

35 EDGE PUNCHED CARD TYPING REPERFORATOR

ADJUSTMENTS

CONTENTS	PAGE	CONTENTS	PAGE
1. GENERAL	3	Release lever downstop bracket	43
2. BASIC UNIT	8	Trip cam follower	22
		Trip lever extension spring	22
Burst Clutch Mechanism		Left Top Plate Mechanism	
Burst armature hinge	78	Front lid	80
Burst armature trip	78	Hinged lid torsion spring	80
Burst blade	79	Lid latchlever spring	80
Burst clutch endplay	75	Manual Backspace Mechanism	
Burst clutch latchlever spring	76	Feed pawl lever spring	87
Burst clutch reset bail	75	Manual backspace feed pawl lever and feed pawls	87
Burst clutch shoe lever	74	Manual backspace ratchet and feed pawls	88
Burst clutch shoe lever spring	74	Null Character Generator Contact Mechanism	
Burst clutch shoe spring	77	Null character generator contact assembly (mounted in unit)	92
Burst clutch trip mechanism	76	Null character generator contact assembly (removed from unit)	91
Burst limit switch	79	Print Suppression Mechanism (Current Design)	
Clutch reset bail spring	78	Armature bail spring	53
Magnet armature spring	78	Armature hinge	53
Card Sensing Switch Mechanism		Armature stop	55
Burst switch operating (final)	85	Magnet assembly	53
Burst switch operating (preliminary)	84	Print suppression	54
Eject switch lever (final)	86	Print suppression contact position	52
Eject switch operating (preliminary)	84	Print suppression contacts	51
Print suppress switch operating (final)	85	Print Suppression Mechanism (Early Design)	
Print suppress switch operating (preliminary)	83	Print suppression contact position	50
Switch levers	83	Print suppression contacts	49
Function Mechanism		Punch Mechanism	
Cam follower roller	23	Cam follower latch	39
Cam follower roller alignment	23	Cam follower spring	38
Cam follower spring	22	Code hole-feed hole phasing (preliminary)	42
Clutch shoe lever	8		
Clutch shoe lever spring	9		
Clutch shoe spring	9		
Function clutch drum endplay	8		
Function clutch latchlever spring	21		
Function clutch release spring	43		
Function clutch reset lever and latchlever	21		
Function clutch stop lever	20		

CONTENTS PAGE

Code hole-feed hole phasing relationship (final)	90
Detent.	35
Detent spring.	36
Feed hole punch pin slide blocking	41
Feed hole punch pin slide unblocking.	24
Feed pawl	36
Feed pawl spring	36
Feed pawl stop.	37
Feed wheel alignment (final).	89
Feed wheel alignment (preliminary).	33
Feed wheel endplay (early design)	34
Idler gear backlash.	42
Inner rapid feed cam follower	38
Latchlever clearance.	32
Latchlever spring.	40
Outer rapid feed cam follower.	38
Perforator drive link spring.	29
Punch mounting (final).	28
Punch mounting (preliminary).	25
Punch pin penetration	29
Punch slide downstop position.	30
Punch slide guide	30
Punch slide latch spring	32
Punch slide spring	32
Rapid feed belt.	26
Rapid feed pawls spring.	38
Reset bail trip lever	31
Slide post springs.	29
Solenoid	40
Solenoid link spring.	40
Solenoid plunger upstop	39
Toggle operating arm	27
Type wheel clearance	28

Selector Mechanism

Clutch shoe lever	8
Clutch shoe lever spring	9
Clutch shoe spring	9
Marking locklever spring.	12
Pushlever reset bail spring	15
Range finder knob phasing	17
Selector armature	10
Selector armature downstop (final)	13
Selector armature downstop (preliminary).	10
Selector armature spring (final)	14
Selector armature spring (preliminary).	14
Selector cam lubricator.	18
Selector clutch drum endplay	9
Selector clutch latchlever spring.	15
Selector clutch stop lever	17
Selector lever spring	16

CONTENTS PAGE

Selector magnet bracket	11, 12
Selector pushlever spring	16
Selector receiving margin	19
Spacing locklever spring	15
Start lever spring.	19

Top Plate Mechanism

Card pressure plate (current design)	82
Card pressure plate (early design).	81
Front card guide	81
Guideplate (current design)	82
Guideplate (early design)	81
Left card guide	81
Vertical card guide (current design only)	82

Typing Mechanism

Accelerator latch spring	68
Alignment.	44
Axial corrector (yielding)	61
Axial output rack guide roller.	62
Bellcrank pushbar engagement	47
Bellcrank springs 1 to 5	44
Bellcrank springs 6 and 7	45
Bellcrank spring 8	44
Cam follower roller arm position	56
Centering clearance	46
Corrector drive link (yielding) extension spring.	61
Correcting drive link spring.	61
Detent lever spring.	63
Detent spring.	72
Drive arm spring.	72
Feed pawl spring	71
Function blade spring	59
Lifter operating range (when function blades are used).	56
Lifter spring.	59
Lifter toggle link spring	59
Normally closed contact	73
Normally open contact gap.	73
Output rack.	60
Print hammer	70
Print hammer accelerator spring	68
Print hammer return spring.	68
Print hammer trip lever spring	68
Printing latch	67
Pulse lever spring no. 5	46
Pulse lever spring no. 7	46
Pushbar clearance	63
Pushbar location	48
Ratchet wheel torque spring.	71
Rotary corrector arm.	66
Rotary corrector mesh	65
Shoulder clearance.	45
Toggle link	57

CONTENTS	PAGE
Toggle trip arm	58
Type wheel (final)	69
Type wheel (preliminary)	69
Type wheel rack clearance	64
Type wheel shaft (final)	60 ←
Type wheel shaft (preliminary)	60 ←

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. GENERAL

1.01 This section provides adjustments and requirements for the 35 edge punched card typing reperforator (Figure 1). The section has been revised to include recent engineering changes and additions. Marginal arrows indicate changes and additions.

1.02 The basic equipment includes selector mechanism, transfer mechanism, eight-level fully perforating punch mechanism and printing mechanism, print suppression, burst mechanism, and eject mechanism. The type wheel arrangement conforms to the ASCII code.

1.03 The adjustments in this section are arranged in a sequence that should be followed if a complete readjustment of the unit is undertaken. A complete adjusting procedure should be read before attempting to make the adjustment. After an adjustment is completed, be sure to tighten any nuts or screws that may have been loosened, unless otherwise instructed.

1.04 The adjusting illustrations indicate tolerances, positions of moving parts, spring tensions, and the angle at which scales should be applied. The tools required to make adjustments and check spring tensions are not supplied with the equipment, but are listed in the appropriate tool section 570-005-800.

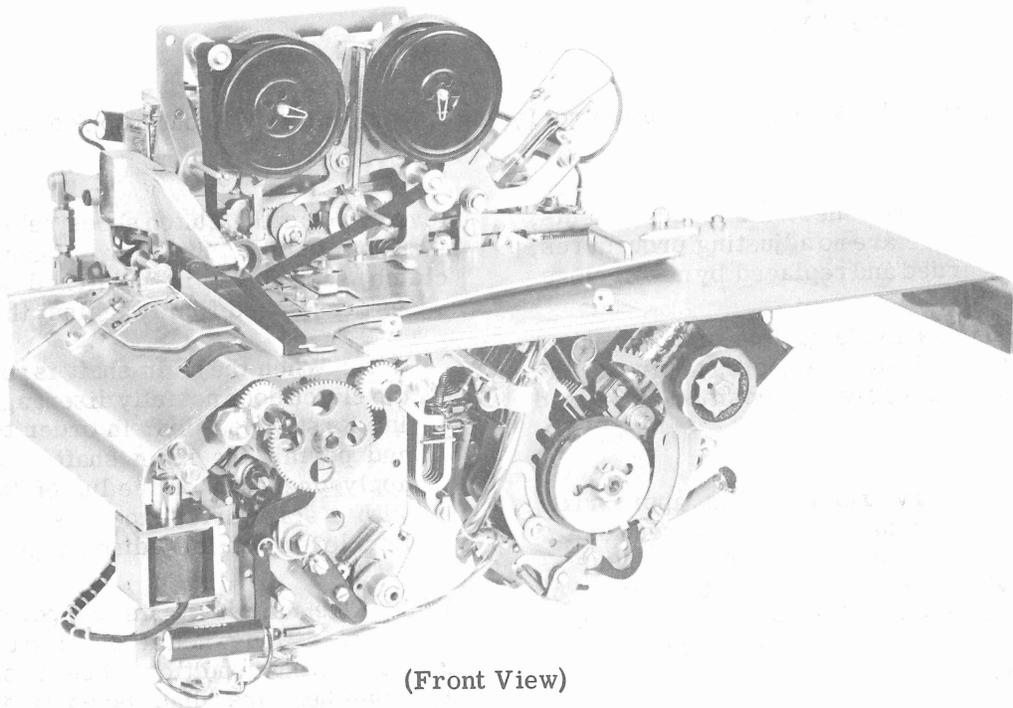


Figure 1 - 35 Edge Punched Card Typing Reperforator

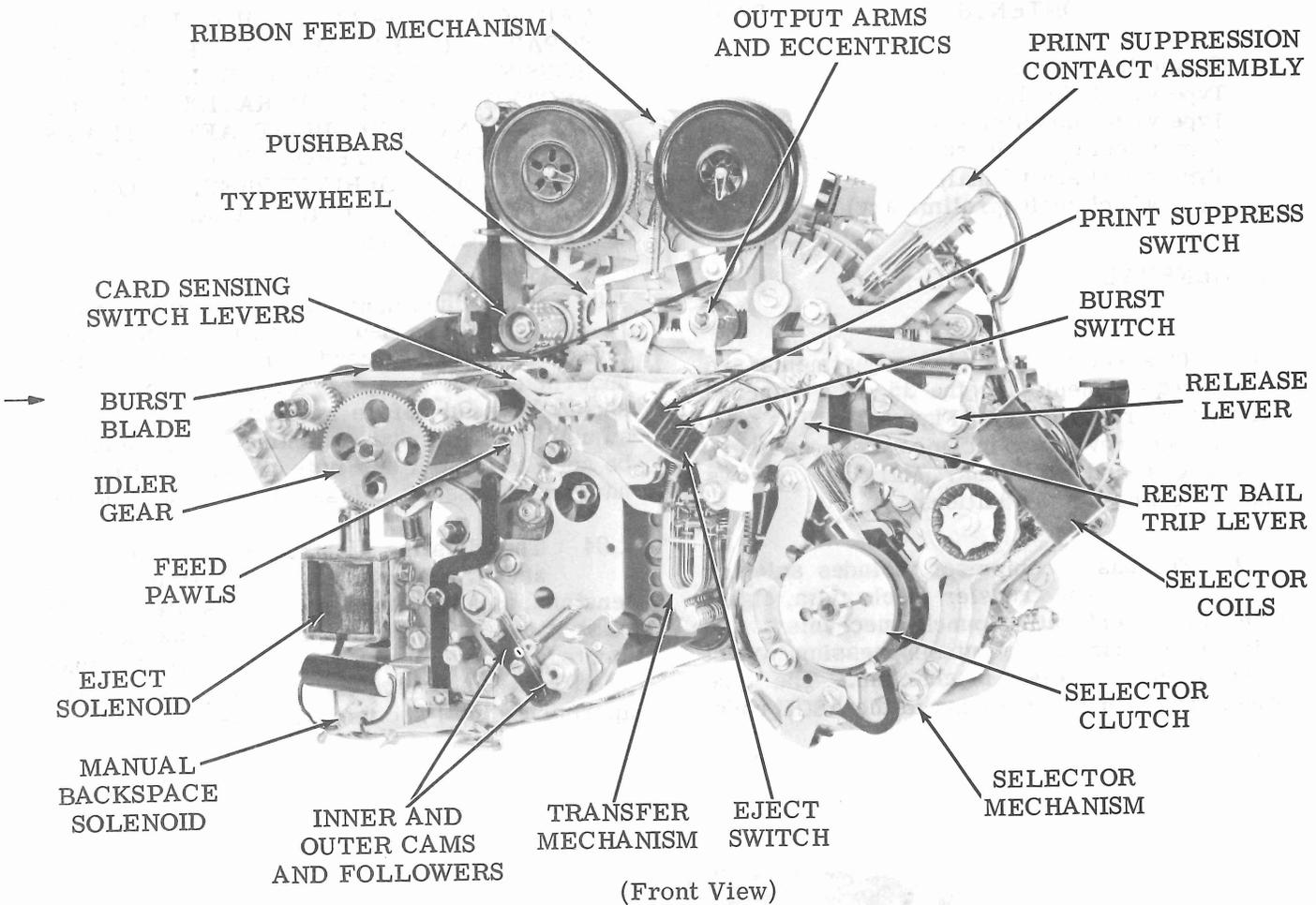


Figure 2 - 35 Edge Punched Card Typing Reperforator (Without Top Plates)

Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

1.05 References made to left or right, up or down, front or rear, etc, apply to the unit in its normal operating position as viewed from the front.

1.06 If necessary, refer to the appropriate disassembly and reassembly section for removal of cover, and any internal mechanisms associated with the typing reperforator. For any further information regarding location of parts, refer to exploded views in the appropriate parts section.

1.07 When a requirement calls for a clutch to be disengaged, the clutch shoe lever must be fully latched between its trip lever and latch-

lever so that the clutch shoes release their tension on the clutch drum. When engaged, the clutch shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

Note: When the main shaft is rotated by hand, the clutch does not fully disengage upon reaching its stop position. In order to relieve drag and permit the main shaft to rotate freely, apply pressure on the lug of the clutch disc with a screwdriver to cause it to engage its latchlever and fully disengage the clutch.

1.08 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).

1.09 To manually operate the typing reperforator, proceed as follows.

(a) Attach the armature clip TP312709 to the selector magnet armature by carefully placing the spring loop over the magnet terminal insulator and pressing down to engage the hook of the clip on the underside of the armature and releasing. 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 main shaft in a counter-clockwise direction until all the clutches are brought to their disengaged position.

(c) Fully disengage the clutches in accordance with Note of Par. 1.07.

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

(e) Rotate the main shaft slowly until all the push levers have fallen to the left of their selecting levers.

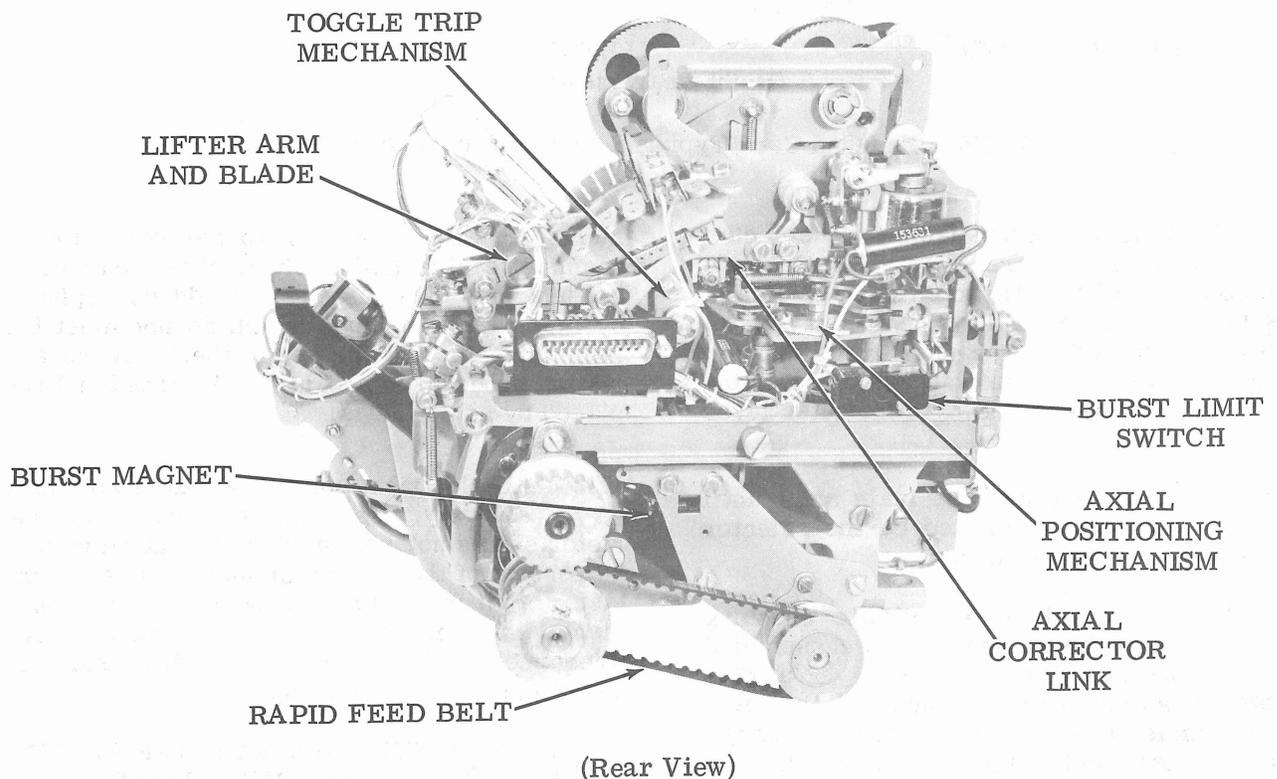


Figure 3 - 35 Edge Punched Card Typing Reperforator (Without Top Plates)

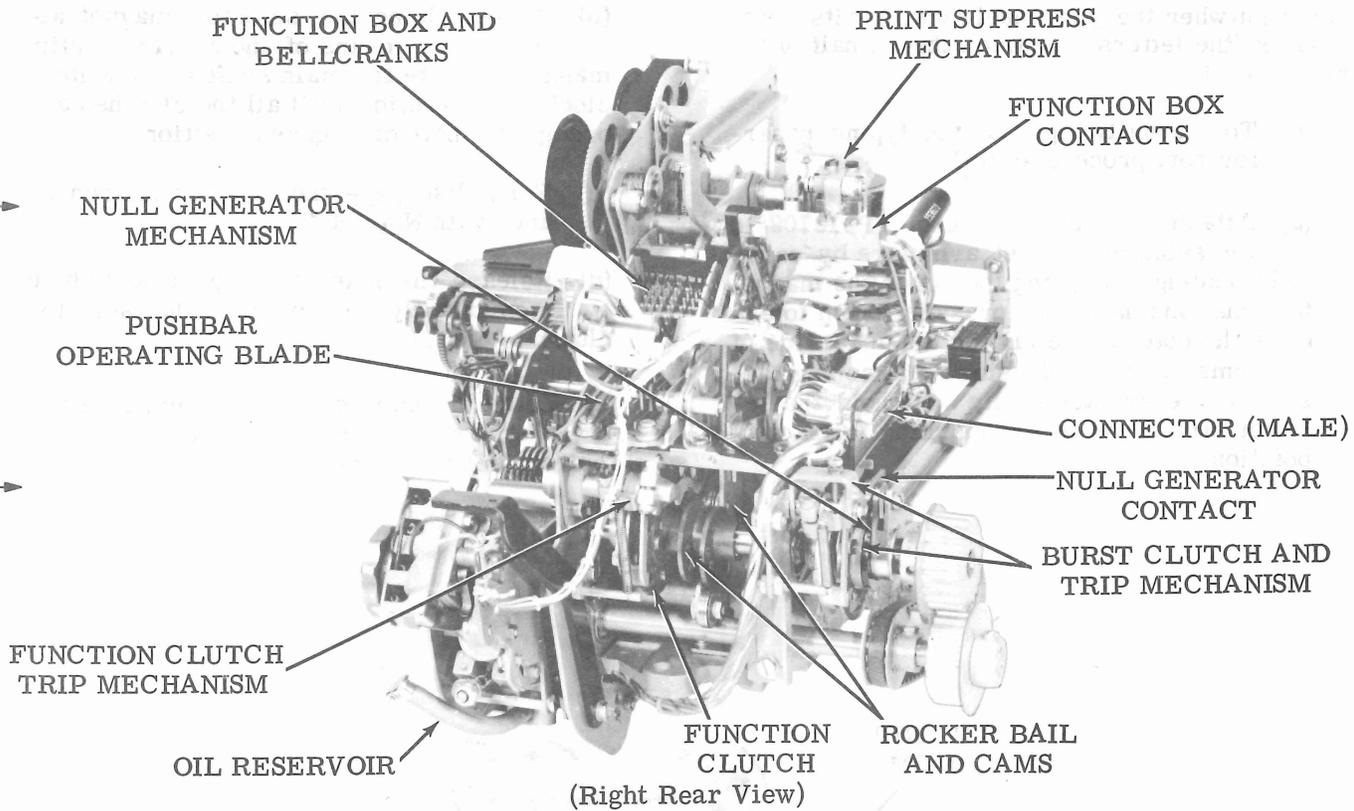


Figure 4 - 35 Edge Punched Card Typing Reperforator (Without Top Plates)

(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 main shaft until all operations initiated by the selector action clear through the unit.

1.10 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 pile-ups can be replaced when the part is remounted. When parts removed are replaced, related adjustments which may have been affected should be checked.

1.11 Parts that are worn to the extent that they can no longer be made to meet the specified requirements by authorized adjust-

ments 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.

1.12 All electrical contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25 percent of the contact diameter. Check contacts for pitting and corrosion and clean or bur-nish them before making specified adjustment or tolerance measurement. Avoid sharp kinks or bends in the contact springs.

CAUTION: KEEP ALL ELECTRICAL CON-TACTS FREE OF OIL AND GREASE.

1.13 The edge punched card typing reperforator is used as a component of a send-receive set. It is mounted on a base. Refer to the base, keyboard, and set installation sections for gear mesh and additional adjustment requirements.

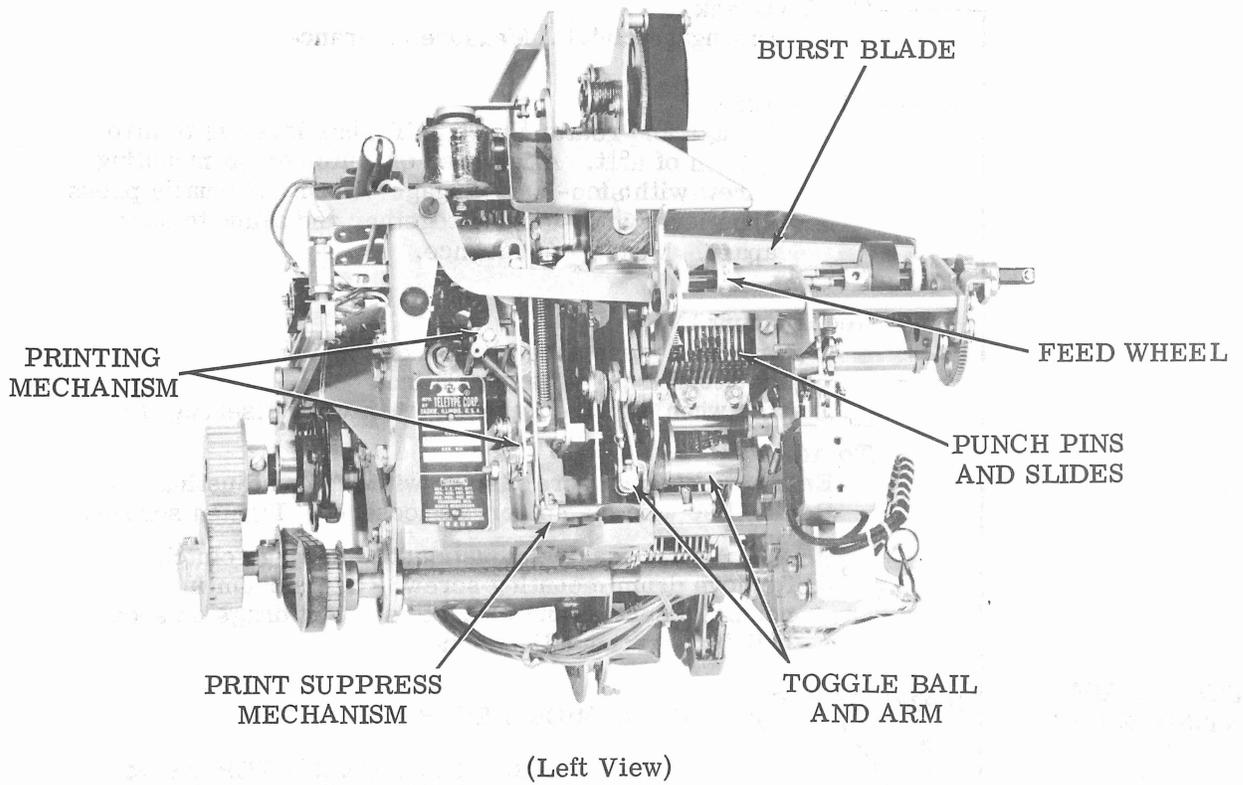


Figure 5 - 35 Edge Punched Card Typing Reperforator (Without Top Plates)

2. BASIC UNIT

2.01 Selector Mechanism

2.02 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.

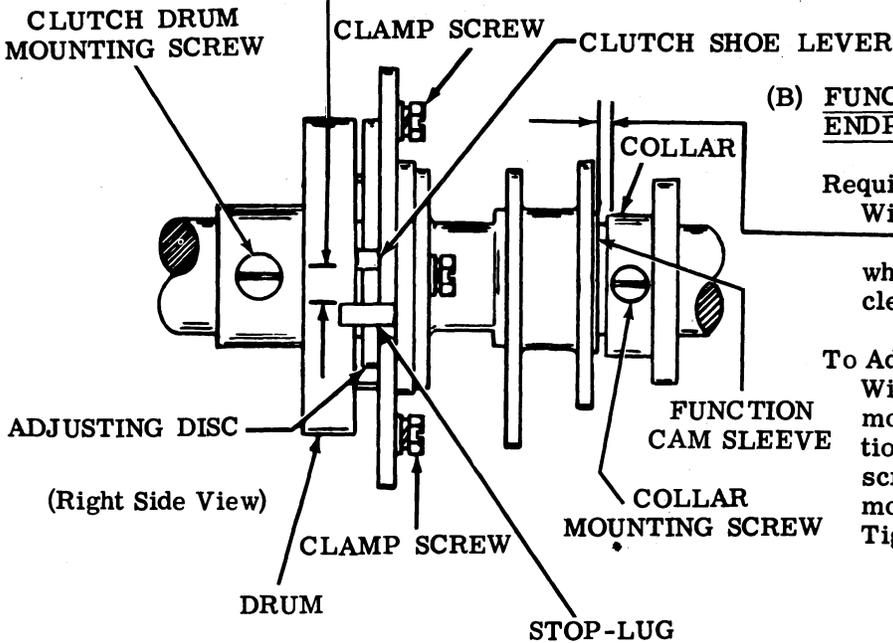
(1) To Check
Disengage clutch. Measure clearance.

(2) To Check
Engage and rotate clutch until shoe lever is toward bottom of unit. 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.

2.03 Selector Mechanism (continued)

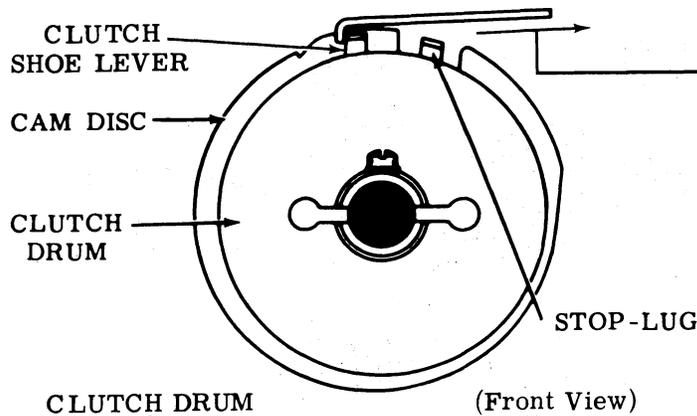
2.04 Function Mechanism (continued)

Note: These spring tensions apply to both clutches.

CLUTCH SHOE LEVER SPRING

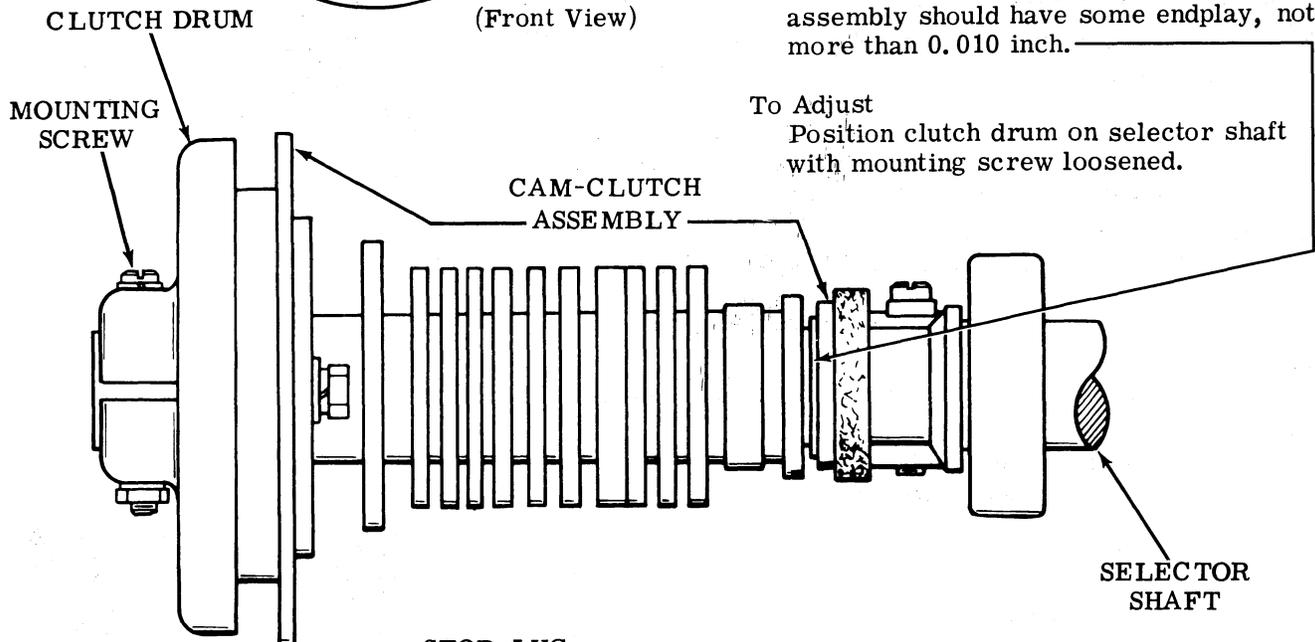
To Check
Engage clutch. Hold cam disc to prevent its turning.

Requirement
Min 15 oz---Max 20 oz
to pull shoe lever in contact
with stop-lug.

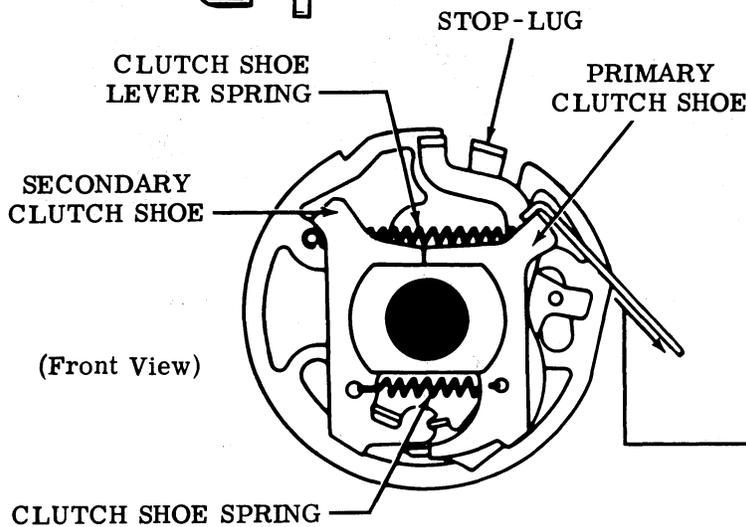


SELECTOR CLUTCH DRUM ENDPLAY

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



To Adjust
Position clutch drum on selector shaft
with mounting screw loosened.



CLUTCH SHOE SPRING

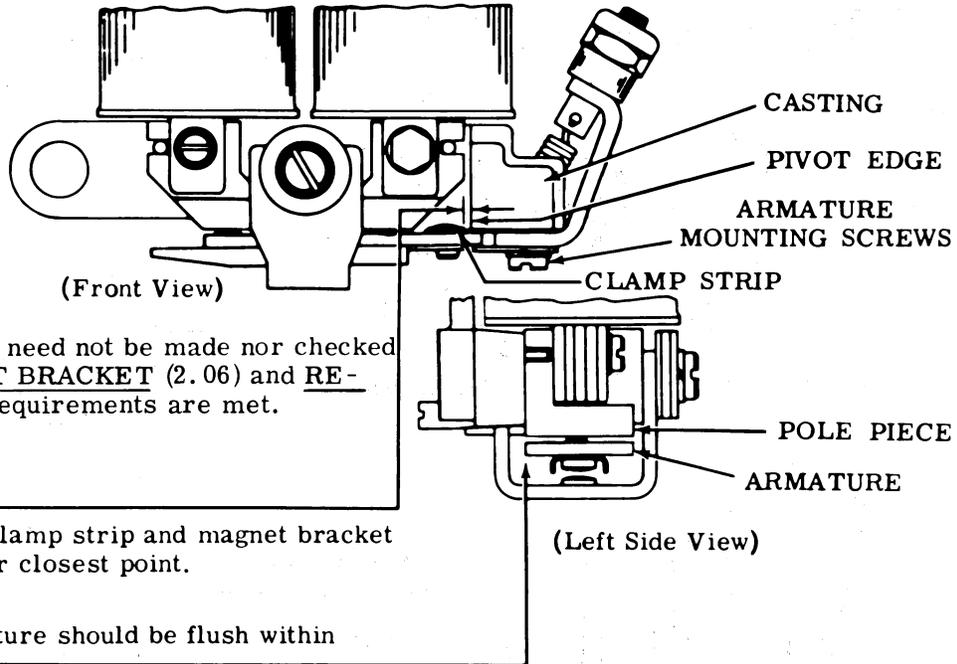
Note: In order to check this spring
tension, it is necessary to remove the
clutch from the selector shaft.
Therefore, it should not be checked
unless there is reason to believe it
will not meet its requirement.

To Check
Remove clutch from drum.

Requirement
Min 3 oz---Max 5 oz
to start primary shoe moving.

2.05 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.



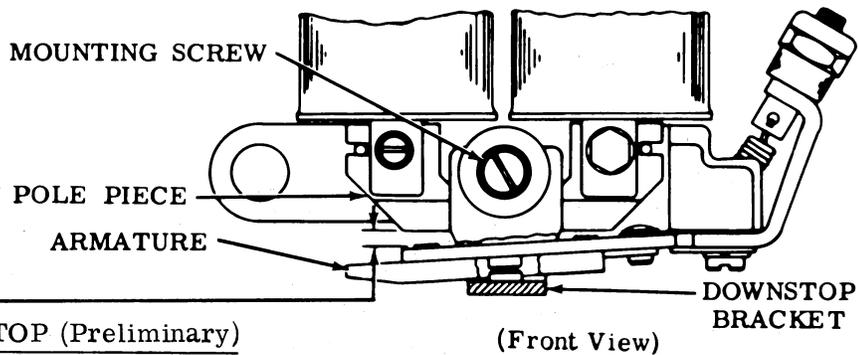
SELECTOR ARMATURE

Note: These requirements need not be made nor checked if the SELECTOR MAGNET BRACKET (2.06) and RECEIVING MARGIN (2.14) requirements are met.

- (1) Requirement
Clearance
Min 0.010 inch
between armature clamp strip and magnet bracket casting edge 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.



SELECTOR ARMATURE DOWNSTOP (Preliminary)

Requirement

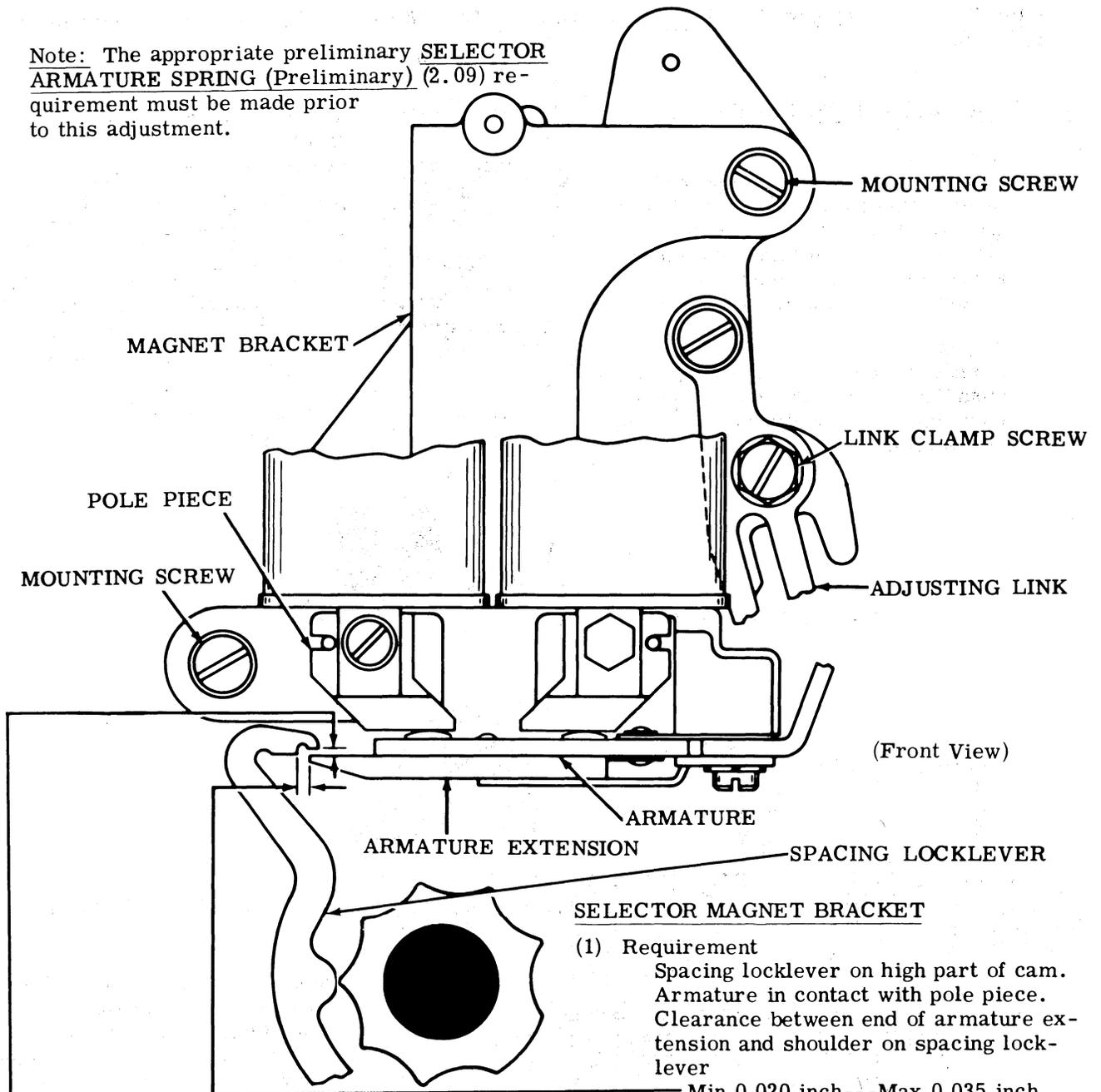
With magnet de-energized, locklevers on high part of their cam, and armature resting against its downstop, clearance between end of armature and left edge of left pole piece
Min 0.030 inch --- Max 0.035 inch

To Adjust

Position downstop bracket with mounting screw loosened. Tighten mounting screw.

2.06 Selector Mechanism (continued)

Note: The appropriate preliminary SELECTOR ARMATURE SPRING (Preliminary) (2.09) requirement must be made prior to this adjustment.



(Front View)

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).

2.07 Selector Mechanism (continued)

Note: See preceding page for SELECTOR MAGNET BRACKET (2.06) adjustment, requirements (1) and (2).

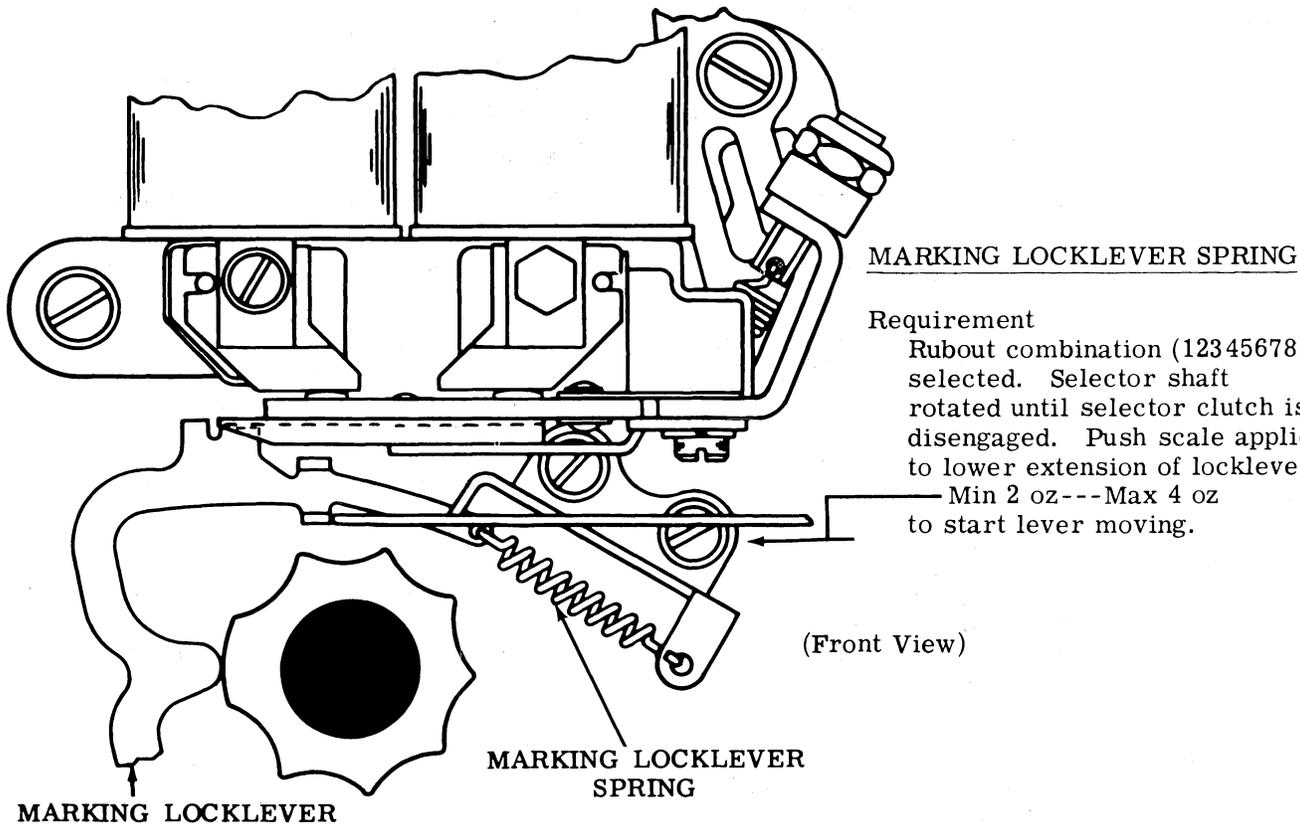
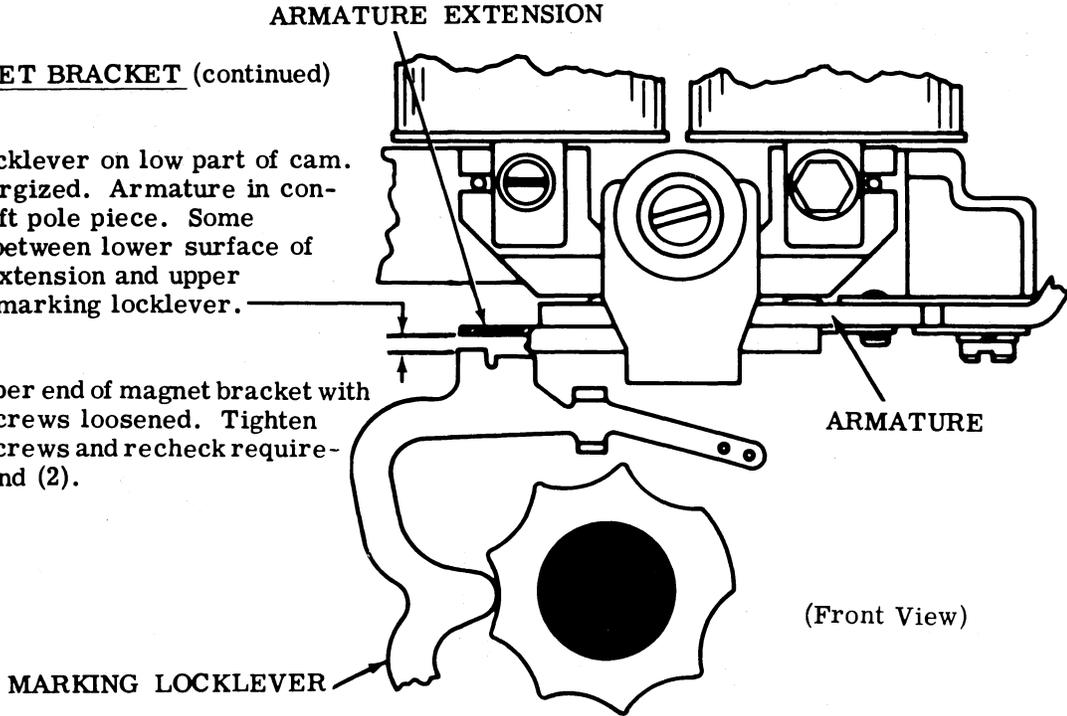
SELECTOR MAGNET BRACKET (continued)

(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).



