

BULLETIN 282B

**TECHNICAL MANUAL
MODEL 35
RECEIVING-ONLY
REPERFORATOR SET
(LPR, LRB, LRC, LT)**



**TELETYPE[®]
CORPORATION**

5555 TOUHY AVENUE, SKOKIE, ILLINOIS

INTRODUCTION

Bulletin 282B is a technical manual that provides descriptive and maintenance information for the Model 35 Receiving-Only Typing Reperforator Set.

The manual is made up of a group of appropriate independent sections. These are separately identified by title and section number. The pages of each section are numbered consecutively, independent of other sections.

The identifying number of a section, a 9-digit number, appears at the top of each page of the section, in the left corner of the left-hand pages and the right corner of the right-hand pages. The sections are placed in the manual in ascending numerical order.

To locate specific information refer to the table of contents on the following page. Find the name of the involved component in column one and the title of the section in column two. The correct 9-digit section number will then be found in column three. Turn to page one of the section indicated, where the contents of that section will be found (except where a section is small and does not require a listing of contents).

The sections comprising this bulletin are now stocked separately and may be individually ordered if the entire bulletin is not needed.

TABLE OF CONTENTS

FILING INSTRUCTIONS

1. The following filing instructions apply to changes sent to the field.
2. Asterisks (*) in the table of contents indicate changes.
3. When the issue of a section changes, replace the old issue with the attached new one.
4. In the case of addendums, turn to the affected section and follow the instructions on the first page of the attached addendum.
5. Replace the old table of contents with this new one.

Note: For information on motor units, see Bulletin 295B.

<u>Equipment</u>	<u>Contents</u>	<u>Section</u>	<u>Issue</u>
35 Receiving-Only Typing Reperforator Set	Description	574-203-100TC	3
35 Receiving-Only Typing Reperforator Set	Installation	574-203-200TC	2
35 Receiving-Only Typing Reperforator Set	Trouble Shooting	574-203-300TC	1
35 Electrical Service Unit (LESU)	Description	574-226-100TC	4
35 Receiving-Only Typing Reperforator Cover (LRC)	Description and Adjustments	574-230-101TC	1
35 Reperforator Base (LRB)	Description	574-232-101TC	1
35 Reperforator Base (LRB)	Adjustments	574-232-703TC	1
35 Reperforator Base (LRB)	Lubrication	574-232-704TC	1
35 Typing Reperforator (LPR)	Description	574-233-100TC	5
35 Typing Reperforator (LPR)	Adjustments	574-233-700TC	6*
35 Typing Reperforator (LPR)	Lubrication	574-233-701TC	5
35 Typing Reperforator (LPR)	Disassembly Reassembly	574-233-702TC	2
35 Reperforator Table (LT)	Description	574-234-100TC	3
35 Reperforator Table (LT)	Adjustments	574-234-700TC	3
35 Reperforator Table (LT)	Lubrication	574-234-701TC	3

35 TYPING REPERFORATOR (LPR)

ADJUSTMENTS

CONTENTS	PAGE	CONTENTS	PAGE
1. GENERAL	3	Punch slide latch spring	34
2. BASIC UNIT	5	Punch slide spring	32
Function Mechanism		Reset bail trip lever (final)	27
Cam follower lever spring		Tape guide assembly spring	32
(early design)	18	Tape shoe torsion spring	34
Cam follower lever spring		Ten characters per inch (final)	29
(latest design)	19	Ten characters per inch	
Cam follower roller	21	(preliminary)	29
Cam follower roller alignment	21	Toggle bail eccentric (preliminary)	24
Clutch shoe lever	5	Toggle operating arm	24
Clutch shoe lever spring	6		
Clutch shoe spring	6	Ribbon Shift and Print Suppression	
Function clutch drum endplay	5	Mechanism (Early Design)	
Function clutch latchlever spring	20	Armature air gap	56
Function clutch release lever spring	22	Armature downstop	56
Function clutch trip lever	19	Armature spring	56
Release downstop bracket	22	Armature upstop	56
Reset arm	20	Ribbon shift and print suppression	
Reset bail trip lever spring		contacts	40
(early design)	18	Ribbon shift and print suppression	
Reset bail trip lever spring		contact position	41
(latest design)	18		
Trip cam follower lever		Ribbon Shift and Print Suppression	
(preliminary)	18	Mechanism (Latest Design)	
Punch Mechanism		Armature air gap and downstop	57
Bias spring (punch block)	32	Armature spring	57
Bias spring (tape chute)	32	Armature upstop	57
Detent lever spring	33	Ribbon carrier	55
Feed pawl	28	Ribbon carrier spring	55
Feed pawl spring	33	Ribbon shift and print suppression	
Latchlever clearance	28	contacts	42
Lateral and front to rear feed wheel		Ribbon shift and print suppression	
position detent (early design)	30	contact position	43
Lateral and front to rear feed wheel		Ribbon shift blocking link	57
position detent (latest design)	31		
Perforator drive link spring	24	Selector Mechanism	
Punch mounting plate (final)	26	Clutch shoe lever	5
Punch mounting plate (preliminary)	23	Clutch shoe lever spring	6
Punch pin penetration	25	Clutch shoe spring	6
Punch slide downstop position	25	Marking locklever spring	9
Punch slide guide (final)	25	Oil shield	17
		Pushlever reset bail spring	13
		Range finder knob phasing	15

CONTENTS	PAGE
Selector armature	7
Selector armature downstop (final) . . .	10
Selector armature downstop (preliminary)	7
Selector armature spring (final)	11
Selector armature spring (preliminary)	11
Selector cam lubricator	11
Selector clutch drum endplay	14
Selector clutch latchlever spring	13
Selector clutch stop arm	15
Selector lever spring	14
Selector magnet bracket	8
Selector pushlever spring	14
Selector receiving margin	16
Spacing locklever spring	13
Start lever spring	16
Slack Tape Mechanism	
Clamp plate screw with disc (latest design)	64
Clamp plate spring (early design) . . .	63
Clamp plate spring (latest design) . . .	64
Tape platform (early design)	63
Tape platform (latest design)	64
Typing Mechanism	
Axial corrector (yielding)	49
Axial output rack guide roller	51
Axial sector alignment	50
Bellcrank springs - 1 to 5	35
Bellcrank springs - 6 and 7	36
Bellcrank spring - 8	35
Cam follower roller arm position . . .	44
Centering clearance	37
Correcting drive link (nonyielding) . . .	52
Correcting drive link (yielding) extension spring	49
Correcting drive link spring (nonyielding)	47
Detent spring	63
Drive arm	62
Drive arm spring	63
Eccentric shaft detent lever spring . . .	50
Feed pawl spring	62
Function blade spring	47
Function box	38
Lifter operating range	44
Lifter spring	47
Lifter toggle link spring	47
Oscillating bail drive link	48
Oscillating bail pivot	48
Print hammer	61
Print hammer accelerator latch spring	59

CONTENTS	PAGE
Print hammer accelerator spring	59
Print hammer return spring	59
Print hammer trip lever spring	59
Printing latch	58
Pulse lever spring no. 5	37
Pulse lever spring no. 7	37
Pushbar guide bracket	51
Pushbar location	39
Pushbar operating blade (preliminary) .	35
Ratchet wheel torque spring	62
Reperforator mounting	29
Rotary corrector arm	54
Rotary corrector mesh	53
Shoulder clearance	36
Toggle link	45
Toggle trip arm	46
Type wheel (final)	60
Type wheel (preliminary)	60
Type wheel rack clearance	52

3. VARIABLE FEATURES

End of Feed-Out Contacts for Non-interfering RUBOUT Tape Feed-Out Mechanism

Contact assembly	77
Contact assembly mounting bracket . . .	78
Contact spring gap (preliminary)	77
Contact swinger (preliminary)	77
Latchlever spring	77
Tape length adjusting plate	78

Manual and Power Drive Backspace Mechanism

Armature hinge (early design)	80
Backspace pawl clearance	79
Backspace ratchet	79
Feed pawl eccentric (preliminary) . . .	80

Power Drive Backspace Mechanism

Armature bail spring (early design) . .	84
Armature latch spring (early design)	84
Armature spring (latest design)	83
Armature upstop (early design)	81
Bellcrank spring	84
Drive link (early design)	81
Feed pawl spring	84
Final manual or power adjustment (latest design)	83
Latch (early design)	82
Latch extension (early design)	81
Latch extension spring (latest design) .	83
Magnet position (latest design)	83
Nonrepeat arm (early design)	82

CONTENTS	PAGE
Print Suppression Mechanism	
Accelerator blocking link (latest design)	85
Accelerator blocking link (early design).	86
Control lever (manual).	87
Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism	
Adjusting lever.	73
Armature backstop	66
Armature hinge	65
Blocking bail spring	66
Blocking latch torsion spring	66
Drive arm spring	72
Drive bail spring	65
Feed pawl and front check pawl springs	68
Front ratchet stop position	69
Latchlever.	67
Latchlever spring.	67
Magnet assembly	65
Mounting plate	65
Nonrepeat lever spring	66
Punch slide latch	72
Ratchet return spring	70
Rear check pawl	68
Rear check pawl spring	68
Release arm	71
Release arm spring.	71
Release lever.	66
Release lever spring	67
Reset bail latch	76
Reset bail latch spring.	76
Reset bail trip lever	74
Reset bail trip lever spring	76
Tape length adjusting plate	75
Time delay lever	70
Time delay lever spring.	70
Trip cam follower.	73
Signal Bell and EOT Contacts	
Normally closed contact.	88
Normally open contact gap	88

1. GENERAL

1.01 This section provides adjustments and requirements for the 35 typing reperforator (Figure 1). It is reissued to include recent engineering changes and additions. Since this is a general revision, marginal arrows ordinarily used to indicate changes and additions have been omitted.

1.02 The basic equipment includes selector mechanism, transfer mechanism, eight-level fully perforating punch mechanism, and printing mechanism. The printing mechanism includes letters-figures contacts and magnet and may include print suppression, remote control noninterfering rubout tape feed-out, end of feed-out timing contacts, and power drive back-space mechanisms.

1.03 Reference to left or right, front or rear, and up or down refer to the apparatus in its normal operating position, as viewed from the front with the selector mechanism to the right and the punch mechanism to the left. It is assumed that the elements depicted in illustrations in this section are being viewed from a position in front of the equipment, unless the illustrations are specifically labeled otherwise. In the illustrations, pivot points are shown by circles or ellipses that are solid black to indicate fixed points and cross-hatched to indicate floating points.

1.04 Tools required to make the adjustments and test the spring tensions are listed in Section 570-005-800TC. Spring tensions given in this section are indications, not exact values, and should be checked with the correct scale applied in the positions shown in the drawings.

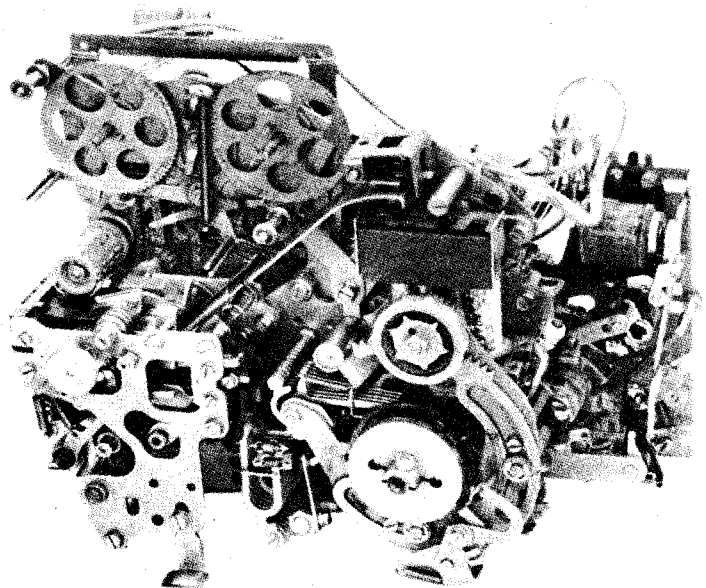


Figure 1 - Typical 35 Typing Reperforator
(Front View)

SECTION 574-233-700TC

1.05 The unit is in its unoperated, or stop, condition when it is not under power. It is in its idling condition when it is under power and clutches are disengaged (steady marking condition of signal line). The unit is in the letters condition when the type wheel rack is in its upper position (the numerals appear on the top half of the type wheel). The unit is in the figures condition when the type wheel rack is in its lower position (the letters appear on the top half of the type wheel).

CAUTION: APPARATUS SHOULD NOT BE SEPARATED FROM ITS PROTECTIVE HOUSING UNLESS POWER IS DISCONNECTED. WHERE OPERATION OF THE EQUIPMENT IS REQUIRED AFTER IT HAS BEEN SEPARATED FROM ITS PROTECTIVE HOUSING, APPROPRIATE PRECAUTIONARY MEASURES SHOULD BE TAKEN TO PREVENT ACCIDENTS.

1.06 When a requirement calls for a clutch to be **DISENGAGED**, the clutch shoe lever must be fully latched between its trip lever (or stop arm) and latchlever. The mainshaft will then turn freely without the clutch shoes dragging. When the clutch is **ENGAGED**, the shoe lever and cam disc stop-lug are moved apart, and the clutch shoes are wedged against the drum so that the clutch turns with the shaft.

Note: If the shaft is turned by hand, the clutch will not fully disengage upon reaching its stop position. Where a procedure calls for disengagement, rotate the clutch to its stop position, apply a screwdriver to the cam disc stop-lug and turn the disc in the normal direction of shaft rotation until the latchlever seats in its notch in the disc.

1.07 To manually operate the 35 typing reperforator, proceed as follows.

(a) Attach the TP321071 armature clip to the selector magnet armature by carefully putting the flat formed end of the armature clip over the top of the armature between the pole pieces and then hooking the projection under the edge of the armature. The spring tension of the armature clip will hold the selector armature in the marking (attracted) position.

(b) While holding the selector magnet attracted by means of the armature clip, manually rotate the mainshaft in a counter-clockwise direction until all the clutches are brought to their disengaged position.

(c) Fully disengaged the clutches in accordance with 1.06, Note.

(d) Release the selector magnet armature momentarily to permit the selector clutch to engage.

(e) Rotate the mainshaft slowly until all the pushlevers have fallen to the left of their selecting levers.

(f) Strip the pushlevers from their selector levers if they are spacing in the code combination of the character or function that is being selected. Allow the pushlevers to move to the right. The pushlevers and selector levers move in succession, starting with the inner lever no. 1 to the outer lever no. 8.

(g) Continue to rotate the mainshaft until all operations initiated by the selector action clear through the unit.

1.08 Parts dismantled to facilitate checking or readjustment should be reassembled after the operation is completed. If a part mounted on shims is to be dismantled, the number of shims used at each mounting screw should be noted so that the same shim pileups can be replaced when the part is remounted. When parts removed are replaced, related adjustments which may have been affected should be checked.

1.09 Parts that are worn to the extent that they can no longer be made to meet the specified requirements by authorized adjustments, or which are worn to the extent that it seems probable that early further wear might cause a loss of adjustment, should be replaced by new parts. Springs which do not meet the requirements and for which there are no adjusting procedures should be discarded and replaced by new springs.

1.10 All contact points should meet squarely. Smaller points should fall wholly within the circumference of larger mating points. Points that are the same size should not be out of alignment more than 25 percent of the point diameter. Avoid sharp kinks or bends in the contact springs.

Note: Keep all electrical contacts free of oil and grease.

1.11 Where a 35 typing reperforator is used as a component of a receive-only or a send-receive set, it is mounted on a base or keyboard base. Refer to the base, keyboard and other applicable sections for gear mesh and additional adjustment requirements.

2. BASIC UNIT

2.01 The following figures show the adjusting tolerances, position of parts, and spring tensions. The illustrations are arranged so that the adjustments are in the sequence that would be followed if a complete readjustment of the apparatus were being made. In some cases, where an illustration shows interrelated parts, the sequence that should be followed in checking the requirements is indicated by the letters (A), (B), (C), etc.

2.02 Selector Mechanism

2.03 Function Mechanism

Note: For gear mesh adjustment, refer to applicable sections covering base or keyboard mounting facility.

(A) CLUTCH SHOE LEVER

Note: This adjustment should be made for both selecting and function clutches.

- (1) To Check
Disengage clutch. Measure clearance.
- (2) To Check
Align head of clutch drum mounting screw with stop-lug. Engage clutch. Manually press shoe lever and stop-lug together and allow to snap apart. Measure clearance.

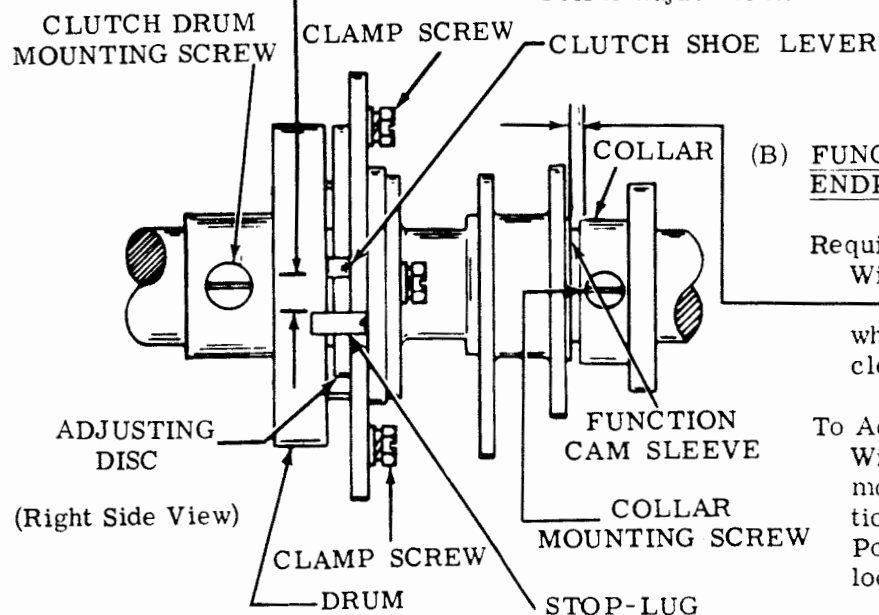
Requirement

Clearance between shoe lever and stop-lug
Min 0.055 inch---Max 0.085 inch
greater when clutch engaged (2) than when disengaged (1).

To Adjust

Engage wrench or screwdriver with lug on adjusting disc. Rotate disc with clamp screws loosened. Tighten screws.

Note: After making adjustment, disengage clutch. Remove drum mounting screw. Rotate drum in normal direction and check to see if it drags on shoe. If it does, refine adjustment.



(B) FUNCTION CLUTCH DRUM ENDPLAY

Requirement

With function clutch disengaged
Min some---Max 0.015 inch
when play is taken up to make
clearance maximum.

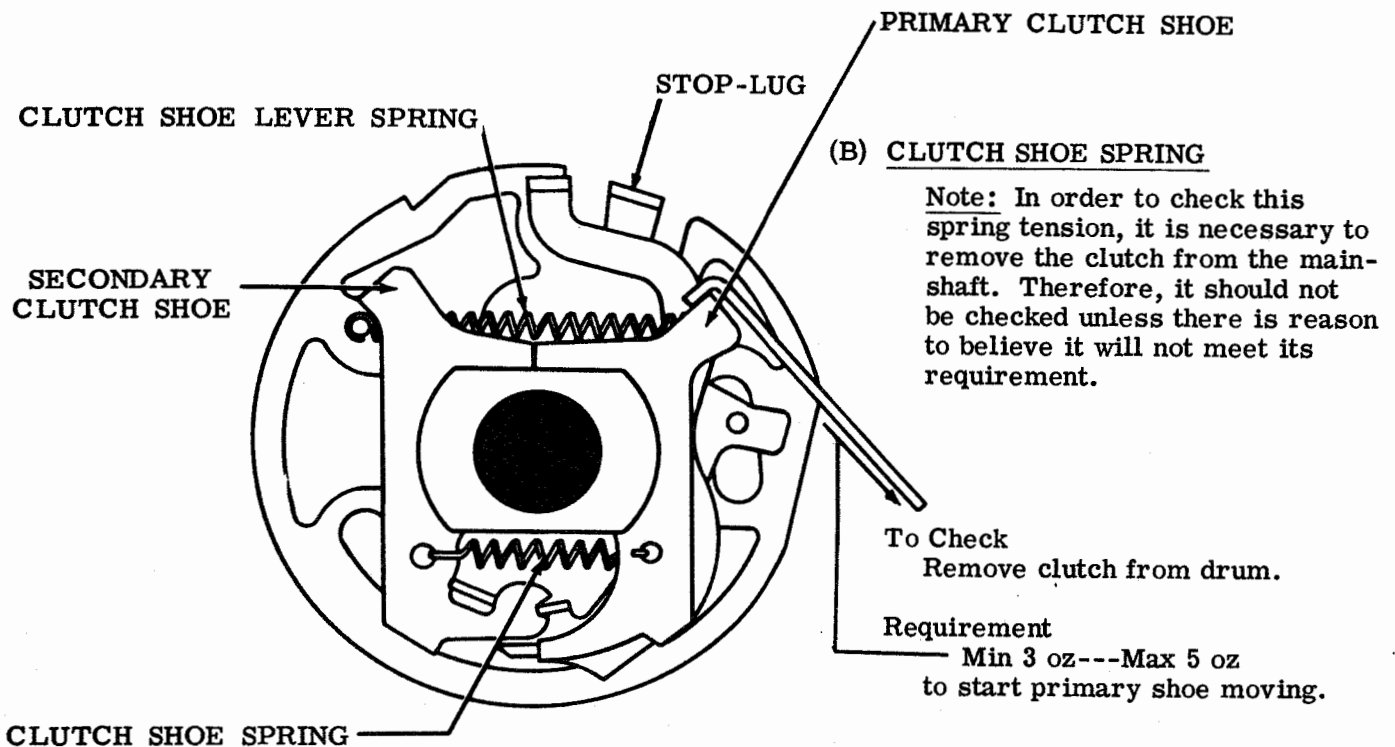
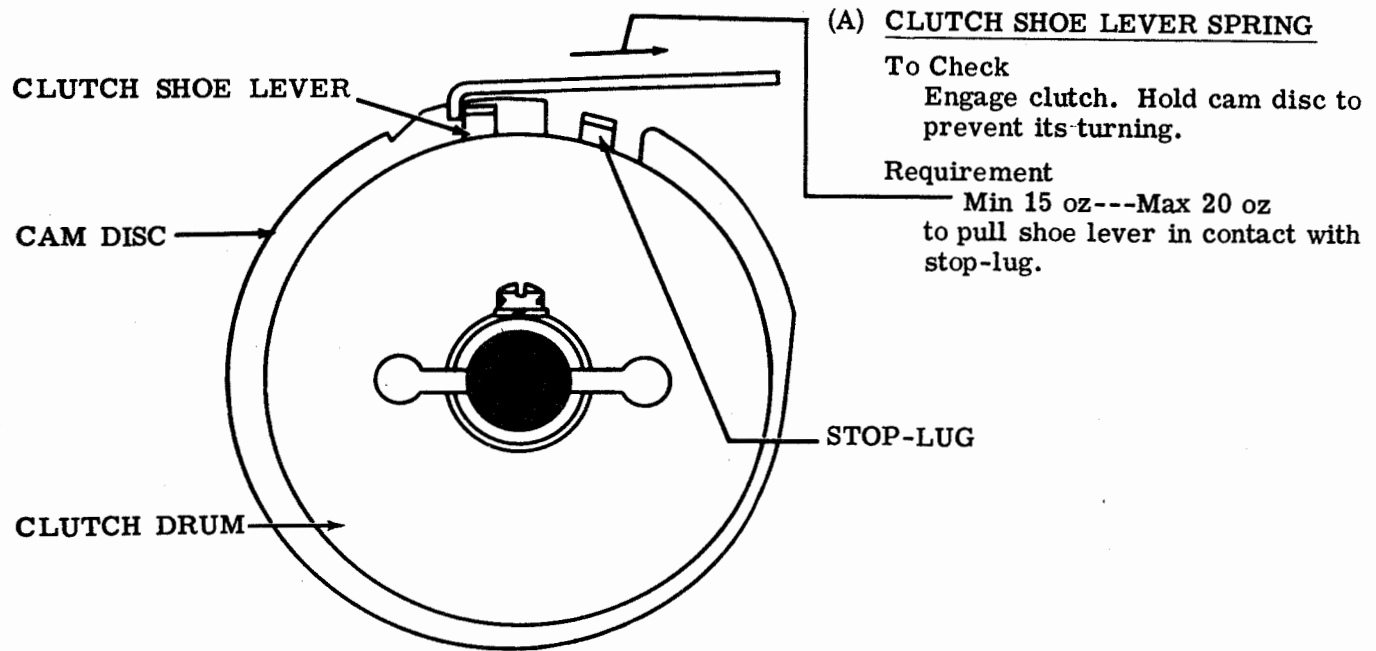
To Adjust

With its mounting screw loosened, move drum to extreme front position. Tighten drum mounting screw. Position collar with mounting screw loosened. Tighten screw.

2.04 Selector Mechanism (continued)

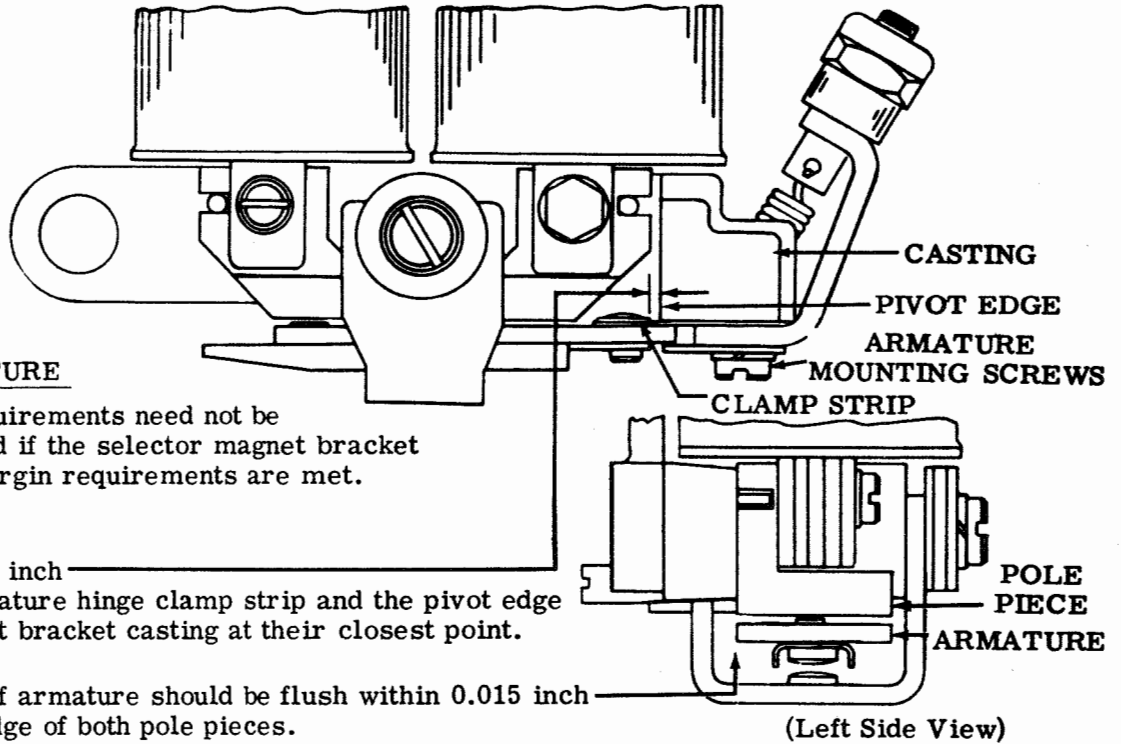
2.05 Function Mechanism (continued)

Note: These spring tensions apply to both clutches.



2.06 Selector Mechanism (continued)

Note: To facilitate making the following adjustments, remove the range finder assembly and selector magnet assembly. To insure better operation, pull a piece of bond paper between the armature and the pole pieces to remove any oil or foreign matter that may be present. Make certain that no lint or pieces of paper remain between the pole pieces and the armature.



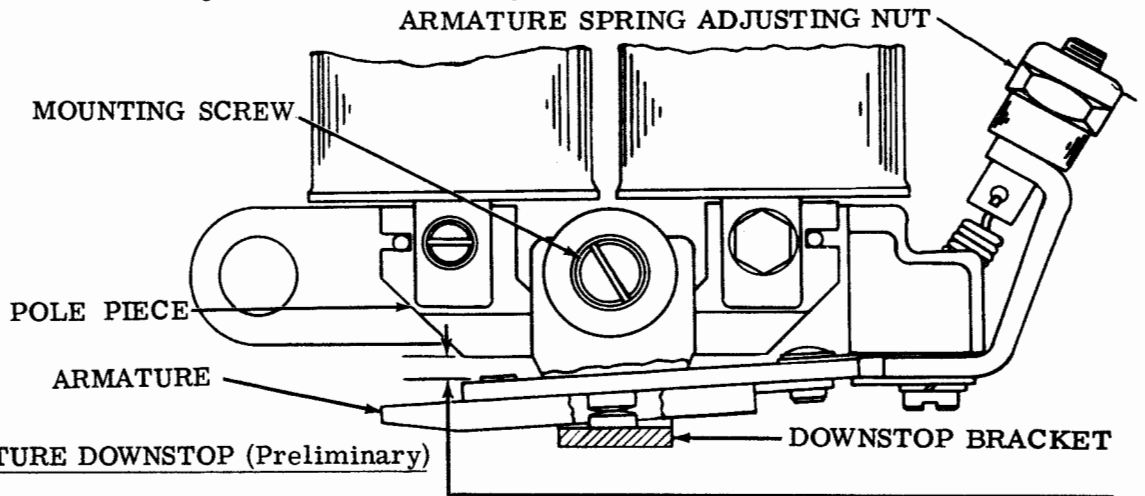
SELECTOR ARMATURE

Note: These requirements need not be made nor checked if the selector magnet bracket and receiving margin requirements are met.

- (1) Requirement
Clearance
Min 0.010 inch
between armature hinge clamp strip and the pivot edge of the magnet bracket casting at their closest point.
- (2) Requirement
Outer edge of armature should be flush within 0.015 inch with outer edge of both pole pieces.
- (3) Requirement
Start lever should drop freely into armature extension slot.

To Adjust

Position armature spring adjusting nut to hold armature firmly against pivot edge of casting.
Position armature with mounting screws loosened. Tighten screws.



SELECTOR ARMATURE DOWNSTOP (Preliminary)

Requirement

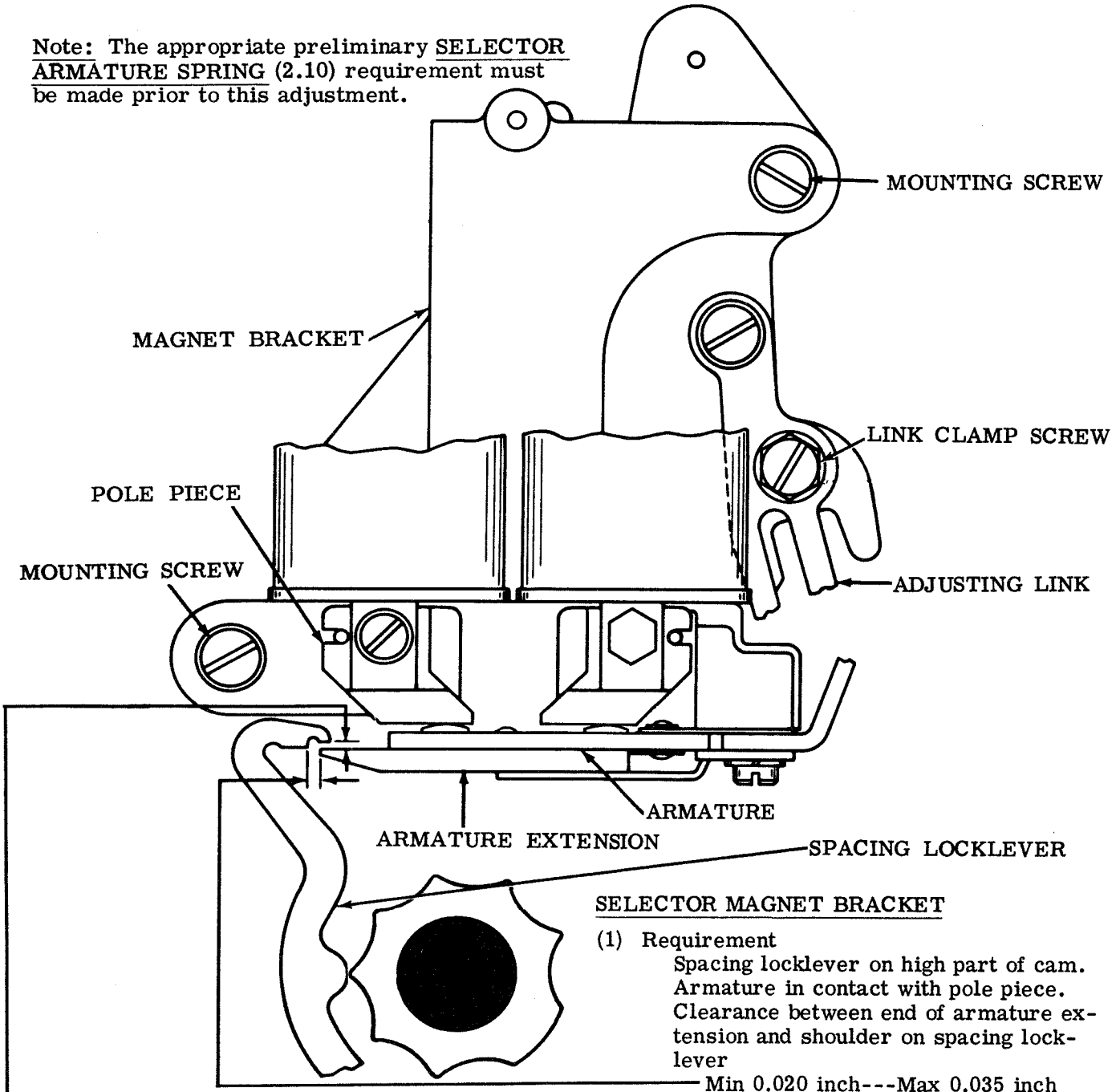
Remove oil shield. With magnet de-energized, locklevers on high part of their cam, and armature resting against its downstop, clearance between end of armature and left edge of left pole piece
Min 0.030 inch---Max 0.035 inch

To Adjust

Position downstop bracket with mounting screw loosened. Replace oil shield and check OIL SHIELD (2.16) adjustment. Tighten screw.

2.07 Selector Mechanism (continued)

Note: The appropriate preliminary SELECTOR ARMATURE SPRING (2.10) requirement must be made prior to this adjustment.



SELECTOR MAGNET BRACKET

(1) Requirement
 Spacing locklever on high part of cam.
 Armature in contact with pole piece.
 Clearance between end of armature extension and shoulder on spacing locklever
 --- Min 0.020 inch---Max 0.035 inch

(2) Requirement
 Spacing locklever on high part of cam.
 Armature in contact with pole piece.
 --- Min some---Max 0.003 inch
 clearance between upper surface of the upper step of the spacing locklever when locklever is held downward.

To Adjust
 Position upper end of magnet bracket.
 Tighten two magnet bracket mounting screws.
 Recheck requirement (1).

To Adjust
 Loosen two magnet bracket mounting screws and adjusting link clamp screw.
 Position magnet bracket by means of adjusting link and tighten link clamp screw only.

Note: See following page for requirement (3).

2.08 Selector Mechanism (continued)

Note: See preceding page for SELECTOR MAGNET BRACKET adjustment, requirements (1) and (2).

SELECTOR MAGNET BRACKET (continued)

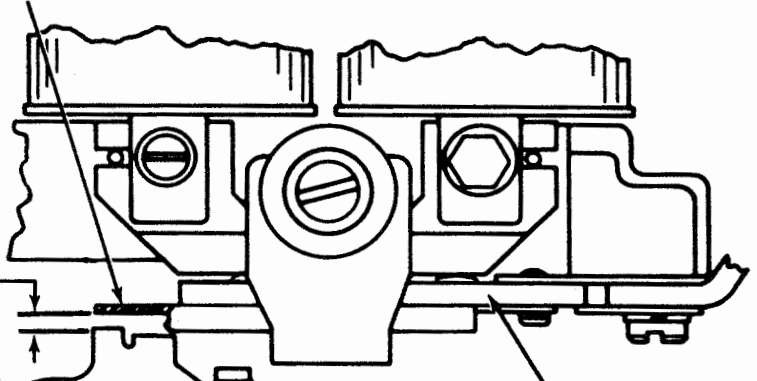
(3) Requirement

Marking locklever on low part of cam. Magnet energized. Armature in contact with left pole piece. Some clearance between lower surface of armature extension and upper surface of marking locklever.

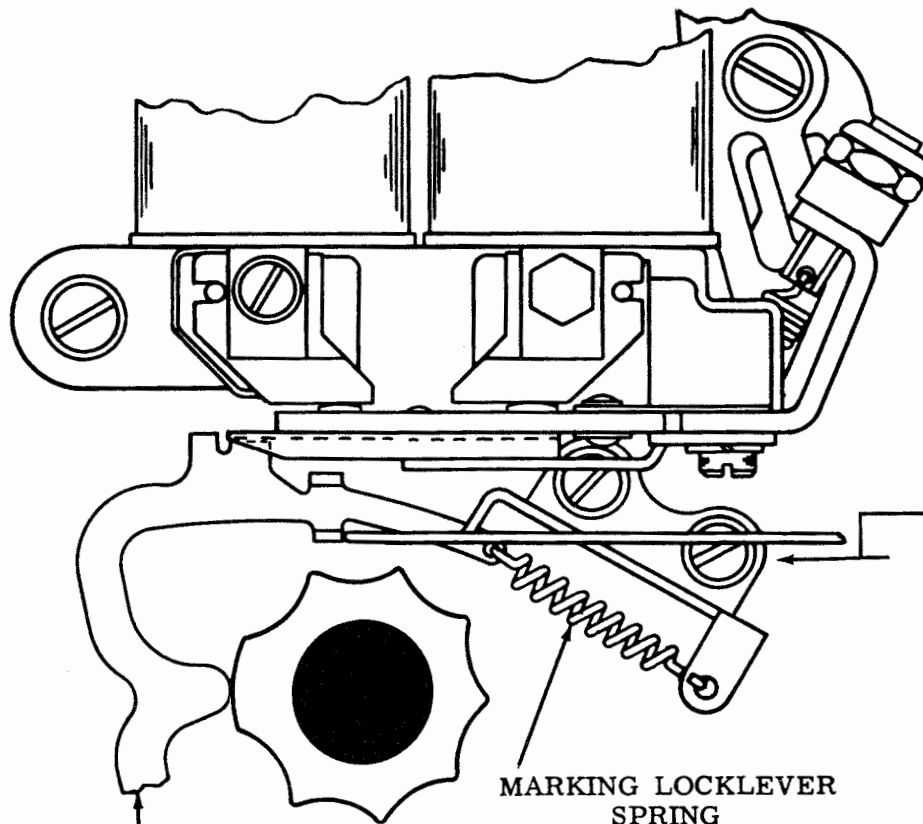
To Adjust

Position upper end of magnet bracket with mounting screws loosened. Tighten mounting screws and recheck requirements (1) and (2).

ARMATURE EXTENSION



MARKING LOCKLEVER



MARKING LOCKLEVER SPRING

Requirement

Rubout combination (12345678) selected. Mainshaft rotated until selector clutch is disengaged. Push scale applied to lower extension of locklever
 Min 2 oz---Max 4 oz
 to start lever moving.

MARKING LOCKLEVER

MARKING LOCKLEVER
 SPRING

2.09 Selector Mechanism (continued)

SELECTOR ARMATURE DOWNSTOP (Final)

Requirement

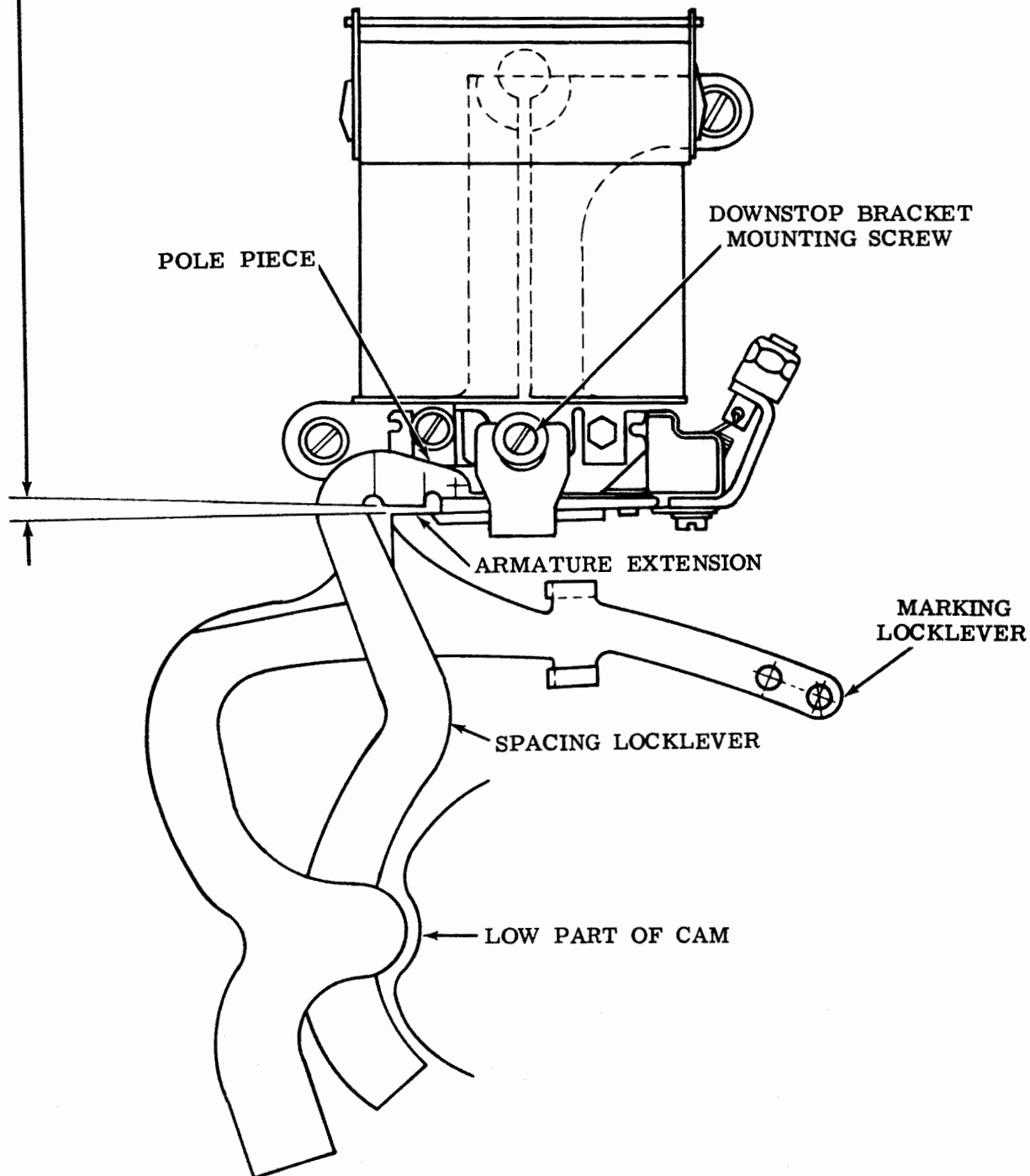
With the selector magnet de-energized and the spacing locklever on the low part of its cam, there should be

Min 0.005 inch---Max 0.015 inch

clearance between the top of the armature extension and the bottom of the lower step of the spacing locklever.

To Adjust

Refine the SELECTOR ARMATURE DOWNSTOP (Preliminary) (2.06) adjustment.



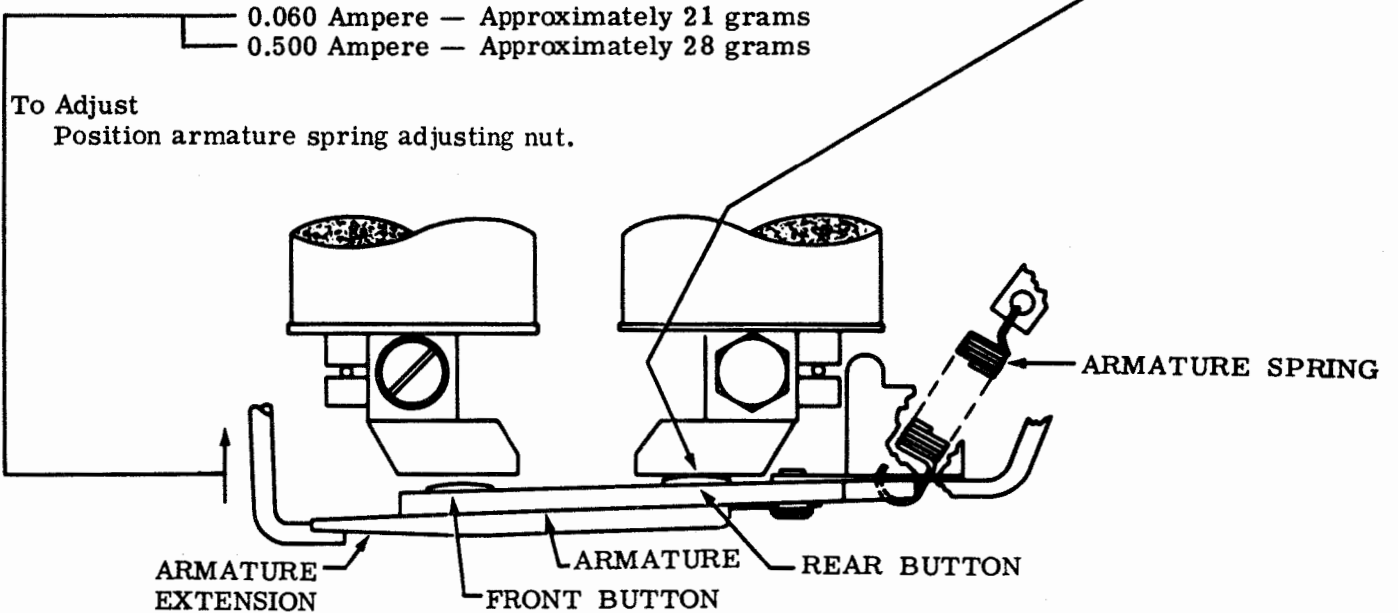
2.10 Selector Mechanism (continued)

SELECTOR ARMATURE SPRING (Preliminary)

(For Units Employing Selector Armature With Two Antifreeze Buttons Only)

Requirement

With locking levers and start lever on high part of their cams, scale applied as nearly vertical as possible under end of armature extension, it should require approximately the following tensions to move the rear antifreeze button against the magnet core.

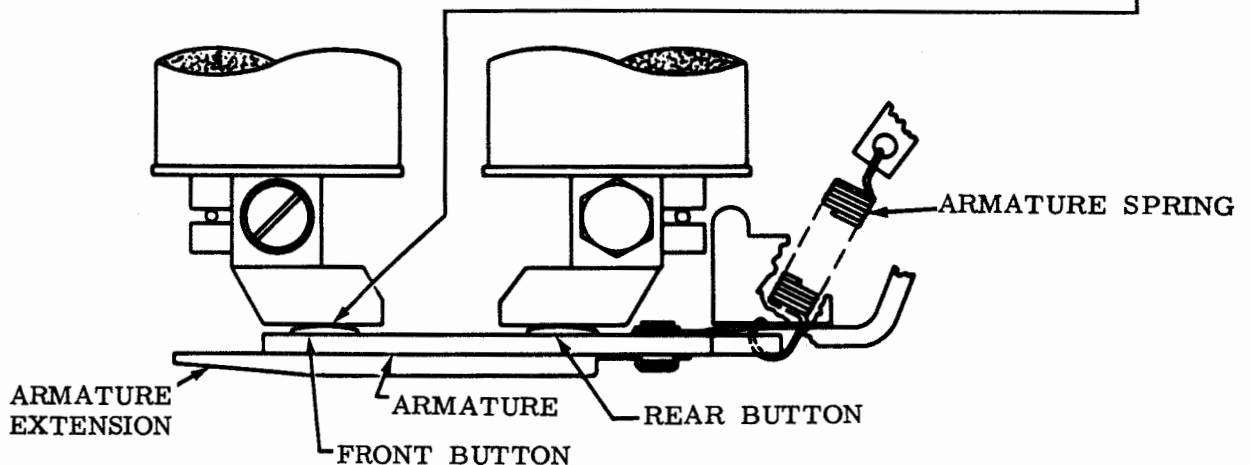


Note: See SELECTOR RECEIVING MARGIN (2.15) adjustment

SELECTOR ARMATURE SPRING (Final)

(1) Requirement

When a distortion test set is available, the selector armature spring tension should be refined (15 grams min), if necessary, to obtain satisfactory receiving margins. The front antifreeze button must contact the magnet core when the magnet coils are energized.



(2) Requirement

See SELECTOR RECEIVING MARGIN (2.15) adjustment.

