35 NONTYPING REPERFORATOR

ADJUSTMENTS

CONTENTS

1. GENERAL 2

2. BASIC UNIT 4

Function Mechanism

Cam follower arm spring (early design) 18
Cam follower arm spring (latest design) 17
Cam follower roller 20
Cam follower roller alignment . . . 20
Function clutch latchlever spring 19
Function clutch release lever spring 21
Function clutch trip lever 17
Release downstop bracket 21
Reset arm 19
Reset bail trip lever spring (early design) 18
Reset bail trip lever spring (latest design) 18
Trip cam follower lever (preliminary) 18

Punch Mechanism

Bias spring (punch block) 31
Bias spring (tape chute) 31
Detent lever spring 32
Feed pawl 27
Feed pawl spring 32
Latchlever clearance 27
Lateral and front to rear feed wheel position detent (early design) 29
Lateral and front to rear feed wheel position detent (latest design) 30
Perforator drive link spring 23
Punch mounting plate (final) 25
Punch mounting plate (preliminary) 22
Punch pin penetration 24
Punch slide downstop position 24
Punch slide guide (final) 24
Punch slide latch spring 33
Punch slide spring 31
Reperforator mounting 28
Reset bail trip lever (final) 26
Tape depressor slide spring 34
Tape guide assembly spring 31
Tape shoe torsion spring 33
Ten characters per inch (final) . . . 28
Ten characters per inch (preliminary) 28
Toggle bail eccentric (preliminary) 23
Toggle operating arm 23

Selector Mechanism

Marking locklever spring 9
Oil shield 16
Pushlever reset bail spring 12
Range finder knob phasing 14
Selector armature 7
Selector armature downstop (final) 10
Selector armature downstop (preliminary) 7
Selector armature spring (final) 11
Selector armature spring (preliminary) 11
Selector cam lubricator 16
Selector clutch drum endplay 13
Selector clutch latchlever spring 12
Selector clutch stop arm 14
Selector lever spring 13
Selector magnet bracket 8,9
Selector pushlever spring 13
Selector receiving margin 15
Spacing locklever spring 12
Start lever spring 15

Selector and Function Mechanisms

Clutch shoe lever 5
Clutch shoe lever spring 6
Clutch shoe spring 6
Function clutch drum endplay . . . 5

Prepared for American Telephone and Telegraph Company by Teletype Corporation

CONTENTS PAGE

Tape Depressor Mechanism

Clamp plate screw with disc 34
Clamp plate spring 34
Tape platform 34

3. VARIABLE FEATURES

Backspace Mechanism

Armature spring 36
Bellcrank spring 37
Feed pawl clearance 35
Feed pawl eccentric 35
Feed pawl spring 37
Final manual or power adjustment 36
Latch extension spring 36
Magnet position 36

Solenoid-Operated Interfering RUB-OUT Tape Feed-Out Mechanism

Trip lever 38
Trip lever spring 38

1. GENERAL

1.01 This section provides adjustments and requirements for the 35 nontyping reperforator (Figure 1). The section has been revised to include recent engineering changes, incorporate TCN 1577 and revise backspace mechanism adjustment requirements. Marginal arrows indicate changes and additions.

1.02 The basic equipment includes selector mechanism, fully perforating punch mechanism and power driven backspace mechanism. The unit is designed for adaptation either by a single shaft or by a main shaft and jack shaft to power supplied from a base mounted motor. Where there are differences in the adjustment procedures for single shaft and double shaft units, these are noted in the adjustment text and illustrations. Motors and bases are covered in the applicable sections.

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

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

1.05 The unit is in its unoperated, or stop, condition when it is not under power. It is in its idling condition when it is under power and clutches are disengaged (steady marking condition of signal line).

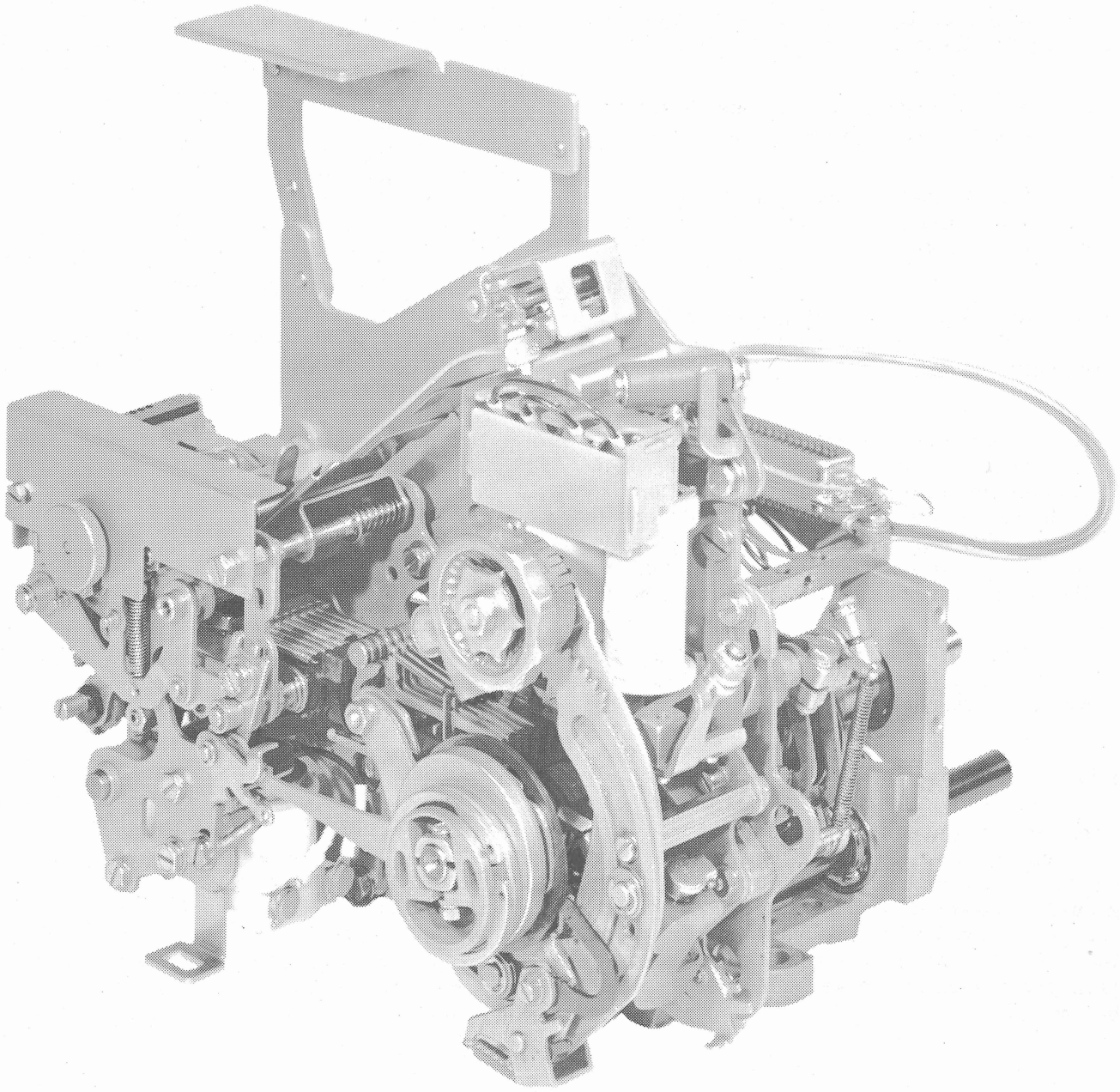
> CAUTION: APPARATUS SHOULD NOT BE SEPARATED FROM ITS PROTECTIVE HOUSING UNLESS POWER IS DISCONNECTED. WHERE OPERATION OF THE EQUIPMENT IS REQUIRED AFTER IT HAS BEEN SEPARATED FROM ITS PROTECTIVE HOUSING, APPROPRIATE PRECAUTIONARY MEASURES SHOULD BE TAKEN TO PREVENT ACCIDENTS.

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

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

1.07 To manually operate the 35 non-typing reperforator, proceed as follows:

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



(Right Front View)

Figure 1 - Nontyping Reperforator

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

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

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

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

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

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

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

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

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

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

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

2. BASIC UNIT

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

2.02 Selector and Function Mechanisms

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

(A) CLUTCH SHOE LEVER

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

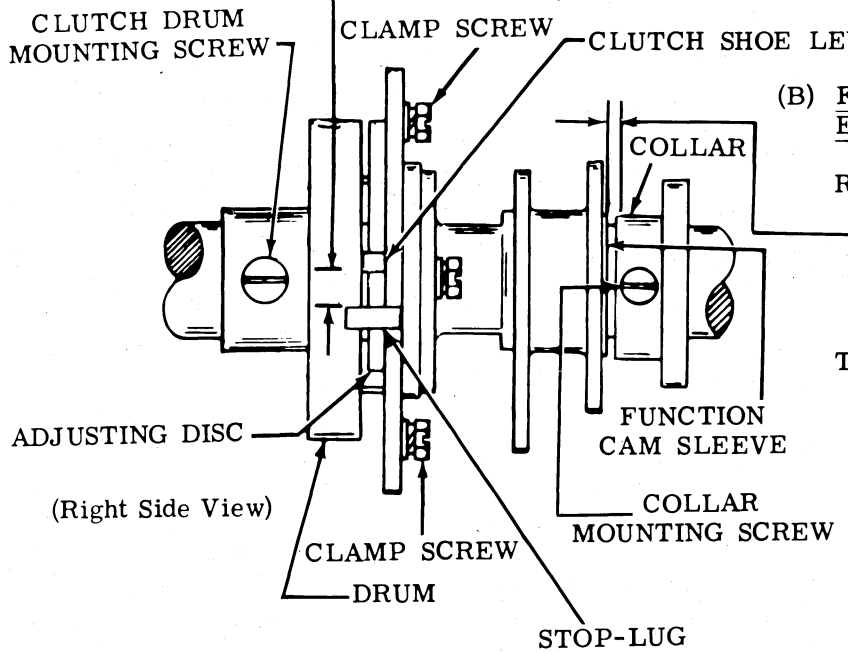
(1) To Check
Disengage clutch. Measure clearance.

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

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

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

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



(B) FUNCTION CLUTCH DRUM ENDPLAY

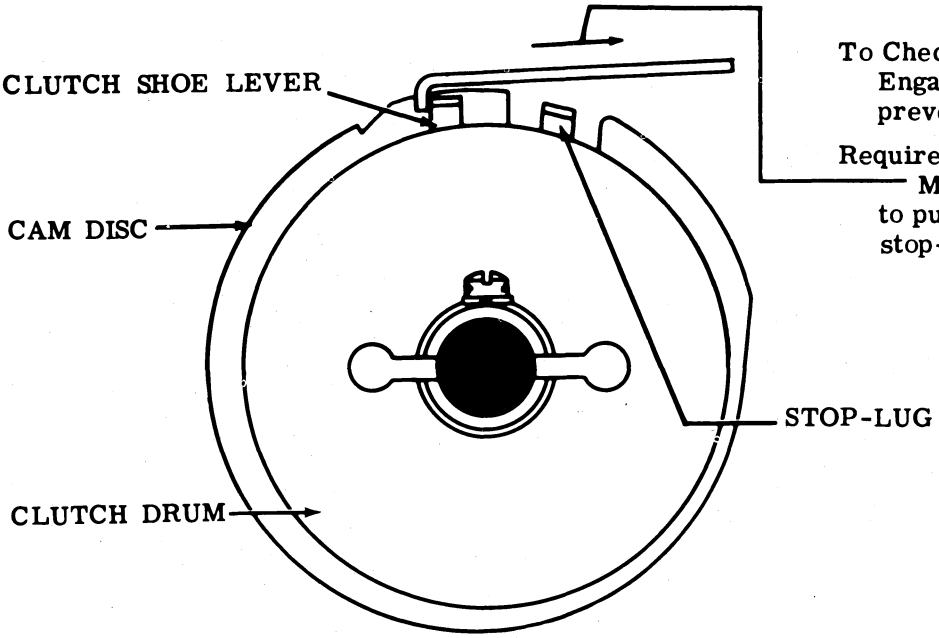
Requirement
With function clutch disengaged
Min some---Max 0.015 inch
when play is taken up to make clearance maximum.

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

→ 2.03 Selector and Function Mechanisms (continued)

Note: These spring tensions apply to both clutches.

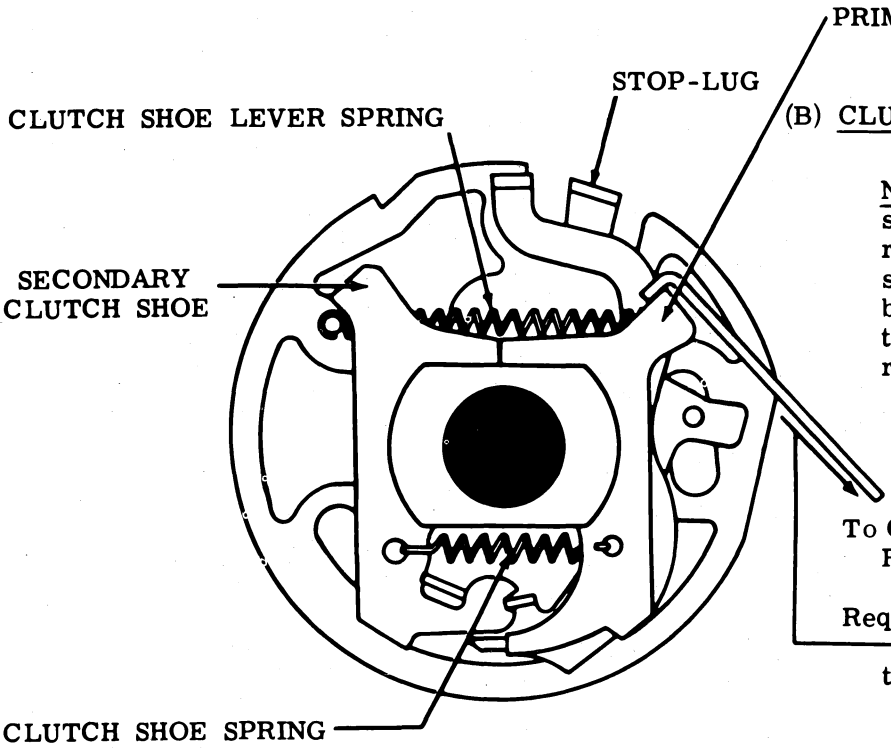
(A) CLUTCH SHOE LEVER SPRING



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.

(B) CLUTCH SHOE SPRING



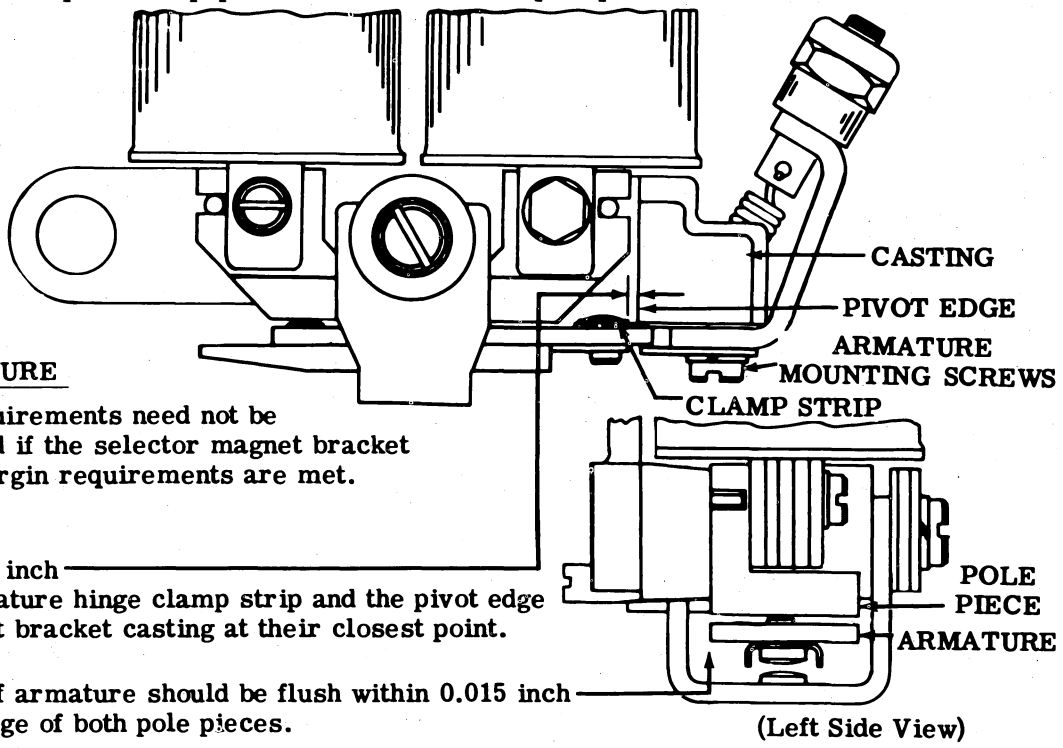
Note: In order to check this spring tension, it is necessary to remove the clutch from the mainshaft. Therefore, it should not be checked unless there is reason to believe it will not meet its requirement.

To Check
Remove clutch from drum.