Requirement

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

2.08 Selector Mechanism (continued)

SELECTOR ARMATURE DOWNSTOP (Final)

Requirement

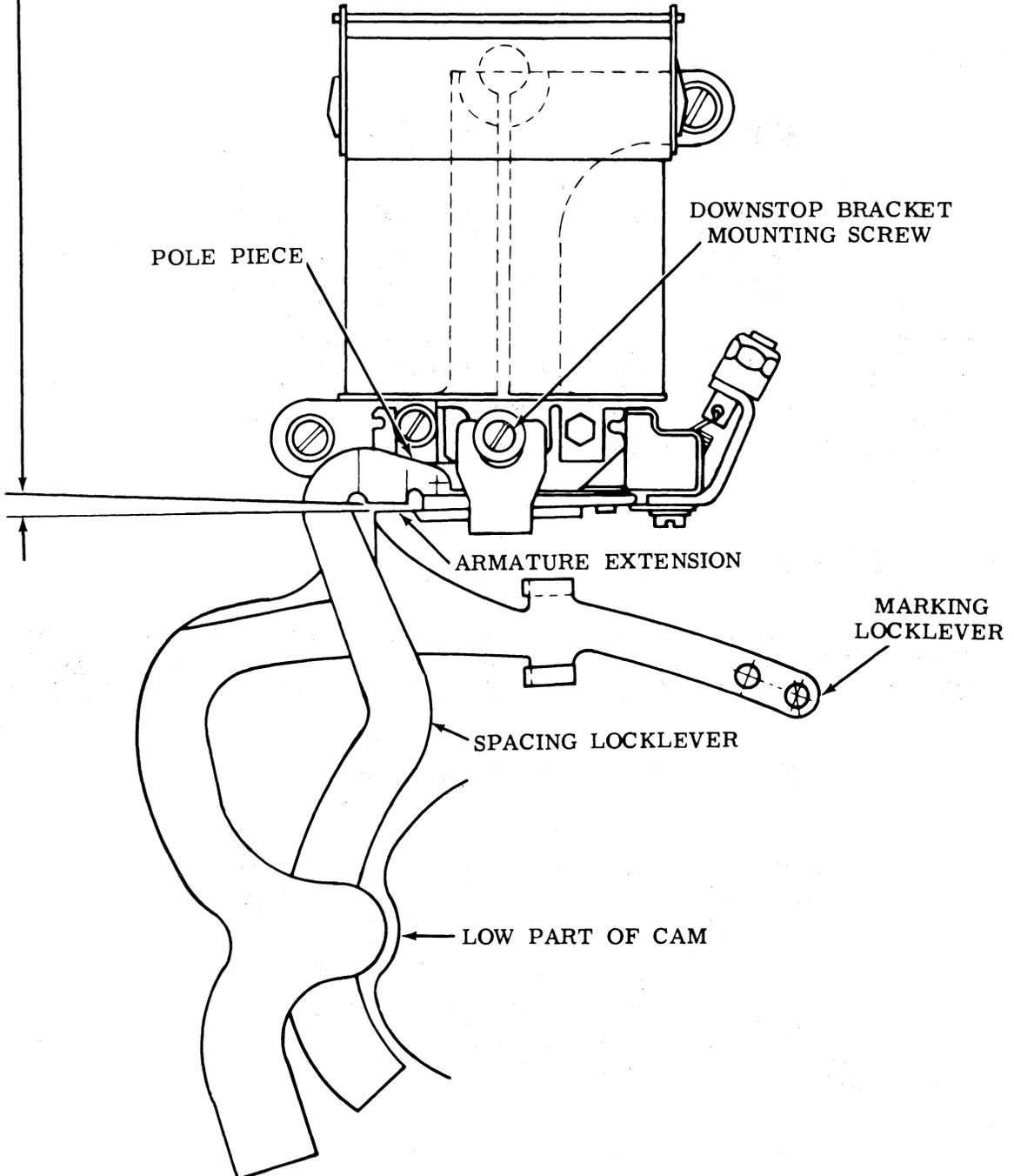
With the selector magnet de-energized and the spacing locklever on the low part of its cam, there should be

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) (2.05) adjustment.



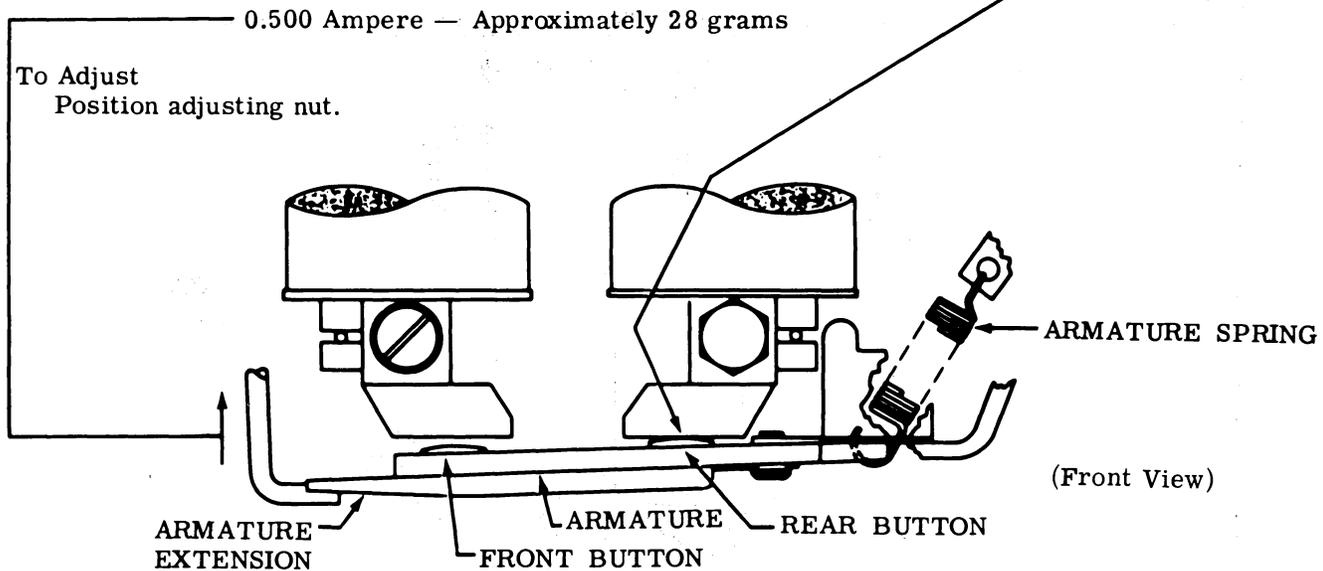
2.09 Selector Mechanism (continued)

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 tension to move the rear antifreeze button against the magnet core.

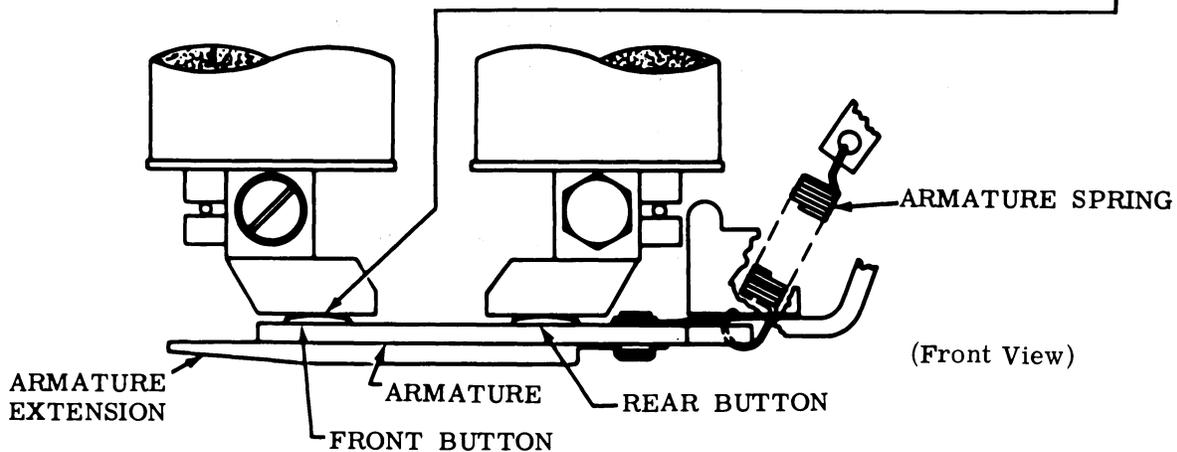


Note: See SELECTOR RECEIVING MARGIN (2.14) adjustment.

SELECTOR ARMATURE SPRING (Final)

(1) Requirement

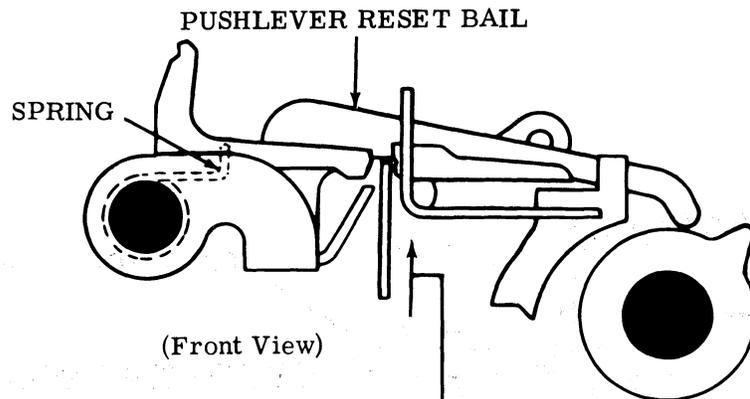
When a distortion test set is available, the selector armature spring tension should be refined (15 grams min), if necessary, to obtain satisfactory receiving margins. The front antifreeze button must contact the magnet core when the magnet coils are energized.



(2) Requirement

See SELECTOR RECEIVING MARGIN (2.14) adjustment.

2.10 Selector Mechanism (continued)



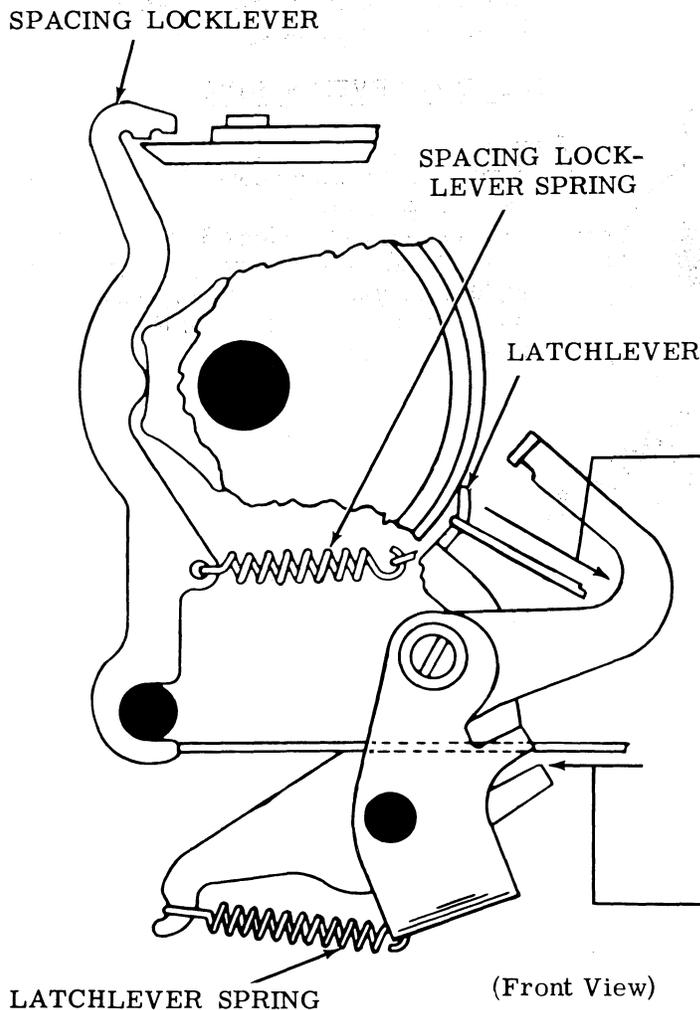
(Front View)

(A) PUSHLEVER 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.



(Front View)

(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.

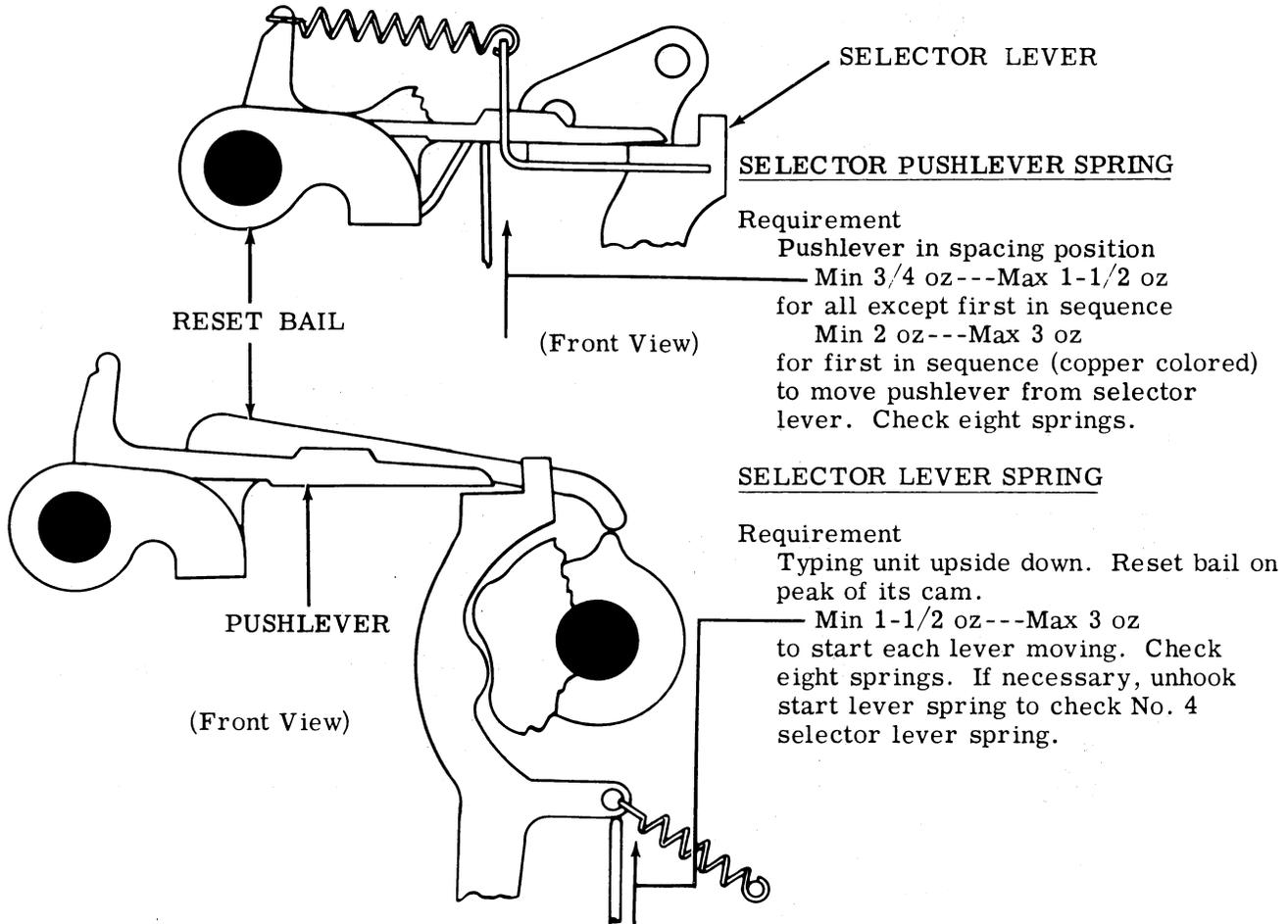
(C) SPACING LOCKLEVER SPRING

Requirement

Selector armature released. Spacing locklever on low part of its cam. Spring scale applied to lower end of spacing locklever

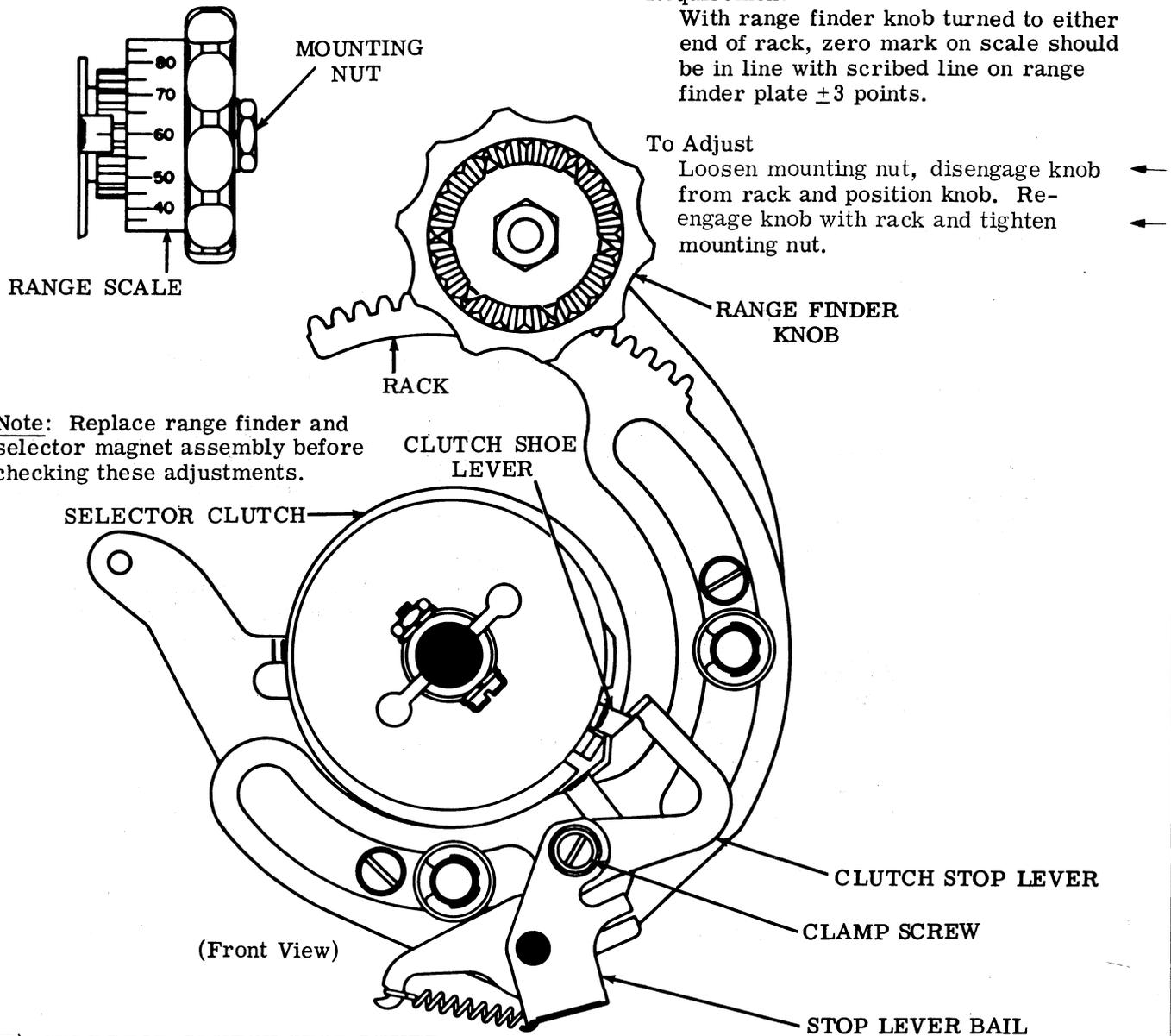
— Min 3 oz --- Max 6 oz
to move spacing locklever from its pivot shaft.

2.11 Selector Mechanism (continued)



2.12 Selector Mechanism (continued)

(A) RANGE FINDER KNOB PHASING



(B) SELECTOR CLUTCH STOP LEVER

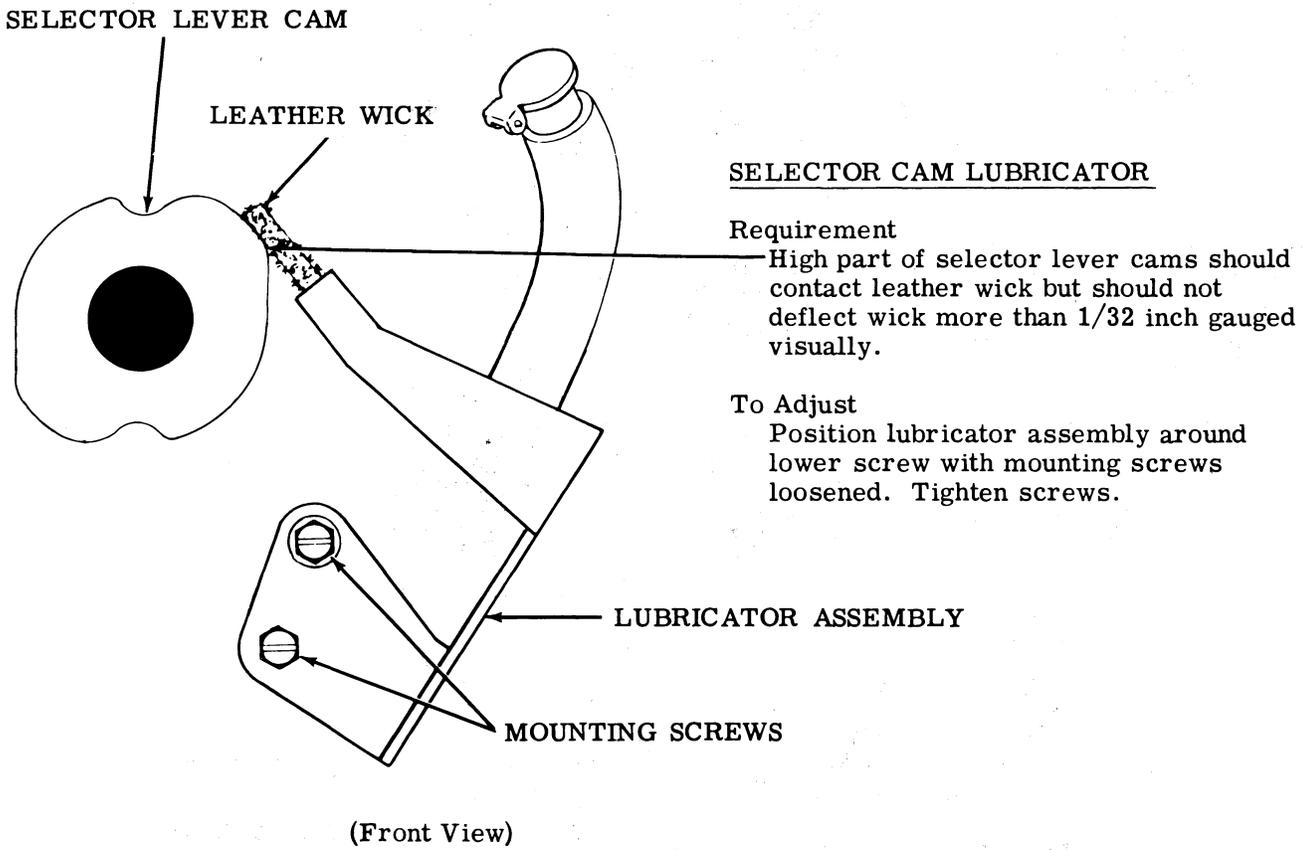
Requirement

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.

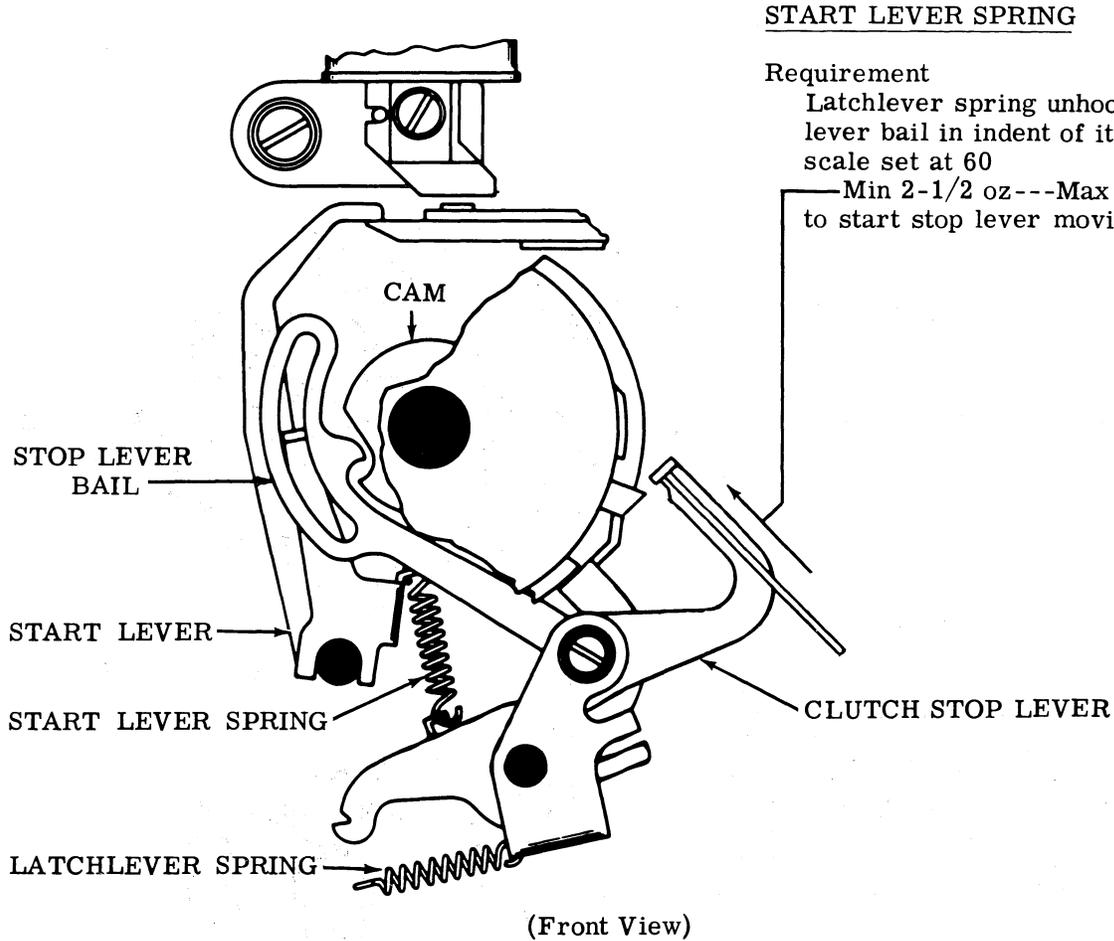
To Adjust

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

2.13 Selector Mechanism (continued)



2.14 Selector Mechanism (continued)



SELECTOR RECEIVING MARGIN

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.

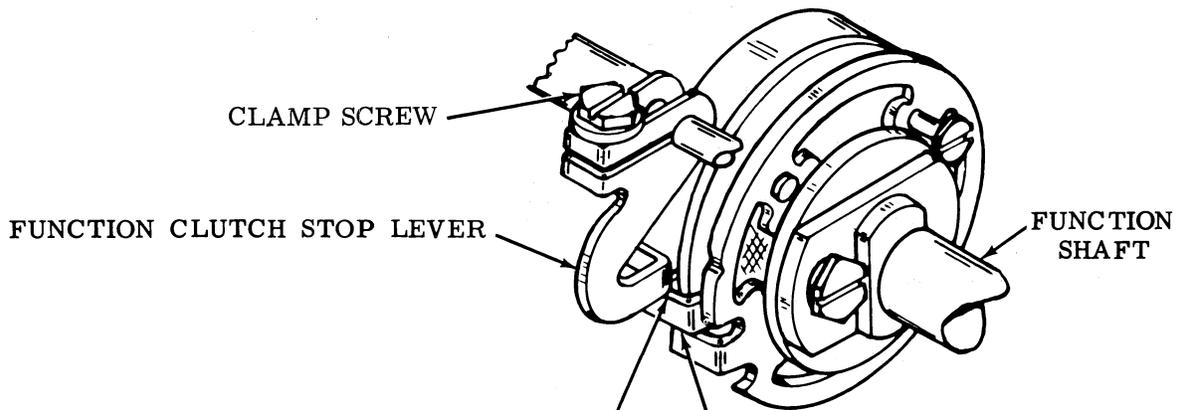
To Adjust

Refine the SELECTOR ARMATURE SPRING (2.09) adjustment.

SELECTOR RECEIVING MARGIN MINIMUM REQUIREMENTS

<u>Current</u>	<u>Speed In WPM</u>	<u>Points Range With Zero Distortion</u>	<u>Percentage Of Marking And Spacing Bias</u>	<u>End Distortion Tolerated With Scale At Bias Optimum Setting</u>
0.500 Amp (Windings Series)	100	72	38	35

2.15 Function Mechanism (continued)

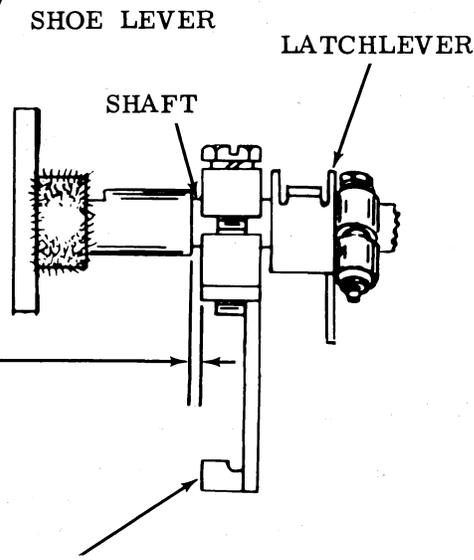


FUNCTION CLUTCH STOP LEVER

(1) Requirement
 With release lever resting on top of trip lever extension (see FUNCTION CLUTCH RESET LEVER AND LATCHLEVER (2.16) adjustment), the function clutch stop lever should engage the clutch shoe lever by the full thickness of the shoe lever.

(2) Requirement
 Min some---Max 0.006 inch
 endplay in function clutch stop lever.

To Adjust
 Position the stop lever on its shaft with its clamp screw friction tight. Tighten screw.



FUNCTION CLUTCH STOP LEVER

(Right Side Views)

2.16 Function Mechanism (continued)

(A) FUNCTION CLUTCH RESET LEVER AND LATCHLEVER

(1) Requirement

Reset lever on the high part of its cam. Clearance between the clutch release lever and the trip lever extension should be

Min 0.010 inch---Max 0.030 inch

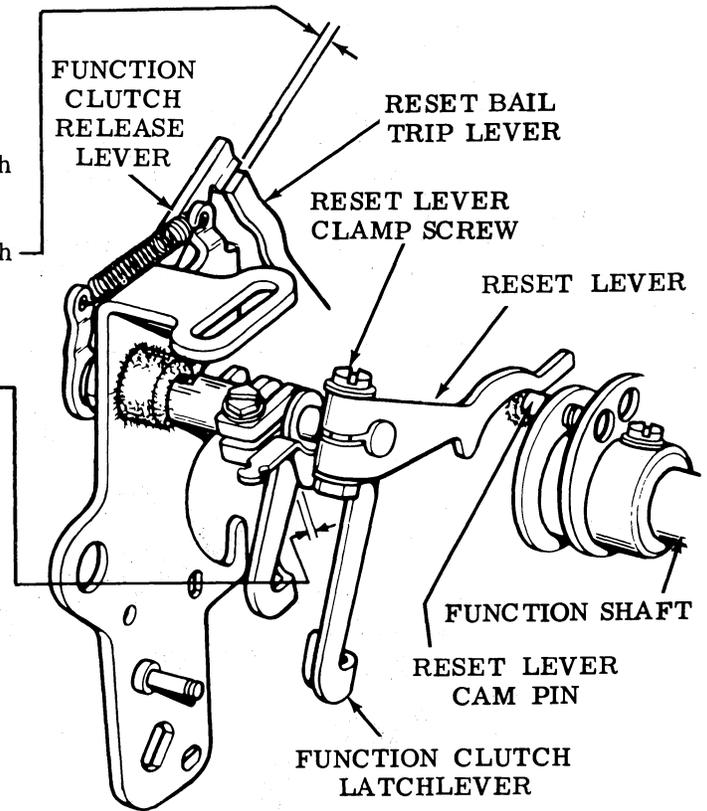
(2) Requirement

Reset lever should be axially positioned on shaft so that there is

Min some---Max 0.010 inch endplay allowed for the function clutch latchlever.

To Adjust

With clamp screw friction tight, position reset lever on its shaft.



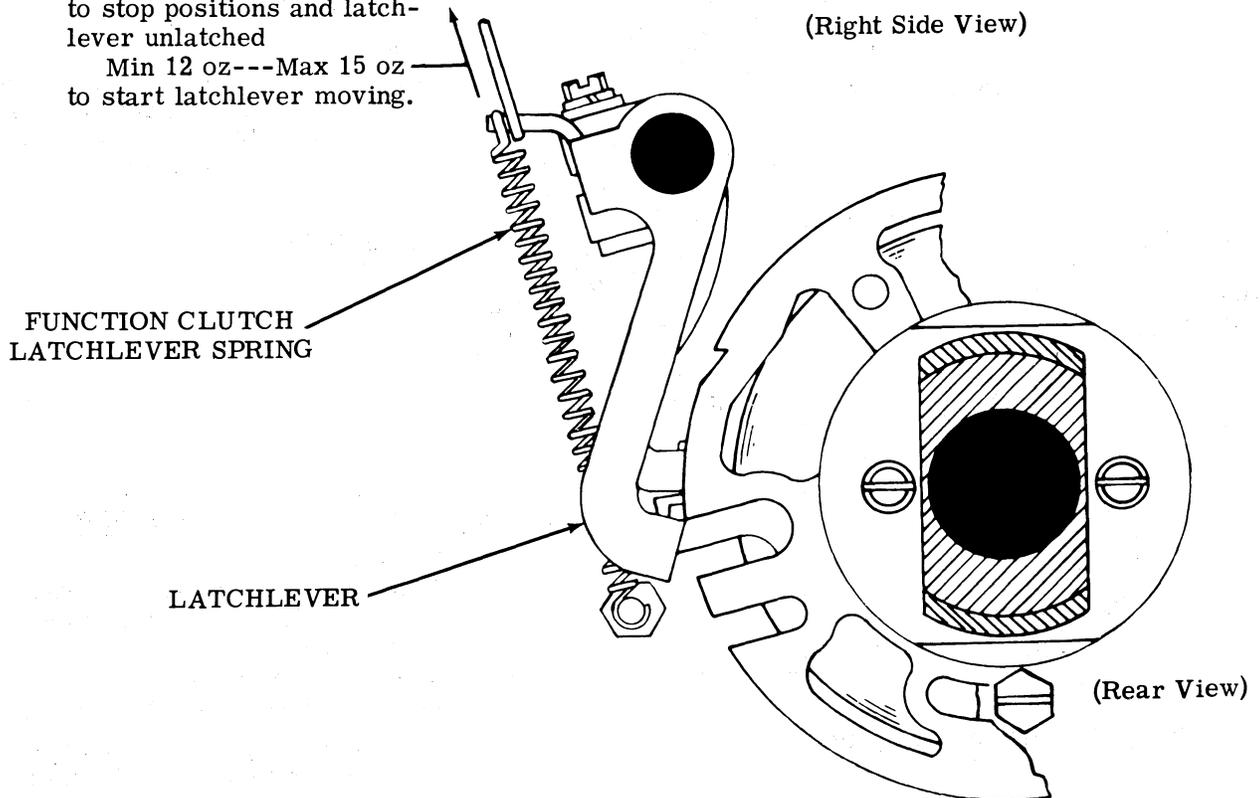
(Right Side View)

(B) FUNCTION CLUTCH LATCHLEVER SPRING

Requirement

With function clutch turned to stop positions and latchlever unlatched

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



(Rear View)

2.17 Function Mechanism (continued)

(A) TRIP CAM FOLLOWER

(1) Requirement

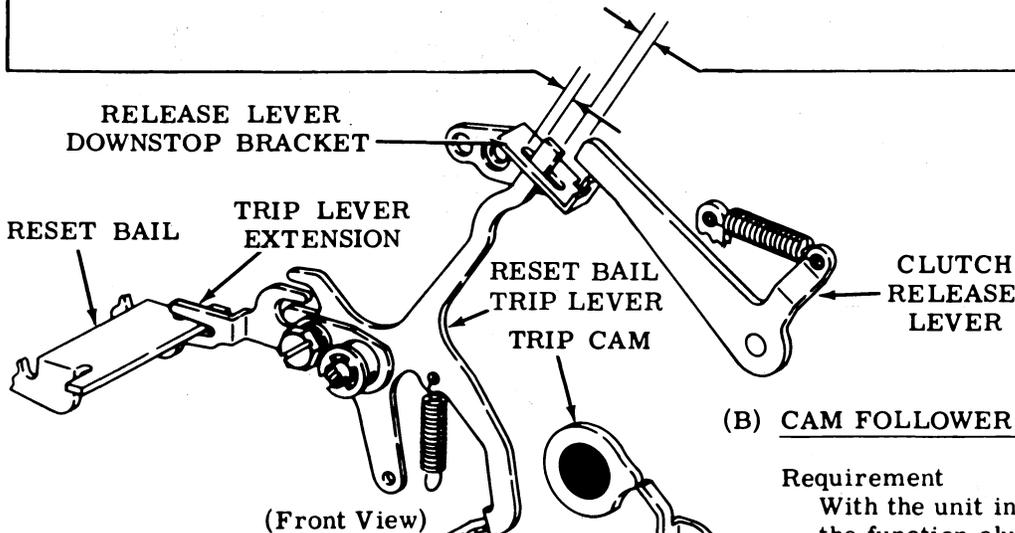
With the trip cam follower on the high part of its cam, the clearance between the trip lever extension and the clutch release lever should be
 Min 0.010 inch---Max 0.030 inch

(2) Requirement

There should be some clearance between the trip lever extension and left end of slot in release lever downstop bracket.

To Adjust

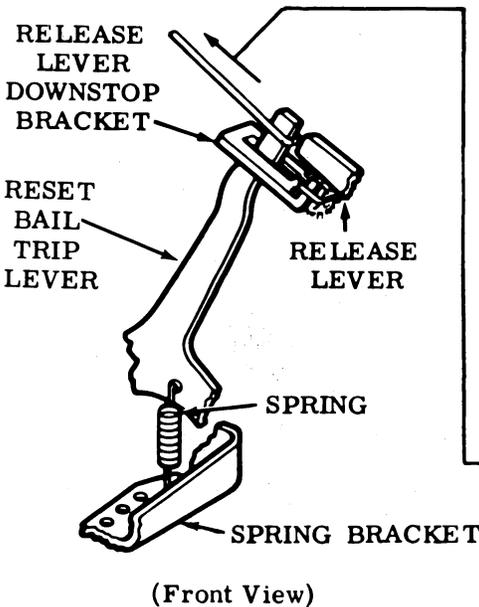
With adjusting arm locknut friction tight, adjust by means of pry point.



(B) CAM FOLLOWER SPRING

Requirement

With the unit in the stop position, trip the function clutch. It should require
 Min 1 oz---Max 4 oz
 to start the lever moving.



(C) TRIP LEVER EXTENSION SPRING

Requirement

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

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

2.18 Function Mechanism (continued)

(A) CAM FOLLOWER ROLLER

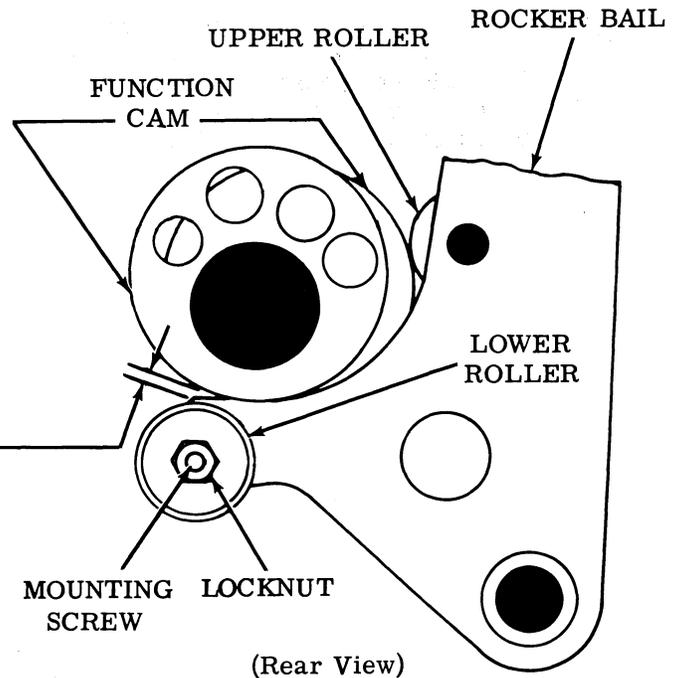
Requirement

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 locknut.



(Rear View)

(B) CAM FOLLOWER ROLLER ALIGNMENT

(1) Requirement

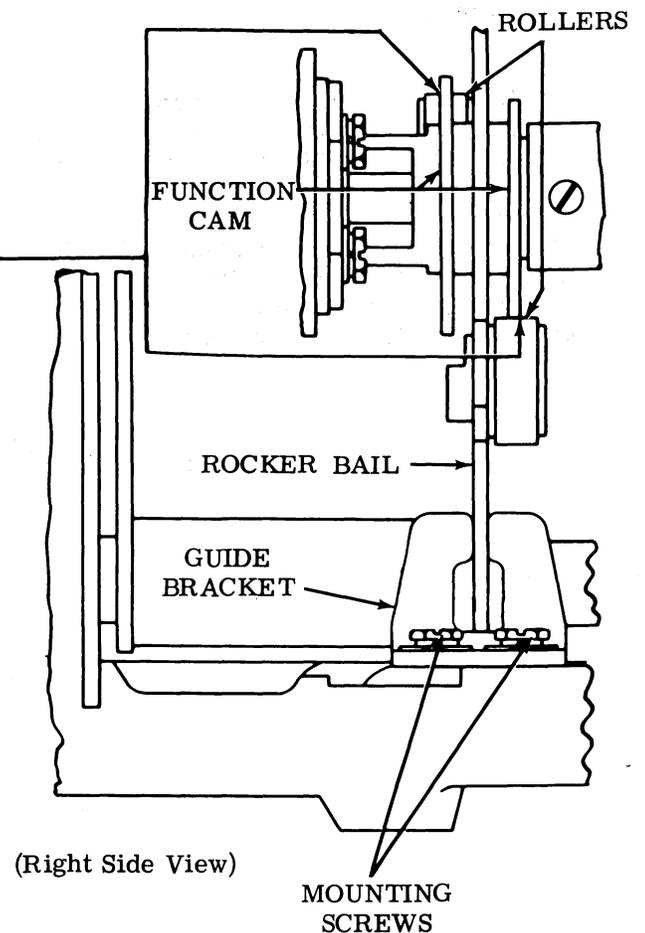
Rocker bail rollers should engage full thickness of function cam.

(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.

