



BULLETIN 247B

ADJUSTMENTS AND LUBRICATION

MODEL 28
TYPING REPERFORATOR
AND
TAPE PRINTER SETS
(LPR & LTP)



TELETYPE[®]
CORPORATION
5555 TOUHY AVENUE, SKOKIE, ILLINOIS



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5555 TOUHY AVENUE, SKOKIE, ILLINOIS

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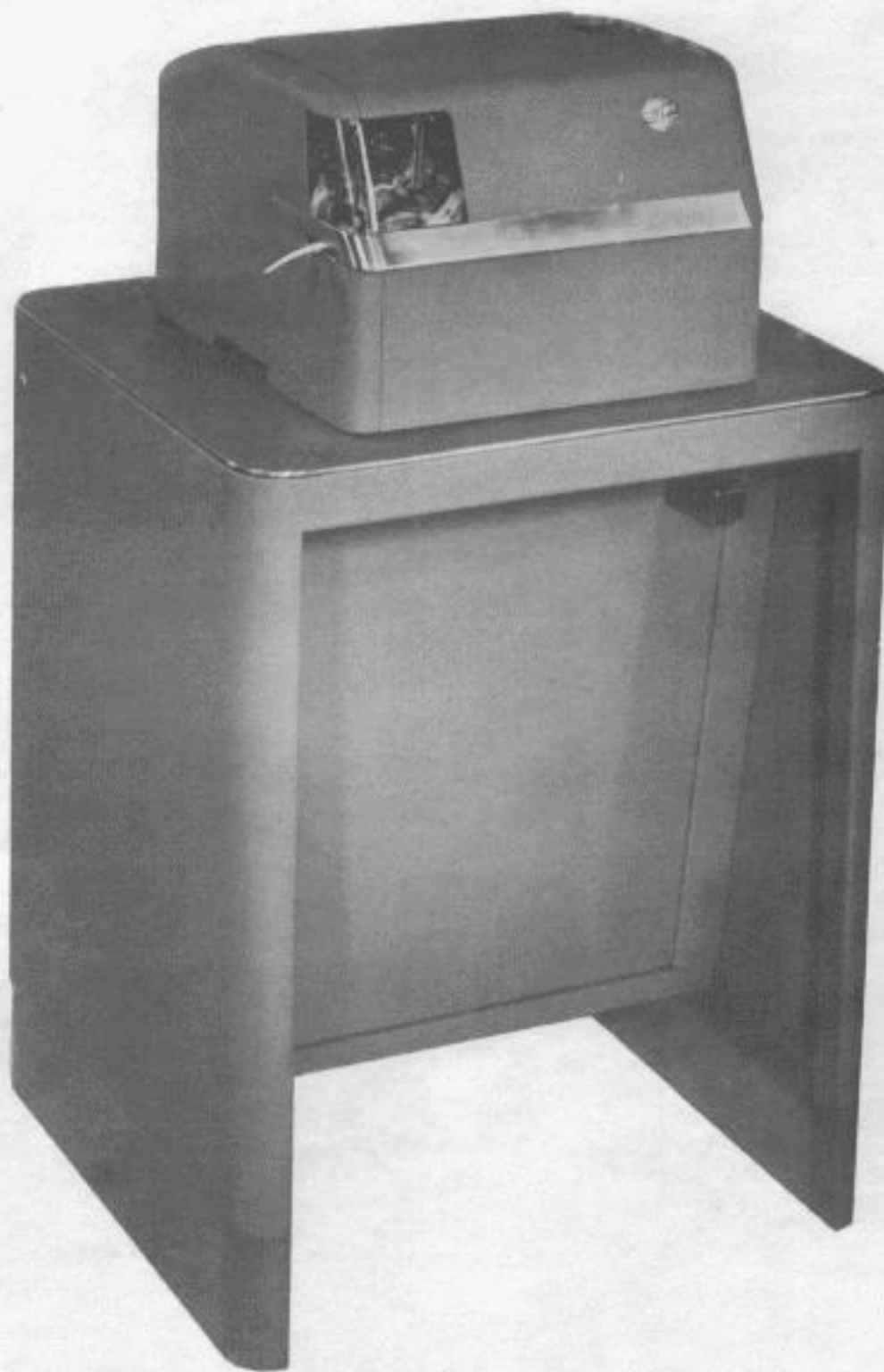
The MODEL 28 TYPING REPERFORATOR UNIT (LPR) with associated basic component units make up various combinations of TYPING REPERFORATOR SETS.

UNITS COVERED IN THIS BULLETIN

DESCRIPTION	TELETYPE CODE
TYPING REPERFORATOR	LPR
TAPE PRINTER	LTP
BASE (RECEIVE ONLY, AUXILIARY)	LRB
COVER (RECEIVE ONLY)	LRC
TABLE	LT
KEYBOARD BASE (SEND-RECEIVE TYPING REPERFORATOR SET)	LTRK
KEYBOARD BASE (SEND-RECEIVE TAPE PRINTER SET)	LTPK
COVER (SEND-RECEIVE TYPING REPERFORATOR SET)	LSRC
COVER (SEND-RECEIVE TAPE PRINTER SET)	LSRC
CABINET (MULTIPLE REPERFORATOR)	LBAC
BASE (MULTIPLE REPERFORATOR)	LMRB
MOTOR	LMU
GEAR SETS (Refer to Parts Bulletin 1167B)	

ASSOCIATED BULLETINS AND SPECIFICATIONS

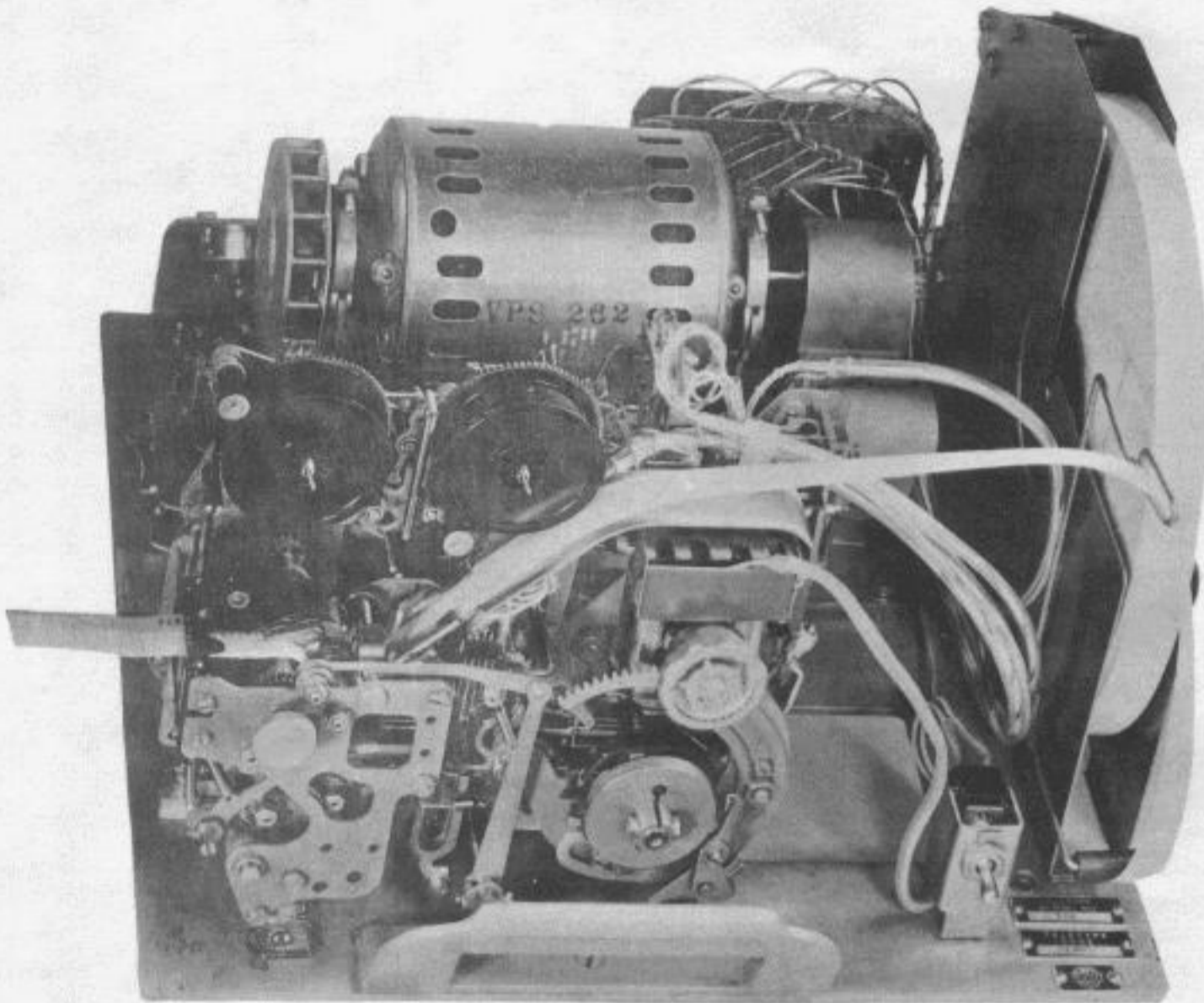
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INSTALLATION (MULTIPLE MOUNTED TYPING REPERFORATORS INTO A RECEIVING OR MONITORING CABINET)	50010S



MODEL 28 RECEIVING-ONLY TYPING REPERFORATOR SET

consists of

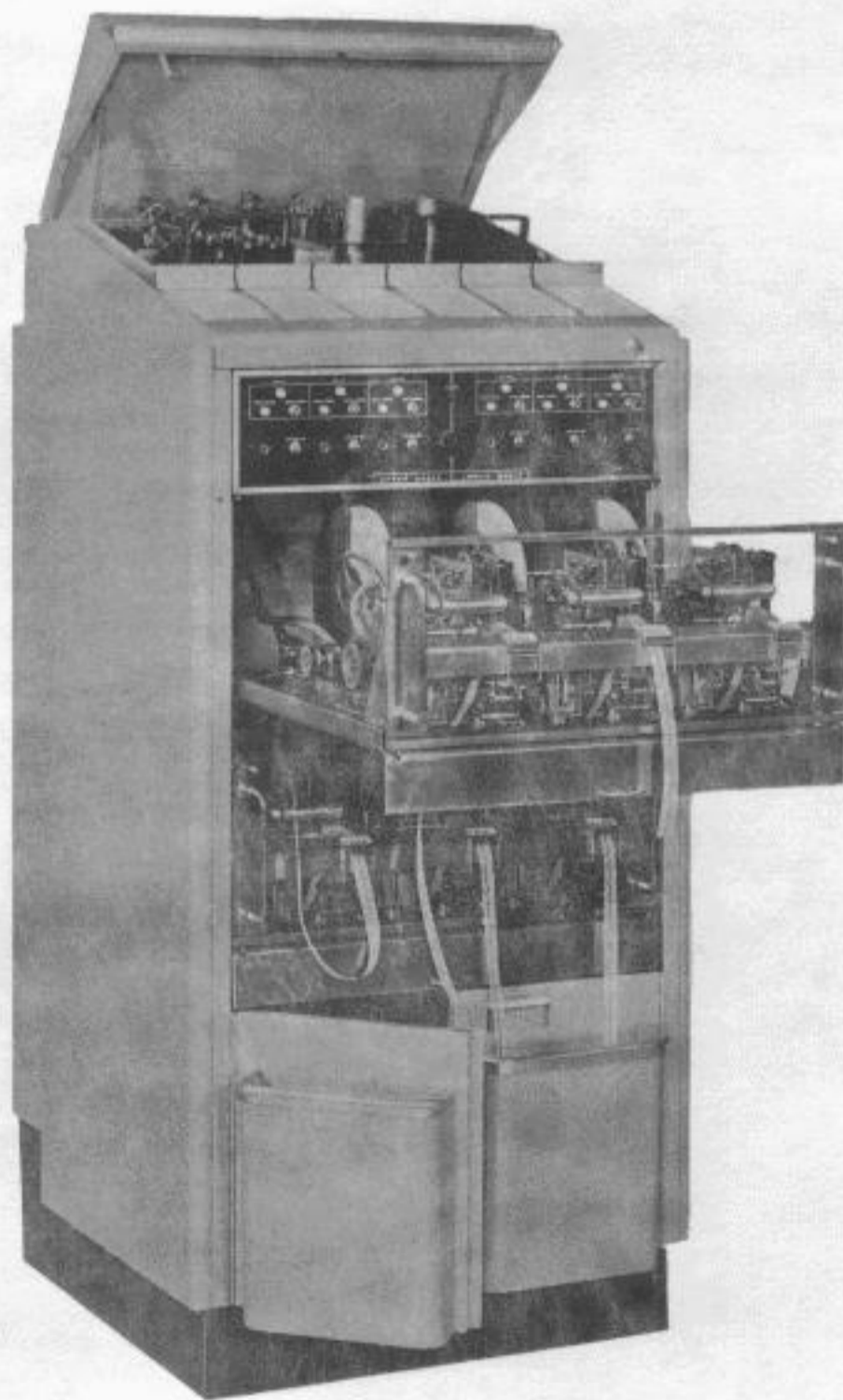
TYPING REPERFORATOR UNIT (LPR), REPERFORATOR BASE (LRB), MOTOR UNIT (LMU),
REPERFORATOR COVER (LRC), REPERFORATOR TABLE (LT) and ELECTRICAL SERVICE UNIT (LESU)



MODEL 28 RECEIVING-ONLY TYPING REPERFORATOR SET (Set illustrated for rack or cabinet mounting)

consists of

TYPING REPERFORATOR UNIT (LPR), REPERFORATOR BASE (LRB) and MOTOR UNIT (LMU)



MODEL 28 MULTIPLE TYPING REPERFORATOR SET

consists of

TYPING REPERFORATOR UNITS (LPR), MULTIPLE REPERFORATOR BASES (LMRB),
MOTOR UNITS (LMU) AND MULTIPLE REPERFORATOR CABINET (LBAC)

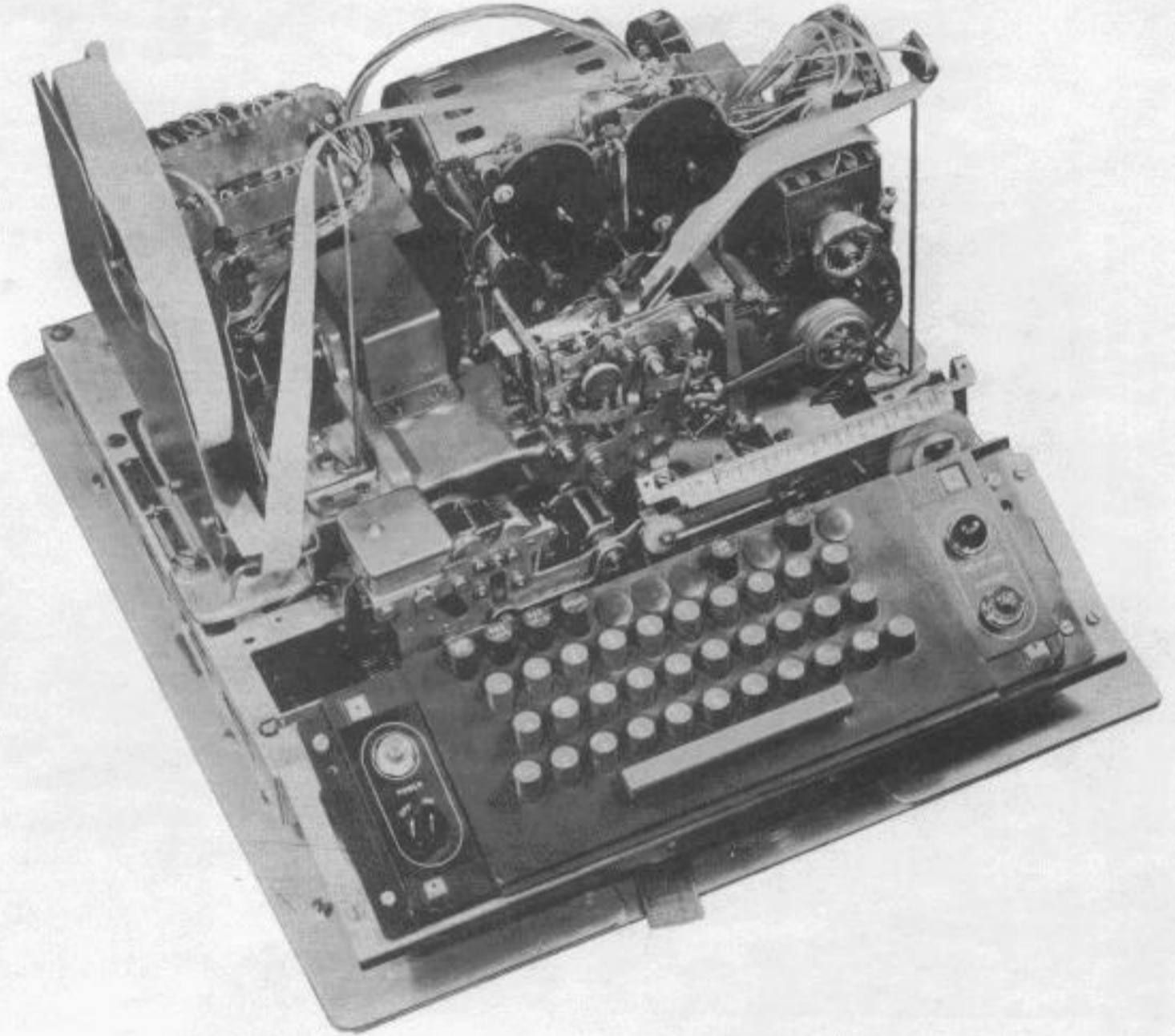


MODEL 28 SEND-RECEIVE TYPING REPERFORATOR SET

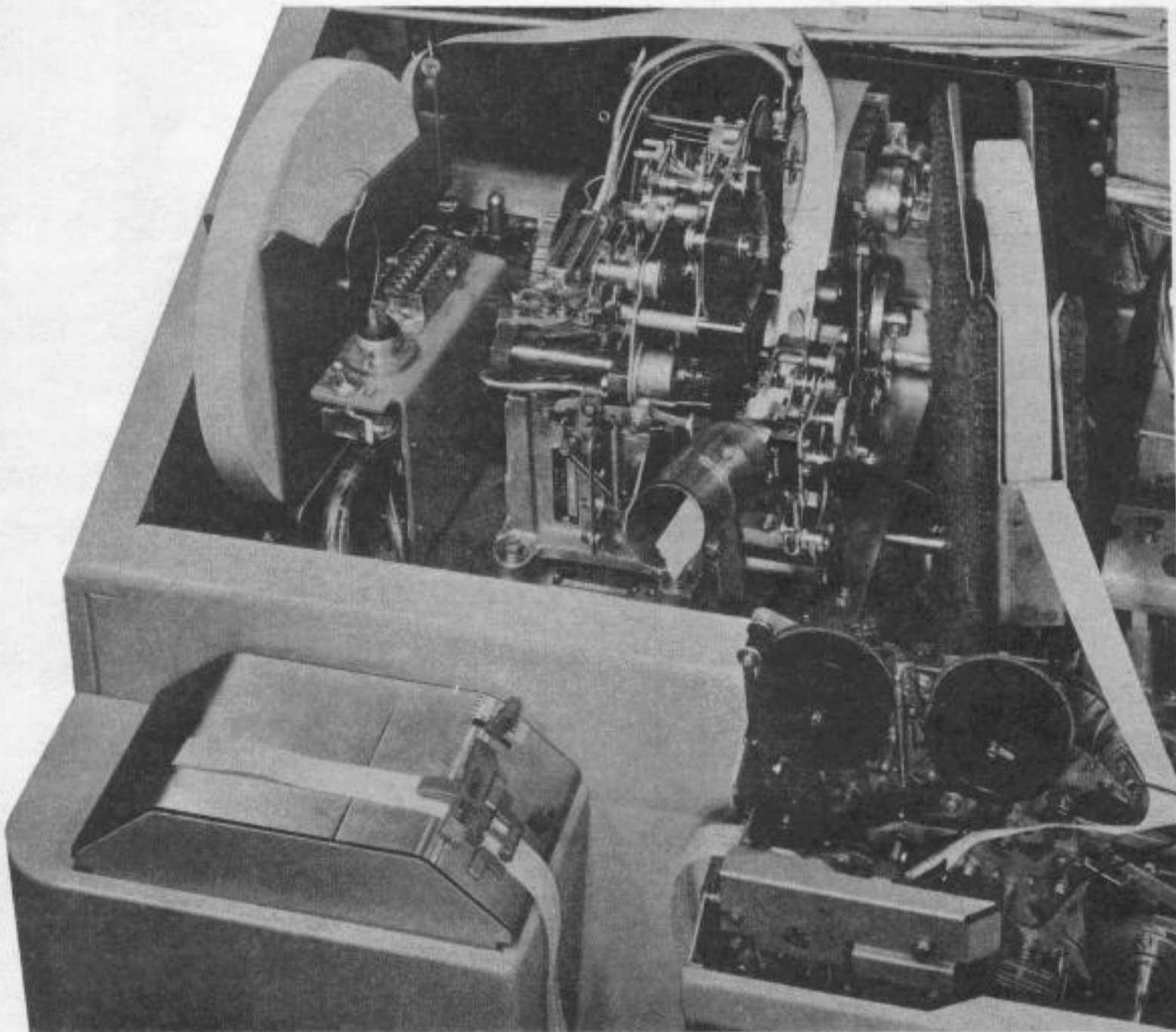
CONSISTS OF

SEND-RECEIVE KEYBOARD BASE (LTRK), TYPING REPERFORATOR UNIT (LPR),

COVER (LSRC) AND MOTOR UNIT (LMU)



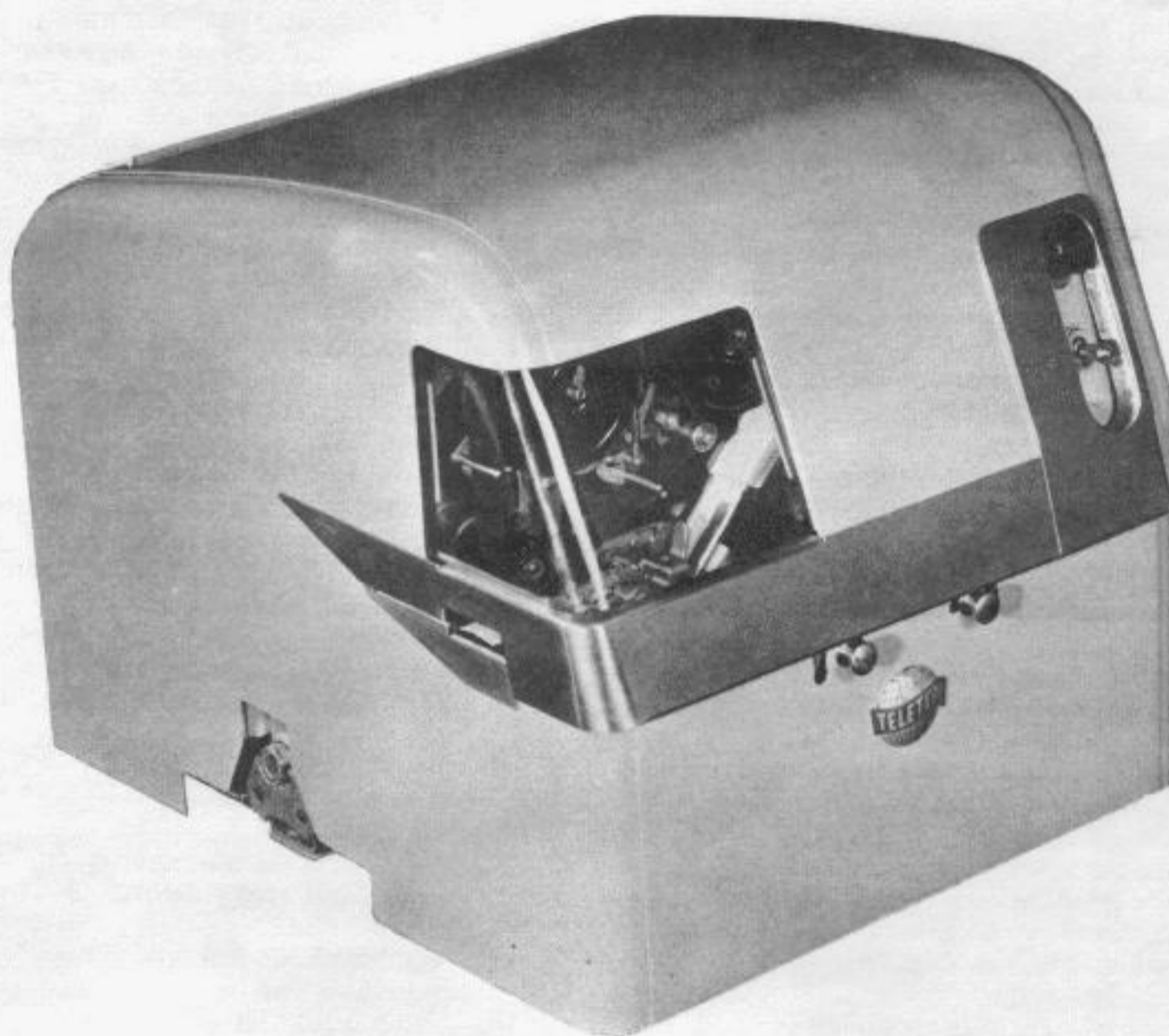
MODEL 28 SEND-RECEIVE TYPING REPERFORATOR SET
(ILLUSTRATED WITHOUT COVER)



MODEL 28 AUXILIARY TYPING REPERFORATOR SET

(SET ILLUSTRATED AS IT IS MOUNTED IN THE MODEL 28 AUTOMATIC SEND-RECEIVE CABINET)

CONSISTS OF TYPING REPERFORATOR UNIT (LPR), REPERFORATOR BASE (LRB), MOTOR UNIT (LMU)



MODEL 28 COMPACT RECEIVING - ONLY TYPING REPERFORATOR SET

consists of

TYPING REPERFORATOR UNIT (LPR), REPERFORATOR BASE (LRB), MOTOR UNIT (LMU) AND COVER (LRC)
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SECTION 5
EARLIER DESIGN MECHANISMS

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SECTION 1
ADJUSTMENTS

1. INTRODUCTION

a. This bulletin provides maintenance information for the Teletype Model 28 Send-Receive and Receive-Only types of Typing Reperforator Equipment and the Model 28 Send-Receive Tape Printer Set. It is divided into five sections which cover adjustments, variable features, lubrication, disassembly and earlier design, respectively.

b. It is assumed that the elements depicted in the illustrations which appear throughout the bulletin are being viewed from a position in front of the equipment, unless the illustrations are specifically labeled otherwise. In the line drawings, pivot points are shown by circles or ellipses that are solid black to indicate fixed points and cross-hatched to indicate floating points. References in the text to "left" or "right" designate the viewers left or right as he faces the front of the equipment.

2. GENERAL

a. In the adjustments and spring tensions covered in this section, location of clearances, position of parts and point and angle of scale applications are illustrated by drawings. Requirements and procedures are set forth in the texts that accompany the drawings. The sequence of the adjustments is that which should be followed when complete readjustment of the Set is undertaken. The letters of the alphabet in parenthesis which precede the texts indicate the sequence to be followed on the individual pages. A procedure should be read all the way through before making the adjustment or testing the spring tension.

b. Tools required to make the adjustments and test the spring tensions are not supplied with the equipment, but are listed in Teletype Bulletin 1124B. If parts are removed, all adjustments which the removal of these parts might facilitate should be made before the parts are replaced. When a part mounted on shims is removed, the number of shims at each mounting screw should be noted so that identical pile ups can be made when the part is replaced. Unless it is specifically stated to the contrary, after an adjustment has been made, all nuts and screws that were loosened should be tightened.

c. The spring tensions given in this bulletin are indications, not exact values, and should be checked with Teletype scales in the positions shown in the drawings. Springs which do not meet the requirements and for which there are no adjusting procedures should be discarded and

replaced by new springs.

d. 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.

e. The viewer is facing the front of the typing reperforator unit when the selecting mechanism is on his right and the perforator mechanism is on his left as shown on page D. The unit is in its unoperated, or stop, condition when it is not under power and both clutches are disengaged. It is in its idling condition when it is under power and the clutches are disengaged (steady marking of signal line). The unit is in the letters condition when the typewheel rack is in its upper position, the numerals appear on the top half of the typewheel and the letters push bar is in its extreme right position. The unit is in the figures condition when the typewheel rack is in its lower position, the letters appear on the top half of the typewheel and the figures push bar is in its extreme right position. The unit can be placed in the letters or figures condition by selecting the letters or figures code combinations (see paragraph g. below).

f. When fully disengaged, either of the two steel clutches on the typing reperforator unit or the clutch on the keyboard signal generator are latched in their stop position between a trip lever (or stop arm), which bears against a shoe lever, and a latch lever which seats in a notch in a clutch cam disk (see Figure 1-10). The main shaft will then turn freely without the clutch shoes dragging. When the clutch is engaged, or tripped, the shoe lever and a cam disk stop lug are moved apart, and the clutch shoes are wedged against the drum so that the clutch turns in unison with the shaft (see Figure 1-2).

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 disk stop lug and turn the disk in the normal direction of shaft rotation until the latch lever seats in its notch in the disk.

g. To Manually Operate the Typing Reperforator Unit. Attach an armature clip to the selecting mechanism as follows: carefully place

the flat-formed portion of the clip over the armature between the pole pieces, lock the extruded projection under the armature (see Figure 1-6) and hook the clip's other end over the bakelite guard. The spring pressure of the clip will hold the armature in its marking (attracted) position. Rotate the main shaft counterclockwise until the clutches reach their stop position. Fully disengage the clutches as instructed in paragraph 2.f. above. Release the armature momentarily to allow the selecting clutch to engage. Turn the

main shaft slowly until all push levers have fallen to the left of their selecting levers (see Figure 1-12). Strip the push levers corresponding to the spacing elements of the code combination to be processed from their selecting levers and allow them to move to the right. The push levers and selecting levers are numbered in succession 1 to 5 from rear to front. The main shaft can then be rotated until the rear condition is set up or the character or function to be selected is cleared through the unit.

3. TYPING REPERFORATOR UNIT

NOTE
THE FOLLOWING ADJUSTMENTS PERTAIN TO ALL TYPING REPERFORATORS UNLESS OTHERWISE SPECIFIED.

TO FACILITATE ADJUSTMENTS, REMOVE TYPING REPERFORATOR UNIT FROM BASE AS INSTRUCTED IN PARAGRAPH 4. a OF SECTION 2.

(A) CLUTCH SHOE LEVER

NOTE:

THIS ADJUSTMENT SHOULD BE MADE FOR BOTH SELECTING AND FUNCTION CLUTCHES.

TO CHECK

- (1) DISENGAGE CLUTCH. MEASURE CLEARANCE.
- (2) 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 DISK. ROTATE DISK 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.

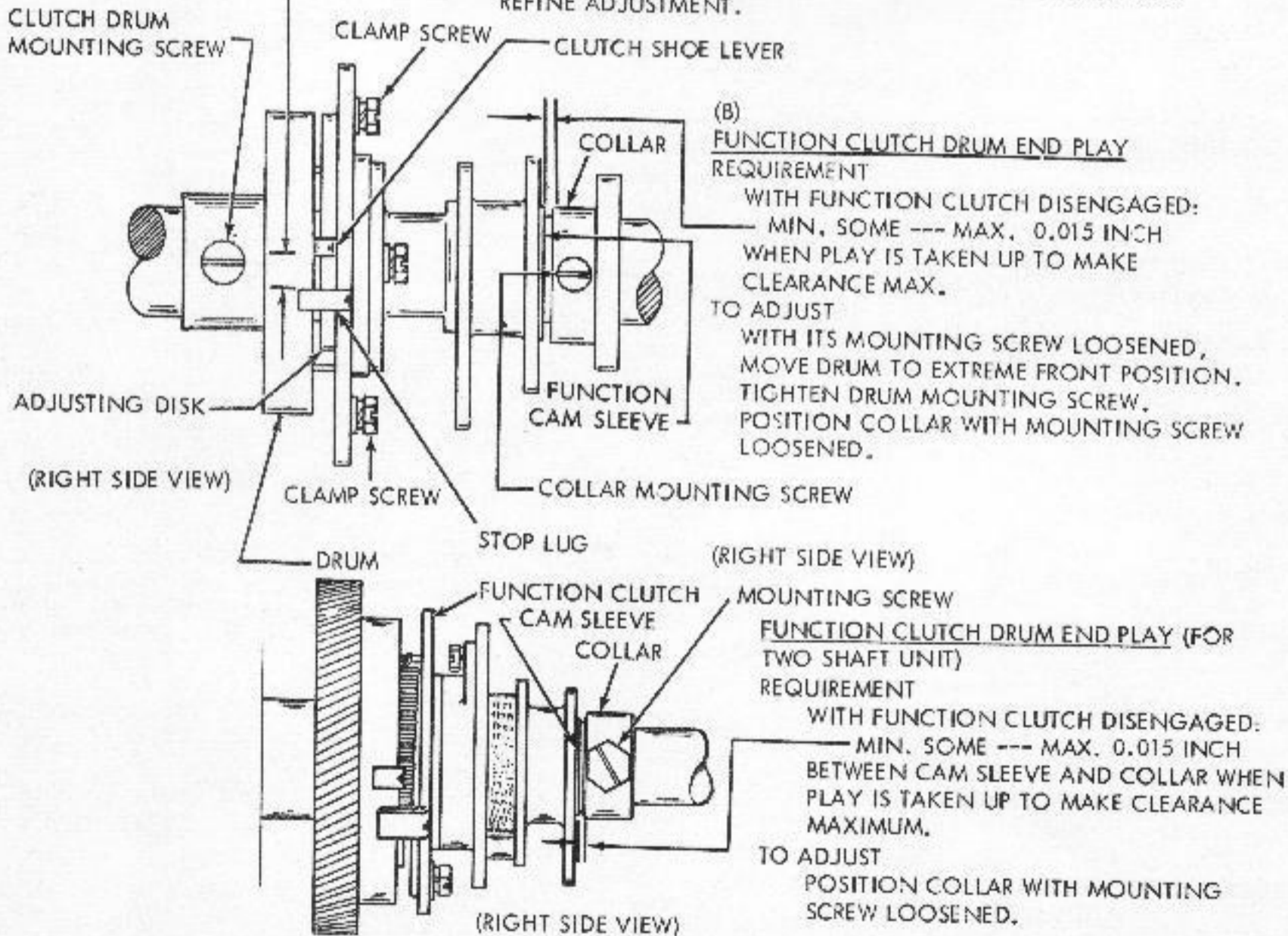


FIGURE I-1. SELECTING AND FUNCTION CAM CLUTCHES

NOTE:
THESE SPRING TENSIONS APPLY TO BOTH CLUTCHES.

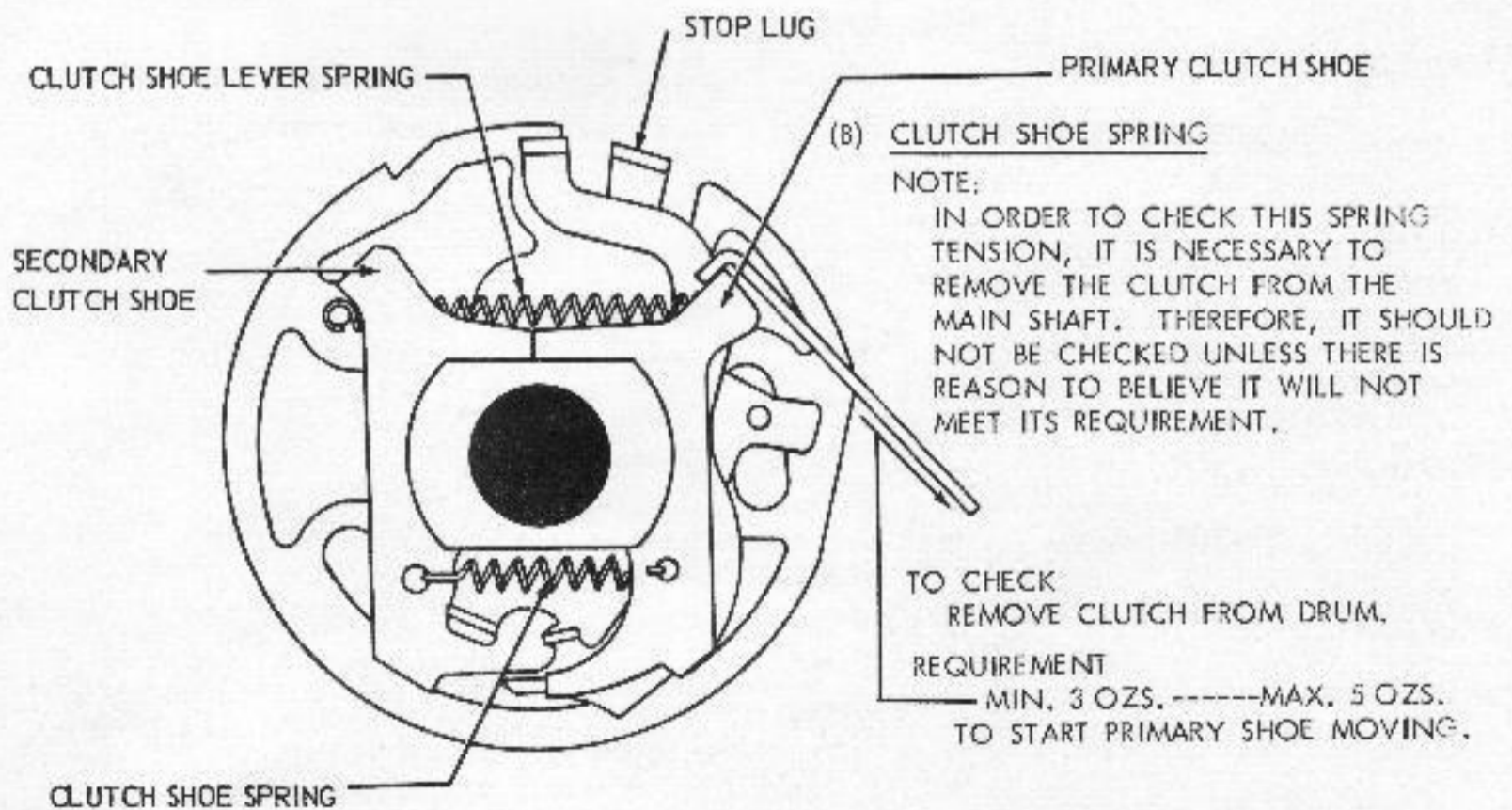
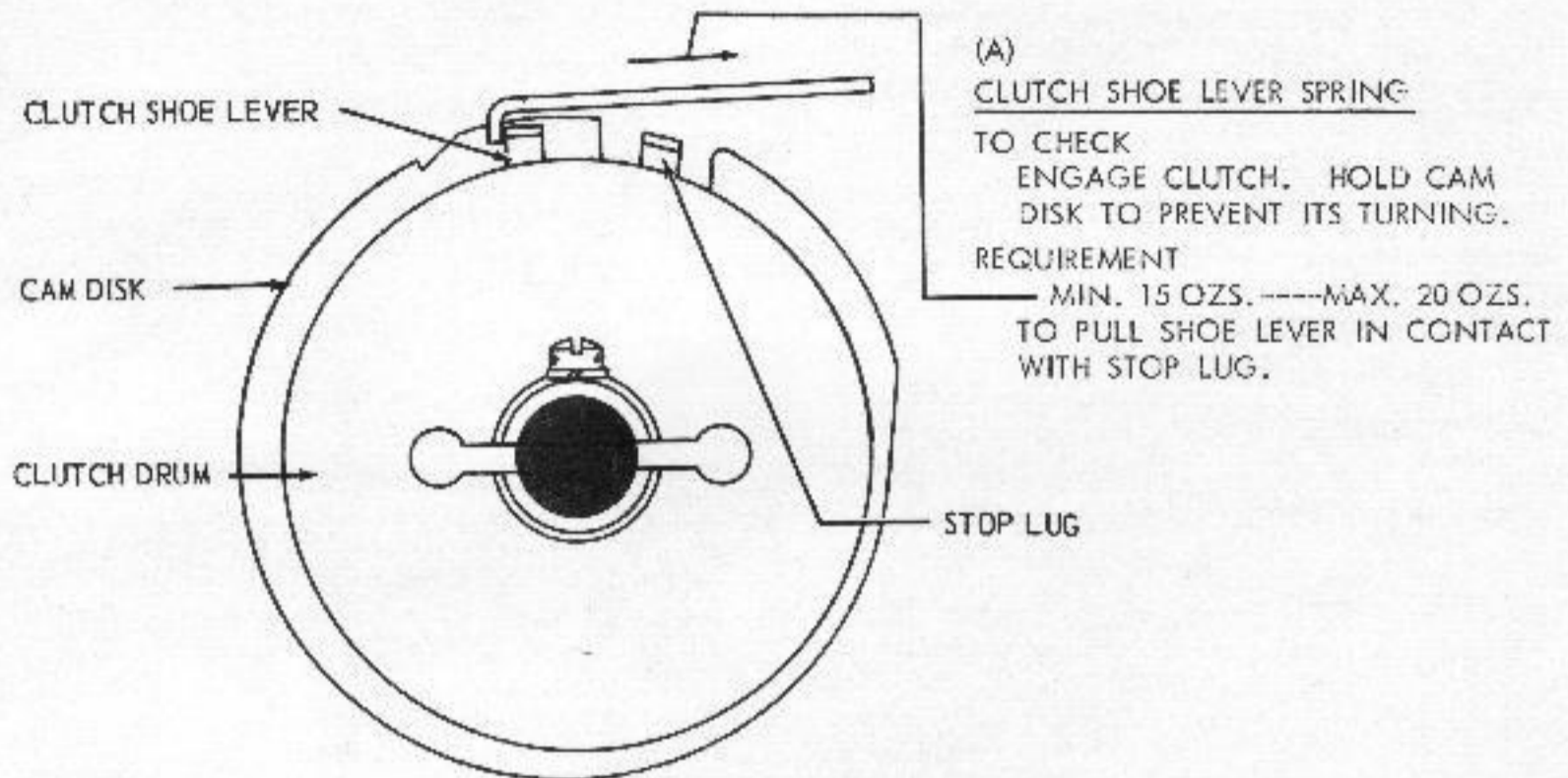


FIGURE 1-2. CLUTCH ASSEMBLIES

NOTE

TO FACILITATE MAKING THE FOLLOWING ADJUSTMENTS, REMOVE THE RANGE FINDER AND SELECTOR MAGNET ASSEMBLIES. TO INSURE BETTER OPERATION, PULL A PIECE OF KS 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 ARMATURE.

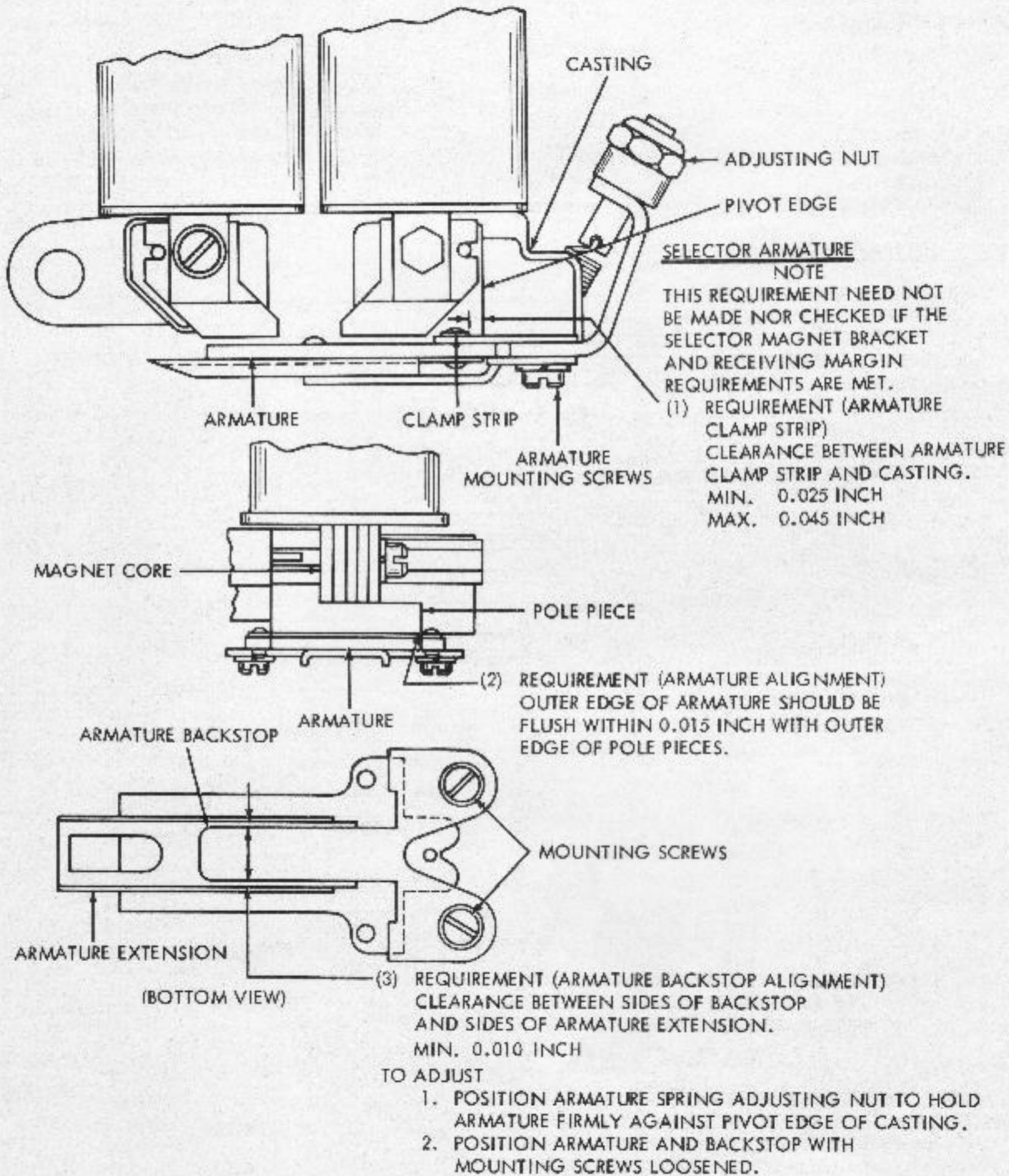


FIGURE 1-3. SELECTING MECHANISM

SELECTOR ARMATURE SPRING

(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH SINGLE ANTI-FREEZE BUTTON ONLY).

REQUIREMENT (PRELIMINARY)

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 SHALL REQUIRE THE FOLLOWING TENSIONS TO MOVE ARMATURE TO MARKING POSITION:

0.060 AMPERES

MIN. 2-1/2 OZS. --- MAX. 3 OZS.

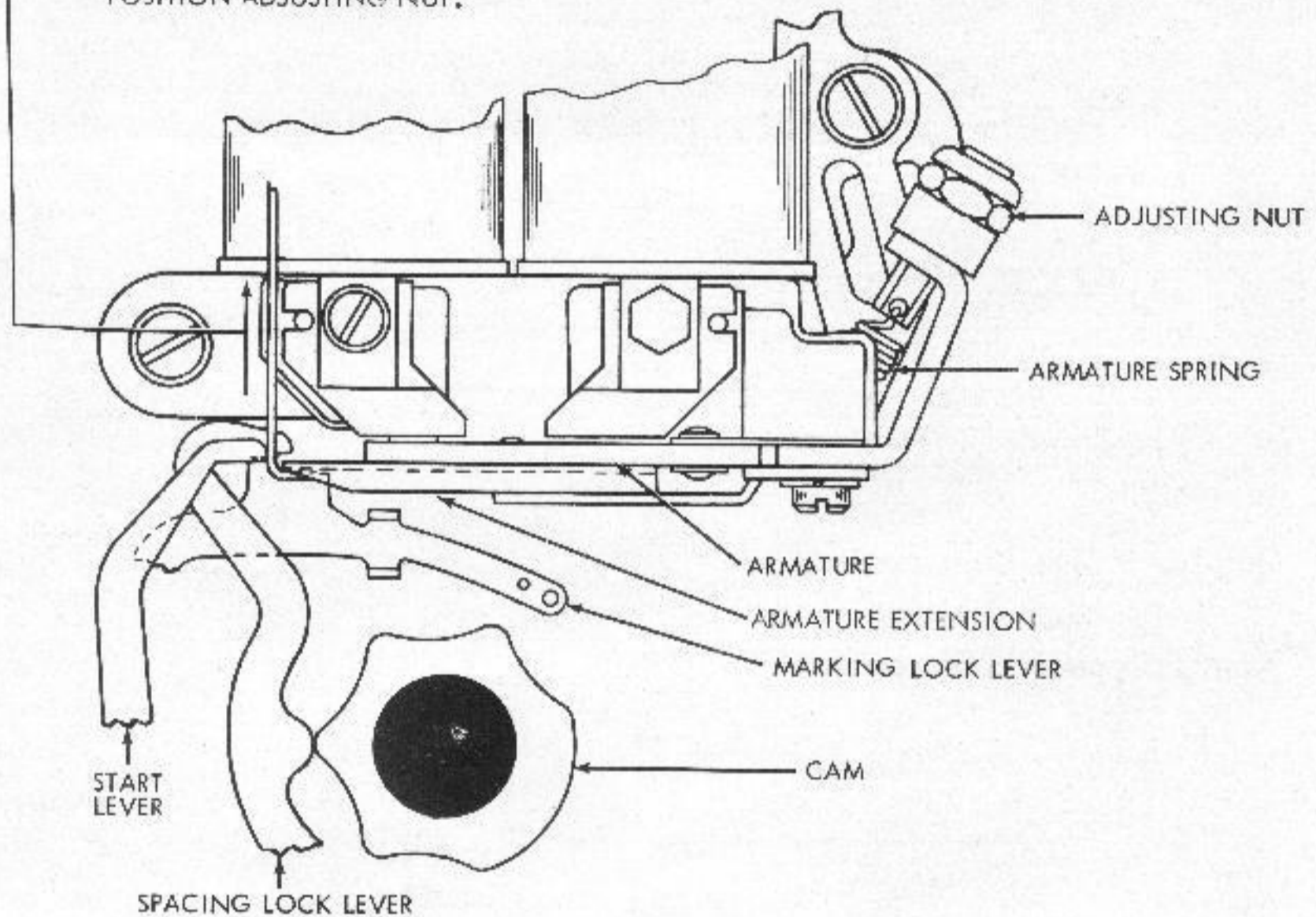
0.020 AMPERES

MIN. 1-1/2 OZS. --- MAX. 2 OZS.

NOTE

THIS SPRING CAN BE ADJUSTED FOR MAXIMUM SELECTOR PERFORMANCE ONLY WHEN PRINTER IS CONNECTED TO THE SPECIFIC CIRCUIT OVER WHICH IT IS TO OPERATE UNDER SERVICE CONDITIONS. SINCE THERE ARE SEVERAL OPERATING SPEEDS AND SINCE CIRCUITS VARY WIDELY, IT IS IMPOSSIBLE TO ADJUST SPRING FOR MAXIMUM PERFORMANCE AT THE FACTORY. THE FOREGOING SPRING TENSION REQUIREMENT IS GIVEN TO PERMIT OPERATION PRIOR TO MEASUREMENT OF RECEIVING MARGINS. READJUSTMENT MADE TO OBTAIN SATISFACTORY RECEIVING MARGIN SHOULD NOT BE DISTURBED IN ORDER TO MEET REQUIREMENTS OF THIS ADJUSTMENT.

TO ADJUST
POSITION ADJUSTING NUT.



REQUIREMENT (FINAL)

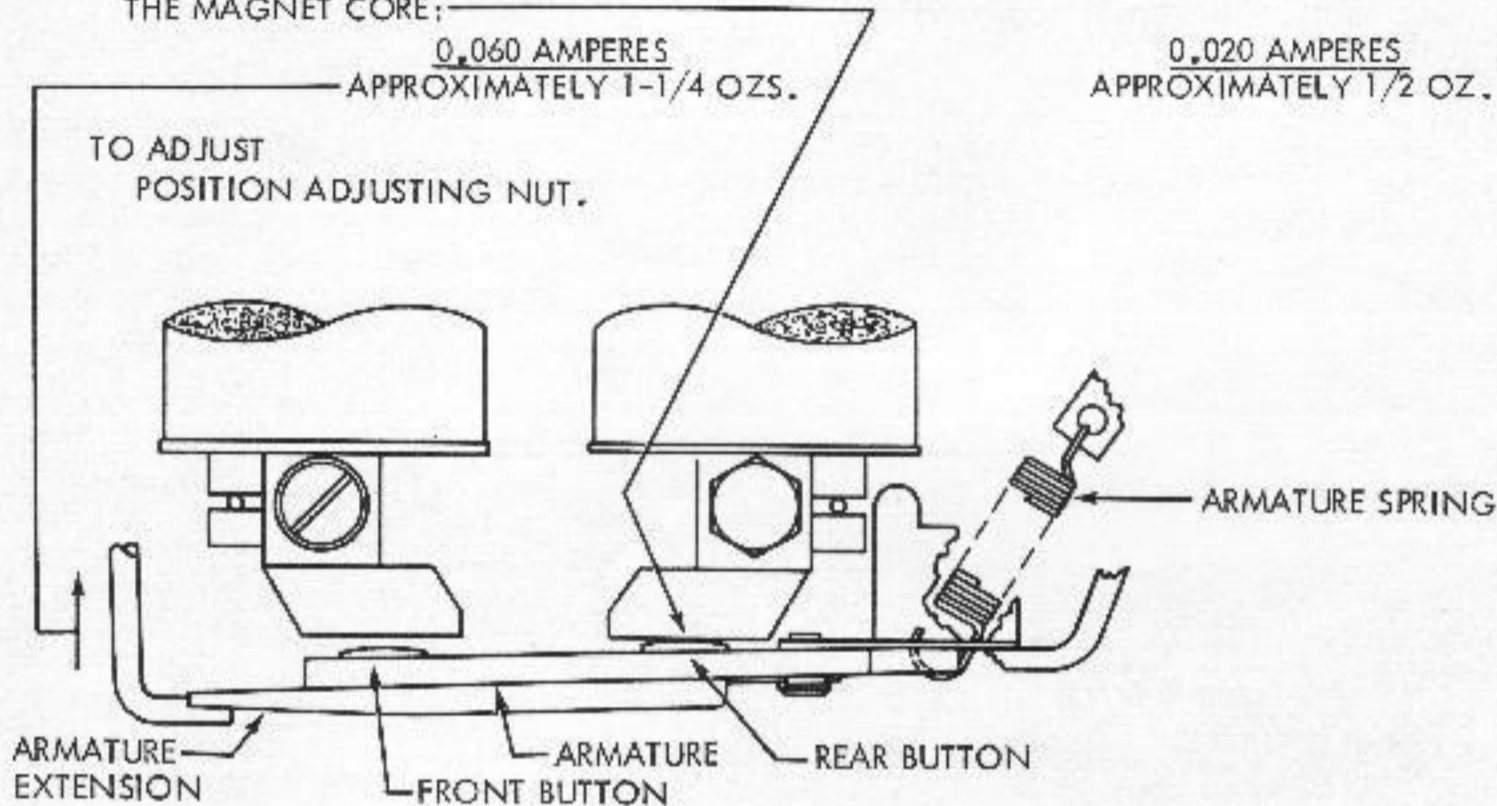
SEE SELECTOR RECEIVING MARGIN ADJUSTMENT
FIGURE 1-11.

FIGURE 1-4. SELECTING MECHANISM

SELECTOR ARMATURE SPRING

(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH TWO ANTI-FREEZE BUTTONS ONLY).
 REQUIREMENT (PRELIMINARY)

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 SHALL REQUIRE APPROXIMATELY THE FOLLOWING TENSIONS TO MOVE THE REAR ANTI-FREEZE BUTTON AGAINST THE MAGNET CORE:



SELECTOR ARMATURE SPRING
 REQUIREMENT (FINAL)

WHEN A DISTORTION TEST SET IS AVAILABLE, THE SELECTOR ARMATURE SPRING TENSION SHOULD BE REFINED, IF NECESSARY, TO OBTAIN SATISFACTORY RECEIVING MARGINS. THE FRONT ANTI-FREEZE BUTTON MUST CONTACT THE MAGNET CORE WHEN THE MAGNET COILS ARE ENERGIZED.

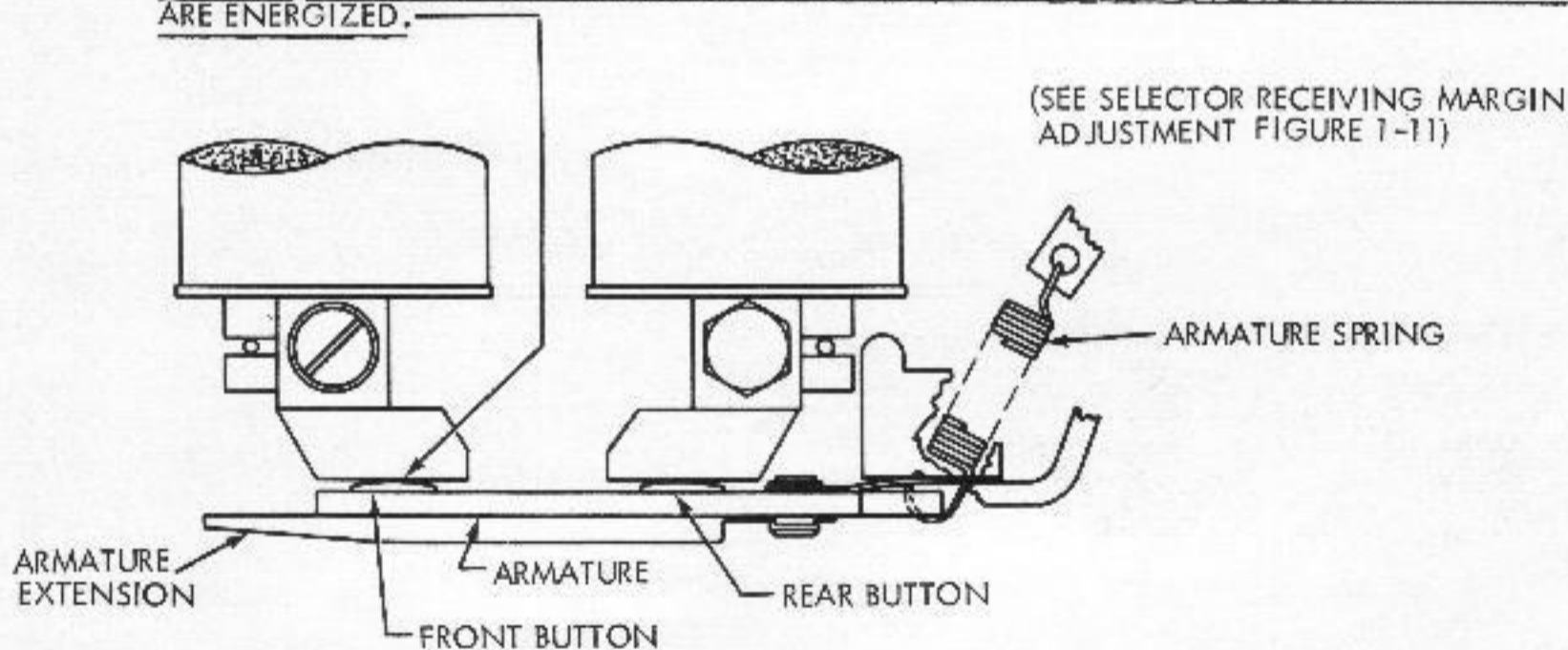


FIGURE 1-5. SELECTING MECHANISM

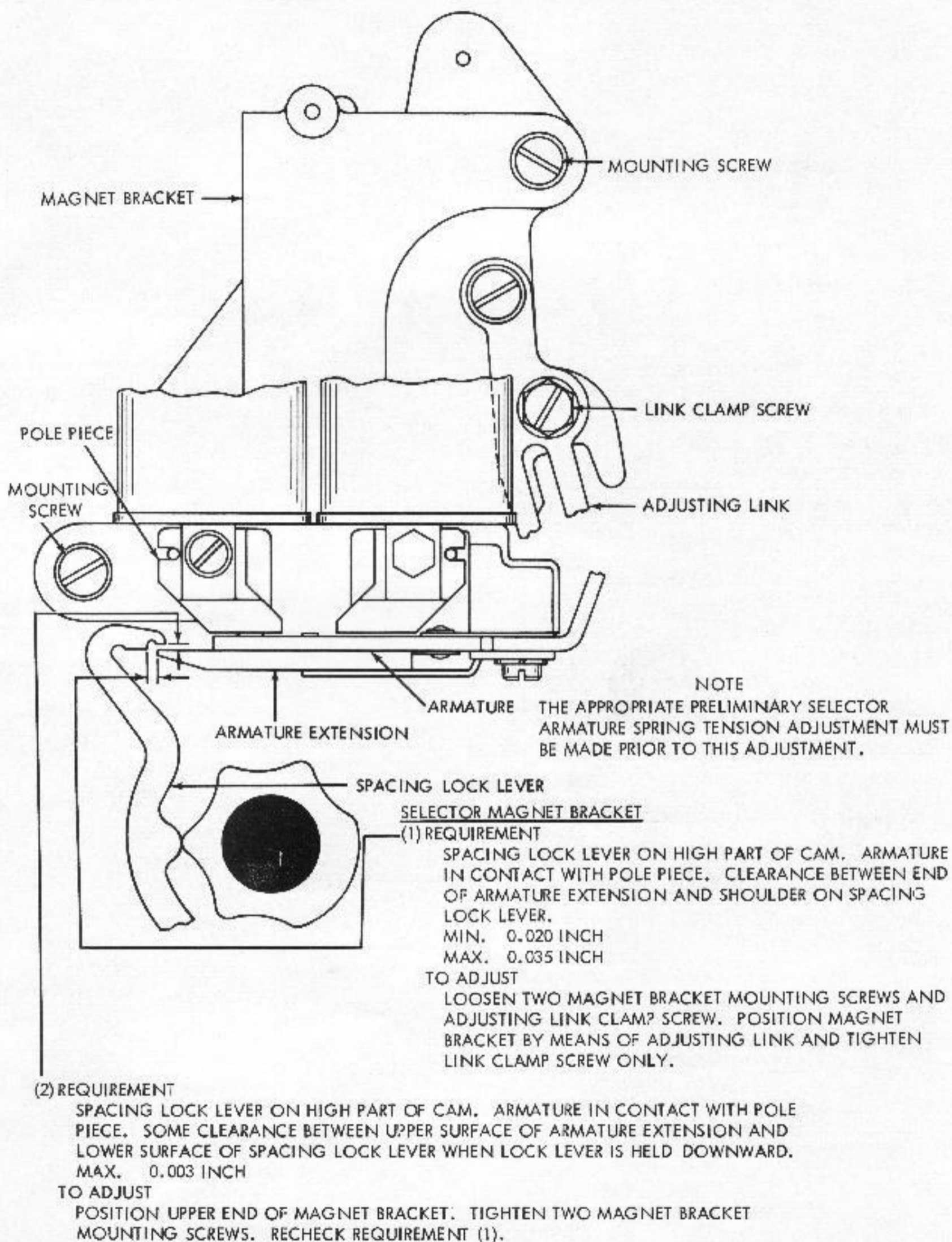
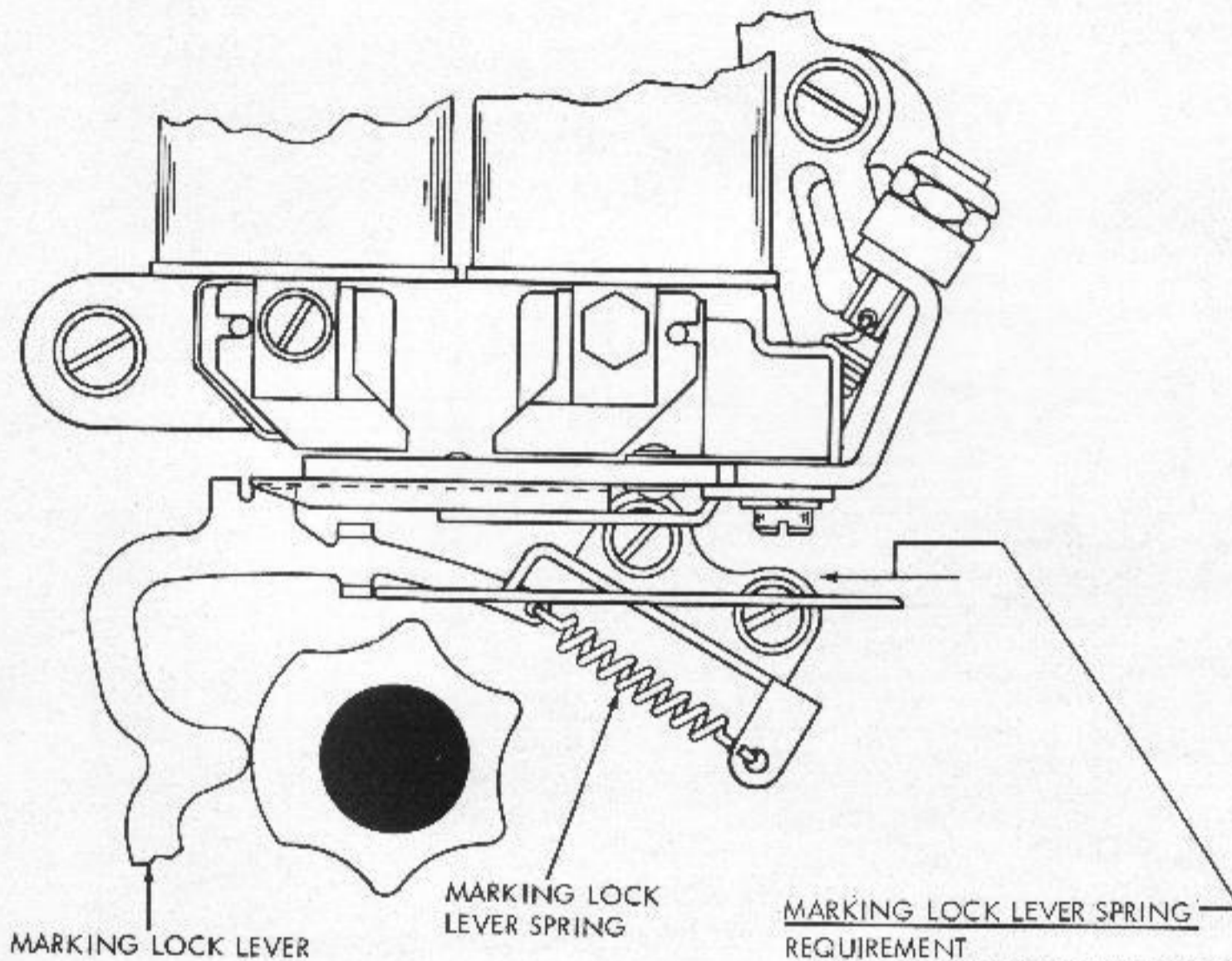


FIGURE 1-6. SELECTING MECHANISM



MARKING LOCK LEVER SPRING
REQUIREMENT

LETTERS COMBINATION SELECTED, MAIN
SHAFT ROTATED UNTIL SELECTOR CLUTCH
IS DISENGAGED. PUSH SCALE APPLIED
TO LOWER EXTENSION OF LOCK LEVER.
MIN. 1-1/2 OZS.
MAX. 3 OZS.
TO START LEVER MOVING.

FIGURE 1-7. SELECTING MECHANISM

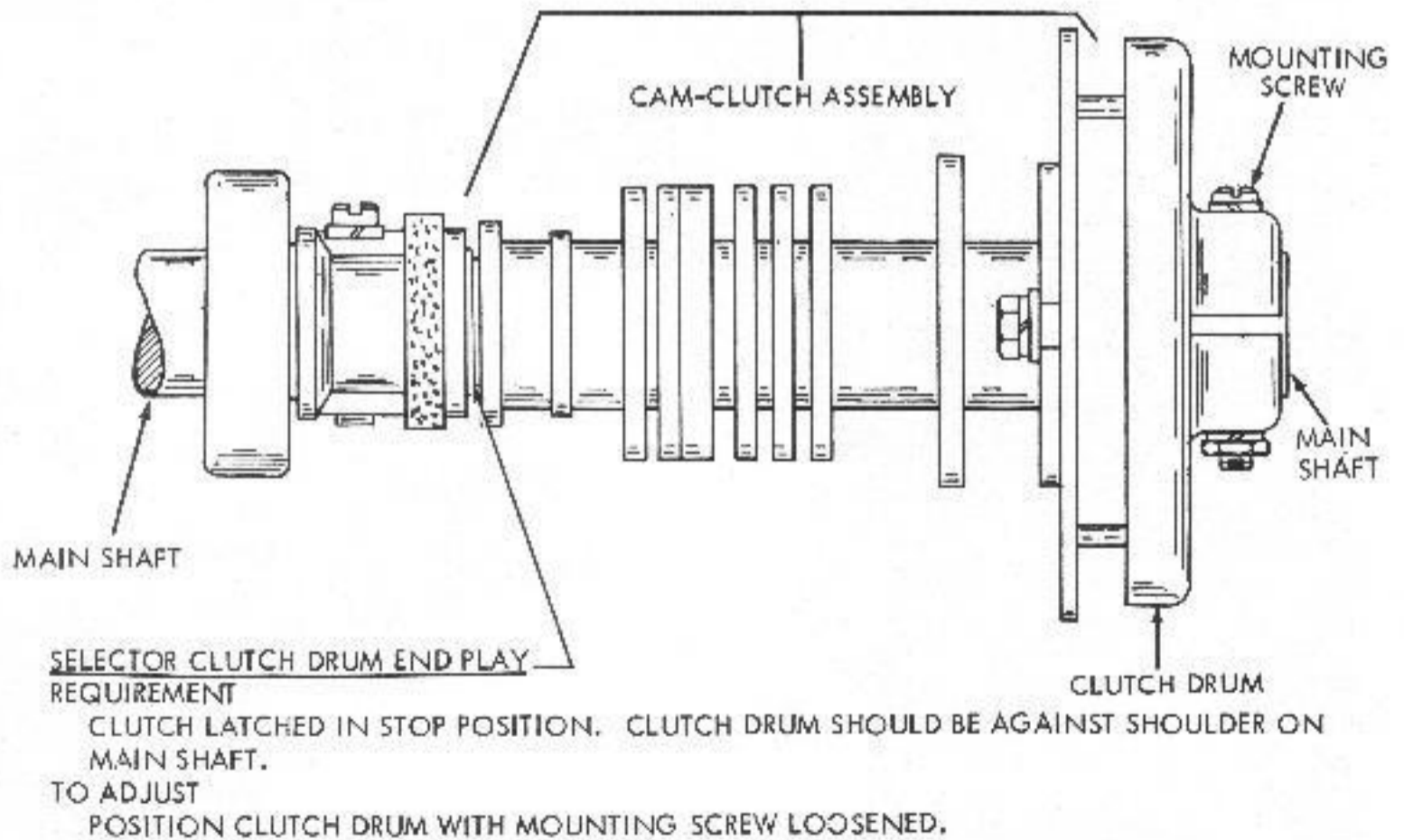
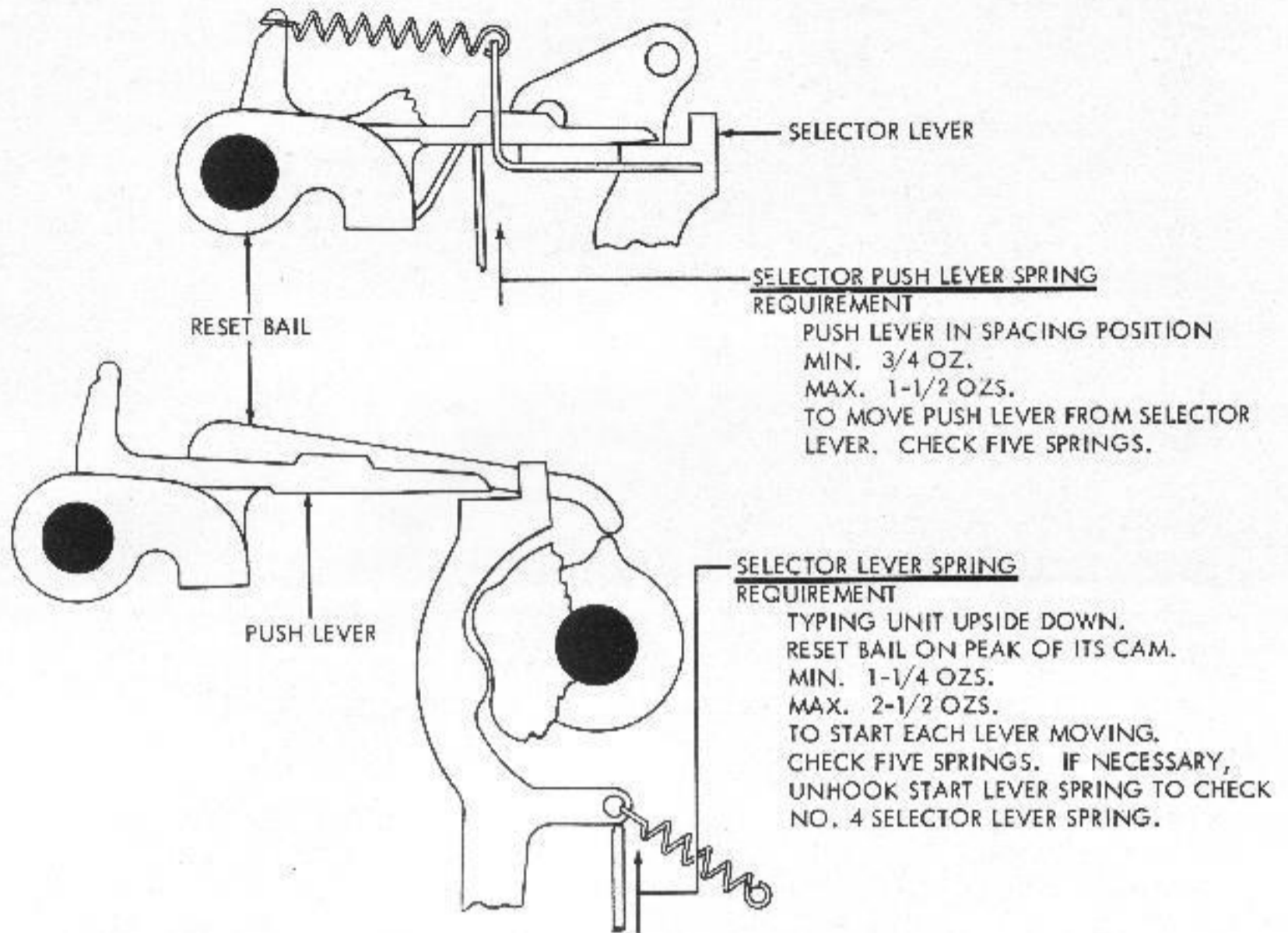


FIGURE 1-8. SELECTING MECHANISM

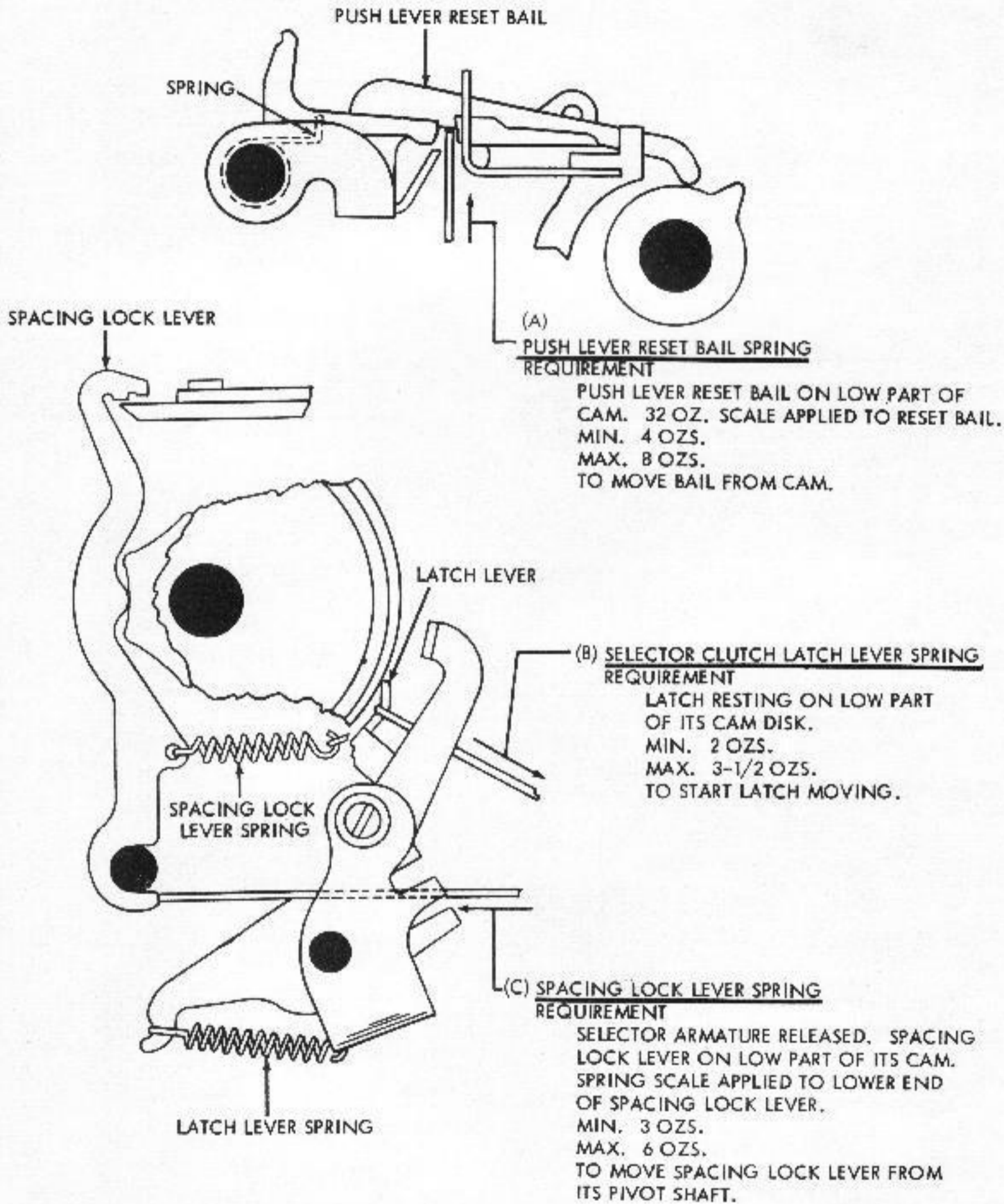


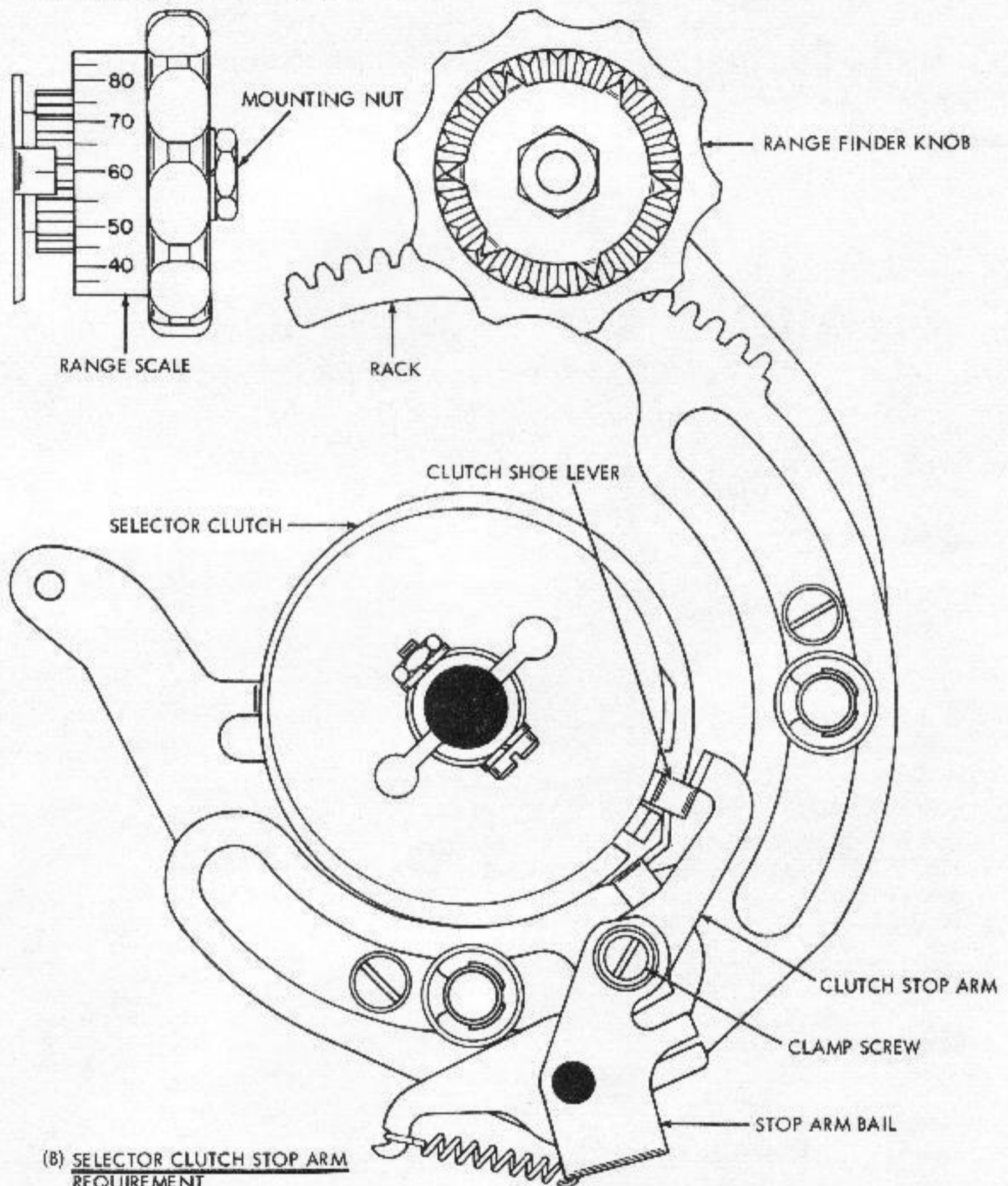
FIGURE 1-9. SELECTING MECHANISM

(A) RANGE FINDER KNOB PHASINGREQUIREMENT

WITH RANGE FINDER KNOB TURNED TO EITHER END OF RACK, ZERO MARK ON SCALE SHOULD BE WITHIN 3 POINTS OF SCRIBED LINE ON RANGE FINDER PLATE.

TO ADJUST

LOOSEN MOUNTING NUT, DISENGAGE KNOB FROM RACK AND POSITION KNOB. RE-ENGAGE KNOB WITH RACK AND TIGHTEN MOUNTING NUT.

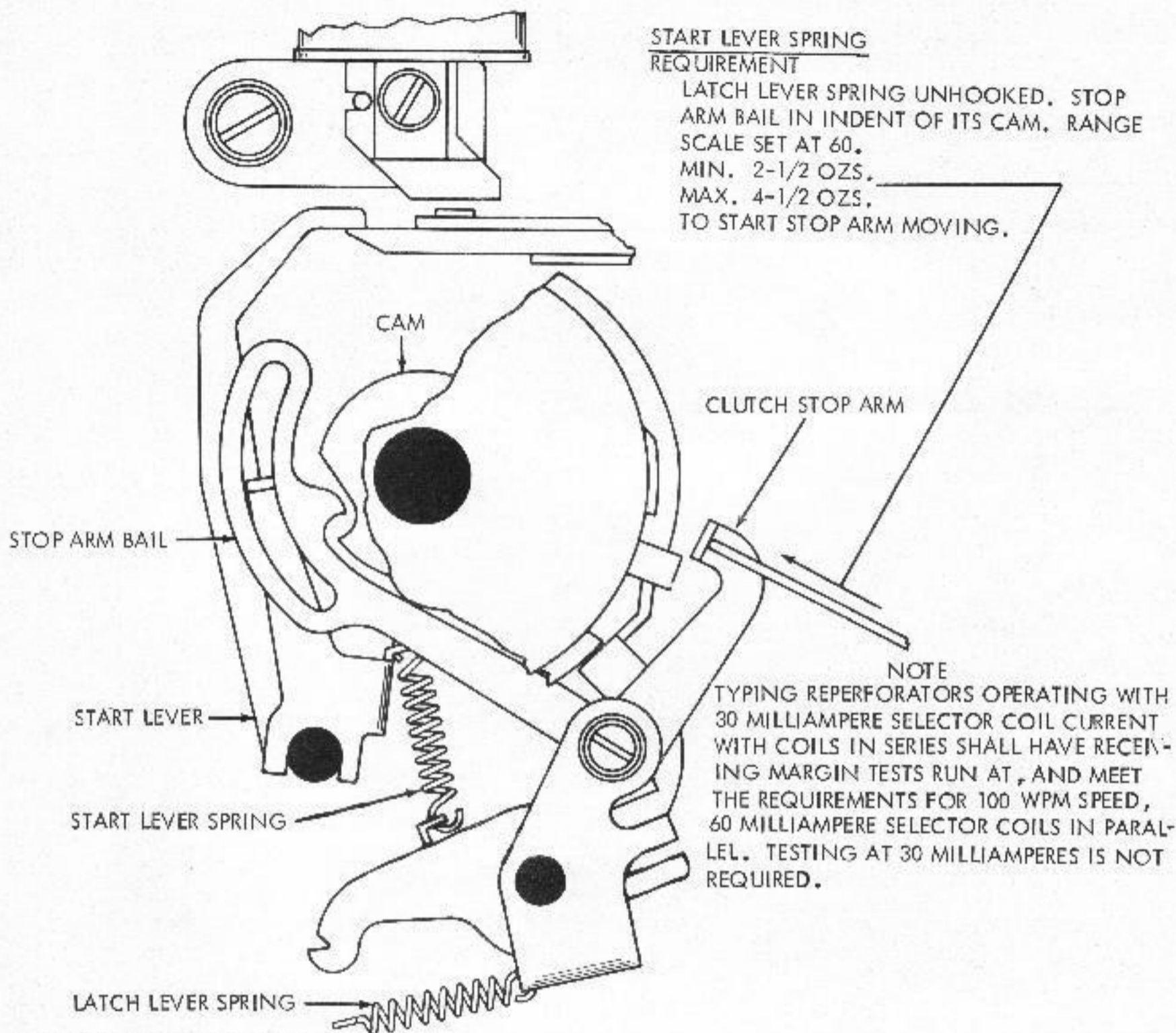
(B) SELECTOR CLUTCH STOP ARM
REQUIREMENT

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 SHOE LEVER.

TO ADJUST

POSITION STOP ARM ON STOP ARM BAIL WITH CLAMP SCREW LOOSENED.

FIGURE 1-10. SELECTING MECHANISM

**SELECTOR RECEIVING MARGIN**

REQUIREMENT (FOR UNITS EMPLOYING ARMATURE WITH ONE ANTI-FREEZE BUTTON)

WHEN A SIGNAL DISTORTION TEST SET IS USED FOR DETERMINING THE RECEIVING MARGINS OF THE SELECTOR, AND WHERE THE CONDITION OF THE COMPONENTS IS EQUIVALENT TO THAT OF NEW EQUIPMENT, THE RANGE AND DISTORTION TOLERANCES BELOW SHOULD BE MET.

REQUIREMENT (FOR UNITS EMPLOYING ARMATURE WITH TWO ANTI-FREEZE 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 ANTI-FREEZE BUTTON MUST CONTACT THE MAGNET CORE WHEN THE MAGNET COILS ARE ENERGIZED.

TO ADJUST: REFINE THE SELECTOR ARMATURE SPRING (SEE FIGURES 1-4 AND 1-5)

SELECTOR RECEIVING MARGIN MINIMUM REQUIREMENTS

CURRENT	SPEED IN W.P.M.	POINTS RANGE WITH ZERO DISTORTION	PERCENTAGE OF MARKING AND SPACING BIAS TOLERATED	END DISTORTION TOLERATED WITH SCALE AT BIAS OPTIMUM SETTING
0.060 AMP. (WINDINGS PARALLEL)	60	72	40	35
	75			
	100			
0.020 AMP. (WINDINGS SERIES)	60	72	40	35
	75			

FIGURE 1-11. SELECTING MECHANISM

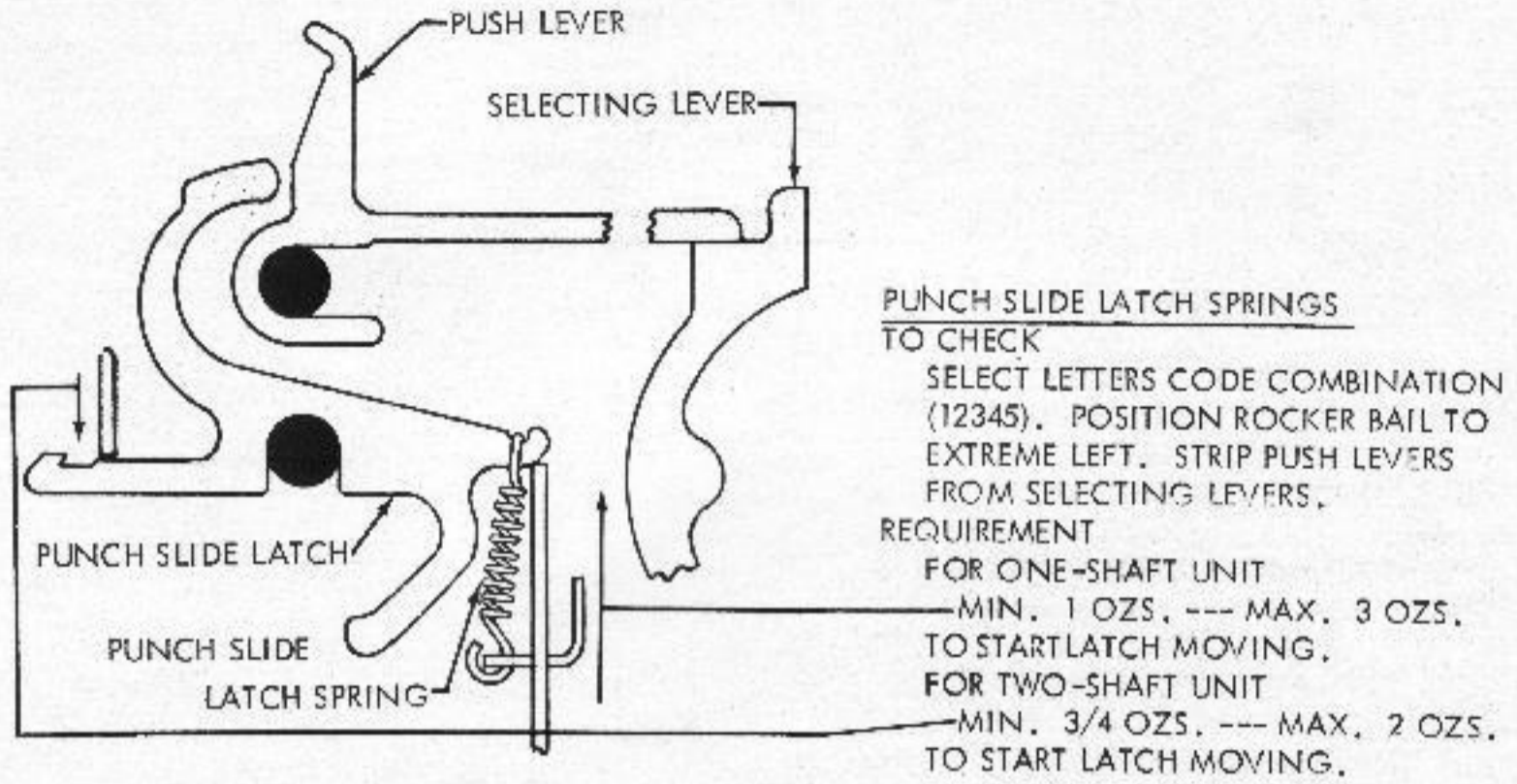


FIGURE 1-12. SELECTING MECHANISM

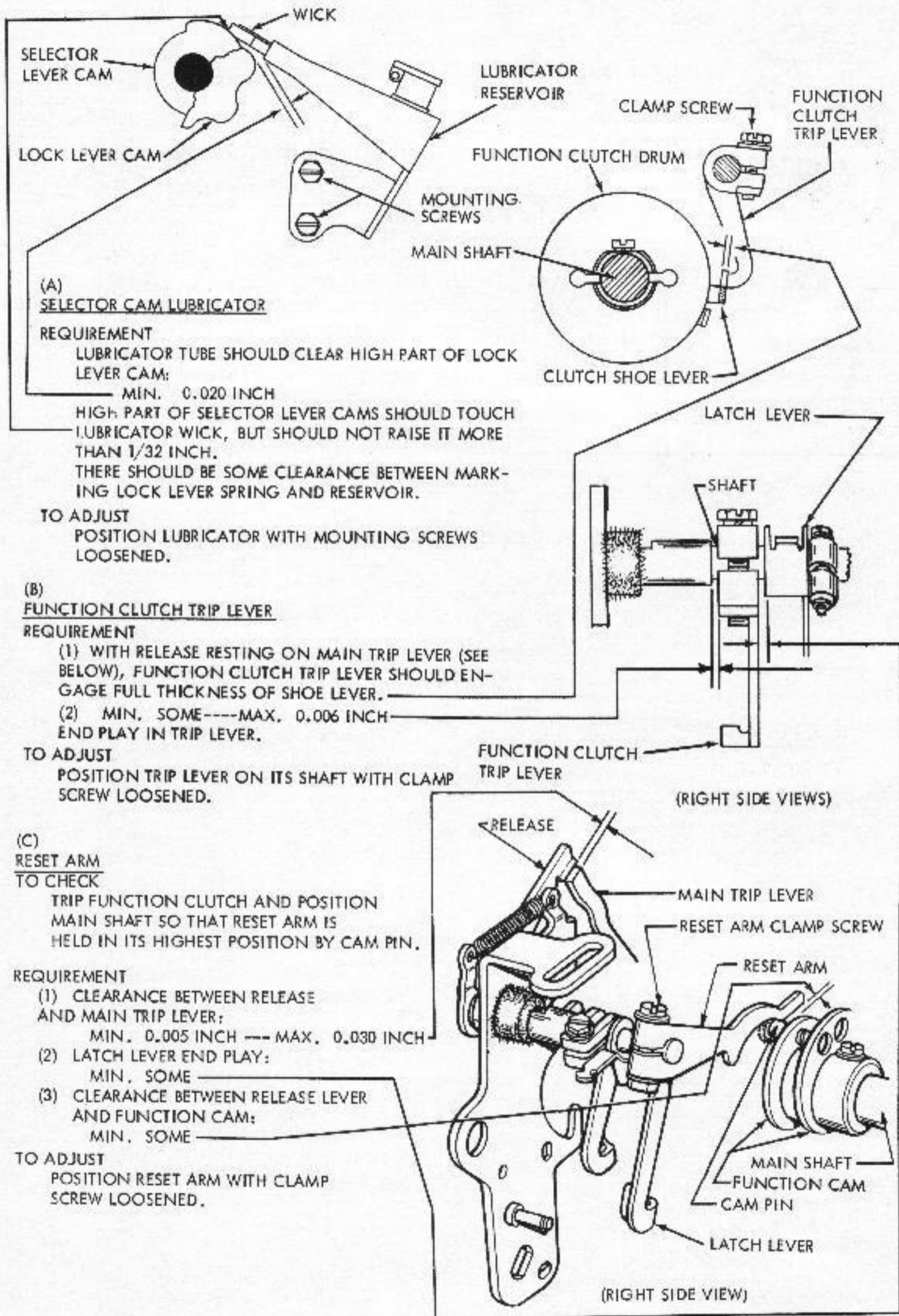


FIGURE 1-13. SELECTING AND FUNCTION MECHANISM

(A) FOLLOWER LEVER*
REQUIREMENT

WITH FOLLOWER LEVER ON HIGH PART OF CAM:

(1) CLEARANCE BETWEEN RELEASE AND MAIN TRIP LEVER:

MIN. 0.010 INCH --- MAX. 0.030 INCH

(2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

BY MEANS OF PRY POINT, POSITION ADJUSTING ARM ON FOLLOWER LEVER WITH LOCK NUT LOOSENED.

*FOR UNITS EQUIPPED WITH AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM, SUBSTITUTE ADJUSTMENT IN FIGURE 2-37.

(C) MAIN TRIP LEVER SPRING (LATEST DESIGN)

REQUIREMENT

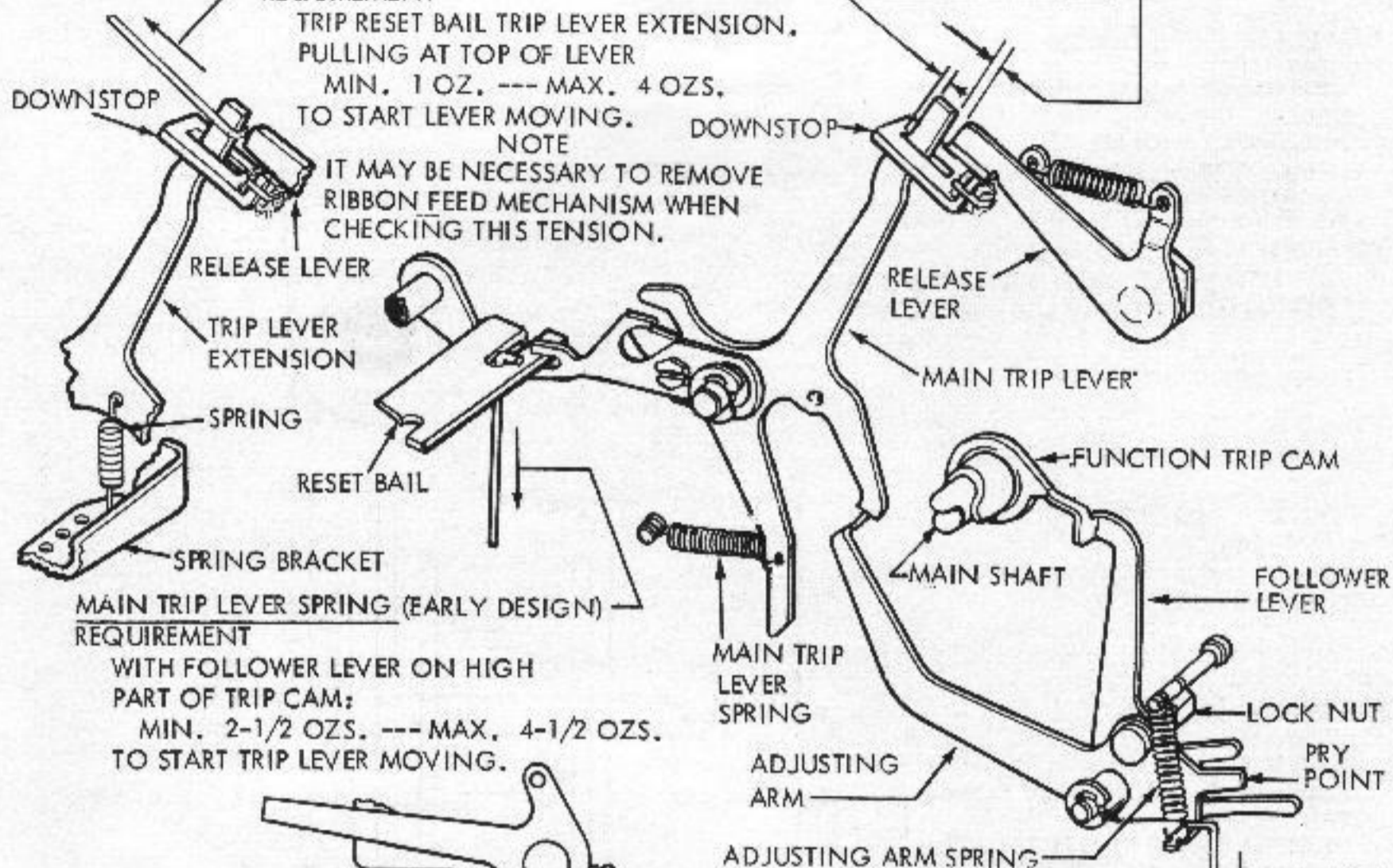
TRIP RESET BAIL TRIP LEVER EXTENSION, PULLING AT TOP OF LEVER

MIN. 1 OZ. --- MAX. 4 OZS.

TO START LEVER MOVING.

NOTE

IT MAY BE NECESSARY TO REMOVE RIBBON FEED MECHANISM WHEN CHECKING THIS TENSION.



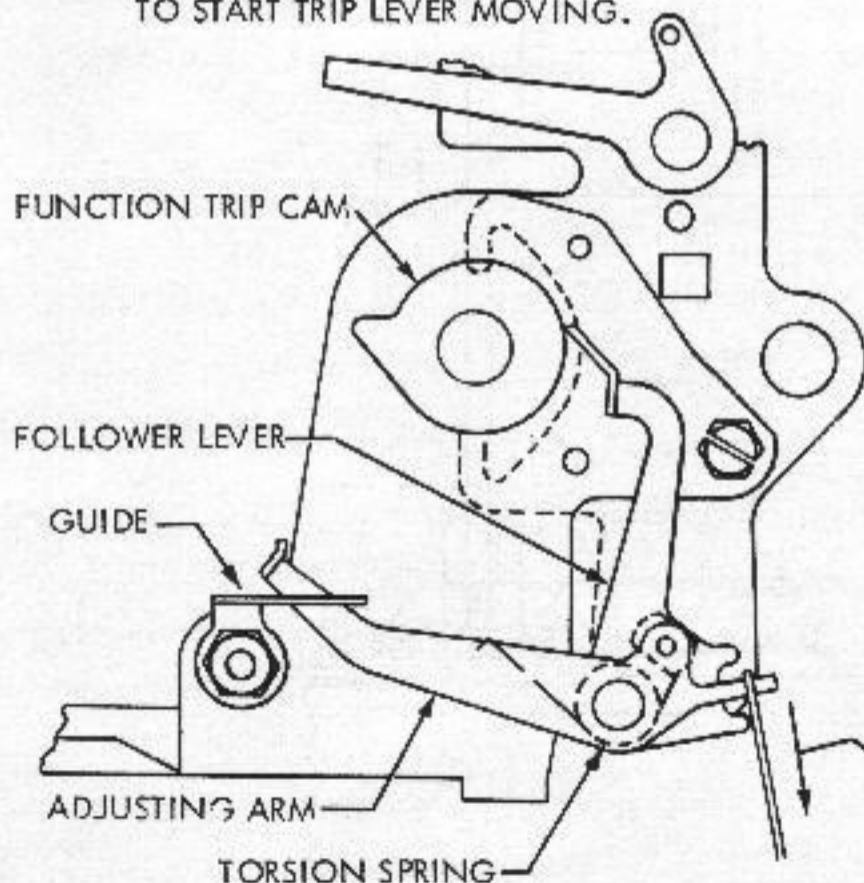
MAIN TRIP LEVER SPRING (EARLY DESIGN)

REQUIREMENT

WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM:

MIN. 2-1/2 OZS. --- MAX. 4-1/2 OZS.

TO START TRIP LEVER MOVING.



(B) ADJUSTING ARM SPRING
REQUIREMENT (EARLIER DESIGN)

WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM AND MAIN TRIP LEVER HELD AWAY FROM ADJUSTING ARM:

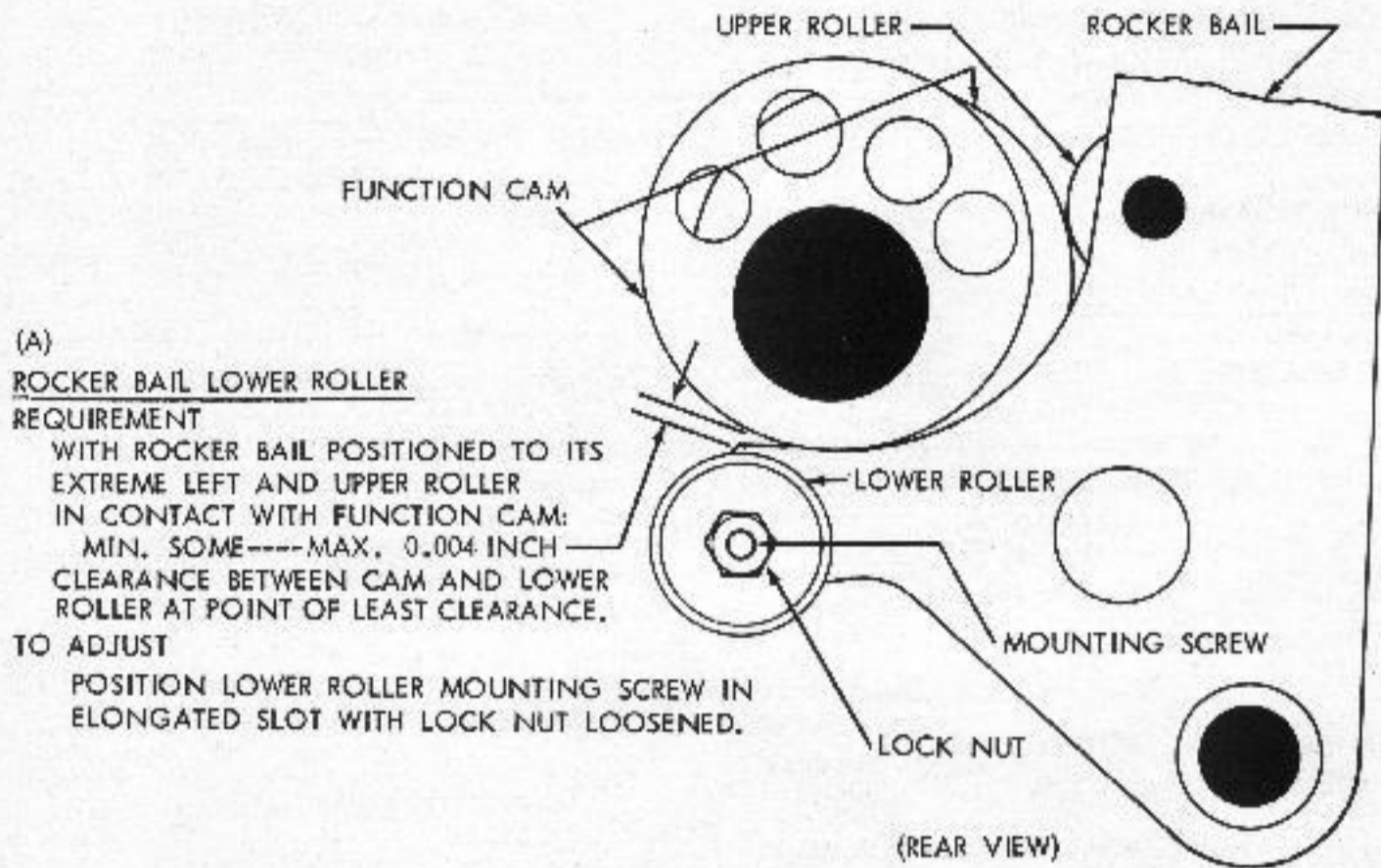
MIN. 2-1/2 OZS. --- MAX. 4 OZS. TO START ADJUSTING LEVER MOVING.

(D) ADJUSTING ARM TORSION SPRING
(LATEST DESIGN)

WITH FOLLOWER LEVER ON LOW PART OF TRIP CAM AND MAIN TRIP LEVER HELD AWAY FROM ADJUSTING ARM

MIN. 1 OZ. --- MAX. 4 OZS. TO START ADJUSTING LEVER MOVING.

FIGURE 1-14. SELECTING AND FUNCTION MECHANISM



(B)

ROCKER BAIL GUIDE BRACKET

REQUIREMENT

- (1) ROCKER BAIL ROLLERS SHOULD ENGAGE FULL THICKNESS OF FUNCTION CAM.
 - (2) LIFTER ROLLER IN FULL ENGAGEMENT WITH ROCKER BAIL CAMMING SURFACE (SEE FIGURE 1-41).
- TO ADJUST
 POSITION ROCKER BAIL AND GUIDE BRACKET WITH GUIDE BRACKET MOUNTING SCREWS LOOSENED.

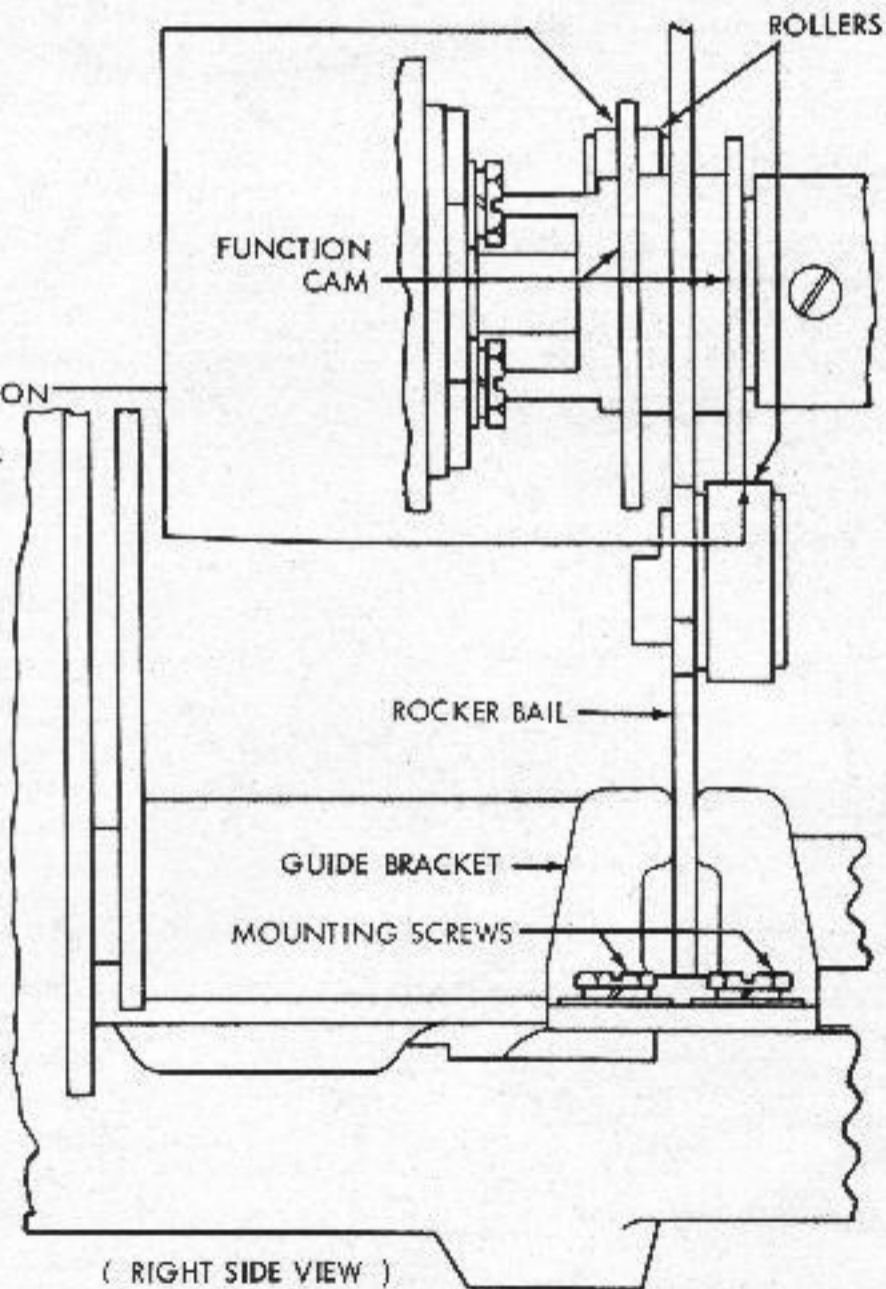


FIGURE 1-15. FUNCTION MECHANISM

PERFORATOR POSITION

(1) TO CHECK *

SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS.

REQUIREMENT

CLEARANCE BETWEEN PUNCH SLIDE AND PUNCH SLIDE LATCH:
MIN. 0.020 INCH --- MAX. 0.030 INCH
AT SLIDE WHERE CLEARANCE IS LEAST.

TO ADJUST

LOOSEN PERFORATOR MOUNTING SCREWS, ADJUSTING CLAMP LOCK SCREW, ADJUSTING CLAMP PIVOT SCREW AND ANCHOR BRACKET SCREW UNTIL FRICTION TIGHT. PLACE TIP OF SCREW DRIVER BETWEEN SCREW AND RIM OF PRY HOLE AND PRY PERFORATOR UP OR DOWN. TIGHTEN ONLY ADJUSTING CLAMP LOCK SCREW.

(2) TO CHECK

SELECT "V" CODE COMBINATION (-2345). TRIP FUNCTION CLUTCH AND MOVE ROCKER BAIL TO EXTREME LEFT.

REQUIREMENT

CLEARANCE BETWEEN STRIPPER PLATFORM AND TYPEWHEEL CHARACTER "M":

MIN. 0.075 INCH --- MAX. 0.095 INCH

TO ADJUST

REMOVE RIBBON FROM CARRIER (FIGURE 1-51). POSITION PERFORATOR WITH TWO MOUNTING SCREWS, ADJUSTING CLAMP PIVOT SCREW AND ANCHOR BRACKET SCREW LOOSENED. CHECK RESET BAIL TRIP LEVER REQUIREMENT (FIGURE 1-21) FOR SOME CLEARANCE AND ADJUST IF NECESSARY.

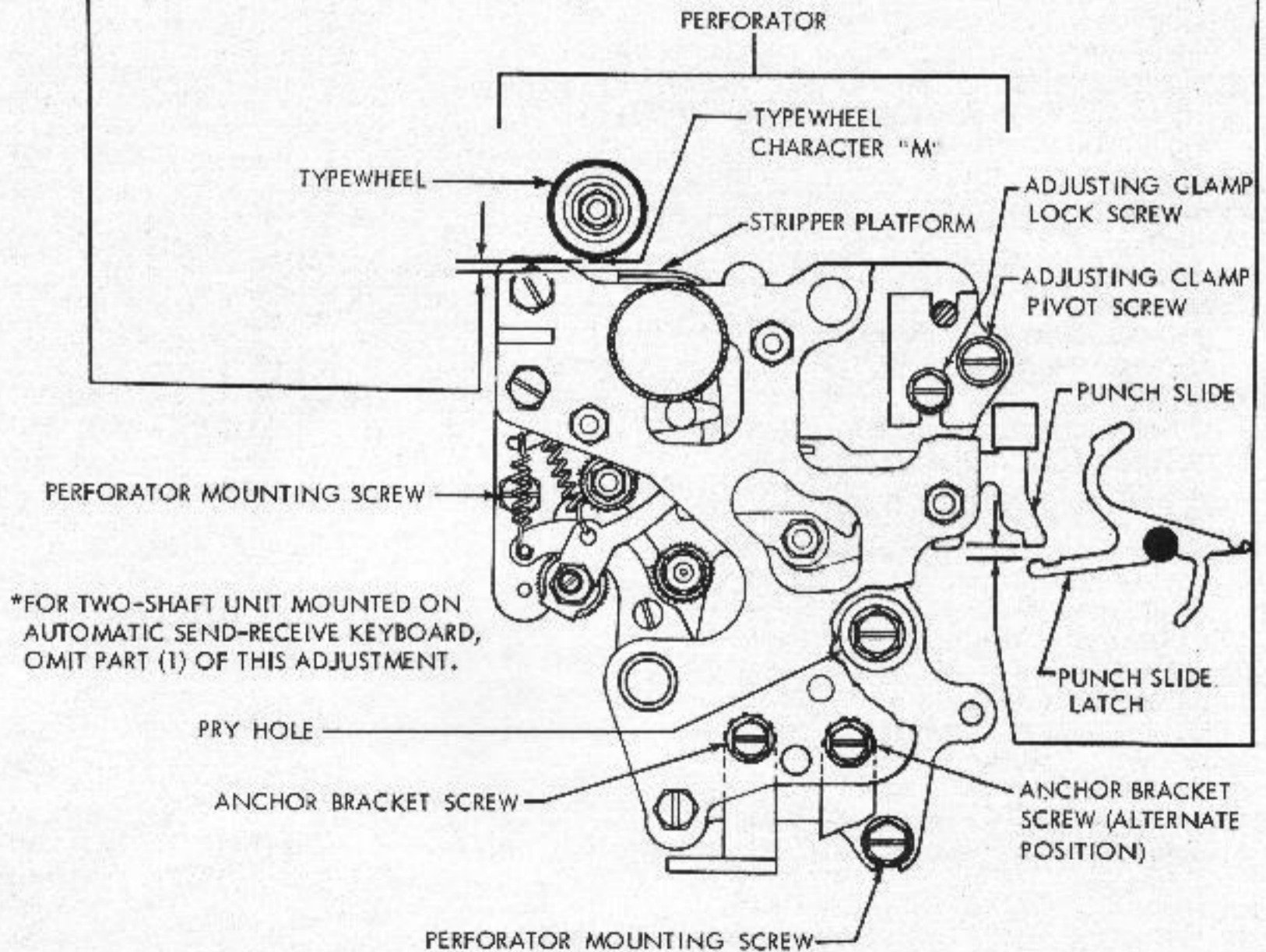
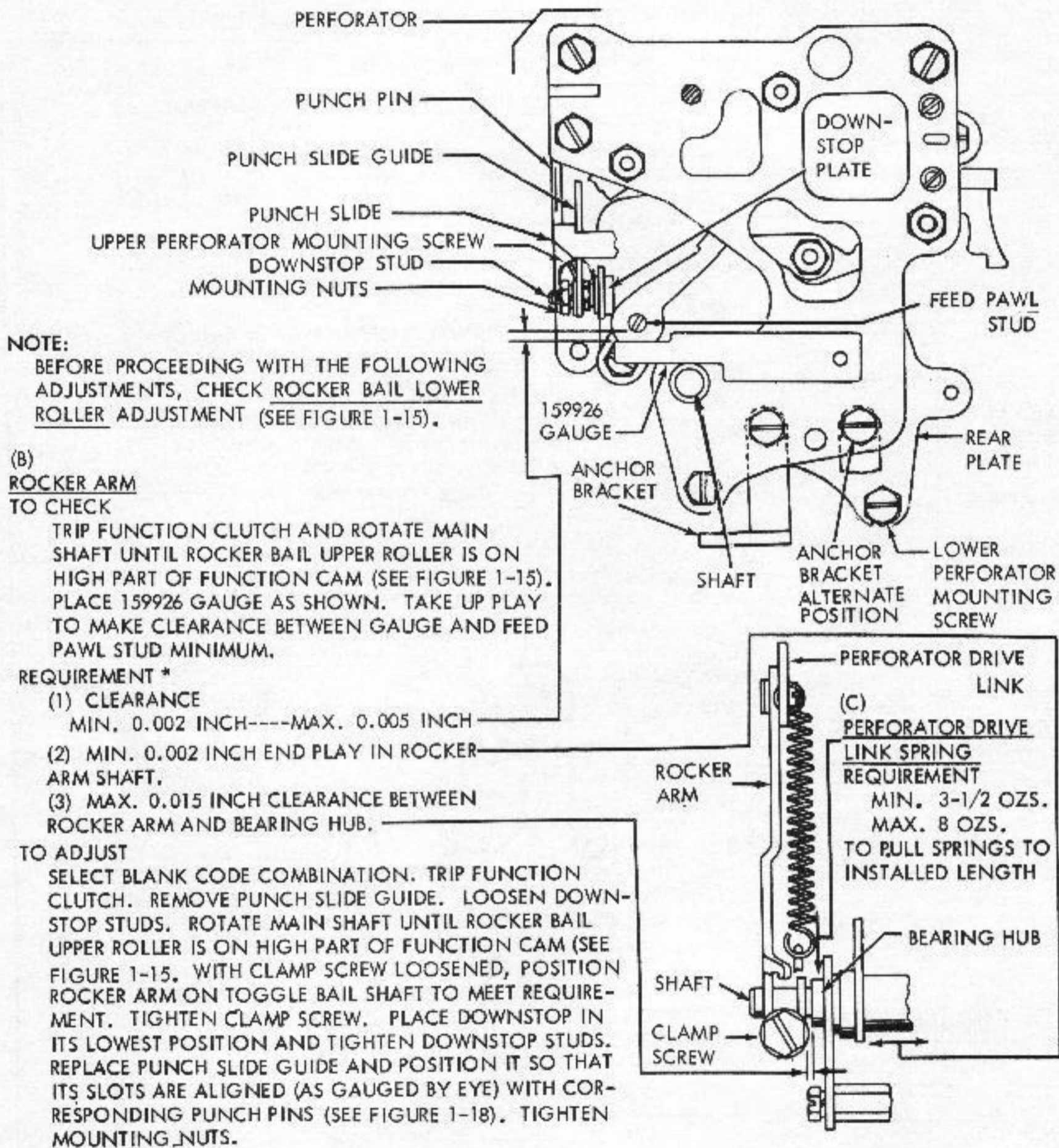


FIGURE 1-16. PERFORATOR MECHANISM



*AFTER FEED PAWL ADJUSTMENT (FIGURE 1-21) HAS BEEN MADE, IF PUNCH PIN PENETRATION (FIGURE 1-18) AND FEED PAWL REQUIREMENTS ARE MET, THIS REQUIREMENT SHOULD BE CONSIDERED FULFILLED.

FIGURE 1-17. PERFORATOR MECHANISM

NOTE

THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO CHADLESS TAPE MECHANISM. REFER TO FIGURE 1-19 FOR SIMILAR FULLY PERFORATED TAPE MECHANISM ADJUSTMENTS.

NOTE

THE CODE PUNCHES SHOULD PUNCH A FULL TAPE LID WITH SLIGHT AMOUNT OF TEAR. THE TEAR SHOULD BE RESTRICTED TO A MINIMUM. REFINE ADJUSTMENT BELOW, IF NECESSARY.

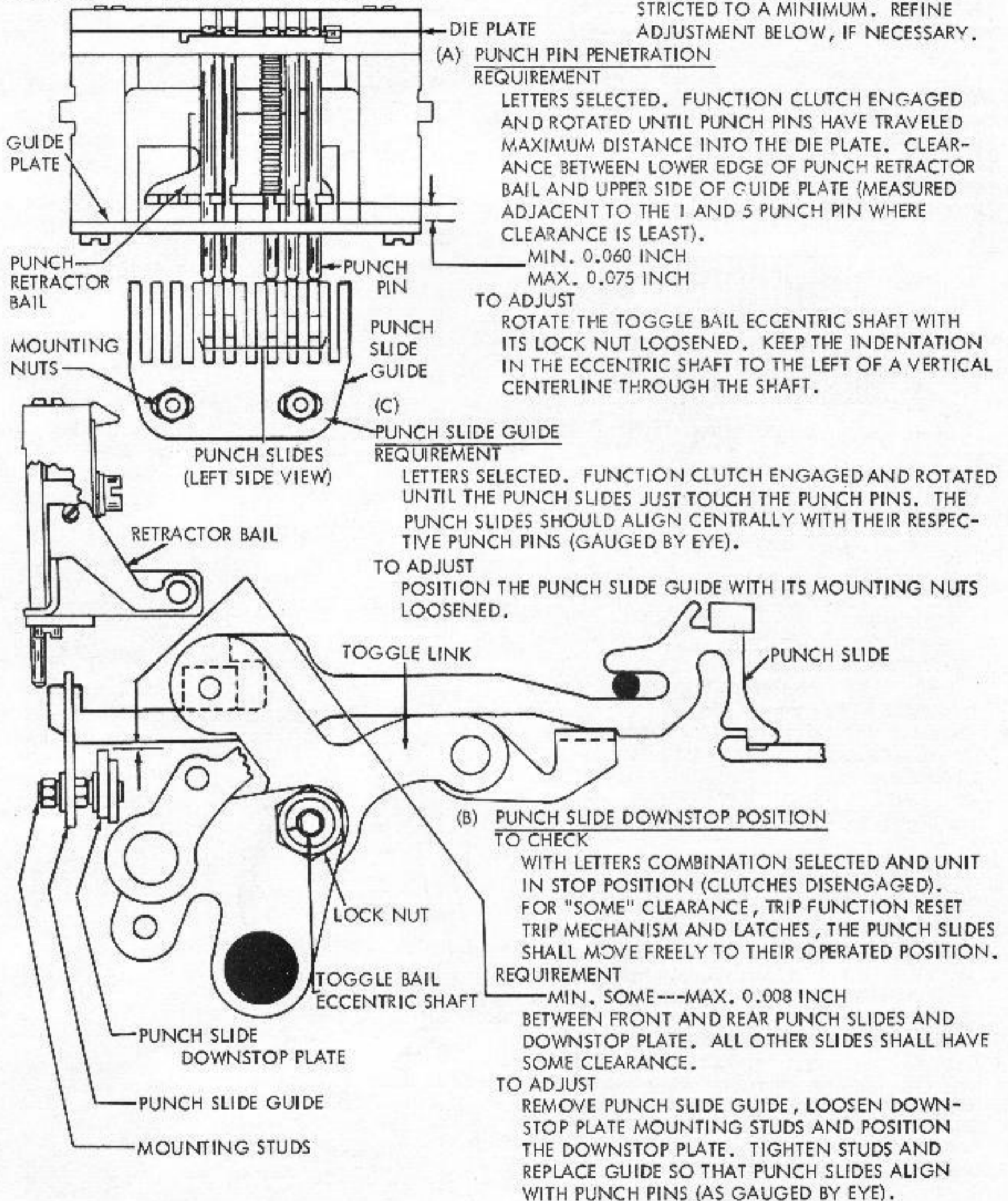
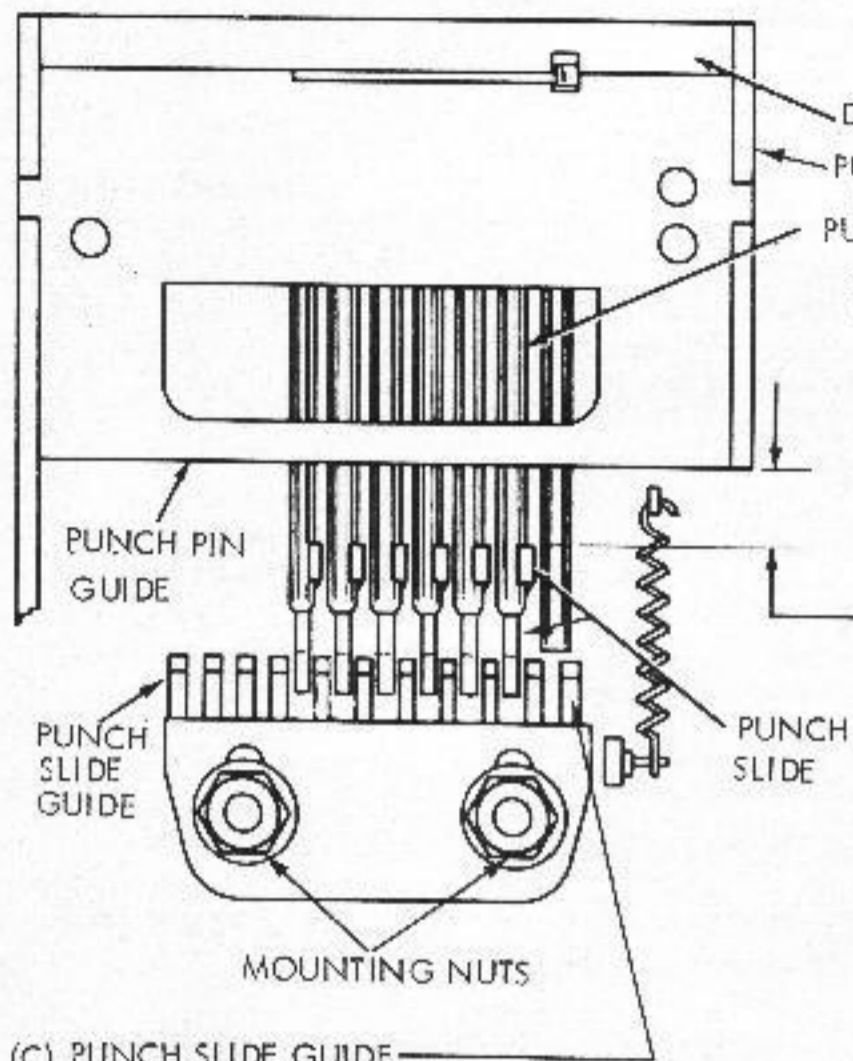


FIGURE 1-18. PUNCH MECHANISM FOR CHADLESS TAPE

NOTE

THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO FULLY PERFORATED TAPE MECHANISM. REFER TO FIGURE 1-18 FOR SIMILAR CHADLESS TAPE MECHANISM ADJUSTMENTS.



(A) PUNCH PIN PENETRATION REQUIREMENT

WITH LETTERS SELECTED, FUNCTION CLUTCH ENGAGED AND ROTATED UNTIL PUNCH PINS HAVE TRAVELED MAXIMUM DISTANCE INTO DIE PLATE, CLEARANCE BETWEEN THE UPPER EDGE OF SLIDE HAVING THE MOST CLEARANCE AND THE LOWER SIDE OF THE PUNCH HOLDER.

MIN. 0.025 INCH

MAX. 0.035 INCH

TO ADJUST

ROTATE THE TOGGLE BAIL ECCENTRIC SHAFT WITH ITS LOCK NUT FRICTION TIGHT, KEEP INDENTATION IN THE ECCENTRIC SHAFT TO THE LEFT OF A VERTICAL CENTER LINE THROUGH THE SHAFT.

(C) PUNCH SLIDE GUIDE

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.

(B) PUNCH SLIDE DOWNSTOP POSITION

TO CHECK

WITH LETTERS COMBINATION SELECTED AND UNIT IN STOP POSITION (CLUTCHES DISENGAGED), TRIP FUNCTION RESET MECHANISM AND LATCHES, THE PUNCH SLIDES SHALL MOVE FREELY TO THEIR OPERATED POSITION.

MIN. SOME---MAX. 0.008 INCH

TO ADJUST

POSITION DOWNSTOP PLATE WITH ITS MOUNTING LOCK NUTS LOOSENED.

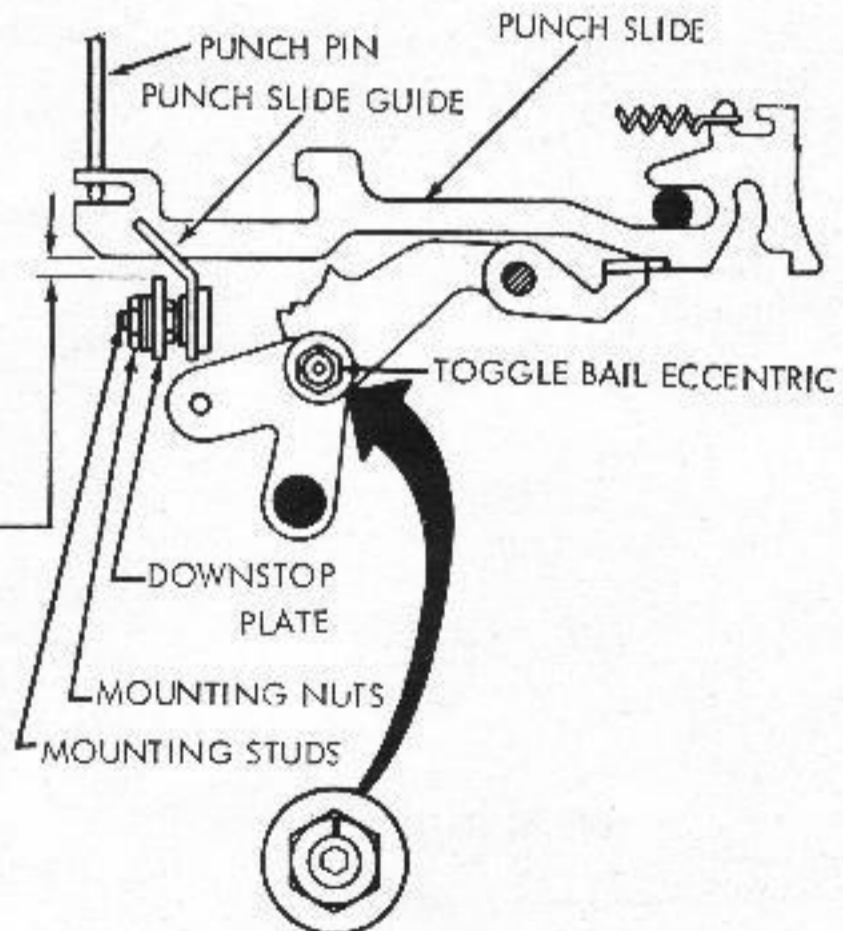
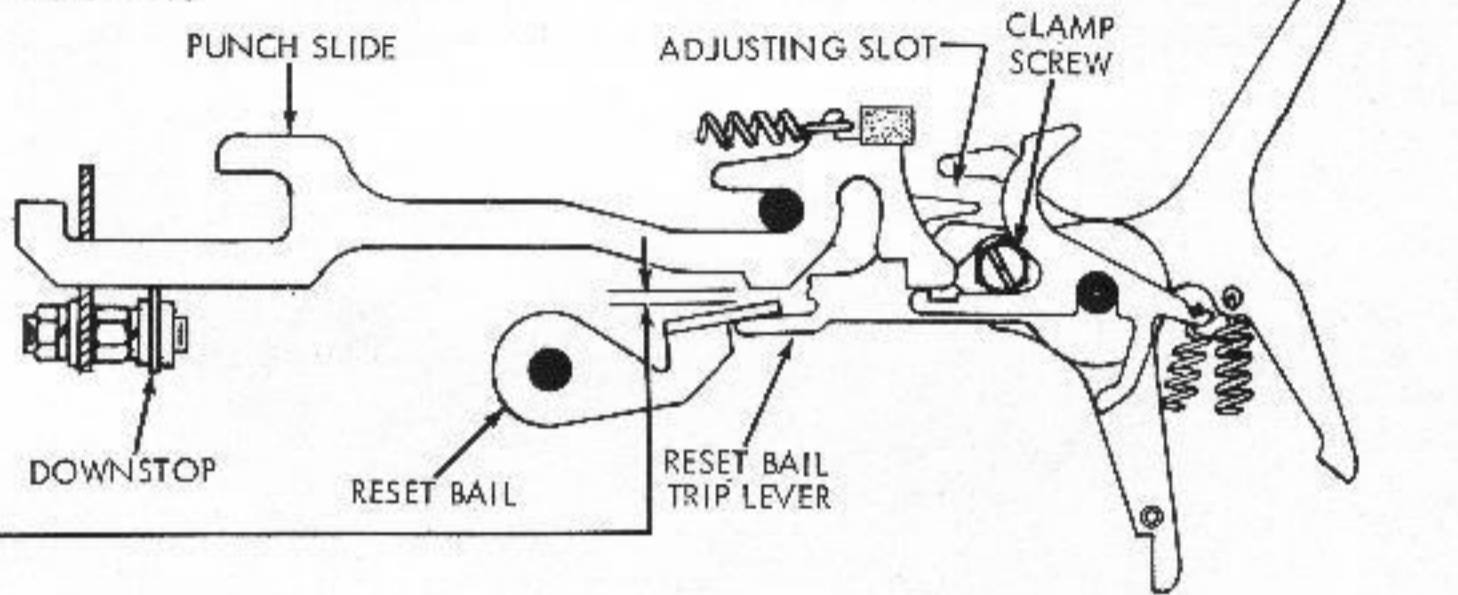


FIGURE 1-19. PUNCH MECHANISM FOR FULLY PERFORATED TAPE

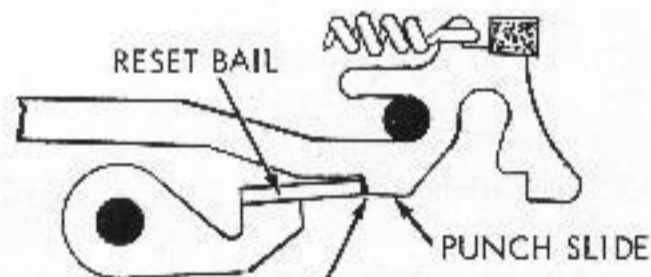
NOTE: FOR TWO-SHAFT, OMIT
THIS ADJUSTMENT

FOR UNITS EQUIPPED WITH AUTOMATIC
NON-INTERFERING LETTERS TAPE FEED-
OUT MECHANISM, SUBSTITUTE ADJUST-
MENT IN FIGURE 2-38.



RESET BAIL TRIP LEVER
REQUIREMENT

- (1) SELECT BLANK CODE COMBINATION, MANUALLY ROTATE RESET BAIL TRIP LEVER. RESET BAIL SHALL TRIP BEFORE THE FUNCTION CLUTCH IS TRIPPED.



- (2) WITH FUNCTION AND SELECTOR CLUTCHES DISENGAGED AND LATCHED, THE RESET BAIL SHALL FULLY ENGAGE THE PUNCH SLIDE LATCHING SURFACE WHEN PLAY IN PARTS IS TAKEN UP IN DIRECTION TO MAKE ENGAGEMENT THE LEAST.

TO ADJUST

WITH TRIP LEVER EXTENSION LOCK SCREW FRICTION TIGHT AND LETTERS COMBINATION SELECTED, POSITION RESET BAIL AGAINST PUNCH SLIDES. TAKE UP PLAY BETWEEN RESET BAIL AND TRIP LEVER IN A COUNTER CLOCKWISE DIRECTION. POSITION TRIP LEVER BY MEANS OF ITS PRY POINT. RECHECK BLANK REQUIREMENT ABOVE AND REFINE IF NECESSARY.

FIGURE 1-20. FUNCTION MECHANISM

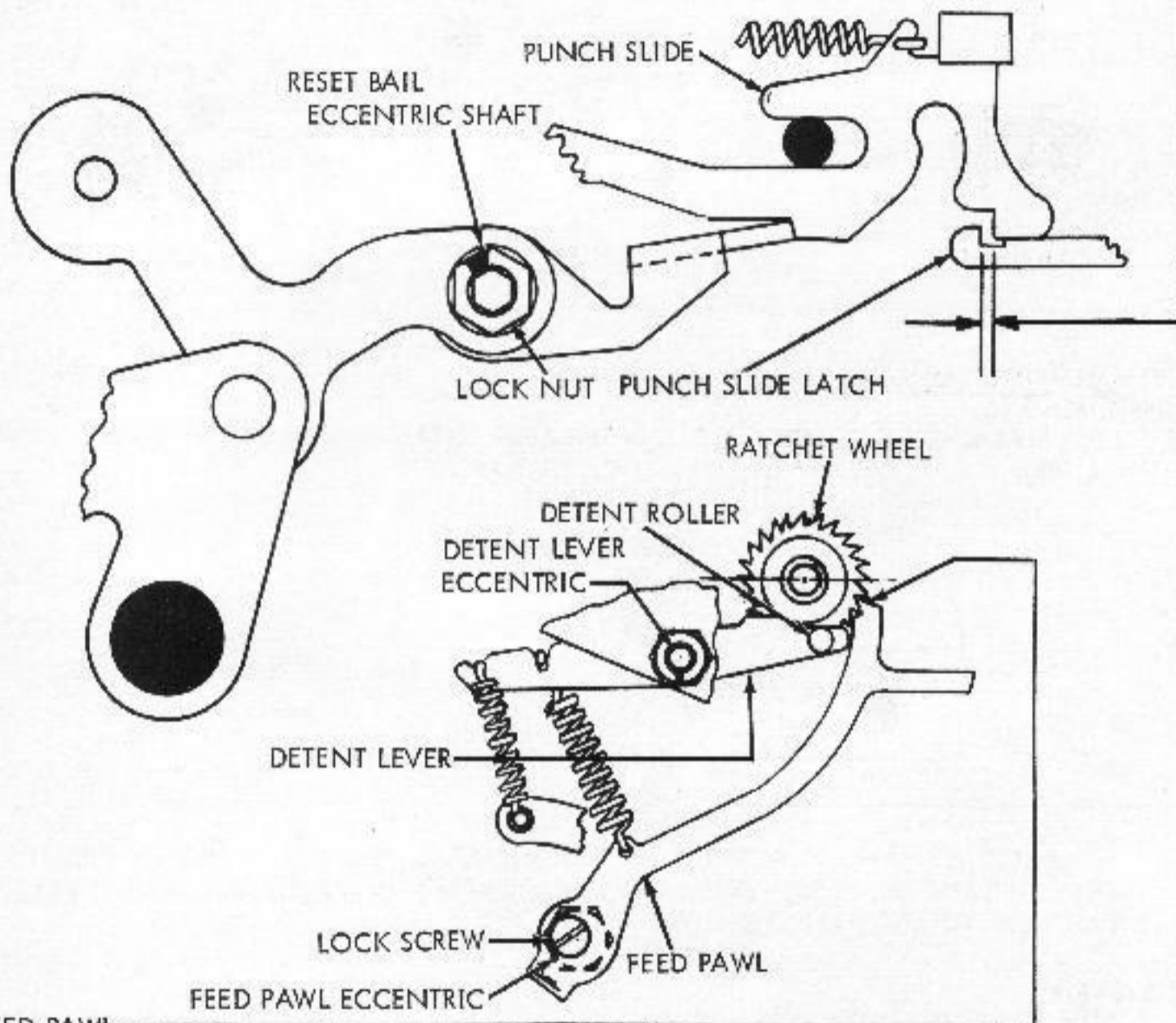
(A) PUNCH SLIDE RESET BAIL

REQUIREMENT

WITH FUNCTION CLUTCH DISENGAGED AND LATCHED. CLEARANCE BETWEEN PUNCH SLIDE AND ITS ASSOCIATED LATCH LEVER, PUNCH SLIDES SHOULD BE IN SPACING POSITION. MIN. 0.005 INCH --- MAX. 0.015 INCH

FOR THE SLIDE HAVING THE LEAST CLEARANCE, TO ADJUST

ROTATE THE RESET BAIL ECCENTRIC SHAFT WITH ITS LOCK NUT LOOSENED. KEEP INDENTATION IN ECCENTRIC ABOVE HORIZONTAL CENTER OF SHAFT.



(B) FEED PAWL

REQUIREMENT

FUNCTION CLUTCH DISENGAGED, INDENTATION IN DETENT LEVER ECCENTRIC AT RIGHT ANGLE TO LEVER, DETENT ROLLER IN CONTACT WITH RATCHET WHEEL, HIGH PART OF FEED PAWL ECCENTRIC TO THE RIGHT OF ITS LOCK SCREW. THE FEED PAWL SHOULD ENGAGE THE FIRST TOOTH BELOW A HORIZONTAL CENTERLINE THROUGH THE RATCHET WHEEL WITH NO PERCEPTIBLE CLEARANCE. CHECK WITH FEED WHEEL OIL HOLE IN THE UP POSITION.

TO ADJUST

ROTATE THE FEED PAWL ECCENTRIC WITH LOCK SCREW LOOSENED.

NOTE

THIS ADJUSTMENT IS RELATED TO FEED HOLE SPACING (FIGURE 1-22) AND THE TWO ADJUSTMENTS SHOULD BE MADE AT THE SAME TIME.

FIGURE 1-21. PERFORATOR MECHANISM

NOTE

THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO CHADLESS TAPE MECHANISM. REFER TO FIGURE 1-28 FOR SIMILAR FULLY PERFORATED TAPE MECHANISM ADJUSTMENTS.

FEED HOLE SPACING (PRELIMINARY)
REQUIREMENT

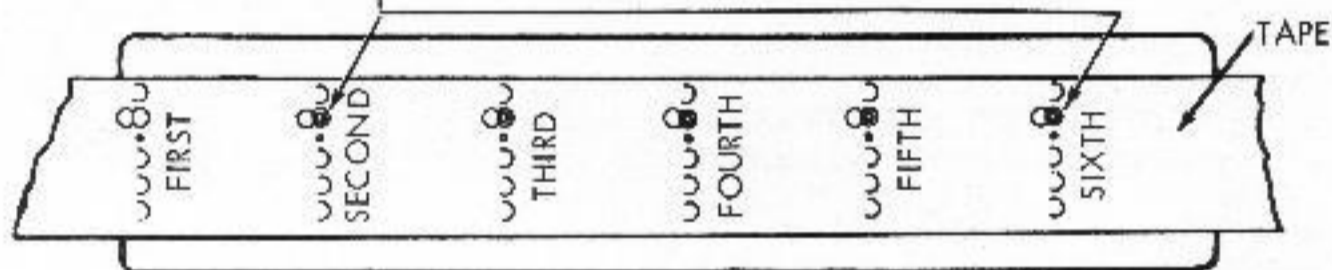
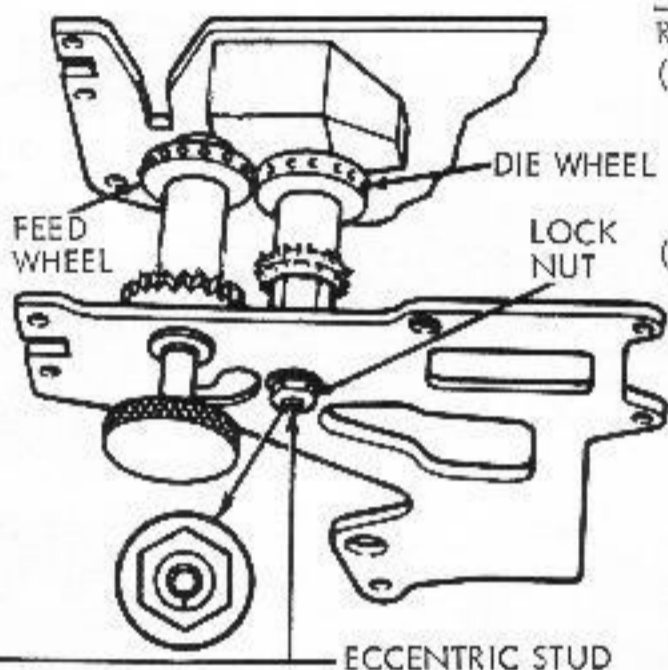
THE INDENT OF DIE WHEEL ECCENTRIC STUD SHALL BE POINTING DOWNWARD. TO ADJUST POSITION DIE WHEEL ECCENTRIC STUD WITH LOCK NUT LOOSENED.

NOTE

BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENTS, CHECK BOTH TAPE GUIDE SPRING TENSIONS.

FEED HOLE SPACING (FINAL)
REQUIREMENT

- (1) WITH TAPE SHOE BLOCKED AWAY FROM THE FEED WHEEL, THE FEED PAWL AND DETENT DISENGAGED, AND TAPE REMOVED FROM THE PUNCH MECHANISM, THE FEED WHEEL SHALL ROTATE FREELY. (CHECK THROUGH 3 OR 4 ROTATIONS).
- (2) PERFORATE SIX SERIES OF (9) "BLANK" COMBINATIONS FOLLOWED BY (1) "LETTERS" COMBINATION. OPEN CHADS SO CODE HOLES ARE VISIBLE. PLACE TAPE OVER SMOOTH SIDE OF THE 156011 TAPE GAGE SO CIRCULAR PORTION OF THE FIRST NUMBER TWO CODE HOLE IN TAPE IS CONCENTRIC WITH THE FIRST (0.072) HOLE OF TAPE GAGE. (SEE NOTE). THE NEXT FOUR 0.072 HOLES IN TAPE GAGE SHALL BE VISIBLE THROUGH THE NUMBER TWO CODE HOLES IN TAPE AND CIRCULAR PORTION OF THE LAST (SIXTH) NUMBER TWO CODE HOLE IN TAPE SHALL BE ENTIRELY WITHIN THE 0.086 DIA. HOLE OF TAPE GAGE.



NOTE

THE FIRST FIVE HOLES IN GAGE ARE THE SAME SIZE AS CODE HOLES IN TAPE (0.072 INCH DIAMETER) BUT THE SIXTH HOLE IN GAGE IS LARGER THAN THE FIRST FIVE (0.086 INCH DIAMETER). THIS ARRANGEMENT ALLOWS ± 0.007 INCH VARIATION IN FIVE (5) INCHES.

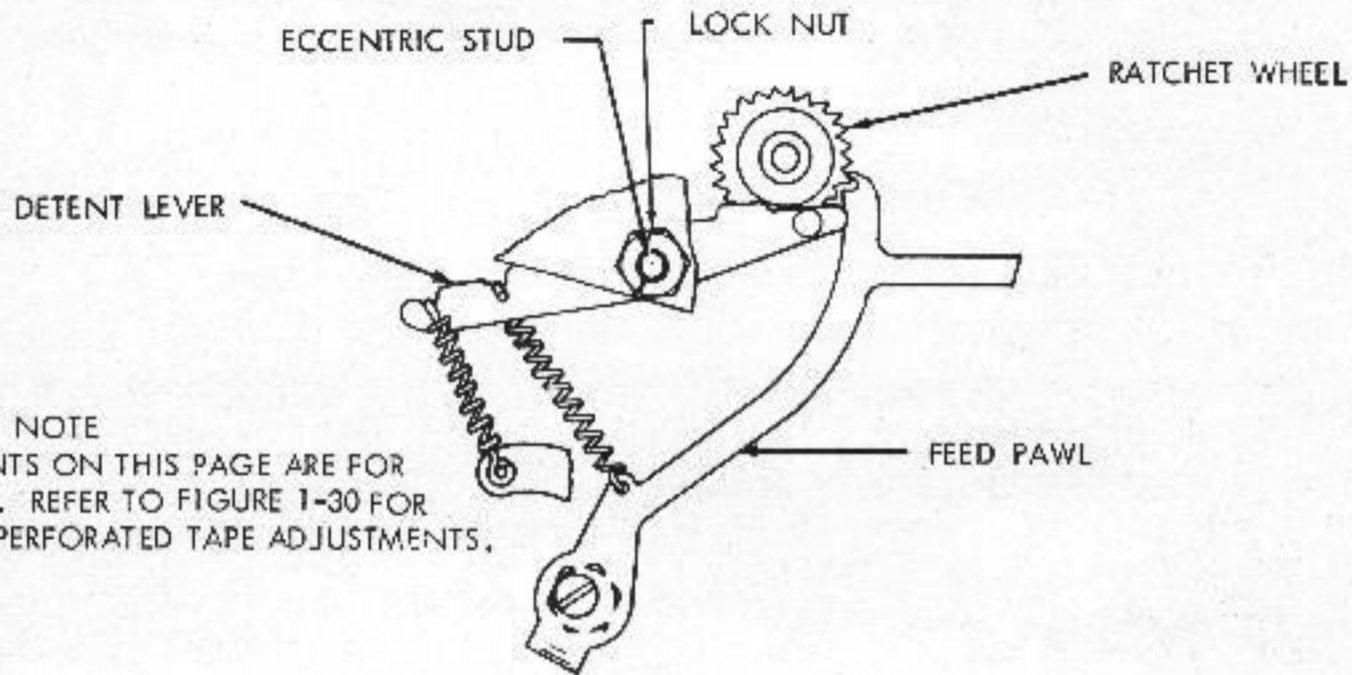
TO ADJUST

- (1) WITH TAPE REMOVED FROM PUNCH MECHANISM, LOOSEN DIE WHEEL ECCENTRIC STUD LOCK NUT AND ADJUST DIE WHEEL SO THAT IT JUST BINDS ON FEED WHEEL, BACK OFF ECCENTRIC SO DIE WHEEL IS JUST FREE (CHECK FREENESS THROUGH 3 OR 4 ROTATIONS). KEEP INDENT OF ECCENTRIC STUD BELOW THE HORIZONTAL CENTER LINE OF STUD.
- (2) CHECK TEN CHARACTERS PER INCH REQUIREMENT AND REFINE FEED WHEEL DIE WHEEL CLEARANCE ADJUSTMENT TO MEET THE REQUIREMENT BY MOVING INDENT OF DIE WHEEL ECCENTRIC STUD TOWARD FEED WHEEL TO DECREASE CHARACTER SPACING AND AWAY FROM FEED WHEEL TO INCREASE THE CHARACTER SPACING.

CAUTION: WITH THE TAPE REMOVED FROM THE PUNCH MECHANISM, BE SURE THE DIE WHEEL DOES NOT BIND.

- (3) WITH THE TAPE SHOE AWAY FROM THE FEED WHEEL, THE FEED PAWL AND DETENT DISENGAGED, AND THE TAPE REMOVED FROM THE PUNCH MECHANISM, THE FEED WHEEL SHALL ROTATE FREELY. FAILURE TO MEET THIS REQUIREMENT INDICATES THE DIE WHEEL ECCENTRIC HAS BEEN OVER-ADJUSTED. TO MEET THIS REQUIREMENT, REFINE THE ADJUSTMENT.

FIGURE 1-22. PERFORATOR MECHANISM FOR CHADLESS TAPE



NOTE
THE ADJUSTMENTS ON THIS PAGE ARE FOR
CHADLESS TAPE. REFER TO FIGURE 1-30 FOR
SIMILAR FULLY PERFORATED TAPE ADJUSTMENTS.

DETENT LEVER

REQUIREMENT

A PIECE OF TAPE CONTAINING NINE FEED
HOLES FOLLOWED BY A LETTERS COMBINATION
PERFORATED ON THE PERFORATOR MUST CON-
FORM TO THE 156011 TAPE GAUGE.
THE LATERAL CENTERLINE THROUGH THE
CODE HOLES IN THE TAPE SHOULD COIN-
CIDE WITH A LATERAL CENTERLINE THROUGH
THE HOLES IN THE GAUGE.

TO ADJUST

ROTATE THE DETENT ECCENTRIC CLOCKWISE TO MOVE
THE FEED HOLES TOWARD THE HINGED EDGE OF THE
CODE HOLES AND COUNTERCLOCKWISE TO MOVE THE
FEED HOLES TOWARD THE TRAILING EDGE OF THE CODE
HOLES. TIGHTEN THE ECCENTRIC LOCK NUT AND RE-
FINE THE FEED PAWL ADJUSTMENT.

RECHECK FEED PAWL ADJUSTMENT (FIGURE 1-21).

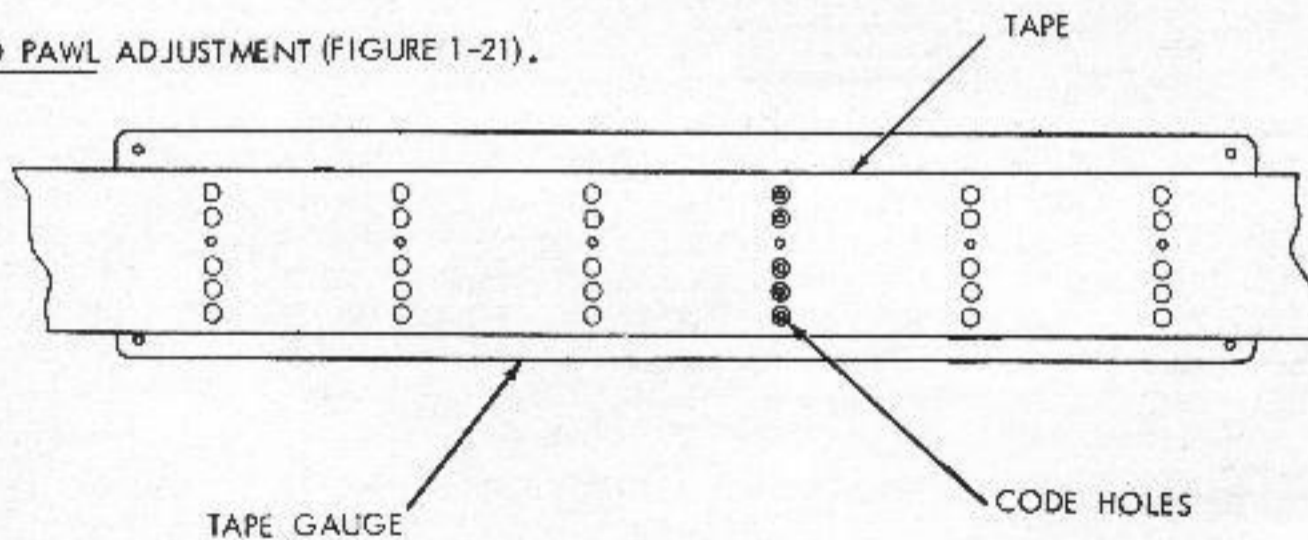


FIGURE 1-23. PERFORATOR MECHANISM FOR CHADLESS TAPE

NOTE

THE ADJUSTMENTS ON THIS PAGE ARE FOR CHADLESS TAPE. REFER TO FIGURE 1-28 FOR SIMILAR FULLY PERFORATED TAPE ADJUSTMENTS.

FEED HOLE LATERAL ALIGNMENT REQUIREMENT

WITH MACHINE OPERATING UNDER POWER, OBTAIN A TAPE CONSISTING OF A SERIES OF NINE "BLANKS" FOLLOWED BY A "LETTERS" COMBINATION. OPEN CHADS SO CODE HOLES ARE VISIBLE AND PLACE TAPE OVER THE 156011 TAPE GAGE WITH "LETTERS" COMBINATION FEED HOLES ENGAGING FEED PINS. THE LARGE HOLES IN GAGE ARE THE SAME DIAMETER AS THE CIRCULAR PORTION OF CODE HOLES IN TAPE. THE SMALL HOLES IN GAGE SERVE AS A GUIDE FOR GAGING. THE CIRCULAR PORTION OF CODE HOLES IN TAPE SHALL BE CONCENTRIC WITH HOLES IN TAPE GAGE.

TO ADJUST

LOOSEN ADJUSTING SCREW LOCK NUT AND POSITION ADJUSTING SCREW. TO MOVE HOLES OF GAGE AWAY FROM REFERENCE EDGE OF TAPE, MOVE FEED WHEEL TOWARDS FRONT PLATE OF PUNCH MECHANISM BY ROTATING ADJUSTING SCREW COUNTER CLOCKWISE. TO MOVE HOLES OF GAGE TOWARD THE REFERENCE EDGE OF TAPE, MOVE FEED WHEEL TOWARD BACKPLATE OF PUNCH MECHANISM BY ROTATING ADJUSTING SCREW CLOCKWISE.

TIGHTEN THE LOCK NUT. REFINE DETENT ADJUSTMENT (FIGURE 1-23) TO ALIGN LATERAL CENTER LINES OF CODE HOLES AND FEED HOLE IF REQUIRED.

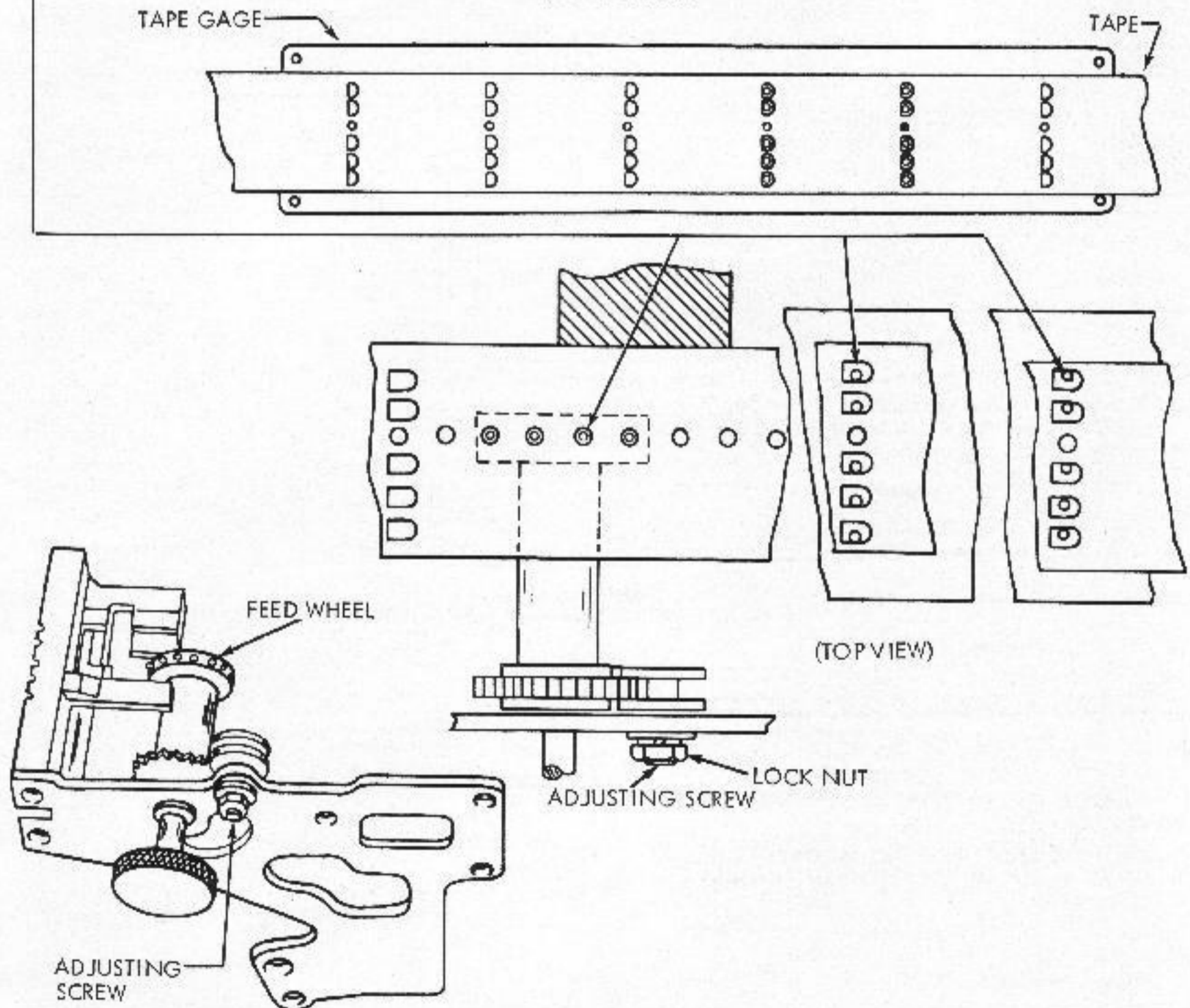


FIGURE 1-24. PERFORATOR MECHANISM FOR CHADLESS TAPE

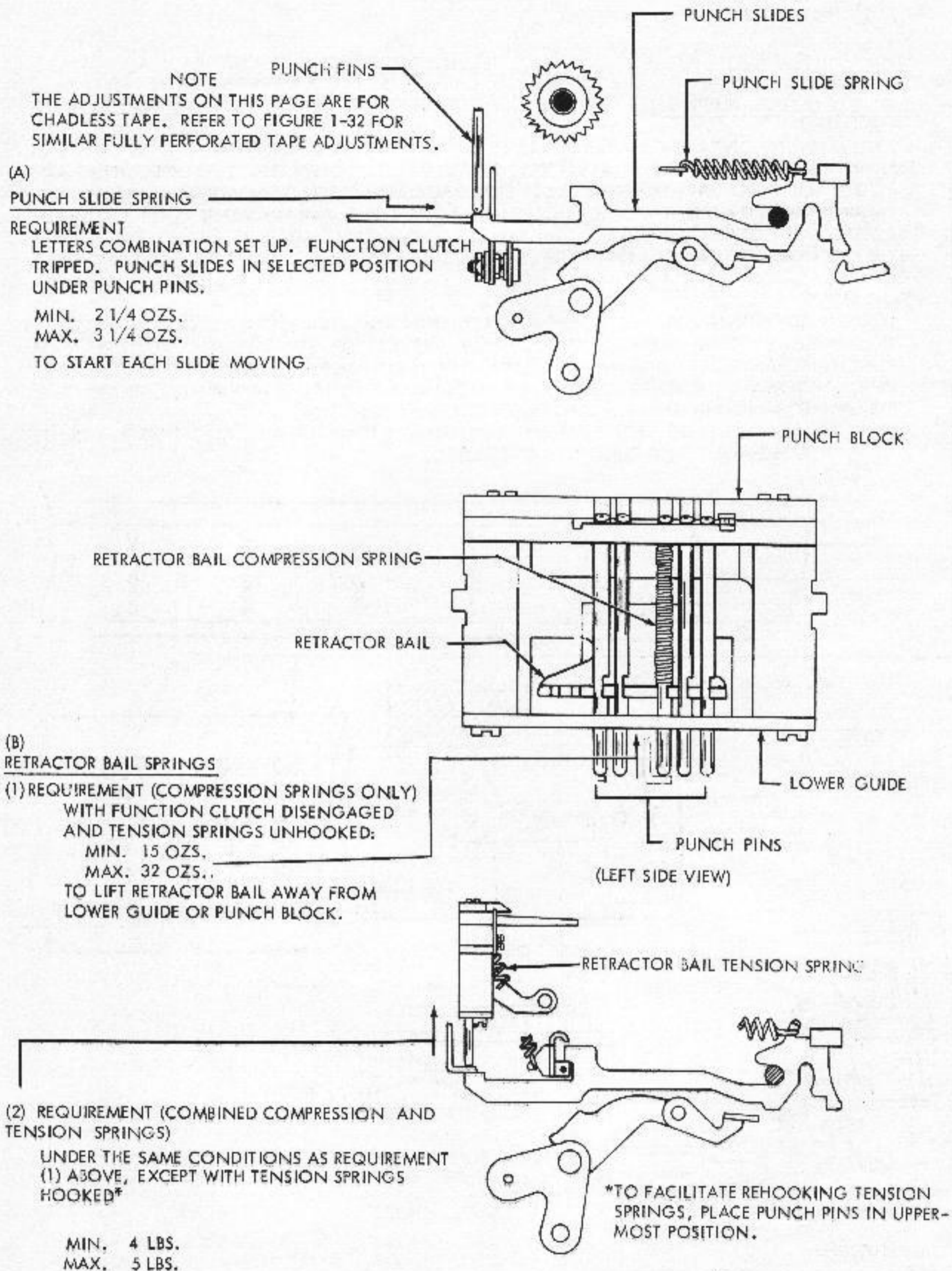
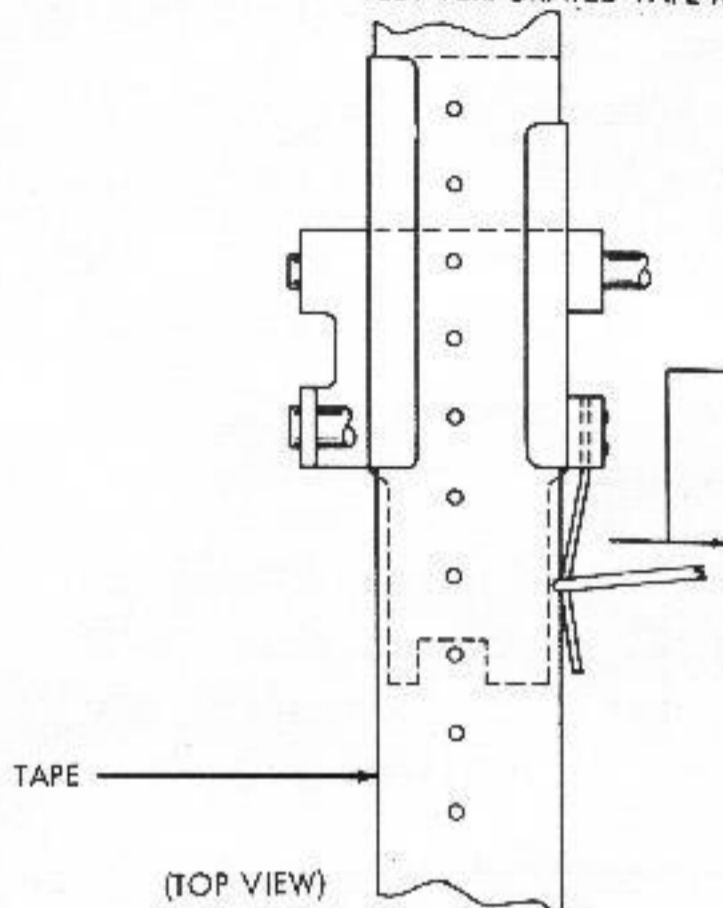


FIGURE 1-25. PERFORATOR MECHANISM FOR CHADLESS TAPE

CHANGE 5

NOTE
THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO CHADLESS
TAPE MECHANISM ADJUSTMENTS. REFER TO FIGURE 1-31 FOR
FULLY PERFORATED TAPE MECHANISM ADJUSTMENTS.



NOTE

ON UNITS EQUIPPED WITH BACK SPACE MECHANISM,
IT IS NECESSARY TO REMOVE SEVERAL PARTS IN ORDER
TO CHECK THIS SPRING TENSION. IT SHOULD NOT
BE CHECKED UNLESS THERE IS GOOD REASON TO BE-
LIEVE THAT IT DOES NOT MEET ITS REQUIREMENTS.

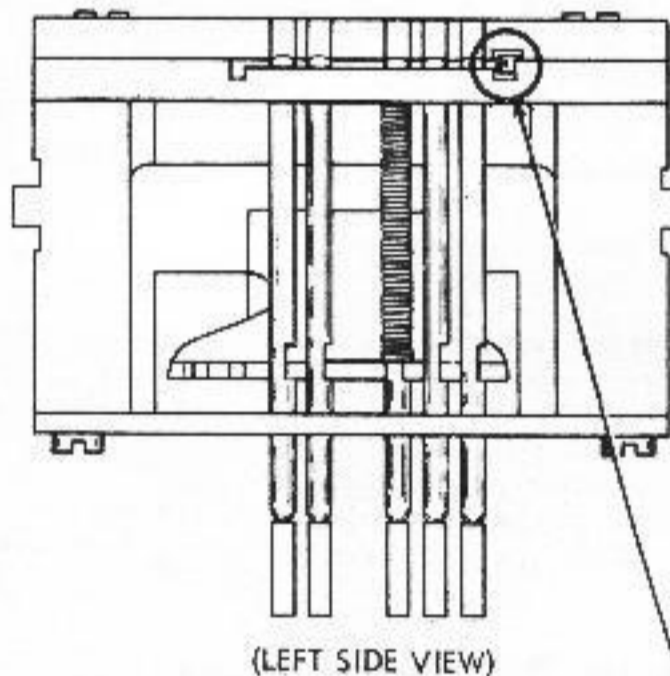
(A)
TAPE GUIDE SPRING (TAPE GUIDE)

REQUIREMENT

CLUTCH DISENGAGED AND TAPE THREADED
THROUGH PERFORATOR.
IT SHOULD REQUIRE
MIN. 1-1/4 OZS.
MAX. 2-1/4 OZS.

TO JUST MOVE THE SPRING AWAY FROM THE
TAPE

TO ADJUST
BEND THE SPRING.



PUNCH BLOCK

(B)

TAPE GUIDE SPRING (PUNCH BLOCK)

(1) REQUIREMENT

WITH TAPE REMOVED FROM PUNCH
BLOCK, TAPE BIASING SPRING SHOULD
REST AGAINST CLEARANCE SLOT IN
BLOCK AND SHOULD BE SYMMETRICAL (AS
GAUGED BY EYE) ABOUT TAPE OPENING
IN BLOCK.

(2) REQUIREMENT

WITH TAPE IN THE PUNCH BLOCK AND THE
PERFORATOR OPERATING UNDER POWER,
THE SPRING SHOULD NOT DISTORT THE EDGE
OF THE TAPE

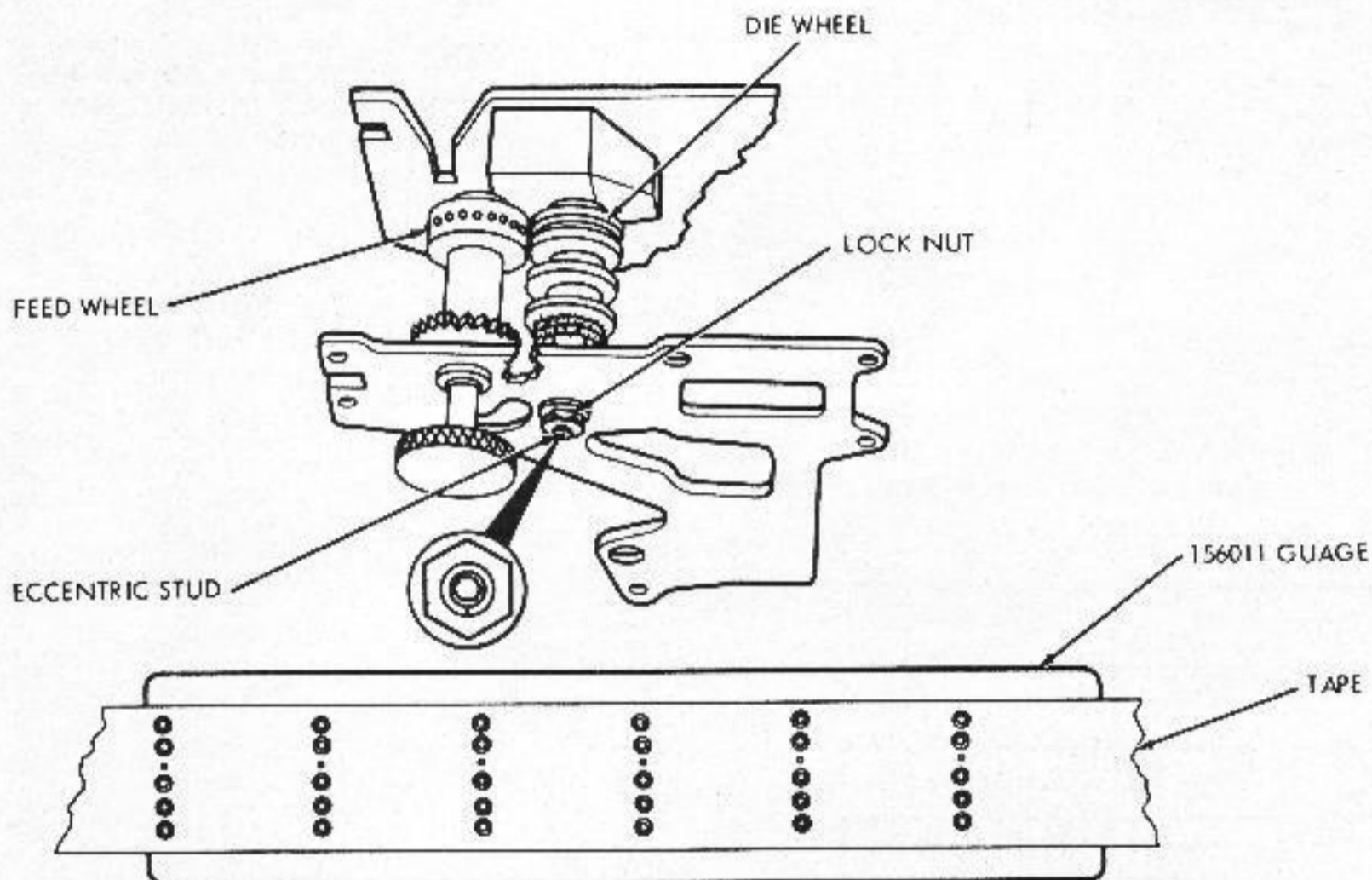
TO ADJUST

BEND THE SPRING AND POSITION IT WITH ITS
MOUNTING SCREW LOOSENED.

FIGURE 1-26. PERFORATOR MECHANISM FOR CHADLESS TAPE

NOTE

THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO THE FULLY PERFORATED TAPE MECHANISM THAT HAS THE INDENTATIONS OF THE FEED WHEEL FULLY PUNCHED OUT BY THE FEED PUNCH. REFER TO FIGURE 1-22 FOR SIMILAR CHADLESS TAPE ADJUSTMENTS.



NOTE

BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENT CHECK BOTH TAPE GUIDE SPRING TENSIONS (FIGURE 1-31).

FEED HOLE SPACING
(1) REQUIREMENT

WITH A PIECE OF TAPE PERFORATED WITH SIX SERIES OF 9 BLANK CODE COMBINATIONS FOLLOWED BY A LETTERS COMBINATION PLACED OVER THE SMOOTH SIDE OF THE 156011 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 SHALL 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 THE PUNCH MECHANISM, LOOSEN THE ECCENTRIC LOCK NUT AND ROTATE THE DIE WHEEL ECCENTRIC SHAFT UNTIL IT BINDS AGAINST THE FEED WHEEL. BACK OFF THE ECCENTRIC UNTIL THE DIE WHEEL IS JUST FREE. KEEP THE INDENT OF THE 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.

FIGURE 1-27. PERFORATOR MECHANISM FOR FULLY PERFORATED TAPE WITH INDENTATIONS OF THE FEED WHEEL FULLY PUNCHED OUT.

NOTE

THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO THE FULLY PERFORATED TAPE MECHANISM THAT HAS THE INDENTATIONS OF THE FEED WHEEL FULLY PUNCHED OUT. REFER TO FIGURE 1-24 FOR SIMILAR CHADLESS TAPE ADJUSTMENTS.

FEED WHEEL INDENTATION ALIGNMENT(1) REQUIREMENT

WHEN A PIECE OF TAPE IS PERFORATED WITH A SERIES OF BLANK CODE COMBINATIONS THE INDENTATIONS OF THE FEED WHEEL SHALL BE FULLY PUNCHED OUT.

TO ADJUST

RIGHT OR LEFT, ROTATE THE DETENT LEVER ECCENTRIC STUD CLOCKWISE TO MOVE THE FEED PERFORATION TOWARD THE LEADING EDGE OF THE CODE HOLES, AND COUNTER CLOCKWISE TO MOVE THE FEED WHEEL PERFORATIONS TOWARD THE TRAILING EDGE OF THE CODE HOLES. REFINE THE FEED PAWL ADJUSTMENT.

FRONT TO REAR, LOOSEN THE LOCK NUT ON THE ADJUSTING SCREW AND TURN THE SCREW CLOCKWISE TO MOVE TAPE TOWARD REFERENCE EDGE (REAR), AND COUNTER CLOCKWISE TO MOVE THE TAPE AWAY FROM REFERENCE EDGE (FRONT).

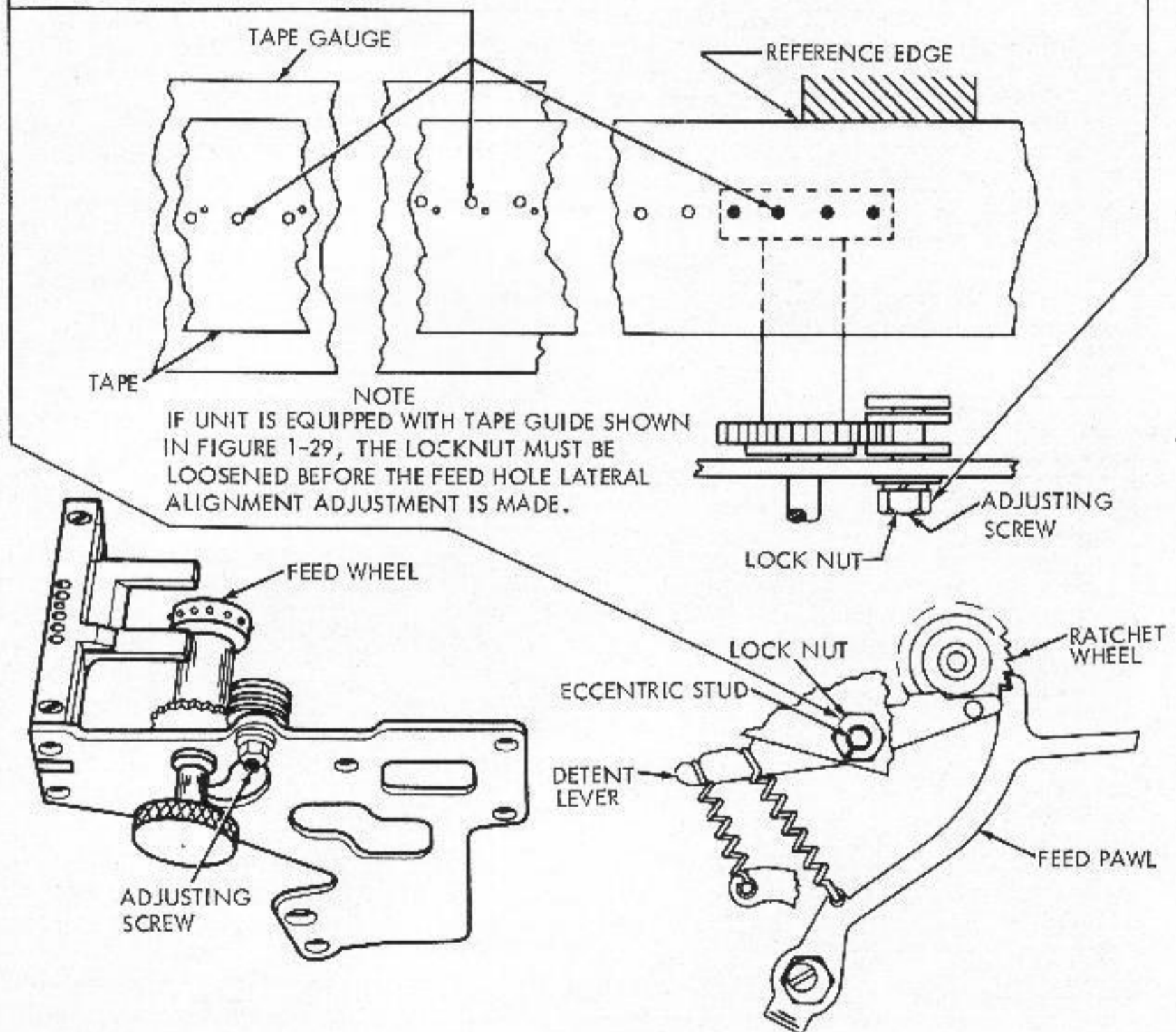


FIGURE 1-2B. PERFORATOR MECHANISM FOR FULLY PERFORATED TAPE WITH INDENTATION OF THE FEED WHEEL FULLY PUNCHED OUT

NOTE

BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENTS, CHECK BOTH TAPE GUIDE SPRING TENSIONS, FEED HOLE SPACING (FINAL) *(SEE NOTE BELOW)

REQUIREMENT

- (1) WITH TAPE SHOE BLOCKED AWAY FROM THE FEED WHEEL, THE FEED PAWL AND DETENT DISENGAGED, AND TAPE REMOVED FROM THE PUNCH MECHANISM, THE FEED WHEEL SHALL ROTATE FREELY. (CHECK THROUGH 3 OR 4 ROTATIONS).
- (2) PERFORATE SIX SERIES OF (9) "BLANK" COMBINATIONS FOLLOWED BY (1) "LETTERS" COMBINATION, PLACE TAPE OVER SMOOTH SIDE OF THE 156011 TAPE GAGE SO CIRCULAR PORTION OF THE FIRST NUMBER TWO CODE HOLE IN TAPE IS CONCENTRIC WITH THE FIRST (0.072) HOLE OF TAPE GAGE. (SEE NOTE). THE NEXT FOUR 0.072 HOLES IN TAPE GAGE SHALL BE VISIBLE THROUGH THE NUMBER TWO CODE HOLES IN TAPE AND CIRCULAR PORTION OF THE LAST (SIXTH) NUMBER TWO CODE HOLE IN TAPE SHALL BE ENTIRELY WITHIN THE 0.086 DIA. HOLE OF TAPE GAGE.

NOTE

THE FIRST FIVE HOLES IN GAGE ARE THE SAME SIZE AS CODE HOLES IN TAPE (0.072 INCH DIAMETER) BUT THE SIXTH HOLE IN GAGE IS LARGER THAN THE FIRST FIVE (0.086 INCH DIAMETER). THIS ARRANGEMENT ALLOWS ± 0.007 INCH VARIATION IN FIVE (5) INCHES.

TO ADJUST

- (1) WITH TAPE REMOVED FROM PUNCH MECHANISM, LOOSEN DIE WHEEL ECCENTRIC STUD LOCK NUT AND ADJUST DIE WHEEL SO THAT IT JUST BINDS ON FEED WHEEL, BACK OFF ECCENTRIC SO DIE WHEEL IS JUST FREE (CHECK FREENESS THROUGH 3 OR 4 ROTATIONS). KEEP INDENT OFF ECCENTRIC STUD BELOW THE HORIZONTAL CENTER LINE OF STUD.
- (2) CHECK TEN CHARACTERS PER INCH REQUIREMENT AND REFINE FEED WHEEL DIE WHEEL CLEARANCE ADJUSTMENT TO MEET THE REQUIREMENT BY MOVING INDENT OF DIE WHEEL ECCENTRIC STUD TOWARD FEED WHEEL TO DECREASE CHARACTER SPACING AND AWAY FROM FEED WHEEL TO INCREASE THE CHARACTER SPACING.

CAUTION: WITH THE TAPE REMOVED FROM THE PUNCH MECHANISM, BE SURE THE DIE WHEEL DOES NOT BIND.

- (3) WITH THE TAPE SHOE AWAY FROM THE FEED WHEEL, THE FEED PAWL AND DETENT DISENGAGED, AND THE TAPE REMOVED FROM THE PUNCH MECHANISM, THE FEED WHEEL SHALL ROTATE FREELY. FAILURE TO MEET THIS REQUIREMENT INDICATES THE DIE WHEEL ECCENTRIC HAS BEEN OVER-ADJUSTED. TO MEET THIS REQUIREMENT, REFINE THE ADJUSTMENT.

*NOTE

THE ADJUSTMENTS ON THIS PAGE ARE FOR FIVE LEVEL FULLY PERFORATED TAPES, WITH INDENTATION OF FEED WHEEL BETWEEN FEED HOLES.

- (1) 11/16 INCH WIDE TAPE WITH PRINTING BETWEEN FEED HOLES.
- (2) 7/8 INCH WIDE TAPE HAVING A MARGIN FOR PRINTING AT TOP OF TAPE.
- (3) 7/8 INCH WIDE TAPE HAVING A MARGIN FOR PRINTING AT BOTTOM OF TAPE. (SEE FIGURE ON FOLLOWING PAGE)

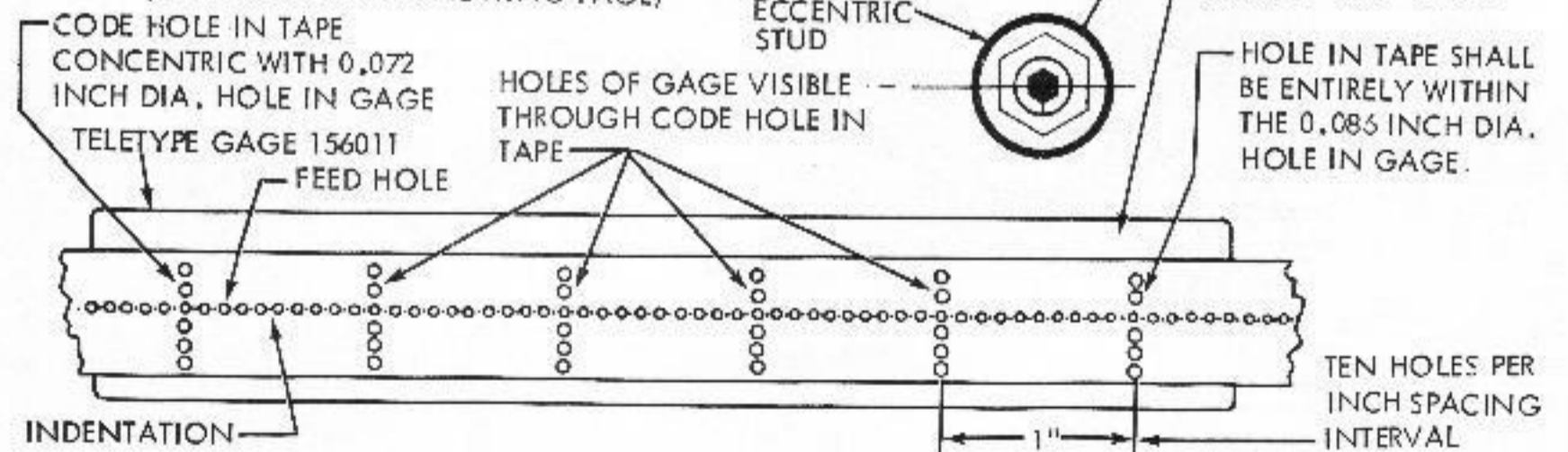


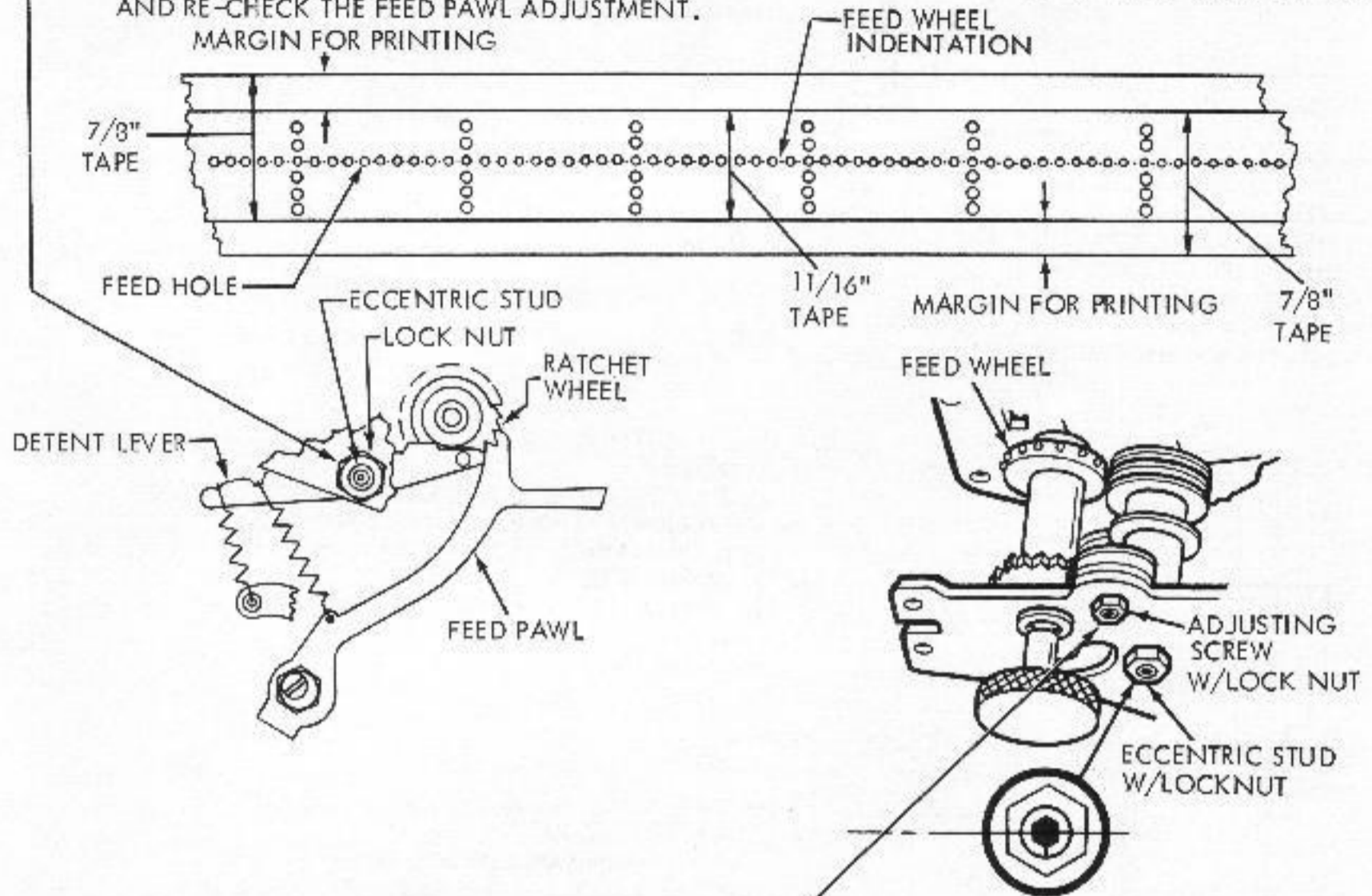
FIGURE 1-29. PERFORATOR MECHANISM FOR FULLY PERFORATED TAPE WITH INDENTATION OF THE FEED WHEEL BETWEEN THE FEED HOLES

DETENT (FOR FULLY PERFORATED TAPE WITH INDENTATION OF FEED WHEEL BETWEEN THE FEED HOLES)
REQUIREMENT *(SEE NOTE BELOW)

WITH THE UNIT OPERATING UNDER POWER, THE INDENTATIONS OF THE FEED WHEEL SHALL BE CENTRALLY LOCATED BETWEEN TWO FULLY PERFORATED FEED HOLES, AS GAGED BY EYE.

TO ADJUST

LOOSEN THE DETENT LEVER ECCENTRIC STUD LOCK NUT AND TURN THE ECCENTRIC STUD CLOCKWISE TO MOVE THE INDENTATION TOWARD THE LEADING EDGE OF THE FEED HOLE AND COUNTERCLOCKWISE TO MOVE THE INDENTATION TOWARD THE TRAILING EDGE. TIGHTEN THE LOCK NUT AND RE-CHECK THE FEED PAWL ADJUSTMENT.



FEED HOLE LATERAL ALIGNMENT
REQUIREMENT

WITH THE UNIT OPERATING UNDER POWER, THE INDENTATIONS OF THE FEED WHEEL SHOULD BE ON A CENTERLINE BETWEEN THE FULLY PERFORATED FEED HOLES, AS GAGED BY EYE.

TO ADJUST

WITH THE ADJUSTING SCREW LOCK NUT LOOSE TURN THE ADJUSTING SCREW CLOCKWISE TO MOVE THE INDENTATION TOWARD THE REAR AND COUNTERCLOCKWISE TO MOVE THE INDENTATIONS TOWARD THE FRONT.

*NOTE

THE ADJUSTMENTS ON THIS PAGE ARE FOR FIVE-LEVEL FULLY PERFORATED TAPES, WITH INDENTATION OF FEED WHEEL BETWEEN FEED HOLES.

- (1) 11/16 INCH WIDE TAPE WITH PRINTING BETWEEN FEED HOLES.
- (2) 7/8 INCH WIDE TAPE HAVING A MARGIN FOR PRINTING AT TOP OF TAPE.
- (3) 7/8 INCH WIDE TAPE HAVING A MARGIN FOR PRINTING AT BOTTOM OF TAPE.

FIGURE 1-30. PERFORATOR MECHANISM FOR FULLY PERFORATED TAPE WITH INDENTATION OF THE FEED WHEEL BETWEEN THE FEED HOLES

NOTE
THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO FULLY PERFORATED TAPE MECHANISM. REFER TO FIGURE 1-26 FOR SIMILAR CHADLESS TAPE MECHANISM ADJUSTMENTS.

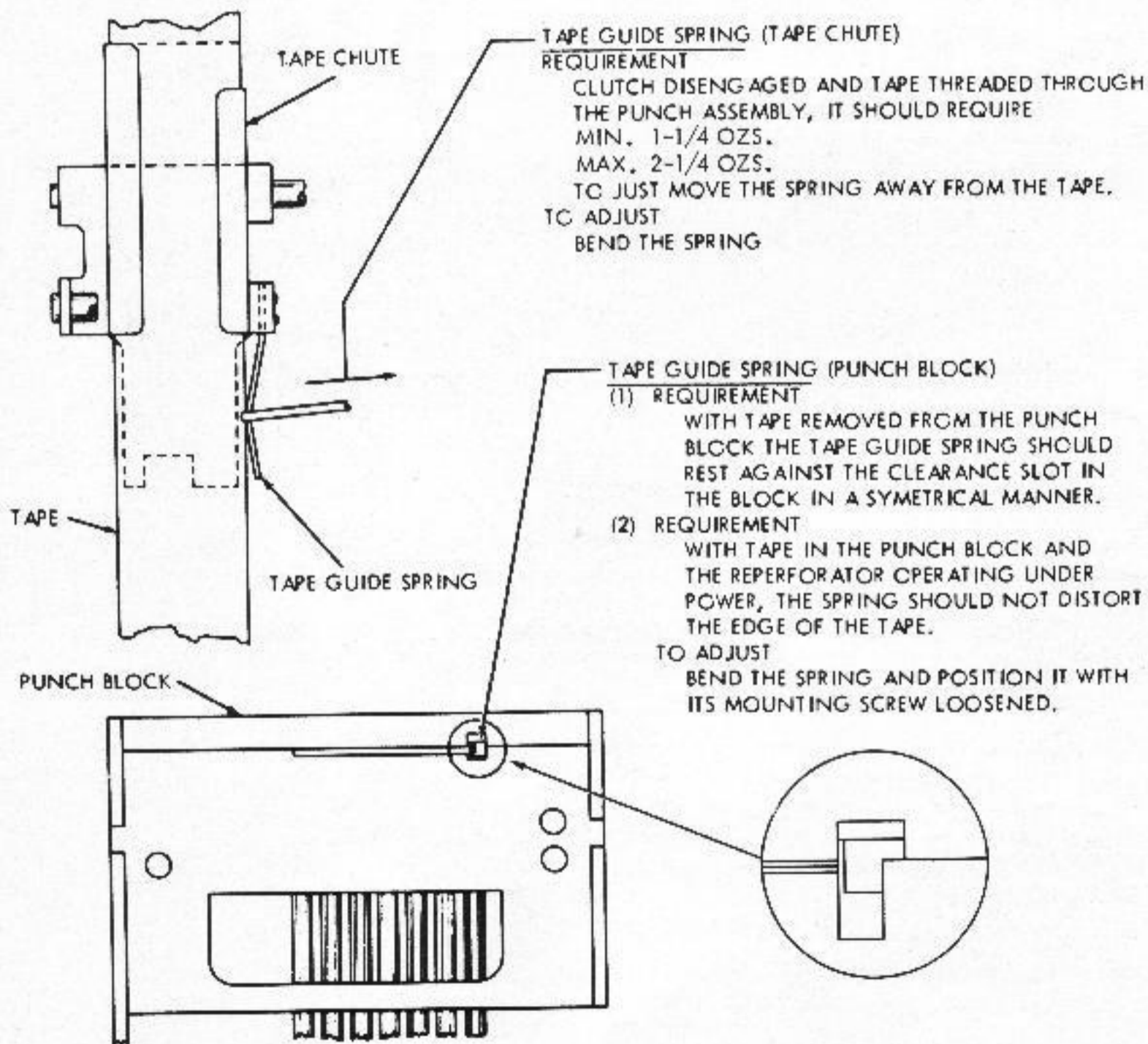
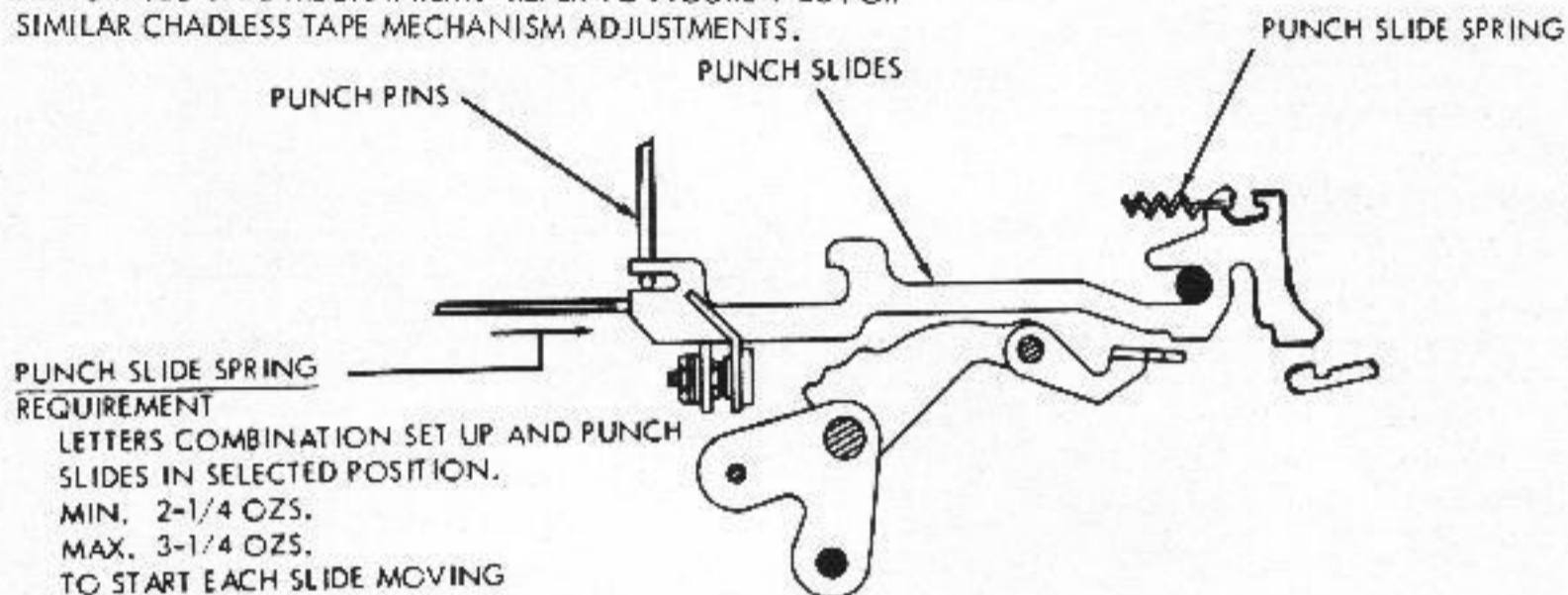


FIGURE 1-31. PERFORATOR MECHANISM FOR FULLY PERFORATED TAPE

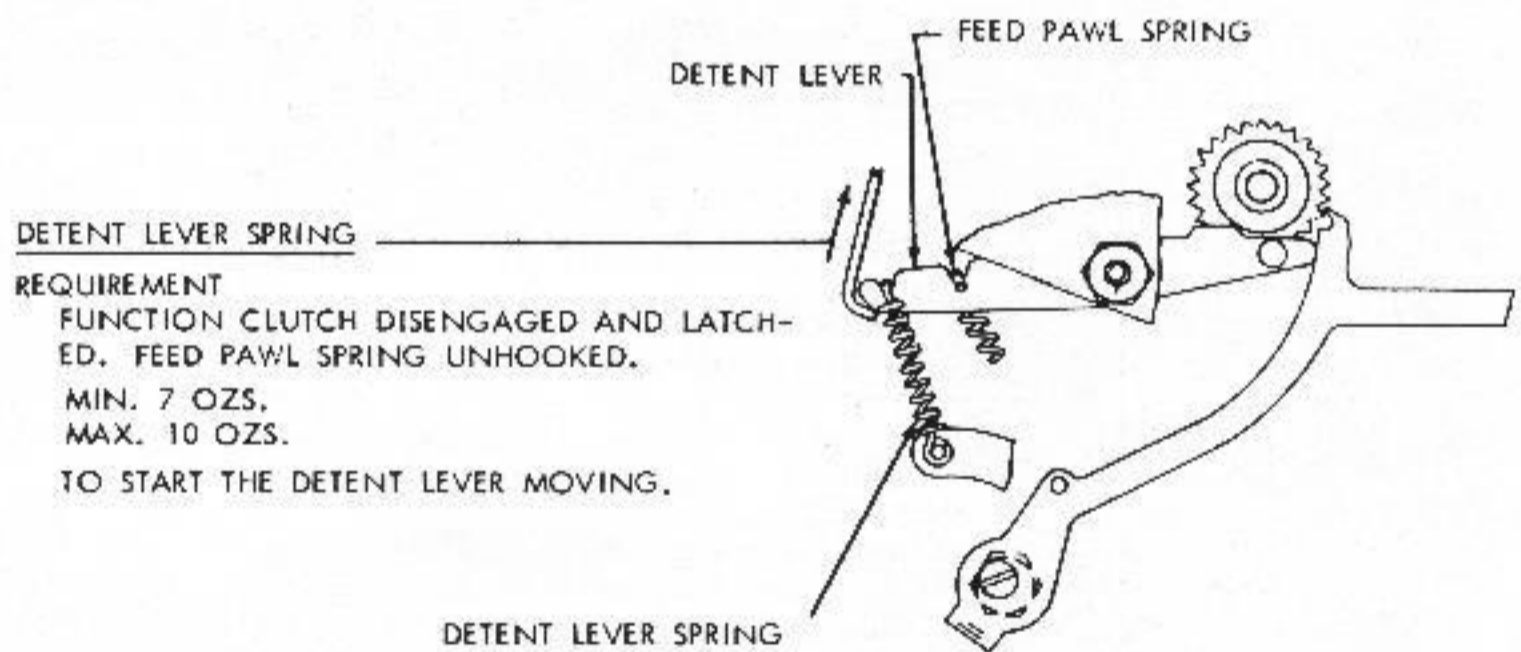
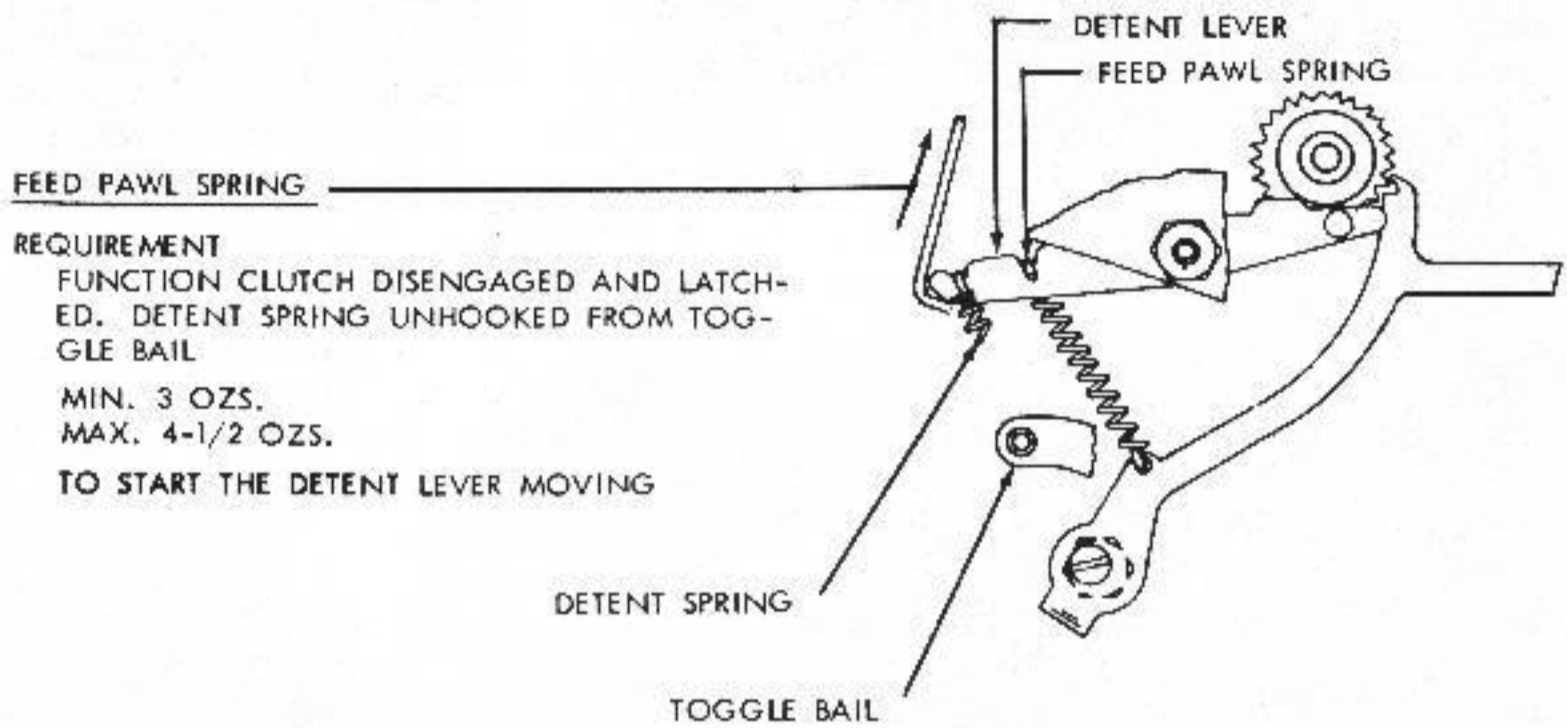


FIGURE 1-32. PERFORATOR MECHANISM

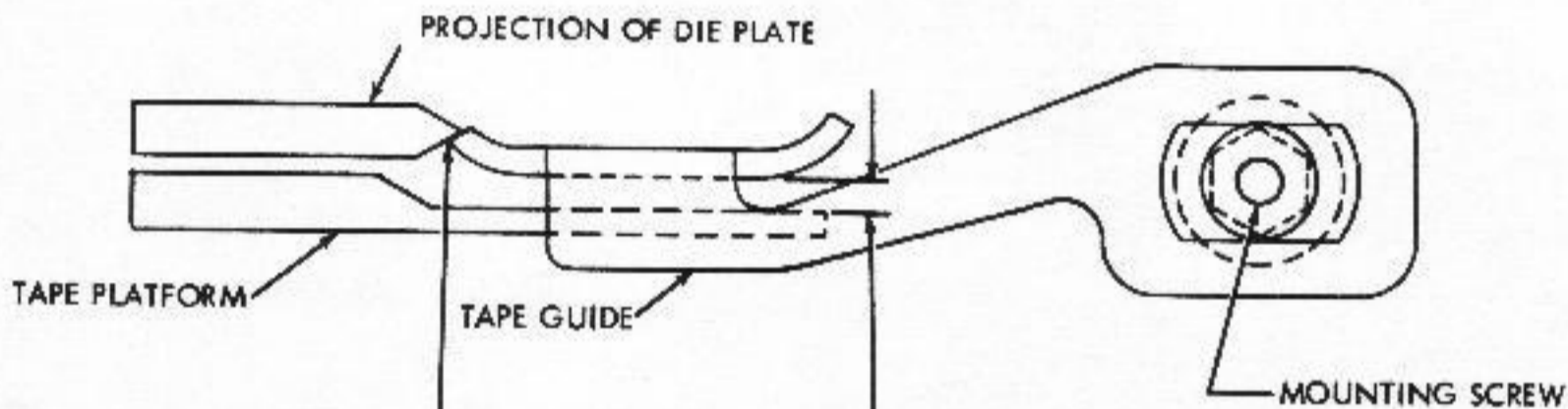
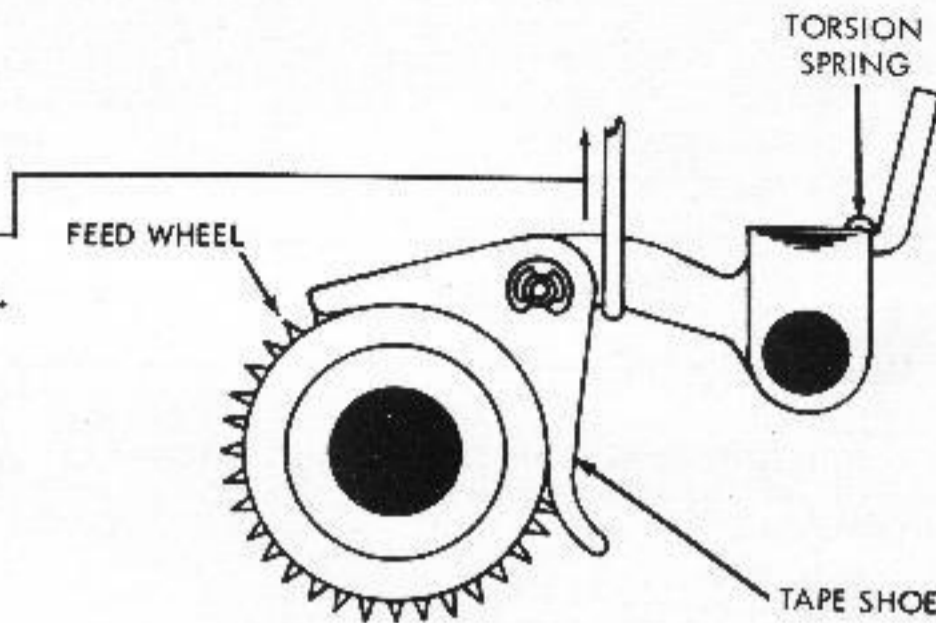
TAPE TORSION SPRING
REQUIREMENT

WITH FEED PAWL EXTENSION MOVED
OUT OF PATH OF TAPE FEED DISABLER
LEVER (IF PRESENT)

MIN. 13 OZS.

