TELETYPE model 28 THE LEADERSHIP LINE

BULLETIN 250B

ADJUSTMENTS AND LUBRICATION
MODEL 28
PERFORATOR TRANSMITTER
LAK, LPE, LTPE, LAAC

TELETYPE® CORPORATION
SUBSIDIARY OF *Western Electric Company* INC.
CHICAGO, ILLINOIS, U.S.A.

CHANGE 1

H. N. Watts

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CHANGE 1

LIST OF EFFECTIVE PAGES

OCTOBER, 1958

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Cover	Change 1
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The above list indicates the effective pages as of the date of issue. Upon receipt of change pages, insert them numerically and discard superseded pages.

The MODEL 28 AUTOMATIC SEND-RECEIVE SET (ASR) ..... is made up of a group of basic component units in various combinations. These include a keyboard, page printer, perforator (typing or non-typing), reperforator (typing or non-typing), transmitter distributor, transmitter distributor base, electrical service unit, console cabinet and motor unit.

UNITS COVERED IN THIS BULLETIN

KEYBOARD..... LAK1, 2, 3, 4, 6 and 7
PERFORATOR (NON - TYPING) ..... LPE1 and 2
PERFORATOR (TYPING)..... LTPE1
TRANS. DIST. BASE..... LCXB1, 2, 3, 5, 6 and 7
ELECTRICAL SERVICE UNIT ..... LESU11, 13, 15, 21 and 22
MOTOR UNIT LMU12
CABINET..... LAAC200**, 201**, 202**, 205** 207**, 209** and 210**

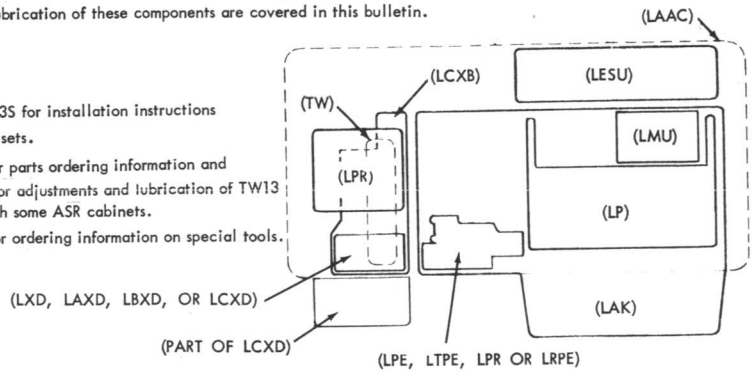
The following chart lists the numbers of bulletins covering components of the ASR set, such as, parts ordering (P), adjustments and lubrication (A&L), description and theory of operation (D&T). (Bell System refer to standardized A&L information)

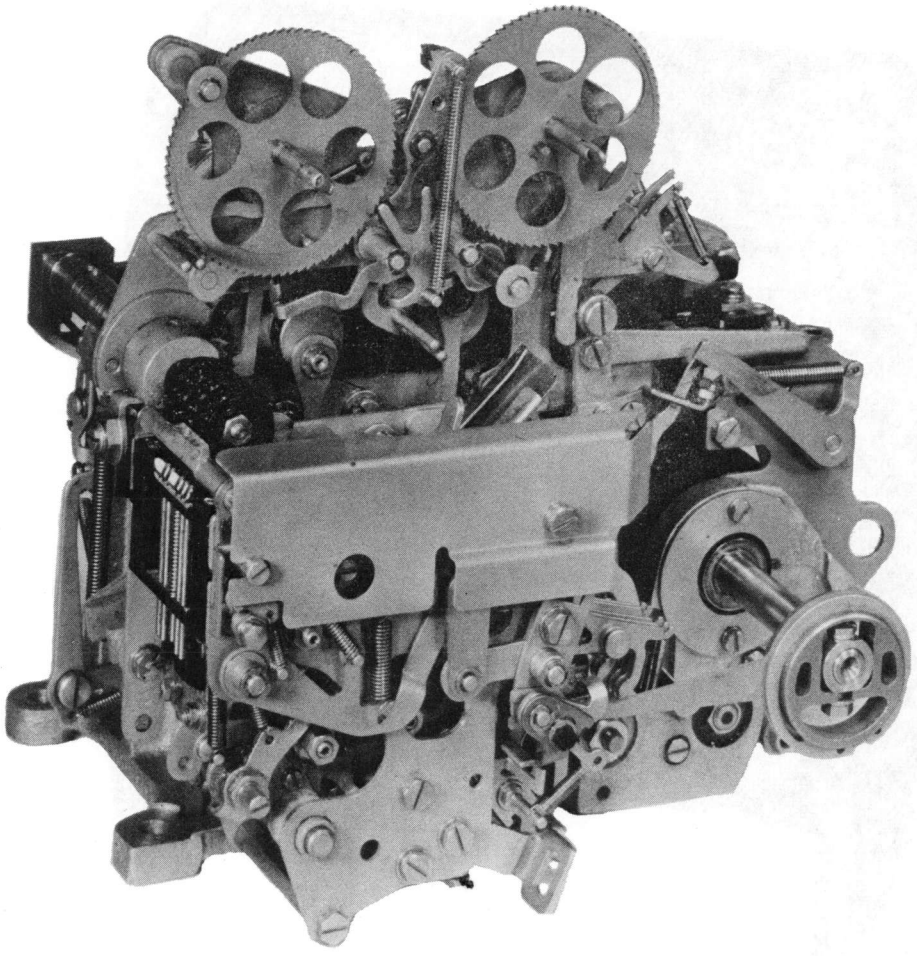
PAGE PRINTER		LP Typing Unit	1149B (P) 216B (D&T) 217B (A&L)
KEYBOARD	•	LAK Perforator Transmitter Base	1169B (P) 249B (D&T) 250B (A&L)
PERFORATOR OR REPERFORATOR	•	LPE Non - typing Perforator	
	•	LTPE Typing Perforator	1169B (P) 250B (A&L) 255B (D)
		LRPE Non - typing Reperforator	1172B (P) 256B (A&L)
		LPR Typing Reperforator	1167B (P) 246B (D&T) 247B (A&L)
BASE	•	LCXB Transmitter Distributor Base	1169B (P)
TRANSMITTER DISTRIBUTOR		LXD Fixed Head, Single Contact Trans. Dist.	1161B (P) 235B (A&L)
		LAXD Pivoted Head, Multi - contact Trans. Dist.	251B (D) 1170B (P) 252B (A&L)
		LBXD Fixed Head, Multi - contact Trans. Dist.	1165B (P) 243B (A&L) 242B (D)
		LCXD Fixed Head and Pivoted Head, Multi - contact Trans. Dist.	1171B (P) 253B (D&T) 254B (A&L)
MOTOR	•	LMU Motor Unit	1169B (P) 249B (D&T) 250B (A&L)
ELECTRICAL SERVICE UNIT	•	LESU Electrical Service Unit	
CABINET	•	LAAC Automatic Send - Receive Cabinet	
KEYTOP WITH LEVER AND TYPEPALLETS		Murray, Gothic, Long Gothic and Large Gothic Styles	1164B (P)
GEAR SETS (For gears used with the LPR or LRPE see appropriate bulletin).		•160675 Gear Set for 60 W.P.M. Speed Includes: 158084 Gear Set for Keyboard (LAK) and 158029 Gear Set for Base (LCXB)	1169B (P) 250B (A&L)
		•160676 Gear Set for 75 W.P.M. Speed Includes: 158082 Gear Set for Keyboard (LAK) and 158028 Gear Set for Base (LCXB)	
		•160677 Gear Set for 100 W.P.M. Speed Includes: 158080 Gear Set for Keyboard (LAK) and 158027 Gear Set for Base (LCXB)	

• Adjustments and lubrication of these components are covered in this bulletin.

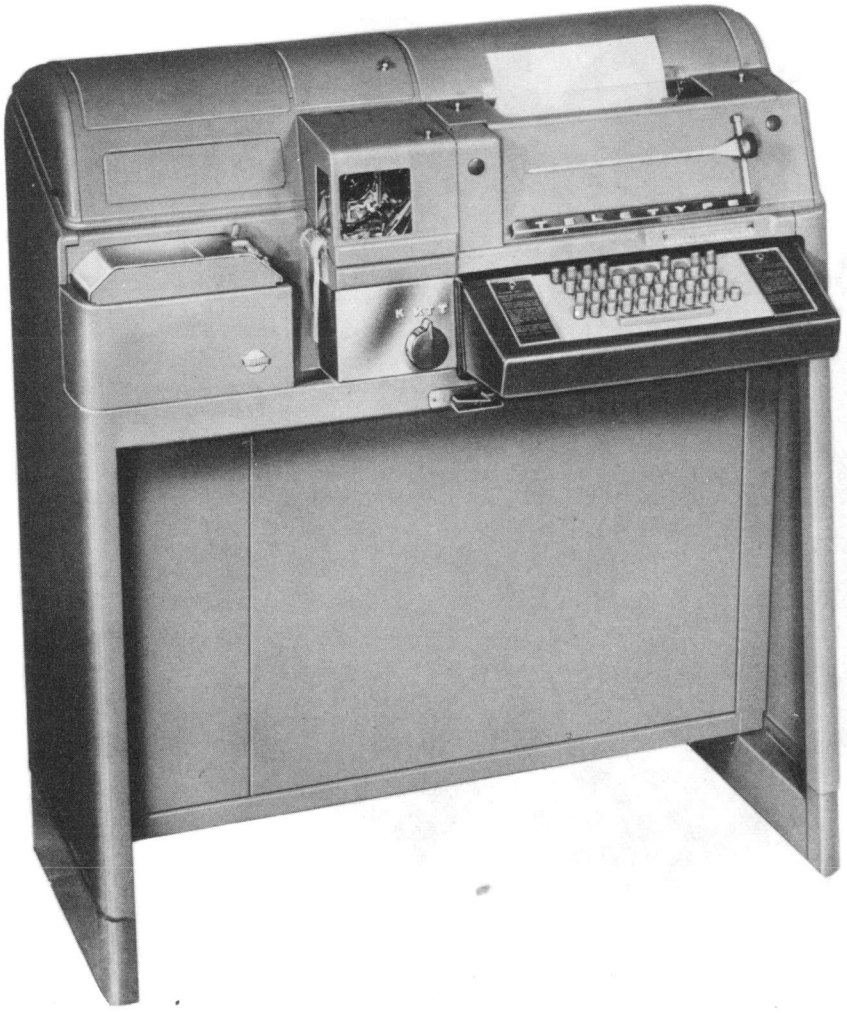
NOTES:

1. See specification 5873S for installation instructions covering typical ASR sets.
2. See bulletin 1075B for parts ordering information and specification 5884S for adjustments and lubrication of TW13 Tape Winder used with some ASR cabinets.
3. See bulletin 1124B for ordering information on special tools.

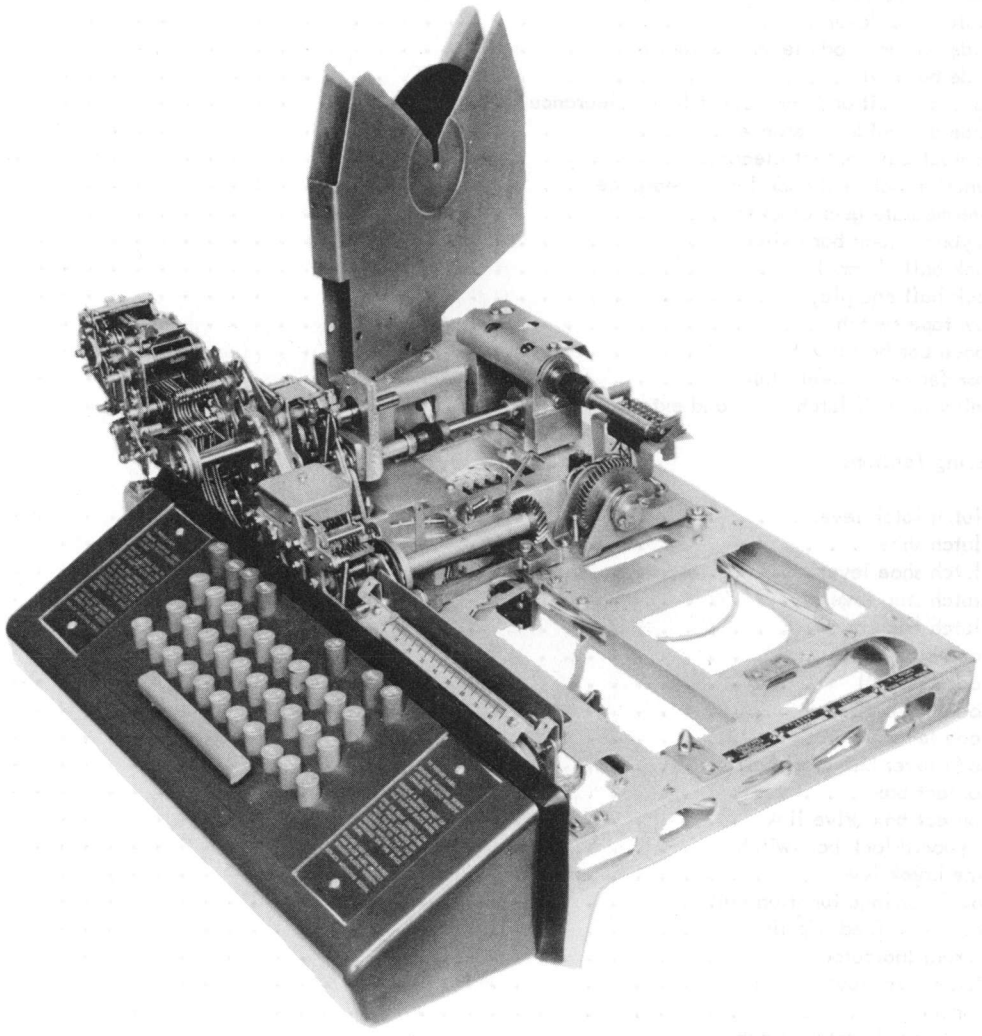




MODEL 28 TYPING PERFORATOR
LTPE



MODEL 28 PERFORATOR TRANSMITTER
Mounted in
AUTOMATIC SEND-RECEIVE SET



MODEL 28 PERFORATOR TRANSMITTER
(LAK with LPE)

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SECTION 1 - STANDARD FEATURE ADJUSTMENTS

1. GENERAL

a. The adjustments of each unit are arranged in a sequence that should be followed if a complete readjustment of the unit were undertaken. The tools and spring scales required to perform these adjustments are listed in Teletype Bulletin 1124B, but are not supplied as part of the equipment. After an adjustment is completed, be sure to tighten any nuts or screws that are loosened. The adjusting illustrations indicate tolerances, positions of moving parts, spring tensions and the angles at which scales should be applied when measuring spring tensions. If a part that is mounted on shims is removed, the number of shims used at each of its mounting screws should be noted so that the same number is replaced when the part is remounted.

b. The spring tensions given in this bulletin are indicated values and should be checked with proper spring scales in the positions indicated.

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

d. When a requirement calls for a clutch to be disengaged, the clutch shoe lever must be fully latched between its trip lever and latch lever so that the clutch shoes (Figure 1-3) release their tension on the clutch drum. When engaged, the clutch shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

NOTE

When the main shaft of the perforator is rotated by hand, the clutch does not fully disengage upon reaching its stop position. In order to relieve drag and permit the main shaft to rotate freely, apply pressure on the lug of the clutch disk (Figure 1-3) with a screwdriver to cause it to engage its latch lever and fully disengage the clutch.

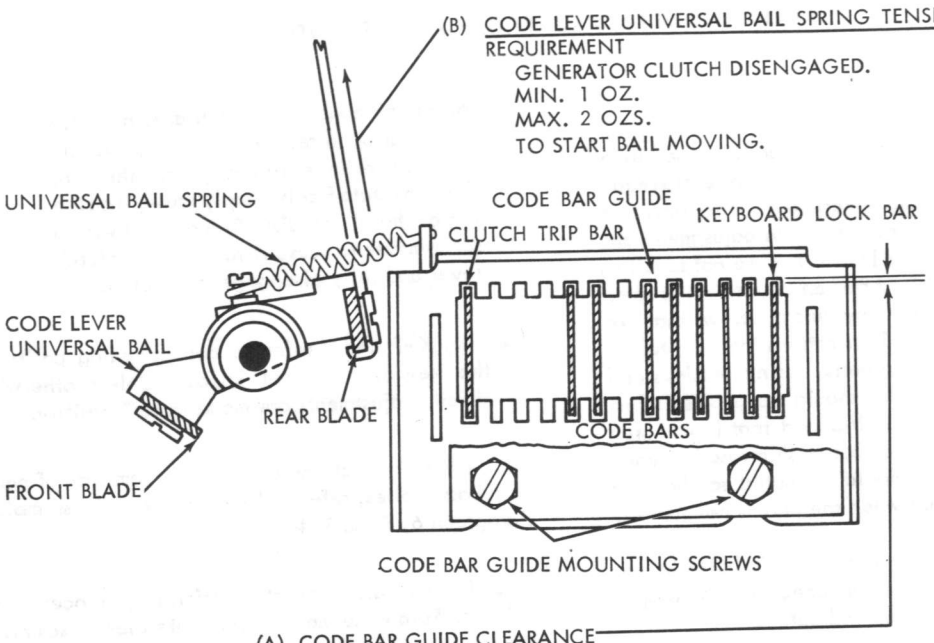
e. K, K-T and T refer to corresponding positions of the keyboard control knob. Unless otherwise specified, adjustments are made in K-T position.

f. When instructions call for the removal of parts or subassemblies, refer to Disassembly or Reassembly, Paragraph 6, Page 1-44.

g. To manually operate perforator, proceed as follows: Rotate the main shaft counterclockwise until the clutch disengages. Trip the clutch by pivoting the main trip lever counterclockwise (see Figure 1-57). Unlatch the punch slides (see Figure 1-23) corresponding to the marking elements of the code combination to be processed (The slides are numbered 1 to 5 from rear to front). Rotate the main shaft counterclockwise until the required condition is set up or the code combination is processed through the unit.

h. In addition to the standard adjustments in Section 1, Variable Feature adjustments are covered in Section 2 of this bulletin. When these adjustments affect normal adjusting sequence, cross reference information has been included in Section 1. Variable Feature adjustments that do not affect the adjusting sequence may be made at any time.

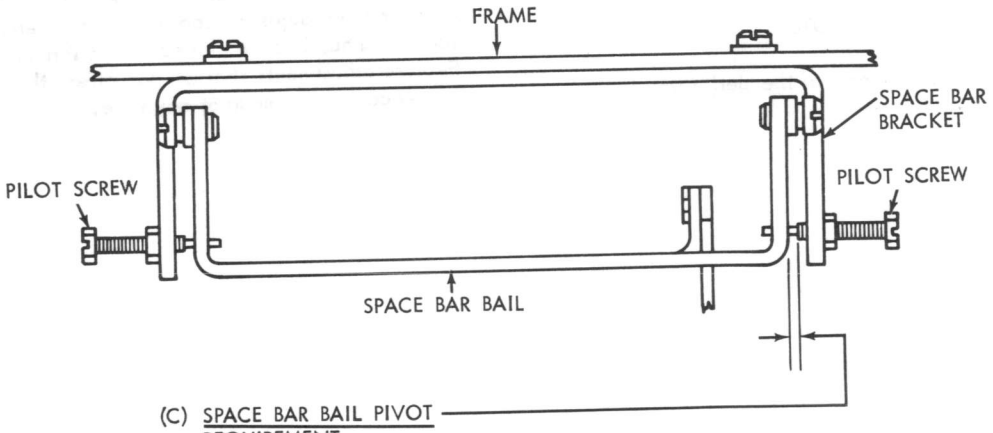
2. KEYBOARD MECHANISM



(A) CODE BAR GUIDE CLEARANCE
REQUIREMENT
MIN. SOME CLEARANCE.
MAX. 0.006 INCH.
ALL CODE BARS SHOULD MOVE FREELY WITHOUT BIND.
TO ADJUST
LOOSEN MOUNTING SCREWS AND POSITION CODE BAR GUIDE.

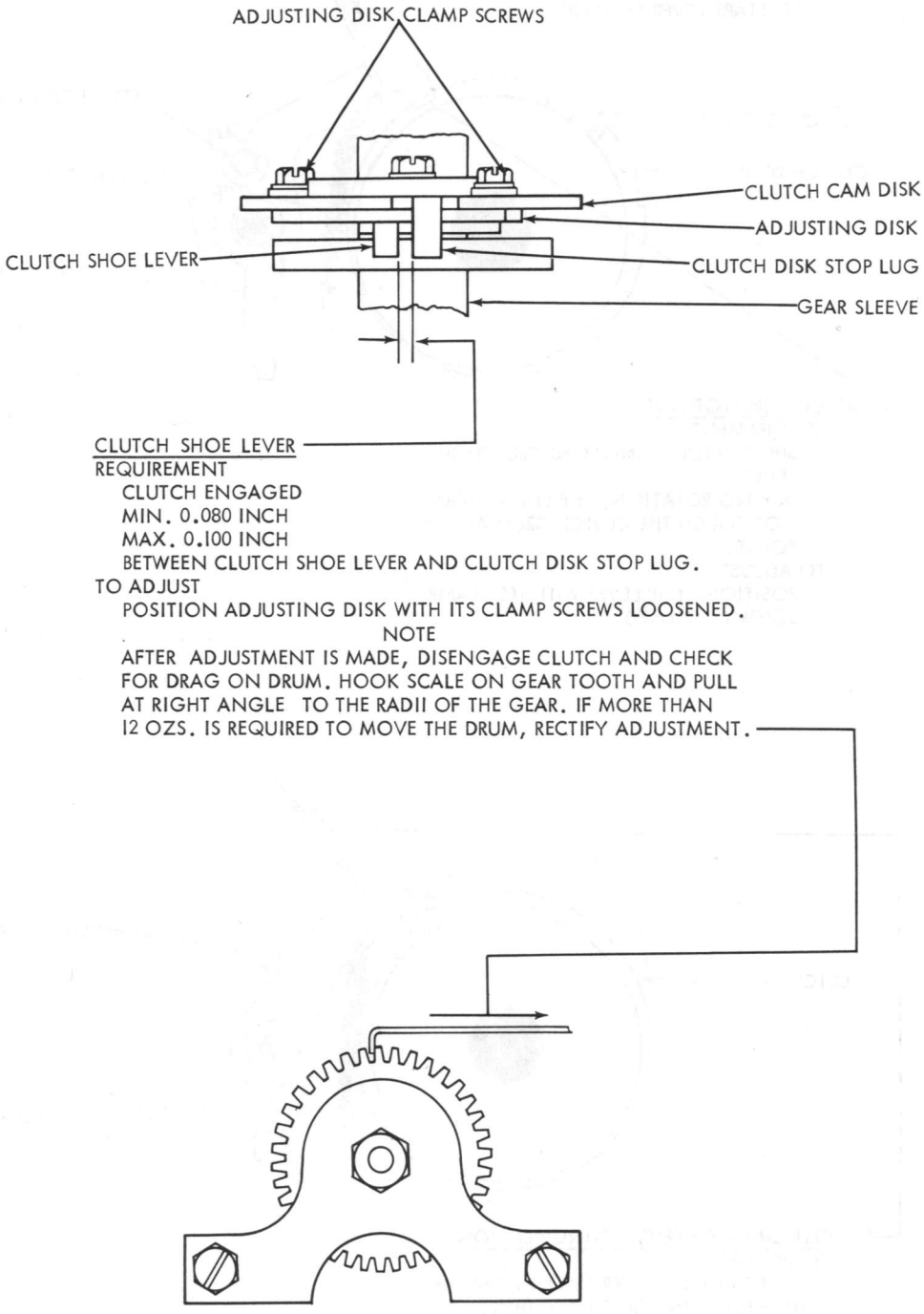
NOTE: REMOVE PERFORATOR TRANSMITTER FROM CABINET BEFORE ADJUSTING CODE BARS.

NOTE: KEYLEVER COVER MUST BE REMOVED. SEE DISASSEMBLY AND REASSEMBLY.



(C) SPACE BAR BAIL PIVOT
REQUIREMENT
MIN. SOME END PLAY.
MAX. 0.010 INCH.
SPACE BAR FREE FROM BIND.
TO ADJUST
POSITION SPACE BAR WITH PILOT SCREWS.

FIGURE 1-1. CODE BAR AND SPACE BAR MECHANISMS CHANGE 1



CLUTCH SHOE LEVER

REQUIREMENT

CLUTCH ENGAGED

MIN. 0.080 INCH

MAX. 0.100 INCH

BETWEEN CLUTCH SHOE LEVER AND CLUTCH DISK STOP LUG.

TO ADJUST

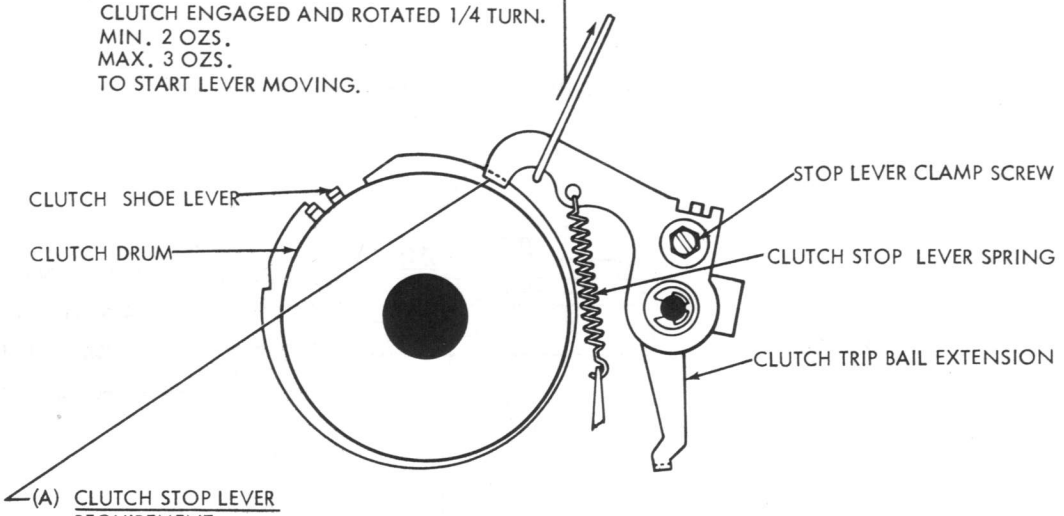
POSITION ADJUSTING DISK WITH ITS CLAMP SCREWS LOOSENED.

NOTE

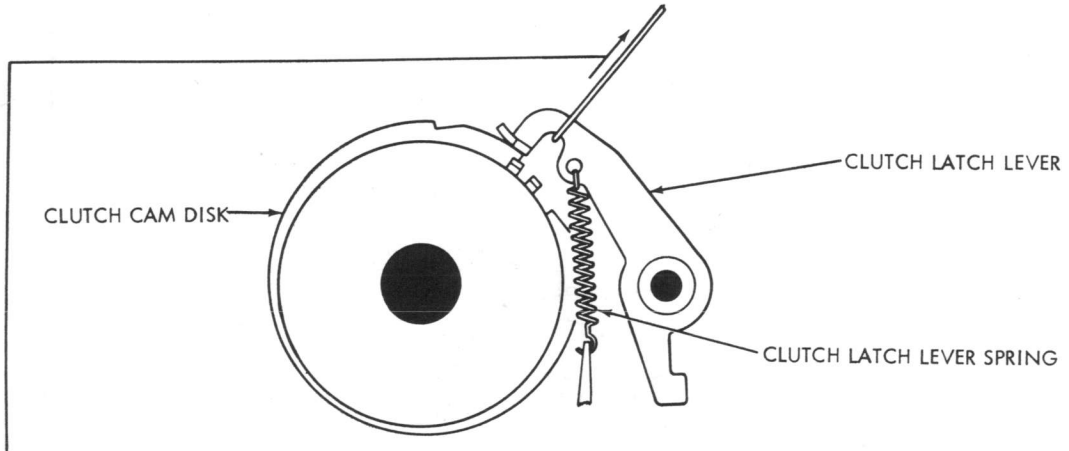
AFTER ADJUSTMENT IS MADE, DISENGAGE CLUTCH AND CHECK FOR DRAG ON DRUM. HOOK SCALE ON GEAR TOOTH AND PULL AT RIGHT ANGLE TO THE RADII OF THE GEAR. IF MORE THAN 12 OZS. IS REQUIRED TO MOVE THE DRUM, RECTIFY ADJUSTMENT.

FIGURE 1-2. SIGNAL GENERATOR CLUTCH AND GEAR MECHANISM

(B) CLUTCH STOP LEVER SPRING TENSION
REQUIREMENT
CLUTCH ENGAGED AND ROTATED 1/4 TURN.
MIN. 2 OZS.
MAX. 3 OZS.
TO START LEVER MOVING.



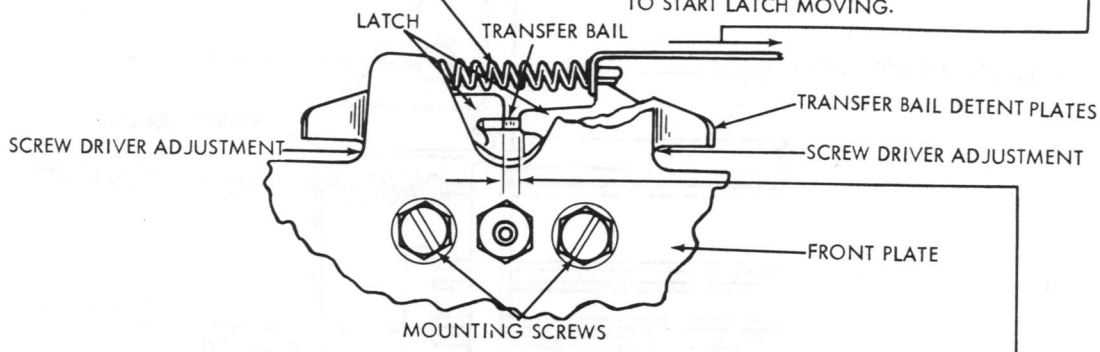
(A) CLUTCH STOP LEVER
REQUIREMENT
SHOULD FULLY ENGAGED CLUTCH SHOE LEVER.
DURING ROTATION, THE LEVER SHOULD NOT TOUCH THE CLUTCH DRUM AT ANY POINT.
TO ADJUST
POSITION STOP LEVER WITH ITS CLAMP SCREW LOOSENED.



(C) CLUTCH LATCH LEVER SPRING TENSION
REQUIREMENT
CLUTCH LATCH LEVER RESTING ON THE HIGHEST POINT OF CLUTCH DISK.
MIN. 2 OZS.
MAX. 3 OZS.
TO START LATCH LEVER MOVING.

FIGURE 1-3. SIGNAL GENERATOR CLUTCH AND LEVER MECHANISM

(A) TRANSFER BAIL DETENT LATCH SPRING TENSION
REQUIREMENT
MIN. 2-3/4 OZS.
MAX. 4-1/4 OZS.
TO START LATCH MOVING.

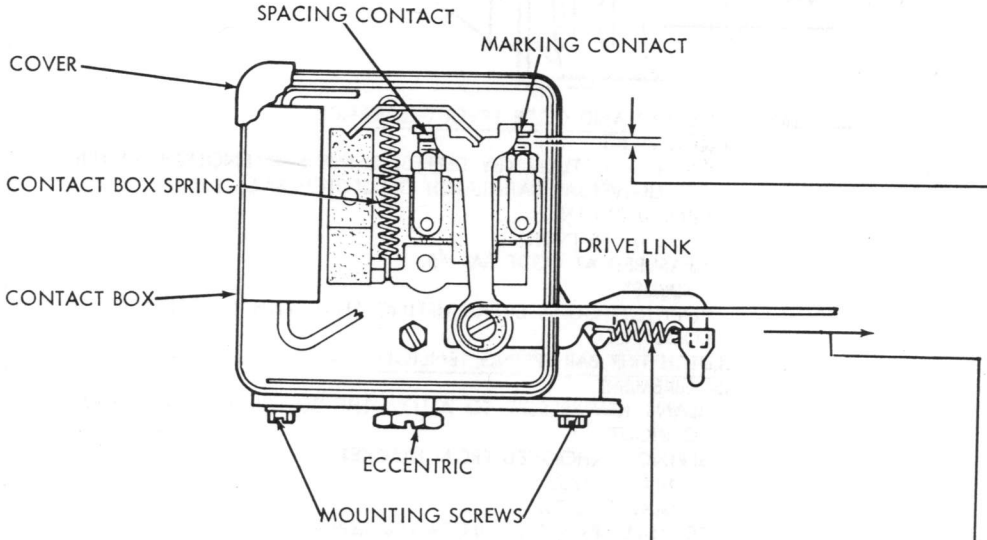


(B) TRANSFER BAIL DETENT PLATE
REQUIREMENT
EQUAL L. H. AND R. H. CLEARANCE WITHIN .002
TO ADJUST
ROTATE DETENT PLATE RIGHT OR LEFT BY MEANS OF SCREW DRIVER WITH MOUNTING SCREWS LOOSENED.

(C) CONTACT BOX CONTACT CLEARANCE
REQUIREMENT
MARKING AND SPACING GAPS SHOULD BE EQUAL WITHIN 0.001 INCH.
TO CHECK
DEPRESS Y KEYLEVER AND ROTATE SIGNAL GENERATOR CAM SLEEVE UNTIL EACH CONTACT HAS FULLY OPENED.
TO ADJUST
LOOSEN MOUNTING SCREWS AND MOVE CONTACT BOX BY MEANS OF ECCENTRIC.

NOTE

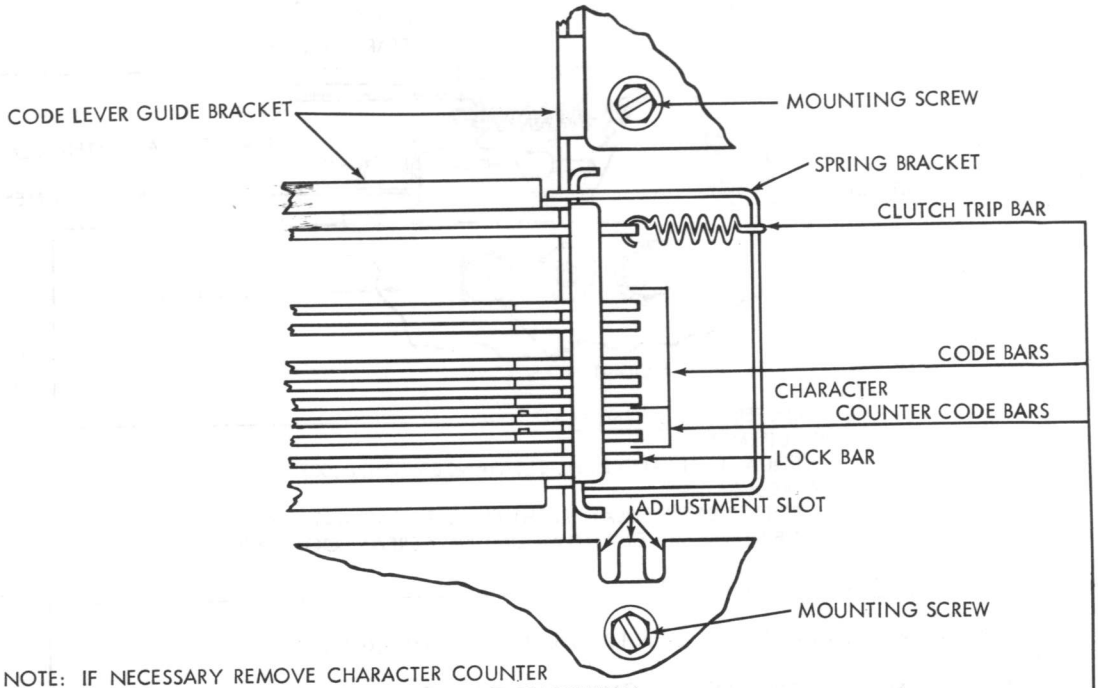
CHECK BY MEANS OF SIGNAL CHECKING DEVICE WHERE POSSIBLE, AND CAREFULLY REFINE THE ADJUSTMENT TO ELIMINATE ALL BIAS FROM THE SIGNALS BY EQUALIZING THE CURRENT-ON AND CURRENT-OFF INTERVALS.



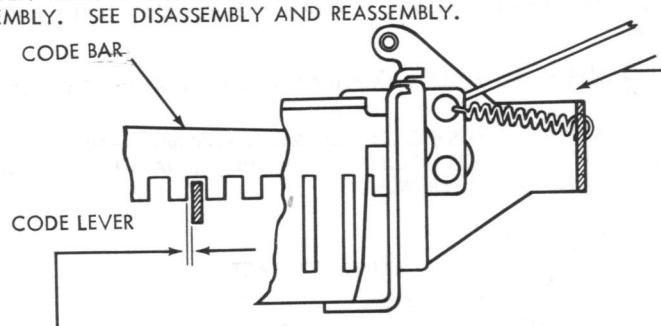
(D) CONTACT BOX DRIVE LINK SPRING TENSION
REQUIREMENT
SPRING REMOVED FROM LINK
MIN. 11 OZS.
MAX. 13 OZS.
AT .438 INCH

(E) CONTACT BOX SPRING TENSION
REQUIREMENT
TRANSFER BAIL HELD CLEAR OF DRIVE LINK.
MIN. 2 OZS.
MAX. 3 OZS.
TO START LINK MOVING.

FIGURE 1-4. CODE BAR BAIL AND CONTACT BOX MECHANISM



NOTE: IF NECESSARY REMOVE CHARACTER COUNTER ASSEMBLY. SEE DISASSEMBLY AND REASSEMBLY.



(A) CODE BAR AND CODE LEVER CLEARANCE

REQUIREMENT

CARRIAGE RETURN KEY DEPRESSED ~~BUT NOT~~ ENOUGH TO TRIP OFF UNIVERSAL BAIL LATCH OR CLUTCH BAR. Hold and

MIN. 0.010 INCH

MAX. 0.015 INCH

MEASURED AT CODE BAR #5.

TO ADJUST

POSITION GUIDE BY ADJUSTING SLOT WITH 4 MOUNTING SCREWS LOOSENED.

(B) CLUTCH TRIP BAR SPRING TENSION

REQUIREMENT

BLANK KEY PRESSED TO ALLOW THE CLUTCH TRIP BAR TO FALL TO RIGHT.

SPRING UNHOOKED FROM BRACKET

MIN. 8 OZS.

MAX. 12 OZS.

TO PULL SPRING TO INSTALLED LENGTH

(C) CODE BAR SPRING TENSION

REQUIREMENT

KEYBOARD IN K POSITION, LETTERS KEYLEVER DEPRESSED (POWER OFF) HOLD TRANSFER LEVERS (REF. FIGURE 14) TO THE RIGHT SO THEY DO NOT AFFECT THE CODE BARS.

MIN. 3 OZS.

MAX. 5 OZS.

TO START CODE BAR MOVING.

FIGURE 1-5. CODE BAR AND CODE LEVER MECHANISM

CHANGE 1

(A) FUNCTION BAIL AND CODE LEVER CLEARANCE

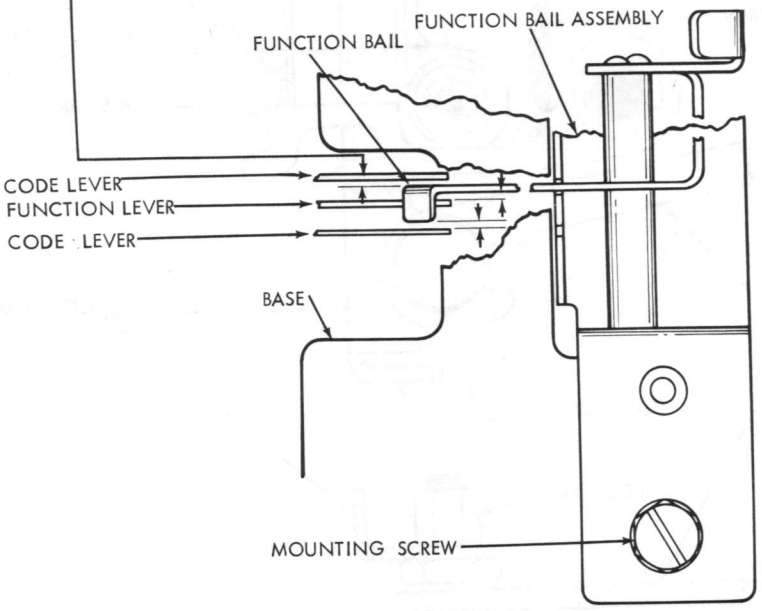
REQUIREMENT

MIN. 0.015 INCH

BETWEEN ANY FUNCTION BAIL AND ITS ADJACENT CODE LEVER.

TO ADJUST

POSITION FUNCTION BAIL ASSEMBLY WITH MOUNTING SCREWS AND TYPING UNIT LOCATING STUDS LOOSENED.



NOTE

THIS ADJUSTMENT SHOULD NOT BE MADE UNLESS THE LOCK BALL CHANNEL HAS BEEN DISASSEMBLED.

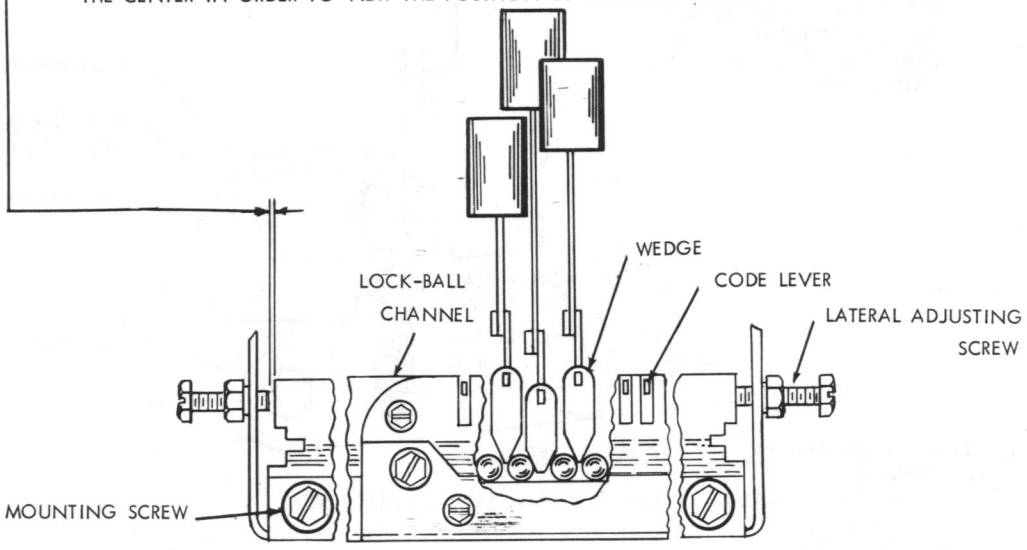
(B) LOCK BALL CHANNEL

REQUIREMENT

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.



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 1-6. FUNCTION BAIL AND LOCK BALL TRACK MECHANISMS

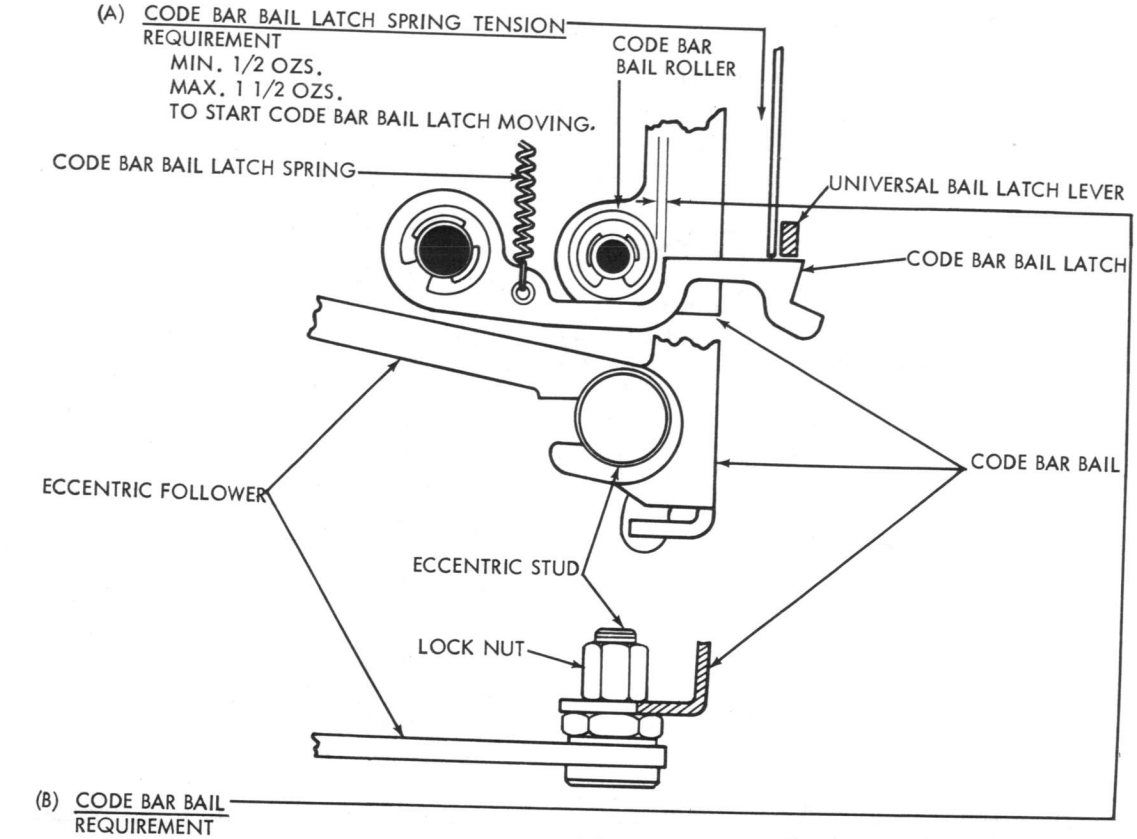


FIGURE 1-7. FUNCTION BAIL, CODE BAR BAIL, AND NON-REPEAT LEVER MECHANISMS

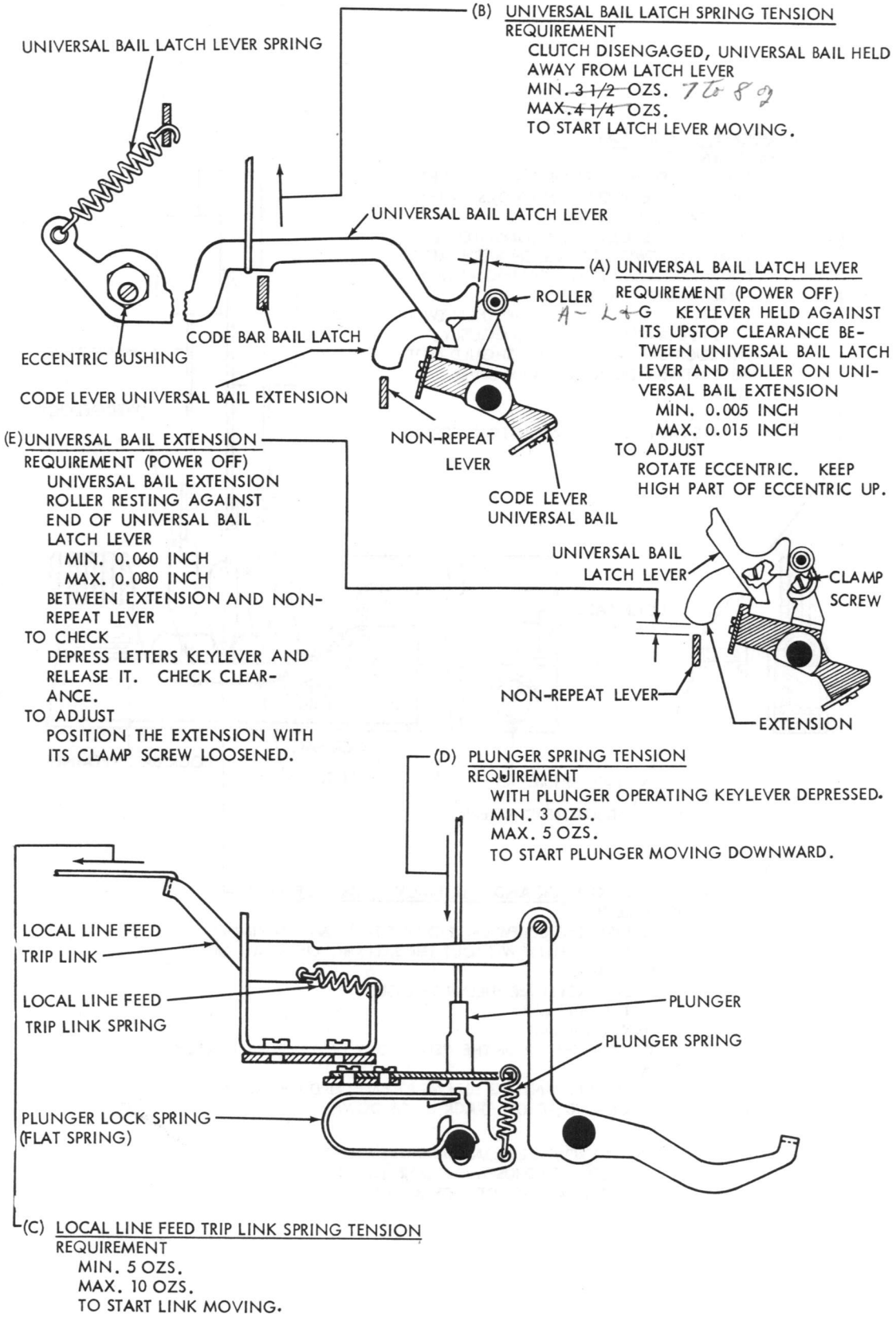


FIGURE 1-8. UNIVERSAL BAIL LATCH LEVER AND LOCAL LINE FEED TRIP LINK MECHANISMS

(B) LOCK BALL END PLAY

REQUIREMENT

THE TRIP OFF PRESSURE OF ANY KEYLEVER SHOULD BE BETWEEN 3 AND 5 OZS. WHEN KEYBOARD IS OPERATING.

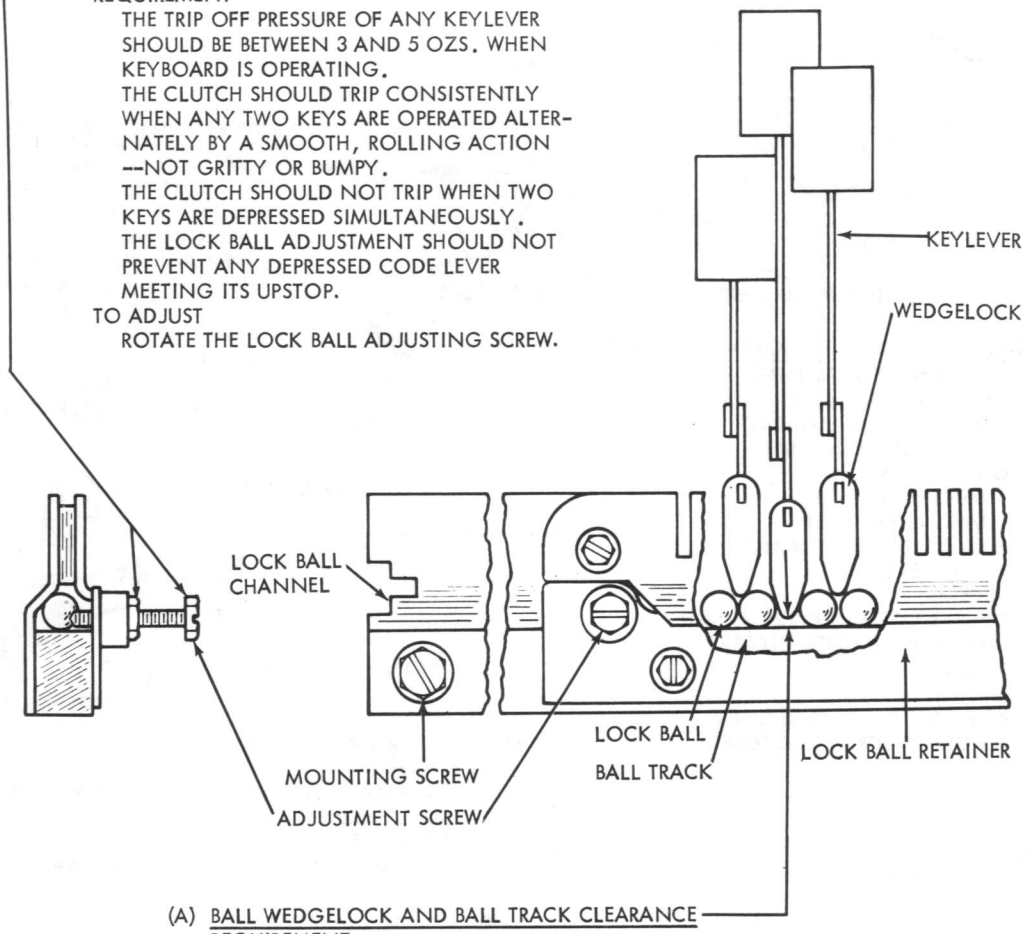
THE CLUTCH SHOULD TRIP CONSISTENTLY WHEN ANY TWO KEYS ARE OPERATED ALTERNATELY BY A SMOOTH, ROLLING ACTION --NOT GRITTY OR BUMPY.

THE CLUTCH SHOULD NOT TRIP WHEN TWO KEYS ARE DEPRESSED SIMULTANEOUSLY.

THE LOCK BALL ADJUSTMENT SHOULD NOT PREVENT ANY DEPRESSED CODE LEVER MEETING ITS UPSTOP.

TO ADJUST

ROTATE THE LOCK BALL ADJUSTING SCREW.



(A) BALL WEDGELOCK AND BALL TRACK CLEARANCE

REQUIREMENT

ADJUSTMENT SCREW BACKED OUT TO PERMIT MAXIMUM BALL MOVEMENT WITHOUT THE BALLS ROLLING OUT OF THE TRACK.

A OR P KEYLEVER FULLY DEPRESSED.

MIN. 0.015 INCH.

MAX. 0.020 INCH.

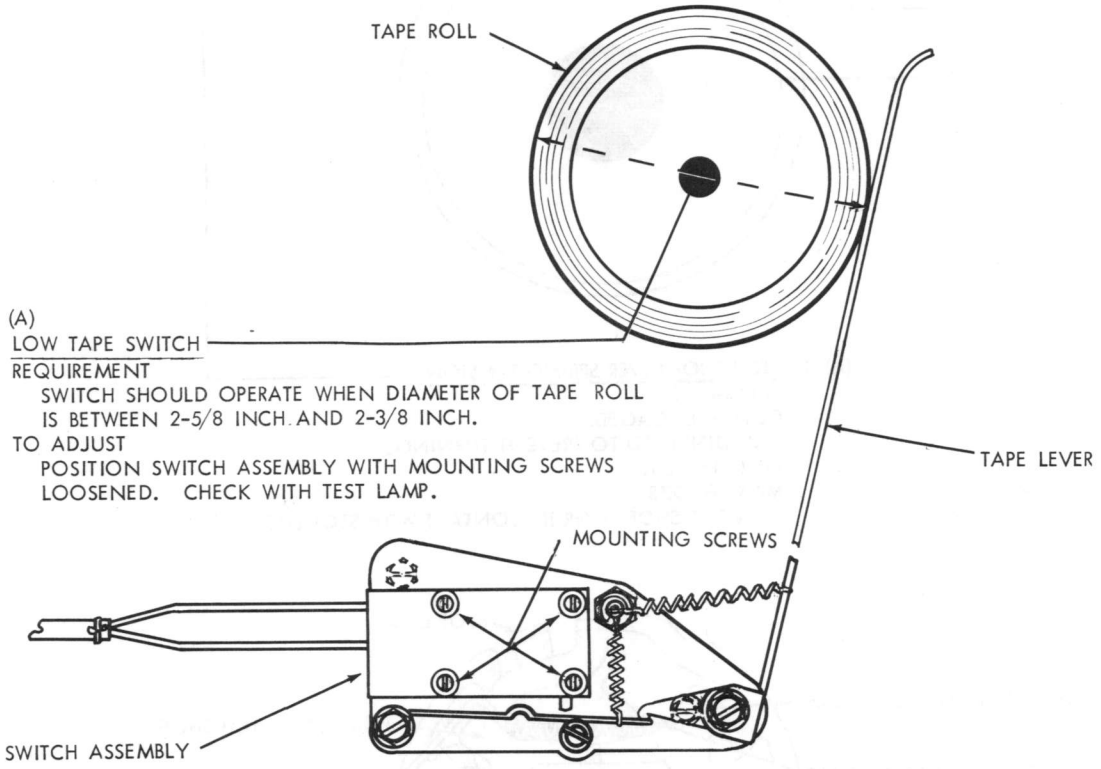
BETWEEN THE TIP OF THE WEDGELOCK AND THE BALL TRACK

TO ADJUST

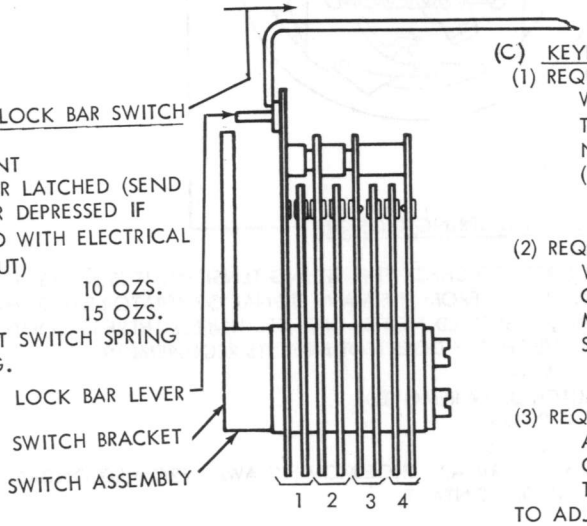
LOOSEN MOUNTING SCREWS AT EACH END OF THE BALL TRACK AND ADJUST TRACK UP OR DOWN

NOTE: REMOVE KEYBOARD ASSEMBLY HOOD BEFORE ADJUSTING CLEARANCE BETWEEN THE BALL WEDGELOCK AND THE BALL TRACK.

FIGURE 1-9. WEDGELOCK AND BALL TRACK MECHANISM



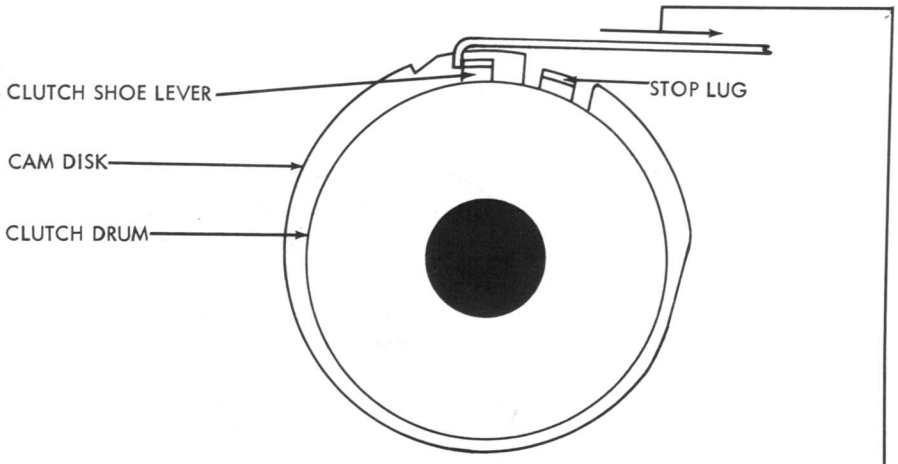
(A)
LOW TAPE SWITCH
REQUIREMENT
SWITCH SHOULD OPERATE WHEN DIAMETER OF TAPE ROLL IS BETWEEN 2-5/8 INCH AND 2-3/8 INCH.
TO ADJUST
POSITION SWITCH ASSEMBLY WITH MOUNTING SCREWS LOOSENED. CHECK WITH TEST LAMP.



(B) KEYBOARD LOCK BAR SWITCH SPRING
REQUIREMENT
LOCK BAR LATCHED (SEND KEYLEVER DEPRESSED IF EQUIPPED WITH ELECTRICAL LOCK-OUT)
MIN. 10 OZS.
MAX. 15 OZS.
TO START SWITCH SPRING MOVING.

