TELETYPE CORPORATION
Skokie, Illinois, U. S. A.

SECTION 574-223-700TC
Issue 3, March, 1964

35 TAPE READER* BASES (FOR ASR SETS)

ADJUSTMENTS AND LUBRICATION

CONTENTS

1. GENERAL

1.01 This section is reissued to include information pertinent to new models, and to rearrange text. Lubrication procedures, formerly covered in section 574-223-701 have been included in this section.

1.02 The primary concern of this section is the description, adjustment and lubrication of the bases which mount 35 tape readers and answer-back or distributor units in ASR sets. For information regarding principles of operation and description, refer to other related 574-223-series sections.

2. ADJUSTMENTS

2.01 General. Gear arrangements vary from base to base depending upon the type of drive motor and the number and types of equipment mounted on the base. The gear adjustments following treat the bases in four major groups; single reader (low speed motor), double reader (low speed motor), single reader (high speed motor), and double reader (high speed motor).

* "Tape reader" is a general term applying to units often referred to as transmitters or transmitter distributors.

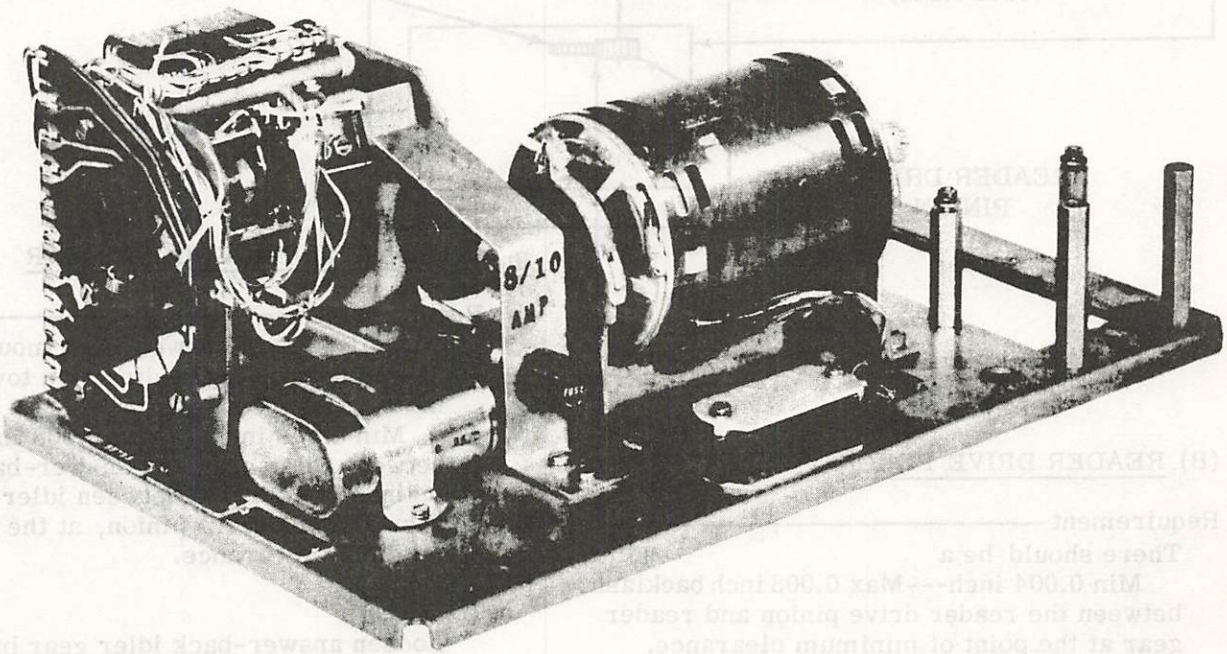


Figure 1 - 35 Tape Reader Base (Typical)

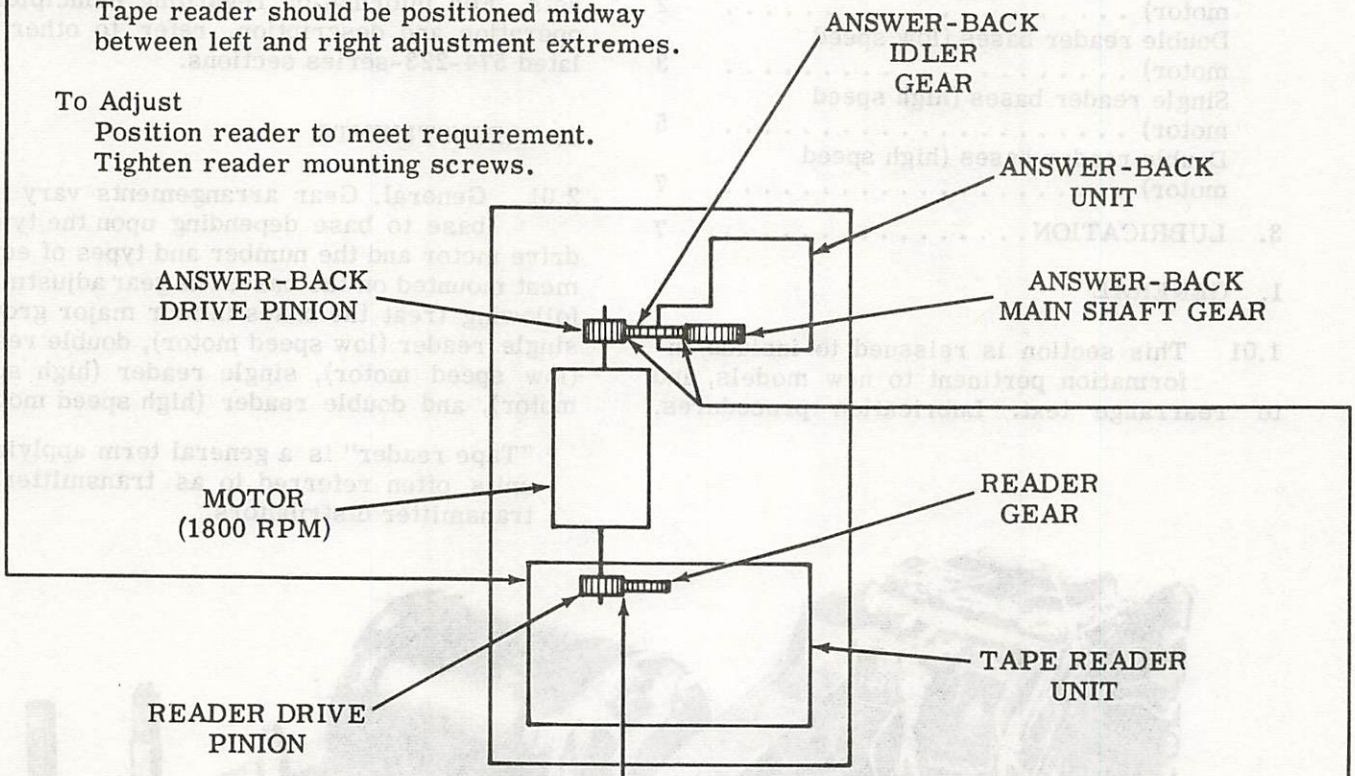
2.02 Single Reader Bases (Low Speed Motor)

Note: The procedure following is for a complete adjustment. Removal of a single component (motor, reader, or answer-back) will not normally require a complete readjustment. Perform adjustment in order given ((A), (B), (C), etc). Loosen reader, motor, and answer-back mounting screws before beginning a complete adjustment.

(A) TAPE READER

Requirement
Tape reader should be positioned midway between left and right adjustment extremes.

To Adjust
Position reader to meet requirement.
Tighten reader mounting screws.



(B) READER DRIVE PINION

Requirement
There should be a
Min 0.004 inch---Max 0.008 inch backlash between the reader drive pinion and reader gear at the point of minimum clearance.

To Adjust
Position motor to meet requirement.
Tighten motor mounting screws.

(C) ANSWER-BACK IDLER GEAR

Requirement
With all play in answer-back mounting holes taken up in the direction toward the motor. There should be
Min 0.004 inch---Max 0.008 inch backlash between idler gear and answer-back mainshaft gear and between idler gear and answer-back drive pinion, at the point of minimum clearance.

To Adjust
Loosen answer-back idler gear bracket. Take up adjustment play toward motor and tighten answer-back mounting screws. Position idler gear to meet requirement and tighten bracket locking screws.

2.03 Double Reader Bases (Low Speed Motor)

Note: The procedure following is for a complete adjustment. Removal of a single component (motor, reader, or answer-back) will not normally require a complete readjustment. Perform adjustment in order given ((A), (B), (C), etc). Loosen reader, idler gear shaft, motor, and answer-back mounting screws before beginning complete adjustment.

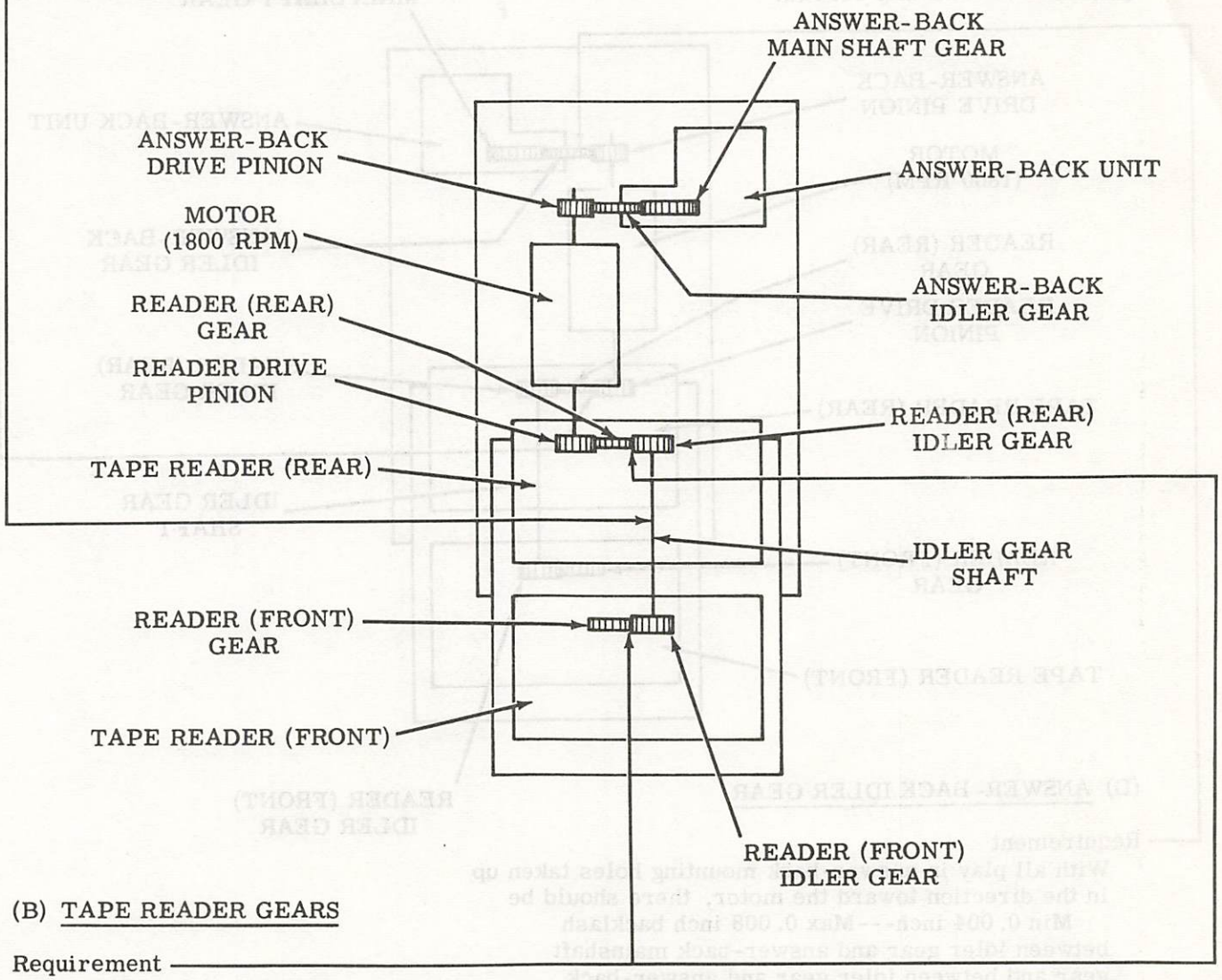
(A) READER IDLER GEARS

Requirement

Reader idler gear shaft should be positioned midway between left and right extremes.

To Adjust

Position the shaft brackets at their mid-adjustment position and tighten bracket mounting screws.



(B) TAPE READER GEARS

Requirement

There should be a

Min 0.004 inch---Max 0.008 inch backlash between the reader idler gear and its associated reader gear at the point of minimum clearance.

To Adjust

Position each reader to meet requirement and tighten reader mounting screws.

2.03 Double Reader Bases (Low Speed Motor) (Continued)

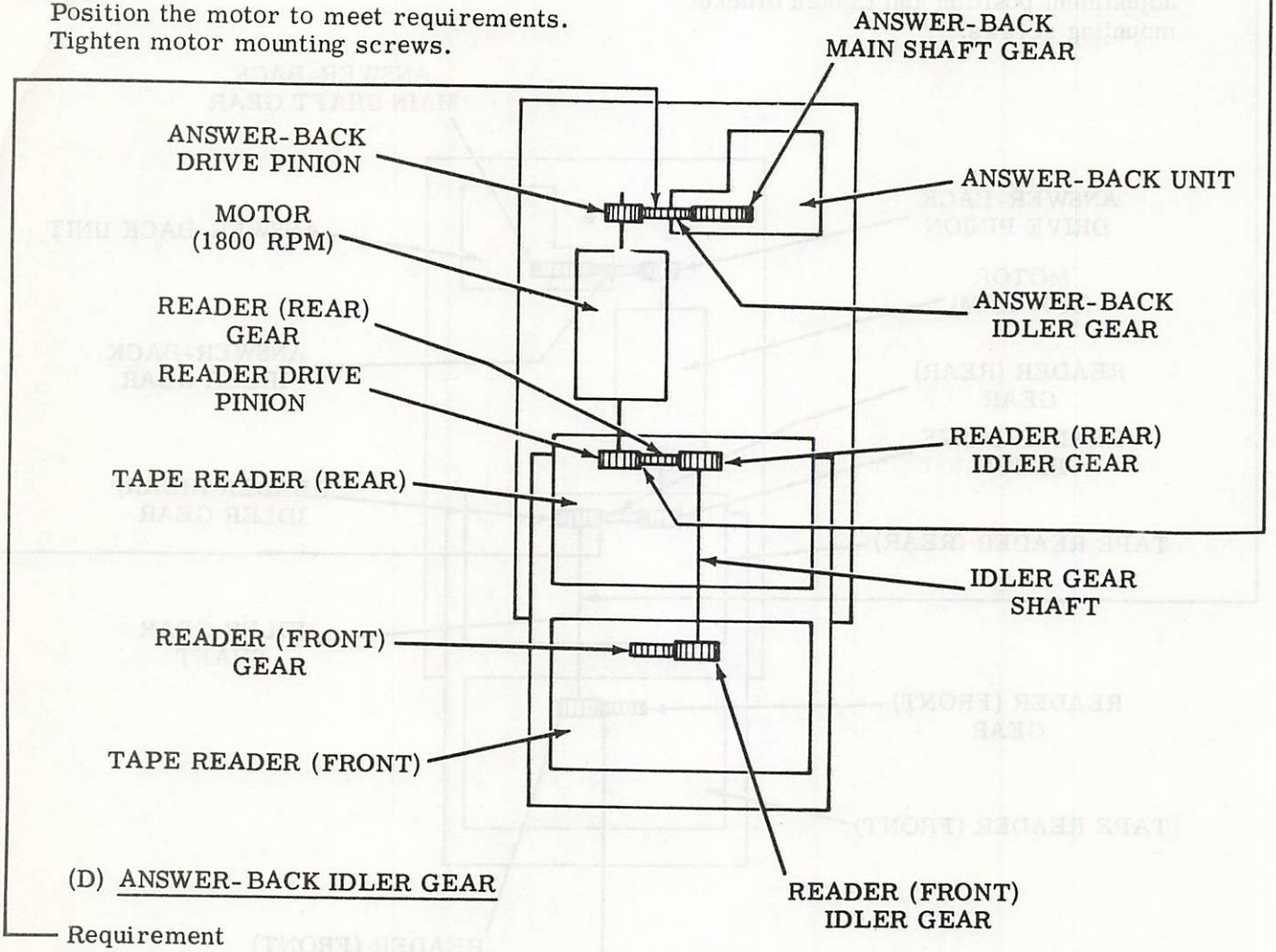
(C) READER DRIVE PINION

Requirement

There should be
Min 0.004 inch---Max 0.008 inch backlash between the rear reader gear and the reader drive pinion at the point of minimum backlash.

To Adjust

Position the motor to meet requirements.
Tighten motor mounting screws.



(D) ANSWER-BACK IDLER GEAR

Requirement

With all play in answer-back mounting holes taken up in the direction toward the motor, there should be
Min 0.004 inch---Max 0.008 inch backlash between idler gear and answer-back mainshaft gear and between idler gear and answer-back drive pinion measured at point of minimum clearance.

To Adjust

Loosen answer-back idler gear bracket locking screw. Take up play and tighten mounting screws. Position idler gear to meet requirements and tighten locking screw.

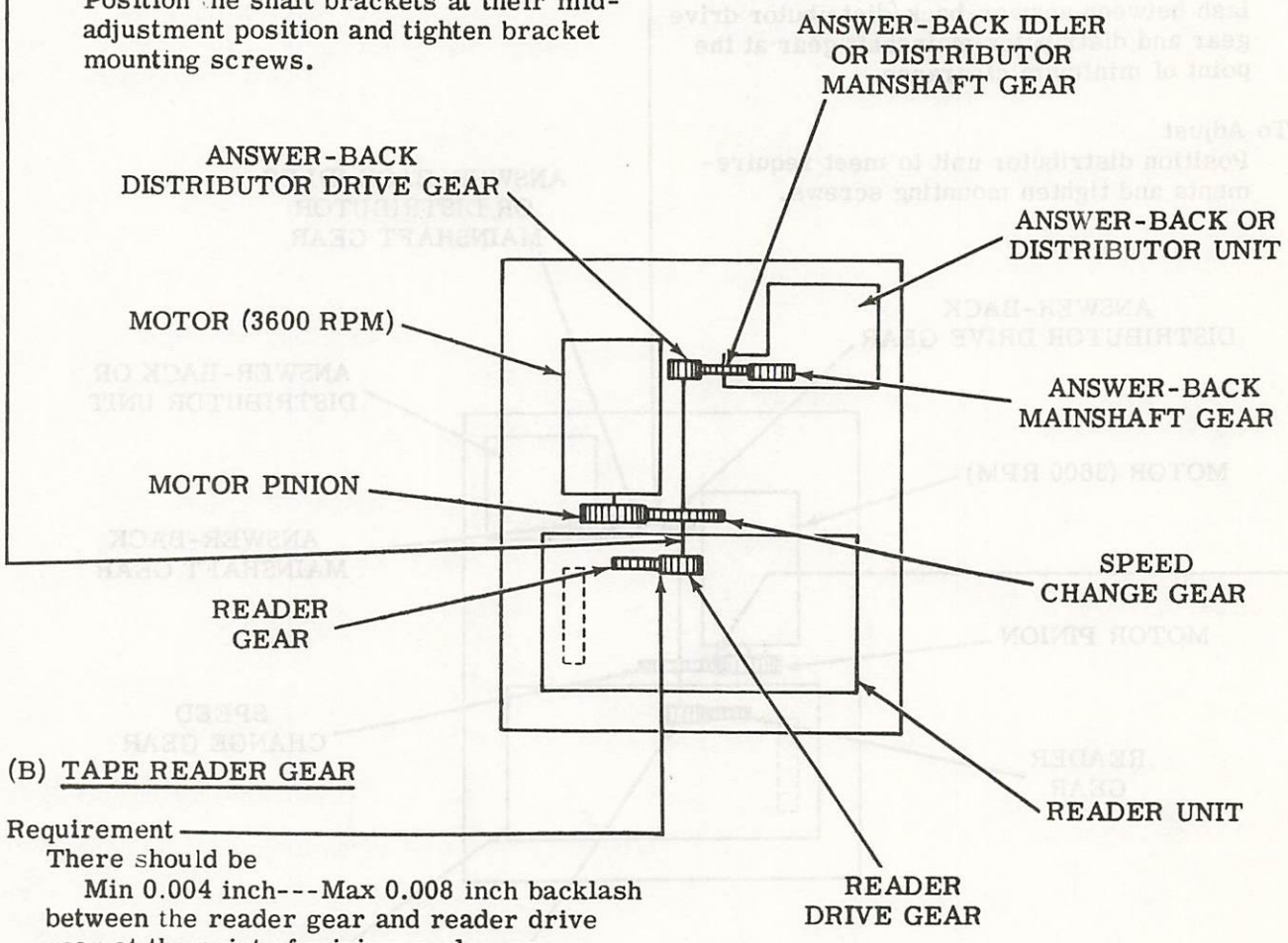
2.04 Single Reader Bases (High Speed Motor)

Note: The procedure following is for a complete adjustment. Removal of a single component (motor, reader, or answer-back, or distributor) will not normally require a complete readjustment. Perform adjustments in the order given ((A), (B), (C), etc). Loosen reader, connector bracket (if so equipped), drive shaft bracket, motor, and answer-back or distributor unit mounting screws before beginning a complete adjustment.

(A) DRIVE GEAR SHAFT

Requirement
The drive gear shaft should be positioned midway between left and right mounting extremes.

To Adjust
Position the shaft brackets at their mid-adjustment position and tighten bracket mounting screws.



(B) TAPE READER GEAR

Requirement
There should be
Min 0.004 inch---Max 0.008 inch backlash between the reader gear and reader drive gear at the point of minimum clearance.

To Adjust
Position reader to meet requirement and tighten reader mounting screws.

(C) CONNECTOR BRACKET ADJUSTMENT

(For those bases on which the reader mating connector is rigidly fixed)

Requirement
The connector should mate with the connector on the bottom of the reader and be fully engaged.

To Adjust
Position connector bracket to meet requirements and tighten mounting screws.

2.04 Single Reader Bases (High Speed Motor) (Continued)

(D) MOTOR PINION

Requirement
There should be
Min 0.004 inch---Max 0.008 inch backlash between the reader gear and motor pinion at the point of minimum clearance.

To Adjust
Position motor to meet requirements and tighten motor mounting screws.

(E) DISTRIBUTOR MAINSHAFT GEAR

(Applies only to bases which mount distributor units)

Requirement
There should be
Min 0.004 inch---Max 0.008 inch backlash between answer-back/distributor drive gear and distributor mainshaft gear at the point of minimum clearance.

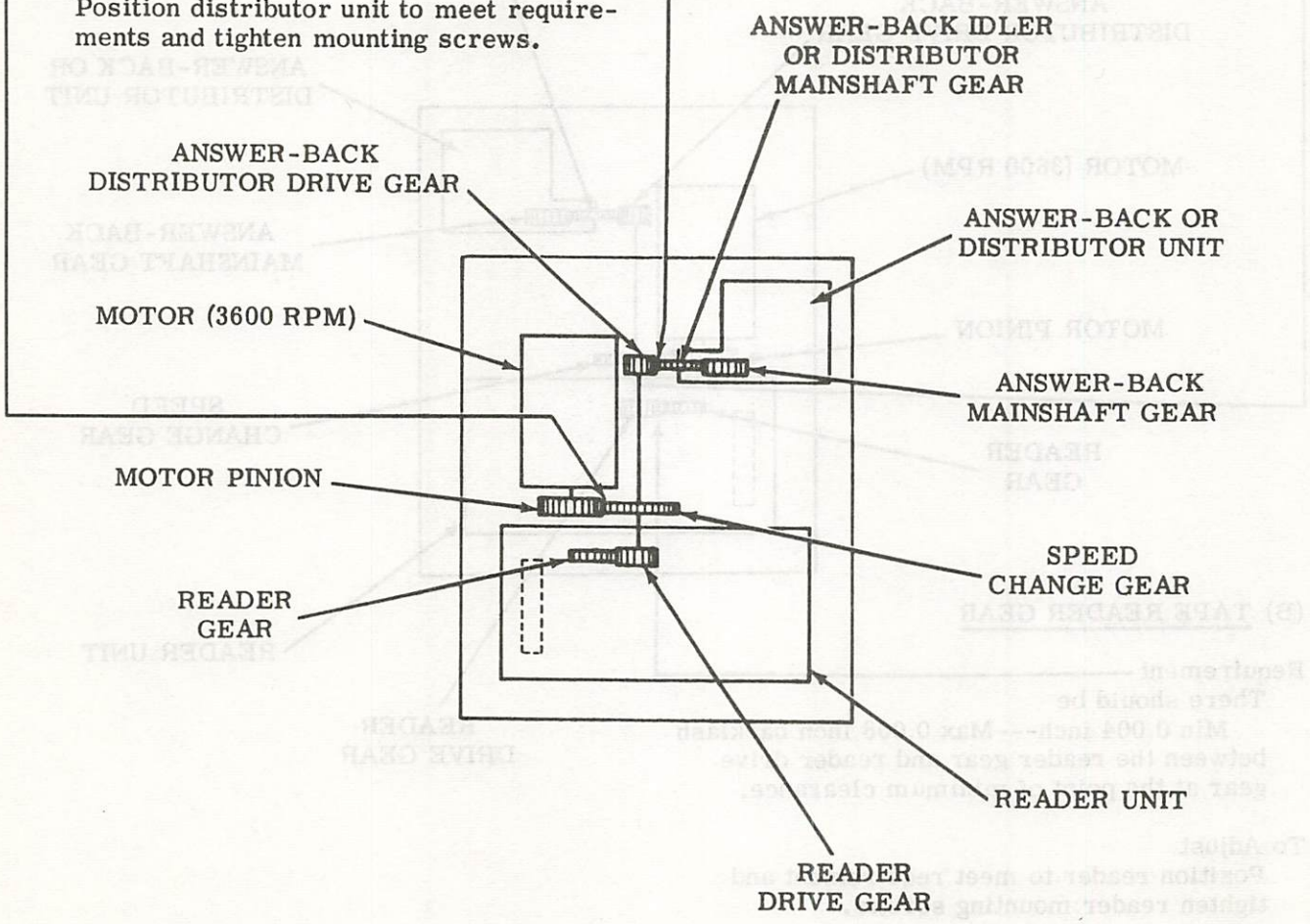
To Adjust
Position distributor unit to meet requirements and tighten mounting screws.

(F) ANSWER-BACK IDLER GEAR

(Applies only to bases which mount answer-back units)

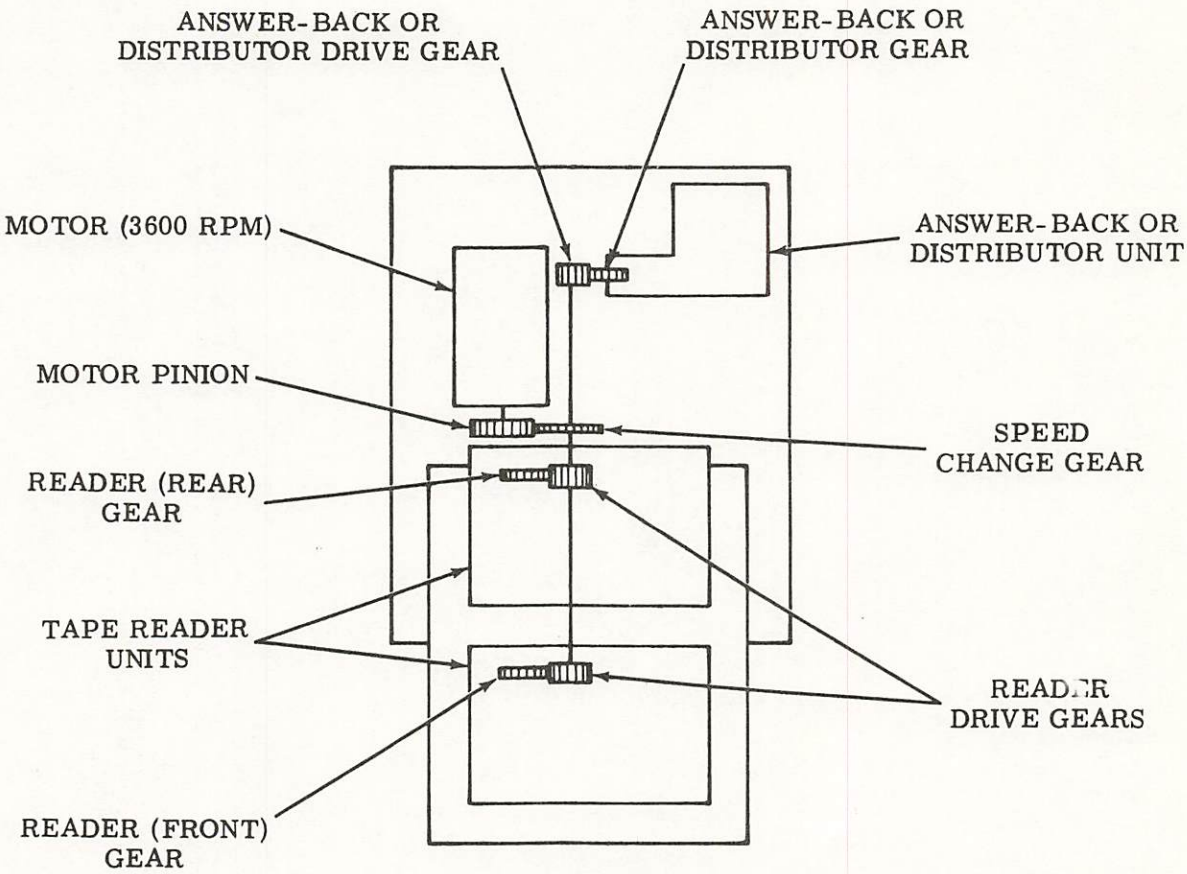
Requirement
With all play in answer-back mounting holes taken up in the direction toward the motor, there should be
Min 0.004 inch---Max 0.008 inch backlash between idler gear and answer-back/distributor drive gear measured at the point of minimum clearance.

To Adjust
Loosen answer-back idler gear bracket locking screw. Take up play and tighten unit mounting screws. Position idler gear to meet requirement and tighten locking screws.



2.05 Double Reader Bases (High Speed Motor)

Adjustment of gears on double reader bases (below) is the same as for single unit bases (2.04) except that one additional reader must be positioned.



3. LUBRICATION

3.01 The tape reader base should be lubricated just prior to placing the unit in service. Thereafter, lubricate every 1500 hours of operation or every six months, whichever occurs first.

3.02 Apply a thin film of KS7471 grease to the surface of all gears EXCEPT THE ANSWER-BACK DRIVE GEAR (OR PINION), THE ANSWER-BACK IDLER GEAR, AND THE ANSWER-BACK MAIN SHAFT GEAR (see adjustment illustrations). On those bases which mount a distributor unit rather than an answer-back, both the distributor drive gear and main-shaft gear should be lubricated along with all other gears.

3.03 Apply a few drops of KS7470 oil to the oiler holes at each end of the motor.

35 NON-TYPING REPERFORATOR

ADJUSTMENTS

CONTENTS PAGE

1. GENERAL

1.01 This section is reissued to:

(a) Include recent engineering changes.

(b) Include armature with two anti-freeze buttons.

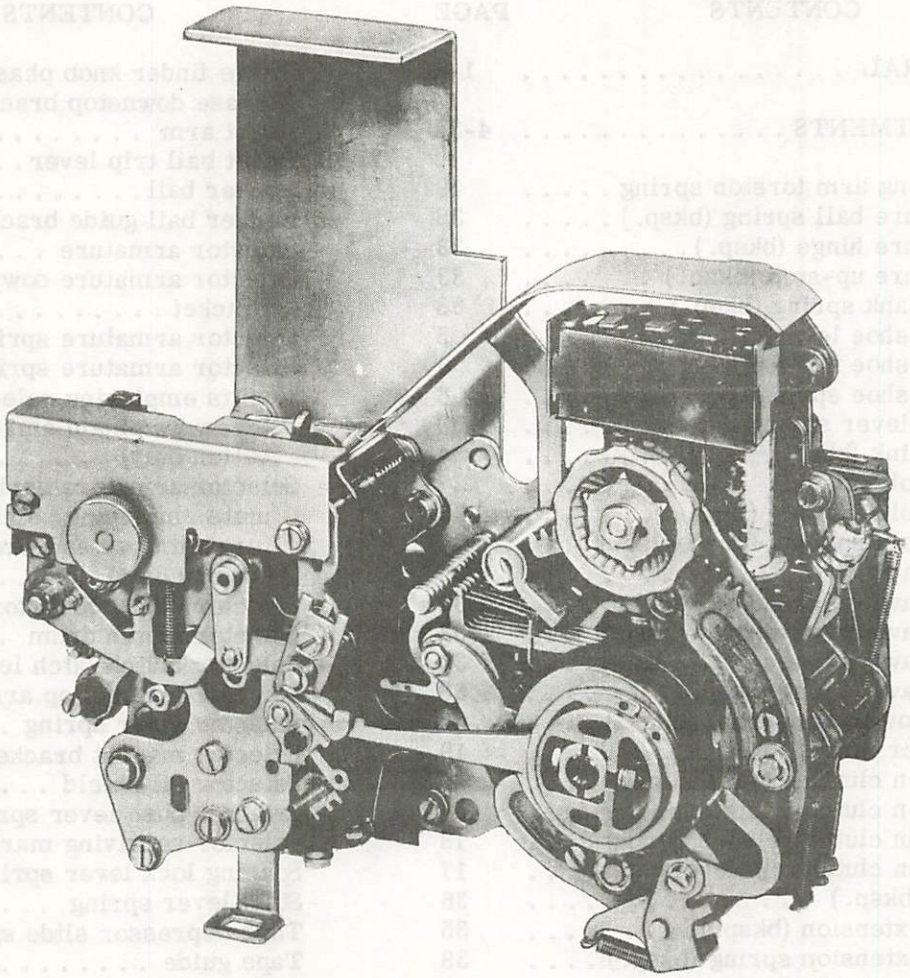


Figure 1 - 35 Non-Typing Reperforator (Right Front View)

(c) Include lateral and front to rear feed wheel adjustment (early design).

1.02 This section contains specific requirements and adjustments for the 35 Non-Typing Reperforator (Fig. 1). The basic equipment includes selector mechanism, fully perforating punch mechanism and power driven backspace mechanism. The unit is designed for adaptation either by a single shaft or by a main shaft and jack shaft to power supplied from a base mounted motor. Where there are differences in the adjustment procedures for single shaft and double shaft units, these are noted in the adjustment text and illustrations. Motors and bases are covered in the applicable sections.

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

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

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

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

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

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

1.07 To manually operate the 35 Non-Typing Reperforator, proceed as follows:

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

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

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

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

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

(f) Strip the push levers from their selector levers if they are spacing in the code combination of the character or function that is being selected. Allow the push levers to

move to the right. The push levers and selector levers move in succession, starting with the inner lever No. 1, to the outer lever No. 8.

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

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

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

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

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

2. ADJUSTMENTS

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

2.02 Selector and Function Mechanisms

CLUTCH SHOE LEVER (BOTH CLUTCHES)

REQUIREMENT

GAP BETWEEN CLUTCH SHOE LEVER AND ITS STOP LUG SHOULD BE 0.055 INCH TO 0.085 INCH GREATER WHEN CLUTCH IS ENGAGED THAN WHEN CLUTCH IS DISENGAGED.

TO CHECK

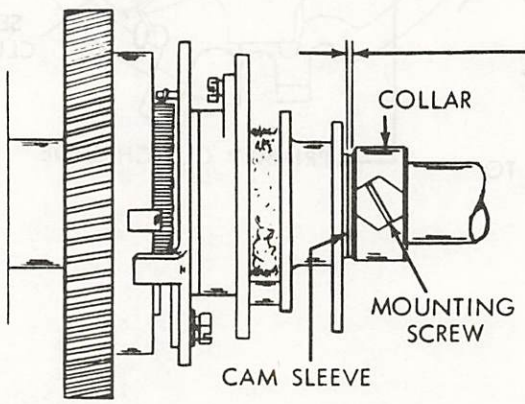
DISENGAGE CLUTCH AND MEASURE GAP. ALIGN HEAD OF DRUM MOUNTING SCREW WITH STOP LUG. ENGAGE CLUTCH. MANUALLY PRESS SHOE LEVER AGAINST STOP LUG AND ALLOW TO SNAP APART. MEASURE GAP WITH CLUTCH ENGAGED.

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.



FUNCTION CLUTCH DRUM END PLAY (FOR UNITS EQUIPPED WITH TWO SHAFTS)

REQUIREMENT

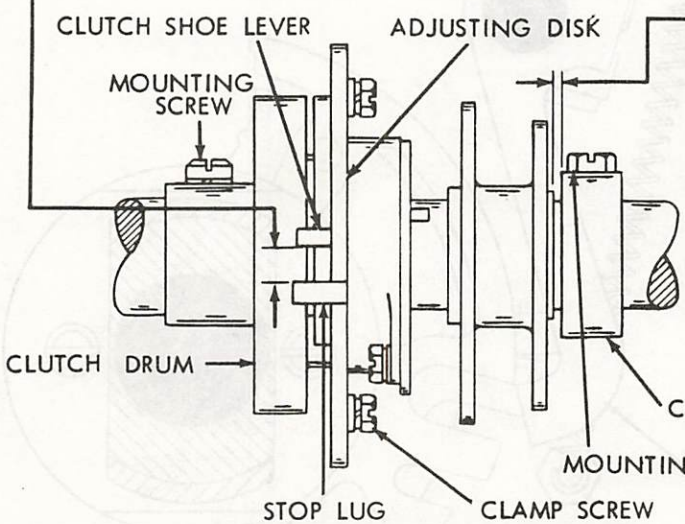
FUNCTION CLUTCH DISENGAGED. SOME END PLAY BETWEEN CAM SLEEVE AND COLLAR

MAX. 0.015 INCH

WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE A MAXIMUM.

TO ADJUST

POSITION COLLAR WITH MOUNTING SCREW LOOSENED.



FUNCTION CLUTCH DRUM END PLAY

REQUIREMENT

WITH FUNCTION CLUTCH DISENGAGED

MIN. SOME----MAX. 0.015 INCH

WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE MAX.

TO ADJUST

WITH ITS MOUNTING SCREW LOOSENED, MOVE DRUM TO EXTREME FRONT POSITION. TIGHTEN DRUM MOUNTING SCREW. POSITION COLLAR WITH MOUNTING SCREW LOOSENED.

2.03 Selector and Function Mechanisms (Cont.)

CLUTCH SHOE LEVER SPRING TENSION

REQUIREMENT

CLUTCH ENGAGED. CAM DISK HELD TO PREVENT TURNING. SPRING SCALE PULLED AT TANGENT TO CLUTCH.

MIN. 16 OZS.

MAX. 22 OZS.

TO MOVE SHOE LEVER IN CONTACT WITH STOP LUG.

CLUTCH SHOE SPRING TENSION

NOTE

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

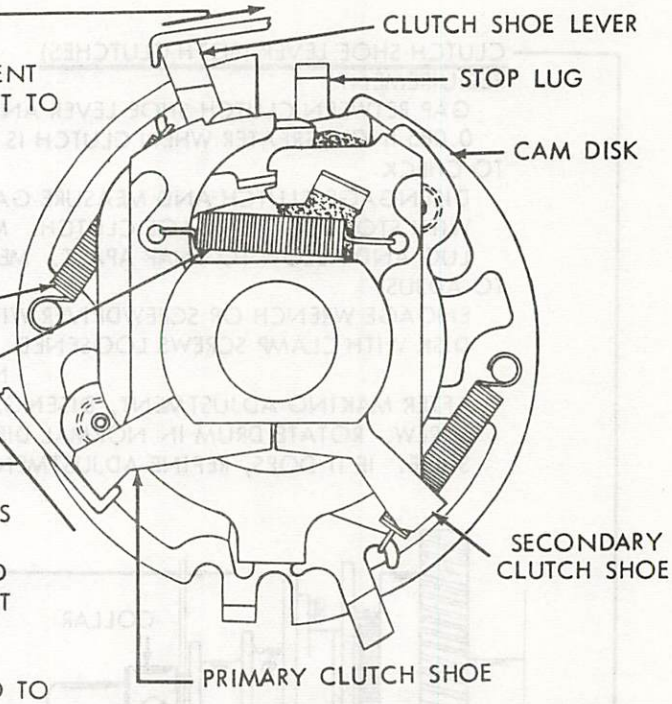
REQUIREMENT

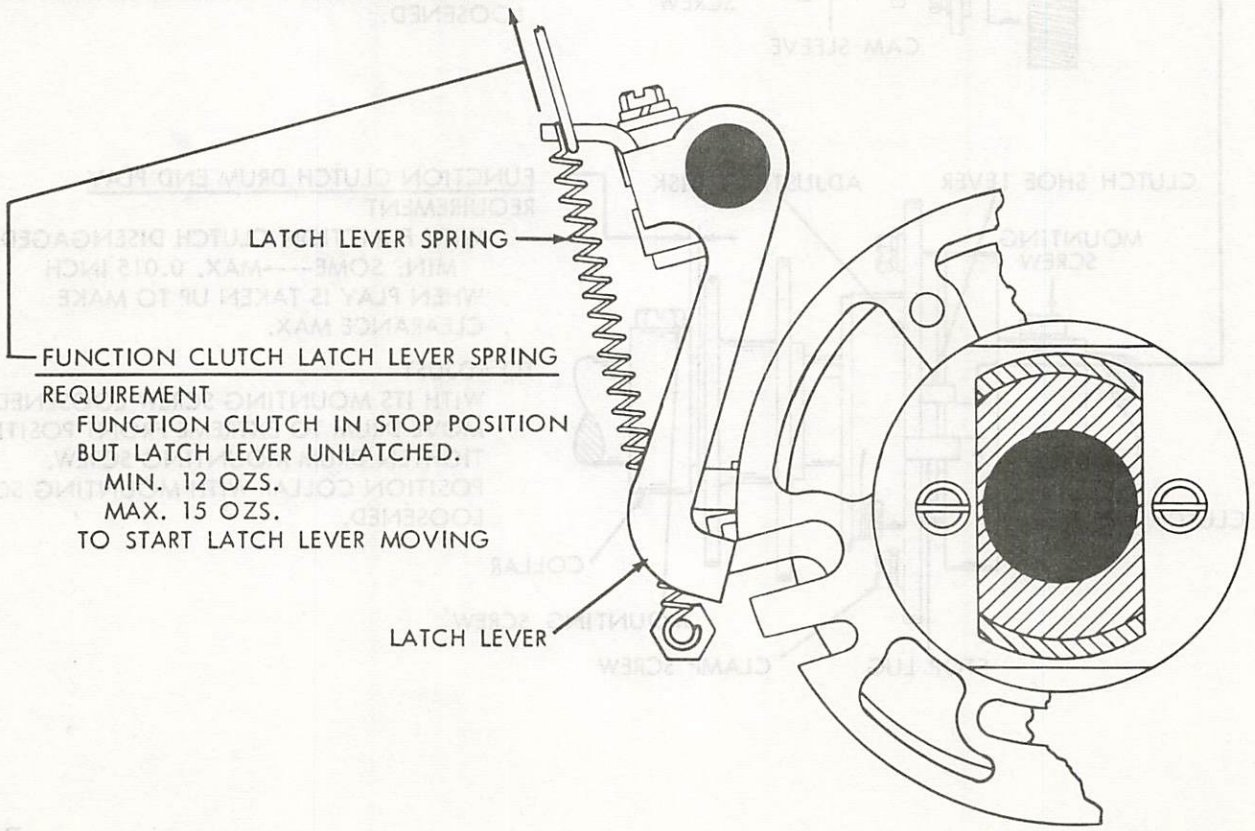
CLUTCH DRUM REMOVED. SPRING SCALE APPLIED TO PRIMARY SHOE AT TANGENT TO FRICTION SURFACE.

MIN. 3 OZS.

MAX. 5 OZS.

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





FUNCTION CLUTCH LATCH LEVER SPRING

REQUIREMENT

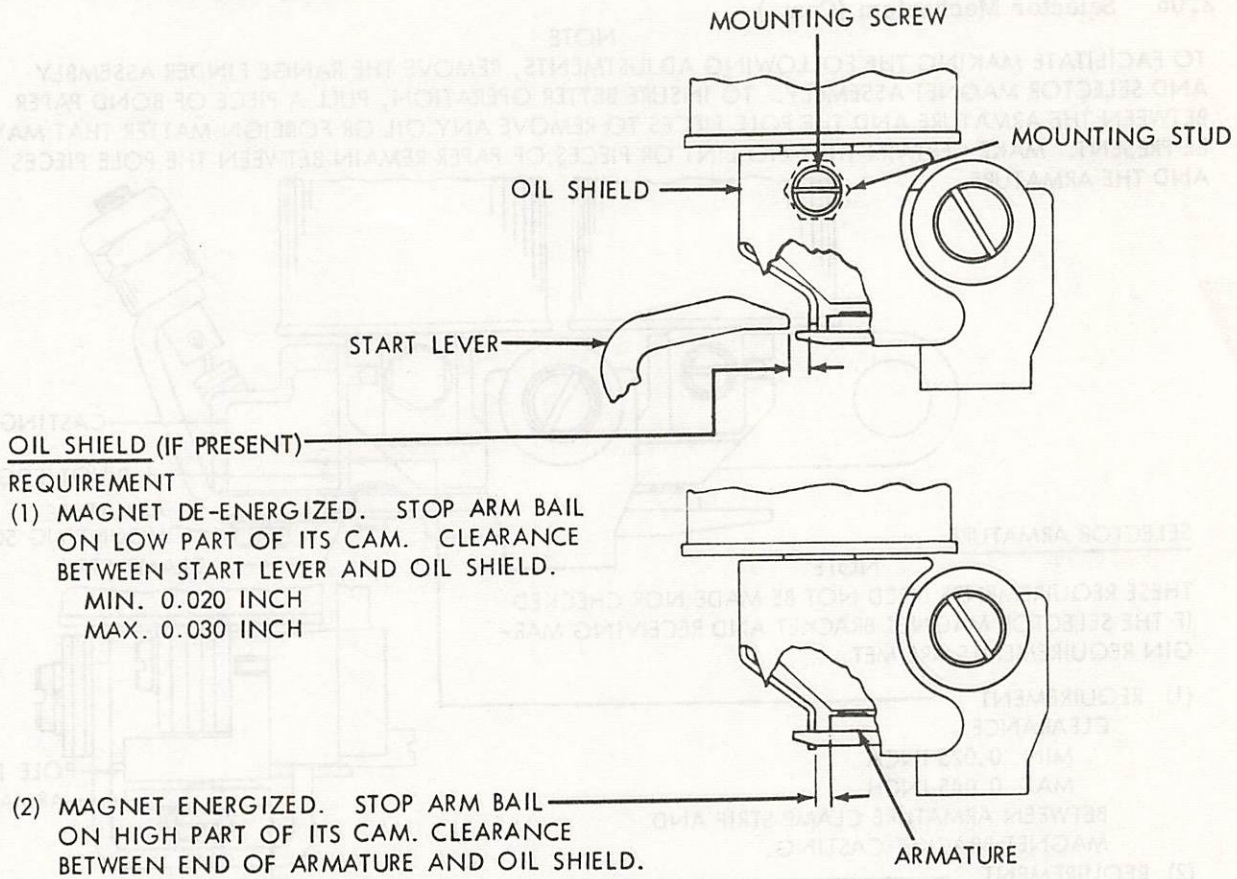
FUNCTION CLUTCH IN STOP POSITION BUT LATCH LEVER UNLATCHED.

MIN. 12 OZS.

MAX. 15 OZS.

TO START LATCH LEVER MOVING

2.04 Selector Mechanism



OIL SHIELD (IF PRESENT)

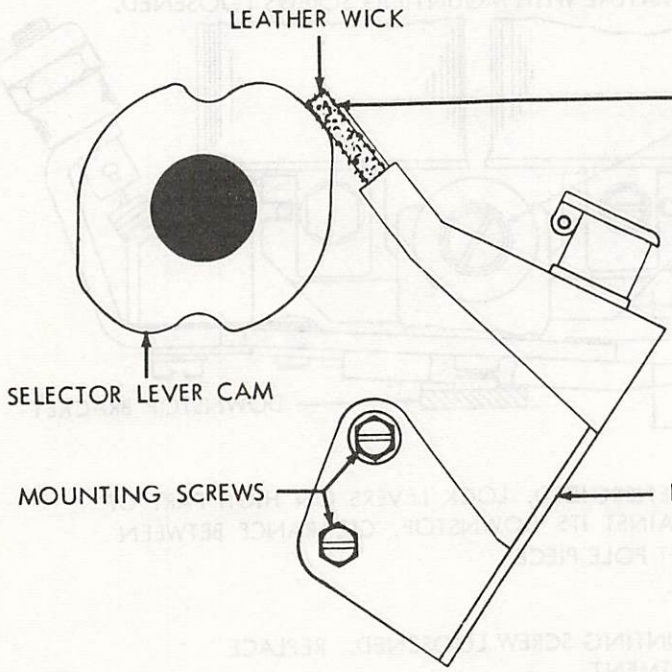
REQUIREMENT

(1) MAGNET DE-ENERGIZED. STOP ARM BAIL ON LOW PART OF ITS CAM. CLEARANCE BETWEEN START LEVER AND OIL SHIELD.
MIN. 0.020 INCH
MAX. 0.030 INCH

(2) MAGNET ENERGIZED. STOP ARM BAIL ON HIGH PART OF ITS CAM. CLEARANCE BETWEEN END OF ARMATURE AND OIL SHIELD.
MIN. 0.010 INCH

TO ADJUST

POSITION SHIELD WITH MOUNTING SCREW LOOSENED. MAKE SURE OIL SHIELD MOUNTING STUD IS SECURE BEFORE MAKING ADJUSTMENT.



SELECTOR CAM LUBRICATOR

REQUIREMENT

HIGH PART OF SELECTOR LEVER CAMS SHOULD CONTACT LEATHER WICK BUT SHOULD NOT DEFLECT WICK MORE THAN 1/32 INCH GAUGED VISUALLY.

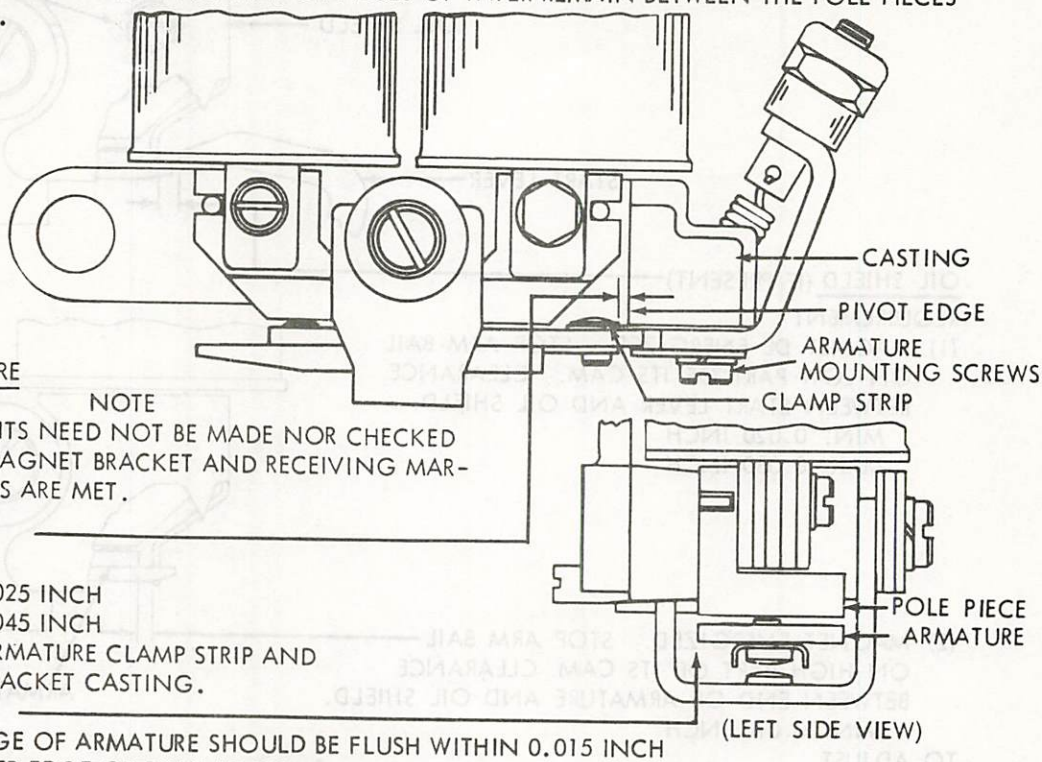
TO ADJUST

POSITION LUBRICATOR ASSEMBLY AROUND LOWER SCREW WITH MOUNTING SCREWS LOOSENED.

2.05 Selector Mechanism (Cont.)

NOTE

TO FACILITATE MAKING THE FOLLOWING ADJUSTMENTS, REMOVE THE RANGE FINDER ASSEMBLY AND SELECTOR MAGNET ASSEMBLY. TO INSURE BETTER OPERATION, PULL A PIECE OF BOND PAPER BETWEEN THE ARMATURE AND THE POLE PIECES TO REMOVE ANY OIL OR FOREIGN MATTER THAT MAY BE PRESENT. MAKE CERTAIN THAT NO LINT OR PIECES OF PAPER REMAIN BETWEEN THE POLE PIECES AND THE ARMATURE.



SELECTOR ARMATURE

NOTE

THESE REQUIREMENTS NEED NOT BE MADE NOR CHECKED IF THE SELECTOR MAGNET BRACKET AND RECEIVING MARGIN REQUIREMENTS ARE MET.

(1) REQUIREMENT

CLEARANCE

MIN. 0.025 INCH

MAX. 0.045 INCH

BETWEEN ARMATURE CLAMP STRIP AND MAGNET BRACKET CASTING.

(2) REQUIREMENT

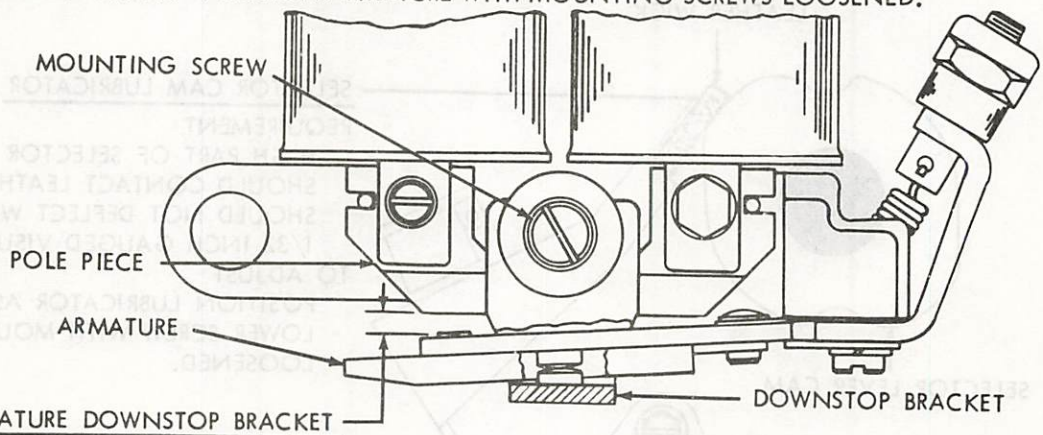
OUTER EDGE OF ARMATURE SHOULD BE FLUSH WITHIN 0.015 INCH WITH OUTER EDGE OF POLE PIECES.

(3) REQUIREMENT

START LEVER SHALL DROP FREELY INTO ARMATURE EXTENSION SLOT.

TO ADJUST

POSITION ARMATURE SPRING ADJUSTING NUT TO HOLD ARMATURE FIRMLY AGAINST PIVOT EDGE OF CASTING. POSITION ARMATURE WITH MOUNTING SCREWS LOOSENED.



SELECTOR ARMATURE DOWNSTOP BRACKET

REQUIREMENT

REMOVE OIL SHIELD. WITH MAGNET DE-ENERGIZED, LOCK LEVERS ON HIGH PART OF THEIR CAM, AND ARMATURE RESTING AGAINST ITS DOWNSTOP, CLEARANCE BETWEEN END OF ARMATURE AND LEFT EDGE OF LEFT POLE PIECE

MIN. 0.025 INCH MAX. 0.030 INCH.

TO ADJUST

POSITION DOWNSTOP BRACKET WITH MOUNTING SCREW LOOSENED. REPLACE OIL SHIELD AND CHECK OIL SHIELD ADJUSTMENT.

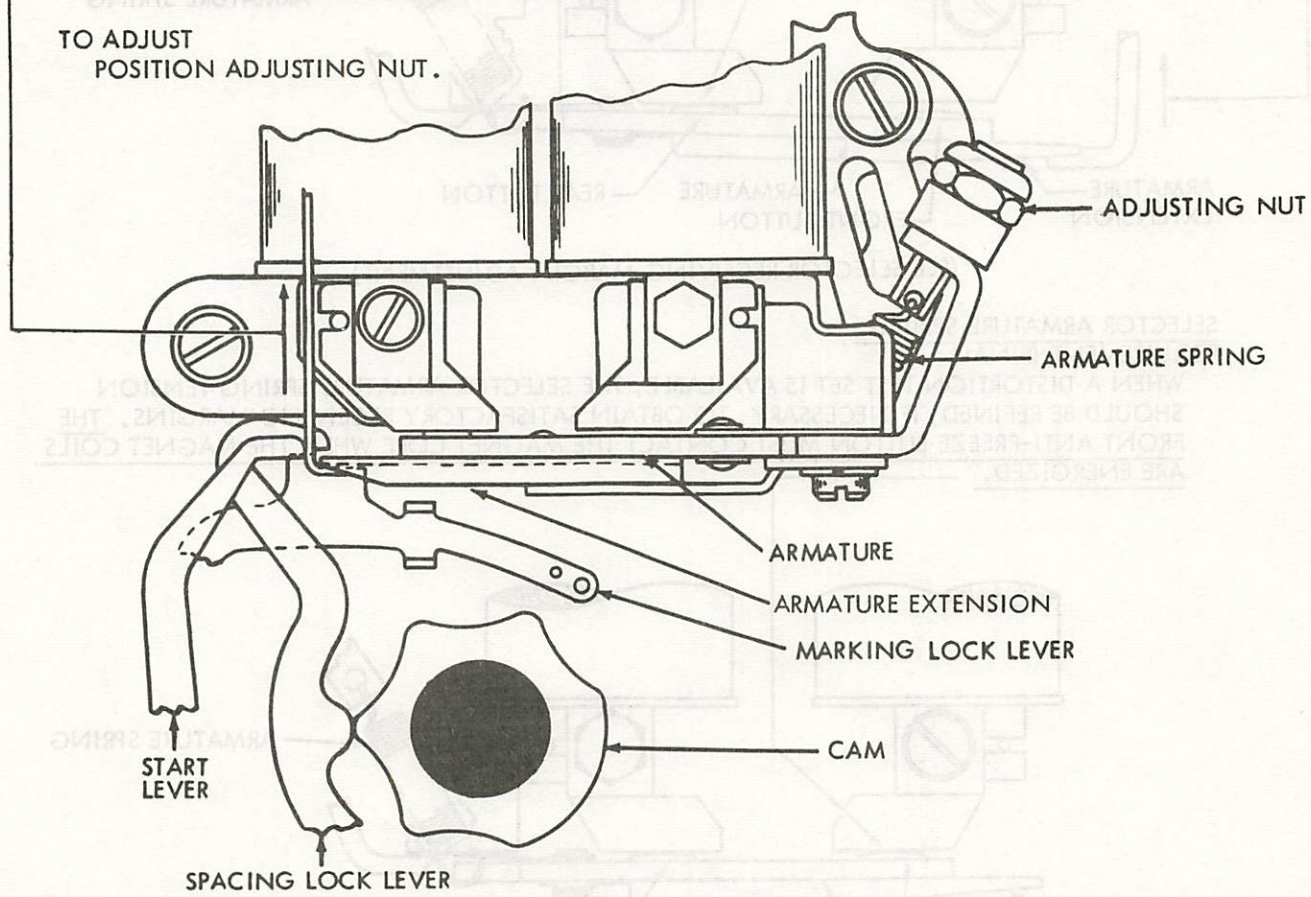
2.06 Selector Mechanism (Cont.)