MAX. 18 OZS.

TO MOVE TAPE SHOE FROM FEED WHEEL.



TAPE GUIDE

REQUIREMENT

WITH TAPE GUIDE UNDER AND IN CONTACT
WITH V-SHAPED PROJECTION OF DIE PLATE: *

MIN. 0.008 INCH----MAX. 0.015 INCH
CLEARANCE BETWEEN GUIDE AND TAPE PLAT-
FORM.

TO ADJUST

WITH MOUNTING SCREW FRICTION TIGHT,
PLACE 0.010 INCH FLAT GAUGE BETWEEN
GUIDE AND TAPE PLATFORM. PRESS GUIDE
DOWN AND TO LEFT. TIGHTEN MOUNTING
SCREW, KEEPING FEED WHEEL ADJUSTING
SCREW (FIGURE 1-28) STATIONARY BY
MEANS OF ALLEN WRENCH.

* GUIDE IS CONSIDERED "IN CONTACT" WITH
PROJECTION WHEN 0.0015 INCH GAUGE CAN-
NOT BE INSERTED BETWEEN THEM.

FIGURE 1-33. FEED WHEEL AND TAPE GUIDE

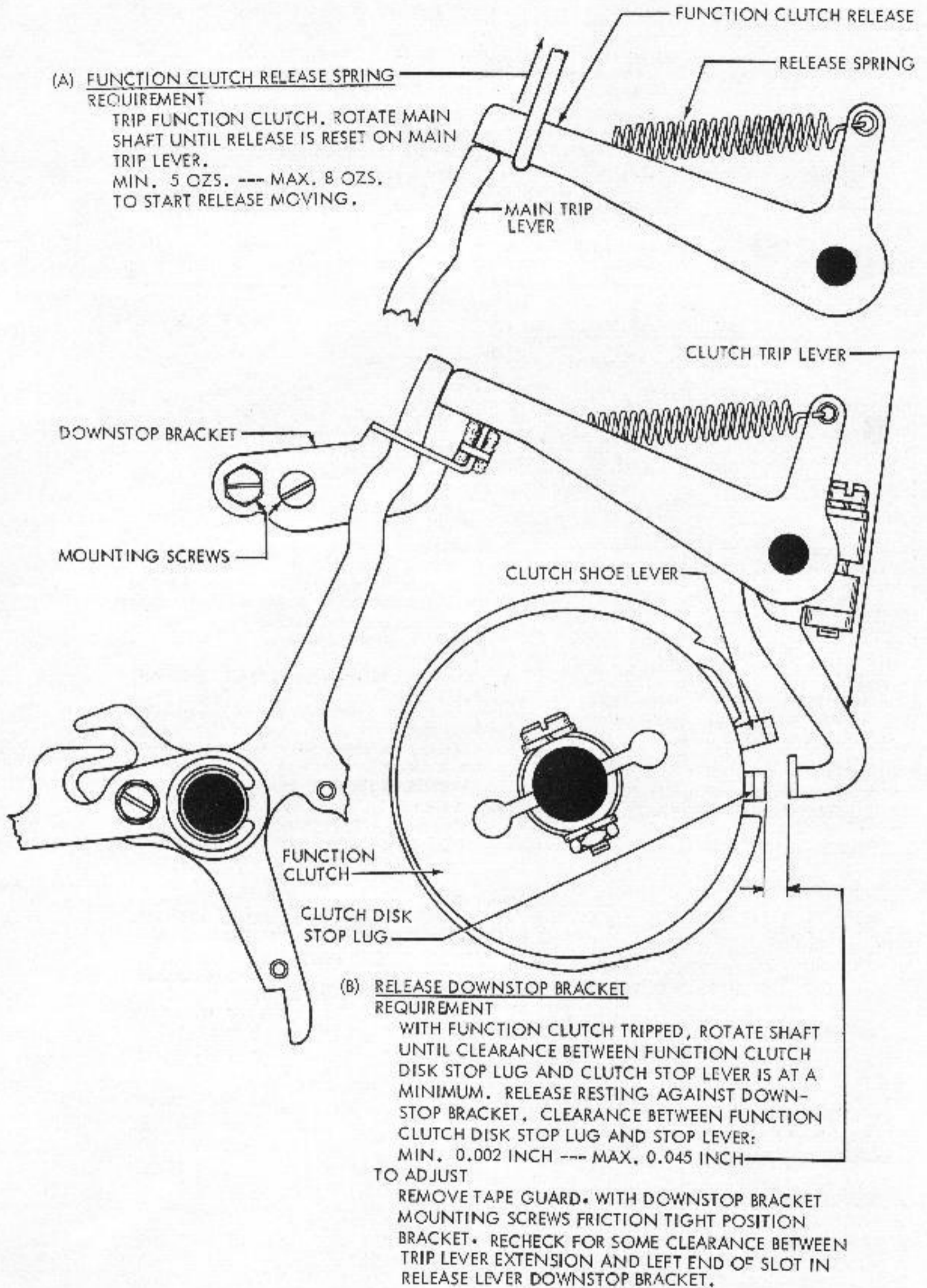


FIGURE 1-34. FUNCTION MECHANISM

(A) PUSH BAR OPERATING BLADE (PRELIMINARY)

TO CHECK

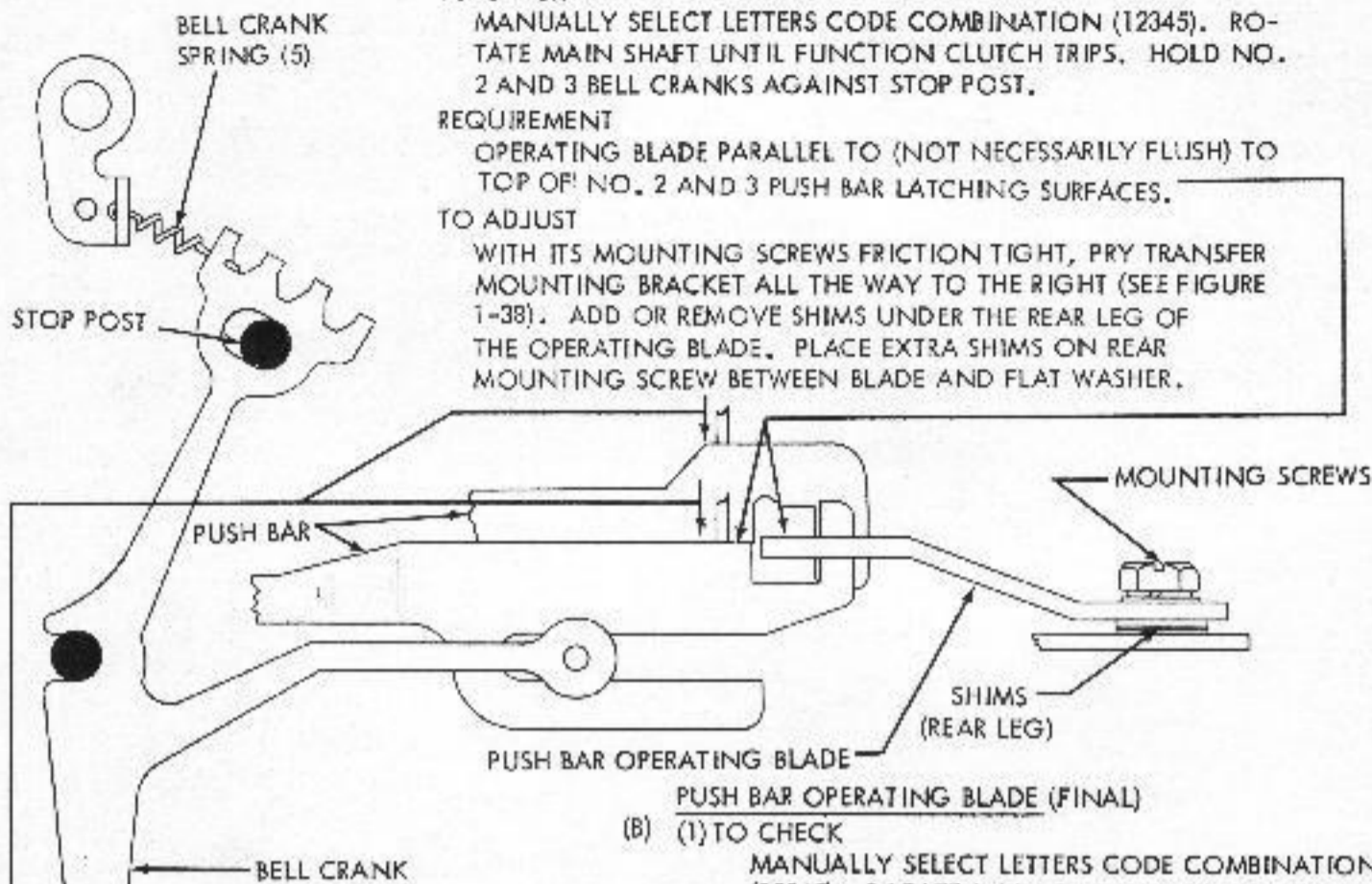
MANUALLY SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. HOLD NO. 2 AND 3 BELL CRANKS AGAINST STOP POST.

REQUIREMENT

OPERATING BLADE PARALLEL TO (NOT NECESSARILY FLUSH) TO TOP OF NO. 2 AND 3 PUSH BAR LATCHING SURFACES.

TO ADJUST

WITH ITS MOUNTING SCREWS FRICTION TIGHT, PRY TRANSFER MOUNTING BRACKET ALL THE WAY TO THE RIGHT (SEE FIGURE 1-38). ADD OR REMOVE SHIMS UNDER THE REAR LEG OF THE OPERATING BLADE. PLACE EXTRA SHIMS ON REAR MOUNTING SCREW BETWEEN BLADE AND FLAT WASHER.

PUSH BAR OPERATING BLADE (FINAL)

(B) (1) TO CHECK

MANUALLY SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. MANUALLY SEAT PUSH BARS IN DETENTED POSITION. IN BAR WHICH IS NEAREST LEFT EDGE OF BLADE, TAKE UP PLAY TO LEFT AND REAR, AND THEN RELEASE.

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 PUSH BARS 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.

NOTE:

IT MAY BE NECESSARY TO REFINE THIS ADJUSTMENT AFTER ROCKER BAIL PILOT STUD ADJUSTMENT (FIGURE 1-36)

(C) BELL CRANK SPRINGS (5)

TO CHECK

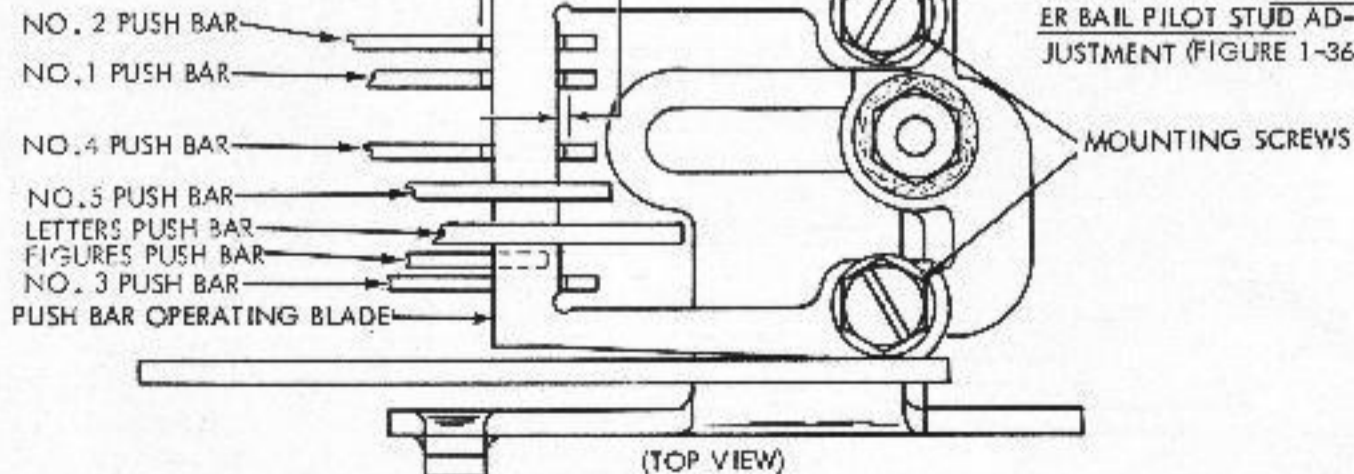
SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS.

REQUIREMENT

MIN. 1 OZ. --- MAX. 3 OZS.
TO START PUSH BAR MOVING

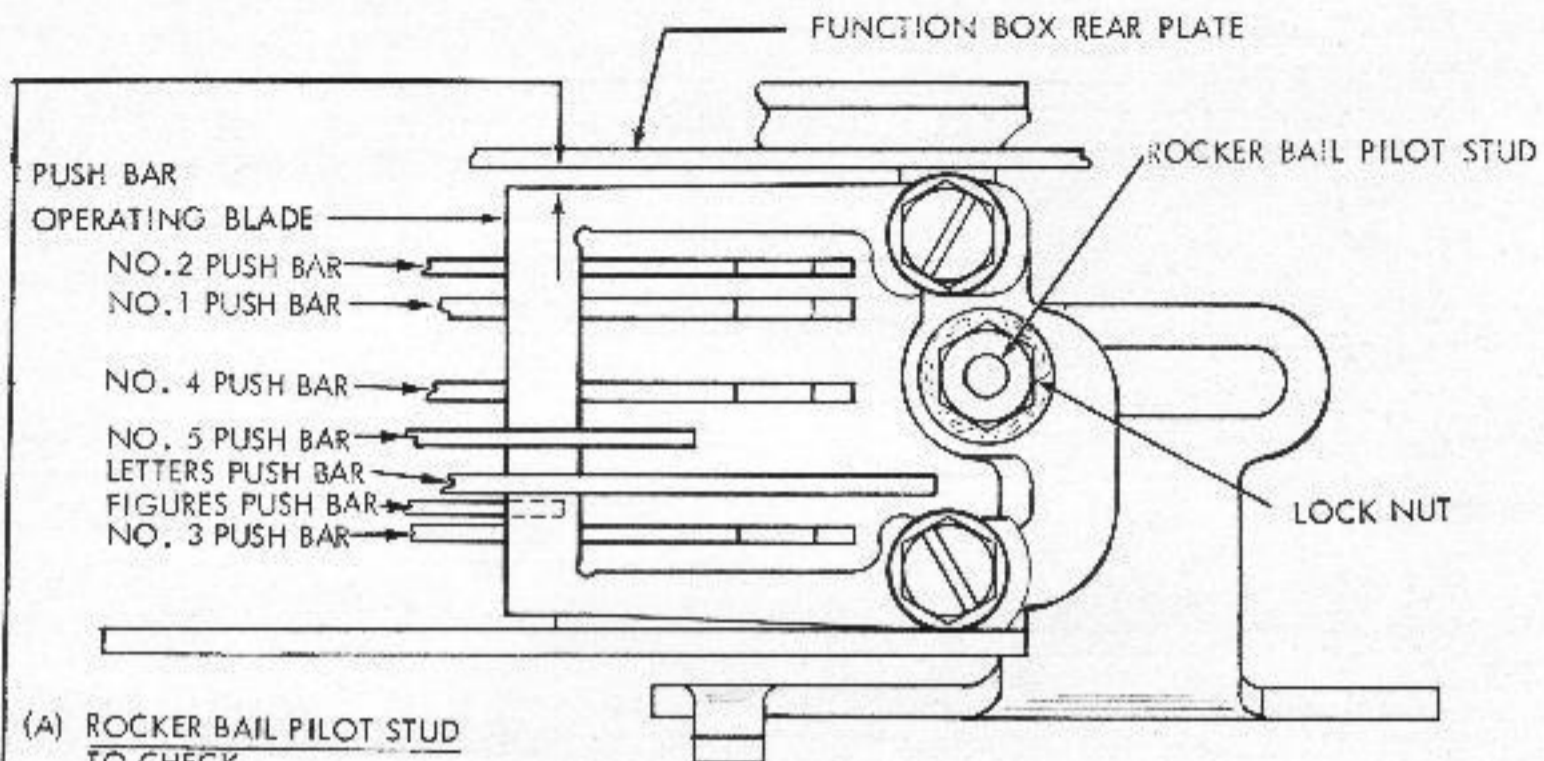
NOTE:

CHECK ALL FIVE SPRINGS.



(TOP VIEW)

FIGURE 1-35. FUNCTION MECHANISM



(TOP VIEW)

(A) ROCKER BAIL PILOT STUD
TO CHECK

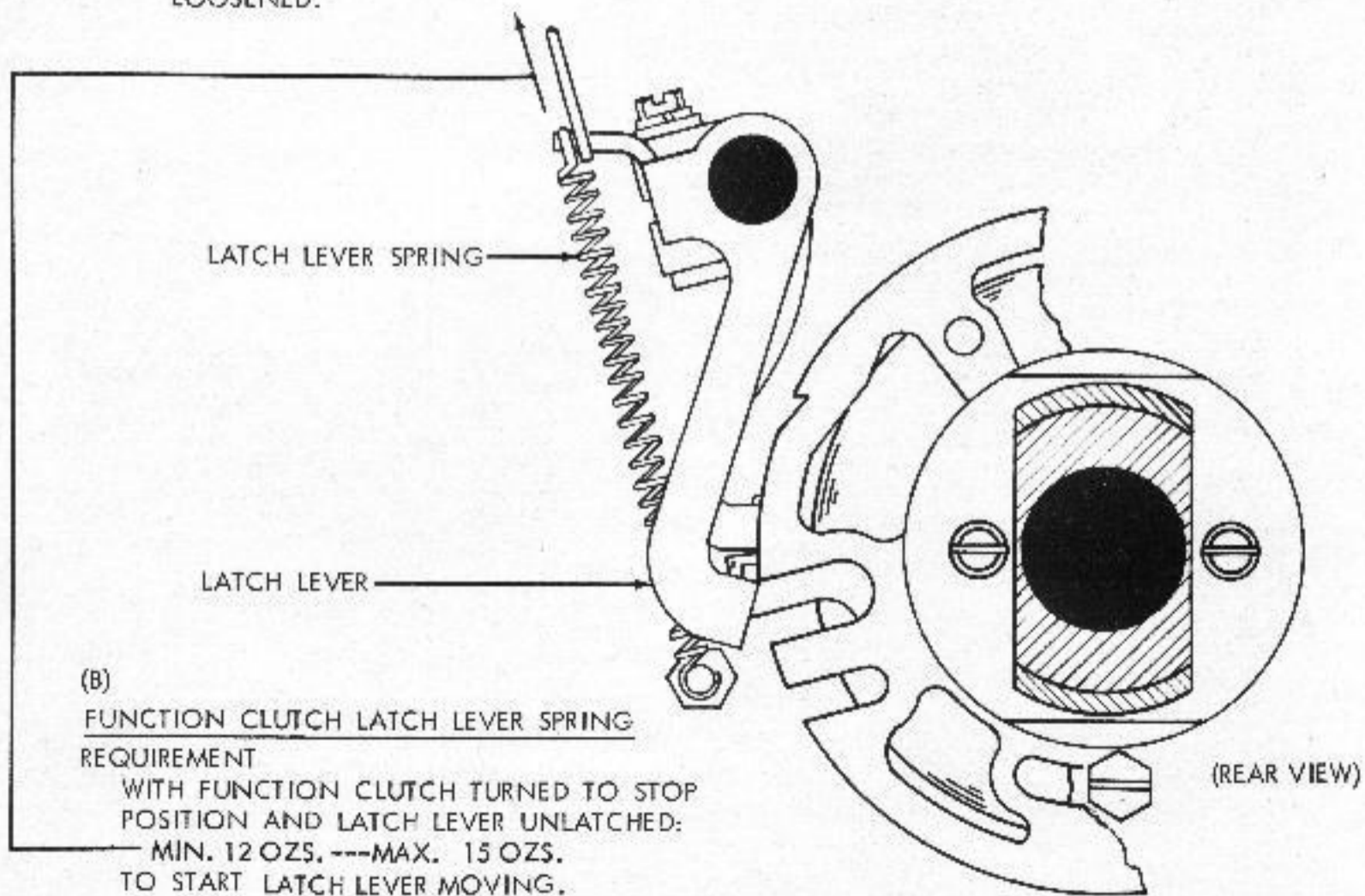
SELECT BLANK COMBINATION. POSITION
ROCKER BAIL THROUGH A COMPLETE CYCLE
TO INSURE THE CLEARANCE IS A MINIMUM.

REQUIREMENT

CLEARANCE BETWEEN FUNCTION BOX REAR
PLATE AND PUSH BAR OPERATING BLADE:
MIN. 0.005 INCH ---- MAX. 0.020 INCH
AT A POINT IN THE CYCLE AND WHEN PLAY IS
TAKEN UP TO MAKE CLEARANCE MINIMUM.

TO ADJUST

POSITION ROCKER BAIL PILOT STUD IN
ELONGATED HOLE WITH LOCK NUT
LOOSENED.



(B) FUNCTION CLUTCH LATCH LEVER SPRING

REQUIREMENT

WITH FUNCTION CLUTCH TURNED TO STOP
POSITION AND LATCH LEVER UNLATCHED:

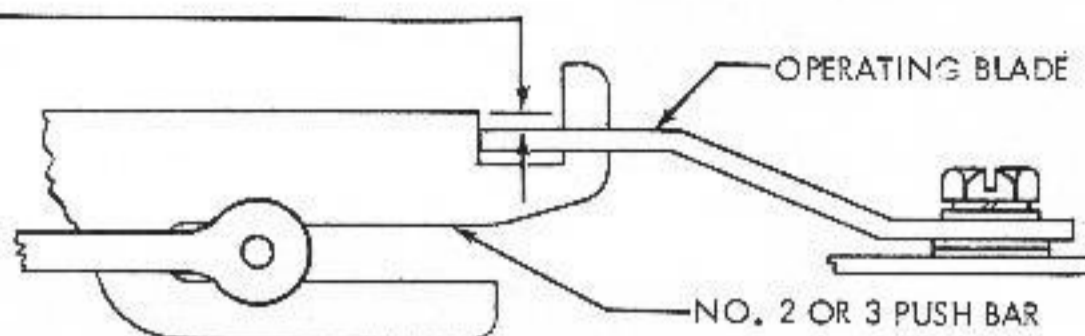
MIN. 12 OZS. ---MAX. 15 OZS.

TO START LATCH LEVER MOVING.

FIGURE 1-36. FUNCTION MECHANISM

FUNCTION BOX
REQUIREMENT

MANUALLY SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS, AND PUNCH SLIDES ARE DISENGAGED FROM LATCHES (FIGURE 1-20). THE TOP OF THE OPERATING BLADE SHALL BE FLUSH --- MAX. 0.020 INCH



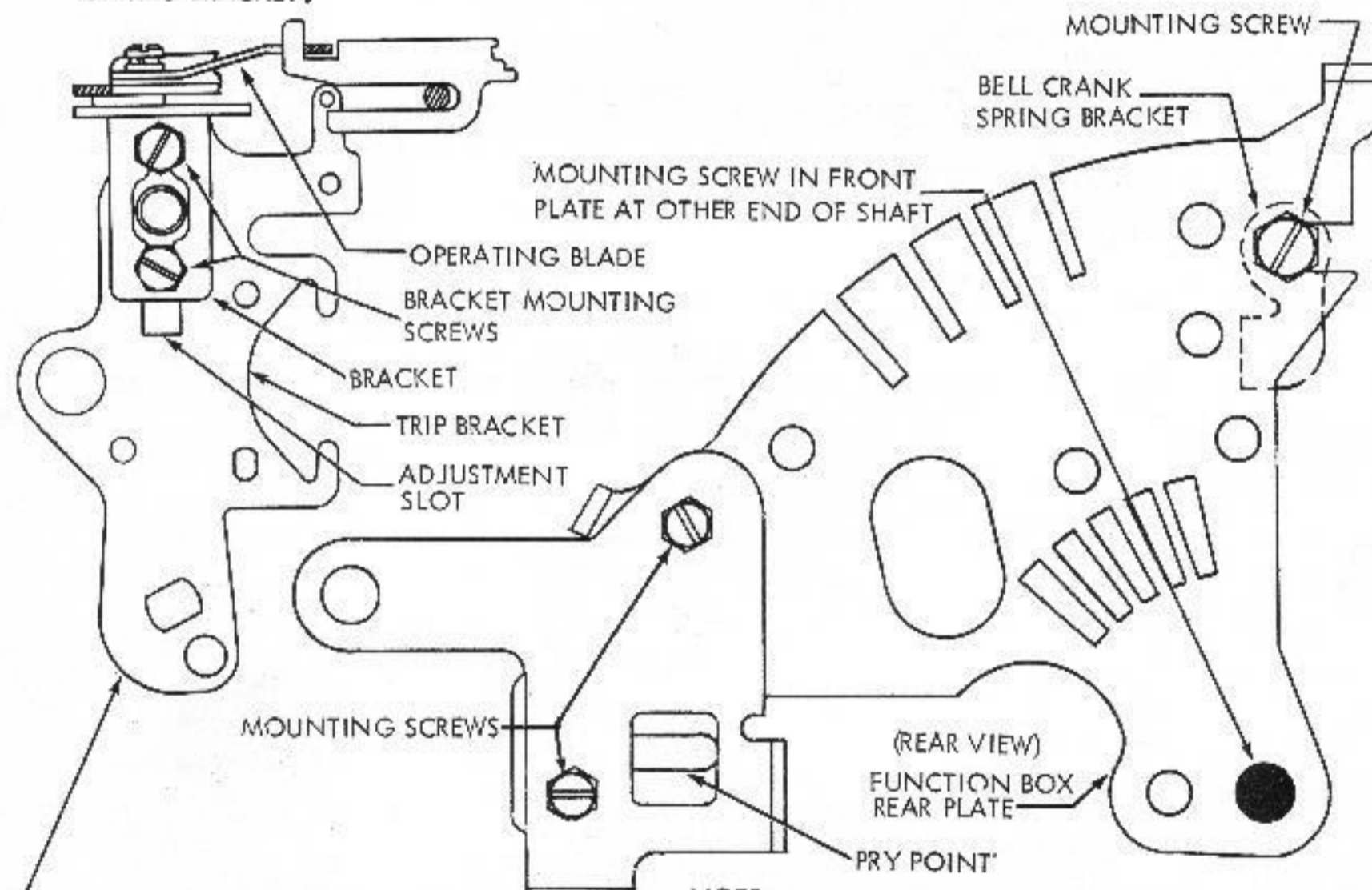
BELOW THE TOPS OF THE NO. 2 AND 3 PUSH BARS. TAKE UP PLAY IN PUSHBARS IN A DOWNWARD DIRECTION THEN RELEASE.

NOTE

WHEN UNIT IS MOUNTED AS PART OF THE KEYBOARD PERFORATOR TRANSMITTER, IT MAY BE NECESSARY TO REFINE THE ADJUSTMENT WITHIN ITS LIMITS TO INCREASE OPERATING MARGINS OF THE UNIT.

TO ADJUST

WITH THREE MOUNTING SCREWS IN REAR PLATE AND ONE MOUNTING SCREW IN FRONT PLATE LOOSENED, POSITION FUNCTION BOX BY MEANS OF PRY POINT. CHECK POSITION OF BELL CRANK SPRING BRACKET.



NOTE

ON UNITS EQUIPPED WITH TWO-PIECE TRIP BRACKET, SET ABOVE ADJUSTMENT IN CENTER OF ITS RANGE AND TIGHTEN SCREWS. LOOSEN TWO SCREWS WHICH MOUNT GUIDE TO BRACKET AND POSITION GUIDE TO MEET ABOVE REQUIREMENT.

FIGURE 1-37. FUNCTION BOX MECHANISM

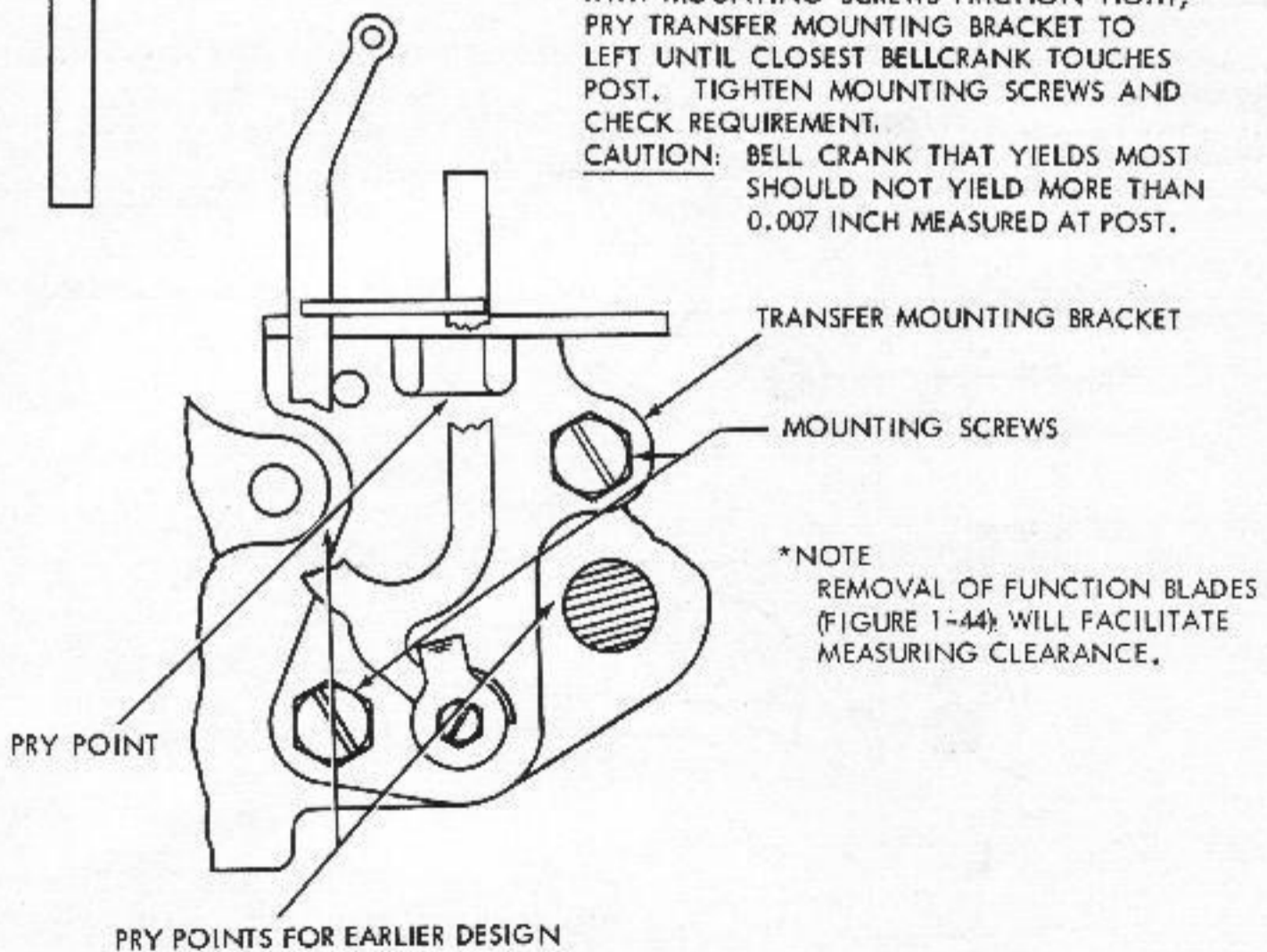
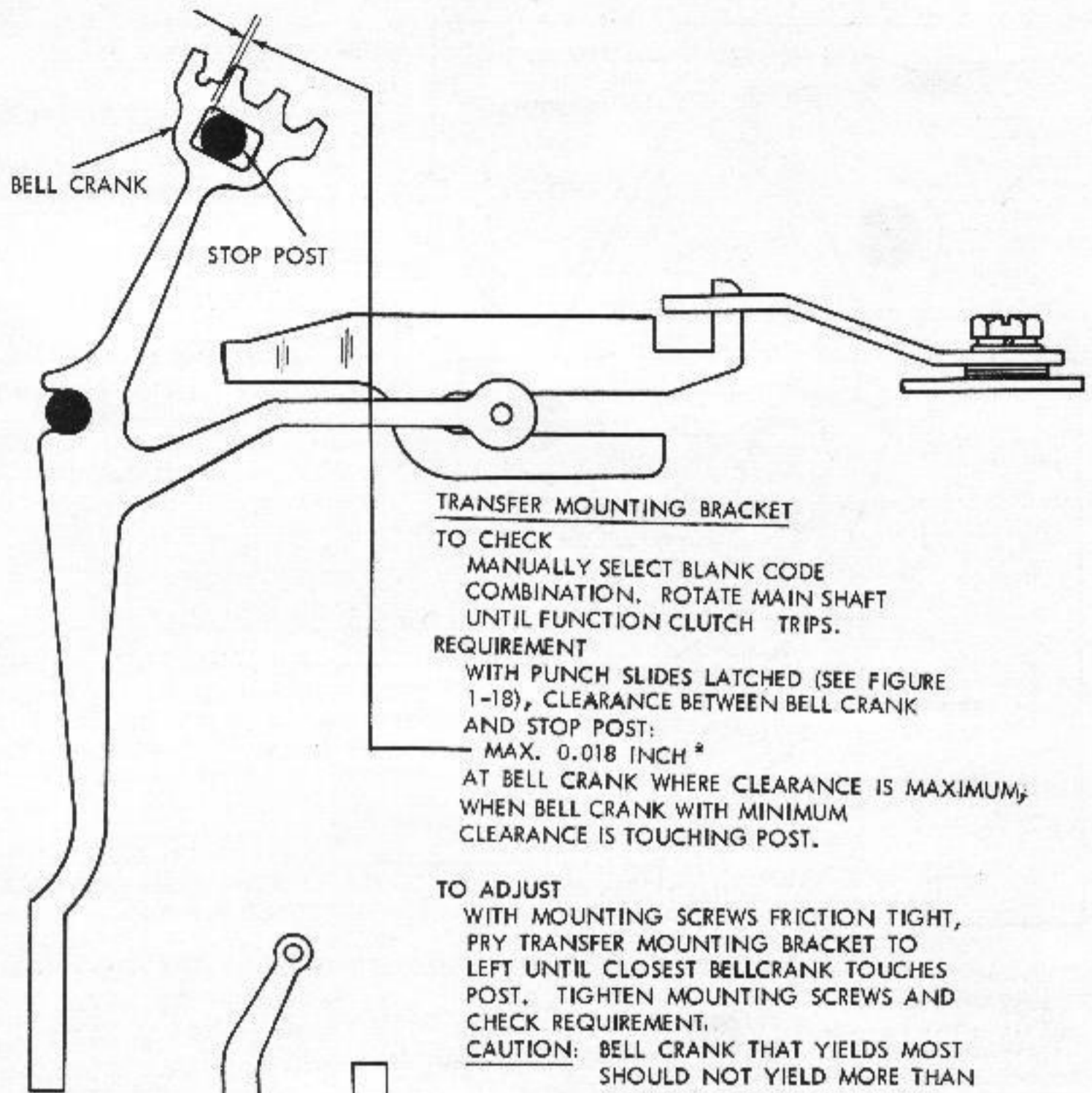


FIGURE 1-38. TRANSFER MECHANISM

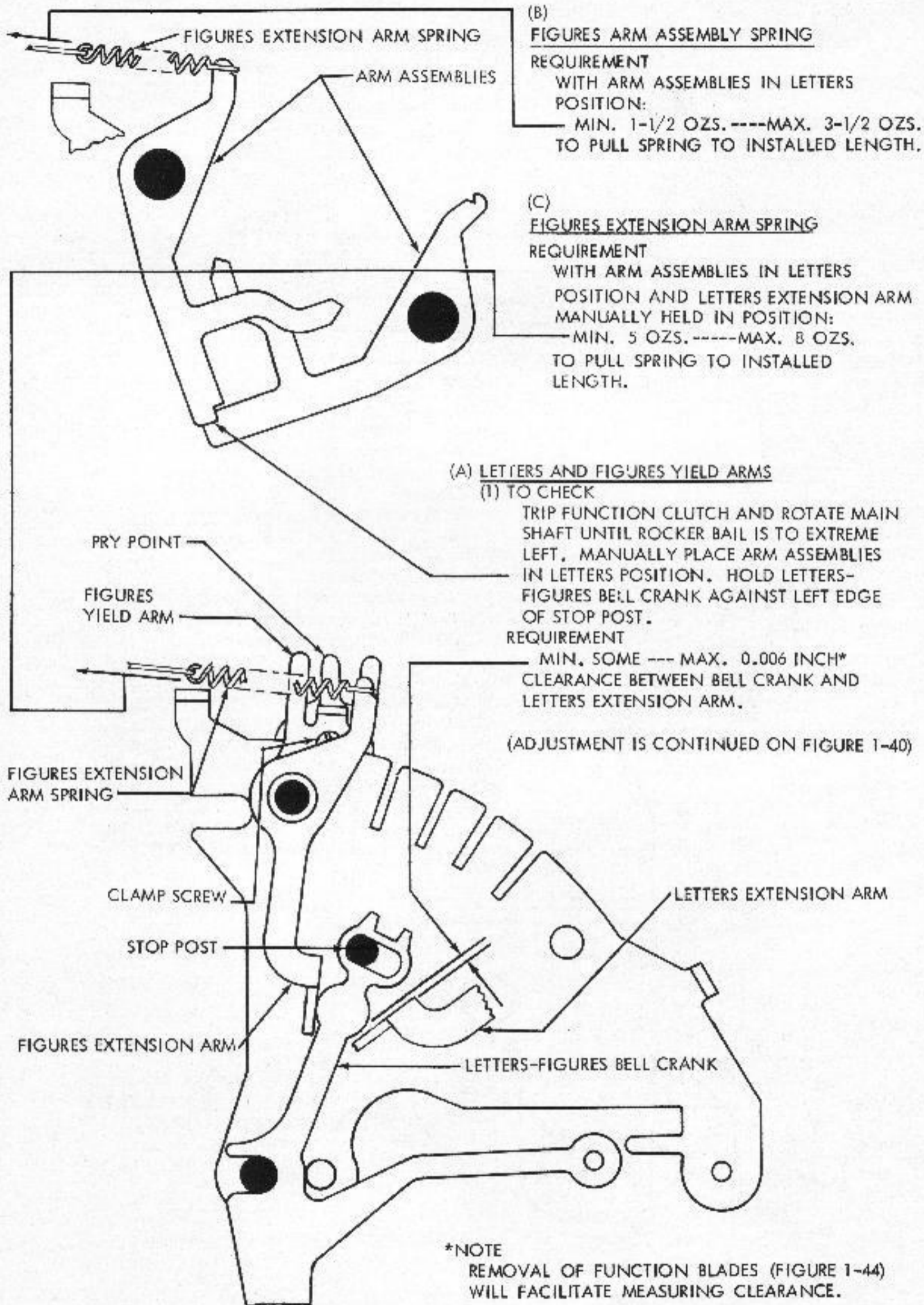


FIGURE 1-39. FUNCTION BOX MECHANISM

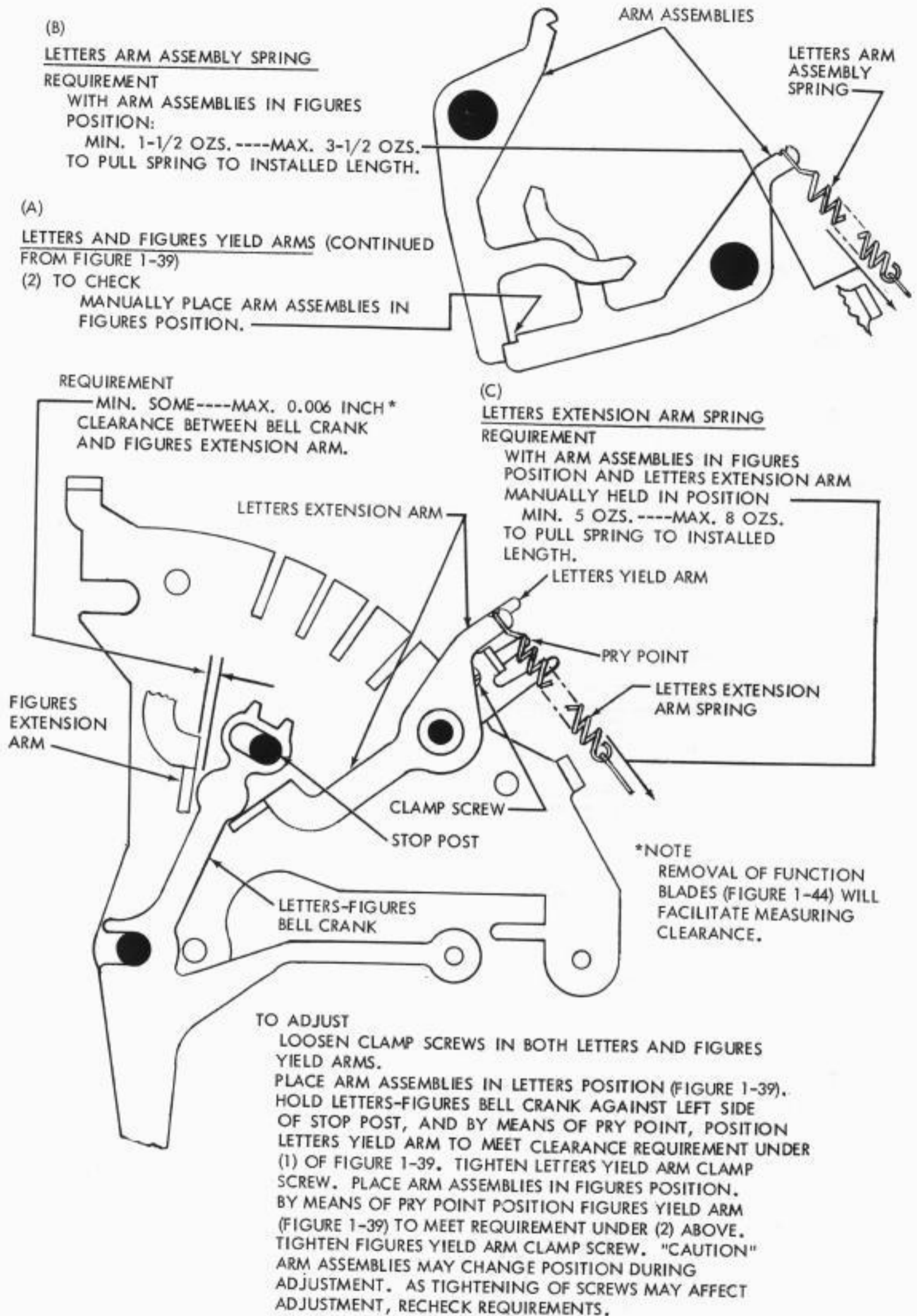
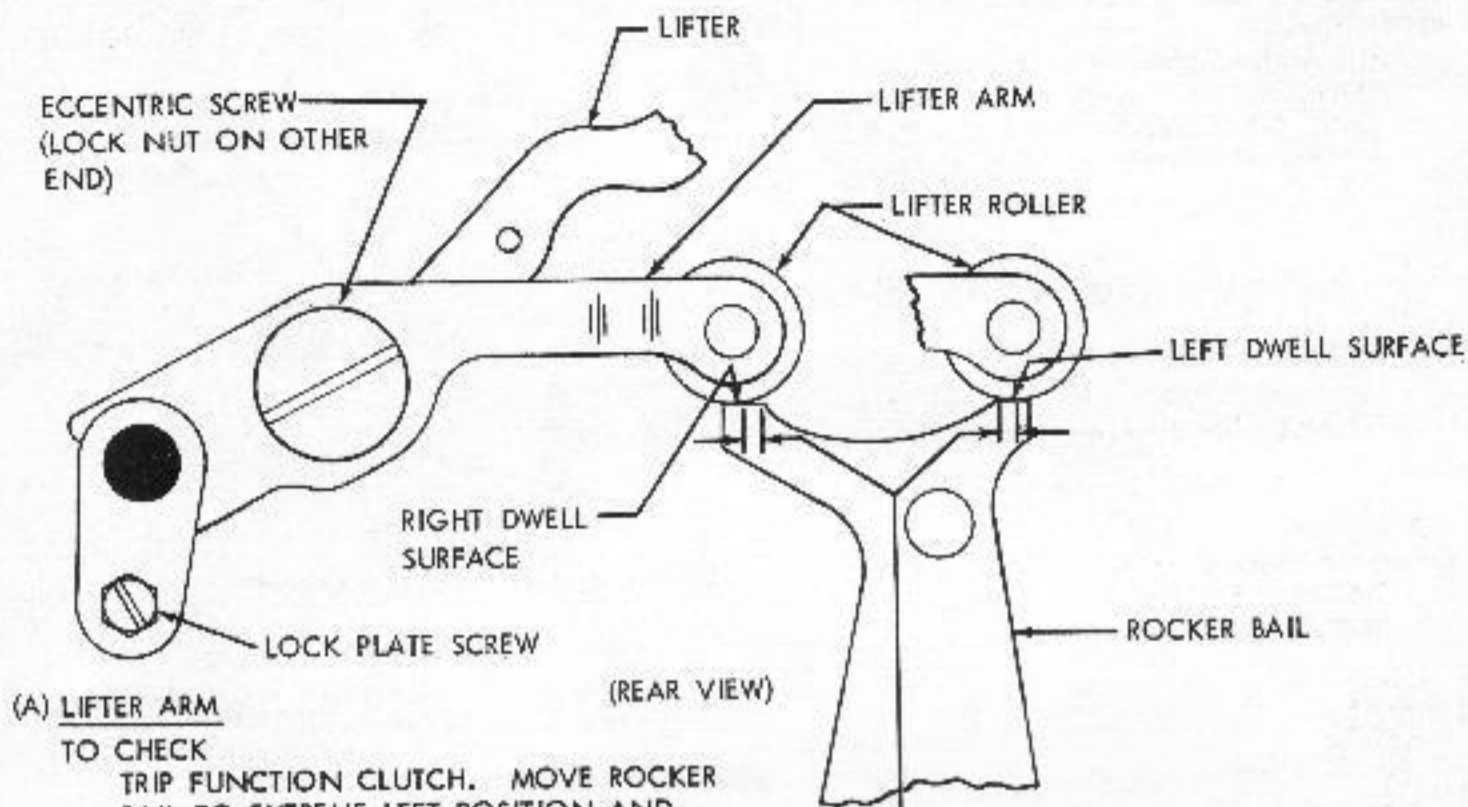


FIGURE 1-40. FUNCTION BOX MECHANISM



(A) LIFTER ARM

TO CHECK

TRIP FUNCTION CLUTCH. MOVE ROCKER BAIL TO EXTREME LEFT POSITION AND OBSERVE TRAVEL OF LIFTER ROLLER ON RIGHT DWELL SURFACE. MOVE ROCKER BAIL TO EXTREME RIGHT POSITION AND OBSERVE TRAVEL OF ROLLER ON LEFT DWELL SURFACE.

REQUIREMENT

APPROXIMATELY EQUAL TRAVEL ON EACH DWELL SURFACE.

TO ADJUST *

LOOSEN LOCK PLATE SCREW UNTIL FRICTION TIGHT. WITH ECCENTRIC SCREW LOCK NUT FRICTION TIGHT, POSITION LIFTER ARM ON LIFTER. TIGHTEN LOCK PLATE SCREW. DO NOT TIGHTEN LOCK NUT.

(B) LIFTER ARM ECCENTRIC SCREW

REQUIREMENT

WITH FUNCTION CLUTCH DISENGAGED:

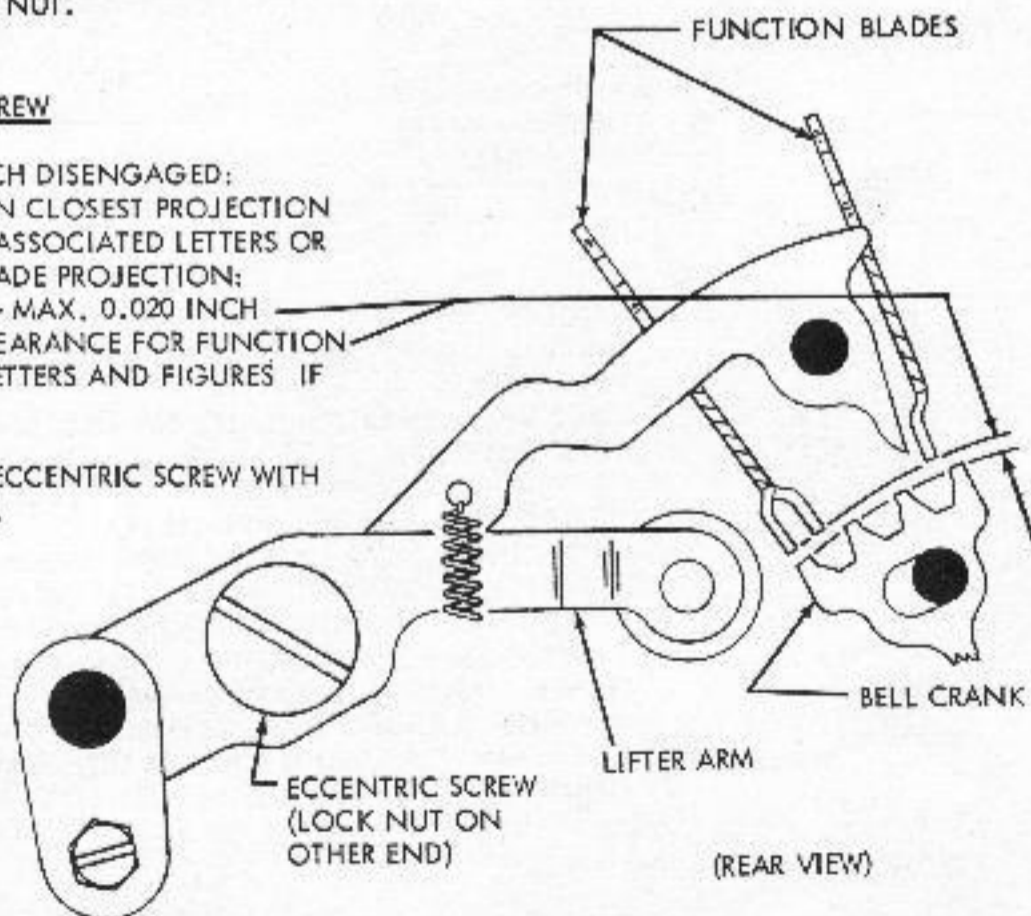
(1) CLEARANCE BETWEEN CLOSEST PROJECTION OF BELL CRANKS AND ASSOCIATED LETTERS OR FIGURES FUNCTION BLADE PROJECTION:

MIN. 0.008 INCH --- MAX. 0.020 INCH

(2) MIN 0.005 INCH CLEARANCE FOR FUNCTION BLADES OTHER THAN LETTERS AND FIGURES IF UNIT IS SO EQUIPPED.

TO ADJUST

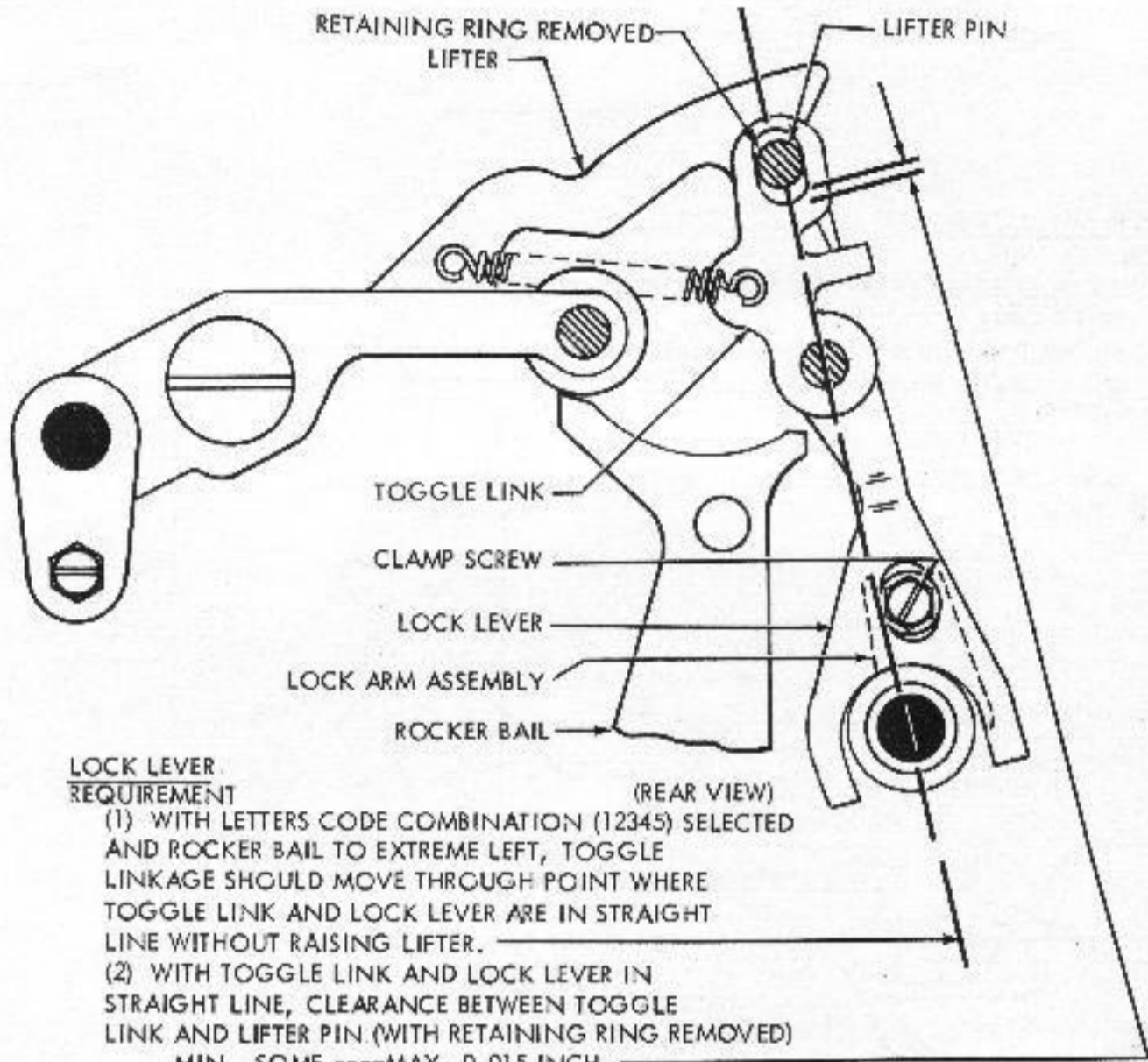
POSITION LIFTER ARM ECCENTRIC SCREW WITH LOCK NUT LOOSENED.



*NOTE:

REMOVE TIMING CONTACTS FIGURE 2-9 IF UNIT IS SO EQUIPPED.

FIGURE 1-41. FUNCTION BOX MECHANISM



LOCK LEVER REQUIREMENT

- (1) WITH LETTERS CODE COMBINATION (12345) SELECTED AND ROCKER BAIL TO EXTREME LEFT, TOGGLE LINKAGE SHOULD MOVE THROUGH POINT WHERE TOGGLE LINK AND LOCK LEVER ARE IN STRAIGHT LINE WITHOUT RAISING LIFTER.
- (2) WITH TOGGLE LINK AND LOCK LEVER IN STRAIGHT LINE, CLEARANCE BETWEEN TOGGLE LINK AND LIFTER PIN (WITH RETAINING RING REMOVED) MIN. SOME ----MAX. 0.015 INCH.

TO ADJUST POSITION LOCK LEVER ON LOCK ARM ASSEMBLY WITH CLAMP SCREW FRICTION TIGHT.

NOTE:
TO AVOID INTERFERENCE WITH LOCK LEVER, IT MAY BE NECESSARY TO MOVE HIGH PART OF CORRECTING DRIVE LINK ECCENTRIC BUSHING (SEE FIGURE 1-45) ABOVE HORIZONTAL CENTER LINE.

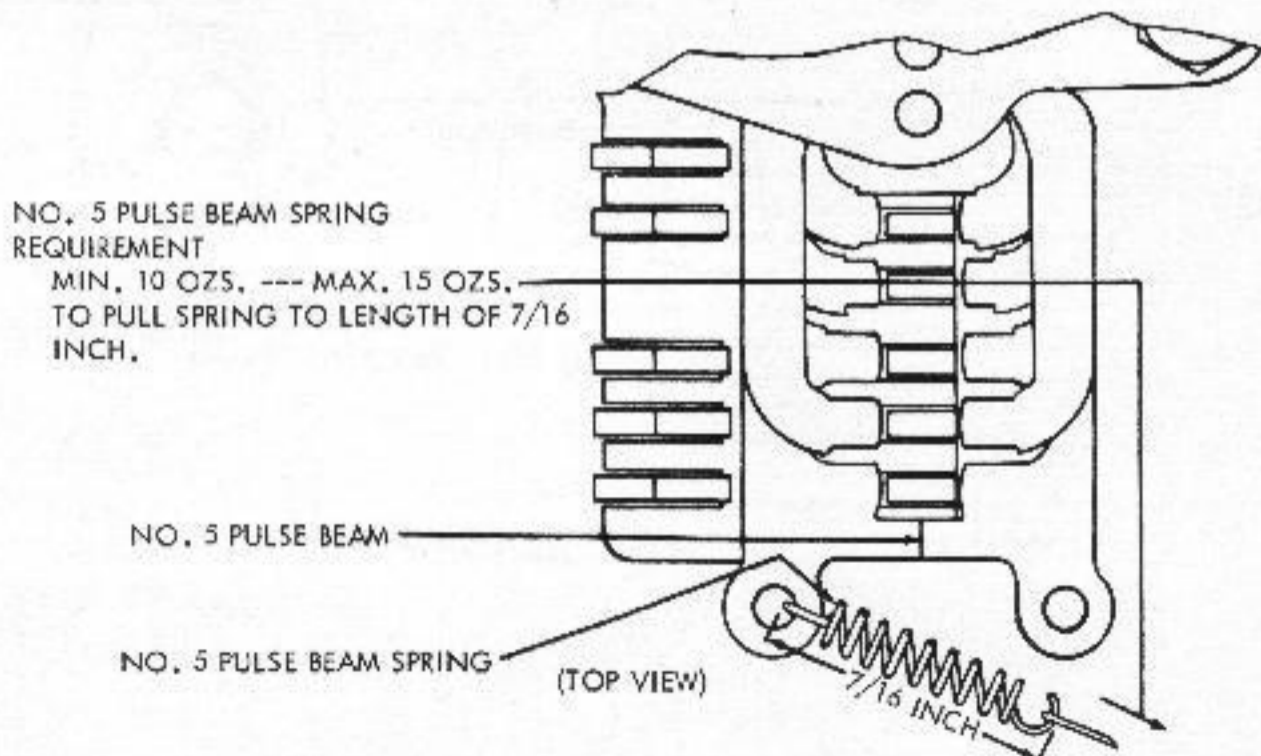


FIGURE 1-42. FUNCTION BOX AND TRANSFER MECHANISM

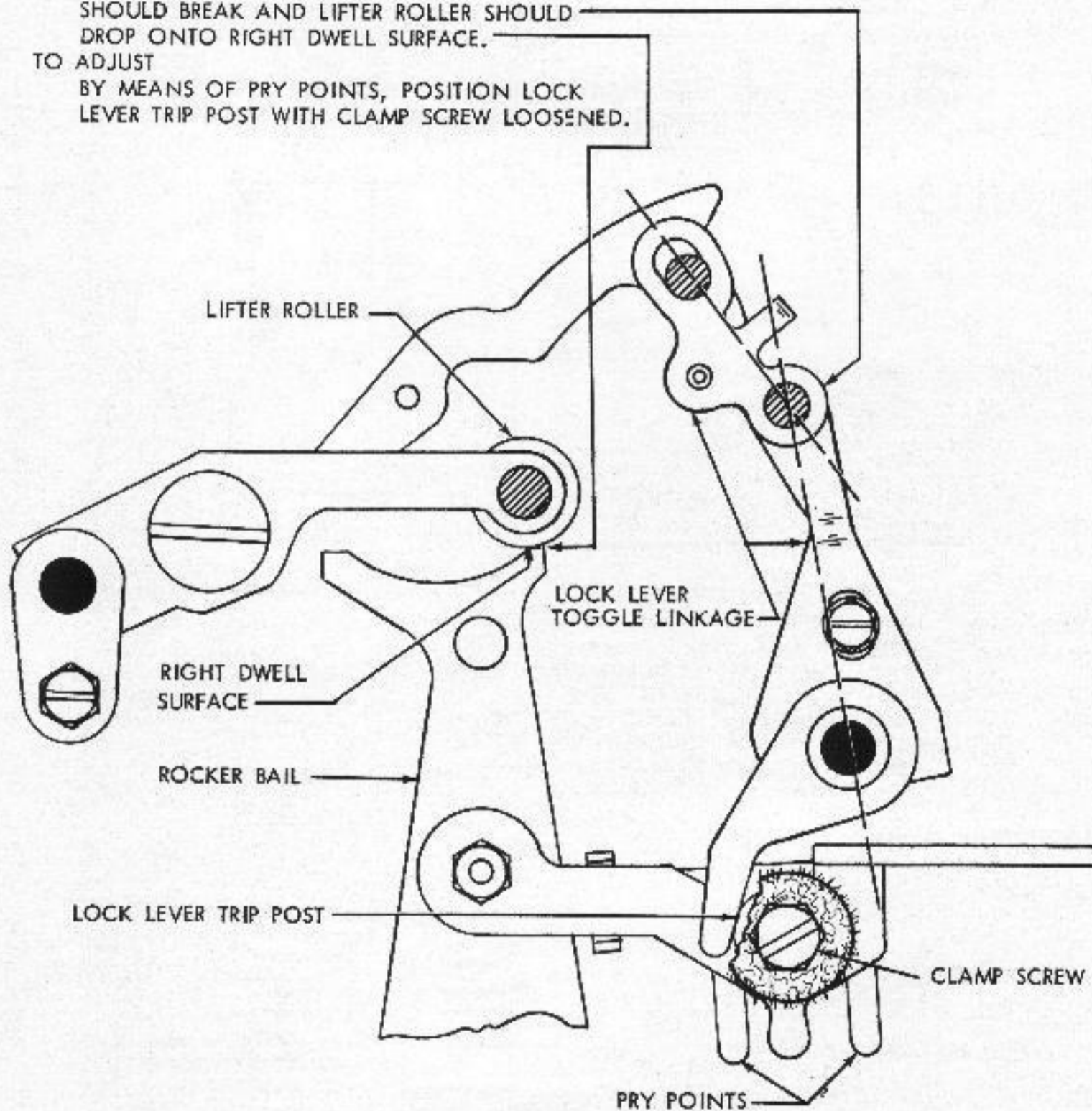
LOCK LEVER TRIP POST

REQUIREMENT

AS ROCKER BAIL APPROACHES EXTREME RIGHT POSITION, LOCK LEVER TOGGLE LINKAGE SHOULD BREAK AND LIFTER ROLLER SHOULD DROP ONTO RIGHT DWELL SURFACE.

TO ADJUST

BY MEANS OF PRY POINTS, POSITION LOCK LEVER TRIP POST WITH CLAMP SCREW LOOSENED.



(REAR VIEW)

FIGURE 1-43. FUNCTION BOX MECHANISM

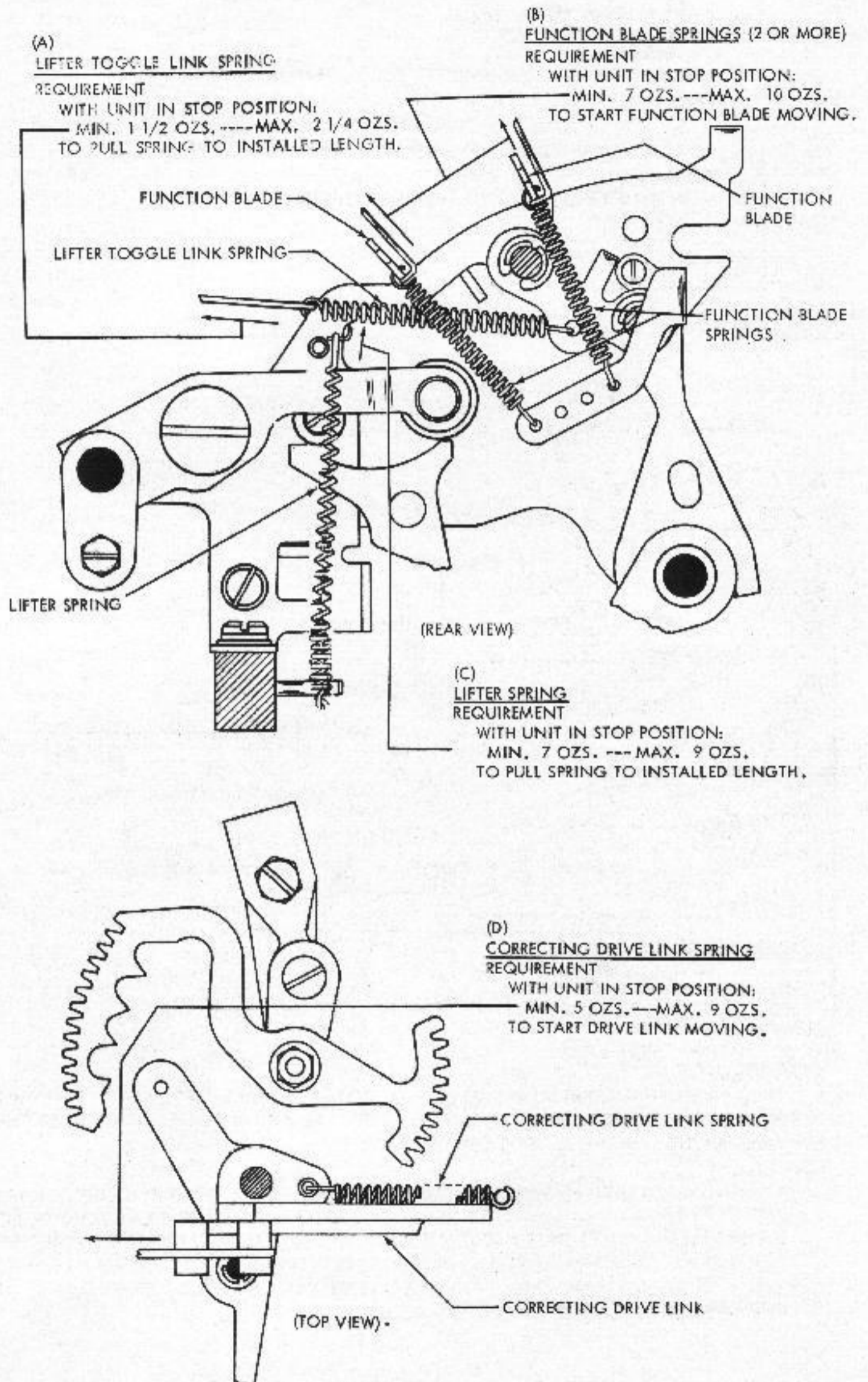


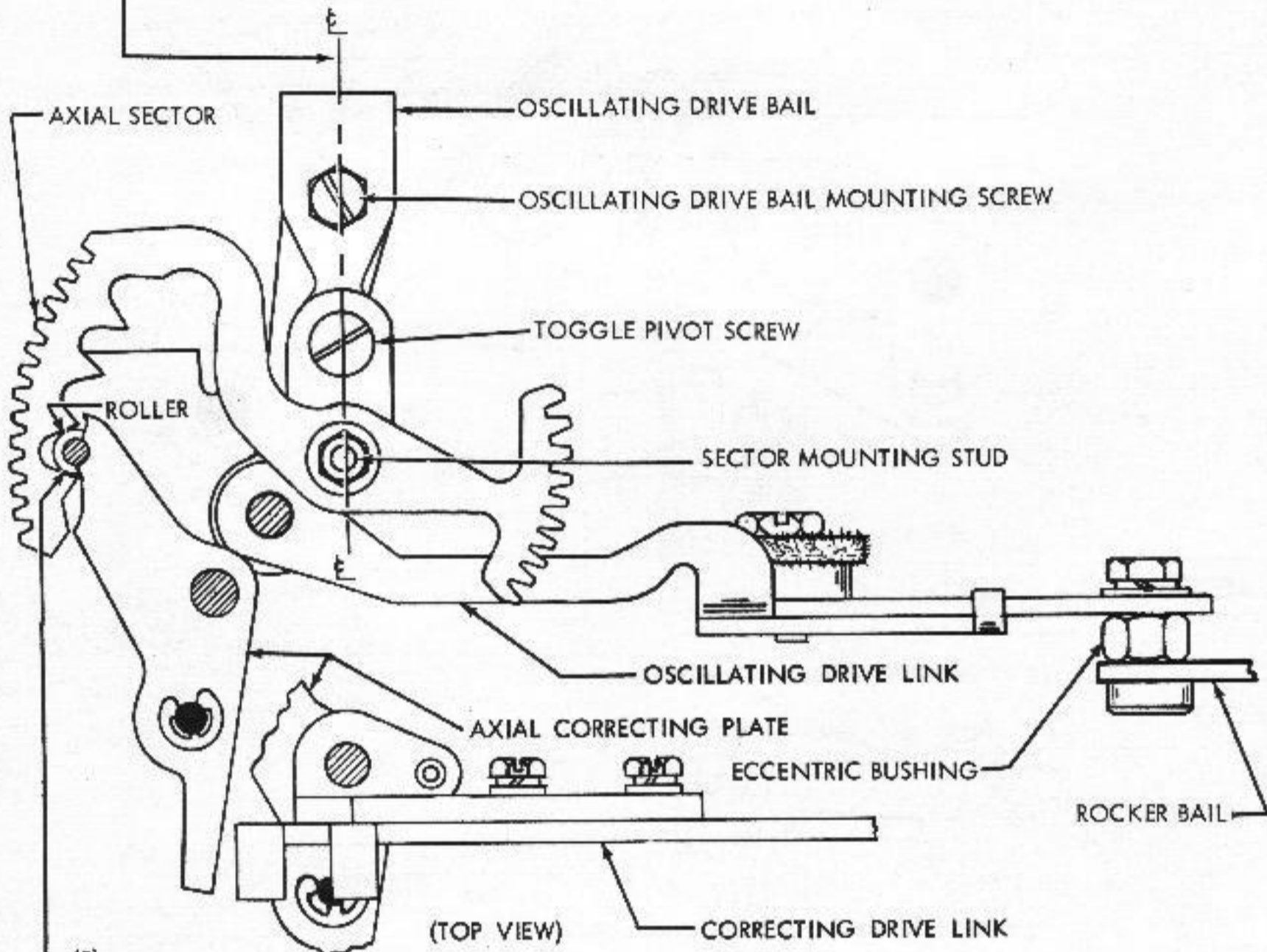
FIGURE 1-44. FUNCTION BOX AND CORRECTING MECHANISM

(A) OSCILLATING DRIVE LINK

TO CHECK
POSITION ROCKER BAIL TO ITS EXTREME LEFT.

REQUIREMENT
SECTOR MOUNTING STUD, TOGGLE PIVOT SCREW AND OSCILLATING DRIVE BAIL
MOUNTING SCREW SHOULD APPROXIMATELY LINE UP.

TO ADJUST
POSITION OSCILLATING DRIVE LINK BY MEANS OF ITS
ECCENTRIC BUSHING.

**(B) OSCILLATING DRIVE BAIL
REQUIREMENT**

WITH "BLANK" COMBINATION SELECTED, ROTATE MAIN SHAFT, TAKING UP AXIAL PLAY IN TYPE WHEEL SHAFT TOWARD FRONT OF UNIT, THE AXIAL CORRECTOR ROLLER SHALL ENTER THE FIRST NOTCH OF THE SECTOR CENTRALLY.

TO ADJUST

LOOSEN OSCILLATING BAIL ADJUSTING SCREW. SELECT "BLANK" COMBINATION. POSITION OSCILLATING BAIL BY MEANS OF ITS ELONGATED MOUNTING HOLE SO CORRECTOR ROLLER ENTERS FIRST NOTCH OF SECTOR WHEN ROCKER BAIL MOVES TO ITS EXTREME LEFT POSITION. HOLD CORRECTOR ROLLER FIRMLY IN FIRST NOTCH AND TAKE UP PLAY IN OSCILLATING BAIL LINKAGE BY APPLYING A FORCE TO OSCILLATING BAIL TOWARD REAR OF UNIT. TIGHTEN THE OSCILLATING BAIL ADJUSTING SCREW.

FIGURE 1-45. AXIAL POSITIONING MECHANISM

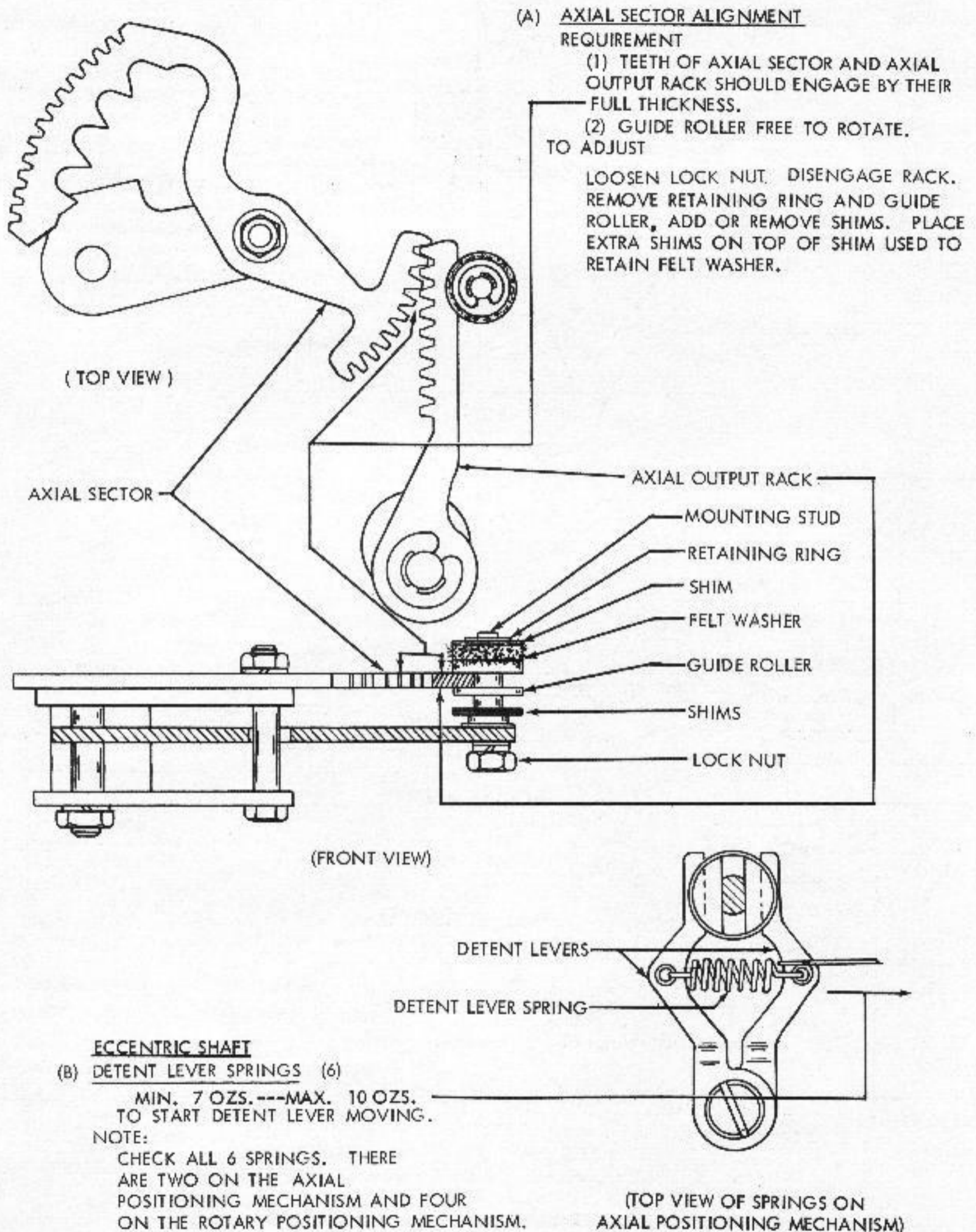


FIGURE 1-46. AXIAL POSITIONING MECHANISM

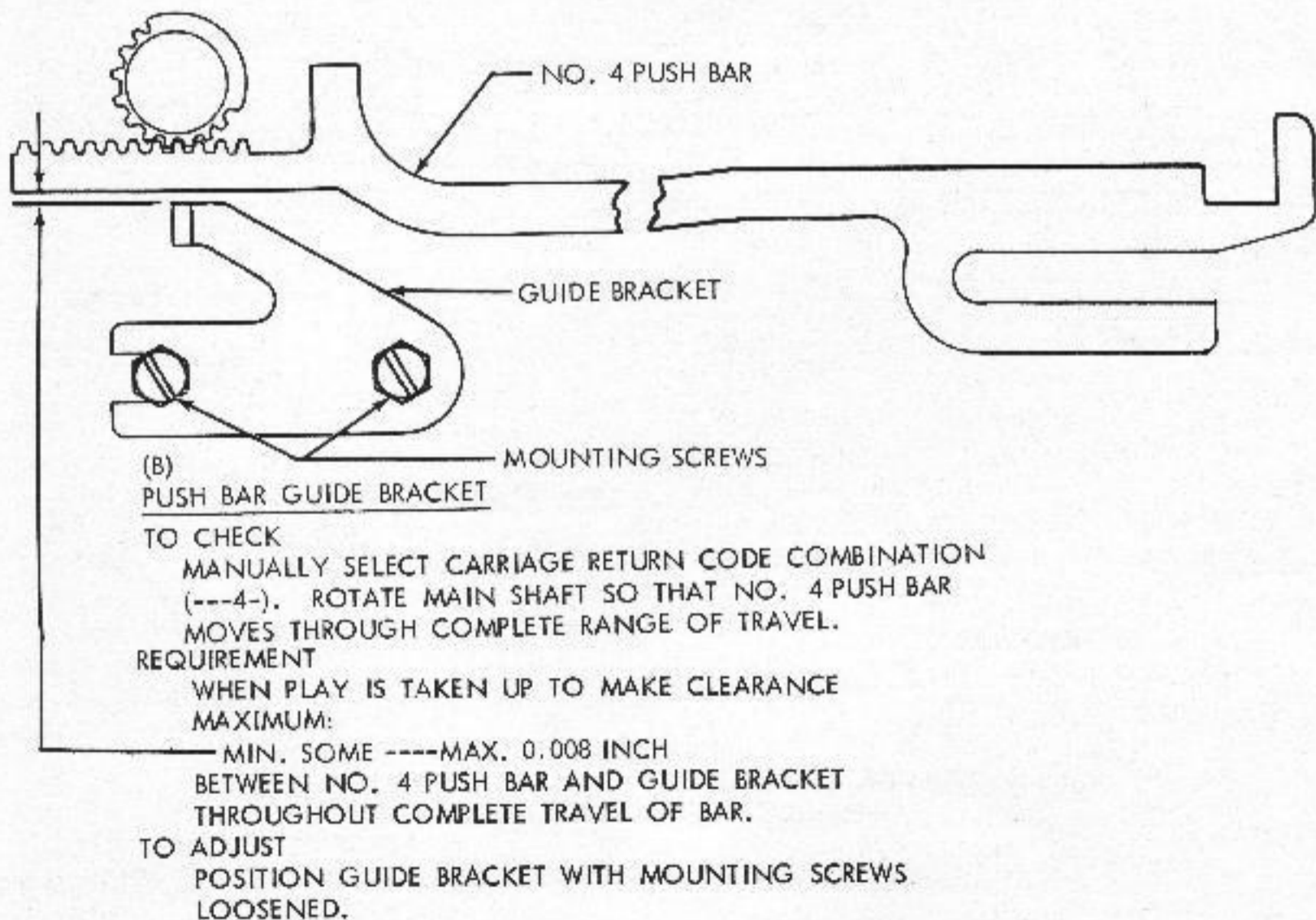
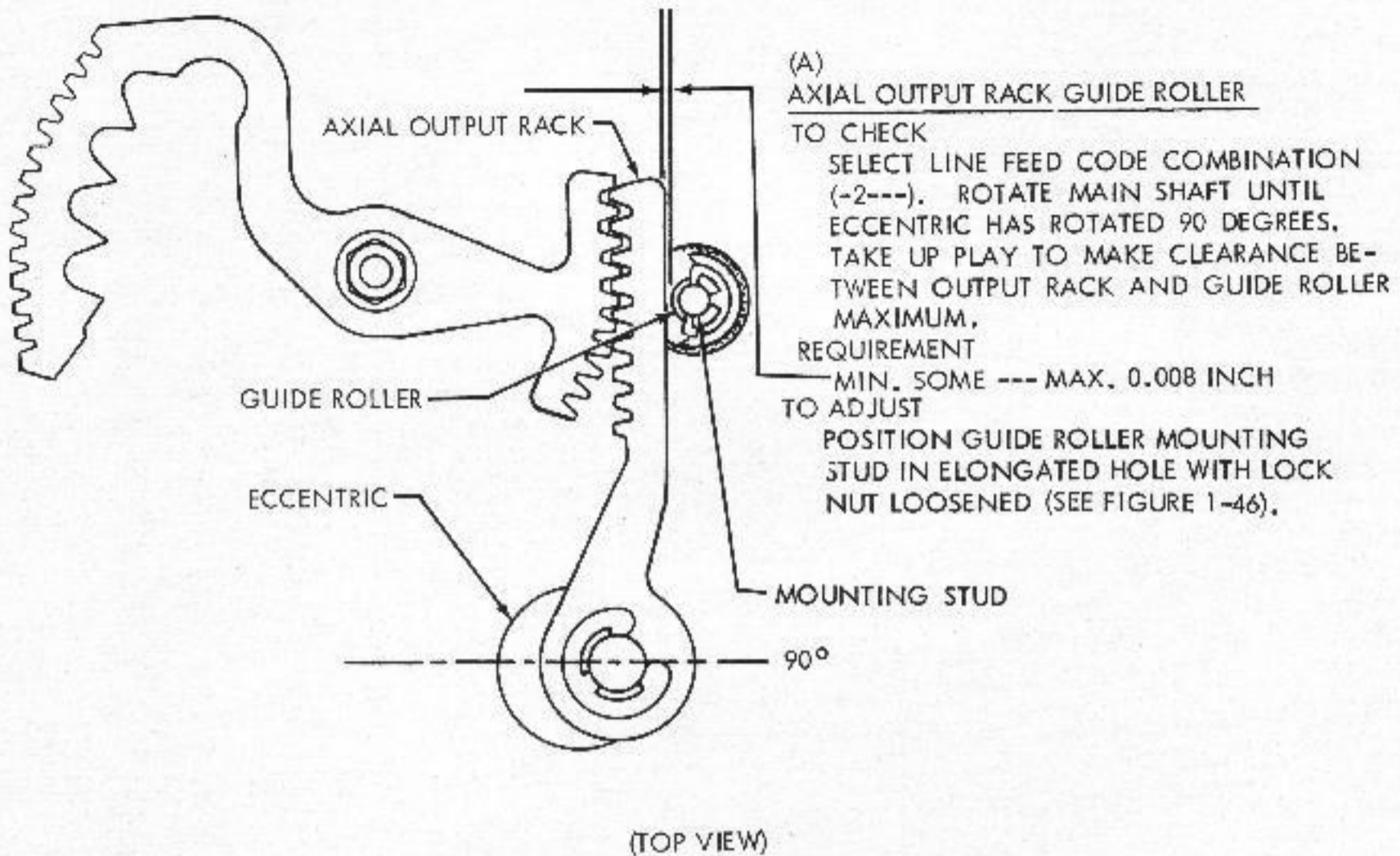


FIGURE 1-47. AXIAL AND ROTARY CORRECTING MECHANISMS

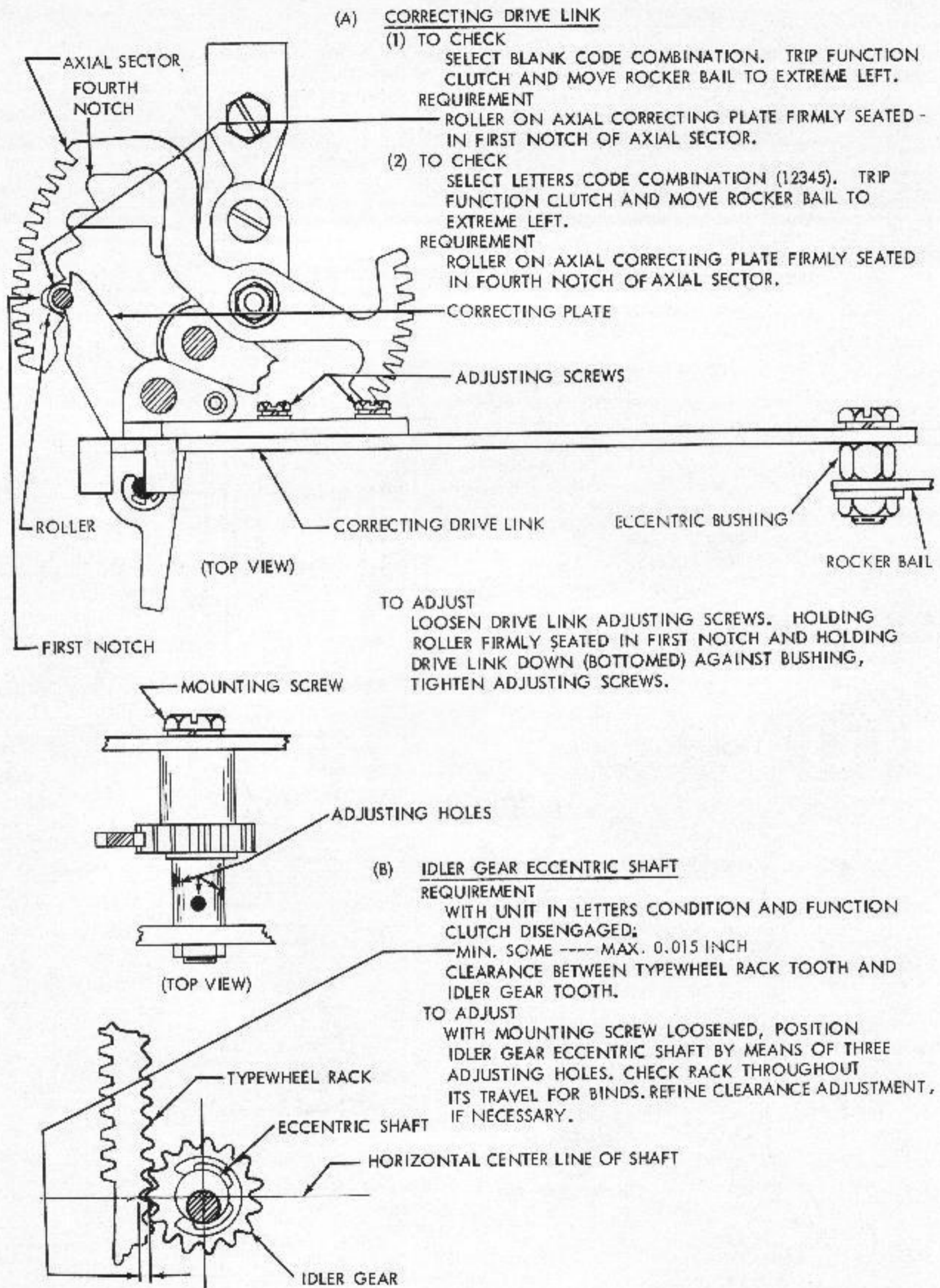


FIGURE 1-48. CORRECTING MECHANISM

ROTARY CORRECTING LEVER

(1) TO CHECK

LOOSEN CORRECTING CLAMP ADJUSTING SCREW. WITH UNIT IN FIGURES CONDITION, SELECT NO. 9 CODE COMBINATION (---45). TRIP FUNCTION CLUTCH AND POSITION ROCKER BAIL TO EXTREME LEFT. MANUALLY SEAT ROTARY CORRECTING LEVER IN TYPE WHEEL RACK.

REQUIREMENT

SECOND TOOTH FROM TOP OF RACK SEATED BETWEEN LOBES OF CORRECTING LEVER.

TO ADJUST

LOOSEN ECCENTRIC BUSHING LOCK NUT. WITH CLAMP ADJUSTING SCREW LOOSENED AND CORRECTING LEVER PIVOT TO RIGHT OF CENTER LINE, POSITION CORRECTING LEVER. TIGHTEN BUSHING LOCK NUT. DO NOT TIGHTEN CLAMP ADJUSTING SCREW AT THIS TIME.

(2) TO CHECK

IN A MANNER SIMILAR TO THAT DESCRIBED ABOVE CHECK ENGAGEMENT OF FIFTH TOOTH (--34- CODE COMBINATION SELECTED IN FIGURES CONDITION), NINTH TOOTH (---4- CODE COMBINATION SELECTED IN LETTERS CONDITION) AND SIXTEENTH TOOTH (--3-5 CODE COMBINATION SELECTED IN LETTERS CONDITION).

TO ADJUST

REFINE ADJUSTMENT UNDER (1) ABOVE.

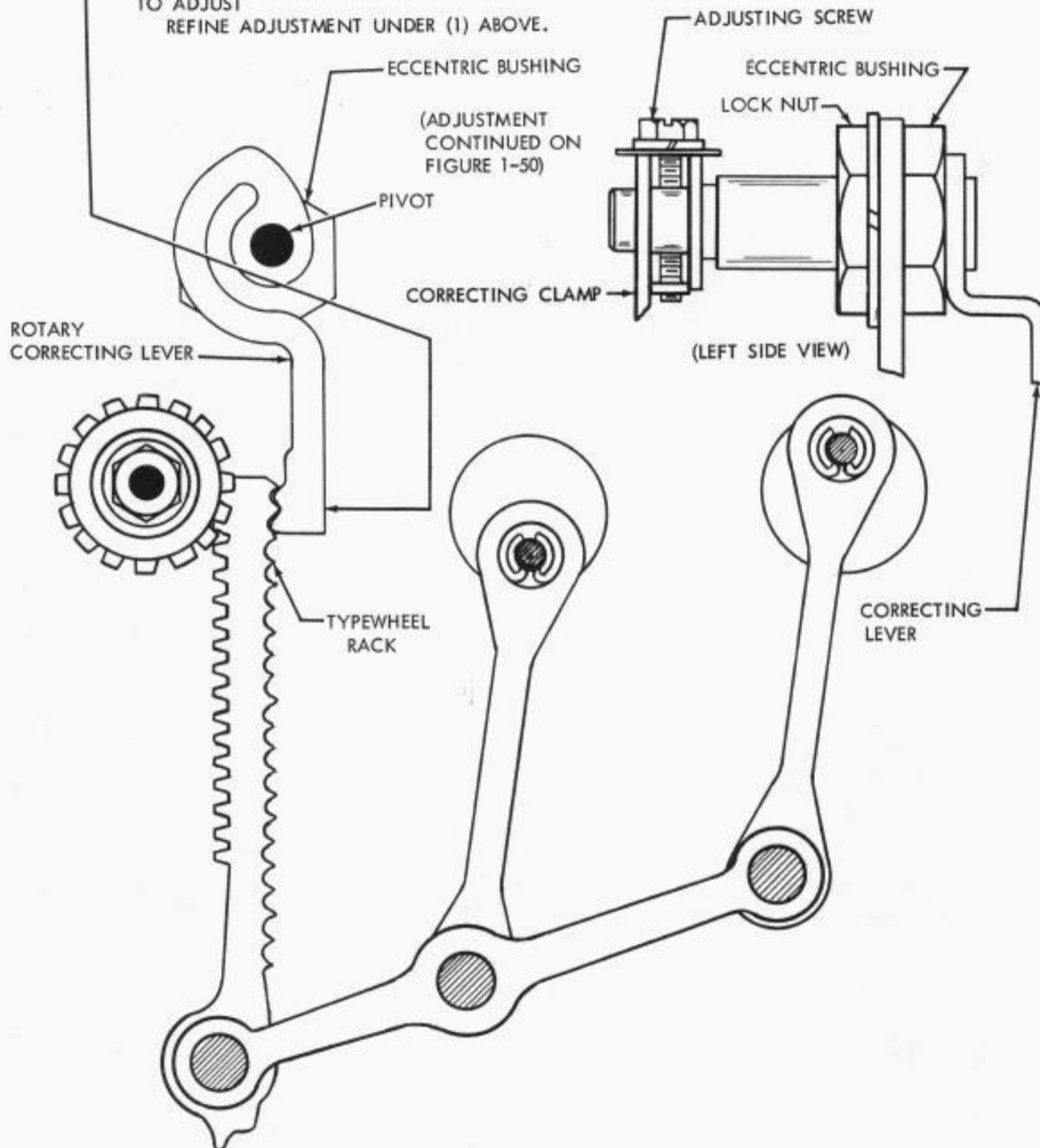
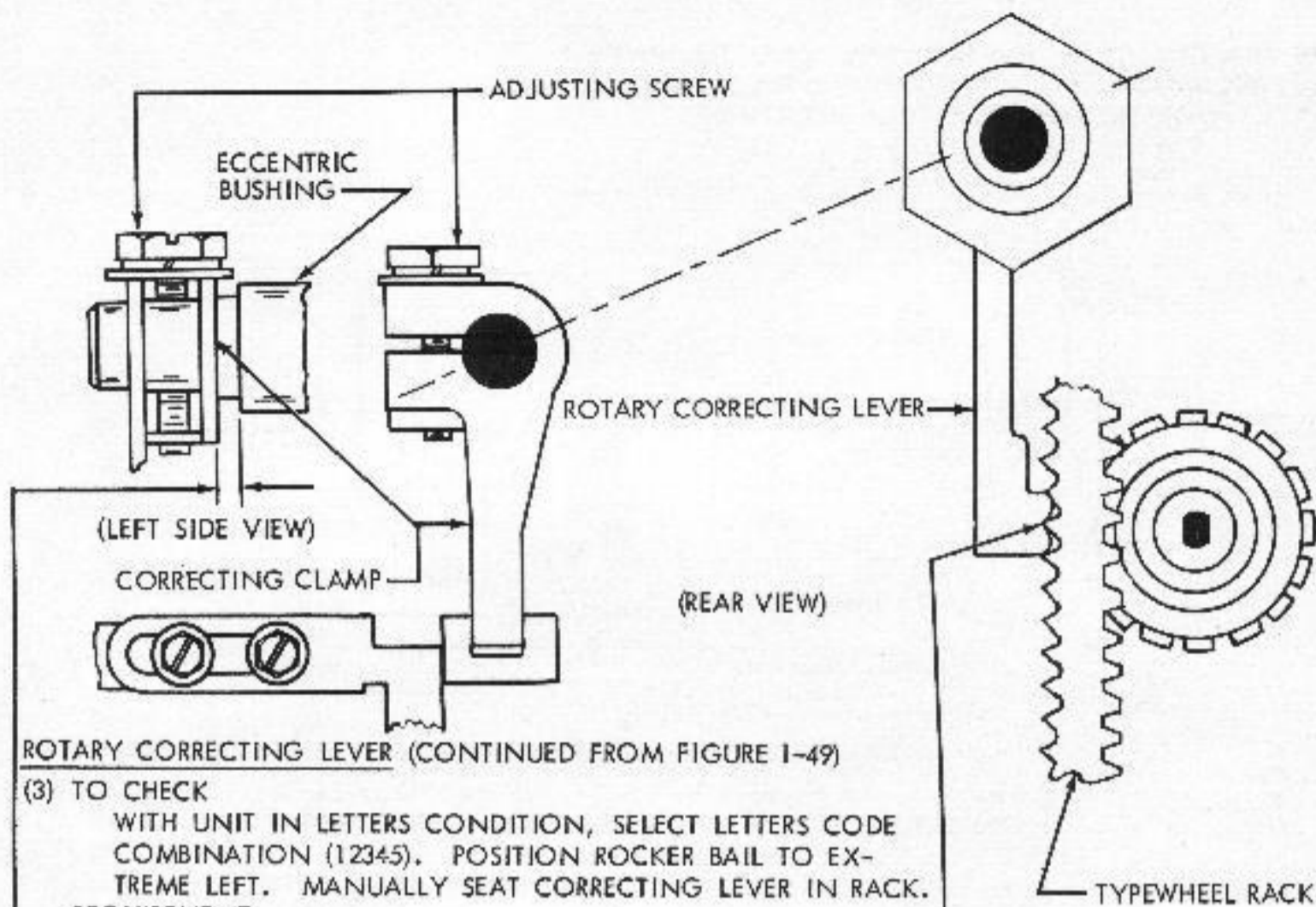


FIGURE 1-49. CORRECTING MECHANISM



ROTARY CORRECTING LEVER (CONTINUED FROM FIGURE 1-49)

(3) TO CHECK

WITH UNIT IN LETTERS CONDITION, SELECT LETTERS CODE COMBINATION (12345). POSITION ROCKER BAIL TO EXTREME LEFT. MANUALLY SEAT CORRECTING LEVER IN RACK. REQUIREMENT

A. LOBES OF ROTARY CORRECTING LEVER FIRMLY SEATED IN TYPEWHEEL RACK.

B. END PLAY BETWEEN CORRECTING CLAMP AND ECCENTRIC BUSHING WITH UNIT IN STOP POSITION:
MIN. SOME----MAX. 0.006 INCH

TO ADJUST

WITH CORRECTING CLAMP ADJUSTING SCREW LOOSENED, TRIP FUNCTION CLUTCH AND ROTATE MAIN SHAFT UNTIL ROLLER ON AXIAL CORRECTING PLATE APPROACHES SEATED POSITION IN NOTCH OF AXIAL SECTOR. WHEN CLEARANCE BETWEEN ROLLER AND SECTOR IS

MIN. SOME----MAX. 0.005 INCH
POSITION CORRECTING LEVER FINGER-TIGHT AGAINST RACK. TIGHTEN CORRECTING CLAMP ADJUSTING SCREW.

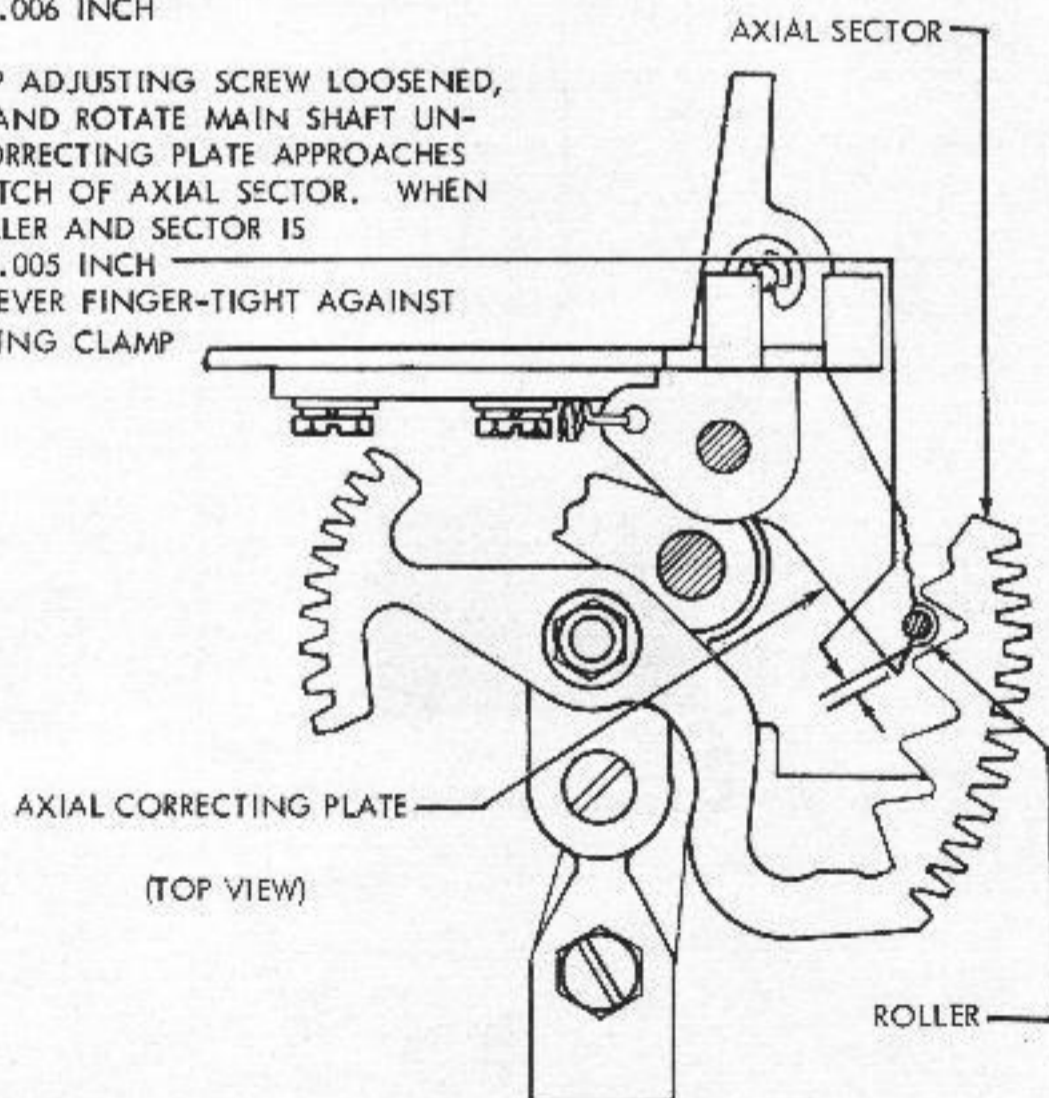


FIGURE 1-50. CORRECTING MECHANISM

NOTE
 THE ADJUSTMENTS ON THIS PAGE APPLY ONLY TO CHADLESS
 TAPE MECHANISM. REFER TO FIGURE 1-53 FOR SIMILAR
 FULLY PERFORATED TAPE MECHANISM ADJUSTMENTS.

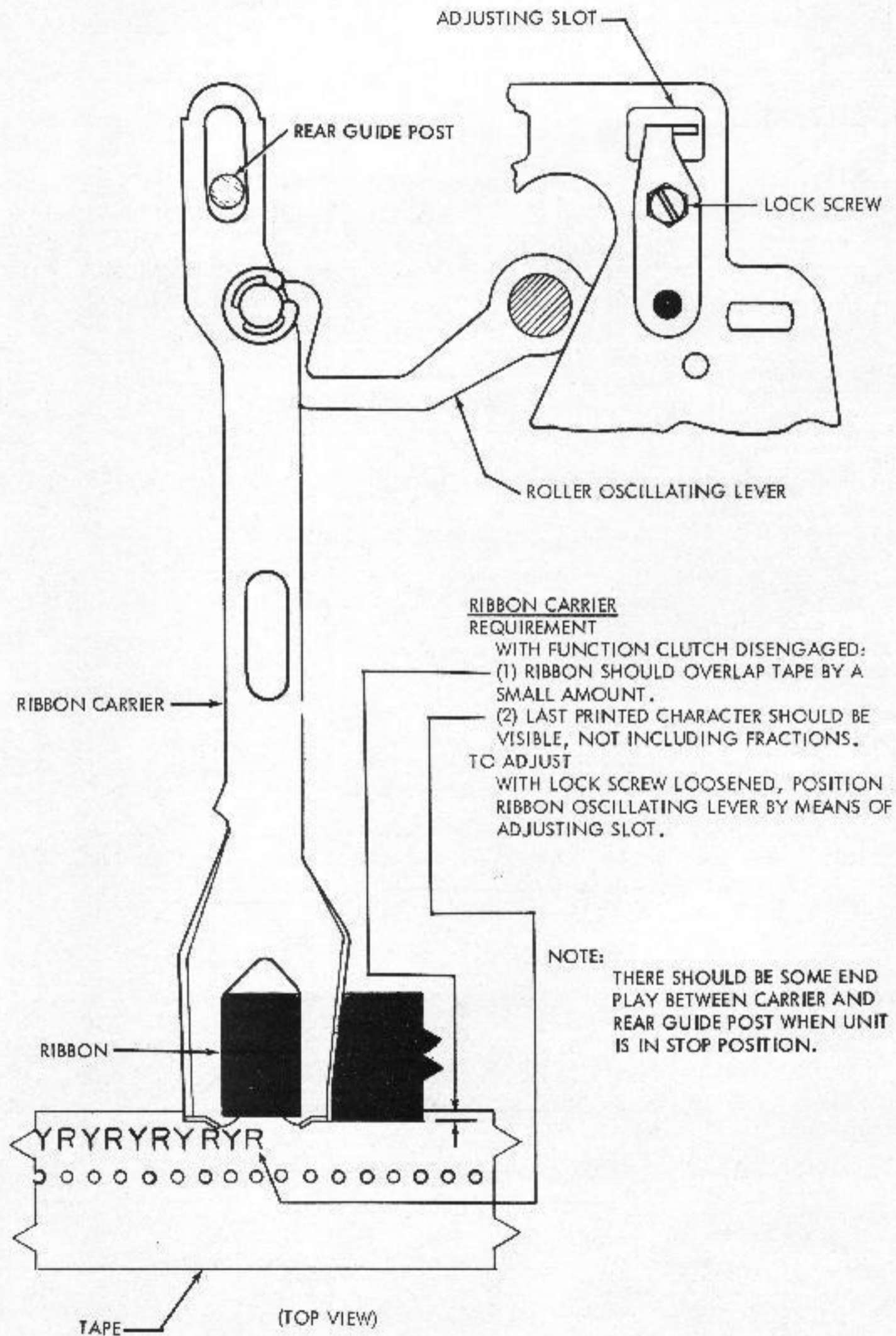
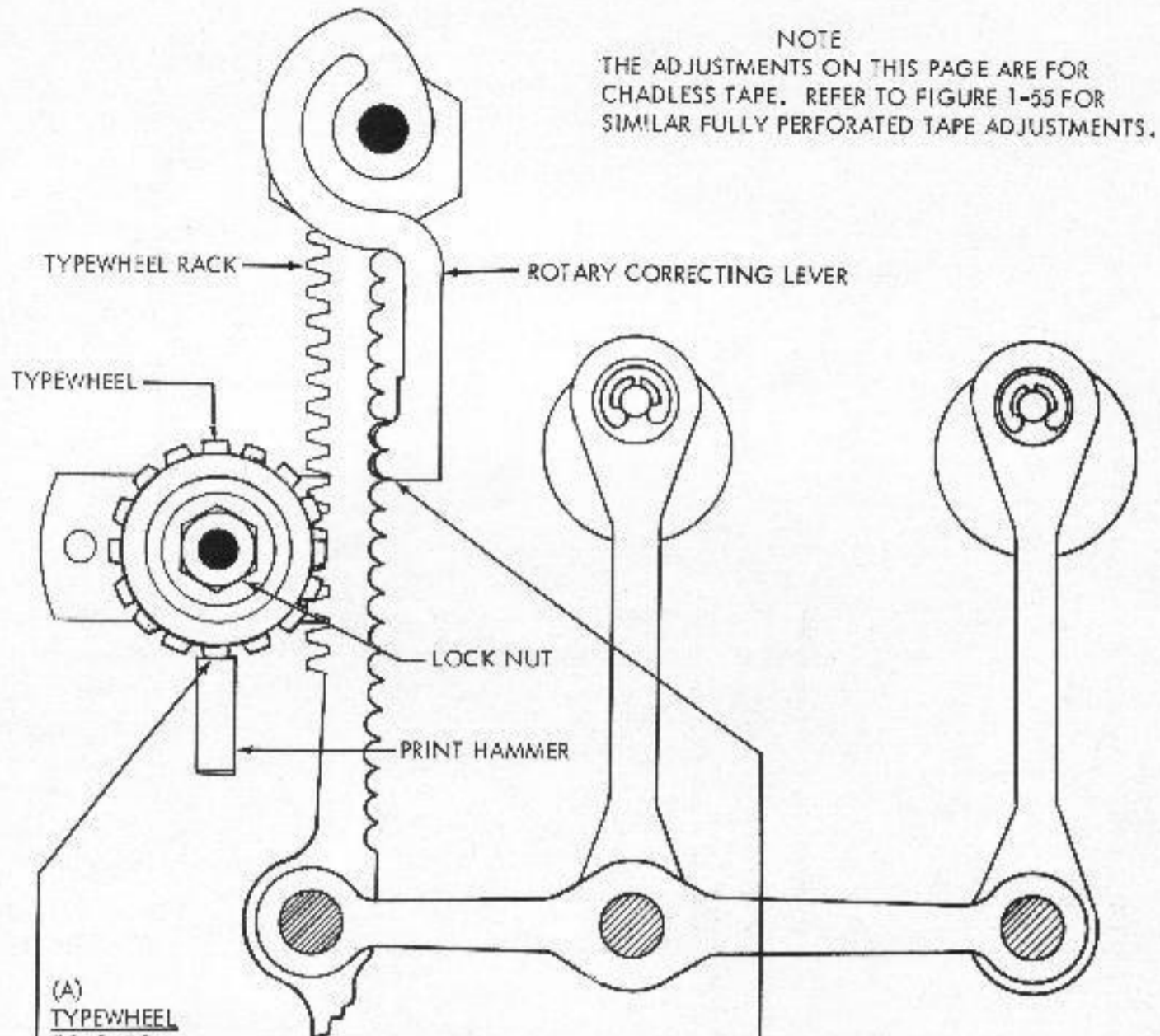


FIGURE 1-51. RIBBON OSCILLATING MECHANISM FOR CHADLESS TAPE

NOTE
THE ADJUSTMENTS ON THIS PAGE ARE FOR
CHADLESS TAPE. REFER TO FIGURE 1-55 FOR
SIMILAR FULLY PERFORATED TAPE ADJUSTMENTS.



(A)
TYPEWHEEL
TO CHECK

SELECT "M" CODE COMBINATION (--345). PLACE
ROCKER BAIL TO EXTREME LEFT. CORRECTING LEVER
SHOULD BE FIRMLY SEATED IN TYPEWHEEL RACK.

REQUIREMENT

TYPEWHEEL ALIGNED SO THAT FULL CHARACTER IS
PRINTED UNIFORMLY AND $5 \frac{1}{4}$ CODE HOLE
SPACES BEHIND ITS PERFORATED CODE HOLES.

TO ADJUST

POSITION TYPEWHEEL WITH LOCK NUT LOOSENED.
CHECK PRINTING BY MANUALLY LIFTING ACCELERATOR
FIGURE 1-54 TO LATCHED POSITION AND RELEASING IT.

NOTE:

FOR BEST RESULTS IT MAY BE NECESSARY TO MAKE
PRINT HAMMER ADJUSTMENT (BELOW) AND THEN
REFINE THIS ADJUSTMENT

(B) PRINT HAMMER

REQUIREMENT

WHEN OPERATING UNDER POWER, PRINT
HAMMER AND TYPEWHEEL ALIGNED SO AS
TO OBTAIN BEST QUALITY OF PRINTING.

TO ADJUST

POSITION PRINT HAMMER SHAFT WITH
LOCK NUT LOOSENED.

NOTE:

IT MAY BE NECESSARY TO REMAKE TYPEWHEEL
ADJUSTMENT (ABOVE) AND THEN REFINE THIS
ADJUSTMENT.

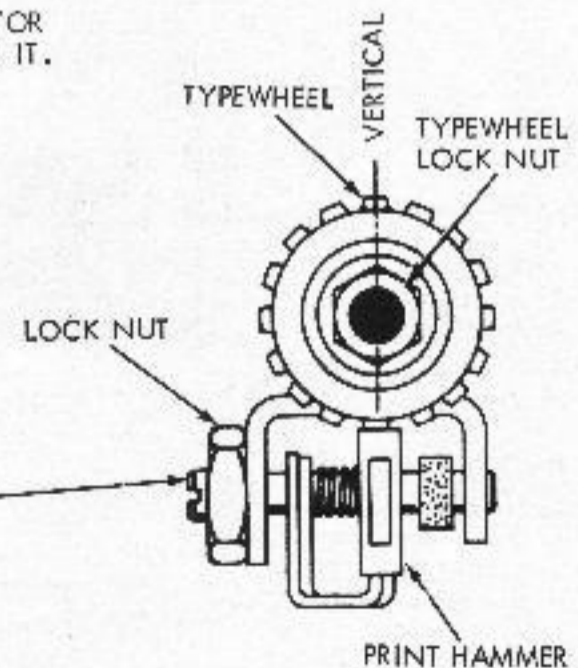


FIGURE 1-52. PRINTING MECHANISM FOR CHADLESS TAPE

NOTE
THE ADJUSTMENTS ON THIS PAGE ARE FOR FULLY PERFORATED TAPE. REFER TO FIGURE 1-51 FOR CHADLESS TAPE ADJUSTMENTS.

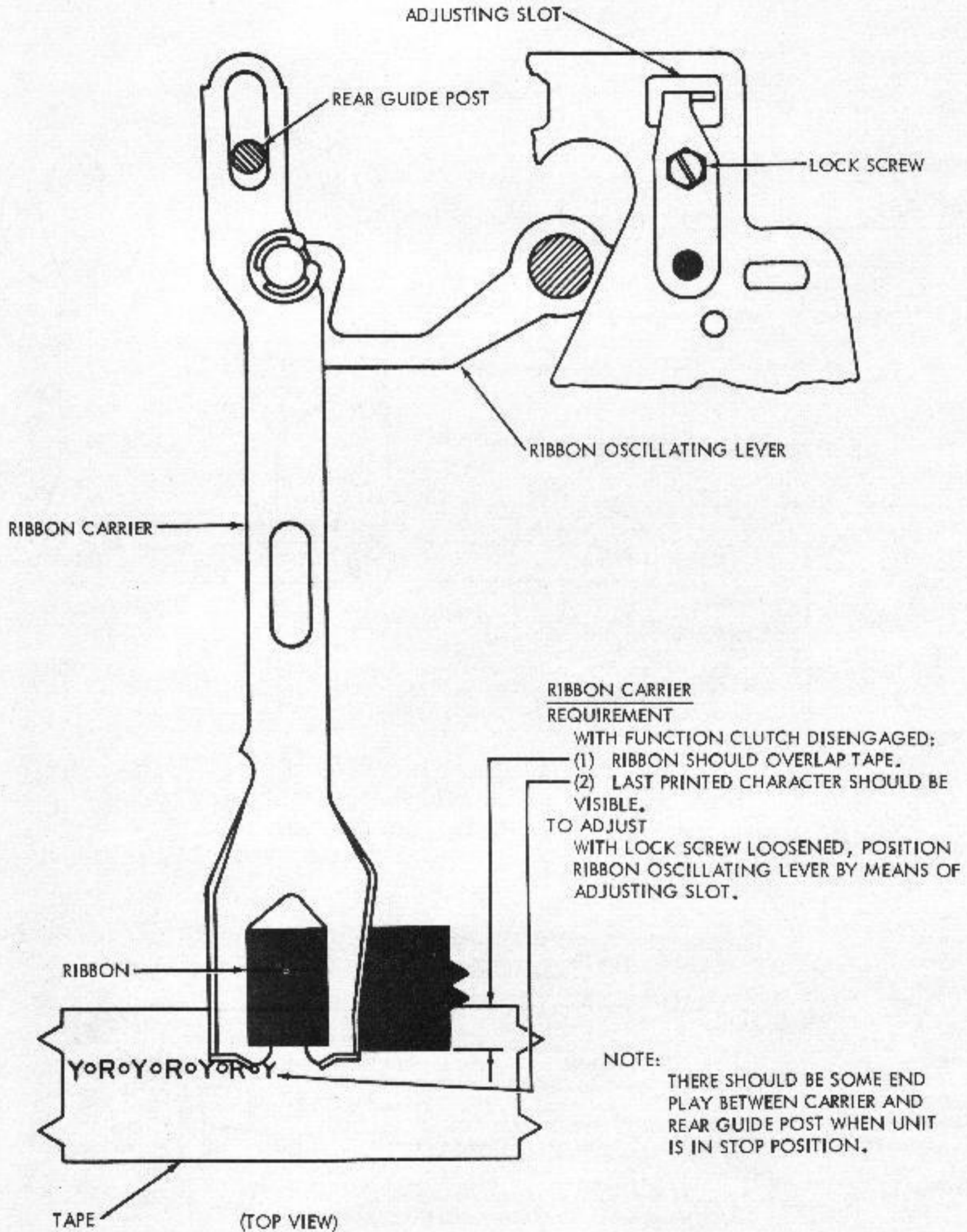


FIGURE 1-53. RIBBON OSCILLATING MECHANISM FOR FULLY PERFORATED TAPE

PRINTING TRIP LINK

TO CHECK

TRIP FUNCTION CLUTCH AND POSITION ROCKER BAIL TO EXTREME LEFT. MANUALLY LIFT ACCELERATOR SO THAT LATCHING SURFACES OF PRINTING LATCH AND ACCELERATOR ARE EVEN.

REQUIREMENT

MIN. SOME --- MAX. 0.015 INCH
CLEARANCE BETWEEN ACCELERATOR AND LATCH.

TO ADJUST

WITH LOCK NUT LOOSENED, POSITION PRINTING TRIP LINK BY MEANS OF ECCENTRIC MOUNTING SCREW. KEEP HIGH PART OF SCREW TO LEFT OF CENTER LINE.

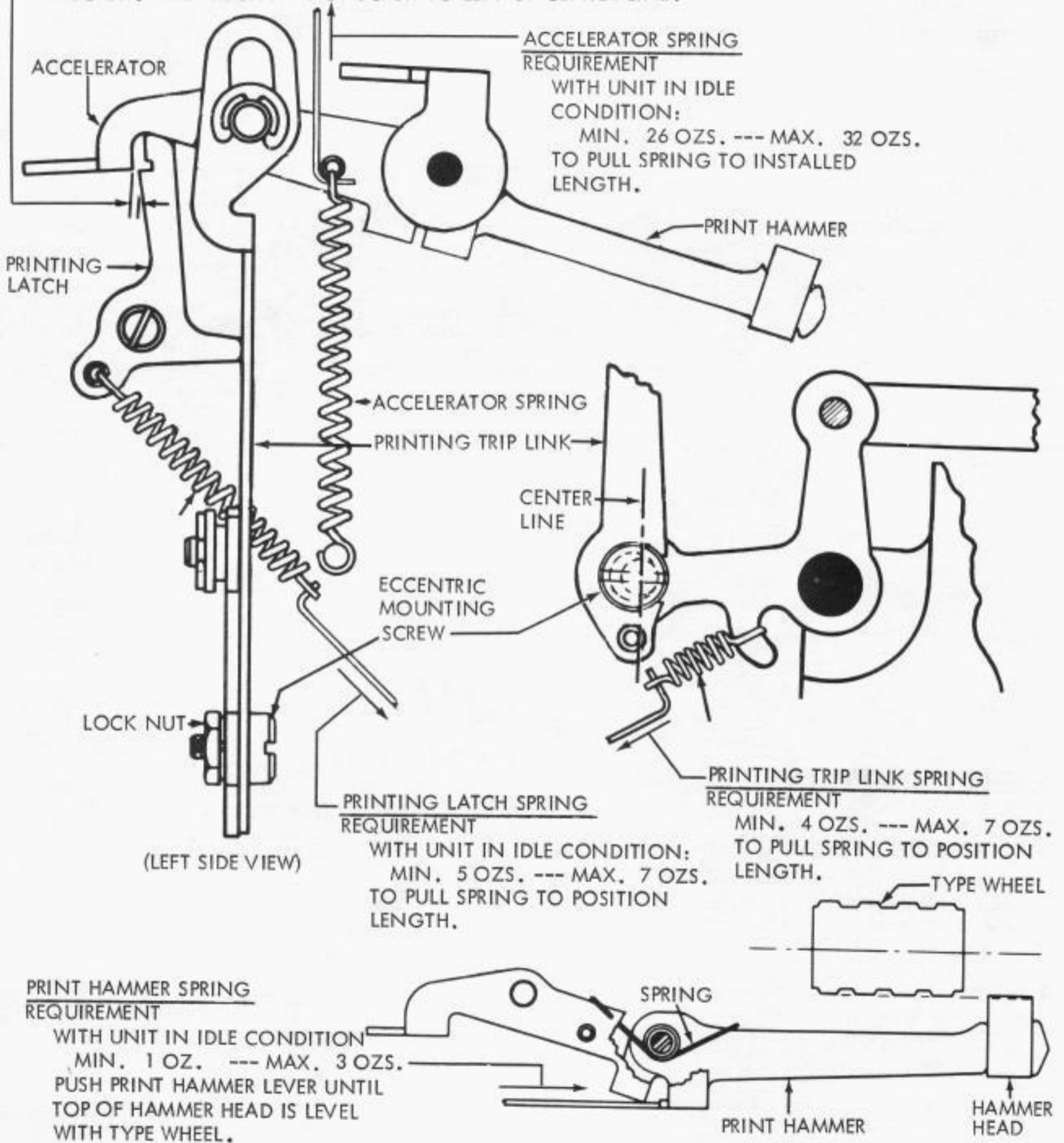


FIGURE 1-54. PRINTING MECHANISM

PRINT HAMMER (PRELIMINARY)REQUIREMENT

POSITION PRINT HAMMER

MIN. 0.030 INCH --- MAX. 0.040 INCH

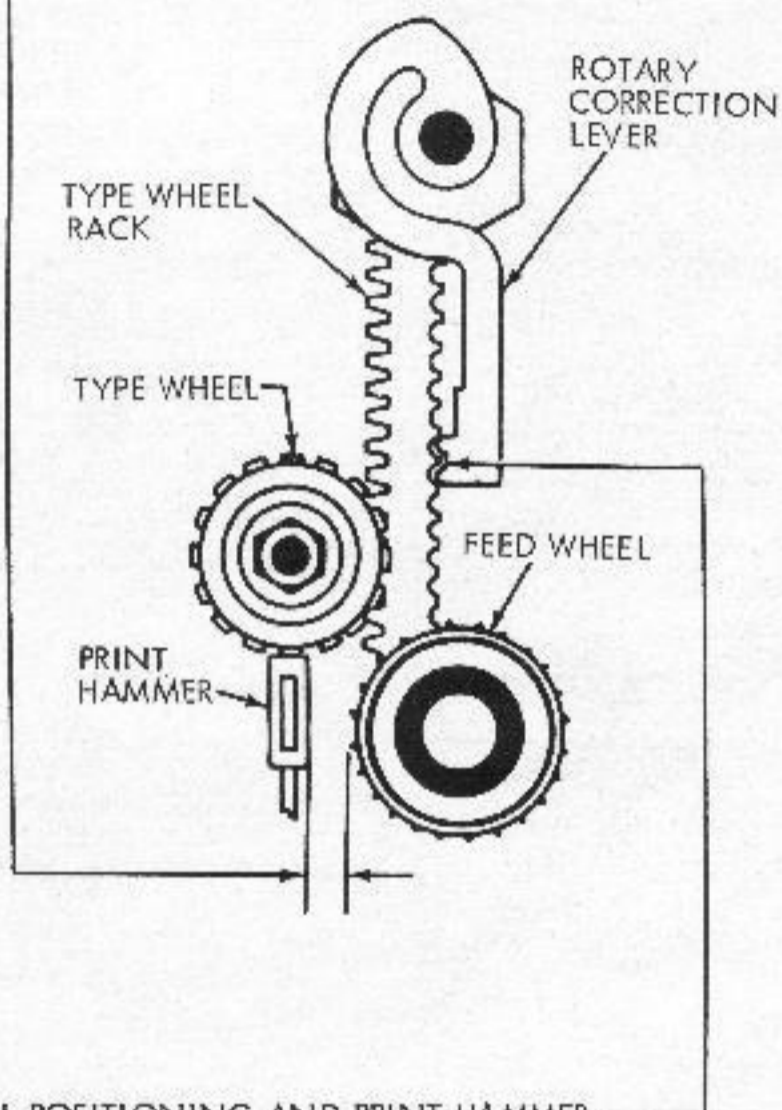
FROM THE PIN POINTS ON THE FEED WHEEL.

TO ADJUST

WITH THE PRINT HAMMER SHAFT LOCK NUT LOOSE, POSITION THE PRINT HAMMER BY TURNING THE SHAFT CLOCKWISE TO MOVE PRINT HAMMER TOWARD THE FEED WHEEL AND COUNTER CLOCKWISE TO MOVE THE PRINT HAMMER AWAY FROM THE FEED WHEEL.

NOTE

THE ADJUSTMENTS ON THIS PAGE ARE FOR FULLY PERFORATED TAPE. REFER TO FIGURE 1-52 FOR CHADLESS TAPE ADJUSTMENTS.

TYPE WHEEL POSITIONING AND PRINT HAMMER (FINAL)REQUIREMENT

WITH "M" CODE COMBINATION (--345) SELECTED, AND ROCKER BAIL IN ITS EXTREME LEFT POSITION CHECK THAT THE ROTARY CORRECTOR IS FIRMLY SEATED IN THE TYPE WHEEL RACK. THE TYPE WHEEL AND PRINT HAMMER ALIGNMENT COULD BE SUCH THAT A FULL CHARACTER IS PRINTED UNIFORMLY BETWEEN THE FEED HOLES.

TO ADJUST

WITH TYPEWHEEL LOCK NUT LOOSE POSITION THE TYPE WHEEL. IF NECESSARY, REFINE THE PRINT HAMMER ADJUSTMENT MAKING CERTAIN THE PRINT HAMMER HEAD DOES NOT COME IN CONTACT WITH THE FEED WHEEL.

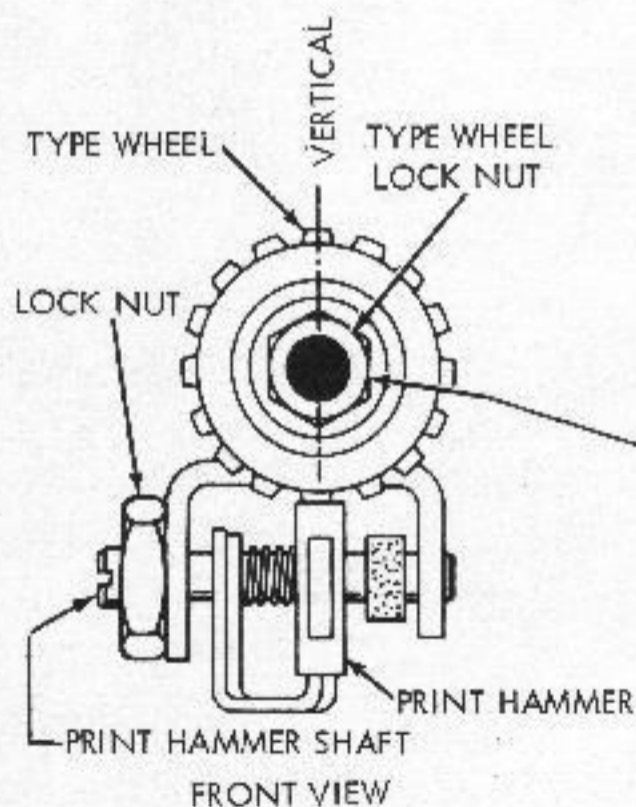
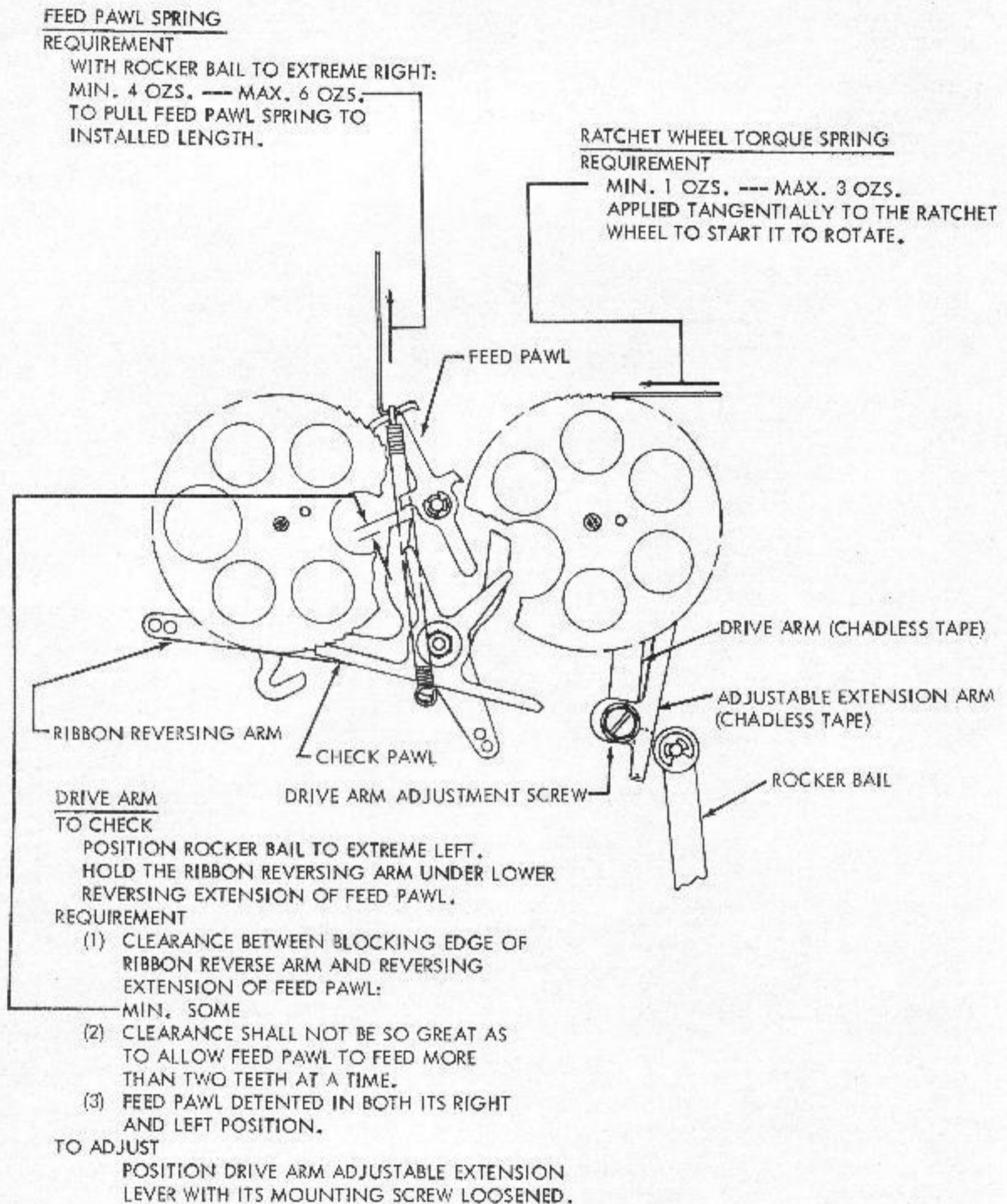


FIGURE 1-55. PRINTING MECHANISM FOR FULLY PERFORATED TAPE

LATEST DESIGN

(FOR EARLIER DESIGN SEE FIGURES 5-1, 5-2 AND 5-3)

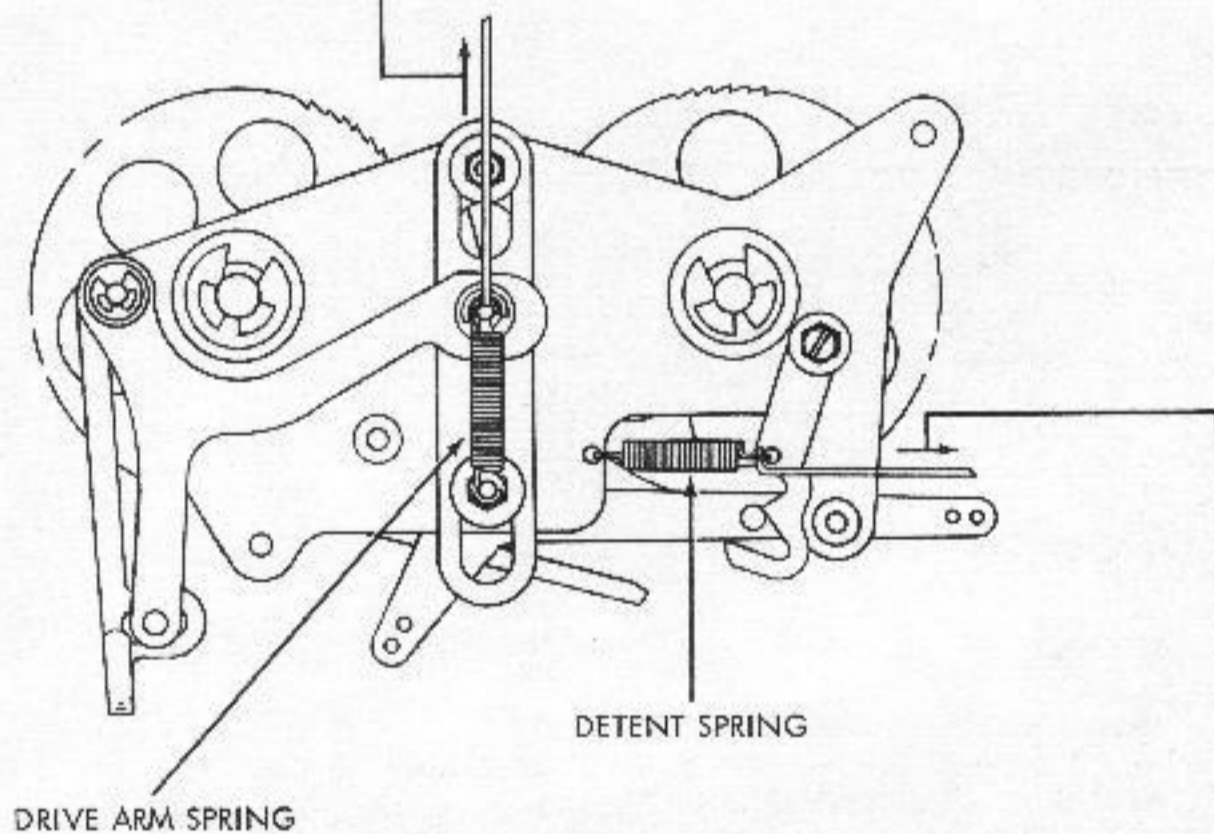
FIGURE 1-56. RIBBON FEED MECHANISM
LATEST DESIGN

LATE DESIGN

(FOR EARLIER DESIGN SEE FIGURES 5-1, 5-2 AND 5-3)

DRIVE ARM SPRINGREQUIREMENT

WITH ROCKER BAIL TO EXTREME RIGHT;
 MIN. 9 OZS. --- MAX. 14 OZS.
 TO PULL DRIVE ARM SPRING TO
 INSTALLED LENGTH.

DETENT SPRINGREQUIREMENT

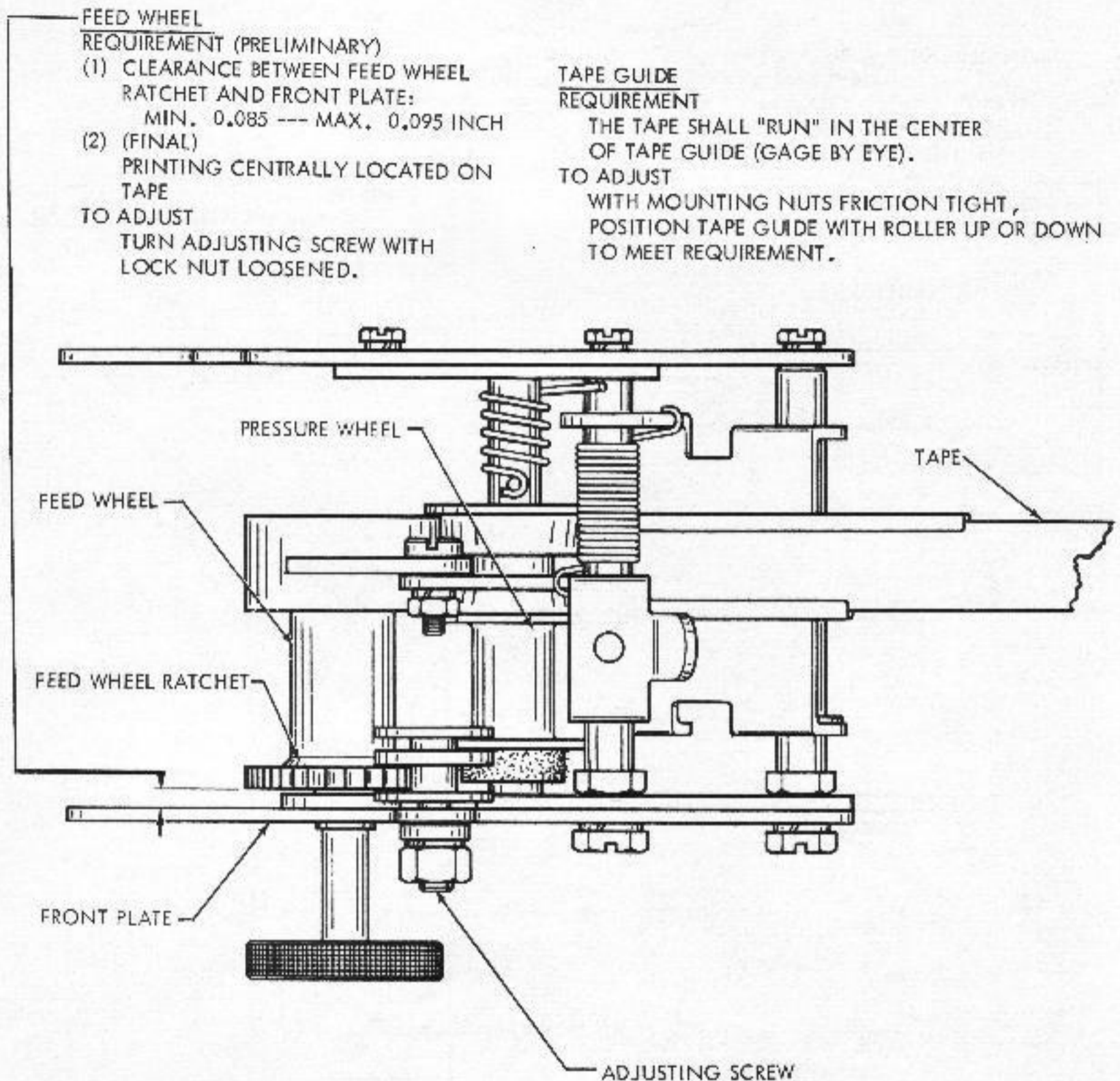
WITH REVERSING ARM IN ITS EXTREME
 RIGHT OR LEFT POSITION;
 MIN. 2 OZS. --- MAX. 4 OZS.
 TO PULL DETENT SPRING TO ITS
 INSTALLED LENGTH.

FIGURE 1-57. RIBBON FEED MECHANISM
 LATEST DESIGN

4. TAPE PRINTER SET

NOTE

THIS ADJUSTMENT, PLUS APPLICABLE MODEL 28 TYPING REPERFORATOR ADJUSTMENTS, ARE REQUIRED TO ADJUST THE MODEL 28 TAPE PRINTER.

**SPECIAL REQUIREMENT**

IF THE MODEL 28 TAPE PRINTER IS USED ON A MODEL 28 TYPING REPERFORATOR SINGLE OR DOUBLE PLATE BASE, A TAPE REEL WILL HAVE TO BE USED TO ACCOMMODATE THE 3/8 INCH TAPE. THIS TAPE REEL CONSISTS OF A DISC W/HUB AND A DISC W/NUT.

FIGURE 1-58. TAPE MECHANISM FOR MODEL 28 TAPE PRINTER

5. BASES

a. REPERFORATOR BASE

(A) TAPE-OUT LEVER

REQUIREMENT

TAPE-OUT LEVER SHOULD BE ABLE TO PUSH BOTH SWITCH LEVERS AWAY FROM SWITCH ACTUATORS BUT SHOULD NOT BE ABLE TO LIFT WOOD FILLER WITH DEPLETED TAPE ROLL OUT OF SLOTS IN TAPE CONTAINER.

TO ADJUST

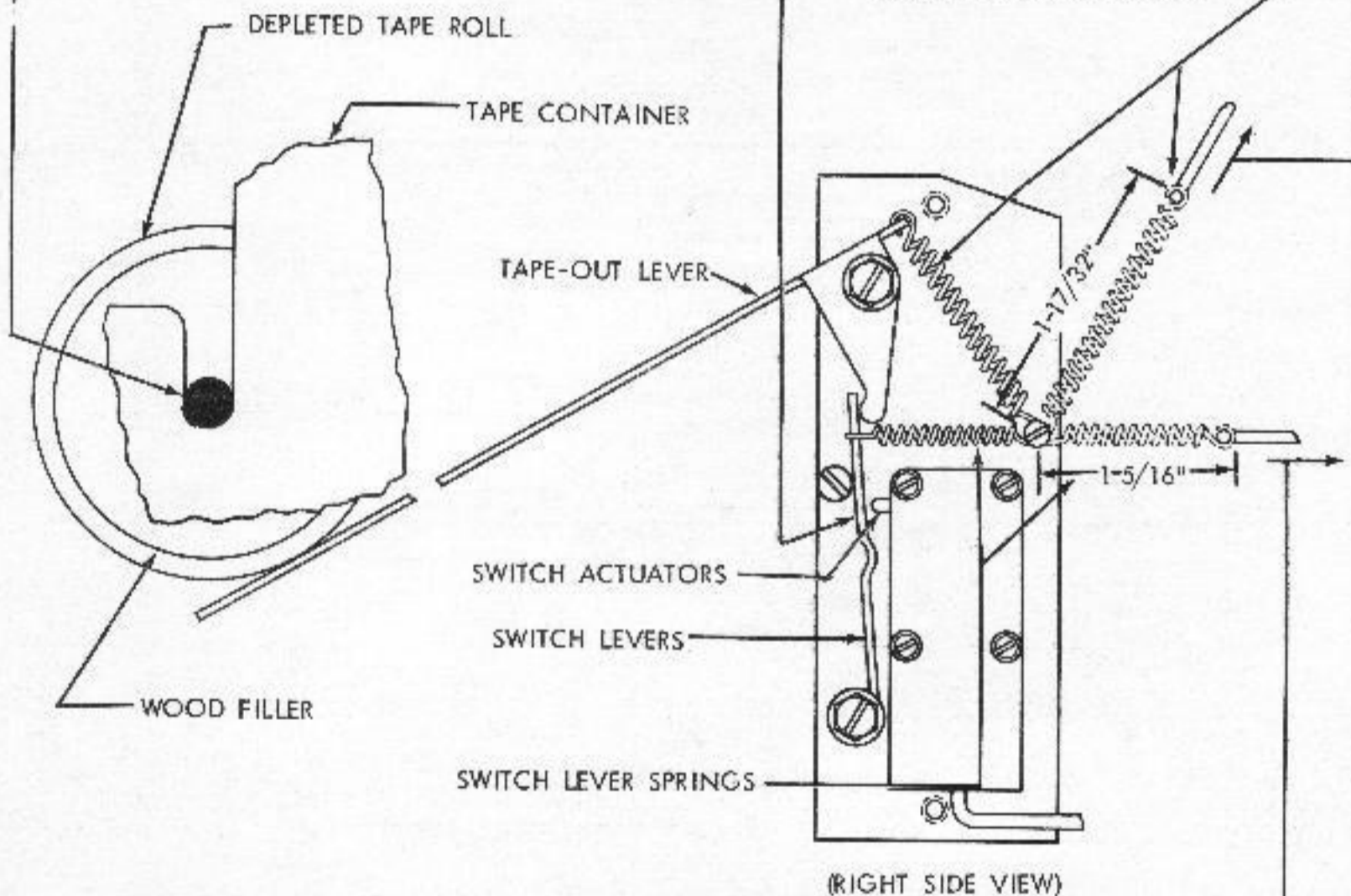
IF REQUIREMENT IS NOT MET, CHECK TAPE-OUT LEVER AND SWITCH LEVER SPRING TENSIONS (BELOW).

(B) TAPE-OUT LEVER SPRING

REQUIREMENT

MIN. 6 OZS. -----MAX. 8 OZS.
TO PULL SPRING TO LENGTH
OF $1\text{-}17/32$ INCHES.

TAPE-OUT LEVER SPRING.

(C) SWITCH LEVER SPRINGS (2)

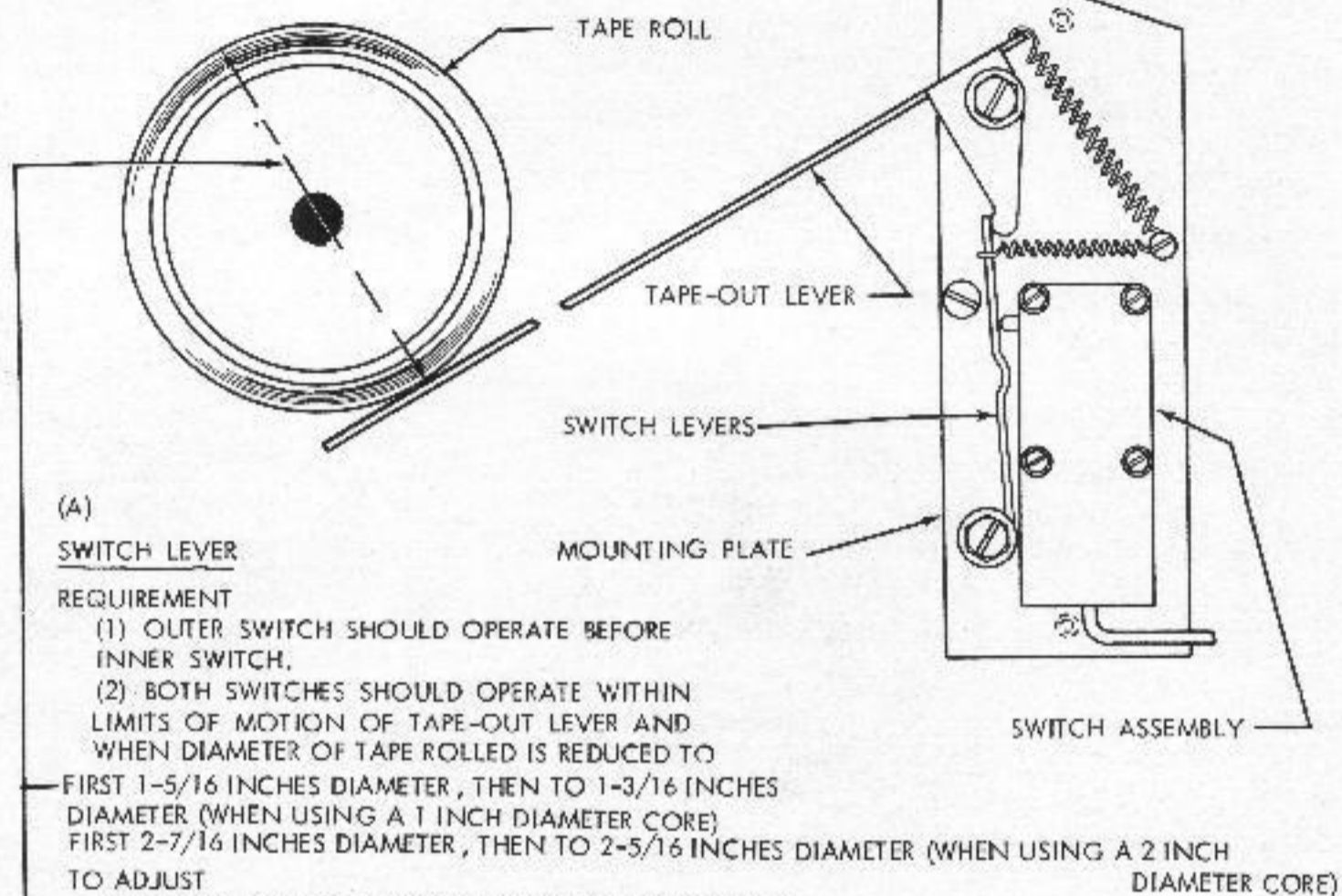
REQUIREMENT

MIN. $1\text{-}3/4$ OZS. -----MAX. $2\text{-}1/4$ OZS.
TO PULL SPRING TO LENGTH OF $1\text{-}5/16$
INCHES.

FIGURE 1-59. TAPE-OUT MECHANISM

NOTE:

THE INNER ELEMENTS ARE THESE NEARER THE MOUNTING PLATE; THE OUTER ELEMENTS, THOSE FARTHER FROM THE MOUNTING PLATE.



(B)

SWITCH MECHANISM MOUNTING PLATE

REQUIREMENT

OUTER SWITCH SHOULD JUST OPERATE WHEN DIAMETER OF TAPE ROLL IS REDUCED TO 1-5/16 INCHES WHEN USING A 1 INCH DIAMETER CORE, 2-3/8 INCHES WHEN USING A 2 INCH DIAMETER CORE.

TO ADJUST

POSITION MOUNTING PLATE WITH MOUNTING SCREWS LOOSENED.

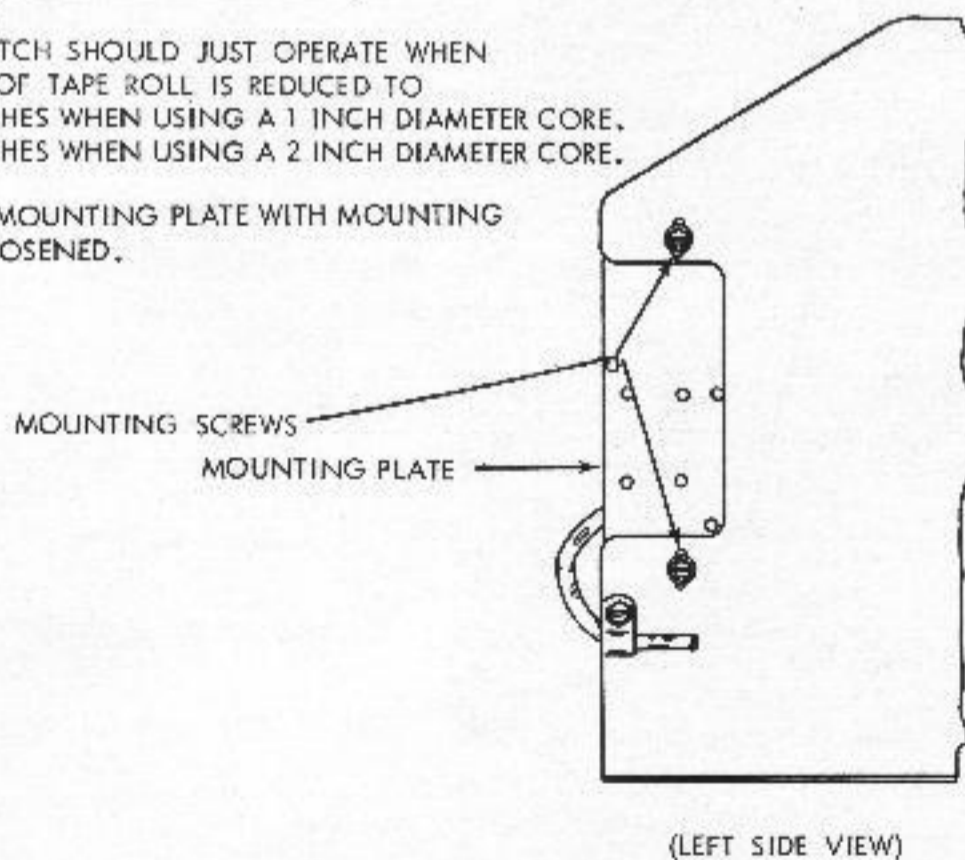


FIGURE 1-60. TAPE-OUT MECHANISM

(A) TIMING BELT

REQUIREMENT

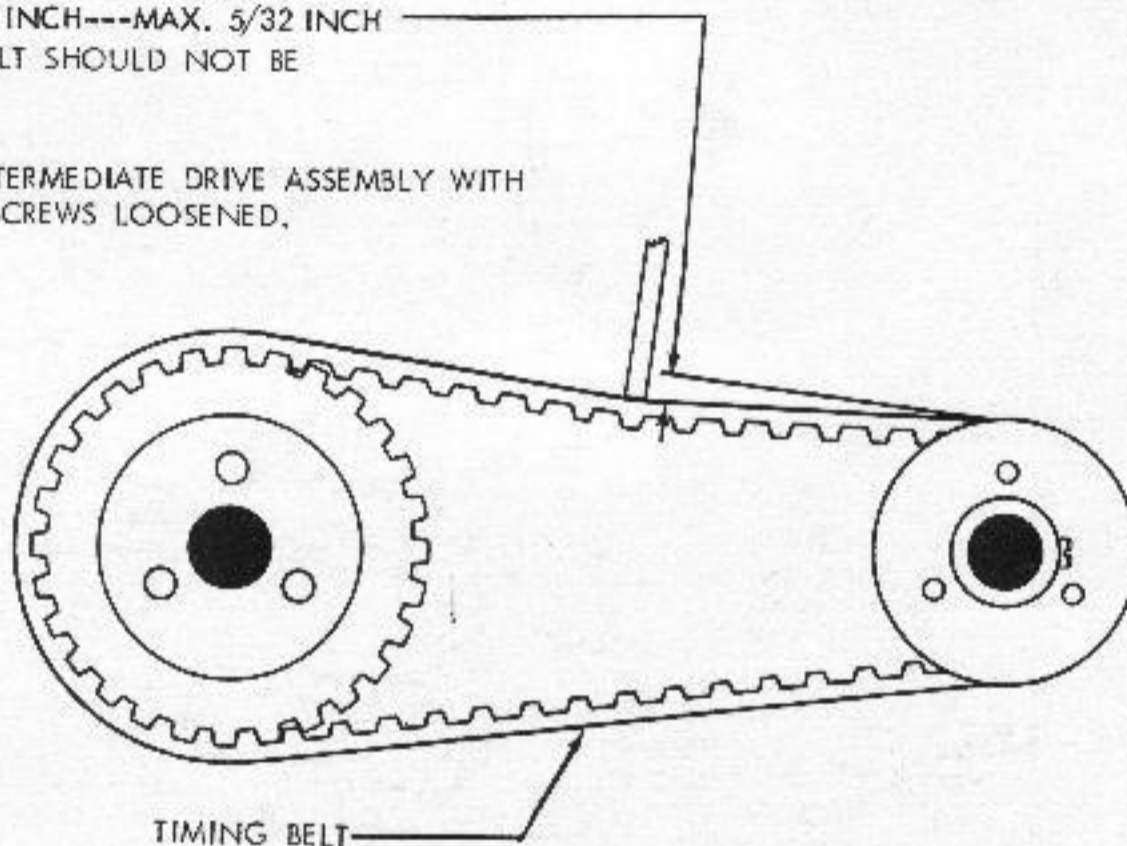
SLIGHT PRESSURE (8 ± 1 OZ.) AT CENTER OF SPAN SHOULD DEFLECT BELT:

MIN. $3/32$ INCH---MAX. $5/32$ INCH

CAUTION: BELT SHOULD NOT BE TIGHT.

TO ADJUST

POSITION INTERMEDIATE DRIVE ASSEMBLY WITH MOUNTING SCREWS LOOSENED.

(B) GEAR MESH

REQUIREMENT

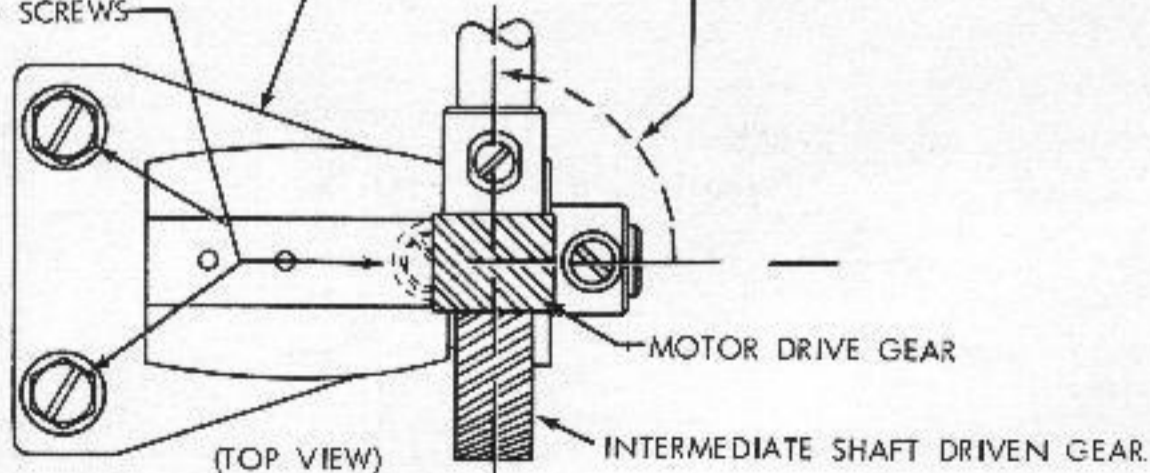
MOTOR DRIVE GEAR AND INTERMEDIATE SHAFT DRIVEN GEAR SHOULD MESH AT RIGHT ANGLES.

TO ADJUST

POSITION DRIVE ASSEMBLY WITH MOUNTING SCREWS LOOSENED. RE-CHECK TIMING BELT ADJUSTMENT (ABOVE).

INTERMEDIATE DRIVE ASSEMBLY

MOUNTING SCREWS



(C)

WIRE TAPE GUIDE

REQUIREMENT

TAPE SHOULD PASS FREELY THROUGH WIRE GUIDE AND BE ALIGNED WITH PERFORATOR GUIDE ASSEMBLY.

TO ADJUST

BEND OR POSITION WIRE GUIDE

FIGURE 1-61. INTERMEDIATE DRIVE PARTS

b. MULTIPLE REPERFORATOR BASE

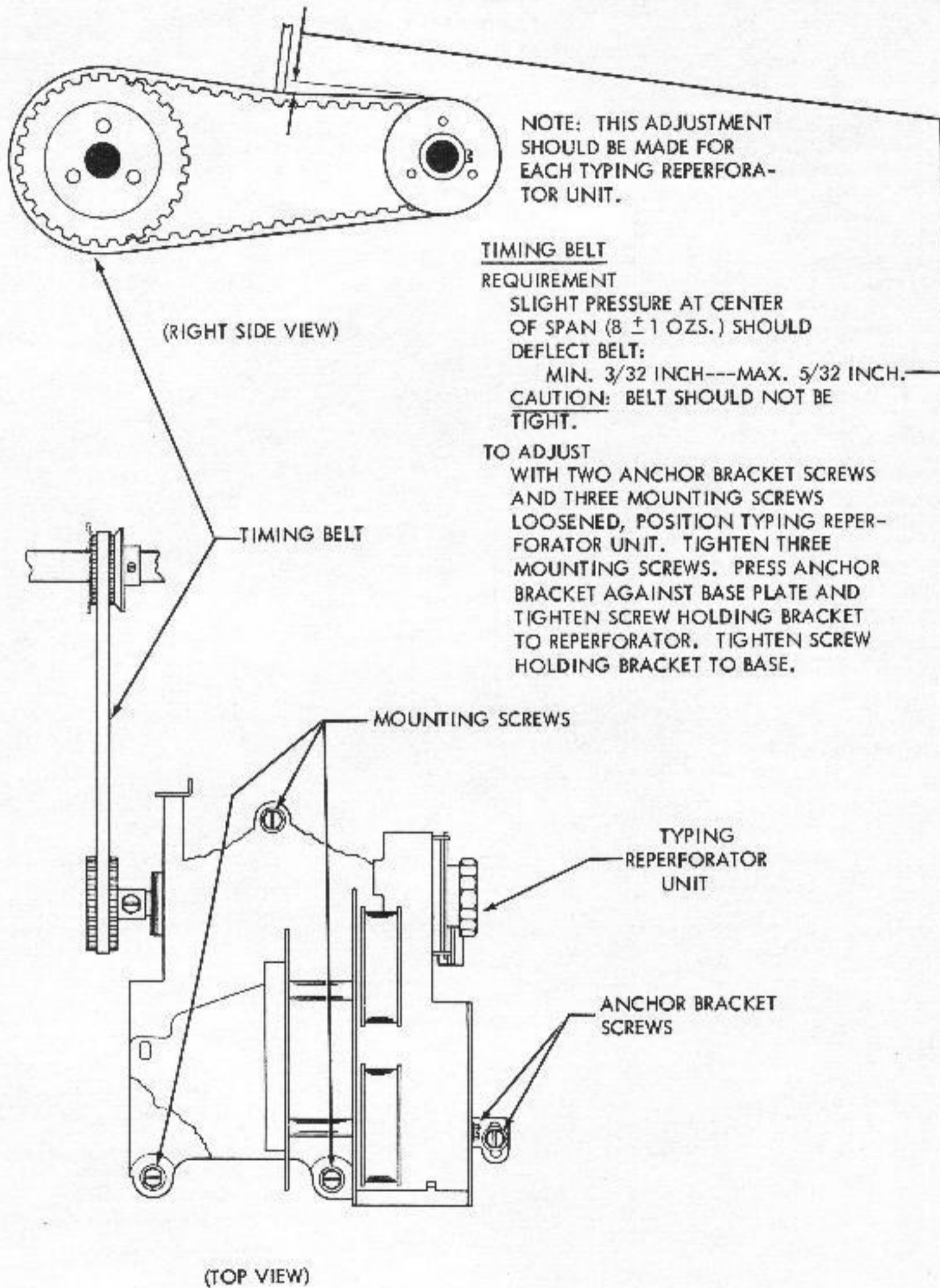


FIGURE 1-62. DRIVE MECHANISM

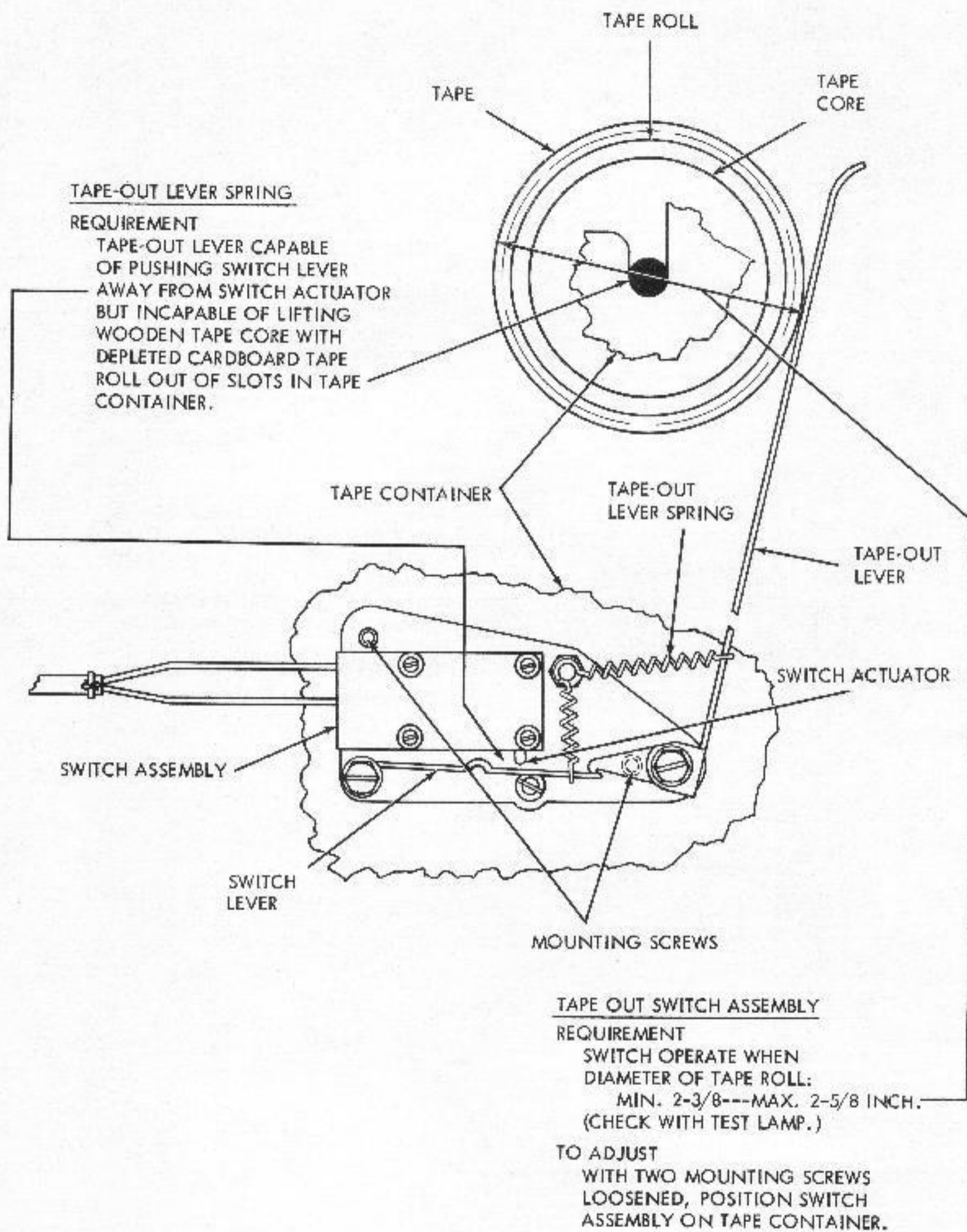


FIGURE 1-63. TAPE-OUT MECHANISM

c. AUXILIARY REPERFORATOR BASE

TAPE-OUT SWITCH ASSEMBLYREQUIREMENT

SWITCH JUST CLOSED
WHEN TAPE ROLL IS
REDUCED TO

2-3/8 INCH

TO ADJUST

POSITION SWITCH
ASSEMBLY WITH MOUNT-
ING SCREWS LOOSENED.

TAPE-OUT LEVERREQUIREMENT

SWITCH LEVER OUT OF
ENGAGEMENT WITH SWITCH
ACTUATOR WHEN TAPE ROLL
REMOVED.

TO ADJUST

CHECK TAPE-OUT LEVER
AND SWITCH LEVER SPRING
TENSIONS. REPLACE SPRINGS
WHICH DO NOT MEET REQUIREMENTS.

SWITCH LEVER SPRINGREQUIREMENT

MIN. 6 OZS. ---MAX. 7 OZS.
TO PULL SPRING TO 1-1/4
INCHES.

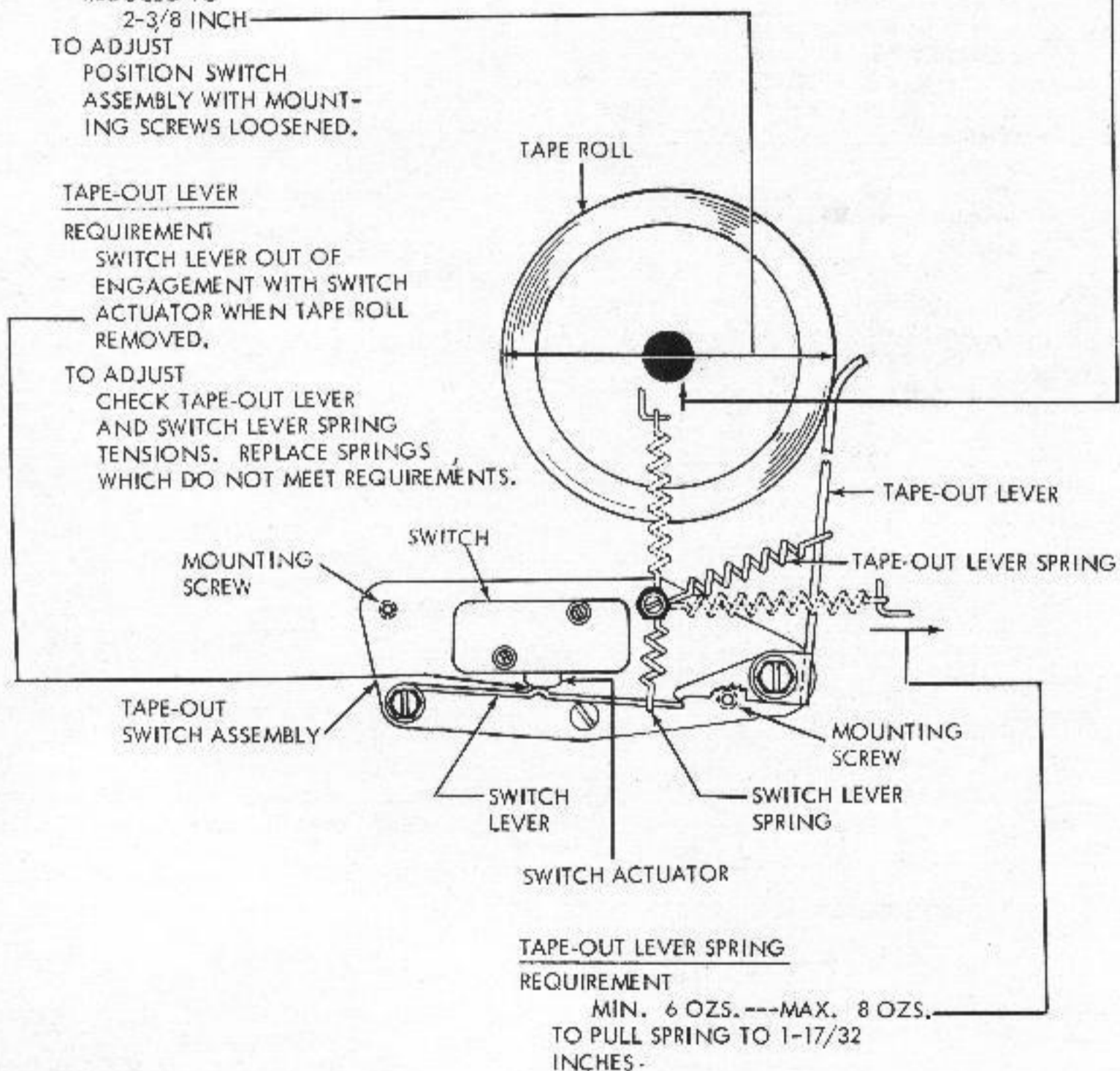


FIGURE 1-64. TAPE-OUT MECHANISM

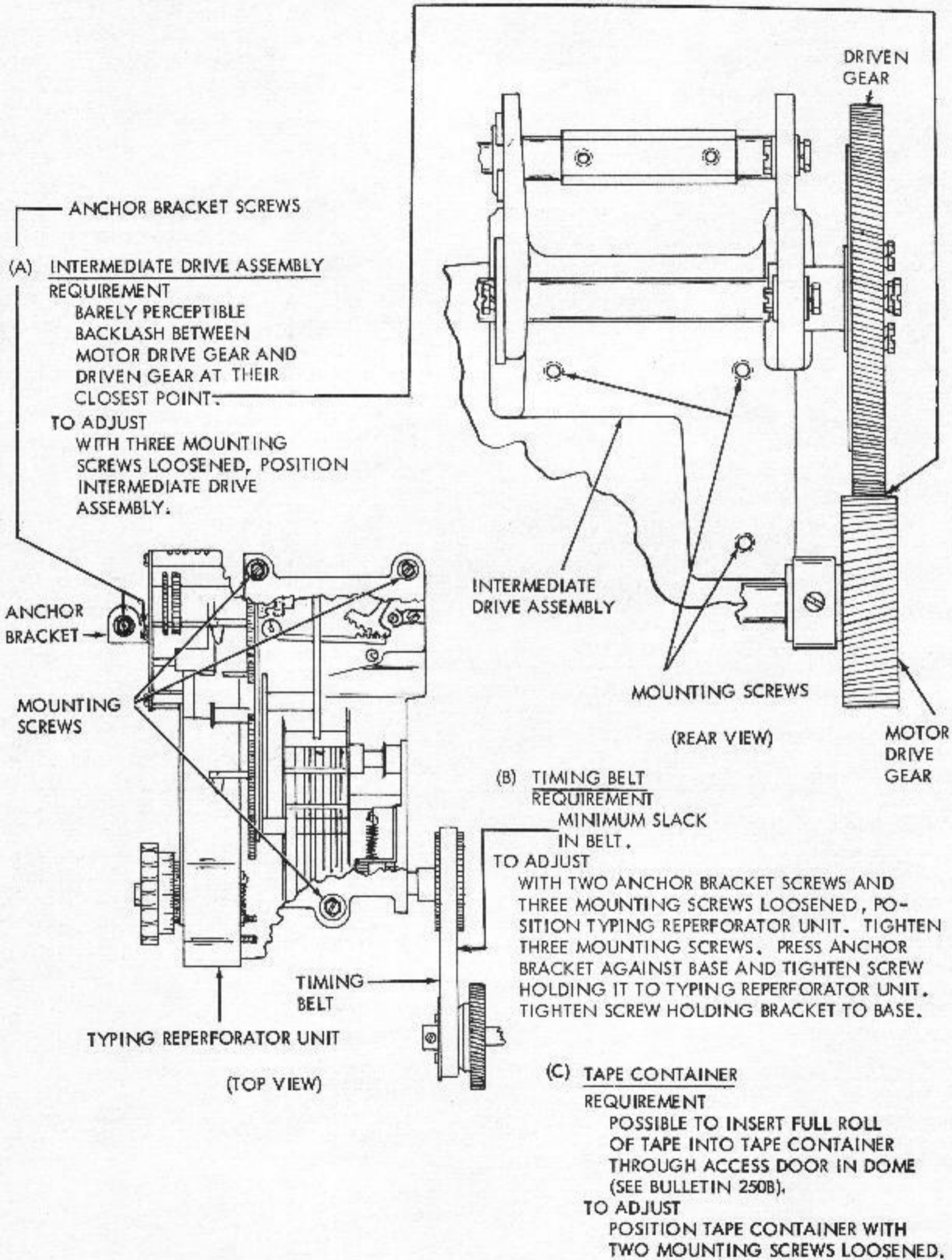
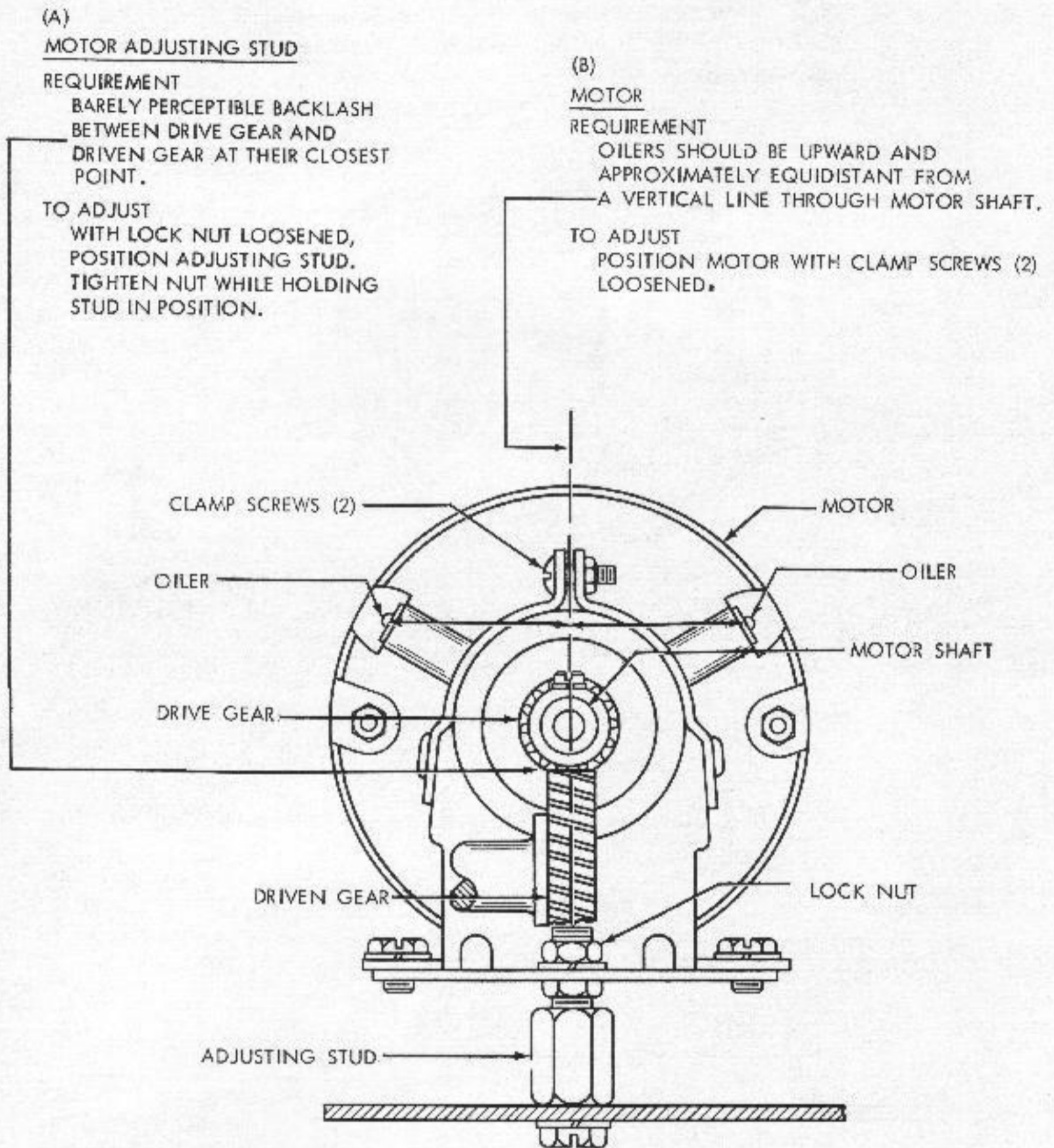


FIGURE 1-65. DRIVE MECHANISM

6. MOTOR UNIT - SYNCHRONOUS AND GOVERNED

CAUTION:

IF MOTOR BECOMES BLOCKED FOR SEVERAL SECONDS, THERMAL CUT-OUT SWITCH WILL BREAK CIRCUIT. SHOULD THIS HAPPEN, ALLOW MOTOR TO COOL AT LEAST 5 MINUTES BEFORE DEPRESSING RED RESET BUTTON.

FIGURE 1-66. MOTOR UNIT

GOVERNED MOTOR POSITIONING REQUIREMENT

MOTOR SHOULD BE CENTRALLY POSITIONED IN ITS RUBBER MOUNTS SO AS TO PROVIDE AT LEAST 0.020 CLEARANCE BETWEEN THE MOTOR HOUSING AND THE CRADLE AT THE GOVERNOR END. THE CABLE SHOULD ALSO CLEAR THE GROMMET IN THE SCREEN BY AT LEAST 0.030 INCH.

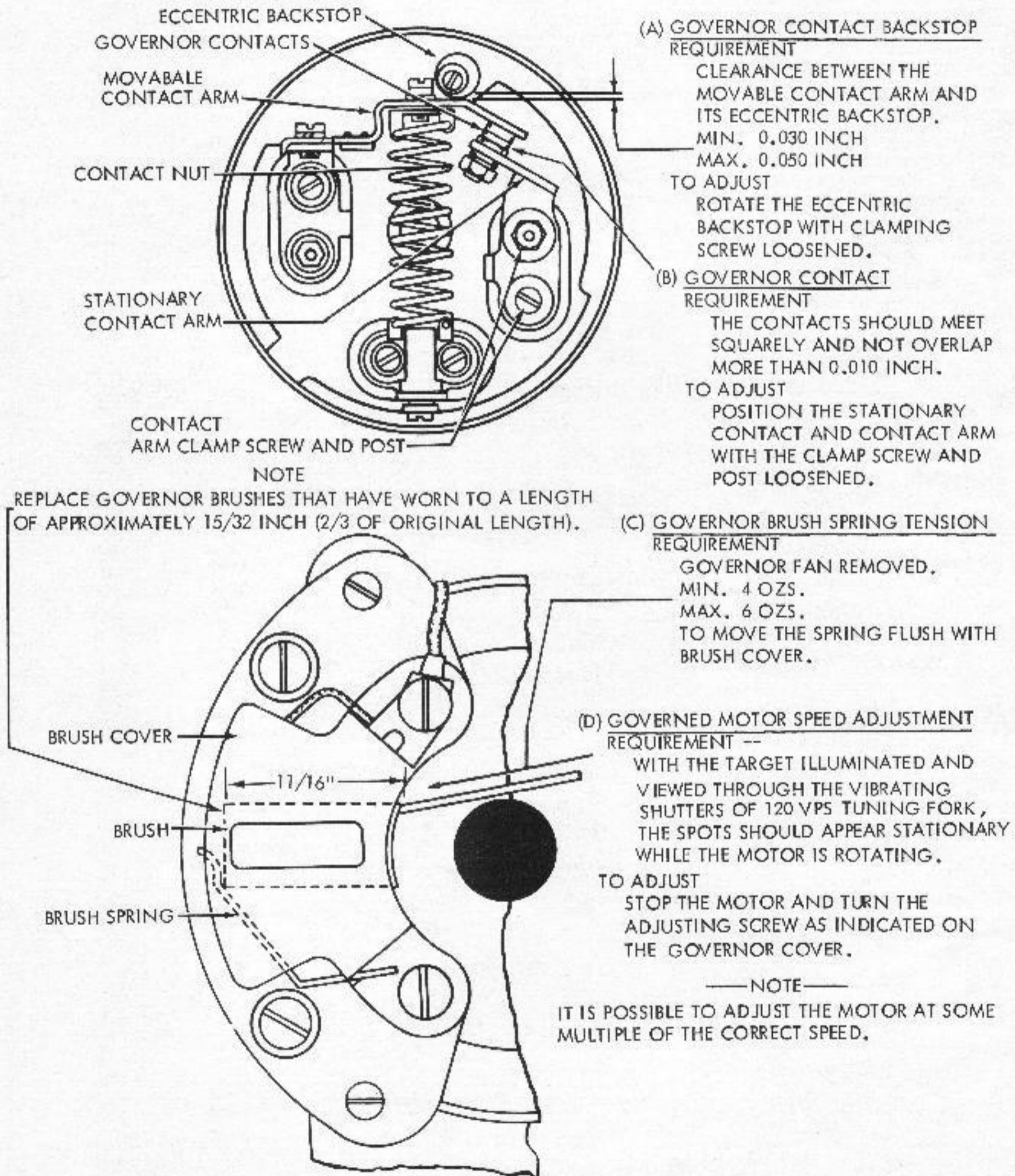


FIGURE 1-67. GOVERNED MOTOR

MINIATURIZED SYNCHRONOUS MOTOR (FOR COMPACT RECEIVING-ONLY REPERFORATOR SET)

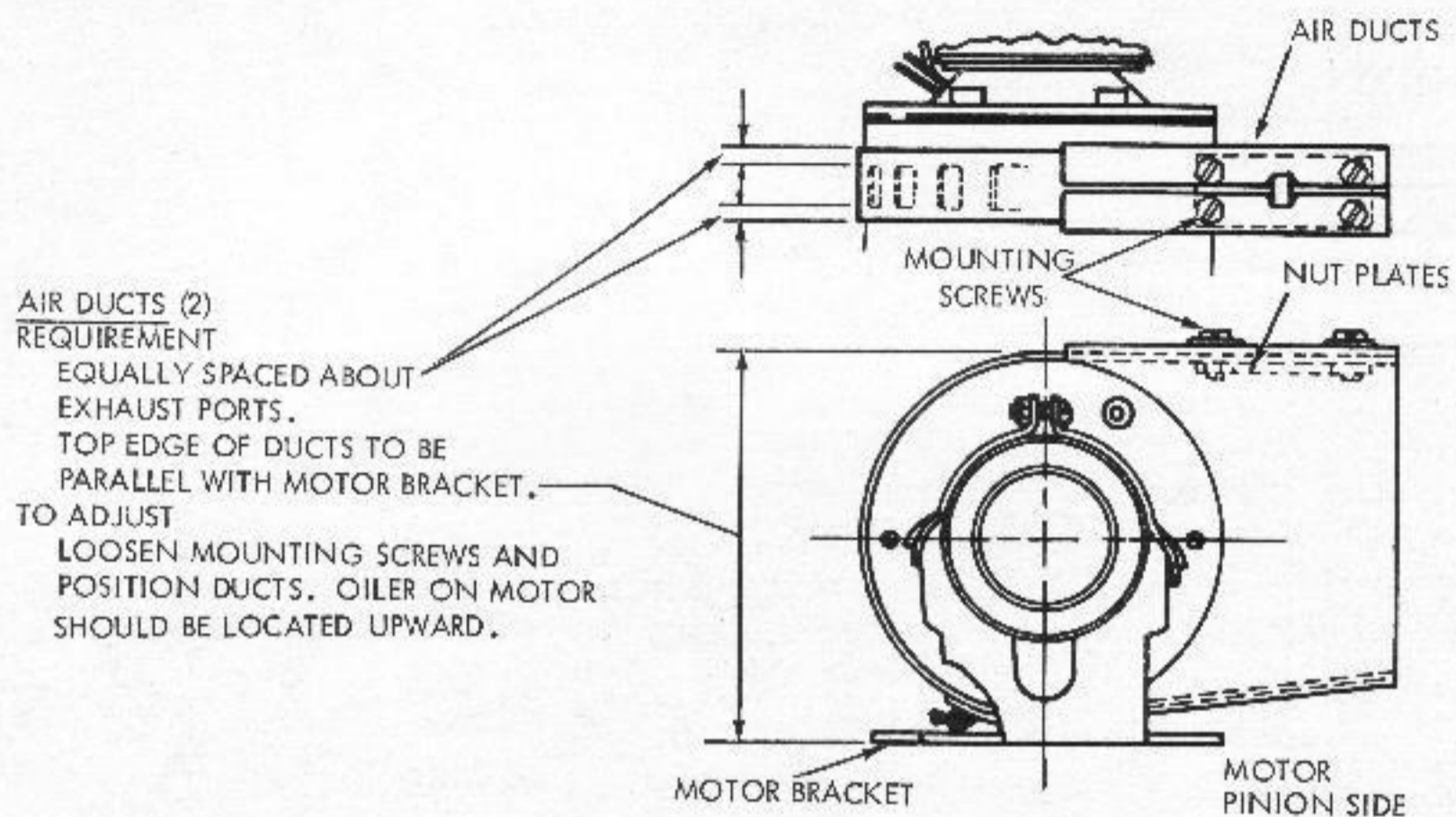


FIGURE 1-68. AIR DUCTS FOR MINIATURIZED SYNCHRONOUS MOTOR - COMPACT RECEIVING-ONLY REPERFORATOR SET

PINION-GEAR (FOR RECEIVE ONLY COMPACT TAPE PRINTER SET)
REQUIREMENT

BARELY PERCEPTIBLE BACKLASH BETWEEN MOTOR PINION AND DRIVEN GEAR MOUNTED IN SINGLE SPEED DRIVE ASSEMBLY.

TO ADJUST

LOOSEN FOUR MOUNTING SCREWS SECURING MOTOR TO UPPER BASE PLATE. INCREASE OR DECREASE BACKLASH BY ROTATING MIDDLE NUTS ON MOUNTING SCREWS OPPOSITE PINION END. TO INSURE MOTOR IS PROPERLY ALIGNED WITH DRIVEN GEAR, THE BOTTOM SURFACE OF MOTOR MOUNT BRACKET SHALL BE PARALLEL WITH UPPER BASE PLATE.

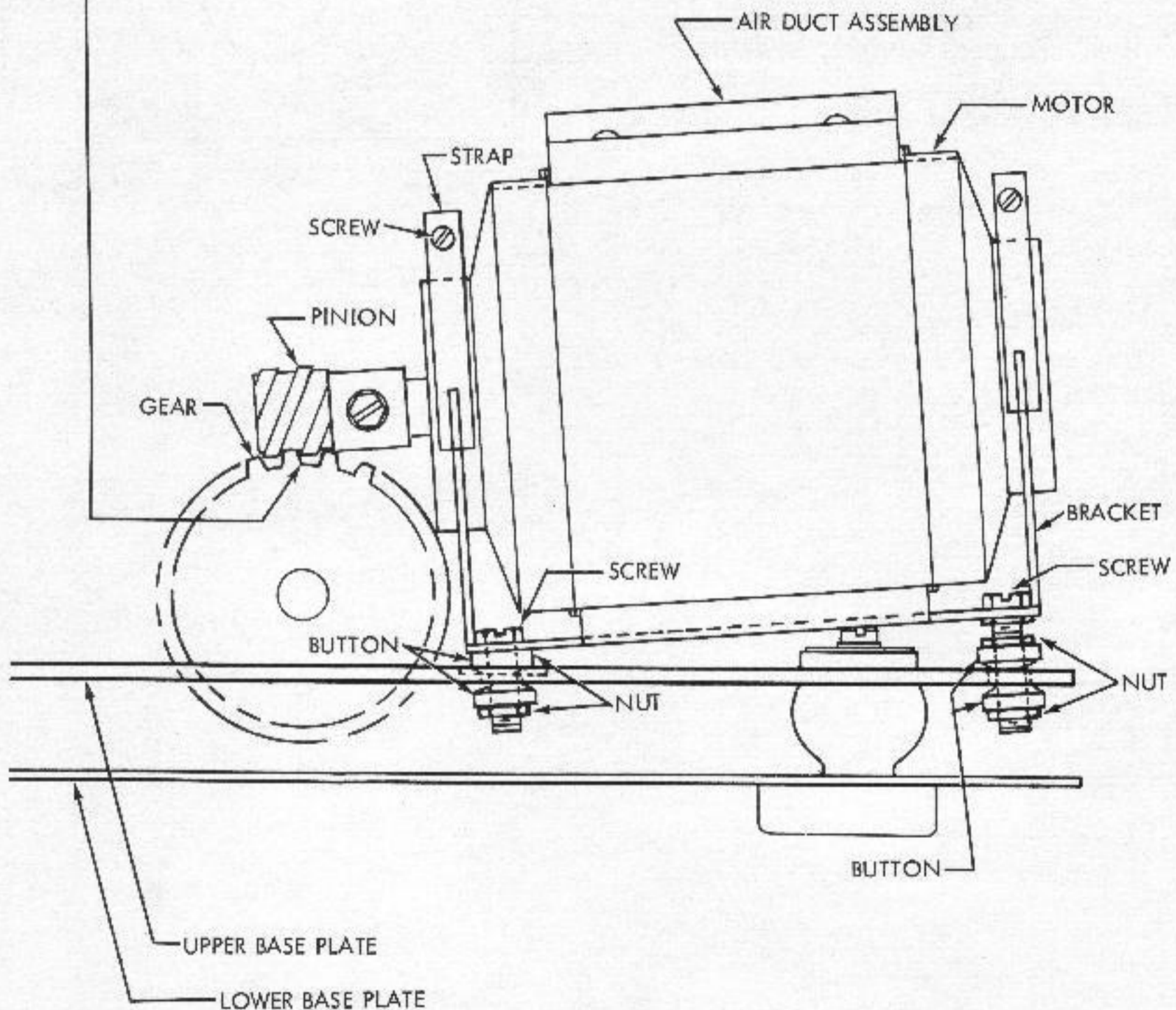


FIGURE 1-69. MOTOR UNIT FOR RECEIVE ONLY COMPACT TAPE PRINTER SET

7. ENCLOSURES

a. COVER (RECEIVING ONLY-SET).

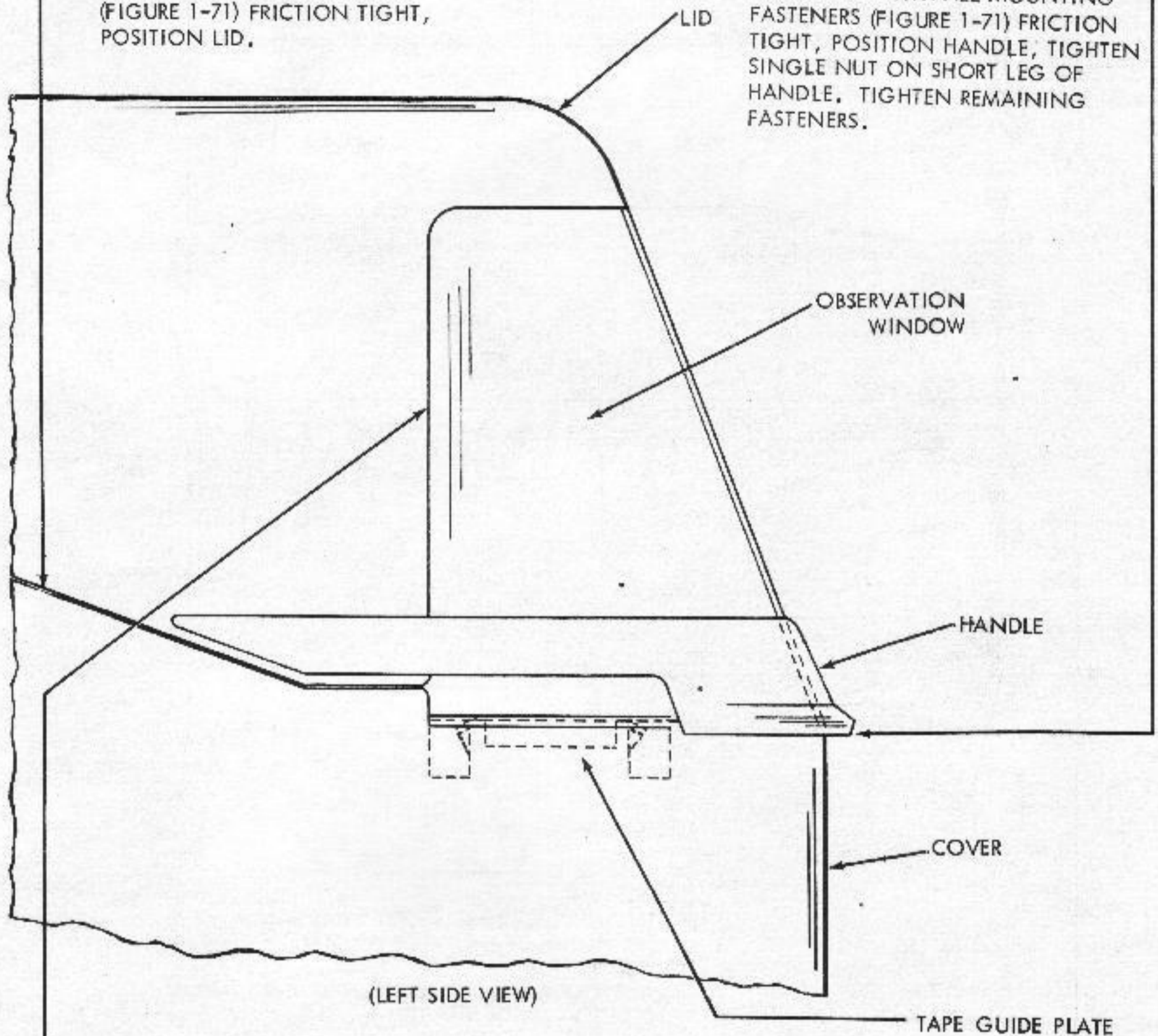
(A) LID

REQUIREMENT --- COVER LID SHOULD ALIGN WITH LOWER PORTION OF COVER AND ALL MATING SURFACES SHOULD ENGAGE SQUARELY.
TO ADJUST --- WITH 5 HINGE NUTS (FIGURE 1-71) FRICTION TIGHT, POSITION LID.

(B) HANDLE

REQUIREMENT --- HANDLE SHOULD FOLLOW CONTOUR OF LID AND ITS LOWER EDGE SHOULD BE IN A PLANE PARALLEL TO PARTING LINE OF LID.

TO ADJUST --- WITH ALL MOUNTING FASTENERS (FIGURE 1-71) FRICTION TIGHT, POSITION HANDLE, TIGHTEN SINGLE NUT ON SHORT LEG OF HANDLE. TIGHTEN REMAINING FASTENERS.