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

2.04 Selector Mechanism

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



SELECTOR ARMATURE

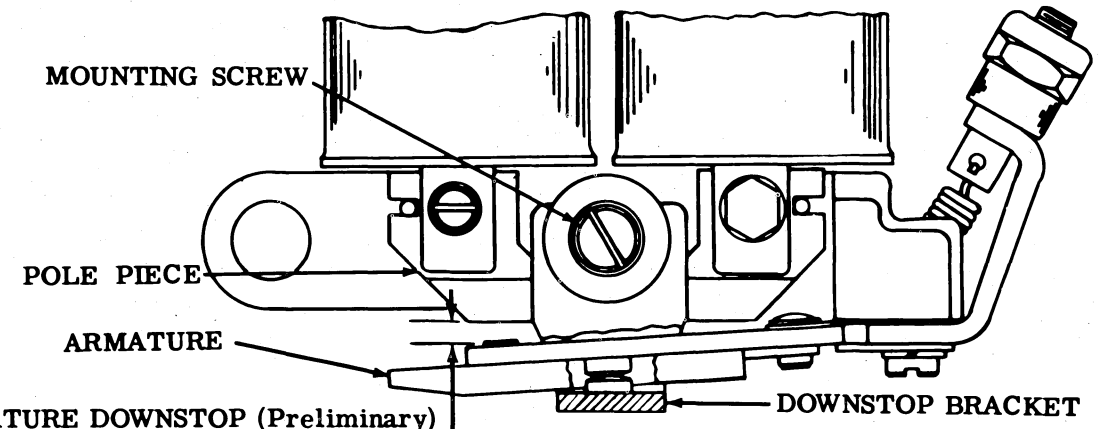
Note: These requirements need not be made nor checked if the selector magnet bracket and receiving margin requirements are met.

(1) Requirement
Clearance
Min 0.010 inch
between armature hinge clamp strip and the pivot edge of the magnet bracket casting at their closest point.

(2) Requirement
Outer edge of armature should be flush within 0.015 inch with outer edge of both pole pieces.

(3) Requirement
Start lever should drop freely into armature extension slot.

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



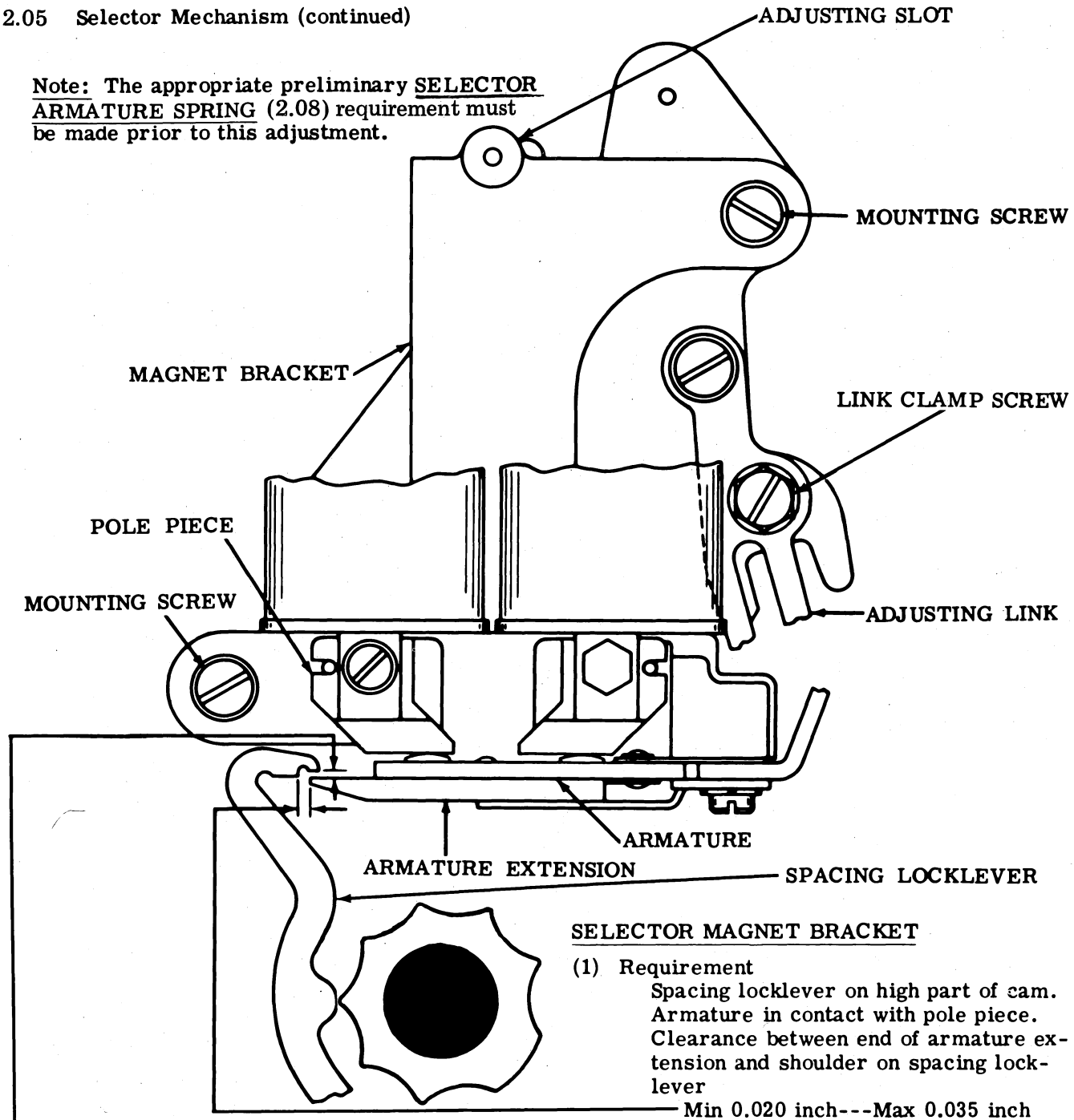
SELECTOR ARMATURE DOWNSTOP (Preliminary)

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

To Adjust
Position downstop bracket with mounting screw loosened. Replace oil shield and check OIL SHIELD (2.13) adjustment. Tighten screw.

2.05 Selector Mechanism (continued)

Note: The appropriate preliminary SELECTOR ARMATURE SPRING (2.08) requirement must be made prior to this adjustment.



SELECTOR MAGNET BRACKET

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

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) 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).

2.06 Selector Mechanism (continued)

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

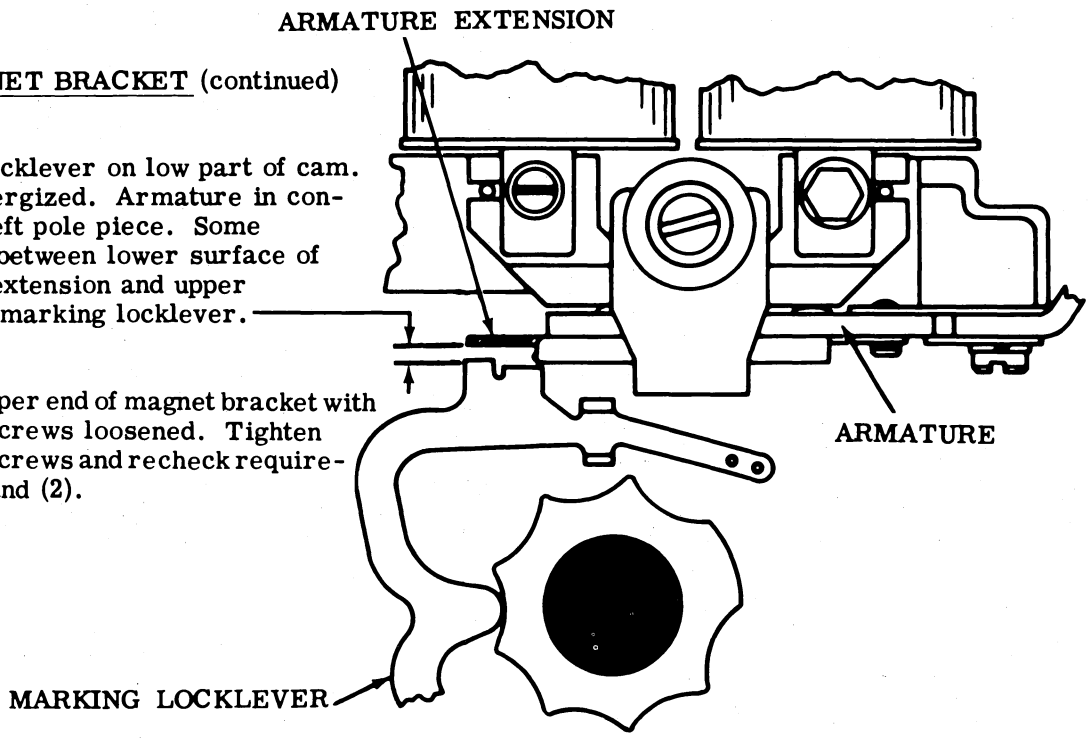
SELECTOR MAGNET BRACKET (continued)

(3) Requirement

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

To Adjust

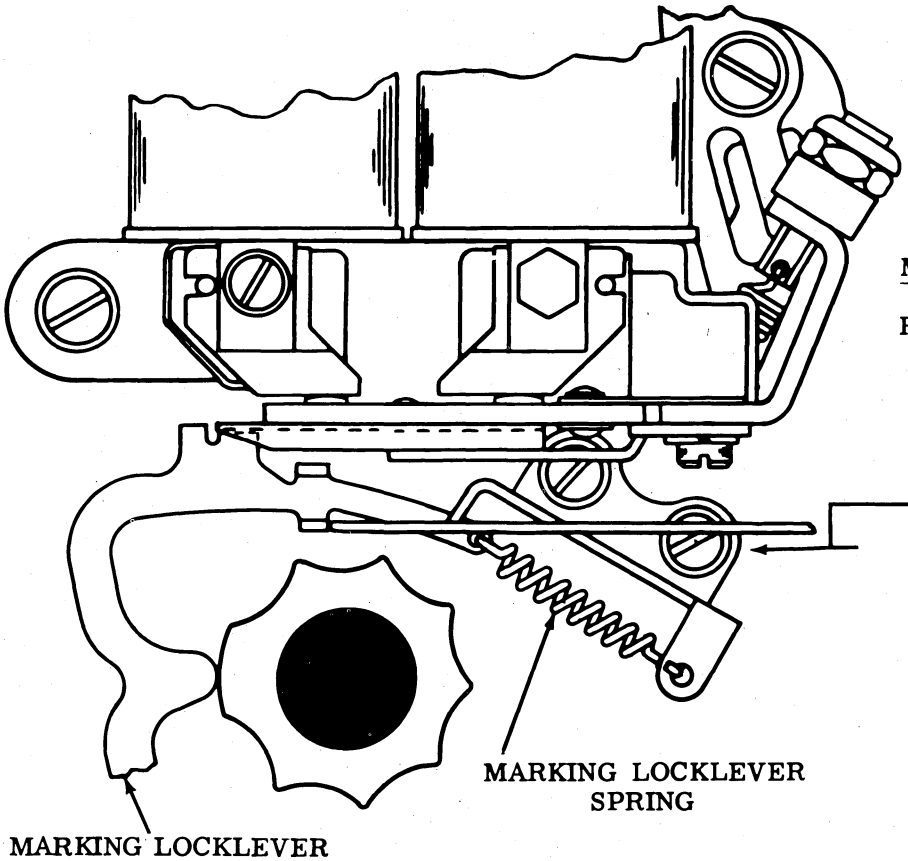
Position upper end of magnet bracket with mounting screws loosened. Tighten mounting screws and recheck requirements (1) and (2).



MARKING LOCKLEVER SPRING

Requirement

Rubout combination (12345678) selected. Main 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.



2.07 Selector Mechanism (continued)

SELECTOR ARMATURE DOWNSTOP (Final)

Requirement

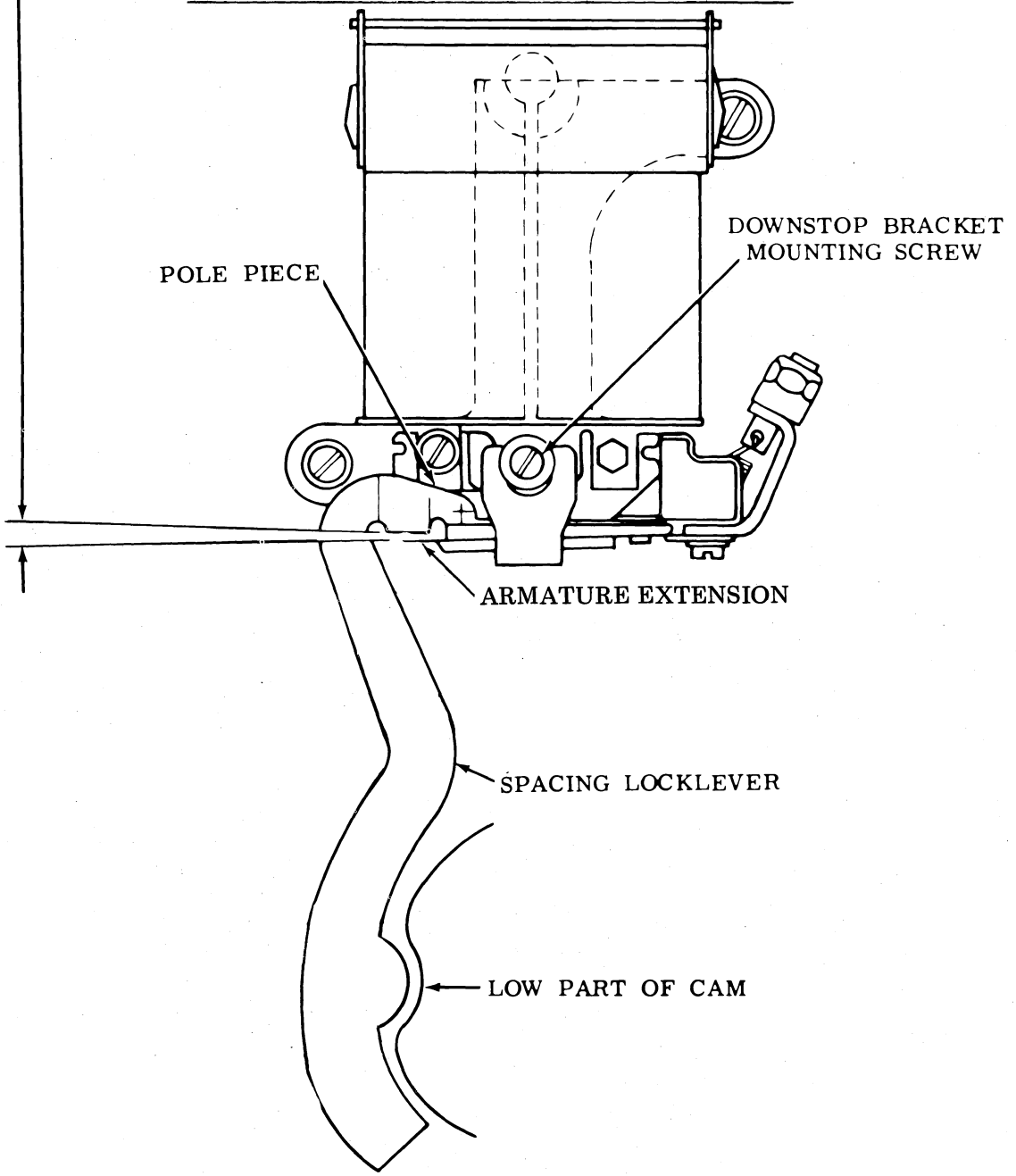
With the selector magnet de-energized and the spacing locklever on the low part of its cam, there should be

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) (2.04) adjustment.



2.08 Selector Mechanism (continued)

SELECTOR ARMATURE SPRING (Preliminary)

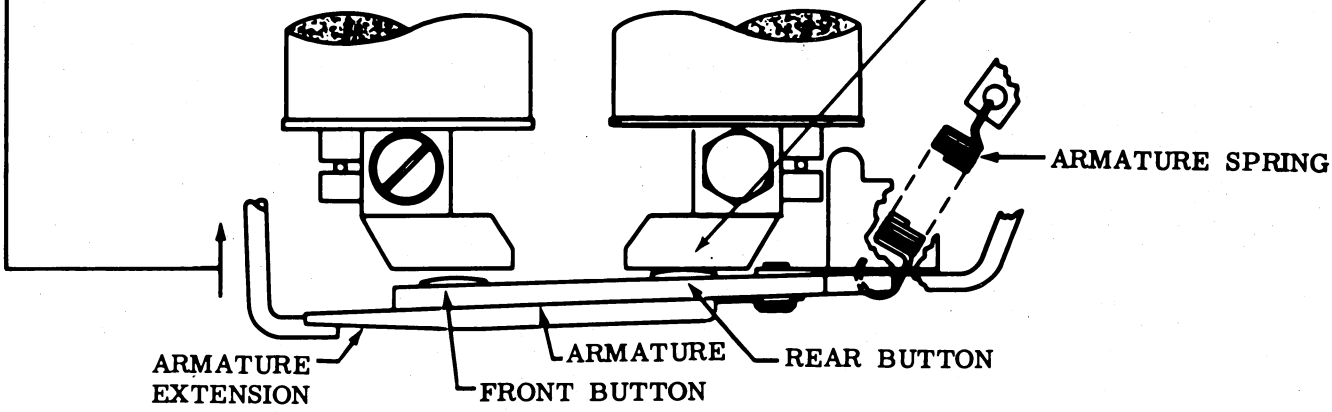
Requirement

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

0.500 Ampere — Approximately 28 grams

To Adjust

Position adjusting nut.