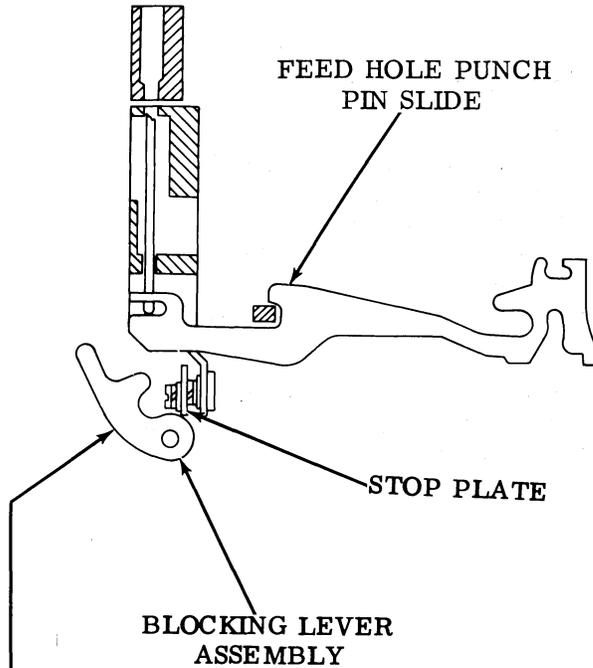


(Right Side View)

2.19 Punch Mechanism

Note: Before making the following twenty adjustments, locate the feed hole punch pin slide in its unblocked position by means of rotating and securing the blocking lever assembly in a counterclockwise direction.

(Front View)



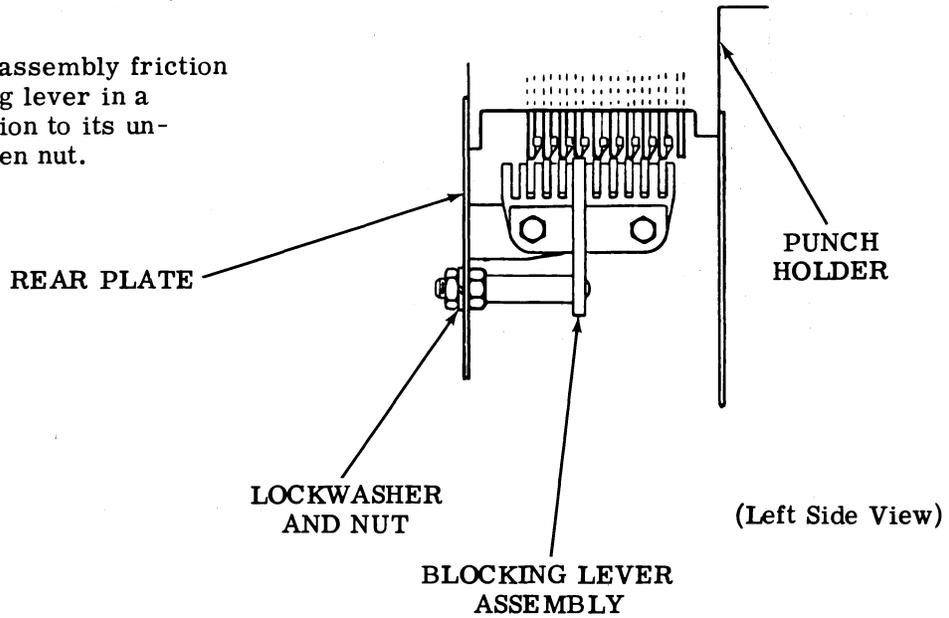
FEED HOLE PUNCH PIN SLIDE UNBLOCKING

Requirement

The feed hole punch pin slide should be operative when the blocking lever assembly is in the unblocked position.

To Adjust

With the blocking lever assembly friction tight, rotate the blocking lever in a counterclockwise direction to its unblocked position. Tighten nut.



(Left Side View)

2.20 Punch Mechanism (continued)

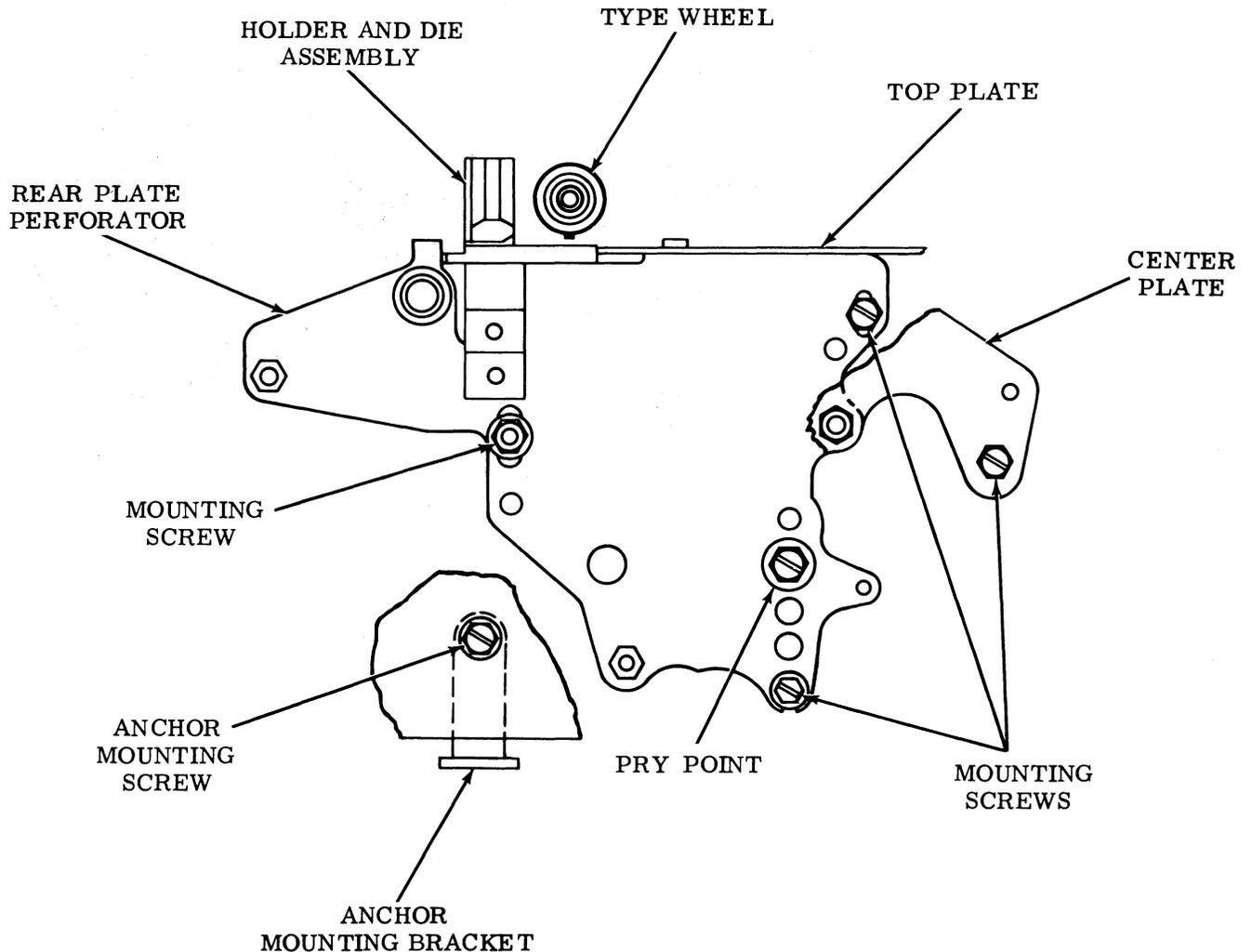
PUNCH MOUNTING (Preliminary)**Requirement**

The punch mechanism backplate should be located centrally within its respective mounting holes.

Note: The mounting holes are oversize to facilitate positioning of the punch mechanism.

To Adjust

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



2.21 Punch Mechanism (continued)

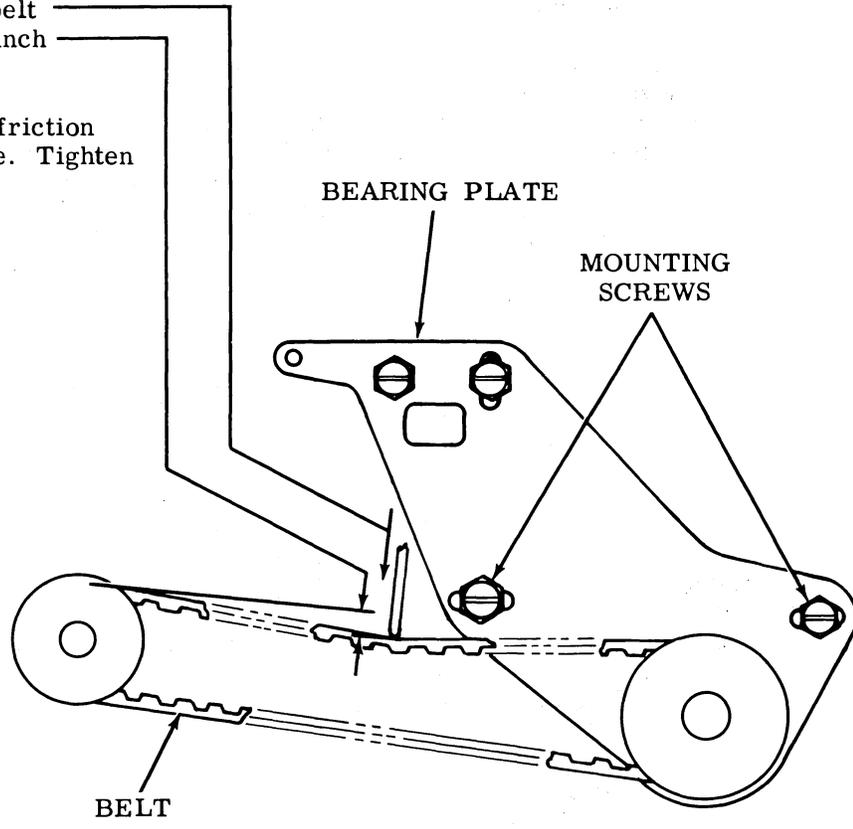
RAPID FEED BELT

Requirement

A force of 8 ounces applied at the center of the span should deflect the belt
Min $3/32$ inch---Max $5/32$ inch

To Adjust

With the two mounting screws friction tight, position the bearing plate. Tighten the screws.



(Rear View)

2.22 Punch Mechanism (continued)

Note: Check the CAM FOLLOWER ROLLER (2.18) adjustment before making the following punch mechanism adjustments.

TOGGLE OPERATING ARM

(1) Requirement

With the downstop mounting screw loosened and the downstop in its lowest position, clearance between the upper edges of the punch slides and the lower surface of the punch block where clearance is the greatest should be

Min 0.040 inch---Max 0.045 inch

(2) Requirement

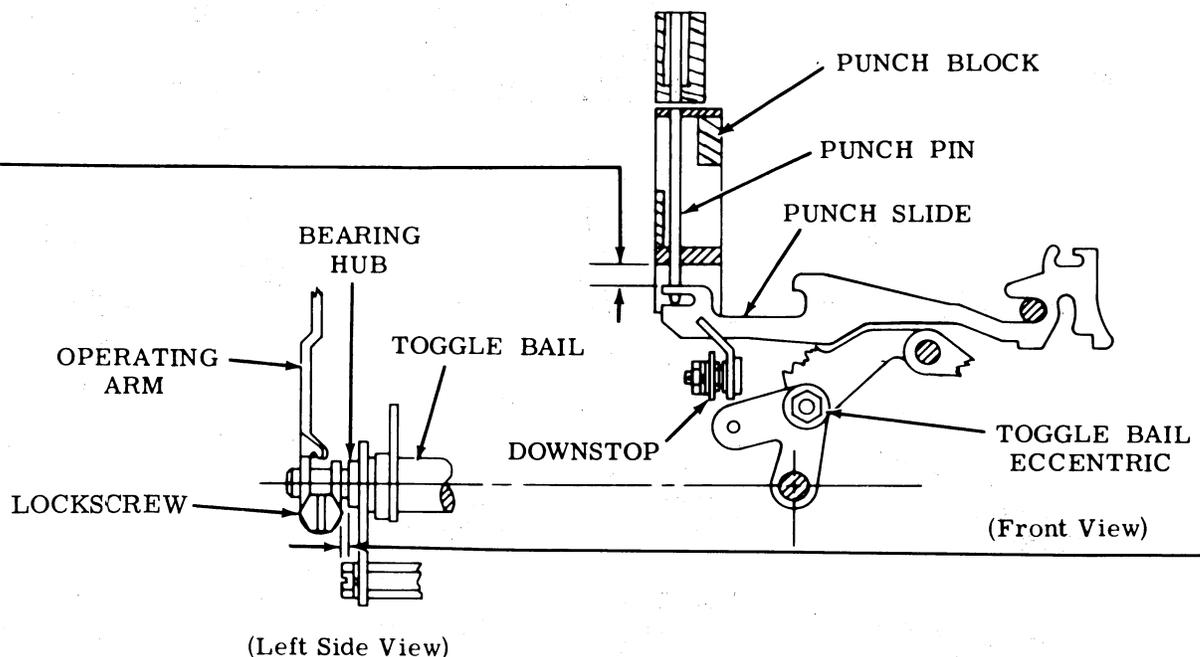
Clearance between operating arm and bearing hub should be

Min 0.002 inch---Max 0.015 inch

with endplay taken up to minimize clearance.

To Adjust

With the function clutch latched and the downstop in its lowest position, set the toggle bail eccentric to the three o'clock position. Select the RUB OUT combination (levels 1 through 8 marking) to ensure that the slides engage the drive bail. Engage the function clutch and rotate the upper shaft until the upper rocker bail roller is on the high part of its cam. Loosen the operating arm lock screw and position the toggle bail to meet requirement (1). Also, position the operating arm in a horizontal direction to meet requirement (2). Tighten downstop screw, and operating arm lock screw.



2.23 Punch Mechanism (continued)

(A) PUNCH MOUNTING (Final)

Requirement

With the rubout combination selected, the function clutch stop-lug just tripped and slides in extreme left-hand position, clearance between the closest latchlever and associated punch slide should be

Min 0.006 inch---Max 0.050 inch

To Adjust

Loosen the right rear frame mounting screws, the left rear shoulder screw, the right front mounting screw and anchor bracket screw (if attached) friction tight. Place the screwdriver between the hexagon head screw and its clearance hole rim and pry up or down. Tighten screws slightly more than friction tight.

(B) TYPE WHEEL CLEARANCE

Requirement

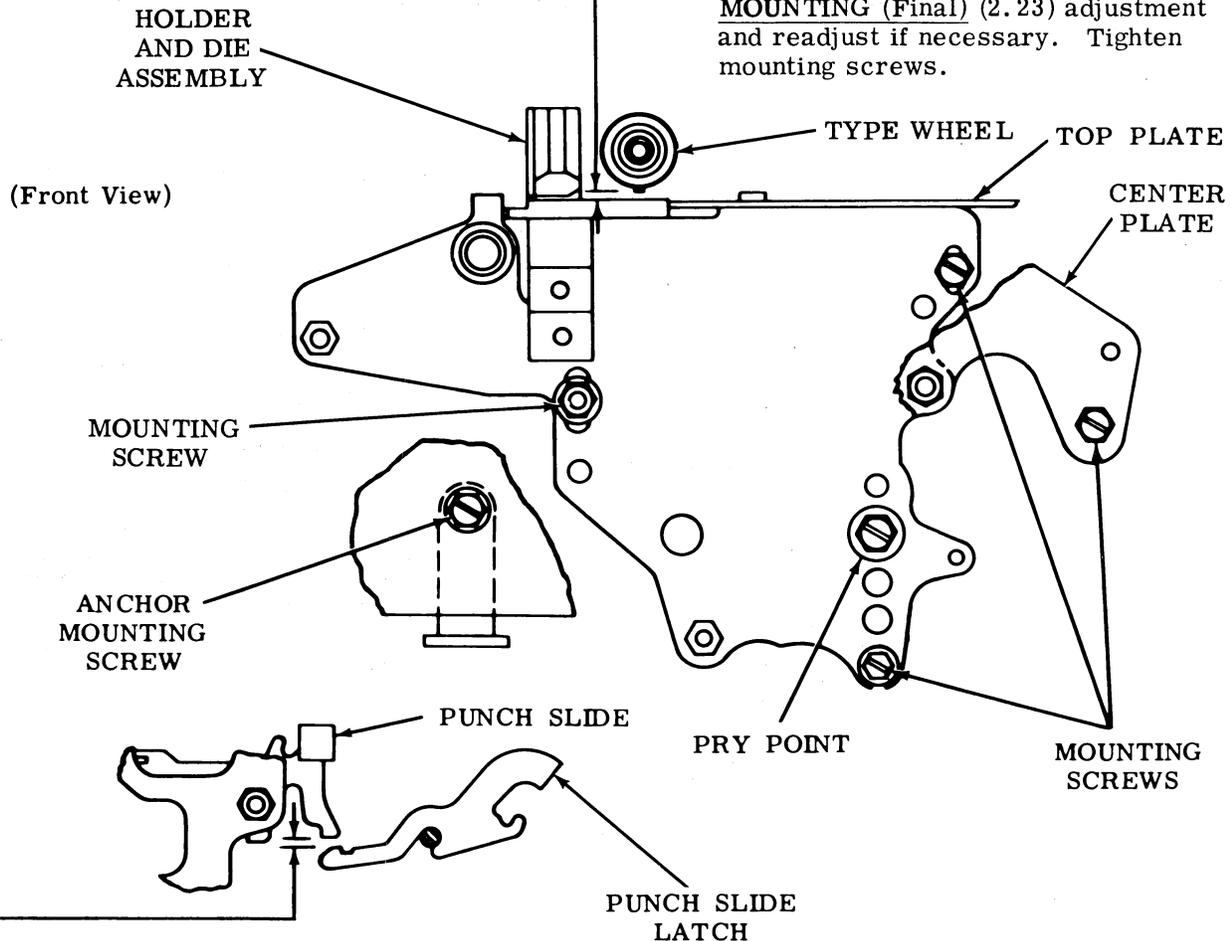
Select the combination for the character S (12--5-7-), trip the function clutch and rotate the upper shaft until the rocker bail is in its extreme left position. The clearance between the type wheel character P and the top of the punch platform should be

Min 0.065 inch---Max 0.075 inch

With a light pressure at the type wheel, take up the play in a downward direction.

To Adjust

Remove the ribbon from its carrier. With the right rear frame mounting screws, the left rear screw, the right front mounting screw and anchor bracket screw (if attached) friction tight, position the entire punch unit by means of its oversize mounting holes. Check the related PUNCH MOUNTING (Final) (2.23) adjustment and readjust if necessary. Tighten mounting screws.



2.24 Punch Mechanism (continued)

(A) PUNCH PIN PENETRATION

Note: The punch pin mechanism should be cycled with the rubout code combination selected through a minimum of one revolution to clear the chad from the die block.

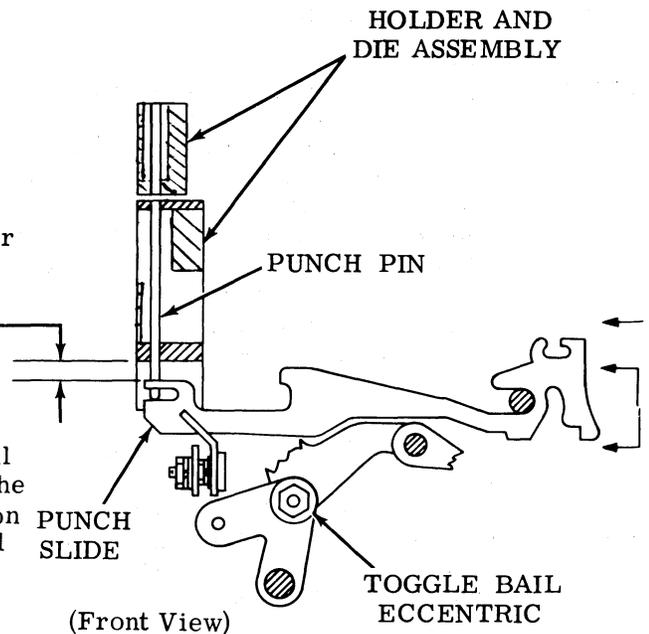
Requirement

With the upper rocker bail roller on the high part of its cam, the clearance between the upper edges of the punch block where the clearance is maximum should be

Min 0.025 inch---Max 0.032 inch

To Adjust

Select the rubout combination and rotate the upper shaft until the upper rocker bail roller is on the high part of its cam. With the toggle bail eccentric shaft locknut friction tight, position the eccentric to meet the requirement. The indent on the eccentric should be to the right of a vertical centerline through the shaft. Tighten the nut.

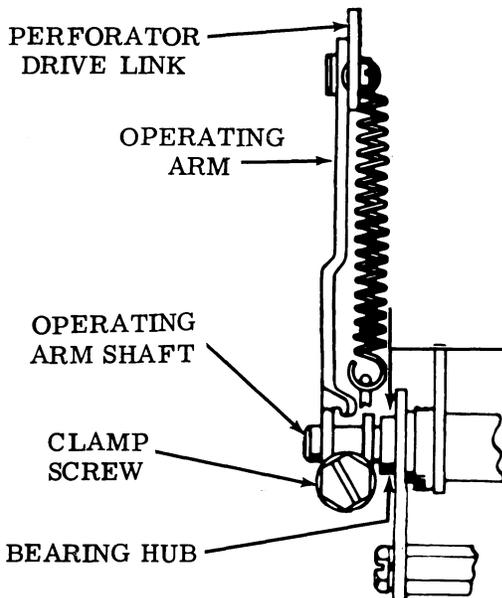
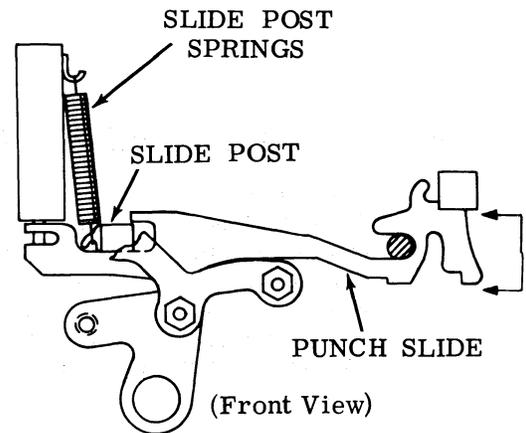
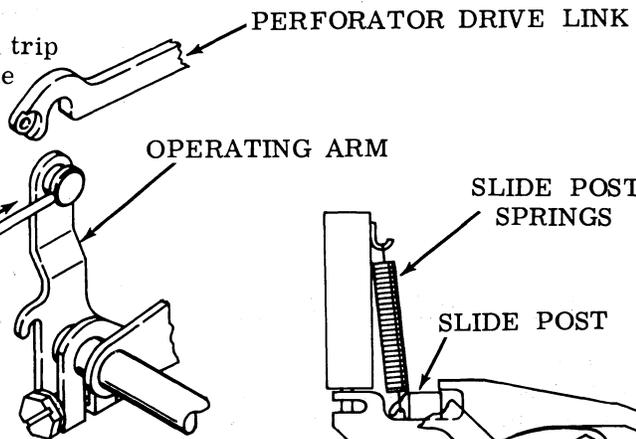


(B) SLIDE POST SPRINGS

Requirement

Select the rubout combination and trip the function clutch. Disengage the perforator drive link from the operating arm. With the push end of the scale applied at the connecting pin of the operating arm

Min 24 oz---Max 40 oz to start the end of the punch slides moving downward.



(C) PERFORATOR DRIVE LINK SPRING

Requirement

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

2.25 Punch Mechanism (continued)

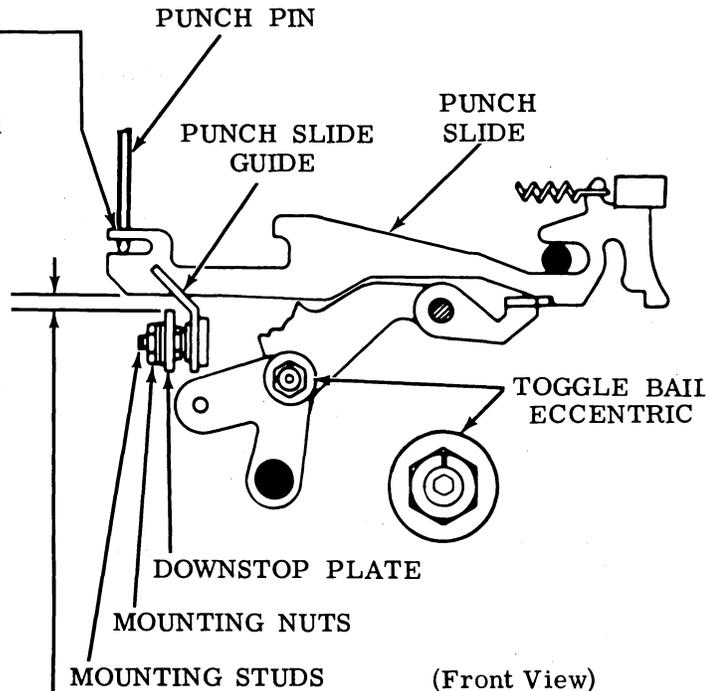
(A) PUNCH SLIDE GUIDE

Requirement

Remove mounting hardware and slide downstop. Loosen (friction tight) punch slide guide studs. Engage and rotate function clutch on full cycle. 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

With the slide downstop and associated nuts, lockwashers, and flat washers removed, position the guide with its mounting studs friction tight. Tighten studs. Replace slide downstop and associated hardware.



(B) PUNCH SLIDE DOWNSTOP POSITION

Requirement

With function clutch disengaged and latched and play taken up toward the top, clearance between both the front and rear punch slides and 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. Tighten screws and nuts.

2.26 Punch Mechanism (continued)

RESET BAIL TRIP LEVER

(1) Requirement

Manually select the null combination (all spacing).
Manually rotate reset bail trip lever. The
punch slide reset bail should trip before
the function clutch is tripped.

To Adjust

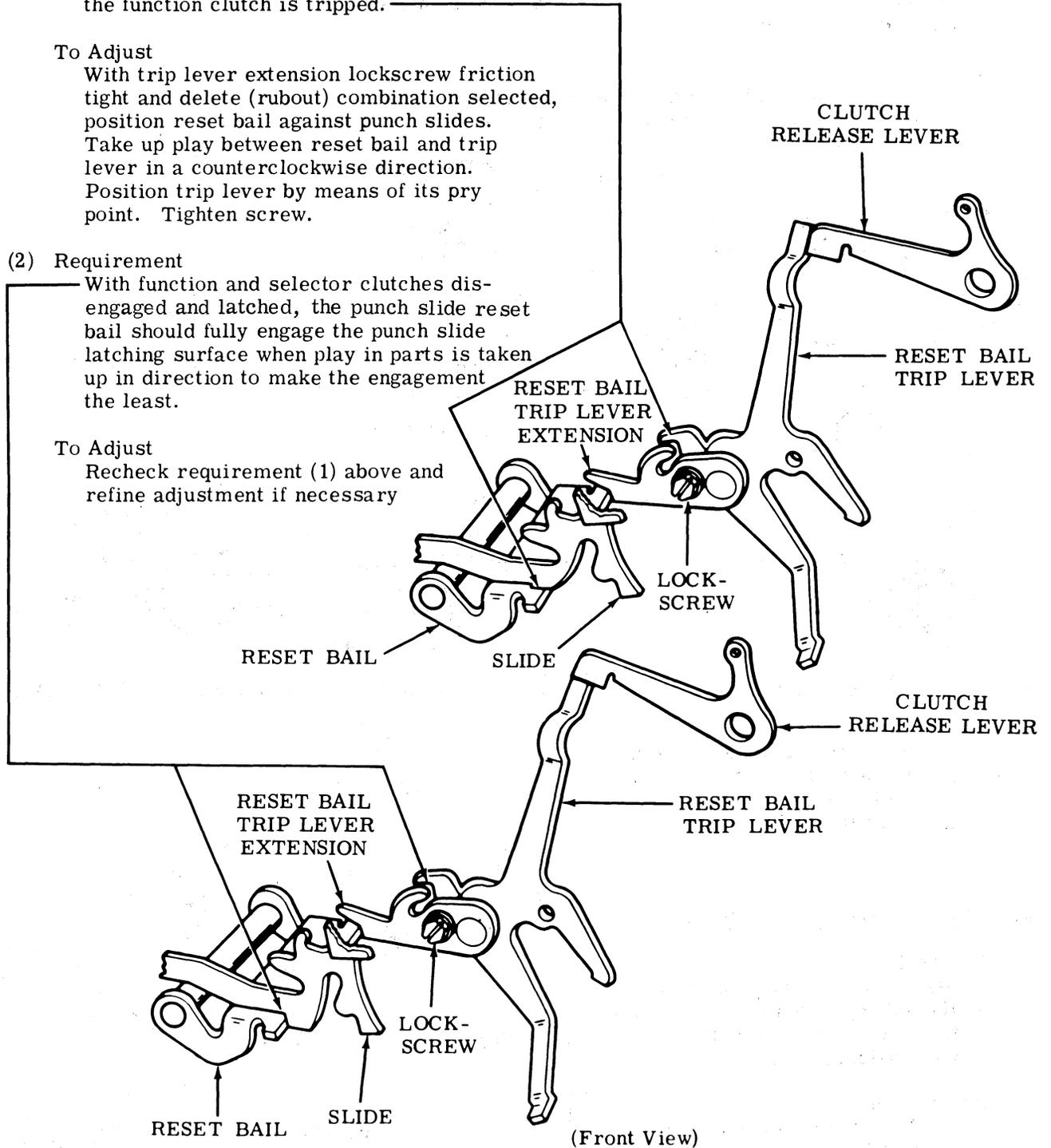
With trip lever extension lock screw friction
tight and delete (rubout) combination selected,
position reset bail against punch slides.
Take up play between reset bail and trip
lever in a counterclockwise direction.
Position trip lever by means of its pry
point. Tighten screw.

(2) Requirement

With function and selector clutches dis-
engaged 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

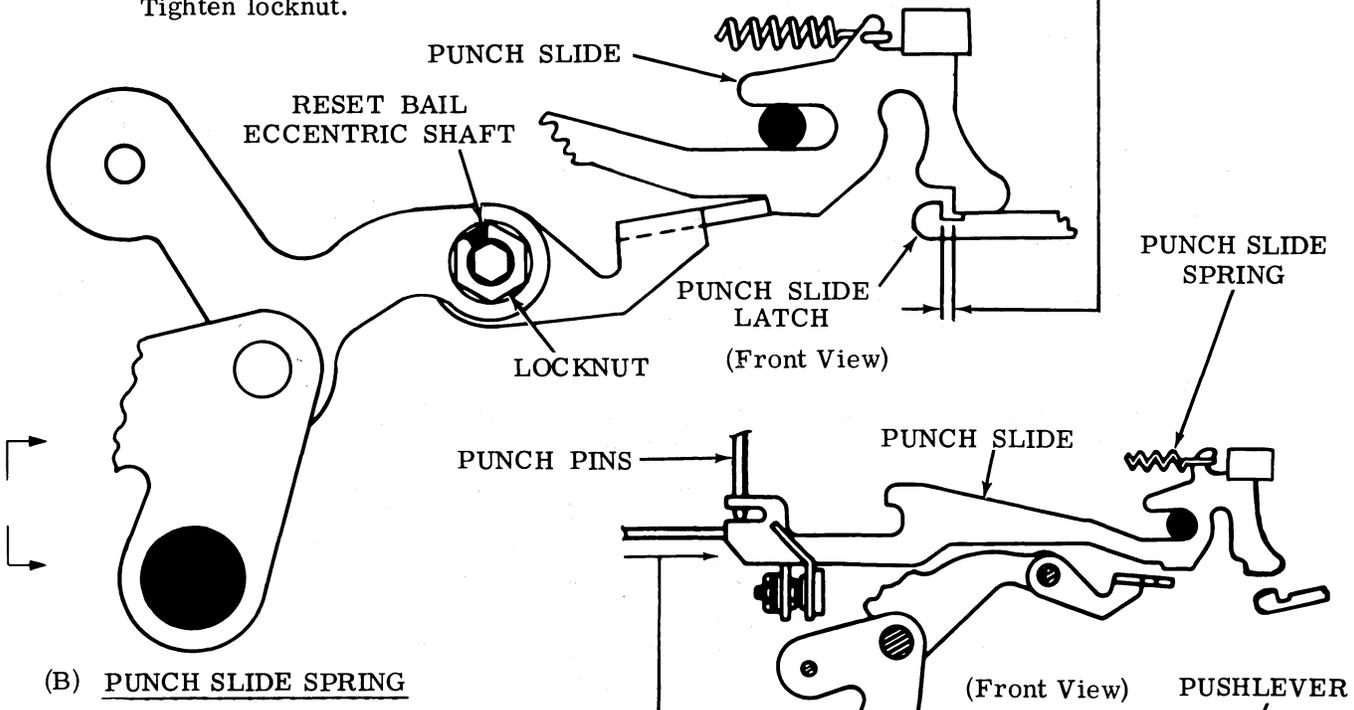
Requirement

With the null combination selected and the function clutch disengaged and latched

Min 0.008 inch---Max 0.020 inch
clearance between punch slide and punch slide latchlever 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) PUNCH SLIDE SPRING

Requirement

Rubout combination set up, and punch slides in selected position

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

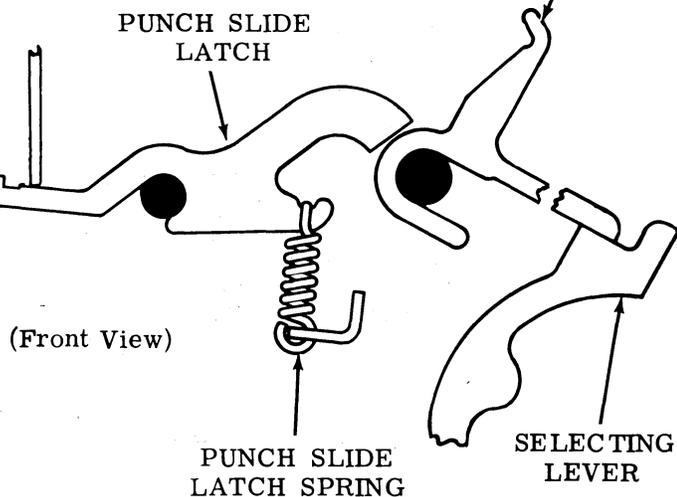
(C) PUNCH SLIDE LATCH SPRING

To Check

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

Requirement

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



2.28 Punch Mechanism (continued)

FEED WHEEL ALIGNMENT (Preliminary)

To Check

Position the right feed wheel ratchet mounting screw upward.

Requirement

The pins of the two feed wheels and the feed hole punch pin must be aligned perpendicular to the left surface of the die block.

To Adjust

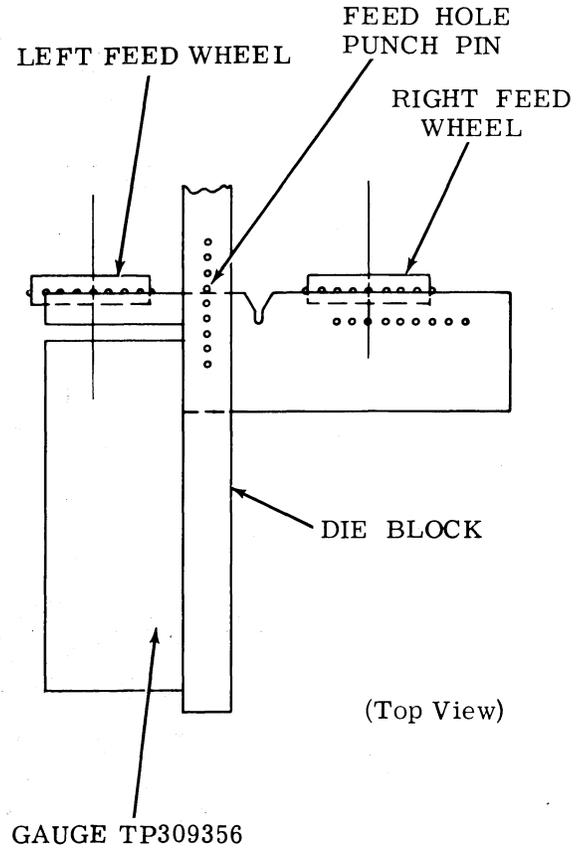
Position right feed wheel ratchet mounting screw up. Manually set up the null code condition in the selector mechanism. Rotate the selector shaft to position the feed hole punch pin up in the die plate. Hold the gauge TP309356 firmly against the left die block surface and the punch pin. From a rearward position, bring the two feed wheels forward by means of the adjusting screws* until the feed wheel pins are just touching the gauge. Tighten the locknuts.*

Note: Priority should be given to the above requirement that the feed wheel pins and the feed punch pin must be in alignment.

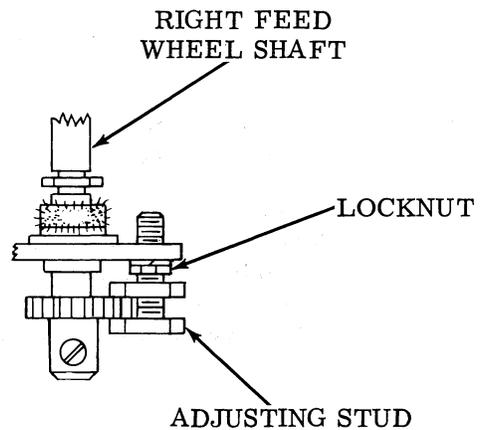
To Check

Hold a straight edge (gauge TP309356 may be used) against the feed wheel pins and the feed punch pin. The requirement should be considered met when there is no perceptible rocking of the straight edge about the feed punch pin. With the straight edge held against the feed punch pin and the left feed wheel pins, the right end of the straight edge when lifted up and released should fall freely along the side of the right feed wheel pins.

*For current design mechanism, loosen one locknut and rotate adjusting stud to meet requirement. Tighten locknut. Refer to FEED WHEEL ENGPLAY (2.29) adjustment illustration for early design configuration.

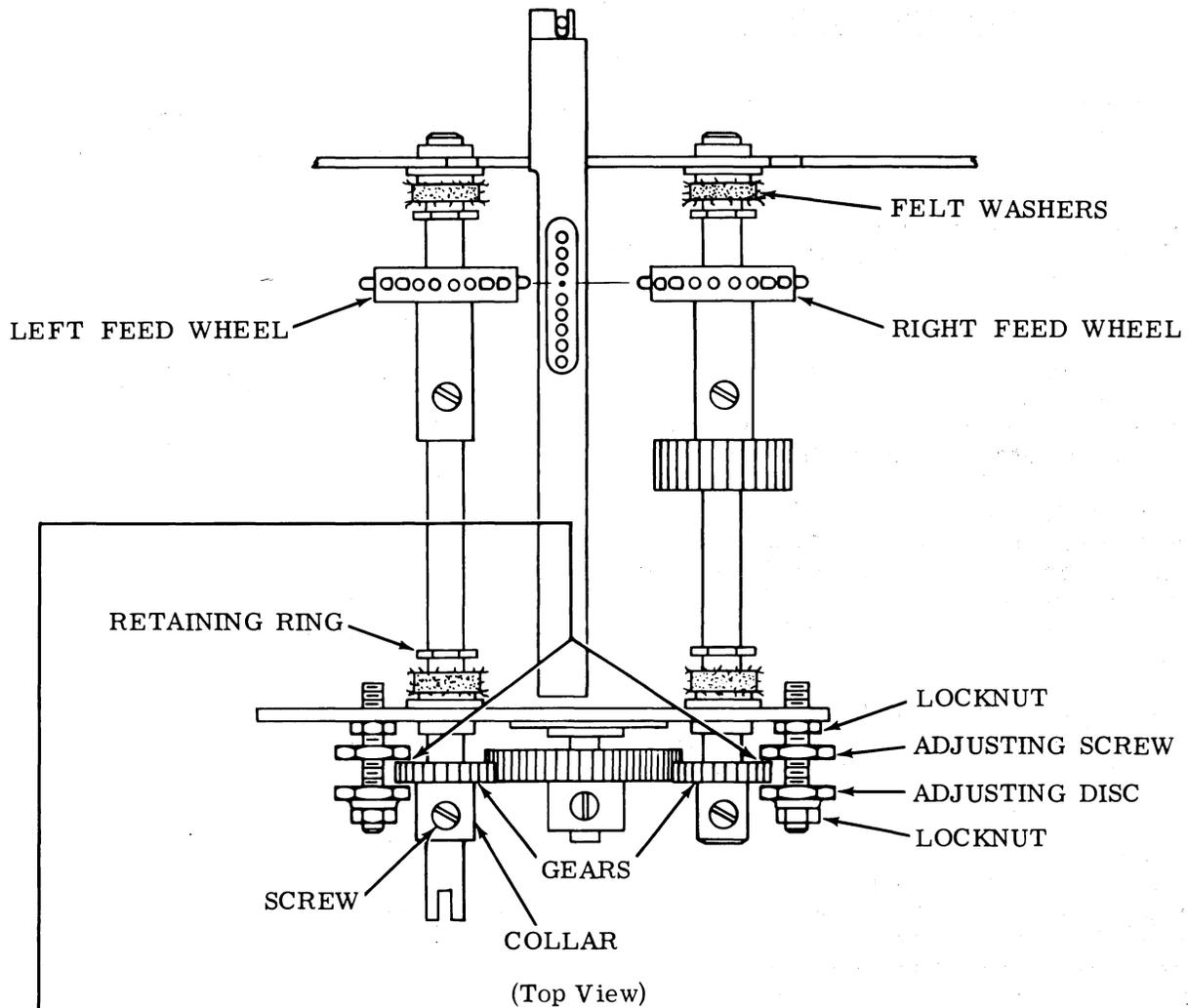


(Top View)



(Top View — Current Design)

2.29 Punch Mechanism (continued)



FEED WHEEL ENDPLAY (Early Design)

Requirement

The endplay of the two feed wheel shafts should be set at a minimum without causing any bind of feed wheel rotation.

To Adjust

With the locknuts friction tight, rotate the adjusting discs as close as possible to meet the requirement. Tighten the locknuts. The gears should rotate freely when the detent roller and feed pawls are disengaged from the ratchet.

2.30 Punch Mechanism (continued)

DETENT**To Check**

Place right feed wheel ratchet mounting screw upward and feed wheel in the detented position.

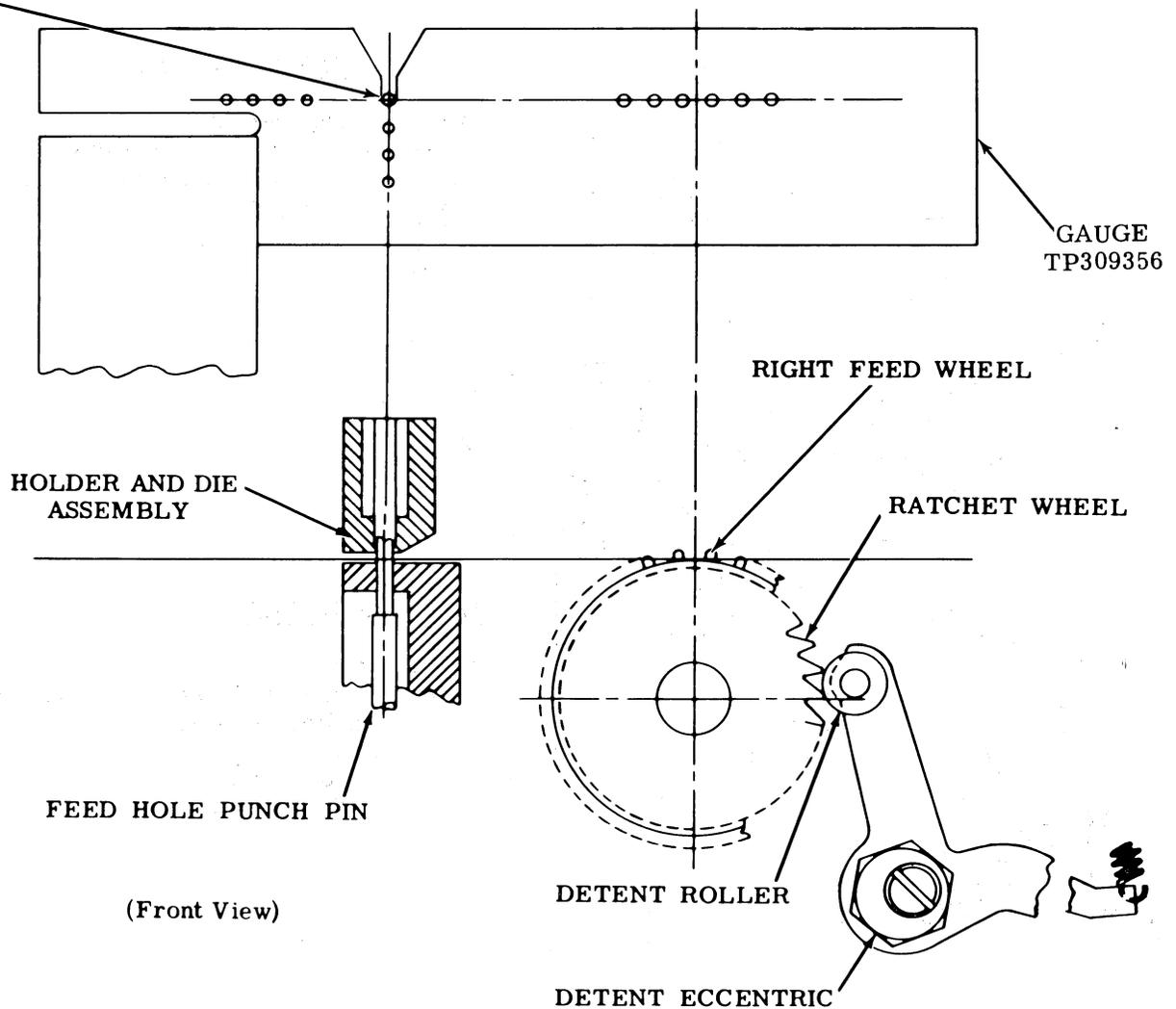
Requirement

The distance between the feed hole punch pin and the right-hand feed wheel pins must be equal to the distance between the corresponding feed holes of prepunched cards.