2.11 Selector Mechanism (continued)

SELECTOR ARMATURE SPRING (Preliminary) (continued)

(For Units Employing Selector Armature With Single Antifreeze Button Only)

(1) Requirement

With locking levers and start lever on high part of their cams, scale applied as nearly vertical as possible under end of armature extension, it should require the following tensions to move armature to marking position:

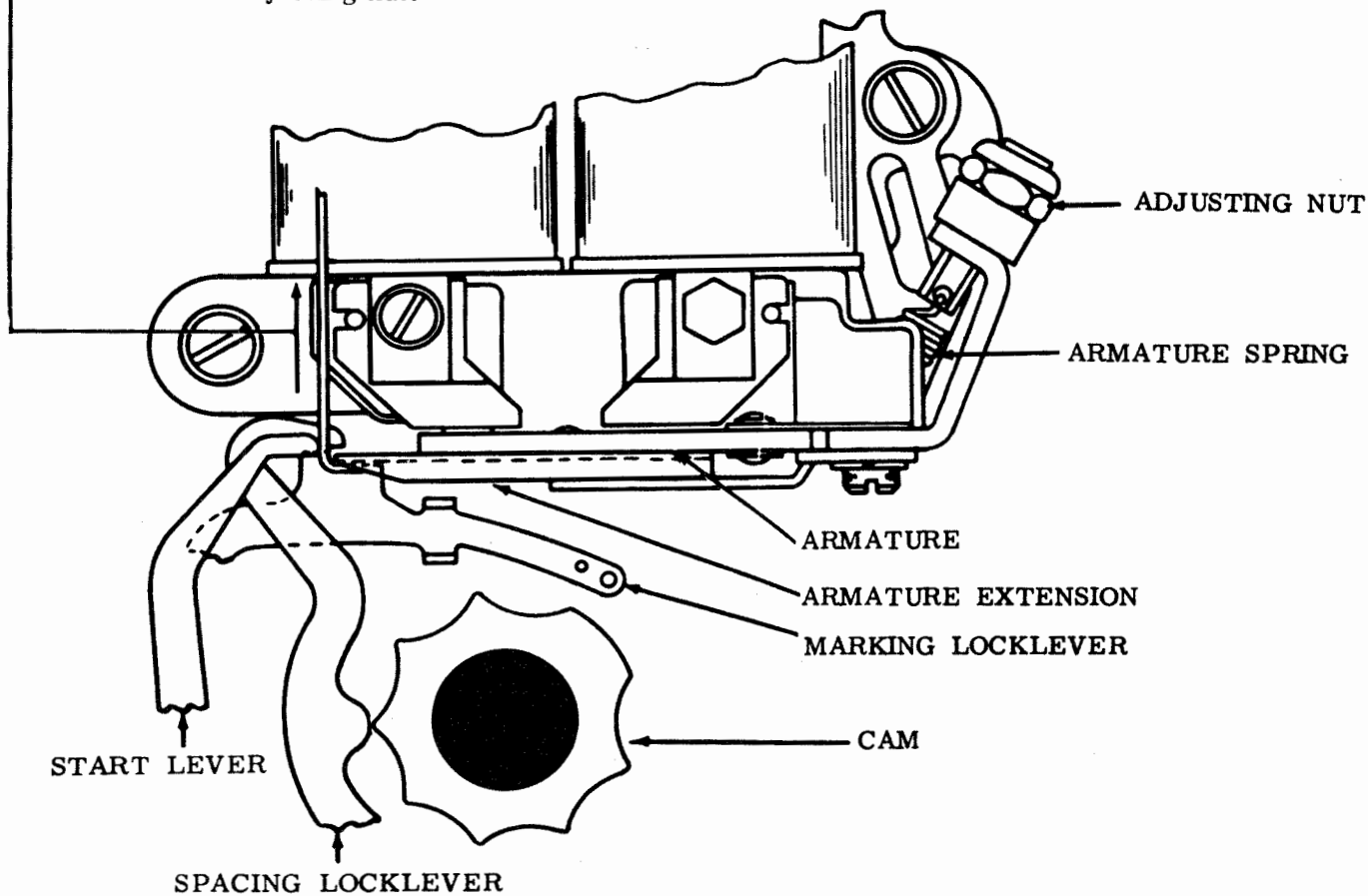
0.060 Ampere - Min 2-1/2 oz---Max 3 oz

0.500 Ampere - Min 4-1/2 oz---Max 5-1/2 oz

Note: This spring can be adjusted for maximum selector performance only when printer is connected to the specific circuit over which it is to operate under service conditions. Since there are several operating speeds and since circuits vary widely, it is impossible to adjust spring for maximum performance at the factory. The foregoing spring tension requirement is given to permit operation prior to measurement of receiving margins. Readjustment made to obtain satisfactory receiving margin should not be disturbed in order to meet requirements of this adjustment. The final spring tension should be held as close as possible to the values given above, consistent with good receiving margins.

To Adjust

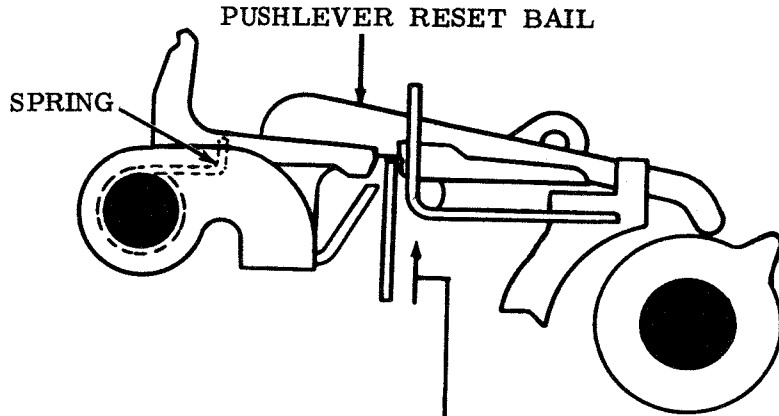
Position adjusting nut.



(2) Requirement

See SELECTOR RECEIVING MARGIN (2.15) for final adjustment.

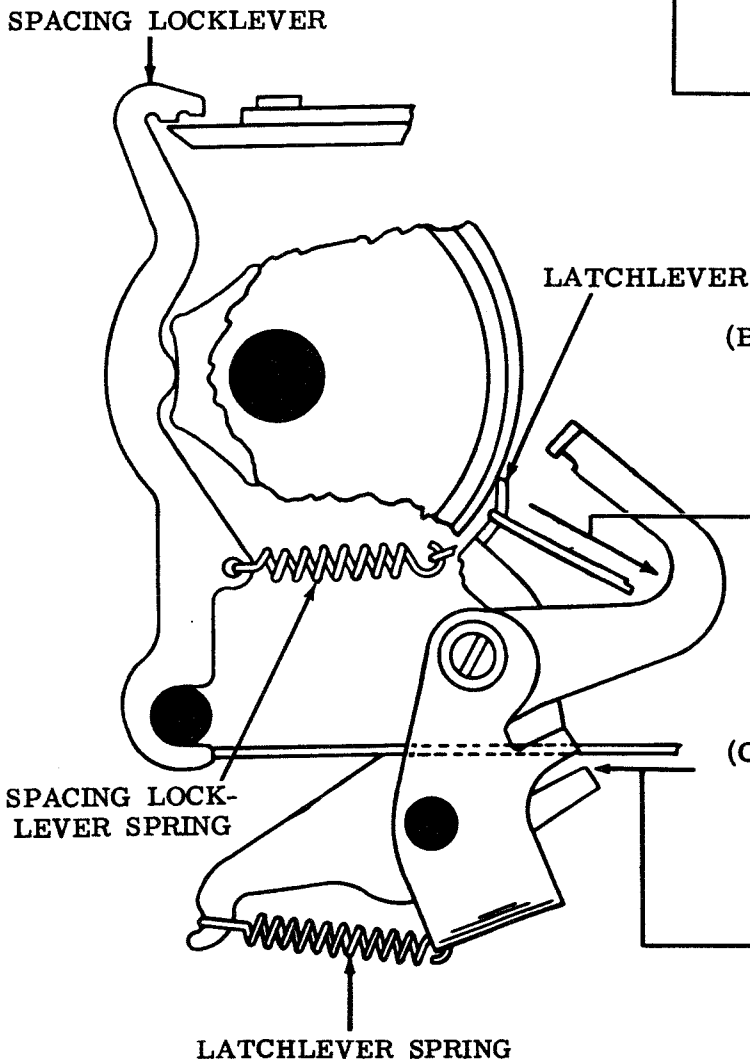
2.12 Selector Mechanism (continued)



(A) PUSHLER RESET BAIL SPRING

Requirement

Pushlever reset bail on low part of cam, 32 oz scale applied to reset bail.
 Min 4 oz---Max 8 oz
 to move bail from cam.



(B) SELECTOR CLUTCH LATCHLEVER SPRING

Requirement

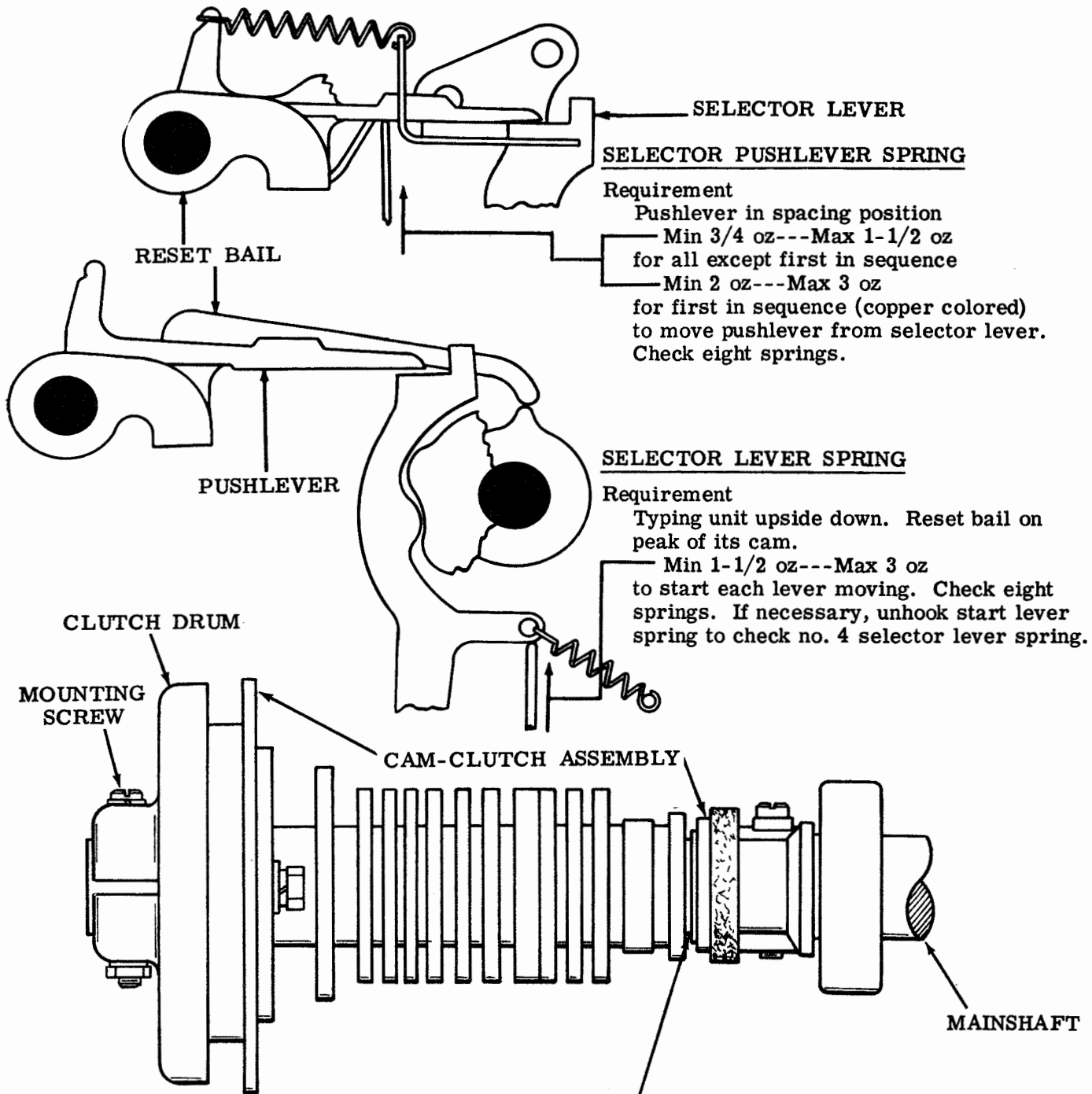
Latch resting on low part of its cam disc.
 Min 2 oz---Max 3-1/2 oz
 to start latch moving.

(C) SPACING LOCKLEVER SPRING

Requirement

Selector armature released. Spacing locklever on low part of its cam. Spring scale applied to lower end of spacing locklever.
 Min 3 oz---Max 6 oz
 to move spacing locklever from its pivot shaft.

2.13 Selector Mechanism (continued)



SELECTOR CLUTCH DRUM ENDPLAY

Requirement
 Clutch latched in stop position. Cam
 assembly should have some endplay, not
 more than 0.010 inch.

(Right Side View)

To Adjust
 Position clutch drum on mainshaft with
 mounting screw loosened.

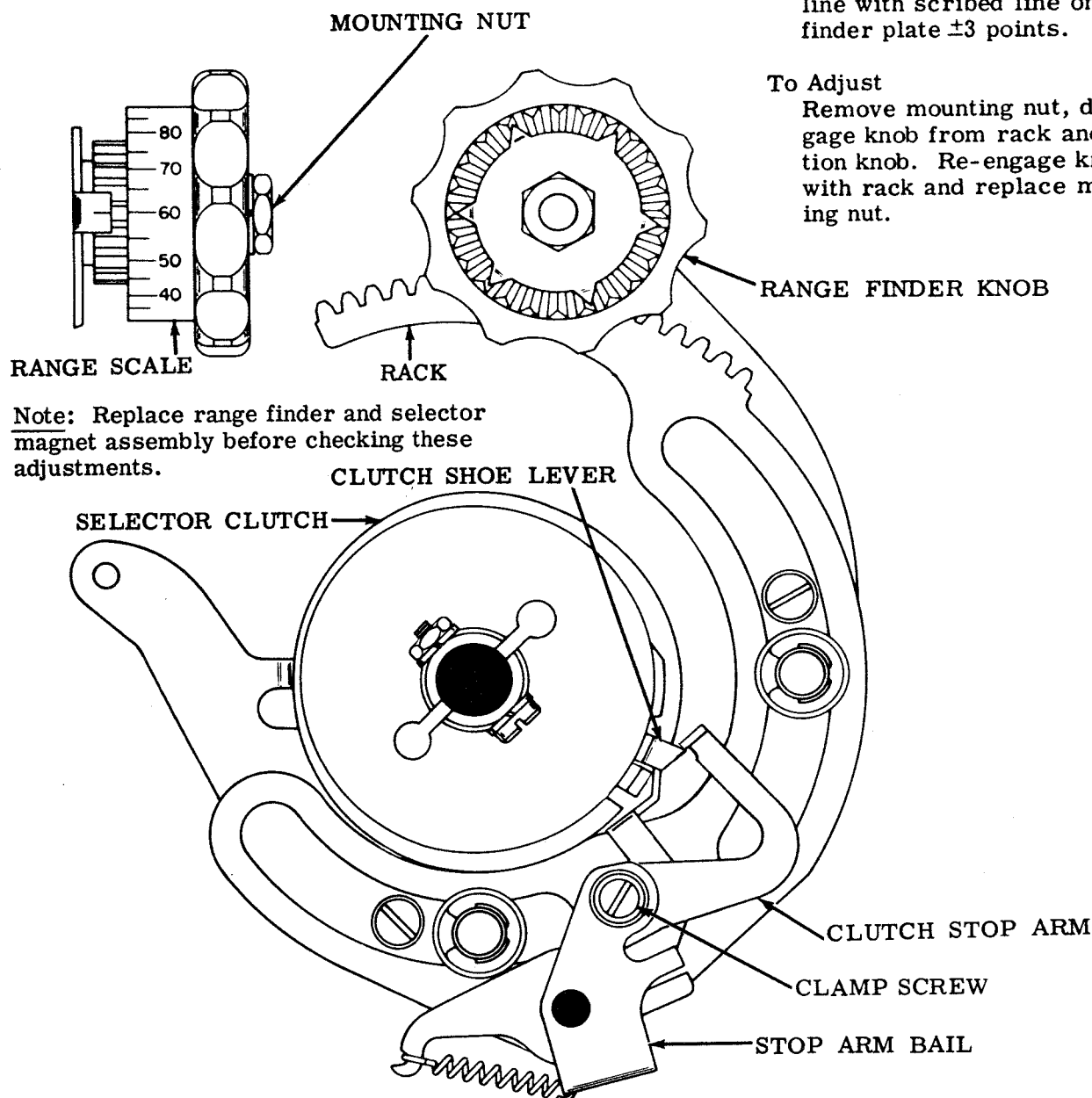
2.14 Selector Mechanism (continued)

(A) RANGE FINDER KNOB PHASING**Requirement**

With range finder knob turned to either end of rack, zero mark on scale should be in line with scribed line on range finder plate ± 3 points.

To Adjust

Remove mounting nut, disengage knob from rack and position knob. Re-engage knob with rack and replace mounting nut.



Note: Replace range finder and selector magnet assembly before checking these adjustments.

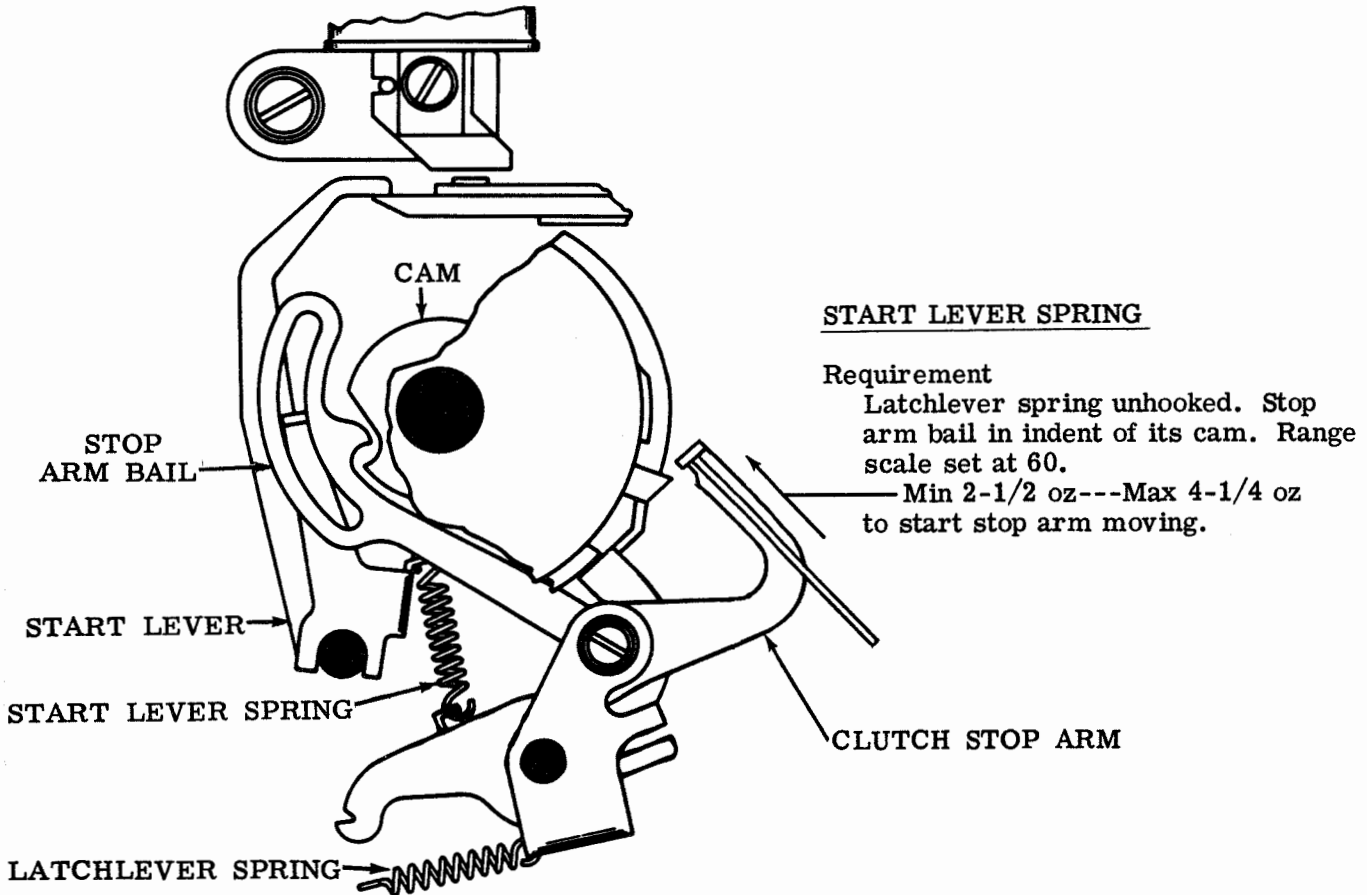
(B) SELECTOR CLUTCH STOP ARM**Requirement**

Range scale set at 60. Selector clutch disengaged. Armature in marking position. Clutch stop arm should engage clutch shoe lever by approximately full thickness of stop arm.

To Adjust

Position stop arm on stop arm bail with clamp screw loosened. Tighten screw.

2.15 Selector Mechanism (continued)



SELECTOR RECEIVING MARGIN

- (1) Requirement (For Units Employing Armature With One Antifreeze Button)
When a signal distortion test set is available for determining the receiving margins of the selector, and where the condition of the components is equivalent to that of new equipment, the range and distortion tolerances below should be met.
- (2) Requirement (For Units Employing Armature With Two Antifreeze Buttons)
When a distortion test set is available, the selector armature spring tension should be refined, if necessary, to obtain satisfactory receiving margins. The front antifreeze button must contact the magnet core when the magnet coils are energized.

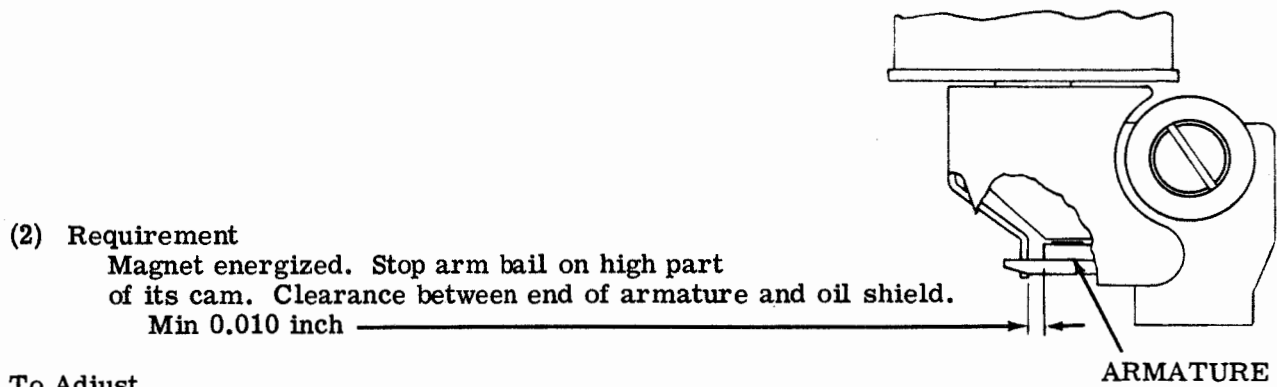
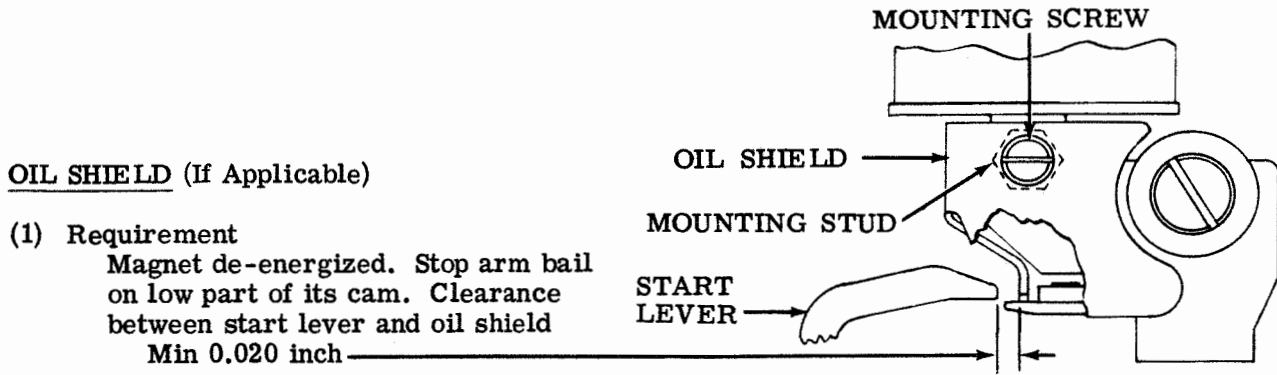
To Adjust

Refine the SELECTOR ARMATURE SPRING (2.10) adjustment.

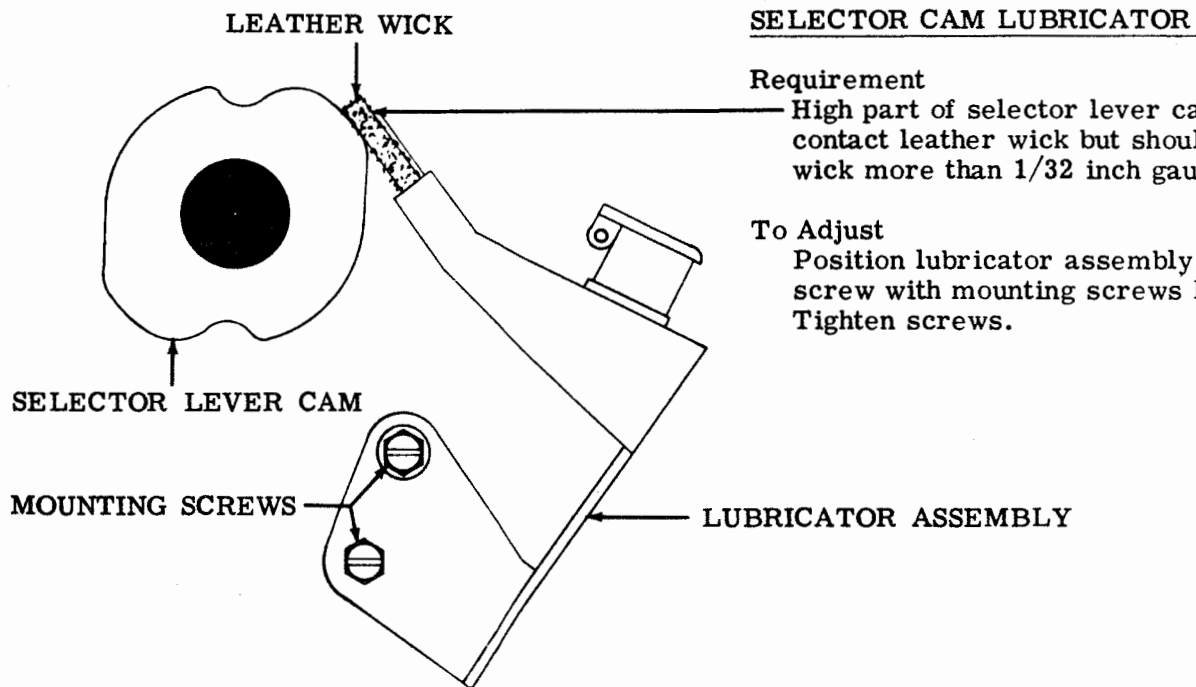
SELECTOR RECEIVING MARGIN MINIMUM REQUIREMENTS

Current	Speed in WPM	Points Range with Zero Distortion	Percentage of Marking and Spacing Bias	End Distortion Tolerated with Scale at Bias Optimum Setting
0.500 Amp (Windings Series)	100	72	38	35

2.16 Selector Mechanism (continued)



To Adjust
Position shield with mounting screw loosened. Make sure oil shield mounting stud is secure before making adjustment. Check to be sure there is clearance between the oil shield and armature extension when the armature is energized. Tighten screw.



2.17 Function Mechanism (continued)

Note 1: For units equipped with automatic noninterfering rubout tape feed-out mechanism, substitute adjustment in variable features, Part 3.

(A) TRIP CAM FOLLOWER LEVER (Preliminary)

(1) Requirement

With trip cam follower lever on high part of cam, clearance between clutch release lever and reset bail trip lever should be
Min 0.010 inch---Max 0.030 inch

(2) Requirement

Some clearance between reset bail trip lever and left end of slot in downstop bracket.

To Adjust

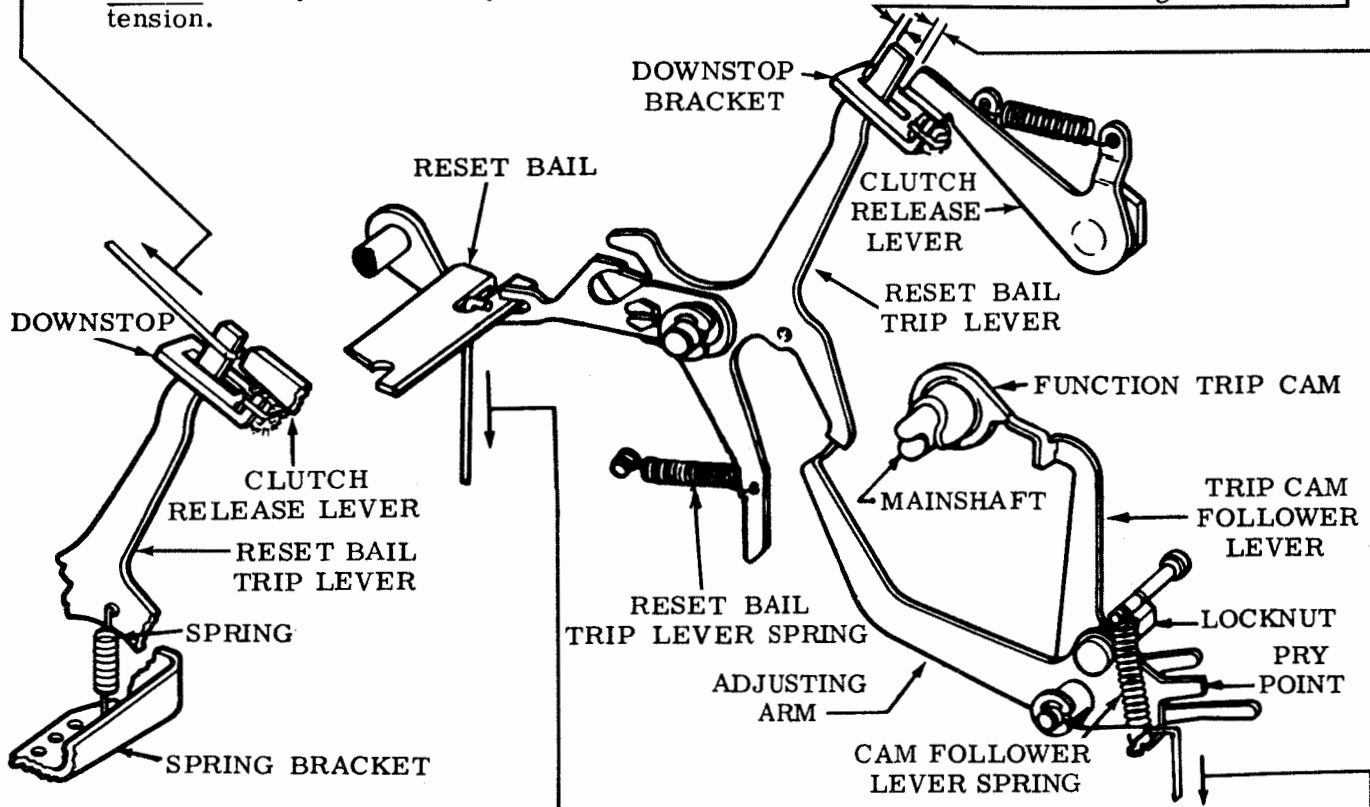
By means of pry point, position adjusting arm on follower lever with locknut loosened. Tighten nut.

(C) RESET BAIL TRIP LEVER SPRING (Latest Design)

Requirement

Trip reset bail trip lever. With scale pulling at top of reset bail trip lever
Min 1 oz---Max 4 oz
to start lever moving.

Note 2: It may be necessary to remove ribbon feed mechanism when checking this tension.



RESET BAIL TRIP LEVER SPRING (Early Design)

Requirement

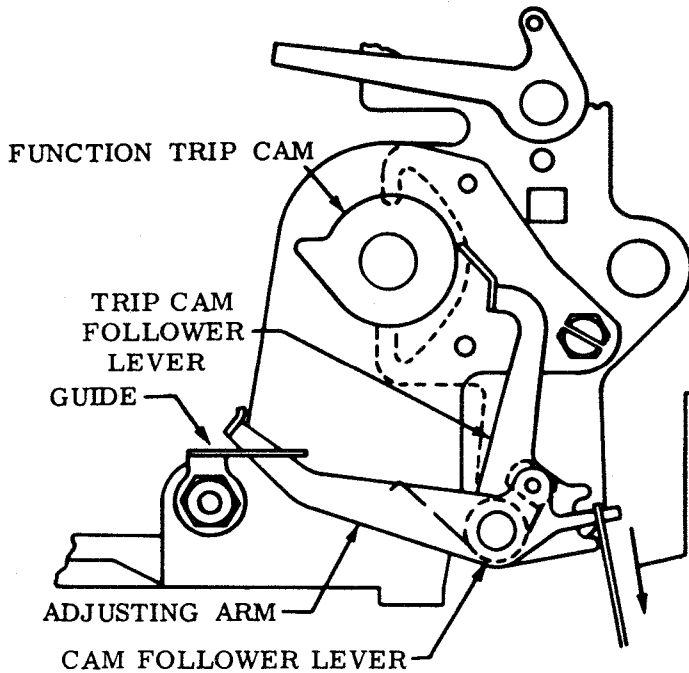
With follower lever on high part of trip cam
Min 2-1/2 oz---Max 4-1/2 oz
to start trip lever moving.

(B) CAM FOLLOWER LEVER SPRING (Early Design)

Requirement

With follower lever on high part of trip cam and main trip lever held away from adjusting arm
Min 2-1/2 oz---Max 4 oz
to start adjusting lever moving.

2.18 Function Mechanism (continued)

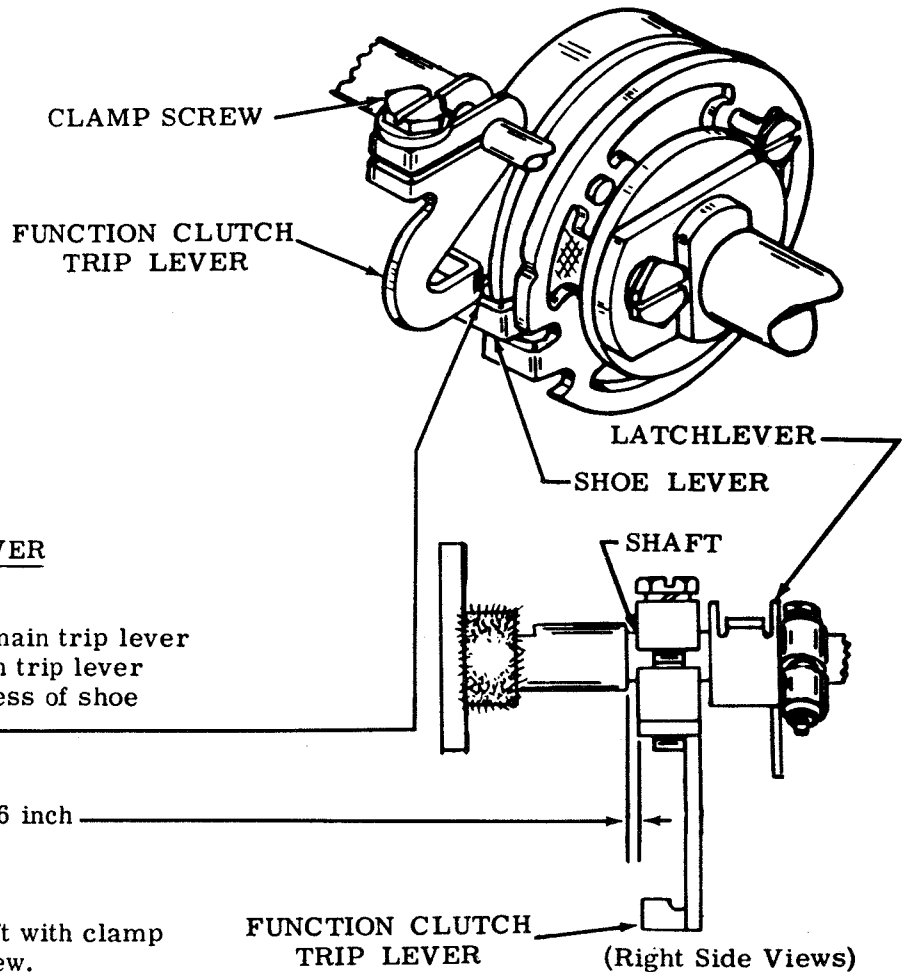


CAM FOLLOWER LEVER SPRING (Latest Design)

Requirement

With cam follower lever on low part of trip cam and reset bail trip lever held away from adjusting arm

Min 1 oz---Max 4 oz
to start adjusting arm moving.



FUNCTION CLUTCH TRIP LEVER

(1) Requirement

With release resting on main trip lever (see 2.19), function clutch trip lever should engage full thickness of shoe lever.

(2) Requirement

Min some---Max 0.006 inch
endplay in trip lever.

To Adjust

Position trip lever on its shaft with clamp screw loosened. Tighten screw.

FUNCTION CLUTCH TRIP LEVER (Right Side Views)

2.19 Function Mechanism (continued)

(A) RESET ARM

To Check

Trip function clutch and position mainshaft so that reset arm is held in its highest position by cam pin.

(1) Requirement

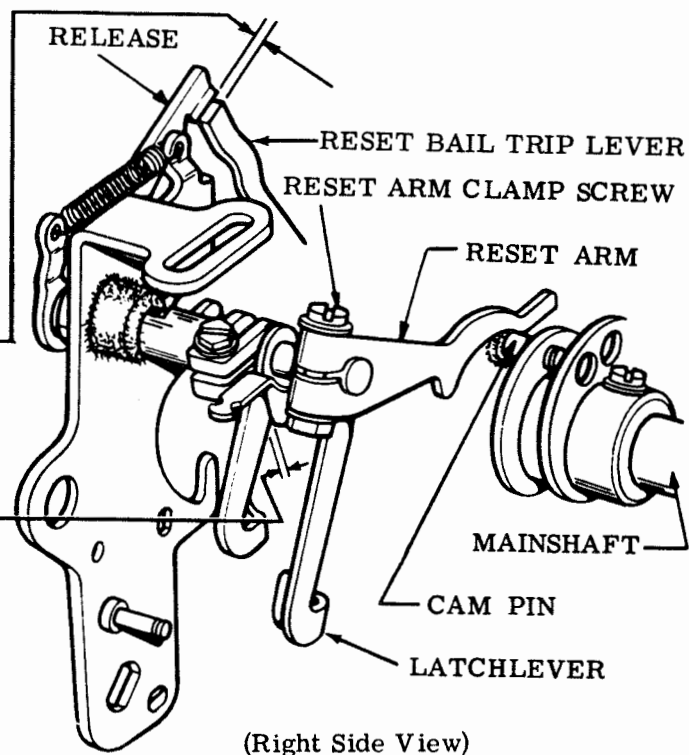
Clearance between release and reset bail trip lever
Min 0.010 inch---Max 0.030 inch

(2) Requirement

Latchlever endplay
Min some---Max 0.010 inch

To Adjust

Position reset arm with clamp screw loosened. Tighten screw.

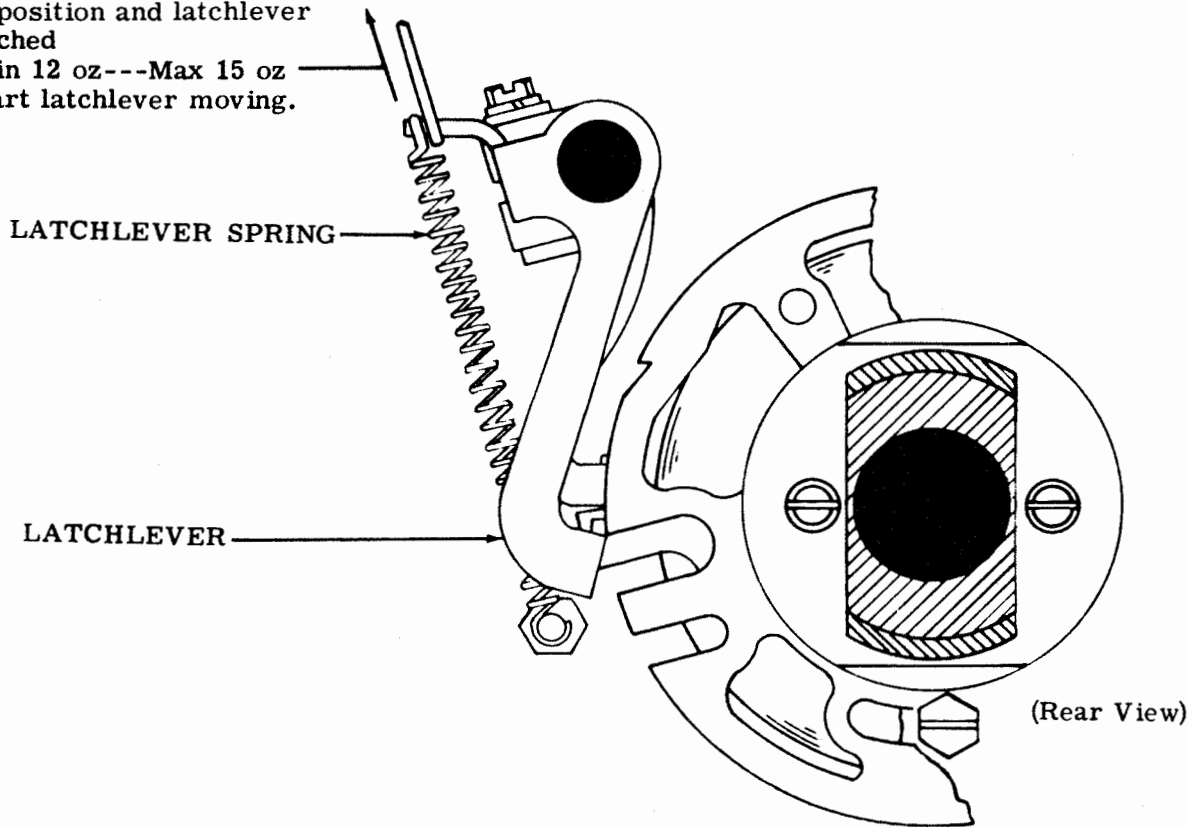


(B) FUNCTION CLUTCH LATCHLEVER SPRING

Requirement

With function clutch turned to stop position and latchlever unlatched

Min 12 oz---Max 15 oz
to start latchlever moving.



2.20 Function Mechanism (continued)

(A) CAM FOLLOWER ROLLER

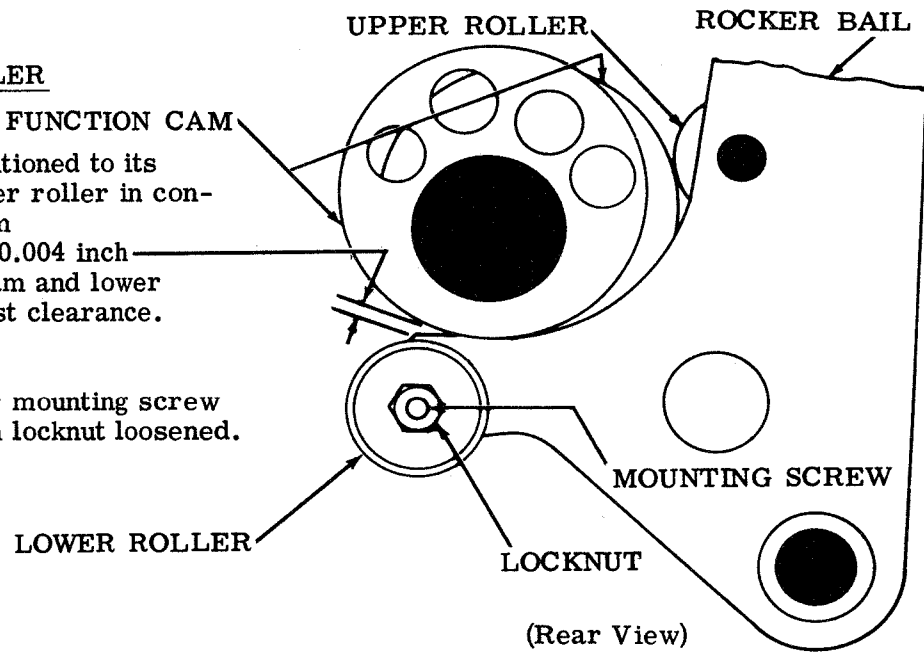
Requirement

With rocker bail positioned to its extreme left and upper roller in contact with function cam

Min some---Max 0.004 inch clearance between cam and lower roller at point of least clearance.

To Adjust

Position lower roller mounting screw in elongated slot with locknut loosened. Tighten nut.



(B) CAM FOLLOWER ROLLER ALIGNMENT

(1) **Requirement**

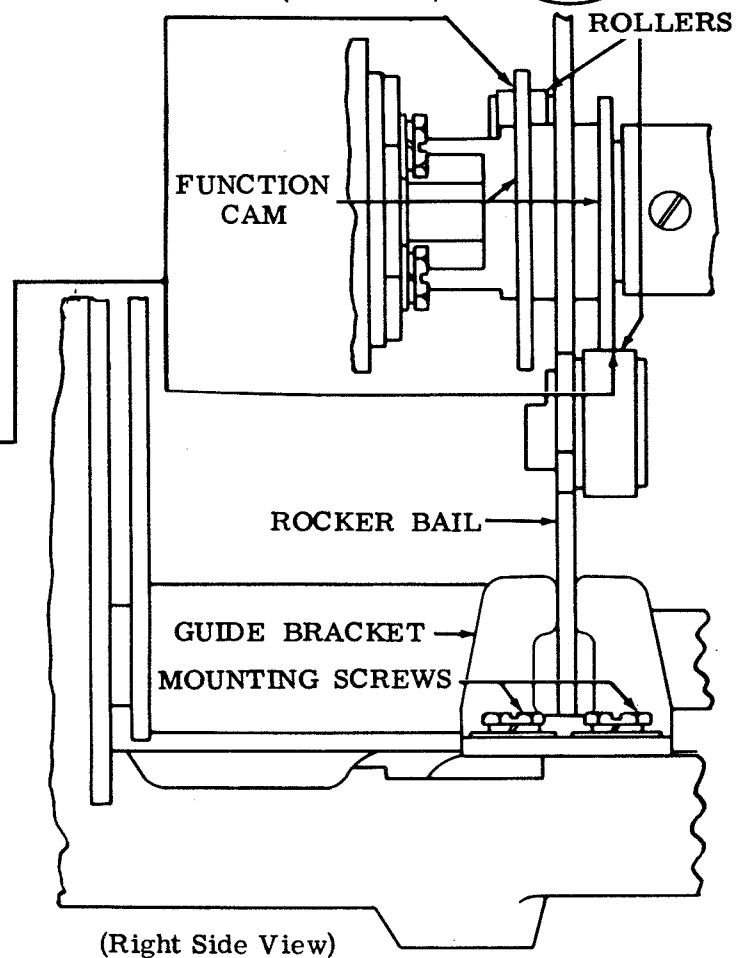
Rocker bail rollers should engage full thickness of function cam.

(2) **Requirement**

Lifter roller in full engagement with rocker bail camming surface.

To Adjust

Position rocker bail and guide bracket with guide bracket mounting screws loosened. Tighten screws.



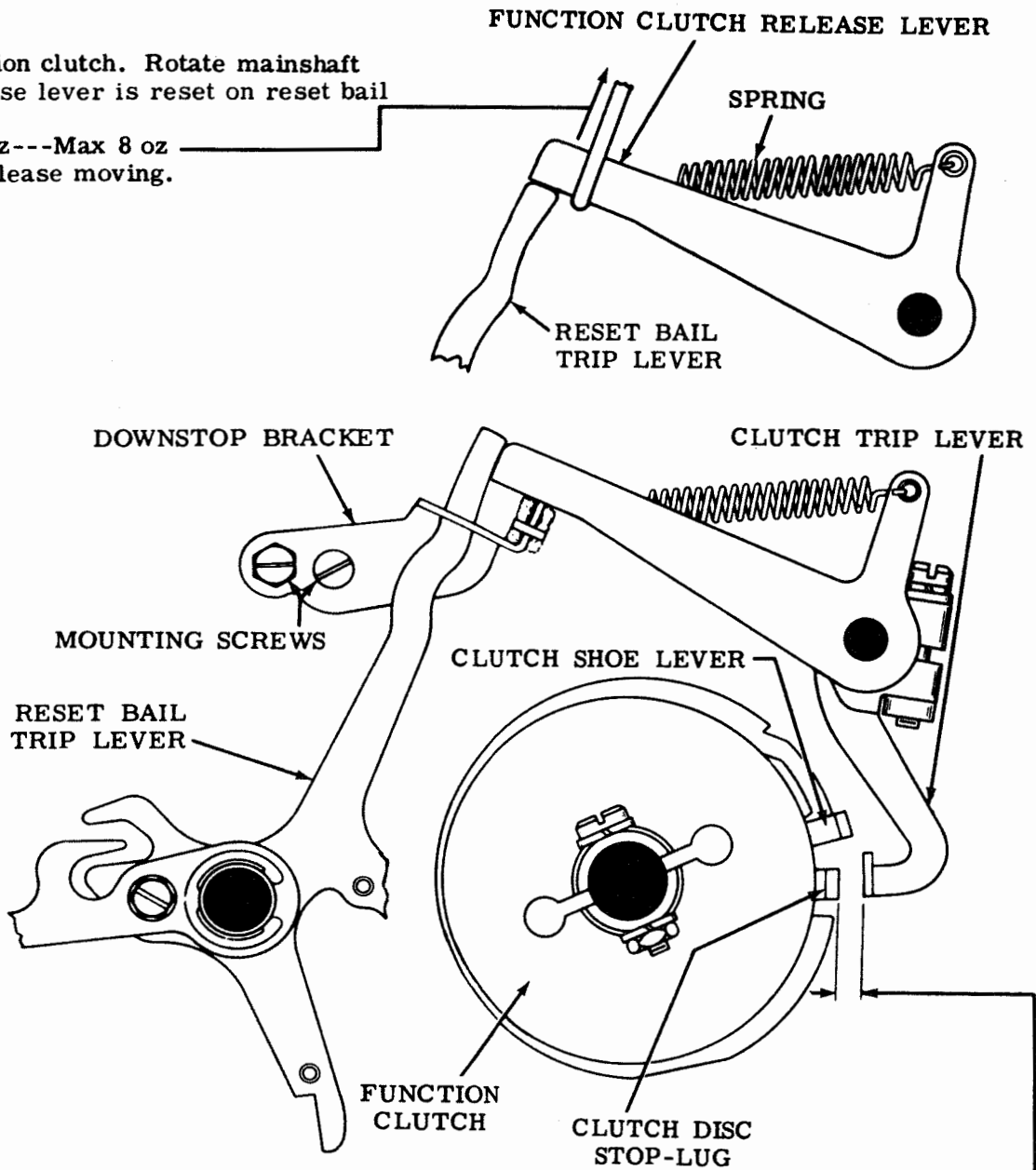
2.21 Function Mechanism (continued)

(A) FUNCTION CLUTCH RELEASE LEVER SPRING

Requirement

Trip function clutch. Rotate mainshaft until release lever is reset on reset bail trip lever.