(C) KEYBOARD LOCK BAR SWITCH
(1) REQUIREMENT
WITH THE RECEIVE KEY DEPRESSED THE CONTACT GAP OF THE NORMALLY OPEN CONTACT (NO'S 1,2,3) SHOULD BE
MIN. 0.008 INCH
MAX. 0.012 INCH
(2) REQUIREMENT
WITH THE SEND KEY DEPRESSED CONTACT GAP OF THE NORMALLY CLOSED CONTACT NO.4 SHOULD BE
MIN. 0.008 INCH
MAX. 0.012 INCH
(3) REQUIREMENT
ALL CONTACTS SHOULD CLOSE WITH SOME OVER-TRAVEL
TO ADJUST
BEND CONTACT SPRINGS

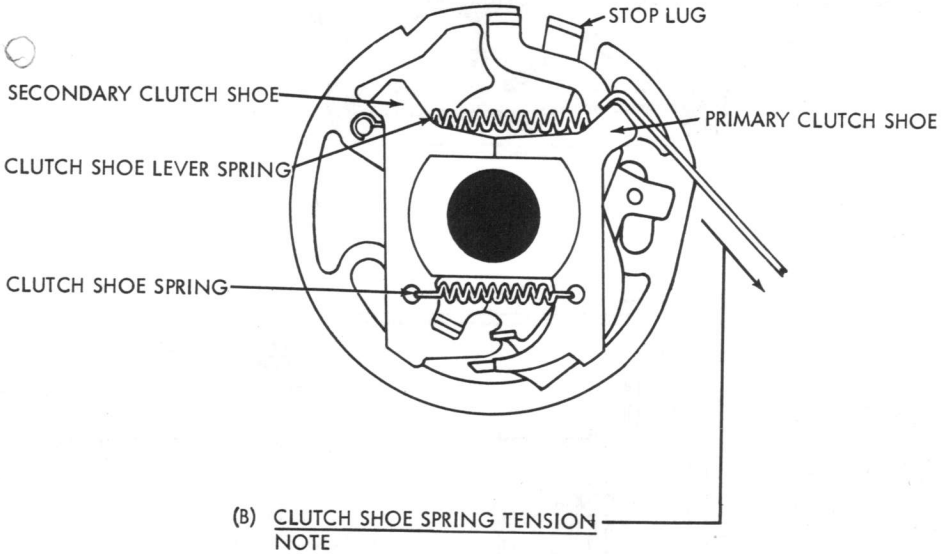
FIGURE 1-10. LOW TAPE SWITCH AND KEYBOARD LOCK BAR SWITCH



(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 1-11. SIGNAL GENERATOR CLUTCH MECHANISM

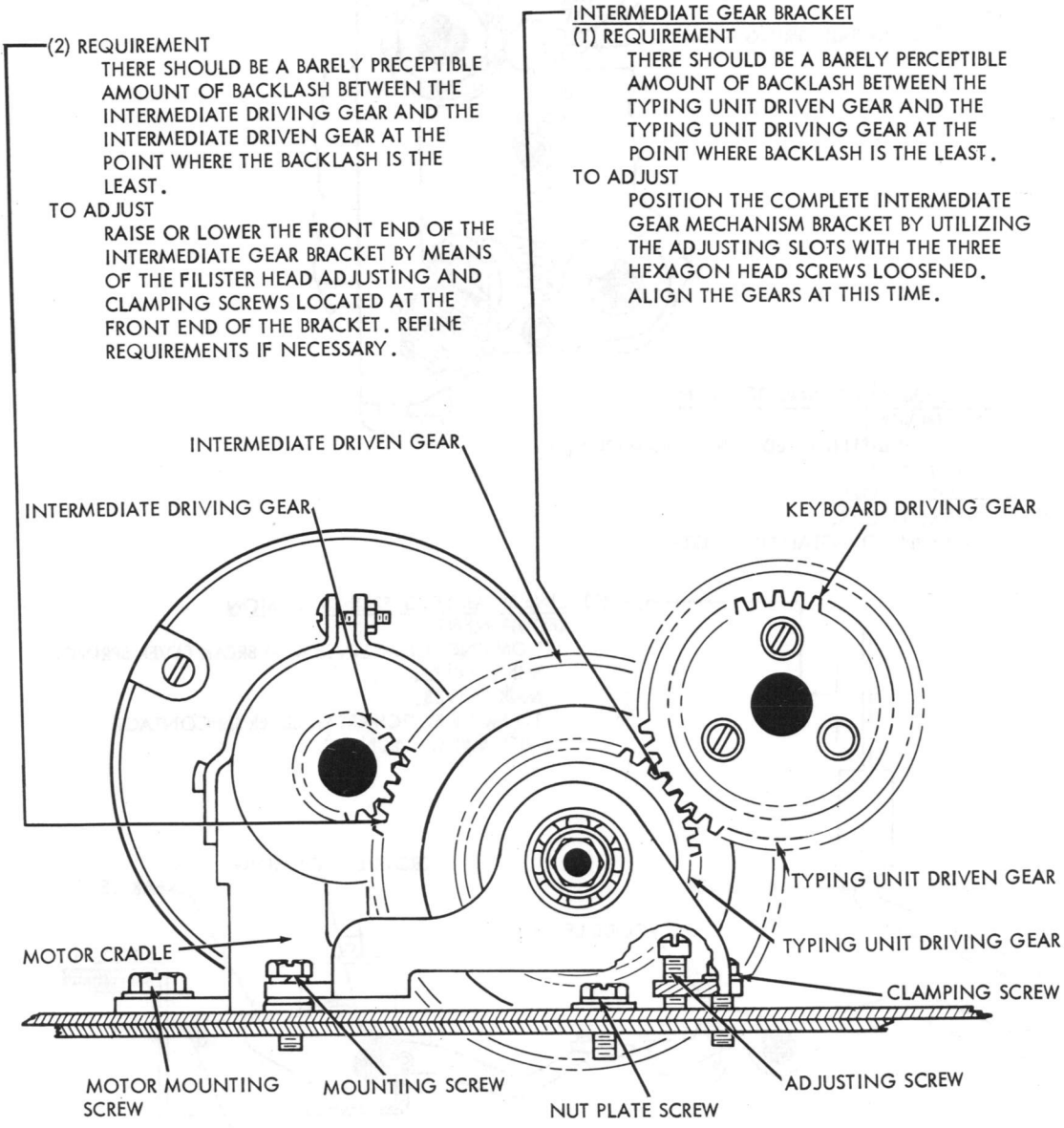
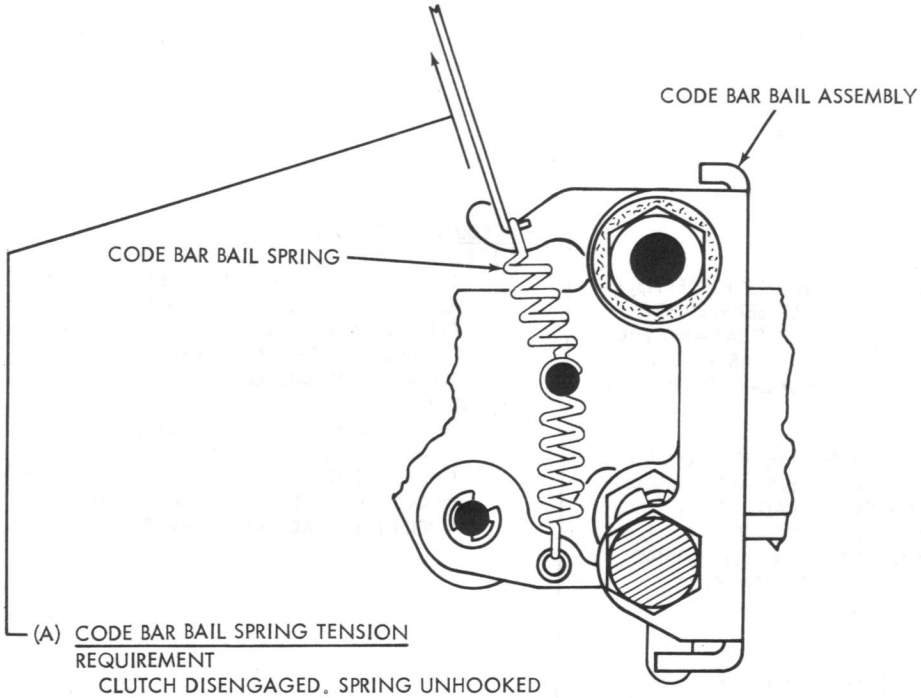


FIGURE 1-12. TYPING UNIT AND MOTOR PINION INTERMEDIATE GEAR ASSEMBLY



(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.

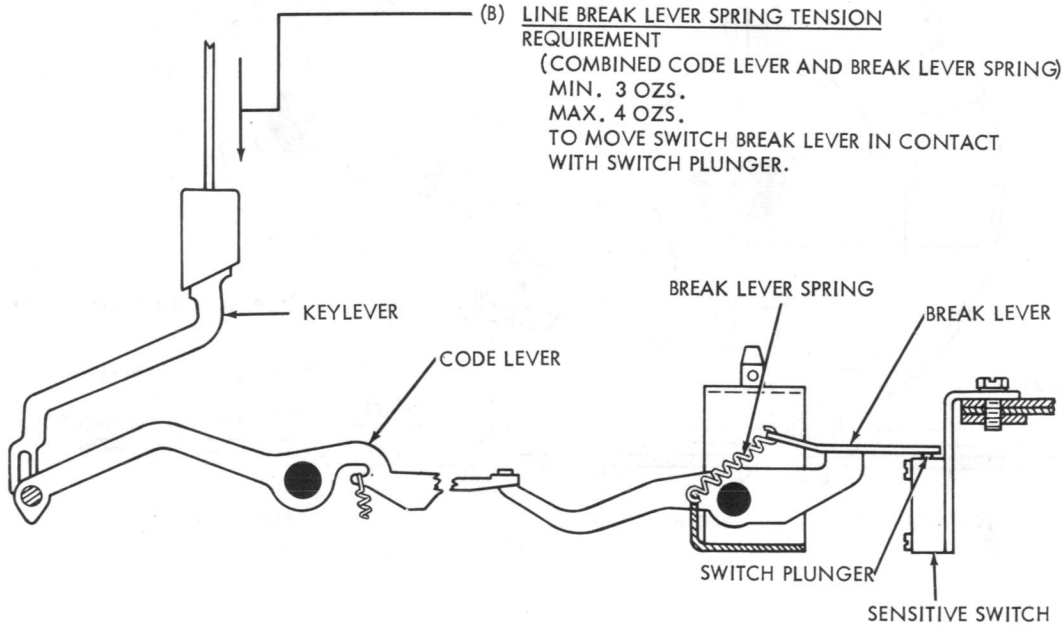
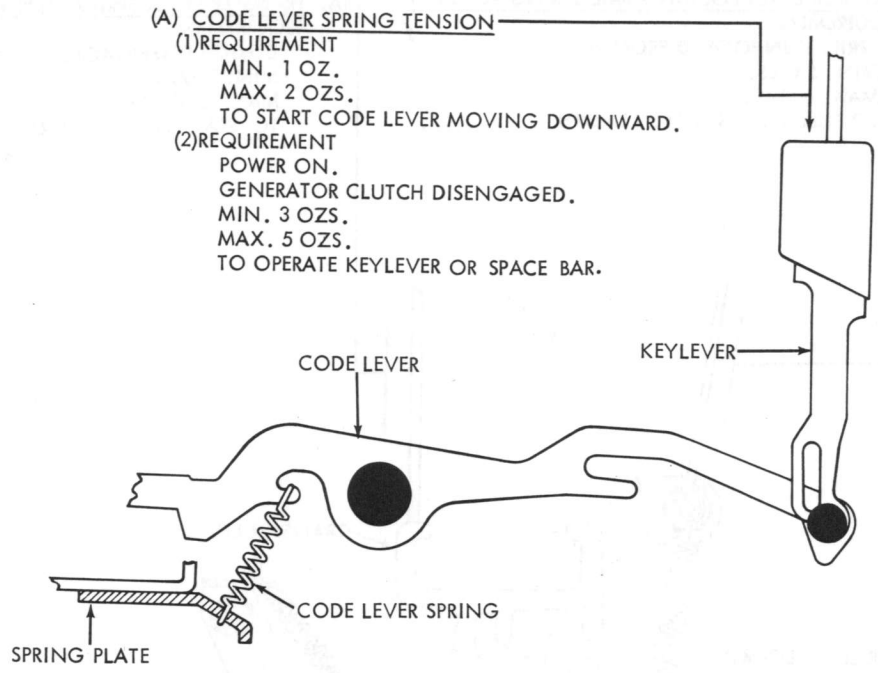


FIGURE 1-13 CODE BAR BAIL AND LINE BREAK LEVER



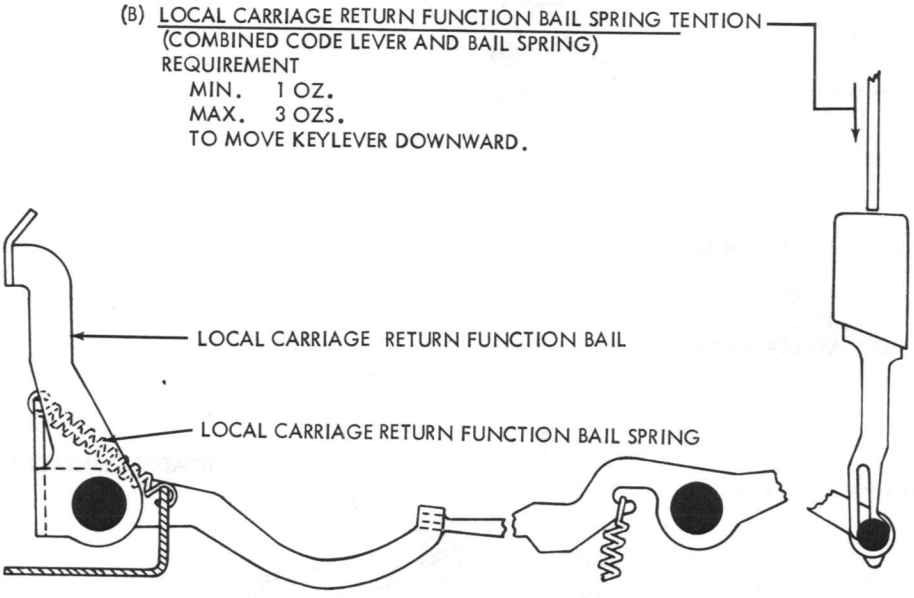


FIGURE 1-14 CODE LEVER AND LOCAL CARRIAGE FUNCTION BAIL MECHANISMS

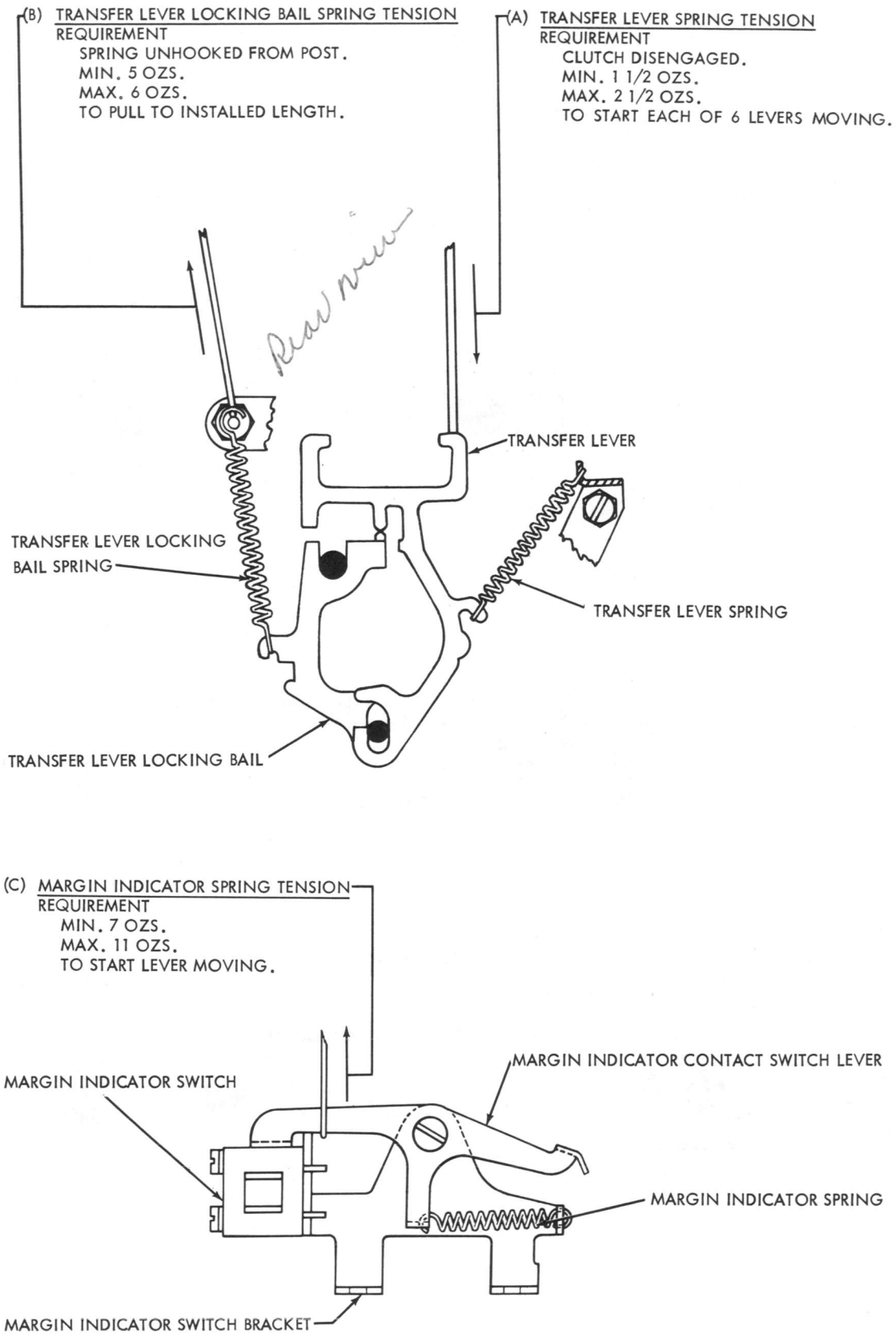


FIGURE 1-15 TRANSFER LEVER AND MARGIN INDICATOR MECHANISMS

3. PERFORATOR UNIT (TYPING OR NON-TYPING)

NOTE: UNLESS OTHERWISE SPECIFIED, THESE ADJUSTMENTS APPLY TO BOTH TYPING AND NON-TYPING PERFORATOR.

(A) FUNCTION CLUTCH SHOE LEVER

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

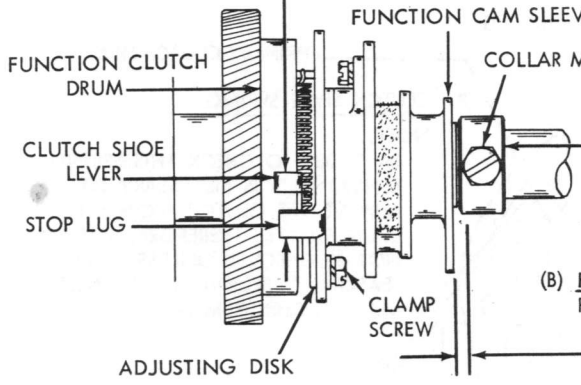
CLEARANCE BETWEEN SHOE LEVER AND STOP LUG: MIN. 0.050 INCH ----- MAX. 0.080 INCH GREATER WHEN CLUTCH ENGAGED (2) THAN WHEN DISENGAGED (1). .050 To .080

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.



(B) FUNCTION CLUTCH DRUM END PLAY

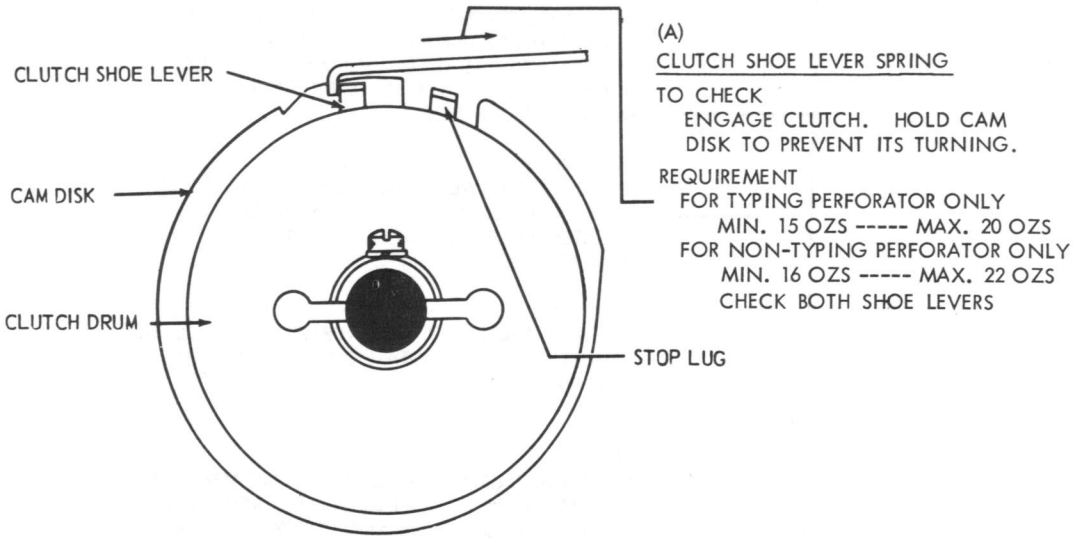
REQUIREMENT

WITH FUNCTION CLUTCH DISENGAGED: MIN. SOME ----- MAX. 0.010 INCH BETWEEN CAM SLEEVE AND COLLAR WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE MAXIMUM.

TO ADJUST

POSITION COLLAR WITH MOUNTING SCREW LOOSENED.

FIGURE 1-16. FUNCTION CLUTCH



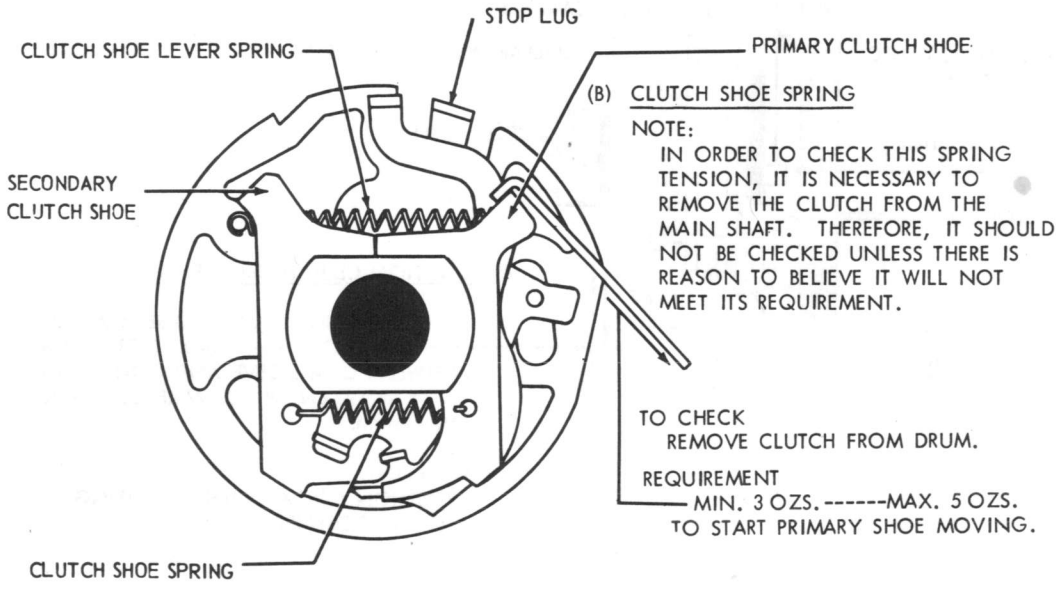


FIGURE 1-17 CLUTCH ASSEMBLIES

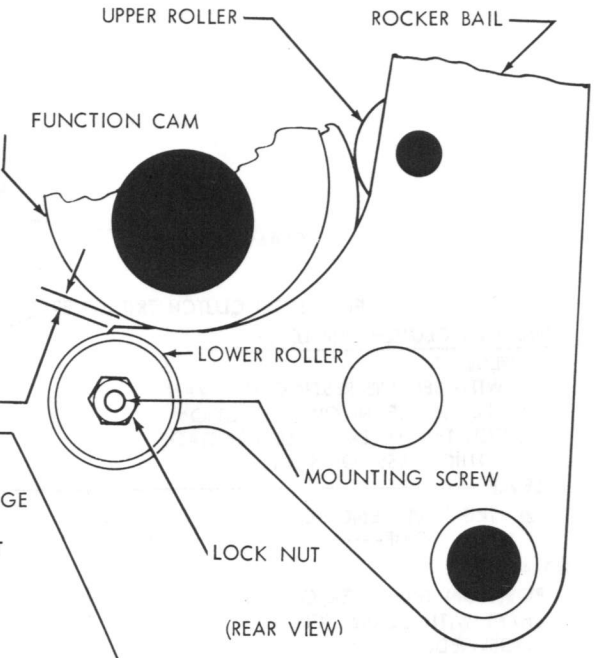
(A) ROCKER BAIL

REQUIREMENT

WITH ROCKER BAIL POSITIONED TO ITS EXTREME LEFT AND UPPER ROLLER IN CONTACT WITH FUNCTION CAM:
MIN. SOME --- MAX. 0.003 INCH CLEARANCE BETWEEN CAM AND LOWER ROLLER AT POINT OF LEAST CLEARANCE.

TO ADJUST

POSITION LOWER ROLLER MOUNTING SCREW IN ELONGATED SLOT WITH LOCK NUT LOOSENED. CHECK THROUGHOUT A COMPLETE REVOLUTION FOR BINDS.



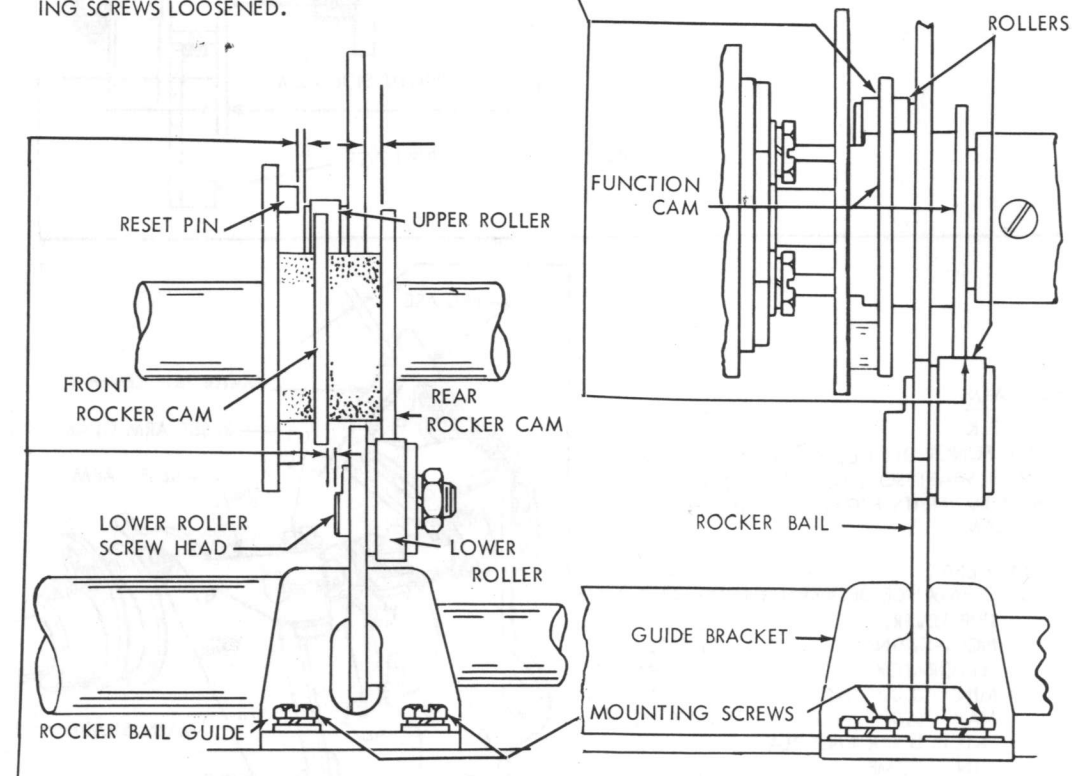
(B) ROCKER BAIL GUIDE BRACKET
(TYPING PERFORATOR ONLY)

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 1-39.

TO ADJUST

POSITION ROCKER BAIL AND GUIDE BRACKET WITH GUIDE BRACKET MOUNTING SCREWS LOOSENED.



ROCKER BAIL GUIDE BRACKET
(NON-TYPING PERFORATOR ONLY)

REQUIREMENT

CLEARANCE BETWEEN UPPER ROLLER AND RESET PINS; BETWEEN LOWER ROLLER SCREW HEAD AND FRONT CAM; BETWEEN ROCKER BAIL AND REAR ROCKER CAM.
MIN. 0.010 INCH

TO ADJUST

POSITION ROCKER BAIL WITH GUIDE MOUNTING SCREWS LOOSENED.

FIGURE 1-18 FUNCTION MECHANISM

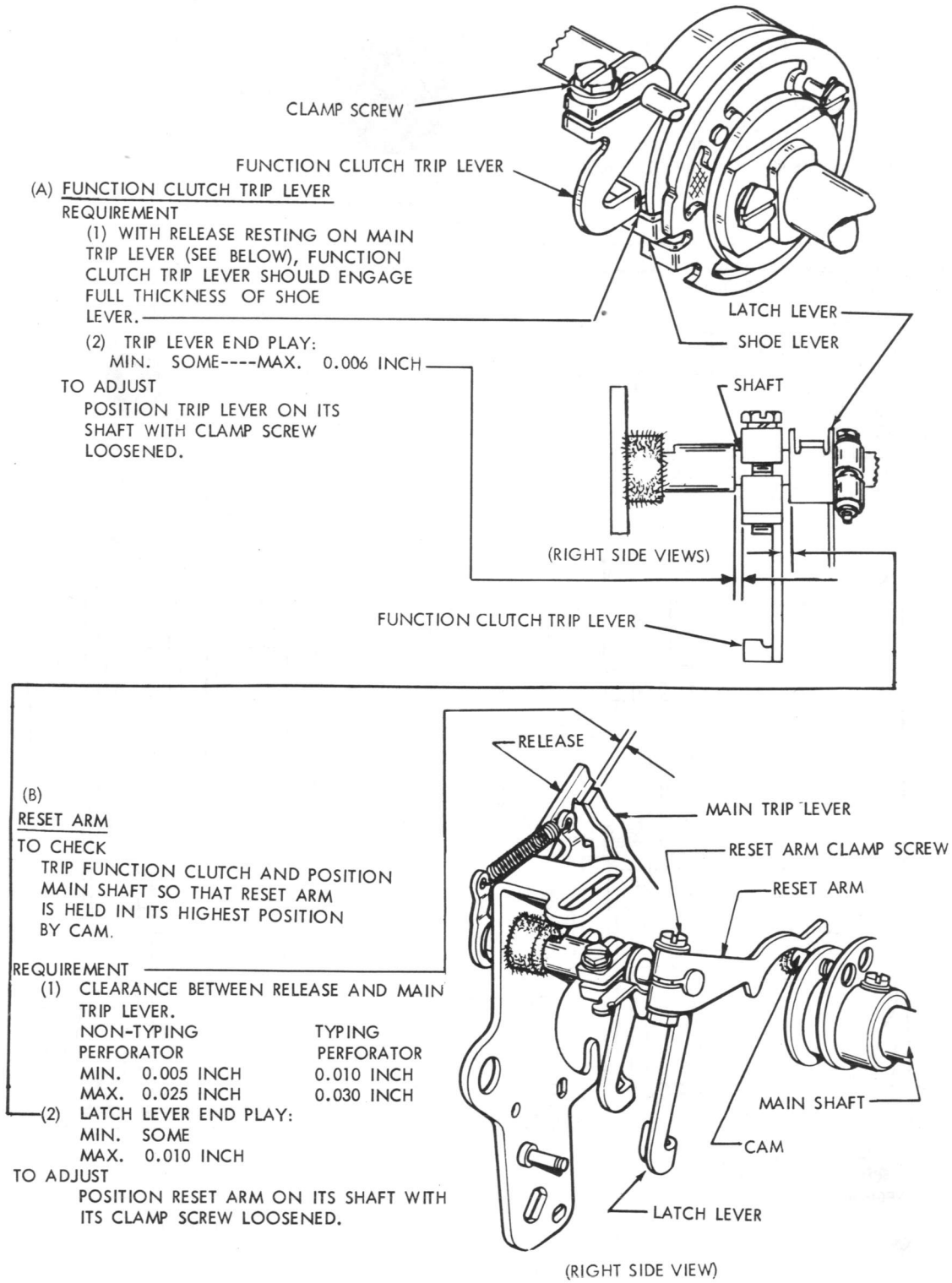


FIGURE 1-19 FUNCTION MECHANISM

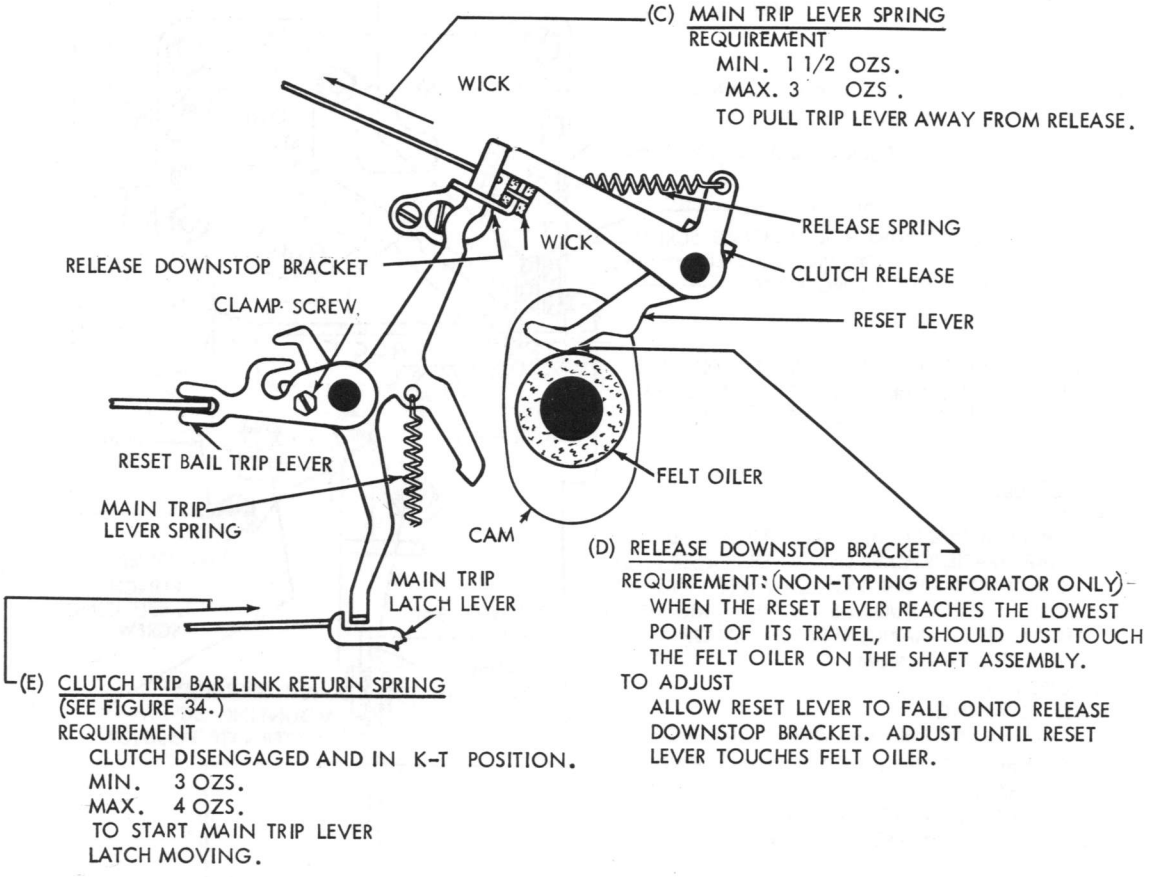


FIGURE 1-20. PERFORATOR TRIP LEVER MECHANISM

(A) PUNCH POSITION --- PRELIMINARY

REQUIREMENT

PUNCH MOUNTING SCREWS CENTRALLY LOCATED IN ELONGATED MOUNTING HOLES. PUNCH SLIDE LATCHES SHALL BE VISUALLY HORIZONTAL WHEN ENGAGED WITH THE PUNCH SLIDES.

TO ADJUST

REMOVE THE MOUNTING SCREW AT THE LOWER EDGE OF THE PUNCH MECHANISM BACKPLATE. REMAINING BACKPLATE MOUNTING SCREWS AND BRACKET MOUNTING SCREW FRICTION TIGHT. PUNCH SLIDES IN RESET CONDITION. MEET REQUIREMENT. TIGHTEN ALL SCREWS.

NOTE:

BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENTS, CHECK ROCKER BAIL LOWER ROLLER ADJUSTMENT (SEE FIGURE 1-18)

(B)

ROCKER ARM

TO CHECK

TRIP FUNCTION CLUTCH AND ROTATE MAIN SHAFT UNTIL ROCKER BAIL UPPER ROLLER IS ON HIGH PART OF FUNCTION CAM (SEE FIGURE 1-18) PLACE 159926 GAUGE AS SHOWN. TAKE UP PLAY TO MAKE CLEARANCE BETWEEN GAUGE AND FEED PAWL STUD MINIMUM.

REQUIREMENT *

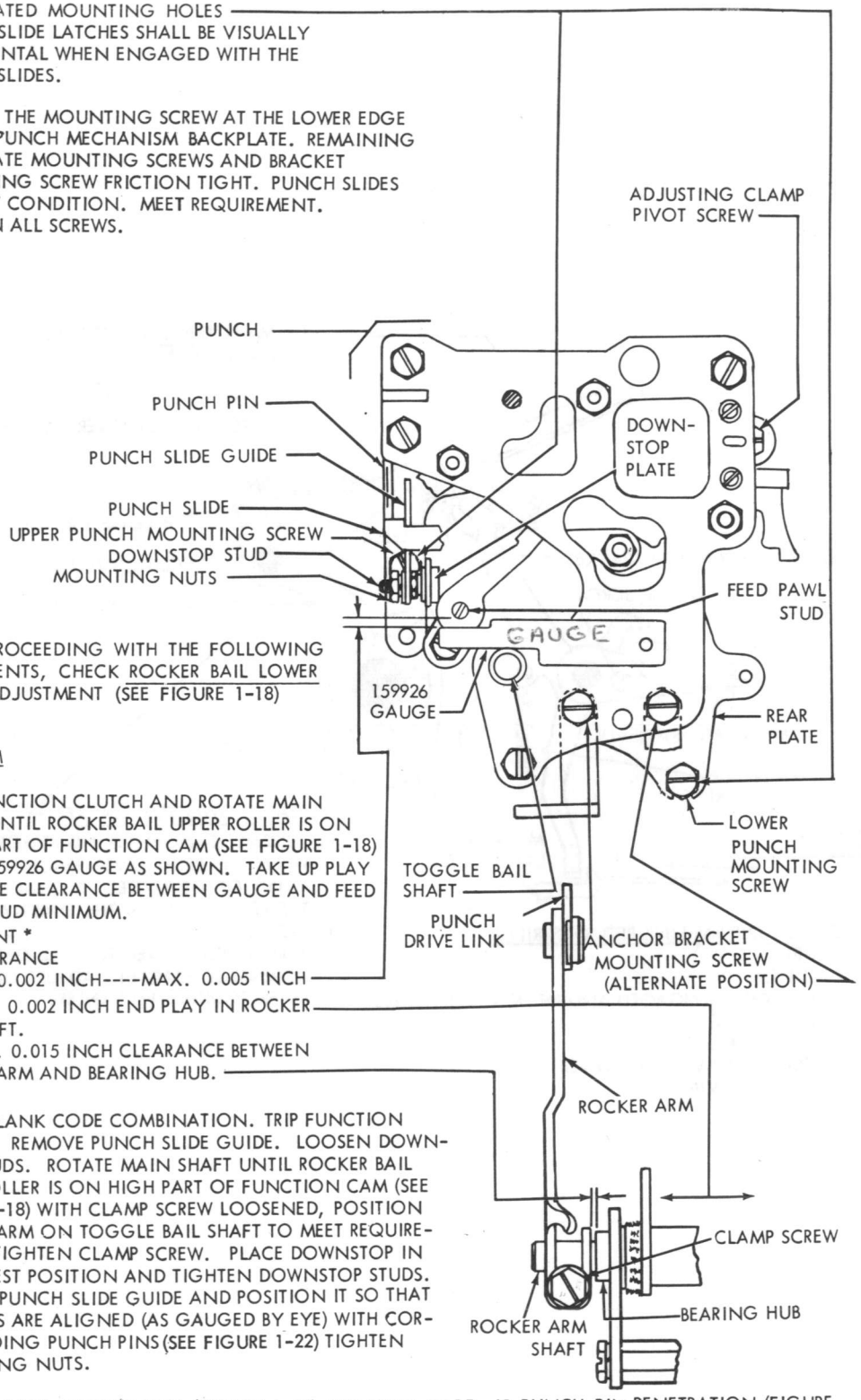
(1) CLEARANCE MIN. 0.002 INCH----MAX. 0.005 INCH

(2) MIN. 0.002 INCH END PLAY IN ROCKER ARM SHAFT.

(3) MAX. 0.015 INCH CLEARANCE BETWEEN ROCKER ARM AND BEARING HUB.

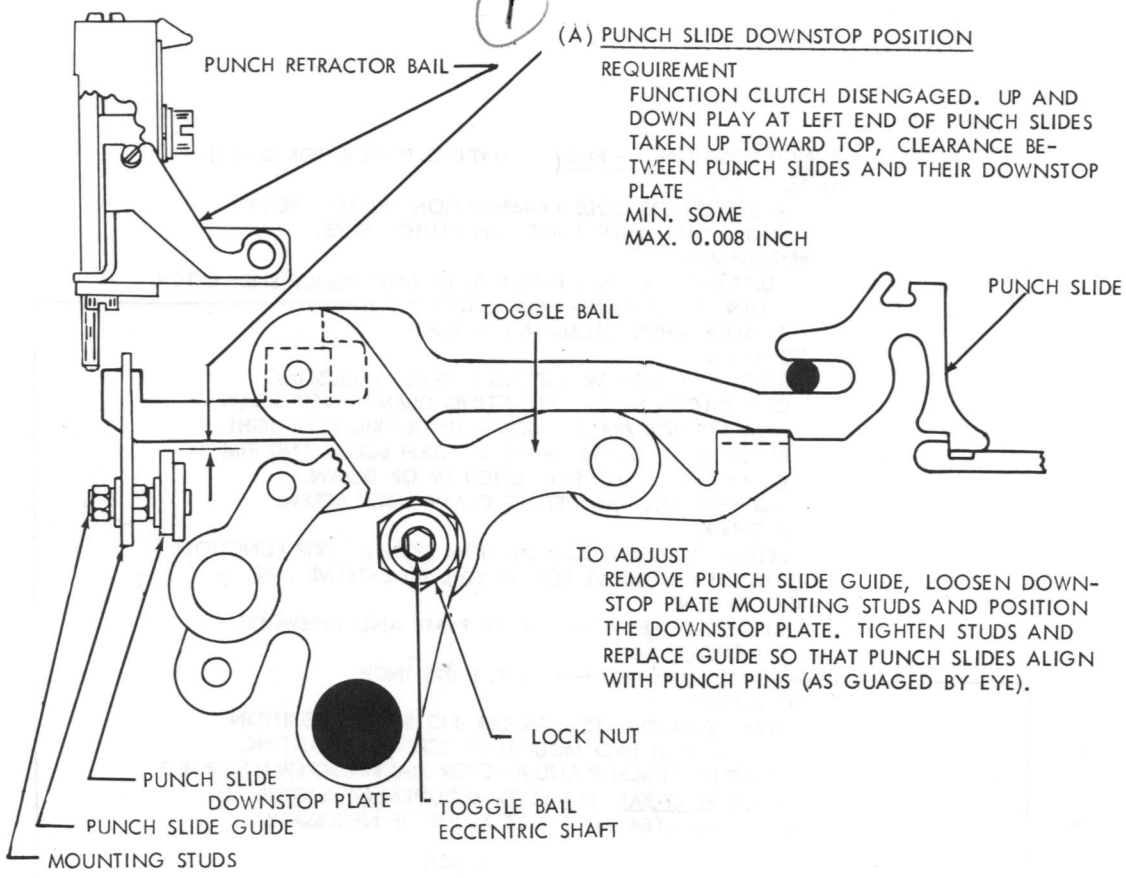
TO ADJUST

SELECT BLANK CODE COMBINATION. TRIP FUNCTION CLUTCH. REMOVE PUNCH SLIDE GUIDE. LOOSEN DOWN-STOP STUDS. ROTATE MAIN SHAFT UNTIL ROCKER BAIL UPPER ROLLER IS ON HIGH PART OF FUNCTION CAM (SEE FIGURE 1-18) WITH CLAMP SCREW LOOSENED, POSITION ROCKER ARM ON TOGGLE BAIL SHAFT TO MEET REQUIREMENT. TIGHTEN CLAMP SCREW. PLACE DOWNSTOP IN ITS LOWEST POSITION AND TIGHTEN DOWNSTOP STUDS. REPLACE PUNCH SLIDE GUIDE AND POSITION IT SO THAT ITS SLOTS ARE ALIGNED (AS GAUGED BY EYE) WITH CORRESPONDING PUNCH PINS (SEE FIGURE 1-22) TIGHTEN MOUNTING NUTS.



*AFTER FEED PAWL ADJUSTMENT (FIGURE 1-24) HAS BEEN MADE, IF PUNCH PIN PENETRATION (FIGURE 14) AND FEED PAWL REQUIREMENTS ARE MET, THIS REQUIREMENT SHOULD BE CONSIDERED FULFILLED.

FIGURE 1-21 PUNCH MECHANISM



(A) PUNCH SLIDE DOWNSTOP POSITION

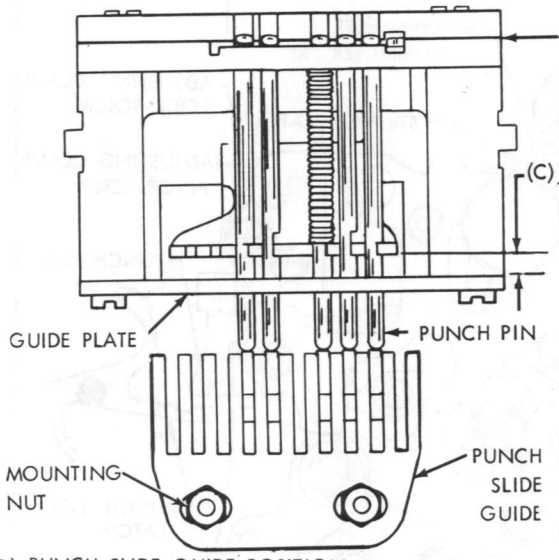
REQUIREMENT

FUNCTION CLUTCH DISENGAGED. UP AND DOWN PLAY AT LEFT END OF PUNCH SLIDES TAKEN UP TOWARD TOP, CLEARANCE BETWEEN PUNCH SLIDES AND THEIR DOWNSTOP PLATE

MIN. SOME
MAX. 0.008 INCH

TO ADJUST

REMOVE PUNCH SLIDE GUIDE, LOOSEN DOWNSTOP PLATE MOUNTING STUDS AND POSITION THE DOWNSTOP PLATE. TIGHTEN STUDS AND REPLACE GUIDE SO THAT PUNCH SLIDES ALIGN WITH PUNCH PINS (AS GUAGED BY EYE).



(C) PUNCH PIN PENETRATION

REQUIREMENT

LETTERS MANUALLY SELECTED, CLUTCH ENGAGED AND ROTATED UNTIL PUNCH PINS HAVE TRAVELED MAXIMUM DISTANCE INTO THE DIE PLATE, CLEARANCE BETWEEN LOWER EDGE OF PUNCH RETRACTOR BAIL AND UPPER SIDE OF GUIDE PLATE (MEASURED AT LEFT EDGE OF PUNCH PINS WHERE CLEARANCE IS LEAST).

MIN. 0.060 INCH
MAX. 0.070 INCH

TO ADJUST

ROTATE THE TOGGLE BAIL ECCENTRIC SHAFT WITH ITS LOCK NUT LOOSENED. KEEP THE INDENTATION IN THE ECCENTRIC SHAFT TO THE LEFT OF A VERTICAL CENTERLINE THROUGH THE SHAFT.

(B) PUNCH SLIDE GUIDE POSITION

REQUIREMENT

LETTERS SELECTED. FUNCTION CLUTCH ENGAGED AND ROTATED UNTIL THE PUNCH SLIDES JUST TOUCH THE PUNCH PINS. THE PUNCH SLIDES SHOULD ALIGN CENTRALLY WITH THEIR RESPECTIVE PUNCH PINS (GAUGED BY EYE).

TO ADJUST

POSITION THE PUNCH SLIDE GUIDE WITH ITS MOUNTING NUTS LOOSENED.

FIGURE 1-22 PUNCH MECHANISM

Turn to Page 1-56

PUNCH POSITION --- FINAL (TYPING PERFORATOR ONLY)

(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 PUNCH 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 PUNCH 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 PLATE AND TYPEWHEEL CHARACTER "M":
MIN. 0.075 INCH----MAX. 0.095 INCH
TO ADJUST
REMOVE RIBBON FROM CARRIER (FIGURE 42). POSITION PUNCH WITH TWO MOUNTING SCREWS, ADJUSTING CLAMP PIVOT SCREW AND ANCHOR BRACKET SCREW LOOSENED. CHECK RESET BAIL TRIP LEVER REQUIREMENT (FIGURE 16) FOR SOME CLEARANCE AND ADJUST IF NECESSARY.

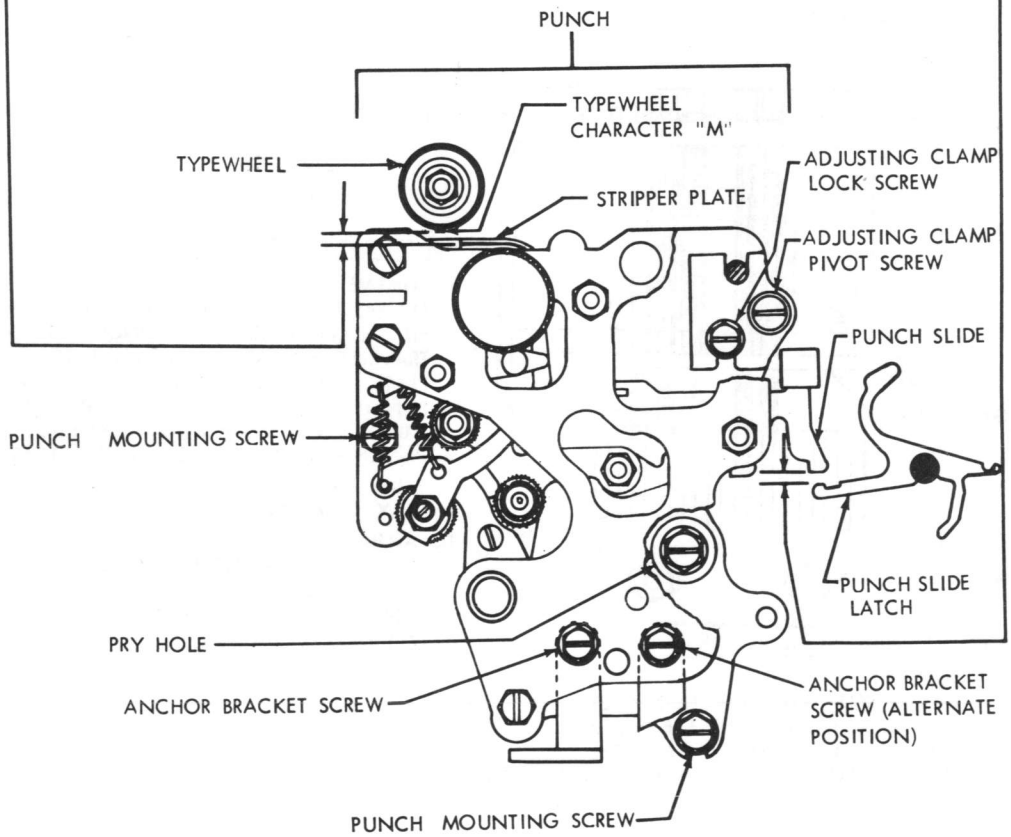
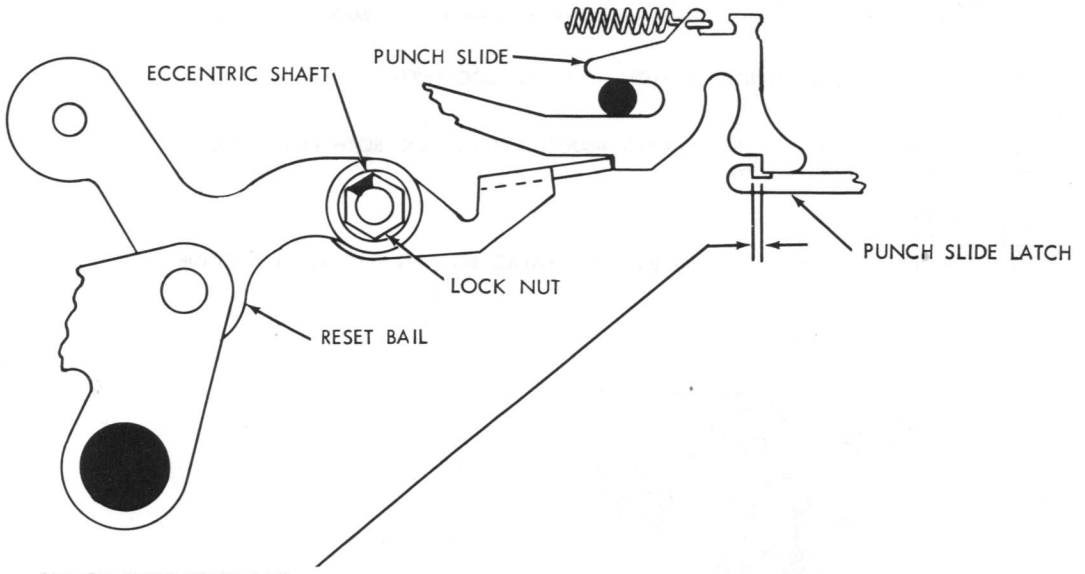


FIGURE 1-23 PUNCH MECHANISM



PUNCH SLIDE RESET BAIL

(1) REQUIREMENT

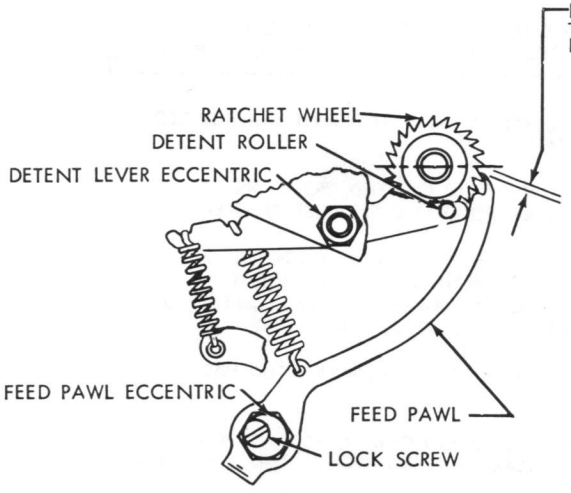
FUNCTION CLUTCH DISENGAGED AND LATCHED. CLEARANCE AT PUNCH SLIDE LATCH CLOSEST TO PUNCH SLIDE:

(A) FOR NON-TYPING PERFORATOR ONLY
MIN. 0.015 INCH
MAX. 0.025 INCH

(B) FOR TYPING PERFORATOR ONLY
MIN. SOME
MAX. 0.008 INCH

TO ADJUST

ROTATE THE RESET BAIL ECCENTRIC SHAFT WITH ITS LOCK NUT LOOSENED. KEEP THE INDENTATION IN THE ECCENTRIC SHAFT HIGH AND TO THE LEFT OF A VERTICAL CENTERLINE THROUGH THE SHAFT.



FEED PAWL

REQUIREMENT

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

TO ADJUST

ROTATE THE FEED PAWL ECCENTRIC WITH LOCK SCREW LOOSENED.

THIS ADJUSTMENT IS RELATED TO FEED HOLE SPACING AND THE TWO ADJUSTMENTS MUST BE MADE AT THE SAME TIME.

FIGURE 1-24 PUNCH UNIT RESET AND FEEDING MECHANISM

FEED HOLE SPACING (PRELIMINARY)

REQUIREMENT

WITH INDENT OF DIE WHEEL ECCENTRIC STUD POINTING DOWNWARD, CLEARANCE BETWEEN DIE WHEEL AND FEED WHEEL:

MIN. 0.002 INCH----------MAX. 0.004 INCH

TO ADJUST

POSITION DIE WHEEL ECCENTRIC STUD WITH LOCK NUT LOOSENED.

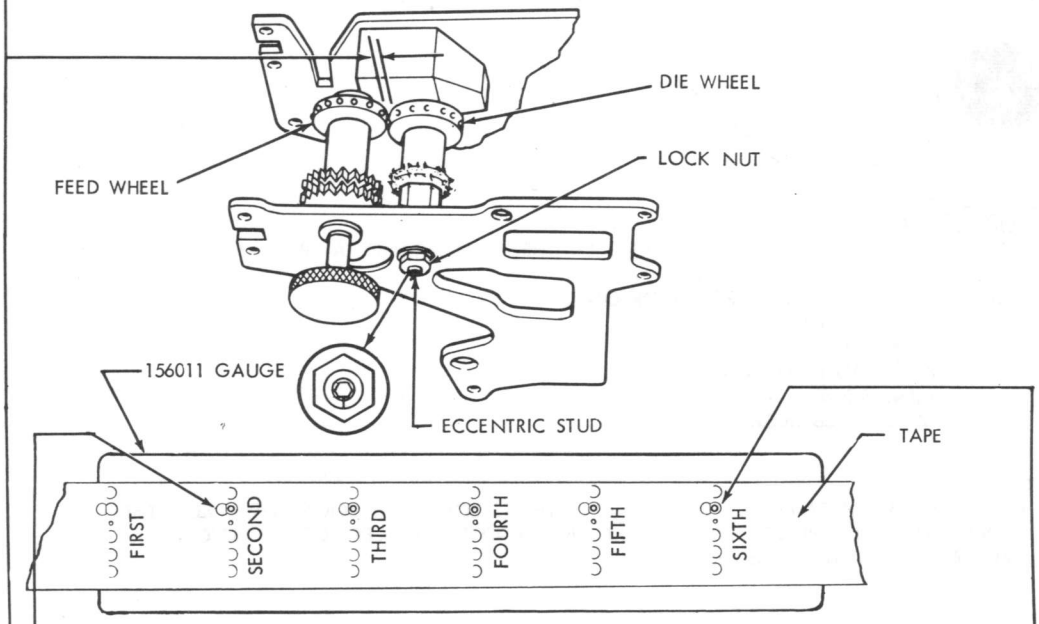
NOTE:

BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENTS, CHECK BOTH TAPE GUIDE SPRING TENSIONS (FIGURE 1-29)

FEED HOLE SPACING (FINAL)

(1) REQUIREMENT

WITH TAPE REMOVED, MIN. OF 0.002 INCH CLEARANCE BETWEEN FEED WHEEL AND DIE WHEEL.



(2) TO CHECK

PERFORATE IN ORDER SIX SEQUENCES MADE UP OF NINE BLANK CODE COMBINATIONS FOLLOWED BY A LETTERS COMBINATION. OPEN CHADS SO THAT CODE HOLES ARE VISIBLE. PLACE TAPE OVER SMOOTH SIDE OF 156011 TAPE GAUGE SO THAT FIRST NO. 2 CODE HOLE IS CONCENTRIC WITH FIRST (0.072 INCH) HOLE IN GAGE (SEE NOTE BELOW).

REQUIREMENT

SECOND THROUGH FIFTH HOLE IN GAUGE VISIBLE THROUGH NO. 2 CODE HOLES IN TAPE. CIRCULAR PORTION OF SIXTH NO. 2 CODE HOLE ENTIRELY WITHIN CORRESPONDIND (0.086 INCH) HOLE IN GAUGE.

((3) REQUIREMENT

WITH TAPE SHOE HELD AWAY FROM FEED WHEEL, FEED PAWL AND DETENT DISENGAGED AND TAPE REMOVED, FEED WHEEL SHOULD ROTATE FREELY.

TO ADJUST

(1) WITH TAPE REMOVED, KEEPING INDENT BELOW CENTER OF STUD, POSITION DIE WHEEL ECCENTRIC STUD WITH LOCK NUT LOOSENED SO THAT CLEARANCE BETWEEN FEED WHEEL AND DIE WHEEL IS

MIN. 0.002 INCH----------MAX. 0.004 INCH.

