clutch disengaged (latched).

Requirement
Min some---Max 0.010 inch clearance between post and stop plate.

To Adjust
Loosen adjusting link mounting screws. Position the post using pry points to meet requirement. Tighten screws.

Note: When making above adjustment, be careful not to disturb setting of eccentric bushings.

RIBBON PRINT POSITION — RED

Requirement
When typing occurs, type pallet should strike about center of red portion of two-color ribbon.

To Adjust
Place blocking slide to unblocking position. Loosen two stop mounting screws. Raise or lower stop to meet requirement. Tighten stop mounting screws.

3.50 Two-Color Ribbon Mechanism (continued)

MAGNET ASSEMBLY (ARMATURE ATTRACTED)

To Check
Armature in contact with core face.

Requirement
Armature should contact the center of the core face with equal clearance along the edges of the core as gauged by eye. The armature should rest flush against the core face.

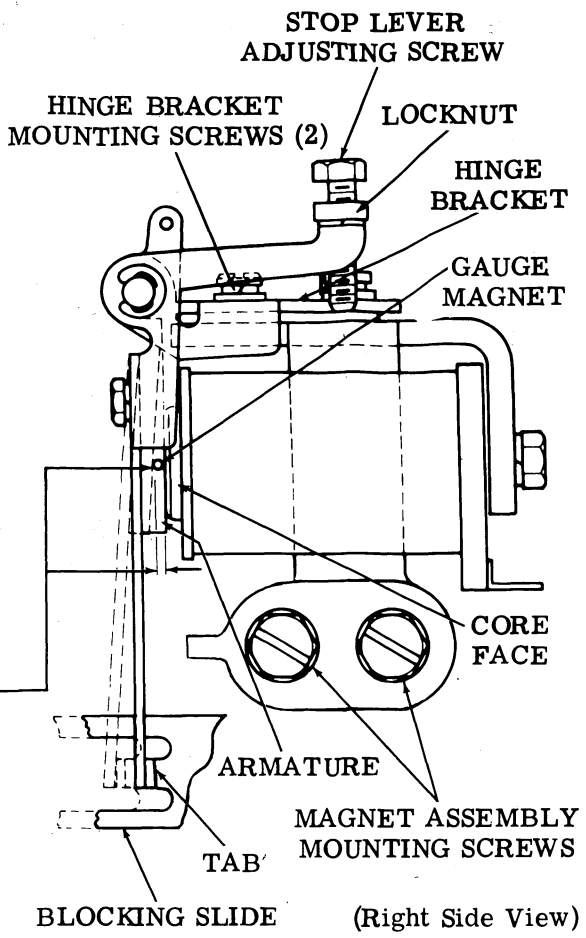
To Adjust
Loosen hinge bracket mounting screws.
Position hinge bracket to meet requirement.
Tighten hinge bracket mounting screws.

MAGNET ASSEMBLY (ARMATURE NOT ATTRACTED)

To Check
Armature in disengaged position, ie, not attracted to core face.

Requirement
Min 0.030 inch---Max 0.040 inch air gap between armature and core face when measured at about center of core face.

To Adjust
Loosen locknut. Position stop lever adjusting screw. Tighten locknut.



(Right Side View)

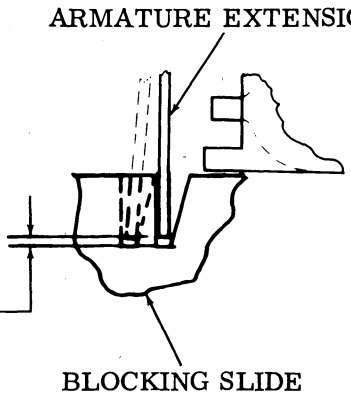
MAGNET ASSEMBLY TO BLOCKING SLIDE

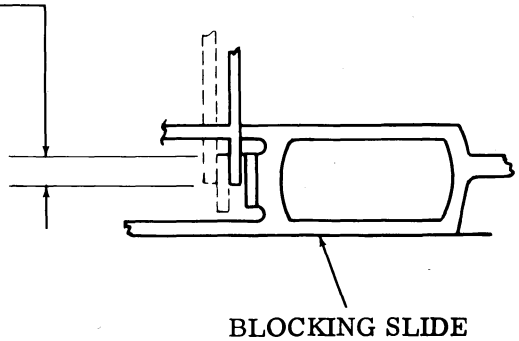
To Check
Magnet assembly mounted to right side frame and armature extension against blocking slide tab. Place armature into attracted position to permit ribbon to be moved to its red position.