Min 5 oz---Max 8 oz
to start release moving.



(B) RELEASE DOWNSTOP BRACKET

Requirement

With function clutch tripped, rotate shaft until clearance between function clutch disc stop-lug and clutch stop lever is at a minimum. Release lever resting against downstop bracket. Clearance between function clutch disc stop-lug and stop lever

Min 0.002 inch---Max 0.045 inch

To Adjust

Remove tape guide. With downstop bracket mounting screws friction tight position bracket. Tighten screws.

2.22 Punch Mechanism

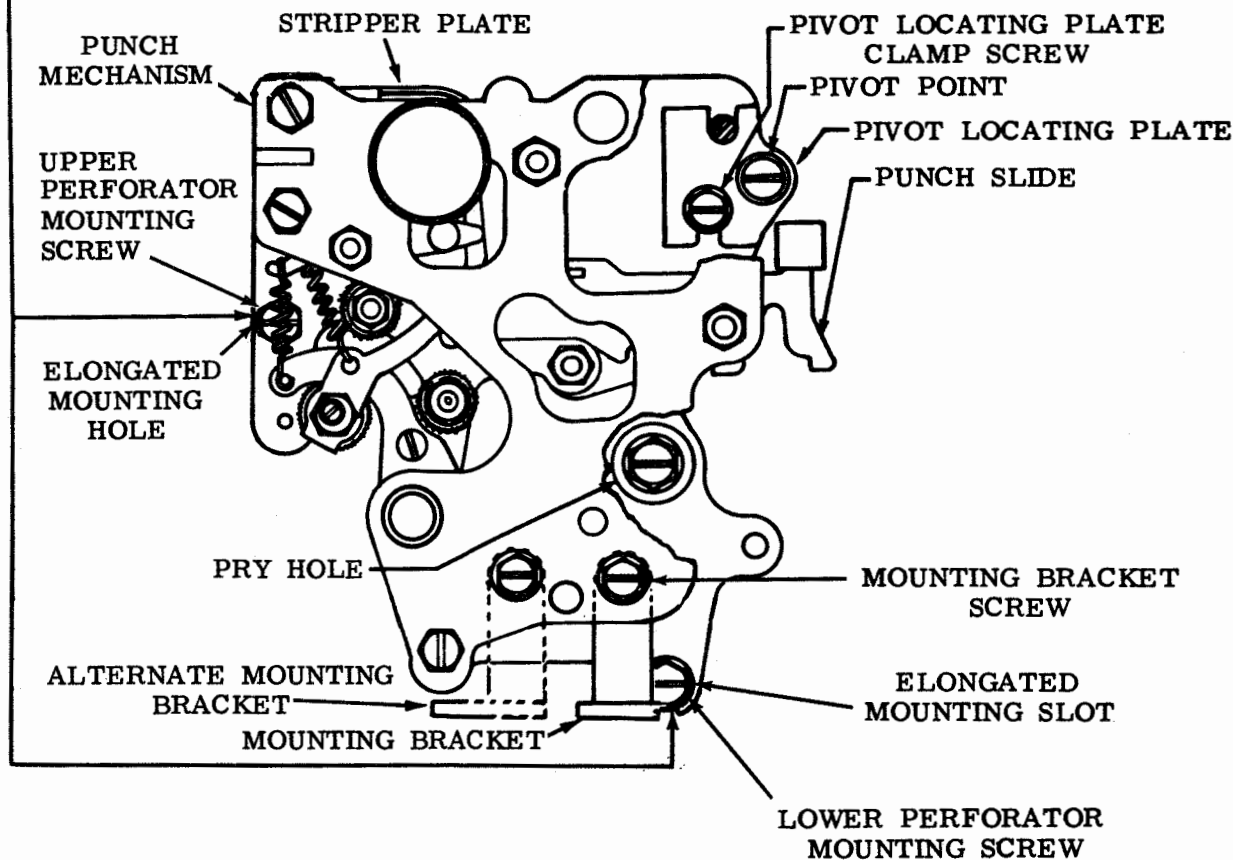
PUNCH MOUNTING PLATE (Preliminary)**Requirement**

The punch mechanism mounting screw, beneath punch block, and mounting screw at lower edge of punch mechanism backplate should be located centrally within their respective mounting holes.

Note: The mounting holes are oversize to facilitate use of punch mechanism on the typing reperformator.

To Adjust

Remove mounting screw at the lower edge of punch mechanism backplate. With the two remaining backplate mounting screws and mounting bracket screw friction tight, position punch mechanism so that the tapped hole of the frame is centrally located (as gauged by eye) within large body hole of punch mechanism backplate. Tighten the two backplate mounting screws and recheck to see that requirement is met. Replace and tighten the lower backplate mounting screw. Tighten the bracket mounting screw.



2.23 Punch Mechanism (continued)

Note: Before proceeding with the punch mechanism adjustments, check the CAM FOLLOWER ROLLER (2.20) adjustment and loosen the punch slide downstop mounting nut and guide mounting stud.

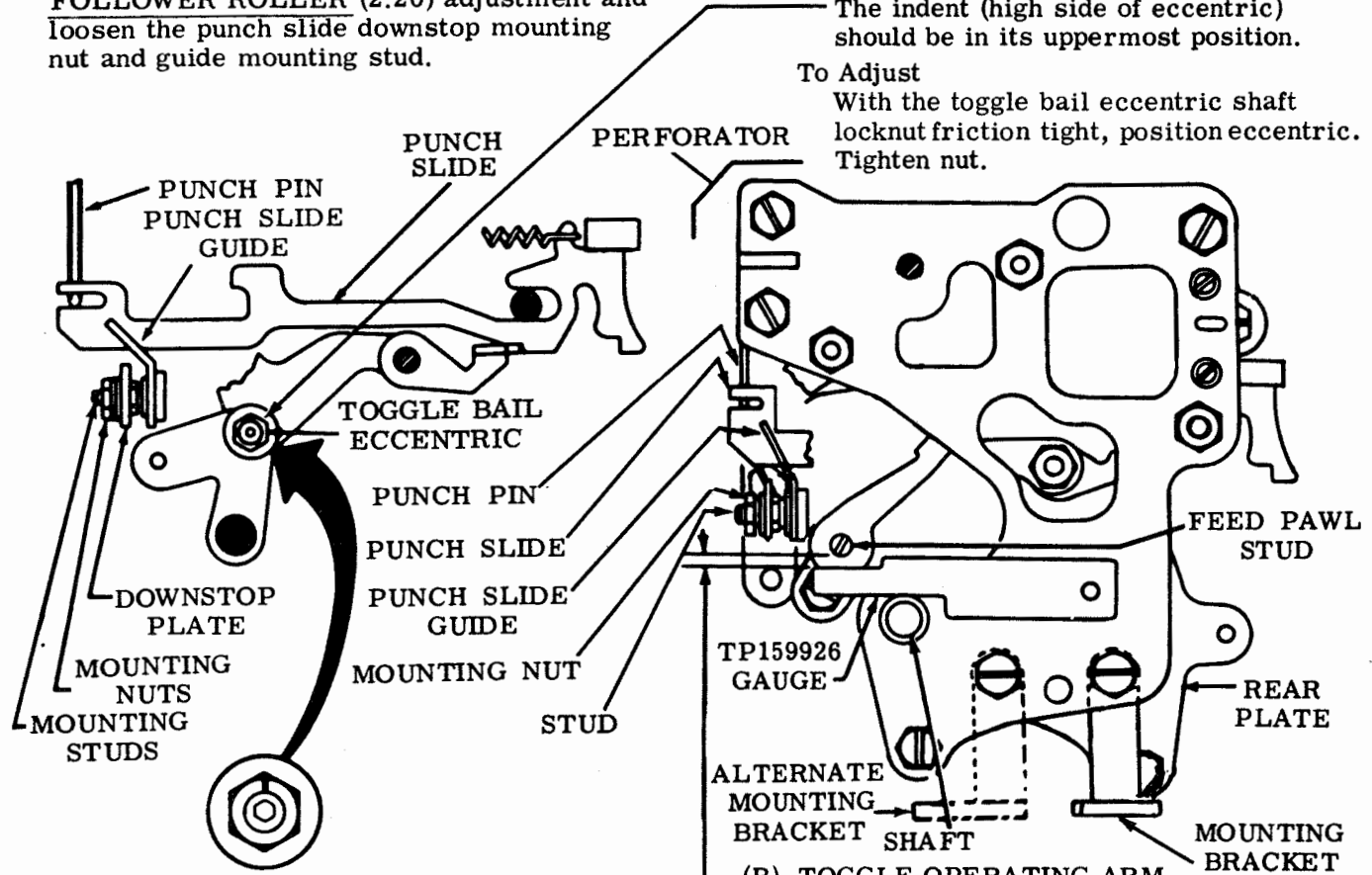
(A) TOGGLE BAIL ECCENTRIC (Preliminary)

Requirement

The indent (high side of eccentric) should be in its uppermost position.

To Adjust

With the toggle bail eccentric shaft locknut friction tight, position eccentric. Tighten nut.



(B) TOGGLE OPERATING ARM

(1) Requirement

Trip function clutch and rotate mainshaft until the upper rocker bail roller is on high part of its cam.
 --- Min 0.002 inch--- Max 0.005 inch clearance between feed pawl stud and the TP159926 gauge.

(2) Requirement

Clearance between arm and oscillating shaft bearing hub.
 --- Min 0.002 inch--- Max 0.015 inch with play taken up in direction to make clearance minimum.

To Adjust

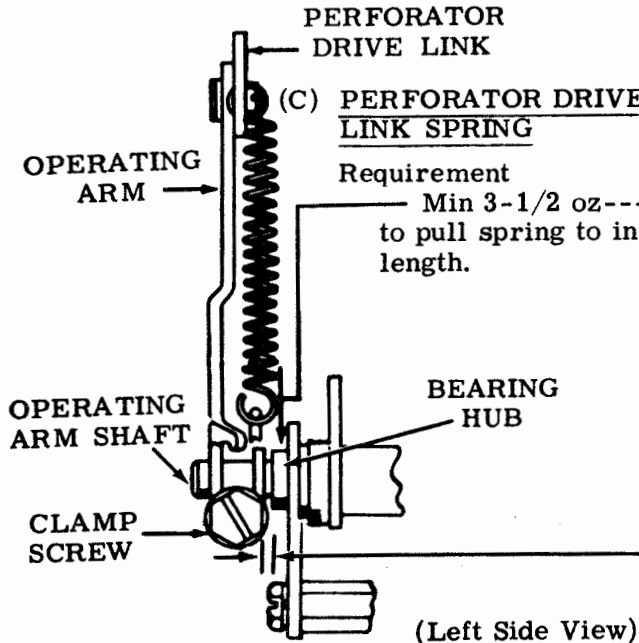
With clamp screw friction tight, position toggle bail and operating arm. Tighten screw.

Note: After FEED PAWL (2.27) adjustment has been made and PUNCH PIN PENETRATION (2.24) and FEED PAWL requirements are met, this requirement should be considered fulfilled.

(C) PERFORATOR DRIVE LINK SPRING

Requirement

Min 3-1/2 oz---Max 8 oz to pull spring to installed length.



2.24 Punch Mechanism (continued)

(A) PUNCH PIN PENETRATION

(1) Requirement

With the RUBOUT combination (12345678) selected, function clutch engaged, rotate mainshaft until all punch pins are into or above the tape aperture in punch block. With the TP159926 gauge in position

—Min 0.050 inch
clearance between feed pawl stud and the gauge.

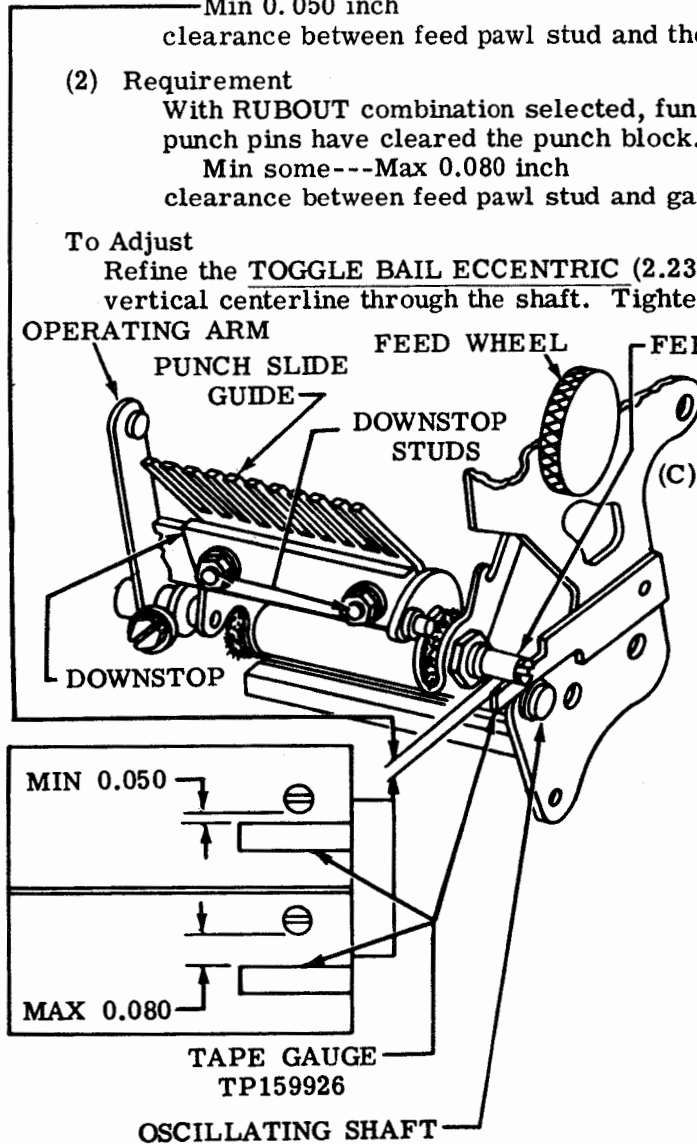
(2) Requirement

With RUBOUT combination selected, function clutch engaged, rotate mainshaft until all punch pins have cleared the punch block. With the TP159926 gauge in position

Min some---Max 0.080 inch
clearance between feed pawl stud and gauge.

To Adjust

Refine the TOGGLE BAIL ECCENTRIC (2.23) adjustment keeping the indent to the right of a vertical centerline through the shaft. Tighten nut.



(C) PUNCH SLIDE DOWNSTOP POSITION

Requirement

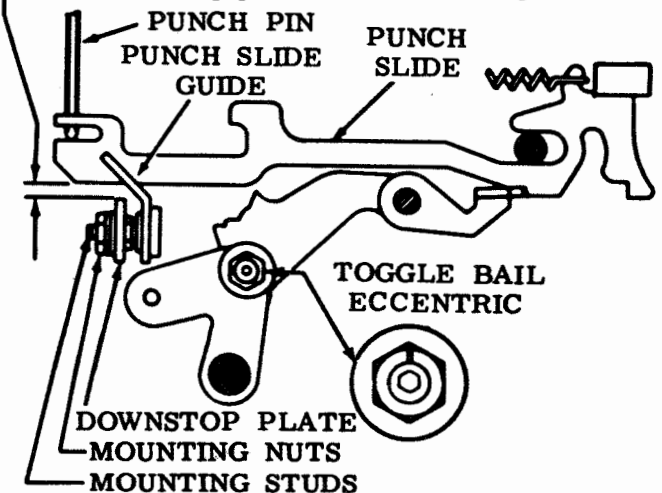
With function clutch disengaged and latched, play taken up toward the top, clearance between both the front and rear punch slides and the downstop plate

—Min some---Max 0.008 inch
All other punch slides should have some clearance.

Note: To check for some clearance, place unit in stop position, trip function trip mechanism and latches. The punch slides should move fully to their operated position.

To Adjust

With unit in stop position, loosen the two downstop plate mounting locknuts and locate the downstop plate to meet the requirement.



B) PUNCH SLIDE GUIDE (Final)

Requirement

The punch slides should align with their corresponding punch pins and be free of binds after tightening the guide mounting studs. Each punch slide should return freely after being pushed in not more than 1/16 inch.

To Adjust

Position the guide with its mounting studs friction tight. Tighten studs.

2.25 Punch Mechanism (continued)

PUNCH MOUNTING PLATE (Final)

(1) To Check

Select RUBOUT code combination (12345678). Rotate until function clutch trips with punch levers in extreme left-hand position.

Requirement

Clearance between punch slide and punch slide latch

Min 0.015 inch---Max 0.045 inch

at slide where clearance is least.

To Adjust

Loosen perforator mounting screws, adjusting clamp lock screw, adjusting clamp pivot screw, and anchor bracket screw until friction tight. Place tip of screwdriver between screw and rim of pry hole and pry perforator up or down. Tighten only adjusting clamp lock screw.

(2) To Check

Remove ribbon and tape. With unit in stop position and upper no. 7 pushbar to the right, check clearance between rear leg of stripper plate and type wheel. Select the R code combination (-2--5-78), trip the function clutch, and move rocker bail to its extreme left position. Check clearance between front leg of the stripper plate and type wheel.

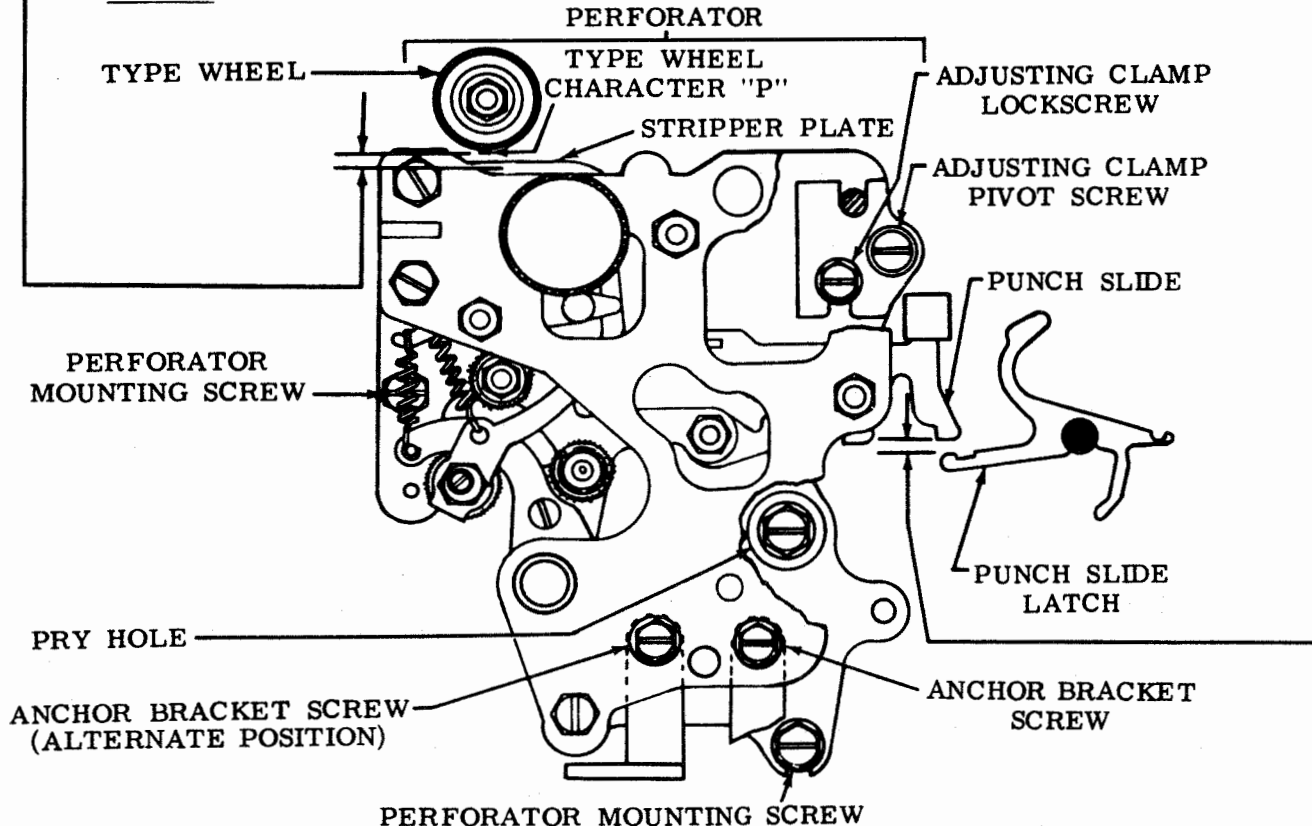
Requirement

Clearance between the character P and the front or rear leg of stripper plate (whichever has the least clearance) should be

Min 0.075 inch---Max 0.085 inch

To Adjust

Position perforator with two mounting screws, adjusting clamp pivot screw, and anchor bracket screw friction tight. Tighten screws. Check RESET BAIL TRIP LEVER (2.26) requirement for some clearance and adjust if necessary.



2.26 Punch Mechanism (continued)

RESET BAIL TRIP LEVER (Final)

(1) Requirement

Manually select the NULL code (BLANK) combination. Manually rotate reset bail trip lever. The punch slide reset bail should trip before the function clutch is tripped.

To Adjust

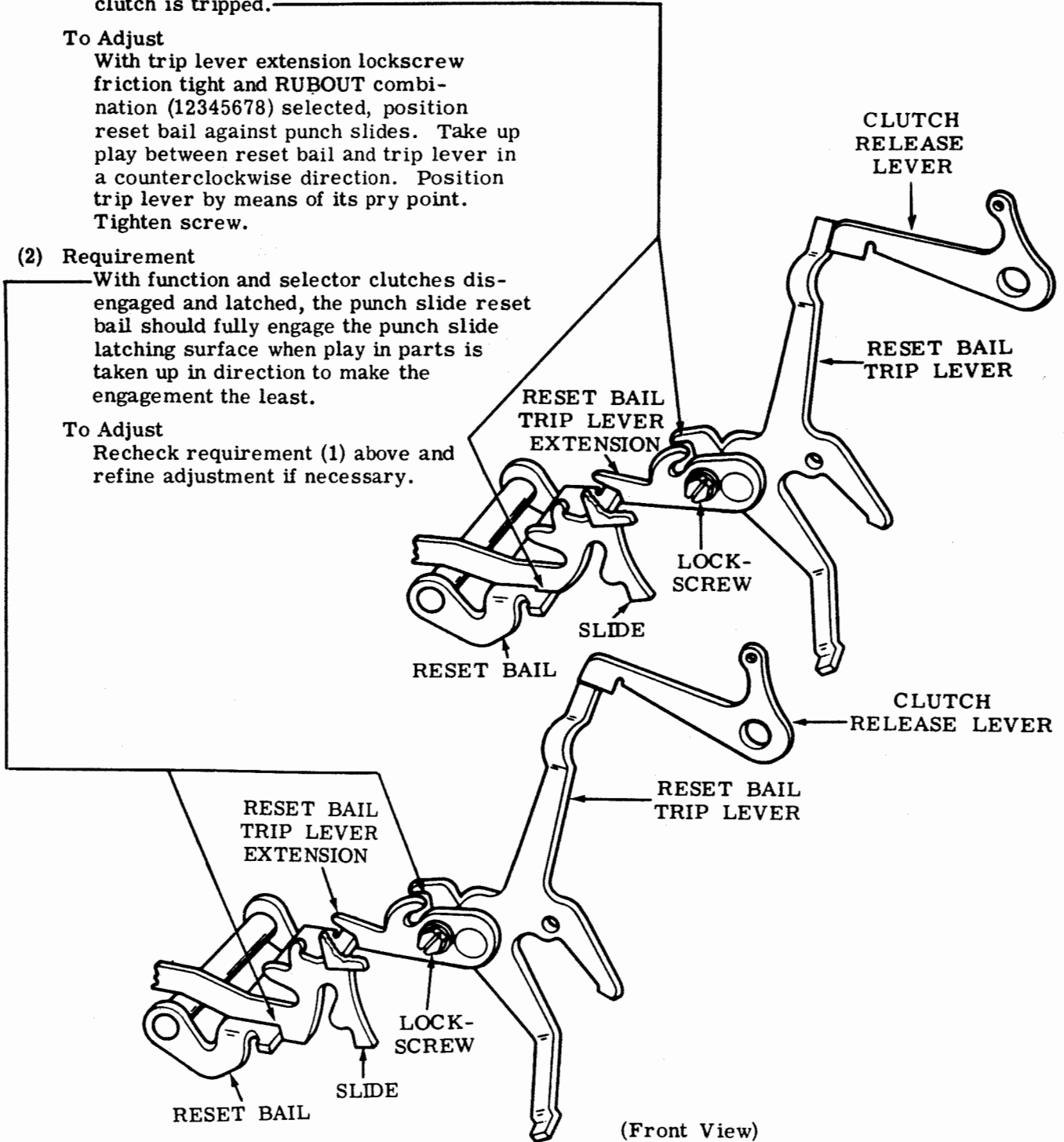
With trip lever extension lock screw friction tight and RUBOUT combination (12345678) selected, position reset bail against punch slides. Take up play between reset bail and trip lever in a counterclockwise direction. Position trip lever by means of its pry point. Tighten screw.

(2) Requirement

With function and selector clutches disengaged and latched, the punch slide reset bail should fully engage the punch slide latching surface when play in parts is taken up in direction to make the engagement the least.

To Adjust

Recheck requirement (1) above and refine adjustment if necessary.



2.27 Punch Mechanism (continued)

(A) LATCHLEVER CLEARANCE

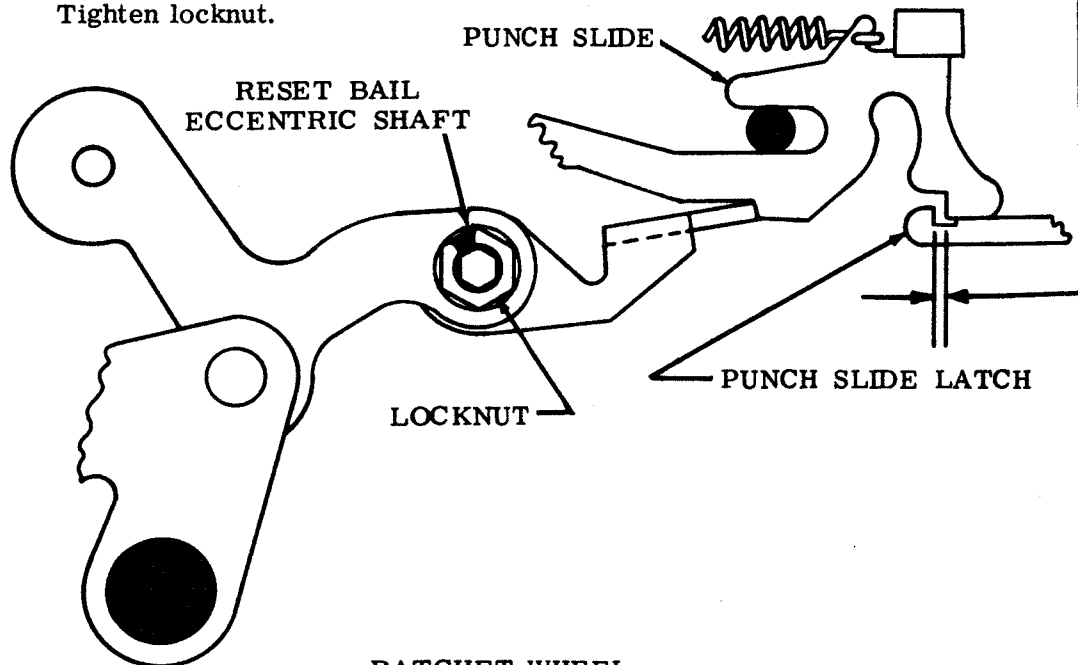
Requirement

With NULL code (BLANK) combination selected, the function clutch disengaged and latched, clearance between the punch slide and its associated latchlever should be

Min 0.008 inch---Max 0.020 inch
for the slide having the least clearance.

To Adjust

Rotate the reset bail eccentric shaft with its locknut loosened. Keep the indentation in the eccentric above center of shaft. Tighten locknut.



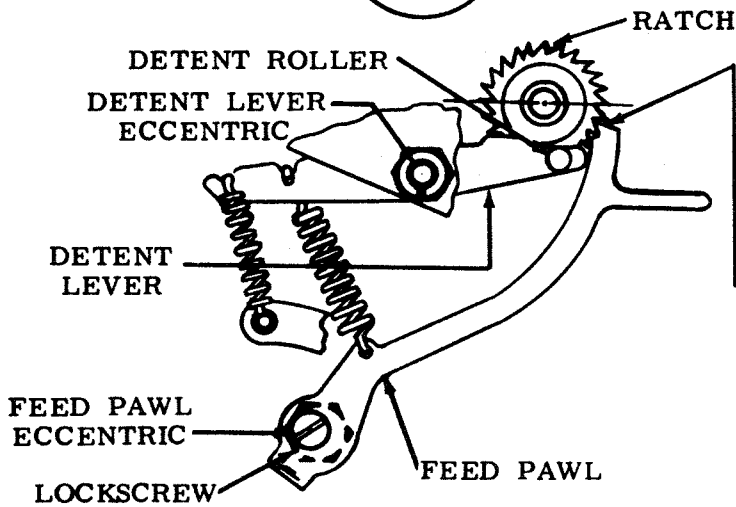
(B) FEED PAWL

Requirement

Function clutch disengaged, indentation in detent lever eccentric at right angle to lever, detent roller in contact with ratchet wheel, high part of feed pawl eccentric to the right of its lock screw. The feed pawl should engage the first tooth below a horizontal centerline through the ratchet wheel with no perceptible clearance.

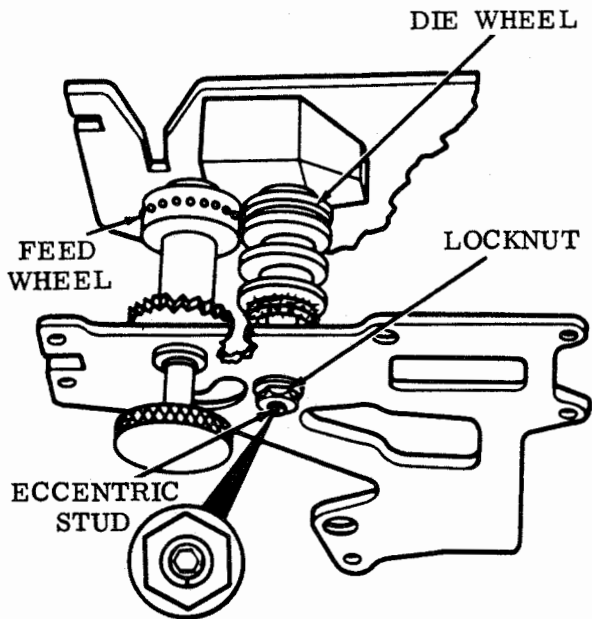
To Adjust

Rotate the feed pawl eccentric with lock screw loosened. Tighten screw.



Note: This adjustment is related to TEN CHARACTERS PER INCH (2.28), and the two adjustments should be made at the same time.

2.28 Punch Mechanism (continued)

TEN CHARACTERS PER INCH (Preliminary)

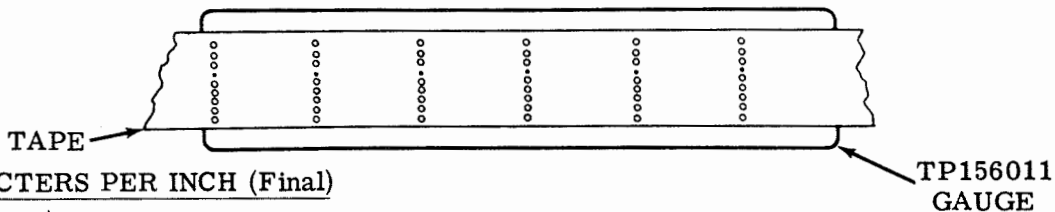
- (1) Requirement
Indent of die wheel eccentric stud pointing downward.
- To Adjust
Position die wheel eccentric stud with locknut loosened. Tighten nut.
- (2) Requirement
With tape shoe blocked away from feed wheel, feed pawl and detent disengaged, and tape removed, feed wheel should rotate freely. Check through 3 or 4 revolutions of feed wheel. Refine requirement (1) above if necessary to meet this requirement.

Note: Before proceeding with the following adjustment check both BIAS SPRING (2.31) tensions, and if unit is equipped with a slack tape mechanism having a clamp plate with an adjustable wear disc, loosen the mounting nut and turn a new edge of the disc toward the tape. Tighten nut.

REPERFORATOR MOUNTING

Requirement

Mount the reperforator to the base and adjust in accordance with the associated base section.

TEN CHARACTERS PER INCH (Final)

(1) Requirement

With a piece of tape perforated with six series of 9 NULL code (BLANK) combinations followed by a rubout combination placed over the TP95960 gauge or the smooth side of the TP156011 tape gauge so that the circular portion of the first number 2 code hole in the tape is concentric with the first hole of the tape gauge, the next four holes in the tape gauge should be visible through the number 2 code holes in the tape and the circular portion of the last (sixth) number 2 code hole in the tape should be entirely within the 0.086 diameter hole of the tape gauge.

(2) Requirement

With tape shoe held away from feed wheel, feed pawl and detent disengaged and tape removed, feed wheel should rotate freely.

To Adjust

With tape removed from punch mechanism, loosen eccentric locknut and rotate die wheel eccentric shaft until it binds against feed wheel. Back off eccentric until die wheel is just free. Check through 3 or 4 rotations. Keep the indent of eccentric below the horizontal centerline of the stud. Refine adjustment for requirement (1), if necessary, by moving the die wheel toward the feed wheel to decrease the character spacing and away from the feed wheel to increase the character spacing. Tighten nut. Refine FEED PAWL (2.27) adjustment, if necessary.

CAUTION: WITH TAPE REMOVED. MAKE SURE FEED WHEEL AND DIE WHEEL DO NOT BIND. RECHECK REQUIREMENT (1). IF NECESSARY, REFINE.

Note: First through fifth holes in gauge are same size as code holes in tape (0.072 inch diameter). Sixth hole in gauge is larger (0.086 inch). This arrangement allows ± 0.007 inch variation in 5 inches.

2.29 Punch Mechanism (continued)

(For Latest Design see 2.30)

LATERAL AND FRONT TO REAR FEED WHEEL POSITION DETENT (Early Design)**Requirement**

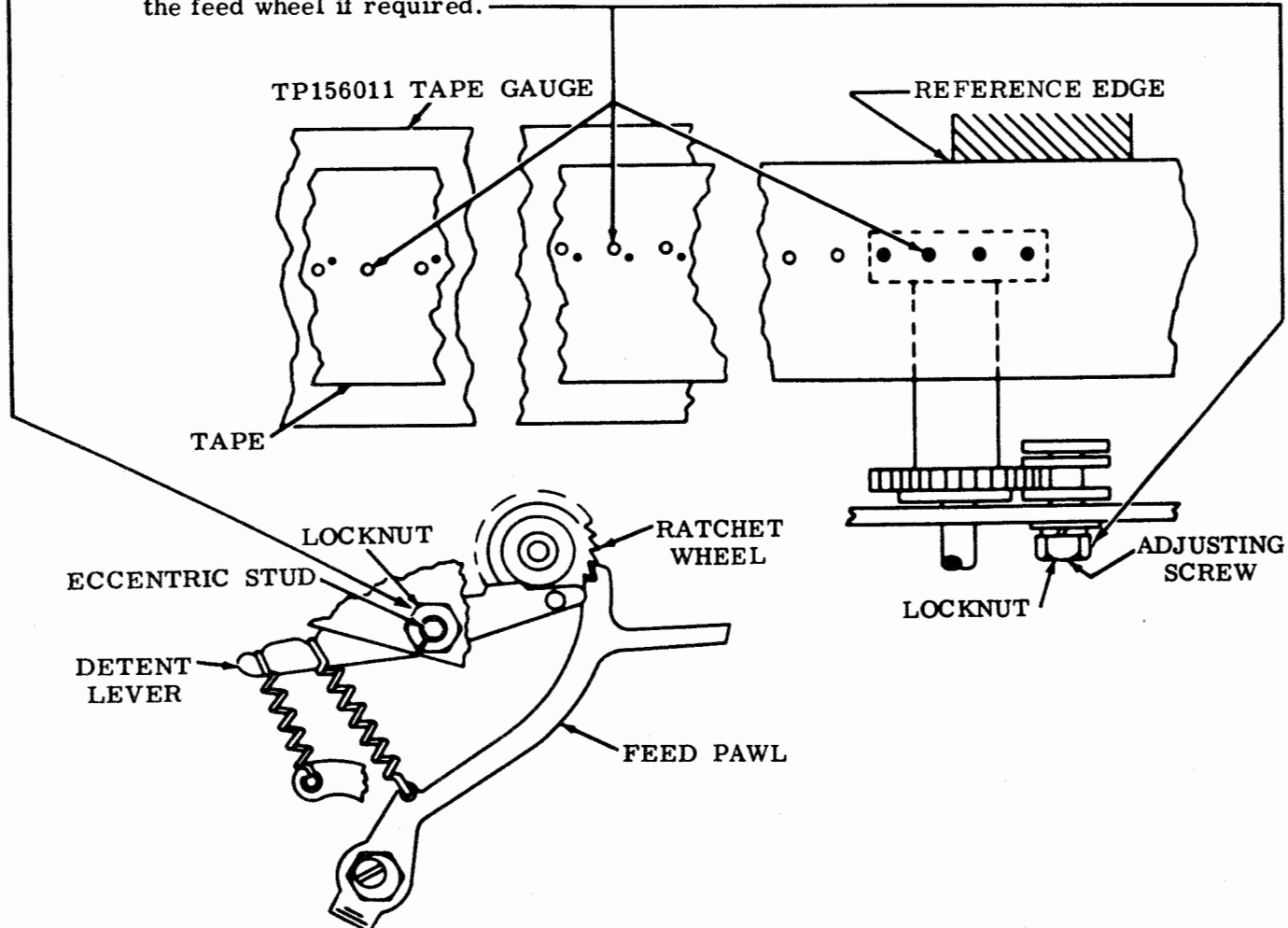
With the reperforator operating under power, obtain a tape sample consisting of a series of NULL (BLANK) perforations, by a visual inspection of the perforated feed holes, laterally and front to rear, the indentations of the feed wheel should be fully punched out.

(1) To Adjust (Laterally)

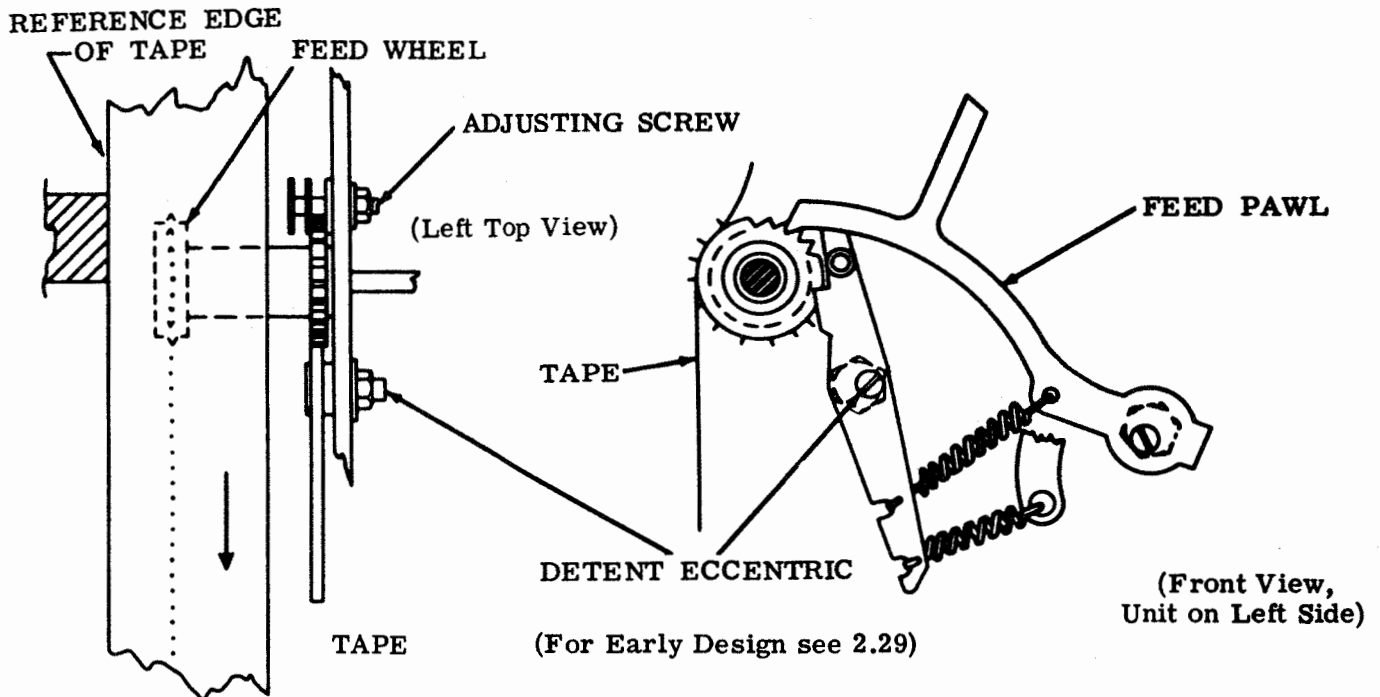
To meet the lateral requirement, loosen the detent eccentric stud locknut and rotate the detent eccentric clockwise to move the feed wheel perforations towards the leading edge of the feed hole. Rotate the detent eccentric counterclockwise to move the feed wheel perforation towards the trailing edge of the feed hole. Tighten nut. Refine the FEED PAWL (2.27) adjustment.

(2) To Adjust (Front to Rear)

To meet the front to rear requirement with respect to the reference edge of the tape, loosen the adjusting screw locknut and position the adjusting screw. To move the indentations in the tape away from the reference edge of the tape, move the feed wheel towards the front plate of the punch mechanism by rotating the adjusting screw counterclockwise. To move the indentations in the tape towards the reference edge of the tape, move the feed wheel towards the backplate of the punch mechanism by rotating the adjusting screw clockwise. Tighten nut. Refine the adjustment above to align the lateral indentations of the feed wheel if required.



2.30 Punch Mechanism (continued)

LATERAL AND FRONT TO REAR FEED WHEEL POSITION DETENT (Latest Design)**Requirement**

The indentations punched by the feed wheel should be centrally located between the punched feed holes (gauged by eye) and on same horizontal centerline. The unit must backspace the tape at least 30 characters without losing its point of registration.

To Check

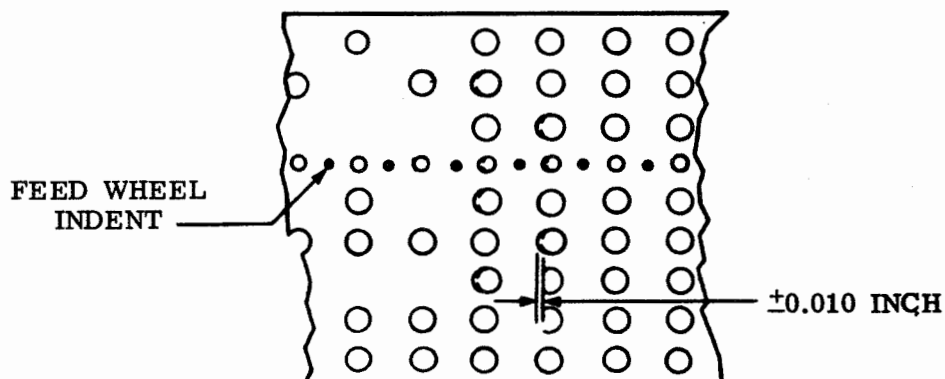
Perforate 6 inches of RY tape. Backspace 30 characters. Reperforate with RUBOUT characters. Code holes must coincide except for first two characters which may be elongated ± 0.010 inch.

To Adjust (Laterally)

Rotate detent eccentric clockwise to move the feed wheel perforation toward the leading edge of the feed hole and rotate eccentric counterclockwise to move the perforation toward the trailing edge of the feed hole. Tighten locknut. Refine FEED PAWL (2.27) adjustment if necessary.

To Adjust (Front to Rear)

Loosen locknut on adjusting screw and rotate the screw counterclockwise to move the indentations in the tape away from the reference edge (rear) of the tape. To move indentations in the tape toward the reference edge of the tape, rotate adjusting screw clockwise. Tighten nut. Refine the lateral adjustment above if necessary.



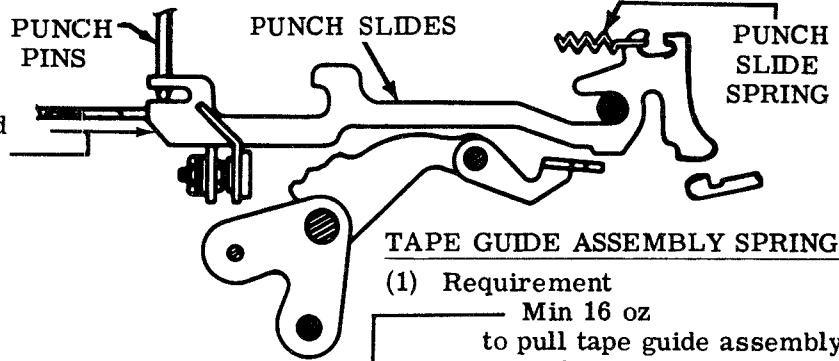
2.31 Punch Mechanism (continued)

PUNCH SLIDE SPRING

Requirement

RUBOUT combination (12345678) set up, and punch slides in selected position

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



TAPE GUIDE ASSEMBLY SPRING

(1) Requirement

Min 16 oz to pull tape guide assembly away from tape guide block.

(2) Requirement

Tape guide assembly should move freely on shaft.

To Adjust

With mounting screws loosened, position mounting post. Tighten screws.

TAPE CHUTE

(Left Top View)

BIAS SPRING (TAPE CHUTE)

Requirement

With selector and function clutches disengaged and latched, tape threaded through punch mechanism, it should require

Min 1-1/4 oz --- Max 2-1/4 oz to just move the spring away from the tape.

To Adjust

Bend the spring.

Note: It is necessary to remove several parts, on units equipped with backspace mechanism, in order to check this spring tension. It should not be checked unless there is good reason to believe that requirements are not met.

TAPE

BIAS SPRING

BIAS SPRING (PUNCH BLOCK)

(1) Requirement

With tape removed from the punch block, the tape guide spring should rest against the clearance slot in the block in a symmetrical manner.

(2) Requirement

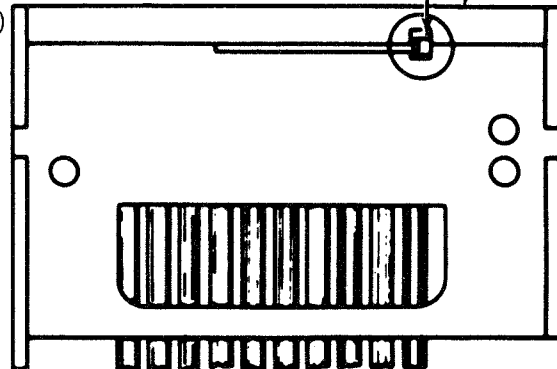
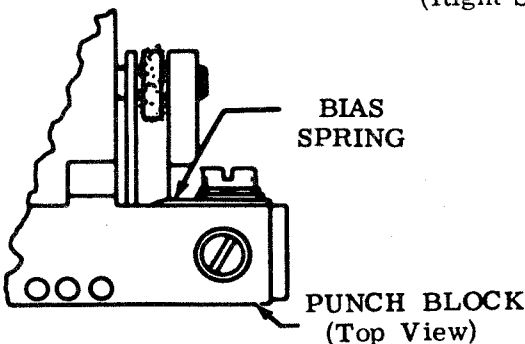
With tape in the punch block and the reperforator operating under power, the spring should not distort the edge of the tape.

To Adjust

Bend the spring and position it with its mounting screw loosened. Tighten screw.