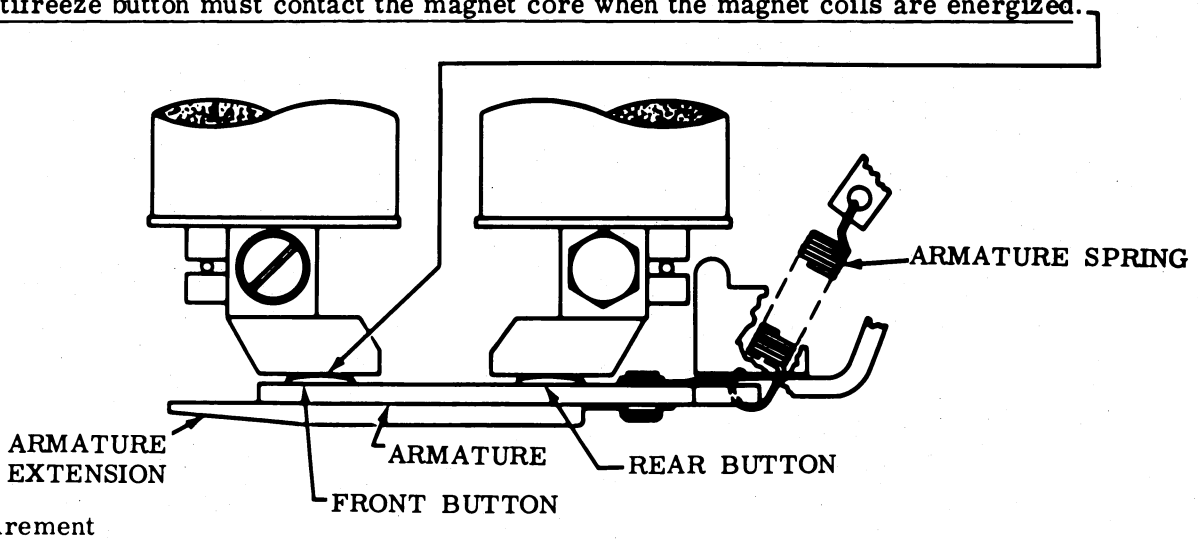


→ Note: See SELECTOR RECEIVING MARGIN (2.12) adjustment.

SELECTOR ARMATURE SPRING (Final)

(1) Requirement

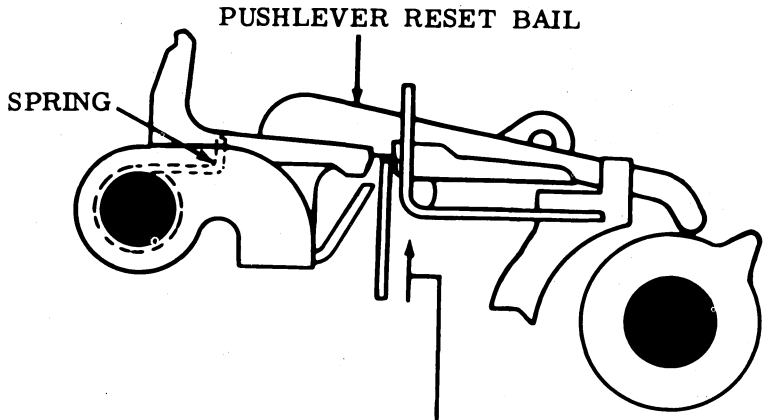
When a distortion test set is available, the selector armature spring tension should be refined (15 grams min), if necessary, to obtain satisfactory receiving margins. The front antifreeze button must contact the magnet core when the magnet coils are energized.



(2) Requirement

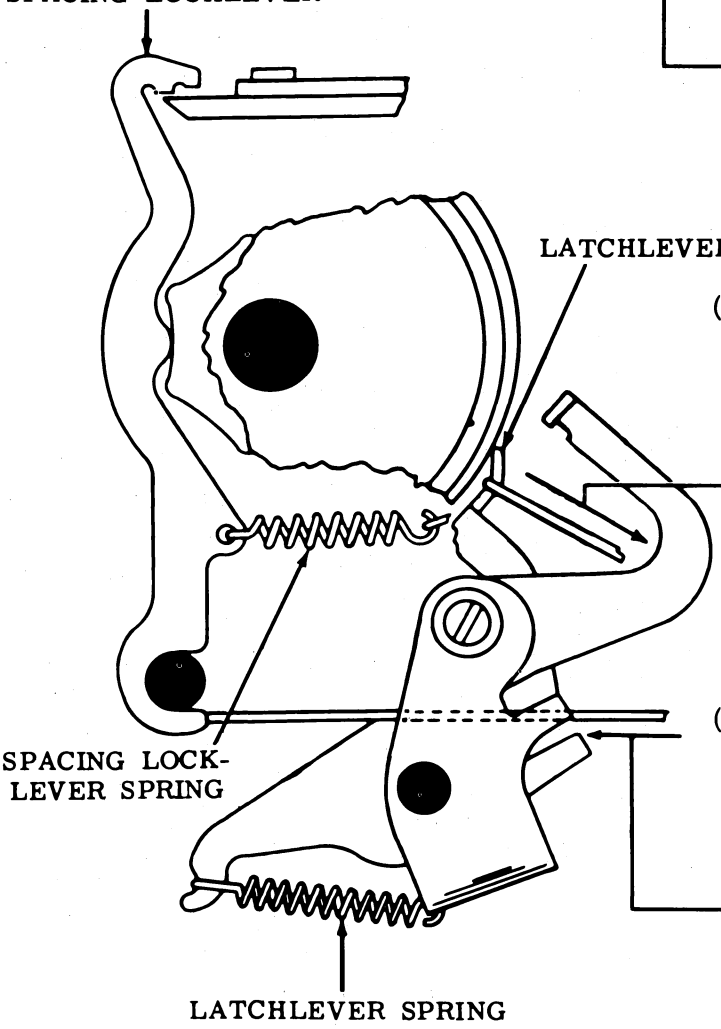
→ See SELECTOR RECEIVING MARGIN (2.12) adjustment.

2.09 Selector Mechanism (continued)



(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.



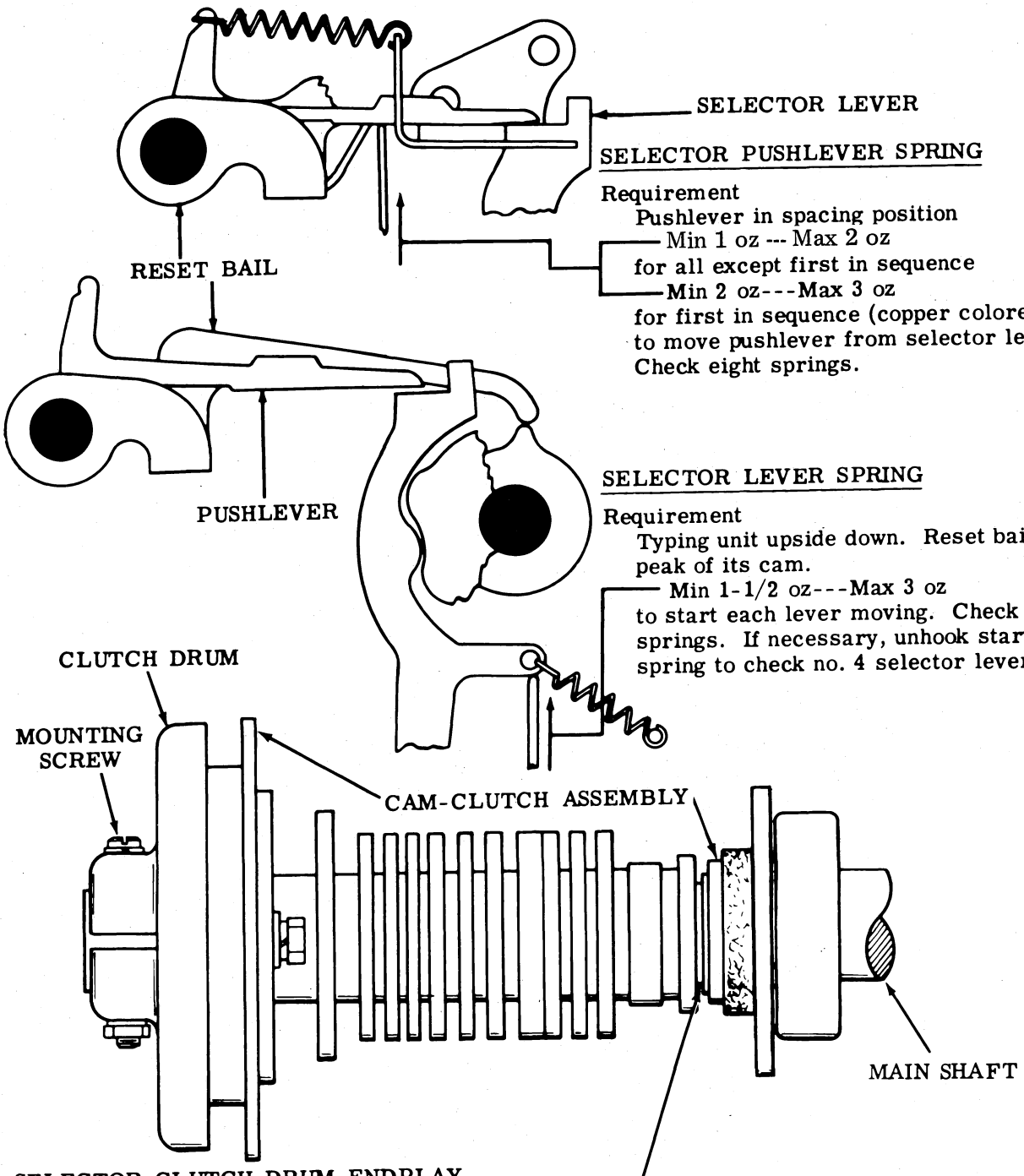
(B) SELECTOR CLUTCH LATCHLEVER SPRING

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.

2.10 Selector Mechanism (continued)



SELECTOR PUSHLEVER SPRING

Requirement
Pushlever in spacing position
Min 1 oz --- Max 2 oz
for all except first in sequence
Min 2 oz---Max 3 oz
for first in sequence (copper colored)
to move pushlever from selector lever.
Check eight springs.

SELECTOR LEVER SPRING

Requirement
Typing unit upside down. Reset bail on peak of its cam.
Min 1-1/2 oz---Max 3 oz
to start each lever moving. Check eight springs. If necessary, unhook start lever spring to check no. 4 selector lever spring.

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 main shaft with mounting screw loosened.

2.11 Selector Mechanism (continued)

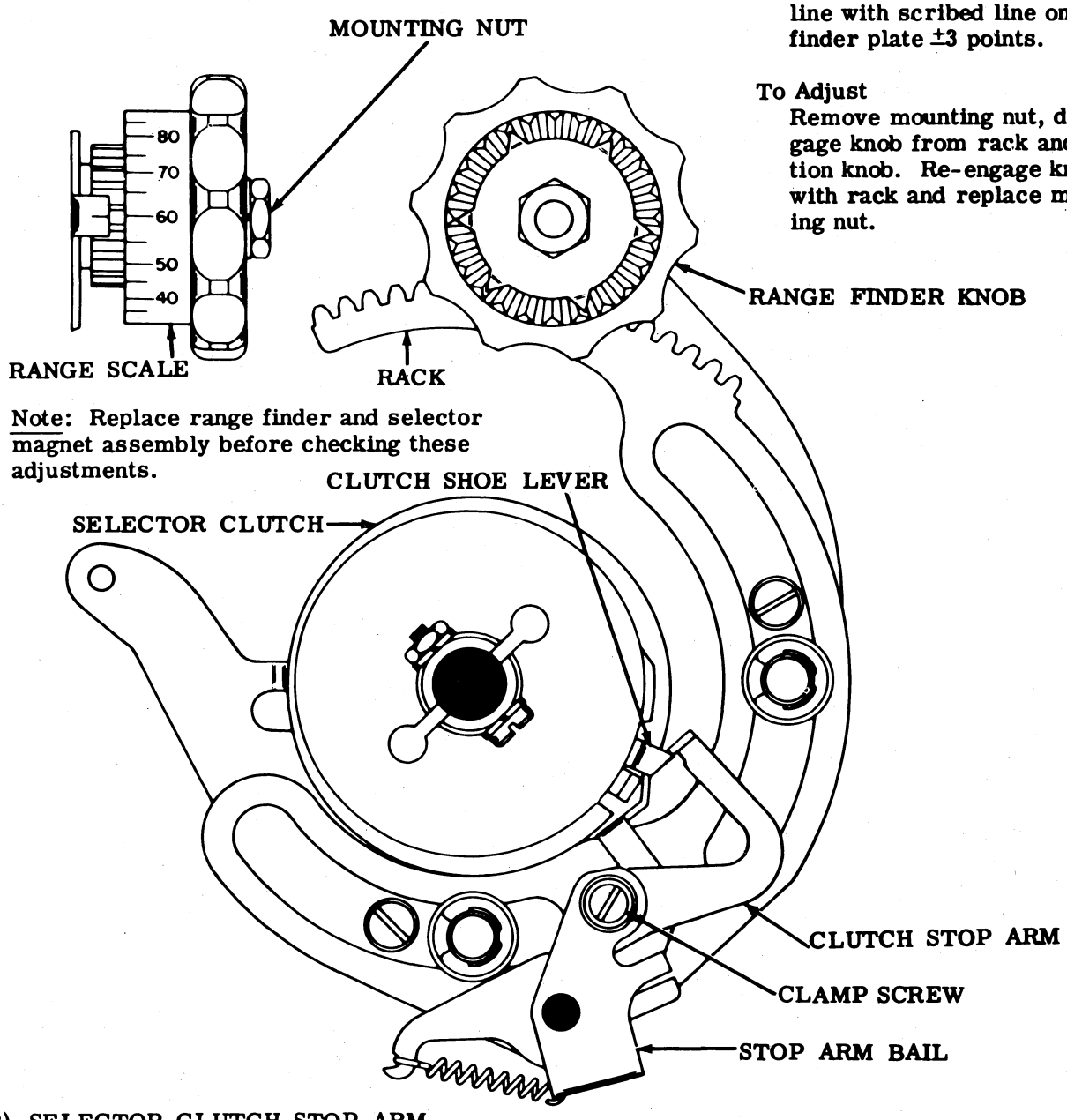
(A) RANGE FINDER KNOB PHASING

Requirement

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

To Adjust

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



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

(B) SELECTOR CLUTCH STOP ARM

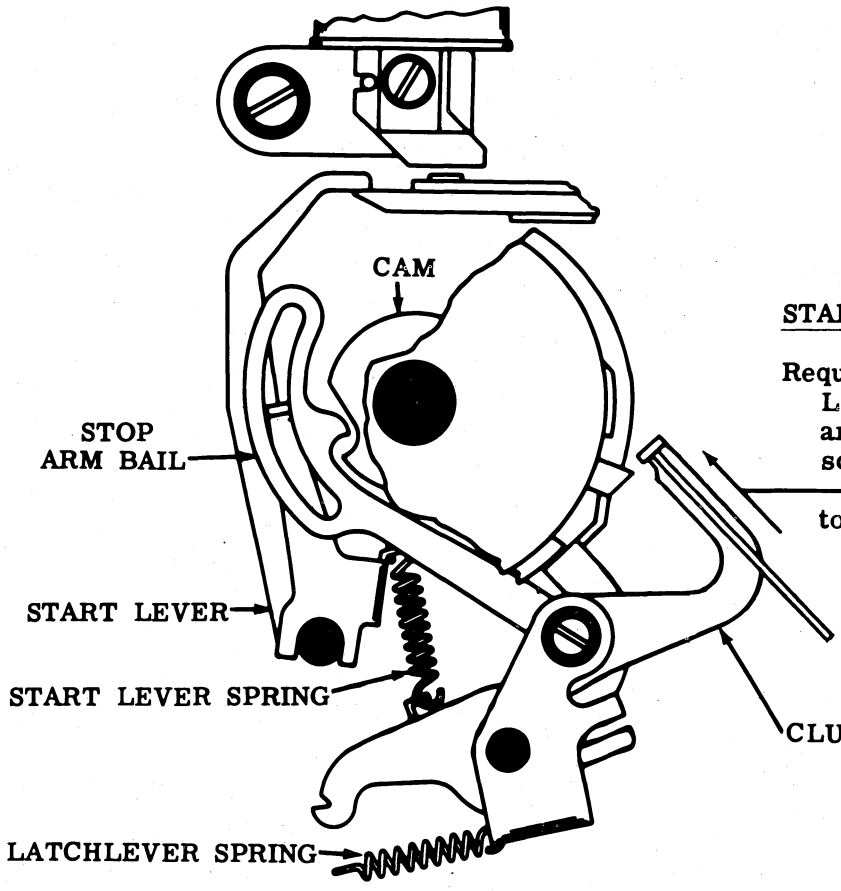
Requirement

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

To Adjust

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

2.12 Selector Mechanism (continued)



SELECTOR RECEIVING MARGIN

Requirement

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.

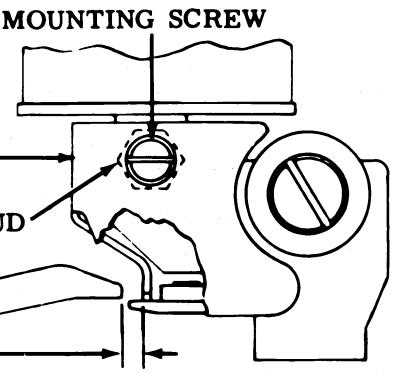
To Adjust

Refine the SELECTOR ARMATURE SPRING (2.08) adjustment.