*(1) Requirement
Armature extension should actuate blocking slide. On some units the clearance between tip of armature extension and bottom of slide cut-out
Min 0.020 inch---Max 0.040 inch.

*(2) Requirement
Armature extension should engage at least half of blocking slide tab as gauged by eye. It must not extend beyond bottom of tab.

*Note: If unit has TP332476 blocking slide (powdered metal-type), use (1) requirement. If TP334257 blocking slide is used (sheet metal-type), use (2) requirement.





To Adjust
Loosen magnet assembly mounting screws.
Adjust assembly to meet requirements.

Note: If necessary, refine MAGNET ASSEMBLY TO BLOCKING SLIDE adjustment when typing unit is operated under power.

3.51 Automatic Carriage Return-Line Feed Mechanism

Note: Make the RIGHT HAND MARGIN (2.82 and 2.83) adjustment before making the following SPACING DRUM ACTUATING LEVER adjustment.

SPACING DRUM ACTUATING LEVER

To Check

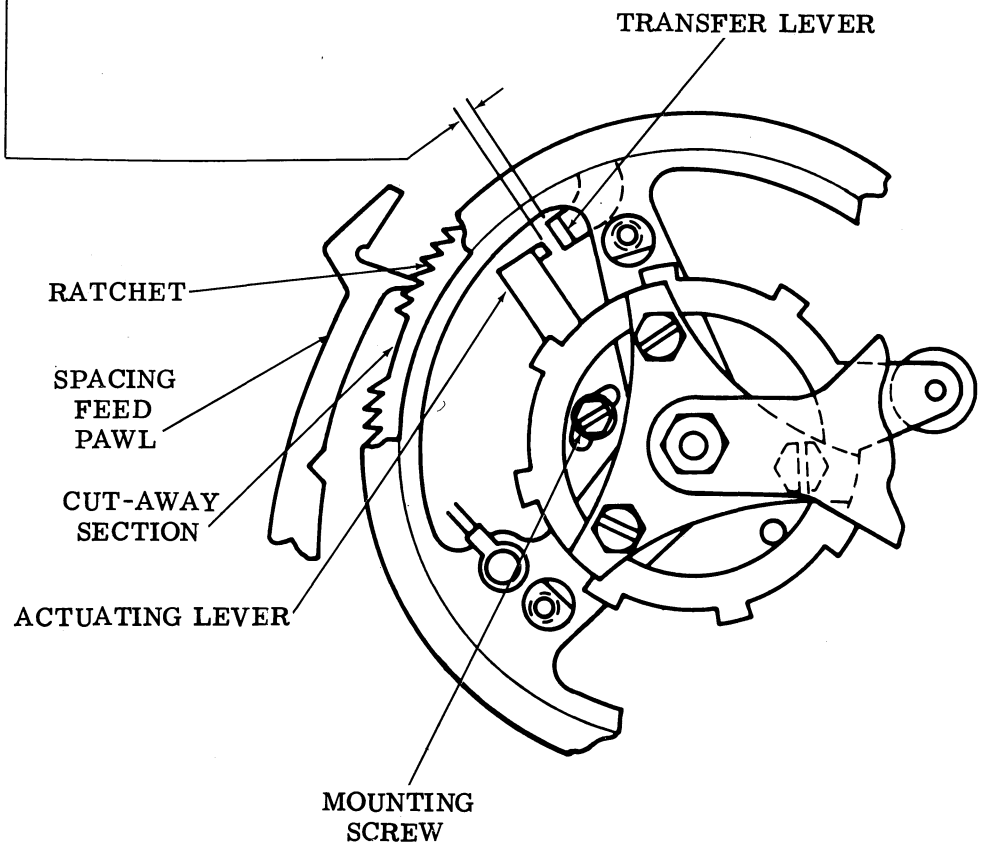
Spacing clutch disengaged (latched). Farthest advanced spacing feed pawl resting against third tooth above cut-away section of ratchet.