PUNCH BLOCK

(Right Side View)



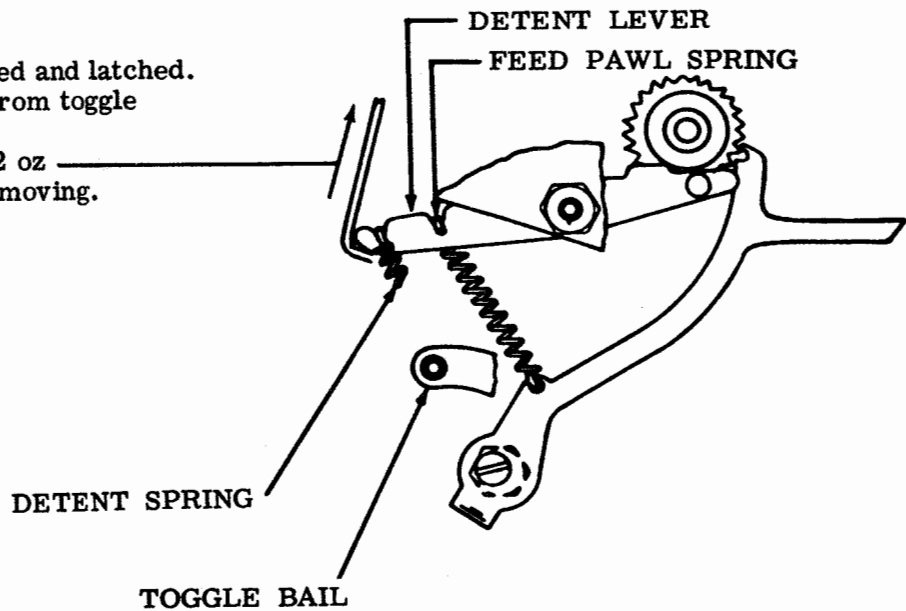
2.32 Punch Mechanism (continued)

FEED PAWL SPRING

Requirement

Function clutch disengaged and latched.
 Detent spring unhooked from toggle bail

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

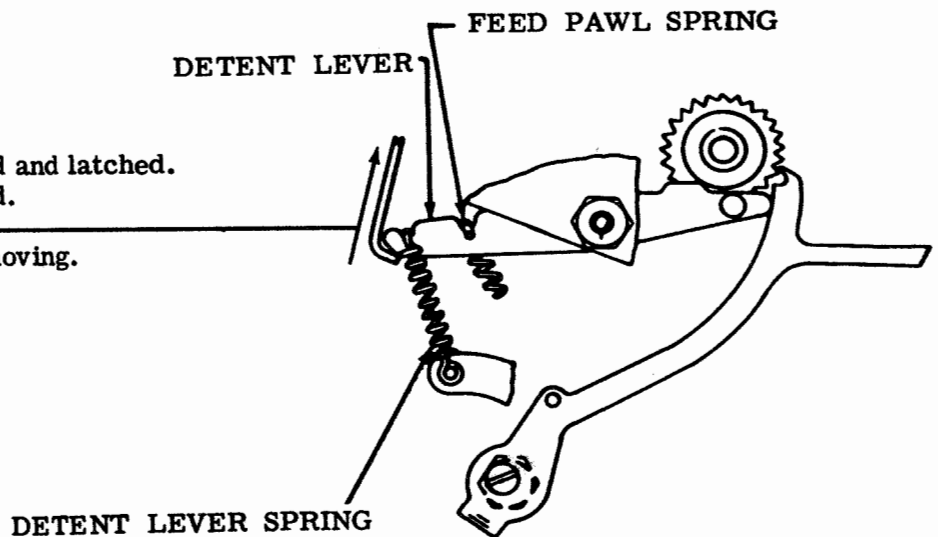


DETENT LEVER SPRING

Requirement

Function clutch disengaged and latched.
 Feed pawl spring unhooked.

Min 7 oz---Max 10 oz
 to start the detent lever moving.

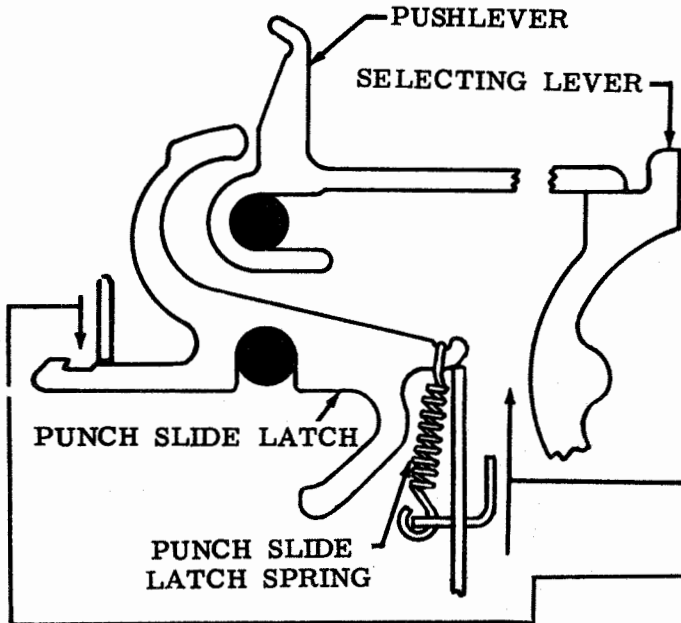
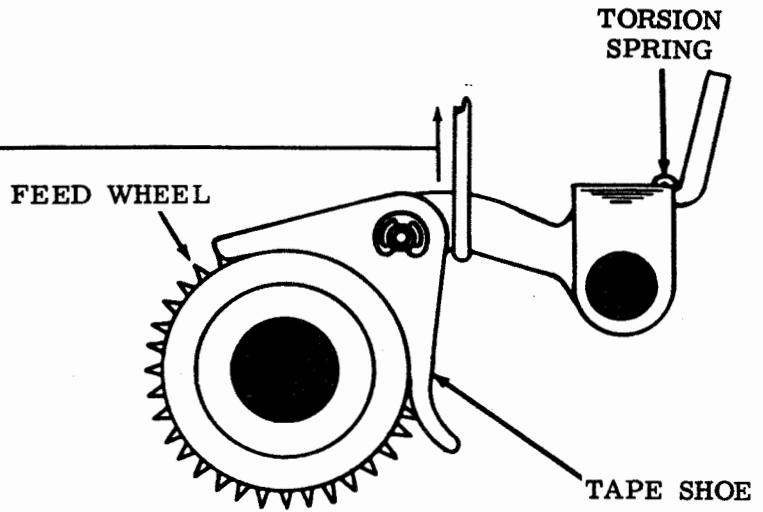


2.33 Punch Mechanism (continued)

TAPE SHOE TORSION SPRING

Requirement

Min 13 oz---Max 18 oz
to move tape shoe from feed wheel.



PUNCH SLIDE LATCH SPRING

To Check

Select RUBOUT code combination (12345678). Position rocker bail to extreme left. Strip pushlevers from selecting levers.

Requirement

For one-shaft unit
— Min 1 oz---Max 3 oz
to start latch moving.
For two-shaft unit
— Min 3/4 oz---Max 2 oz
to start latch moving.

2.34 Typing Mechanism

(A) PUSHBAR OPERATING BLADE (Preliminary)

To Check

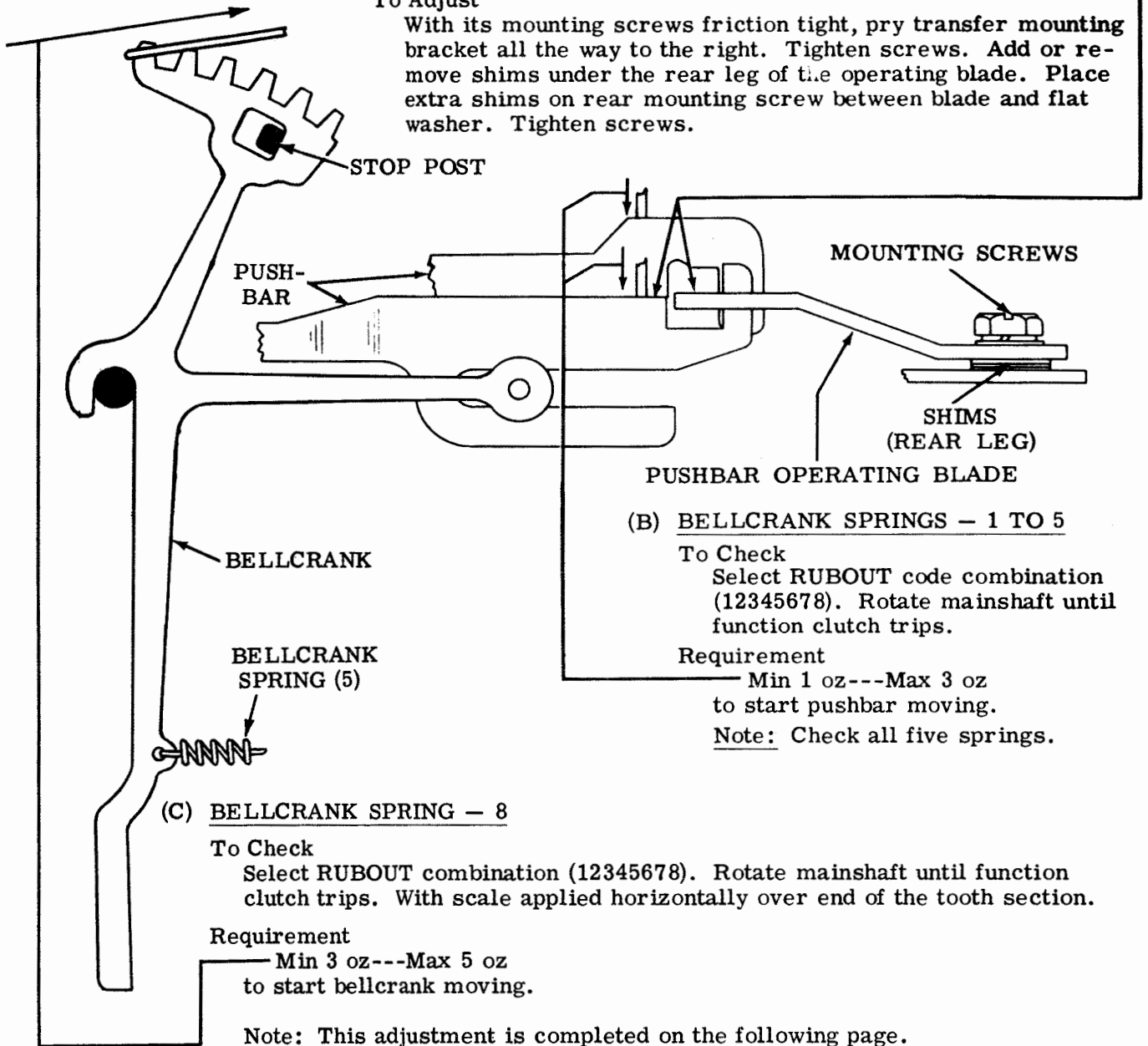
Manually select RUBOUT code combination (12345678). Rotate mainshaft until function clutch trips. Hold no. 2 and 3 bellcranks against stop post.

Requirement

Operating blade parallel to (not necessarily flush with) no. 2 and 3 pushbars.

To Adjust

With its mounting screws friction tight, pry transfer mounting bracket all the way to the right. Tighten screws. Add or remove shims under the rear leg of the operating blade. Place extra shims on rear mounting screw between blade and flat washer. Tighten screws.



(B) BELLCRANK SPRINGS - 1 TO 5

To Check

Select RUBOUT code combination (12345678). Rotate mainshaft until function clutch trips.

Requirement

Min 1 oz---Max 3 oz to start pushbar moving.

Note: Check all five springs.

(C) BELLCRANK SPRING - 8

To Check

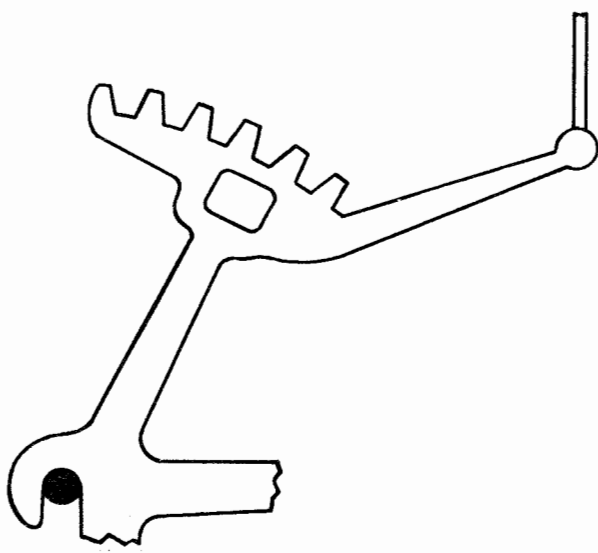
Select RUBOUT combination (12345678). Rotate mainshaft until function clutch trips. With scale applied horizontally over end of the tooth section.

Requirement

Min 3 oz---Max 5 oz to start bellcrank moving.

Note: This adjustment is completed on the following page.

2.35 Typing Mechanism (continued)



(D) BELLCRANK SPRINGS - 6 AND 7

To Check
 Select RUBOUT combination (12345678).
 Rotate mainshaft until function clutch trips.

(1) Requirement (Bellcrank Spring 6)
 With scale applied vertically to ball end of bellcrank contact operating arm
 — Min 2 oz---Max 4 oz
 to start bellcrank moving.

(2) Requirement (Bellcrank Spring 7)
 With no. 7 pulse lever spring removed and scale applied vertically to ball end of bellcrank operating arm
 — Min 3 oz---Max 6 oz
 to start bellcrank moving.

SHOULDER CLEARANCE

To Check

Manually select RUBOUT code combination (12345678). Rotate mainshaft until function clutch trips. Manually seat pushbars in detented position. In bar which is nearest left edge of blade, take up play to left and rear, and then release.

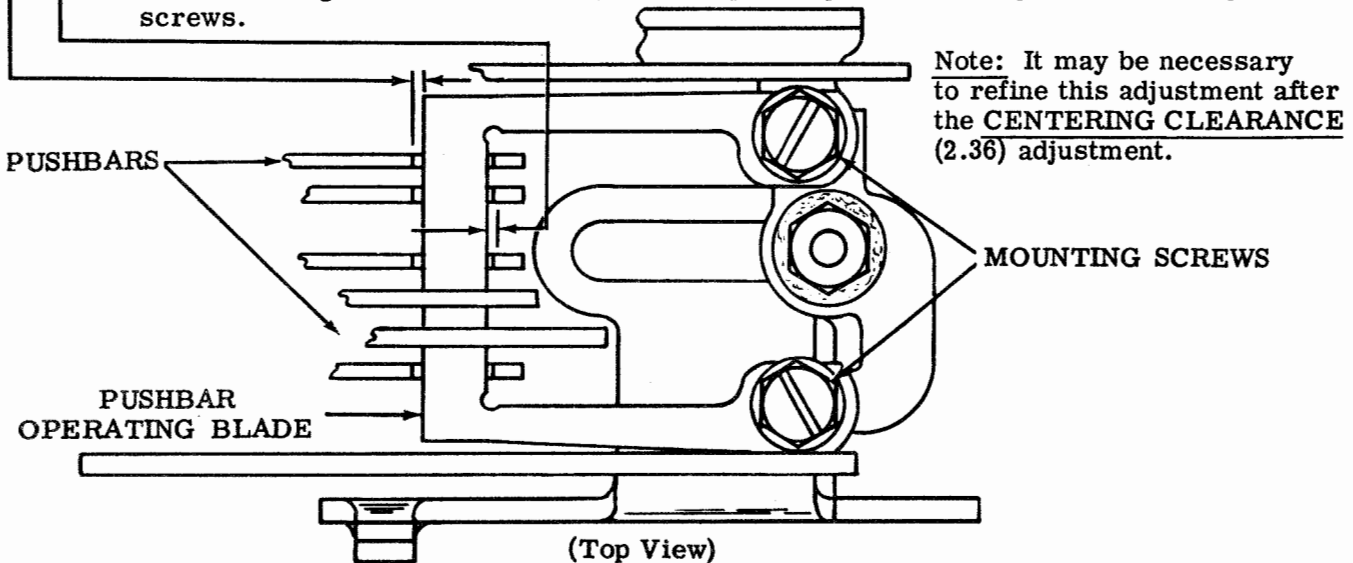
(1) Requirement
 Clearance between bar and left edge of blade
 — Min 0.015 inch---Max 0.030 inch

(2) Requirement
 Some clearance between right edge of blade and pushbars when play in bars has been taken up to right and released.

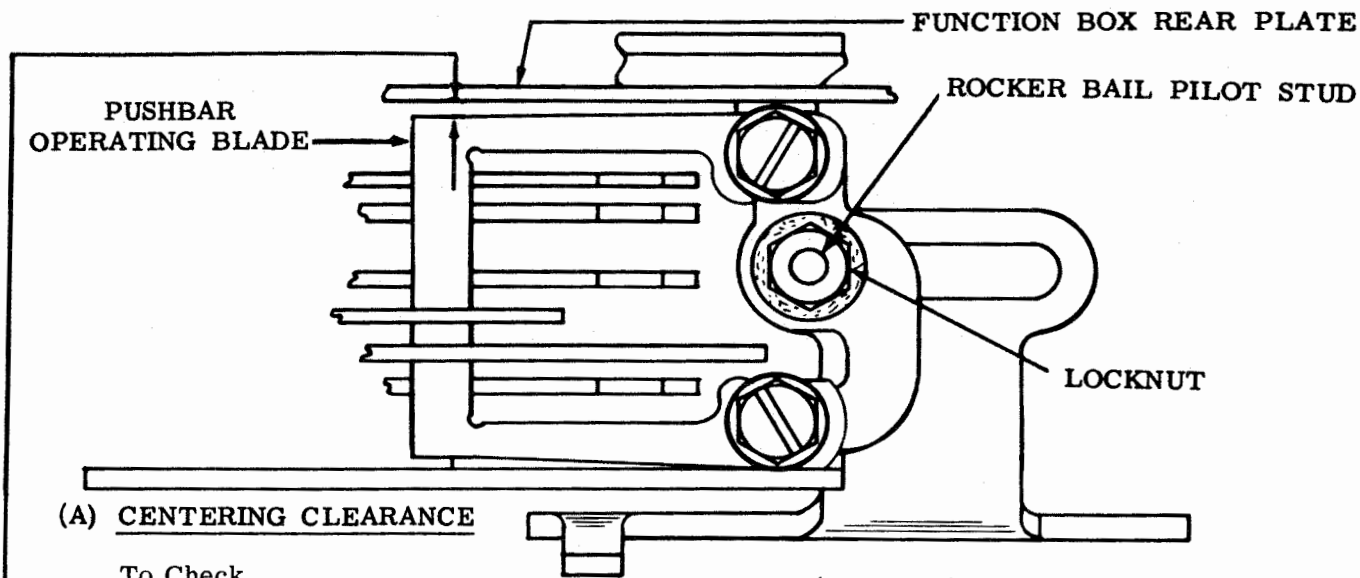
(3) Requirement
 With unit in stop position, some clearance between right edge of blade and bars when play in bars has been taken up to right and released.

To Adjust

With mounting screws loosened, position operating blade in elongated holes. Tighten screws.



2.36 Typing Mechanism (continued)

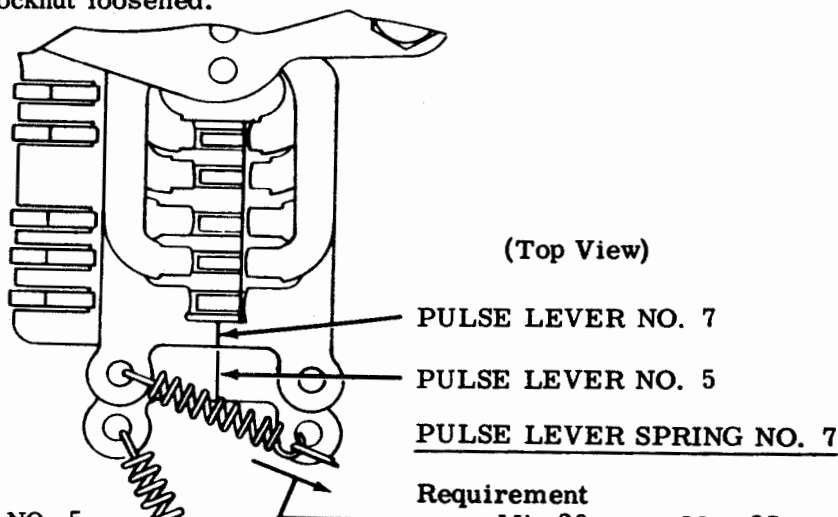


(A) CENTERING CLEARANCE

To Check
 Select NULL code (BLANK) combination.
 Position rocker bail through a complete cycle to insure the clearance is a minimum.

Requirement
 Clearance between function box rear plate and pushbar operating blade
 —Min 0.005 inch---Max 0.020 inch
 at a point in the cycle where play is taken up to make clearance minimum.

To Adjust
 Position rocker bail pilot stud in elongated hole with locknut loosened.
 Tighten nut.



PULSE LEVER SPRING NO. 5

Requirement
 Min 10 oz---Max 15 oz
 to pull spring to length of 7/16 inch.

Requirement
 Min 20 oz---Max 25 oz
 to pull spring to length of 7/16 inch.

2.37 Typing Mechanism (continued)

FUNCTION BOX

Requirement

With letters pushbar to extreme right and fully detented, RUBOUT code (12345678) selected, punch slides disengaged and function clutched tripped, eliminate play in downward direction, then release. Keep operating blade parallel with no. 2 and no. 3 pushbars and take up function box play in a clockwise direction. The top of the operating blade should be

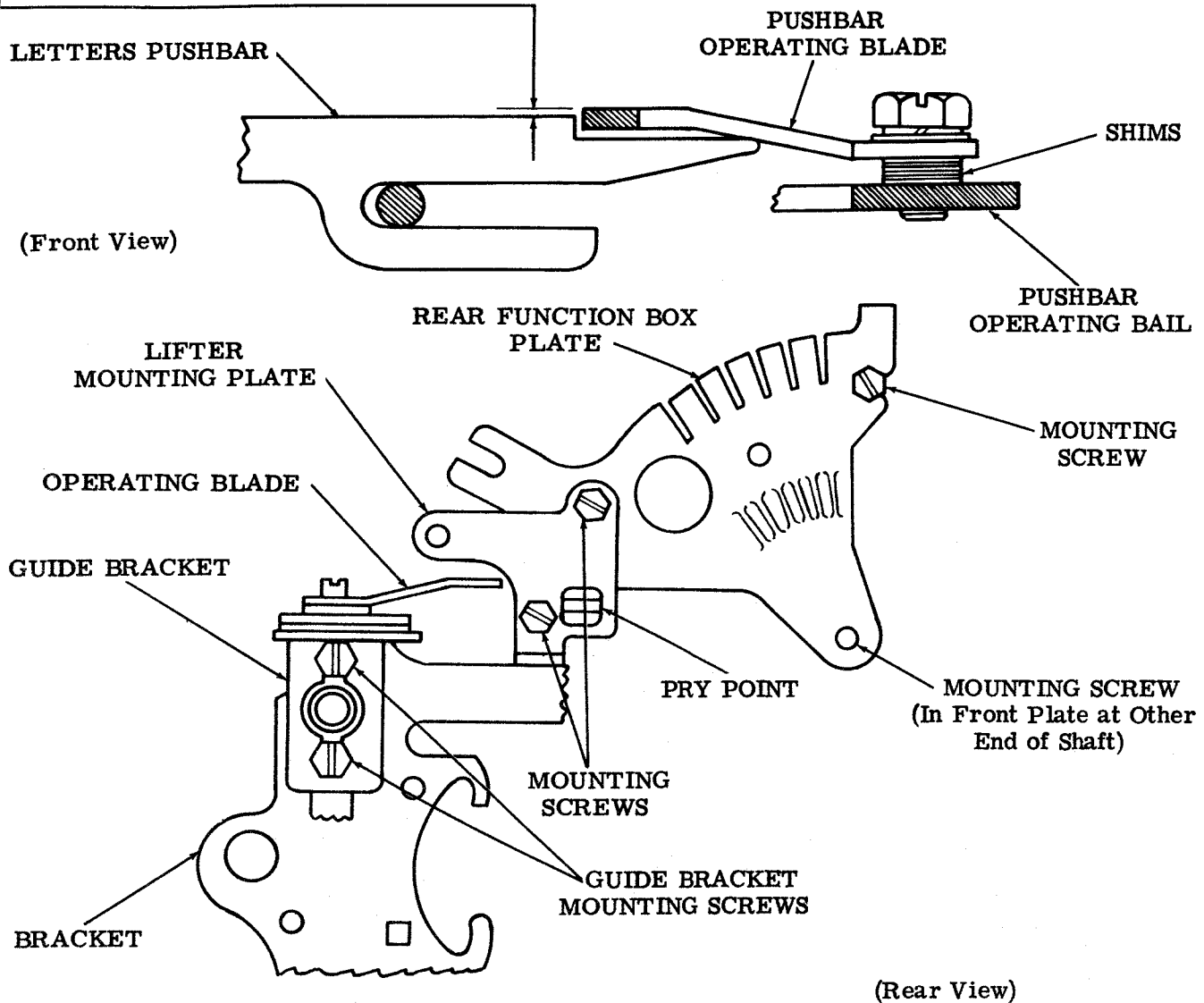
Min flush---Max 0.020 inch
above top rubout pushbars.

(1) To Adjust

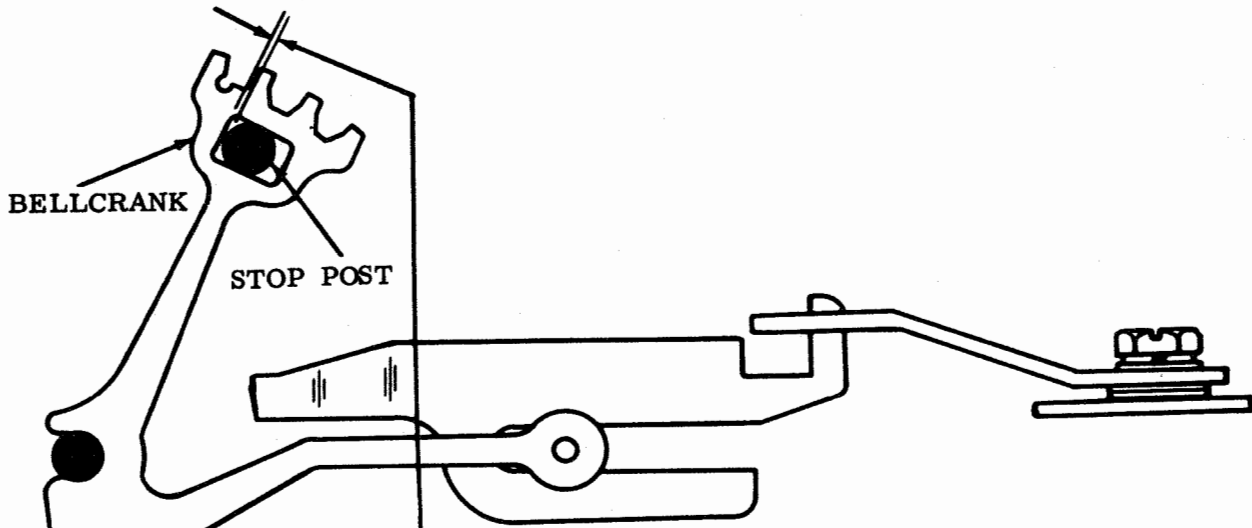
Loosen the two screws mounting function box to spacer posts on front plate and set pry point in center of the cutout.

(2) To Adjust

Loosen the two screws which mount guide to the bracket and position guide to meet above requirement. Tighten screws.



2.38 Typing Mechanism (continued)



PUSHBAR LOCATION

To Check

Manually select the NULL code (BLANK) combination. Rotate mainshaft until function clutch trips.

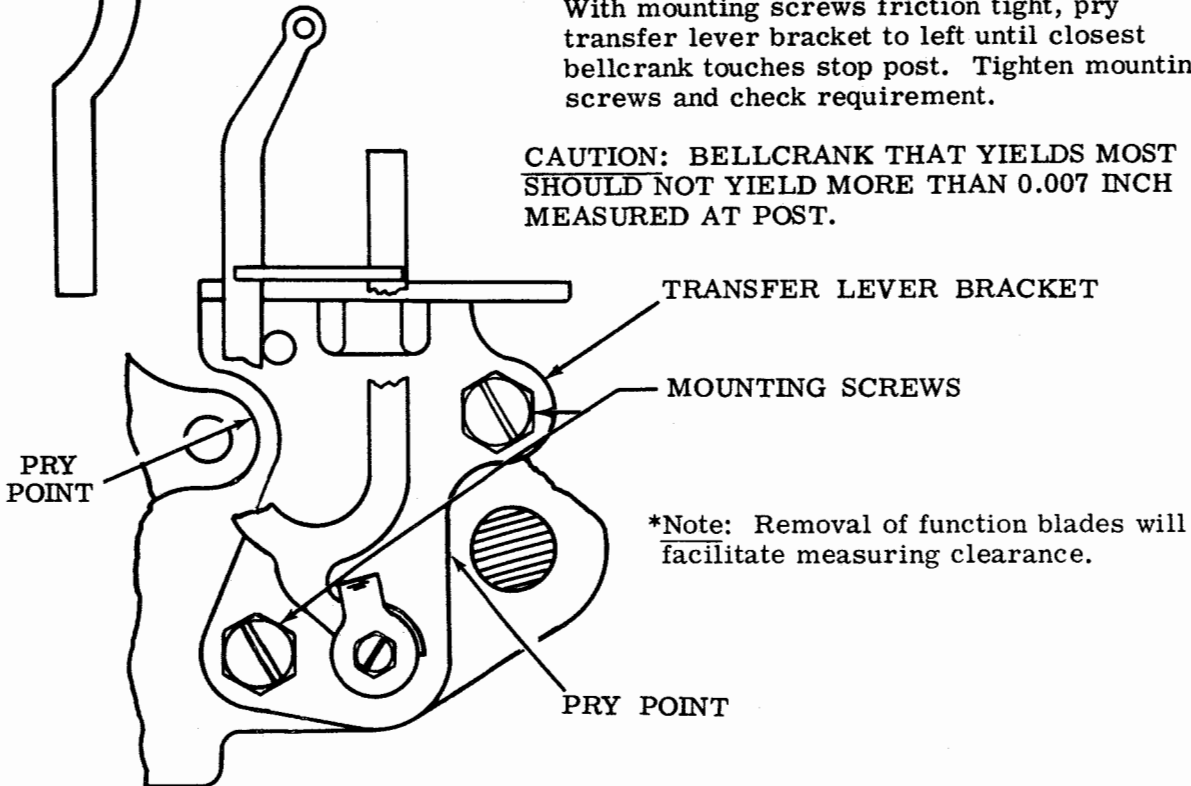
Requirement

With punch slides latched, clearance between the left edge of all bellcrank slots and the left flat of bellcrank stop post should be
 Max 0.007 inch*
 (preliminary for no. 6 and no. 7 bellcranks.)

To Adjust

With mounting screws friction tight, pry transfer lever bracket to left until closest bellcrank touches stop post. Tighten mounting screws and check requirement.

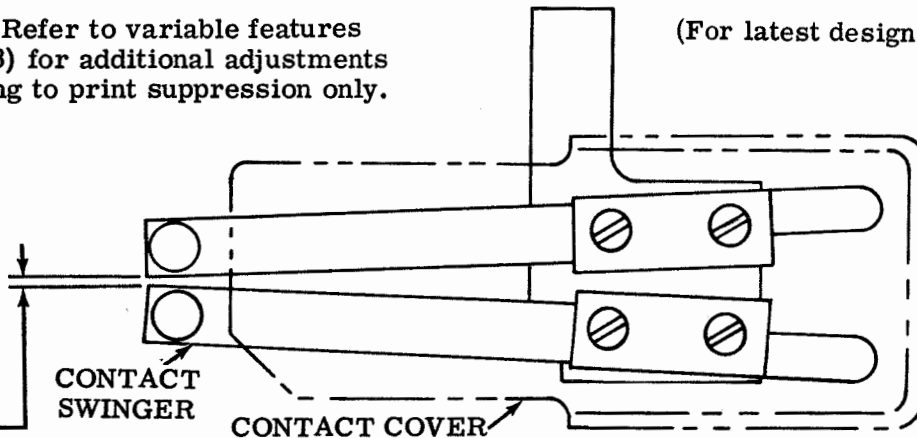
CAUTION: BELLCRANK THAT YIELDS MOST SHOULD NOT YIELD MORE THAN 0.007 INCH MEASURED AT POST.



2.39 Ribbon Shift and Print Suppression Mechanism (Early Design)

Note: Refer to variable features (Part 3) for additional adjustments applying to print suppression only.

(For latest design see 2.41)



RIBBON SHIFT AND PRINT SUPPRESSION CONTACTS

(Top View)

Note: The contact assembly can be identified by gold-plated contact points with a common transfer contact point on the contact swinger spring.

(1) Requirement

With the two contact swingers positioned toward each other, the clearance between the swingers should be

Min 0.035 inch---Max 0.060 inch

To Adjust

Disconnect all power from unit. Remove the contact assembly from the function box by removing the two mounting bracket screws. With the four contact cover mounting screws friction tight, position the contact swingers. Check the alignment of the associated contacts with each swinger and tighten the four contact cover mounting screws.

(2) Requirement - Preliminary

With the contact assembly still removed from the function box, there should be

Min 0.015 inch---Max 0.020 inch

clearance between the two swinger contact points and their associated normally open contact points. The top surface of the plastic insulators on both swingers should be parallel to each other and in the same plane (as gauged by eye).

(3) Requirement

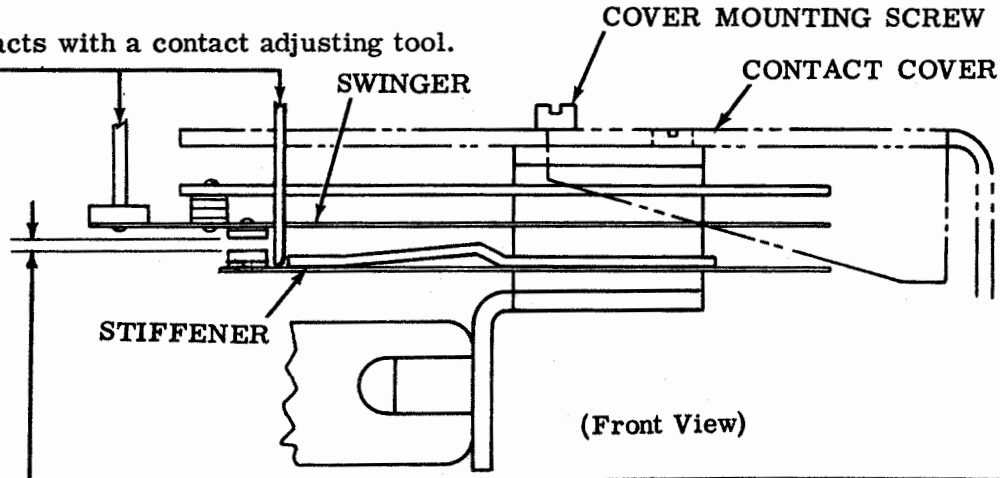
In addition to the clearance requirement, it should take

Min 2 oz---Max 3 oz

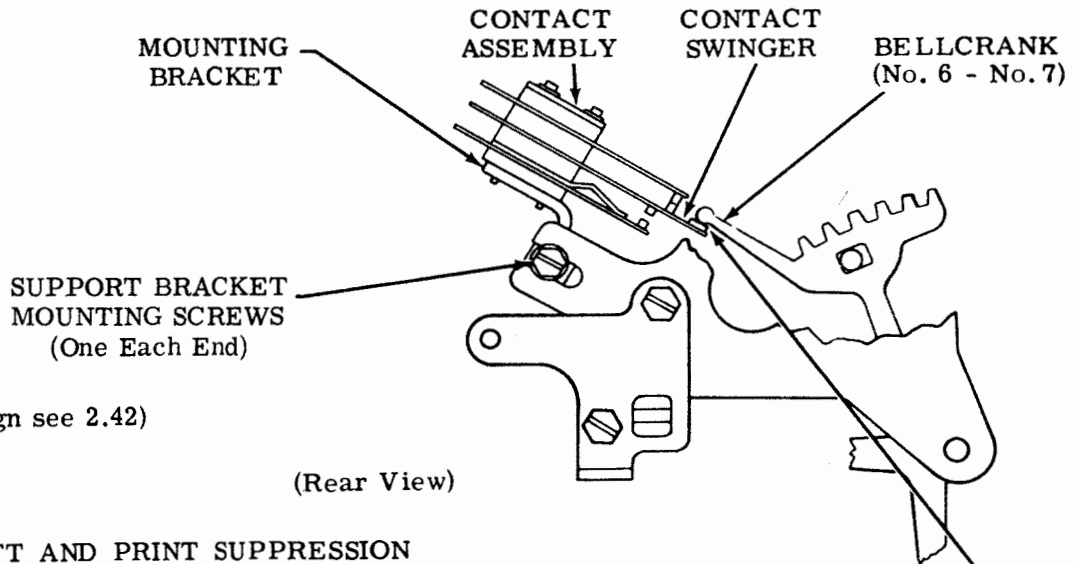
to start each swinger moving and to start normally open contacts moving away from their associated stiffeners.

To Adjust

Adjust the contacts with a contact adjusting tool.



2.40 Ribbon Shift and Print Suppression Mechanism (Early Design) (continued)



(For Latest Design see 2.42)

(Rear View)

RIBBON SHIFT AND PRINT SUPPRESSION
CONTACT POSITION

Note: The following adjustments are to be made with the contact assembly mounted on the unit.

- (1) Requirement
Manually select the NULL code (BLANK) combination. With the function clutch tripped, the follower portion of the no. 6 and no. 7 bellcranks should be centrally positioned with respect to the insulator followers on the contact swingers as viewed from the front of the unit.

To Adjust

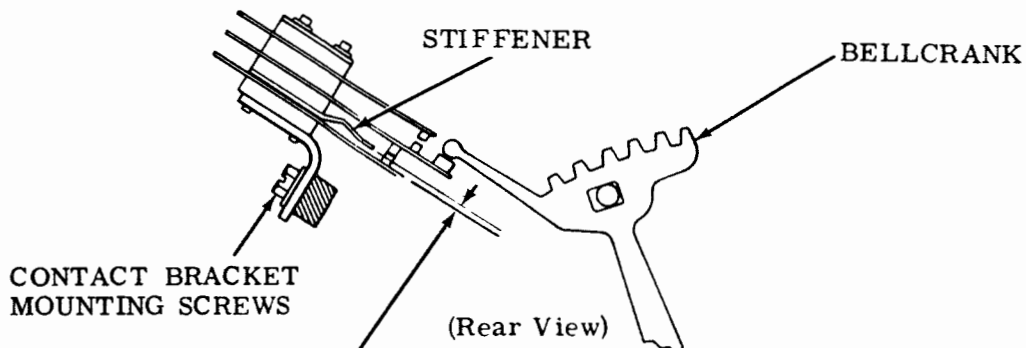
With the support bracket mounting screws friction tight, position the contact assembly. Tighten screws.

- (2) Requirement

With the NULL code (BLANK) combination still selected and the function clutch tripped
—Min some---Max 0.004 inch
clearance between each of the two spacing contacts and their stiffeners. Take up the play in the function box in a clockwise direction (as viewed from the selector side of the unit).

To Adjust

With the contact bracket mounting screws friction tight, position the bracket. Tighten screws.

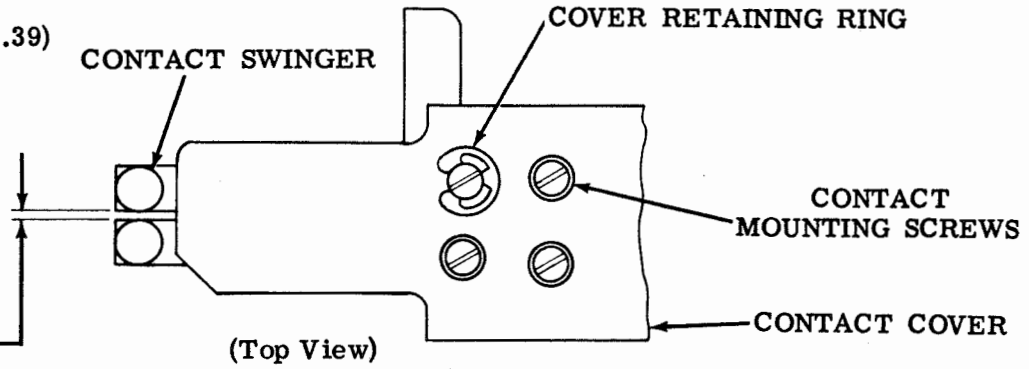


(Rear View)

2.41 Ribbon Shift and Print Suppression Mechanism (Latest Design)

Note: Refer to variable features (Part 3) for additional adjustments applying to print suppression only.

(For Early Design see 2.39)



RIBBON SHIFT AND PRINT SUPPRESSION CONTACTS

Note: The contact assembly can be identified by silver contact points with a common transfer contact point on the contact swinger spring and one retaining ring for fastening the cover. The cover may be removed by taking off the cover retaining ring snapped in place over the special cover mounting screw.

(1) Requirement

With the two contact swingers positioned toward each other, the clearance between the swingers should be

Min 0.035 inch---Max 0.060 inch

To Adjust

Disconnect all power from unit. Remove the contact assembly from the function box by removing the two mounting bracket screws. With the four contact mounting screws friction tight, position the contact swingers. Check the alignment of the associated contacts with each swinger and tighten the four screws.

(2) Requirement - Preliminary

With the contact assembly still removed from the function box, there should be

Min 0.015 inch---Max 0.020 inch

clearance between the two swinger contact points and their associated normally open contact points. The top surface of the plastic insulators on both swingers should be parallel to each other and in the same plane (as gauged by eye).

(3) Requirement

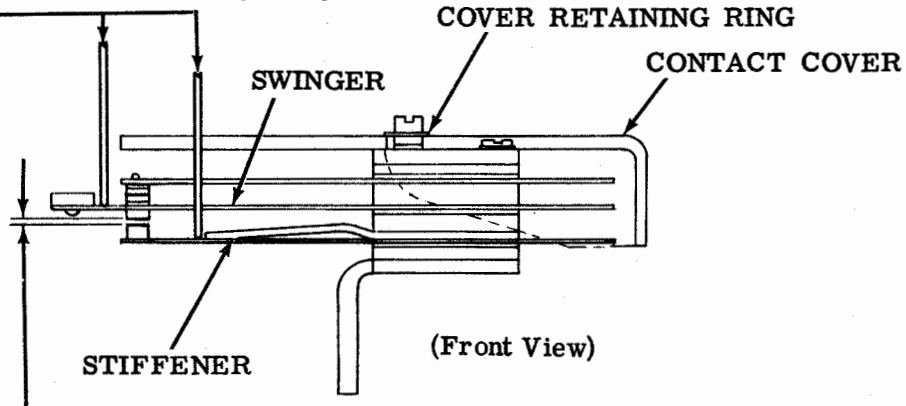
In addition to the clearance requirement, it should take

Min 45 grams---Max 60 grams

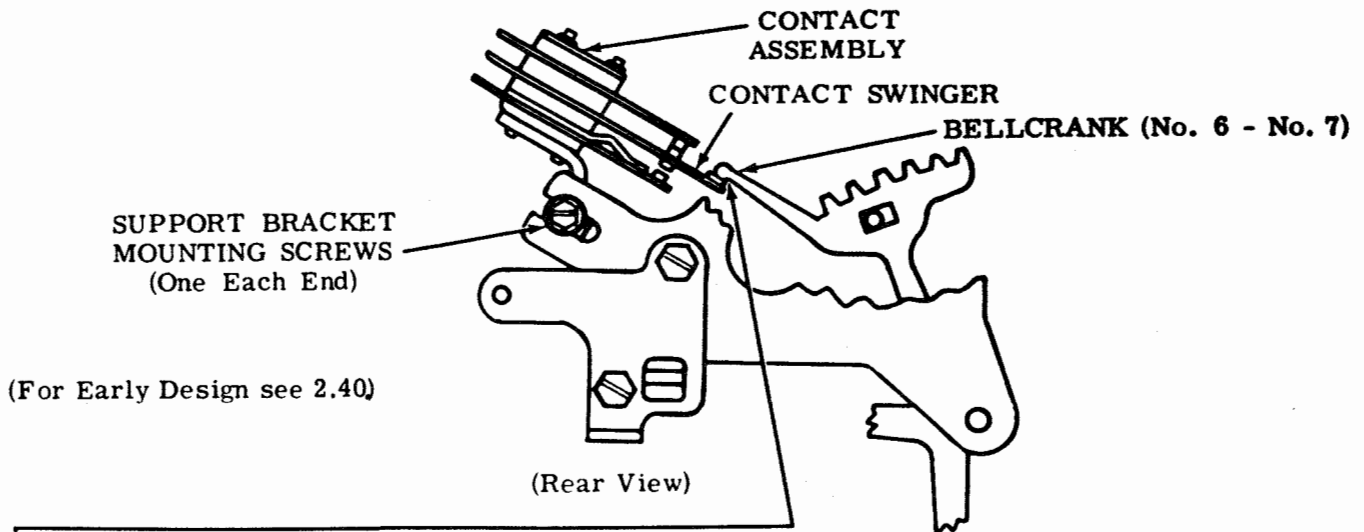
to start each swinger moving and to start normally open contacts moving away from their associated stiffeners.

To Adjust

Adjust the contacts with a contact adjusting tool.



2.42 Ribbon Shift and Print Suppression Mechanism (Latest Design) (continued)



RIBBON SHIFT AND PRINT SUPPRESSION CONTACT POSITION (Latest Design)

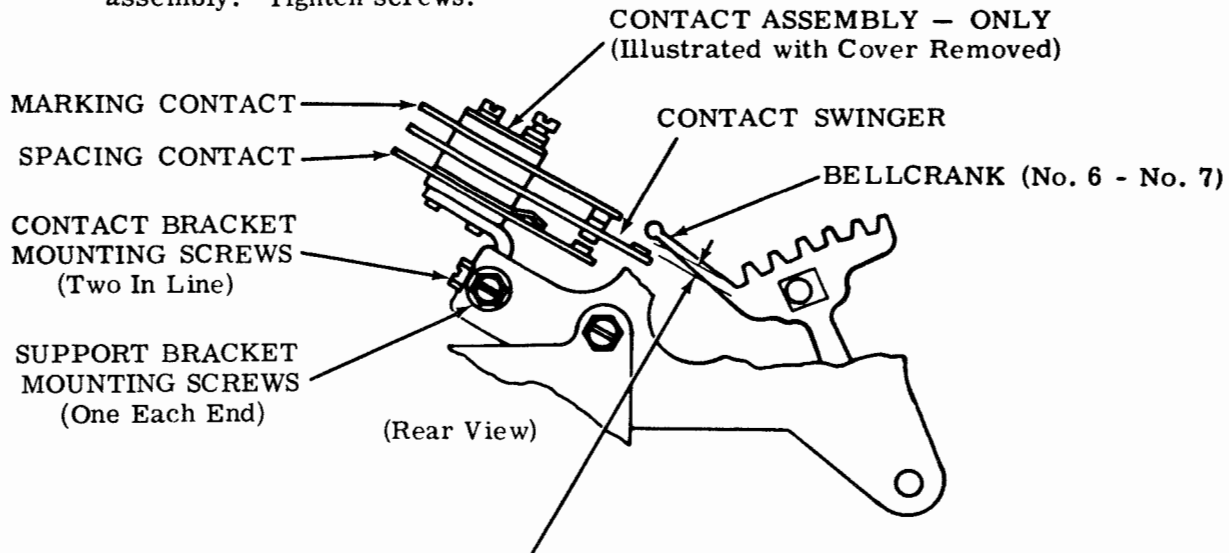
Note: The following adjustments are to be made with the contact assembly mounted on the unit.

(1) Requirement

Manually select the NULL code (BLANK) combination. With the function clutch tripped, the follower portion of the no. 6 and no. 7 bellcranks should be centrally positioned with respect to the insulator followers on the contact swingers as viewed from the front of the unit.

To Adjust

With the support bracket mounting screws friction tight, position the contact assembly. Tighten screws.



(2) Requirement

With the RUBOUT combination (12345678) selected and the function clutch tripped, there should be

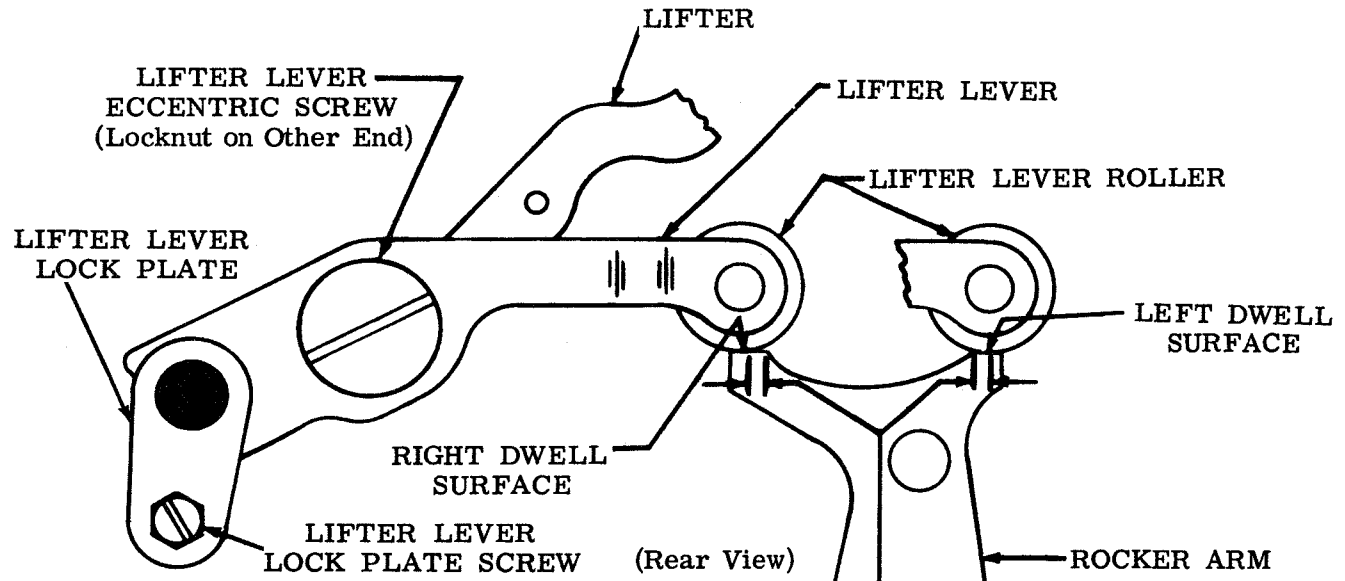
—Min 0.025 inch---Max 0.045 inch

clearance between the bellcranks and the insulated portion of their respective swingers. Take up the play in the function box to make the clearance maximum.

To Adjust

With the contact bracket mounting screws friction tight, position the bracket. Tighten screws. Replace the cover and secure it with the cover retaining ring.

2.43 Typing Mechanism (continued)



(A) CAM FOLLOWER ROLLER ARM POSITION

To Check

Trip function clutch. Move rocker arm to extreme left position and observe travel of lifter roller on right dwell surface. Move rocker bail to extreme right position and observe travel of roller on left dwell surface.