SELECTOR RECEIVING MARGIN MINIMUM REQUIREMENTS

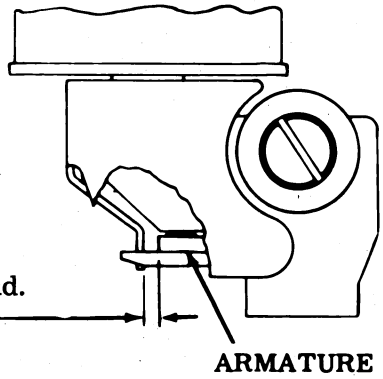
Current	Speed in WPM	Points Range with Zero Distortion	Percentage of Marking and Spacing Bias	End Distortion Tolerated with Scale at Bias Optimum Setting
0.500 Amp (Windings Series)	100	72	38	35

2.13 Selector Mechanism (continued)



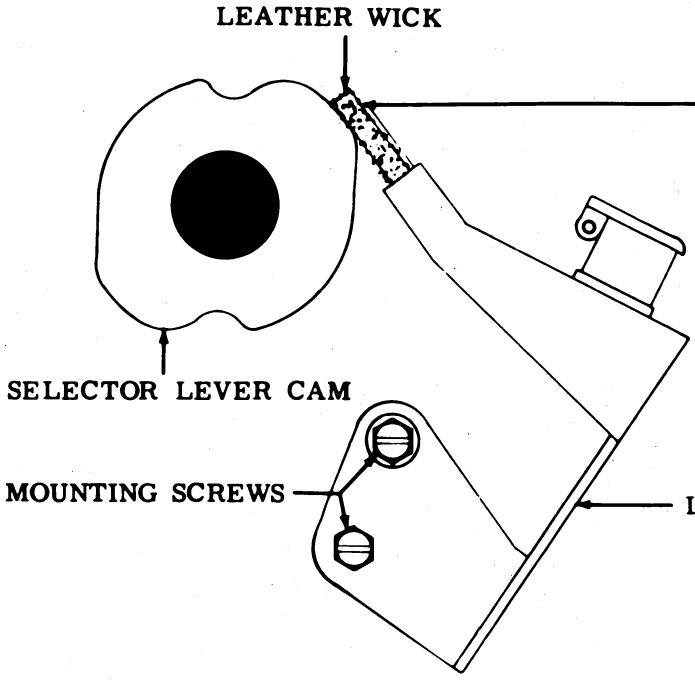
OIL SHIELD (If Applicable)

(1) Requirement
Magnet de-energized. Stop arm bail on low part of its cam. Clearance between start lever and oil shield
Min 0.020 inch



(2) Requirement
Magnet energized. Stop arm bail on high part of its cam. Clearance between end of armature and oil shield.
Min 0.010 inch

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

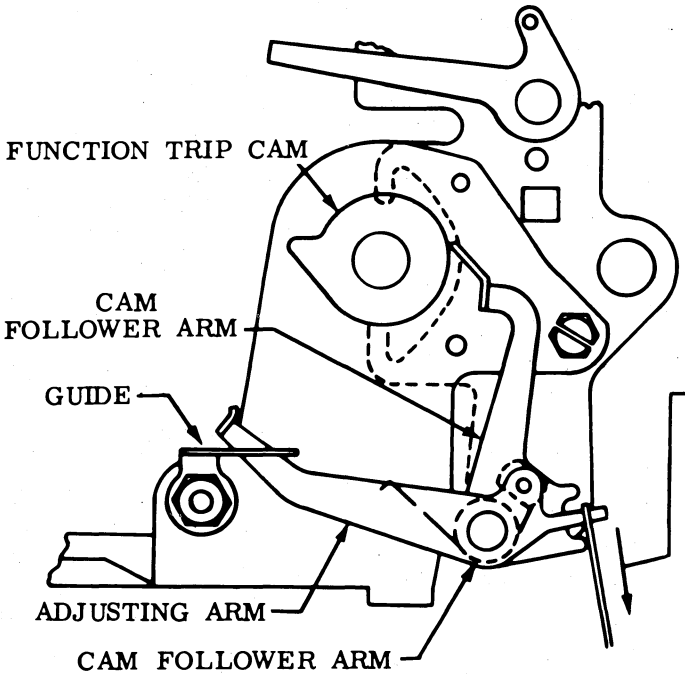


SELECTOR CAM LUBRICATOR

Requirement
High part of selector lever cams should contact leather wick but should not deflect wick more than 1/32 inch gauged visually.

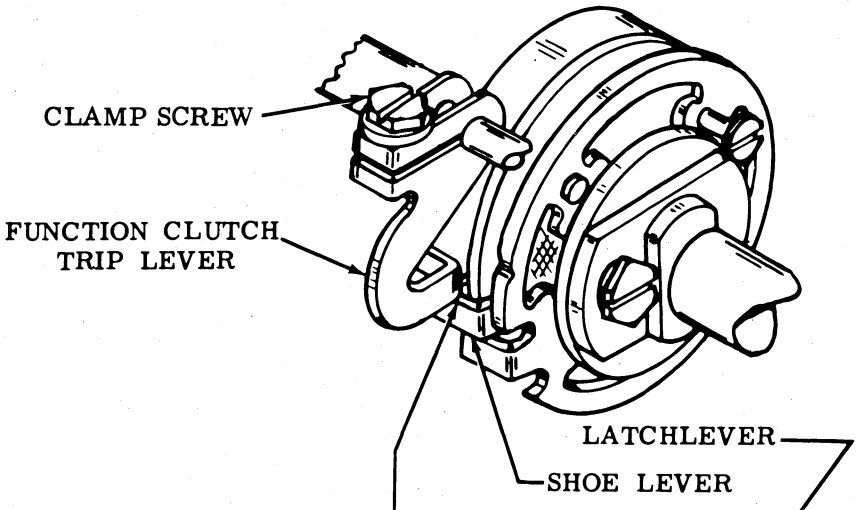
To Adjust
Position lubricator assembly around lower screw with mounting screws loosened. Tighten screws.

2.14 Function Mechanism



CAM FOLLOWER ARM SPRING (Latest Design)

Requirement
With cam follower arm on low part of trip cam and reset bail trip lever held away from adjusting arm
Min 1 oz---Max 4 oz
to start adjusting arm moving.



FUNCTION CLUTCH TRIP LEVER

(1) Requirement
With release resting on main trip lever (see 2.16), function clutch trip lever should engage full thickness of shoe lever.

(2) Requirement
Min some---Max 0.006 inch endplay in trip lever.

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

(Right Side Views)

2.15 Function Mechanism (continued)

(A) TRIP CAM FOLLOWER LEVER (Preliminary)

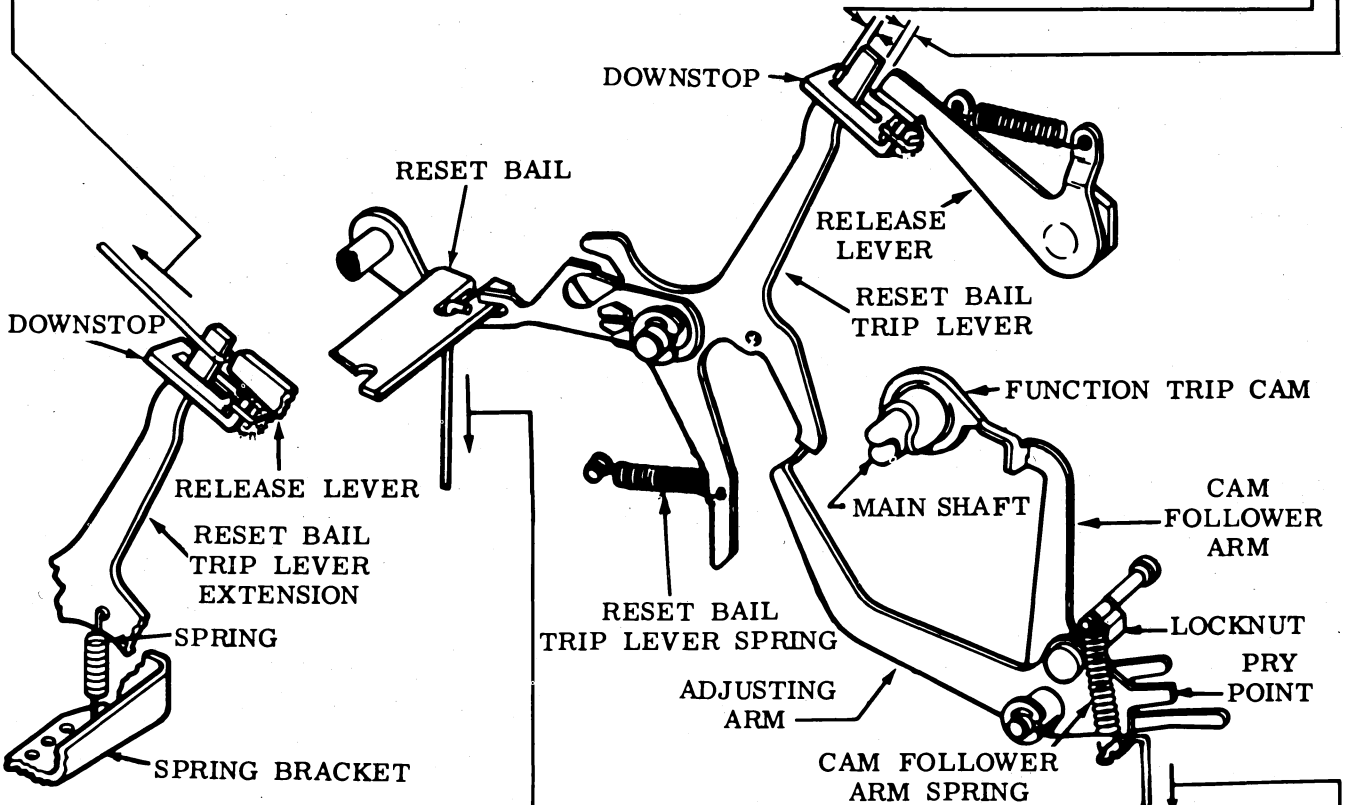
(1) Requirement
With follower lever on high part of cam clearance between release and main trip lever
Min 0.010 inch---Max 0.030 inch

(2) Requirement
Some clearance between main trip lever and downstop bracket.

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

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

Requirement
Trip reset bail trip lever extension. Pulling at top of lever
Min 1 oz---Max 4 oz
to start lever moving.



RESET BAIL TRIP LEVER SPRING (Early Design)

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

(B) CAM FOLLOWER ARM SPRING (Early Design)

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

2.16 Function Mechanism (continued)

(A) RESET ARM

To Check

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

(1) Requirement

Clearance between release and main trip lever

Min 0.005 inch---Max 0.030 inch

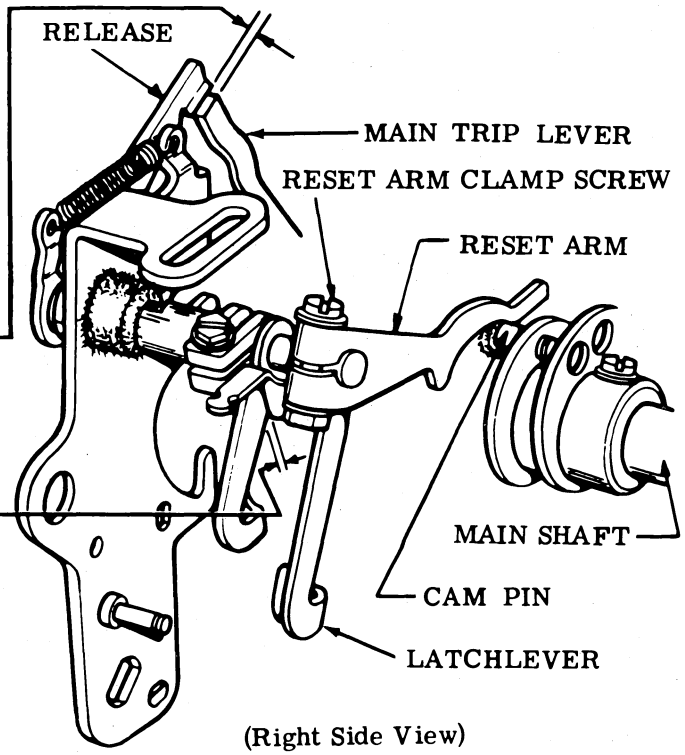
(2) Requirement

Latchlever endplay

Min some---Max 0.010 inch

To Adjust

Position reset arm with clamp screw loosened. Tighten screw.



(Right Side View)

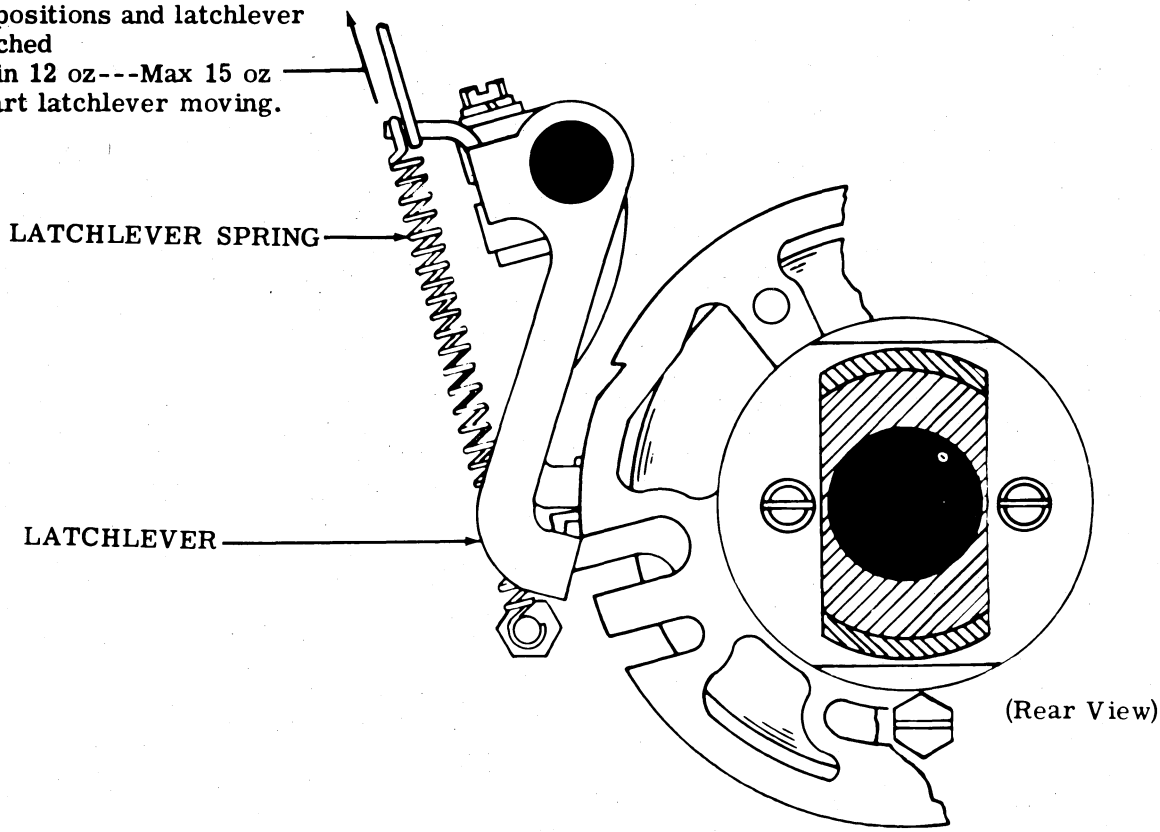
(B) FUNCTION CLUTCH LATCHLEVER SPRING

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) CAM FOLLOWER ROLLER

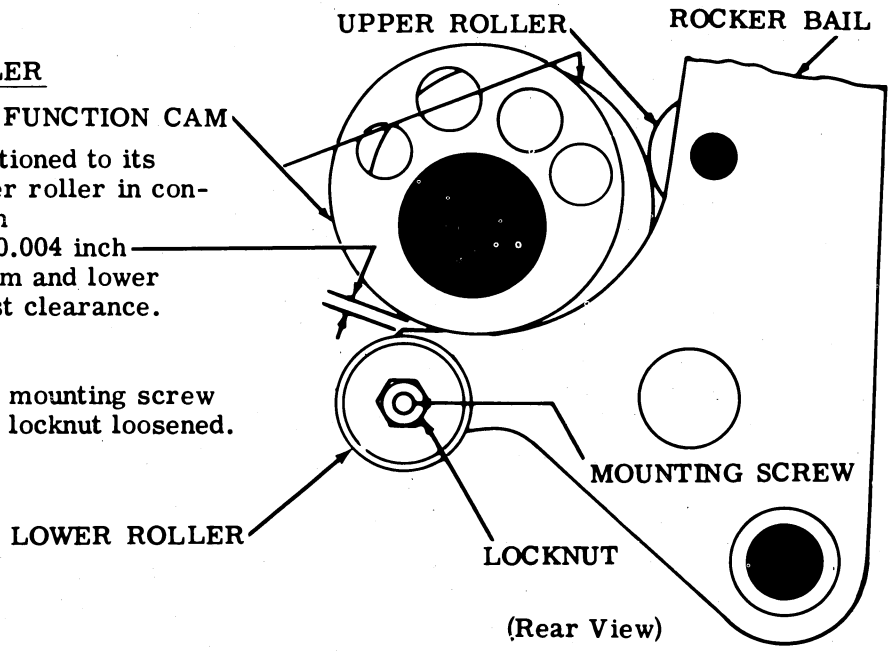
Requirement

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

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

To Adjust

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



(Rear View)

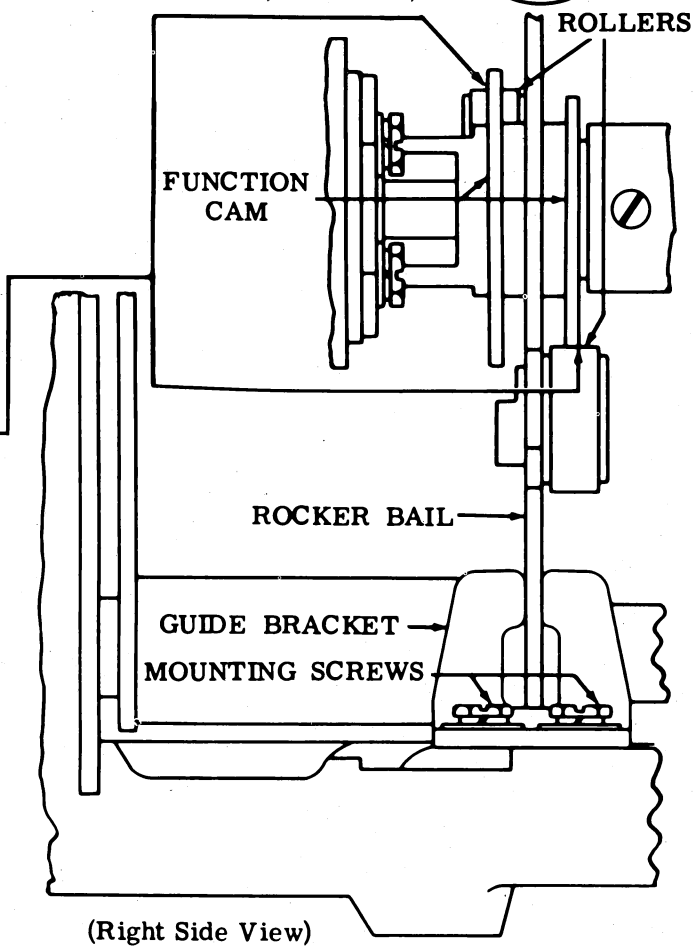
(B) CAM FOLLOWER ROLLER ALIGNMENT

Requirement

Rocker bail rollers should engage full thickness of function cam.