To Adjust

The feed hole punch pin should be up in the die block and the gauge TP309356 should be located on the feed hole punch pin. With the detent eccentric mounting screw friction tight, rotate the eccentric so the holes of the gauge will fall freely over the feed wheel pins. Keep the high points of the eccentric to the left. Tighten screw.

Note: The following seven adjustments are based on the above detent adjustment. If this adjustment is changed, all of the seven adjustments must be checked and readjusted if necessary.



(Front View)

2.31 Punch Mechanism (continued)

FEED PAWL

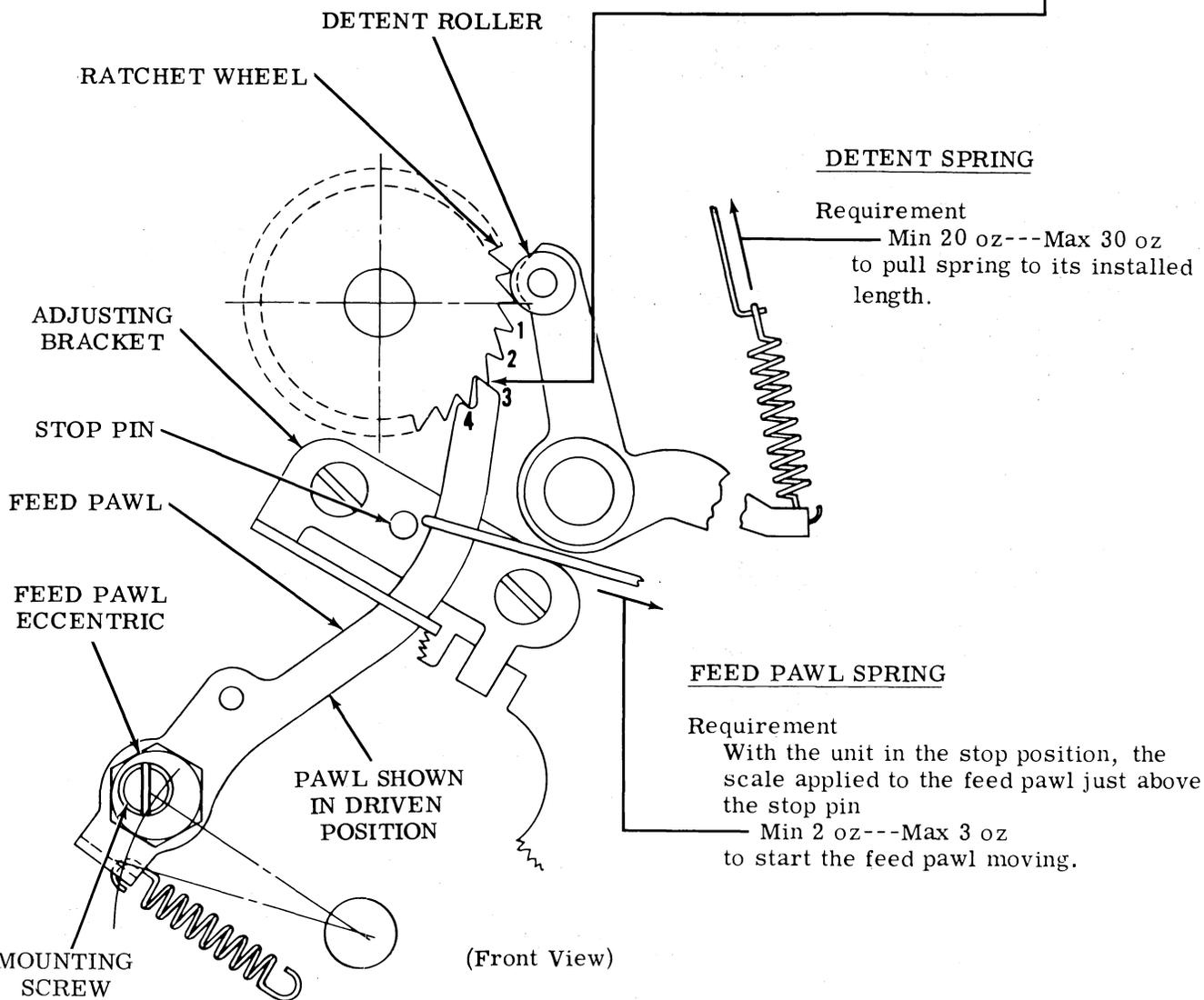
Requirement

Latch selector and function clutches. With ratchet wheel detented, the feed pawl should engage the third tooth below the detent roller, with no perceptible clearance between the engaging surfaces.

To Adjust

Position ratchet wheel mounting screw upward. With mounting screw friction tight, rotate the feed pawl eccentric. Keep the high point of the eccentric to the right of the mounting screw. Tighten screw. Check at four places around the ratchet wheel.

Note: Upon rotation of the ratchet wheel, minimum clearance should be checked by allowing the feed pawl to fall into full engagement with the ratchet tooth.



2.32 Punch Mechanism (continued)

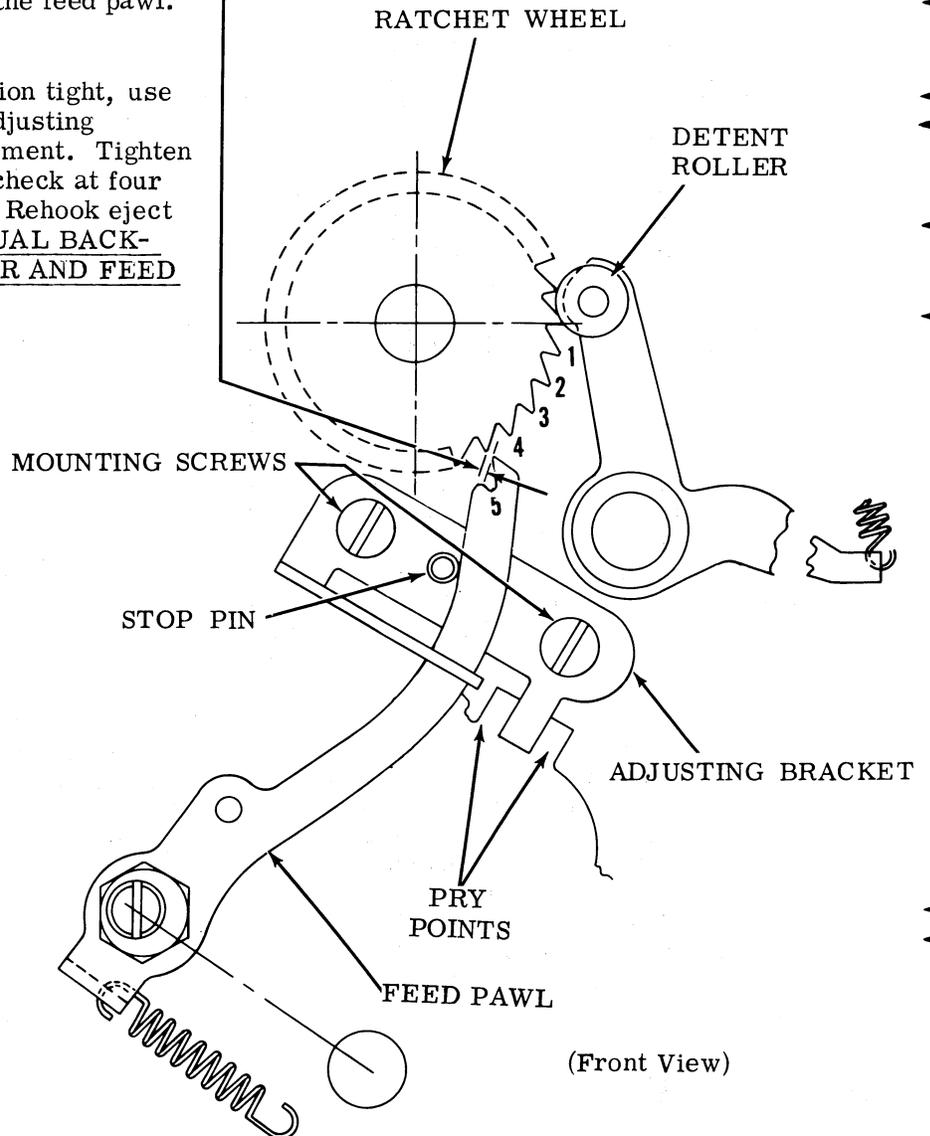
FEED PAWL STOP**Requirement**

With the unit in the stop position, the ratchet wheel mounting screw up, unhook the eject pawl away from the ratchet wheel. Engage the function clutch and rotate the upper shaft until the feed pawl, on its up-stroke, is in line with the 5th tooth of the ratchet wheel.

Min 0.004---Max 0.010 inch
between the fifth tooth and the feed pawl.

To Adjust

With mounting screws friction tight, use pry points to position the adjusting bracket to meet the requirement. Tighten screws. Recycle unit and check at four places around the ratchet. Rehook eject pawl springs. Check MANUAL BACK-SPACE FEED PAWL LEVER AND FEED PAWLS (2.82) adjustment.



2.33 Punch Mechanism (continued)

(A) INNER RAPID FEED CAM FOLLOWER

Requirement

With unit in the stop position, unhook the outer rapid feed pawl, and two cam follower latchlever springs. The ratchet wheel mounting screw should be positioned upward and in a detented position. Rotate the rapid feed shaft until the inner cam follower is on the peak of its cam. There should be no perceptible clearance between the driving surface of the associated feed pawl and the ratchet tooth.

To Adjust

With mounting screw friction tight, rotate the cam follower eccentric bushing with the high point of the eccentric upwards. The feed pawl should fall back into the ratchet tooth after being moved out of engagement. Check at four places around the ratchet wheel for each peak of the cam. Tighten screw. Rehook the outer rapid feed pawl spring.

(C) RAPID FEED PAWLS SPRING

Requirement

With the cam followers in their latched position and the spring scale applied
Min 1 oz---Max 2 oz
to start the feed pawls moving.

(B) OUTER RAPID FEED CAM FOLLOWER

Requirement

With the unit in the stop position, the ratchet wheel mounting screw should be positioned upward and in the detented position. Rotate the rapid feed shaft until the outer cam follower is on the peak of its cam. There should be no perceptible clearance between the driving surface of the associated feed pawl and the ratchet tooth.

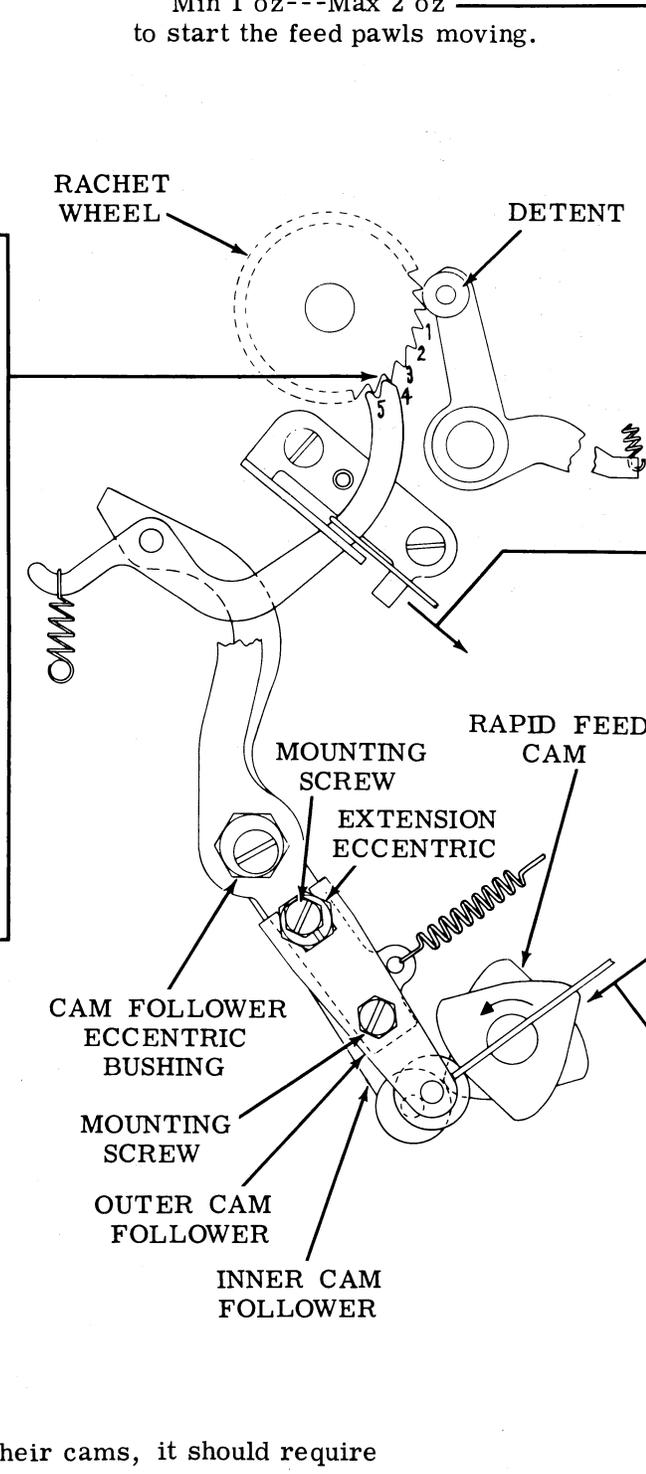
To Adjust

With the cam follower and extension eccentric mounting screws friction tight, rotate the extension eccentric bushing keeping the high point of the eccentric downwards. The feed pawl should fall back into the ratchet tooth after being moved out of engagement. Check at four places around the ratchet wheel for each peak of the cam. Tighten the mounting screws. Rehook springs.

(D) CAM FOLLOWER SPRING

Requirement

With the cam followers on the high part of their cams, it should require
Min 7 oz---Max 11 oz
applied at the rollers to start the cam followers moving.



2.34 Punch Mechanism (continued)

CAM FOLLOWER LATCH

Requirement

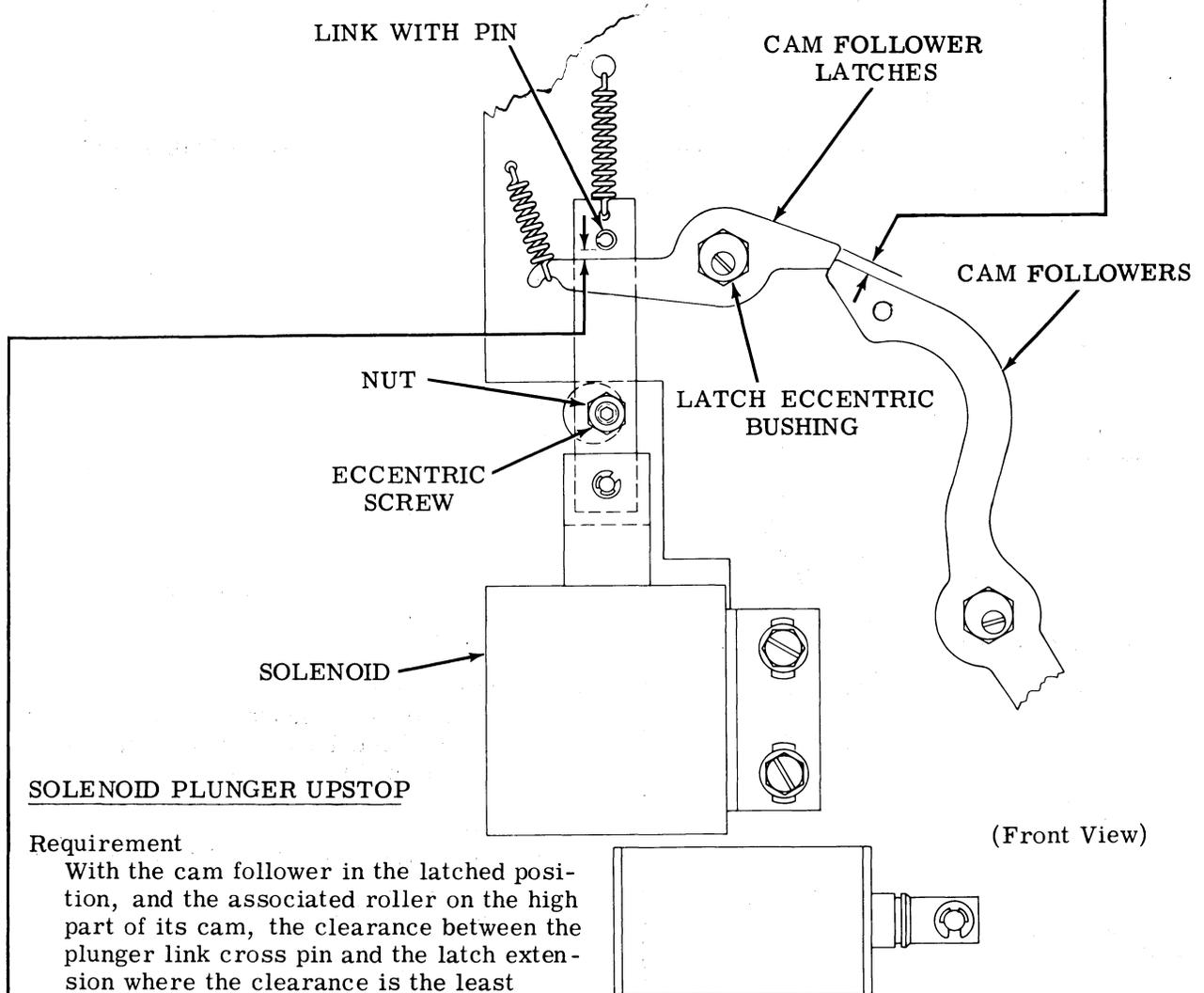
With the cam followers on the peak of their respective cams, the latches should engage the latching surfaces of the cam followers

Flush to 0.020 inch overflush at point of greatest clearance, as gauged by eye.

Note: Minimum contact between roller and respective cams is preferred.

To Adjust

With mounting screw friction tight, rotate the latch eccentric bushing with the high point of the eccentric upwards. Tighten screw.



SOLENOID PLUNGER UPSTOP

Requirement

With the cam follower in the latched position, and the associated roller on the high part of its cam, the clearance between the plunger link cross pin and the latch extension where the clearance is the least should be

Min 0.015 inch---Max 0.035 inch

Note: Rotate the rapid feed cam shaft to firmly establish position of the cam follower latches.

To Adjust

With the nut friction tight, rotate the eccentric screw keeping high part of eccentric to the left side of center line, until requirement is met. Tighten nut.

2.35 Punch Mechanism (continued)

SOLENOID

To Check

Place the unit in the stop position. Hold the solenoid plunger in the energized position and rotate the cam follower shaft to obtain minimum clearance between a cam follower and its latch.

(1) Requirement

The cam follower latches should clear the latches by

Min 0.015 inch---Max 0.030 inch for the latching point where the clearance is the least.

(2) Requirement

The solenoid plunger should be free of binds throughout its travel, and seat firmly within the solenoid.

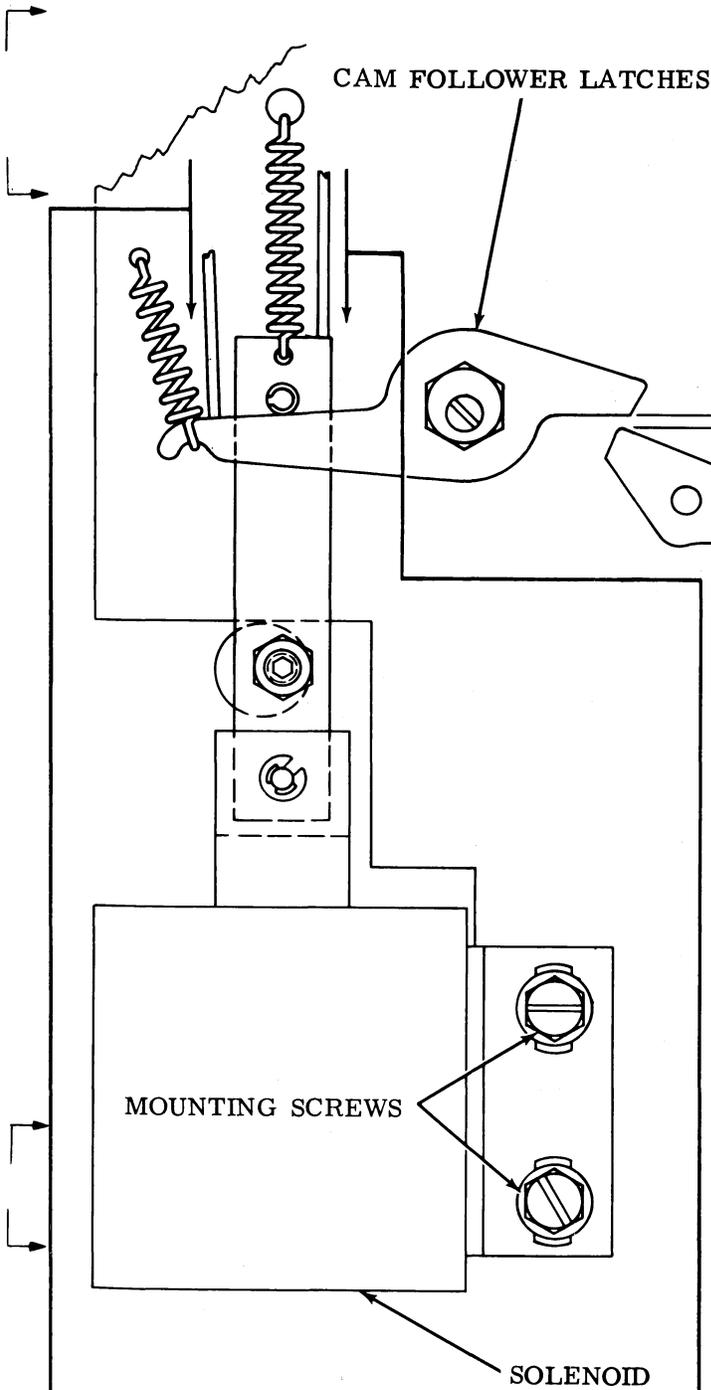
To Adjust

With mounting screws friction tight, position the solenoid vertically to meet the requirement. Tighten screws.

SOLENOID LINK SPRING

Requirement

Min 8 oz---Max 12 oz to bring the solenoid to its seated position.



CAM FOLLOWERS

(Front View)

LATCHLEVER SPRING

Requirement

With the latches resting on top of their respective cam followers, it should require

Min 2 oz---Max 4 oz applied next to the spring to start the latches moving.

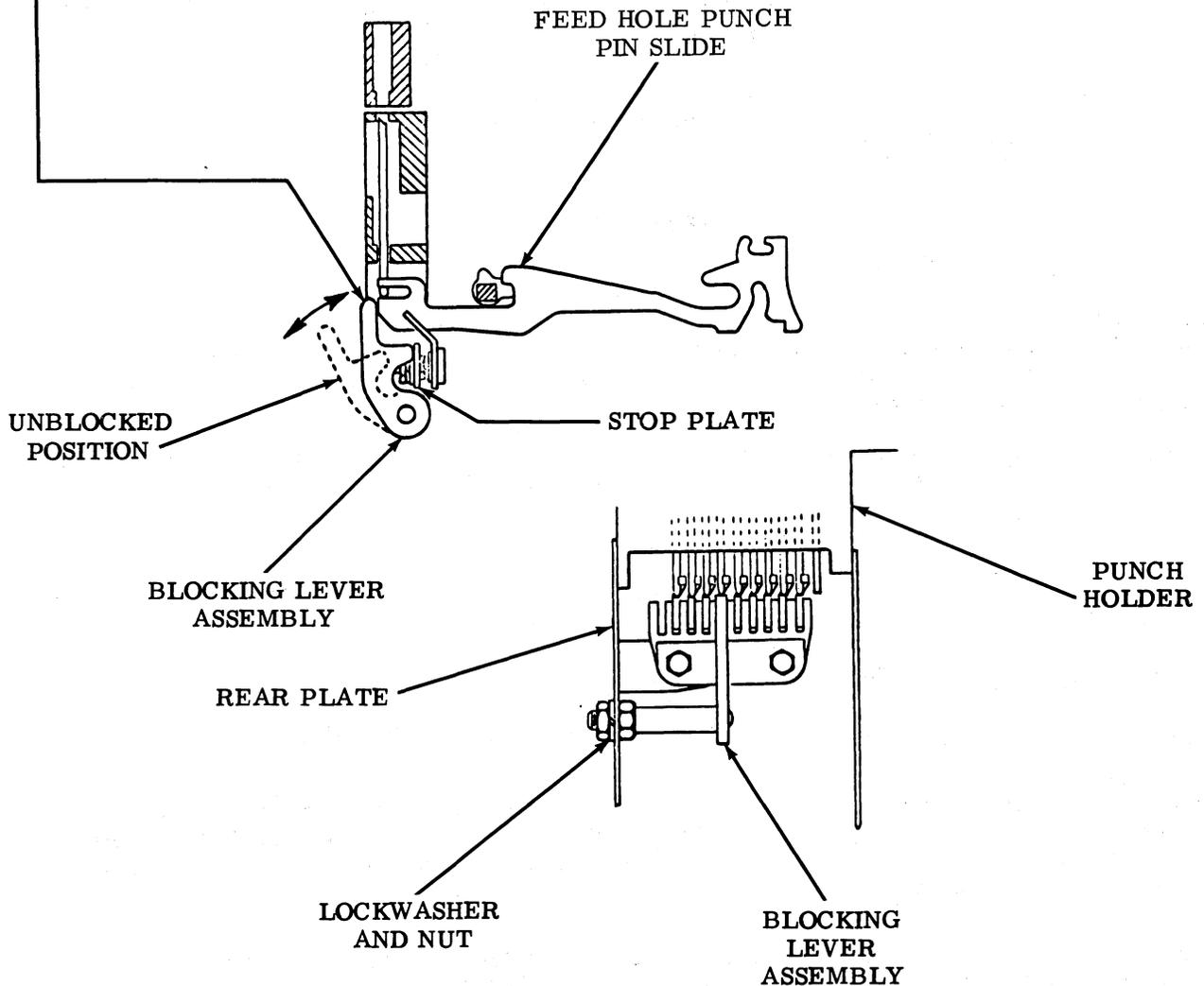
2.36 Punch Mechanism (continued)

FEED HOLE PUNCH PIN SLIDE BLOCKING**Requirement**

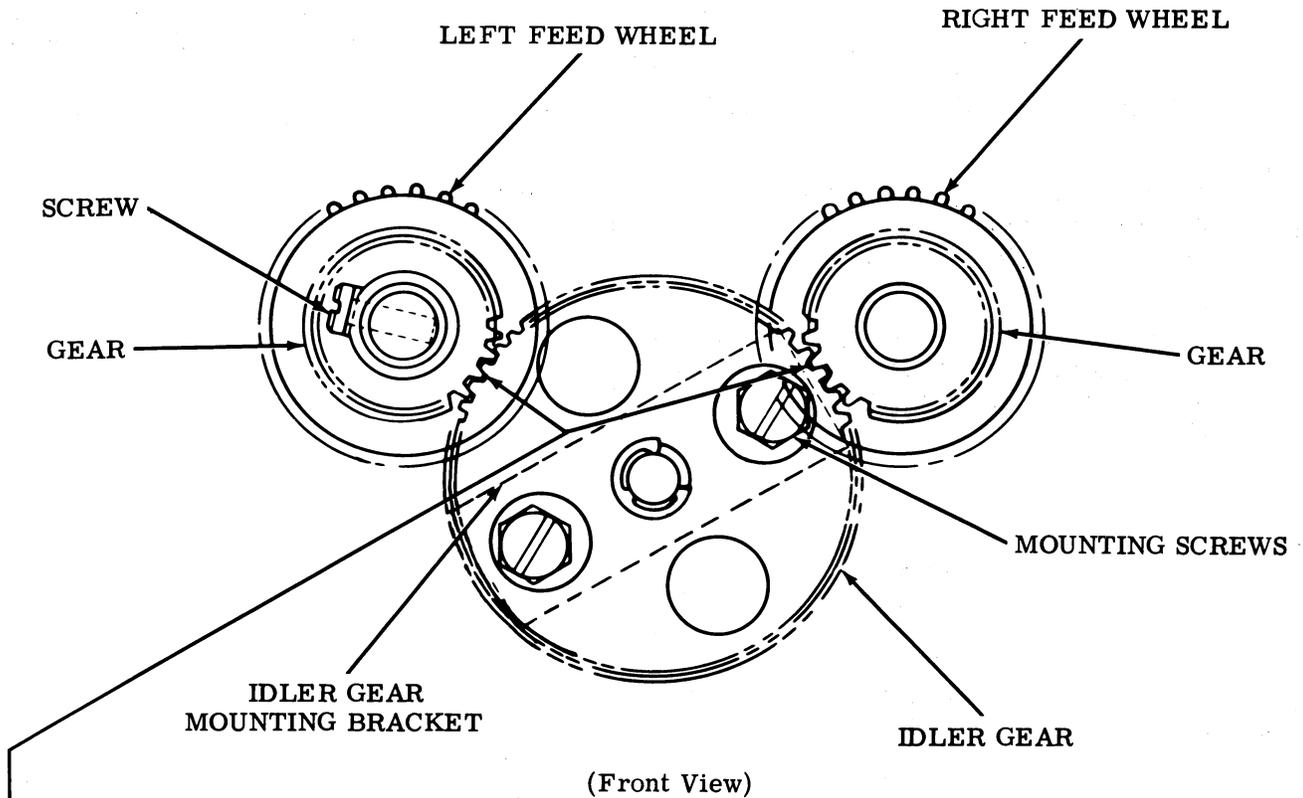
The feed hole punch pin slide should be held inoperative by means of the blocking lever assembly (normal mode of operation for perforating cards).

To Adjust

With the blocking lever assembly friction tight, rotate the blocking lever in a clockwise direction until its stop tab is fully positioned against the downstop plate. Tighten nut.



2.37 Punch Mechanism (continued)



IDLER GEAR BACKLASH

Requirement

Disengage (latch) all clutches. With the right feed wheel detented, the idler gear should engage the two feed wheel gears with a minimum amount of backlash. There should be no bind in rotation of their gears.

Note: With the detent springs unhooked and feed pawls held away from the ratchet wheel, a perceptible drag at any one tooth will be permitted during one complete cycle of the large idler gear.

To Adjust

With mounting screws friction tight, position the idler gear mounting bracket to meet the requirement. Tighten screws.

CODE HOLE-FEED HOLE PHASING (Preliminary)

Note: Refer to DETENT (2.30) and FEED WHEEL ENDPLAY (2.29) adjustments.

Requirement

With the feed hole punch pin positioned up into the die block, place the notch of the gauge TP309356 onto the feed hole punch pin. The feed pins of the left-hand feed wheel should fall freely into the holes in the gauge. The feed pins of the right-hand feed wheel should be in their respective holes in the gauge at this time.

To Adjust

Manually select the null condition. With the function clutch engaged, rotate the function clutch shaft until the feed hole punch pin is fully in the die block. Loosen the screw securing the collar and the gear to the feed shaft to friction tightness. Rotate the feed shaft until the pins of the left-hand feed wheel are centrally located in the holes of the gauge. Rotate the adjustment collar to the approximate center of its range and tighten the screw.

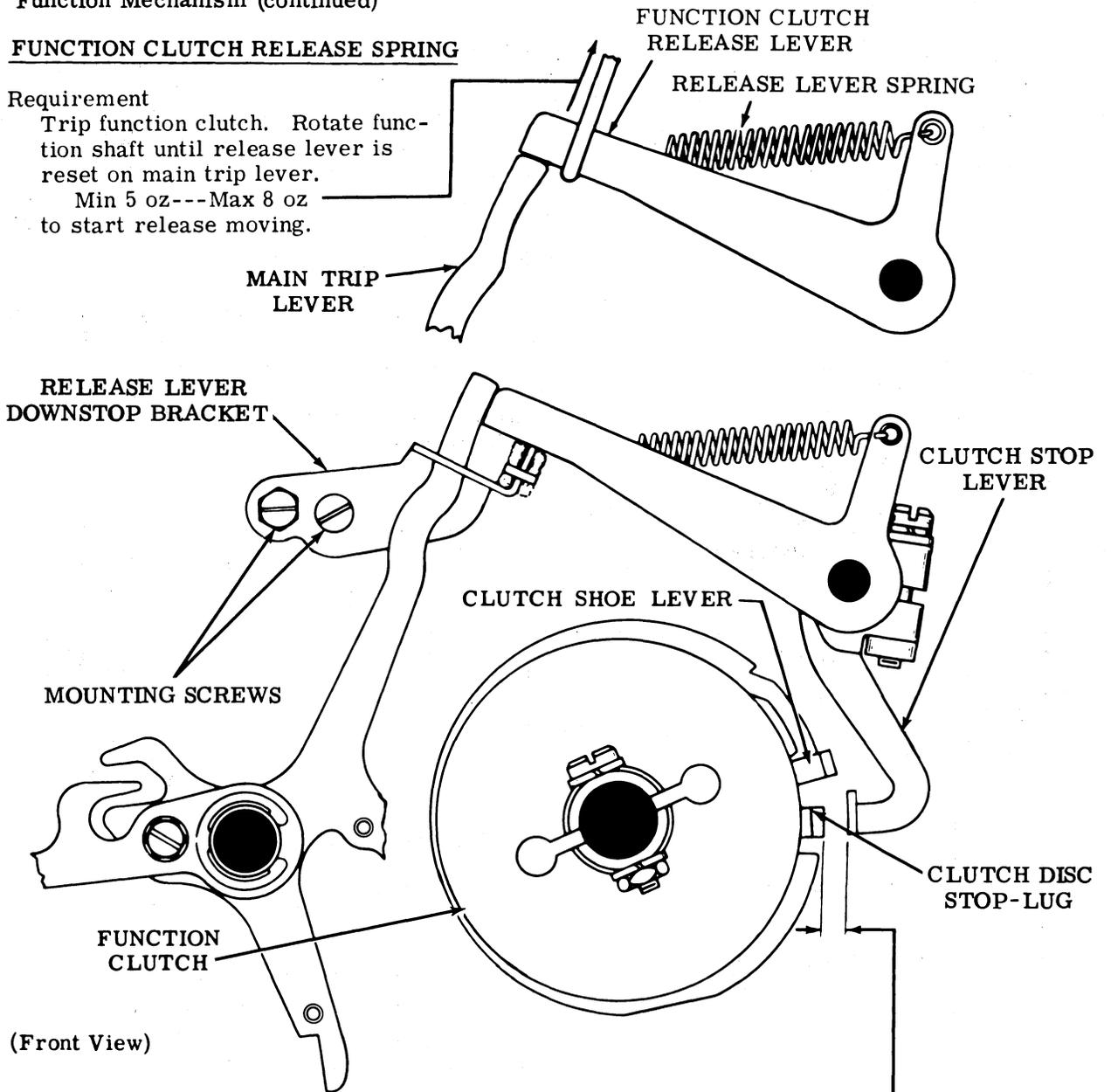
2.38 Function Mechanism (continued)

(A) FUNCTION CLUTCH RELEASE SPRING

Requirement

Trip function clutch. Rotate function shaft until release lever is reset on main trip lever.

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



(B) RELEASE LEVER 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 resting against downstop bracket. Clearance between function clutch disc stop-lug and stop lever

Min 0.002 inch---Max 0.045 inch

To Adjust

With downstop bracket mounting screws friction tight, position bracket. Tighten screws.

2.39 Typing Mechanism

(A) ALIGNMENT

To Check

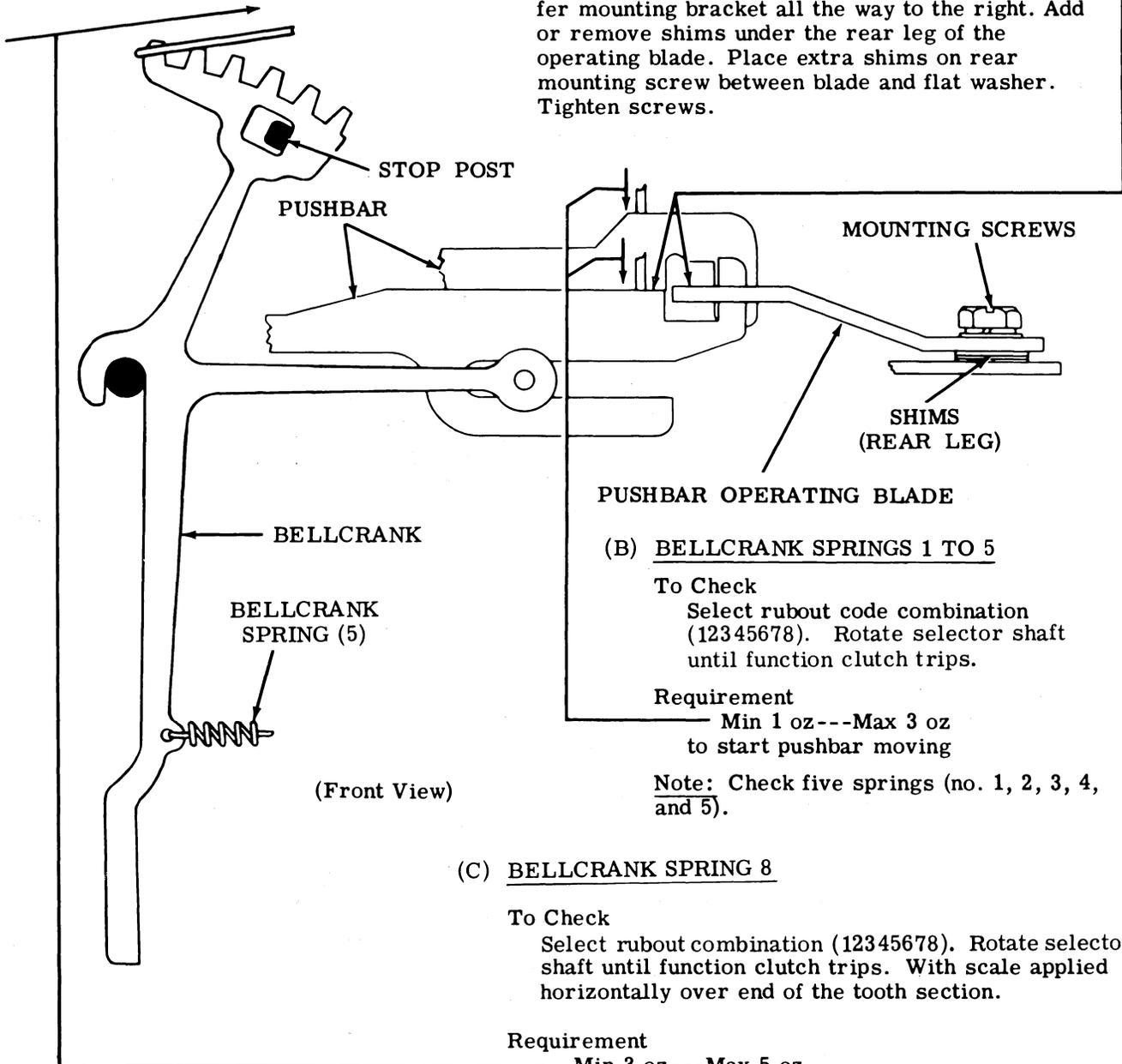
Manually select rubout code combination (12345678). Rotate selector shaft until function clutch trips. Hold no. 2 and 3 bellcranks against stop post.

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. 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 selector shaft until function clutch trips.

Requirement

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

Note: Check five springs (no. 1, 2, 3, 4, and 5).

(C) BELLCRANK SPRING 8

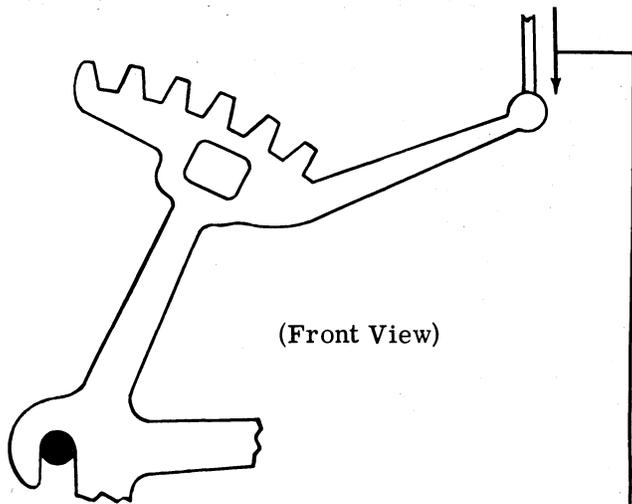
To Check

Select rubout combination (12345678). Rotate selector shaft 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.

2.40 Typing Mechanism (continued)



BELLCRANK SPRINGS 6 AND 7

To Check

Select rubout combination (12345678). Rotate selector shaft until function clutch trips.

- (1) Requirement (bellcrank spring 6)
With scale applied vertically to ball end of bellcrank contact operating
— Min 2 oz---Max 4 oz
to start bellcrank moving.
- (2) Requirement (bellcrank spring 7)
With seven-pulse beam 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 selector shaft 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.

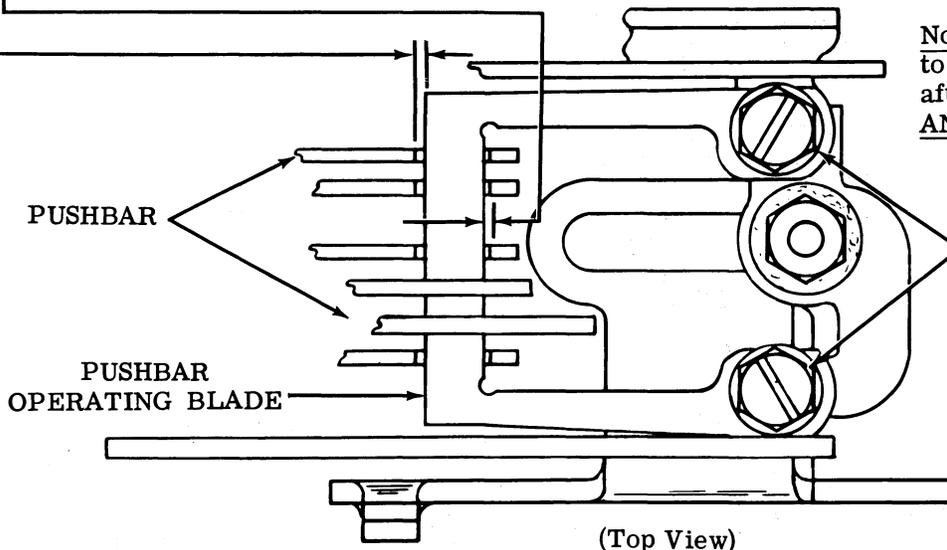
- (1) Requirement
Clearance between bar and left edge of blade:
— Min 0.015 inch---Max 0.030 inch

- (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

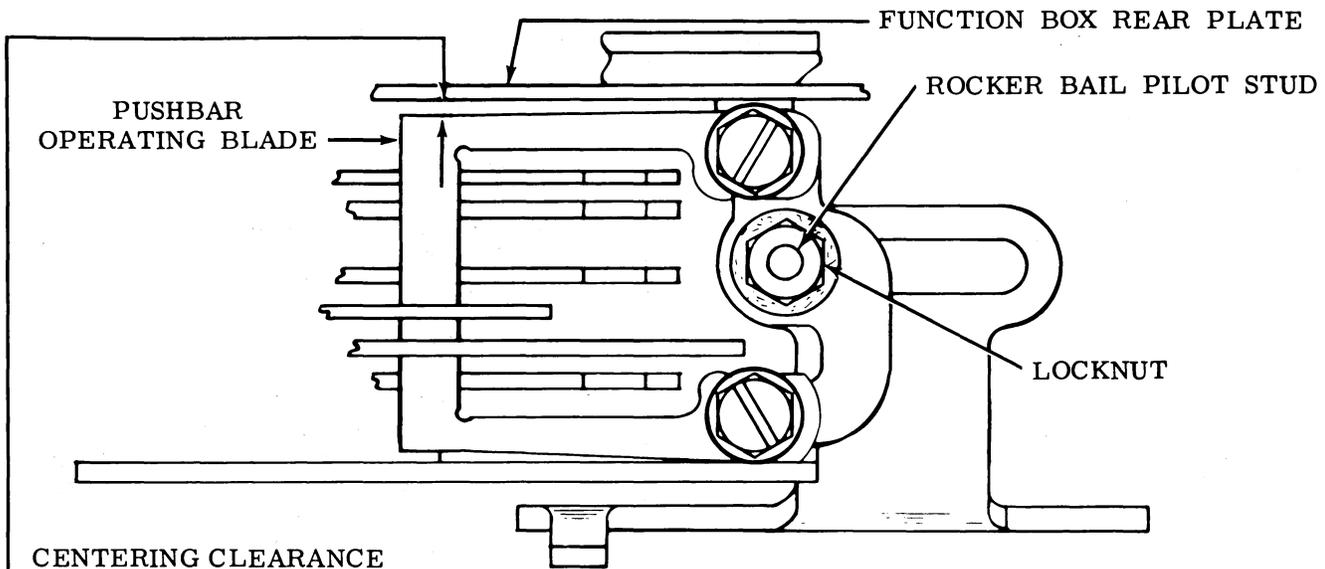
With mounting screws loosened, position operating blade in elongated holes. Tighten screws.