Requirement

Ten-to-inch character spacing:
Min 0.055 inch---Max 0.070 inch
Twelve-to-inch character spacing:
Min 0.040 inch---Max 0.050 inch
clearance between actuating lever and transfer lever.

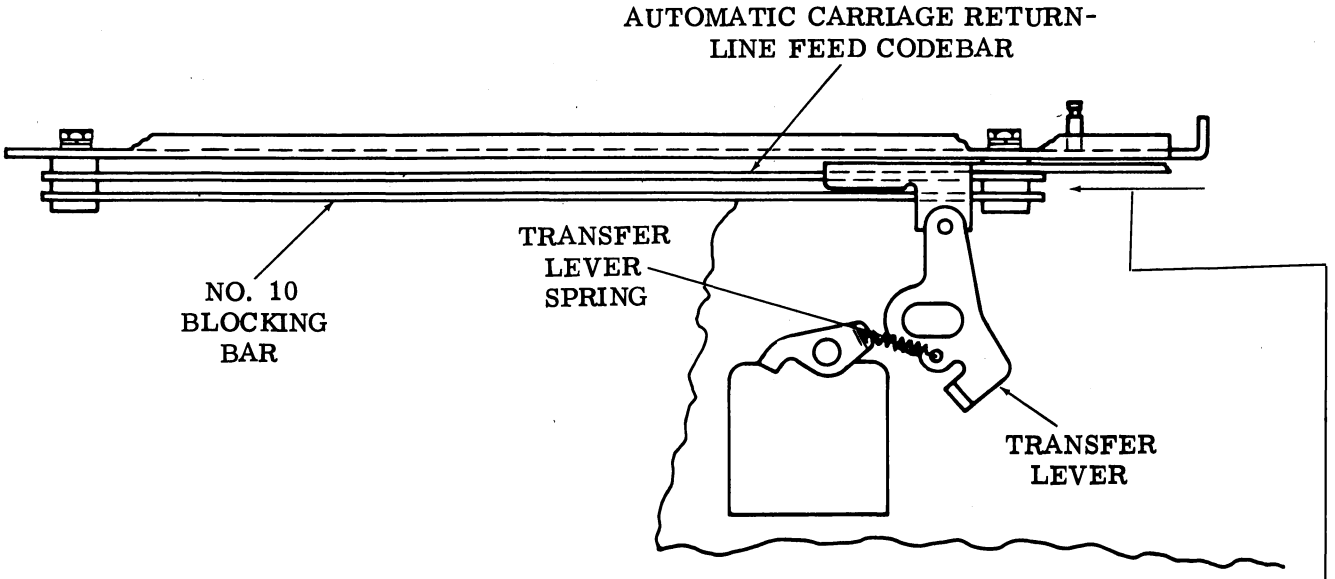
To Adjust

Loosen mounting screw friction tight. Position actuating lever. Tighten mounting screw.



(Front View)