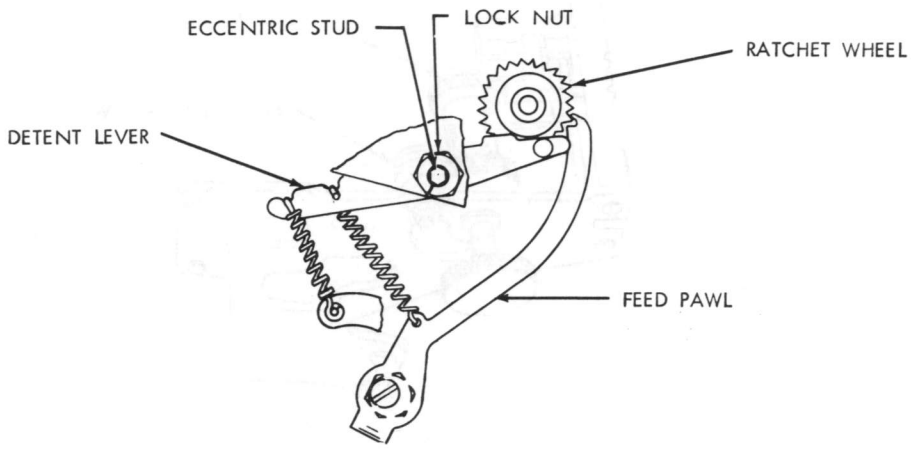
(2) REFINE THE ABOVE ADJUSTMENT TO MEET REQUIREMENT (2). MOVE INDENT IN ECCENTRIC STUD TOWARD FEED WHEEL TO DECREASE AND AWAY FROM FEED WHEEL TO INCREASE FEED HOLE SPACING. CAUTION: WITH TAPE REMOVED, MAKE SURE FEED WHEEL-DIE WHEEL CLEARANCE IS A MIN. OF 0.002 INCH.

(3) FAILURE TO MEET REQUIREMENT (3) INDICATES DIE WHEEL ECCENTRIC STUD HAS BEEN OVER ADJUSTED. REFINE.

NOTE:

FIRST THROUGH FIFTH HOLES IN GAUGE ARE SAME SIZE AS CODE HOLES IN TAPE (0.072 INCH DIAMETER). BUT SIXTH HOLE IN GAUGE IS LARGER (0.086 INCH). THIS ARRANGEMENT ALLOWS 0.007 INCH VARIATION IN 5 INCHES.

FIGURE 1-25. TAPE FEED MECHANISM



DETENT

REQUIREMENT

A PIECE OF TAPE CONTAINING NINE FEED HOLES FOLLOWED BY A LETTERS COMBINATION PERFORATED ON THE PERFORATOR MUST CONFORM TO THE 156011 TAPE GAUGE.

THE LATERAL CENTERLINE THROUGH THE CODE HOLES IN THE TAPE SHOULD COINCIDE 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 REFINE THE FEED PAWL ADJUSTMENT.

RECHECK FEED PAWL ADJUSTMENT

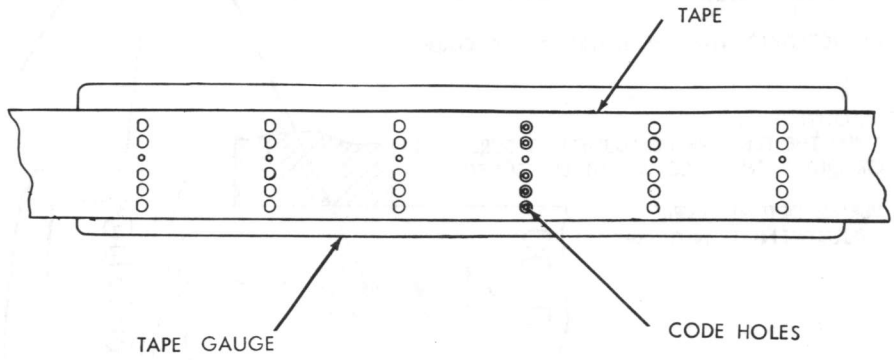
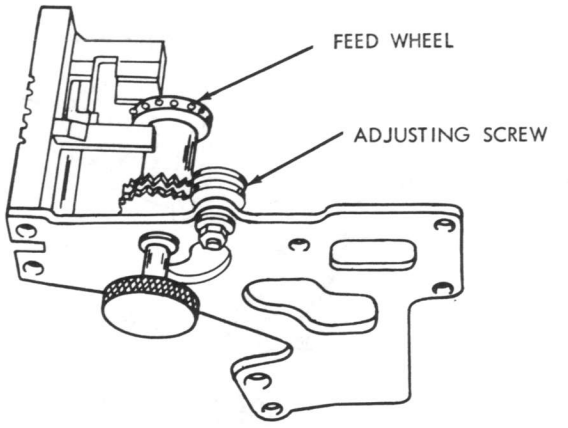


FIGURE 1-26 PUNCH DETENT



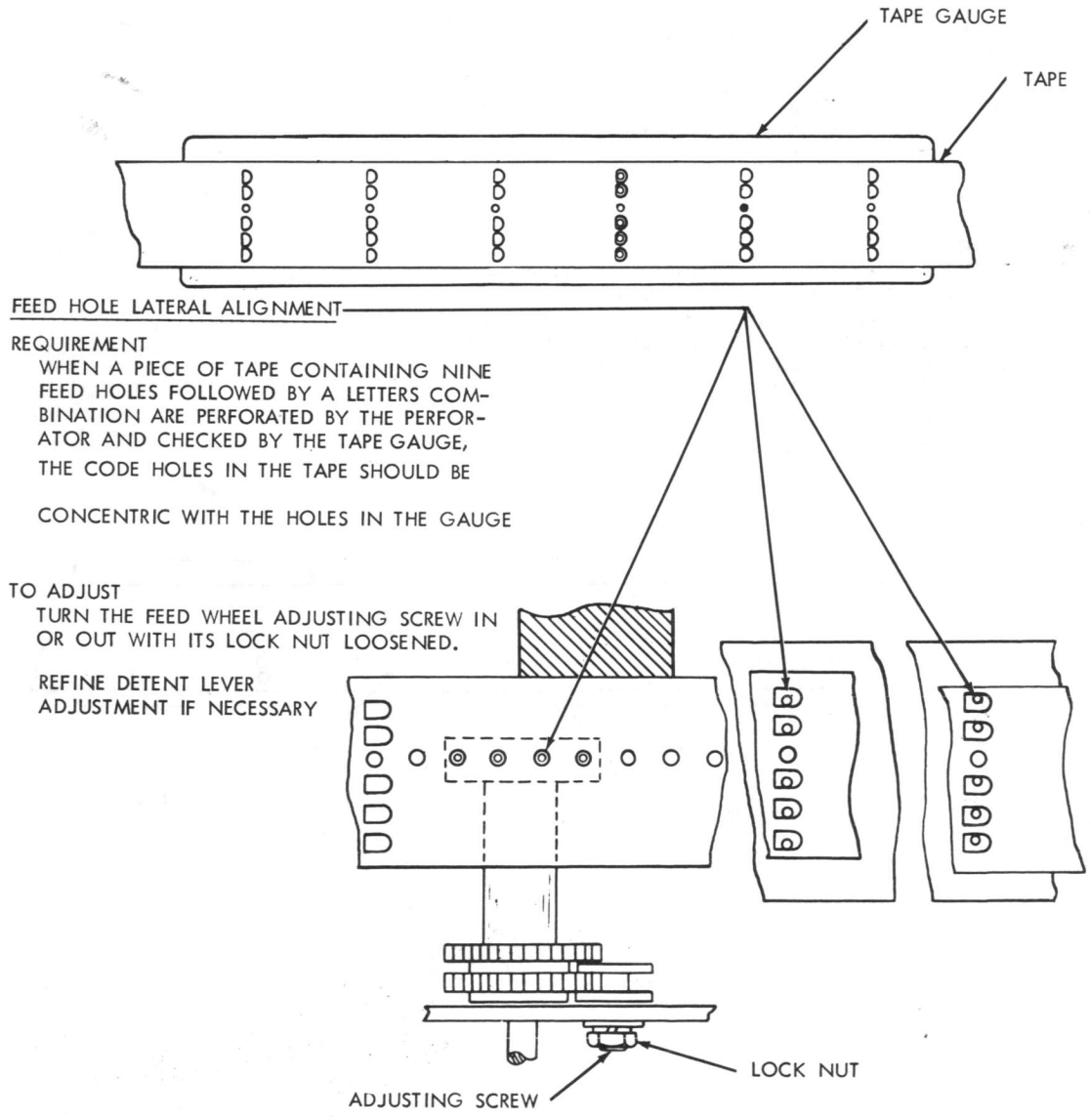


FIGURE 1-27. TAPE FEED MECHANISM

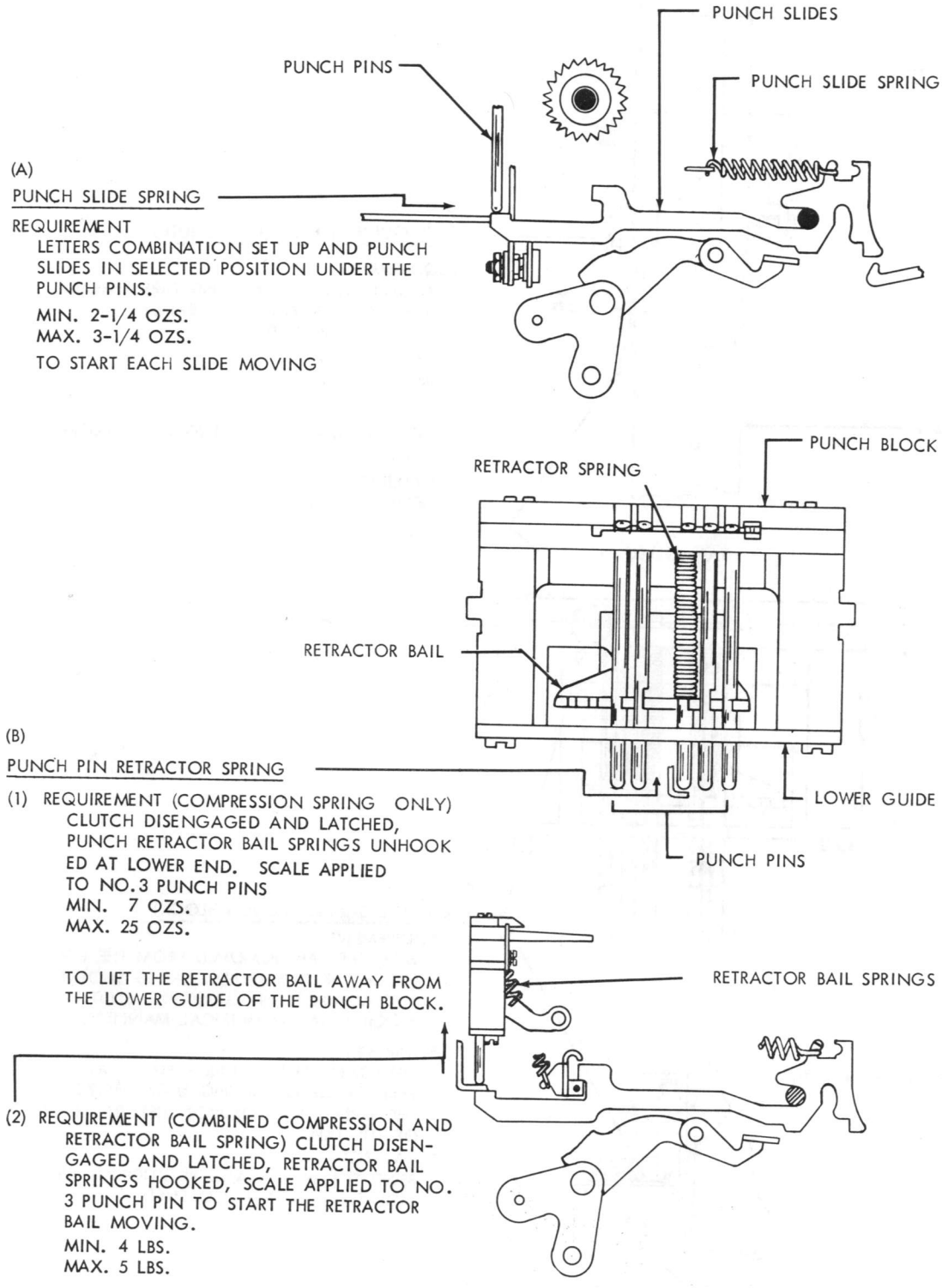
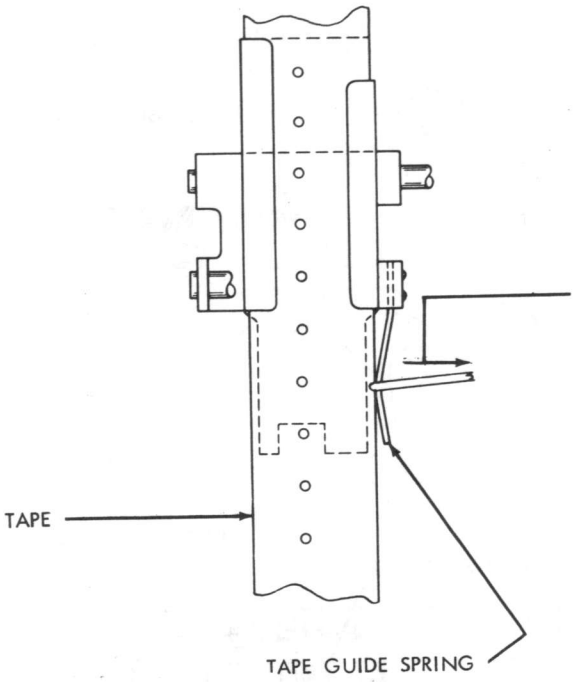


FIGURE 1-28. PUNCH MECHANISM

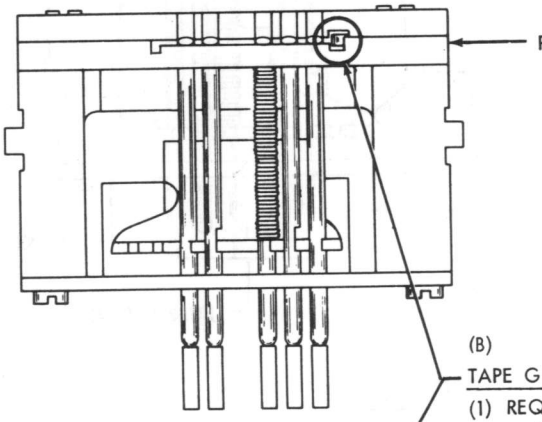


(A)
TAPE GUIDE SPRING (TAPE CHUTE)

REQUIREMENT
CLUTCH DISENGAGED AND TAPE THREADED THROUGH THE PUNCH ASSEMBLY IT SHOULD REQUIRE
MIN. 1/2 OZ.
MAX. 1 OZ.

TO JUST MOVE THE SPRING AWAY FROM THE TAPE

TO ADJUST
BEND THE SPRING



(B)
TAPE GUIDE SPRING (PUNCH BLOCK)

(1) REQUIREMENT
WITH THE TAPE REMOVED FROM THE PUNCH BLOCK THE TAPE GUIDE SPRING SHOULD REST AGAINST THE CLEARANCE SLOT IN THE BLOCK IN A SYMMETRICAL MANNER.

(2) REQUIREMENT
WITH TAPE IN THE PUNCH BLOCK AND THE 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

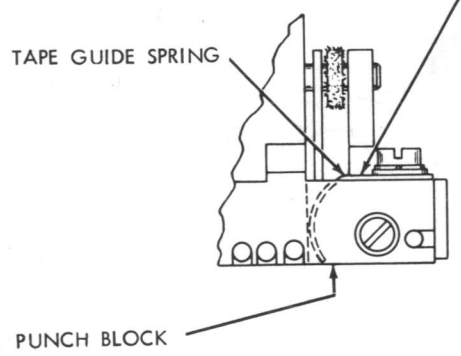
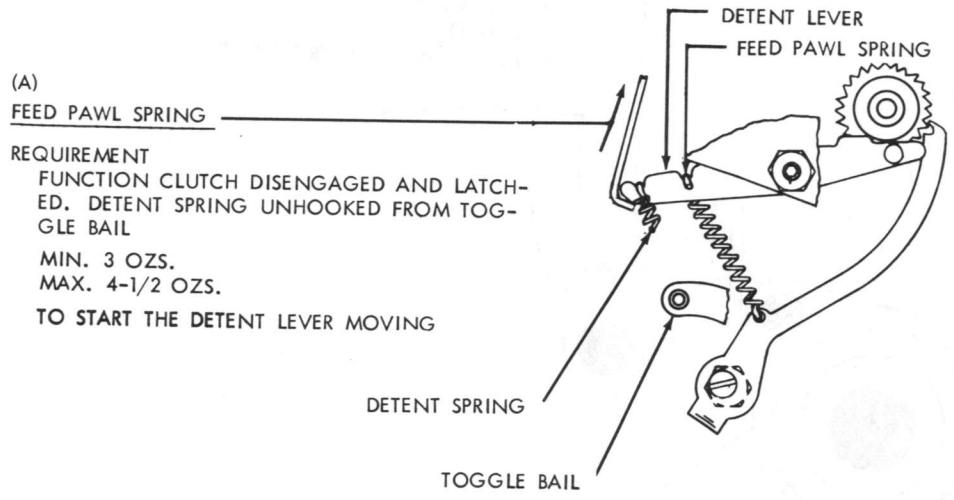


FIGURE 1-29. PUNCH MECHANISM



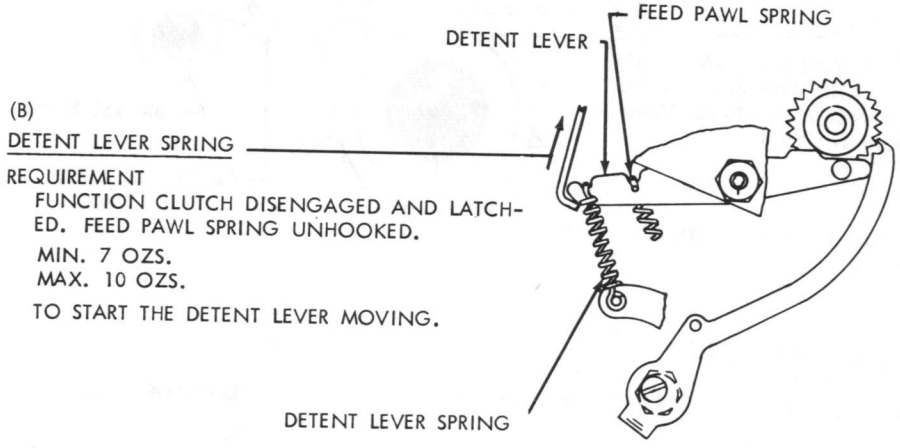


FIGURE 1-30. TAPE FEED MECHANISM

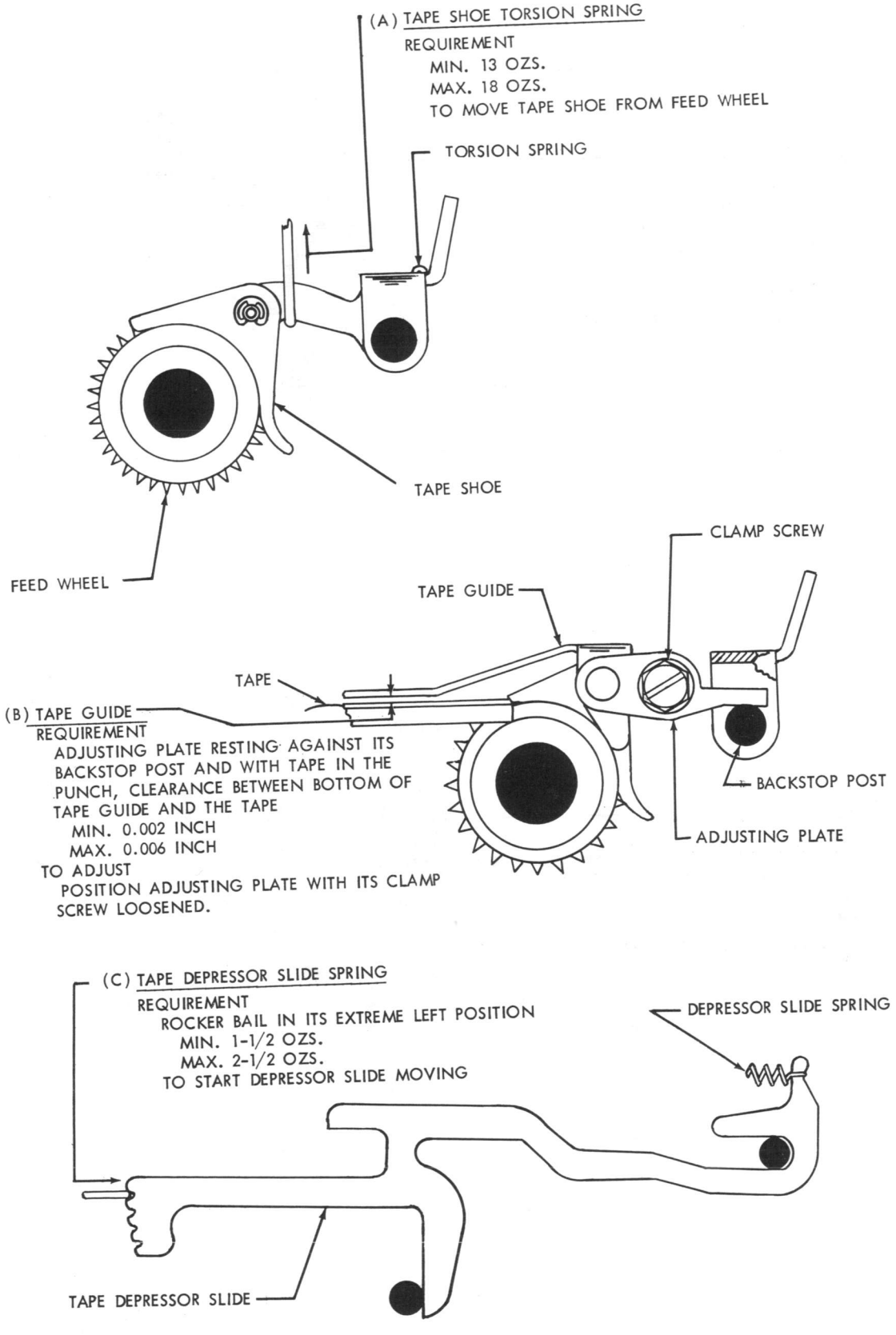
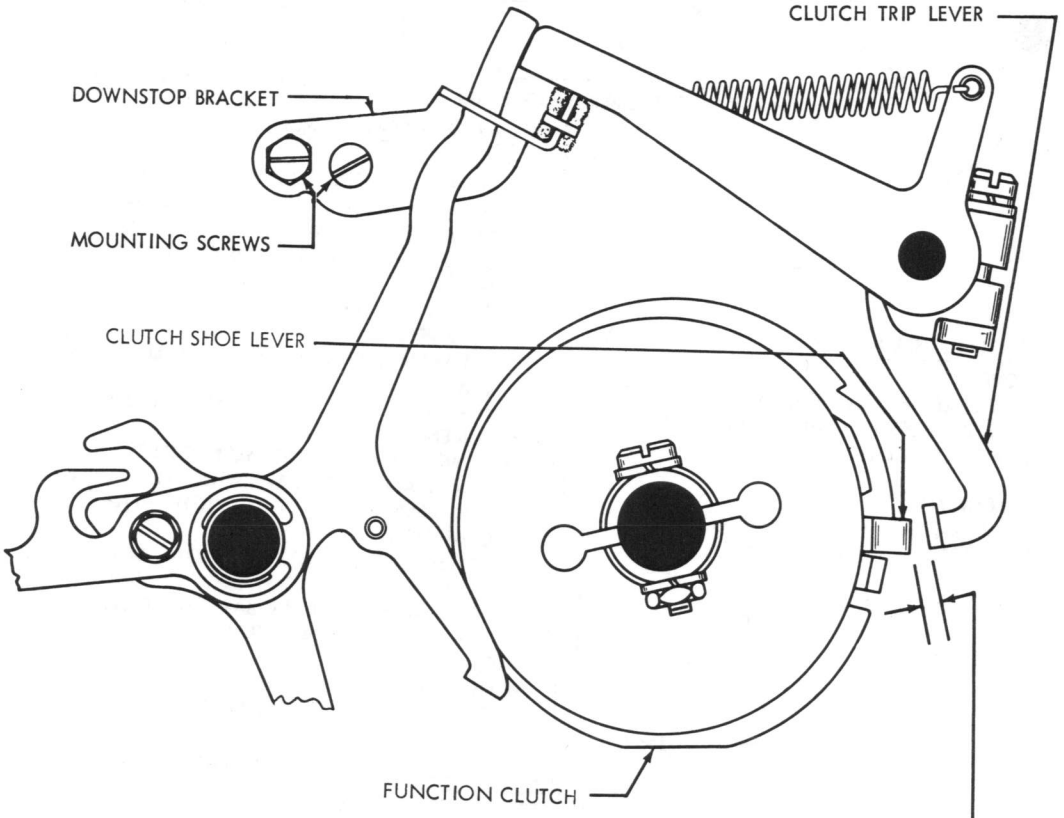


FIGURE 1-31. FEED WHEEL

NOTE: FIGURES 1-32 THROUGH 1-54 APPLY TO TYPING PERFORATOR ONLY



(B) RELEASE DOWNSTOP BRACKET

REQUIREMENT

WITH FUNCTION CLUTCH TRIPPED, CLEARANCE BETWEEN TRIP LEVER AND CLUTCH SHOE LEVER:

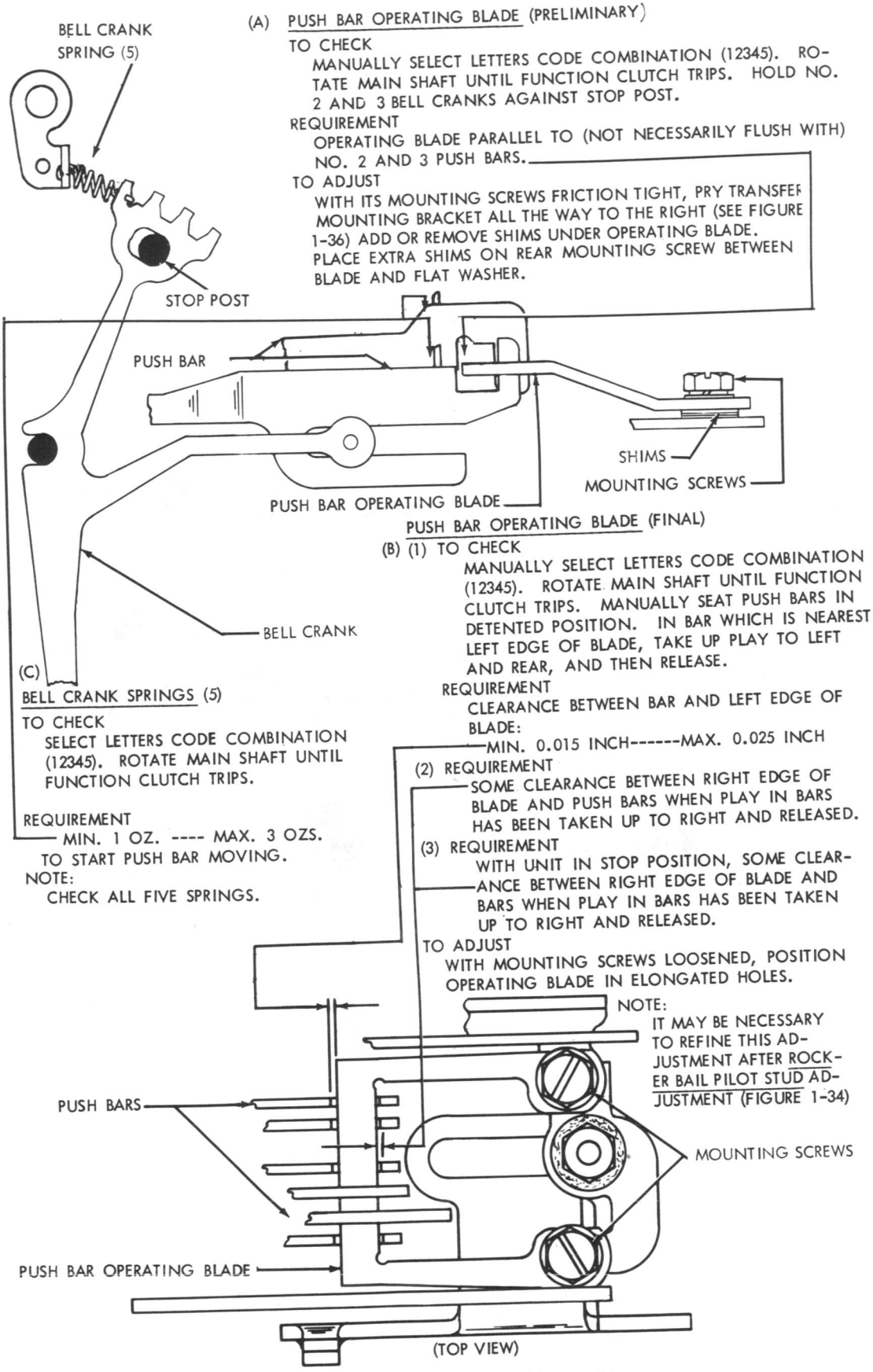
MIN. 0.010 INCH -- MAX. 0.030 INCH

AT POINT WHERE CLEARANCE IS LEAST.

TO ADJUST

REMOVE TAPE GUARD. POSITION DOWNSTOP BRACKET WITH MOUNTING SCREWS FRICTION TIGHT.

FIGURE 1-32. 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 WITH) NO. 2 AND 3 PUSH BARS.

TO ADJUST
WITH ITS MOUNTING SCREWS FRICTION TIGHT, PRY TRANSFER MOUNTING BRACKET ALL THE WAY TO THE RIGHT (SEE FIGURE 1-36) ADD OR REMOVE SHIMS UNDER OPERATING BLADE. PLACE EXTRA SHIMS ON REAR MOUNTING SCREW BETWEEN BLADE AND FLAT WASHER.

(B) PUSH BAR OPERATING BLADE (FINAL)

(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. 0.025 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 1-34)

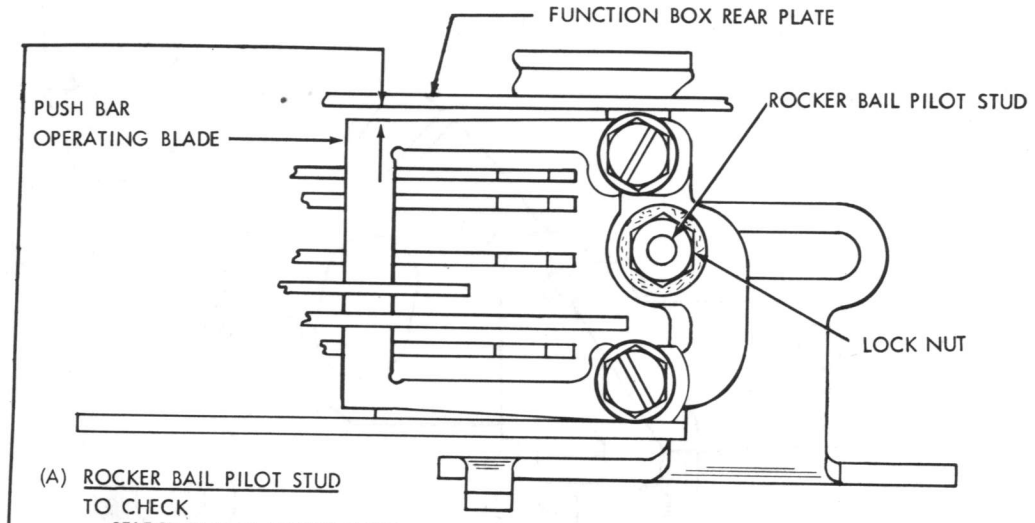
(C) BELL CRANK SPRINGS (5)

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.

FIGURE 1-33. FUNCTION MECHANISM



(A) ROCKER BAIL PILOT STUD

TO CHECK

SELECT BLANK COMBINATION. POSITION ROCKER BAIL TO ITS EXTREME LEFT.

REQUIREMENT

CLEARANCE BETWEEN FUNCTION BOX REAR PLATE AND PUSH BAR OPERATING BLADE:

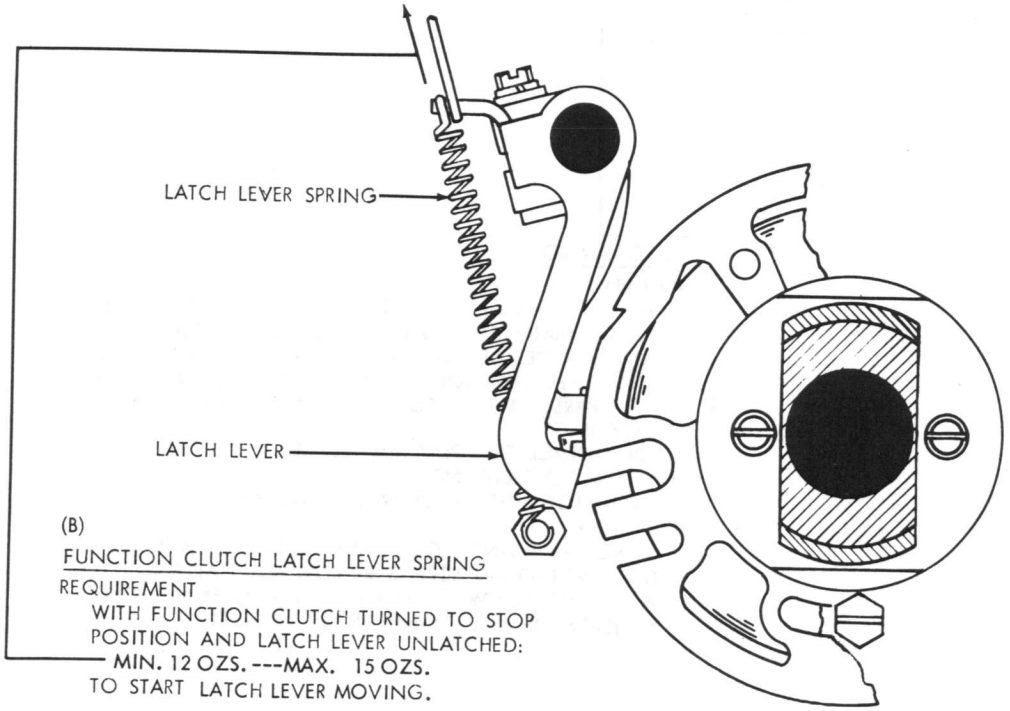
MIN. 0.005 INCH----0.015 INCH

WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE MINIMUM.

TO ADJUST

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

(TOP VIEW)



(B)

FUNCTION CLUTCH LATCH LEVER SPRING

REQUIREMENT

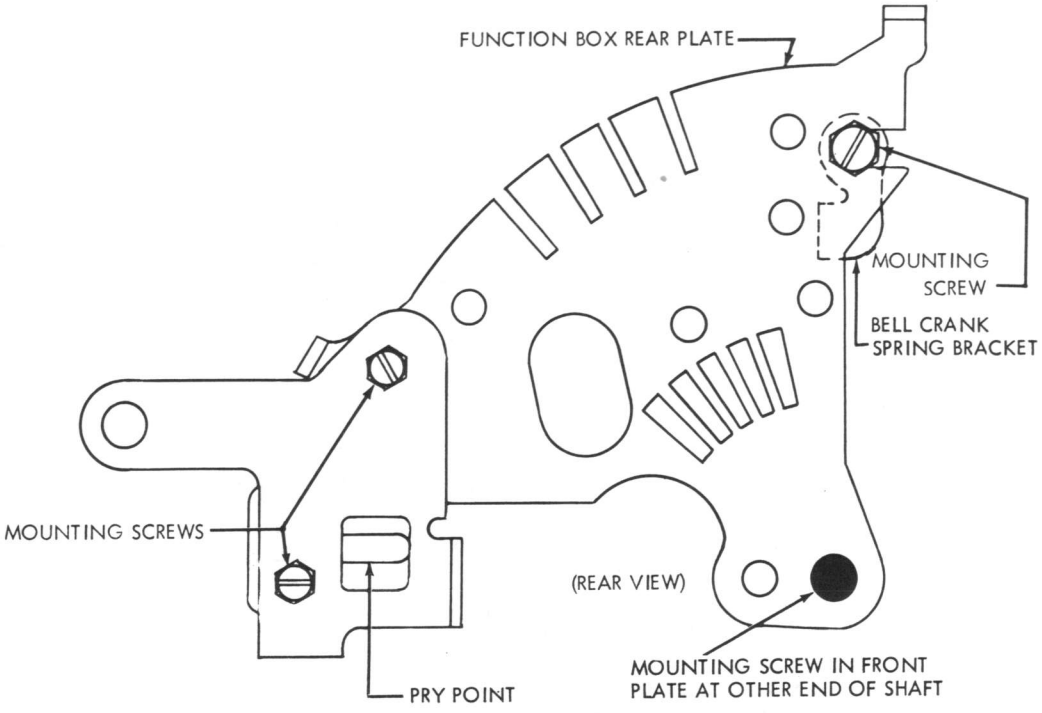
WITH FUNCTION CLUTCH TURNED TO STOP POSITION AND LATCH LEVER UNLATCHED:

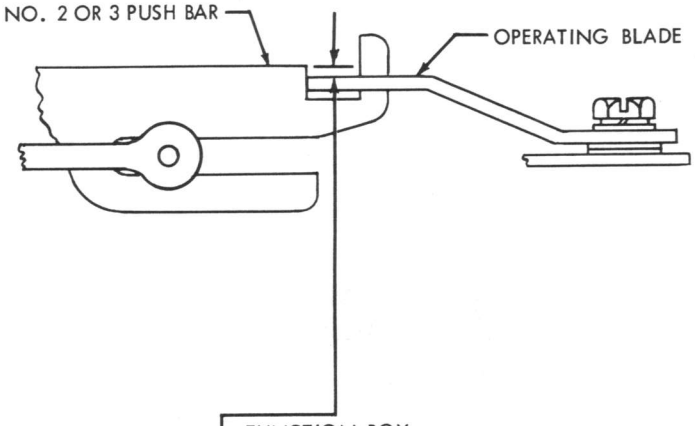
MIN. 12 OZS. ---MAX. 15 OZS.

TO START LATCH LEVER MOVING.

(REAR VIEW)

FIGURE 1-34. FUNCTION MECHANISM





FUNCTION BOX

TO CHECK

MANUALLY SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS, PUNCH SLIDES ARE DISENGAGED FROM LATCHES (FIGURE 1-24) AND BLADE JUST TOUCHES PUSH BARS. IN NO. 2 AND 3 PUSH BARS, TAKE UP PLAY DOWNWARD AND RELEASE.

REQUIREMENT

TOP SURFACE OF OPERATING BLADE FLUSH TO 0.010 INCH BELOW TOP SURFACE OF NO. 2 AND 3 PUSH BARS.

TO ADJUST

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

FIGURE 1-35 . FUNCTION BOX MECHANISM

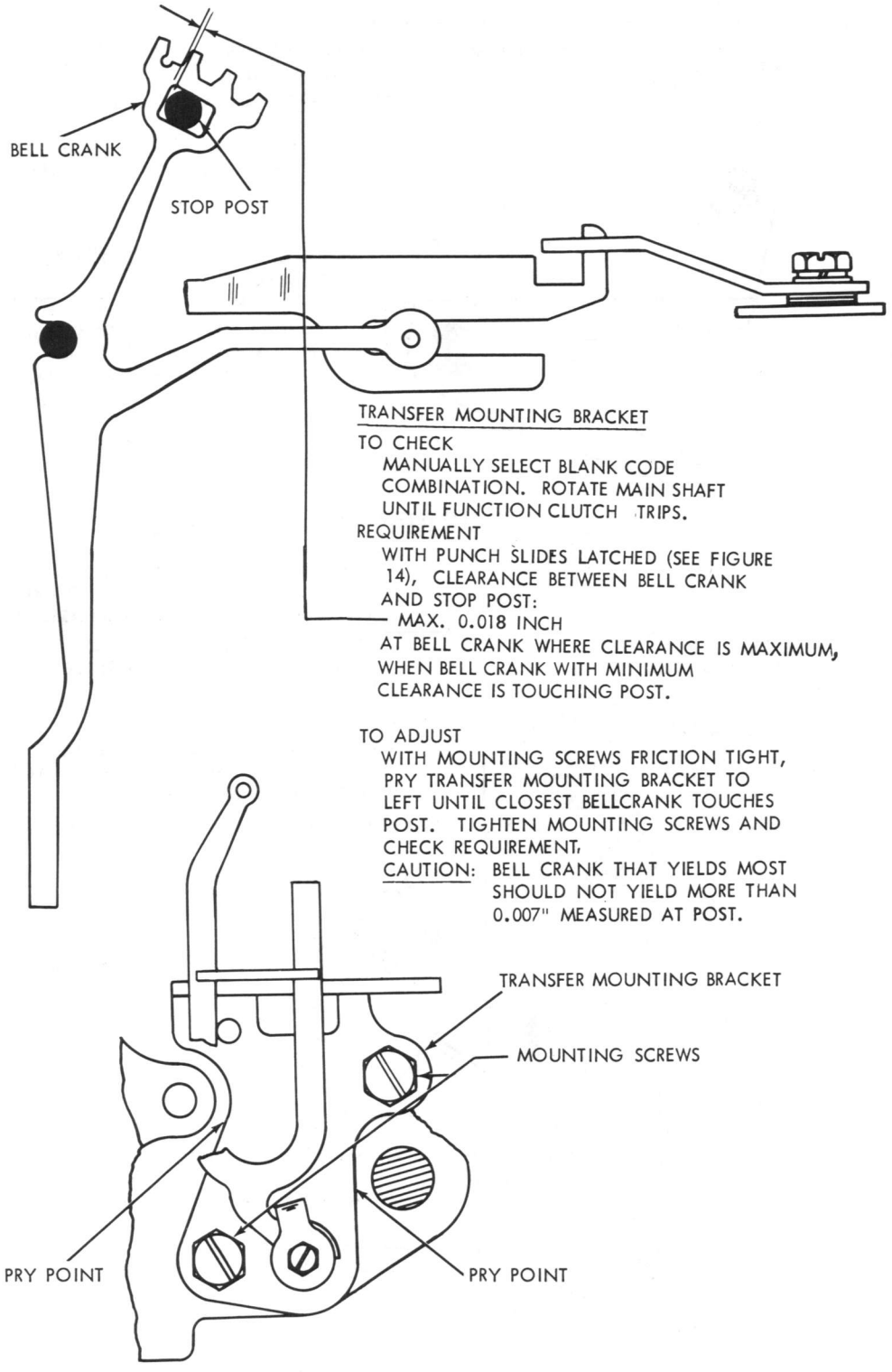


FIGURE 1-36. TRANSFER MECHANISM

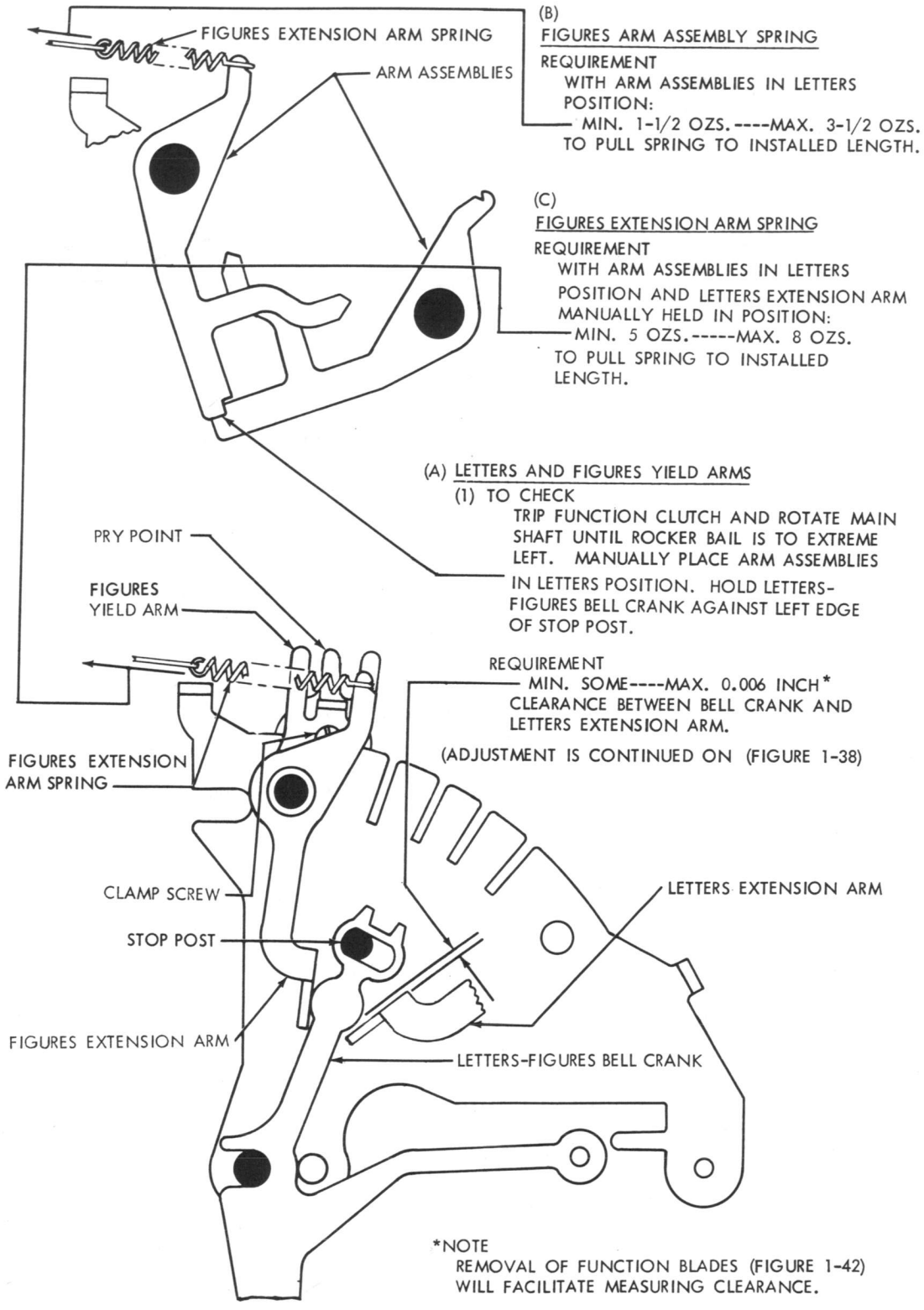
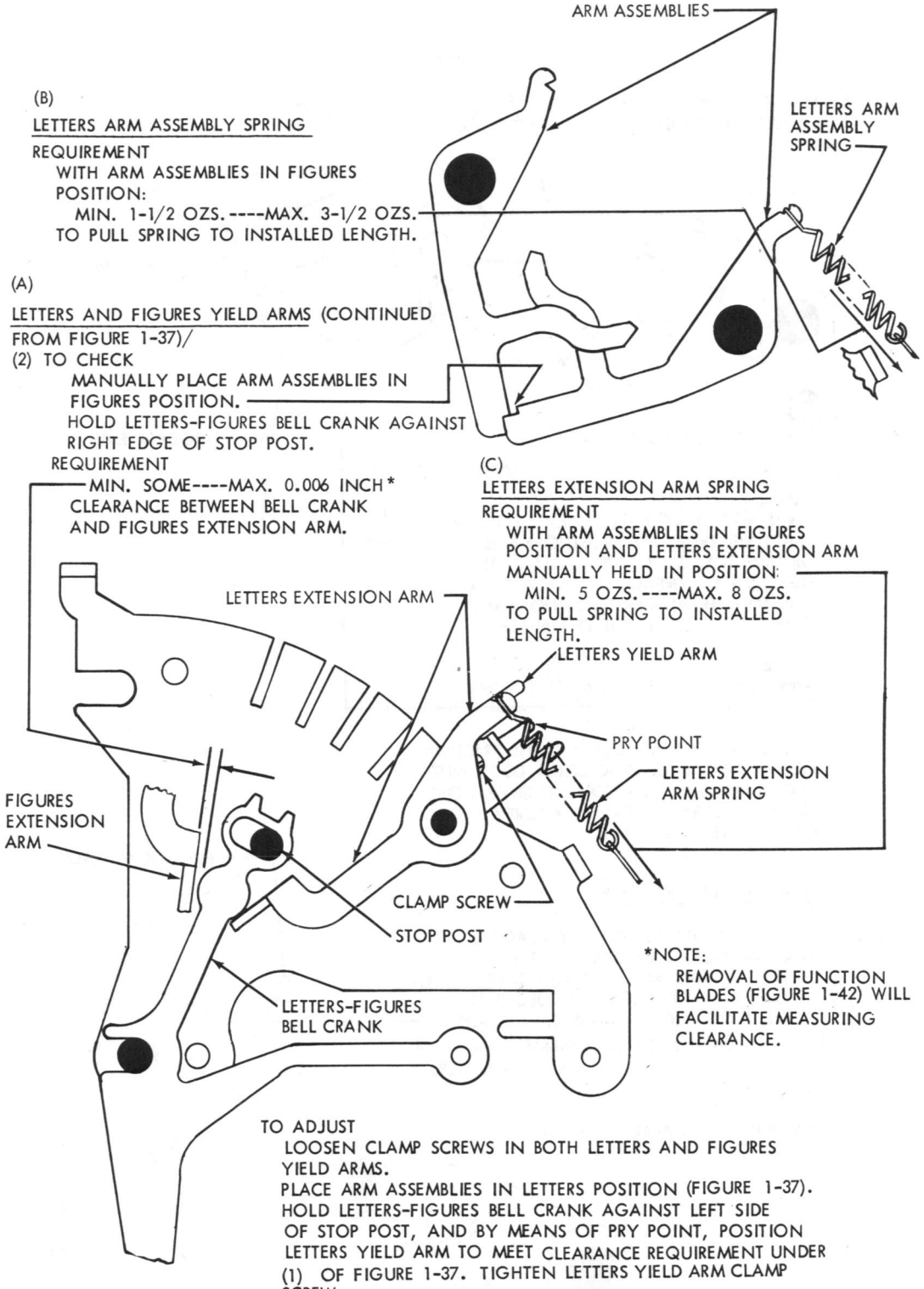


FIGURE 1-37. FUNCTION BOX MECHANISM



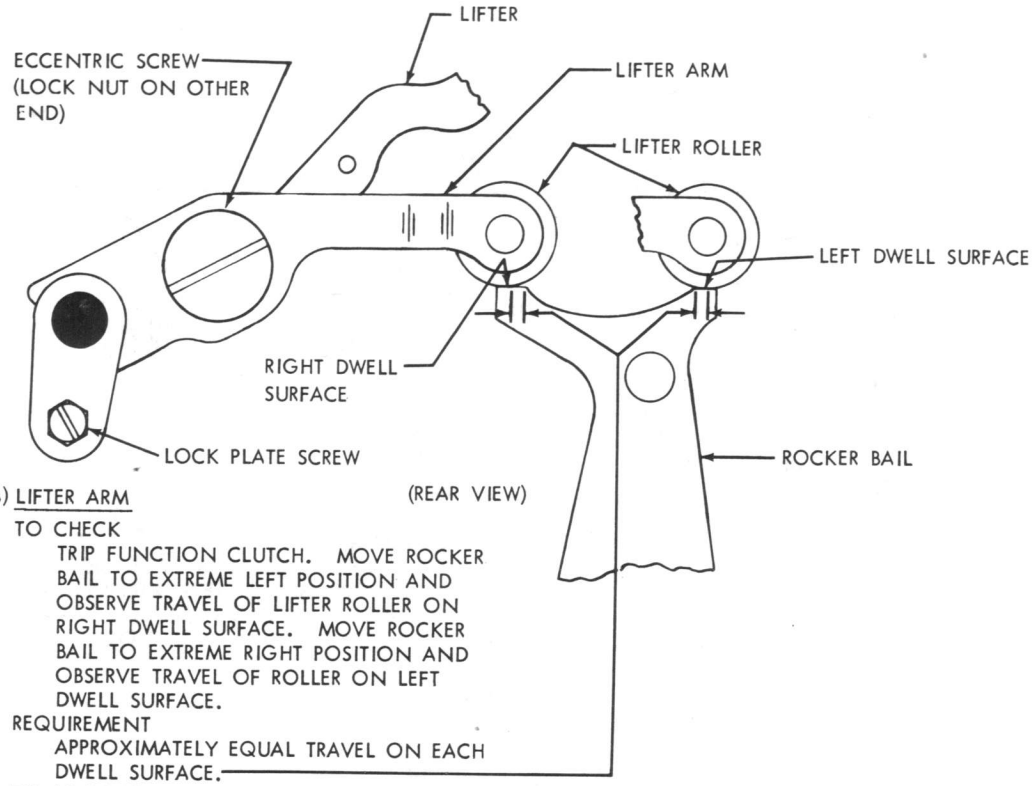
TO ADJUST

LOOSEN CLAMP SCREWS IN BOTH LETTERS AND FIGURES YIELD ARMS.

PLACE ARM ASSEMBLIES IN LETTERS POSITION (FIGURE 1-37). HOLD LETTERS-FIGURES BELL CRANK AGAINST LEFT SIDE OF STOP POST, AND BY MEANS OF PRY POINT, POSITION LETTERS YIELD ARM TO MEET CLEARANCE REQUIREMENT UNDER (1) OF FIGURE 1-37. TIGHTEN LETTERS YIELD ARM CLAMP SCREW.

PLACE ARM ASSEMBLIES IN FIGURES POSITION. HOLD LETTERS-FIGURES BELL CRANK AGAINST RIGHT SIDE OF STOP POST, AND BY MEANS OF PRY POINT POSITION FIGURES YIELD ARM (FIGURE 1-27) TO MEET REQUIREMENT UNDER (2) ABOVE. TIGHTEN FIGURES YIELD ARM CLAMP SCREW. CAUTION: ARM ASSEMBLIES MAY CHANGE POSITION DURING ADJUSTMENT. AS TIGHTENING OF SCREWS MAY AFFECT ADJUSTMENT, RECHECK REQUIREMENTS.

FIGURE 1-38. FUNCTION BOX MECHANISM



(A) LIFTER ARM

TO CHECK

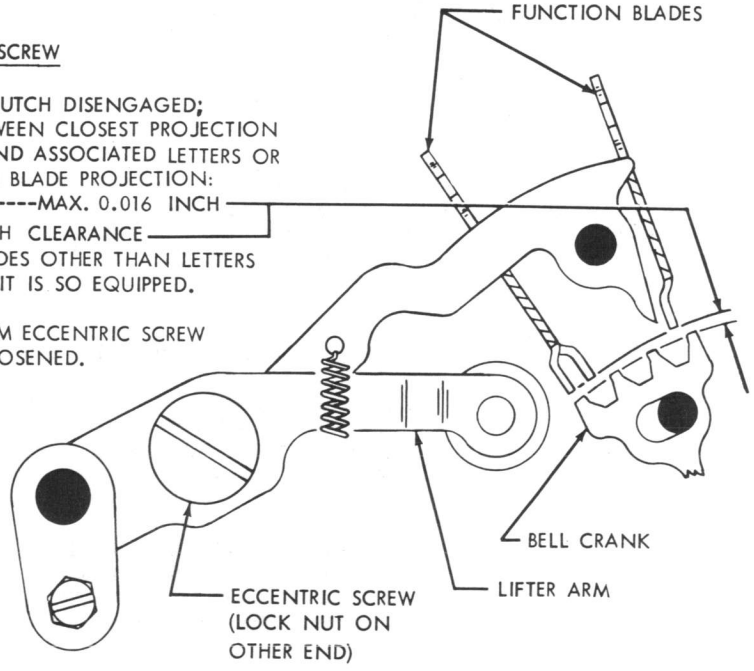
TRIP FUNCTION CLUTCH. MOVE ROCKER BAIL TO EXTREME LEFT POSITION AND OBSERVE TRAVEL OF LIFTER ROLLER ON RIGHT DWELL SURFACE. MOVE ROCKER BAIL TO EXTREME RIGHT POSITION AND OBSERVE TRAVEL OF ROLLER ON LEFT DWELL SURFACE.

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. 0.016 INCH

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

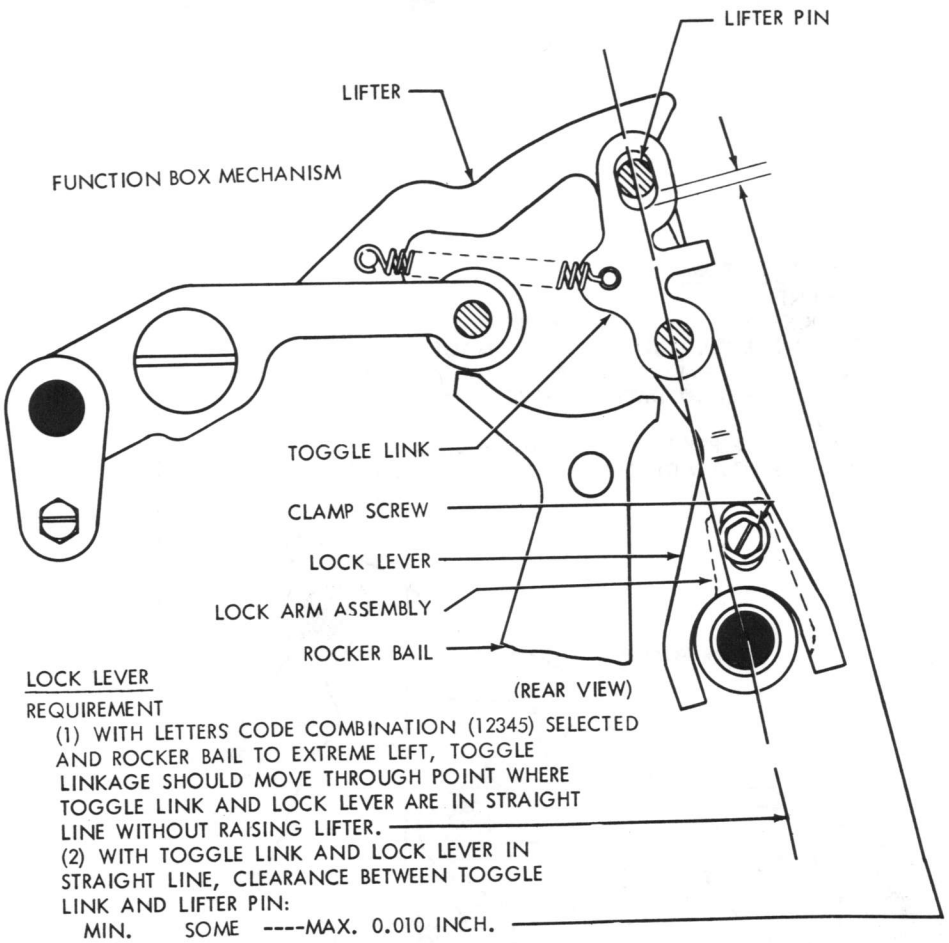
TO ADJUST

POSITION LIFTER ARM ECCENTRIC SCREW WITH LOCK NUT LOOSENED.

NOTE

REMOVE TIMING CONTACTS (FIGURE 2-17) IF UNIT IS SO EQUIPPED.

FIGURE 1-39. 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:

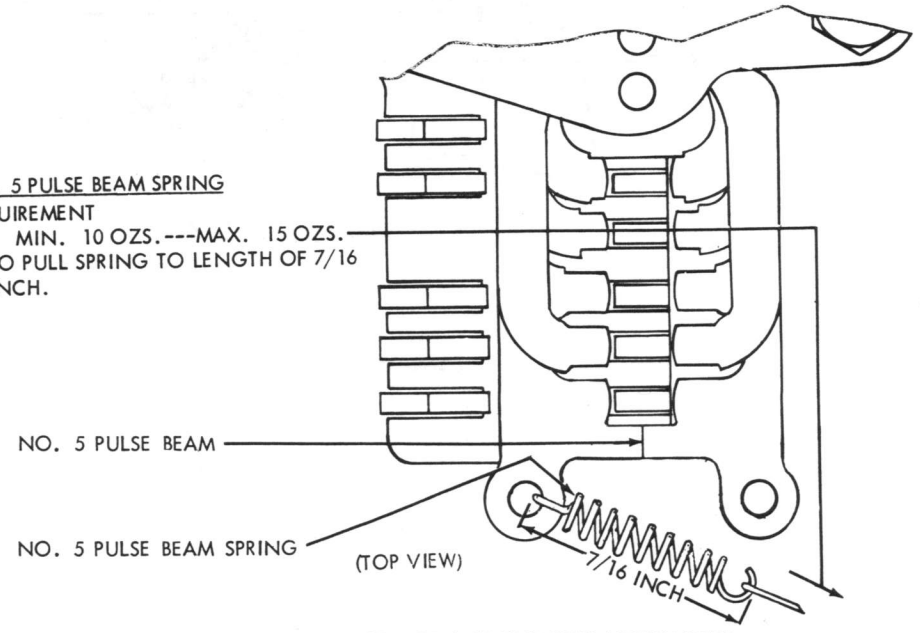
MIN. SOME ----MAX. 0.010 INCH.