Note: It may be necessary to refine this adjustment after CENTERING CLEARANCE (2.41) adjustment.

(Top View)

2.41 Typing Mechanism (continued)



CENTERING CLEARANCE

To Check

Select the null code combination. Position rocker bail through a complete cycle to insure the clearance is a minimum.

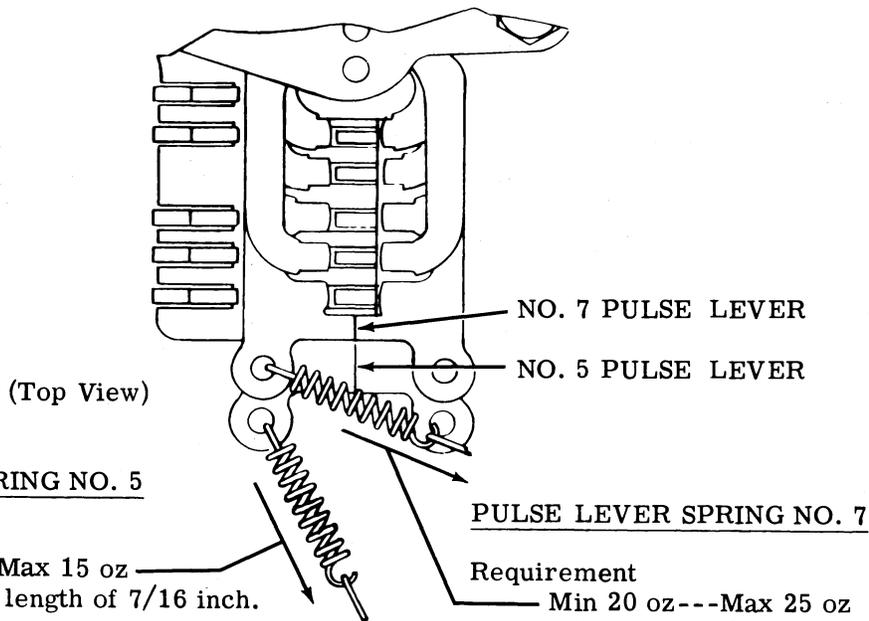
Requirement

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.

(Top View)

To Adjust

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



(Top View)

PULSE LEVER SPRING NO. 5

Requirement

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

PULSE LEVER SPRING NO. 7

Requirement

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

2.42 Typing Mechanism (continued)

BELLCRANK PUSHBAR ENGAGEMENT

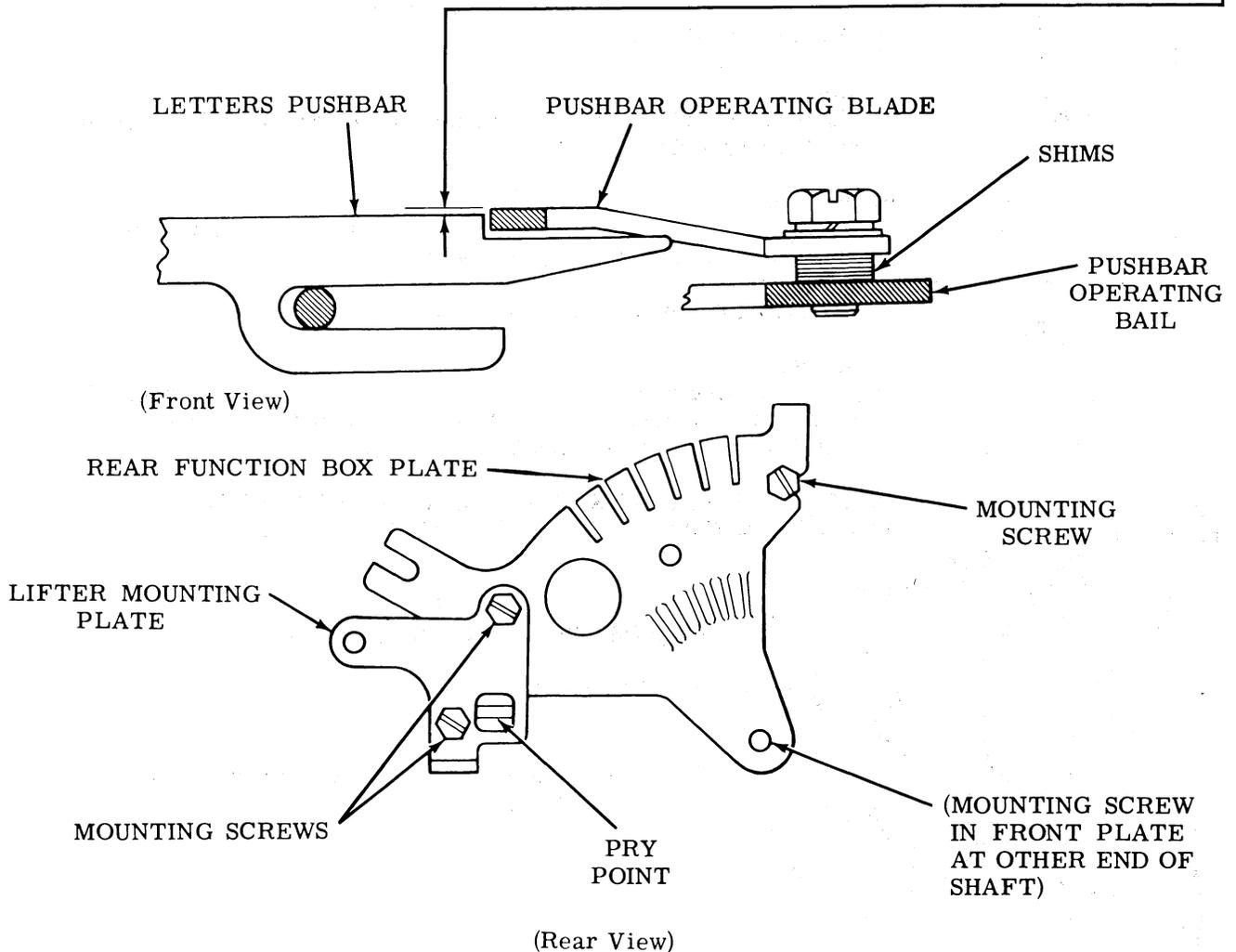
Requirement

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 paralalled 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

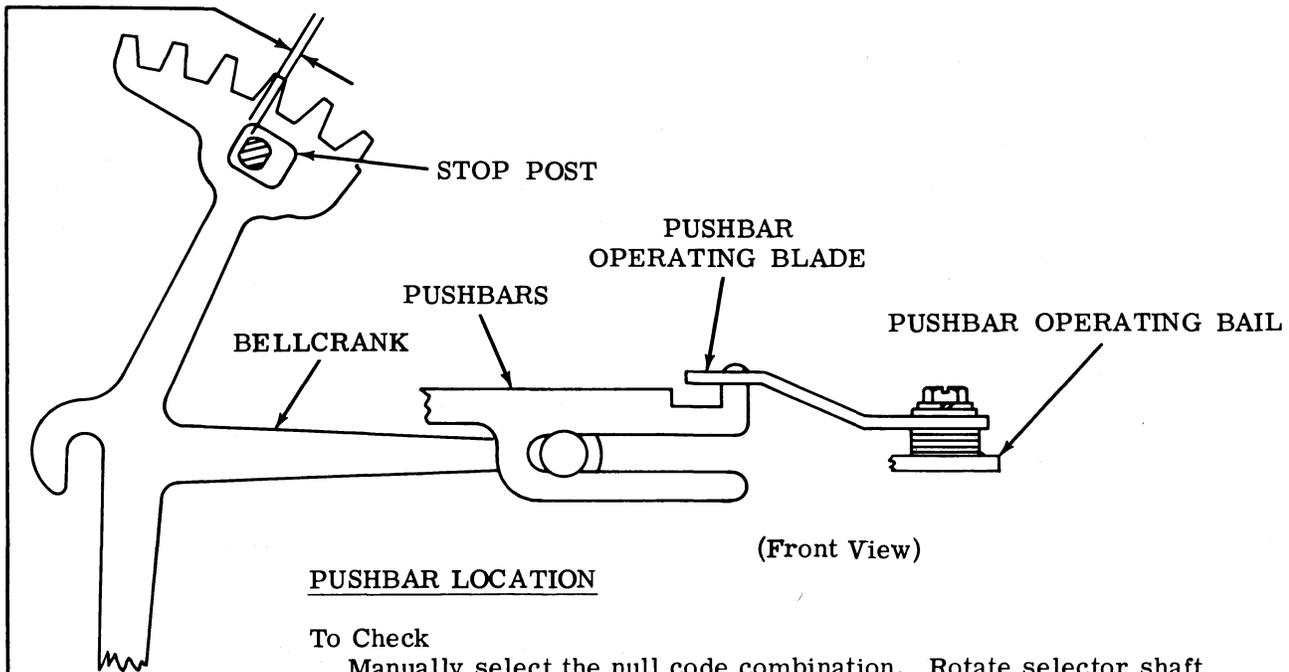
Min flush---Max 0.020 inch
above top rubout pushbars.

To Adjust

- (1) Loosen two screws mounting function box to front plate spacer posts.
- (2) Using pry point, rotate entire function box. Check bellcrank spring bracket for proper location.
- (3) Take up spacer post play to right and tighten screws.



2.43 Typing Mechanism (continued)



PUSHBAR LOCATION

To Check

Manually select the null code combination. Rotate selector shaft until function clutch trips.

Requirement

Clearance between the left edge of all bellcrank slots and the left flat of bellcrank stop post should be

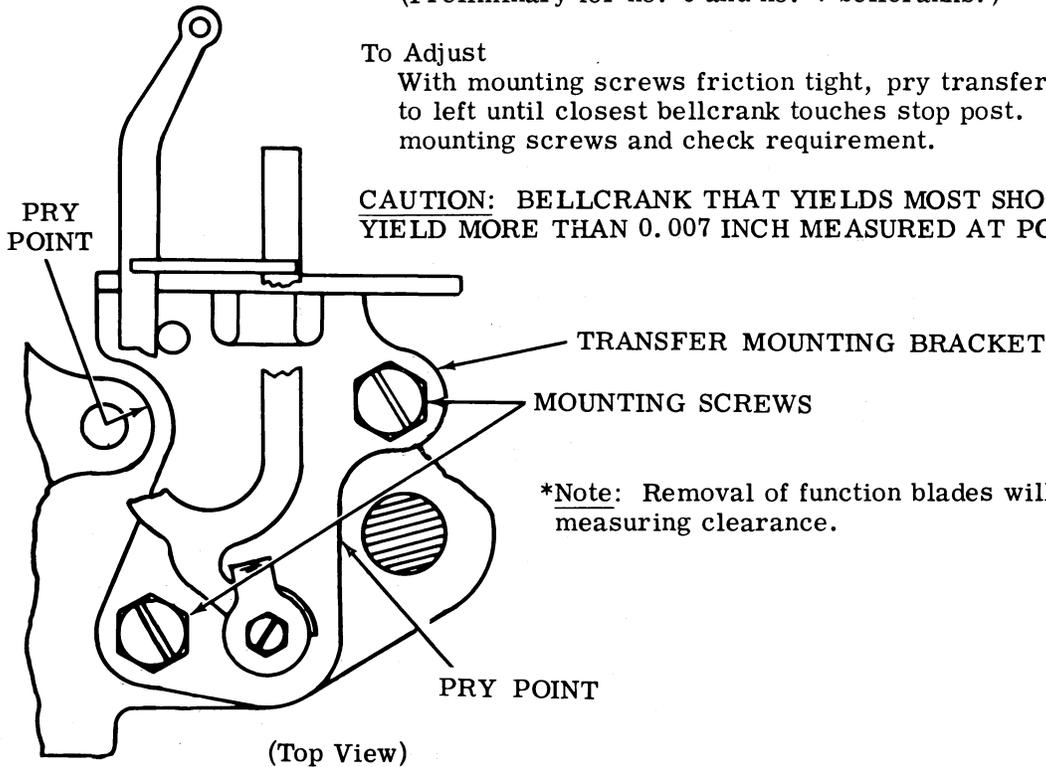
Max 0.007 inch*

(Preliminary for no. 6 and no. 7 bellcranks.)

To Adjust

With mounting screws friction tight, pry transfer beam 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.

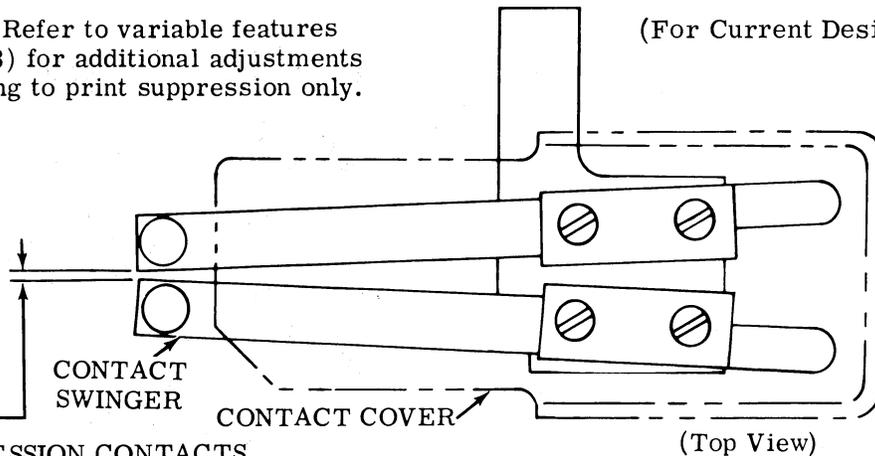


*Note: Removal of function blades will facilitate measuring clearance.

2.44 Print Suppression Mechanism (Early Design)

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

(For Current Design see 2.46)



PRINT SUPPRESSION CONTACTS

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

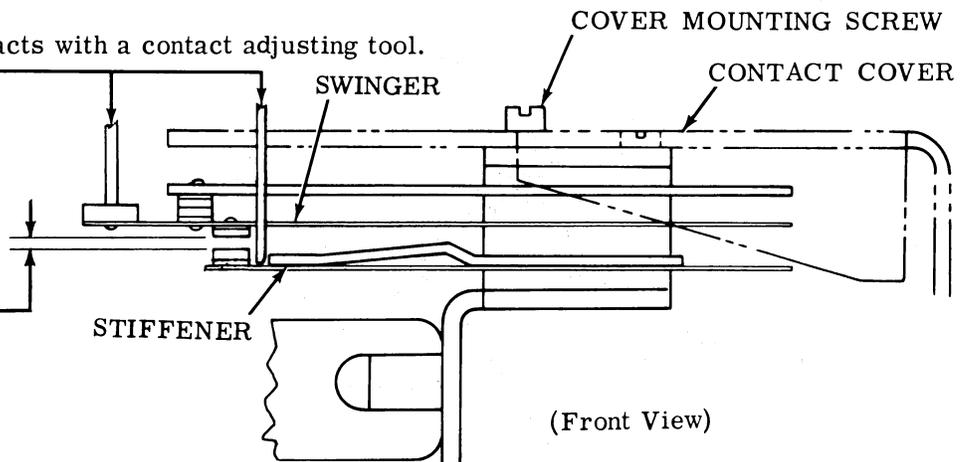
Disconnect all power from unit. Remove the contact assembly from the function box by removing the two mounting bracket screws. With the four contact cover mounting screws friction tight, position the contact swingers. Check the alignment of the associated contacts with each swinger and tighten the four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

- (2) Requirement
 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).

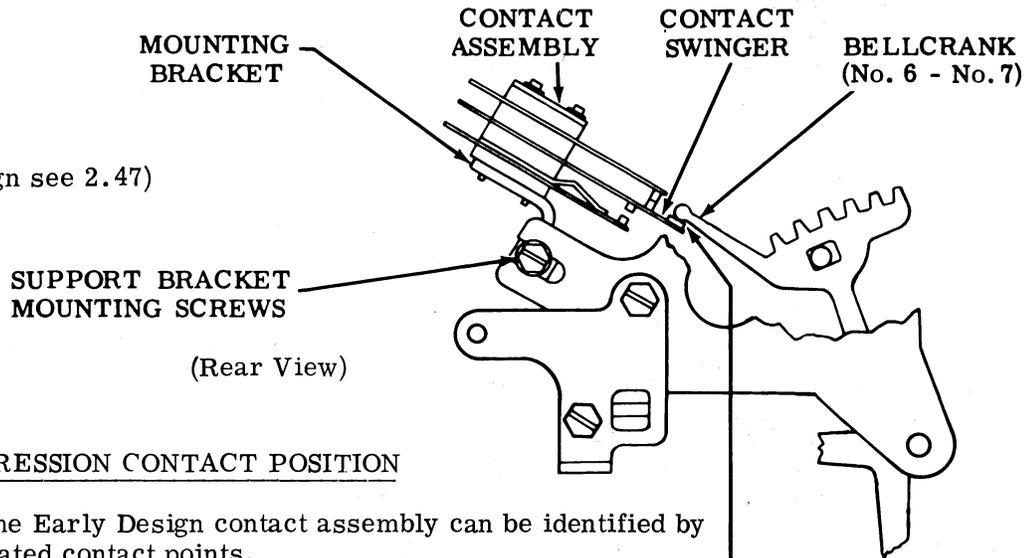
- (3) Requirement
 In addition to the clearance requirement, it should take
 — Min 2 oz---Max 3 oz
 to start each swinger moving and to start normally open contacts moving away from their associated stiffeners.

To Adjust

Adjust the contacts with a contact adjusting tool.



2.45 Print Suppression Mechanism (Early Design) (continued)



(For Current Design see 2.47)

PRINT SUPPRESSION CONTACT POSITION

Note 1: The Early Design contact assembly can be identified by its gold-plated contact points.

Note 2: The following adjustments are to be made with the contact assembly mounted on the unit.

(1) Requirement

Manually select the null 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 contact mounting bracket support mounting screws friction tight, position the contact assembly. Tighten screws.

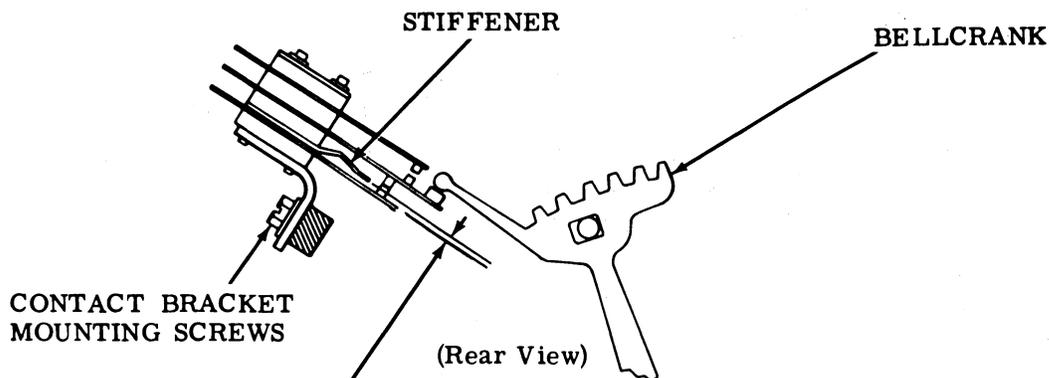
(2) Requirement

With the null 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

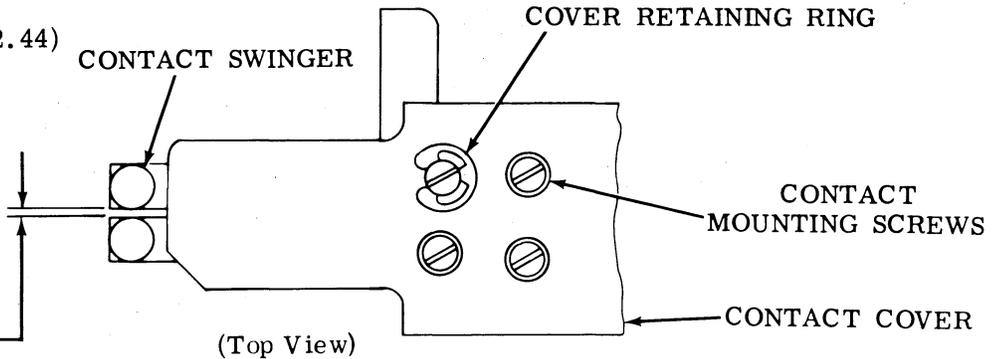
With the contact bracket mounting screws friction tight, position the bracket. Tighten screws.



2.46 Print Suppression Mechanism (Current Design)

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

(For Early Design see 2.44)



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 to facilitate the following adjustments by taking off the cover retaining ring.

(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

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

Min 0.010 inch---Max 0.015 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

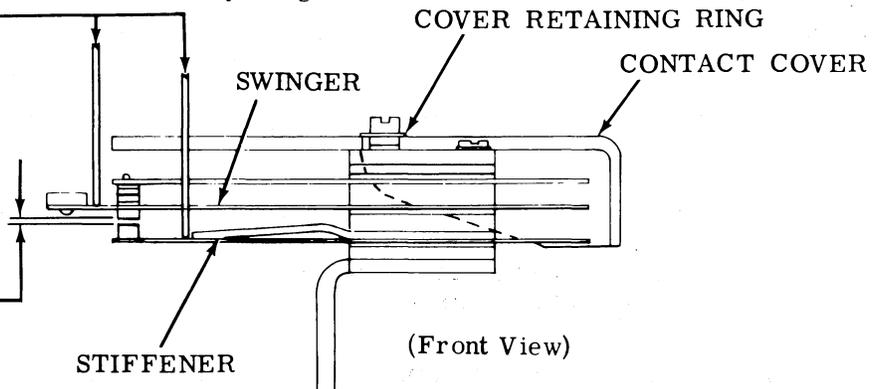
In addition to the clearance requirement, it should take

Min 45 grams---Max 60 grams

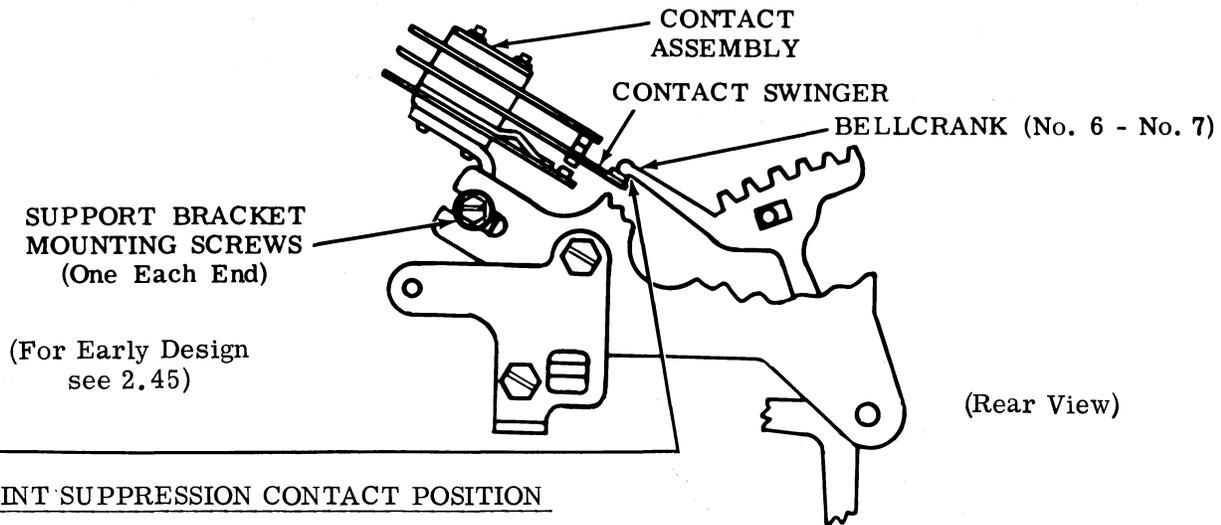
to start each swinger moving and to start normally open contacts moving away from their associated stiffeners.

To Adjust

Adjust the contacts with a contact adjusting tool.



2.47 Print Suppression Mechanism (Current Design) (continued)



Note 1: The following adjustments are to be made with the contact assembly mounted on the unit.

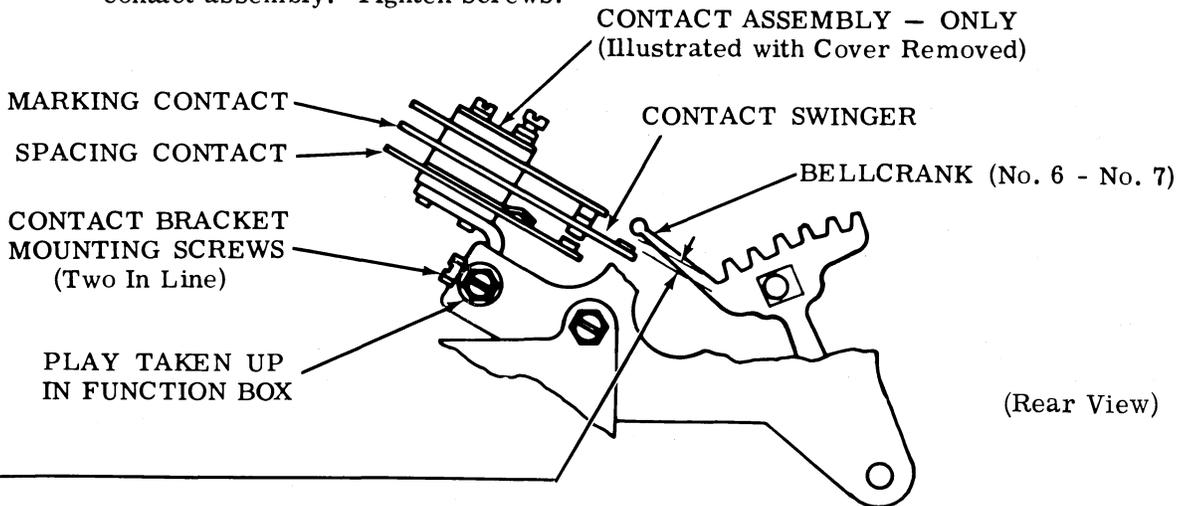
Note 2: The Current Design contact assembly can be identified by its silver contact points.

(1) Requirement

Manually select the null 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 contact mounting bracket support mounting screws friction tight, position the contact assembly. Tighten screws.



(2) Requirement

With the rubout combination 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 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.

2.48 Print Suppression Mechanism
(Current Design) (continued)

(A) ARMATURE HINGE

Requirement

The armature should be flush with the magnet pole face and magnet bracket extension.

To Adjust

With magnet bracket adjusting screw and spring post friction tight, position hinge. Tighten screw and spring post.

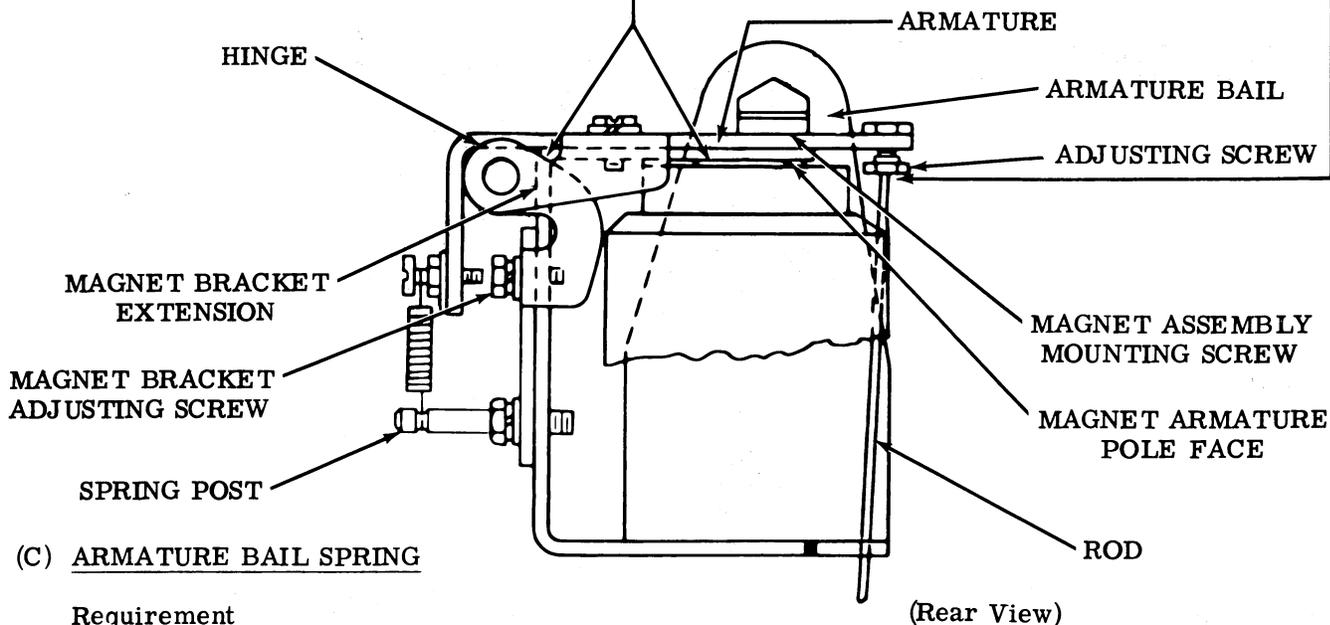
(B) MAGNET ASSEMBLY

Requirement

With armature manually held operated, the rod should fully contact the adjusting screw and a clearance should be maintained between the magnet mounting bracket and the associated yield spring and chad chute.

To Adjust

With mounting screws friction tight, position magnet assembly to meet requirement. Tighten screws.

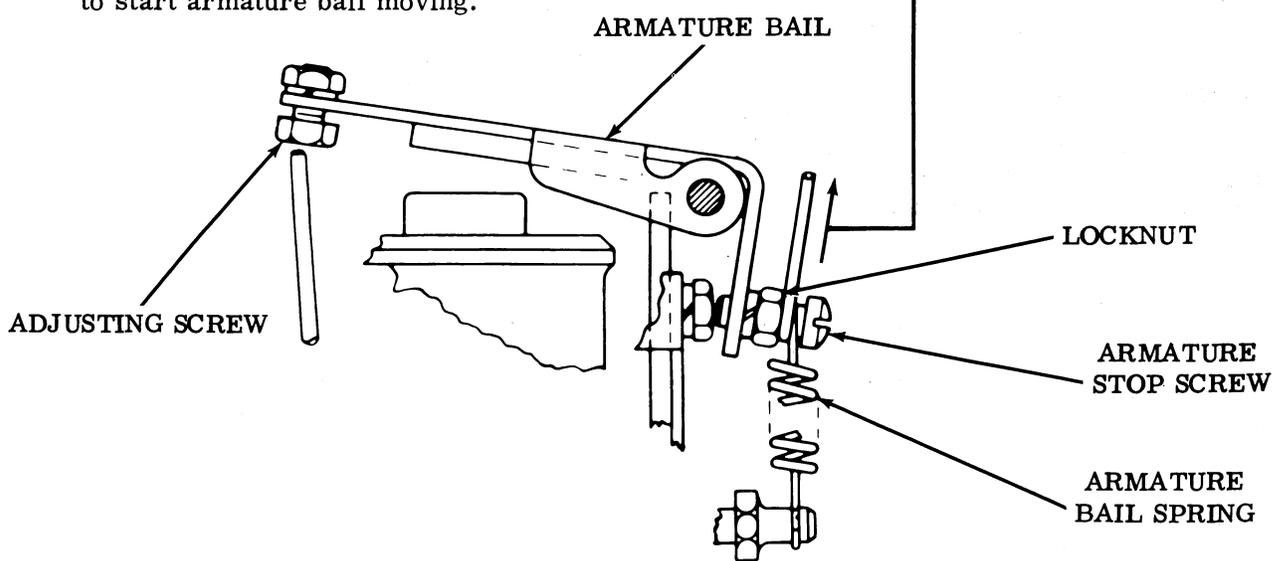


(C) ARMATURE BAIL SPRING

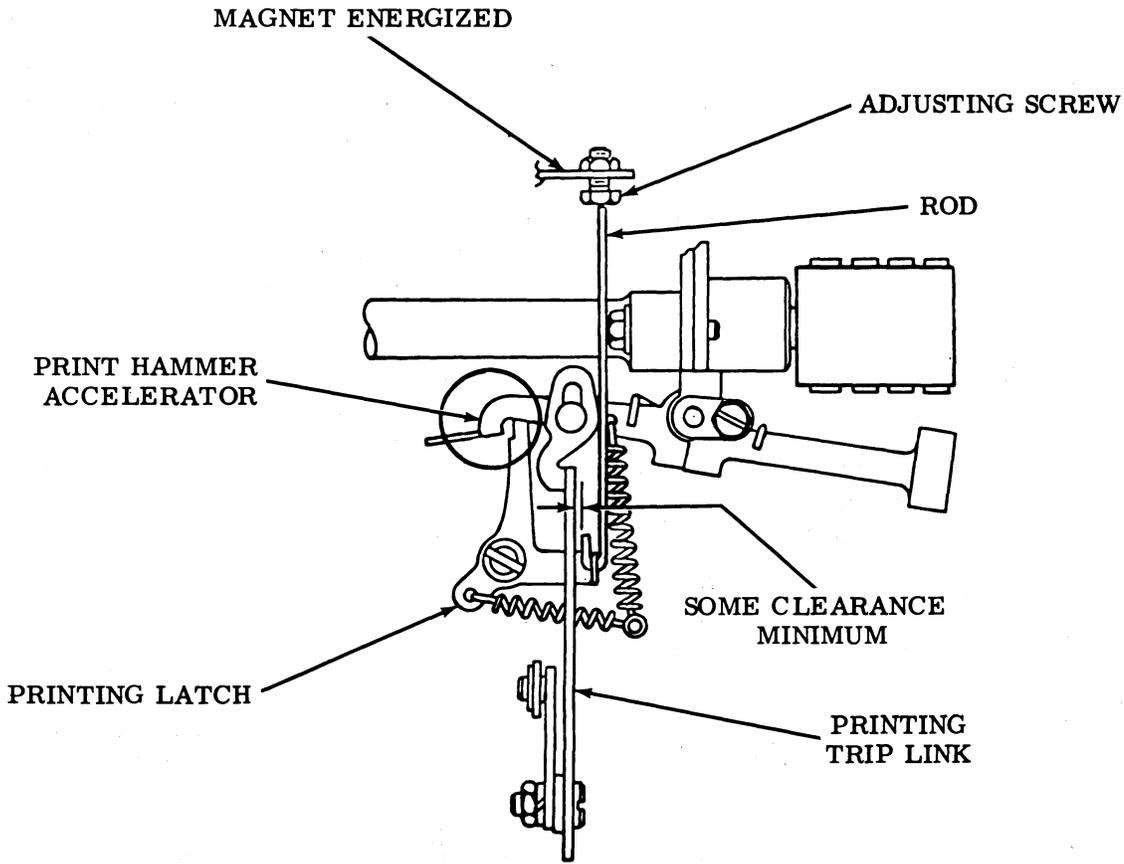
Requirement

With rod moved out of interfering position

Min 1 oz --- Max 3 oz
to start armature bail moving.



2.49 Print Suppression Mechanism (Current Design) (continued)

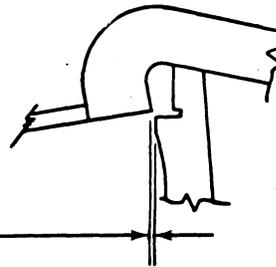


PRINT SUPPRESSION

Requirement

With print hammer accelerator lowered until it just touches the latch surface of the latch (print suppress magnet not energized) there should be

Min 0.002 inch---Max 0.010 inch
 clearance between the latch and the print hammer accelerator when the print suppress magnet is activated.



To Adjust

With the print suppress magnet de-energized, rotate the selector shaft until the print hammer accelerator comes down to just the printing latch. Activate the print suppress magnet and position the latch by moving the adjusting screw. Tighten locknut.

Note: Recheck print suppress rod clearance in PRINTING LATCH (2.62) adjustment.

2. 50 Print Suppression Mechanism (Current Design) (continued)

ARMATURE STOP

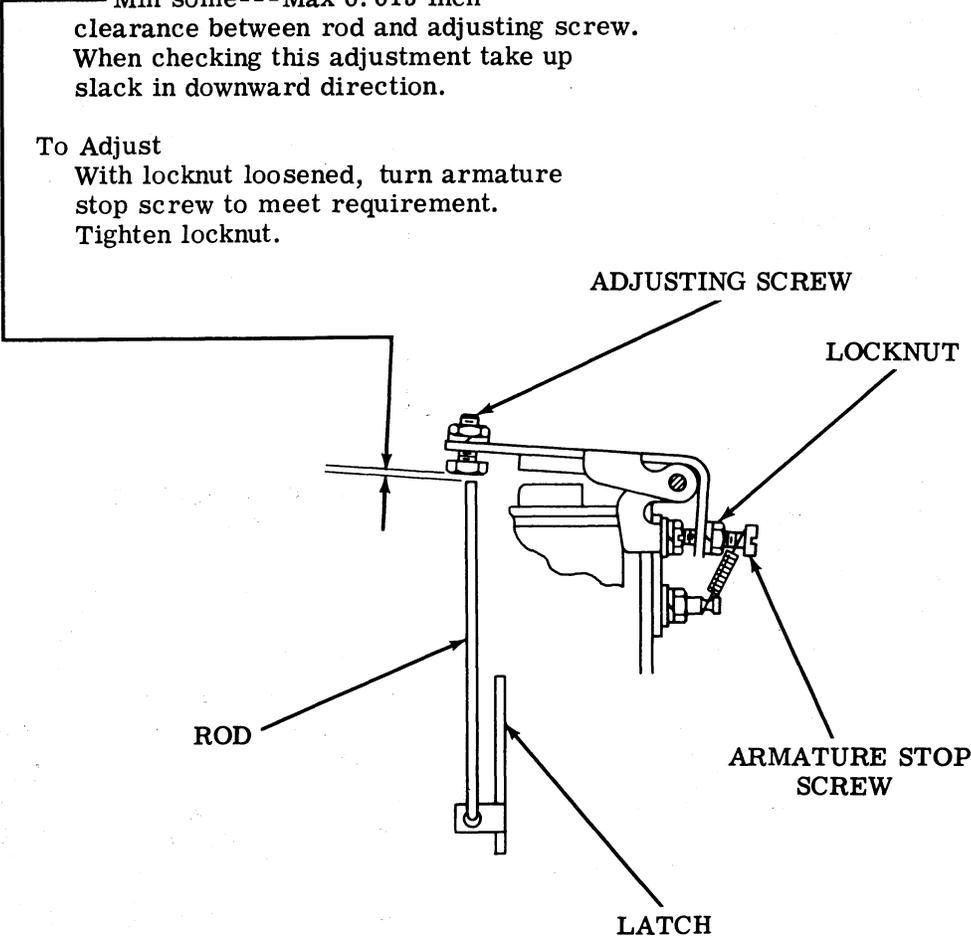
Requirement

With rocker bail in its extreme right position and with the print suppress magnet de-energized, there should be

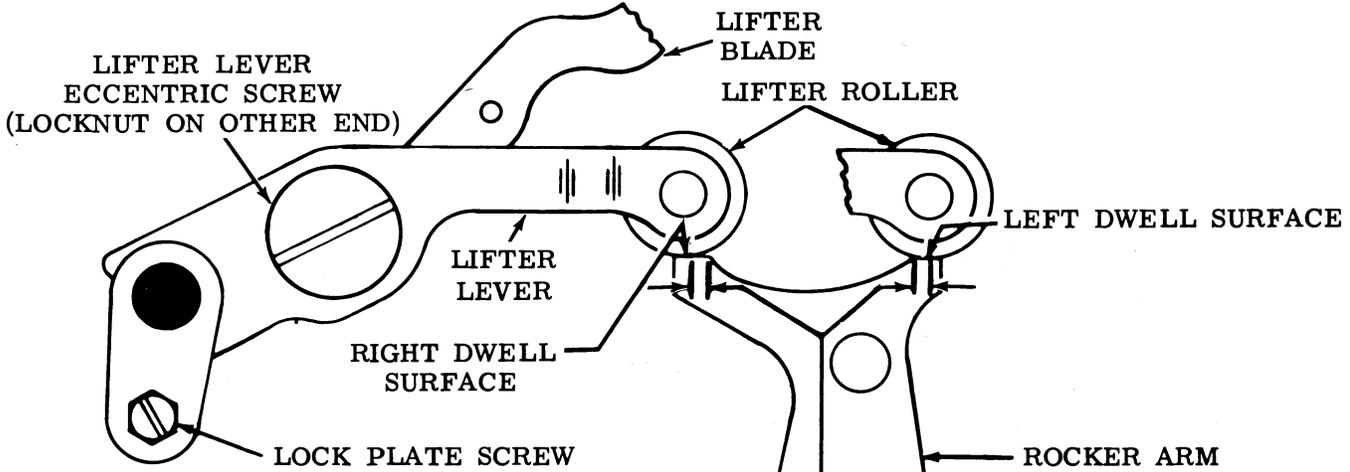
Min some---Max 0.015 inch clearance between rod and adjusting screw. When checking this adjustment take up slack in downward direction.

To Adjust

With locknut loosened, turn armature stop screw to meet requirement. Tighten locknut.



2.51 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 roller on right dwell surface. Move rocker arm to extreme right position and observe travel of roller on left dwell surface.

Requirement

Approximately equal travel on each dwell surface.

To Adjust

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

(B) LIFTER OPERATING RANGE (When function blades are used)

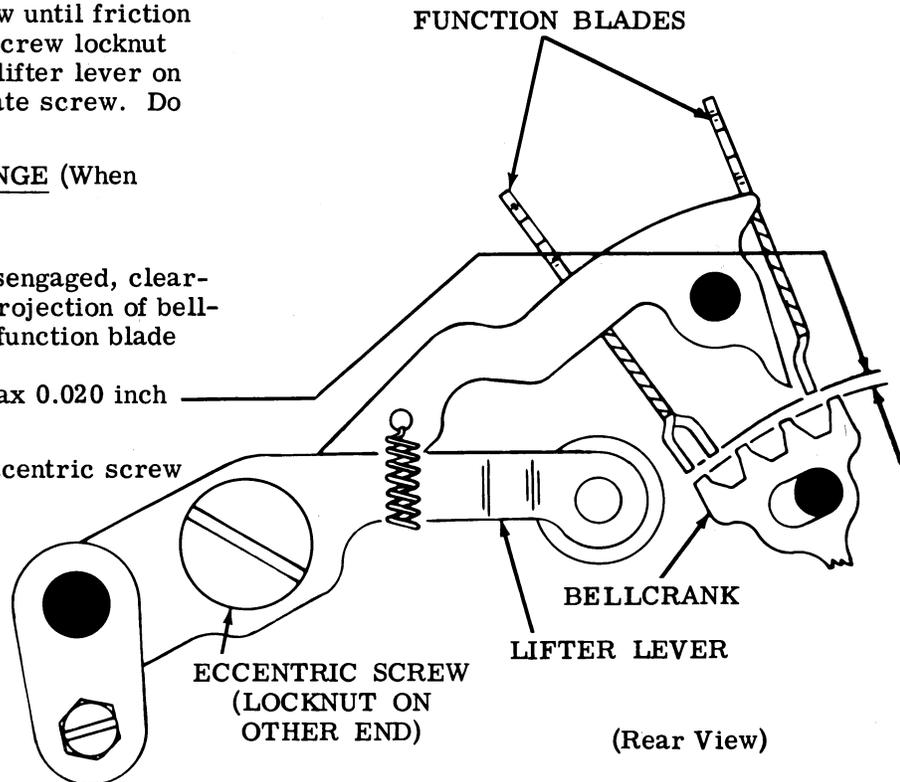
Requirement

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.