3.52 Automatic Carriage Return-Line Feed Mechanism (continued)



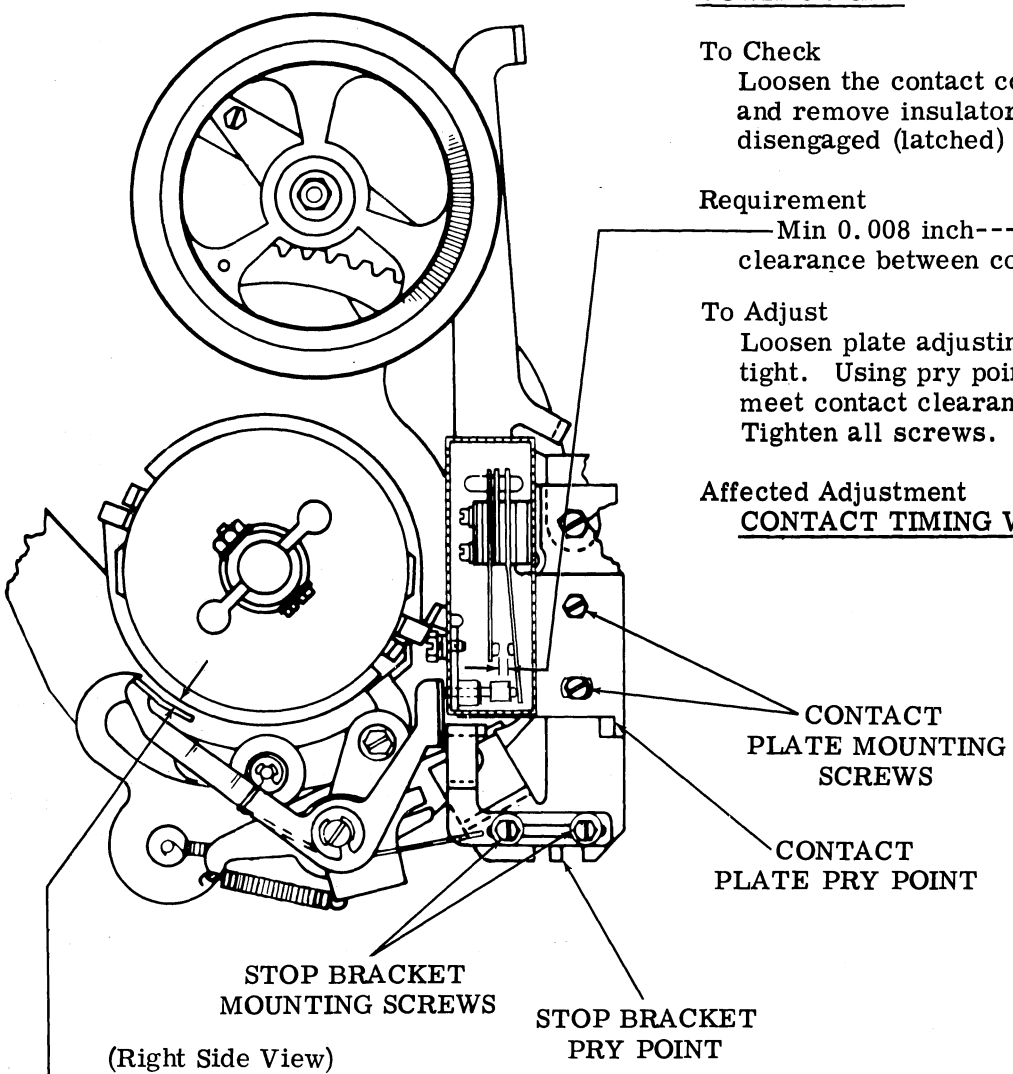
(Front View)

TRANSFER LEVER SPRING

Requirement

Min 4 oz---Max 8 oz to begin moving automatic carriage return-line feed codebar (codebar no. 11) to left.

3.53 Normally Open Character Received Contact Mechanism



CONTACT GAP

To Check
Loosen the contact cover mounting screw and remove insulator cover. Selector clutch disengaged (latched) in stop position.

Requirement
Min 0.008 inch---Max 0.012 inch clearance between contacts.

To Adjust
Loosen plate adjusting screws to friction tight. Using pry point position plate to meet contact clearance requirement. Tighten all screws.

Affected Adjustment
CONTACT TIMING VERIFICATION (3.54)

PLUNGER LEVER

To Check
Selector clutch disengaged (latched) in stop position on the half of the clutch disc which has minimum clearance between lever.

Requirement
Min some---Max 0.005 inch clearance between lever and periphery of clutch disc.