SELECTOR ARMATURE SPRING
(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH SINGLE ANTI-FREEZE BUTTON ONLY).
REQUIREMENT (PRELIMINARY)
WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE THE FOLLOWING TENSIONS TO MOVE ARMATURE TO MARKING POSITION:

0.060 AMPERE - MIN. 2-1/2 OZS. --- MAX. 3 OZS.
0.030 AMPERE - MIN. 1-1/2 OZS. --- MAX. 2 OZS.
0.500 AMPERE - MIN. 4-1/2 OZS. --- MAX. 5-1/2 OZS.

NOTE

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



REQUIREMENT (FINAL)
SEE SELECTOR RECEIVING MARGIN ADJUSTMENT (PARAGRAPH 2-13)

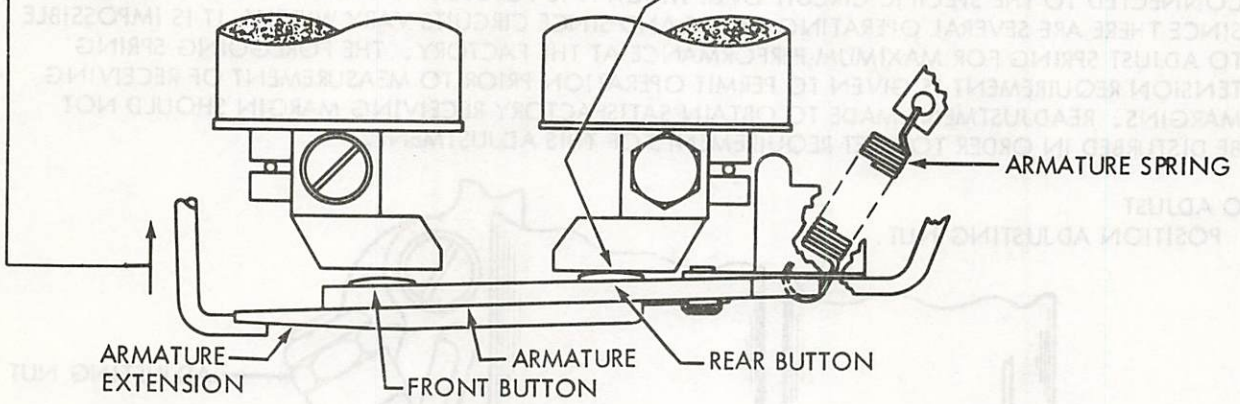
2.07 Selector Mechanism (Cont.)

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

WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE APPROXIMATELY THE FOLLOWING TENSIONS TO MOVE THE REAR ANTI-FREEZE BUTTON AGAINST THE MAGNET CORE:

0.060 AMPERE - APPROXIMATELY 1-1/4 OZS.
0.030 AMPERE - APPROXIMATELY 5/8 OZ.
0.500 AMPERE - APPROXIMATELY 1-3/4 OZS.

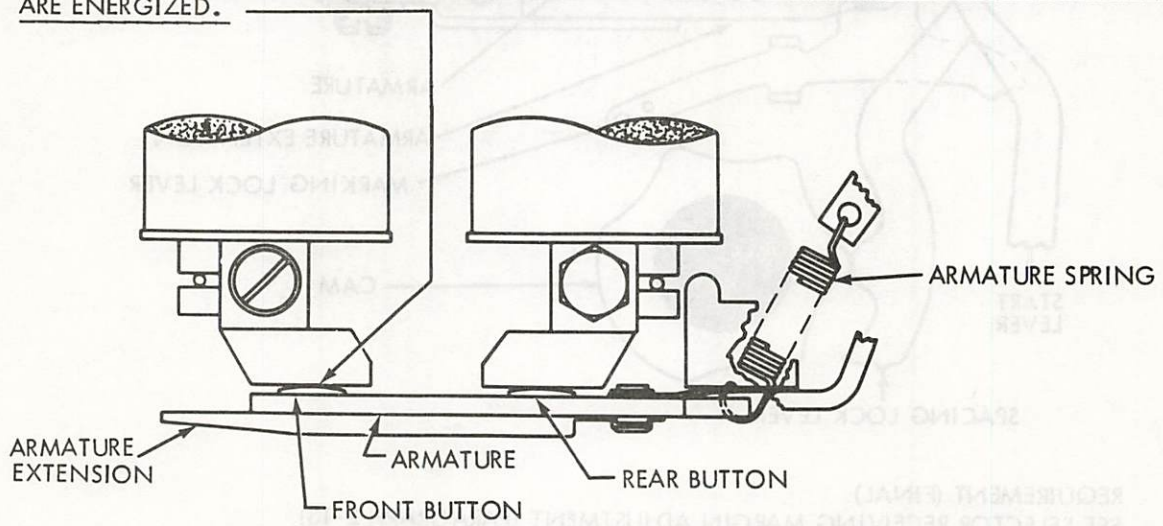
TO ADJUST
POSITION ADJUSTING NUT.



(SEE SELECTOR RECEIVING MARGIN ADJUSTMENT)

SELECTOR ARMATURE SPRING
REQUIREMENT (FINAL)

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

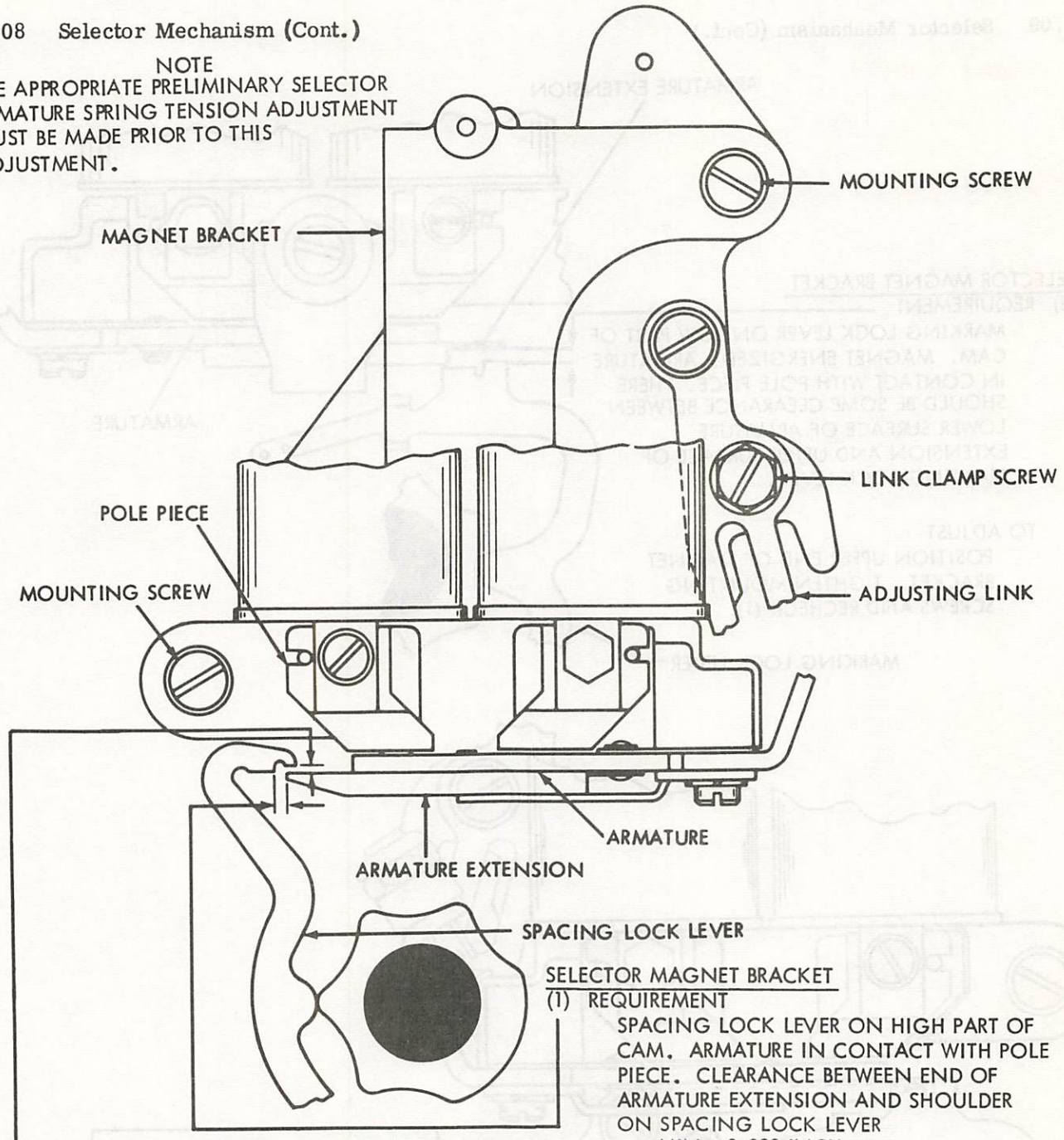


REQUIREMENT (FINAL)

SEE SELECTOR RECEIVING MARGIN ADJUSTMENT (PARAGRAPH 2-13)

2.08 Selector Mechanism (Cont.)

NOTE
THE APPROPRIATE PRELIMINARY SELECTOR ARMATURE SPRING TENSION ADJUSTMENT MUST BE MADE PRIOR TO THIS ADJUSTMENT.



SELECTOR MAGNET BRACKET

(1) REQUIREMENT
SPACING LOCK LEVER ON HIGH PART OF CAM. ARMATURE IN CONTACT WITH POLE PIECE. CLEARANCE BETWEEN END OF ARMATURE EXTENSION AND SHOULDER ON SPACING LOCK LEVER
MIN. 0.020 INCH
MAX. 0.035 INCH

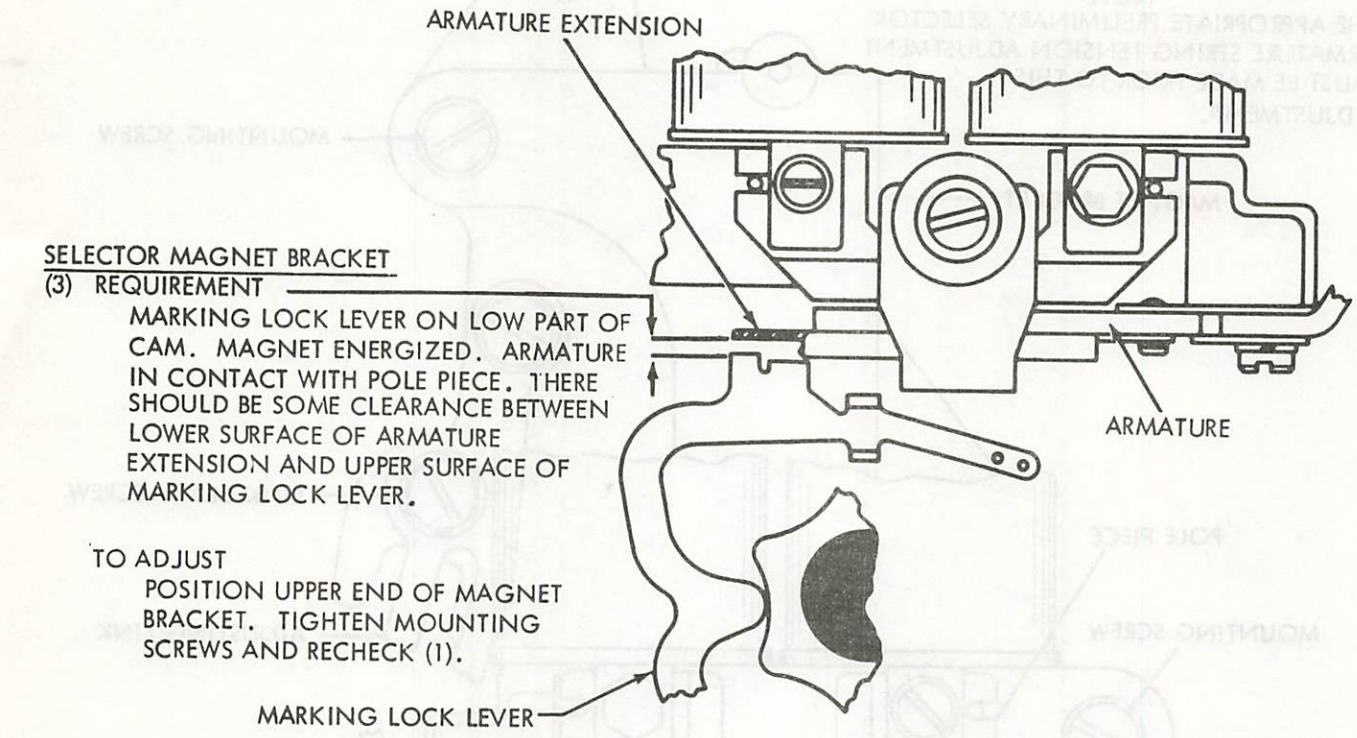
TO ADJUST
LOOSEN TWO MAGNET BRACKET MOUNTING SCREWS AND ADJUSTING LINK CLAMP SCREW. POSITION MAGNET BRACKET BY MEANS OF ADJUSTING LINK AND TIGHTEN LINK CLAMP SCREW ONLY.

NOTE
SEE FOLLOWING PAGE FOR REQUIREMENT (3).

(2) REQUIREMENT
SPACING LOCK LEVER ON HIGH PART OF CAM. ARMATURE IN CONTACT WITH POLE PIECE. SOME CLEARANCE BETWEEN UPPER SURFACE OF ARMATURE EXTENSION AND LOWER SURFACE OF UPPER STEP OF SPACING LOCK LEVER WHEN LOCK LEVER IS HELD DOWWARD.
MAX. 0.003 INCH

TO ADJUST
POSITION UPPER END OF MAGNET BRACKET. TIGHTEN TWO MAGNET BRACKET MOUNTING SCREWS. RECHECK REQUIREMENT (1).

2.09 Selector Mechanism (Cont.)



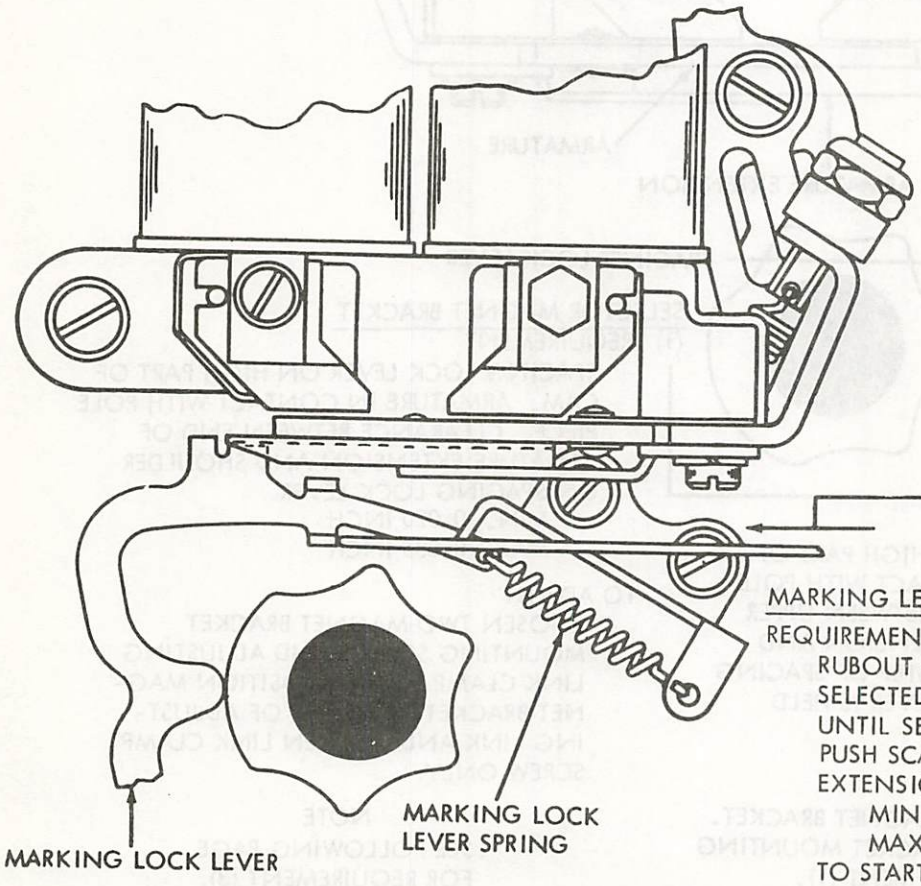
SELECTOR MAGNET BRACKET
(3) REQUIREMENT

MARKING LOCK LEVER ON LOW PART OF CAM. MAGNET ENERGIZED. ARMATURE IN CONTACT WITH POLE PIECE. THERE SHOULD BE SOME CLEARANCE BETWEEN LOWER SURFACE OF ARMATURE EXTENSION AND UPPER SURFACE OF MARKING LOCK LEVER.

TO ADJUST

POSITION UPPER END OF MAGNET BRACKET. TIGHTEN MOUNTING SCREWS AND RECHECK (1).

MARKING LOCK LEVER



MARKING LEVER SPRING

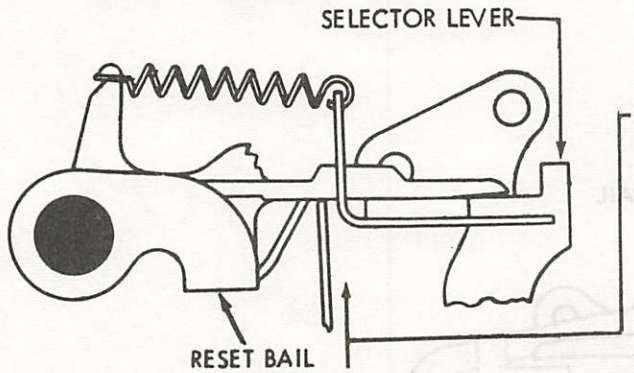
REQUIREMENT

RUBOUT COMBINATION (12345678) SELECTED. MAIN SHAFT ROTATED UNTIL SELECTOR CLUTCH IS DISENGAGED. PUSH SCALE APPLIED TO LOWER EXTENSION OF LOCK LEVER.

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

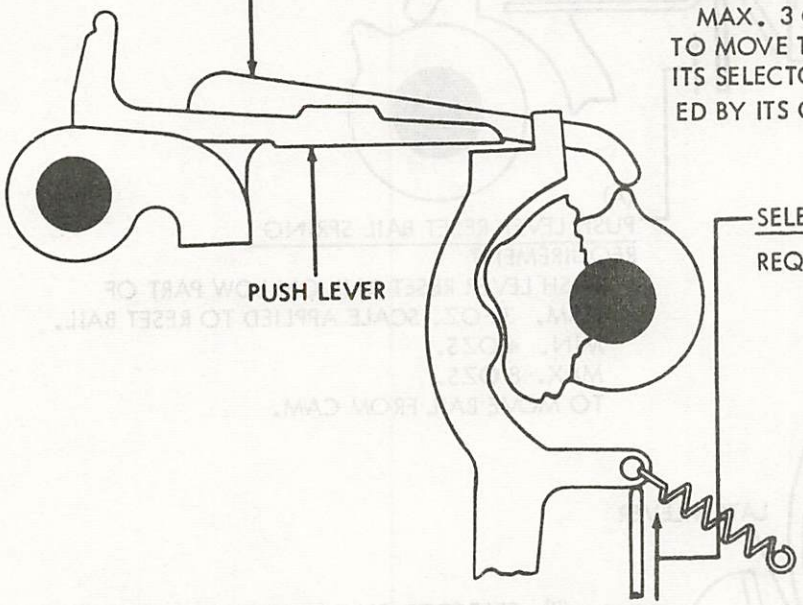
TO START LEVER MOVING.

2.10 Selector Mechanism (Cont.)



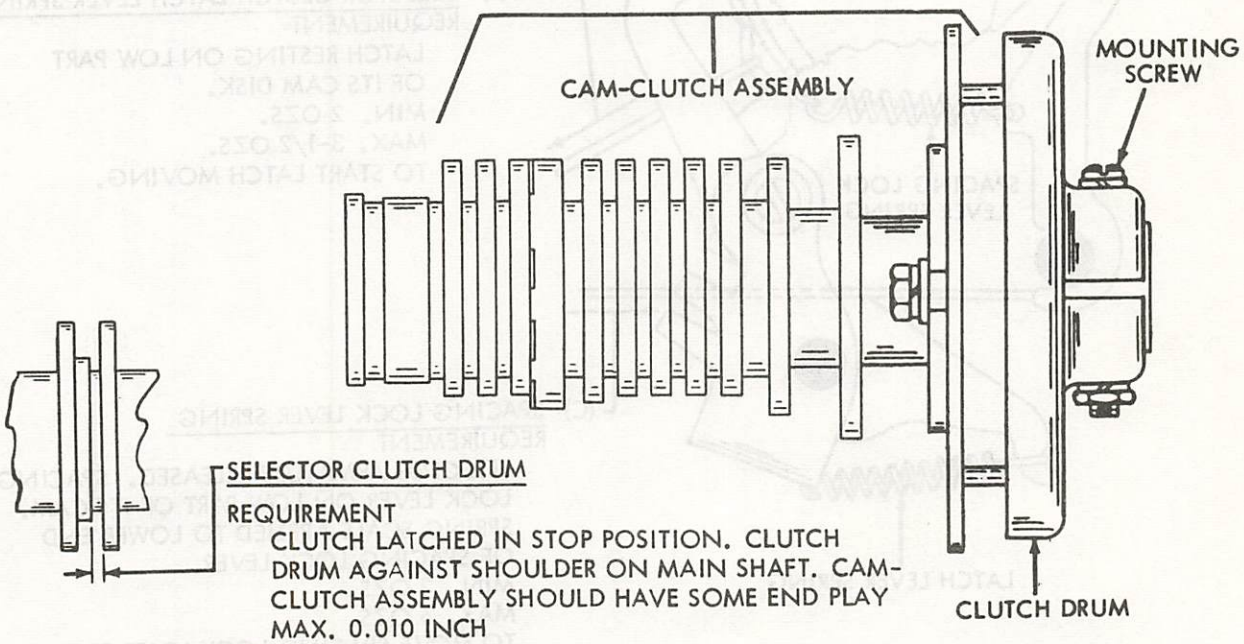
SELECTOR PUSH LEVER SPRING

REQUIREMENT
PUSH LEVER IN SPACING POSITION
MIN. 1 OZ.
MAX. 2 OZ.
TO MOVE PUSH LEVERS FROM SELECTOR LEVERS ON ALL PUSH LEVERS EXCEPT THAT ONE WHICH IS FIRST IN SEQUENCE OF SELECTION.
MIN. 2 OZS.
MAX. 3 OZS.
TO MOVE THIS PUSH LEVER AWAY FROM ITS SELECTOR LEVER. THIS SPRING IS DISTINGUISHED BY ITS COPPER COLOR.



SELECTOR LEVER SPRING

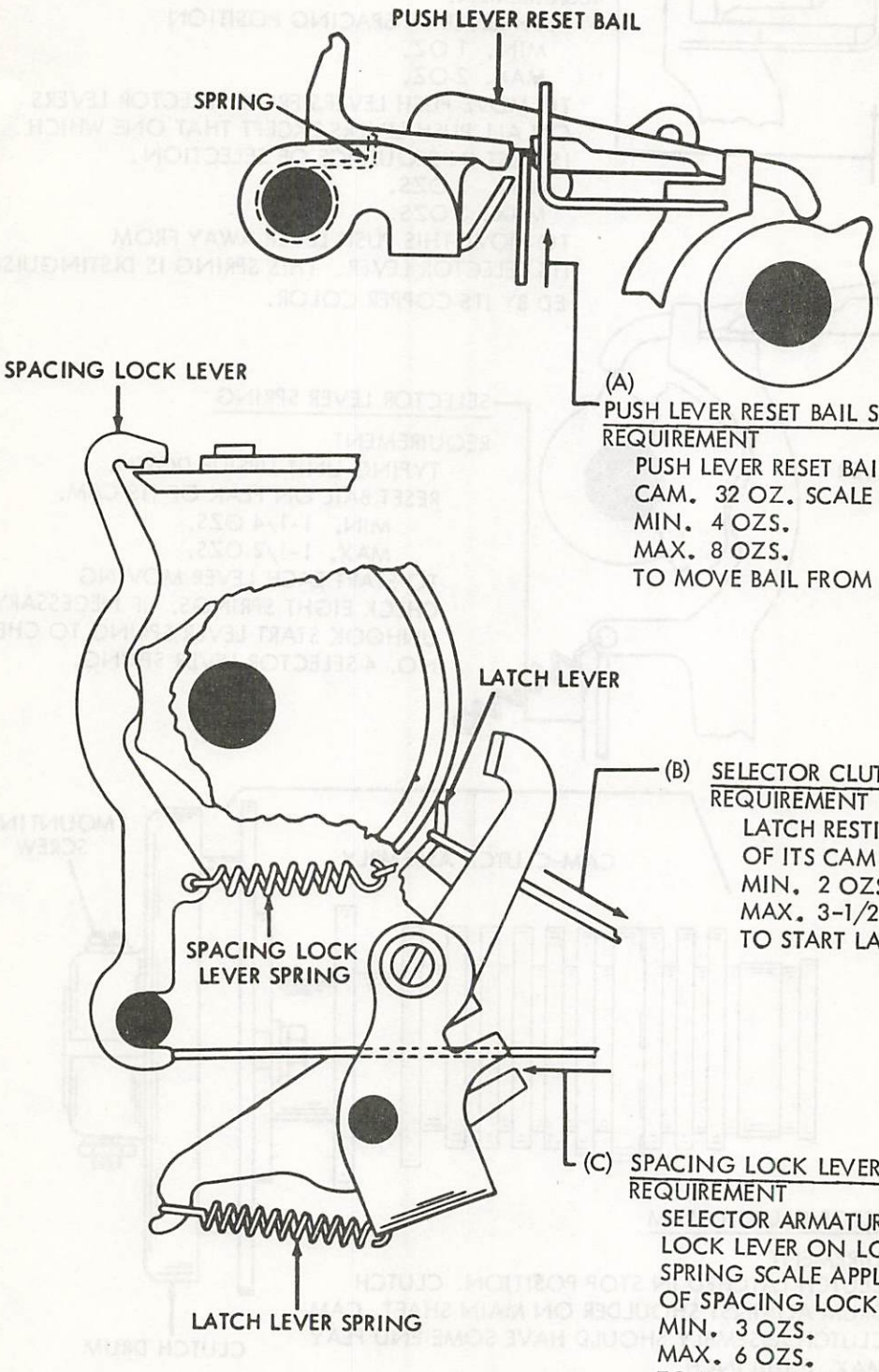
REQUIREMENT
TYPING UNIT UPSIDE DOWN.
RESET BAIL ON PEAK OF ITS CAM.
MIN. 1-1/4 OZS.
MAX. 1-1/2 OZS.
TO START EACH LEVER MOVING CHECK EIGHT SPRINGS. IF NECESSARY, UNHOOK START LEVER SPRING TO CHECK NO. 4 SELECTOR LEVER SPRING.



SELECTOR CLUTCH DRUM

REQUIREMENT
CLUTCH LATCHED IN STOP POSITION. CLUTCH DRUM AGAINST SHOULDER ON MAIN SHAFT. CAM-CLUTCH ASSEMBLY SHOULD HAVE SOME END PLAY
MAX. 0.010 INCH
TO ADJUST
POSITION CLUTCH DRUM WITH MOUNTING SCREW LOOSENED.

2.11 Selector Mechanism (Cont.)



(A) PUSH LEVER RESET BAIL SPRING
REQUIREMENT
PUSH LEVER RESET BAIL ON LOW PART OF CAM. 32 OZ. SCALE APPLIED TO RESET BAIL.
MIN. 4 OZS.
MAX. 8 OZS.
TO MOVE BAIL FROM CAM.

(B) SELECTOR CLUTCH LATCH LEVER SPRING
REQUIREMENT
LATCH RESTING ON LOW PART OF ITS CAM DISK.
MIN. 2 OZS.
MAX. 3-1/2 OZS.
TO START LATCH MOVING.

(C) SPACING LOCK LEVER SPRING
REQUIREMENT
SELECTOR ARMATURE RELEASED. SPACING LOCK LEVER ON LOW PART OF ITS CAM. SPRING SCALE APPLIED TO LOWER END OF SPACING LOCK LEVER.
MIN. 3 OZS.
MAX. 6 OZS.
TO MOVE SPACING LOCK LEVER FROM ITS PIVOT SHAFT.

2.12 Selector Mechanism (Cont.)

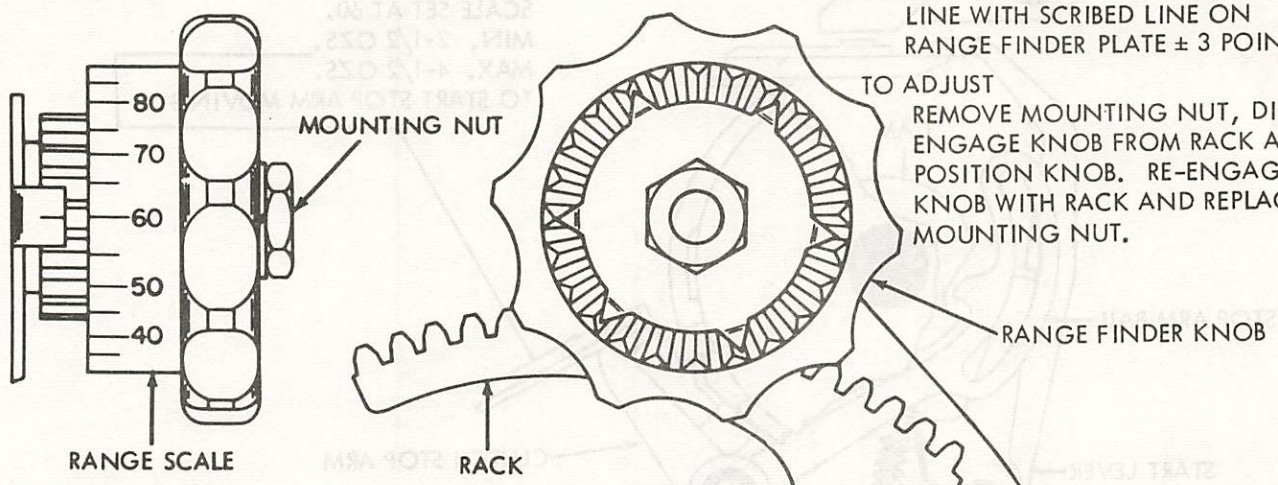
(A) RANGE FINDER KNOB PHASING

REQUIREMENT

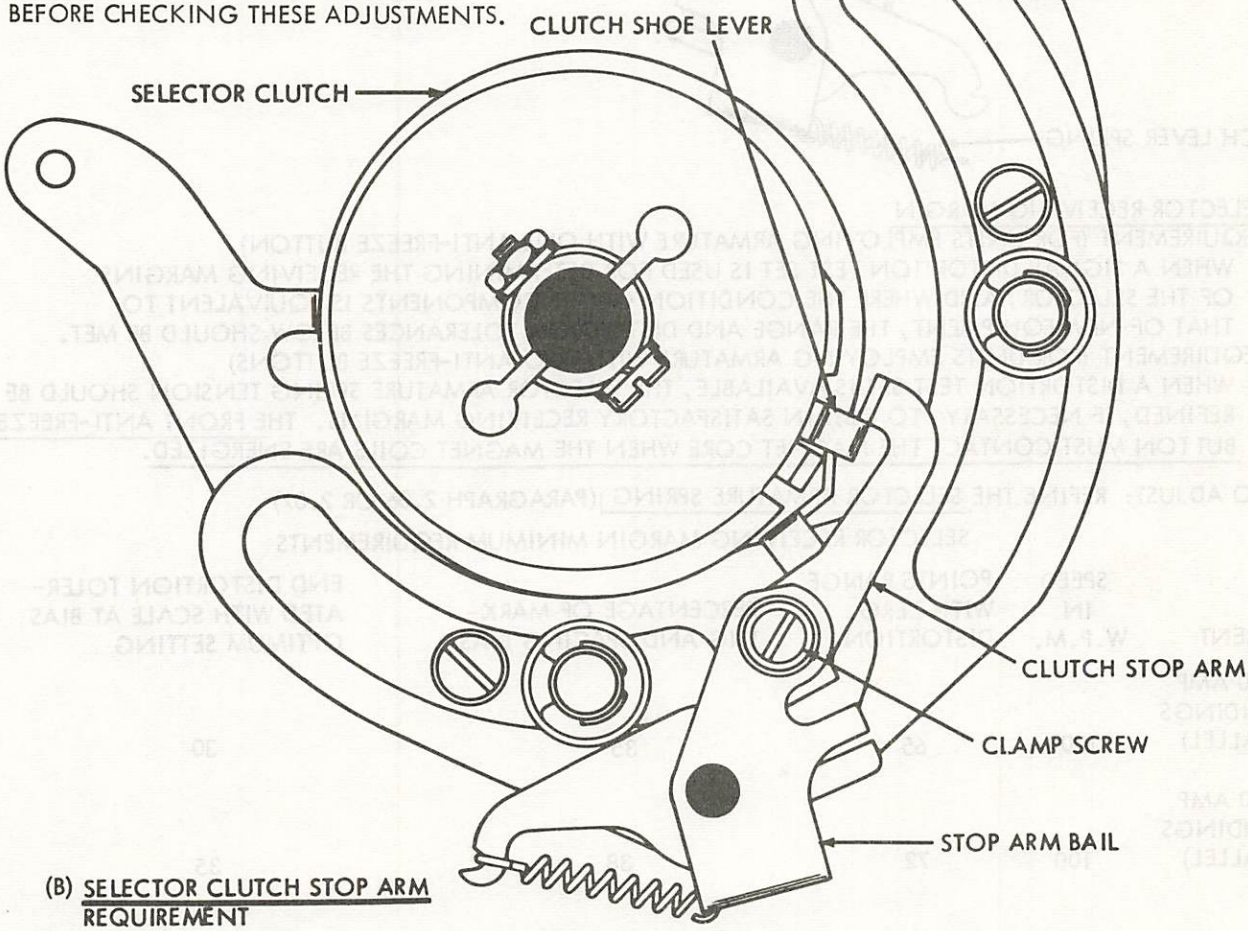
WITH RANGE FINDER KNOB TURNED TO EITHER END OF RACK, ZERO MARK ON SCALE SHOULD BE IN LINE WITH SCRIBED LINE ON RANGE FINDER PLATE ± 3 POINTS.

TO ADJUST

REMOVE MOUNTING NUT, DISENGAGE KNOB FROM RACK AN POSITION KNOB. RE-ENGAGE KNOB WITH RACK AND REPLACE MOUNTING NUT.



NOTE: REPLACE RANGE FINDER AND SELECTOR MAGNET ASSEMBLY BEFORE CHECKING THESE ADJUSTMENTS.



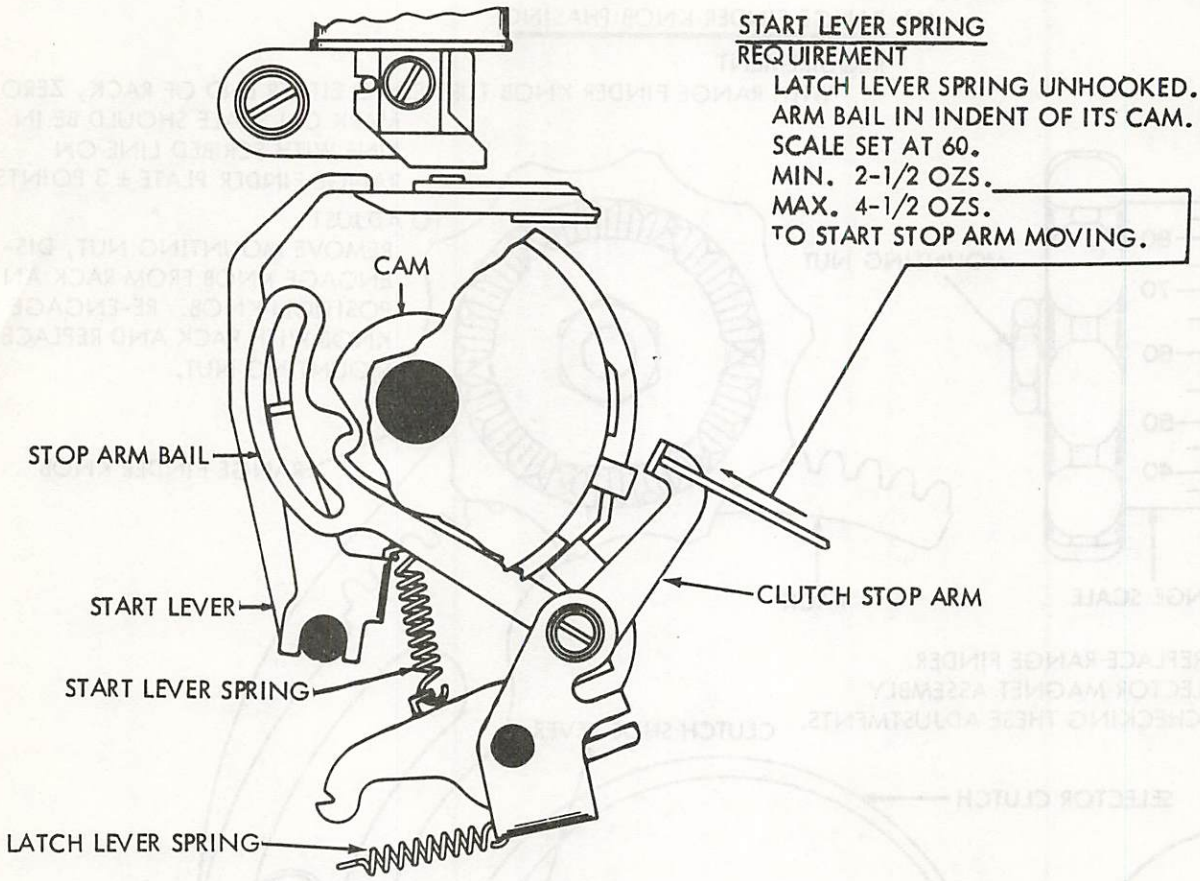
(B) SELECTOR CLUTCH STOP ARM

REQUIREMENT

RANGE SCALE SET AT 60. SELECTOR CLUTCH DISENGAGED. ARMATURE IN MARKING POSITION. CLUTCH STOP ARM SHOULD ENGAGE CLUTCH SHOE LEVER BY APPROXIMATELY FULL THICKNESS OF SHOE LEVER.

TO ADJUST

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



SELECTOR RECEIVING MARGIN

REQUIREMENT (FOR UNITS EMPLOYING ARMATURE WITH ONE ANTI-FREEZE BUTTON)
WHEN A SIGNAL DISTORTION TEST SET IS USED FOR DETERMINING THE RECEIVING MARGINS OF THE SELECTOR, AND WHERE THE CONDITION OF THE COMPONENTS IS EQUIVALENT TO THAT OF NEW EQUIPMENT, THE RANGE AND DISTORTION TOLERANCES BELOW SHOULD BE MET.

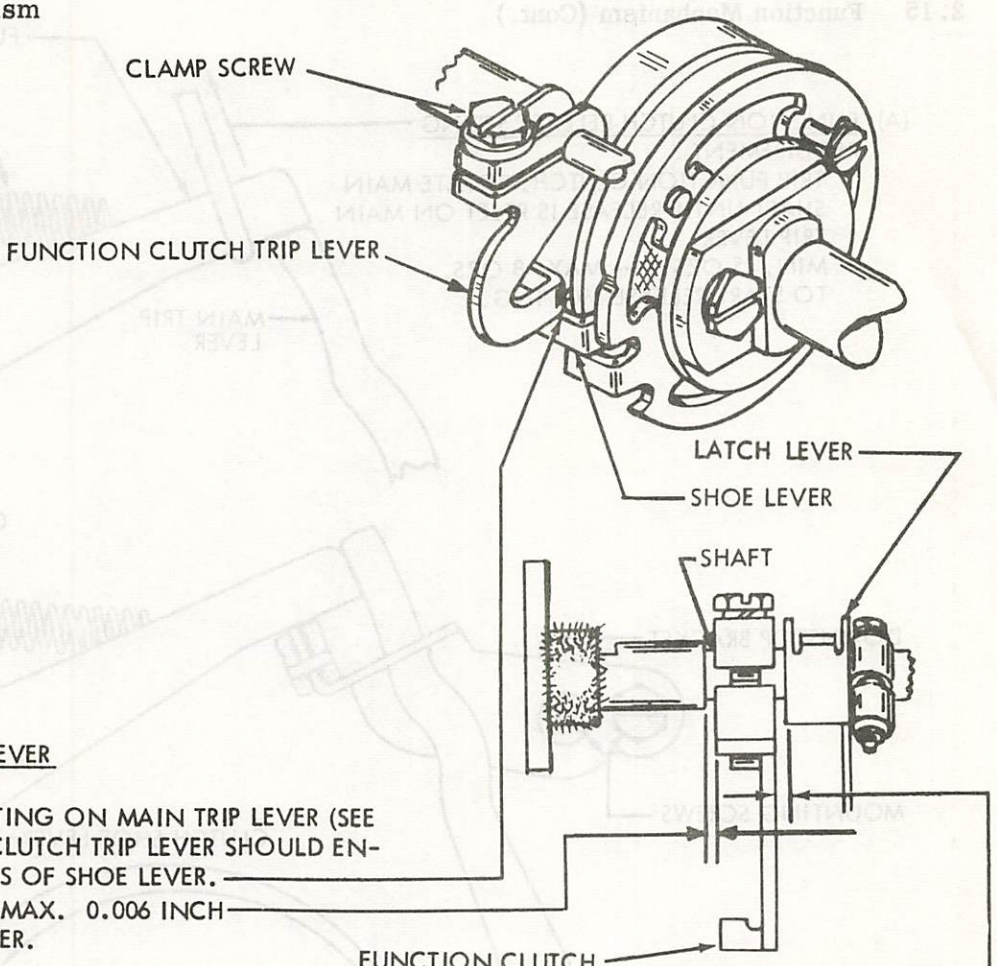
REQUIREMENT (FOR UNITS EMPLOYING ARMATURE WITH TWO ANTI-FREEZE BUTTONS)
WHEN A DISTORTION TEST SET IS AVAILABLE, THE SELECTOR ARMATURE SPRING TENSION SHOULD BE REFINED, IF NECESSARY, TO OBTAIN SATISFACTORY RECEIVING MARGINS. THE FRONT ANTI-FREEZE BUTTON MUST CONTACT THE MAGNET CORE WHEN THE MAGNET COILS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

TO ADJUST: REFINE THE SELECTOR ARMATURE SPRING (PARAGRAPH 2.06 OR 2.07)

SELECTOR RECEIVING MARGIN MINIMUM REQUIREMENTS

CURRENT	SPEED IN W.P.M.	POINTS RANGE WITH ZERO DISTORTION	PERCENTAGE OF MARKING AND SPACING BIAS	END DISTORTION TOLERATED WITH SCALE AT BIAS OPTIMUM SETTING
0.060 AMP (WINDINGS PARALLEL)	100	65	35	30
0.500 AMP (WINDINGS PARALLEL)	100	72	38	35

2.14 Function Mechanism



(A)

FUNCTION CLUTCH TRIP LEVER

REQUIREMENT

(1) WITH RELEASE RESTING ON MAIN TRIP LEVER (SEE BELOW), FUNCTION CLUTCH TRIP LEVER SHOULD ENGAGE FULL THICKNESS OF SHOE LEVER.

(2) MIN. SOME----MAX. 0.006 INCH END PLAY IN TRIP LEVER.

TO ADJUST

POSITION TRIP LEVER ON ITS SHAFT WITH CLAMP SCREW LOOSENED.

(B)

RESET ARM

TO CHECK

TRIP FUNCTION CLUTCH AND POSITION MAIN SHAFT SO THAT RESET ARM IS HELD IN ITS HIGHEST POSITION BY CAM PIN.

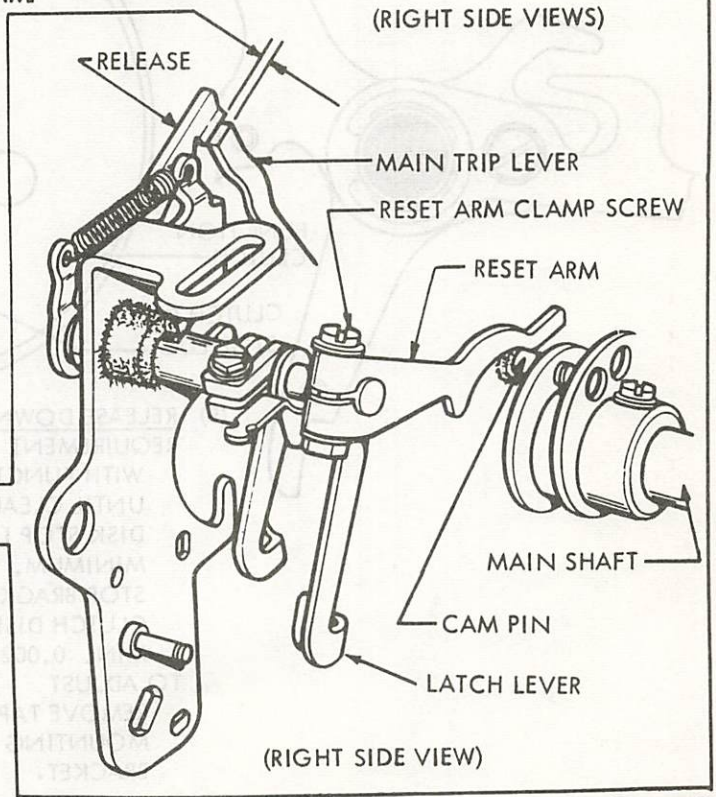
REQUIREMENT

(1) CLEARANCE BETWEEN RELEASE AND MAIN TRIP LEVER:
MIN. 0.010 INCH----MAX. 0.030 INCH

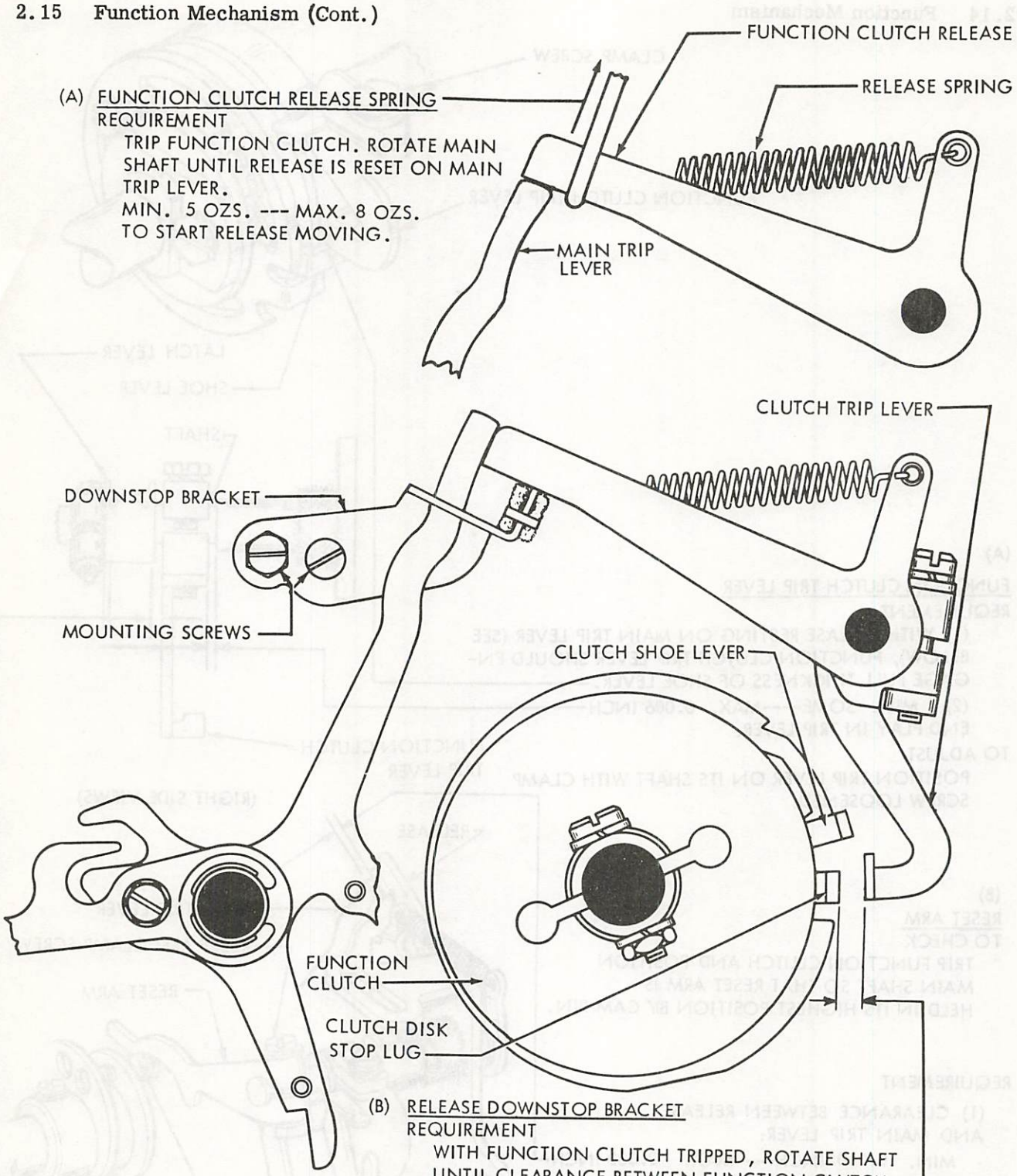
(2) LATCH LEVER END PLAY:
MIN. SOME----MAX. 0.010 INCH

TO ADJUST

POSITION RESET ARM WITH CLAMP SCREW LOOSENED.



2.15 Function Mechanism (Cont.)



(A) FUNCTION CLUTCH RELEASE SPRING

REQUIREMENT

TRIP FUNCTION CLUTCH. ROTATE MAIN SHAFT UNTIL RELEASE IS RESET ON MAIN TRIP LEVER.
MIN. 5 OZS. --- MAX. 8 OZS. TO START RELEASE MOVING.

(B) RELEASE DOWNSTOP BRACKET

REQUIREMENT

WITH FUNCTION CLUTCH TRIPPED, ROTATE SHAFT UNTIL CLEARANCE BETWEEN FUNCTION CLUTCH DISK STOP LUG AND CLUTCH STOP LEVER IS AT A MINIMUM. RELEASE RESTING AGAINST DOWN-STOP BRACKET. CLEARANCE BETWEEN FUNCTION CLUTCH DISK STOP LUG AND STOP LEVER:
MIN. 0.002 INCH --- MAX. 0.045 INCH

TO ADJUST

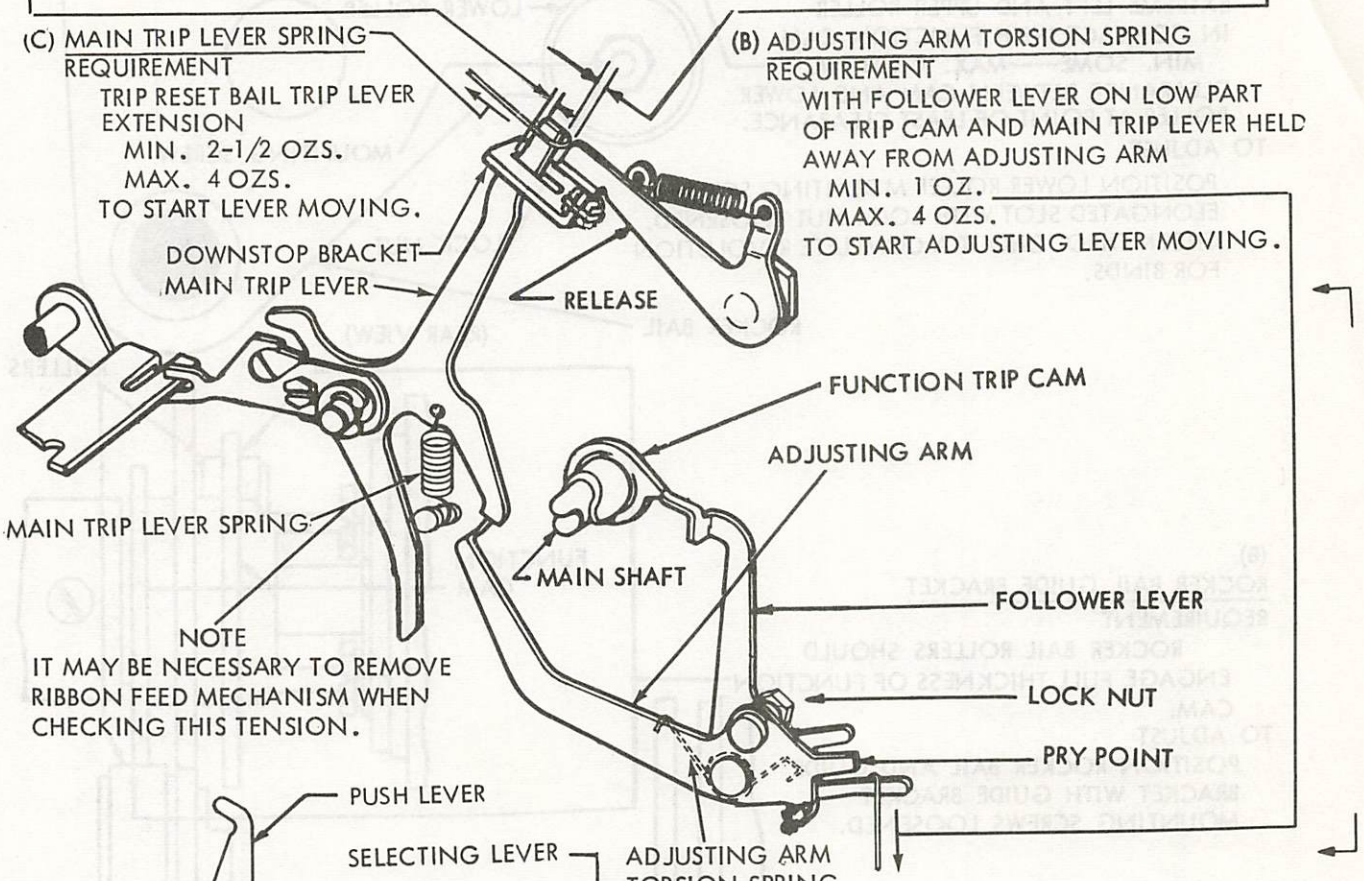
REMOVE TAPE GUIDE. WITH DOWNSTOP BRACKET MOUNTING SCREWS FRICTION TIGHT POSITION BRACKET.

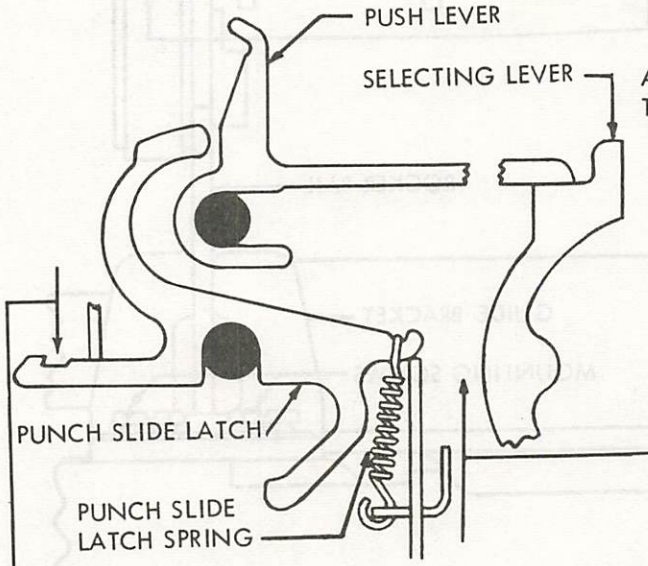
2.16 Function Clutch Trip Mechanism

(A) FOLLOWER LEVER
REQUIREMENT
(1) WITH FOLLOWER LEVER ON HIGH PART OF CAM, CLEARANCE BETWEEN RELEASE AND MAIN TRIP LEVER:
MIN. 0.010 INCH --- MAX. 0.030 INCH
(2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.
TO ADJUST
BY MEANS OF PRY POINT, POSITION ADJUSTING ARM ON FOLLOWER LEVER WITH LOCK NUT LOOSENED.

(C) MAIN TRIP LEVER SPRING
REQUIREMENT
TRIP RESET BAIL TRIP LEVER EXTENSION
MIN. 2-1/2 OZS.
MAX. 4 OZS.
TO START LEVER MOVING.