2.52 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 point where toggle link and locklever are in a straight line without raising lifter blade.

(2) Requirement

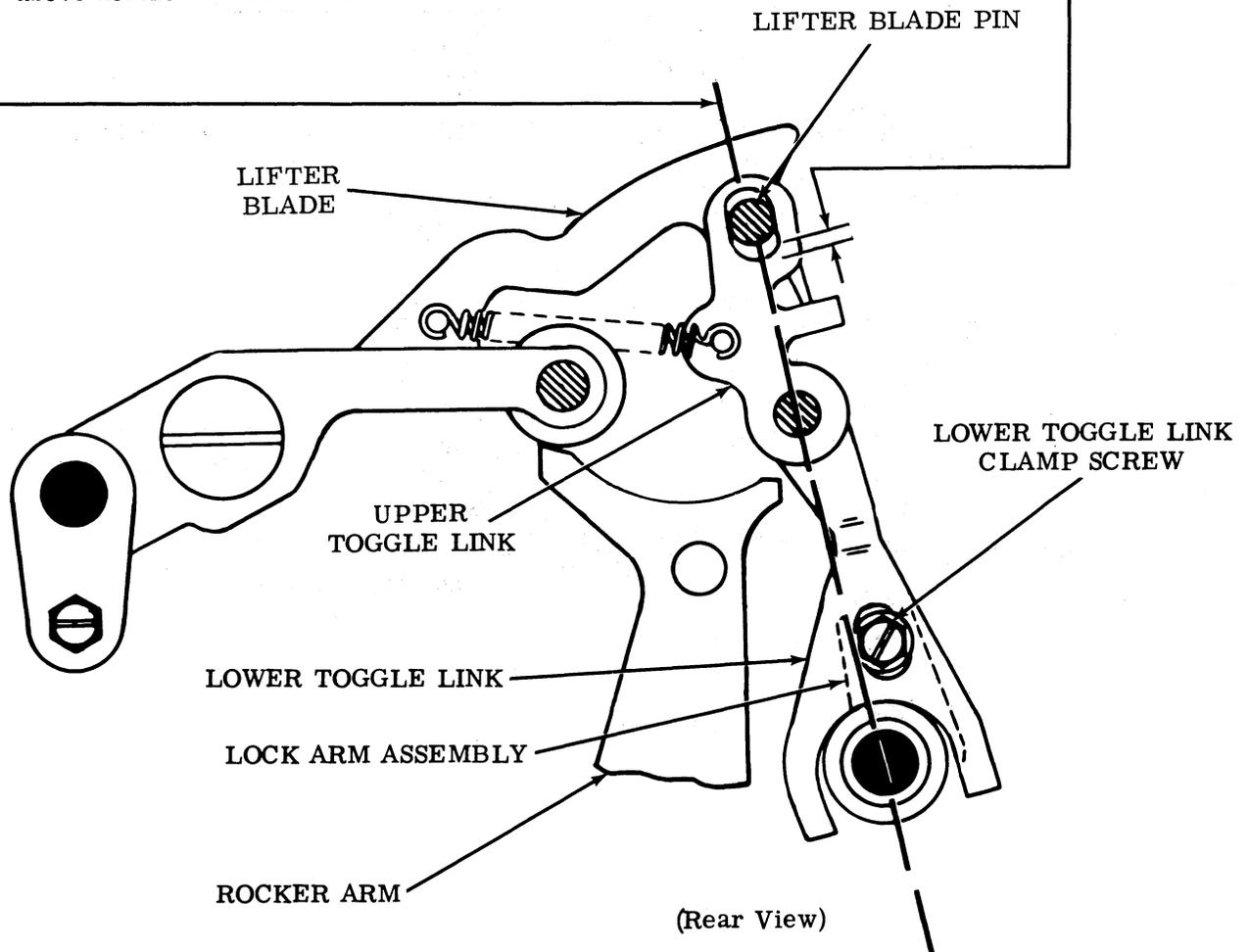
With upper and lower toggle links in a straight line, clearance between toggle link and lifter blade pin should be

Min some---Max 0.015 inch

To Adjust

Position lower toggle link on lock arm assembly with clamp screw friction tight. Rotate retaining ring for access to clearance.

Note: To avoid interference with the lower toggle link clamp screw, it may be necessary to move high part of correcting drive link eccentric bearing above horizontal center line.



2.53 Typing Mechanism (continued)

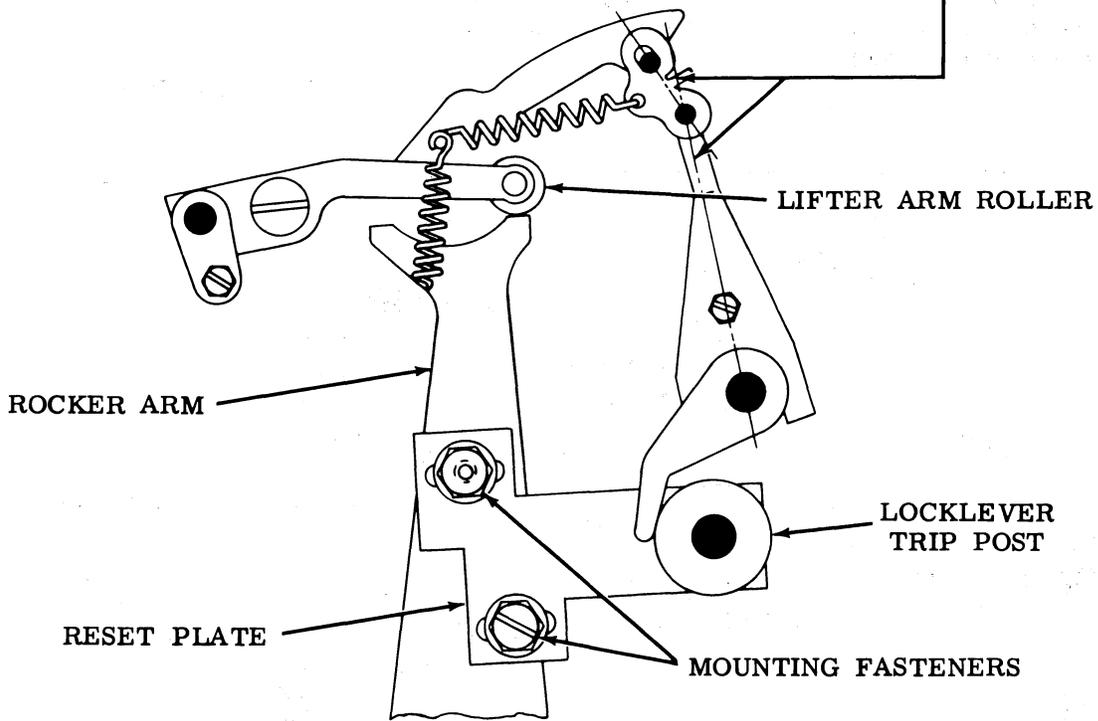
TOGGLE TRIP ARM

Requirement

When the rocker arm approaches its extreme right position, the lifter toggle should break and the lifter arm roller should drop on the right high part of the rocker arm cam (as viewed from the rear).

To Adjust

With the reset plate mounting screw and nut friction tight, position the locklever trip post to left or right to meet the requirement. Tighten the mounting screw and nut.



(Rear View)

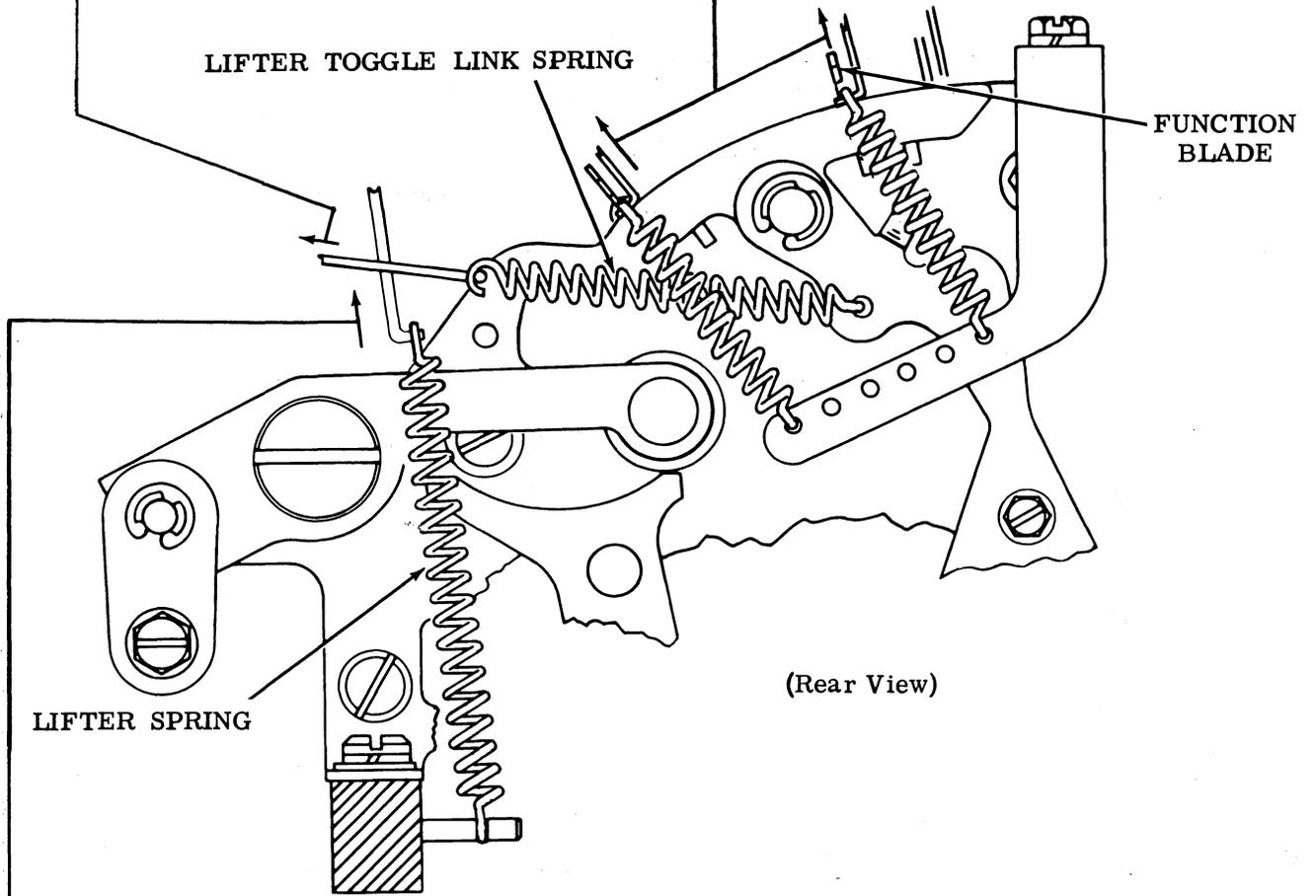
2.54 Typing Mechanism (continued)

(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.

(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.



(C) LIFTER SPRING

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

2.55 Typing Mechanism (continued)

TYPE WHEEL SHAFT (Preliminary)

(1) Requirement

When manually positioned, roller should centrally enter first notch of axial sector.

To Adjust

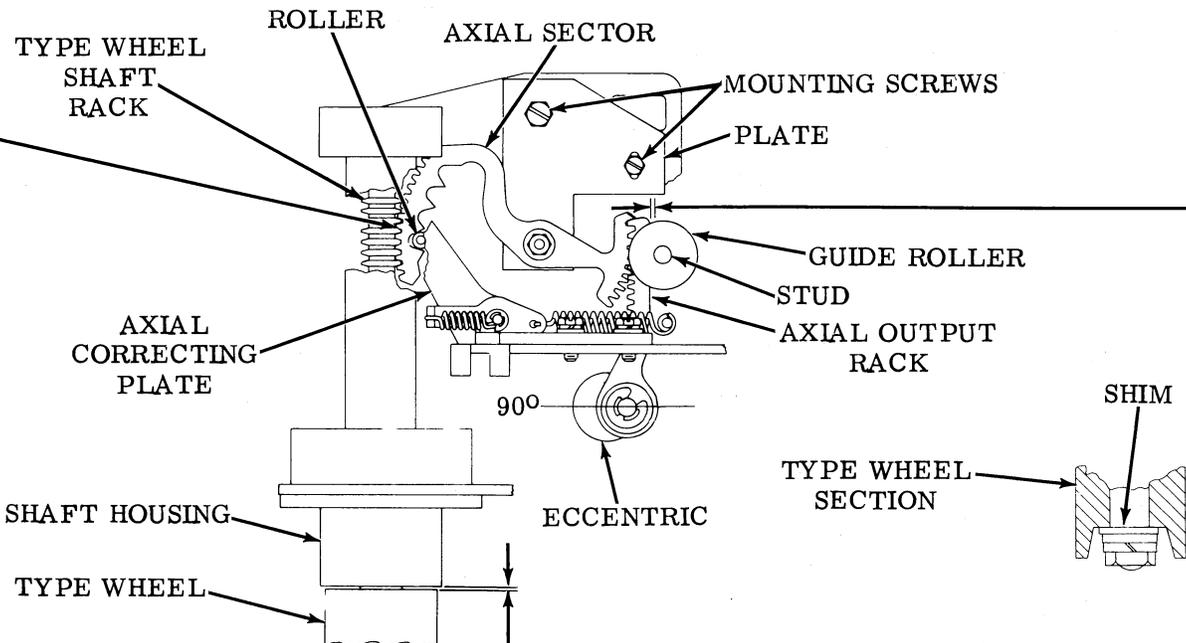
With guide roller stud loosened (friction tight), engage axial output rack with axial sector. Loosen (friction tight) plate mounting screws. Manually seat roller into axial sector notch and position plate to meet requirement. Tighten screws and stud.

(2) Requirement

With axial correcting plate roller and axial output rack disengaged from axial sector, axial sector must rotate freely with no perceptible backlash between axial sector and type wheel shaft rack.

To Adjust

With the adjusting plate mounting screws friction tight, position plate. Tighten screws. Recheck (1) Requirement and OUTPUT RACK (2.55) adjustment.



(Top View)

TYPE WHEEL SHAFT (Final)

Requirement

With axial output rack disengaged from axial sector, manually select an all spacing condition in selector mechanism. Rotate upper shaft until function clutch is tripped.

With roller centrally located within notch of the sector

Min some---Max 0.015 inch between shaft housing and type wheel.

OUTPUT RACK

To Check

Select line feed code (-2-----8). Rotate mainshaft until eccentric is in 90° position. Take up play to maximize required gap.

Requirement

Min some---Max 0.008 inch between guide roller and axial output rack.

To Adjust

Loosen guide roller mounting nut and position guide roller. Tighten nut.

To Adjust

Add or remove shims between the type wheel bushing and the type wheel.

Note: When the axial output rack and axial sector are engaged, the first and last teeth of the output rack should mesh with the sectors first and last teeth, respectively.

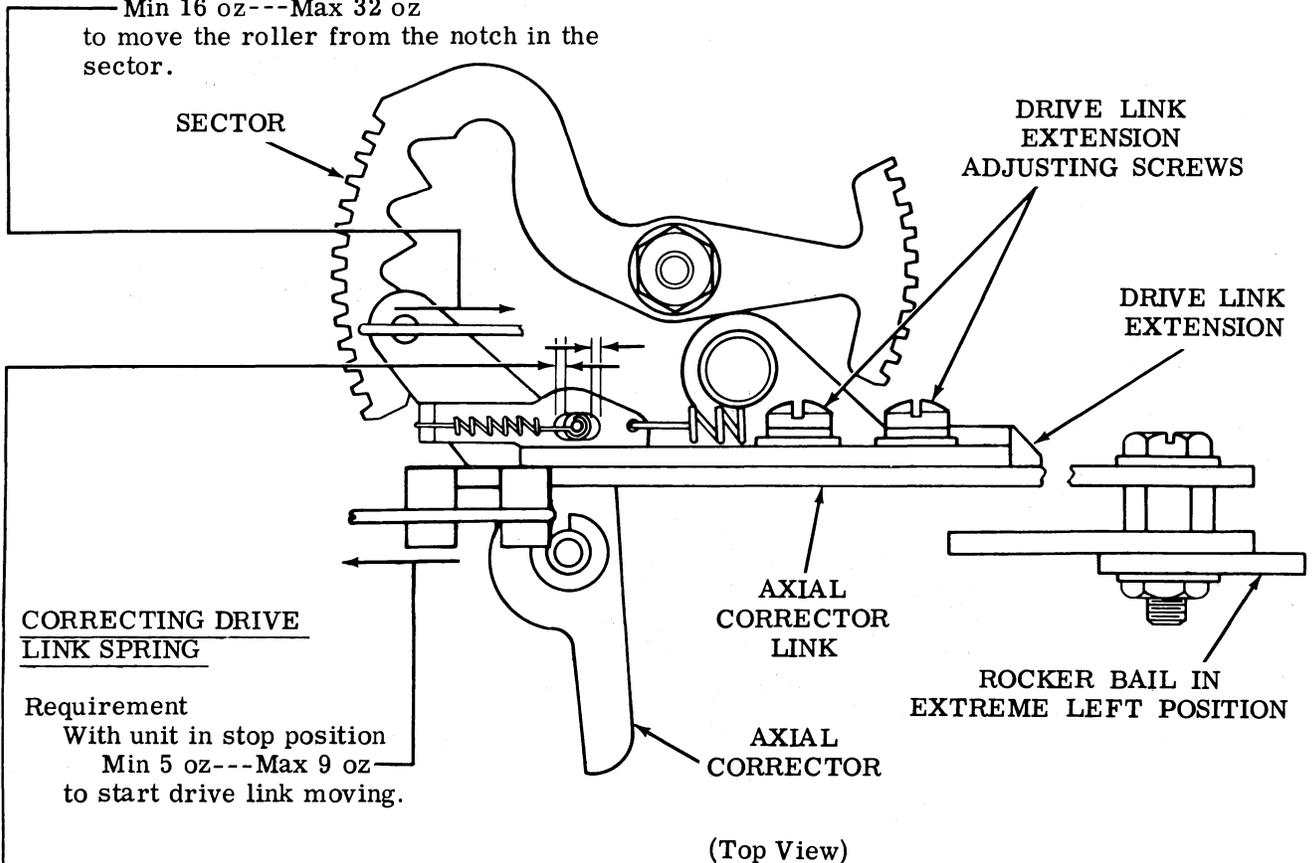
2.56 Typing Mechanism (continued)

CORRECTOR DRIVE LINK (YIELDING)
EXTENSION SPRING

Requirement

With the null (all spacing) code combination selected, the function clutch tripped, and the rocker bail in its extreme left position, place a scale on the end of the corrector axial plate. It should take

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



CORRECTING DRIVE LINK SPRING

Requirement

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

(Top View)

AXIAL CORRECTOR (YIELDING)

Requirement

With the null (all spacing) code 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 the drive link extension to the corrector plate to check the minimum requirement.

To Adjust

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

2.57 Typing Mechanism (continued)

(A) AXIAL OUTPUT RACK GUIDE ROLLER

To Check

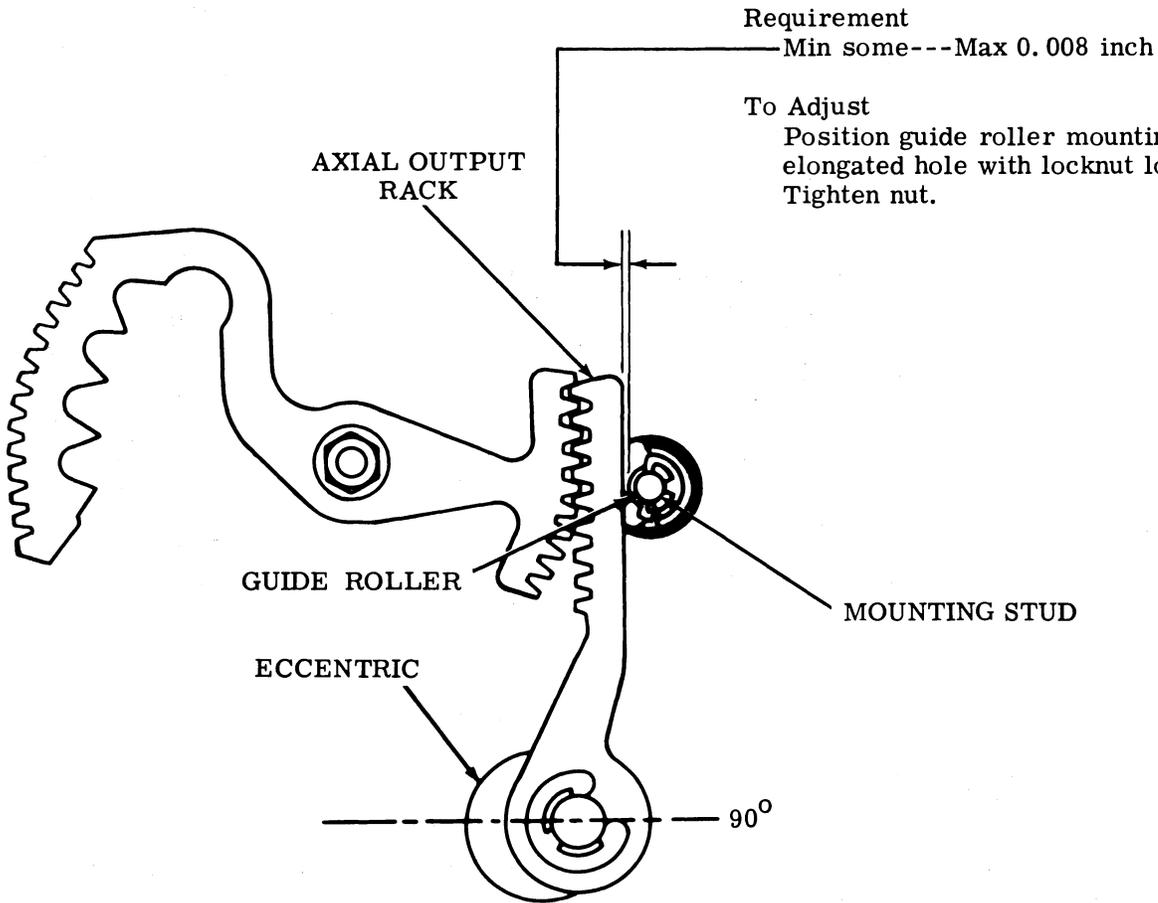
Select line feed code combination (-2-4---8). Rotate selector shaft until eccentric has rotated 90 degrees. Take up play to make clearance between output rack and guide roller maximum.

Requirement

Min some---Max 0.008 inch

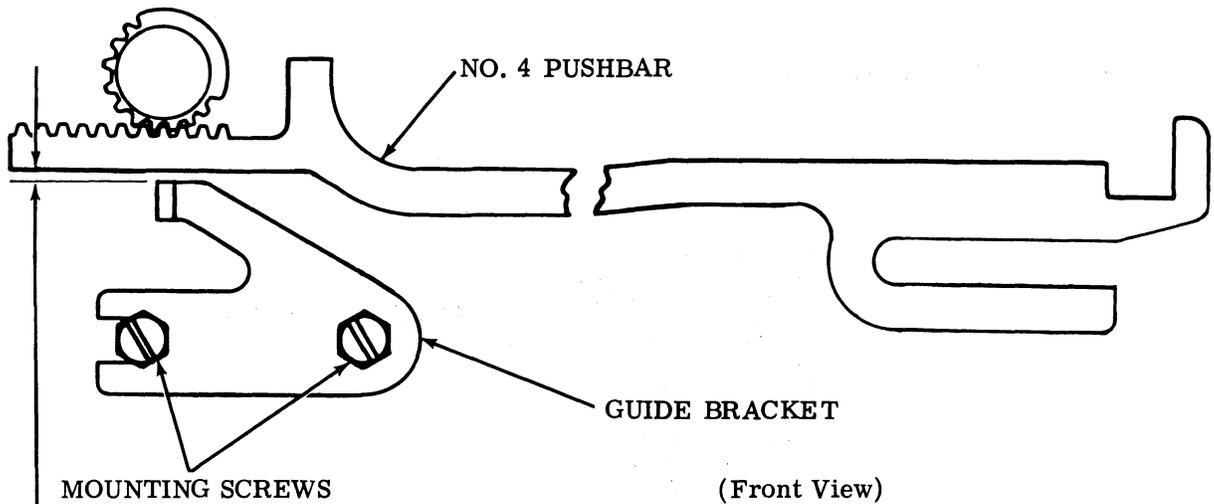
To Adjust

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



(Top View)

2.58 Typing Mechanism (continued)



(B) PUSHBAR CLEARANCE

To Check

Manually select carriage return code combination (1-34---8). Rotate selector shaft so that no. 4 pushbar moves through complete range of travel.

Requirement

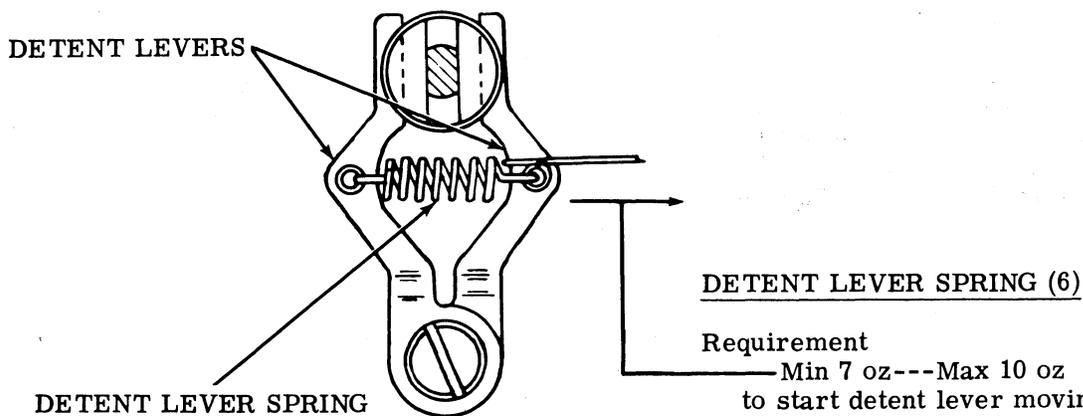
When play is taken up to make clearance maximum

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.



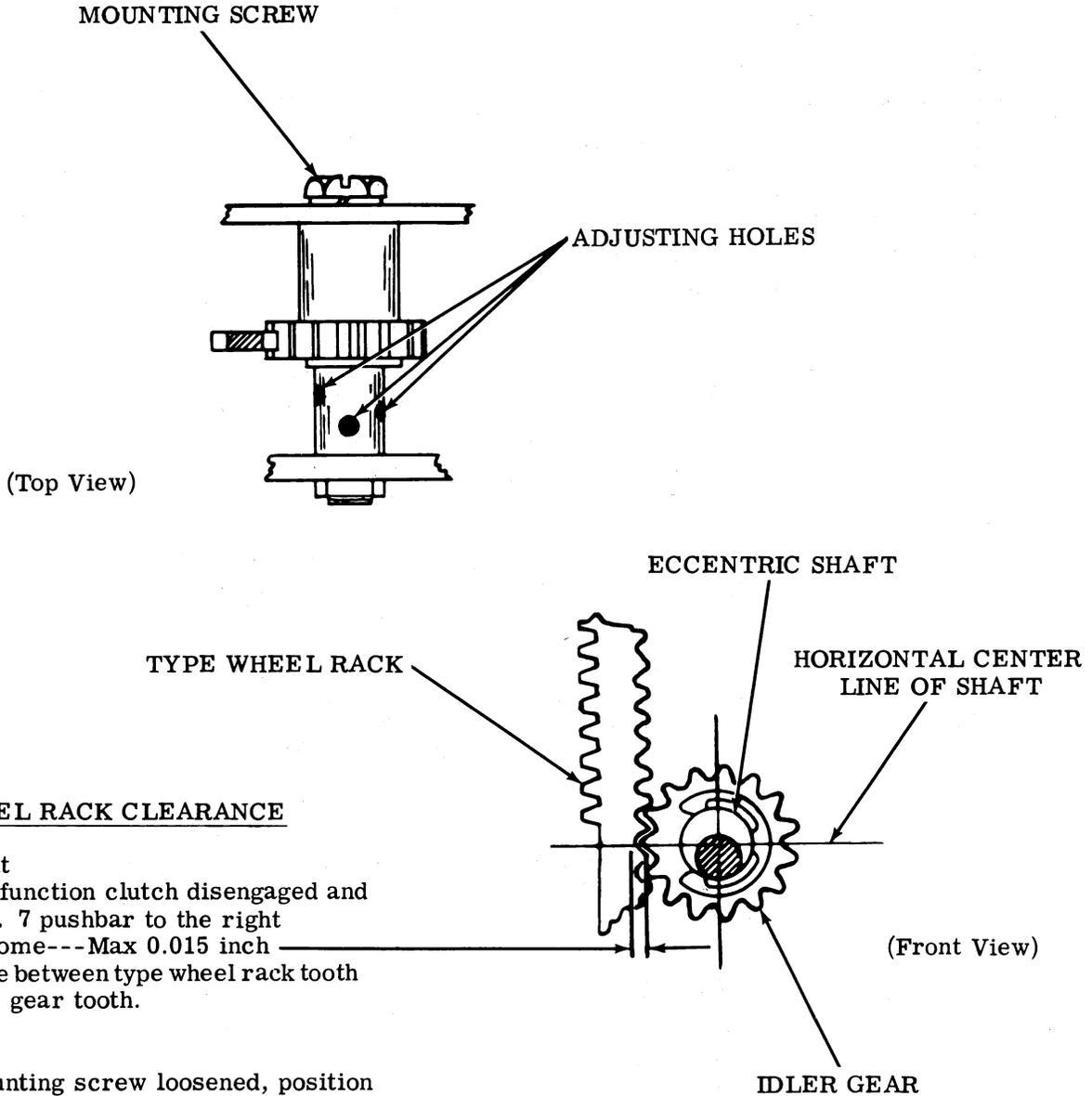
Requirement

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

(Top View of Springs on Axial Positioning Mechanism)

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

2.59 Typing Mechanism (continued)



TYPE WHEEL RACK CLEARANCE

Requirement

With the function clutch disengaged and upper no. 7 pushbar to the right
 Min some---Max 0.015 inch
 clearance between type wheel rack tooth and idler gear tooth.

To Adjust

With mounting screw loosened, position idler gear eccentric shaft by means of three adjusting holes. Check rack throughout its travel for binds. Tighten screw.

2.60 Typing Mechanism (continued)

ROTARY CORRECTOR MESH**Requirement**

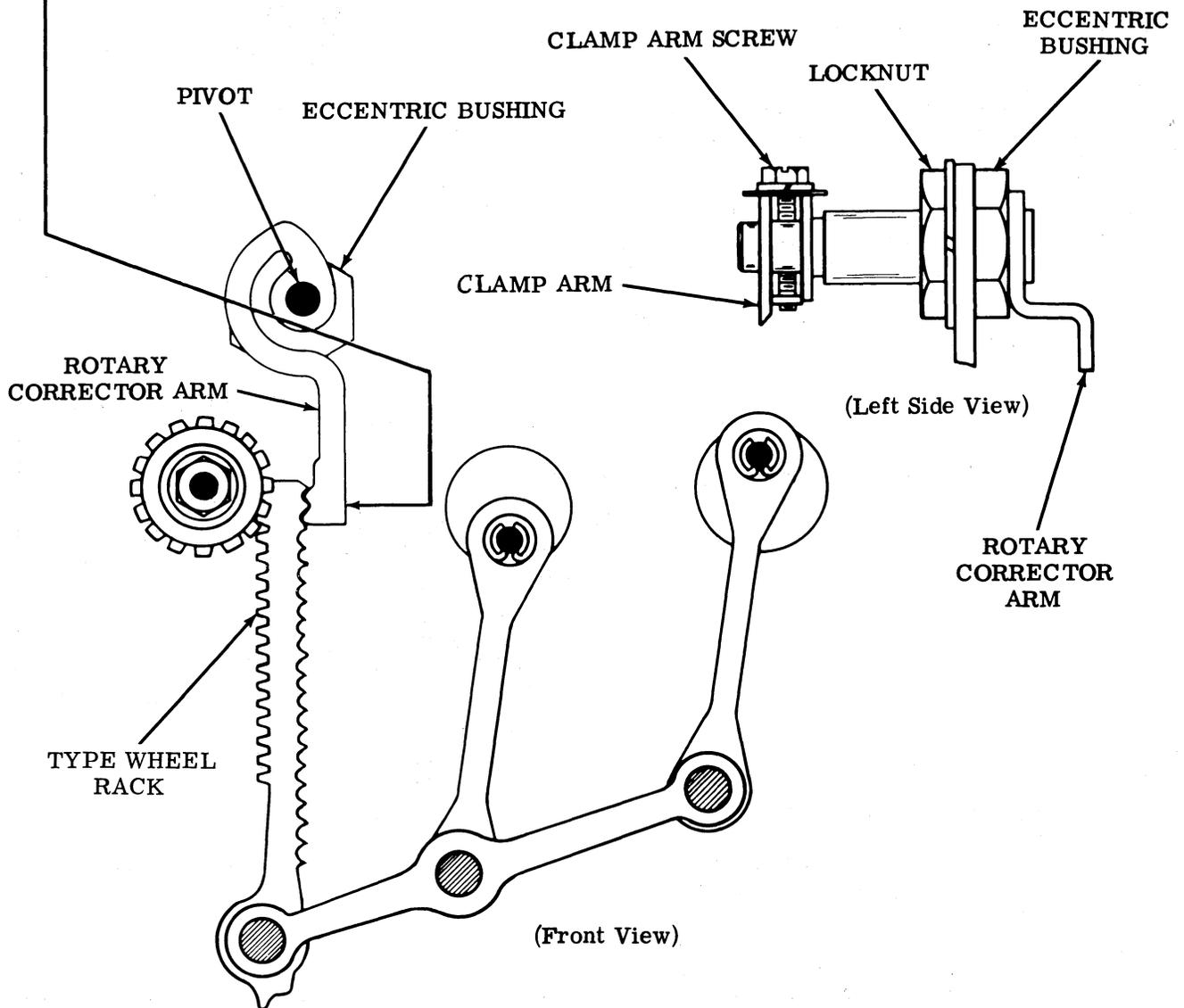
With clamp arm friction tight and X combination selected, the second tooth from the top of the rotary output rack (with the pushbars manually detented) should seat between the lobes of the rotary corrector arm.

To Adjust

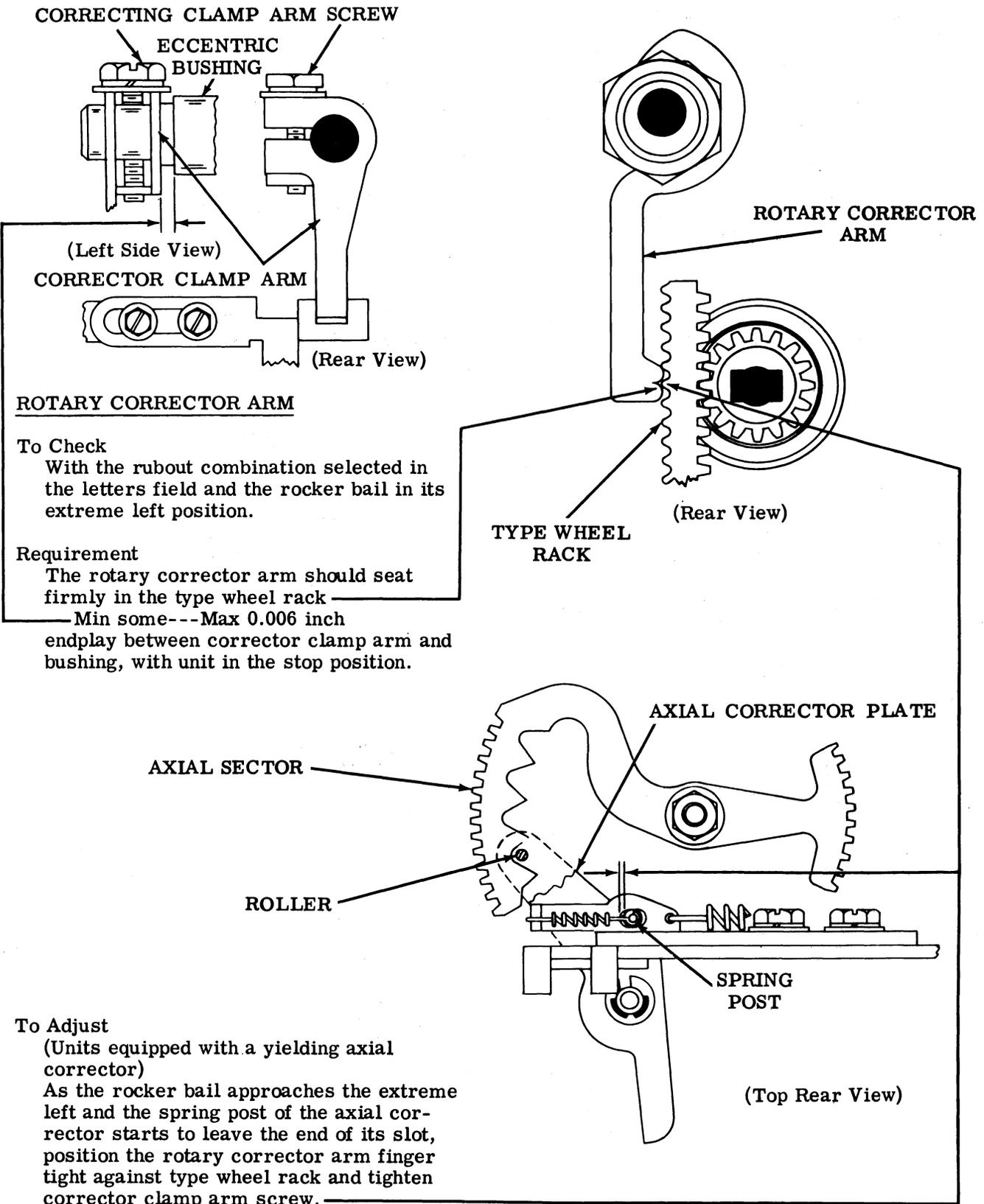
Loosen clamp arm screw and eccentric bushing locknut. With the pivot of the corrector arm to the right of the center of the bushing, position the rotary corrector arm. Tighten the bushing locknut. Do not tighten clamp arm screw at this point.

To Check

Check engagement in a similar manner as in requirement above with the fifth tooth (no. 3, 4, and 7 pulse marking), ninth tooth (no. 4 pulse marking), sixteenth tooth (no. 3 and 5 pulse marking). Refine the adjustment if necessary.



2.61 Typing Mechanism (continued)



2.62 Typing Mechanism (continued)

PRINTING LATCH

(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 0.012 inch and there should be a minimum of some clearance as gauged by eye between the print suppress rod and the printing trip link for a complete cycle of the rocker bail.

(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).

(3) Requirement

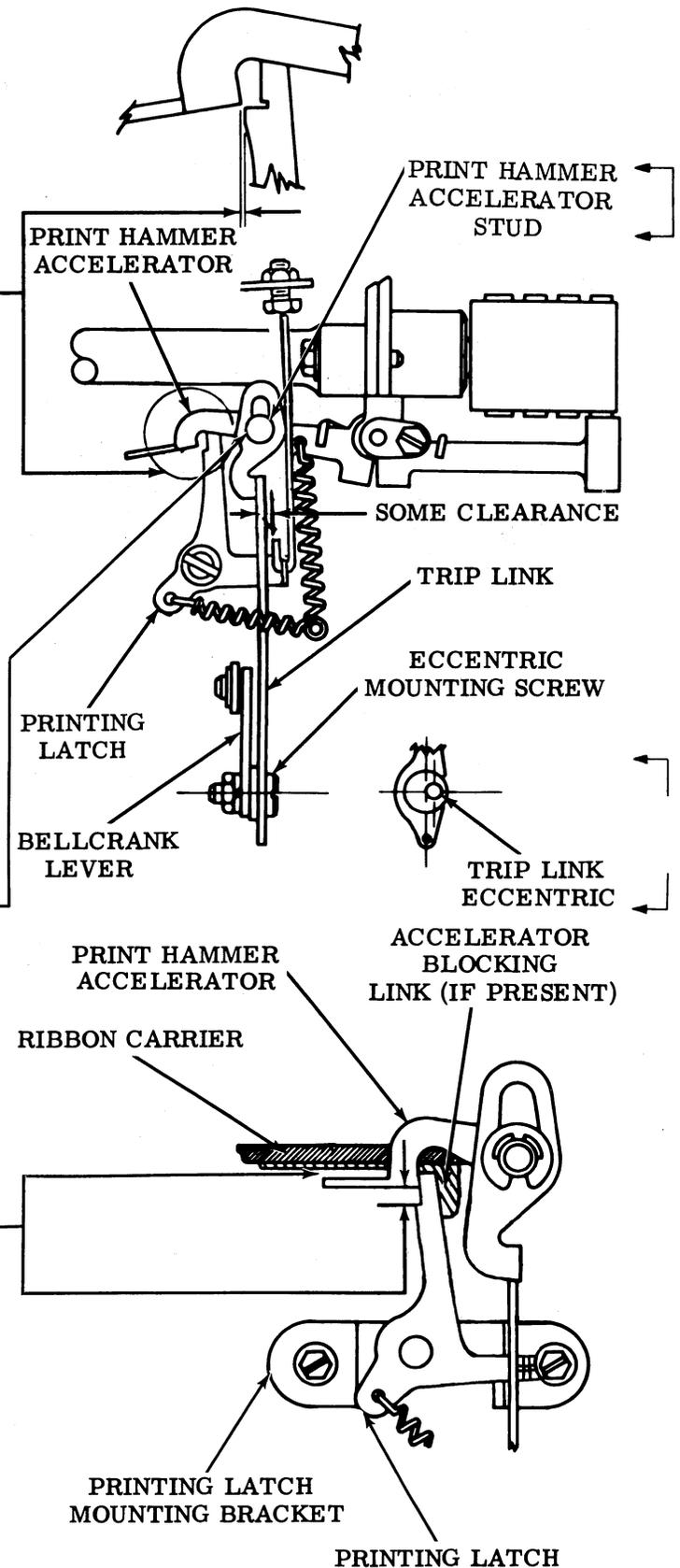
Trip print latchlever. There should be some clearance between print hammer accelerator stud and the elongated slot in the trip link, with play taken up to maximize the clearance.

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.

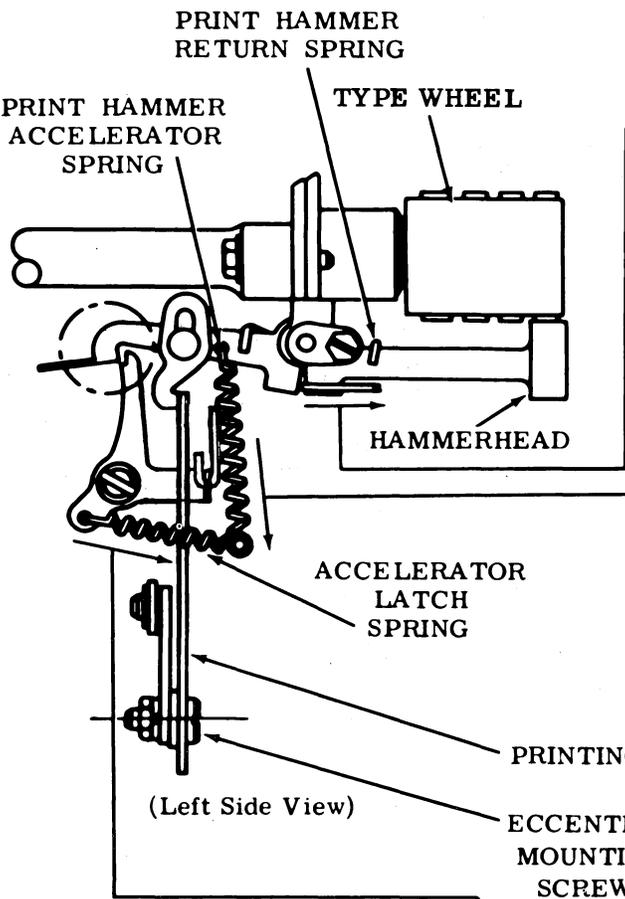
(2) With the rocker bail to the extreme left, move the printing latch mounting bracket toward the front until the print hammer accelerator just trips. Tighten the mounting screws.