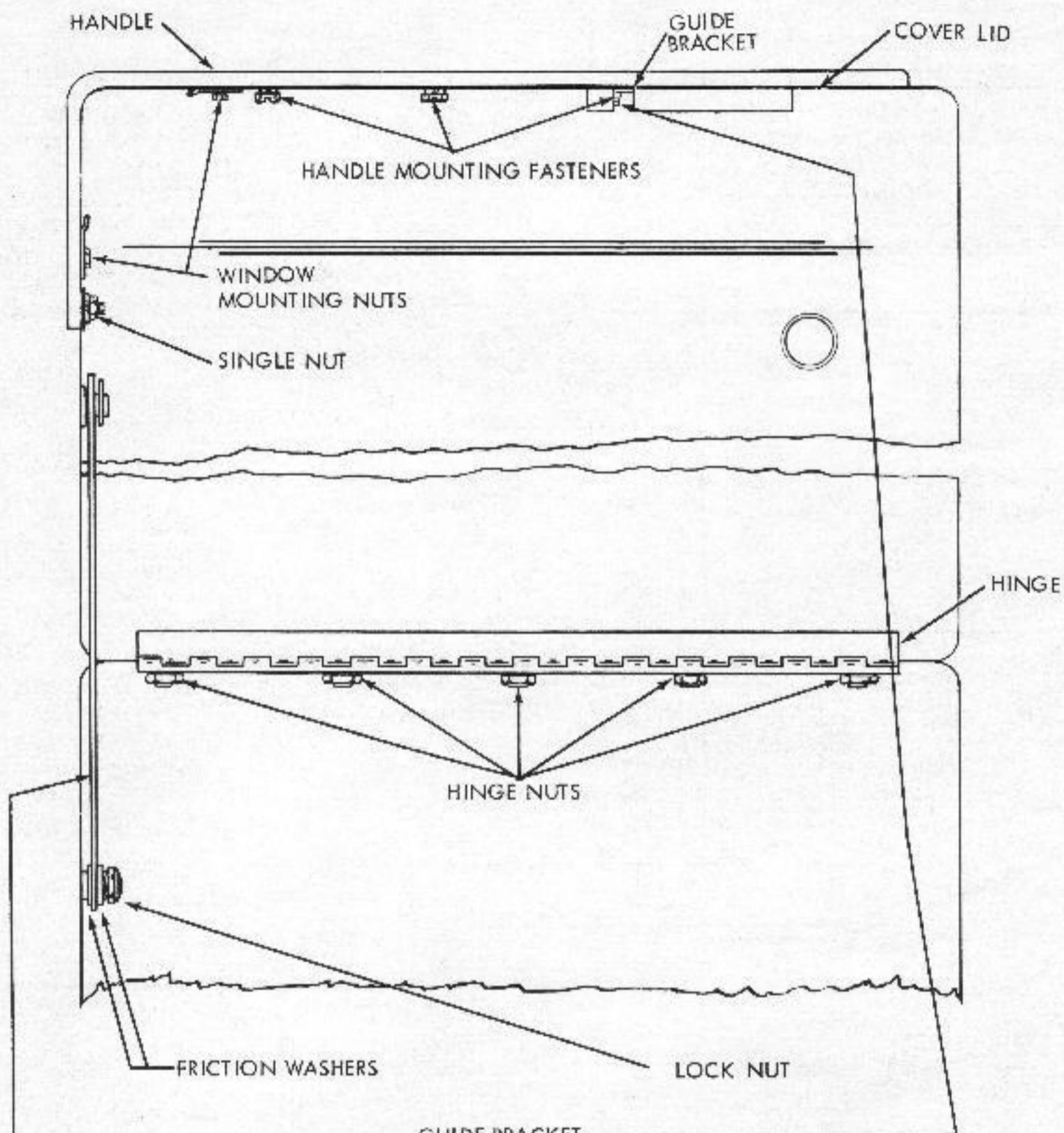


(C) WINDOW

REQUIREMENT --- OBSERVATION WINDOW SHOULD SEAT FIRMLY IN OPENING OF LID WITH OUTLINE AROUND EDGE OF WINDOW CONCEALED BY LID.

TO ADJUST --- WITH WINDOW MOUNTING NUTS (FIGURE 1-71) FRICTION TIGHT, POSITION WINDOW.

FIGURE 1-70. COVER



GUIDE BRACKET
REQUIREMENT

THE LID GUIDE LINE UP CENTRALLY WITHIN THE NOTCH OF THE GUIDE BRACKET.
TO ADJUST
WITH GUIDE BRACKET SCREWS FRICTION TIGHT,
POSITION GUIDE BRACKET.

FRICTION ARM

REQUIREMENT----WITH LID IN ITS UPPERMOST POSITION, IT SHOULD REQUIRE A LIGHT PRESSURE TO MOVE LID DOWNWARD. (LID SHOULD NOT FALL OF ITS OWN WEIGHT).
TO ADJUST----TIGHTEN OR LOOSEN FRICTION WASHER ASSEMBLY LOCK NUT.

FIGURE 1-71. COVER

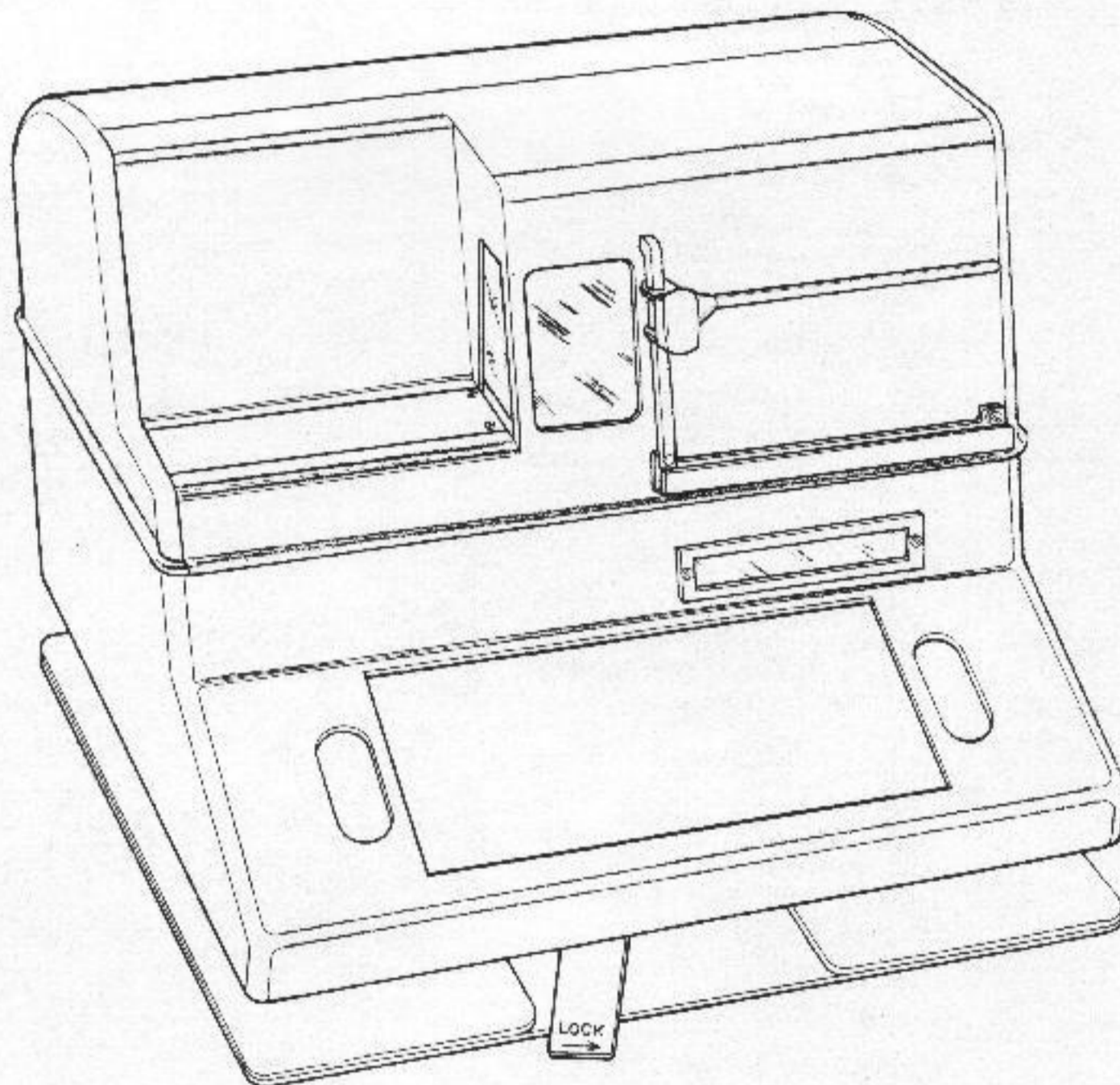
b. COVER (SEND-RECEIVE TYPING REPERFORATOR SET)

(A) COVERREQUIREMENT

- (1) ACCESS DOOR LATCHED WHEN CLOSED.
- (2) MIN. OF PLAY IN DOOR.

TO ADJUST

POSITION THE LATCHES WITH MOUNTING SCREWS FRICTION TIGHT.

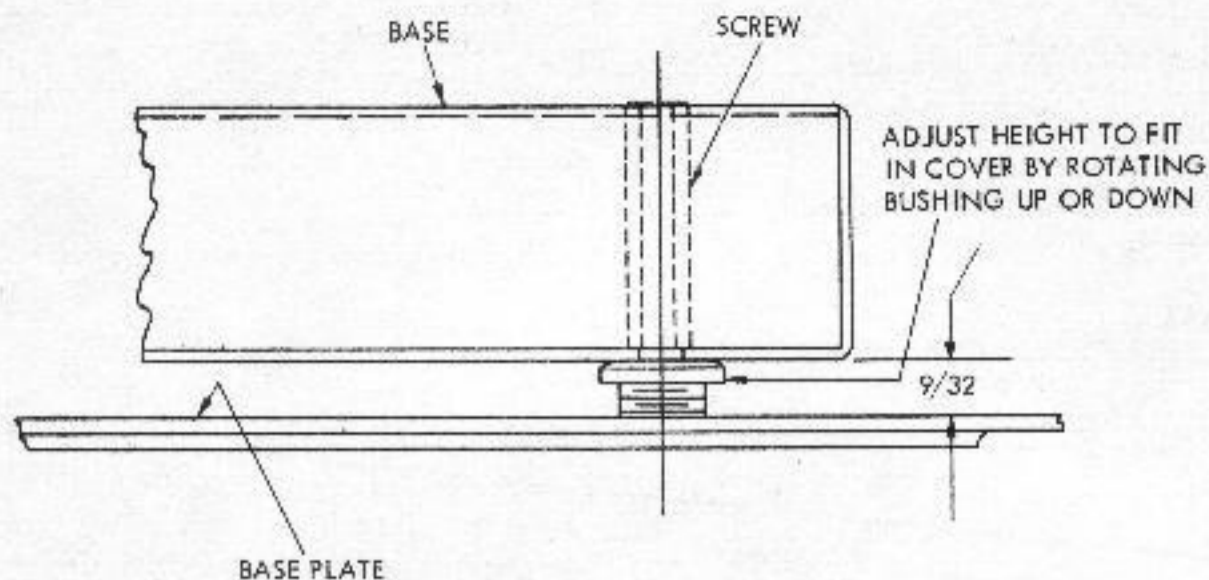
(B) COPYHOLDERREQUIREMENT

TENSION ON THE LINE GUIDE SHOULD BE SUFFICIENT TO HOLD THE LINE GUIDE FROM SLIPPING DOWN THE SHAFT AND TO HOLD THE COPY IN PLACE.

TO ADJUST

REMOVE THE TWO MOUNTING SCREWS FROM INSIDE THE COVER, REMOVE THE LINE GUIDE AND TURN THE SQUARE SHAFT TO A NEW POSITION. REPLACE THE LINE GUIDE AND MOUNTING SCREWS.

FIGURE 1-72. SEND-RECEIVE TYPING REPERFORATOR SET COVER



(A) ALIGNMENT OF COVER TO BASE PLATE ASSEMBLY REQUIREMENT

THE COVER SHOULD FIT AROUND THE KEYPAD GUIDE AND REST ON THE BASE PLATE

TO ADJUST PRELIMINARY

LOOSEN FOUR BASE MOUNTING SCREWS AND ADJUST THE ASSOCIATED BUSHINGS SO THE SPACE BETWEEN THE BASE PLATE AND KEYBOARD BASE IS APPROXIMATELY 9/32 INCH AT ALL FOUR CORNERS.

FINAL

PLACE THE COVER OVER THE COMBINED KEYBOARD BASE AND BASE PLATE ASSEMBLY IF THE REQUIREMENT IS NOT MET ADJUST ACCORDINGLY.

(B) WINDOW REQUIREMENT

VERTICAL CLEARANCE BETWEEN THE TEARING EDGE OF THE SLIDE WINDOW IN THE DOOR AND THE TOP SURFACE OF THE TAPE AFTER IT LEAVES THE PUNCH IN A HORIZONTAL PLANE.

MIN. 1/16 INCH
MAX. 3/32 INCH

TO ADJUST

POSITION WINDOW WITH CLAMP SCREWS FRICTION TIGHT.

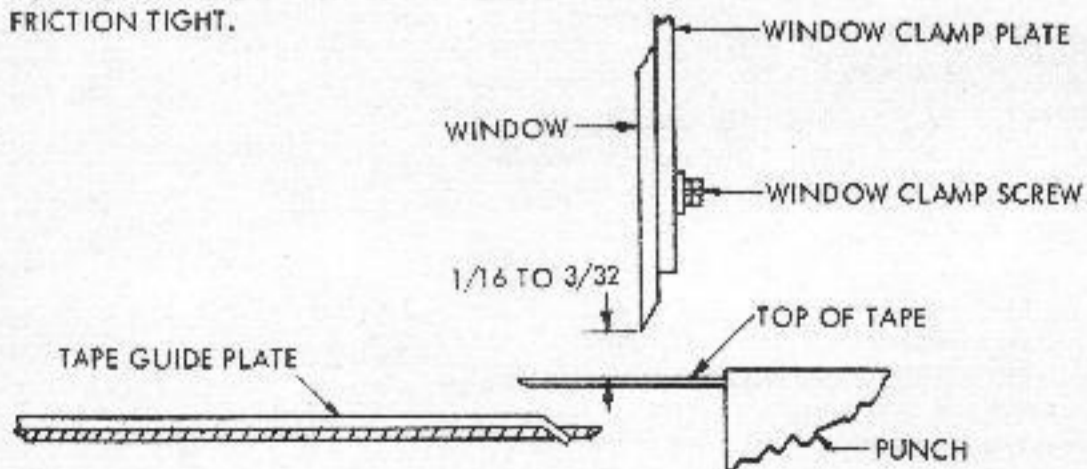


FIGURE 1-73. SEND-RECEIVE TYPING REPERFORATOR SET COVER

c. COVER (SEND-RECEIVE TAPE PRINTER SET) NOTE
THE FOLLOWING ADJUSTMENTS, PLUS APPLICABLE MODEL 28 TYPING REPERFORATOR SEND AND RECEIVE COVER ADJUSTMENTS, ARE REQUIRED TO ADJUST THE MODEL 28 TAPE PRINTER COVER.

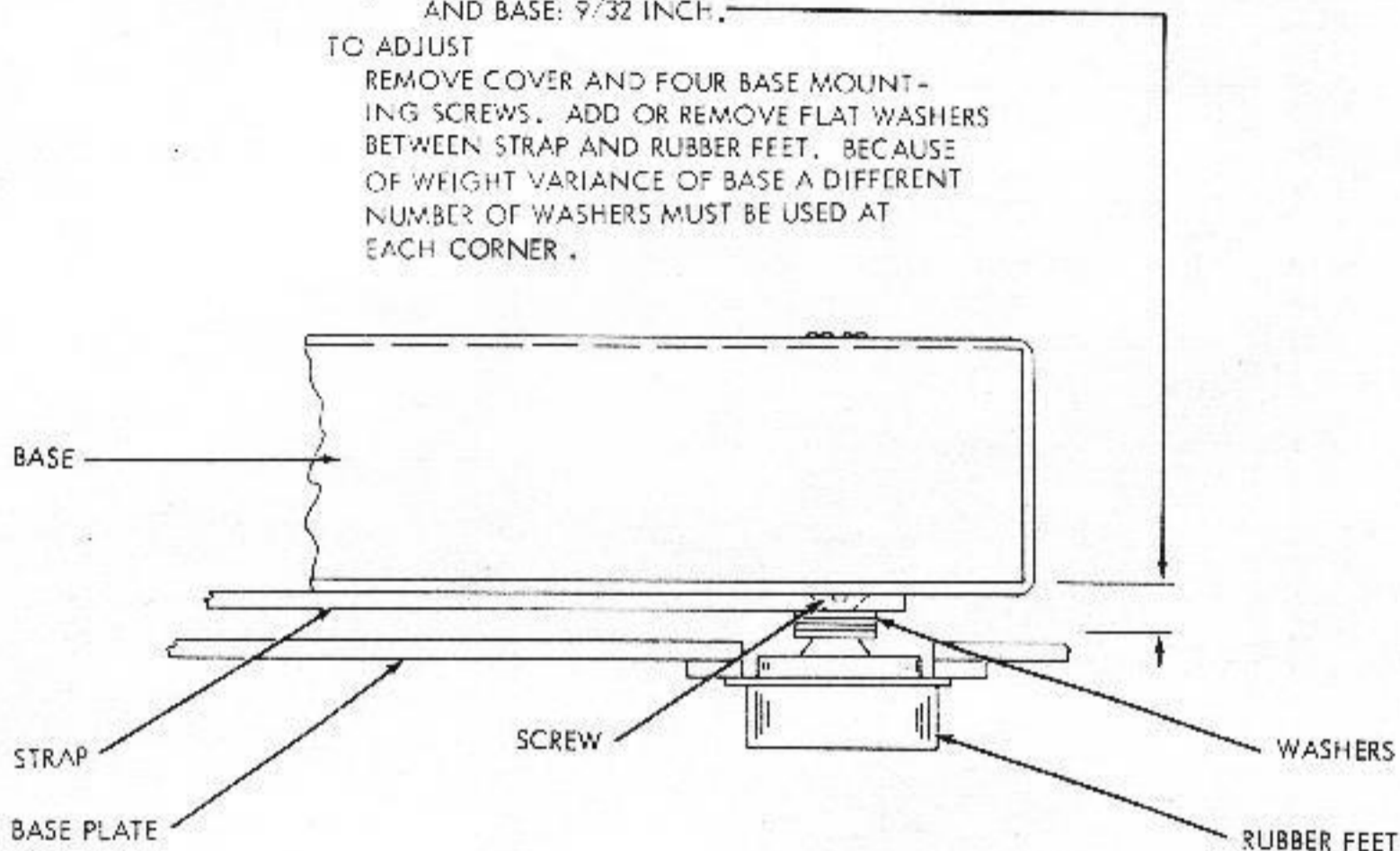
(A) ALIGNMENT OF COVER AND BASE

REQUIREMENT

- (1) COVER SHOULD FIT AROUND KEYPAD GUIDE AND REST ON BASE PLATE.
- (2) NOMINAL SPACE BETWEEN BASE PLATE AND BASE: $9/32$ INCH.

TO ADJUST

REMOVE COVER AND FOUR BASE MOUNTING SCREWS. ADD OR REMOVE FLAT WASHERS BETWEEN STRAP AND RUBBER FEET. BECAUSE OF WEIGHT VARIANCE OF BASE A DIFFERENT NUMBER OF WASHERS MUST BE USED AT EACH CORNER.



(B) WINDOW

REQUIREMENT

VERTICAL CLEARANCE BETWEEN THE TEARING EDGE OF THE SIDE WINDOW IN THE DOOR AND THE TOP SURFACE OF THE TAPE

MIN. $1/16$ INCH

MAX. $3/32$ INCH

TO ADJUST

POSITION WINDOW WITH CLAMP SCREWS
FRICTION TIGHT.

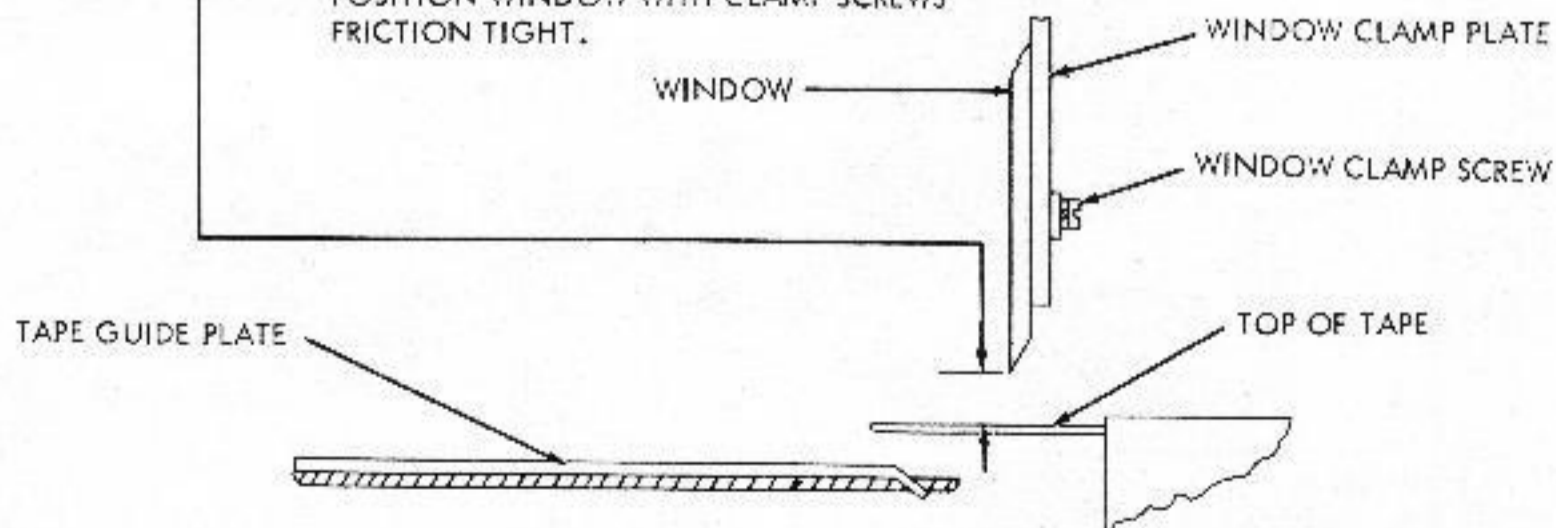


FIGURE 1-74. MODEL 28 TAPE PRINTER COVER

d. MULTIPLE CABINET

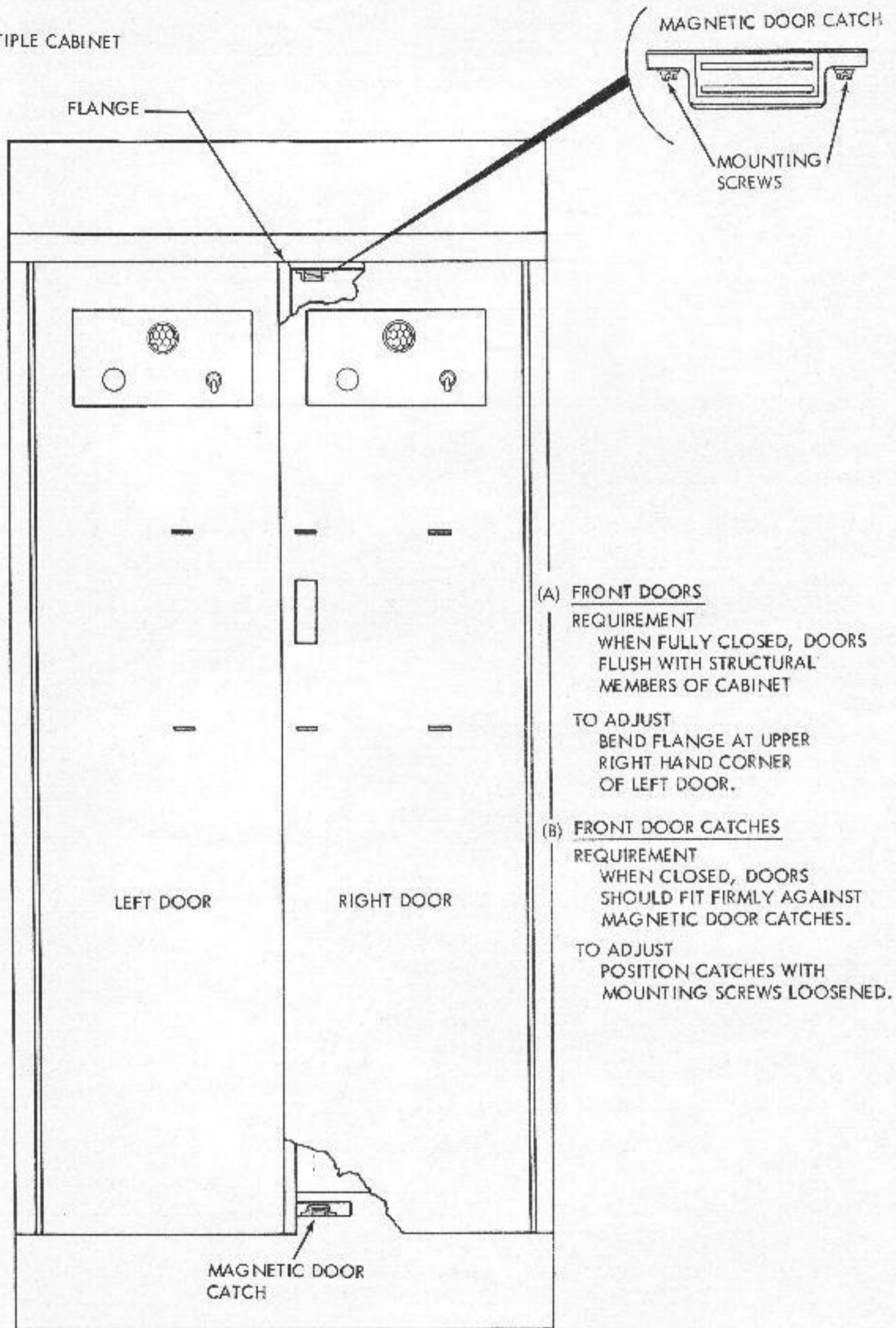


FIGURE 1-75. MULTIPLE CABINET

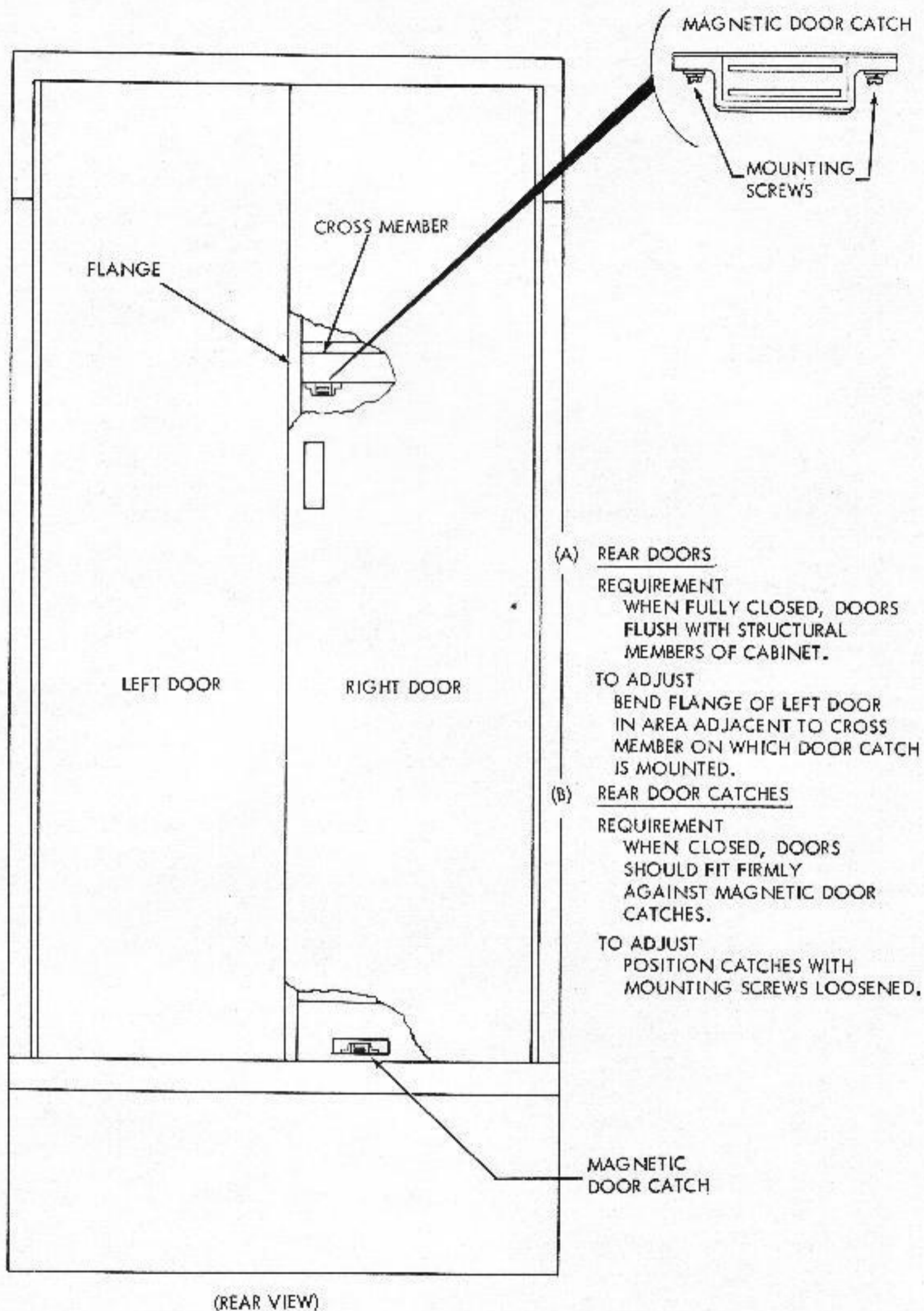


FIGURE 1-76. MULTIPLE CABINET

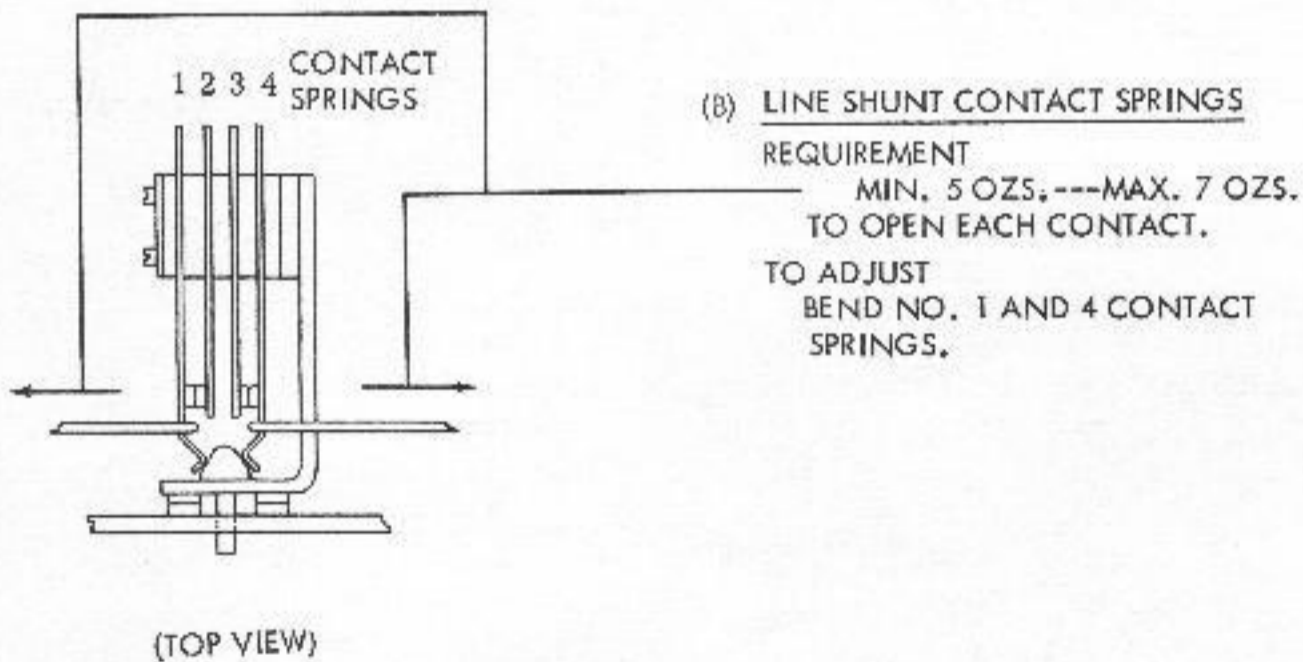
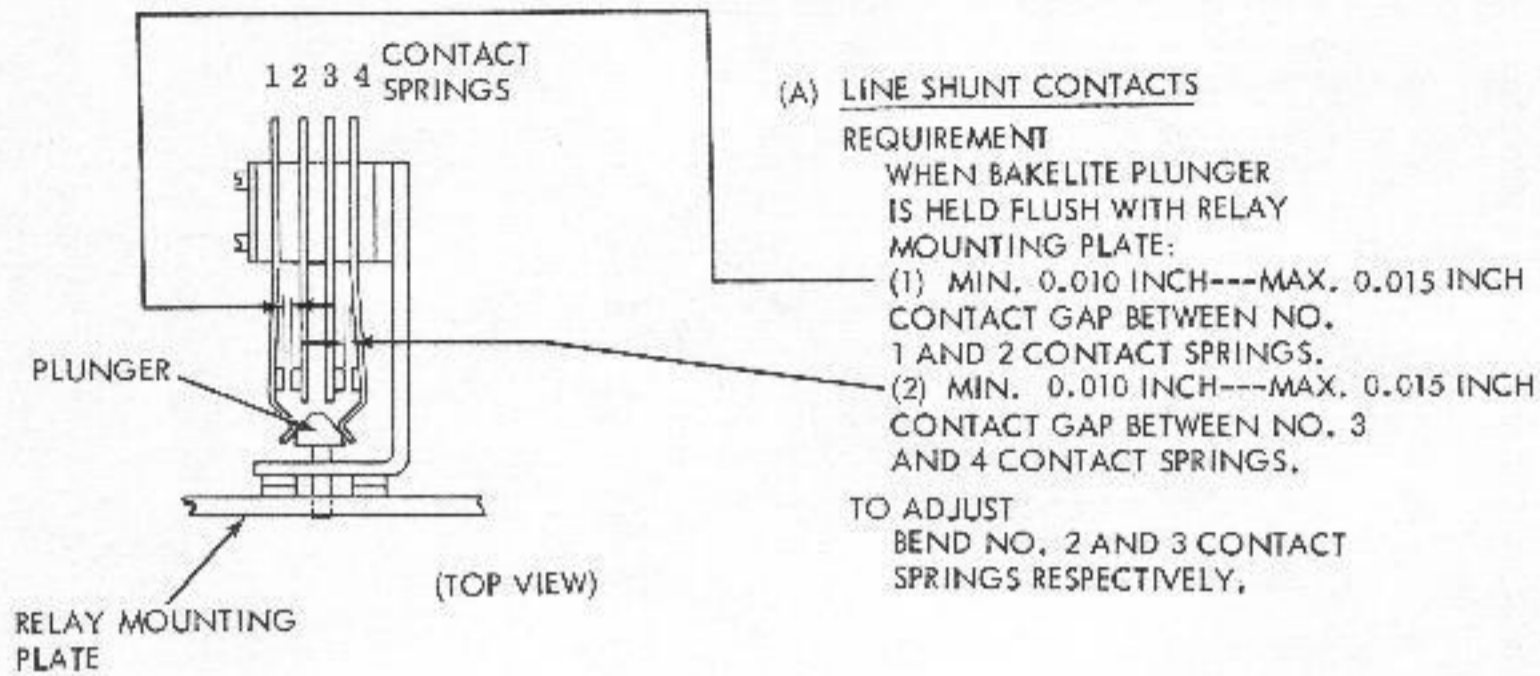


FIGURE 1-77. MULTIPLE CABINET

B. KEYBOARD (SEND-RECEIVE TYPING REPERFORATOR SET)

NOTE: COVER MUST BE REMOVED.
SEE DISASSEMBLY AND REASSEMBLY

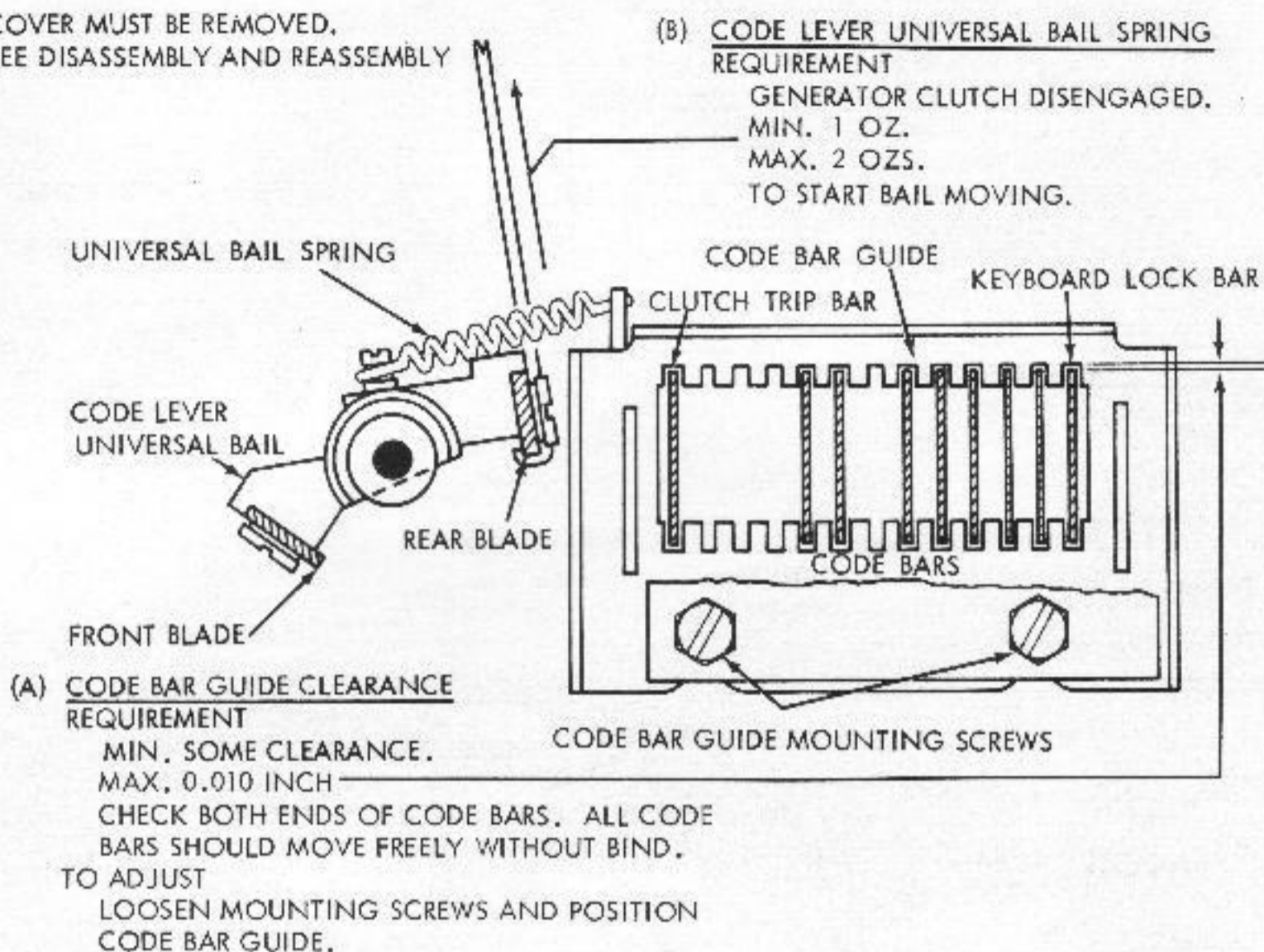


FIGURE 1-78. CODE BAR AND SPACE BAR MECHANISM

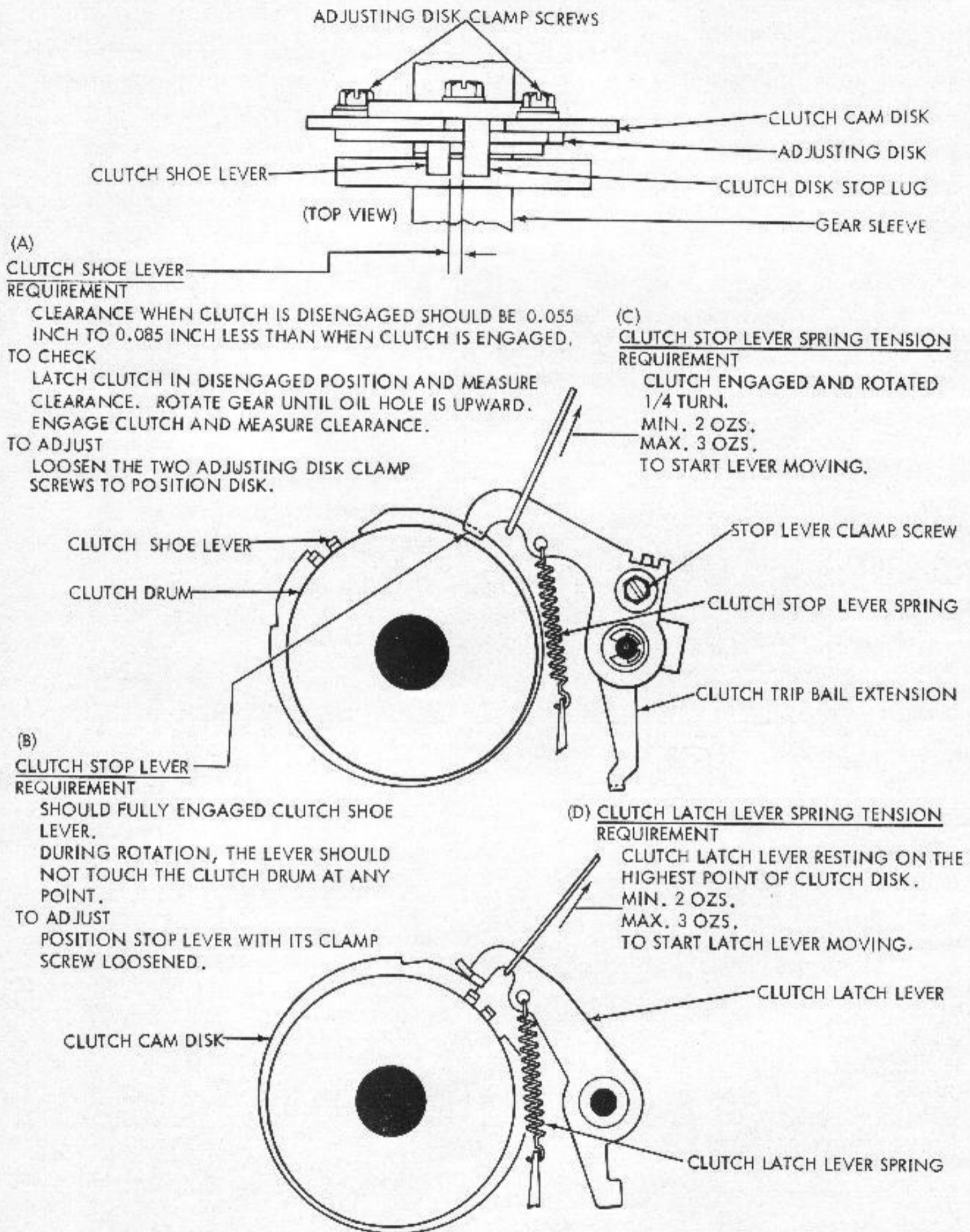


FIGURE 1-79. SIGNAL GENERATOR CLUTCH AND LEVER MECHANISMS

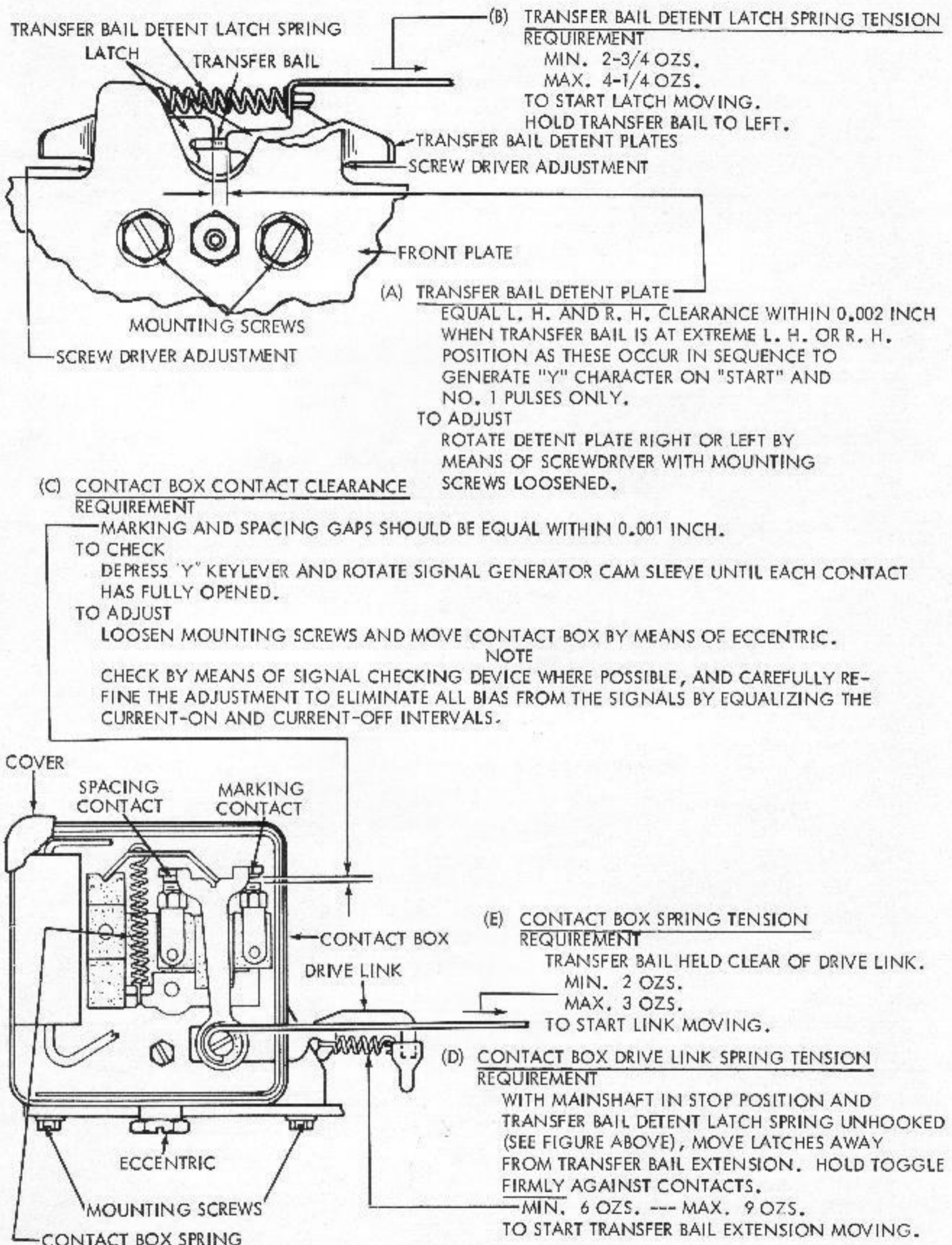


FIGURE 1-80. TRANSFER BAIL AND CONTACT MECHANISM

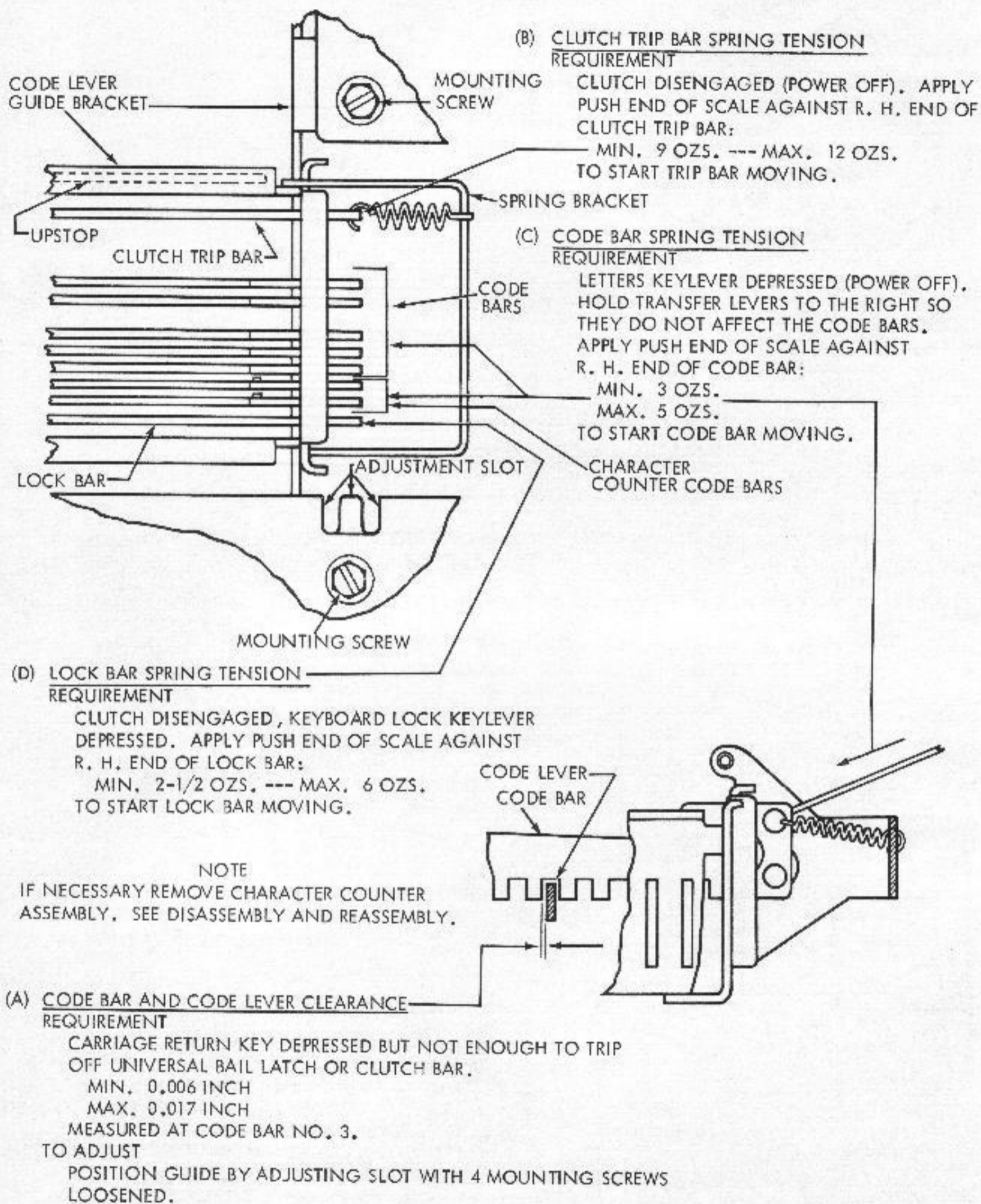
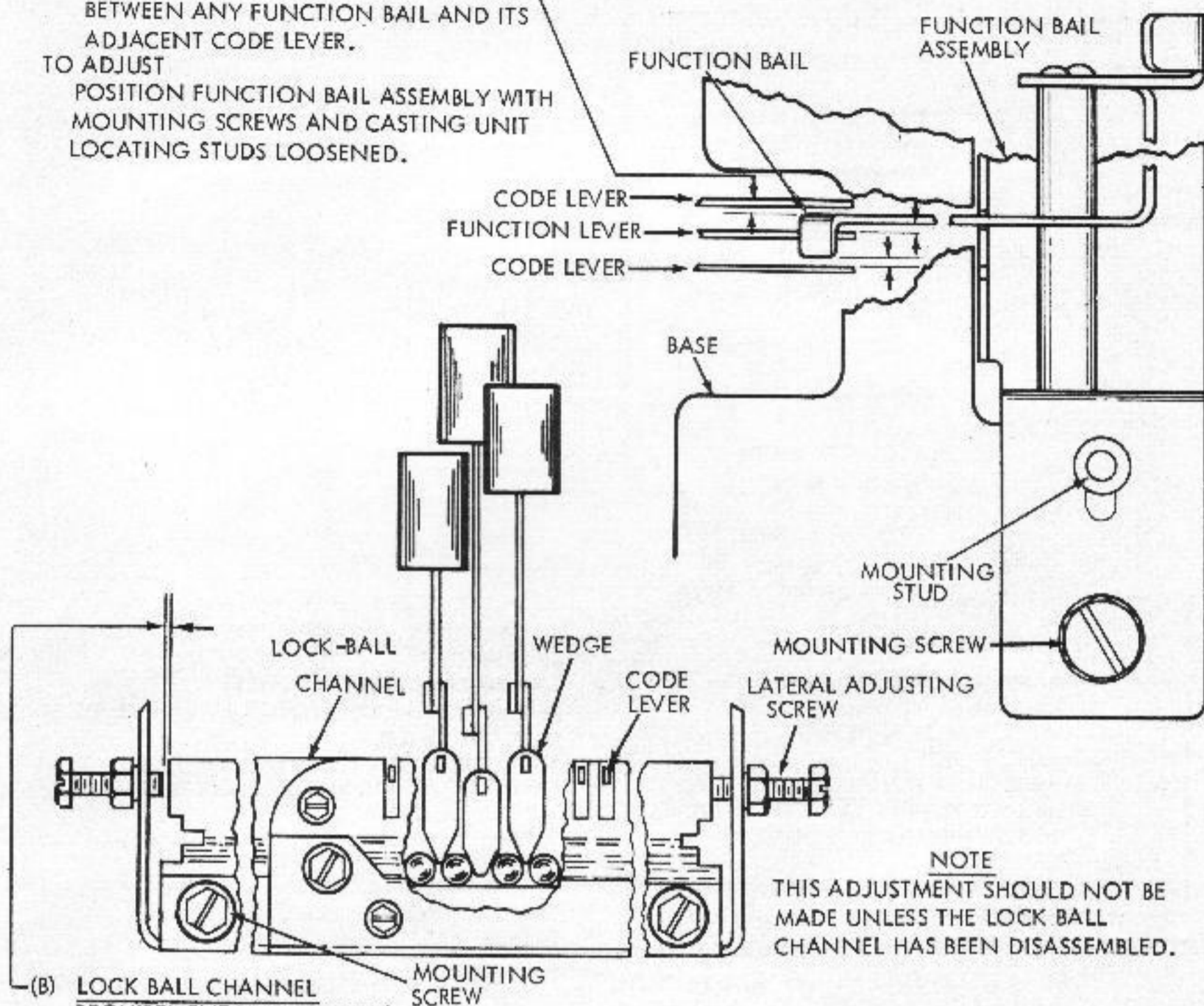


FIGURE 1-81. CODE BAR AND CODE LEVER MECHANISM

(A) FUNCTION BAIL AND CODE LEVER CLEARANCE REQUIREMENT

MIN. 0.015 INCH
BETWEEN ANY FUNCTION BAIL AND ITS
ADJACENT CODE LEVER.
TO ADJUST
POSITION FUNCTION BAIL ASSEMBLY WITH
MOUNTING SCREWS AND CASTING UNIT
LOCATING STUDS LOOSENED.



(B) LOCK BALL CHANNEL REQUIREMENT (PRELIMINARY)

THERE SHOULD BE SOME TO 0.006 INCH CLEARANCE BETWEEN END OF LOCK BALL CHANNEL AND ADJUSTING SCREW WHEN MOST OF THE CODE LEVERS ARE CENTRALLY LOCATED IN THE LOCK BALL CHANNEL SLOTS.

TO CHECK

REMOVE THE LOCK BALL RETAINER. REMOVE A WEDGE FROM EACH END AND ONE FROM THE CENTER IN ORDER TO VIEW THE POSITION OF THE CODE LEVER.

NOTE: A TOTAL OF 43 BALLS ARE REQUIRED IN THE BALL TRACK ASSEMBLY.

TO ADJUST

LOOSEN THE LOCK BALL CHANNEL MOUNTING SCREWS. BACK OFF LATERAL ADJUSTING SCREWS AND POSITION CHANNEL. TURN ONE ADJUSTING SCREW IN AGAINST THE END OF THE CHANNEL AND LOCK IT. TURN THE OTHER ADJUSTING SCREW IN TO THE END OF THE CHANNEL AND BACK IT OFF 1/4 TURN. LOCK THE SCREW. REPLACE THE WEDGES AND CHECK THEIR POSITION WITH RESPECT TO THE BALLS. PULL CHANNEL ASSEMBLY DOWNWARD UNTIL ALL CODE LEVERS STRIKE THEIR UPSTOP WITHOUT WEDGES JUMPING OUT OF POSITION. REPLACE LOCK-BALL RETAINER BACK OFF BALL-END-PLAY ADJUSTING SCREW.

FIGURE 1-82. FUNCTION BAIL AND LOCK BALL TRACK MECHANISM

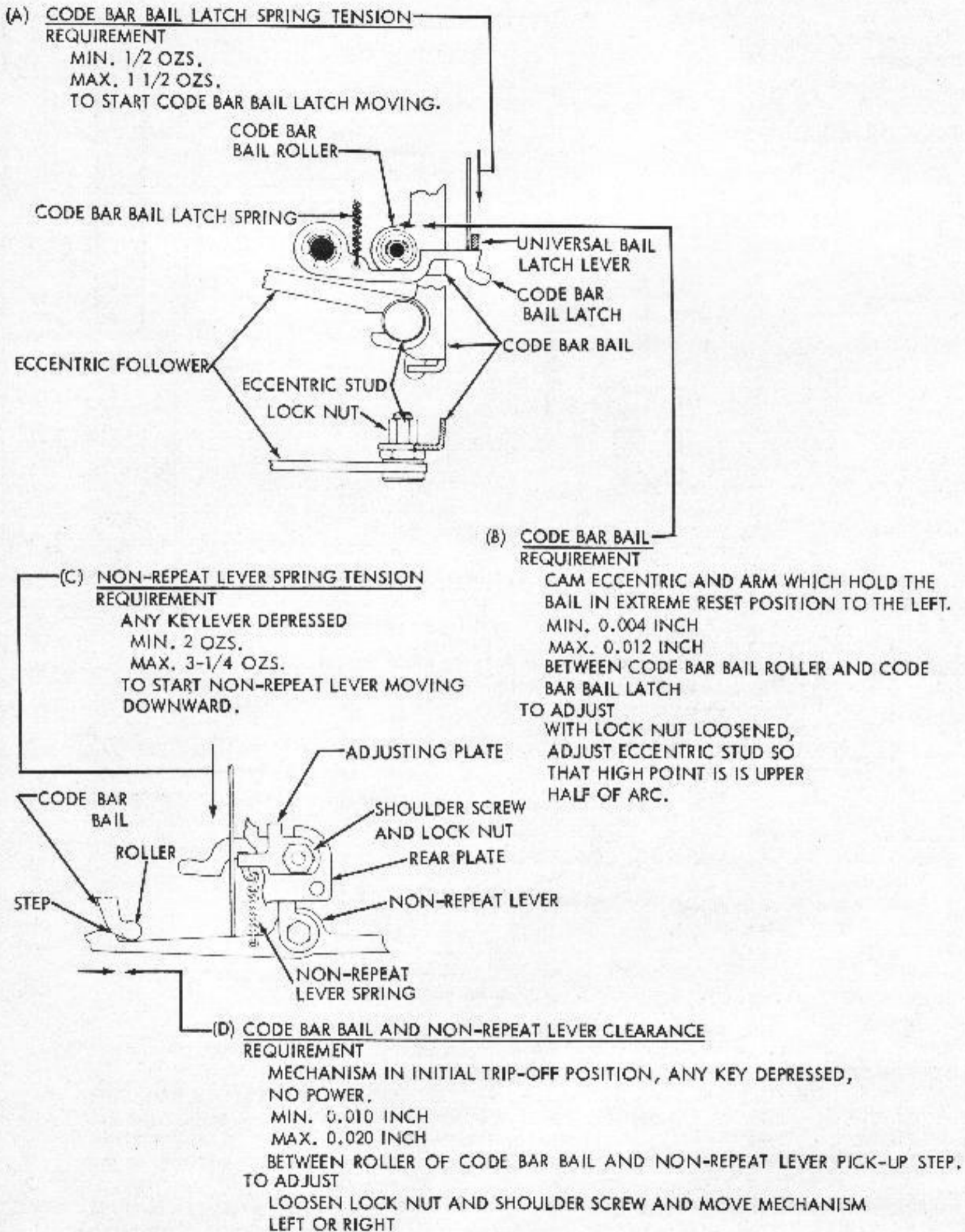


FIGURE 1-93. CODE BAR BAIL AND NON-REPEAT LEVER MECHANISMS

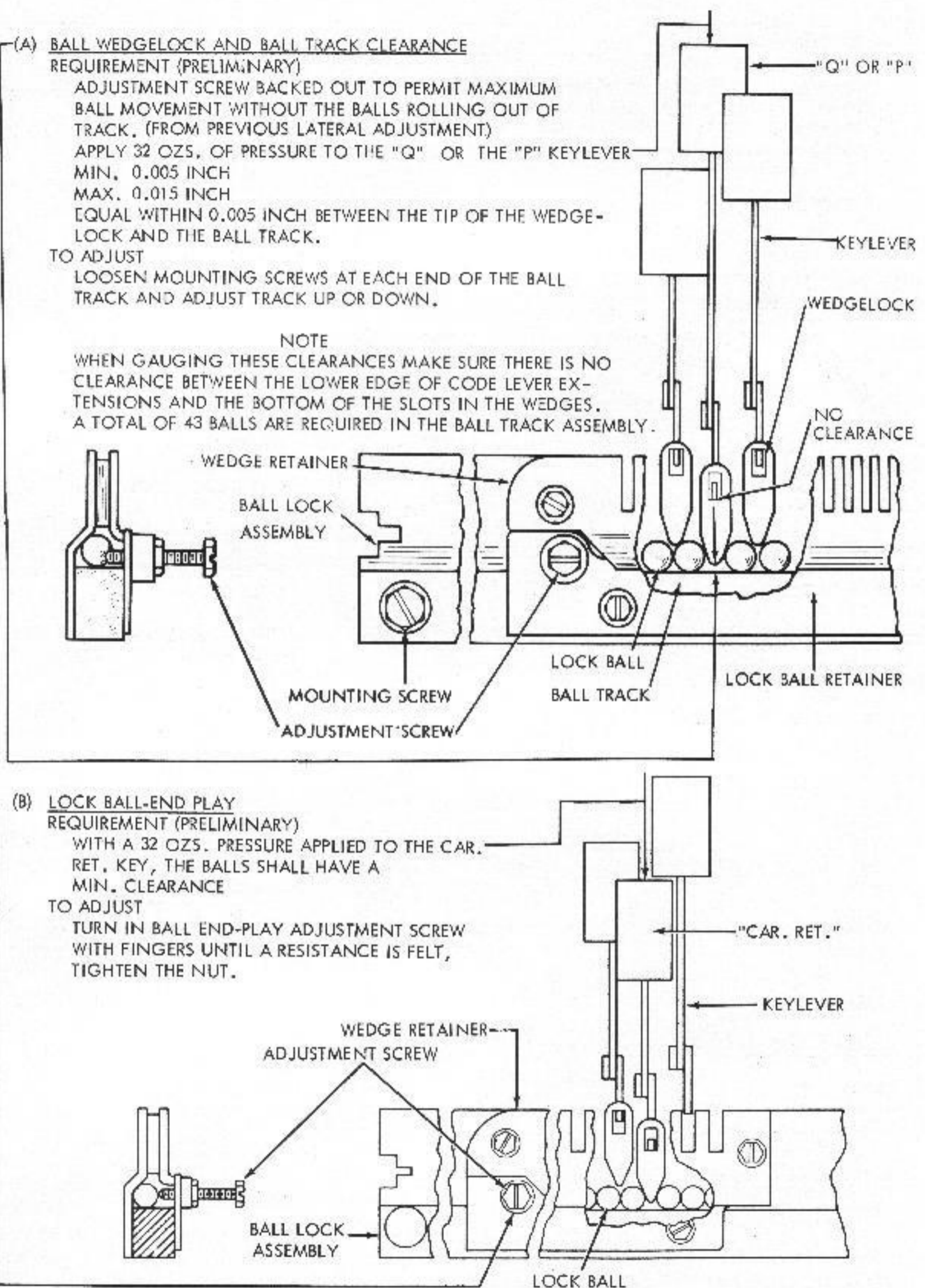


FIGURE 1-84. BALL WEDGELOCK AND BALL END-PLAY MECHANISMS

(A) UNIVERSAL BAIL LATCH LEVER**REQUIREMENT (PRELIMINARY)**

SLOWLY DEPRESS "SPACE BAR" APPROXIMATELY IN THE CENTER WITH 32 OZS. PRESSURE.
MANUALLY ROTATE UNIVERSAL BAIL BACKWARDS AND QUICKLY RELEASE.
MIN. 0.015 INCH---MAX. 0.025 INCH

CLEARANCE BETWEEN UNIVERSAL BAIL LATCH LEVER AND EXTENSION POST ON UNIVERSAL BAIL.
TO ADJUST
ROTATE ECCENTRIC. KEEP HIGH PART OF ECCENTRIC UP.

NOTE

ON UNITS EQUIPPED WITH 163775 MODIFICATION KIT FOR REPEAT-SPACE OPERATION, THE 76422 SPRING MUST BE UNHOOKED FROM THE 163700 PLATE BEFORE MAKING ABOVE ADJUSTMENT. (REFERENCE ASSOCIATED PARTS BULLETIN FOR PARTS IDENTIFICATION).

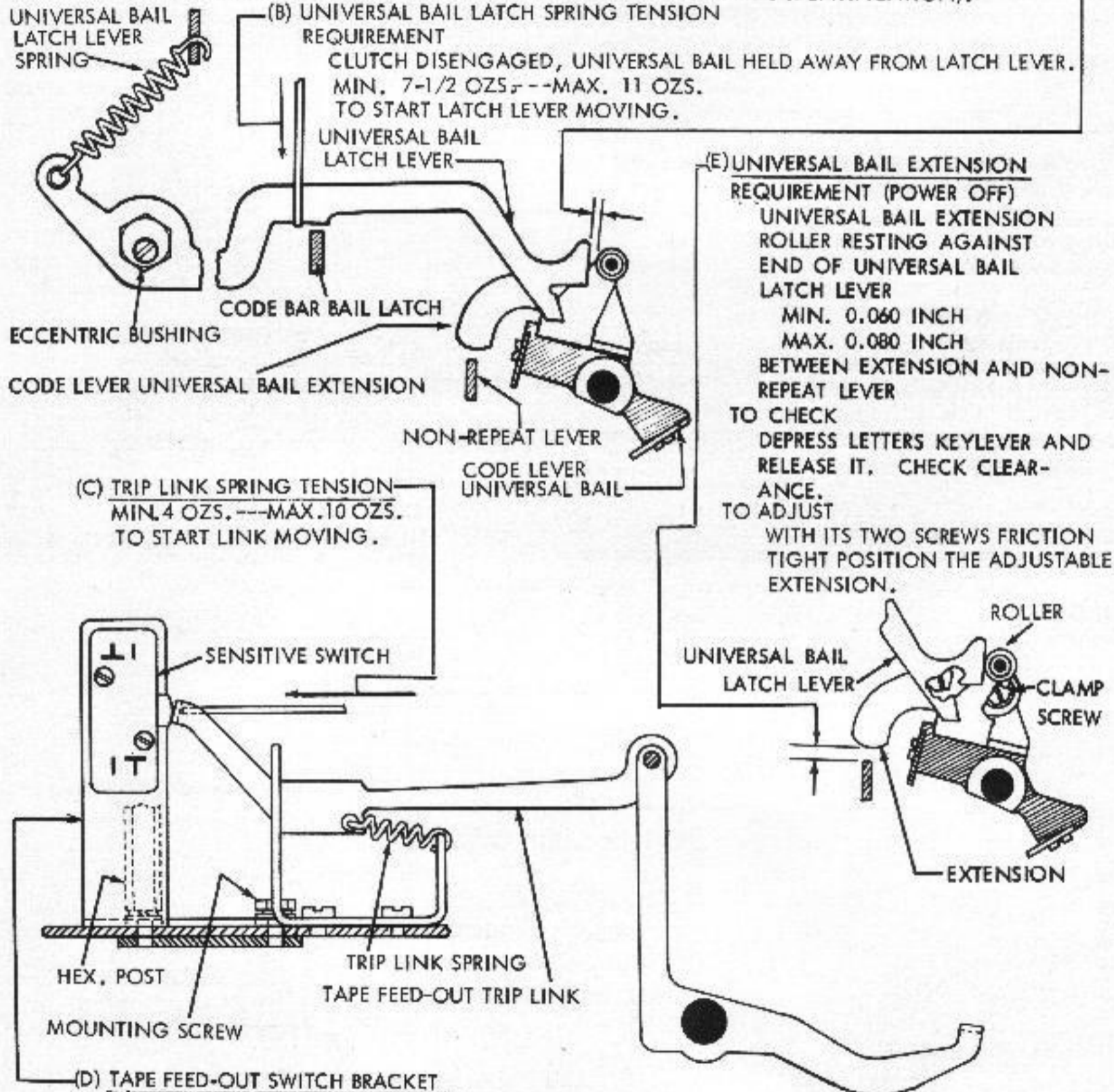


FIGURE 1-85. UNIVERSAL BAIL LATCH LEVER AND LOCAL TAPE FEED-OUT MECHANISMS

(F) BALL WEDGELOCK, BALL END-PLAY AND UNIVERSAL BAIL LATCH ADJUSTMENTS - (FINAL)
CHECK UNDER POWER

- (1) REQUIREMENT
MIN. 2 OZS.
MAX. 5 OZS.
TO TRIP ANY CENTER ROW KEY.
- (2) REQUIREMENT
WITH 5-1/2 OZS. PRESSURE APPLIED PERPENDICULAR TO THE "A" KEY, DEPRESS EACH KEY IN THE THIRD ROW. THE "A" KEY SHALL TRIP EACH TIME A KEY IS RELEASED. REPEAT THIS CHECK WITH THE 5-1/2 OZS. PRESSURE ON THE "CAR. RET." KEY.
- (3) REQUIREMENT
THE CLUTCH SHALL NOT TRIP WHEN ANY TWO KEYS ARE DEPRESSED SIMULTANEOUSLY.
- (4) REQUIREMENT
WITH $4-1/4 \pm 1/4$ OZ. APPLIED TO THE "SPACE BAR," DEPRESS "CAR. RET." KEY. THE "SPACE BAR" SHALL TRIP EACH TIME THE "CAR. RET." KEY IS RELEASED BY MOVING THE FINGER OFF THE KEY IN A HORIZONTAL DIRECTION.

NOTE

DISREGARD MULTIPLE SPACE OPERATION IF UNIT IS EQUIPPED WITH 163775 MODIFICATION KIT FOR REPEAT-SPACE OPERATION.

TO ADJUST

IF NECESSARY, REFINE PRELIMINARY BALL WEDGELOCK, PRELIMINARY BALL END-PLAY, PRELIMINARY UNIVERSAL BAIL LATCH, AND UNIVERSAL BAIL EXTENSION ADJUSTMENTS.

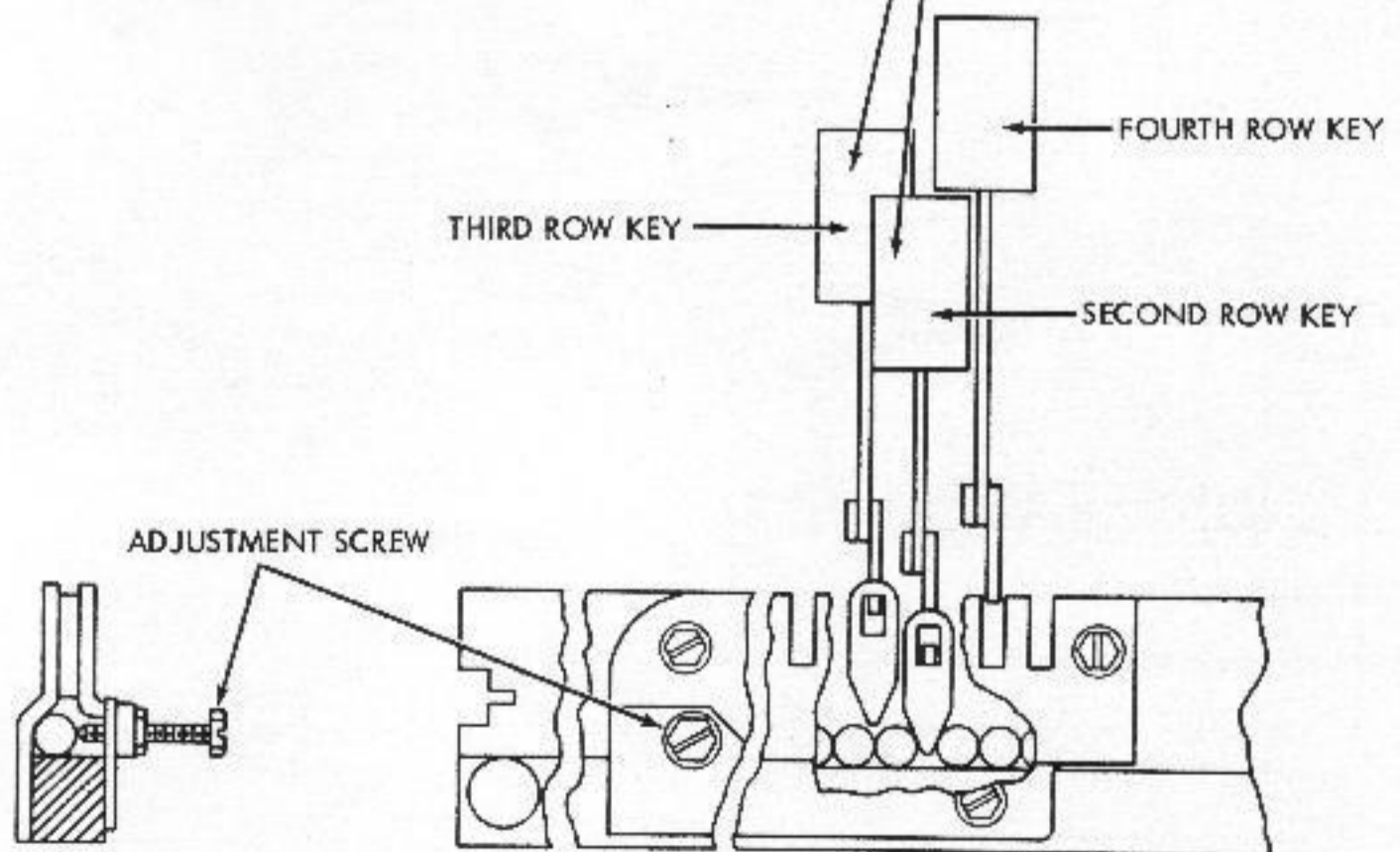


FIGURE 1-86. BALL WEDGELOCK, BALL END-PLAY AND UNIVERSAL BAIL LATCH MECHANISMS.

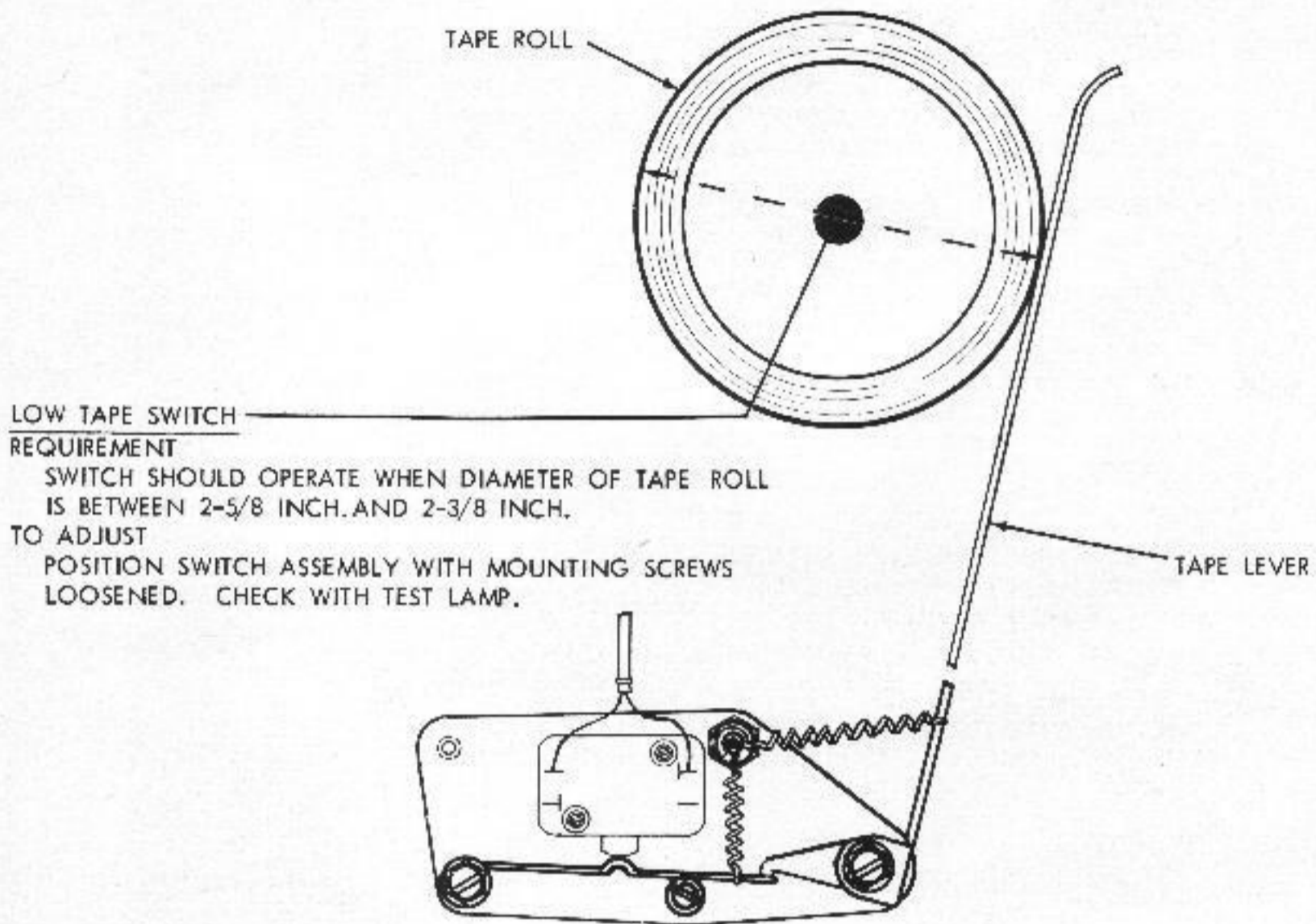


FIGURE 1-87. LOW TAPE SWITCH

(A) CLUTCH SHOE LEVER SPRING TENSION**REQUIREMENT**

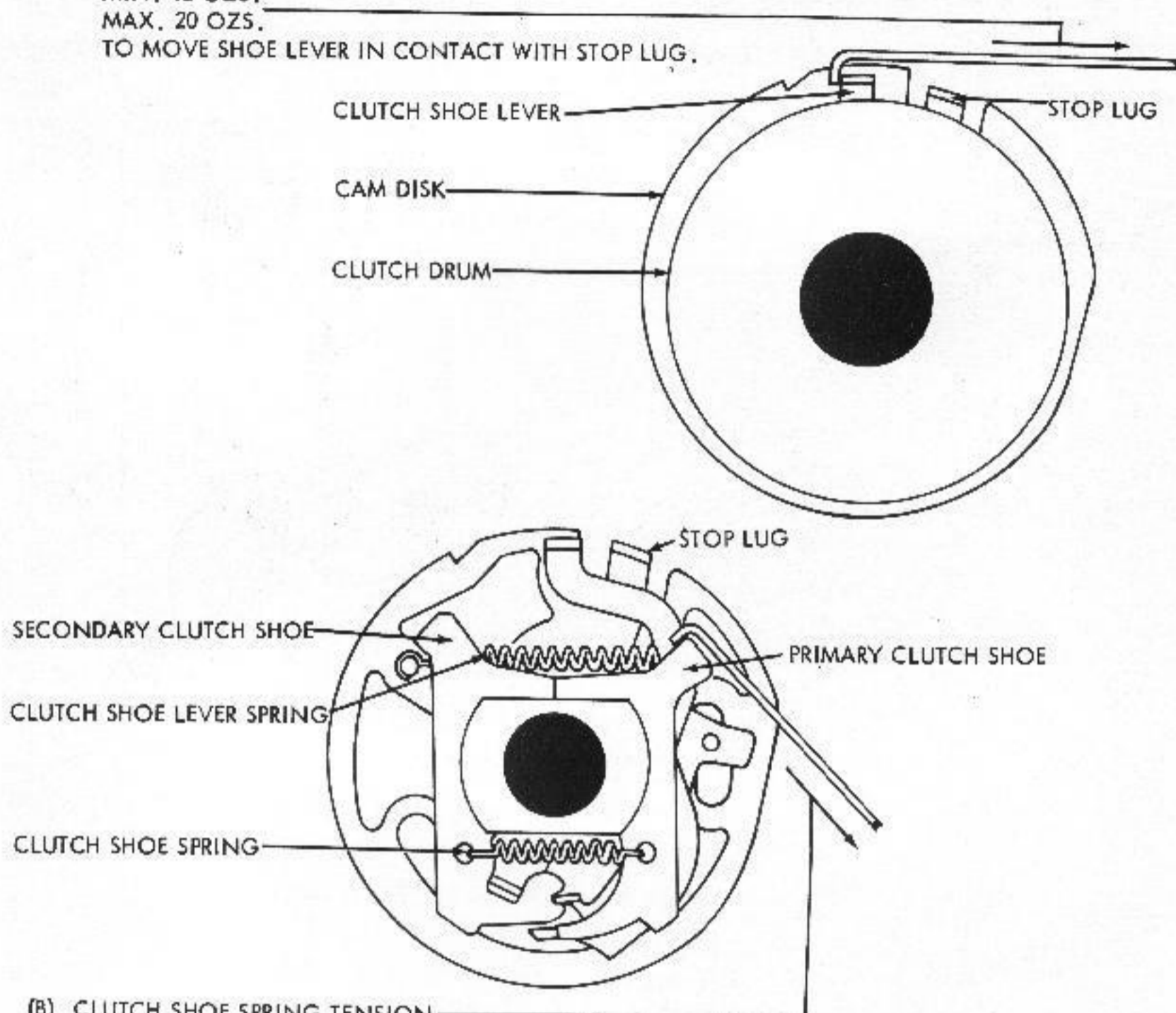
CLUTCH ENGAGED.

CAM DISK HELD TO PREVENT TURNING.

MIN. 15 OZS.

MAX. 20 OZS.

TO MOVE SHOE LEVER IN CONTACT WITH STOP LUG.

**(B) CLUTCH SHOE SPRING TENSION****NOTE**

IN ORDER TO CHECK THIS SPRING TENSION, IT IS NECESSARY TO REMOVE THE CLUTCH FROM THE MAIN SIGNAL GENERATOR DRIVE SHAFT. THEREFORE, IT SHOULD NOT BE CHECKED UNLESS THERE IS GOOD REASON TO BELIEVE THAT IT DOES NOT MEET ITS REQUIREMENT.

REQUIREMENT

CLUTCH DRUM REMOVED.

MIN. 3 OZS.

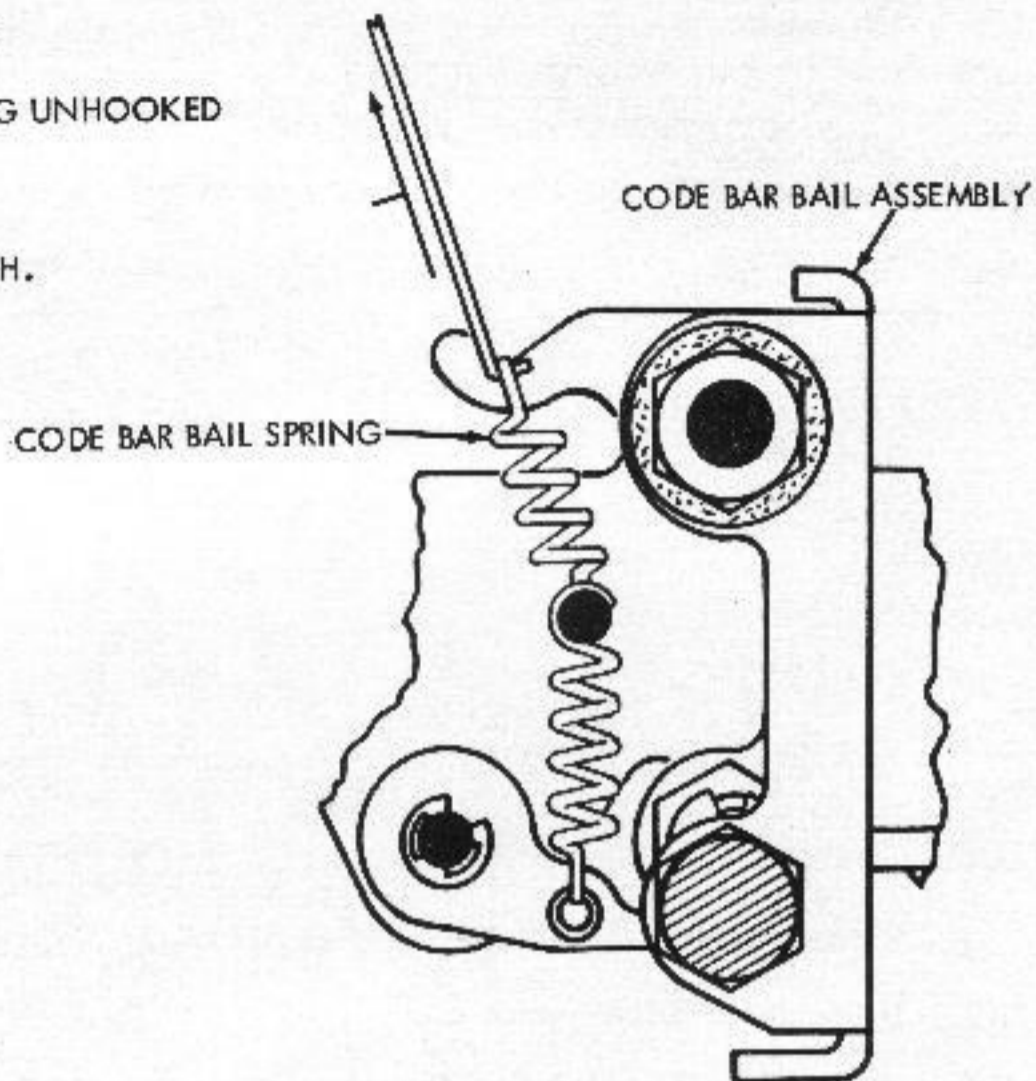
MAX. 5 OZS.

TO START PRIMARY SHOE MOVING AWAY FROM SECONDARY SHOE AT POINT OF CONTACT.

FIGURE 1-88. SIGNAL GENERATOR CLUTCH MECHANISM

(A) CODE BAR BAIL SPRING TENSION REQUIREMENT

CLUTCH DISENGAGED. SPRING UNHOOKED FROM ARM.
 MIN. 9 OZS.
 MAX. 11 OZS.
 TO PULL TO INSTALLED LENGTH.



(B) LINE BREAK LEVER SPRING TENSION REQUIREMENT

(COMBINED CODE LEVER AND BREAK LEVER SPRING)
 MIN. 3 OZS.
 MAX. 4 OZS.
 TO MOVE SWITCH BREAK LEVER IN CONTACT WITH SWITCH PLUNGER,
 MIN. 6 OZS.
 MAX. 8 OZS.
 TO ACTUATE SENSITIVE SWITCH.

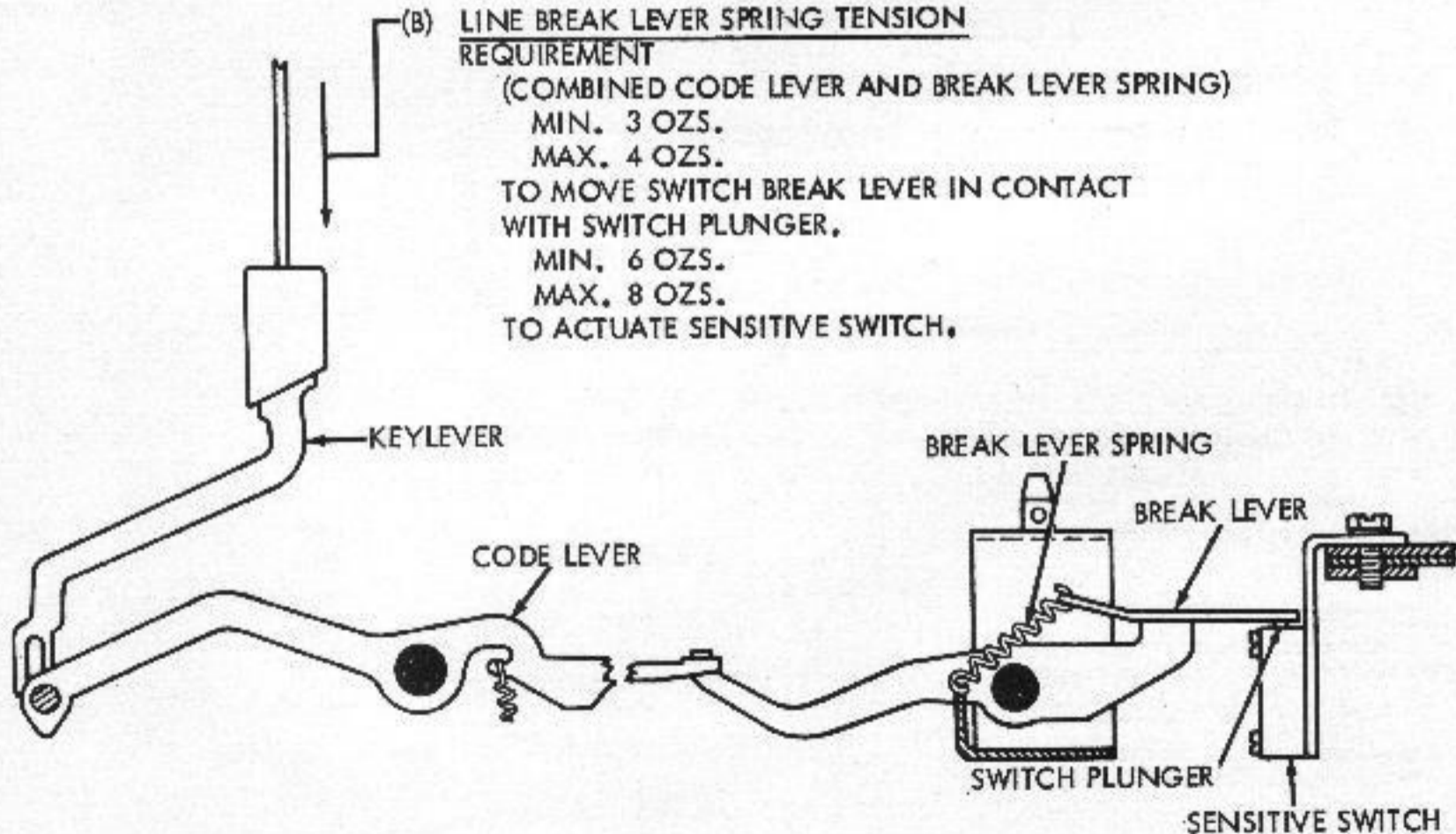


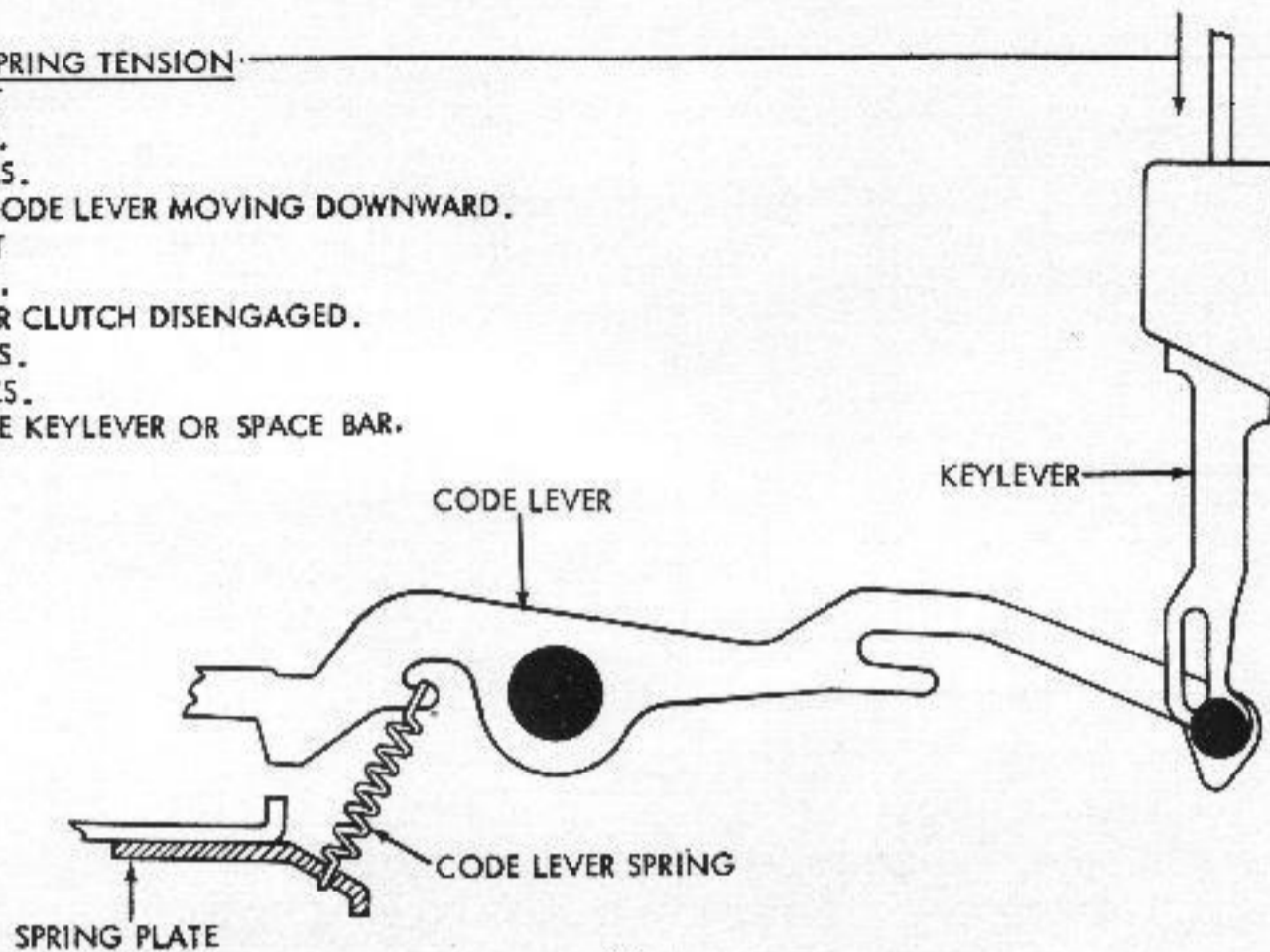
FIGURE 1-89. CODE BAR BAIL AND LINE BREAK LEVER MECHANISM

(A) CODE LEVER SPRING TENSION**(1) REQUIREMENT**

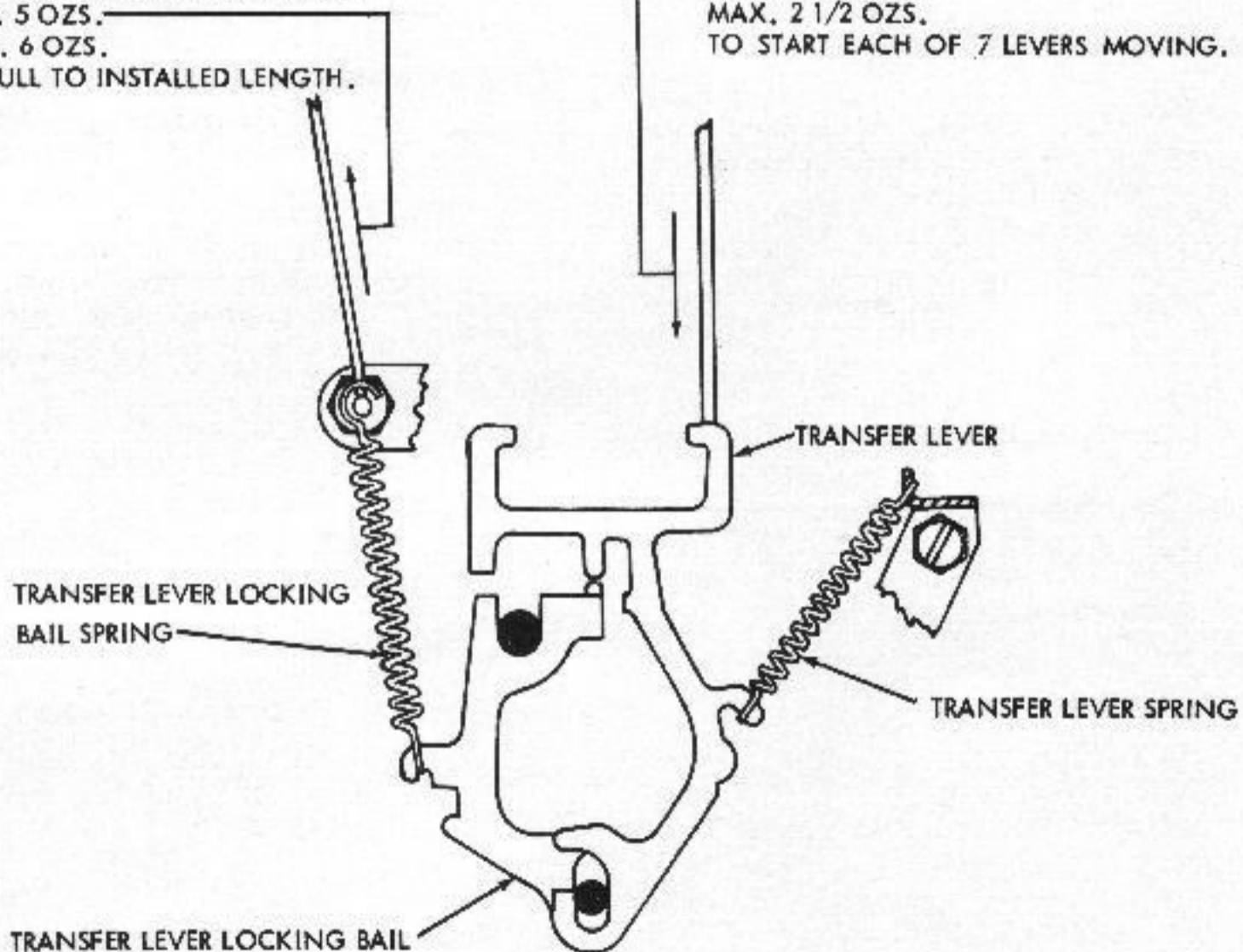
MIN. 1 OZ.
MAX. 2 OZS.
TO START CODE LEVER MOVING DOWNWARD.

(2) REQUIREMENT

POWER ON,
GENERATOR CLUTCH DISENGAGED.
MIN. 3 OZS.
MAX. 5 OZS.
TO OPERATE KEYLEVER OR SPACE BAR.

**(B) TRANSFER LEVER LOCKING BAIL SPRING TENSION****REQUIREMENT**

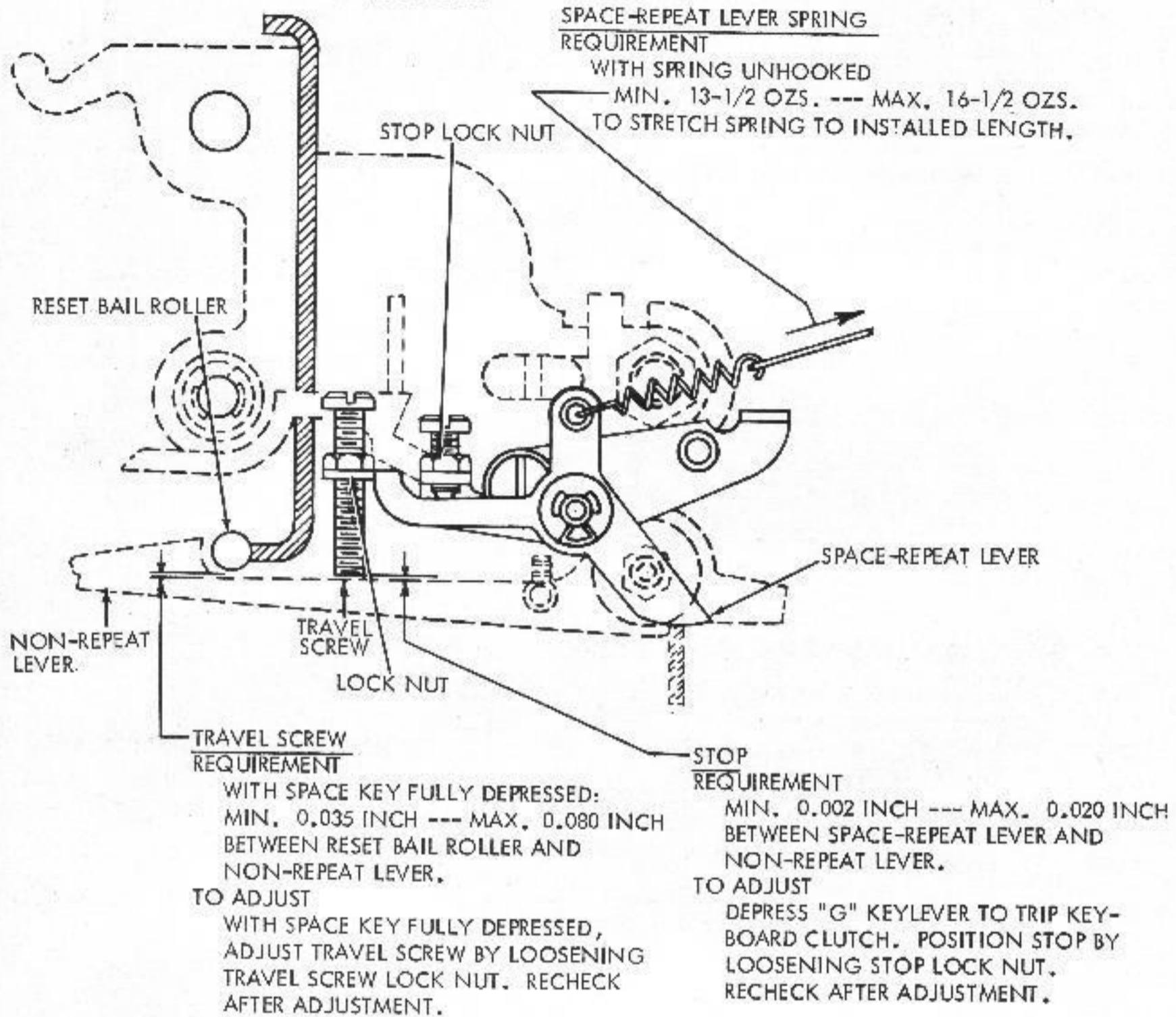
SPRING UNHOOKED FROM POST.
MIN. 5 OZS.
MAX. 6 OZS.
TO PULL TO INSTALLED LENGTH.

**(C) TRANSFER LEVER SPRING TENSION****REQUIREMENT**

CLUTCH DISENGAGED,
MIN. 1 1/2 OZS.
MAX. 2 1/2 OZS.
TO START EACH OF 7 LEVERS MOVING.

FIGURE 1-90. TRANSFER AND CODE LEVER MECHANISMS

LATEST DESIGN
FOR EARLIER DESIGN REFER TO FIGURE 5-5.

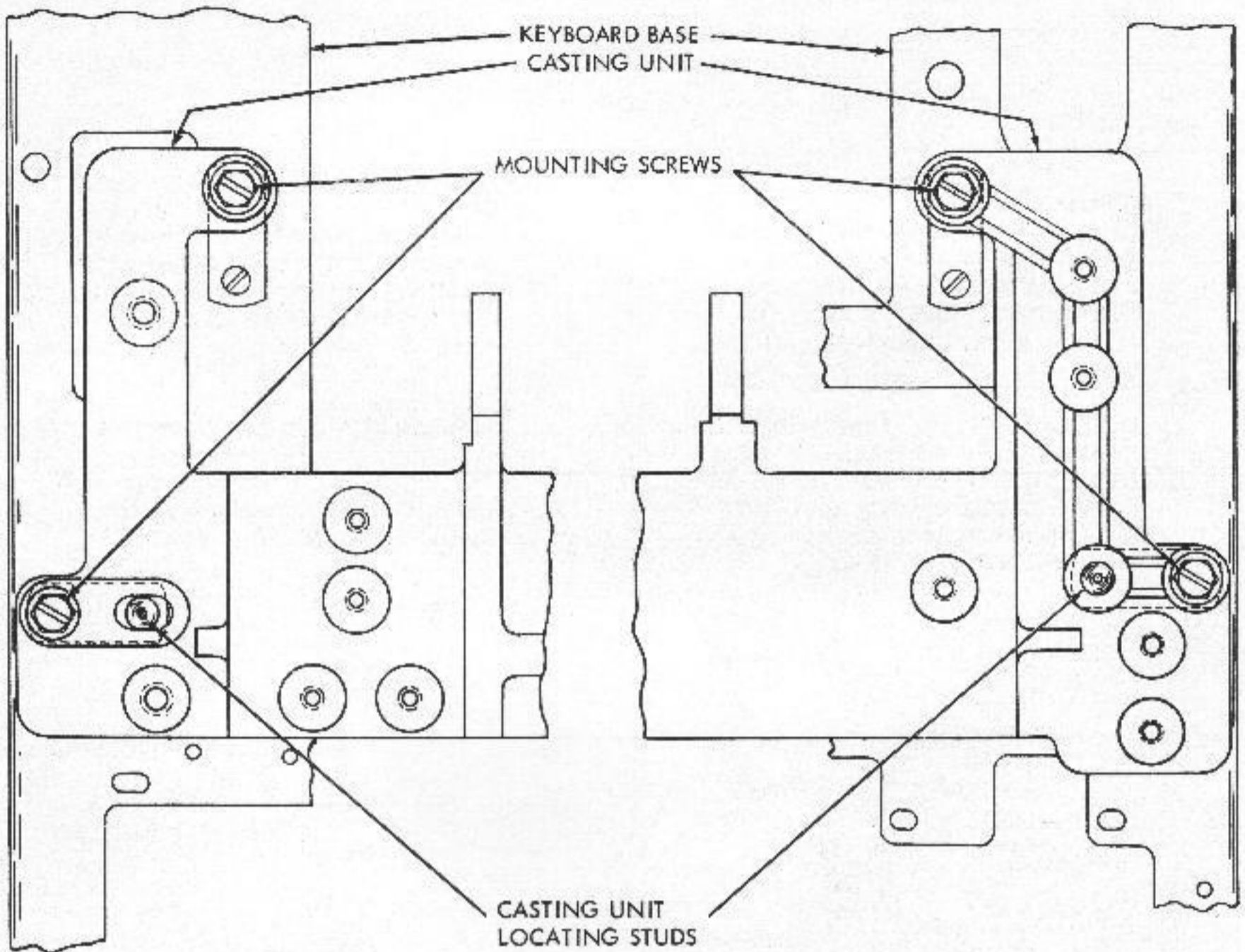


NOTE
SPACE BAR TOUCH TO OBTAIN A
REPEAT IS AFFECTED BY THIS ADJUST-
MENT. TO GET A LIGHTER TOUCH,
ADJUST TO UPPER LIMIT. TO OBTAIN
A HEAVIER TOUCH ADJUST TO THE
LOWER LIMIT.



- SPACE BAR**
- (1) REQUIREMENT (SINGLE SPACE)
NORMAL KEY TOP PRESSURE
TO TRANSMIT SINGLE SPACE
 - (2) REQUIREMENT (REPEAT SPACE)
SPACE BAR FULLY DEPRESSED AND
HELD DOWN TO EFFECT CONTINUOUS
SPACE TRANSMISSION.

FIGURE 1-91. REPEAT-ON-SPACE MECHANISM - LATEST DESIGN.



CASTING ASSEMBLY TO KEYBOARD BASE

REQUIREMENT

THERE SHOULD BE A BARELY PERCEPTIBLE AMOUNT OF BACKLASH BETWEEN THE CASTING ASSEMBLY MAIN SHAFT DRIVEN GEAR AND ITS DRIVING GEAR AT THE POINT WHERE THE BACKLASH IS THE LEAST.

TO ADJUST

WITH THE FRONT FEET OF THE CASTING ASSEMBLY PLACED OVER THE LOCATING STUDS PROVIDED ON THE KEYBOARD BASE AND ITS MOUNTING SCREWS LOOSENED, POSITION THE CASTING ASSEMBLY UTILIZING ITS OVERSIZE MOUNTING HOLES.

FIGURE 1-92. KEYBOARD BASE AND CASTING ASSEMBLY

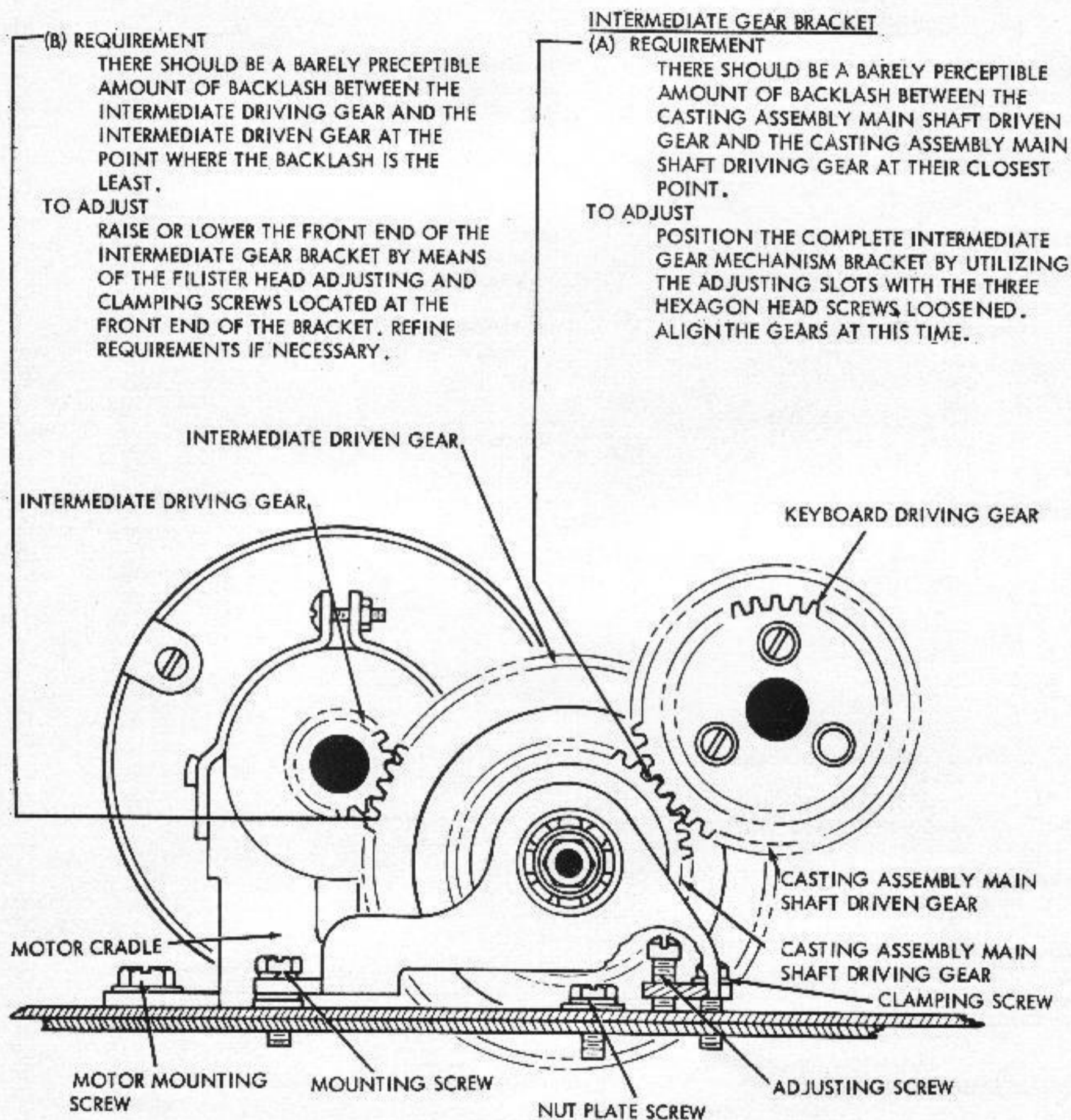


FIGURE 1-93. KEYBOARD BASE, MOTOR AND CASTING ASSEMBLY MAIN SHAFT GEARING

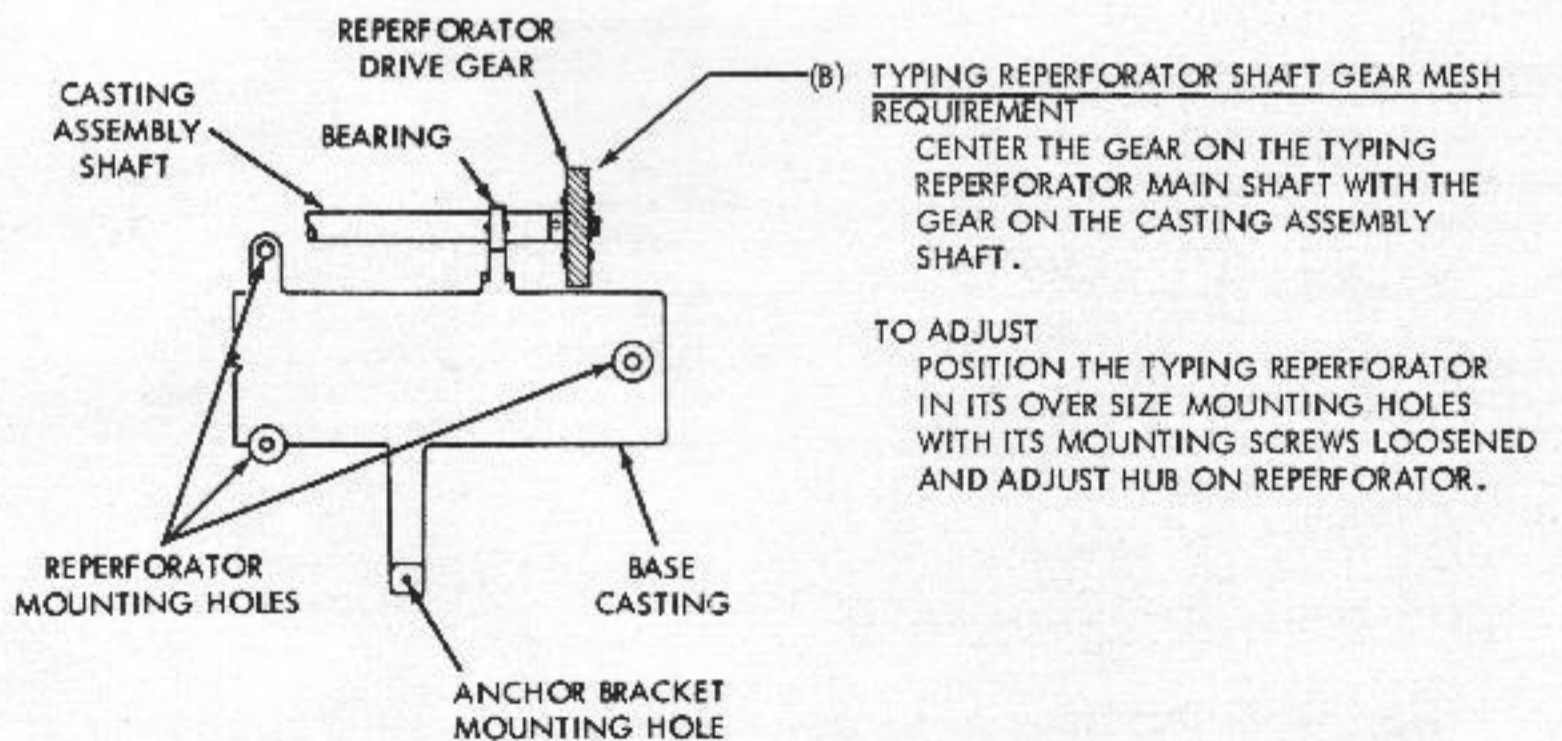
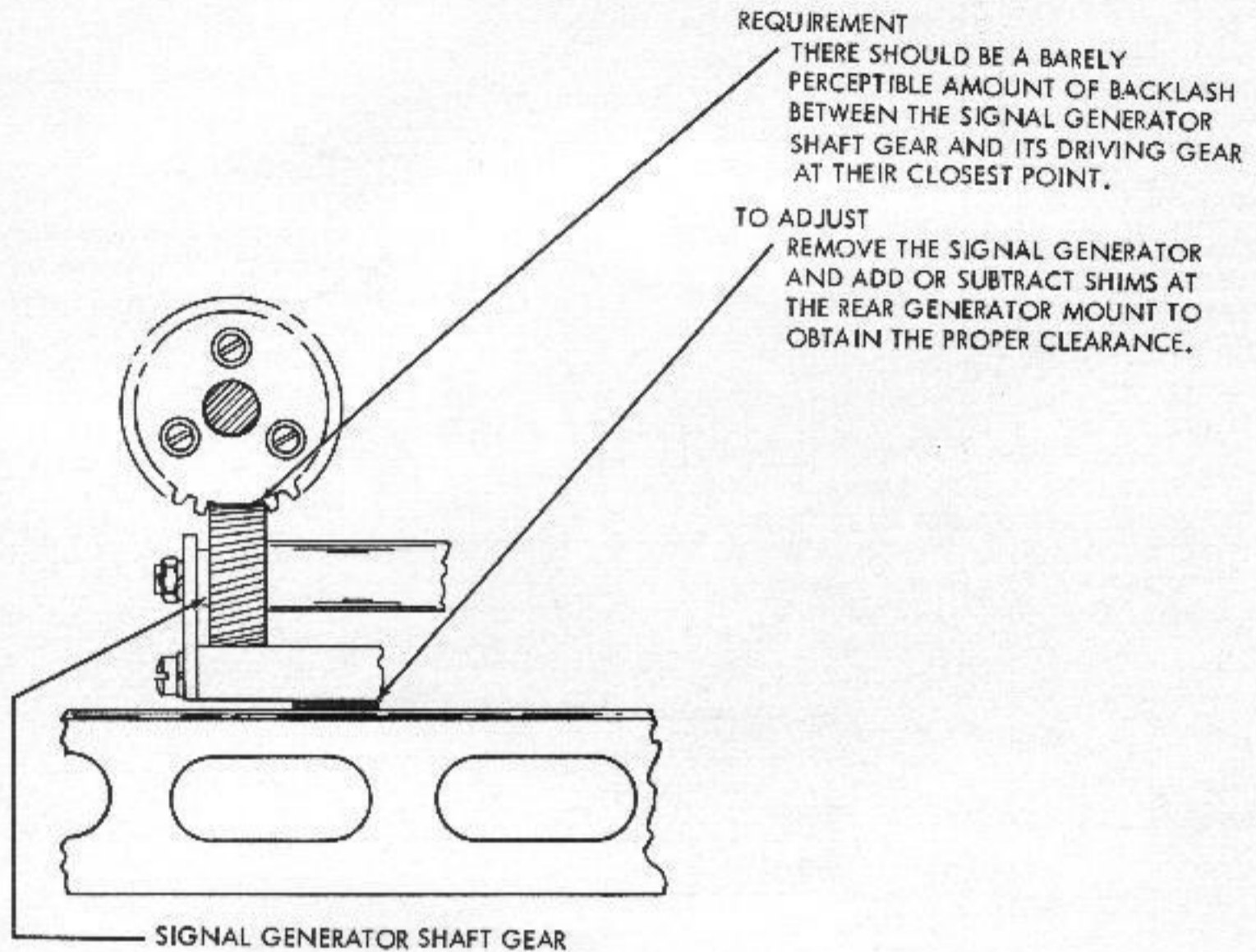
(A) SIGNAL GENERATOR SHAFT GEAR MESH

FIGURE 1-94. CASTING ASSEMBLY, SIGNAL GENERATOR AND TYPING REPERFORATOR GEARING

CHARACTER COUNTER MECHANISM
(LATEST DESIGN)

(FOR EARLIER DESIGN SEE SECTION 5)

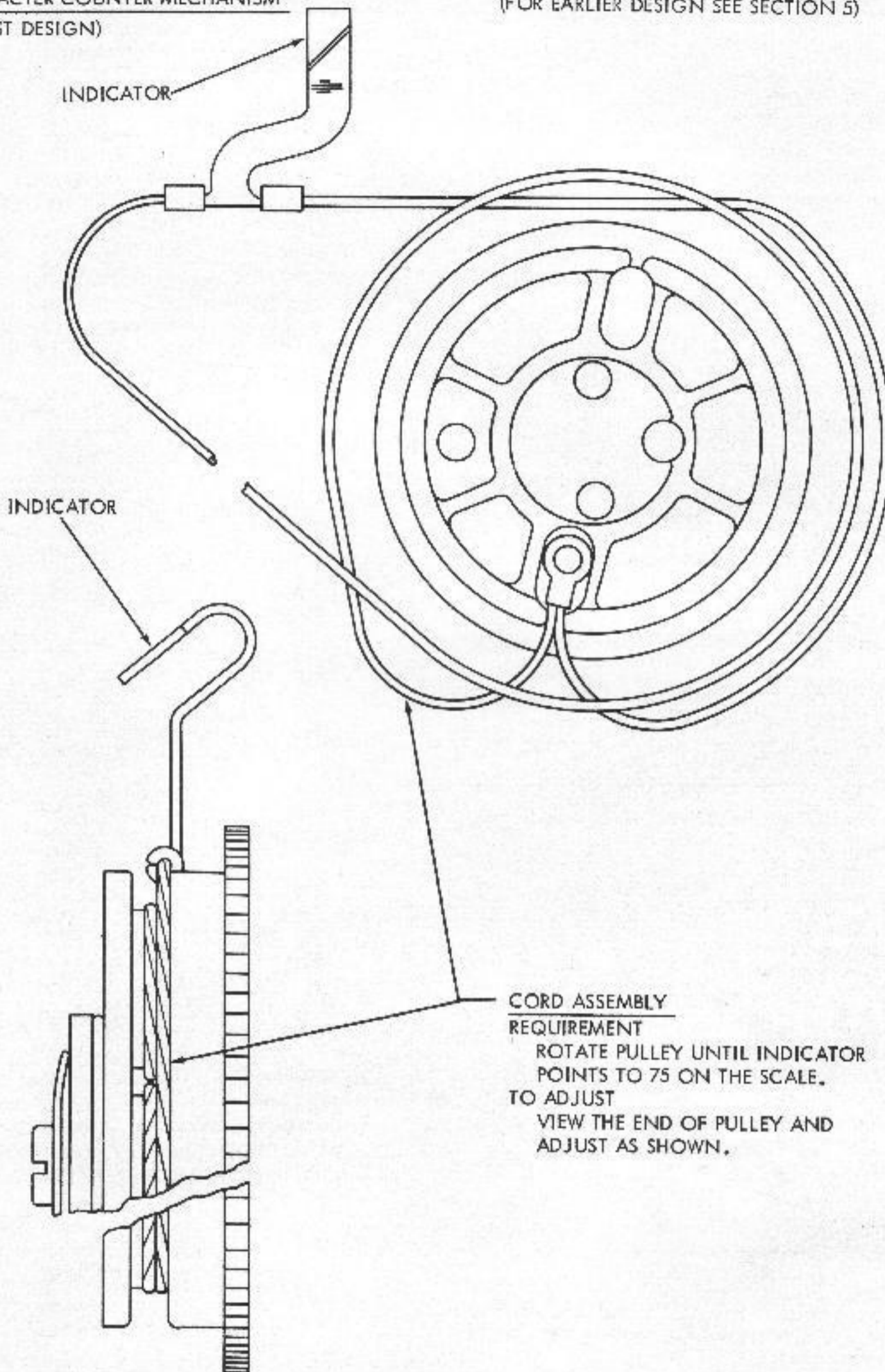
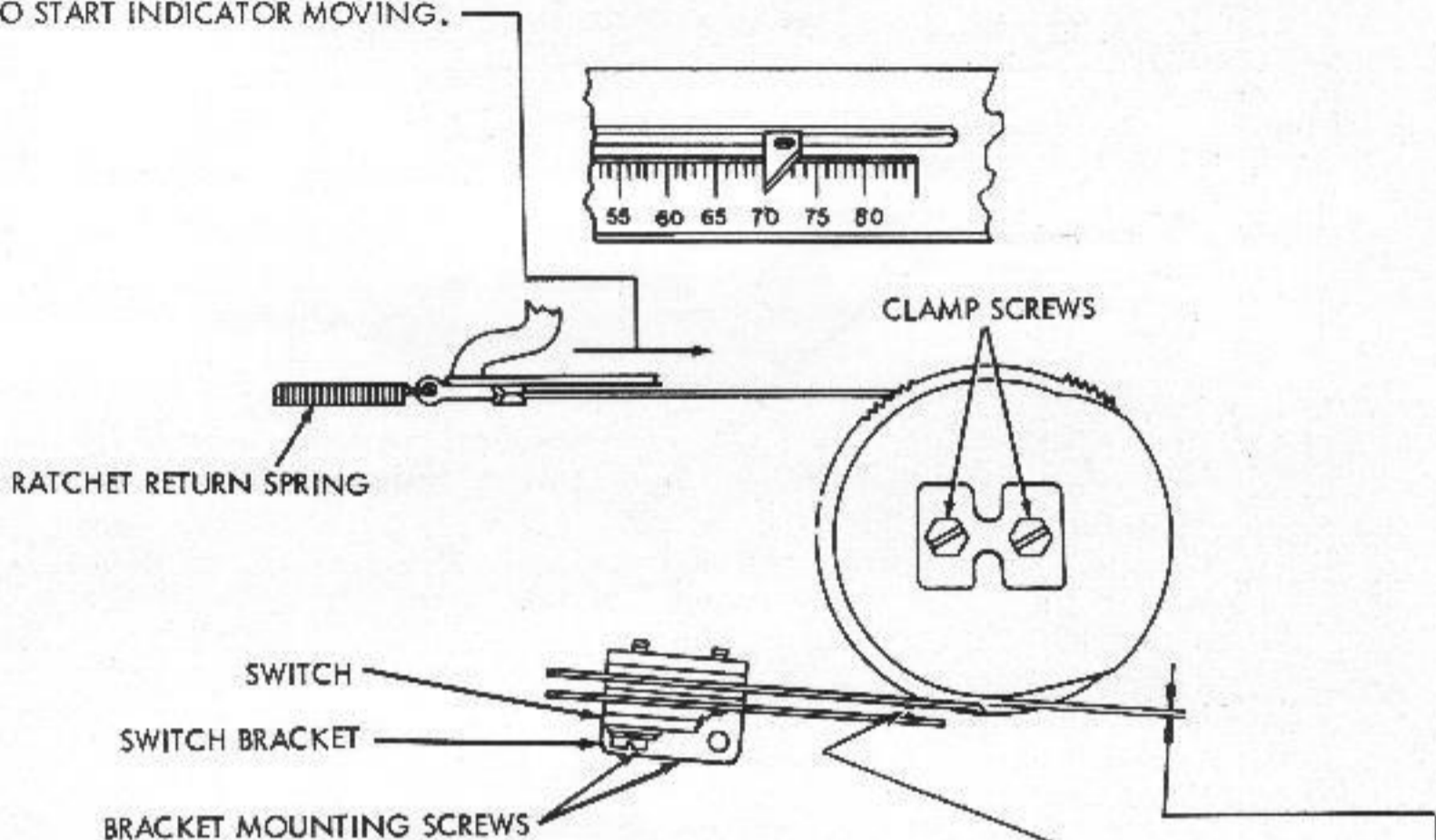


FIGURE 1-95. CHARACTER COUNTER MECHANISM

RATCHET DRUM ASSEMBLY RETURN SPRINGREQUIREMENT

- (1) WHEN INDICATOR POINTS TO 35 ON THE SCALE,
MIN. 1/2 OZS. --- MAX. 1-1/2 OZS.
TO START INDICATOR MOVING.
- (2) WHEN INDICATOR POINTS TO 70 ON THE SCALE,
MIN. 1-1/2 OZS. --- MAX. 2-1/2 OZS.
TO START INDICATOR MOVING.

CHARACTER COUNTER END-OF-LINE SWITCH(1) REQUIREMENT

- THE END-OF-LINE SWITCH SHOULD CLOSE AT A PRESET NUMBER OF CHARACTERS.
- (2) BEFORE INSTALLING COUNTER ON KEYBOARD, TIGHTEN CLAMP SCREWS AND SWITCH BRACKET MOUNTING SCREWS FRICTION TIGHT. WITH SWITCH LEAF SPRINGS APPROXIMATELY PARALLEL TO SWITCH MOUNTING BRACKET (GAGE BY EYE)
MIN. 0.005 INCH --- MAX. 0.020 INCH
BETWEEN LEAF SPRING SWITCH CONTACTS.

TO ADJUST

- (1) BEND LOWER LEAF SPRING.
- (2) POSITION SWITCH BRACKET UNTIL UPPER SWITCH LEAF SPRING CLEARS THE LOW PART OF THE CAM BY
MIN. SOME --- MAX. 0.025 INCH
CHECK CLOSEST POINT AND TIGHTEN MOUNTING SCREWS. SET INDICATOR TO COUNT DESIRED, AND ADJUST CAM UNTIL SWITCH JUST CLOSSES. TIGHTEN CLAMP SCREWS.

TO CHECK

MOVE RATCHET DRUM UNTIL INDICATOR TRAVERSES THE ENTIRE SCALE. THE SWITCH SHOULD CLOSE ON DESIRED COUNT, WITH A SMALL AMOUNT OF OVERTRAVEL OF BOTH BLADES. IT MAY BE NECESSARY TO REFINE ABOVE ADJUSTMENTS WHEN OPERATING ON THE EXTREME ENDS OF 65 TO 80 CHARACTER RANGE.

FIGURE 1-96. CHARACTER COUNTER MECHANISM

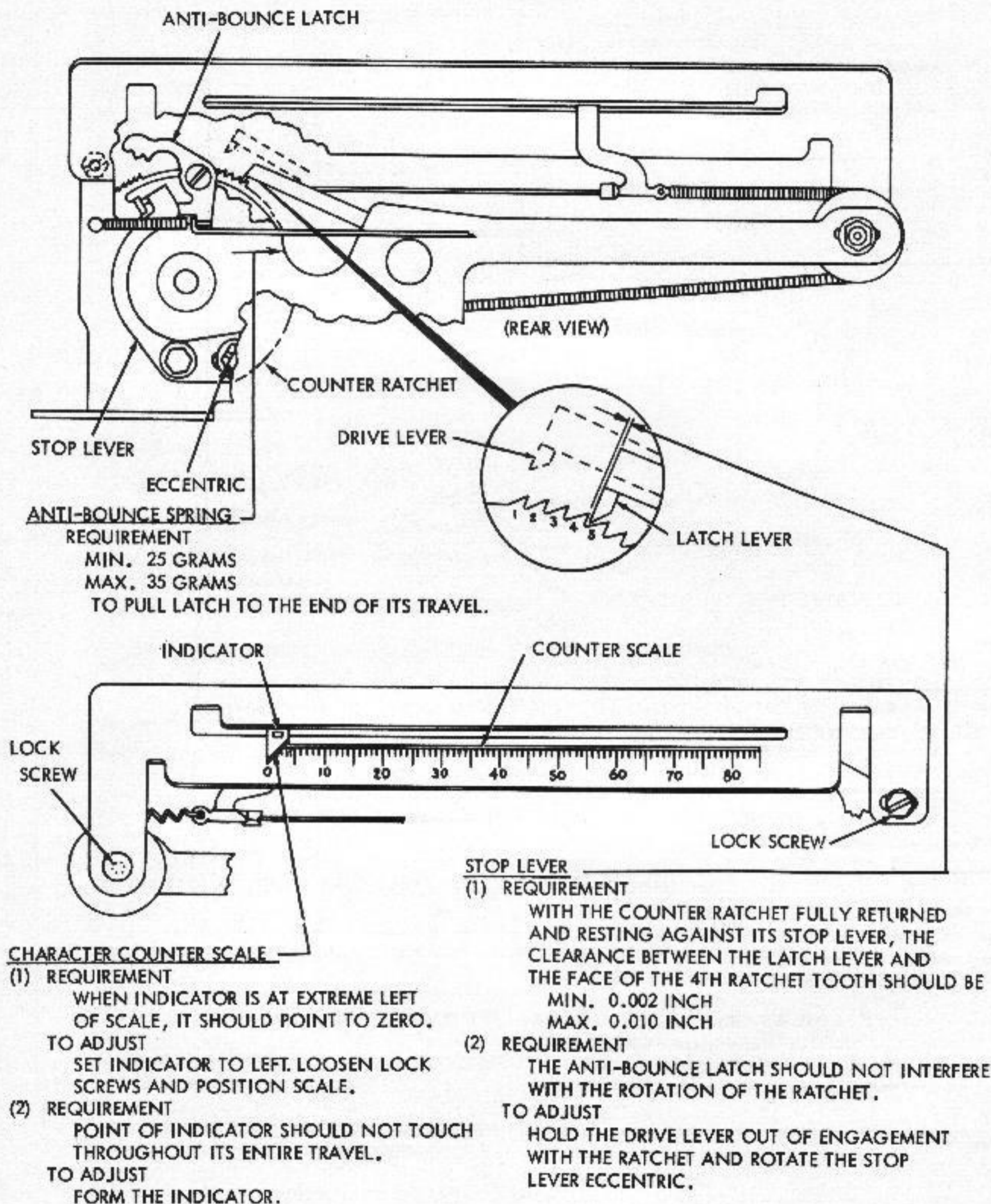


FIGURE 1-97. CHARACTER COUNTER MECHANISM

(A) CHARACTER COUNTER STROKE
REQUIREMENT

WHEN CHARACTER AND REPEAT KEYS ARE DEPRESSED, THE COUNTER SHOULD OPERATE CONSISTENTLY IN T OR K-T POSITION. WHEN CARRIAGE RETURN KEY IS DEPRESSED, THE COUNTER SHOULD RESET WITHOUT BINDING. THE COUNTER MECHANISM SHOULD COUNT THE FIRST CHARACTER ON A RESTART AFTER RESET CONDITION.

MIN. 0.006 INCH

MAX. 0.015 INCH

BETWEEN DRIVE LEVER AND RATCHET TOOTH, WHEN COUNTER IS SET NEAR MID-POINT OF ITS RANGE.

TO ADJUST

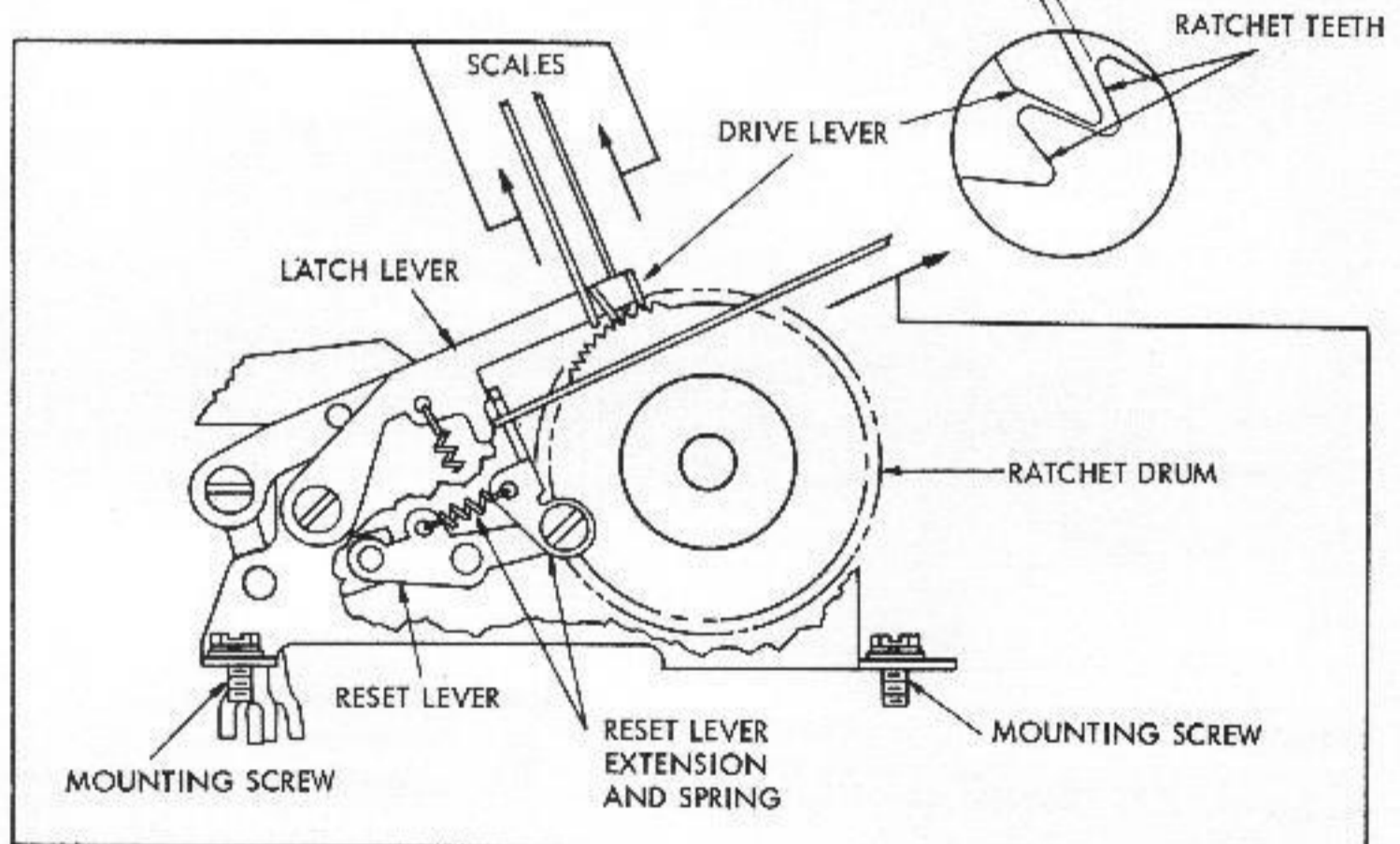
LOOSEN MOUNTING SCREWS.

WITH KEYBOARD IN T POSITION, START MOTOR AND STRIKE "CARRIAGE RETURN" KEY, AND THEN E KEY.

TURN OFF MOTOR. DEPRESS E KEY.

POSITION CHARACTER COUNTER FRAME FOR CLEARANCE.

TURN CONTROL KNOB TO K-T POSITION AND RECHECK. REFINE IF NECESSARY.



(C) LATCH LEVER AND DRIVE SPRING
REQUIREMENT

MIN. 1/2 OZ.

MAX. 1 OZ.

TO MOVE EITHER LEVER.

(B) RESET LEVER EXTENSION SPRING
REQUIREMENT

WITH CODE BARS IN LATCHED POSITION,
MIN. 1/2 OZS. --- MAX. 1-1/4 OZS,
TO START LEVER MOVING.

FIGURE 1-98. CHARACTER COUNTER MECHANISM

9. KEYBOARD (SEND-RECEIVE TAPE PRINTER SET)

NOTE
THE FOLLOWING ADJUSTMENTS, PLUS APPLICABLE
MODEL 28 TYPING REPERFORATOR KEYBOARD
ADJUSTMENTS, ARE REQUIRED TO ADJUST THE
MODEL 28 TAPE PRINTER KEYBOARD.

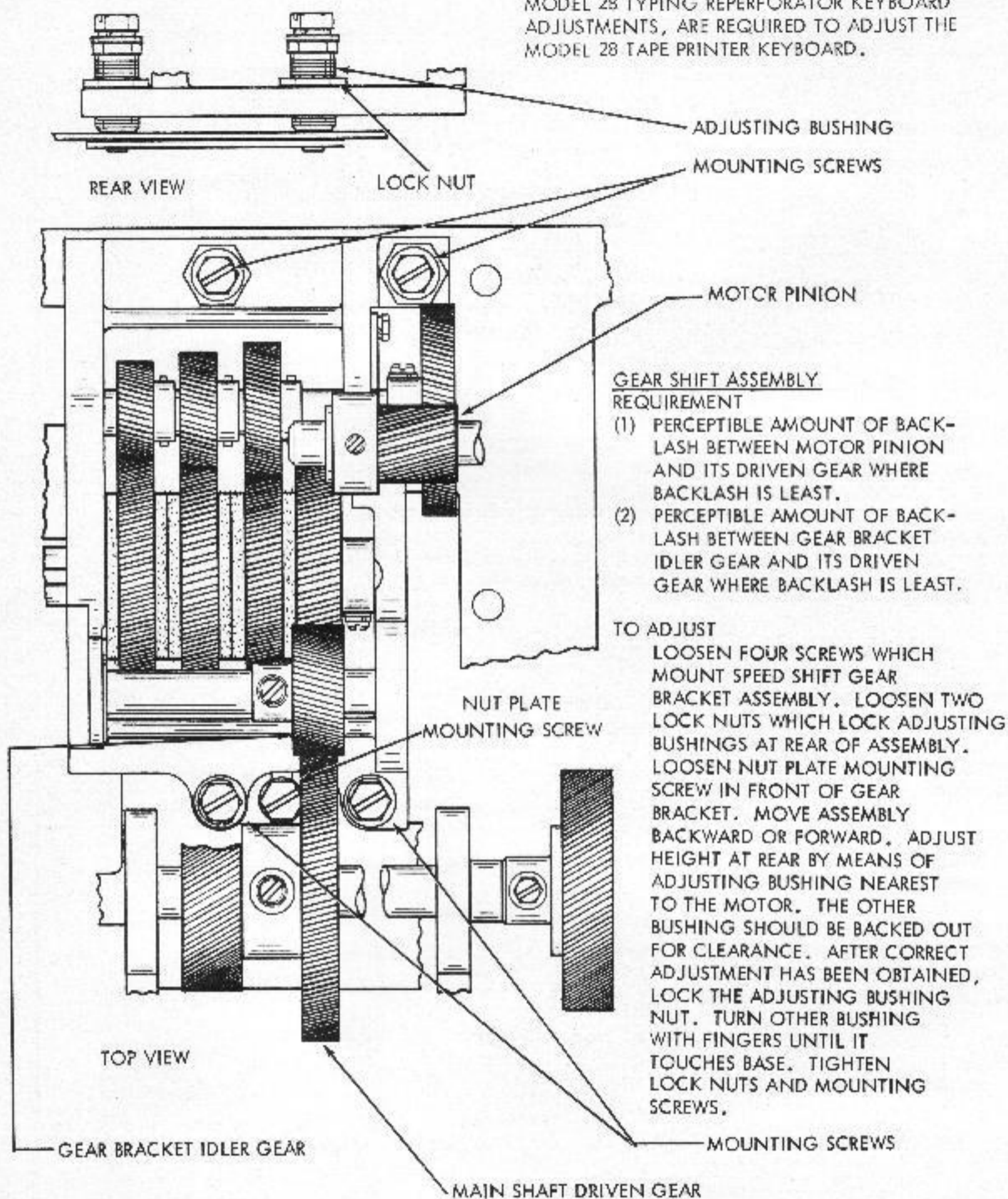


FIGURE 1-99. GEAR SHIFT ASSEMBLY FOR MODEL 28 TAPE PRINTER KEYBOARD

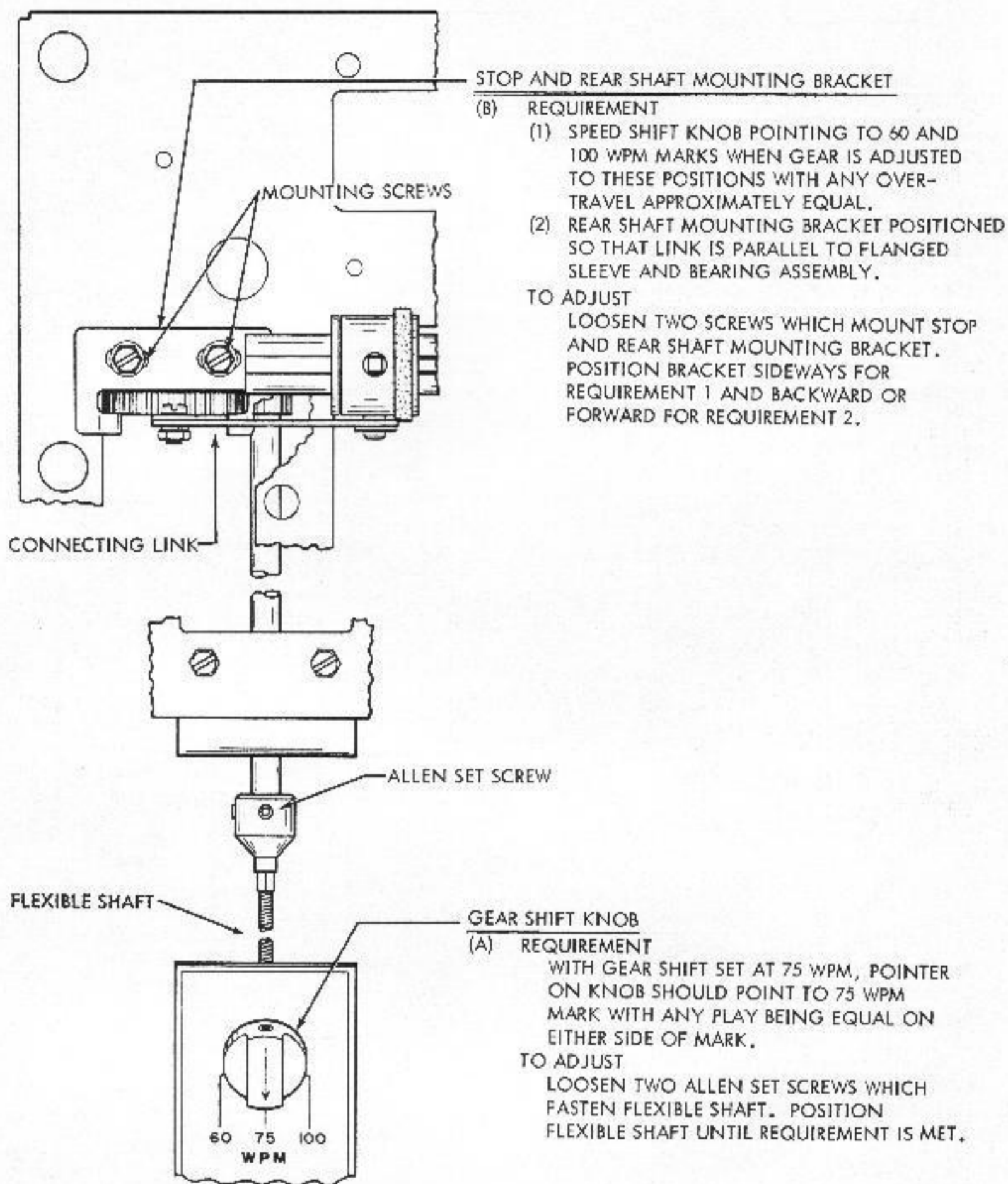


FIGURE 1-100. STOP BRACKET AND REAR SHAFT MOUNTING BRACKET FOR MODEL 28 TAPE PRINTER KEYBOARD

GEAR SHIFT KEY SPRING

TO CHECK

DISCONNECT OPERATING LINKAGE FROM FLANGE SLEEVE BY REMOVING RETAINER RING. MOVE SPRING OUT FROM UNDER GEARS. CAUTION: PULL KEY TO LEFT SLOWLY. WHEN HEAD OF SPRING PIN BEGINS TO EMERGE HOLD IT IN PLACE UNTIL COMPLETELY OUT. OTHERWISE PIN AND SPRING WILL FLY WITH DANGER OF LOSS.

REQUIREMENT

MIN. 25 OZS. --- MAX. 40 OZS.
TO DEPRESS KEY TO LOWERMOST POSITION.

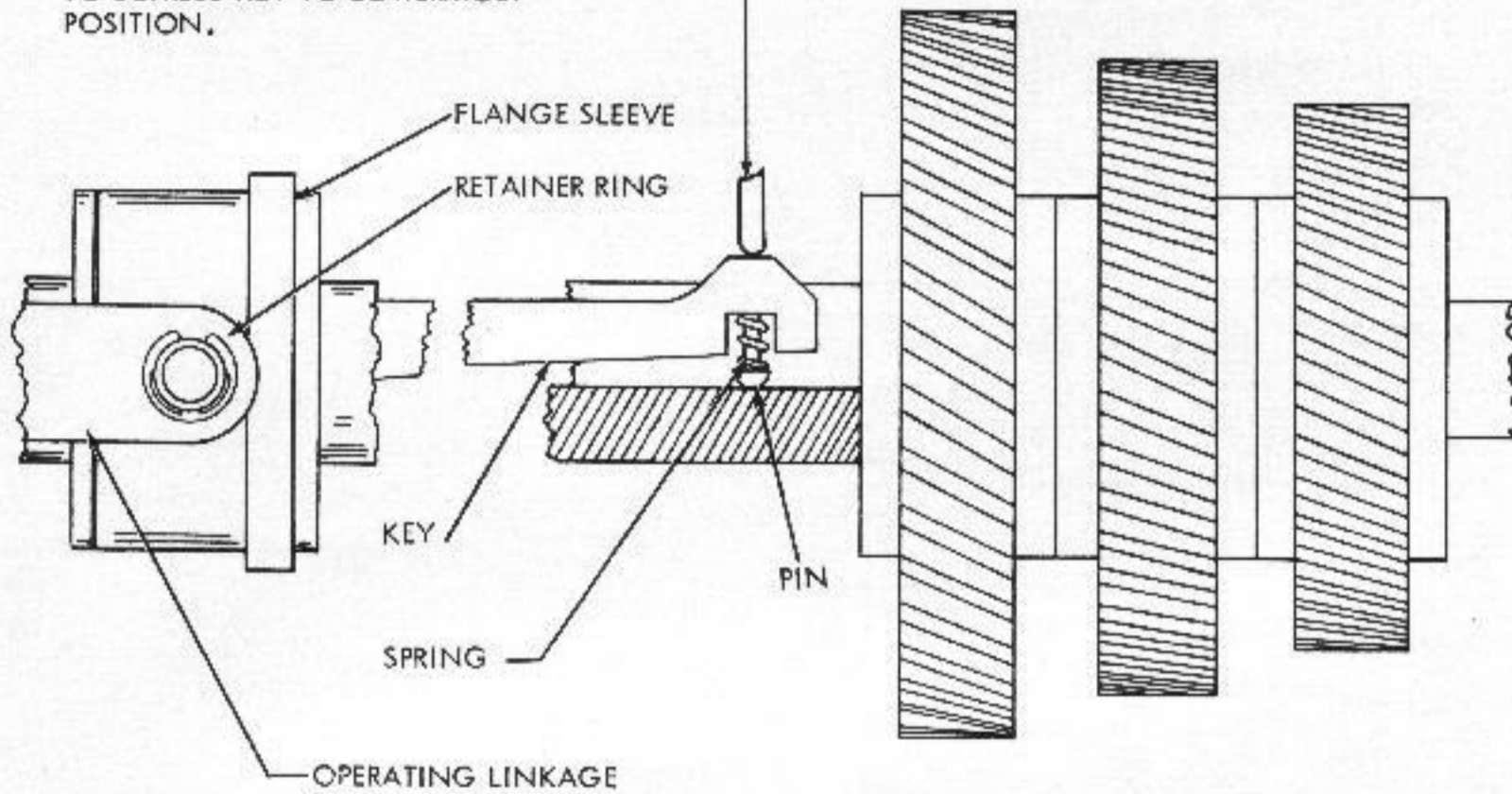


FIGURE 1-101. GEAR SHIFT MECHANISM FOR MODEL 28
TAPE PRINTER KEYBOARD

10. CHAD CHUTE ASSEMBLIES (FOR FULLY PERFORATED TAPE)

CHAD CHUTE (SELF CONTAINED TYPING REPERFORATOR SET)
REQUIREMENT

- (1) THE CHAD CHUTE SHOULD BE FLUSH WITH TOP OF PUNCH BLOCK.
- (2) THE CHAD CHUTE EXTENSION IS PLACED OVER END OF CHUTE TO GUIDE THE CHAD INTO THE CHAD BIN.

TO ADJUST

WITH MOUNTING SCREWS FRICTION TIGHT
POSITION CHAD CHUTE.

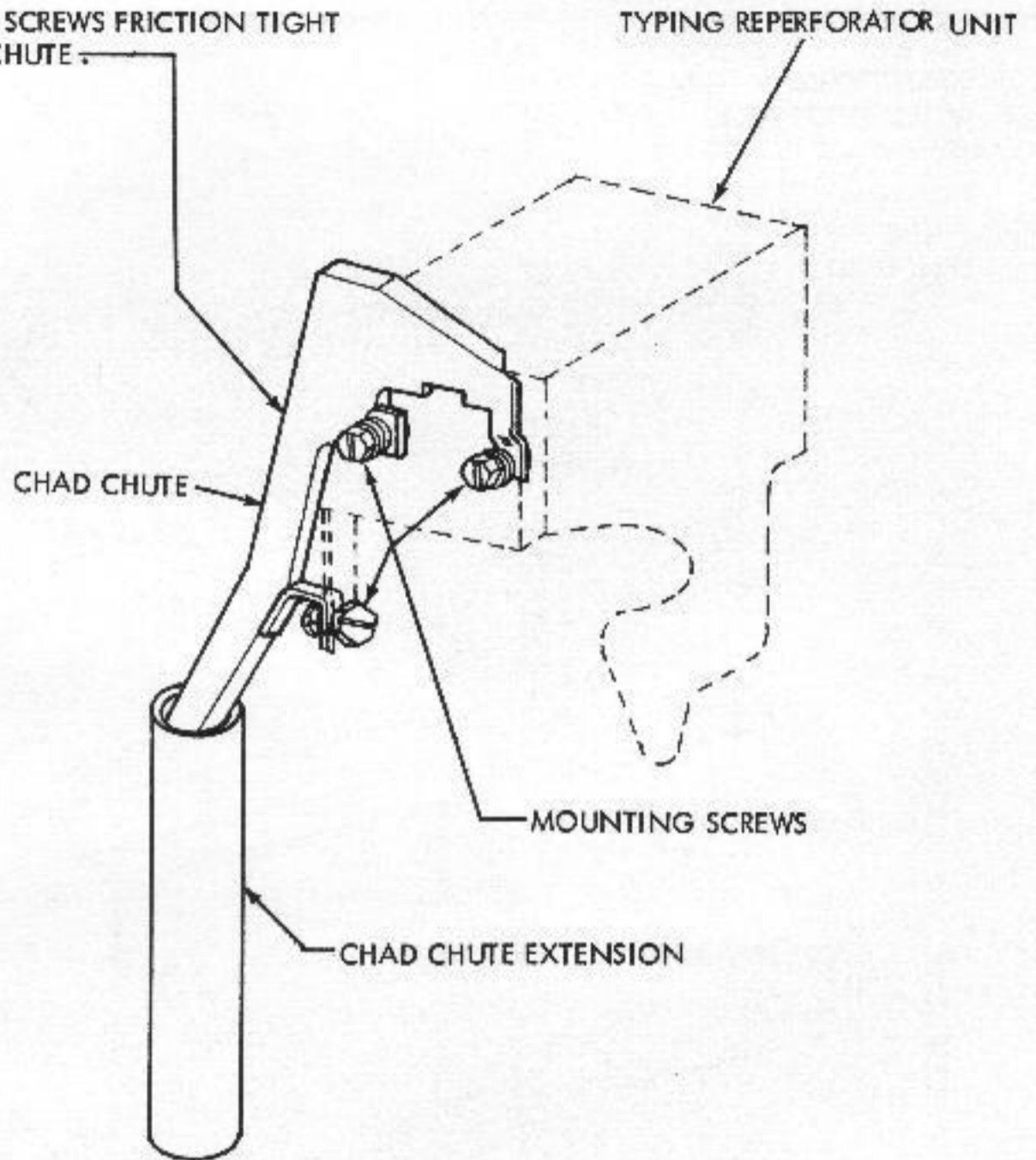


FIGURE 1-102. CHAD CHUTE FOR SELF CONTAINED TYPING REPERFORATOR SET

CHAD CHUTE ASSEMBLY (MULTIPLE REPERFORATOR SET)

REQUIREMENT

- (1) CHAD CHUTE SHOULD BE FLUSH WITH TOP OF PUNCH BLOCK.
 - (2) CHAD CHUTE ASSEMBLY SHOULD BE ADJUSTED SO CLEARANCE IS MAXIMUM IN ALL DIRECTIONS BETWEEN EACH CHAD CHUTE AND REPERFORATOR CASTING.
- TO ADJUST WITH MOUNTING SCREWS FRICTION TIGHT POSITION CHAD CHUTE AND CHAD CHUTE ASSEMBLY BY MEANS OF ELONGATED SLOTS.

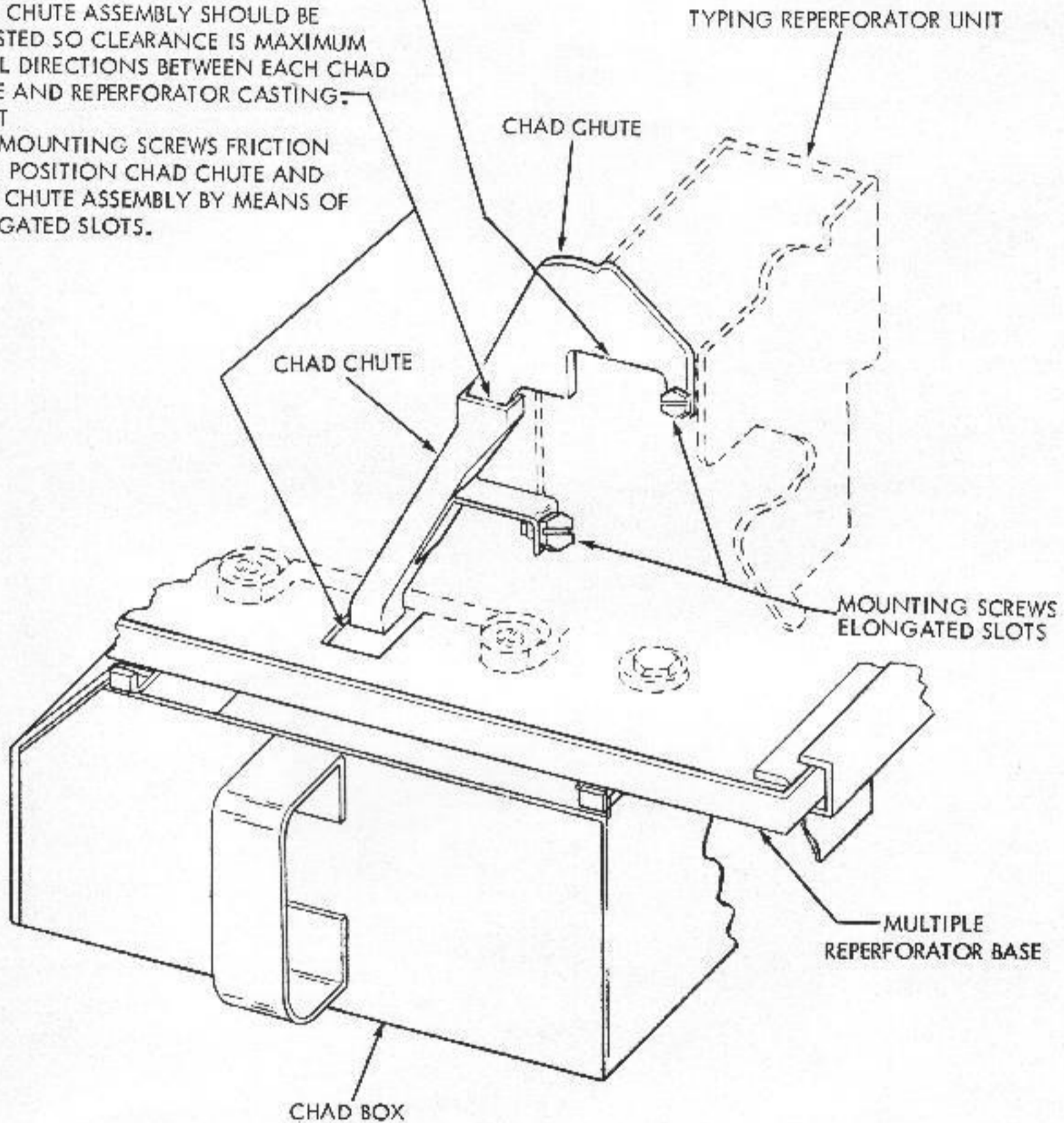


FIGURE 1-103. CHAD CHUTE ASSEMBLY FOR MULTIPLE REPERFORATOR SET

CHAD CHUTE ASSEMBLY (KEYBOARD REPERFORATOR -
AUTOMATIC SEND-RECEIVE SET)

REQUIREMENT

CLEARANCE BETWEEN EACH CHAD CHUTE AND
ADJACENT UNITS SHOULD BE EQUAL IN ALL
DIRECTIONS.

TO ADJUST

WITH MOUNTING SCREWS FRICTION TIGHT POSITION
EACH CHUTE BY MEANS OF THEIR ELONGATED
SLOTS.

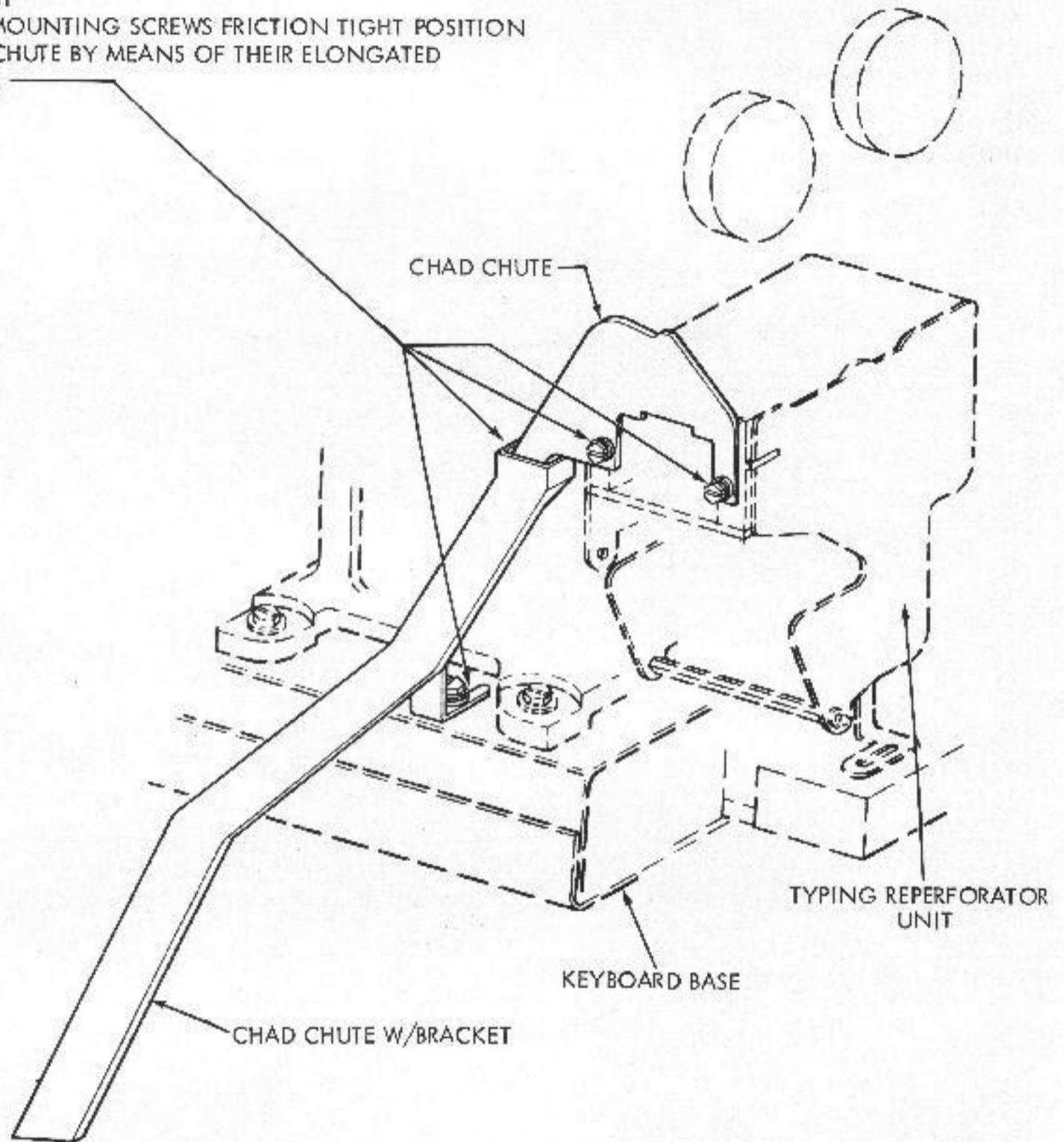


FIGURE 1-104. CHAD CHUTE ASSEMBLY FOR KEYBOARD REPERFORATOR - AUTOMATIC SEND-RECEIVE SET

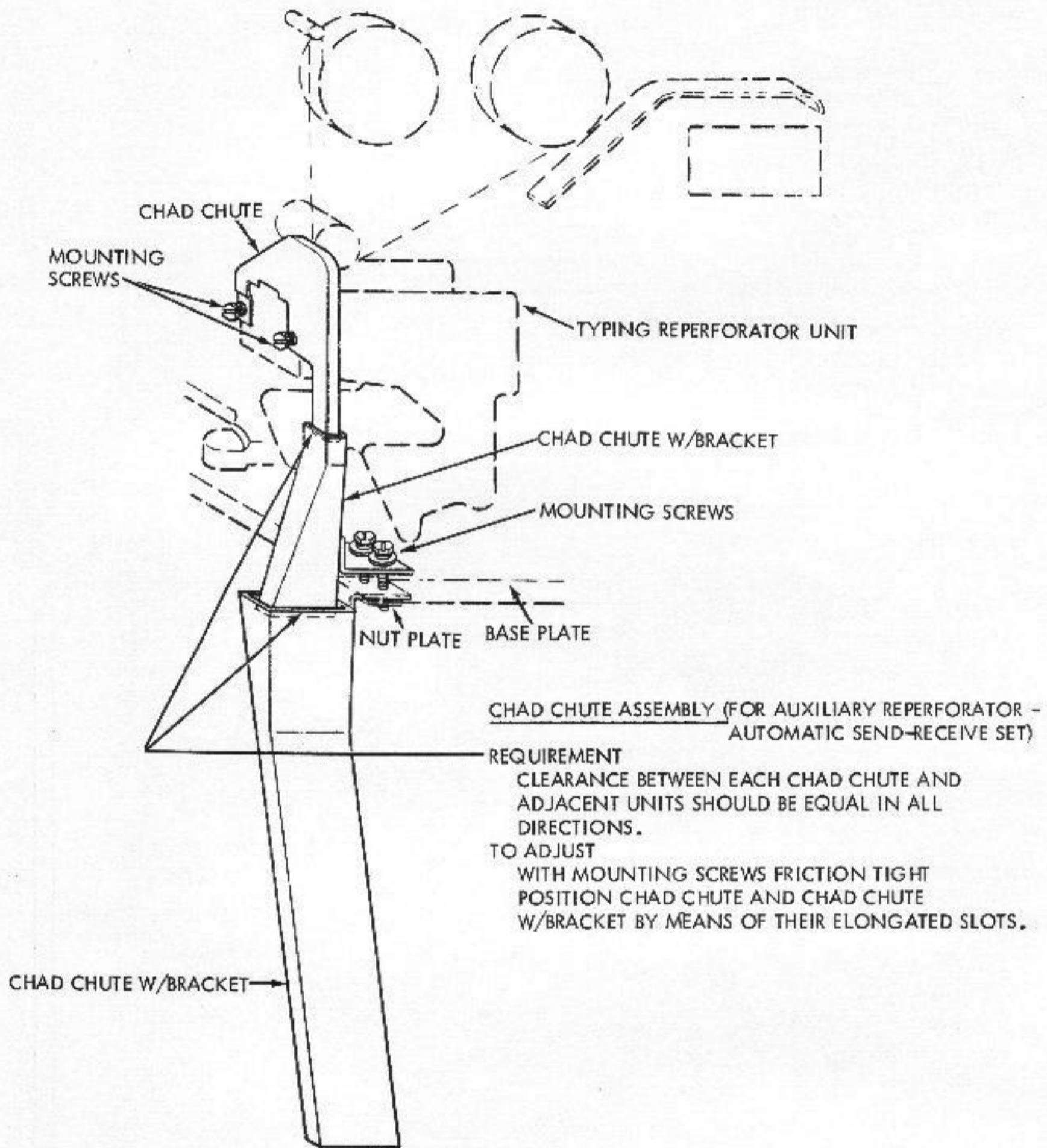


FIGURE 1-105. CHAD CHUTE ASSEMBLY FOR AUXILIARY REPERFORATOR - AUTOMATIC SEND AND RECEIVE SET

CHAD CHUTE AND CHAD BIN ASSEMBLIES -
 (AUTOMATIC SEND-RECEIVE SET)

REQUIREMENT

WHEN CHAD BIN IS INSERTED ON
 SLIDE PLATES, THE CABINET DOOR SHOULD
 CLOSE WITHOUT INTERFERING WITH CHAD BIN.

TO ADJUST

USING THE SLACK IN THE MOUNTING SCREW
 BODY HOLES, POSITION THE CHAD CHUTE AND
 THE CHAD BIN LEFT AND RIGHT SIDE PLATES.

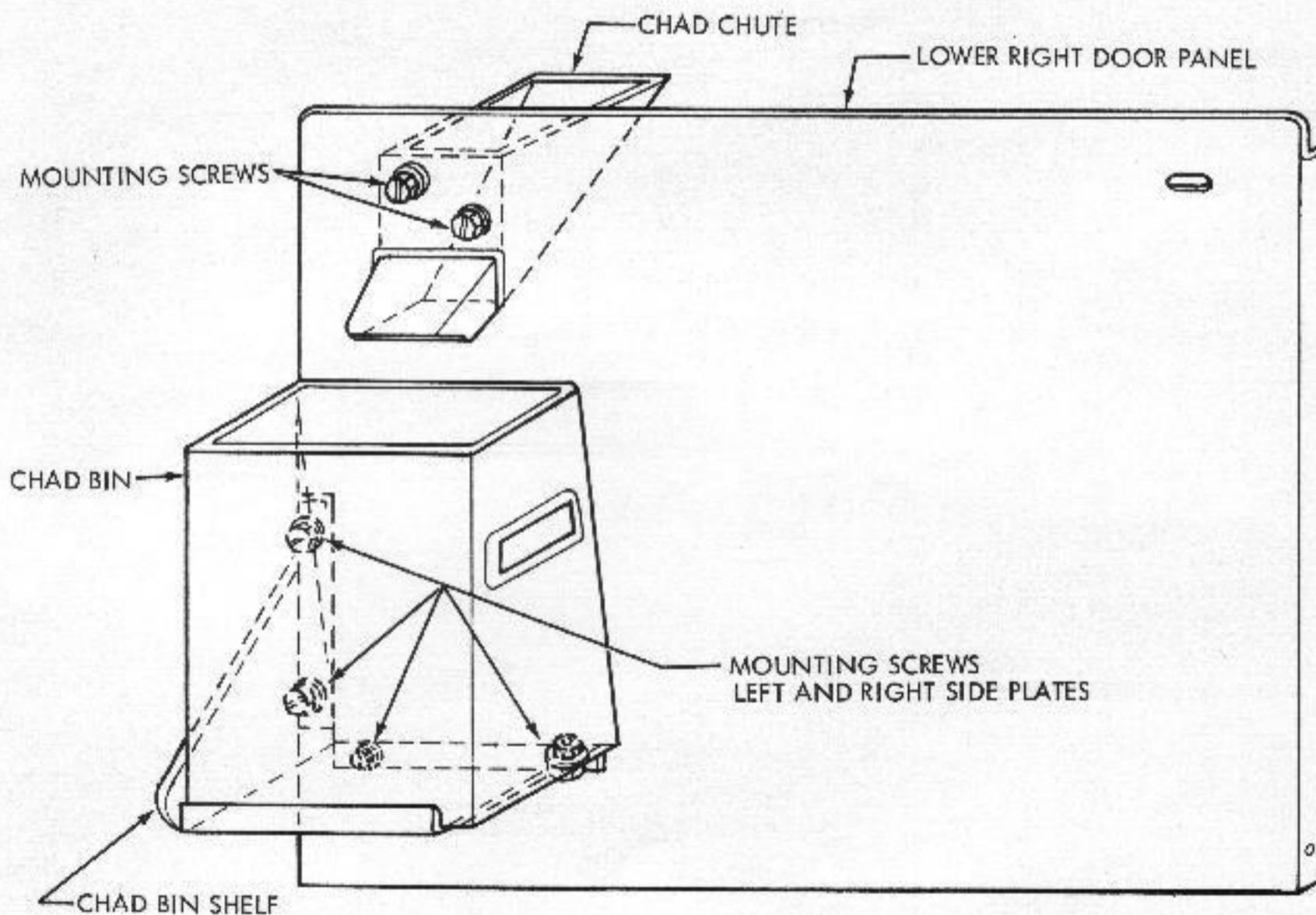


FIGURE 1-106. CHAD CHUTE AND CHAD BIN ASSEMBLIES -
 AUTOMATIC SEND-RECEIVE SET

11.
 TAPE GUIDE CHUTE (AUXILIARY TYPING REPERFORATOR) (AUTOMATIC SEND-RECEIVE SET)

REQUIREMENT

WITH LEFT TOP AND MIDDLE DOME DOORS OPEN, FRONT AND REAR ENDS OF CHUTE ALIGN WITH PUNCH BLOCK TAPE APERTURE AND WITH HOLE IN AUXILIARY CONTROL PANEL.

TO ADJUST

POSITION MOUNTING BRACKET WITH MOUNTING SCREWS FRICTION TIGHT UNTIL CHUTE IS POSITIONED HORIZONTALLY, WITH UPPER ADJUSTING SCREW FRICTION TIGHT IN ITS NUT PLATE, POSITION CHUTE VERTICALLY.

NOTE: TAPE GUIDE CHUTE SHOULD NOT TOUCH TYPING REPERFORATOR OR CABINET. TAPE SHOULD FEED WITHOUT BINDING OR TWISTING.

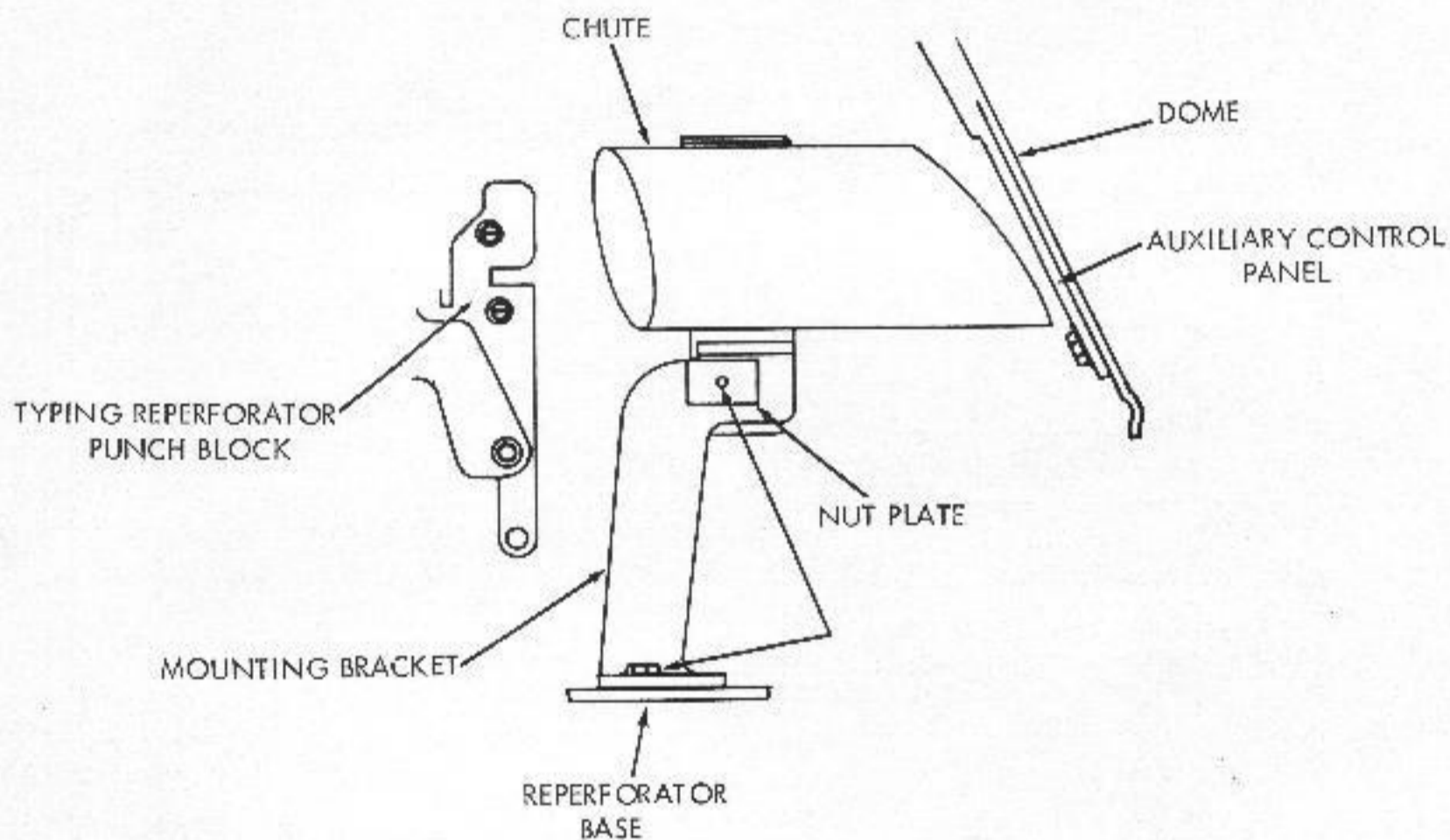


FIGURE 1-107. TAPE GUIDE CHUTE FOR AUXILIARY TYPING REPERFORATOR-AUTOMATIC SEND-RECEIVE SET

12. SLIDING SUB-BASE FOR MODEL 28 COMPACT
RECEIVING-ONLY TYPING REPERFORATOR SET

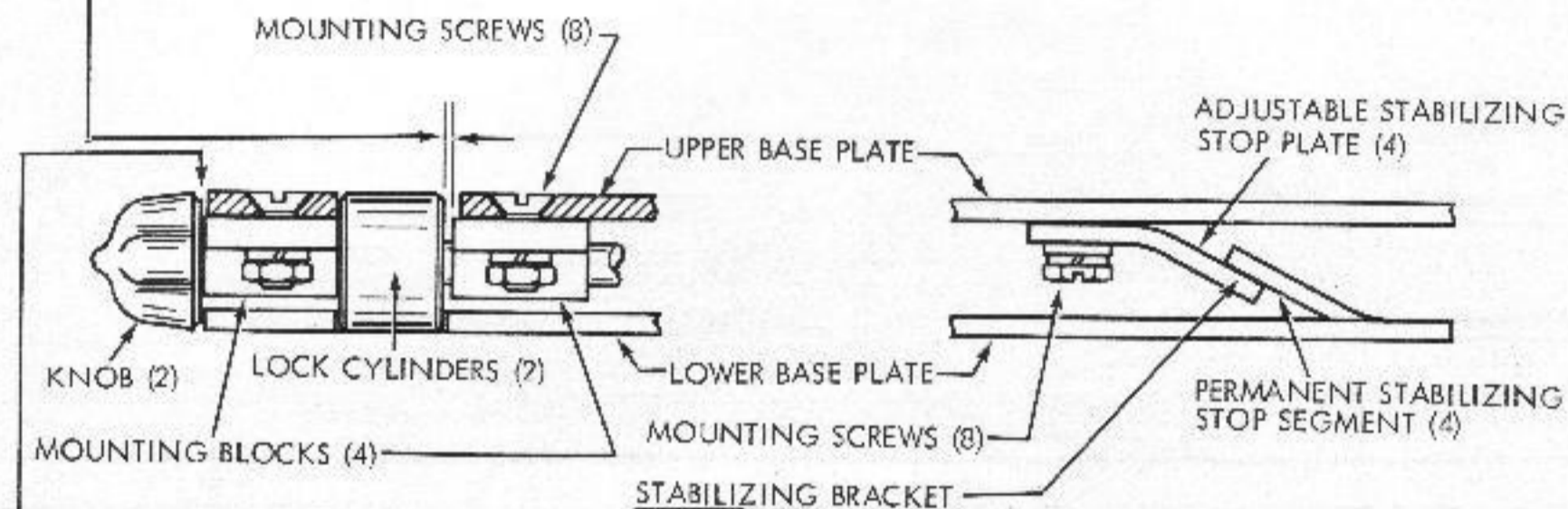
QUICK - DISCONNECT LATCH

REQUIREMENT

WITH SLIDE IN THE FULLY RETRACTED POSITION THE LOCKING CYLINDER OF THE QUICK - DISCONNECT DEVICE SHALL BE FIRMLY SEATED AGAINST THE STOP SURFACE OF THE BOTTOM PLATE:
MIN. 0.002 INCH --- MAX. 0.012 INCH

END PLAY BETWEEN LOCKING CYLINDER AND THE TWO MOUNTING BLOCKS,
TO ADJUST

WITH THE MOUNTING SCREWS OF THE TWO BLOCKS FRICTION TIGHT AND THE SLIDE FULLY DEPRESSED, POSITION THE TWO BLOCKS.



STABILIZING BRACKET

REQUIREMENT

NO CLEARANCE BETWEEN THE PERMANENT STABILIZING SEGMENT OF LOWER BASE PLATE AND THE ADJUSTABLE STABILIZING STOP PLATE OF THE UPPER BASE PLATE WHEN THE SLIDE IS IN THE FULLY RETRACTED LOCKED POSITION.

TO ADJUST

WITH MOUNTING SCREWS OF EACH OF THE FOUR STABILIZING STOP PLATES FRICTION TIGHT, POSITION EACH STABILIZING STOP PLATE.

CHECK

TO INSURE THAT THERE IS NO ROTATION WHEN THE TOP AND BOTTOM PLATES ARE "ROTATED" TOWARD EACH OTHER WITHOUT BENDING EITHER OF THE PLATES,

QUICK DISCONNECT KNOB

REQUIREMENT

WITH KNOBS IN THE OPEN POSITION:
MIN. 0.093 INCH --- MAX. 0.140 INCH
CLEARANCE BETWEEN COVER AND LOCKING
DEVICE KNOBS.

TO ADJUST

WITH THE TWO SET SCREWS IN EACH KNOB
FRICTION TIGHT, POSITION KNOBS.

NOTE

THE KNOB LOCKING CYLINDER ASSEMBLY MUST SNAP INTO THE LOCKED POSITION WHEN THE KNOBS ARE RELEASED FROM AN ANGULAR DISPLACEMENT OF APPROXIMATELY 45° FROM THE HORIZONTAL.

FIGURE 1-108. SLIDING SUB-BASE FOR MODEL 28 COMPACT RECEIVING-ONLY TYPING REPERFORATOR SET

13. BASE FOR MODEL 28 COMPACT RECEIVING-ONLY
TYPING REPERFORATOR SET

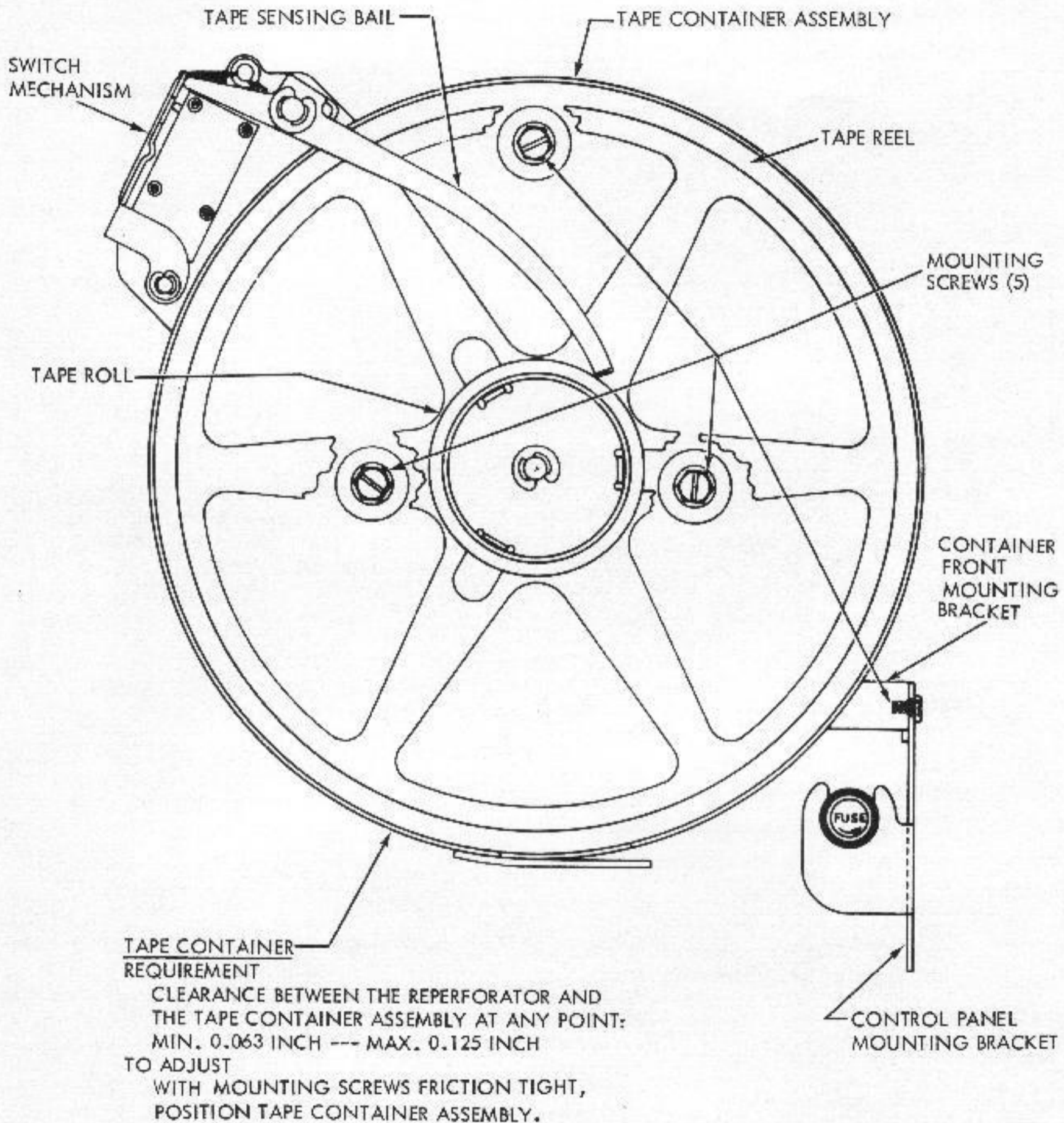


FIGURE I-109. BASE FOR MODEL 28 COMPACT RECEIVING-ONLY TYPING REPERFORATOR SET

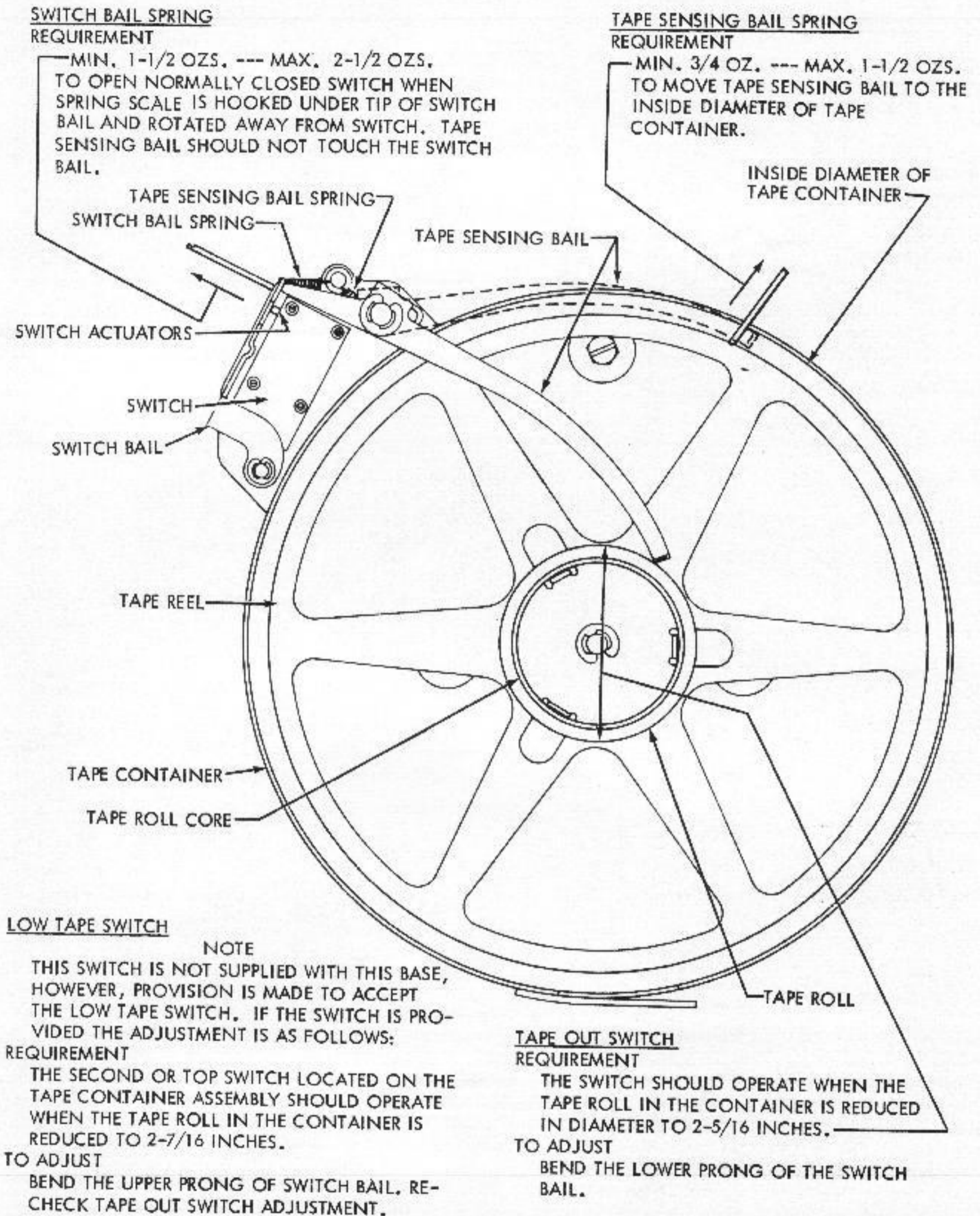


FIGURE 1-110. BASE FOR MODEL 28 COMPACT RECEIVING-ONLY TYPING REPERFORATOR SET

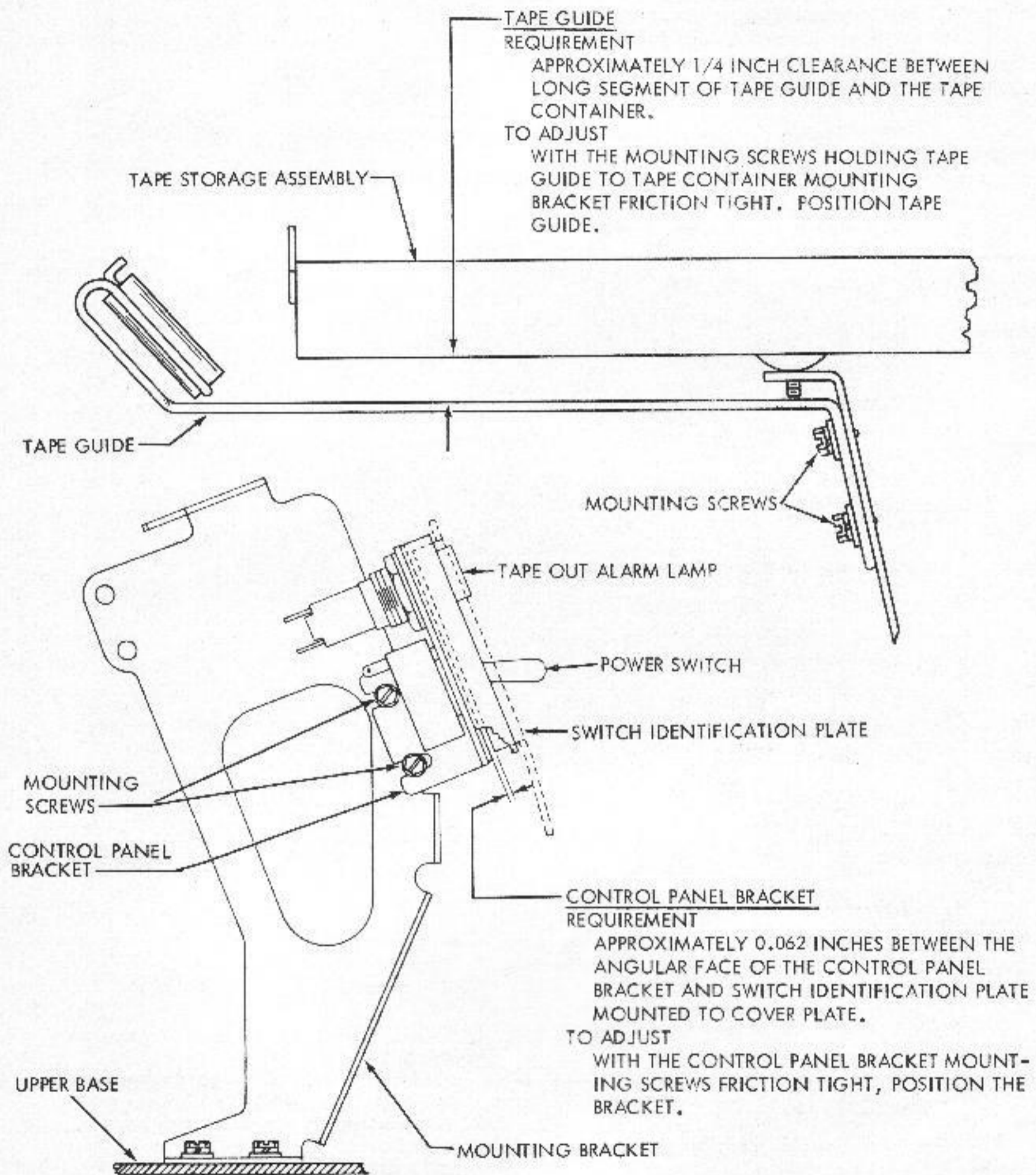


FIGURE 1-111. BASE FOR MODEL 28 COMPACT RECEIVING-ONLY TYPING REPERFORATOR SET

VIBRATION ISOLATOR IMMOBILIZATION

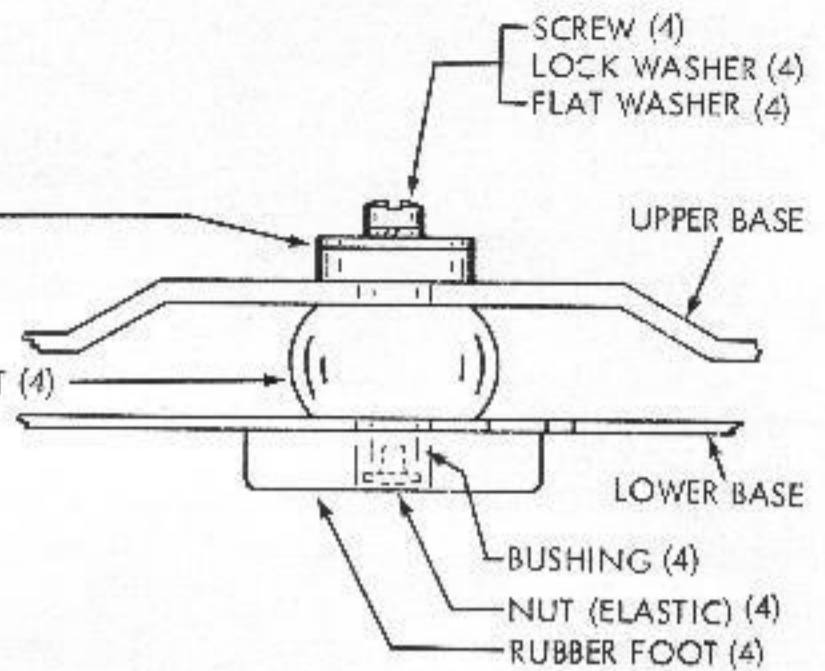
REQUIREMENT

NO CLEARANCE BETWEEN TOP OF RUBBER ISOLATOR AND BOTTOM OF METAL WASHER WITH NO COMPRESSION OF THE RUBBER.

TO ADJUST

TURN THE ELASTIC STOP NUT.

RUBBER VIBRATION MOUNT (4)

VARIABLE SPEED DEVICE (SEE FIGURE 2-80)

(1) REQUIREMENT

THERE SHOULD BE A BARELY PERCEPTIBLE AMOUNT OF BACKLASH BETWEEN THE MOTOR PINION AND THE DRIVEN GEAR AT THEIR CLOSEST POINT.

TO ADJUST

WITH THE FOUR MOUNTING SCREWS FASTENING THE VARIABLE SPEED DEVICE TO THE VIBRATION ISOLATORS FRICTION TIGHT, POSITION THE VARIABLE SPEED ASSEMBLY.

(2) REQUIREMENT

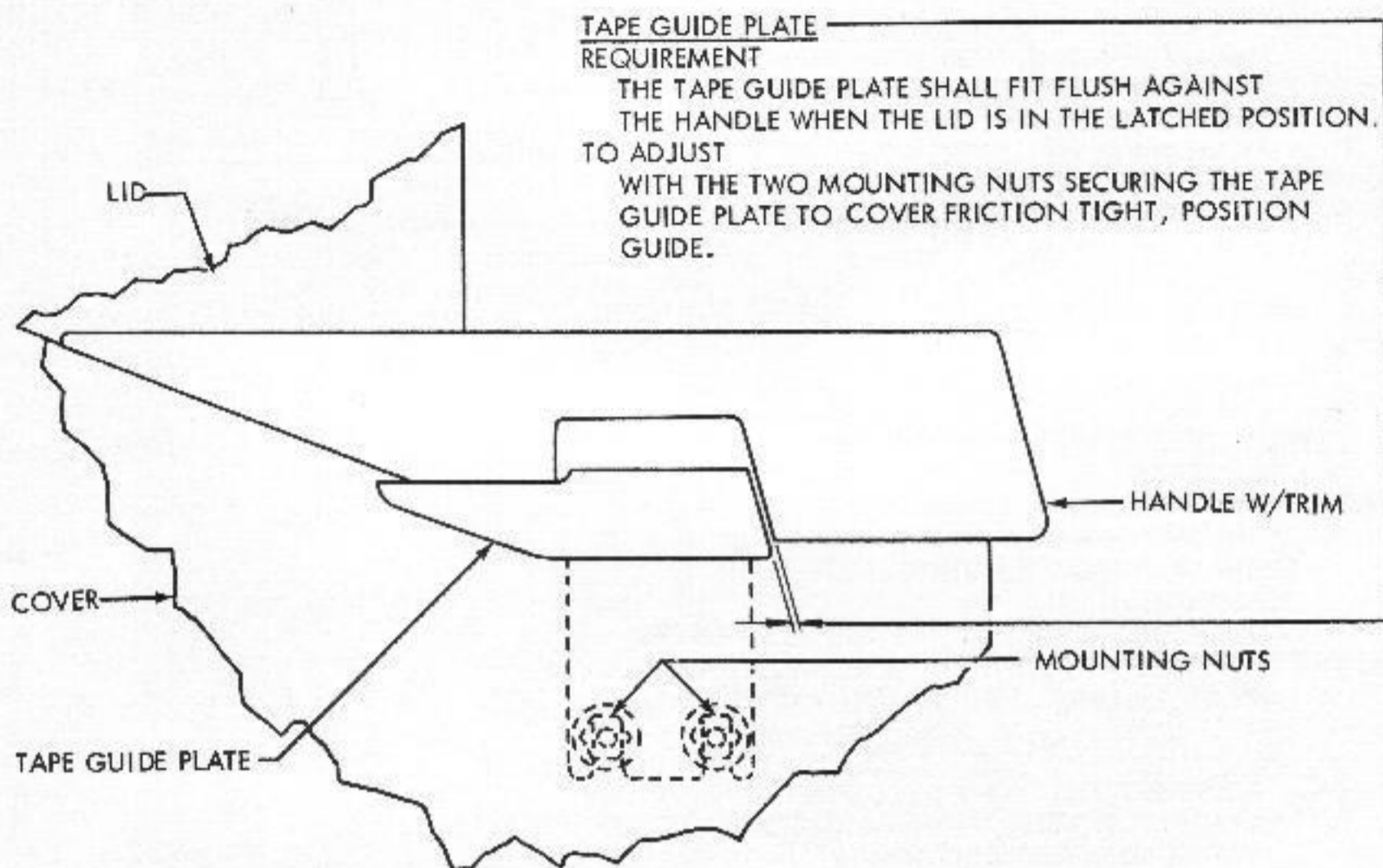
WITH SPEED SELECTOR LEVER DETENTED IN CENTER POSITION 100, W.P.M. THERE SHALL BE FULL MESH BETWEEN GEARS.

TO ADJUST

WITH THE GEAR SHIFT BRACKET MOUNTING SCREWS FRICTION TIGHT, POSITION GEAR SHIFT BRACKET.

FIGURE 1-112. BASE FOR MODEL 28 COMPACT RECEIVING-ONLY TYPING REPERFORATOR SET

14. COVER FOR MODEL 28 COMPACT RECEIVING-ONLY
TYPING REPERFORATOR SET



COVER (SEE FIGURES 1-70 AND 1-71)

REQUIREMENT

ALL MATING SURFACES MUST BE FLUSH.

TO ADJUST

WITH THE FOUR LID HINGE NUTS FRICTION TIGHT, POSITION THE LID, FRONT TO REAR TO MEET THE REQUIREMENT.

WINDOW (SEE FIGURES 1-70 AND 1-71)

REQUIREMENT

THE OBSERVATION WINDOW SHALL MATCH THE CONTOUR OF THE COVER LID AND HANDLE.

TO ADJUST

WITH THE WINDOW BRACKET NUTS FRICTION TIGHT POSITION THE WINDOW.

HANDLE/TRIM (SEE FIGURES 1-70 AND 1-71)

REQUIREMENT

THE HANDLE SHALL MATCH THE CONTOUR AND PARTING OUTLINE OF THE COVER ASSEMBLY.

TO ADJUST

WITH ALL MOUNTING SCREWS FRICTION TIGHT, POSITION THE HANDLE TO MEET THE REQUIREMENTS AND TIGHTEN THE SINGLE NUT ON THE SHORT LEG OF THE HANDLE. TIGHTEN THE REMAINING MOUNTING SCREWS.