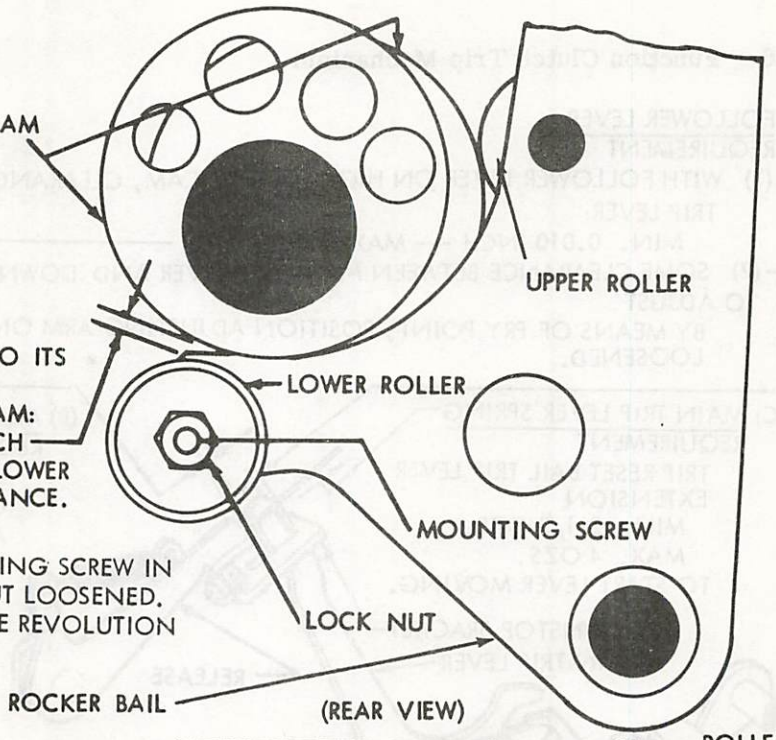
(B) ADJUSTING ARM TORSION SPRING
REQUIREMENT
WITH FOLLOWER LEVER ON LOW PART OF TRIP CAM AND MAIN TRIP LEVER HELD AWAY FROM ADJUSTING ARM
MIN. 1 OZ.
MAX. 4 OZS.
TO START ADJUSTING LEVER MOVING.





(D) PUNCH AND FEED SLIDE LATCH SPRINGS
TO CHECK
SELECT RUBOUT CODE COMBINATION (12345678). POSITION ROCKER BAIL TO EXTREME LEFT. STRIP PUSH LEVERS FROM SELECTING LEVERS.
REQUIREMENT
MIN. 1 OZ.
MAX. 3 OZS.
TO START LATCH MOVING.
TO CHECK (TWO SHAFT UNITS)
RANGE SCALE AT 60. SELECT RUBOUT COMBINATION. CLUTCHES DISENGAGED AND LATCHED.
REQUIREMENT
MIN. 3/4 OZ. ----MAX. 1-3/4 OZS.
TO START LATCH MOVING.

2.17 Rocker Bail Mechanism



(A)

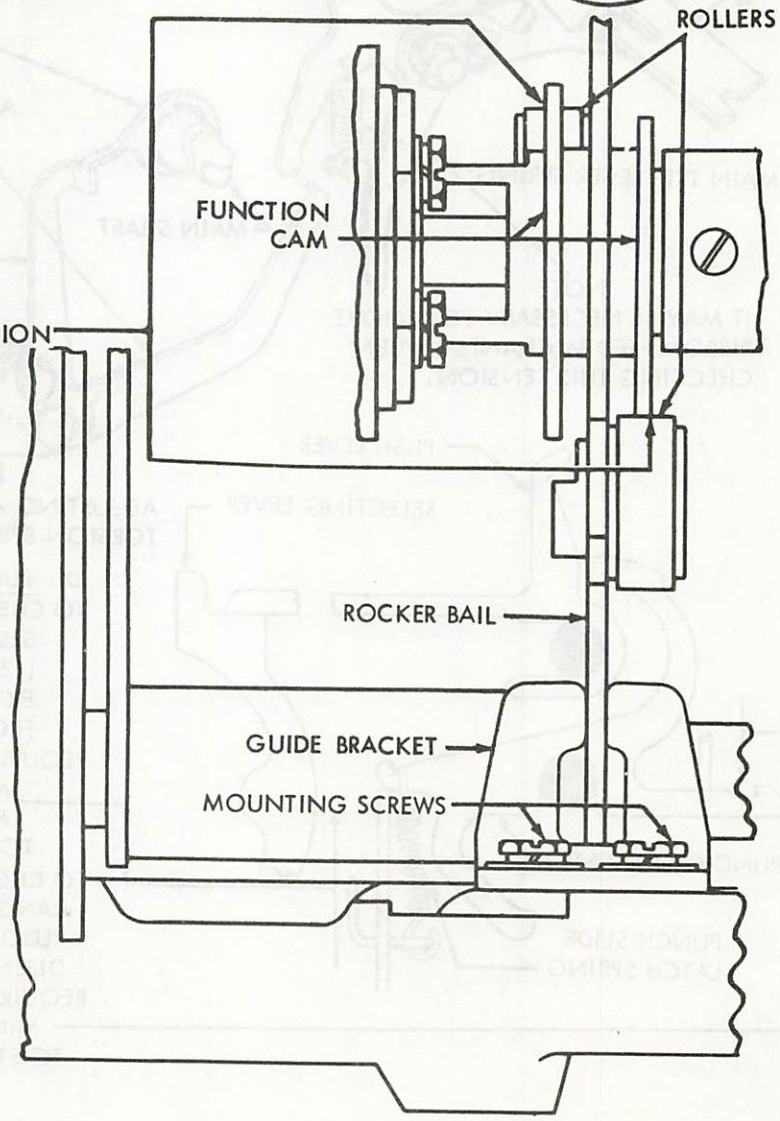
ROCKER BAIL LOWER ROLLER

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

REQUIREMENT

ROCKER BAIL ROLLERS SHOULD ENGAGE FULL THICKNESS OF FUNCTION CAM.

TO ADJUST

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

(RIGHT SIDE VIEW)

2.18 Punch Mechanism

PERFORATOR POSITION (PRELIMINARY)

REQUIREMENT

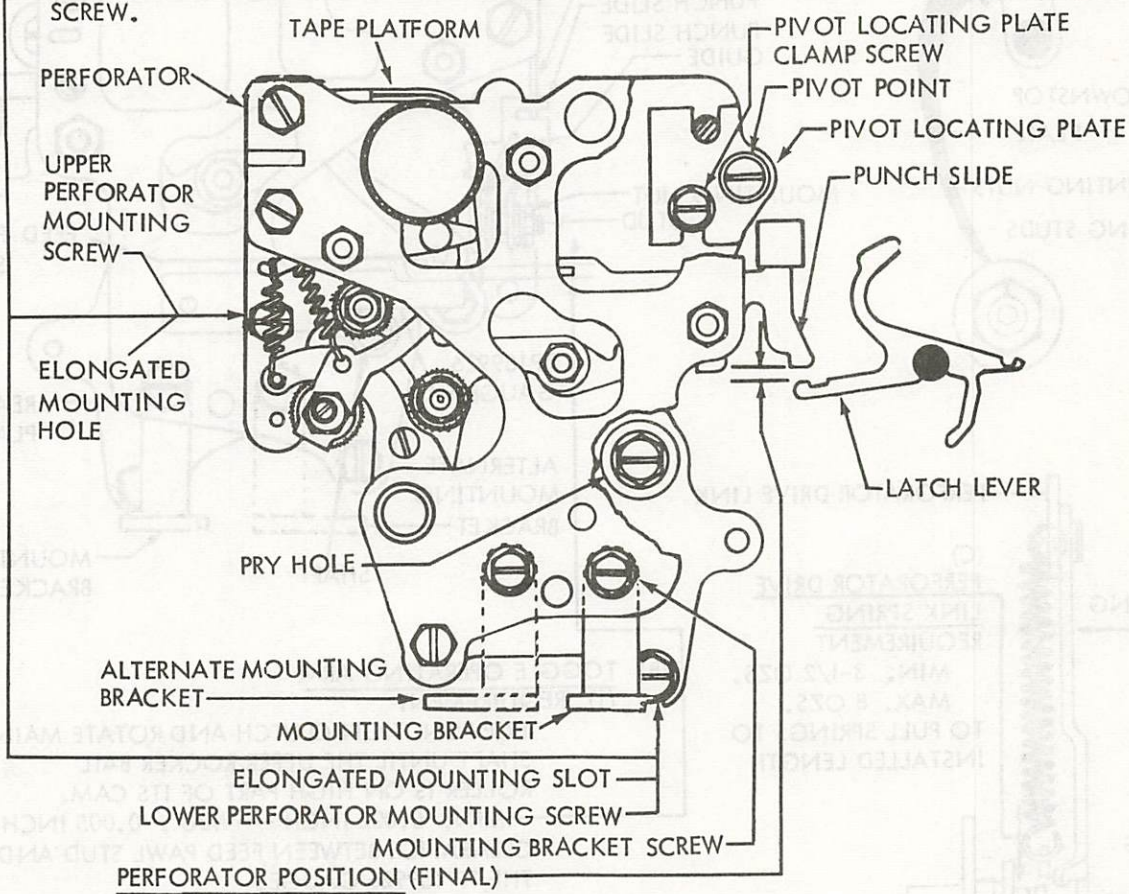
THE PERFORATOR MECHANISM MOUNTING SCREW BENEATH PUNCH BLOCK AND MOUNTING SCREW AT LOWER EDGE OF PERFORATOR MECHANISM BACKPLATE SHALL BE LOCATED CENTRALLY WITHIN THEIR RESPECTIVE MOUNTING HOLES.

NOTE

THE MOUNTING HOLES ARE OVERSIZE TO FACILITATE USE OF PERFORATOR MECHANISM ON THE TYPING RE PERFORATOR.

TO ADJUST

REMOVE MOUNTING SCREW AT THE LOWER EDGE OF PERFORATOR MECHANISM BACKPLATE, WITH THE TWO REMAINING BACKPLATE MOUNTING SCREWS AND MOUNTING BRACKET SCREW FRICTION TIGHT, POSITION PERFORATOR MECHANISM SO THAT THE TAPPED HOLE OF THE FRAME IS CENTRALLY LOCATED (AS GAUGED BY EYE) WITHIN LARGE BODY HOLE OF PUNCH MECHANISM BACKPLATE. TIGHTEN THE TWO BACKPLATE MOUNTING SCREWS AND RECHECK TO SEE THAT REQUIREMENT IS MET. REPLACE AND TIGHTEN THE LOWER BACKPLATE MOUNTING SCREW. TIGHTEN THE BRACKET MOUNTING SCREW.



PERFORATOR POSITION (FINAL)

REQUIREMENT

WITH RUBOUT CODE COMBINATION SELECTED AND THE PUSH LEVERS IN THEIR EXTREME LEFT HAND POSITION.

MIN. 0.015 INCH --- MAX. 0.045 INCH

CLEARANCE BETWEEN THE CLOSEST LATCH LEVER AND ASSOCIATED PUNCH SLIDE.

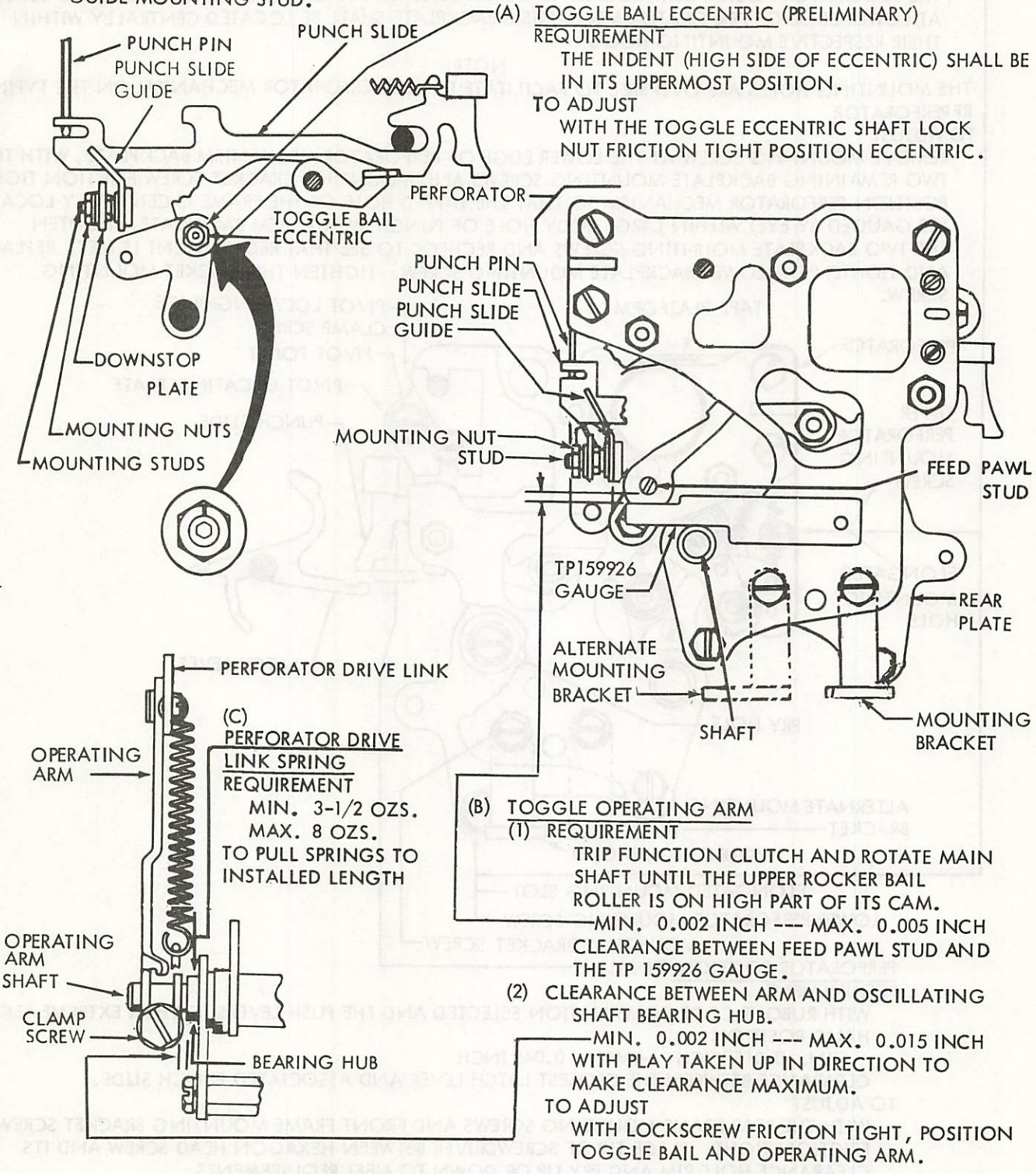
TO ADJUST

WITH THE REAR FRAME MOUNTING SCREWS AND FRONT FRAME MOUNTING BRACKET SCREWS FRICTION TIGHT. PLACE TIP OF SCREWDRIVER BETWEEN HEXAGON HEAD SCREW AND ITS CLEARANCE HOLE RIM AND PRY UP OR DOWN TO MEET REQUIREMENTS.

2.19 Punch Mechanism (Cont.)

NOTE

BEFORE PROCEEDING WITH THE PUNCH MECHANISM ADJUSTMENTS, CHECK THE ROCKER BAIL CAM FOLLOWER ROLLER ADJUSTMENT AND LOOSEN THE PUNCH SLIDE DOWNSTOP MOUNTING NUT AND GUIDE MOUNTING STUD.



(A) TOGGLE BAIL ECCENTRIC (PRELIMINARY)

REQUIREMENT

THE INDENT (HIGH SIDE OF ECCENTRIC) SHALL BE IN ITS UPPERMOST POSITION.

TO ADJUST

WITH THE TOGGLE ECCENTRIC SHAFT LOCK NUT FRICTION TIGHT POSITION ECCENTRIC.

(B) TOGGLE OPERATING ARM

(1) REQUIREMENT

TRIP FUNCTION CLUTCH AND ROTATE MAIN SHAFT UNTIL THE UPPER ROCKER BAIL ROLLER IS ON HIGH PART OF ITS CAM.

MIN. 0.002 INCH --- MAX. 0.005 INCH CLEARANCE BETWEEN FEED PAWL STUD AND THE TP 159926 GAUGE.

(2) CLEARANCE BETWEEN ARM AND OSCILLATING SHAFT BEARING HUB.

MIN. 0.002 INCH --- MAX. 0.015 INCH WITH PLAY TAKEN UP IN DIRECTION TO MAKE CLEARANCE MAXIMUM.

TO ADJUST

WITH LOCKSCREW FRICTION TIGHT, POSITION TOGGLE BAIL AND OPERATING ARM.

(C) PERFORATOR DRIVE LINK SPRING REQUIREMENT

MIN. 3-1/2 OZS.
MAX. 8 OZS.
TO PULL SPRINGS TO INSTALLED LENGTH

2.20 Punch Mechanism (Cont.)

(A) PUNCH PIN PENETRATION

REQUIREMENT

(1) WITH THE RUBOUT COMBINATION SELECTED, FUNCTION CLUTCH ENGAGED. ROTATE MAIN SHAFT UNTIL ALL PUNCH PINS ARE INTO OR ABOVE THE TAPE APERTURE IN PUNCH BLOCK. WITH THE TP159926 GAUGE IN POSITION

MIN. 0.050 INCH

CLEARANCE BETWEEN FEED PAWL STUD AND THE GAUGE.

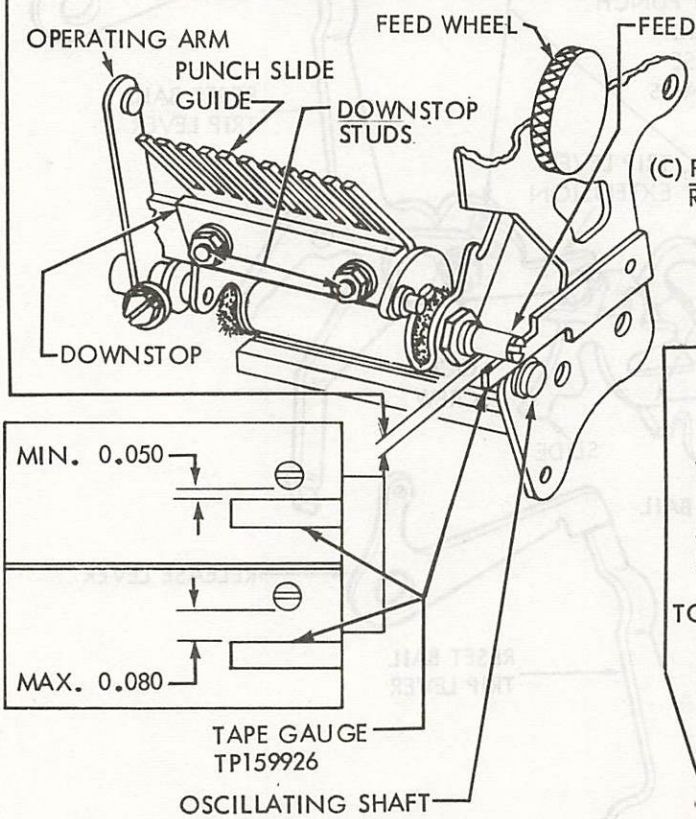
(2) WITH RUBOUT COMBINATION SELECTED, FUNCTION CLUTCH ENGAGED. ROTATE MAIN SHAFT UNTIL ALL PUNCH PINS HAVE CLEARED THE PUNCH BLOCK. WITH THE TP159926 GAUGE IN POSITION

MAX. 0.080 INCH

CLEARANCE BETWEEN FEED PAWL STUD AND GAUGE.

TO ADJUST

REFINE THE TOGGLE BAIL ECCENTRIC ADJUSTMENT KEEPING THE INDENT TO THE RIGHT OF A VERTICAL CENTERLINE THROUGH THE SHAFT.



(B) PUNCH SLIDE GUIDE

REQUIREMENT

THE PUNCH SLIDES SHOULD ALIGN WITH THEIR CORRESPONDING PUNCH PINS AND BE FREE OF BINDS AFTER TIGHTENING THE GUIDE MOUNTING STUDS. EACH PUNCH SLIDE SHOULD RETURN FREELY AFTER BEING PUSHED IN NOT MORE THAN 1/16 INCH.

TO ADJUST

POSITION THE GUIDE WITH ITS MOUNTING STUDS FRICTION TIGHT.

(C) PUNCH SLIDE DOWNSTOP POSITION

REQUIREMENT

WITH FUNCTION CLUTCH DISENGAGED AND LATCHED. PLAY TAKEN UP TOWARD THE TOP, CLEARANCE BETWEEN BOTH THE FRONT AND REAR PUNCH SLIDES AND THE DOWNSTOP PLATE

MIN. SOME --- MAX. 0.008 INCH

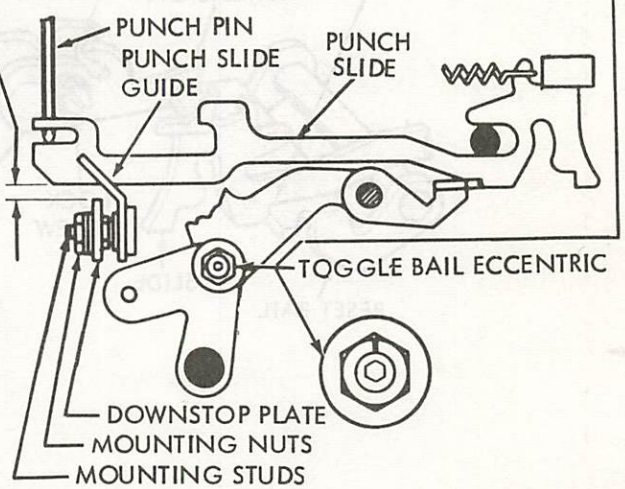
ALL OTHER PUNCH SLIDES SHALL HAVE SOME CLEARANCE.

NOTE

TO CHECK FOR SOME CLEARANCE, PLACE UNIT IN STOP POSITION, TRIP FUNCTION TRIP MECHANISM AND LATCHES, THE PUNCH SLIDES SHALL MOVE FULLY TO THEIR OPERATED POSITION.

TO ADJUST

WITH UNIT IN STOP POSITION, LOOSEN THE TWO DOWNSTOP PLATE MOUNTING LOCK NUTS AND LOCATE THE DOWNSTOP PLATE TO MEET THE REQUIREMENT.



2.21 Punch Mechanism (Cont.)

RESET BAIL TRIP LEVER

REQUIREMENT

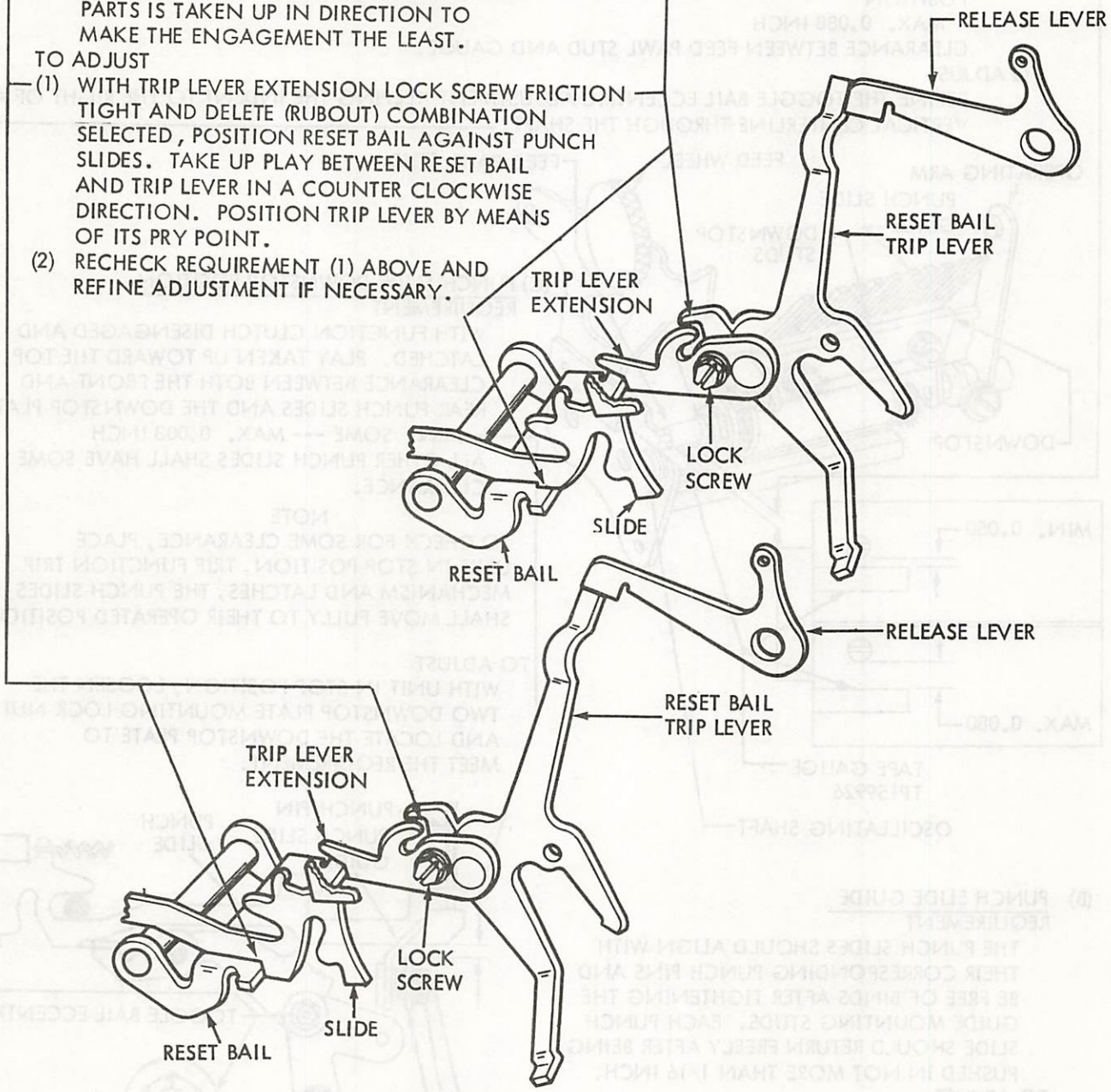
(1) MANUALLY SELECT AN ALL SPACING COMBINATION. MANUALLY ROTATE RESET BAIL TRIP LEVER. THE PUNCH SLIDE RESET BAIL SHALL TRIP BEFORE THE FUNCTION CLUTCH IS TRIPPED.

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

TO ADJUST

(1) WITH TRIP LEVER EXTENSION LOCK SCREW FRICTION TIGHT AND DELETE (RUBOUT) COMBINATION SELECTED, POSITION RESET BAIL AGAINST PUNCH SLIDES. TAKE UP PLAY BETWEEN RESET BAIL AND TRIP LEVER IN A COUNTER CLOCKWISE DIRECTION. POSITION TRIP LEVER BY MEANS OF ITS PRY POINT.

(2) RECHECK REQUIREMENT (1) ABOVE AND REFINE ADJUSTMENT IF NECESSARY.



2.22 Punch Mechanism (Cont.)

(A) LATCH LEVER CLEARANCE

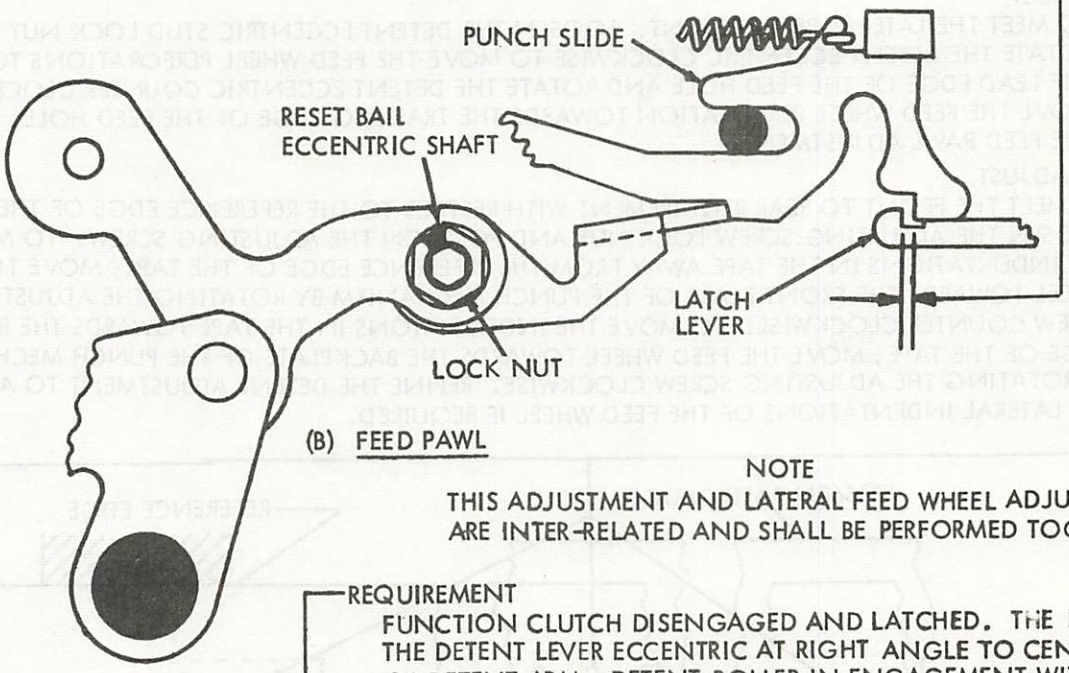
MANUALLY SELECT AN ALL SPACING COMBINATION. WITH FUNCTION CLUTCH DISENGAGED AND LATCHED. CLEARANCE BETWEEN PUNCH SLIDE AND ITS ASSOCIATED LATCH LEVER.

MIN. 0.015 INCH --- MAX. 0.025 INCH

FOR THE SLIDE HAVING THE LEAST CLEARANCE.

TO ADJUST

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



(B) FEED PAWL

NOTE

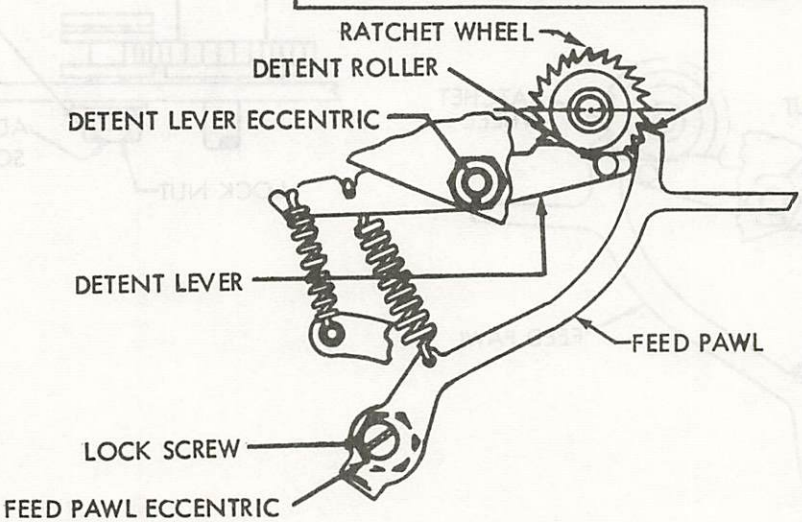
THIS ADJUSTMENT AND LATERAL FEED WHEEL ADJUSTMENT ARE INTER-RELATED AND SHALL BE PERFORMED TOGETHER.

REQUIREMENT

FUNCTION CLUTCH DISENGAGED AND LATCHED. THE INDENT OF THE DETENT LEVER ECCENTRIC AT RIGHT ANGLE TO CENTER LINE OF DETENT ARM. DETENT ROLLER IN ENGAGEMENT WITH FEED WHEEL RATCHET, AND HIGH SIDE OF FEED PAWL ECCENTRIC TO RIGHT OF ITS LOCKING SCREW. THE FEED PAWL SHALL ENGAGE THE FIRST TOOTH BELOW HORIZONTAL CENTER LINE OF RATCHET WHEEL WITH NO PERCEPTIBLE CLEARANCE.

TO ADJUST

ROTATE THE FEED PAWL ECCENTRIC WITH LOCK SCREW LOOSENED.



2.23 Punch Mechanism (Cont.)

(FOR LATEST DESIGN SEE PARAGRAPH 2-25)

LATERAL AND FRONT TO REAR FEED WHEEL POSITION (EARLY DESIGN)

REQUIREMENT

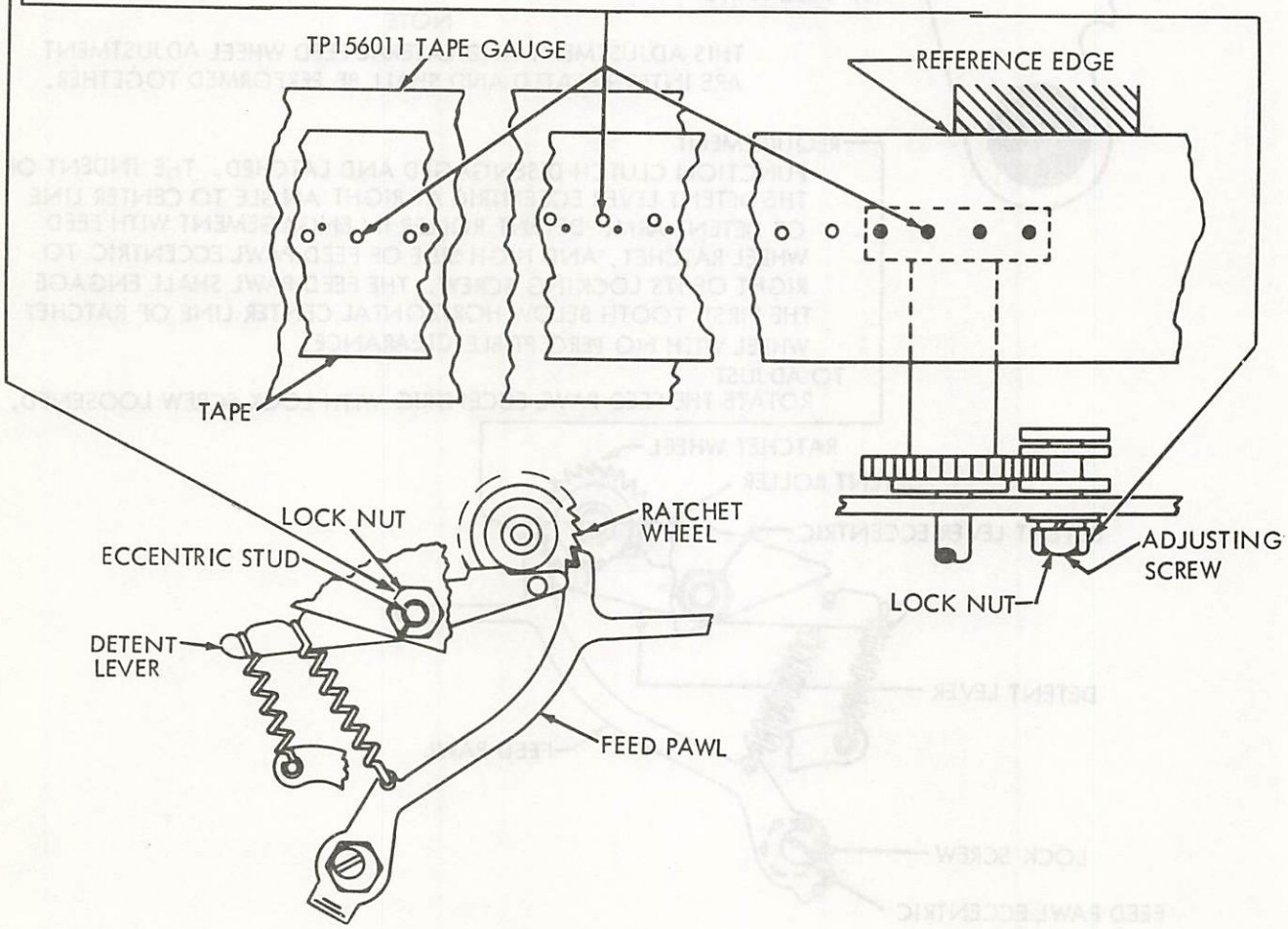
WITH THE REPERFORATOR OPERATING UNDER POWER, OBTAIN A TAPE SAMPLE CONSISTING OF A SERIES OF "SPACE" PERFORATIONS, BY A VISUAL INSPECTION OF THE PERFORATED FEED HOLES, LATERALLY AND FRONT TO REAR, THE INDENTATIONS OF THE FEED WHEEL SHALL BE FULLY PUNCHED OUT.

TO ADJUST

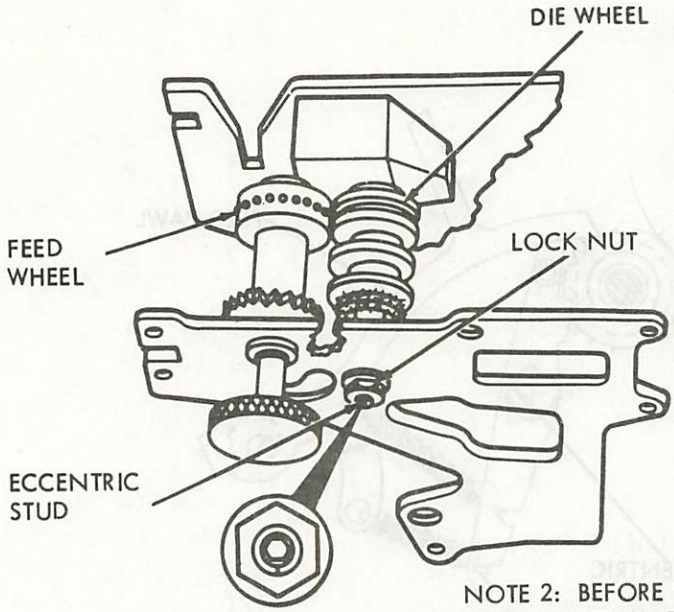
(1) TO MEET THE LATERAL REQUIREMENT. LOOSEN THE DETENT ECCENTRIC STUD LOCK NUT AND ROTATE THE DETENT ECCENTRIC CLOCKWISE TO MOVE THE FEED WHEEL PERFORATIONS TOWARDS THE LEAD EDGE OF THE FEED HOLE AND ROTATE THE DETENT ECCENTRIC COUNTER CLOCKWISE TO MOVE THE FEED WHEEL PERFORATION TOWARDS THE TRAILING EDGE OF THE FEED HOLE. REFINE THE FEED PAWL ADJUSTMENT.

(2) TO ADJUST

TO MEET THE FRONT TO REAR REQUIREMENT WITH RESPECT TO THE REFERENCE EDGE OF THE TAPE LOOSEN THE ADJUSTING SCREW LOCK NUT AND POSITION THE ADJUSTING SCREW. TO MOVE THE INDENTATIONS IN THE TAPE AWAY FROM THE REFERENCE EDGE OF THE TAPE, MOVE THE FEED WHEEL TOWARDS THE FRONT PLATE OF THE PUNCH MECHANISM BY ROTATING THE ADJUSTING SCREW COUNTER CLOCKWISE. TO MOVE THE INDENTATIONS IN THE TAPE TOWARDS THE REFERENCE EDGE OF THE TAPE, MOVE THE FEED WHEEL TOWARDS THE BACKPLATE OF THE PUNCH MECHANISM BY ROTATING THE ADJUSTING SCREW CLOCKWISE. REFINE THE DETENT ADJUSTMENT TO ALIGN THE LATERAL INDENTATIONS OF THE FEED WHEEL IF REQUIRED.



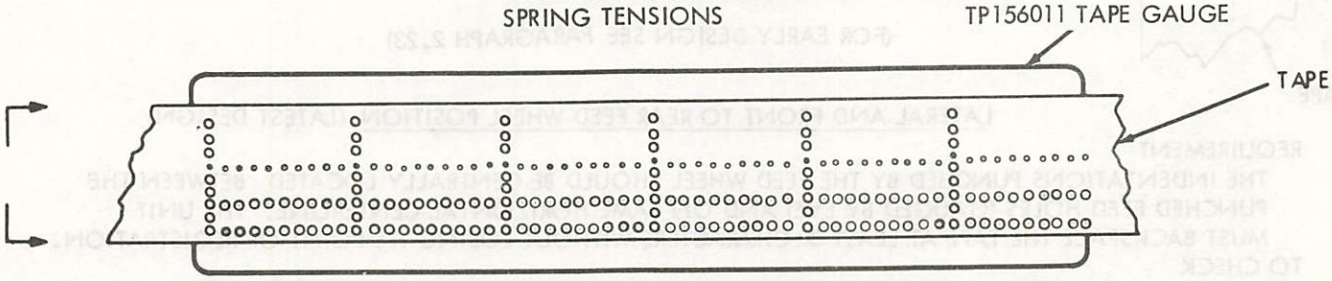
2.24 Punch Mechanism (Cont.)



FEED HOLE SPACING----PRELIMINARY
REQUIREMENT
INDENT OF DIE WHEEL ECCENTRIC STUD POINTING DOWNWARD.
TO ADJUST
POSITION DIE WHEEL ECCENTRIC STUD WITH LOCK NUT LOOSENED.
NOTE 1: BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENTS, CHECK BOTH TAPE GUIDE SPRING TENSIONS

FEED HOLE SPACING----FINAL
(1) REQUIREMENT
WITH TAPE SHOE BLOCKED AWAY FROM FEED WHEEL, FEED PAWL AND DETENT DISENGAGED, AND TAPE REMOVED, FEED WHEEL SHOULD ROTATE FREELY. CHECK THROUGH 3 OR 4 REVOLUTIONS OF FEED WHEEL.

NOTE 2: BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENT CHECK BOTH TAPE GUIDE SPRING TENSIONS



FEED HOLE SPACING
(1) REQUIREMENT
WITH A PIECE OF TAPE PERFORATED WITH SIX SERIES OF 9 SPACE CODE COMBINATIONS FOLLOWED BY A RUBOUT COMBINATION PLACED OVER THE SMOOTH SIDE OF THE TP156011 TAPE GAUGE SO THE CIRCULAR PORTION OF THE FIRST NUMBER 2 CODE HOLE IN THE TAPE IS CONCENTRIC WITH THE FIRST HOLE OF THE TAPE GAUGE. THE NEXT FOUR HOLES IN THE TAPE GAUGE SHOULD BE VISIBLE THROUGH THE NUMBER 2 CODE HOLES IN THE TAPE AND THE CIRCULAR PORTION OF THE LAST (SIXTH) NUMBER 2 CODE HOLE IN THE TAPE SHALL BE ENTIRELY WITHIN THE 0.086 DIAMETER HOLE OF THE TAPE GAUGE.

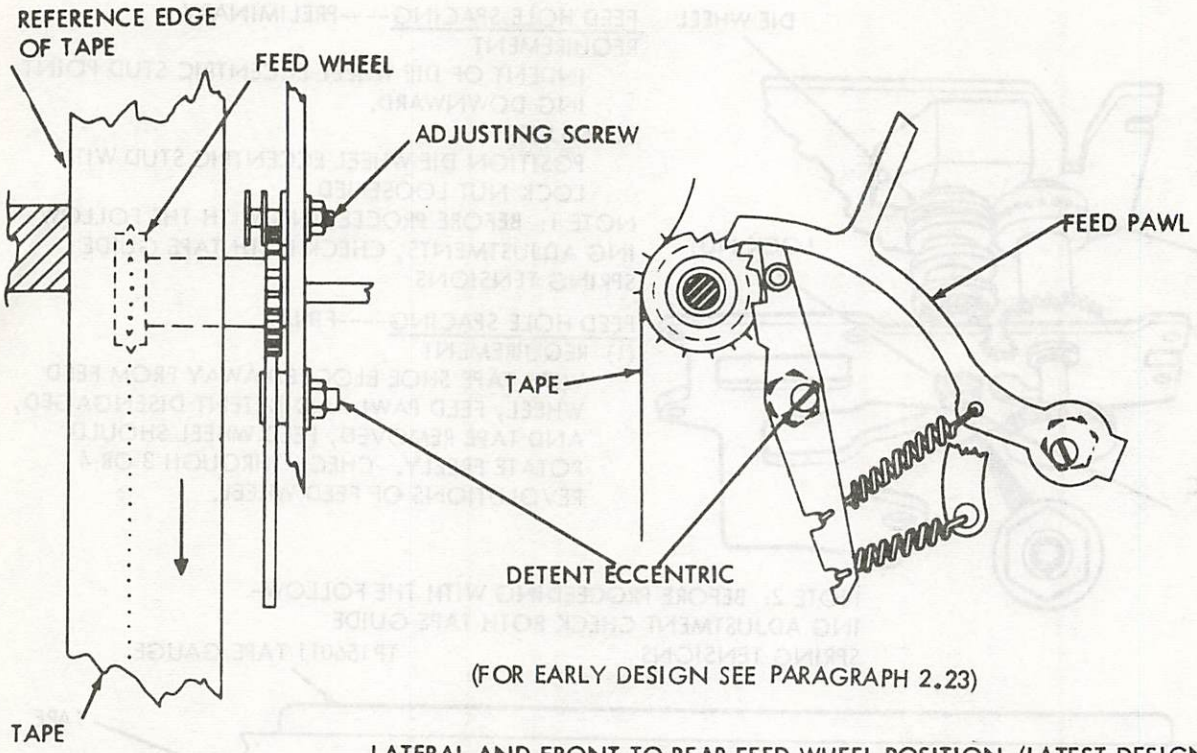
(2) REQUIREMENT
WITH TAPE SHOE HELD AWAY FROM FEED WHEEL, FEED PAWL AND DETENT DISENGAGED AND TAPE REMOVED, FEED WHEEL SHOULD ROTATE FREELY.

TO ADJUST
WITH TAPE REMOVED FROM THE PUNCH MECHANISM, LOOSEN THE ECCENTRIC LOCK NUT AND ROTATE THE DIE WHEEL ECCENTRIC SHAFT UNTIL IT BINDS AGAINST THE FEED WHEEL. BACK OFF THE ECCENTRIC UNTIL THE DIE WHEEL IS JUST FREE. KEEP THE INDENT OF THE ECCENTRIC BELOW THE HORIZONTAL CENTERLINE OF THE STUD. REFINE ADJUSTMENT FOR REQUIREMENT (1), IF NECESSARY, BY MOVING THE DIE WHEEL TOWARD THE FEED WHEEL TO DECREASE THE CHARACTER SPACING AND AWAY FROM THE FEED WHEEL TO INCREASE THE CHARACTER SPACING.

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

NOTE 3: FIRST THROUGH FIFTH HOLES IN GAUGE ARE SAME SIZE AS CODE HOLES IN TAPE (0.072 INCH DIAMETER). SIXTH HOLE IN GAUGE IS LARGER (0.086 INCH). THIS ARRANGEMENT ALLOWS ± 0.007 INCH VARIATION IN 5 INCHES.

2.25 Punch Mechanism (Cont.)



(FOR EARLY DESIGN SEE PARAGRAPH 2.23)

LATERAL AND FRONT TO REAR FEED WHEEL POSITION (LATEST DESIGN)

REQUIREMENT

THE INDENTATIONS PUNCHED BY THE FEED WHEEL SHOULD BE CENTRALLY LOCATED BETWEEN THE PUNCHED FEED HOLES (GAUGED BY EYE) AND ON SAME HORIZONTAL CENTERLINE. THE UNIT MUST BACKSPACE THE TAPE AT LEAST 30 CHARACTERS WITHOUT LOSING ITS POINT OF REGISTRATION.

TO CHECK

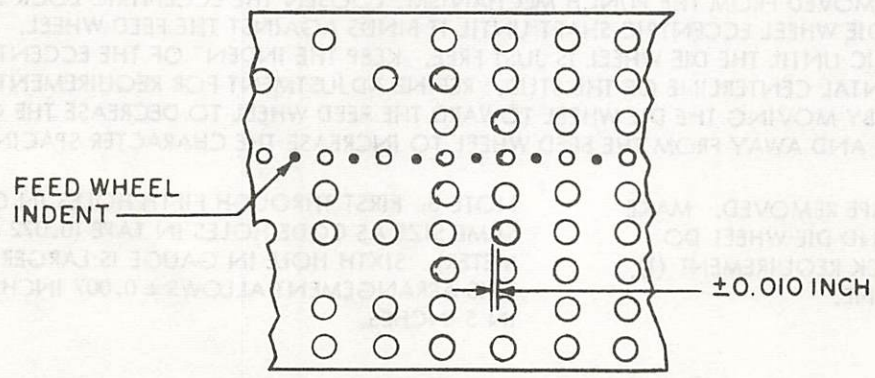
PERFORATE 6 INCHES OF RY TAPE. BACK SPACE 30 CHARACTERS.REPERFORATE WITH RUBOUT CHARACTERS. CODE HOLES MUST COINCIDE EXCEPT FOR FIRST TWO CHARACTERS WHICH MAY BE ELONGATED ±0.010 INCH.

TO ADJUST (LATERALLY)

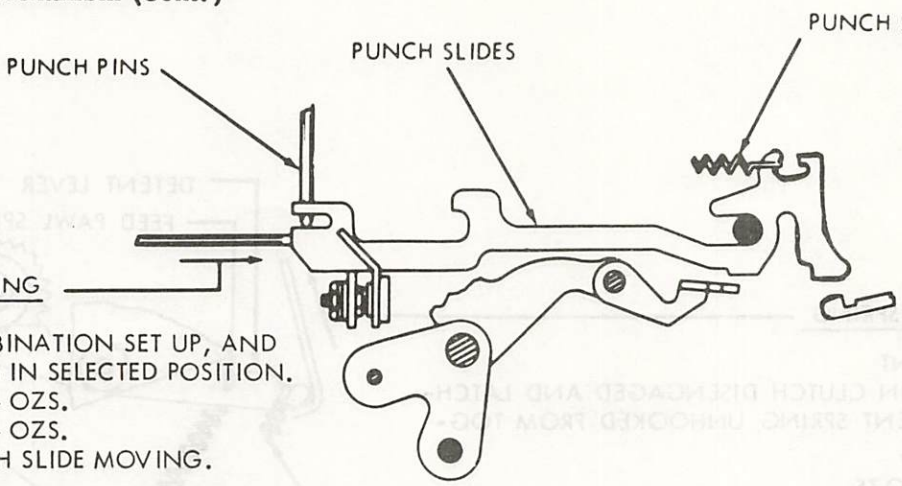
ROTATE THE DETENT ECCENTRIC CLOCKWISE TO MOVE THE FEED WHEEL PERFORATION TOWARD THE LEADING EDGE OF THE FEED HOLE AND ROTATE THE ECCENTRIC COUNTER-CLOCKWISE TO MOVE THE PERFORATION TOWARD THE TRAILING EDGE OF THE FEED HOLE. TIGHTEN THE LOCK NUT. REFINE THE FEED PAWL ADJUSTMENT IF NECESSARY.

TO ADJUST (FRONT TO REAR)

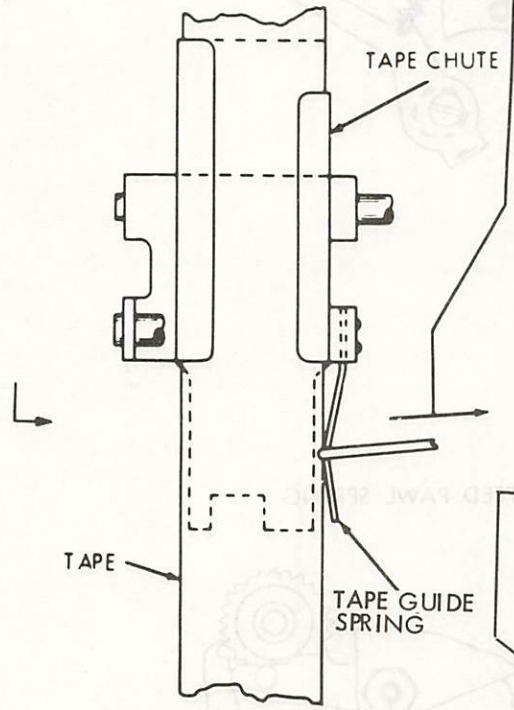
LOOSEN THE LOCK NUT ON THE ADJUSTING SCREW AND ROTATE THE SCREW COUNTER-CLOCKWISE TO MOVE THE INDENTATIONS IN THE TAPE AWAY FROM THE REFERENCE EDGE (REAR) OF THE TAPE. TO MOVE THE INDENTATIONS IN THE TAPE TOWARD THE REFERENCE EDGE OF THE TAPE, ROTATE THE ADJUSTING SCREW CLOCKWISE. REFINE THE DETENT ADJUSTMENT IF NECESSARY.



2.26 Punch Mechanism (Cont.)



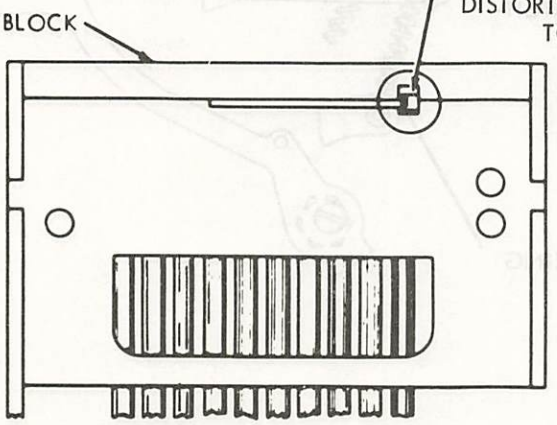
PUNCH SLIDE SPRING
REQUIREMENT
RUBOUT COMBINATION SET UP, AND PUNCH SLIDES IN SELECTED POSITION.
MIN. 2-1/4 OZS.
MAX. 3-1/4 OZS.
TO START EACH SLIDE MOVING.

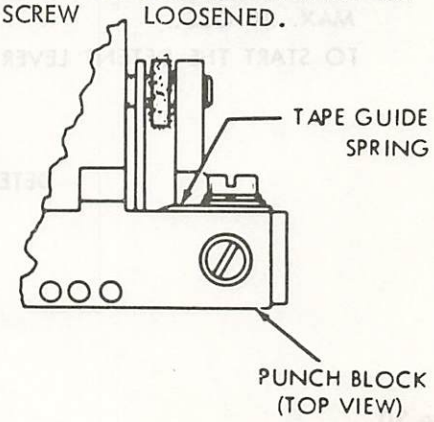


TAPE GUIDE SPRING (TAPE CHUTE)
REQUIREMENT
WITH SELECTOR AND FUNCTION CLUTCHES DISENGAGED AND LATCHED, TAPE THREADED THROUGH PUNCH MECHANISM, IT SHOULD REQUIRE
MIN. 1-1/4 OZS.
MAX. 2-1/4 OZS.
TO JUST MOVE THE SPRING AWAY FROM THE TAPE.
TO ADJUST
BEND THE SPRING.

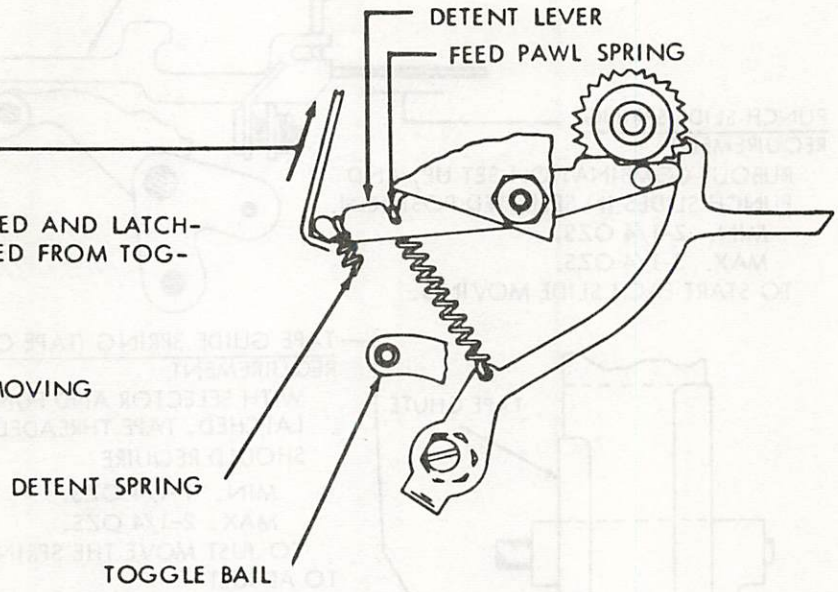
NOTE
IT IS NECESSARY TO REMOVE SEVERAL PARTS, ON UNITS EQUIPPED WITH BACK SPACE MECHANISM, IN ORDER TO CHECK THIS SPRING TENSION. IT SHOULD NOT BE CHECKED UNLESS THERE IS GOOD REASON TO BELIEVE THAT REQUIREMENTS ARE NOT MET.

TAPE GUIDE SPRING (PUNCH BLOCK)
(1) REQUIREMENT
WITH TAPE REMOVED FROM THE PUNCH BLOCK THE TAPE GUIDE SPRING SHOULD REST AGAINST THE CLEARANCE SLOT IN THE BLOCK IN A SYMETRICAL MANNER.
(2) REQUIREMENT
WITH TAPE IN THE PUNCH BLOCK AND THE REPERFORATOR OPERATING UNDER POWER, THE SPRING SHOULD NOT DISTORT THE EDGE OF THE TAPE.
TO ADJUST
BEND THE SPRING AND POSITION IT WITH ITS MOUNTING SCREW LOOSENED.





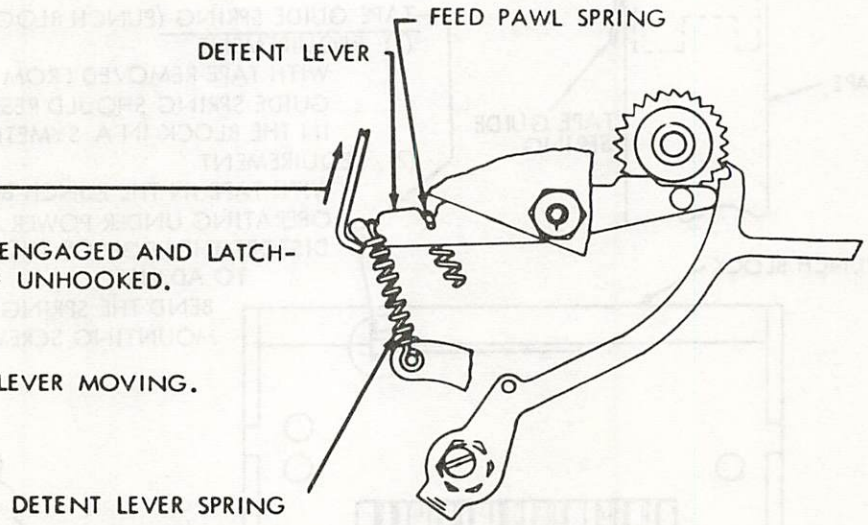
2.27 Punch Mechanism (Cont.)