(3) With the rocker bail to the extreme left, position the trip lever eccentric (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).



(Left Side Views)

2.63 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 5 lbs---Max 6 lbs
 to pull the spring to its installed length.

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.

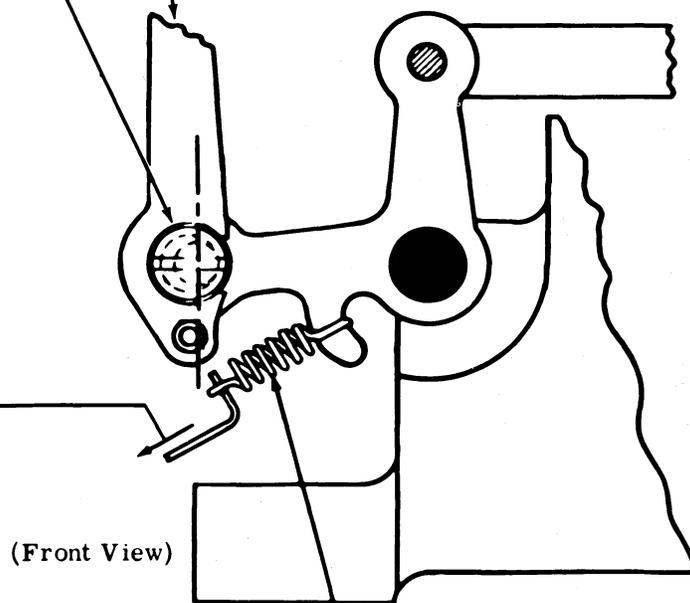
PRINT HAMMER TRIP LEVER SPRING

Requirement

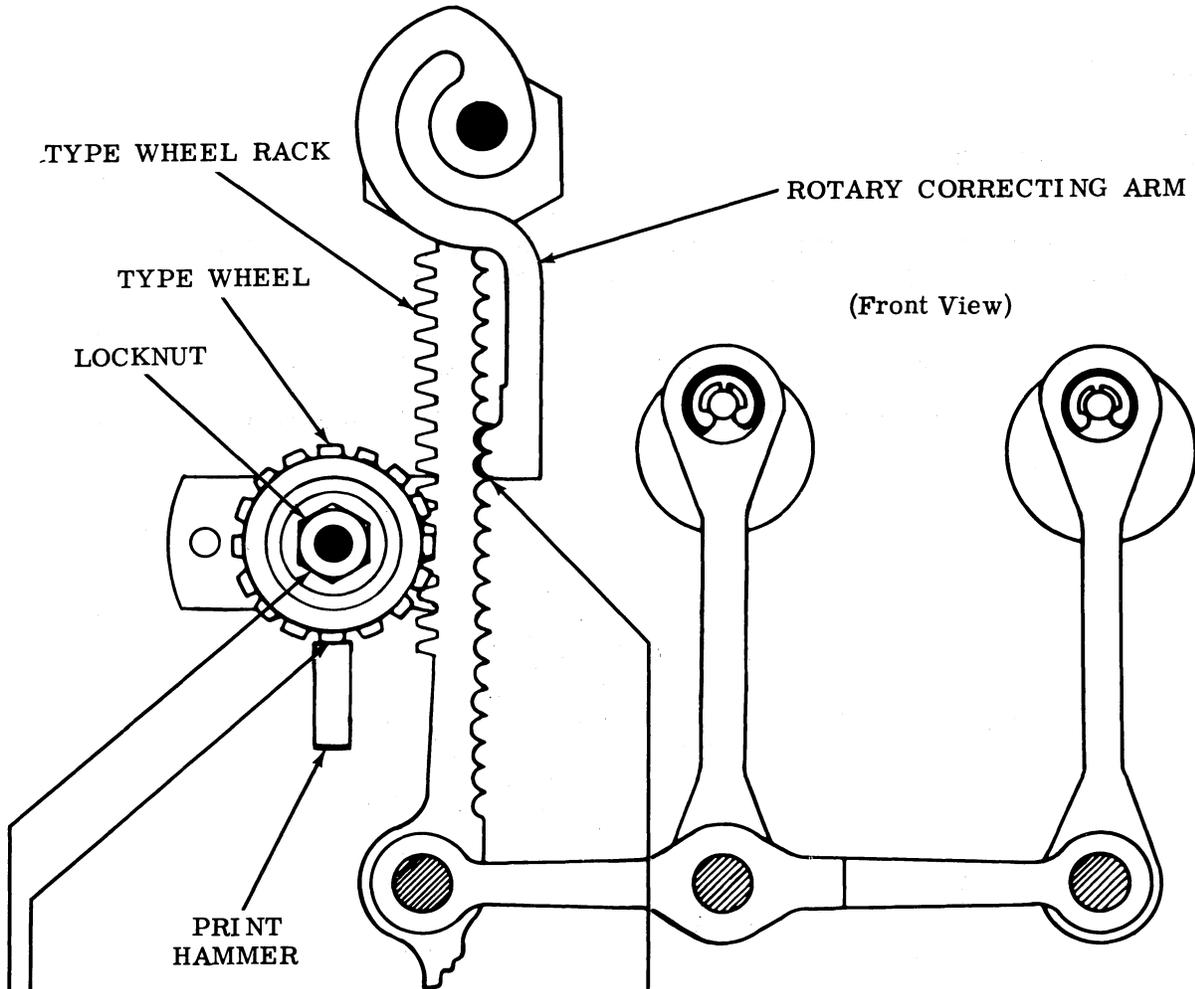
Min 4 oz---Max 7 oz
 to pull spring to installed length.

PRINTING TRIP LEVER

ECCENTRIC MOUNTING SCREW



2.64 Typing Mechanism (continued)



TYPE WHEEL (Preliminary)

To Check

Select H code combination (---4--78). Place rocker bail to extreme left. Correcting arm should be firmly seated in type wheel rack.

Requirement

Type wheel aligned so that full character is printed uniformly and six 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 (2.65) adjustment and then refine this adjustment.

TYPE WHEEL (Final)

To Check

With unit operating under power.

Requirement

All characters should be legible and six 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 the PRINT HAMMER (2.65) adjustment and refine this adjustment.

2.65 Typing Mechanism (continued)

PRINT HAMMER

To Check

With unit operating under power.

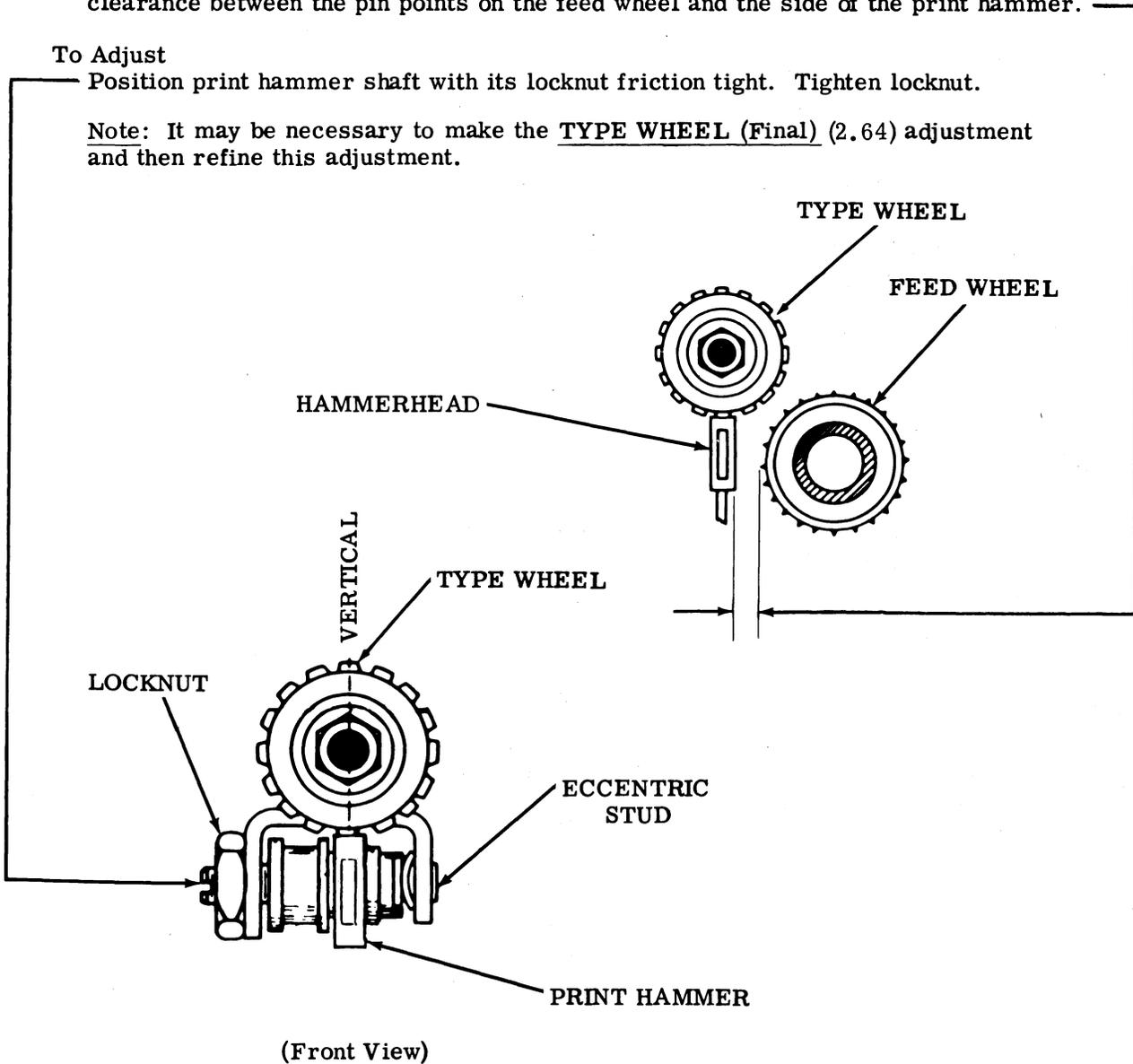
Requirement

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.

To Adjust

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

Note: It may be necessary to make the TYPE WHEEL (Final) (2.64) adjustment and then refine this adjustment.



2.66 Typing Mechanism (continued)

FEED PAWL SPRING

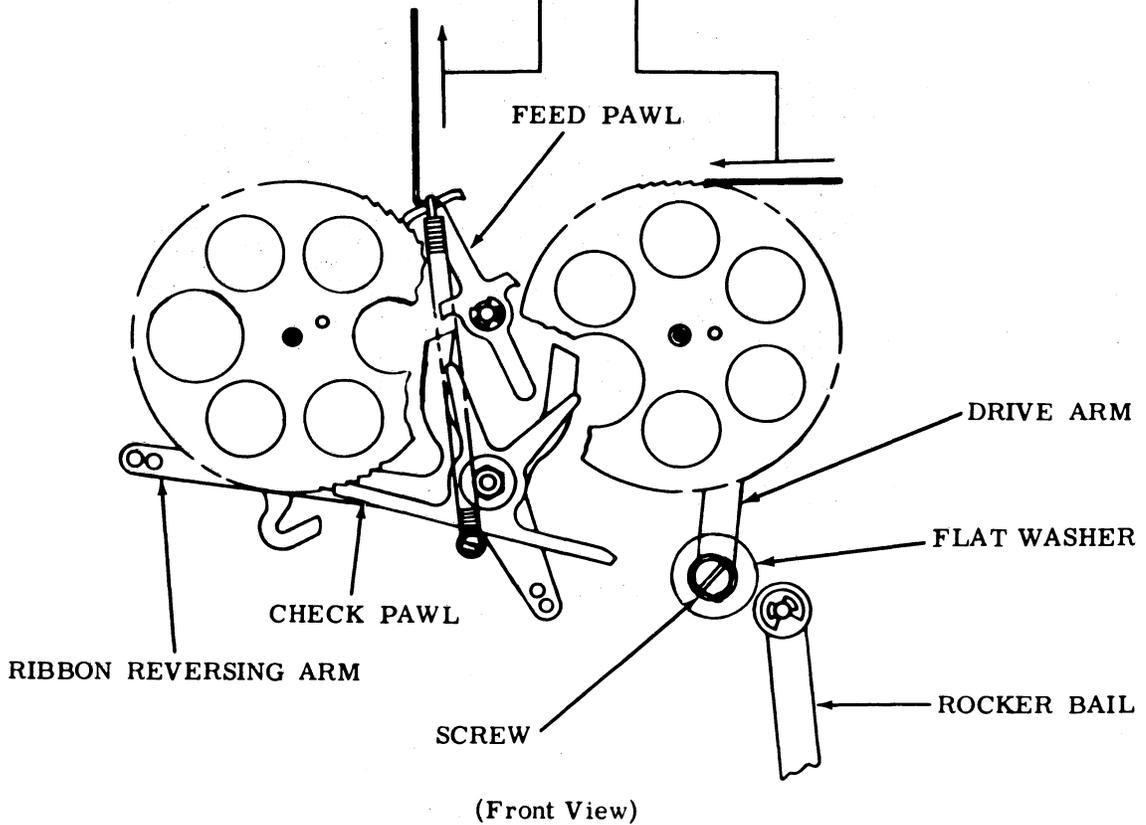
Requirement

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.



2.67 Typing Mechanism (continued)

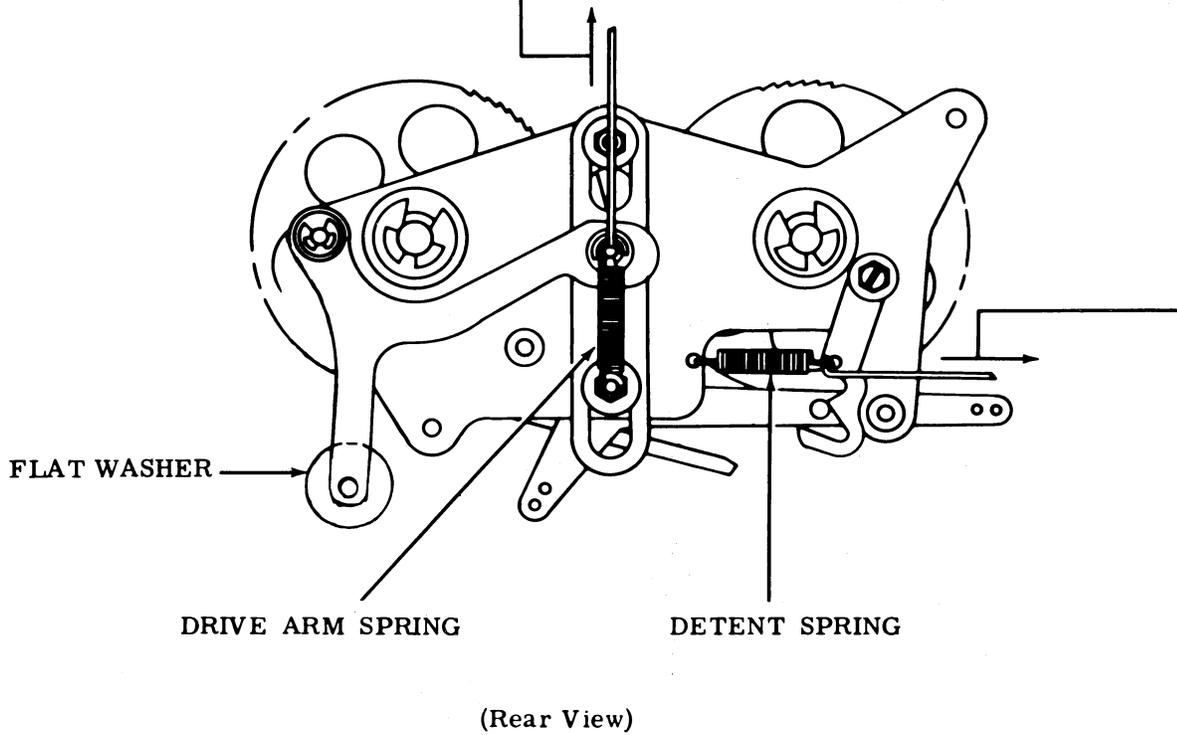
DRIVE ARM SPRING

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.

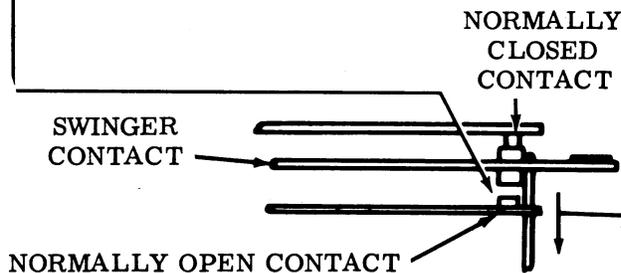
2.68 Typing Mechanism (continued)

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.

(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

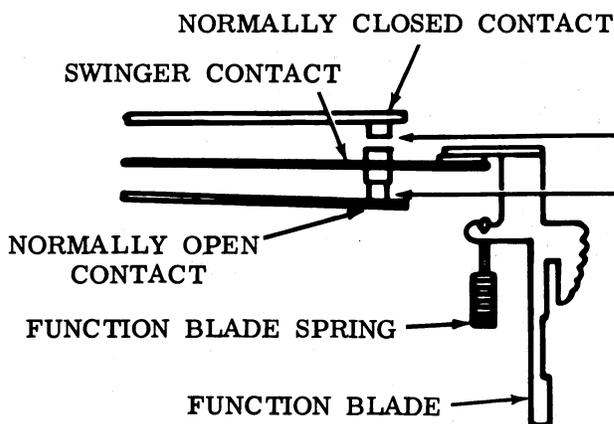
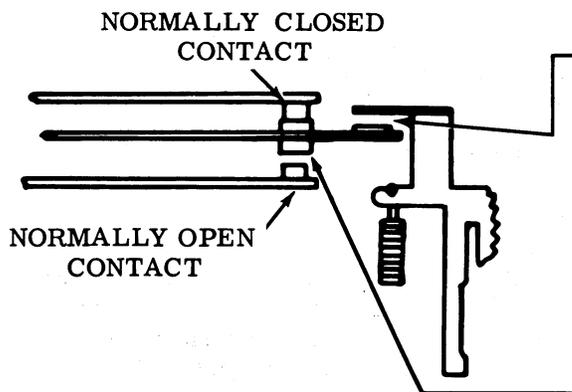
(3) Requirement
With the function blade in its lowest position in the selected condition. Gap between the swinger contact and normally closed (now open) contact

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.

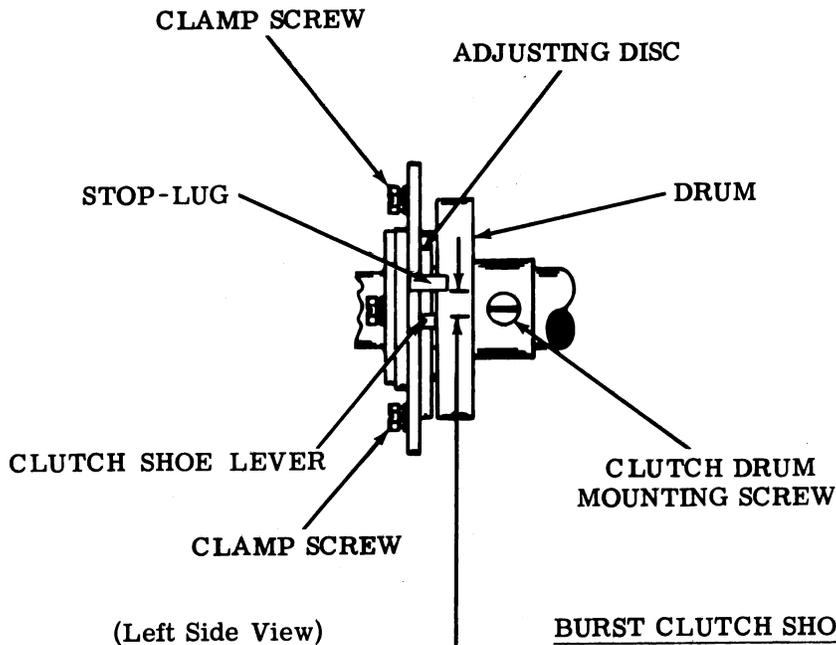
(4) Requirement
Select each function blade in turn and determine that there is a definite transfer from make-to-break contacts. The normally closed contacts associated with nonselected blades should open when contacts are placed in series with test equipment (if available).

To Adjust
Refine contact gaps as required
Min 0.008 inch
must be maintained. Check and re-adjust spring tensions as required.



(Left Side Views)

2.69 Burst Clutch Mechanism



BURST CLUTCH SHOE LEVER

- (1) To Check
Disengage clutch. Measure clearance.

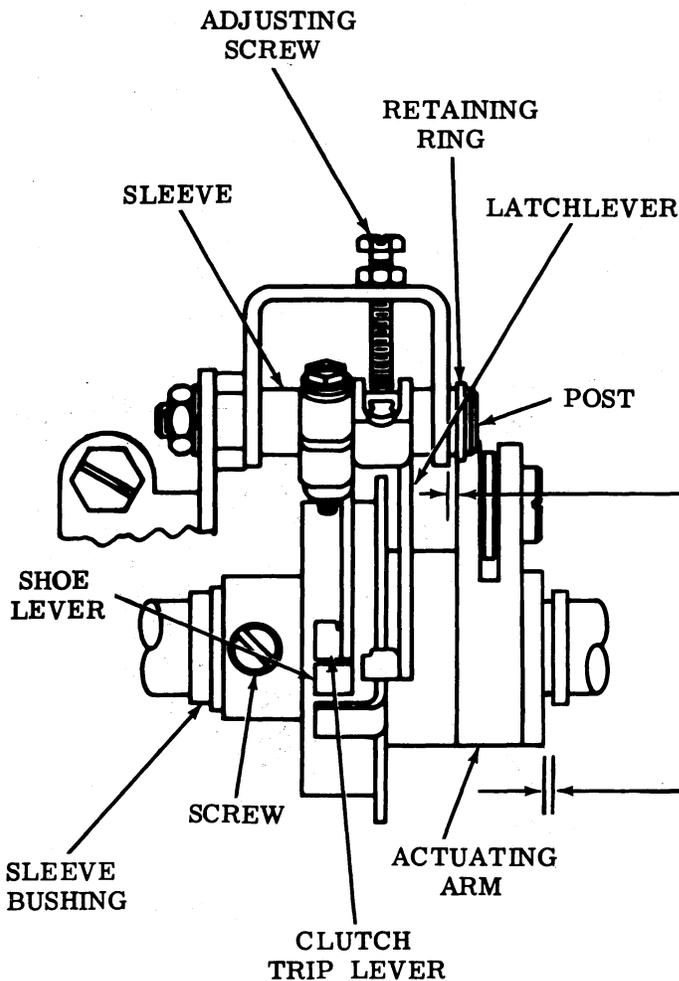
- (2) To Check
Engage and rotate clutch until clutch shoe lever is positioned at bottom of unit. Align head of clutch drum mounting screw with stop-lug. Engage clutch. Manually press shoe lever and stop-lug together and allow to snap apart. Measure clearance.

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.

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. Replace drum mounting screw.

2.70 Burst Clutch Mechanism (continued)



(Right Side View)

(A) BURST CLUTCH RESET BAIL

Requirement

With clutch reset bail tripped and in its downward position, and when play of reset bail and actuating arm are taken up to make clearance a minimum, the clearance between the clutch reset bail and its actuating arm should be

Min some---Max 0.025 inch

To Adjust

With the adjustment screw and nut friction tight, position the clutch reset bail on its sleeve. The sleeve should have some perceptible clearance with respect to its retaining ring while maintaining the requirement. Tighten the adjustment screw and nut. The clutch reset bail must fall freely.

(B) BURST CLUTCH ENDPLAY

Requirement

With the burst clutch disengaged and play taken up to make the clearance a maximum, the endplay between the actuating arm and washer should be

Min some---Max 0.015 inch

To Adjust

With clutch drum retaining screw friction tight, position sleeve bushing to meet the requirement.

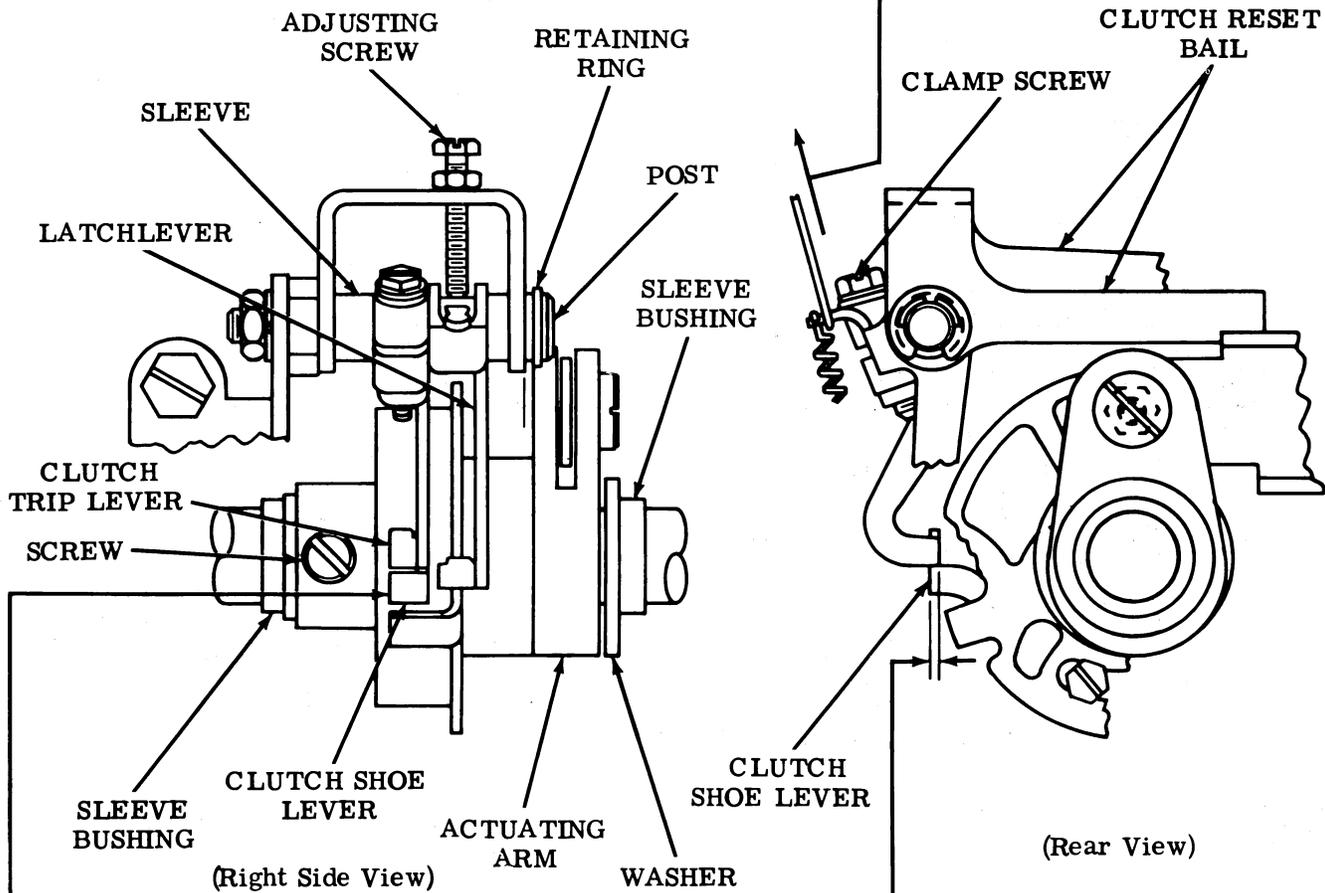
2.71 Burst Clutch Mechanism (continued)

(B) BURST CLUTCH LATCHLEVER SPRING

Requirement

With the burst clutch rotated to the stop position and latchlever unlatched, spring scale hooked under the spring lug and pulled at a right angle to the lug

Min 3 oz---Max 6 oz
to start the lever moving.



(A) BURST CLUTCH TRIP MECHANISM

(1) **Requirement**

With the reset bail lever arm in the latched position, the clutch trip lever should engage full thickness of the shoe lever.

(2) **Requirement**

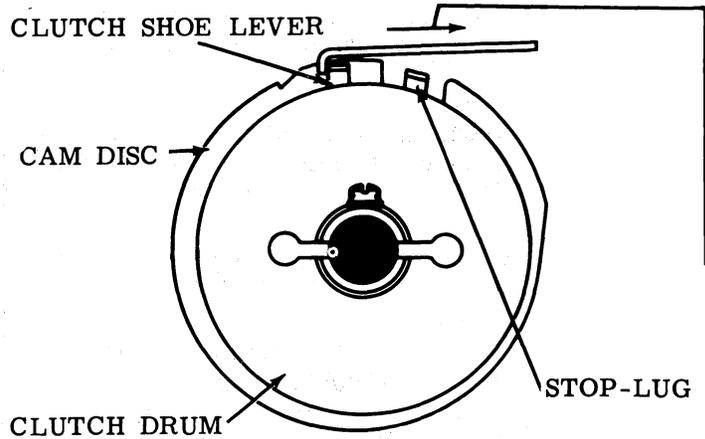
The burst clutch trip lever should be approximately aligned laterally with the shoe lever within
Max 0.040 inch
as gauged by eye.

To Adjust

With clamp screw friction tight, position trip lever on its shaft. Tighten clamp screw. Both requirements can be made at the same time.

2.72 Burst Clutch Mechanism (continued)

Note: These spring tensions apply to both clutches.

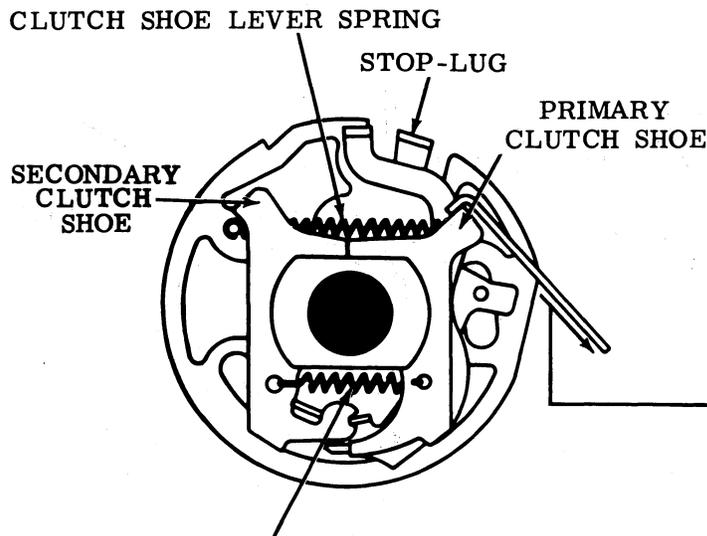


(Front View)

(A) BURST CLUTCH SHOE LEVER SPRING

To Check
Engage clutch. Hold cam disc to prevent its turning.

Requirement
Min 15 oz---Max 20 oz
to pull shoe lever in contact with stop-lug.



(Front View)

(B) BURST CLUTCH SHOE SPRING

Note: In order to check this spring tension, it is necessary to remove the clutch from the function shaft. Therefore, it should not be checked unless there is reason to believe it will not meet its requirement.

To Check
Remove clutch from drum.

Requirement
Min 3 oz---Max 5 oz
to start primary shoe moving

2.73 Burst Clutch Mechanism (continued)

(A) BURST ARMATURE HINGE

Requirement

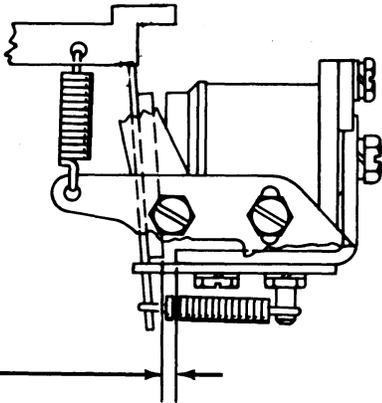
Armature bail spring removed. With armature held against pole face and play taken up at hinge in downward direction, clearance between armature and magnet bracket

Min some---Max 0.004 inch

To Adjust

With hinge mounting screws loosened, position armature. The armature should touch front and rear of magnet core. Tighten screws and recheck adjustment.

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



(Rear View)

(B) BURST ARMATURE TRIP

Requirement

With the bursting clutch disengaged and latched, and the clutch reset bail free on its sleeve, the reset bail lever arm and the armature extension should be flush.

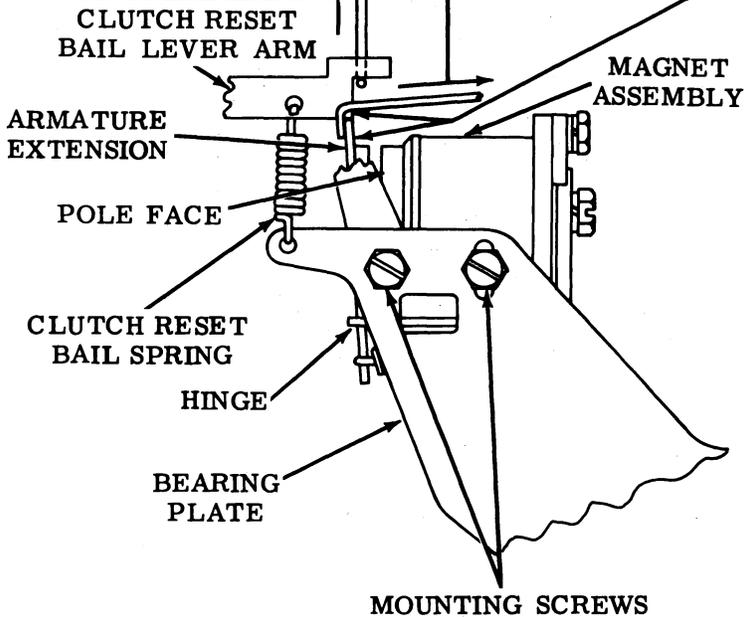
To Adjust

With screws friction tight, position magnet assembly until requirement is met. Tighten screws.

(C) MAGNET ARMATURE SPRING

Requirement

With the clutch reset bail held away, it should require
Min 3-1/2 oz---Max 6-1/2 oz
to start the armature moving.



(Rear View)

(D) CLUTCH RESET BAIL SPRING

Requirement

With the burst clutch engaged, rotate until the reset bail is being blocked by the armature extension

Min 4 oz---Max 6 oz
to start the reset bail moving.

2.74 Burst Clutch Mechanism (continued)

(A) BURST BLADE

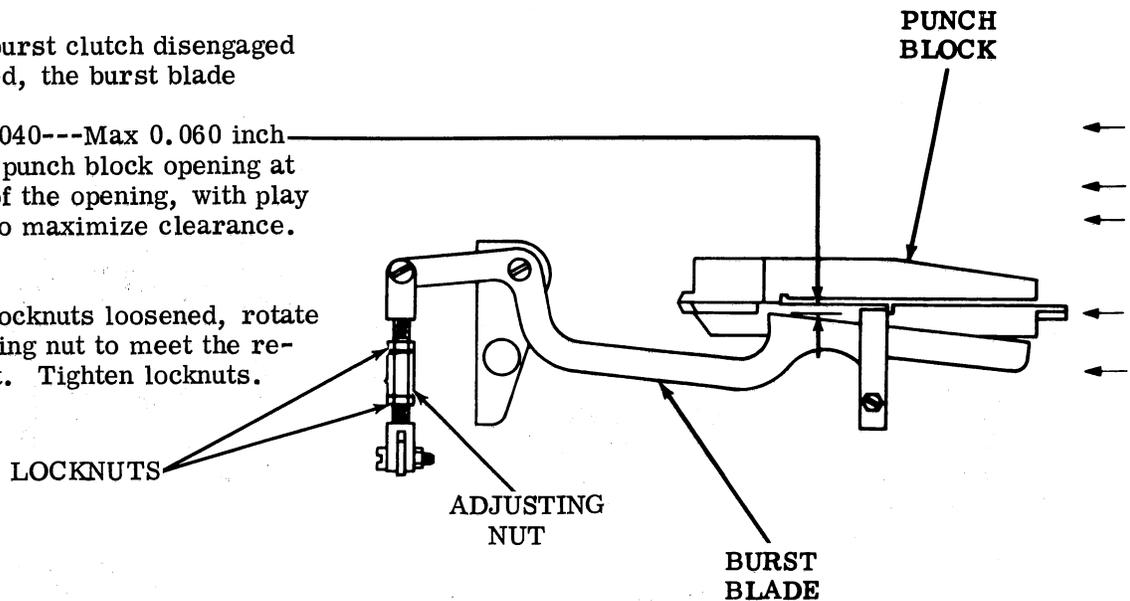
Requirement

With the burst clutch disengaged and latched, the burst blade should be

Min 0.040---Max 0.060 inch below the punch block opening at the rear of the opening, with play taken up to maximize clearance.

To Adjust

With the locknuts loosened, rotate the adjusting nut to meet the requirement. Tighten locknuts.



(Left Side View)

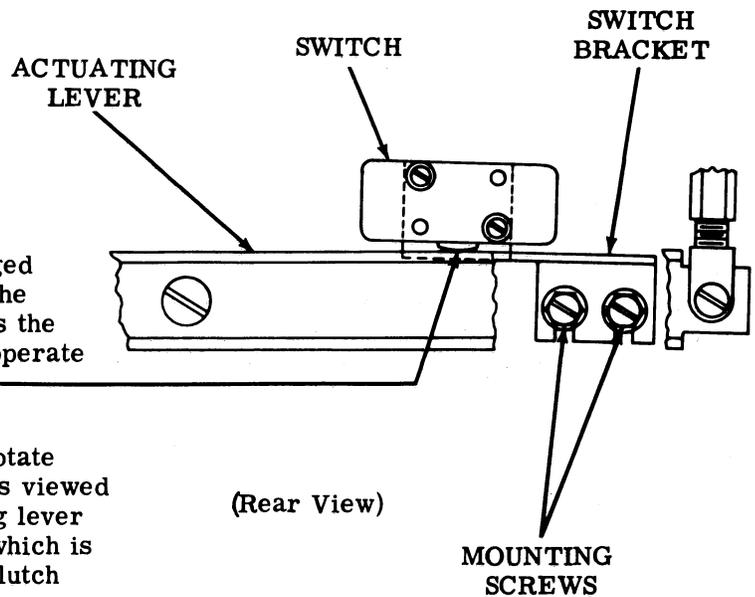
(B) BURST LIMIT SWITCH

(1) **Requirement**

With the burst clutch disengaged and latched, the right end of the actuating lever should depress the switch plunger far enough to operate the switch.

(2) **Requirement**

Engage the burst clutch and rotate the shaft until the right end (as viewed from the rear) of the actuating lever is in its uppermost position (which is slightly higher than with the clutch latched). With the actuating lever depressing the switch plunger, there should be a perceptible amount of overtravel left in the plunger motion.



(Rear View)

To Adjust

With mounting screws friction tight, position switch bracket to meet both requirements. Tighten screws.

2.75 Left Top Plate Mechanism

HINGED LID TORSION SPRING

Requirement

With latch in its unlatched position and scale applied at left end of the lid, Min 1/2 oz---Max 2 oz to close the lid.

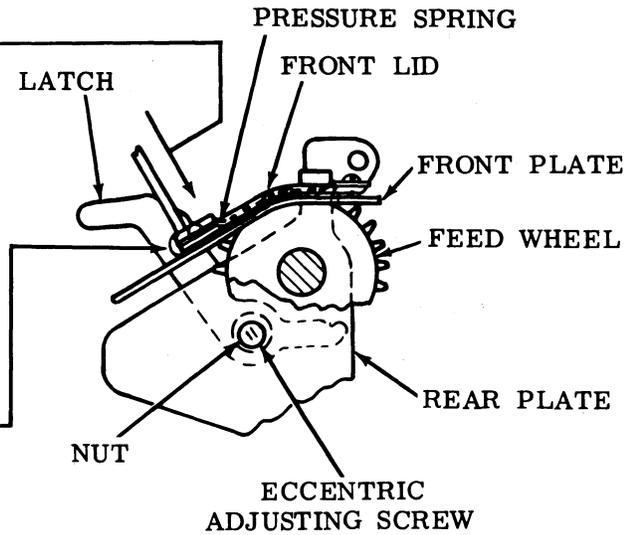
FRONT LID

Requirement

Upon closing the hinged lid and when the pressure lid spring is just touching the feed wheel, the latch should engage the lid.

To Adjust

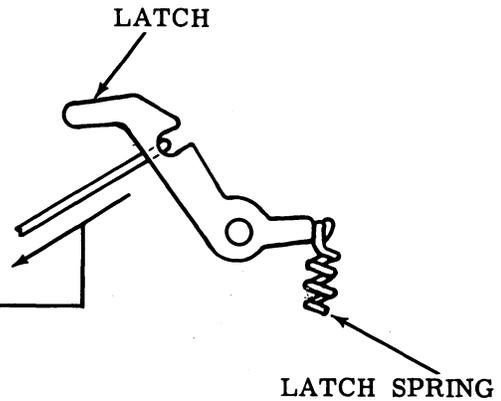
With the eccentric screw nut friction tight, position the eccentric screw to meet the requirement. Tighten the nut.



LID LATCHLEVER SPRING

Requirement

With the lid open and scale applied at the latching point of the latchlever Min 1 oz---Max 4 oz to start latchlever moving.



(Front Views)

2.76 Top Plate Mechanism

GUIDEPLATE (Early Design)

Requirement

With two cards in tandem and positioned over both of the feed wheels, the clearance between the rear edge of the card and the guide at points A and B should be
Min some---Max 0.010 inch

To Adjust

With the three thumbscrews loosened, position the guideplate. Tighten the thumb-screw in the punch block first, then tighten remaining two thumbscrews.

FRONT CARD GUIDE

Requirement

With two cards in tandem and positioned over both feed wheels, there should be a barely perceptible clearance between the front edge of the card and the guide.

To Adjust

With the thumbscrews friction tight, position card guide to meet the requirement. Tighten screws.

LEFT CARD GUIDE

Requirement

With two cards in tandem and positioned over both feed wheels, the upper reference edge of the card should have perceptible clearance with the left card guide.

To Adjust

With the mounting screws friction tight, position the card guide. Tighten screws.

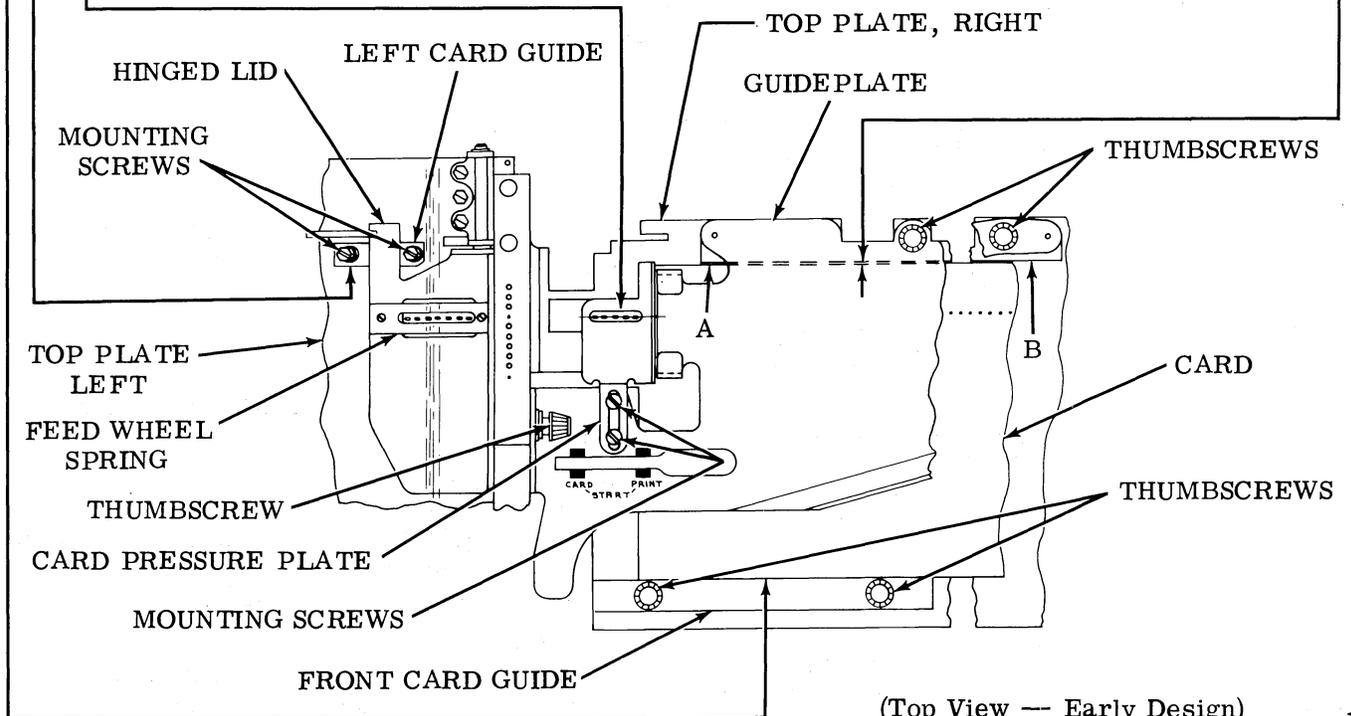
CARD PRESSURE PLATE (Early Design)

Requirement

The opening of the card pressure plate should be centrally located over the right feed wheel pins.