Requirement

Approximately equal travel on each dwell surface.

To Adjust

Loosen lifter lever lock plate screw until friction tight. With eccentric screw locknut friction tight, position lifter lever. Tighten lifter lever lock plate screw. Do not tighten locknut.

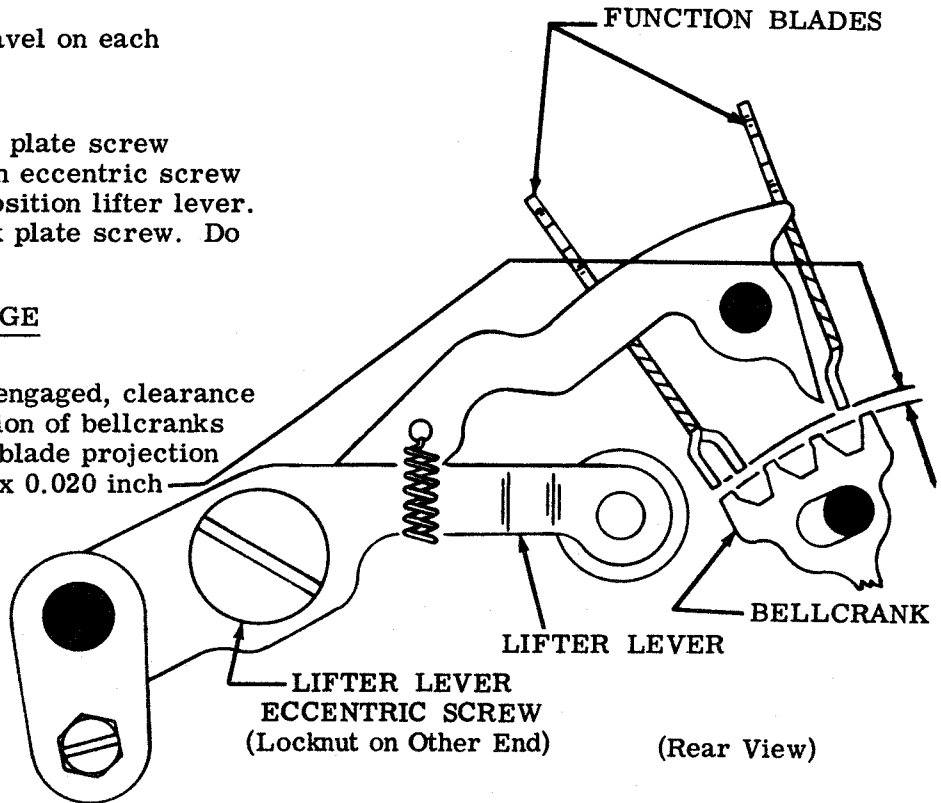
(B) LIFTER OPERATING RANGE

Requirement

With function clutch disengaged, clearance between closest projection of bellcranks and associated function blade projection
Min 0.008 inch---Max 0.020 inch

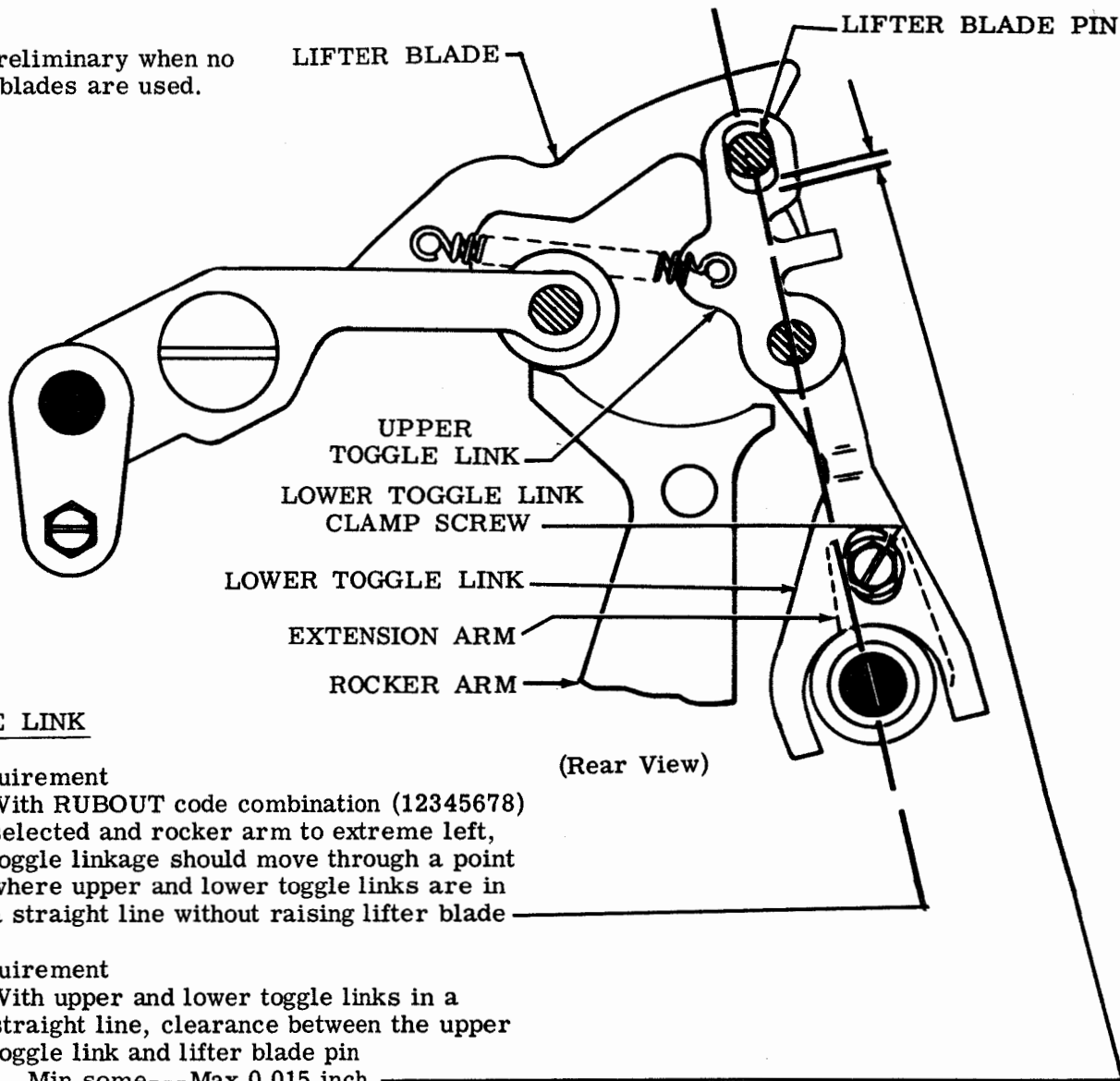
To Adjust

Position lifter lever eccentric screw with locknut loosened. Tighten locknut.



2.44 Typing Mechanism (continued)

Note: Preliminary when no function blades are used.



TOGGLE LINK

- (1) Requirement
 With RUBOUT code combination (12345678) selected and rocker arm to extreme left, toggle linkage should move through a point where upper and lower toggle links are in a straight line without raising lifter blade
- (2) Requirement
 With upper and lower toggle links in a straight line, clearance between the upper toggle link and lifter blade pin
 Min some---Max 0.015 inch

To Adjust
 Position lower toggle link by moving its extension arm up or down with clamp screw friction tight. Tighten clamp screw.

Note: To avoid interference with the lower toggle link clamp screw and the axial corrector link, it may be necessary to move the high part of the corrector bushing above its horizontal center line.

2.45 Typing Mechanism (continued)

Note: Preliminary when no function blades are used.

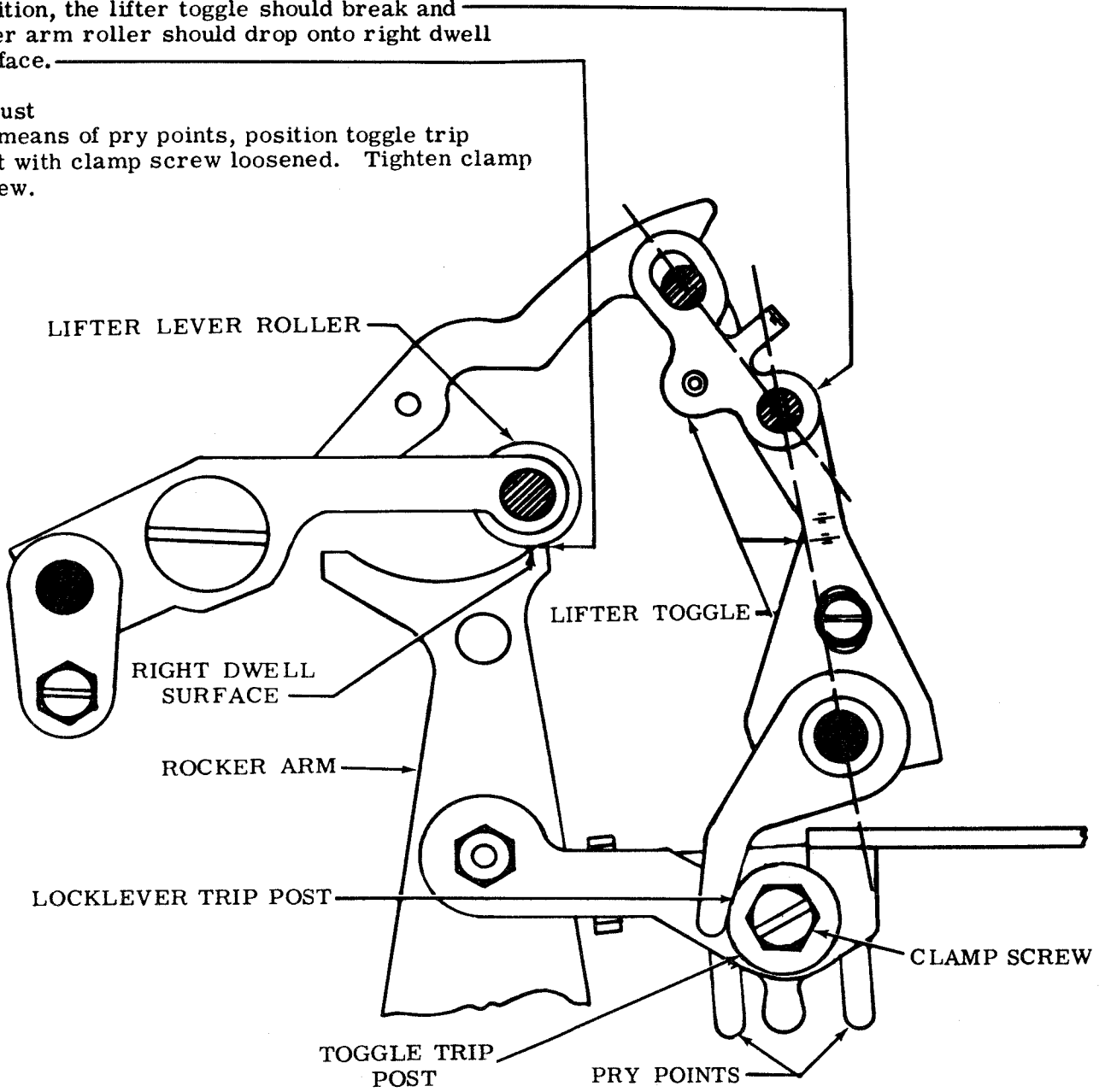
TOGGLE TRIP ARM

Requirement

As rocker arm approaches extreme right position, the lifter toggle should break and lifter arm roller should drop onto right dwell surface.

To Adjust

By means of pry points, position toggle trip post with clamp screw loosened. Tighten clamp screw.



(Rear View)

2.46 Typing Mechanism (continued)

(A) LIFTER TOGGLE LINK SPRING

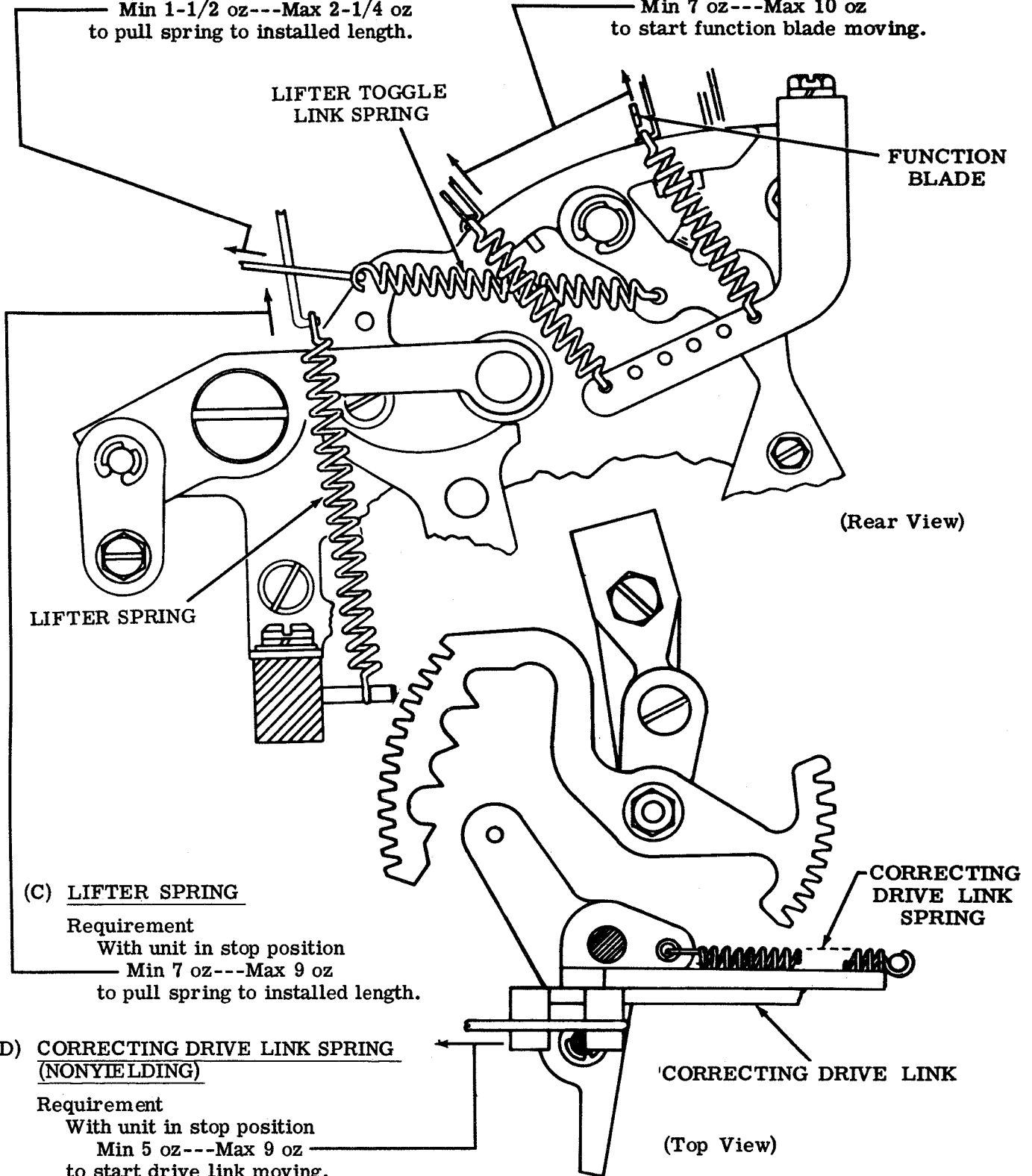
Requirement

With unit in stop position
 Min 1-1/2 oz---Max 2-1/4 oz
 to pull spring to installed length.

(B) FUNCTION BLADE SPRING (2 Or More)

Requirement (If so equipped)

With unit in stop position
 Min 7 oz---Max 10 oz
 to start function blade moving.



(C) LIFTER SPRING

Requirement

With unit in stop position
 Min 7 oz---Max 9 oz
 to pull spring to installed length.

(D) CORRECTING DRIVE LINK SPRING (NONYIELDING)

Requirement

With unit in stop position
 Min 5 oz---Max 9 oz
 to start drive link moving.

2.47 Typing Mechanism (continued)

(A) OSCILLATING BAIL DRIVE LINK

To Check

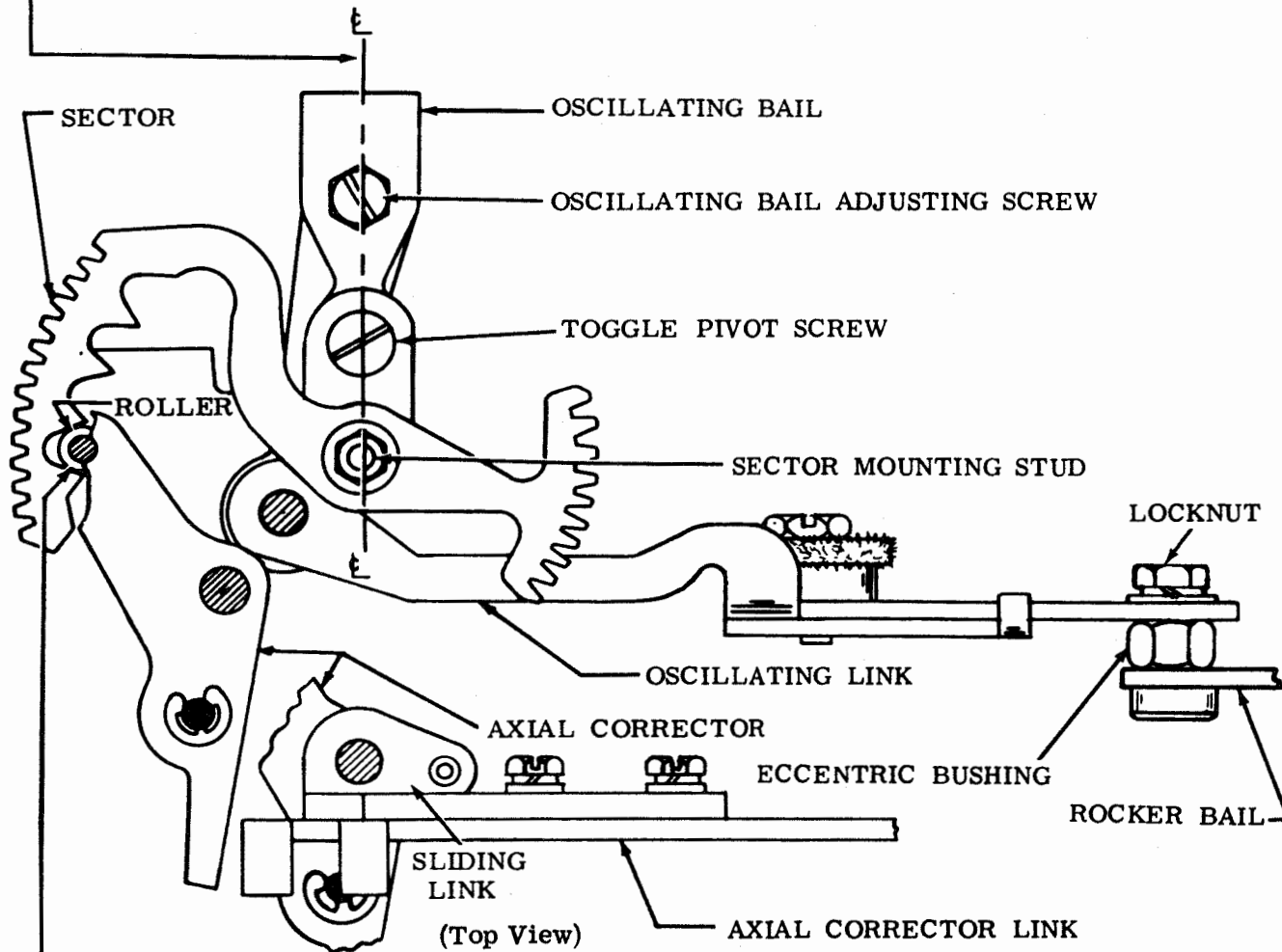
Position rocker bail to its extreme left.

Requirement

Sector mounting stud, toggle pivot screw and oscillating bail adjusting screw should approximately line up.

To Adjust

With locknut friction tight, position oscillating link by means of its eccentric bushing. Tighten locknut.



(B) OSCILLATING BAIL PIVOT

Requirement

With NULL (BLANK) combination selected, rotate mainshaft taking up the axial play in type wheel shaft toward the front of the unit. The axial corrector roller should enter first notch of the sector centrally.

To Adjust

With oscillating bail adjusting screw friction tight, select NULL combination. Position oscillating bail by means of its elongated mounting hole so corrector roller enters first notch of the sector when rocker bail moves to its extreme left position. Hold corrector roller firmly in first notch and take up the play in oscillating bail linkage by applying a force to the oscillating bail. Tighten oscillating bail adjusting screw.

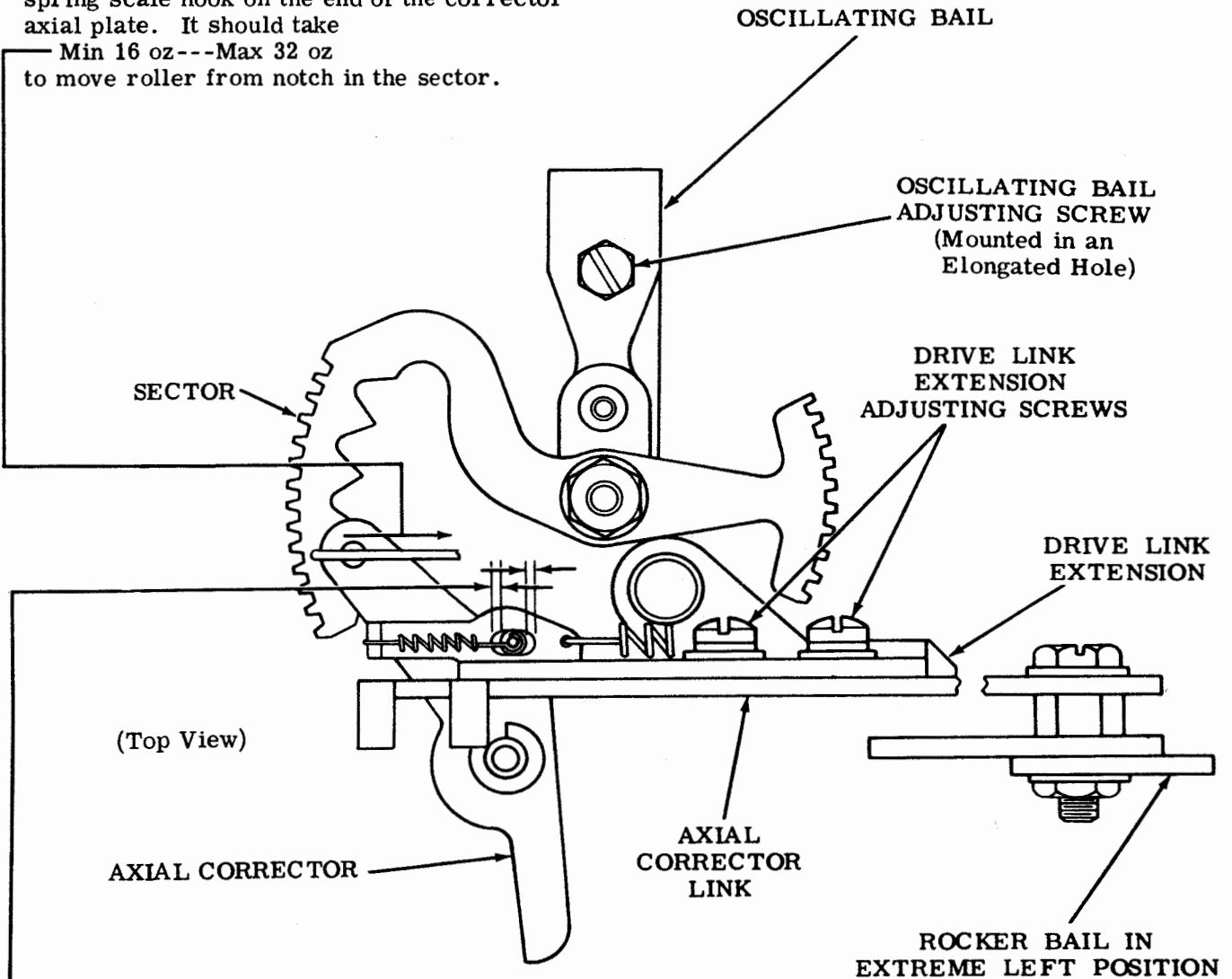
2.48 Typing Mechanism (continued)

CORRECTOR DRIVE LINK (YIELDING) EXTENSION SPRING

Requirement

With the NULL code (BLANK) combination selected, function clutch tripped, and rocker bail in its extreme left position, place a 32 oz spring scale hook on the end of the corrector axial plate. It should take

Min 16 oz---Max 32 oz to move roller from notch in the sector.



AXIAL CORRECTOR (YIELDING)

Requirement

With the NULL code (BLANK) combination selected, function clutch tripped and rocker bail in its extreme left position, the axial corrector roller should seat in the first sector notch and there should be

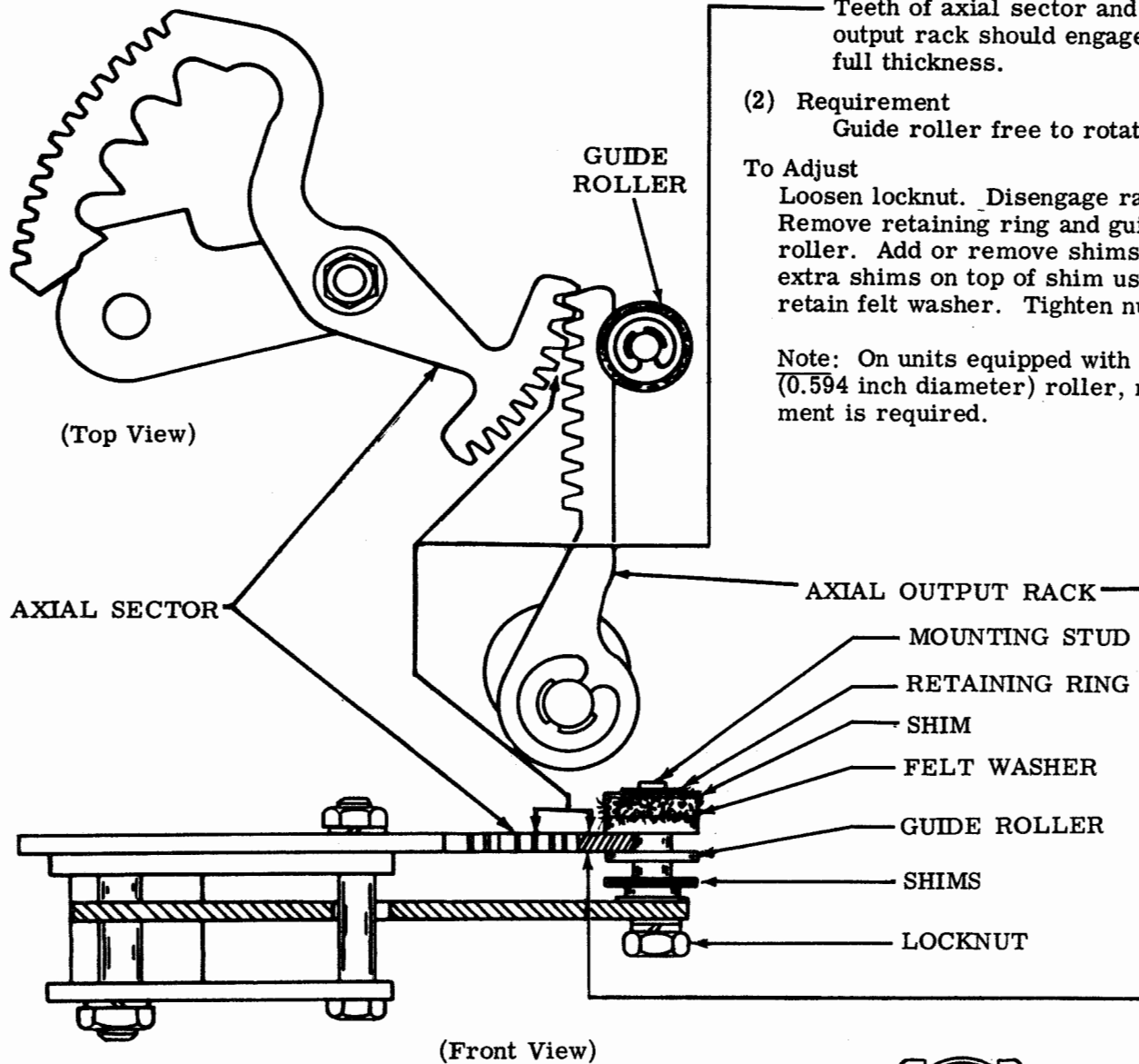
Min 0.005 inch between the ends of the slot and the spring post. Check both sides and check seating in fourth notch (letters selection). Turn the retaining ring that fastens drive link extension to corrector plate to check the minimum requirement.

To Adjust

Loosen two drive link adjusting screws. Position drive link to meet the requirement and retighten the screws.

2.49 Typing Mechanism (continued)

(A) AXIAL SECTOR ALIGNMENT



(1) Requirement
Teeth of axial sector and axial output rack should engage by their full thickness.

(2) Requirement
Guide roller free to rotate.

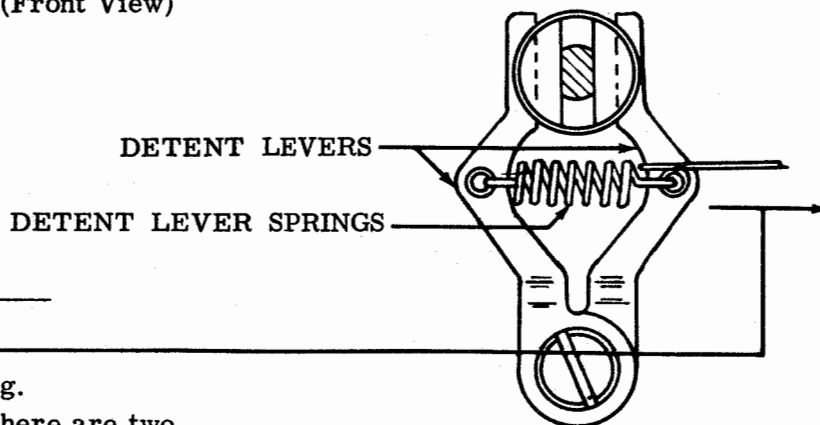
To Adjust
Loosen locknut. Disengage rack. Remove retaining ring and guide roller. Add or remove shims. Place extra shims on top of shim used to retain felt washer. Tighten nut.

Note: On units equipped with larger (0.594 inch diameter) roller, no adjustment is required.

(B) ECCENTRIC SHAFT
DETENT LEVER SPRING (6)

Requirement
Min 7 oz---Max 10 oz
to start detent lever moving.

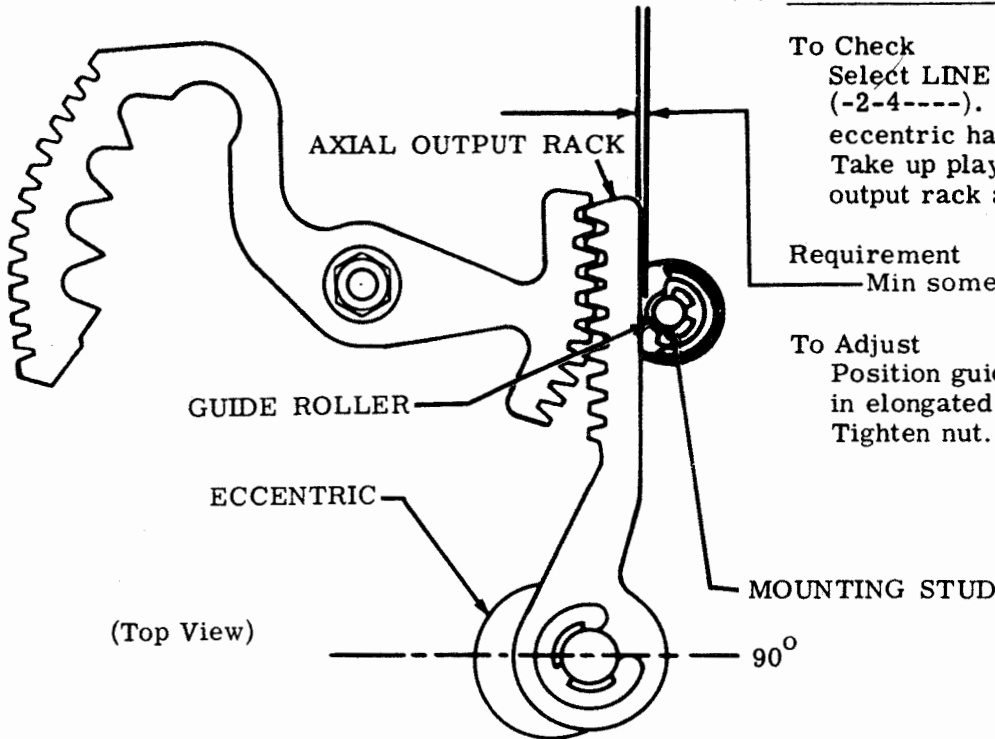
Note: Check all 6 springs. There are two on the axial positioning mechanism and four on the rotary positioning mechanism.



(Top View of Springs on Axial Positioning Mechanism)

2.50 Typing Mechanism (continued)

(A) AXIAL OUTPUT RACK GUIDE ROLLER

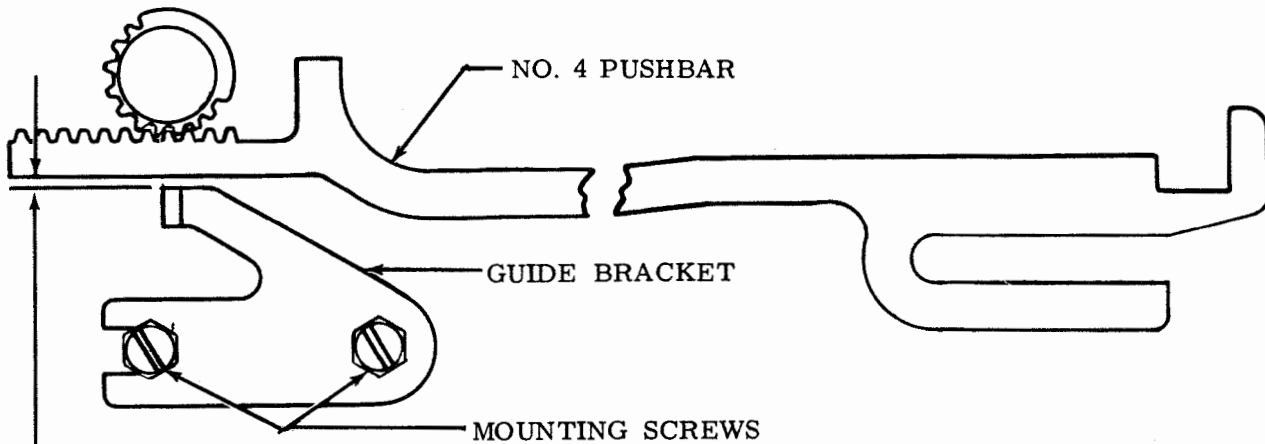


To Check
 Select LINE FEED code combination (-2-4----). Rotate mainshaft until eccentric has rotated 90 degrees. Take up play to make clearance between output rack and guide roller maximum.

Requirement
 Min some---Max 0.008 inch

To Adjust
 Position guide roller mounting stud in elongated hole with locknut loosened. Tighten nut.

(B) PUSHBAR GUIDE BRACKET



To Check
 Manually select CARRIAGE RETURN code combination (1-34---8). Rotate mainshaft so that no. 4 pushbar moves through complete range of travel.

Requirement
 When play is taken up to make clearance maximum
 Min some---Max 0.008 inch
 between no. 4 pushbar and guide bracket throughout complete travel of bar.

To Adjust
 Position guide bracket with mounting screws loosened. Tighten screws.

2.51 Typing Mechanism (continued)

(A) CORRECTING DRIVE LINK (NONYIELDING)

(1) To Check

Select the NULL code (BLANK) combination. Trip function clutch and move rocker bail to extreme left.

Requirement

Roller on axial correcting plate firmly seated in first notch of axial sector.

(2) To Check

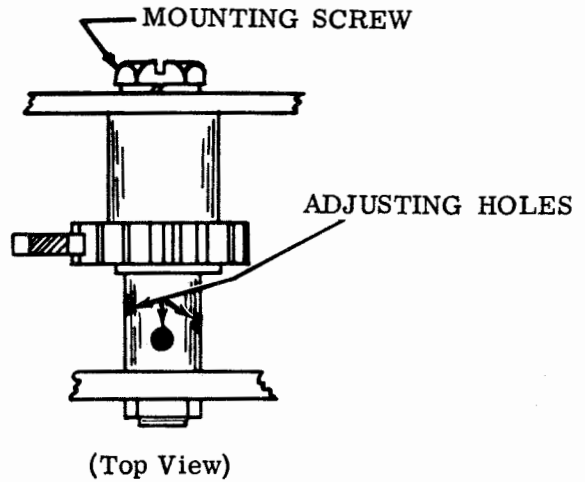
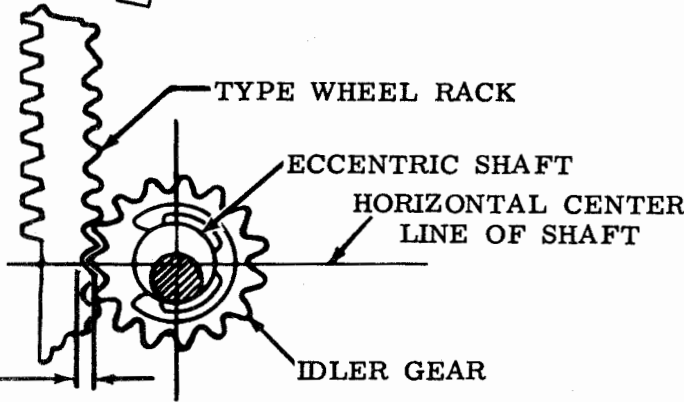
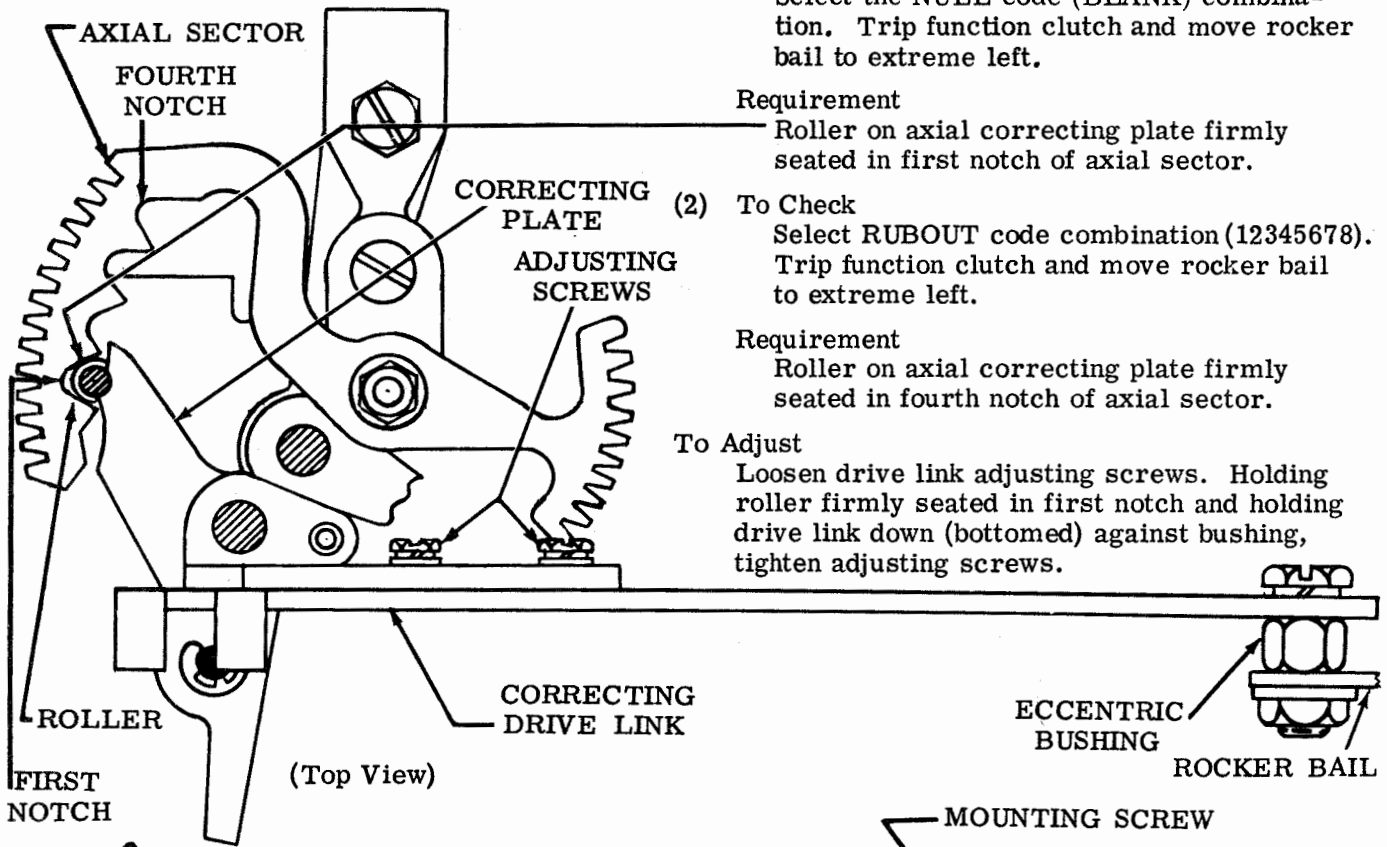
Select RUBOUT code combination (12345678). Trip function clutch and move rocker bail to extreme left.

Requirement

Roller on axial correcting plate firmly seated in fourth notch of axial sector.

To Adjust

Loosen drive link adjusting screws. Holding roller firmly seated in first notch and holding drive link down (bottomed) against bushing, tighten adjusting screws.



(B) TYPE WHEEL RACK CLEARANCE

Requirement

With function clutch disengaged and upper no. 7 pushbar to the right
 Min some---Max 0.015 inch
 clearance between idler gear and rack at the closest point when all
 play is taken up in a direction to make clearance a maximum.
 There should be some clearance throughout travel of the rack.

To Adjust

With mounting screw friction tight, position idler gear eccentric
 shaft by means of three adjusting holes in top of shaft. Tighten
 screw.

2.52 Typing Mechanism (continued)

ROTARY CORRECTOR MESH

(1) Requirement

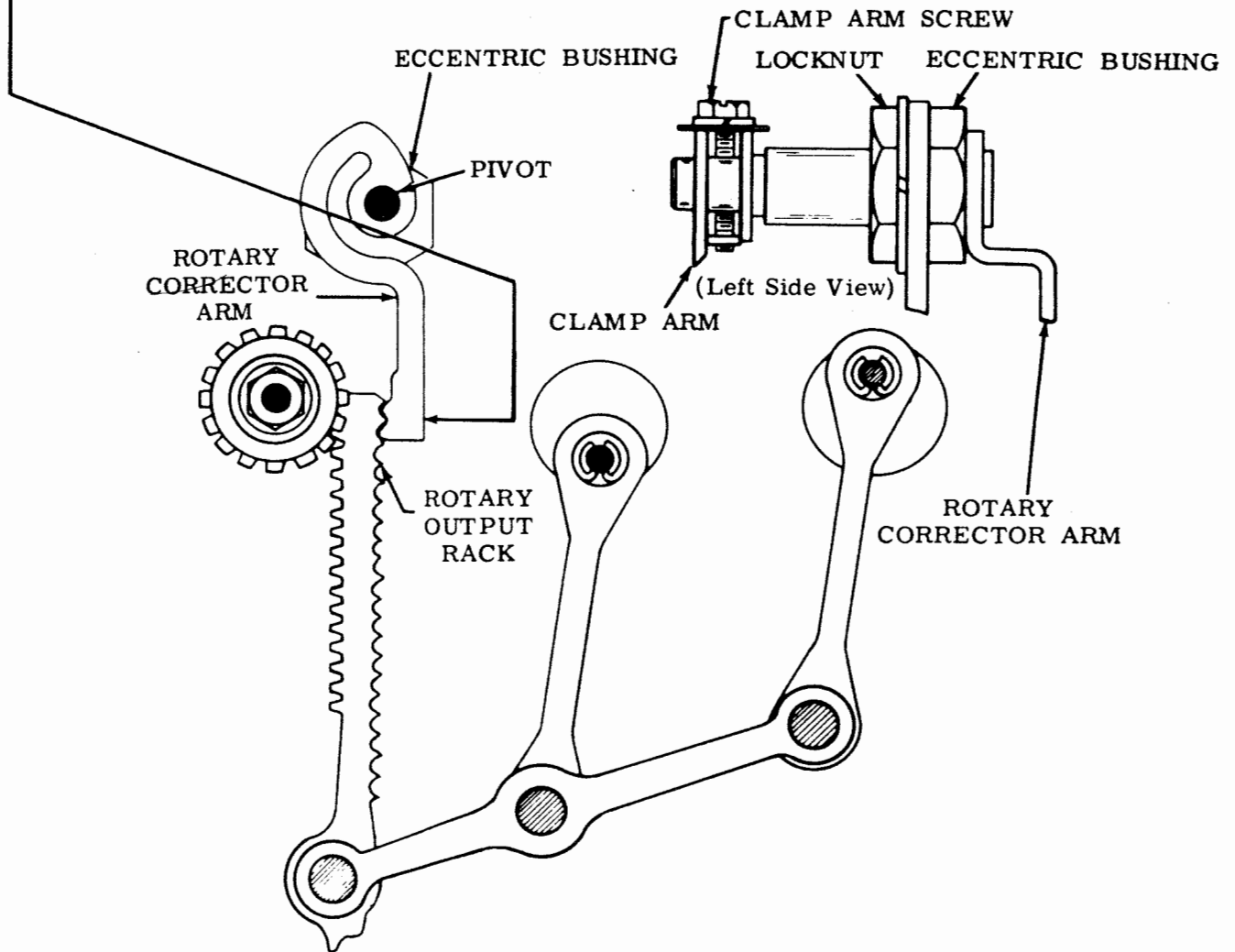
With X code combination (---45-78) selected and the pushbars manually detented, the second tooth from the top of the rotary output rack should seat between the lobes of the rotary corrector arm.

To Adjust

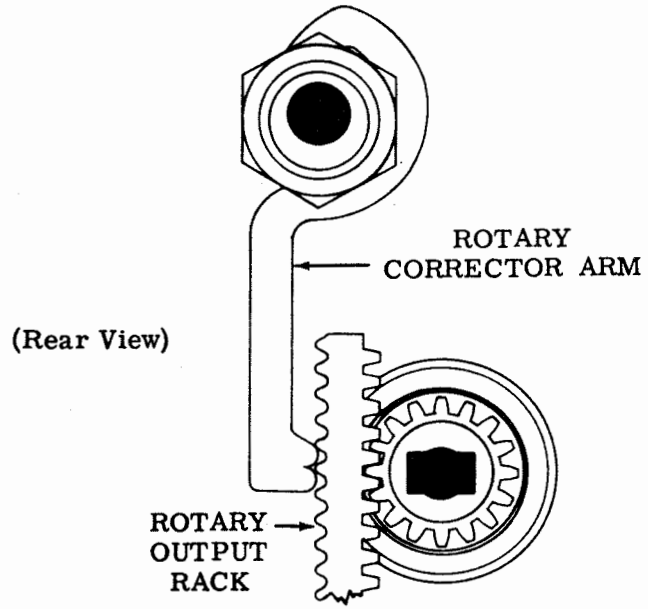
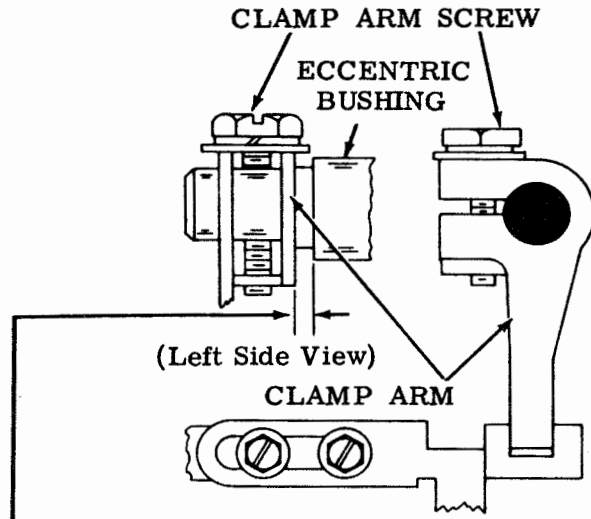
Loosen clamp arm screw and eccentric bushing locknut. With the pivot of the corrector arm to the right of the center of the bushing, position rotary corrector. Tighten bushing locknut. Do not tighten clamp arm screw at this point.

(2) Requirement

In a manner similar to that described above, check engagement of fifth tooth (--34--78), ninth tooth (---4---8), and sixteenth tooth (--3-5---). Refine the adjustment if necessary.



2.53 Typing Mechanism (continued)



ROTARY CORRECTOR ARM

To Check

With unit in letters condition, select the RUBOUT code combination (12345678). Position rocker bail to extreme left. Manually seat corrector arm in rack.

Requirement

The rotary corrector arm should seat firmly in the rotary output rack.
Min some---Max 0.006 inch endplay between clamp arm and bushing, with unit in the stop position.