REQUIREMENT
FUNCTION CLUTCH DISENGAGED AND LATCHED. DETENT SPRING UNHOOKED FROM TOGGLE BAIL

MIN. 3 OZS.
MAX. 4-1/2 OZS.

TO START THE DETENT LEVER MOVING



REQUIREMENT
FUNCTION CLUTCH DISENGAGED AND LATCHED. FEED PAWL SPRING UNHOOKED.

MIN. 7 OZS.
MAX. 10 OZS.

TO START THE DETENT LEVER MOVING.

2.28 Punch Mechanism (Cont.)

TAPE GUIDE

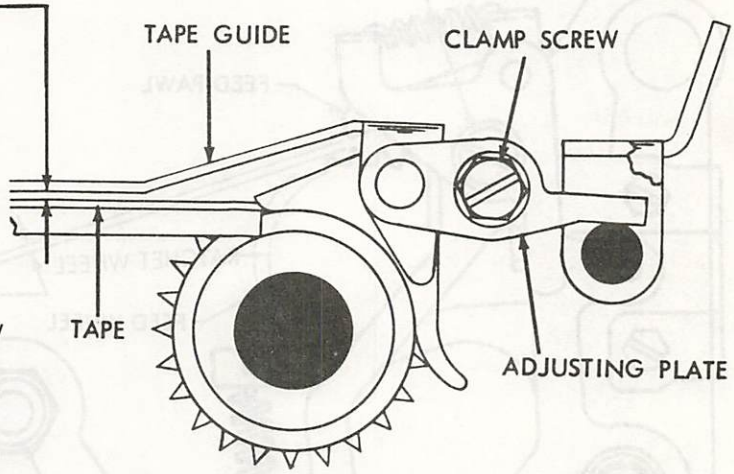
REQUIREMENT

ROTATE FEED WHEEL UNTIL OIL HOLE IS UP. CENTER TAPE SHOE AND TAPE GUIDE, HOLD TAPE GUIDE DOWNWARD. CLEARANCE BETWEEN ADJUSTING PLATE EXTENSION AND BACKSTOP POST SHALL BE

MIN. 0.002 INCH
MAX. 0.008 INCH

TO ADJUST

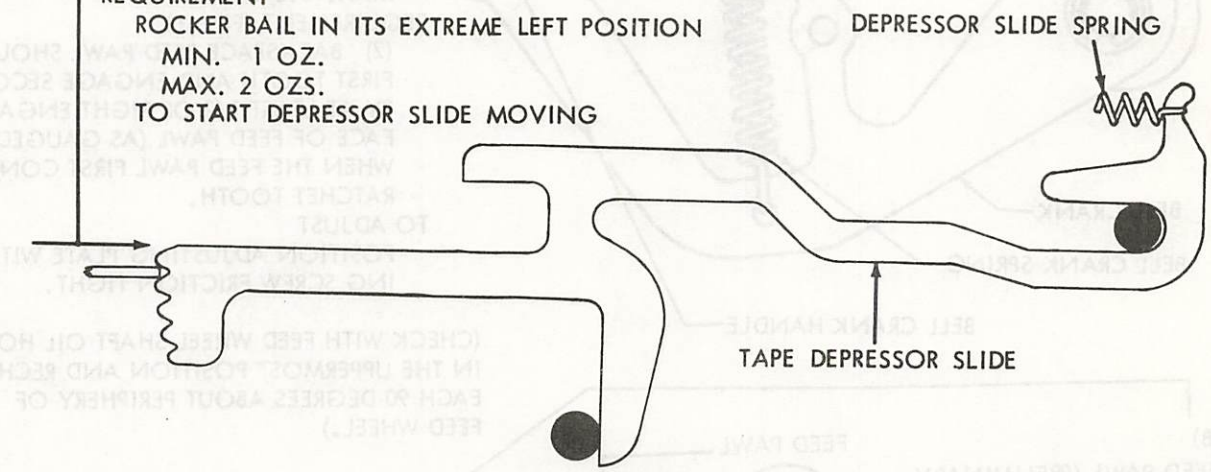
LOOSEN ADJUSTING PLATE CLAMP SCREW FRICTION TIGHT AND MOVE ADJUSTING PLATE UP OR DOWN. TIGHTEN SCREW.



TAPE DEPRESSOR SLIDE SPRING

REQUIREMENT

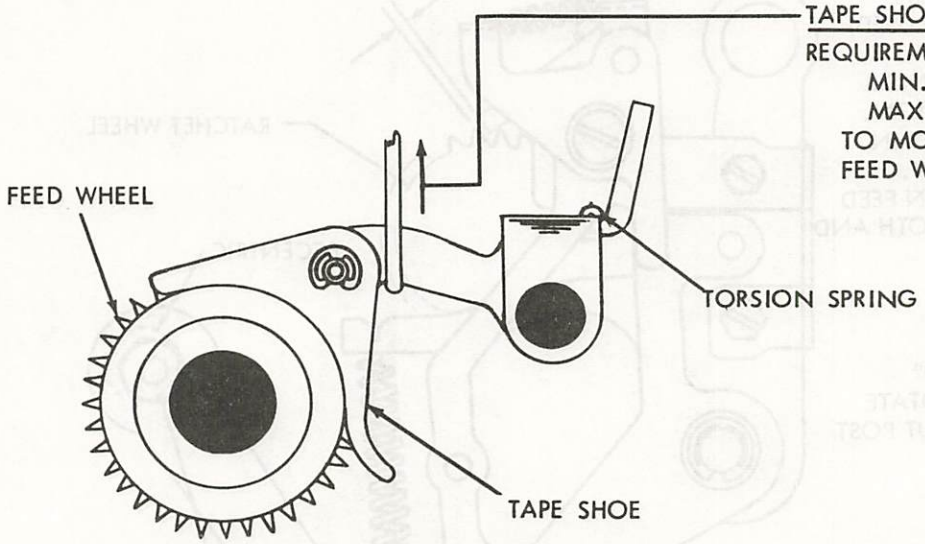
ROCKER BAIL IN ITS EXTREME LEFT POSITION
MIN. 1 OZ.
MAX. 2 OZS.
TO START DEPRESSOR SLIDE MOVING



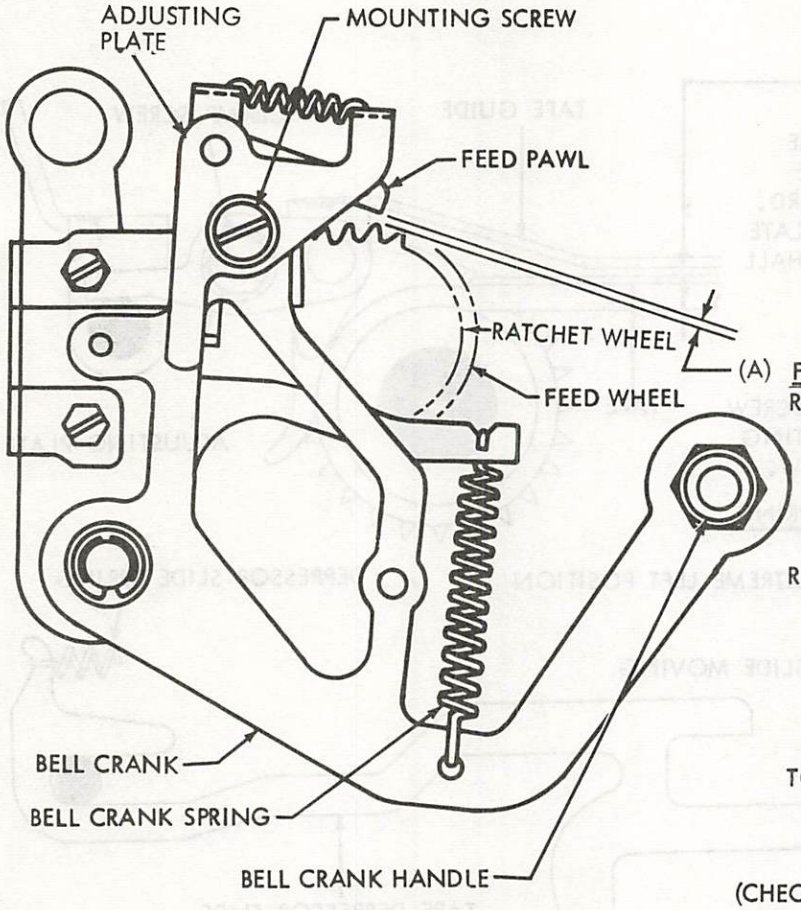
TAPE SHOE TORSION SPRING

REQUIREMENT

MIN. 13 OZS.
MAX. 18 OZS.
TO MOVE TAPE SHOE FROM FEED WHEEL.



2.29 Power Drive Backspace Mechanism



(A) FEED PAWL CLEARANCE

REQUIREMENT (PRELIMINARY)

(1) WITH BACKSPACE BELL CRANK ROTATED CLOCKWISE, BACKSPACE FEED PAWL SHOULD MISS FIRST TOOTH BY A CLEARANCE OF:
MIN. 0.006 INCH
MAX. 0.040 INCH

REQUIREMENT (FINAL)

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

TO ADJUST

POSITION ADJUSTING PLATE WITH MOUNTING SCREW FRICTION TIGHT.

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

(B)

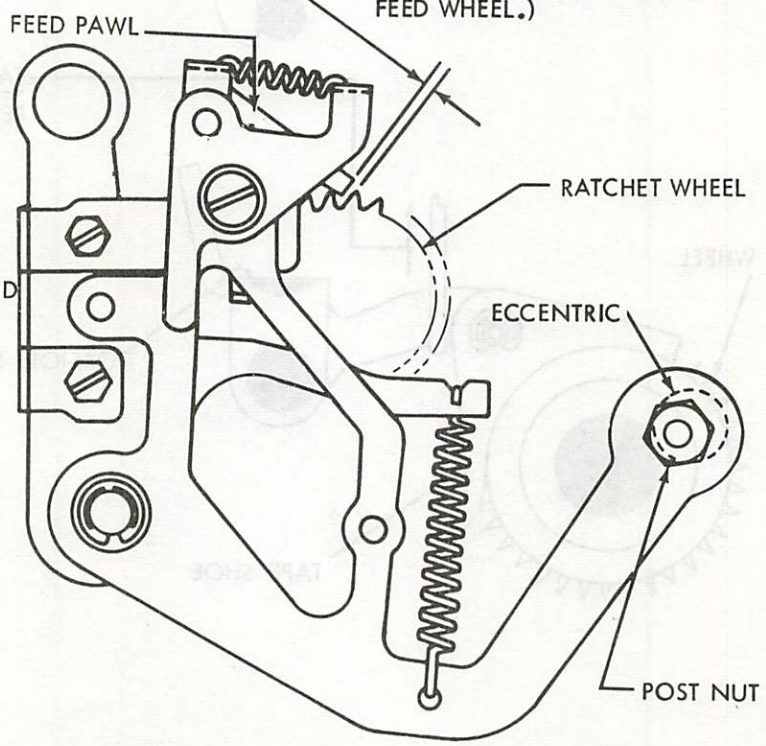
FEED PAWL (PRELIMINARY WHEN POWER DRIVE IS USED)

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

TO ADJUST

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



2.30 Power Drive Backspace Mechanism (Cont.)

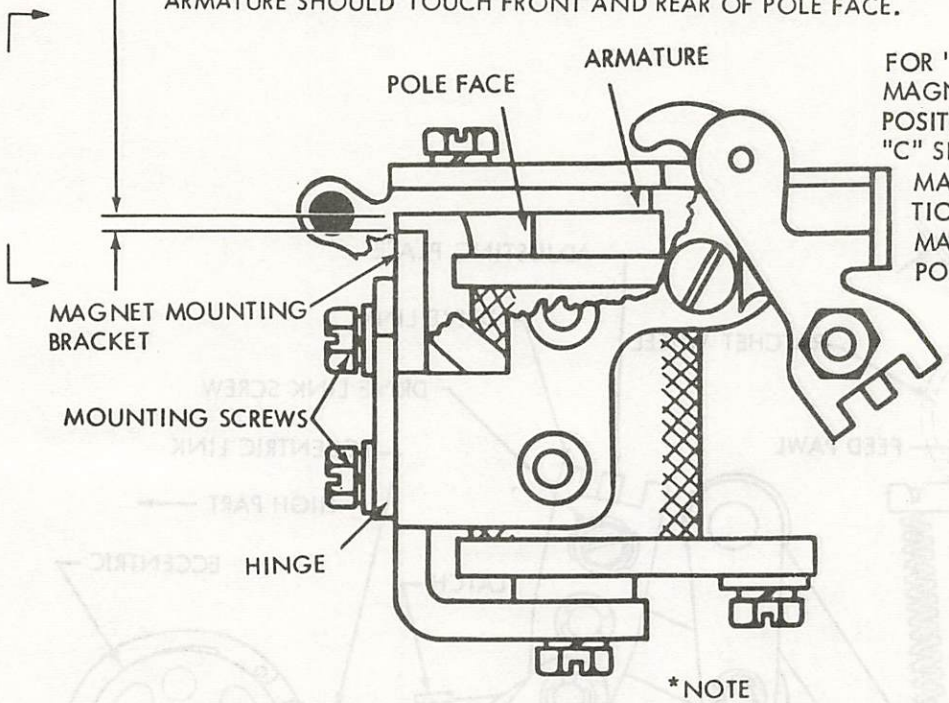
(A) ARMATURE HINGE

REQUIREMENT

WITH ARMATURE HELD AGAINST POLE FACE (ARMATURE BAIL SPRING UNHOOKED)
MIN. SOME --- MAX. 0.004 INCH
BETWEEN ARMATURE AND MAGNET MOUNTING BRACKET WITH PLAY TAKEN UP FOR MINIMUM.

TO ADJUST

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

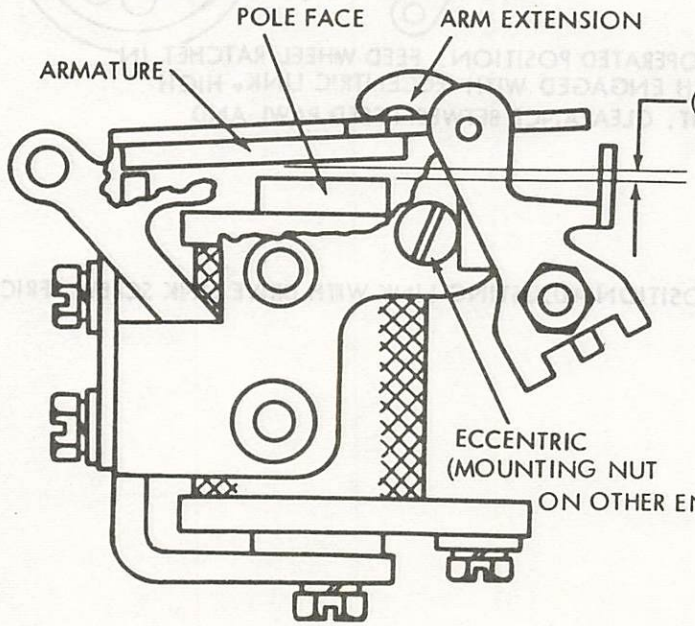


NOTE

FOR "DC" OPERATION, THE BACKSPACE MAGNET ARMATURE SHALL BE POSITIONED SO THAT THE SIDE MARKED "C" SHALL FACE THE POLE FACE OF THE MAGNET CORE. FOR "AC" OPERATION, THE UNMARKED SIDE OF THE MAGNET ARMATURE SHALL FACE THE POLE OF THE MAGNET CORE.

*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*

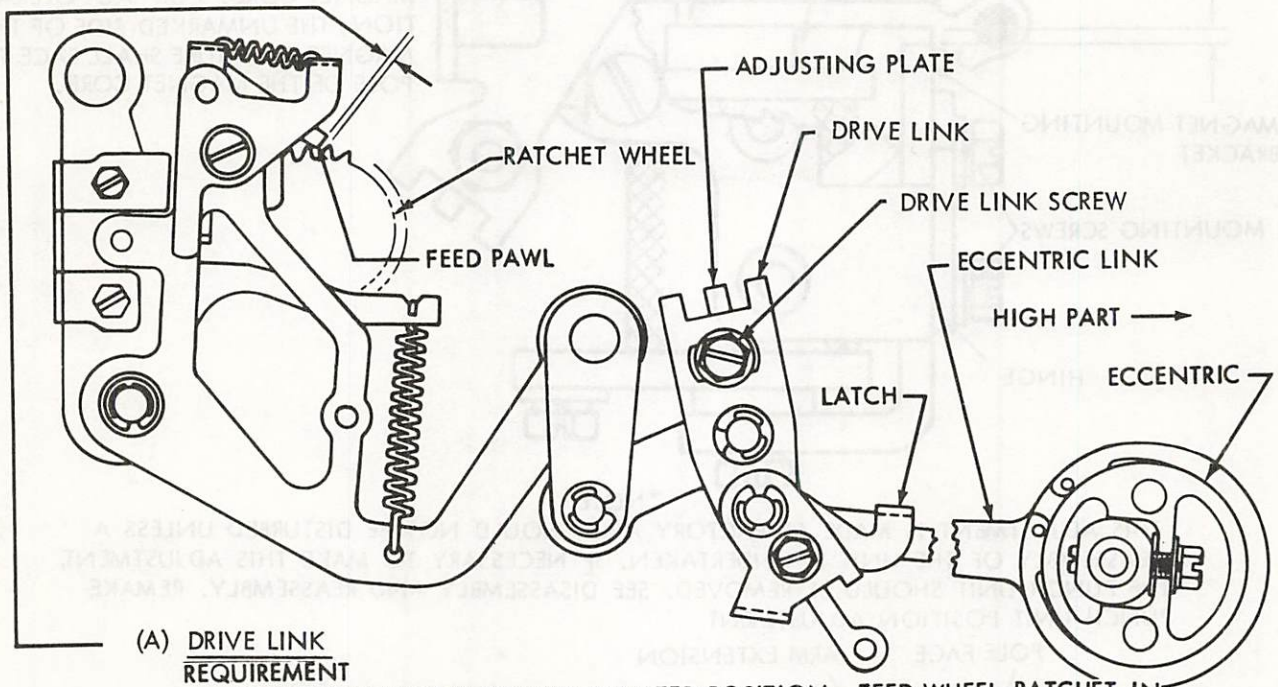
REQUIREMENT

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.

2.31 Power Drive Backspace Mechanism (Cont.)



(A) DRIVE LINK

REQUIREMENT

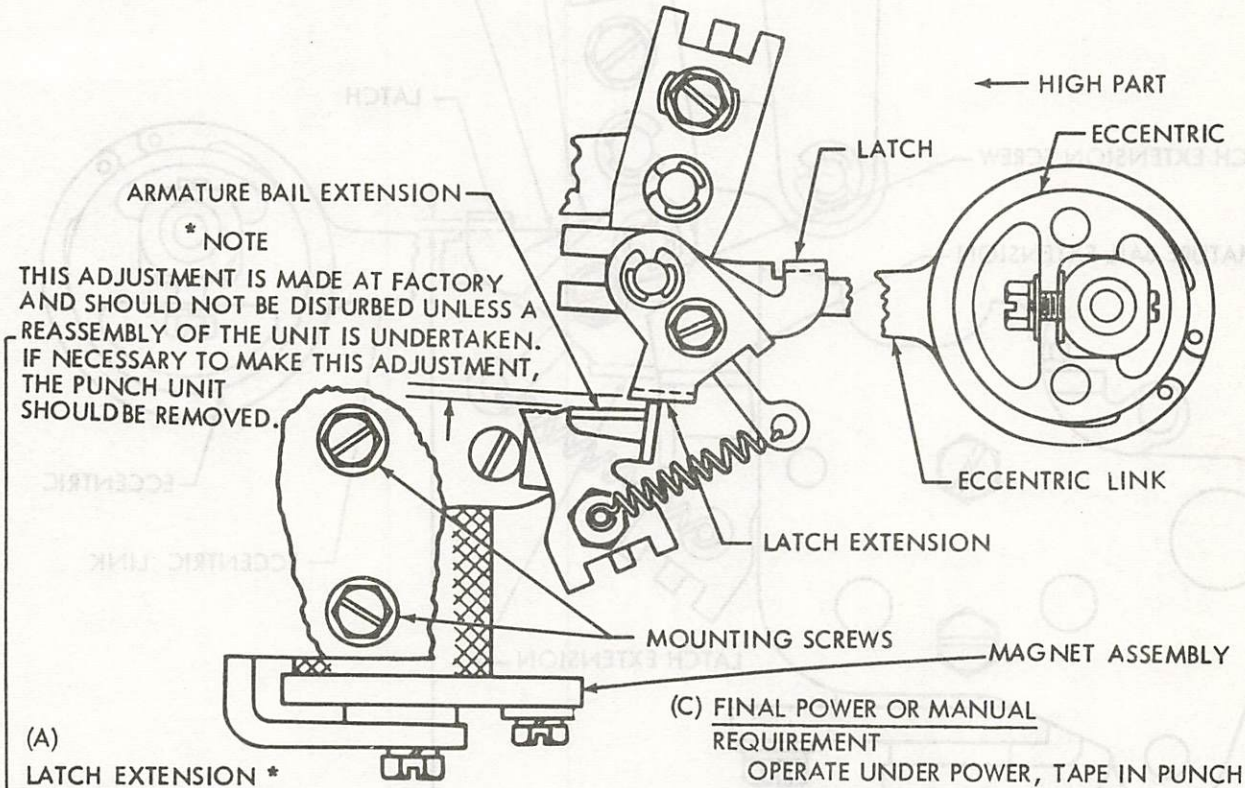
BACKSPACE MECHANISM IN OPERATED POSITION. FEED WHEEL RATCHET IN DETENTED POSITION. LATCH ENGAGED WITH ECCENTRIC LINK. HIGH PART OF ECCENTRIC TO RIGHT. CLEARANCE BETWEEN FEED PAWL AND FEED WHEEL RATCHET TOOTH:

MIN. SOME
MAX. 0.003 INCH

TO ADJUST

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

2.32 Power Drive Backspace Mechanism (Cont.)



(A)

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.

(C) FINAL POWER OR MANUAL

REQUIREMENT

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

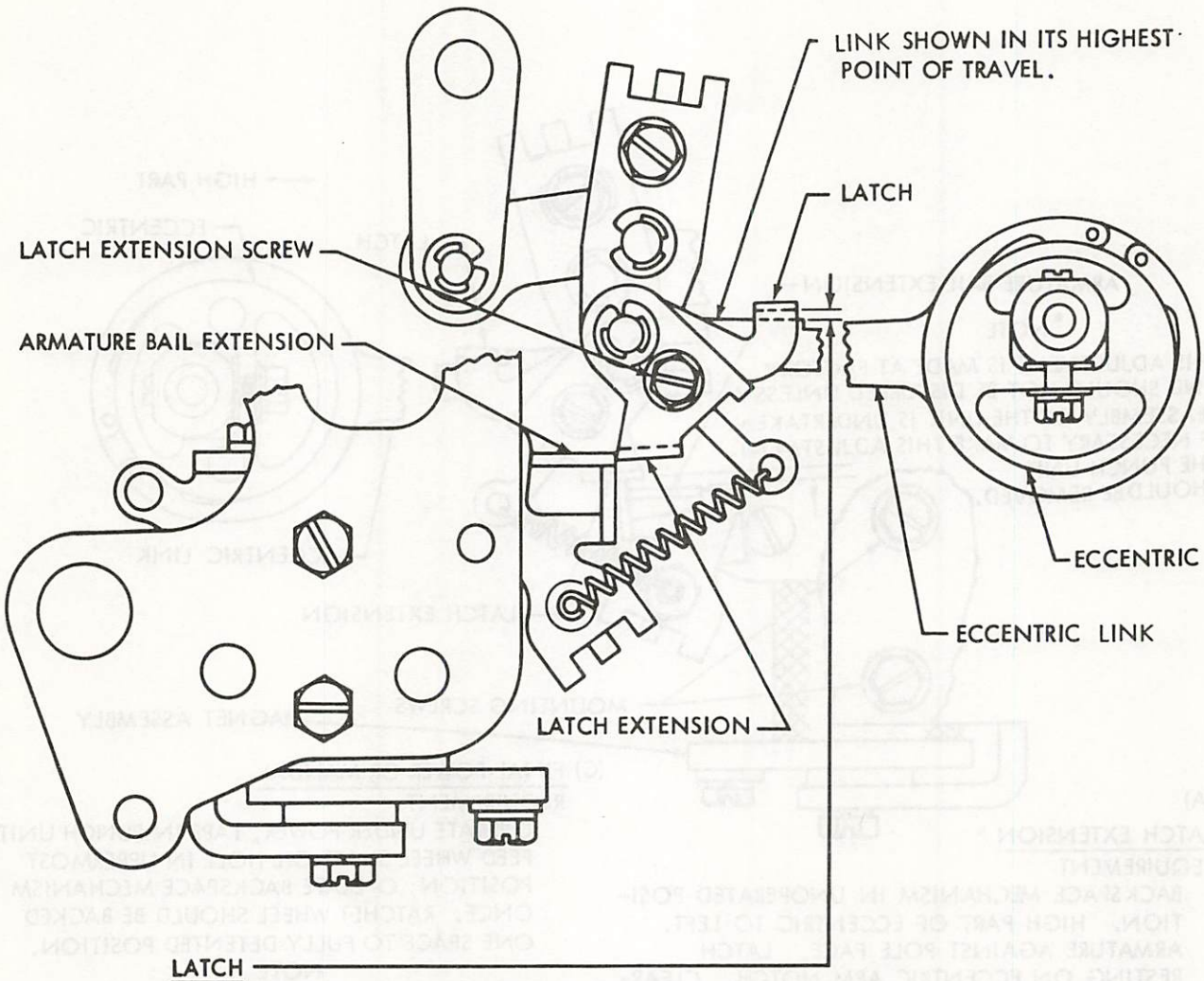
NOTE

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

TO ADJUST

REFINE FEED PAWL ADJUSTMENTS.

2.33 Power Drive Backspace Mechanism (Cont.)



LATCH

REQUIREMENT

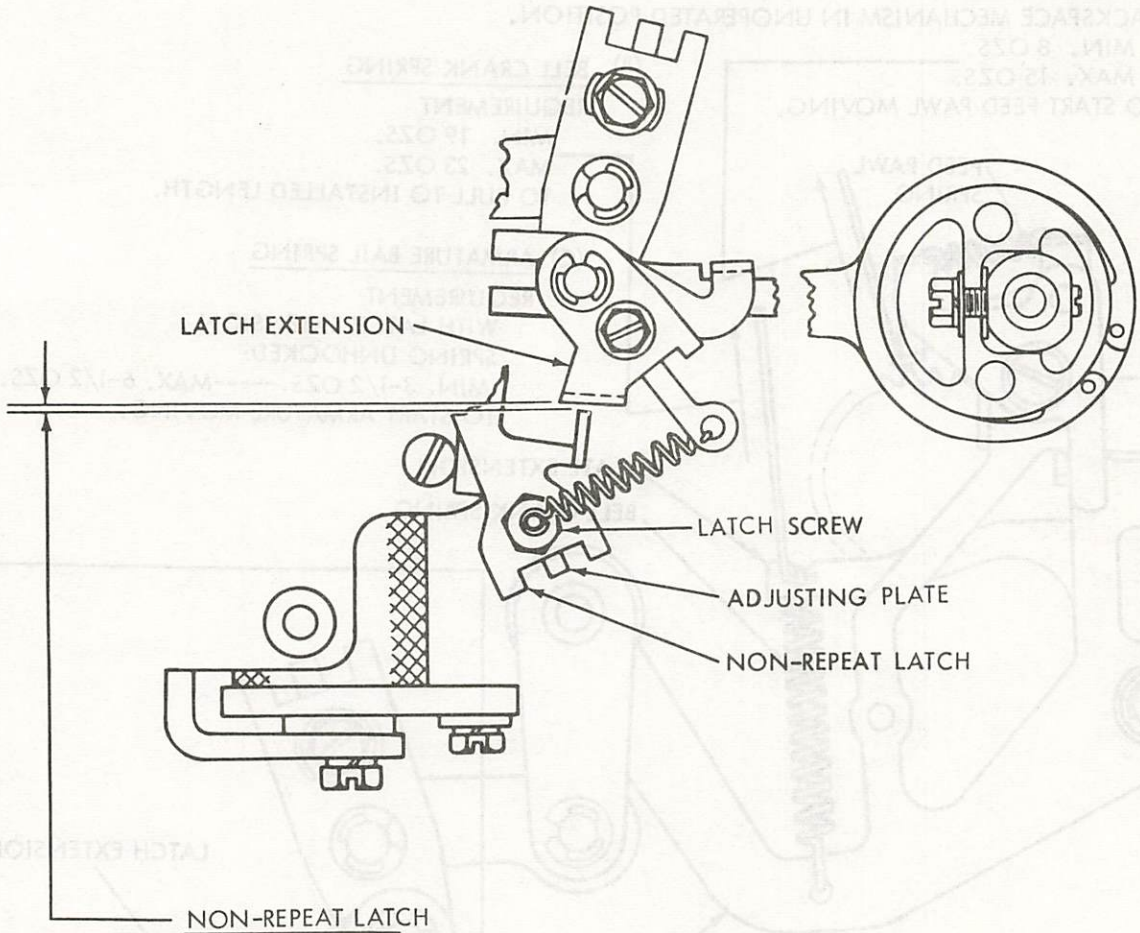
BACKSPACE MECHANISM IN UNOPERATED POSITION. ARMATURE OFF POLE FACE (DE-ENERGIZED). LATCH EXTENSION AGAINST END OF ARMATURE BAIL EXTENSION. ECCENTRIC LINK AT ITS CLOSEST POINT TO UNDERSIDE OF LATCH. CLEARANCE BETWEEN LATCH AND ECCENTRIC LINK:

MIN. 0.005 INCH
MAX. 0.025 INCH

TO ADJUST

POSITION LATCH WITH LATCH EXTENSION SCREW LOOSENED.

2.34 Power Drive Backspace Mechanism (Cont.)



REQUIREMENT

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

MIN. 0.002 INCH
MAX. 0.010 INCH

TO ADJUST

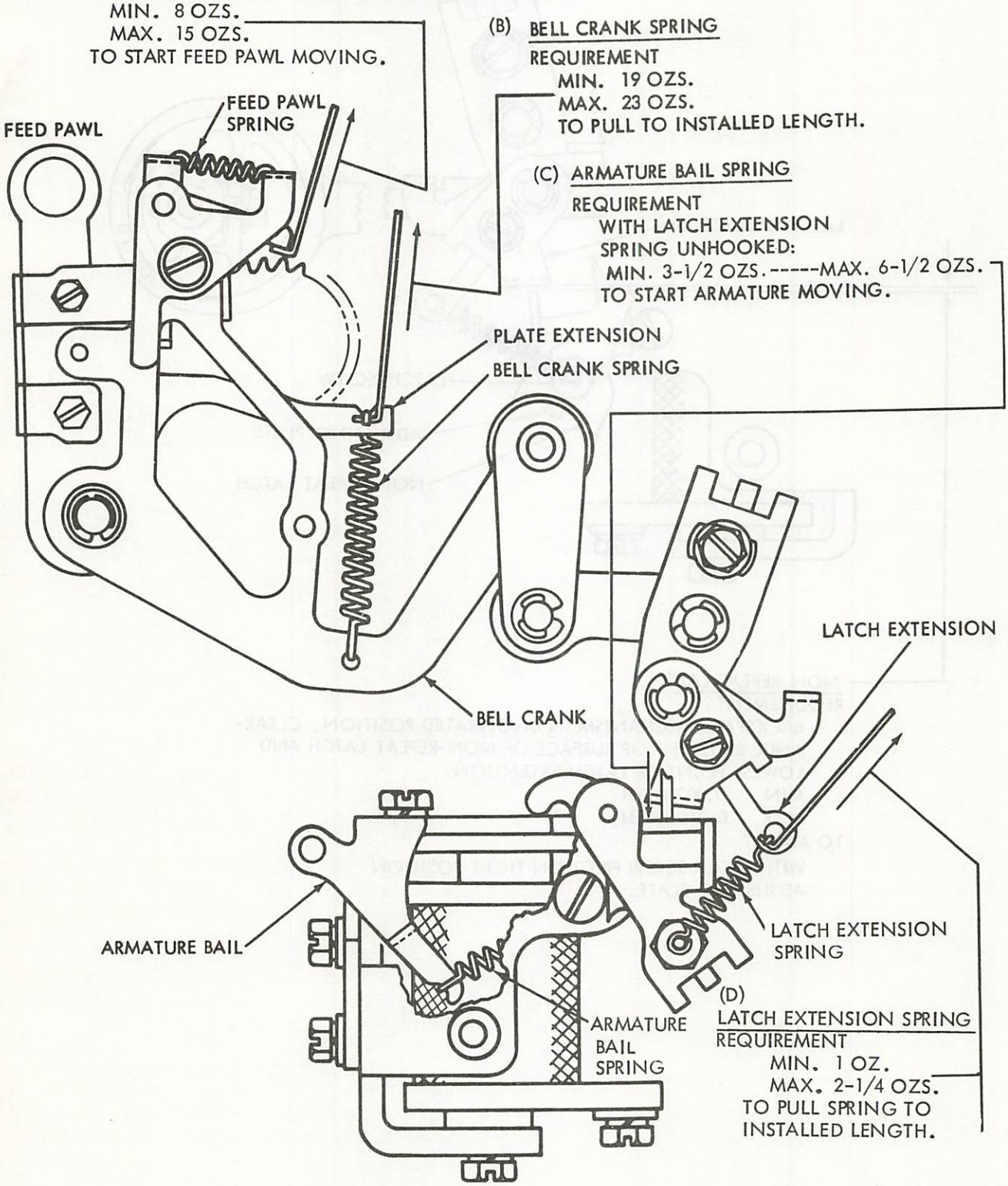
WITH LATCH SCREW FRICTION TIGHT POSITION ADJUSTING PLATE.

2.35 Power Drive Backspace Mechanism (Cont.)

(A) FEED PAWL SPRING
REQUIREMENT
BACKSPACE MECHANISM IN UNOPERATED POSITION.
MIN. 8 OZS.
MAX. 15 OZS.
TO START FEED PAWL MOVING.

(B) BELL CRANK SPRING
REQUIREMENT
MIN. 19 OZS.
MAX. 23 OZS.
TO PULL TO INSTALLED LENGTH.

(C) ARMATURE BAIL SPRING
REQUIREMENT
WITH LATCH EXTENSION SPRING UNHOOKED:
MIN. 3-1/2 OZS. -----MAX. 6-1/2 OZS.
TO START ARMATURE MOVING.



(D) LATCH EXTENSION SPRING
REQUIREMENT
MIN. 1 OZ.
MAX. 2-1/4 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

TELETYPE CORPORATION
Skokie, Illinois, U. S. A.

SECTION 574-225-700TC
Issue 3, June, 1963

35 TRANSMITTER DISTRIBUTOR

ADJUSTMENTS

CONTENTS PAGE

1. GENERAL

1.01 This section is reissued to include Part 3, Variable Features, and to add recent engineering changes.

1.02 This section contains the requirements and adjusting procedures for the maintenance of the 35 Transmitter Distributor.

1.03 The adjustment of the 35 Transmitter Distributor is arranged in a sequence that would be followed if a complete readjustment of the unit were undertaken.

1.04 After an adjustment has been completed, be sure to tighten nuts or screws that may have been loosened.

1.05 The covers may be removed for inspection and minor repair of the unit; however, when more extensive maintenance is to be undertaken, it is recommended that the unit be

disconnected from its source of power as a safety precaution.

1.06 The adjusting illustrations, in addition to indicating the adjusting tolerances, positions of moving parts and spring tensions, also show the angle at which the scale should be applied when measuring spring tensions.

1.07 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 shim pile-up may be replaced when the part is remounted.

1.08 If parts or assemblies are removed to facilitate readjustment and subsequently replaced, recheck any adjustment that may have been affected by the removal of these parts or assemblies.

1.09 The spring tensions given in this bulletin are indications (not exact values) and should be checked with proper spring scales in the position indicated. Springs which do not meet the requirement and for which no adjusting procedure is given should be replaced by new springs.

1.10 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 operator's position.

1.11 Where reference is made to a LETTERS combination, select the RUBOUT code. If reference is made to a BLANKS combination, select the SPACE code.

1.12 When a requirement calls for the clutch to be disengaged, the clutch shoe lever must be fully latched between its trip lever and latch lever so that the clutch shoes release their tension on the clutch drum. To accomplish this, rotate the main shaft by hand until the clutch reaches its stop position, then apply a screwdriver to the cam disk stop lug and push the disk in its normal direction of shaft rotation until the latch lever seats in its notch in the disk.

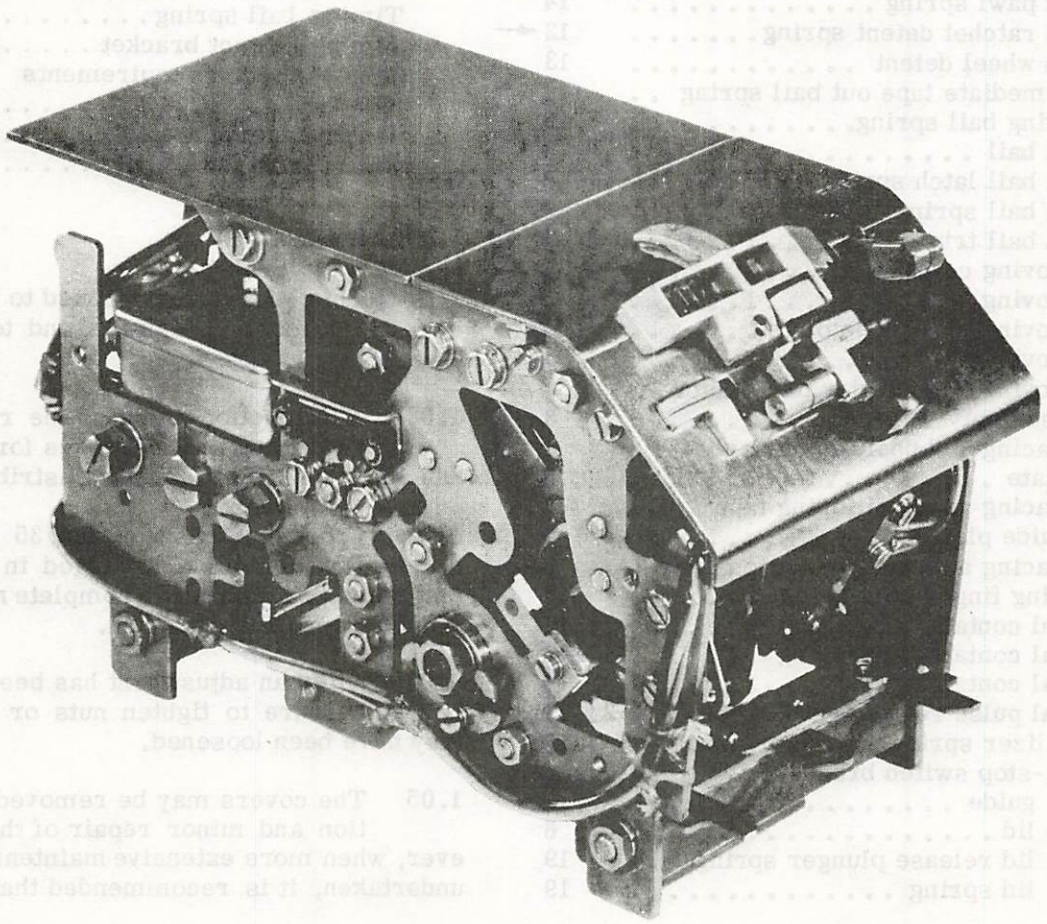


Figure 1 - 35 Transmitter Distributor (Right Front View)

2. ADJUSTMENTS

2.01 Cover Assemblies

INSTRUCTIONS FOR

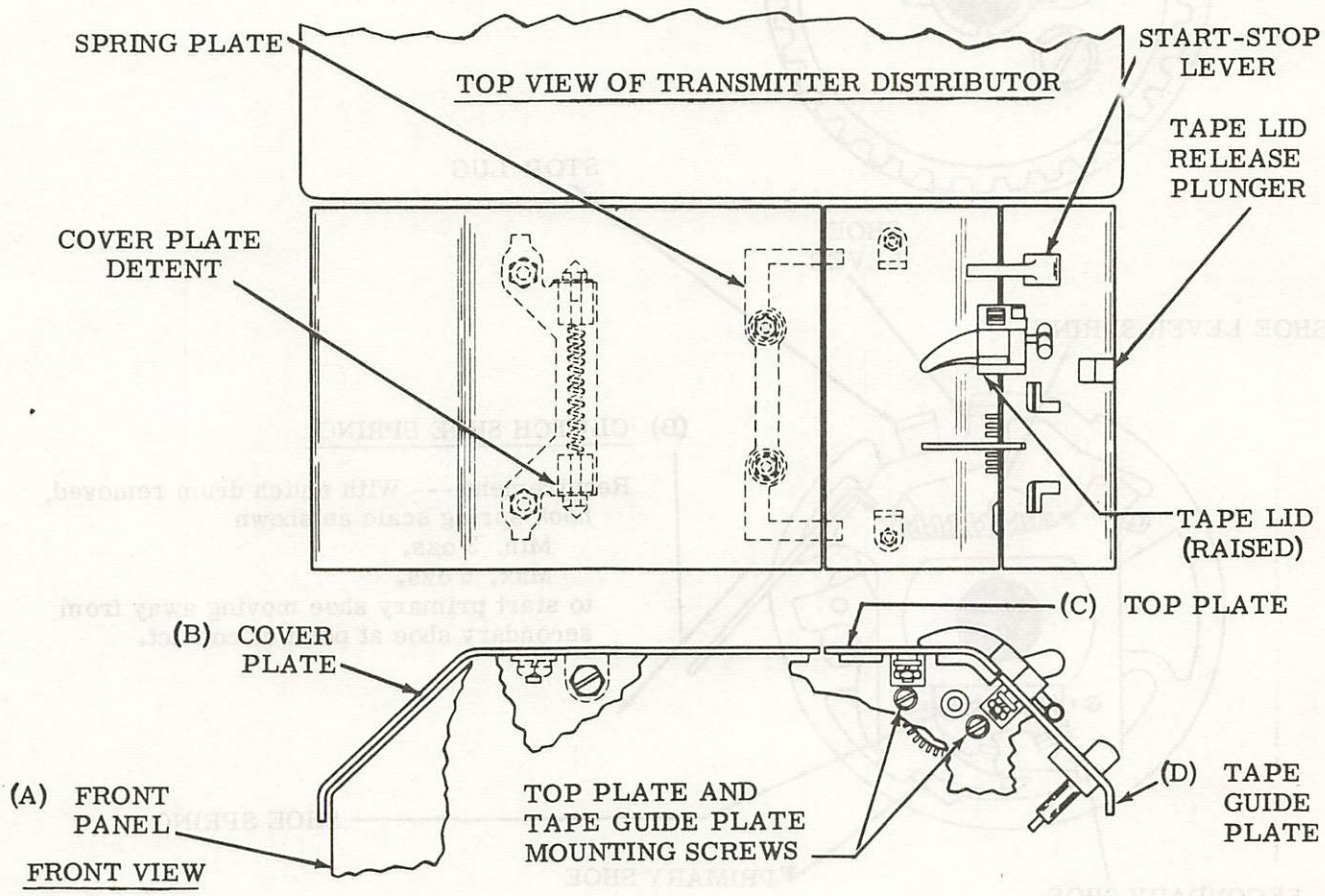
(A) REMOVING FRONT PANEL --- Pull outward on lower right and left rear corner of front panel and slide panel toward the front. Replace in reverse order.

(B) REMOVING COVER PLATE --- Lift left end of cover plate to disengage detents then slide plate toward the left to disengage spring plate. Replace in reverse order.

(C) REMOVING TOP PLATE --- With front and rear mounting screws loosened (do not disturb mounting nuts) and tape lid raised, lift plate upward. Refer to 2.04 when replacing the plate.

(D) REMOVING TAPE GUIDE PLATE --- With front and rear mounting screws loosened (do not disturb mounting nuts) and tape lid raised, lift plate upward. Refer to 2.05 when replacing the plate.

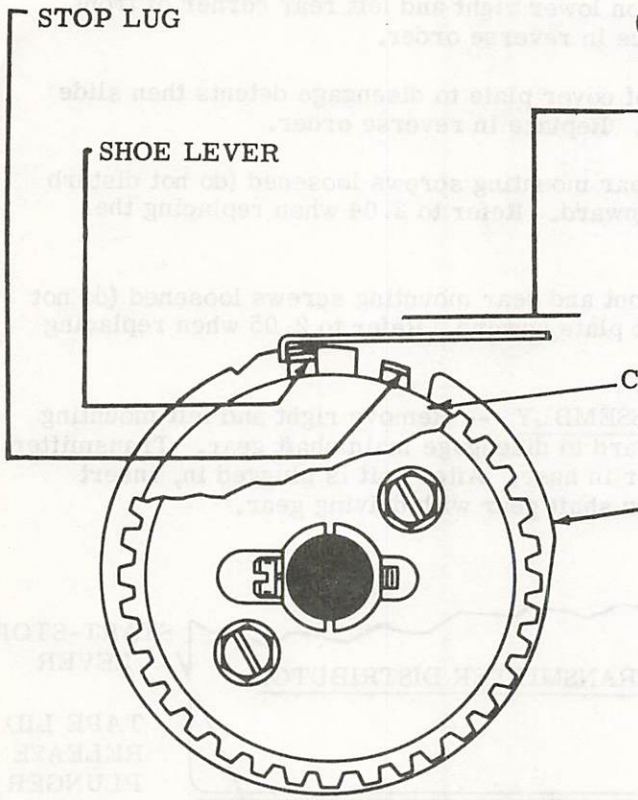
(E) REMOVING TRANSMITTER DISTRIBUTOR ASSEMBLY --- Remove right and left mounting screws attached to base and lift assembly upward to disengage main shaft gear. Transmitter is equipped with plug that mates with connector in base. After unit is plugged in, insert mounting screws (3). Check alignment of main shaft gear with driving gear.



2.02 Clutch Mechanism

Note 1 --- Requirements (A) & (B) are adjusted at the factory and should not be disturbed unless associated mechanisms have been removed for servicing or there is reason to believe that the requirements are not met.

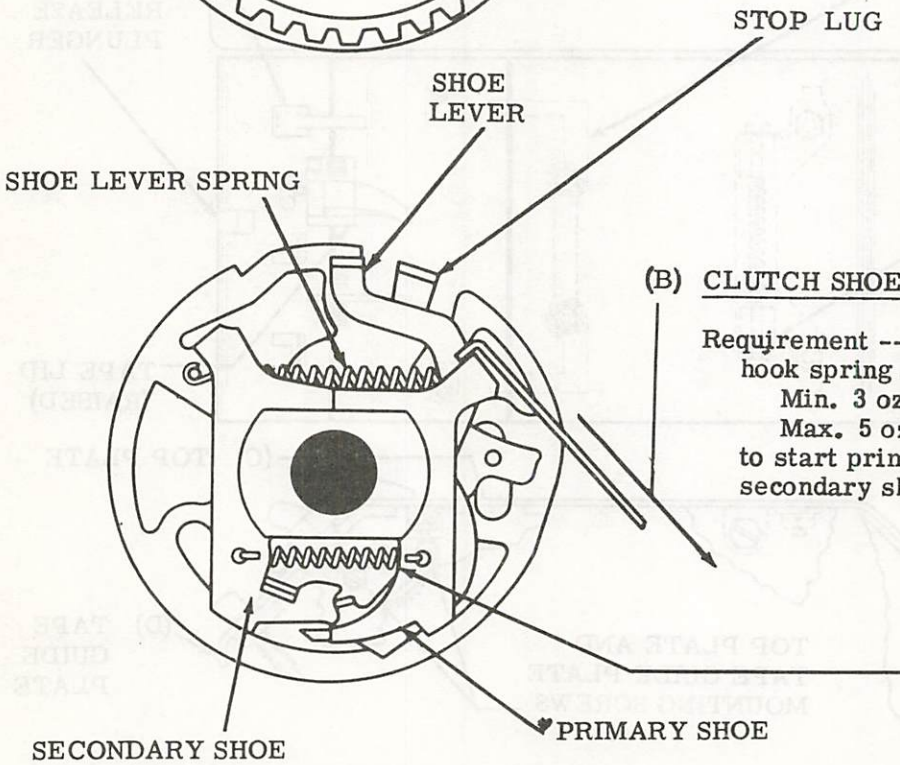
→ Note 2 --- Remove transmitter distributor from its base prior to adjustment. See 2.01 Note (E).



(A) CLUTCH SHOE LEVER SPRING

Requirement --- With clutch engaged, hold cam disk to prevent turning.
Min. 15 ozs.
Max. 20 ozs.
to move shoe lever in contact with stop lug.

To Measure --- Invert unit. Rotate main shaft until clutch shoe lever and stop lug are up.

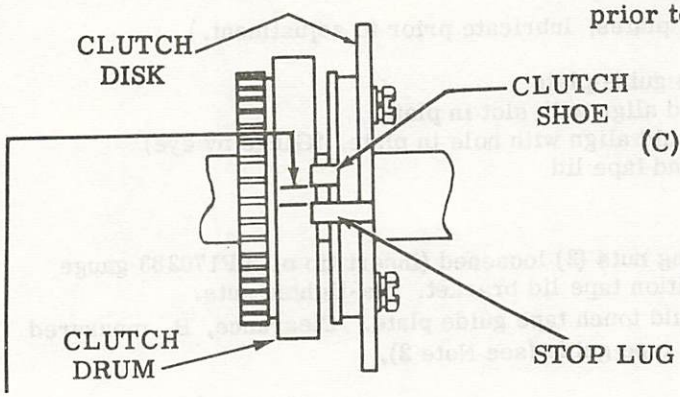


(B) CLUTCH SHOE SPRING

Requirement --- With clutch drum removed, hook spring scale as shown
Min. 3 ozs.
Max. 5 ozs.
to start primary shoe moving away from secondary shoe at point of contact.

2.03 Clutch Trip Mechanism

Note---Remove transmitter distributor from its base prior to adjustment. See 2.01 Note (E).



(B) CLUTCH SHOE LEVER

Requirement --- Clearance as shown should be
Min. 0.055 inch
Max. 0.085 inch
greater with clutch engaged * than with clutch disengaged.
* (Pull shoe lever with force of 32 ozs. and release slowly to engage clutch shoes).

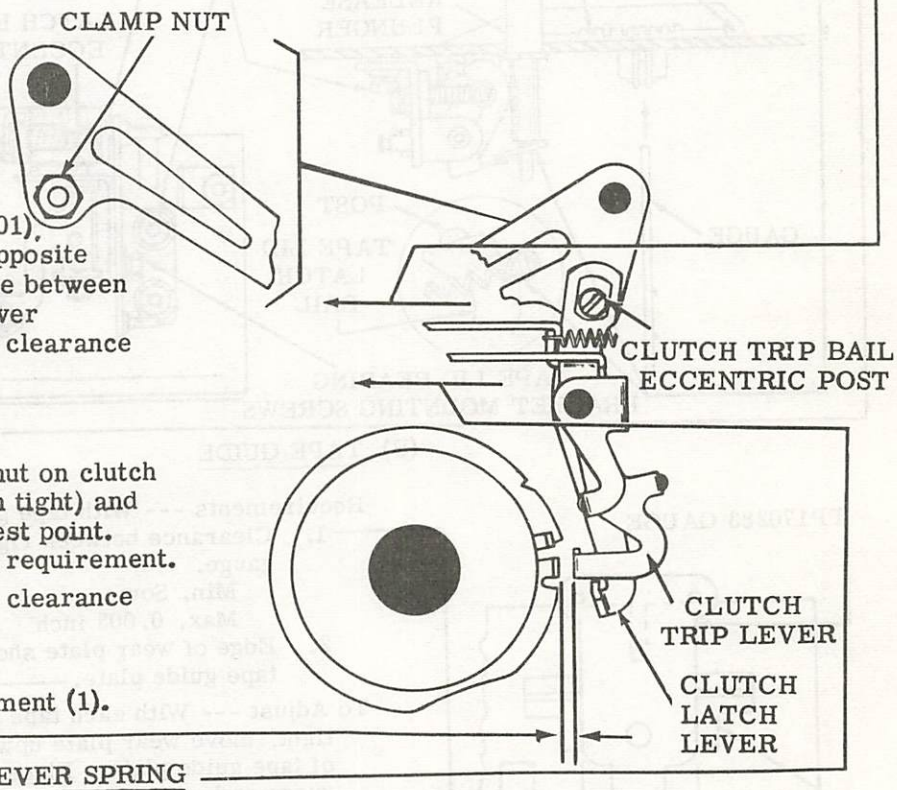
To Adjust --- With clutch disk clamping screws loosened, place wrench over stop lug and move disk.

CAUTION --- Make sure that drum does not drag on shoes when clutch is disengaged and drum is rotated in its normal direction. Refine above adjustment to correct shoe drag.

(C) CLUTCH LATCH LEVER SPRING

Requirement
Clutch engaged and rotated until latch lever is on low part of disk
Min. 3 ozs.
Max. 5-1/2 ozs.
to start latch moving.

MAIN BAIL (FRONT VIEW)



(A) CLUTCH TRIP LEVER

Requirement
(Remove cover plate, see 2.01).
With clutch disk stop lug opposite clutch trip lever, clearance between inner surface of lug and lever
(1) Play taken up to make clearance maximum
Min. 0.012 inch
Max. 0.025 inch

To Adjust --- Loosen clamp nut on clutch trip bail eccentric (friction tight) and rotate eccentric to its lowest point. Position eccentric to meet requirement.

(2) Play taken up to make clearance minimum.
Some clearance.

To Adjust --- Refine requirement (1).

(D) CLUTCH TRIP LEVER SPRING

Requirement --- With clutch engaged
Min. 7 ozs.
Max. 10-1/2 ozs.
to start clutch trip lever moving.

2.04 Tape Guide Plate

(A) TAPE LID

Requirement --- (Remove top & tape guide plates, lubricate prior to adjustment.)

(1) Preliminary:

With tape lid held against notch in tape guide plate

A Feed wheel groove in tape lid should align with slot in plate.

B Hole in tape lid for tape-out pin should align with hole in plate. (Gauge by eye)

C Clearance between pivot shoulder and tape lid

Min. Some

Max. 0.010 inch

To Adjust --- With tape lid bracket mounting nuts (2) loosened (insert tip of TP170283 gauge through slot and into groove of lid), position tape lid bracket. Re-tighten nuts.

(2) Tape lid front bearing surface, A, should touch tape guide plate. Clearance, B, measured at fin of tape which is in line with rear tape guide (see Note 2).

Min. 0.010 inch

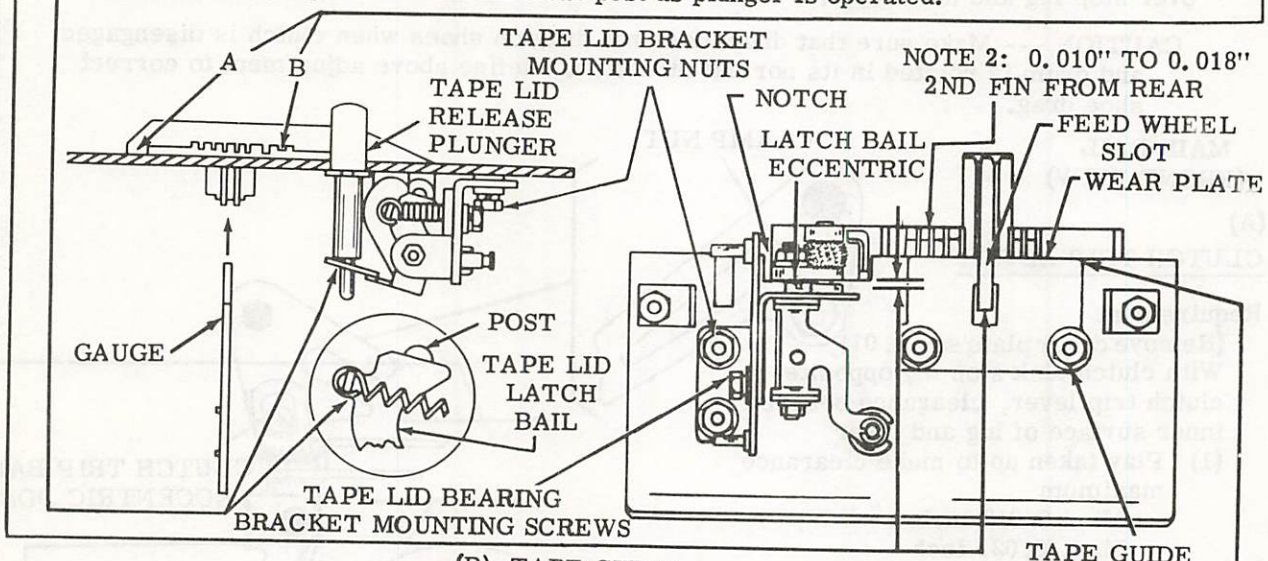
Max. 0.018 inch

Note 1 --- When both plates are assembled on unit, left edge of lid may touch top plate and some change in this clearance may be expected.

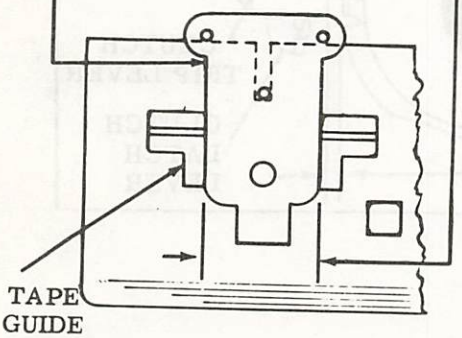
To Adjust --- With tape lid bearing bracket mounting screws friction tight and tape lid pressed against tape guide plate, position bearing bracket. Recheck Requirement #1.

(3) Release plunger should have some end play when lid is latched against tape guide plate.

To Adjust --- With eccentric mounting post lock nut friction tight and tape lid raised, rotate high part of eccentric toward tape guide plate. Close lid and rotate eccentric toward bracket until latch just falls under flat on post. Recheck by depressing plunger --- With lid held down, tip of latch should clear post as plunger is operated.