To Adjust
Loosen contact plate mounting screws to friction tight. Swing plate rearward. Loosen stop bracket mounting screws to friction tight. Using pry point position stop bracket to meet requirement. Tighten all screws. Recycle selector and recheck requirement on both sides of cam.

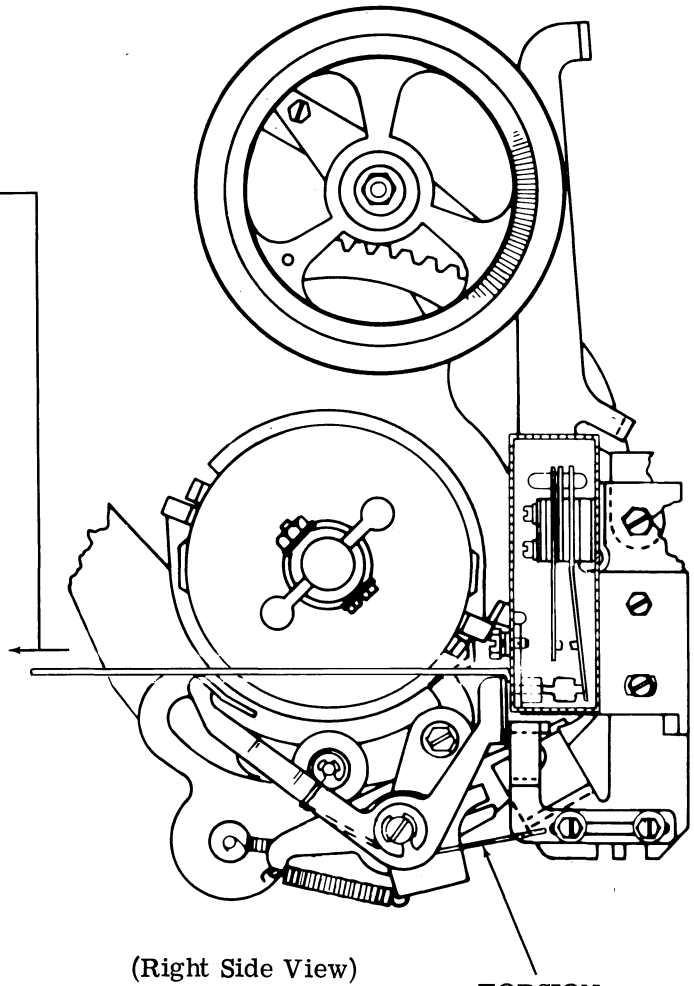
Affected Adjustment
CONTACT GAP

3.54 Normally Open Character Received Contact Mechanism (continued)

OPERATING LEVER TORSION SPRING

To Check
Selector clutch disengaged (latched).

Requirement
Min 4 oz---Max 8-1/2 oz to start operating lever moving away from contact plunger.



(Right Side View)

CONTACT TIMING VERIFICATION

To Check
When a Signal Distortion Test Set is available, connect the test set signal output to the selector magnets and synchronize the viewing scale with the transmitted test signal. Connect the character received contacts into the test set viewing circuit.