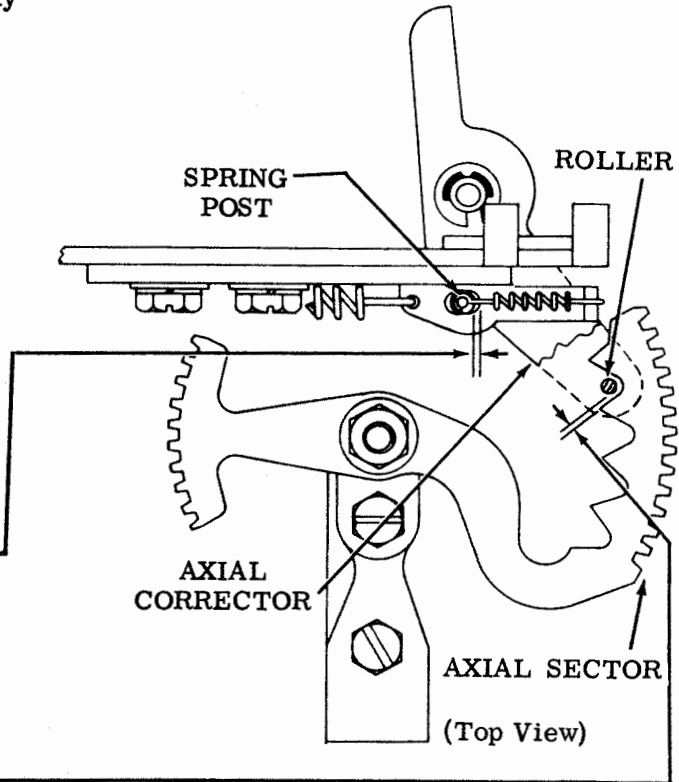
To Adjust (Units equipped with a yielding axial corrector)

As the rocker bail approaches the extreme left and the spring post of the axial corrector starts to leave the end of its slot, take up play of drive arm in its operating fork towards main bail and position the rotary corrector arm finger tight against rotary output rack and tighten clamp arm screw.

To Adjust (Units equipped with nonyielding axial corrector)

As the rocker bail approaches the extreme left, measure clearance between the axial corrector roller and the sector notch. When clearance is

Min some---Max 0.005 inch position rotary corrector arm finger tight against rotary output rack, and tighten corrector clamp arm screw.

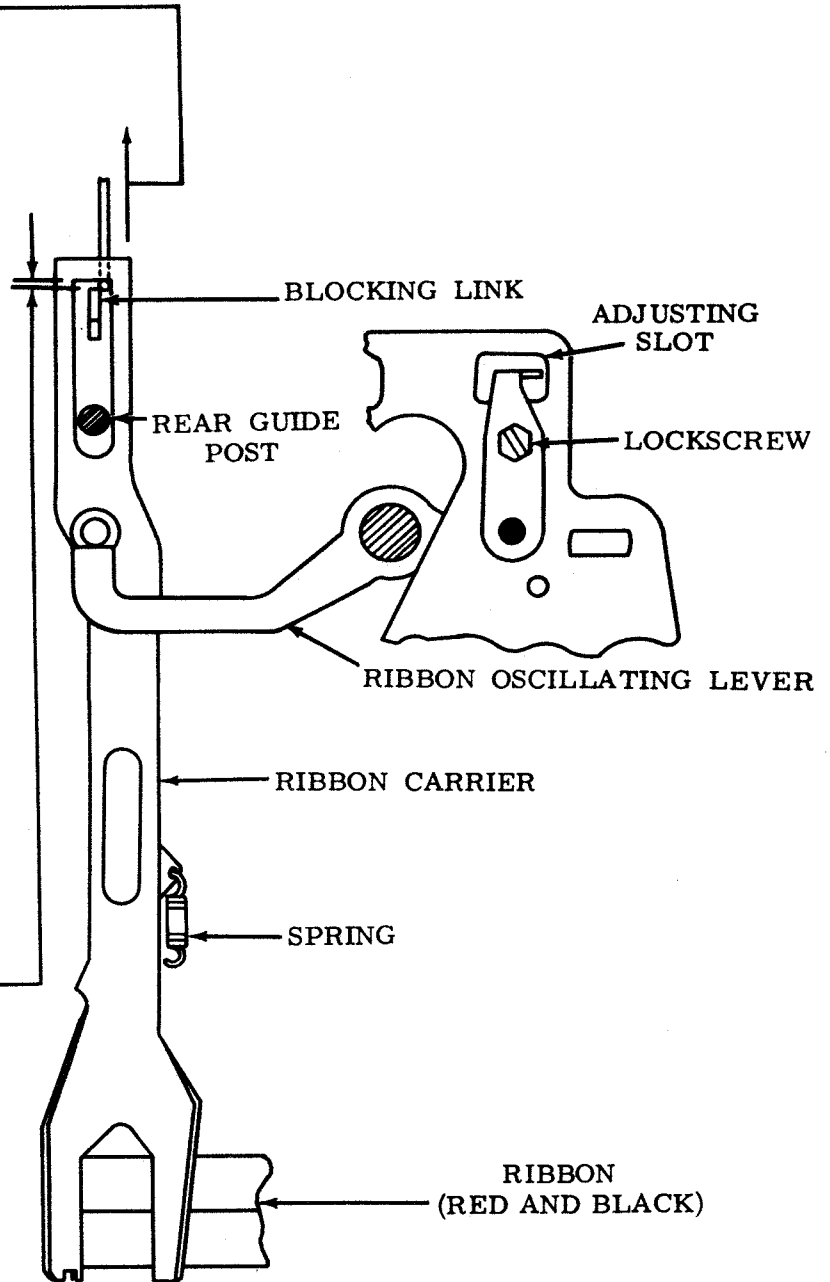


2.54 Ribbon Shift and Print Suppression Mechanism (Latest Design) (continued)

RIBBON CARRIER SPRING

Requirement

With unit in stop position
Min 7 oz---Max 10 oz
to start carrier moving.



RIBBON CARRIER

Requirement

With function clutch disengaged,
manually lift blocking lever so
that it is opposite ribbon carrier
and against the type wheel shaft
housing.

Min 0.040 inch---Max 0.060 inch
clearance between blocking link
and ribbon carrier.

To Adjust

Loosen lockscrew. Position ribbon
oscillating lever, using adjusting
slot. Tighten screw.

(Front Top View)

2.55 Ribbon Shift and Print Suppression Mechanism (Early Design) (continued)

Note: The following adjustments apply to units with graphics either suppressed or in red (red of red-black ribbon towards rear of unit) when magnet is de-energized.

(B) ARMATURE AIR GAP

Requirement

With armature on downstop screw
 Min 0.015 inch---Max 0.020 inch
 clearance between magnet core
 and armature at closest point and
 Min some---Max 1/32 inch
 clearance between rear of armature
 slot and ribbon shift blocking link as
 gauged by eye.

To Adjust

Position magnet bracket with screws
 loosened. Tighten screws. Check for
 binds.

(D) ARMATURE SPRING

Requirement

With spring disconnected
 Min 3-1/2 oz---Max 4-1/2 oz
 when pulled to installed length.

(A) ARMATURE DOWNSTOP

Requirement

With rocker bail in extreme left position
 and ribbon carrier biased downward,
 hold the blocking link against the type
 wheel shaft housing.
 Min some---Max 0.005 inch
 clearance between top surface of block-
 ing link and lower surface of ribbon
 carrier.

To Adjust

Position armature downstop screw with
 locknut loosened. Tighten locknut.

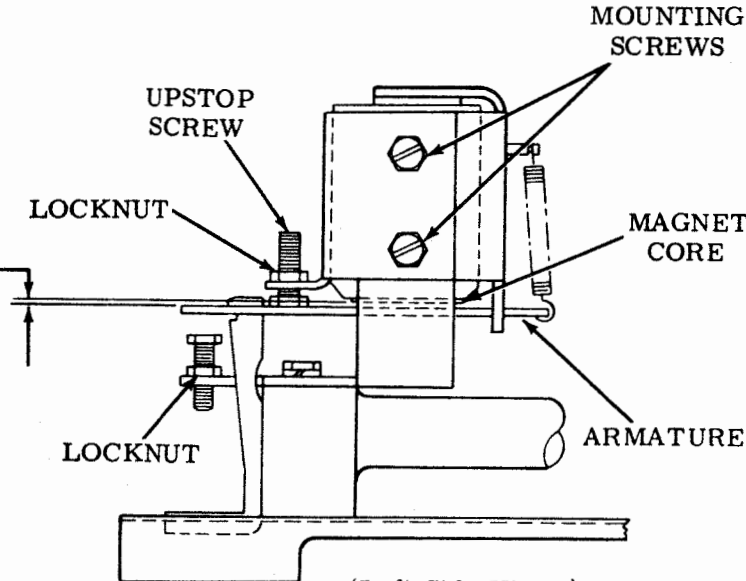
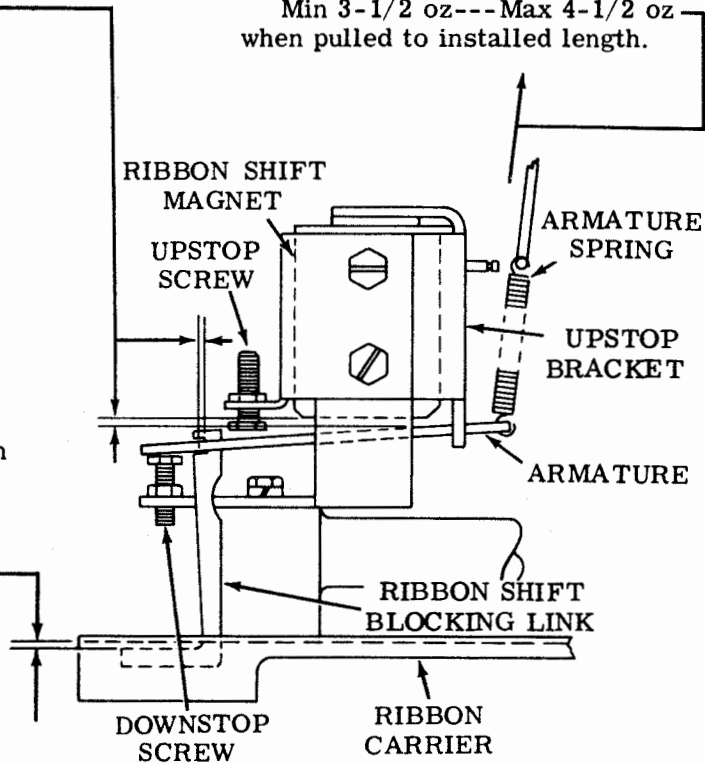
(C) ARMATURE UPSTOP

Requirement

With armature held against
 upstop screw (magnet is not
 to be energized)
 Min 0.004 inch---Max 0.007 inch
 clearance between magnet core
 and armature at closest point.

To Adjust

Position upstop screw with lock-
 nut loosened. Tighten locknut.



(Left Side Views)

Note: Refer to Part 3 for additional print suppression adjustments.

2.56 Ribbon Shift and Print Suppression Mechanism (Latest Design) (continued)

Note: The following adjustments apply to units with printing of graphics either suppressed or in red (red of red-black ribbon towards front of unit) when magnet is de-energized.

(A) ARMATURE AIR GAP AND DOWNSTOP

Requirement

With armature resting on downstop screw
 Min 0.015 inch---Max 0.020 inch
 clearance between magnet core and
 armature at closest point.

To Adjust

Position downstop screw with locknut
 loosened. Tighten locknut.

(D) ARMATURE SPRING

Requirement

With spring disconnected
 Min 3-1/2 oz---Max 4-1/2 oz
 when pulled to installed length.

(B) RIBBON SHIFT BLOCKING LINK

Requirement

With armature held against upstop screw
 (magnet is not to be energized) and rib-
 bon carrier biased upward

Min some---Max 0.008 inch
 clearance between blocking link lower
 surface and ribbon carrier top surface
 at closest point and

Min some---Max 0.031 inch
 clearance between rear of armature
 slot and blocking link as gauged by eye.

To Adjust

Position magnet bracket with mounting
 screws loosened. Tighten screws.

(C) ARMATURE UPSTOP

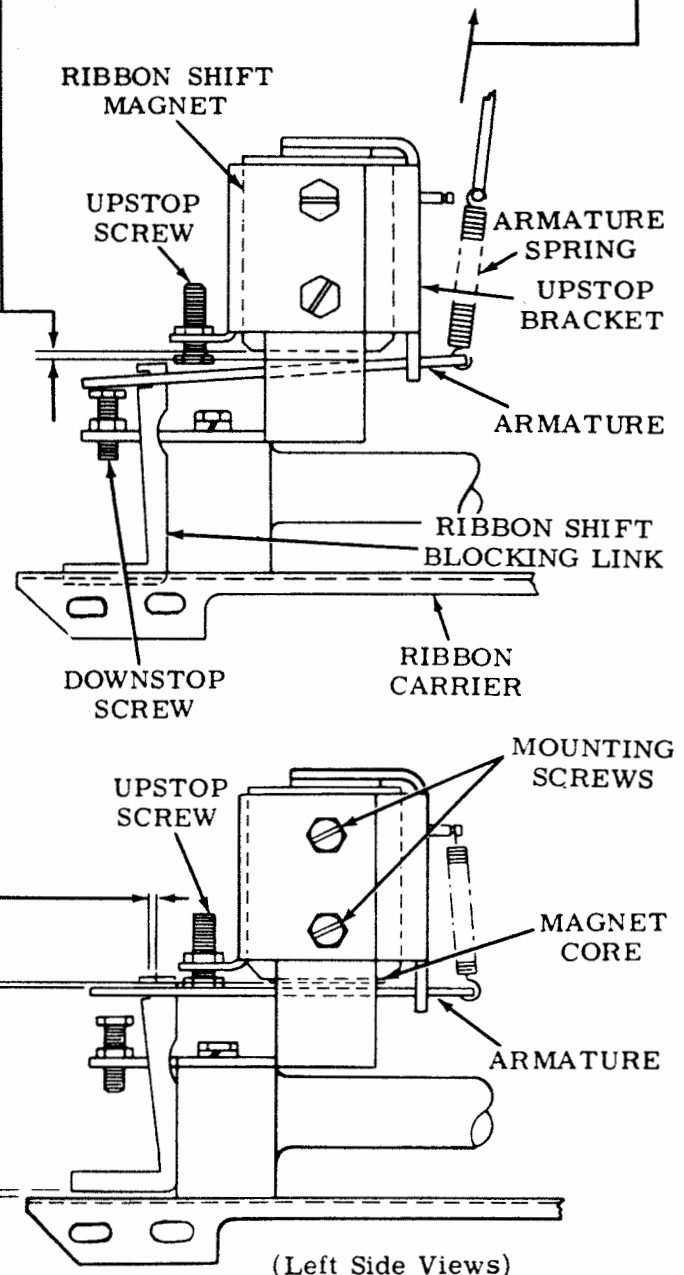
Requirement

With armature held against upstop
 screw (magnet is not to be energized)
 ribbon carrier biased upward

Min 0.005 inch---Max 0.010 inch
 clearance between magnet core and
 armature at closest point.

To Adjust

Position upstop screw with locknut
 loosened. Tighten lock nut.



(Left Side Views)

Note: Refer to Part 3 for additional print suppression adjustments.

2.57 Typing Mechanism (continued)

PRINTING LATCH

Note 1: For units with adjustable printing latch mounting bracket.

(1) Requirement

With rocker bail in its extreme left position, manually raise the print hammer accelerator. The clearance between the print hammer accelerator and the printing latch should be

Min some---Max 0.015 inch

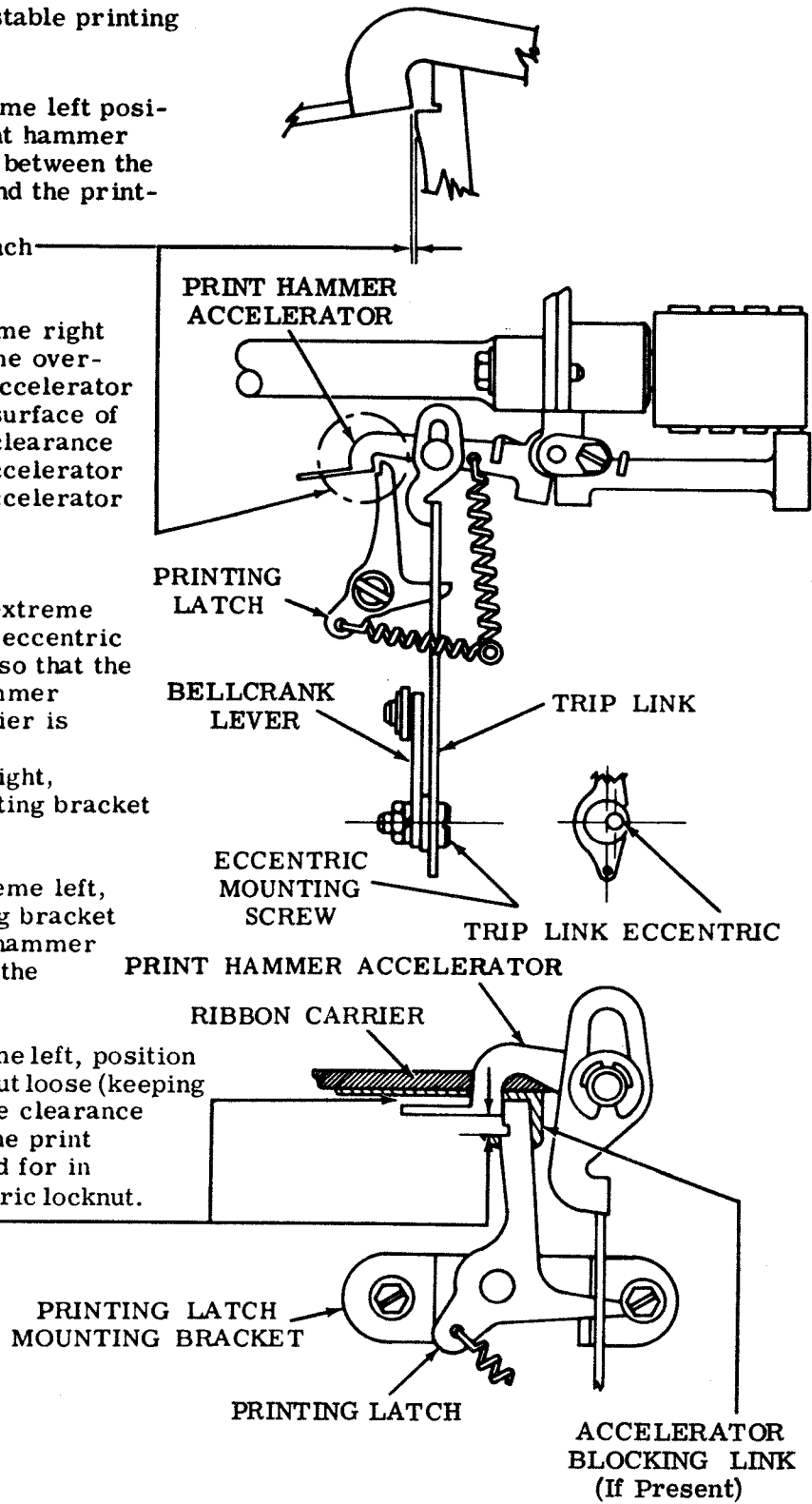
(2) Requirement

With rocker bail in its extreme right position, there should be some over-travel of the print hammer accelerator with respect to the latching surface of the printing latch and some clearance between the print hammer accelerator and the ribbon carrier (or accelerator blocking link if present).

To Adjust

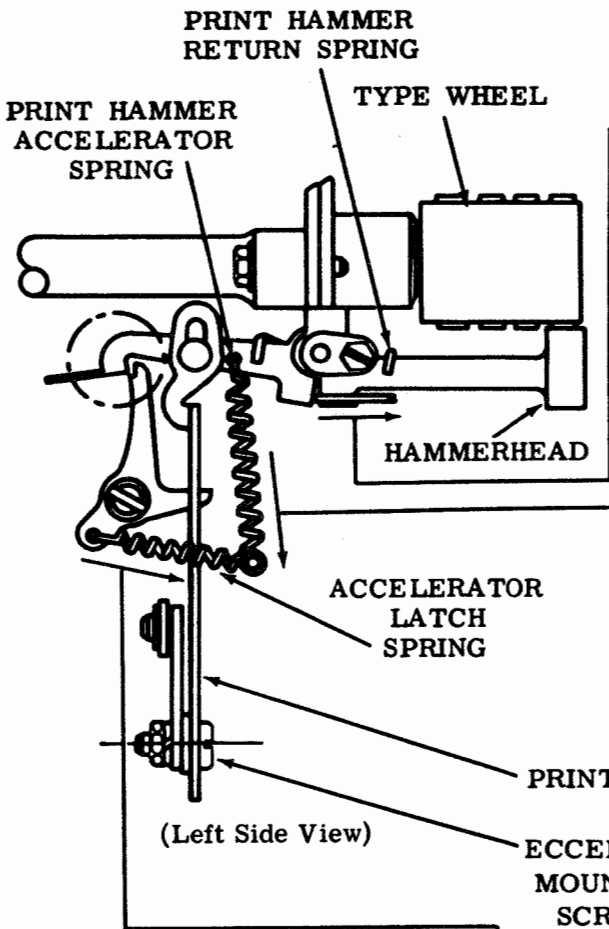
- (1) Position the rocker bail to the extreme right. With the high part of the eccentric to the left, rotate the eccentric so that the clearance between the print hammer accelerator and the ribbon carrier is approximately 0.065 inch. With mounting screws friction tight, position the printing latch mounting bracket to its extreme rear position.
- (2) With the rocker bail to the extreme left, move the printing latch mounting bracket toward the front until the print hammer accelerator just trips. Tighten the mounting screws.
- (3) With the rocker bail to the extreme left, position the trip link eccentric with locknut loose (keeping the high part to the left) until the clearance between the printing latch and the print hammer accelerator is as called for in requirement (1). Tighten eccentric locknut.

Note 2: For units with non-adjustable printing latch mounting bracket use above "(1) Requirement" and adjust according to "To Adjust (3)."



(Left Side Views)

2.58 Typing Mechanism (continued)



PRINT HAMMER RETURN SPRING

Requirement
 With unit in the stop position, it should require
 Min 1 oz---Max 3 oz
 to pull the print hammer lever so that the top
 of the hammerhead is level with the type wheel.

PRINT HAMMER ACCELERATOR SPRING

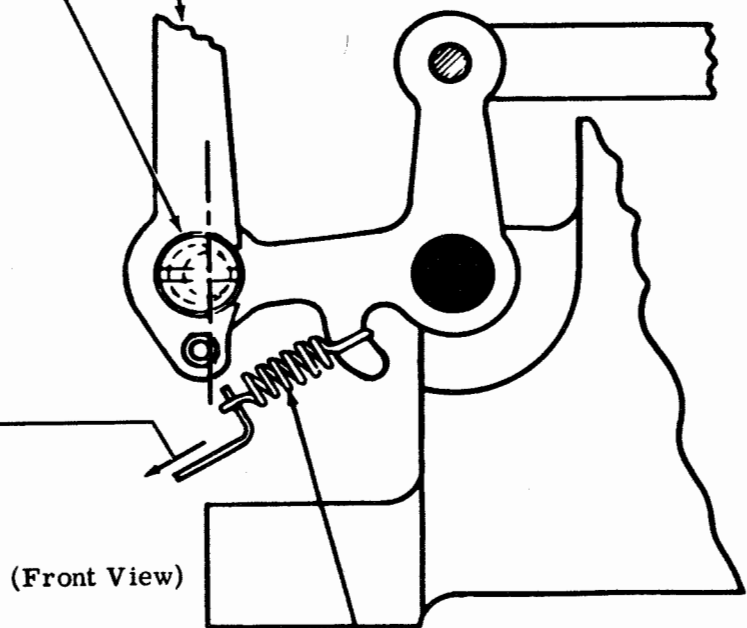
Requirement
 With the unit in the stop position
 Min 26 oz---Max 32 oz
 to pull the spring to its installed length.

PRINT HAMMER ACCELERATOR LATCH SPRING

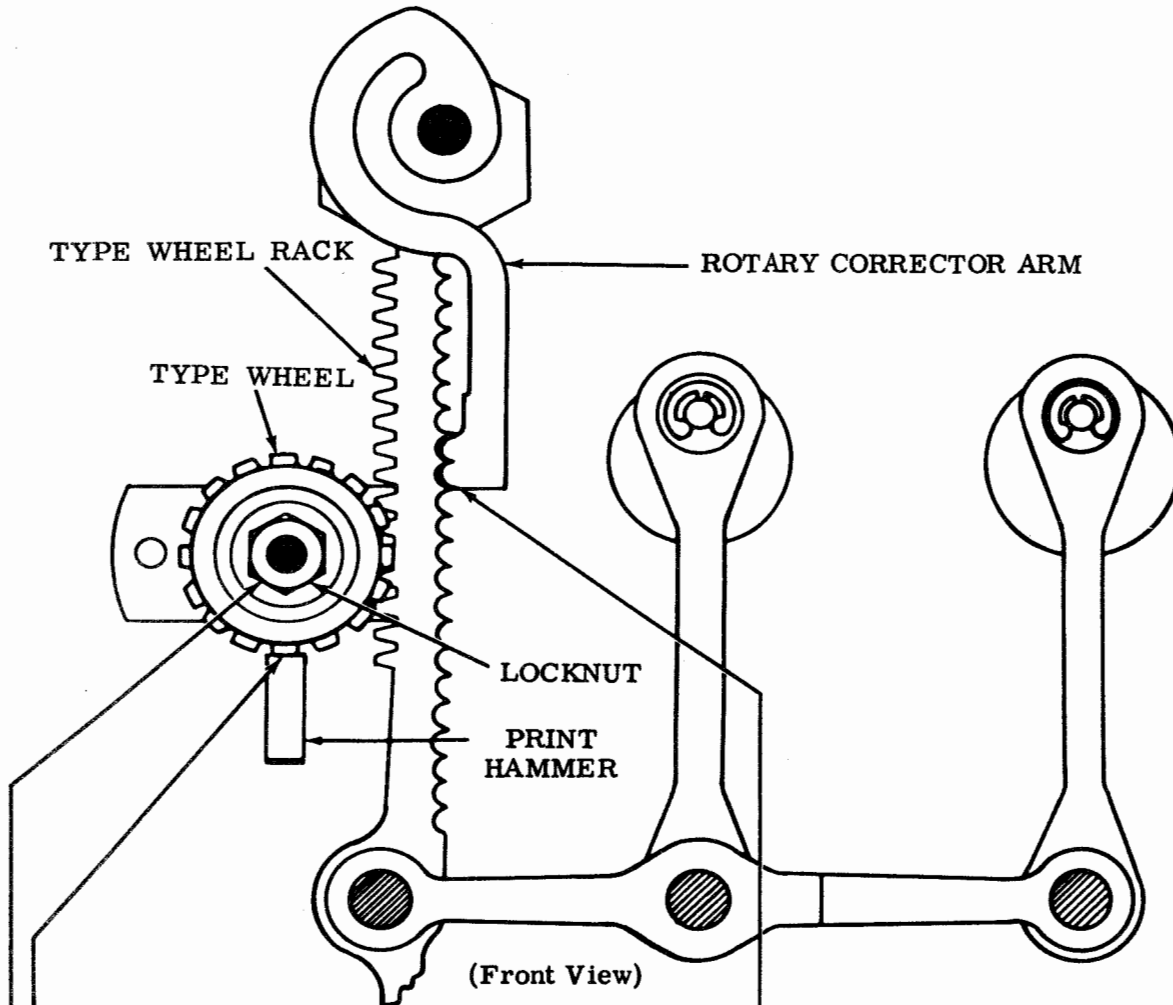
Requirement
 With the unit in the stop position
 Min 5 oz---Max 7 oz
 to pull the spring to its installed length.

PRINT HAMMER TRIP LEVER SPRING

Requirement
 Min 4 oz---Max 7 oz
 to pull spring to installed length.



2.59 Typing Mechanism (continued)



TYPE WHEEL (Preliminary)

To Check

Select H code combination (---4--7-). Place rocker bail to extreme left. Corrector arm should be firmly seated in type wheel rack.

Requirement

Type wheel aligned so that full character is printed uniformly and six and one half code hole spaces behind its perforated code hole.

To Adjust

Position type wheel with locknut loosened. Check printing by manually lifting accelerator to latched position and releasing it.

Note: For best results, it may be necessary to make PRINT HAMMER (2.60) adjustment and then refine this adjustment.

TYPE WHEEL (Final)

To Check

With unit operating under power.

Requirement

All characters should be legible and six and one half code hole spaces behind the perforated code holes.

To Adjust

Refine type wheel position with locknut friction tight. Tighten locknut.

Note: For best results, it may be necessary to make PRINT HAMMER (2.60) adjustment and then refine this adjustment.

2.60 Typing Mechanism (continued)

PRINT HAMMER

To Check
With unit operating under power.

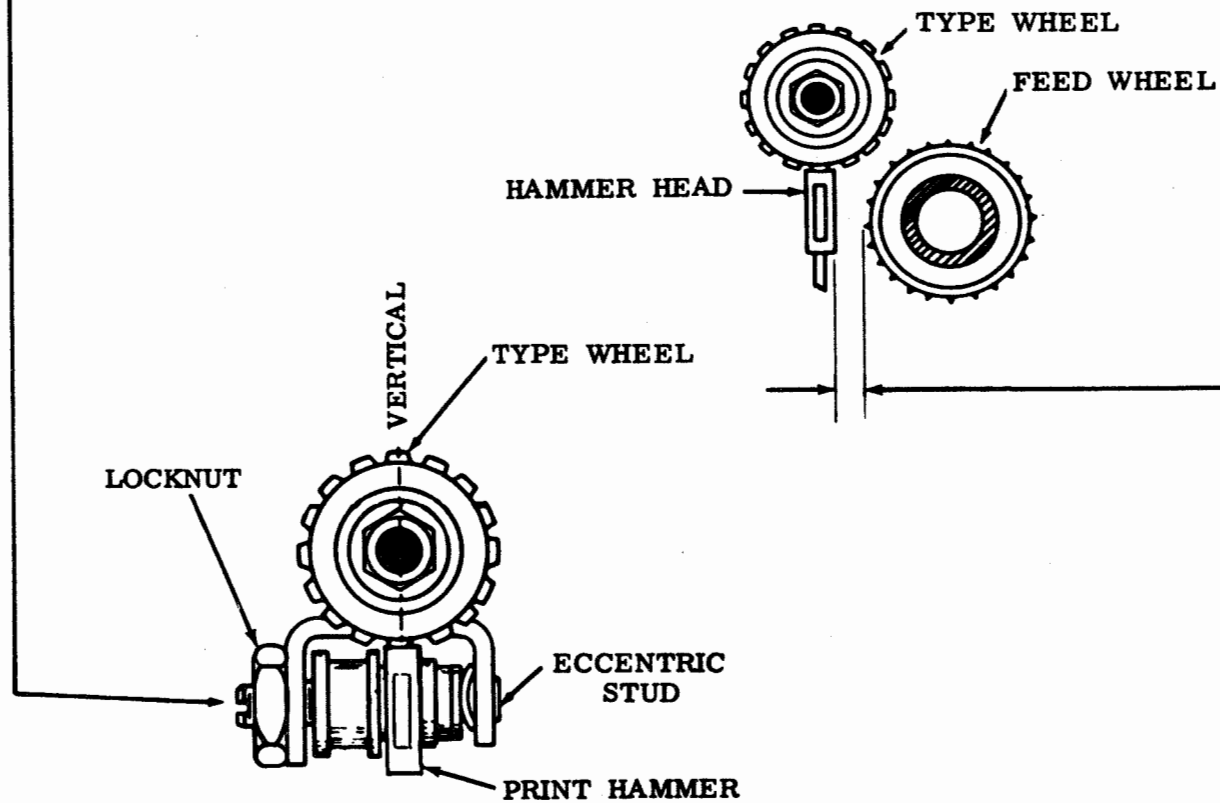
Requirement

Print hammer aligned with type wheel so as to obtain quality printing with some clearance between the pin points on the feed wheel and the side of the print hammer head.

To Adjust

Position print hammer shaft with its locknut friction tight. Tighten locknut.

Note: It may be necessary to make the TYPE WHEEL (Final) (2.59) adjustment and then refine this adjustment.



(Front View)

2.61 Typing Mechanism (continued)

FEED PAWL SPRING

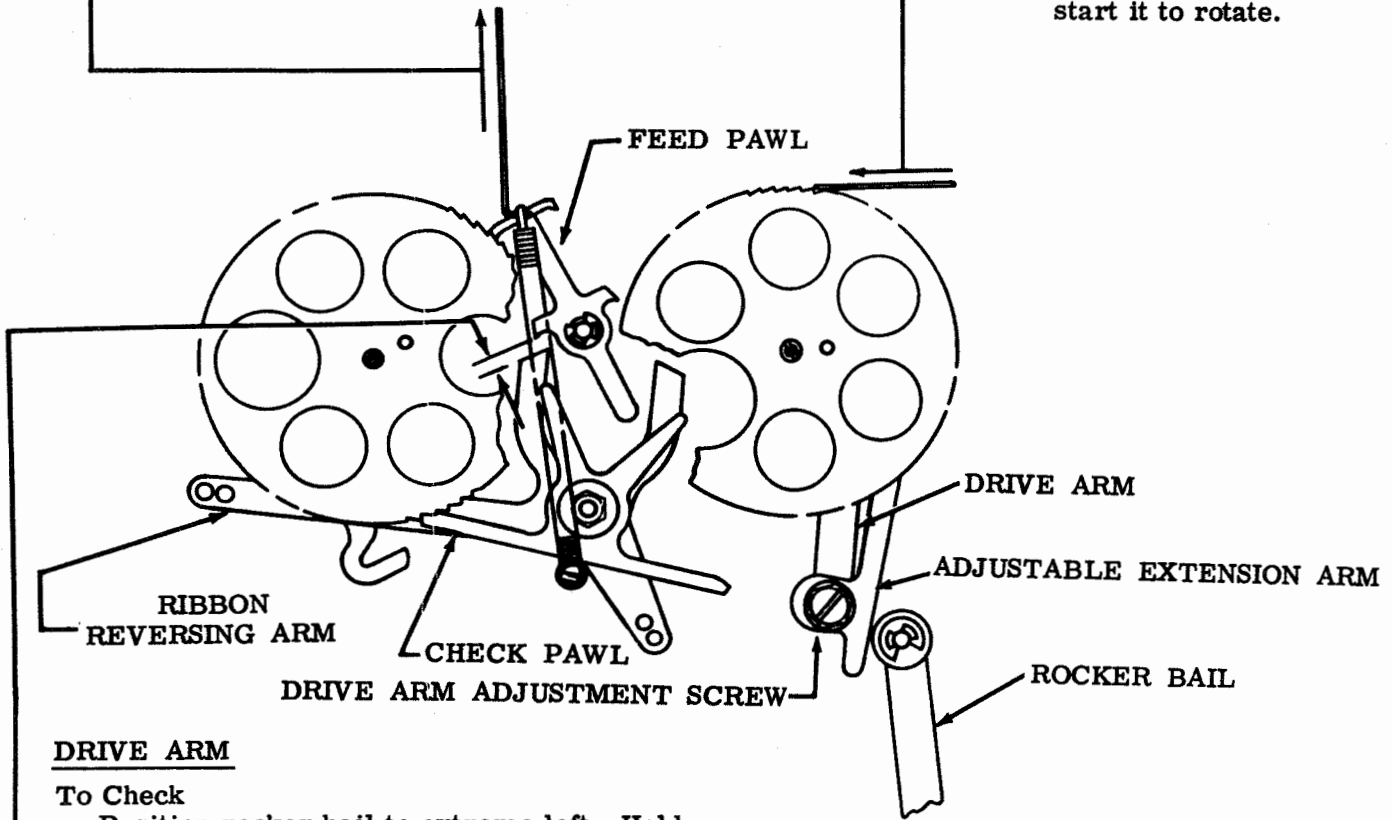
Requirement

With rocker bail to extreme right
Min 4 oz---Max 6 oz
to pull feed pawl spring to installed
length.

RATCHET WHEEL
TORQUE SPRING

Requirement

Min 1 oz---Max 3 oz
applied tangentially to
the ratchet wheel to
start it to rotate.



DRIVE ARM

To Check

Position rocker bail to extreme left. Hold the ribbon reversing arm under lower reversing extension of feed pawl.

(1) **Requirement**

Clearance between blocking edge of ribbon reverse arm and reversing extension of feed pawl

Min some

(2) **Requirement**

Clearance should not be so great as to allow feed pawl to feed more than two teeth at a time.

(3) **Requirement**

Feed pawl detented in both its right and left position.

To Adjust

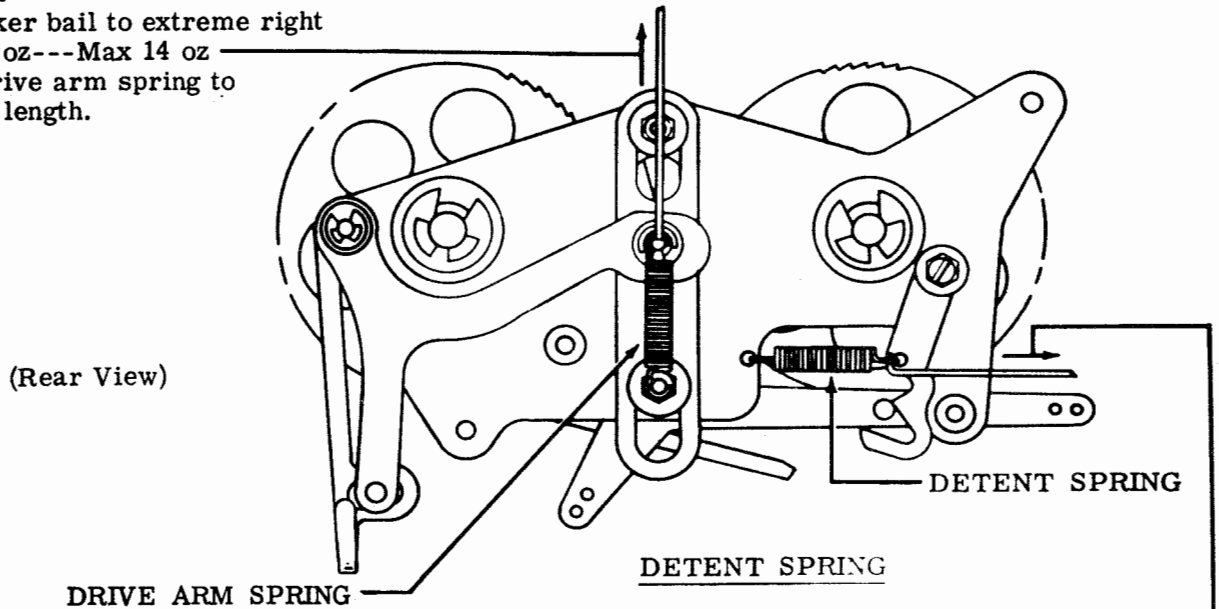
Position drive arm adjustable extension lever with its mounting screw loosened. Tighten screw.

2.62 Typing and Slack Tape Mechanisms

DRIVE ARM SPRING

Requirement

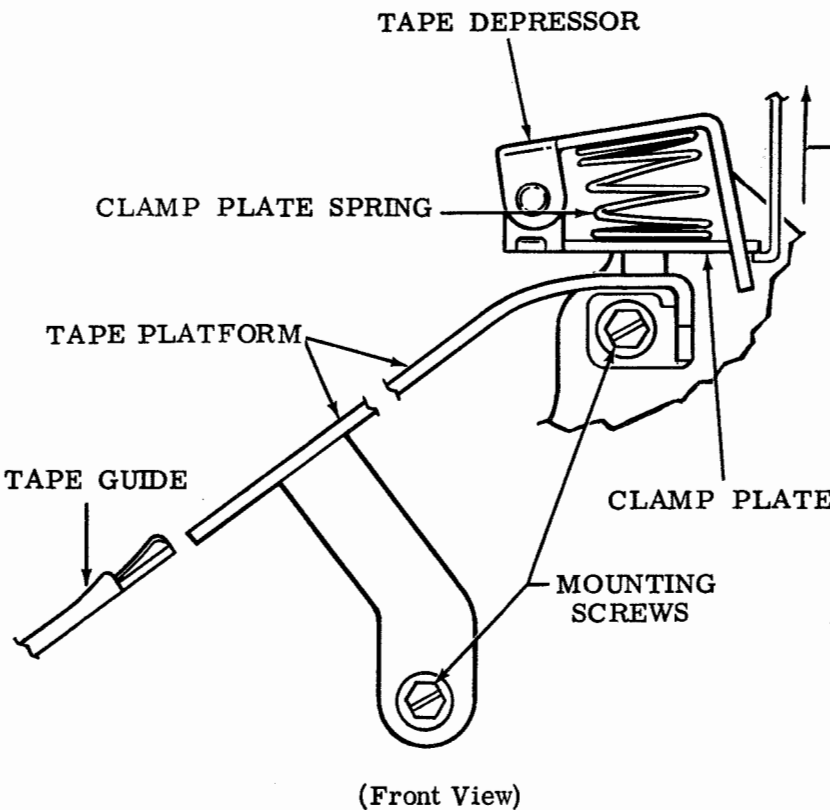
With rocker bail to extreme right
 Min 9 oz---Max 14 oz
 to pull drive arm spring to
 installed length.



DETENT SPRING

Requirement

With reversing arm in its extreme
 right or left position
 Min 2 oz---Max 4 oz
 to pull detent spring to its installed
 length.



TAPE PLATFORM (Early Design)

Requirement

Top surface of tape platform
 should be flush with top surface
 of tape guide.

To Adjust

With tape platform mounting
 screws loosened, position tape
 platform. Tighten screws.

CLAMP PLATE SPRING
(Early Design)

Requirement

Function clutch disengaged and
 latched. Clamp plate spring
 bowed to the right.

Min 18 oz---Max 24 oz
 to move clamp plate from bottom
 of slot in tape depressor.

2.63 Slack Tape Mechanism (continued)

CLAMP PLATE SCREW WITH DISC (Latest Design)

Requirement

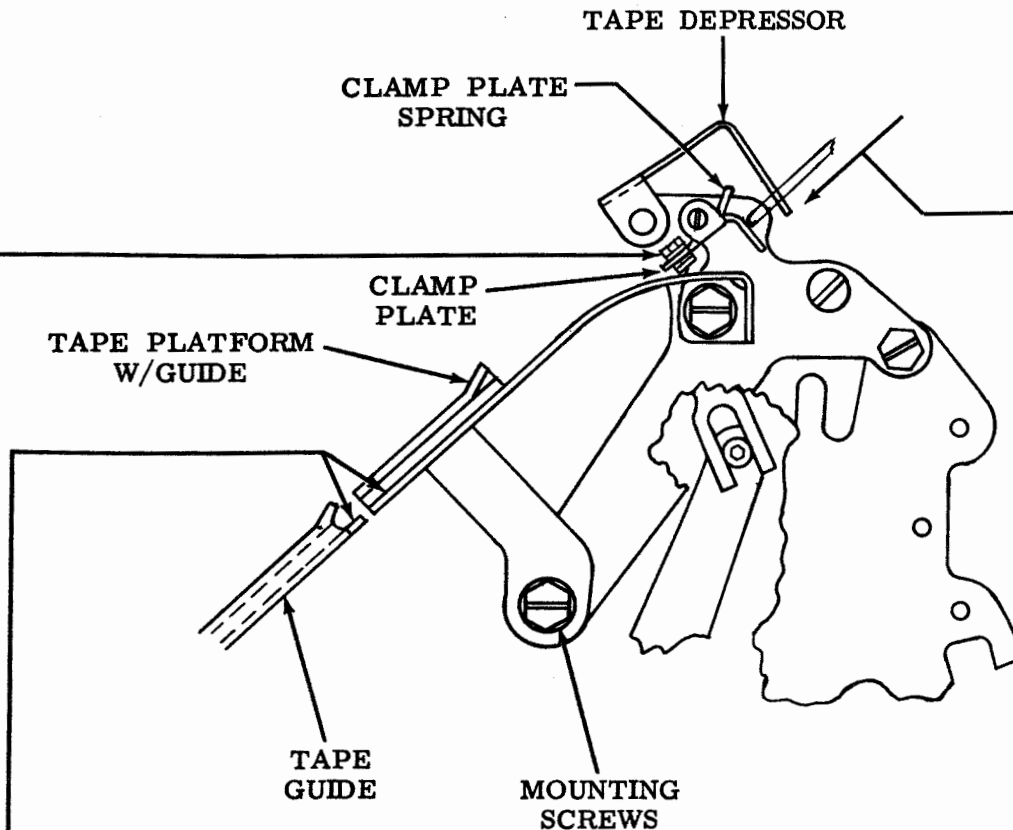
Loosen nut and turn screw with disc so that a new area of the disc contacts the tape. Tighten nut.

Note: This adjustment should be made once every lubrication period or when the ten holes per inch requirement is not being held.

CLAMP PLATE SPRING (Latest Design)

Requirement

Min 30 grams applied to tab of clamp plate to start it moving



TAPE PLATFORM (Latest Design)

Requirement

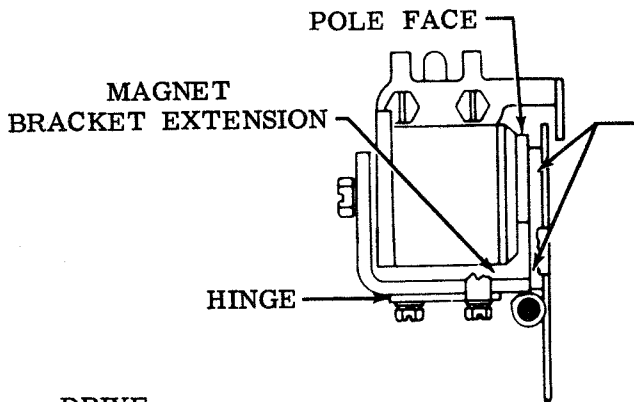
The top surface of tape platform and tape guide should be flush with the top surface of tape guide.

To Adjust

With tape platform mounting screws loosened, position tape platform. Tighten screws.

3. VARIABLE FEATURES

3.01 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism



(A) ARMATURE HINGE

Requirement

With armature manually operated, it should be flush against pole face and magnet bracket extension.

To Adjust

Loosen armature hinge bracket mounting screws, position armature and tighten screws.

(B) DRIVE BAIL SPRING

Requirement

Rotate mainshaft until drive bail is on high part of its cam.

Min 23 oz---Max 32 oz to start the drive bail moving.

(C) MOUNTING PLATE

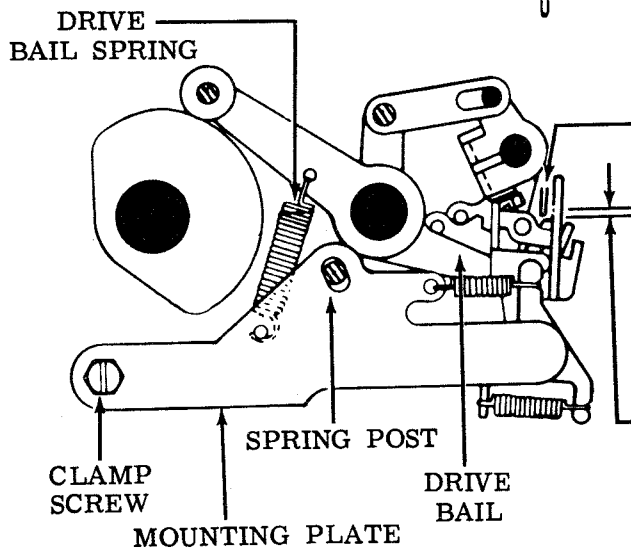
Requirement

With armature in unoperated position. Rotate mainshaft until drive bail is on high part of its cam. Clearance between the blocking bail and drive bail surface

Min 0.006 inch---Max 0.015 inch

To Adjust

Position blocking bail with mounting plate clamp screw and spring post friction tight. Tighten screw and nut.



(D) MAGNET ASSEMBLY

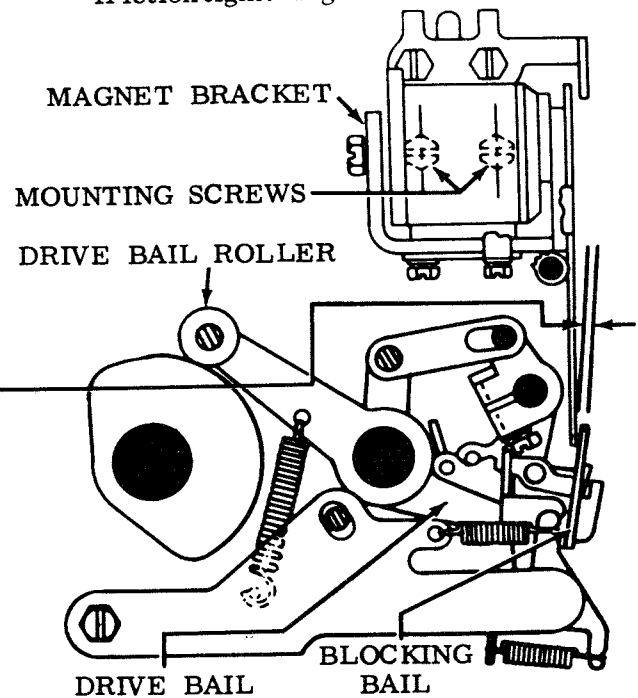
Requirement

With armature held in operated position, rotate mainshaft until drive bail roller is on high part of its cam. Clearance between blocking bail and right edge of drive bail at its closest point

Min 0.005 inch---Max 0.015 inch

To Adjust

Position magnet assembly, armature held against magnet pole piece with magnet bracket mounting screws friction tight. Tighten screws.