To Adjust

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



(Right Side View)

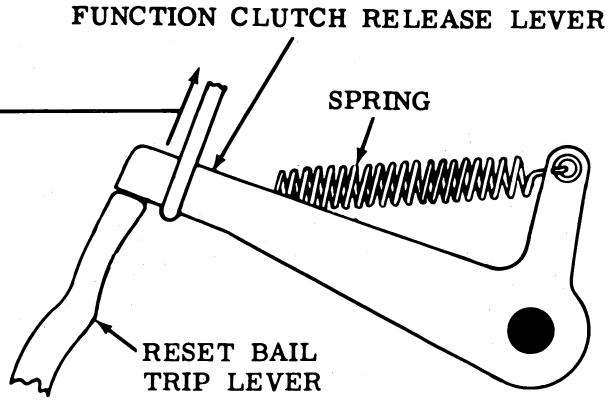
2.18 Function Mechanism (continued)

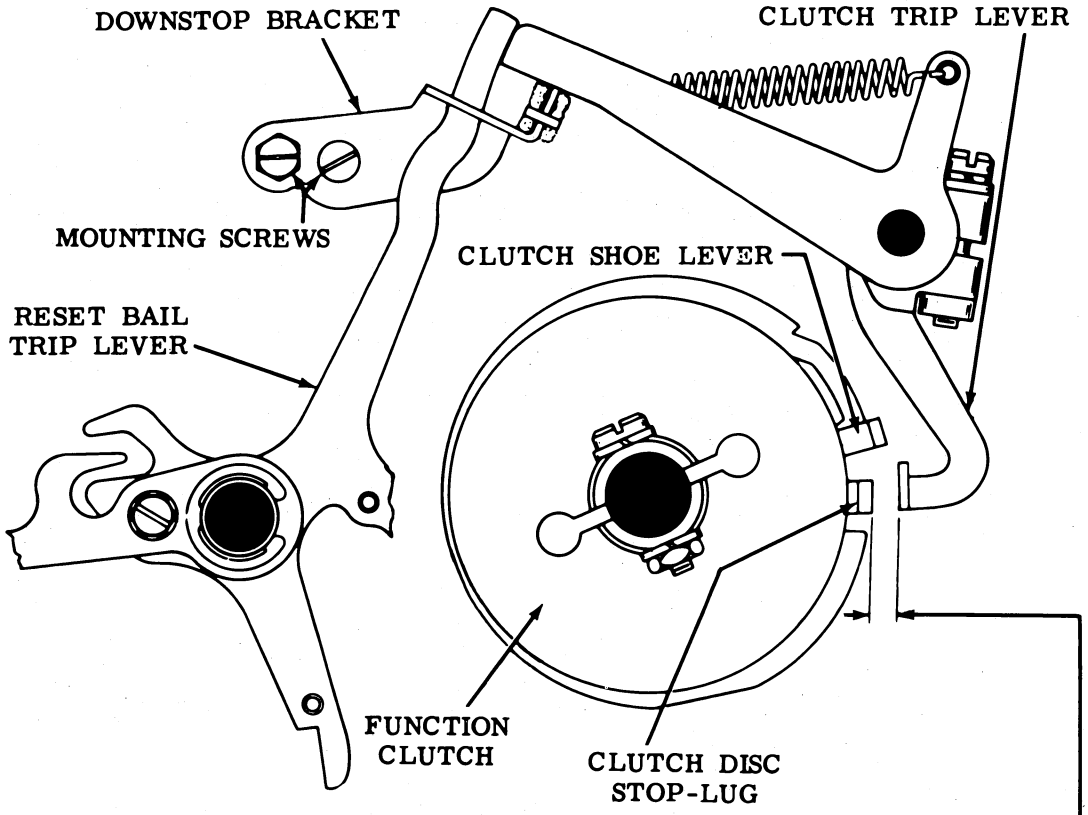
(A) FUNCTION CLUTCH RELEASE LEVER SPRING

Requirement

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

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





(B) RELEASE DOWNSTOP BRACKET

Requirement

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

Min 0.002 inch---Max 0.045 inch

To Adjust

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

2.19 Punch Mechanism

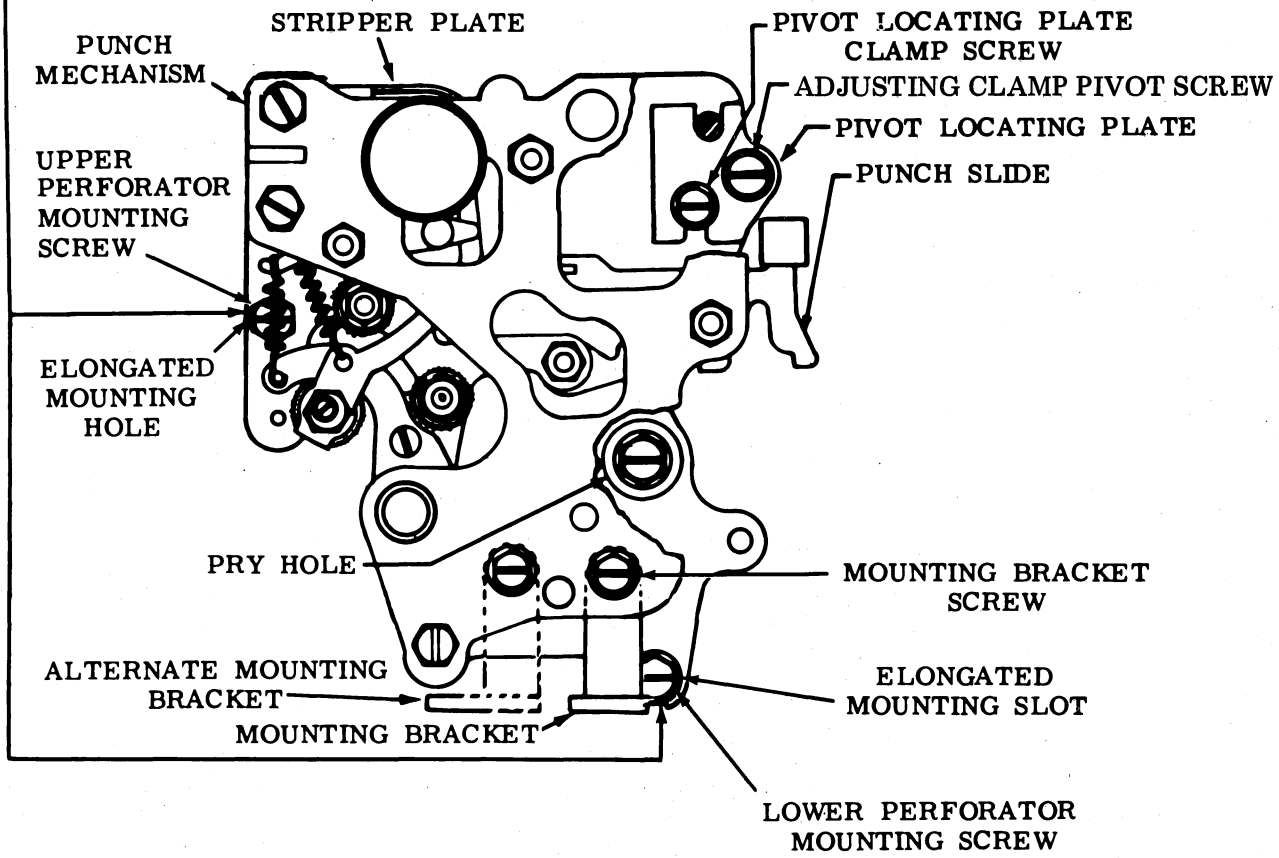
PUNCH MOUNTING PLATE (Preliminary)

Requirement

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

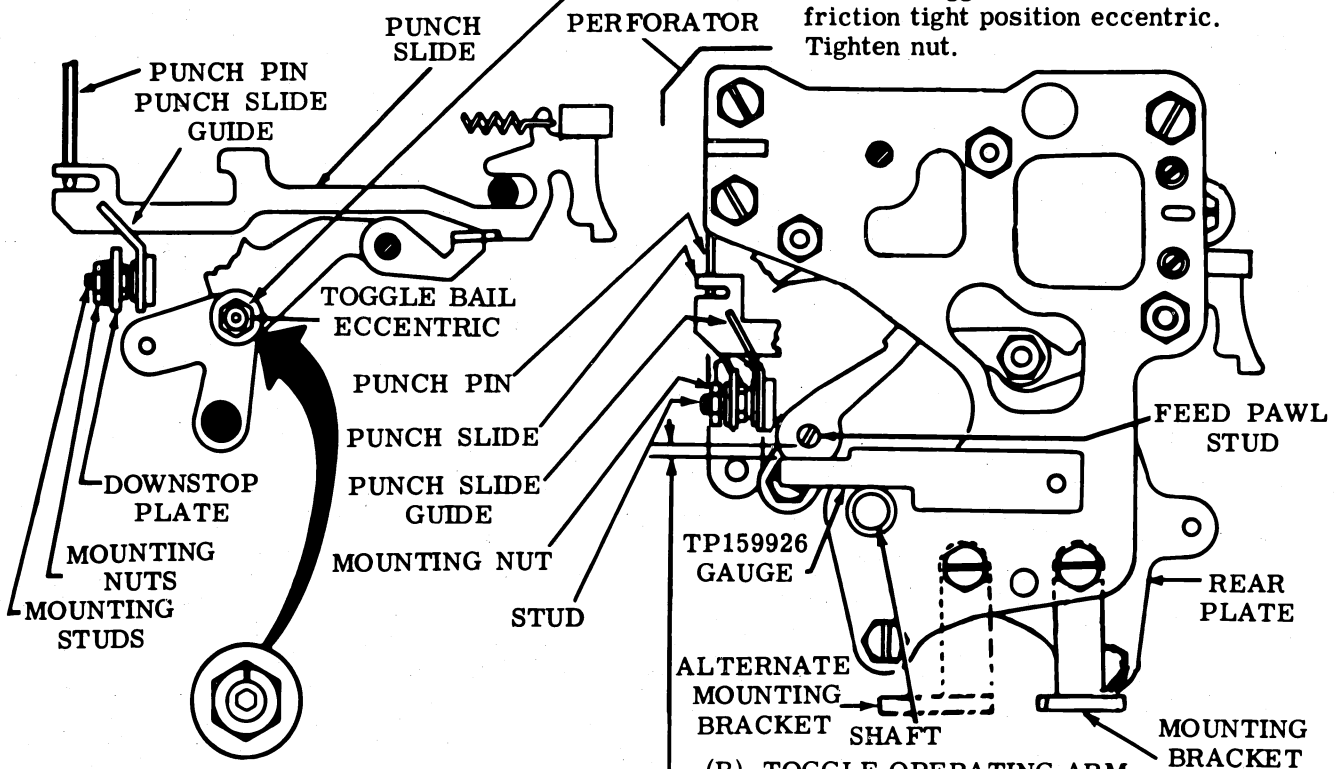
To Adjust

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



2.20 Punch Mechanism (continued)

Note: Before proceeding with the punch mechanism adjustments, check the CAM FOLLOWER ROLLER (2.17) adjustment and loosen the punch slide downstop mounting nut and guide mounting stud.



(A) TOGGLE BAIL ECCENTRIC (Preliminary)

Requirement

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

To Adjust

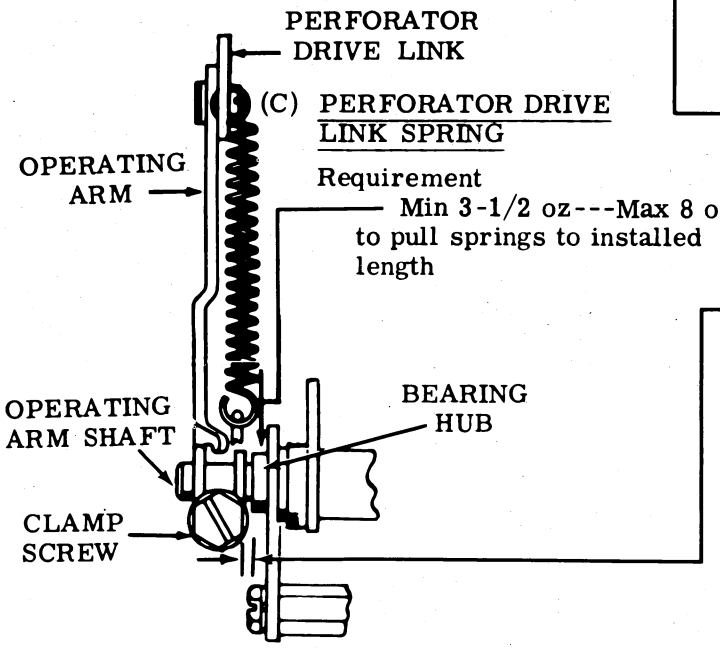
With the toggle eccentric shaft locknut friction tight position eccentric. Tighten nut.

(B) TOGGLE OPERATING ARM

(1) Requirement

Trip function clutch and rotate main shaft until the upper rocker bail roller is on high part of its cam.

Min 0.002 inch---Max 0.005 inch clearance between feed pawl stud and the TP159926 gauge.



(C) PERFORATOR DRIVE LINK SPRING

Requirement

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

(2) Requirement

Clearance between arm and oscillating shaft bearing hub.

Min 0.002 inch---Max 0.015 inch with play taken up in direction to make clearance minimum.

To Adjust

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

Note: After FEED PAWL (2.24) adjustment has been made and PUNCH PIN PENETRATION (2.21) and FEED PAWL requirements are met, this requirement should be considered fulfilled.

2.21 Punch Mechanism (continued)

(A) PUNCH PIN PENETRATION

(1) Requirement

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

Min 0.050 inch

clearance between feed pawl stud and the gauge.

(2) Requirement

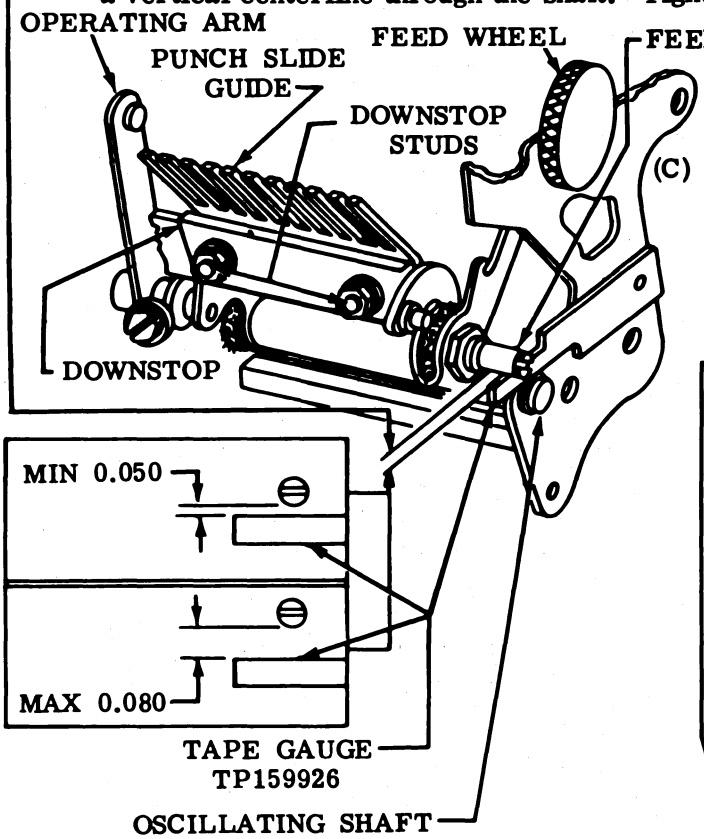
With RUBOUT combination selected, function clutch engaged, rotate main shaft until all punch pins have cleared the punch block. With the TP159926 gauge in position

Min some---Max 0.080 inch

clearance between feed pawl stud and gauge.

To Adjust

Refine the TOGGLE BAIL ECCENTRIC (2.20) adjustment keeping the indent to the right of a vertical centerline through the shaft. Tighten nut.



(B) PUNCH SLIDE GUIDE (Final)

Requirement

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

To Adjust

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

(C) PUNCH SLIDE DOWNSTOP POSITION

Requirement

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

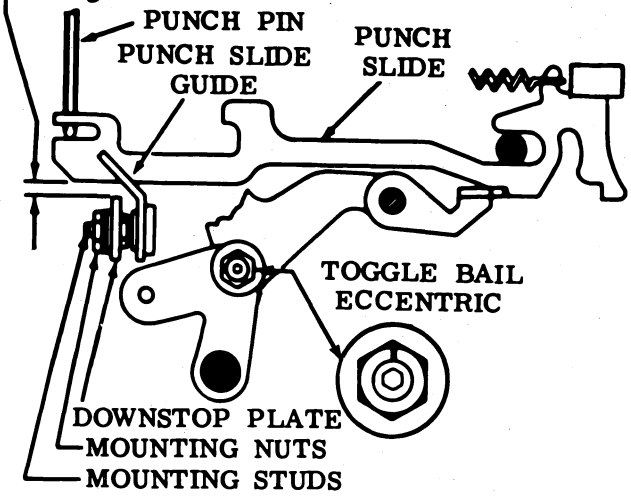
Min some---Max 0.008 inch

All other punch slides should have some clearance.