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 1-46) ABOVE HORIZONTAL CENTER LINE.



(B) NO. 5 PULSE BEAM SPRING

REQUIREMENT

MIN. 10 OZS.---MAX. 15 OZS. TO PULL SPRING TO LENGTH OF 7/16 INCH.

FIGURE 1-40. PERFORATOR AND TRANSFER MECHANISMS

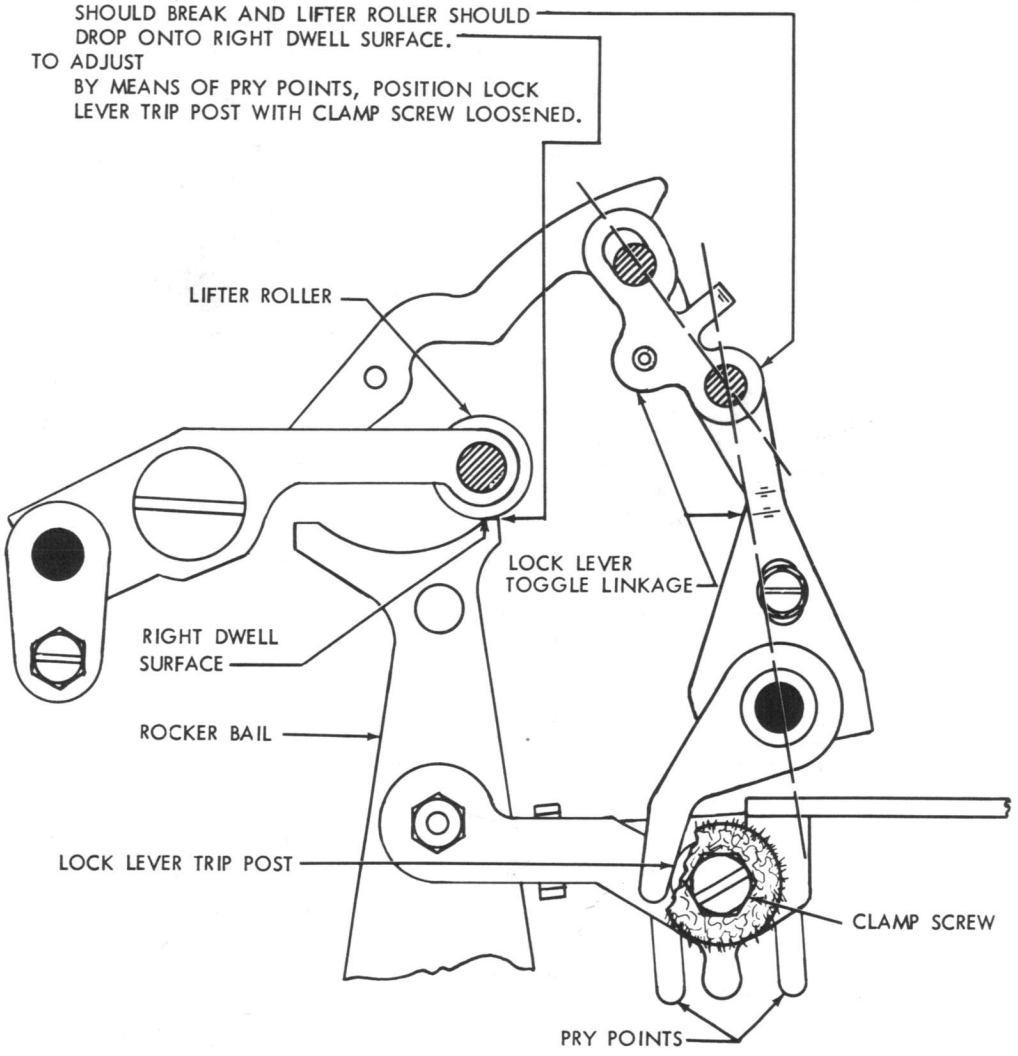
LOCK LEVER TRIP POST

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 1-41. FUNCTION BOX MECHANISM

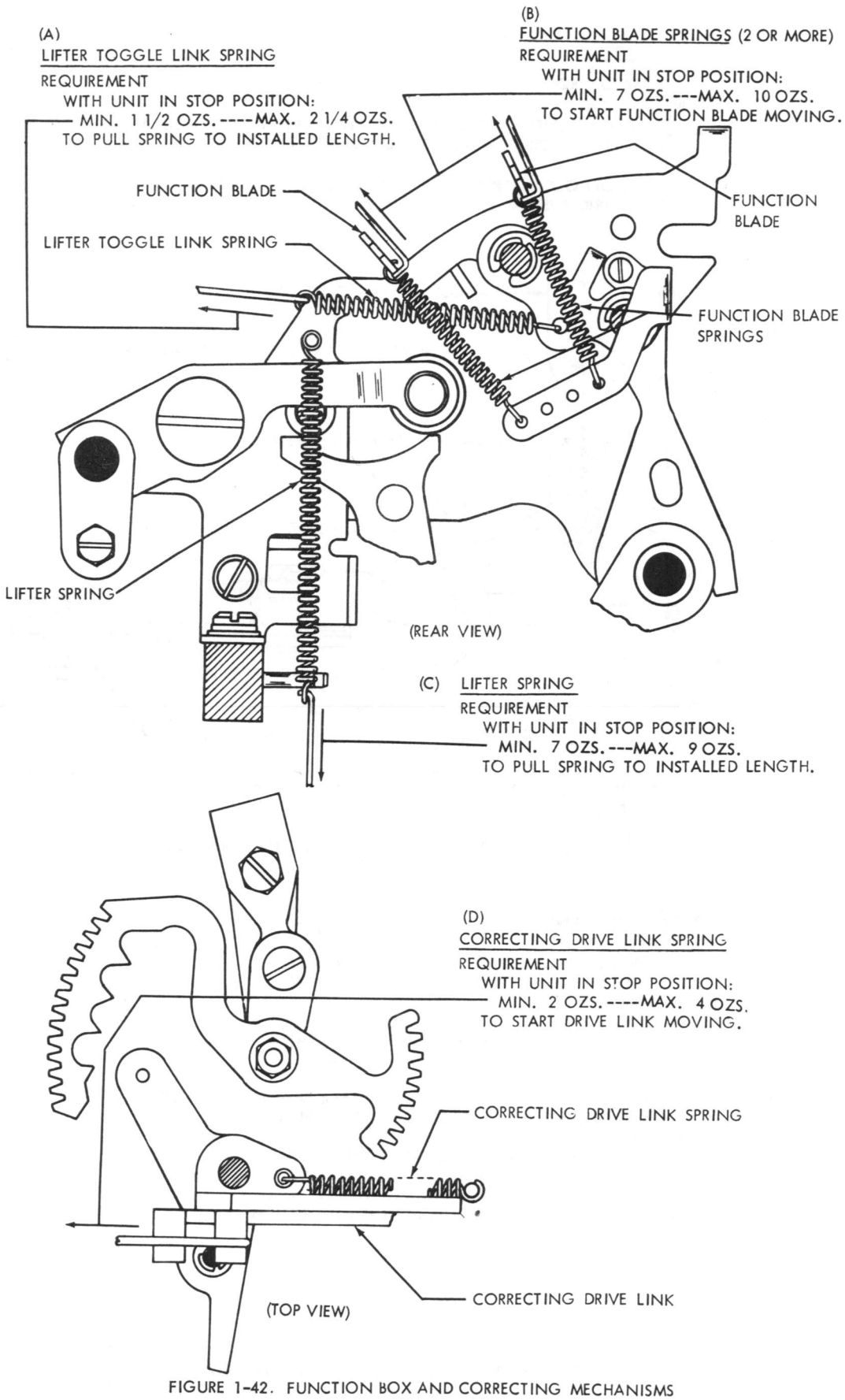


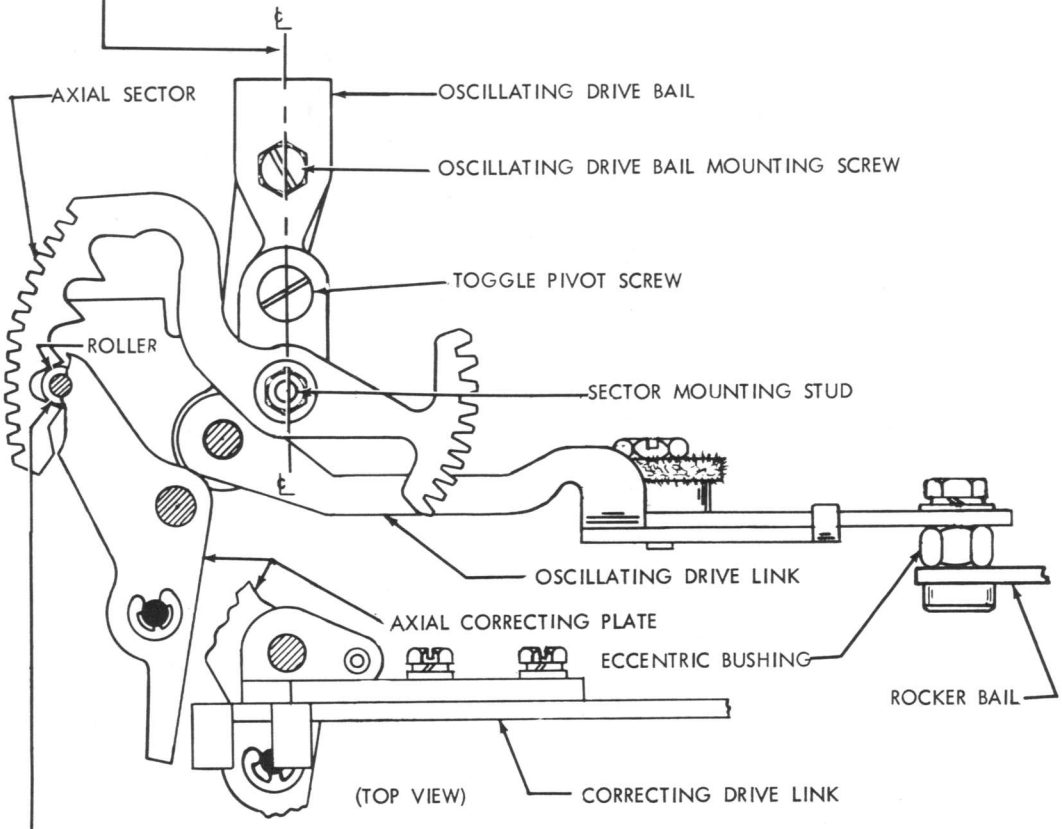
FIGURE 1-42. FUNCTION BOX AND CORRECTING MECHANISMS

(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

TO CHECK
MANUALLY SELECT BLANK CODE COMBINATION. ROTATE MAIN SHAFT UNTIL ROCKER BAIL IS TO EXTREME LEFT.

REQUIREMENT
(1) ROLLER ON AXIAL CORRECTING PLATE SEATED FIRMLY IN CENTER OF FIRST NOTCH OF AXIAL SECTOR.
(2) OSCILLATING DRIVE BAIL SHOULD BE LOOSE AND IN POSITION CORRESPONDING TO THAT OF CORRECTING PLATE.

TO ADJUST
WITH OSCILLATING DRIVE BAIL MOUNTING SCREW LOOSENED, POSITION CORRECTING DRIVE LINK SO THAT ROLLER FITS SNUGLY IN FIRST NOTCH. ROLLER SHOULD RIDE CENTRALIZED IN NOTCH WITH NOTCH TOUCHING BOTH SIDES.

FIGURE 1-43. AXIAL POSITIONING MECHANISM

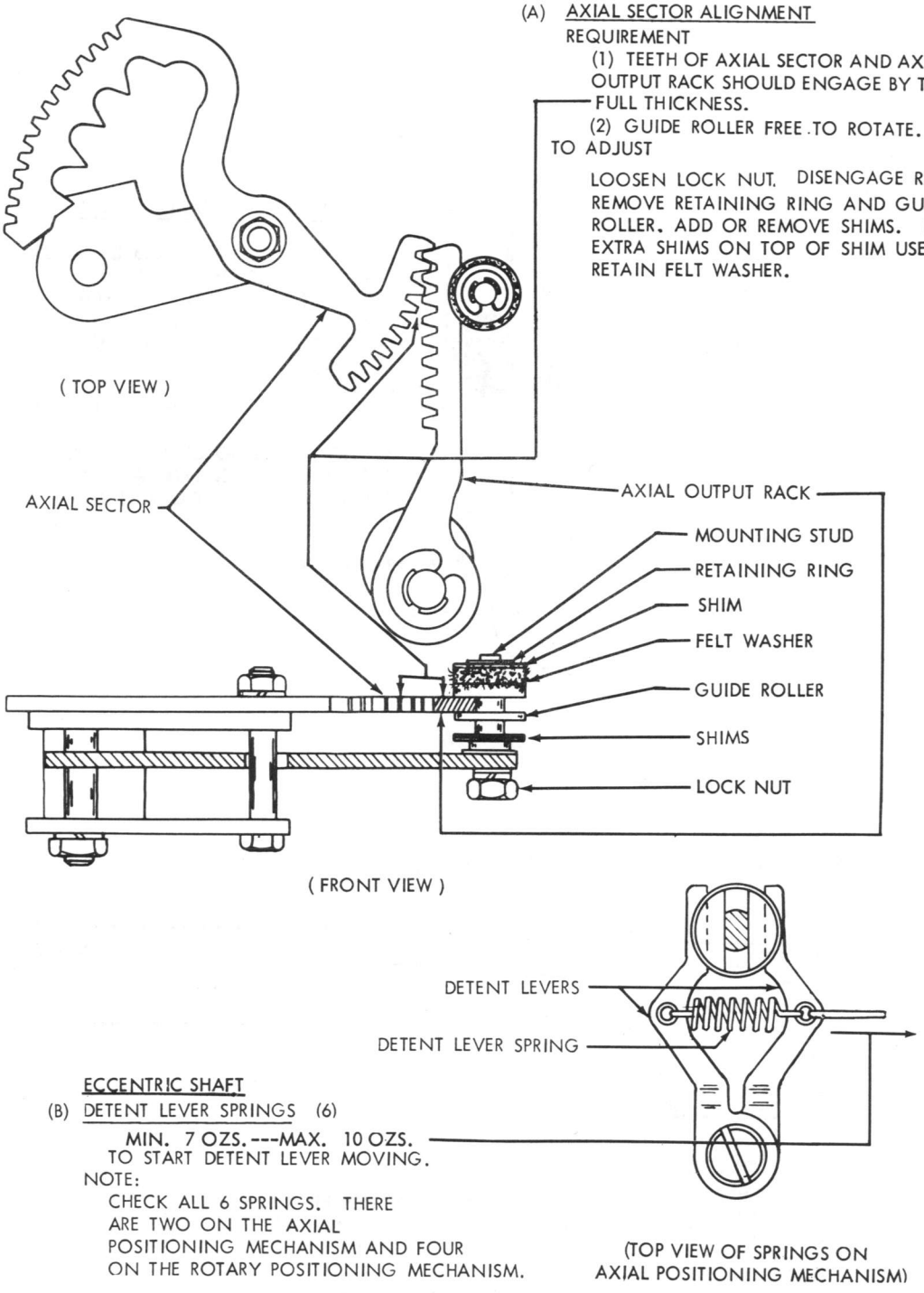
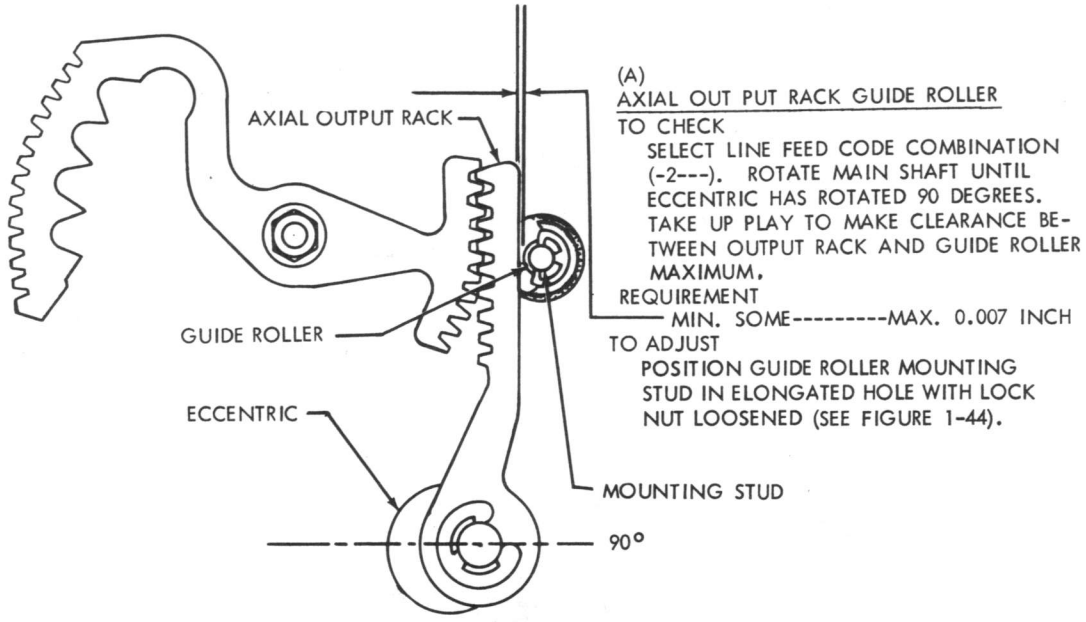
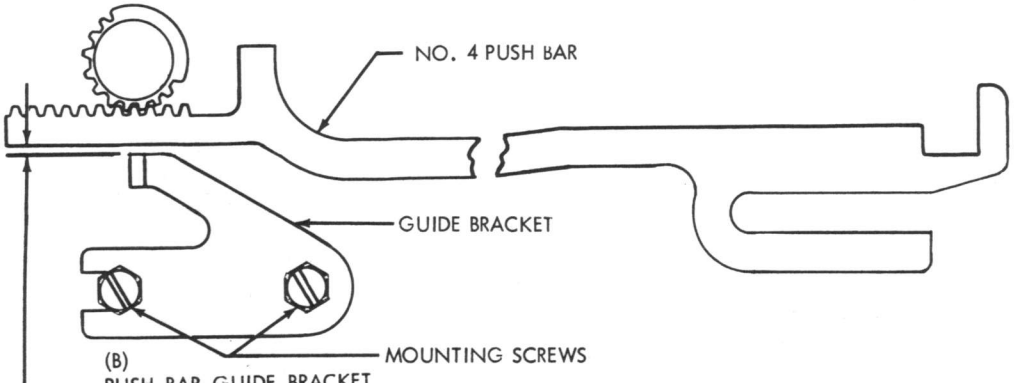


FIGURE 1-44 AXIAL POSITIONING MECHANISM



(TOP VIEW)



(B)
PUSH BAR GUIDE BRACKET

TO CHECK
MANUALLY SELECT CARRIAGE RETURN CODE COMBINATION (---4-). ROTATE MAIN SHAFT SO THAT NO. 4 PUSH BAR MOVES THROUGH COMPLETE RANGE OF TRAVEL.

REQUIREMENT
WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE MAXIMUM:
MIN. SOME----MAX. 0.005 INCH
BETWEEN NO. 4 PUSH BAR AND GUIDE BRACKET THROUGHOUT COMPLETE TRAVEL OF BAR.

TO ADJUST
POSITION GUIDE BRACKET WITH MOUNTING SCREWS LOOSENED.

FIGURE 1-45. AXIAL AND ROTARY POSITIONING MECHANISMS

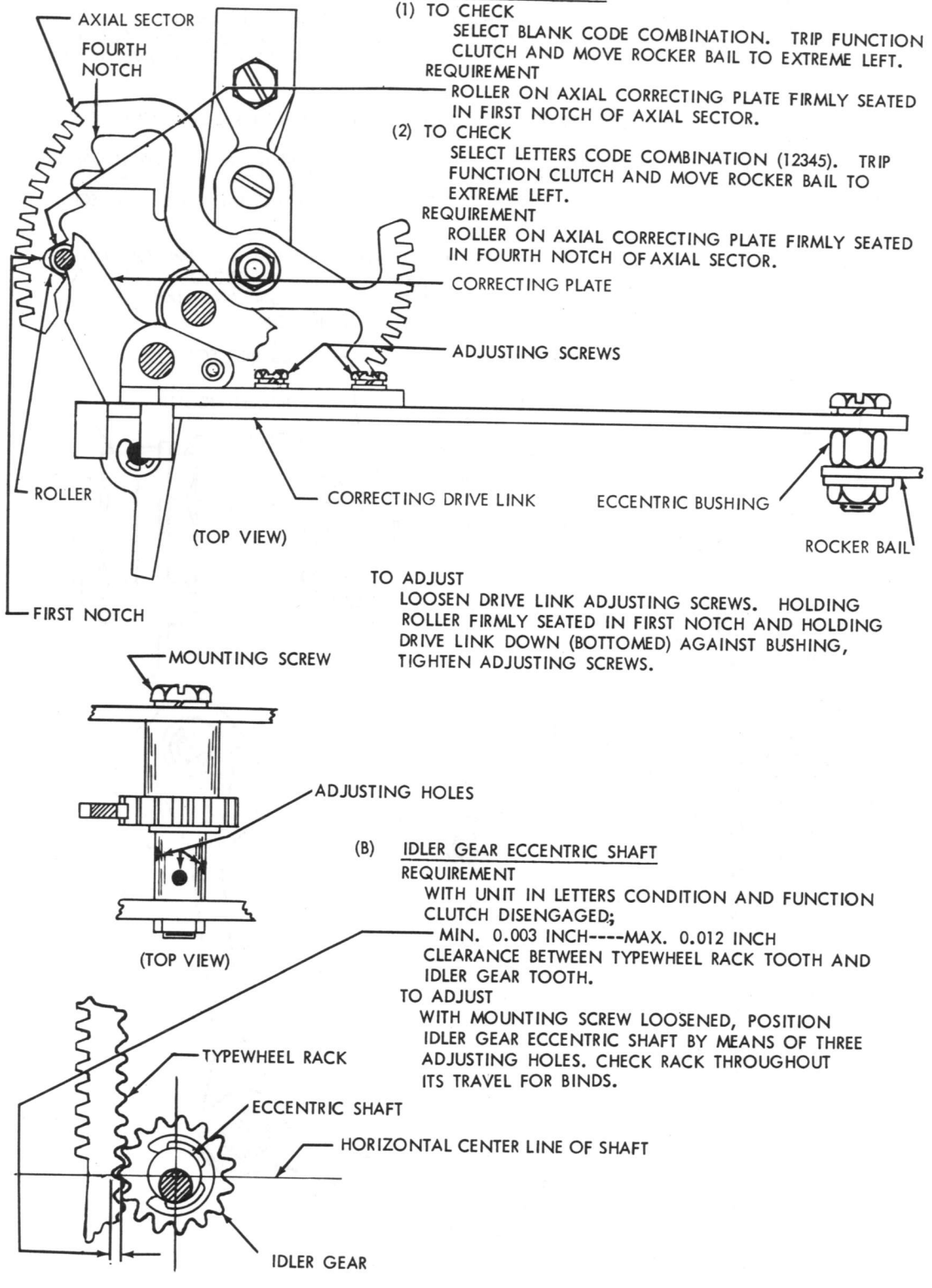


FIGURE 1-46. CORRECTING MECHANISM

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.

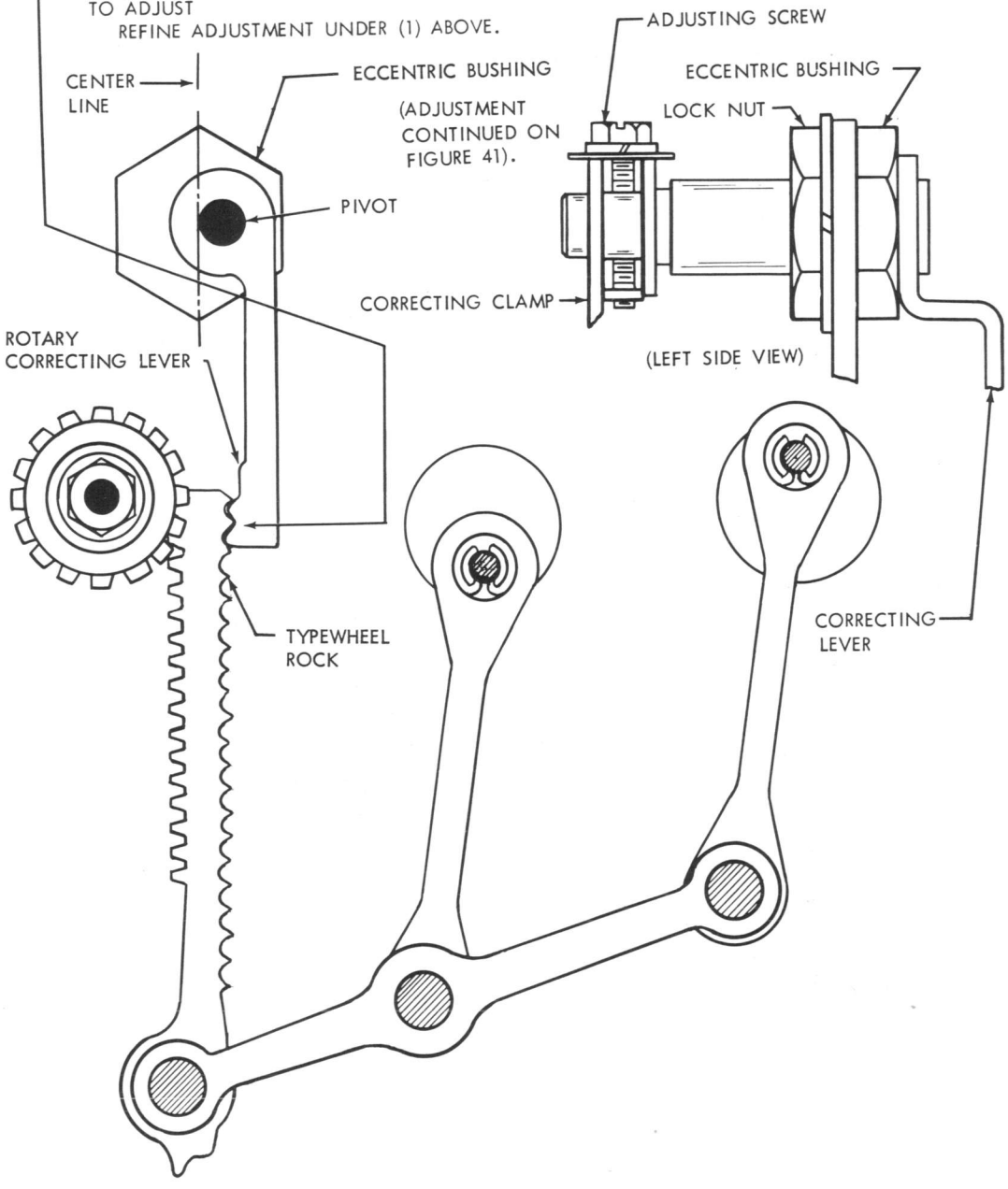
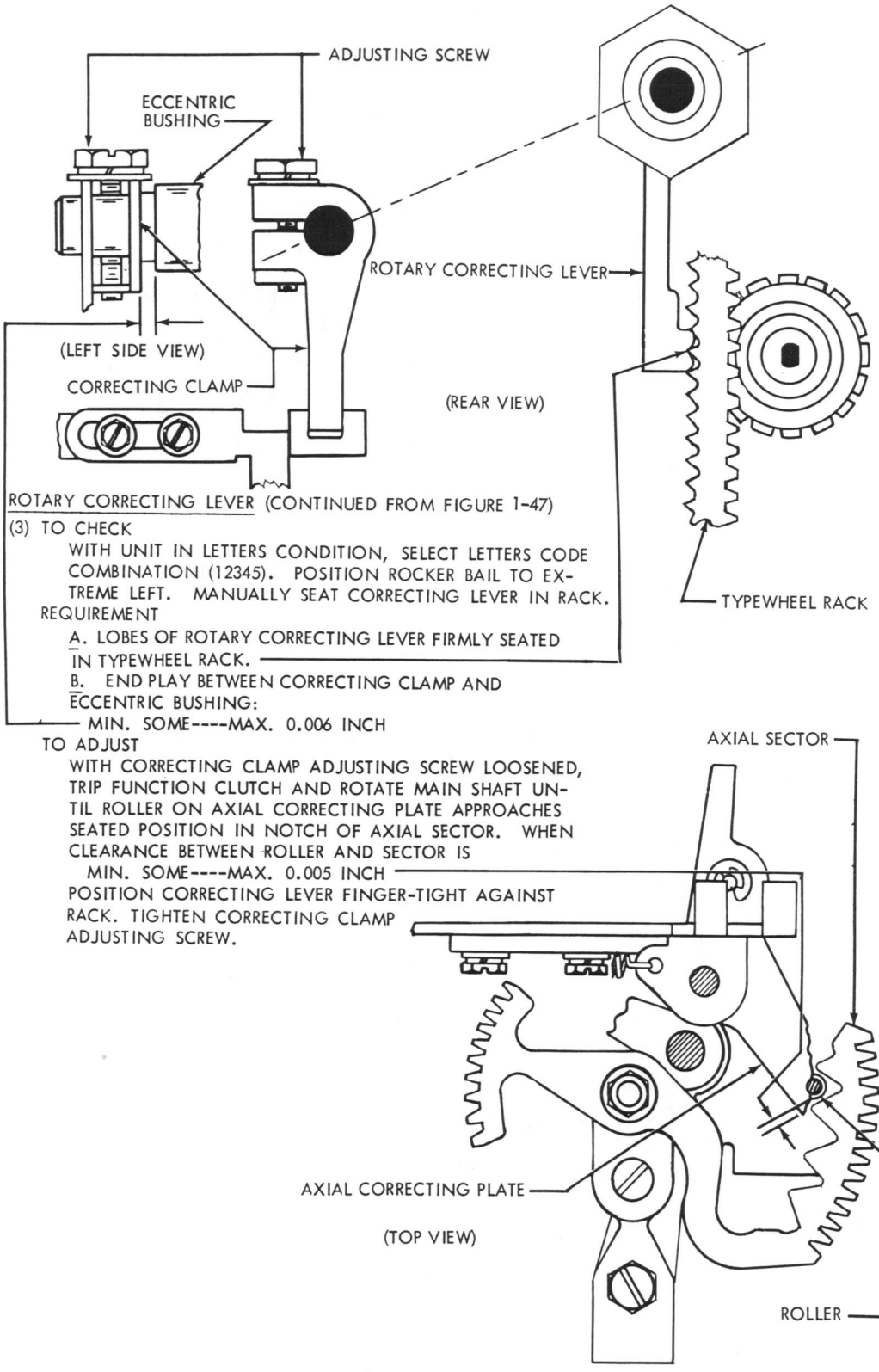


FIGURE 1-47. CORRECTING MECHANISM



ROTARY CORRECTING LEVER (CONTINUED FROM FIGURE 1-47)

(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:
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 1-48. CORRECTING MECHANISM

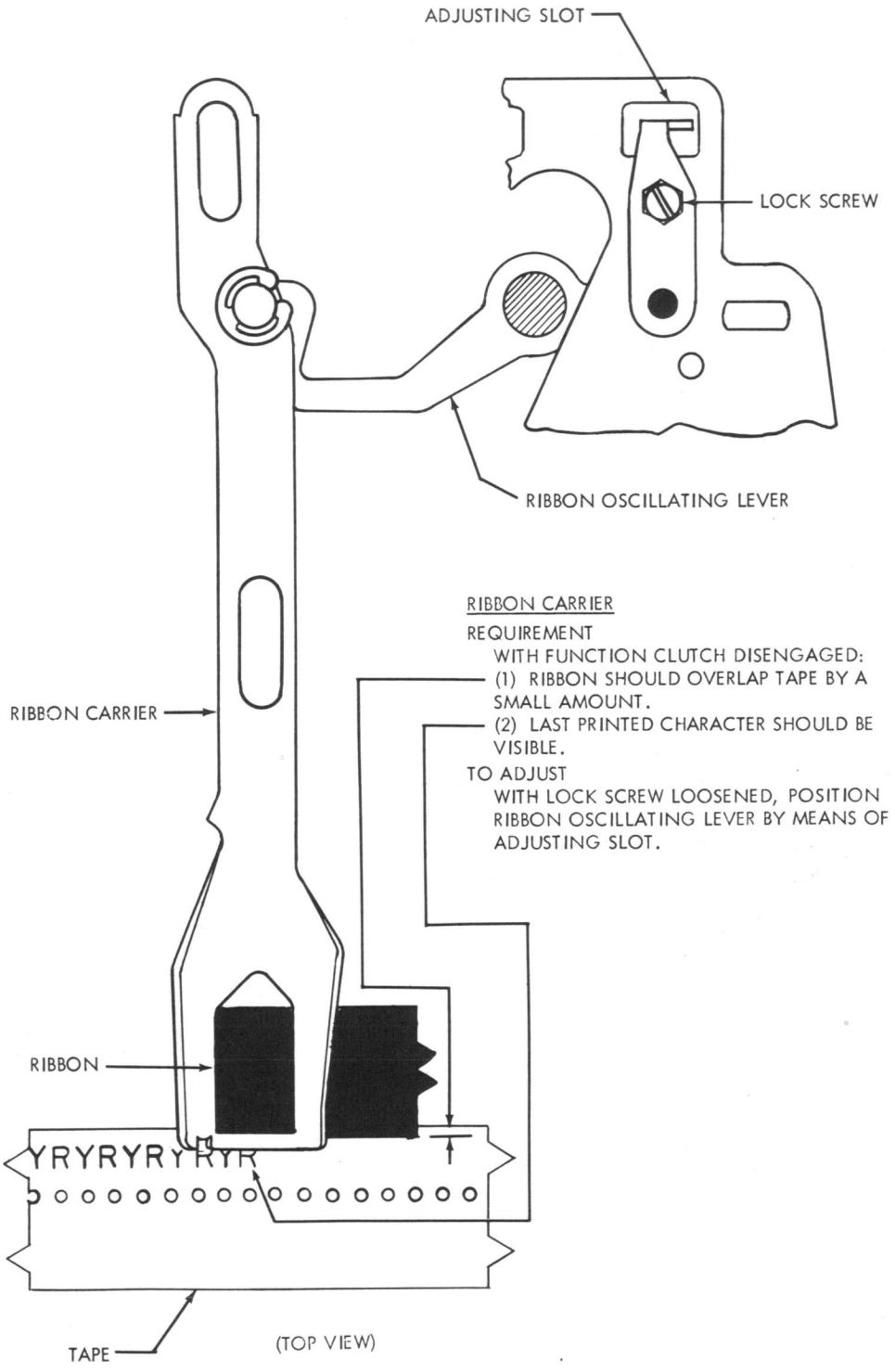


FIGURE 1-49. RIBBON OSCILLATING MECHANISM

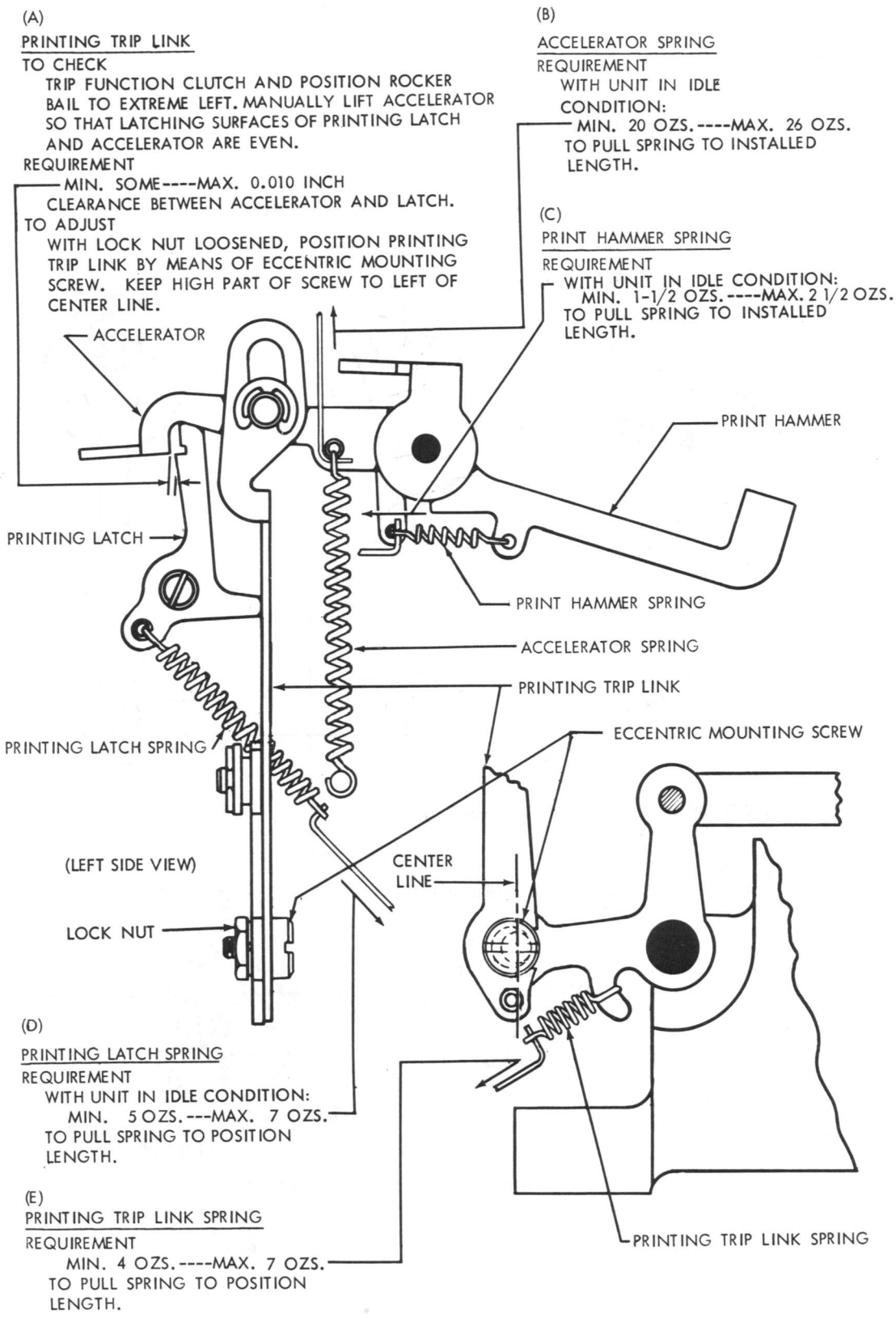
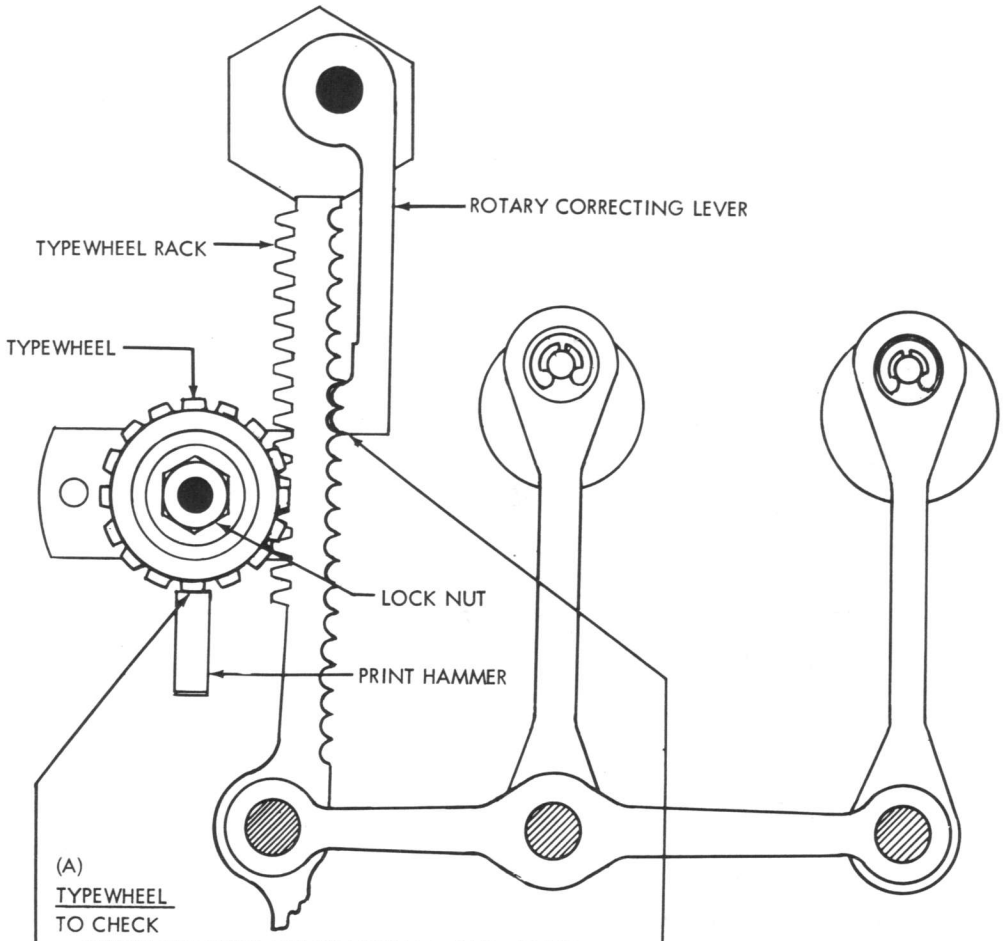


FIGURE 1-50. PRINTING MECHANISM



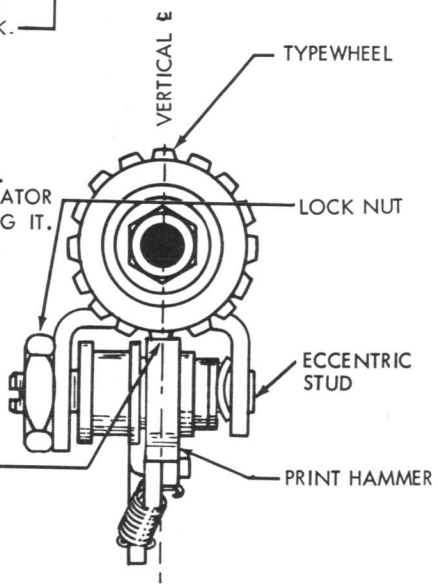
(A)
TYPEWHEEL

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.

TO ADJUST
POSITION TYPEWHEEL WITH LOCK NUT LOOSENED. CHECK PRINTING BY MANUALLY LIFTING ACCELERATOR (FIG. 1-50) 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 ECCENTRIC STUD WITH LOCK NUT LOOSENED.

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

FIGURE 1-51. PRINTING MECHANISM

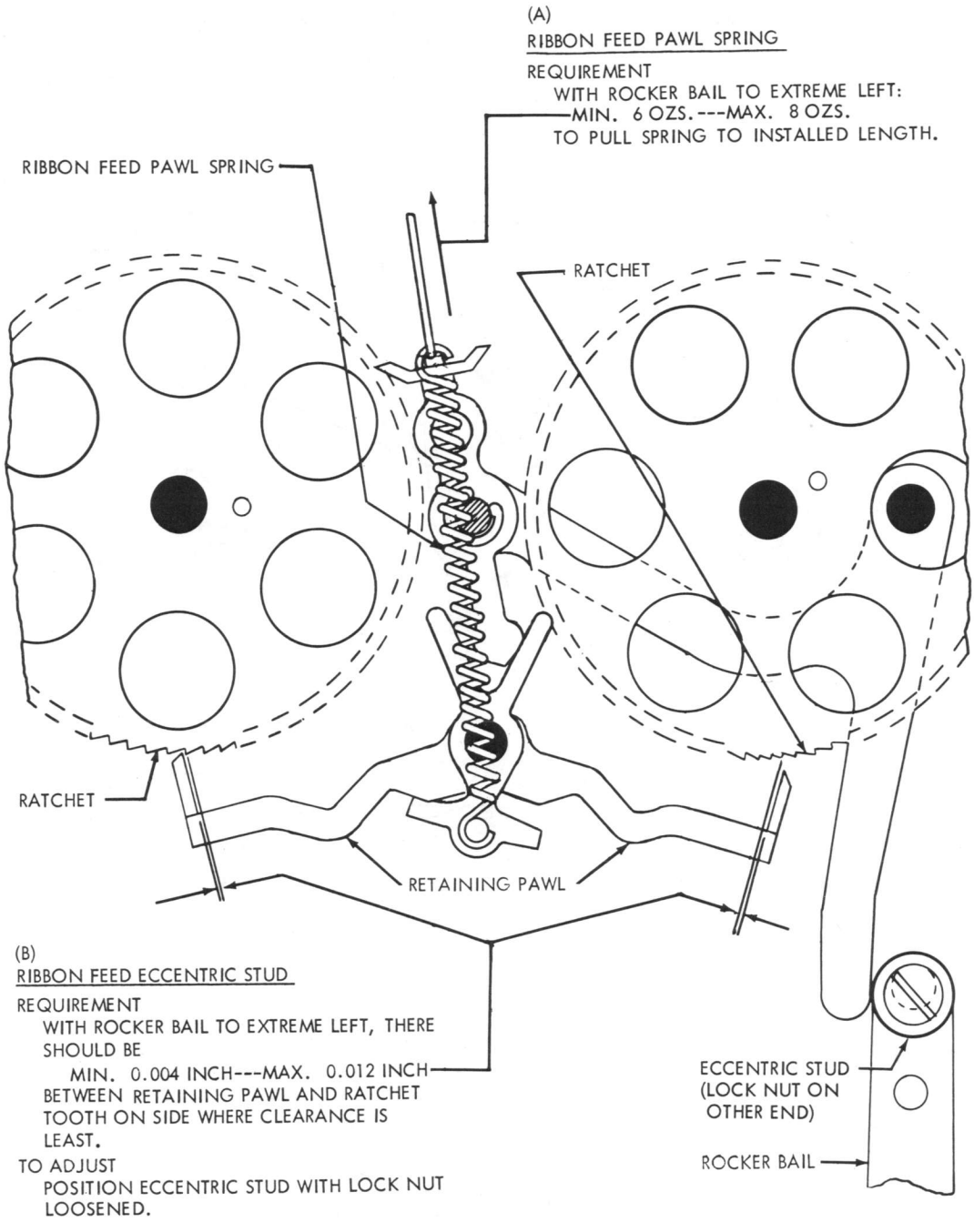


FIGURE 1-52. RIBBON FEED MECHANISM

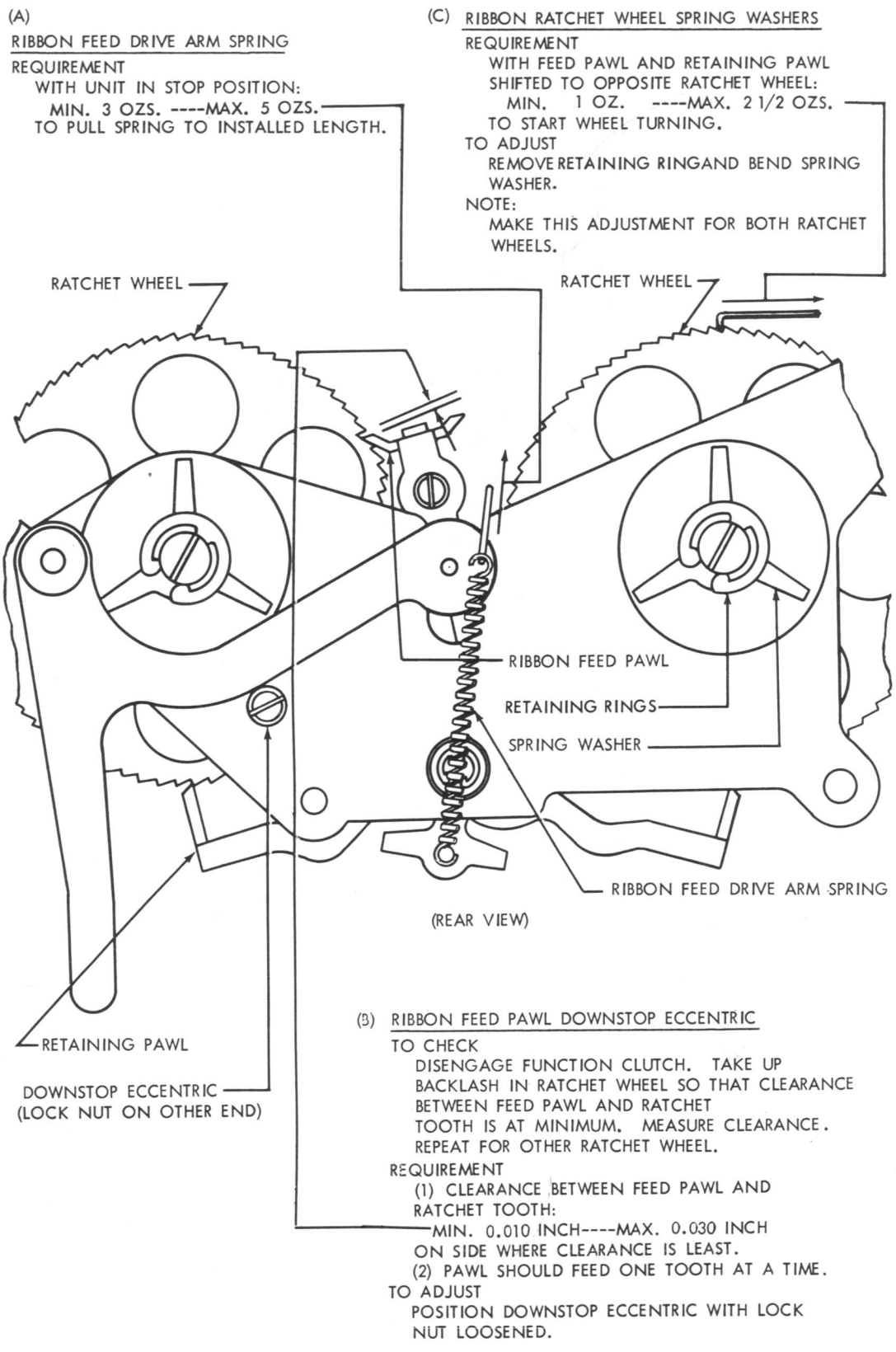


FIGURE 1-53. RIBBON FEED MECHANISM

(A) RIBBON REVERSING PLATE

TO CHECK

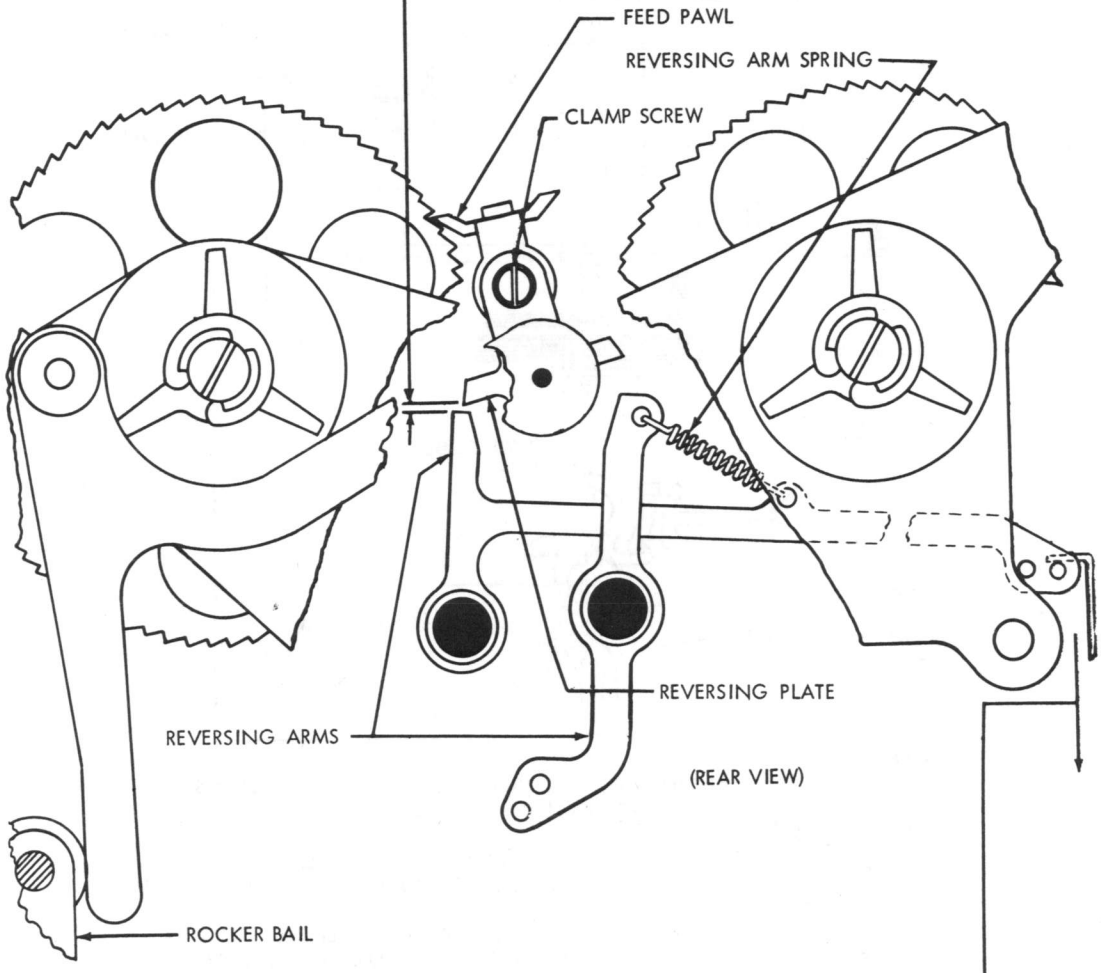
POSITION ROCKER BAIL TO EXTREME LEFT.
HOLD REVERSING ARM UNDER REVERSING PLATE AND MEASURE CLEARANCE.
WITH FEED PAWL AGAINST OTHER RATCHET, REPEAT PROCEDURE FOR OTHER REVERSING ARM.

REQUIREMENT

CLEARANCE BETWEEN REVERSING ARM AND REVERSING PLATE:
MIN. 0.003 INCH----MAX. 0.012 INCH
AT REVERSING ARM WHERE CLEARANCE IS LEAST.

TO ADJUST

POSITION REVERSING PLATE WITH CLAMP SCREW LOOSENED.



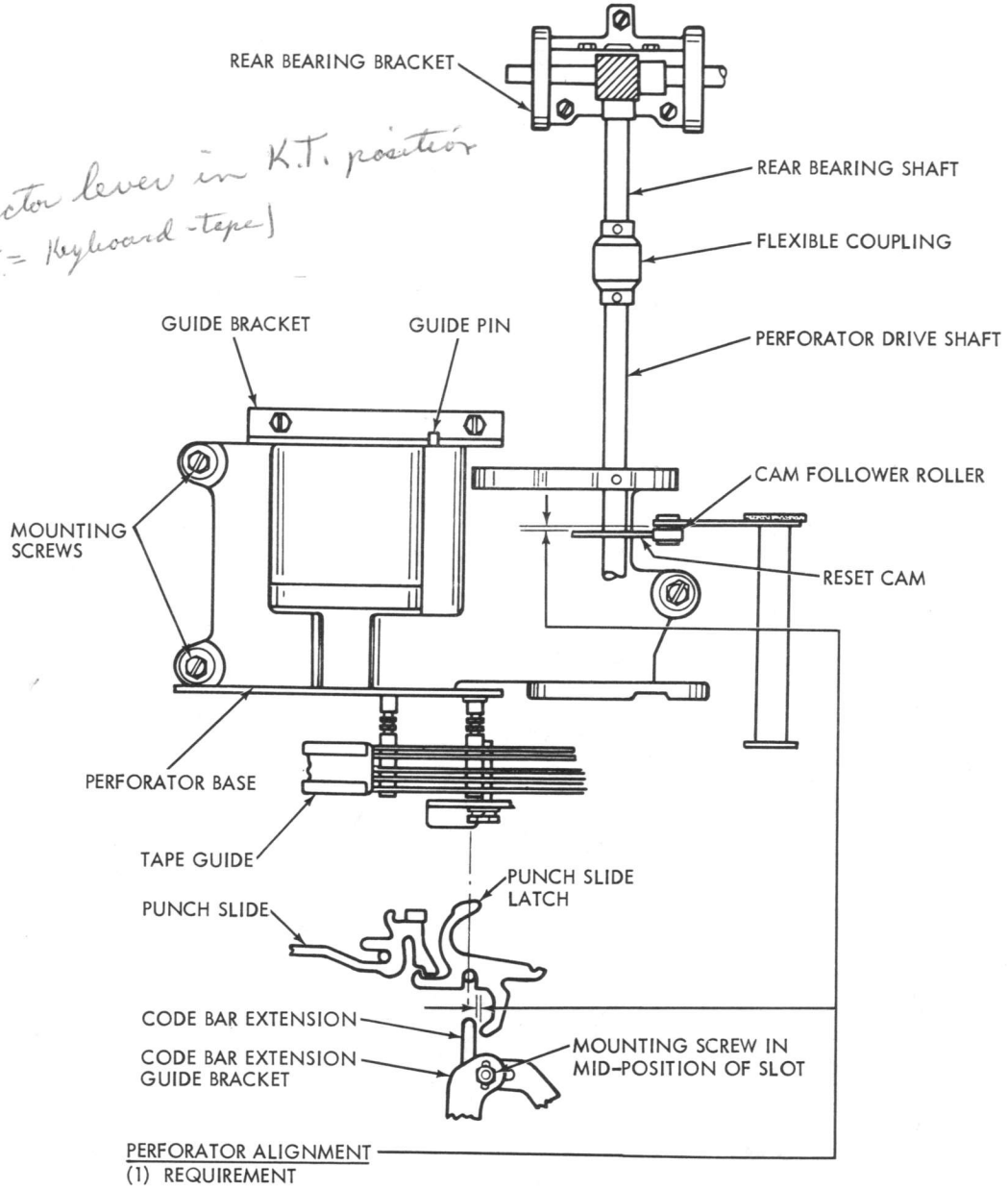
(B) RIBBON FEED REVERSING ARM SPRING

REQUIREMENT

WITH FEED PAWL IN HIGHEST POSITION:
MIN. 5 OZS.---MAX. 15 OZS.
TO START REVERSING ARM MOVING.

FIGURE 1-54. RIBBON FEED MECHANISM

FIGURES 1-55 THROUGH 1-61 APPLY TO BOTH TYPING AND NON-TYPING PERFORATORS



PERFORATOR ALIGNMENT

(1) REQUIREMENT

PUNCH SLIDE LATCHES SHOULD ALIGN WITH CODE BAR EXTENSIONS MIN. 0.010 -- MAX. 0.020 INCH TO RIGHT OF CODE BAR EXTENSION.

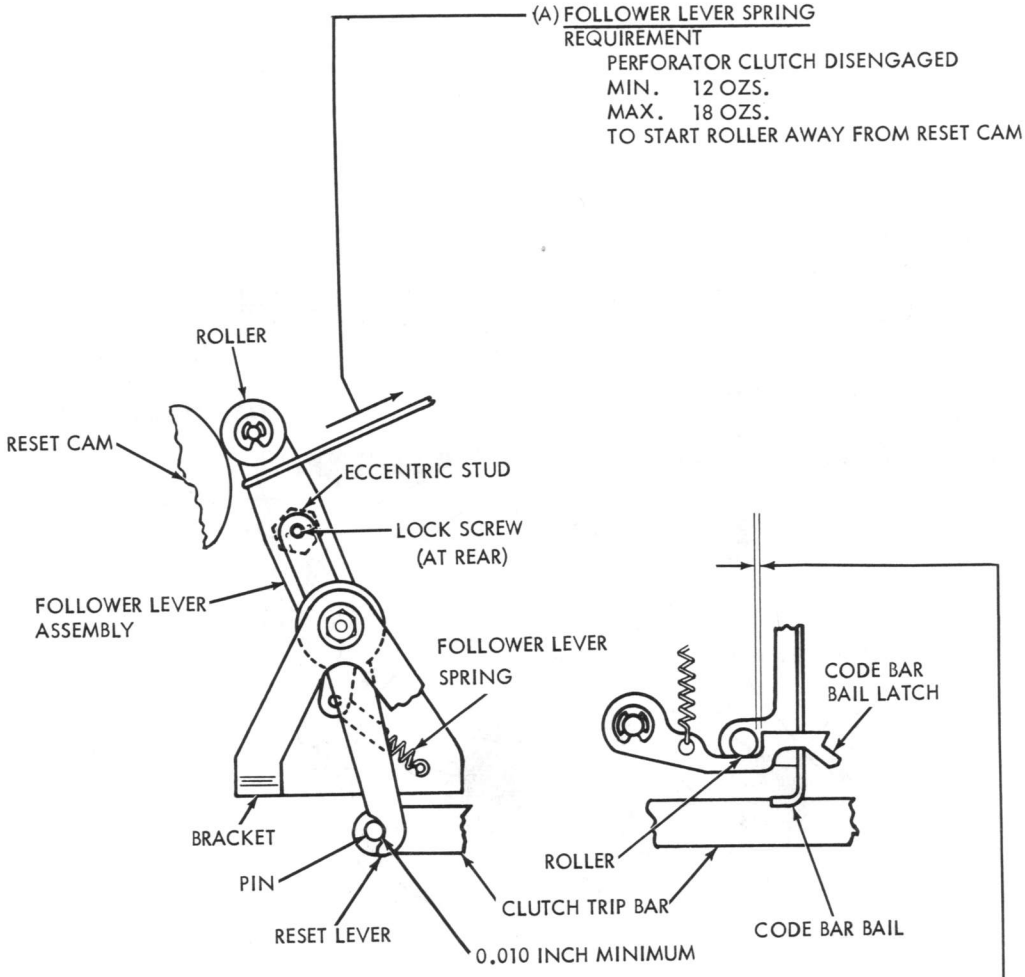
(2) REQUIREMENT

RESET CAM SHOULD ALIGN WITH ITS CAM FOLLOWER ROLLER APPROXIMATELY 0.030 INCH FORWARD OF THE REAR EDGE OF THE ROLLER.