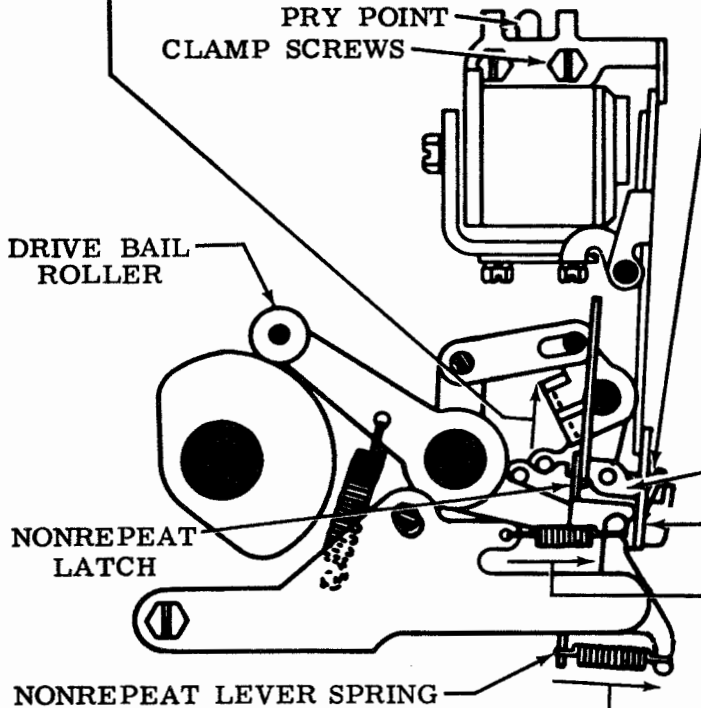
3.02 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

(A) BLOCKING LATCH TORSION SPRING

Requirement

With armature in unoperated position and drive bail roller on high part of its cam.

Min 15 grams---Max 40 grams to start blocking latch moving.



(B) ARMATURE BACKSTOP

(1) Requirement

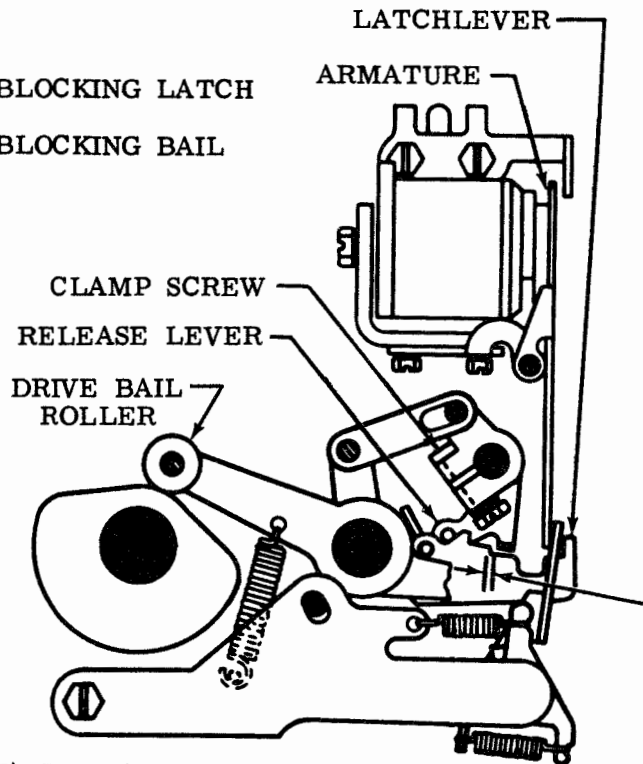
With armature in operated position, rotate mainshaft until drive bail roller is on high part of its cam. The drive bail should engage the blocking bail by at least 2/3 of its thickness.

(2) Requirement

Min some---Max 0.006 inch between blocking latch and non-repeat latch.

To Adjust

With the armature backstop mounting screws friction tight, position by means of pry point. Tighten screws.



(C) NONREPEAT LEVER SPRING

Requirement

With armature in unoperated position and drive bail roller on high part of its cam

Min 6 oz---Max 9 oz to pull spring to installed length.

(D) BLOCKING BAIL SPRING

Requirement

With armature in unoperated position and drive bail roller on high part of its cam.

Min 3 oz---Max 5 oz to pull spring to installed length.

(E) RELEASE LEVER

Requirement

With armature in operated position, rotate mainshaft until drive bail roller is in indent of its cam. Clearance between release lever and latchlever.

Min 0.010 inch---Max 0.025 inch

To Adjust

With clamp screw friction tight, position release lever. Tighten screw.

3.03 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

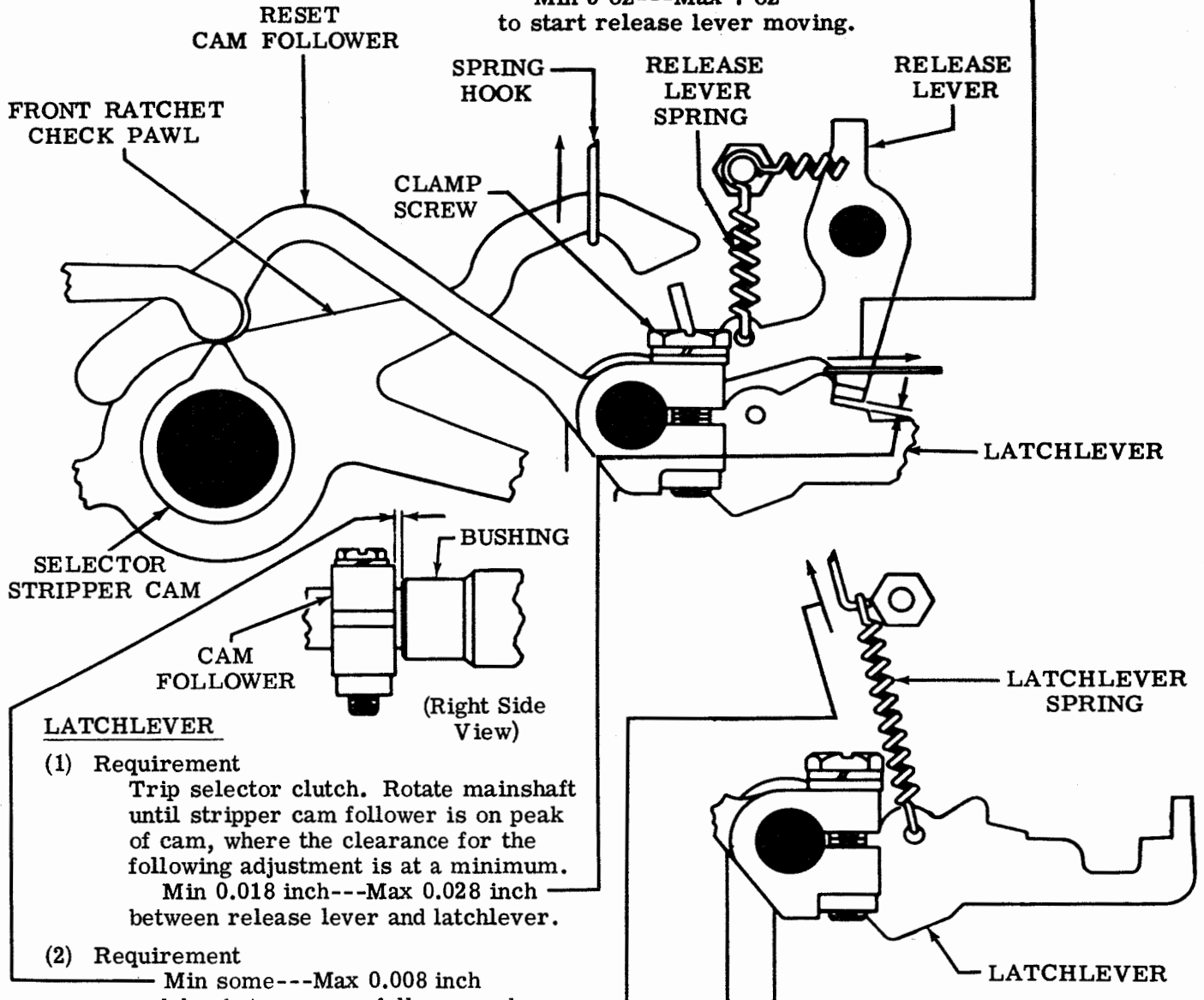
RELEASE LEVER SPRING

To Check

Trip selector clutch. Rotate mainshaft until reset cam follower is on peak of reset bail cam. With spring hook, hold front ratchet check pawl away from release lever.

Requirement

Min 5 oz---Max 7 oz
to start release lever moving.



LATCHLEVER

(1) Requirement

Trip selector clutch. Rotate mainshaft until stripper cam follower is on peak of cam, where the clearance for the following adjustment is at a minimum.
Min 0.018 inch---Max 0.028 inch
between release lever and latchlever.

(2) Requirement

Min some---Max 0.008 inch
endplay between cam follower and bushing.

To Adjust

Position latchlever with clamp screw on stripper cam follower loosened.

LATCHLEVER SPRING

To Check

Trip selector clutch. Rotate mainshaft until reset cam follower is on peak of reset bail cam.

Requirement

Min 2 oz---Max 4 oz
to pull spring to installed length.

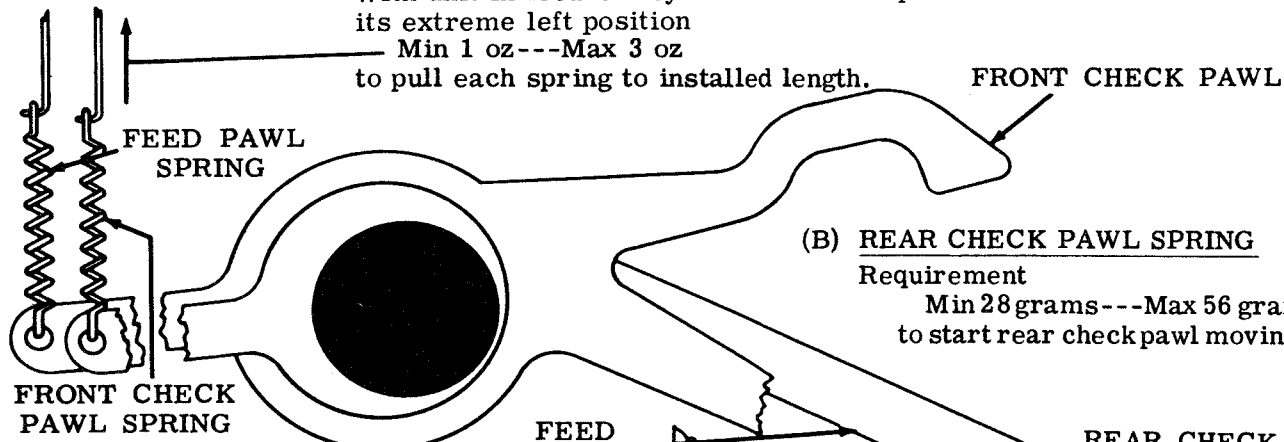
3.04 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

(C) FEED PAWL AND FRONT CHECK PAWL SPRINGS

Requirement

With unit in feed-out cycle and the feed pawl in its extreme left position

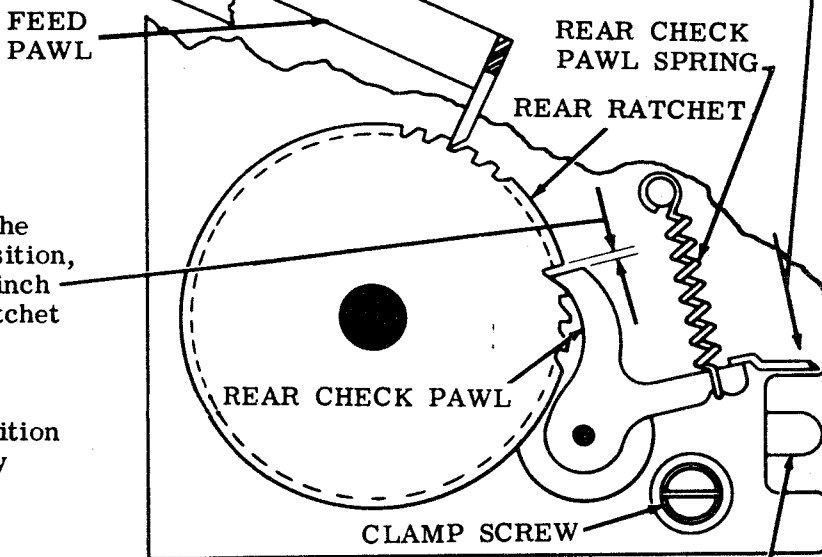
Min 1 oz---Max 3 oz
to pull each spring to installed length.



(B) REAR CHECK PAWL SPRING

Requirement

Min 28 grams---Max 56 grams
to start rear check pawl moving.



(A) REAR CHECK PAWL

Requirement

With unit in feed-out cycle and the feed pawl in its extreme left position,

Min 0.008 inch---Max 0.020 inch
between rear check pawl and ratchet tooth.

To Adjust

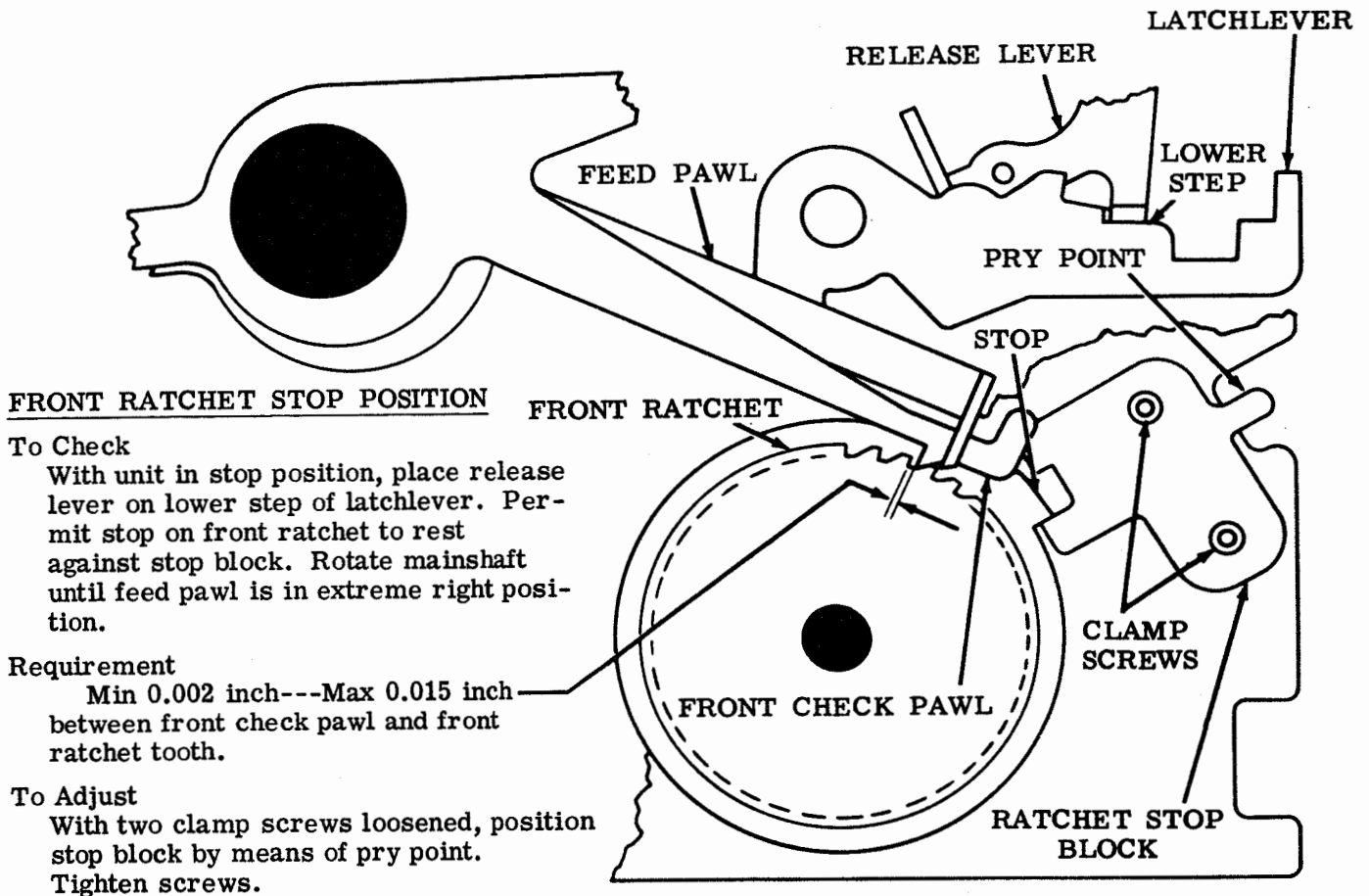
With clamp screw loosened, position rear check pawl by means of pry point. Tighten screw.

PRY POINT

Note: Proceed to FRONT RATCHET STOP POSITION (3.05) adjustment.

3.05 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

Note: See REAR CHECK PAWL (3.04) adjustment before making this adjustment.



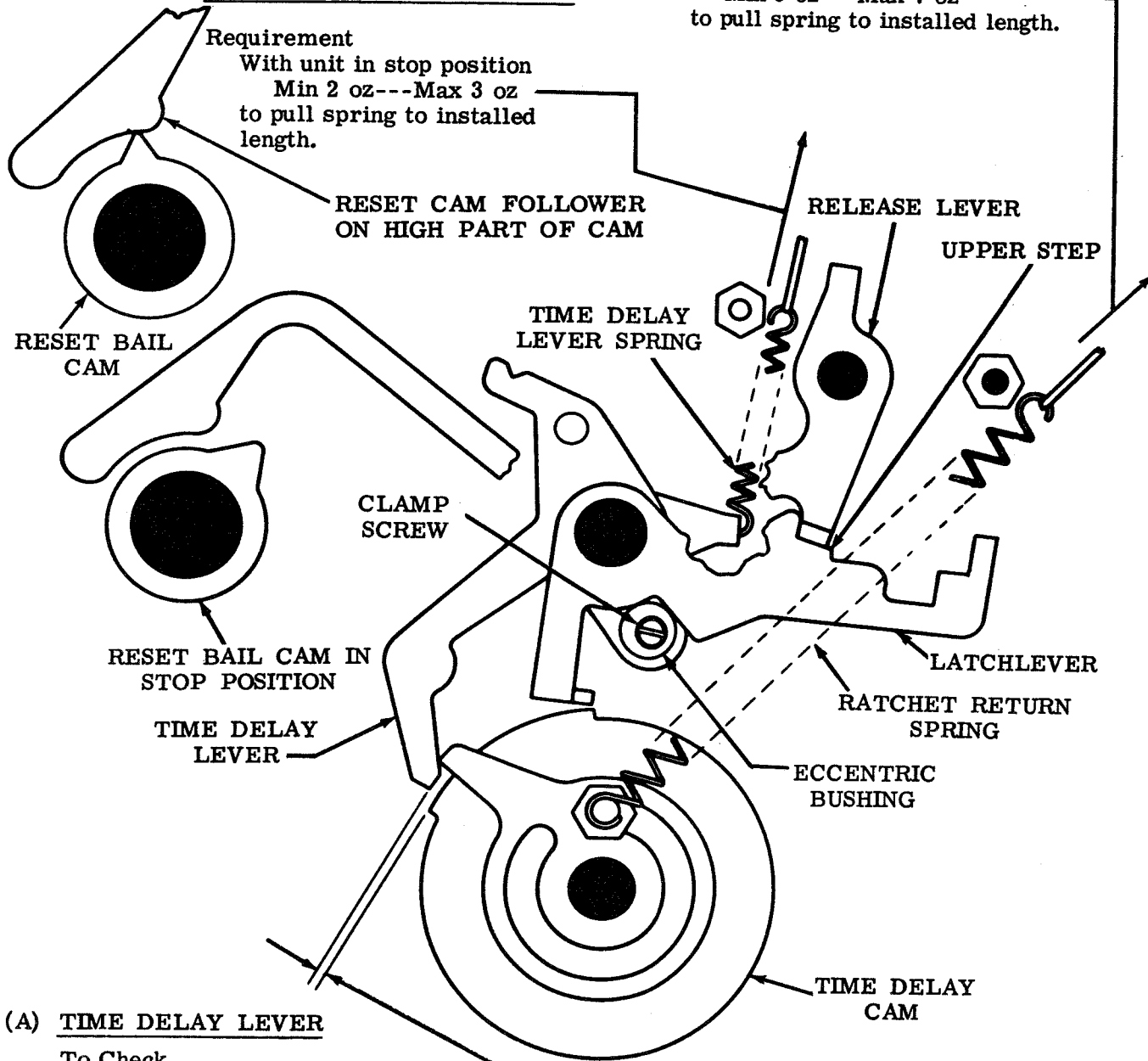
3.06 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

(C) RATCHET RETURN SPRING

Requirement
 With unit in stop position
 Min 5 oz---Max 7 oz
 to pull spring to installed length.

(B) TIME DELAY LEVER SPRING

Requirement
 With unit in stop position
 Min 2 oz---Max 3 oz
 to pull spring to installed length.



(A) TIME DELAY LEVER

To Check

Trip selector clutch and rotate mainshaft until reset cam follower is on high part of reset bail cam.

- (1) Requirement
 Min 0.040 inch---Max 0.060 inch
 clearance between time delay lever
 and high part of time delay cam.

- (2) Requirement
 With unit in stop position
 Min some
 clearance between time delay lever and
 high part of time delay cam.

To Adjust
 With clamp screw loosened, position
 eccentric bushing. Tighten screw.

3.07 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

(A) RELEASE ARM

(1) Requirement

With unit in the feed-out cycle, ratchets advanced beyond the time delay, clearance between the drive arm and upper surface of release arm
 Min 0.010 inch---Max 0.030 inch

Rotate cam so that the mating surfaces of the drive arm bail and release arm are approximately parallel.

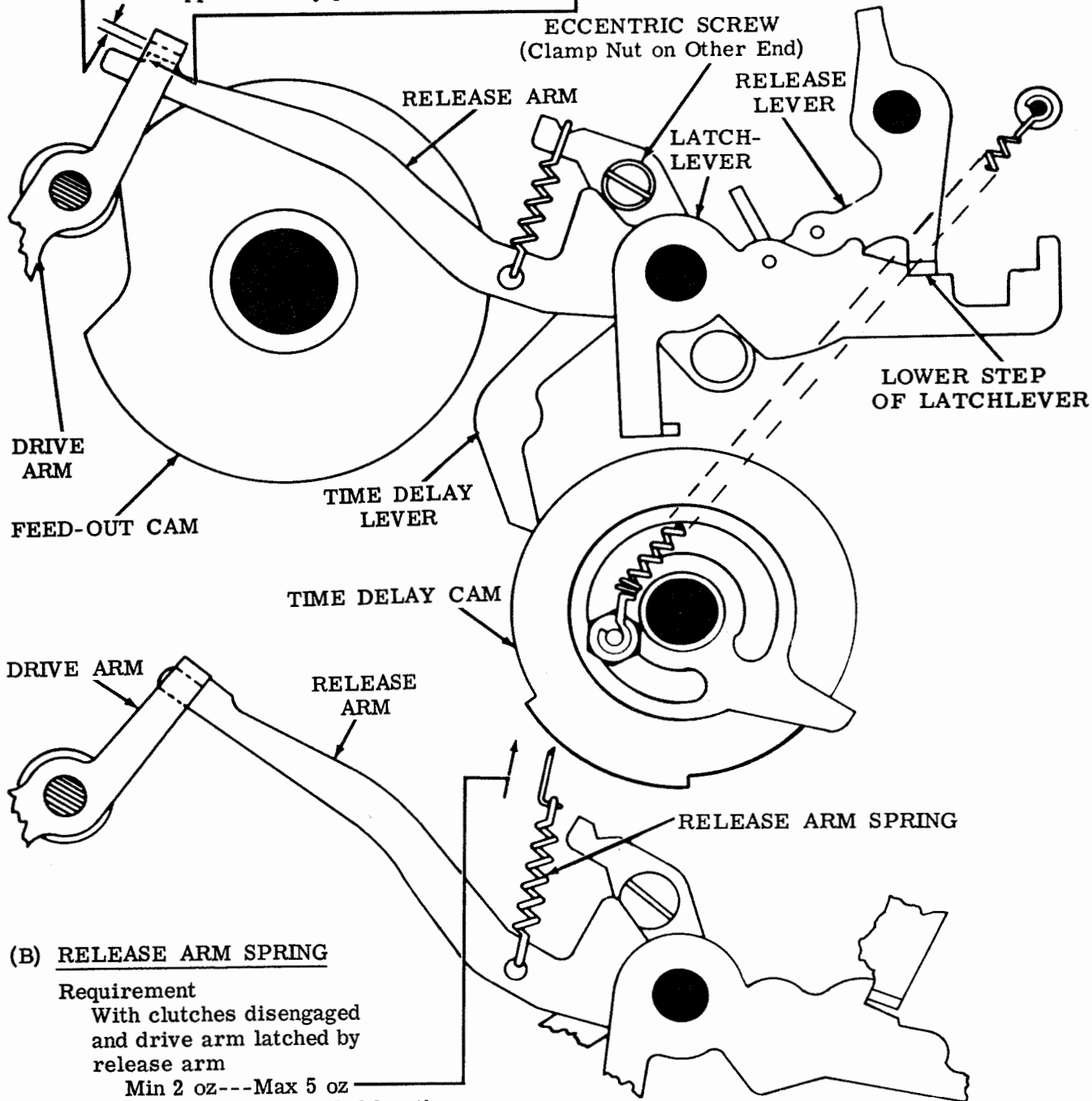
(2) Requirement

With unit in stop position, the surface of the drive arm bail that does not engage the release arm should not exceed

Max 0.015 inch

To Adjust

With clamp nut friction tight, position release arm by means of eccentric screw on time delay lever. Tighten nut.



(B) RELEASE ARM SPRING

Requirement

With clutches disengaged and drive arm latched by release arm

Min 2 oz---Max 5 oz
 to pull spring to installed length.

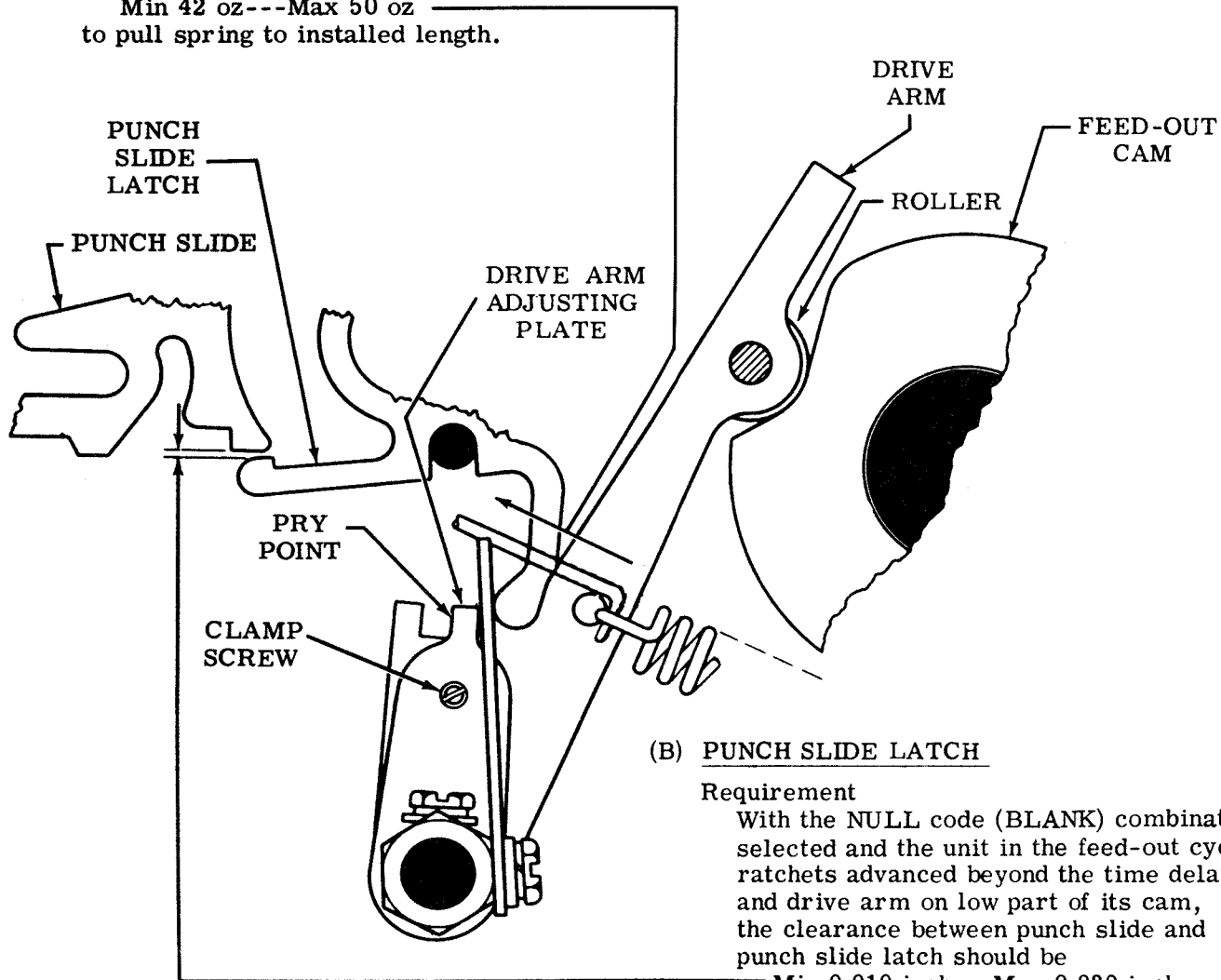
3.08 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

(A) DRIVE ARM SPRING

Requirement

With unit in feed-out cycle and drive arm roller held firmly against its cam indent

Min 42 oz---Max 50 oz
to pull spring to installed length.



(B) PUNCH SLIDE LATCH

Requirement

With the NULL code (BLANK) combination selected and the unit in the feed-out cycle, the ratchets advanced beyond the time delay and drive arm on low part of its cam, the clearance between punch slide and punch slide latch should be

Min 0.010 inch---Max 0.030 inch
at slide where clearance is a minimum.

Note: See that the reset bail is tripped.

To Adjust

With clamp screw loosened, position drive arm adjusting plate by means of its pry point. Tighten screw.

3.09 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

(B) ADJUSTING LEVER

To Check

Place unit in feed-out cycle by positioning release lever on lower step of latch-lever and advancing high part of time delay cam beyond time delay lever. Position mainshaft so that drive arm roller is on low part of cam.

(1) Requirement

Min 0.010 inch--Max 0.030 inch between release and main trip lever.

(2) Requirement

Some clearance between main trip lever and down-stop bracket.

To Adjust

Loosen the clamp screw on the adjusting lever and position, making sure the adjusting lever rides fully on the slide trip lever. Tighten screw.

(A) TRIP CAM FOLLOWER

(1) Requirement

With follower lever on high part of trip cam

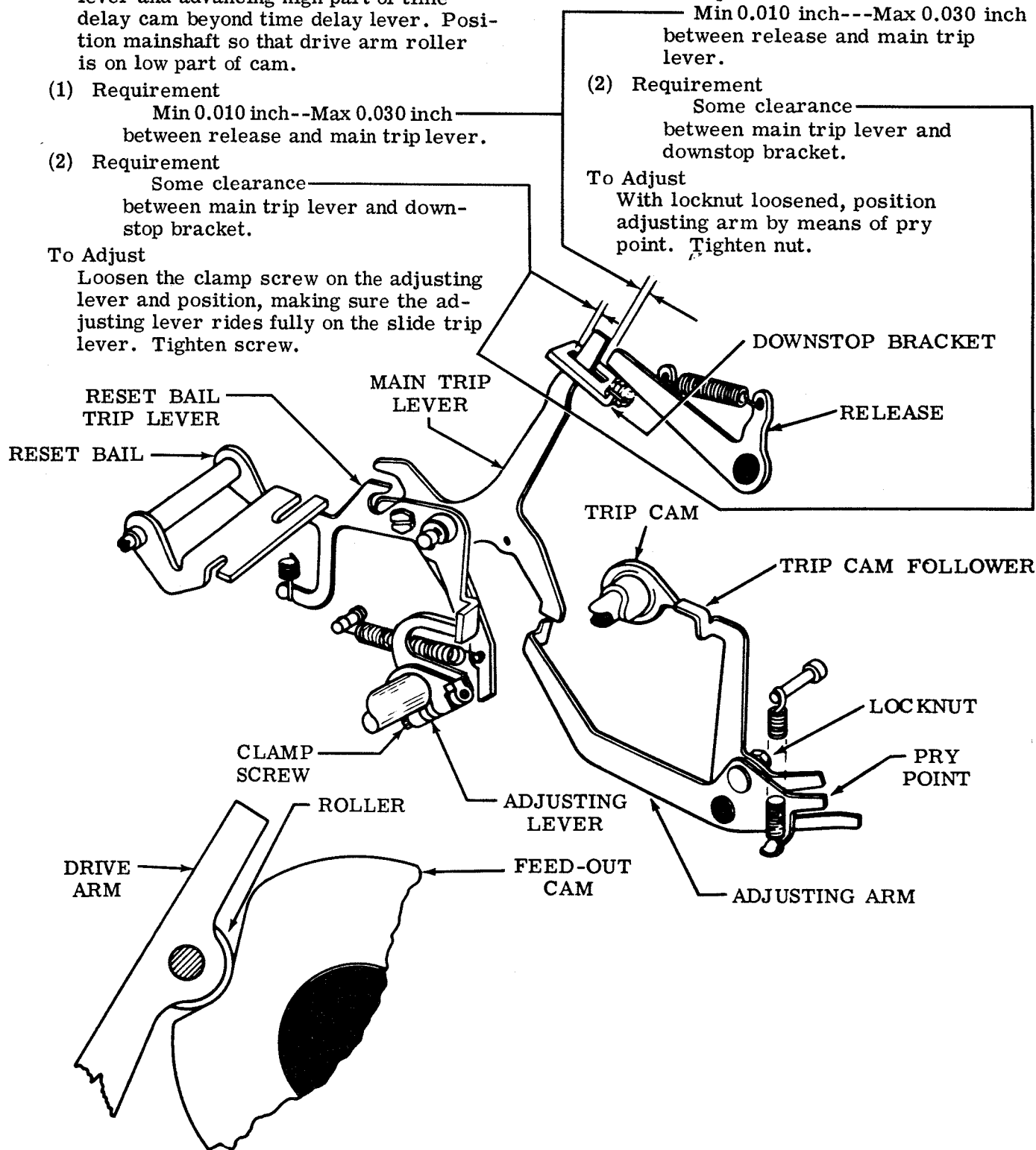
Min 0.010 inch---Max 0.030 inch between release and main trip lever.

(2) Requirement

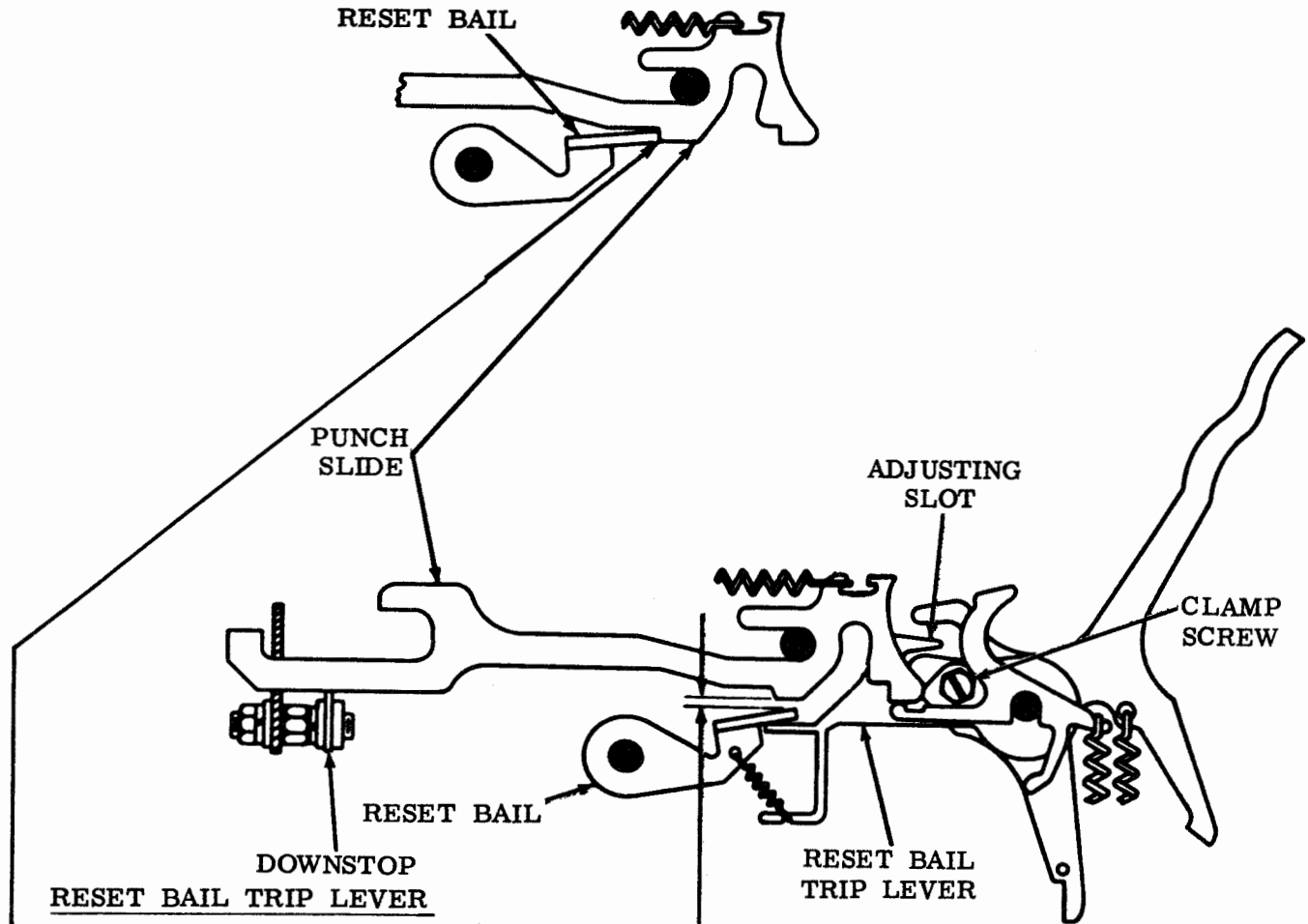
Some clearance between main trip lever and downstop bracket.

To Adjust

With locknut loosened, position adjusting arm by means of pry point. Tighten nut.



3.10 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)



To Check

Select RUBOUT code combination (12345678). Rotate mainshaft until function clutch trips. Position punch slides against downstop. Trip cam follower on high part of cam.

(1) Requirement

Min 0.008 inch---Max 0.020 inch between punch slide and reset bail.

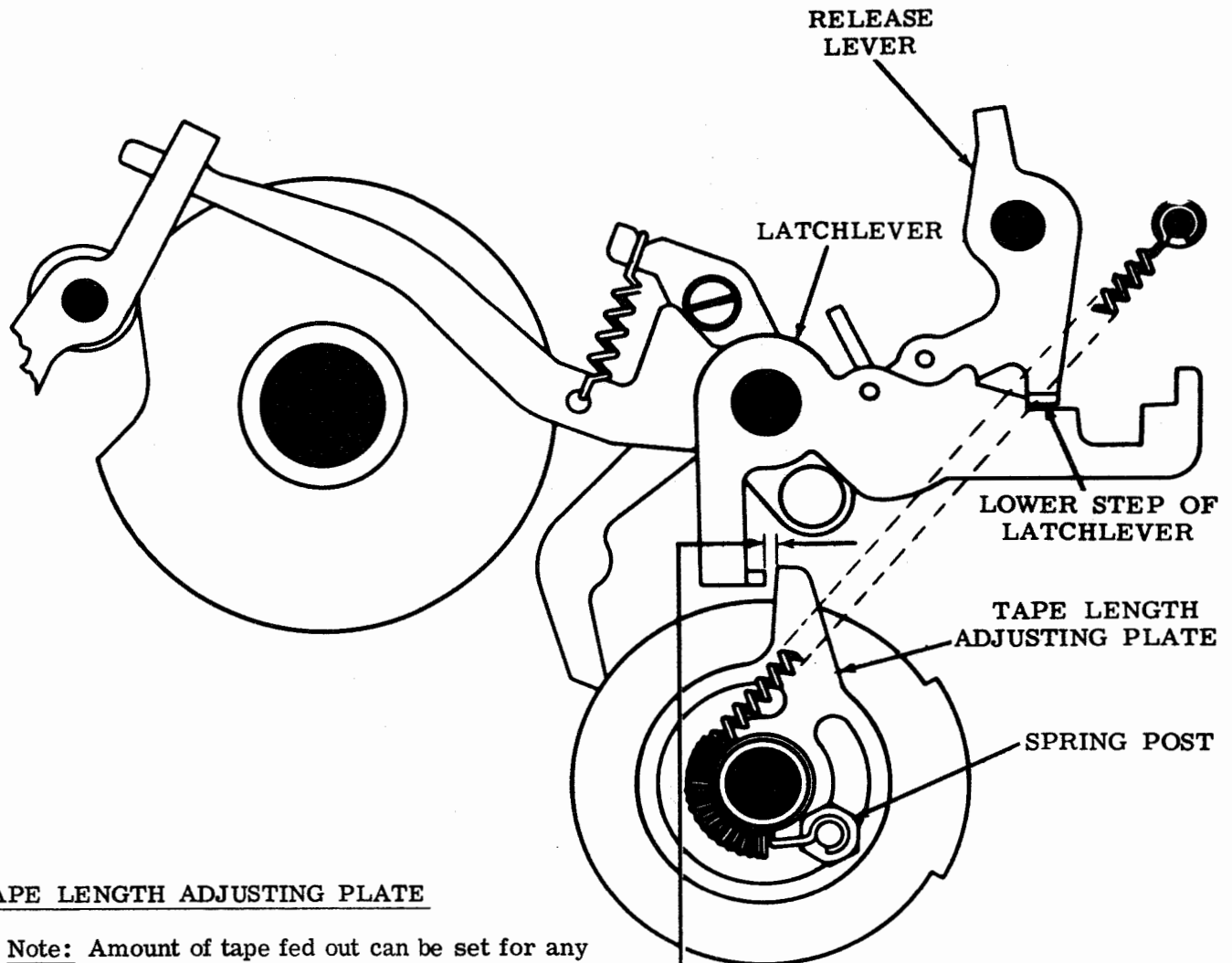
(2) Requirement

With clutches fully disengaged and latched, reset bail should fully engage notches in punch slides.

To Adjust

With clamp screw loosened, position reset bail trip lever by means of adjusting slot. Tighten clamp screw.

3.11 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

TAPE LENGTH ADJUSTING PLATE

Note: Amount of tape fed out can be set for any length up to 18 inches.

(1) Requirement

Place unit in feed-out cycle by positioning release lever on lower step of latchlever. Manually advance ratchets so that front ratchet is in the tooth preceding trip off. Rotate mainshaft until feed pawl is in the extreme left position. Clearance between adjusting plate and latchlever projection
Min 0.002 inch---Max 0.020 inch

(2) Requirement

When operating under power, unit should feed out correct length of tape.

To Adjust

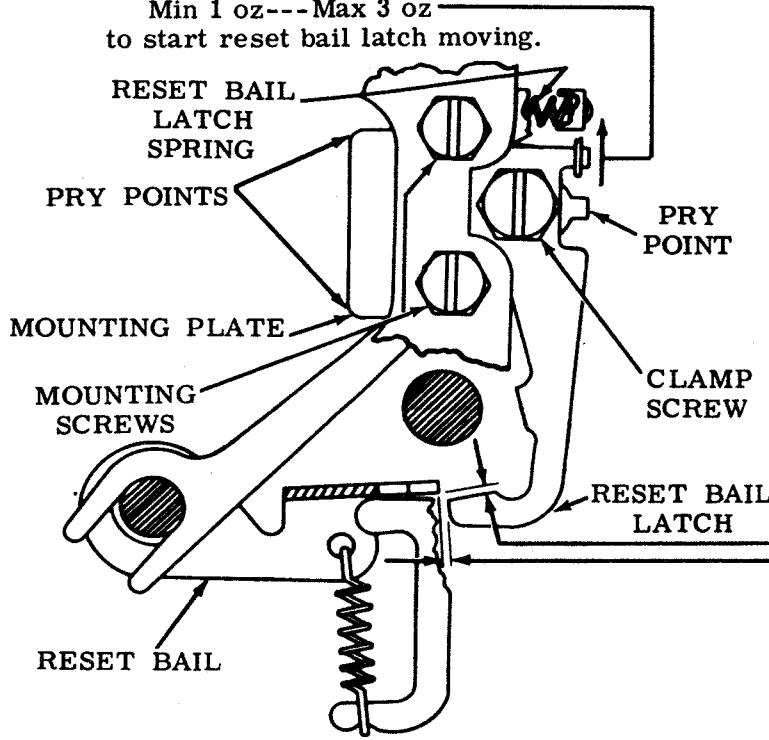
With spring post friction tight. Position adjusting plate. Tighten spring post.

3.12 Remote Control Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

(B) RESET BAIL LATCH SPRING

Requirement

With unit in stop condition
Min 1 oz---Max 3 oz
to start reset bail latch moving.



(A) RESET BAIL LATCH

(1) To Check (Vertical Clearance)

Select RUBOUT code combination (12345678). Rotate mainshaft until function clutch trips and punch slides are to extreme left. Manually set up the NULL code (BLANK) combination in selector. Rotate mainshaft until punch slides are just latched.

(1) Requirement

Min 0.008 inch---Max 0.020 inch
between reset bail and reset bail latch.

To Adjust

With mounting screws loosened, position mounting plate by means of pry points. Tighten screws.

(2) Requirement (Horizontal Clearance)

With clutches disengaged,
Min 0.005 inch---Max 0.020 inch
between reset bail and reset bail latch.

To Adjust

With a clamp screw loosened, position bail latch by means of its pry points so its latching surface is approximately at midpoint in thickness of the reset bail. Tighten screw.

(2) To Check

Select RUBOUT code combination (12345678). Rotate mainshaft until function clutch trips. Manually set up the NULL code (BLANK) combination. Rotate mainshaft to stop position.

Requirement

Punch slides latched by punch slide latches.

To Adjust

Refine requirements (1) and (2) above.

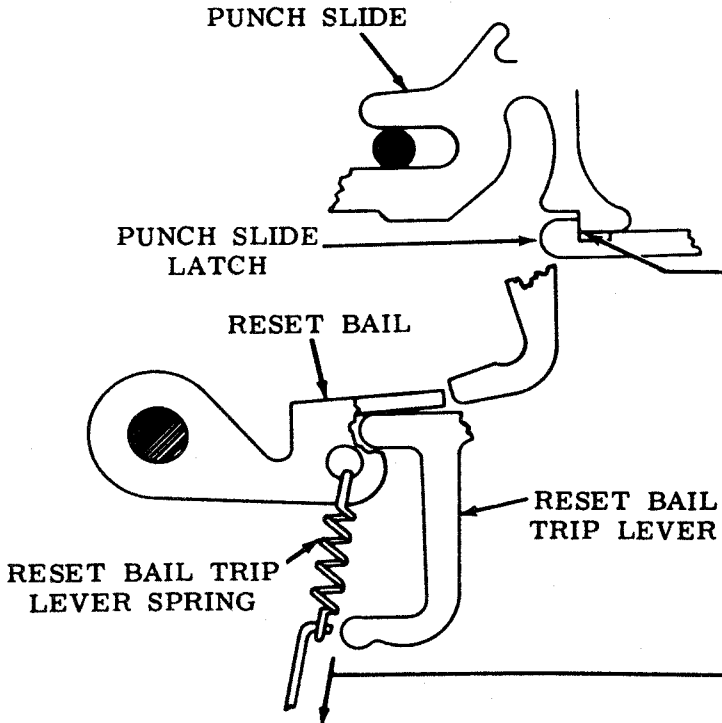
(C) RESET BAIL TRIP LEVER SPRING

To Check

Disengage both clutches. Trip function clutch by pivoting main trip lever counterclockwise. Hold reset bail trip lever up against reset bail.

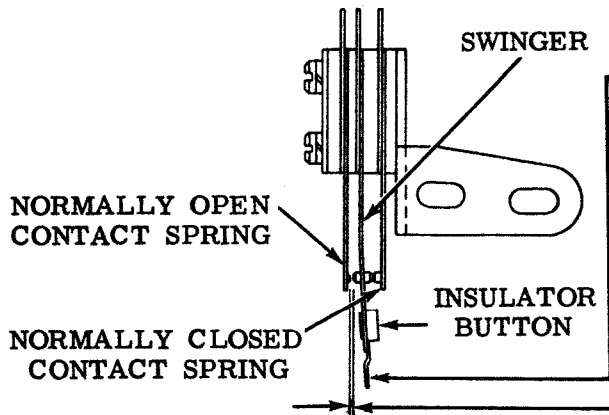
Requirement

Min 18 oz---Max 24 oz
to pull spring to installed length.



3.13 End of Feed-Out Contacts for Noninterfering RUBOUT Tape Feed-Out Mechanism

(A) CONTACT SWINGER (Preliminary)



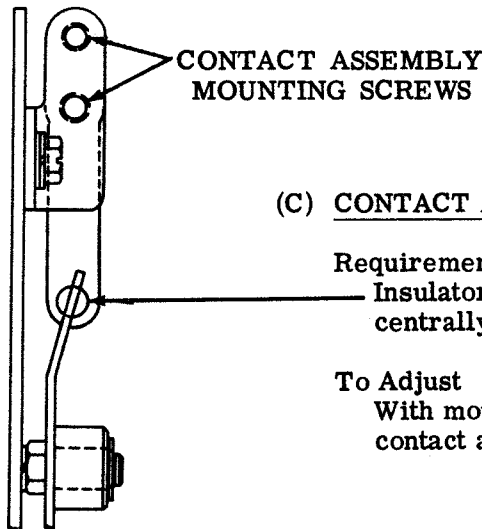
Requirement
Min 25 grams---Max 40 grams
to open normally closed contact.

To Adjust
Bend swinger.

(B) CONTACT SPRING GAP (Preliminary)

Requirement
Normally open contact gap
Min 0.012 inch---Max 0.020 inch

To Adjust
Bend contact spring.