(B) TAPE GUIDE

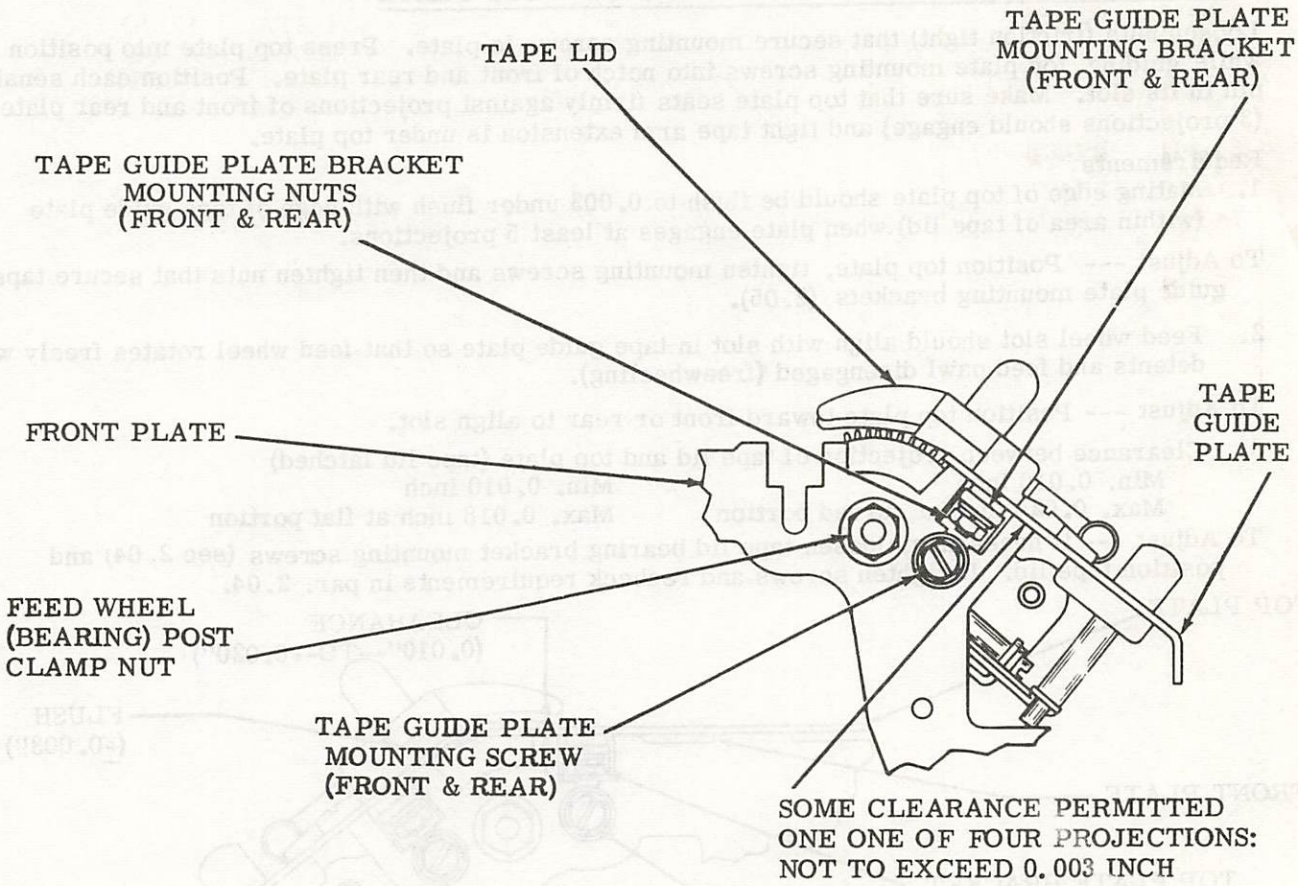


Requirements --- With tape gauge positioned as shown

1. Clearance between right and left tape guide and gauge.
   Min. Some
   Max. 0.003 inch
2. Edge of wear plate should be flush with edge of tape guide plate.

To Adjust --- With each tape guide mounting nut friction tight, move wear plate upward until it overhangs edge of tape guide plate. Place guage in position and move guage and wear plate downward until both studs engage edge of tape guide plate to align common edge. Hold guage and wear plate and position each guide. (Guage may touch but not bind.) The tape should not ride on the side of either tape guide.

2.05 Tape Guide Mounting Plate



INSTRUCTIONS FOR REPLACING AND POSITIONING TAPE GUIDE PLATE

Requirements

(1) Shoulder of feed wheel post should not interfere with top plate or tape guide plate mounting brackets.

To Adjust --- See Note 1. With (feed wheel) bearing post clamp nut friction tight, position the post.

(2) Tape guide plate should rest firmly against at least three projections of front and rear plate.

To Adjust --- See Note 1. With clamp nut that secures tape guide plate mounting bracket (front & rear) friction tight, trip clutch and rotate shaft until sensing pins are in their uppermost position. With tape lid raised and start stop lever in run position, press guide plate into position while guiding mounting screws into notch of front and rear plate. Engage tip of tape out pin with hole in tape guide plate.

(3) Outer edge of front and rear mounting bracket should be located flush with shoulder of mounting stud so that edge of tape guide plate projects over front and rear plate by an equal amount. (Gauge by eye.) See 2.17.

To Adjust --- Move tape plate toward the front or rear. Tighten nuts only after top plate (2.06) is adjusted.

Note 1 --- Position tape-out sensing pin stop arm (see 2.08) in its lowest position and hold start-stop bail extension from ratchet wheel.

2.06 Top Plate and Cover Plate Mounting

INSTRUCTIONS FOR REPLACING AND POSITIONING TOP PLATE

Loosen nuts (friction tight) that secure mounting screws to plate. Press top plate into position while guiding top plate mounting screws into notch of front and rear plate. Position each sensing pin in its slot. Make sure that top plate seats firmly against projections of front and rear plate. (3 projections should engage) and tight tape arm extension is under top plate.

Requirements

1. Mating edge of top plate should be flush to 0.003 under flush with edge of tape guide plate (within area of tape lid) when plate engages at least 5 projections.

To Adjust --- Position top plate, tighten mounting screws and then tighten nuts that secure tape guide plate mounting brackets (2.05).

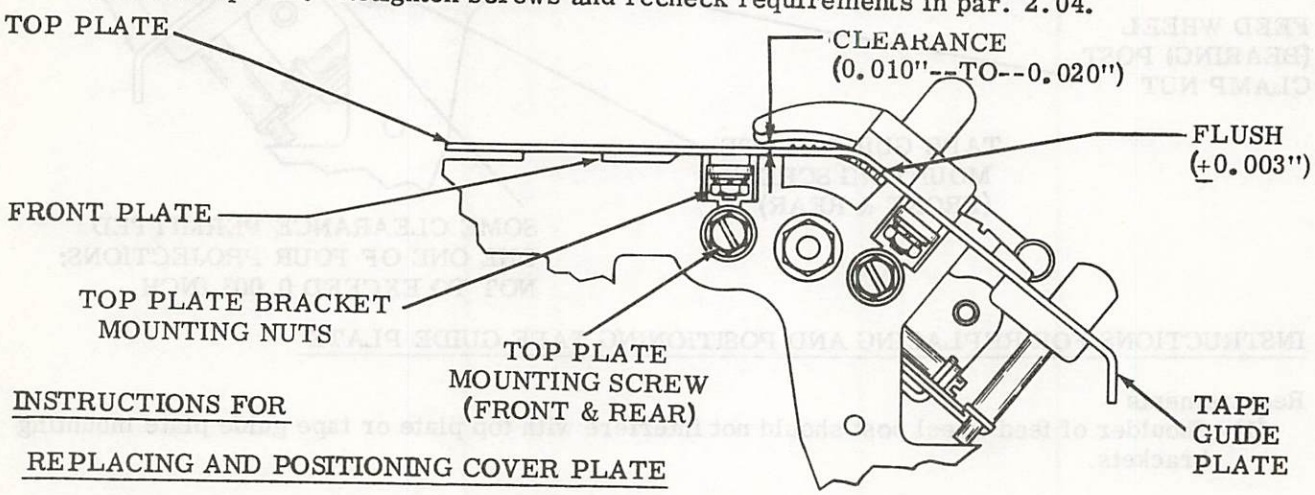
2. Feed wheel slot should align with slot in tape guide plate so that feed wheel rotates freely with detents and feed pawl disengaged (freewheeling).

To Adjust --- Position top plate toward front or rear to align slot.

3. Clearance between projection of tape lid and top plate (tape lid latched)

Min. 0.010 inch	Min. 0.010 inch
Max. 0.020 inch at curved portion	Max. 0.018 inch at flat portion

To Adjust --- if necessary, loosen tape lid bearing bracket mounting screws (see 2.04) and position tape lid. Retighten screws and recheck requirements in par. 2.04.

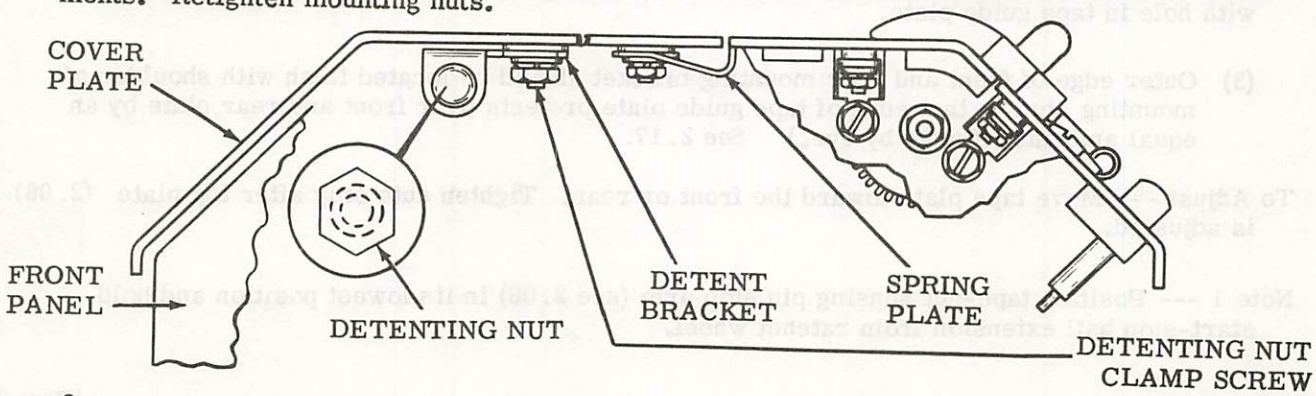


INSTRUCTIONS FOR REPLACING AND POSITIONING COVER PLATE

Requirement

1. Right edge of cover plate should be held flush against left edge of top plate by the cover plate detents.
2. Cover plate should rest against at least three of the four projections (front and rear plate).
3. Front edge of cover plate and top plate should align.

To Adjust --- With detenting nut clamp screw (front & rear plate) friction tight, move clamp screws to their extreme lower right position then tighten screws. Loosen detent bracket and spring plate mounting nuts. Place cover on unit and position horizontally to meet the requirements. Retighten mounting nuts.



2.07 Tape-Out Contact Assembly

(A) TAPE-OUT CONTACT ASSEMBLY

Requirement --- (Cover plate and top plate removed; start-stop switch in stop position; removal of tape guide plate optional). With tape-out spring bracket friction tight, move bracket downward until tape-out pin extension clears insulated portion of contact swinger.

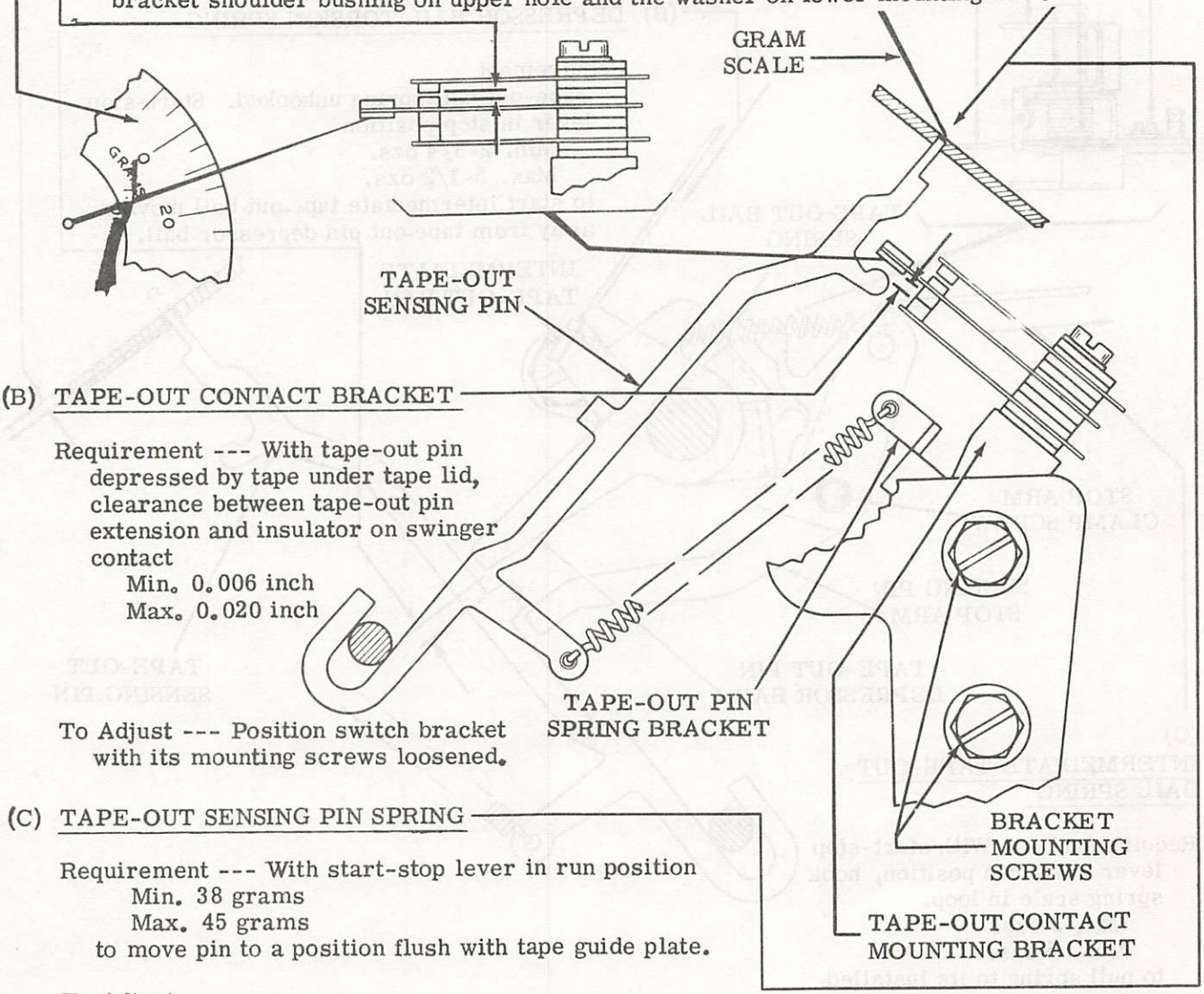
1. With gram scale applied as shown. Min. 8 grams
   Max. 15 grams
   to separate normally closed contacts.

To Adjust --- Remove bail spring and contact assembly. Form the contact swinger with the TP110445 spring bender.

2. Clearance between normally closed contacts. Min. 0.008 inch
   Max. 0.015 inch

To Adjust --- Form upper contact spring using the TP110445 spring bender.

Note --- Replace contact assembly with swinger over tape-out pin extension. Place spring bracket shoulder bushing on upper hole and the washer on lower mounting hole.



(B) TAPE-OUT CONTACT BRACKET

Requirement --- With tape-out pin depressed by tape under tape lid, clearance between tape-out pin extension and insulator on swinger contact
Min. 0.006 inch
Max. 0.020 inch

To Adjust --- Position switch bracket with its mounting screws loosened.

(C) TAPE-OUT SENSING PIN SPRING

Requirement --- With start-stop lever in run position
Min. 38 grams
Max. 45 grams
to move pin to a position flush with tape guide plate.

To Adjust
With contact bracket lower mounting screw loosened position the spring bracket.

2.08 Tape-Out Sensing Pin

(A) TAPE-OUT SENSING PIN

Requirement

1. With start-stop lever in free wheeling or stop position, tip of tape-out pin should be flush to 0.010 inch under flush below top surface of tape guide plate.

To Adjust --- Place start-stop lever in stop position. With stop arm clamp screw friction tight, position the stop arm.

2. With start-stop lever in run position, clearance as shown should be at lease 0.055 inch.

To Adjust --- Place start-stop lever in run position and loosen tape-out bail clamp screw. Position extension arm with tommy wrench or similar tool.

Note --- Recheck Requirement #1.

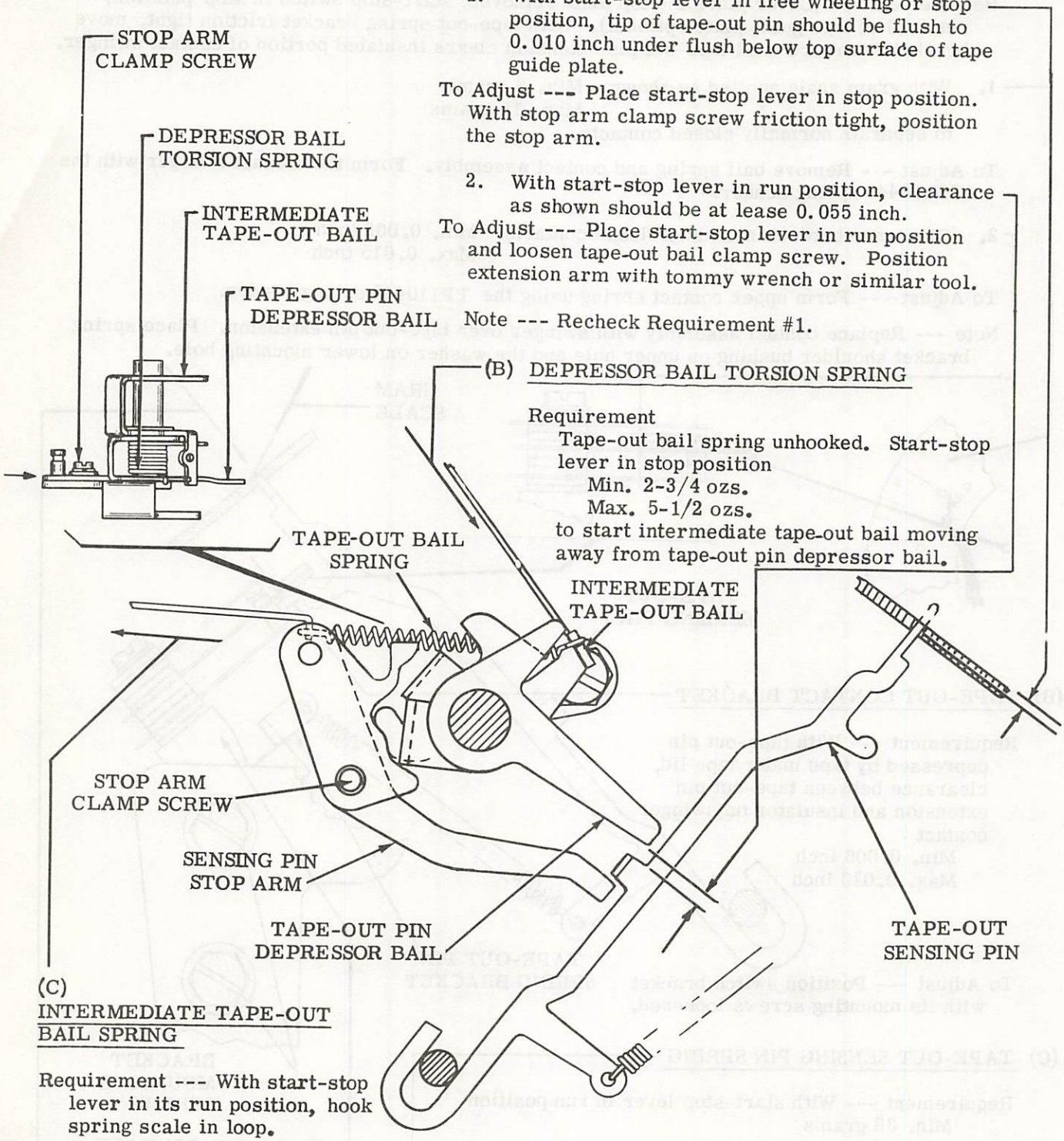
(B) DEPRESSOR BAIL TORSION SPRING

Requirement

Tape-out bail spring unhooked. Start-stop lever in stop position

Min. 2-3/4 ozs.
Max. 5-1/2 ozs.

to start intermediate tape-out bail moving away from tape-out pin depressor bail.



(C) INTERMEDIATE TAPE-OUT BAIL SPRING

Requirement --- With start-stop lever in its run position, hook spring scale in loop.

Min. 3 ozs.
Max. 5 ozs.

to pull spring to its installed length.

2.09 Start-Stop Switch Assembly

(A) START-STOP SWITCH BRACKET

Requirements (Clutch disengaged)

1. With start-stop lever in run position and clutch in its disengaged position, clearance between start-stop bail extension and insulator on start-stop switch swinger
   Min. 0.006 inch
   Max. 0.015 inch

To Adjust --- With switch bracket mounting screws loosened, position the bracket.

2. Start-stop bail extension should fully engage insulated portion of switch swinger.

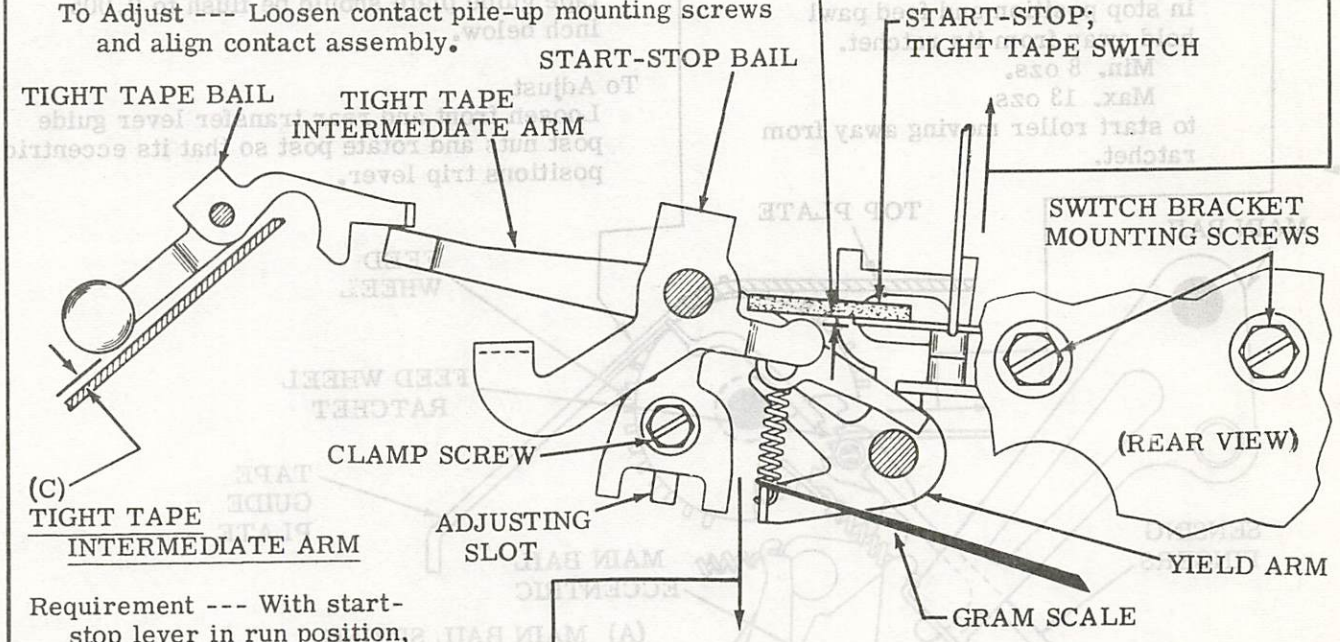
To Adjust --- Loosen contact pile-up mounting screws and align contact assembly.

(B) TIGHT TAPE START-STOP CONTACT SPRING

Requirement --- With start-stop lever in run position
   Min. 3 ozs.
   Max. 4 ozs.
to separate contacts.

To Adjust --- Form swinger with TP110445 spring bender.

Note --- Recheck requirements (A) & (C).



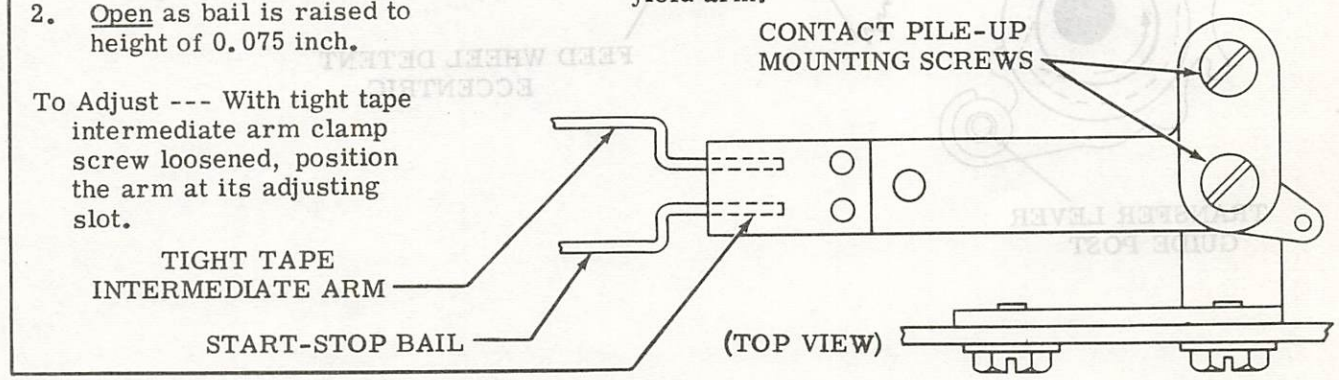
(D) TIGHT TAPE INTERMEDIATE ARM SPRING

Requirement --- With start-stop lever in run position,
   Min. 20 grams (3/4 ozs.)
   Max. 40 grams (1-1/2 ozs.)
to start intermediate arm moving away from its yield arm.

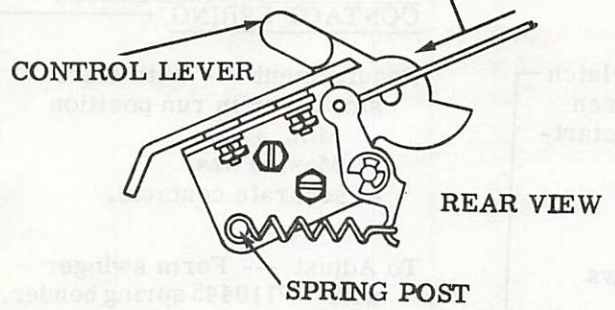
Requirement --- With start-stop lever in run position, tight tape start-stop contacts should function as follows:

1. Remain closed when tight tape bail is raised 0.045 inch.
2. Open as bail is raised to height of 0.075 inch.

To Adjust --- With tight tape intermediate arm clamp screw loosened, position the arm at its adjusting slot.



2.10 Main Bail Assembly



(C) CONTROL LEVER DETENT SPRING
(Not on relay controlled unit)

Requirement --- Control lever in run position
Min. 14 ozs.
Max. 22 ozs.
to start detent bail moving away from control lever detent.

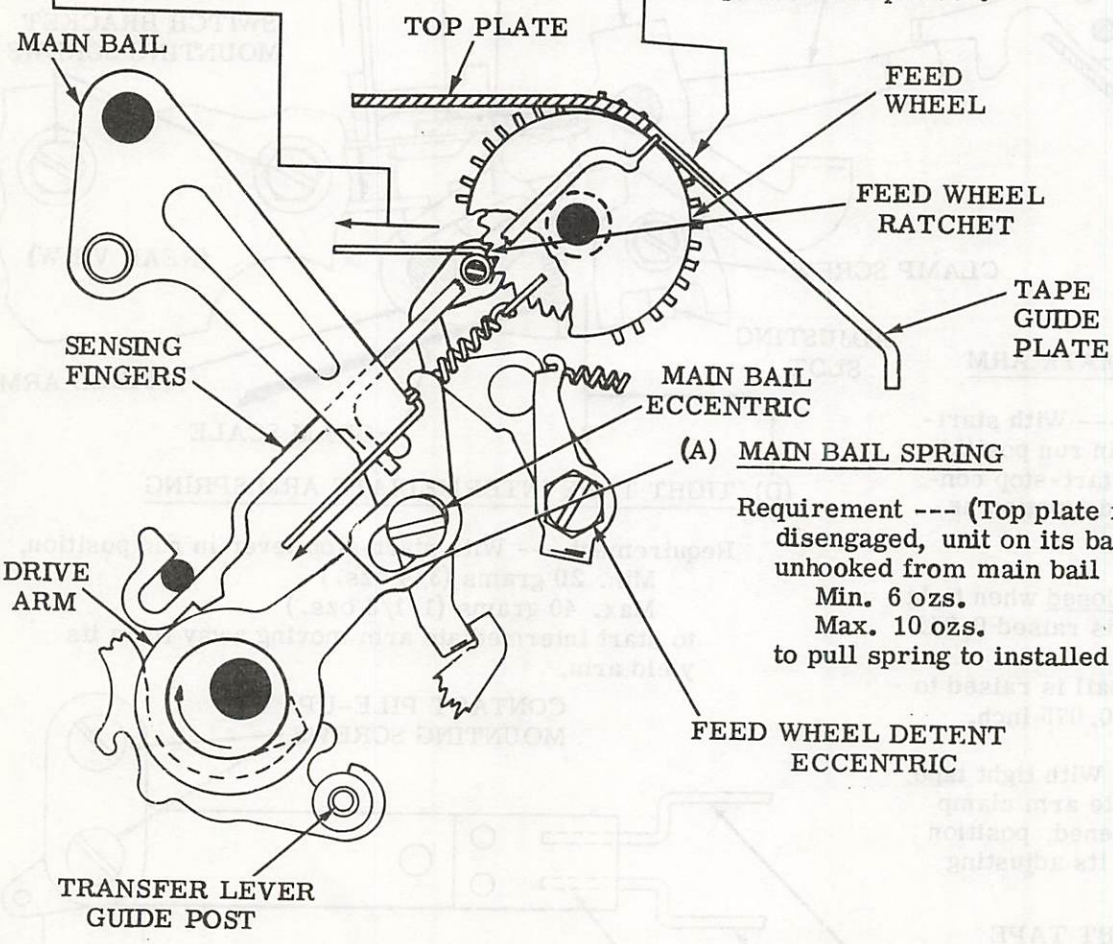
(D) MAIN BAIL TRIP LEVER

Requirement --- (Replace top plate)
Unit in stop position, clearance between tip of highest sensing pin and top surface of tape guide plate should be flush to 0.005 inch below.

To Adjust
Loosen front and rear transfer lever guide post nuts and rotate post so that its eccentric positions trip lever.

(B) FEED RATCHET DETENT SPRING

Requirement --- With mainshaft in stop position and feed pawl held away from its ratchet.
Min. 8 ozs.
Max. 13 ozs.
to start roller moving away from ratchet.



(A) MAIN BAIL SPRING

Requirement --- (Top plate removed) clutch disengaged, unit on its back. Spring unhooked from main bail
Min. 6 ozs.
Max. 10 ozs.
to pull spring to installed length.

FEED WHEEL DETENT ECCENTRIC

2.11 Code Sensing Fingers

(A) SENSING FINGER SPRING

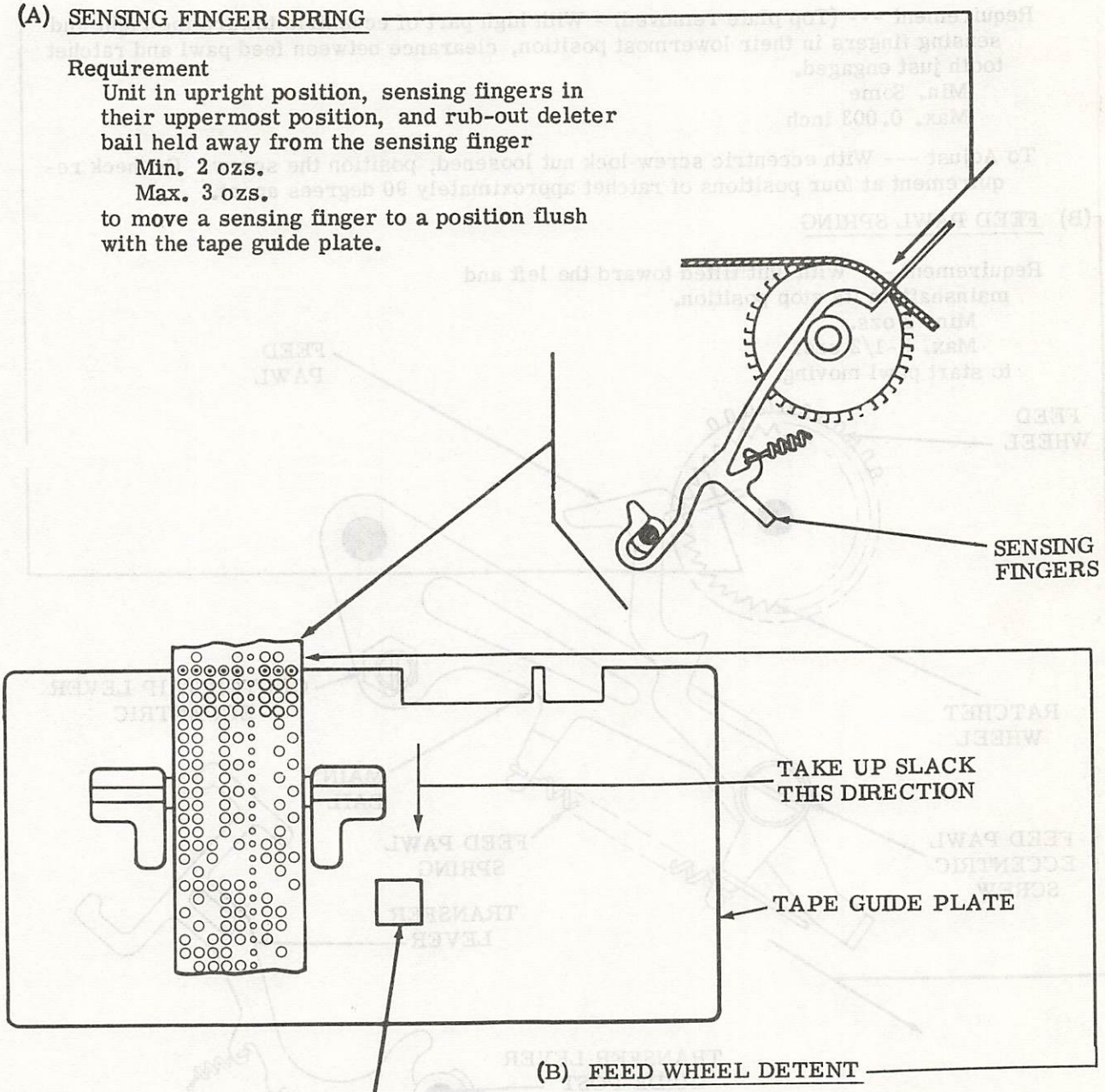
Requirement

Unit in upright position, sensing fingers in their uppermost position, and rub-out deleter bail held away from the sensing finger

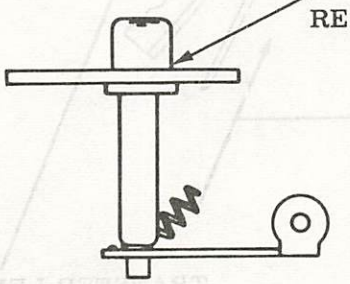
Min. 2 ozs.

Max. 3 ozs.

to move a sensing finger to a position flush with the tape guide plate.



(B) FEED WHEEL DETENT



Requirement

With tape lid raised, sensing fingers down, high part of feed wheel detent eccentric toward the right, letters perforated tape between tape guides, and play in tape taken lightly toward the right. Tip of each sensing finger should be centrally located in the code holes.

To Adjust

Hold feed pawl away and rotate the feed wheel detent eccentric screw. See figure on page 12.

2.12 Feed Pawl Mechanism

(A) FEED PAWL

Requirement --- (Top plate removed) - With high part of eccentric toward the right and sensing fingers in their lowermost position, clearance between feed pawl and ratchet tooth just engaged.

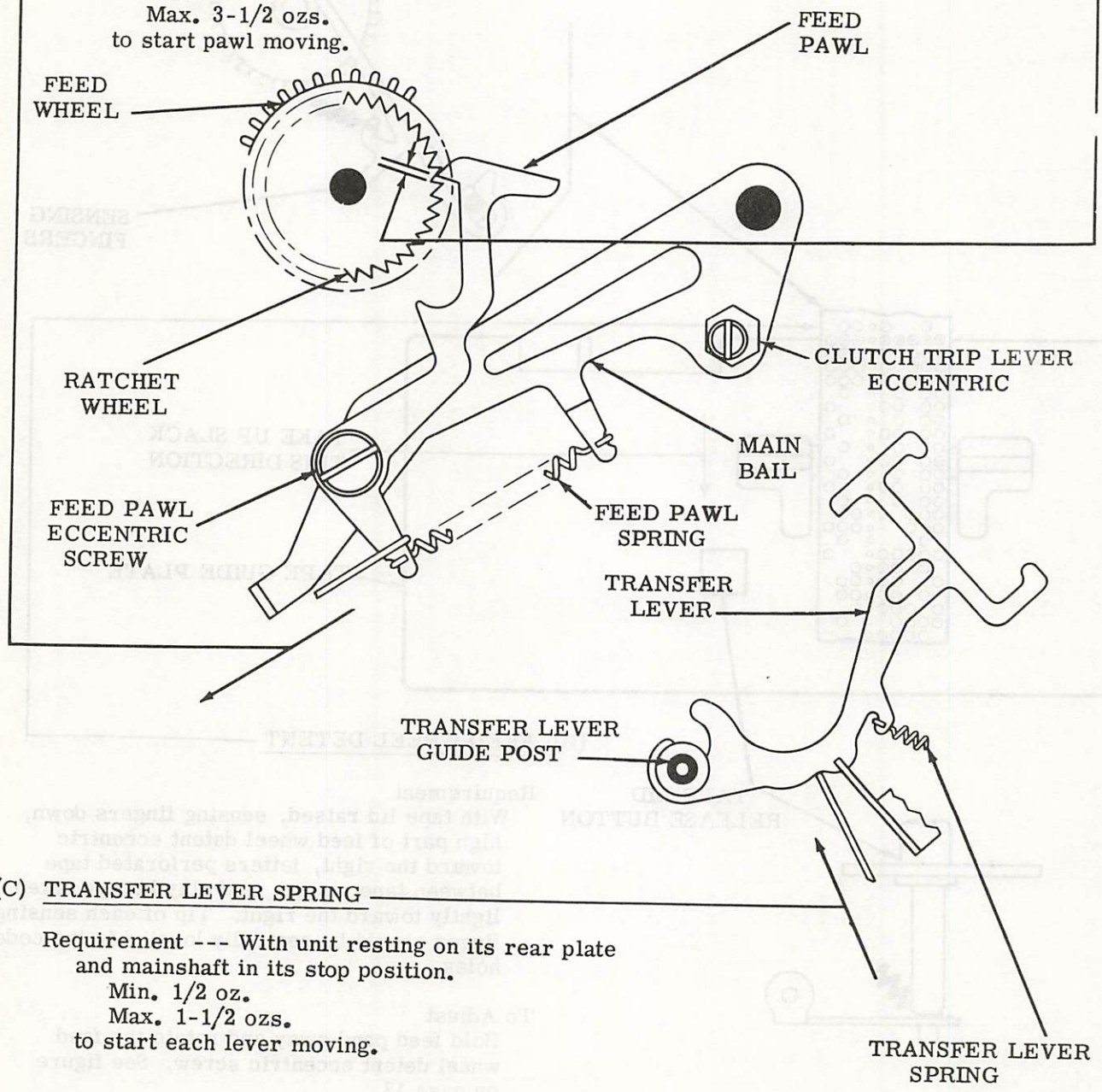
Min. Some
Max. 0.003 inch

To Adjust --- With eccentric screw lock nut loosened, position the screw. Recheck requirement at four positions of ratchet approximately 90 degrees apart.

(B) FEED PAWL SPRING

Requirement --- With unit tilted toward the left and mainshaft in its stop position.

Min. 2 ozs.
Max. 3-1/2 ozs.
to start pawl moving.



(C) TRANSFER LEVER SPRING

Requirement --- With unit resting on its rear plate and mainshaft in its stop position.

Min. 1/2 oz.
Max. 1-1/2 ozs.
to start each lever moving.

2.13 Main Bail Trip Assembly

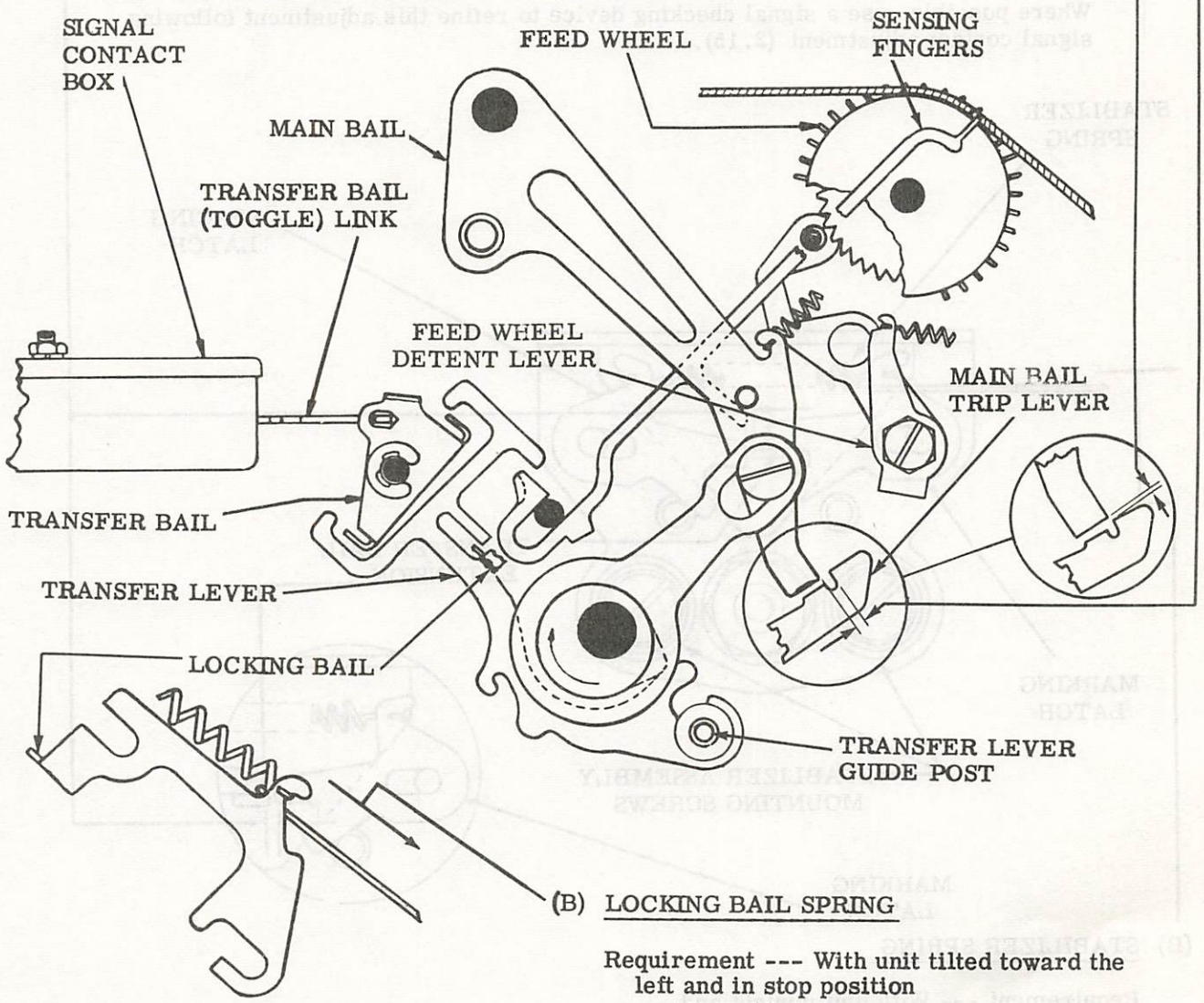
(A) MAIN BAIL

Requirement (Replace top plate)

1. Main bail in lowest postion, horizontal clearance between main bail arm and main bail trip lever should be
   Min. Some
   Max. 0.015 inch
2. Main bail in lowest position and clutch magnet operated, clearance between vertical surfaces should be
   Min. 0.005 inch

To Adjust

Position main bail eccentric with nut on eccentric screw loosened. Check and refine, if necessary, main bail trip lever adjustment (see 2.10).



(B) LOCKING BAIL SPRING

Requirement --- With unit tilted toward the left and in stop position
Min. 10 ozs.
Max. 14 ozs.
to start bail moving.

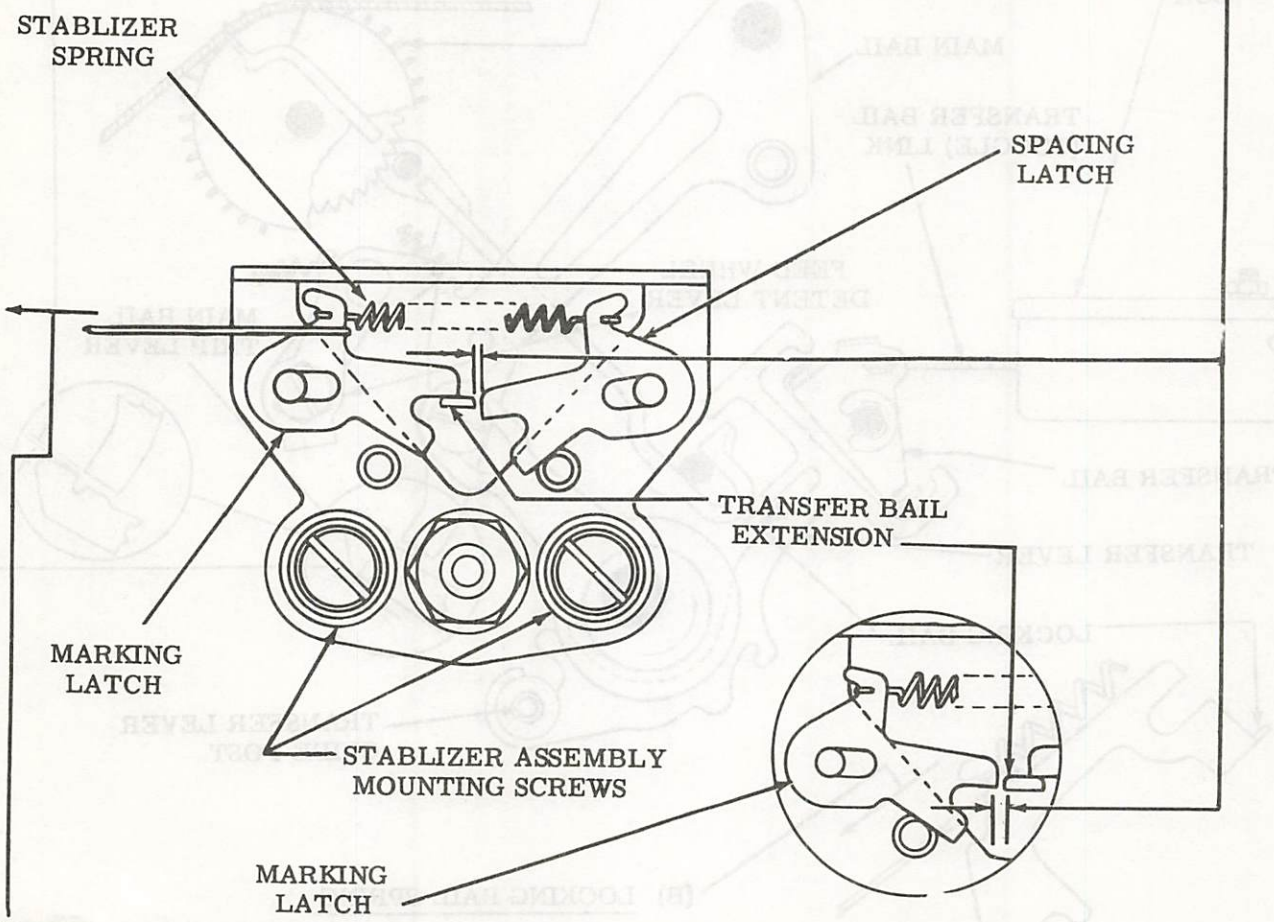
2.14 Transfer Bail Stabilizer

(A) TRANSFER BAIL STABILIZER

Requirement --- (1) With a RUBOUT combination selected, rotate mainshaft until #3 transfer lever is on high part of its cam. Check clearance between side of transfer bail extension and its latch. (2) Repeat above procedure with a SPACE combination selected and check the clearance on other latch. Clearance in MARKING and SPACING position should be equal within 0.002 inch.

To Adjust --- With stabilizer assembly mounting screws friction tight, position the assembly.

Note --- Latches should drop in place as other transfer levers cam the transfer bail. Where possible, use a signal checking device to refine this adjustment following signal contact adjustment (2.15).



(B) STABILIZER SPRING

Requirement --- With unit upright and mainshaft in stop position
Min. 2-1/2 ozs.
Max. 5 ozs.
to start stabilizer latch moving.

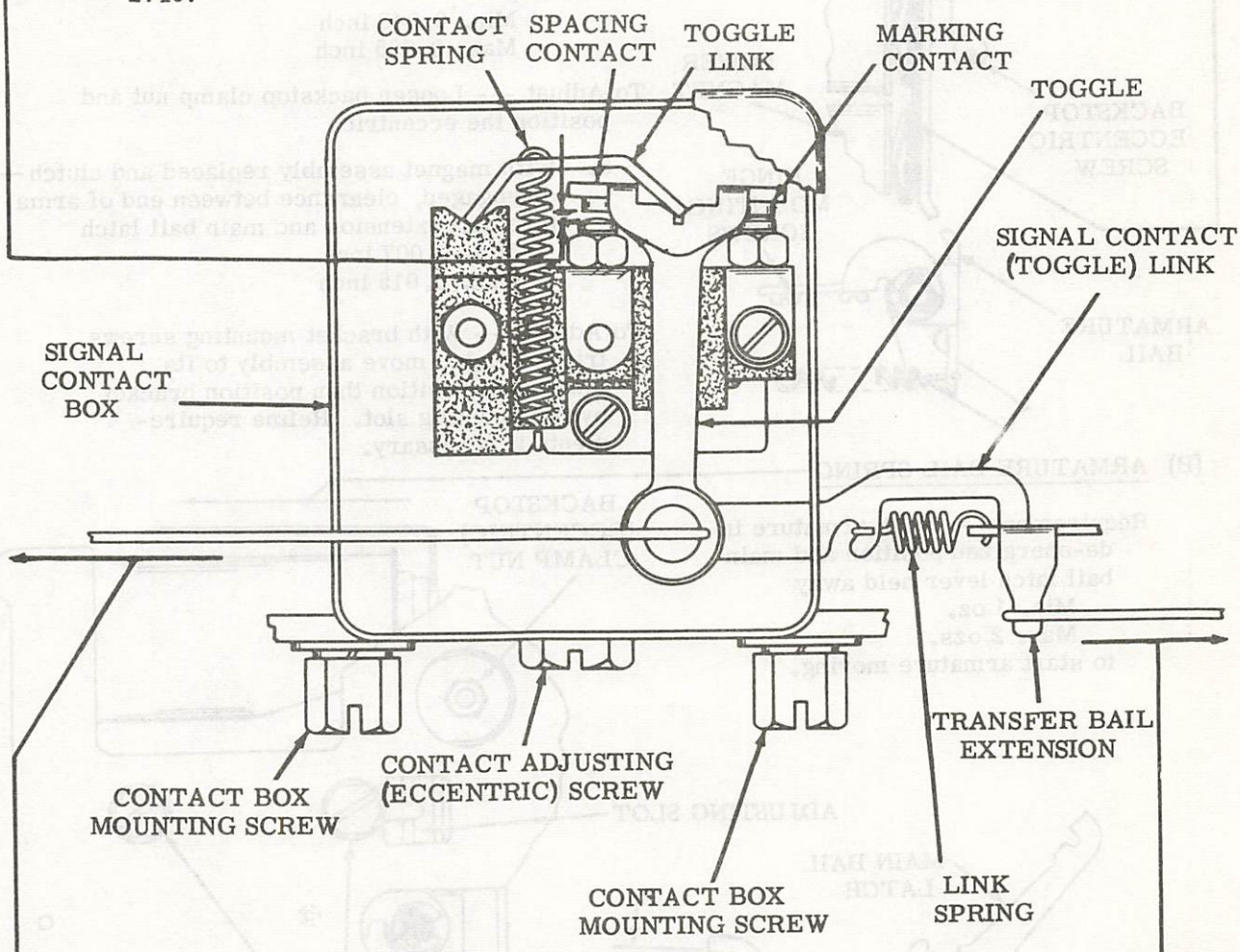
2.15 Signal Contact Assembly

(A) SIGNAL CONTACT

Requirement --- (Cover plate and contact box cover removed). Contact gap in the MARKING position and the SPACING position should be equal when clearance between respective contacts is maximum. (Engage clutch and rotate mainshaft slowly.)

To Adjust --- With contact box mounting screws friction tight, position box with its eccentric.

Note --- Use test set such as DXD where possible to refine adjustment. Refer to 2.19.



(B) SIGNAL CONTACT SPRING

Requirement

With mainshaft in stop position and cover of contact box removed, unhook toggle link spring and move transfer bail to spacing position (right)

Min. 2 ozs.
Max. 3-1/2 ozs.
to open spacing contacts (left).

(C) SIGNAL CONTACT LINK SPRING

Requirement - With mainshaft in stop position and stabilizer spring unhooked, move latches away from transfer bail extension (2.14).
Hold toggle firmly against contacts.

Min. 6 ozs.
Max. 12 ozs.
to start transfer bail extension moving.

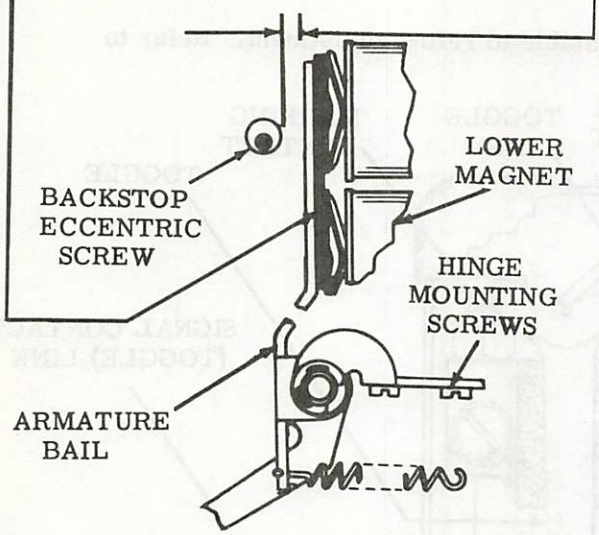
2.16 Clutch Trip Magnet Assembly

(A) CLUTCH MAGNET

Requirement

1. With armature in its energized position, the armature should contact the core of the magnet farthest away from the armature hinge. Clearance between armature and core nearest armature hinge
   Min. Some
   Max. 0.004 inch
   at point of least clearance.

To Adjust --- With magnet assembly mounting screws removed, lift assembly from unit. Invert assembly, loosen hinge bracket mounting screws and position bracket.



2. With armature in its energized position and high part of backstop eccentric upward, clearance between armature bail and backstop
   Min. 0.045 inch
   Max. 0.055 inch

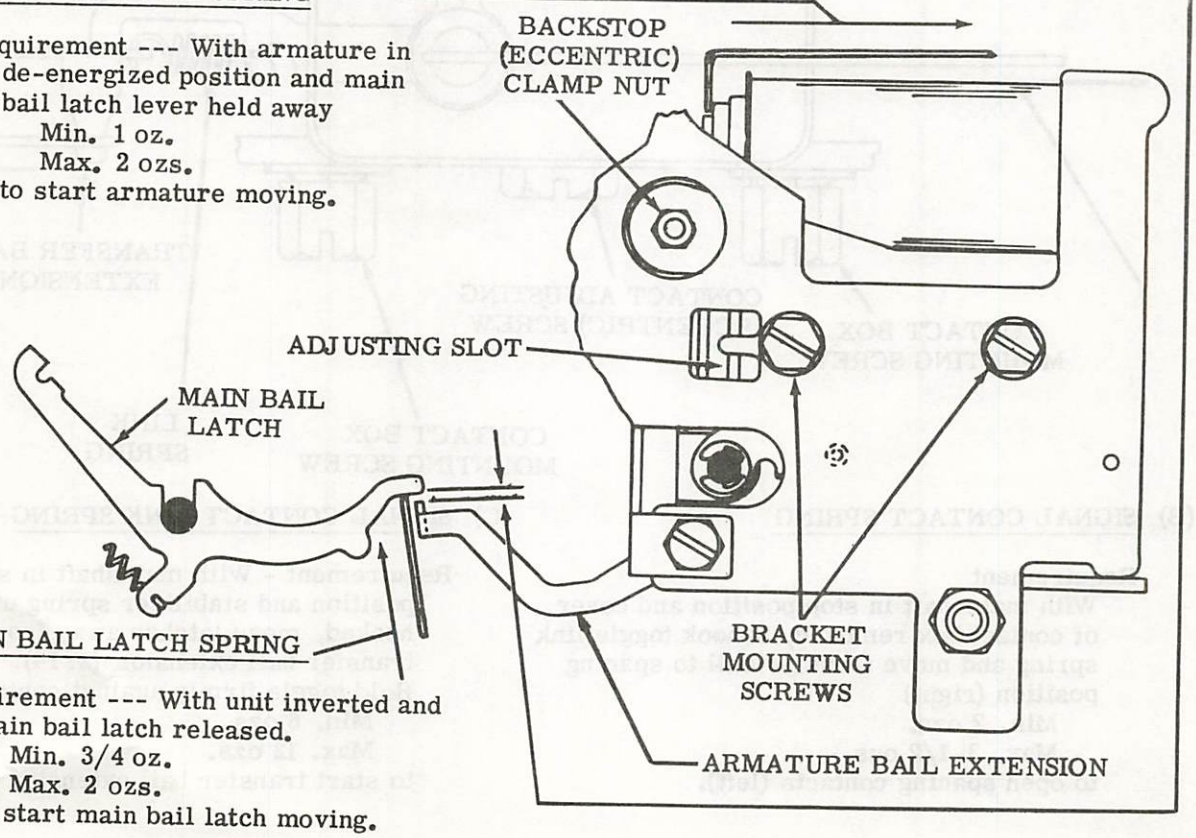
To Adjust --- Loosen backstop clamp nut and position the eccentric.