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

To Adjust

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



2.22 Punch Mechanism (continued)

PUNCH MOUNTING PLATE (Final)

To Check

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

Requirement

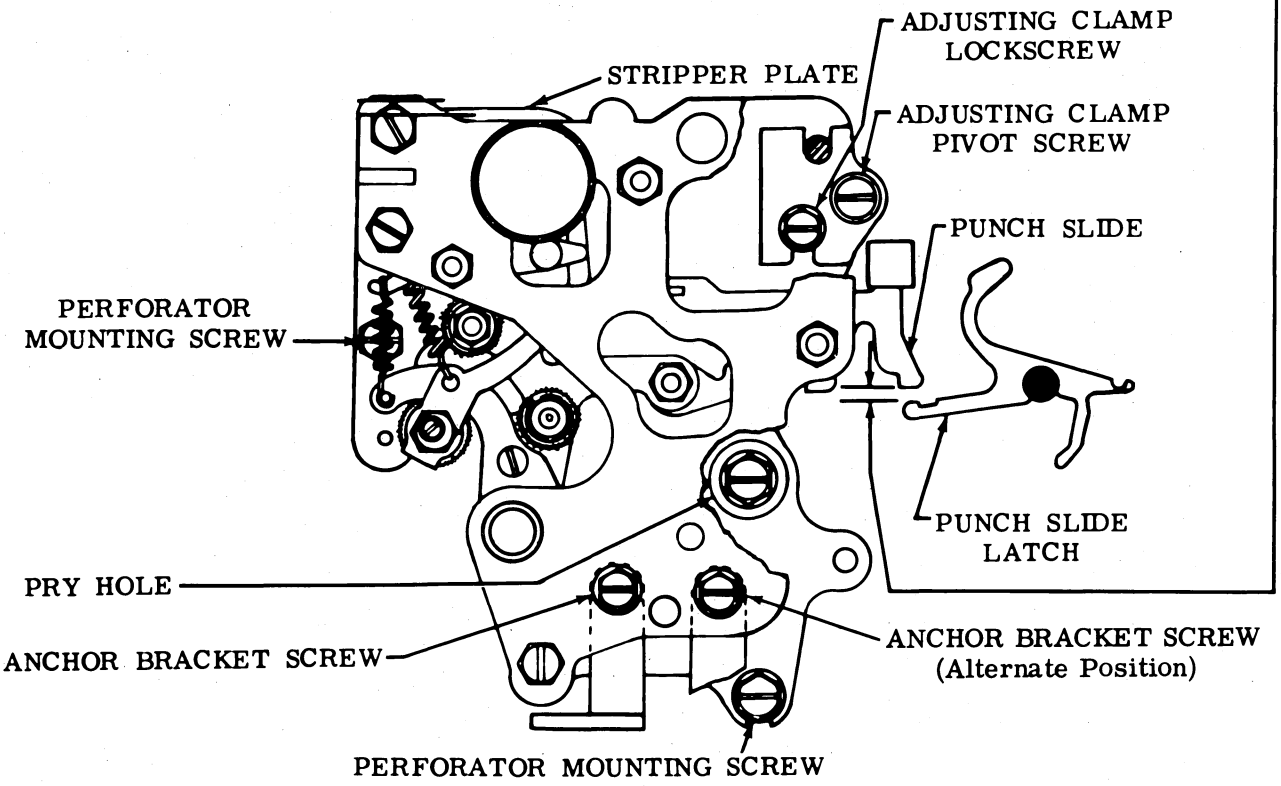
Clearance between punch slide and punch slide latch

Min 0.015 inch---Max 0.045 inch

at slide where clearance is least.

To Adjust

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



2.23 Punch Mechansim (continued)

RESET BAIL TRIP LEVER (Final)

(1) Requirement

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

To Adjust

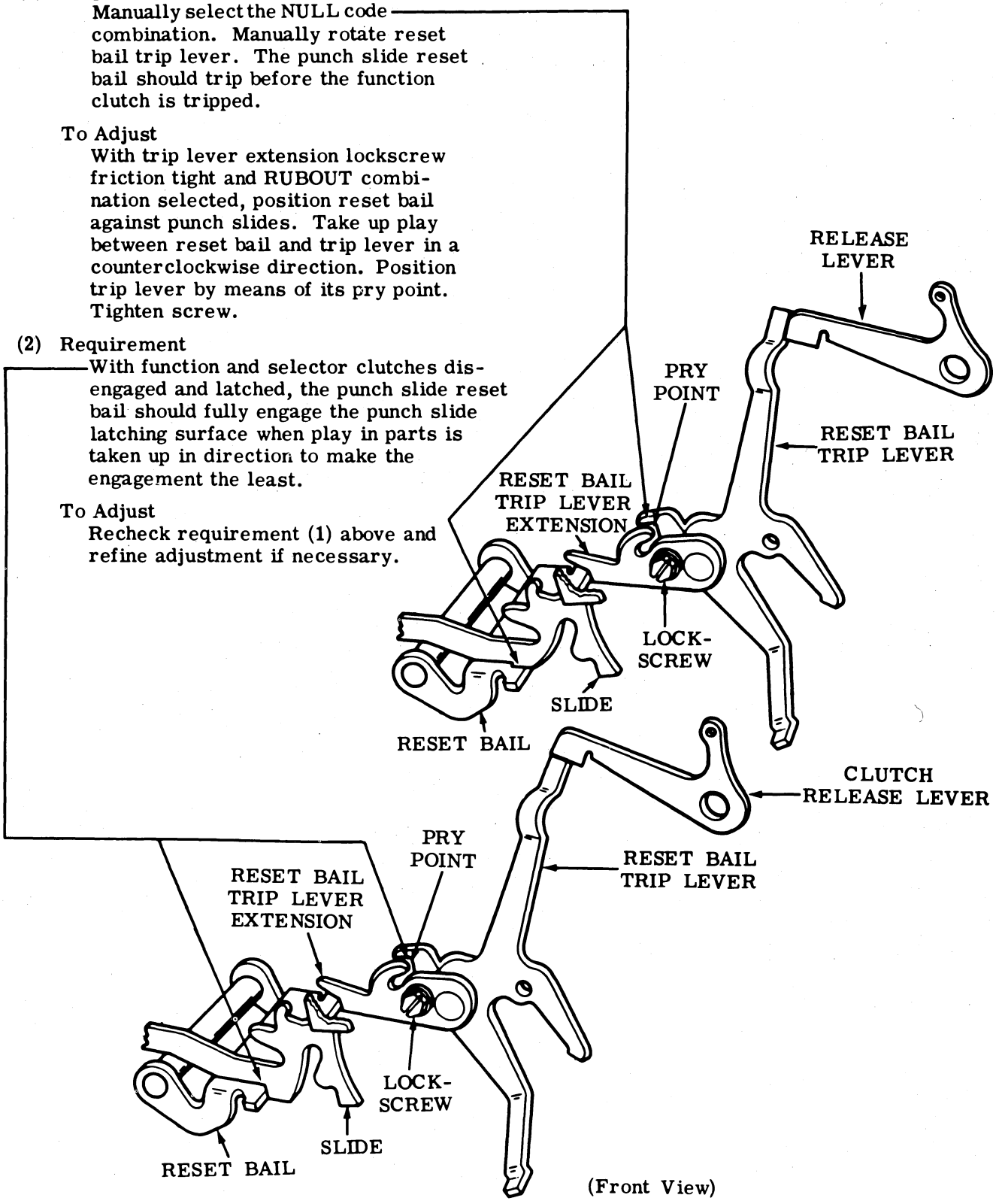
With trip lever extension lockscrew friction tight and RUBOUT combination selected, position reset bail against punch slides. Take up play between reset bail and trip lever in a counterclockwise direction. Position trip lever by means of its pry point. Tighten screw.

(2) Requirement

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

To Adjust

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



2.24 Punch Mechanism (continued)

(A) LATCHLEVER CLEARANCE

Requirement

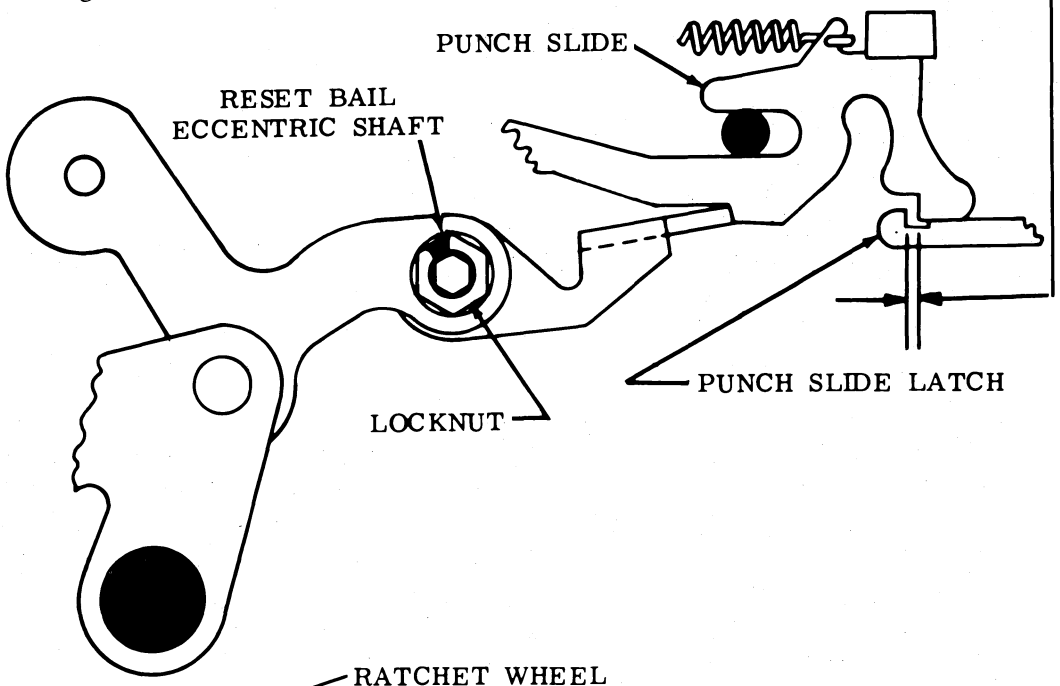
With NULL combination selected, the function clutch disengaged and latched, clearance between the punch slide and its associated latchlever should be

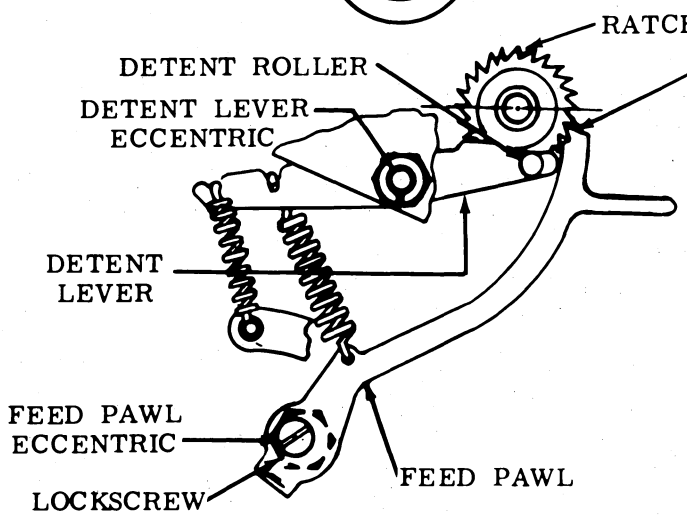
Min 0.008 inch---Max 0.020 inch

for the slide having the least clearance.

To Adjust

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





(B) FEED PAWL

Requirement

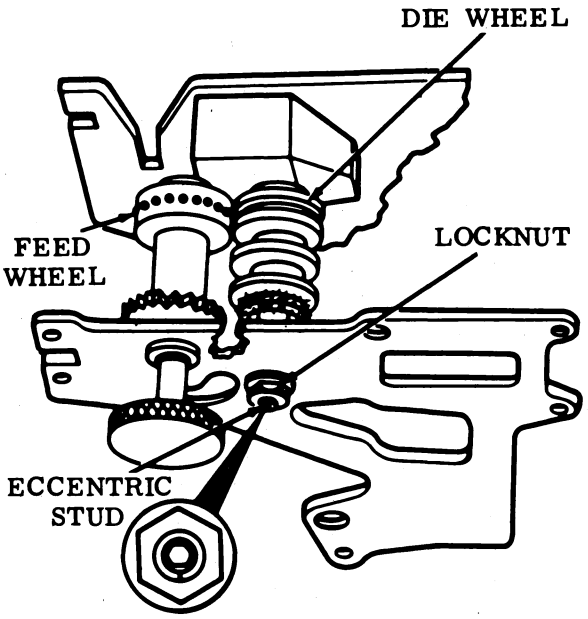
Function clutch disengaged, indentation in detent lever eccentric at right angle to lever, detent roller in contact with ratchet wheel, high part of feed pawl eccentric to the right of its lockscrew. The feed pawl should engage the first tooth below a horizontal centerline through the ratchet wheel with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

To Adjust

Rotate the feed pawl eccentric with lockscrew loosened. Tighten screw. ←

Note: This adjustment is related to TEN CHARACTERS PER INCH (2.25), and two adjustments should be made at same time.

2.25 Punch Mechanism (continued)



TEN CHARACTERS PER INCH (Preliminary)

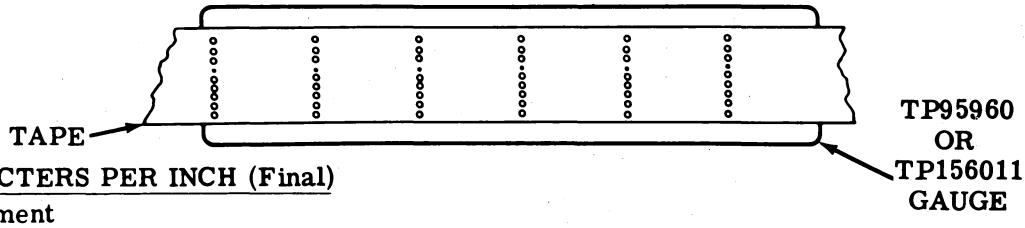
(1) Requirement
Indent of die wheel eccentric stud pointing downward.
To Adjust
Position die wheel eccentric stud with locknut loosened. Tighten nut.

(2) Requirement
With tape shoe blocked away from feed wheel, feed pawl and detent disengaged, and tape removed, feed wheel should rotate freely. Check through 3 or 4 revolutions of feed wheel. Refine requirement (1) above if necessary to meet this requirement.

→ Note: Before proceeding with the following adjustment check both BIAS SPRING (2.28) tensions, and if unit is equipped with a slack tape mechanism having a clamp plate with an adjustable wear disc, loosen the mounting nut and turn a new edge of the disc toward the tape. Tighten nut.

REPERFORATOR MOUNTING

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



TEN CHARACTERS PER INCH (Final)

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

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

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

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

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

2.26 Punch Mechanism (continued)

(For Latest Design see 2.27)

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

Requirement

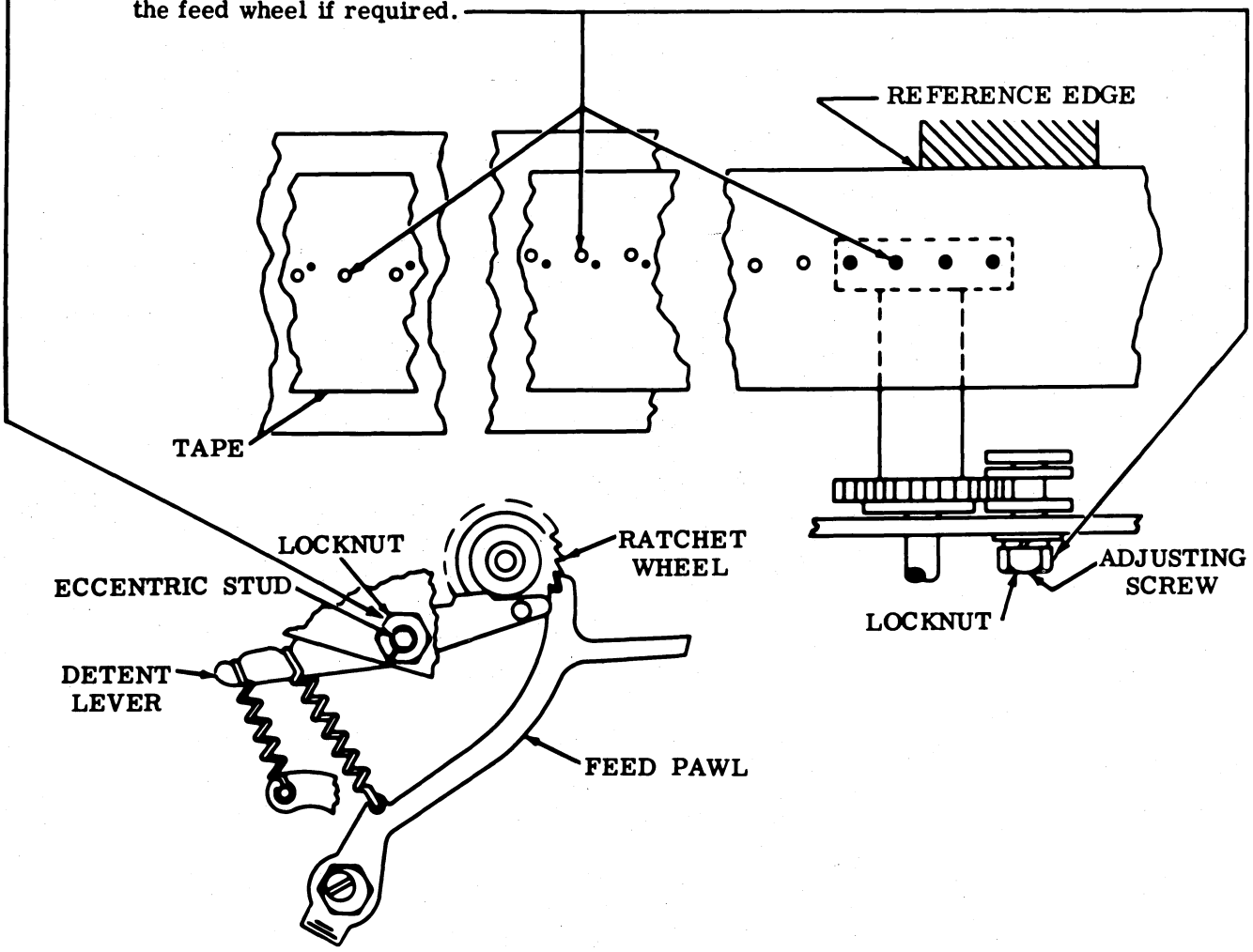
With the reperforator operating under power, obtain a tape sample consisting of a series of NULL perforations, by a visual inspection of the perforated feed holes, laterally and front to rear, the indentations of the feed wheel should be fully punched out.