TO ADJUST

LOOSEN SET SCREWS AND DISENGAGE FLEXIBLE COUPLINGS. LOOSEN TWO ALIGNMENT BRACKET SCREWS AND THREE PERFORATOR MOUNTING SCREWS. SET EXTENSION GUIDE PIN IN MIDDLE OF GUIDE BRACKET SLOT AND ALIGN PERFORATOR AND RESET CAM. TIGHTEN PERFORATOR MOUNTING SCREWS. POSITION ALIGNMENT BRACKET SO THAT IT CONTACTS PERFORATOR CASTING FOR ITS FULL LENGTH, AND TIGHTEN SCREWS. POSITION REAR BEARING BRACKET UNTIL PERFORATOR DRIVE SHAFT LINES UP WITH BEARING BRACKET SHAFT, AND TIGHTEN SCREWS. ENGAGE FLEXIBLE COUPLING. IF NECESSARY, REFINE LINE UP OF PUNCH SLIDE LATCHES AND CODE BAR EXTENSIONS BY ADJUSTING THE CODE BAR EXTENSION GUIDE BRACKET IN ITS MOUNTING HOLES.

FIGURE 1-55. PERFORATOR SHAFT AND PUNCH MECHANISM



NOTE

WITH ALL CLUTCHES LATCHED, DEPRESS LTRS KEY. AFTER CODE BARS HAVE FALLEN TO RIGHT, THERE MUST BE 0.010 INCH MINIMUM GAP BETWEEN RESET LEVER AND PIN ON CLUTCH TRIP BAR AS MEASURED BETWEEN RESET CAM AND ROLLER. IF GAP CANNOT BE OBTAINED, REPOSITION PERFORATOR TO RIGHT OR LEFT AND READJUST.

FIGURE 1-56. CODE BAR BAIL AND CAM FOLLOWER MECHANISMS

Go to Page 1-25 and begin

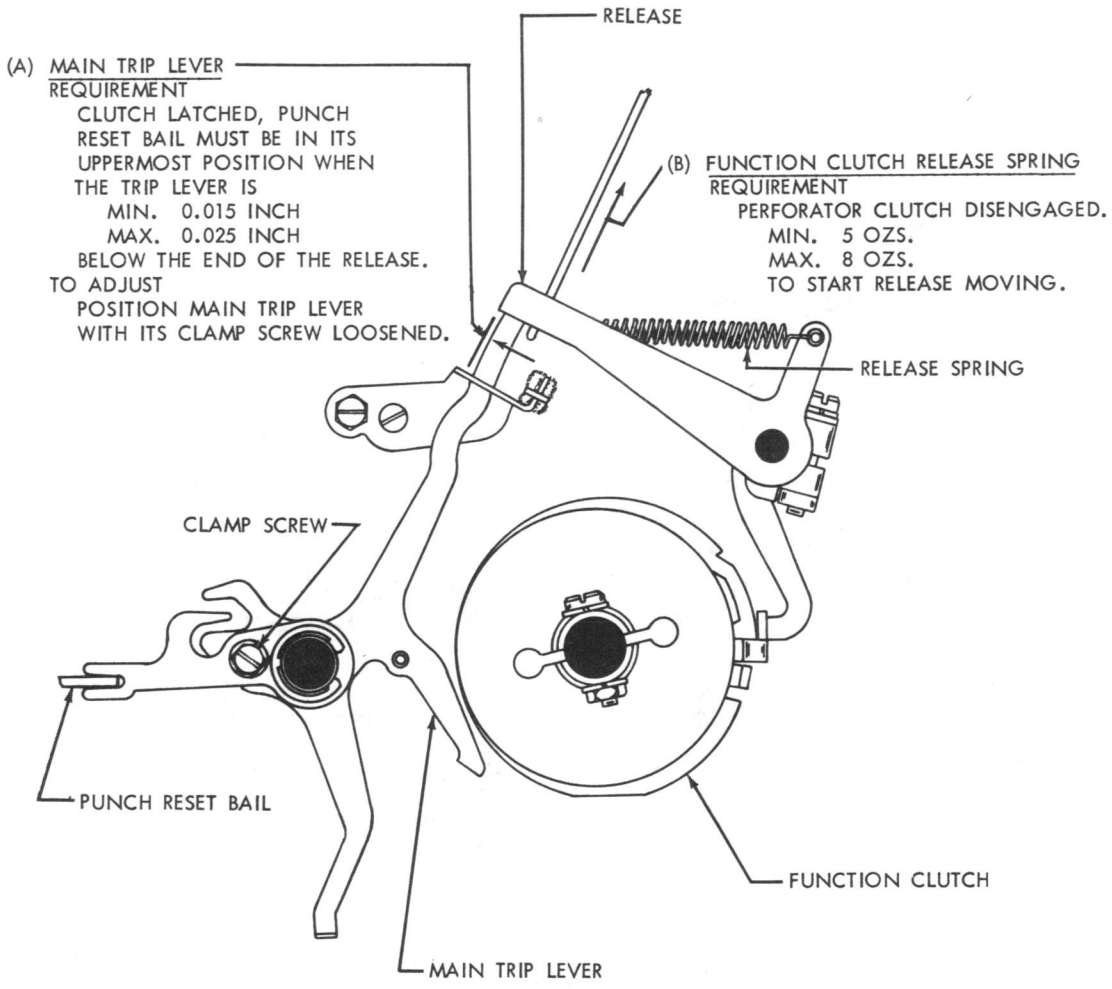
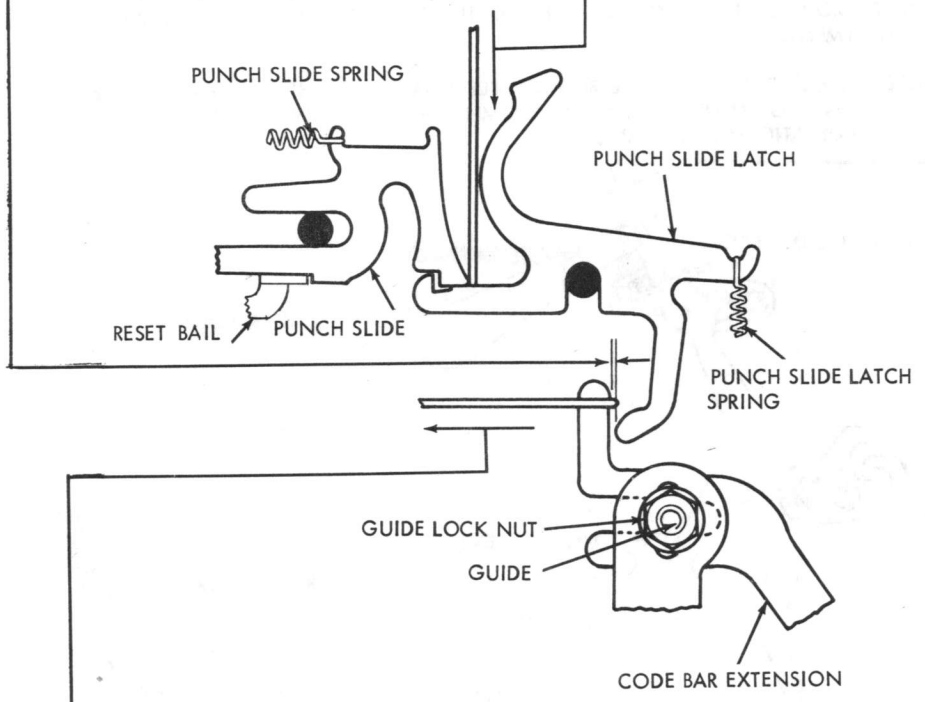


FIGURE 1-57. PERFORATOR TRIP LEVER MECHANISM

To page 1-60

(C) CODE BAR EXTENSION AND PUNCH SLIDE LATCH
(1) REQUIREMENT
CONTROL KNOB IN "T" POSITION. BLANK KEYLEVER DEPRESSED. PUNCH SLIDES LATCHED. CLEARANCE SHOULD BE MIN. SOME — MAX. 0.006 INCH BETWEEN CODE BAR EXTENSIONS AND CLOSEST PUNCH SLIDE LATCH.
(2) REQUIREMENT
LTRS KEYLEVER DEPRESSED. CODE BAR EXTENSIONS SHOULD ROTATE PUNCH SLIDE LATCHES TO RELEASE ALL PUNCH SLIDES.
TO ADJUST
POSITION GUIDE VERTICALLY WITH GUIDE LOCK NUT LOOSENED TO OBTAIN REQUIRED CLEARANCE. TIGHTEN LOCK NUT.

(A) PUNCH SLIDE LATCH SPRING
REQUIREMENT
MIN. 3/4 OZS.
MAX. 2 OZS.
TO START LATCH MOVING.



(B) CODE BAR EXTENSION SPRING
REQUIREMENT
MIN. 4 OZS.
MAX. 5 OZS.
TO START EACH EXTENSION MOVING.

FIGURE 1-58. CODE BAR EXTENSION AND PUNCH LATCH MECHANISMS

PERFORATOR CLUTCH RELEASE TRIP

REQUIREMENT

PERFORATOR CLUTCH SHOULD TRIP CONSISTENTLY IN T AND K-T POSITIONS WHEN BLANK AND REPEAT KEYLEVERS ARE DEPRESSED SIMULTANEOUSLY. WHEN THE CONTROL KNOB IS TURNED FROM K POSITION TO K-T POSITION, THE PERFORATOR CLUTCH SHOULD TRIP WHEN THE FIRST KEYLEVER IS DEPRESSED. CLEARANCE BETWEEN MAIN TRIP LEVER AND CLUTCH RELEASE

MIN. 0.015 INCH
MAX. 0.025 INCH

TO ADJUST

PLACE CONTROL KNOB IN T POSITION. LOOSEN MAIN TRIP LEVER LATCH #1 CLAMP SCREWS AND MOVE LATCH TO EXTREME LEFT. ~~WITH CODE BARS TO THE RIGHT,~~ #2 STRIKE BLANK KEYLEVER AND MOVE STOP #3 BRACKET TO RIGHT UNTIL IT DISENGAGES LATCH. #4 MOVE CLUTCH TRIP BAR EXTENSION TO RIGHT UNTIL IT LATCHES. #5 POSITION MAIN TRIP LEVER LATCH TO RIGHT TO OBTAIN REQUIRED CLEARANCE. TIGHTEN SCREWS.

TO CHECK

WITH THE STOP BRACKET SCREWS FRICTION TIGHT, #6 MOVE THE STOP BRACKET SLOWLY TO THE LEFT UNTIL THE LATCH JUST TRIPS. TURN ON MOTOR. DEPRESS BLANK AND REPEAT KEYLEVERS SIMULTANEOUSLY. IF OPERATION IS SATISFACTORY, TURN TO K-T POSITION AND REPEAT. TURN TO K POSITION AND BACK TO K-T POSITION. DEPRESS A KEYLEVER. PERFORATOR CLUTCH SHOULD TRIP. IF IT DOES NOT, MOVE STOP BRACKET SLIGHTLY TO THE RIGHT AND REPEAT THE ABOVE ADJUSTMENT.

NOTE: CHECK FOR CLEARANCE BETWEEN RESET BAIL AND SLIDES WHEN THE RESET LEVER IS TRIPPED. REFINE ADJUSTMENT IF NECESSARY TO OBTAIN OPERATIONAL CLEARANCE.

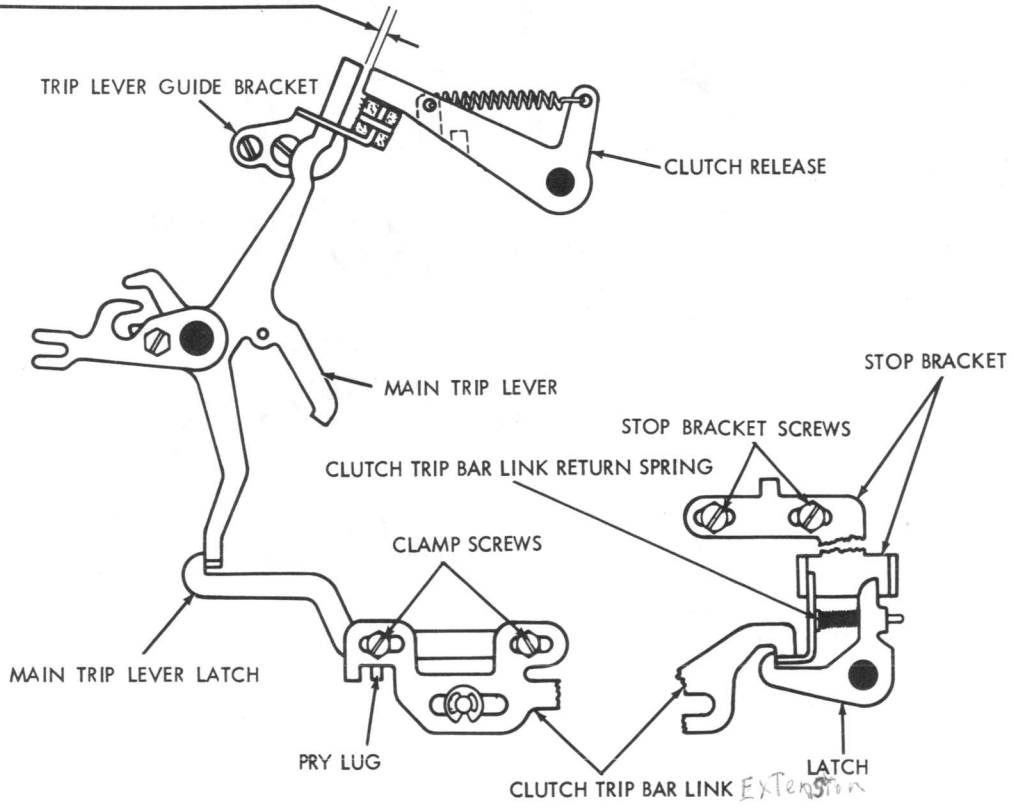
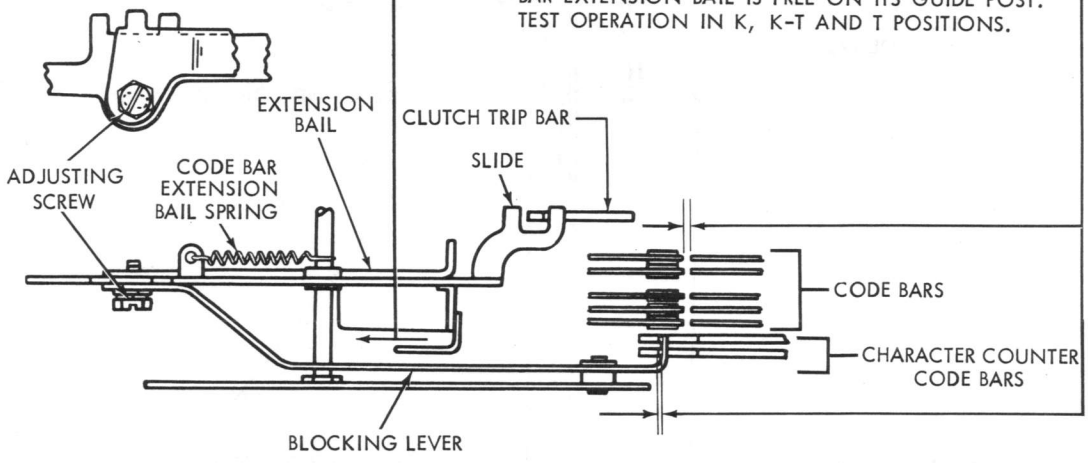
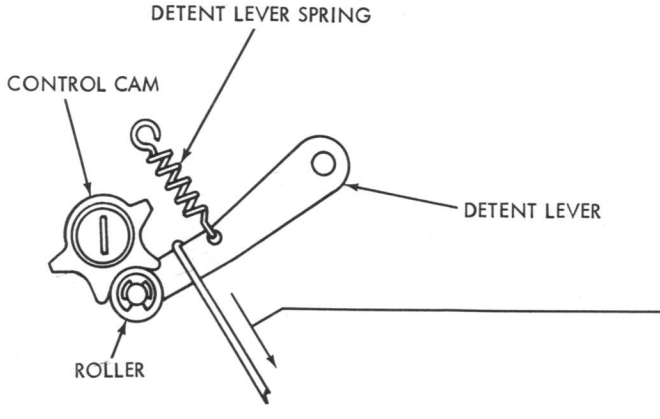


FIGURE 1-59. PERFORATOR CLUTCH RELEASE MECHANISM

CODE BAR EXTENSION BLOCKING ASSEMBLY
REQUIREMENT
CONTROL KNOB IN K POSITION. CODE BAR EXTENSIONS AND CHARACTER COUNTER BARS SHOULD NOT OPERATE.
(1) CLEARANCE BETWEEN RIGHT END AT CODE BAR EXTENSIONS AND CODE BARS.
MIN. SOME
MAX. 0.025 INCH
(2) CLEARANCE BETWEEN BLOCKING LEVER AND SIDE OF NOTCH IN CHARACTER COUNTER CODE BARS.
MIN. SOME
MAX. 0.010 INCH
TO ADJUST
WITH CLUTCH LATCHED, TURN CONTROL KNOB TO THE K POSITION. STRIKE LTRS KEYLEVER AND ROTATE SIGNAL GENERATOR SHAFT TO RETURN CODE BARS TO EXTREME LEFT. WITH ADJUSTING SCREW FRICTION TIGHT, POSITION EXTENSION BAIL TO OBTAIN REQUIREMENT (1) AND POSITION BLOCKING LEVER TO OBTAIN REQUIREMENT (2) MAKE CERTAIN THAT THE CODE BAR EXTENSION BAIL IS FREE ON ITS GUIDE POST. TEST OPERATION IN K, K-T AND T POSITIONS.

CODE BAR EXTENSION BAIL SPRING
REQUIREMENT
CONTROL KNOB IN K-T POSITION.
MIN. 7 OZS.
MAX. 10 OZS.
TO START EXTENSION BAIL MOVING.





DETENT LEVER SPRING
REQUIREMENT
MIN. 4 LBS.
MAX. 5 LBS
TO START LEVER MOVING.

FIGURE 1-60. CODE BAR EXTENSION AND DETENT LEVER MECHANISMS

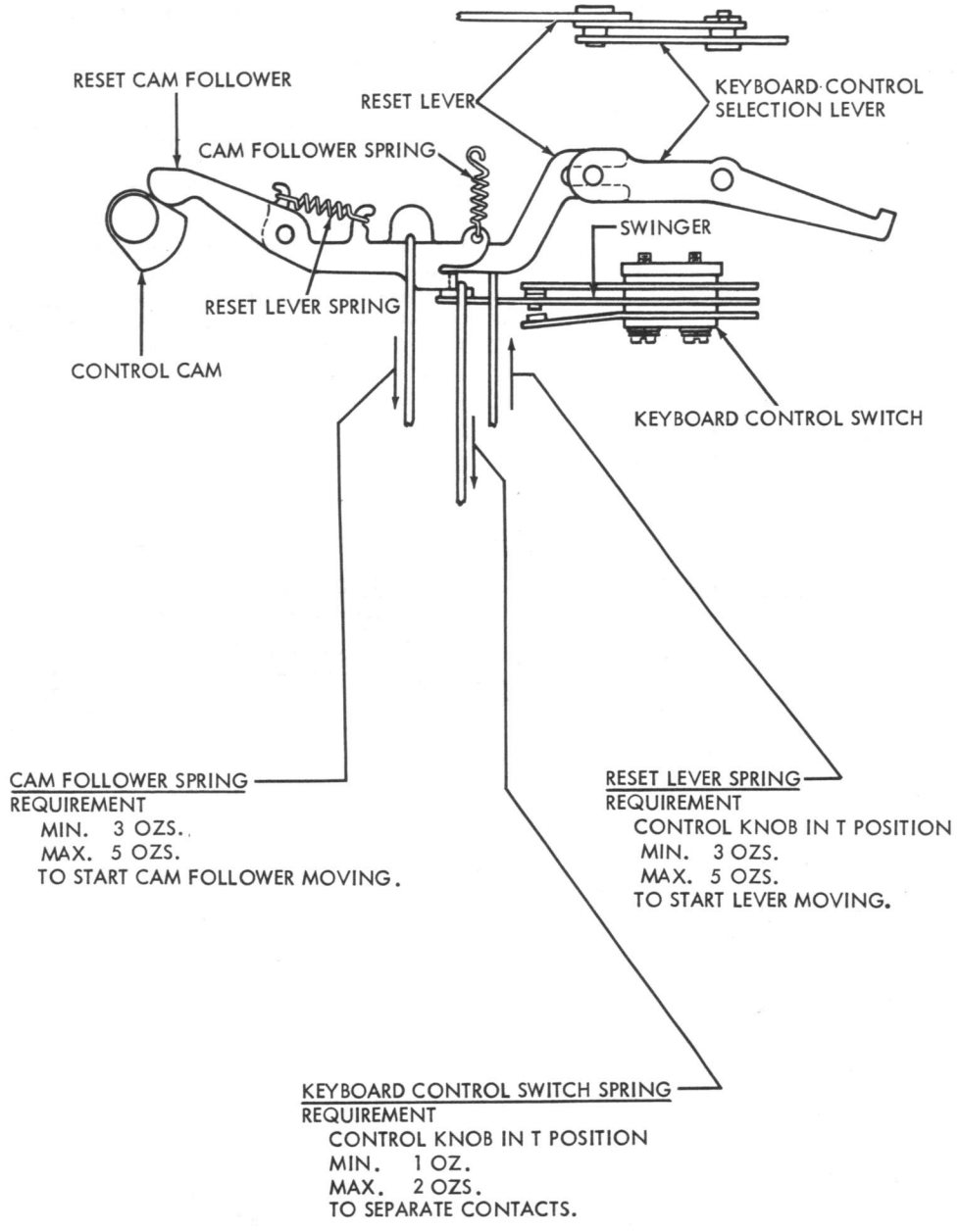
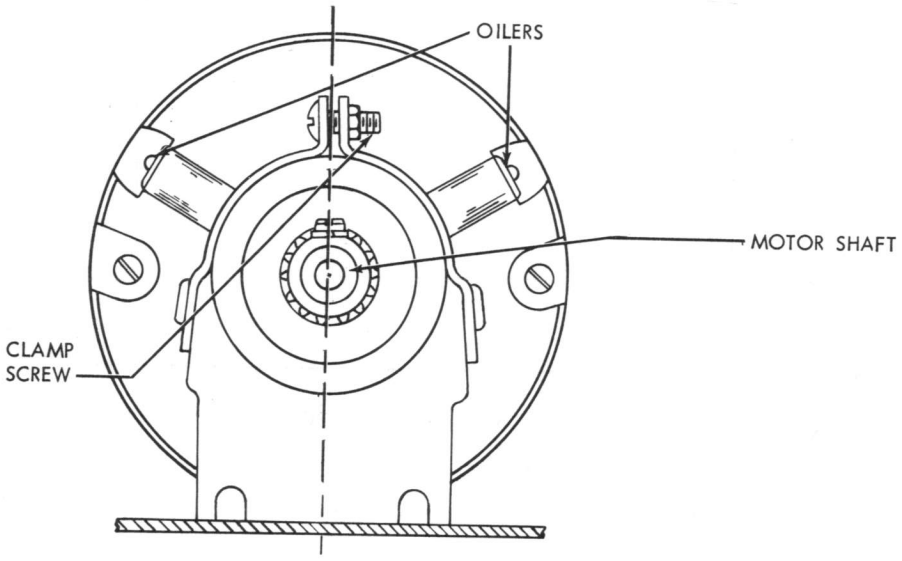


FIGURE 1-61 . RESET CAM FOLLOWER AND KEYBOARD CONTROL SWITCH MECHANISM

4. MOTOR

CAUTION

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



SYNCHRONOUS MOTOR POSITIONING

REQUIREMENT

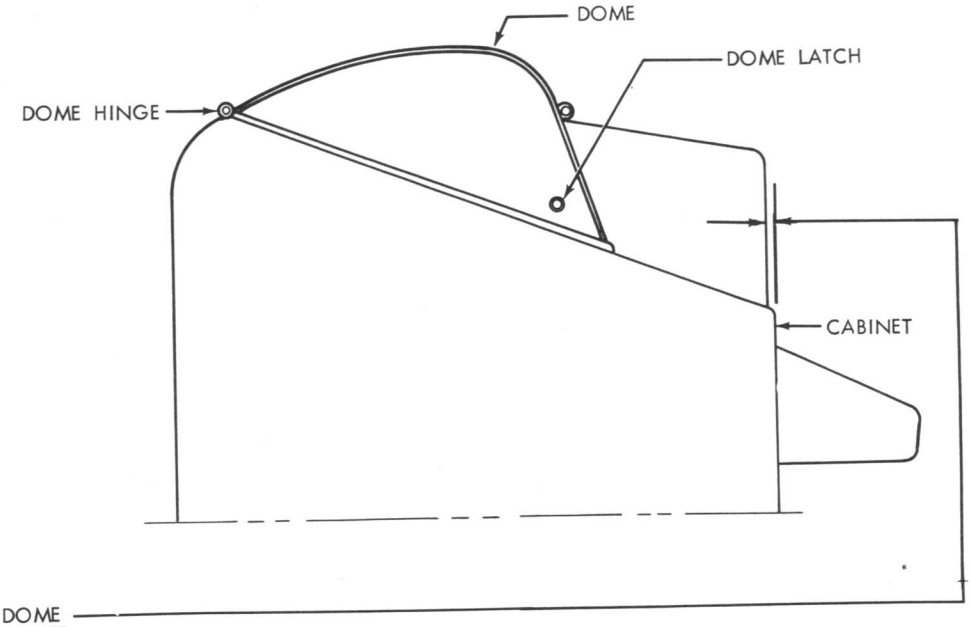
TWO OILERS SHOULD BE UPWARD AND APPROXIMATEL EQUIDISTANT FROM A VERTICAL LINE THROUGH THE MOTOR SHAFT.

TO ADJUST

POSITION THE MOTOR WITH BOTH CLAMP SCREWS LOOSENED.

FIGURE 1-62. SYNCHRONOUS MOTOR

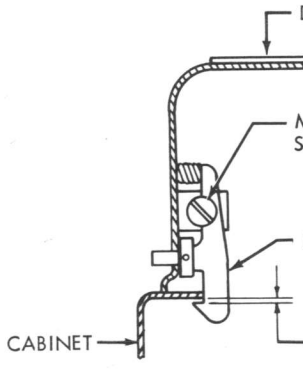
5. CABINET



DOME

REQUIREMENT
THE DOME SHOULD BE CENTERED ON THE CABINET FROM RIGHT TO LEFT AND PLACED APPROXIMATELY 0.050 INCH FROM THE FRONT EDGE OF THE CABINET

TO ADJUST
POSITION THE DOME WITH THE SCREWS, WHICH SECURE THE DOME HINGE TO THE CABINET, LOOSENED.



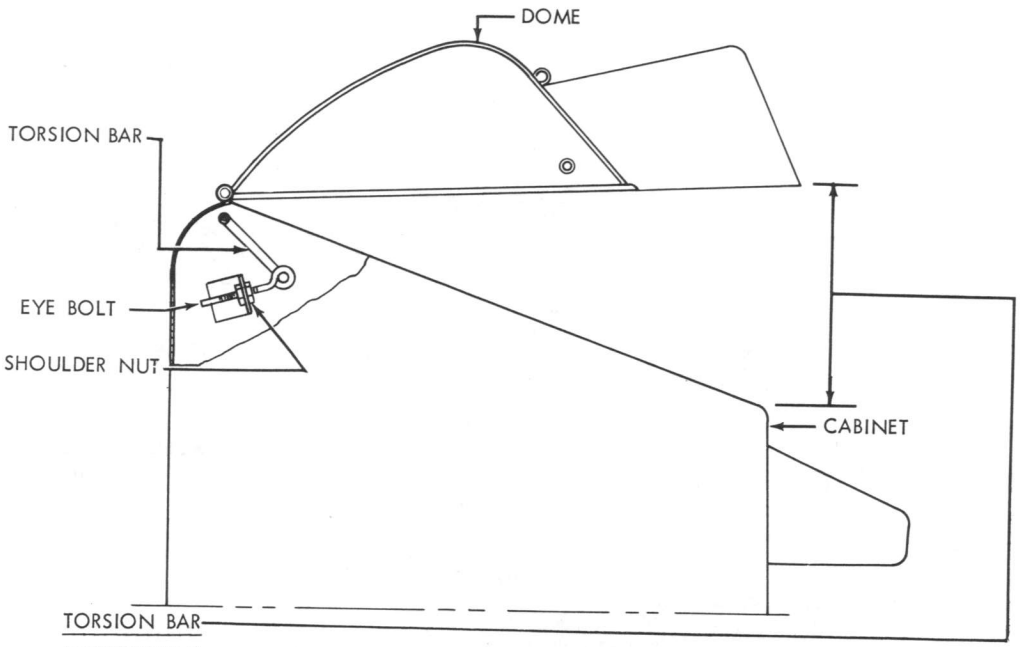
NOTE: IF NECESSARY TO CHECK REQUIREMENT, REMOVE BLANK CONTROL PANEL.

DOME LATCH

REQUIREMENT
WITH THE DOME CLOSED AND TOUCHING THE CABINET, THE DOME LATCHES SHOULD BE LATCHED WITH A CLEARANCE OF
MIN. SOME
MAX. 0.015 INCH
BETWEEN THE LATCHING SURFACE OF EACH LATCH AND ITS LATCHING SURFACE OF THE CABINET

TO ADJUST
POSITION EACH LATCH WITH ITS MOUNTING SCREW LOOSENED.

FIGURE 1-63. CABINET DOME



REQUIREMENT

THE TORSION BARS SHOULD LIFT THE DOME ABOVE THE FRONT EDGE OF THE CABINET
MIN. 5 INCHES
MAX. 7 INCHES
WHEN RELEASED FROM ITS LATCHES

TO ADJUST

TURN THE SHOULDER NUTS ON THE EYE BOLTS CLOCKWISE TO INCREASE THE SPRING TORQUE, AND COUNTERCLOCKWISE TO DECREASE THE SPRING TORQUE.

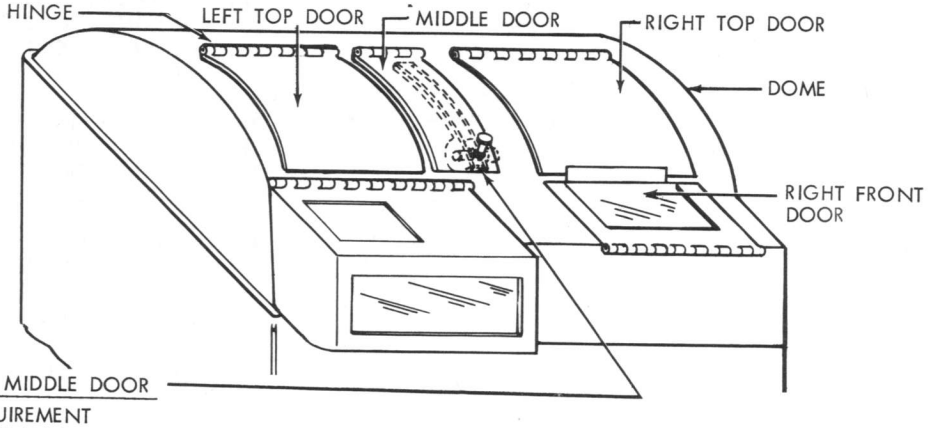
TOP DOORS (RIGHT AND LEFT)

REQUIREMENT

THE DOORS SHOULD SET SQUARELY AND UNIFORMLY ON THE CONTOUR OF THE DOME.

TO ADJUST

POSITION EACH DOOR WITH ITS HINGE MOUNTING SCREWS LOOSENED.



REQUIREMENT

THE DOOR SHOULD REST FLAT AND SQUARELY ON THE DOME. THE REINFORCEMENT CHANNEL SHOULD FIT OVER ITS GUIDE BRACKET IN THE DOME.

TO ADJUST

REMOVE THE SPRING DETENT FROM CENTER OF DOME AND POSITION THE DOOR WITH ITS HINGE MOUNTING SCREWS AND BRACKET MOUNTING SCREWS LOOSENED.

RIGHT FRONT DOOR

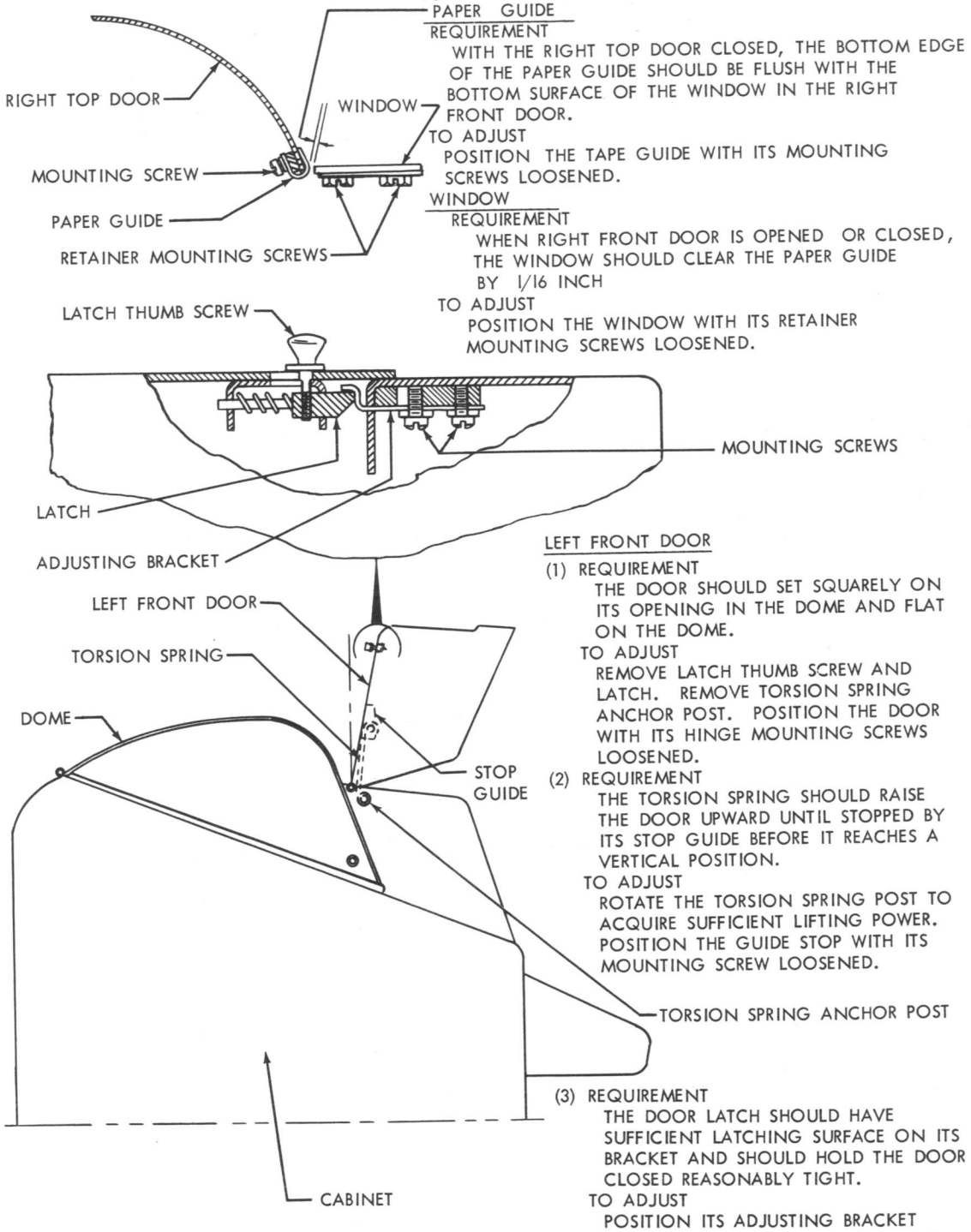
REQUIREMENT

THE RIGHT AND LEFT EDGES OF THE RIGHT FRONT DOOR SHOULD BE EVEN WITH THE RIGHT TOP DOOR. WITH THE DOOR CLOSED IT SHOULD REST FLAT ON THE HORIZONTAL SURFACE OF THE DOME.

TO ADJUST

REMOVE THE THUMB SCREWS, LATCHES, AND SPRINGS FROM THE DOOR, AND POSITION THE DOOR WITH ITS MOUNTING SCREWS LOOSENED.

FIGURE 1-64. CABINET DOME



PAPER GUIDE

REQUIREMENT

WITH THE RIGHT TOP DOOR CLOSED, THE BOTTOM EDGE OF THE PAPER GUIDE SHOULD BE FLUSH WITH THE BOTTOM SURFACE OF THE WINDOW IN THE RIGHT FRONT DOOR.

TO ADJUST

POSITION THE TAPE GUIDE WITH ITS MOUNTING SCREWS LOOSENED.

WINDOW

REQUIREMENT

WHEN RIGHT FRONT DOOR IS OPENED OR CLOSED, THE WINDOW SHOULD CLEAR THE PAPER GUIDE BY 1/16 INCH

TO ADJUST

POSITION THE WINDOW WITH ITS RETAINER MOUNTING SCREWS LOOSENED.

LEFT FRONT DOOR

(1) REQUIREMENT

THE DOOR SHOULD SET SQUARELY ON ITS OPENING IN THE DOME AND FLAT ON THE DOME.

TO ADJUST

REMOVE LATCH THUMB SCREW AND LATCH. REMOVE TORSION SPRING ANCHOR POST. POSITION THE DOOR WITH ITS HINGE MOUNTING SCREWS LOOSENED.

(2) REQUIREMENT

THE TORSION SPRING SHOULD RAISE THE DOOR UPWARD UNTIL STOPPED BY ITS STOP GUIDE BEFORE IT REACHES A VERTICAL POSITION.

TO ADJUST

ROTATE THE TORSION SPRING POST TO ACQUIRE SUFFICIENT LIFTING POWER. POSITION THE GUIDE STOP WITH ITS MOUNTING SCREW LOOSENED.

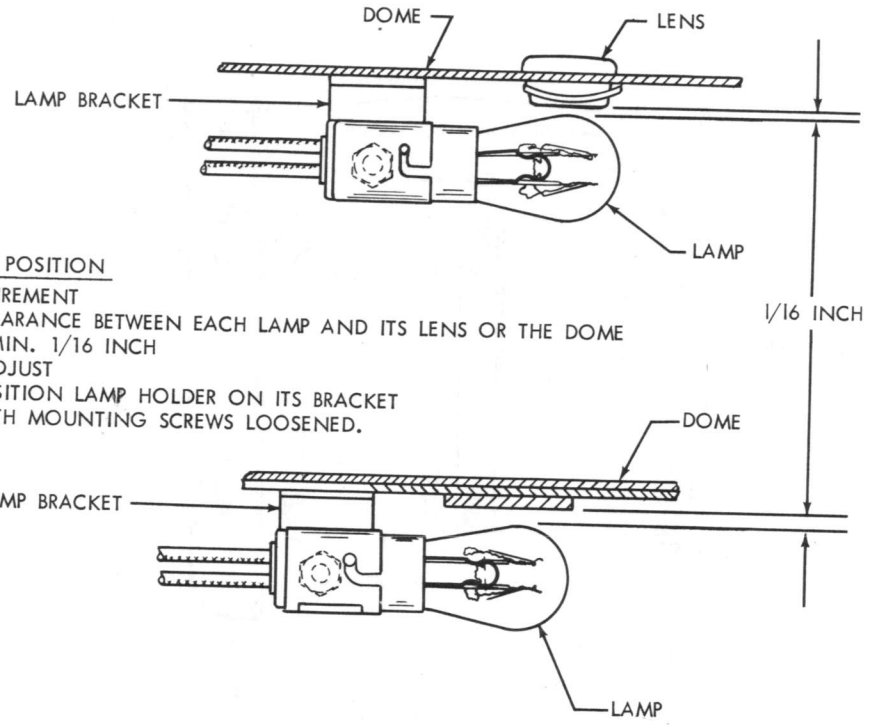
(3) REQUIREMENT

THE DOOR LATCH SHOULD HAVE SUFFICIENT LATCHING SURFACE ON ITS BRACKET AND SHOULD HOLD THE DOOR CLOSED REASONABLY TIGHT.

TO ADJUST

POSITION ITS ADJUSTING BRACKET HORIZONTALLY WITH ITS MOUNTING SCREWS LOOSENED. MODIFY UP OR DOWN POSITION OF BRACKET IF NECESSARY.

FIGURE 1-65. CABINET DOME



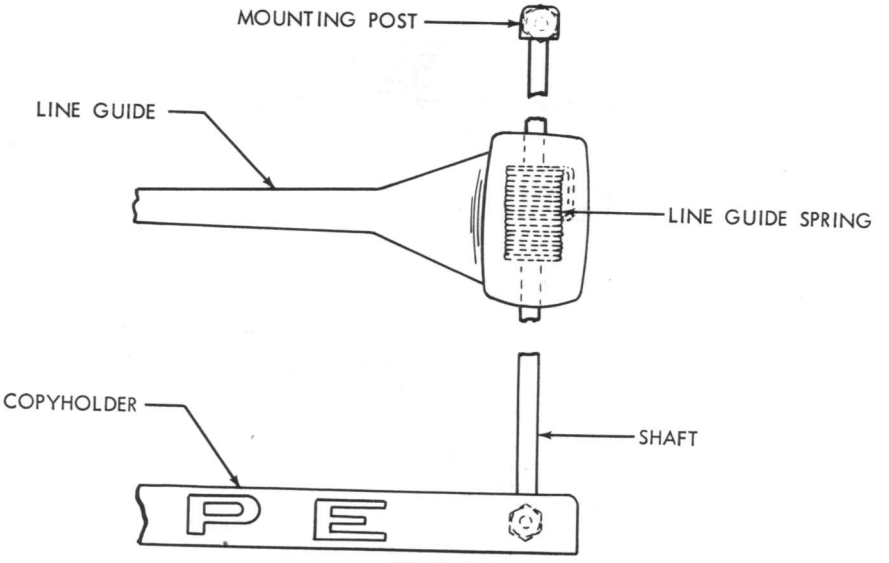
LAMP POSITION

REQUIREMENT

CLEARANCE BETWEEN EACH LAMP AND ITS LENS OR THE DOME MIN. 1/16 INCH

TO ADJUST

POSITION LAMP HOLDER ON ITS BRACKET WITH MOUNTING SCREWS LOOSENED.



COPYHOLDER

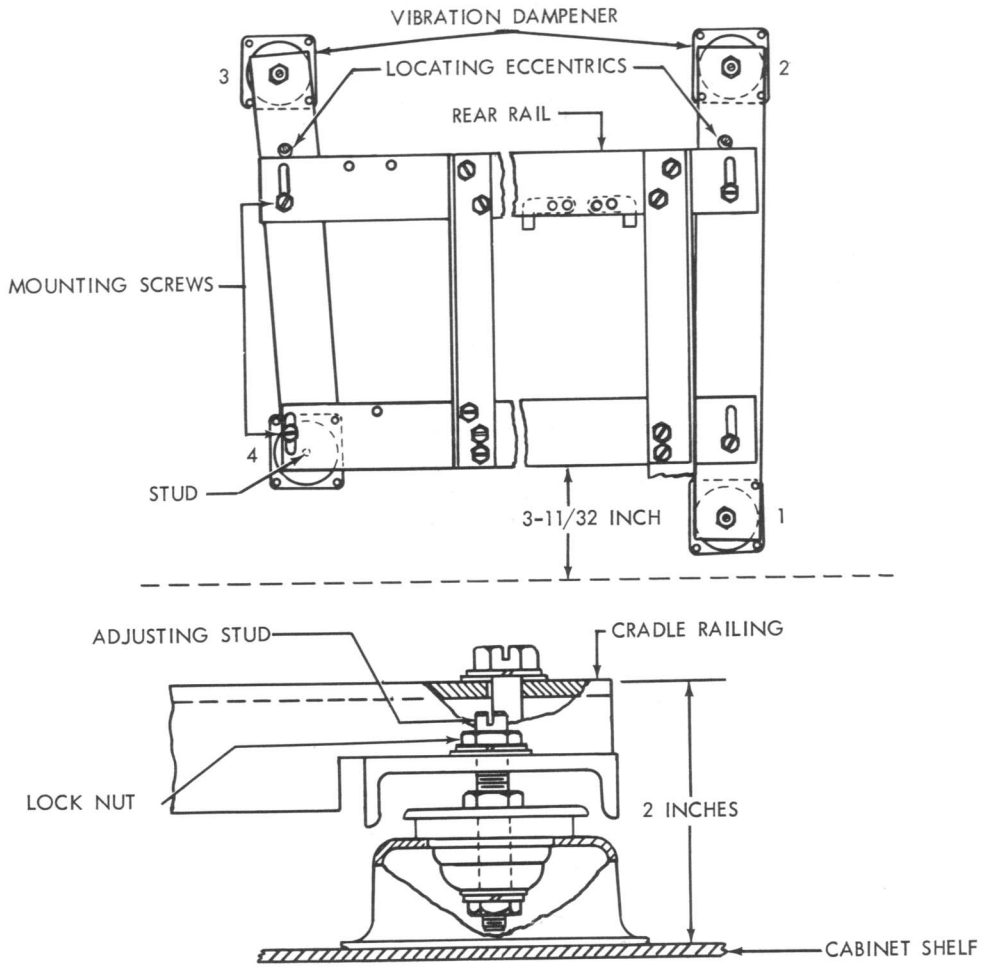
REQUIREMENT

THERE SHOULD BE SUFFICIENT TENSION ON THE LINE GUIDE TO PREVENT IT FROM SLIPPING DOWN ITS SHAFT. IT SHOULD ALSO HOLD THE COPY IN PLACE.

TO ADJUST

REMOVE THE NUTS FROM THE SHAFT MOUNTING POST AND TURN THE SHAFT. REPLACE THE SHAFT MOUNTING POST.

FIGURE 1-66. COPYLIGHT; PAPER GUIDE



CRADLE

(1) REQUIREMENT
UNDER NORMAL LOAD, THE TOP OF THE CRADLE RAILING SHOULD BE 2 INCHES FROM THE SHELF OF THE CABINET

TO ADJUST
LOOSEN THE LOCK NUTS ON VIBRATION DAMPENER NO. 1, 2, AND 3 ON TOP OF THE LEFT AND RIGHT RAILS. LOOSEN THE NUT ON THE LOWER END OF STUD IN MOUNT NO. 4. ROTATE THE ADJUSTING STUDS UNTIL THE RAILS HAVE REACHED THE DESIRED HEIGHT. TIGHTEN ALL NUTS PREVIOUSLY LOOSENED.

(2) REQUIREMENT
THE FRONT RAIL SHOULD BE POSITIONED APPROXIMATELY 3-11/32 INCH FROM AND PARALLEL TO THE FRONT OF THE CABINET.

TO ADJUST
POSITION THE BASE RAIL ASSEMBLY WITH ITS FOUR MOUNTING SCREWS AND TWO LOCATING ECCENTRICS LOOSENED AFTER POSITIONING THE RAIL ASSEMBLY TO DESIRED POSITION, ROTATE THE ECCENTRICS AGAINST THE REAR RAIL AND LOCK IN POSITION.

FIGURE 1-67 CRADLE

6. DISASSEMBLY AND REASSEMBLY

a. Introduction

For further disassembly of parts not herein described, refer to the exploded views in parts bulletin 1169B. To reassemble the unit, reverse the disassembly procedure. After reassembly, be sure to check all adjustments, clearances, and spring tensions.

NOTE

When removing a part which is mounted on shims, the number of shims used at each mounting screw should be noted so that the same shim pile-up can be replaced when the part is remounted. Retaining rings (tru-arcs) are of spring steel and have a tendency to release suddenly. Loss of these can be minimized as follows: Hold retaining ring with the left hand to prevent rotation. Place the blade of a suitable screwdriver in one of the slots of the retaining ring. Rotate the screwdriver in a direction to increase the diameter of the retaining ring. It will come off easily without springing.

b. Assemblies

(1) Character Counter

(a) To remove the character counter assembly, proceed as follows:

1. Remove the two 151631 screws which hold the 155969 character counter bracket to the keyboard base.

2. Raise the character counter and remove the two 151685 screws which hold the 158050 switch to its 158021 bracket.

(2) Tape Container

(a) To remove the tape container assembly, proceed as follows:

1. Remove the four 151632 screws which hold the 158233 panel mounting bracket to the base.

(3) Perforator

(a) To remove the perforator assembly, proceed as follows:

1. Loosen the two set screws on the 158020 coupling located on the 158073 rear shaft and slide the coupling to the rear to disengage it.

2. Remove the three 74014 screws which hold the 158169 perforator frame to the base, and remove the 151631 screw which holds the 156184 bracket to the base.

3. Raise the perforator slightly from the base being careful not to injure the code bar extension or perforator clutch latch spring.

4. If unit is equipped with power backspace, unscrew the leads from under the 224M magnet assembly before removing the perforator entirely.

(4) Punch Assembly

(a) To remove the punch assembly, magnet assembly, and backspace mechanism, proceed as follows:

1. Unhook the 151736 perforator drive link spring, and disengage the 156412 link.

2. Remove the three 151631 screws which hold the 159473 perforator main plate to the 158169 perforator frame.

3. Disengage the 159961 eccentric arm and the assemblies will come free as a unit.

(5) Ribbon Feed Mechanism (Typing Perforator Only)

(a) Remove the ribbon. Remove the two 151632 mounting screws and 2191 lockwashers. Remove the ribbon feed mechanism.

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

(6) Transfer Mechanism (Typing Perforator Only)

(a) Remove the 49084 main trip lever spring. Remove the 151631 and 151632 mounting screws, 2191 lock washer and 7002 flat washers. Remove the transfer mechanism.

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

(7) Typing Mechanism (Typing Perforator Only)

(a) To Remove Typing Mechanism:

1. Remove the 156872 operating blade from the rocker bail assembly by removing the two 151657 mounting screws, 2191 lock washers, 8330 washers, 3649 washer and 82392 shims. Remove the 119651 retaining ring and disconnect the 159512 printing trip link. Remove the 3598 nut, 2191 lock washer and 125015 flat washer from the 156396 eccentric on the rocker bail assembly, and disconnect the 159526 oscillating drive link. Remove 33828 spring from the 156478 accelerator and the 90606 spring from the 156252 lifter.

2. Remove the 110017 screw and 92260 washer that fastens the 159434 lifter plate to the 156474 bar on the frame. Remove the 151630 screw and 2191 lock washer that secure the 159525 axial bracket to the 159404 post on the frame. Remove the 151631 screw, 2191 lock washer, and 7002 flat washer that fasten the 159487 function box front plate to the 159472 main plate. Remove the 119653 retaining ring from the 159659 eccentric shaft; and remove the 151629 nut, 159536 idler gear, 159659 shaft and 2191 lock washer by removing the 159658 mounting screw. Remove the three 151631 screws, 2191 lock washers and 7002 flat washers that secure the 159535 front plate to the frame. Remove the typing mechanism from the frame assembly.

3. To remount the typing mechanism, reverse the procedure used to remove it.

(b) To Remove Function Box Mechanism:

1. Remove the 151631 mounting screw, 2191 lock washer and 7002 flat washer from the 159535 front plate. Remove the function box from the typing mechanism.

2. To remount the function box, reverse the procedure used to remove it.

(c) To Remove Axial Plate Assembly:

1. Remove the 3870 correcting drive link spring. Remove the 156413 correcting drive link by removing the 119651 retaining ring. Remove the 119649 retaining ring and disconnect 156869 ribbon guide from the 156870 ribbon oscillating lever.

2. Remove the three 151630 mounting screws and 2191 lock washers from the axial plate. Remove the axial plate assembly.

3. 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.

(d) After the function box mechanism and axial plate assembly have been removed, the remainder of the typing mechanism is the front plate assembly.

(8) After the typing mechanism has been removed, the following remain on the frame assembly: the function clutch trip assembly, the two shaft assemblies and the rocker bail assembly (Typing Perforator Only).

(9) Margin Indicator

(a) To remove the margin indicator assembly, proceed as follows:

1. Remove the two 151637 screws which hold the 158162 switch mounting bracket to the 158160 reset cam follower lever assembly bracket.

(10) Reset Cam Follower

(a) To remove the reset cam follower lever assembly, proceed as follows:

1. Remove the two 151631 screws which hold the 158160 reset cam follower lever assembly bracket to the 158113 basket frame.

2. Remove the five 151442 screws which hold the bracket to the base.

3. Disengage the follower lever assembly from the selector lever assembly.

(11) Auxiliary Electrical Switch

(a) To remove the auxiliary electrical switch and housing assembly, proceed as follows:

1. Disconnect the (6) switch cable leads from the 158250 terminal board located just to the right of the perforator drive shafting.

2. Remove the three 151631 screws which hold the 158202 auxiliary switch housing to the base.

3. Slide the housing to the rear and disengage the 158208 gear from the 158210 shaft and lift the housing out.

4. Disengage the drive shaft from the 158114 extension basket control cam.

(12) Code Bar Extension Basket

(a) To remove the code bar extension basket assembly, proceed as follows:

NOTE

For reassembly purposes, observe how the 158061 link guide pin and the 158060 trip bar link latch spring which encases it are engaged between the 158135 clutch trip bar link and the 158103 trip bar link latch.

1. Remove the 151631 screw which holds the left end of the extension basket to the base.

2. Slide the extension basket to the left and disengage the 158116 reset lever from the 158099 keyboard control selection lever assembly. Note: When reassembling, be sure that the selection lever assembly straddles the clutch trip bar extension lever, and that the selection lever fork engages its mating pin.

(13) Signal Generator

(a) To remove the signal generator assembly, proceed as follows:

1. Remove the typing unit if it is present.

2. Remove the 154131 contact box cover, and disconnect the signal line leads from the 154042, 154043 contact terminals.

3. Remove the two 153841 hold down screws at the front of the 154200 signal generator frame, and the 74805 screw at the right rear of the frame.

4. Lift the signal generator carefully, while holding the universal bail back so that the non-repeat lever clears and its spring will not be excessively stretched.

CAUTION

If the non-repeat lever is pulled down approximately 90 degrees from normal position, its spring might be stretched beyond elastic limits which will result in assembly malfunction.

(14) Keyboard

(a) To remove the keyboard assembly, proceed as follows:

1. Remove the typing unit and signal generator assembly as specified in paragraph (9).

2. Remove the plastic windows and labels, hood, seal, and seal plates as specified in paragraph (11).

3. Remove the four 151631 screws which hold the 154210, 154211 front frames to the front of the 158000 base.

4. Remove the two 151632 screws which hold the 154068, 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 which hold it on the base.

5. 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, disengaging the function levers.

6. 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.

7. 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 levers should.

NOTE

It is easier to disassemble and reassemble the keyboard assembly with the base standing on its rear.

(15) Keyboard Labels

(a) To remove the plastic windows and labels, hood, seal, and seal plates, proceed as follows:

1. Remove the four 154202 screws which secure the 154198 windows and labels.

2. Remove the two 151632 screws underneath the 154110 hood which hold the hood to the 154203 hood mounting bracket; and remove the four 151659 screws on top of the hood which hold it to the 154210, 154211 left and right frame mounting brackets.

3. Pull the hood forward to remove.

4. Stretch the 154020 rubber keyboard seal off its 154057, 154058 plates.

5. Remove the four 151442 screws and two 154203 hood mounting brackets.

6. Remove the 154058 upper seal plate by unscrewing the three 151722 screws at its rear.

7. Remove the 154057 lower seal plate by unscrewing the 151632 screws at its front.

(16) Contact Box

(a) To remove the contact box assembly, proceed as follows:

1. Remove the 154131 contact box cover and disconnect the signal line leads.

2. Unhook the 86304 drive link spring.

3. Unscrew the two 151632 screws at the front of the 154009 front plate which hold the contact box assembly.

4. Disengage the 156644 drive link from the transfer bail and lift off the assembly. It is more economical to replace the entire contact assembly if the contacts need replacement.

(17) Transfer Lever Locking Bail

(a) To remove the transfer lever locking bail, proceed as follows:

1. Remove the signal generator assembly from the keyboard as specified in paragraph (9).

2. Remove the contact box assembly as specified in paragraph (12).

3. Remove the 70388 transfer lever locking bail spring.

4. To remove the 154140 locking bail, trip the clutch and rotate the shaft until the cam is positioned so that the bail can be unhooked and dropped from its guide post. Turn the locking bail clockwise until it is at right angles to the guide, and extract it from the bottom of the frame.

NOTE

It may be necessary to move the shaft back and forth to position the cam for maximum clearance.

(18) Signal Generator Shaft

(a) To remove the cam, clutch, and shaft assembly, proceed as follows:

1. Remove the transfer lever locking bail as specified in paragraph (13).

2. 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.

3. Hold the 154033 clutch latch lever and the 154034 clutch stop lever away and pull back on the shaft rear mounting plate to disengage the shaft from the front plate.

4. 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 fall free. These must be repositioned before reassembly.

5. 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 and clutch off.

(19) Keylever Guide Plate

(a) To remove the keylever guide plate, proceed as follows:

1. Remove the plastic windows and labels, and hood as specified in paragraph (11).

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 row and proceeding upward to the top row.

(20) Power Drive Backspace

(a) To remove the power drive backspace mechanism, proceed as follows:

1. Unhook the 84575 spring from the 159958 drive link latch.

2. Loosen the 151632 screw on the 159960 eccentric and pull the 159961 eccentric arm off the 159963 hub.

3. Disengage the eccentric arm from its guide between the 159958 latch and 159955 drive link.

4. Unscrew the 159956 post from between the 159954 adjusting link and the front punch frame, and remove the link and latch assembly.

5. Remove the two 156632 screws on the front punch frame and extract the magnet assembly.

(21) Manual Backspace

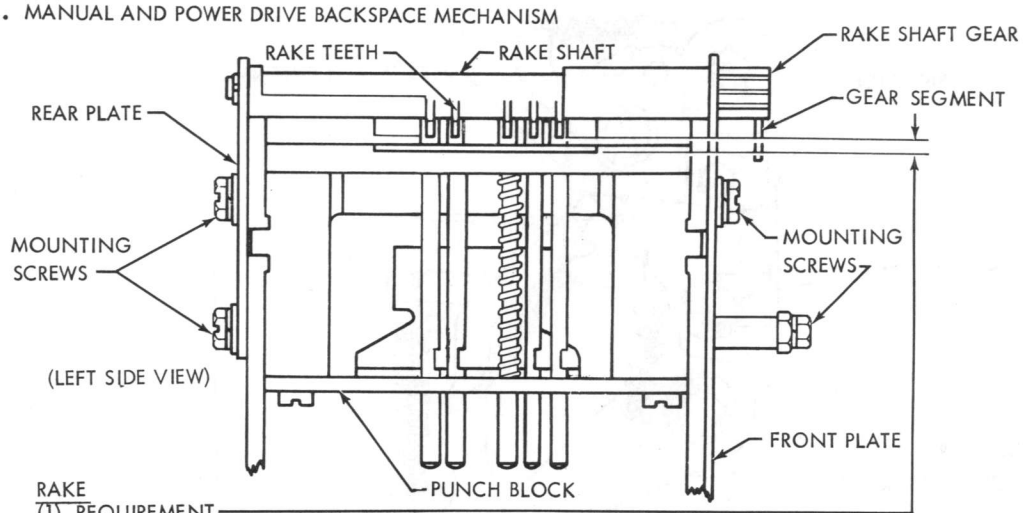
(a) To remove the manual backspace mechanism, proceed as follows:

1. Unscrew the two 153817 screws which hold the 159900 plate to the rear punch frame and remove the 159902 rake shaft.

2. Remove the 153817 screw, the 122149 screw and 159916 eccentric from the 159987 bracket on the left side of the punch front plate. Remove the 159903 crank assembly.