3. With magnet assembly replaced and clutch disengaged, clearance between end of armature bail extension and main bail latch
   Min. 0.007 inch
   Max. 0.015 inch

To Adjust --- With bracket mounting screws friction tight, move assembly to its lowermost position then position bracket by its adjusting slot. Refine requirements if necessary.

(B) ARMATURE BAIL SPRING

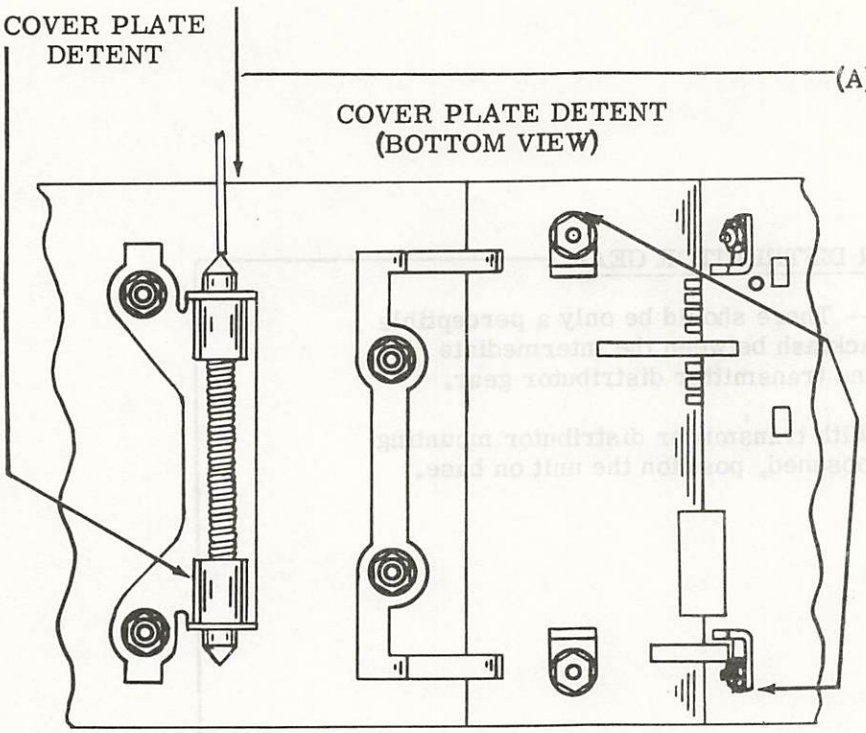
Requirement --- With armature in de-energized position and main bail latch lever held away
   Min. 1 oz.
   Max. 2 ozs.
to start armature moving.



(C) MAIN BAIL LATCH SPRING

Requirement --- With unit inverted and main bail latch released.
   Min. 3/4 oz.
   Max. 2 ozs.
to start main bail latch moving.

2.17 Tape Lid Assembly



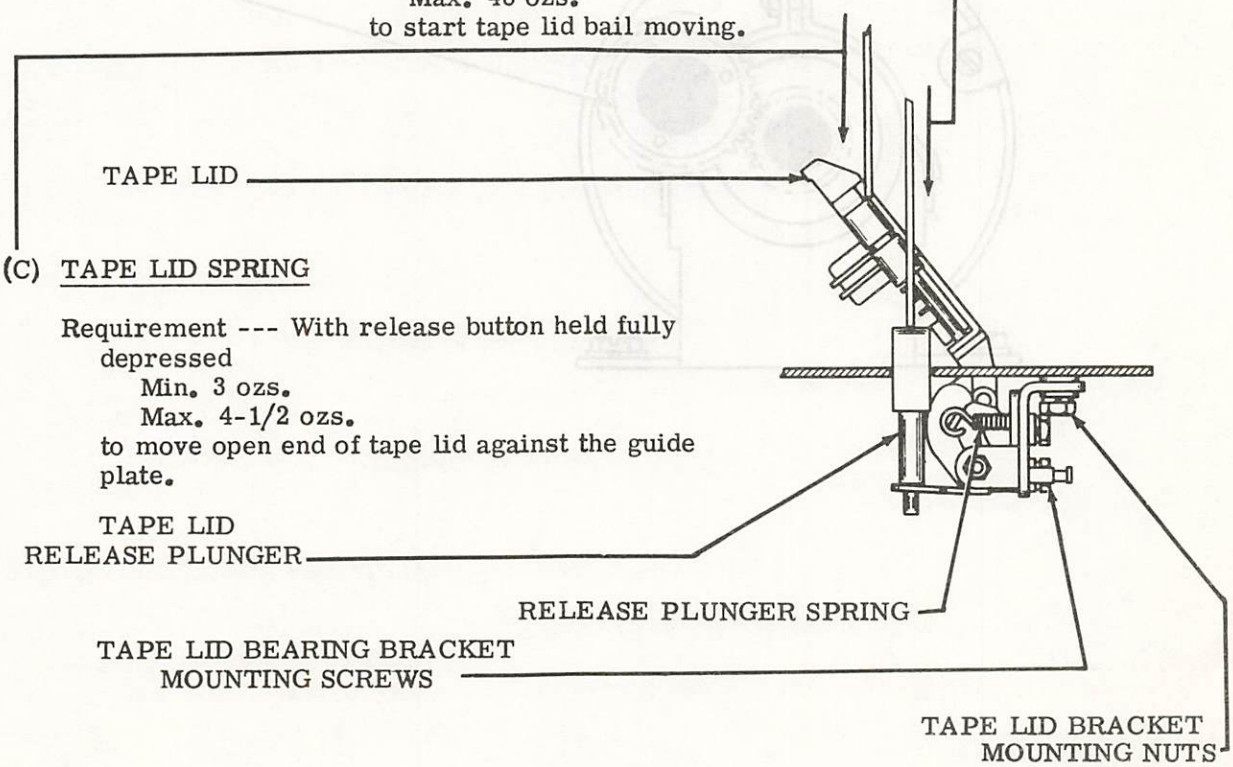
(A) COVER PLATE DETENT SPRING

Requirement --- With spring scale applied to center of one detent
Min. 28 ozs.
Max. 40 ozs.
to start plunger moving.

Note
Outer edge of each mounting bracket should be approximately in line with shoulder of its mounting stud. Replace tape guide plate, tape-out tension spring, top plate, and cover plate.

(B) TAPE LID RELEASE PLUNGER SPRING

Requirement --- With tape guide plate held horizontally and tape lid unlatched
Min. 28 ozs.
Max. 48 ozs.
to start tape lid bail moving.



(C) TAPE LID SPRING

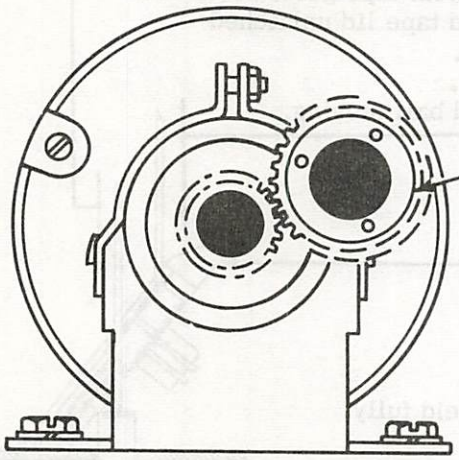
Requirement --- With release button held fully depressed
Min. 3 ozs.
Max. 4-1/2 ozs.
to move open end of tape lid against the guide plate.

2.18 Transmitter Distributor Gear

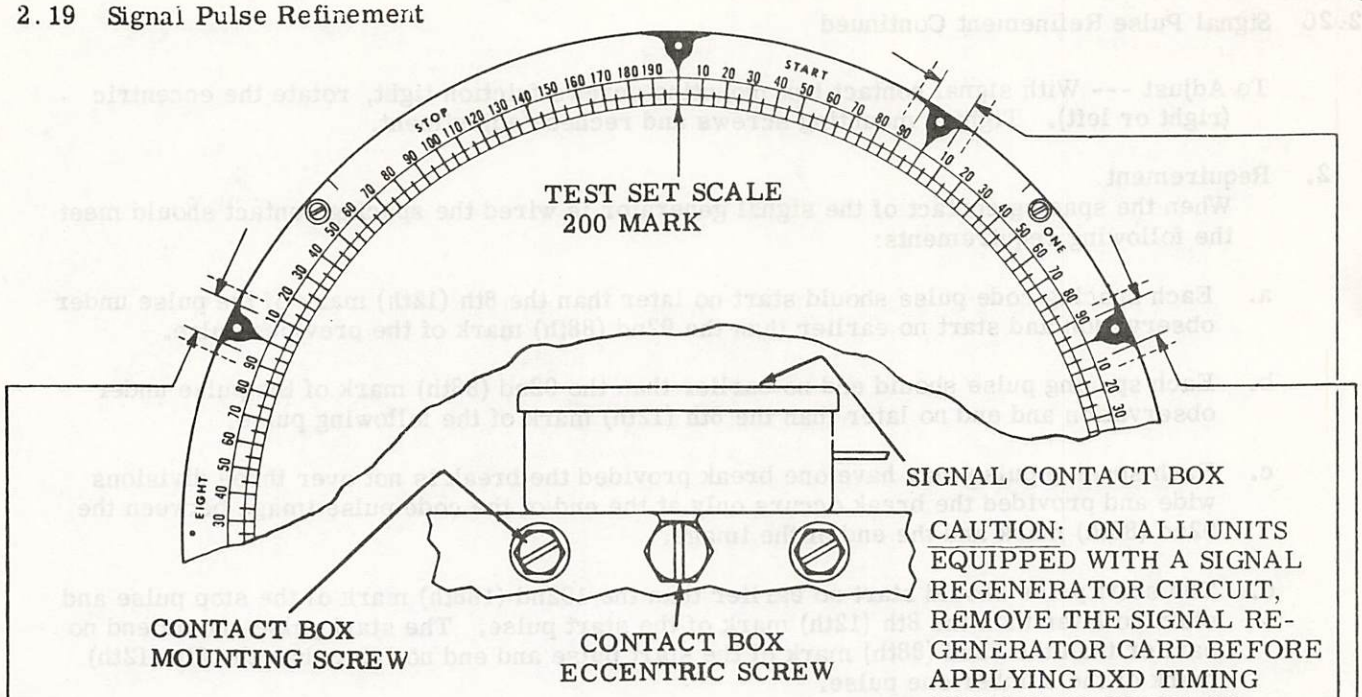
TRANSMITTER DISTRIBUTOR GEAR

Requirement --- There should be only a perceptible amount of backlash between the intermediate drive gear and transmitter distributor gear.

To Adjust --- With transmitter distributor mounting screws (3) loosened, position the unit on base.



2.19 Signal Pulse Refinement



SIGNAL PULSE REFINEMENT - FINAL ADJUSTMENT WITH DXD OR STROBE
(11.0 Unit Code - Speeds up to and including 100 WPM)

Procedure --- Plug signal distortion test set into signal line to view pulse image generated by the marking and spacing contacts. Synchronize signal generator with DXD so that end of stop pulse image aligns with the 200 mark on DXD scale when both units are operated at same speed and transmission is continuous.

NOTE 1 --- Figures appearing in ( ) in par. 2.19 and 2.20 are relaxed requirements for transmitter distributor sets used in circuits that employ a signal regenerator.

NOTE 2 --- End of stop pulse image should not vary from the 200 mark by more than one scale division. If a greater variation occurs, move the scale until the variations extend equally on either side of the 200 mark.

1. Requirement

   a. Each marking code pulse should start no later than the 8th (12th) mark of the pulse under observation and start no earlier than 92nd (88th) mark of the previous pulse.

   b. Each marking code pulse should end no earlier than the 92nd (88th) mark of the pulse under observation and no later than the 8th (12th) mark of the following pulse.

   c. Each marking code pulse may have one break provided the break is not over three divisions wide and provided the break occurs only at the end of the code pulse image between the 92nd (88th) mark and the end of the image.

   d. The stop pulse should start no earlier than the 92nd (88th) mark of the last intelligence pulse and start no later than the 8th (12th) mark of the stop position.

   e. The stop image should not change in length or position, when viewed on DXD, to exceed one division while changing from R to Y selection (or equivalent codes). If necessary, reorient 200 mark on stop scale with end of stop pulse image.

2.20 Signal Pulse Refinement Continued

To Adjust --- With signal contact box mounting screws friction tight, rotate the eccentric (right or left). Tighten mounting screws and recheck adjustment.

2. Requirement
When the spacing contact of the signal generator is wired the spacing contact should meet the following requirements:

a. Each spacing code pulse should start no later than the 8th (12th) mark of the pulse under observation and start no earlier than the 92nd (88th) mark of the previous pulse.

b. Each spacing pulse should end no earlier than the 92nd (88th) mark of the pulse under observation and end no later than the 8th (12th) mark of the following pulse.

c. Each spacing pulse may have one break provided the break is not over three divisions wide and provided the break occurs only at the end of the code pulse image between the 92nd (88th) mark and the end of the image.

d. The start pulse should start no earlier than the 192nd (188th) mark of the stop pulse and start no later than the 8th (12th) mark of the start pulse. The start pulse should end no earlier than the 92nd (88th) mark of the start pulse and end no later than the 8th (12th) mark of the number one pulse.

To Adjust --- Same as above - Recheck marking contact if a spacing adjustment is made.

NOTE 3 --- If the signal requirements cannot be met, refine transmitter distributor gear adjustment (2.18) and stablizer adjustment (2.14) with signal viewed on DXD.

CAUTION: USE CARE WHEN SERVICING SIGNAL GENERATORS EQUIPPED WITH GOLD CONTACTS. CLEAN THESE CONTACTS BY PASSING A STRIP OF BOND PAPER BETWEEN THEM. CLEANING OR BURNISHING BY OTHER METHODS MAY REMOVE THE THIN GOLD FILM.

USE PROPER PROCEDURE DURING TEST AND ADJUSTMENT OF THE SIGNAL GENERATOR TO AVOID PITTING OR CHIPPING THE CONTACTS. CONTACTS SO DAMAGED MAY PRODUCE BREAKS AND UNACCEPTABLE OPERATION IN LOW LEVEL CIRCUIT APPLICATIONS.

TEST EQUIPMENT USED SHOULD OPERATE ON NON-INDUCTIVE 20 MA AT 40 VDC OR LESS. HIGHER VOLTAGES CAN BE USED, BUT WITH A DROP IN CURRENT TO KEEP THE ENERGY ACROSS THE CONTACTS IN THE SAME ORDER OF MAGNITUDE. LOW LEVEL NON-INDUCTIVE TEST EQUIPMENT IS ESPECIALLY NECESSARY IN WORKING WITH UNITS NOT EQUIPPED WITH ARC SUPPRESSORS.

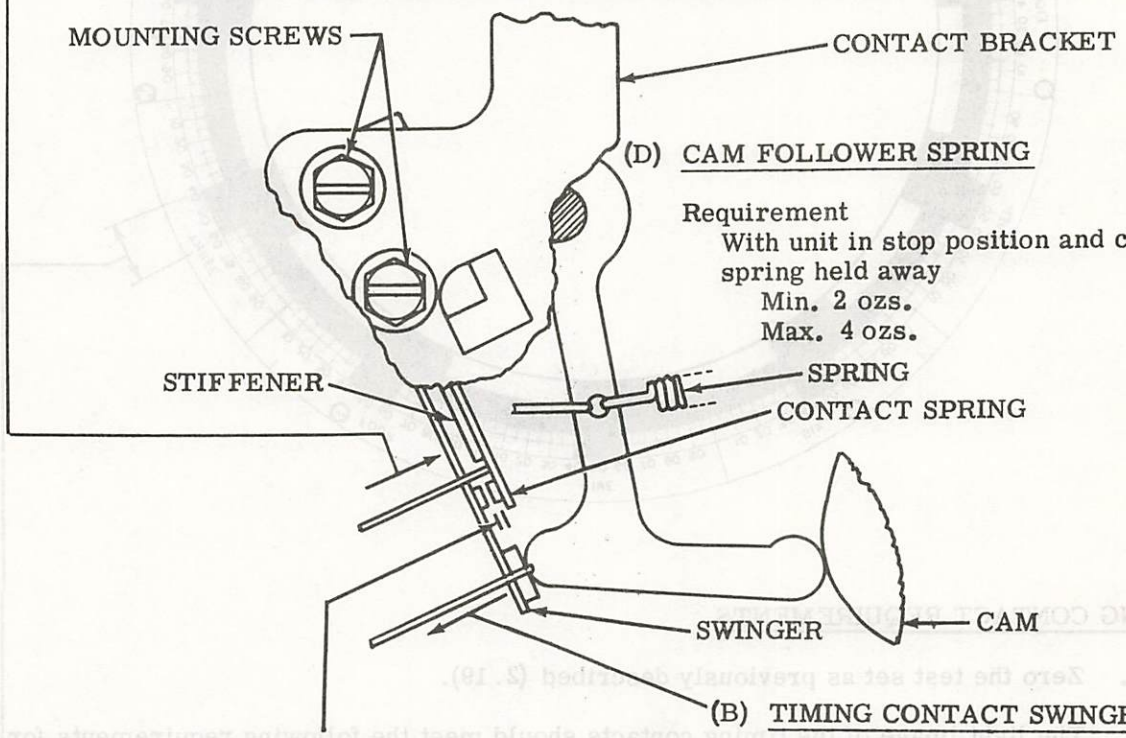
3. VARIABLE FEATURES

3.01 Timing Contact Mechanism

(C) TIMING CONTACT SPRING

Requirement
Min. 5 ozs.
Max. 8 ozs.
to move spring from stiffener.

To Adjust
Remove contact bracket assembly, loosen contact pileup mounting screws and bend contact spring with bender (TP110445). Retighten pileup mounting screws and check. Replace contact bracket assembly. Refine adjustments (A) and (B), if necessary.



(D) CAM FOLLOWER SPRING

Requirement
With unit in stop position and contact spring held away
Min. 2 ozs.
Max. 4 ozs.

(A) TIMING CONTACT BRACKET

Requirement
1. With follower on low part of cam contacts should be closed when nylon pad is raised 0.006 inch and open when pad is raised 0.010 inch.
2. With follower on any peak of cam, contact gap should be
Min. 0.003 inch
on units prior to serial No. 42200
Min. 0.015 inch

To Adjust
Place unit in stop position. Adjust contact bracket by means of screwdriver lug, visible through hole in rear plate, with bracket mounting screws loosened.

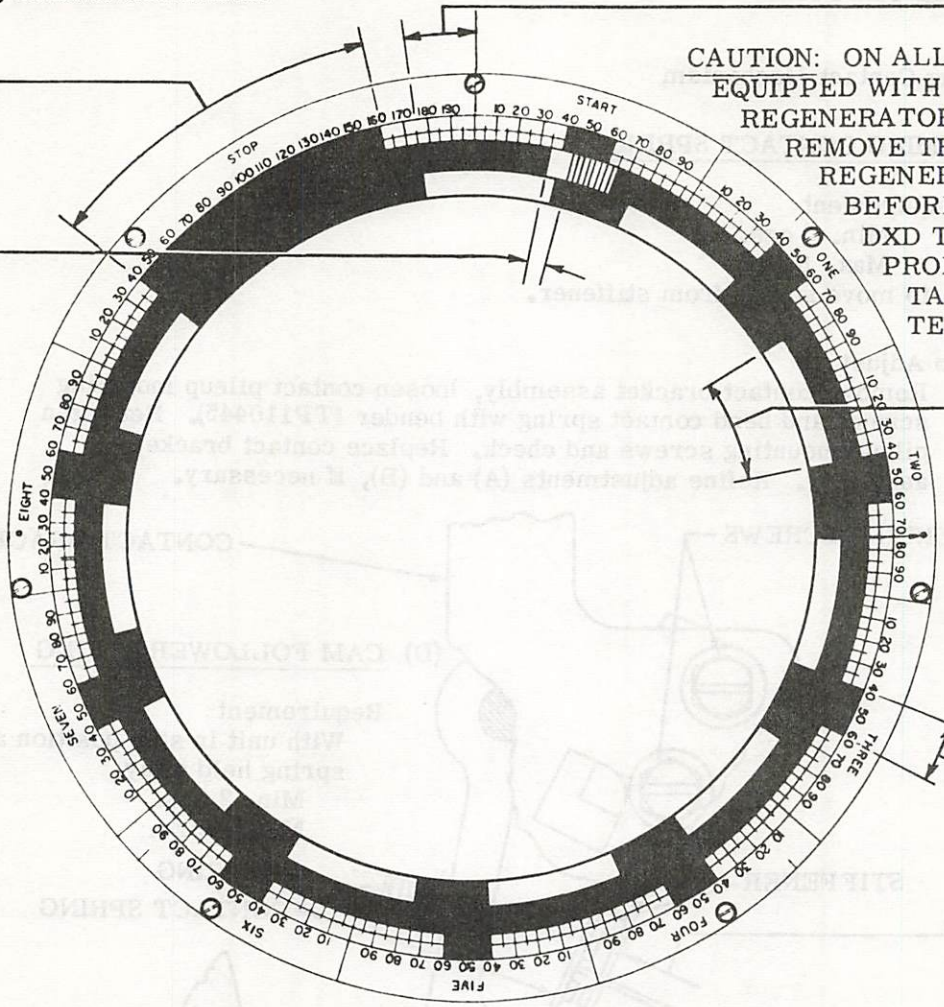
(B) TIMING CONTACT SWINGER

Requirement
With contact closed
Min. 2 ozs.
Max. 3 ozs.
to just separate contacts

To Adjust
Bend swinger with spring bender TP110445.

3.02 Timing Contact Refinement

CAUTION: ON ALL UNITS EQUIPPED WITH A SIGNAL REGENERATOR CIRCUIT, REMOVE THE SIGNAL REGENERATOR CARD BEFORE APPLYING DXD TIMING PROBES TO CONTACT ACCESS TERMINALS.



TIMING CONTACT REQUIREMENTS

1. Zero the test set as previously described (2.19).

2. The light image of the timing contacts should meet the following requirements for speeds up to and including 100 WPM.

   a. Open for a minimum of 20 divisions between the 25 division and 75 division points of each 100 division pulse.

   Open for a minimum of 120 divisions between the 25 division and 175 division points of the stop pulse.

   b. The close to open transitions should be in multiples of 100 divisions ±5 divisions from the close to open transition of the start pulse.

   c. There should be no contact break between the 0 division point and the close to open transition point and no contact break between the 75 division point and 100 division point of each pulse. There should be no contact break between 175 division point and the 200 division point of the stop pulse.

   d. Check and refine, if necessary, adjustment (A) in par. 3.01.

3.03 Timing Contact Refinement Continued

e. The timing contacts should be open in the rest position of the transmitter distributor.

To adjust, loosen the two timing contact bracket mounting screws until they are friction tight. Position the timing contact assembly by means of the screw driver lug on the bracket visible through a hole in the rear plate so that the requirements are met. Tighten the screws and recheck the image on the DXD stroboscope.

3.04 Rubout Sensing Mechanism

(A) RUBOUT SENSING MECHANISM

Requirement

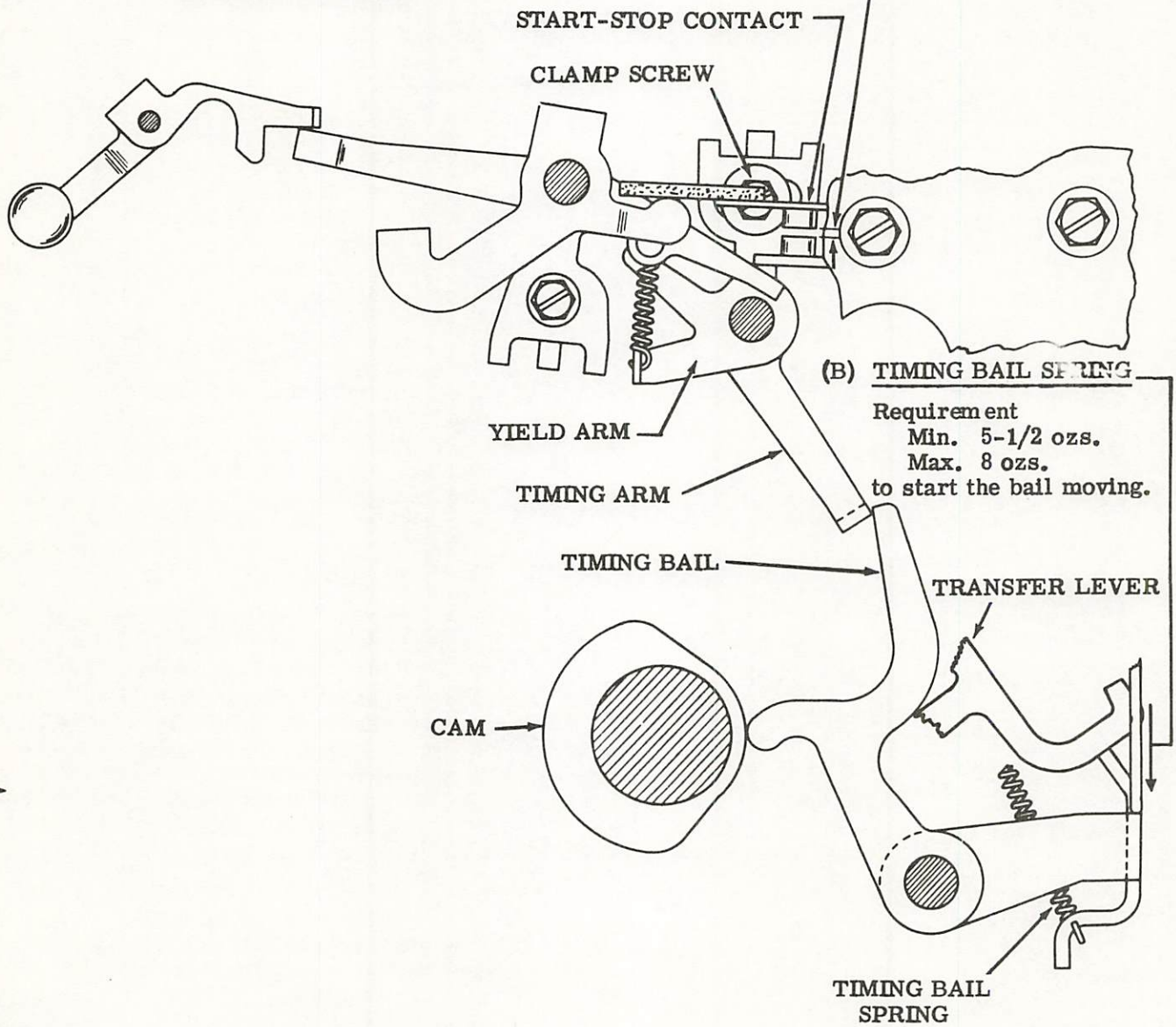
With DELETE (rubout) selection set up and timing bail on low part of its cam, the start-stop contact gap should be

Min. 0.018 inch
Max. 0.025 inch

Use light thumb pressure to hold bail against its cam when checking gap.

To Adjust

Position the timing arm on the yield arm with its clamp screw friction tight.



35 CABINET FOR AUTOMATIC SEND RECEIVE TELETYPEWRITER SET

ADJUSTMENTS

CONTENTS PAGE

1. GENERAL

1.01 This section is reissued to incorporate recent engineering information. Changes and additions are indicated by arrows placed in the margins.

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

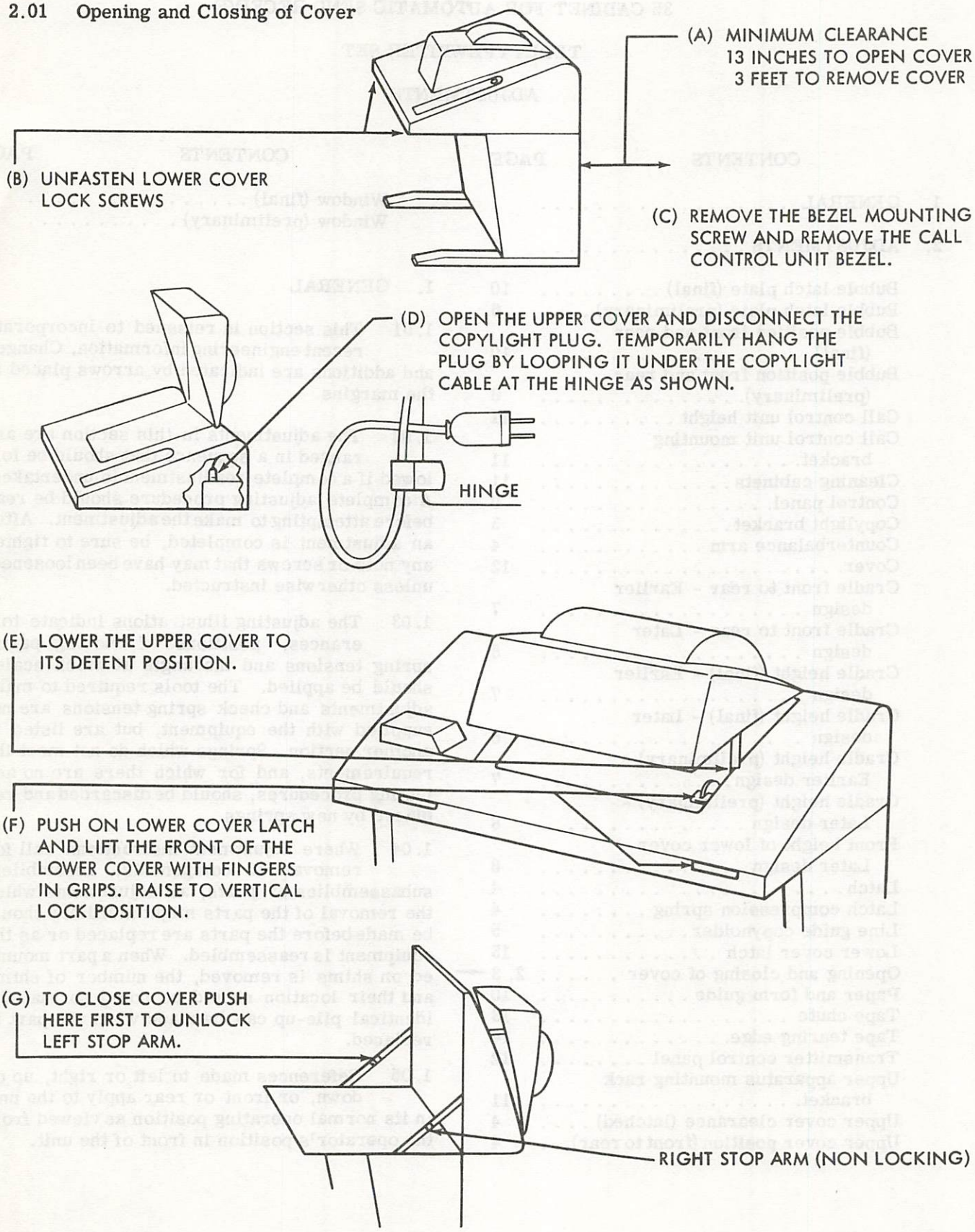
1.03 The adjusting illustrations indicate tolerances, positions of moving parts, spring tensions and the angle at which scales should be applied. The tools required to make adjustments and check spring tensions are not supplied with the equipment, but are listed in another section. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

1.04 Where adjustment instructions call for removal of components, assemblies, subassemblies or parts, all adjustments which the removal of the parts might facilitate should be made before the parts are replaced or as the equipment is reassembled. When a part mounted on shims is removed, the number of shims and their location should be noted so that the identical pile-up can be made when the part is replaced.

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

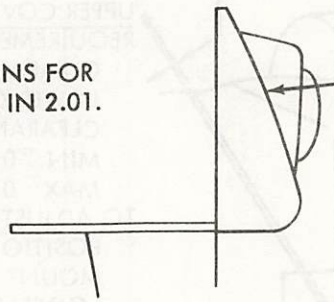
2. ADJUSTMENT

2.01 Opening and Closing of Cover

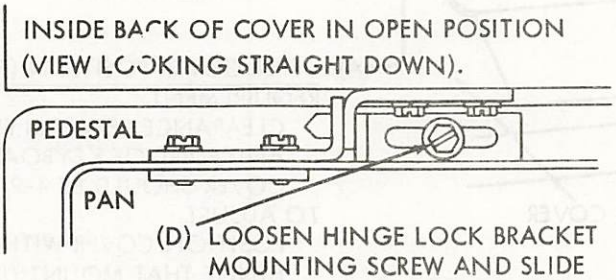


2.02 Opening and Closing of Cover - Continued

(A) FOLLOW INSTRUCTIONS FOR OPENING OF COVER IN 2.01.

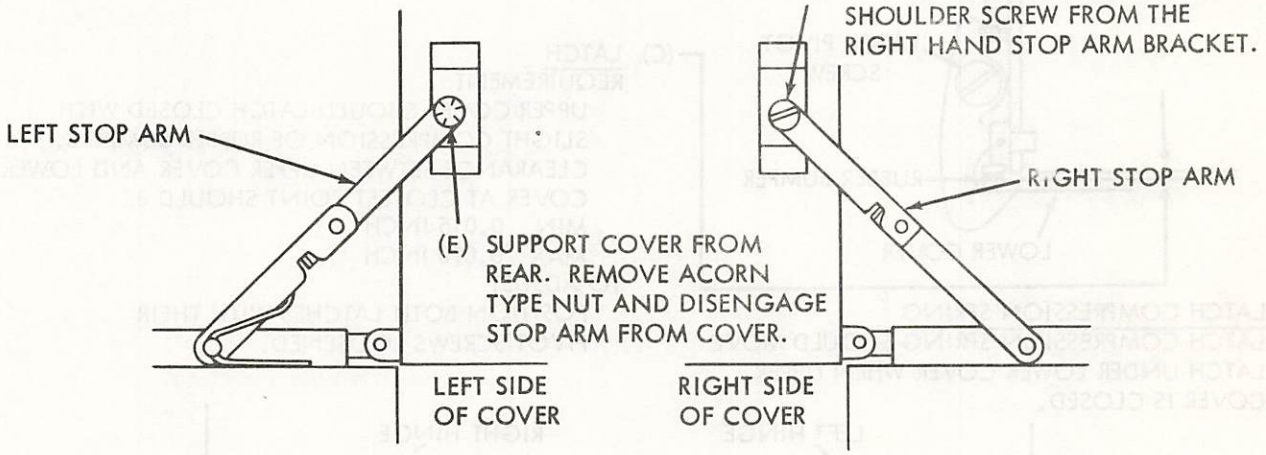


(B) CLOSE UPPER COVER TO FULLY CLOSED LATCHED POSITION.

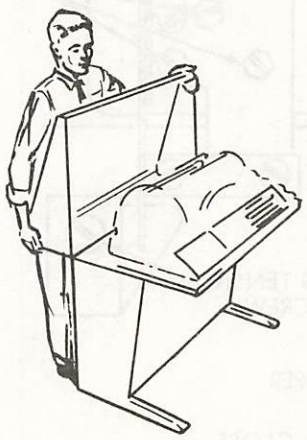


(D) LOOSEN HINGE LOCK BRACKET MOUNTING SCREW AND SLIDE BRACKET AWAY FROM HINGE.

(C) REMOVE THE UPPER RETAINING SHOULDER SCREW FROM THE RIGHT HAND STOP ARM BRACKET.



(E) SUPPORT COVER FROM REAR. REMOVE ACORN TYPE NUT AND DISENGAGE STOP ARM FROM COVER.

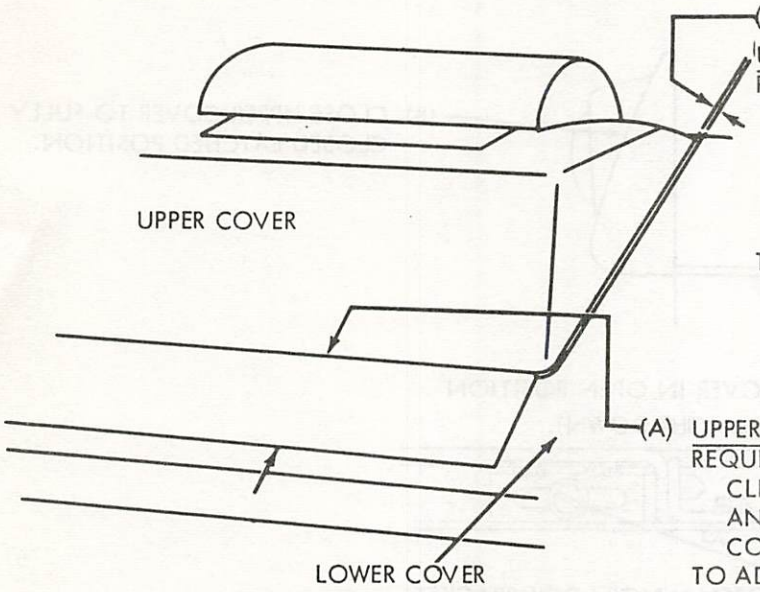


(F) SUPPORTING THE COVER FROM THE REAR, REMOVE BY SLIDING SIDEWAYS TO SEPARATE HINGES. THE COVER MAY BE GRASPED AS SHOWN.

NOTE: COVER WEIGHS APPROXIMATELY 39 POUNDS

TO REPLACE COVER, REVERSE REMOVAL PROCEDURE.

2.03 Upper Cover Arrangement



(B) UPPER COVER CLEARANCE (LATCHED)

REQUIREMENT

CLEARANCE BETWEEN UPPER COVER AND LOWER COVER AT POINT OF LEAST CLEARANCE SHOULD BE

MIN 0.015 INCH

MAX 0.090 INCH

TO ADJUST

POSITION COVER WITH TWO SCREWS, THAT MOUNT EACH HINGE TO LOWER COVER, LOOSENED.

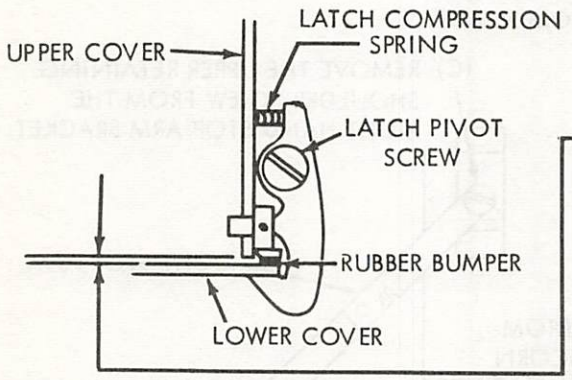
(A) UPPER COVER POSITION (FRONT TO REAR)

REQUIREMENT

CLEARANCE BETWEEN FRONT OF UPPER COVER AND EDGE OF KEYBOARD OPENING IN LOWER COVER SHOULD BE 4-9/16 INCHES.

TO ADJUST

POSITION COVER WITH THREE SCREWS, AT EACH HINGE THAT MOUNT UPPER COVER, LOOSENED. SEE FIGURE BELOW



(C) LATCH

REQUIREMENT

UPPER COVER SHOULD LATCH CLOSED WITH SLIGHT COMPRESSION OF RUBBER BUMPERS. CLEARANCE BETWEEN UPPER COVER AND LOWER COVER AT CLOSEST POINT SHOULD BE

MIN 0.015 INCH

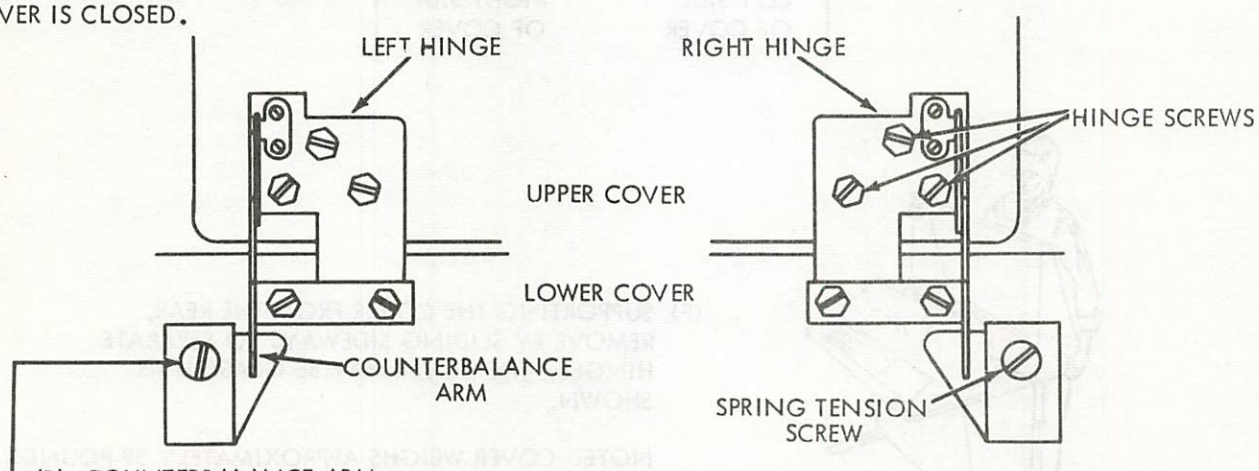
MAX 0.090 INCH

TO ADJUST

POSITION BOTH LATCHES WITH THEIR PIVOT SCREWS LOOSENED.

LATCH COMPRESSION SPRING

LATCH COMPRESSION SPRING SHOULD MOVE LATCH UNDER LOWER COVER WHEN UPPER COVER IS CLOSED.

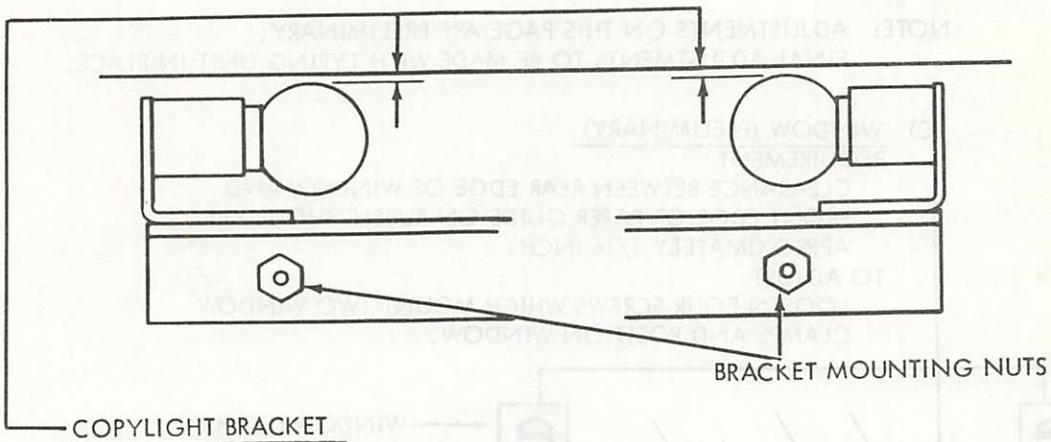


(D) COUNTERBALANCE ARM

1. REQUIREMENT - THERE SHOULD BE NO FREE FALL OF UPPER COVER FROM ANY POSITION TO WHICH IT IS OPENED.
2. REQUIREMENT - IT SHOULD REQUIRE SOME PRESSURE TO CLOSE UPPER COVER.

TO ADJUST - TIGHTEN SPRING TENSION ADJUSTING SCREWS.

2.04 Copylight and Line Guide Copyholder

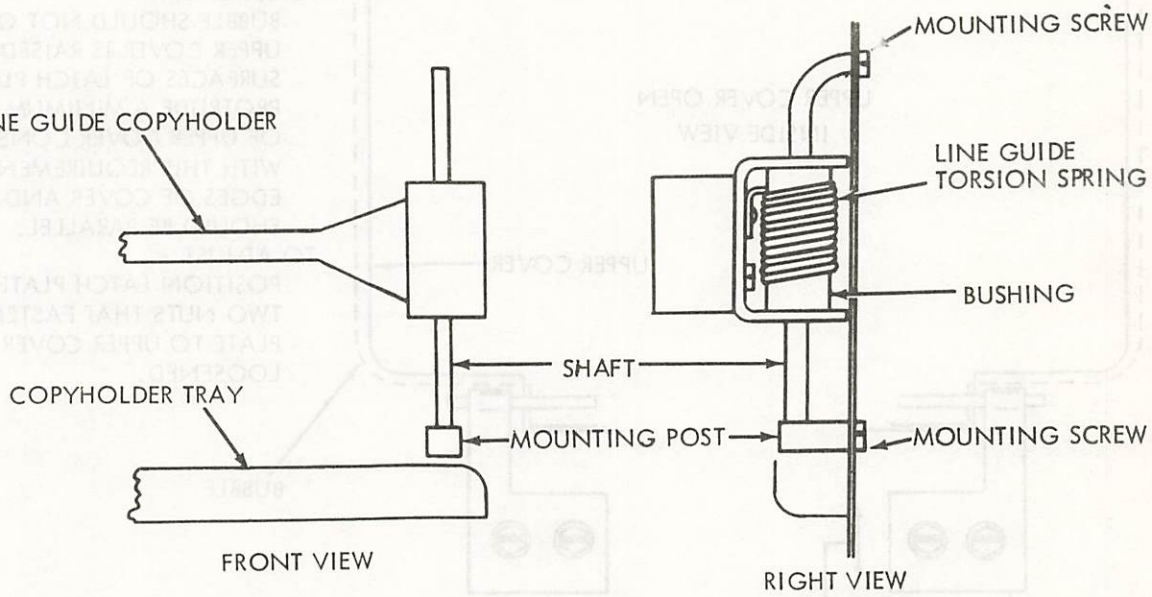


REQUIREMENT

CLEARANCE BETWEEN COPY LAMP BULBS AND THE CABINET SHOULD BE 1/16 INCH.

TO ADJUST

LOOSEN THE TWO BRACKET MOUNTING NUTS AND POSITION THE BRACKET.



LINE GUIDE COPYHOLDER

REQUIREMENT

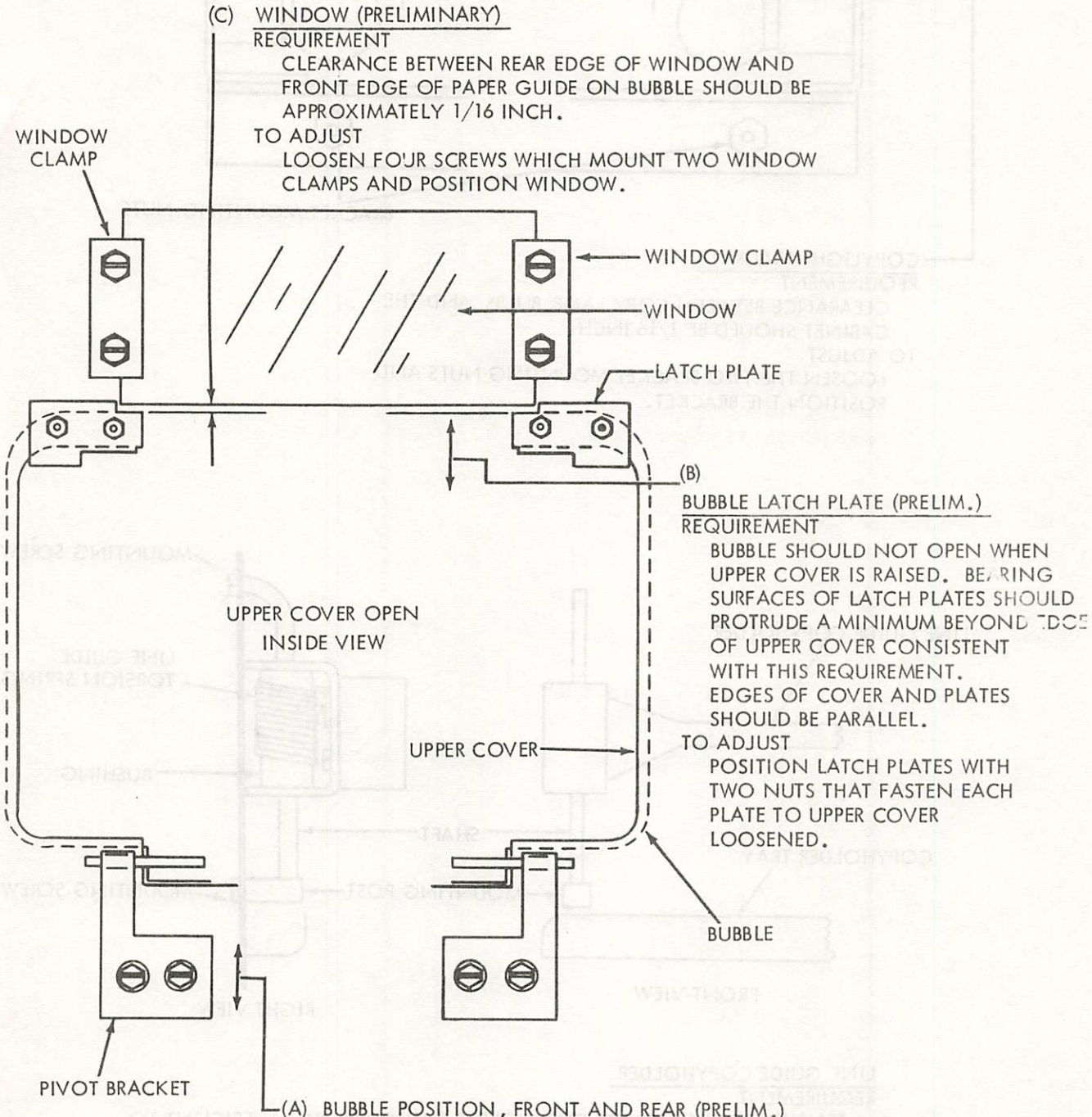
TENSION OF LINE GUIDE COPYHOLDER SHOULD BE JUST SUFFICIENT TO HOLD COPY IN PLACE AND PREVENT THE LINE GUIDE COPYHOLDER FROM SLIPPING DOWN THE SHAFT.

TO ADJUST

REMOVE TWO SHAFT MOUNTING SCREWS FROM INSIDE COVER AND TAKE OFF LINE GUIDE COPYHOLDER. REMOVE LINE GUIDE FROM SHAFT AND ROTATE BUSHING IN DIRECTION TO INCREASE OR DECREASE TORSION SPRING TENSION AGAINST LINE GUIDE. REASSEMBLE LINE GUIDE AND RE-INSTALL ON COVER.

2.05 Bubble & Window Position

NOTE: ADJUSTMENTS ON THIS PAGE ARE PRELIMINARY.
FINAL ADJUSTMENTS TO BE MADE WITH TYPING UNIT IN PLACE.



(C) WINDOW (PRELIMINARY)

REQUIREMENT

CLEARANCE BETWEEN REAR EDGE OF WINDOW AND FRONT EDGE OF PAPER GUIDE ON BUBBLE SHOULD BE APPROXIMATELY 1/16 INCH.

TO ADJUST

LOOSEN FOUR SCREWS WHICH MOUNT TWO WINDOW CLAMPS AND POSITION WINDOW.

(B) BUBBLE LATCH PLATE (PRELIM.)

REQUIREMENT

BUBBLE SHOULD NOT OPEN WHEN UPPER COVER IS RAISED. BEARING SURFACES OF LATCH PLATES SHOULD PROTRUDE A MINIMUM BEYOND EDGE OF UPPER COVER CONSISTENT WITH THIS REQUIREMENT. EDGES OF COVER AND PLATES SHOULD BE PARALLEL.

TO ADJUST

POSITION LATCH PLATES WITH TWO NUTS THAT FASTEN EACH PLATE TO UPPER COVER LOOSENED.

(A) BUBBLE POSITION, FRONT AND REAR (PRELIM.)

REQUIREMENT

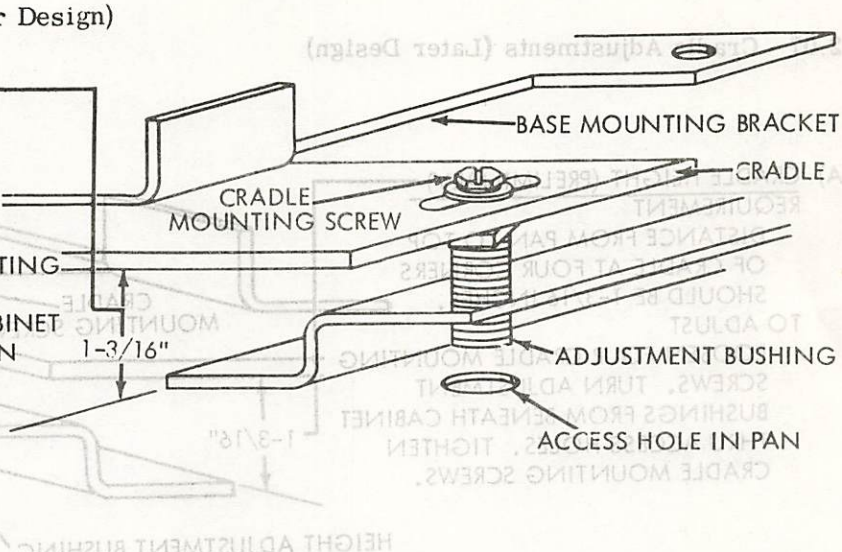
THE BUBBLE SHOULD BE IN THE CENTER OF ITS FRONT-MOST AND REAR-MOST POSITIONS.

TO ADJUST

LOOSEN TWO MOUNTING SCREWS THAT MOUNT EACH PIVOT BRACKET AND POSITION BUBBLE, TIGHTEN SCREWS.

2.06 Cradle Adjustments (Earlier Design)

(A) CRADLE HEIGHT (PRELIMINARY)
REQUIREMENT
DISTANCE FROM PAN TO TOP OF CRADLE AT FOUR CORNERS SHOULD BE 1-3/16 INCHES.
TO ADJUST
LOOSEN FOUR CRADLE MOUNTING SCREWS. TURN ADJUSTMENT BUSHINGS FROM BENEATH CABINET THRU ACCESS HOLES. TIGHTEN CRADLE MOUNTING SCREWS.

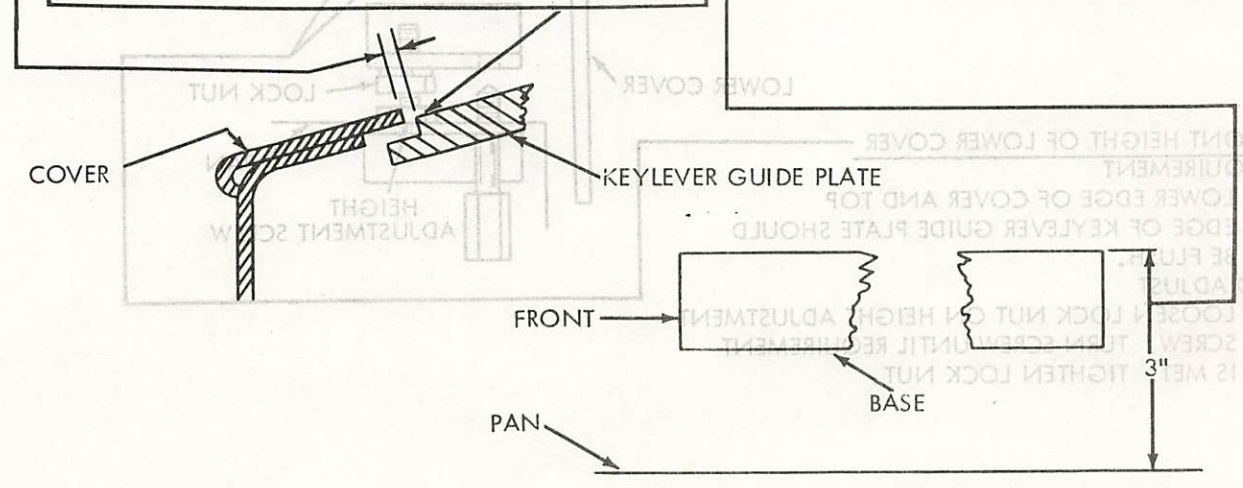


(B) CRADLE HEIGHT (FINAL)
REQUIREMENTS (MOTOR AND TYPING UNIT IN PLACE)
1. TOP OF KEYLEVER GUIDE PLATE SHOULD BE FLUSH WITH LOWER EDGE OF COVER.
2. TOP OF BASE AT REAR CORNERS SHOULD BE 3 INCHES ABOVE PAN.

2. TO ADJUST
REFINE ADJUSTMENT (A) ABOVE.

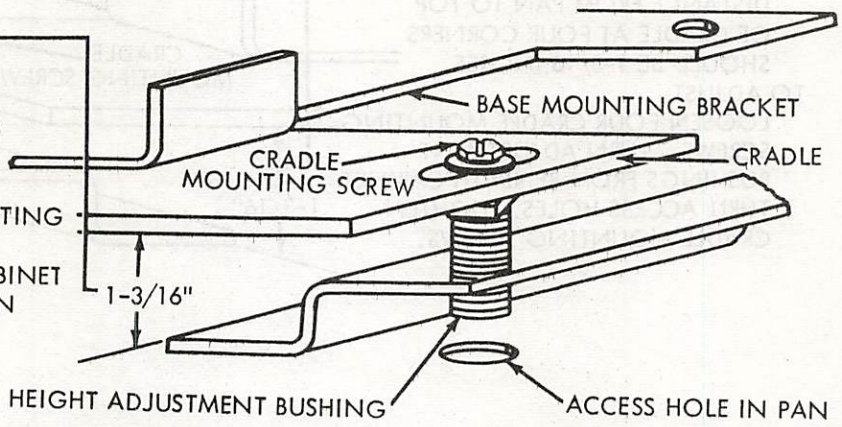
(C) CRADLE FRONT TO REAR
REQUIREMENTS (MOTOR AND TYPING UNIT IN PLACE)
1. CLEARANCE BETWEEN COVER AND FRONT EDGE OF KEYBOARD SHOULD BE 1/16 INCH.
2. TOP OF FRONT EDGE OF KEYLEVER GUIDE PLATE SHOULD BE FLUSH WITH UNDER SURFACE OF COVER.

TO ADJUST
WITH CRADLE MOUNTING SCREWS LOOSENED, MOVE CRADLE FROM FRONT TO REAR UNTIL REQUIREMENTS ARE MET. REFINE CRADLE HEIGHT IF NECESSARY. TIGHTEN SCREWS.