(1) To Adjust (Laterally)

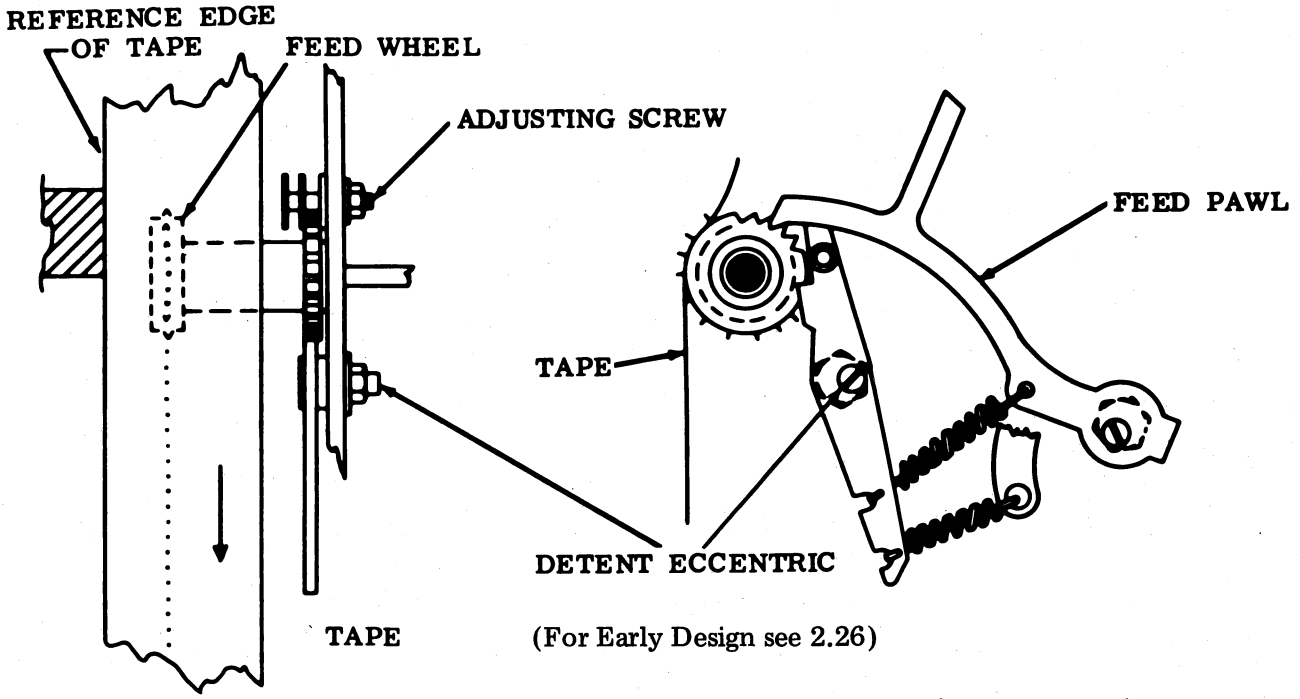
To meet the lateral requirement, loosen the detent eccentric stud locknut and rotate the detent eccentric clockwise to move the feed wheel perforations towards the lead edge of the feed hole. Rotate the detent eccentric counterclockwise to move the feed wheel perforation towards the trailing edge of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

(2) To Adjust (Front to Rear)

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



2.27 Punch Mechanism (continued)



(For Early Design see 2.26)

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

Requirement

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

To Check

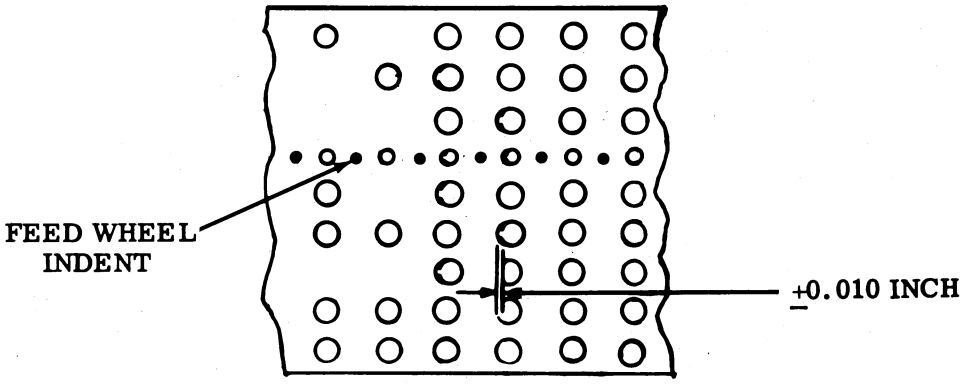
Perforate 6 inches of U* tape. Backspace 30 characters. Reperforate with RUBOUT characters. Code holes must coincide except for first two characters which may be elongated ±0.010 inch.

To Adjust (Laterally)

Rotate detent eccentric clockwise to move the feed wheel perforation toward the leading edge of the feed hole and rotate eccentric counterclockwise to move the perforation toward the trailing edge of the feed hole. Tighten locknut. Refine FEED PAWL (2.24) adjustment if necessary.

To Adjust (Front to Rear)

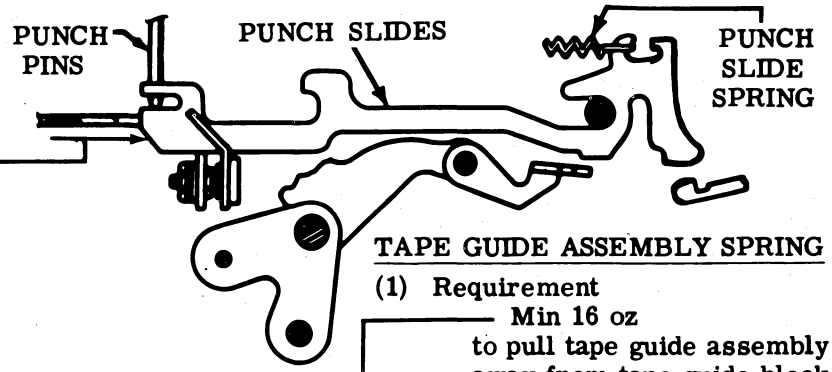
Loosen locknut on adjusting screw and rotate the screw counterclockwise to move the indentations in the tape away from the reference edge (rear) of the tape. To move indentations in the tape toward the reference edge of the tape, rotate adjusting screw clockwise. Tighten nut. Refine the lateral adjustment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

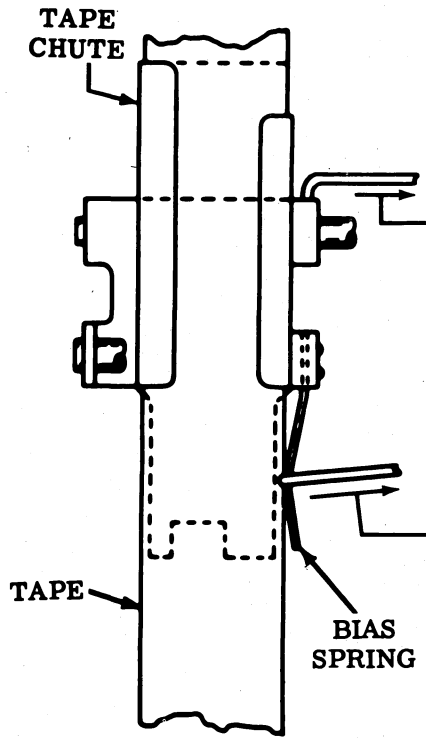


2.28 Punch Mechanism (continued)

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.





TAPE GUIDE ASSEMBLY SPRING

(1) Requirement
Min 16 oz
to pull tape guide assembly away from tape guide block.

(2) Requirement
Tape guide assembly should move freely on shaft.

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

BIAS SPRING (Tape Chute)

Requirement
With selector and function clutches disengaged and latched, tape threaded through punch mechanism, it should require
Min 1-1/4 oz---Max 2-1/4 oz
to just move the spring away from the tape.

To Adjust
Bend the spring.

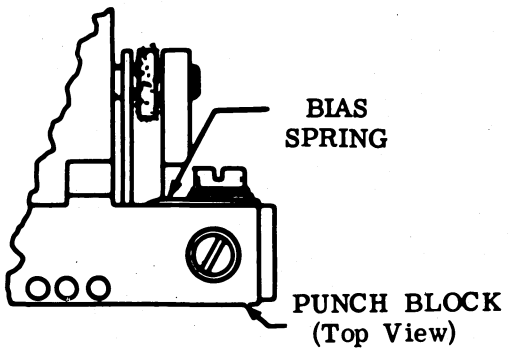
Note: It is necessary to remove several parts, on units equipped with backspace mechanism, in order to check this spring tension. It should not be checked unless there is good reason to believe that requirements are not met.

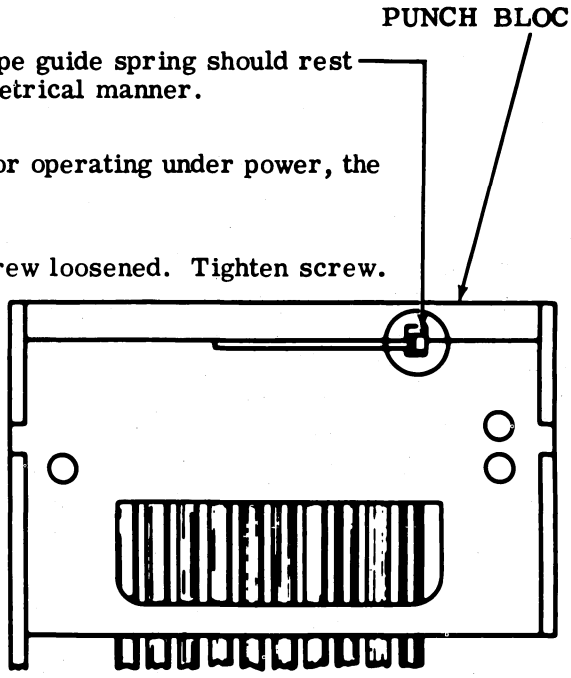
BIAS SPRING (Punch Block)

(1) Requirement
With tape removed from the punch block, the tape guide spring should rest against the clearance slot in the block in a symetrical manner.

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

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

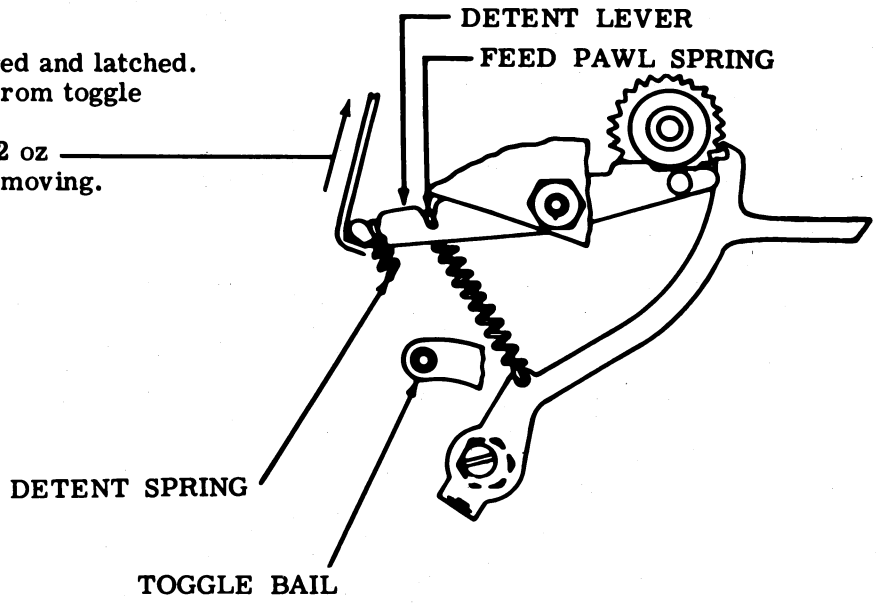




2.29 Punch Mechanism (continued)

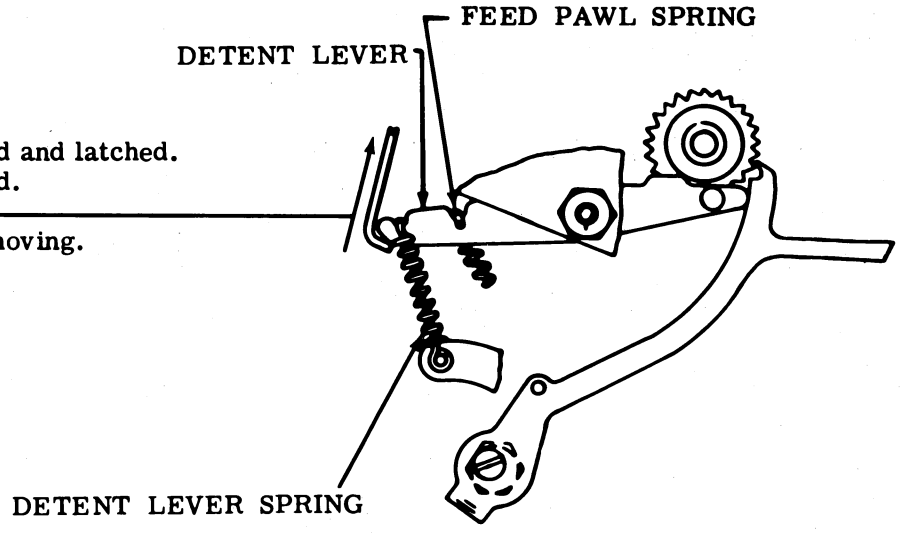
FEED PAWL SPRING

Requirement
Function clutch disengaged and latched.
Detent spring unhooked from toggle bail
Min 3 oz---Max 4-1/2 oz
to start the detent lever moving.



DETENT LEVER SPRING

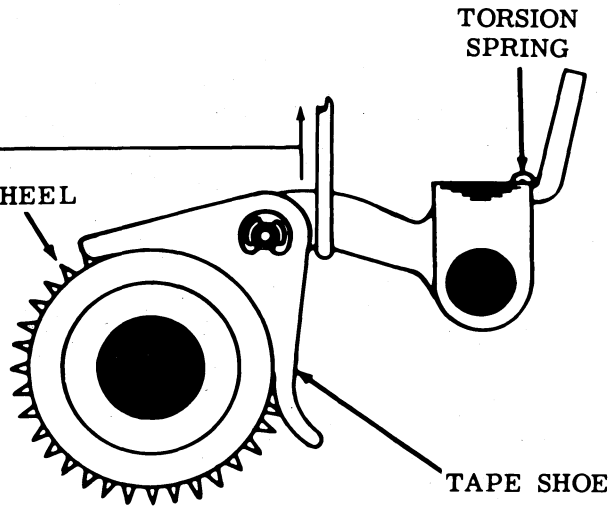
Requirement
Function clutch disengaged and latched.
Feed pawl spring unhooked.
Min 7 oz---Max 10 oz
to start the detent lever moving.

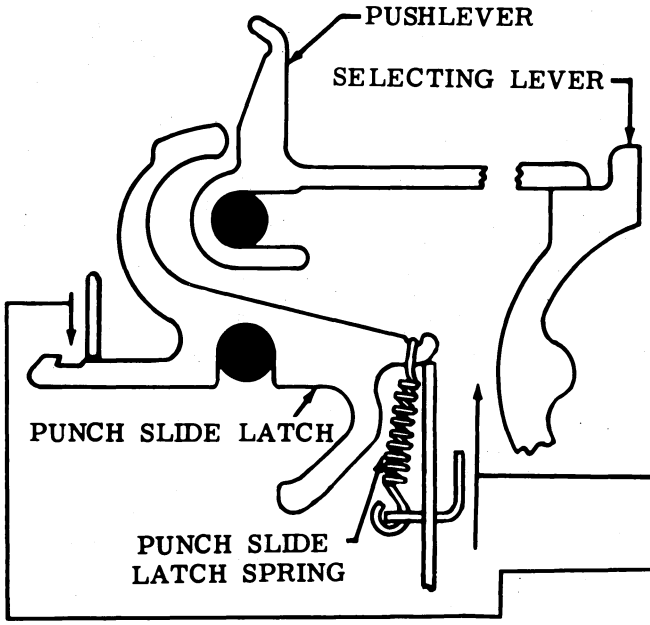


2.30 Punch Mechanism (continued)

TAPE SHOE TORSION SPRING

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





PUNCH SLIDE LATCH SPRING

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

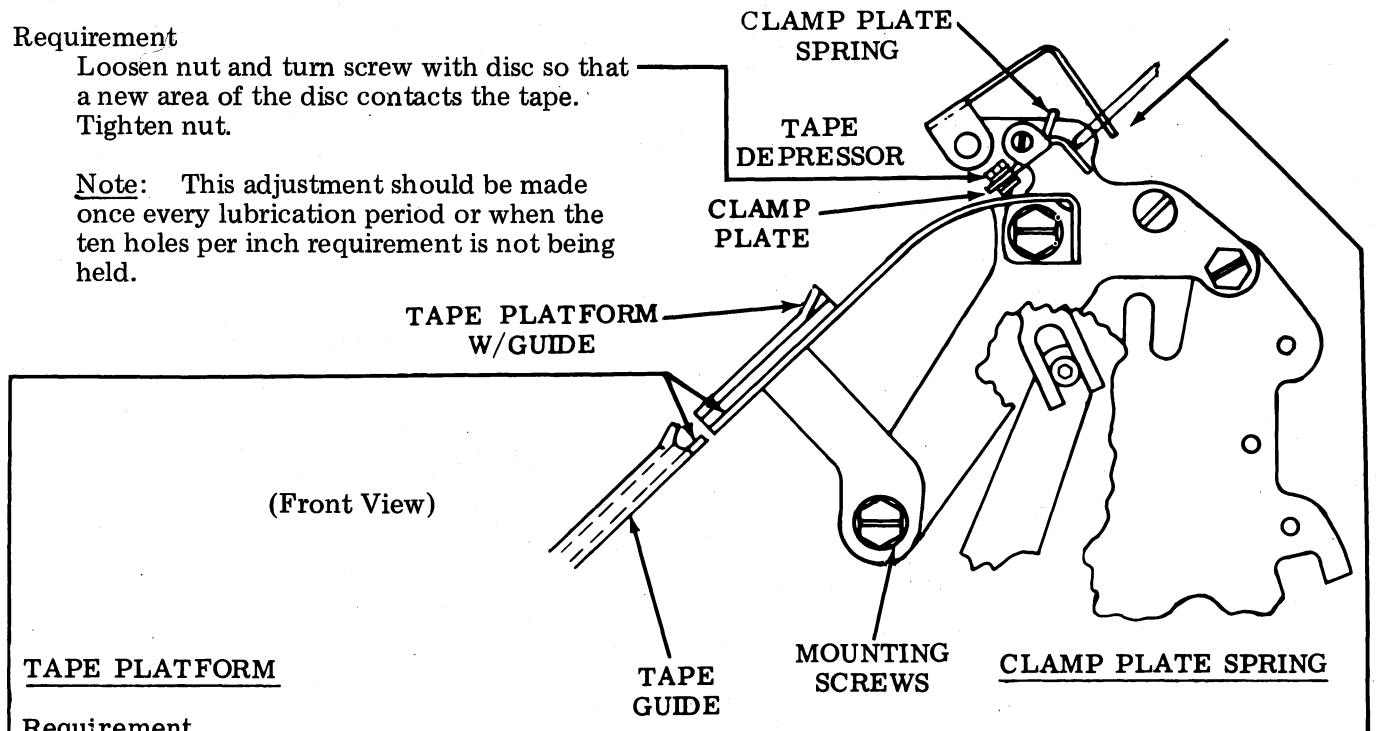
Requirement
For one-shaft unit
Min 1 oz---Max 3 oz
to start latch moving.
For two-shaft unit
Min 3/4 oz---Max 2 oz
to start latch moving.