FIGURE 1-113. COVER FOR MODEL 28 COMPACT RECEIVING-ONLY TYPING REPERFORATOR SET

COVER LATCH (2)**(1) REQUIREMENT**

IN LOCKED POSITION THE LATCH SHALL ENGAGE POST OF BRACKET WITHOUT PLAY, OR EXCESSIVE DISTORTION OF BASE PLATE.

TO ADJUST

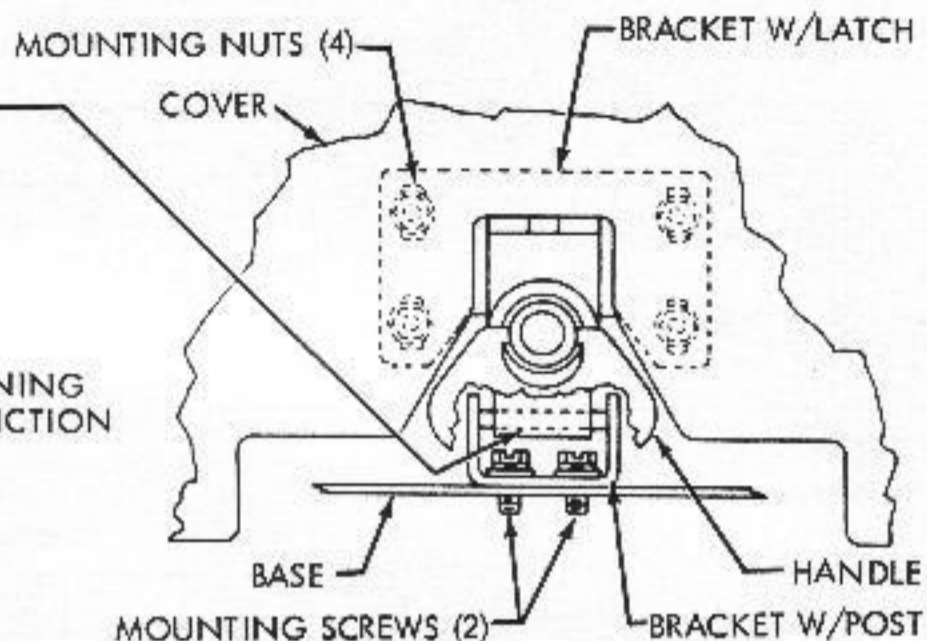
WITH THE FOUR MOUNTING NUTS FASTENING THE BRACKET W/LATCH TO THE COVER FRICTION TIGHT, POSITION THE ASSEMBLY.

(2) REQUIREMENT

WHEN LOCKED, THE LATCHES SHALL BE VERTICAL TO THE BASE PLATE (CHECK BY EYE).

TO ADJUST

WITH THE TWO MOUNTING SCREWS OF THE BRACKET LOCATED ON THE BASE FRICTION TIGHT, POSITION THE BRACKET. (CHECK REQUIREMENT (1))

**LID LATCH****(1) REQUIREMENT**

THE LID SHALL BE HELD IN PLACE BY THE TWO SPRING LOADED BOLTS ON LOWER PART OF COVER.

(2) REQUIREMENT

THE LATCHING BRACKET SHALL BE CENTERED IN THE CUTOUTS OF LOWER PART OF COVER COMPATIBLE WITH POSITIVE AND SMOOTH OPERATION OF THE TWO BOLTS.

TO ADJUST

WITH MOUNTING SCREWS FRICTION TIGHT, POSITION THE LATCHING BRACKET.

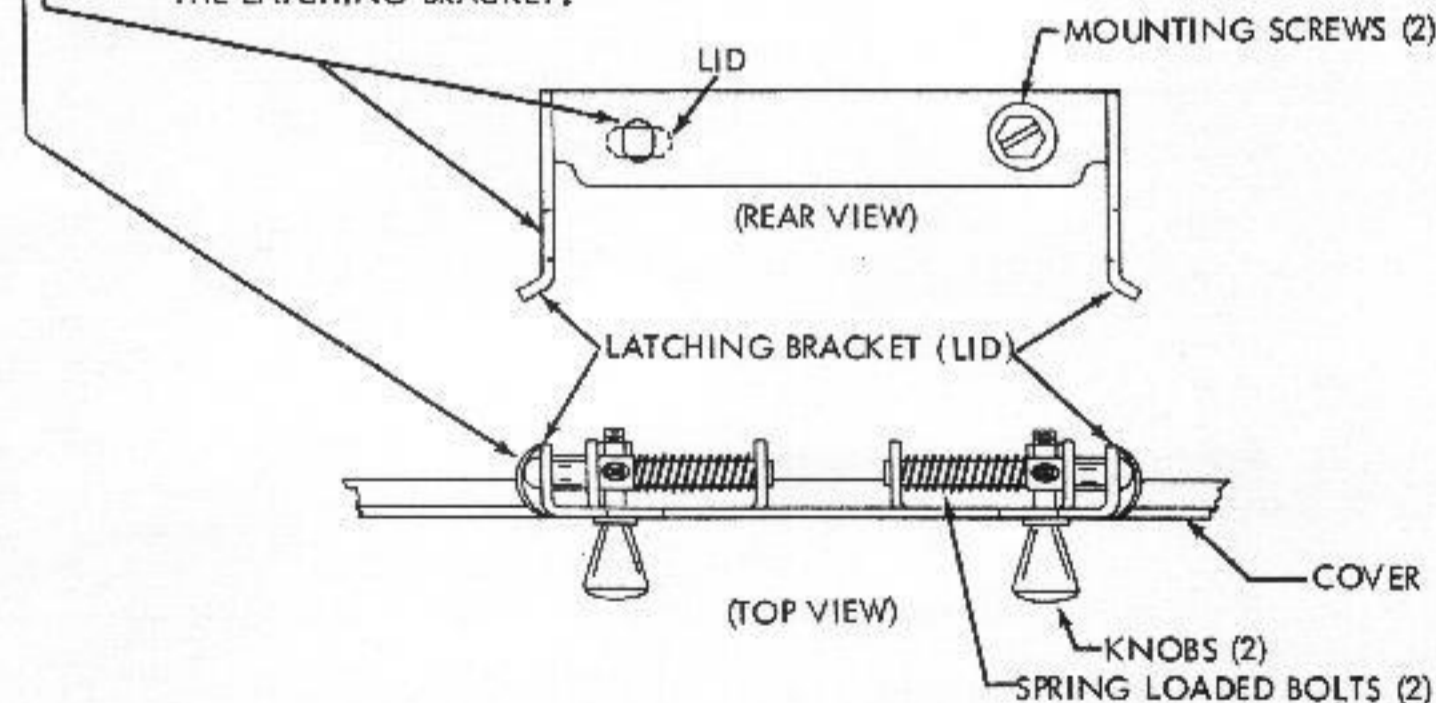


FIGURE 1-114. COVER FOR MODEL 28 COMPACT RECEIVING-ONLY TYPING REPERFORATOR SET

SECTION 2. VARIABLE FEATURES

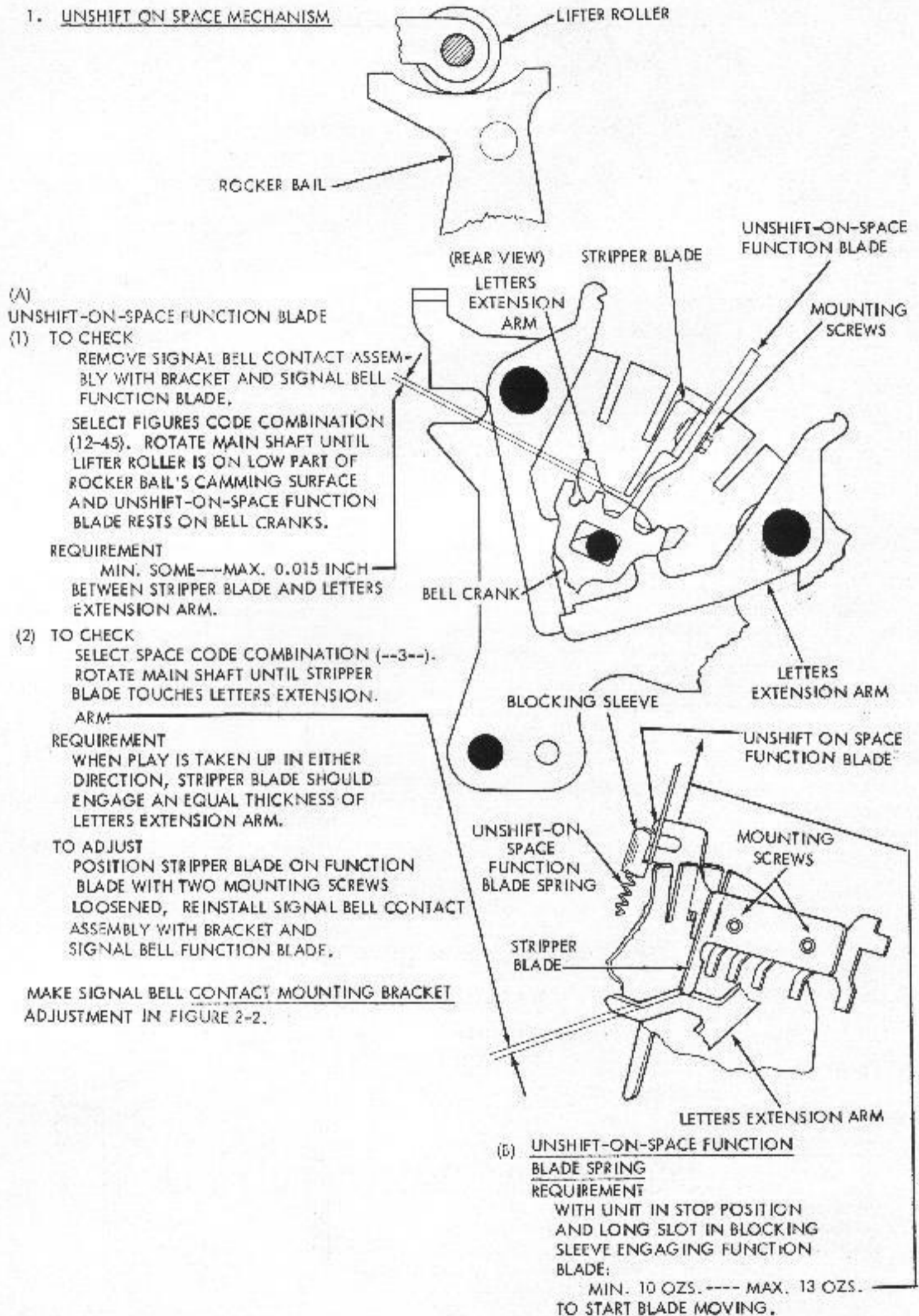
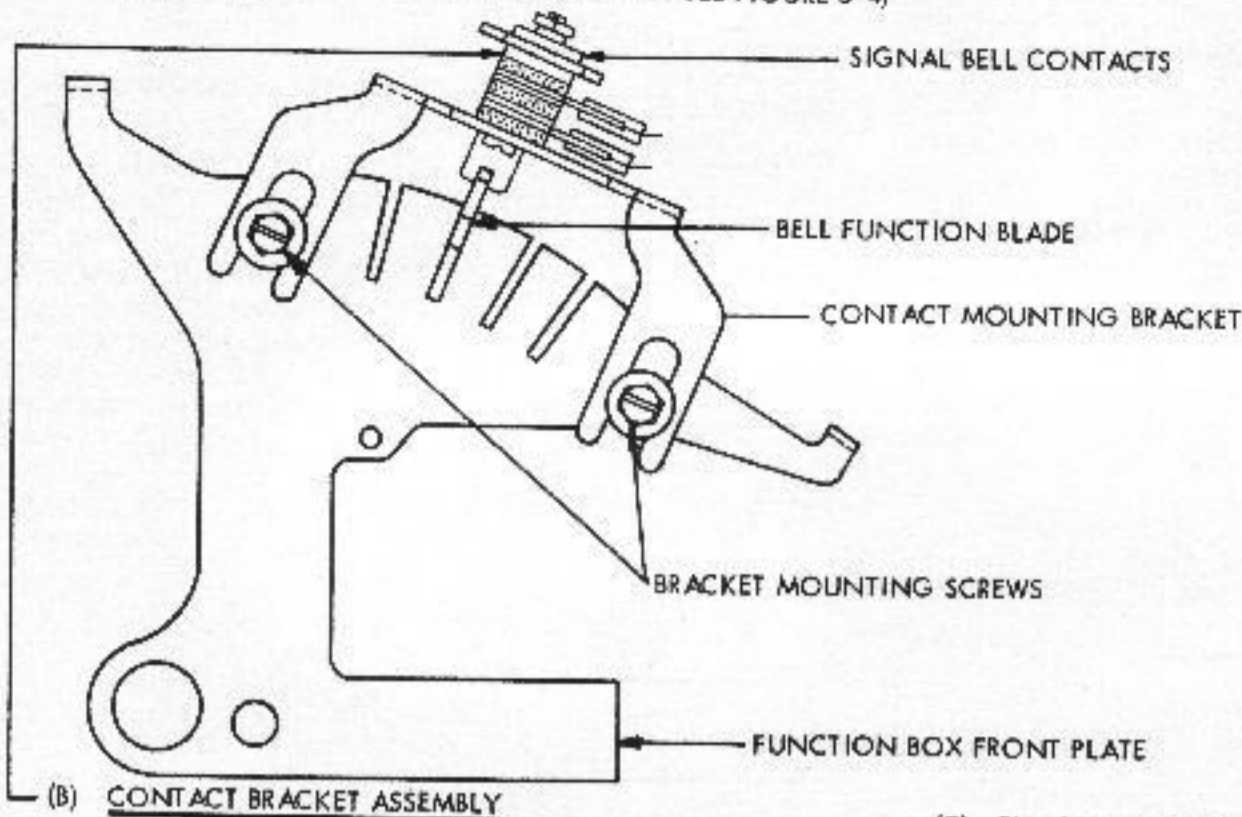
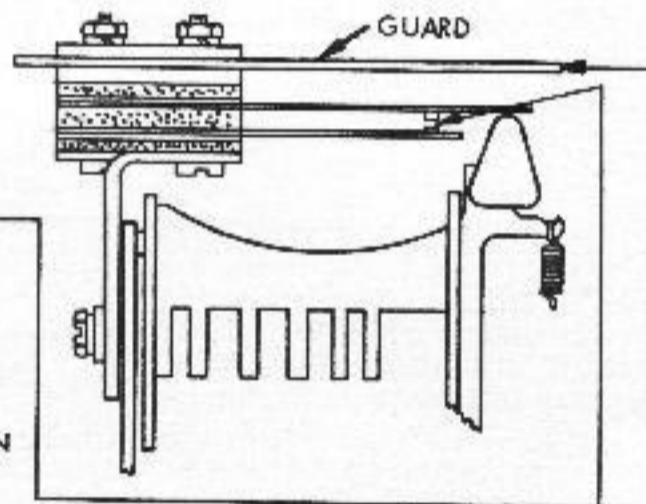
1. UNSHIFT ON SPACE MECHANISM

FIGURE 2-1. UNSHIFT ON SPACE MECHANISM

2. SIGNAL BELL CONTACT MECHANISM
LATEST DESIGN FOR EARLIER DESIGN SEE FIGURE 5-4)



(C) FUNCTION BLADE SPRING
 REQUIREMENT --- REFER TO
 FIGURE 1-39.



- (1) REQUIREMENT
 THE CONTACT ASSEMBLY SHALL BE CENTRALLY
 LOCATED OVER THE BELL FUNCTION BLADE
 INSULATOR.
- (2) REQUIREMENT
 WITH LETTERS CODE COMBINATION (12345)
 SELECTED ROTATE MAIN SHAFT UNTIL BELL
 FUNCTION BLADE IS IN ITS LOWEST POSITION
 (RESTING ON BELL CRANKS). GAP BETWEEN
 CONTACTS.
 MIN. 0.015 INCH
 MAX. 0.025 INCH
- (3) REQUIREMENT
 WITH BELL FUNCTION BLADE IN ITS SELECTED
 POSITION, THE CONTACTS SHALL BE CLOSED.
 TO ADJUST
 WITH MOUNTING SCREWS LOOSENED, POSITION
 CONTACT BRACKET ASSEMBLY.

(A) SIGNAL BELL CONTACT

NOTE 1

COMPLETE THE FOLLOWING ADJUSTMENTS WITH
 THE SIGNAL BELL CONTACT ASSEMBLY REMOVED
 FROM THE FUNCTION BOX FRONT PLATE.

- (1) REQUIREMENT
 CONTACT SPRINGS SHALL BE APPROXIMATELY
 PARALLEL TO TOP OF BRACKET.
 TO ADJUST
 BEND CONTACT SPRING.
- (2) REQUIREMENT
 MIN. 1 1/2 OZS.
 MAX. 2 1/2 OZS.
 WITH PULL APPLIED AT CONTACT POINT TO OPEN
 CONTACTS.
 TO ADJUST
 BEND UPPER CONTACT SPRING
- (3) REQUIREMENT
 THE CONTACT GUARD SHALL BE CENTRALLY LOCATED
 OVER THE CONTACT SPRINGS.
 TO ADJUST
 POSITION GUARD WITH MOUNTING NUTS LOOSENED.
 (GAGE BY EYE)

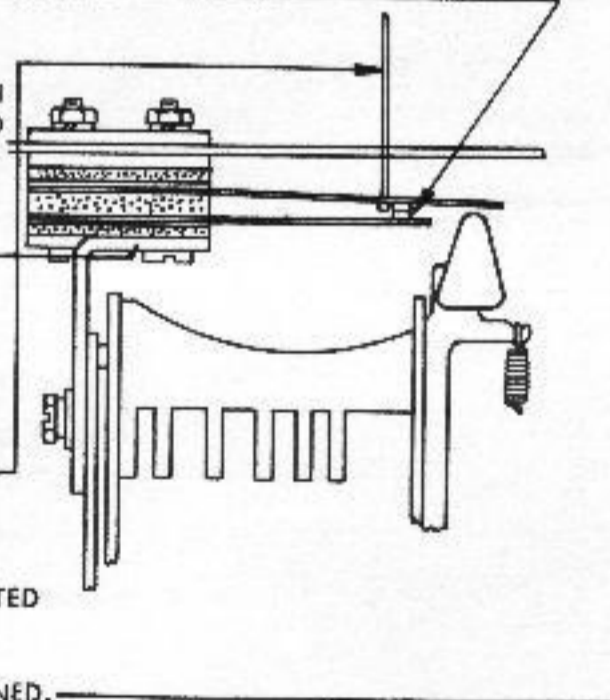


FIGURE 2-2. SIGNAL BELL CONTACT MECHANISM
 LATEST DESIGN

3. TAPE ABSENCE CONTACT ASSEMBLY(A) TAPE ABSENCE LONG CONTACT SPRINGREQUIREMENT

TAPE SENSING FINGER IN ITS EXTREME COUNTER-CLOCKWISE POSITION,
MIN. 35 GRAMS
MAX. 45 GRAMS

TO ADJUST
REMOVE GUARD. BEND LONG CONTACT SPRING.

(B) TAPE ABSENCE CONTACT ASSEMBLYPOSITION
REQUIREMENT

CONTACT POINTS ALIGNED, INSULATOR ON LONG CONTACT SPRING CENTRALLY LOCATED WITH SENSING FINGER EXTENSION.

TO ADJUST
WITH CONTACT ASSEMBLY GUARD REMOVED, MOUNTING SCREWS LOOSENED, POSITION CONTACT SPRINGS.

(D)

TAPE ABSENCE CONTACT ASSEMBLYGUARD POSITIONREQUIREMENT

THE GUARD SHOULD NOT INTERFERE WITH MOVEMENT OF SENSING FINGER.

TO ADJUST
WITH MOUNTING NUT LOOSENED, POSITION THE GUARD.

(C)

TAPE ABSENCE SHORT CONTACT SPRINGPOSITIONREQUIREMENT

TAPE SENSING FINGER IN ITS EXTREME COUNTER-CLOCKWISE POSITION,
MIN. 0.010 INCH
MAX. 0.020 INCH

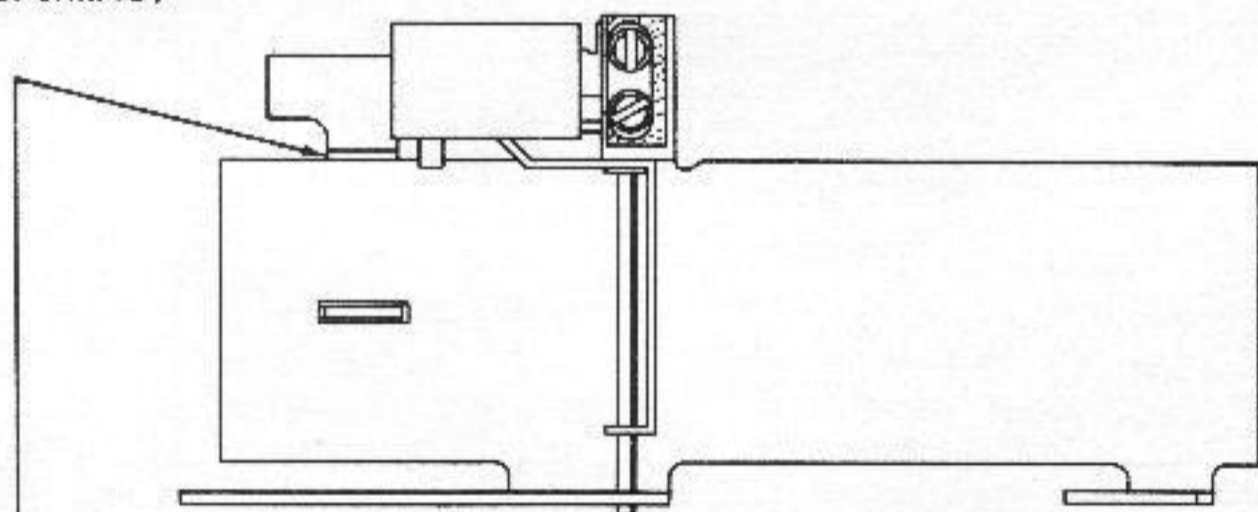
CLEARANCE BETWEEN SENSING FINGER EXTENSION AND CLOSEST POINT ON BAKELITE INSULATOR OF LONG CONTACT SPRING.

TO ADJUST
WITH GUARD REMOVED, BEND THE SHORT CONTACT SPRING.

(F) TAPE ABSENCE CONTACTS CABLE ASSEMBLYPOSITIONREQUIREMENT

THE CABLE ASSEMBLY FOR THE TAPE ABSENCE CONTACTS SHOULD BE ROUTED TOGETHER WITH THE SELECTOR MAGNET CABLE ASSEMBLY AND, IF PRESENT, THE CODE READING CONTACTS CABLE ASSEMBLY. FORM THE CABLES SO THAT THEY DO NOT INTERFERE WITH THE MOVEMENT OF THE TAPE SENSING FINGER.

TO ADJUST:
SECURE THE POSITION OF THE CABLE ASSEMBLIES BY MEANS OF AN APPROPRIATE CABLE CLAMP LOCATED BEHIND THE SELECTOR MAGNETS.

(E) TAPE ABSENCE CONTACTS SENSING FINGER END PLAYREQUIREMENT

THE END PLAY BETWEEN TAPE SENSING FINGER AND TAPE GUARD SHOULD BE:

MIN. 0.006 INCH

MAX. 0.035 INCH

TO ADJUST
BEND THE TAPE SENSING FINGER.

FIGURE 2-3. TAPE ABSENCE CONTACT MECHANISM

4. CODE READING AND TIMING CONTACTS

NOTE 1

UNLESS SPECIFICALLY STATED OTHERWISE, THE FOLLOWING CODE READING CONTACT ADJUSTMENTS APPLY TO BOTH THE TRANSFER (BREAK BEFORE MAKE) TYPE AND MAKE TYPE CONTACTS. WHEN AN ADJUSTMENT IS APPLICABLE TO BOTH TYPES, THE TRANSFER TYPE CONTACTS ARE USED IN THE ILLUSTRATIONS. WHEN TESTING THESE CONTACTS ON ASR SETS THE CONTROL KNOB SHOULD BE IN THE K-T POSITION.

NOTE 2

IT IS RECOMMENDED THAT THE FOLLOWING ADJUSTMENTS BE MADE WITH THE CODE READING CONTACT ASSEMBLY REMOVED FROM THE UNIT.

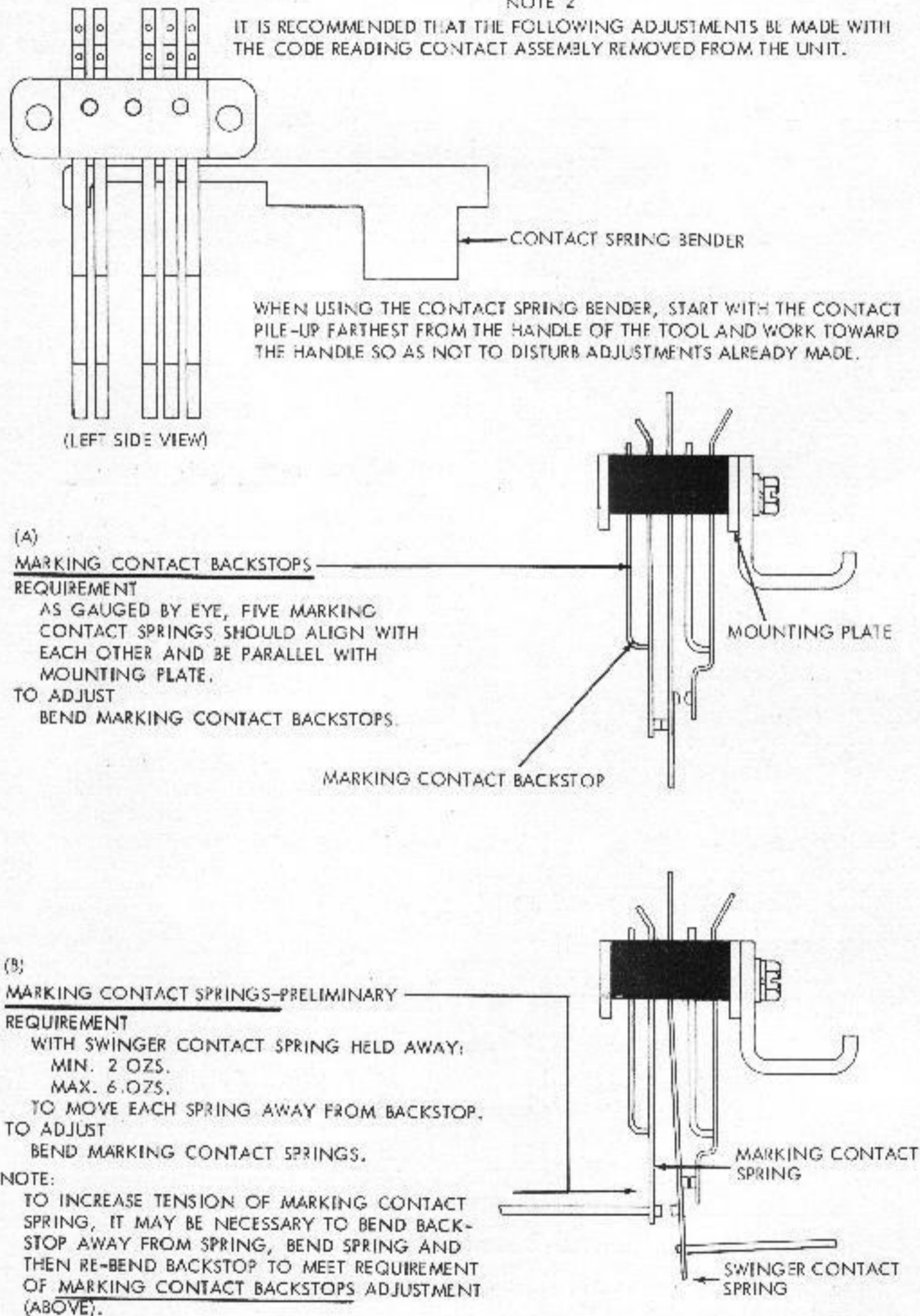
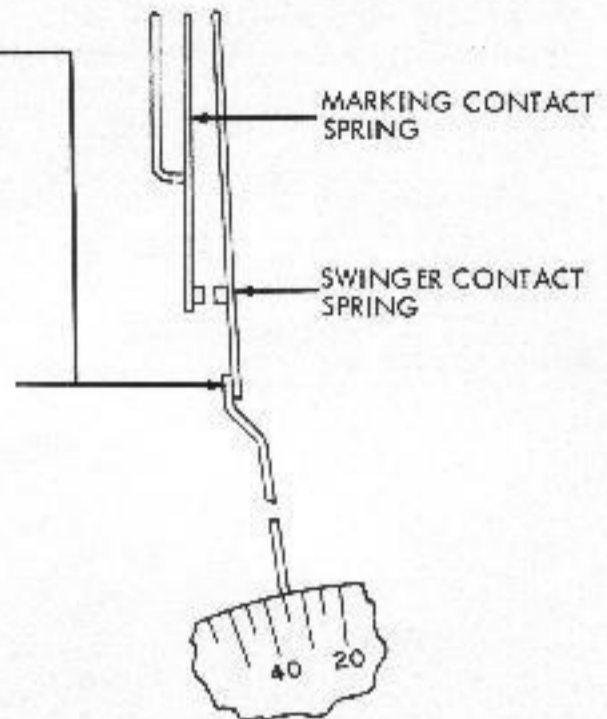


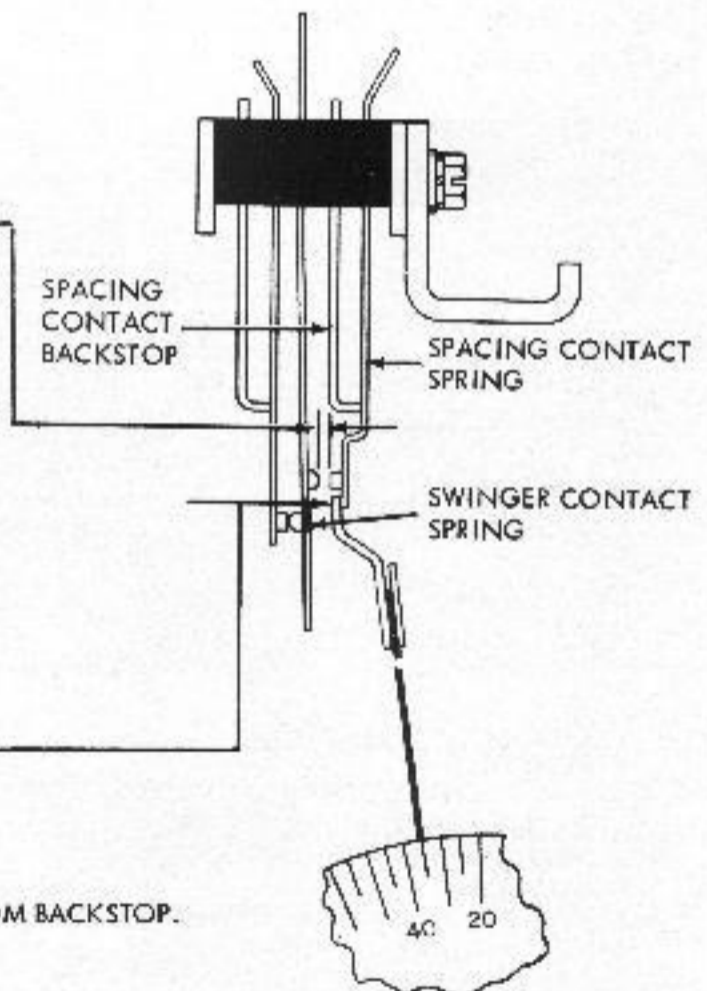
FIGURE 2-4. CODE READING CONTACTS

- (A) SWINGER CONTACT SPRINGS-PRELIMINARY REQUIREMENT
 MIN. 30 GRAMS
 MAX. 40 GRAMS
 TO OPEN MARKING CONTACTS.
 TO ADJUST
 BEND SWINGER CONTACT SPRINGS.



NOTE:
 SPACING CONTACTS (ON TRANSFER TYPE CONTACT ASSEMBLIES ONLY)
 ARE NORMALLY OPEN WHEN CONTACT ASSEMBLY IS REMOVED FROM UNIT.

- (B) SPACING CONTACT BACKSTOPS - PRELIMINARY (APPLIES TO TRANSFER TYPE CONTACTS ONLY) REQUIREMENT
 GAP BETWEEN SPACING CONTACTS
 MIN. 0.018 INCH
 MAX. 0.025 INCH
 TO ADJUST
 BEND SPACING CONTACT BACKSTOPS.



- (C) SPACING CONTACT SPRINGS-PRELIMINARY (APPLIES TO TRANSFER TYPE CONTACTS ONLY) REQUIREMENT
 MIN. 35 GRAMS
 MAX. 50 GRAMS
 TO MOVE EACH CONTACT SPRING AWAY FROM BACKSTOP.
 TO ADJUST
 BEND SPACING CONTACT SPRINGS.

NOTE:
 TO INCREASE TENSION OF SPRING, IT MAY BE NECESSARY TO BEND BACKSTOP AWAY FROM SPRING, BEND SPRING, AND THEN RE-BEND BACKSTOP TO MEET REQUIREMENT OF SPACING CONTACT BACKSTOPS ADJUSTMENT ABOVE.

FIGURE 2-5. CODE READING CONTACTS

NOTE:
THE FOLLOWING CODE READING CONTACT ADJUSTMENTS SHOULD
BE MADE WITH THE CONTACT ASSEMBLIES MOUNTED ON THE UNIT.

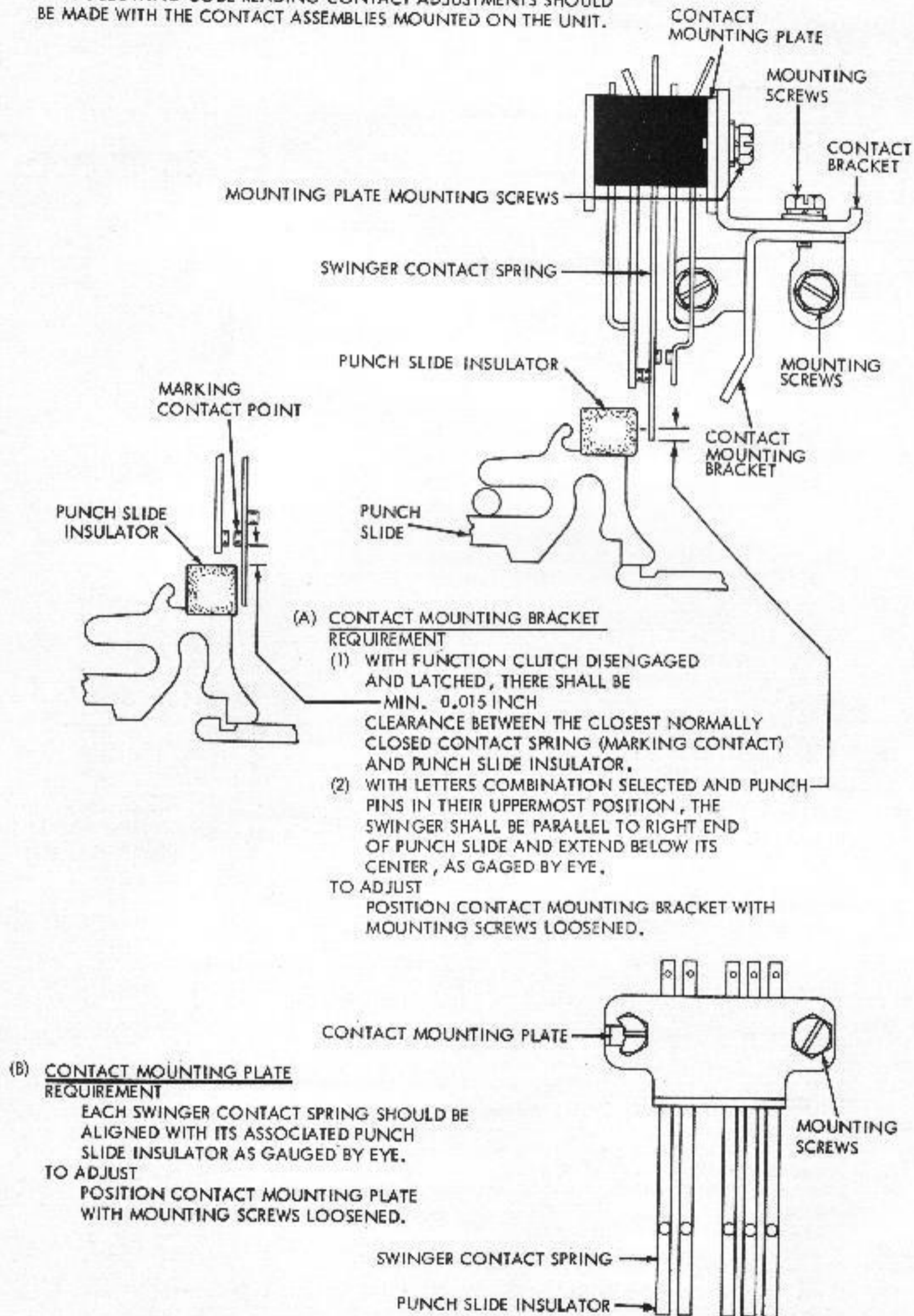
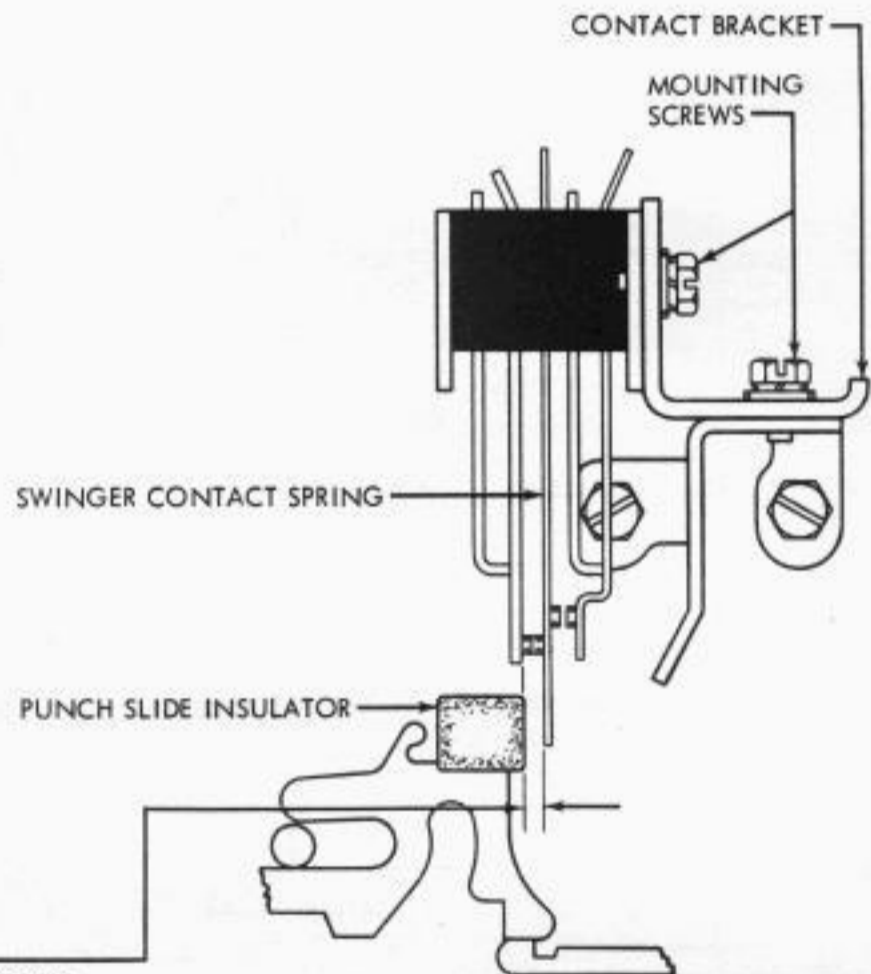
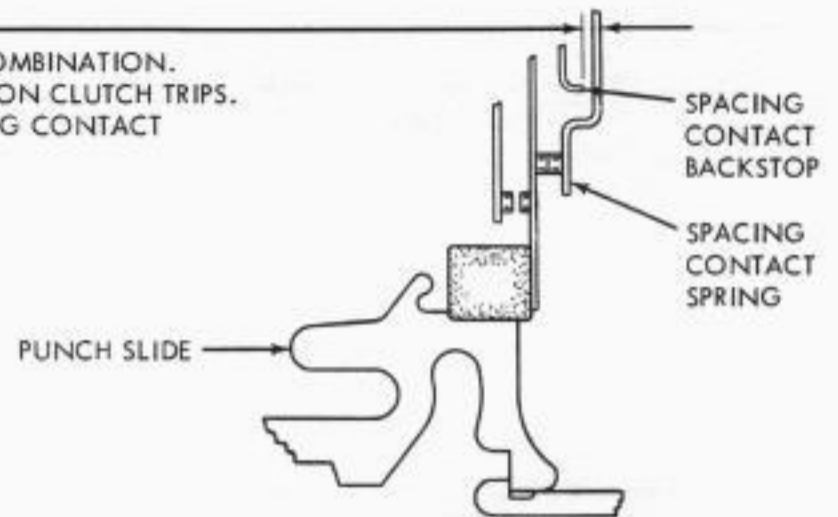


FIGURE 2-6. CODE READING CONTACTS

CONTACT BRACKET-PRELIMINARY (APPLIES TO TRANSFER TYPE CONTACTS ONLY)

(1) REQUIREMENT

MANUALLY SELECT BLANK CODE COMBINATION. ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. SOME CLEARANCE BETWEEN SPACING CONTACT SPRING AND ITS BACKSTOP. MAX. 0.008 INCH



(2) REQUIREMENT

MANUALLY SELECT LETTERS CODE COMBINATION. ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. CLEARANCE BETWEEN PUNCH SLIDE INSULATOR AND SWINGER CONTACT SPRING. MIN. 0.028 INCH

TO ADJUST

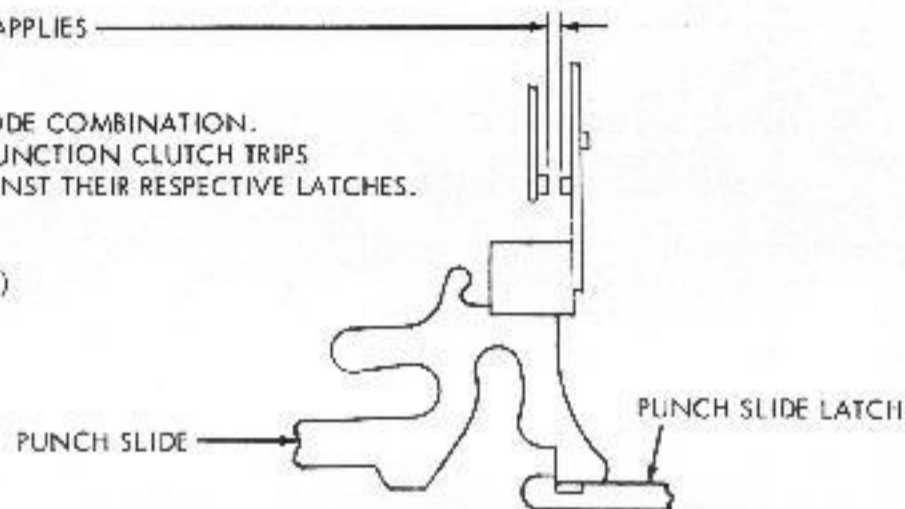
POSITION CONTACT BRACKET WITH ITS MOUNTING SCREWS. LOOSENED TO MEET REQUIREMENT (1). TO PRY BRACKET TO LEFT, INSERT SCREWDRIVER BETWEEN BRACKET AND LEFT EDGE OF MOUNTING SCREWS; TO PRY BRACKET TO RIGHT, INSERT SCREWDRIVER BETWEEN BRACKET AND RIGHT EDGE OF MOUNTING SCREWS. CHECK REQUIREMENT (2). IF NOT MET, REFINE ADJUSTMENT.

FIGURE 2-7. CODE READING CONTACTS

CONTACT BRACKET-PRELIMINARY (APPLIES TO MAKE TYPE CONTACTS ONLY)

(1) REQUIREMENT

MANUALLY SELECT BLANK CODE COMBINATION. ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS AND PUNCH SLIDES ARE AGAINST THEIR RESPECTIVE LATCHES. GAP BETWEEN CONTACTS.
MIN. 0.010 INCH
MAX. 0.015 INCH (SEE NOTE)

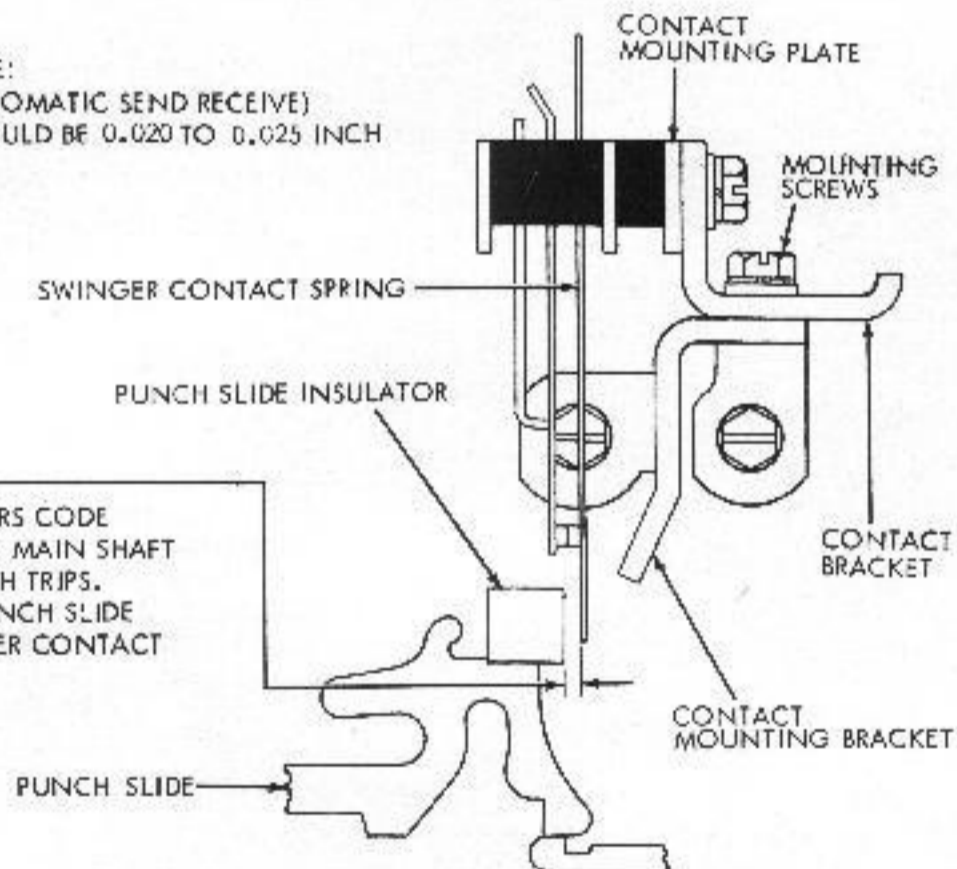


NOTE:

FOR UNITS USED ON ASR (AUTOMATIC SEND RECEIVE) SETS, THE CONTACT GAP SHOULD BE 0.020 TO 0.025 INCH

(2) REQUIREMENT

MANUALLY SELECT LETTERS CODE COMBINATION. ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. CLEARANCE BETWEEN PUNCH SLIDE INSULATOR AND SWINGER CONTACT SPRING:
MIN. 0.028 INCH



TO ADJUST

POSITION CONTACT BRACKET WITH MOUNTING SCREWS FRICTION TIGHT. TO PRY BRACKET TO LEFT, INSERT SCREW DRIVER BETWEEN BRACKET AND LEFT EDGE OF MOUNTING SCREW; TO PRY BRACKET TO RIGHT, INSERT SCREW DRIVER BETWEEN BRACKET AND RIGHT EDGE OF MOUNTING SCREW.

FIGURE 2-8. CODE READING CONTACTS

NOTE

THERE ARE TWO TYPES OF TIMING CONTACT ASSEMBLIES, SINGLE AND DOUBLE. SINGLE CONTACT ASSEMBLIES HAVE A FRONT CONTACT ONLY, NO REAR CONTACT. IF UNIT IS EQUIPPED WITH A DOUBLE CONTACT ASSEMBLY, THE FOLLOWING ADJUSTMENTS APPLY TO BOTH FRONT AND REAR CONTACTS.

NOTE:

IN CASE OF SINGLE-CONTACT ASSEMBLY, MAKE CERTAIN CONTACT BRACKET MOUNTING SCREWS ARE CENTRALLY LOCATED IN ELONGATED SLOTS, AND PROCEED TO NEXT ADJUSTMENT.

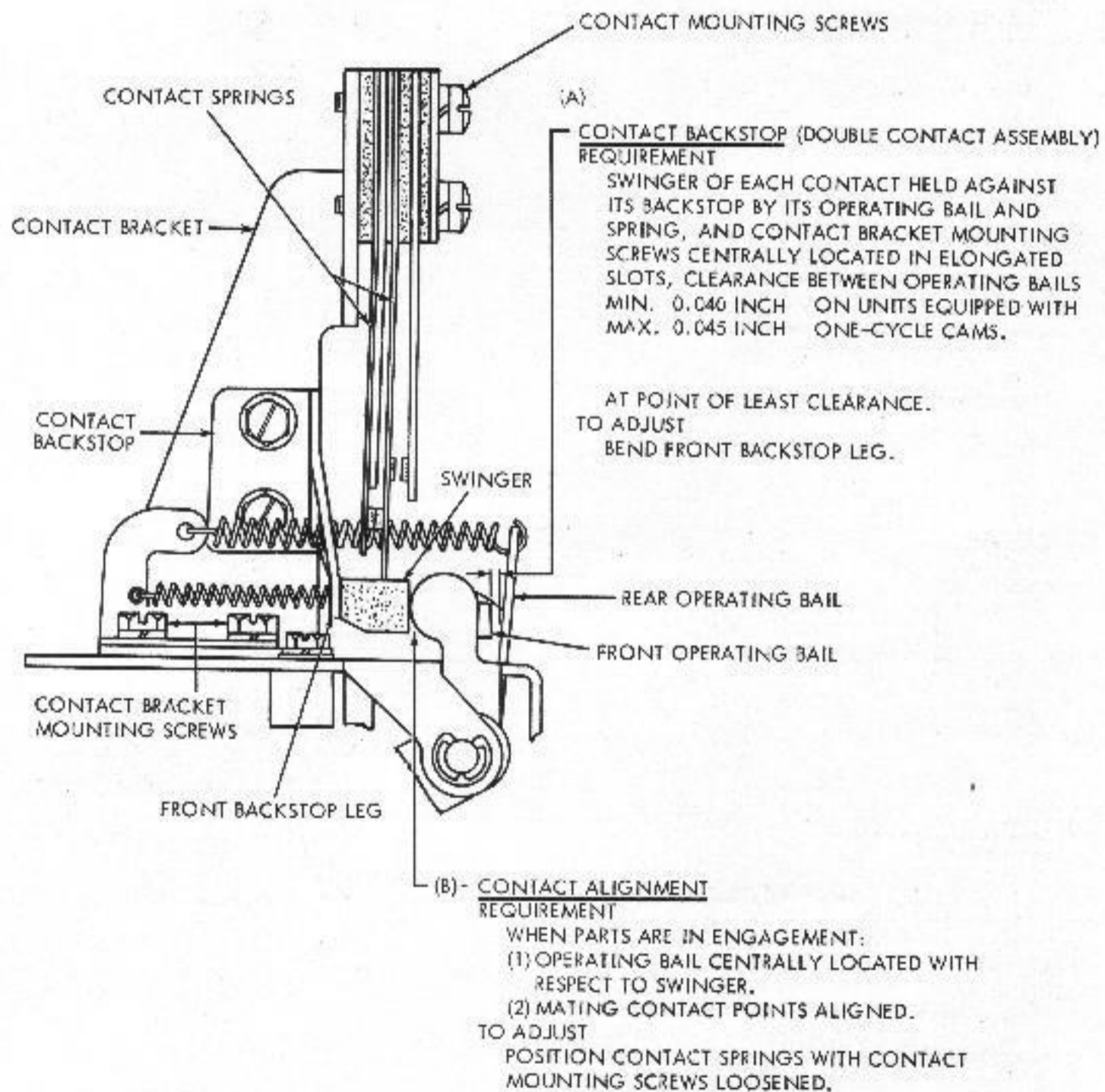


FIGURE 2-9. TIMING CONTACTS

NOTE:
IT IS RECOMMENDED THAT THE FOLLOWING TIMING CONTACT ADJUSTMENTS
BE MADE WITH CONTACT ASSEMBLIES REMOVED FROM THE UNIT.

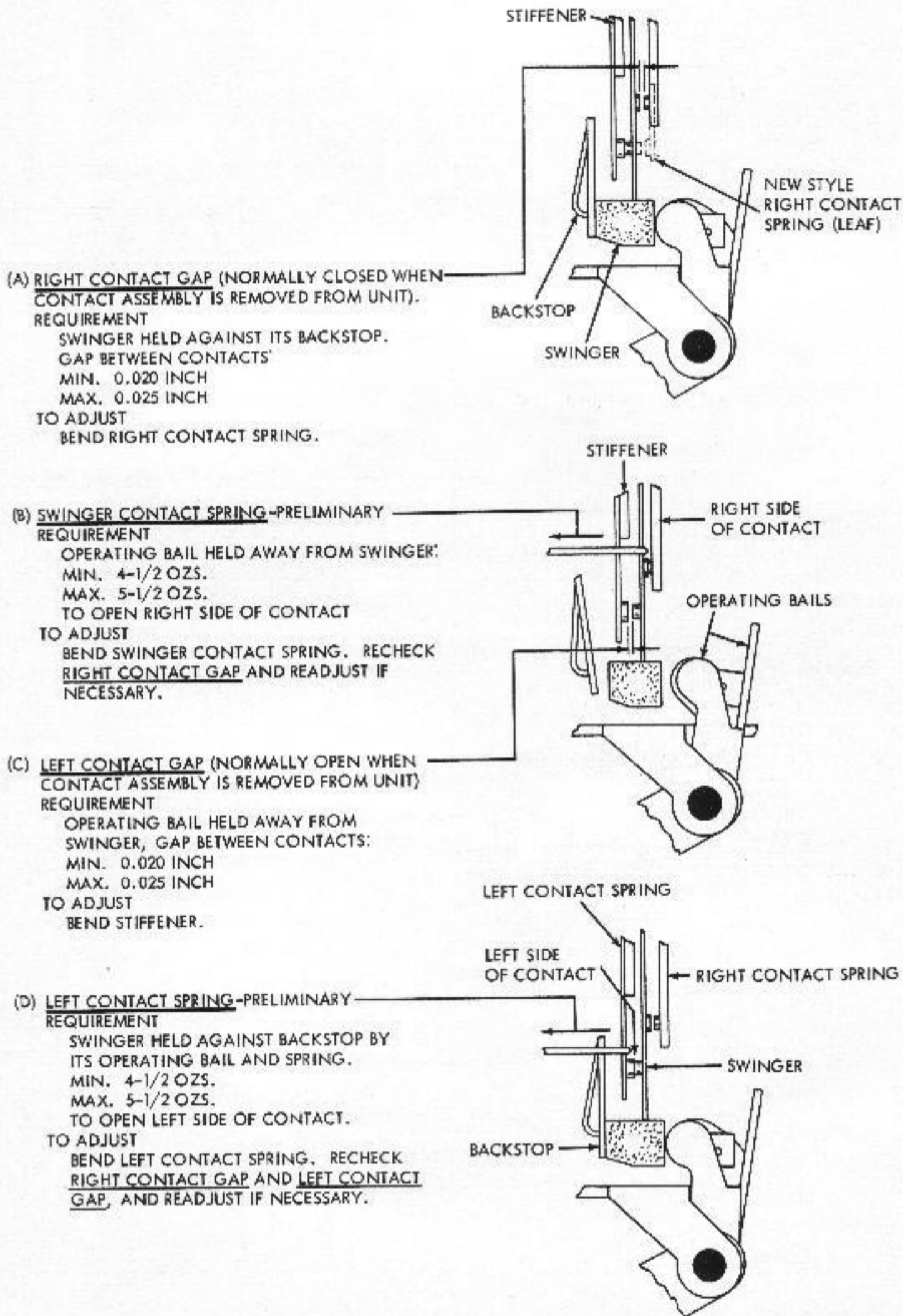


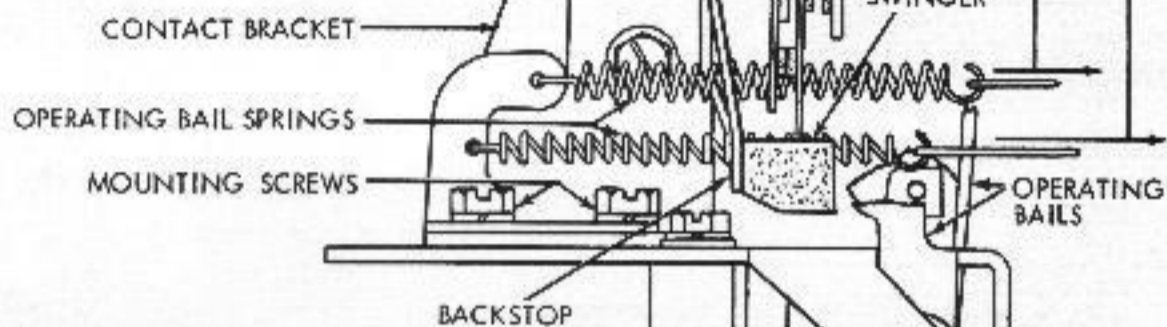
FIGURE 2-10. TIMING CONTACTS

NOTE:
THE FOLLOWING TIMING CONTACT ADJUSTMENTS SHOULD BE
MADE WITH CONTACT ASSEMBLY MOUNTED ON UNIT.

OPERATING BAIL SPRINGS

REQUIREMENT

OPERATING BAIL HELD SO THAT
SWINGER IS AGAINST BACKSTOP.
MIN. 7 OZS.
MAX. 12 OZS.
TO PULL SPRING TO INSTALLED
LENGTH.



**CONTACT BRACKET-PRELIMINARY (FOR UNITS
EQUIPPED WITH ONE-CYCLE CAMS)**

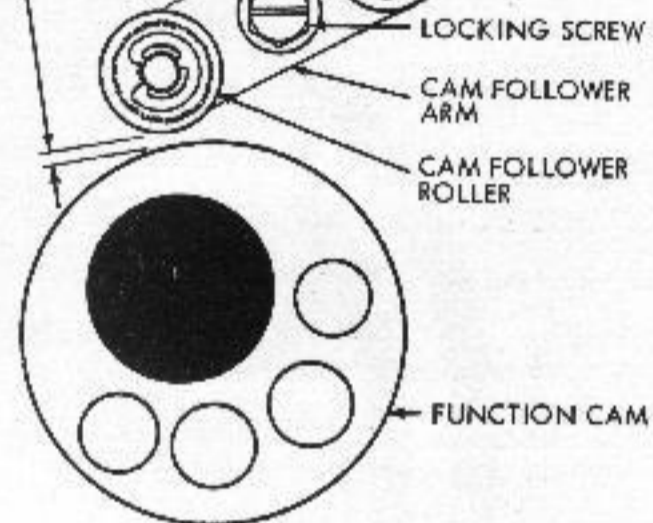
LOOSEN LOCKING SCREW. POSITION CAM
FOLLOWER ARM, BY MEANS OF ITS
ELONGATED MOUNTING HOLE, TO ITS
MINIMUM LENGTH ON OPERATING BAIL.
TIGHTEN LOCKING SCREW.

REQUIREMENT

SELECTOR AND FUNCTION CLUTCHES DISENGAGED
AND LATCHED. CLEARANCE BETWEEN CAM
FOLLOWER ROLLER AND FUNCTION CAM.
MIN. 0.050 INCH
MAX. 0.055 INCH

TO ADJUST

POSITION CONTACT BRACKET WITH MOUNTING
SCREWS LOOSENED.



NOTE:

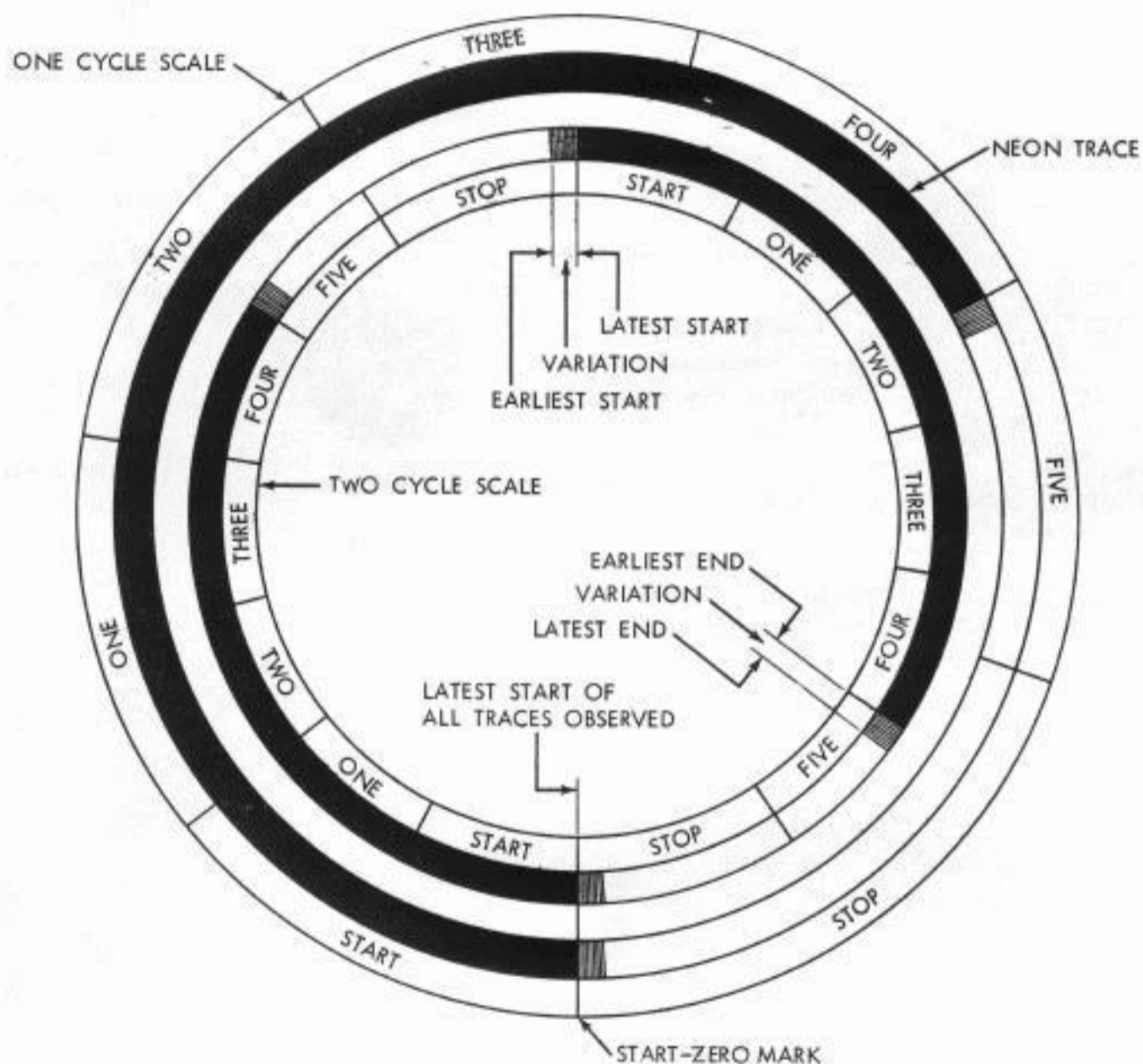
ON UNITS EQUIPPED WITH DOUBLE CONTACT ASSEMBLIES, RECHECK
CONTACT BACKSTOP ADJUSTMENT. IF REQUIREMENT IS NOT MET,
REFINE CONTACT BRACKET ADJUSTMENT.

FIGURE 2-11. TIMING CONTACTS

THE FOLLOWING TESTS REQUIRE THE USE OF A TELETYPE SIGNAL DISTORTION TEST SET. THEY SHOULD BE MADE AFTER THE CONTACT ASSEMBLIES HAVE BEEN ADJUSTED AS INSTRUCTED ON THE PRECEDING PAGES. WHERE REQUIREMENTS ARE NOT MET, DESIGNATED ADJUSTMENTS MUST BE REFINED, AND/OR RELATED LENGTHS MAY HAVE TO BE CHANGED TO MEET TIMING REQUIREMENTS.

TESTS ON 600 OPERATION PER MINUTE UNITS OR LOWER SHOULD BE MADE WITH THE PERFORATOR OR REPERFORATOR AND THE TEST SET OPERATING AT 600 O.P.M.
 TESTS ON 900 O.P.M. UNITS USED ON THE AUTOMATIC SEND-RECEIVE (ASR) SET SHOULD BE MADE WITH THE TEST SET OPERATING AT 600 O.P.M. AND USING KEYBOARD TRANSMISSION.
 TESTS ON 1200 O.P.M. UNITS SHOULD BE MADE WITH THE REPERFORATOR OPERATING AT 1200 O.P.M. AND THE TEST SET EQUIPPED WITH A TWO CYCLE SCALE AND OPERATING AT 600 O.P.M.

OBSERVATIONS ARE TO BE MADE OF A NEON TRACE ON THE GRADUATED DISK OF A TEST SET. TRACE WILL HAVE TENDENCY TO "JUMP"; THAT IS, IT WILL NOT BE STEADY ENOUGH TO BE ACCURATELY MEASURED. VARIATION MAY BE AS HIGH AS TEN DIVISIONS ON SCALE. MINIMUM SIGNAL LENGTH IS MEASURED BETWEEN LATEST START AND EARLIEST END OF ALL TRACES. MAXIMUM SIGNAL LENGTH IS MEASURED BETWEEN EARLIEST START AND LATEST END OF ALL TRACES.

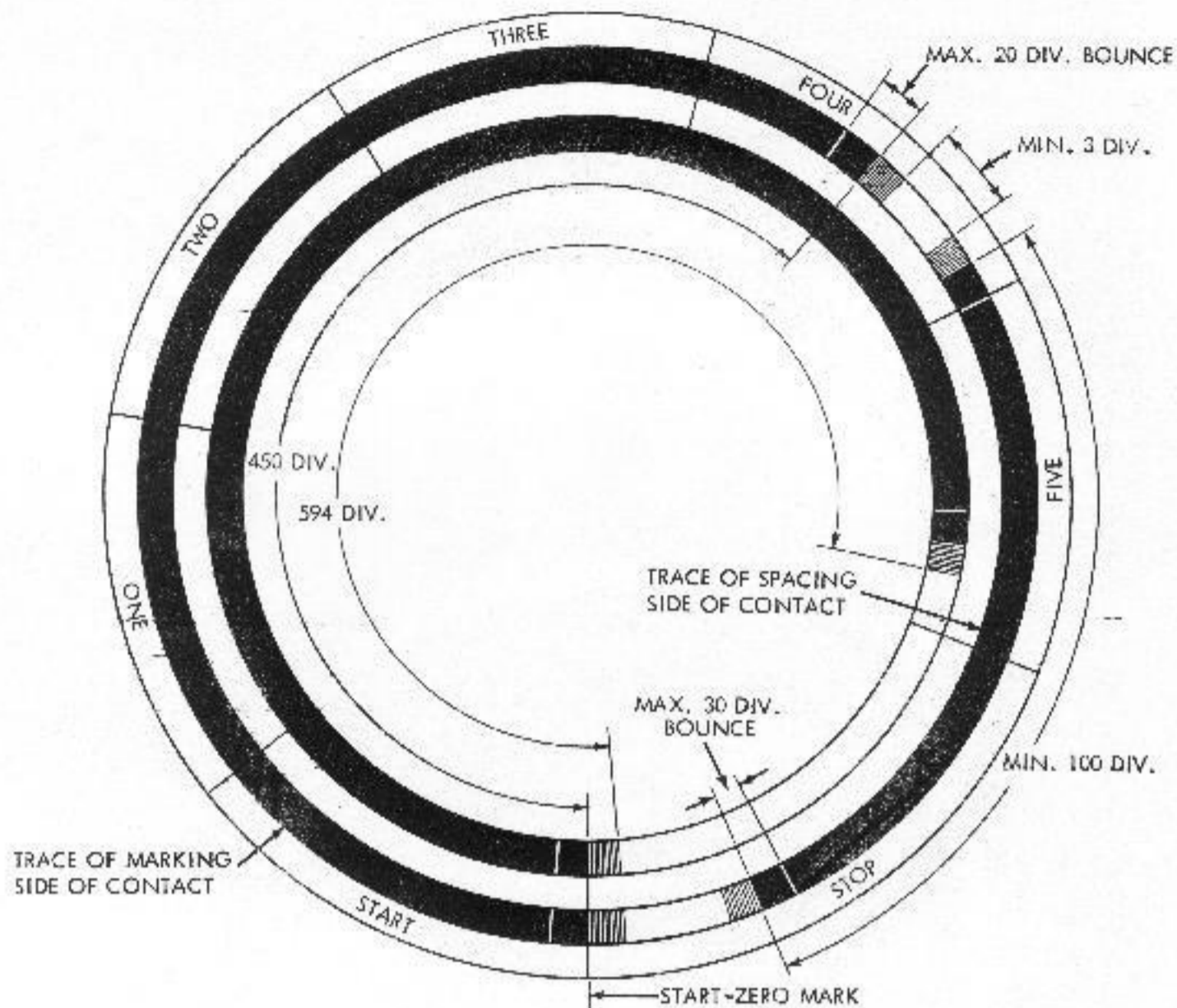


TO ZERO TEST SET

CONNECT NEON TRACE TO NO. 1 CODE READING CONTACT (REARMOST). WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE AND NOTE POINT AT WHICH TRACE ENDS. TRACES WILL JUMP AS DESCRIBED ABOVE; NOTE EARLIEST END OF TRACES. REPEAT FOR REMAINING CONTACTS. OF ALL TRACES OBSERVED, CHOOSE ONE THAT STARTS THE LATEST. SET "START-ZERO" MARK OF SCALE AT LATEST START OF CHOSEN TRACE. RECORD EARLIEST END OF CHOSEN TRACE FOR FUTURE ADJUSTMENT REFERENCES.

FIGURE 2-12. SIGNAL DISTORTION TEST SET

NOTE
TEST PROCEDURES ON THIS PAGE APPLY TO 600 O.P.M. UNITS OR LOWER ONLY.



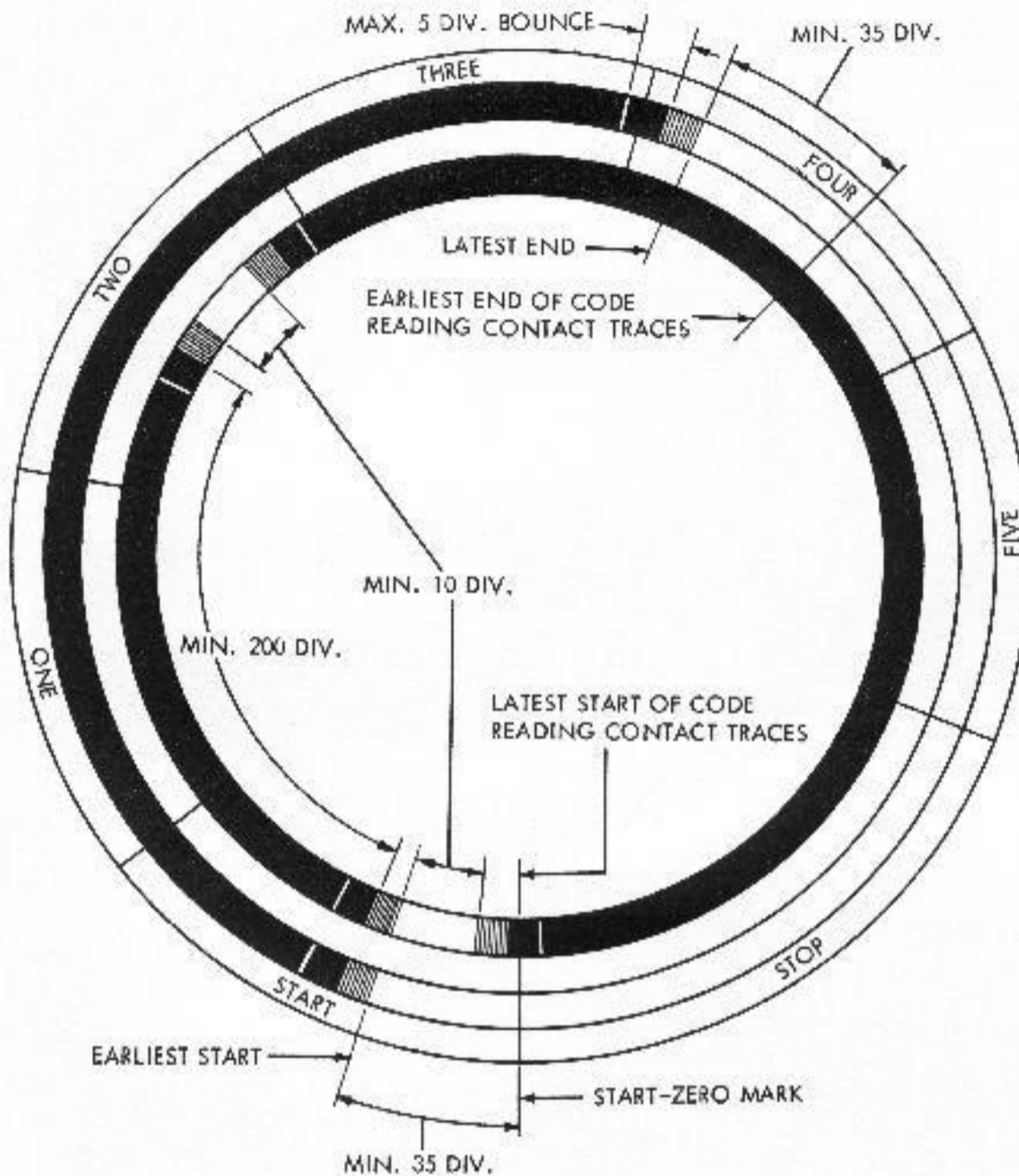
CODE READING CONTACTS

- (1) ZERO TEST SET AS PREVIOUSLY INSTRUCTED.
- (2) CONNECT NEON TRACE TO MARKING SIDE OF A CODE READING CONTACT (NORMALLY OPEN WHEN UNIT IS IN IDLE CONDITION). WITH UNIT RECEIVING CONTINUOUS LETTERS CODE COMBINATIONS, OBSERVE TRACE. REPEAT FOR ALL FIVE CONTACTS.
 - REQUIREMENTS
 - A. SIGNAL LENGTH FOR EACH CONTACT TRACE AND COMBINED CONTACT TRACES.
 - MIN. 450 DIVISIONS
 - MAX. 594 DIVISIONS
 - B. BOUNCE SHOULD END WITHIN MAX. OF 20 DIVISIONS OF EARLIEST START AND LATEST END OF ALL TRACES.
- (3) (APPLIES TO TRANSFER TYPE CONTACTS ONLY) CONNECT NEON TRACE TO BOTH SIDES OF CONTACT. WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE.
 - REQUIREMENTS
 - A. BREAK IN TRACE INDICATING BREAK BEFORE MAKE.
 - MIN. 3 DIVISIONS
 - B. SIGNAL LENGTH OF SPACING SIDE OF CONTACT
 - MIN. 100 DIVISIONS
 - C. BOUNCE SHOULD END WITHIN 30 DIVISIONS OF EARLIEST START AND LATEST END OF TRACE.
- (4) TO ADJUST
 - A. IF REQUIREMENTS UNDER (2) A., (3) A., OR (3) B. ARE NOT MET, REFINE CONTACT BRACKET ADJUSTMENT. WHEN REFINING (2) A., ATTEMPT TO ADJUST TOWARD MAXIMUM SIGNAL LENGTH.
 - B. IF BOUNCE REQUIREMENTS UNDER (2) B. AND (3) C. ARE NOT MET, REFINE MARKING AND SWINGER CONTACT SPRING AND SPACING CONTACT SPRING TENSIONS.
 - C. IF ANY REFINEMENTS ARE NECESSARY, REPEAT COMPLETE TEST PROCEDURE.

FIGURE 2-13. SIGNAL DISTORTION TEST SET

NOTE:

TEST PROCEDURES ON THIS PAGE AND THE FOLLOWING PAGE APPLY ONLY TO 600 O.P.M. UNITS (WESTERN UNION PLAN 55 SYSTEM) USING ONE-CYCLE CAMS.

**TIMING CONTACTS**

(1) ZERO TEST SET AS PREVIOUSLY DESCRIBED.

(2) FRONT CONTACT

A. CONNECT NEON TRACE TO RIGHT SIDE OF FRONT CONTACT (NORMALLY OPEN WHEN UNIT IS IN IDLE CONDITION). WITH UNIT RECEIVING CONTINUOUS LETTERS CODE COMBINATIONS, OBSERVE TRACE.

REQUIREMENTS

1. LATEST END MIN. OF 35 DIVISIONS BEFORE EARLIEST END OF CODE READING CONTACT TRACES.
2. EARLIEST START MIN. OF 35 DIVISIONS AFTER LATEST START OF CODE READING CONTACT TRACES.
3. MIN. TRACE LENGTH 200 DIVISIONS.
4. BOUNCE SHOULD END WITHIN MAX. 5 DIVISIONS OF EARLIEST START AND LATEST END OF ANY TRACE.

B. RECORD LATEST START AND EARLIEST END OF TRACE.

C. (APPLIES ONLY IF COMPLETE TRANSFER CONTACT IS USED). CONNECT NEON TRACE TO BOTH SIDES OF FRONT CONTACT. OBSERVE TRACE.

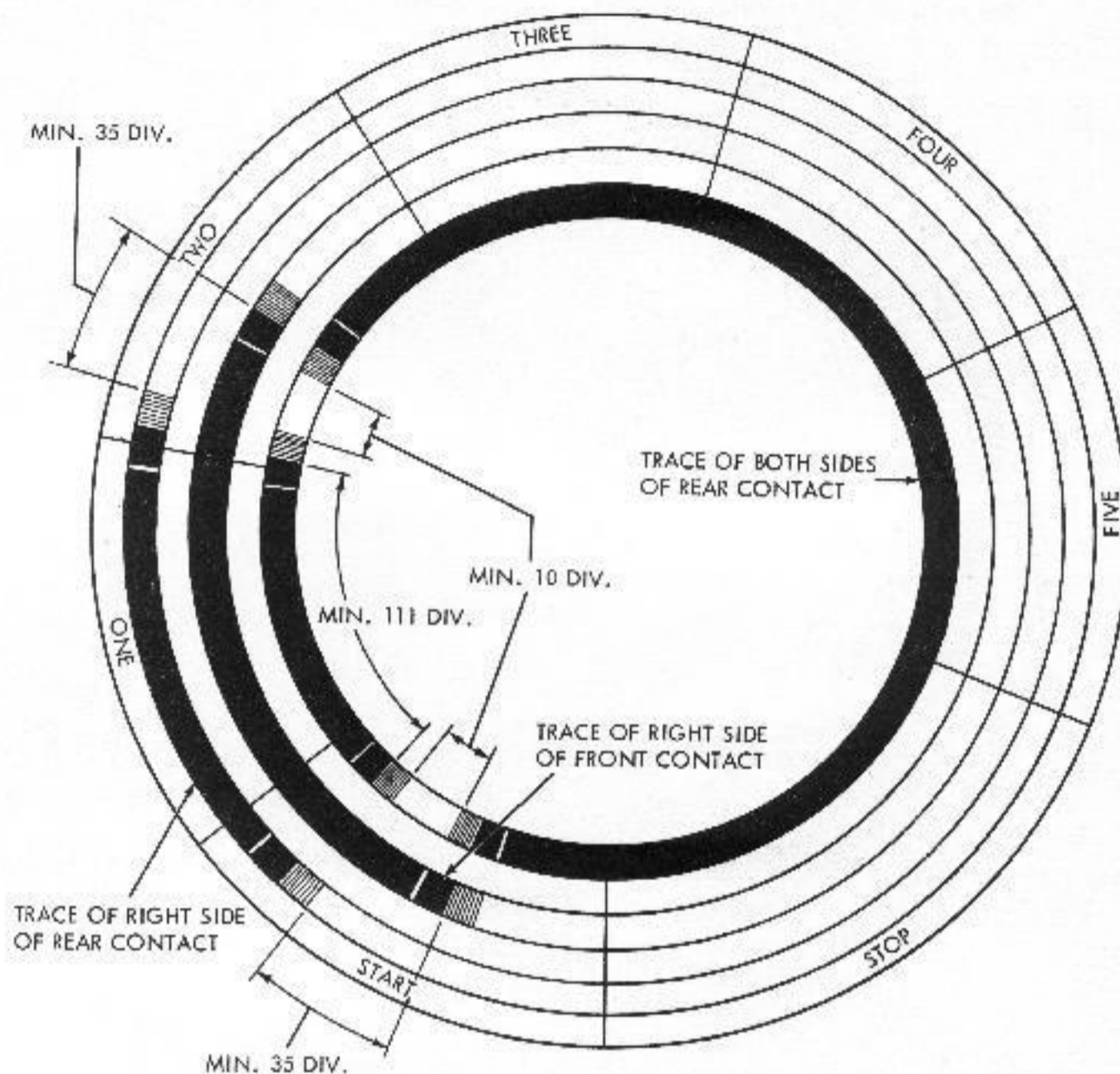
REQUIREMENT

- I. BREAK IN TRACE AT TWO PLACES TO INDICATE BREAK BEFORE MAKE. MIN. 10 DIVISIONS

(TEST CONTINUED ON NEXT PAGE)

FIGURE 2-14. SIGNAL DISTORTION TEST SET

TIMING CONTACTS CONT'D



(3) REAR CONTACT

A. CONNECT NEON TRACE TO RIGHT SIDE OF REAR CONTACT (NORMALLY OPEN WHEN UNIT IS IN IDLE CONDITION). WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE.

REQUIREMENTS

1. LATEST END OF TRACE MIN. OF 35 DIVISIONS BEFORE EARLIEST END OF TRACE OF RIGHT SIDE OF FRONT CONTACT RECORDED IN (2) B.
2. MIN. TRACE LENGTH 111 DIVISIONS.
3. EARLIEST START OF TRACE MIN. OF 35 DIVISIONS AFTER LATEST START OF TRACE OF RIGHT SIDE OF FRONT CONTACT RECORDED IN (2) B.
4. BOUNCE SHOULD END WITHIN MAX. 5 DIVISIONS OF EARLIEST START AND LATEST END OF ANY TRACE.

B. (APPLIES ONLY IF COMPLETE TRANSFER CONTACT IS USED). CONNECT NEON TRACE TO BOTH SIDES OF REAR CONTACT. OBSERVE TRACE.

REQUIREMENTS

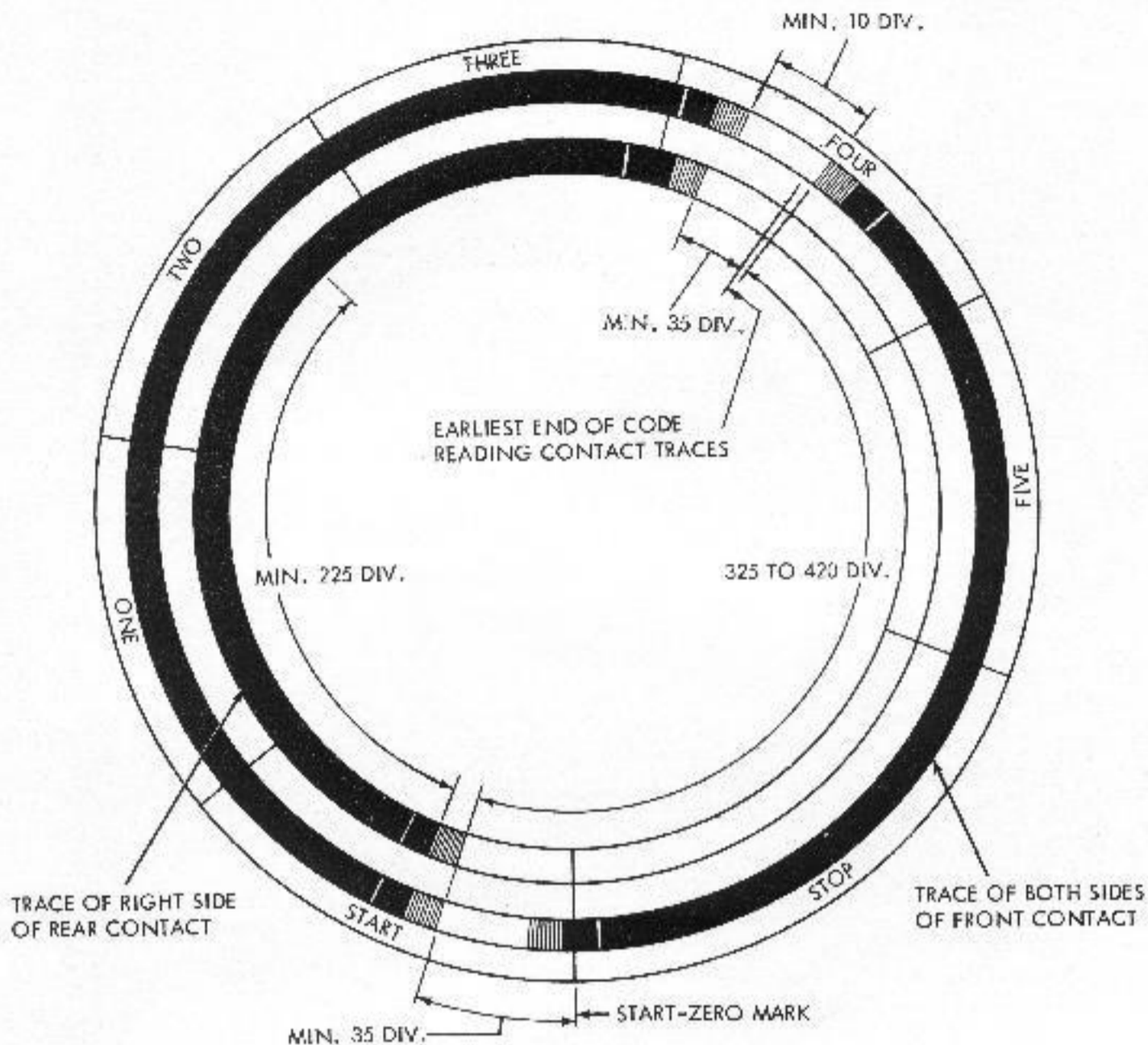
1. BREAK IN TRACE AT TWO PLACES TO INDICATE BREAK BEFORE MAKE. MIN. 10 DIVISIONS

(4) TO ADJUST

- A. IF TRACE LENGTHS UNDER (2) A. 3. AND (3) A. 2. ARE BOTH SHORT, REFINE CONTACT BRACKET ADJUSTMENT. IF ONLY ONE TRACE IS SHORT, REFINE CONTACT BACKSTOP ADJUSTMENT AND CHECK RIGHT CONTACT GAP, LEFT CONTACT GAP, SWINGER CONTACT SPRING, AND LEFT CONTACT SPRING ADJUSTMENTS.
- B. IF BREAK BEFORE MAKE REQUIREMENTS UNDER (2) C. 1. AND (3) B. 1. ARE NOT MET, REFINE RIGHT CONTACT GAP, LEFT CONTACT GAP, SWINGER CONTACT SPRING, AND LEFT CONTACT SPRING ADJUSTMENTS.
- C. IF ANY REFINEMENTS ARE NECESSARY, REPEAT COMPLETE TEST PROCEDURE.

FIGURE 2-15. SIGNAL DISTORTION TEST SET

TEST PROCEDURES ON THIS PAGE APPLY ONLY TO 600 O.P.M. UNITS (BELL 82B1 SYSTEM) USING ONE-CYCLE-CAMS.



TIMING CONTACTS

- (1) ZERO TEST SET AS PREVIOUSLY DESCRIBED.
- (2) REAR CONTACT
 - A. CONNECT NEON TRACE TO RIGHT SIDE OF REAR CONTACT (NORMALLY OPEN WHEN UNIT IS IN IDLE CONDITION). WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE. REQUIREMENTS
 1. EARLIEST START MIN. OF 35 DIVISIONS AFTER START ZERO MARK.
 2. LATEST END MIN. OF 35 DIVISIONS BEFORE EARLIEST END OF CODE READING CONTACT TRACES RECORDED WHEN ZEROING TEST SET.
 3. MIN. TRACE LENGTH 225 DIVISIONS.
 4. BOUNCE SHOULD END WITHIN MAX. 5 DIVISIONS OF START AND END OF ANY TRACE.
- (3) FRONT CONTACT
 - A. CONNECT NEON TRACE TO BOTH SIDES OF FRONT CONTACT. WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE. REQUIREMENTS
 1. BREAK IN TRACE TO INDICATE BREAK BEFORE MAKE. MIN. 10 DIVISIONS
 2. BETWEEN EARLIEST STARTS OF TRACES OF RIGHT AND LEFT (NORMALLY OPEN AND NORMALLY CLOSED) SIDES OF CONTACT. MIN. 325 DIVISIONS---MAX. 420 DIVISIONS
 3. BOUNCE SHOULD END WITHIN MAX. 5 DIVISIONS OF EARLIEST START AND LATEST END OF ANY TRACE.
- (4) TO ADJUST
 - A. IF TIMING REQUIREMENTS UNDER (2) A. 1., 2., 3., AND (3) A. 1. AND 2. ARE NOT MET, REFINE CONTACT BRACKET ADJUSTMENT AND/OR RIGHT CONTACT GAP, LEFT CONTACT GAP, SWINGER CONTACT SPRING, AND LEFT CONTACT SPRING ADJUSTMENTS.
 - B. IF BOUNCE REQUIREMENTS UNDER (2) A. 4. AND (3) A. 3. ARE NOT MET, REFINE SWINGER CONTACT SPRING AND LEFT CONTACT SPRING TENSIONS.
 - C. IF ANY REFINEMENTS ARE NECESSARY, REPEAT COMPLETE TEST PROCEDURE.

FIGURE 2-15 SIGNAL DISTORTION TEST SET

5. LETTERS-FIGURES CONTACT LATEST DESIGN

FOR EARLIER DESIGN OF THIS MECHANISM, SEE FIGURE 5-5.

NOTE:

TO FACILITATE CONTACT SPRING ADJUSTMENT,
(A) REMOVE CONTACT ASSEMBLY FROM UNIT.MIDDLE CONTACT SPRING

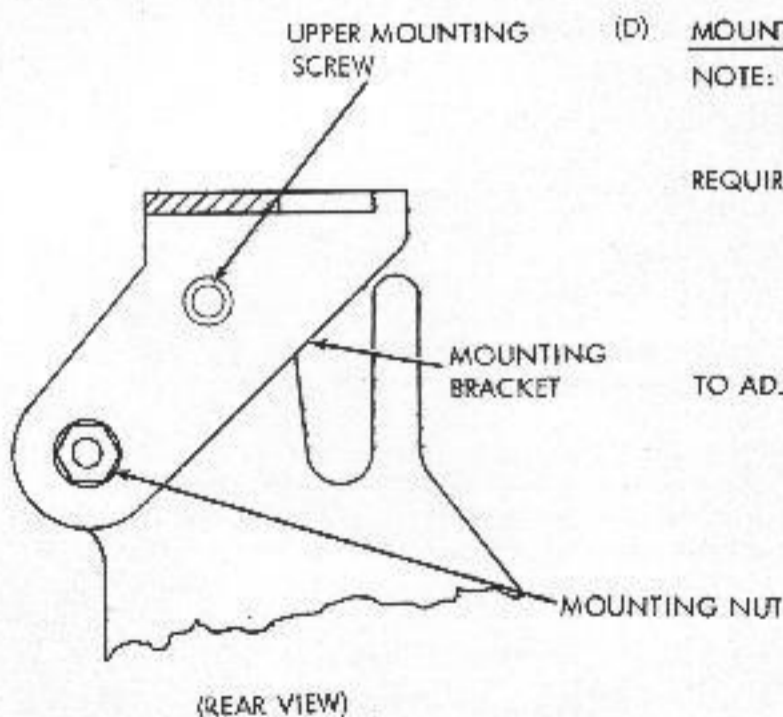
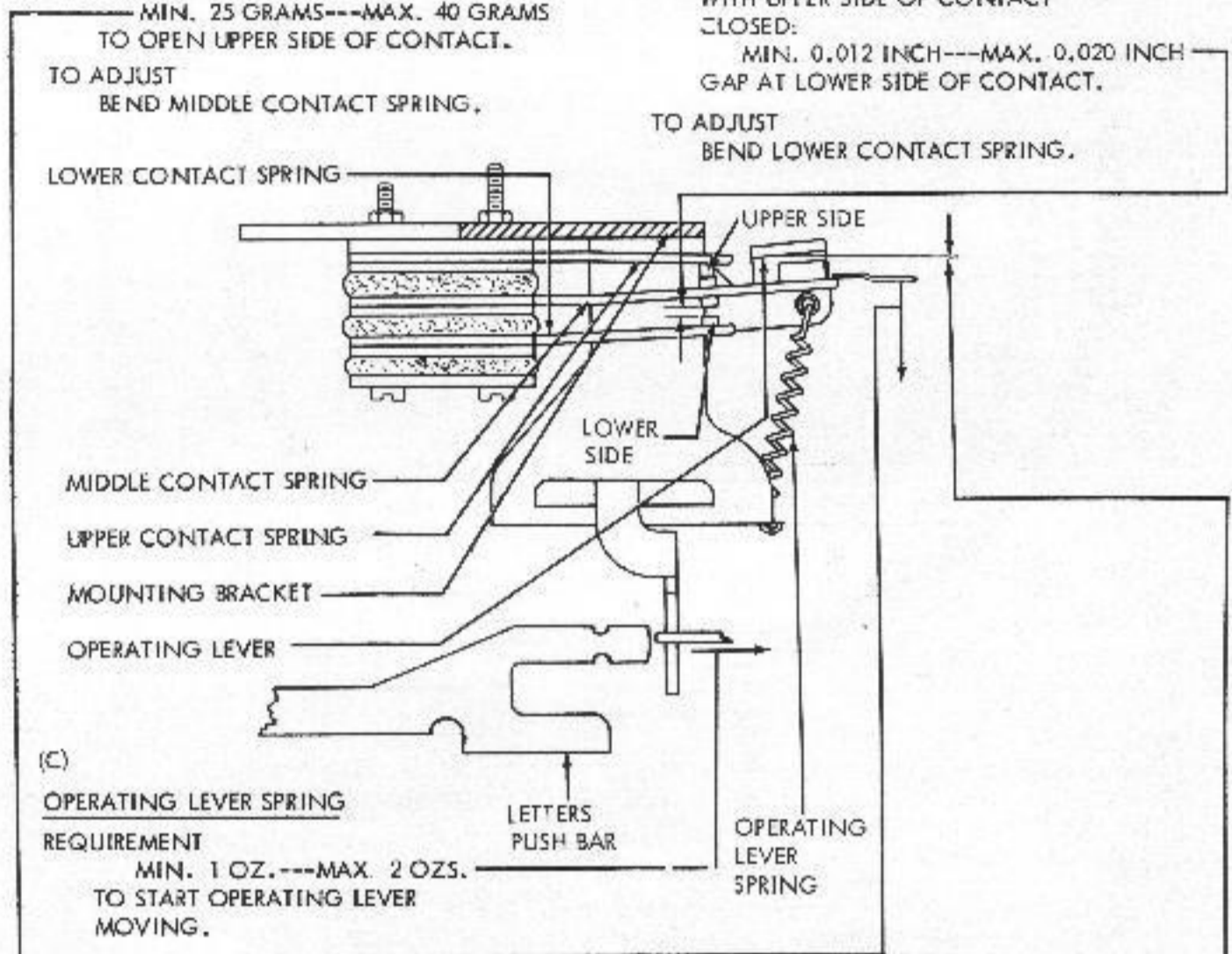
REQUIREMENT

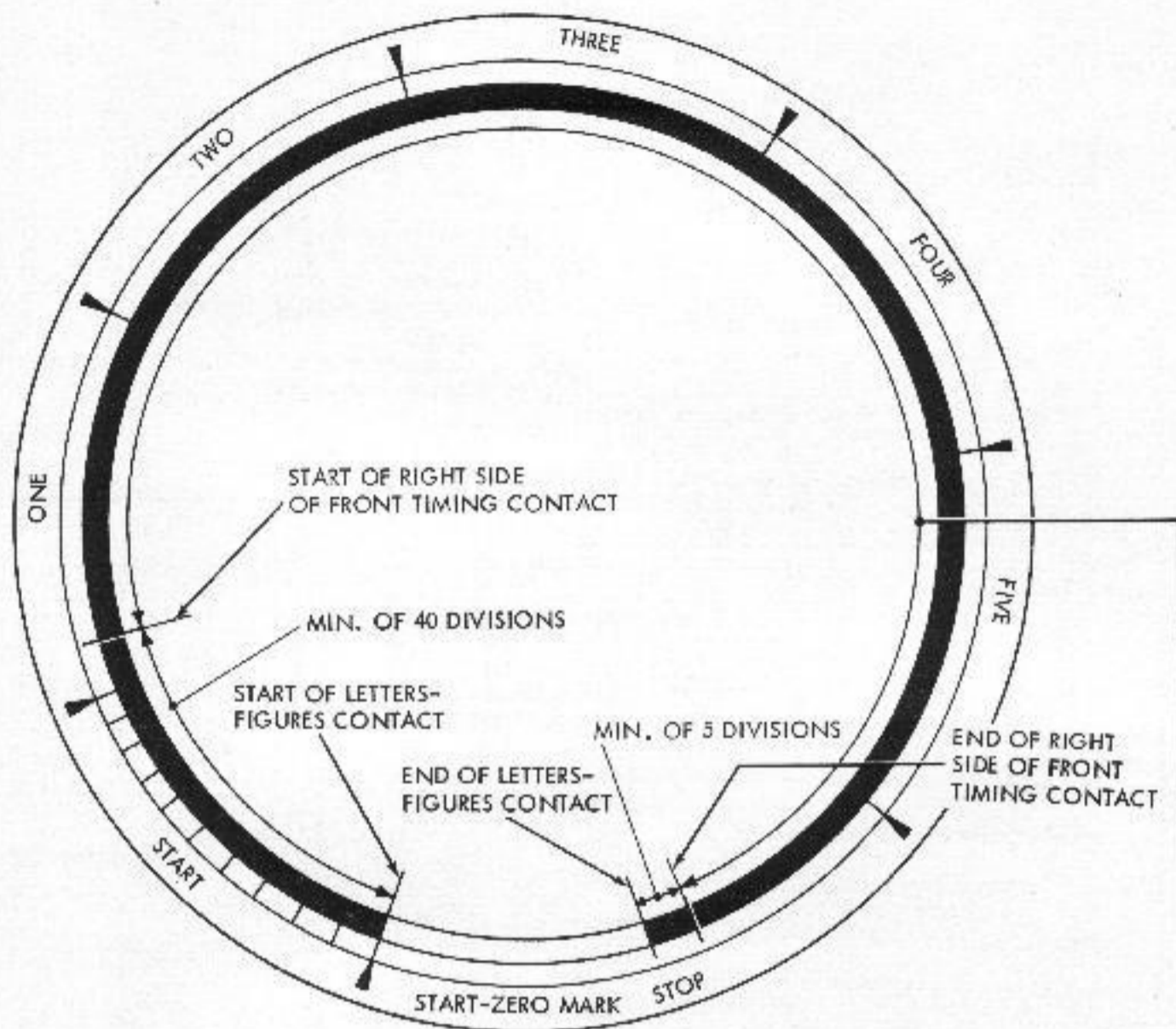
MIN. 25 GRAMS---MAX. 40 GRAMS
TO OPEN UPPER SIDE OF CONTACT.TO ADJUST
BEND MIDDLE CONTACT SPRING.LOWER CONTACT SPRING

(B)

LOWER CONTACT SPRING

REQUIREMENT

WITH UPPER SIDE OF CONTACT
CLOSED:MIN. 0.012 INCH---MAX. 0.020 INCH
GAP AT LOWER SIDE OF CONTACT.TO ADJUST
BEND LOWER CONTACT SPRING.FIGURE 2-17. LETTERS-FIGURES CONTACT MECHANISM
LATEST DESIGN



THE FOLLOWING TEST IS MADE BY MEANS OF TELETYPE SIGNAL DISTORTION TEST SET. IT SHOULD BE MADE AFTER ADJUSTMENTS IN FIGURE 2-17. ARE COMPLETED.

IF TEST REQUIREMENTS ARE NOT MET, REFINE ADJUSTMENTS IN FIGURE 2-17.

IF UNIT IS EQUIPPED WITH CODE READING AND/OR TIMING CONTACTS, TEST IS TO BE MADE AFTER INSTALLATION AND ADJUSTMENT OF THESE CONTACTS (SEE FIGURES 2-4 THROUGH 2-16).

LETTERS FIGURES CONTACT TEST

TO CHECK

CONNECT CABLE LEADS OF LETTERS-FIGURES CONTACT TO NEON TRACE LAMP OF SIGNAL DISTORTION TEST SET. SET CONTROL SWITCHES OF TEST SET TO FOLLOWING POSITIONS: (1) VIEW-TRANSMIT SWITCH TO VIEW; (2) LINE-DIST. SWITCH TO LINE; AND MOTOR SWITCH TO ON. ALTERNATELY SELECT LETTERS (12345) AND FIGURES (12-45). SET START-ZERO MARK OF TEST-SET SCALE AT START OF CONTACT TRACE. CONNECT RIGHT SIDE OF FRONT TIMING CONTACT (PROBE) TO NEON TRACE LAMP; RECORD START AND END OF TRACE. RECONNECT LETTERS-FIGURES CONTACT TO TRACE LAMP AND ALTERNATELY SELECT LETTERS AND FIGURES.

REQUIREMENT

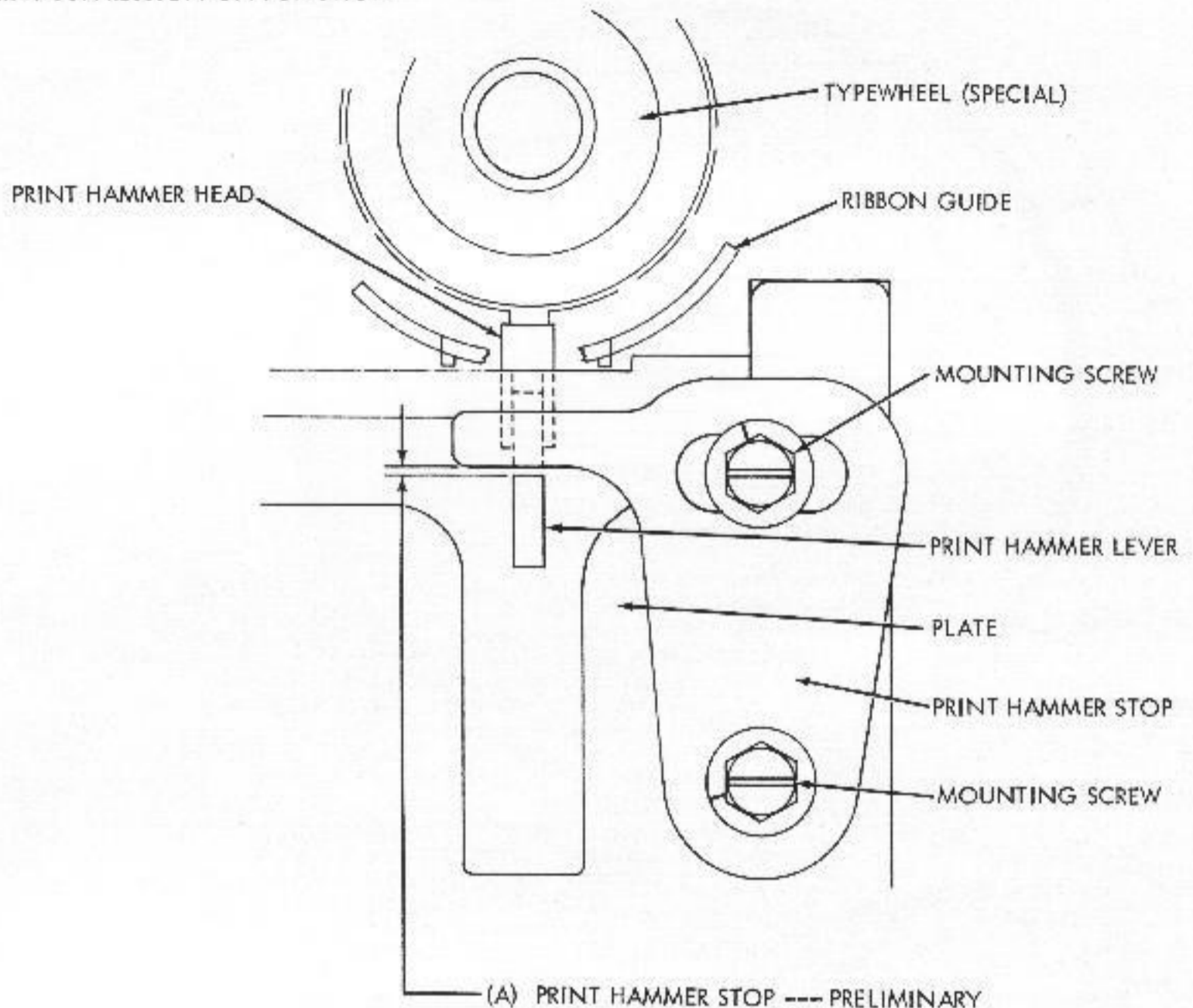
- (1) NO CHATTER OR BOUNCE OF LETTERS-FIGURES CONTACT DURING TIME WHEN TIMING CONTACT IS CLOSED.
- (2) TRACE OF LETTERS-FIGURES CONTACT START MIN. OF 40 DIVISIONS BEFORE START OF TRACE OF TIMING CONTACT AND END MIN. OF 5 DIVISIONS AFTER END OF TIMING CONTACT.

TO ADJUST

- (1) IF (1) OF REQUIREMENT IS NOT MET, REFINE MIDDLE AND LOWER CONTACT SPRING ADJUSTMENTS (SEE FIGURE 2-17).
- (2) IF (2) OF REQUIREMENT IS NOT MET, REFINE MOUNTING BRACKET ADJUSTMENT (SEE FIGURE 2-17).

FIGURE 2-18. SIGNAL DISTORTION TEST SET

6. PRINT SUPPRESSION ON FUNCTION



WITH HEAD OF PRINT HAMMER AGAINST CHARACTER ON TYPEWHEEL
 MIN. SOME --- MAX. 0.010 INCH
 CLEARANCE BETWEEN PRINT HAMMER
 LEVER AND PRINT HAMMER STOP.

TO ADJUST

WITH MOUNTING SCREWS LOOSENED POSITION
 PRINT HAMMER STOP BY MEANS OF ITS
 ELONGATED UPPER HOLE.

(B) PRINT HAMMER STOP --- FINAL REQUIREMENT

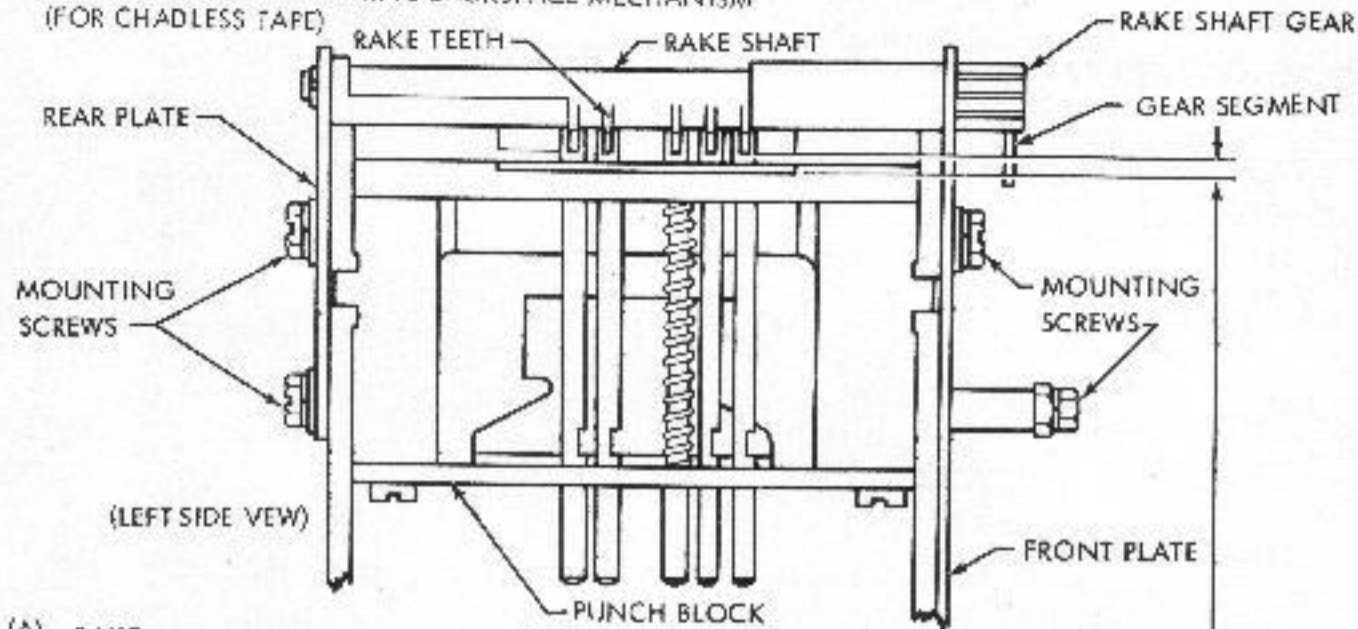
WITH UNIT OPERATING UNDER POWER, THE
 AMOUNT OF SMUDGE SHALL BE HELD TO
 A MINIMUM WHERE PRINT SUPPRESSION IS
 REQUIRED.

TO ADJUST

REFINE PRINT HAMMER STOP PRELIMINARY
 ADJUSTMENT.

FIGURE 2-19. PRINT SUPPRESSION ON FUNCTION MECHANISM

7. MANUAL AND POWER DRIVE BACKSPACE MECHANISM
(FOR CHADLESS TAPE)



(A) RAKE

(1) REQUIREMENT

WITH ROTATIONAL PLAY TAKEN UP TO LEFT, BOTTOM SURFACE OF RAKE TEETH SHOULD BE IN SAME VERTICAL PLANE AS LEFT SIDE OF PUNCH BLOCK.

TO ADJUST

REMOVE TWO MOUNTING SCREWS FROM REAR PLATE. POSITION RAKE SHAFT GEAR IN RELATION TO GEAR SEGMENT. REPLACE MOUNTING SCREWS.

(2) REQUIREMENT

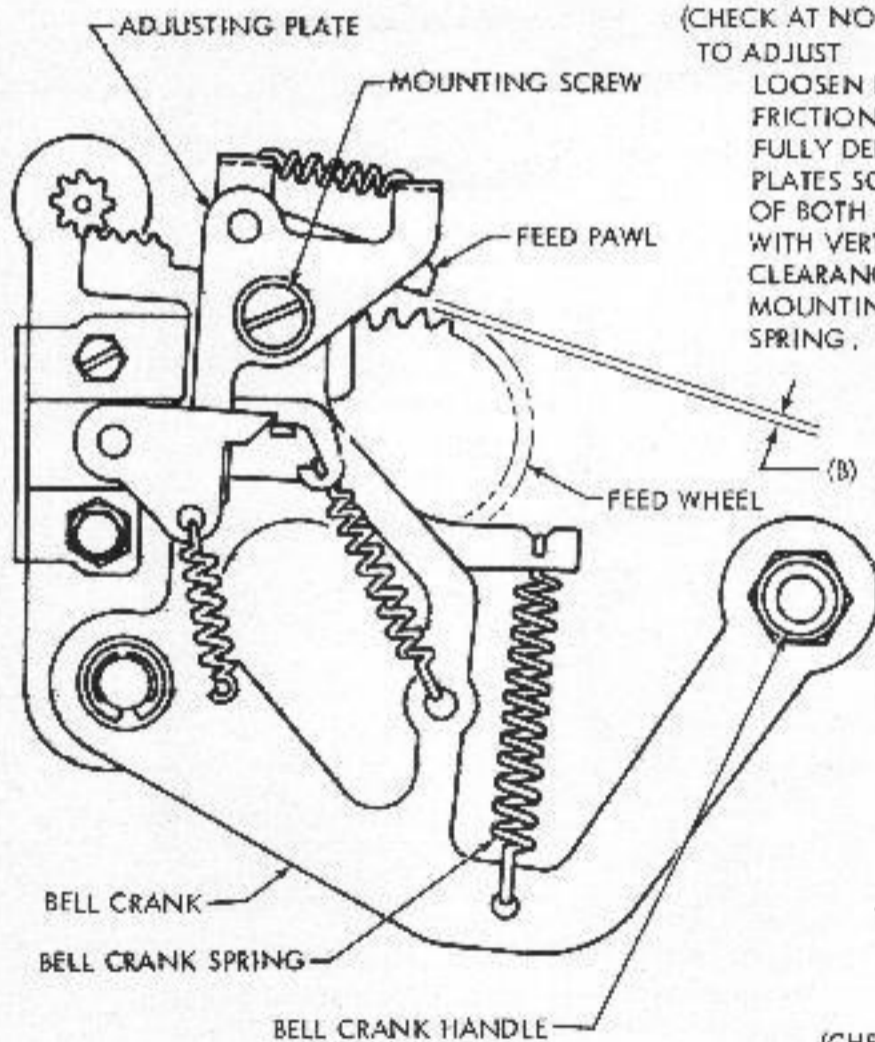
WITH BELL CRANK SPRING UNHOOKED AND RAKE IN OPERATED POSITION, CLEARANCE BETWEEN RAKE TEETH AND TAPE SLOT:

MIN. 0.007 INCH-----MAX. 0.011 INCH

(CHECK AT NO. 1 AND 5 PUNCH PINS.)

TO ADJUST

LOOSEN FOUR MOUNTING SCREWS UNTIL FRICTION TIGHT. WITH BELL CRANK HANDLE FULLY DEPRESSED, POSITION FRONT AND REAR PLATES SO THAT LEFT EDGES OF BOTH PLATES ARE APPROXIMATELY IN LINE WITH VERTICAL PLANE OF PUNCH BLOCK AND CLEARANCE MEETS THE REQUIREMENT. TIGHTEN MOUNTING SCREWS AND REPLACE BELL CRANK SPRING.



(B) FEED PAWL CLEARANCE

REQUIREMENT (PRELIMINARY)

(1) WITH BACKSPACE BELL CRANK ROTATED CLOCKWISE, BACKSPACE FEED PAWL SHOULD MISS FIRST TOOTH BY A CLEARANCE OF:

MIN. 0.006 INCH

MAX. 0.040 INCH

REQUIREMENT (FINAL)

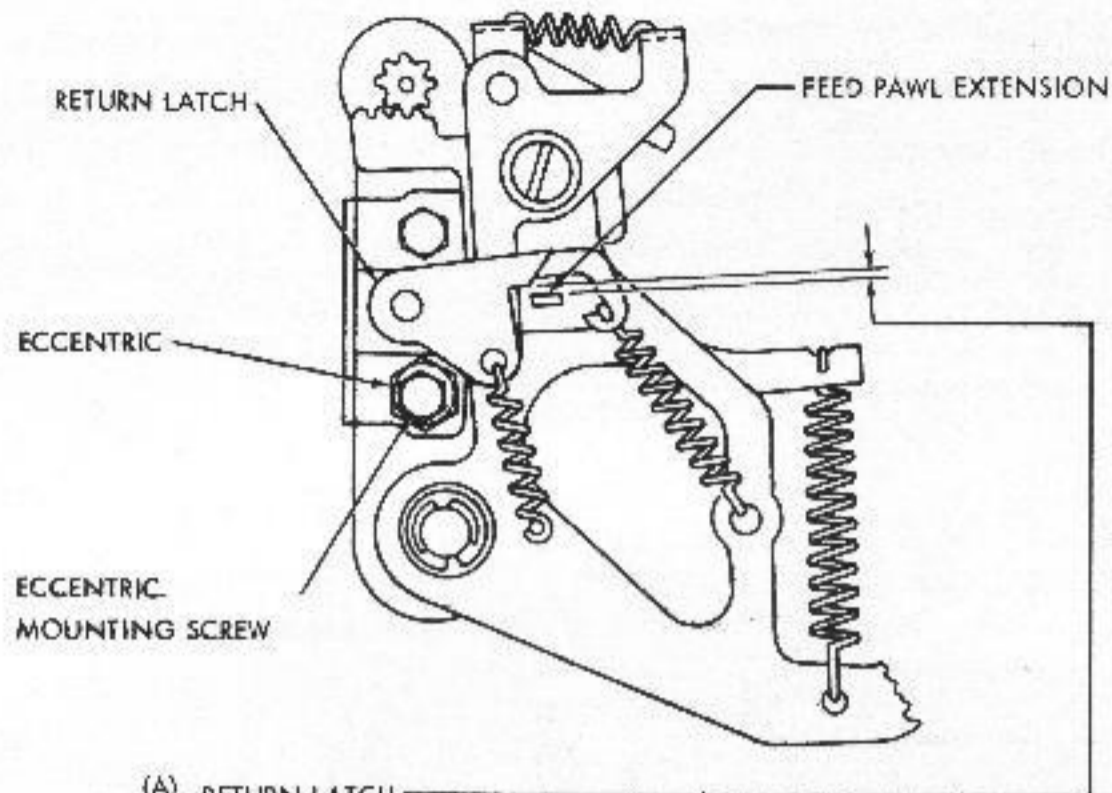
(2) BACKSPACE FEED PAWL SHOULD MISS FIRST TOOTH AND ENGAGE SECOND TOOTH BY AT LEAST 1/2 OF RIGHT ENGAGING SURFACE OF FEED PAWL (AS GAUGED BY EYE) WHEN THE FEED PAWL FIRST CONTACTS RATCHET TOOTH.

TO ADJUST

POSITION ADJUSTING PLATE WITH MOUNTING SCREW FRICTION TIGHT.

(CHECK WITH FEED WHEEL SHAFT OIL HOLE IN THE UPPERMOST POSITION AND RECHECK EACH 90 DEGREES ABOUT PERIPHERY OF FEED WHEEL.)

FIGURE 2-20. MANUAL BACKSPACE MECHANISM FOR CHADLESS TAPE

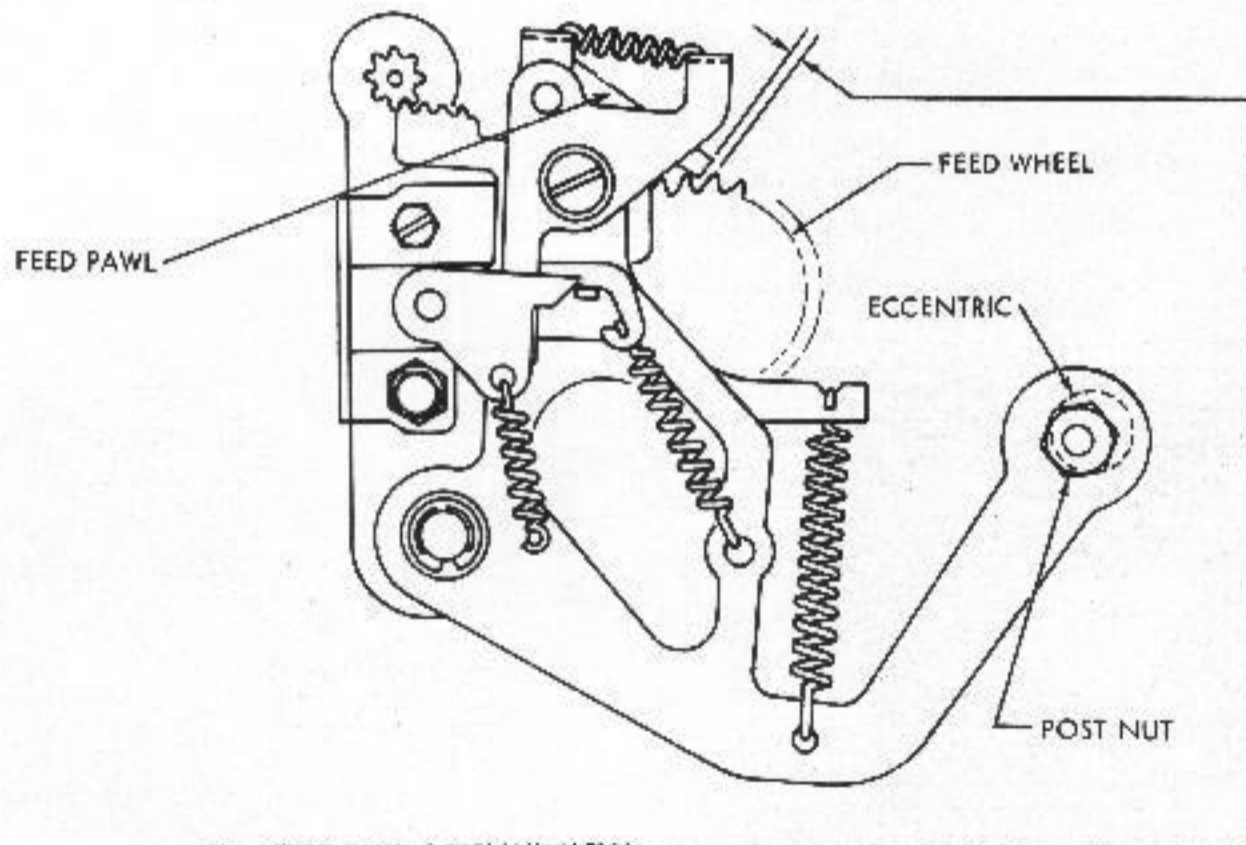


(A) RETURN LATCH
REQUIREMENT

BACKSPACE MECHANISM IN UNOPERATED POSITION.
CLEARANCE BETWEEN RETURN LATCH AND FEED PAWL EXTENSION:
MIN. 0.004 INCH
MAX. 0.020 INCH

TO ADJUST

ADJUST ECCENTRIC WITH MOUNTING SCREW FRICTION TIGHT.



(B) FEED PAWL (PRELIMINARY)
REQUIREMENT

BACKSPACE MECHANISM IN OPERATED POSITION. FEED WHEEL
RATCHET IN DETENTED POSITION. CLEARANCE BETWEEN FEED WHEEL RATCHET
TOOTH AND FEED PAWL:

MIN. SOME
MAX. 0.003 INCH

TO ADJUST

BY MEANS OF 0.060" ALLEN WRENCH, ROTATE ECCENTRIC WITH NUT POST
FRICTION TIGHT.

FIGURE 2-21. MANUAL BACKSPACE MECHANISM
FOR CHADLESS TAPE

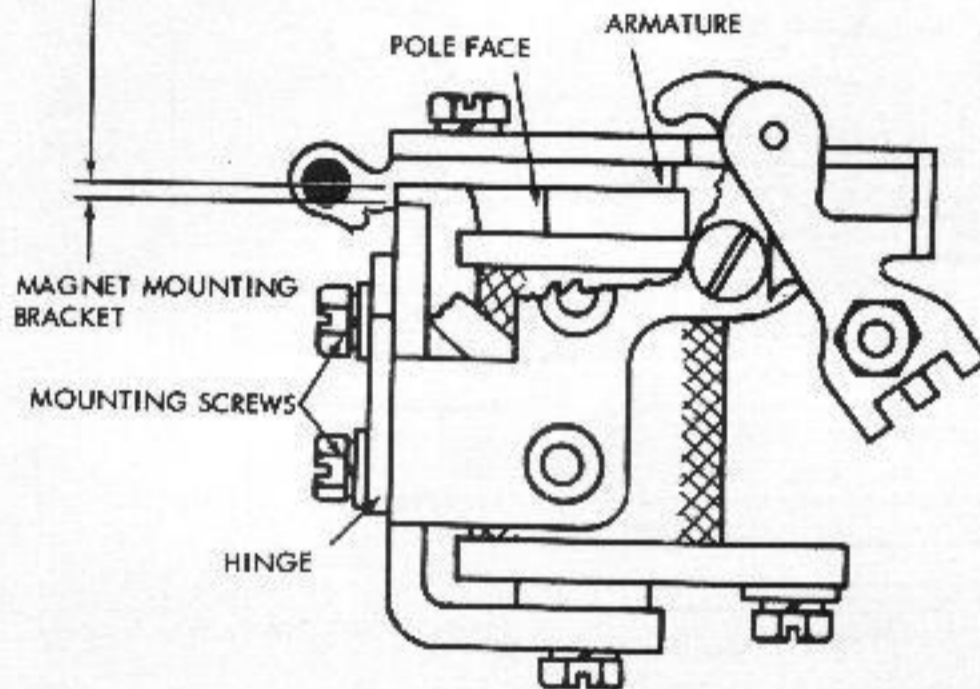
ARMATURE HINGEREQUIREMENT

WITH ARMATURE HELD AGAINST POLE FACE (ARMATURE BAIL SPRING UNHOOKED)

MIN. SOME --- MAX. 0.004 INCH

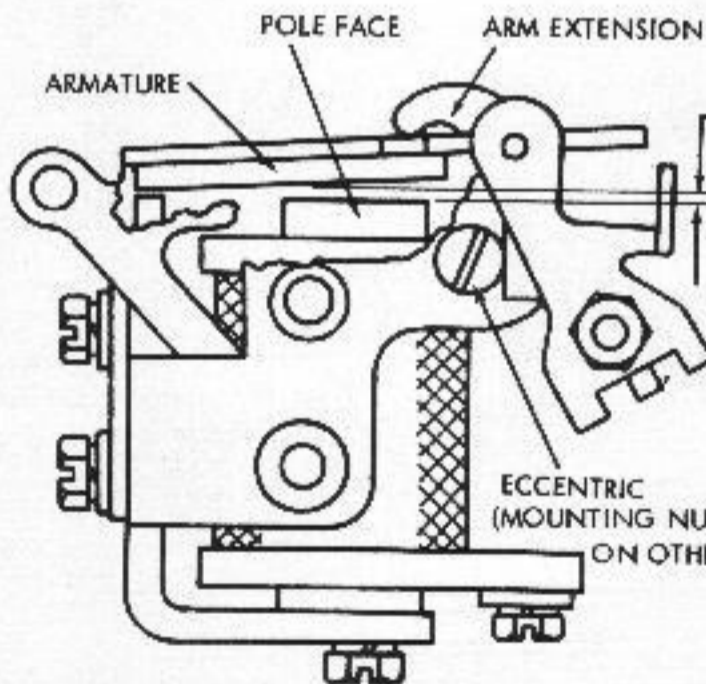
BETWEEN ARMATURE AND MAGNET MOUNTING BRACKET WITH PLAY TAKEN UP FOR MINIMUM. TO ADJUST

WITH MOUNTING SCREWS LOOSENED, POSITION HINGE. WHILE ADJUSTMENT IS BEING MADE, ARMATURE SHOULD TOUCH FRONT AND REAR OF POLE FACE.



*NOTE:

THIS ADJUSTMENT IS MADE AT FACTORY AND SHOULD NOT BE DISTURBED UNLESS A REASSEMBLY OF THE UNIT IS UNDERTAKEN. IF NECESSARY TO MAKE THIS ADJUSTMENT, THE PUNCH UNIT SHOULD BE REMOVED. SEE DISASSEMBLY AND REASSEMBLY. REMAKE PUNCH UNIT POSITION ADJUSTMENT.

ARMATURE UP-STOP*
REQUIREMENT

ARMATURE IN UNOPERATED POSITION, GAP BETWEEN ARMATURE AND POLE FACE

MIN. 0.025 INCH.

MAX. 0.030 INCH.

AT CLOSEST POINT.

TO ADJUST

ROTATE ECCENTRIC WITH MOUNTING NUT LOOSENED. KEEP HIGH PART OF ECCENTRIC TO LEFT.

FIGURE 2-22. POWER DRIVE BACKSPACE MECHANISM FOR CHADLESS TAPE

(A) DRIVE LINK (PRELIMINARY)

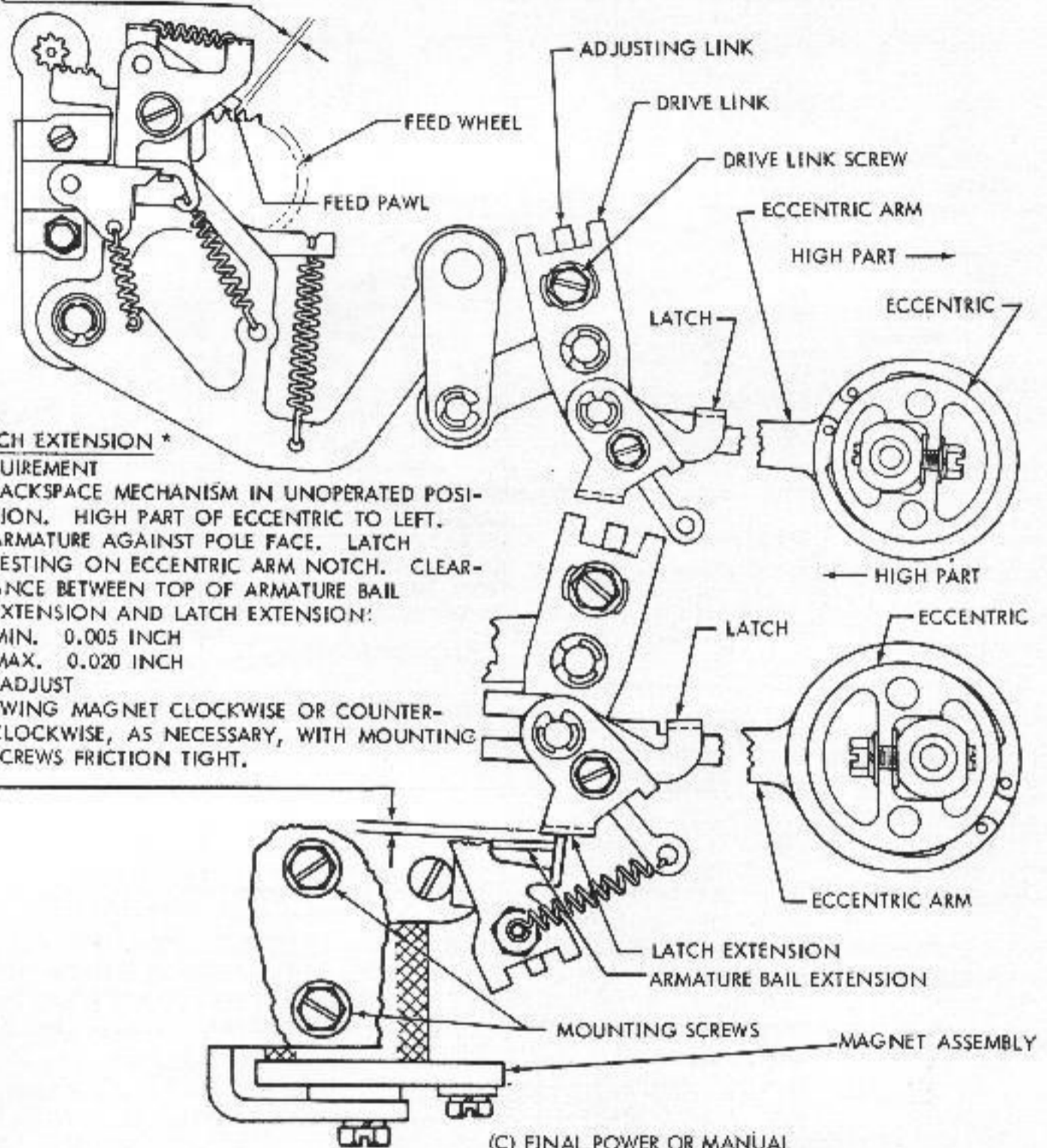
REQUIREMENT

BACKSPACE MECHANISM IN OPERATED POSITION. FEED WHEEL RATCHET IN DETENTED POSITION. LATCH ENGAGED WITH ECCENTRIC ARM. HIGH PART OF ECCENTRIC TO RIGHT. CLEARANCE BETWEEN FEED PAWL AND FEED WHEEL RATCHET TOOTH:

MIN. SOME—MAX. 0.003 INCH

TO ADJUST

BY MEANS OF PRY POINT, POSITION ADJUSTING LINK WITH DRIVE LINK SCREW FRICTION TIGHT.



(B)

LATCH EXTENSION *

REQUIREMENT

BACKSPACE MECHANISM IN UNOPERATED POSITION. HIGH PART OF ECCENTRIC TO LEFT. ARMATURE AGAINST POLE FACE. LATCH RESTING ON ECCENTRIC ARM NOTCH. CLEARANCE BETWEEN TOP OF ARMATURE BAIL EXTENSION AND LATCH EXTENSION:

MIN. 0.005 INCH

MAX. 0.020 INCH

TO ADJUST

SWING MAGNET CLOCKWISE OR COUNTER-CLOCKWISE, AS NECESSARY, WITH MOUNTING SCREWS FRICTION TIGHT.

(C) FINAL POWER OR MANUAL

REQUIREMENT

OPERATE UNDER POWER, TAPE IN PUNCH UNIT. FEED WHEEL SHAFT OIL HOLE IN UPPERMOST POSITION. OPERATE BACKSPACE MECHANISM ONCE. RATCHET WHEEL SHOULD BE BACKED ONE SPACE TO FULLY DETENTED POSITION.

NOTE

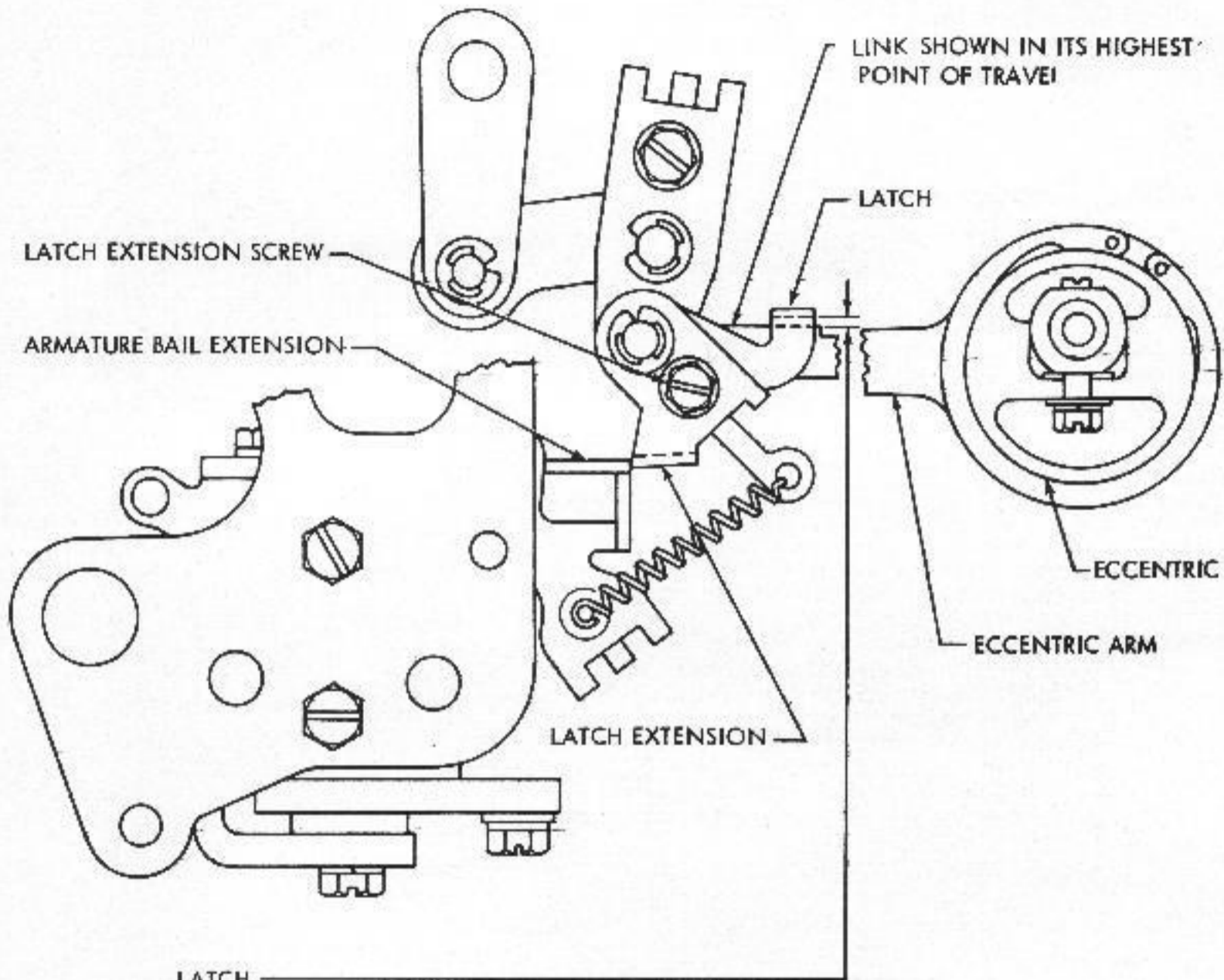
A FULLY DETENTED POSITION IS DEFINED AS: "WITH DETENT ROLLER IN CONTACT WITH RATCHET WHEEL, PUNCH UNIT FEED PAWL SHOULD ENGAGE FIRST TOOTH BELOW HORIZONTAL CENTER LINE OF RATCHET FEED WHEEL WITH NO PERCEPTIBLE CLEARANCE."

TO ADJUST

REFINE FEED PAWL ADJUSTMENTS.

*NOTE:
THIS ADJUSTMENT IS MADE AT FACTORY AND SHOULD NOT BE DISTURBED UNLESS A REASSEMBLY OF THE UNIT IS UNDERTAKEN. IF NECESSARY TO MAKE THIS ADJUSTMENT, THE PUNCH UNIT SHOULD BE REMOVED. SEE DISASSEMBLY AND REASSEMBLY. RE-MAKE PUNCH UNIT POSITION ADJUSTMENT.

FIGURE 2-23. POWER DRIVE BACKSPACE MECHANISM FOR CHADLESS TAPE



LATCH REQUIREMENT

BACKSPACE MECHANISM IN UNOPERATED POSITION. ARMATURE OFF POLE FACE (DE-ENERGIZED). LATCH EXTENSION AGAINST END OF ARMATURE BAIL EXTENSION. ECCENTRIC ARM AT ITS CLOSEST POINT TO UNDERSIDE OF LATCH. CLEARANCE BETWEEN LATCH AND ECCENTRIC

ARM:

MIN. 0.005 INCH

MAX. 0.025 INCH

TO ADJUST

POSITION LATCH WITH LATCH EXTENSION SCREW LOOSENED.

FIGURE 2-24. POWER DRIVE BACKSPACE MECHANISM FOR CHADLESS TAPE

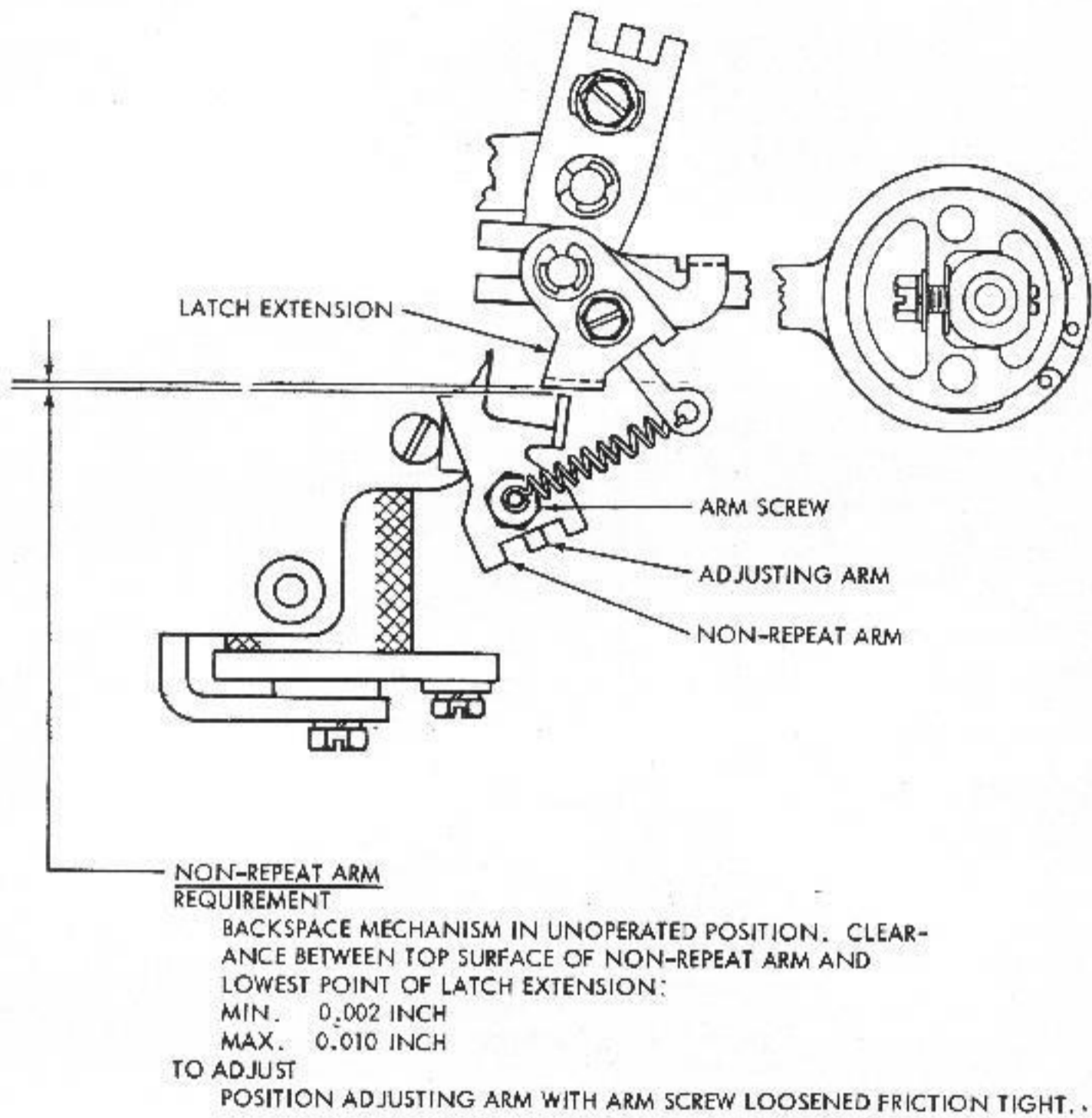


FIGURE 2-25: POWER DRIVE BACKSPACE MECHANISM
FOR CHADLESS TAPE

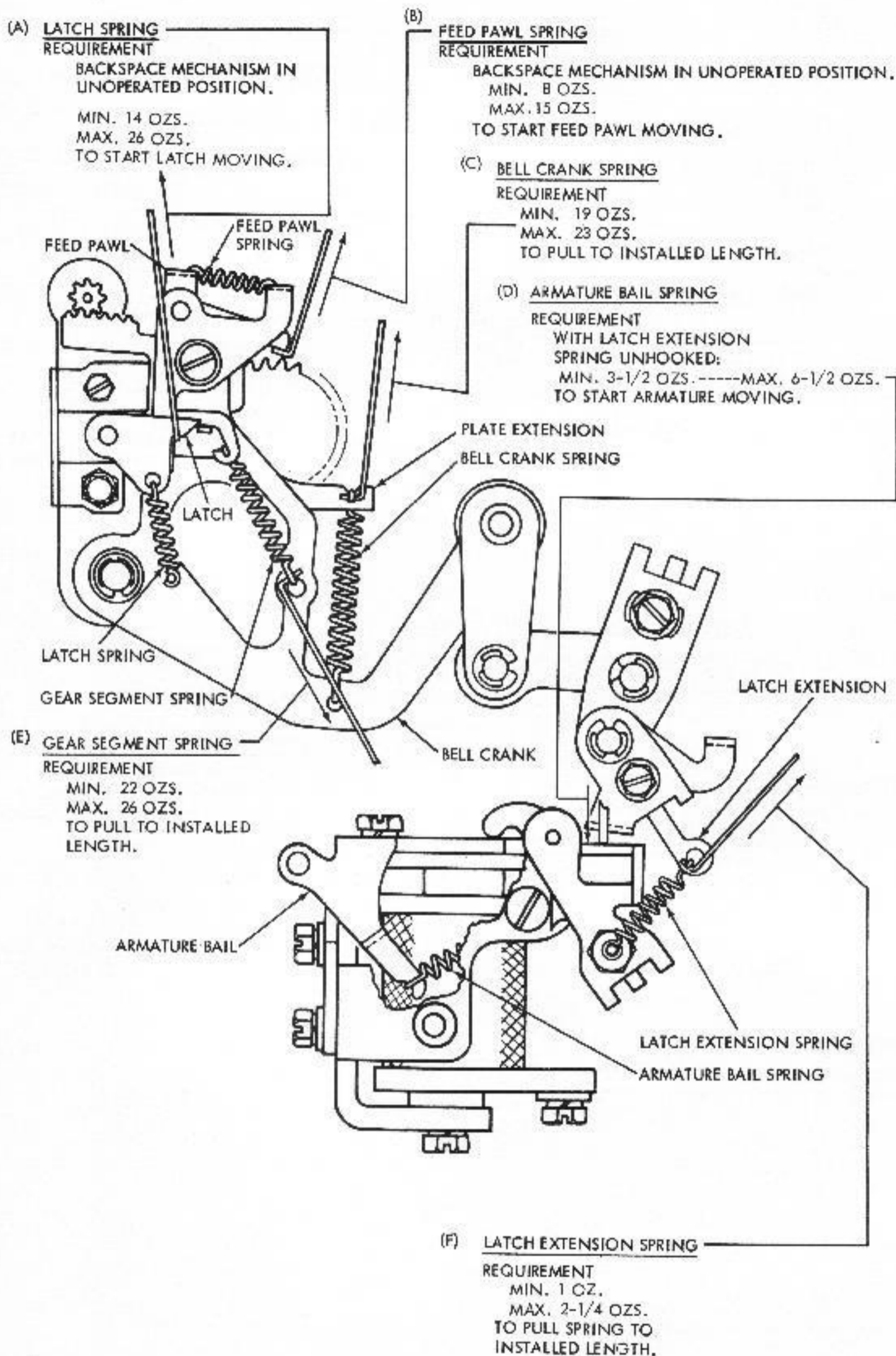


FIGURE 2-25. MANUAL AND POWER DRIVE BACKSPACE MECHANISM FOR CHADLESS TAPE

8. POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE.

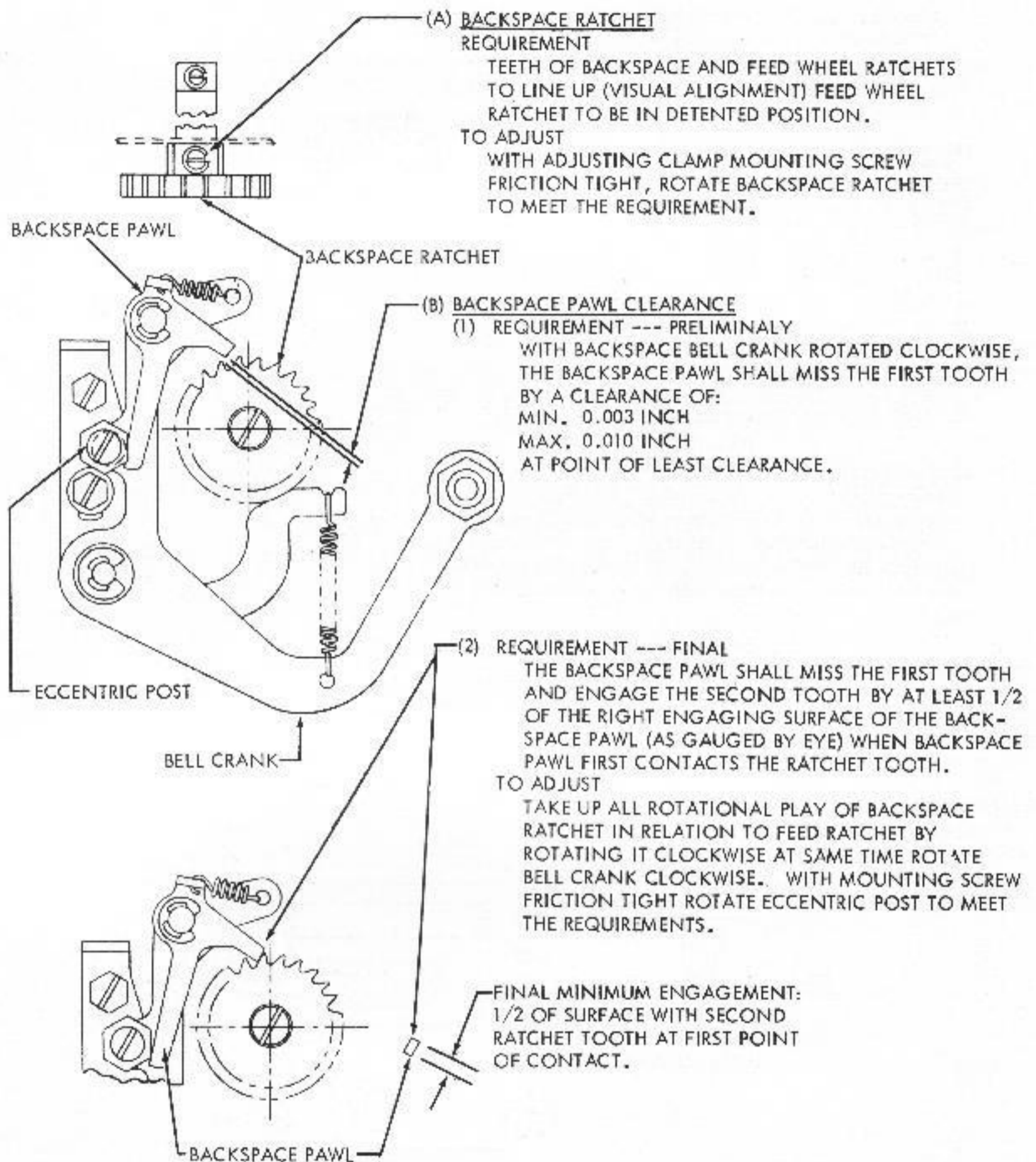


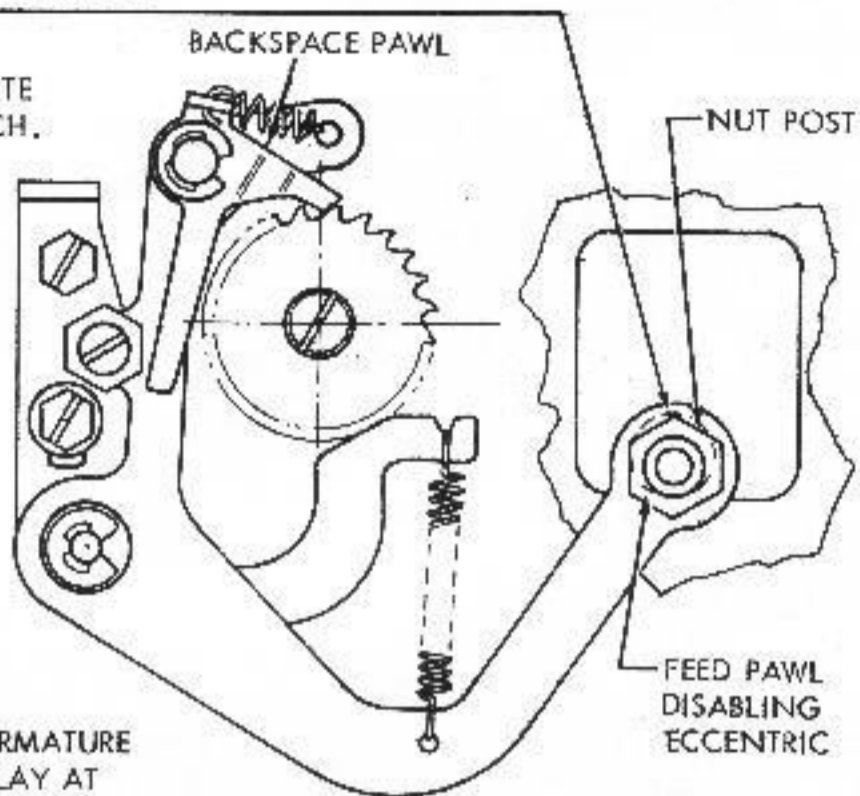
FIGURE 2-27. POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE

(A) FEED PAWL DISABLING**REQUIREMENT**

WHEN BELL CRANK IS IN OPERATED POSITION HIGH SIDE OF FEED PAWL DISABLING ECCENTRIC SHOULD BE IN UPPERMOST POSITION.

TO ADJUST

WITH NUT POST FRICTION TIGHT, ROTATE ECCENTRIC WITH A 0.060" ALLEN WRENCH.

**(B) ARMATURE HINGE****REQUIREMENT**

WITH ARMATURE BAIL SPRING REMOVED, ARMATURE HELD AGAINST THE POLE FACE, TAKE UP PLAY AT HINGE IN A DOWNWARD DIRECTION. CLEARANCE BETWEEN THE ARMATURE AND MAGNET BRACKET, MIN. SOME

MAX. 0.004 INCH

TO ADJUST

WITH HINGE MOUNTING SCREWS FRICTION TIGHT, POSITION HINGE. ARMATURE SHOULD TOUCH FRONT AND REAR OF POLE FACE. TIGHTEN SCREWS AND RECHECK ADJUSTMENT.

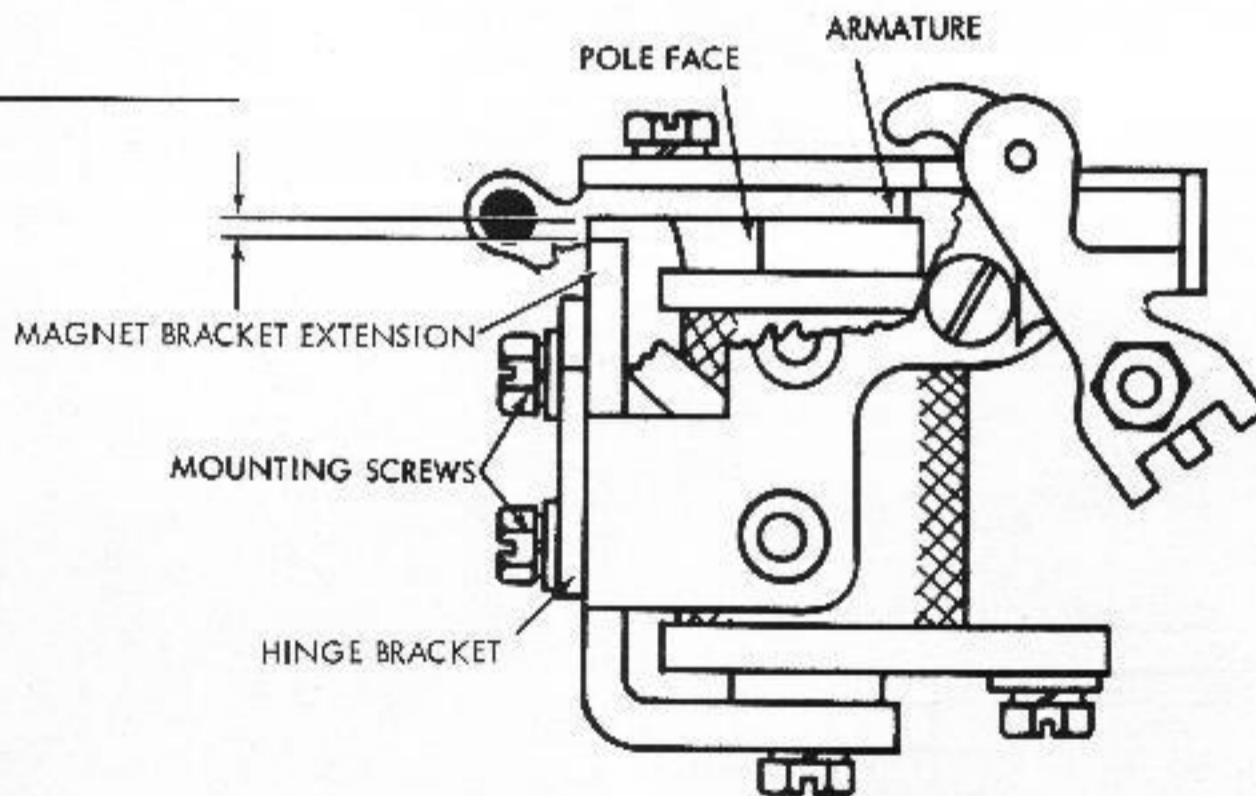


FIGURE 2-28. POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE

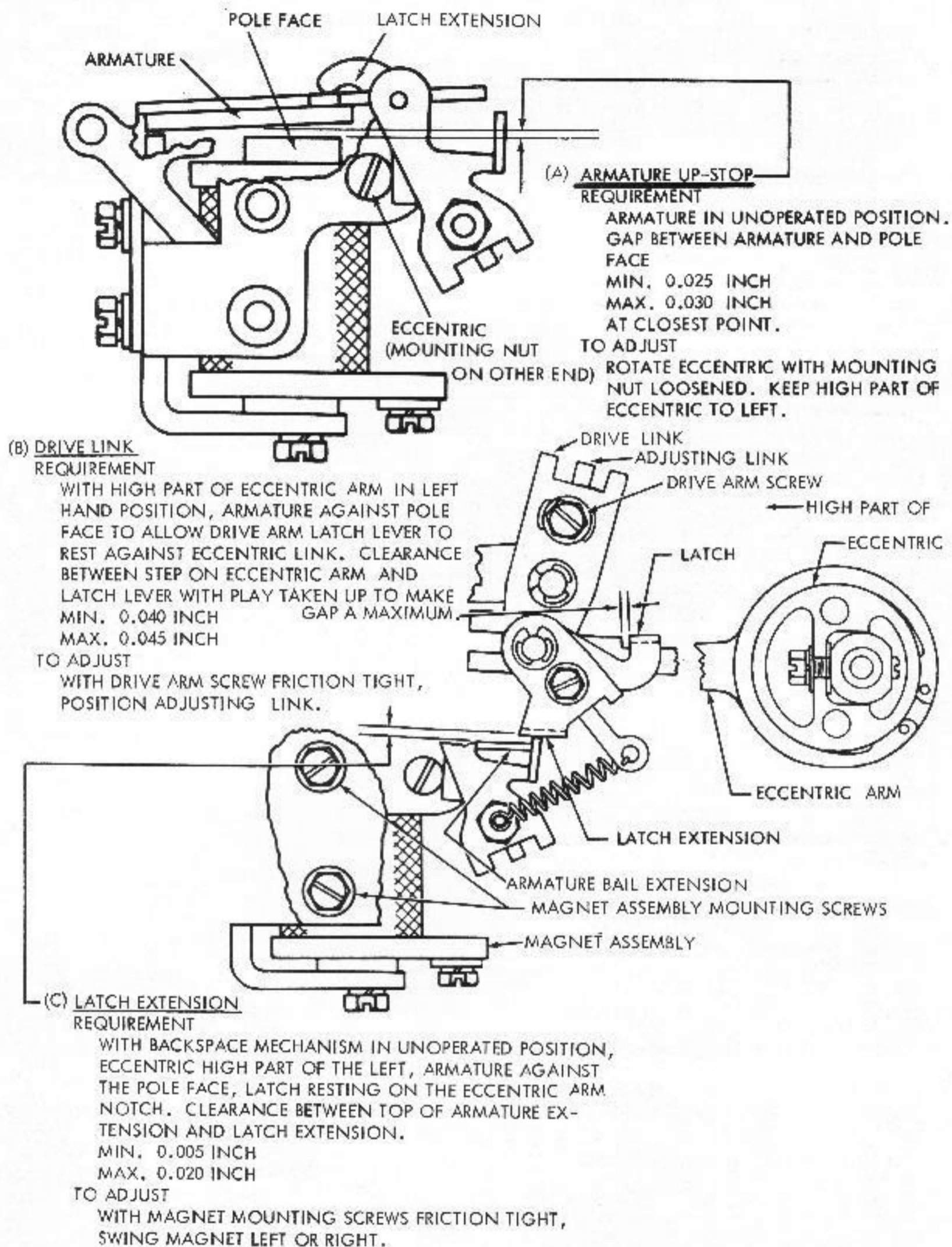
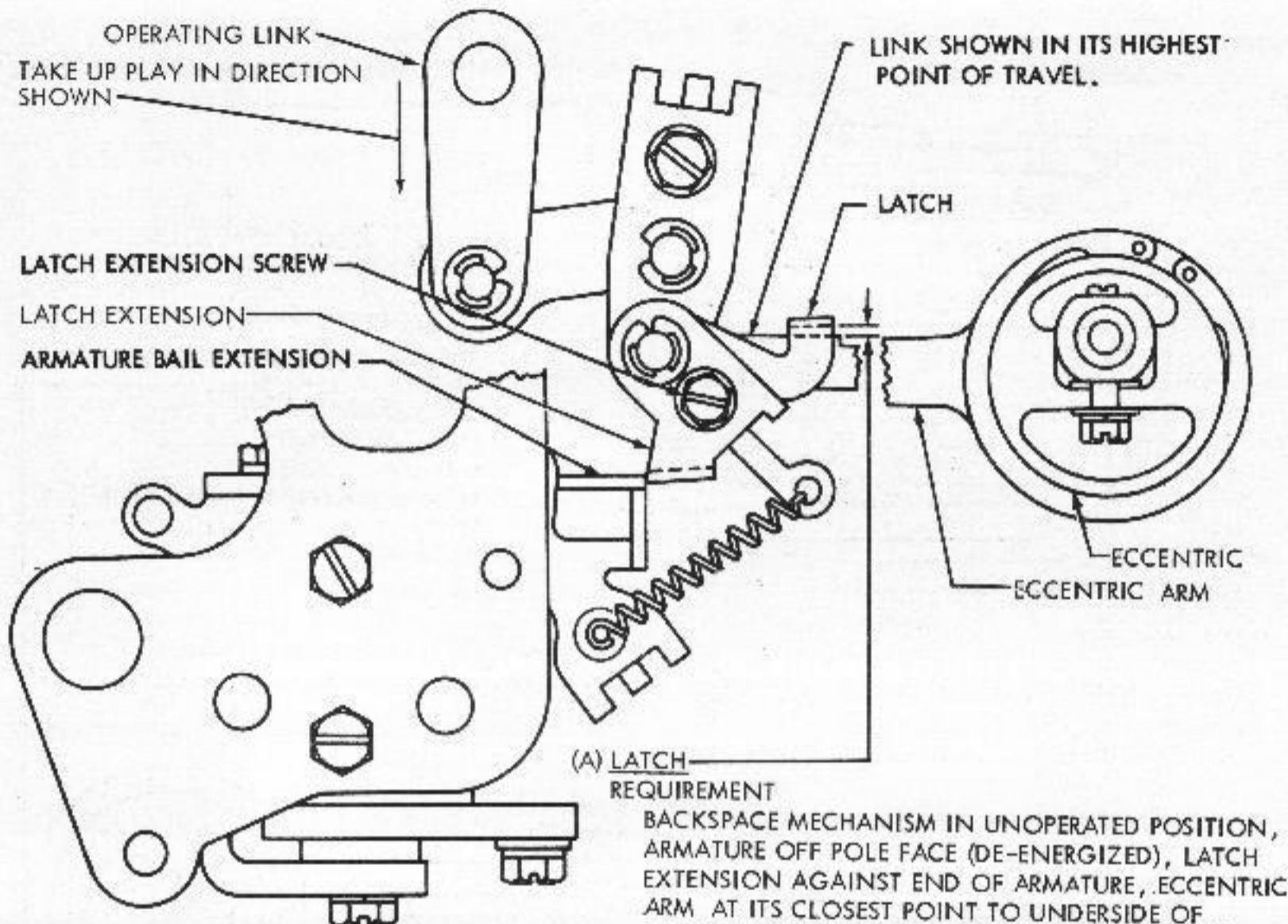


FIGURE 2-29. POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE



(A) LATCH
REQUIREMENT

BACKSPACE MECHANISM IN UNOPERATED POSITION, ARMATURE OFF POLE FACE (DE-ENERGIZED), LATCH EXTENSION AGAINST END OF ARMATURE, ECCENTRIC ARM AT ITS CLOSEST POINT TO UNDERSIDE OF LATCH LEVER. CLEARANCE BETWEEN LATCH AND ECCENTRIC ARM WITH PLAY IN THE LINKS TAKEN UP TO MAKE THE CLEARANCE A MINIMUM SHOULD BE:

MIN. 0.005 INCH
MAX. 0.025 INCH

TO ADJUST

WITH LATCH EXTENSION SCREW FRICTION TIGHT, POSITION LATCH.

(B) NON-REPEAT ARM
REQUIREMENT

BACKSPACE MECHANISM IN UNOPERATED POSITION, CLEARANCE BETWEEN TOP SURFACE OF NON-REPEAT ARM AND LOWEST POINT OF LATCH EXTENSION:

MIN. 0.002 INCH
MAX. 0.010 INCH

TO ADJUST

WITH ARM SCREW FRICTION TIGHT, POSITION ADJUSTING ARM.

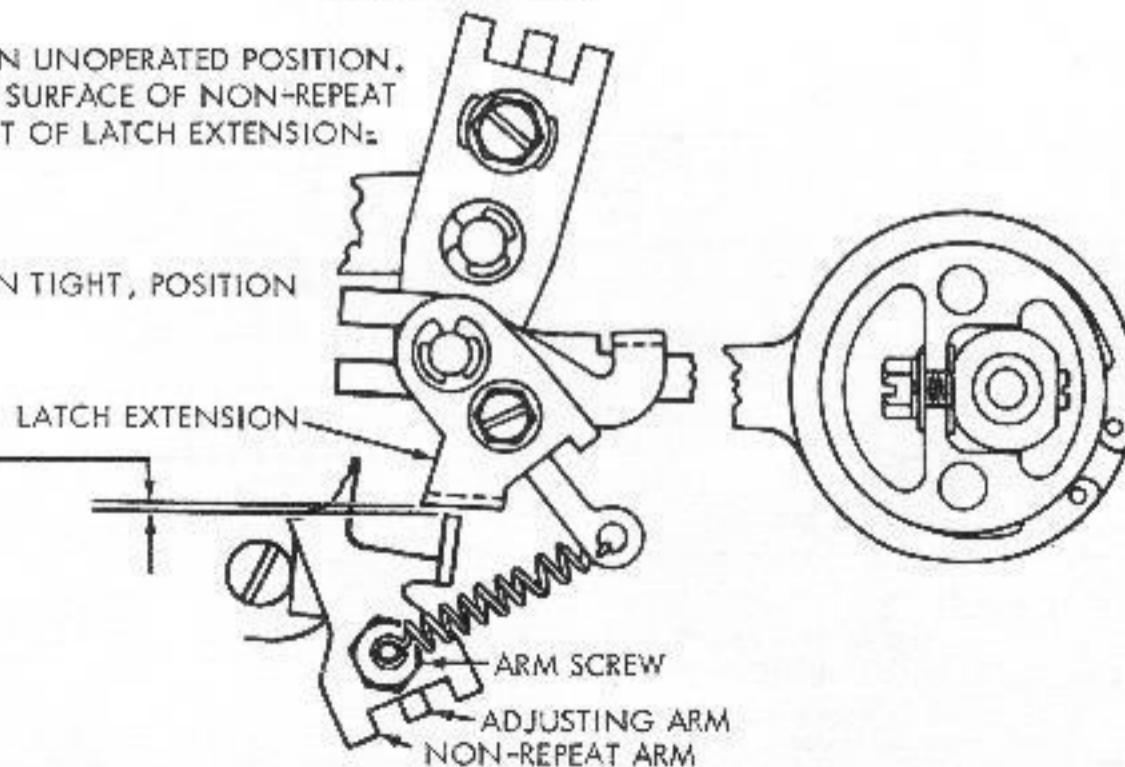


FIGURE 2-30. POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE

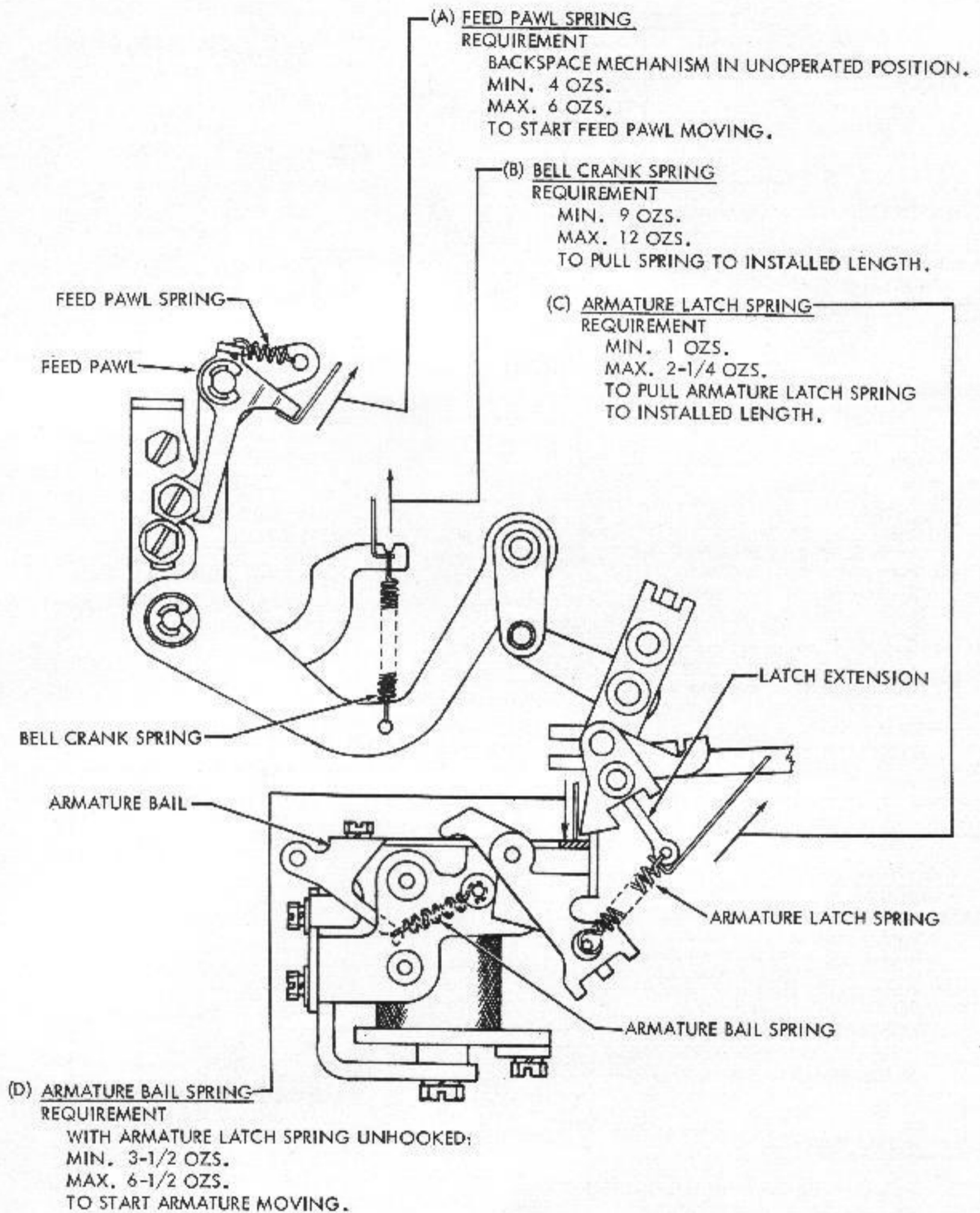


FIGURE 2-31. POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE

9. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

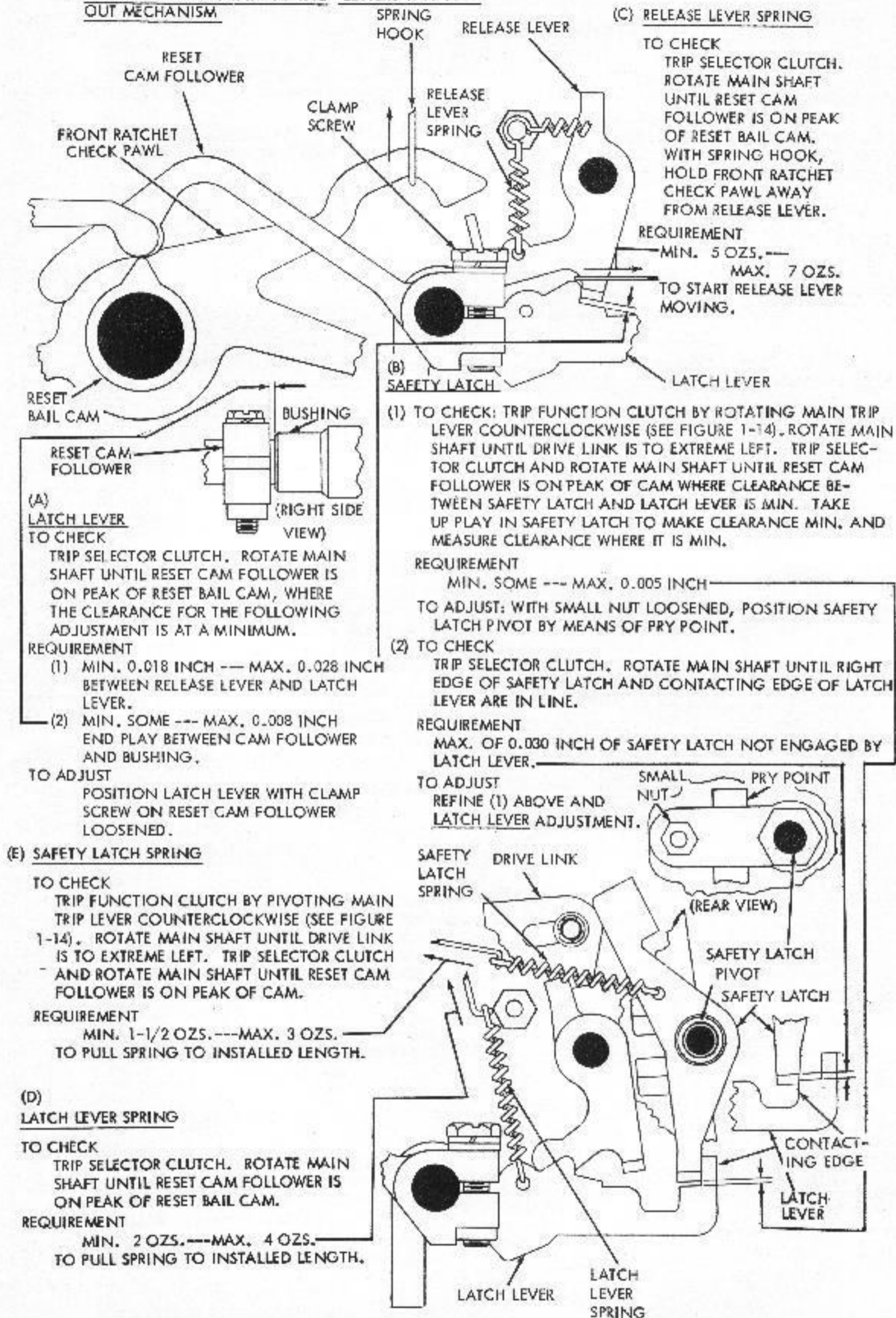


FIGURE 2-32. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

(C) FEED PAWL AND FRONT CHECK PAWL SPRINGS

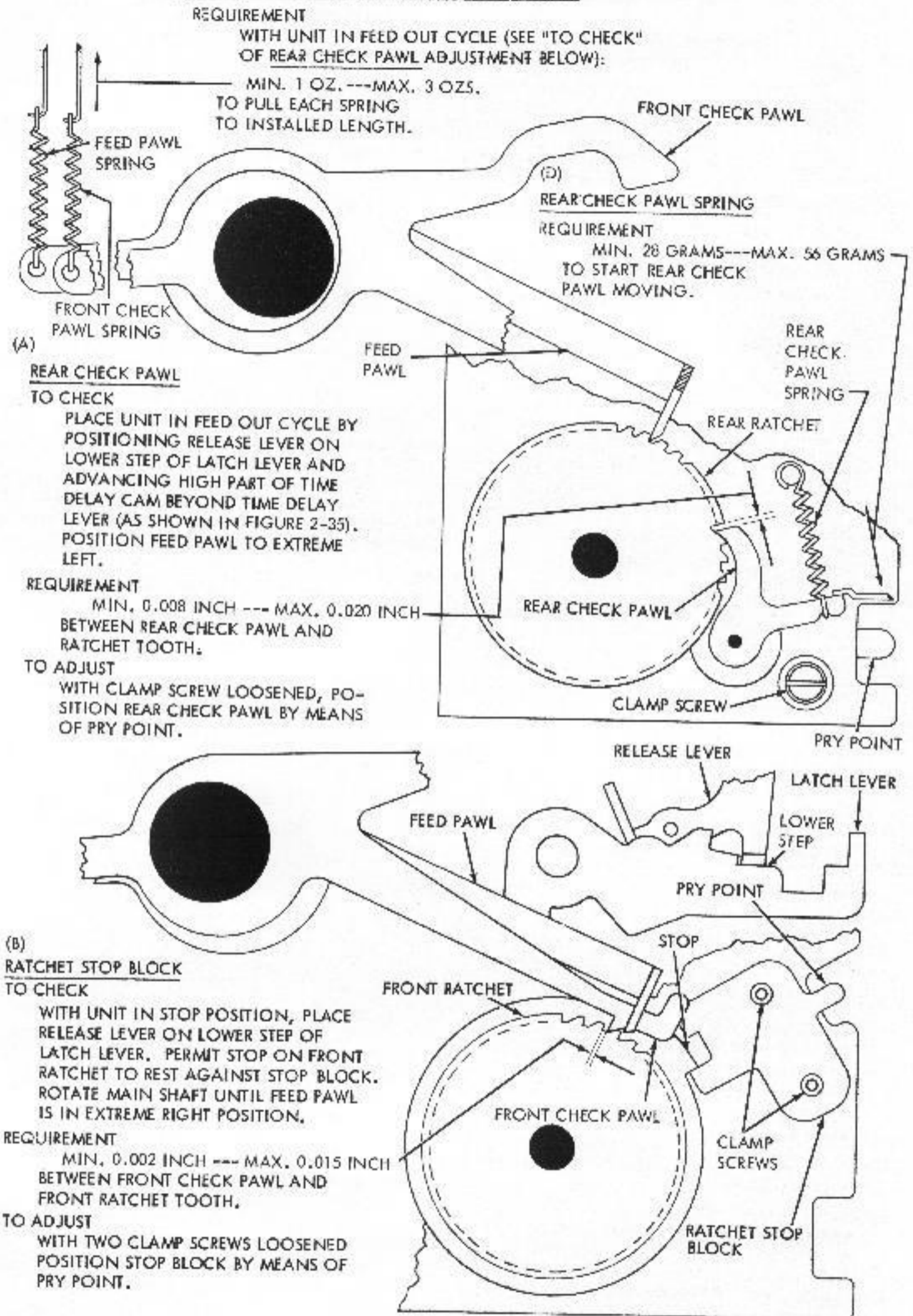


FIGURE 2-33. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM

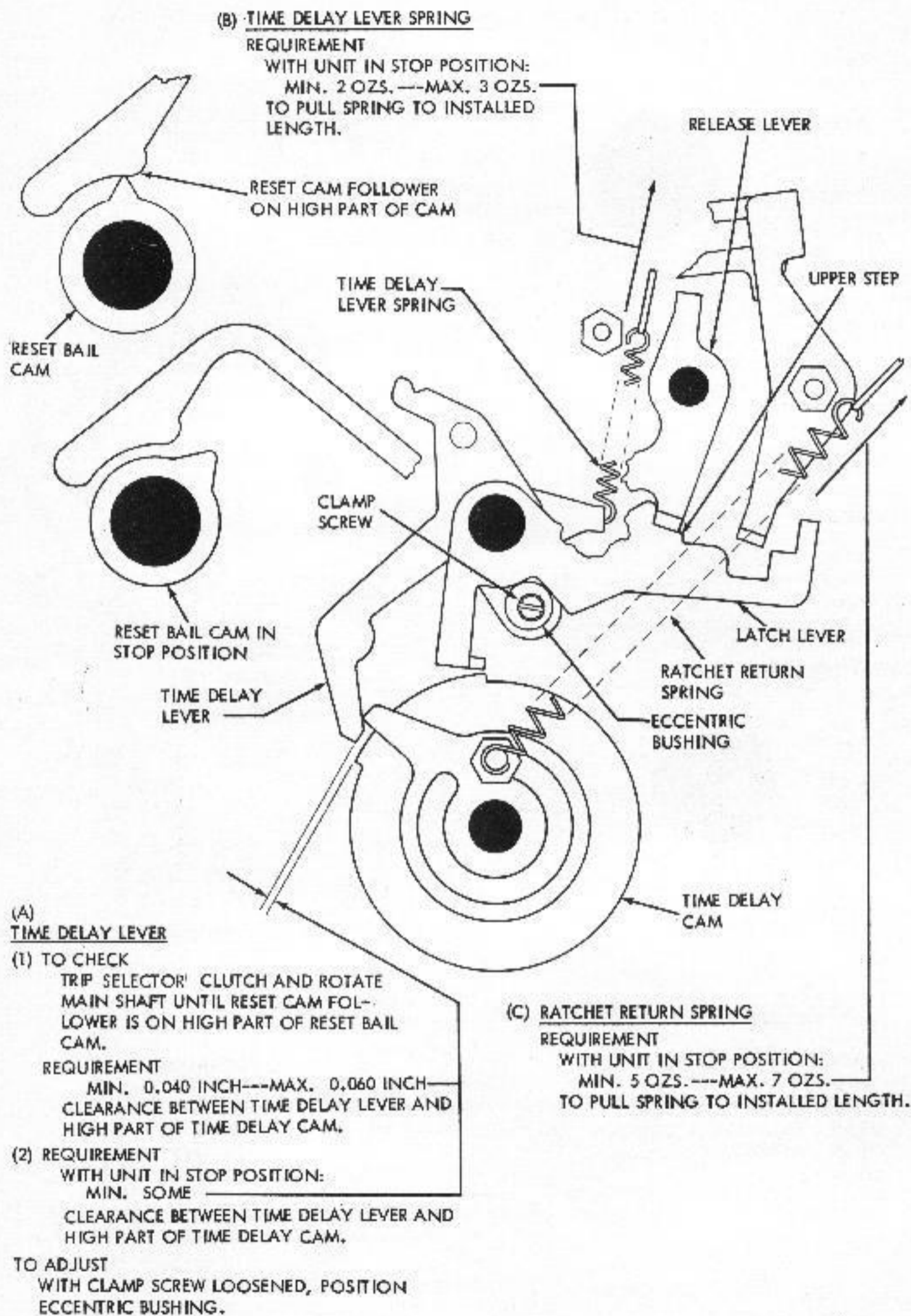


FIGURE 2-34. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM

(A) RELEASE ARM

TO CHECK

PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER. ADVANCE RATCHETS BEYOND TIME DELAY (HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER). POSITION FEED OUT CAM AS SHOWN.

REQUIREMENT

MIN. 0.010 INCH --- MAX. 0.030 INCH
BETWEEN DRIVE ARM AND RELEASE
ARM.

TO ADJUST

WITH CLAMP NUT LOOSENED, POSITION
RELEASE ARM BY MEANS OF ECCENTRIC
SCREW ON TIME DELAY LEVER.

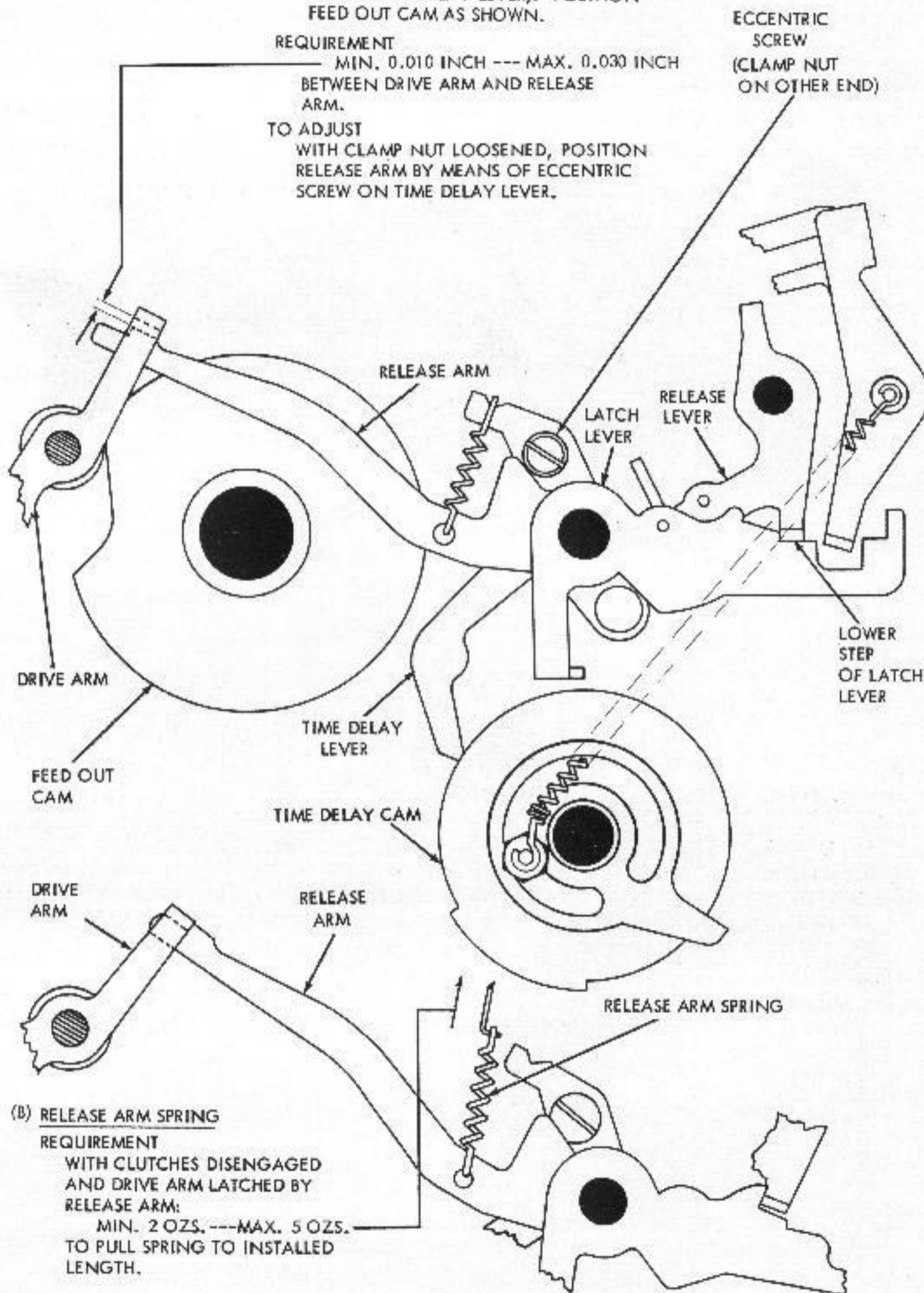
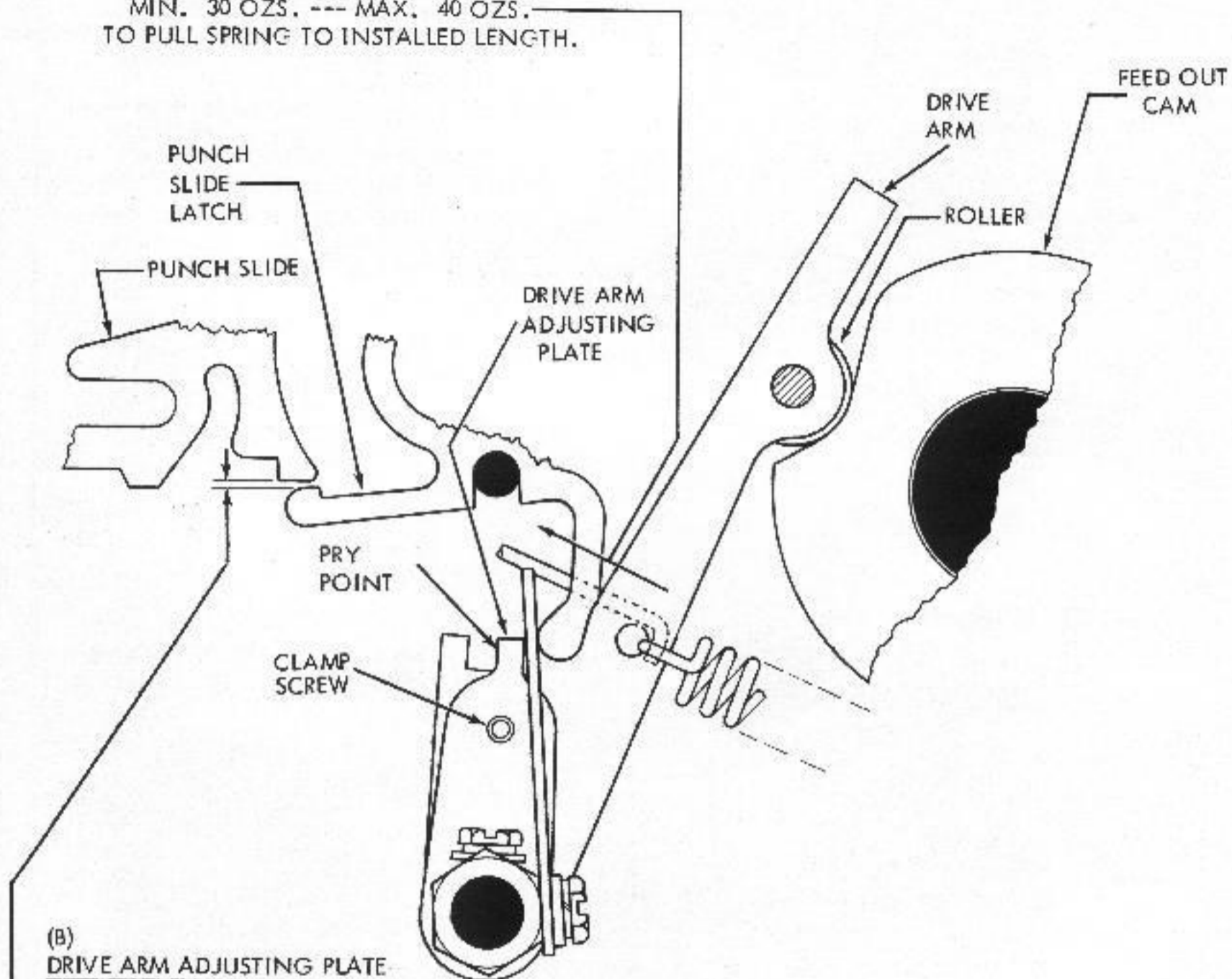


FIGURE 2-35. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM.

(A) DRIVE ARM SPRING REQUIREMENT

WITH UNIT IN FEED-OUT CYCLE AND DRIVE ARM ROLLER HELD FIRMLY AGAINST ITS CAM INDENT, IT SHALL REQUIRE

MIN. 30 OZS. --- MAX. 40 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

(B) DRIVE ARM ADJUSTING PLATE TO CHECK

SET UP BLANK CODE COMBINATION (-----) IN SELECTOR. PLACE UNIT IN FEED-OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN IN FIGURE 2-35). ROTATE MAIN SHAFT UNTIL DRIVE ARM ROLLER IS ON LOW PART OF FEED-OUT CAM. MAKE SURE THAT RESET BAIL IS IN LOWER POSITION.

REQUIREMENT

MIN. 0.010 INCH --- MAX. 0.030 INCH
BETWEEN PUNCH SLIDE AND PUNCH SLIDE LATCH AT SLIDE WHERE CLEARANCE IS LEAST.

TO ADJUST

WITH CLAMP SCREW LOOSENED, POSITION DRIVE ARM ADJUSTING PLATE BY MEANS OF PRY POINT.

FIGURE 2-36. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

(B)
ADJUSTING LEVER

TO CHECK

PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN IN FIGURE 2-35). POSITION MAIN SHAFT SO THAT DRIVE ARM ROLLER IS ON LOW PART OF FEED OUT CAM.

REQUIREMENT

- (1) MIN. 0.010 INCH---MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
- (2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

WITH CLAMP SCREW LOOSENED, POSITION ADJUSTING LEVER MAKING SURE IT RIDES FULLY ON SLIDE TRIP LEVER.

(A) FOLLOWER LEVER

REQUIREMENT

WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM:

- (1) MIN. 0.010 INCH---MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
- (2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

WITH LOCK NUT LOOSENED, POSITION ADJUSTING ARM BY MEANS OF PRY POINT.

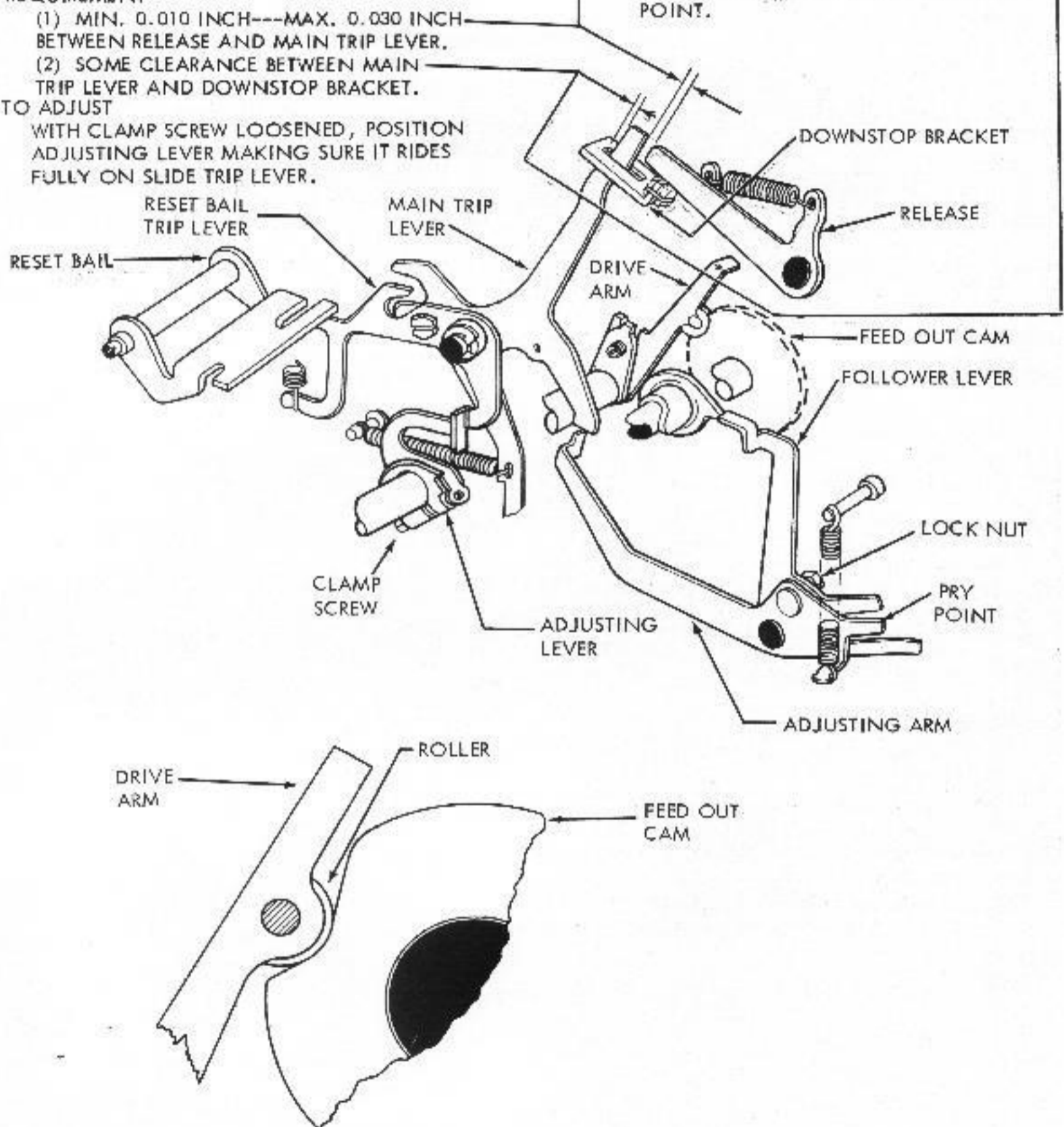
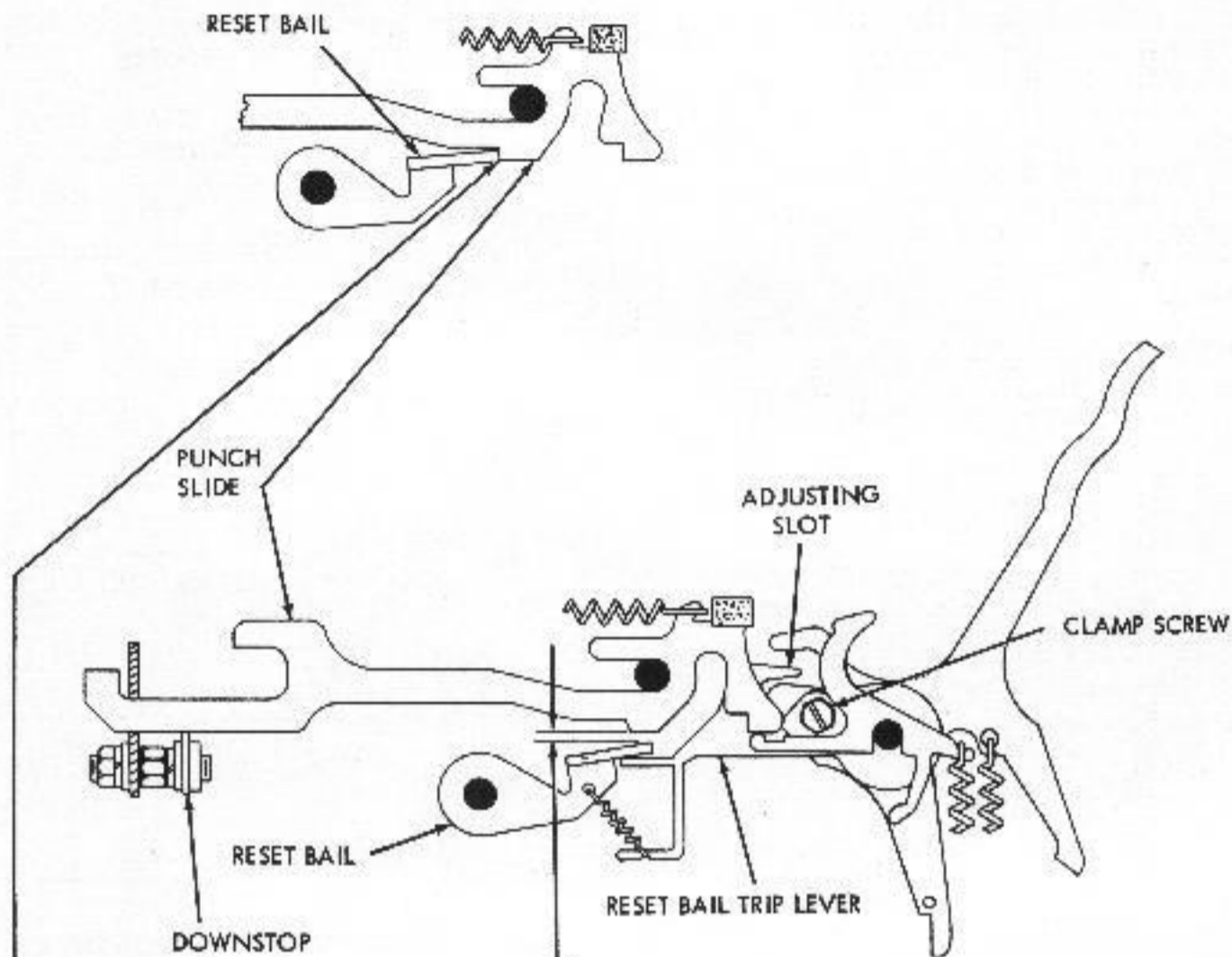


FIGURE 2-37. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM



RESET BAIL TRIP LEVER

- (1) TO CHECK
SELECT LETTERS CODE COMBINATION
(12345). ROTATE MAIN SHAFT UNTIL
FOLLOWER IS ON HIGH PART OF TRIP
CAM. POSITION PUNCH SLIDES
AGAINST DOWNSTOP.

REQUIREMENT

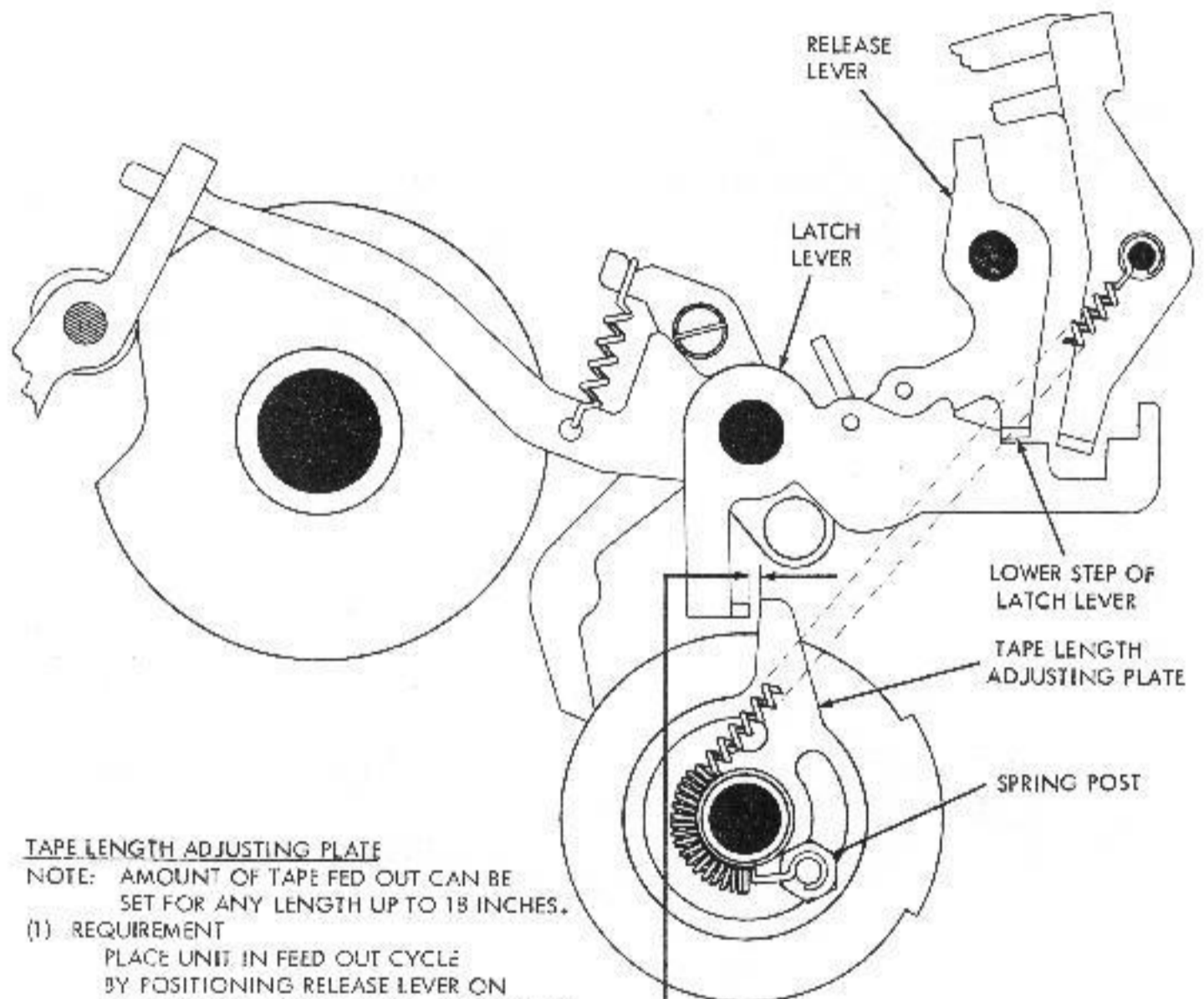
MIN. 0.008 INCH --- MAX. 0.020 INCH
BETWEEN PUNCH SLIDE AND RESET BAIL.