To Adjust

With mounting screws friction tight, position the pressure plate. Tighten screws.



2.77 Top Plate Mechanism (continued)

GUIDEPLATE (Current Design)

Requirement

With two cards in tandem and positioned over both of the feed wheels, the clearance between the rear edge of the card and the guide at points A and B should be
Min some---Max 0.010 inch

To Adjust

With two thumbscrews loosened and the left locating tabs in their respective positions, position the guideplate. Tighten thumbscrews.

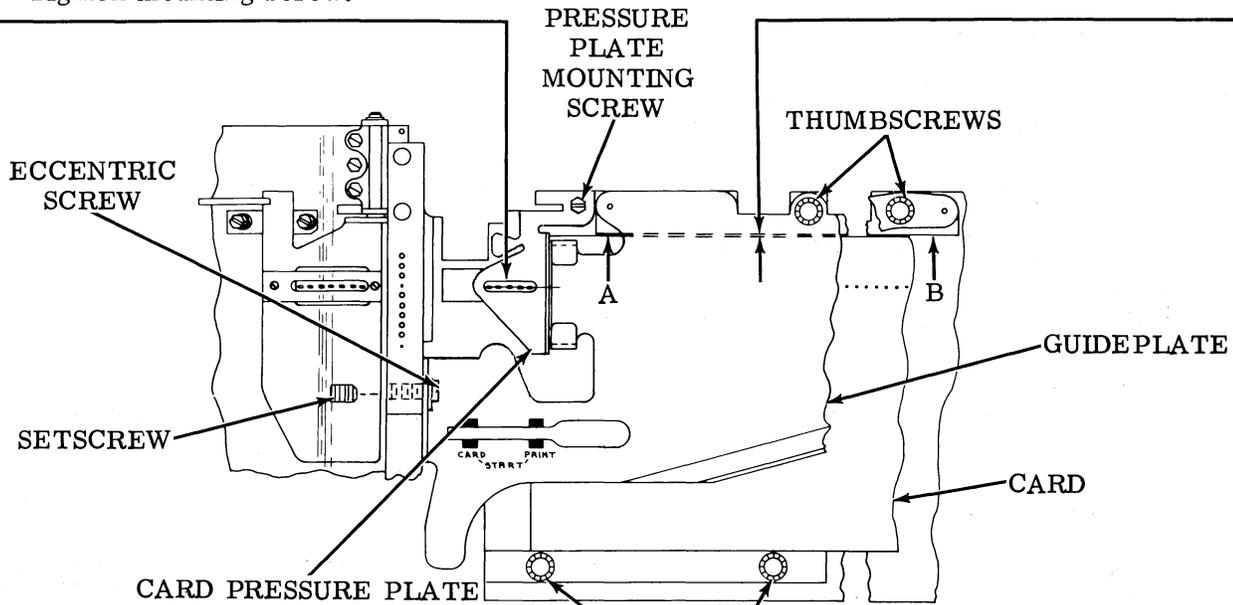
CARD PRESSURE PLATE (Current Design)

Requirement

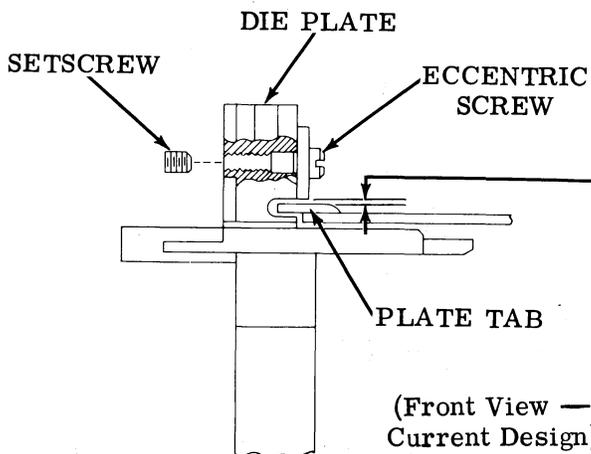
The opening of the card pressure plate should be centrally located over the right feed wheel pins.

To Adjust

With the pressure plate mounting screw loosened, position the pressure plate. Tighten mounting screw.



(Top View — Current Design)



(Front View — Current Design)

VERTICAL CARD GUIDE (Current Design Only)

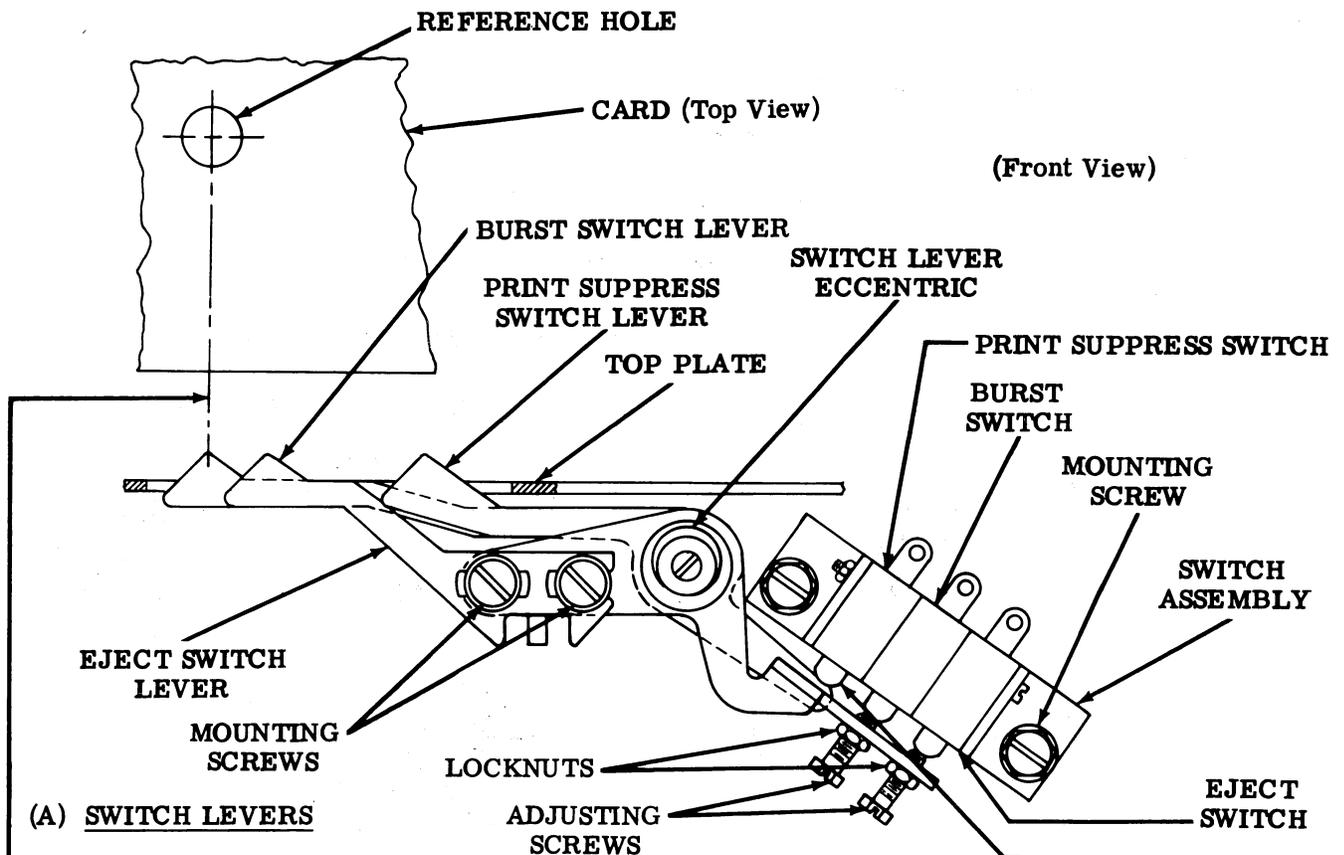
Requirement

With eccentric screw turned to its furthest adjustable position, clearance between die plate and plate tab should be
Min some---Max 0.006 inch

To Adjust

Loosen setscrew. Rotate eccentric screw to meet requirement. Tighten setscrew.

2.78 Card Sensing Switch Mechanism

**Requirement**

With the right-hand top plate installed in place and a card located in the home position in the punch unit, that is, with the leading edge of the card in line with the left side of the punch block, the burst switch lever should be centrally located left to right with respect to the 1/4 inch reference hole of the card.

To Adjust

With mounting screw friction tight, hold the left side of the switch lever upward into the reference hole, and rotate the switch lever eccentric bushing. Keep the high point of the eccentric upwards. Tighten screw.

Note: The following six adjustments are based on this adjustment. If this adjustment is altered, all six must be checked and readjusted, if necessary.

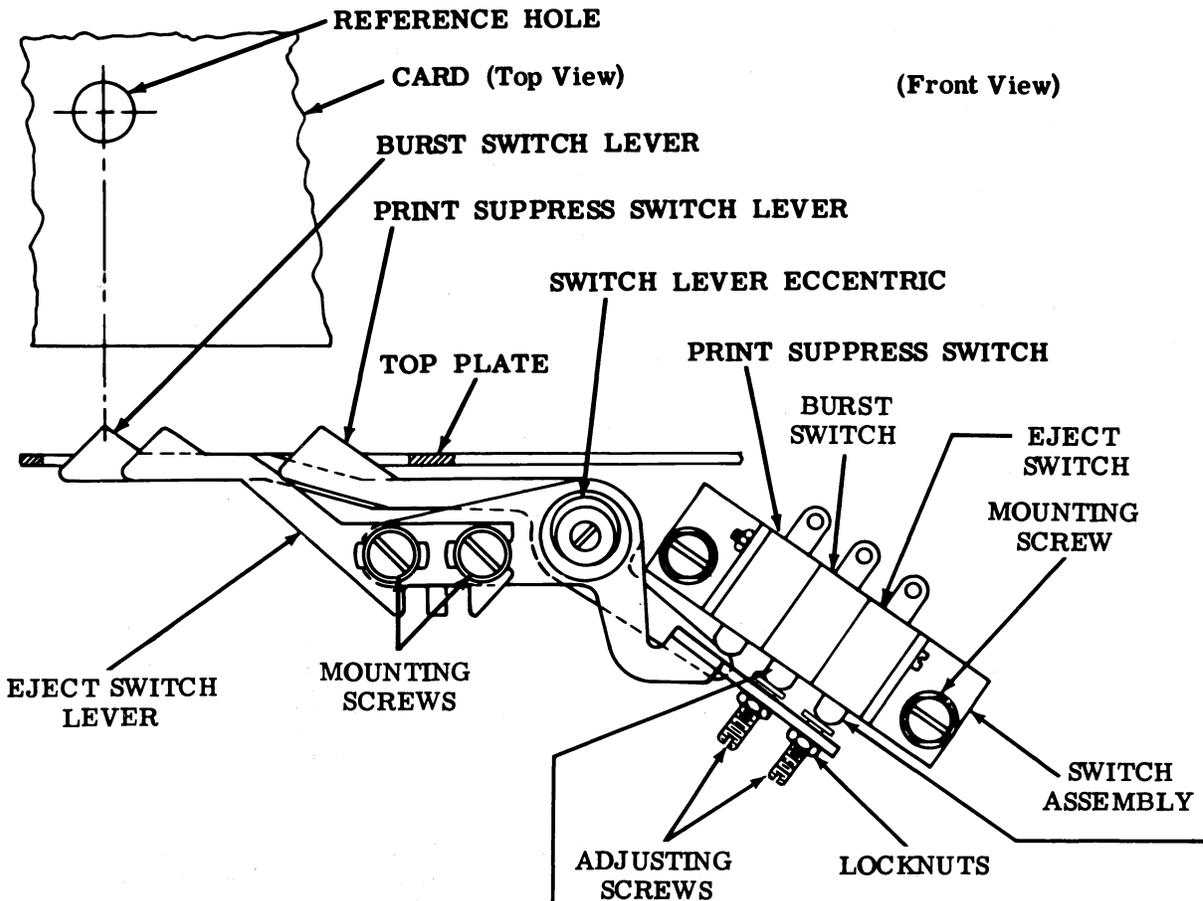
(B) PRINT SUPPRESS SWITCH OPERATING (Preliminary)**Requirement**

With the right-hand top plate in place, the print suppress switch should be operated when the card depresses the switch lever and unoperated when the switch lever is allowed to move up into the reference hole of the card.

To Adjust

With mounting screws friction tight, position the switch assembly. Tighten screws. The switch lever being depressed by the action of the card must not cause the card to be pinched. The lever should also be capable of being flush with the punch holder. The card should move freely on the top plate and the ends of the switch adjusting screws are centrally located on the switch actuating plungers.

2.79 Card Sensing Switch Mechanism (continued)



(C) BURST SWITCH OPERATING (Preliminary)

Requirementment

With the right-hand top plate in place, the burst switch should be operated when the card depresses the burst switch lever and unoperated when the switch lever is allowed to move up into the reference hole of the card.

To Adjust

With nut friction tight, turn the adjusting screw. Tighten nut. The switch lever being depressed by the action of the card must not cause the card to be pinched. The card should move freely on the top plate and the lever be capable of being flush with the punch holder.

(D) EJECT SWITCH OPERATING (Preliminary)

Requirementment

With the right-hand top plate in place, the eject switch should be operated when the card depresses the eject switch lever and unoperated when the switch lever is allowed to move up into the reference hole of the card.

To Adjust

With nut friction tight, turn adjusting screw. Tighten nut. The switch lever being depressed by the action of the card, must not cause the card to be pinched. The card should move freely on the top plate and the lever be capable of being flush with the punch holder.

2.80 Card Sensing Switch Mechanism (continued)

(E) PRINT SUPPRESS SWITCH OPERATING (Final)

Note: With the unit operating under power, printing should be suppressed as follows:

(1) Requirement

On an individual card application, printing should begin 6 characters to the right of the first perforation and print suppression should occur a minimum of 7 characters to a maximum of 8 characters from the end of that card. (Perforating will continue to the end of the card.)

(2) Requirement

On the single card, fanfold application, printing should begin 6 characters to the right of the first perforation and continue to print the entire length of the first card.

(3) Requirement

For applications of cards in series (continuous form), printing on the first card should begin 6 characters to the right of the first perforation and continue to print the entire length of the first card. At this point the format changes. The second card in this series should have 7 characters suppressed with printing continuing up to the serrations.

To Adjust

Refine PRINT SUPPRESS SWITCH OPERATING (Preliminary) (2.78) adjustment to meet the above requirements.

(F) BURST SWITCH OPERATING (Final)**Requirement**

With unit operating under power, the burst blade switch should separate the card at the serrations and function only once per cycle.

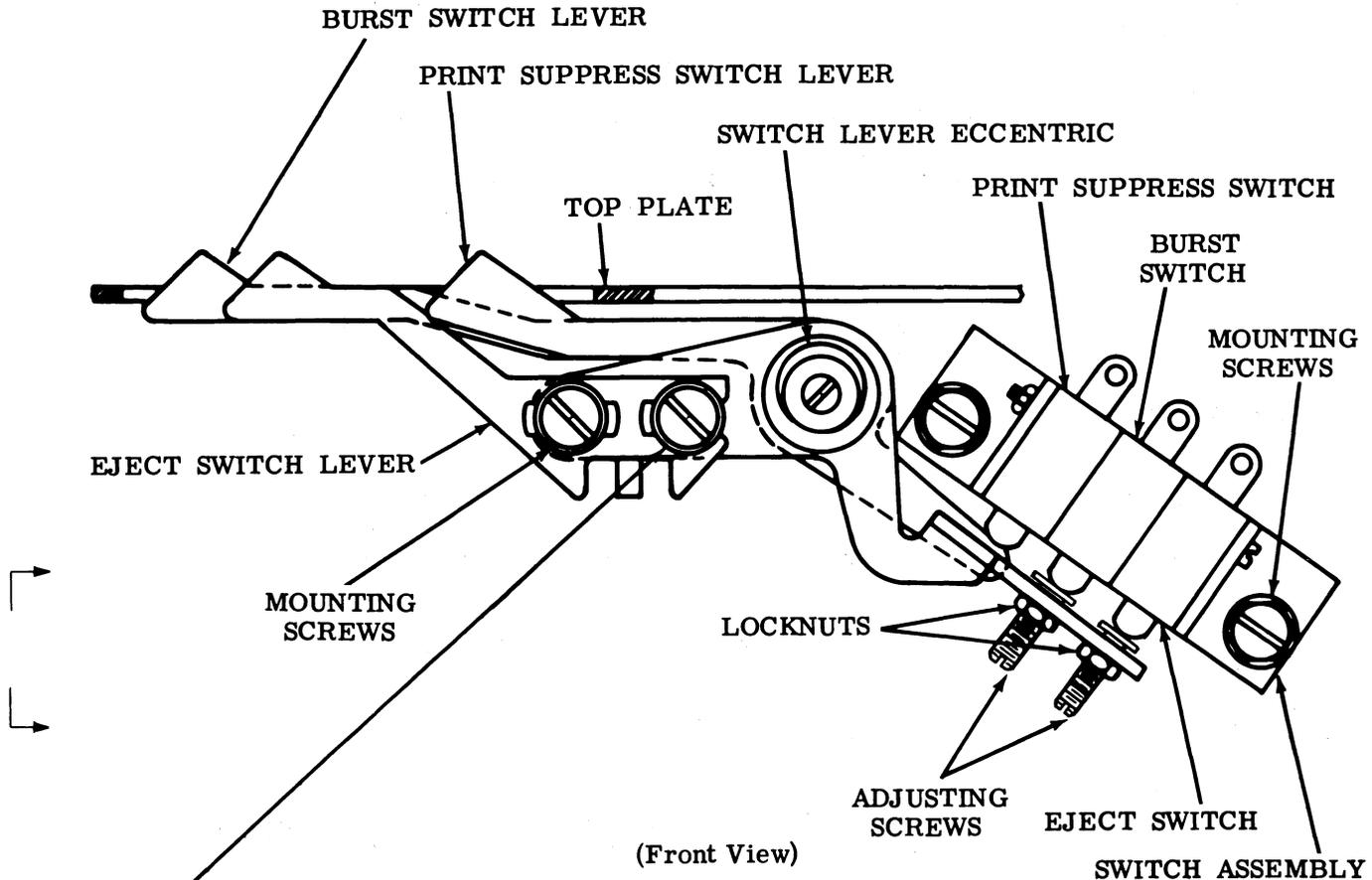
(1) To Adjust

Refine the BURST SWITCH OPERATING (Preliminary) (2.79) adjustment.

(2) To Adjust

For single cycle operation refine the BURST LIMIT SWITCH (2.74) adjustment to meet the requirement.

2.81 Card Sensing Switch Mechanism (continued)

(G) EJECT SWITCH LEVER (Final)**Requirement**

This adjustment to be made with unit operating under power. With fanfold cards inserted in the punch unit, activate the rapid feed mechanism by transmitting the eject code to the unit. When the eject switch is operated by the reference hole of the following card, the rapid feed should terminate and the card comes to a stop in the home position.

To Adjust

With the mounting screws friction tight, position the eject switch lever to the left until the card will stop one step beyond the home position. Note the position of the switch lever. Next, move the eject switch lever to the right until the card will stop one step short of the home position. Finally, move the eject switch lever to the midpoint between these extreme positions (as gauged by eye). Moving the eject switch lever from one position to another may affect the EJECT SWITCH OPERATING (Preliminary) (2.79) adjustment. Check and readjust, if necessary.

2.82 Manual Backspace Mechanism

MANUAL BACKSPACE FEED PAWL LEVER AND FEED PAWLS

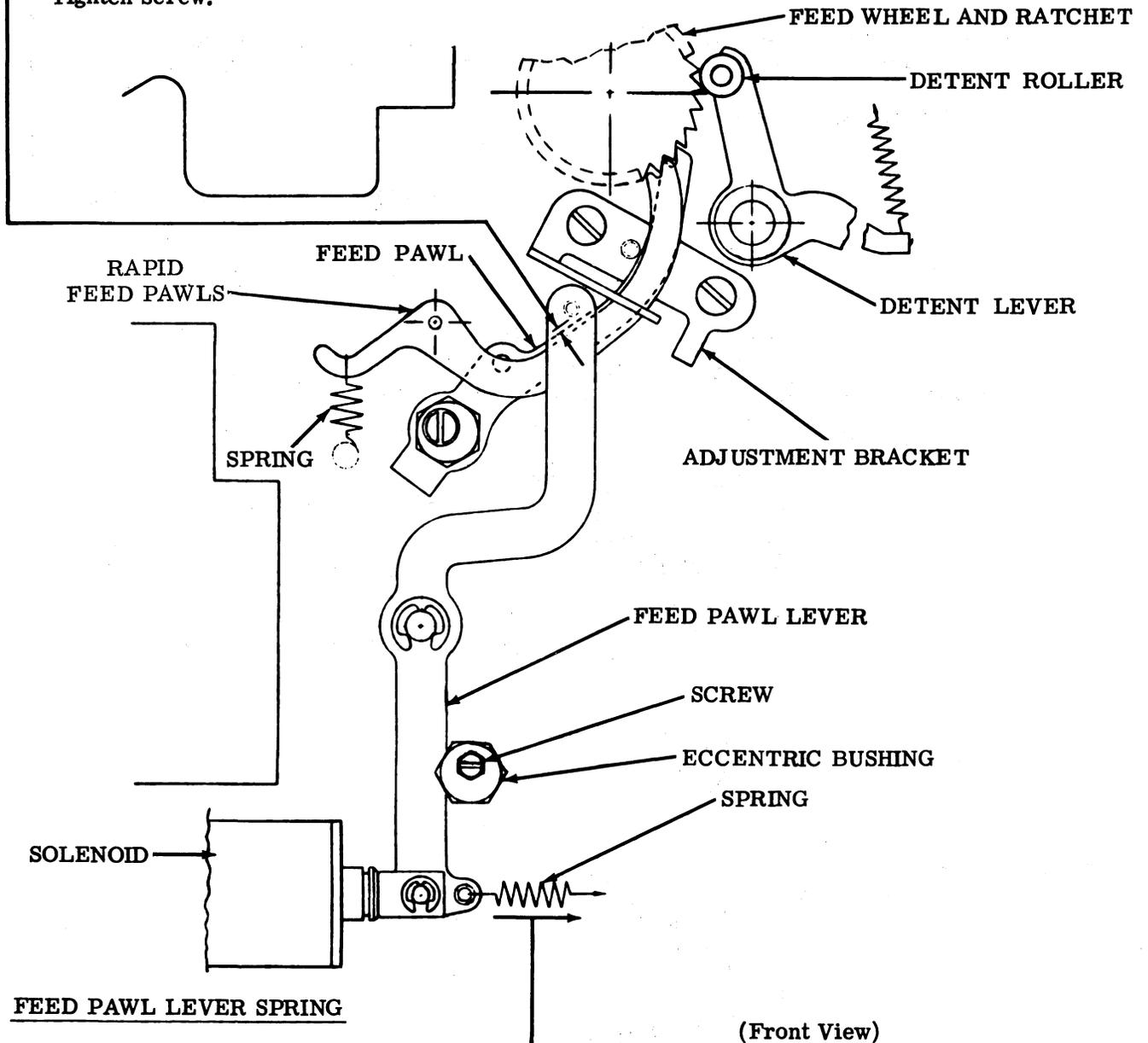
Requirement

With the unit in the stop position, the backspace solenoid de-energized, and the feed wheel ratchet in its detented position, there should be

— Min 0.030 inch---Max 0.050 inch
clearance between the pin of the feed pawl lever and the feed pawls.

To Adjust

With mounting screw friction tight, rotate the eccentric bushing to meet the requirement. The high point of the eccentric bushing should be orientated in a downward direction. Tighten screw.



FEED PAWL LEVER SPRING

Requirement

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

2.83 Manual Backspace Mechanism (continued)

MANUAL BACKSPACE RATCHET AND FEED PAWLS

Requirement

With the unit in the stop position and the backspace solenoid activated, rotate the rapid feed pawl shaft to fully align the feed pawls with the ratchet wheel. There should be

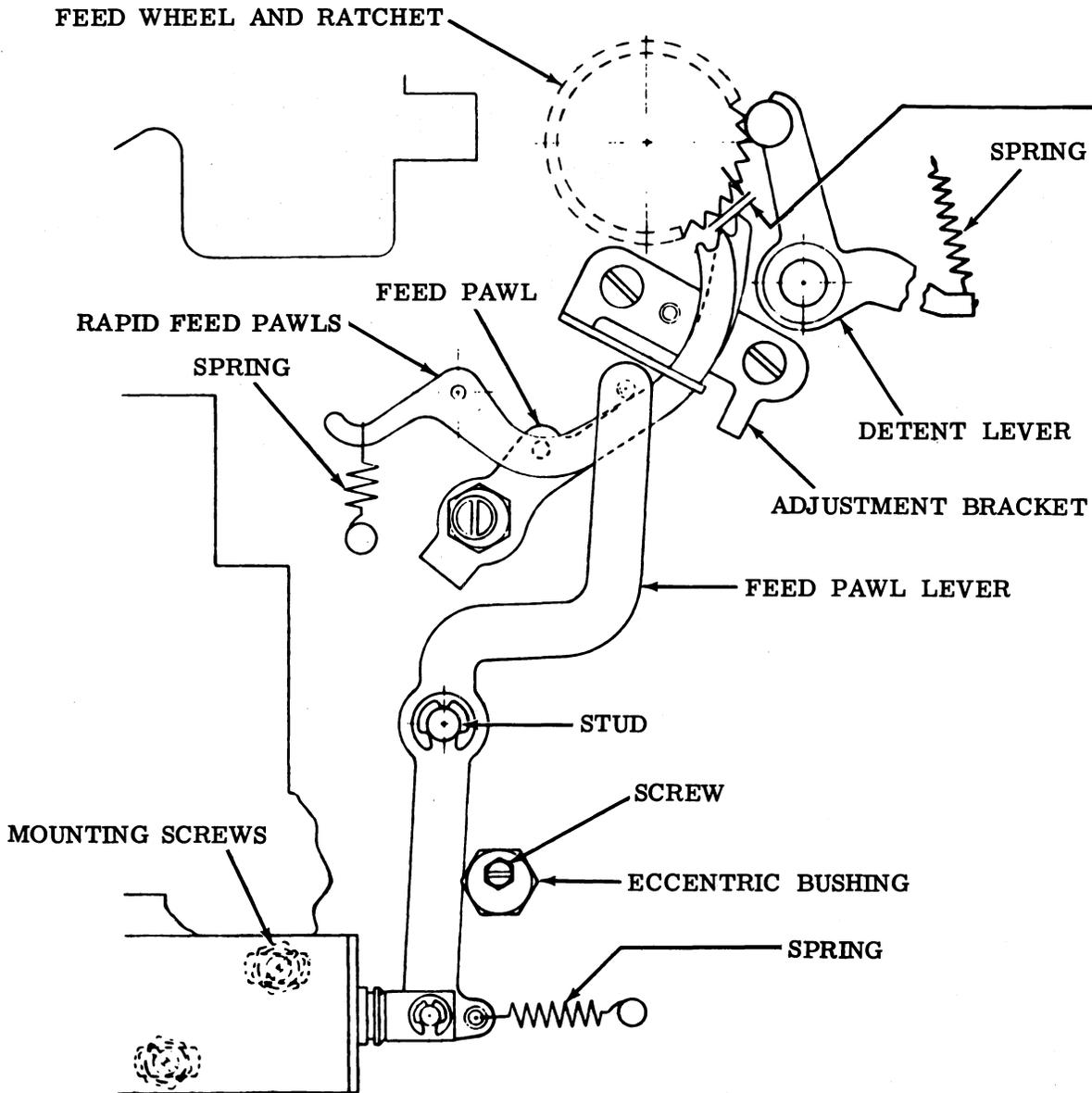
Min 0.030 inch---Max 0.050 inch

clearance between the feed wheel ratchet and the feed pawl with the least clearance.

Note: Keep the rapid feed pawl cam followers off the high part of their respective cams.

To Adjust

With mounting screws on the backspace solenoid friction tight and solenoid plunger in the activated position, locate the solenoid to meet the requirement. Tighten screws.



2.84 Punch Mechanism (continued)

FEED WHEEL ALIGNMENT (Final)

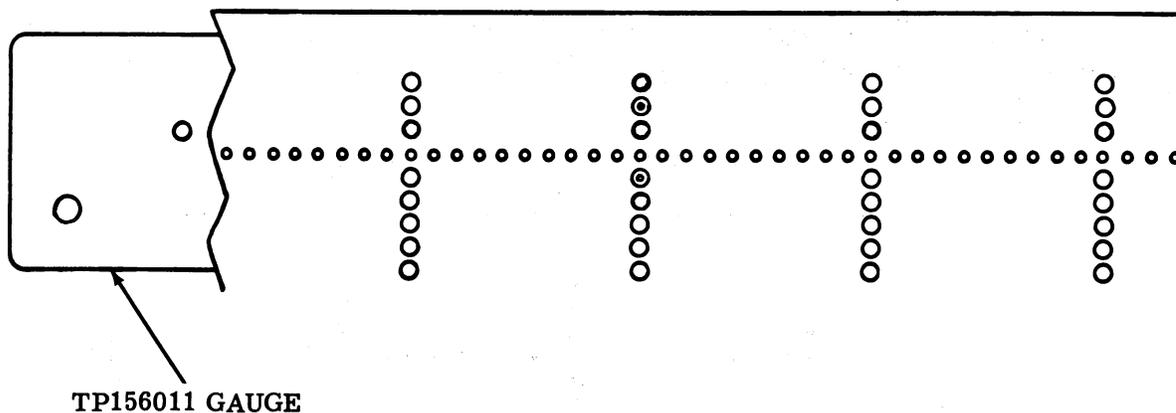
Requirement

With the unit operating under power, perforate a sample card consisting of six series of 9 null combinations followed by one rubout combination. Place the card over the tape TP156011 gauge so that the second and third sets of perforated rubout are located over the gauge feed pins. The requirement should be considered met when the small hole in the TP156011 gauge is centrally located (vertically) within the code hole in the card when located on the gauge pins. Check card in three places. Approximately one inch from either end of the card and at its center.

To Adjust

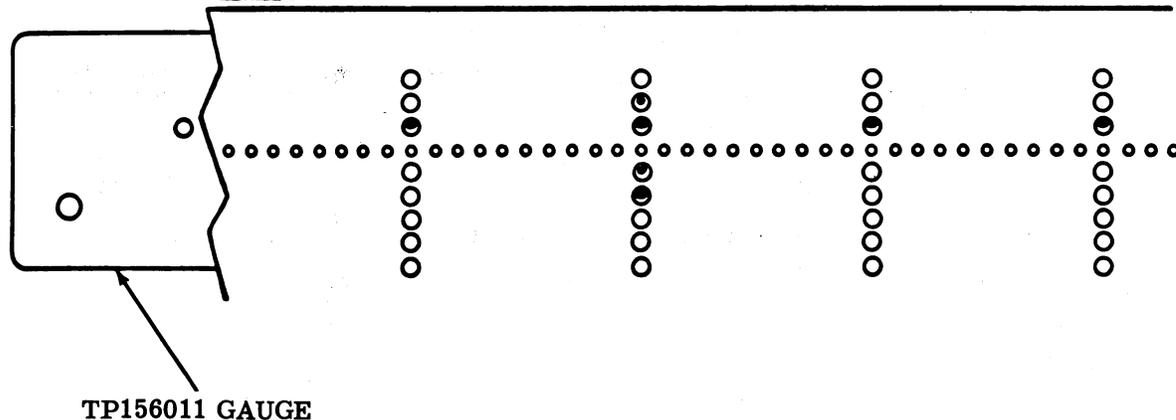
Refine the FEED WHEEL ALIGNMENT (Preliminary) (2.28) adjustment to obtain this requirement.

**FEED WHEEL ALIGNMENT
(IDEAL)**



EXAMPLE OF MALADJUSTED UNIT

Note: This condition may occur in either of the directions vertically.



2.85 Punch Mechanism (continued)

CODE HOLE-FEED HOLE PHASING RELATIONSHIP (Final)

Requirement

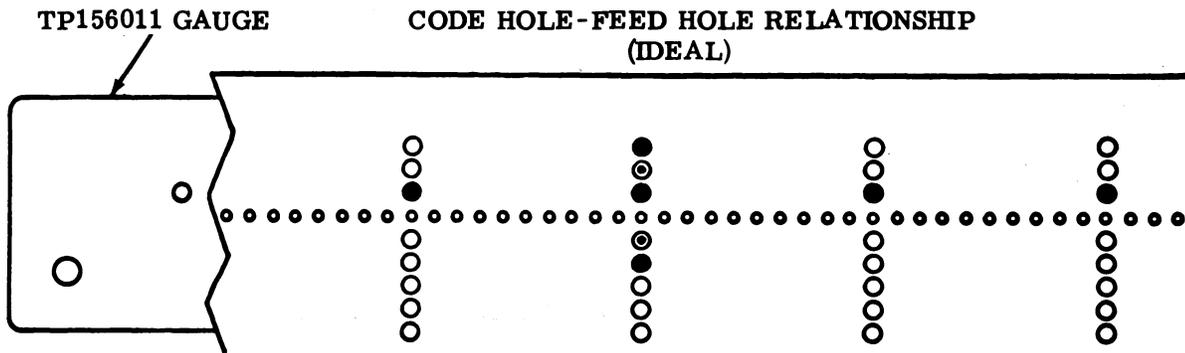
With the unit operating under power, perforate a sample card consisting of six series of 9 null combinations followed by one rubout combination. Place the card over the TP156011 gauge so that the second and third sets of the perforated rubout combinations are located over the gauge feed pins. The requirements should be considered met when the small holes in the TP156011 gauge are centrally located (horizontally) within the code hole of the card when located on the gauge pins. Check the card in three places. Approximately one inch from either end of the card and at its center.

Note: Burring of the feed holes is objectionable, refer to the DETENT (2.30), FEED PAWL (2.31), IDLER GEAR BACKLASH (2.37), and FEED WHEEL ALIGNMENT (Final) (2.84) for refinement of this deficiency.

To Adjust

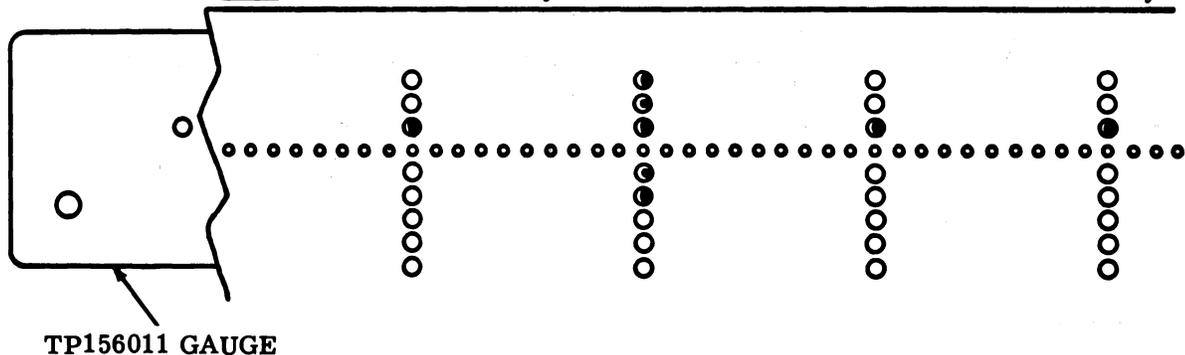
With the mounting screw for the left-hand feed wheel collar friction tight and holding the collar securely, rotate the feed wheel shaft to the left, if the hole spacing is less than 0.100 inch (requiring increased distance between code holes) and to the right if the hole spacing is greater than 0.100 inch (requiring decreased distance between code holes). Tighten the screw and prepare an additional sample card. Failure to meet these requirements indicates the shaft has been maladjusted. To meet these requirements, refine the adjustment.

CAUTION: IN THE ACT OF PERFORMING THIS REQUIREMENT, IT SHOULD BE NOTED THAT THE LEFT FEED WHEEL ALIGNMENT (FINAL) (2.84) MUST MAINTAIN ITS PREVIOUS REQUIREMENT.



EXAMPLE OF MALADJUSTED UNIT

Note: This condition may occur in either of two directions horizontally



2.86 Null Character Generator Contact Mechanism

NULL CHARACTER GENERATOR CONTACT ASSEMBLY (Removed From Unit)

Note: Perform the following steps only if contact assembly alignment has been disturbed.

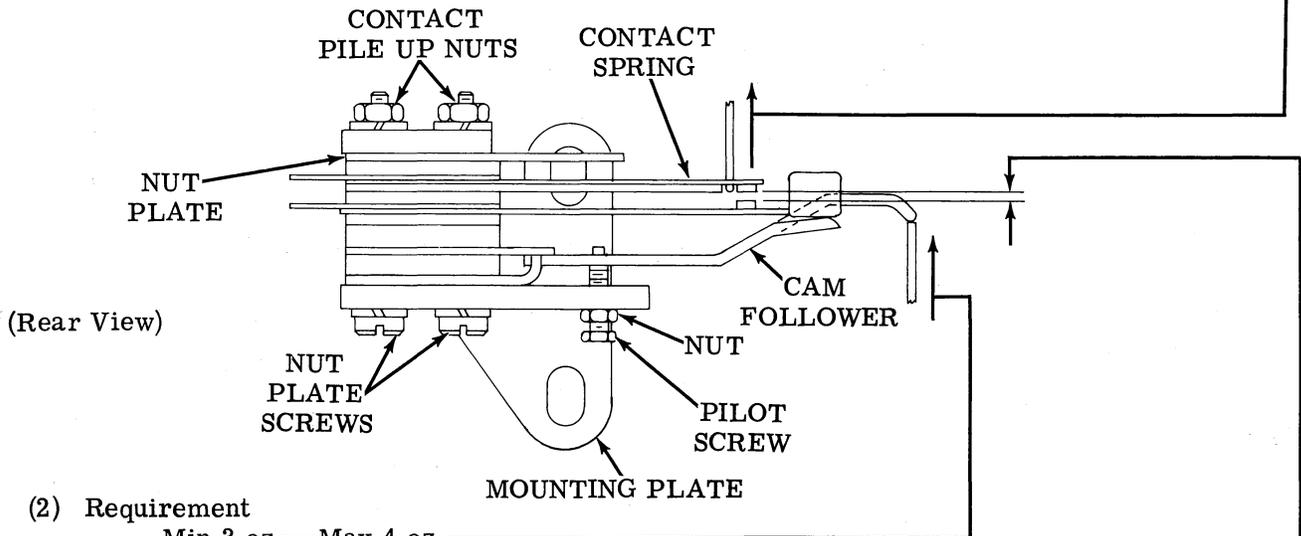
- (1) Remove insulating cover with its mounting screws.
- (2) Loosen (friction tight) contact pile up nuts.
- (3) Loosen nut plate screws.
- (4) Align (gauge by eye) cam followers and contact springs with associated contact assembly components.
- (5) Tighten nut plate screws. Tighten contact pile up nuts after performing NULL CHARACTER GENERATOR CONTACT ASSEMBLY (Mounted In Unit) (2.87).

(1) Requirement

Min 2-1/2 oz---Max 3-1/2 oz _____
to lift contact spring away from stiffener.

To Adjust

Bend contact spring. If necessary, remove contact spring from assembly to increase tension.



(2) Requirement

Min 3 oz---Max 4 oz _____
to close normally open contacts.

To Adjust

With its nut loosened, back off pilot screw. Bend swinger contact spring. Reposition pilot screw per (3) Requirement.

(3) Requirement

Min 0.020 inch---Max 0.030 inch _____
normally open contact gap.

To Adjust

Position pilot screw with its nut loosened. Tighten pilot screw locknut. Replace insulating cover and mounting screws.

2.87 Null Character Generator Contact Mechanism (continued)

NULL CHARACTER GENERATOR CONTACT ASSEMBLY (Mounted In Unit)

(1) Requirement

With the burst clutch latched, the cam follower should be on the leading 1/3 edge of the cam dwell (gauge by eye).

To Adjust

Unlatch burst clutch and rotate function shaft until cam segment mounting screw is accessible. Loosen (friction tight) mounting screw and position cam segment. Tighten screw. Check and if necessary refine adjustment.

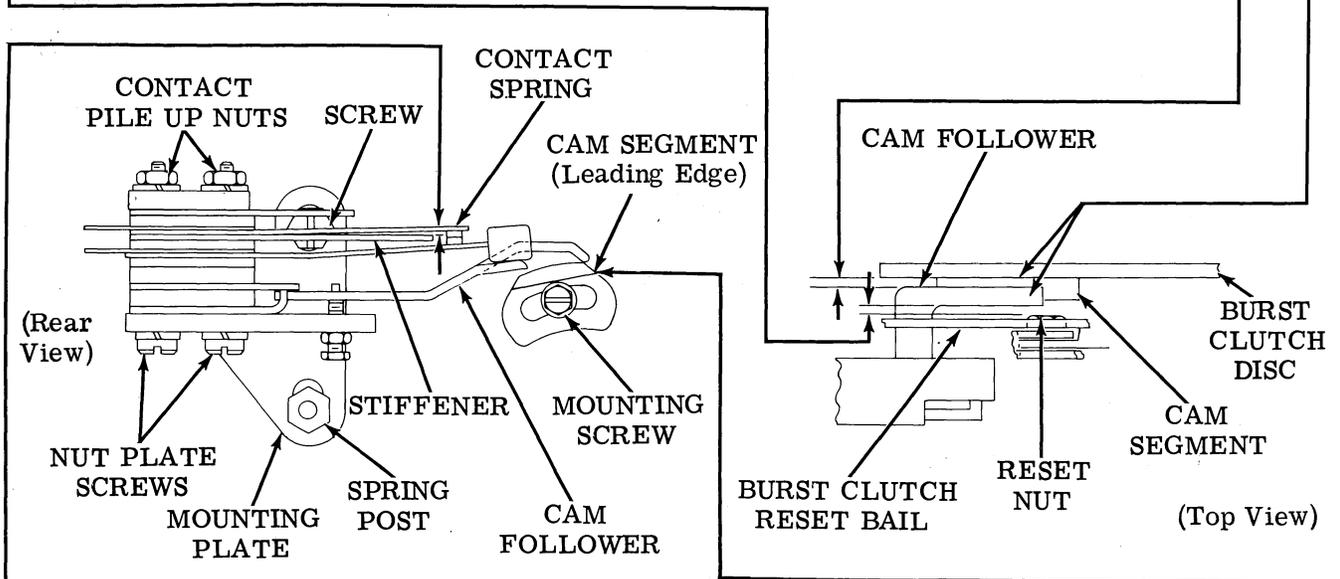
(2) Requirement

With the burst clutch latched

- (a) Front edge of cam follower should be parallel with burst clutch disc (gauge by eye).
- (b) Min 0.010 inch clearance between cam follower and burst clutch disc, with play taken up to front of unit.
- (c) Min 0.010 inch clearance between cam follower and reset nut, with play taken up to rear of unit.
- (d) There should be no interference between the cam follower, burst clutch disc, and reset nut, with play in the cam follower taken up to the worst condition.

To Adjust

Loosen (friction tight) contact pile up nuts and position contact assembly. Tighten nuts. Check that nut plate screws remain tightened.



(3) Requirement

With burst clutch latched

Min 0.002 inch---Max 0.008 inch between contact spring and stiffener.

To Adjust

Loosen (friction tight) screw in upper slot of mounting plate and spring post in lower slot. Position contact assembly. Tighten screw and post. Recheck (1) Requirement.