SECTION 2-VARIABLE FEATURE ADJUSTMENTS

1. MANUAL AND POWER DRIVE BACKSPACE MECHANISM



RAKE

(1) REQUIREMENT

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

TO ADJUST

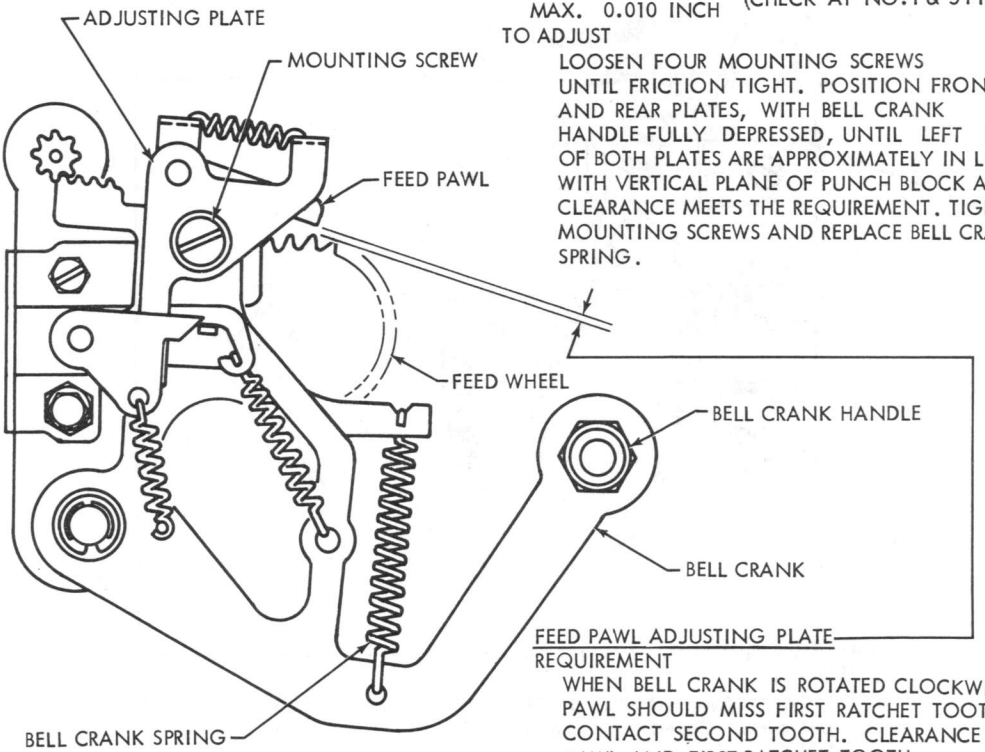
REMOVE TWO MOUNTING SCREWS FROM REAR PLATE. POSITION RAKE SHAFT GEAR IN RELATION TO GEAR SEGMENT. REPLACE MOUNTING SCREWS.

(2) REQUIREMENT

WITH BELLCRANK SPRING UNHOOKED AND RAKE IN OPERATED POSITION, CLEARANCE BETWEEN BOTTOM OF RAKE TEETH AND LOWER SURFACE OF TAPE SLOT:
MIN. 0.008 INCH
MAX. 0.010 INCH (CHECK AT NO.1 & 5 PINS.)

TO ADJUST

LOOSEN FOUR MOUNTING SCREWS UNTIL FRICTION TIGHT. POSITION FRONT AND REAR PLATES, WITH BELL CRANK HANDLE FULLY DEPRESSED, UNTIL 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.



FEED PAWL ADJUSTING PLATE

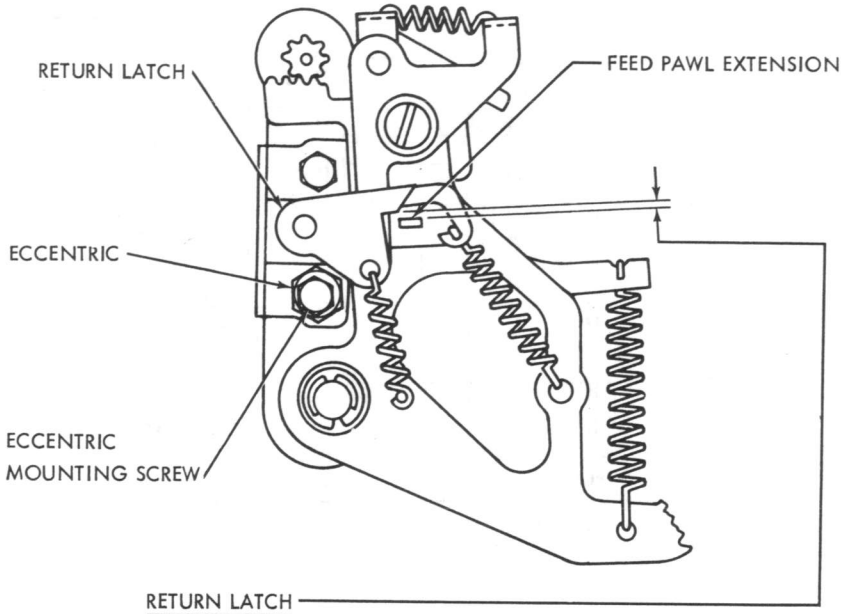
REQUIREMENT

WHEN BELL CRANK IS ROTATED CLOCKWISE, FEED PAWL SHOULD MISS FIRST RATCHET TOOTH AND CONTACT SECOND TOOTH. CLEARANCE BETWEEN PAWL AND FIRST RATCHET TOOTH:
MIN. 0.004 INCH.
MAX. 0.020 INCH.

TO ADJUST

POSITION ADJUSTING PLATE WITH MOUNTING SCREW FRICTION TIGHT.

FIGURE 2-1. MANUAL BACKSPACE MECHANISM

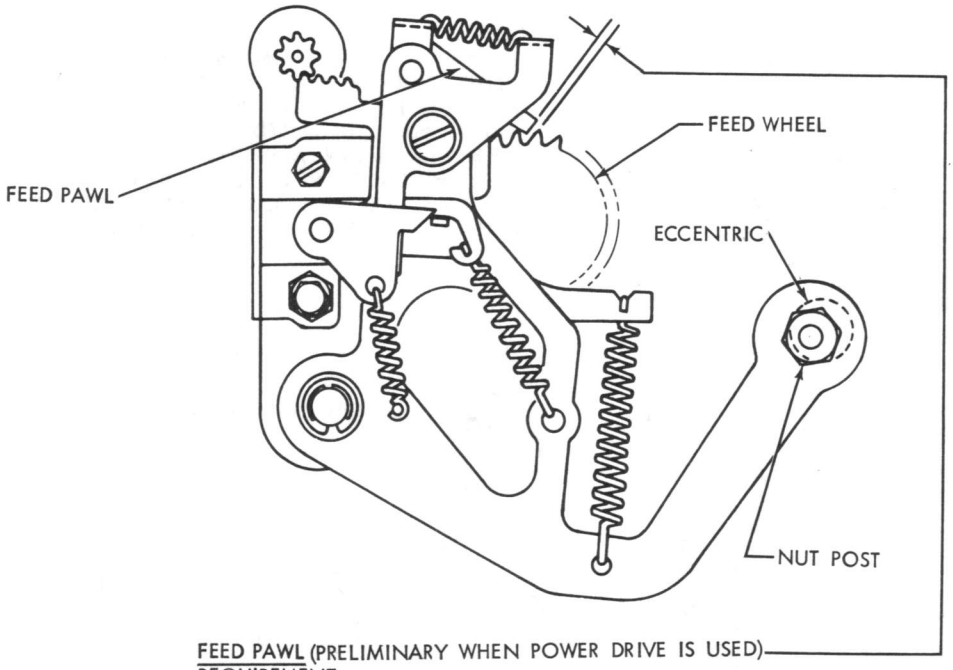


REQUIREMENT

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.



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

See top of 2-4 if unable to get clearance.

TO ADJUST

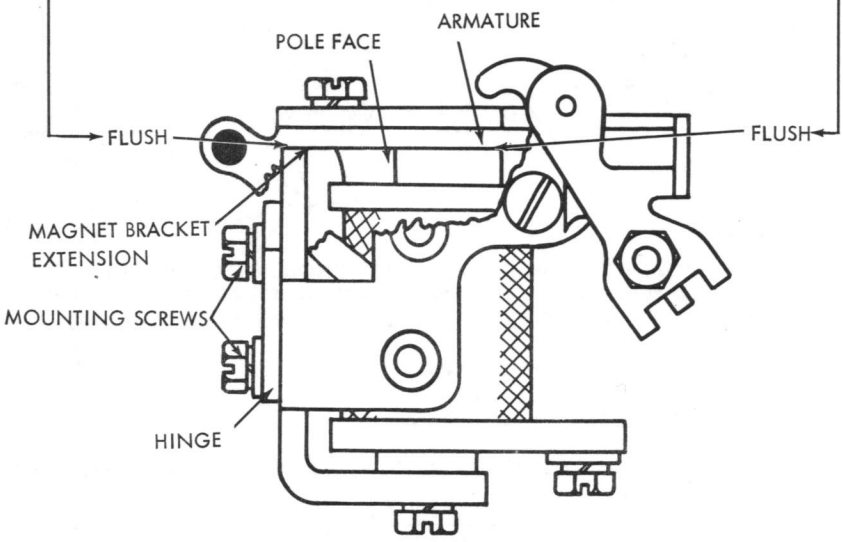
BY MEANS OF 0.060 INCH ALLEN WRENCH, ROTATE ECCENTRIC WITH NUT POST FRICTION TIGHT.

FIGURE 2-2. MANUAL BACKSPACE MECHANISM

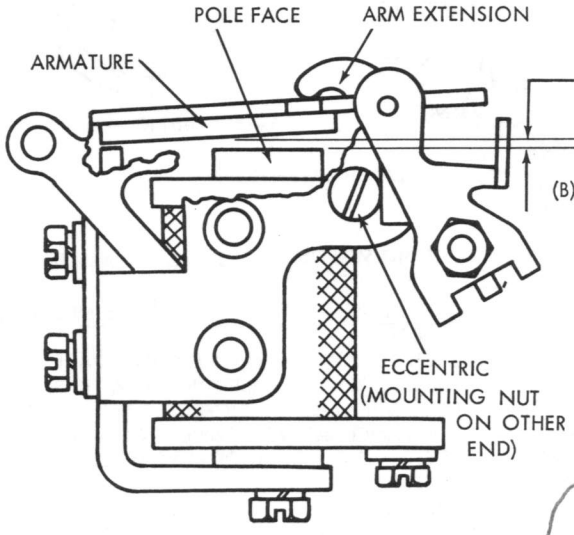
(A) ARMATURE HINGE

REQUIREMENT
ARMATURE IN OPERATED POSITION. ARMATURE SHOULD BE FLUSH WITH POLE FACE AND MAGNET BRACKET EXTENSION

TO ADJUST
POSITION ARMATURE WITH HINGE MOUNTING SCREWS LOOSENED.



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.



(B) ARMATURE UP-STOP

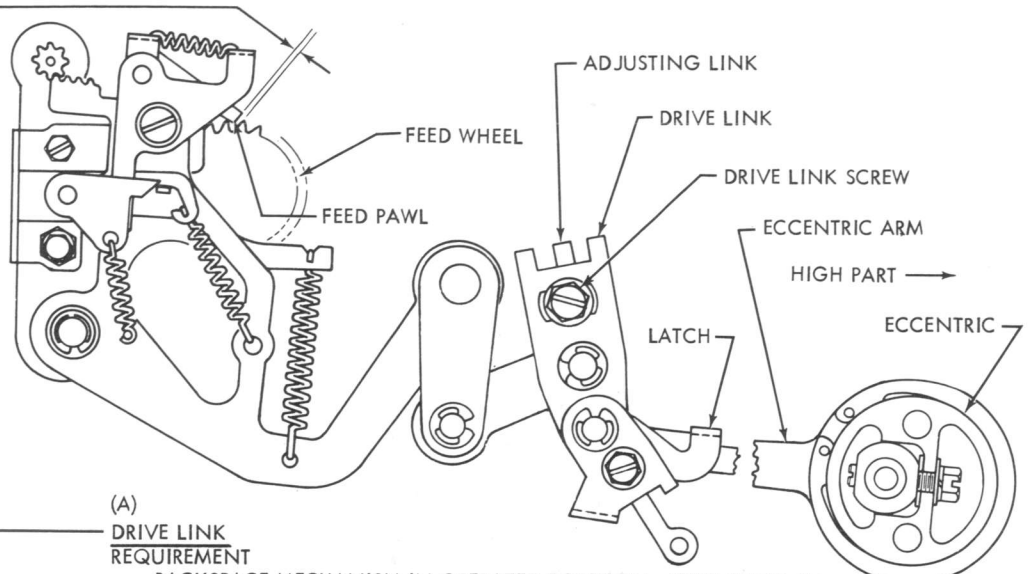
REQUIREMENT
ARMATURE IN UNOPERATED POSITION. GAP BETWEEN ARMATURE AND POLE FACE
MIN. 0.025 INCH.
MAX. 0.030 INCH.
AT CLOSEST POINT.

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

NOTE
FOR A.C. VOLTAGE OPERATION, UNMARKED SIDE OF ARMATURE SHOULD FACE MAGNET POLE FACE. FOR D.C. VOLTAGE OPERATION, REMOVE TWO ARMATURE MOUNTING SCREWS AND REVERSE ARMATURE SO THAT SIDE STAMPED "C" FACES POLE FACE.

Remember

FIGURE 2-3. POWER DRIVE BACKSPACE MECHANISM



(A)
DRIVE LINK
REQUIREMENT

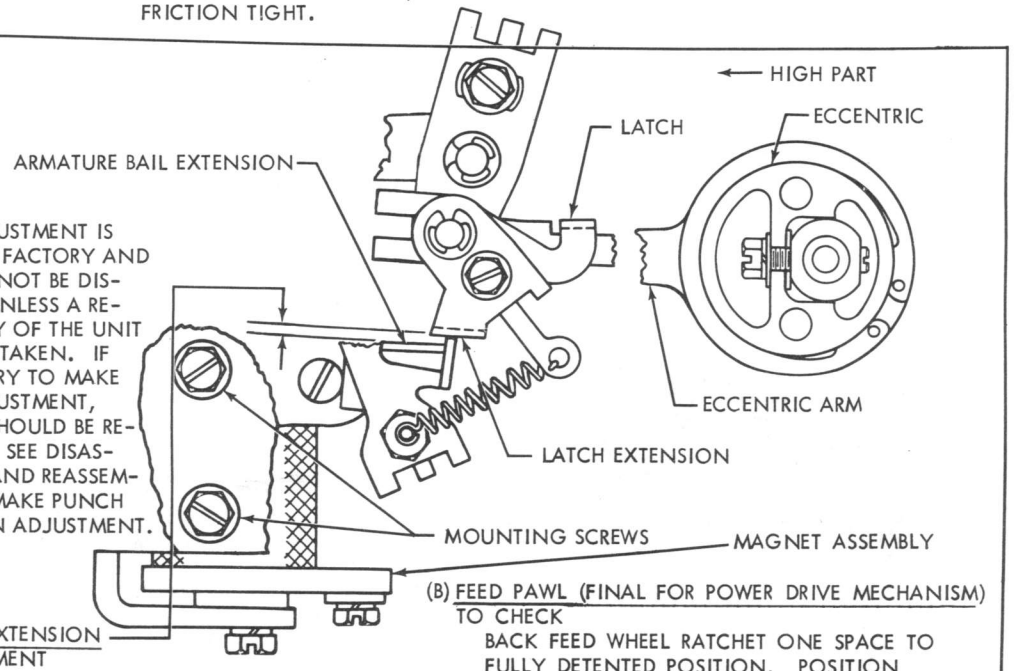
BACKSPACE MECHANISM IN OPERATED POSITION. FEED WHEEL IN DETENTED POSITION. LATCH ENGAGED WITH ECCENTRIC ARM. HIGH PART OF ECCENTRIC TO RIGHT. CLEARANCE BETWEEN FEED PAWL AND FEED WHEEL

RATCHET TOOTH
MIN. SOME
MAX. 0.003 INCH

See 2-2 if unable to get correct clearance

TO ADJUST

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



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, PUNCH SHOULD BE REMOVED. SEE DISASSEMBLY AND REASSEMBLY. REMAKE PUNCH POSITION ADJUSTMENT.

(C)
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 COUNTERCLOCKWISE, AS NECESSARY, WITH MOUNTING SCREWS FRICTION TIGHT.

(B) FEED PAWL (FINAL FOR POWER DRIVE MECHANISM)
TO CHECK

BACK FEED WHEEL RATCHET ONE SPACE TO FULLY DETENTED POSITION. POSITION ECCENTRIC ARM TO EXTREME RIGHT. CHECK CLEARANCE BETWEEN PAWL AND RATCHET TOOTH AT FOUR RANDOM POSITIONS ABOUT PERIPHERY OF WHEEL.

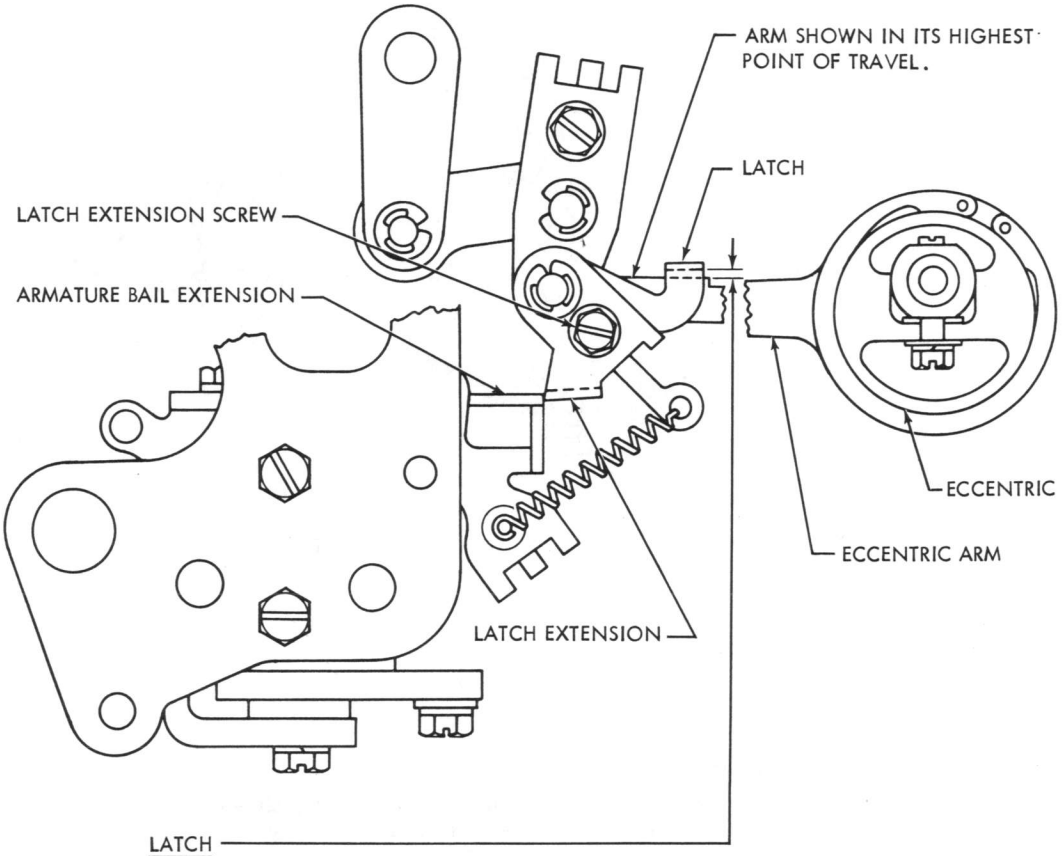
REQUIREMENT

CLEARANCE BETWEEN FEED PAWL AND RATCHET TOOTH:
MIN. SOME
MAX. 0.003 INCH

TO ADJUST

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

FIGURE 2-4. POWER DRIVE BACKSPACE MECHANISM



LATCH
REQUIREMENT

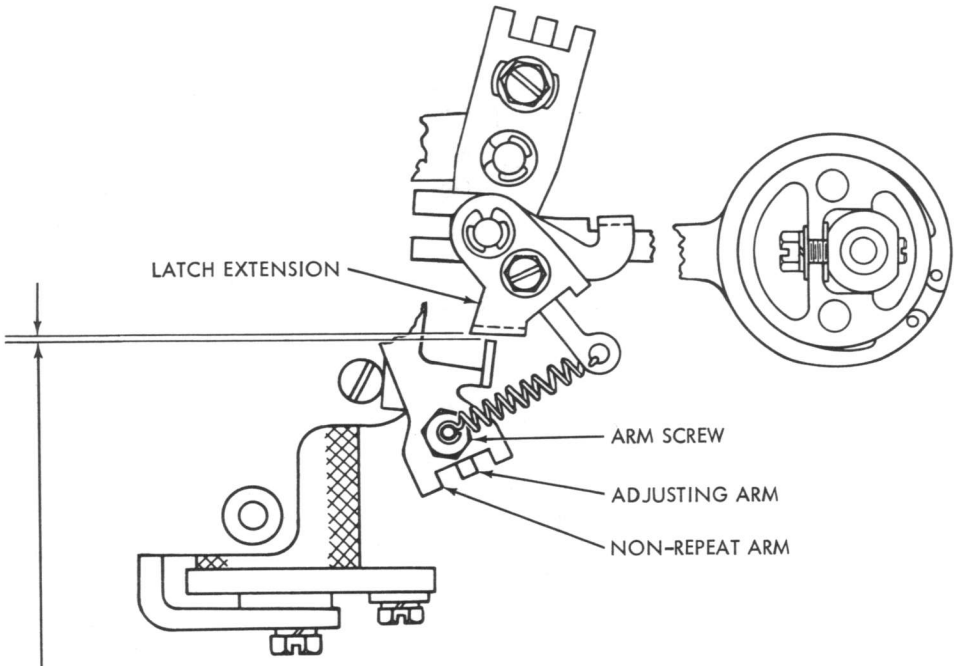
BACKSPACE MECHANISM IN UNOPERATED POSITION. ARMATURE OFF POLE FACE (DE-ENERGIZED). LATCH EXTENSION AGAINST END OF ARMATURE BAIL EXTENSION. ECCENTRIC ARM AT ITS CLOSEST POINT TO UNDERSIDE OF LATCH. CLEARANCE BETWEEN LATCH AND ECCENTRIC ARM.

MIN. 0.005 INCH
MAX. 0.025 INCH

TO ADJUST

POSITION LATCH WITH LATCH EXTENSION SCREW LOOSENED.

FIGURE 2-5. POWER DRIVE BACKSPACE MECHANISM



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
POSITION ADJUSTING ARM WITH ARM SCREW LOOSENED FRICTION TIGHT.

FIGURE 2-6. POWER DRIVE BACKSPACE MECHANISM

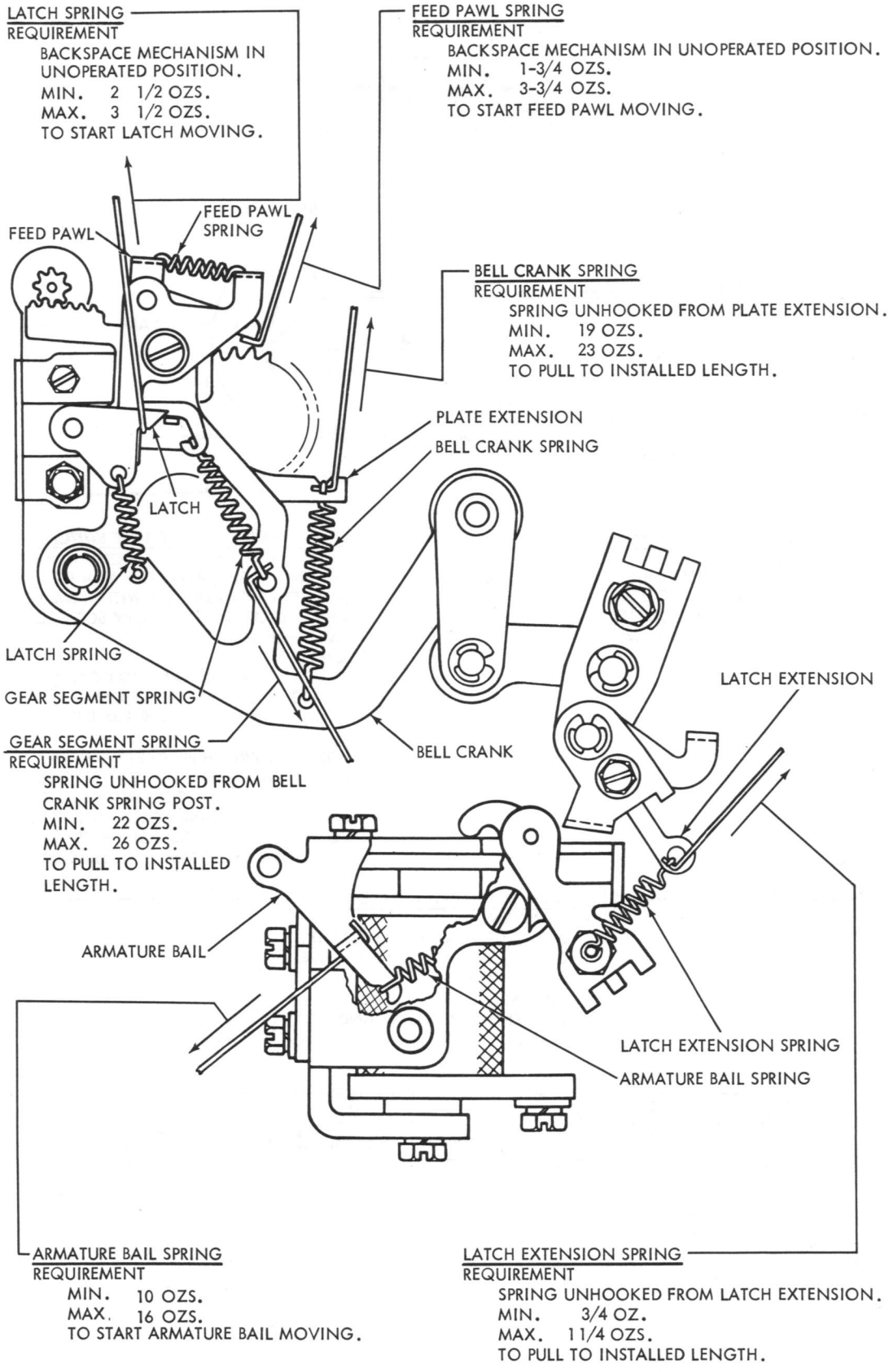
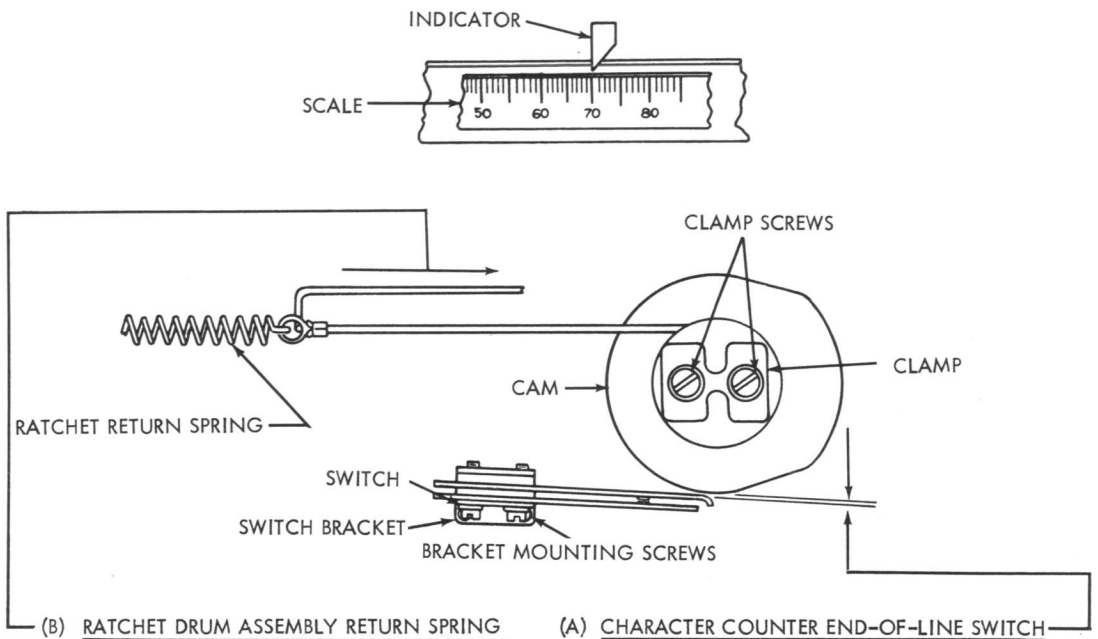


FIGURE 2-7. MANUAL AND POWER DRIVE BACKSPACE MECHANISM

2. CHARACTER COUNTER MECHANISM



(B) RATCHET DRUM ASSEMBLY RETURN SPRING REQUIREMENT

2 1/2 1 1/2 2-3 OZS. WHEN INDICATOR POINTS TO 0 TO START EYELET MOVING.

3 1/2 - 6 1/2 4-7 OZS. WHEN INDICATOR POINTS TO 70 TO START EYELET MOVING.

(A) CHARACTER COUNTER END-OF-LINE SWITCH

(1) REQUIREMENT (REMOVE CHARACTER COUNTER)
THE SWITCH SHOULD CLOSE AT A PRESET NUMBER OF CHARACTERS WITH A SMALL AMOUNT OF OVERTRAVEL BY BOTH CONTACT SPRINGS.

(2) REQUIREMENT
CLEARANCE BETWEEN LONG CONTACT SPRING AND LOW PART OF CAM.
MIN. SOME — MAX. ~~0.005~~ .025 INCH.

TO ADJUST .012 —
POSITION SWITCH BRACKET WITH ITS MOUNTING SCREWS LOOSENED. THEN SET COUNTER TO THE DESIRED COUNT. LOOSEN CAM CLAMP SCREWS AND POSITION CAM UNTIL CONTACTS CLOSE WITH SOME OVERTRAVEL. REPLACE UNIT

(C) CHARACTER COUNTER SCALE BRACKET

REQUIREMENT
INDICATOR SHOULD REST LIGHTLY ON BRACKET FOR ITS FULL TRAVEL FROM 0 TO 85.

TO ADJUST
LOOSEN LOCK SCREWS AND POSITION BRACKET. CORD SHOULD REMAIN IN STRAIGHT LINE.

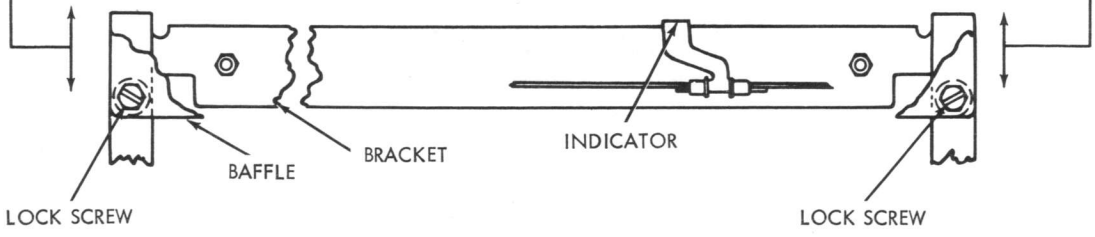


FIGURE 2-8. CHARACTER COUNTER MECHANISM

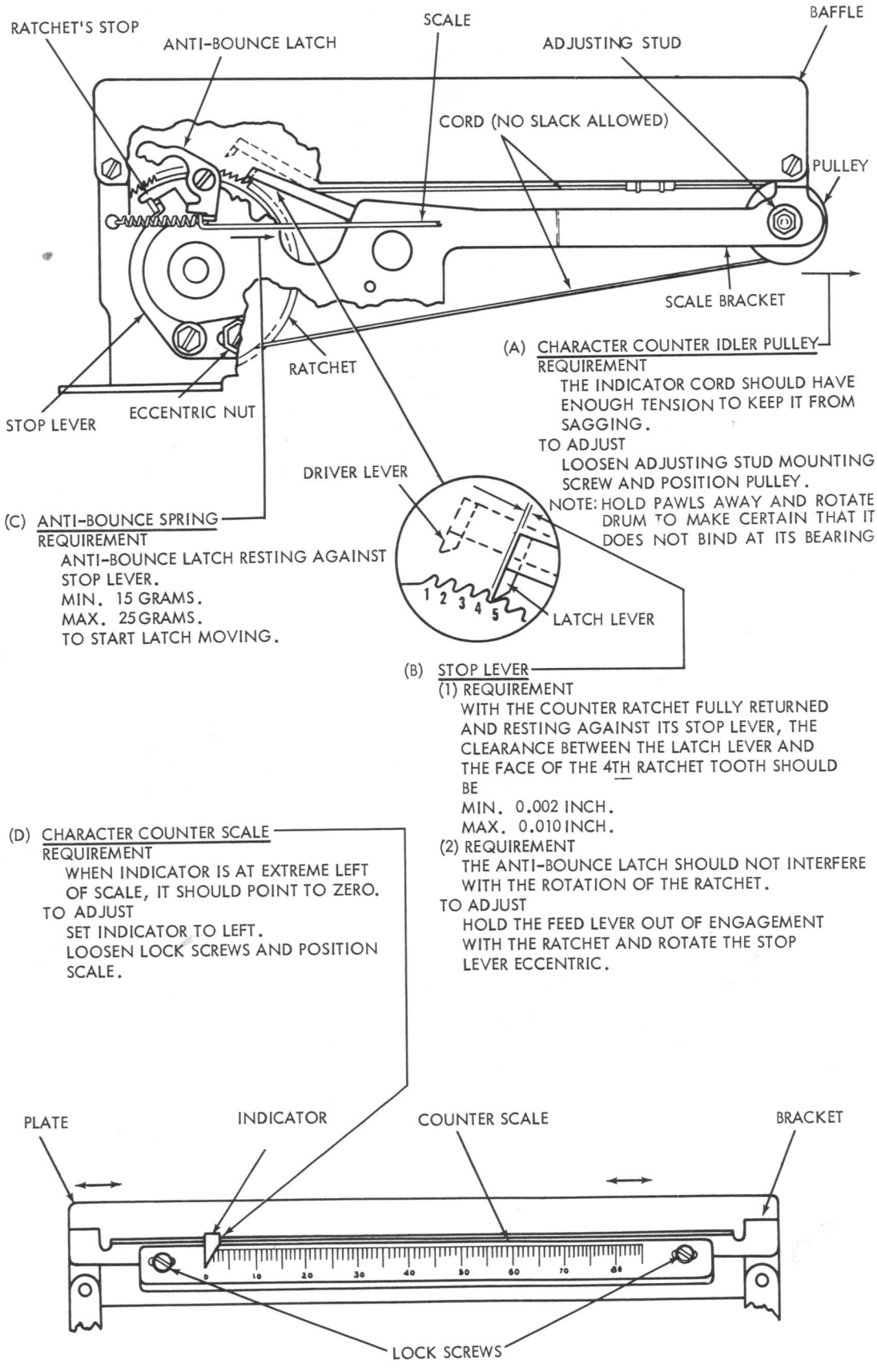
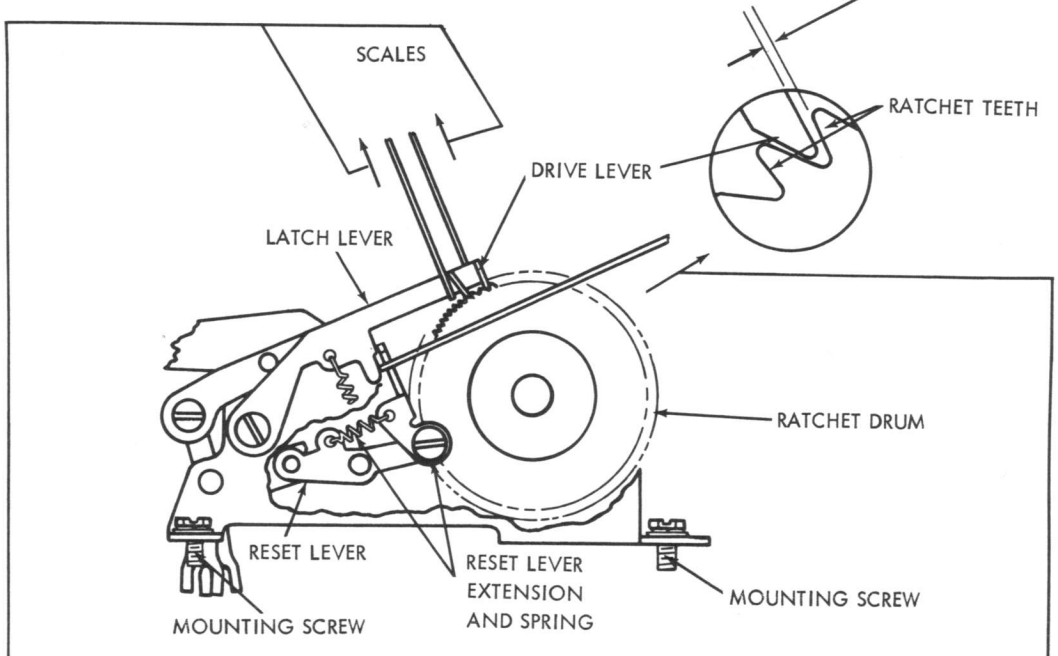


FIGURE 2-9. CHARACTER COUNTER MECHANISM

(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. 0.012 INCH
MAX. 0.018 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 LEVER SPRING
REQUIREMENT
MIN. 1/2 OZ.
MAX. 1 OZ.
TO MOVE EITHER LEVER.

(B) RESET LEVER EXTENSION SPRING
REQUIREMENT
MIN. 3/4 OZ.
MAX. 1 1/4 OZS.
TO START LEVER MOVING.

FIGURE 2-10. CHARACTER COUNTER MECHANISM

3. ELECTRICAL LINE BREAK MECHANISM

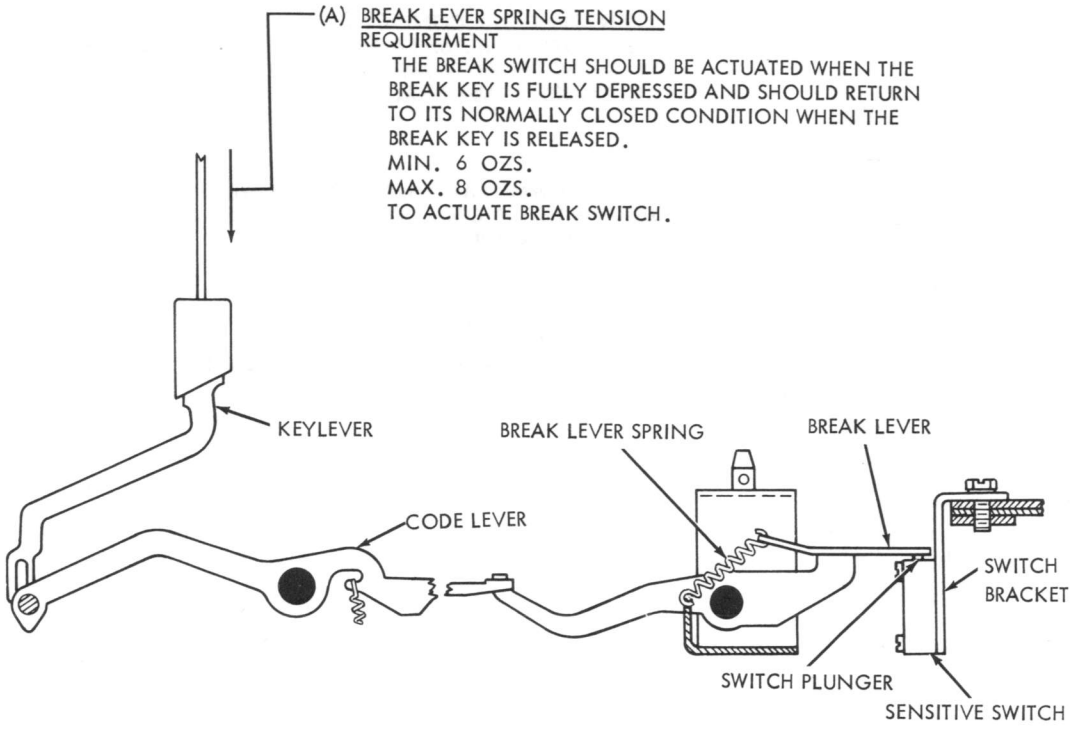


FIGURE 2-11. ELECTRICAL LINE BREAK MECHANISM

4. LOCAL PAPER FEED-OUT MECHANISM

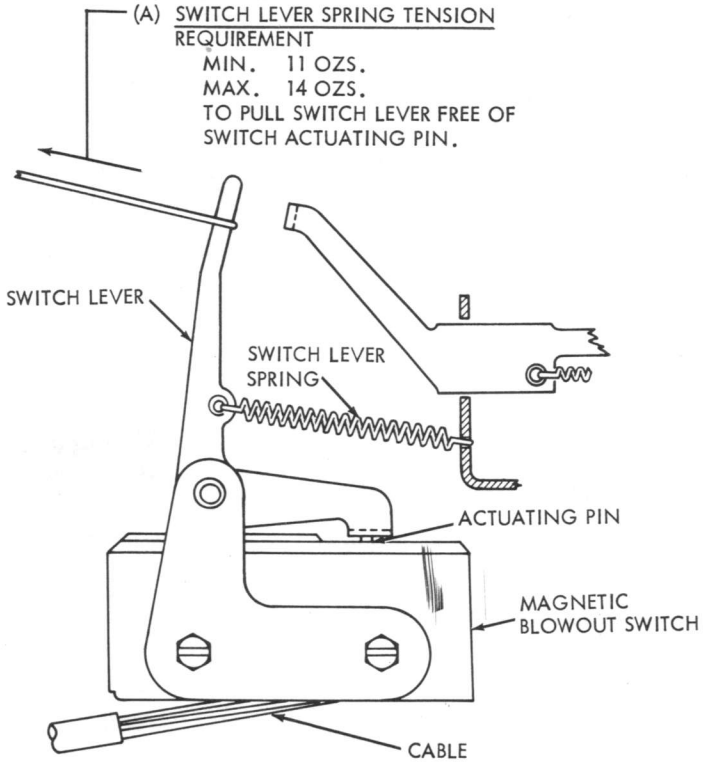
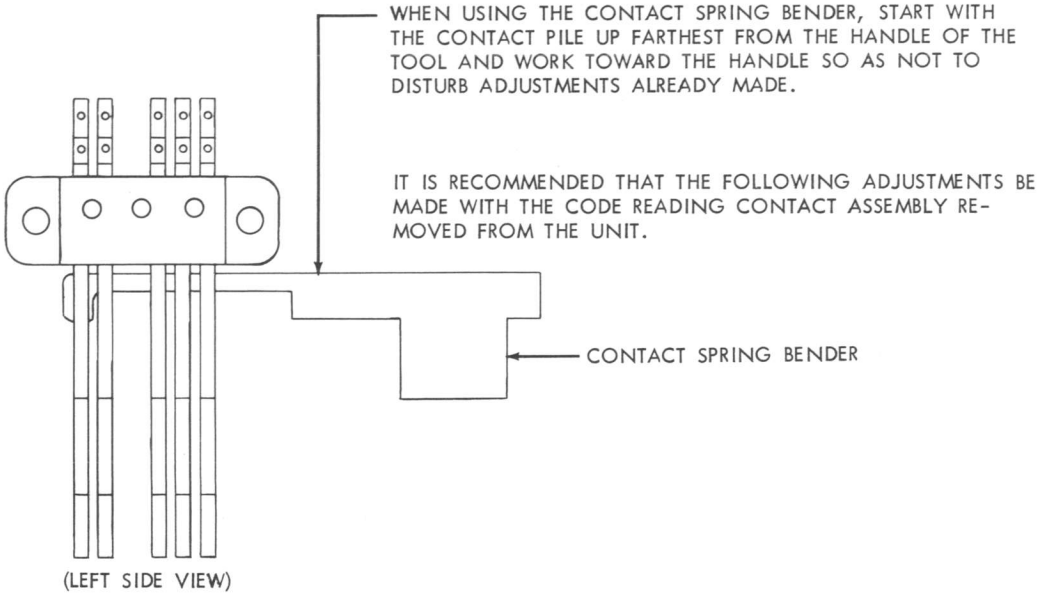
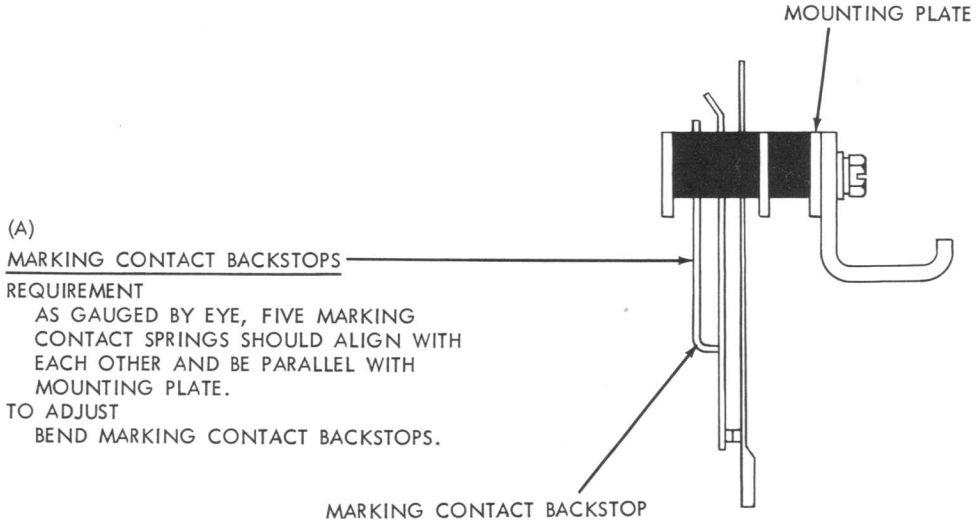


FIGURE 2-12. LOCAL PAPER FEED-OUT MECHANISM

5. MAKE-ONLY CODE READING CONTACT MECHANISM





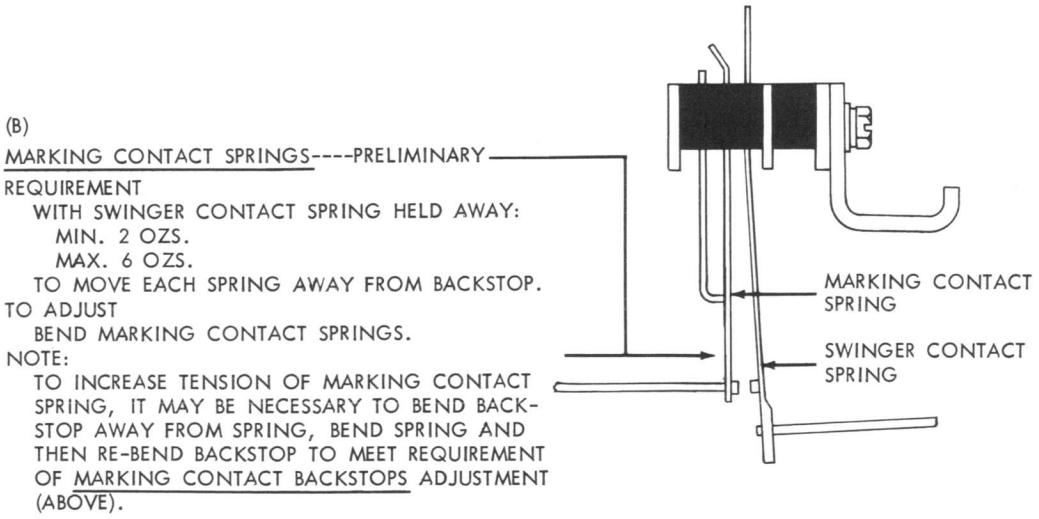
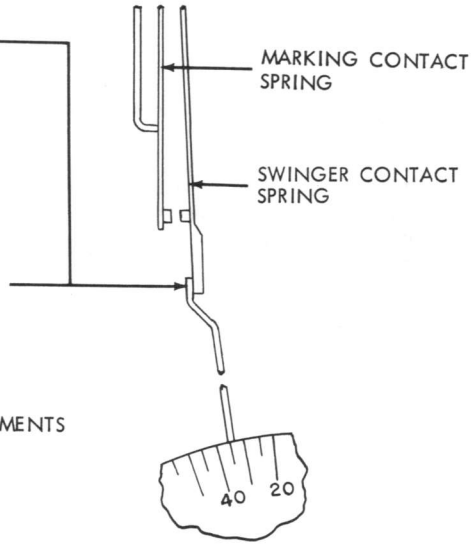
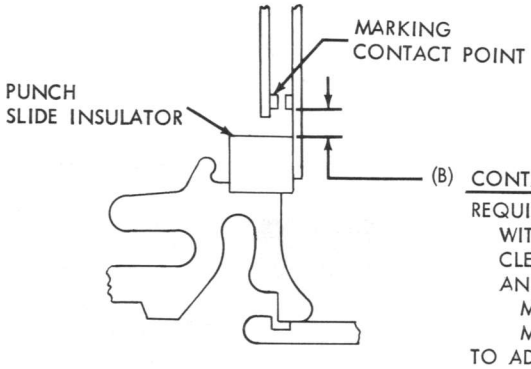


FIGURE 2-13. MAKE-ONLY CODE READING CONTACTS.

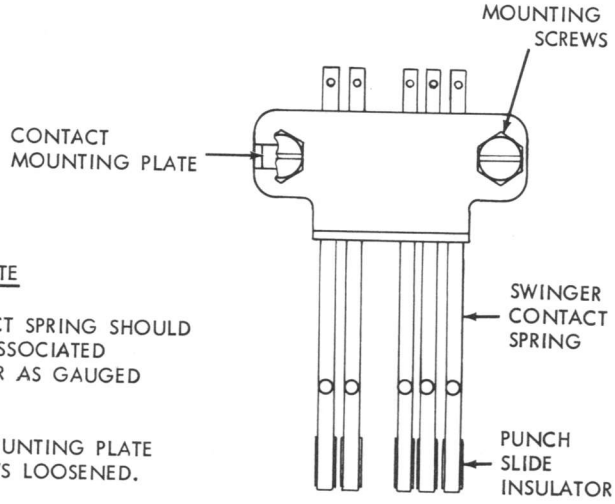
(A) SWINGER CONTACT SPRINGS----PRELIMINARY REQUIREMENT
MIN. 30 GRAMS
MAX. 40 GRAMS
TO OPEN MARKING CONTACTS.
TO ADJUST
BEND SWINGER CONTACT SPRINGS.



THE FOLLWOING CODE READING CONTACT ADJUSTMENTS SHOULD BE MADE WITH THE CONTACT ASSEMBLIES MOUNTED ON THE UNIT.



(B) CONTACT MOUNTING BRACKET
REQUIREMENT
WITH FUNCTION CLUTCH FULLY DISENGAGED, CLEARANCE BETWEEN PUNCH SLIDE INSULATOR AND CLOSEST MARKING CONTACT POINT:
MIN. 0.070 INCH
MAX. 0.090 INCH
TO ADJUST
POSITION CONTACT MOUNTING BRACKET WITH MOUNTING SCREWS LOOSENED.

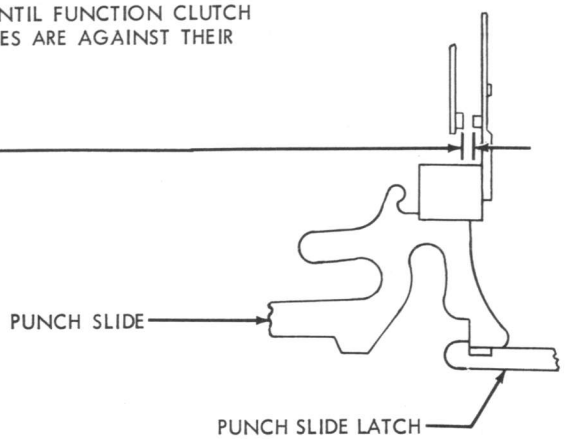


(C) CONTACT MOUNTING PLATE
REQUIREMENT
EACH SWINGER CONTACT SPRING SHOULD BE ALIGNED WITH ITS ASSOCIATED PUNCH SLIDE INSULATOR AS GAUGED BY EYE.
TO ADJUST
POSITION CONTACT MOUNTING PLATE WITH MOUNTING SCREWS LOOSENED.

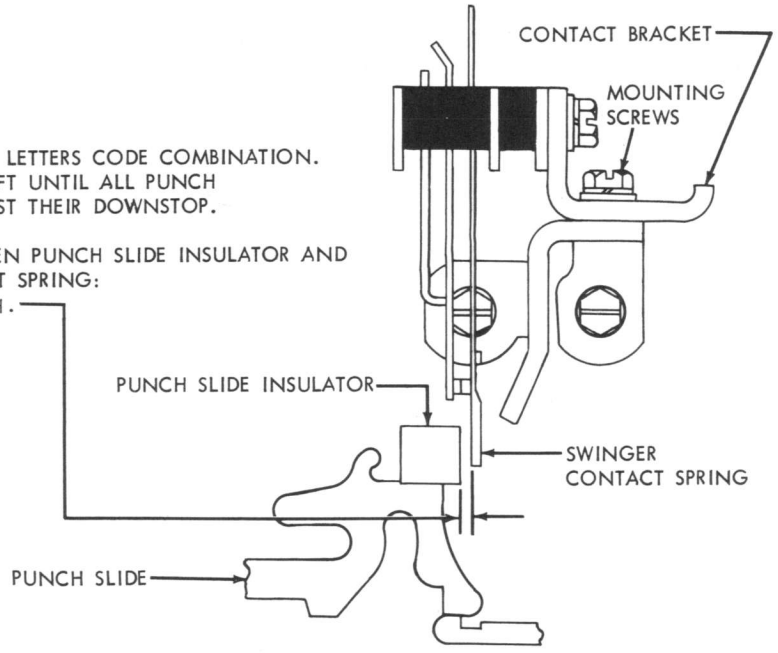
FIGURE 2-14. MAKE-ONLY CODE READING CONTACTS.

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

(1) TO CHECK
MANUALLY SELECT BLANK CODE COMBINATION. ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS AND PUNCH SLIDES ARE AGAINST THEIR RESPECTIVE LATCHES.
REQUIREMENT
CONTACT GAP:
MIN. 0.015 INCH
MAX. 0.020 INCH



(2) TO CHECK
MANUALLY SELECT LETTERS CODE COMBINATION. ROTATE MAIN SHAFT UNTIL ALL PUNCH SLIDES ARE AGAINST THEIR DOWNSTOP.
REQUIREMENT
CLEARANCE BETWEEN PUNCH SLIDE INSULATOR AND SWINGER CONTACT SPRING:
MIN. 0.010 INCH.



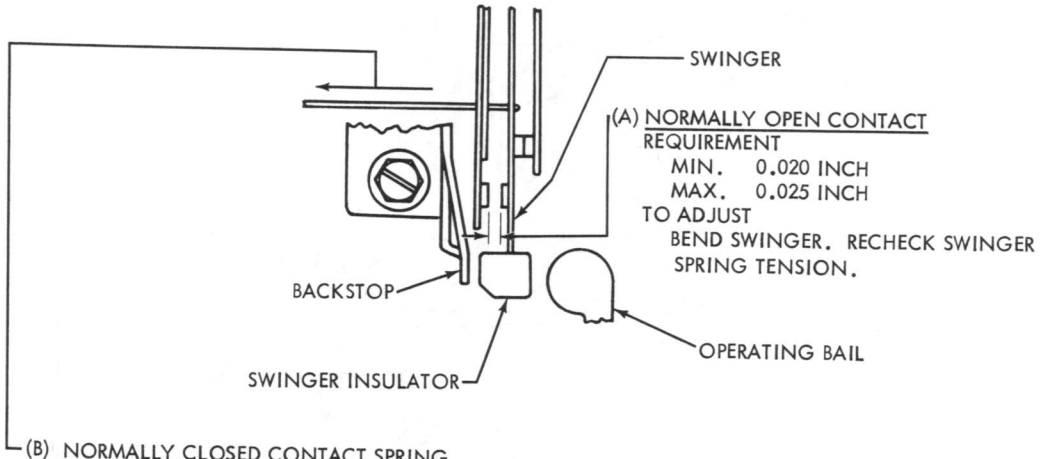
TO ADJUST
POSITION CONTACT BRACKET WITH MOUNTING SCREWS FRICTION TIGHT. TO PRY BRACKET TO LEFT, INSERT SCREW DRIVER BETWEEN BRACKET AND LEFT EDGE OF MOUNTING SCREW; TO PRY BRACKET TO RIGHT, INSERT SCREW DRIVER BETWEEN BRACKET AND RIGHT EDGE OF MOUNTING SCREW.

FIGURE 2-15. MAKE-ONLY CODE READING CONTACTS.

6. SINGLE AUXILIARY TIMING CONTACTS MECHANISM

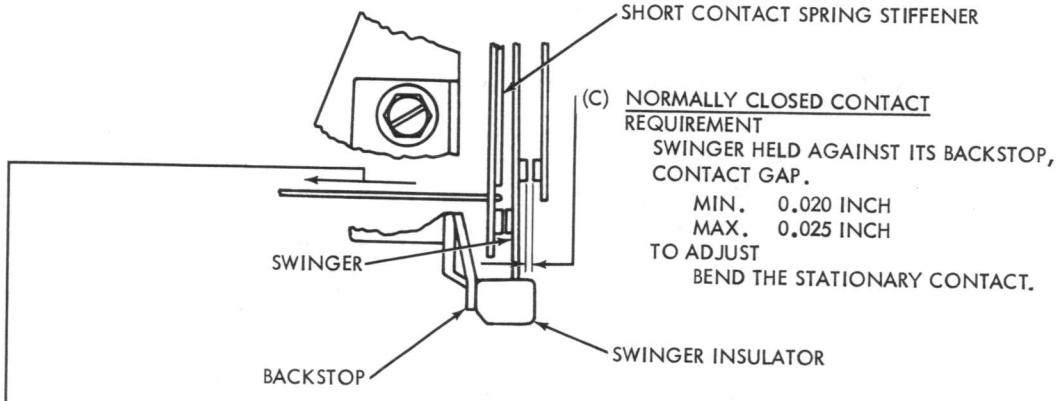
NOTE

THE FOLLOWING ADJUSTMENT SHOULD BE MADE WITH THE SINGLE AUXILIARY TIMING CONTACTS OFF THE PERFORATOR.



(A) NORMALLY OPEN CONTACT
REQUIREMENT
MIN. 0.020 INCH
MAX. 0.025 INCH
TO ADJUST
BEND SWINGER. RECHECK SWINGER SPRING TENSION.

(B) NORMALLY CLOSED CONTACT SPRING
REQUIREMENT
OPERATING BAIL HELD AWAY
MIN. 4 1/2 OZS.
MAX. 5 1/2 OZS.
TO OPEN NORMALLY CLOSED CONTACTS
TO ADJUST
BEND THE SWINGER.
RECHECK NORMALLY OPEN CONTACT GAP.

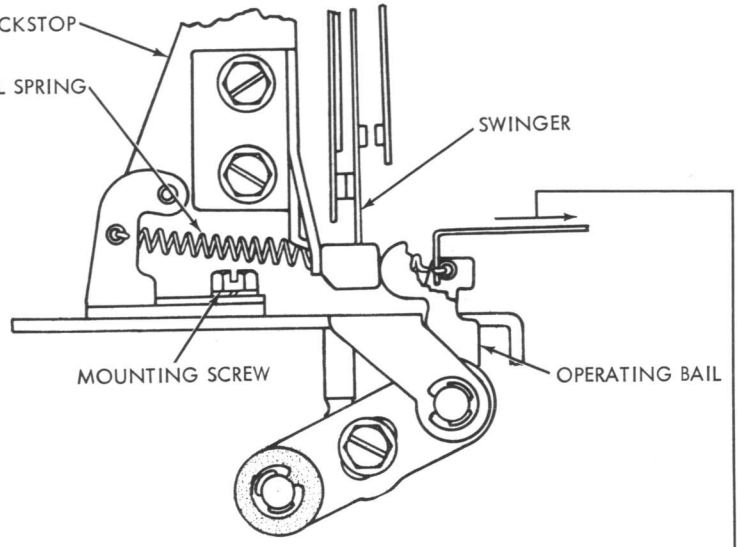


(C) NORMALLY CLOSED CONTACT
REQUIREMENT
SWINGER HELD AGAINST ITS BACKSTOP, CONTACT GAP.
MIN. 0.020 INCH
MAX. 0.025 INCH
TO ADJUST
BEND THE STATIONARY CONTACT.