- (2) REQUIREMENT
WITH CLUTCHES FULLY DISENGAGED
(SEE PAR. 2.e.), RESET BAIL SHOULD
FULLY ENGAGE NOTCHES IN PUNCH SLIDES.

TO ADJUST

WITH CLAMP SCREW LOOSENED, POSITION
RESET BAIL TRIP LEVER BY MEANS OF ADJUST-
ING SLOT.

FIGURE 2-38. AUTOMATIC NON-INTERFERING TAPE FEED-OUT MECHANISM



TAPE LENGTH ADJUSTING PLATE

NOTE: AMOUNT OF TAPE FED OUT CAN BE SET FOR ANY LENGTH UP TO 18 INCHES.

(1) REQUIREMENT

PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER. MANUALLY ADVANCE RATCHETS SO THAT FRONT RATCHET IS IN TOOTH PRECEDING TRIP OFF. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN EXTREME LEFT POSITION. CLEARANCE BETWEEN ADJUSTING PLATE AND LATCH LEVER PROJECTION:
MIN. 0.002 INCH --- MAX. 0.020 INCH

(2) REQUIREMENT

WHEN OPERATING UNDER POWER, UNIT SHOULD FEED OUT CORRECT LENGTH OF TAPE.

TO ADJUST

WITH SPRING POST LOOSENED, POSITION ADJUSTING PLATE.

FIGURE 2-39. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM

(A) RESET BAIL LATCH

- (1) TO CHECK (VERTICAL CLEARANCE)
 SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS AND PUNCH SLIDES ARE TO EXTREME LEFT. SET UP BLANK CODE COMBINATION (----) IN SELECTOR BY STRIPPING ALL PUSH LEVERS FROM SELECTING LEVERS (SEE FIGURE 1-12). ROTATE MAIN SHAFT UNTIL PUNCH SLIDES ARE JUST LATCHED.

REQUIREMENT

MIN. 0.008 INCH---MAX. 0.020 INCH
 BETWEEN RESET BAIL AND RESET BAIL LATCH.

TO ADJUST

WITH MOUNTING SCREWS LOOSENED, POSITION MOUNTING PLATE BY MEANS OF PRY POINTS.

- (2) REQUIREMENT (HORIZONTAL CLEARANCE)
 WITH CLUTCHES DISENGAGED,
 MIN. 0.005 INCH---MAX. 0.020 INCH
 BETWEEN RESET BAIL AND RESET BAIL LATCH.

TO ADJUST

POSITION RESET BAIL SO THAT APPROX. HALF ITS THICKNESS IS BELOW TOP SURFACE OF ITS LATCH. WITH CLAMP SCREW LOOSENED, POSITION RESET BAIL LATCH BY MEANS OF PRY POINT.

- (3) TO CHECK

SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. SET UP BLANK CODE COMBINATION (----) IN SELECTOR BY STRIPPING ALL PUSH LEVERS FROM SELECTING LEVERS (SEE FIGURE 1-12). ROTATE MAIN SHAFT TO STOP POSITION.

REQUIREMENT

PUNCH SLIDES LATCHED BY PUNCH SLIDE LATCHES

TO ADJUST

REFINE (1) AND (2) ABOVE.

(C) RESET BAIL TRIP LEVER SPRING**TO CHECK**

DISENGAGE BOTH CLUTCHES. TRIP FUNCTION CLUTCH BY PIVOTING MAIN TRIP LEVER COUNTERCLOCKWISE (SEE FIGURE 1-14). HOLD RESET BAIL TRIP LEVER UP AGAINST RESET BAIL.

REQUIREMENT

MIN. 18 OZS.---MAX. 24 OZS.
 TO PULL SPRING TO INSTALLED LENGTH.

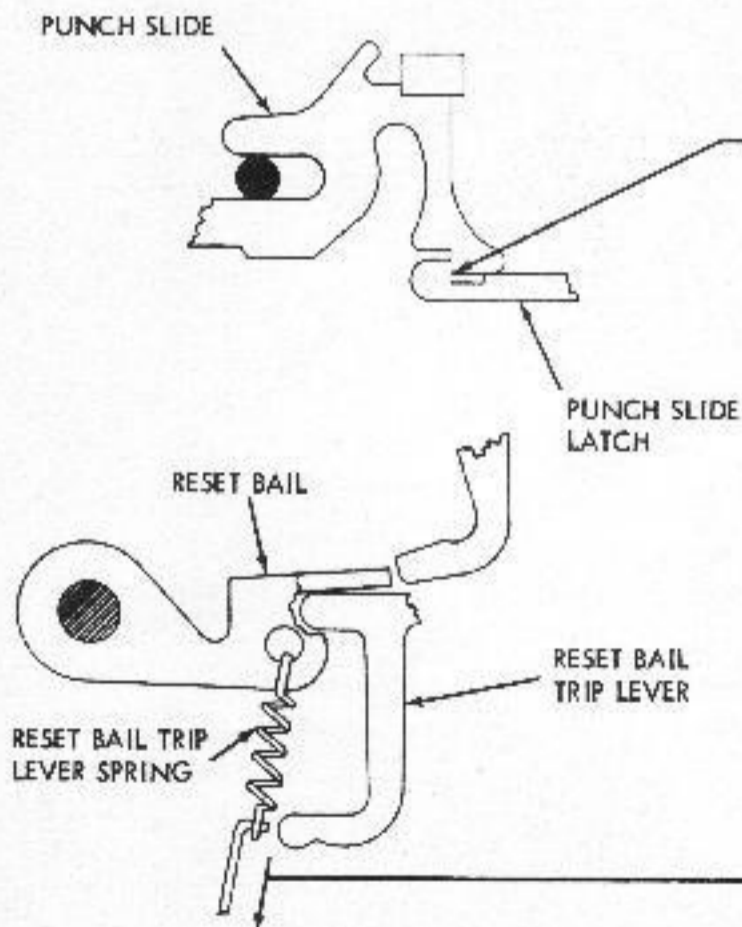
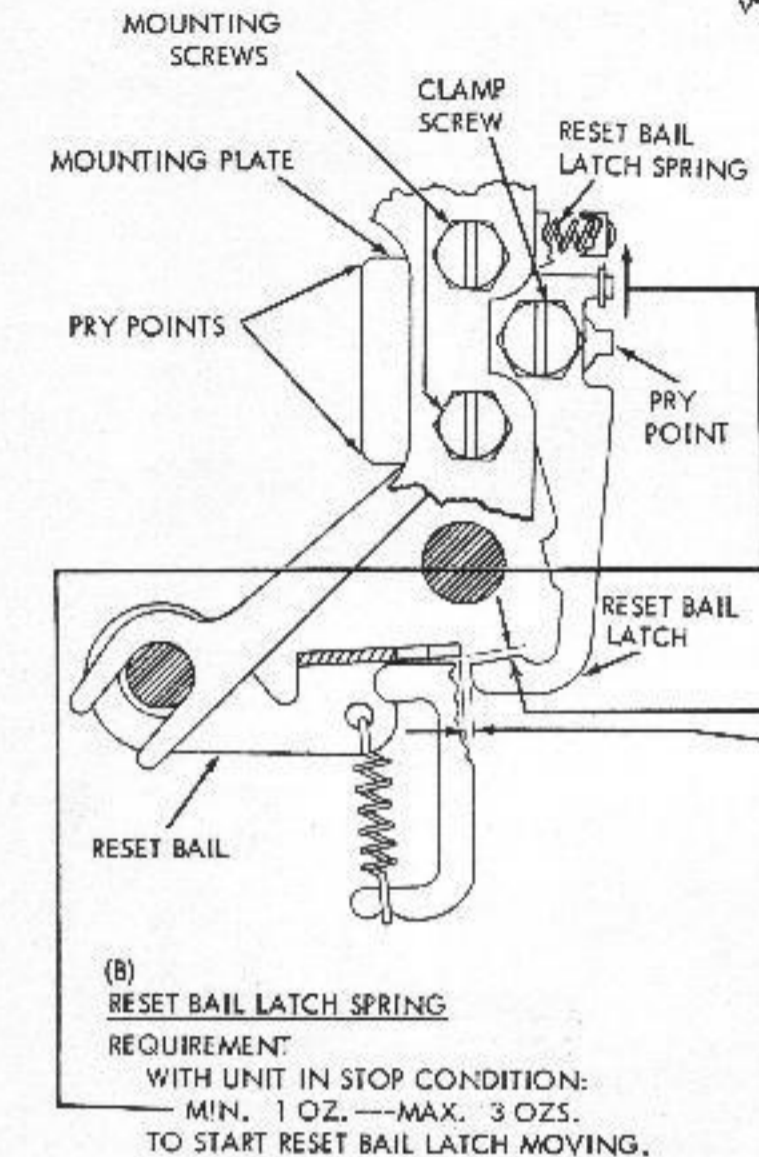


FIGURE 2-40. AUTOMATIC NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

10. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

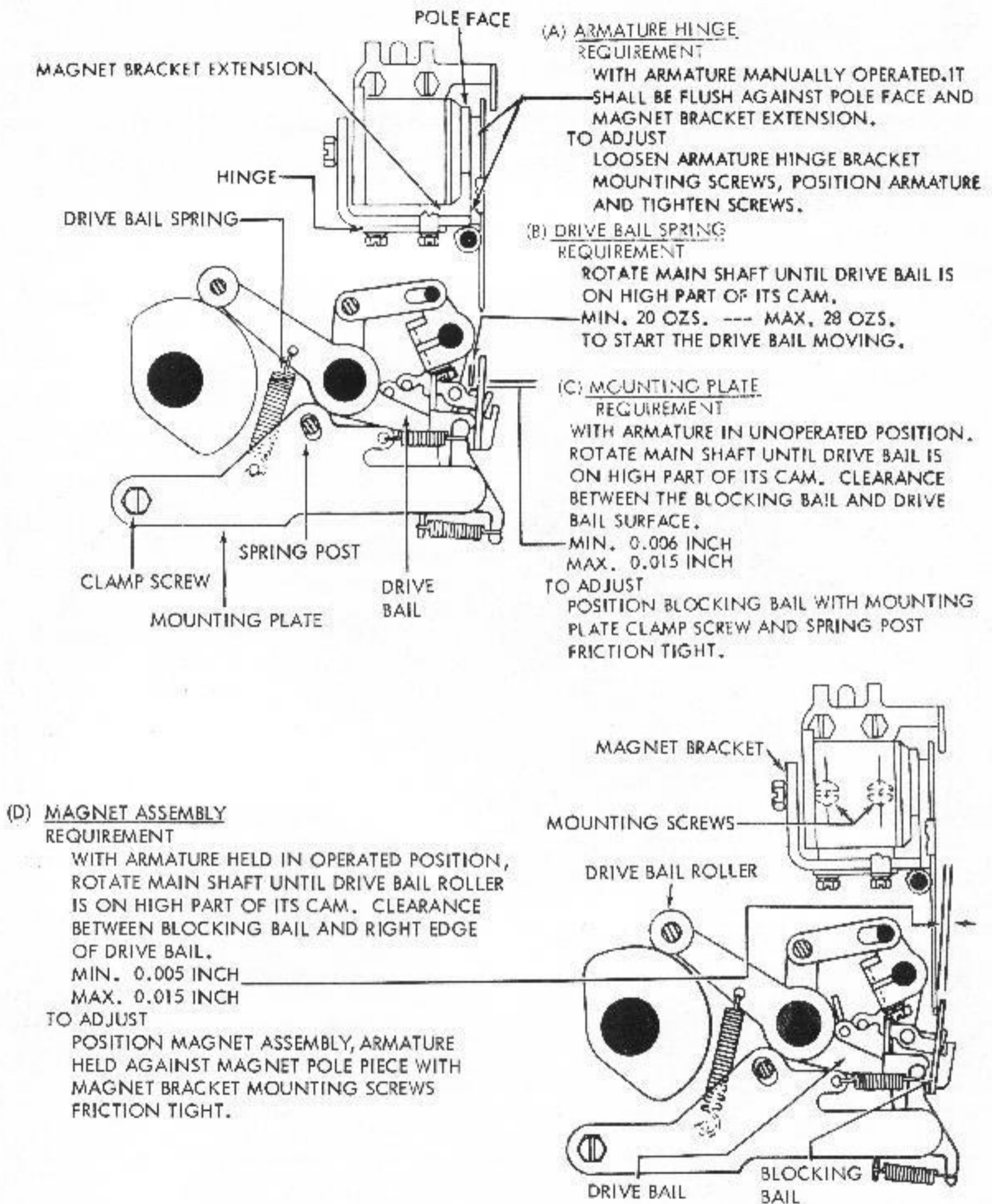


FIGURE 2-41. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

(A)
BLOCKING LATCH TORSION SPRING
REQUIREMENT

WITH ARMATURE IN UNOPERATED POSITION AND DRIVE BAIL ROLLER ON HIGH PART OF ITS CAM, MIN. 15 GRAMS --- MAX. 40 GRAMS TO START BLOCKING LATCH MOVING.

(B)
ARMATURE BACKSTOP
REQUIREMENT

WITH ARMATURE IN UNOPERATED POSITION, ROTATE MAIN SHAFT UNTIL DRIVE BAIL ROLLER IS ON HIGH PART OF ITS CAM, BLOCKING BAIL SHALL FULLY ENGAGE THE DRIVE BAIL.

TO ADJUST WITH THE ARMATURE BACKSTOP MOUNTING SCREWS FRICTION TIGHT, POSITION BY MEANS OF PRY POINT.

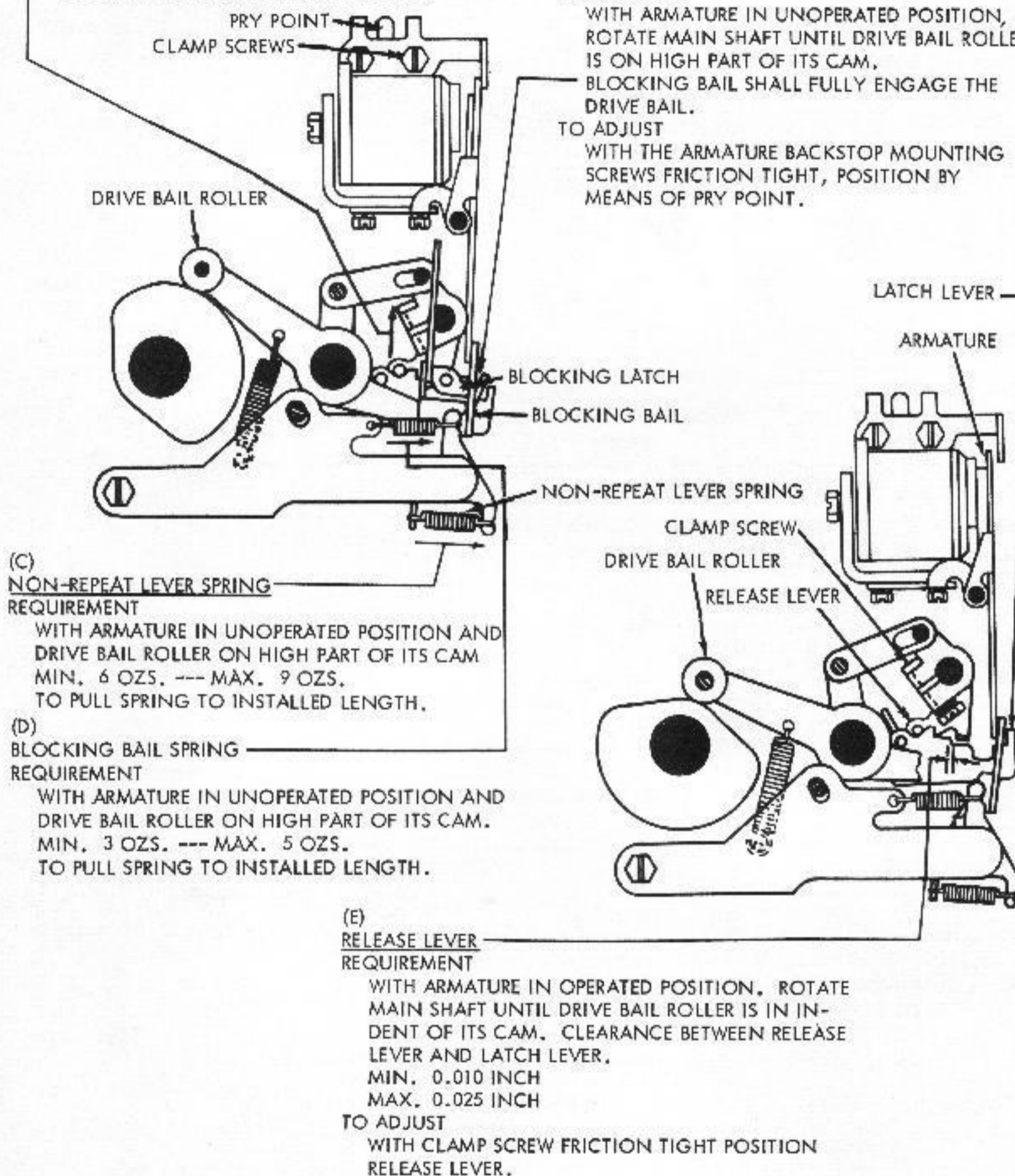


FIGURE 2-42. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

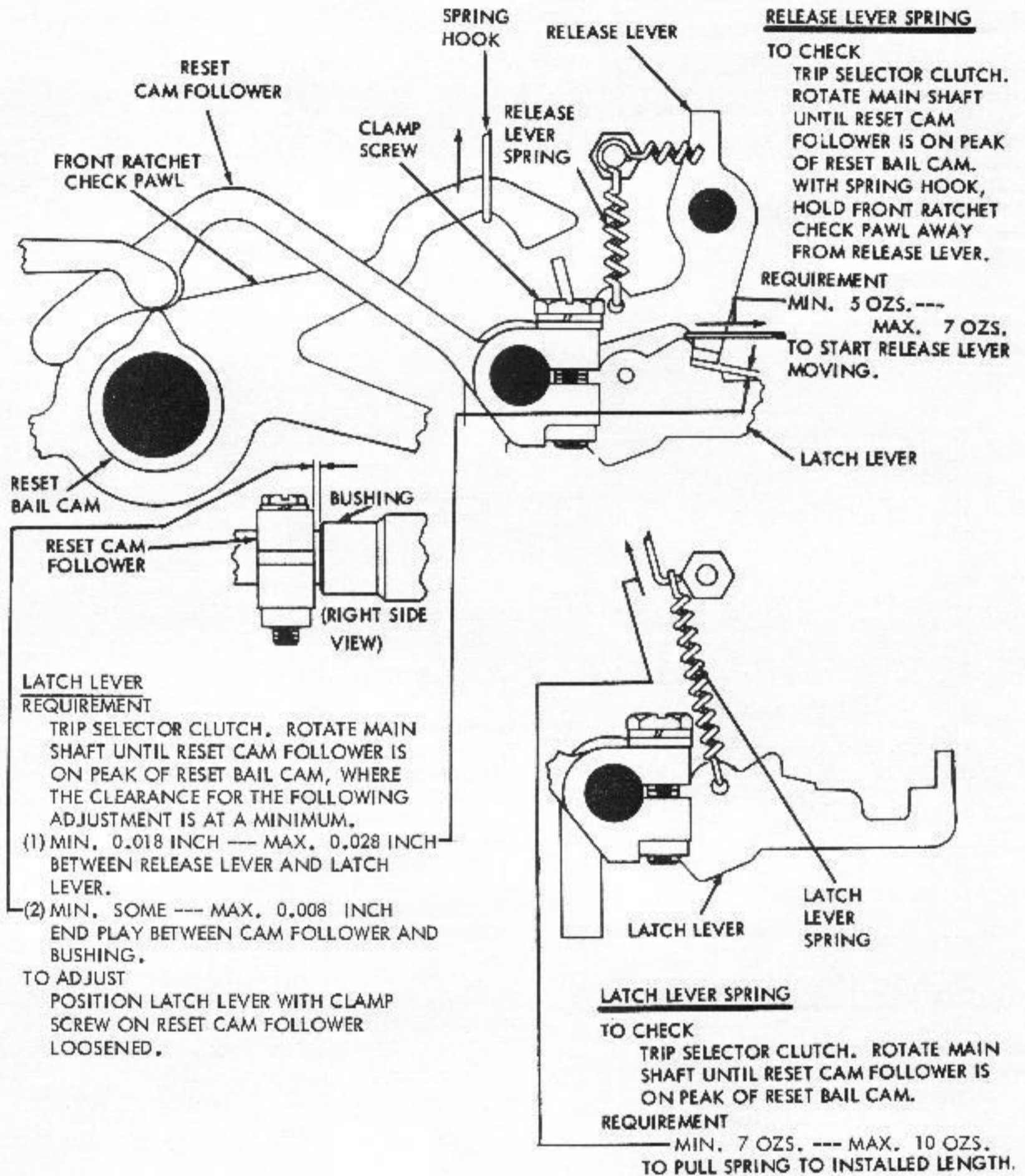


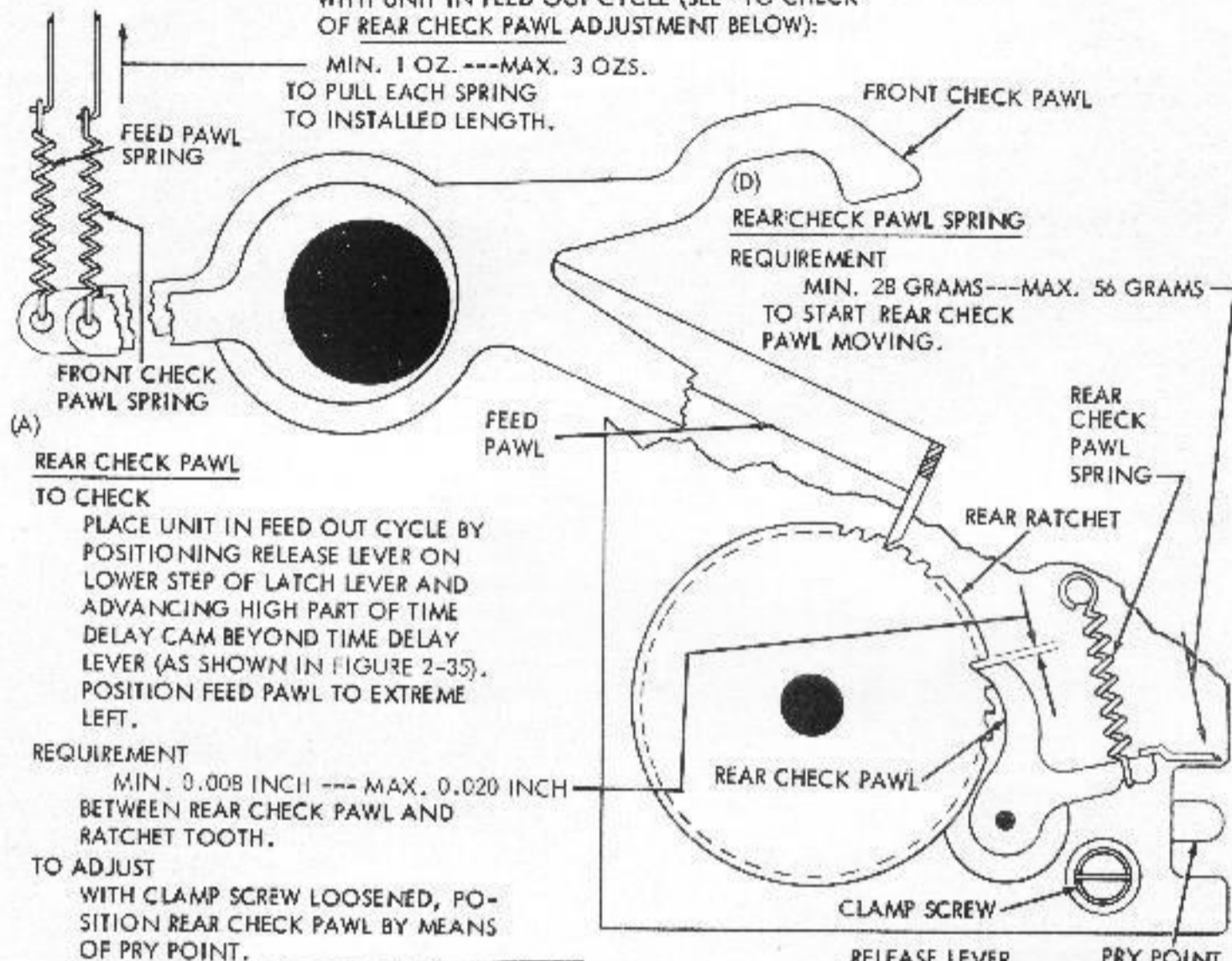
FIGURE 2-43. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

(C) FEED PAWL AND FRONT CHECK PAWL SPRINGS

REQUIREMENT

WITH UNIT IN FEED OUT CYCLE (SEE "TO CHECK" OF REAR CHECK PAWL ADJUSTMENT BELOW):

MIN. 1 OZ. --- MAX. 3 OZS.
TO PULL EACH SPRING
TO INSTALLED LENGTH.



(A) REAR CHECK PAWL TO CHECK

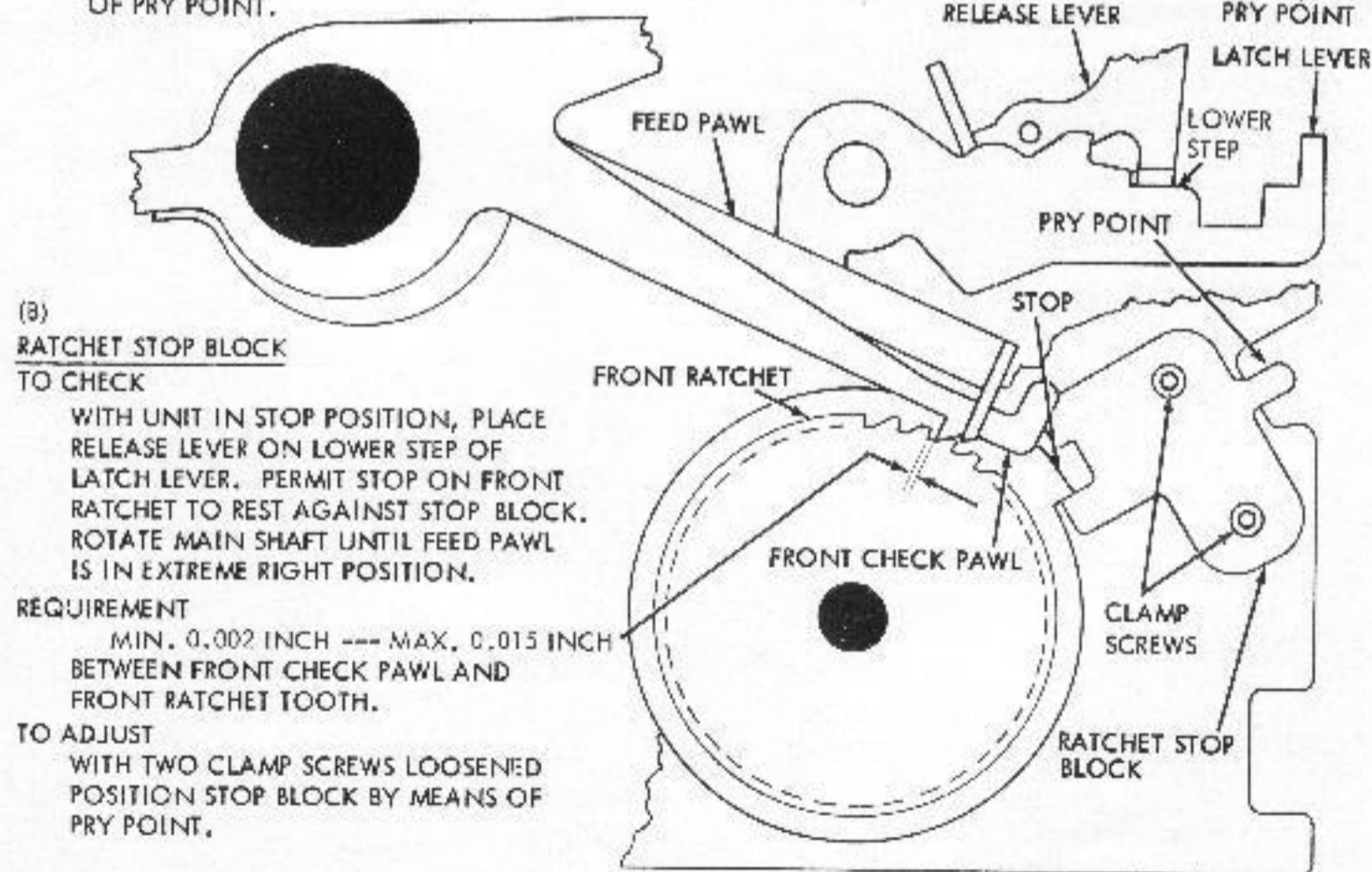
PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN IN FIGURE 2-35). POSITION FEED PAWL TO EXTREME LEFT.

REQUIREMENT

MIN. 0.008 INCH --- MAX. 0.020 INCH
BETWEEN REAR CHECK PAWL AND
RATCHET TOOTH.

TO ADJUST

WITH CLAMP SCREW LOOSENED, POSITION REAR CHECK PAWL BY MEANS OF PRY POINT.



(B) RATCHET STOP BLOCK TO CHECK

WITH UNIT IN STOP POSITION, PLACE RELEASE LEVER ON LOWER STEP OF LATCH LEVER. PERMIT STOP ON FRONT RATCHET TO REST AGAINST STOP BLOCK. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN EXTREME RIGHT POSITION.

REQUIREMENT

MIN. 0.002 INCH --- MAX. 0.015 INCH
BETWEEN FRONT CHECK PAWL AND
FRONT RATCHET TOOTH.

TO ADJUST

WITH TWO CLAMP SCREWS LOOSENED POSITION STOP BLOCK BY MEANS OF PRY POINT.

FIGURE 2-44. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

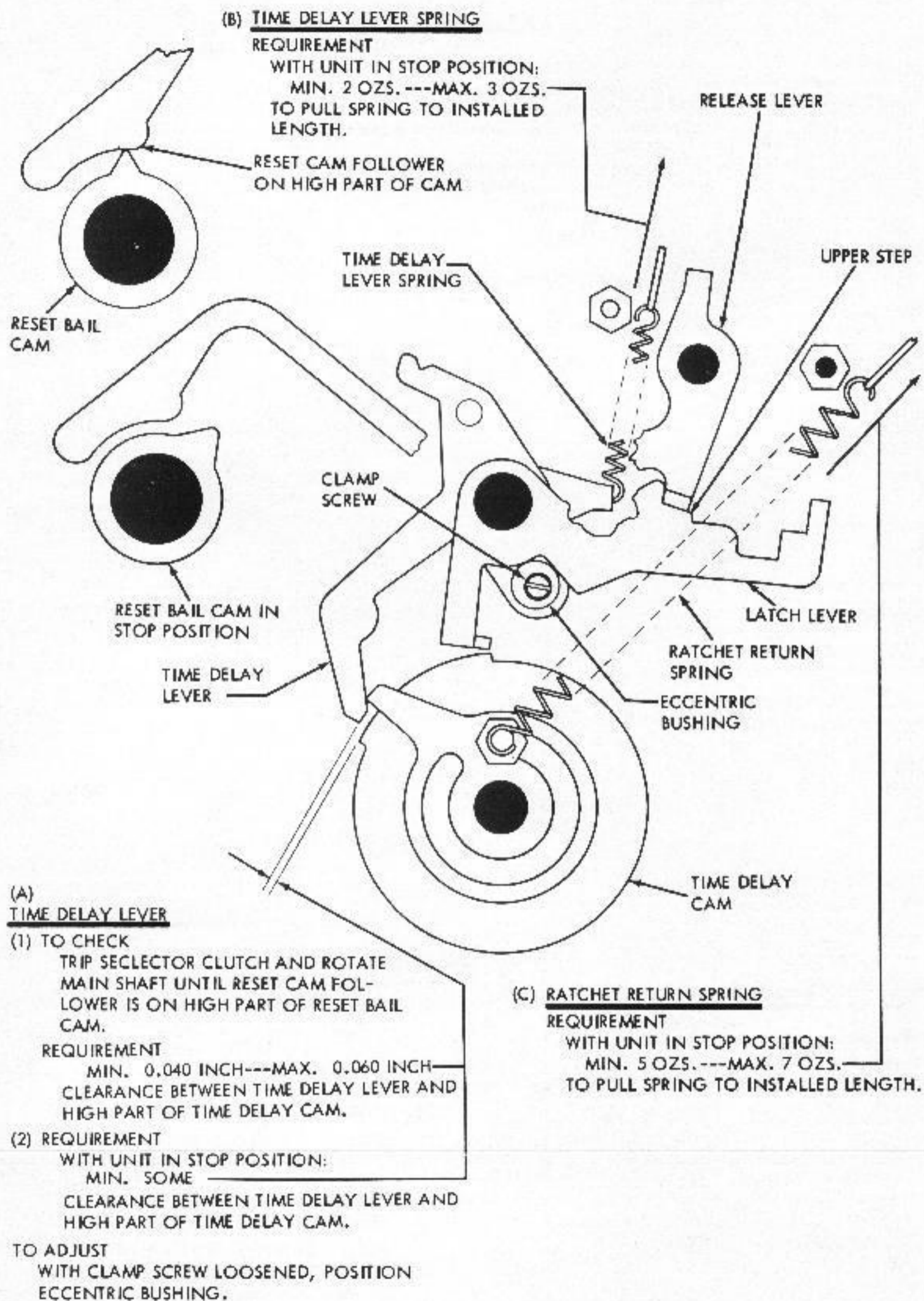


FIGURE 2-45. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

(A) RELEASE ARM**(1) REQUIREMENT**

WITH UNIT IN THE FEED-OUT CYCLE, RATCHETS ADVANCED BEYOND THE TIME DELAY. CLEARANCE BETWEEN THE DRIVE ARM AND UPPER SURFACE OF RELEASE ARM:

MIN. 0.010 INCH

MAX. 0.030 INCH

POSITION CAM SO SURFACES ARE IN LINE.

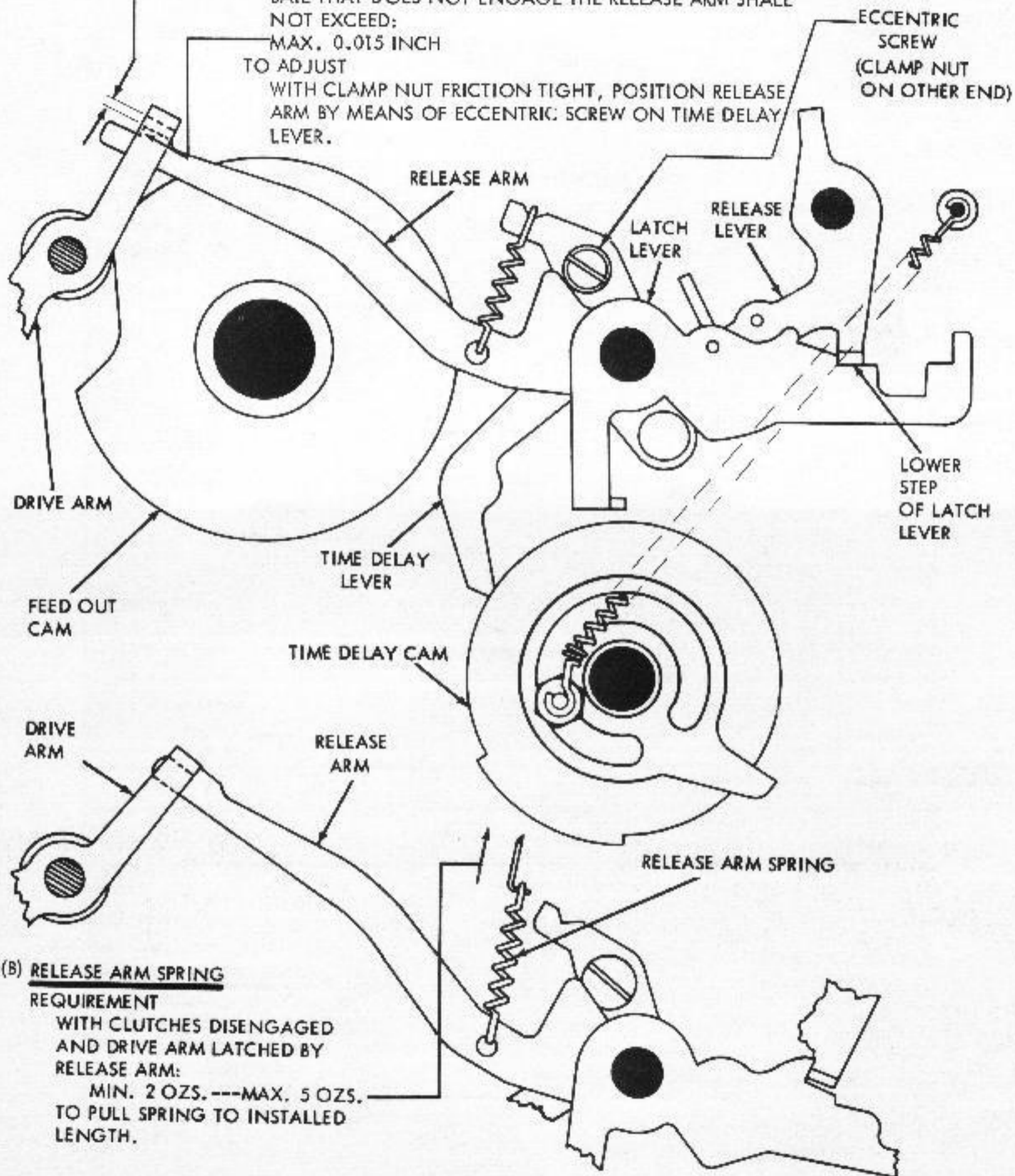
(2) REQUIREMENT

WITH UNIT IN STOP POSITION THE SURFACE OF THE DRIVE BAIL THAT DOES NOT ENGAGE THE RELEASE ARM SHALL NOT EXCEED:

MAX. 0.015 INCH

TO ADJUST

WITH CLAMP NUT FRICTION TIGHT, POSITION RELEASE ARM BY MEANS OF ECCENTRIC SCREW ON TIME DELAY LEVER.

**(B) RELEASE ARM SPRING****REQUIREMENT**

WITH CLUTCHES DISENGAGED AND DRIVE ARM LATCHED BY RELEASE ARM:

MIN. 2 OZS. --- MAX. 5 OZS.

TO PULL SPRING TO INSTALLED LENGTH.

FIGURE 2-46. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

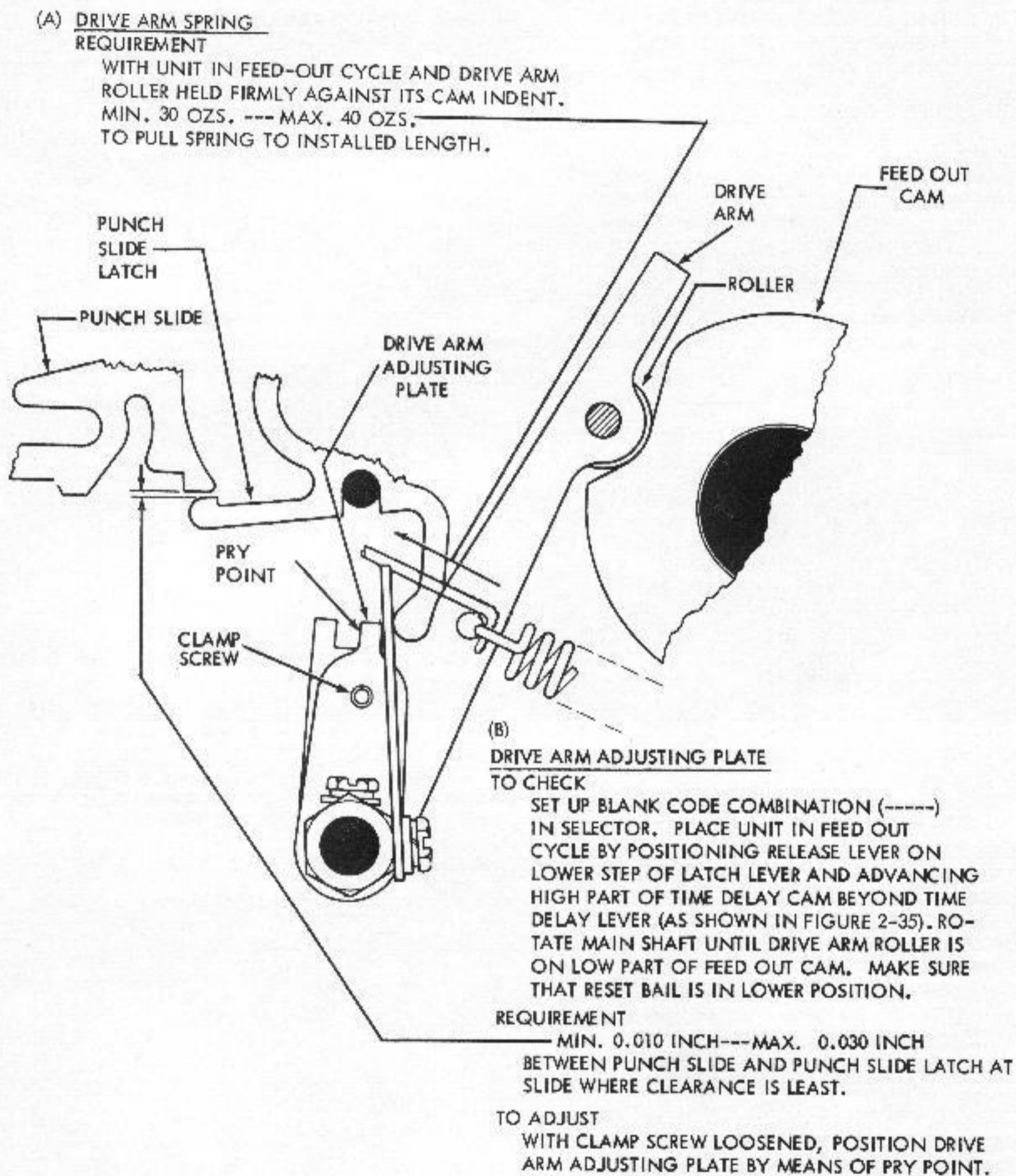


FIGURE 2-47. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

(B) ADJUSTING LEVER
TO CHECK

PLACE UNIT IN FEED-OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN FIGURE 2-35). POSITION MAIN SHAFT SO THAT DRIVE ARM ROLLER IS ON LOW PART OF FEED OUT CAM.

REQUIREMENT

- (1) MIN. 0.010 INCH --- MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
- (2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

LOOSEN THE CLAMP SCREW ON THE ADJUSTING LEVER AND POSITION MAKING SURE THE ADJUSTING LEVER RIDES FULLY ON THE SLIDE TRIP LEVER. TIGHTEN SCREW.

(A) FOLLOWER LEVER

REQUIREMENT

WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM:

- (1) MIN. 0.010 INCH---MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
- (2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

WITH LOCK NUT LOOSENED, POSITION ADJUSTING ARM BY MEANS OF PRY POINT.

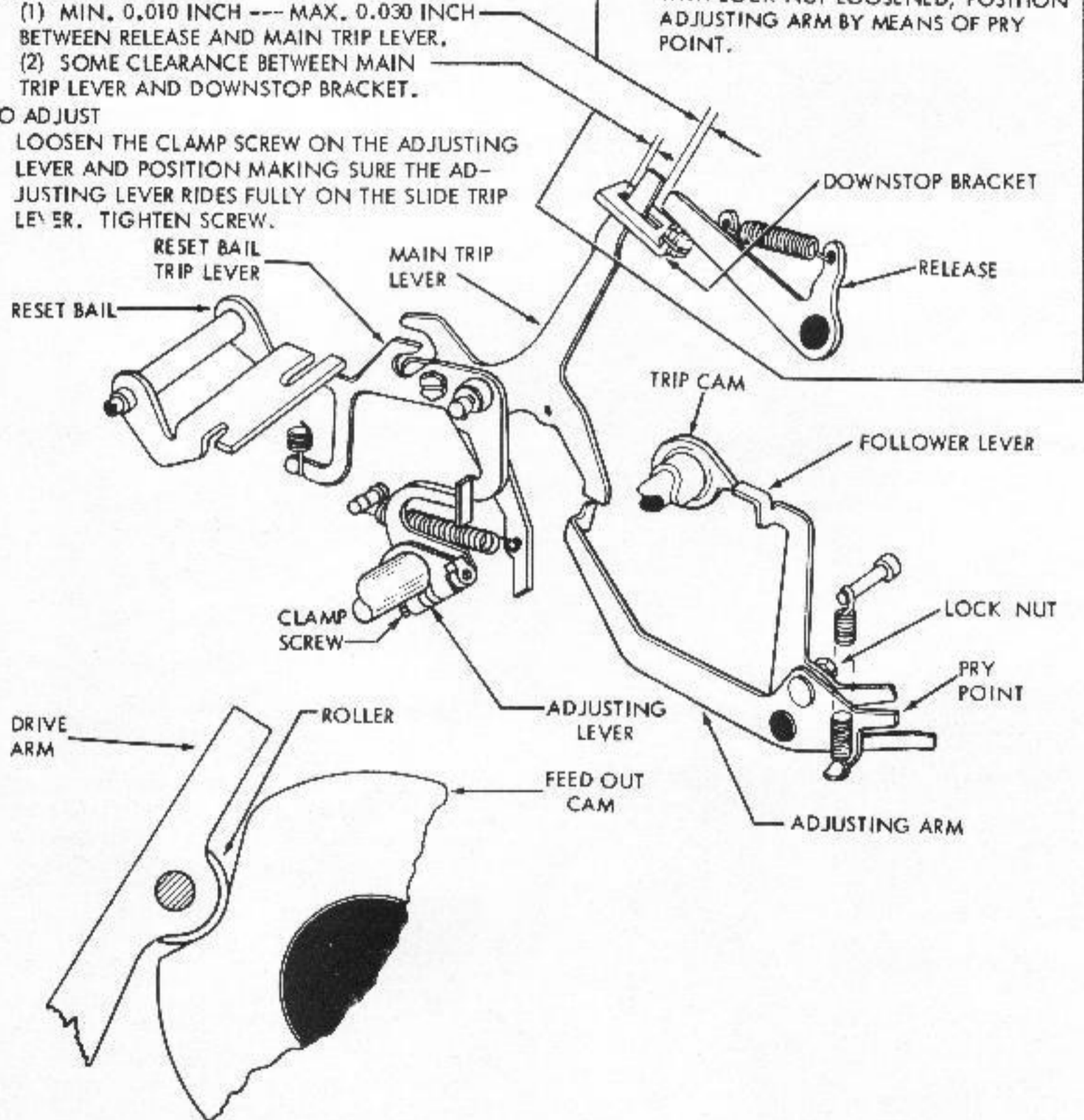


FIGURE 2-48. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

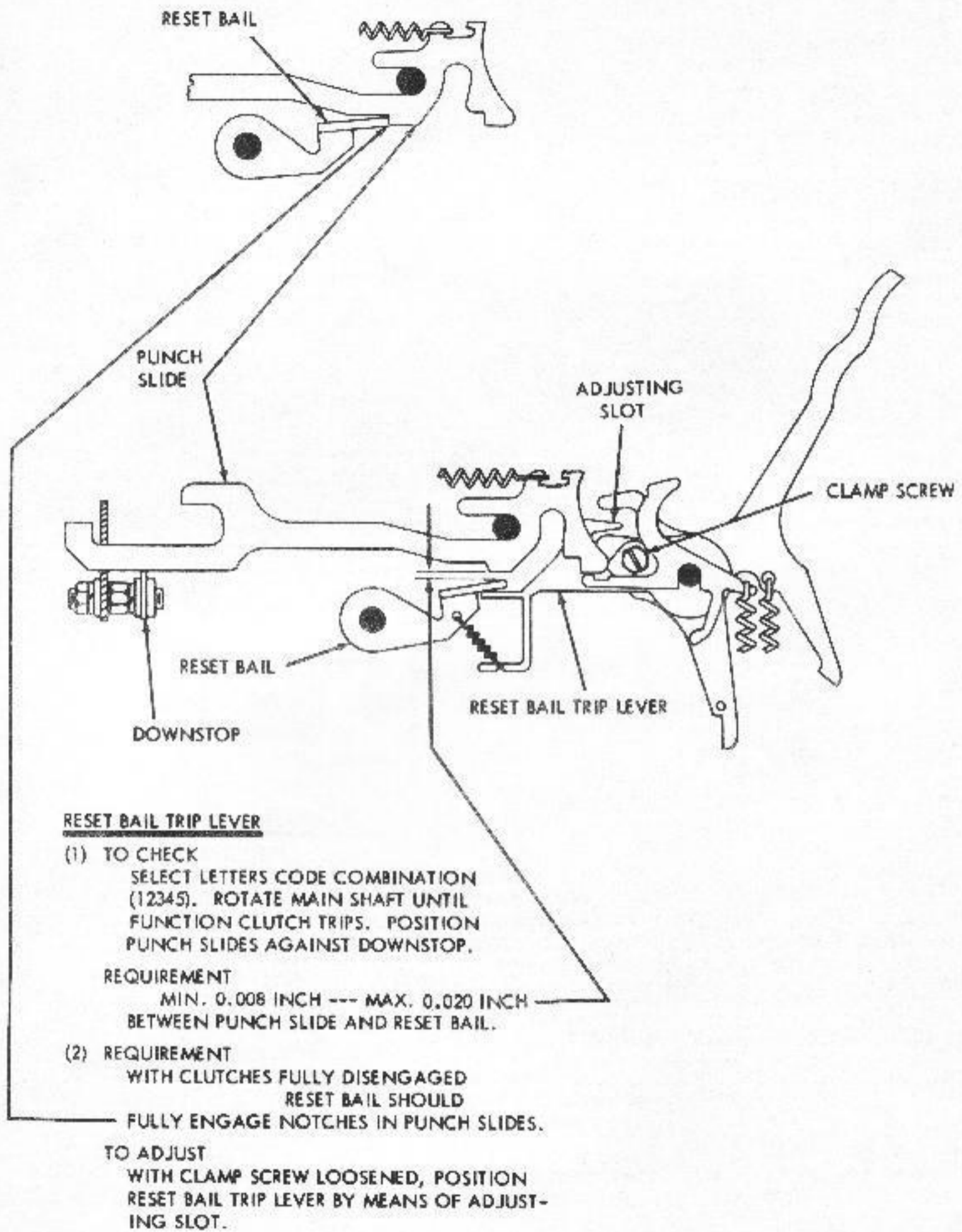
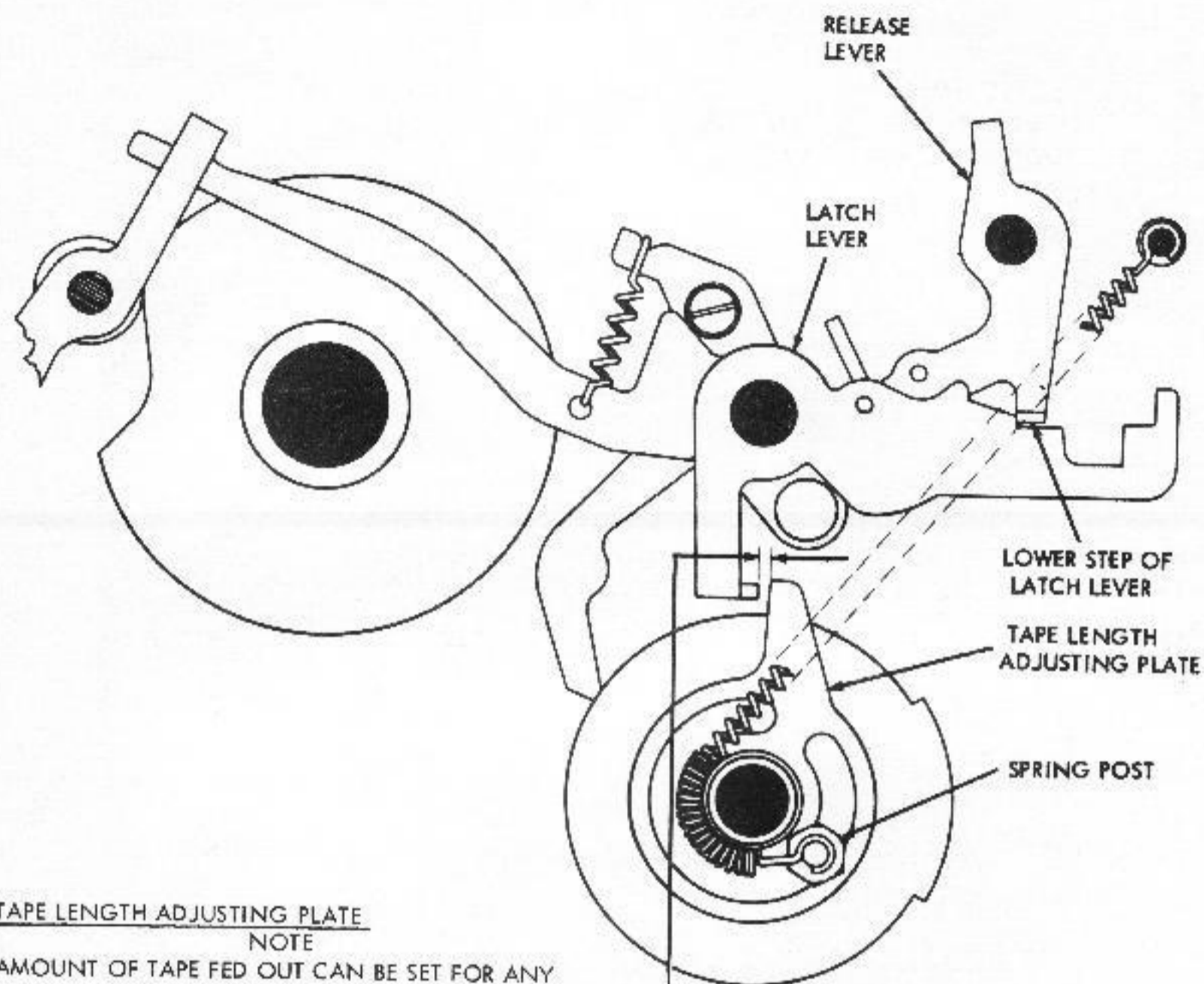


FIGURE 2-49. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM.



TAPE LENGTH ADJUSTING PLATE

NOTE

AMOUNT OF TAPE FED OUT CAN BE SET FOR ANY LENGTH UP TO 18 INCHES.

(1) REQUIREMENT

PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER. MANUALLY ADVANCE RATCHETS SO THAT FRONT RATCHET IS IN THE TOOTH PRECEDING TRIP OFF. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN THE EXTREME LEFT POSITION. CLEARANCE BETWEEN ADJUSTING PLATE AND LATCH LEVER PROJECTION:
MIN. 0.002 INCH
MAX. 0.020 INCH

(2) REQUIREMENT

WHEN OPERATING UNDER POWER, UNIT SHOULD FEED OUT CORRECT LENGTH OF TAPE.

TO ADJUST

WITH SPRING POST FRICTION TIGHT, POSITION ADJUSTING PLATE.

FIGURE 2-50. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

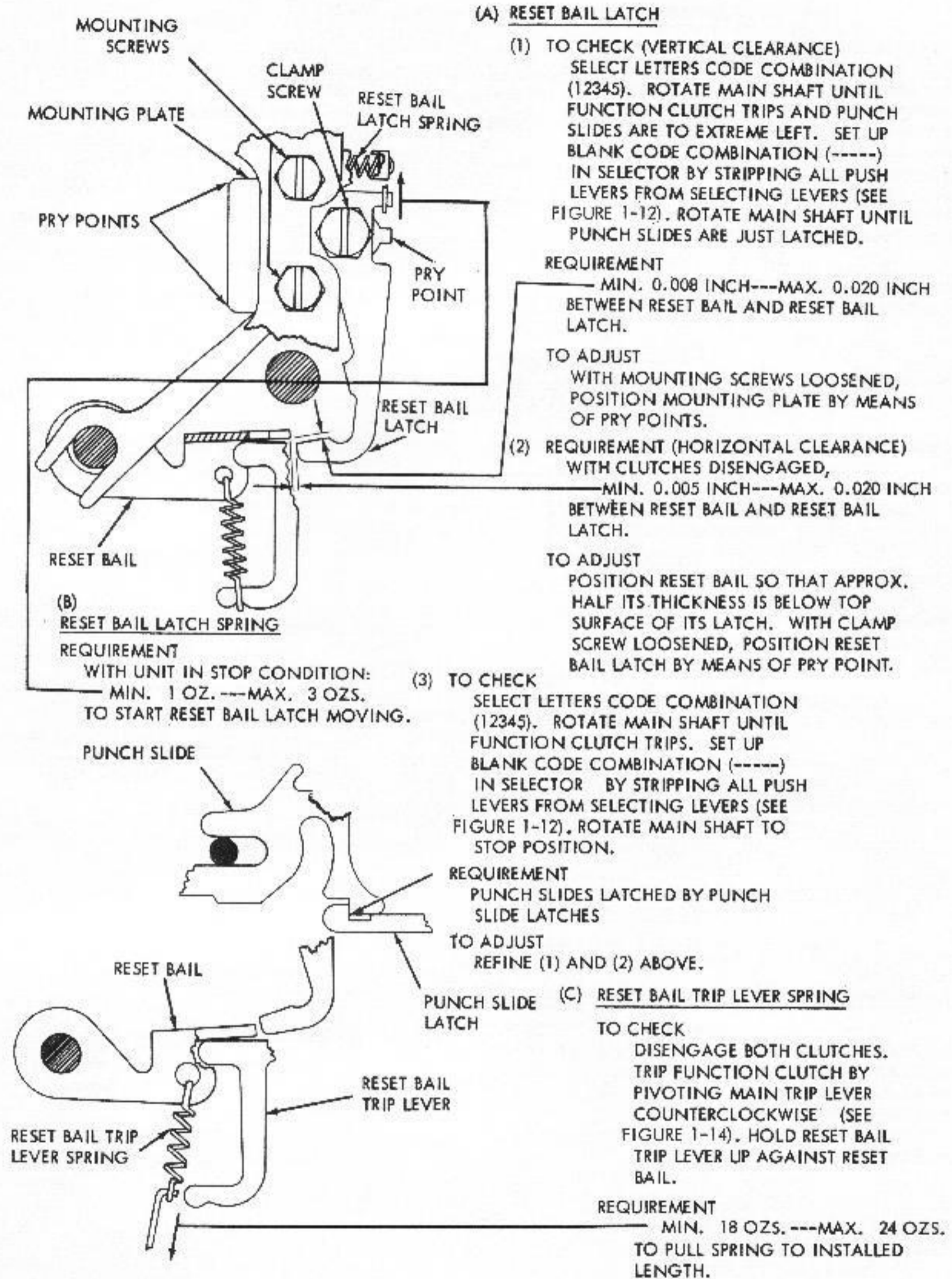


FIGURE 2-51. REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM

11. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM - LATEST DESIGN
(FOR EARLIER DESIGN SEE FIGURES 5-7 TO 5-21)

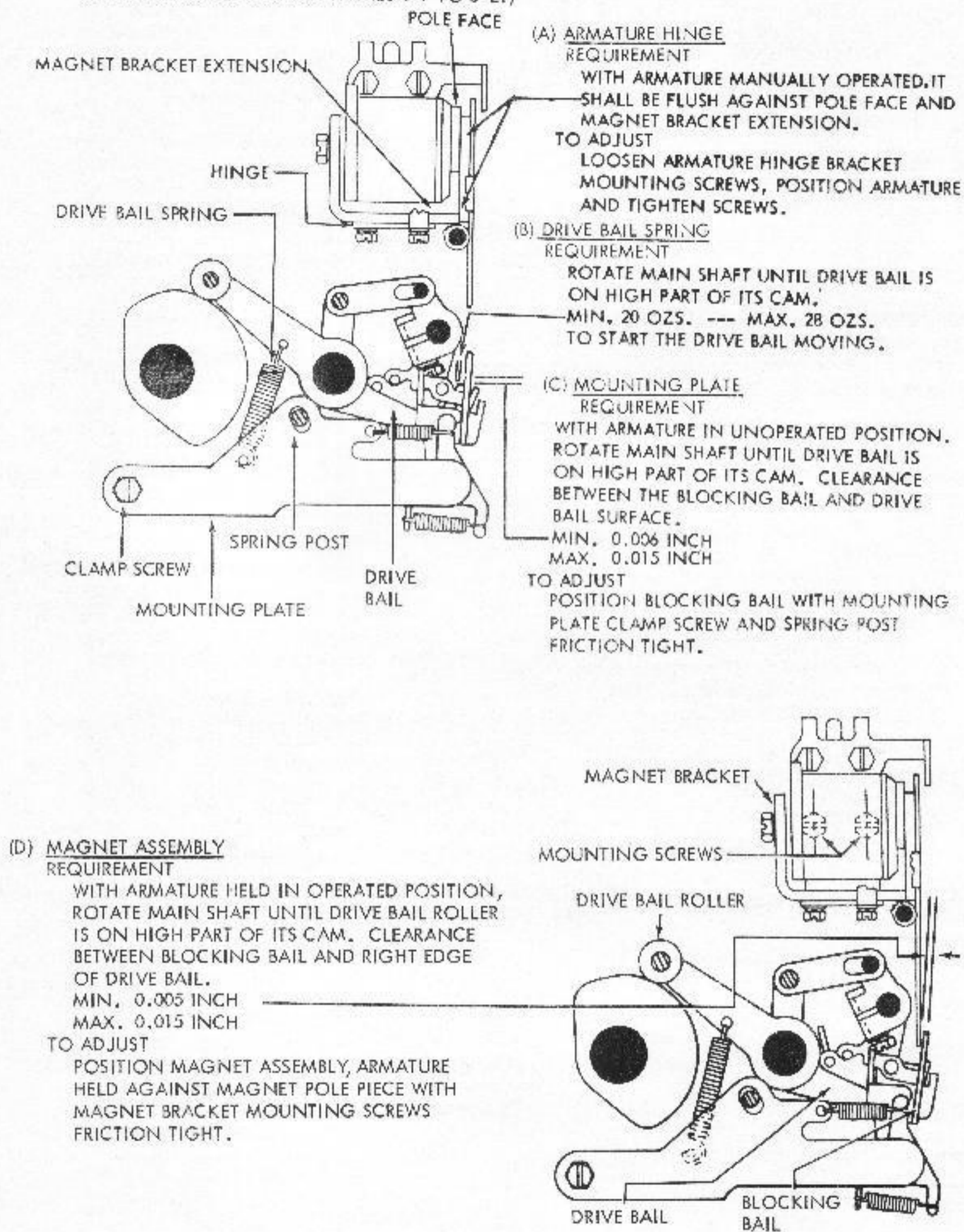


FIGURE 2-52. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN

(A)
**BLOCKING LATCH TORSION SPRING
REQUIREMENT**

WITH ARMATURE IN UNOPERATED POSITION AND
DRIVE BAIL ROLLER ON HIGH PART OF ITS CAM,
MIN. 15 GRAMS --- MAX. 40 GRAMS
TO START BLOCKING LATCH MOVING.

(B)
**ARMATURE BACKSTOP
REQUIREMENT**

WITH ARMATURE IN UNOPERATED POSITION,
ROTATE MAIN SHAFT UNTIL DRIVE BAIL ROLLER
IS ON HIGH PART OF ITS CAM.
BLOCKING BAIL SHALL FULLY ENGAGE THE
DRIVE BAIL.

TO ADJUST
WITH THE ARMATURE BACKSTOP MOUNTING
SCREWS FRICTION TIGHT, POSITION BY
MEANS OF PRYPOINT.

(C)
**NON-REPEAT LEVER SPRING
REQUIREMENT**

WITH ARMATURE IN UNOPERATED POSITION AND
DRIVE BAIL ROLLER ON HIGH PART OF ITS CAM
MIN. 6 OZS. --- MAX. 9 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

(D)
**BLOCKING BAIL SPRING
REQUIREMENT**

WITH ARMATURE IN UNOPERATED POSITION AND
DRIVE BAIL ROLLER ON HIGH PART OF ITS CAM,
MIN. 3 OZS. --- MAX. 5 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

(E)
**RELEASE LEVER
REQUIREMENT**

WITH ARMATURE IN OPERATED POSITION, ROTATE
MAIN SHAFT UNTIL DRIVE BAIL ROLLER IS IN IN-
DENT OF ITS CAM. CLEARANCE BETWEEN RELEASE
LEVER AND LATCH LEVER,
MIN. 0.010 INCH
MAX. 0.025 INCH

TO ADJUST
WITH CLAMP SCREW FRICTION TIGHT POSITION
RELEASE LEVER.

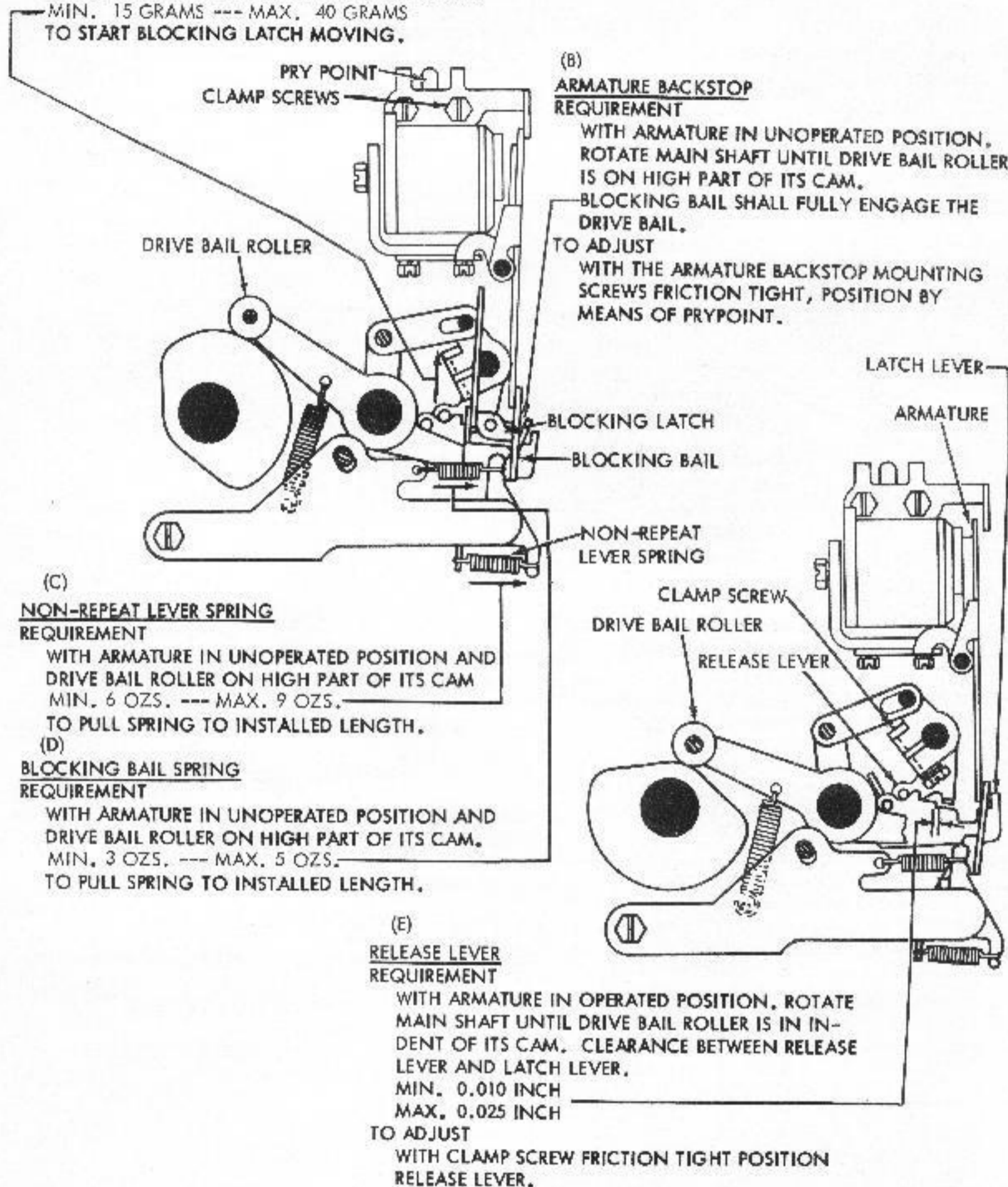


FIGURE 2-53. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

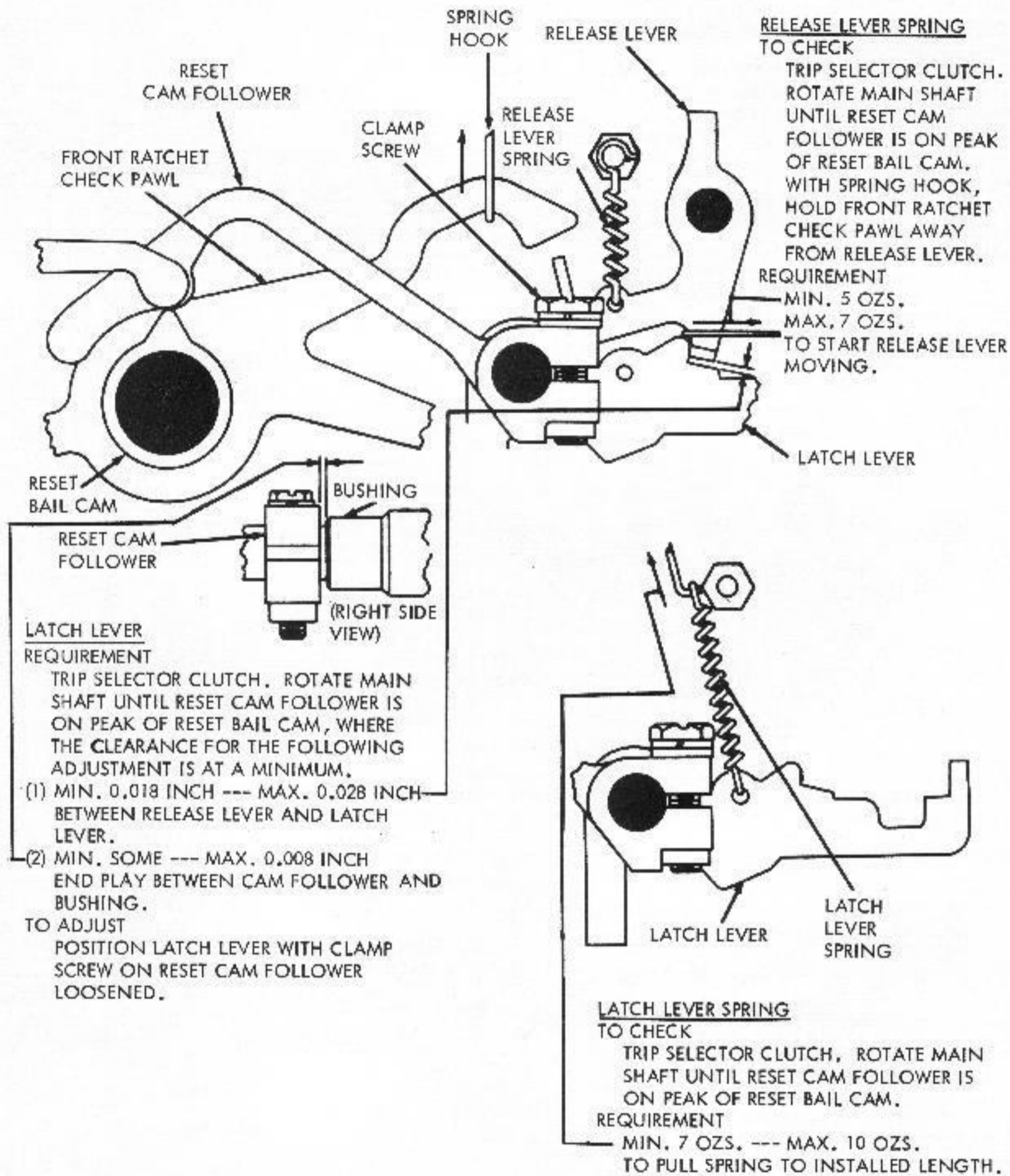
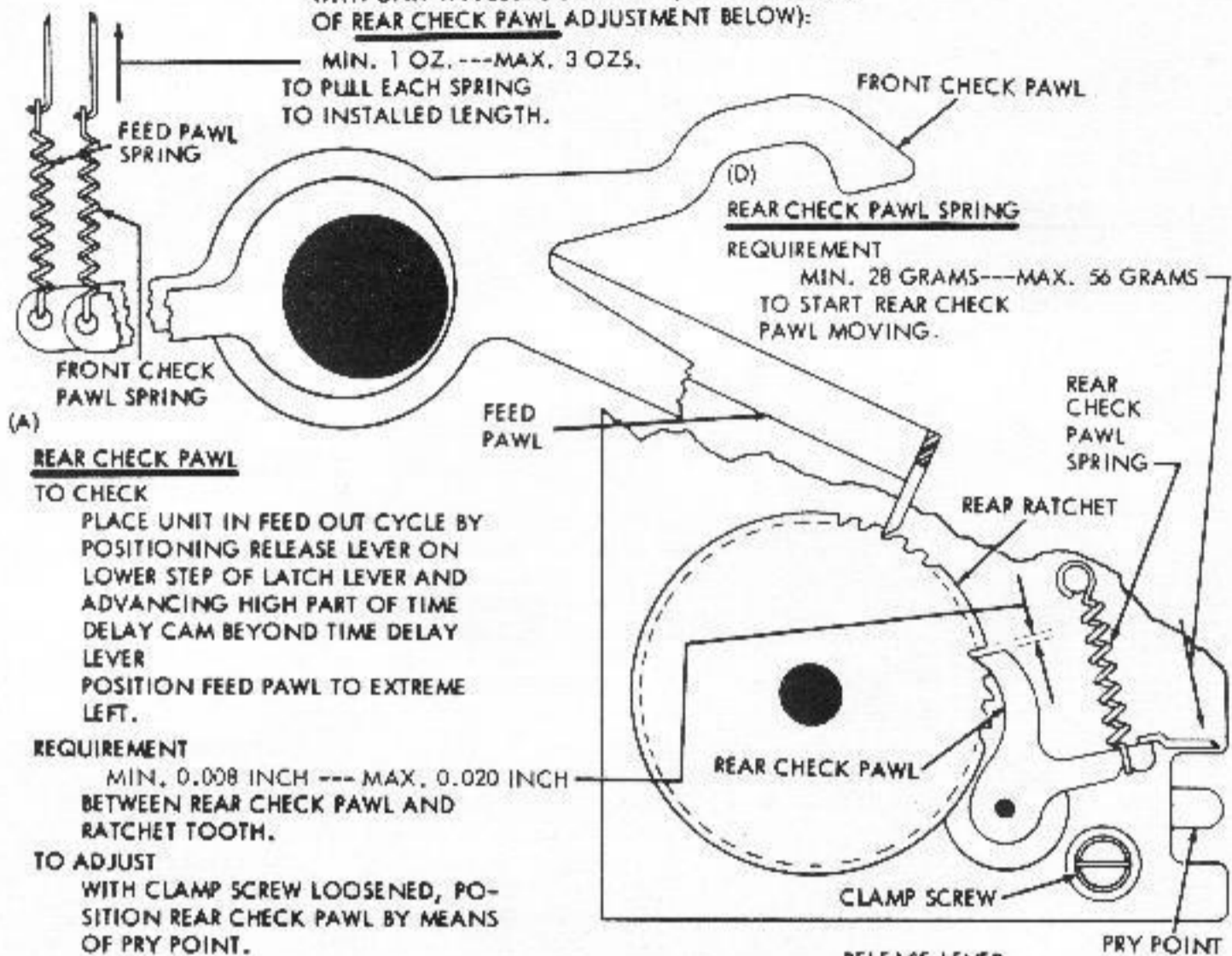


FIGURE 2-54. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

(C) FEED PAWL AND FRONT CHECK PAWL SPRINGS**REQUIREMENT**

WITH UNIT IN FEED OUT CYCLE (SEE "TO CHECK" OF REAR CHECK PAWL ADJUSTMENT BELOW):

MIN. 1 OZ. --- MAX. 3 OZS.
TO PULL EACH SPRING
TO INSTALLED LENGTH.

**(A) REAR CHECK PAWL****TO CHECK**

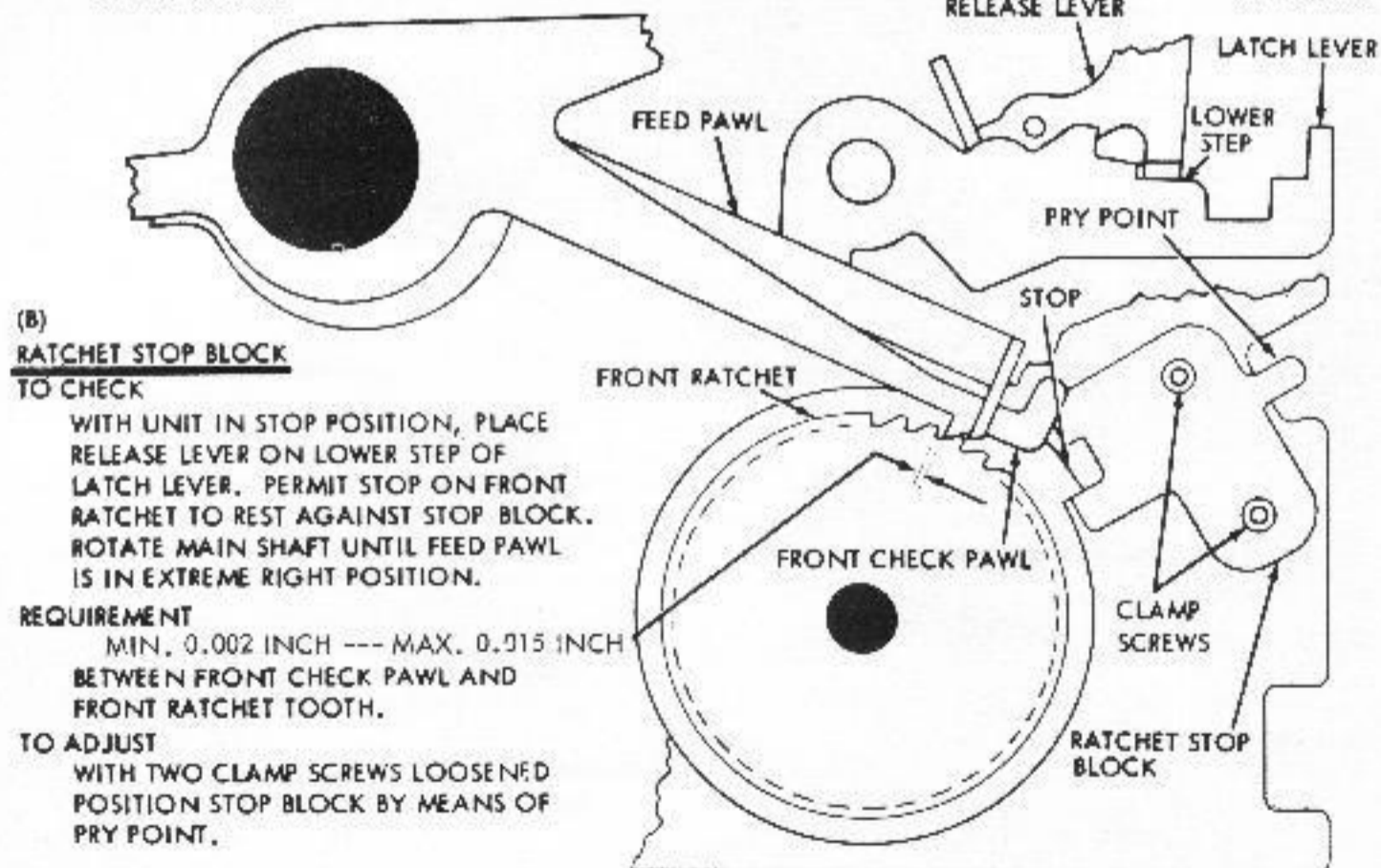
PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER. POSITION FEED PAWL TO EXTREME LEFT.

REQUIREMENT

MIN. 0.008 INCH --- MAX. 0.020 INCH
BETWEEN REAR CHECK PAWL AND
RATCHET TOOTH.

TO ADJUST

WITH CLAMP SCREW LOOSENED, POSITION REAR CHECK PAWL BY MEANS OF PRY POINT.

**(B) RATCHET STOP BLOCK****TO CHECK**

WITH UNIT IN STOP POSITION, PLACE RELEASE LEVER ON LOWER STEP OF LATCH LEVER. PERMIT STOP ON FRONT RATCHET TO REST AGAINST STOP BLOCK. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN EXTREME RIGHT POSITION.

REQUIREMENT

MIN. 0.002 INCH --- MAX. 0.015 INCH
BETWEEN FRONT CHECK PAWL AND
FRONT RATCHET TOOTH.

TO ADJUST

WITH TWO CLAMP SCREWS LOOSENED POSITION STOP BLOCK BY MEANS OF PRY POINT.

FIGURE 2-55. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

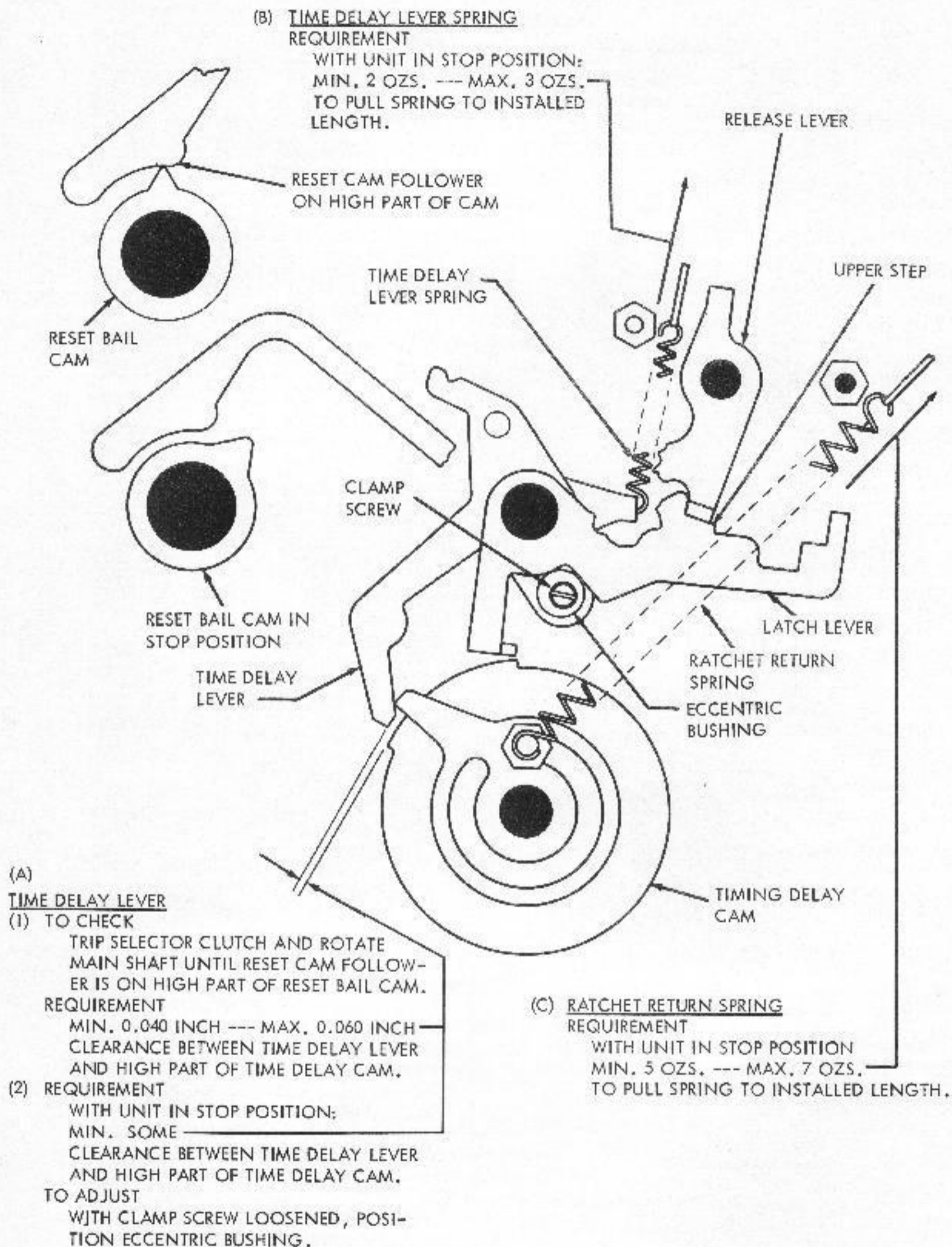


FIGURE 2-56. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

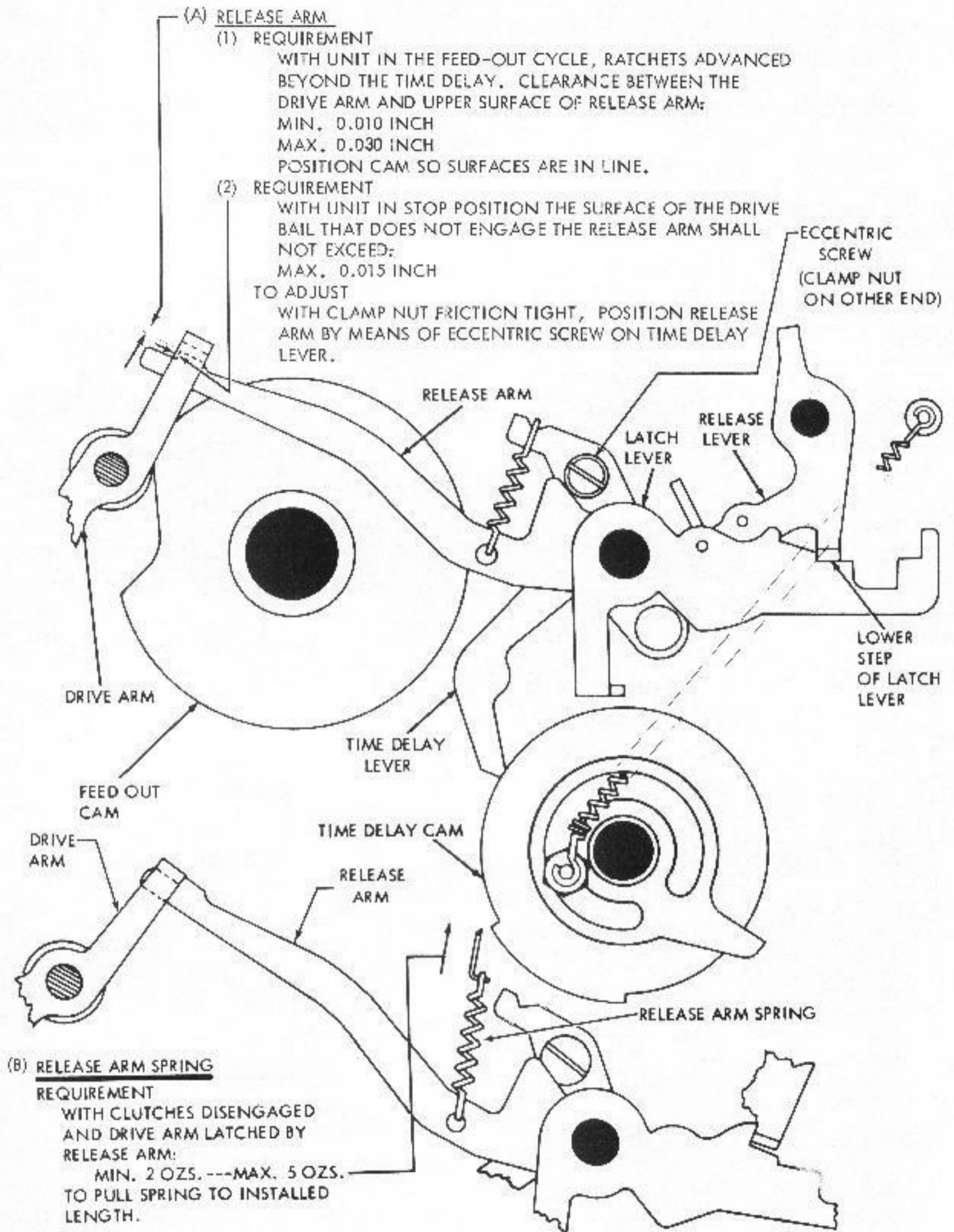


FIGURE 2-57. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

(A) DRIVE ARM SPRING

WITH UNIT IN FEED-OUT CYCLE AND DRIVE ARM
 ROLLER HELD FIRMLY AGAINST ITS CAM INDENT,
 REQUIREMENT
 MIN. 30 OZS. --- MAX. 40 OZS.
 TO PULL SPRING TO INSTALLED LENGTH.

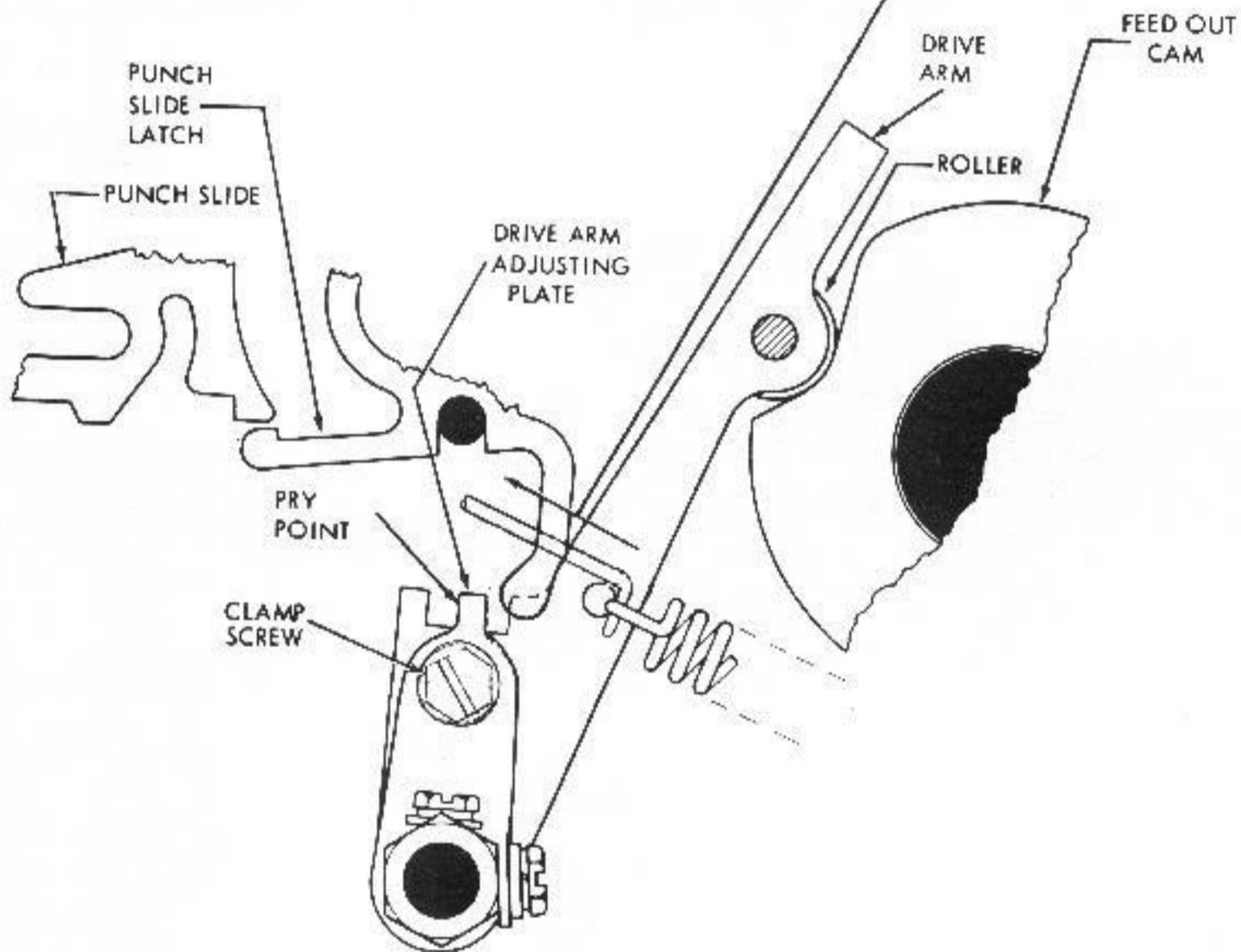


FIGURE 2-58. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

(B) ADJUSTING LEVER TO CHECK

PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN ON FIGURE 2-34). POSITION MAIN SHAFT SO THAT DRIVE ARM ROLLER IS ON LOW PART OF FEED OUT CAM.

REQUIREMENT

- (1) MIN. 0.010 INCH --- MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
- (2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

LOOSEN THE CLAMP SCREW ON THE ADJUSTING LEVER AND POSITION MAKING SURE THE ADJUSTING LEVER RIDES FULLY ON THE SLIDE TRIP LEVER. TIGHTEN SCREW.

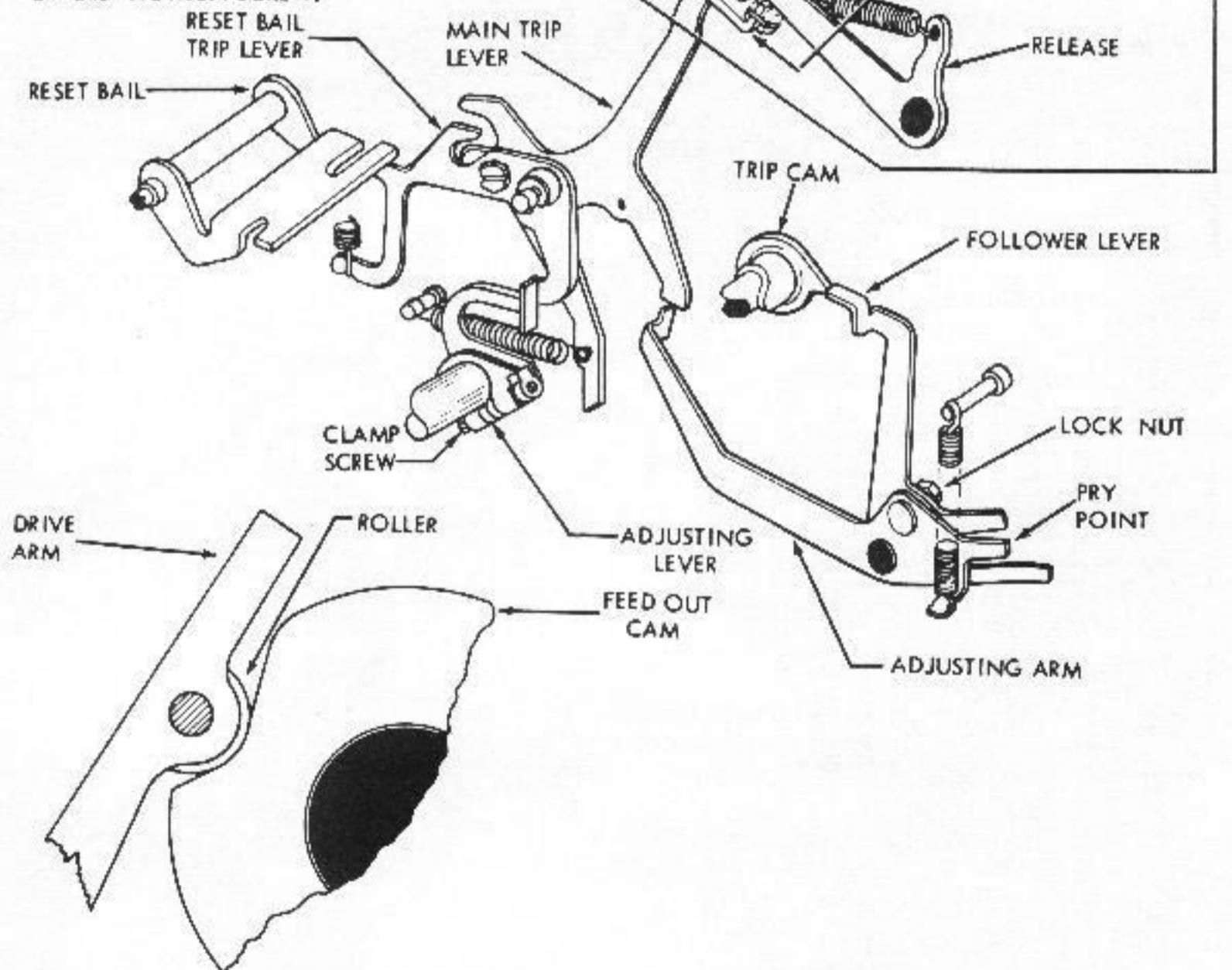
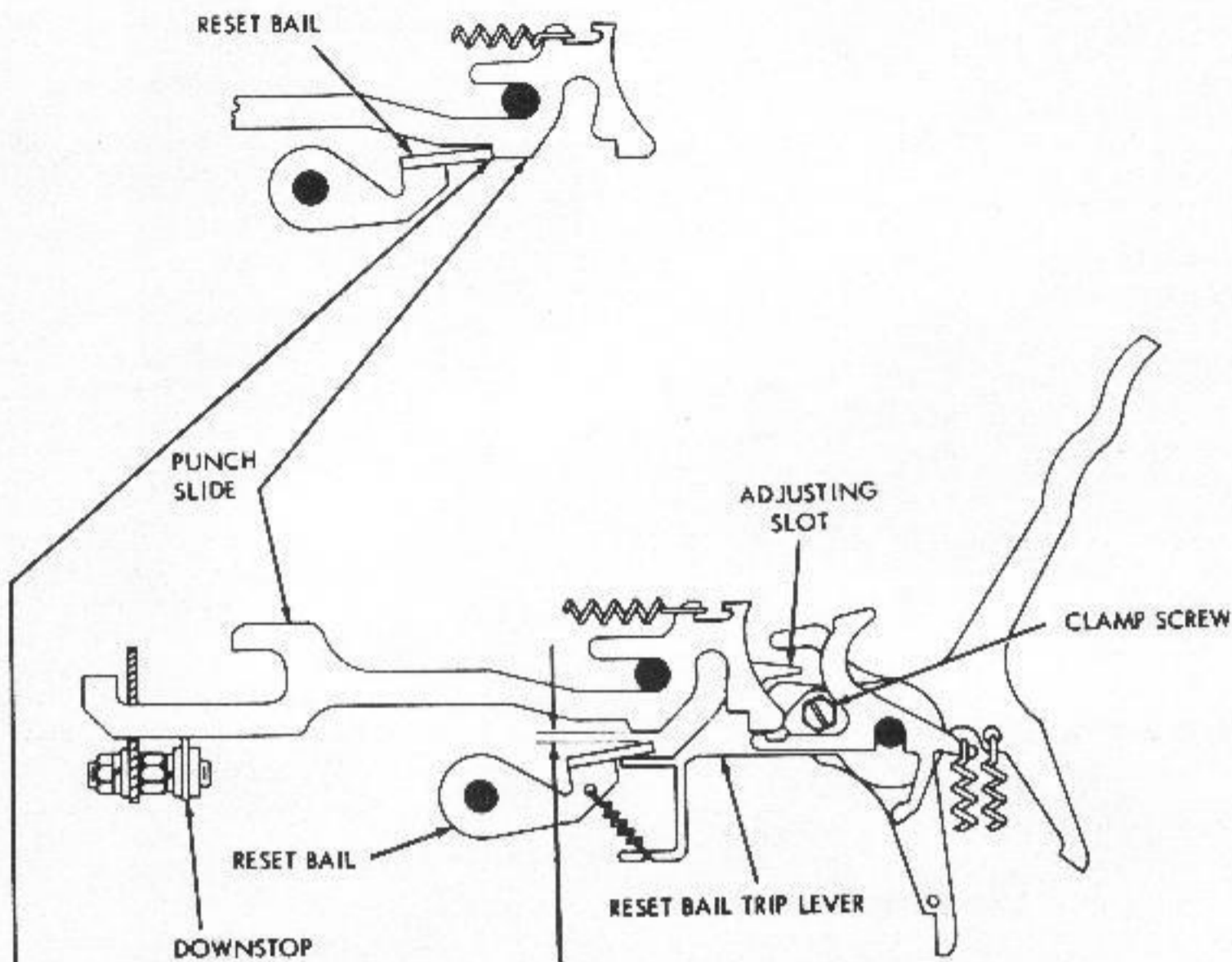


FIGURE 2-59. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM



RESET BAIL TRIP LEVER

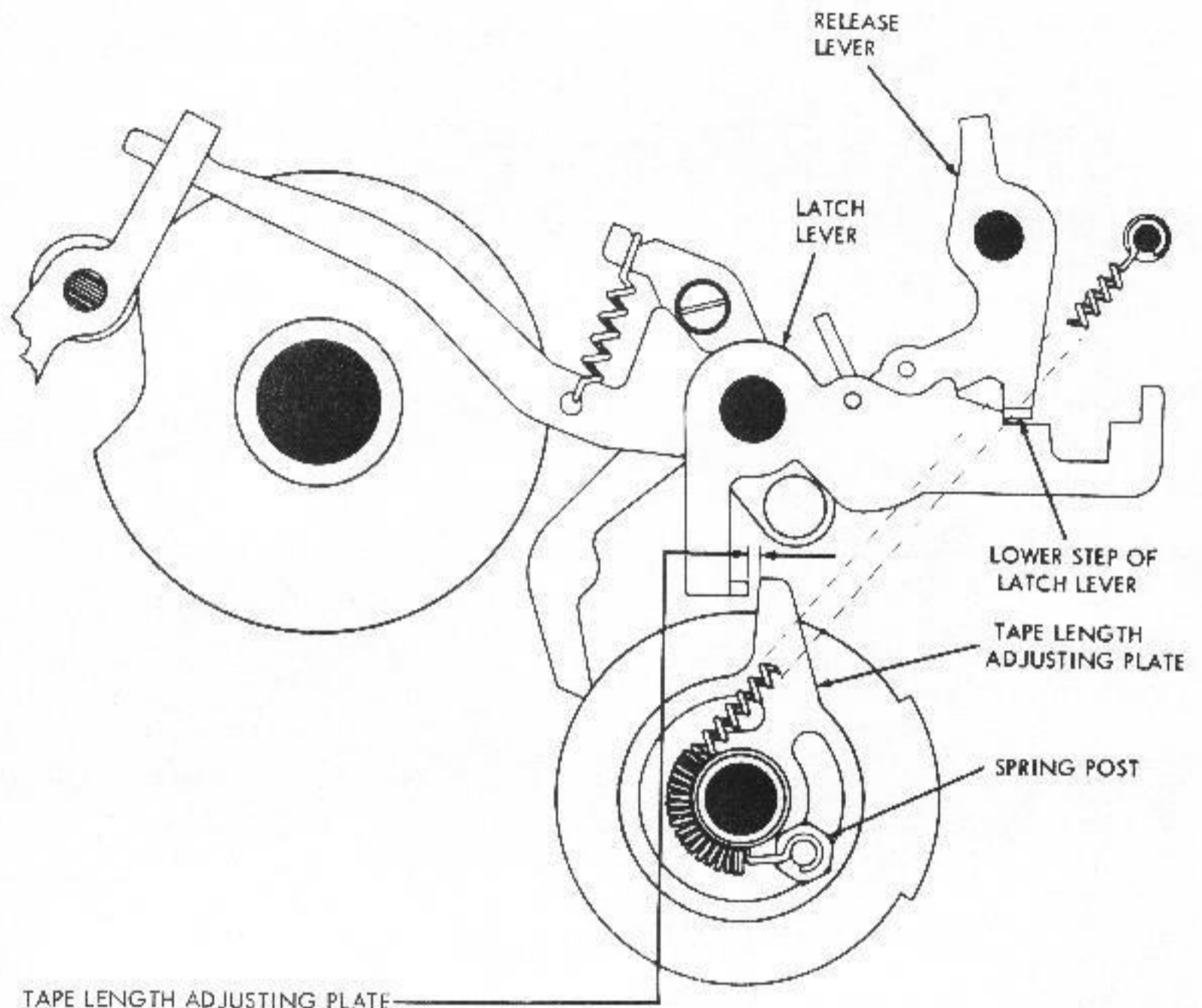
- (1) TO CHECK
 SELECT LETTERS CODE COMBINATION
 (12345). ROTATE MAIN SHAFT UNTIL
 FUNCTION CLUTCH TRIPS. POSITION
 PUNCH SLIDES AGAINST DOWNSTOP.

REQUIREMENT
 MIN. 0.008 INCH --- MAX. 0.020 INCH
 BETWEEN PUNCH SLIDE AND RESET BAIL.

- (2) REQUIREMENT
 WITH CLUTCHES FULLY DISENGAGED
 RESET BAIL SHOULD
 FULLY ENGAGE NOTCHES IN PUNCH SLIDES.

TO ADJUST
 WITH CLAMP SCREW LOOSENED, POSITION
 RESET BAIL TRIP LEVER BY MEANS OF ADJUST-
 ING SLOT.

FIGURE 2-60. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM



TAPE LENGTH ADJUSTING PLATE

NOTE

AMOUNT OF TAPE FED OUT CAN BE SET FOR ANY LENGTH UP TO 18 INCHES.

(1) REQUIREMENT

PLACE UNIT IN FEED OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER. MANUALLY ADVANCE RATCHETS SO THAT FRONT RATCHET IS IN THE TOOTH PRECEDING TRIP OFF. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN THE EXTREME LEFT POSITION. CLEARANCE BETWEEN ADJUSTING PLATE AND LATCH LEVER PROJECTION:
MIN. 0.002 INCH
MAX. 0.020 INCH

(2) REQUIREMENT

WHEN OPERATING UNDER POWER, UNIT SHOULD FEED OUT CORRECT LENGTH OF TAPE.

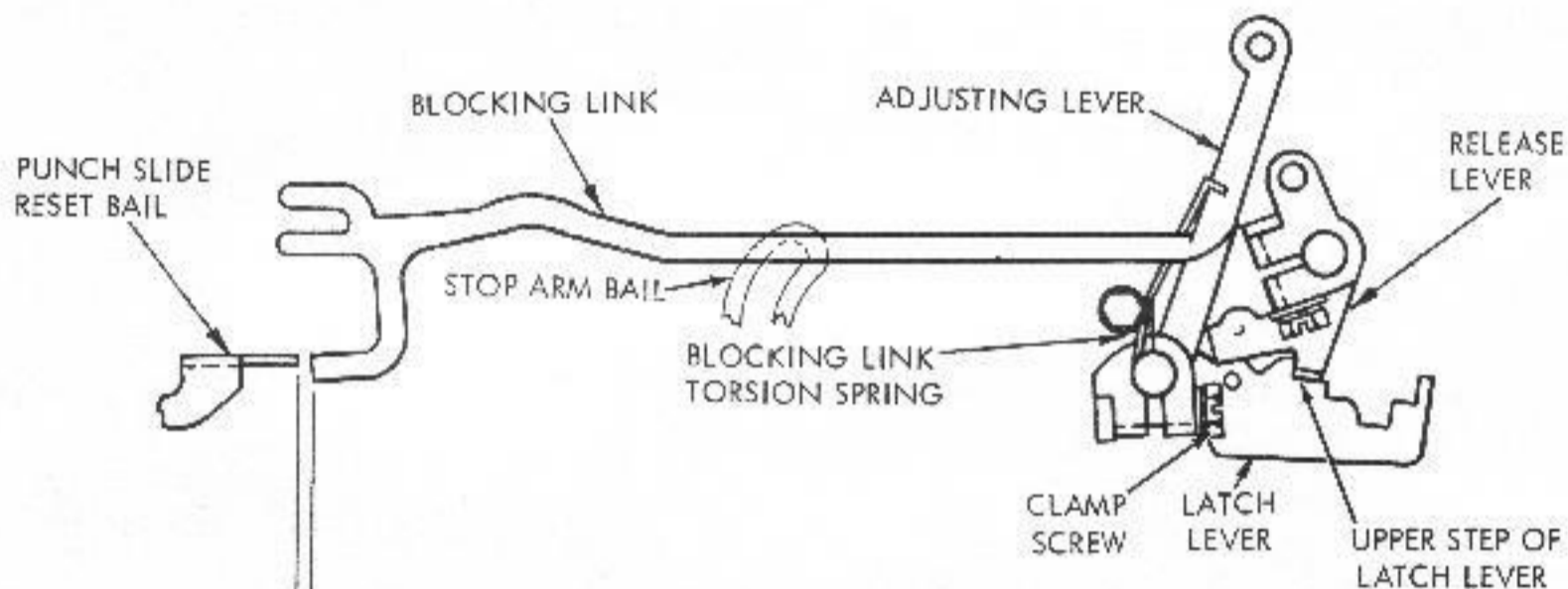
TO ADJUST

WITH SPRING POST FRICTION TIGHT. POSITION ADJUSTING PLATE.

FIGURE 2-61. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

**BLOCKING LINK TORSION SPRING
REQUIREMENT**

WITH UNIT IN STOP POSITION AND RELEASE
LEVER ON LOWER STEP OF LATCH LEVER
MIN. 15 GRAMS --- MAX. 35 GRAMS
TO START THE BLOCK LINK MOVING.



BLOCKING LINK

TO CHECK (HORIZONTAL CLEARANCE)

WITH UNIT IN STOP POSITION AND RELEASE LEVER IN UPPER STEP
OF LATCH LEVER, MANUALLY TRIP FUNCTION CLUTCH.

REQUIREMENT

- (1) MIN. 0.005 INCH --- MAX. 0.018 INCH
BETWEEN THE RIGHT EDGE OF PUNCH SLIDE RESET BAIL AND
BLOCKING LINK.
- (2) WITH SELECTOR RANGE SCALE SET AT 120 THE BLOCKING
LINK SHOULD BE CENTERED BETWEEN THE CLUTCH DISC
MOUNTING SCREWS AND THE SELECTOR ARM BAIL.

TO ADJUST

LOOSEN CLAMP SCREW ON ADJUSTING LEVER AND POSITION
BLOCKING LINK TO MEET REQUIREMENT.

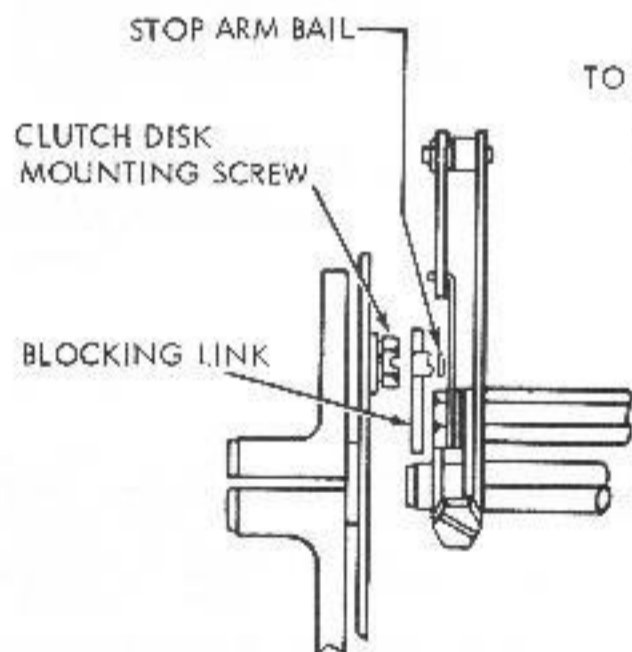


FIGURE 2-62. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

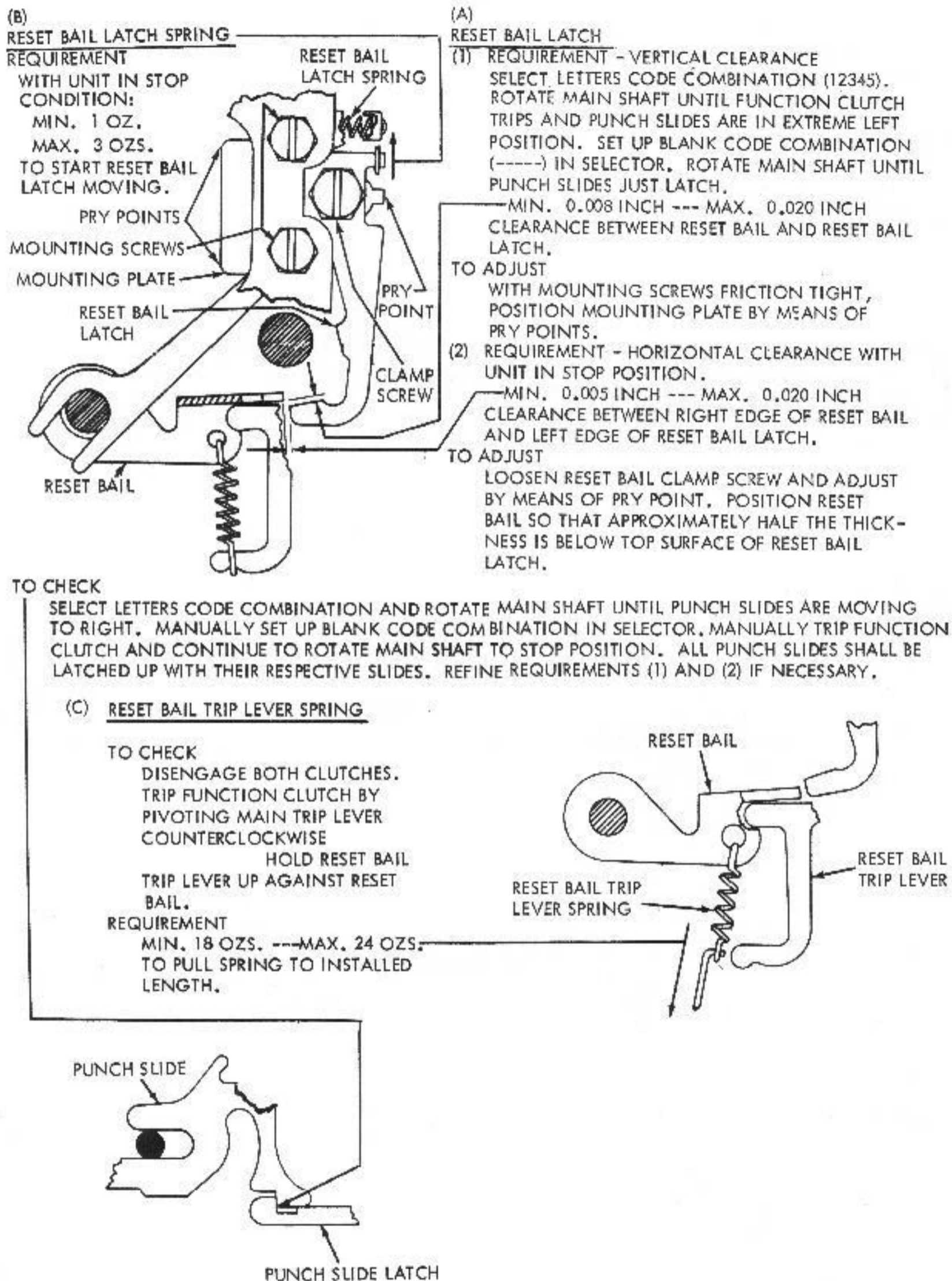


FIGURE 2-63. REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM

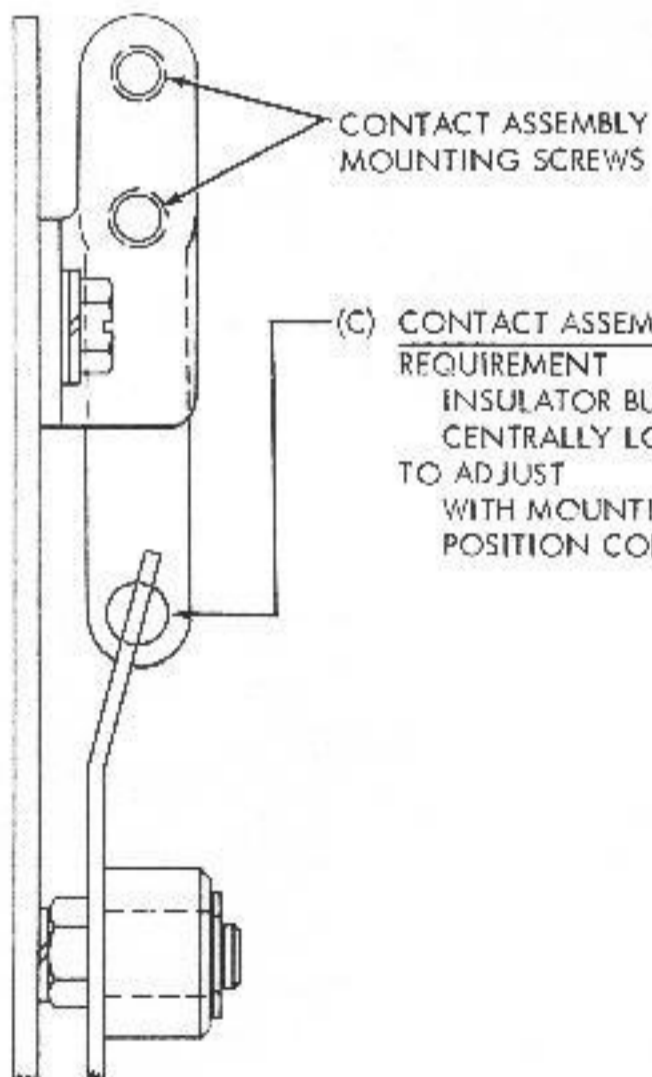
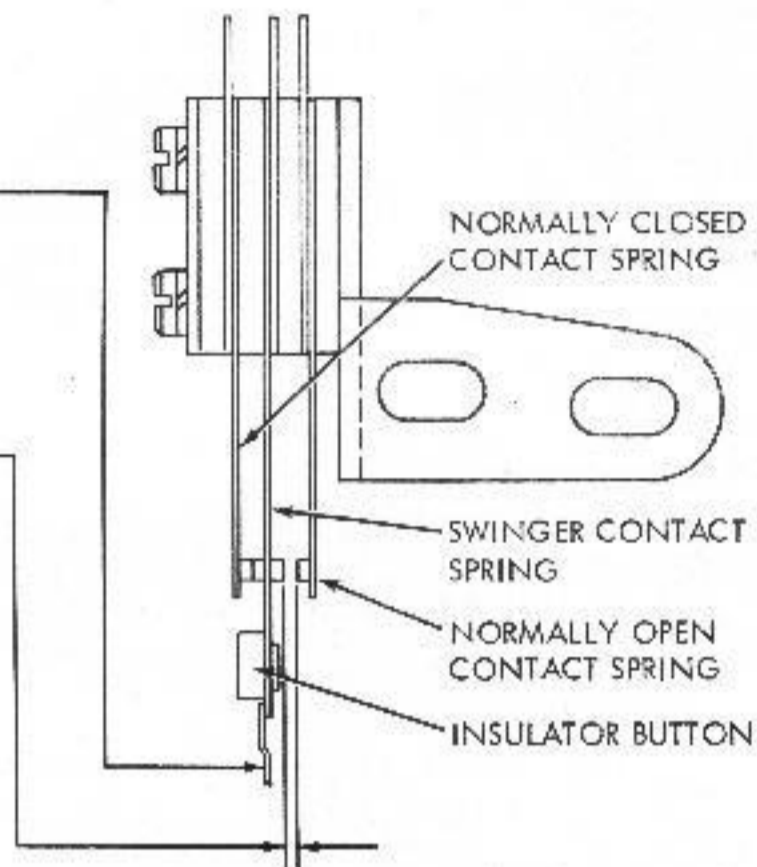
12. END OF FEED-OUT TIMING CONTACT FOR NON-INTERFERING LETTERS AND BLANK FEED-OUT MECHANISMS.

(A) CONTACT SWINGER --- PRELIMINARY REQUIREMENT

MIN. 1-1/2 OZS. --- MAX. 2-1/2 OZS.
TO OPEN NORMALLY CLOSED CONTACT.
TO ADJUST BEND SWINGER.

(B) CONTACT SPRING GAP --- PRELIMINARY REQUIREMENT

NORMALLY OPEN CONTACT GAP
MIN. 0.012 INCH --- MAX. 0.020 INCH
TO ADJUST BEND CONTACT SPRING.



CONTACT ASSEMBLY MOUNTING SCREWS

(C) CONTACT ASSEMBLY REQUIREMENT

INSULATOR BUTTON ON SWINGER SHALL BE CENTRALLY LOCATED IN BAIL EXTENSION YOKE.
TO ADJUST WITH MOUNTING SCREWS LOOSENED POSITION CONTACT ASSEMBLY.

FIGURE 2-64. END OF FEED-OUT TIMING CONTACT FOR NON-INTERFERING LETTERS AND BLANK FEED-OUT MECHANISMS

END OF FEED-OUT TIMING CONTACT FOR NON-INTERFERING LETTERS AND BLANK FEED-OUT MECHANISMS.

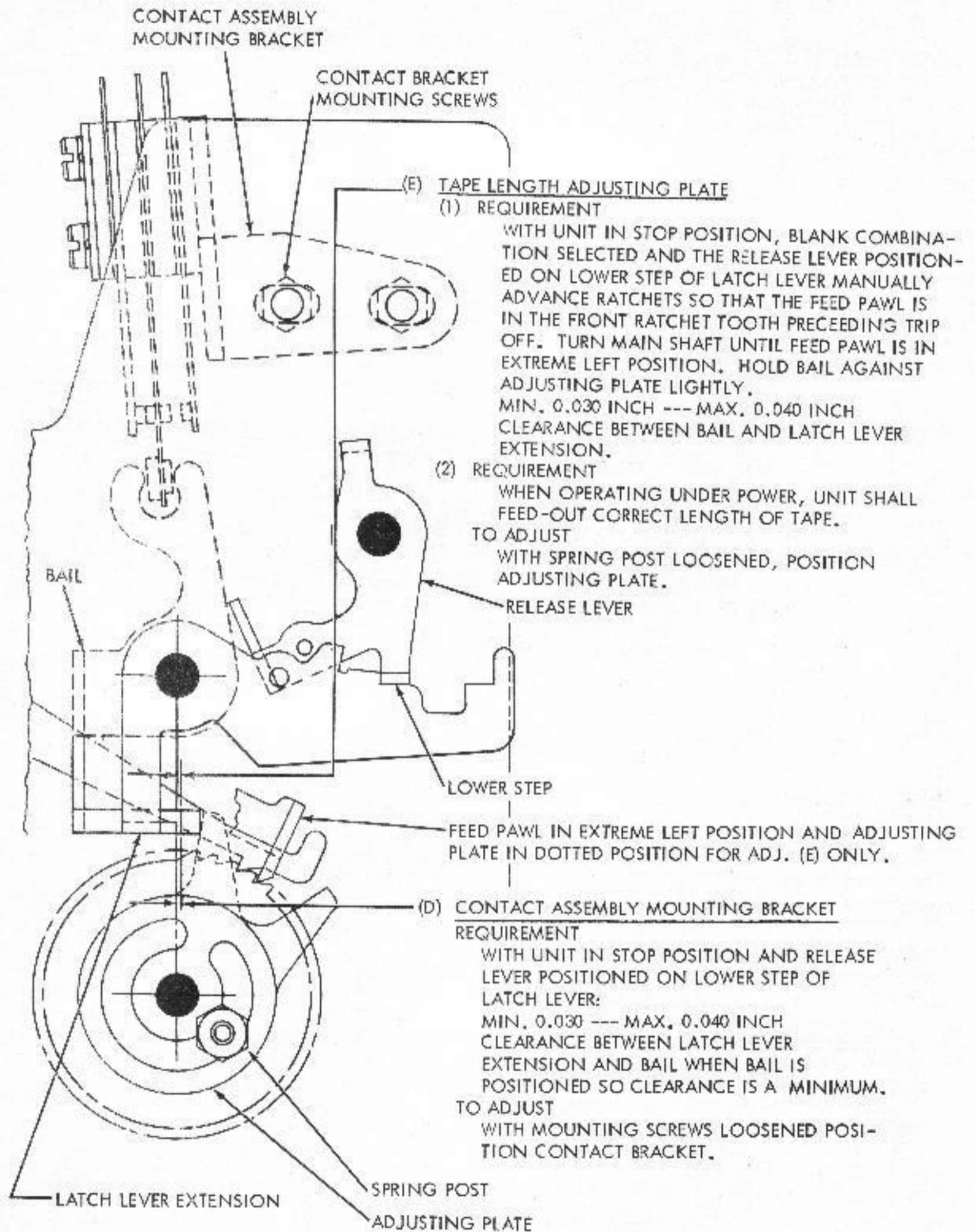


FIGURE 2-65. END OF FEED-OUT TIMING CONTACT FOR NON-INTERFERING LETTERS AND BLANK FEED-OUT MECHANISMS

SEE NOTE BELOW

13. TIMING CONTACT MECHANISM
(OPERATED BY SELECTOR)

NOTE

PARTS SHALL BE WELL ALIGNED AND FREE OF SHARP BENDS. CONTACT POINTS MISALIGNMENT SHALL NOT EXCEED 1/4 THE DIAMETER OF POINTS.

(B) "B" CONTACT SPRINGS

REQUIREMENT

MIN. 4 OZS.
TO MOVE CONTACT SPRING AWAY FROM ITS STIFFENER.
TO ADJUST BEND CONTACT SPRING

(A) "M" CONTACT SPRINGS

REQUIREMENT

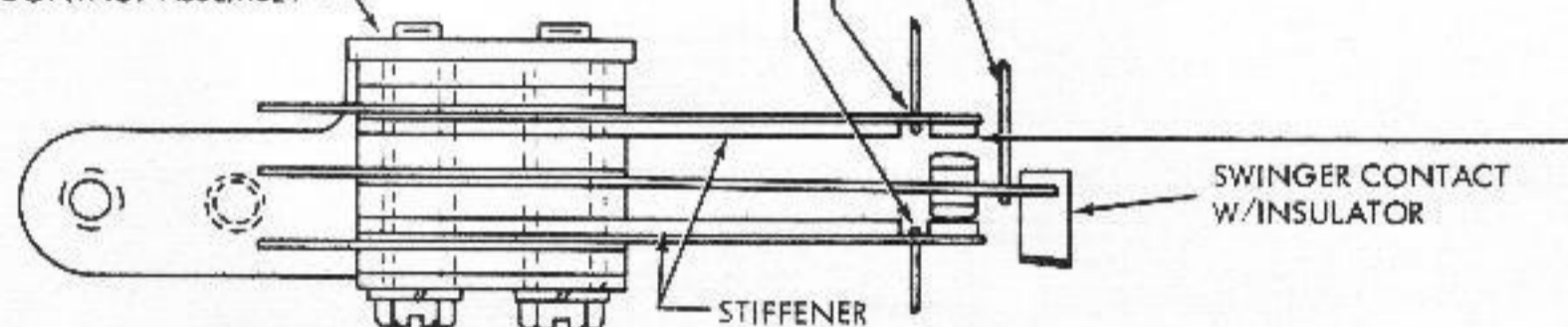
MIN. 4 OZS.
TO MOVE CONTACT SPRING AWAY FROM ITS STIFFENER.
TO ADJUST BEND CONTACT SPRING.

(C) "S" - "B" CONTACT SPRINGS

REQUIREMENT

MIN. 3-1/2 OZS.
MAX. 4-1/4 OZS.
TO MOVE SWINGER CONTACT AWAY FROM NORMALLY BREAK CONTACT.
TO ADJUST BEND SWINGER CONTACT SPRING.

CONTACT ASSEMBLY

(D) TWIN "B" CONTACT SPRINGS

(1) REQUIREMENT

BOTH CONTACTS SHOULD OPEN AT THE SAME TIME.

(2) REQUIREMENT

THE INSERTION OF AN 0.008 INCH GAUGE BETWEEN ONE PAIR OF POINTS SHALL NOT CAUSE THE OTHER PAIR TO SEPARATE.

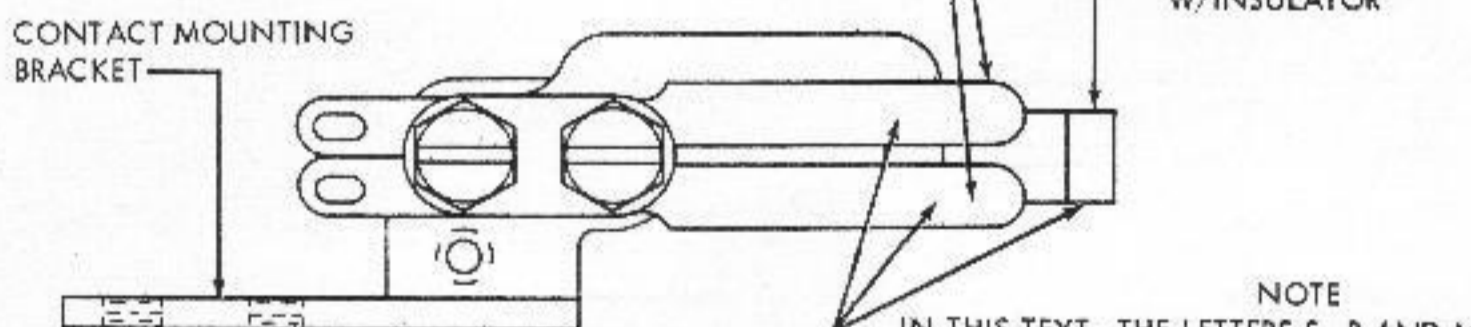
TO ADJUST BEND SPRINGS OR SLIGHTLY TWIST STIFFENER. RECHECK CONTACT PRESSURE.

(E) "S" - "M" CONTACT GAP

REQUIREMENT

MIN. 0.012 INCH
MAX. 0.020 INCH
TO ADJUST BEND STIFFENER.

CONTACT MOUNTING BRACKET

(F) TWIN SPRINGS ("M" CONTACTS)

REQUIREMENT

BOTH BREAK AND SWINGER CONTACTS SHOULD MAKE AT APPROXIMATELY THE SAME TIME.

TO ADJUST BEND BREAK CONTACT SPRINGS OR SLIGHTLY TWIST STIFFENER.

NOTE

IN THIS TEXT, THE LETTERS S, B AND M ARE USED TO DENOTE RESPECTIVELY THE "SWINGER", "BREAK" (NORMALLY CLOSED WITH LEVER RIDING CAM DEPRESSION) AND "MAKE" (NORMALLY OPEN; CLOSED ONLY WITH LEVER RIDING CAM PEAK) CONTACT SPRINGS.

NOTE

WHEN MAKING ADJUSTMENTS (F) THROUGH (H) MAKE CERTAIN THE "S" SPRING INSULATOR IS CLEAR OF THE OPERATING LEVER.

FIGURE 2-66. TIMING CONTACT MECHANISM (OPERATED BY SELECTOR)

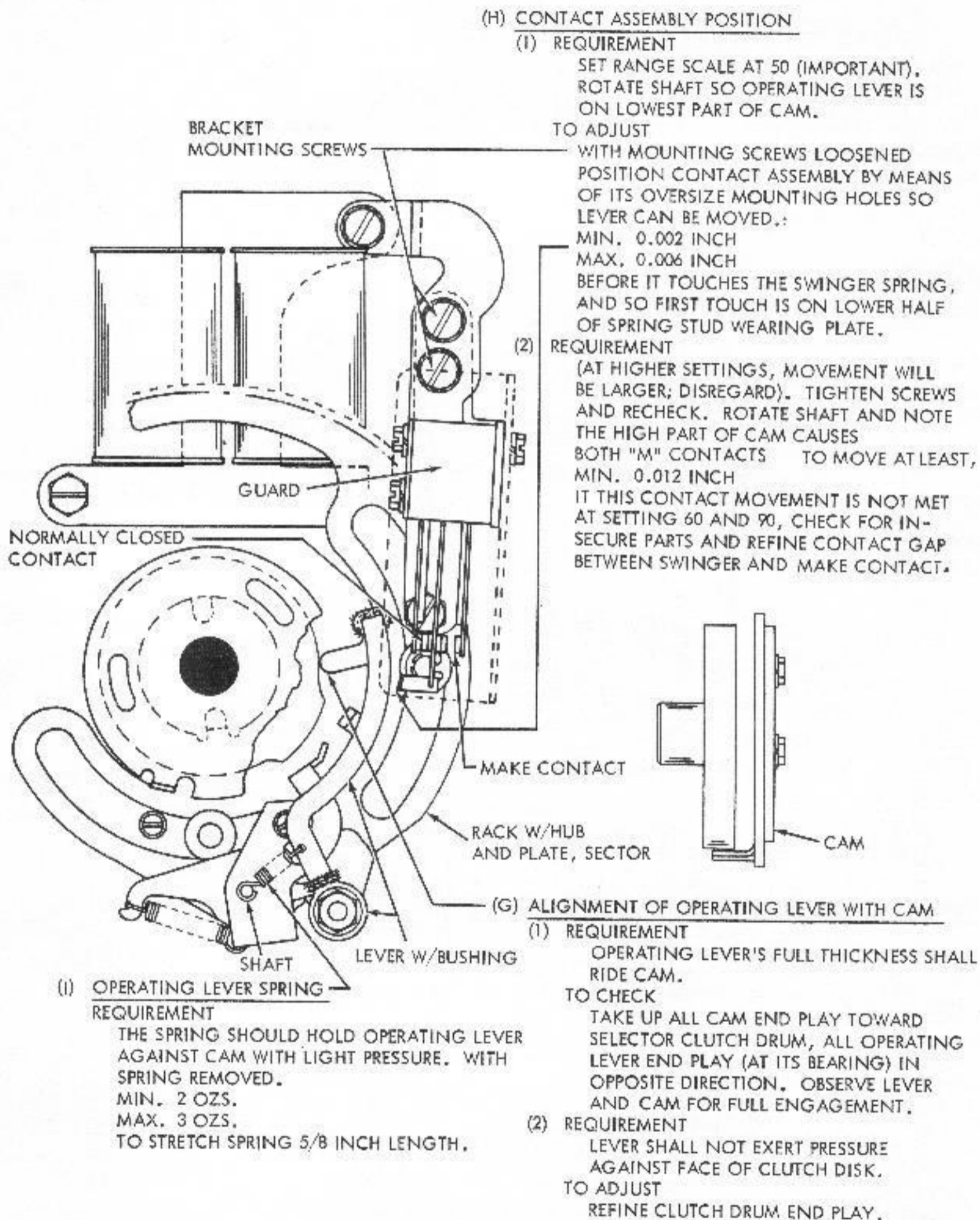
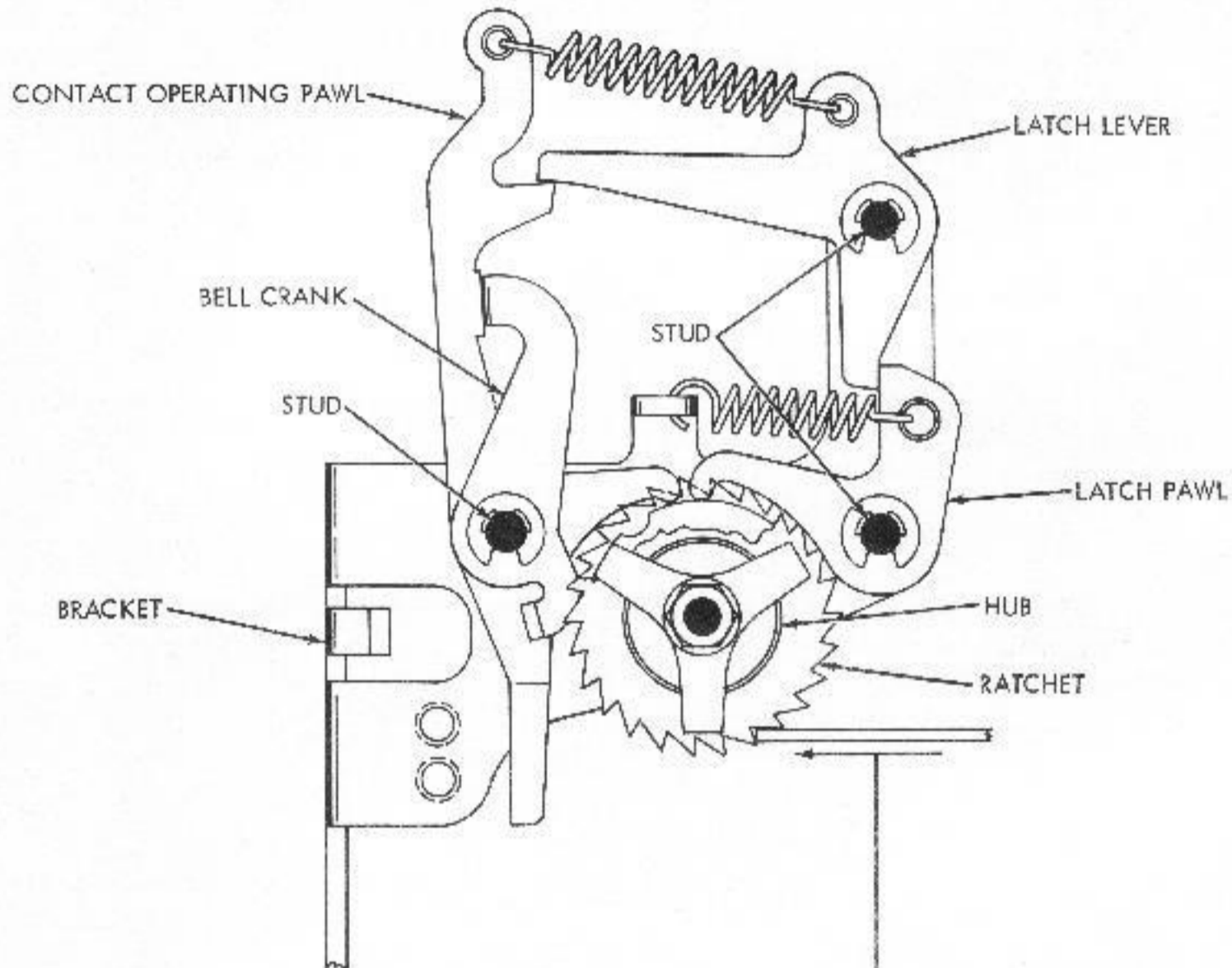


FIGURE 2-67. TIMING CONTACT MECHANISM (OPERATED BY SELECTOR)

14. TIME DELAY MOTOR STOP MECHANISM(A) TIME DELAY RATCHET WHEEL TENSION
REQUIREMENT

HOLD ALL PAWLS OFF RATCHET WHEELS.
 MIN. 2 OZS.
 MAX. 8 OZS.
 TO MOVE EACH RATCHET WHEEL.
 TO ADJUST
 REMOVE AND BEND FRICTION SPRINGS
 OF RATCHET WHEEL.

FIGURE 2-58. TIME DELAY MOTOR STOP MECHANISM

TIME DELAY MECHANISM

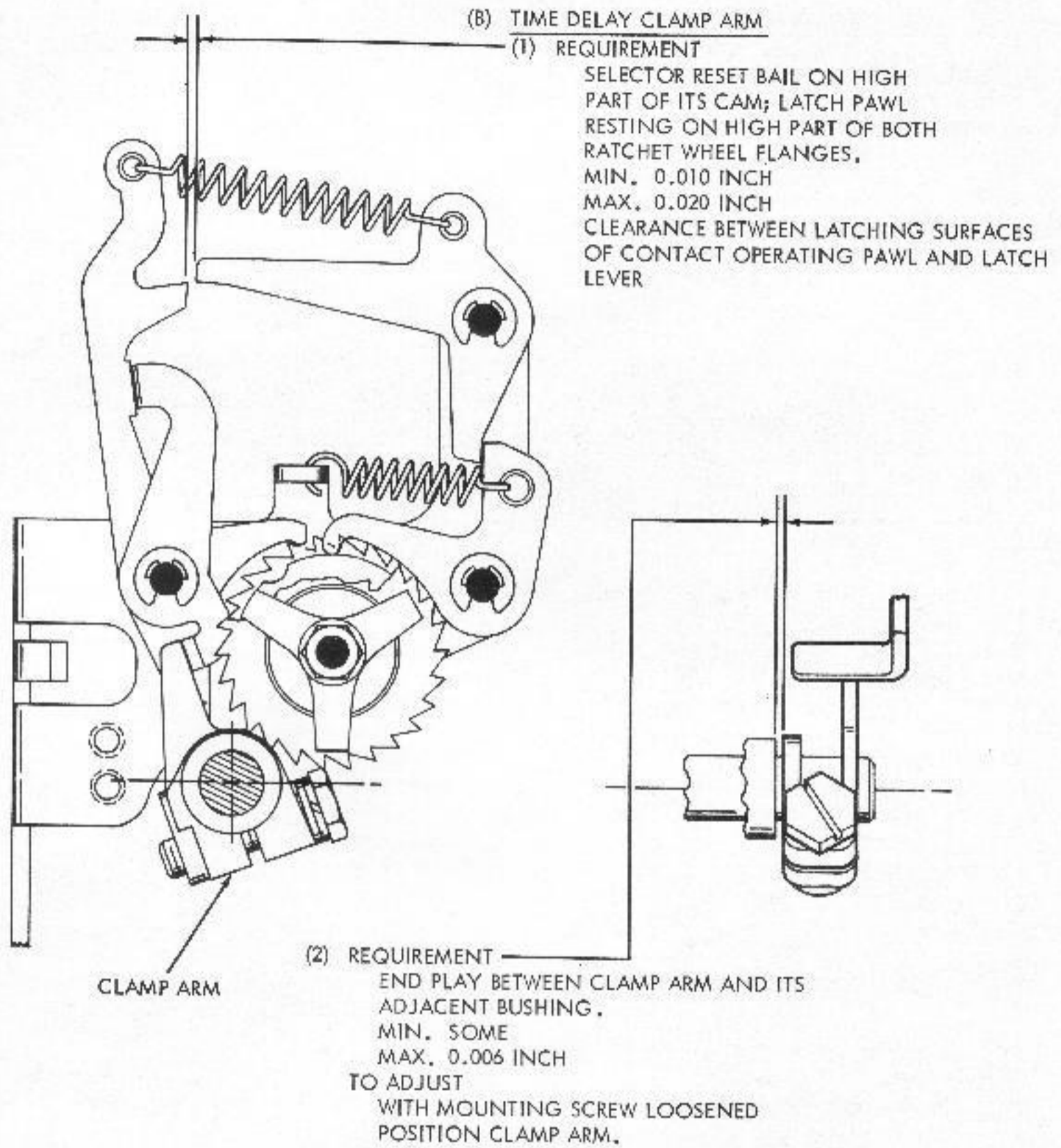


FIGURE 2-59. TIME DELAY MOTOR STOP MECHANISM

TIME DELAY MECHANISM

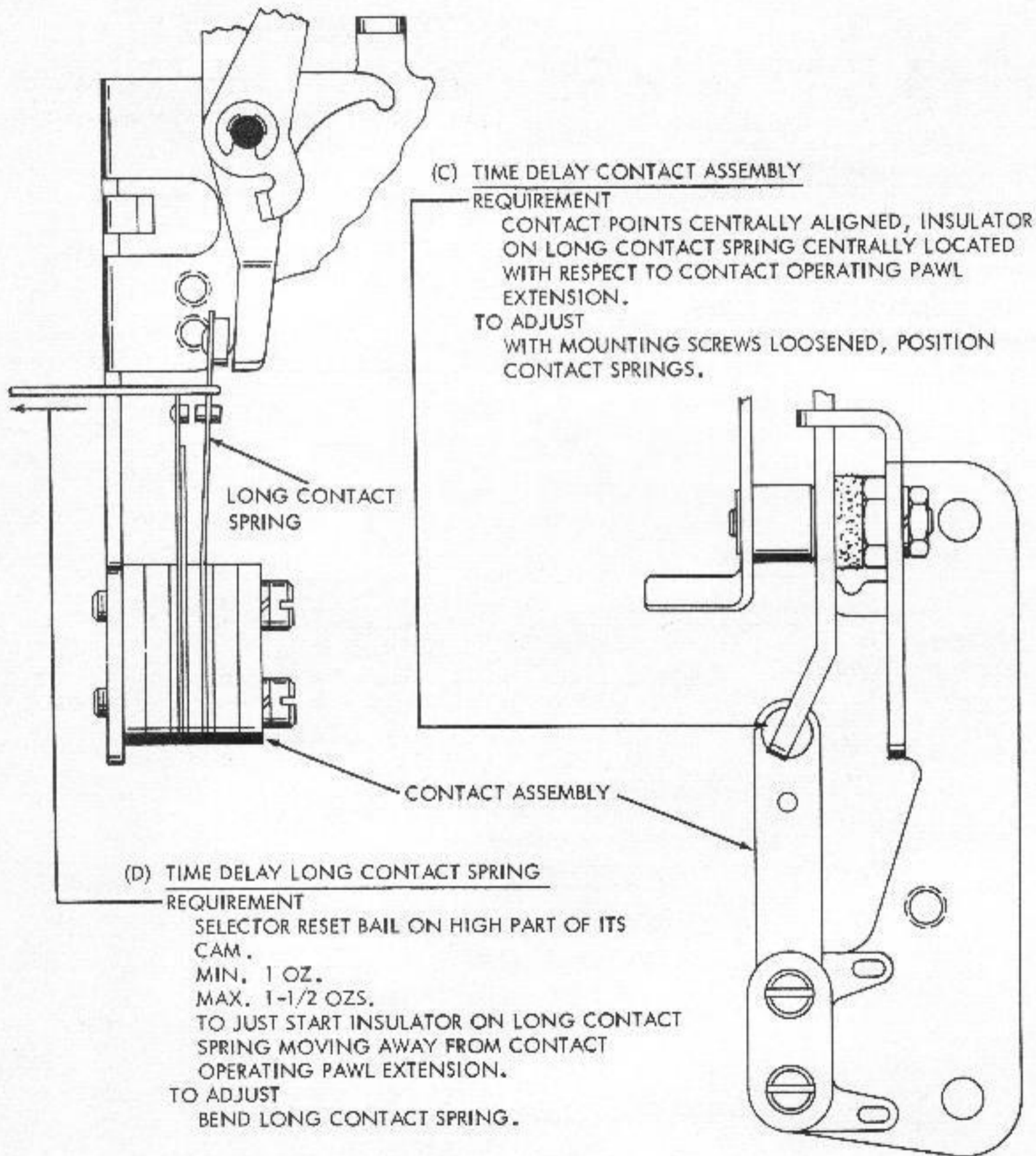


FIGURE 2-70. TIME DELAY MOTOR STOP MECHANISM

TIME DELAY MECHANISM

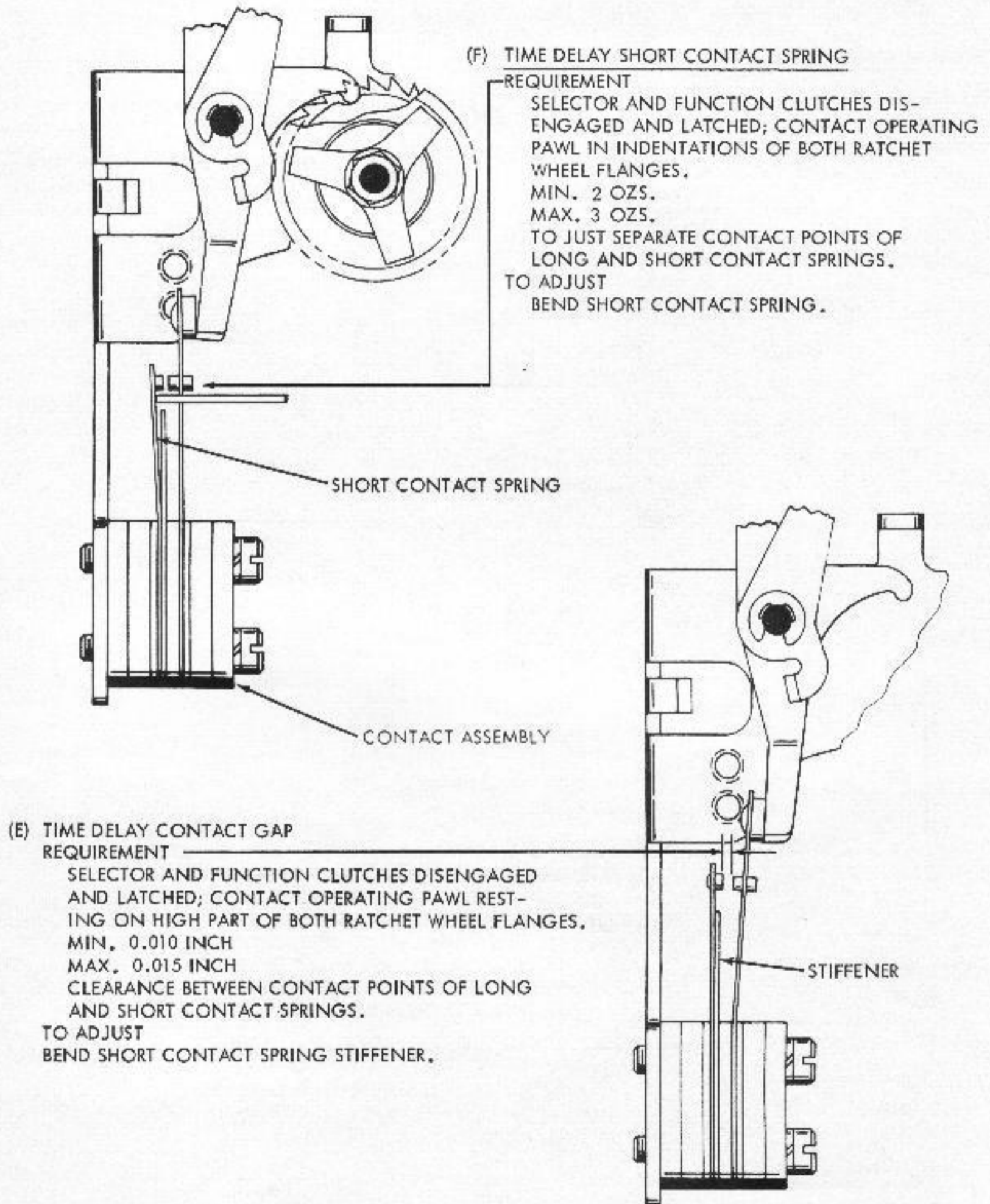


FIGURE 2-71. TIME DELAY MOTOR STOP MECHANISM

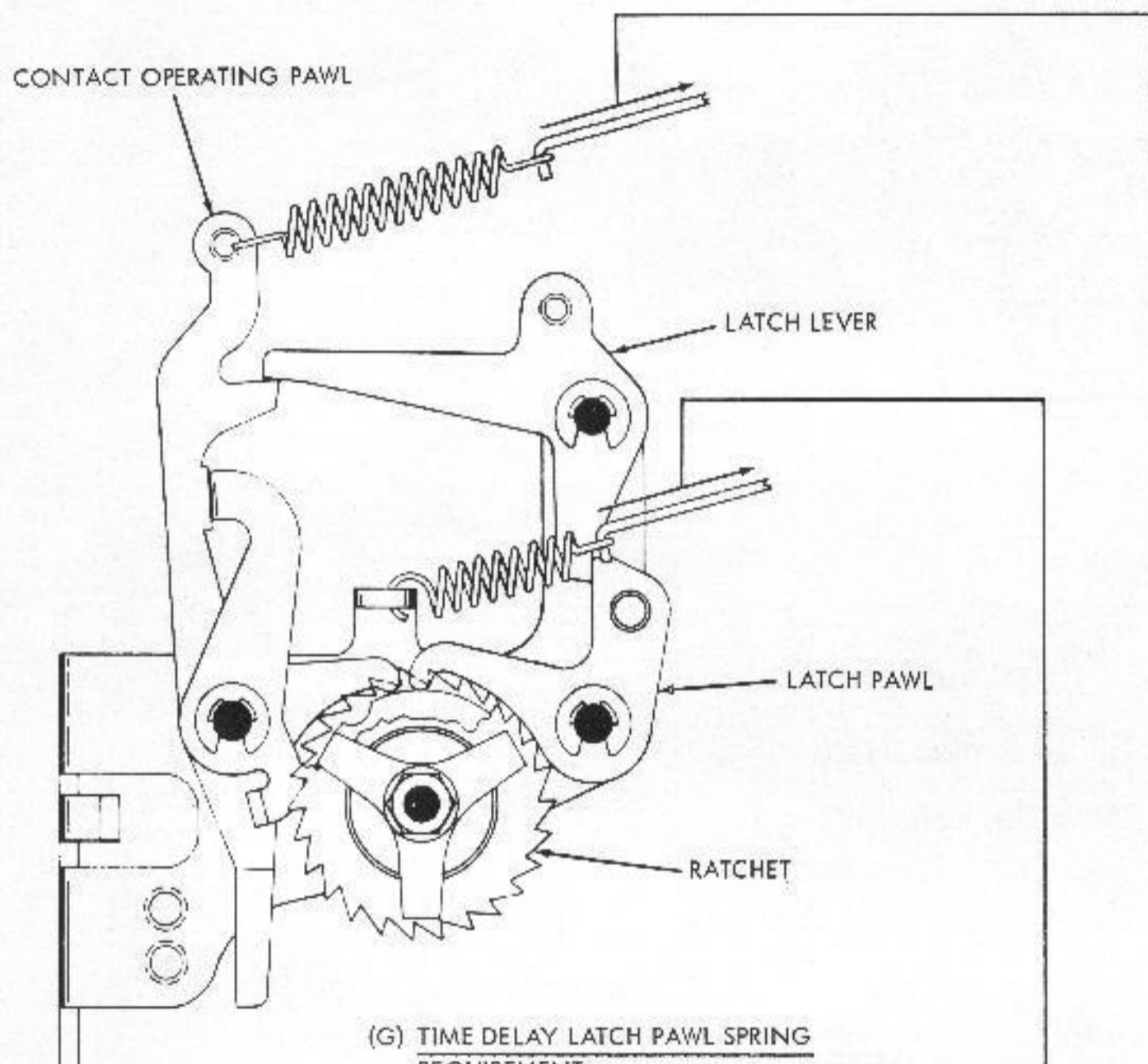
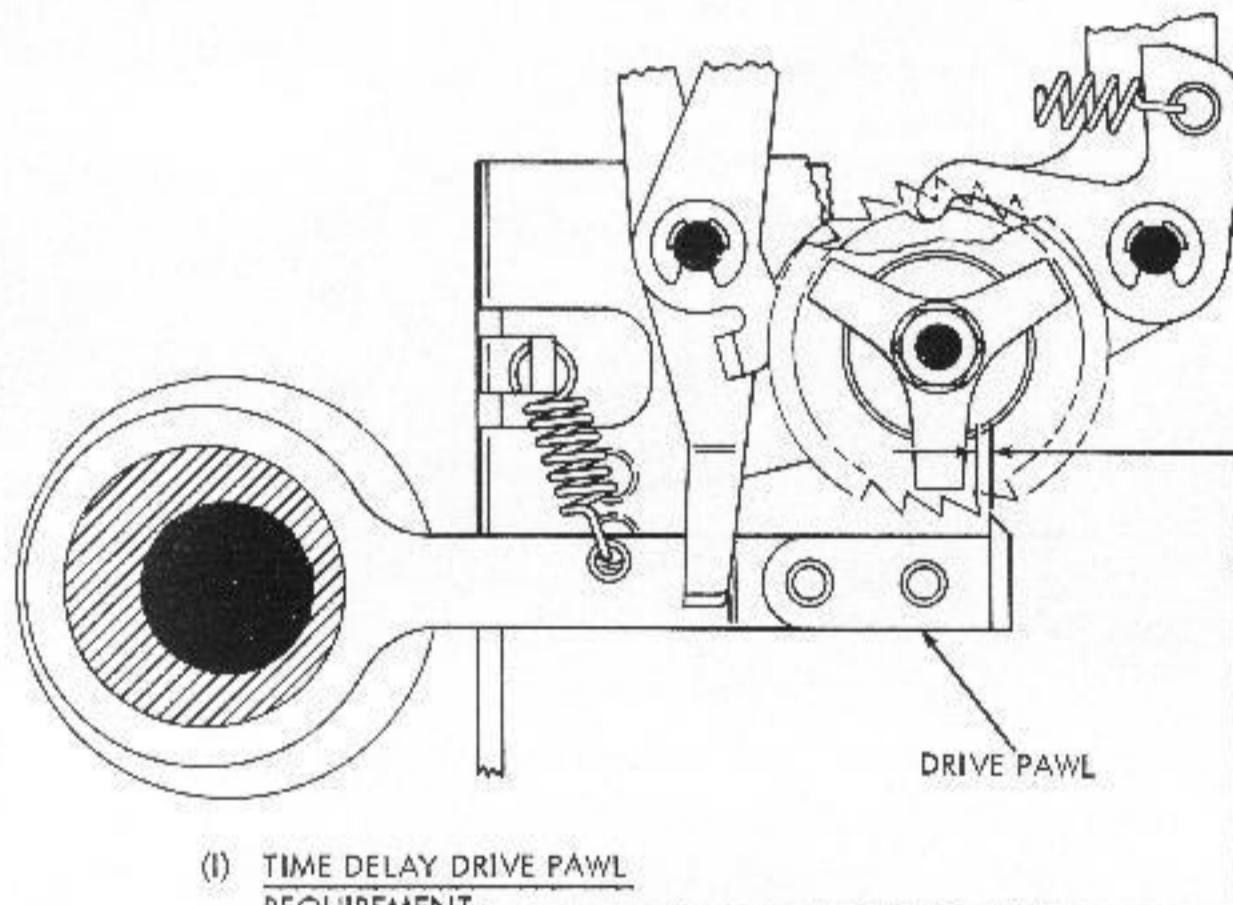
TIME DELAY MECHANISM

FIGURE 2-72. TIME DELAY MOTOR STOP MECHANISM

TIME DELAY MECHANISM

(I) TIME DELAY DRIVE PAWL
REQUIREMENT

ROTATE BOTH RATCHET WHEELS UNTIL LATCH PAWL DROPS INTO INDENTATIONS OF BOTH RATCHET WHEEL FLANGES. DEPRESS DRIVE PAWL DOWNWARD OUT OF ENGAGEMENT WITH RATCHET TEETH AND TAKE UP PLAY BETWEEN LATCH PAWL AND RATCHET WHEELS BY MOVING RATCHET WHEELS BACKWARD (COUNTER-CLOCKWISE). WITH ECCENTRIC FOLLOWER DRIVE ARM AT END OF ITS EXTREME LEFT TRAVEL, POSITION DRIVE PAWL ON DRIVE ARM SO POINT OF UPPER BEVELED EDGE OF PAWL RESTS ON PEAK OF FIRST RATCHET WHEEL TOOTH TO RIGHT OF VERTICAL CENTER-LINE THROUGH RATCHET WHEELS OR OVER TRAVELS PEAK:

MIN. SOME
MAX. 0.010 INCH

TO ADJUST

WITH MOUNTING SCREWS LOOSENED, POSITION DRIVE PAWL ON ITS DRIVE ARM.

FIGURE 2-73. TIME DELAY MOTOR STOP MECHANISM

TIME DELAY MECHANISM

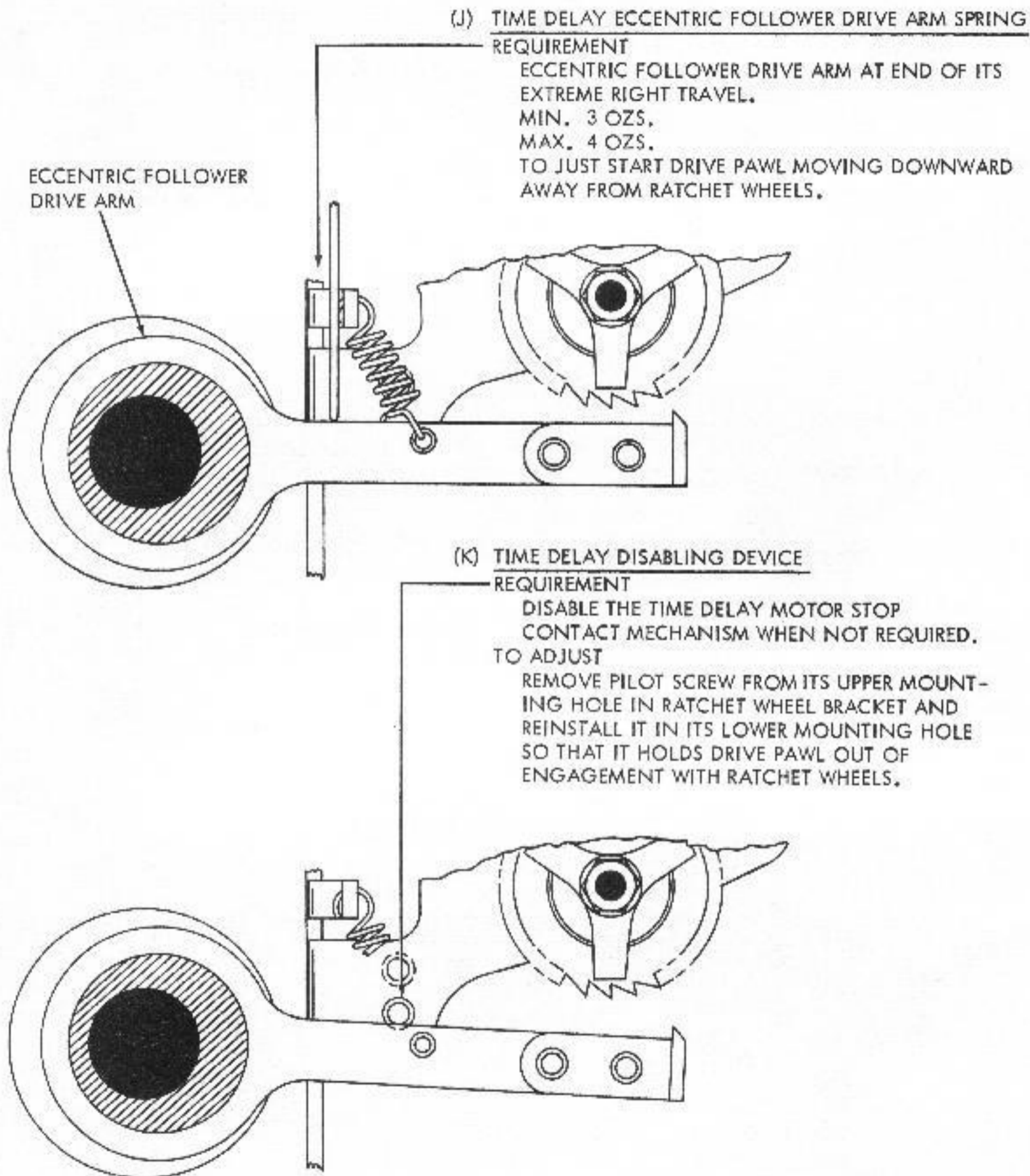


FIGURE 2-74. TIME DELAY MOTOR STOP MECHANISM

15. MOTOR CONTROL ASSEMBLY

(A)

STOP ARMATURE SPRING TENSION
REQUIREMENT

STOP ARMATURE LATCHED
ON START ARMATURE, STOP
ARMATURE SPRING UNHOOKED
MIN. 4 1/2 OZS.
MAX. 6 OZS.
TO PULL SPRING TO INSTALLED LENGTH

(B)

INTERMEDIATE LEVER SPRING TENSION
REQUIREMENT

WITH THE STOP AND START
ARMATURES HELD AGAINST
THEIR CORES, APPLY A GRAM
SCALE TO THE UNDER SIDE OF
THE INTERMEDIATE LEVER JUST
TO THE RIGHT OF ITS DOWNWARD
EXTENSION AND PUSH UPWARD
MIN. 10 GRAMS
MAX. 20 GRAMS
TO START THE LEVER MOVING
UPWARD.

(D)

START MAGNET CORE
REQUIREMENT

STOP ARMATURE IN UNATTRACTED POSI-
TION. CLEARANCE BETWEEN THE START
MAGNET CORE AND ANTI-FREEZE RIVET
ON THE START ARMATURE.

ARMATURE	151409	152849
MIN.	0.003 INCH	0.010 INCH
MAX.	0.006 INCH	0.015 INCH

TO ADJUST

ADVANCE OR RETARD THE START MAGNET CORES
WITH SCREWDRIVER (LOCK NUT LOOSENED).

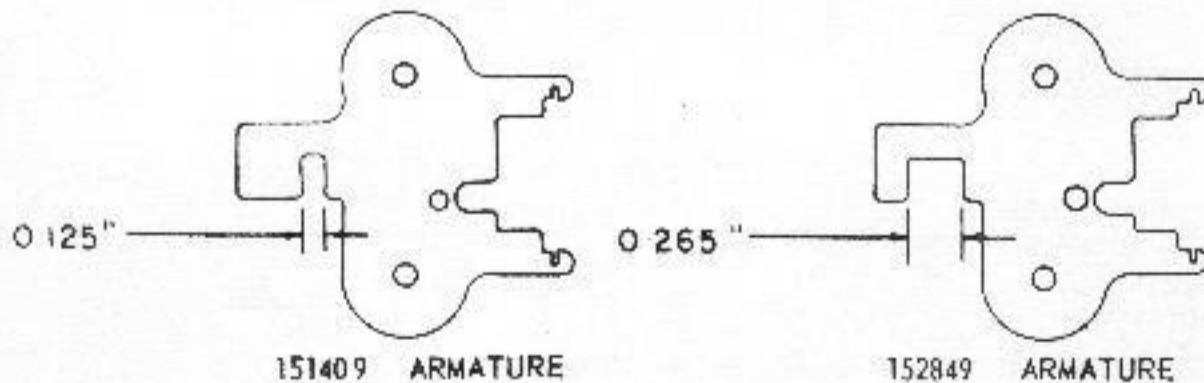
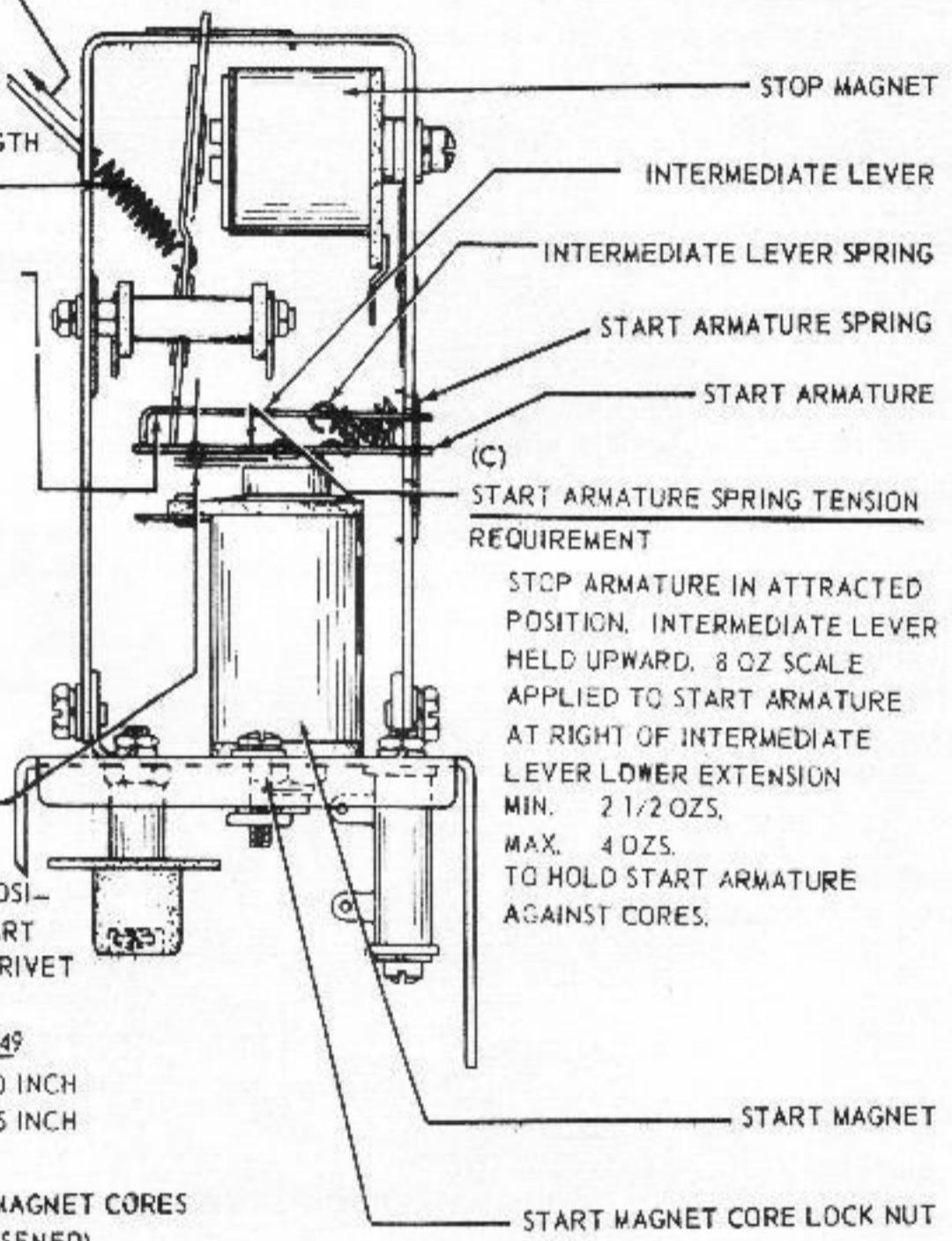


FIGURE 2-75. MOTOR CONTROL MECHANISM

16. MANUAL AND SOLENOID OPERATED INTERFERING LETTERS TAPE
FEED OUT MECHANISM

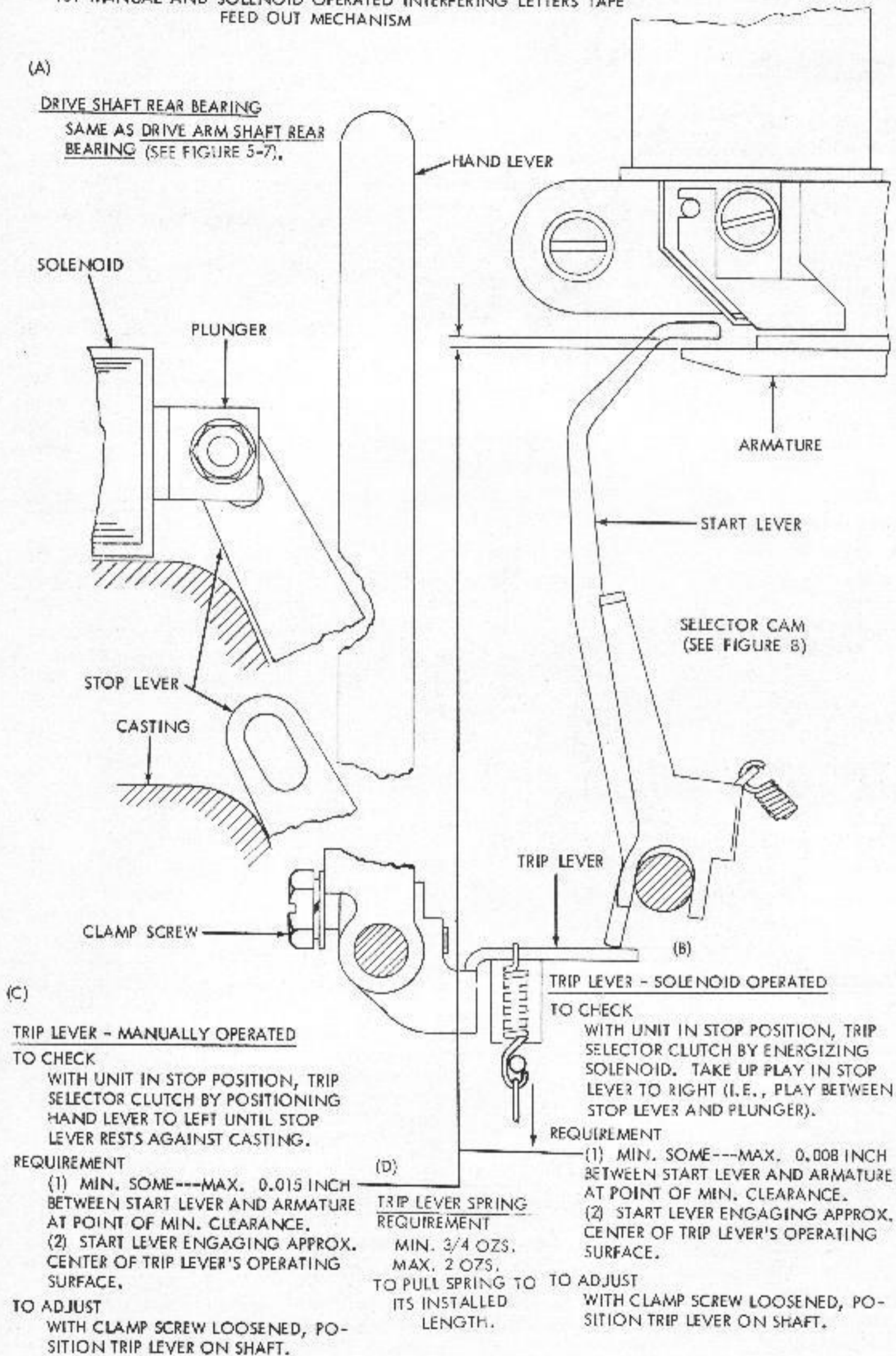


FIGURE 2-76. MANUAL AND SOLENOID OPERATED INTERFERING LETTERS FEED OUT MECHANISM

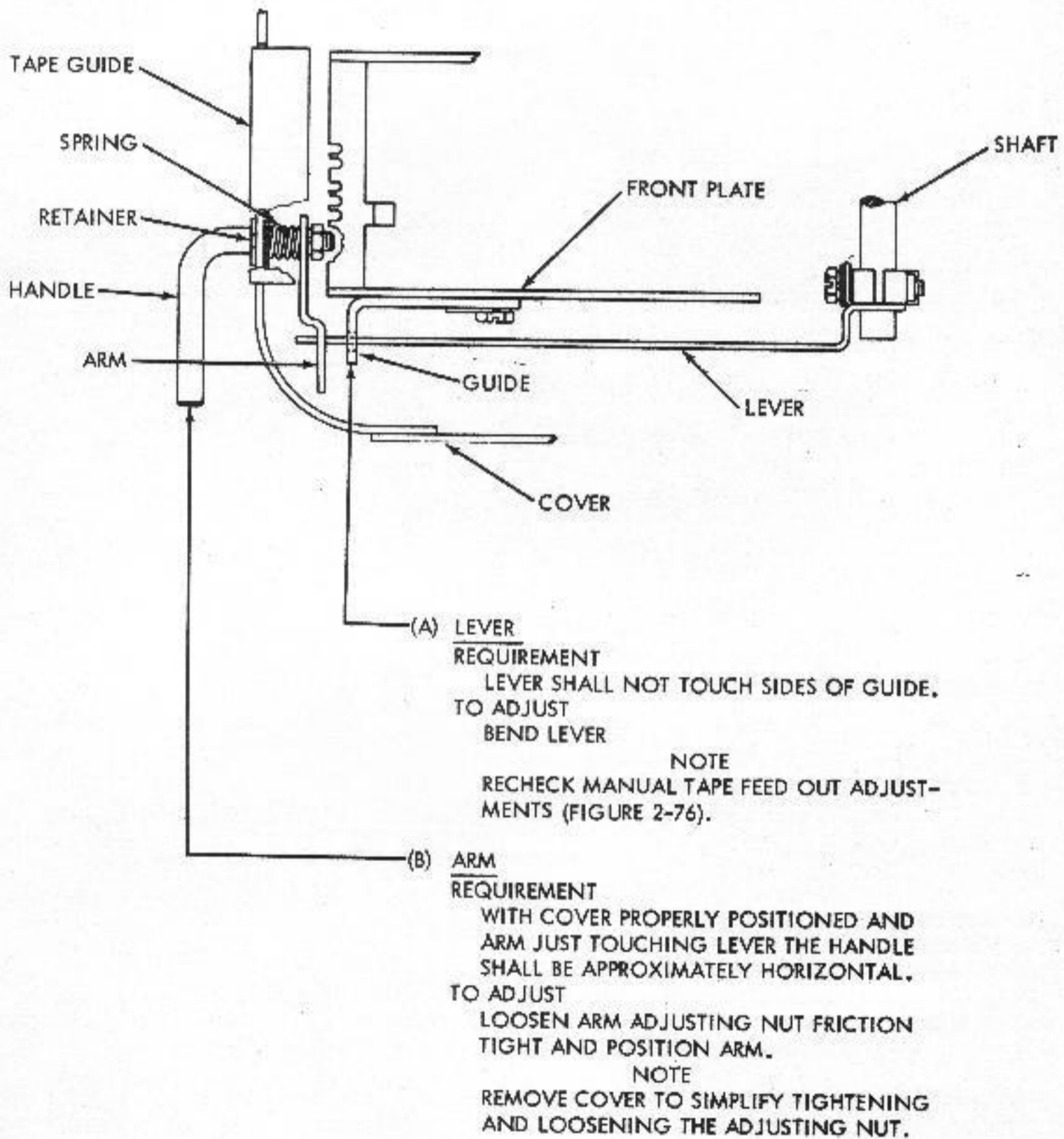
17. EXTERNAL MANUAL TAPE FEED OUT FOR SELF CONTAINED SETS

FIGURE 2-77. EXTERNAL MANUAL TAPE FEED OUT MECHANISM FOR SELF CONTAINED SETS

18.

AUXILIARY CONTACT ASSEMBLY

NOTE

THE FOLLOWING ADJUSTMENTS SHALL BE MADE PRIOR TO INSTALLATION OF CONTACT BRACKET ASSEMBLY ON THE UNIT.

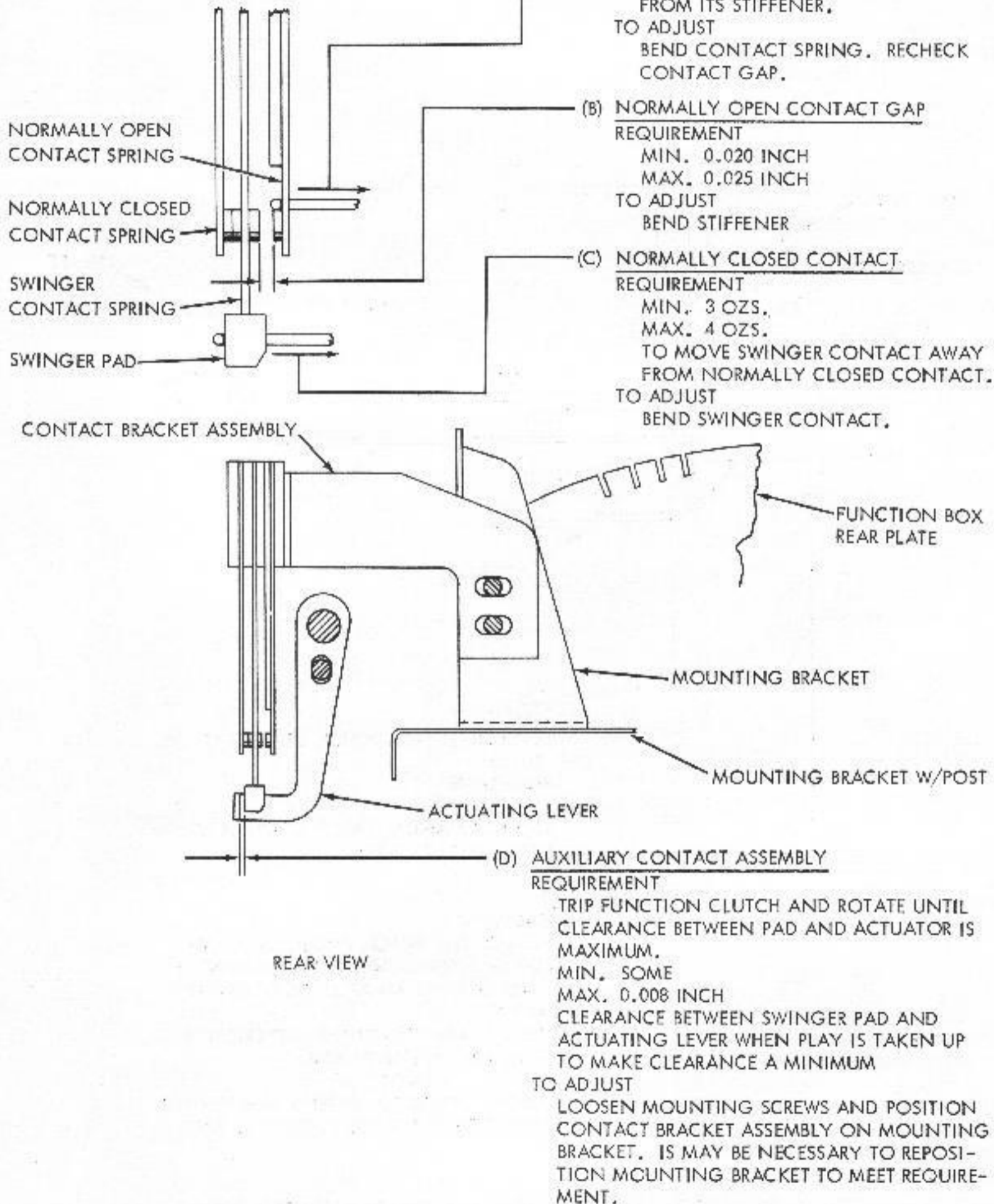


FIGURE 2-78. AUXILIARY CONTACT MECHANISM

19. MULTIPLE MOUNTED FUNCTION BLADE CONTACTS - LATEST DESIGN
FOR EARLIER DESIGN SEE FIGURE 5-22.

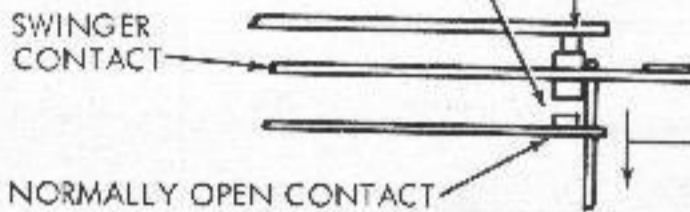
NOTE 1

THE FOLLOWING ADJUSTMENTS SHALL 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.



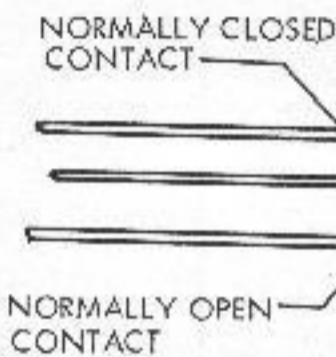
(B) NORMALLY CLOSED CONTACT
REQUIREMENT

MIN. 8 GRAMS
MAX. 15 GRAMS

TO MOVE SWINGER THE SWINGER CONTACT
AWAY FROM THE NORMALLY CLOSED CONTACT.
TO ADJUST
BEND NORMALLY CLOSED
CONTACT SPRING.

NOTE 2

THE FOLLOWING ADJUSTMENTS SHALL 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 NON-SELECTED 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 MAIN-
TAIN REQUIREMENTS

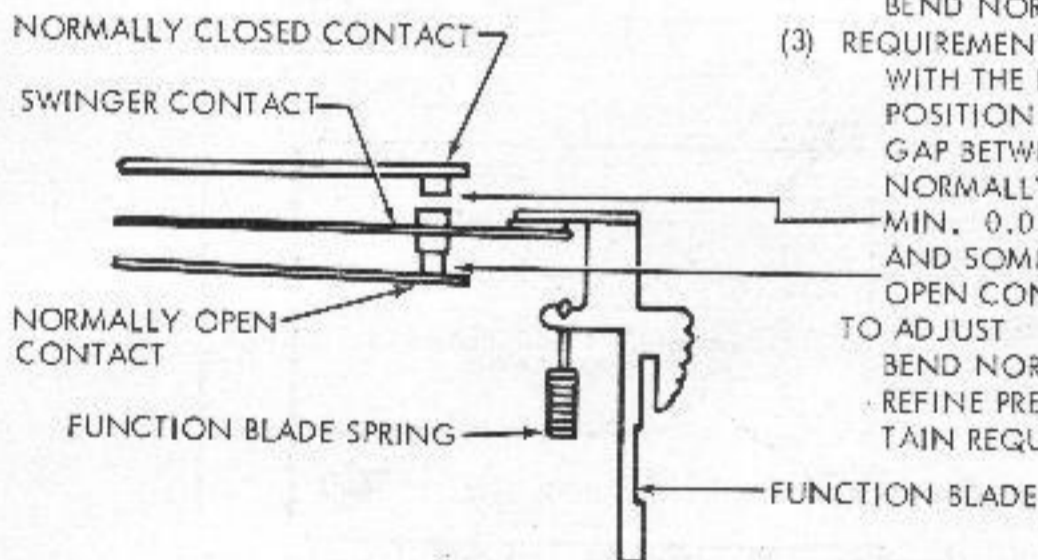
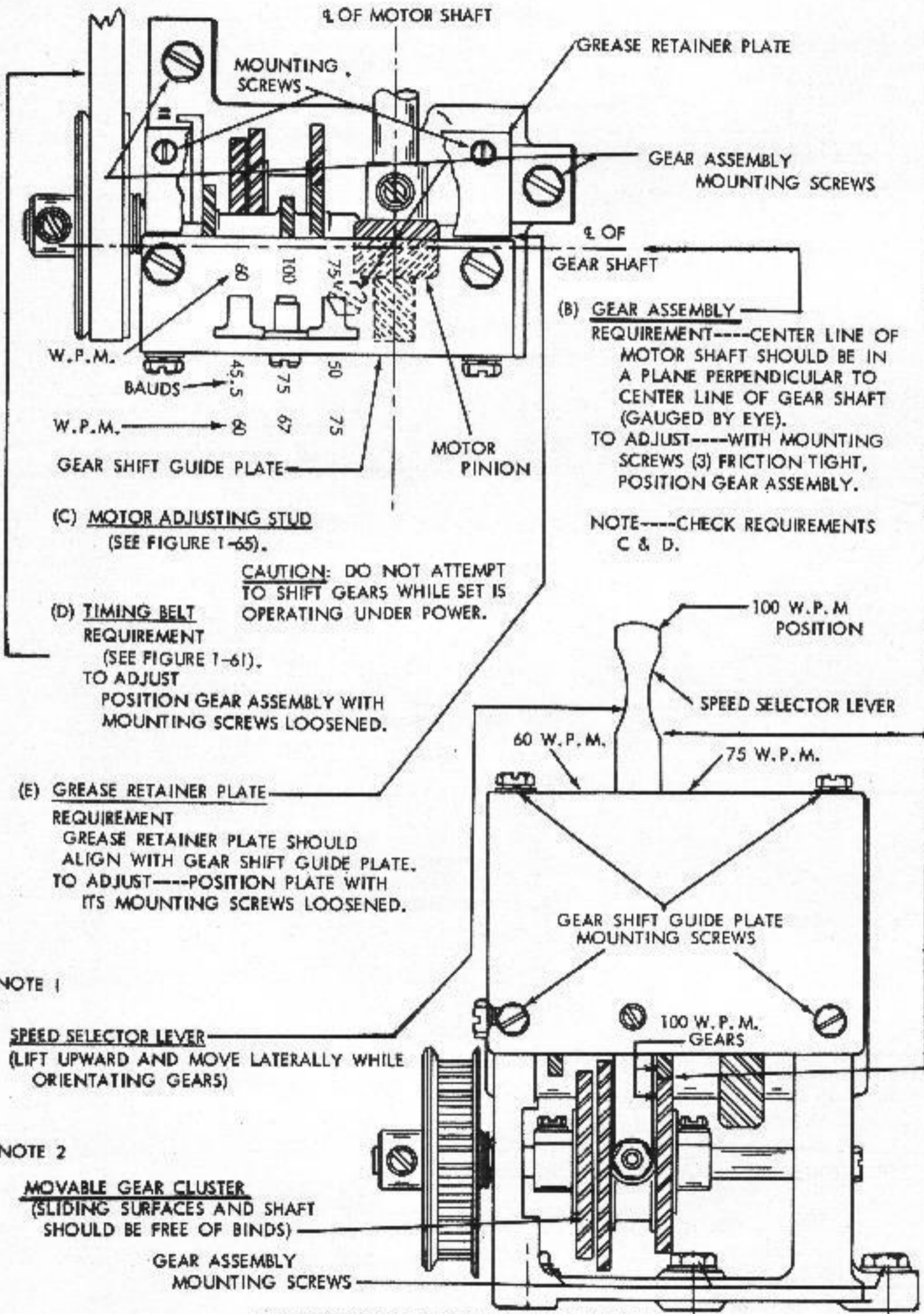


FIGURE 2-79. MULTIPLE MOUNTED FUNCTION BLADE CONTACTS - LATEST DESIGN

20. VARIABLE SPEED DRIVE MECHANISM

(A) GEAR SHIFT GUIDE PLATE

REQUIREMENT---WITH SPEED SELECTOR LEVER DETENTED IN CENTER POSITION, 100 W.P.M. DRIVING AND DRIVEN GEAR SHOULD MESH FULLY AND EDGE OF EACH GEAR SHOULD BE APPROXIMATELY IN LINE. (SEE NOTES 1 & 2)
 TO ADJUST---WITH MOUNTING SCREWS FRICTION TIGHT, POSITION GUIDE PLATE TO LEFT OR RIGHT.



(B) GEAR ASSEMBLY
 REQUIREMENT---CENTER LINE OF MOTOR SHAFT SHOULD BE IN A PLANE PERPENDICULAR TO CENTER LINE OF GEAR SHAFT (GAUGED BY EYE).
 TO ADJUST---WITH MOUNTING SCREWS (3) FRICTION TIGHT, POSITION GEAR ASSEMBLY.

NOTE---CHECK REQUIREMENTS C & D.

(C) MOTOR ADJUSTING STUD
 (SEE FIGURE 1-65).
 CAUTION: DO NOT ATTEMPT TO SHIFT GEARS WHILE SET IS OPERATING UNDER POWER.

(D) TIMING BELT REQUIREMENT
 (SEE FIGURE 1-61).
 TO ADJUST POSITION GEAR ASSEMBLY WITH MOUNTING SCREWS LOOSENED.

(E) GREASE RETAINER PLATE
 REQUIREMENT
 GREASE RETAINER PLATE SHOULD ALIGN WITH GEAR SHIFT GUIDE PLATE.
 TO ADJUST---POSITION PLATE WITH ITS MOUNTING SCREWS LOOSENED.

NOTE 1
 SPEED SELECTOR LEVER
 (LIFT UPWARD AND MOVE Laterally WHILE ORIENTATING GEARS)

NOTE 2
 MOVABLE GEAR CLUSTER
 (SLIDING SURFACES AND SHAFT SHOULD BE FREE OF BINDS)

FIGURE 2-80. VARIABLE SPEED DRIVE MECHANISM

21. BLANK DELETE MECHANISM

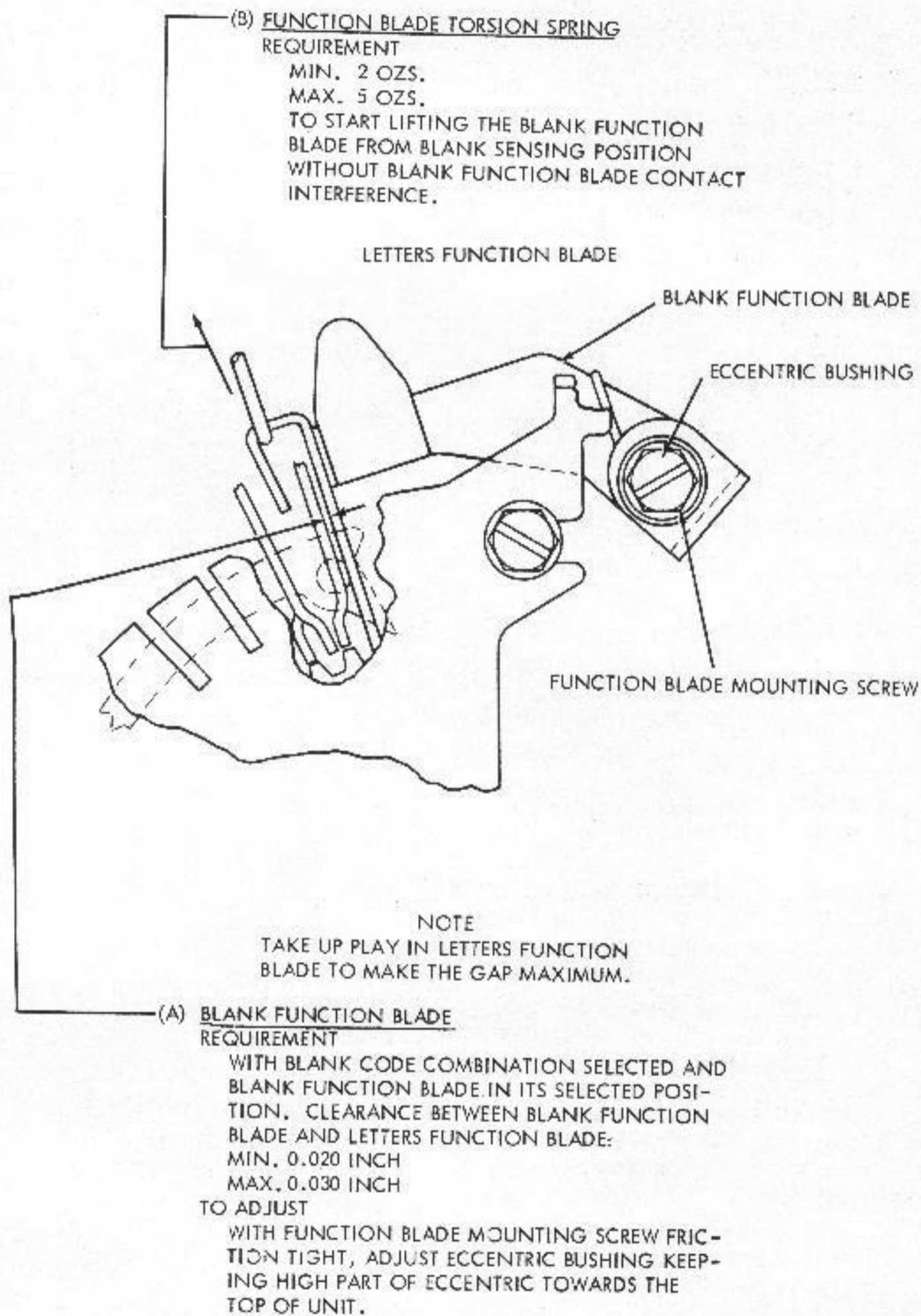


FIGURE 2-81. BLANK DELETE MECHANISM

FEED PAWL READJUSTMENT
 (THIS ADJUSTMENT PERTAINS TO FIELD INSTALLATION ONLY)
 REQUIREMENT

WITH FEED WHEEL RATCHET IN ITS FULLY DETENTED POSITION, THE FEED PAWL IN ITS UPPERMOST POSITION MUST JUST TOUCH THE LOWER PART OF A TOOTH ON THE RATCHET.

TO ADJUST

WITH MOUNTING SCREW FRICITION TIGHT, ROTATE THE FEED PAWL ECCENTRIC, KEEPING HIGH PART OF ECCENTRIC TO RIGHT OF MOUNTING SCREW.

NOTE

THE ECCENTRIC STUD SHOULD BE BACKED OFF TO ELIMINATE ANY INTERFERENCE WITH THIS ADJUSTMENT.

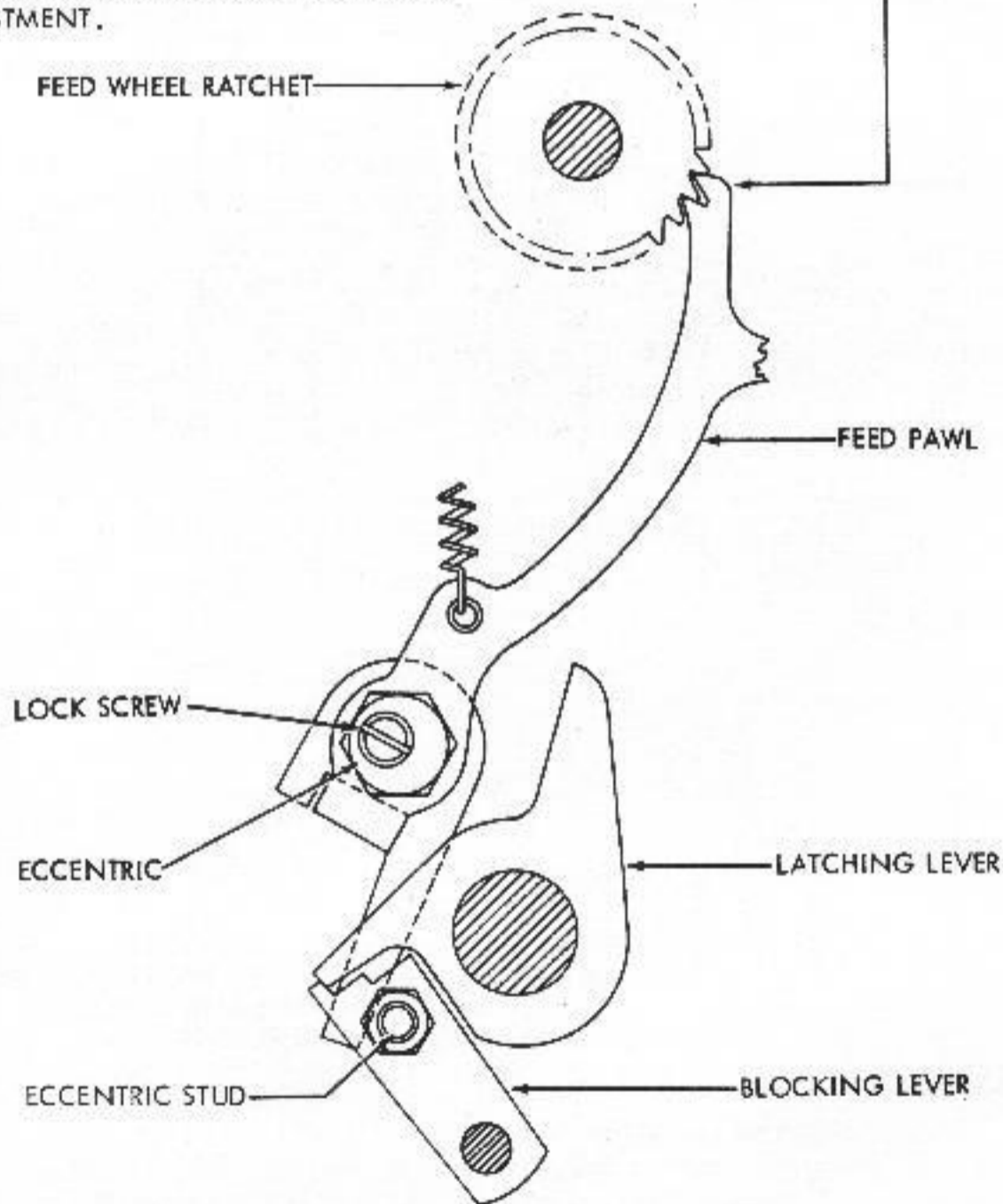


FIGURE 2-82. BLANK DELETE MECHANISM

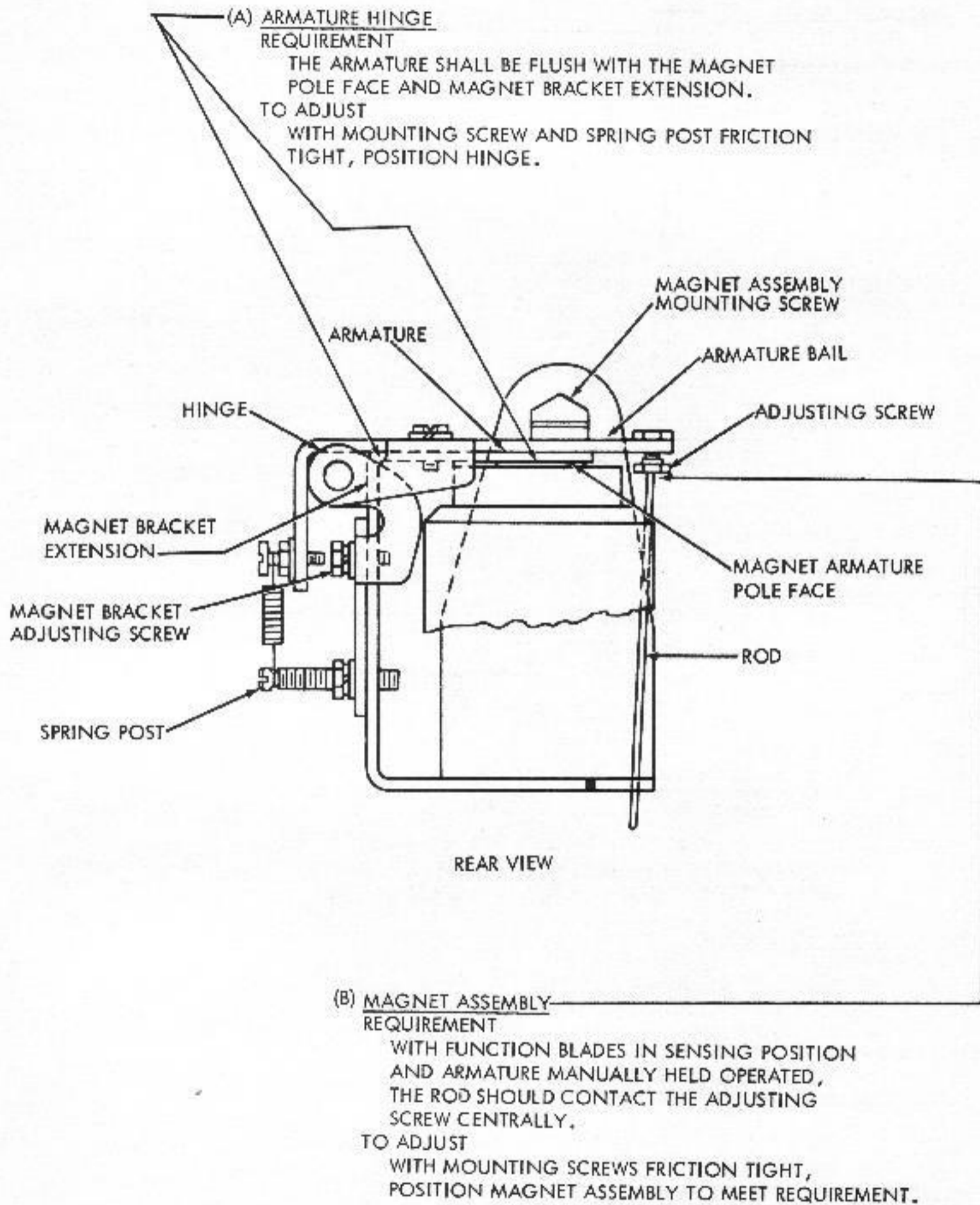
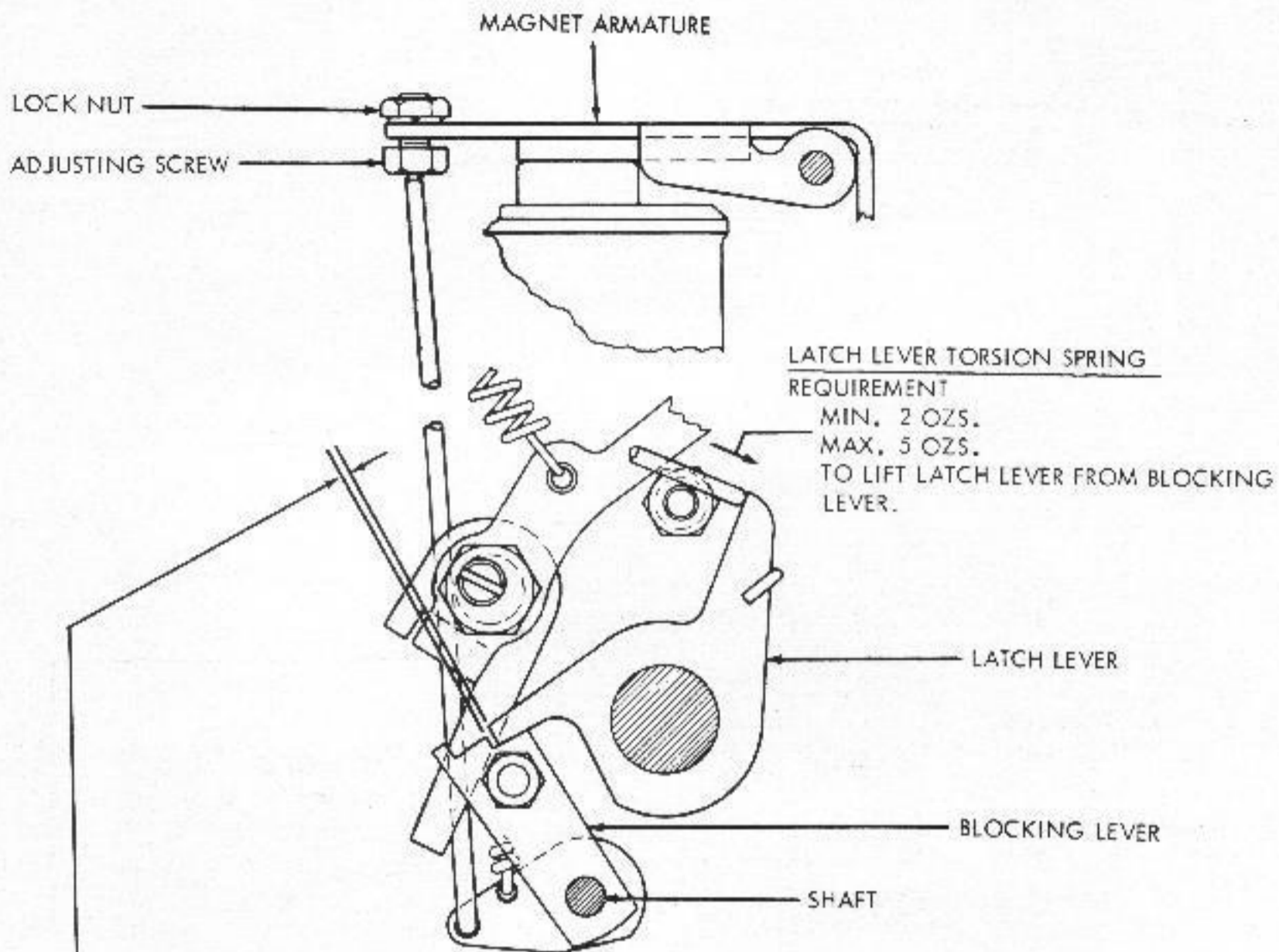


FIGURE 2-83. BLANK DELETE MECHANISM



BLOCKING LEVER
REQUIREMENT

WITH FUNCTION BLADES IN SENSING POSITION AND
MAGNET ARMATURE MANUALLY HELD OPERATED,
CLEARANCE BETWEEN BLOCKING LEVER AND LATCH LEVER.
MIN. SOME
MAX. 0.005 INCH

TO ADJUST

WITH MAGNET ARMATURE MANUALLY HELD OPERATED
AND LOCKNUT ON ADJUSTING SCREW LOOSENED,
ROTATE ADJUSTING SCREW TO MEET THE REQUIREMENT.