(C) CONTACT ASSEMBLY

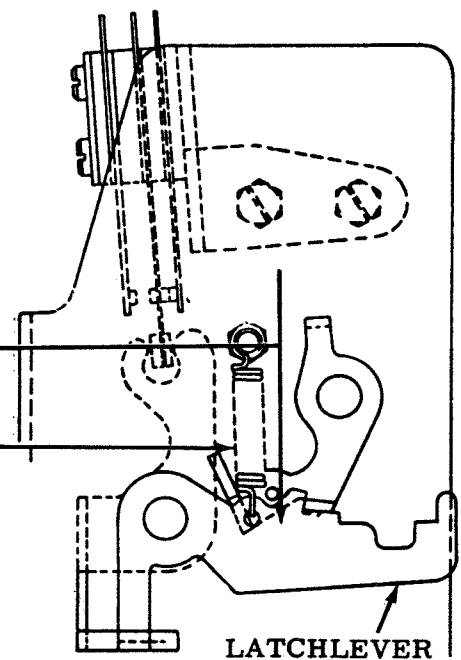
Requirement
Insulator button on swinger should be centrally located in bail extension yoke.

To Adjust
With mounting screws loosened, position contact assembly. Tighten screws.

LATCHLEVER SPRING

Requirement
Trip selector and rotate mainshaft until
stripper cam follower lies on high part of
its cam
Min 9 oz---Max 12 oz
to stretch spring to its installed length.

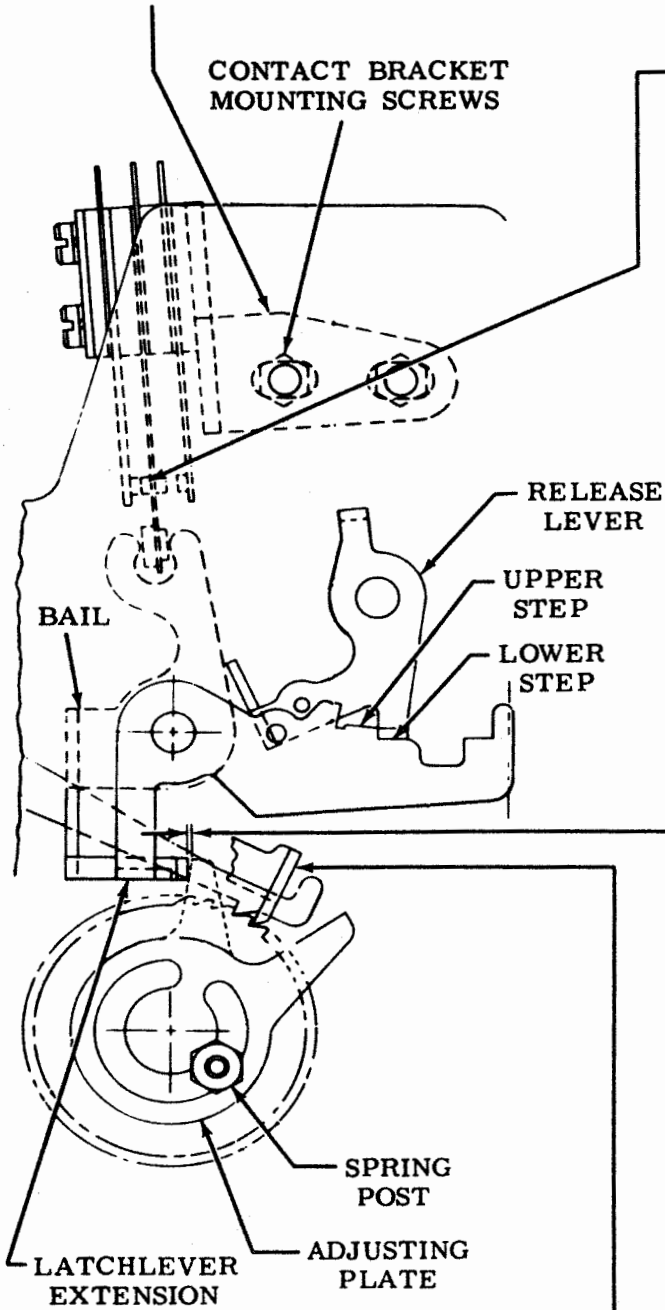
LATCHLEVER SPRING



3.14 End of Feed-Out Contacts for Noninterfering RUBOUT Tape Feed-Out Mechanism (continued)

Note: See preliminary contact adjustments, 3.13.

CONTACT ASSEMBLY MOUNTING BRACKET



(D) CONTACT ASSEMBLY MOUNTING BRACKET

- (1) Requirement (Unit in stop position)
When normally open contacts are used and release lever is above lower step of latchlever
Min 0.005 inch visible overtravel of swinger after it makes contact with normally open contact.
- (2) Requirement
When normally closed contacts are used and release lever is on upper step of latchlever, the normally closed contacts should be closed and bail should not exert any force against swinger insulator button.

To Adjust
Position contacts with bracket mounting screws loosened. Tighten screws.

(E) TAPE LENGTH ADJUSTING PLATE

- (1) Requirement
With unit in stop position and release lever on lower step of latchlever, manually advance ratchets so that feed pawl is in the front tooth preceding trip off (not in deep tooth of rear ratchet). Hold bail lightly against latchlever extension
Min 0.002 inch---Max 0.020 inch clearance between adjusting plate and bail.
- (2) Requirement
When operating under power, unit should feed out correct length of tape.

To Adjust
Position adjusting plate with spring post loosened. Tighten spring post.

Note: Feed pawl in extreme left position and adjusting plate in dotted position for adjustment (B), CONTACT SPRING GAP (Preliminary) only.

3.15 Manual and Power Drive Backspace Mechanism

(A) BACKSPACE RATCHET

Requirement

Teeth of backspace and feed wheel ratchets to line up (visual alignment). Feed wheel ratchet to be in detented position.

To Adjust

With adjusting clamp mounting screw friction tight, rotate backspace ratchet to meet the requirement. Tighten screw.

(B) BACKSPACE PAWL CLEARANCE

(1) Requirement (Preliminary)

With backspace bellcrank rotated clockwise, the backspace pawl should miss the first tooth by a clearance of
 — Min 0.003 inch---Max 0.010 inch
 at point of least clearance.

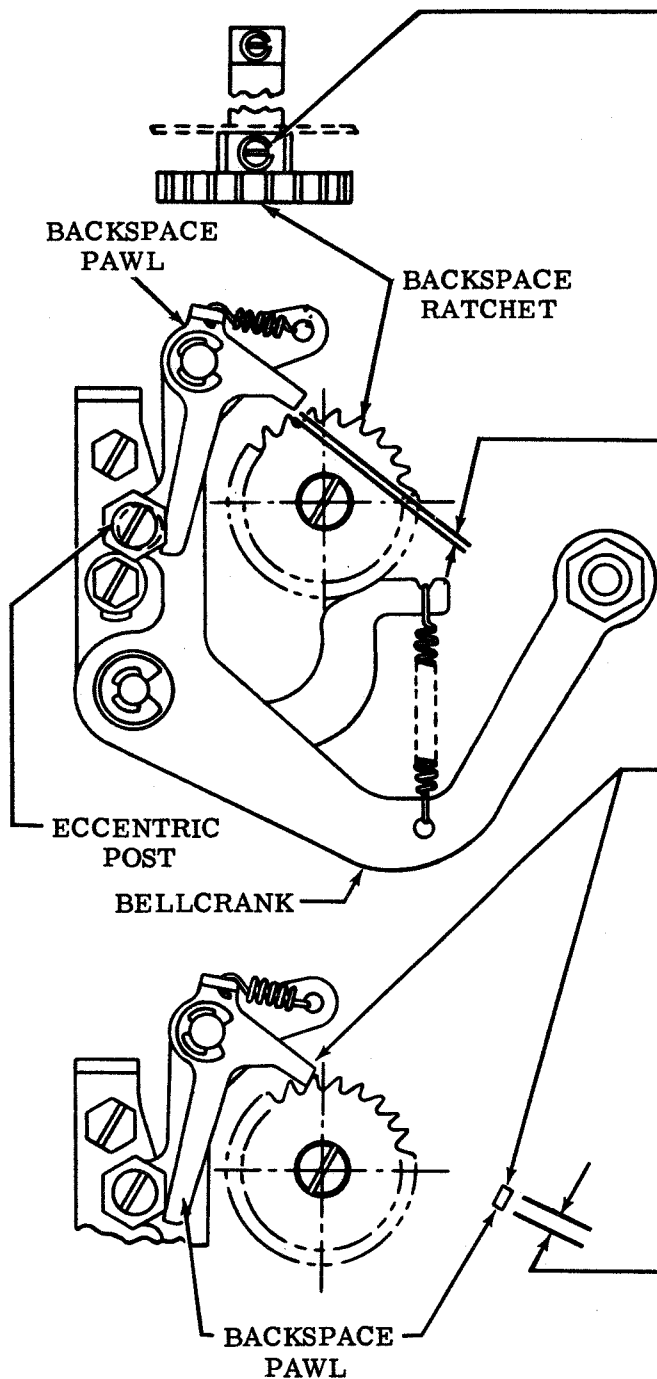
(2) Requirement (Final)

The backspace pawl should miss the first tooth and engage the second tooth by at least 1/2 of the right engaging surface of the backspace pawl (as gauged by eye) when backspace pawl first contacts the ratchet tooth.

To Adjust

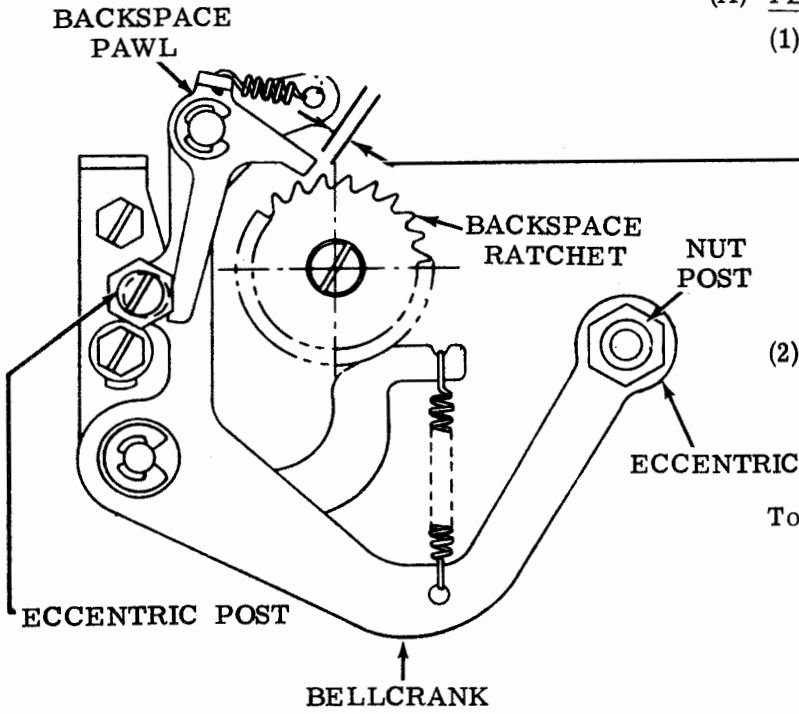
Take up all rotational play of backspace ratchet in relation to feed ratchet by rotating it clockwise at same time rotate bellcrank clockwise. With mounting screw friction tight, rotate eccentric post to meet the requirements. Tighten screw.

Final minimum engagement:
 1/2 of surface with second
 ratchet tooth at first point
 of contact.



3.16 Manual and Power Drive Backspace Mechanism (continued)

(A) FEED PAWL ECCENTRIC (Preliminary)



(1) Requirement (Manual Backspace)

With the backspace bellcrank assembly in its operated position and the feed wheel detented back one space.

Min some---Max 0.003 inch clearance between the backspace ratchet tooth and the backspace feed pawl with all the rotational play of the backspace ratchet taken up in a direction to make the clearance maximum.

(2) Requirement (Power Drive Backspace)

With the backspace bellcrank assembly in its operated position, the high side of the eccentric should be in its uppermost position.

To Adjust

Loosen the nut post (friction tight) and rotate the eccentric with a hex wrench. Tighten the nut post.

(B) ARMATURE HINGE (Early Design)

Requirement

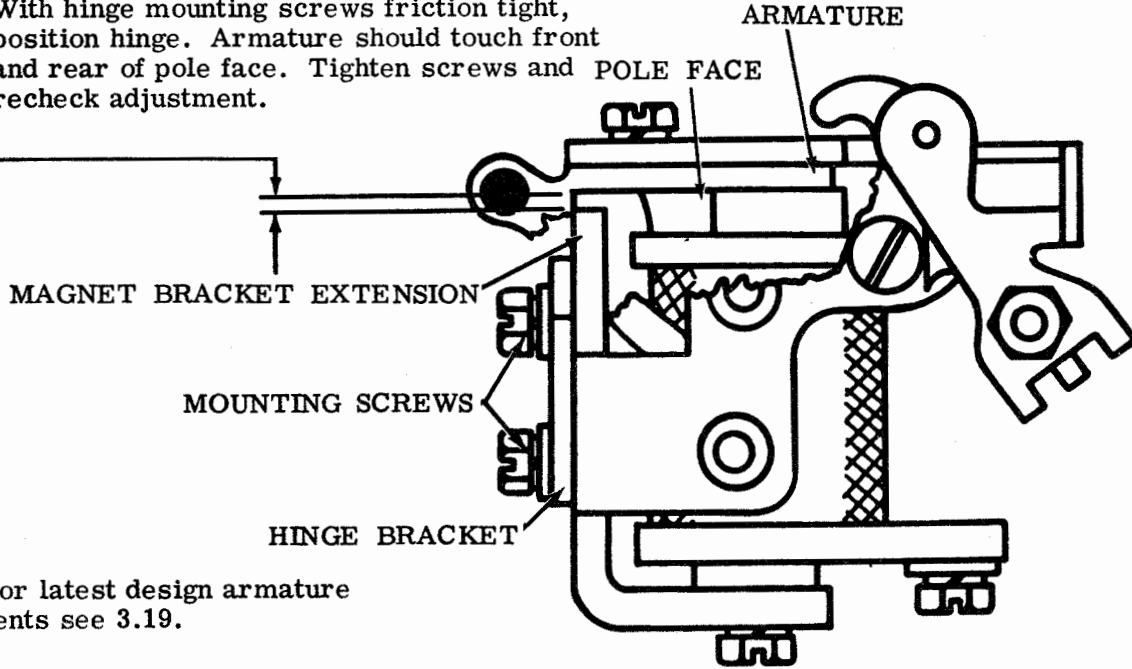
With armature bail spring removed, armature held against the pole face, take up play at hinge in a downward direction. Clearance between the armature and magnet bracket.

Min some---Max 0.004 inch

To Adjust

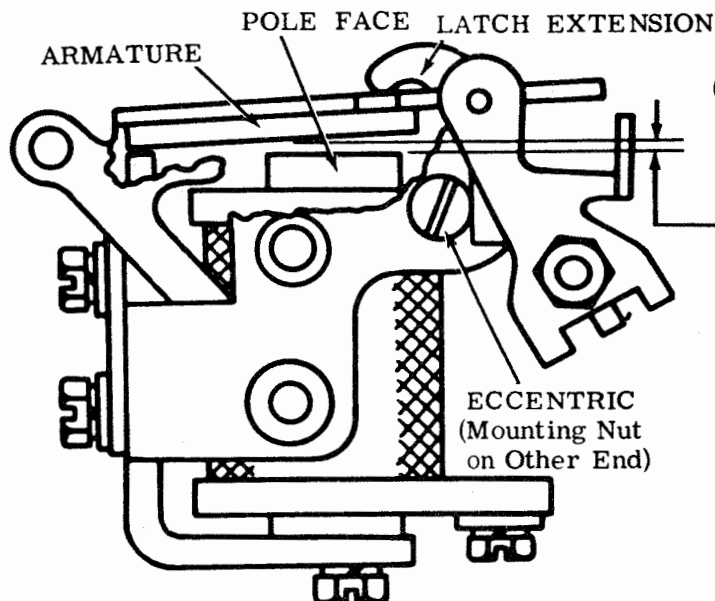
With hinge mounting screws friction tight, position hinge. Armature should touch front and rear of pole face. Tighten screws and recheck adjustment.

Note: For dc operation, the armature should be positioned so that the side marked "C" faces pole face of magnet core. For ac operation, unmarked side faces pole face of magnet core.



Note: For latest design armature adjustments see 3.19.

3.17 Power Drive Backspace Mechanism (continued)



(A) ARMATURE UPSTOP (Early Design)

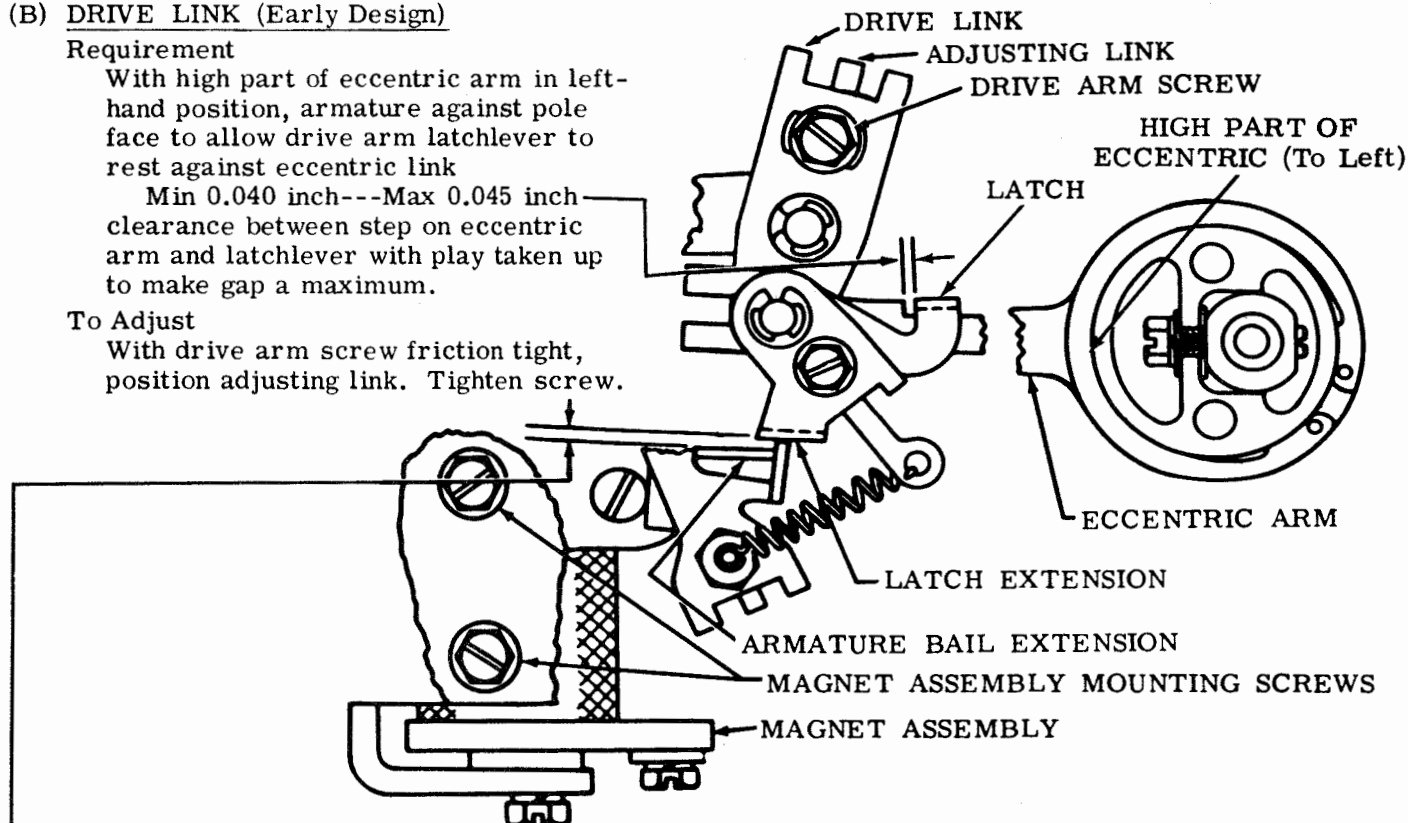
Requirement
 Armature in unoperated position.
 Gap between armature and pole face
 Min 0.025 inch---Max 0.030 inch
 at closest point.

To Adjust
 Rotate eccentric with mounting nut
 loosened. Keep high part of eccentric
 to left. Tighten nut.

(B) DRIVE LINK (Early Design)

Requirement
 With high part of eccentric arm in left-
 hand position, armature against pole
 face to allow drive arm latchlever to
 rest against eccentric link
 Min 0.040 inch---Max 0.045 inch
 clearance between step on eccentric
 arm and latchlever with play taken up
 to make gap a maximum.

To Adjust
 With drive arm screw friction tight,
 position adjusting link. Tighten screw.

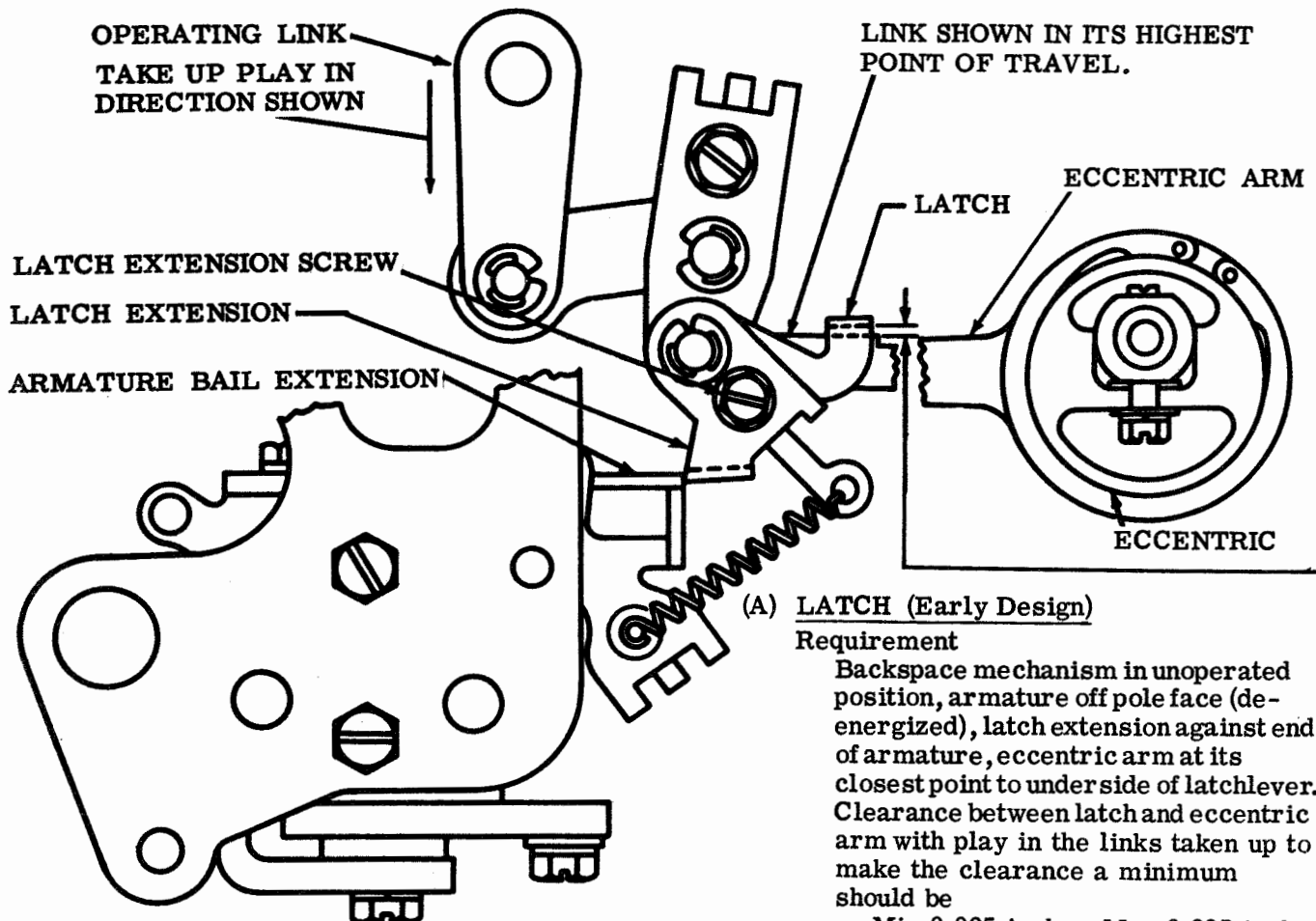


(C) LATCH EXTENSION (Early Design)

Requirement
 With backspace mechanism in unoperated position, eccentric high part at the left, armature
 against the pole face, latch resting on the eccentric arm notch, clearance between top of
 armature bail extension and latch extension
 Min 0.005 inch---Max 0.020 inch

To Adjust
 With magnet assembly mounting screws friction tight, swing magnet left or right.
 Tighten screws.

3.18 Power Drive Backspace Mechanism (continued)



(A) LATCH (Early Design)

Requirement

Backspace mechanism in unoperated position, armature off pole face (de-energized), latch extension against end of armature, eccentric arm at its closest point to under side of latchlever. Clearance between latch and eccentric arm with play in the links taken up to make the clearance a minimum should be

Min 0.005 inch---Max 0.025 inch

To Adjust

With latch extension screw friction tight, position latch. Tighten screw.

(B) NONREPEAT ARM (Early Design)

Requirement

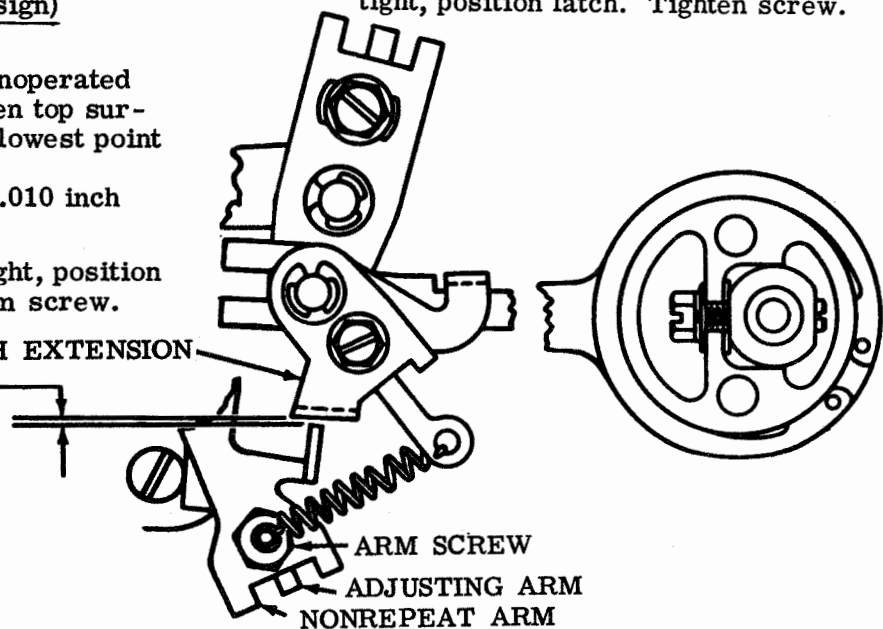
Backspace mechanism in unoperated position. Clearance between top surface of nonrepeat arm and lowest point of latch extension

Min 0.002 inch---Max 0.010 inch

To Adjust

With arm screw friction tight, position adjusting arm. Tighten arm screw.

LATCH EXTENSION



3.19 Power Drive Backspace Mechanism (continued)
(Nonadjustable Backspace Magnet Assembly)

Note 1: For early design adjustable magnet assembly see 3.16.

(A) ARMATURE SPRING (Latest Design)

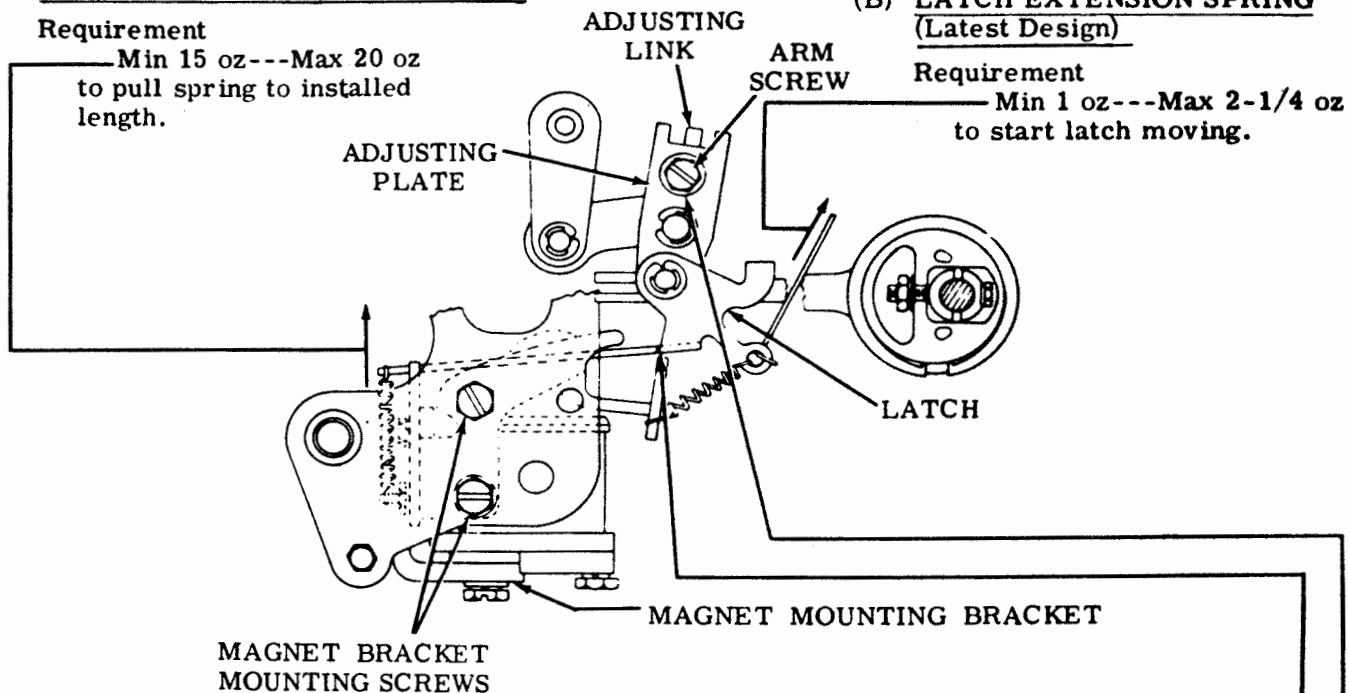
Requirement

Min 15 oz---Max 20 oz
to pull spring to installed
length.

(B) LATCH EXTENSION SPRING
(Latest Design)

Requirement

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



(C) MAGNET POSITION (Latest Design)

Requirement

The armature extension should engage the latch by approximately its full thickness when the magnet is de-energized.

To Adjust

Position the magnet assembly by means of its mounting screws. Tighten screws.

(D) FINAL MANUAL OR POWER ADJUSTMENT (Latest Design)

Note 2: This is the final adjustment for all backspace mechanisms, manual or power drive, regardless of the type of unit.

(1) Requirement

With tape in the unit, place the feed wheel shaft oil hole in its uppermost position; operate the backspace mechanism once. The ratchet wheel should be backed one space into a fully detented position.

Note 3: A fully detented position is defined as: With the detent roller in contact with the ratchet wheel the punch unit feed pawl should engage the first tooth below the horizontal centerline of the feed wheel ratchet with no perceptible clearance.

(2) Requirement

With the unit operating under power, perforate approximately two inches of tape with the RUBOUT combination selected. Backspace twelve characters in succession with the unit still under power. Again perforate approximately two inches of tape with the RUBOUT combination selected. Clipping of the code holes should be held to a minimum and should not exceed more than 0.005 inch, as gauged by eye.

To Adjust

On manual operated backspace mechanisms refine the FEED PAWL ECCENTRIC (Preliminary) (3.16) adjustment. On backspace mechanisms equipped with power drive, loosen the arm adjusting screw and position the adjusting plate. Tighten the arm adjusting screw.

3.20 Power Drive Backspace Mechanism (continued)

(A) FEED PAWL SPRING

Requirement

Backspace mechanism in unoperated position.
Min 4 oz---Max 6 oz
to start feed pawl moving.

(B) BELLCRANK SPRING

Requirement

Min 9 oz---Max 12 oz
to pull spring to installed length.

(C) ARMATURE LATCH SPRING
(Early Design)

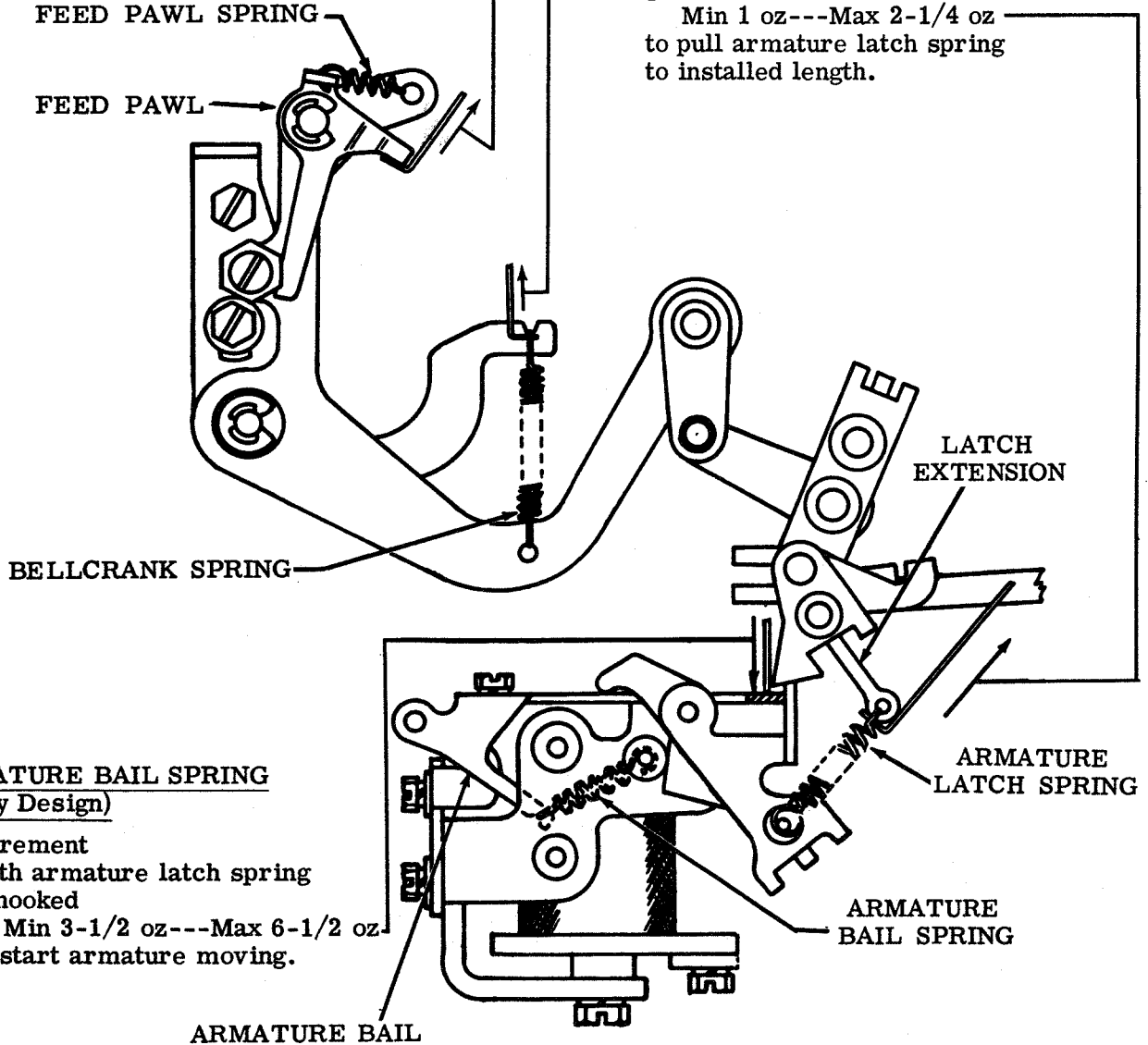
Requirement

Min 1 oz---Max 2-1/4 oz
to pull armature latch spring
to installed length.

(D) ARMATURE BAIL SPRING
(Early Design)

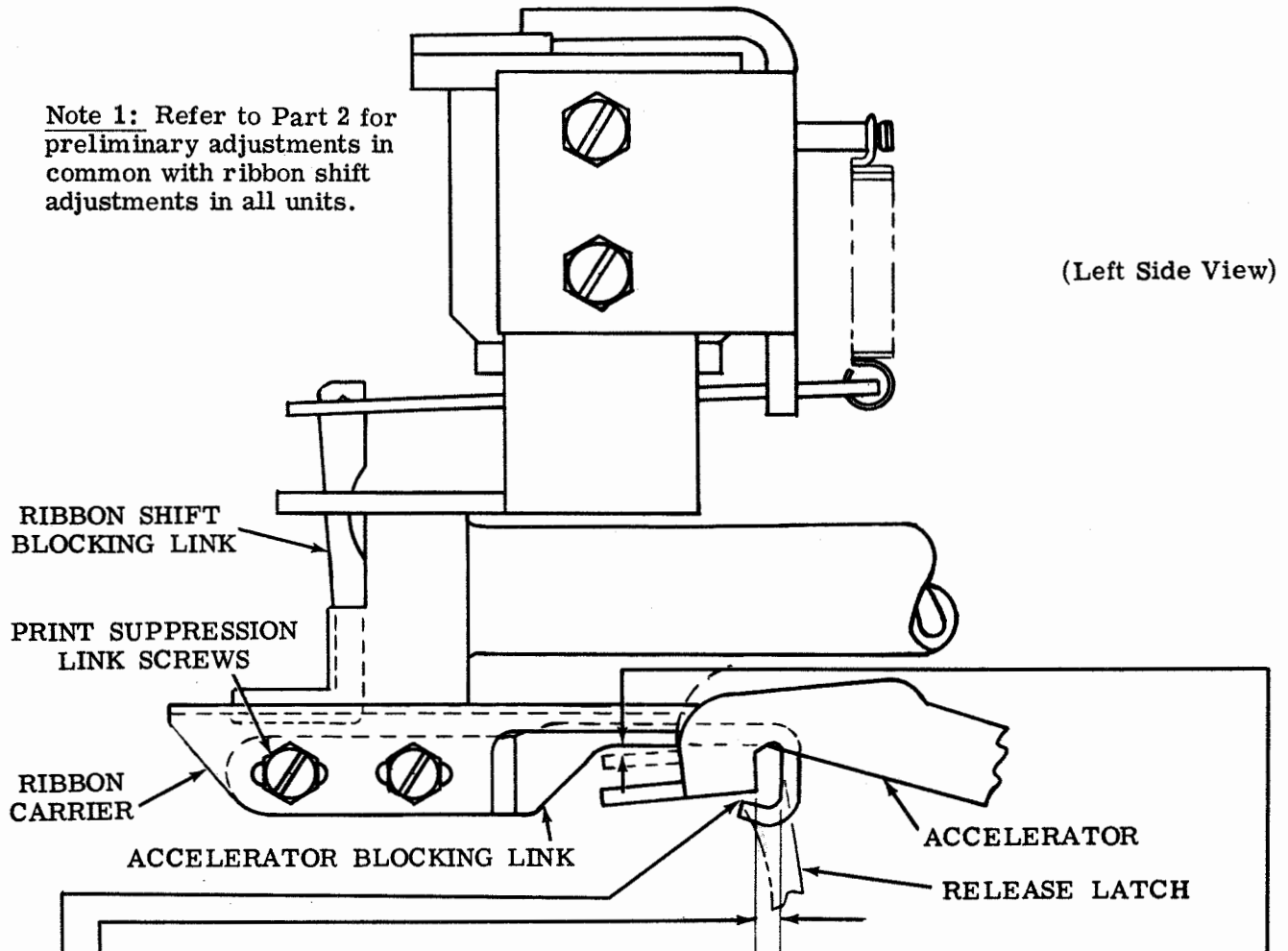
Requirement

With armature latch spring
unhooked
Min 3-1/2 oz---Max 6-1/2 oz
to start armature moving.



3.21 Print Suppression Mechanism

Note 1: Refer to Part 2 for preliminary adjustments in common with ribbon shift adjustments in all units.



ACCELERATOR BLOCKING LINK (Latest Design)

(1) Requirement

With the rocker bail in the extreme left position, there should be
 Min 0.075 inch---Max 0.095 inch
 clearance between the accelerator lever and the accelerator blocking link.

(2) Requirement

With the unit in the stop position, there should be
 Min some _____
 clearance between the top surface of the accelerator and the blocking link.

(3) Requirement

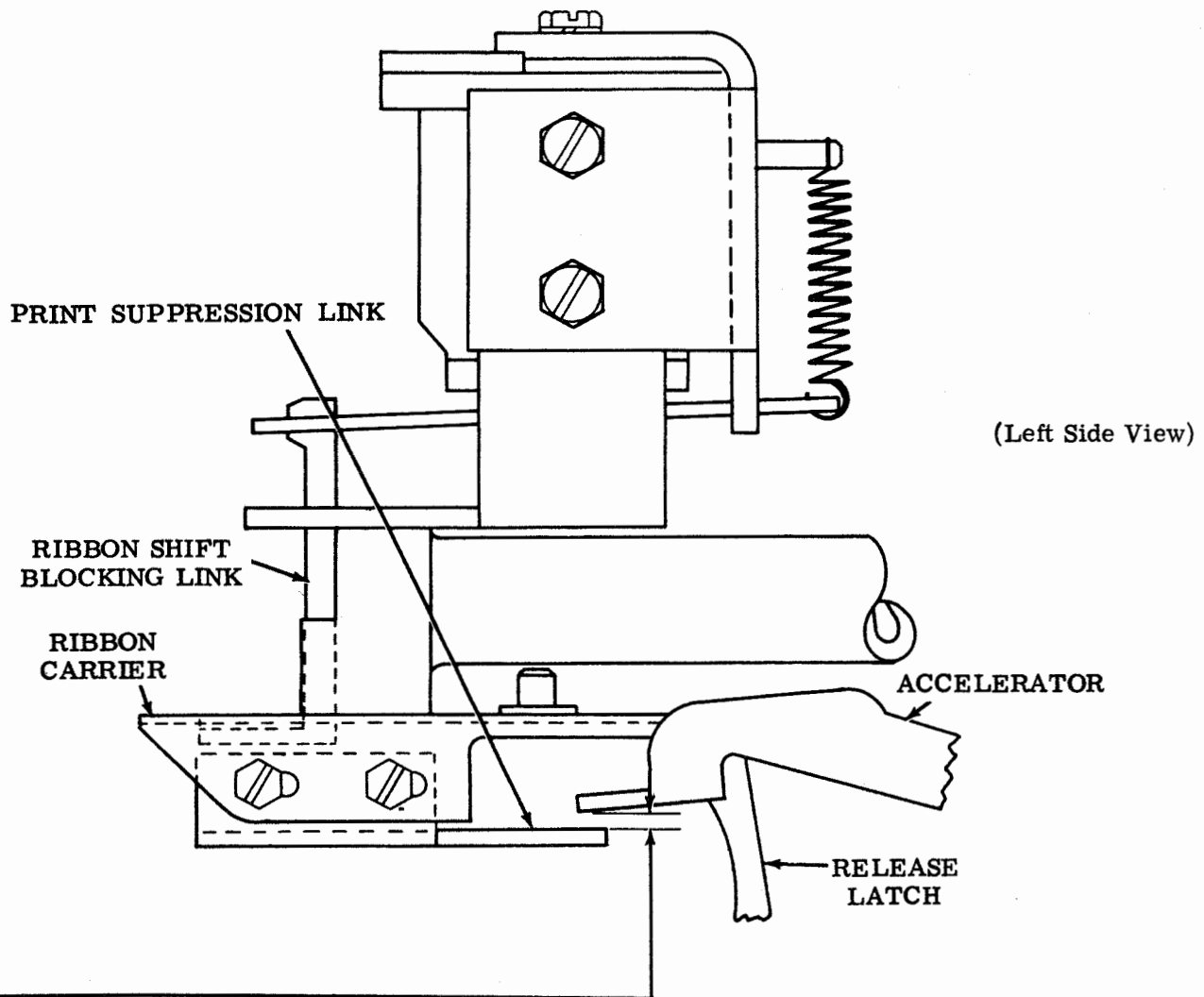
With the ribbon shift magnet armature resting against its upstop screw and when the mainshaft is rotated through a complete revolution, there should be
 Min some _____
 clearance between the accelerator and blocking link at its closest point.

To Adjust

Loosen the two screws which mount the accelerator blocking link and position the link both horizontally and vertically to meet the requirements. Tighten screws.

3.22 Print Suppression Mechanism (continued)

Note 1: Refer to Part 2 for preliminary adjustments in common with ribbon shift adjustments in all units.



Note 2: The following adjustment pertains to units that block the ribbon carrier when the shift magnet armature is held attracted.

ACCELERATOR BLOCKING LINK (Early Design)

Requirement

Function clutch tripped and mainshaft rotated until print hammer trip lever just touches print release latch. There should be

Min 0.020 inch---Max 0.030 inch
clearance between the upper surface of the print suppression link and the lower surface of the print hammer accelerator.

To Adjust

Position the print suppression link all the way to the rear of the slots on the ribbon carrier. Position link in vertical direction with mounting screws loosened to meet requirement. Tighten screws.

3.23 Print Suppression Mechanism (continued)

CONTROL LEVER (Manual)

(1) Requirement

There should be a clearance of
Min 0.015 inch

between the print suppress lever and the print hammer when the lever extension is in the print position (down).

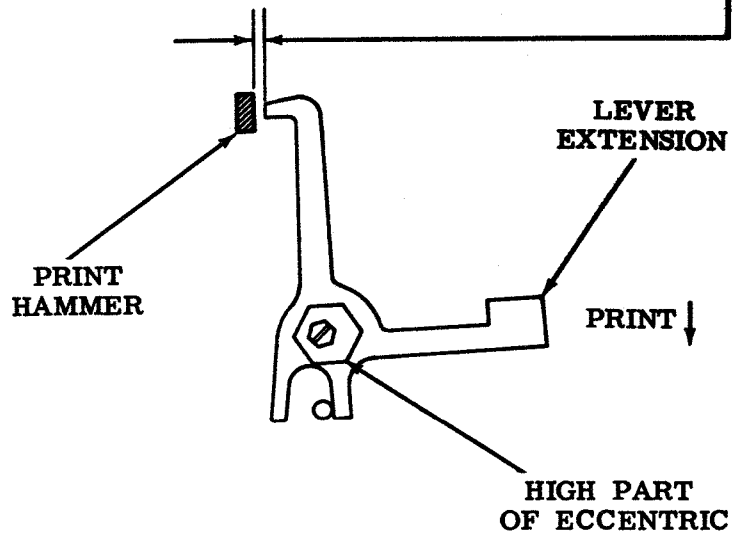
(2) Requirement

When the lever extension is in the nonprint position (up), the blocking extension should extend across the full thickness of the print hammer with a clearance of

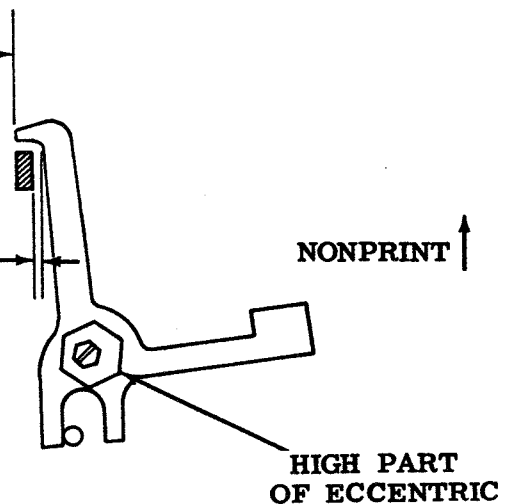
Min 0.015 inch
at the side of the print hammer.

To Adjust

Loosen the eccentric bushing mounting nut and position the bushing until the requirements are met. The high part of the eccentric should be down and to the right as viewed from the rear of the unit. Tighten nut.



LEVER SHOULD EXTEND ACROSS
FULL THICKNESS OF PRINT HAMMER.



(Rear Views)

3.24 Signal Bell and EOT Contacts

Note 1: The following adjustments should be made prior to installing the contact bracket assembly on unit.

(A) NORMALLY OPEN CONTACT GAP

Requirement

Min 0.008 inch---Max 0.015 inch

To Adjust

Bend normally open contact spring.

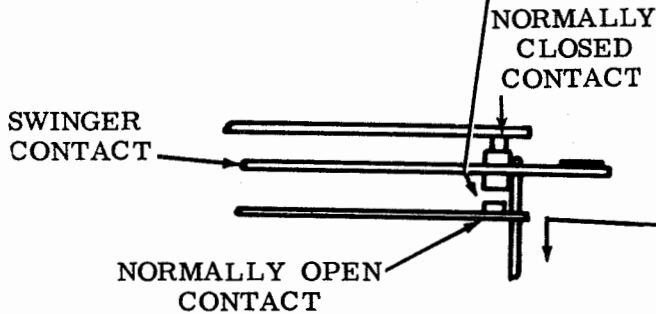
(B) NORMALLY CLOSED CONTACT

Requirement

Min 8 grams---Max 15 grams
to move the swinger contact away from the normally closed contact.

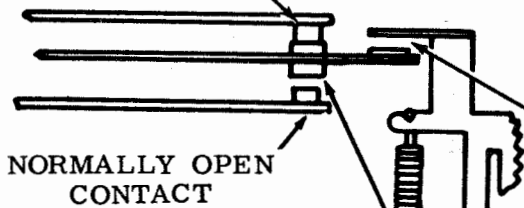
To Adjust

Bend normally closed contact spring.



Note 2: The following adjustments should be made after the contact bracket assembly is mounted to the unit.

NORMALLY CLOSED CONTACT



(C) NORMALLY OPEN CONTACT GAP

(1) Requirement

With the function blade in its lowest position in the nonselected condition, clearance between the contact swinger insulator button and the function blade

Min some

(2) Requirement

Contact gap

Min 0.008 inch---Max 0.015 inch

To Adjust

Bend normally closed contact spring.

(3) Requirement

With the function blade in its lowest position in the selected condition, gap between the swinger contact and normally closed (now open) contact

Min 0.015 inch

and some overtravel of the normally open contact.

To Adjust

Bend normally closed contact spring. Refine previous adjustments to maintain requirements.