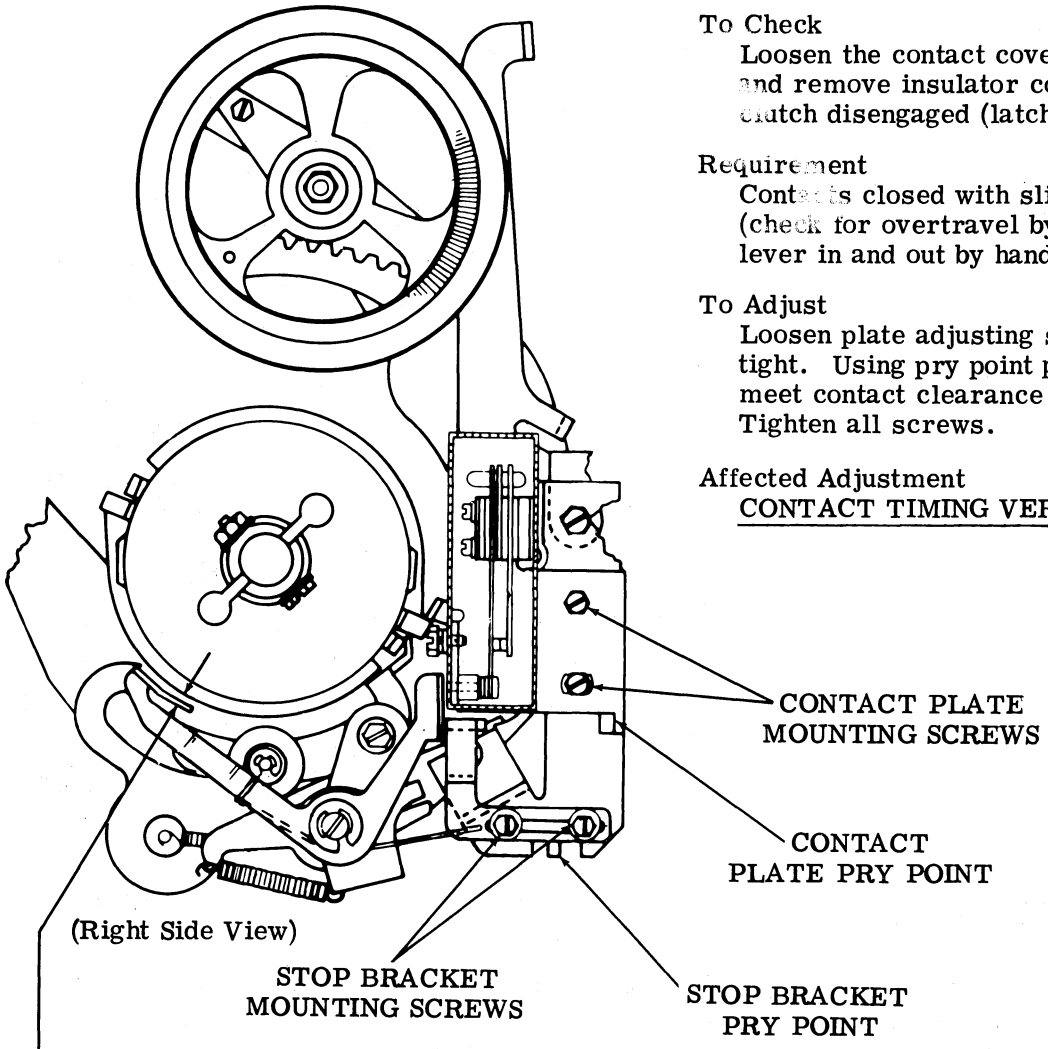
Requirement
The character received contacts should close after the beginning of the no. 1 pulse and should open before the end of the no. 7 pulse. Signal length should be a minimum of 75 DXD divisions using a 10.0 unit, 150 wpm DXD or similar test set.

To Adjust
Refine CONTACT GAP (3.53) adjustment to meet requirement.

Note 1: Character received contacts are rated for 48 v dc maximum at 10 milliamperes resistive load. Contact protection circuitry must be used to protect the contacts from damage during testing.

Note 2: Because of mechanical considerations, the total effective range finder scale movement is restricted to 0 to 90.

3.55 Normally Closed Character Received Contact Mechanism



CONTACT PLUNGER TRAVEL

To Check
Loosen the contact cover mounting screw and remove insulator cover. Selector clutch disengaged (latched) in stop position.

Requirement
Contacts closed with slight overtravel (check for overtravel by moving operating lever in and out by hand).

To Adjust
Loosen plate adjusting screws to friction tight. Using pry point position plate to meet contact clearance requirement. Tighten all screws.

Affected Adjustment
CONTACT TIMING VERIFICATION (3.56)

PLUNGER LEVER

To Check
Selector clutch disengaged (latched) in stop position on the half of the clutch disc which has minimum clearance between lever.

Requirement
Min some---Max 0.005 inch
clearance between lever and periphery of clutch disc.