RECHECK

TIGHTEN LOCKING NUT ON ADJUSTING SCREW AND
RECHECK ADJUSTMENT.

NOTE

IF UNIT IS EQUIPPED WITH FEED SUPPRESSION
THE LEVER ON TAPE SHOE ARM SHOULD BE PIVOTED
OUT OF POSITION WHEN MAKING THIS ADJUSTMENT.

FIGURE 2-84. BLANK DELETE MECHANISM

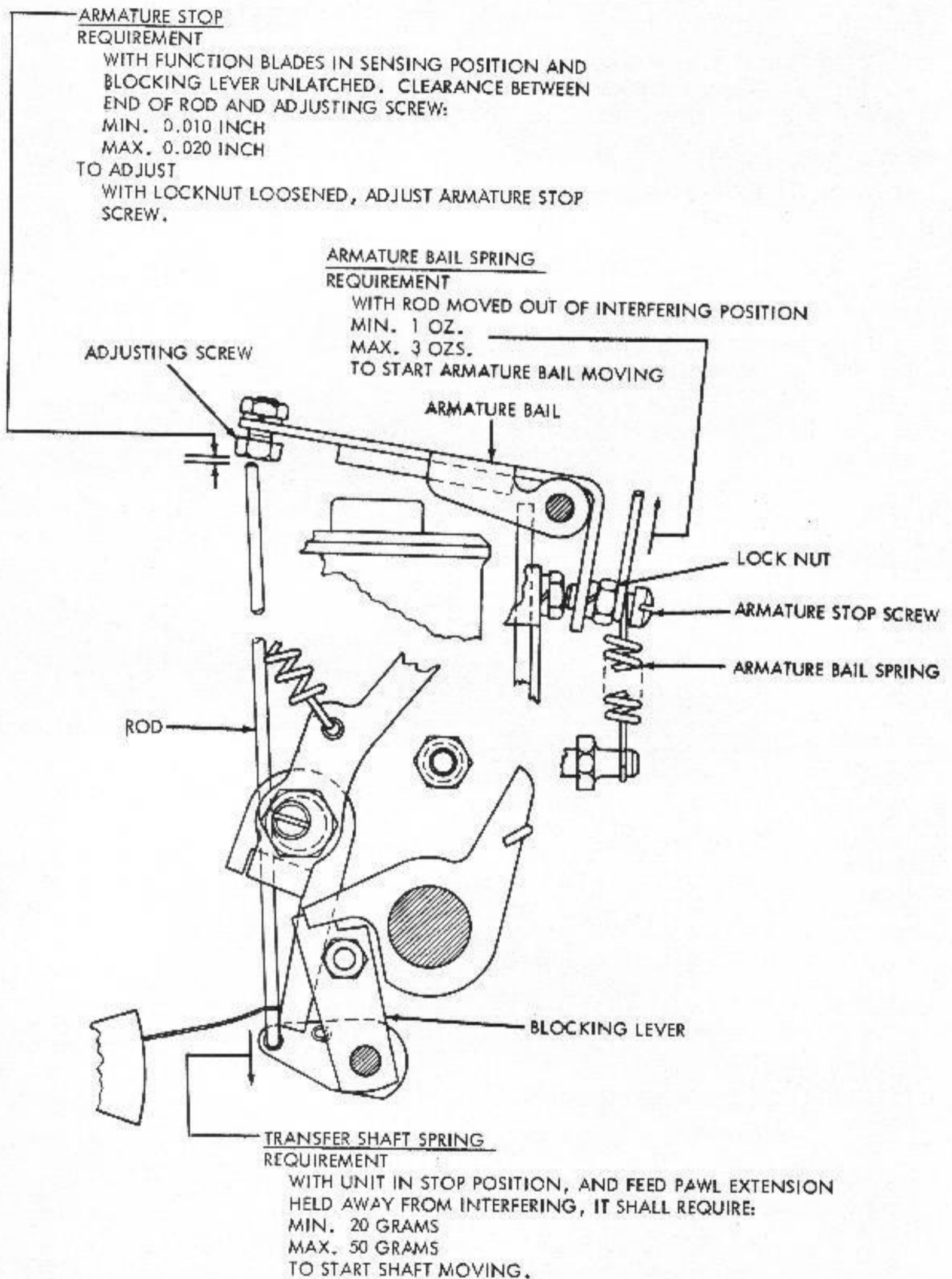


FIGURE 2-85. BLANK DELETE MECHANISM

ECCENTRIC STUD
REQUIREMENT

WITH LATCH LEVER AND BLOCKING LEVER IN LATCHED POSITION AND FEED PAWL IN ITS UPWARD TRAVEL, CLEARANCE BETWEEN TIP OF ENGAGING FEED WHEEL RATCHET TOOTH AND FEED PAWL TOOTH AT ITS CLOSEST POINT:

MIN. 0.010 INCH

MAX. 0.020 INCH

TO ADJUST

WITH LOCK NUT ON ECCENTRIC STUD FRICTION TIGHT, ADJUST ECCENTRIC STUD ON BLOCKING LEVER TO MEET REQUIREMENT.

RECHECK

TIGHTEN LOCK NUT ON ECCENTRIC STUD AND RECHECK ADJUSTMENT.

NOTE

THE ECCENTRIC SHOULD BE TOWARDS THE TOP OF UNIT IN ITS FULLY ADJUSTED POSITION.

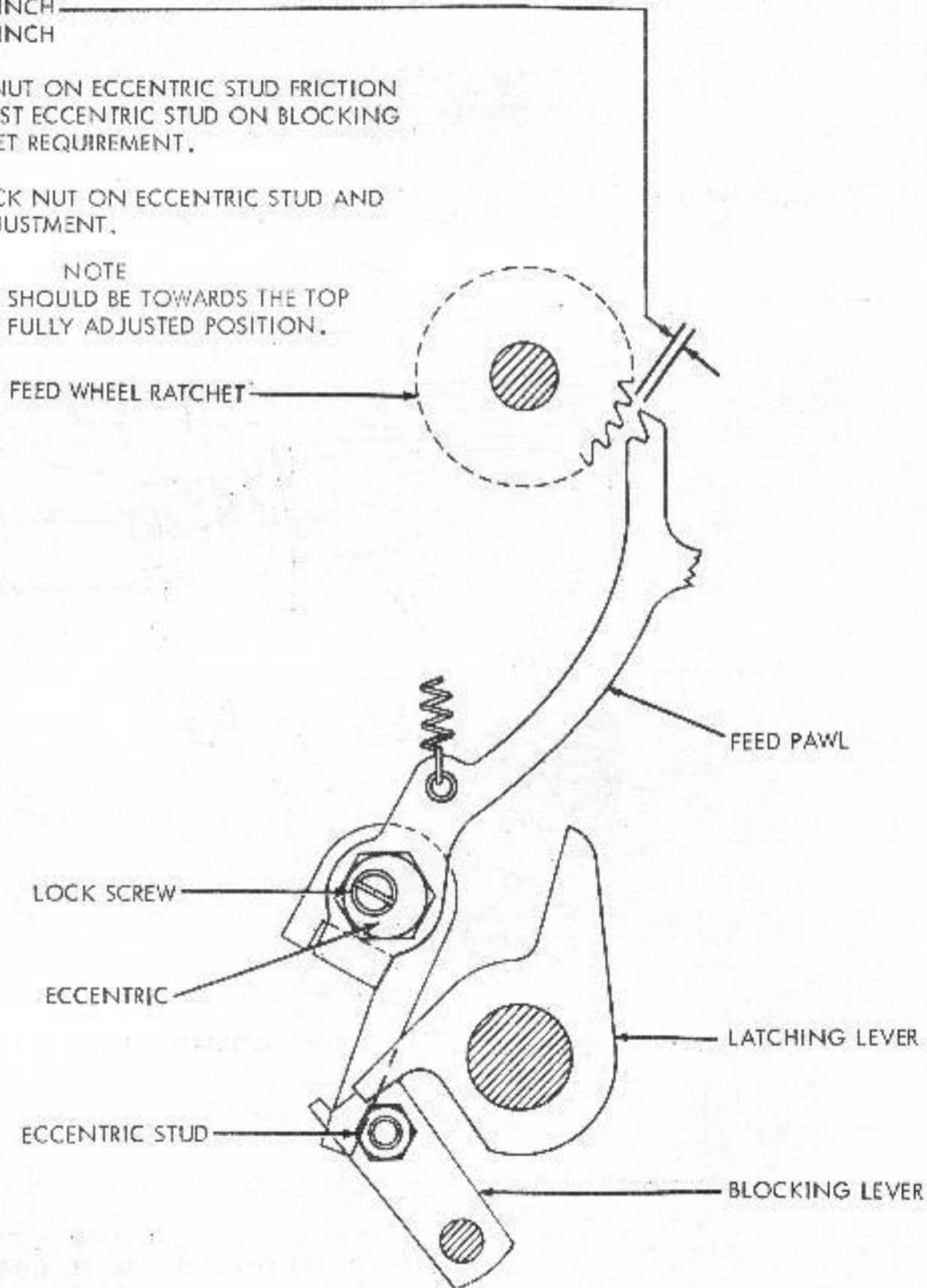


FIGURE 2-86, BLANK DELETE MECHANISM

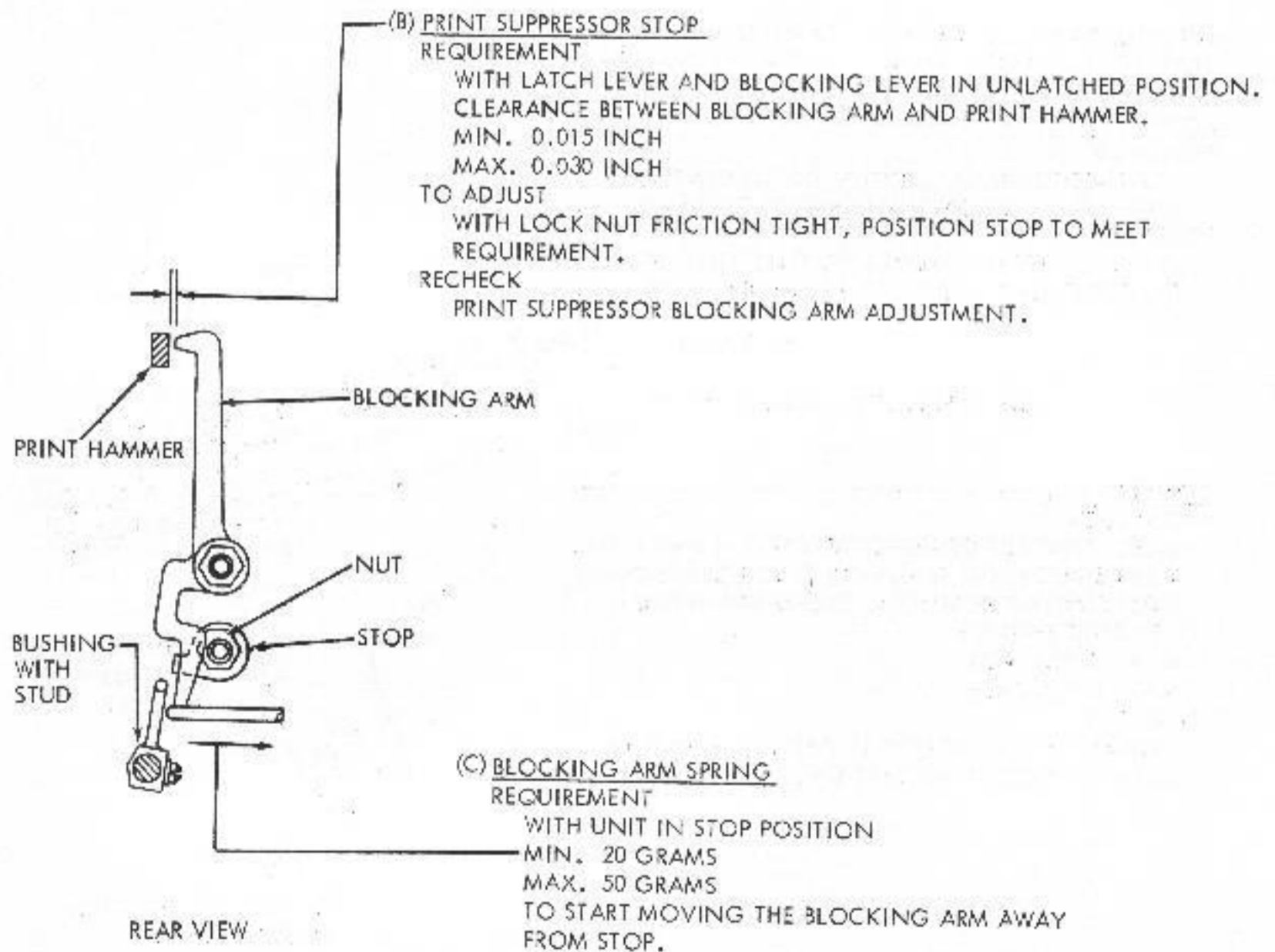
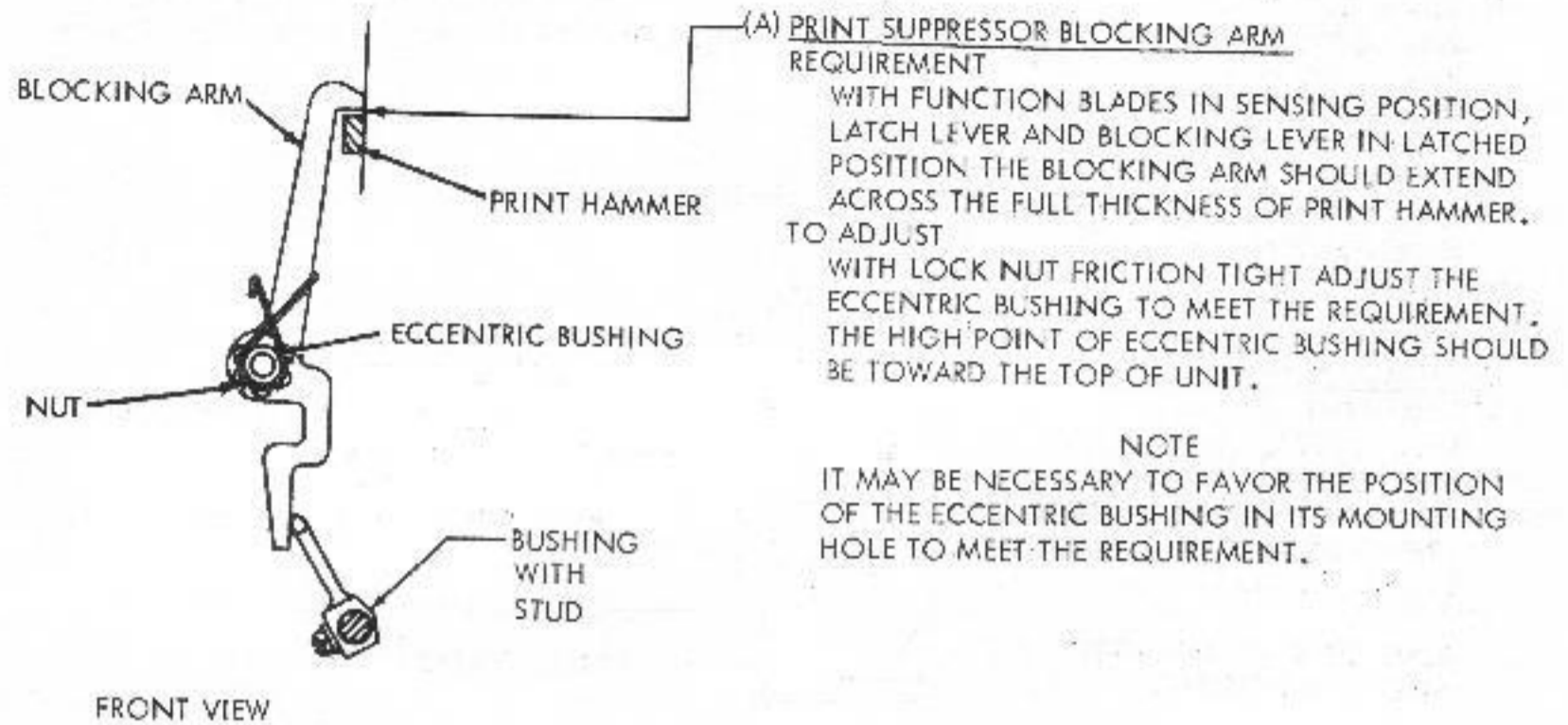
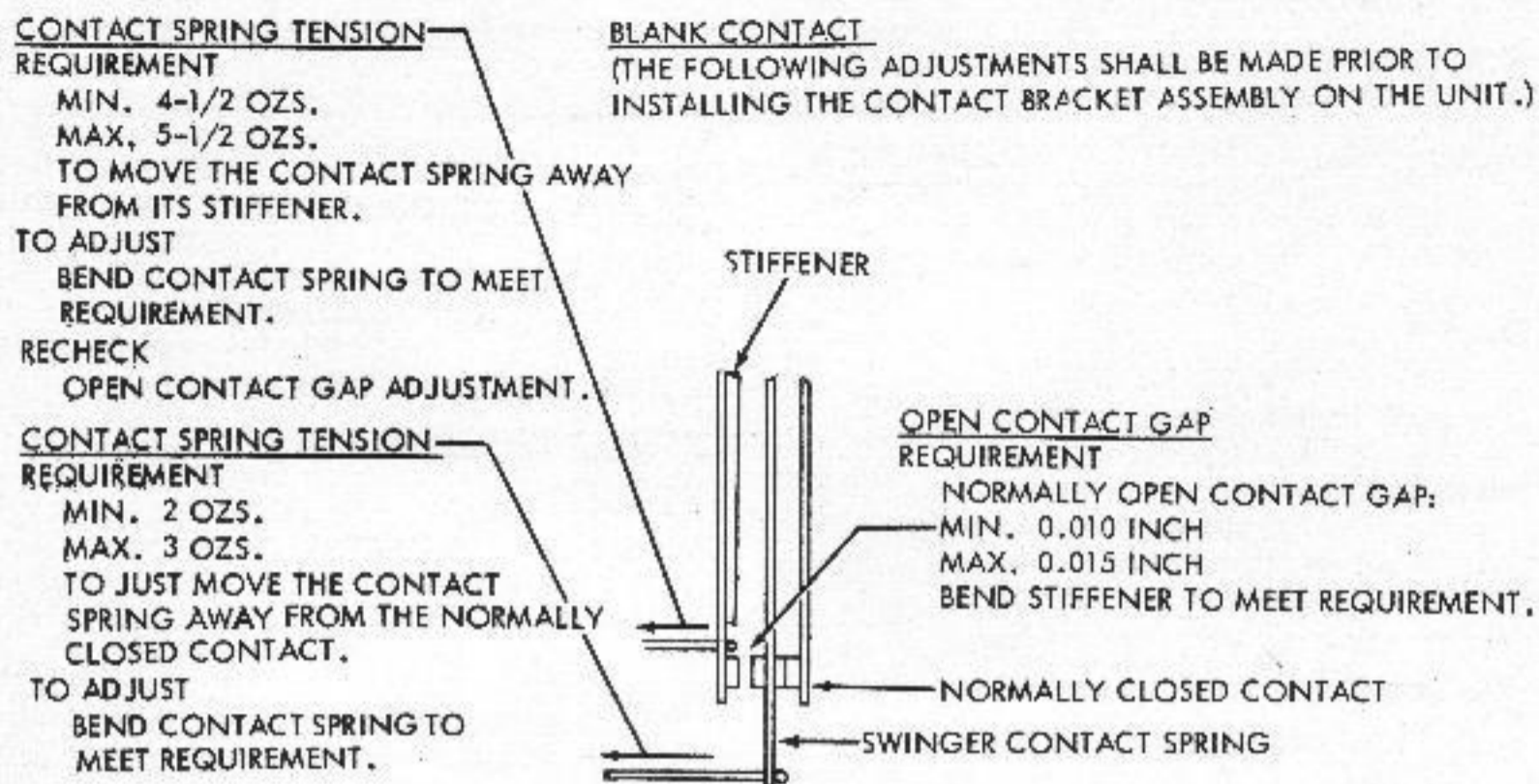


FIGURE 2-87. BLANK DELETE MECHANISM



THE FOLLOWING ADJUSTMENTS SHALL BE MADE AFTER CONTACT BRACKET ASSEMBLY IS MOUNTED ON UNIT.

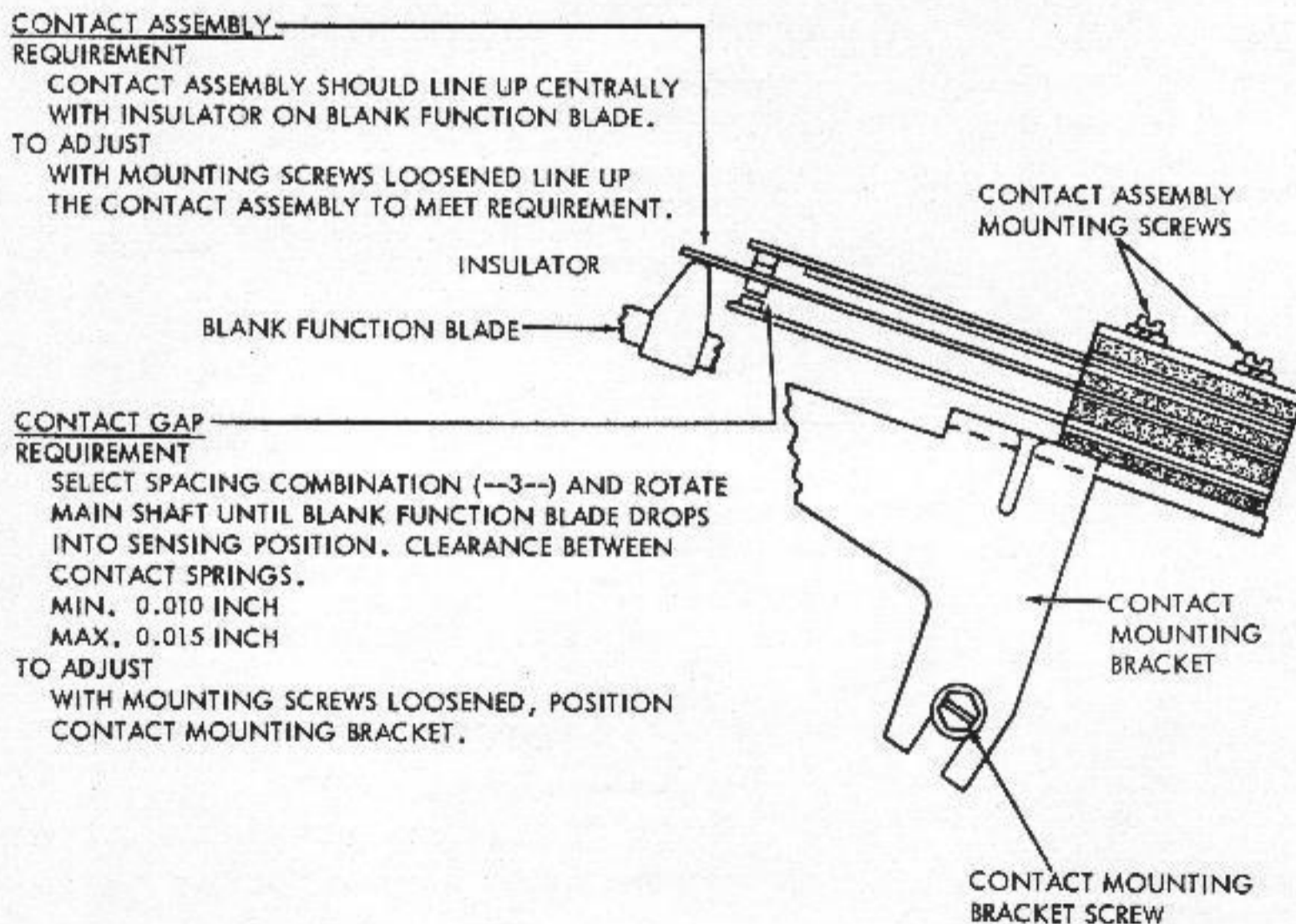


FIGURE 2-88-BLANK DELETE MECHANISM

22. MANUAL PRINT SUPPRESSION MECHANISM

MANUAL PRINT SUPPRESSION MECHANISM

THE MANUAL PRINT SUPPRESSION MECHANISM CONSISTS OF A BLOCKING ARM WHICH CAN BE LOCKED IN A PRINT OR NON-PRINT CONDITION AT THE TIME OF UNIT INSTALLATION.

REQUIREMENT

- (1) BLOCKING ARM TO BE ADJUSTED IN NON-PRINT CONDITION TO ASSURE THAT PRINT HAMMER ARM IS BLOCKED BY BLOCKING ARM.
 - (2) THE BLOCKING ARM SHALL BE RE-ADJUSTED TO THE PRINT CONDITION AND LOCKED IN PLACE.
- TO ADJUST
WITH MOUNTING SCREW FRICTION TIGHT
ROTATE ECCENTRIC BUSHING AND MANUALLY
POSITION BLOCKING ARM TO NON-PRINT
OR PRINT CONDITION.

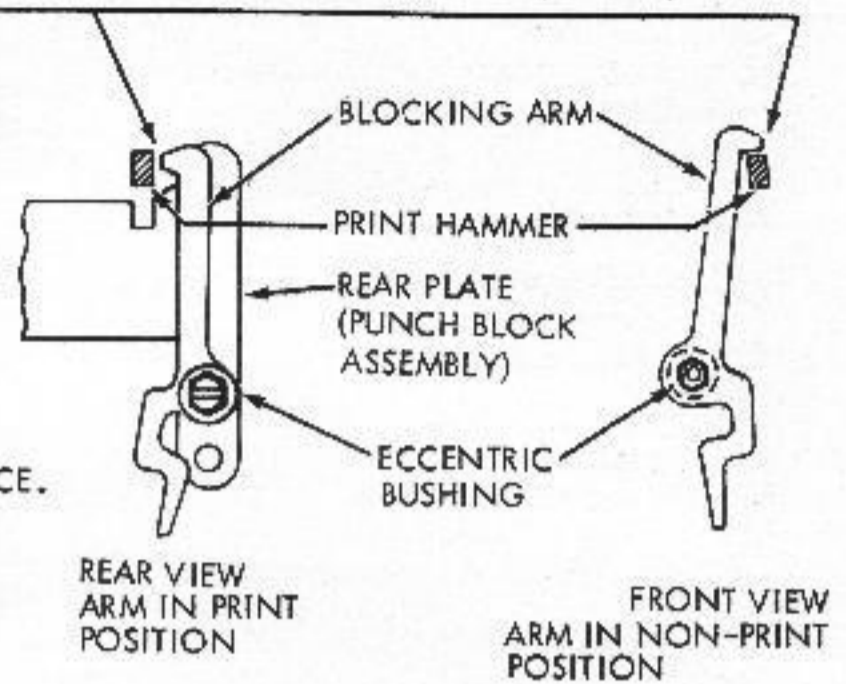


FIGURE 2-89. MANUAL PRINT SUPPRESSION MECHANISM

23. SYNCHRONOUS PULSE MECHANISM

MOUNTING BRACKET

TO CHECK

WITH MAGNET NOT ATTRACTED AND CLUTCH TRIP BAR IN FURTHEST LEFT POSITION.

REQUIREMENT

MIN. 0.005 INCH --- MAX. 0.015 INCH BETWEEN CLUTCH TRIP BAR AND ARMATURE LEVER.

TO ADJUST

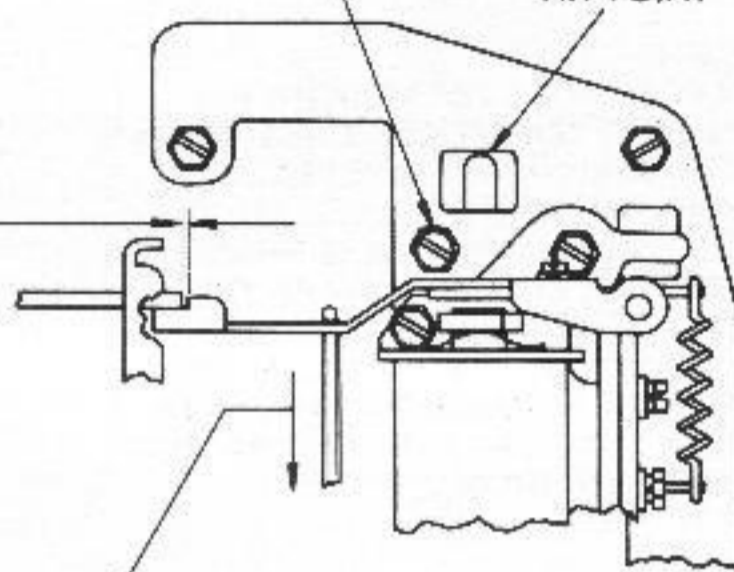
POSITION MOUNTING BRACKET WITH THREE MOUNTING SCREWS LOOSE BY MEANS OF PRY POINT.

NOTE

TIGHTEN REAR LEFT MOUNTING SCREW AND MAKE MOUNTING BRACKET ADJUSTMENT

REAR LEFT MOUNTING SCREW

PRY POINT

MAGNET ARMATURE

TO CHECK

CLUTCH TRIP BAR IN EXTREME LEFT POSITION. HOOK 32 OZ. SCALE TO ARMATURE LEVER AS SHOWN. MEASURE AT RIGHT ANGLE TO ARMATURE LEVER AS INDICATED.

REQUIREMENT

MIN. 3 OZS. --- MAX. 5 OZS. TO PULL ARMATURE LEVER FROM CLUTCH TRIP BAR.

ARMATURE HINGE

REQUIREMENT

WITH ARMATURE IN ATTRACTED POSITION ARMATURE FLUSH WITH POLE FACE AND MAGNET BRACKET EXTENSION.

TO ADJUST

POSITION ARMATURE WITH HINGE BRACKET MOUNTING SCREW AND SPRING POST LOOSE.

MOUNTING BRACKET

TO CHECK

WITH ARMATURE LEVER HELD AGAINST MAGNET POLE FACE AND CLUTCH TRIP BAR IN FURTHEST RIGHT POSITION.

REQUIREMENT

MIN. 0.005 INCH --- MAX. 0.015 INCH BETWEEN CLUTCH TRIP BAR AND ARMATURE LEVER.

TO ADJUST

WITH RIGHT REAR AND LEFT FRONT MOUNTING BRACKET SCREWS LOOSE POSITION MOUNTING BRACKET BY MEANS OF PRY POINT.

MOUNTING SCREWS

PRY POINT

CLUTCH TRIP BAR

ARMATURE LEVER

SPRING POST

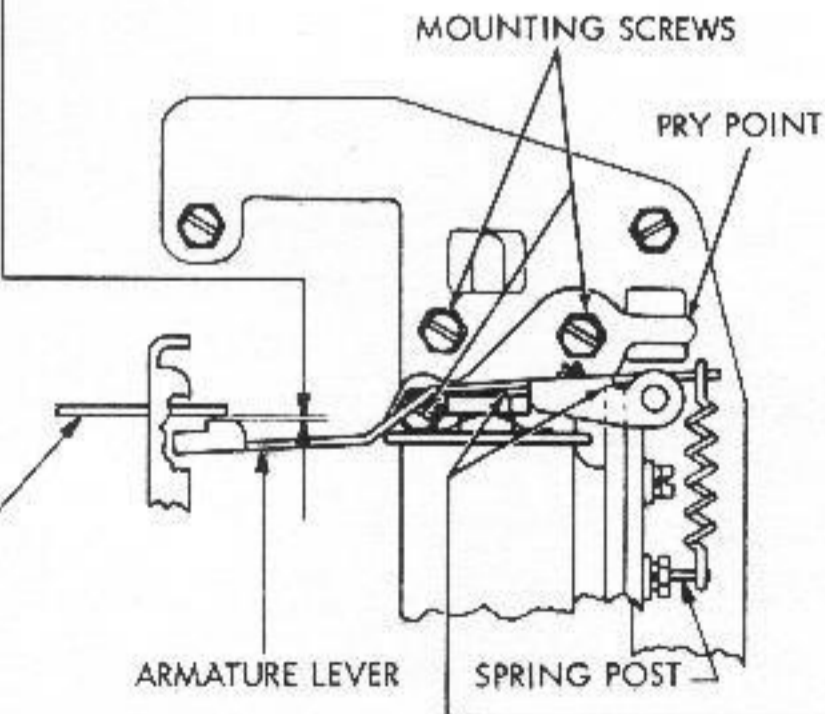
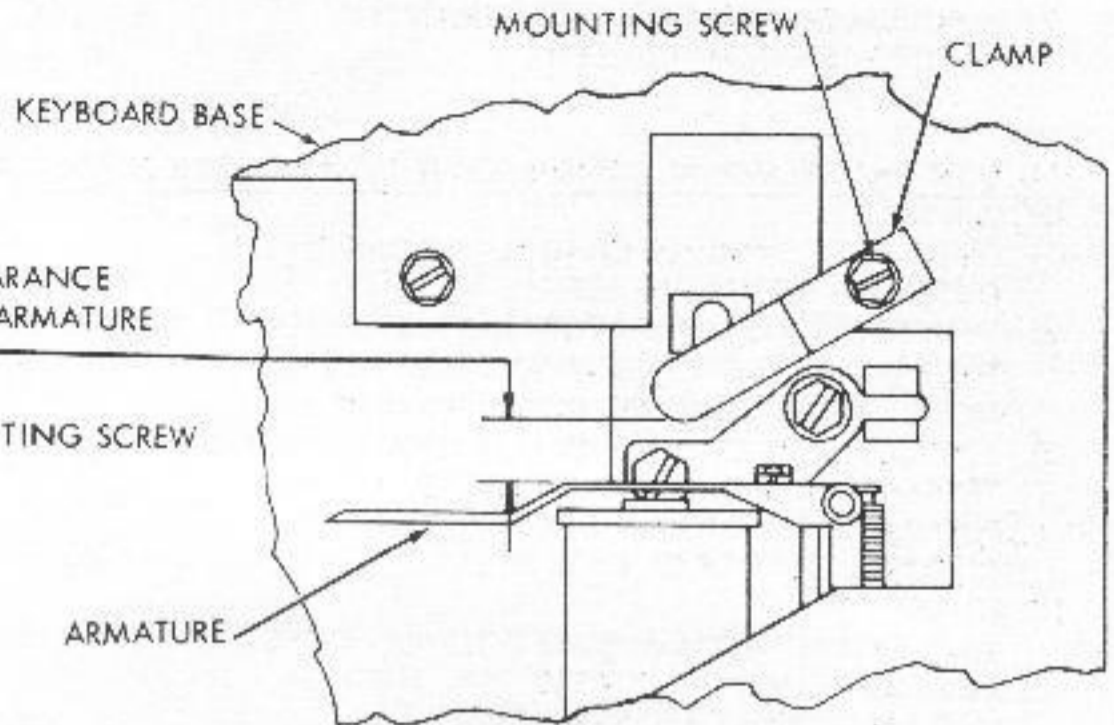


FIGURE 2-90. SYNCHRONOUS PULSE MECHANISM

ARMATURE CLAMP
REQUIREMENT

WITH ARMATURE OPERATED, CLEARANCE
BETWEEN ARMATURE CLAMP AND ARMATURE
APPROX. 3/8 INCH

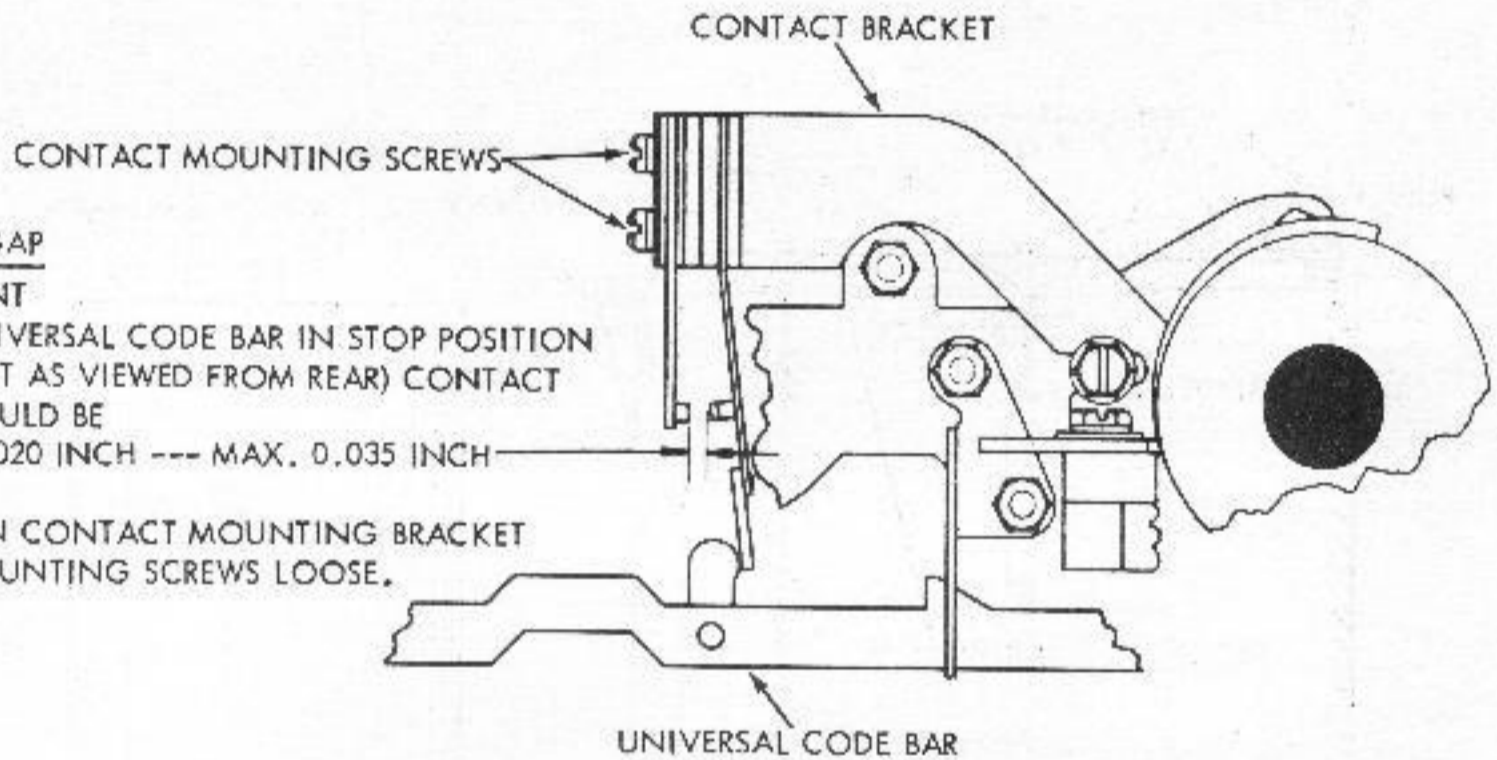
TO ADJUST
POSITION CLAMP WITH ITS MOUNTING SCREW
LOOSENED.



CONTACT GAP
REQUIREMENT

WITH UNIVERSAL CODE BAR IN STOP POSITION
(TO RIGHT AS VIEWED FROM REAR) CONTACT
GAP SHOULD BE
MIN. 0.020 INCH --- MAX. 0.035 INCH

TO ADJUST
POSITION CONTACT MOUNTING BRACKET
WITH MOUNTING SCREWS LOOSE.



UNIVERSAL CODE BAR CONTACT
REQUIREMENT

WITH UNIVERSAL CODE BAR IN OPERATED
POSITION (TO THE LEFT AS VIEWED FROM REAR)
MIN. 3-1/2 OZS. --- MAX. 4-1/2 OZS.

TO OPEN CONTACTS.
TO ADJUST
BEND CONTACT SWINGER.

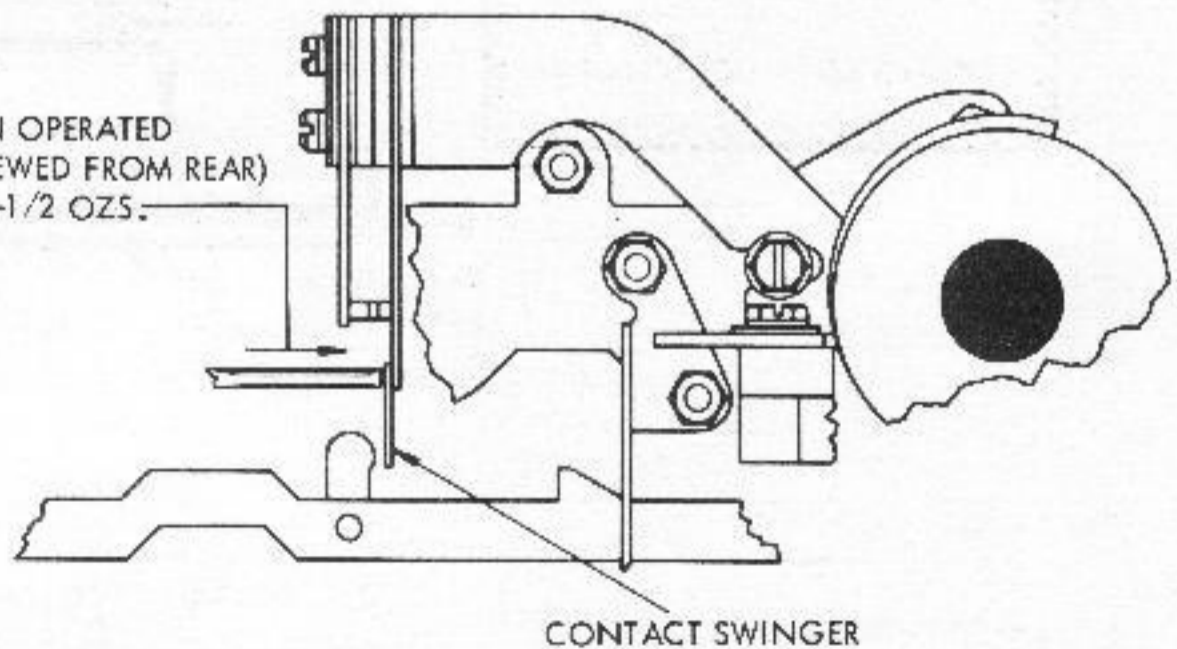


FIGURE 2-91. SYNCHRONOUS PULSE MECHANISM

24. VACUUM CHAD REMOVAL (SEND-RECEIVE
TYPING REPERFORATOR SET)

VACUUM CHAD REMOVAL (SEND-RECEIVE TYPING REPERFORATOR SET)

REQUIREMENTS

- (1) DIRECTS THE PUNCHED CHAD TO A CONVENIENT DISPOSAL OUTSIDE THE SET.
- (2) SYNCHRONOUS MOTOR WITH OPEN TINES OF THE FAN WHEEL FACING AWAY FROM THE MOTOR PROVIDES POWER FOR CHAD DISPOSAL.
- (3) A NYLON BAG OR A NYLON CHUTE ATTACHED TO EXHAUST END OF FAN WHEEL ASSEMBLY FURNISHED AS ALTERNATE MEANS OF CHAD DISPOSAL OUTSIDE OF CABINET.

TO ADJUST

WITH MOUNTING HARDWARE FRICTION TIGHT, POSITION CHAD CHUTE ASSEMBLY, TUBING, AND FAN WHEEL CASING ASSEMBLY SO THERE IS NO INTERFERENCE WITH ADJACENT UNITS.

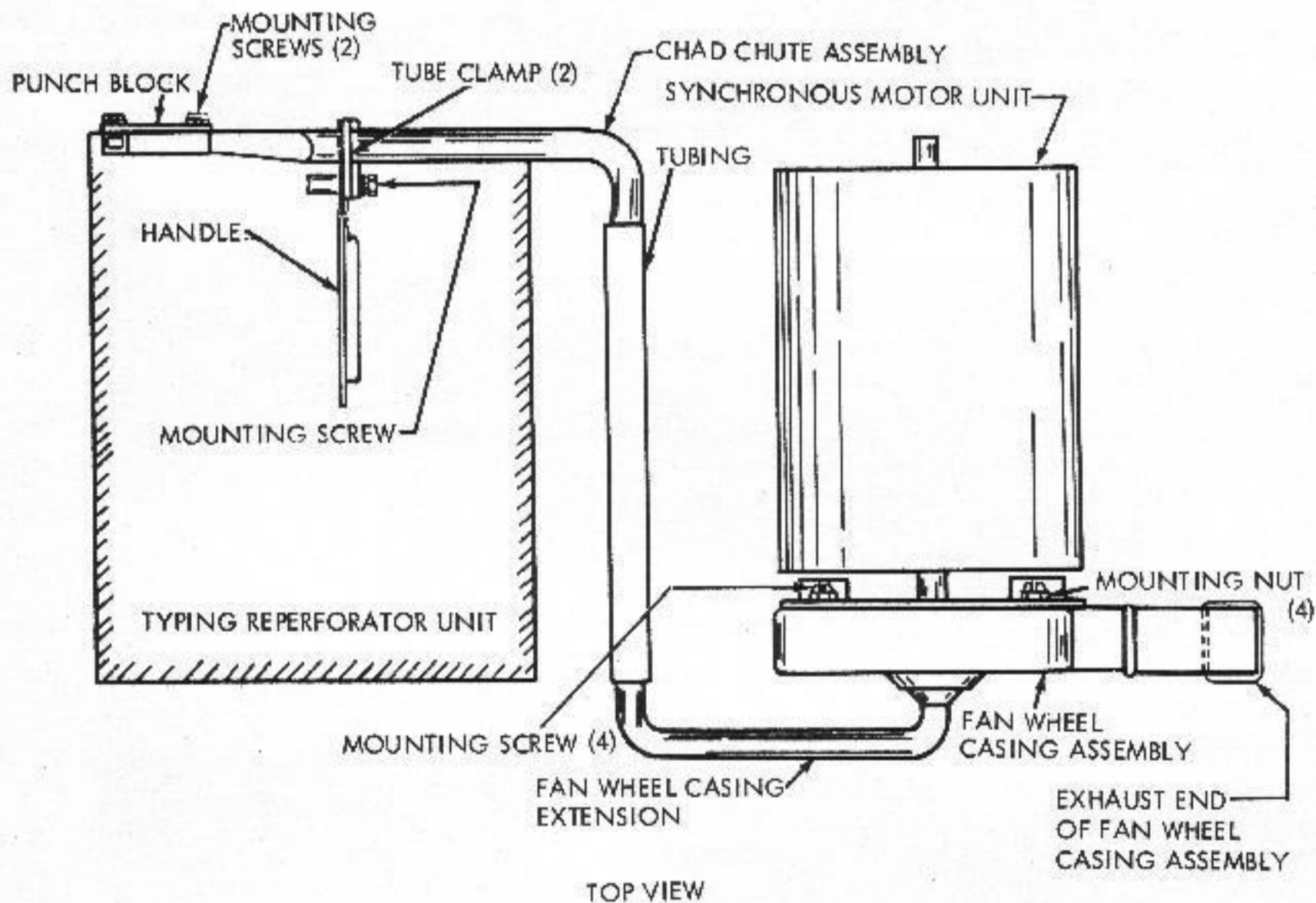


FIGURE 2-92. VACUUM CHAD REMOVAL - SEND-RECEIVE TYPING REPERFORATOR SET

SECTION 3

LUBRICATION

1. GENERAL

1.01 This section provides lubrication information for the Model 28 Send-Receive and the Receive Only types of Typing Reperforator Equipment and the Model 28 Send-Receive Tape Printer Set. On the following pages the general areas of the equipment are shown by photographs. The specific points to receive lubricant are indicated by line drawings and descriptive text. The symbols in the text indicate the following directions:

- O Apply one drop of oil.
- O2 Apply two drops of oil.
- O3 Apply three drops of oil, etc.
- G Apply thin coat of grease.
- SAT Saturate with oil (felt washers, etc.)
- L Apply Lubriplate.

Use following lubricants:

- Oil - Teletype KS7470 oil.
- Grease - Teletype KS7471 grease.
- Grease - (Lubriplate 105)
Teletype 108805 grease.
- Grease - (Beacon 325 grease or its equivalent) Teletype 195298 grease.

1.02 The equipment should be thoroughly lubricated, but over-lubrication which might allow oil to drop or grease to be thrown on other parts should be avoided. Special care should be exercised to prevent lubricant from getting between armatures and pole faces or between elec-

trical contact points. The following general instructions supplement the specific lubricating points illustrated on subsequent pages:

- Apply one drop of oil to all spring hooks.
- Apply a light film of oil to all cam surfaces.
- Apply a thick coat of grease to all gears.
- Saturate all felt washers, oilers, etc.
- Apply oil to all pivot points.
- Apply oil to all sliding surfaces.

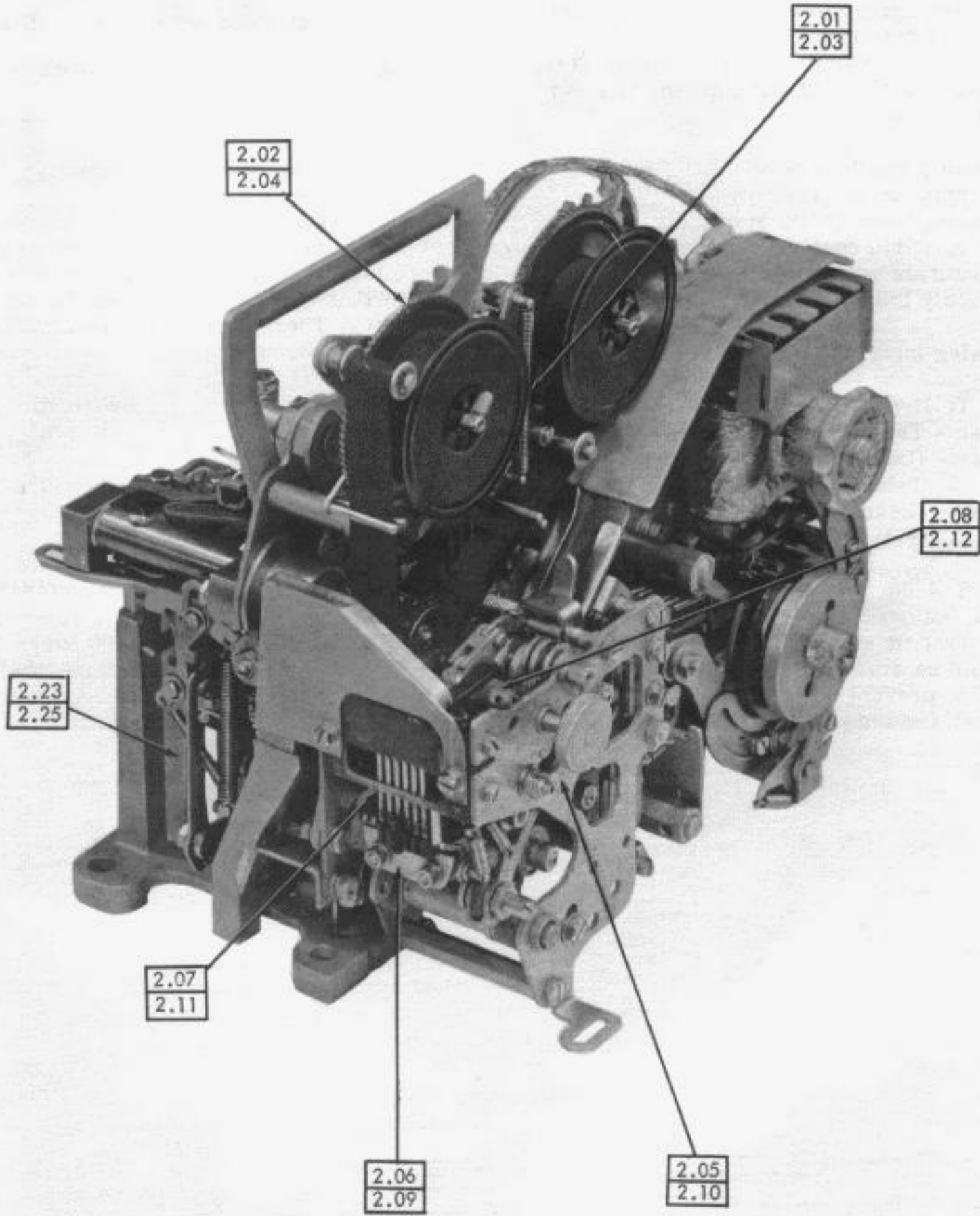
1.03 All equipment should be lubricated before being placed in service or prior to storage. After a few weeks of service, relubricate to make certain that all specified points have received lubricant. Thereafter, the following schedule should be adhered to:

<u>Operating Speed</u>	<u>Lubrication Interval</u>
60 W. P. M.	3000 hours or 1 year*
75 W. P. M.	2400 hours or 9 months*
100 W. P. M.	1500 hours or 6 months*

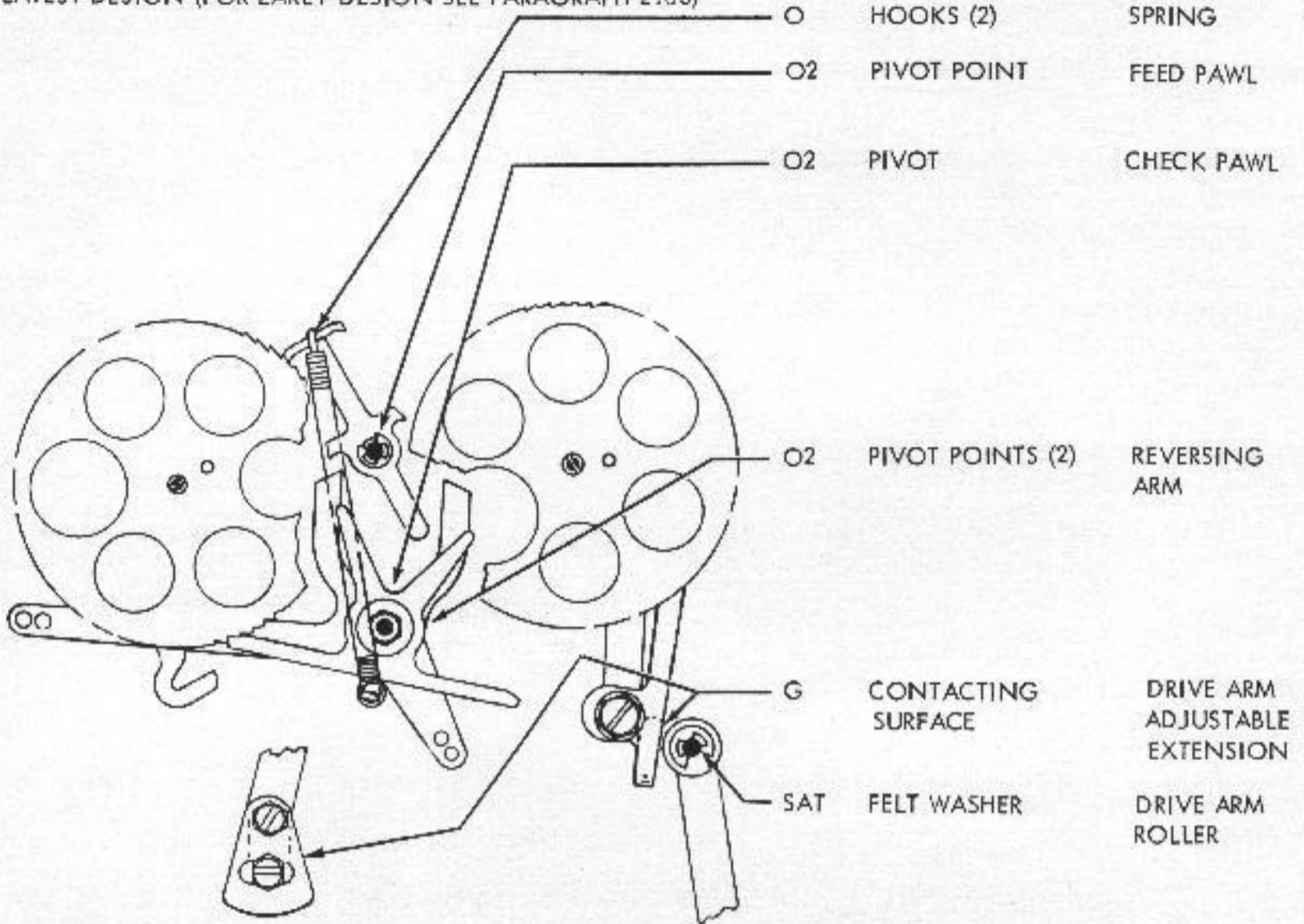
* Whichever occurs first.

2.00 TYPING REPERFORATORS

NOTE
FOLLOWING LUBRICATION INSTRUCTIONS PERTAIN TO ALL
TYPING REPERFORATORS UNLESS OTHERWISE SPECIFIED.

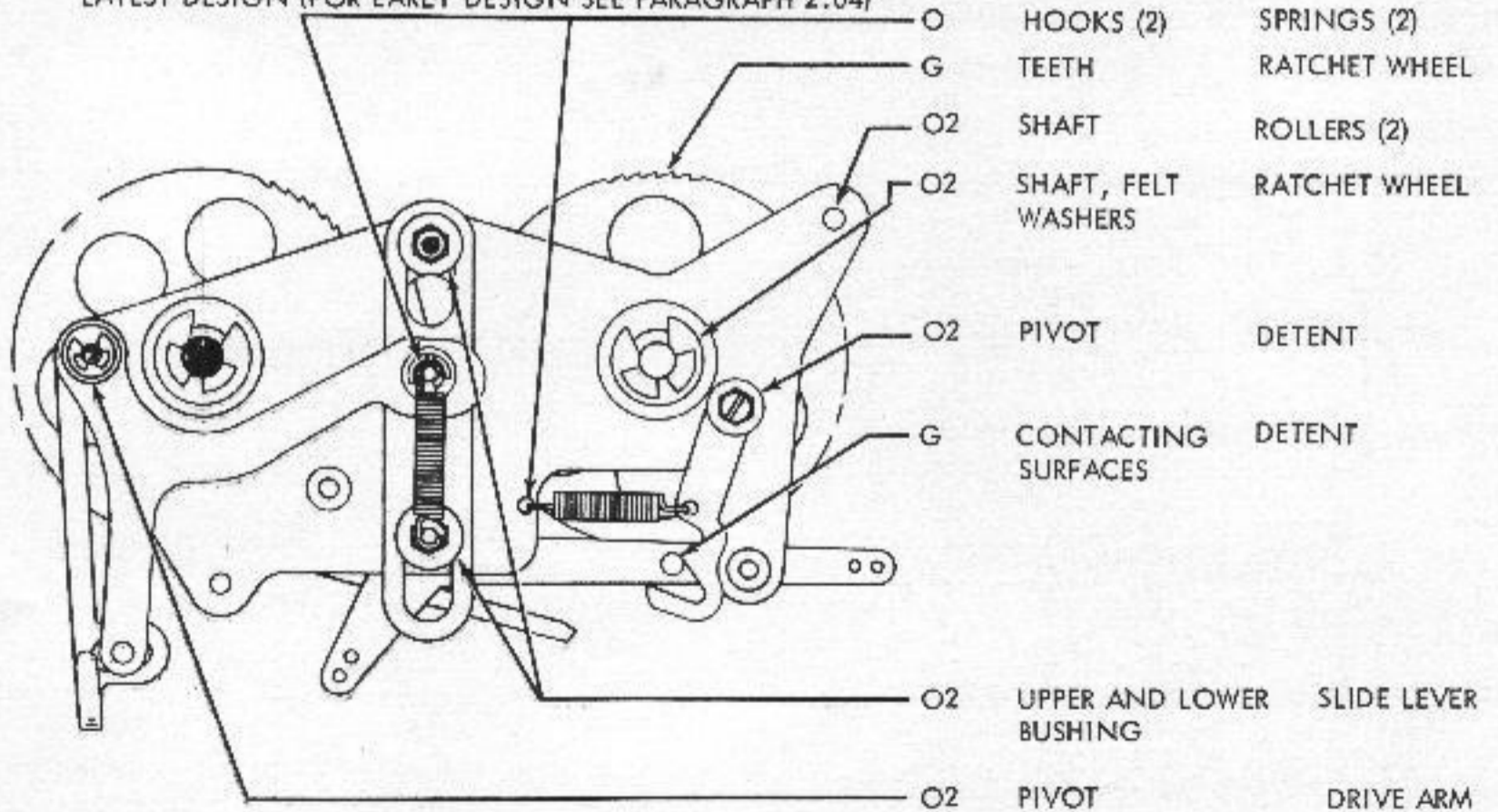


2.01 RIBBON FEED MECHANISM -
LATEST DESIGN (FOR EARLY DESIGN SEE PARAGRAPH 2.03)



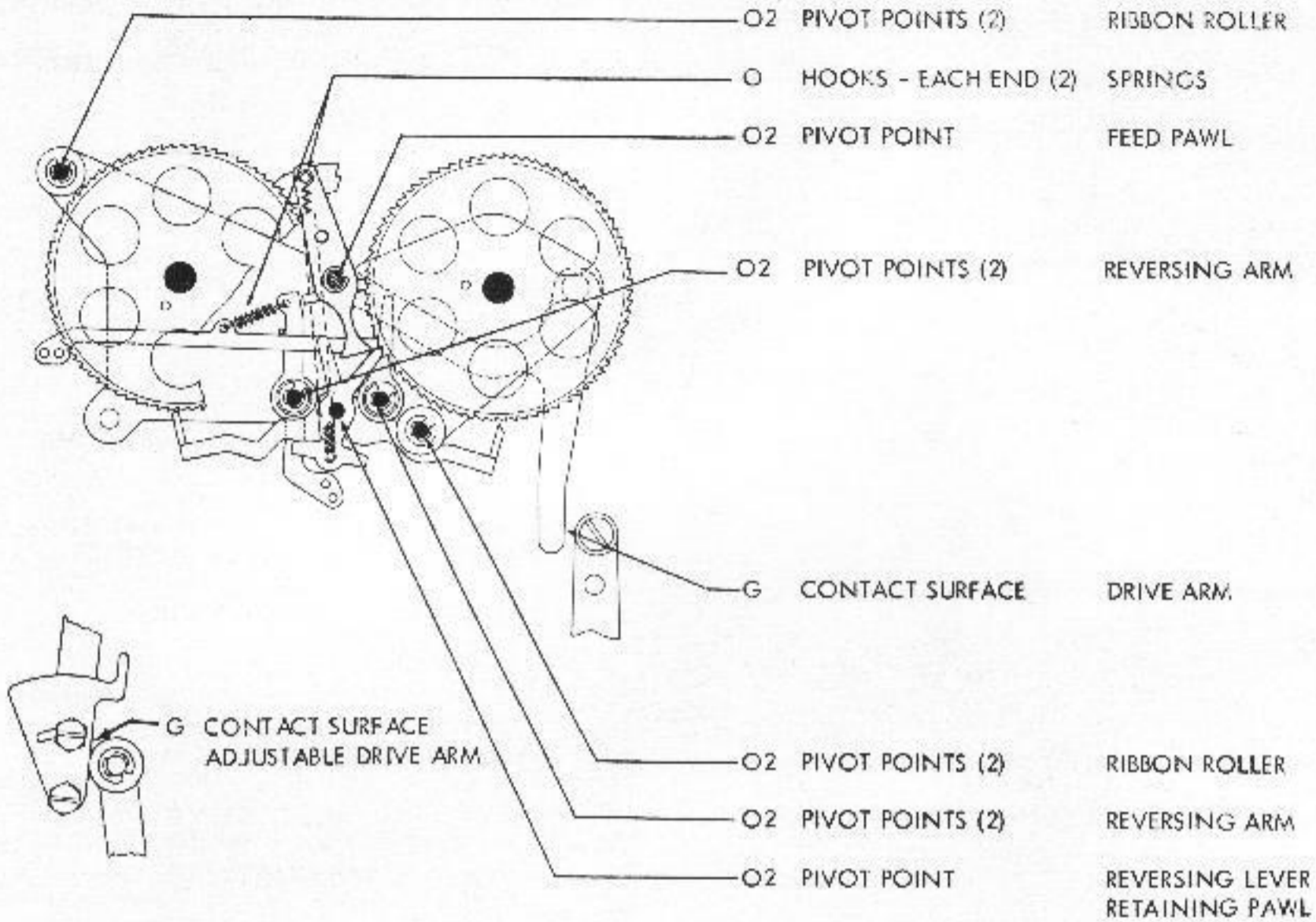
- O HOOKS (2) SPRING
- O2 PIVOT POINT FEED PAWL
- O2 PIVOT CHECK PAWL
- O2 PIVOT POINTS (2) REVERSING ARM
- G CONTACTING SURFACE DRIVE ARM ADJUSTABLE EXTENSION
- SAT FELT WASHER DRIVE ARM ROLLER

2.02 RIBBON FEED MECHANISM -
LATEST DESIGN (FOR EARLY DESIGN SEE PARAGRAPH 2.04)

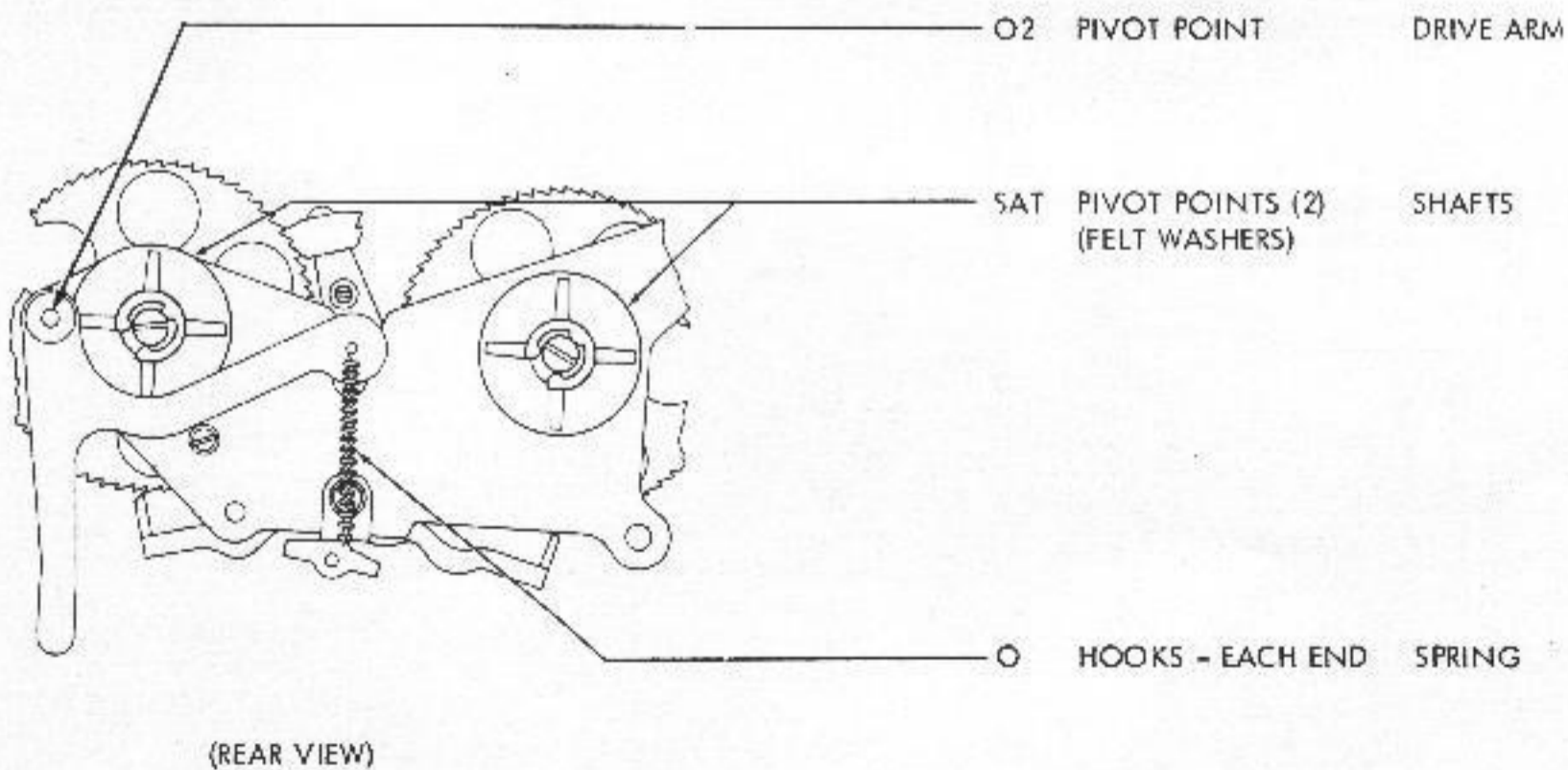


- O HOOKS (2) SPRINGS (2)
- G TEETH RATCHET WHEEL
- O2 SHAFT ROLLERS (2)
- O2 SHAFT, FELT WASHERS RATCHET WHEEL
- O2 PIVOT DETENT
- G CONTACTING SURFACES DETENT
- O2 UPPER AND LOWER BUSHING SLIDE LEVER
- O2 PIVOT DRIVE ARM

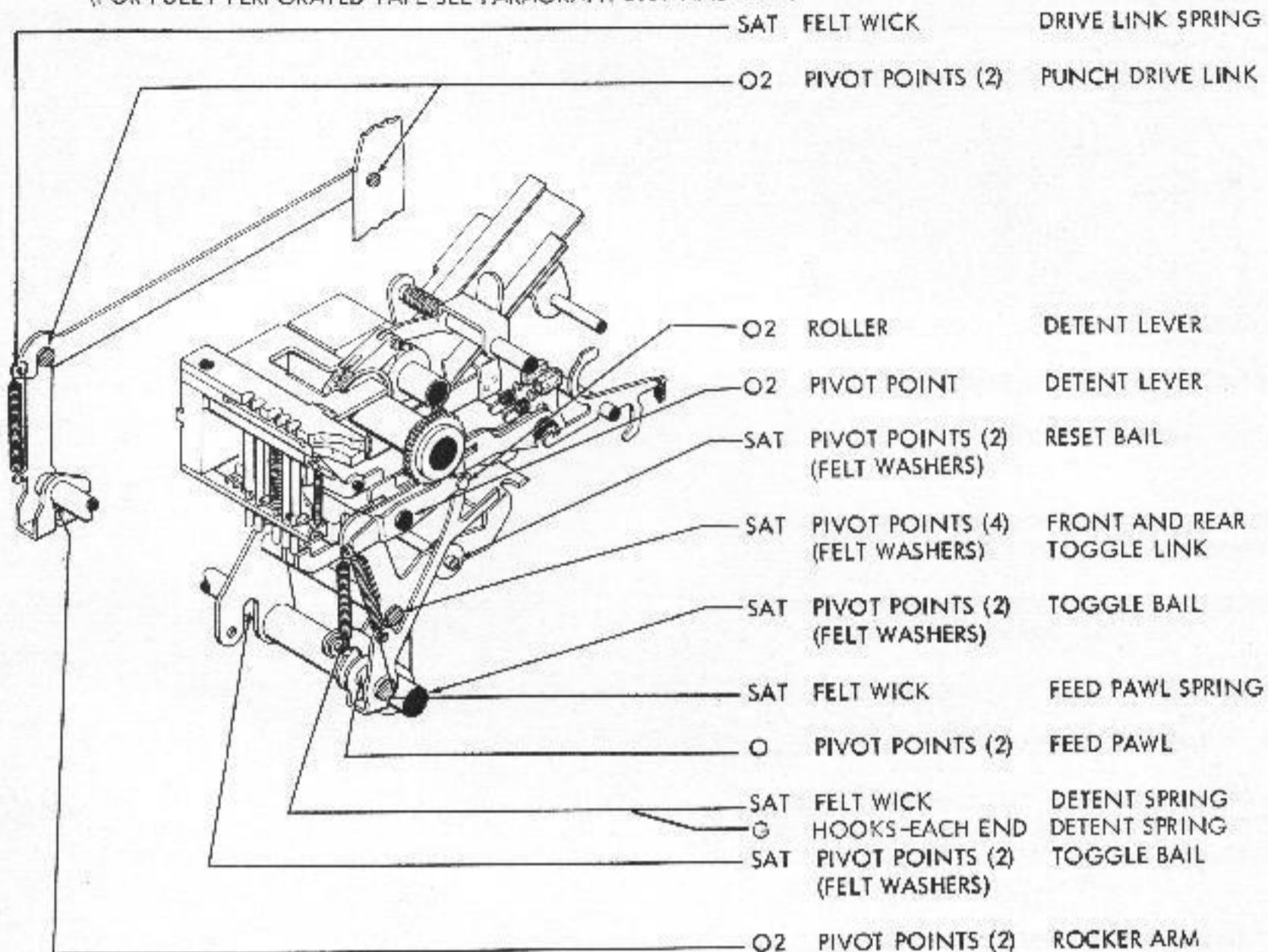
2.03 RIBBON FEED MECHANISM -
EARLY DESIGN (FOR LATEST DESIGN SEE PARAGRAPH 2.01)



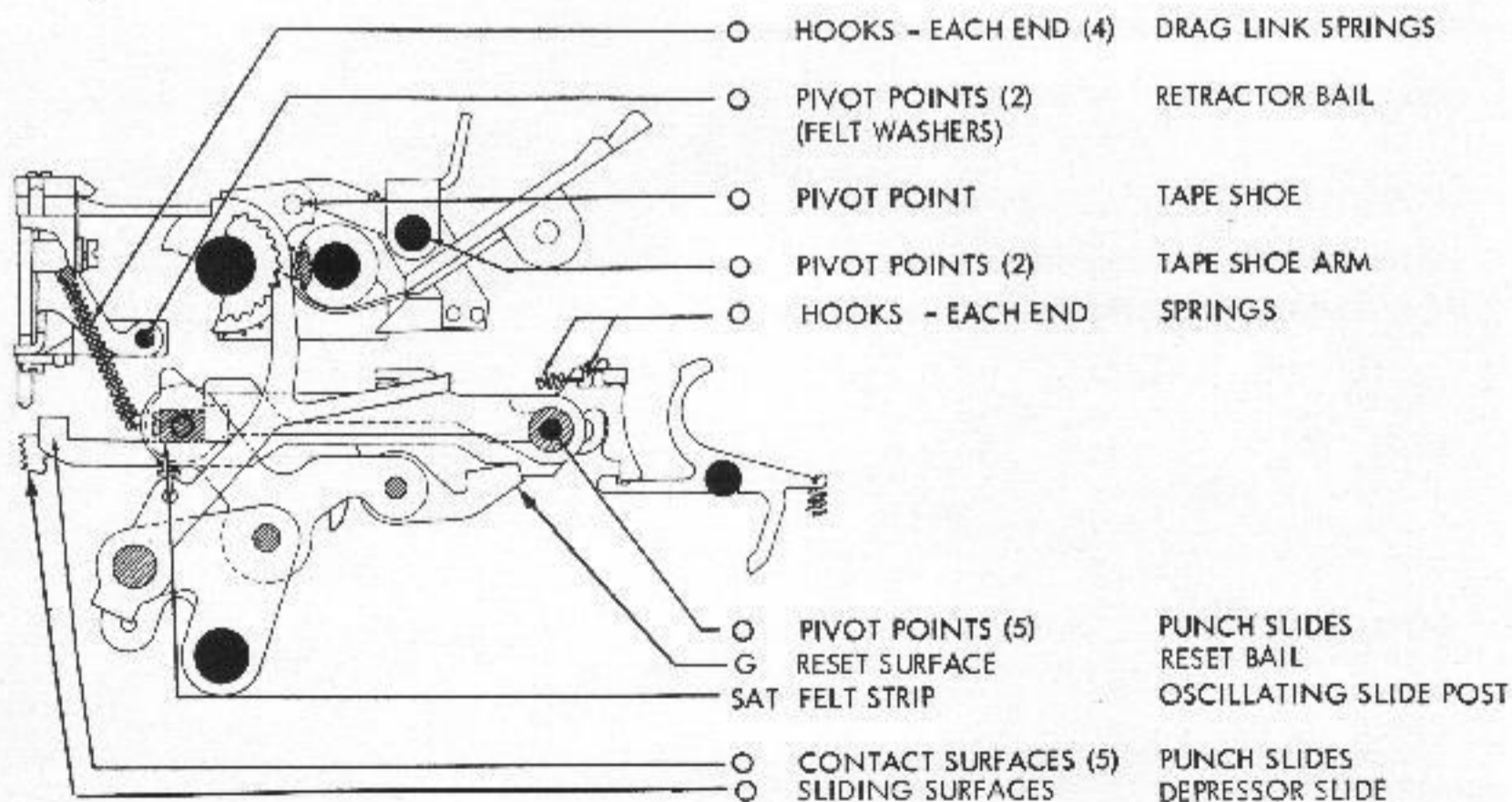
2.04 RIBBON FEED MECHANISM -
EARLY DESIGN (FOR LATEST DESIGN SEE PARAGRAPH 2.02)



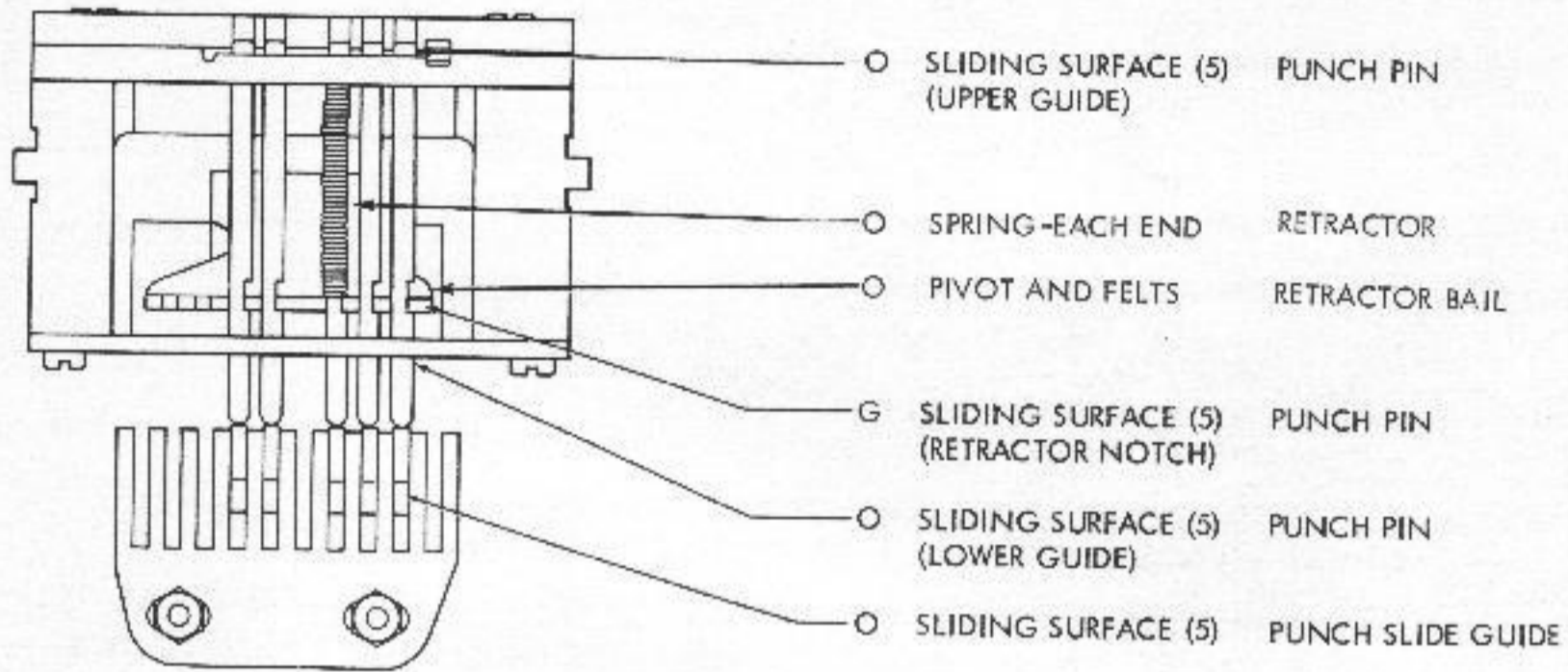
2.05 PERFORATOR MECHANISM (FOR CHADLESS TAPE)
(FOR FULLY PERFORATED TAPE SEE PARAGRAPH 2.09 AND 2.10)



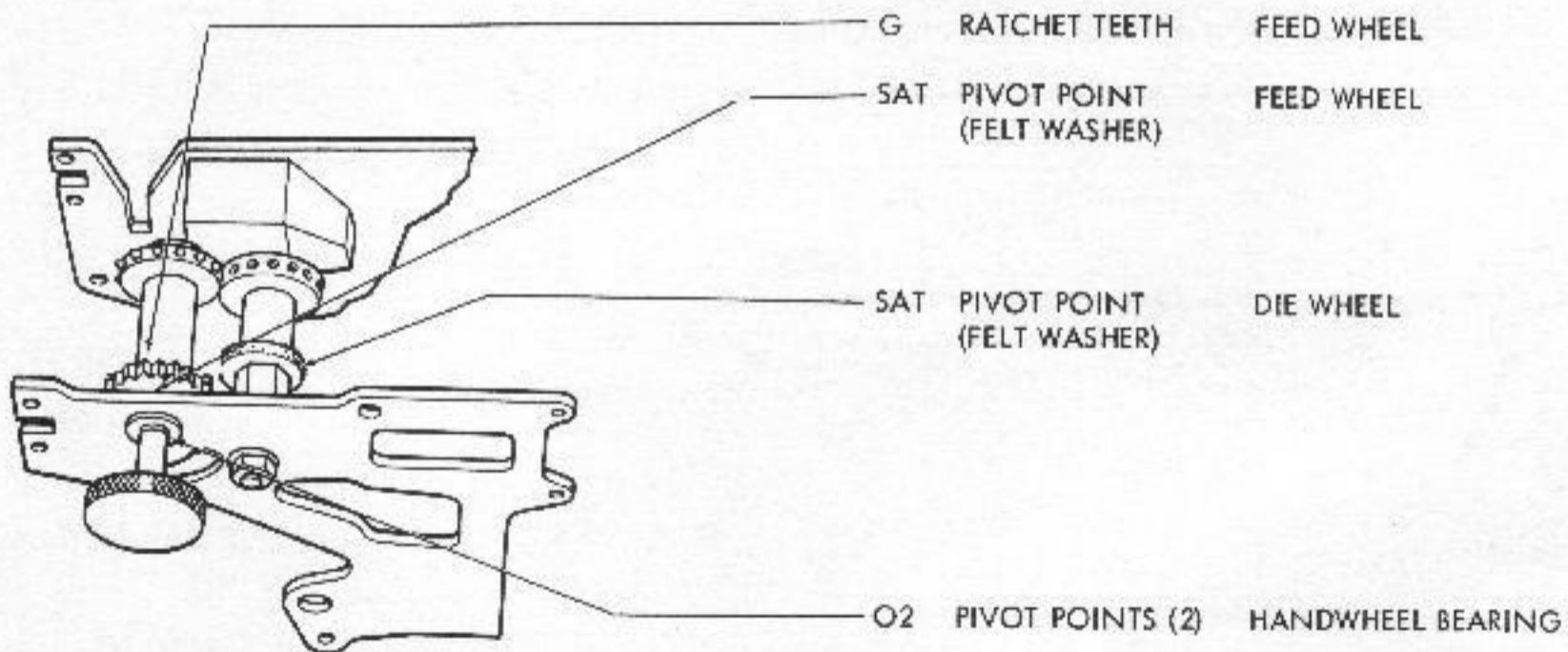
2.06 PERFORATOR MECHANISM (FOR CHADLESS TAPE)
(FOR FULLY PERFORATED TAPE SEE PARAGRAPH 2.09 AND 2.10)



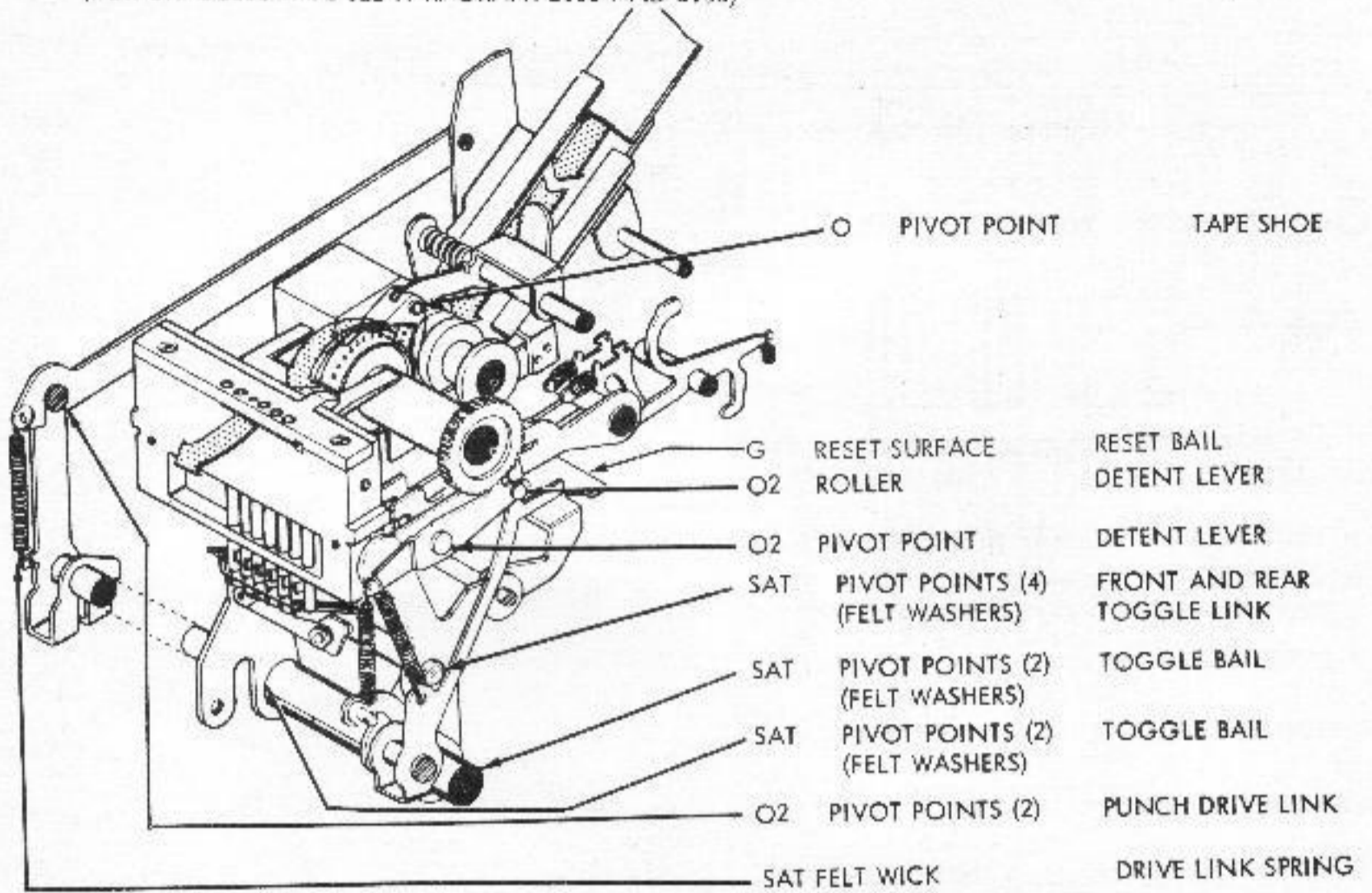
2.07 PERFORATOR MECHANISM (FOR CHADLESS TAPE)
(FOR FULLY PERFORATED TAPE SEE PARAGRAPH 2.11)



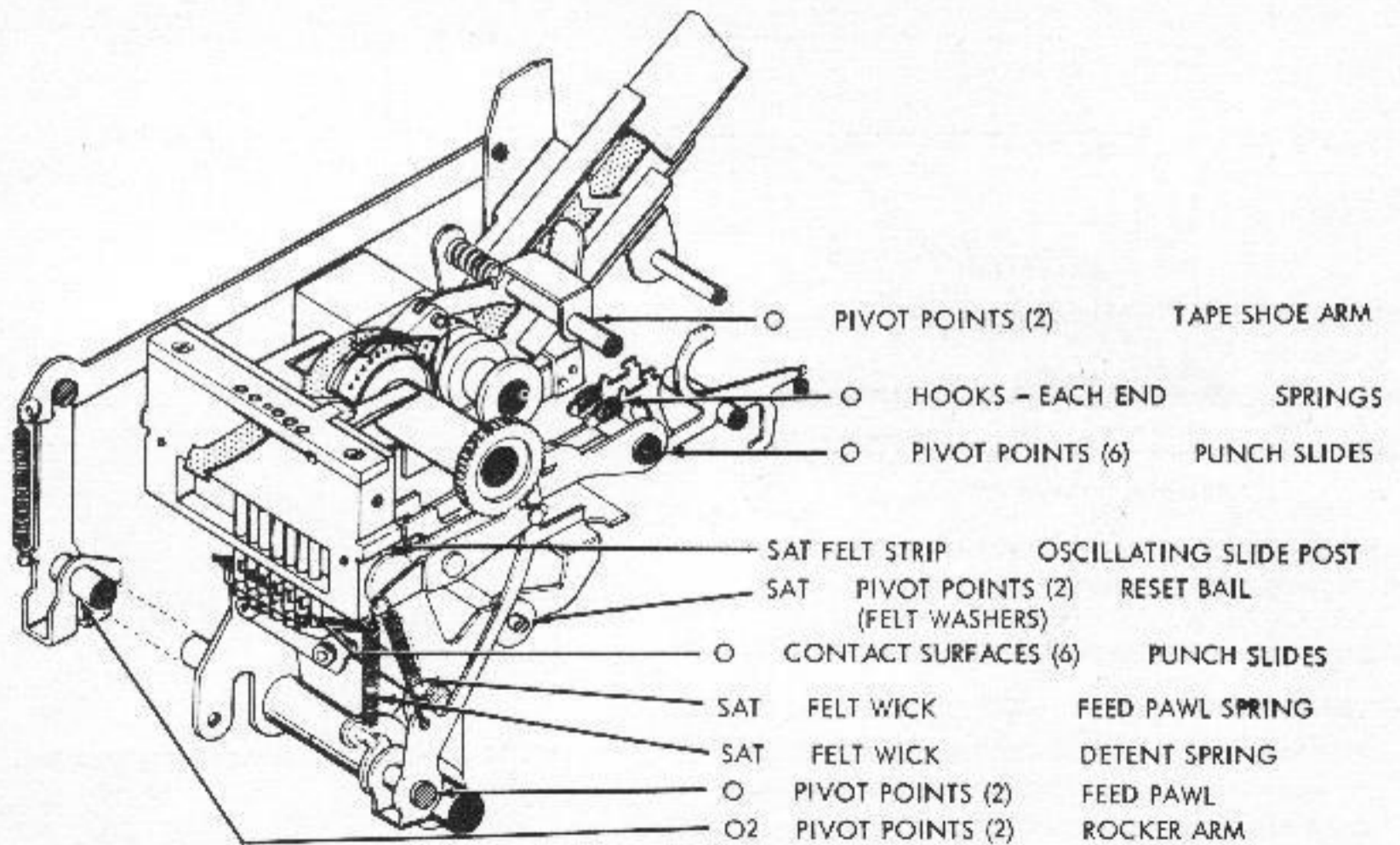
2.08 PERFORATOR MECHANISM (FOR CHADLESS TAPE)
(FOR FULLY PERFORATED TAPE SEE PARAGRAPH 2.12)



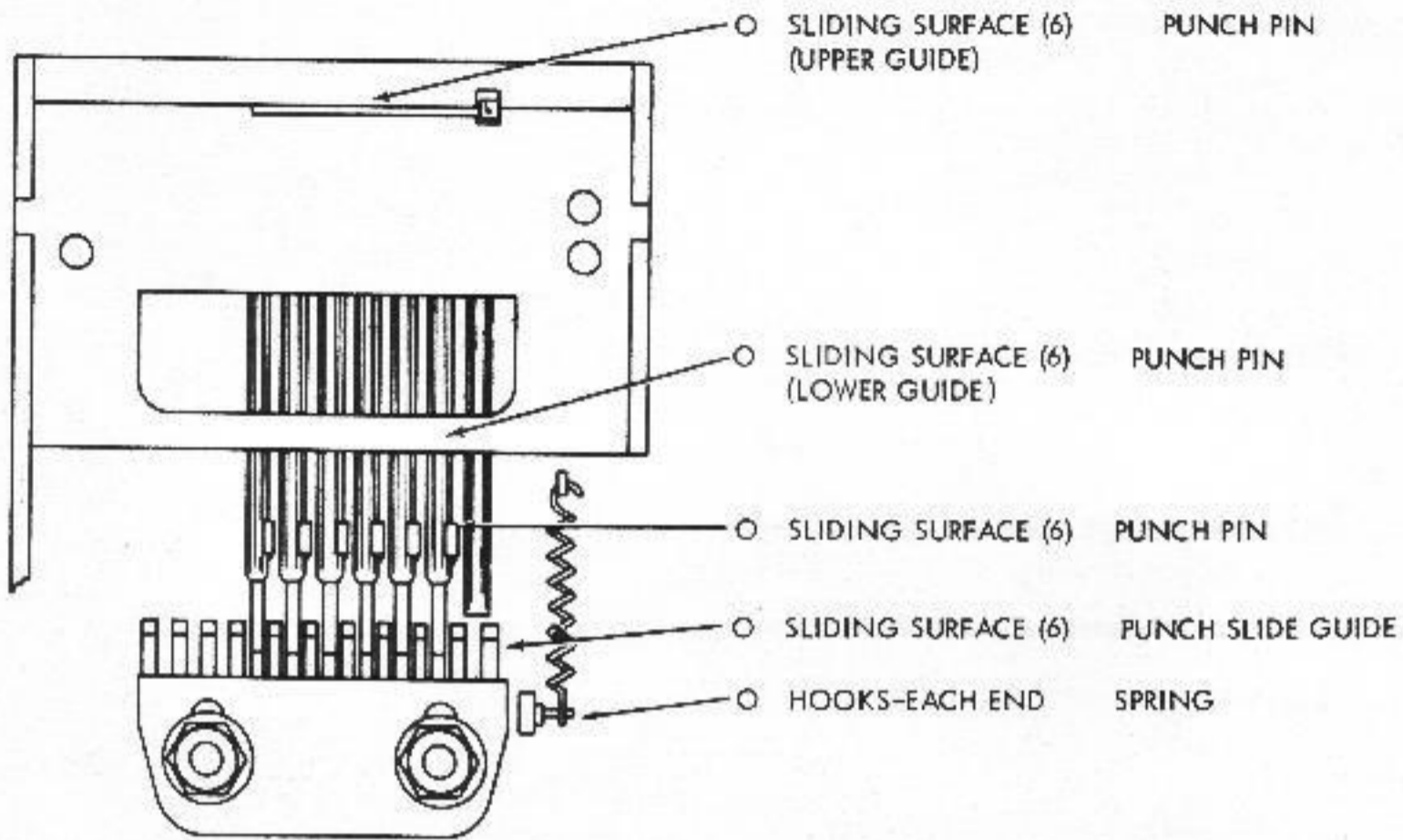
2.09 PERFORATOR MECHANISM (FOR FULLY PERFORATED TAPE),
(FOR CHADLESS TAPE SEE PARAGRAPH 2.05 AND 2.06)



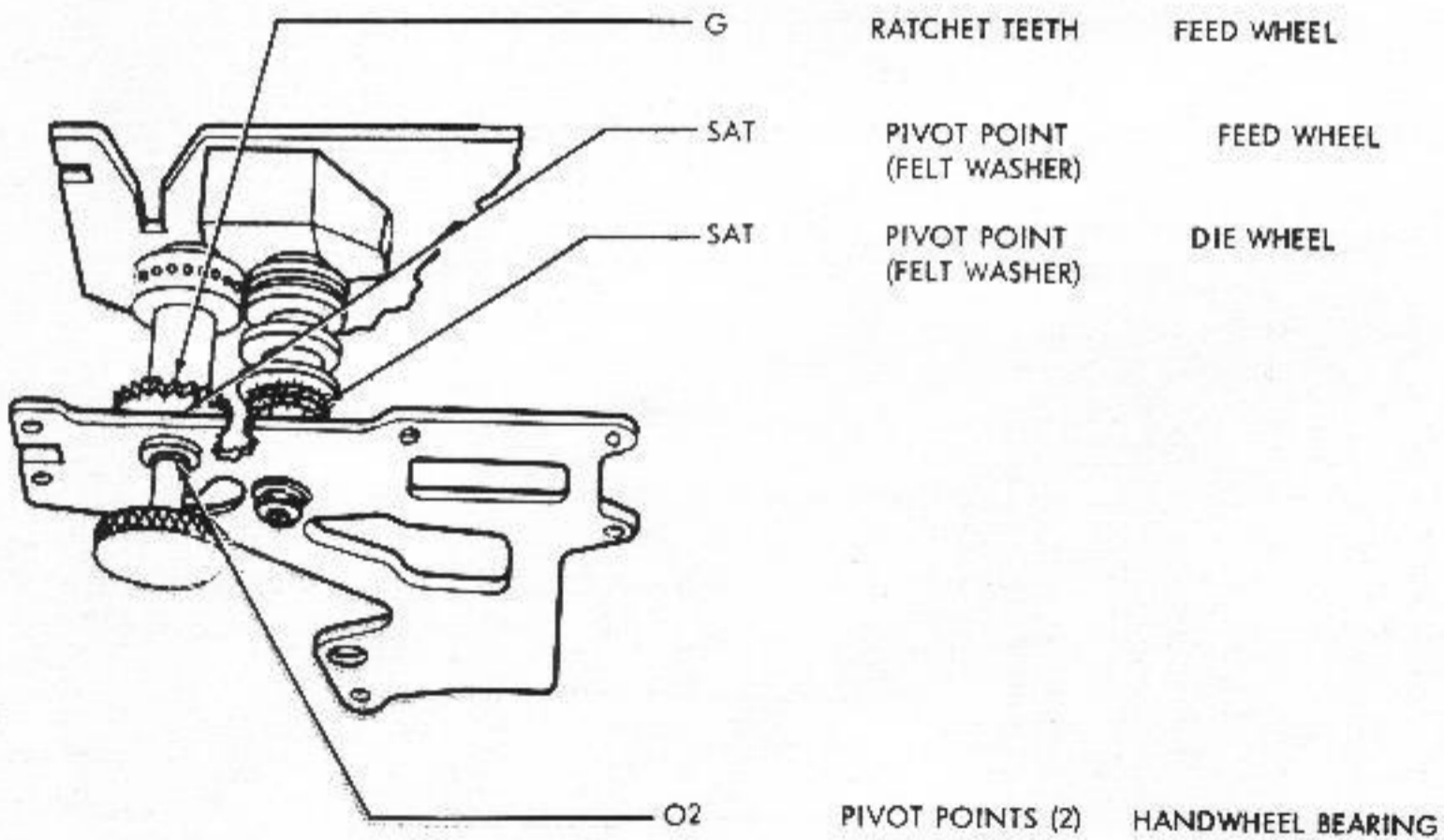
2.10 PERFORATOR MECHANISM (FOR FULLY PERFORATED TAPE),
(FOR CHADLESS TAPE SEE PARAGRAPH 2.05 AND 2.06)



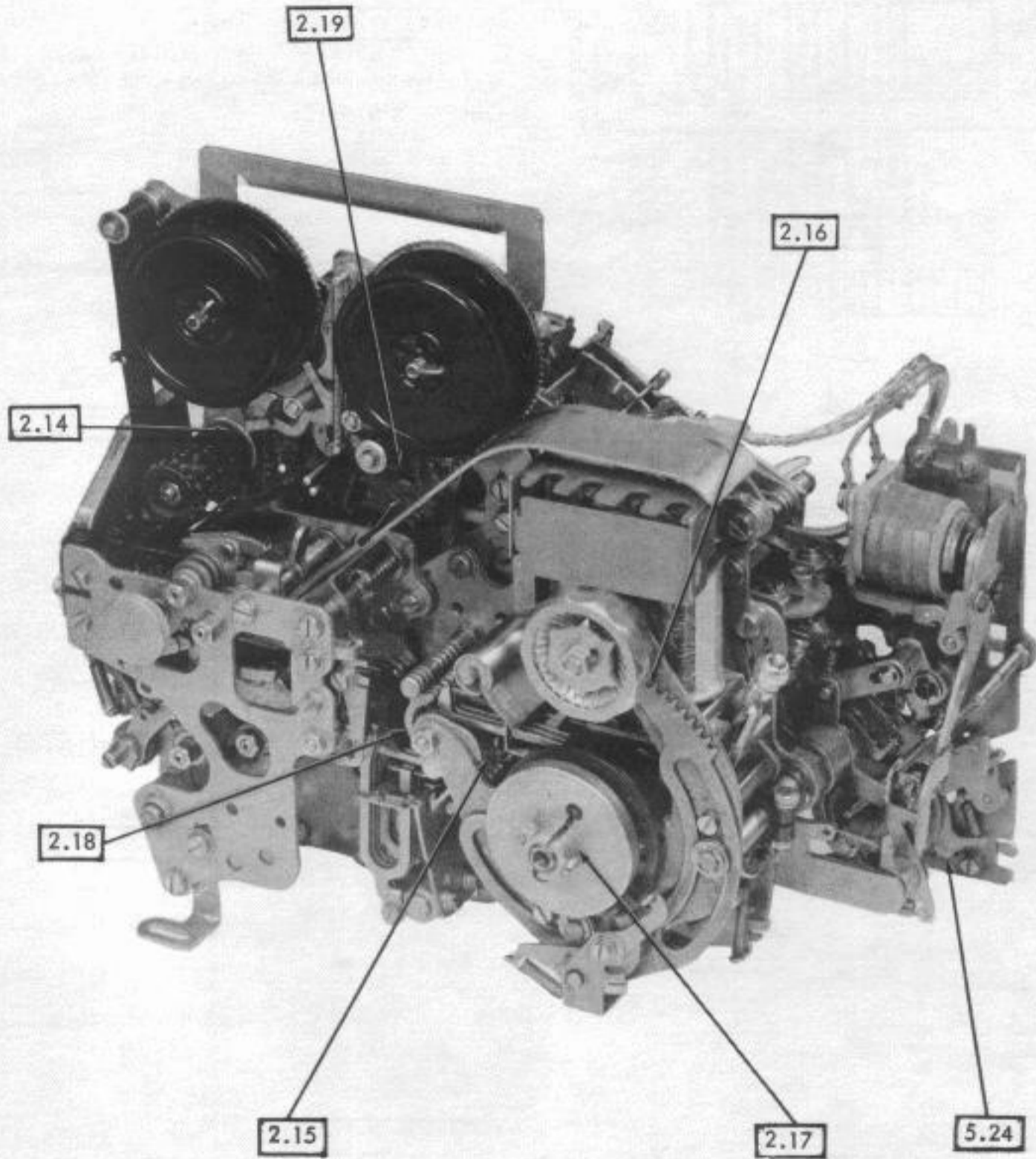
2.11 PERFORATED MECHANISM (FOR FULLY PERFORATED TAPE).
(FOR CHADLESS TAPE SEE PARAGRAPH 2.07)



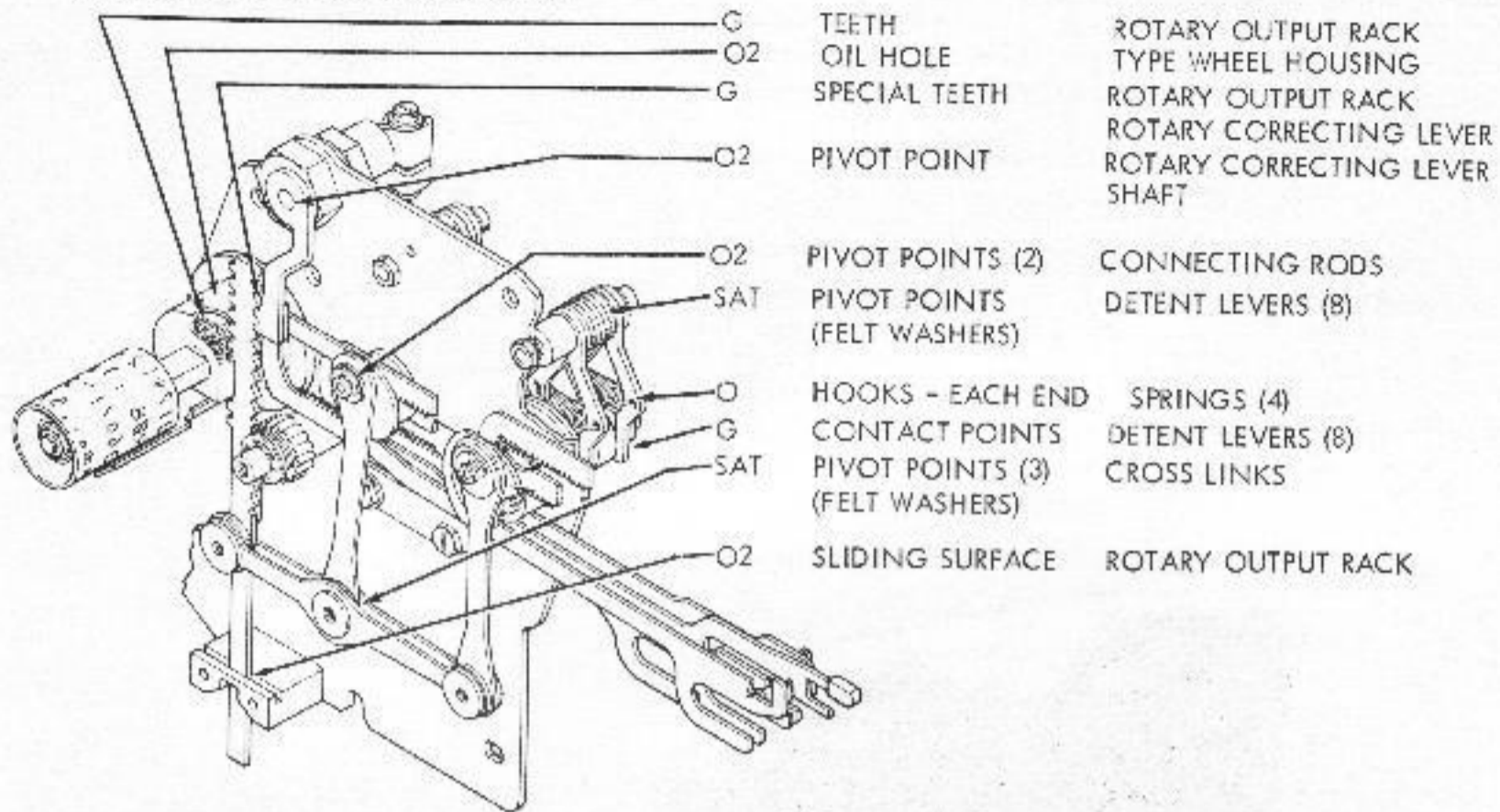
2.12 PERFORATED MECHANISM (FOR FULLY PERFORATED TAPE).
(FOR CHADLESS TAPE SEE PARAGRAPH 2.08)



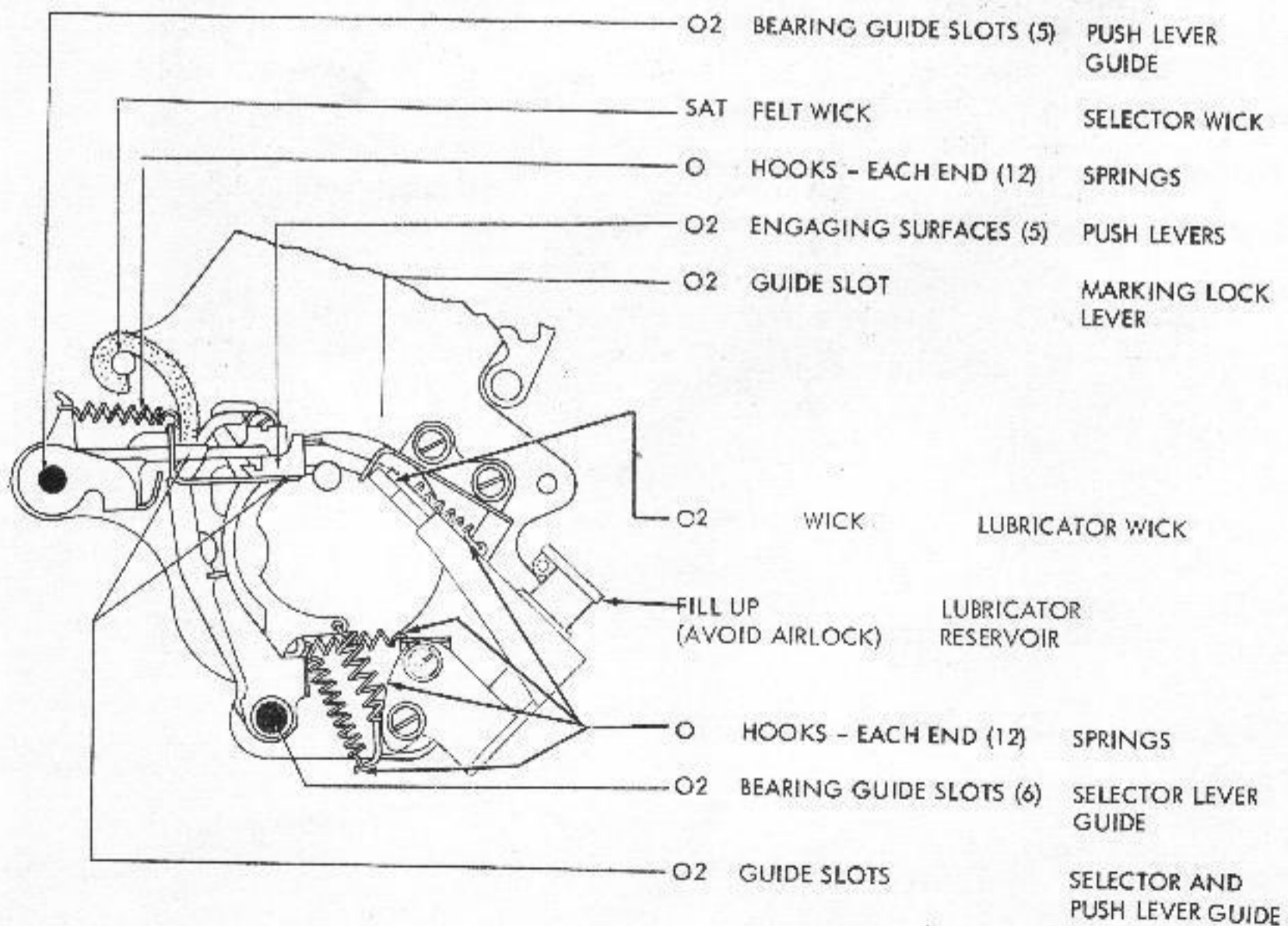
2.13 TYPING REPERFORATOR UNIT



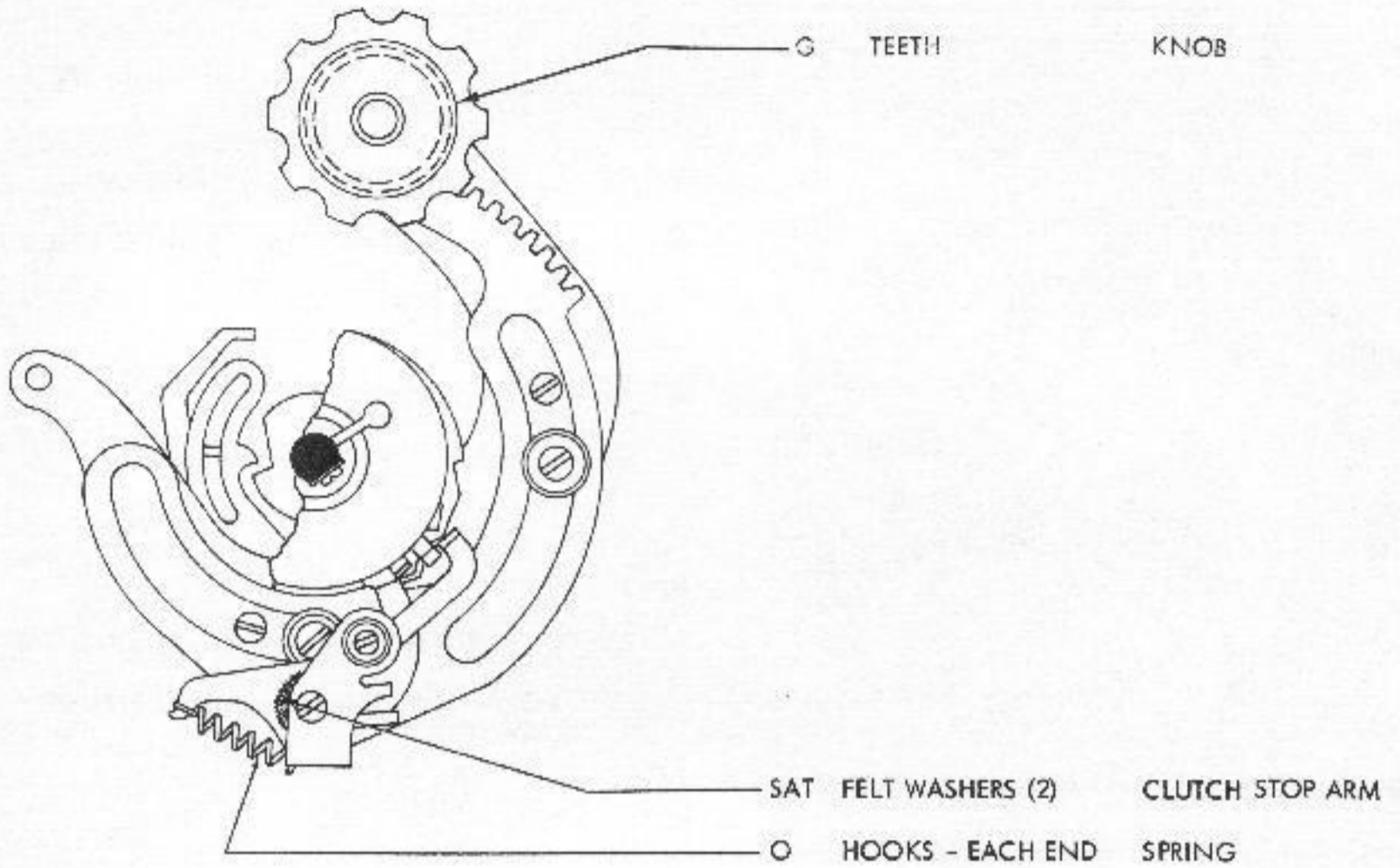
2.14 ROTARY POSITIONING MECHANISM



2.15 SELECTING MECHANISM

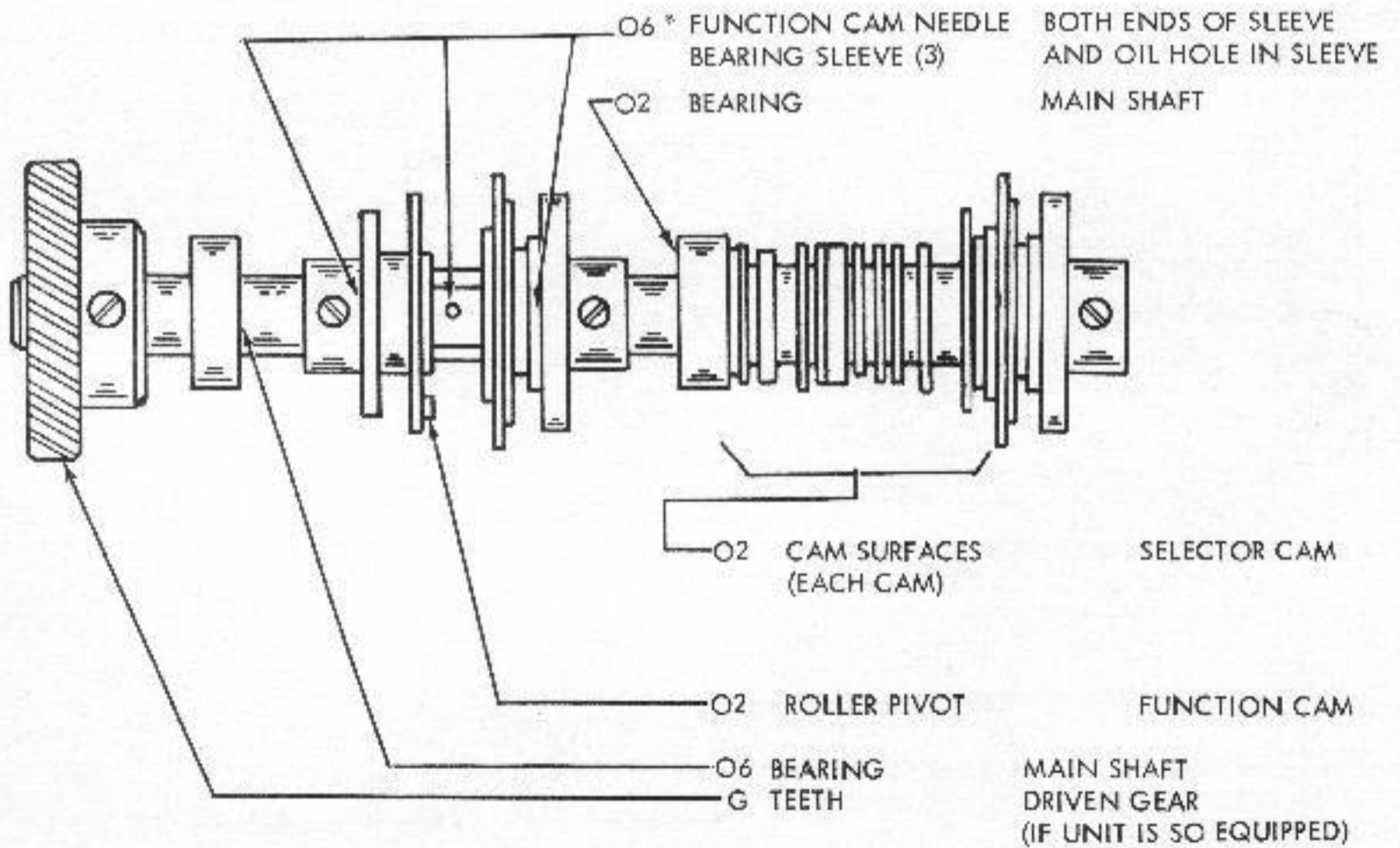


2.16 RANGE FINDER MECHANISM

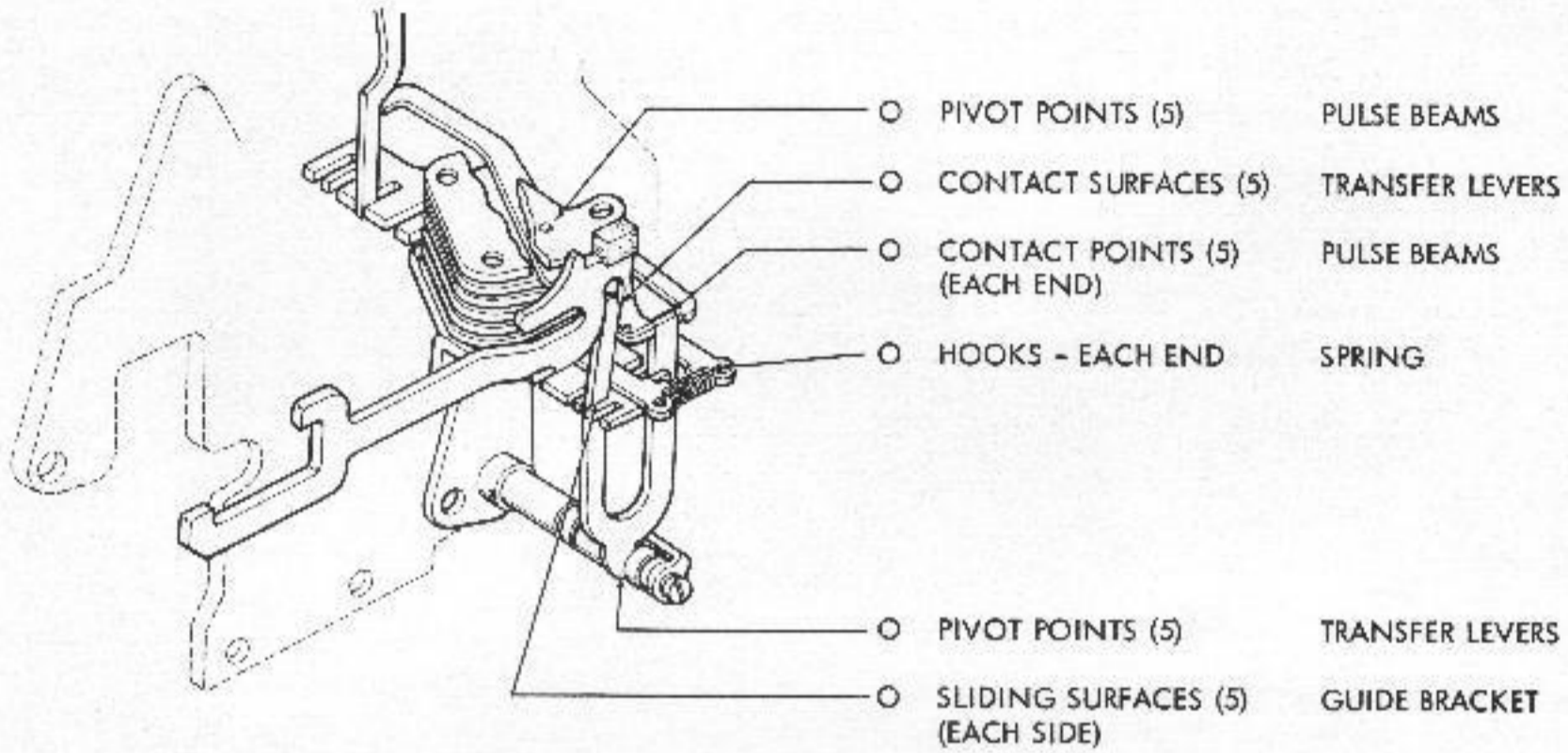


2.17 MAIN SHAFT MECHANISM

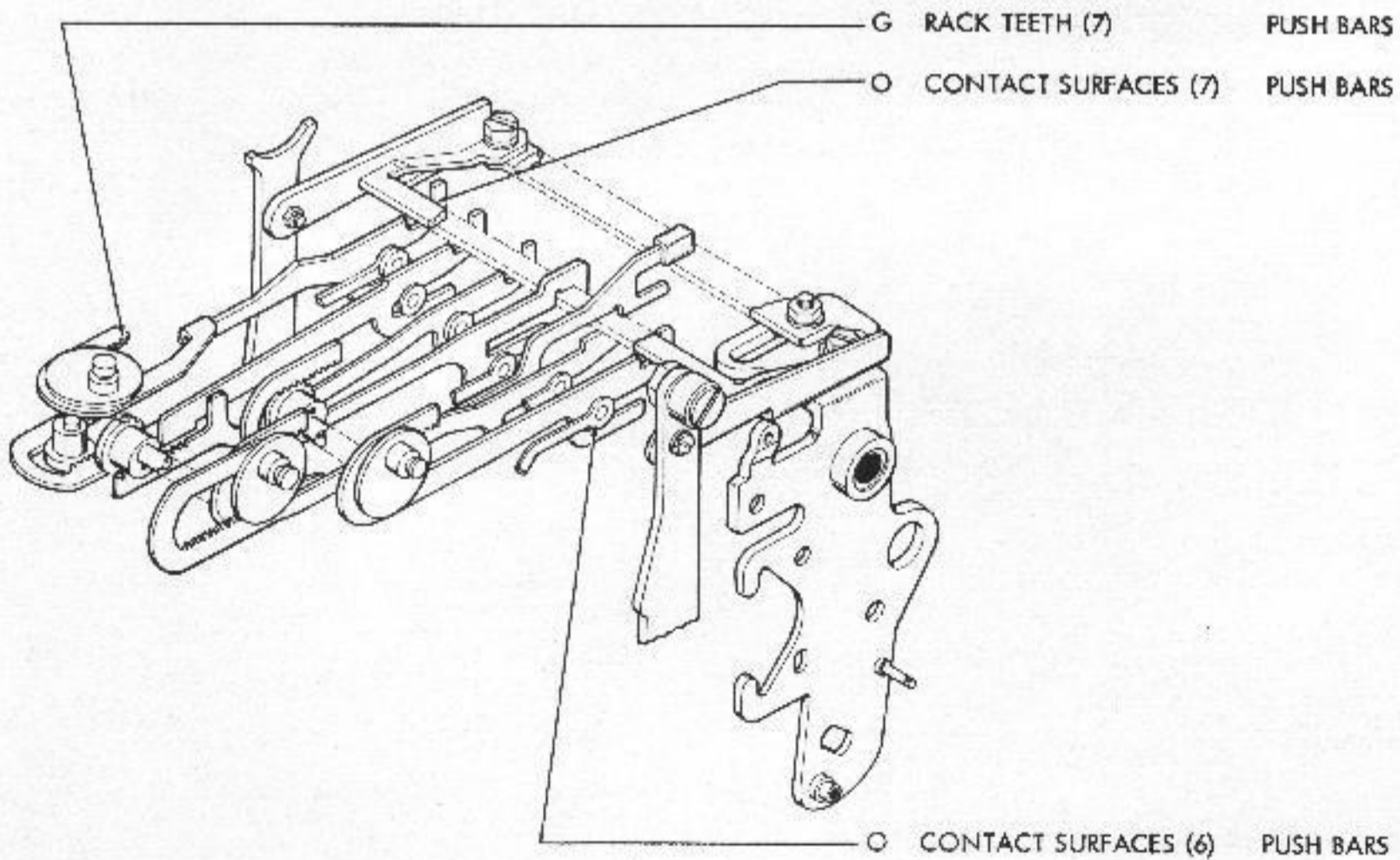
*IF FUNCTION CAM NEEDLE BEARINGS ARE DISASSEMBLED AT ANY TIME, REPACK BEARINGS WITH GREASE (BEACON 325) (TELETYPE 195298) OR ITS EQUIVALENT.



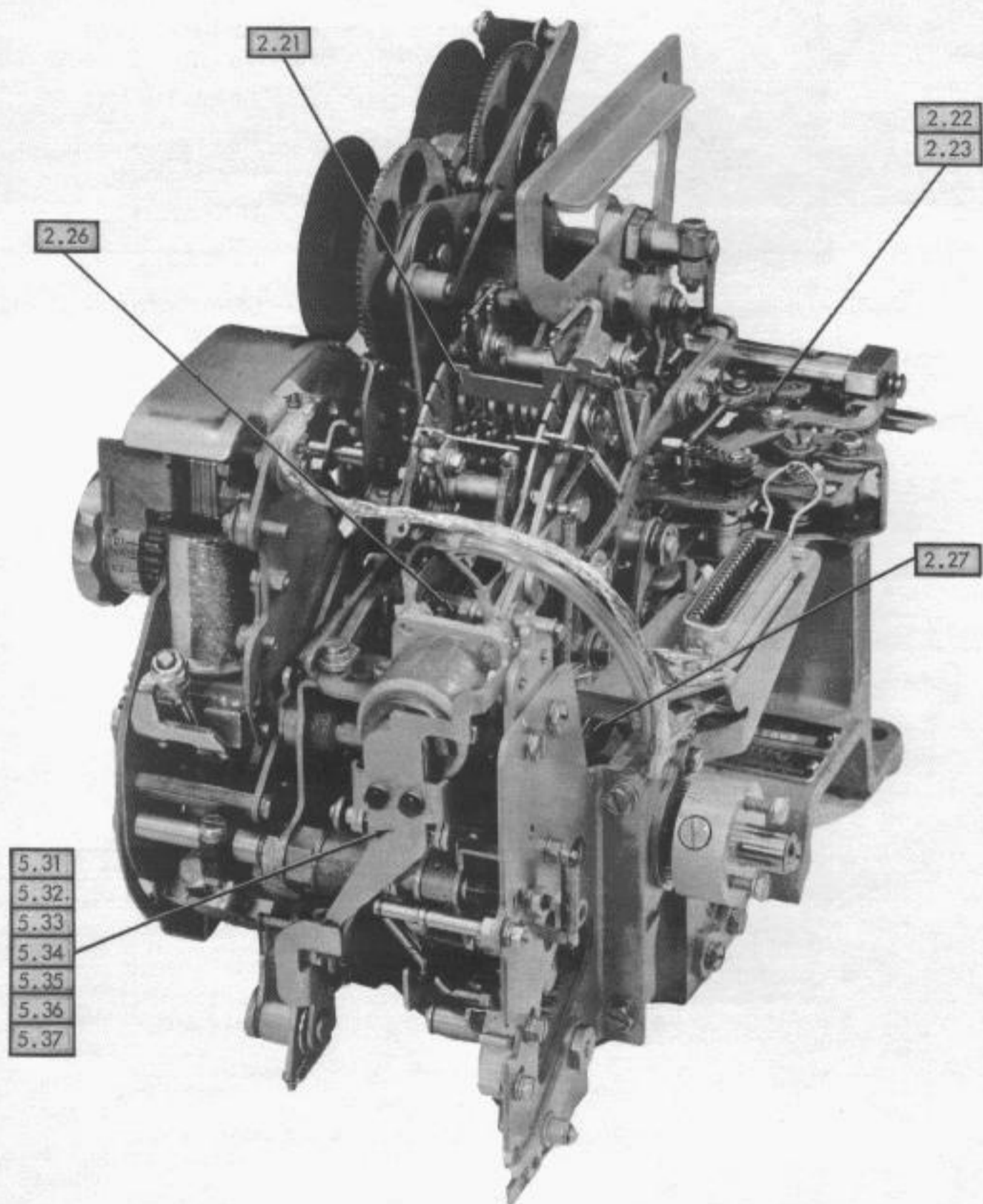
2.18 TRANSFER MECHANISM



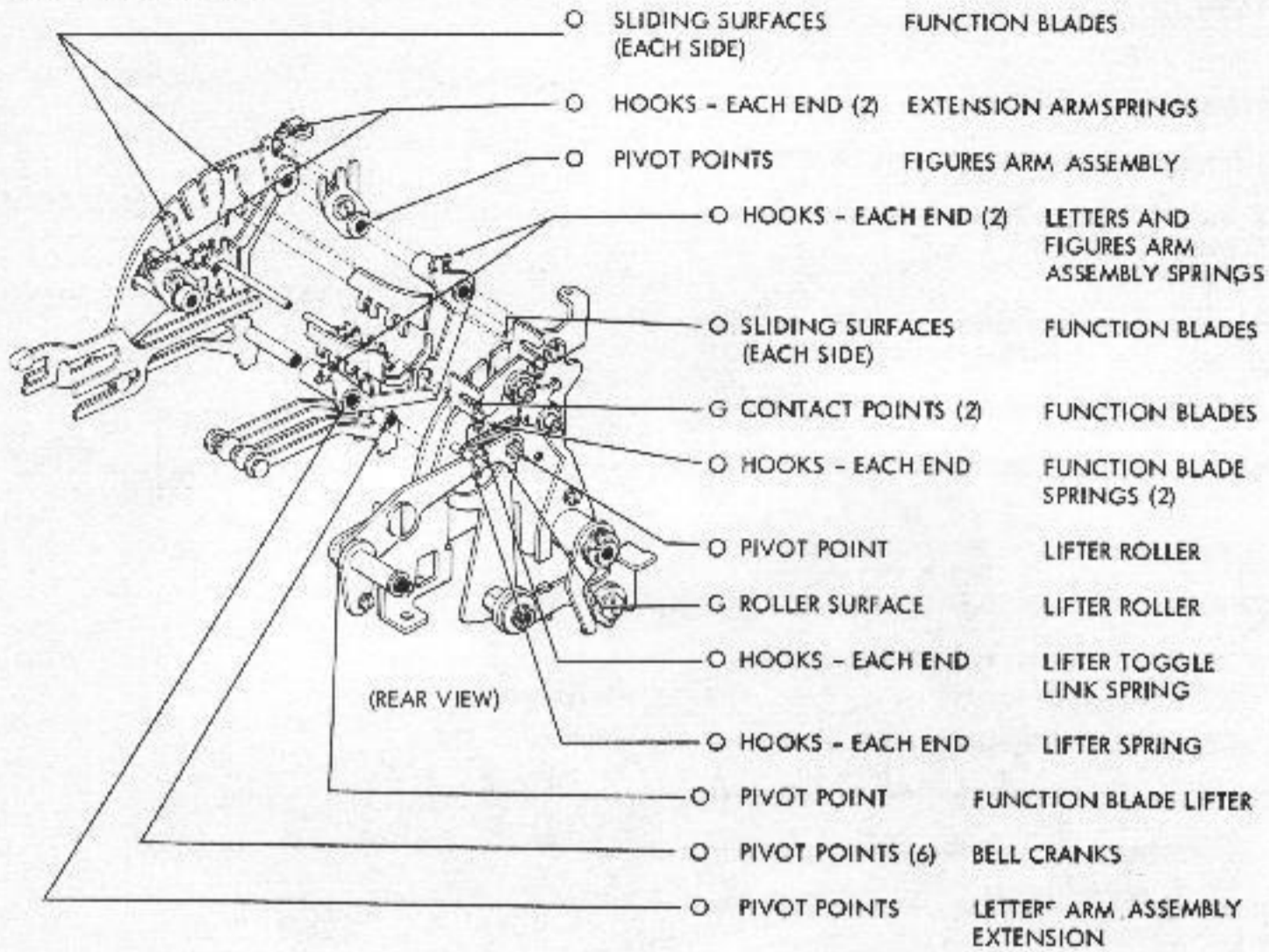
2.19 PUSH BARS



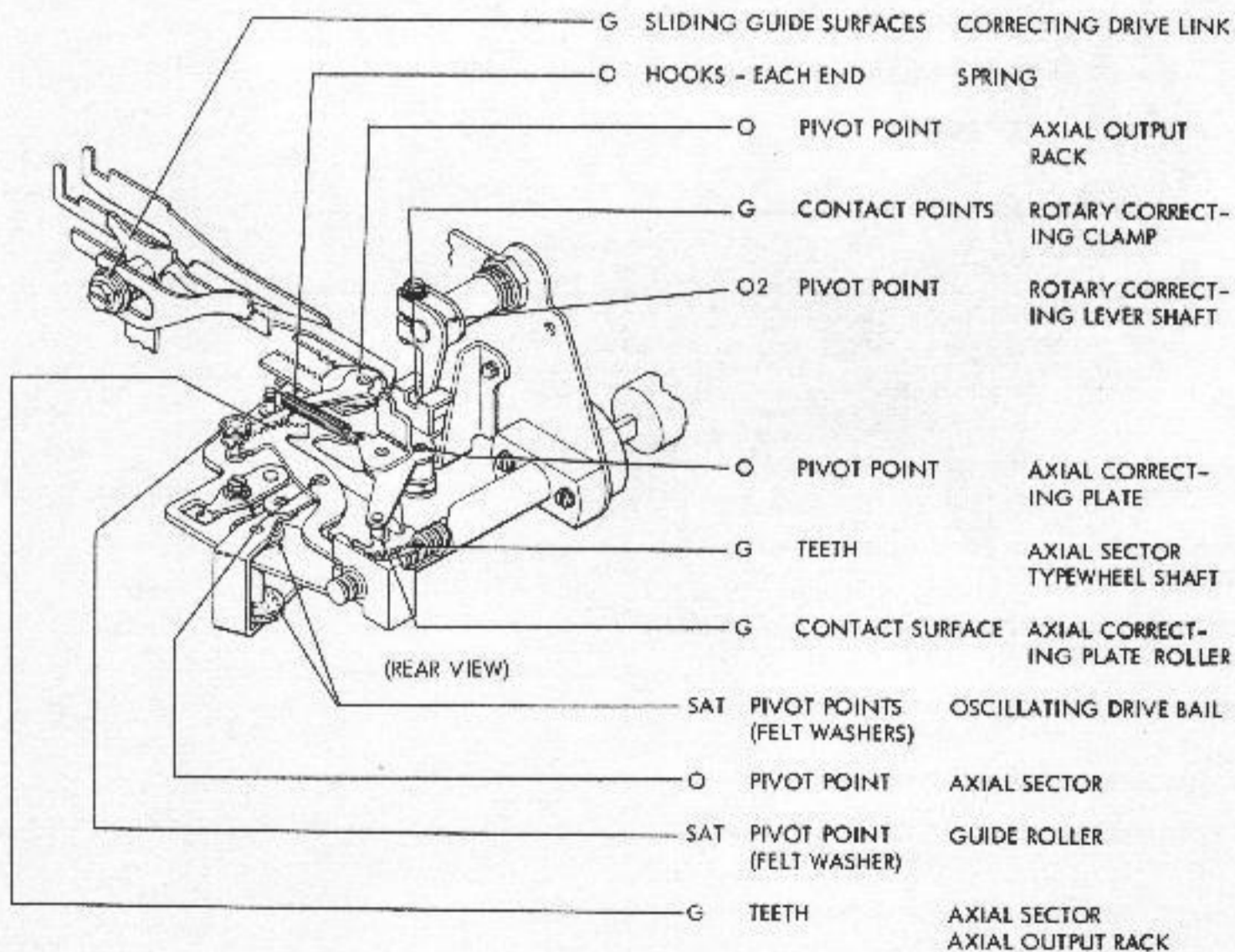
2.20 TYPING REPERFORATOR UNIT



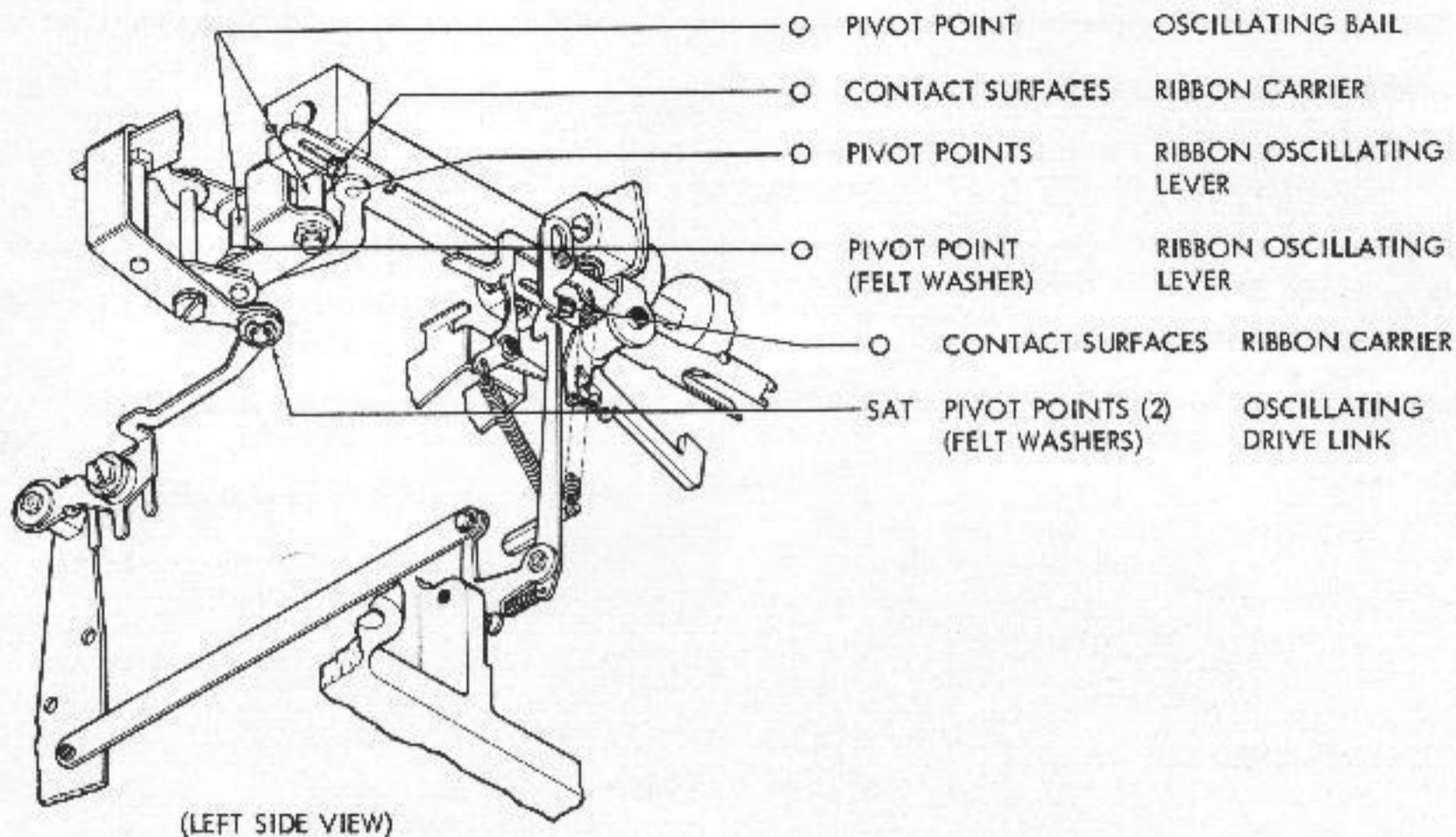
2.21 FUNCTION BOX



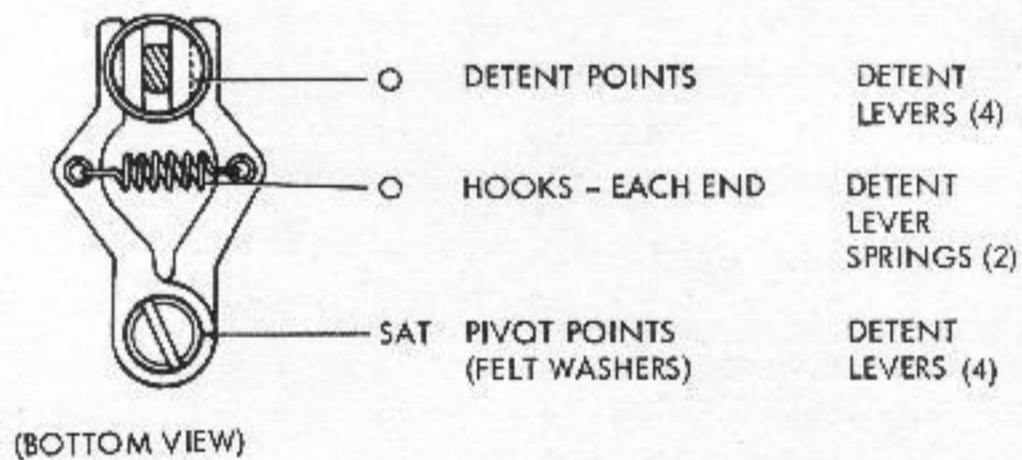
2.22 AXIAL POSITIONING MECHANISM



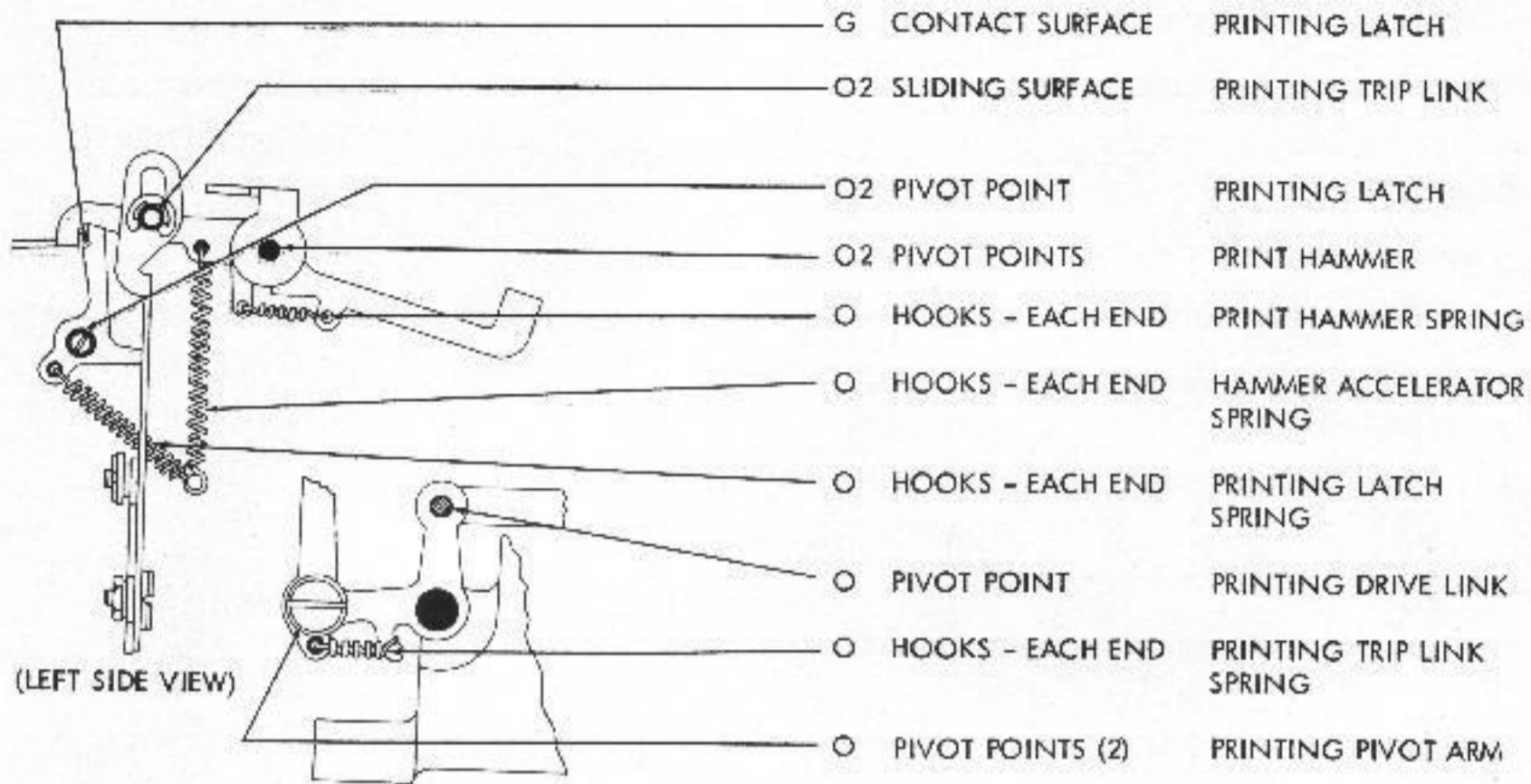
2.23 AXIAL POSITIONING MECHANISM



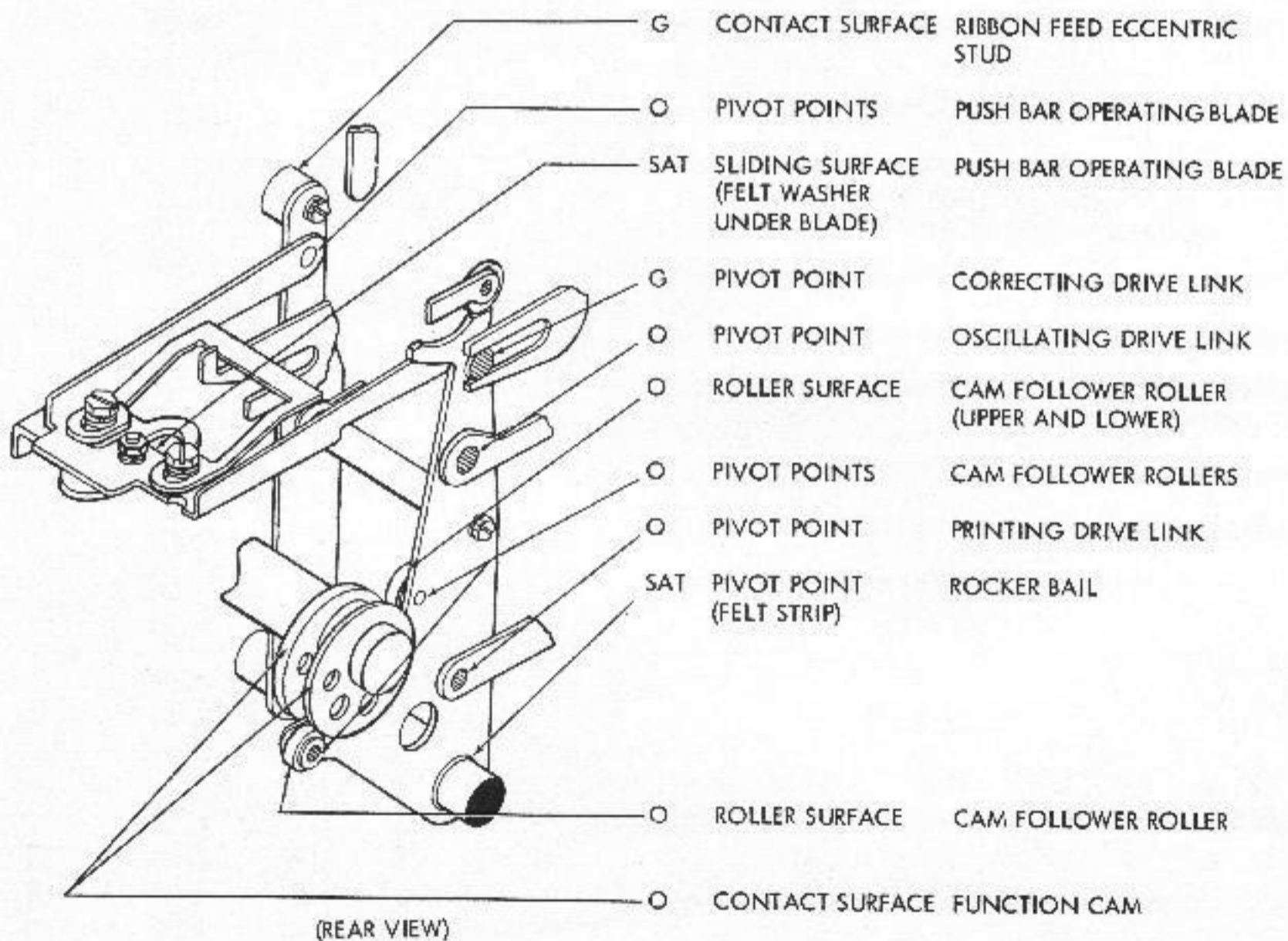
2.24 DETENT ASSEMBLIES (TWO ON AXIAL POSITIONING MECHANISM)



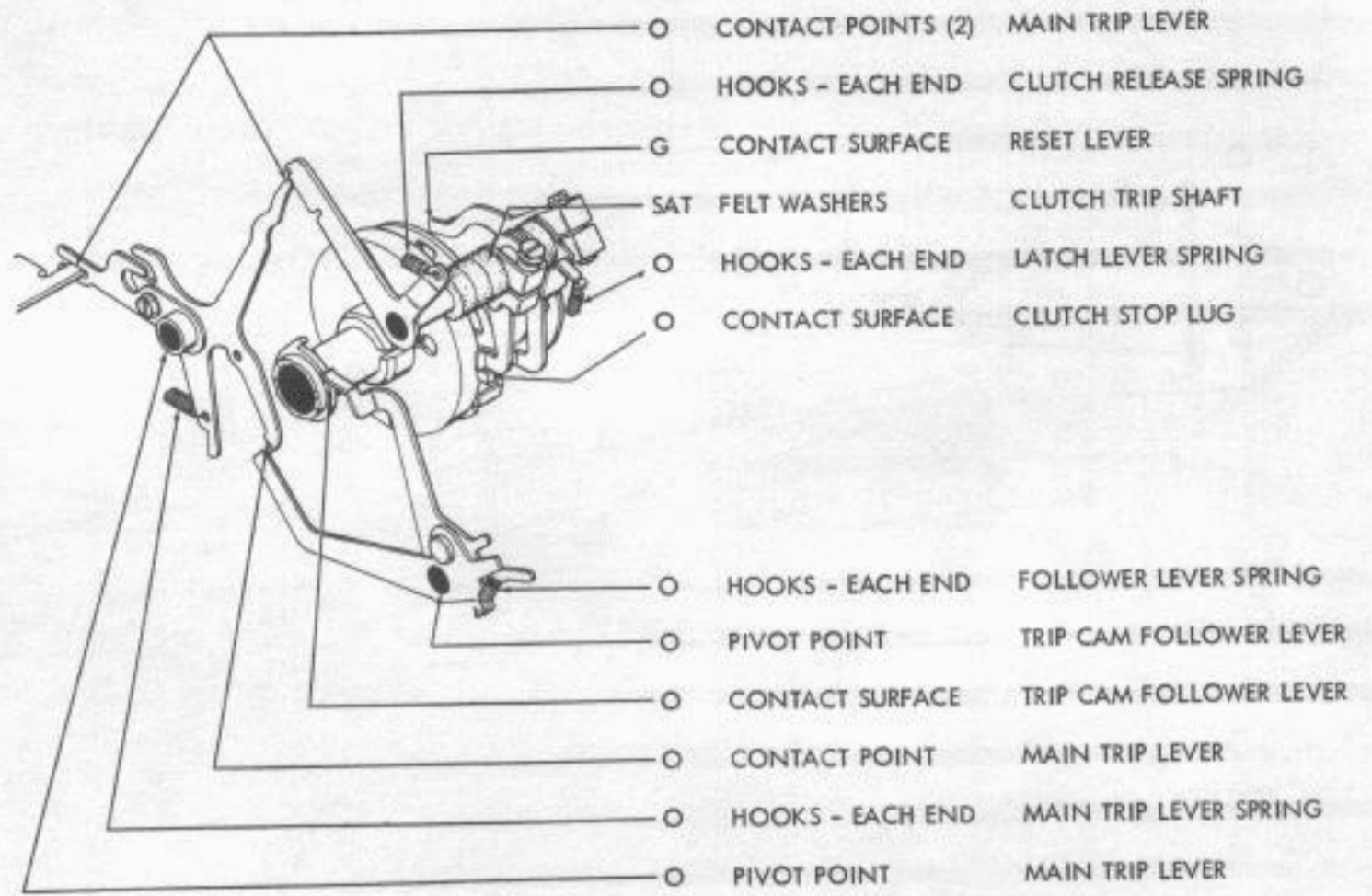
2.25 PRINTING MECHANISM



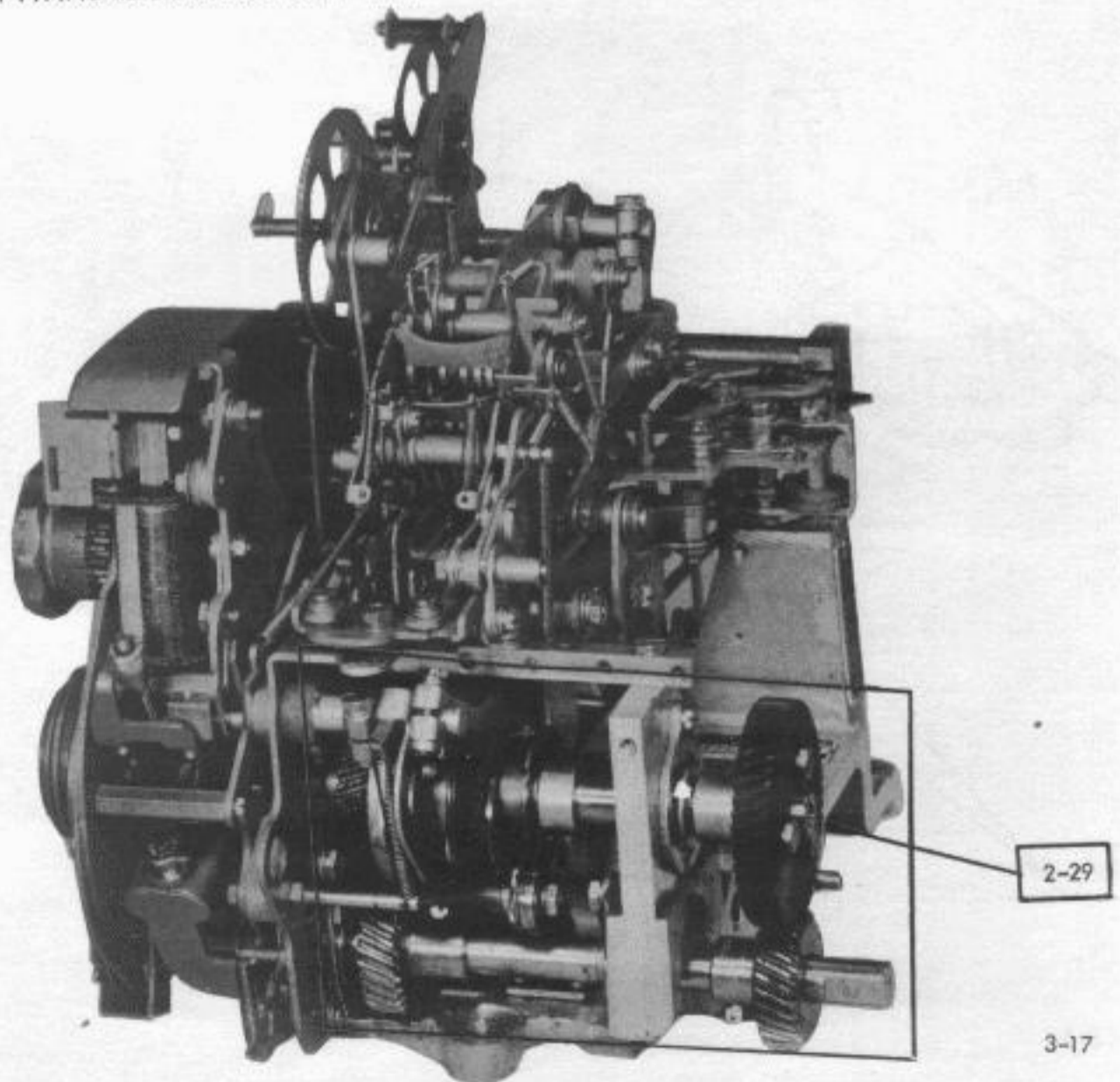
2.26 ROCKER BAIL MECHANISM



2.27 FUNCTION CAM — CLUTCH TRIP MECHANISM

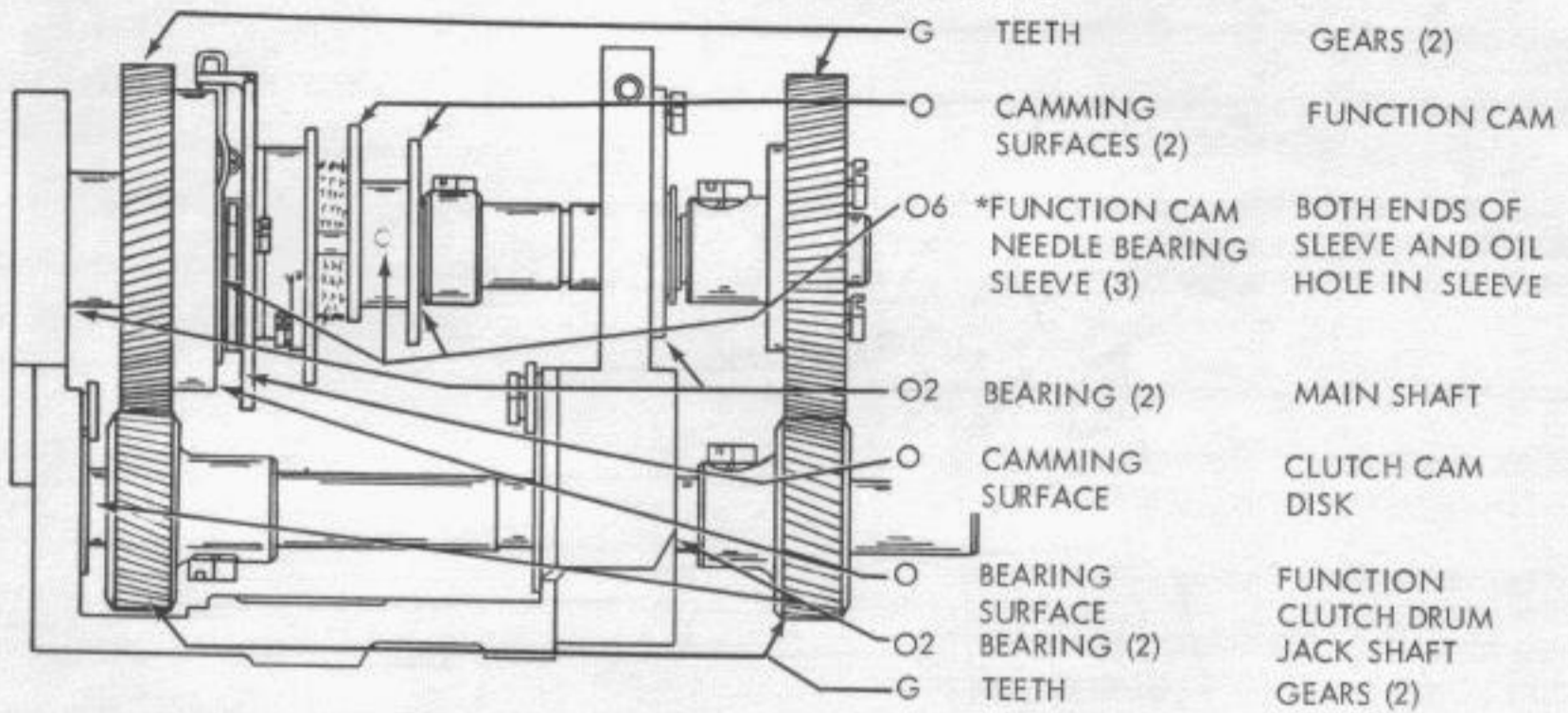


2.28 TWO-SHAFT TYPING REPERFORATOR UNIT - RIGHT SIDE VIEW



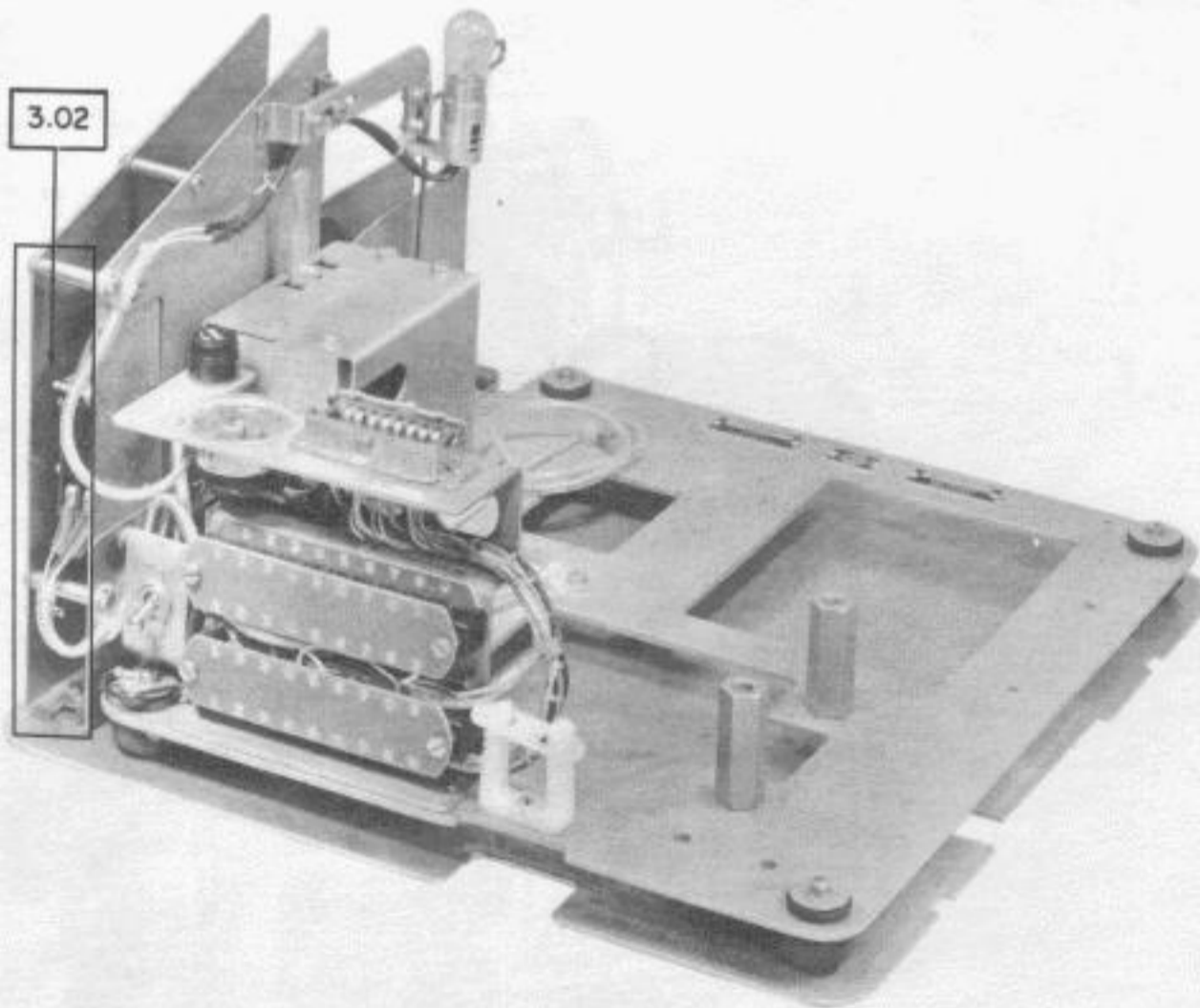
2.29 MAIN AND JACK SHAFT MECHANISMS (TWO-SHAFT UNIT)

*IF FUNCTION CAM NEEDLE BEARINGS ARE DISASSEMBLED AT ANY TIME, REPACK BEARINGS WITH GREASE (BEACON 325) (TELETYPE 195298) OR ITS EQUIVALENT.

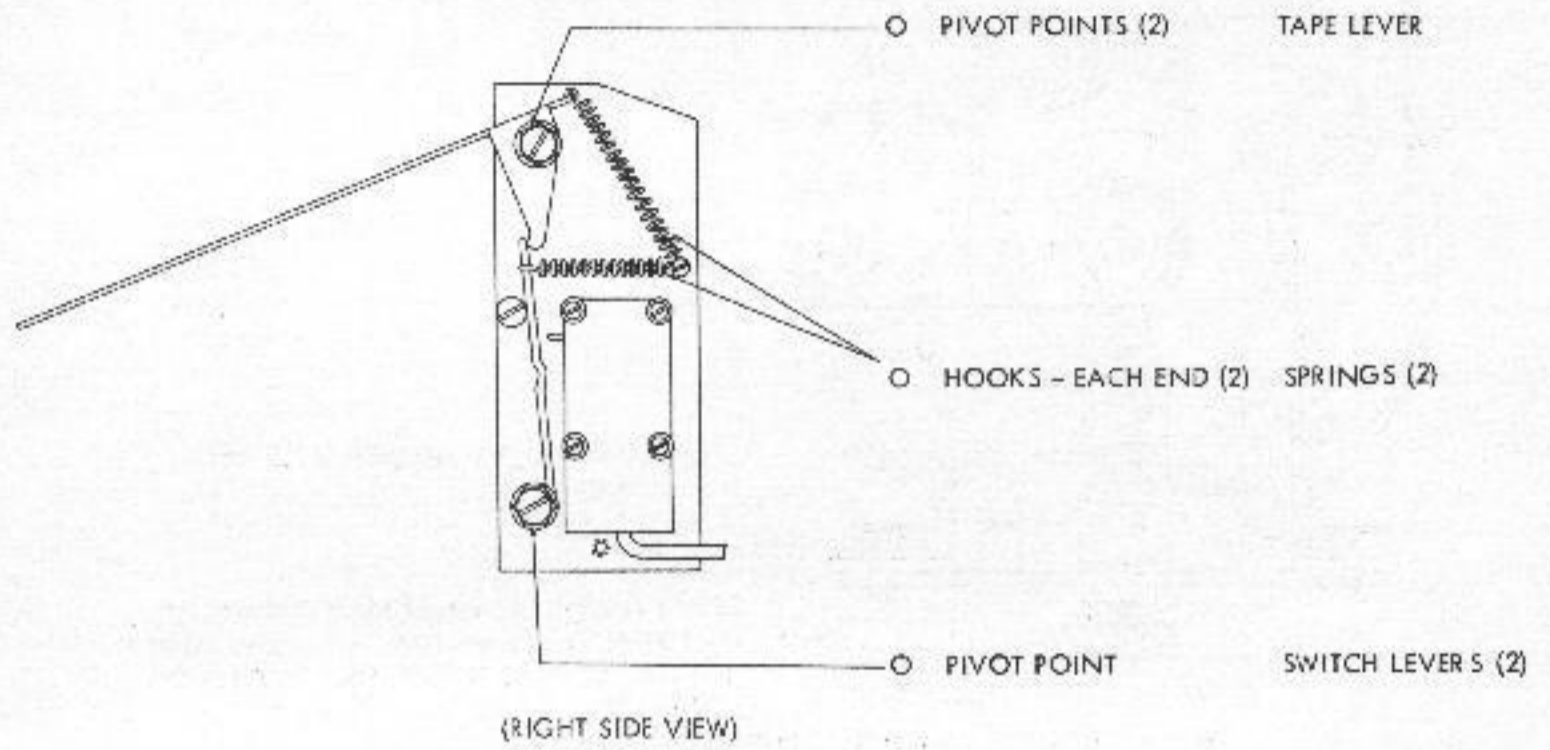


3. BASES

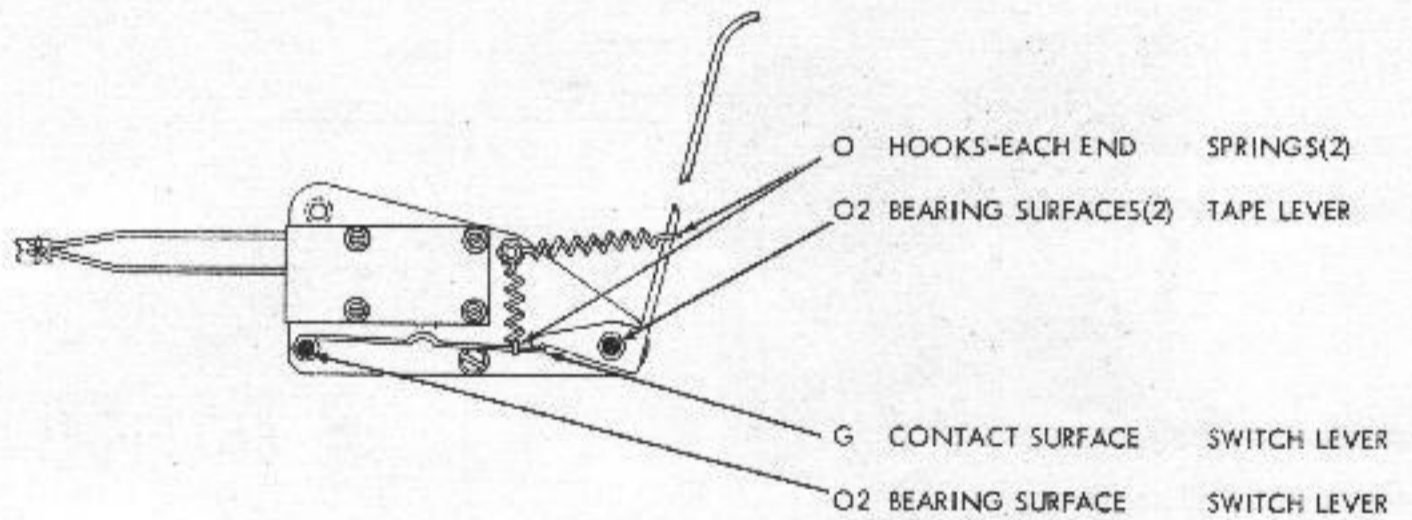
3.01 REPERFORATOR BASE - REAR VIEW



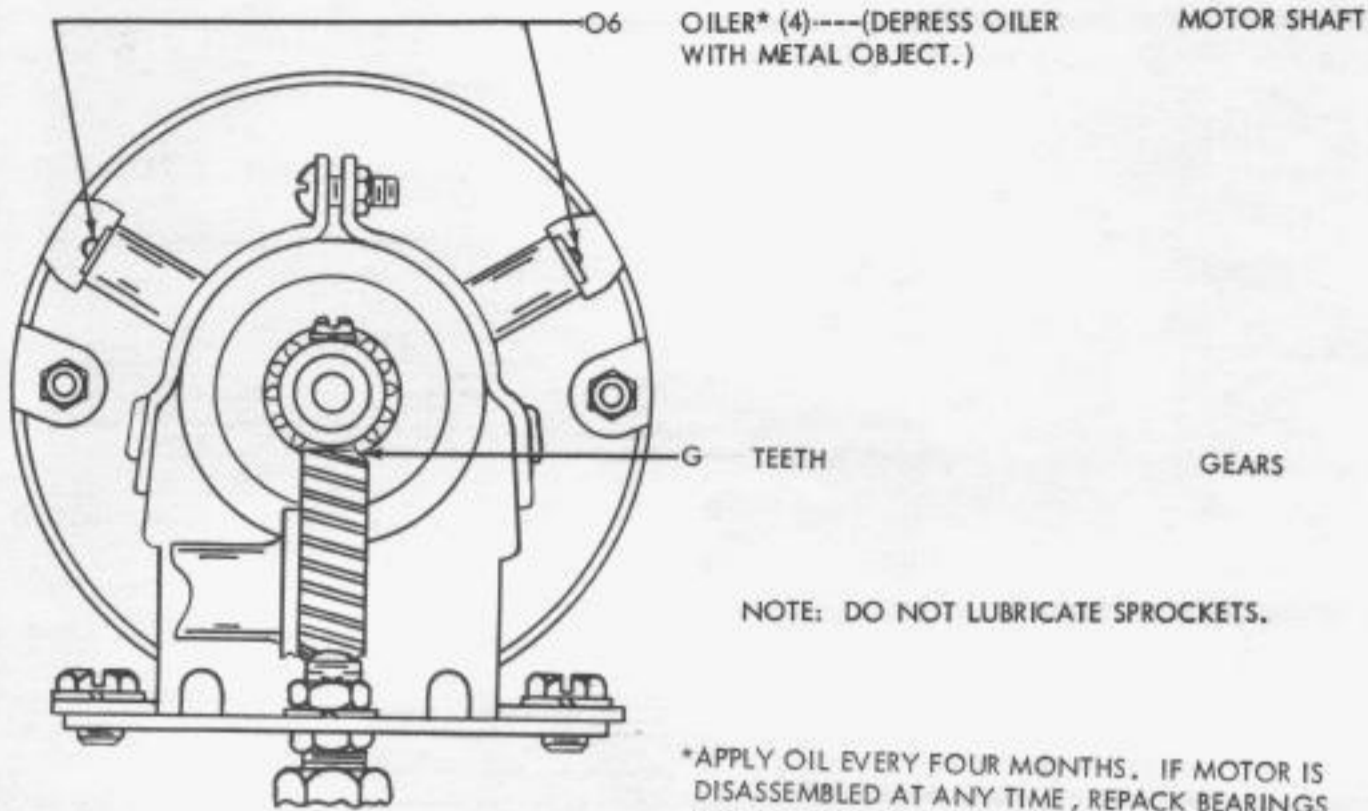
3.02 LOW-TAPE ALARM SWITCH MECHANISM (SINGLE BASE)



3.03 LOW-TAPE ALARM SWITCH MECHANISM (MULTIPLE AND AUXILIARY REPERFORATOR BASES)



4. MOTOR UNIT

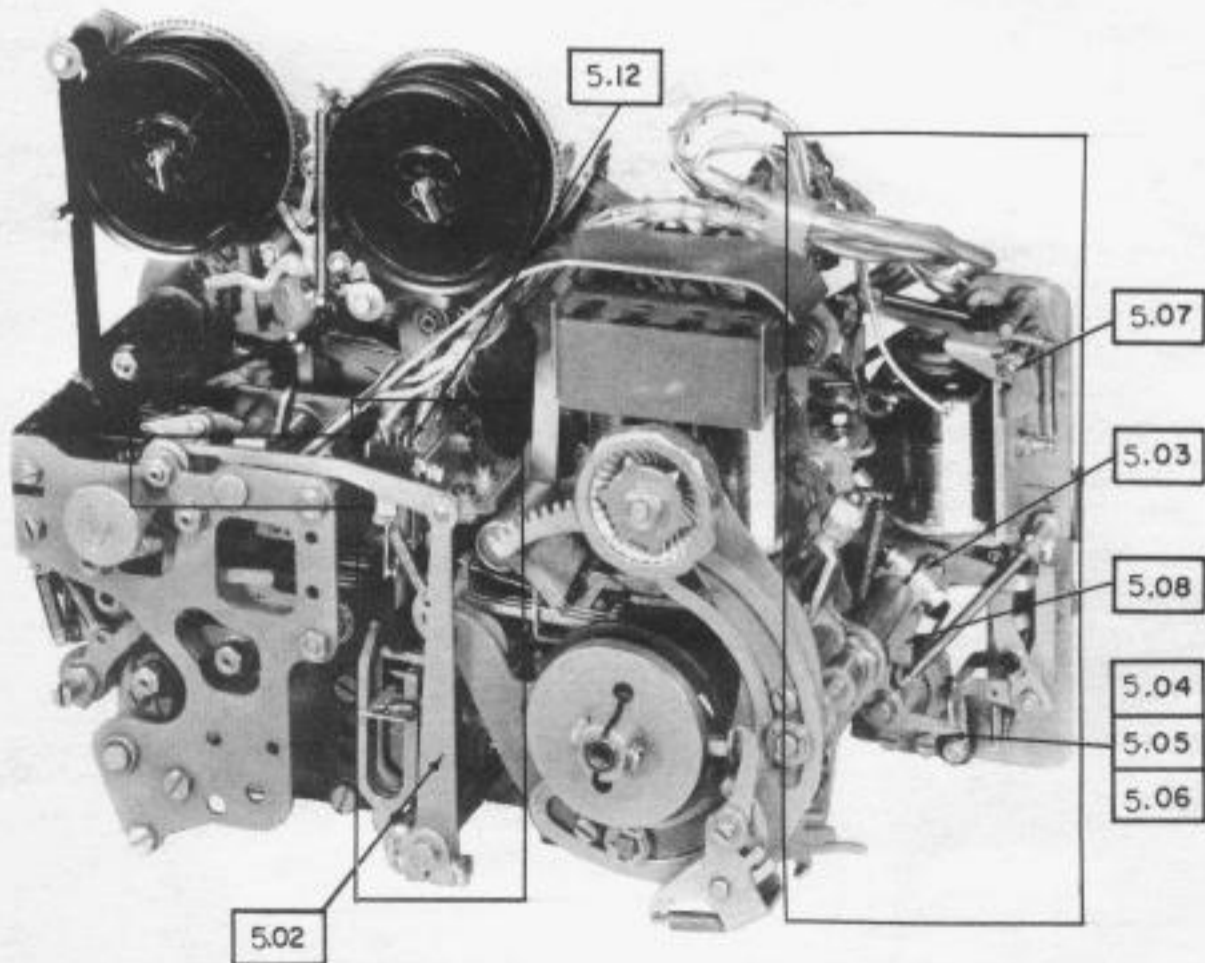


NOTE
 THE ABOVE INFORMATION ALSO APPLIES TO THE
 MINIATURIZED MOTOR UNIT EXCEPT OIL IS
 APPLIED EVERY THREE MONTHS, OR 750 OPERATING
 HOURS, WHICHEVER OCCURS FIRST.

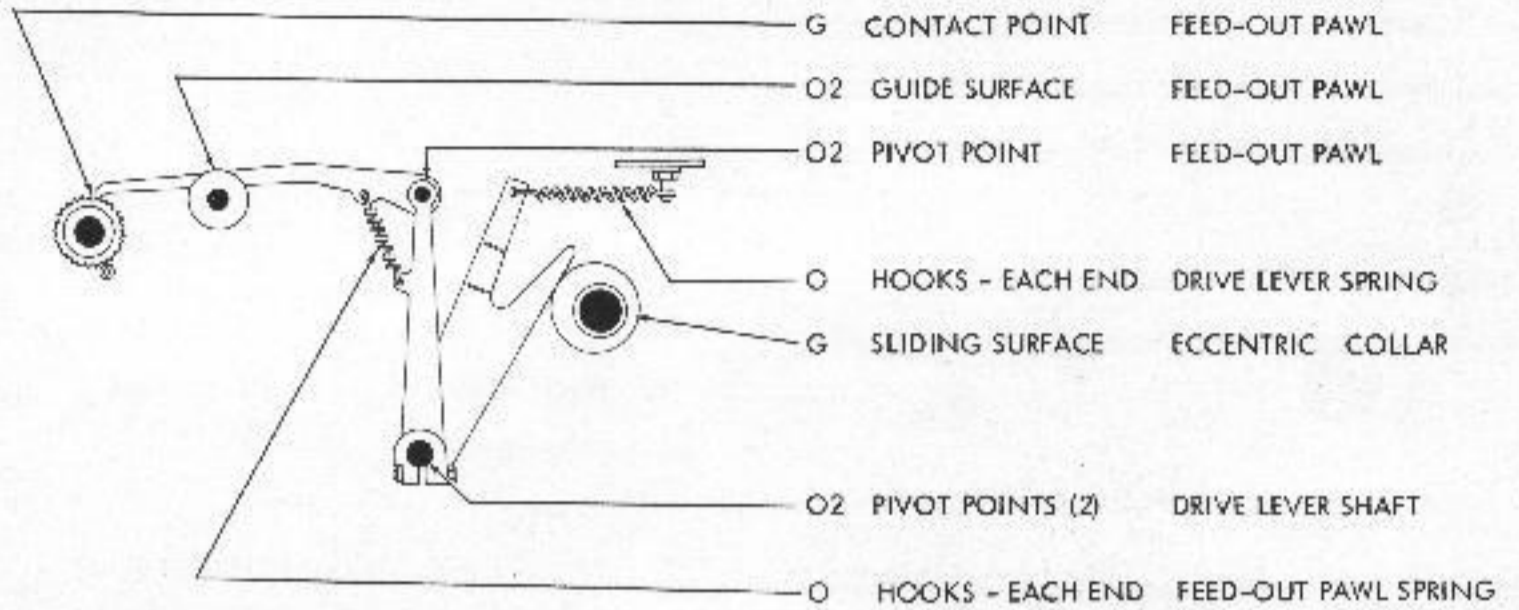
*APPLY OIL EVERY FOUR MONTHS. IF MOTOR IS
 DISASSEMBLED AT ANY TIME, REPACK BEARINGS
 WITH GREASE (BEACON 325) (TELETYPE 195298)
 OR ITS EQUIVALENT.