(D) NORMALLY OPEN CONTACT SPRING
REQUIREMENT
SWINGER HELD AGAINST ITS BACKSTOP BY ITS OPERATING BAIL.
MIN. 4 1/2 OZS.
MAX. 5 1/2 OZS.
TO OPEN THE CONTACTS.
TO ADJUST
BEND THE SHORT CONTACT SPRING STIFFENER.
RECHECK BOTH CONTACT GAPS. REFINE IF NECESSARY.

FIGURE 2-16. SINGLE AUXILIARY TIMING CONTACTS MECHANISM

NOTE
REPLACE SINGLE AUXILIARY TIMING CONTACTS ON PERFORATOR BEFORE MAKING FOLLOWING ADJUSTMENTS:



OPERATING BAIL SPRING
REQUIREMENT
OPERATING BAIL SPRING UNHOOKED AT BAIL. SWINGER OF EACH CONTACT HELD AGAINST ITS BACKSTOP BY ITS OPERATING BAIL.
MIN. 7 OZS.
MAX. 12 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

CONTACT MOUNTING BRACKET POSITION
NOTE
BEFORE MAKING THE FOLLOWING ADJUSTMENT, LOOSEN CAM FOLLOWER ARM LOCKING SCREW AND POSITION CAM FOLLOWER ARM IN ITS ELONGATED MOUNTING HOLES SO THAT IT IS AS LONG AS POSSIBLE. TIGHTEN LOCKING SCREW.
REQUIREMENT
SELECTOR AND FUNCTION CLUTCHES DISENGAGED AND LATCHED. CLEARANCE BETWEEN BAIL AND SWINGER INSULATOR OF PILE-UP HAVING LEAST CLEARANCE SHOULD BE 0.118 INCH MINUS CLEARANCE "X" BETWEEN BACKSTOP AND SWINGER INSULATOR.
TO ADJUST
POSITION SWITCH BRACKET WITH ITS MOUNTING SCREW LOOSENED.
NOTE
THE RANGE OF THIS ADJUSTMENT IS TO BE 0.005 INCH. FOR EXAMPLE: IF CLEARANCE "X" IS 0.080 INCH, THE NOMINAL ADJUSTMENT IS 0.038 INCH. THE RANGE OF ADJUSTMENT IS 0.035 INCH TO 0.040 INCH.

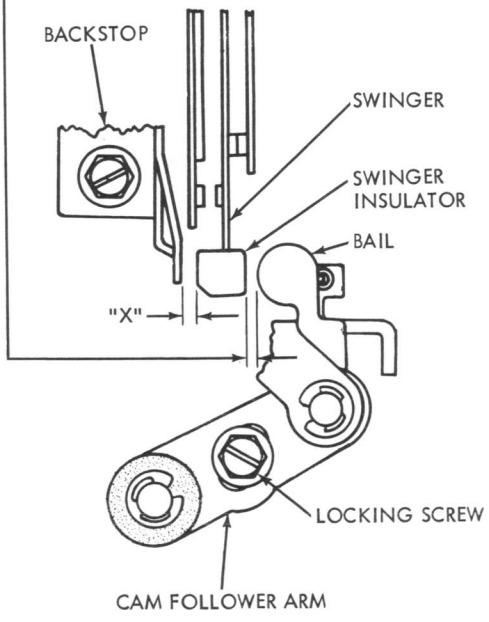


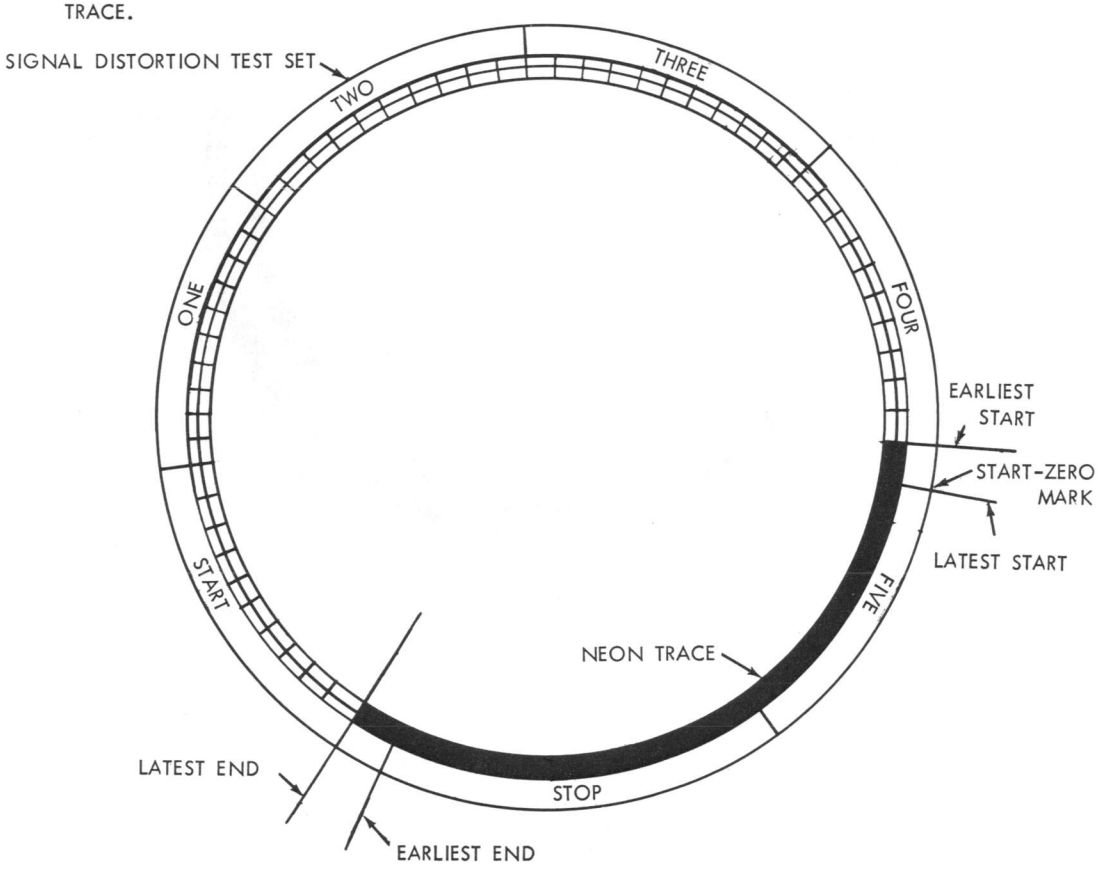
FIGURE 2-17. SINGLE AUXILIARY TIMING CONTACTS MECHANISM

SIGNAL DISTORTION TEST

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.

ALL TESTS SHOULD BE MADE WITH THE PERFORATOR UNIT OPERATING AT 900 OPERATIONS PER MINUTE AND THE TEST SET EQUIPPED WITH SINGLE CYCLE TEST SCALE AND OPERATING AT 600 OPERATIONS PER MINUTE

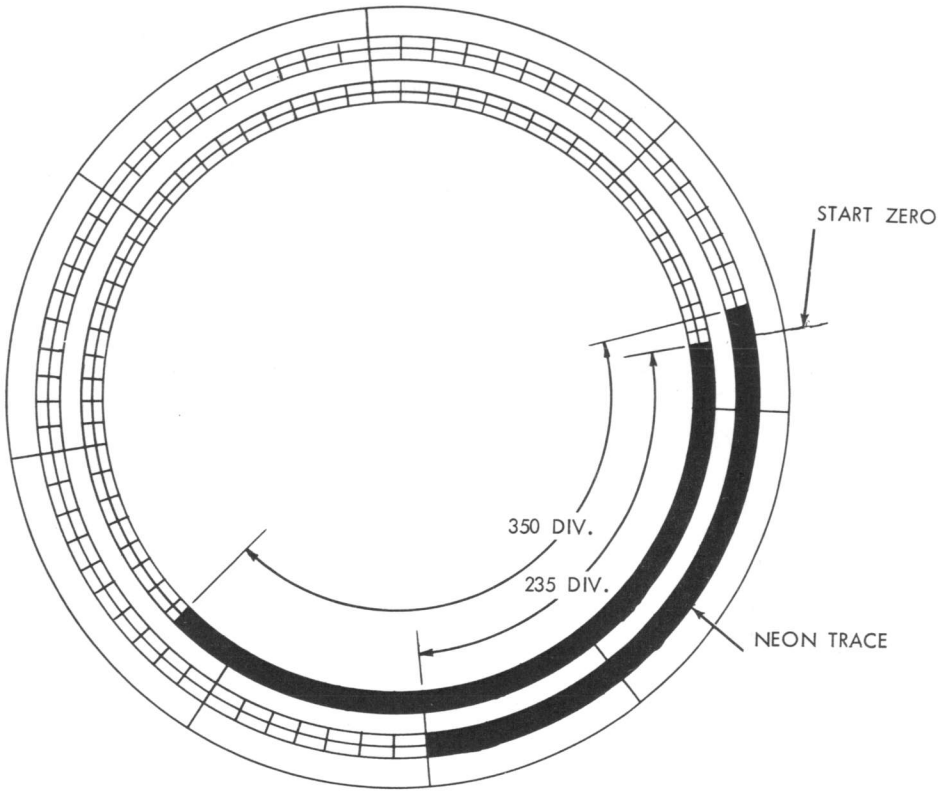
OBSERVATIONS OF A NEON TRACE ON GRADUATED DISK OF TEST SET ARE TO BE MADE. TRACE WILL HAVE TENDENCY TO "JUMP;" THAT IS, IT WILL NOT BE STEADY ENOUGH TO BE ACCURATELY MEASURED. DEVIATIONS MAY BE AS HIGH AS 10 DIVISIONS OF SCALE. MINIMUM SIGNAL LENGTH IS MEASURED BETWEEN LATEST START AND EARLIEST END OF TRACE: MAXIMUM SIGNAL LENGTH IS MEASURED BETWEEN EARLIEST START AND LATEST END OF TRACE.



TO ZERO SET:

CONNECT NEON TRACE LAMP TO NO. 1 CODE READING CONTACT (REARMOST). WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE AND NOTE POINT AT WHICH TRACE STARTS. TRACE WILL JUMP AS DESCRIBED ABOVE; NOTE ONLY LATEST START. REPEAT FOR OTHER CONTACTS.
OF FIVE TRACES OBSERVED, CHOOSE ONE THAT STARTS LATEST. SET "START ZERO" MARK OF SCALE AT LATEST START OF CHOSEN TRACE.

FIGURE 2-18. SIGNAL DISTORTION TEST



CODE READING CONTACTS

(1) ZERO TEST SET AS INSTRUCTED ON FIGURE 2-18.

(2) TO CHECK

CONNECT NEON TRACE LAMP TO MARKING SIDE OF A CODE READING CONTACT (NORMALLY OPEN WHEN UNIT IS IN IDLE CONDITION). OBSERVE TRACE WHEN UNIT IS RECEIVING LETTERS CODE COMBINATION.

REQUIREMENT

A SIGNAL LENGTH:

MIN. 235 DIVISION-----MAX. 350 DIVISIONS

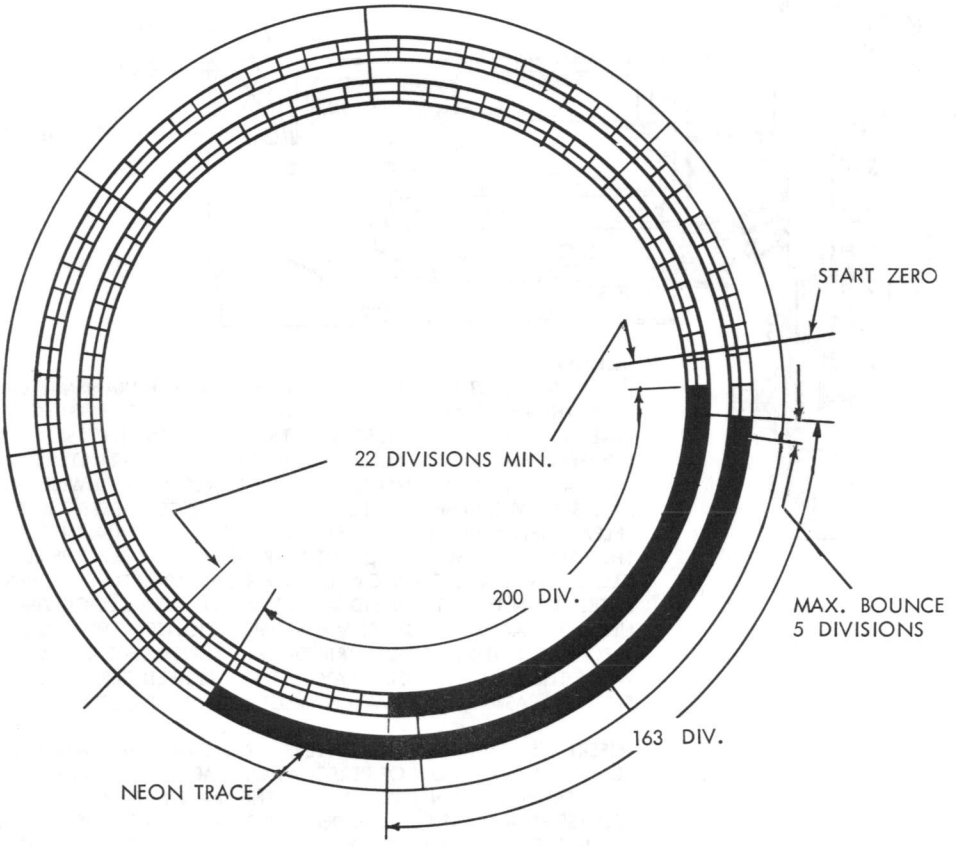
B MAX. BOUNCE WITHIN 20 DIVISIONS OF EARLIEST START AND LATEST END OF TRACE.

(3) REPEAT ABOVE PROCEDURE FOR EACH CONTACT

TO ADJUST

IF REQUIREMENT (2) A. (SIGNAL LENGTH) IS NOT MET, REFINE CONTACT BRACKET ADJUSTMENT FIGURE 2-15. IF REQUIREMENT (2) B. IS NOT MET, REFINE THE SHORT CONTACT SPRING TENSION. FIGURE 2-13. AND THE SWINGER SPRING TENSION. IF ANY REFINEMENTS ARE NECESSARY, REPEAT THE COMPLETE TEST PROCEDURE.

FIGURE 2-19. SIGNAL DISTORTION TEST



TIMING CONTACTS

(1) ZERO THE TEST SET AS INSTRUCTED ON FIGURE 2-18.

A TO CHECK

CONNECT NEON TRACE LAMPS TO THE NORMALLY OPEN CONTACT (UNIT IN IDLE CONDITION).

REQUIREMENT

1 LATEST TRACE SHOULD END MIN. 22 DIV. BEFORE EARLIEST END OF CODE READING CONTACT TRACES

2 TRACE LENGTH MIN. 163 DIVISIONS - MAX. 200 DIVISIONS. BOUNCE SHOULD END WITHIN 5 DIVISIONS OF START OR END OF ANY TRACE.

3 EARLIEST TRACE SHOULD START MIN. 22 DIVISIONS AFTER START ZERO

TO ADJUST

IF THESE REQUIREMENTS ARE NOT MET REFINE ADJUSTMENTS (A), (B), (C) AND (D) FIGURE 2-16.

IF THERE IS EXCESSIVE BOUNCE, REFINE ADJUSTMENT (B) FIGURE 2-16 .

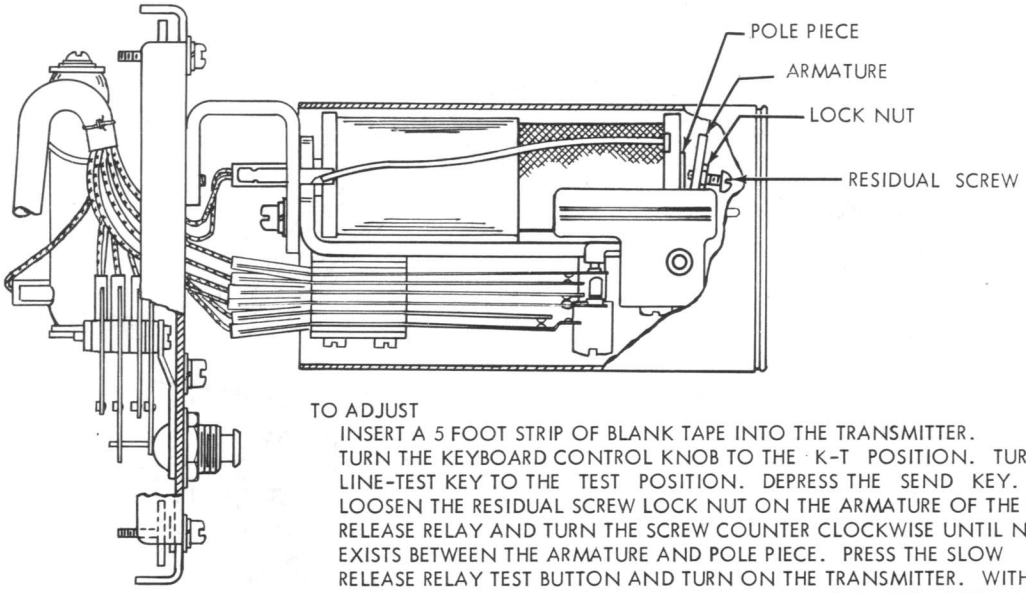
FIGURE 2-20 SIGNAL DISTORTION TEST

7. ELECTRICAL SERVICE UNIT

SLOW RELEASE RELAY

REQUIREMENT

THE RELAY SHOULD NOT DE-ENERGIZE WHILE RECEIVING A SERIES OF BLANK CODE COMBINATIONS. THE TIME REQUIRED TO STOP AN ASSOCIATED TRANSMITTER AFTER RECEIPT OF LINE BREAK SIGNAL SHALL NOT EXCEED MAX. 800 MILLISECONDS.



TO ADJUST

INSERT A 5 FOOT STRIP OF BLANK TAPE INTO THE TRANSMITTER. TURN THE KEYBOARD CONTROL KNOB TO THE K-T POSITION. TURN THE LINE-TEST KEY TO THE TEST POSITION. DEPRESS THE SEND KEY. LOOSEN THE RESIDUAL SCREW LOCK NUT ON THE ARMATURE OF THE SLOW RELEASE RELAY AND TURN THE SCREW COUNTER CLOCKWISE UNTIL NO GAP EXISTS BETWEEN THE ARMATURE AND POLE PIECE. PRESS THE SLOW RELEASE RELAY TEST BUTTON AND TURN ON THE TRANSMITTER. WITH THE TAPE RUNNING THROUGH THE TRANSMITTER TURN THE RESIDUAL SCREWS CLOCKWISE UNTIL THE SLOW RELEASE RELAY ARMATURE BEGINS TO VIBRATE. THEN TURN THE RESIDUAL SCREW COUNTER CLOCKWISE SLOWLY UNTIL THE ARMATURE STOPS VIBRATING. TIGHTEN THE LOCK NUT . RERUN THE ENTIRE 5 FOOT STRIP OF TAPE THROUGH THE TRANSMITTER, WHILE THE SLOW RELEASE RELAY TEST KEY IS HELD DEPRESSED; THE SLOW RELEASE RELAY ARMATURE MUST NOT DROP OUT.

INSERT A 5 FOOT STRIP OF LETTERS TAPE INTO THE TRANSMITTER. PLAINLY MARK A ROW OF PERFORATIONS APPROXIMATELY THREE INCHES BACK FROM THE SENSING PINS ON THE TRANSMITTER. HOLD THE SLOW RELEASE RELAY TEST BUTTON DEPRESSED, AND START THE TRANSMITTER. WHEN THE PREVIOUSLY MARKED ROW OF PERFORATIONS REACH THE SENSING PINS, DEPRESS THE LINE-BREAK KEY AND HOLD DEPRESSED UNTIL THE TRANSMITTER STOPS. MARK THE ROLL OF PERFORATIONS IMMEDIATELY OVER THE SENSING PINS, REMOVE THE TAPE FROM THE TRANSMITTER AND COUNT THE NUMBER OF PERFORATIONS BETWEEN THE TWO MARKED LINES. THE NUMBER OF PERFORATIONS BETWEEN THESE LINES SHOULD BE NO GREATER THAN,

1. EIGHT FOR 100 WPM OPERATION.
2. SIX FOR 75 WPM OPERATION.
3. FIVE FOR 60 WPM OPERATION.

SHOULD THE NUMBER OF PERFORATIONS BE GREATER THAN THAT SPECIFIED ABOVE, TURN THE RESIDUAL SCREW CLOCKWISE APPROXIMATELY 1/8 TURN AND REPEAT THE ABOVE TEST.

FIGURE 2-21. SLOW RELEASE RELAY

SECTION 3 - LUBRICATION

1. GENERAL

1.01 The perforator transmitter should be lubricated as directed in this section. The figures indicate points to be lubricated and the kind and quantity of lubricant to be used. Lubricate the perforator just prior to placing it in service. After a few weeks in service, relubricate to make certain that all points receive lubrication. The following lubrication schedule should be followed thereafter.

OPERATING SPEED (WPM)*	LUBRICATING INTERVAL	
60	3000 hrs. or 1 yr.	Whichever Occurs First
75	2400 hrs. or 9 mo.	
100	1500 hrs. or 6 mo.	
150	1000 hrs. or 6 mo.	

*Words per minute

1.02 Use Teletype KS-7470 oil at all locations where the use of oil is indicated. Use KS-7471 grease on all surfaces where grease is indicated, except the motor bearings. Apply two drops of KS-7470 oil to motor bearings every four months (depress oiler with metal object). If the motor is disassembled at any time, repack the bearings with KS-7471 grease.

1.03 All spring wicks and felt oilers should be saturated. The friction surfaces of all moving parts should be thoroughly lubricated. Overlubrication, however, which will permit oil or grease to drip or be thrown on other parts, should be avoided. Special care must be taken to prevent any oil or grease from getting between the power backspace armature and its magnet pole face or between electrical contacts.

1.04 Apply a thick film of grease to all gears.

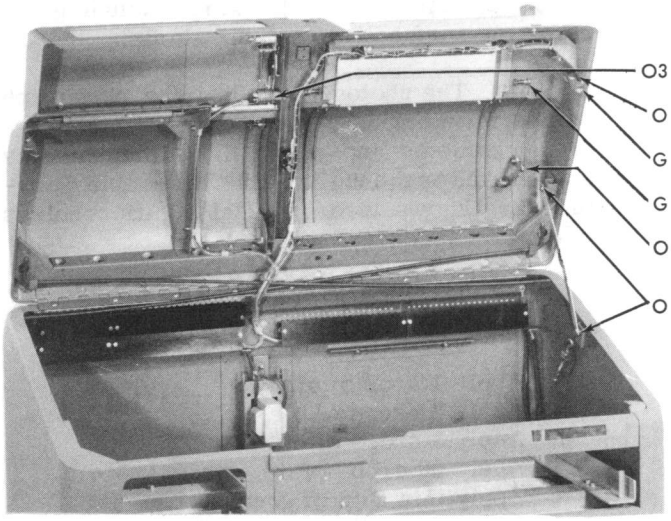
1.05 Apply oil to all cams, including the camming surfaces of each clutch disk.

1.06 The photographs show the paragraph numbers referring to particular line drawings of mechanisms and where these mechanisms are located on the unit. Parts in the line drawings are shown in an upright position unless otherwise specified.

1.07 The illustration symbols indicate the following lubrication directions:

0	Apply 1 drop of oil.
02	Apply 2 drops of oil.
03	Apply 3 drops of oil.
020	Apply 20 drops of oil, etc.
G	Apply thin film of grease.
SAT	Saturate (Felt oilers, washer, wicks) with oil.

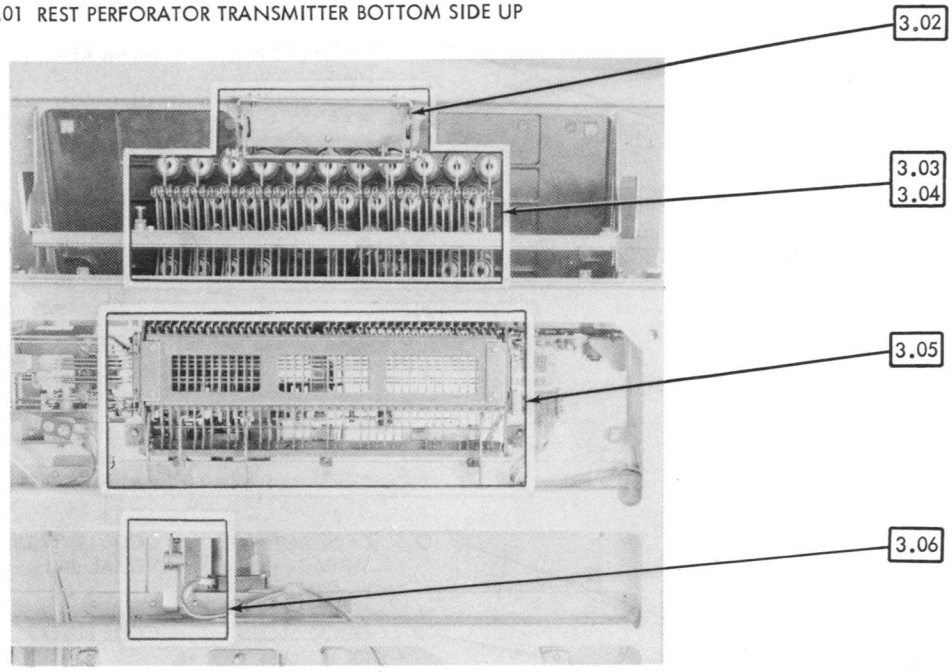
2. CABINET



O3	SLIDING SURFACE - SPRING	TORSION SPRING - UPSTOP
O	BEARING SURFACE (2 PLACES)	DOME LATCH
G	LATCHING SURFACE (2 PLACES)	DOME LATCH
G	LATCHING SURFACE (ALL LATCHES)	ALL DOORS
O	BEARING SURFACES AND SPRING	RIGHT TOP DOOR UPSTOP ARM
O	BEARING SURFACE (2 PLACES)	DOME UPSTOP ARM

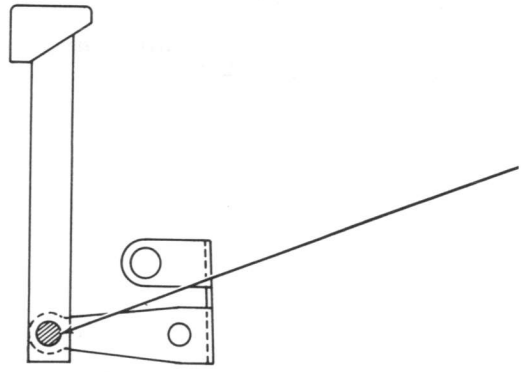
3. PERFORATOR TRANSMITTER

3.01 REST PERFORATOR TRANSMITTER BOTTOM SIDE UP



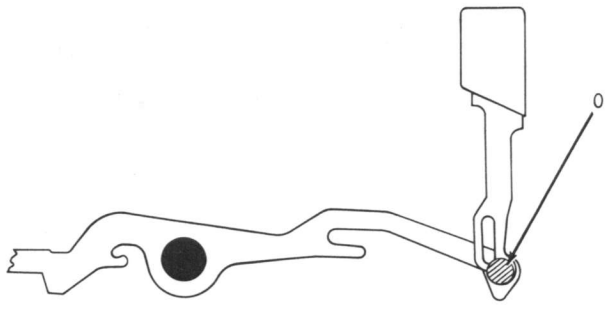
(BOTTOM VIEW)

3.02 SPACE BAR MECHANISM



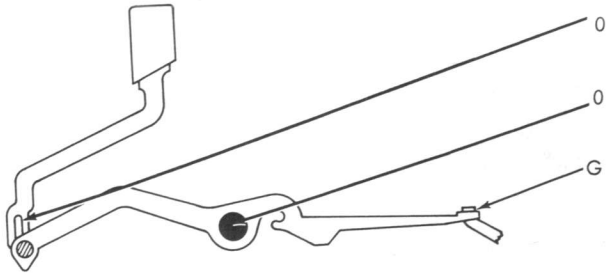
0 BEARING SURFACE (LEFT & RIGHT) SPACE BAR

3.03 KEYLEVER MECHANISM



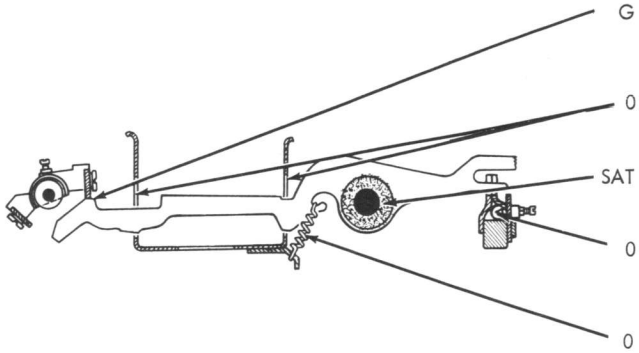
0 ENGAGING SURFACE (36 LEVERS) KEYTOP LEVERS

3.04 BREAK LEVER MECHANISM



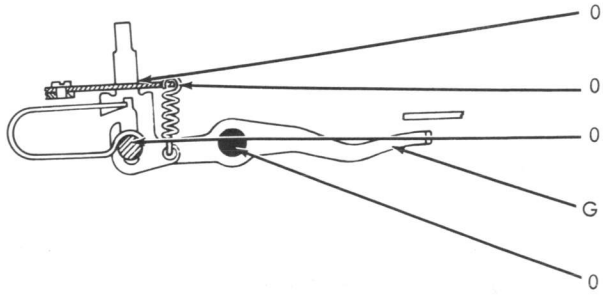
0	ENGAGING SURFACE	BREAK KEYLEVER
0	BEARING SURFACE	FUNCTION LEVER
G	CONTACT SURFACE	BREAK LEVER

3.05 CODE LEVER MECHANISM



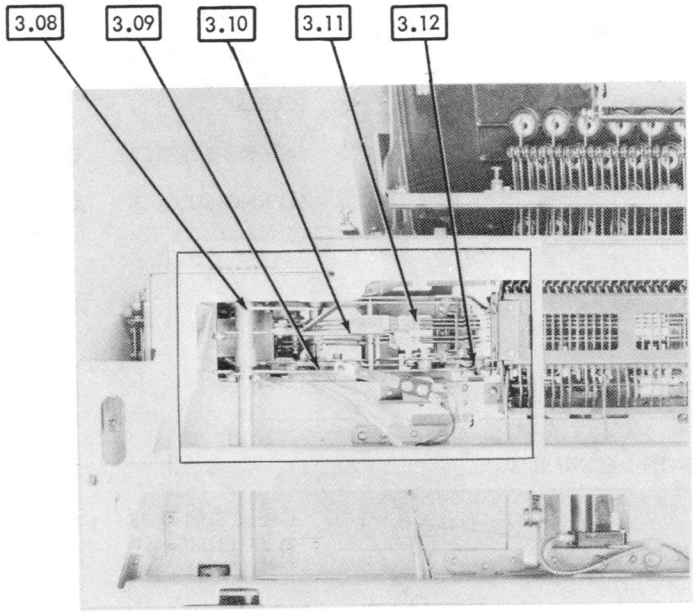
G	CONTACTING SURFACE (32 LEVERS)	CODE LEVER UNIVERSAL BAIL
0	GUIDE SLOTS (32 LEVERS)	CODE LEVERS
SAT	FELT WASHERS (6 WASHERS)	CODE LEVER SHAFT
0	BEARING SURFACES (32 WEDGES)	LOCK BALL TRACK
0	HOOKS-EACH END (40 SPRINGS)	SPRING

3.06 KEYBOARD LOCK MECHANISM



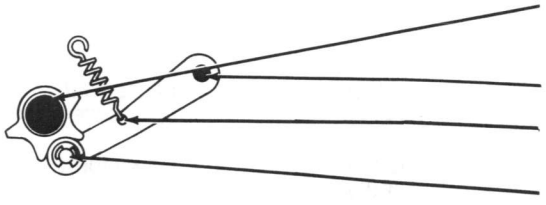
0	GUIDE SLOT	KEYBOARD LOCK PLUNGER
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	KEYBOARD LOCK LEVER
G	ENGAGING SURFACE	KEYBOARD LOCK FUNCTION LEVER
0	BEARING SURFACE	FUNCTION BAIL

3.07 EXTENSION BASKET MECHANISM
REST PERFORATOR TRANSMITTER BOTTOM SIDE UP



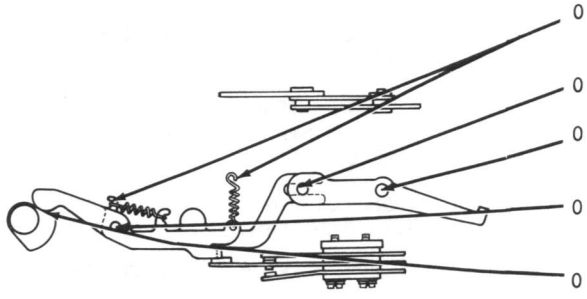
(BOTTOM VIEW)

3.08 DETENT LEVER MECHANISM



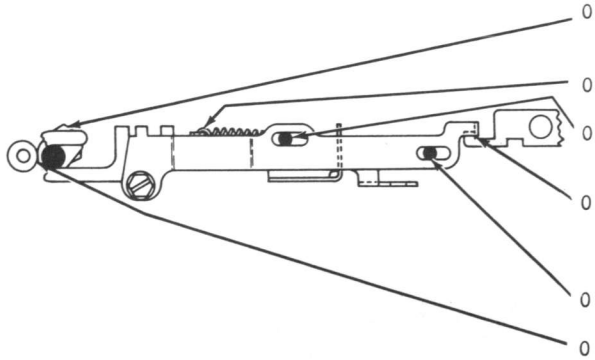
0	BEARING SURFACES (FRONT AND REAR)	CONTROL CAM
0	BEARING SURFACE	DETENT LEVER
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	ROLLER

3.09 SELECTION LEVER MECHANISM



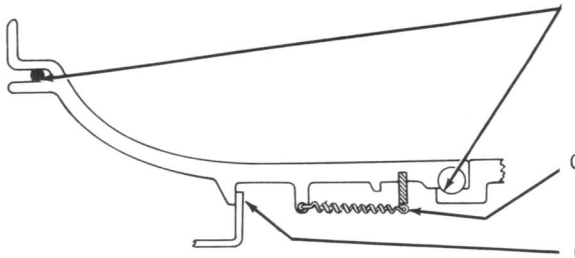
0	HOOKS-EACH END (2 SPRINGS)	SPRINGS
0	SLIDING SURFACE	RESET LEVER
0	BEARING SURFACE	KEYBOARD CONTROL SELECTION LEVER
0	BEARING SURFACE	RESET CAM FOLLOWER AND RESET LEVER
0	CAMMING SURFACE	RESET CAM FOLLOWER

3.10 CODE BAR EXTENSION BAIL MECHANISM



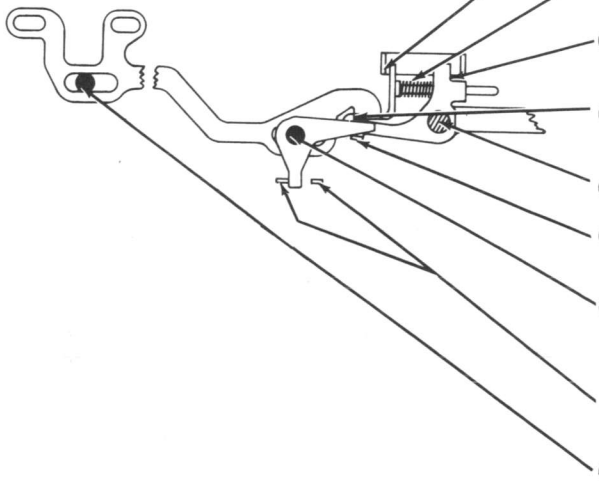
0	CAMMING SURFACE	SLIDE ROLLER
0	HOOKS-EACH END	SPRING
0	SLIDING SURFACE (2 PLACES)	LEVER AND EXTENSION
0	ENGAGING SURFACES (TWO PLACES)	LEVER
0	SLIDING SURFACE	LEVER
0	SLIDING SURFACE	CONTROL CAM

3.11 CODE BAR EXTENSION MECHANISM



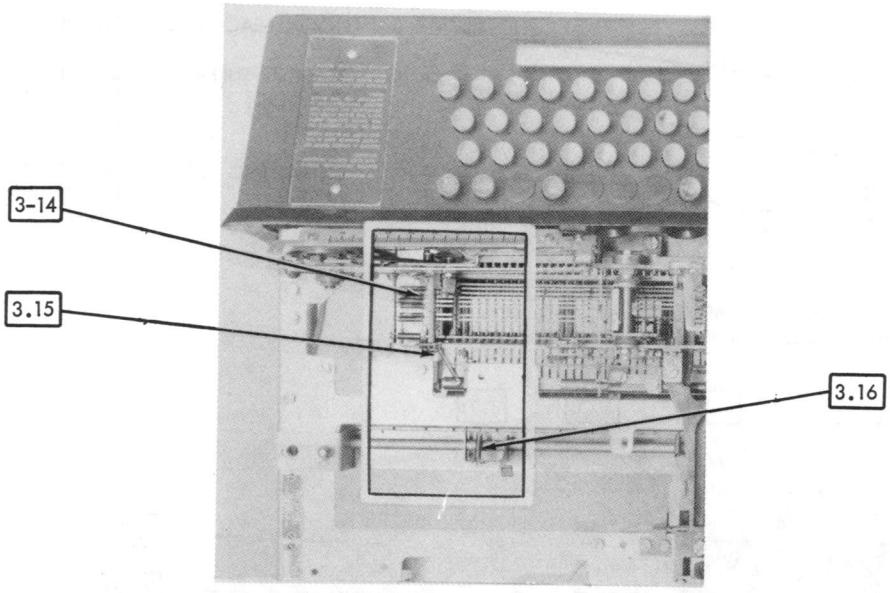
0	GUIDE SURFACES (5 EXTENSIONS-TWO PLACES)	CODE BAR EXTENSIONS
0	HOOKS-EACH END (5 SPRINGS)	SPRINGS
0	CONTACT SURFACE (5 EXTENSIONS)	CODE BAR EXTENSION

3.12 CLUTCH TRIP BAR LINK MECHANISM



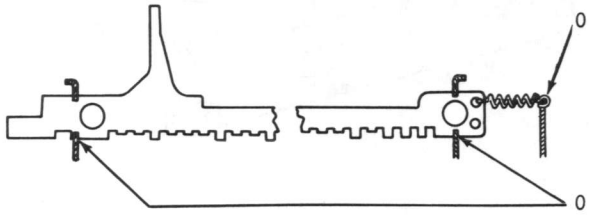
0	CONTACT SURFACE	CLUTCH TRIP BAR LINK EXTENSION
0	COMPRESSION SPRING-EACH END	LINK GUIDE PIN
0	CONTACT SURFACE	TRIP BAR LINK LATCH
0	ENGAGING SURFACE	CLUTCH TRIP BAR LINK
0	BEARING SURFACE	TRIP BAR LINK LATCH
0	CONTACT SURFACE	BELLCRANK
0	BEARING SURFACE AND SLIDING SURFACE	BELLCRANK AND CLUTCH TRIP BAR LINK
0	CONTACT SURFACE (BOTH SIDES)	BELLCRANK
0	SLIDING SURFACE	CLUTCH TRIP BAR LINK

3.13 REST PERFORATOR TRANSMITTER IN UPRIGHT POSITION



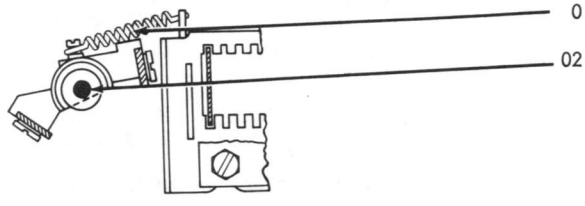
(TOP VIEW)

3.14 CODE BAR MECHANISM



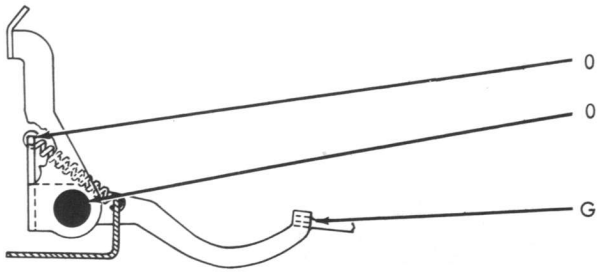
0	HOOKS-EACH END (8 SPRINGS)	SPRING
0	GUIDE SLOTS (LEFT AND RIGHT-TOP AND BOTTOM)	CODE BAR GUIDES

3.15 CODE LEVER UNIVERSAL BAIL MECHANISM



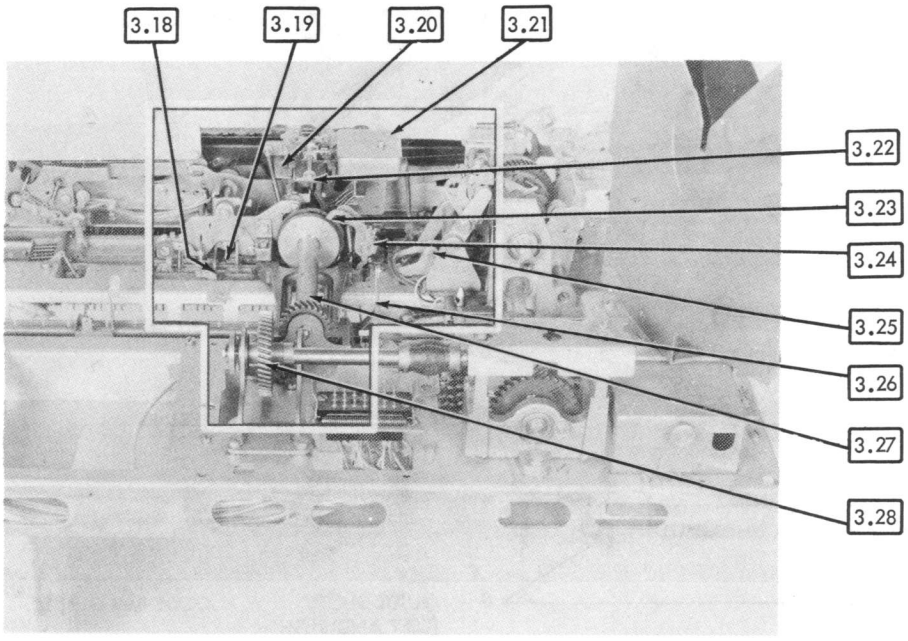
0	HOOKS-EACH END	SPRING
02	BEARING SURFACE	CODE LEVER UNIVERSAL BAIL

3.16 LOCAL CARRIAGE RETURN MECHANISM



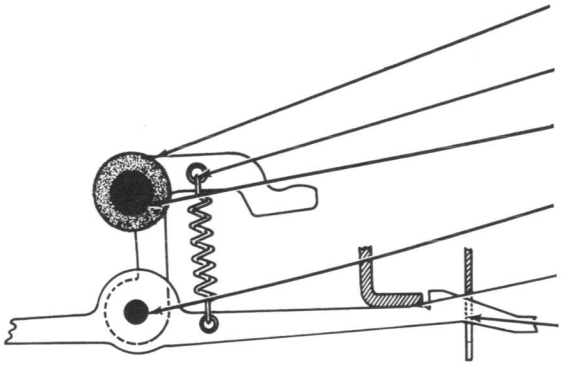
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE (2 PLACES)	LOCAL CARRIAGE RETURN FUNCTION BAIL
G	ENGAGING SURFACE	LOCAL CARRIAGE RETURN FUNCTION LEVER

3.17 SIGNAL GENERATOR MECHANISM REST PERFORATOR TRANSMITTER IN UPRIGHT POSITION



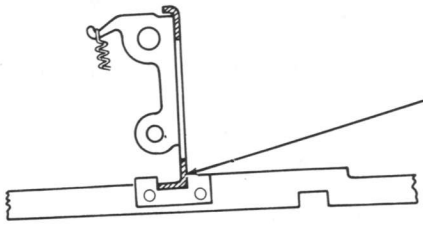
(REAR VIEW)

3.18 NON-REPEAT LEVER MECHANISM



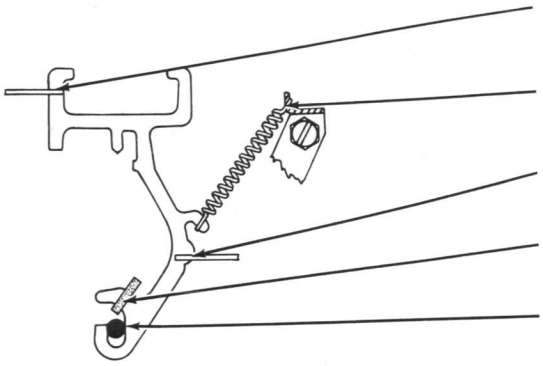
SAT	FELT WASHER	NON-REPEAT LEVER CRANK
0	HOOKS-EACH END	SPRING
02	BEARING SURFACE	NON-REPEAT LEVER CRANK
02	BEARING SURFACE	NON-REPEAT LEVER
G	ENGAGING SURFACE	NON-REPEAT LEVER
02	GUIDE SLOT	NON-REPEAT LEVER

3.19 CLUTCH TRIP BAR MECHANISM



G SAT	SLOT	CLUTCH TRIP BAR WEAR PLATE

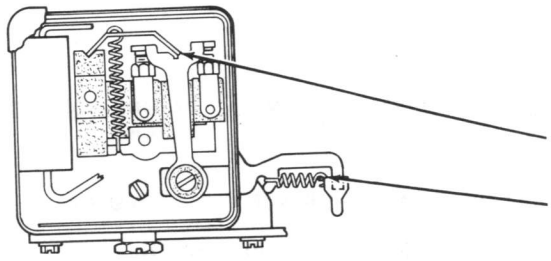
3.20 TRANSFER LEVER MECHANISM



0	GUIDE SLOTS	TRANSFER LEVERS (7 LEVERS)
0	HOOKS-EACH END (7 SPRINGS)	SPRING
0	GUIDE SLOTS	TRANSFER LEVERS (7 LEVERS)
SAT	FELT WASHERS (4 WASHERS)	CAMMING SURFACES
0	GUIDE SLOTS	TRANSFER LEVERS (7 LEVERS)

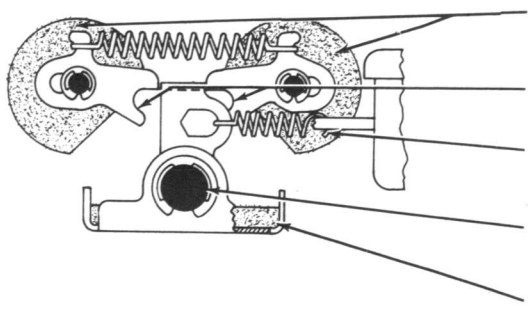
3.21 CONTACT BOX

DISASSEMBLY: REMOVE NUT AND LOCK WASHER SECURING CONTACT BOX COVER AND REMOVE COVER.



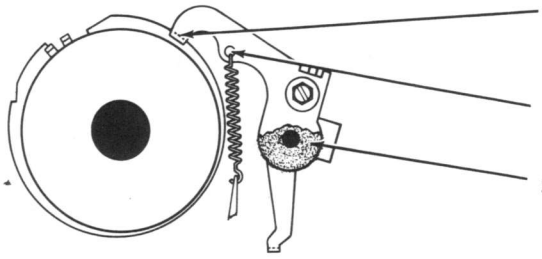
G	ENGAGING SURFACE	CONTACT TOGGLE
0	HOOKS-EACH END	SPRING

3.22 TRANSFER BAIL MECHANISM



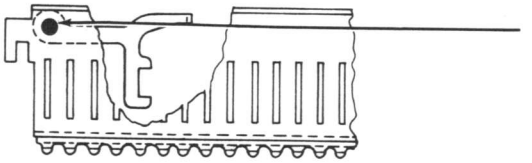
SAT	FELT WASHERS (2 WASHERS)	LATCHES
G	ENGAGING SURFACES	TRANSFER BAIL
0	HOOKS-EACH END (2 SPRINGS)	SPRING
02	BEARING SURFACE (EACH END)	TRANSFER BAIL
SAT	OIL WICK	TRANSFER BAIL

3.23 KEYBOARD CLUTCH MECHANISM



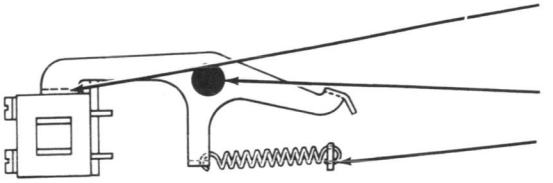
02	LATCHING SURFACE	CLUTCH STOP LEVER AND CLUTCH LATCH LEVER
0	HOOKS-EACH END (2 SPRINGS)	SPRING
SAT	FELT WASHERS (2 FRONT & REAR)	CLUTCH TRIP BAIL

3.24 LOCK BAR LATCH MECHANISM



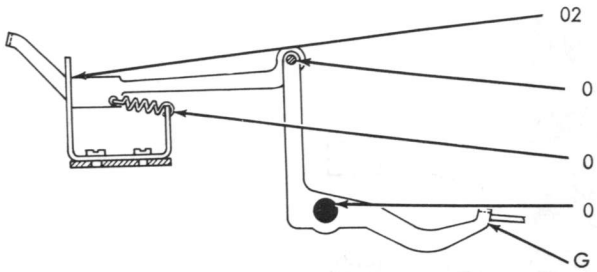
0	BEARING SURFACE	LOCK BAR LATCH

3.25 MARGIN INDICATING MECHANISM



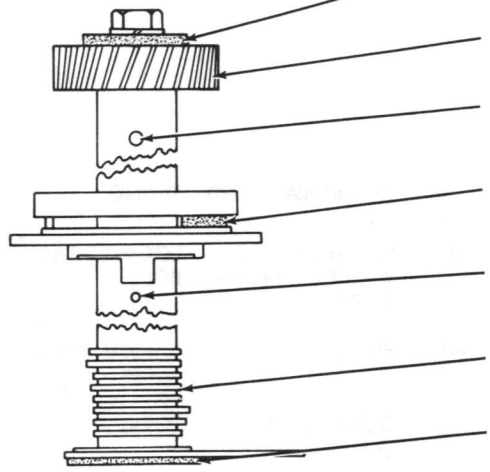
0	ENGAGING SURFACE	MARGIN INDICATOR SWITCH
0	BEARING SURFACE	SWITCH LEVER
0	HOOKS-EACH END	SPRING

3.26 LOCAL LINE FEED MECHANISM



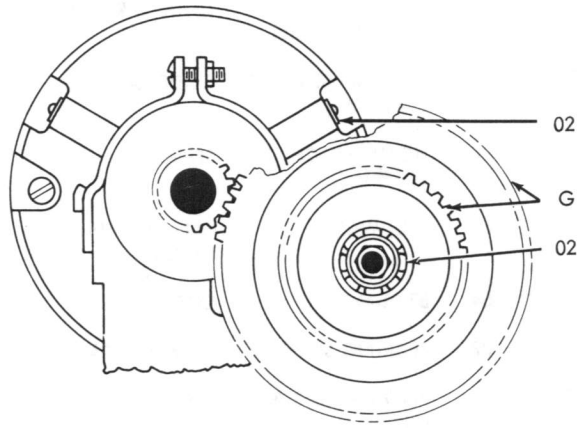
02	GUIDE SLOT	LOCAL LINE FEED TRIP LINK
0	BEARING SURFACE	LOCAL LINE FEED FUNCTION LEVER
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	FUNCTION BAIL
G	ENGAGING SURFACE	LOCAL LINE FEED FUNCTION LEVER

3.27 KEYBOARD SHAFT MECHANISM



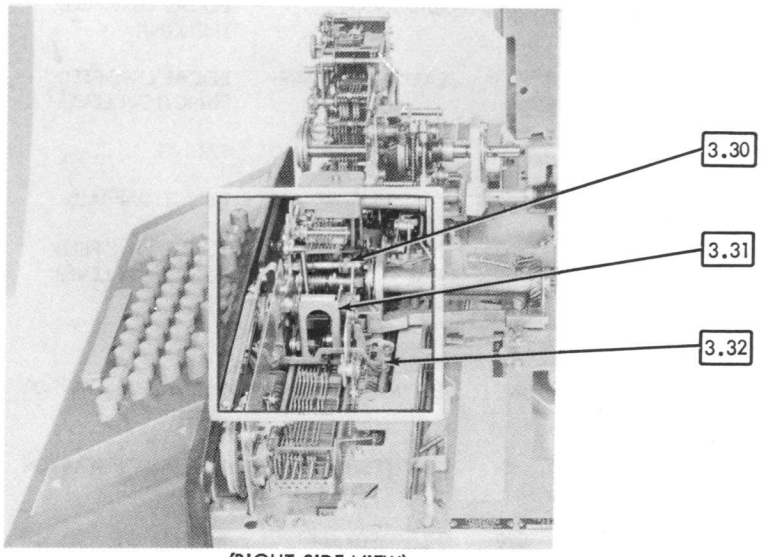
SAT	FELT WASHER	SIGNAL GENERATOR SHAFT
G	GEAR TEETH	SIGNAL GENERATOR SHAFT
020	OIL HOLE	SIGNAL GENERATOR SHAFT
04	INTERNAL MECHANISM	KEYBOARD CLUTCH
SAT	FELT WICK	
020	OIL HOLE	SIGNAL GENERATOR CAM
02	CAMMING SURFACE EACH CAM	SIGNAL GENERATOR CAM
SAT	FELT WASHER	SIGNAL GENERATOR SHAFT

3.28 INTERMEDIATE GEAR MECHANISM



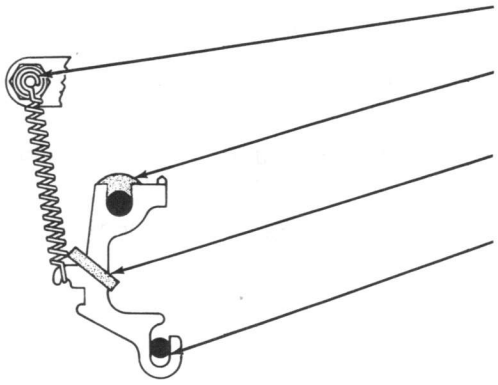
02	OILER-EACH END (RIGHT AND LEFT)	MOTOR SHAFT
G	TEETH (2 GEARS)	INTERMEDIATE GEARS
02	BALL BEARING (2 BEARINGS)	INTERMEDIATE GEAR SHAFT

3.29 SIGNAL GENERATOR MECHANISM (continued) REST PERFORATOR TRANSMITTER IN UPRIGHT POSITION



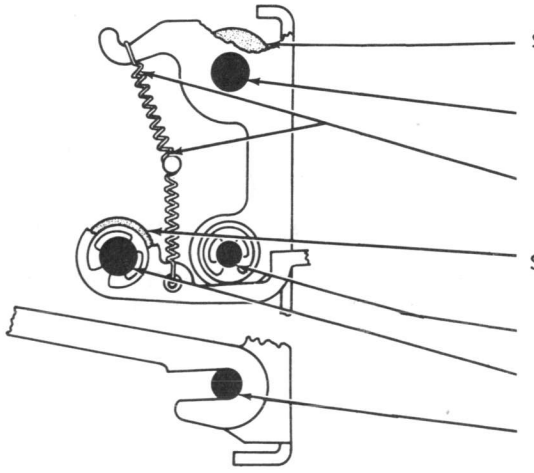
(RIGHT SIDE VIEW)

3.30 LOCKING BAIL MECHANISM



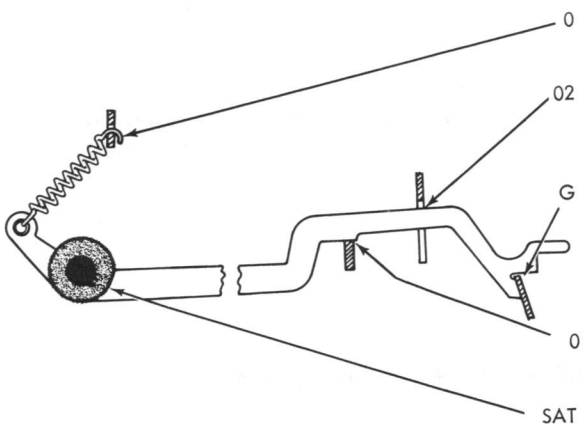
0	HOOKS-EACH END	SPRING
SAT	FELT WASHERS (2 WASHERS - FRONT AND REAR)	LOCKING BAIL POST
SAT	FELT WICK	CAMMING SURFACES
0	GUIDE SLOTS (3 SLOTS)	LOCKING BAIL

3.31 CODE BAR BAIL MECHANISM



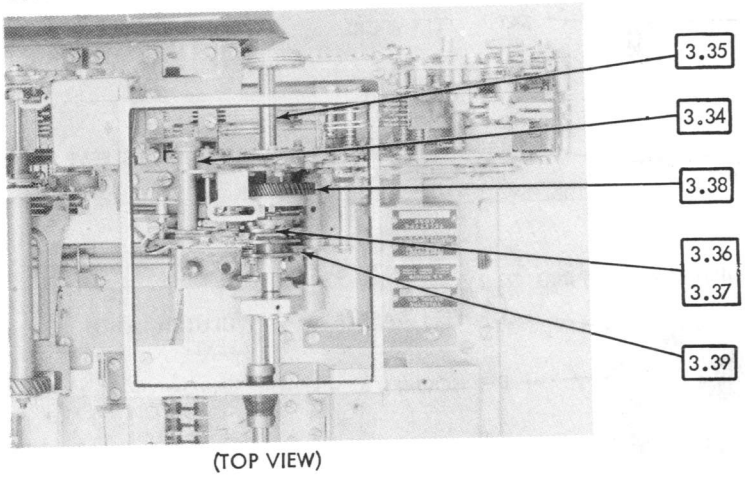
SAT	FELT WASHERS (TWO WASHERS)	CODE BAR BAIL
0	BEARING SURFACE (2 PLACES)	CODE BAR BAIL
0	HOOKS-EACH END (2 SPRINGS)	SPRING
SAT	FELT WASHER	CODE BAR BAIL LATCH
04	BEARING	CODE BAR BAIL
02	BEARING SURFACE	CODE BAR BAIL LATCH
02	ENGAGING SURFACE	ECCENTRIC FOLLOWER

3.32 UNIVERSAL BAIL LATCH LEVER MECHANISM



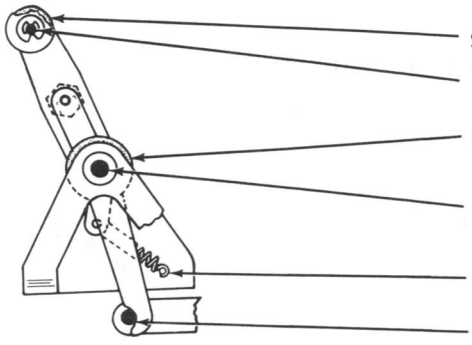
0	HOOKS (EACH END)	SPRING
02	GUIDE SLOT (EACH SIDE OF SLOT)	UNIVERSAL BAIL LATCH LEVER
G	ENGAGING SURFACE	CODE BAR BAIL EXTENSION
0	ENGAGING SURFACE	RESET BAIL LATCH
SAT	FELT WASHER	UNIVERSAL BAIL LATCH LEVER

3.33 PERFORATOR MECHANISM RESET PERFORATOR MECHANISM IN UPRIGHT POSITION



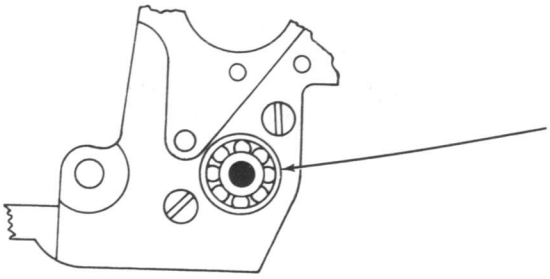
(TOP VIEW)

3.34 RESET CAM FOLLOWER MECHANISM



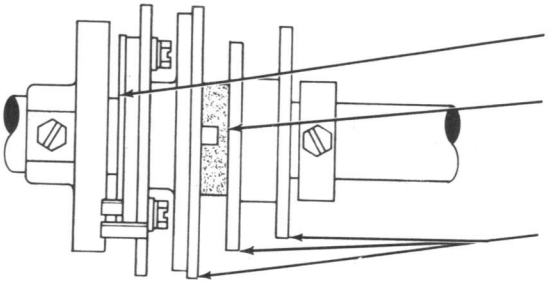
SAT	FELT WASHER	ROLLER
0	BEARING SURFACE	RETAINING RING
SAT	FELT WASHERS (FRONT & REAR)	RESET CAM FOLLOWER SHAFT
05	OIL HOLE	RESET CAM FOLLOWER SHAFT
0	HOOKS-EACH END	SPRING
0	ENGAGING SURFACE	RESET LEVER