To Adjust
Loosen contact plate mounting screws to friction tight. Swing plate rearward. Loosen stop bracket mounting screws to friction tight. Using pry point position stop bracket to meet requirement. Tighten all screws. Recycle selector and recheck requirement on both sides of cam.

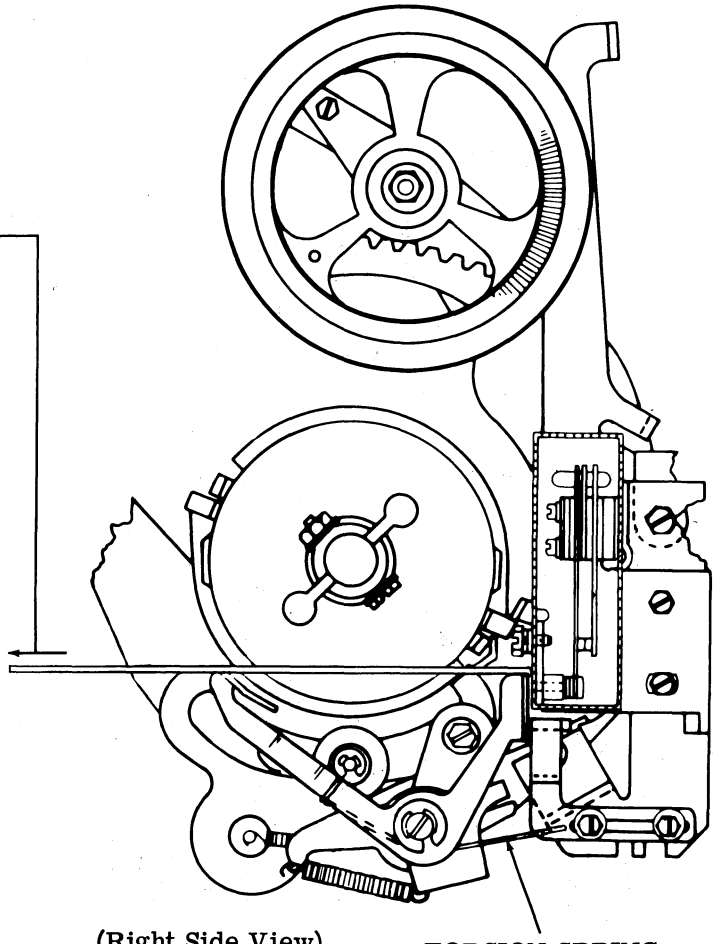
Affected Adjustment
CONTACT PLUNGER TRAVEL

3.56 Normally Closed Character Received Contact Mechanism (continued)

OPERATING LEVER TORSION SPRING

To Check
Selector clutch disengaged (latched).

Requirement
Min 4 oz---Max 8-1/2 oz to start operating lever moving away from contact plunger.



(Right Side View)

CONTACT TIMING VERIFICATION

To Check
When a Signal Distortion Test Set is available, connect the test set signal output to the selector magnets and synchronize the viewing scale with the transmitted test signal. Connect the character received contacts into the test set viewing circuit.

Requirement
The character received contacts should open after the beginning of the no. 1 pulse and close before the end of the no. 7 pulse. Signal length should be a minimum of 75 DXD divisions using a 10.0 unit, 150 wpm DXD or similar test set.

Note 1: Since the clutch disc is used to operate the character received contacts it is possible that the contacts may open for approximately 200 microseconds duration during the no. 1 pulse. CONTACT PLUNGER TRAVEL (3.55) adjustment can be refined to eliminate the momentary opening, but it is not essential to the operation of the contacts.

To Adjust
Refine CONTACT PLUNGER TRAVEL (3.55) adjustment to meet requirement.

Note 2: Character received contacts are rated for 48 v dc maximum at 10 milliamperes resistive load. Contact protection circuitry must be provided to protect the contacts from damage during testing.

Note 3: Because of mechanical considerations, the total effective range finder scale movement is restricted to 0 to 90.