5. VARIABLE FEATURES

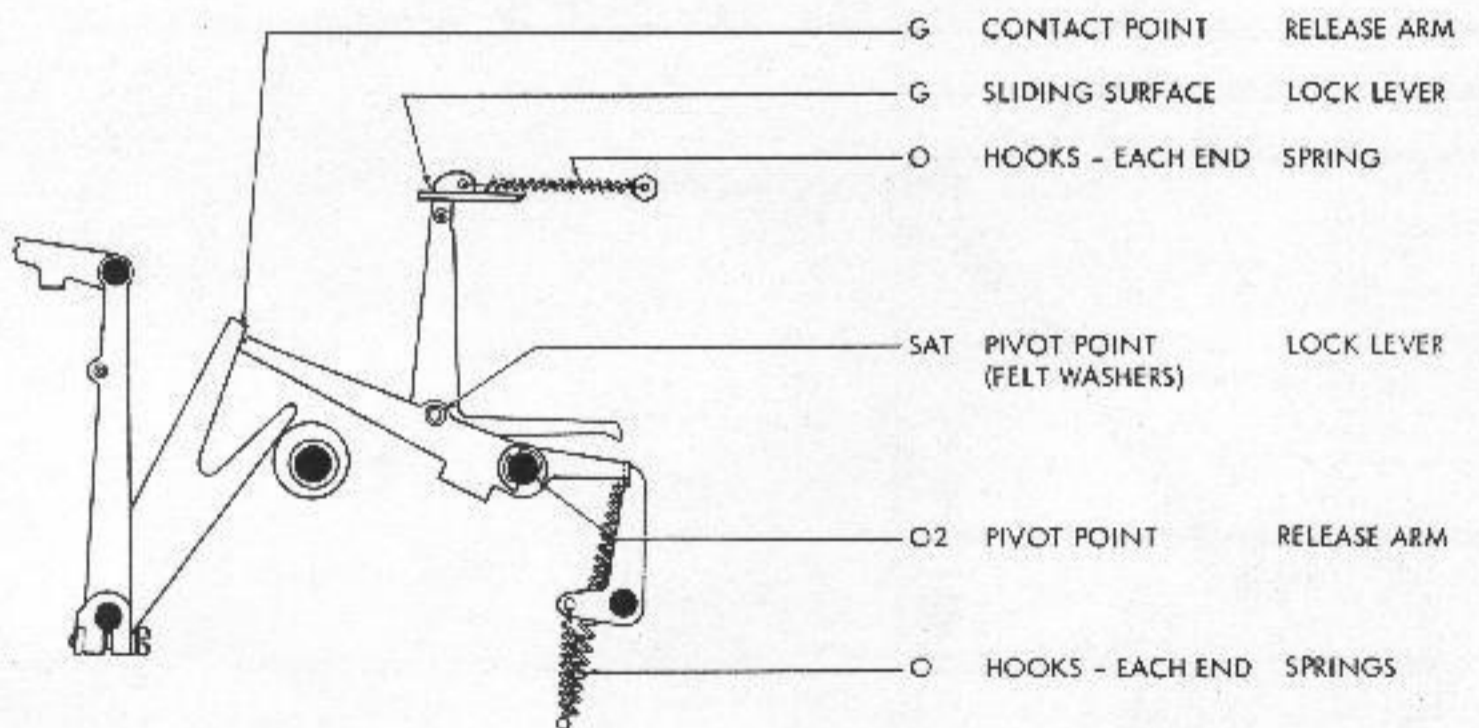
5.01 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
 EARLIER DESIGN - FOR LATEST DESIGN SEE PARAGRAPH 5.38 TO 5.45



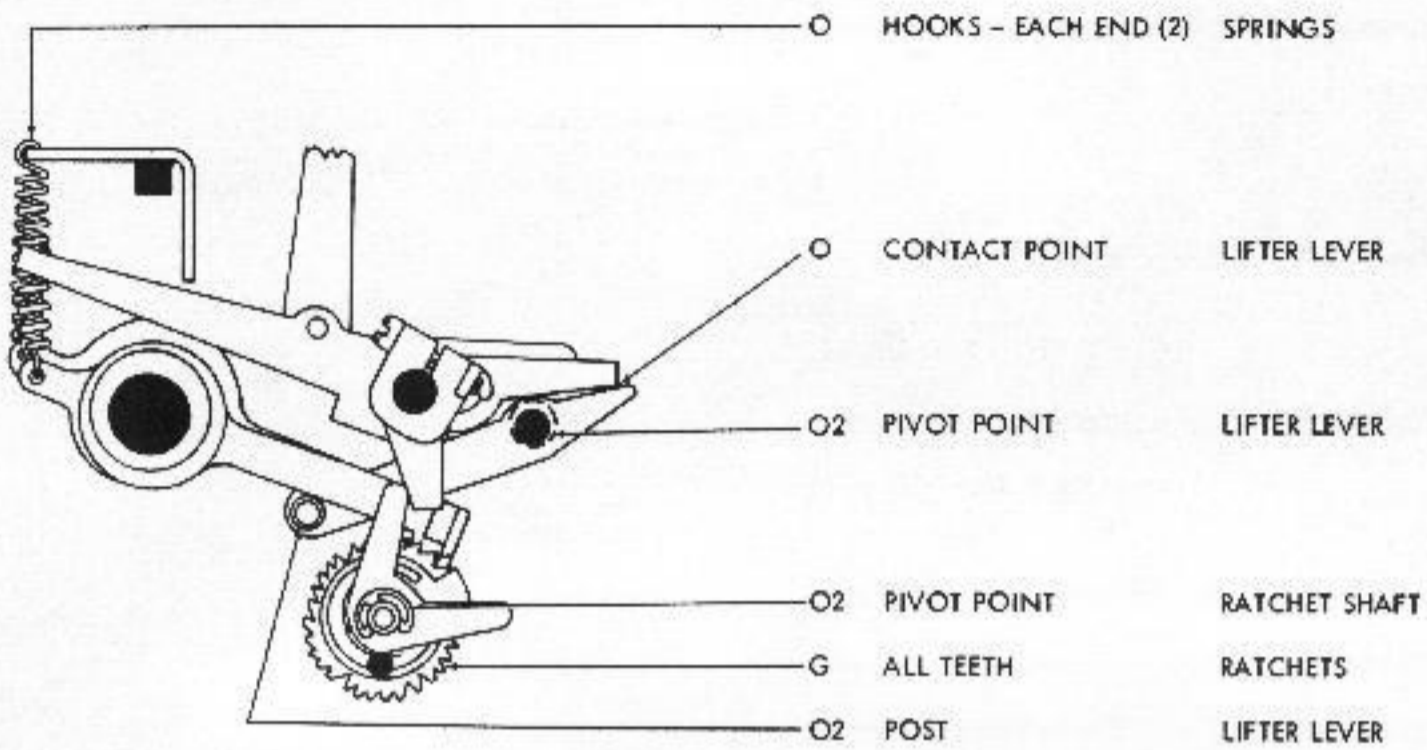
5.02 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN



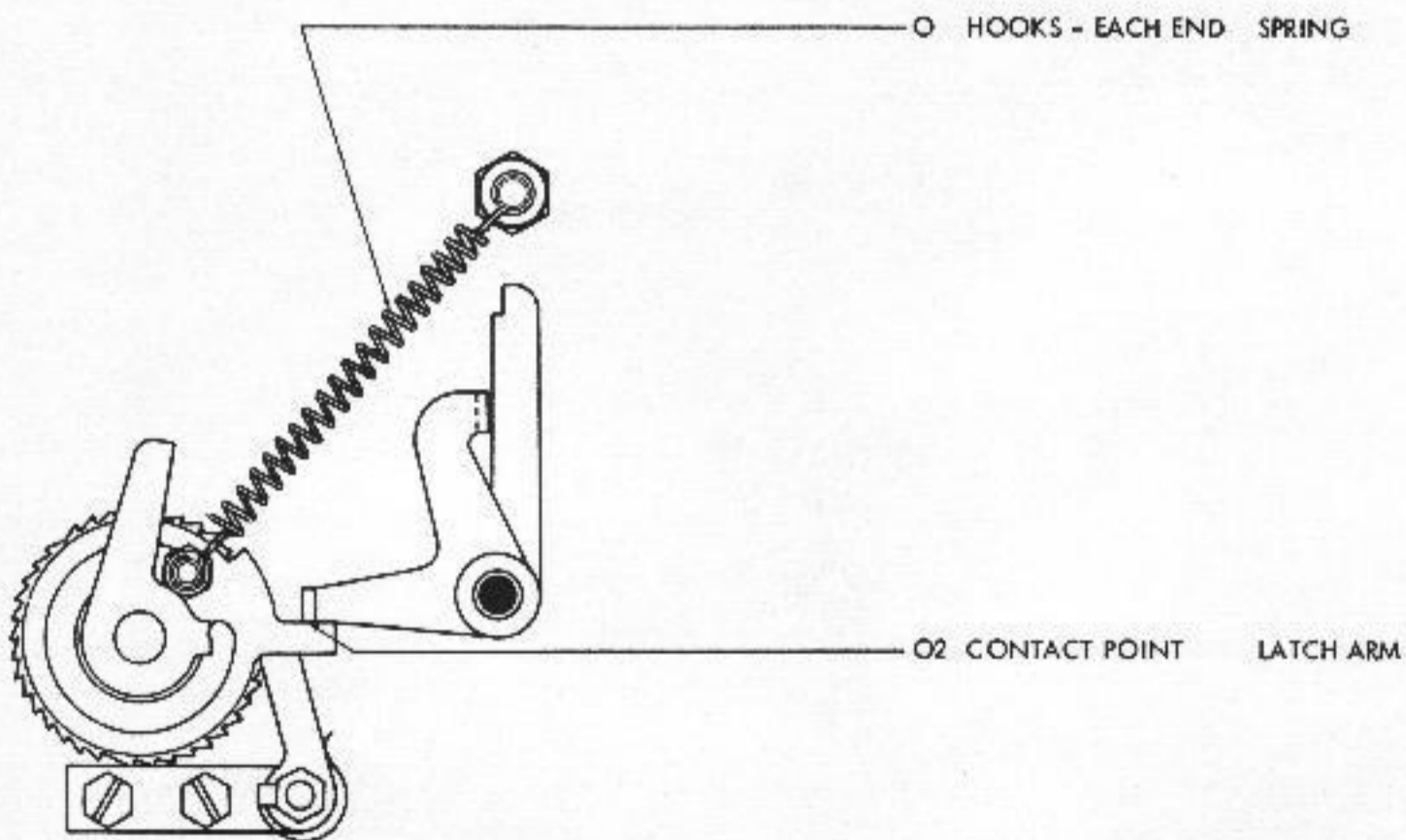
5.03 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN



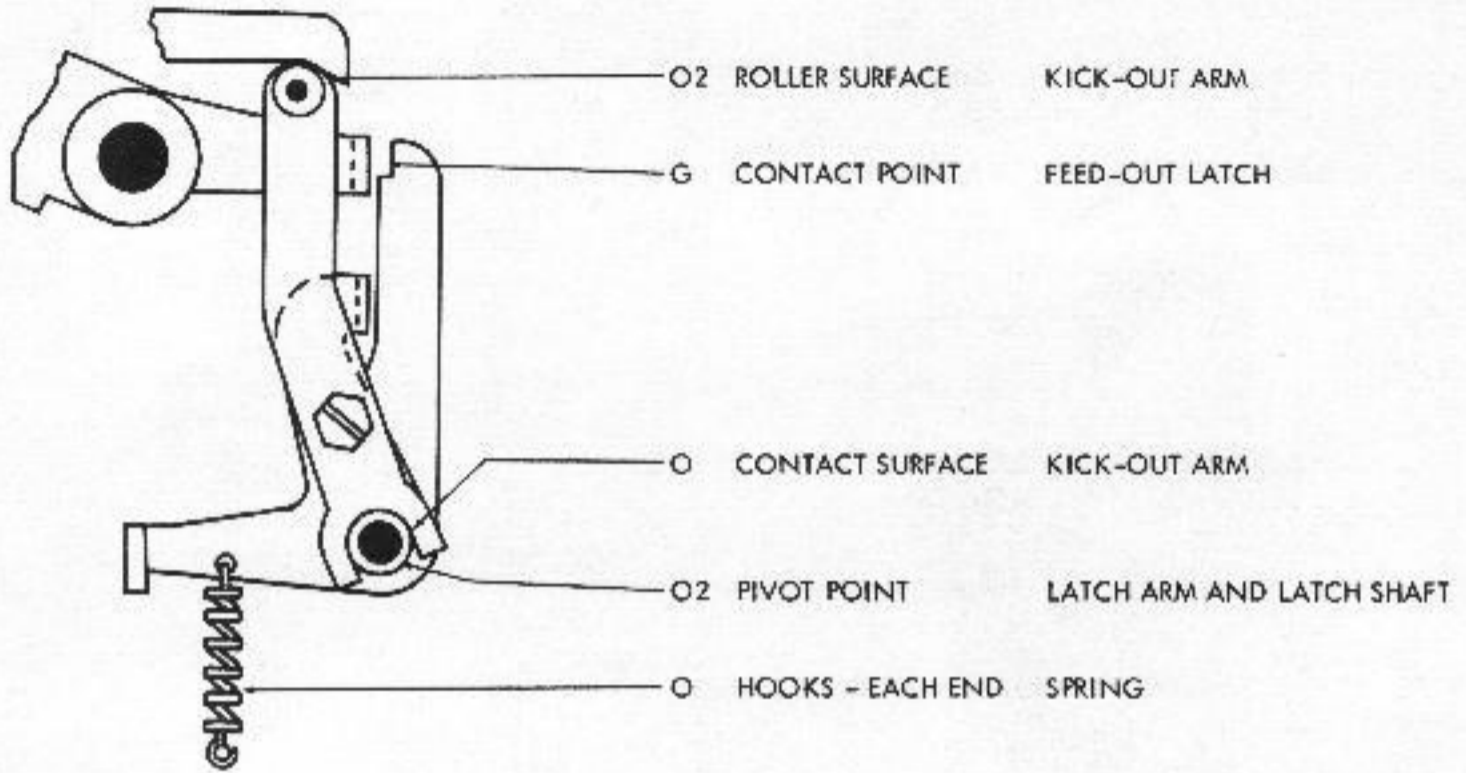
5.04 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN



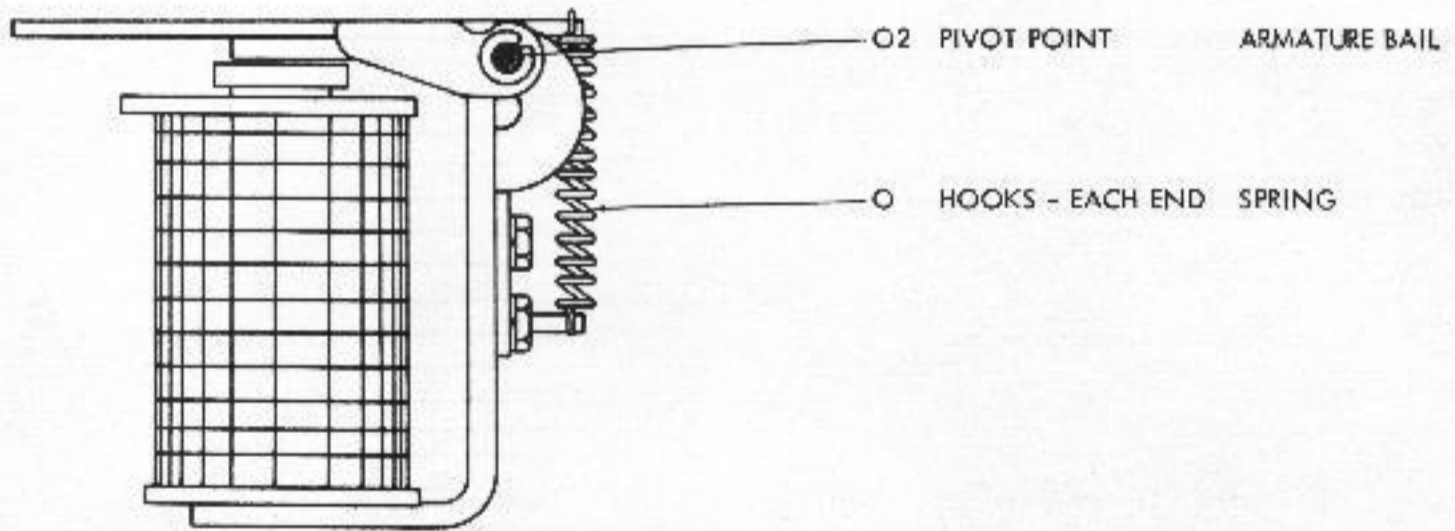
5.05 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN



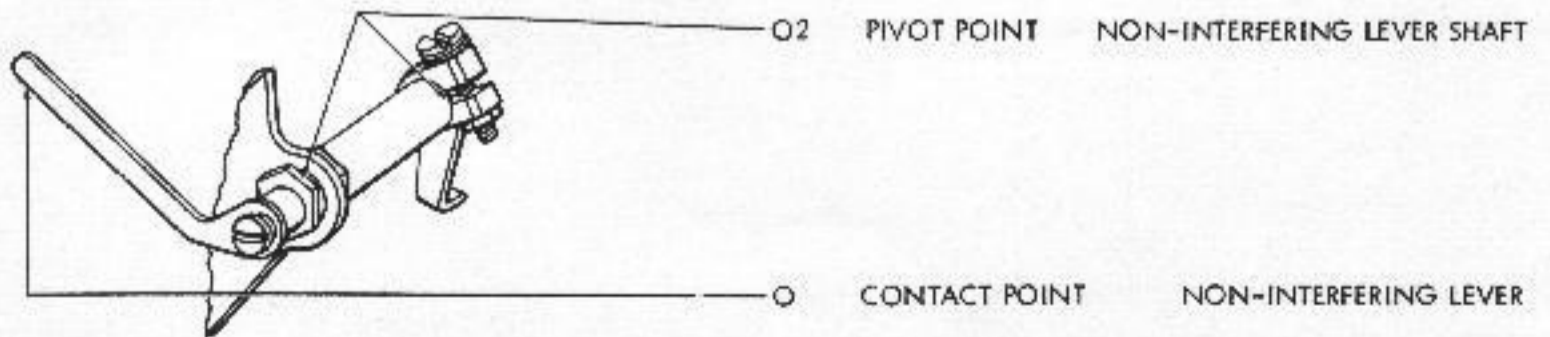
5.06 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN



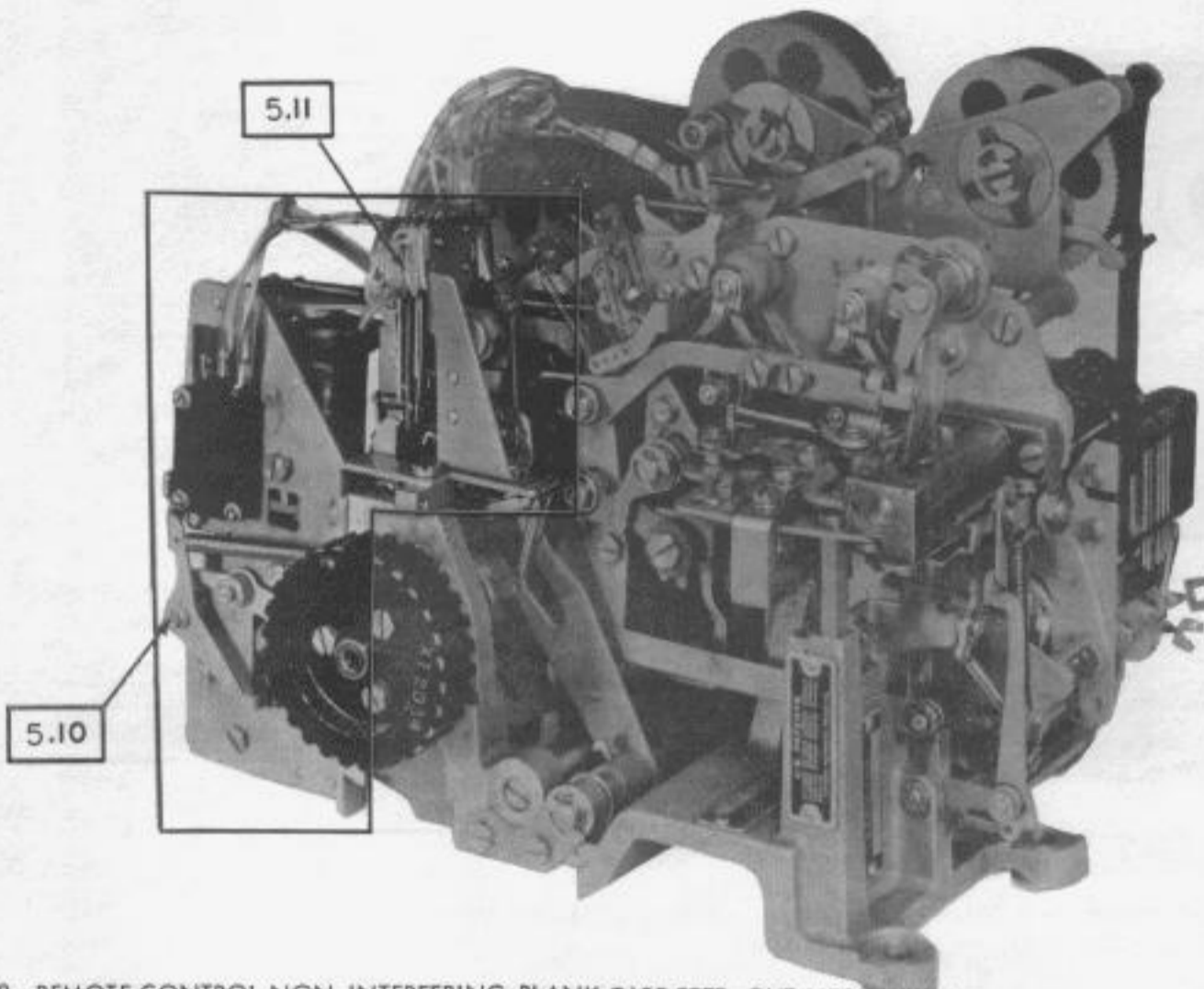
5.07 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN



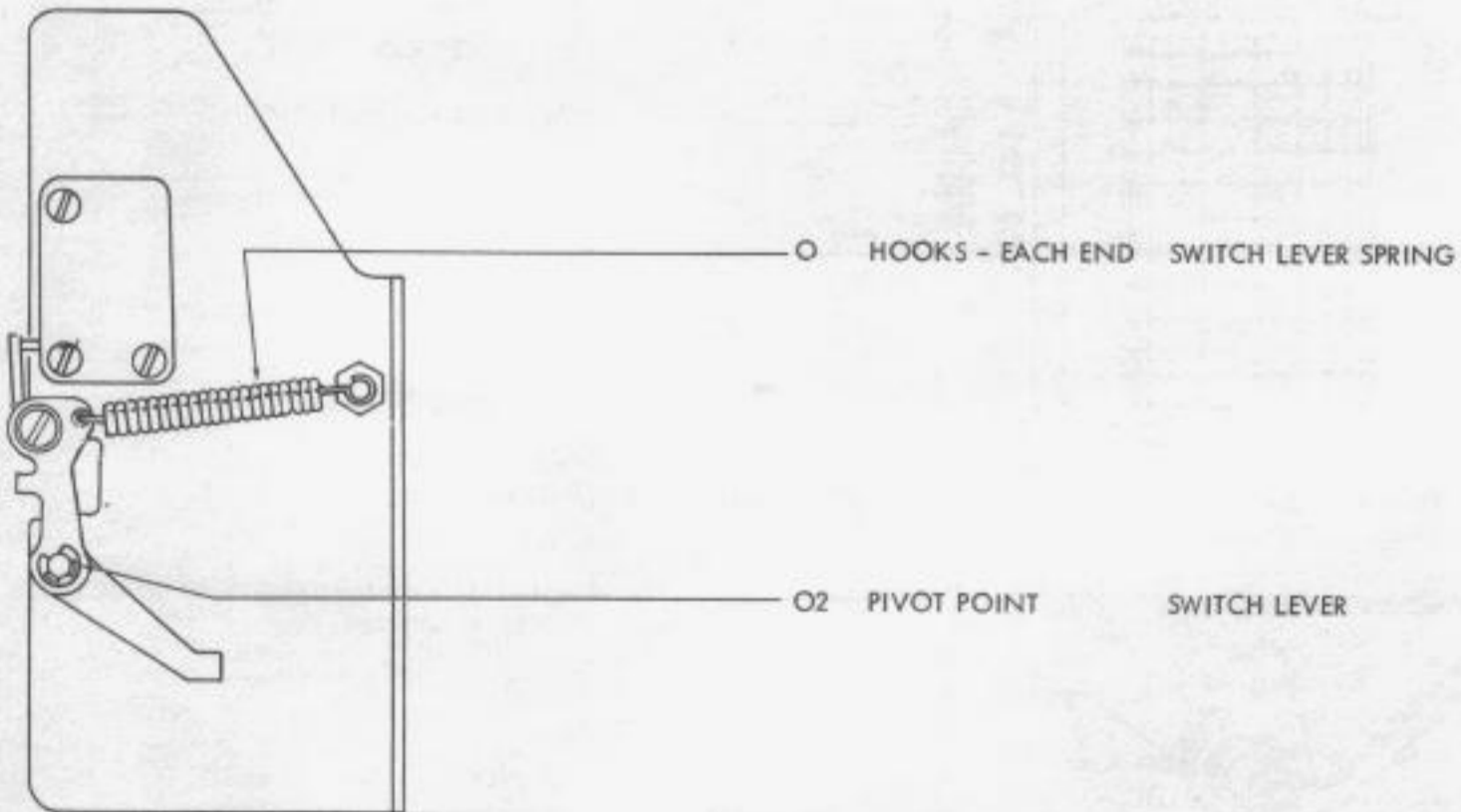
5.08 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN



5.09 TYPING REPERFORATOR UNIT — REAR VIEW



5.10 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
EARLIER DESIGN

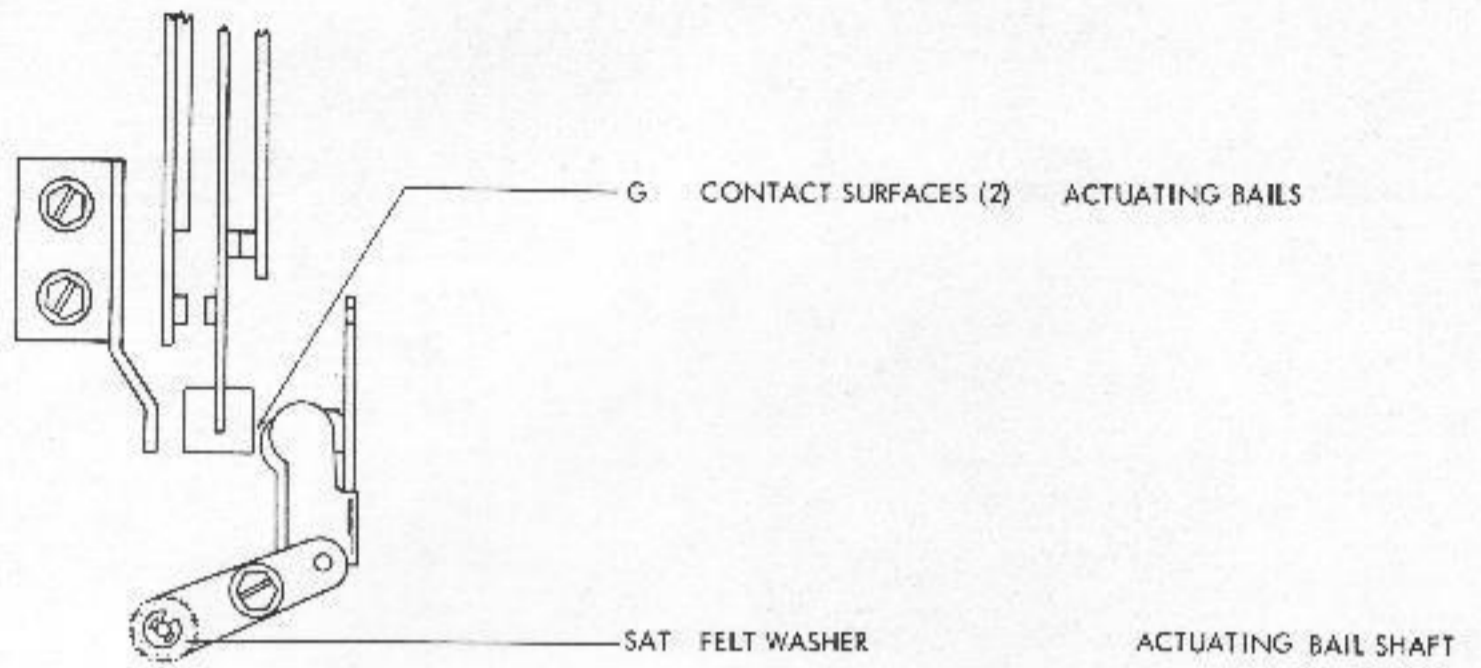


O HOOKS - EACH END SWITCH LEVER SPRING

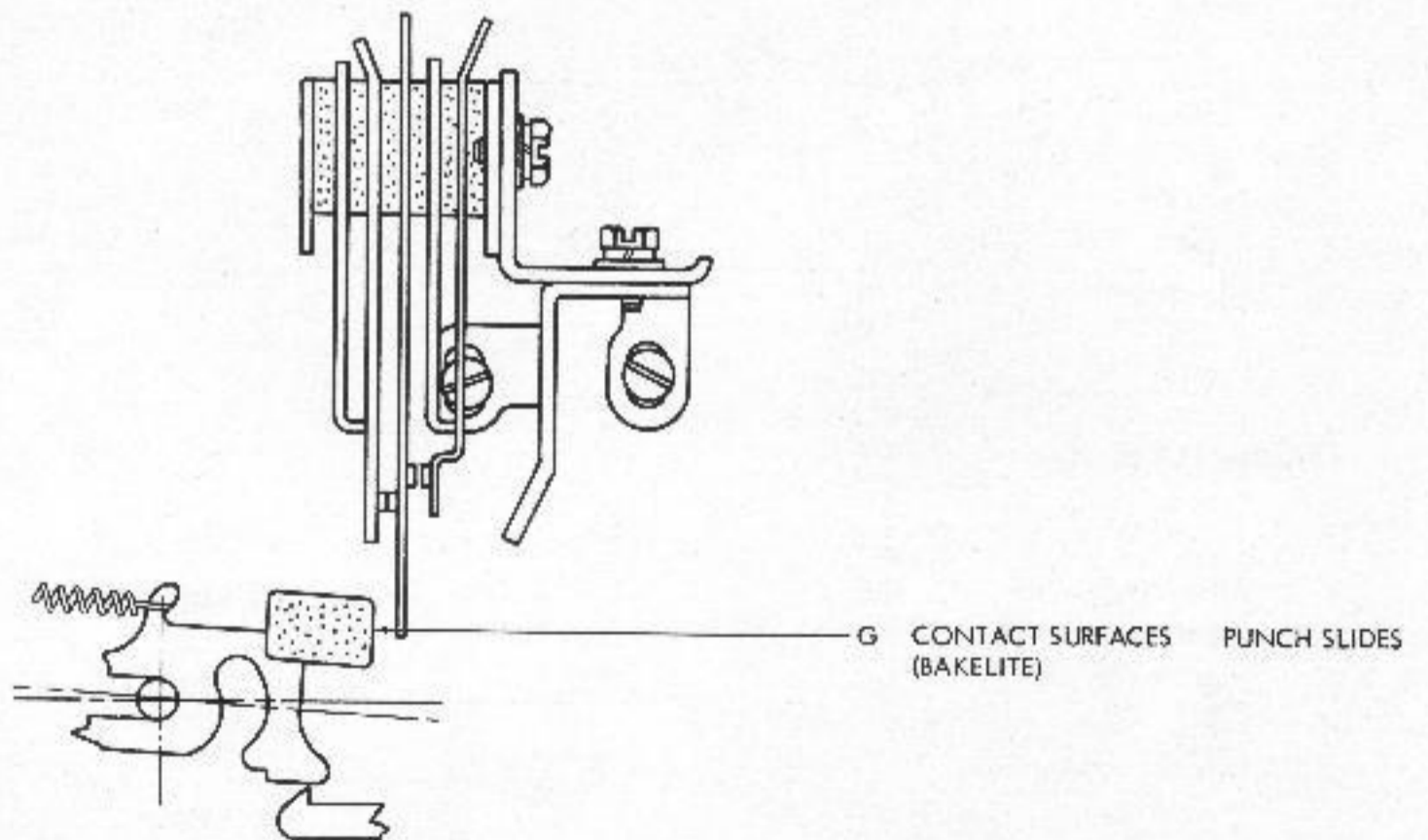
O2 PIVOT POINT SWITCH LEVER

(REAR VIEW)

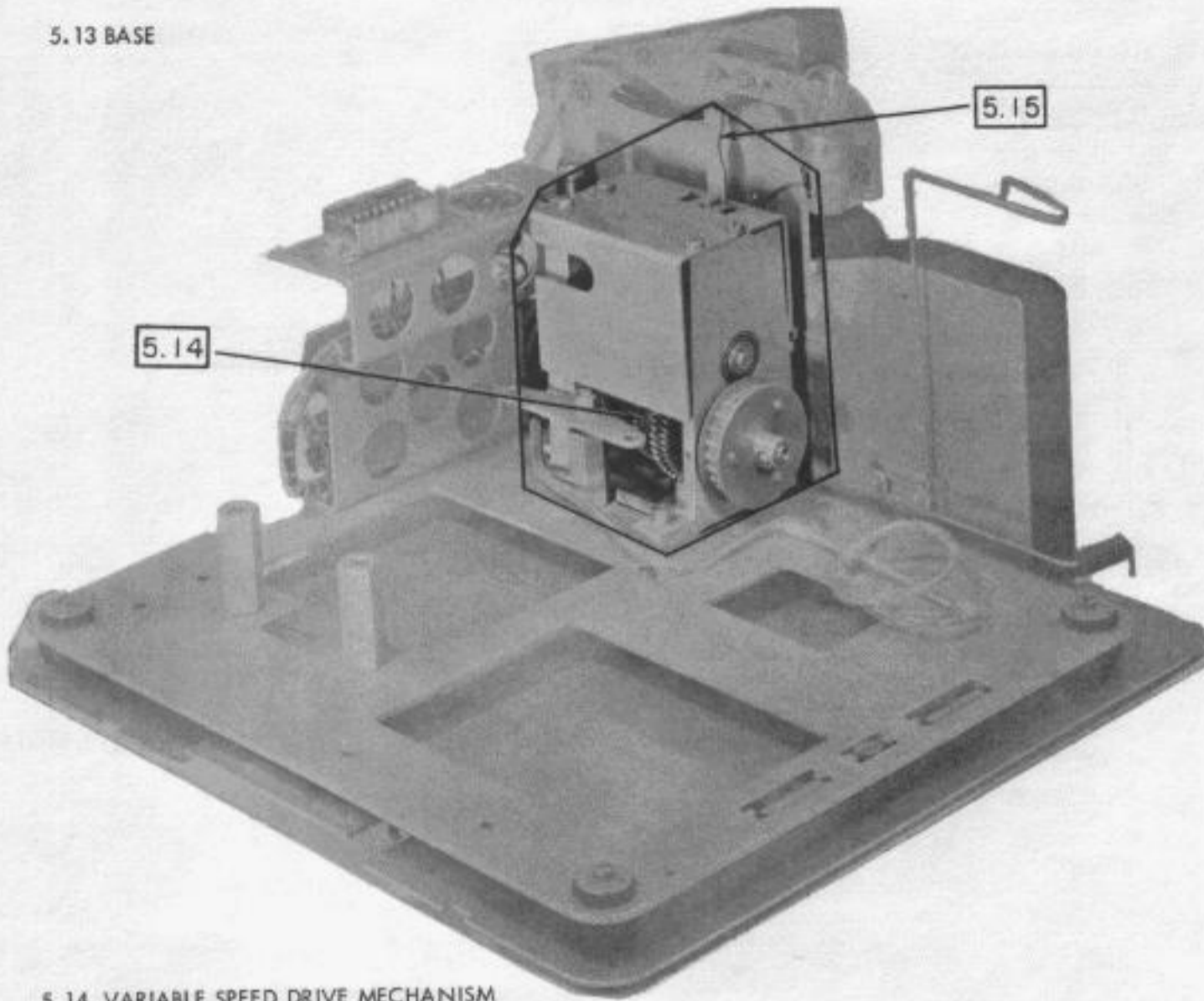
5.11 TIMING CONTACTS



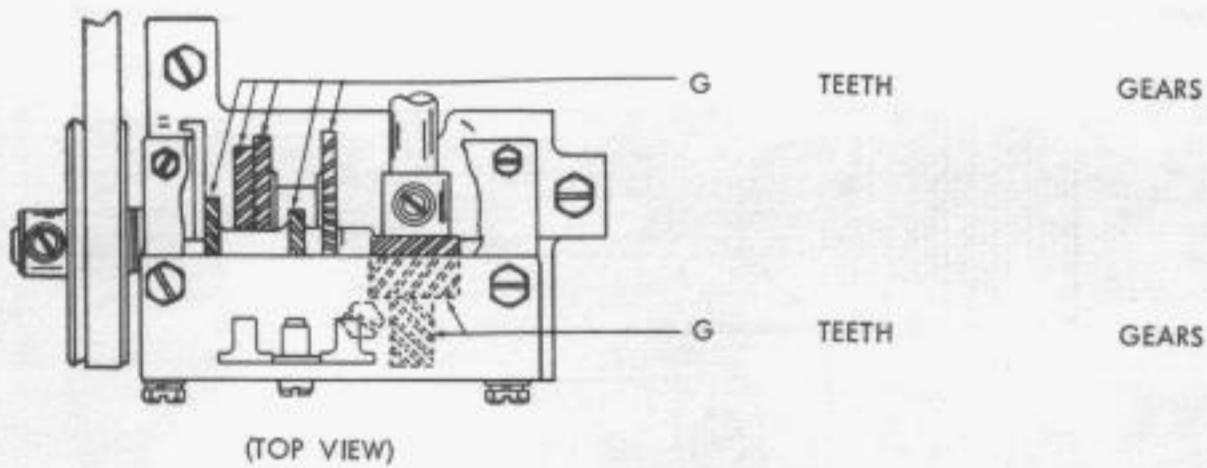
5.12 CODE READING CONTACTS



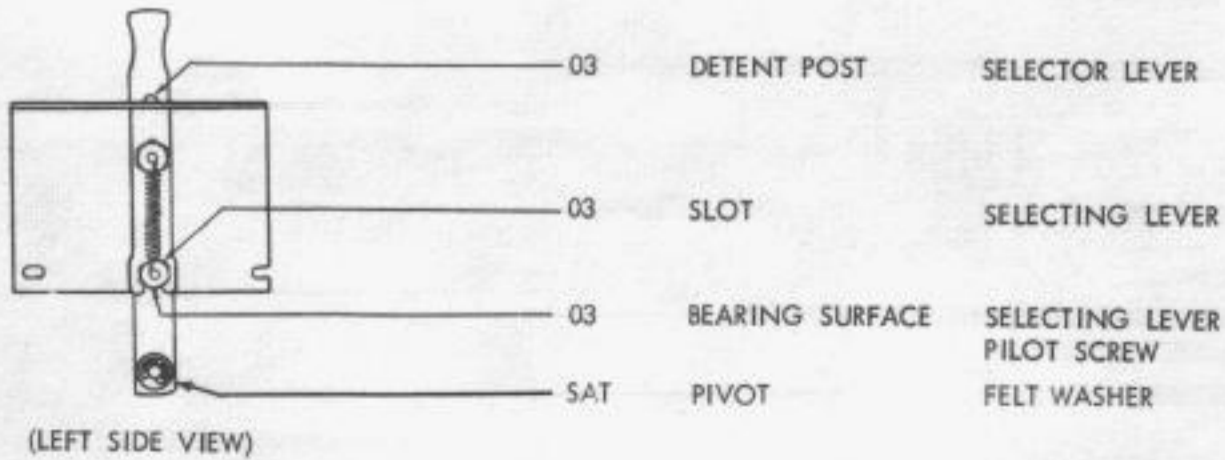
5.13 BASE



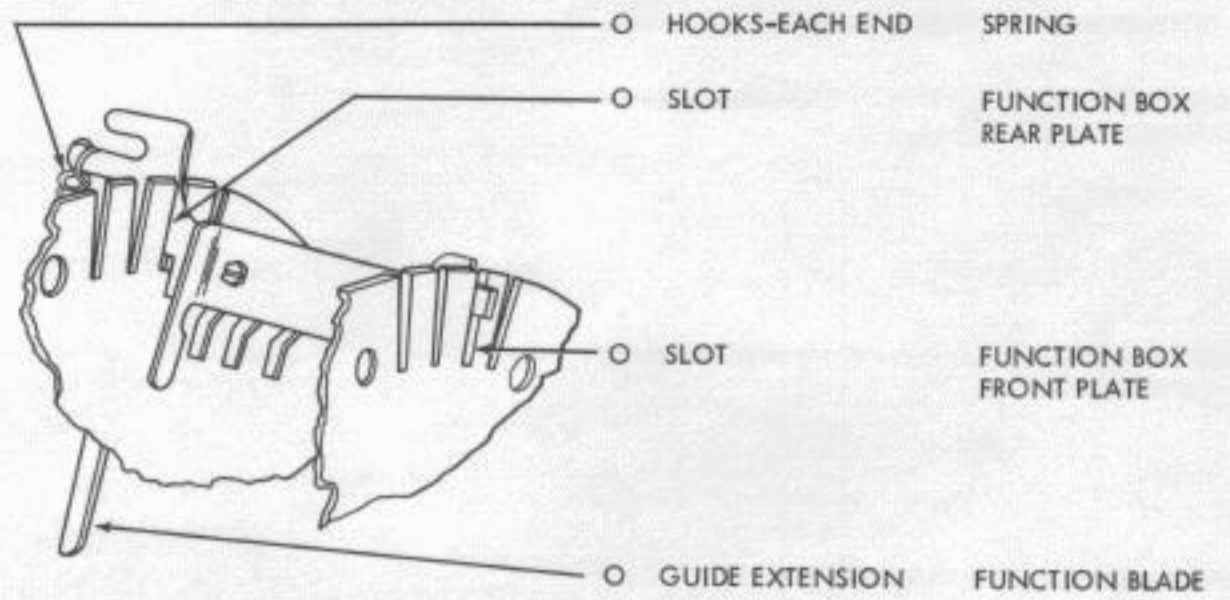
5.14 VARIABLE SPEED DRIVE MECHANISM



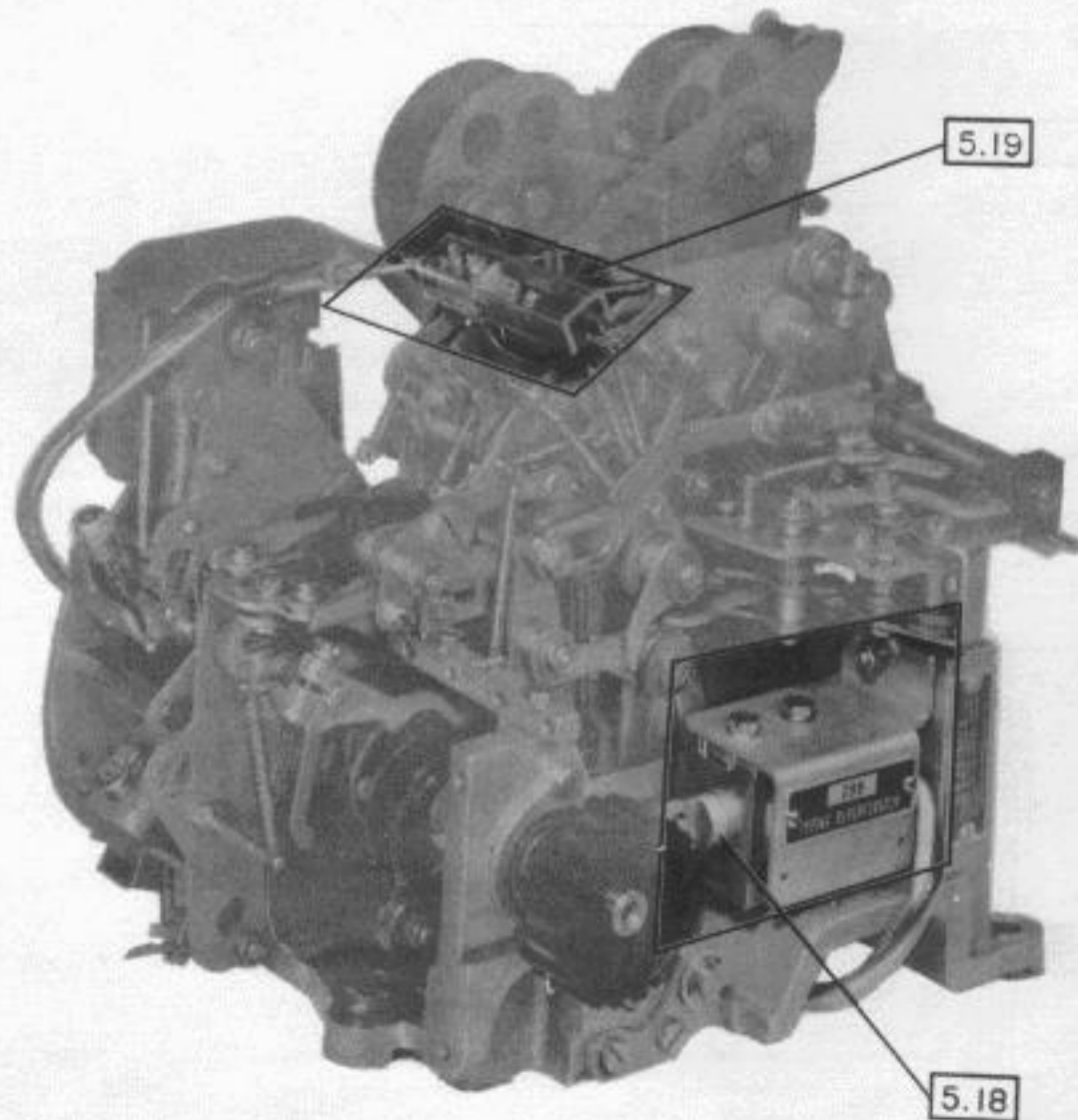
5.15 VARIABLE SPEED DRIVE MECHANISM



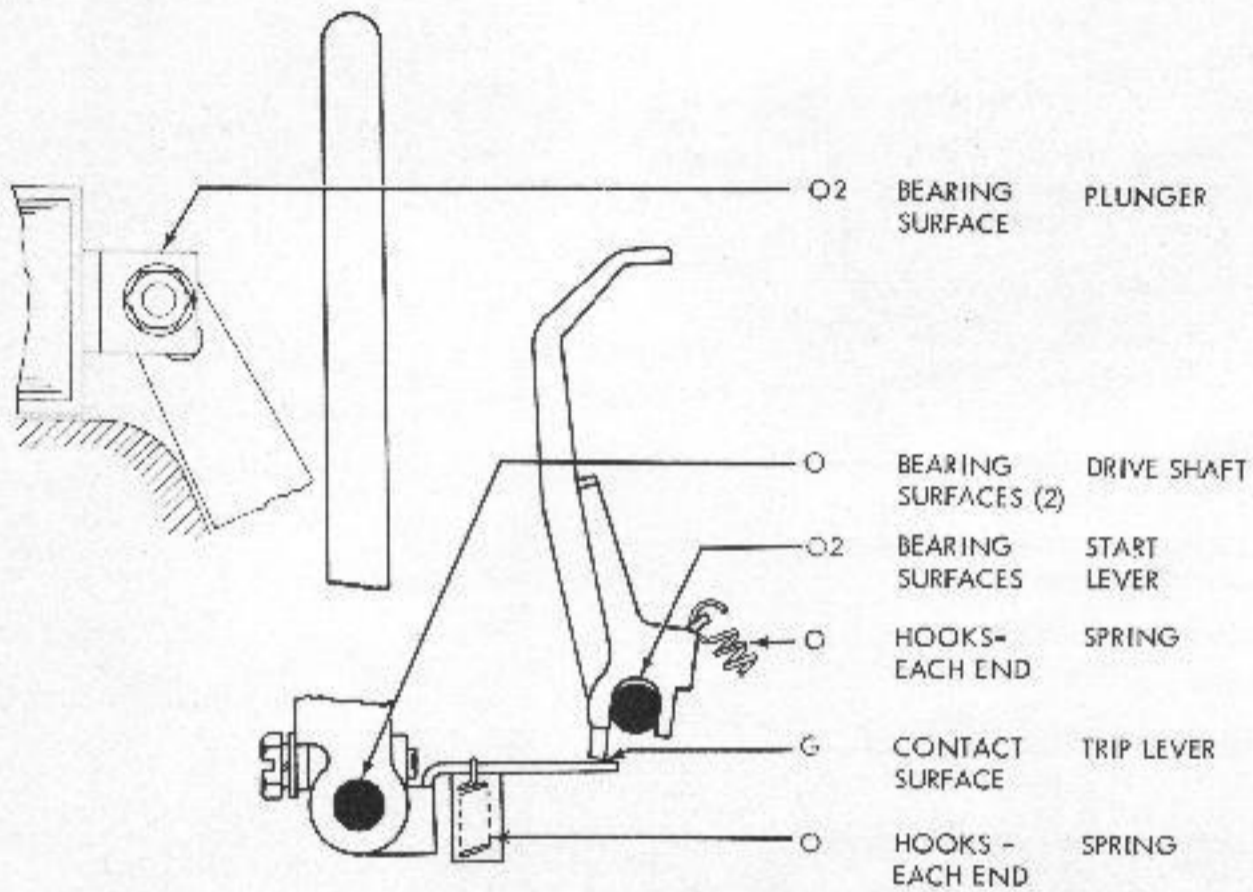
5.16 UNSHIFT ON SPACE MECHANISM



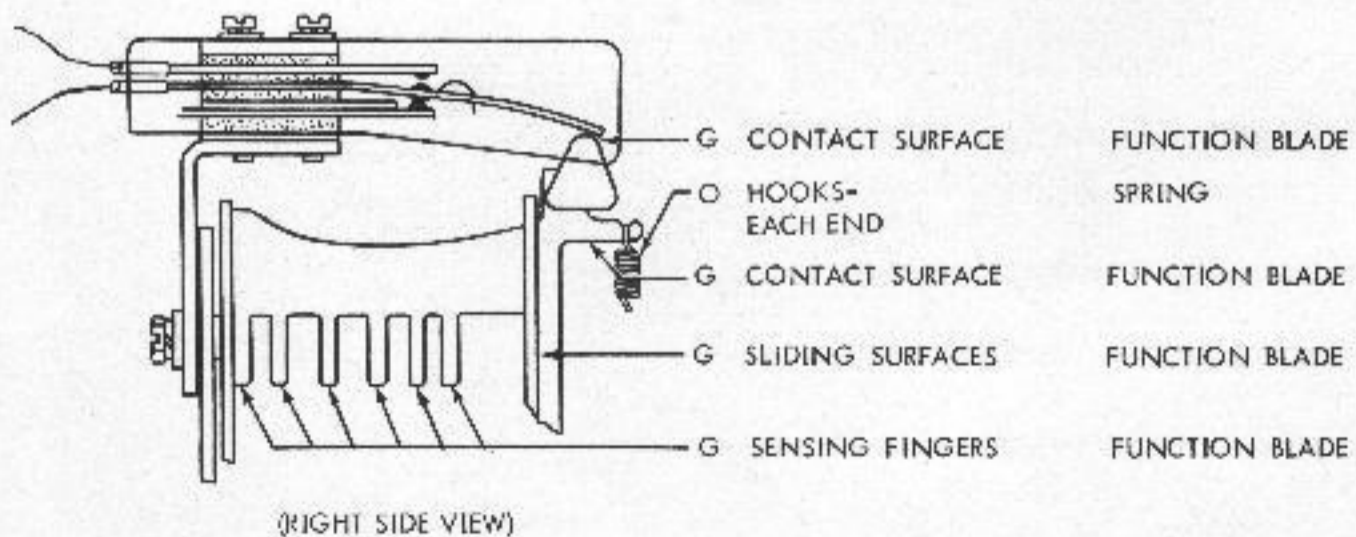
5.17 TYPING REPERFORATOR UNIT - REAR VIEW



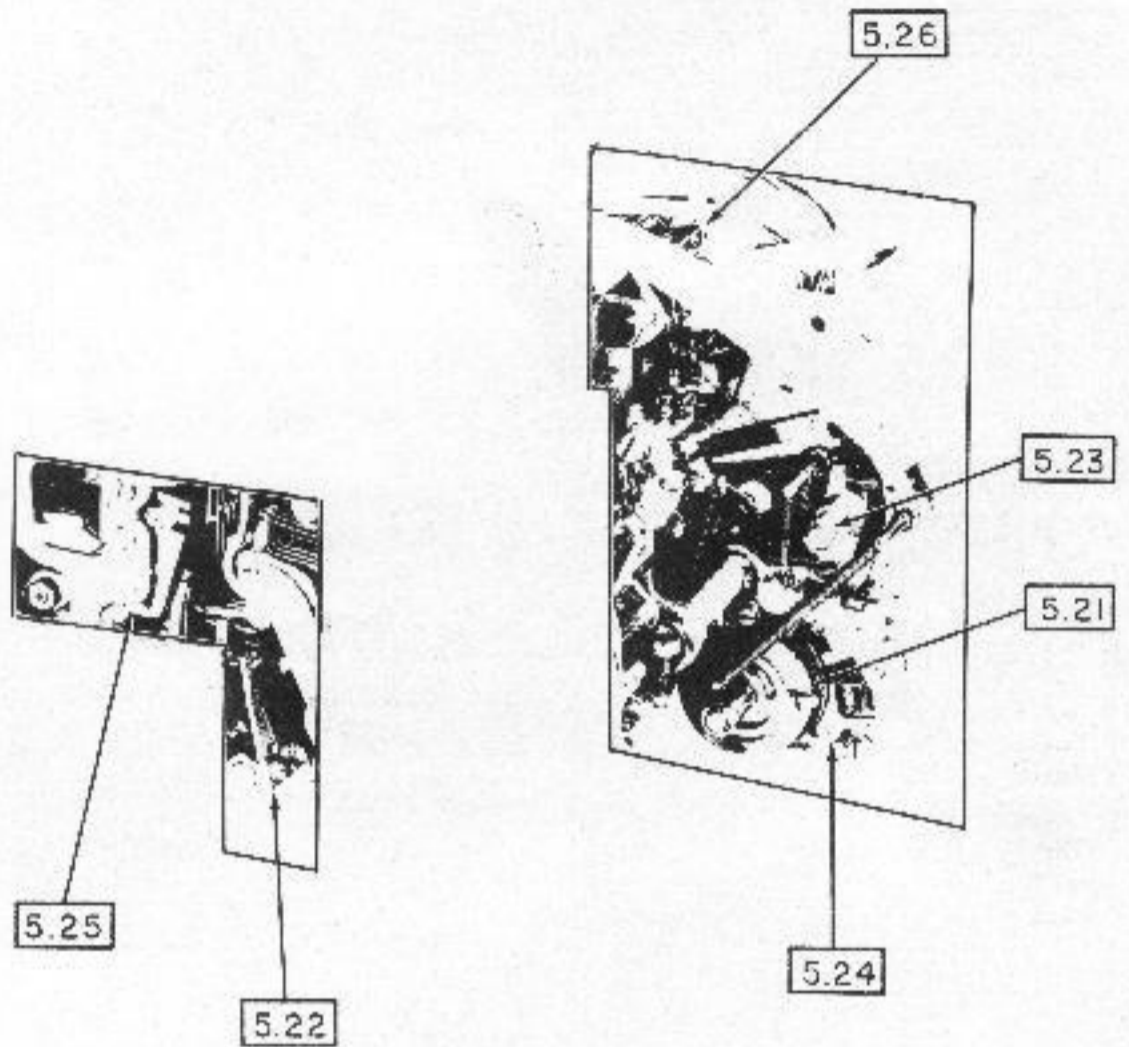
5.18 MANUAL AND SOLENOID OPERATED INTERFERING LETTERS TAPE FEED OUT MECHANISM



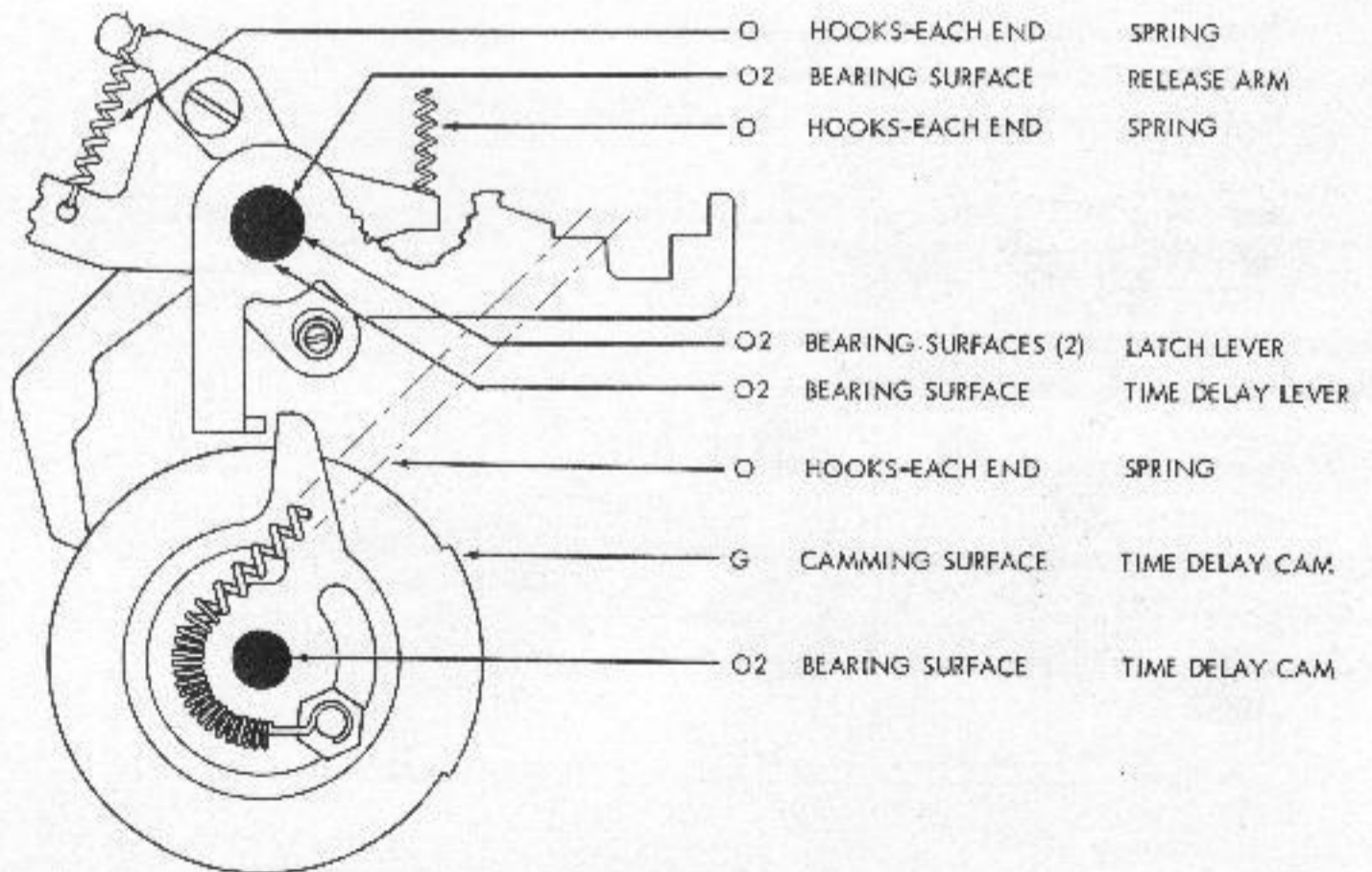
5.19 SIGNAL BELL CONTACT MECHANISM



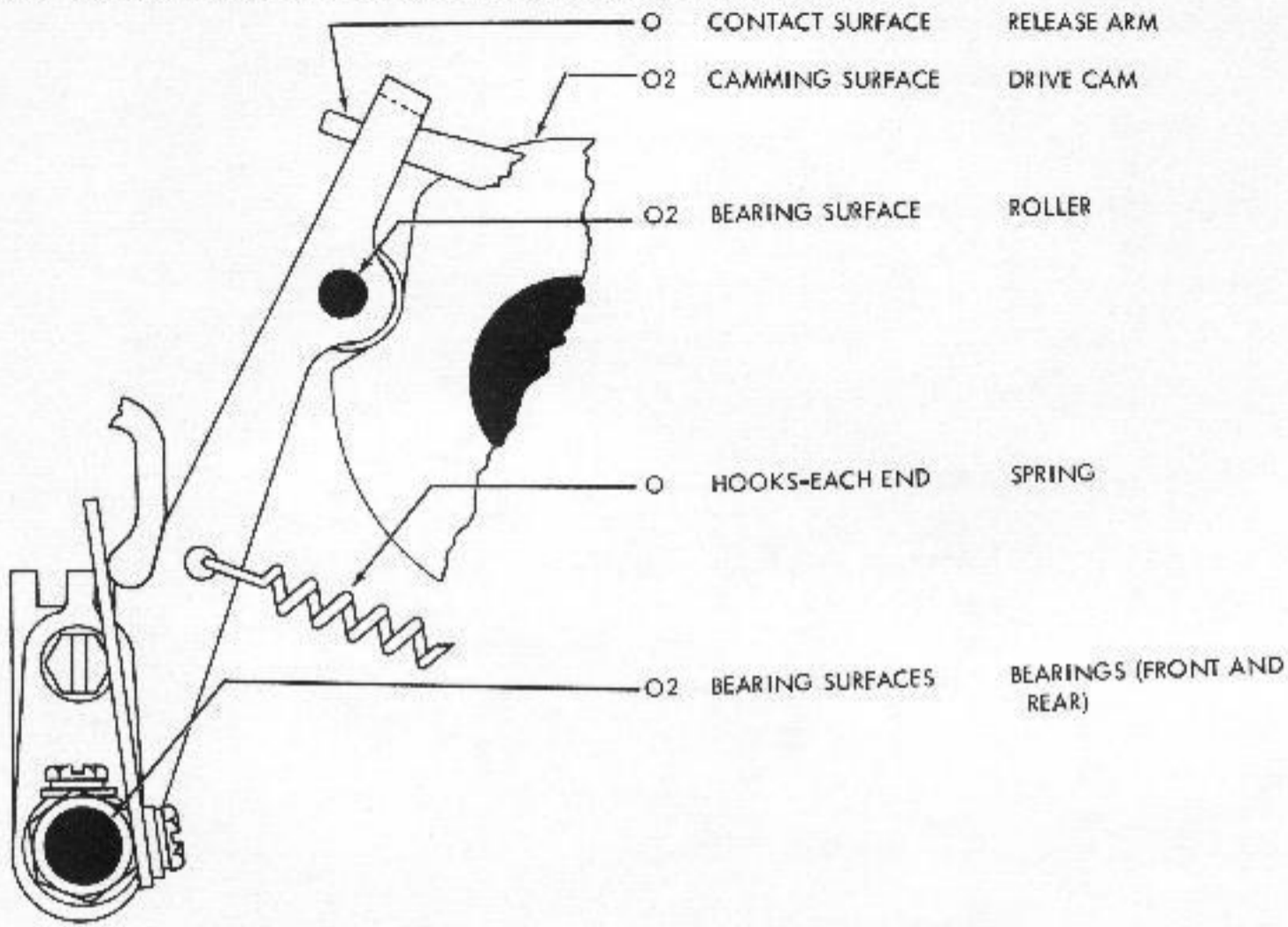
5.20 TYPING REPERFORATOR UNIT



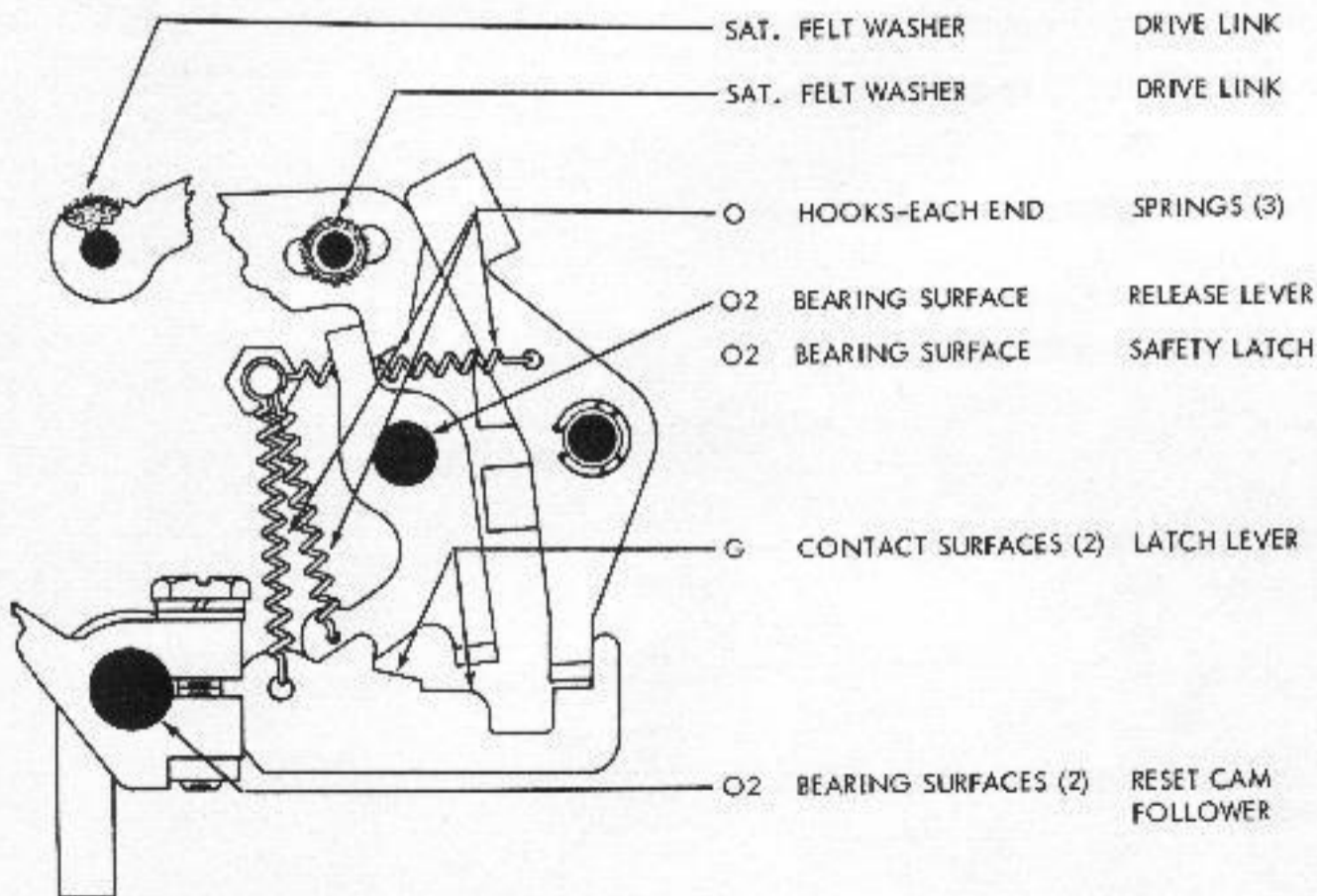
5.21 AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM



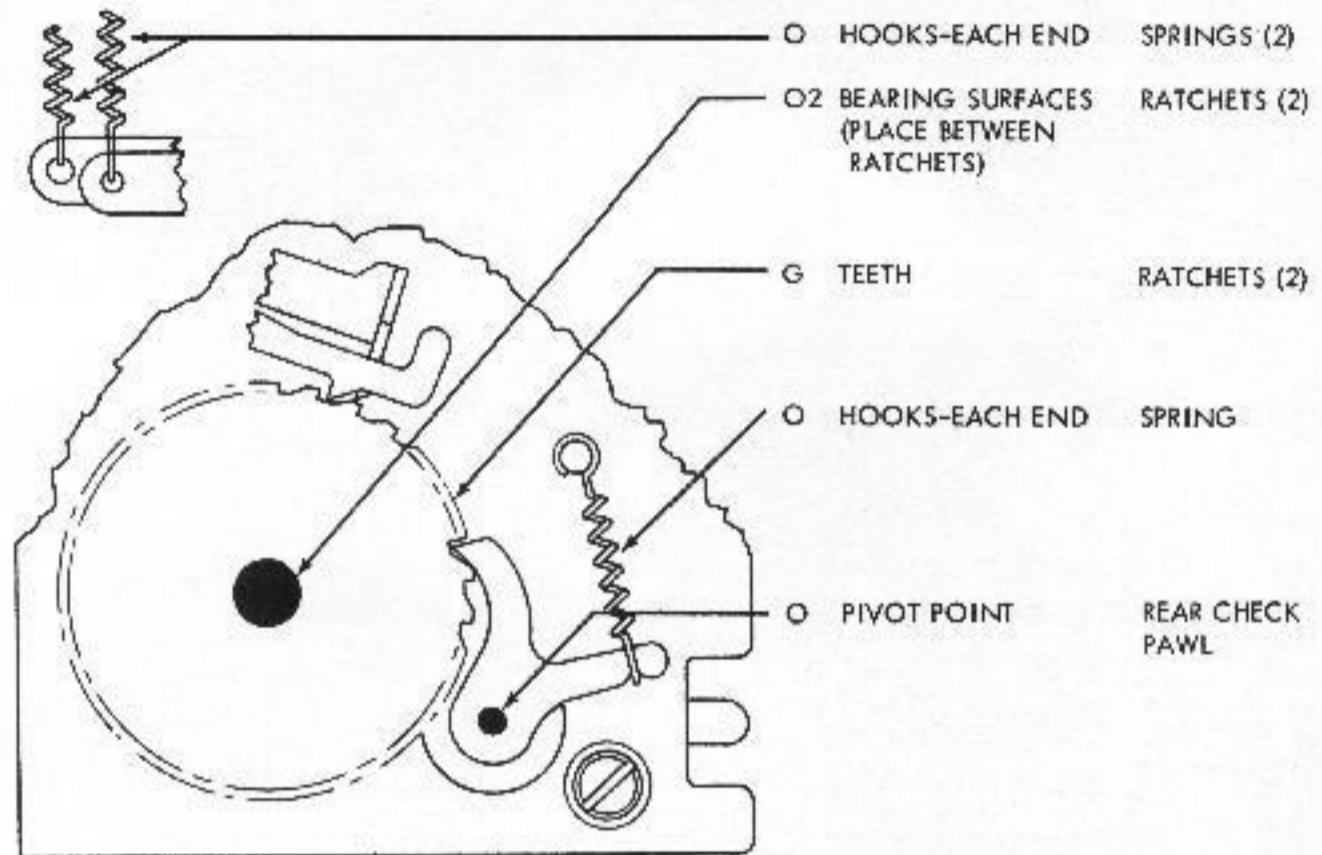
5.22 AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM



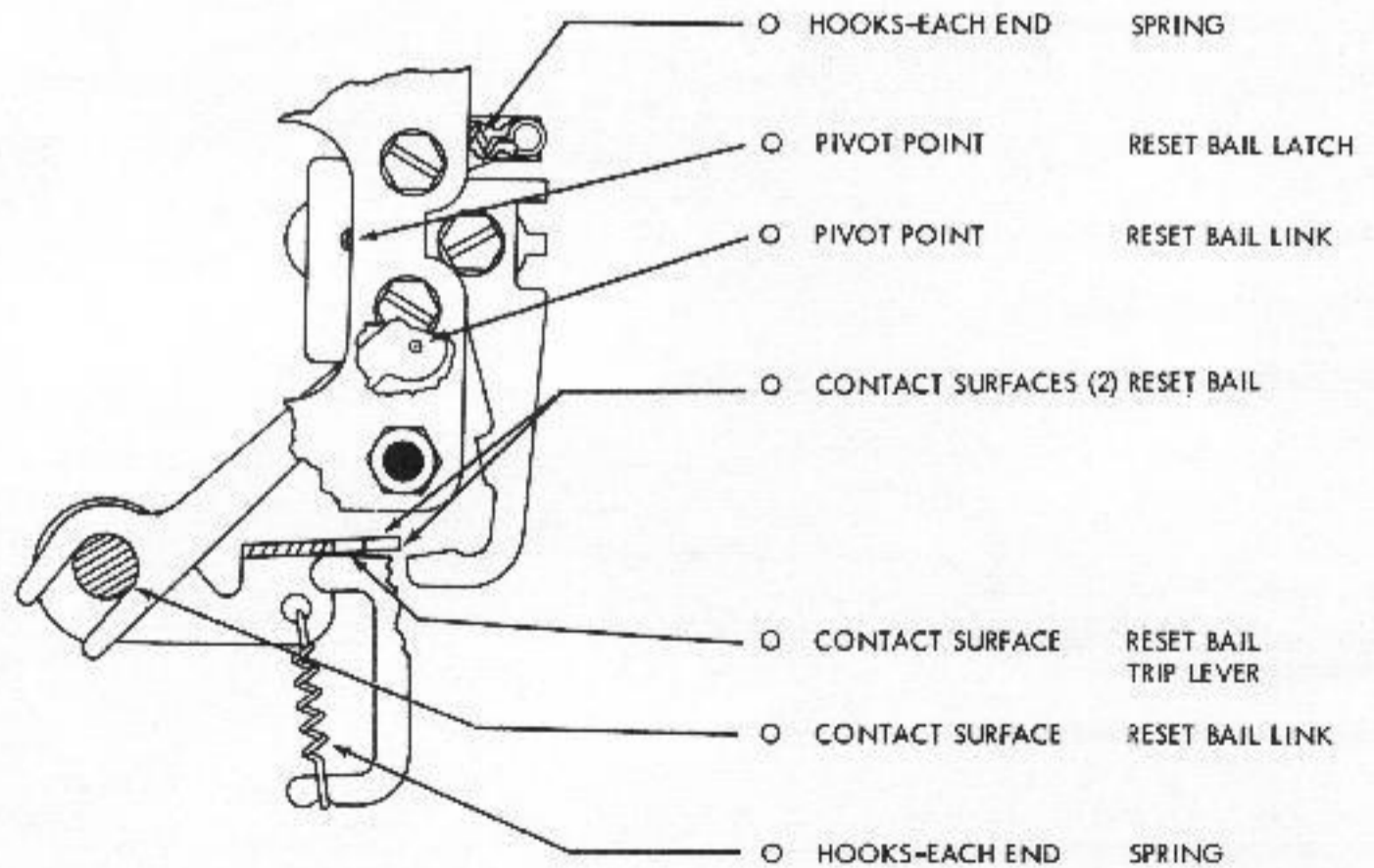
5.23 AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM



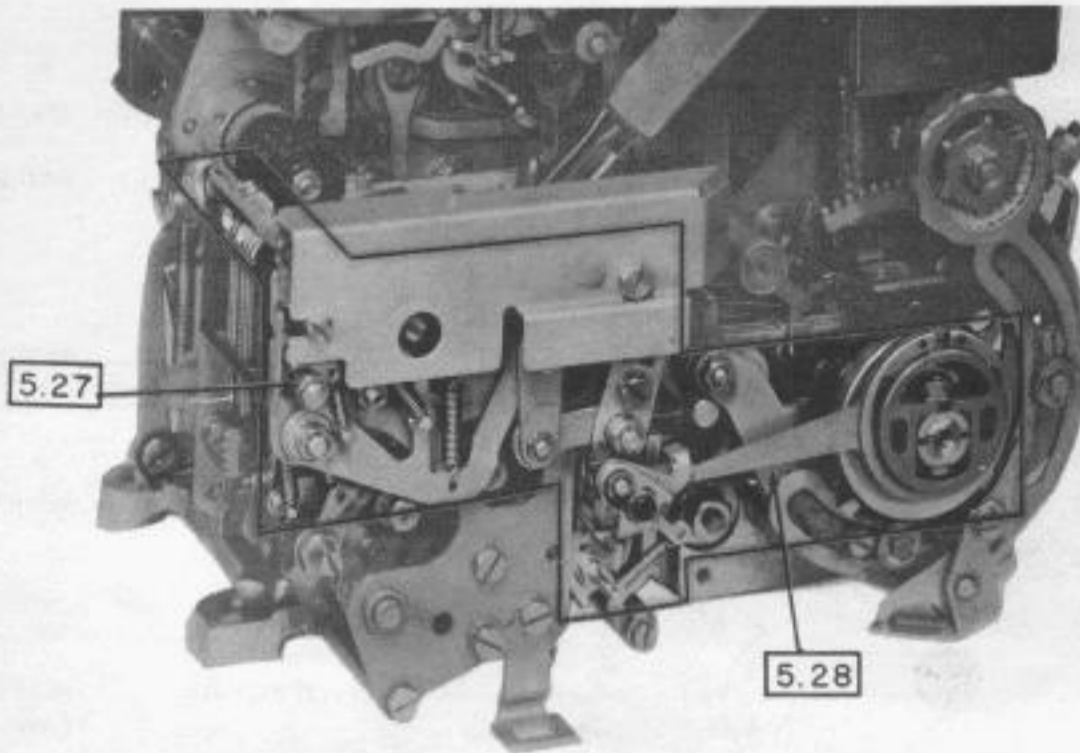
5.24 AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM



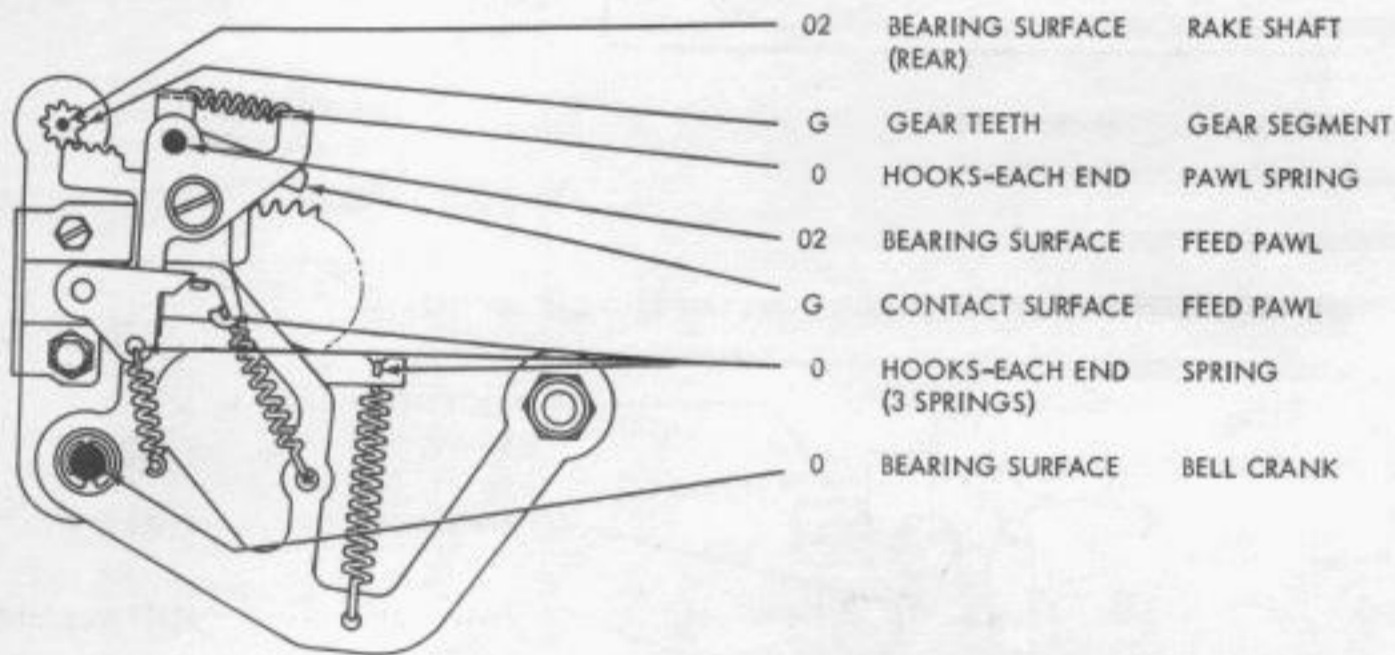
5.25 AUTOMATIC NON-INTERFERING LETTERS TAPE FEED OUT MECHANISM



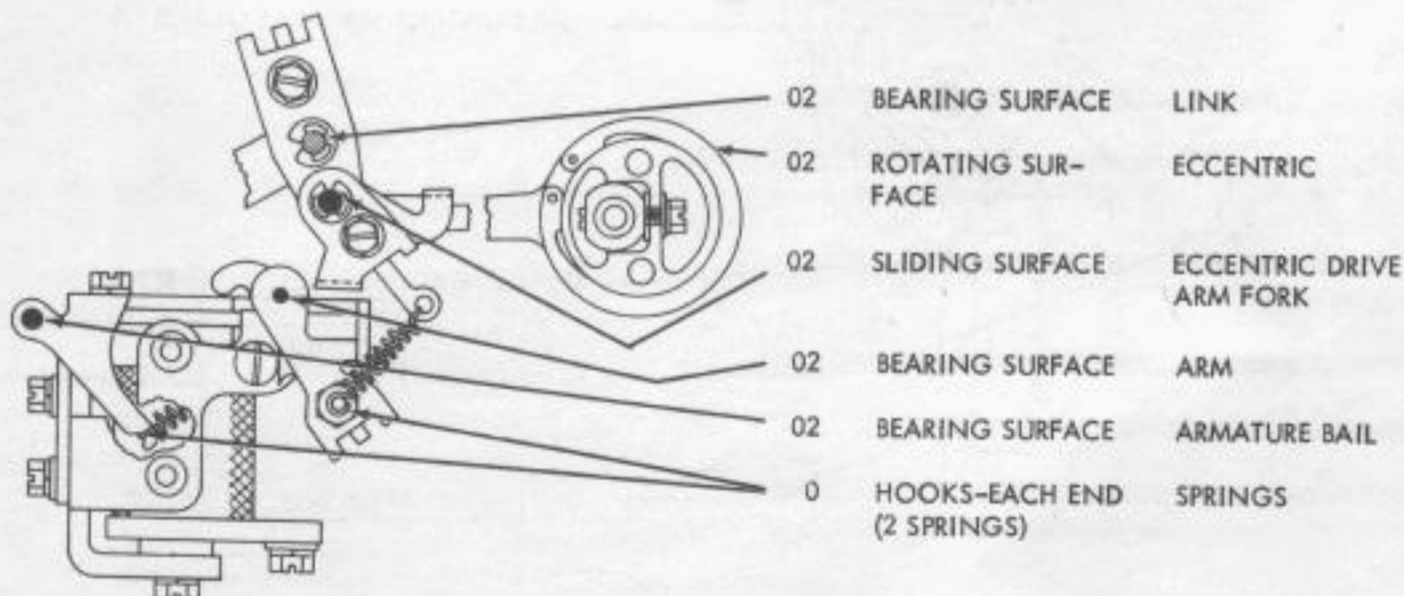
5.26 TYPING REPERFORATOR UNIT



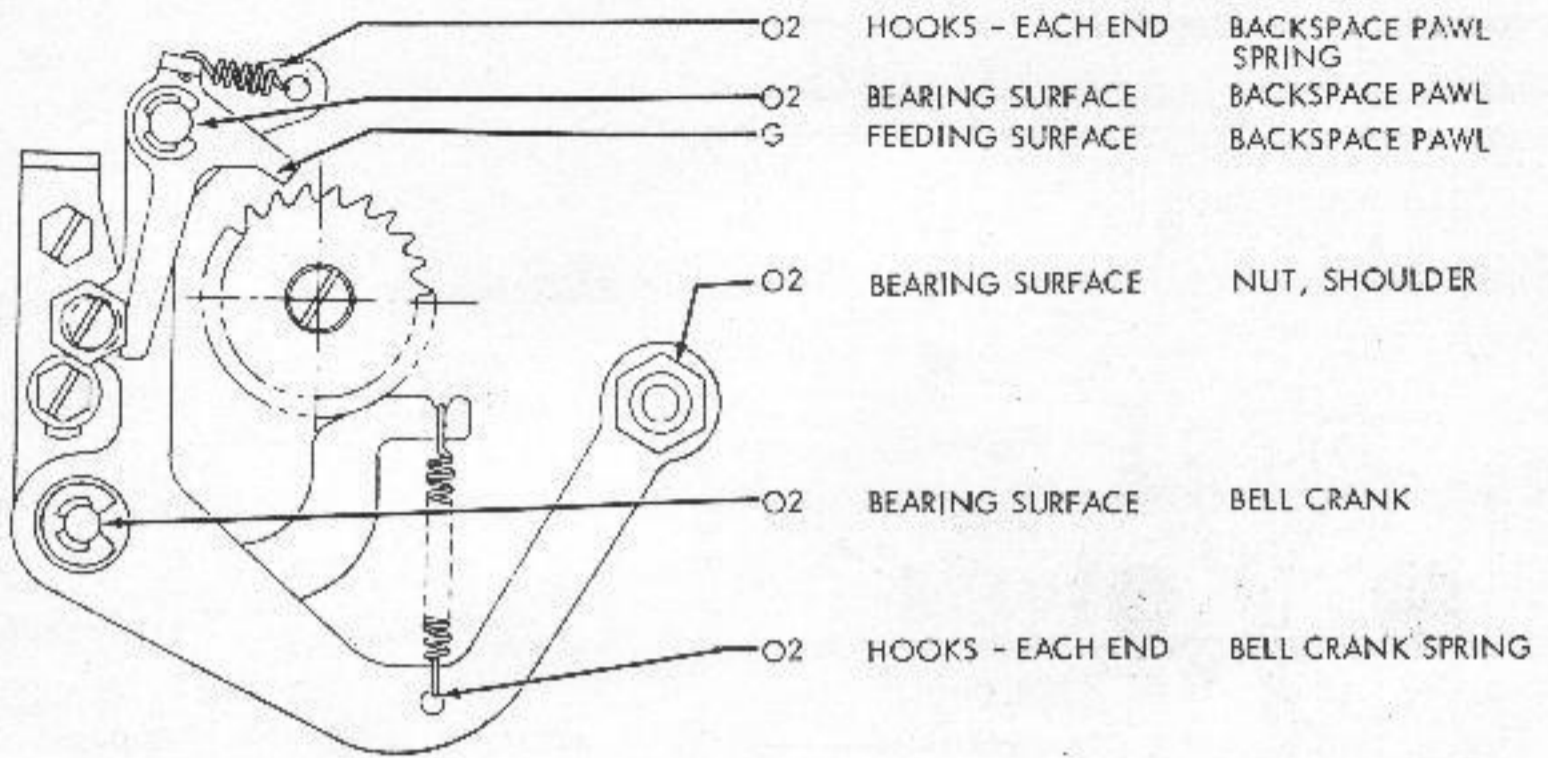
5.27 MANUAL BACKSPACE MECHANISM



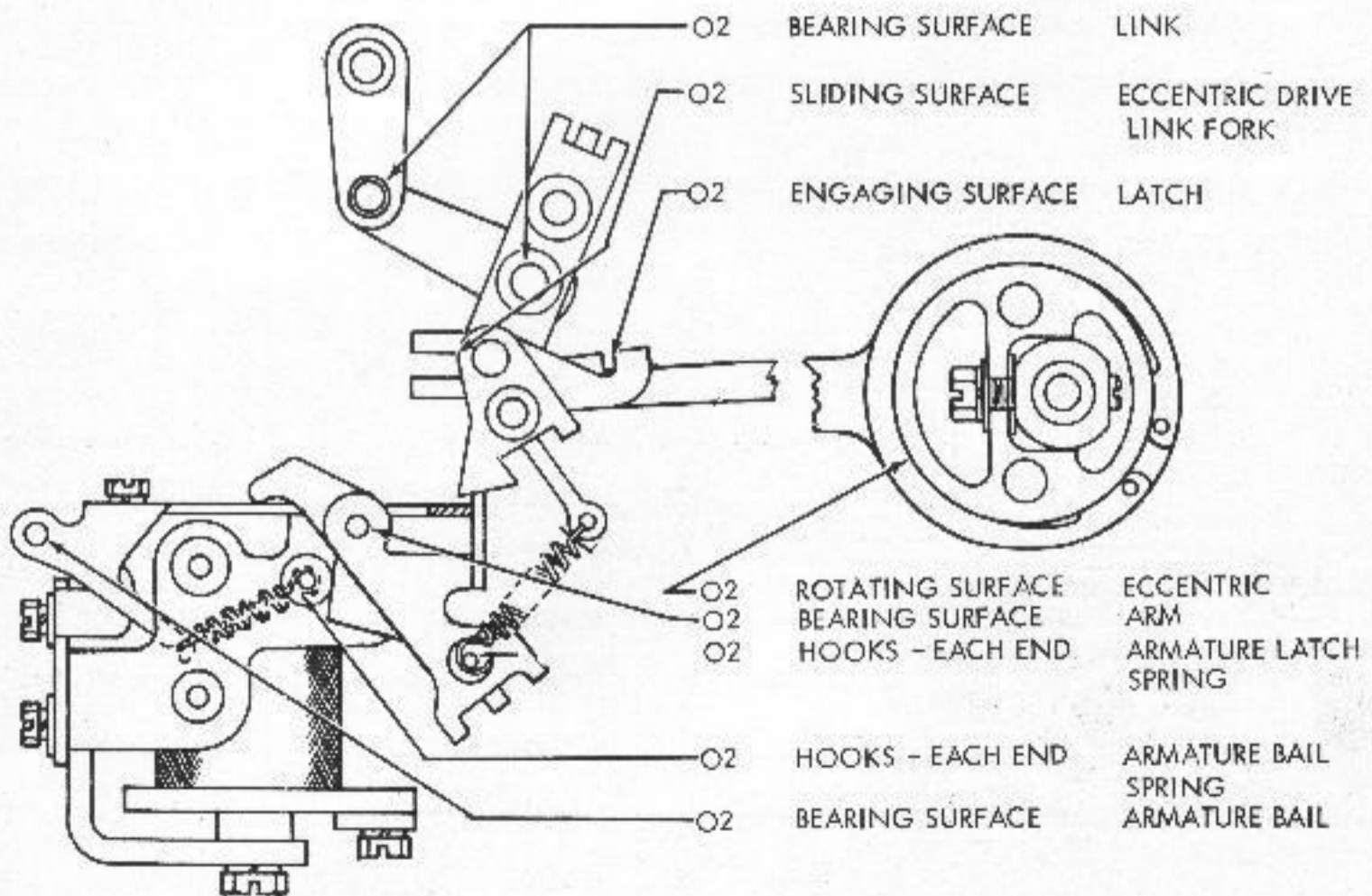
5.28 POWER DRIVE BACKSPACE MECHANISM



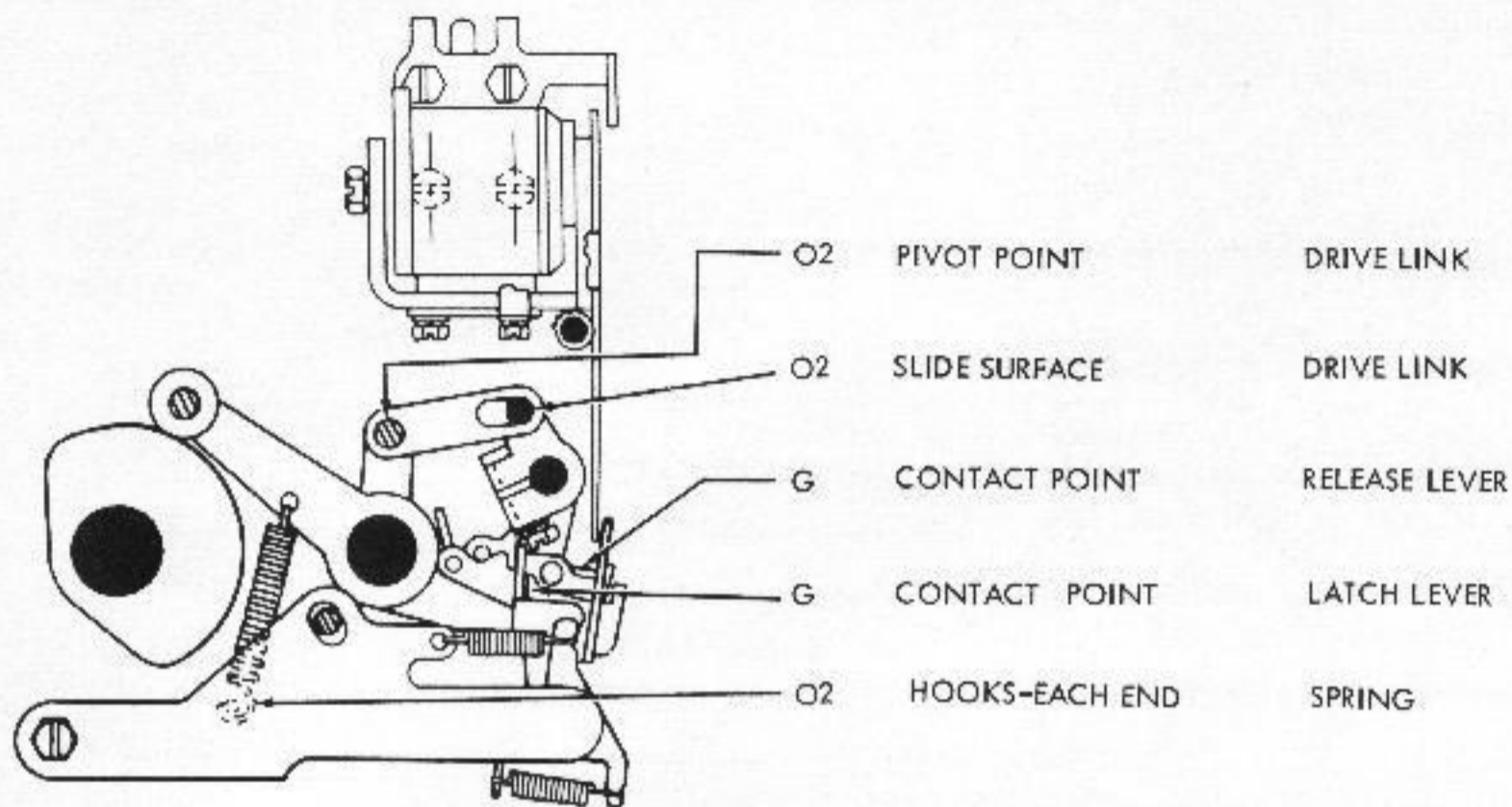
5.29 POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE



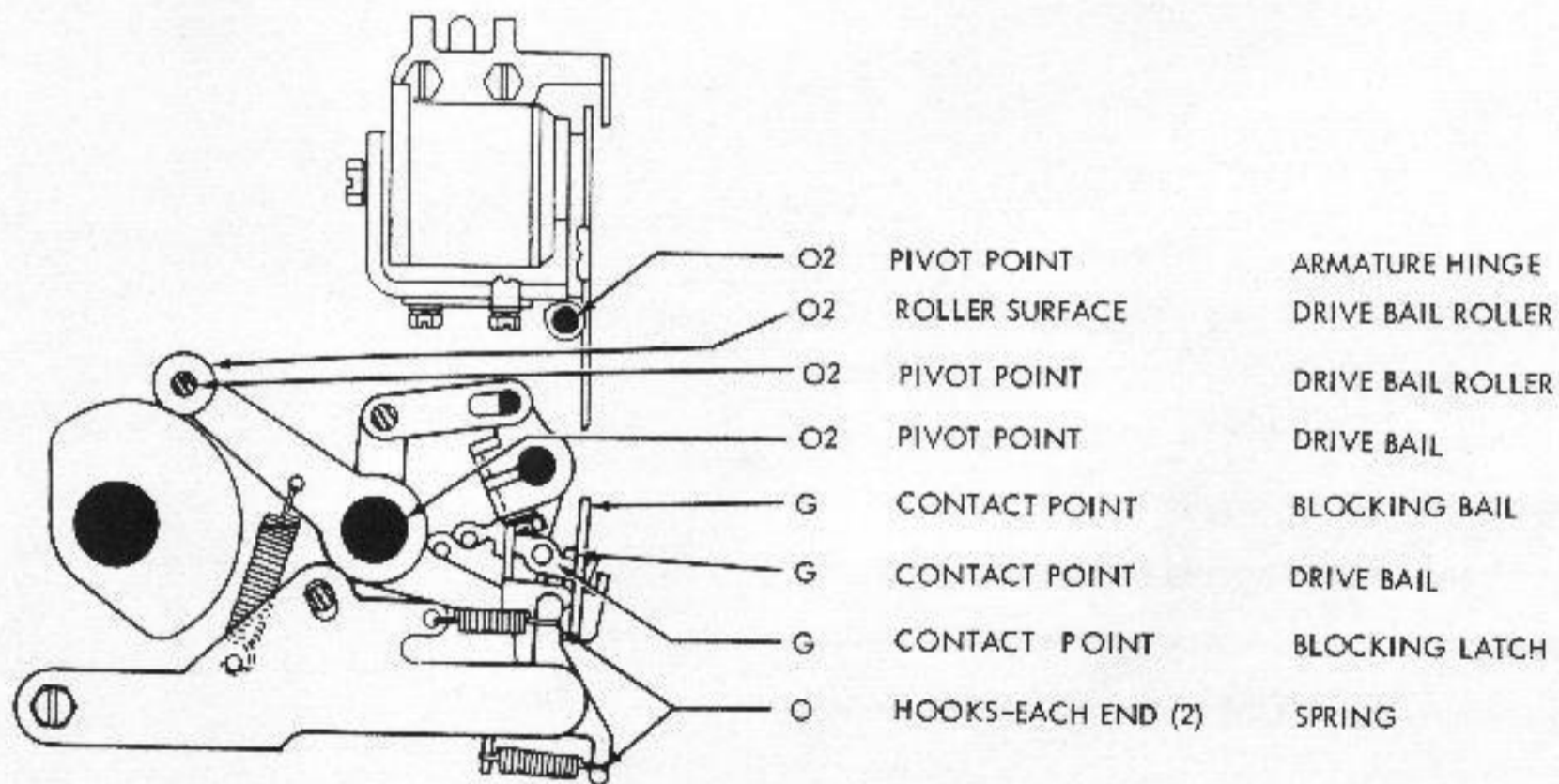
5.30 POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE



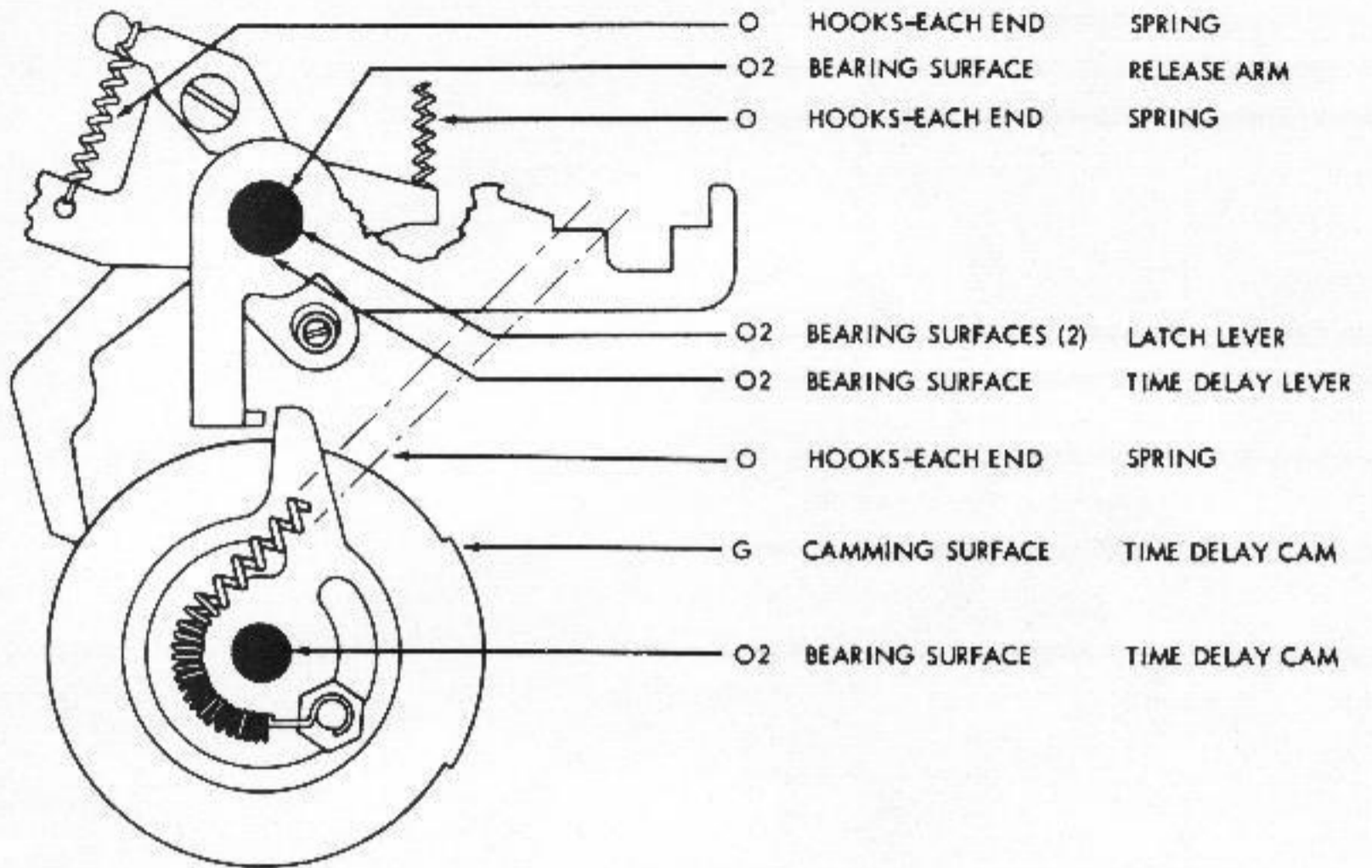
5.31 REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM



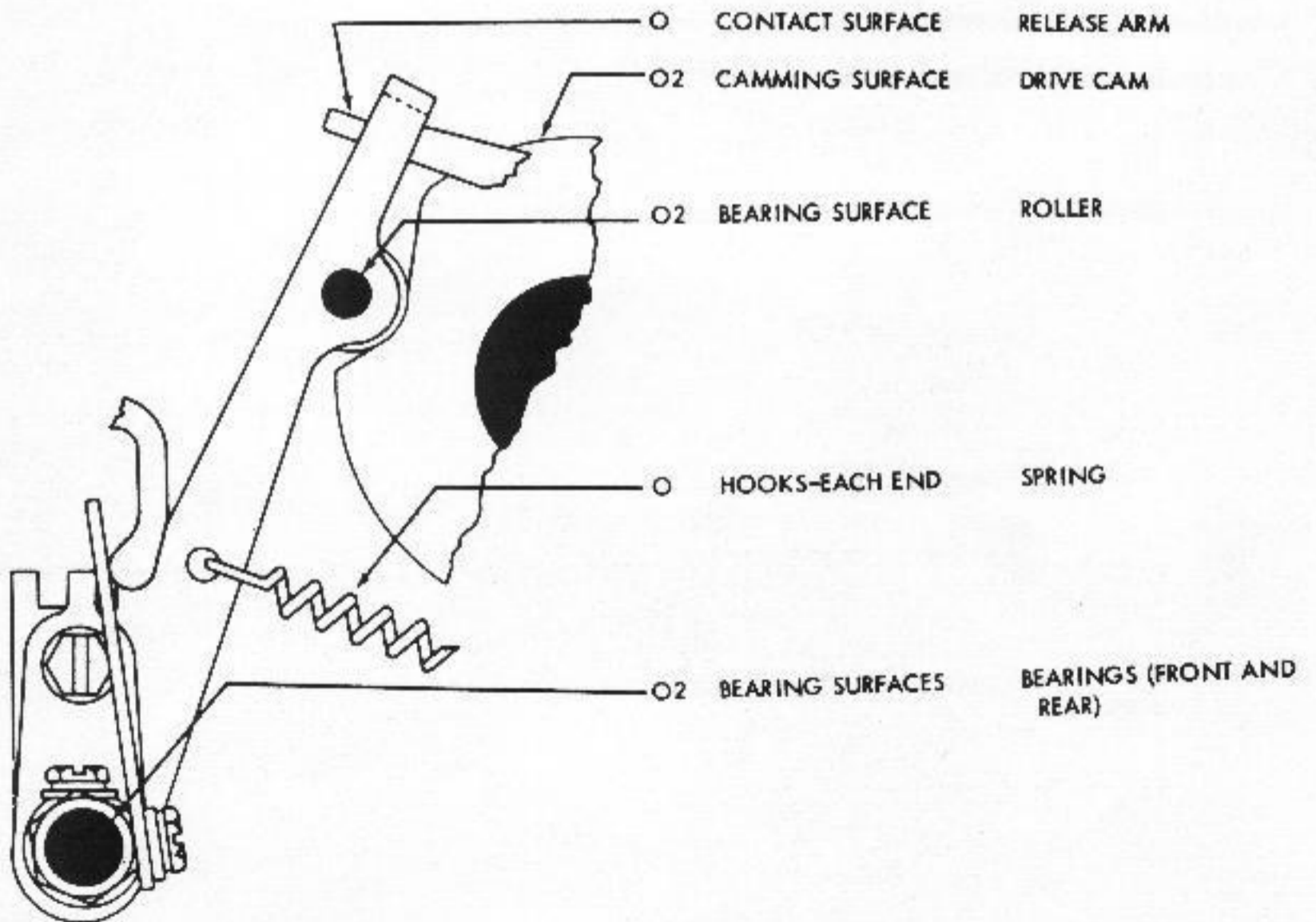
5.32 REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM



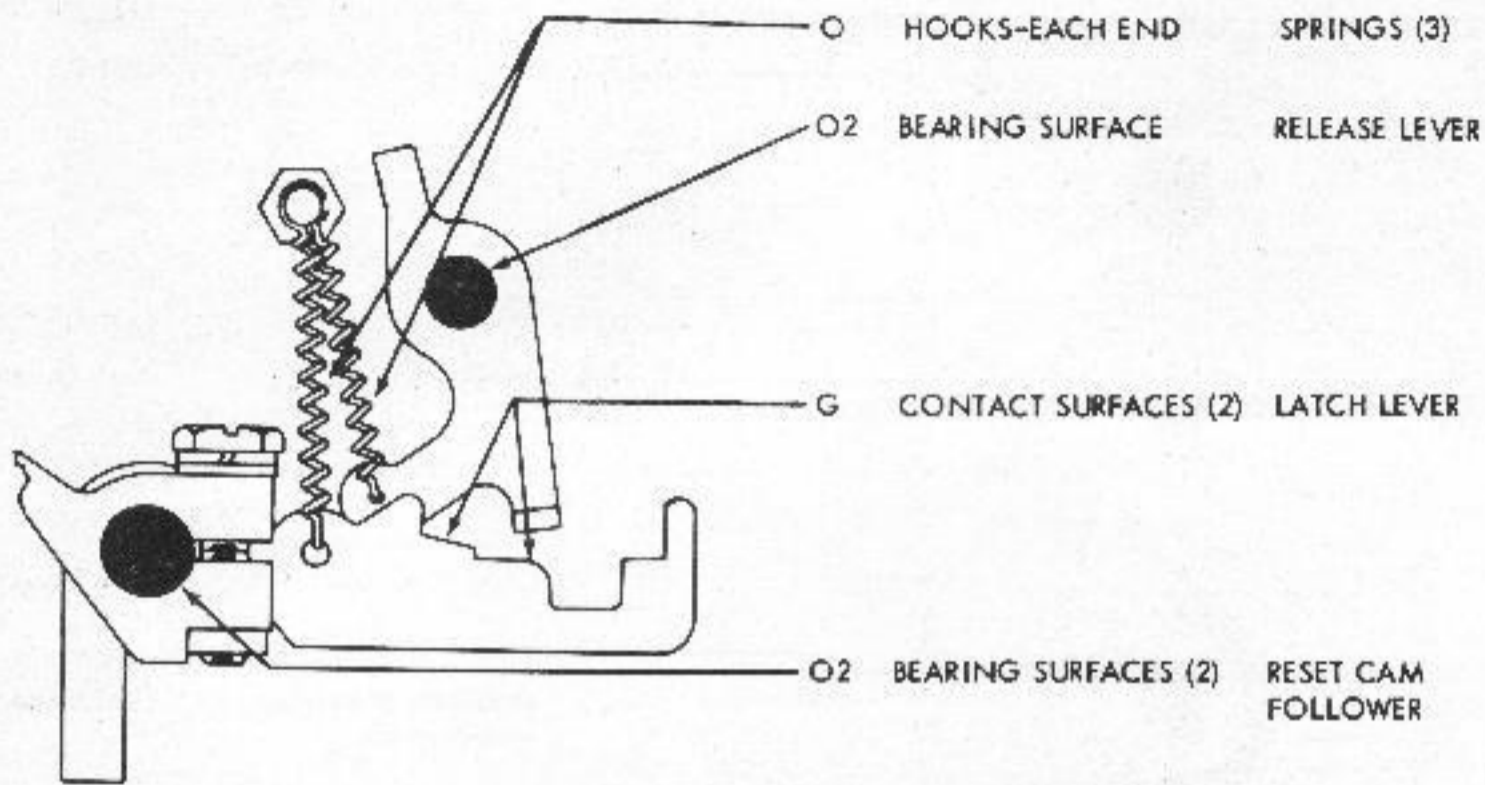
5.33 REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM



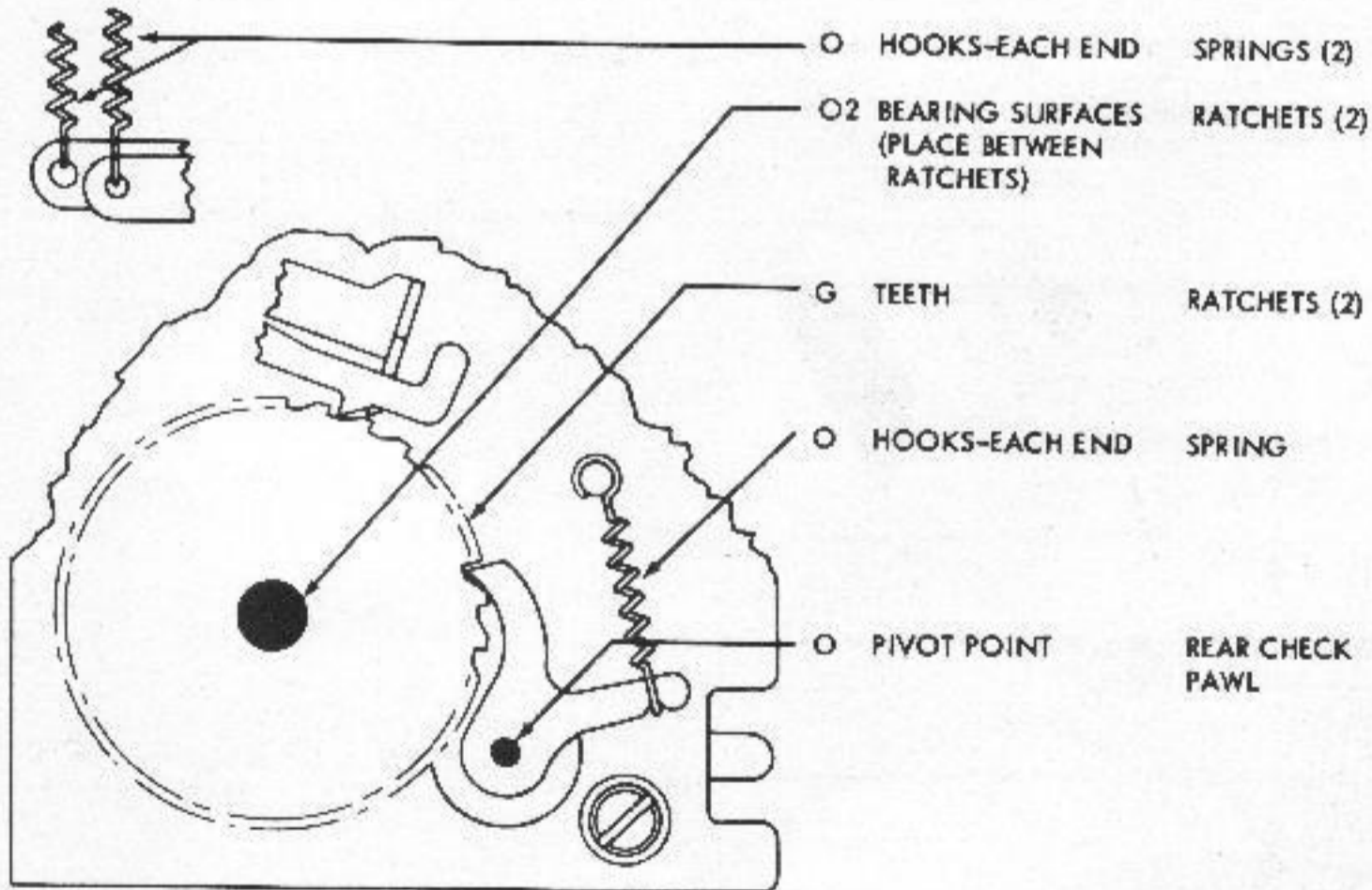
5.34 REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM



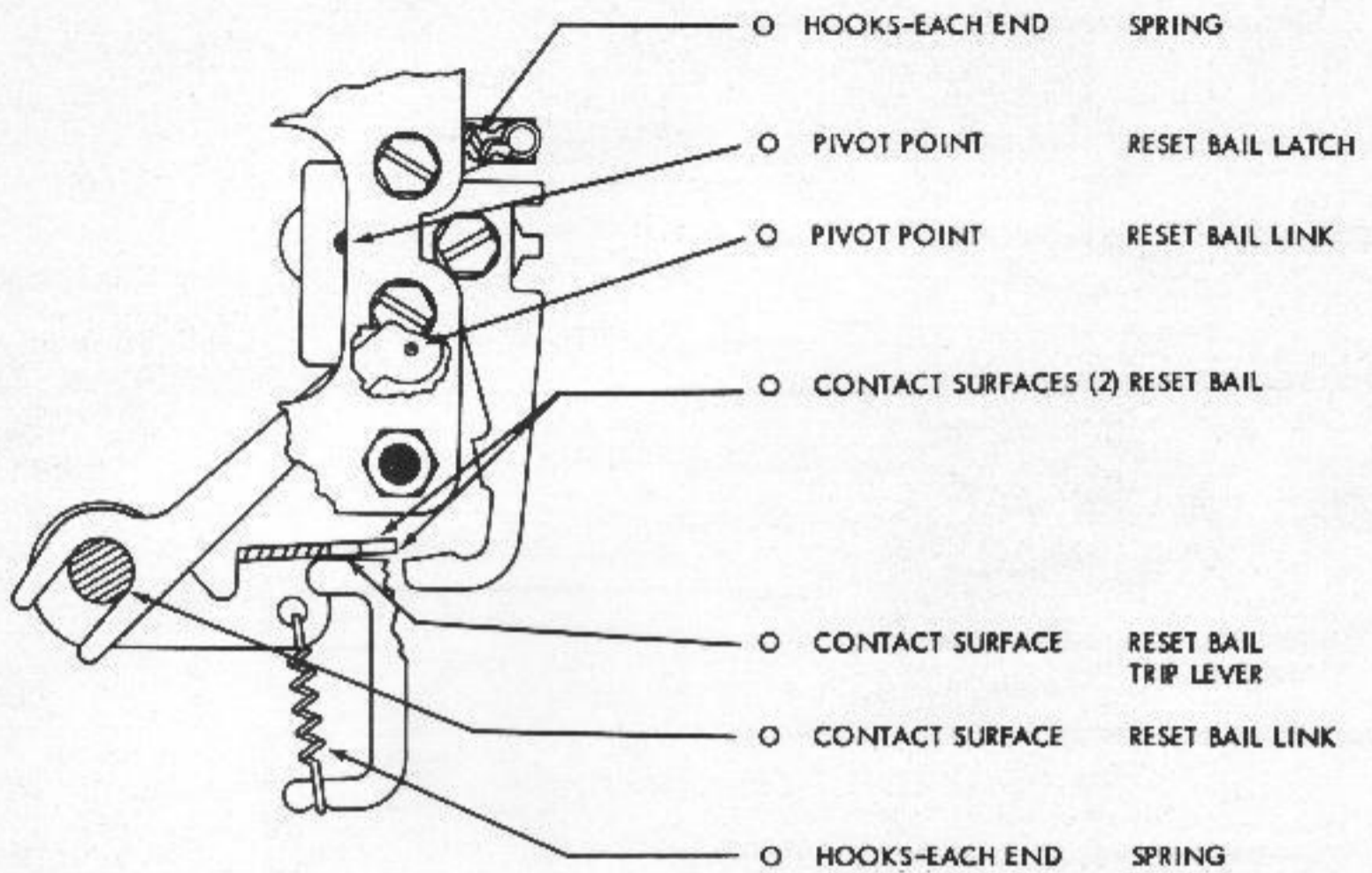
5.35 REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM



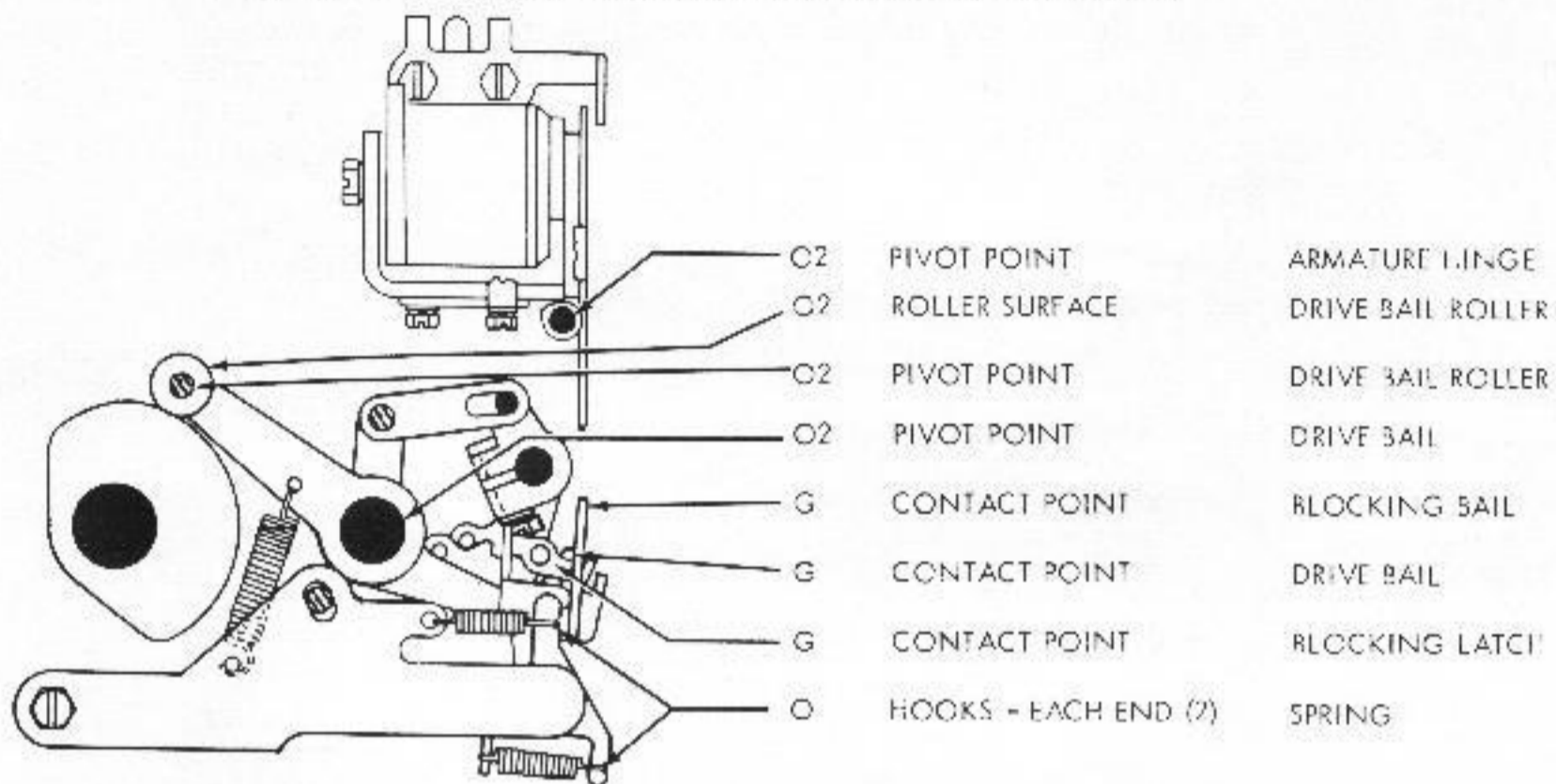
5.36 REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM



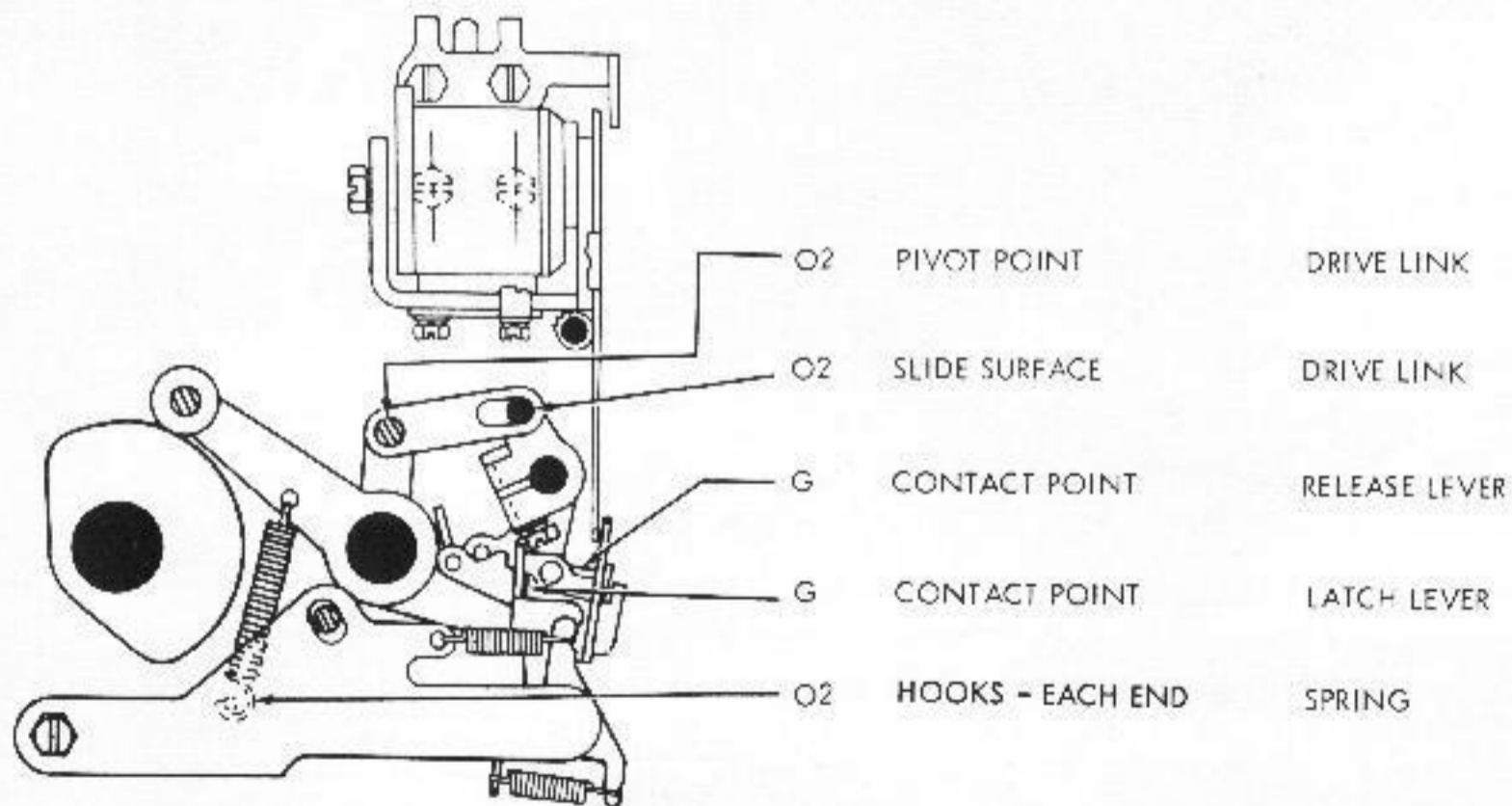
5.37 REMOTE CONTROL NON-INTERFERING LETTERS TAPE FEED-OUT MECHANISM



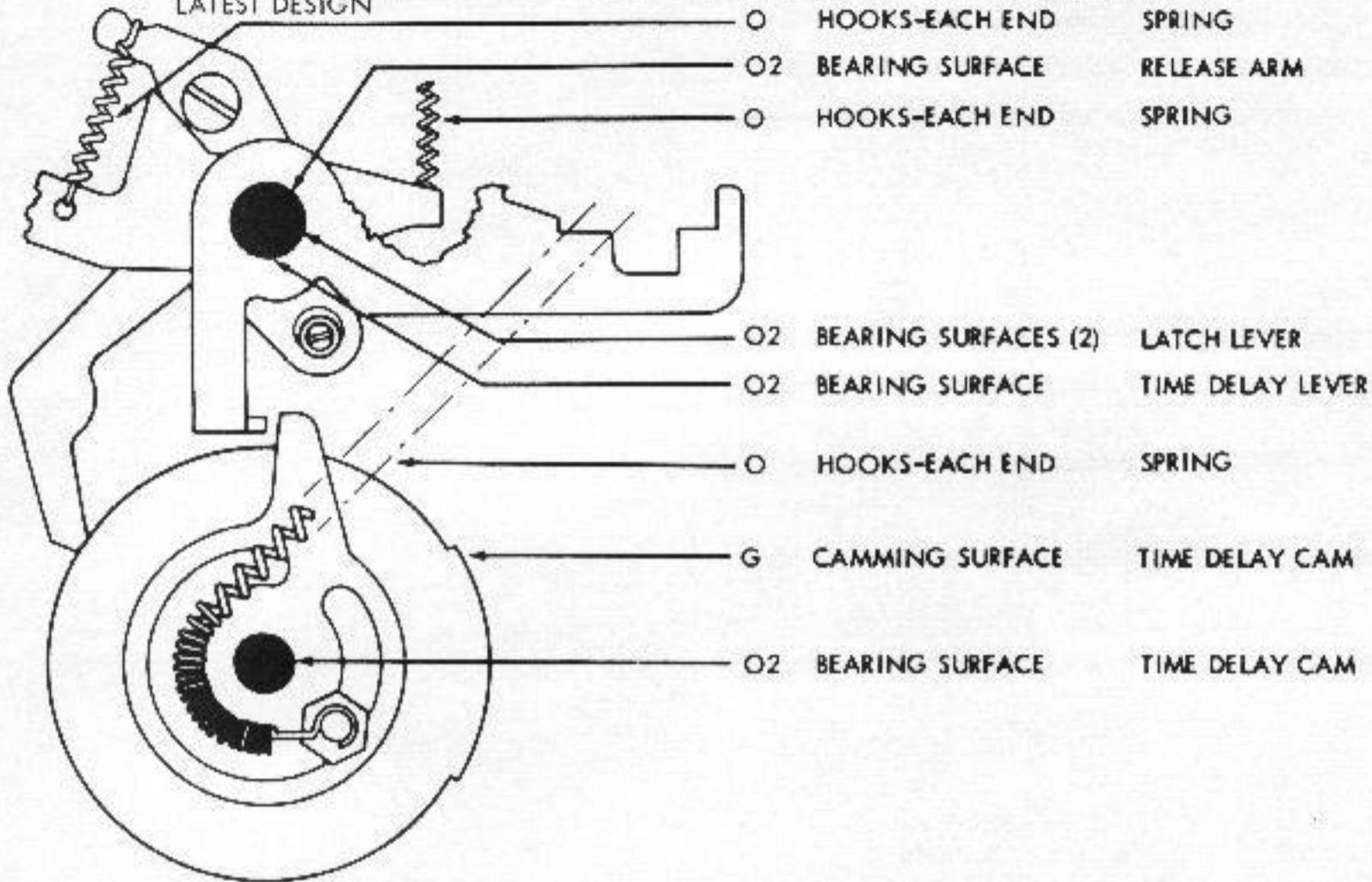
5.38 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN - FOR EARLIER DESIGN SEE PARAGRAPH 5.01 TO 5.10



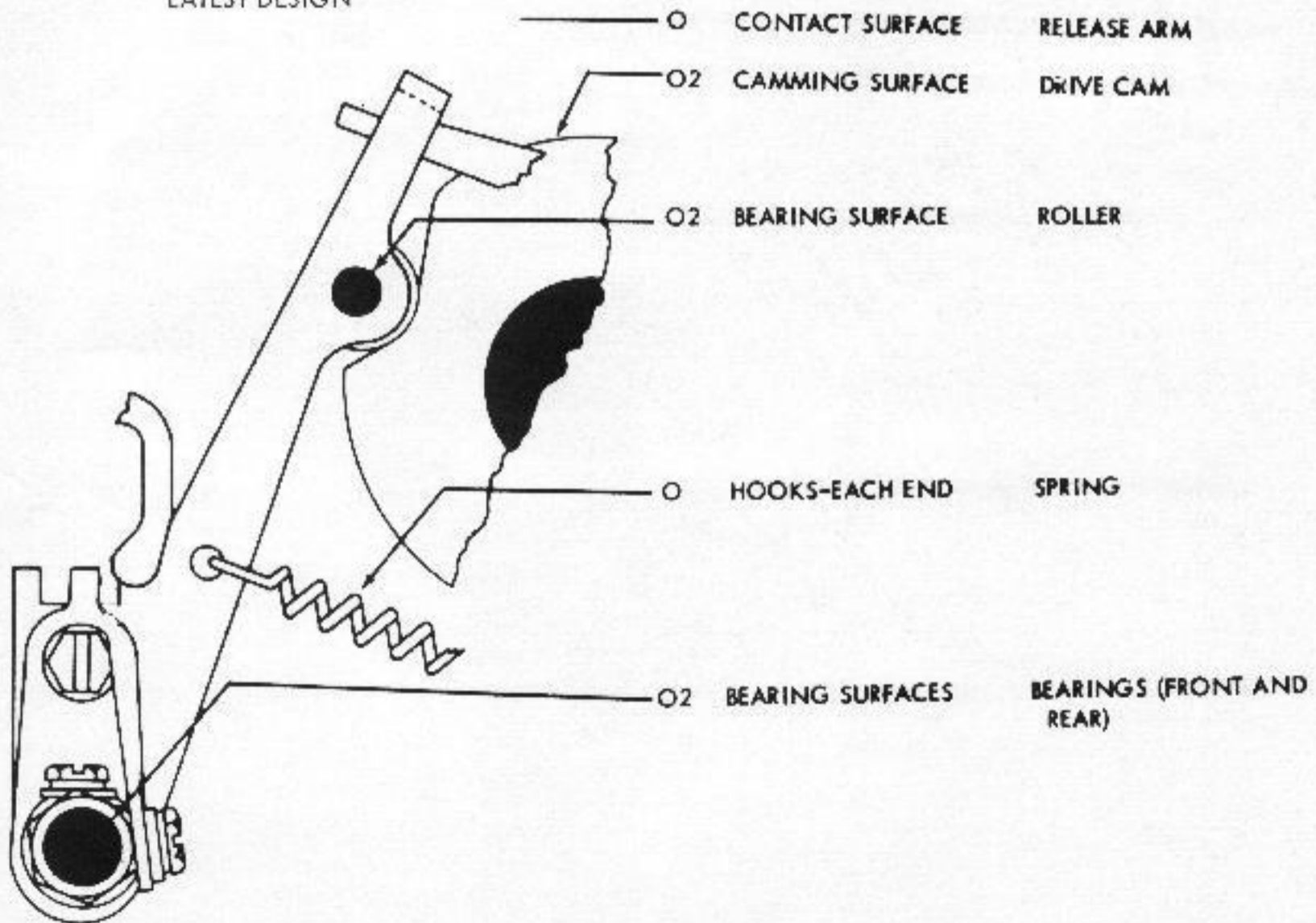
5.39 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN



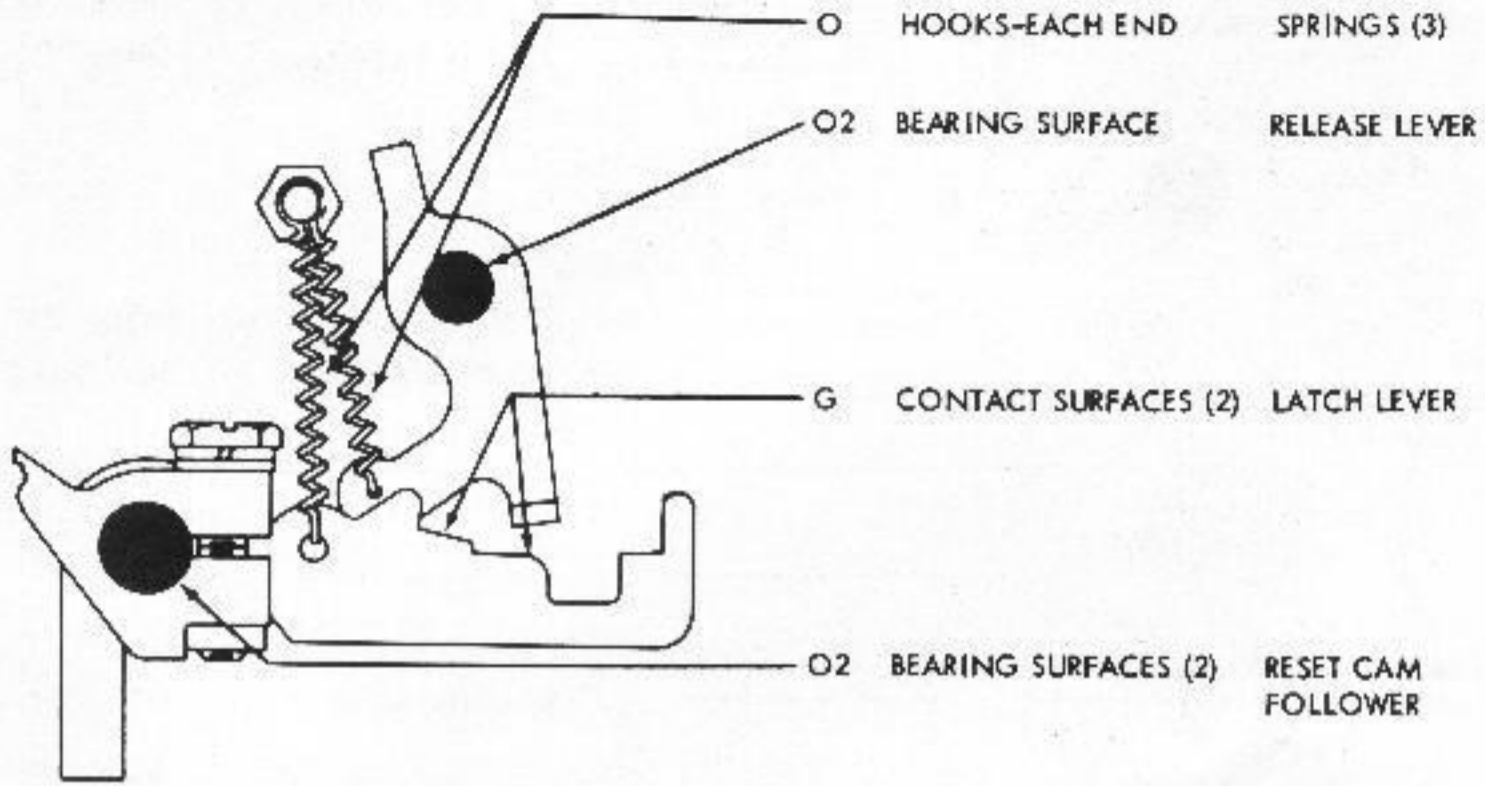
5.40 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN



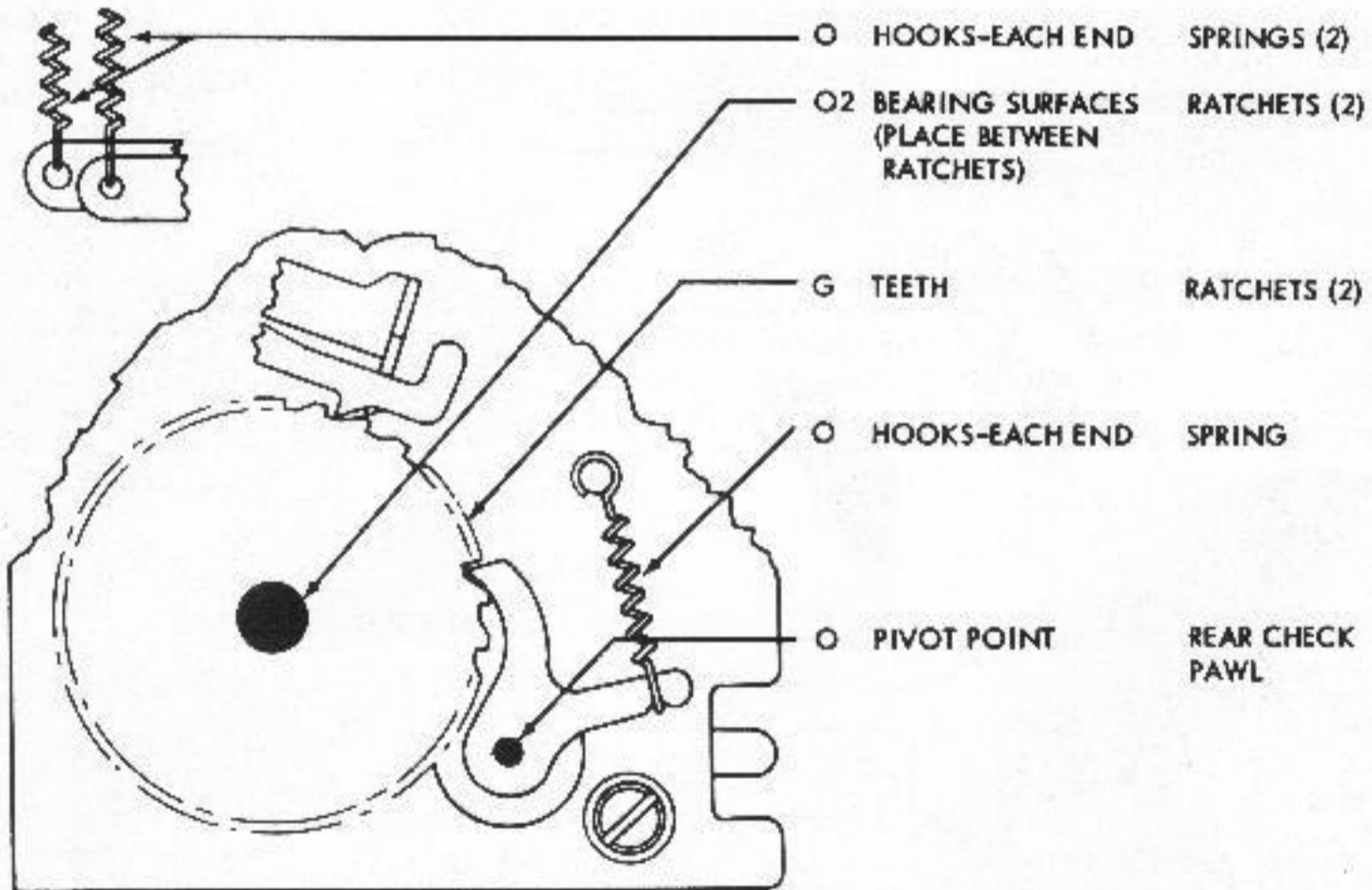
5.41 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN



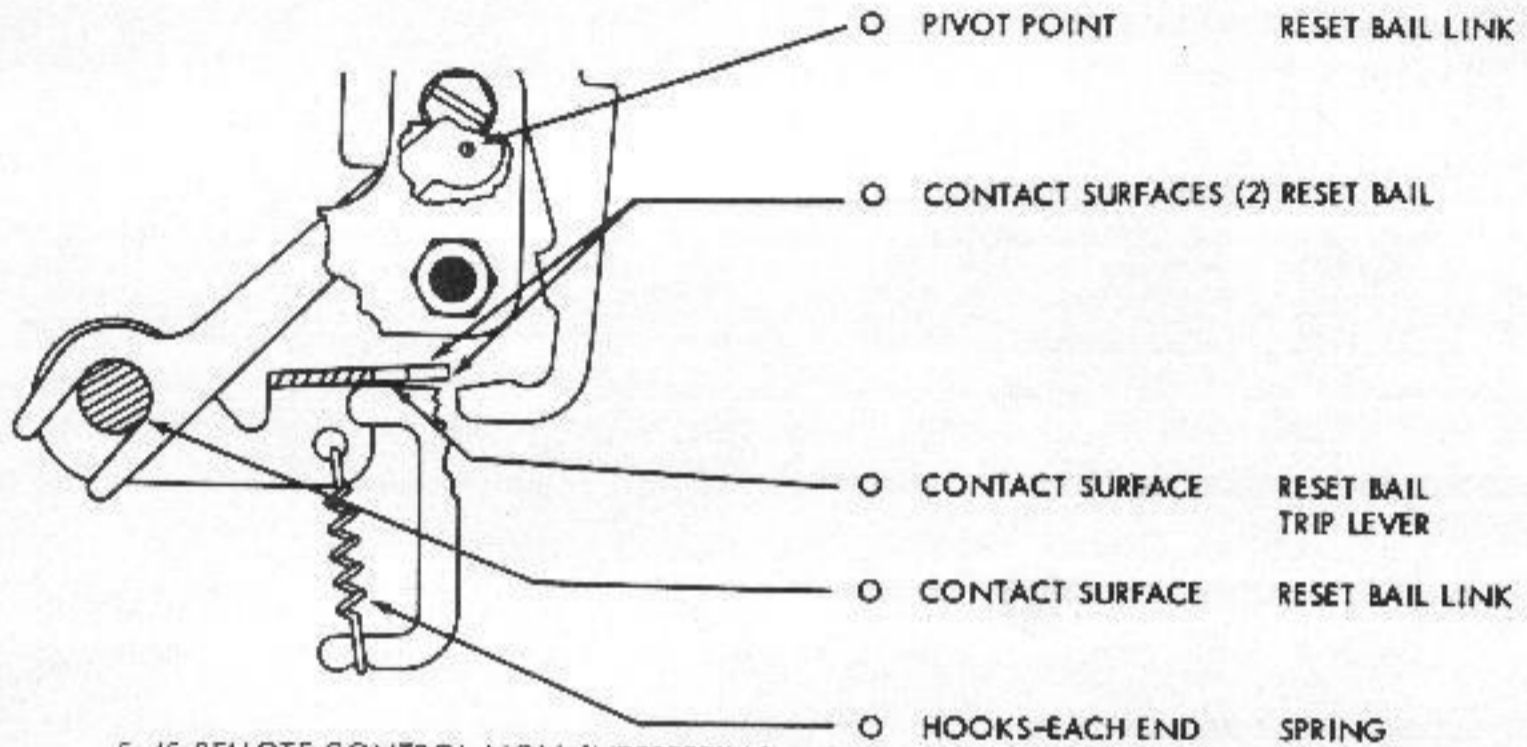
5.42 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN



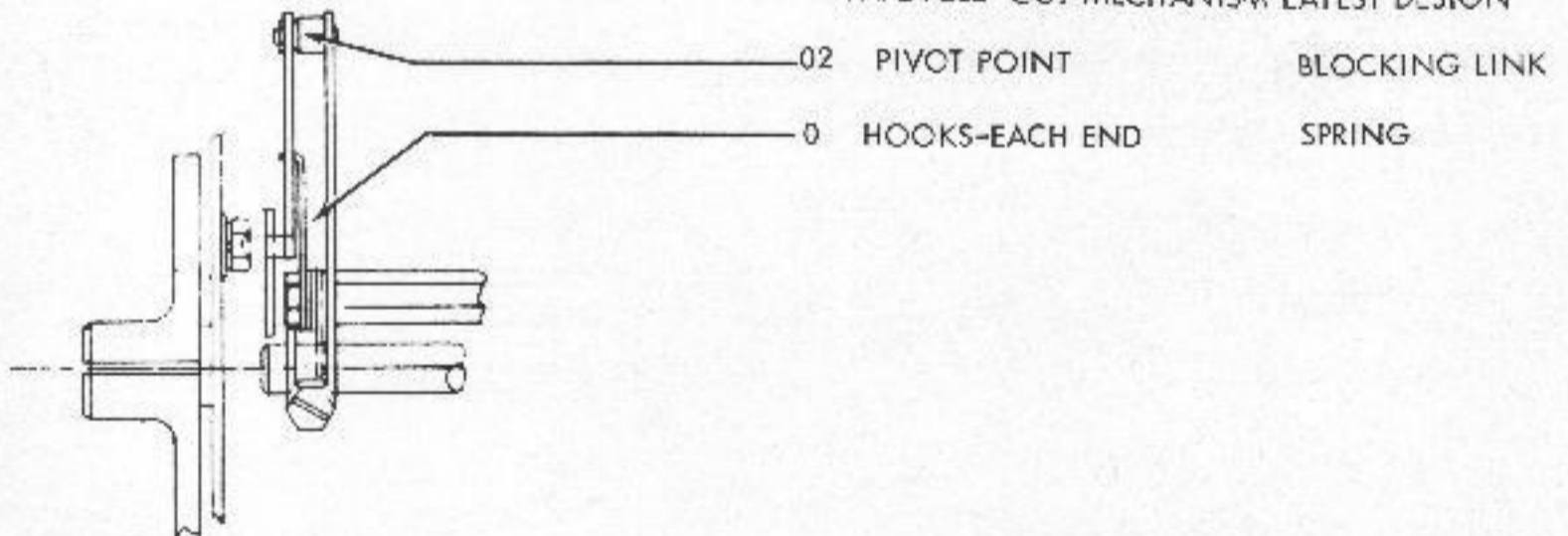
5.43 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN



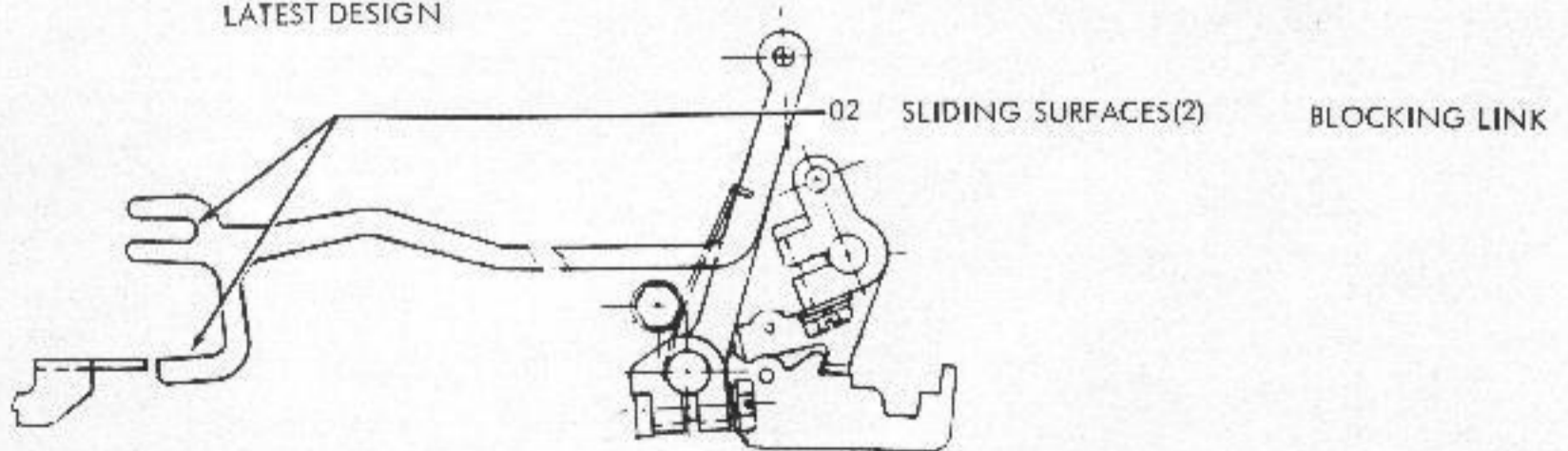
5.44 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN



5.45 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM LATEST DESIGN

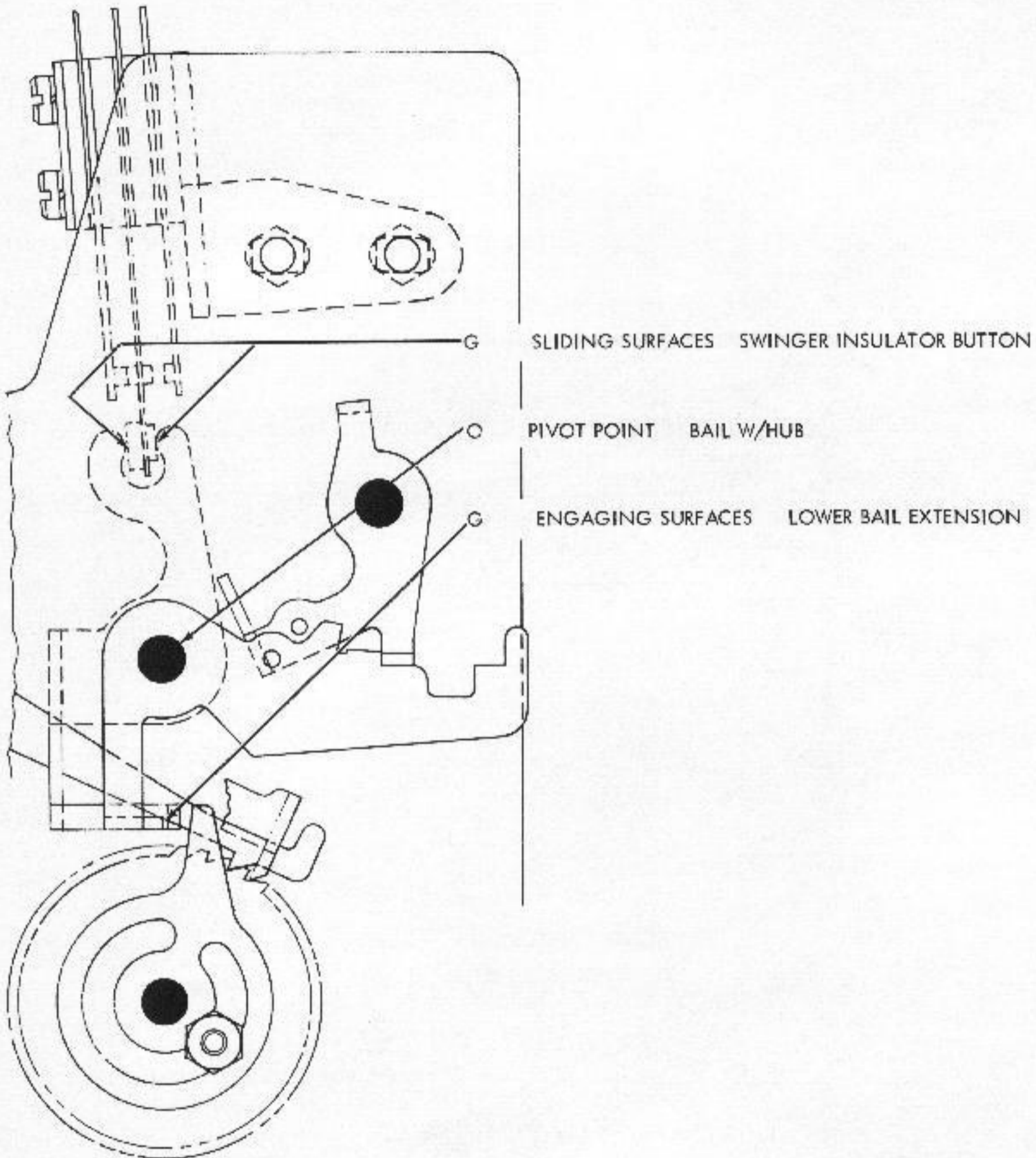


5.46 REMOTE CONTROL NON-INTERFERING BLANK TAPE FEED-OUT MECHANISM
LATEST DESIGN



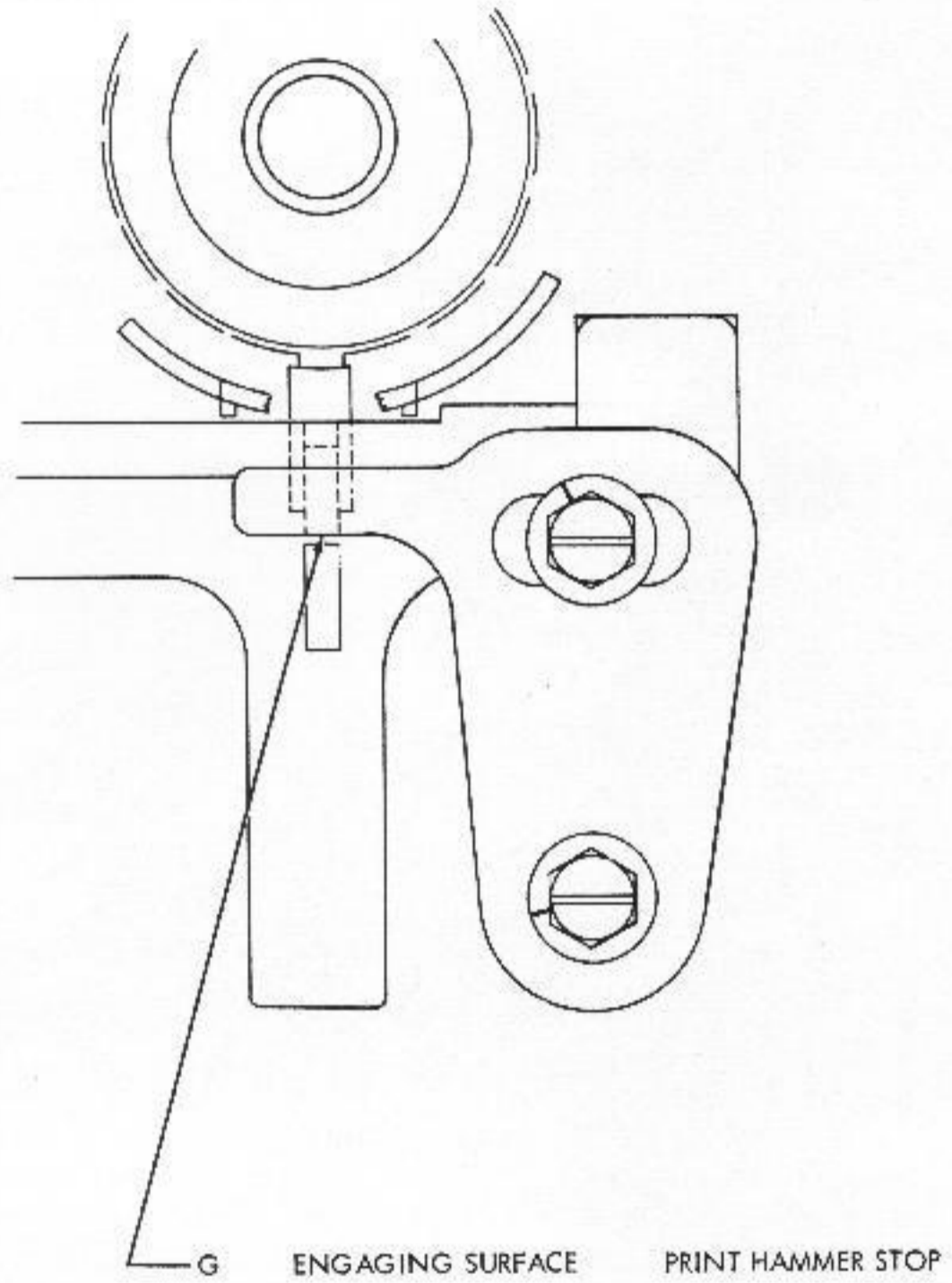
5.47

END OF FEED-OUT TIMING CONTACT FOR NON-INTERFERING LETTERS AND BLANK FEED-OUT MECHANISMS.

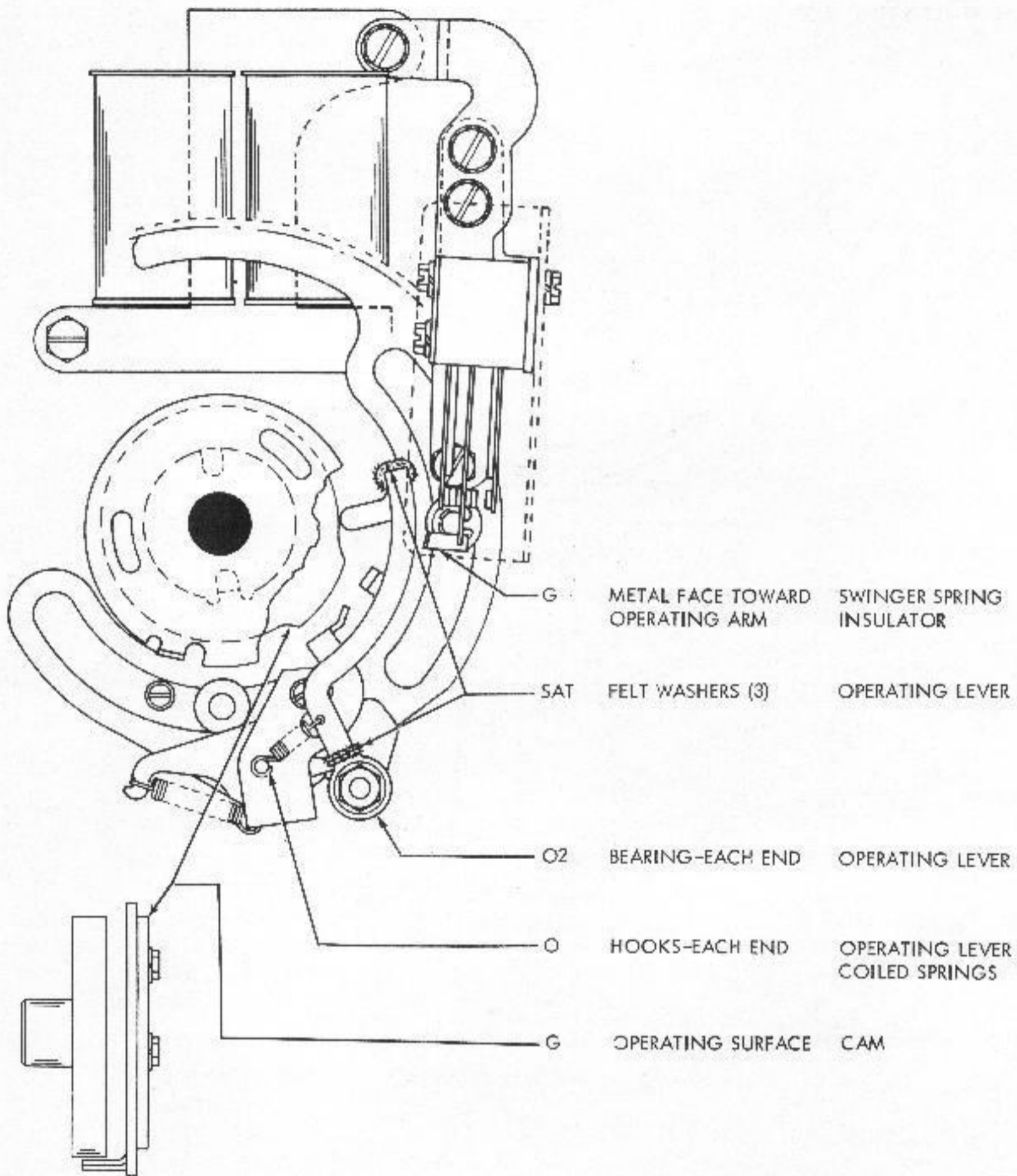


5.48

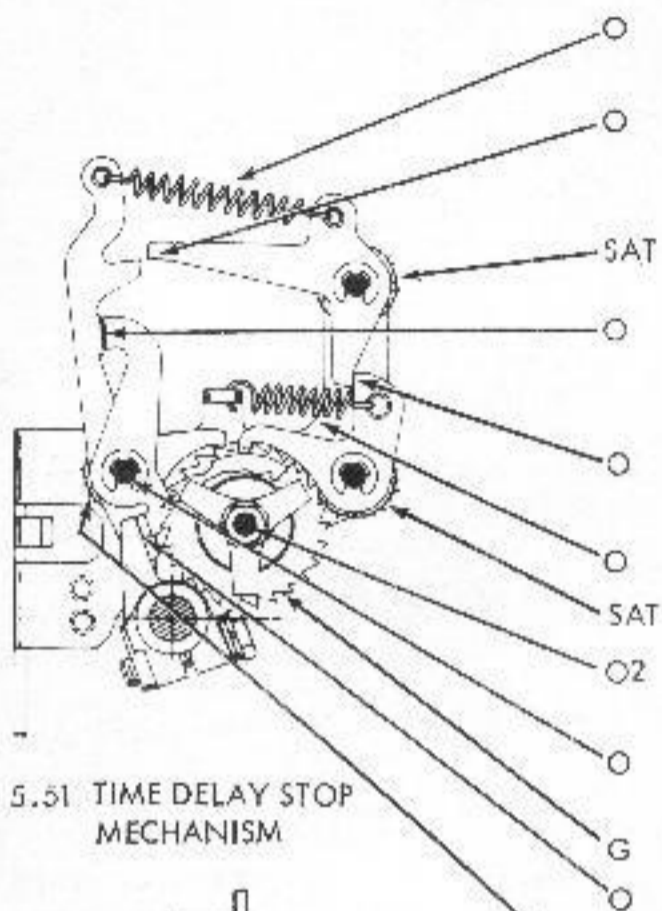
PRINT SUPPRESSION ON FUNCTION



5.49 TIMING CONTACT MECHANISM (OPERATED BY SELECTOR)



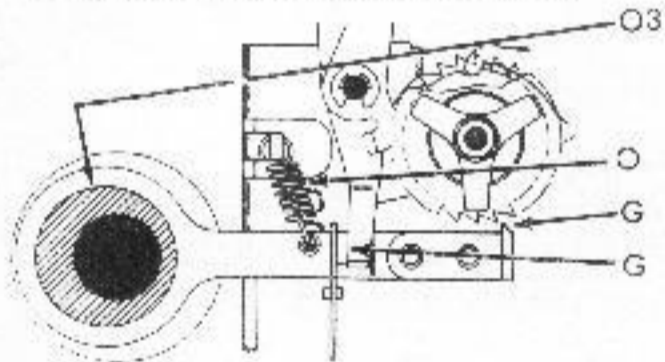
5.50 TIME DELAY STOP MECHANISM



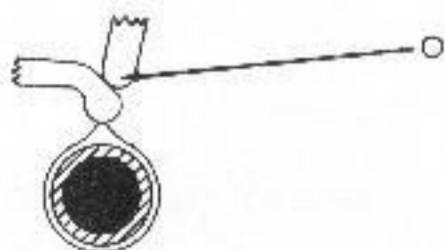
5.51 TIME DELAY STOP MECHANISM



5.52 TIME DELAY STOP MECHANISM

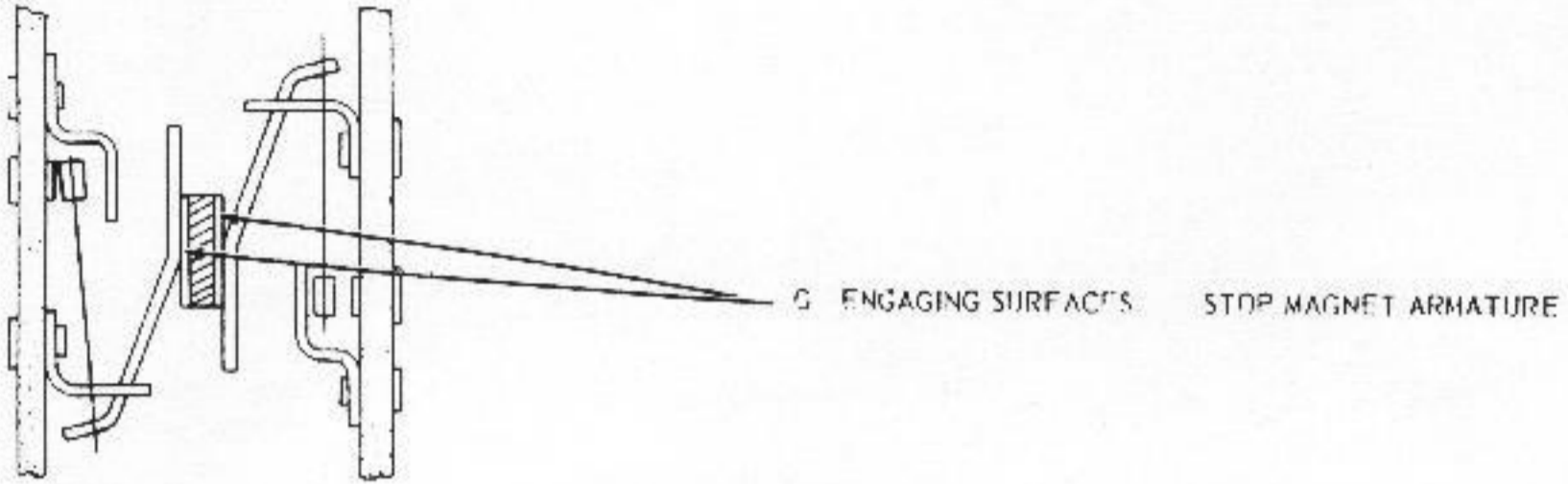


5.53 TIME DELAY STOP MECHANISM

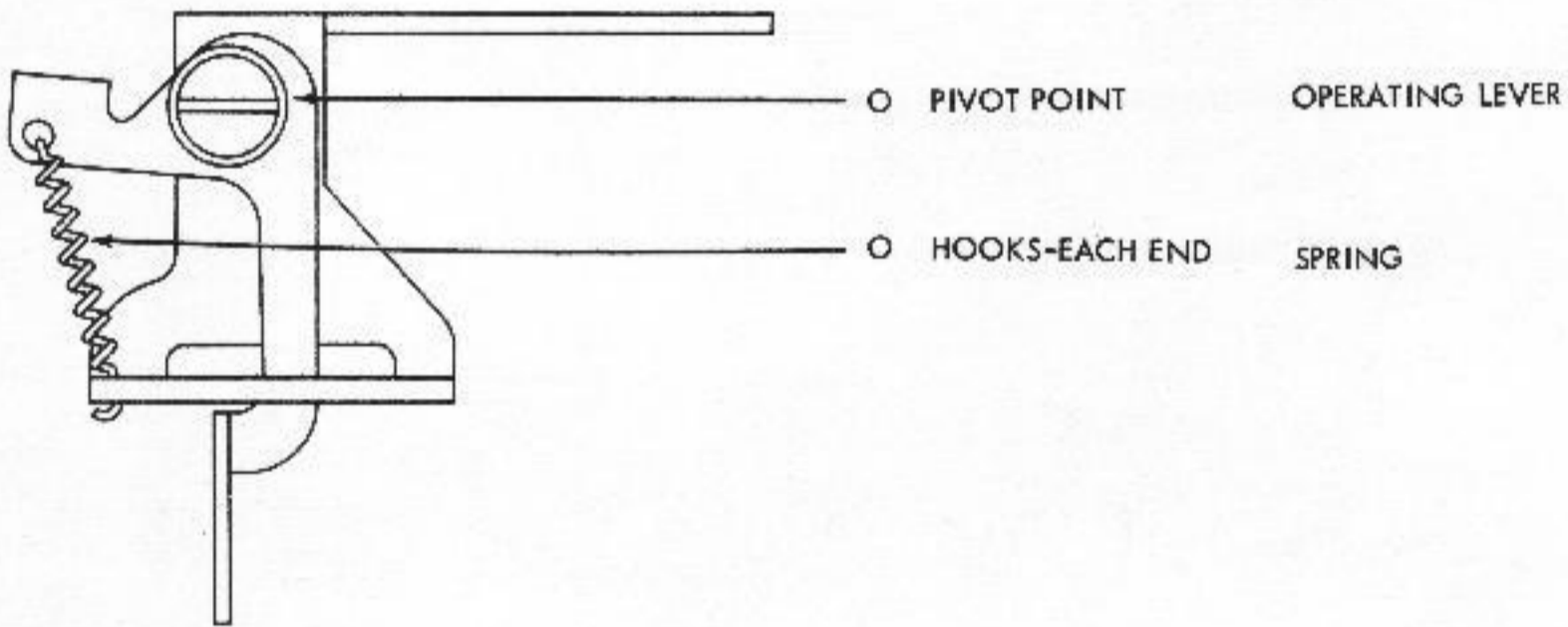


HOOKS-EACH END	SPRING
ENGAGING SURFACE	CONTACT OPERATING PAWL AND LATCH LEVER
SAT	LATCH LEVER
ENGAGING SURFACE	BELL CRANK AND CONTACT OPERATING PAWL
ENGAGING SURFACE	LATCH PAWL AND LATCH LEVER
HOOKS-EACH END	SPRING
FELT WASHERS	LATCH PAWL
O2	RATCHET WHEEL SHAFT
O	BELLCRANK AND SUPPORTING STUD
G	RATCHET WHEELS
O	CLAMP ARM AND BELLCRANK
SAT	CONTACT PAWL
O2	TIME DELAY RESET SHAFT BUSHING
O3	ECCENTRIC FOLLOWER DRIVE ARM AND ECCENTRIC
O	SPRING
G	DRIVE ARM
G	CONTACT OPERATING PAWL AND CONTACT INSULATOR
O	ENGAGING SURFACE
	SELECTOR RESET BAIL TIME DELAY RESET LEVER

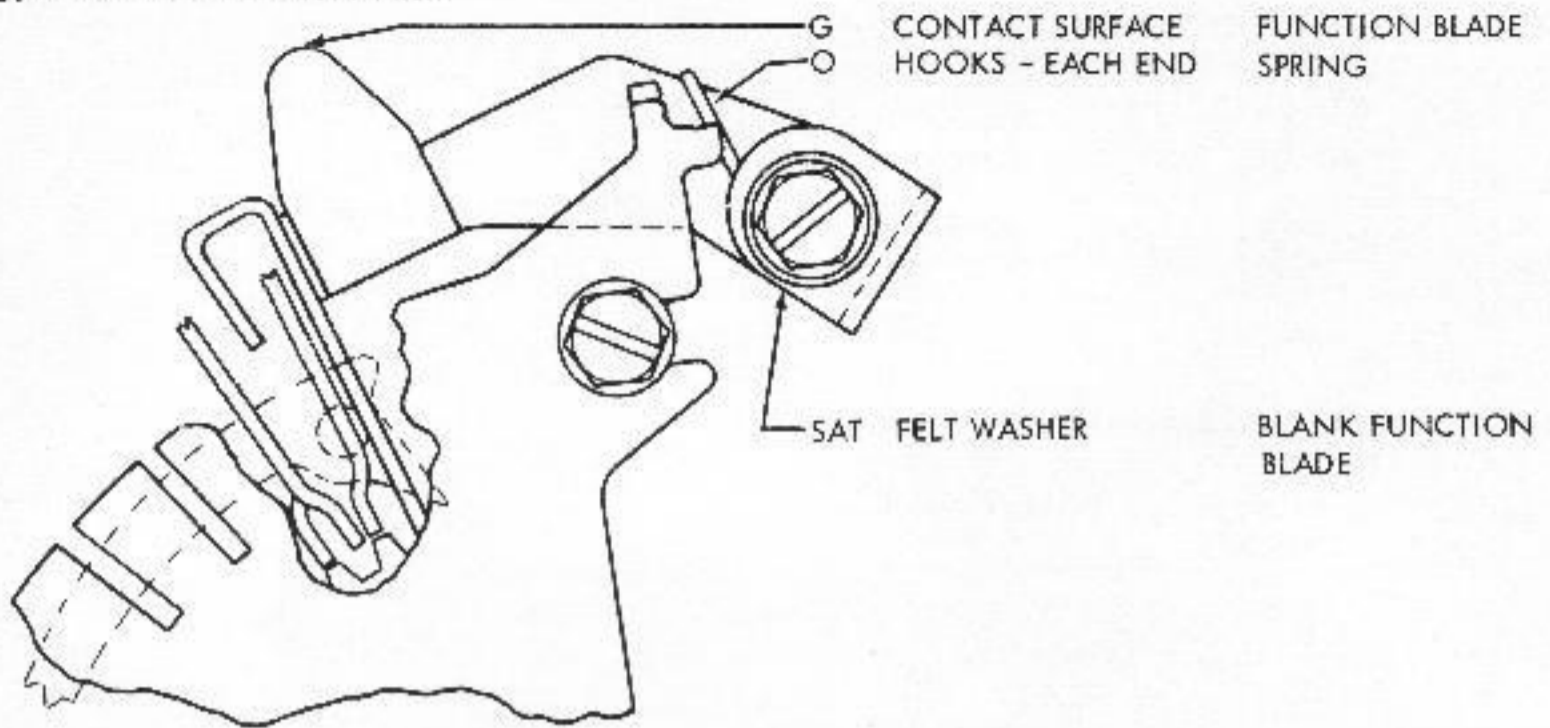
5.54
MOTOR CONTROL MECHANISM



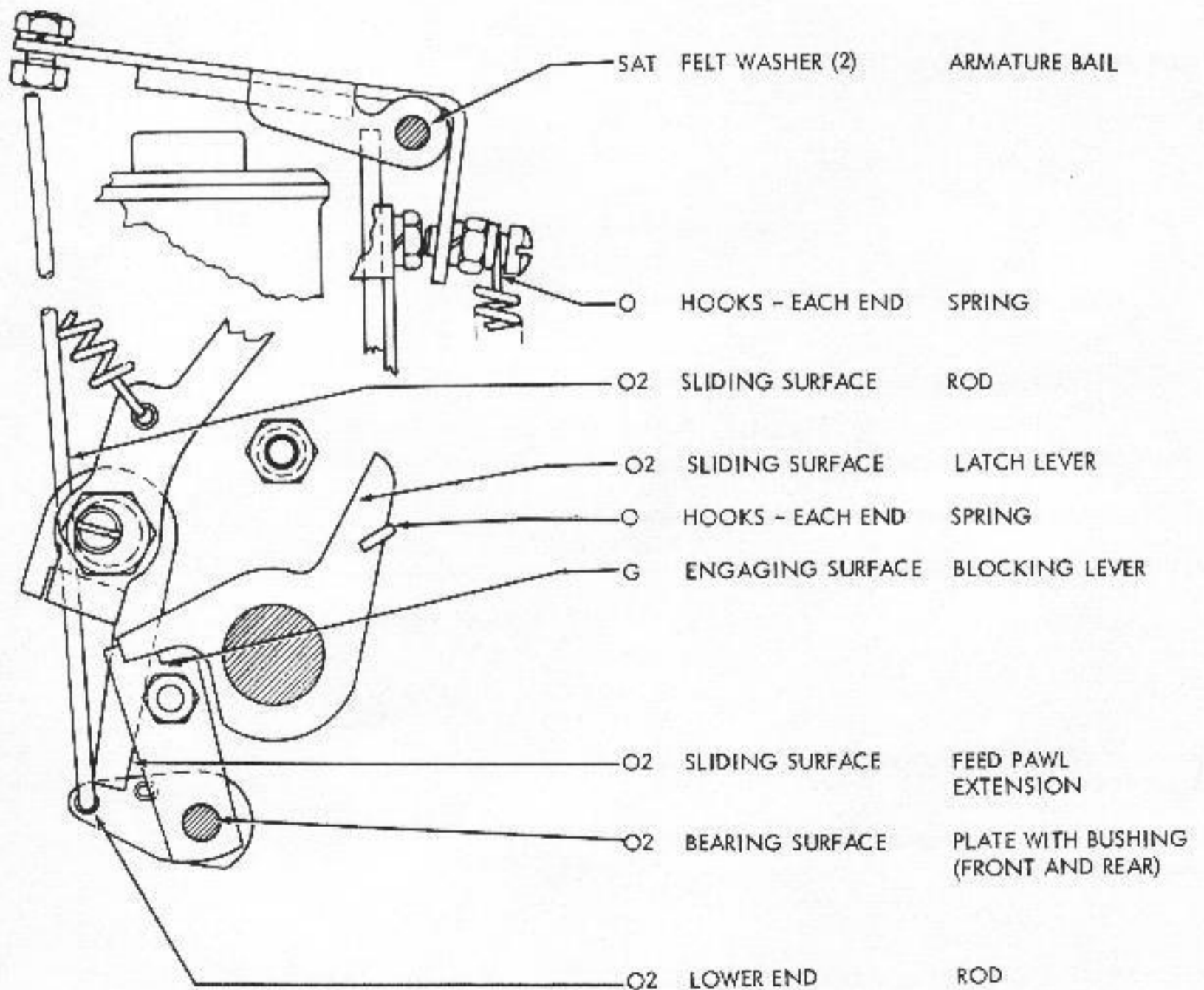
5.55 LETTERS-FIGURES CONTACT MECHANISM (DOES NOT APPLY TO EARLIER DESIGN)



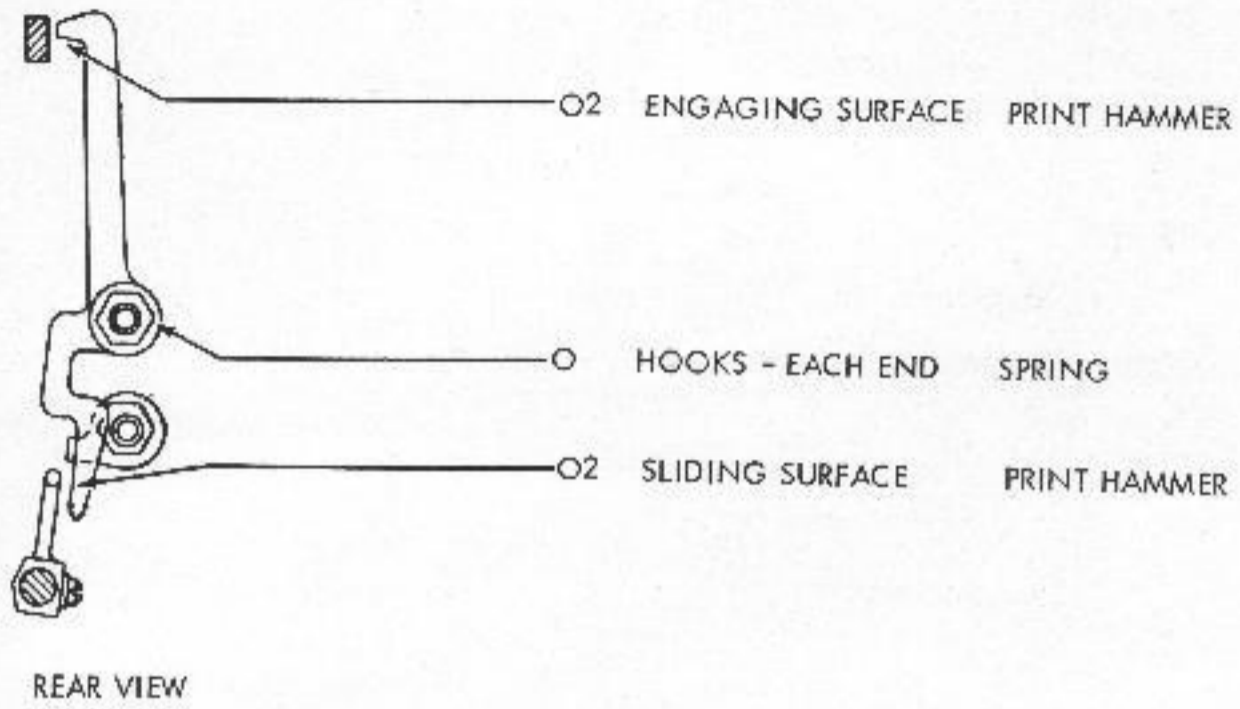
5.56 BLANK DELETE MECHANISM



5.57 BLANK DELETE MECHANISM

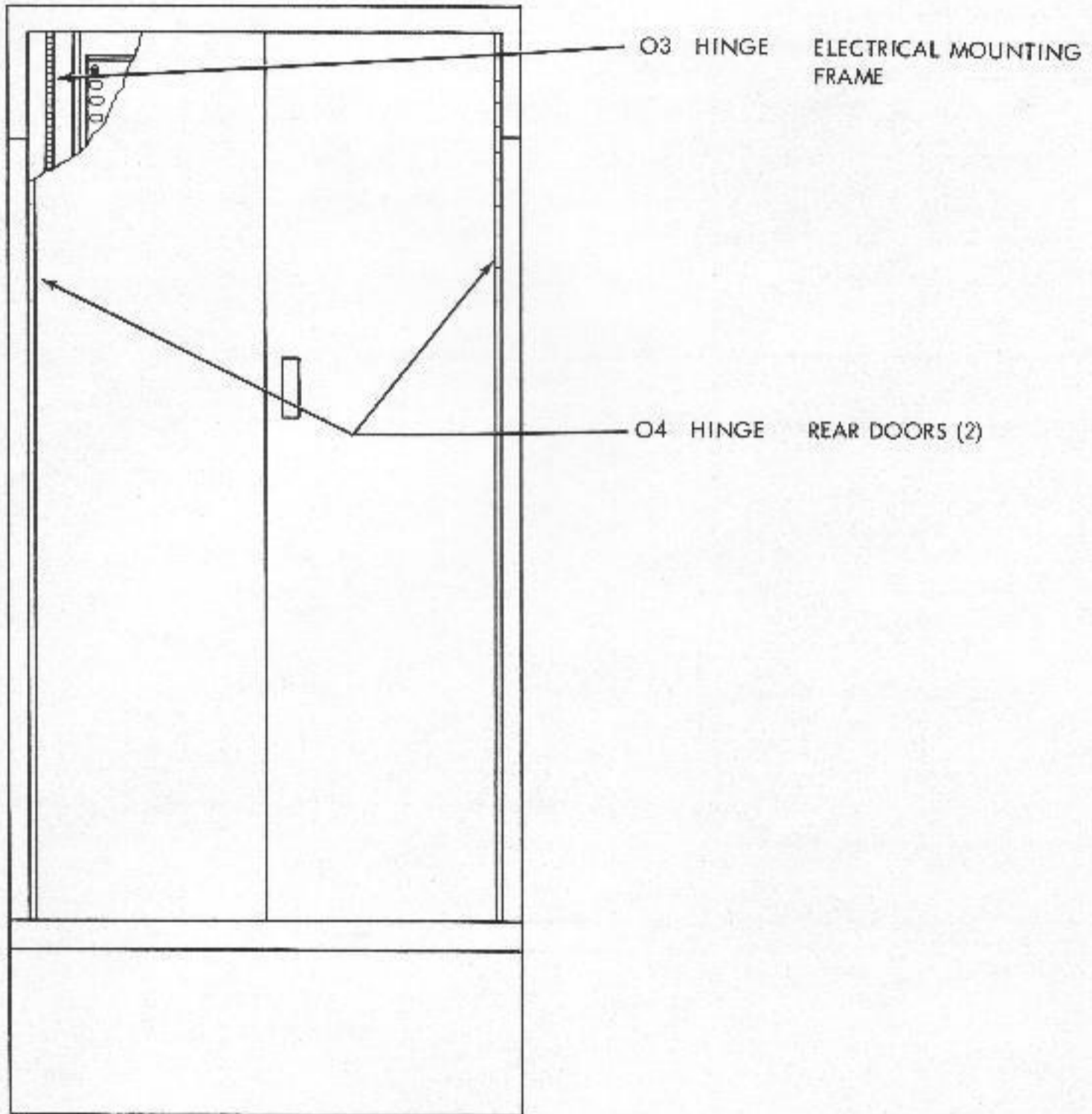


5.58 BLANK DELETE MECHANISM

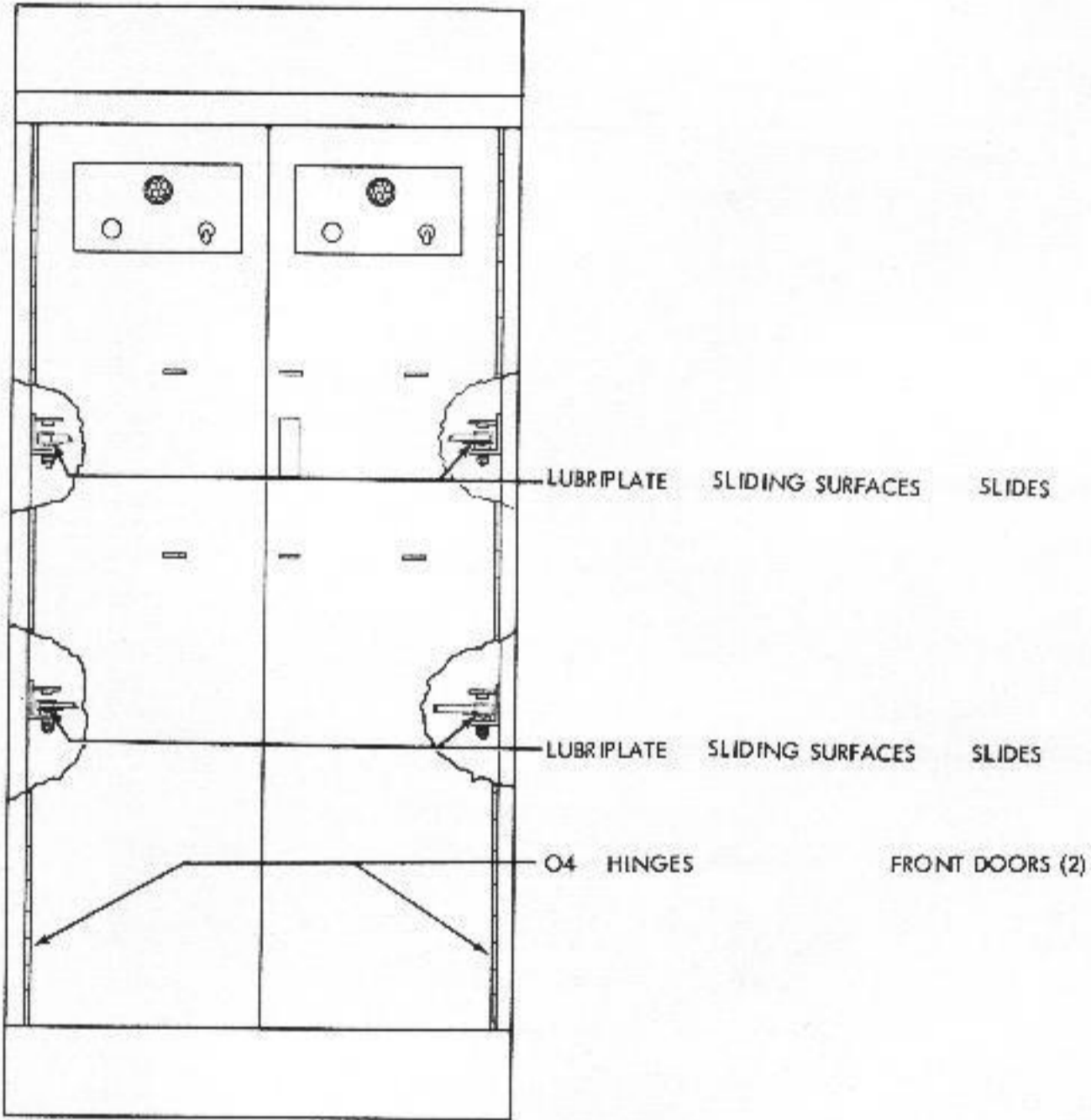


6. MULTIPLE CABINET

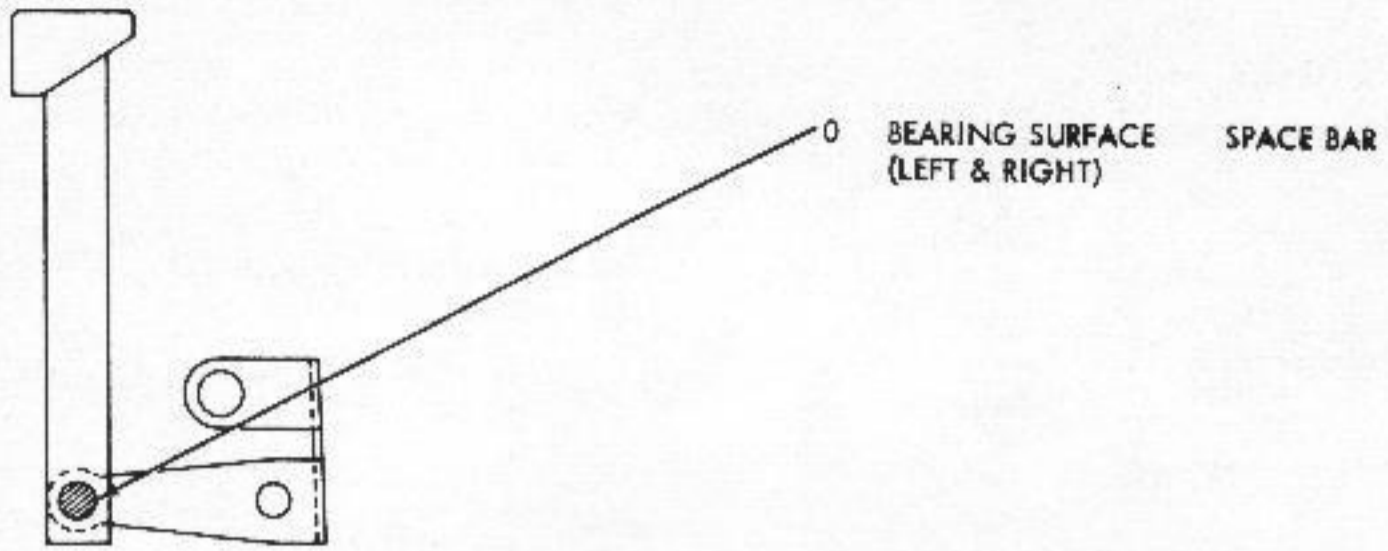
6.01 MULTIPLE CABINET - REAR VIEW



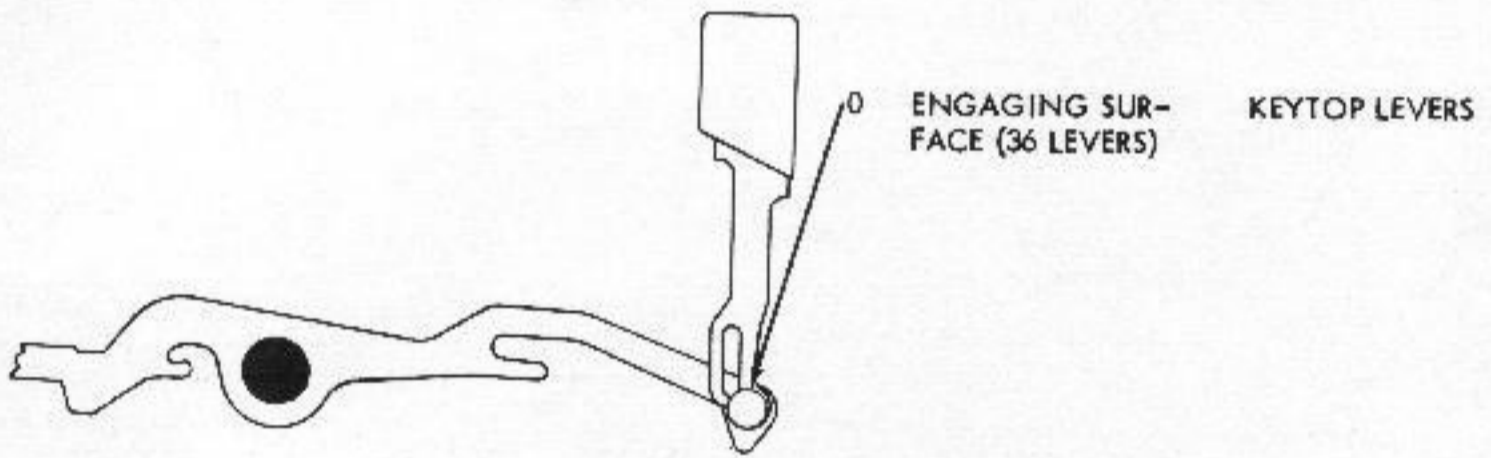
6.02 MULTIPLE CABINET



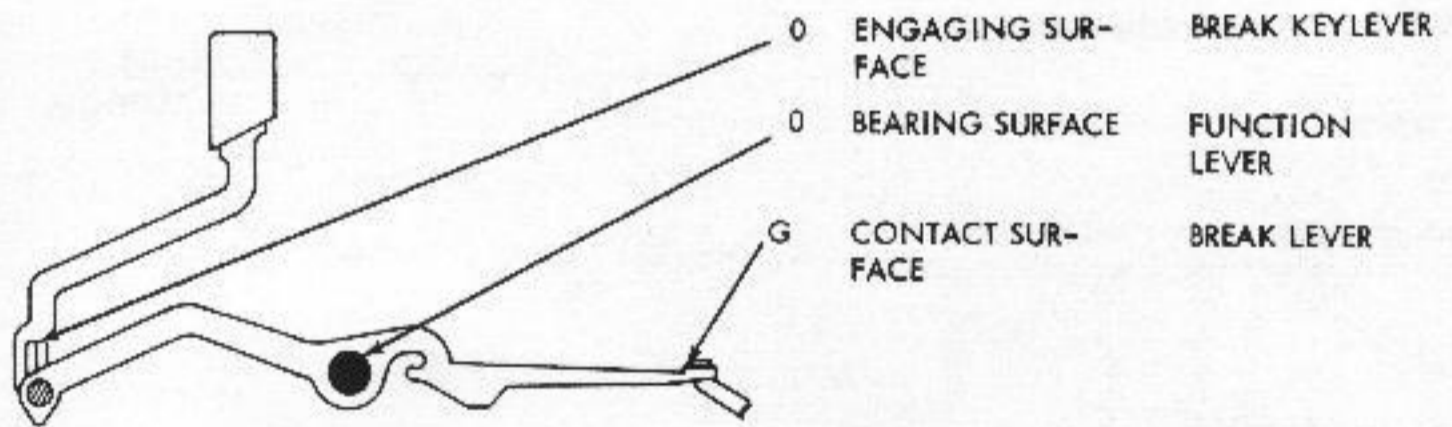
7. KEYBOARD (SEND-RECEIVE TYPING REPERFORATOR SET)
 7.01 SPACE BAR MECHANISM



7.02 KEYLEVER MECHANISM

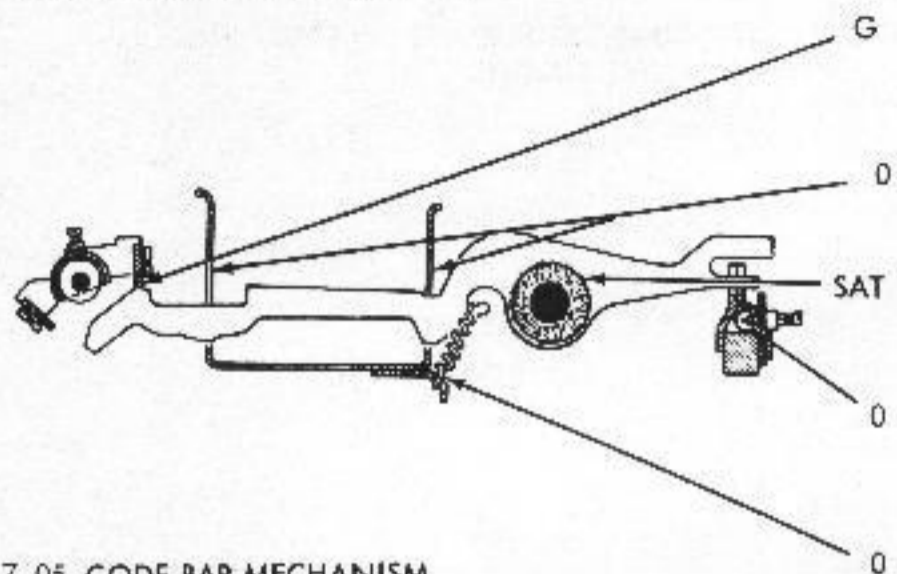


7.03 BREAK LEVER MECHANISM



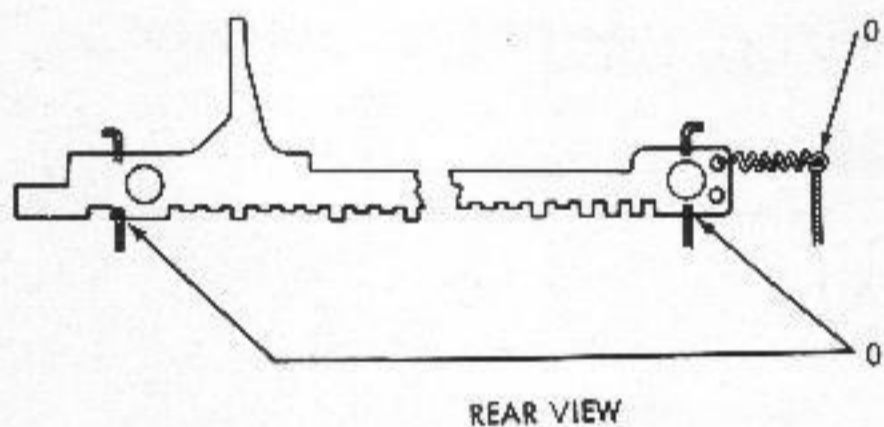
REST KEYBOARD IN UPRIGHT POSITION

7.04 CODE LEVER MECHANISM



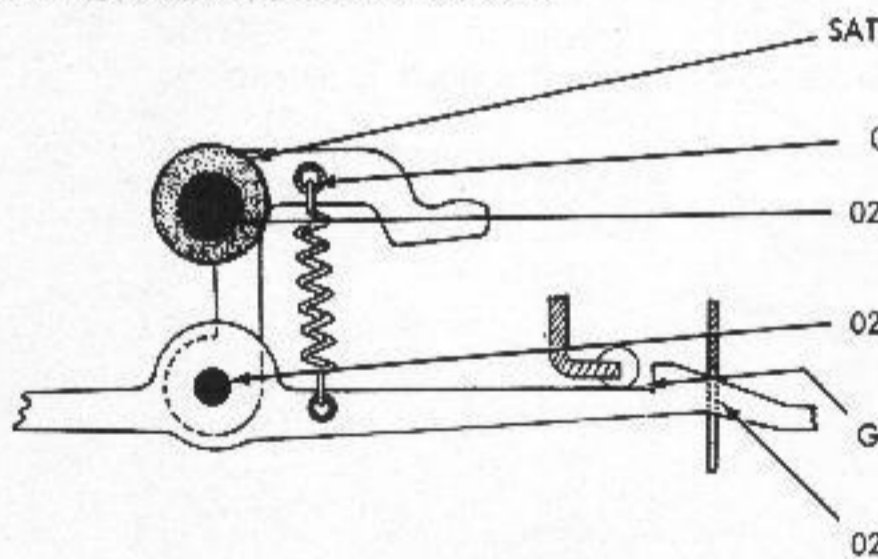
- G CONTACTING SURFACE (32 LEVERS) CODE LEVER UNIVERSAL BAIL
- 0 GUIDE SLOTS (32 LEVERS) CODE LEVERS
- SAT FELT WASHERS (6 WASHERS) CODE LEVER SHAFT
- 0 BEARING SURFACE (32 WEDGES) LOCK BALL TRACK
- 0 HOOKS-EACH END (40 SPRINGS) SPRING

7.05 CODE BAR MECHANISM



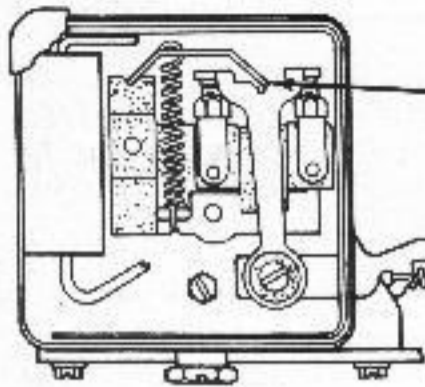
- 0 HOOKS-EACH END (7 SPRINGS) SPRING
- 0 GUIDE SLOTS (LEFT AND RIGHT-TOP AND BOTTOM) CODE BAR GUIDES

7.06 NON-REPEAT LEVER MECHANISM



- SAT FELT WASHER NON-REPEAT LEVER CRANK
- 0 HOOKS-EACH END SPRING
- 02 BEARING SURFACE NON-REPEAT LEVER CRANK
- 02 BEARING SURFACE NON-REPEAT LEVER
- G ENGAGING SURFACE NON-REPEAT LEVER
- 02 GUIDE SLOT NON-REPEAT LEVER

7.07 CONTACT BOX

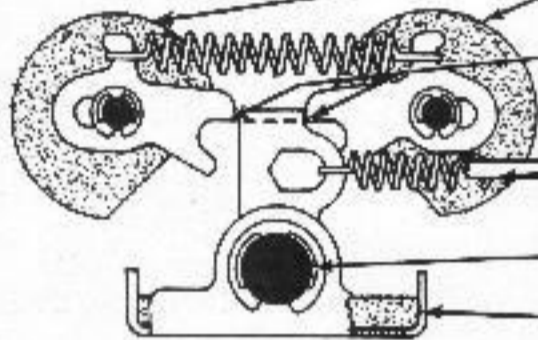


G ENGAGING SUR- CONTACT TOGGLE
FACE

0 HOOKS-EACH END SPRING

DISASSEMBLY: REMOVE NUT AND LOCK WASH-
ER SECURING CONTACT BOX
COVER AND REMOVE COVER.