3.35 PERFORATOR CLUTCH DRIVING SHAFT MECHANISM (NON-TYPING ONLY)



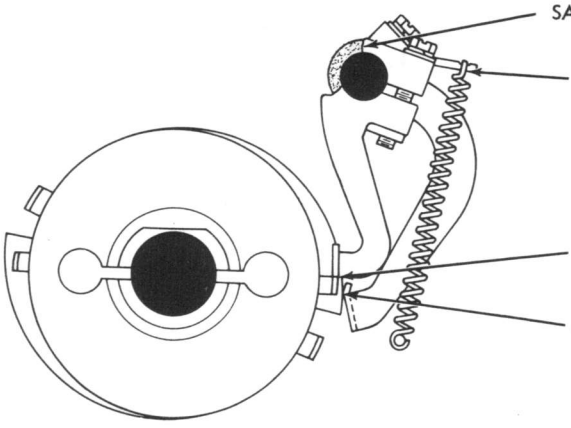
02	BALL BEARING	PERFORATOR CLUTCH DRIVING SHAFT

3.36 PERFORATOR CLUTCH AND RESET CAM MECHANISM (NON-TYPING ONLY)



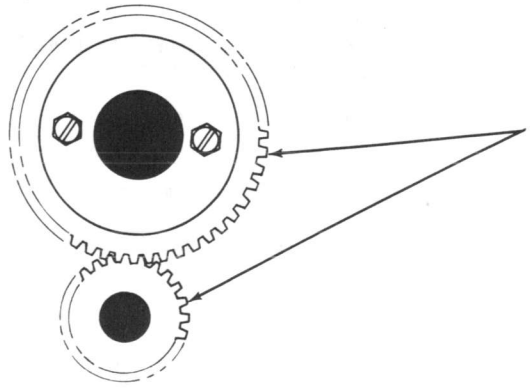
04	INTERNAL MECHANISM	PERFORATOR CLUTCH
SAT	FELT WICK	RESET CAM SLEEVE
03	CAMMING SURFACE (3 CAMS)	RESET CAM SLEEVE

3.37 PERFORATOR CLUTCH MECHANISM (NON-TYPING ONLY)



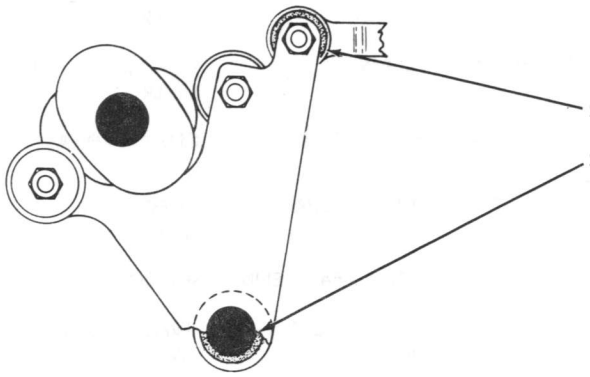
SAT	FELT WASHER	CLUTCH LATCH LEVER
0	HOOKS-EACH END	SPRING
0	LATCHING SURFACE	CLUTCH TRIP LEVER
0	LATCHING SURFACE	CLUTCH LATCH LEVER

3.38 PERFORATOR CLUTCH GEAR MECHANISM (NON-TYPING ONLY)



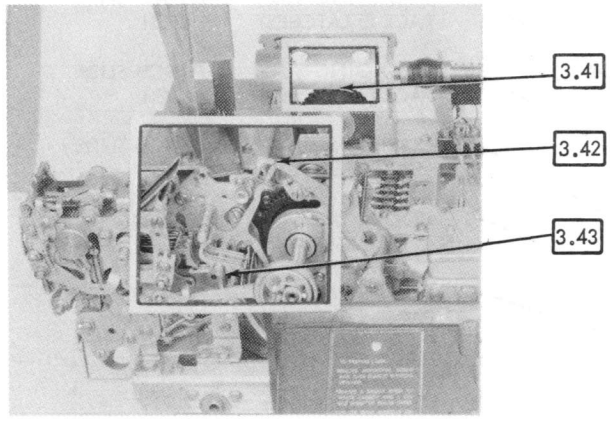
G	GEAR TEETH	PERFORATOR CLUTCH DRIVE AND DRIVEN GEARS

3.39 ROCKER BAIL MECHANISM (NON-TYPING ONLY)



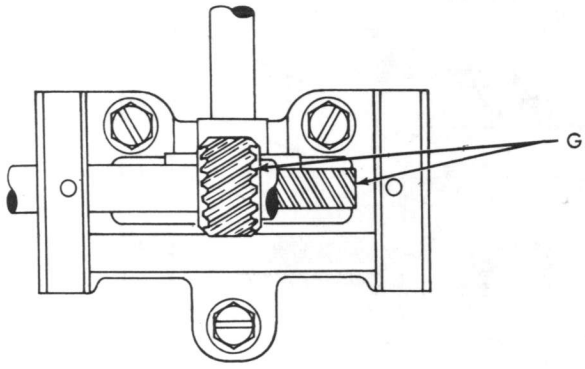
SAT	FELT WASHER	ROCKER BAIL
SAT	FELT WICK (USE OIL HOLE)	ROCKER BAIL

3.40 PERFORATOR MECHANISM (continued) REST PERFORATOR TRANSMITTER IN UPRIGHT POSITION



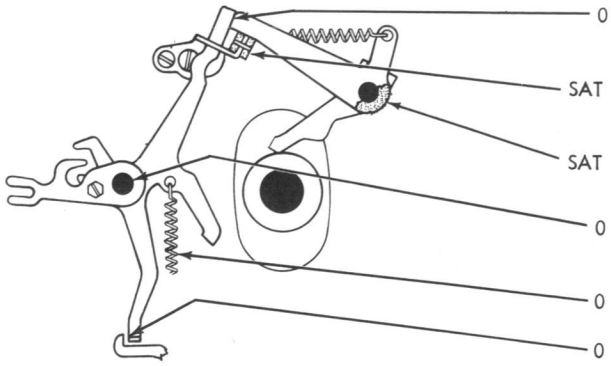
(FRONT VIEW)

3.41 REAR BEARING BRACKET GEAR MECHANISM



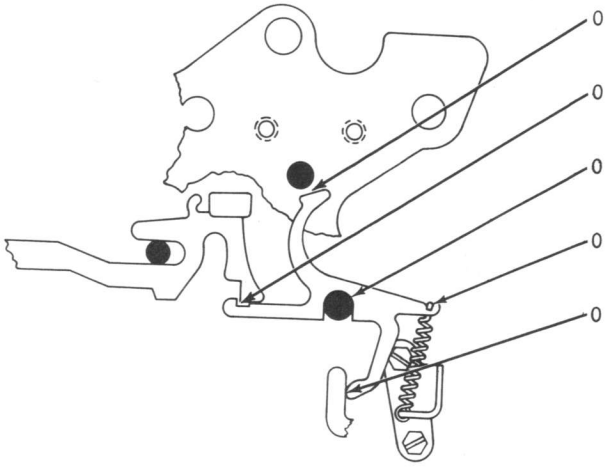
G	GEAR TEETH	REAR BEARING BRACKET GEAR

3.42 PERFORATOR TRIP LEVER MECHANISM (NON-TYPING ONLY)



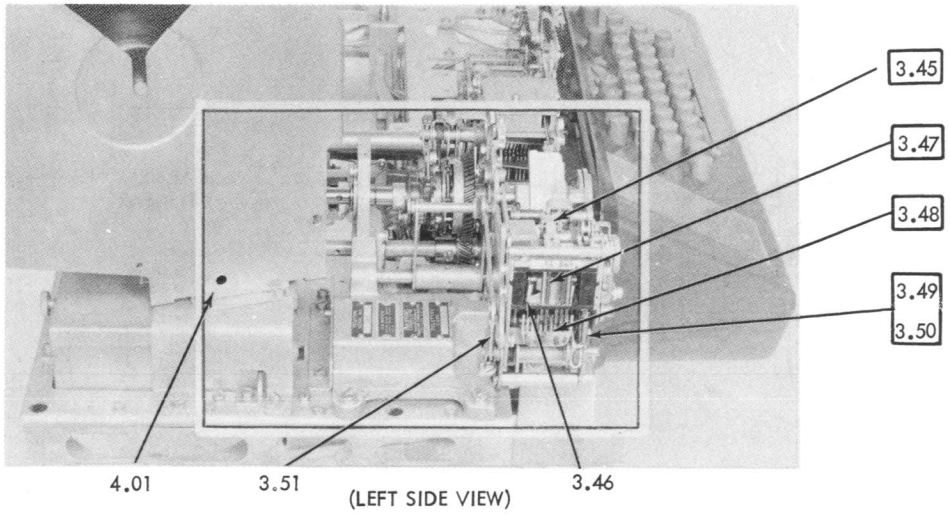
0	CONTACT SURFACE	PERFORATOR TRIP LEVER
SAT	FELT WICK	PERFORATOR TRIP LEVER
SAT	FELT WASHER	CLUTCH RELEASE
0	BEARING SURFACE	PERFORATOR TRIP LEVER
0	HOOKS-EACH END	SPRING
0	ENGAGING SURFACE	PERFORATOR TRIP LEVER LATCH

3.43 PUNCH SLIDE LATCH MECHANISM



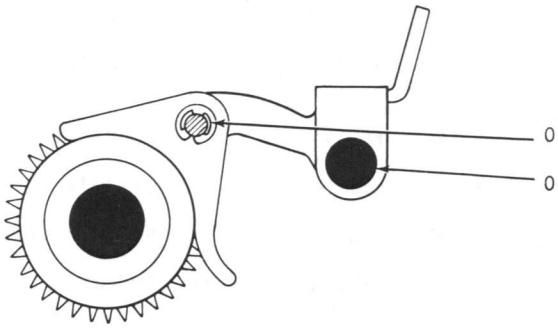
0	ENGAGING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH
0	ENGAGING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH
0	BEARING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH
0	HOOKS-EACH END (5 SPRINGS)	SPRINGS
0	ENGAGING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH

3.44 PUNCH MECHANISM REST- REST PERFORATOR TRANSMITTER IN UPRIGHT POSITION



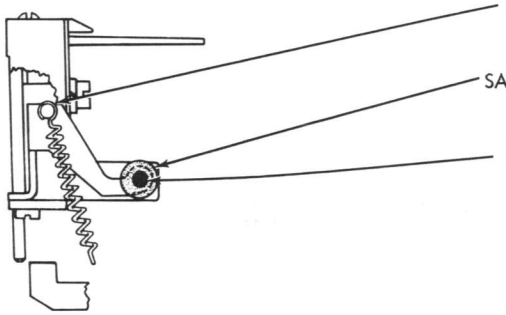
(LEFT SIDE VIEW)

3.45 TAPE SHOE ARM MECHANISM



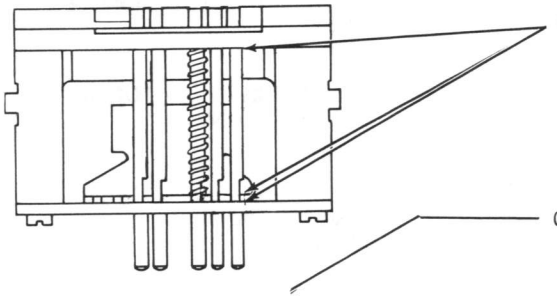
0	BEARING SURFACE	TAPE SHOE
0	BEARING SURFACE (2) (FRONT AND REAR)	TAPE SHOE ARM

3.46 RETRACTOR BAIL MECHANISM



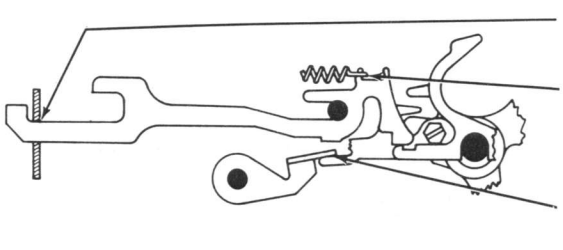
0	HOOKS-EACH END (4 SPRINGS)	ROCKER BAIL SPRING
SAT	FELT WASHERS (2-FRONT & REAR)	RETRACTOR BAIL
0	BEARING SURFACE (2-FRONT & REAR)	RETRACTOR BAIL

3.47 PUNCH PIN MECHANISM



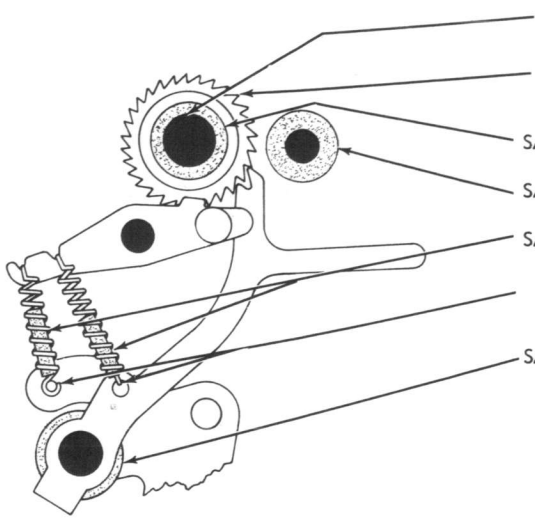
0	GUIDES AND NOTCHES (3 PLACES)	PUNCH PINS
0	SPRINGS (2)	RETRACTOR SPRINGS

3.48 PUNCH SLIDE MECHANISM



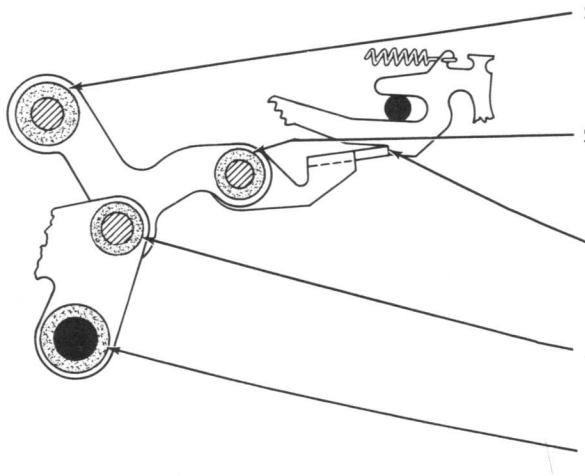
02	ENGAGING SURFACE	PUNCH SLIDE GUIDE
0	HOOKS-EACH END (5 SPRINGS)	SPRINGS
G	ENGAGING SURFACE (5)	RESET BAIL

3.49 FEED WHEEL MECHANISM



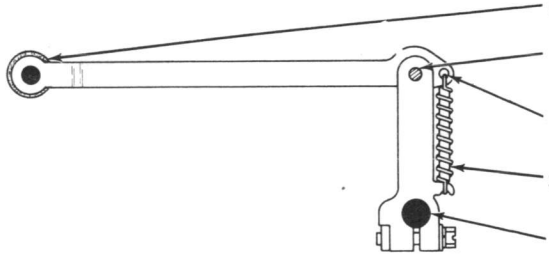
0	BEARING SURFACE	FEED WHEEL KNOB
0	RATCHET TEETH (2 PLACES)	FEED WHEEL
SAT	FELT WASHER	FEED WHEEL
SAT	FELT WASHER	DIE WHEEL
SAT	FELT WICKS (2)	SPRING WICKS
0	HOOKS-EACH END (2 SPRINGS)	SPRING
SAT	FELT WASHER	FEED PAWL

3.50 RESET BAIL MECHANISM



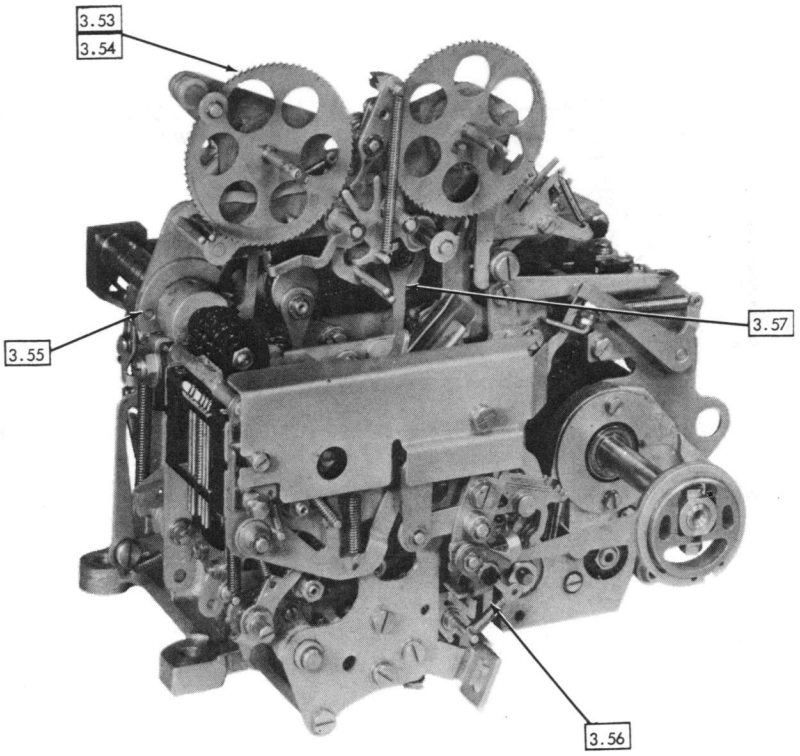
SAT	FELT WASHER (2 WASHERS - FRONT & REAR)	TOGGLE LINKS
SAT	FELT WASHERS (2 WASHERS - FRONT & REAR)	RESET BAIL
0	ENGAGING SURFACE	RESET BAIL
SAT	FELT WASHERS (2 WASHERS - FRONT & REAR)	TOGGLE BAIL
SAT	FELT WASHERS (2 WASHERS - FRONT & REAR)	TOGGLE BAIL

3.51 ROCKER ARM MECHANISM

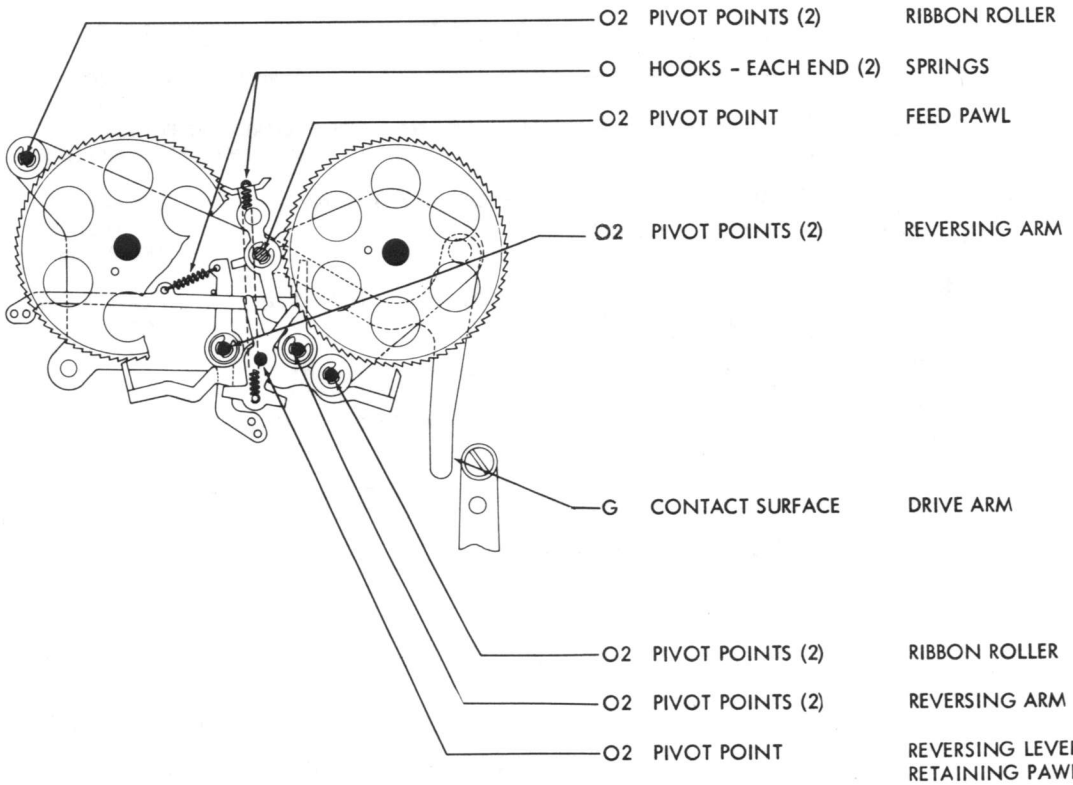


SAT	FELT WASHER	DRIVE LINK
0	ENGAGING SURFACE	ROCKER ARM
0	HOOKS-EACH END	SPRING
SAT	FELT WICK	SPRING WICK
0	BEARING SURFACE	ROCKER ARM

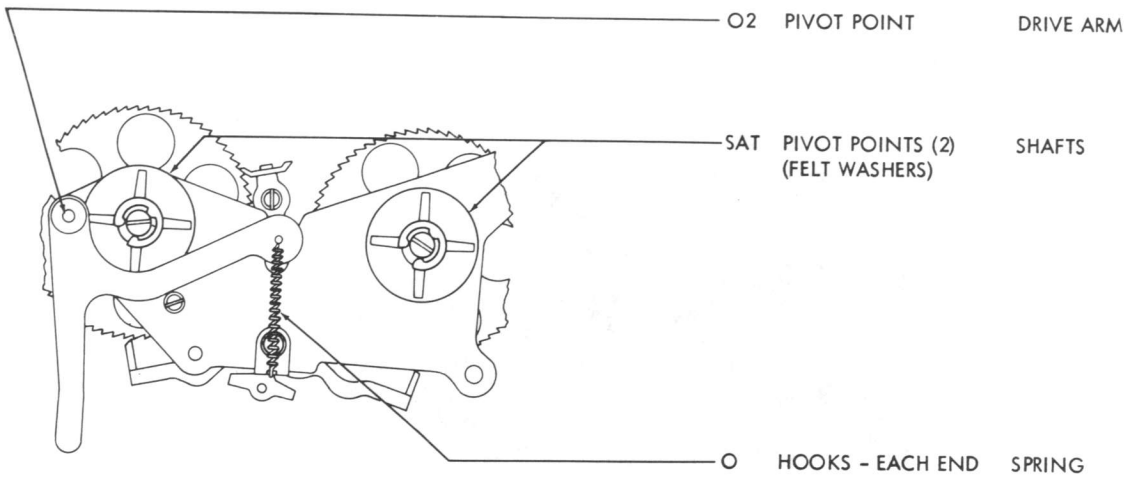
3.52 TYPING PERFORATOR - PLACE PERFORATOR IN UPRIGHT POSITION.



3.53 RIBBON FEED MECHANISM (TYPING PERFORATOR ONLY)

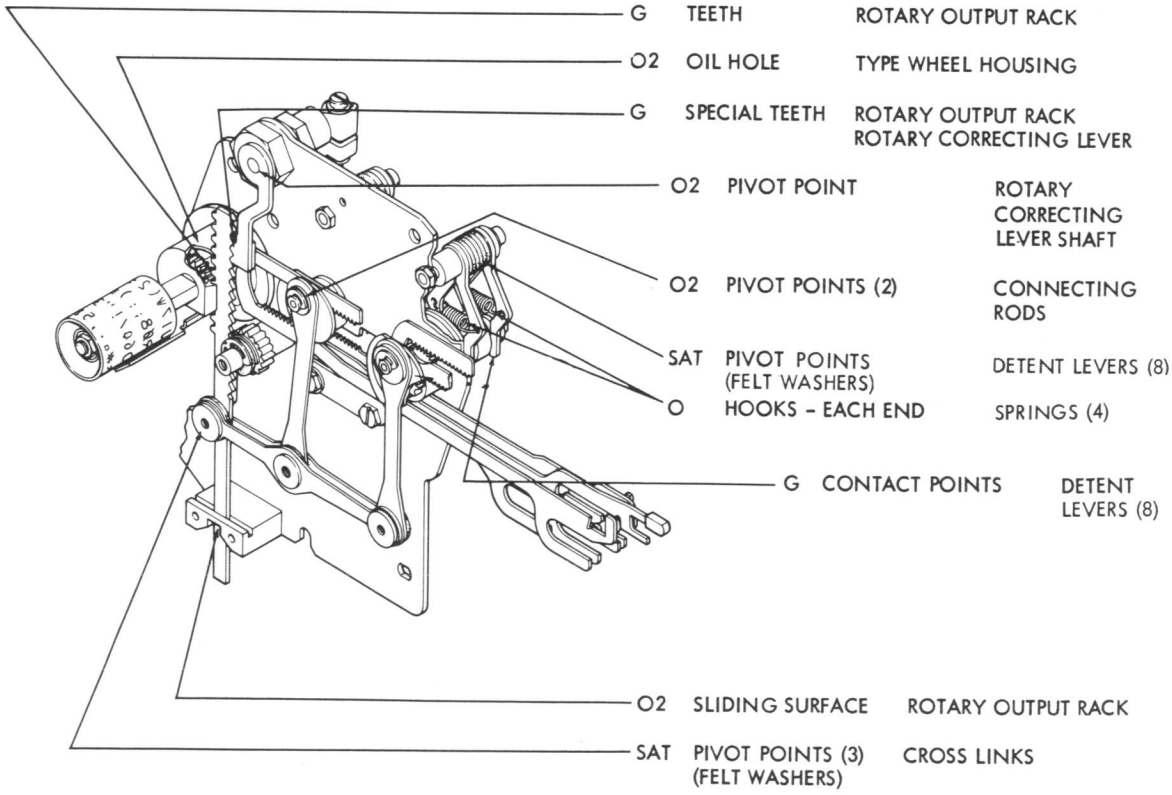


3.54 RIBBON FEED MECHANISM (TYPING PERFORATOR ONLY)

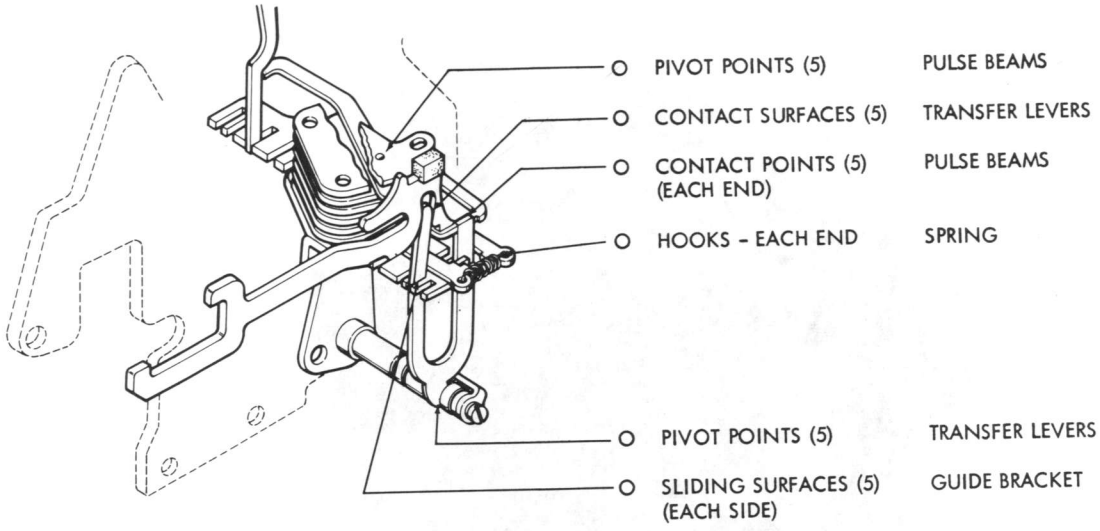


(REAR VIEW)

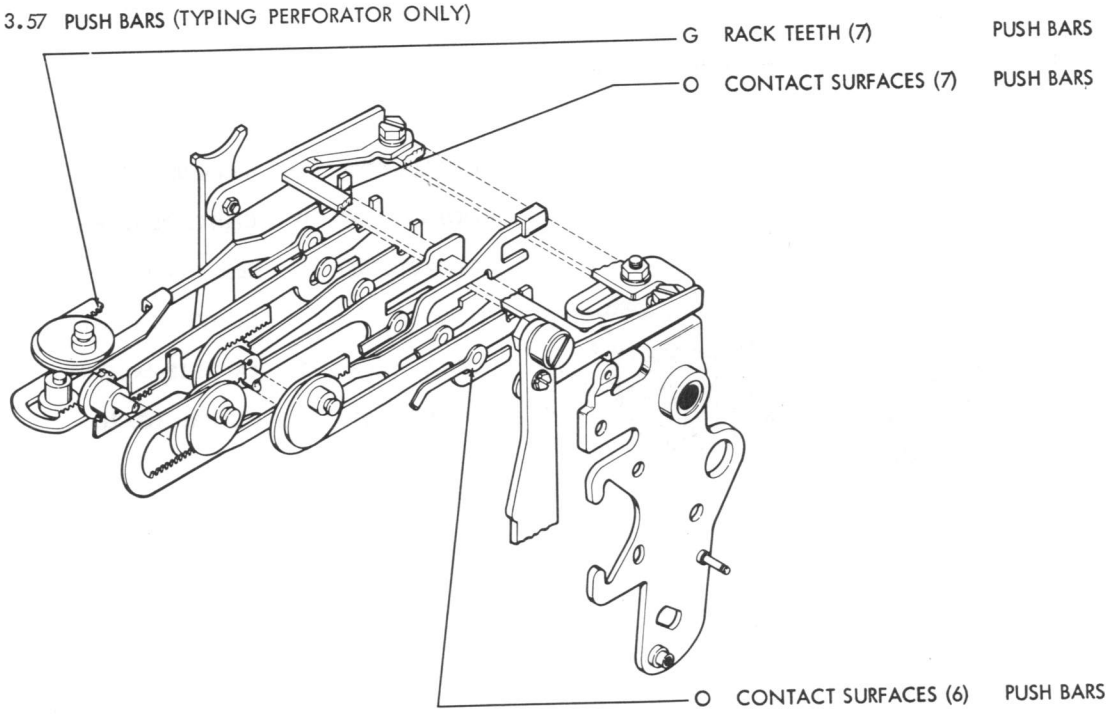
3.55 ROTARY POSITIONING MECHANISM (TYPING PERFORATOR ONLY)



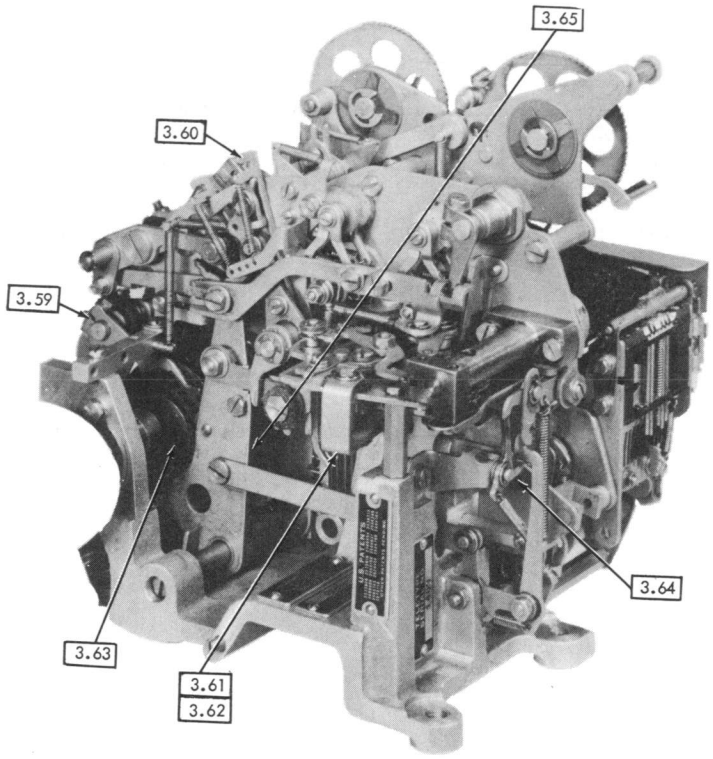
3.56 **TRANSFER MECHANISM** (TYPING PERFORATOR ONLY)



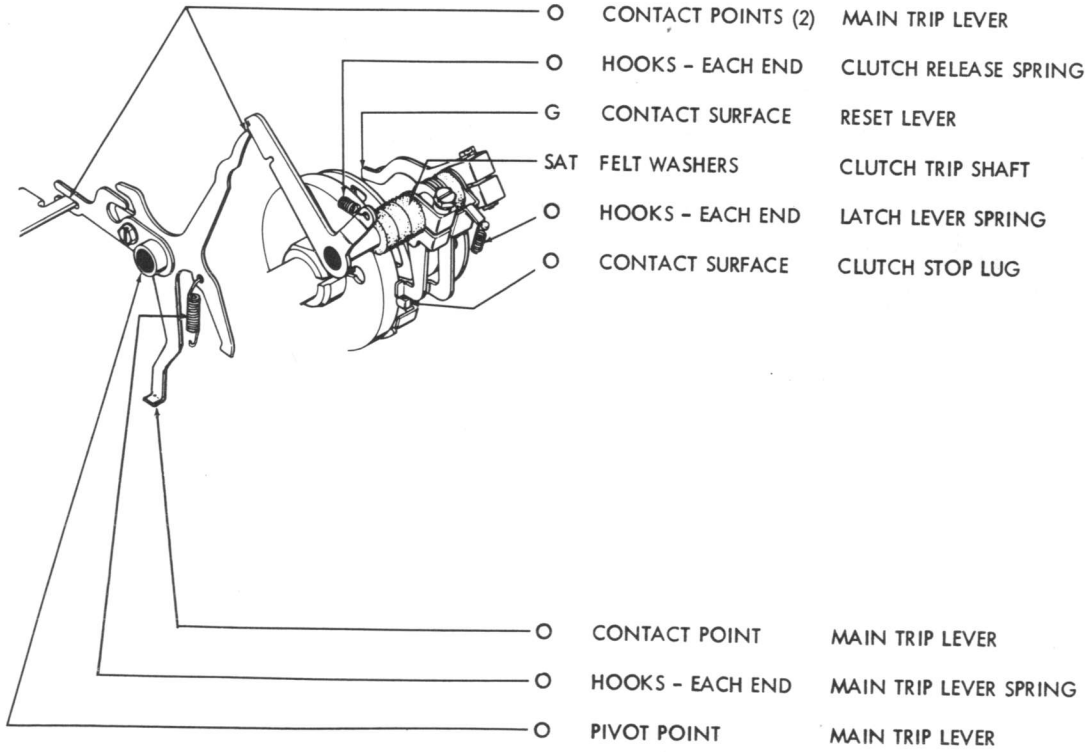
3.57 **PUSH BARS** (TYPING PERFORATOR ONLY)



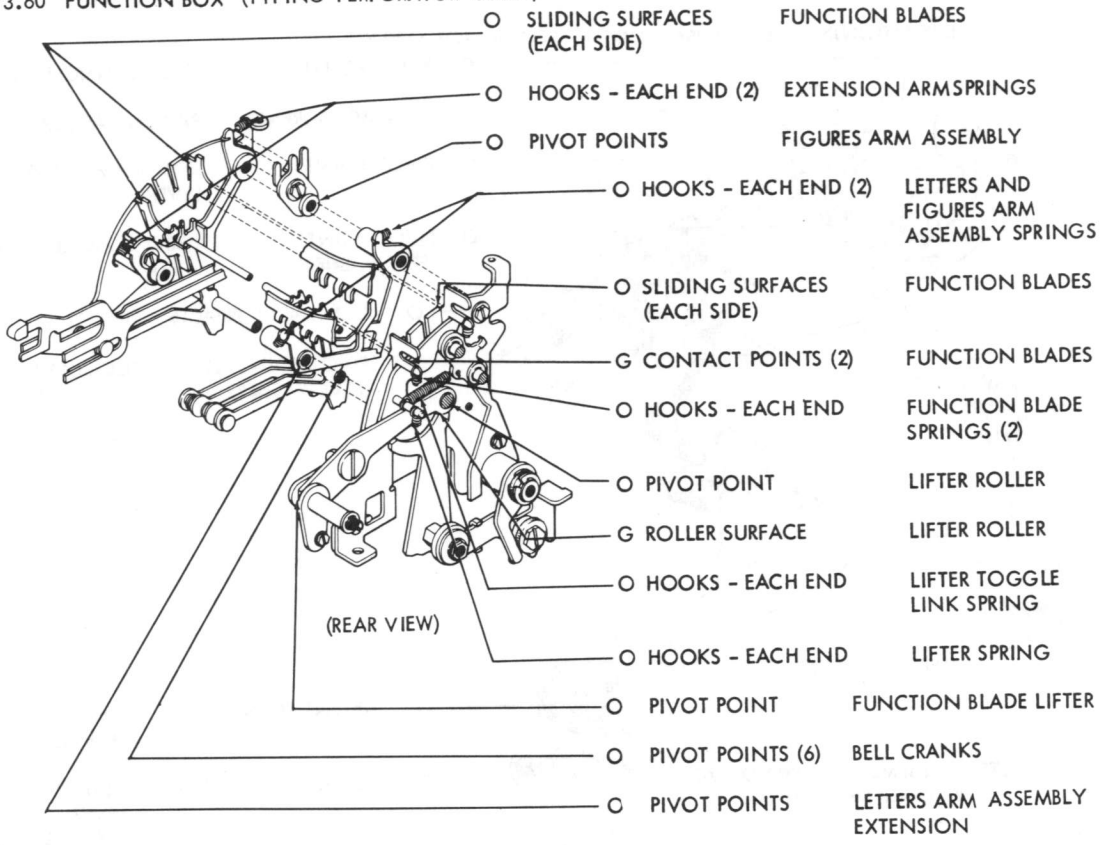
3.58 TYPING PERFORATOR - PLACE PERFORATOR IN UPRIGHT POSITION.



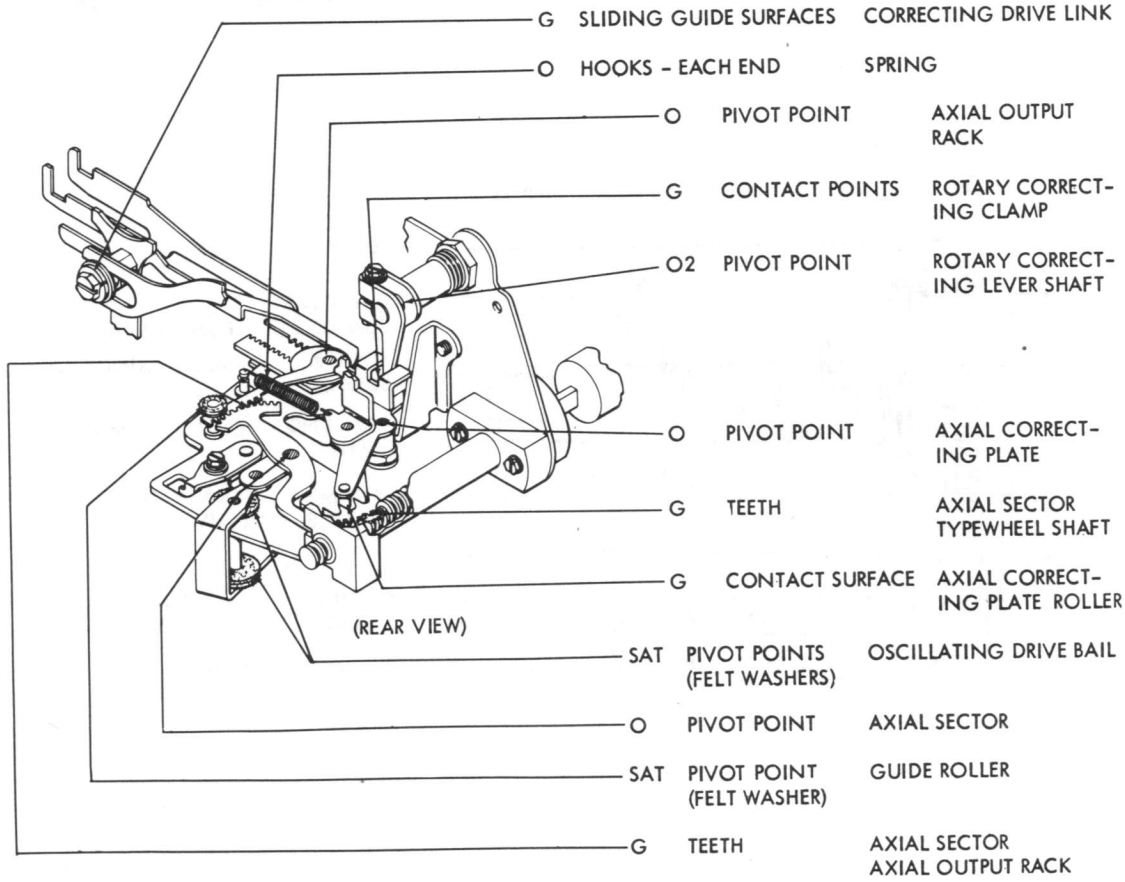
3.59 FUNCTION CAM — CLUTCH TRIP MECHANISM



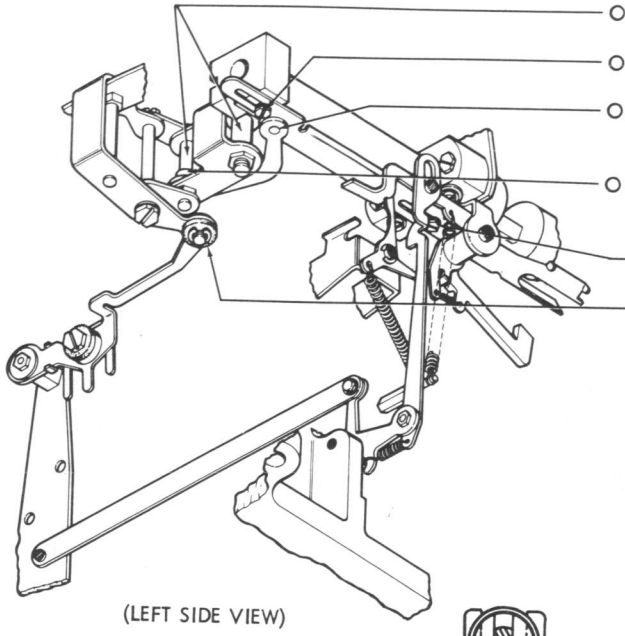
3.60 FUNCTION BOX (TYPING PERFORATOR ONLY)



3.61 AXIAL POSITIONING MECHANISM (TYPING PERFORATOR ONLY)



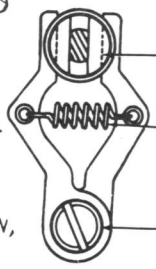
3.62 AXIAL POSITIONING MECHANISM (TYPING PERFORATOR ONLY)



O	PIVOT POINT	OSCILLATING BAIL
O	CONTACT SURFACES	RIBBON CARRIER
O	PIVOT POINTS	RIBBON OSCILLATING LEVER
O	PIVOT POINT (FELT WASHER)	RIBBON OSCILLATING LEVER
O	CONTACT SURFACES	RIBBON CARRIER
SAT	PIVOT POINTS (2) (FELT WASHERS)	OSCILLATING DRIVE LINK

(LEFT SIDE VIEW)

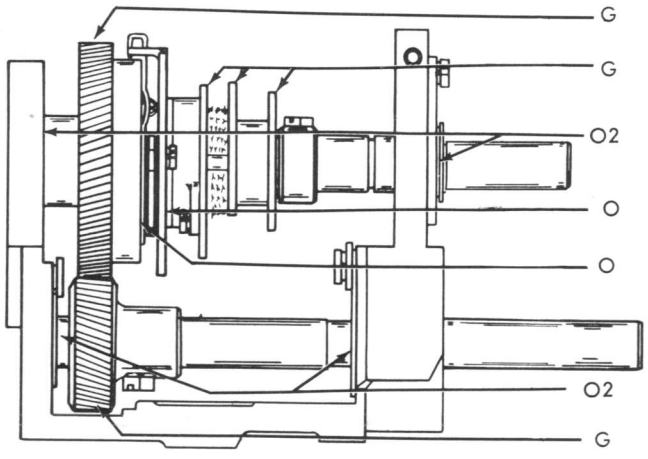
DETENT ASSEMBLIES (TWO ON AXIAL POSITIONING MECHANISM)



(BOTTOM VIEW,

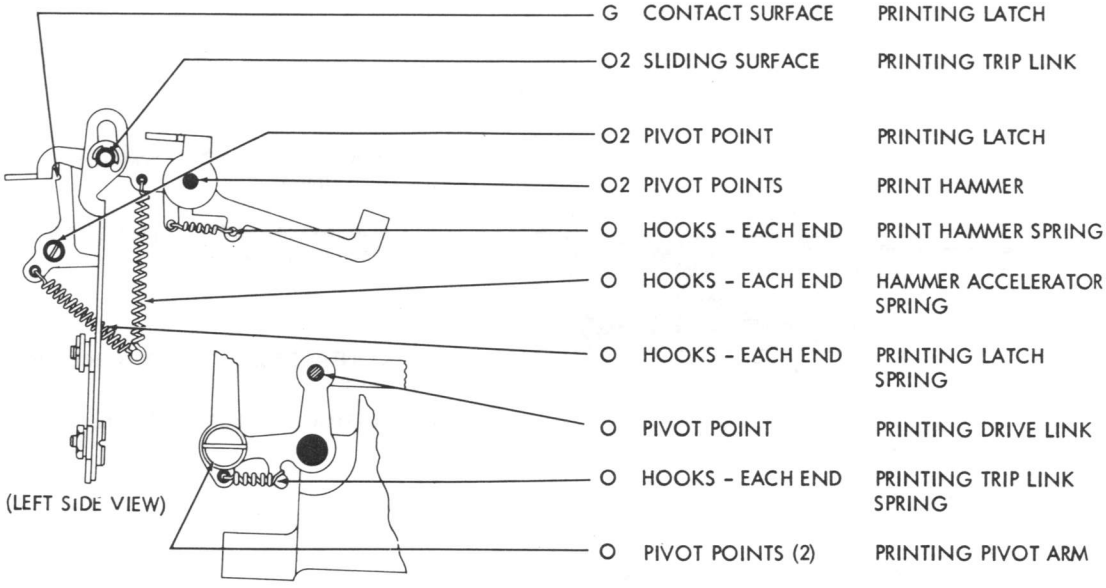
O	DETENT POINTS	DETENT LEVERS (4)
O	HOOKS - EACH END	DETENT LEVER SPRINGS (2)
SAT	PIVOT POINTS (FELT WASHERS)	DETENT LEVERS (4)

3.63 SHAFT MECHANISMS (TYPING PERFORATOR ONLY)

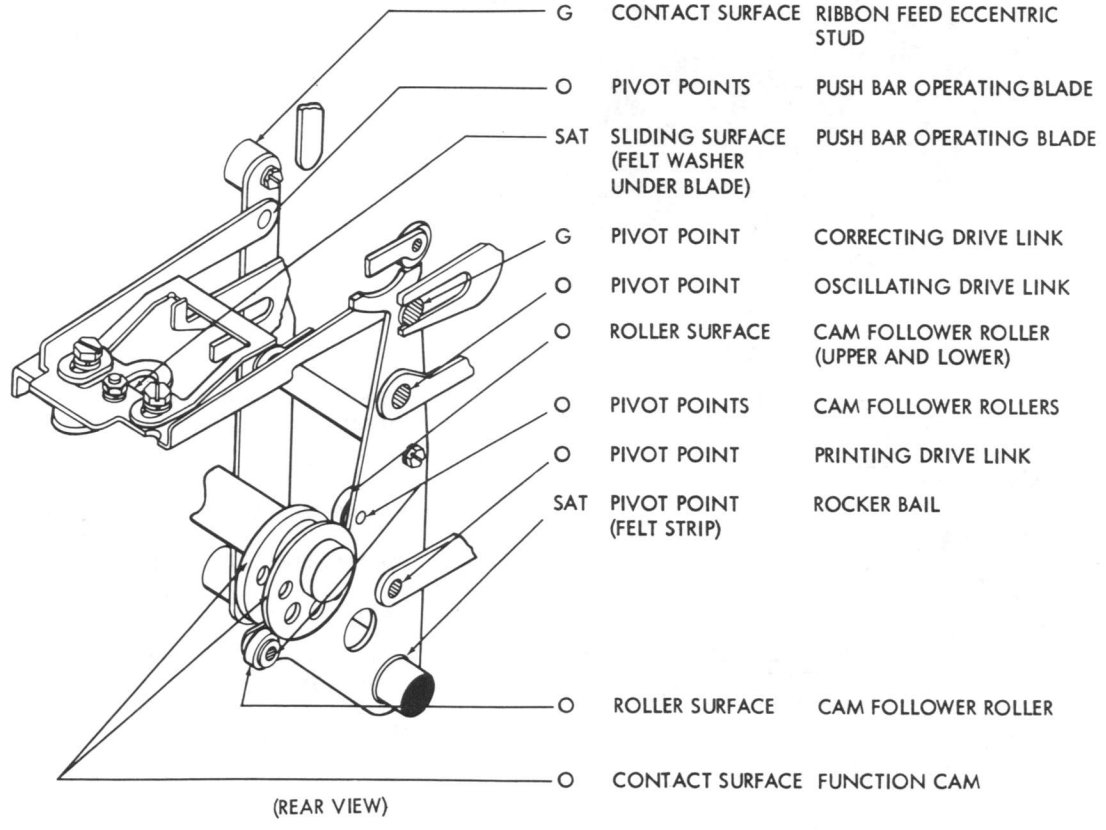


G	TEETH	GEAR
G	CAMMING SURFACES (2)	FUNCTION CAM
O2	BEARING SURFACES	BALL BEARINGS (2)
O	CAMMING SURFACE	CLUTCH CAM DISK
O	BEARING SURFACE	FUNCTION CLUTCH DRUM
O2	BEARING SURFACES	BALL BEARINGS (2)
G	TEETH	GEAR

3.64 PRINTING MECHANISM (TYPING PERFORATOR ONLY)

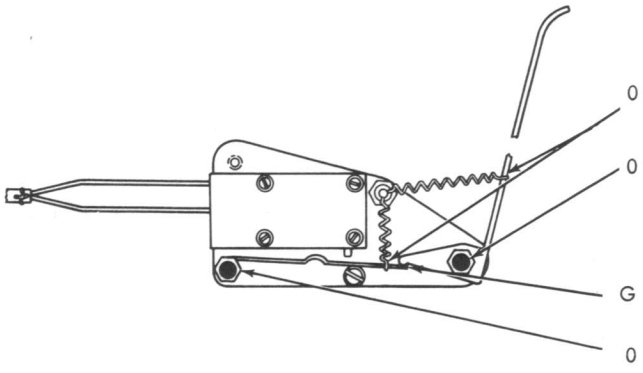


3.65 ROCKER BAIL MECHANISM (TYPING PERFORATOR ONLY)



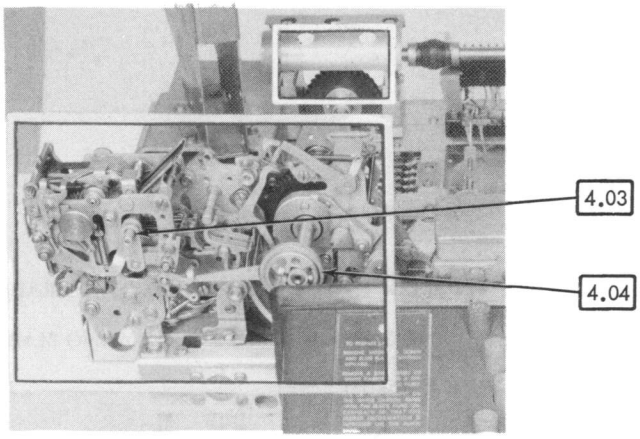
4. VARIABLE FEATURES

4.01 TAPE-OUT SWITCH MECHANISM (SEE PARAGRAPH 3.44 FOR LOCATION)



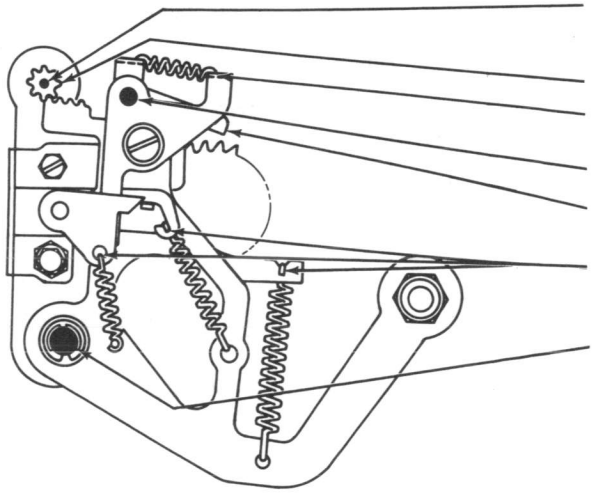
0	HOOKS-EACH END (2 SPRINGS)	SPRINGS
0	BEARING SURFACE (FRONT AND REAR)	TAPE LEVER
G	CONTACT SURFACE	SWITCH LEVER
0	BEARING SURFACE	SWITCH LEVER

4.02 REST PERFORATOR TRANSMITTER IN UPRIGHT POSITION



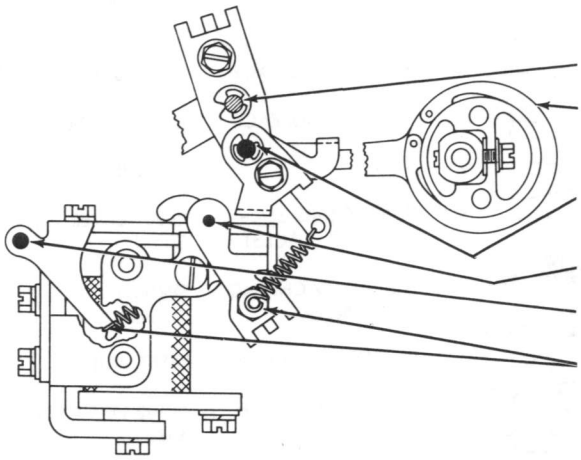
(FRONT VIEW)

4.03 MANUAL BACKSPACE MECHANISM



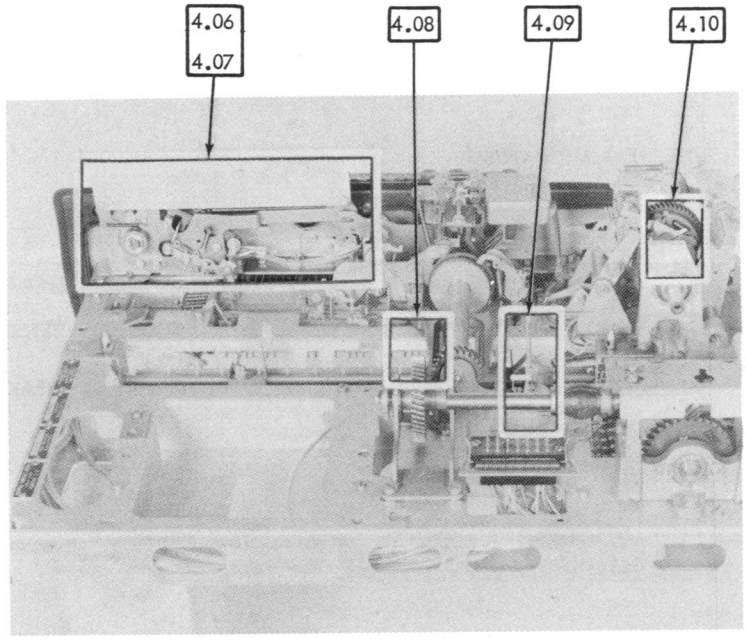
02	BEARING SURFACE (REAR)	RAKE SHAFT
G	GEAR TEETH	GEAR SEGMENT
0	HOOKS-EACH END	PAWL SPRING
02	BEARING SURFACE	FEED PAWL
G	CONTACT SURFACE	FEED PAWL
0	HOOKS-EACH END (3 SPRINGS)	SPRING
0	BEARING SURFACE	BELL CRANK

4.04 POWER DRIVE BACKSPACE MECHANISM



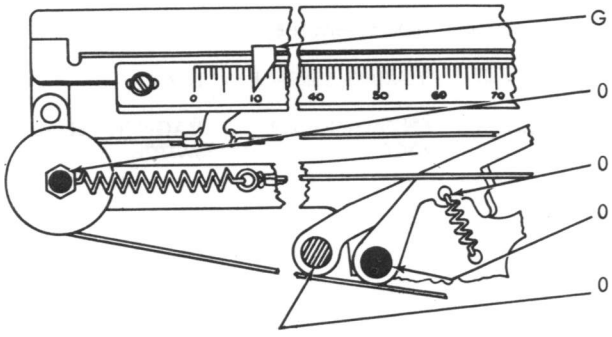
02	BEARING SURFACE	LINK
02	ROTATING SURFACE	ECCENTRIC
02	SLIDING SURFACE	ECCENTRIC DRIVE ARM FORK
02	BEARING SURFACE	ARM
02	BEARING SURFACE	ARMATURE BAIL
0	HOOKS-EACH END (2 SPRINGS)	SPRINGS

4.05 REST PERFORATOR TRANSMITTER IN UPRIGHT POSITION



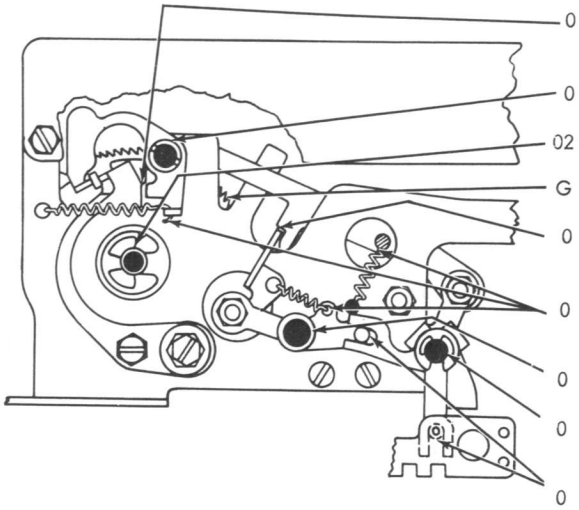
(REAR VIEW)

4.06 CHARACTER COUNTER MECHANISM



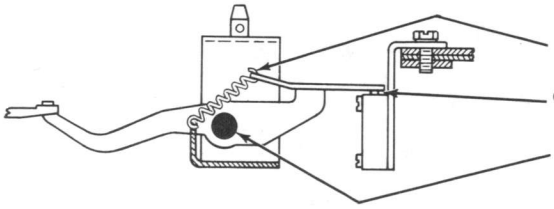
G	ENGAGING SURFACE	COUNTER SCALE BRACKET
0	BEARING SURFACE	INDICATOR CORD PULLEY
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	RATCHET LATCH LEVER
0	BEARING SURFACE	RATCHET DRIVE LEVER

4.07 CHARACTER COUNTER MECHANISM (continued)



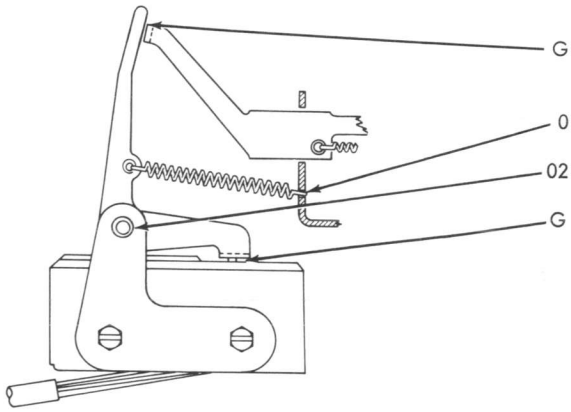
0	CONTACT SURFACE	ANTI-BOUNCE LATCH
0	BEARING SURFACE	ANTI-BOUNCE LATCH
02	BEARING SURFACE	RATCHET DRUM
G	TEETH	RATCHET
0	ENGAGING SURFACES (2 PLACES)	RESET LEVER EXTENSION
0	HOOKS-EACH END (3 SPRINGS)	SPRING
0	BEARING SURFACE	RESET BAIL
0	BEARING SURFACE	DRIVE LEVER FEED BAIL
0	ENGAGING SURFACES (3 SURFACES)	DRIVE LEVER FEED BAIL & RESET BAIL

4.08 ELECTRICAL LINE BREAK MECHANISM



0	HOOKS-EACH END	SPRING
G	CONTACT SURFACE	SENSITIVE SWITCH
0	BEARING SURFACE	BREAK LEVER

4.09 LOCAL PAPER FEED-OUT MECHANISM



G	ENGAGING SURFACE	LOCAL LINE FEED TRIP LINK
0	HOOKS-EACH END	SPRING
02	BEARING SURFACE	LEVER
G	ENGAGING SURFACE	MAGNETIC BLOWOUT SWITCH

4.10 SINGLE AUXILIARY TIMING CONTACTS MECHANISM