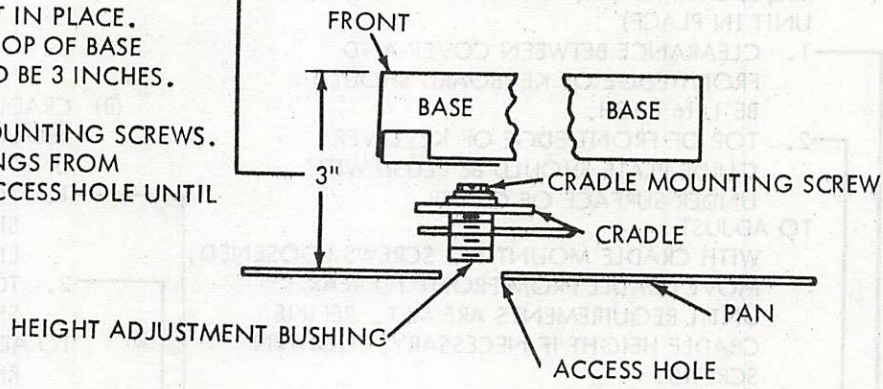


2.07 Cradle Adjustments (Later Design)

(A) CRADLE HEIGHT (PRELIMINARY)
REQUIREMENT
DISTANCE FROM PAN TO TOP OF CRADLE AT FOUR CORNERS SHOULD BE 1-3/16 INCHES.
TO ADJUST
LOOSEN FOUR CRADLE MOUNTING SCREWS. TURN ADJUSTMENT BUSHINGS FROM BENEATH CABINET THRU ACCESS HOLES. TIGHTEN CRADLE MOUNTING SCREWS.

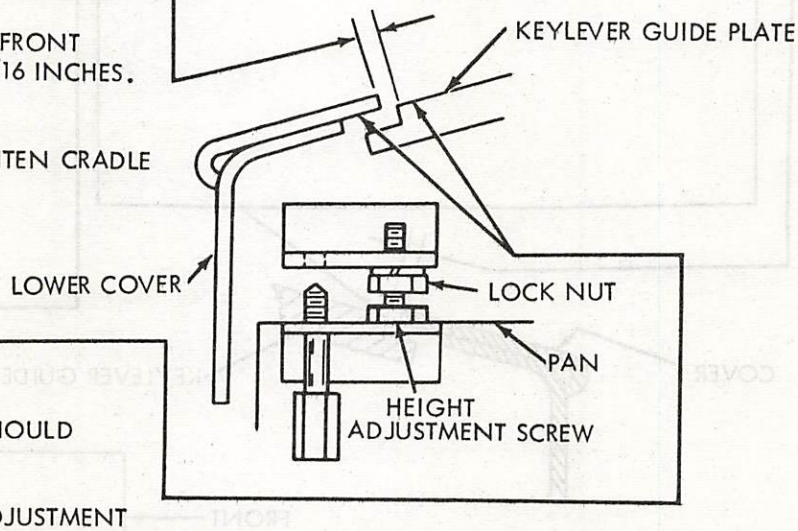


(B) CRADLE HEIGHT (FINAL)
REQUIREMENT
MOTOR AND TYPING UNIT IN PLACE. DISTANCE FROM PAN TO TOP OF BASE AT FOUR CORNERS SHOULD BE 3 INCHES.
TO ADJUST
LOOSEN FOUR CRADLE MOUNTING SCREWS. TURN ADJUSTMENT BUSHINGS FROM BENEATH CABINET THRU ACCESS HOLE UNTIL REQUIREMENT IS MET.

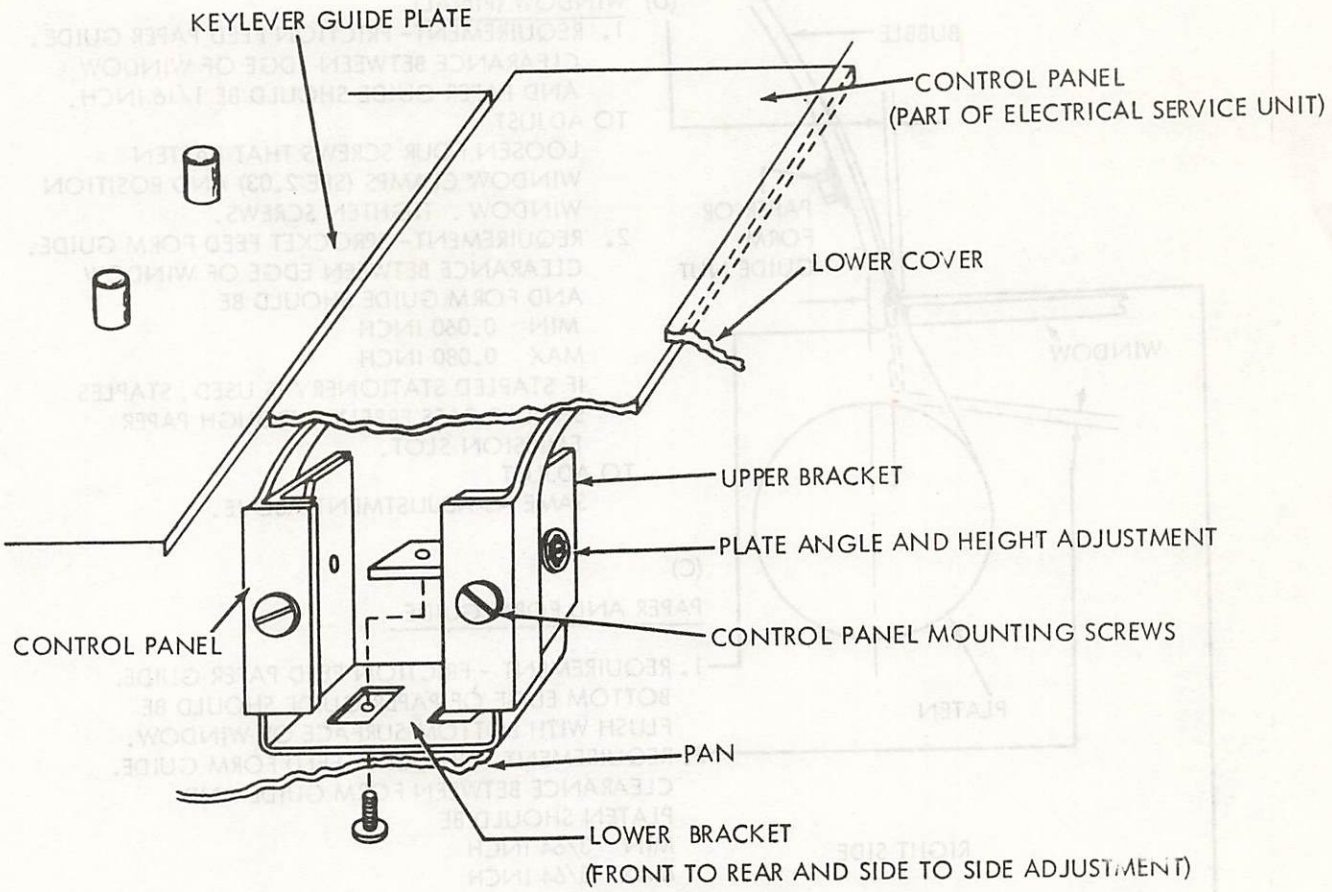


(C) CRADLE FRONT TO REAR
REQUIREMENT
CLEARANCE BETWEEN COVER AND FRONT EDGE OF KEYBOARD SHOULD BE 1/16 INCHES.
TO ADJUST
MOVE CRADLE TO FRONT OR REAR UNTIL REQUIREMENT IS MET. TIGHTEN CRADLE MOUNTING SCREWS.

(D) FRONT HEIGHT OF LOWER COVER
REQUIREMENT
LOWER EDGE OF COVER AND TOP EDGE OF KEYLEVER GUIDE PLATE SHOULD BE FLUSH.
TO ADJUST
LOOSEN LOCK NUT ON HEIGHT ADJUSTMENT SCREW. TURN SCREW UNTIL REQUIREMENT IS MET. TIGHTEN LOCK NUT.



2.08 Control Panel



CONTROL PANEL

REQUIREMENT

THE TOPS OF THE CONTROL PANELS SHOULD JUST TOUCH THE UNDER SURFACE OF LOWER COVER. CLEARANCE BETWEEN KEYTOP GUIDE PLATE AND ADJACENT CONTROL PANELS SHOULD BE

MIN 0.060 INCH
MAX 0.090 INCH

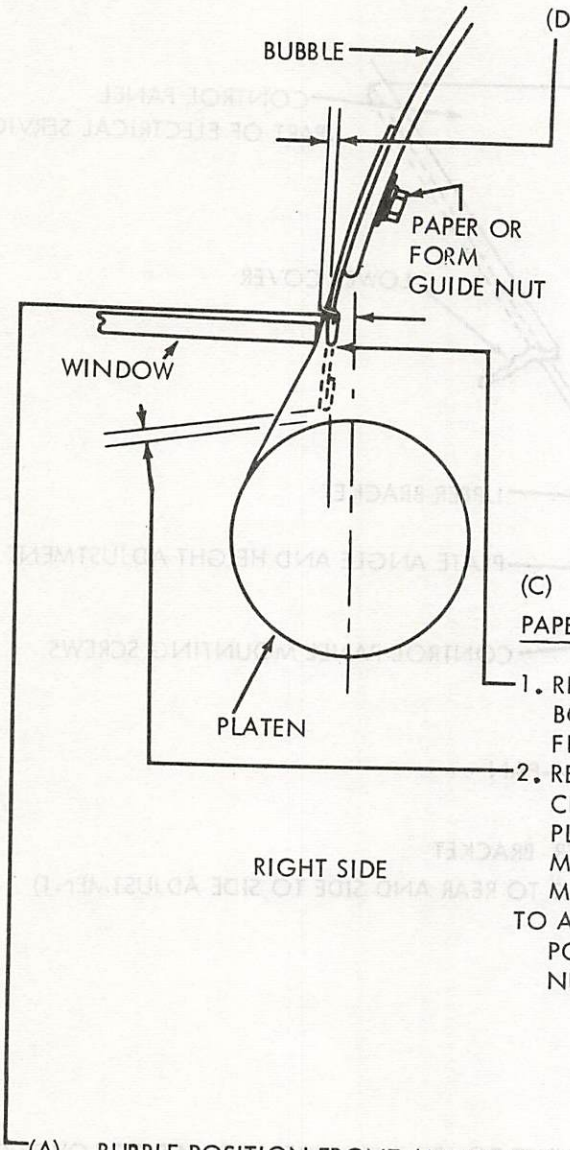
TO ADJUST (EARLIER DESIGN)

LOOSEN LOWER BRACKET MOUNTING SCREWS TO FRICTION TIGHT AND POSITION BRACKETS FROM LEFT TO RIGHT AND FRONT TO REAR. LOOSEN UPPER BRACKET MOUNTING SCREWS AND ADJUST HEIGHT AND ANGLE OF CONTROL PANELS. TIGHTEN SCREWS. MAKE CERTAIN THAT COVER RESTS ON ITS SUPPORT SURFACES AND NOT ON CONTROL PANELS. REFINE CRADLE HEIGHT ADJUSTMENT IF NECESSARY UNTIL TOP OF KEYLEVER GUIDE PLATE IS FLUSH WITH TOP CONTROL PANELS.

TO ADJUST (LATER DESIGN)

LOOSEN LOWER BRACKET MOUNTING SCREWS TO FRICTION TIGHT AND POSITION BRACKETS FROM LEFT TO RIGHT AND FRONT TO REAR. LOOSEN UPPER BRACKET MOUNTING SCREWS TO FRICTION TIGHT AND RAISE BRACKETS TO UPPERMOST POSITION. LOWER THE COVER TO PUSH CONTROL PANELS DOWN TO PROPER POSITIONS. RAISE COVER AND TIGHTEN MOUNTING SCREWS.

2.09 Paper and Form Guides



(D) WINDOW (FINAL)

1. REQUIREMENT- FRICTION FEED PAPER GUIDE. CLEARANCE BETWEEN EDGE OF WINDOW AND PAPER GUIDE SHOULD BE 1/16 INCH.

TO ADJUST

LOOSEN FOUR SCREWS THAT FASTEN WINDOW CLAMPS (SEE 2.03) AND POSITION WINDOW. TIGHTEN SCREWS.

2. REQUIREMENT- SPROCKET FEED FORM GUIDE. CLEARANCE BETWEEN EDGE OF WINDOW AND FORM GUIDE SHOULD BE

MIN 0.060 INCH
MAX 0.080 INCH

IF STAPLED STATIONERY IS USED, STAPLES SHOULD PASS FREELY THROUGH PAPER EMISSION SLOT.

TO ADJUST

SAME AS ADJUSTMENT ABOVE.

(C)

PAPER AND FORM GUIDE

1. REQUIREMENT - FRICTION FEED PAPER GUIDE. BOTTOM EDGE OF PAPER GUIDE SHOULD BE FLUSH WITH BOTTOM SURFACE OF WINDOW.

2. REQUIREMENT - SPROCKET FEED FORM GUIDE. CLEARANCE BETWEEN FORM GUIDE AND PLATEN SHOULD BE

MIN 3/64 INCH
MAX 5/64 INCH

TO ADJUST

POSITION GUIDE WITH THREE PAPER OR FORM GUIDE NUTS LOOSENED. TIGHTEN NUTS.

(A) BUBBLE POSITION FRONT AND REAR (FINAL)

REQUIREMENT

FRONT EDGE OF PAPER OR FORM GUIDE SHOULD BE ABOUT 1/8 INCH IN FRONT OF APPROXIMATE CENTER OF PLATEN. FORM GUIDE AND BUBBLE SHOULD CLEAR ALL TYPING UNIT PARTS BY AT LEAST 1/8 INCH.

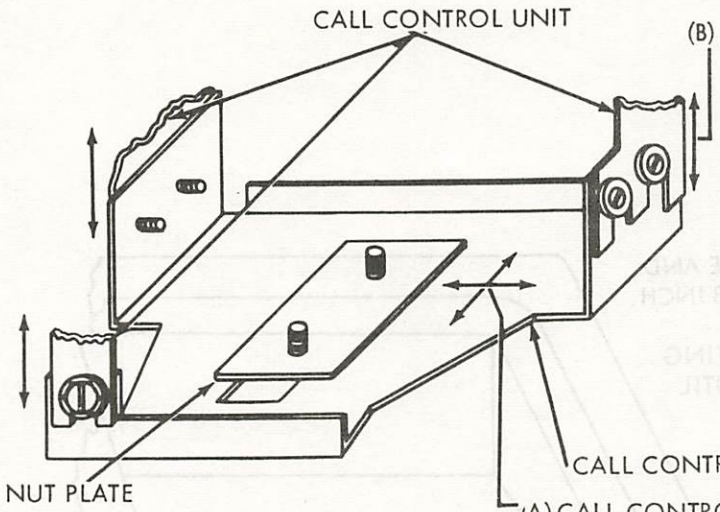
TO ADJUST

LOOSEN FOUR MOUNTING SCREWS THAT MOUNT BUBBLE PIVOT BRACKETS AND POSITION BUBBLE (SEE 2.03). TIGHTEN SCREWS.

(B) BUBBLE LATCH PLATE (FINAL)

REFINE 2.03 (B) IF NECESSARY.

2.10 Call Control Unit Apparatus Mounting Rack



(B) CALL CONTROL UNIT HEIGHT REQUIREMENT

ENLARGED BASES OF SIX PUSH BUTTONS ON CALL CONTROL UNIT SHOULD PROTRUDE AN EQUAL AMOUNT THROUGH BEZEL. CALL CONTROL LIGHTS SHOULD PROTRUDE THROUGH BEZEL EQUAL AMOUNTS.

TO ADJUST

LOOSEN FIVE SCREWS THAT MOUNT FRONT PART OF CALL CONTROL UNIT TO ADJUSTABLE BRACKET ON PAN AND ADJUST HEIGHT OF FRONT PART OF CALL CONTROL UNIT.

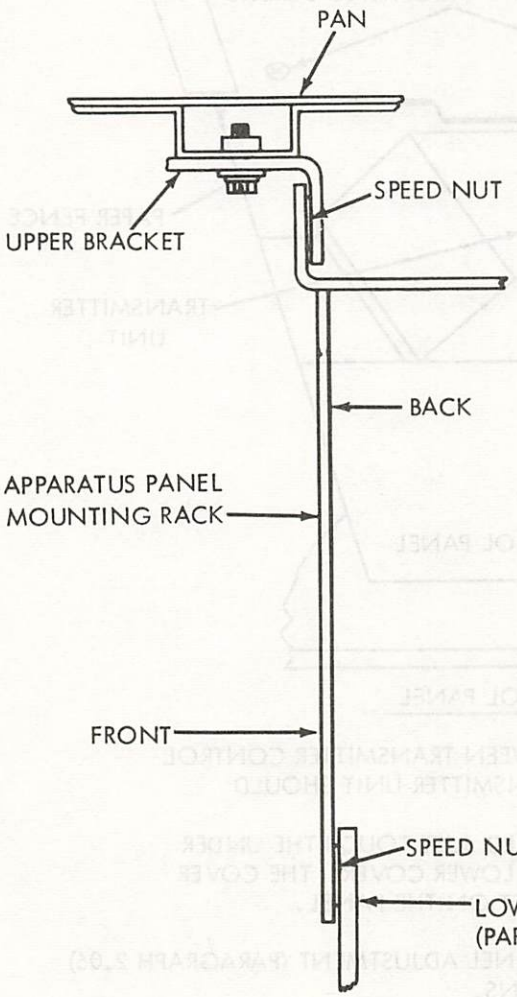
CALL CONTROL UNIT MOUNTING BRACKET

(A) CALL CONTROL UNIT MOUNTING BRACKET REQUIREMENT

PUSH BUTTONS AND LIGHTS ON CALL CONTROL UNIT SHOULD BE CENTERED IN THEIR RESPECTIVE OPENINGS IN BEZEL

TO ADJUST

LOOSEN TWO SCREWS THAT FASTEN FRONT CALL CONTROL BRACKET AND POSITION THE BRACKET. TIGHTEN SCREWS.



(C) UPPER APPARATUS MOUNTING RACK BRACKET (FLOOR STANDING CABINETS ONLY)

REQUIREMENT

SPEED NUT ON UPPER RACK BRACKET SHOULD TOUCH BACK OF APPARATUS MOUNTING RACKS WHEN BOTTOM OF RACK IS TOUCHING TWO LOWER BRACKETS WITH PEDESTAL AND RACKS RESTING ON FLOOR.

TO ADJUST

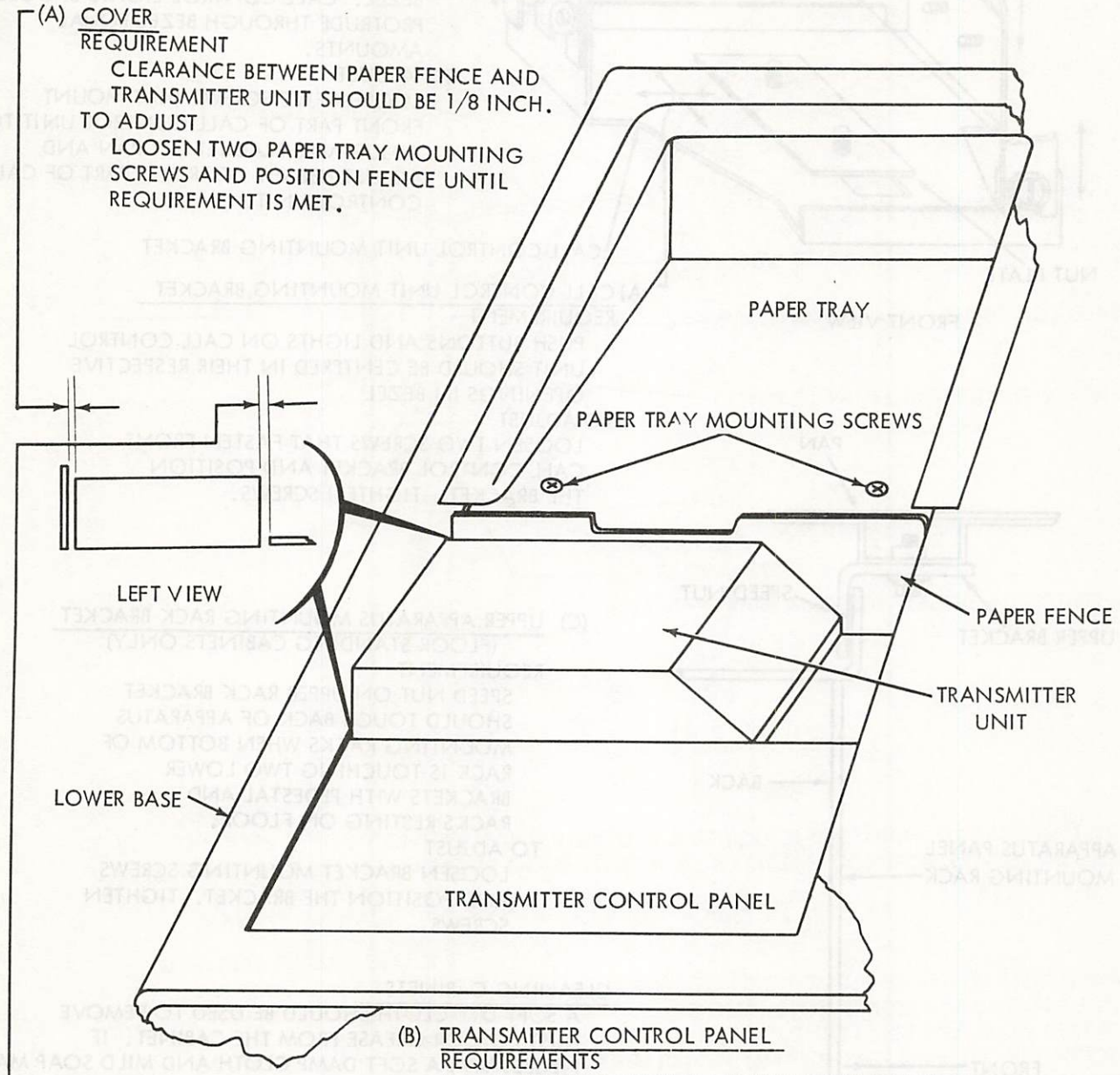
LOOSEN BRACKET MOUNTING SCREWS AND POSITION THE BRACKET. TIGHTEN SCREWS.

CLEANING CABINETS

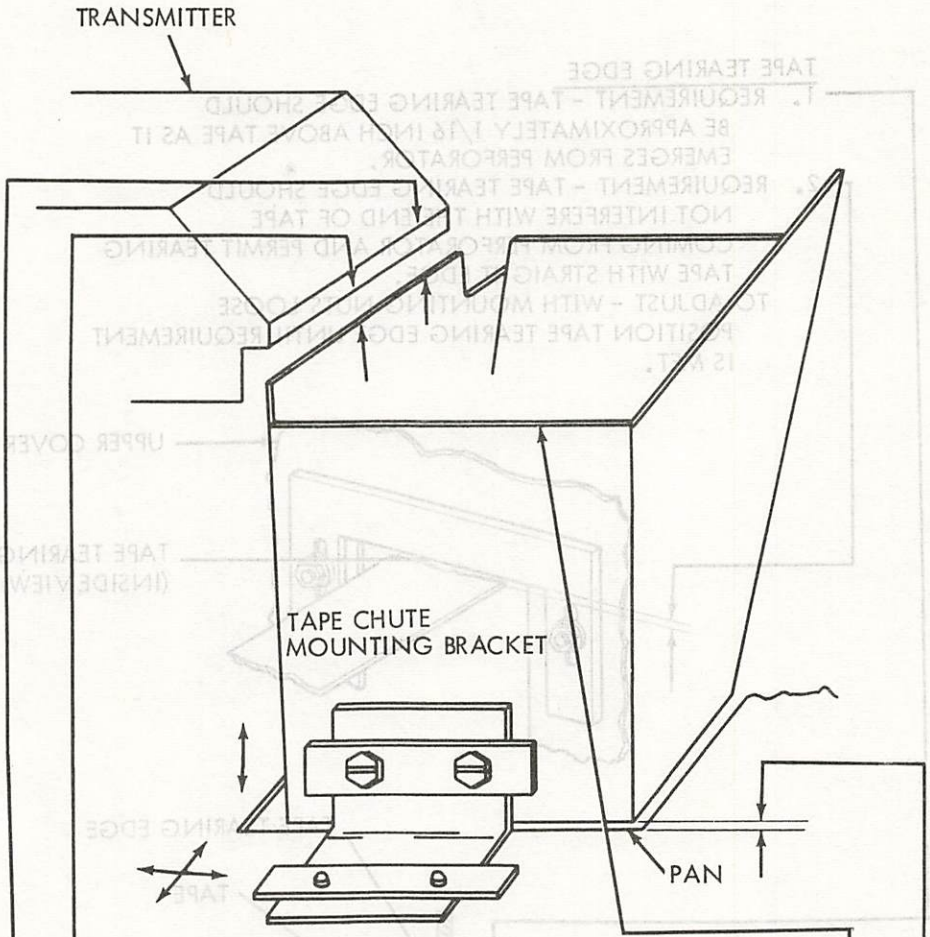
A SOFT DRY CLOTH SHOULD BE USED TO REMOVE DUST, OIL OR GREASE FROM THE CABINET. IF NECESSARY, A SOFT DAMP CLOTH AND MILD SOAP MAY BE USED. RINSE CABINET WITH DAMP CLOTH AND BUFF WITH A DRY CLOTH.

CAUTION: DO NOT USE ALCOHOL, MINERAL SPIRITS OR OTHER SOLVENTS FOR CLEANING THE CABINET.

2.11 Transmitter Cover and Control Panel



2.12 Tape Chute



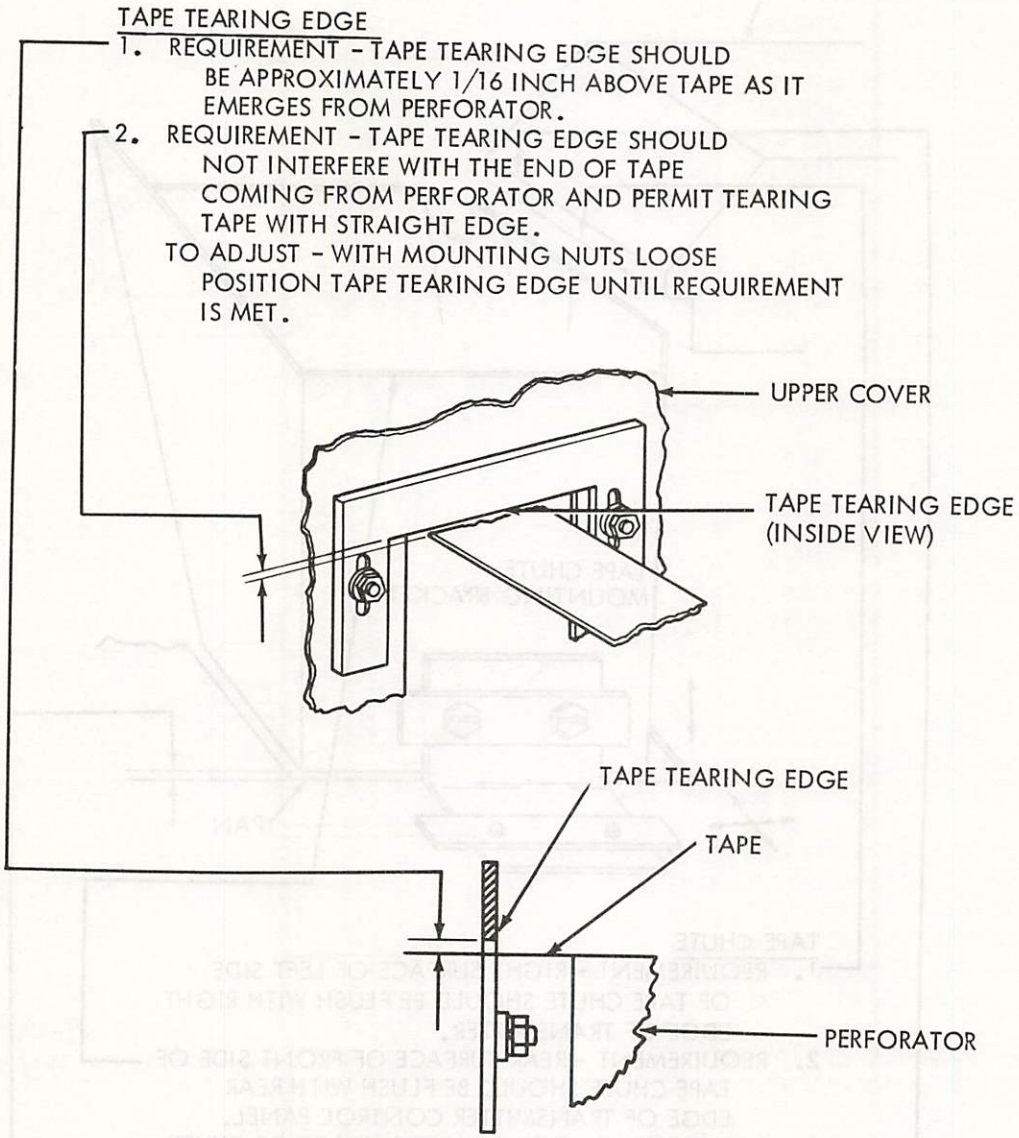
TAPE CHUTE

1. REQUIREMENT - RIGHT SURFACE OF LEFT SIDE OF TAPE CHUTE SHOULD BE FLUSH WITH RIGHT EDGE OF TRANSMITTER.
2. REQUIREMENT - REAR SURFACE OF FRONT SIDE OF TAPE CHUTE SHOULD BE FLUSH WITH REAR EDGE OF TRANSMITTER CONTROL PANEL.
3. REQUIREMENT - TOP OF LEFT SURFACE OF CHUTE SHOULD CLEAR TRANSMITTER BY A MINIMUM OF 1/8 INCH.
4. REQUIREMENT - THERE SHOULD BE SOME CLEARANCE BETWEEN THE BOTTOM OF THE TAPE CHUTE AND THE PAN.

TO ADJUST

LOOSEN THE TWO SCREWS WHICH FASTEN THE TAPE CHUTE MOUNTING BRACKET TO THE PAN AND ADJUST HORIZONTALLY. TIGHTEN SCREWS. LOOSEN THE TWO SCREWS WHICH FASTEN THE TAPE CHUTE TO THE BRACKET AND ADJUST VERTICALLY. TIGHTEN SCREWS.

2.13 Tape Tearing Edge



2.14 Lower Cover Latch (Later Design Only)

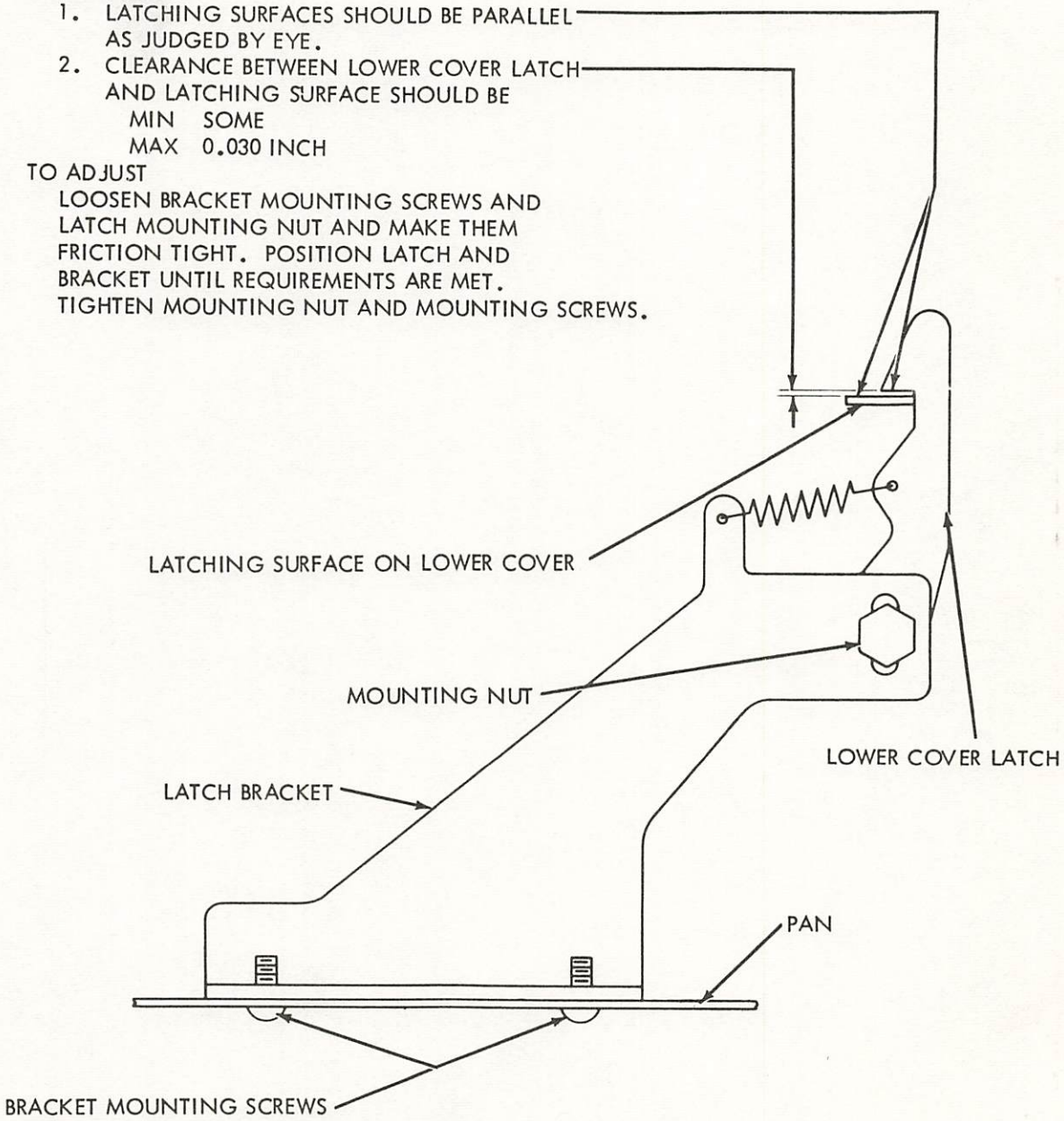
LOWER COVER LATCH

REQUIREMENTS

1. LATCHING SURFACES SHOULD BE PARALLEL AS JUDGED BY EYE.
2. CLEARANCE BETWEEN LOWER COVER LATCH AND LATCHING SURFACE SHOULD BE
   MIN SOME
   MAX 0.030 INCH

TO ADJUST

LOOSEN BRACKET MOUNTING SCREWS AND LATCH MOUNTING NUT AND MAKE THEM FRICTION TIGHT. POSITION LATCH AND BRACKET UNTIL REQUIREMENTS ARE MET. TIGHTEN MOUNTING NUT AND MOUNTING SCREWS.



35 REPERFORATOR BASES

ADJUSTMENTS

CONTENTS

1. GENERAL

1.01 This section provides adjustment information for the 35 receiving-only reperforator base, the 35 multiple reperforator base, and the 35 auxiliary reperforator base.

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

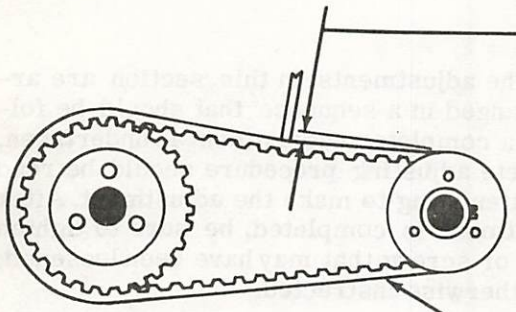
1.03 The adjusting illustrations indicate tolerances, positions of moving parts, spring tensions and the angle at which scales should be applied. The tools required to make adjustments and check spring tensions are not supplied with the equipment, but are listed in another section. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

1.04 Where adjustment instructions call for removal of components, assemblies, subassemblies or parts, all adjustments which the removal of the parts might facilitate should be made before the parts are replaced or as the equipment is reassembled. When a part mounted on shims is removed, the number of shims and their location should be noted so that the identical pile-up can be made when the part is replaced.

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

2. RECEIVING-ONLY REPERFORATOR BASE

2.01 Tape Container and Timing Belt



(RIGHT SIDE VIEW)

TIMING BELT

Requirement

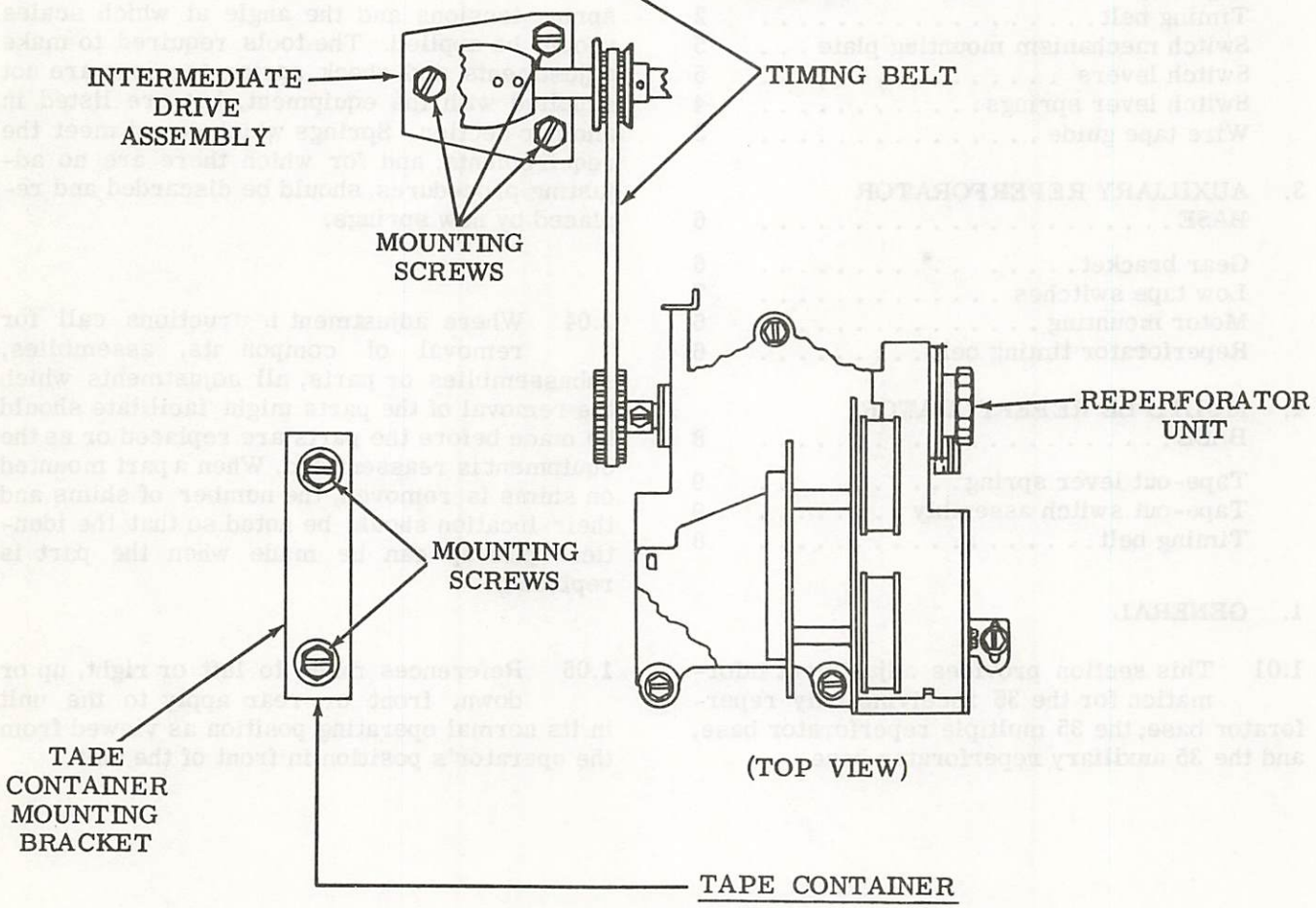
Slight pressure at center of span (8 ± 1 oz) should deflect belt

Min 1/16 inch---Max 3/16 inch

CAUTION: BELT SHOULD NOT BE TIGHT.

To Adjust

With mounting screws loosened, move intermediate drive assembly toward or away from reperforator. Tighten screws. Recheck GEAR MESH.



TAPE CONTAINER

Requirement

Possible to insert full roll of tape into tape container through access door in dome.

To Adjust

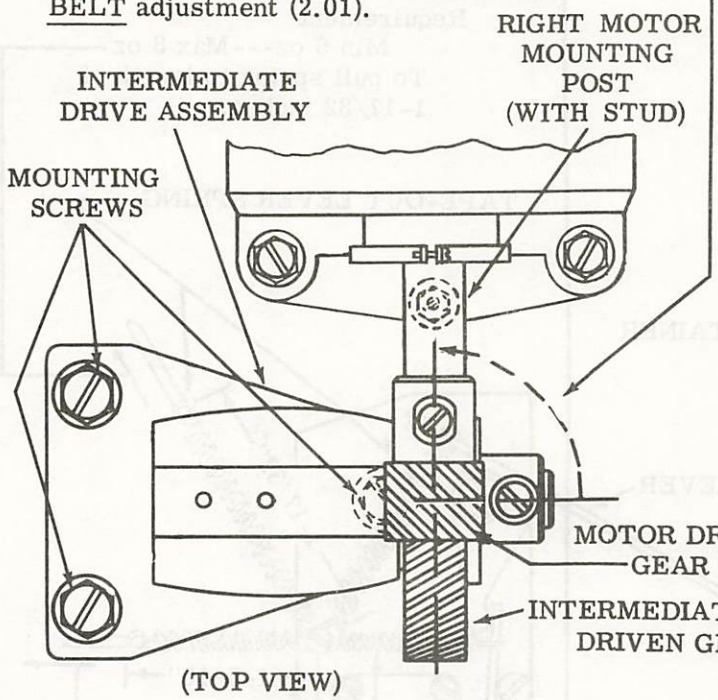
Position tape container with two mounting screws loosened.

2.02 Intermediate Gears and Tight Tape Arm

GEAR MESH

Requirement
Motor drive gear and intermediate shaft driven gear should mesh at right angles.

To Adjust
Position drive assembly with mounting screws loosened. Recheck TIMING BELT adjustment (2.01).



WIRE TAPE GUIDE

Requirement
Tape should pass freely through wire guide and be aligned with perforator guide assembly.

To Adjust
Bend or position wire guide.

MOTOR ADJUSTING STUD

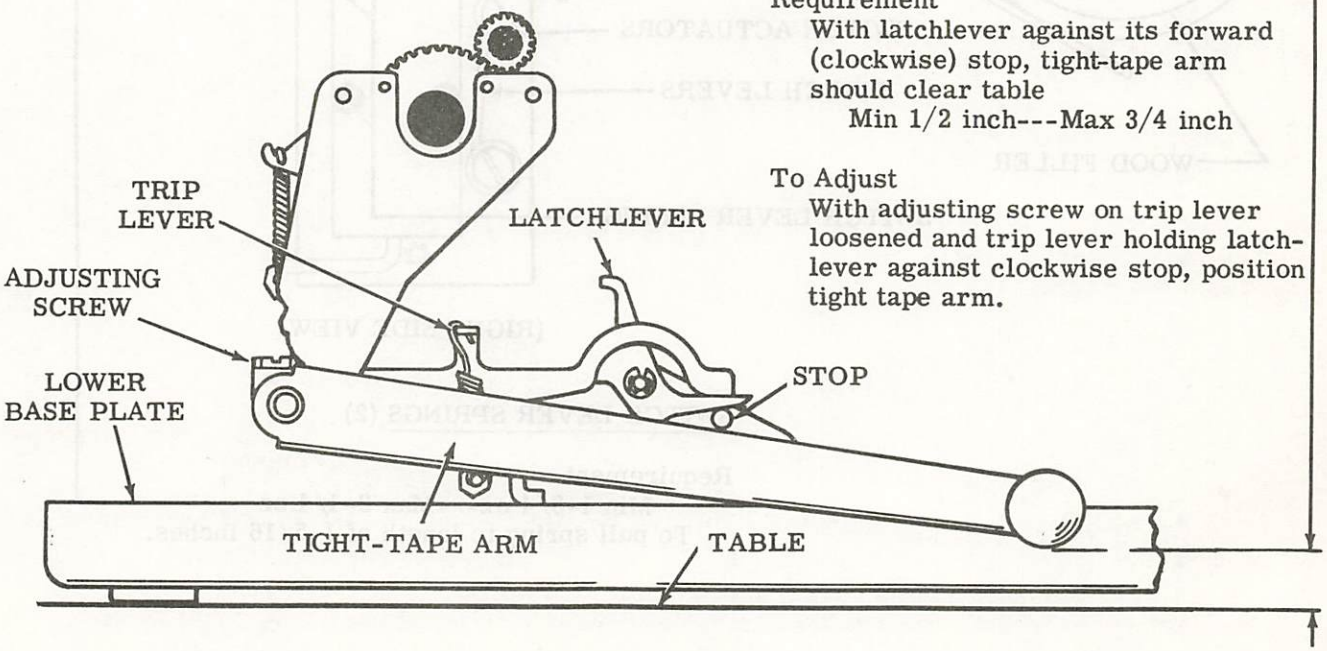
Requirement
Barely perceptible backlash between motor drive gear and intermediate shaft driven gear with gears at closest point.

To Adjust
Position stud in right motor mounting post up or down to meet requirement. Tighten nut while holding stud in position. Check that motor mounting screws are tight. Recheck GEAR MESH.

TIGHT-TAPE ARM

Requirement
With latchlever against its forward (clockwise) stop, tight-tape arm should clear table
Min 1/2 inch---Max 3/4 inch

To Adjust
With adjusting screw on trip lever loosened and trip lever holding latchlever against clockwise stop, position tight tape arm.



2.03 Low Tape Mechanism

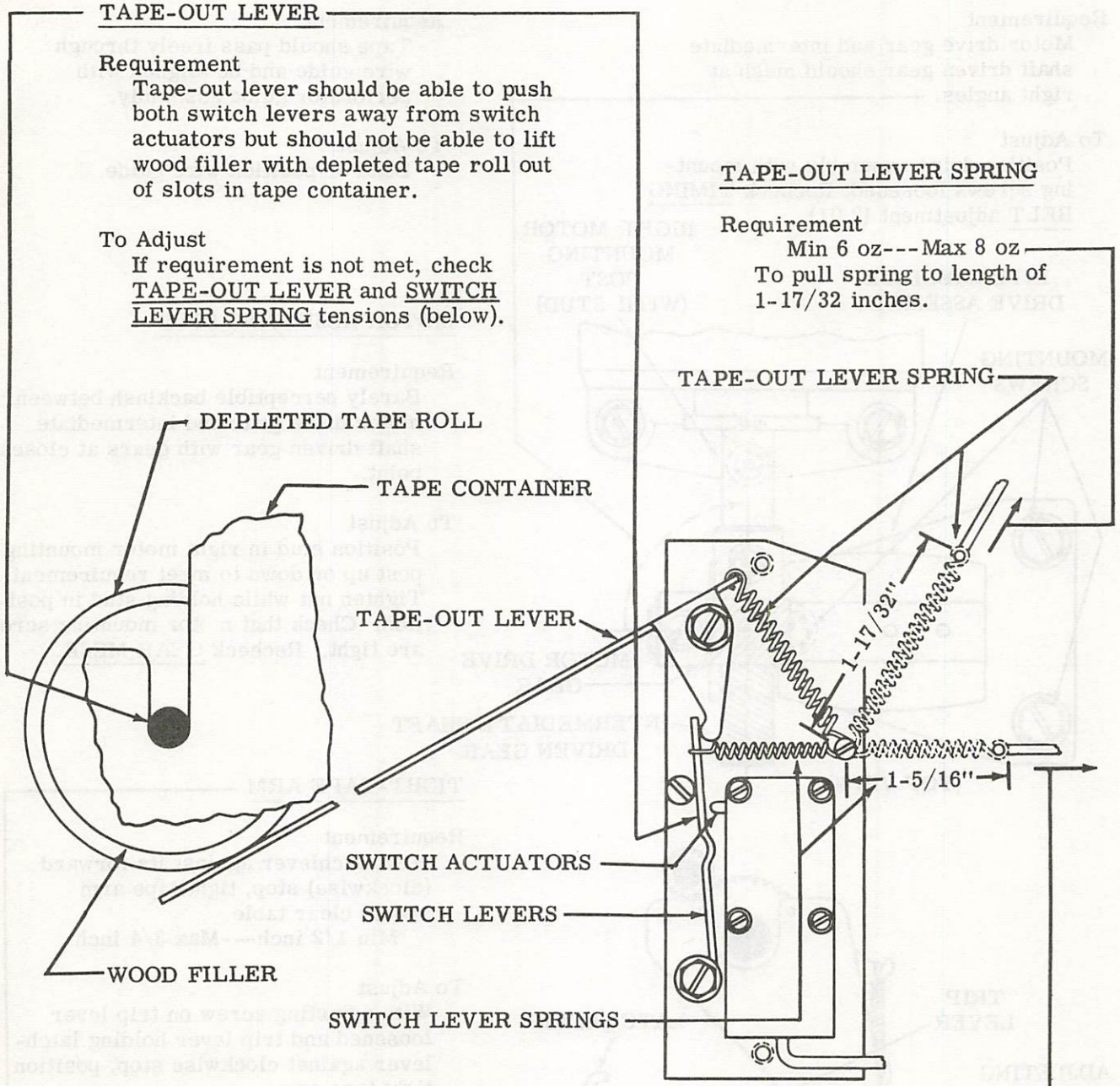
TAPE-OUT LEVER

Requirement
Tape-out lever should be able to push both switch levers away from switch actuators but should not be able to lift wood filler with depleted tape roll out of slots in tape container.

To Adjust
If requirement is not met, check TAPE-OUT LEVER and SWITCH LEVER SPRING tensions (below).

TAPE-OUT LEVER SPRING

Requirement
Min 6 oz---Max 8 oz
To pull spring to length of 1-17/32 inches.



(RIGHT SIDE VIEW)

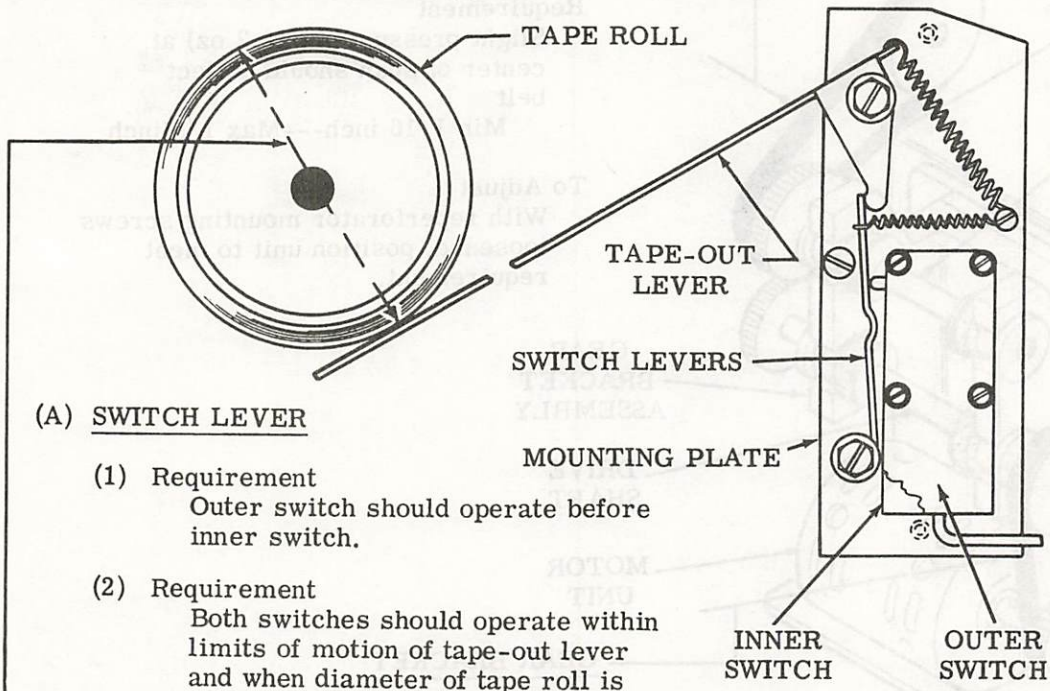
SWITCH LEVER SPRINGS (2)

Requirement
Min 1-3/4 oz---Max 2-1/4 oz
To pull spring to length of 1-5/16 inches.

2.04 Low Tape Mechanism - Continued

Note: The inner switch is nearest the mounting plate; the outer switch is farthest from the mounting plate.

(RIGHT SIDE VIEW)



(A) SWITCH LEVER

(1) Requirement
Outer switch should operate before inner switch.

(2) Requirement
Both switches should operate within limits of motion of tape-out lever and when diameter of tape roll is reduced to
first, 2-7/16 inches, then to 2-5/16 inches (when using a 2-inch diameter core).

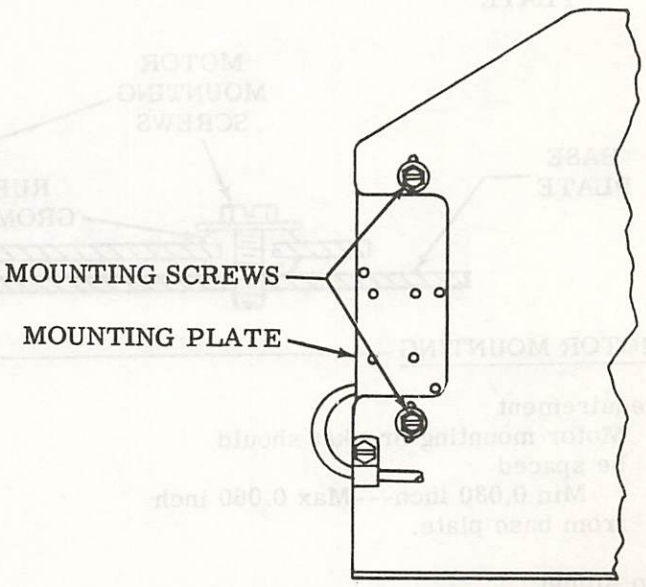
To Adjust
Bend outer switch lever toward switch assembly.

Note: Adjustment can be facilitated by removing switch mechanism from tape container.

(B) SWITCH MECHANISM MOUNTING PLATE

Requirement
Outer switch should just operate when diameter of tape roll is reduced to 2-3/8 inches when using a 2-inch diameter core.

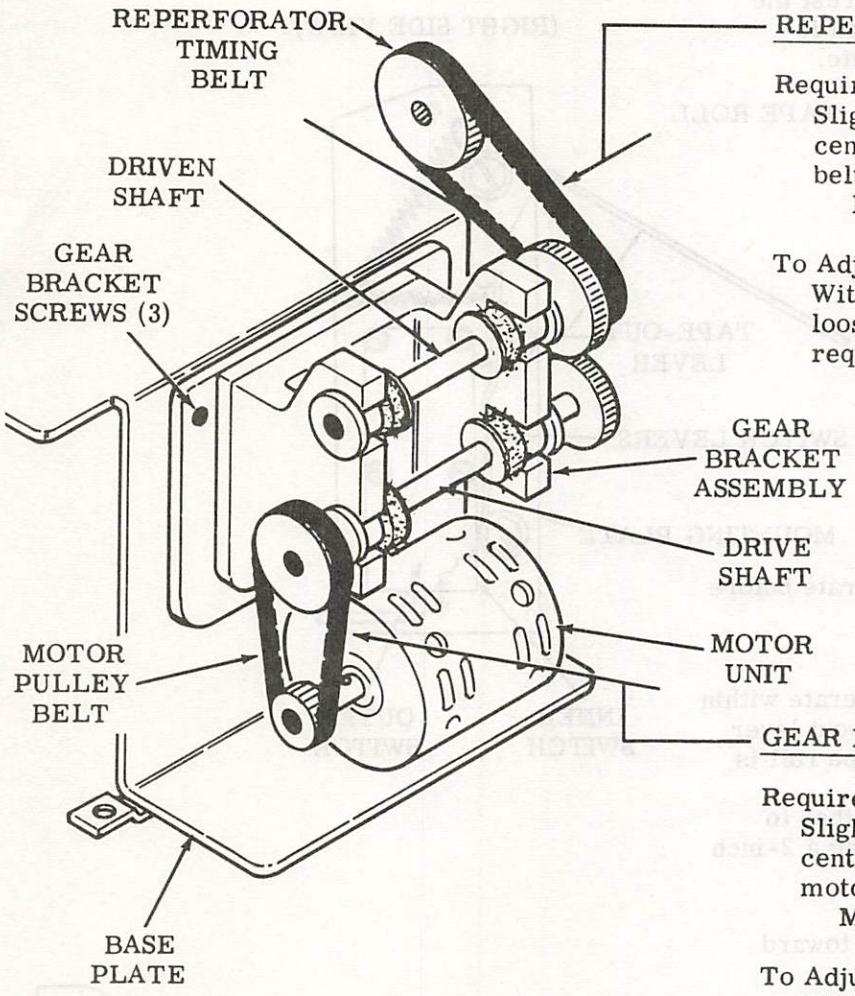
To Adjust
Position mounting plate with mounting screws loosened.



(LEFT SIDE VIEW)

3. AUXILIARY REPERFORATOR BASE

3.01 Gear Bracket Assembly and Motor Mounting



REPERFORATOR TIMING BELT

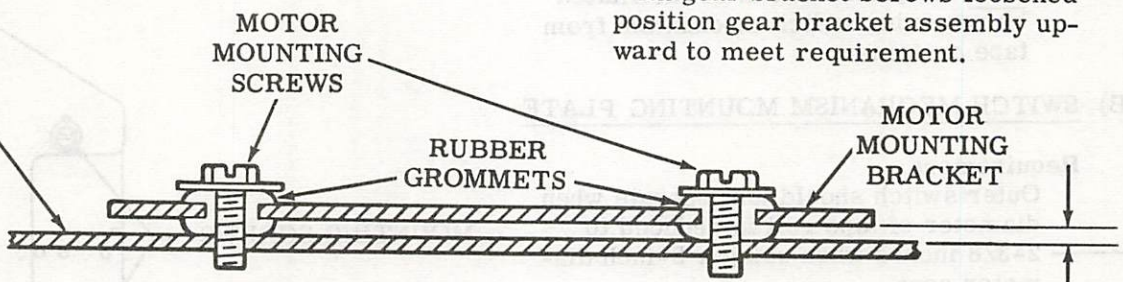
Requirement
Slight pressure (up to 2 oz) at center of span should deflect belt
Min 1/16 inch---Max 1/8 inch

To Adjust
With reperforator mounting screws loosened, position unit to meet requirement.

GEAR BRACKET

Requirement
Slight pressure (2 oz to 4 oz) at center of span should deflect motor pulley belt
Min 1/16 inch---Max 1/8 inch

To Adjust
With gear bracket screws loosened position gear bracket assembly upward to meet requirement.