2.31 Tape Depressor Mechanism

CLAMP PLATE SCREW WITH DISC

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

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



TAPE PLATFORM

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

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

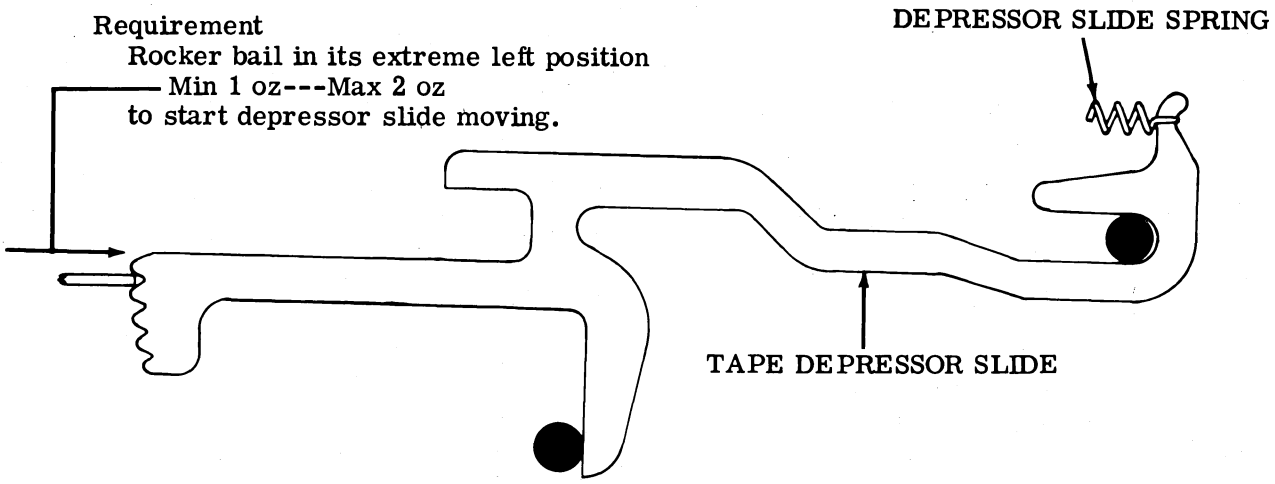
CLAMP PLATE SPRING

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

2.32 Punch Mechanism (continued)

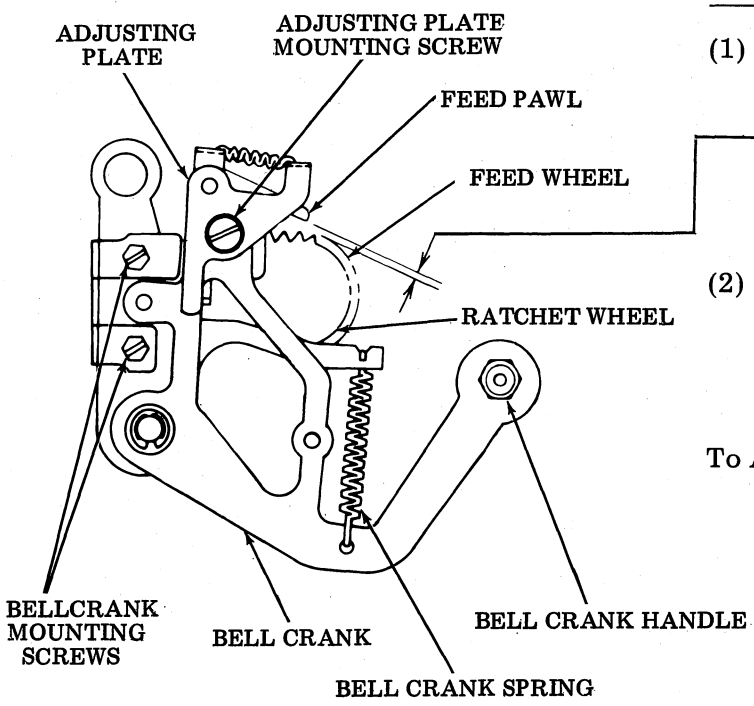
TAPE DEPRESSOR SLIDE SPRING

Requirement
Rocker bail in its extreme left position
Min 1 oz---Max 2 oz
to start depressor slide moving.



3. VARIABLE FEATURES

3.01 Backspace Mechanism



FEED PAWL CLEARANCE

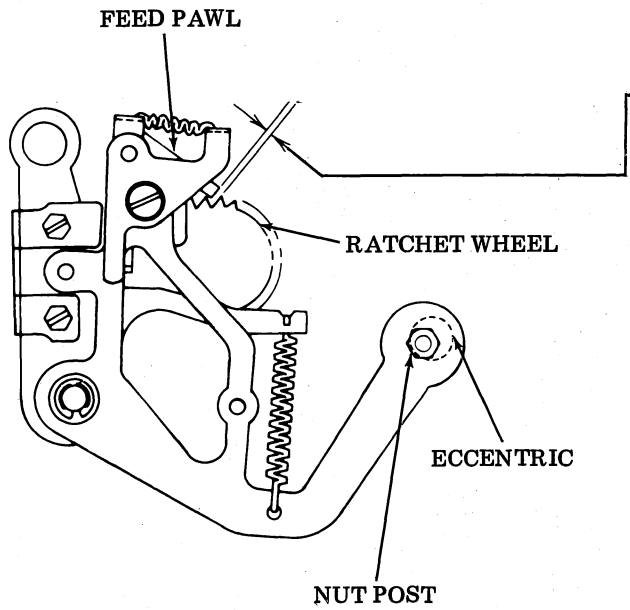
(1) Requirement (Preliminary)
With backspace bellcrank rotated clockwise
—Min 0.006 inch --- Max 0.040 inch
at point of least clearance between backspace feed pawl and first tooth.

(2) Requirement (Final)
Backspace pawl should clear first tooth as second tooth is engaged by at least 1/2 of the feed pawl engaging surface.

To Adjust
Loosen (friction tight) adjusting plate mounting screw and position plate. Tighten screw.

Note: If To Adjust procedure does not provide required clearance, loosen bellcrank mounting screws and modify bellcrank assembly position. Tighten screws.

3.02 Backspace Mechanism (continued)



FEED PAWL ECCENTRIC

(1) Requirement (Manual Backspace)
With the backspace bellcrank assembly in its operated position and the feed wheel detented back one space.
—Min some --- Max 0.003 inch clearance between the backspace ratchet tooth and the backspace feed pawl.

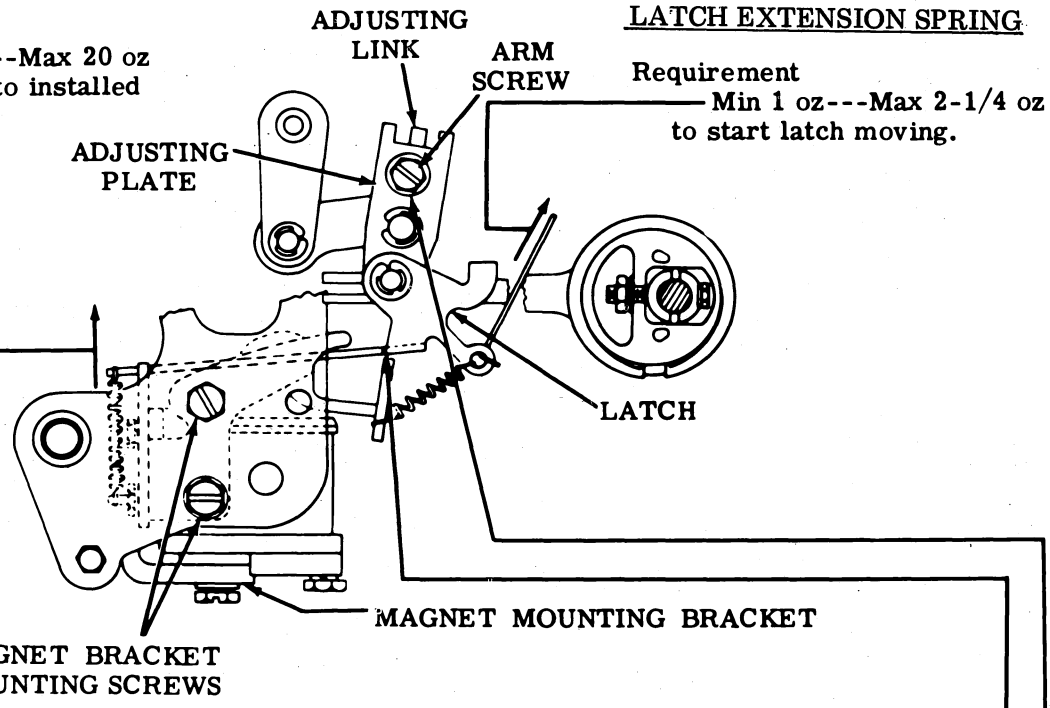
(2) Requirement (Power Drive Backspace)
With the backspace bellcrank assembly in its operated position, the high side of the eccentric should be in its uppermost position.

To Adjust
Loosen the nut post (friction tight) and rotate the eccentric with an allen wrench. Tighten the nut post.

3.03 Backspace Mechanism (continued)

ARMATURE SPRING

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



LATCH EXTENSION SPRING

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

MAGNET POSITION

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

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

FINAL MANUAL OR POWER ADJUSTMENT

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

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

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

To Adjust
On manual operated backspace mechanisms refine the FEED PAWL ECCENTRIC (3.02) adjustment. On backspace mechanisms equipped with power drive, loosen the arm adjusting screw and position the adjusting plate. Tighten the arm adjusting screw.

3.04 Backspace Mechanism (continued)

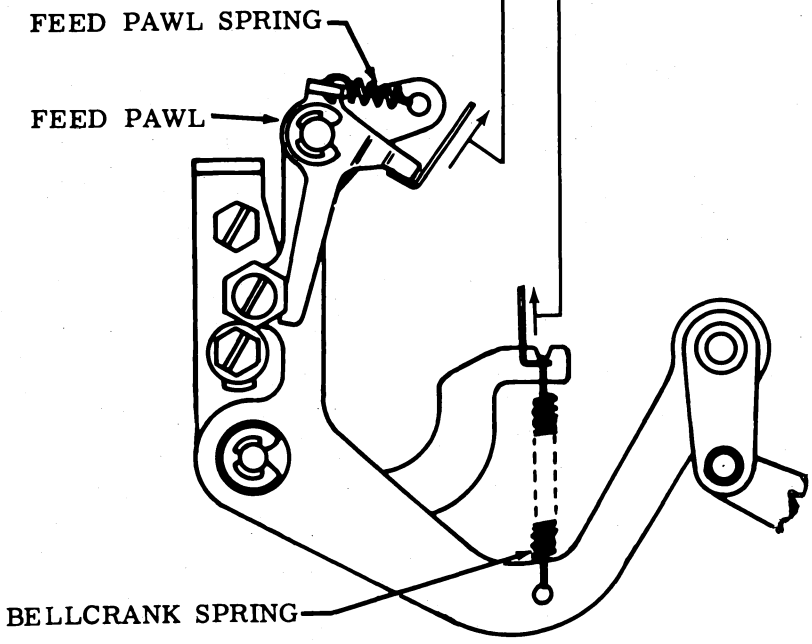
FEED PAWL SPRING

Requirement
Min 8 oz --- Max 15 oz
to start feed pawl moving.

Note: All spring tensions should be taken with the mechanism in unoperated position.

BELLCRANK SPRING

Requirement
Min 19 oz --- Max 23 oz
to pull spring to installed length.



3.05 Solenoid Operated Interfering RUBOUT Tape Feed-Out Mechanism

(A) TRIP LEVER

Requirement

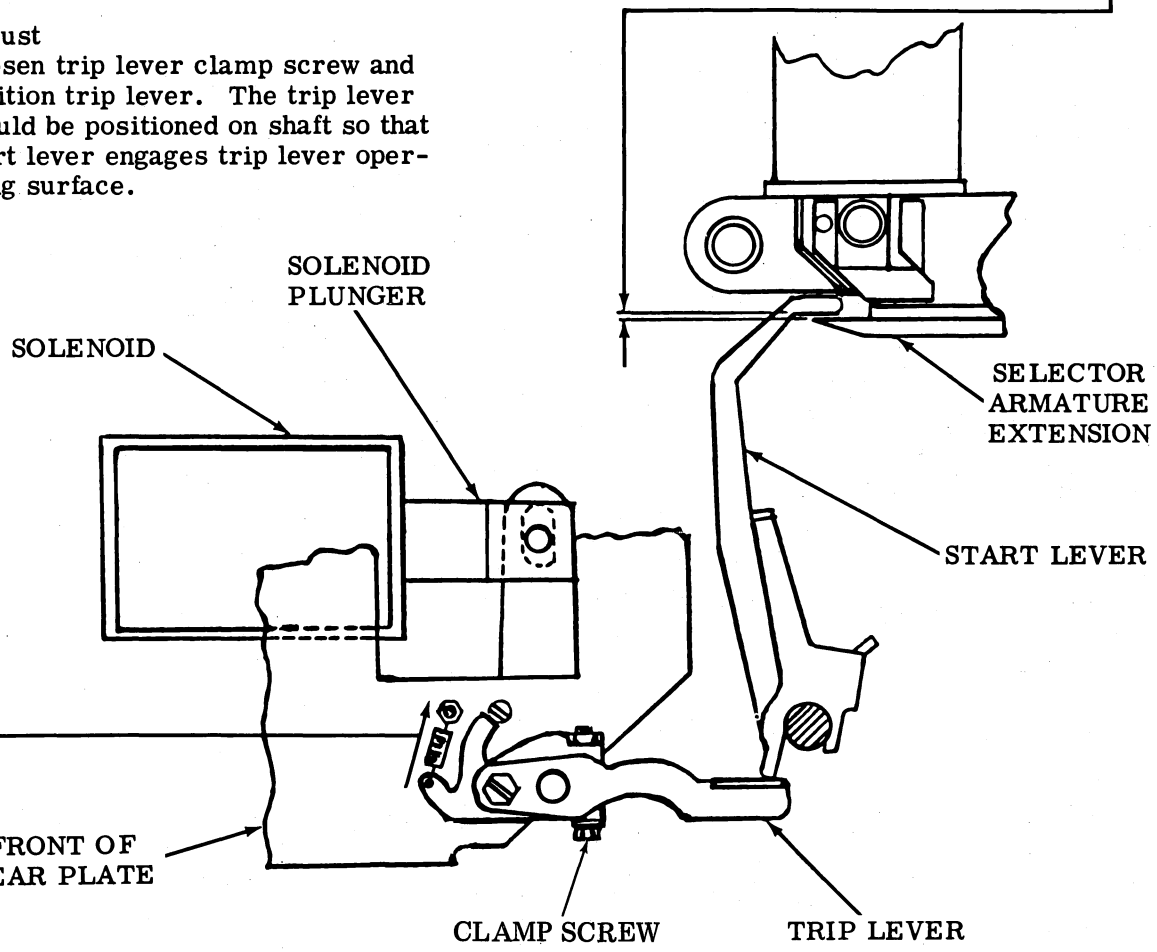
With selector cam in stop position, manually operate solenoid plunger so selector clutch is tripped. With solenoid fully seated there should be

Min some---Max 0.008 inch

clearance between top of selector armature extension and start lever at point where clearance is least.

To Adjust

Loosen trip lever clamp screw and position trip lever. The trip lever should be positioned on shaft so that start lever engages trip lever operating surface.



(B) TRIP LEVER SPRING

Requirement

Unhook trip lever spring from stop post. With trip lever resting against stop post

Min 3/4 oz---Max 2 oz

to pull spring to its installed length.