7.08 TRANSFER BAIL MECHANISM



SAT FELT WASHERS LATCHES
(2 WASHERS)

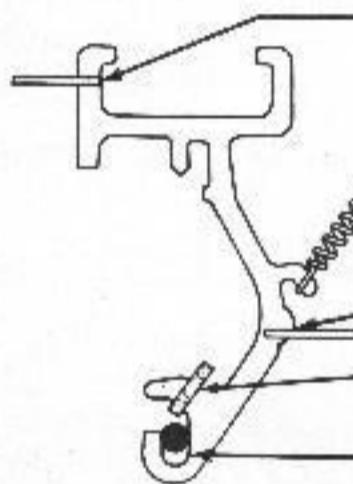
G ENGAGING SUR- TRANSFER BAIL
FACE

0 HOOKS-EACH END SPRING
(2 SPRINGS)

02 BEARING SURFACE TRANSFER BAIL

SAT OIL WICK TRANSFER BAIL

7.09 TRANSFER LEVER MECHANISM



0 GUIDE SLOTS TRANSFER LEVERS
(7 LEVERS)

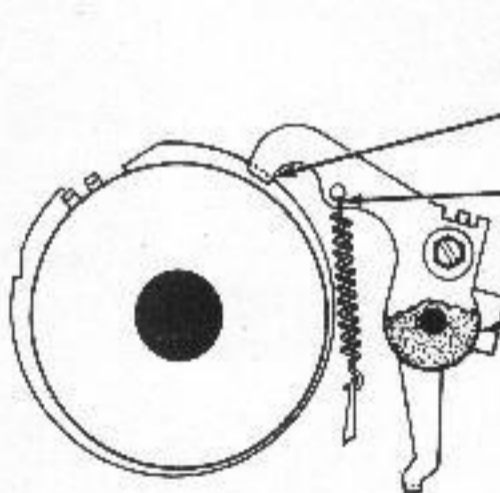
0 HOOKS-EACH END SPRING
(7 SPRINGS)

0 GUIDE SLOTS TRANSFER LEVERS
(7 LEVERS)

SAT FELT WASHERS CAMMING SURFACES
(4 WASHERS)

0 GUIDE SLOTS TRANSFER LEVERS
(7 LEVERS)

7.10 FUNCTION CLUTCH MECHANISM

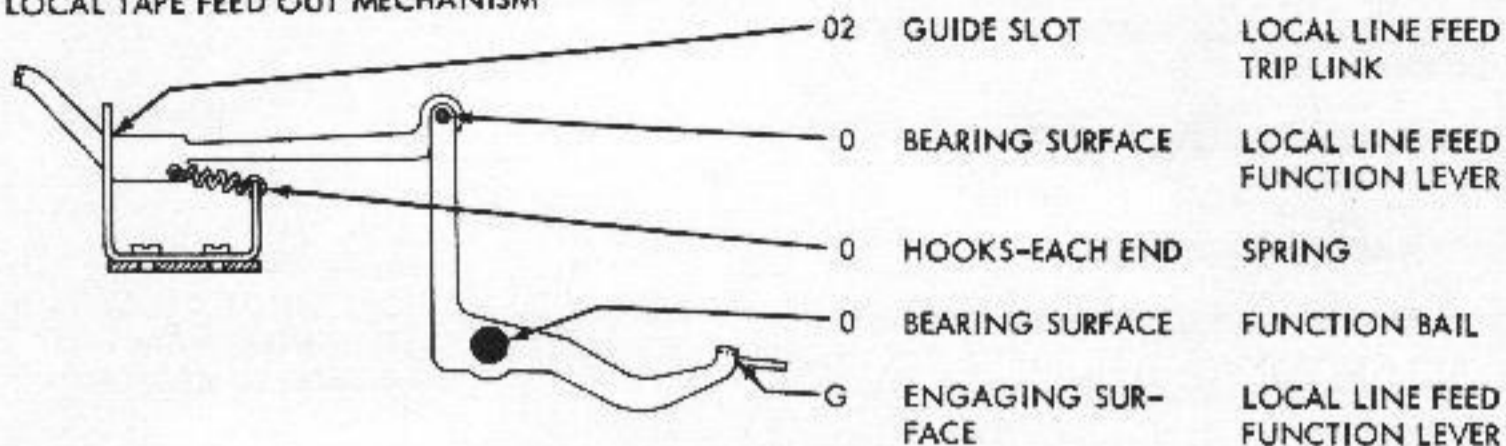


02 LATCHING SUR- CLUTCH STOP LEVER
FACE AND CLUTCH LATCH
LEVER

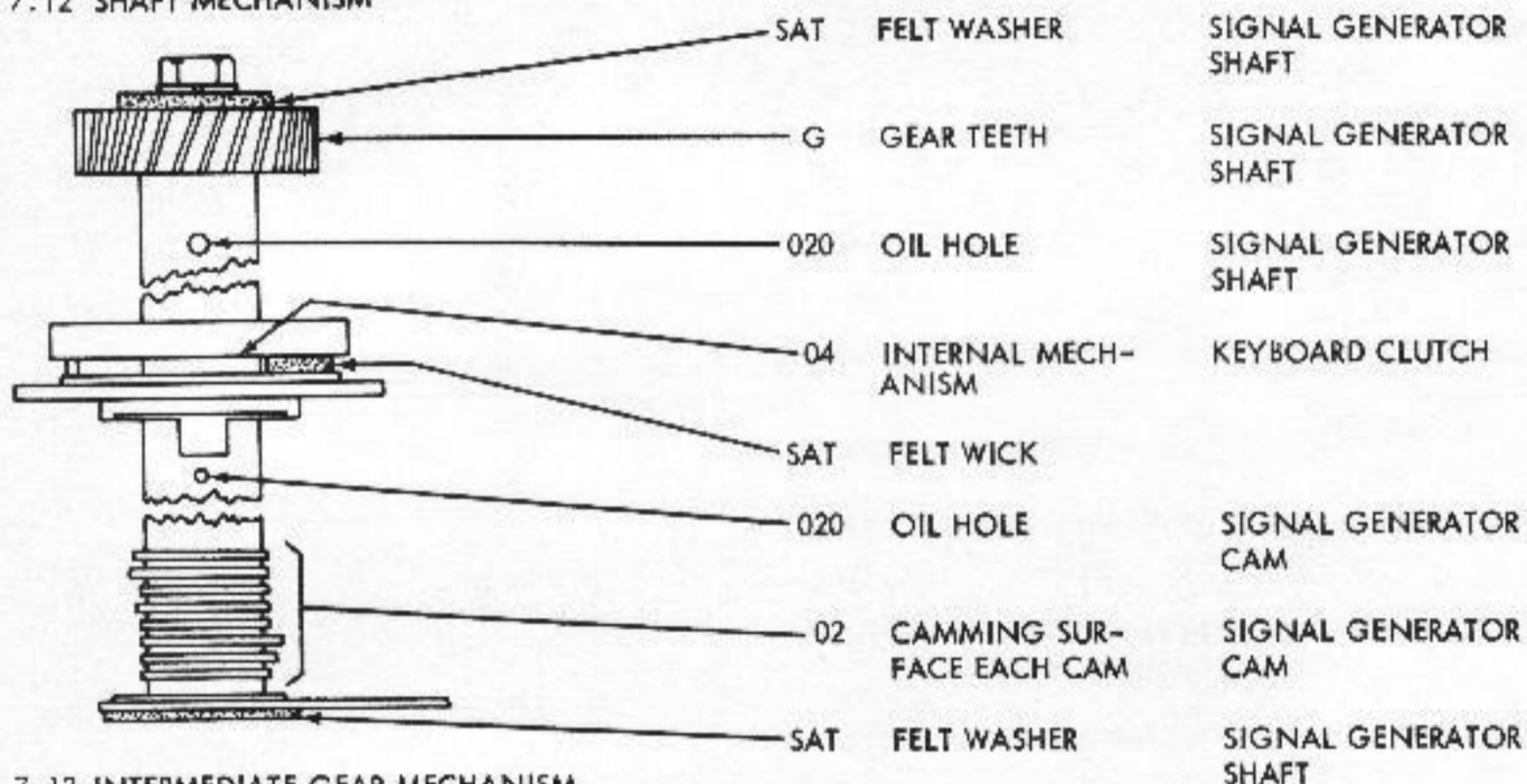
0 HOOKS-EACH END SPRING
(2 SPRINGS)

SAT FELT WASHERS (2 CLUTCH TRIP BAIL
FRONT & REAR)

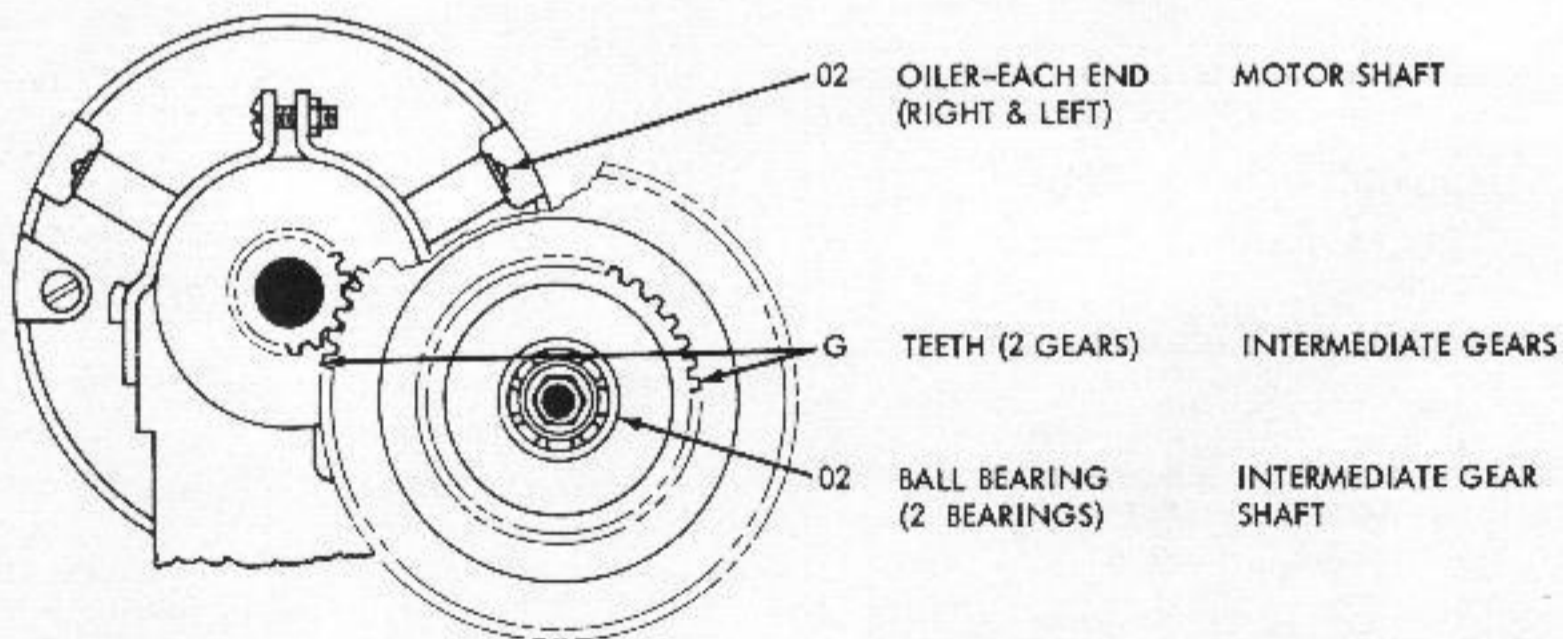
7.11 LOCAL TAPE FEED OUT MECHANISM



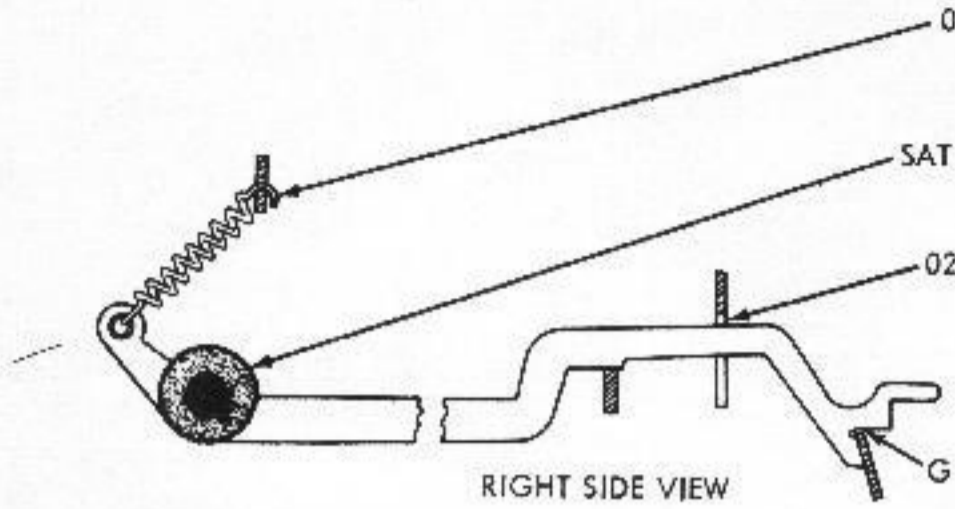
7.12 SHAFT MECHANISM



7.13 INTERMEDIATE GEAR MECHANISM

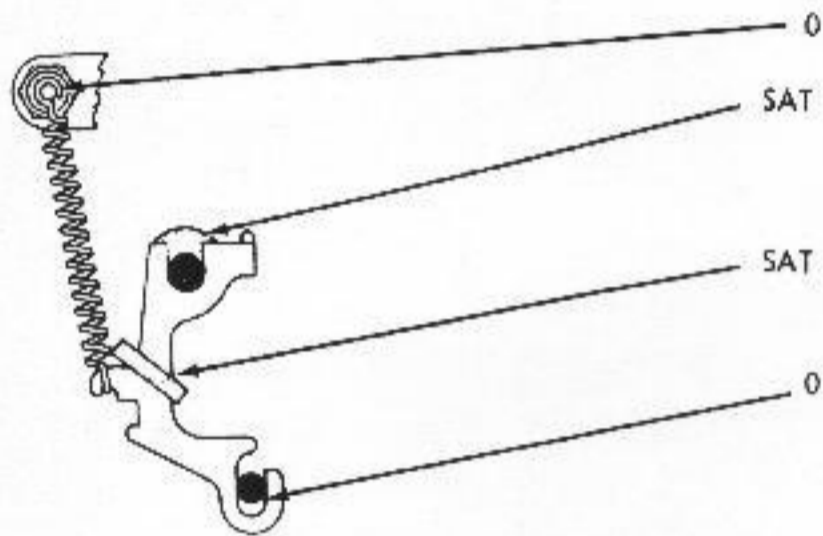


7.14 UNIVERSAL BAIL LATCH LEVER



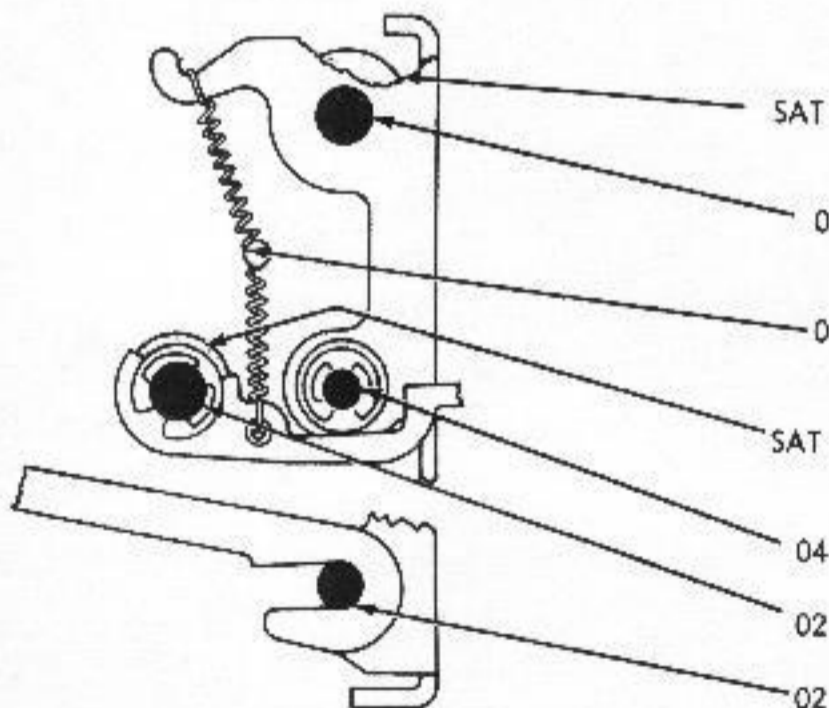
- 0 HOOKS (EACH END) SPRING
- SAT FELT WASHER UNIVERSAL BAIL LATCH LEVER
- 02 GUIDE SLOT (EACH SIDE OF SLOT) UNIVERSAL BAIL LATCH LEVER
- G ENGAGING SURFACE RESET BAIL LATCH

7.15 LOCKING BAIL MECHANISM



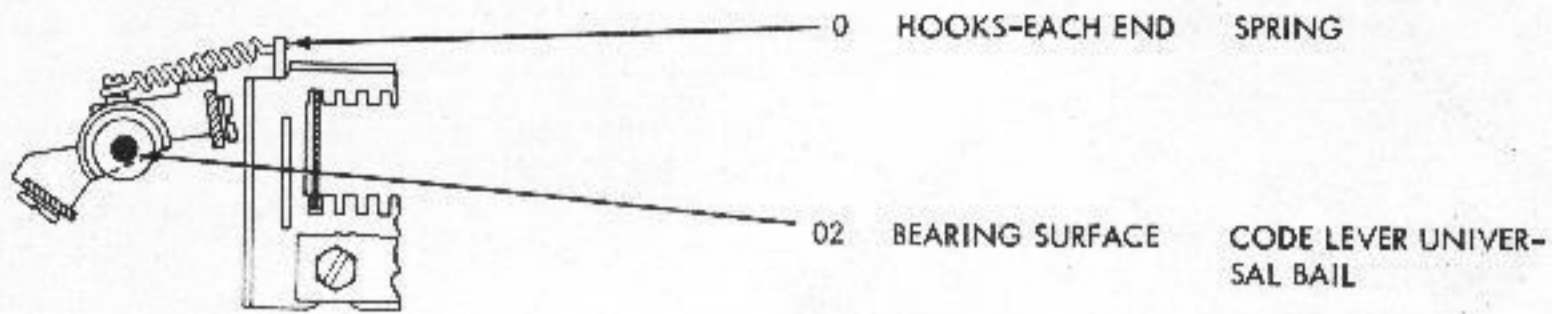
- 0 HOOKS-EACH END SPRING
- SAT FELT WASHERS (2 WASHERS - FRONT AND REAR) LOCKING BAIL POST
- SAT FELT WICK CAMMING SURFACES
- 0 GUIDE SLOTS (3 SLOTS) LOCKING BAIL

7.16 CODE BAR BAIL MECHANISM

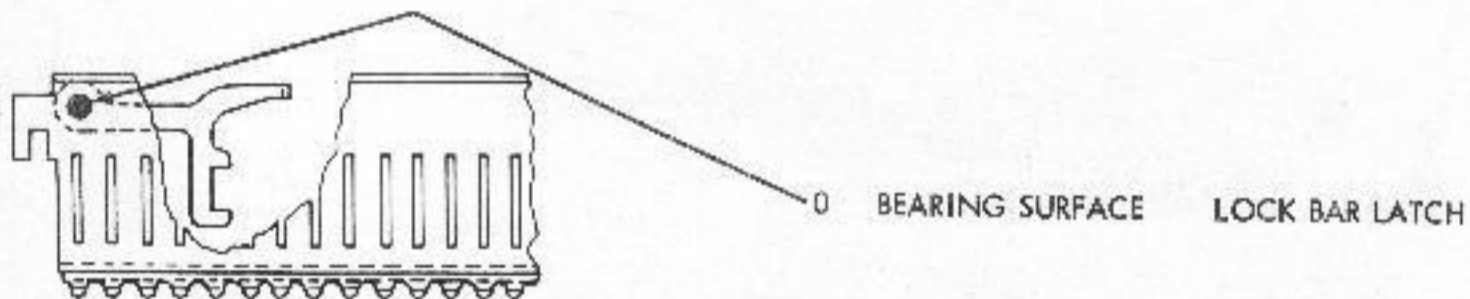


- SAT FELT WASHERS (TWO WASHERS) CODE BAR BAIL
- 0 BEARING SURFACE (2 PLACES) CODE BAR BAIL
- 0 HOOKS-EACH END (2 SPRINGS) SPRING
- SAT FELT WASHER CODE BAR BAIL LATCH
- 04 BEARING CODE BAR BAIL
- 02 BEARING SURFACE CODE BAR BAIL LATCH
- 02 ENGAGING SURFACE ECCENTRIC FOLLOWER

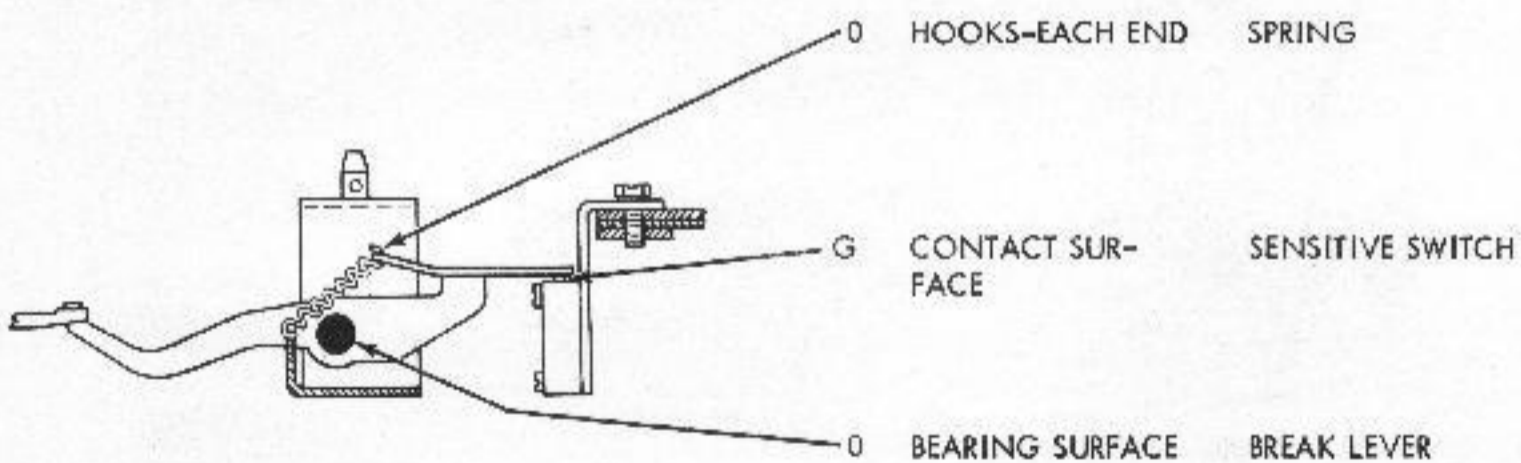
7.17 CODE LEVER UNIVERSAL BAIL MECHANISM



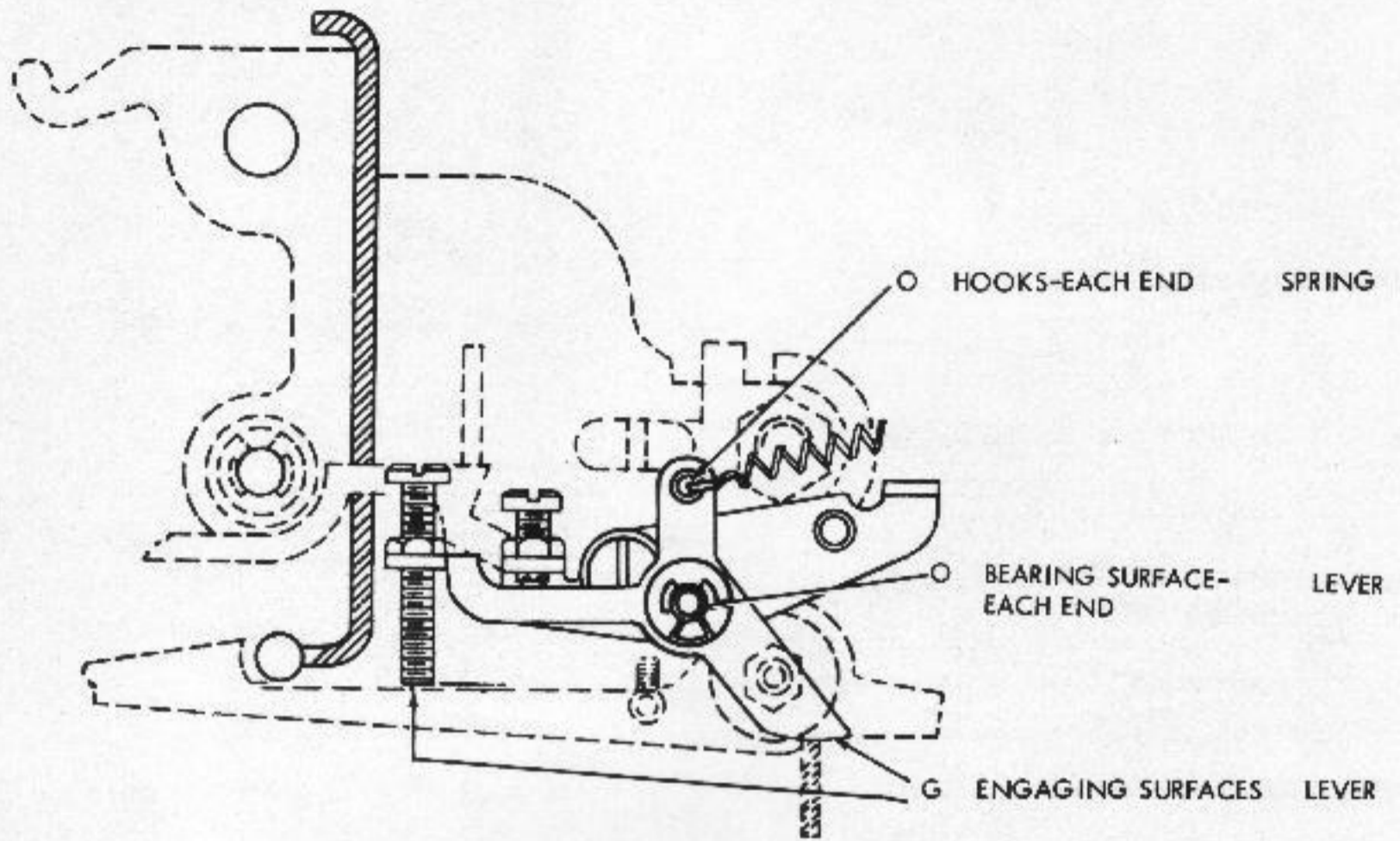
7.18 LOCK BAR LATCH MECHANISM



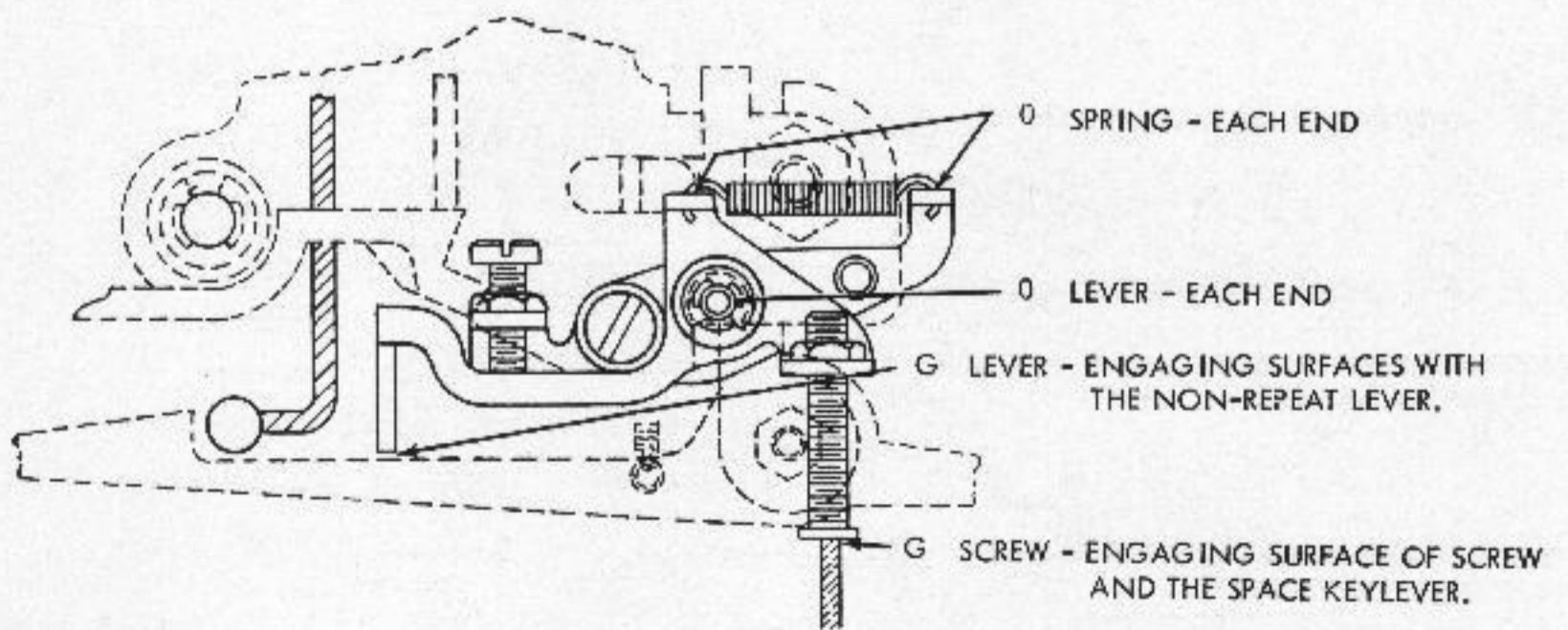
7.19 ELECTRICAL LINE BREAK MECHANISM



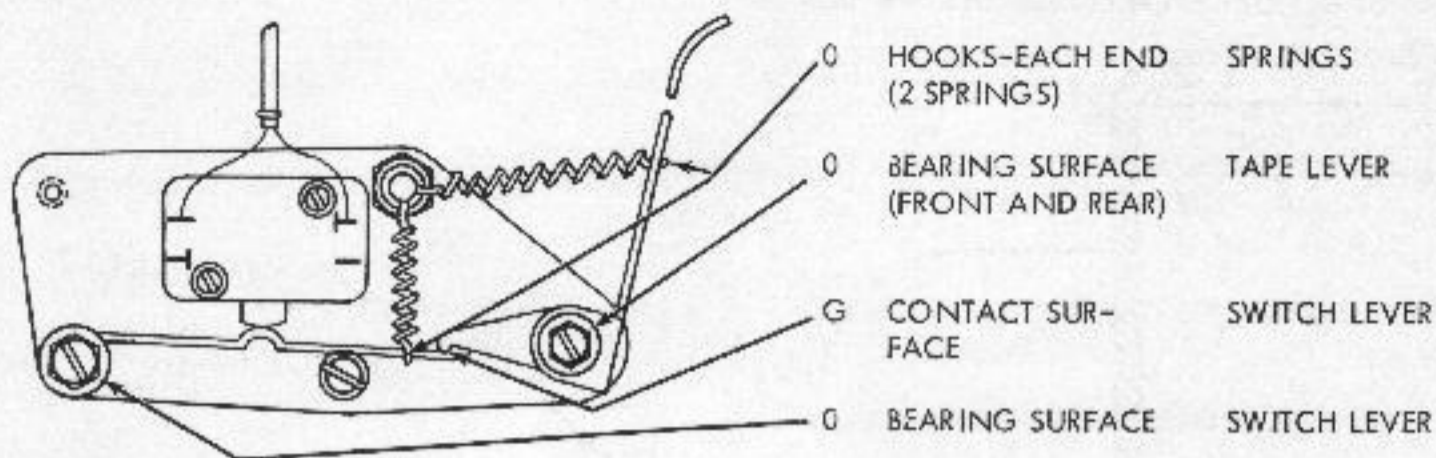
7.20 REPEAT SPACE MECHANISM
LATEST DESIGN - FOR EARLIER DESIGN SEE PARAGRAPH 7.21



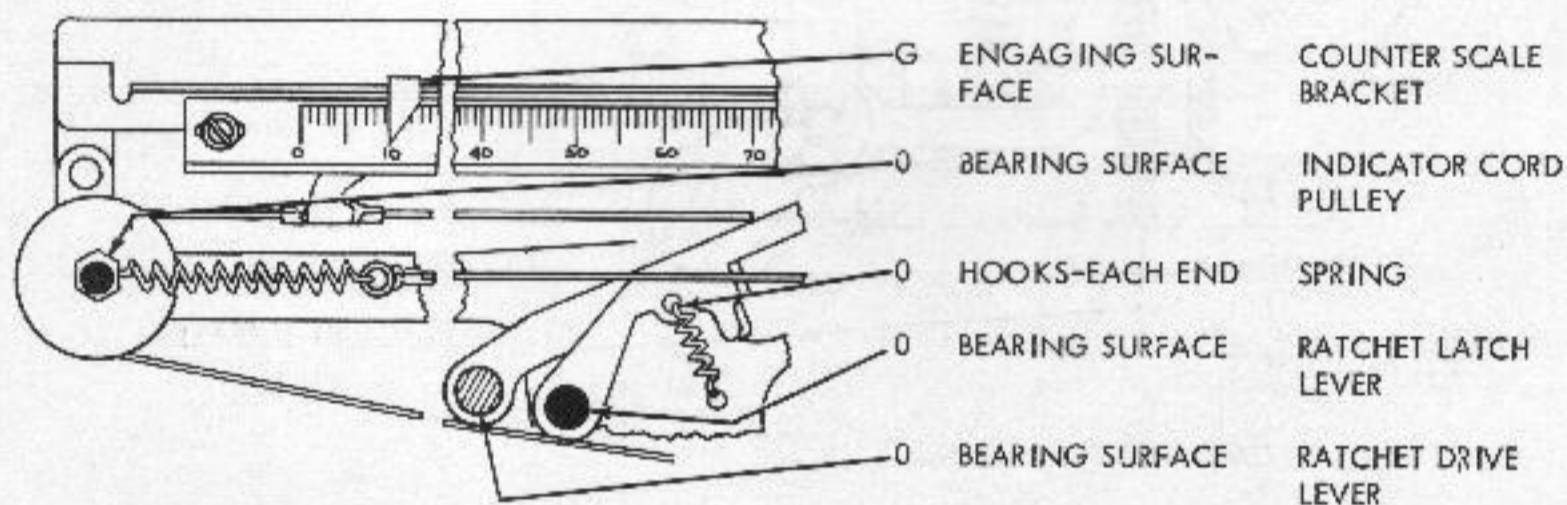
7.21 REPEAT SPACE MECHANISM
EARLIER DESIGN - FOR LATEST DESIGN SEE PARAGRAPH 7.20



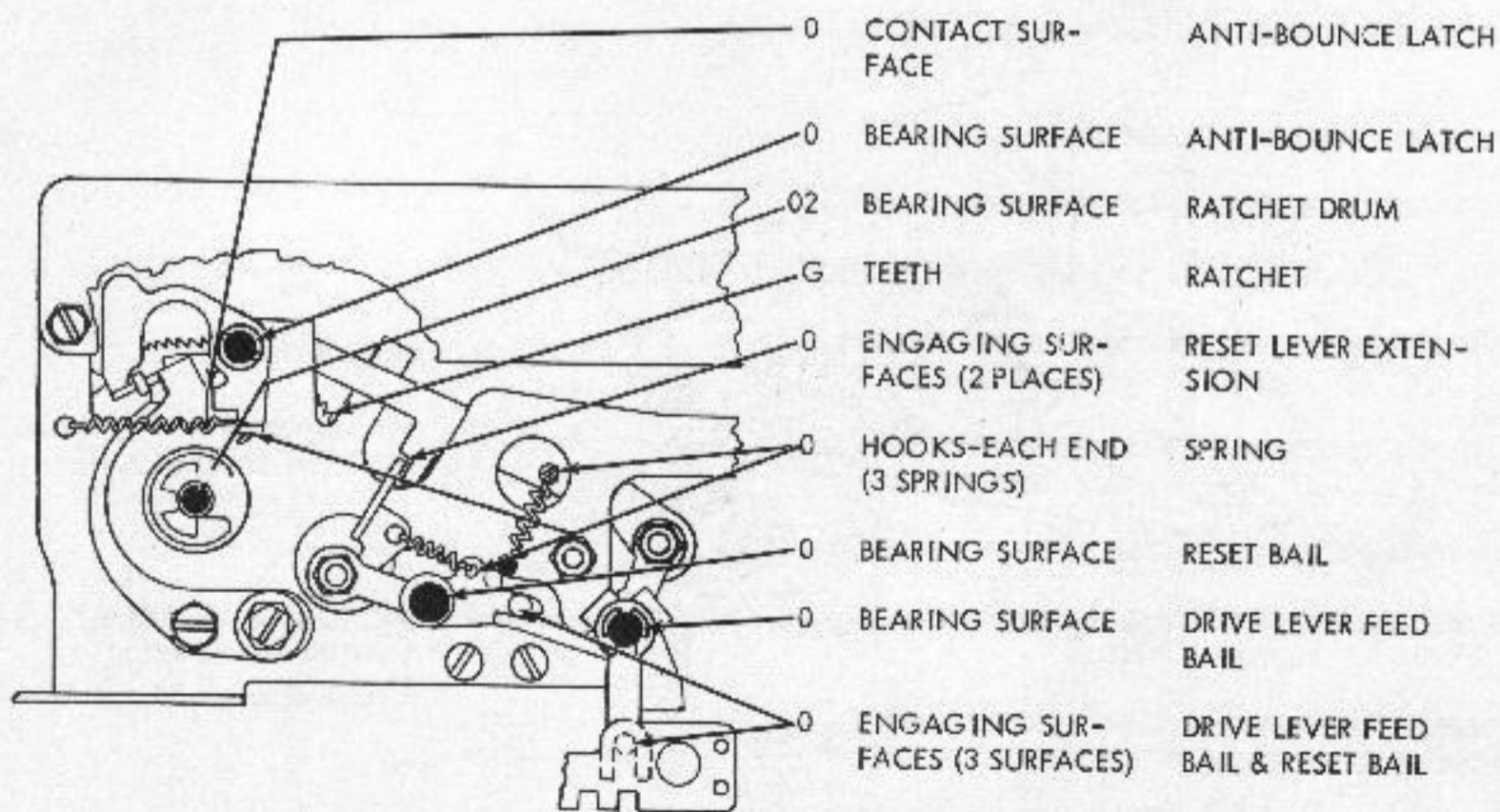
7.22 TAPE-OUT SWITCH MECHANISM



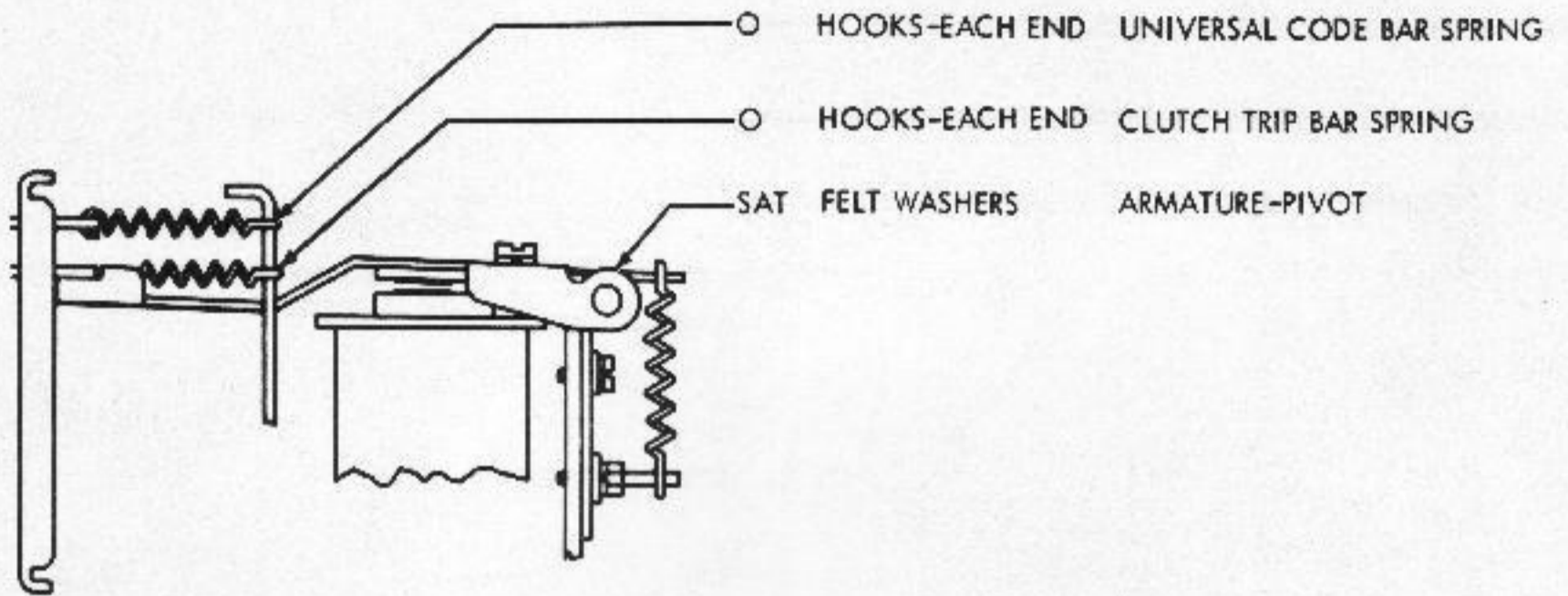
7.23 CHARACTER COUNTER MECHANISM



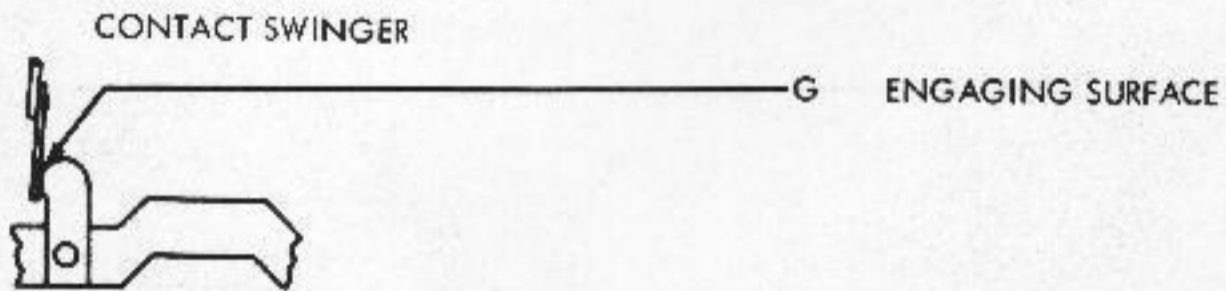
7.24 CHARACTER COUNTER MECHANISM



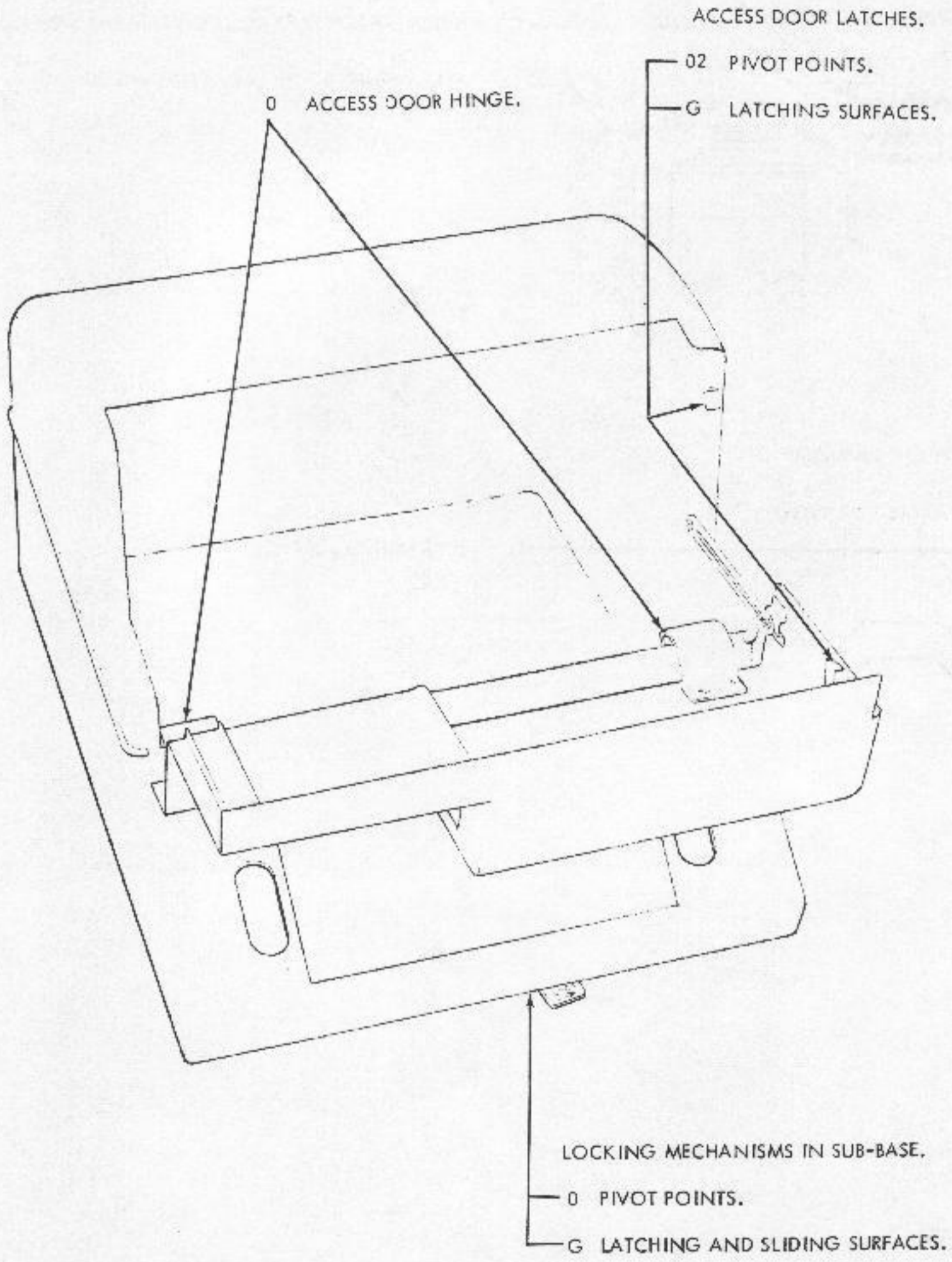
7.25 SYNCHRONOUS PULSED MAGNET MECHANISM



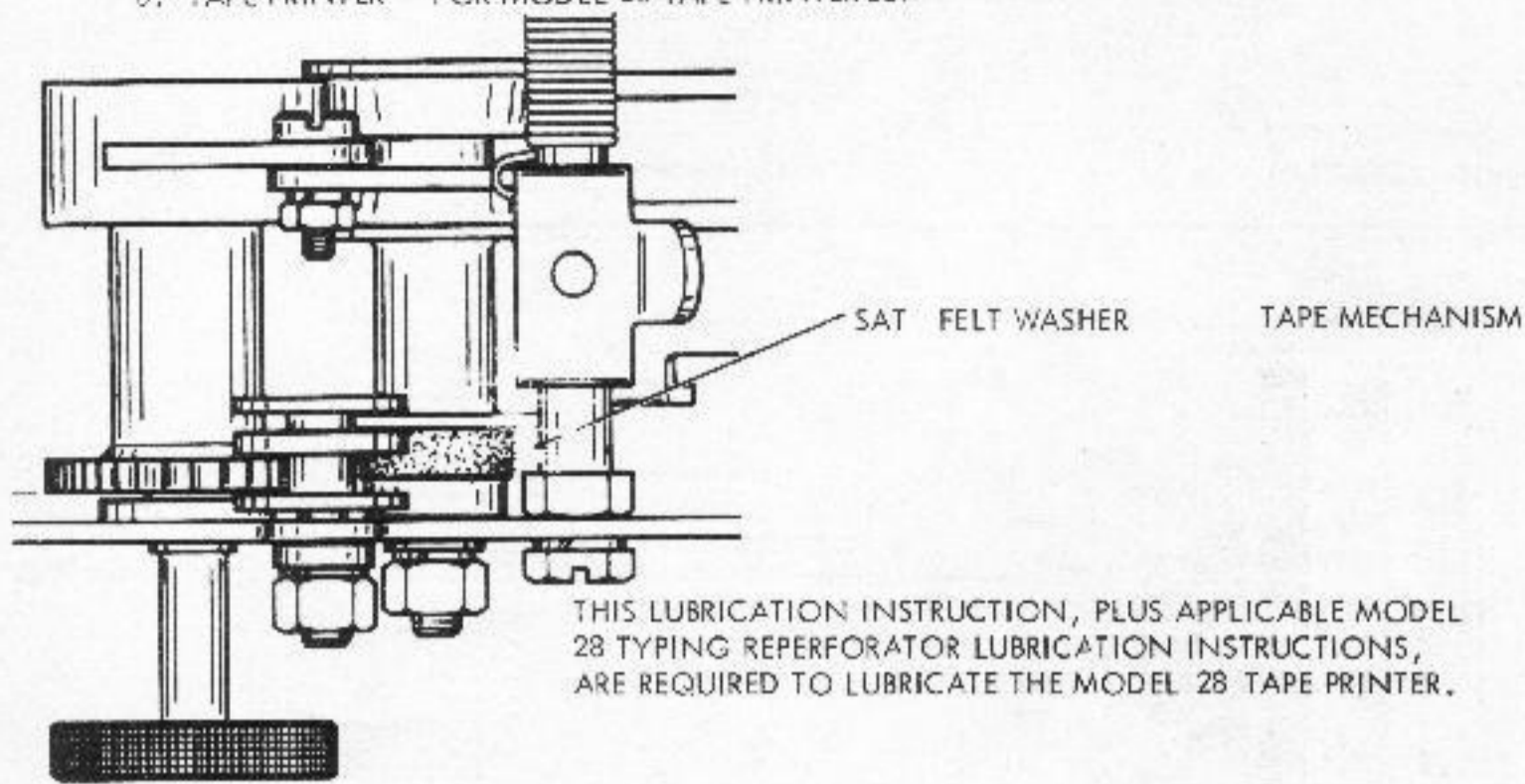
7.26 CONTACT SWINGER



7.27 COVER

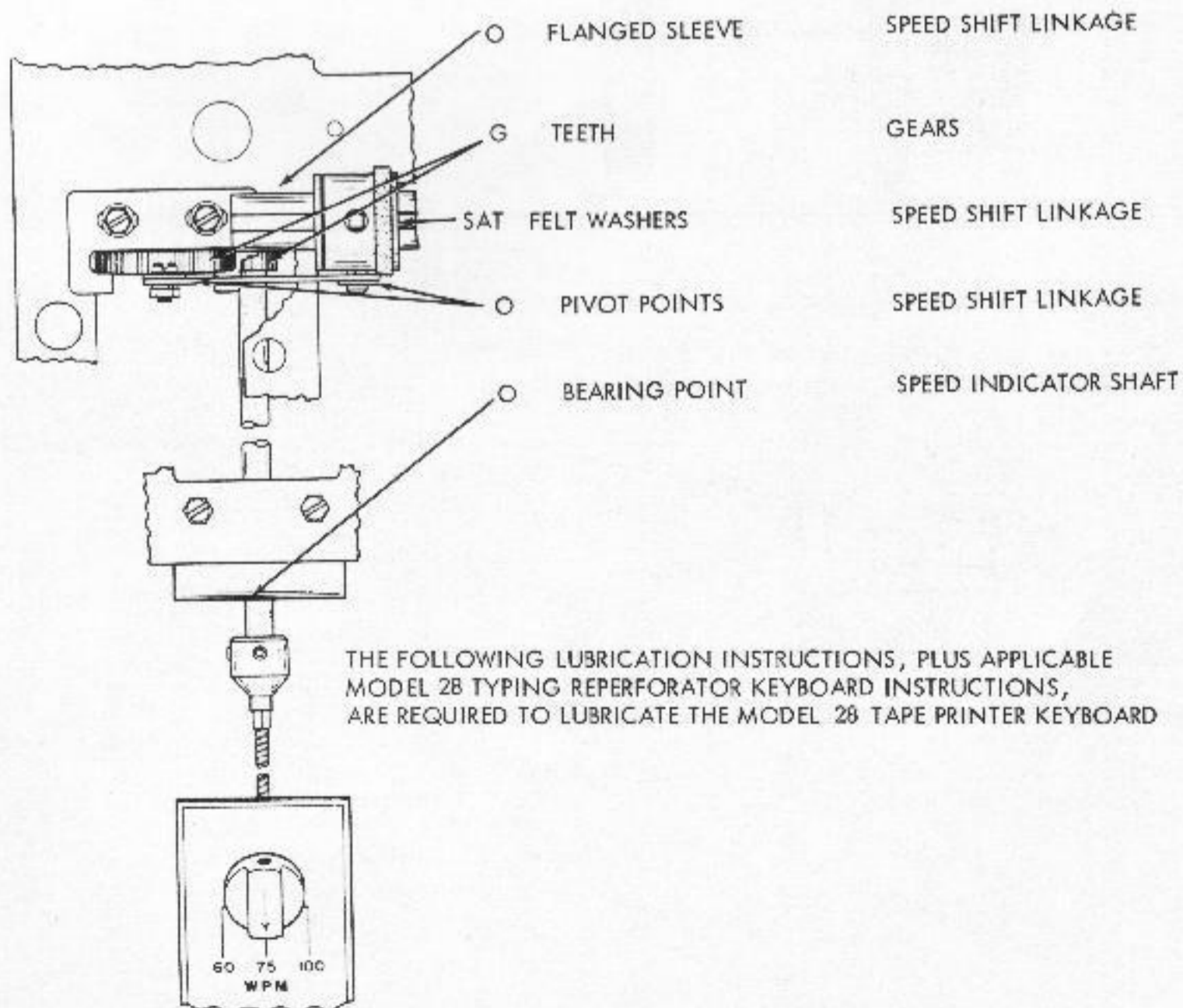


8. TAPE PRINTER - FOR MODEL 28 TAPE PRINTER SET

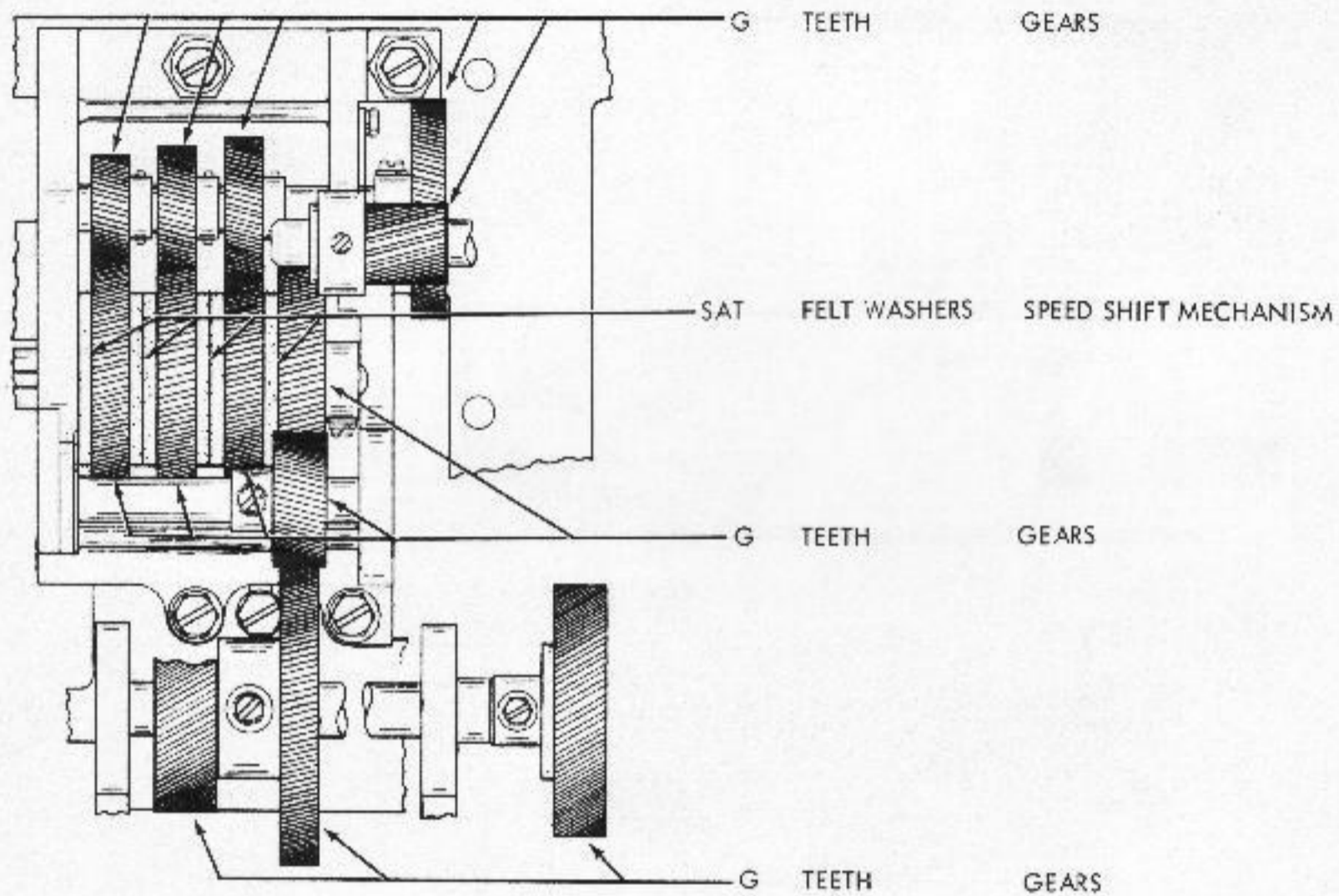


9. KEYBOARD (SEND-RECEIVE TAPE PRINTER SET)

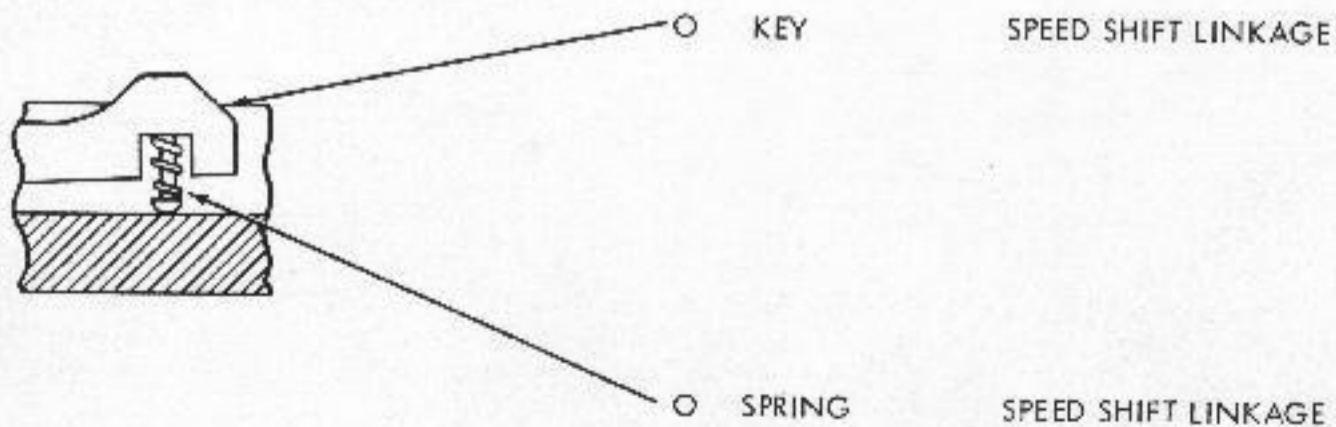
9.01 SPEED INDICATOR ASSEMBLY - FOR MODEL 28 TAPE PRINTER KEYBOARD



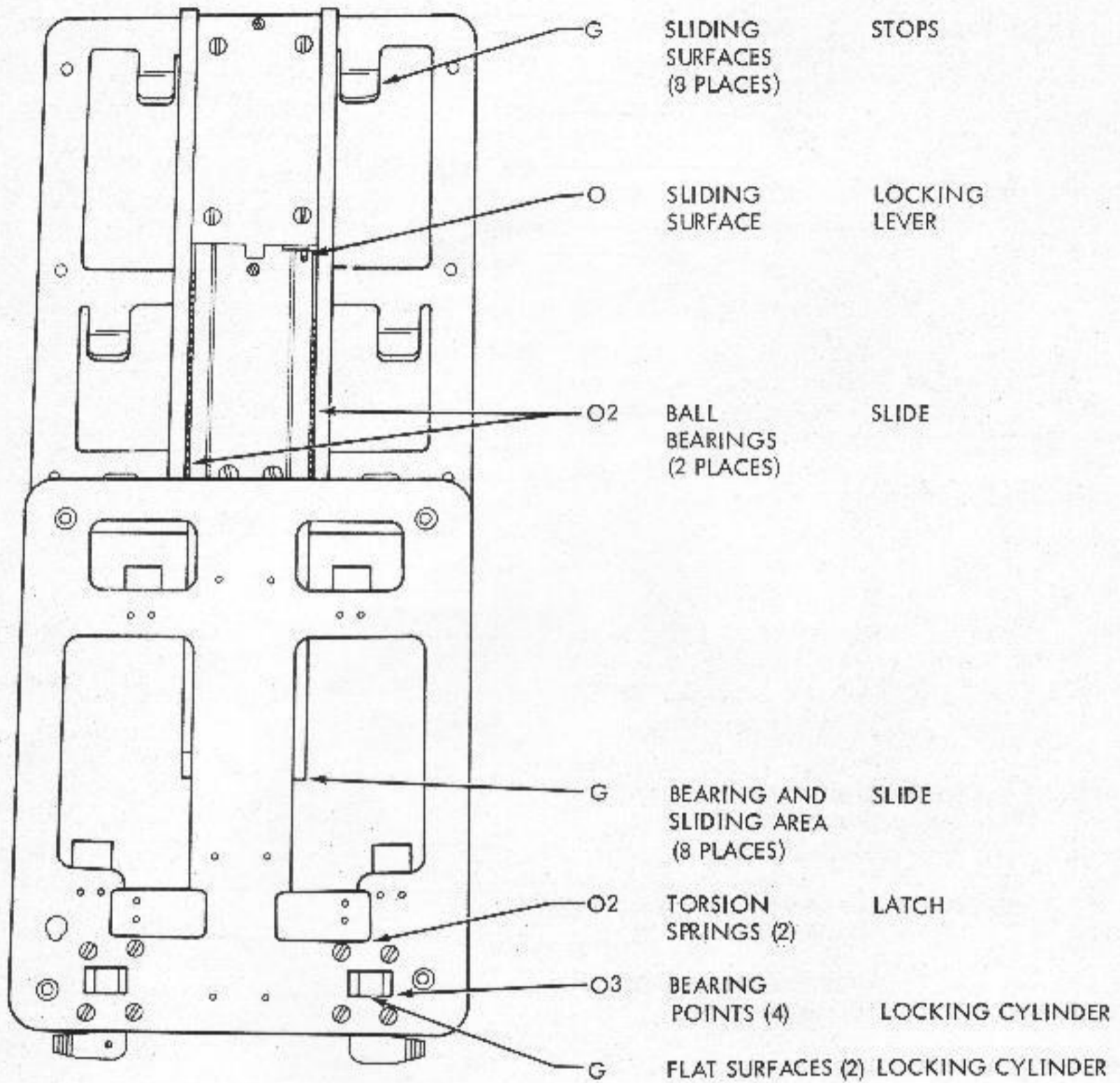
9.02
 GEAR SHIFT ASSEMBLY - FOR MODEL 28 TAPE
 PRINTER KEYBOARD



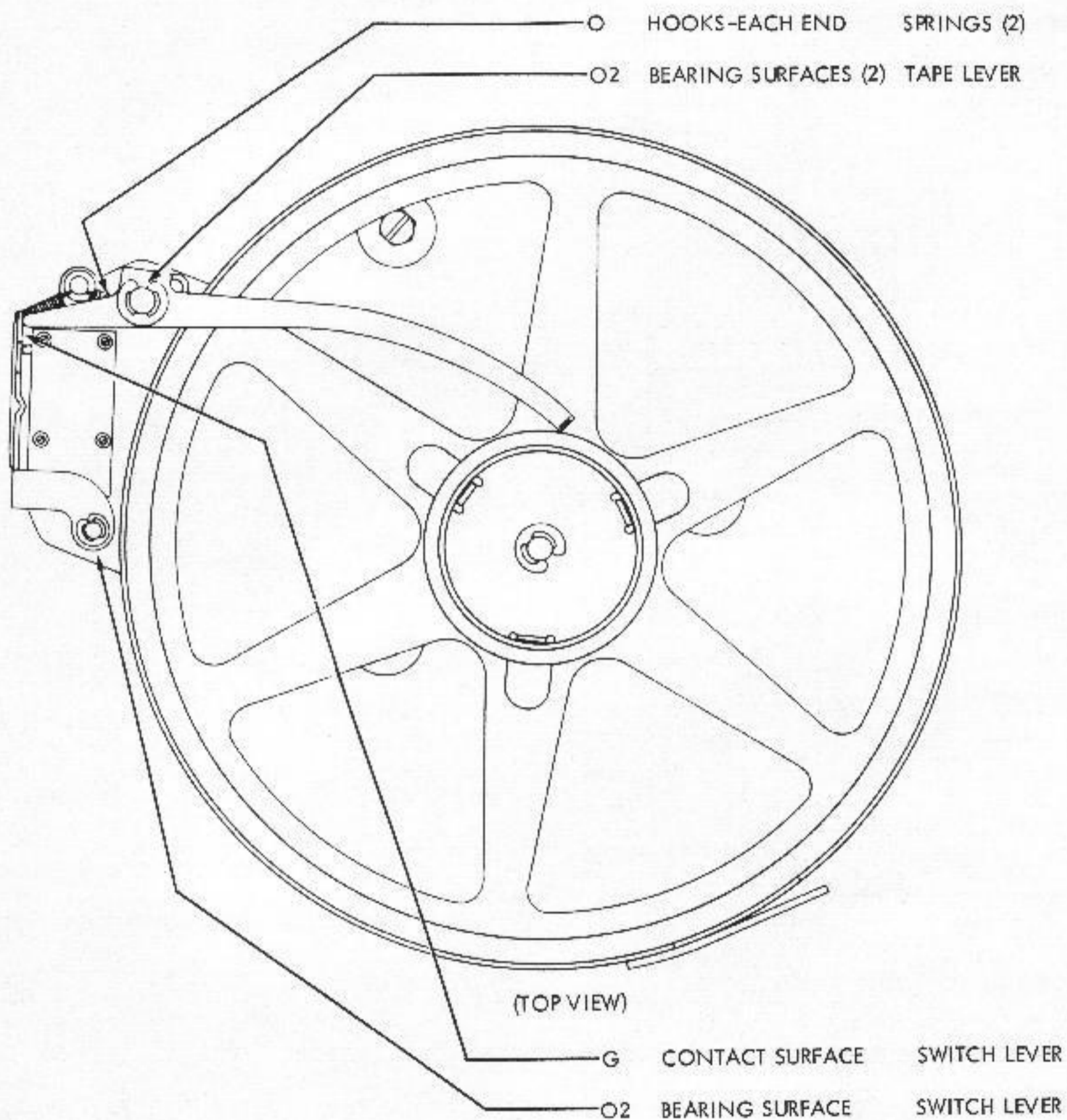
9.03
 GEAR SHIFT MECHANISM - FOR MODEL 28 TAPE
 PRINTER KEYBOARD



10. SLIDING SUB-BASE (MODEL 28 COMPACT
RECEIVING-ONLY TYPING REPERFORATOR SET)

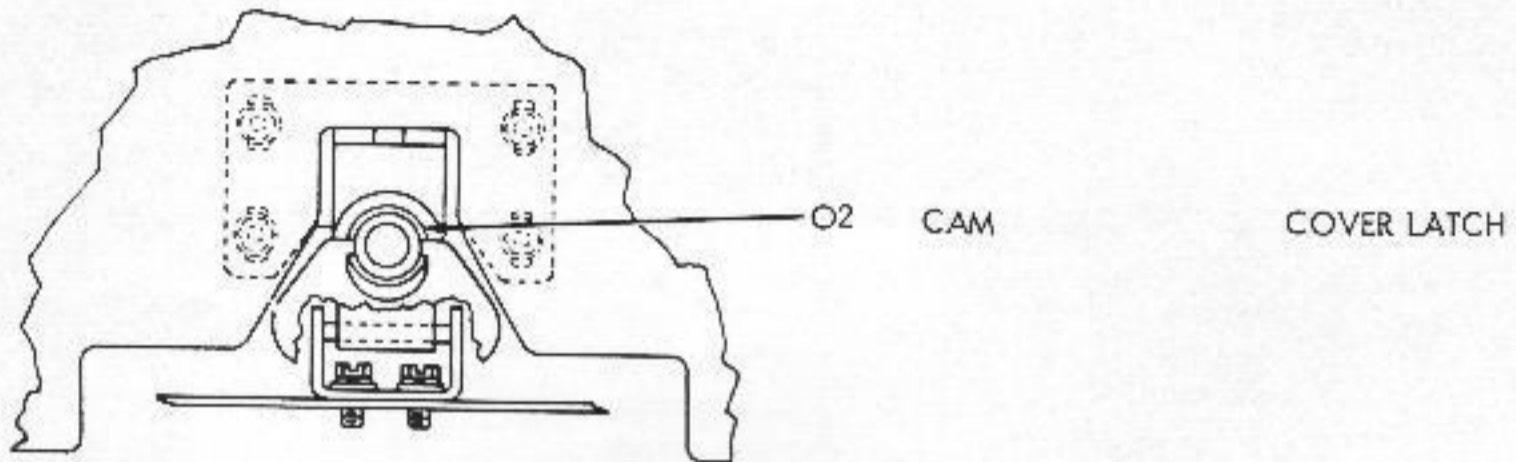


11. BASE (MODEL 28 COMPACT RECEIVING-
ONLY TYPING REPERFORATOR SET)

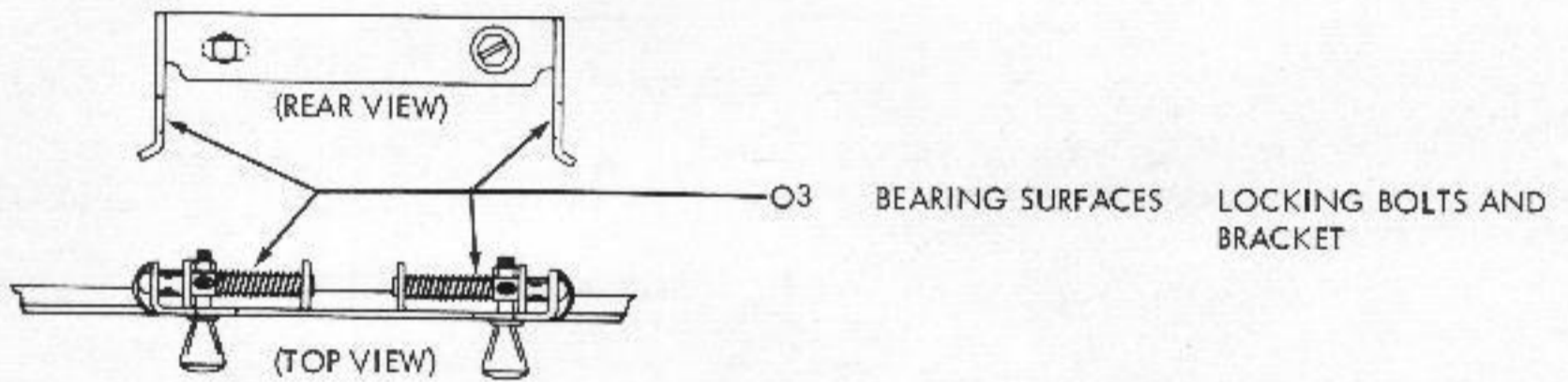


12. COVER (MODEL 28 COMPACT RECEIVING-
ONLY TYPING REPERFORATOR SET)

12.01 LATCH MECHANISM



12.02 LOCKING MECHANISM



SECTION 4

DISASSEMBLY AND REASSEMBLY

1. GENERAL

a. The disassembly procedure covered in this section will break the Model 28 Send-Receive and the Receive-Only types of Typing Reperforator Equipment and the Model 28 Send-Receive Tape Printer Set down into major sub-assemblies. If further disassembly of the mechanisms is required, reference should be made to Parts Bulletin 1167B which shows detailed arrangement of the parts.

(1) Specification 5919S contains the instructions for installation of the Model 28 Receive-Only Typing Reperforator Set.

(2) Specification 5873S contains the instructions for installation of the Model 28 Auxiliary Typing Reperforator and associated components into the Automatic Send-Receive Cabinet.

(3) Specification 5936S (for FAA only) and Specification 5957S contain the instructions for the installation of the Model 28 Typing Reperforator Unit on the Model 28 Reperforator Transmitter Base.

(4) Specification 50010S contains the instructions for installing the Multiple Mounted Typing Reperforators and associated components into a Model 28 Universal Cabinet either monitoring or receiving.

b. If a part that is mounted on shims is to be removed, the number of shims used at each of its mounting screws should be noted so that the same shim pile-up can be replaced when the part is remounted. Retaining rings are made of spring steel and therefore have a tendency to release suddenly. Loss of these rings can be minimized as follows: Hold the retaining ring to prevent it from rotating. Place the blade of a screwdriver in one of the slots. Rotate the screwdriver in a direction to increase the diameter, and the ring will come off easily without flying.

2. COVERS

a. RECEIVE-ONLY TYPING REPERFORATOR SET

(1) To remove the cover, lift it from base.

(2) To replace the cover, hold it over the base and lower it until the projections of its mounting brackets are accepted by the slots in the lower base plate.

b. SEND-RECEIVE TYPING REPERFORATOR SET

(1) Open the access door and disengage the cover cable connector plug.

(2) Move the latch handle to the left to unlock the cover from the sub-base.

(3) To remove the cover, lift it from the sub-base.

(4) To remove the keyboard from the sub-base, remove the four 151549 special screws which mount the keyboard to the sub-base.

(5) Replace keyboard, sub-base and cover, by reversing the procedure used in removing them. Make sure that the cables exit through the notched portion of the cover in the rear and that the cover is resting squarely on the base.

(6) Move the latch handle to the right to lock the cover to the sub-base.

c. SEND-RECEIVE TAPE PRINTER SET
The applicable disassembly and reassembly information for the Send-Receive Typing Reperforator Set covered in paragraph b., should be used for the Model 28 Tape Printer Set.

3. BASES

a. TO REMOVE MULTIPLE BASE FROM MULTIPLE CABINET

(1) Remove the connectors from the typing reperforator units. Remove the cables from the cable clamps on the base.

(2) Release the latch and remove the base by lifting it and sliding it forward.

(3) Replace the multiple base by reversing the procedure used to remove it.

b. TO REMOVE AUXILIARY BASE FROM AUTOMATIC SEND-RECEIVE CABINET.

(1) Open the dome of the cabinet. Disconnect the connectors terminating the cables leading from the power supply the control panel and the electrical service unit.

(2) Remove the three 109941 mounting screws (with lock washers, flat washers and star washer) from the base mounting posts. Lift the base from the cabinet.

(3) To replace the base, reverse the procedure used to remove it. Check the Tape Container adjustment (Figure 1-64).

4. TYPING REPERFORATOR UNIT

a. TO REMOVE TYPING REPERFORATOR FROM BASE:

(1) Remove any electrical connections (selector magnet leads, connectors, etc.) that would prohibit the removal of the unit.

(2) Remove the screw (with its lock washer and flat washer) that secures the 156183 anchor bracket (at the lower left of the typing-reperforator unit) to the base. Remove the three mounting screws, lock washers and flat washers from the frame. Remove the timing belt from the sprocket on the rear of the main shaft. Lift the typing reperforator unit from the base.

(3) NOTE: A typing reperforator unit can be removed from the Multiple Set while the other units are in operation. Loosen the four mounting screws and relieve the tension on the timing belt (the main shaft and belt will be in motion). Slide the belt off the sprockets. Remove the screws and lift the unit from the base.

b. TO REPLACE TYPING REPERFORATOR UNIT:

(1) Receiving-Only and Auxillary Sets

(a) Place the unit on the base so that the three mounting holes in the frame correspond to those on the base. Loosen the screw securing the 156183 anchor bracket to the typing reperforator unit. Start the screw (with lock washer and flat washer attached) through the anchor bracket into the proper tapped hole in the base; do not tighten. Start the three mounting screws (with lock washers and flat washers attached) through the frame mounting holes into the tapped holes in the base; do not tighten.

(b) Receiving-Only Set only: Press the anchor bracket against the base and tighten the screw that secures the bracket to the typing reperforator unit. Tighten the screw that holds the anchor bracket to the base. Tighten the three mounting screws in the frame. Loosen the three mounting screws that hold the intermediate drive assembly (or variable speed drive mechanism) on the base. Install the timing belt. Make the Timing Belt adjustment in Figure 1-61.

(c) For Auxillary Set only: Install the timing belt on the sprockets. Adjust the typing reperforator unit to meet the requirement of the Timing Belt adjustment in Figure 1-65. Press the anchor bracket against the base and

tighten the screw holding it to the typing reperforator unit. Tighten the screw holding the bracket to the base. Tighten the three mounting screws in the frame.

(d) Replace the electrical connections.

(e) Multiple Set

1. Place reperforator unit over its mounting studs on the base. Loosen (friction tight) the screw which secures the bracket ("L" shaped) to the reperforator unit. Start the three 151631 screws (with 2191 lock washers and 76461 washers attached) into the proper tapped studs in the "T" plate; do not tighten. Start the 151632 screw (with 2191 lock washer and 125015 washer attached) through the "L" bracket into the proper tapped hole in the base; do not tighten.

2. The timing belts should be adjusted so when a pressure of 7 to 9 ozs. applied at the center of the span should deflect the belt $3/32''$ to $5/32''$. Belt should not be tight. To adjust, position the reperforator unit. Tighten the three mounting screws. Press the anchor bracket against the base plate and tighten the screw holding the bracket to reperforator unit. Tighten the screw holding the bracket to the base. Do not lubricate timing belt or sprockets.

3. Repeat the procedure for the other typing reperforator units. Replace the electrical connections.

(f) To Remove Belt and Sprocket Drive:

1. Remove the 161687 gear guard by removing the two 151630 screws and 2191 lock washers.

2. Remove the left timing belt.

3. Remove the screw, lock washer and washer from the left end of the 161506 shaft.

4. Remove the 151721 screw, 2191 lock washer, 7002 flat washer and 3598 nut from the existing sprocket hubs. Slide the left sprocket assembly to the left and off the 161506 shaft.

5. Remove the left 162216 retainer from the 161506 shaft.

6. Remove the two 151631 screws and 2191 lock washers that mount the 161513 clamp and 161514 plate to the 161507 bear-

ing mounting plate. Retain parts removed.

7. Slide the 161520 or 161522 timing belts off the center and right sprockets.

8. Remove the 151721 screw, 2191 lock washer and 7002 flat washer from the center and right sprocket hubs.

9. Move the shaft assembly partly through the right 161507 bearing plate and then move the two timing belts and sprocket assemblies to the left until they slide off the left end of the 161506 shaft.

10. To replace the belt and sprocket drive assemblies reverse the procedure used to remove them.

11. Assemble the three sprocket assemblies (retainer, sprocket, and hub) with the three 150089 screws and 130683 lock washers. It will be easier to slide the sprocket or gear assemblies onto the shaft if their three assembly screws are friction tight. Slide the right and center sprocket assemblies onto the shaft with the hub end to the right. Tighten the three sprocket assembly screws.

12. Secure each sprocket assembly to the 161506 shaft with the 151632 screw, 2191 lock washer, two 7002 flat washers, and 3598 nut.

13. Replace the right and center 161520 or 161522 timing belts.

14. Insert the 161506 shaft through the left 151634 bearing.

15. Replace the left 161512 retaining ring.

16. Replace the left sprocket assembly and timing belt.

17. Replace the 161513 clamp and 161514 plate to the right 161507 bearing mounting plate using the two 151631 screws and 2191 lock washers.

18. When replacing the screw, lock washer, and flat washer, at the left end of the 161506 shaft, leave the mounting screw that secures the adjacent sprocket assembly to the left end of the shaft first. This will take up the end play of the 151634 bearing between the 161512 retaining ring and the sprocket hub at the left end of the shaft. Secure the left sprocket assembly to the shaft by tightening the mounting screw.

19. The 173583 sprocket is secured to the hub of the typing reperforator unit.

The hub sprocket mounting screw, and lock washers are part of the typing reperforator unit.

20. Adjust timing belts.

c. TO REMOVE THE SELECTING MECHANISM:

(1) Remove the screw, lock washer and nut from the 150001 selector clutch drum. Place the 152410 reset bail in its raised position. Holding the 152432 stop arm and 152405 marking lock lever to the left, grasp the cam-clutch by the cam disk (not by drum) and pull forward rotating the cam-clutch slowly. The cam-clutch should come off easily; it should not be forced.

(2) Unhook the spring on the 150355 function clutch latch lever. Remove the 156472 spring post by removing its nut and lock washer. Remove the 151442 screw (with lock washer) that passes through frame and 152400 selector mounting plate into the 152402 selector lever guide. Remove the 152457 oil wick, 153538 screw, 2191 lock washer and 159467 wick holder. Remove the selecting mechanism.

(3) To replace the selecting mechanism, reverse the procedure used to remove it.

d. TO REMOVE RIBBON FEED MECHANISM:

(1) Remove the ribbon. Remove the two 151632 mounting screws (with lock washers) from the 156414 ribbon feed mounting plate. Remove the ribbon feed mechanism.

(2) To replace the ribbon feed mechanism, reverse the procedure used to remove it.

e. TO REMOVE PERFORATOR MECHANISM:

(1) Remove the 90573 spring and disconnect the 156412 perforator drive link from the 156884 rocker arm.

(2) Remove the 159621 pivot screw with lock washer from the 159622 perforator adjusting clamp. Remove the 151631 and 151632 mounting screws (with lock washers and flat washers) that fasten the 156024 rear plate to the 159472 main plate. Remove the perforator mechanism.

(3) To remount the perforator mechanism, reverse the procedure used to remove it. Make certain that the 156059 reset bail fits in the fork of the 159430 reset bail trip lever and that the 156476 print hammer fits in its slot in the perforator mechanism.

f. TO REMOVE TRANSFER MECHANISM:

(1) Remove the 49084 main trip lever spring. Remove the 151631 and 151632 mounting screws (with lock washers and flat washers) from the 159488 transfer mounting bracket. Remove the transfer mechanism.

(2) To remount the transfer mechanism, reverse the procedure used to remove it.

g. TYPING MECHANISM:

(1) To Remove Typing Mechanism:

(a) Remove the 158872 operating blade from the rocker bail assembly by removing its two mounting screws with lock washers, flat washers and shims. Remove the retaining ring and disconnect the 159512 printing trip link. Remove the nut, lock washer and flat washer from the 156396 eccentric on the 156368 rocker bail, and disconnect the 159526 oscillating drive link. Remove 33828 spring from the 156478 accelerator and the 90606 spring from the 156252 lifter.

(b) Remove screw with lockwasher that fastens the 159434 lifter plate to the 156474 bar on the frame. Remove the screw with lock washer that secures the 159525 axial bracket to the 159404 post on the frame. Remove the 151631 screw (with lock washer and flat washer) that fastens the 159487 function box front plate to the 159472 main plate. Remove the 119653 retaining ring from the 159659 idler gear eccentric shaft. Remove the eccentric shaft, 159536 idler gear, 151629 special nut and lock washer by removing the 159658 mounting screw. Remove the three 151631 screws (with lock washers and flat washers) that secure the 159535 front plate to the frame. Remove the typing mechanism from the frame.

(c) To remount the typing mechanism, reverse the procedure used to remove it.

(2) To Remove Function Box Mechanism:

(a) Remove the 151631 mounting screw (with lock washer and two flat washers) that passes through the 156316 function box rear plate and 159483 spring bracket into the 159535 front plate. Remove the function box from the typing mechanism.

(b) To remount the function box, reverse the procedure used to remove it.

(3) To Remove Axial Plate Assembly:

(a) Remove the 3870 correcting drive link spring. Remove the 156413 correcting drive link by removing the retaining ring from the 156378 axial correcting plate. Remove the

retaining ring and disconnect the 156869 ribbon guide from the 156870 ribbon oscillating lever.

(b) Remove the three mounting screws and lock washers from the 159525 axial plate. Remove the axial plate assembly.

(c) To remount the axial plate assembly, reverse the procedure used to remove it. The rearmost tooth of the rack on the 156332 typewheel shaft must mesh with the rearmost tooth space in the 156294 axial sector, and the forward tooth on the sector must mesh with the second tooth space on the shaft: there is an extra tooth space on the forward portion of the shaft's rack.

(4) After the function box mechanism and axial plate assembly have been removed, the remainder of the typing mechanism is the front plate assembly.

(5) To Remove Pushbars:

Remove the typing mechanism. Remove the function box mechanism from the typing mechanism. Remove the pushbar by disengaging the pushbar rack from its associated pinion.

(a) Correct gear tooth engagement of racks.

1. Pushbar #1 - #5 Inclusive

a. In assembling the pushbars to the various eccentric assemblies, great care must be exercised to assure the correct rack-pinion gear mesh. The correct mesh is such that the first tooth on the pinion and the first tooth space on the rack are meshed. On later units this is identified by a mark on the pushbar and a mark on the eccentric. The last tooth on the pinion and the last tooth space on the rack should therefore also mesh. Misalignment of the mesh by as little as one tooth will produce a jam in the machine and cause part breakage if the machine is put under power while this condition exists.

2. Letters and Figures Push bars

a. The assembly of these two pushbars to the left eccentric assembly must follow the assembly of the detents on the same eccentric. Starting with the left eccentric in the lower detented position, locate the gear tooth of the pinion which is at top dead center. (Using the oil hole in the eccentric housing as a reference may help since it also is located at top dead center). The first tooth space of the rack of the "Letters" pushbar must engage the tooth directly below. This requirement is met when the in-

dicating mark on the pushbar and eccentric shaft are in line. Pull the letters pushbar all the way on the pinion. The eccentric shaft should now be in the upper detented position. Now locate the tooth at bottom dead-center. The first tooth space of the rack on the "Figures" pushbar should engage the tooth just located. The full travel of either pushbar should result in the eccentric shaft being rotated from one detented position to the other without jamming. As before, a misalignment of the mesh by one tooth will cause a jam and parts breakage if the machine is put under power while this condition exists.

h. TO REMOVE ROCKER BAIL ASSEMBLY:

(1) Disconnect the 156937 printing drive link by removing the retaining ring at its left end. Remove the 3598 nut, lock washer, flat washer, felt washer, bushing and 151632 screw from the 156871 operating blade mounting bail.

(2) Remove the nut, lock washer and 156921 adjusting lever guide, and remove the 156366 rocker bail shaft. Remove the rocker bail.

(3) To replace the rocker bail assembly, reverse the procedure used to remove it.

i. TO REMOVE MAIN SHAFT ASSEMBLY:

(1) Remove the 87401 spring from the function clutch latch lever. Remove the retaining ring, spring washer and flat washers from the forward end of the 156473 main shaft.

(2) Remove the screw and lock washer (if present) from the 150000 function clutch drum. Remove the screw and lock washer from the 156236 collar. Remove the screw and lock washer from the 158745 bearing clamp.

(3) Pull main shaft out of rear of unit, removing the cam-clutch and 156236 collar.

(4) To replace main shaft assembly, reverse the procedure used to remove it.

CAUTION

Note the location of the main shaft needle roller bearings as shown in Teletype Bulletin 1167B. Move the main shaft toward the rear of the unit a small amount at a time and exercise care not to drop or contaminate the 20 needle rollers in each race. A rubber band, string or the 125252 spring (as used on the ribbon feed pawl) may be stretched around the shaft and rollers with the ends of the spring hooked together. The spring

in conjunction with the grease will hold the needle roller bearings in place. To replace this type of main shaft assembly, reverse the procedure used to remove it. Make sure the rollers are clean. Lubricate the race and bearings with grease (Beacon 325) (Teletype 195298) or its equivalent. Apply a liberal amount of KS7470 oil at each end of the bearing sleeve.

NOTE

When the main shaft is inserted into the cam-clutch, hold the latter firmly so that the drum is not pushed off the clutch, and compress the drum and cam disk together so that holes in drum and clutch bearings are aligned.

NOTE

Specification 5979S covers the improved main shaft and function cam assembly designed to accommodate needle bearings.

5. MOTOR UNIT

a. RECEIVING-ONLY

(1) For Receiving-Only Set only: If the Set is equipped with the variable speed drive mechanism, remove the 159433 grease retaining plate from the gear shift by removing the two mounting screws with lock washers and flat washers.

(2) Disconnect the motor cable leads from the terminal board on the base. Remove the nut and lock washer from the 156334 adjusting stud. Remove the two mounting screws with lock washers from the fan end of the motor unit. Lift the motor unit from base. To remove the 156344 adjusting bracket from the motor unit, remove the two mounting screws with lock washers from the gear end of the motor unit.

(3) To replace the motor unit, reverse the procedure used to remove it. Check the Motor Adjusting Stud adjustment (Figure 1-66). Receiving-Only Set only: Check the Gear Mesh adjustment (Figure 1-61).

b. AUXILIARY SET:

(1) Remove the two 151723 mounting screws (with lock washers and flat washers) and remove the 161773 tape container. Remove the three 153442 mounting screws (with lock washers and flat washers) and remove the intermediate drive assembly. Disconnect the motor cable leads from the terminal board on the base.

(2) Remove the four 109941 motor mounting screws (with lock washers, flat wash-

ers and star washers) by removing the four nuts. Note the position of the star washers so that they can be replaced in the same location. Remove the motor unit from the base.

(3) To replace the motor unit, reverse the procedure used to remove it. Make the Intermediate Drive Assembly adjustment in Figure 1-65.

c. MULTIPLE SET:

(1) Disconnect wiring.

(2) Remove the 151631 screw and 2191 lock washer which mount the 162722 worm drive gear to motor shaft. Remove worm gear.

(3) Remove four 151723 screws and 2669 lock washers which secure motor to the mounting plate.

(4) To remount motor reverse disassembly procedure.

6. ELECTRICAL SERVICE UNIT (RECEIVING-ONLY SET)

a. TO REMOVE ELECTRICAL SERVICE UNIT FROM TABLE:

(1) Open the panel on the front of table. For most servicing purposes, the electrical service unit can be pulled forward and placed on the open panel.

(2) Remove any wiring that will prohibit removal of the unit and lift it from its compartment.

(3) The unit may be turned upside down and placed on its four legs for servicing.

(4) To replace the electrical service unit reverse the procedure used to remove it.

7. KEYBOARD TYPING REPERFORATOR SET

a. TYPING REPERFORATOR UNIT:

(1) To remove the typing reperforator unit from the casting assembly on the keyboard base remove the four screws that secure the unit.

(2) Remove the cable connector from the rear of the unit.

(3) Lift the unit from the casting.

b. SIGNAL GENERATOR:

(1) To remove the signal generator assembly, proceed as follows:

(2) Remove the sub-casting with the typing reperforator.

(3) Remove the 154131 contact box cover, and disconnect the signal line leads from the 154042, 154043 contact terminals.

(4) Remove the two 153481 screws at the front of the 154200 signal generator frame, and the 74805 screw at the right rear of the frame.

(5) Lift the signal generator carefully, while holding the universal bail back so that the non-repeat lever clears and its spring is not excessively stretched.

CAUTION

If the non-repeat lever gets pulled down approximately 90 degrees from normal position, its spring might be stressed beyond elastic limits which will result in assembly malfunction.

(6) To replace the signal generator, reverse the procedure used in removing it.

c. KEYBOARD

NOTE

It is easier to disassemble and reassemble the keyboard assembly with the base standing up on its rear side.

(1) To remove the keyboard assembly, proceed as follows:

(2) Remove the sub-casting with typing reperforator unit.

(3) Remove signal generator.

(4) Remove the four 151631 screws which hold the 154210, 154211 front frames to the front of the 154000 base.

(5) Remove the two 151632 screws which hold the 154068 and 154069 right and left code lever guide brackets on the top of the base, and the two 151632 screws at the extreme right and left of the 154055 front bracket.

(6) When these four screws in front and

four on top of the base have been removed, tip up the front of the keyboard assembly and pull it forward to disengage the function levers.

(7) Note that all function levers are under their corresponding function bails except the keyboard lock function lever which fits on top of its function bail.

(8) When reassembling, depress the keyboard lock keylever so that the lock function lever will go in over its bail instead of under as the other function lever should.

(9) To replace the keyboard assembly, reverse the procedure used in removing it.

d. CONTACT BOX

(1) To remove the contact box assembly, proceed as follows:

(2) Remove the 154131 contact box cover and disconnect the signal line leads.

(3) Unhook the 86304 drive link spring.

(4) Unscrew the two 151632 screws which hold the contact box assembly to the front of the 154009 front plate.

(5) Disengage the 156644 drive link from the transfer bail and lift off the assembly. It is most economical to replace the entire contact assembly if contacts need replacement.

(6) To replace the contact box, reverse the procedure used in removing it.

e. TRANSFER LEVER LOCKING BAIL

(1) To remove the transfer lever locking bail, proceed as follows:

(2) Remove the signal generator assembly from the keyboard as specified in paragraph 7. b.

(3) Remove the contact box assembly as specified in paragraph 7. d.

(4) Remove the 70388 transfer lever locking bail spring.

(5) Extract the 154140 locking bail by unlatching the clutch and rotating the shaft to position the cam in such a way so that the locking bail can be unhooked and dropped down from its guide post. Turn the locking bail clockwise until it forms a right angle with its guide and extract

it from the bottom of the frame.

(6) To replace the transfer lever locking bail, reverse the procedure used in removing it.

NOTE

It may be necessary to move the shaft back and forth to position the cam for maximum clearance.

f. SIGNAL GENERATOR SHAFT

(1) To remove the cam, clutch and shaft assembly, proceed as follows:

(2) Remove the transfer lever locking bail as specified in paragraph 7. e.

(3) Remove the two 151631 screws which mount the 154101 clutch shaft rear mounting plate to the 154200 signal generator frame, and remove the 112626 nut which locks the shaft to the front of the frame.

(4) Hold the 154033*clutch latch lever latch and the 154034 clutch stop lever away, and pull back on the shaft rear mounting plate to disengage the shaft from the front plate.

(5) Remove the entire cam, clutch, and shaft assembly by rotating it to clear the various transfer levers. The 154019 code bar bail eccentric follower, the 154138 felt washer and the 154083 cam spacer will all fall free. These must be repositioned before reassembly.

(6) To take the cam (with clutch assembly) off the shaft, disengage the clutch by holding the clutch shoe lever against the stop lug and slide the cam clutch off.

(7) To replace the shaft assembly, reverse the procedure used in removing it.

g. KEYLEVER GUIDE PLATE

(1) To remove the keylever guide plate, proceed as follows:

(2) Remove the 151045 space bar by unscrewing the two 151223 shoulder screws that fasten it to the 154117 space bar bail.

(3) Remove the 151659 screw on the keylever guide plate under the space bar and the two 151659 screws in the upper corners of the plate which hold the plate to the frame.

(4) Work the guide plate off the keytops

and let them fall free.

(5) To replace the guide plate over the keylevers, flop all levers to the rear. Place the front end of the guide plate down on the frame; and push the keylevers into their respective holes, starting with the bottom and proceeding upward to the top row.

h. KEYBOARD LOCK BALL CHANNEL

(1) To remove lock ball channel, proceed as follows:

(2) Remove the keylever cover.

(3) Remove the two 151637 channel mounting screws at the left and right ends.

(4) Pull channel forward with caution to avoid dropping any of the 32 wedges that are located on the code levers. Wedges must be replaced separately when reassembling. Avoid loosing any of the 43 balls.

(5) To replace the lock ball channel assembly reverse the procedure used in removing it.

i. CHARACTER COUNTER

(1) To remove the character counter assembly, proceed as follows:

(2) Remove the two 151631 screws which hold the 155969 character counter bracket to the keyboard base.

(3) Raise the character counter and remove the two 151685 screws which hold the 158050 switch to its 158021 bracket.

(4) To disassemble the ratchet drum assembly:

(5) Remove two screws holding clamp to assembly.

(6) Remove clamp from assembly. The reset cord assembly can now be replaced at this point if required.

(7) Remove the cam plate. The indicator and cord assembly may be replaced at this point.

(8) Remove the retaining ring and washer. The ratchet and drum can now be removed.

(9) To remove the idler pulley, remove the lock nut holding the idler pulley bearing stud to the frame.

(10) To disassemble the reset bail and feed bail from the character counter frame, remove the retaining ring and slide the bails from their pivot stud. Note carefully the position of the spacing washer between the feed and reset bail and replace accordingly.

(11) To remove the reset lever assembly, remove the bearing stud. Note the position of the spacing washer and replace accordingly.

(12) To replace the character counter assembly reverse the procedure used in removing it.

j. TAPE CONTAINER

(1) To remove the tape container assembly, proceed as follows:

(2) Remove the two 151723 screws, two 45815 lock washers and two 111516 flat washers.

(3) To replace the tape container assembly reverse the procedure used in removing it.

8. KEYBOARD TAPE PRINTER SET - The applicable disassembly and reassembly information for Keyboard Typing Reperforator Set covered in paragraph 7., should be used for the Keyboard Tape Printer Set.

SECTION 5 - EARLIER DESIGN MECHANISM ADJUSTMENTS

1. TYPING REPERFORATORS

EARLIER DESIGN

(FOR LATEST DESIGN SEE FIGURES 1-56 AND 1-57)

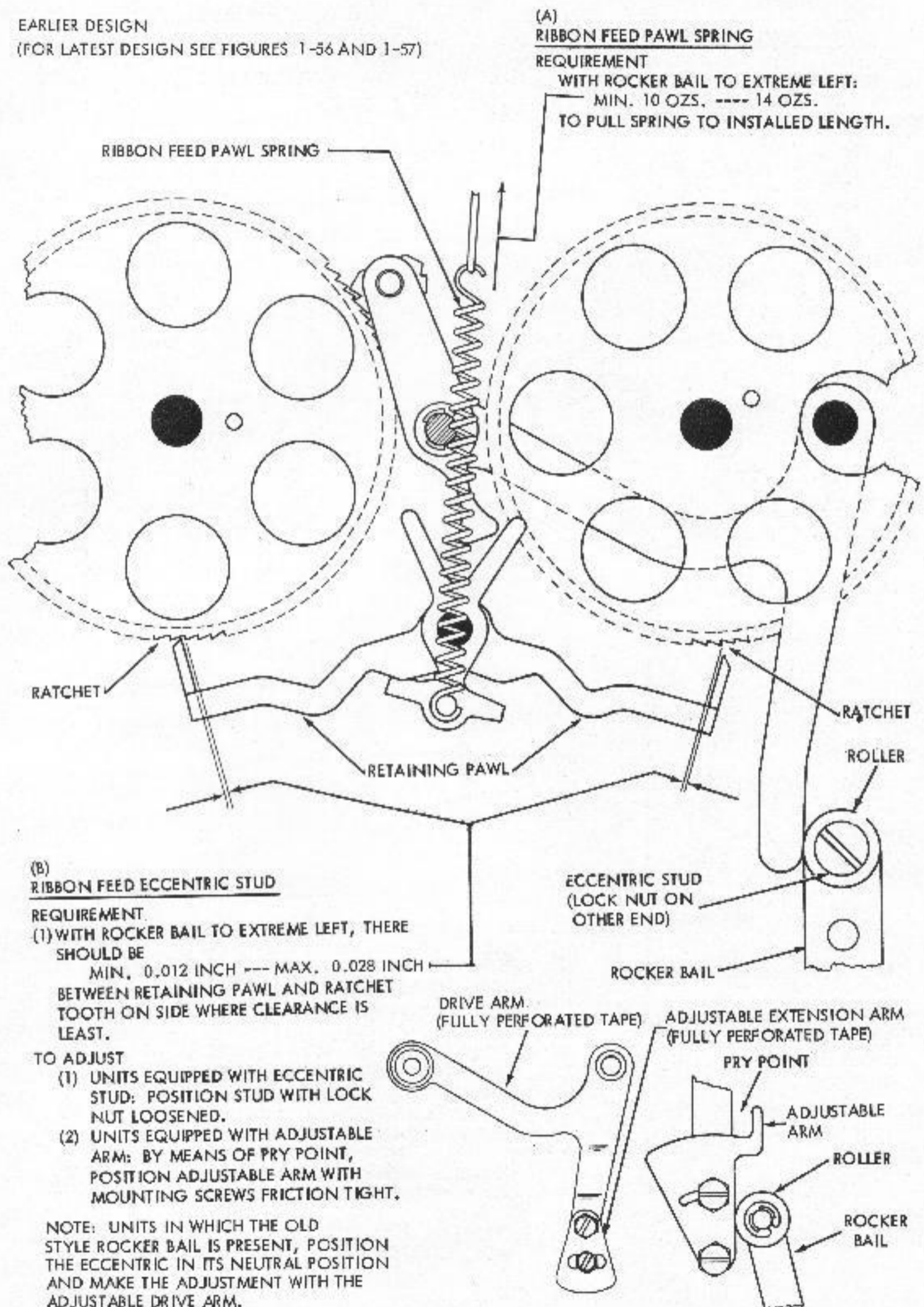


FIGURE 5-1. RIBBON FEED MECHANISM (EARLIER DESIGN)

EARLY DESIGN (FOR LATEST DESIGN SEE FIGURES 1-56 AND 1-57)

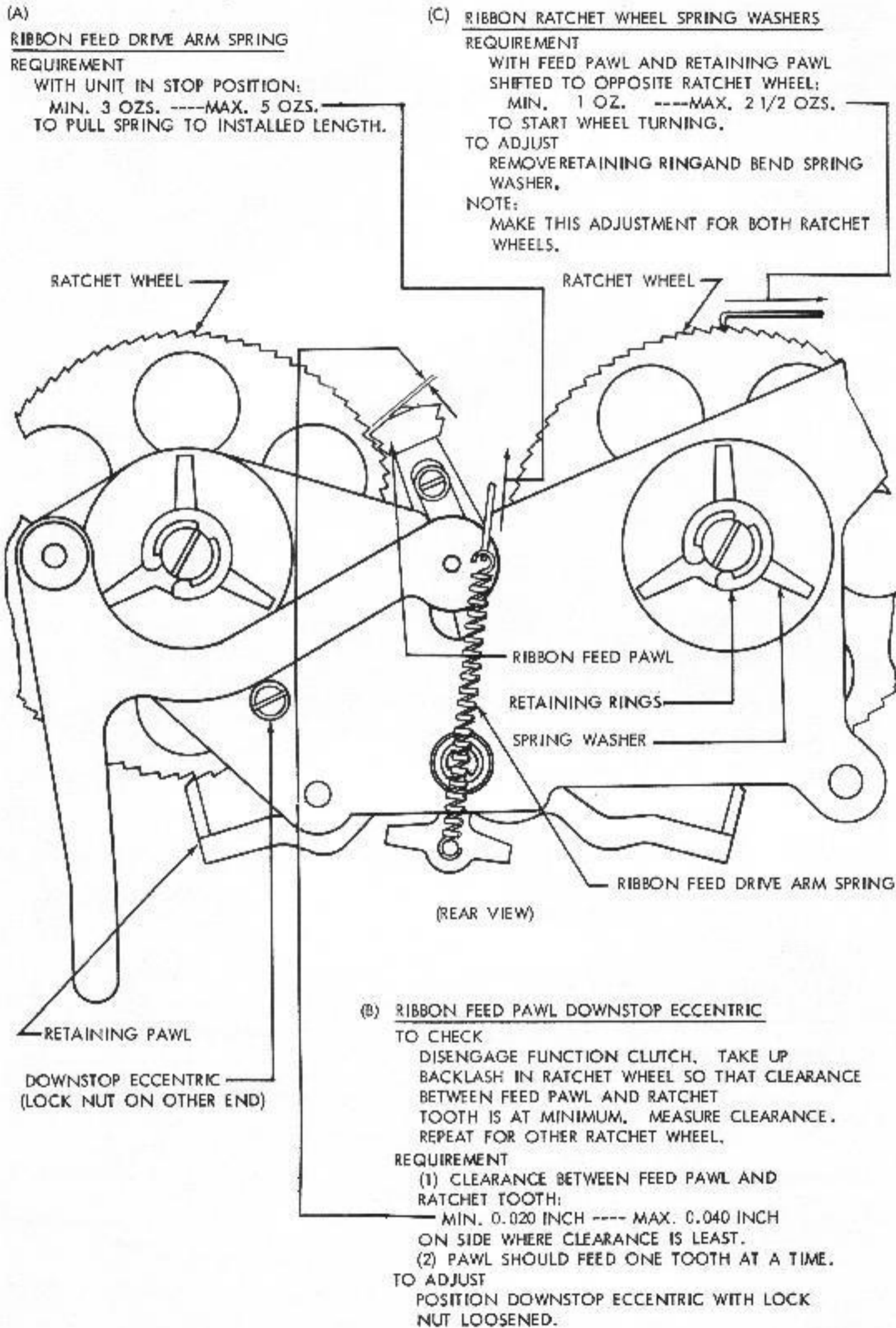


FIGURE 5-2. RIBBON FEED MECHANISM (EARLIER DESIGN)

2. EARLY DESIGN - (FOR APPLICABLE ADJUSTMENTS AND LATEST DESIGN SEE SECTION 1)

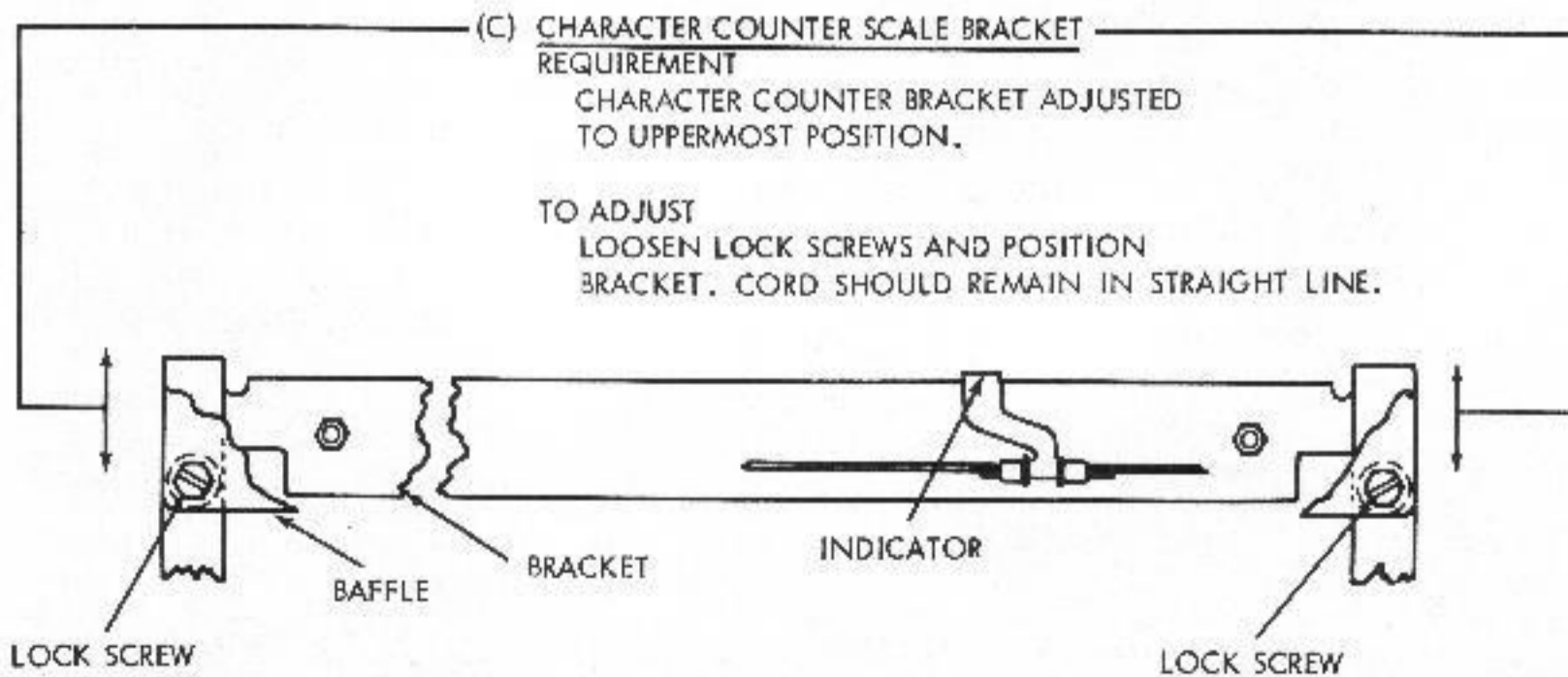
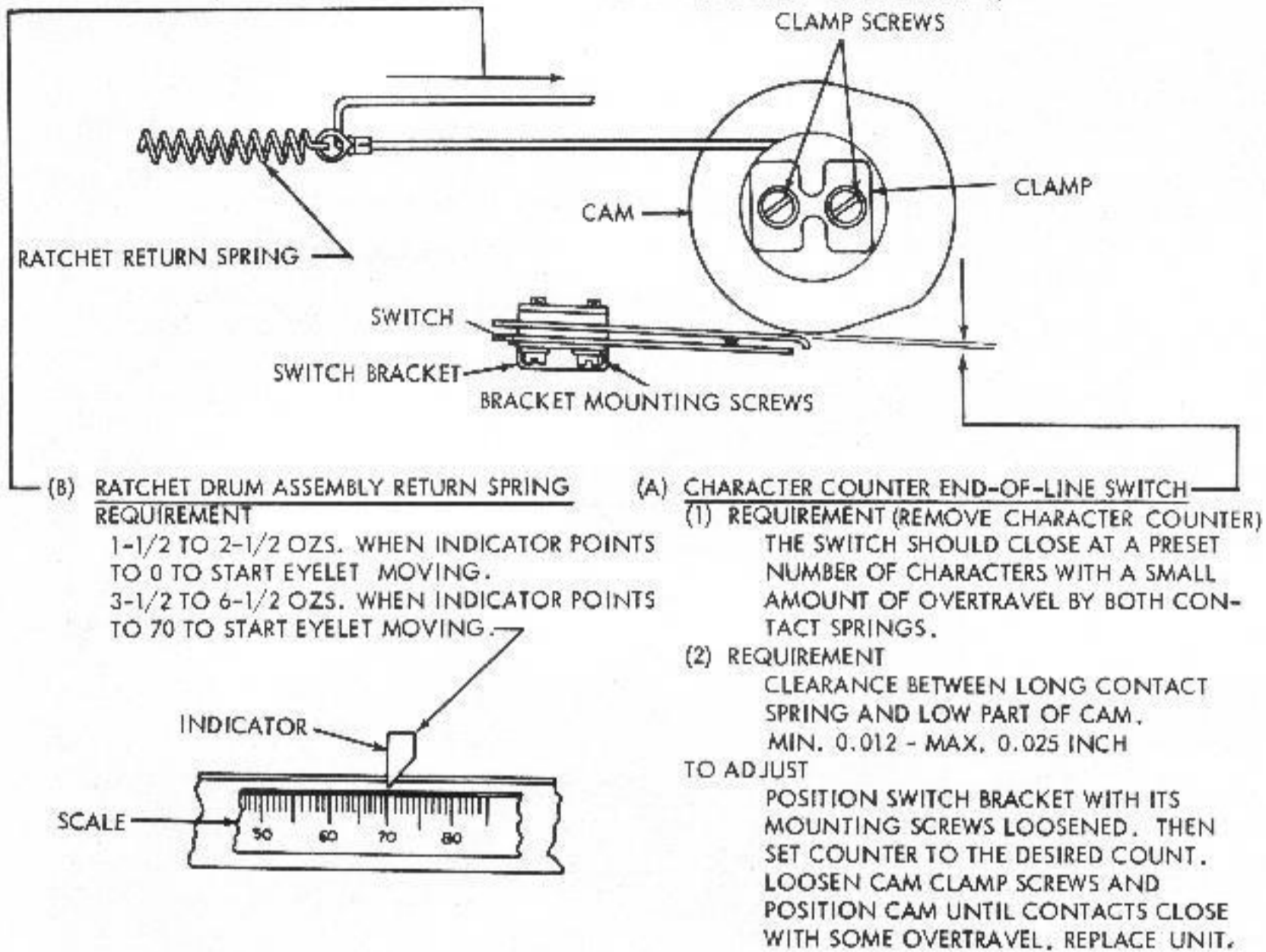
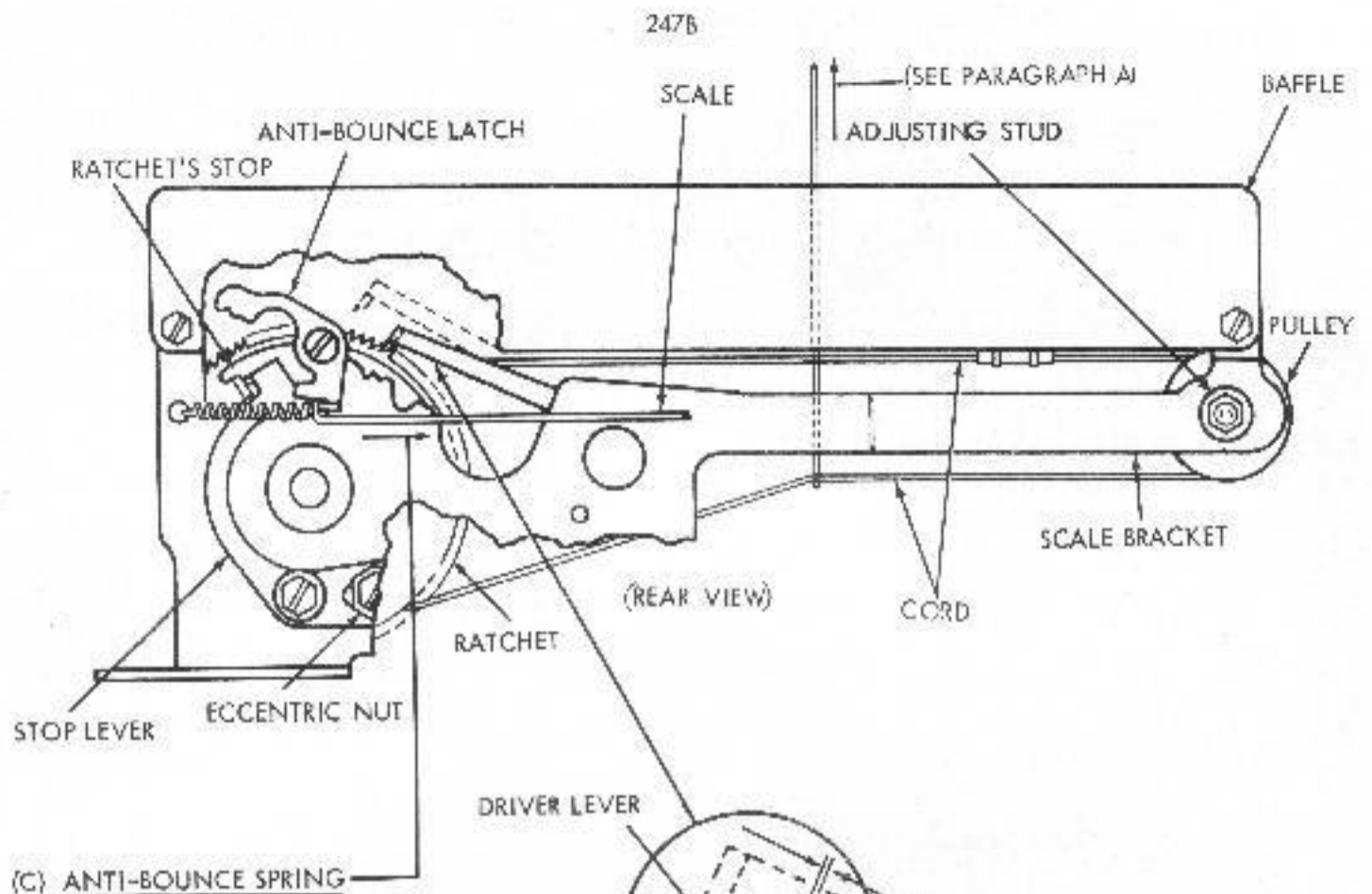


FIGURE 5-3A, CHARACTER COUNTER MECHANISM



(C) ANTI-BOUNCE SPRING REQUIREMENT

ANTI-BOUNCE LATCH RESTING AGAINST STOP LEVER.
 MIN. 25 GRAMS
 MAX. 35 GRAMS
 TO MOVE LATCH TO END OF ITS OPERATING TRAVEL

(A) CHARACTER COUNTER IDLER PULLEY

(1) REQUIREMENT

INDICATOR IN RETURNED ZERO POSITION. SCALE APPLIED PERPENDICULAR TO LOWER CORD AT A POINT UNDER NUMBER 30 ON THE INDICATOR SCALE.
 MIN. 1 OZ.
 MAX. 2 OZS.

(2) REQUIREMENT

LOWER CORD SHALL BE APPROXIMATELY PARALLEL TO THE SCALE BRACKET.
 TO ADJUST
 LOOSEN ADJUSTING STUD MOUNTING SCREW AND POSITION PULLEY.

(B) STOP LEVER

(1) REQUIREMENT

WITH THE COUNTER RATCHET FULLY RETURNED AND RESTING AGAINST ITS STOP LEVER, THE CLEARANCE BETWEEN THE LATCH LEVER AND THE FACE OF THE 4TH RATCHET TOOTH SHOULD BE
 MIN. 0.002 INCH.
 MAX. 0.010 INCH.

(2) REQUIREMENT

THE ANTI-BOUNCE LATCH SHOULD NOT INTERFERE WITH THE ROTATION OF THE RATCHET.
 TO ADJUST
 HOLD THE FEED LEVER OUT OF ENGAGEMENT WITH THE RATCHET AND ROTATE THE STOP LEVER ECCENTRIC.

NOTE

HOLD PAWLS AWAY AND ROTATE DRUM TO MAKE CERTAIN THAT IT DOES NOT BIND AT ITS BEARING.

(D) CHARACTER COUNTER SCALE

REQUIREMENT

WHEN INDICATOR IS AT EXTREME LEFT OF SCALE, IT SHOULD POINT TO 7FRO.
 TO ADJUST
 SET INDICATOR TO LEFT, LOOSEN LOCK SCREWS AND POSITION SCALE.

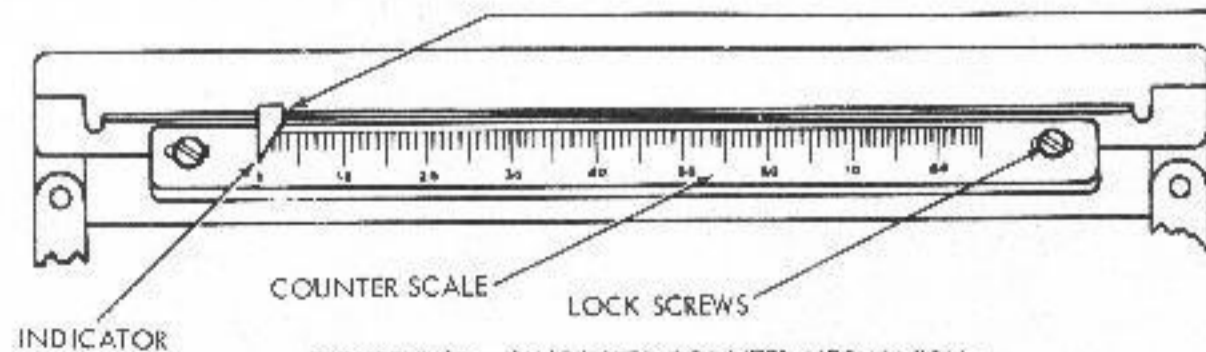


FIGURE 5-3B. CHARACTER COUNTER MECHANISM -

EARLY DESIGN
(FOR LATEST DESIGN SEE FIGURES 1-56 AND 1-57)

(A) RIBBON REVERSING PLATE

TO CHECK

POSITION ROCKER BAIL TO EXTREME LEFT.
HOLD REVERSING ARM UNDER REVERSING PLATE
AND MEASURE CLEARANCE.

WITH FEED PAWL AGAINST OTHER RATCHET,
REPEAT PROCEDURE FOR OTHER REVERSING ARM,

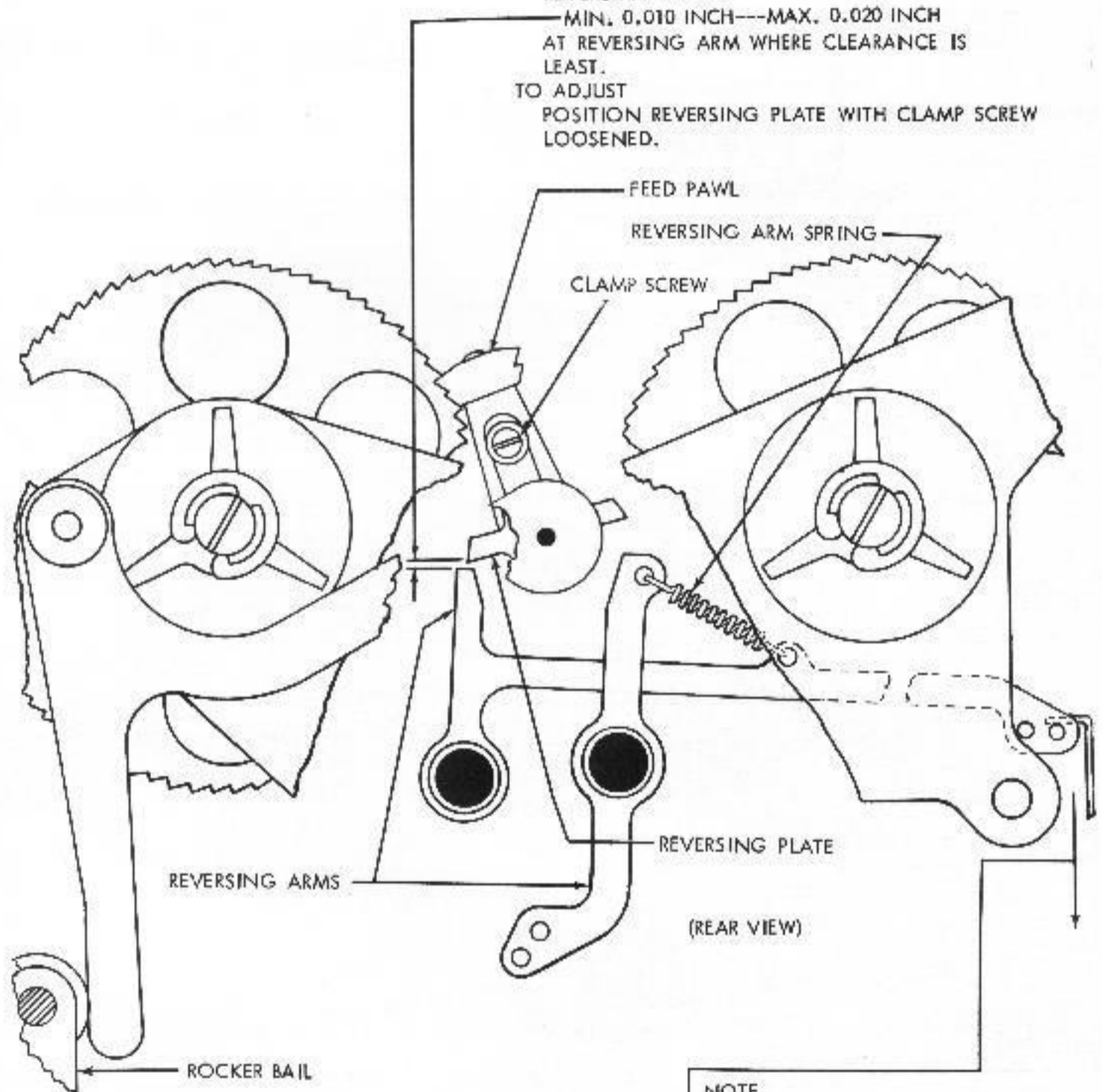
REQUIREMENT

CLEARANCE BETWEEN REVERSING ARM AND
REVERSING PLATE:

MIN. 0.010 INCH—MAX. 0.020 INCH
AT REVERSING ARM WHERE CLEARANCE IS
LEAST.

TO ADJUST

POSITION REVERSING PLATE WITH CLAMP SCREW
LOOSENED.



(B) RIBBON FEED REVERSING ARM SPRING

REQUIREMENT

WITH FEED PAWL IN HIGHEST POSITION:
MIN. 10 GRAMS TO 30 GRAMS
TO START REVERSING ARM MOVING.

NOTE

AUTOMATIC SEND-RECEIVE SET: SEE
BULLETIN 250B FOR ADJUSTMENTS
COVERING RELATIONSHIP BETWEEN
TYPING REPERFORATOR UNIT AND
ASR KEYBOARD.

REPERFORATOR-TRANSMITTER SET: SEE
BULLETIN 248B FOR ADJUSTMENTS
COVERING RELATIONSHIP BETWEEN
TYPING REPERFORATOR UNIT AND
TRANSMITTER DISTRIBUTOR UNIT.

FIGURE 5-3. RIBBON FEED MECHANISM (EARLIER DESIGN)

3. VARIABLE FEATURES
 SIGNAL BELL CONTACT MECHANISM-EARLIER DESIGN
 (FOR LATEST DESIGN SEE FIGURE 2-2)

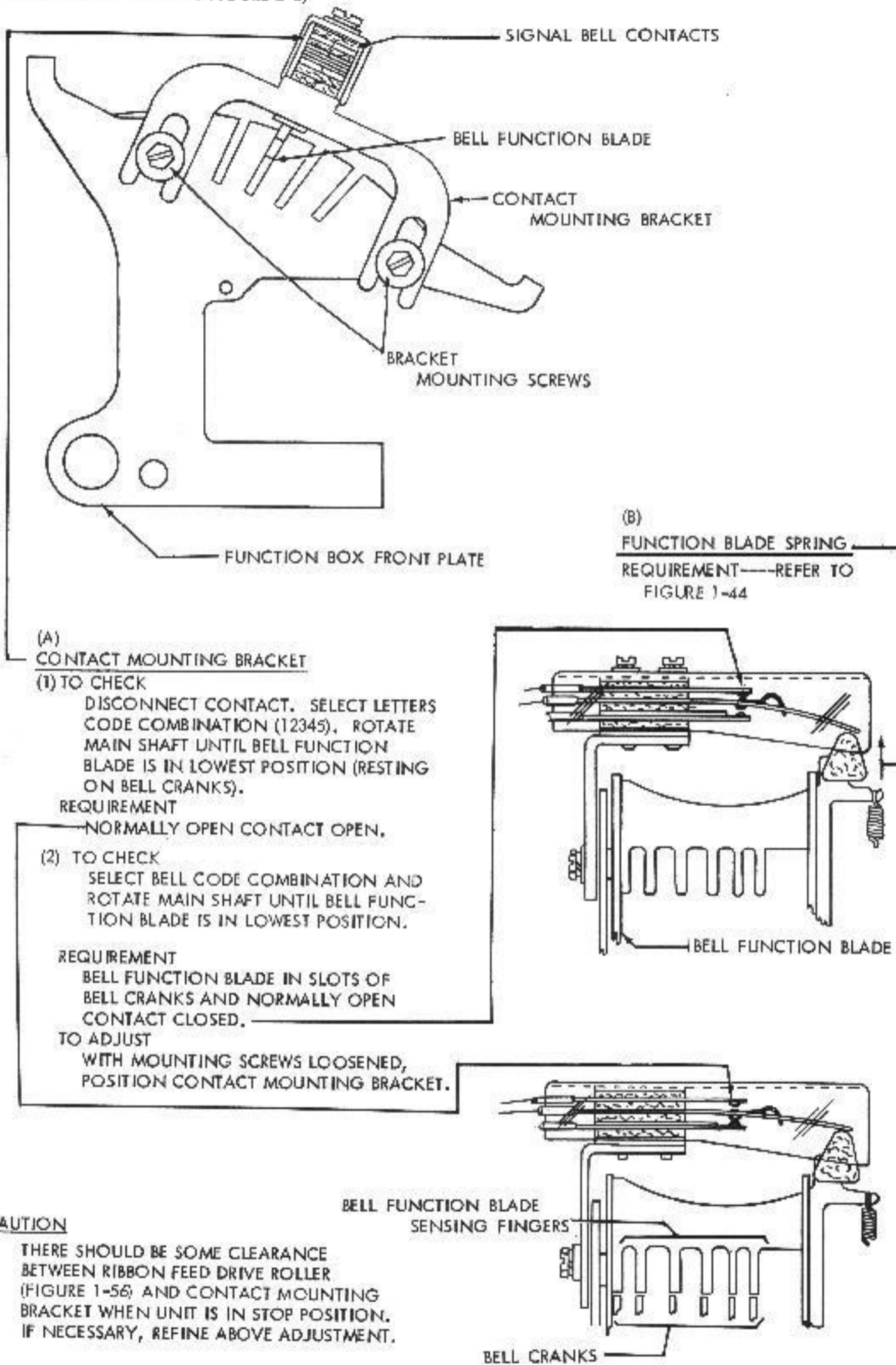


FIGURE 5-4. SIGNAL BELL CONTACT MECHANISM - EARLIER DESIGN

REPEAT ON SPACE MECHANISM (EARLIER DESIGN)
FOR LATEST DESIGN SEE FIGURE 1-91

(A) TRAVEL SCREW

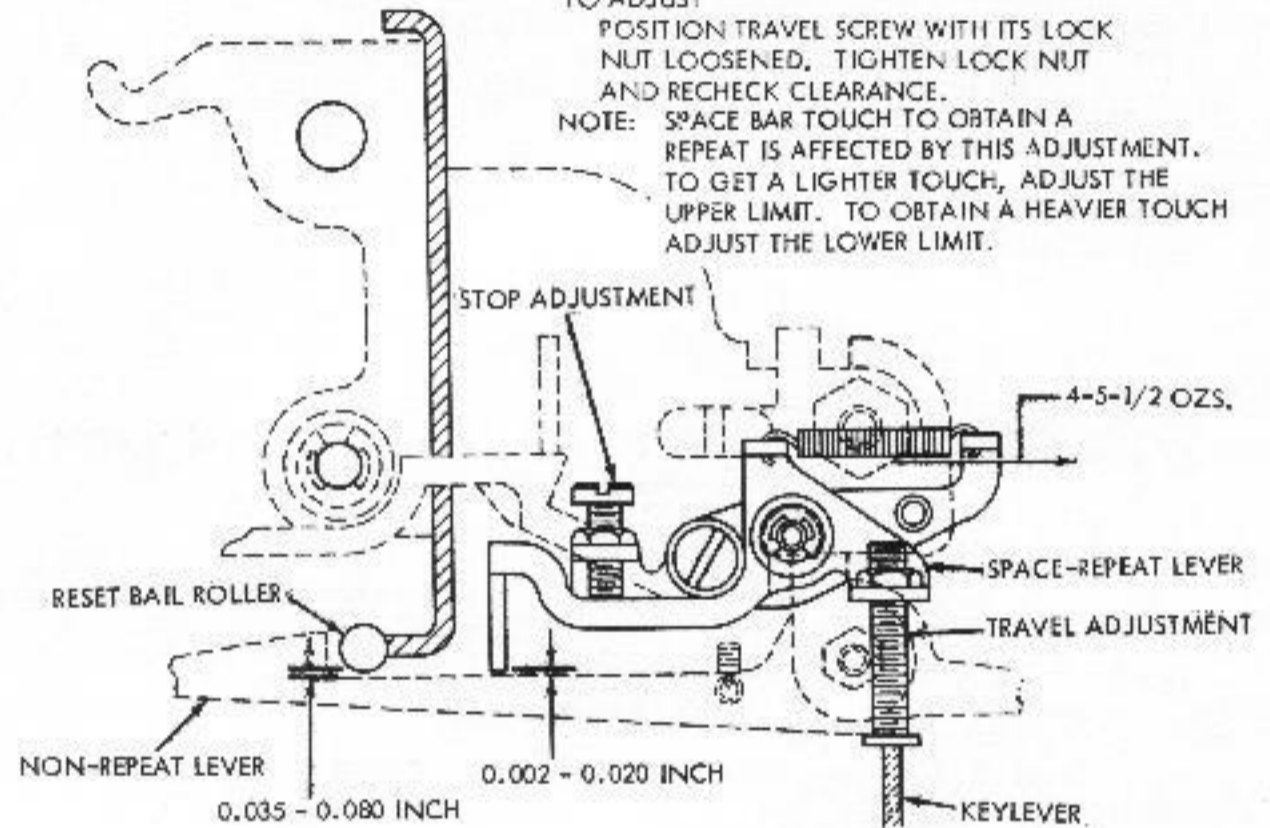
REQUIREMENT

WHEN SPACE KEY IS HELD FULLY DEPRESSED:
MIN. 0.035 INCH---MAX. 0.080 INCH
CLEARANCE BETWEEN RESET BAIL ROLLER
AND NON-REPEAT LEVER.

TO ADJUST

POSITION TRAVEL SCREW WITH ITS LOCK
NUT LOOSENED. TIGHTEN LOCK NUT
AND RECHECK CLEARANCE.

NOTE: SPACE BAR TOUCH TO OBTAIN A
REPEAT IS AFFECTED BY THIS ADJUSTMENT.
TO GET A LIGHTER TOUCH, ADJUST THE
UPPER LIMIT. TO OBTAIN A HEAVIER TOUCH
ADJUST THE LOWER LIMIT.

(B) STOP

(1) REQUIREMENT

MIN. 0.002 INCH
MAX. 0.020 INCH
CLEARANCE BETWEEN THE SPACE-REPEAT
LEVER AND THE NON-REPEAT LEVER.

TO ADJUST

DEPRESS THE "G" KEYLEVER TO TRIP
THE KEYBOARD CLUTCH. POSITION THE
STOP WITH ITS LOCK NUT LOOSENED.

(C) SPACE REPEAT LEVER SPRING TENSION

MIN. 4 OZS.
MAX. 5-1/2 OZS.

TO ADJUST

REMOVE THE RIGHT HAND END OF THE
7603 SPRING AND PULL WITH AN 8 OZ.
SCALE TO ITS POSITION LENGTH.

FIGURE 5-5. REPEAT ON SPACE MECHANISM - EARLIER DESIGN

LETTERS-FIGURES CONTACT MECHANISM - EARLY DESIGN
FOR LATEST DESIGN OF THIS MECHANISM, SEE FIGURE 2-17 AND 2-18.

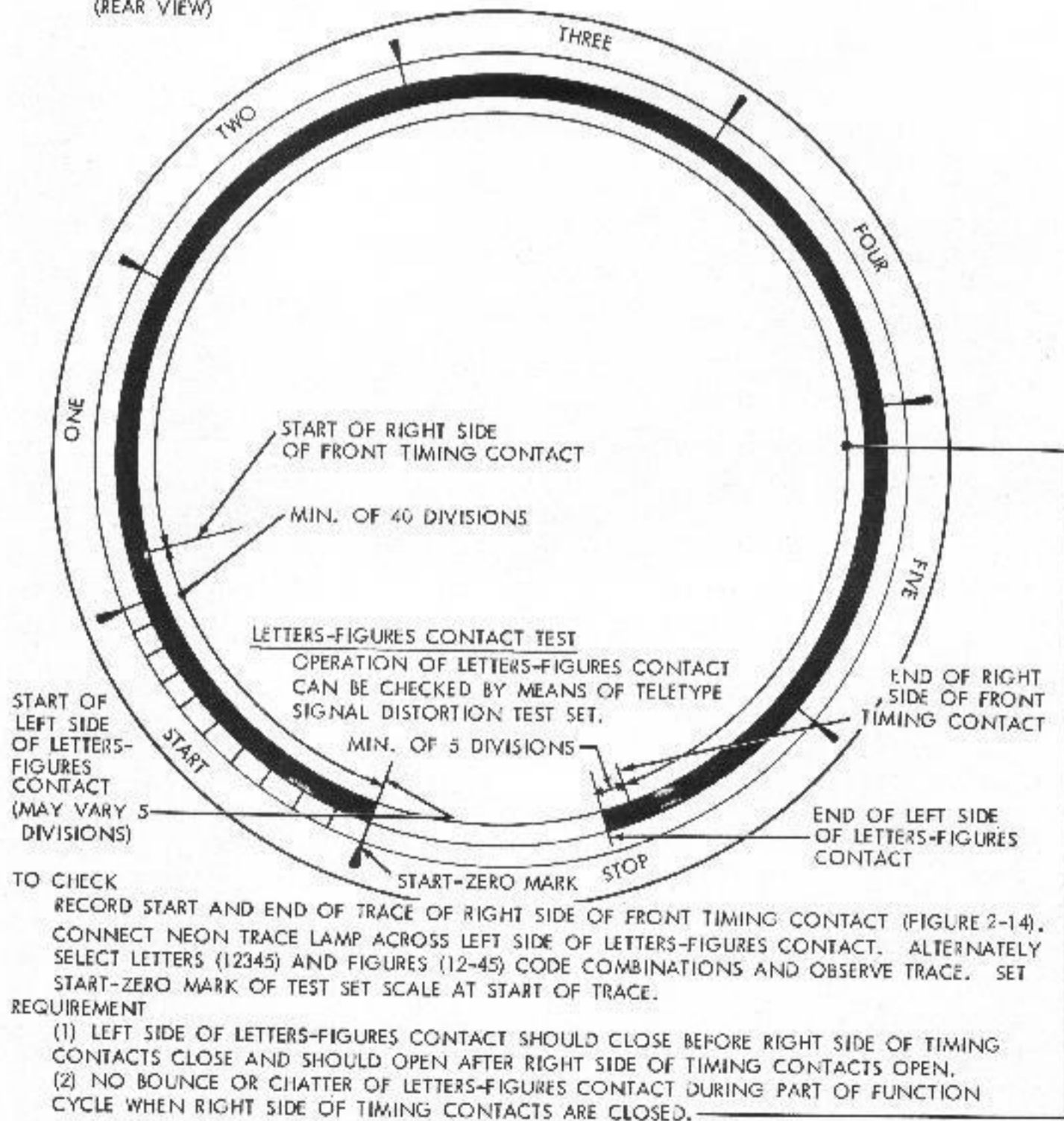
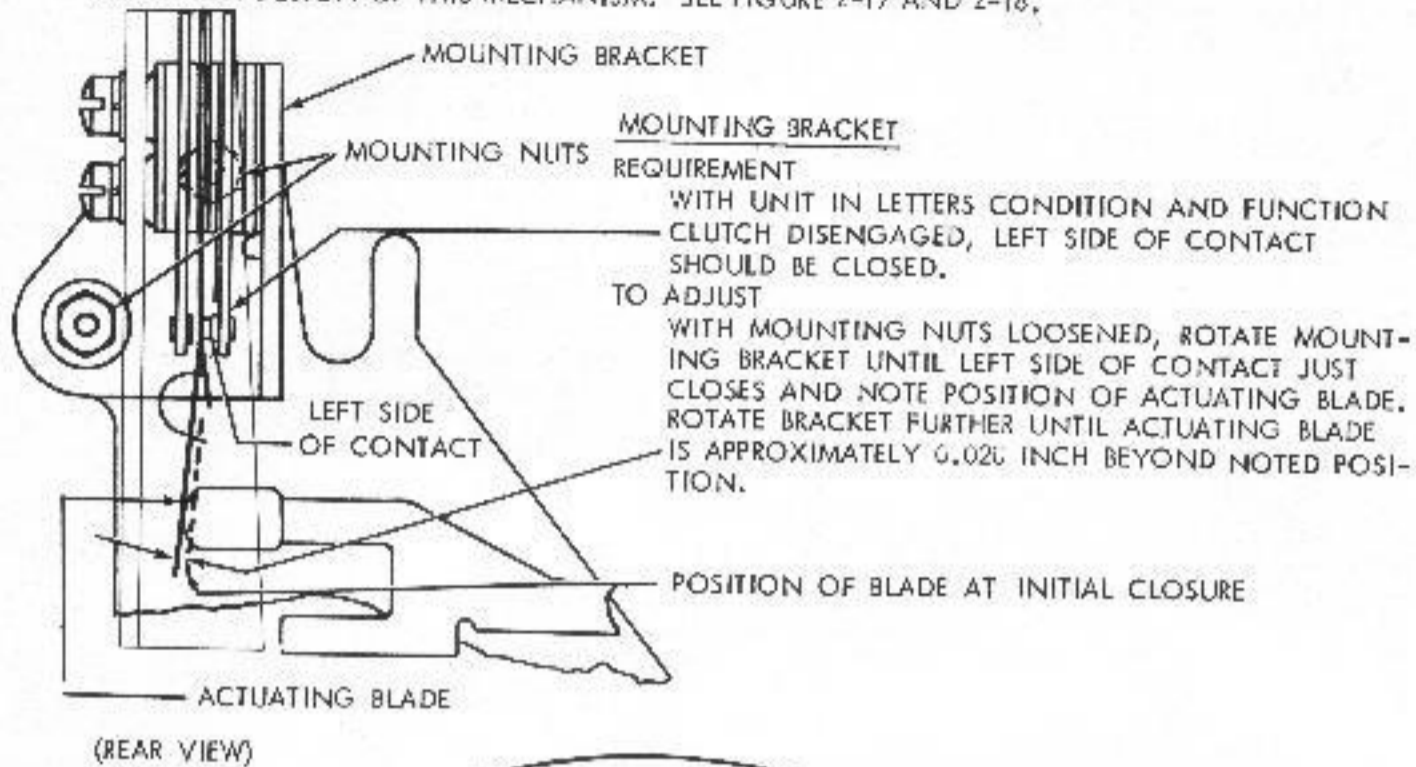


FIGURE 5-6. LETTERS-FIGURES CONTACT MECHANISM - EARLY DESIGN

NON-INTERFERING BLANK TAPE FEED OUT MECHANISM

(EARLIER DESIGN) (FOR LATEST DESIGN SEE FIGURES 2-52 TO 2-63)

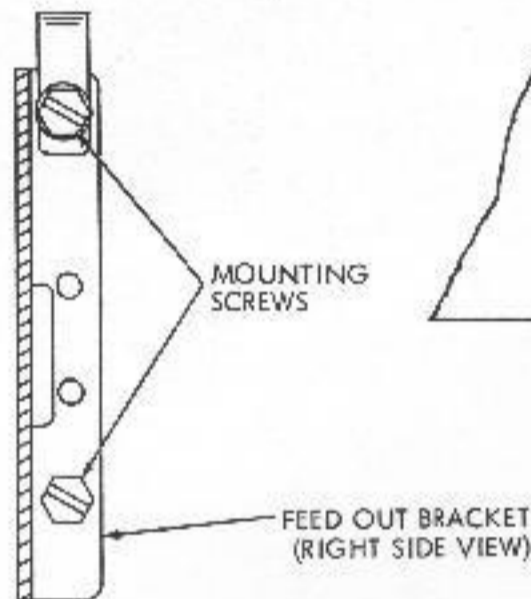
(A) FEED OUT BRACKET

REQUIREMENT

OUTER RATCHET CHECK PAWL
RIDING FULLY ON RATCHET
WHEN PLAY IS TAKEN UP IN
EITHER DIRECTION (SEE FIGURE
5-10).

TO ADJUST

POSITION FEED OUT BRACKET
WITH MOUNTING SCREWS
LOOSENED.



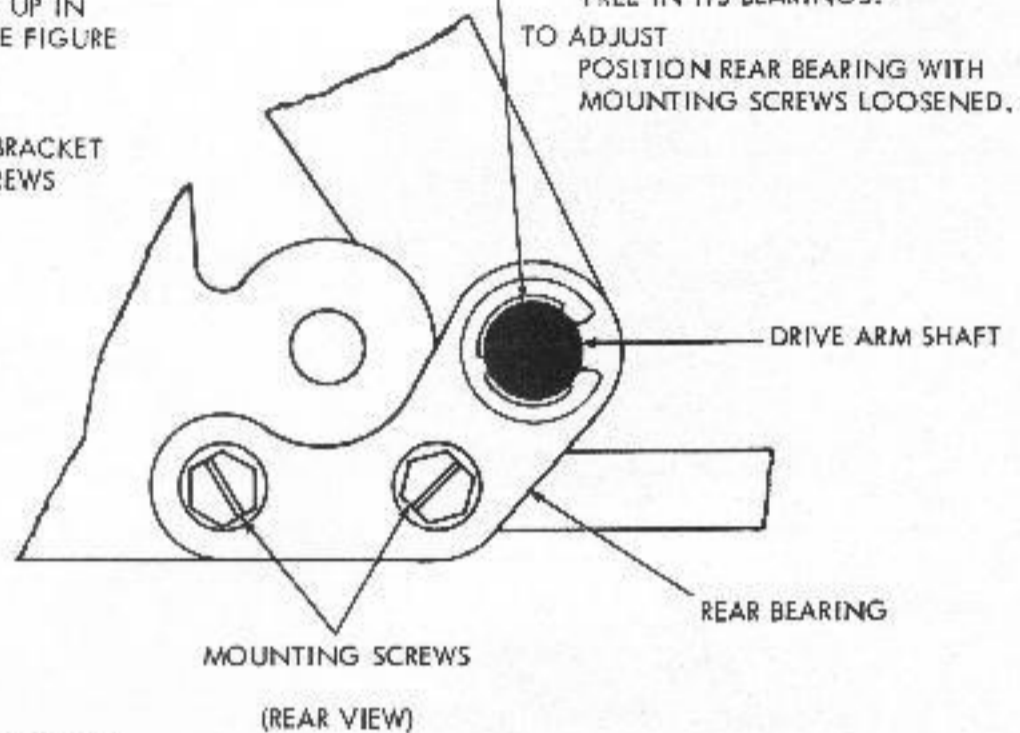
(B) DRIVE ARM SHAFT REAR BEARING

REQUIREMENT

DRIVE ARM SHAFT FINGER
FREE IN ITS BEARINGS.

TO ADJUST

POSITION REAR BEARING WITH
MOUNTING SCREWS LOOSENED.



(C) DRIVE ARM

REQUIREMENT

- (1) WHEN PLAY IS TAKEN UP TO MAKE IT
MINIMUM, AT LEAST SOME CLEARANCE
BETWEEN DRIVE ARM AND FUNCTION CAM.
- (2) DRIVE ARM SHOULD ENGAGE FULL
THICKNESS OF RELEASE ARM.

TO ADJUST

POSITION DRIVE ARM ON SHAFT WITH
CLAMP SCREW LOOSENED.

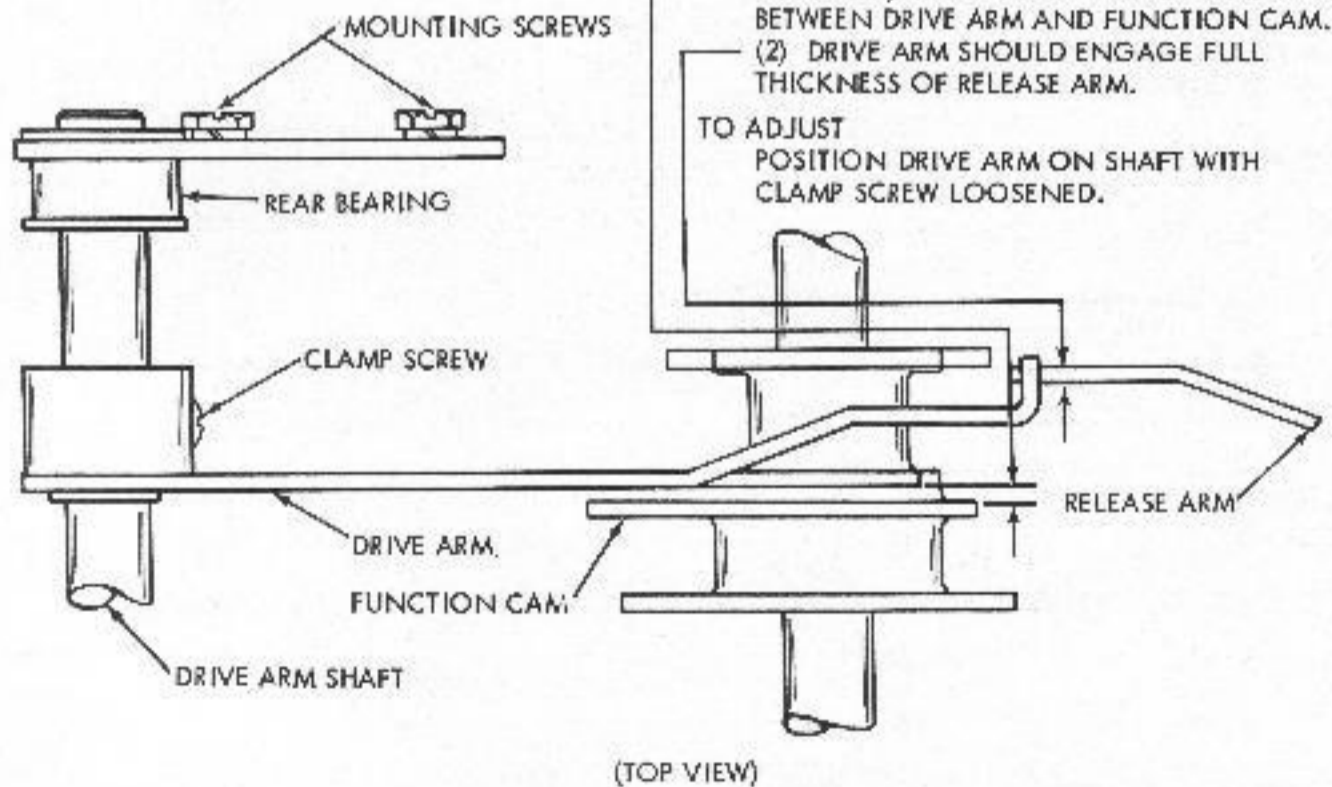
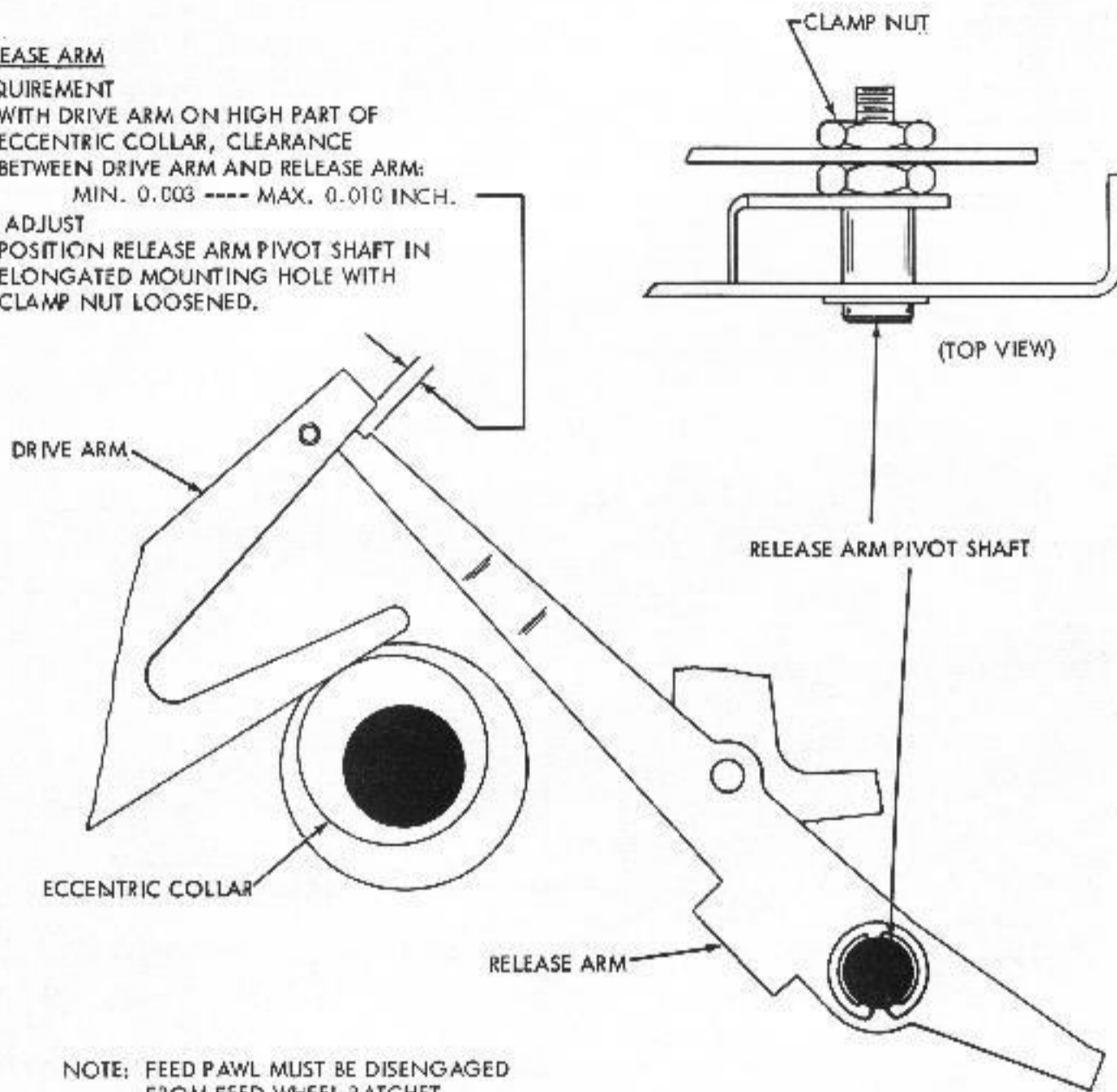


FIGURE 5-7. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM:
EARLIER DESIGN

RELEASE ARM**REQUIREMENT**

WITH DRIVE ARM ON HIGH PART OF
ECCENTRIC COLLAR, CLEARANCE
BETWEEN DRIVE ARM AND RELEASE ARM:
MIN. 0.003 ---- MAX. 0.010 INCH.

TO ADJUST
POSITION RELEASE ARM PIVOT SHAFT IN
ELONGATED MOUNTING HOLE WITH
CLAMP NUT LOOSENED.



NOTE: FEED PAWL MUST BE DISENGAGED
FROM FEED WHEEL RATCHET.

FIGURE 5-8. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
EARLIER DESIGN

(A) FEED OUT PAWL
TO CHECK

WITH UNIT OPERATING UNDER POWER, ALLOW FEED OUT OPERATION TO BE INTERRUPTED BY AN INCOMING MESSAGE.

REQUIREMENT

FEED HOLE AND CODE HOLES OF FIRST CHARACTER ON SAME CENTER LINE.

TO ADJUST

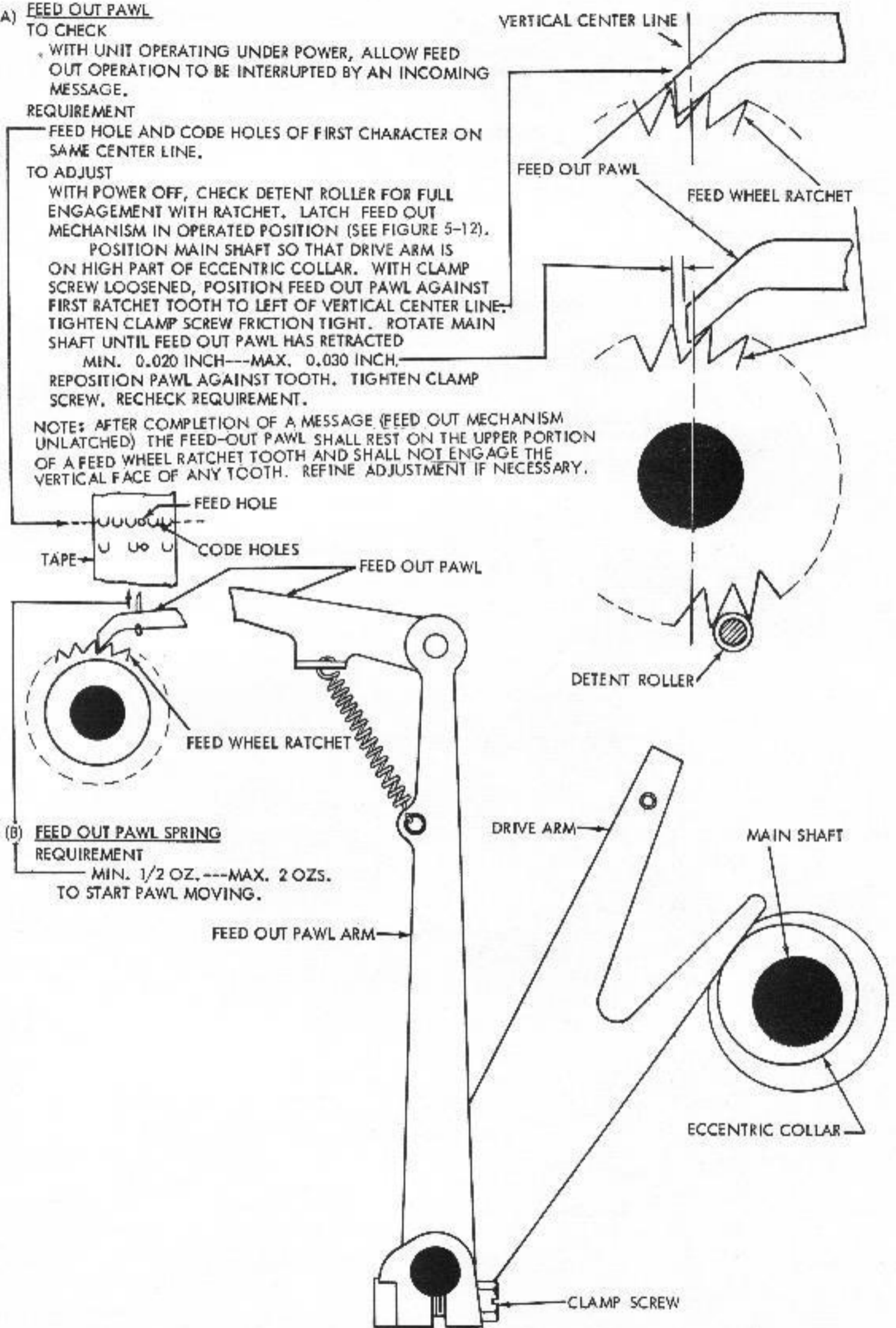
WITH POWER OFF, CHECK DETENT ROLLER FOR FULL ENGAGEMENT WITH RATCHET. LATCH FEED OUT MECHANISM IN OPERATED POSITION (SEE FIGURE 5-12).

POSITION MAIN SHAFT SO THAT DRIVE ARM IS ON HIGH PART OF ECCENTRIC COLLAR. WITH CLAMP SCREW LOOSENED, POSITION FEED OUT PAWL AGAINST FIRST RATCHET TOOTH TO LEFT OF VERTICAL CENTER LINE. TIGHTEN CLAMP SCREW FRICTION TIGHT. ROTATE MAIN SHAFT UNTIL FEED OUT PAWL HAS RETRACTED

MIN. 0.020 INCH---MAX. 0.030 INCH.

REPOSITION PAWL AGAINST TOOTH. TIGHTEN CLAMP SCREW. RECHECK REQUIREMENT.

NOTE: AFTER COMPLETION OF A MESSAGE (FEED OUT MECHANISM UNLATCHED) THE FEED-OUT PAWL SHALL REST ON THE UPPER PORTION OF A FEED WHEEL RATCHET TOOTH AND SHALL NOT ENGAGE THE VERTICAL FACE OF ANY TOOTH. REFINE ADJUSTMENT IF NECESSARY.

(B) FEED OUT PAWL SPRING
REQUIREMENT

MIN. 1/2 OZ. ---MAX. 2 OZS.
TO START PAWL MOVING.

FIGURE 5-9. NON INTERFERING BLANK TAPE FEED OUT MECHANISM
EARLIER DESIGN

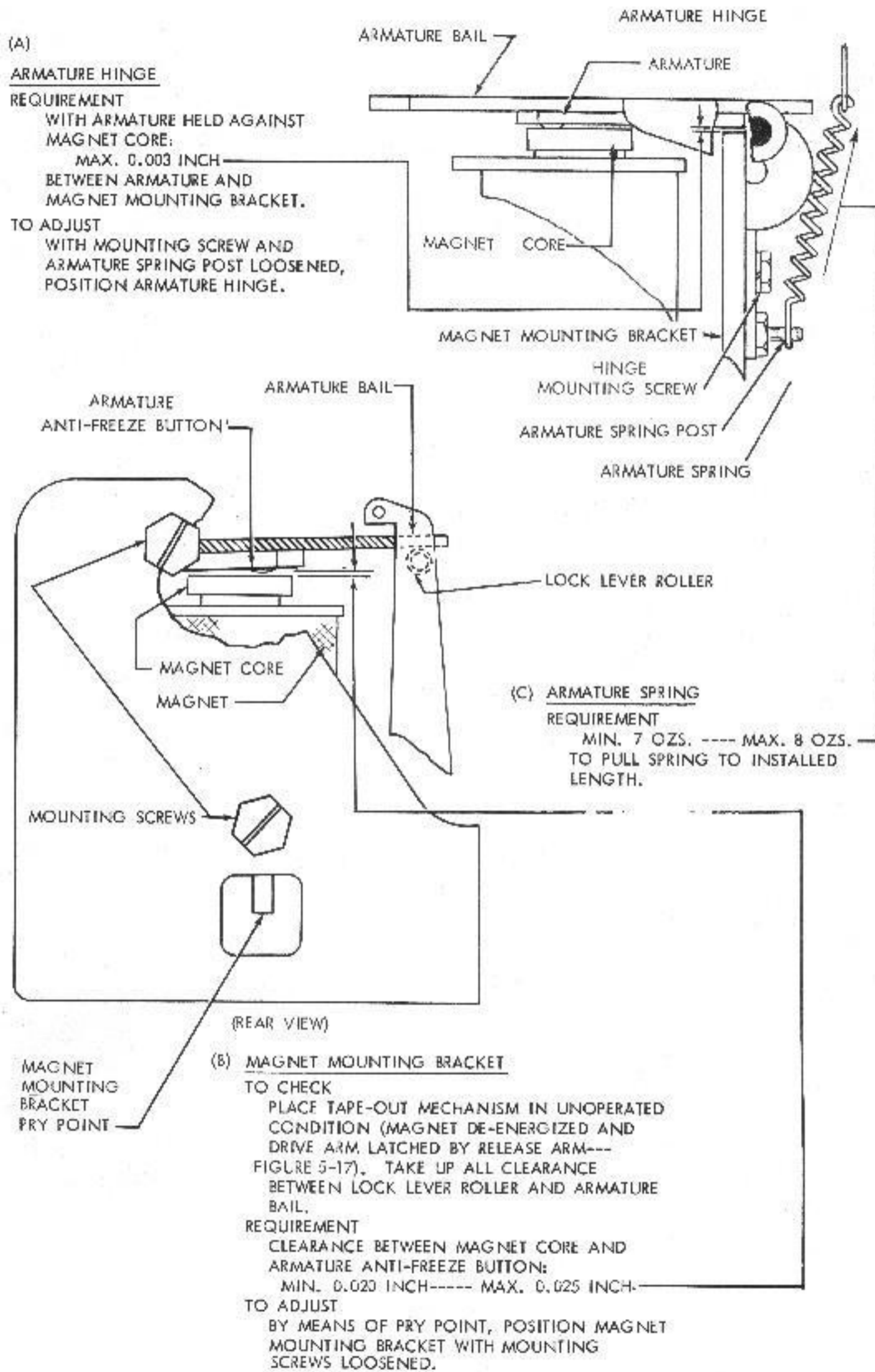


FIGURE 5-10. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
 EARLIER DESIGN

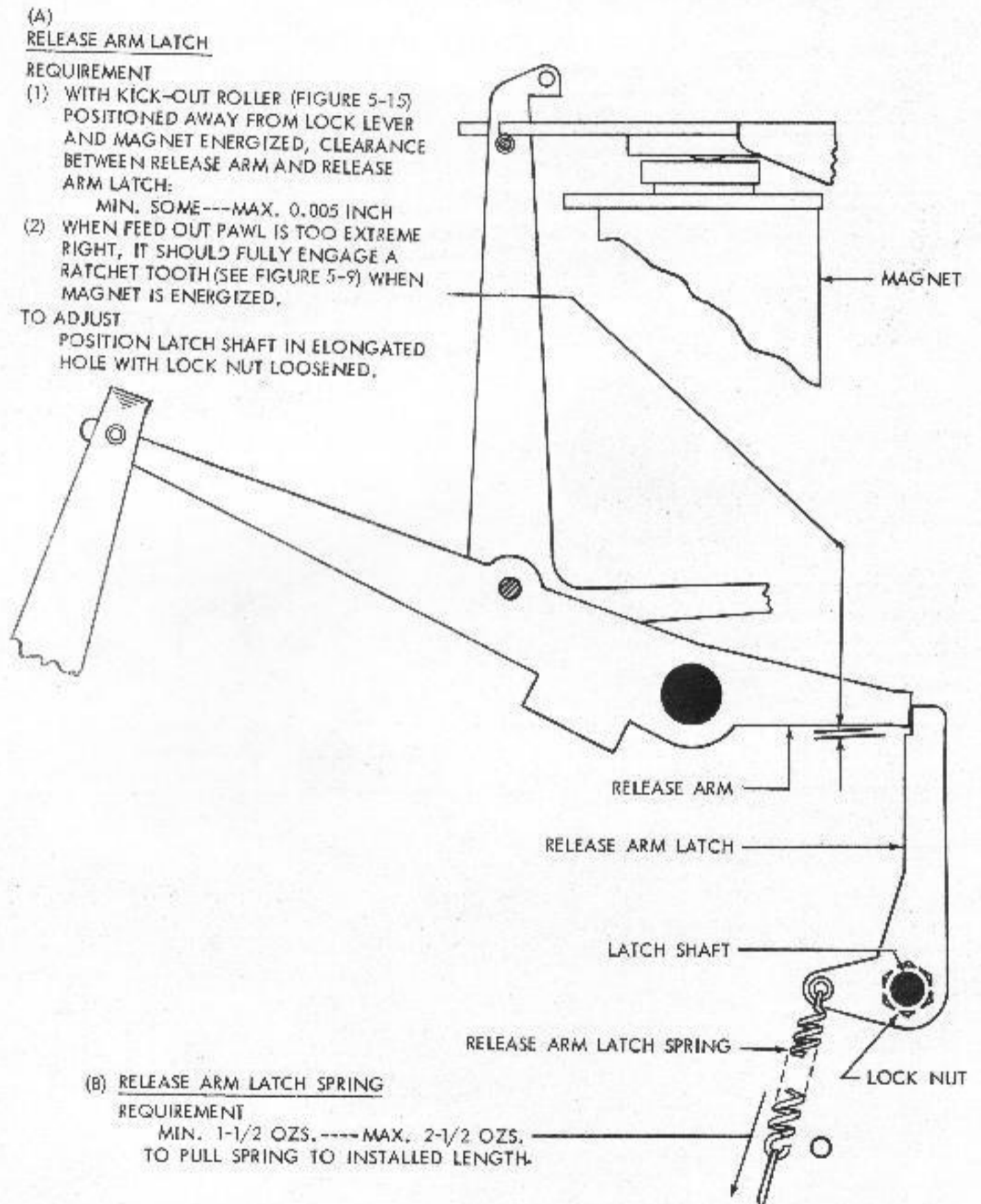


FIGURE 5-11. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
EARLIER DESIGN

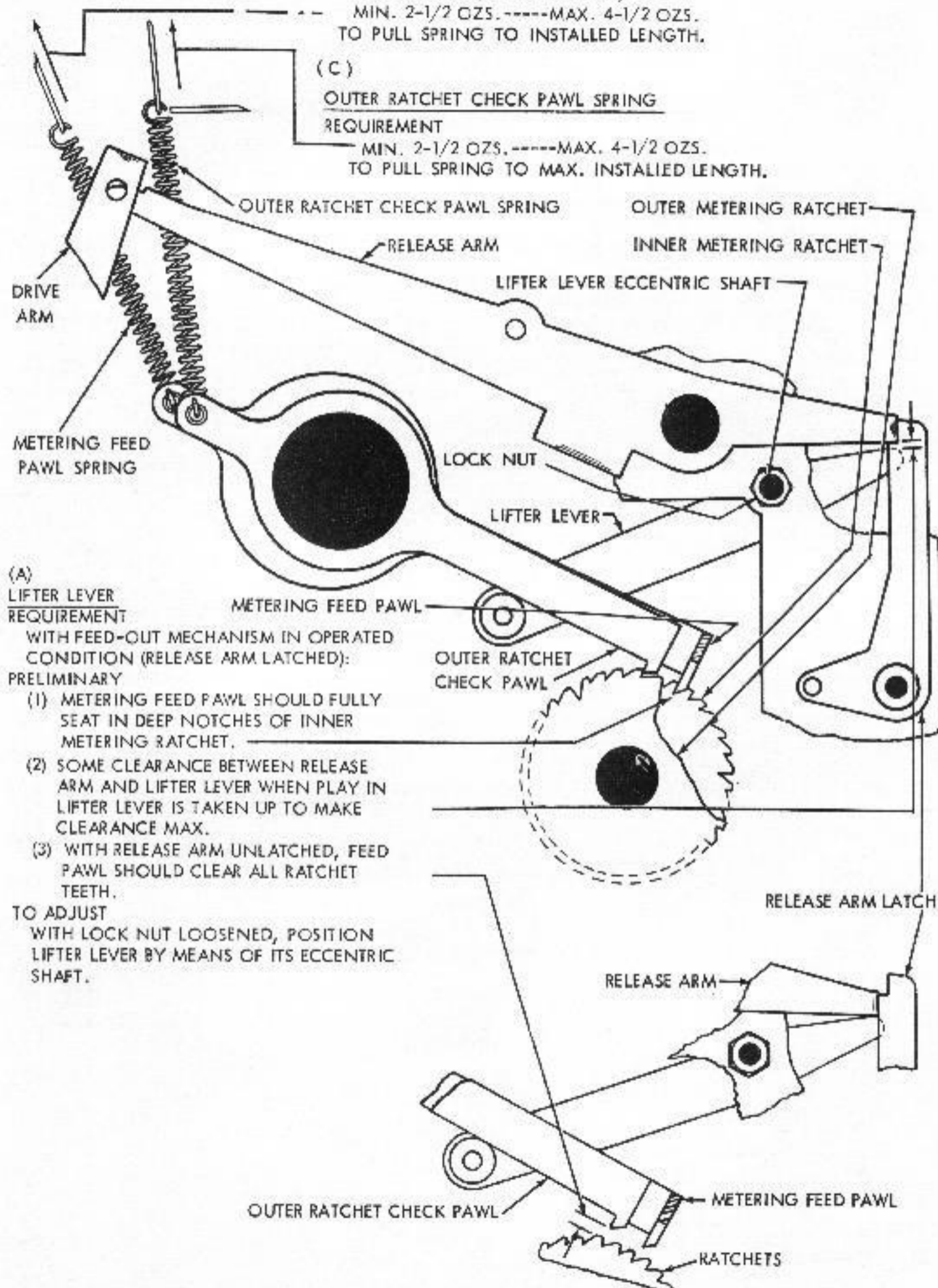
(B) METERING FEED PAWL SPRING

REQUIREMENT
WITH DRIVE ARM LATCHED BY
RELEASE ARM (SEE FIGURE 5-17):
MIN. 2-1/2 OZS. -----MAX. 4-1/2 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

(C)

OUTER RATCHET CHECK PAWL SPRING

REQUIREMENT
MIN. 2-1/2 OZS. -----MAX. 4-1/2 OZS.
TO PULL SPRING TO MAX. INSTALLED LENGTH.

(A) LIFTER LEVER REQUIREMENT

WITH FEED-OUT MECHANISM IN OPERATED
CONDITION (RELEASE ARM LATCHED):
PRELIMINARY

- (1) METERING FEED PAWL SHOULD FULLY SEAT IN DEEP NOTCHES OF INNER METERING RATCHET.
- (2) SOME CLEARANCE BETWEEN RELEASE ARM AND LIFTER LEVER WHEN PLAY IN LIFTER LEVER IS TAKEN UP TO MAKE CLEARANCE MAX.
- (3) WITH RELEASE ARM UNLATCHED, FEED PAWL SHOULD CLEAR ALL RATCHET TEETH.

TO ADJUST

WITH LOCK NUT LOOSENED, POSITION
LIFTER LEVER BY MEANS OF ITS ECCENTRIC
SHAFT.

FIGURE 5-12. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
EARLIER DESIGN

(A)
INNER RATCHET CHECK PAWL

TO CHECK

WITH FEED-OUT MECHANISM IN OPERATED CONDITION (DRIVE ARM UNLATCHED), PRESENT A DEEP NOTCH OF BOTH RATCHETS TO METERING FEED PAWL AND POSITION PAWL TO EXTREME LEFT.

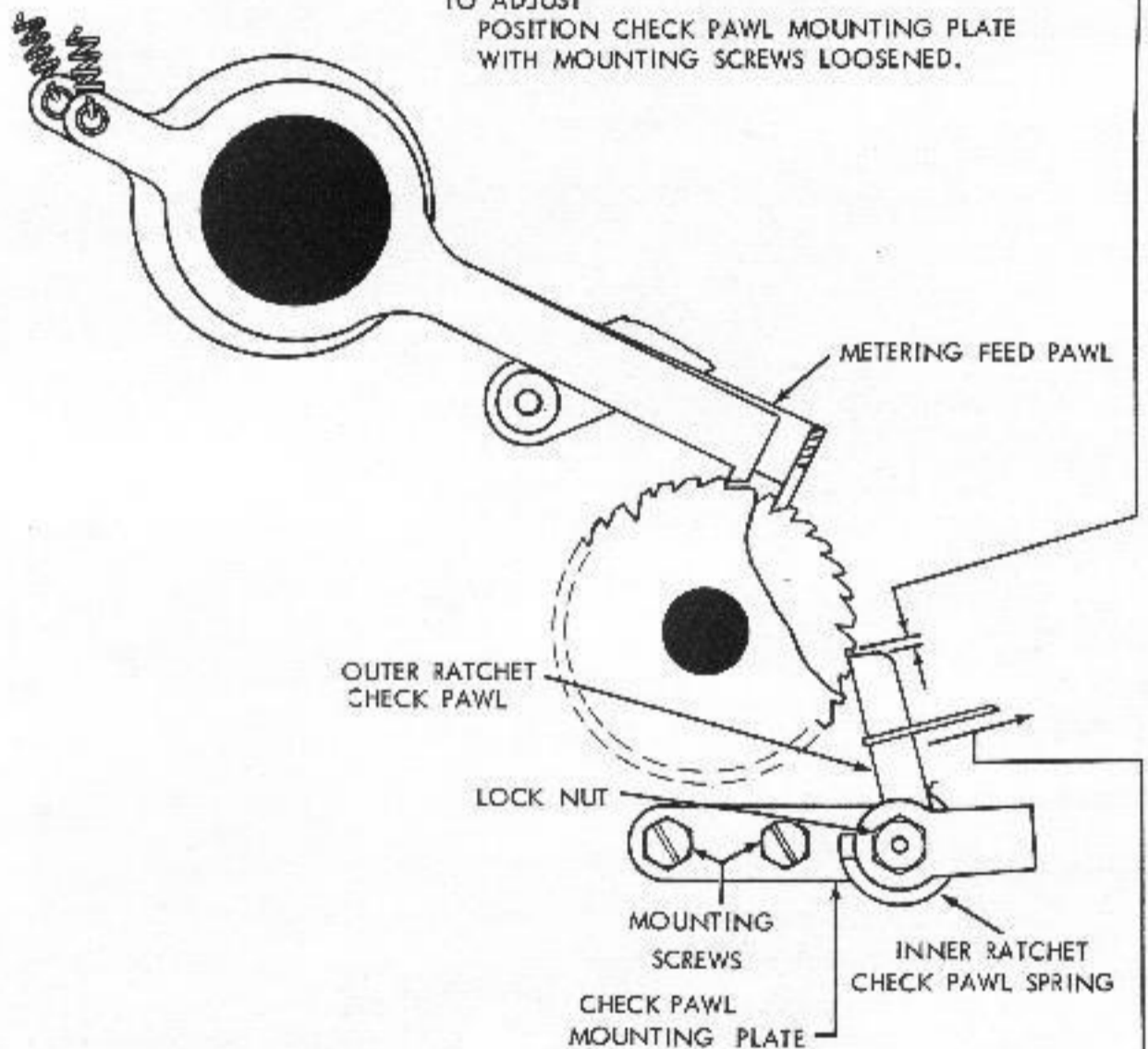
REQUIREMENT

CLEARANCE BETWEEN INNER RATCHET CHECK PAWL AND RATCHET TOOTH:

MIN. 0.005 INCH---MAX. 0.015 INCH

TO ADJUST

POSITION CHECK PAWL MOUNTING PLATE WITH MOUNTING SCREWS LOOSENED.



(B) INNER RATCHET CHECK PAWL SPRING

REQUIREMENT

MIN. 1/2 OZ. ---- MAX. 1 1/2 OZS.

TO PULL CHECK PAWL AWAY FROM RATCHET.

TO ADJUST

POSITION SPRING WITH LOCK NUT LOOSENED. ROTATING SPRING CLOCKWISE INCREASES TENSION; ROTATING SPRING COUNTER-CLOCKWISE DECREASES TENSION.

FIGURE 5-13. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
 EARLIER DESIGN

NOTE
 LOOSEN THE STRIPPER BAIL CLAMP SCREW AND TAKE UP THE PLAY
 BETWEEN THE STRIPPER BAIL AND THE SHAFT IN A CLOCKWISE DIRECTION
 BEFORE MAKING THE FOLLOWING ADJUSTMENT. TIGHTEN THE
 STRIPPER BAIL CLAMP SCREW.

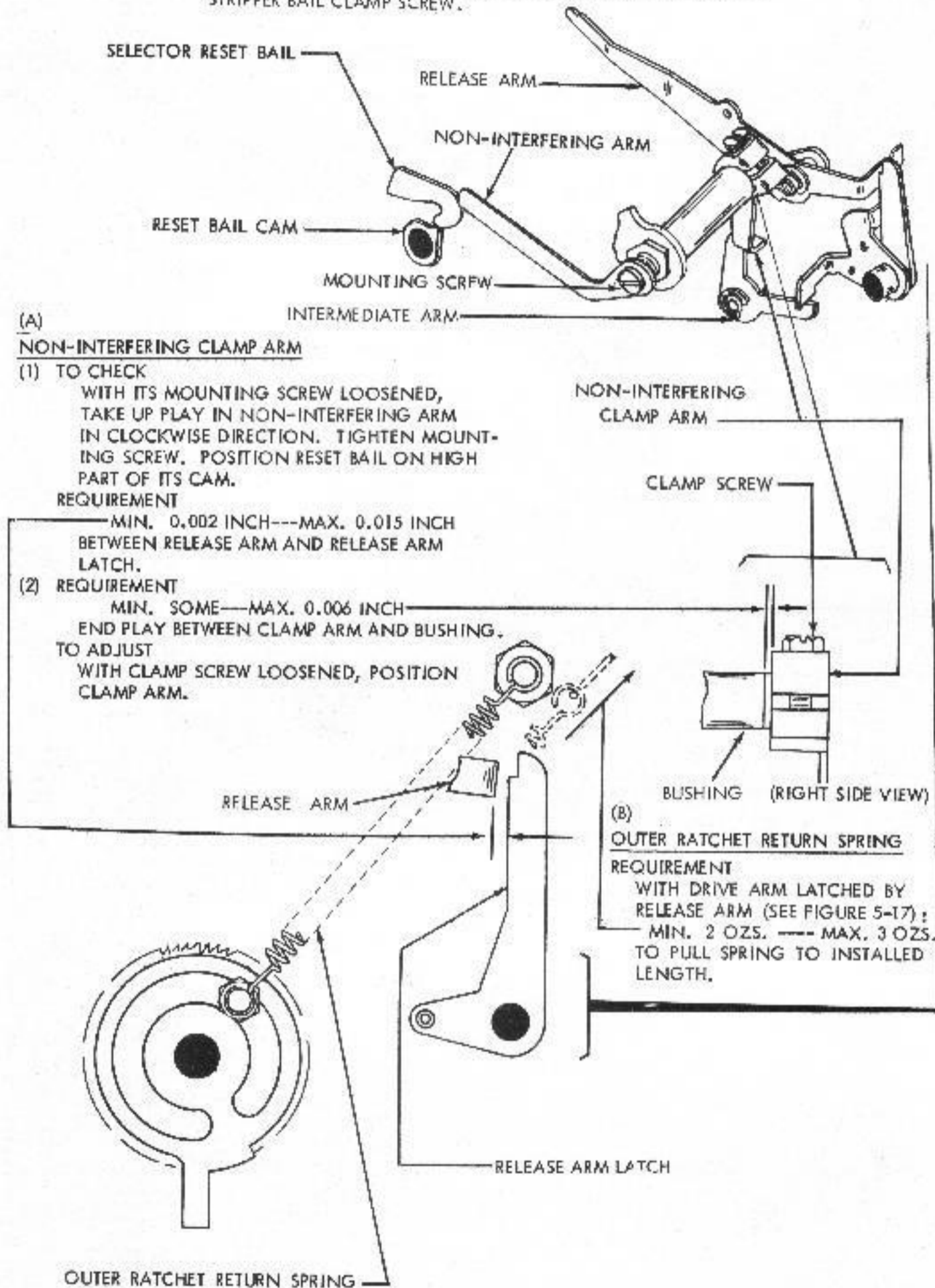


FIGURE 5-14. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
 EARLIER DESIGN

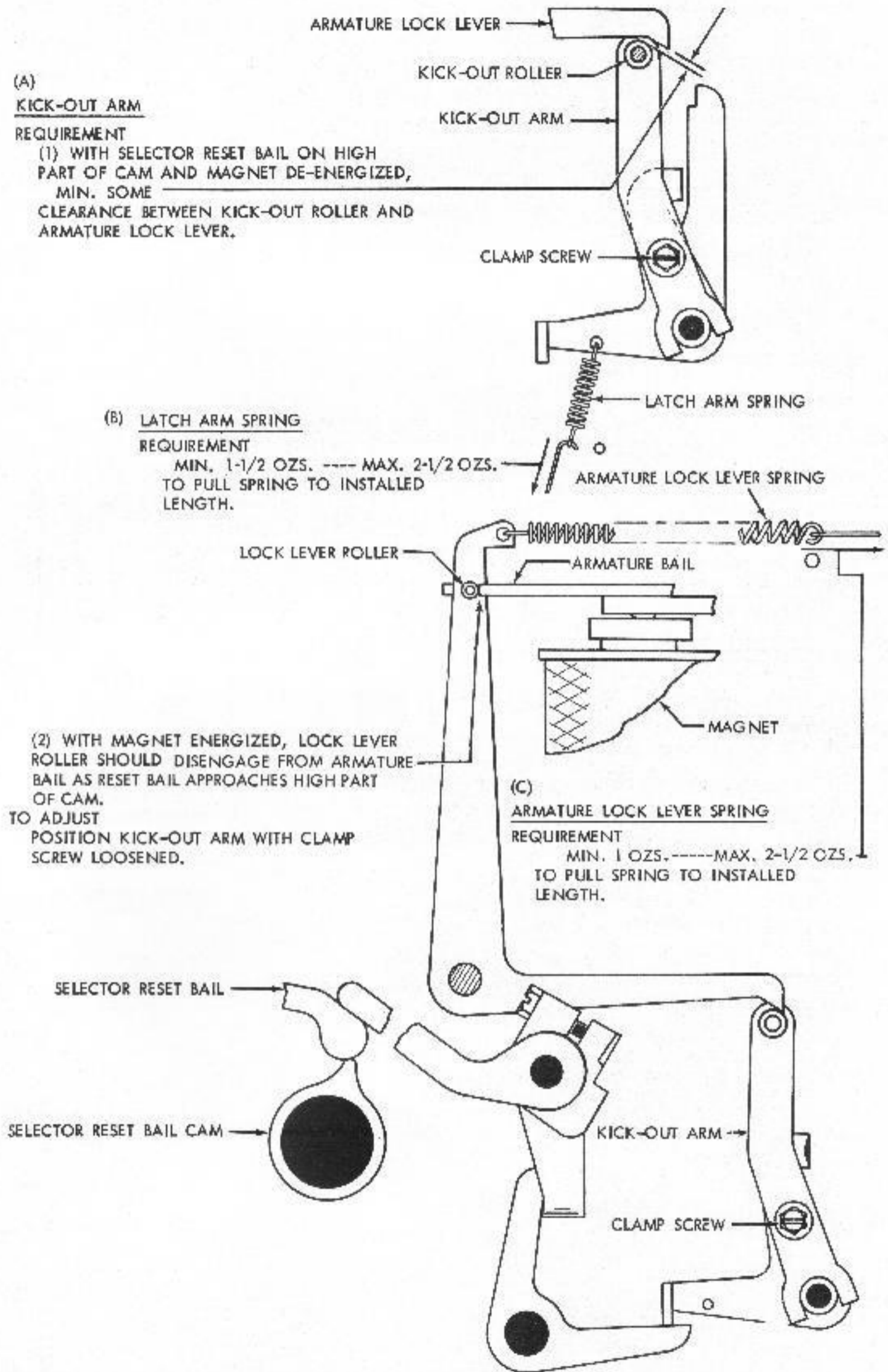


FIGURE 5-15. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
 EARLIER DESIGN

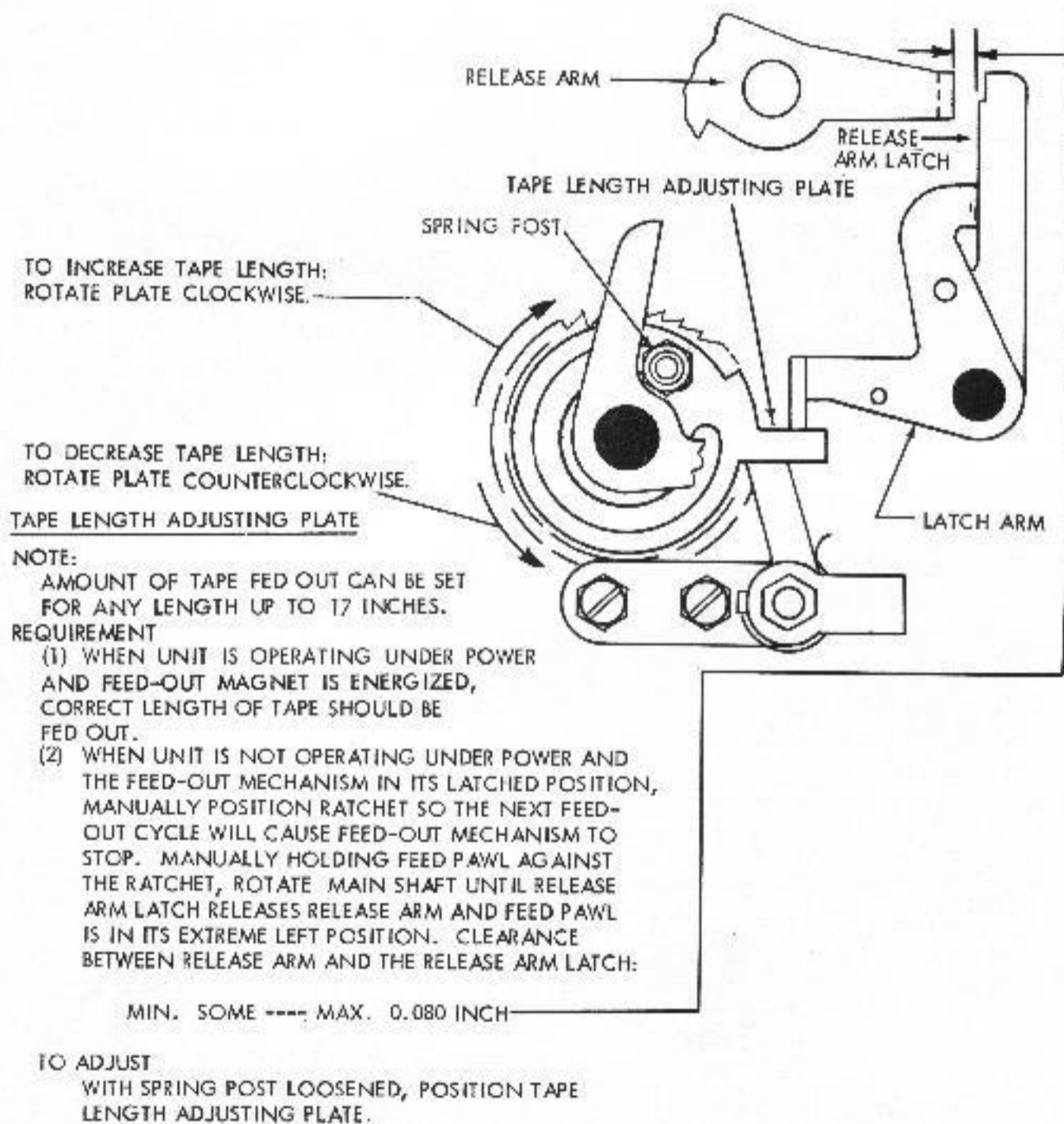


FIGURE 5-16. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
EARLIER DESIGN

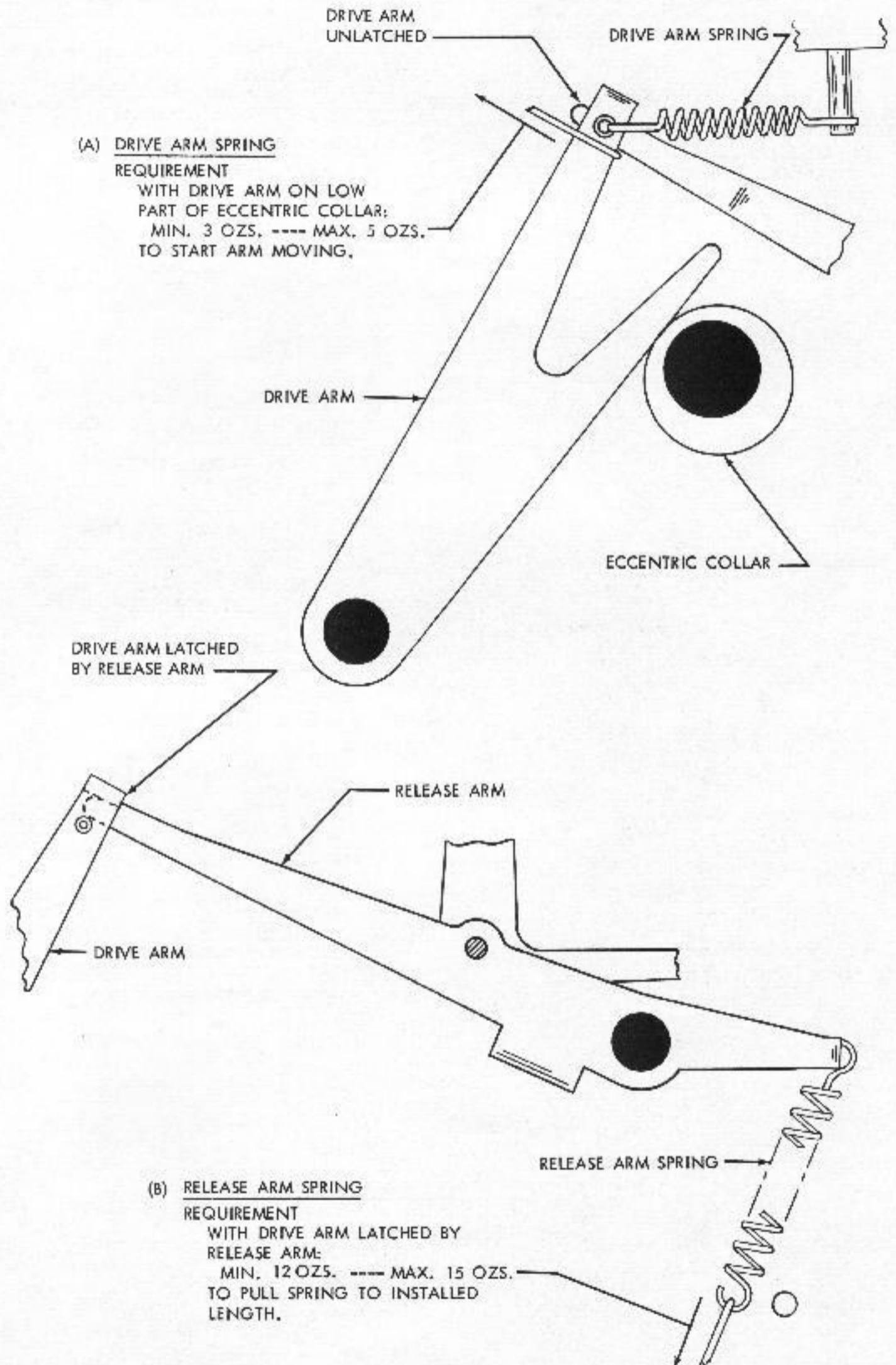
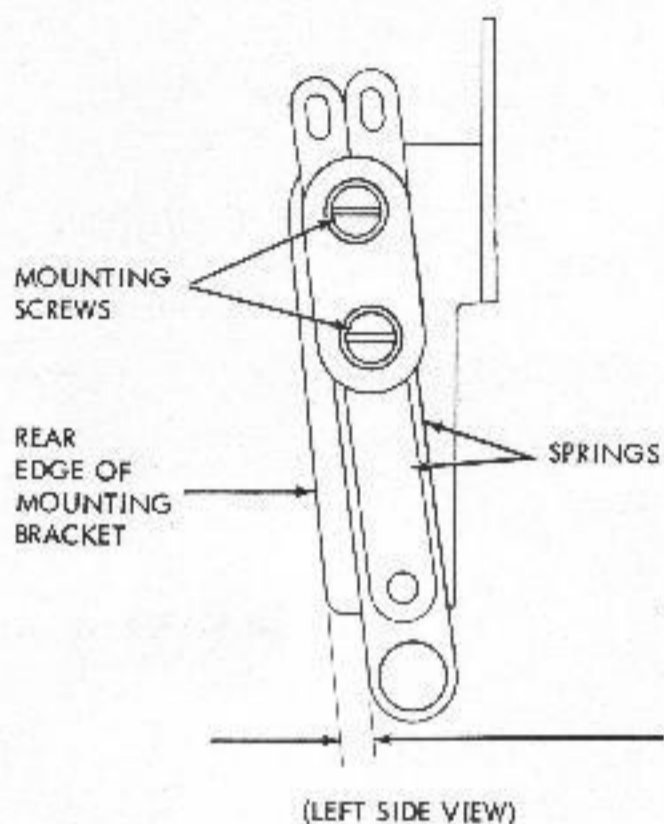


FIGURE 5-17. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
 EARLIER DESIGN

NOTE: (1) FOR UNITS EQUIPPED WITH SWITCH IN PLACE OF CONTACTS, SEE FIGURES 5-20 AND 5-21.

(2) IN THIS FIGURE, REFERENCES TO LEFT OR RIGHT INDICATE THE VIEWERS LEFT OR RIGHT AS HE FACES THE REAR OF THE EQUIPMENT.



CONTACT SPRINGS

(1) REQUIREMENT

ALL SPRINGS PARALLEL TO REAR EDGE OF MOUNTING BRACKET AND CONTACT ACTUATING LEVER ENGAGE CONTACT BUTTON BY A MINIMUM OF 75% OF THE CONTACT BUTTON.

TO ADJUST POSITION SPRINGS WITH MOUNTING SCREWS LOOSENED.

(2) REQUIREMENT

LEFT CONTACT SPRING APPROXIMATELY PARALLEL TO FACE OF MOUNTING BRACKET.

TO ADJUST BEND LEFT CONTACT SPRING.

(3) REQUIREMENT

WITH CONTACT LEVER FREE OF CENTER CONTACT SPRING. MIN. 20 GRAMS --- MAX. 40 GRAMS TO JUST OPEN LEFT SIDE OF CONTACT. TO ADJUST BEND CENTER CONTACT SPRING.

(4) REQUIREMENT

WITH CONTACT LEVER AWAY FROM CENTER CONTACT SPRING, MIN. 0.010 INCH --- 0.018 INCH GAP AT RIGHT SIDE OF CONTACT.

TO ADJUST BEND RIGHT CONTACT SPRING.

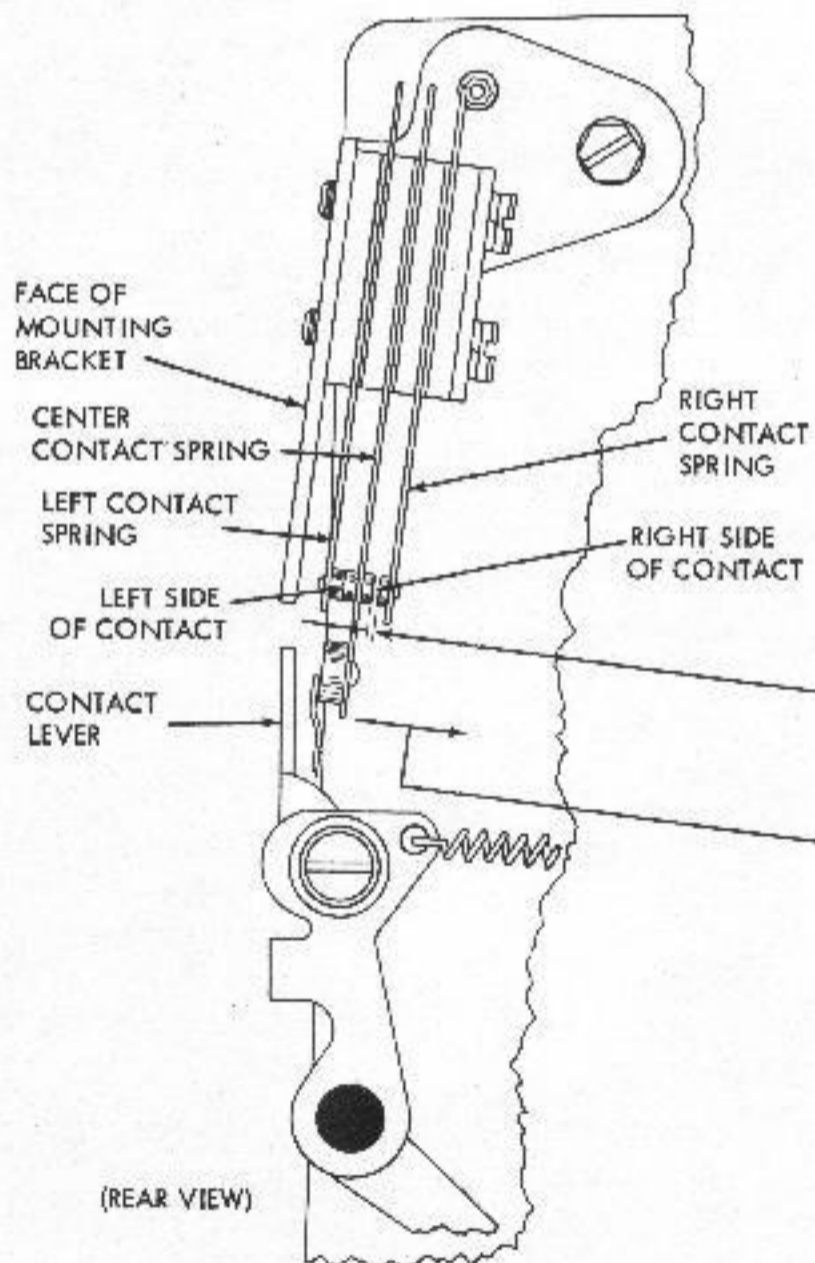


FIGURE 5-18. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM EARLIER DESIGN

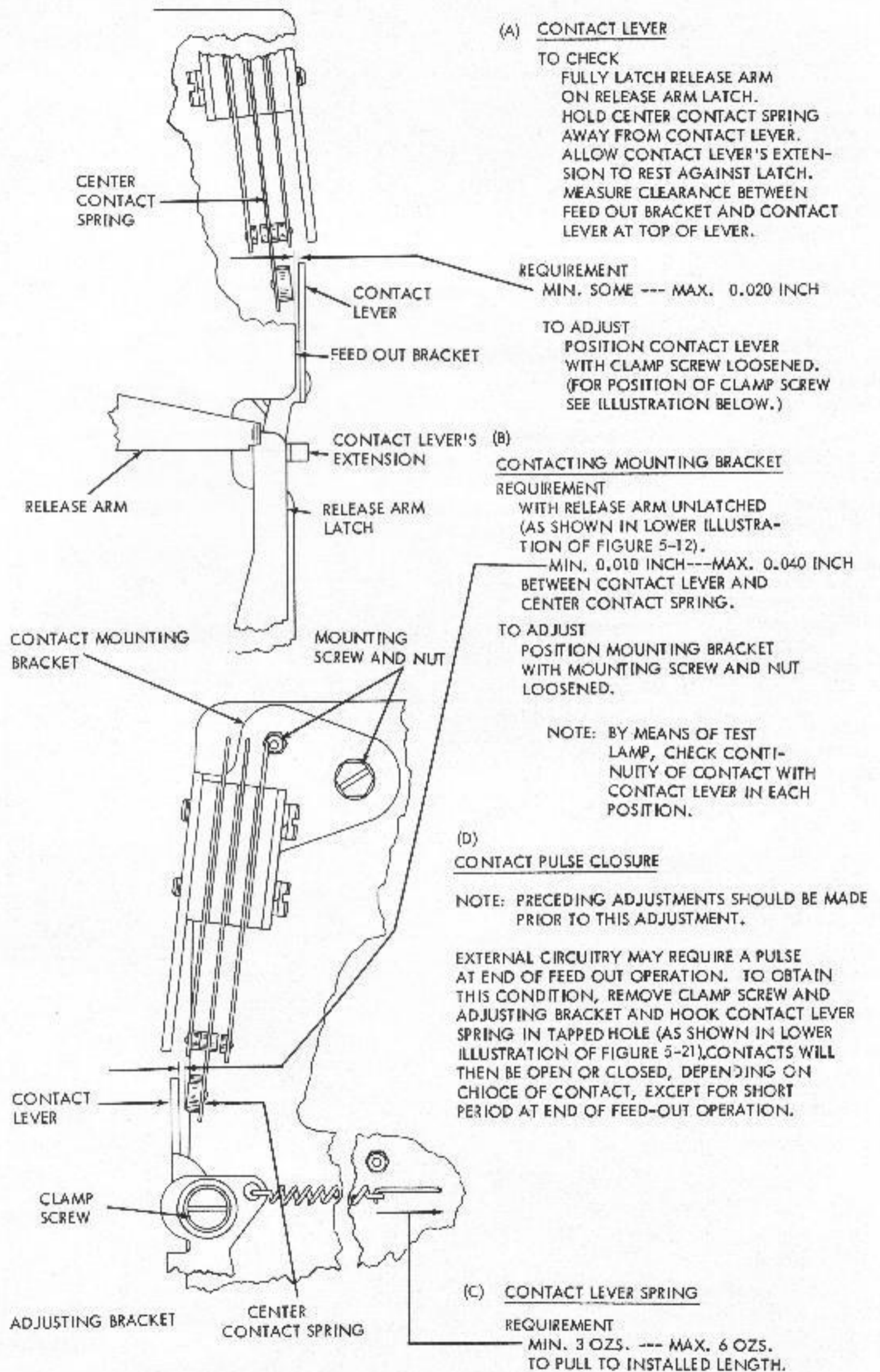


FIGURE 5-19. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
 EARLIER DESIGN

NOTE: FOR UNITS EQUIPPED WITH CONTACT IN PLACE SWITCH, SEE FIGURES 5-18 AND 5-19.

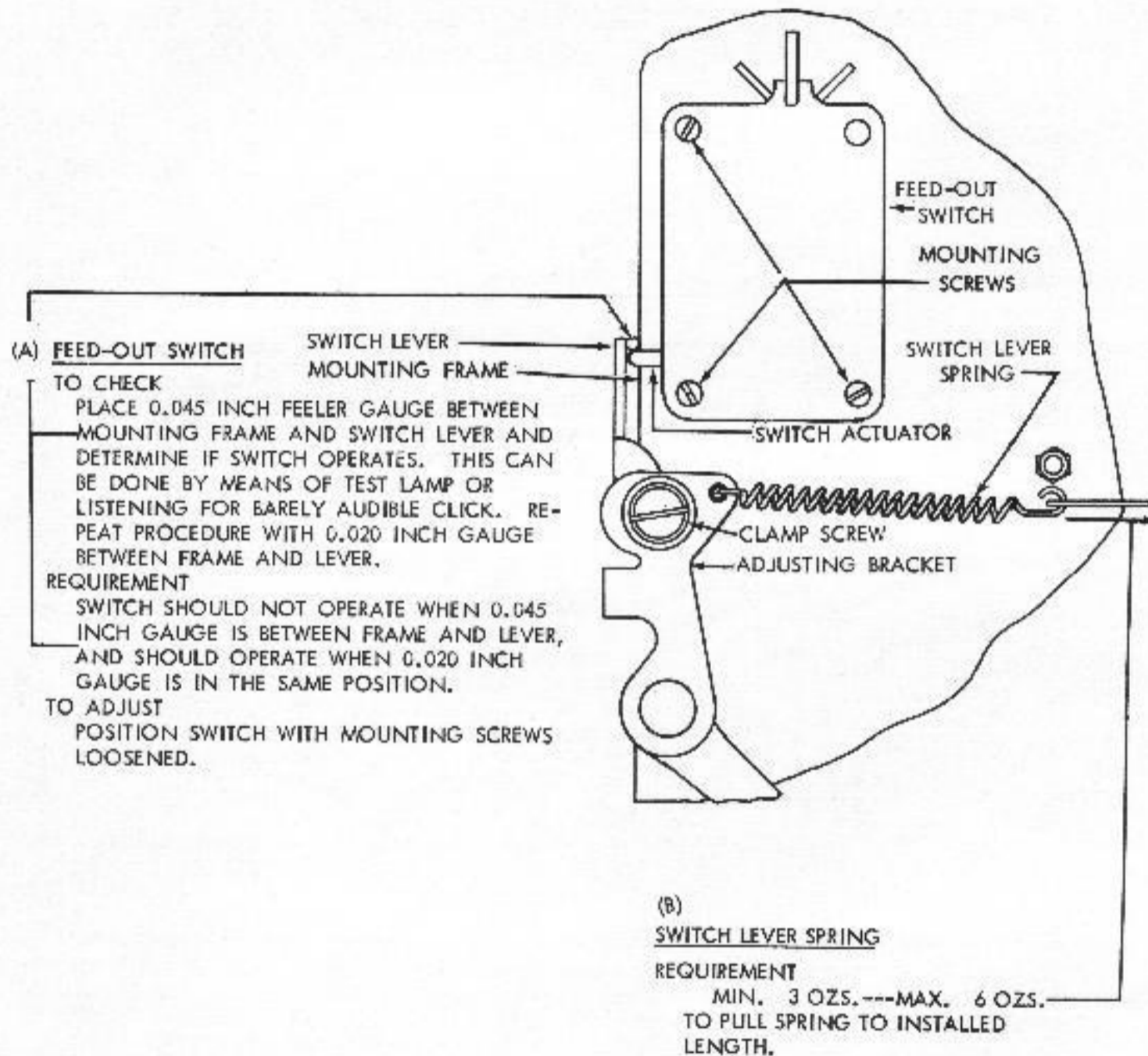


FIGURE 5-20. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM
EARLIER DESIGN

(A)

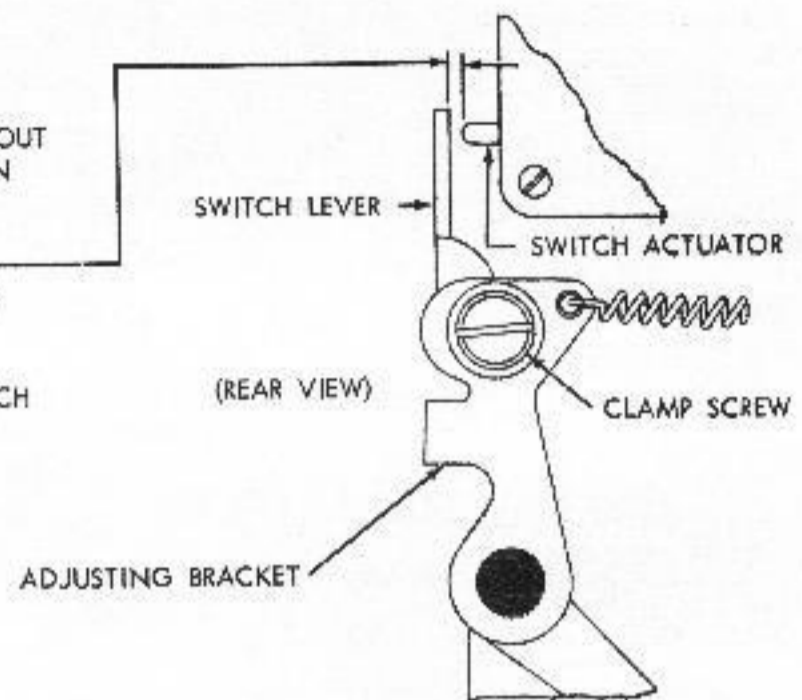
SWITCH LEVER ADJUSTING BRACKET
REQUIREMENT

WITH CLUTCHES DISENGAGED AND FEED OUT MECHANISM IN UNOPERATED CONDITION (DRIVE ARM LATCHED BY RELEASE ARM—FIGURE 5-17):

MIN. SAME—MAX. 0.010 INCH CLEARANCE BETWEEN SWITCH LEVER AND SWITCH ACTUATOR.

TO ADJUST

POSITION ADJUSTING BRACKET ON SWITCH LEVER WITH CLAMP SCREW LOOSENED.



(B)

FEED OUT SWITCH (WITH PULSE CLOSURE)

NOTE:

EXTERNAL CIRCUITRY MAY REQUIRE A PULSE AT END OF FEED-OUT OPERATION: TO OBTAIN THIS CONDITION, REMOVE ADJUSTING BRACKET AND HOOK SPRING IN TAPPED HOLE IN SWITCH LEVER. SWITCH WILL THEN BE CLOSED EXCEPT FOR SHORT PERIOD AT END OF FEED-OUT OPERATION.

FOR REVERSE CONDITION—I.E. SWITCH OPEN EXCEPT FOR SHORT PERIOD AT END OF OPERATION—REMOVE WHITE AND BLUE LEAD AND SOLDER TO SPARE TERMINAL.

TO CHECK

SAME AS FEED OUT SWITCH (FIGURE 5-20) EXCEPT 0.040-INCH GAUGE SHOULD BE SUBSTITUTED FOR 0.045-INCH GAUGE.

REQUIREMENT

SWITCH SHOULD NOT OPERATE WHEN 0.040-INCH GAUGE IS BETWEEN FRAME AND LEVER, AND SHOULD OPERATE WHEN 0.020-INCH GAUGE IS IN SAME POSITION.

TO ADJUST

SAME AS FEED OUT SWITCH (FIGURE 5-20).

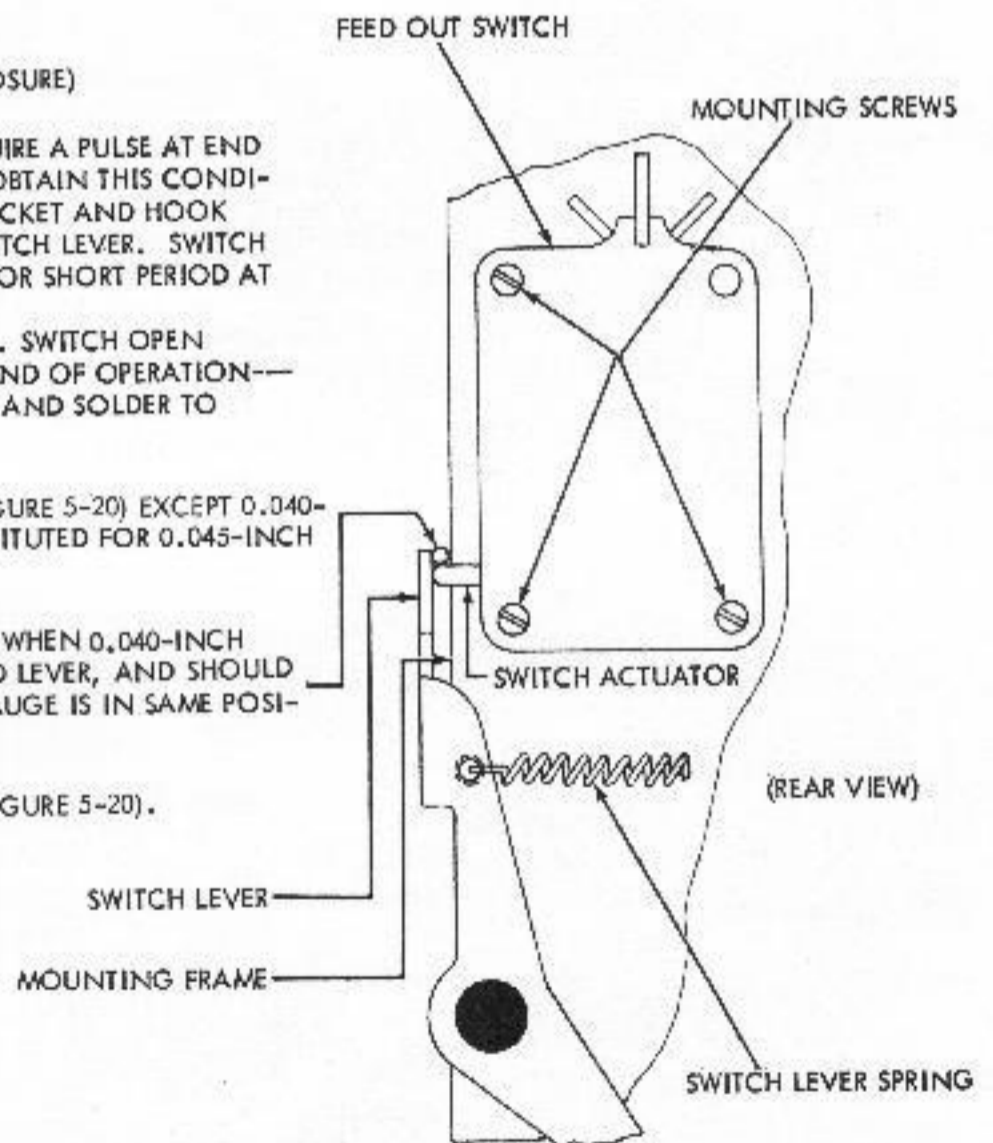
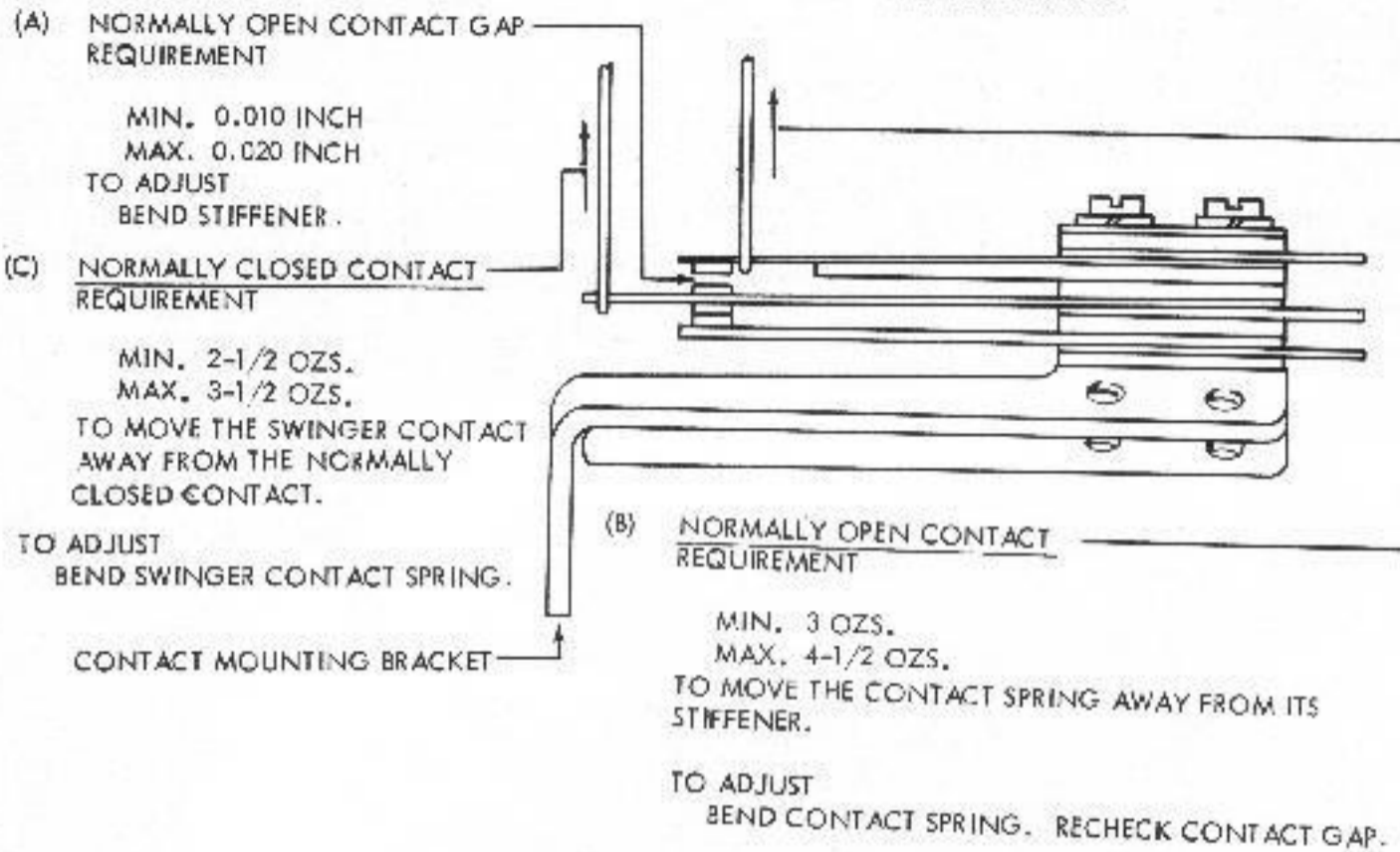


FIGURE 5-21. NON-INTERFERING BLANK TAPE FEED OUT MECHANISM EARLIER DESIGN

MULTIPLE MOUNTED FUNCTION BLADE CONTACTS - EARLIER DESIGN
FOR LATEST DESIGN SEE FIGURE 2-79.

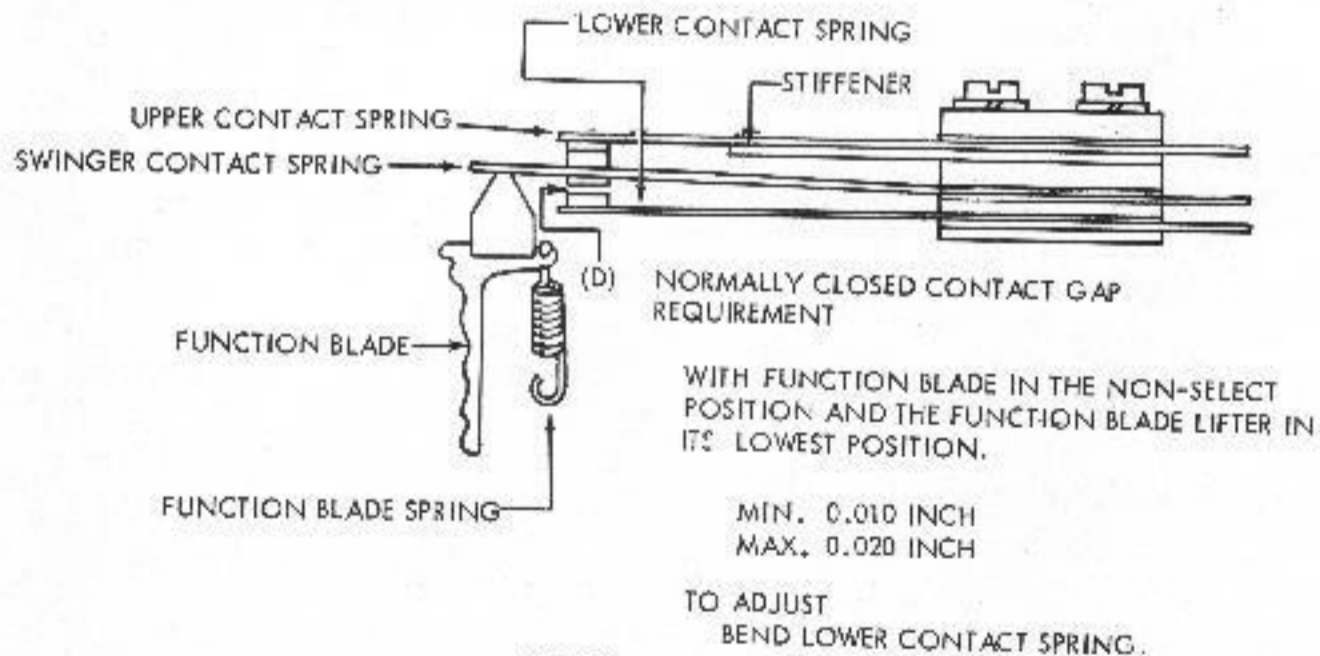
NOTE 1

THE FOLLOWING ADJUSTMENTS SHALL BE MADE PRIOR TO
INSTALLING THE CONTACT BRACKET ASSEMBLY ON UNIT



NOTE 2

THE FOLLOWING ADJUSTMENTS SHALL BE MADE AFTER
THE CONTACT BRACKET ASSEMBLY IS MOUNTED ON
THE UNIT.



NOTE 3

SELECT EACH FUNCTION BLADE IN TURN AND DETERMINE
THAT THERE IS A DEFINITE TRANSFER FROM MAKE TO
BREAK CONTACTS. REFINE ABOVE ADJUSTMENT.

FIGURE 5-22. MULTIPLE MOUNTED FUNCTION BLADE CONTACTS - EARLIER DESIGN