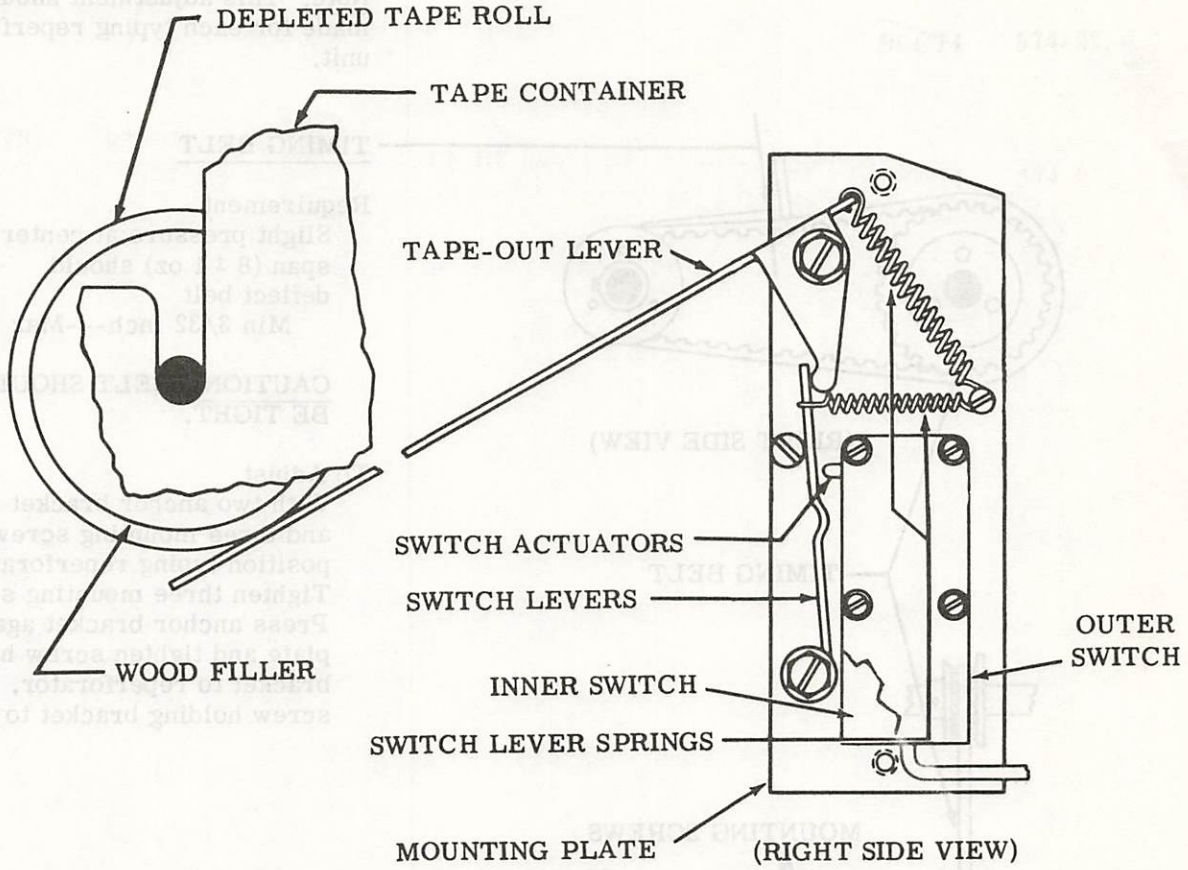


MOTOR MOUNTING

Requirement
Motor mounting bracket should be spaced
Min 0.030 inch---Max 0.060 inch
from base plate.

To Adjust
Tighten or loosen motor mounting screws to meet requirement.

3.02 Low Tape Mechanism

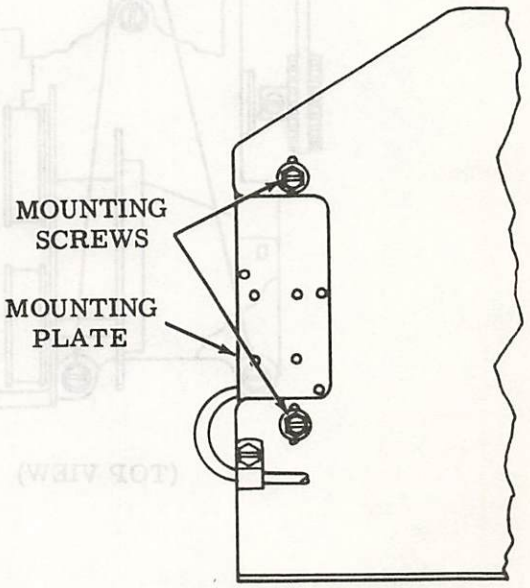


LOW TAPE SWITCHES

(1) Requirement
Outer switch must operate first.

(2) Requirement
Inner switch should just close when tape is depleted to a diameter of between 2-5/16 inches and 2-7/16 inches.

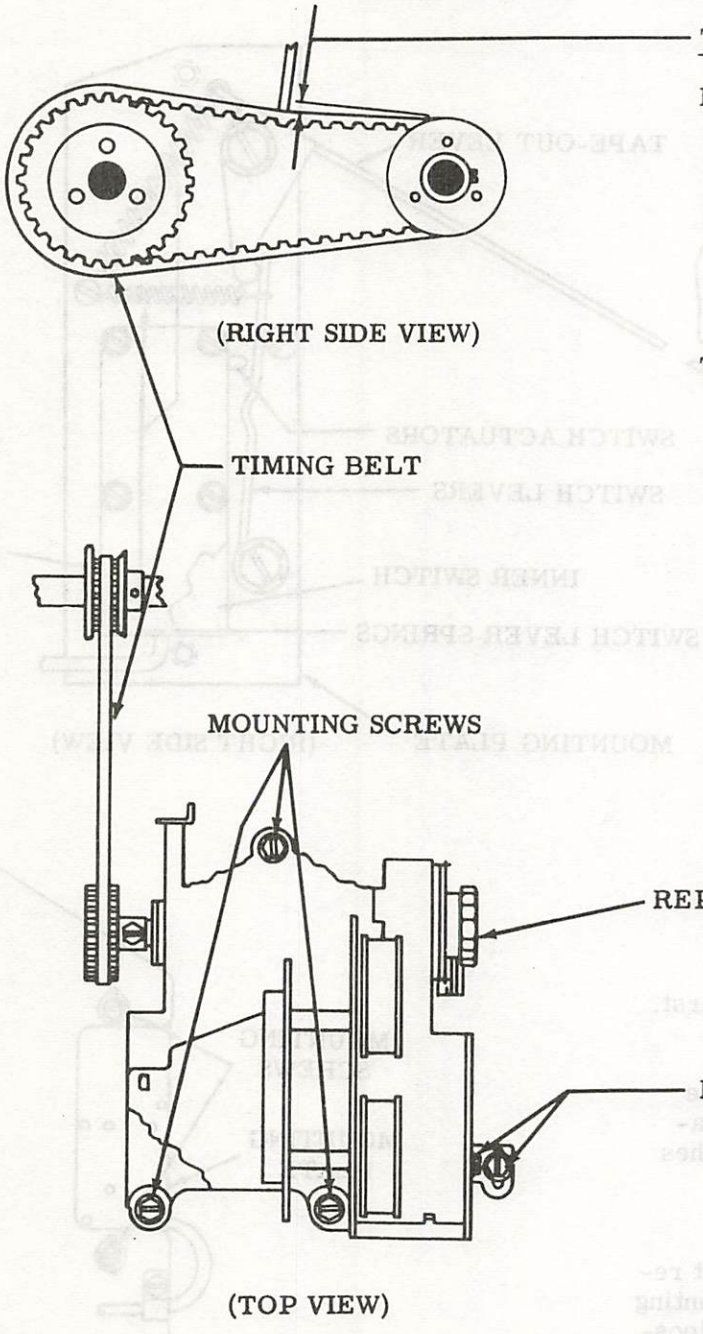
To Adjust
Bend switch actuator to meet requirement (1). Position mounting plate with mounting screws loosened to meet requirement (2).



4. MULTIPLE REPERFORATOR BASE

4.01 Timing Belt

Note: This adjustment should be made for each typing reperforator unit.



TIMING BELT

Requirement

Slight pressure at center of span (8 ± 1 oz) should deflect belt

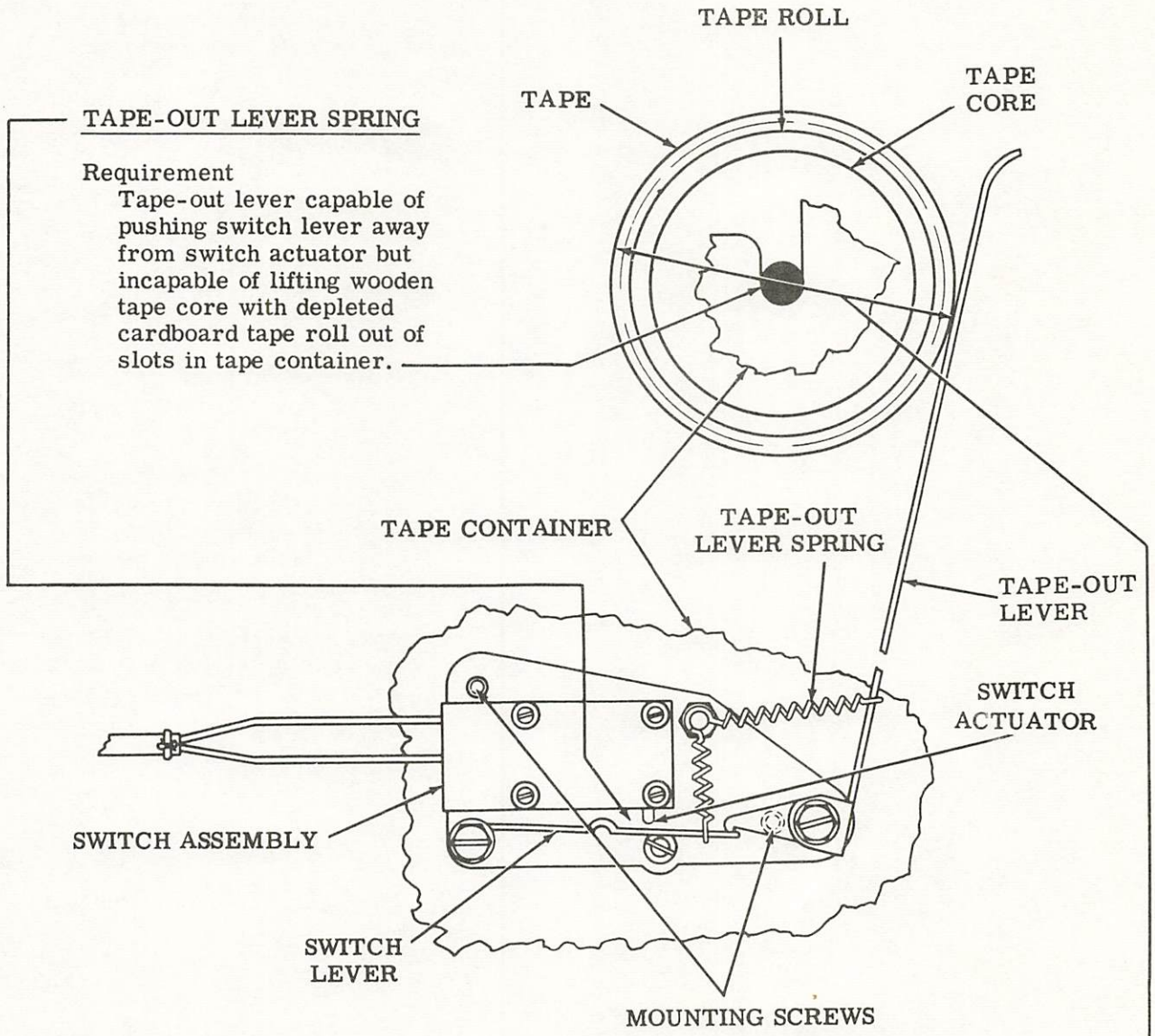
Min 3/32 inch---Max 5/32 inch

CAUTION: BELT SHOULD NOT BE TIGHT.

To Adjust

With two anchor bracket screws and three mounting screws loosened, position typing reperforator unit. Tighten three mounting screws. Press anchor bracket against base plate and tighten screw holding bracket to reperforator. Tighten screw holding bracket to base.

4.02 Low Tape Mechanism



TAPE-OUT LEVER SPRING

Requirement
Tape-out lever capable of pushing switch lever away from switch actuator but incapable of lifting wooden tape core with depleted cardboard tape roll out of slots in tape container.

TAPE-OUT SWITCH ASSEMBLY

Requirement
Switch should operate when diameter of tape roll is
Min 2-3/8 inch---Max 2-5/8 inch.
(Check with test lamp.)

To Adjust
With two mounting screws loosened, position switch assembly on tape container.

35 TYPING REPERFORATOR

ADJUSTMENTS

CONTENTS PAGE

CONTENTS PAGE

CONTENTS PAGE

CONTENTS PAGE

CONTENTS PAGE

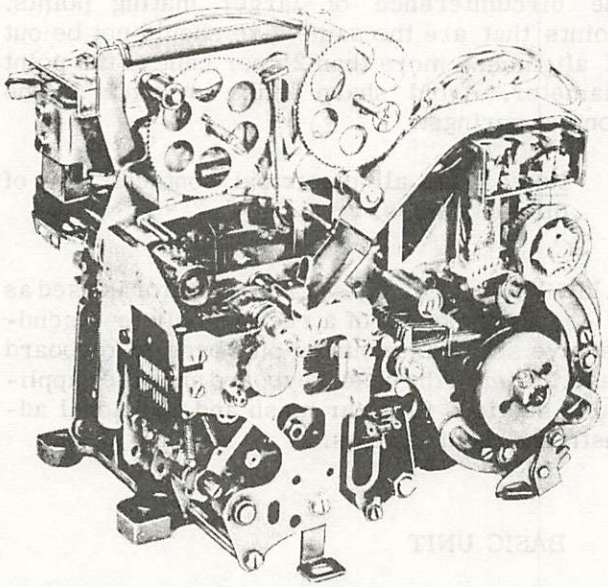


Figure 1 - Typical 35 Typing Reperforator (Left Front View)

1. GENERAL

1.01 This section is reissued to include complete adjustment requirements for the 35 typing reperforator. Changes and additions are indicated by marginal arrows.

1.02 This section contains specific requirements and adjustments for the 35 typing reperforator (Fig. 1). The basic equipment includes selector mechanism, transfer mechanism, eight-level fully perforating punch mechanism, and printing mechanism. The printing mechanism includes letters-figures contacts and magnet and may include print suppression, remote control non-interfering rubout tape feed-out, end of feed-out timing contacts and power drive backspace mechanisms.

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

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

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

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

1.06 When a requirement calls for a clutch to be DISENGAGED, the clutch shoe lever must be fully latched between its trip lever (or stop arm) and latch lever. The main

shaft will then turn freely without the clutch shoes dragging. When the clutch is ENGAGED, the shoe lever and cam disk stop lug are moved apart, and the clutch shoes are wedged against the drum so that the clutch turns with the shaft.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. BASIC UNIT

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

2.02 Selector Mechanism

2.03 Function Mechanism

NOTE: FOR GEAR MESH ADJUSTMENT, REFER TO APPLICABLE SECTIONS COVERING BASE OR KEYBOARD MOUNTING FACILITY.

(A) CLUTCH SHOE LEVER

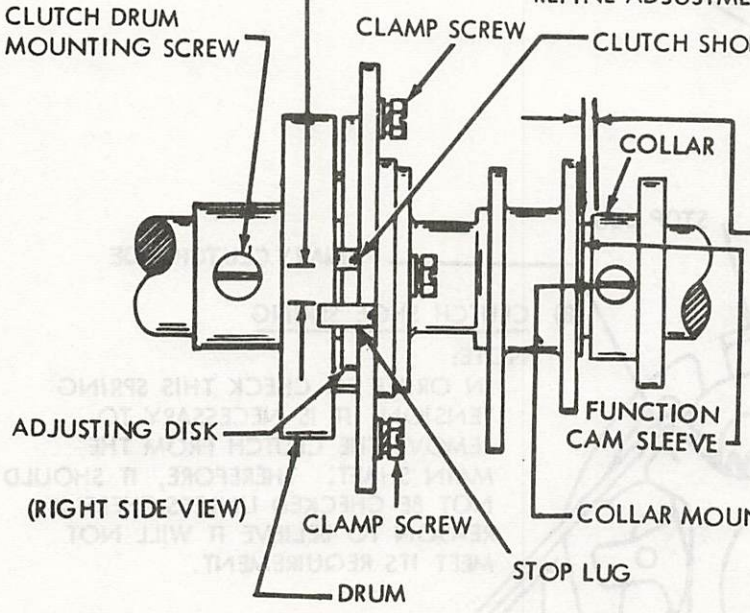
NOTE:
THIS ADJUSTMENT SHOULD BE MADE FOR BOTH SELECTING AND FUNCTION CLUTCHES.

TO CHECK
(1) DISENGAGE CLUTCH. MEASURE CLEARANCE.
(2) ALIGN HEAD OF CLUTCH DRUM MOUNTING SCREW WITH STOP LUG. ENGAGE CLUTCH. MANUALLY PRESS SHOE LEVER AND STOP LUG TOGETHER AND ALLOW TO SNAP APART. MEASURE CLEARANCE.

REQUIREMENT
CLEARANCE BETWEEN SHOE LEVER AND STOP LUG:
MIN. 0.055 INCH---MAX. 0.085 INCH
GREATER WHEN CLUTCH ENGAGED (2) THAN WHEN DISENGAGED (1).

TO ADJUST
ENGAGE WRENCH OR SCREWDRIVER WITH LUG ON ADJUSTING DISK. ROTATE DISK WITH CLAMP SCREWS LOOSENED.

NOTE: AFTER MAKING ADJUSTMENT, DISENGAGE CLUTCH. REMOVE DRUM MOUNTING SCREW. ROTATE DRUM IN NORMAL DIRECTION AND CHECK TO SEE IF IT DRAGS ON SHOE. IF IT DOES REFINE ADJUSTMENT.



(B)
FUNCTION CLUTCH DRUM END PLAY

REQUIREMENT
WITH FUNCTION CLUTCH DISENGAGED:
MIN. SOME --- MAX. 0.015 INCH
WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE MAX.

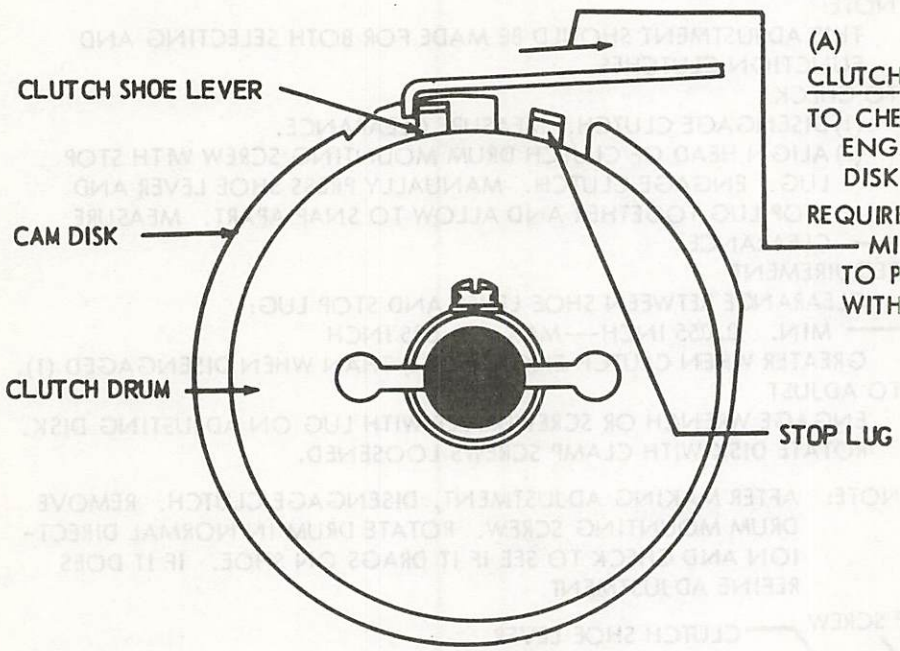
TO ADJUST
WITH ITS MOUNTING SCREW LOOSENED, MOVE DRUM TO EXTREME FRONT POSITION. TIGHTEN DRUM MOUNTING SCREW. POSITION COLLAR WITH MOUNTING SCREW LOOSENED.

(RIGHT SIDE VIEW)

2.04 Selector Mechanism (continued)

2.05 Function Mechanism (continued)

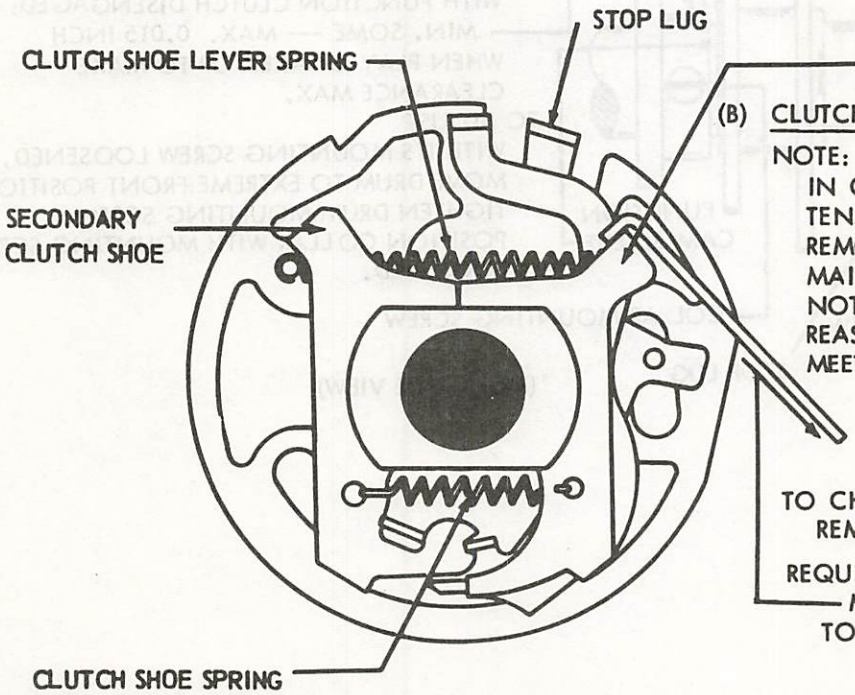
NOTE:
THESE SPRING TENSIONS APPLY TO BOTH CLUTCHES.



(A)
CLUTCH SHOE LEVER SPRING

TO CHECK
ENGAGE CLUTCH. HOLD CAM DISK TO PREVENT ITS TURNING.

REQUIREMENT
MIN. 15 OZS. ----MAX. 20 OZS.
TO PULL SHOE LEVER IN CONTACT WITH STOP LUG.



(B) CLUTCH SHOE SPRING

NOTE:
IN ORDER TO CHECK THIS SPRING TENSION, IT IS NECESSARY TO REMOVE THE CLUTCH FROM THE MAIN SHAFT. THEREFORE, IT SHOULD NOT BE CHECKED UNLESS THERE IS REASON TO BELIEVE IT WILL NOT MEET ITS REQUIREMENT.

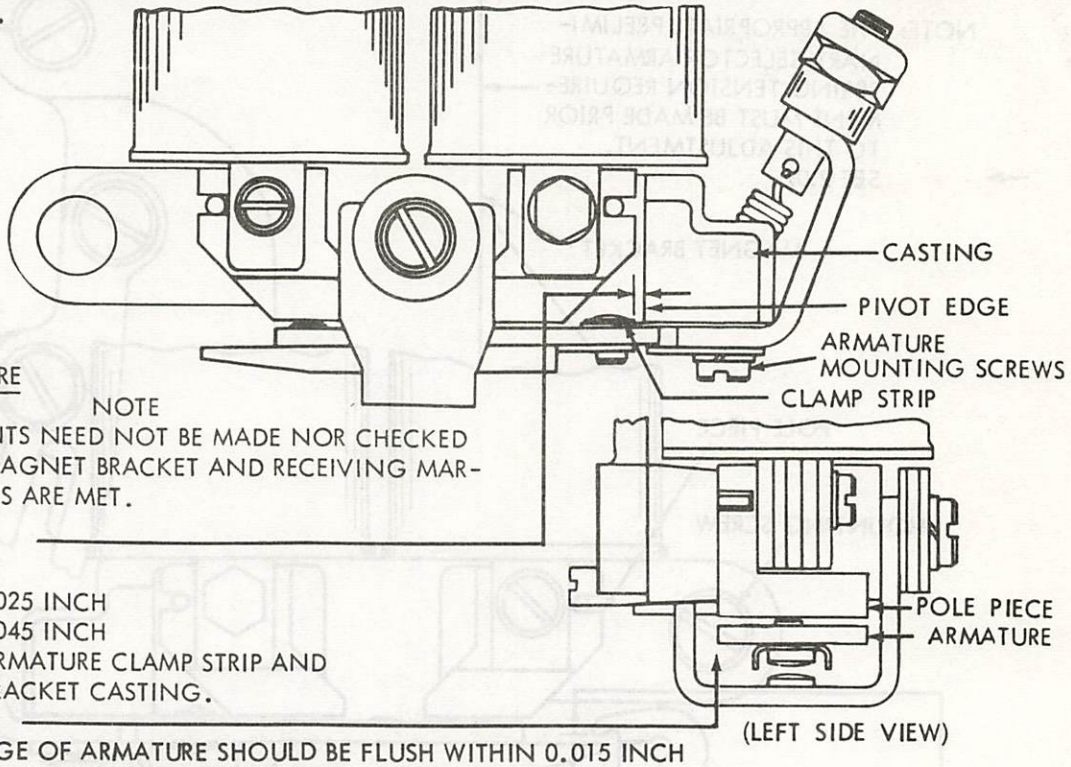
TO CHECK
REMOVE CLUTCH FROM DRUM.

REQUIREMENT
MIN. 3 OZS. ------MAX. 5 OZS.
TO START PRIMARY SHOE MOVING.

2.06 Selector Mechanism (continued)

NOTE

TO FACILITATE MAKING THE FOLLOWING ADJUSTMENTS, REMOVE THE RANGE FINDER ASSEMBLY AND SELECTOR MAGNET ASSEMBLY. TO INSURE BETTER OPERATION, PULL A PIECE OF BOND PAPER BETWEEN THE ARMATURE AND THE POLE PIECES TO REMOVE ANY OIL OR FOREIGN MATTER THAT MAY BE PRESENT. MAKE CERTAIN THAT NO LINT OR PIECES OF PAPER REMAIN BETWEEN THE POLE PIECES AND THE ARMATURE.



SELECTOR ARMATURE

NOTE

THESE REQUIREMENTS NEED NOT BE MADE NOR CHECKED IF THE SELECTOR MAGNET BRACKET AND RECEIVING MARGIN REQUIREMENTS ARE MET.

(1) REQUIREMENT

CLEARANCE

MIN. 0.025 INCH

MAX. 0.045 INCH

BETWEEN ARMATURE CLAMP STRIP AND MAGNET BRACKET CASTING.

(2) REQUIREMENT

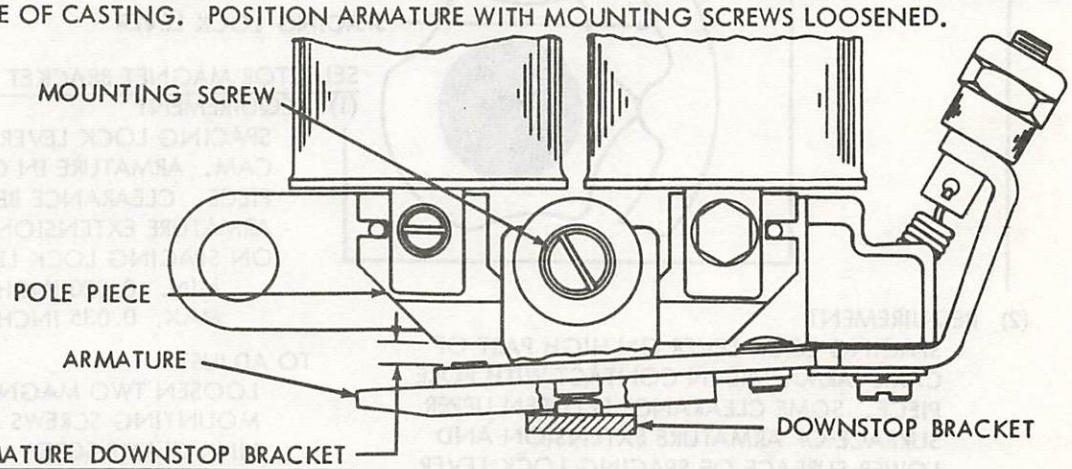
OUTER EDGE OF ARMATURE SHOULD BE FLUSH WITHIN 0.015 INCH WITH OUTER EDGE OF POLE PIECES.

(3) REQUIREMENT

START LEVER SHALL DROP FREELY INTO ARMATURE EXTENSION SLOT.

TO ADJUST

POSITION ARMATURE SPRING ADJUSTING NUT TO HOLD ARMATURE FIRMLY AGAINST PIVOT EDGE OF CASTING. POSITION ARMATURE WITH MOUNTING SCREWS LOOSENED.



SELECTOR ARMATURE DOWNSTOP BRACKET

REQUIREMENT

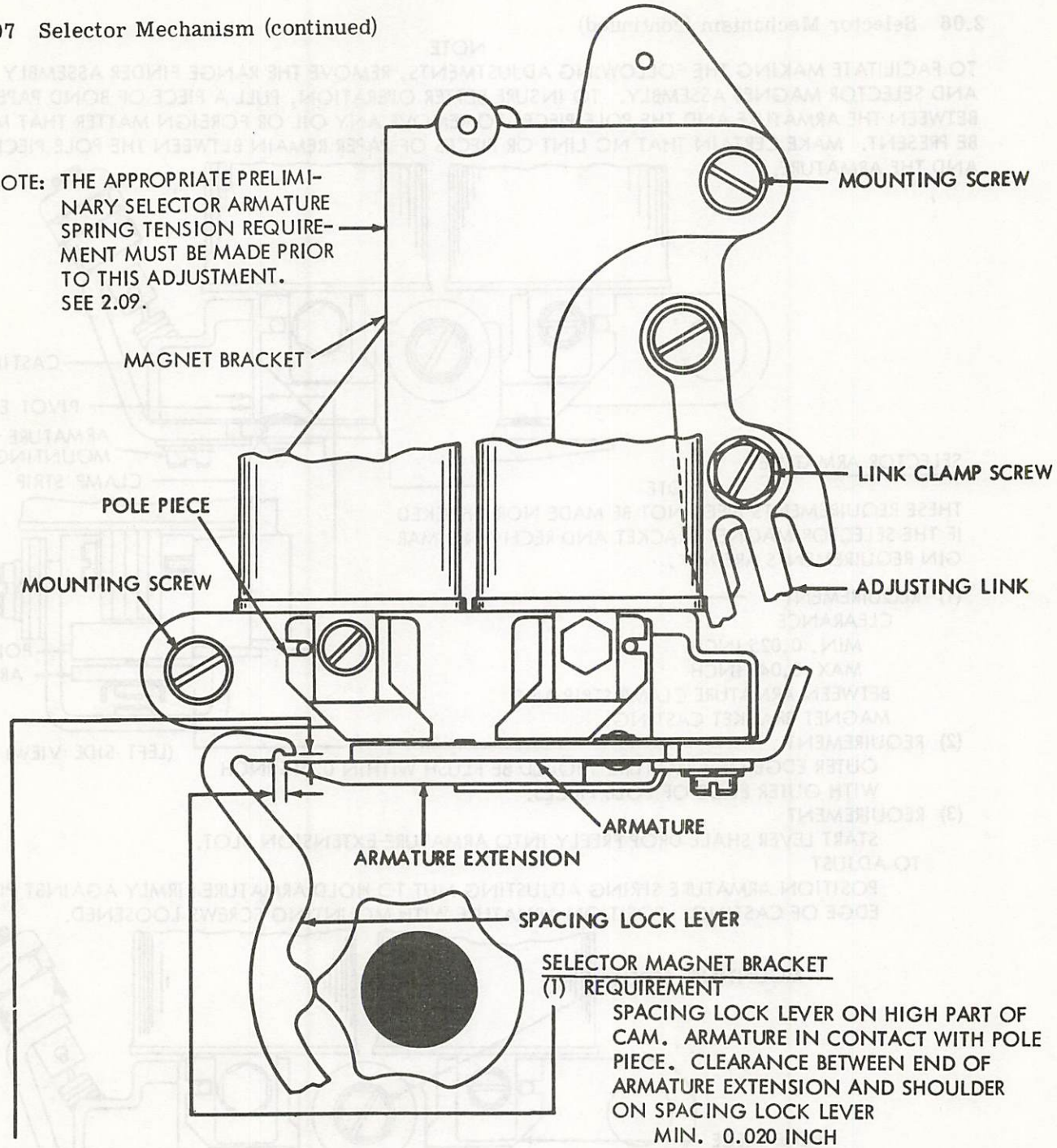
REMOVE OIL SHIELD. WITH MAGNET DE-ENERGIZED, LOCK LEVERS ON HIGH PART OF THEIR CAM, AND ARMATURE RESTING AGAINST ITS DOWNSTOP, CLEARANCE BETWEEN END OF ARMATURE AND LEFT EDGE OF LEFT POLE PIECE

MIN. 0.025 INCH MAX. 0.030 INCH.

TO ADJUST

POSITION DOWNSTOP BRACKET WITH MOUNTING SCREW LOOSENED. REPLACE OIL SHIELD AND CHECK OIL SHIELD ADJUSTMENT.

2.07 Selector Mechanism (continued)



SELECTOR MAGNET BRACKET

(1) REQUIREMENT

SPACING LOCK LEVER ON HIGH PART OF CAM. ARMATURE IN CONTACT WITH POLE PIECE. CLEARANCE BETWEEN END OF ARMATURE EXTENSION AND SHOULDER ON SPACING LOCK LEVER

MIN. 0.020 INCH
MAX. 0.035 INCH

TO ADJUST

LOOSEN TWO MAGNET BRACKET MOUNTING SCREWS AND ADJUSTING LINK CLAMP SCREW. POSITION MAGNET BRACKET BY MEANS OF ADJUSTING LINK AND TIGHTEN LINK CLAMP SCREW ONLY.

(2) REQUIREMENT

SPACING LOCK LEVER ON HIGH PART OF CAM. ARMATURE IN CONTACT WITH POLE PIECE. SOME CLEARANCE BETWEEN UPPER SURFACE OF ARMATURE EXTENSION AND LOWER SURFACE OF SPACING LOCK LEVER WHEN LOCK LEVER IS HELD DOWNWARD.

MAX. 0.003 INCH

TO ADJUST

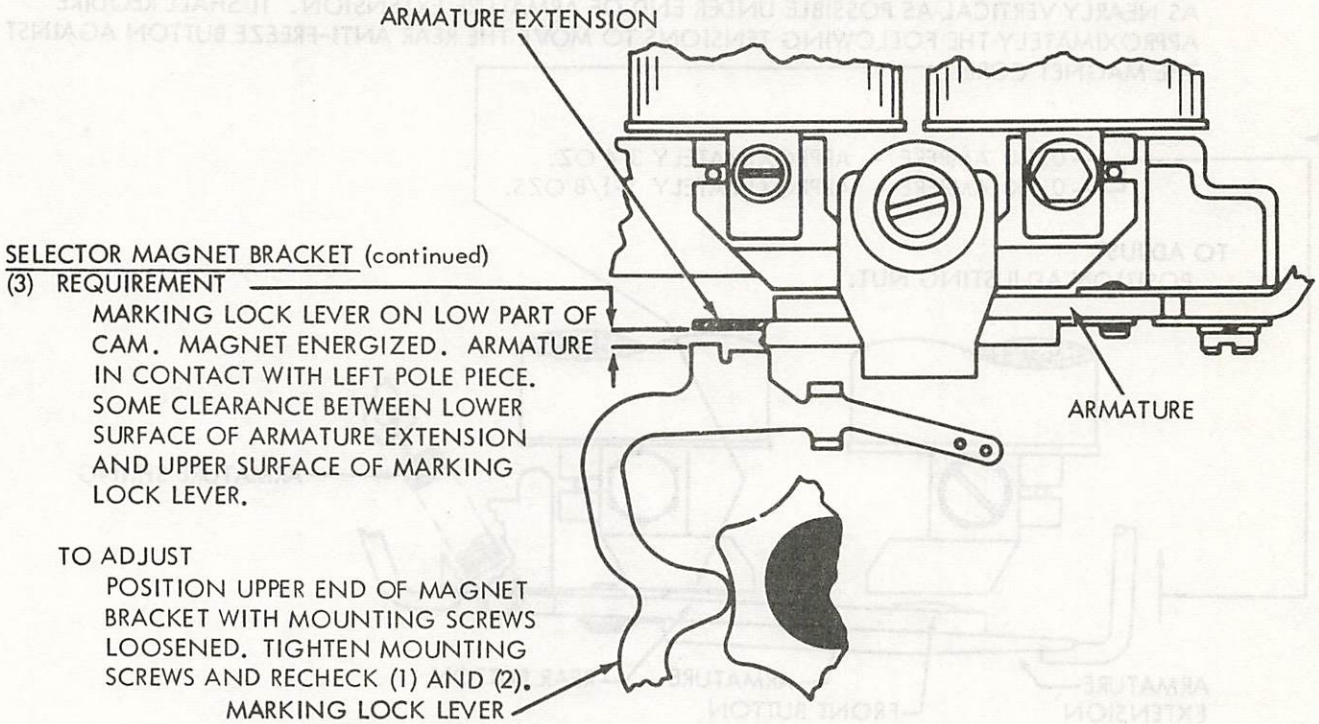
POSITION UPPER END OF MAGNET BRACKET. TIGHTEN TWO MAGNET BRACKET MOUNTING SCREWS. RECHECK REQUIREMENT (1).

NOTE

SEE FOLLOWING PAGE FOR REQUIREMENT (3).

2.08 Selector Mechanism (continued)

NOTE: SEE PRECEDING PAGE FOR SELECTOR MAGNET BRACKET ADJUSTMENTS (1) AND (2).

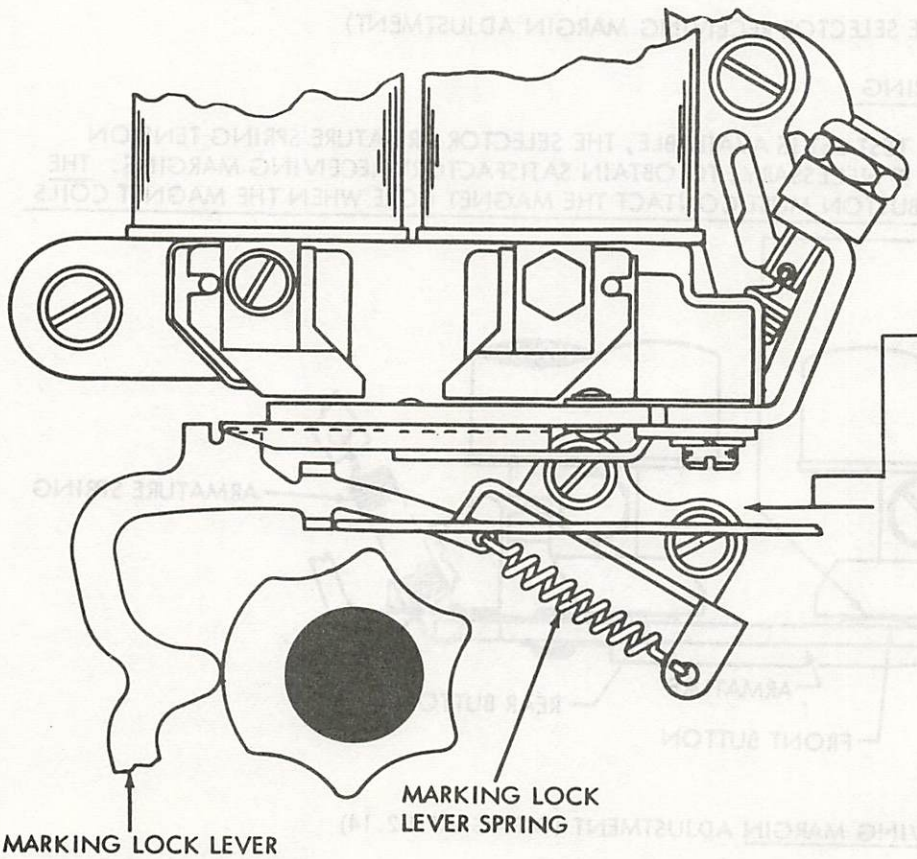


SELECTOR MAGNET BRACKET (continued)
(3) REQUIREMENT

MARKING LOCK LEVER ON LOW PART OF CAM. MAGNET ENERGIZED. ARMATURE IN CONTACT WITH LEFT POLE PIECE. SOME CLEARANCE BETWEEN LOWER SURFACE OF ARMATURE EXTENSION AND UPPER SURFACE OF MARKING LOCK LEVER.

TO ADJUST

POSITION UPPER END OF MAGNET BRACKET WITH MOUNTING SCREWS LOOSENED. TIGHTEN MOUNTING SCREWS AND RECHECK (1) AND (2).



MARKING LOCK LEVER SPRING
REQUIREMENT

RUBOUT COMBINATION (12345678) SELECTED. MAIN SHAFT ROTATED UNTIL SELECTOR CLUTCH IS DISENGAGED. PUSH SCALE APPLIED TO LOWER EXTENSION OF LOCK LEVER.

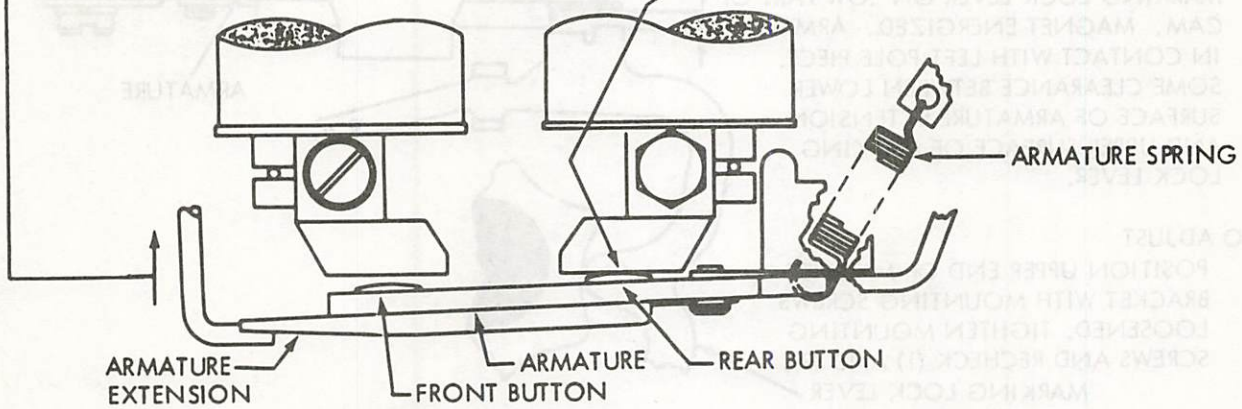
MIN. 1-1/2 OZS.
MAX. 3 OZS.
TO START LEVER MOVING.

2.09 Selector Mechanism (continued)

SELECTOR ARMATURE SPRING
(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH TWO ANTI-FREEZE BUTTONS ONLY).
REQUIREMENT (PRELIMINARY)
WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE APPROXIMATELY THE FOLLOWING TENSIONS TO MOVE THE REAR ANTI-FREEZE BUTTON AGAINST THE MAGNET CORE:

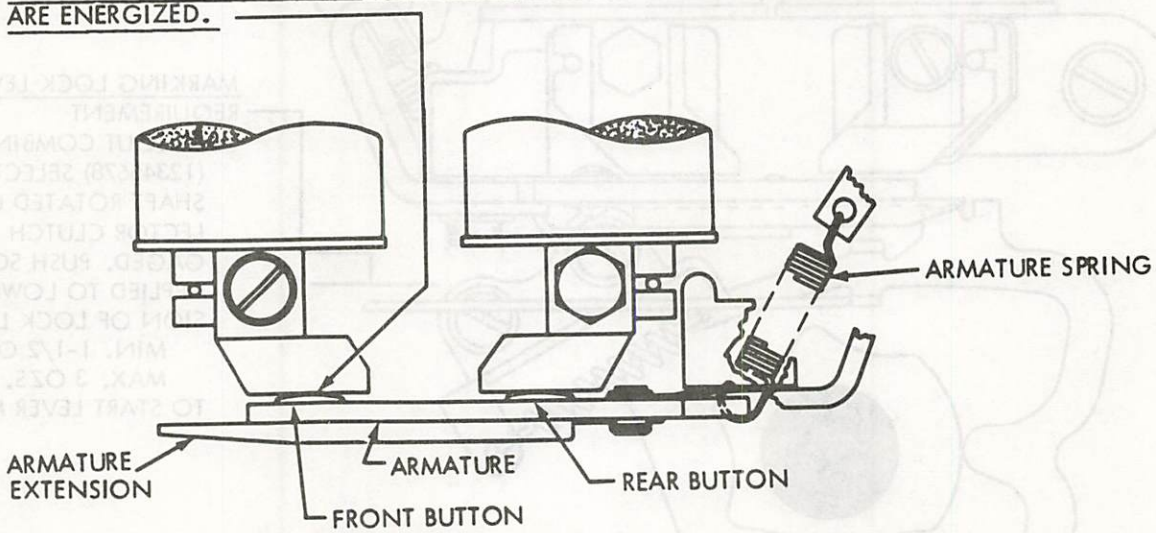
0.060 AMPERE - APPROXIMATELY 3/4 OZ.
0.500 AMPERE - APPROXIMATELY 1-1/8 OZS.

TO ADJUST
POSITION ADJUSTING NUT.



(SEE SELECTOR RECEIVING MARGIN ADJUSTMENT)

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



REQUIREMENT (FINAL)
SEE SELECTOR RECEIVING MARGIN ADJUSTMENT (PARAGRAPH 2.14)

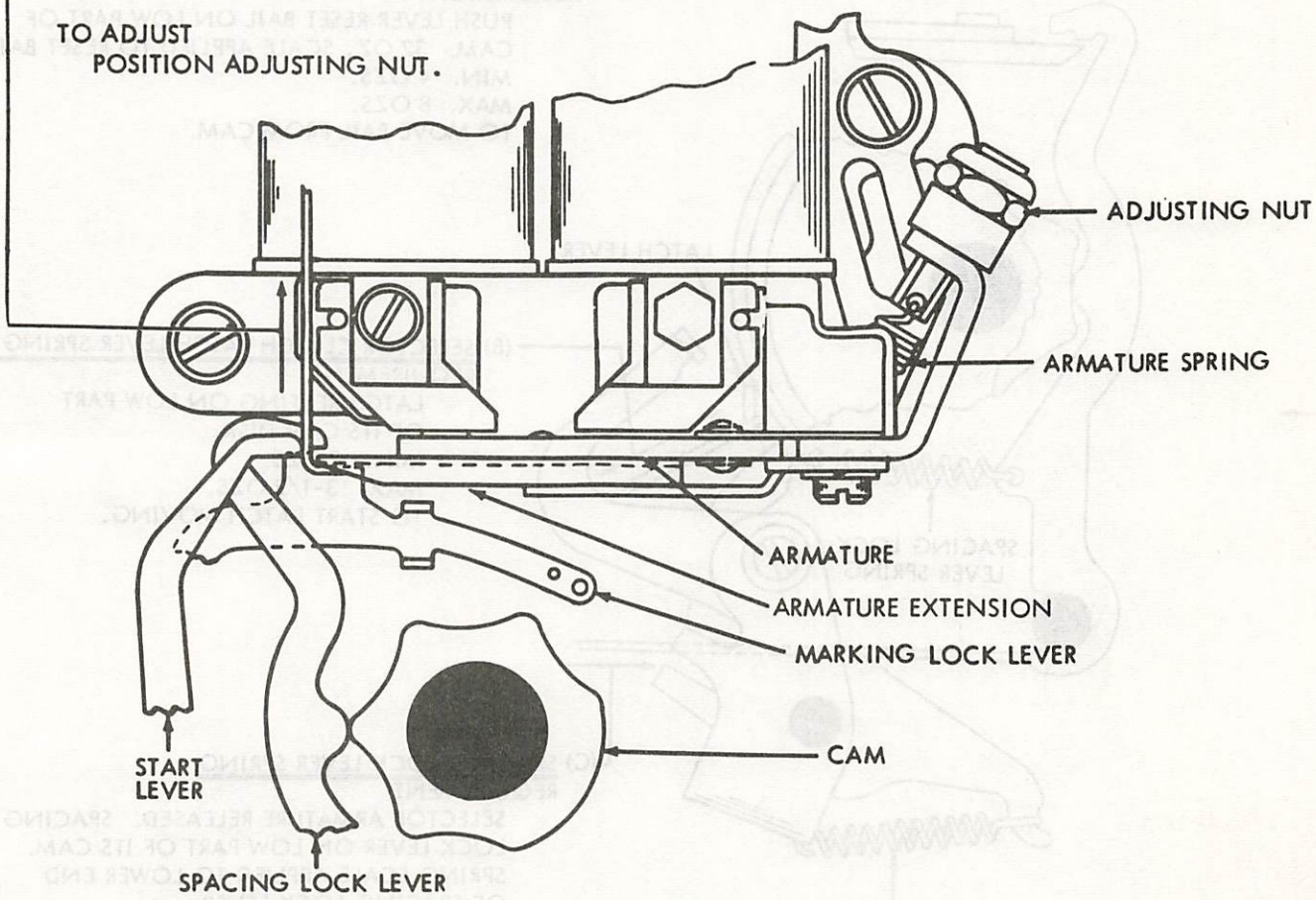
2.10 Selector Mechanism (continued)

SELECTOR ARMATURE SPRING
(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH SINGLE ANTI-FREEZE BUTTON ONLY).
REQUIREMENT (PRELIMINARY)
WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE THE FOLLOWING TENSIONS TO MOVE ARMATURE TO MARKING POSITION:

0.060 AMPERE - MIN. 2-1/2 OZS. --- MAX. 3 OZS.
0.500 AMPERE - MIN. 4-1/2 OZS. --- MAX. 5-1/2 OZS.

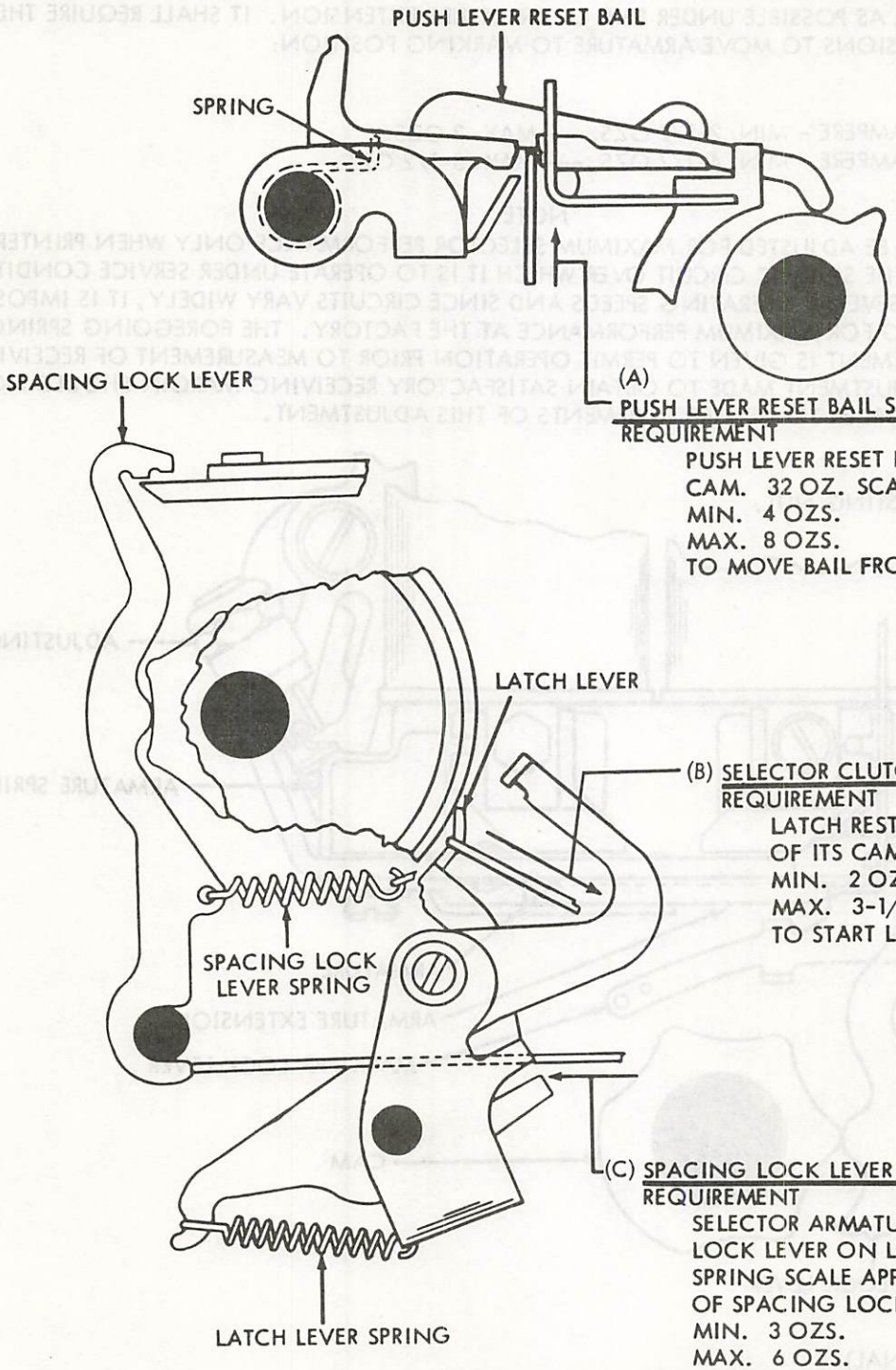
NOTE

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



REQUIREMENT (FINAL)
SEE SELECTOR RECEIVING MARGIN ADJUSTMENT (PARAGRAPH 2.14)

2.11 Selector Mechanism (continued)

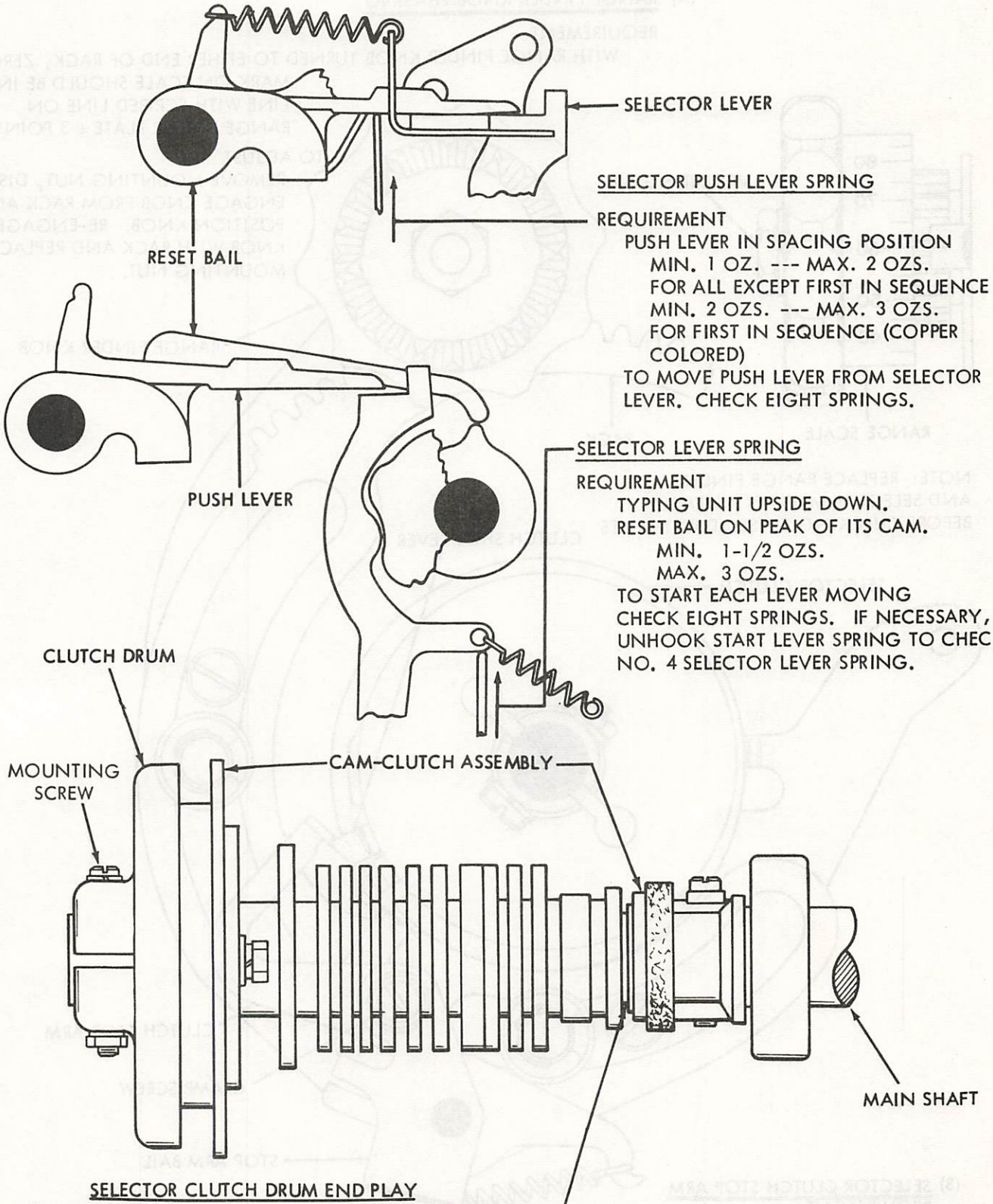


(A) PUSH LEVER RESET BAIL SPRING
REQUIREMENT
PUSH LEVER RESET BAIL ON LOW PART OF CAM. 32 OZ. SCALE APPLIED TO RESET BAIL.
MIN. 4 OZS.
MAX. 8 OZS.
TO MOVE BAIL FROM CAM.

(B) SELECTOR CLUTCH LATCH LEVER SPRING
REQUIREMENT
LATCH RESTING ON LOW PART OF ITS CAM DISK.
MIN. 2 OZS.
MAX. 3-1/2 OZS.
TO START LATCH MOVING.

(C) SPACING LOCK LEVER SPRING
REQUIREMENT
SELECTOR ARMATURE RELEASED. SPACING LOCK LEVER ON LOW PART OF ITS CAM. SPRING SCALE APPLIED TO LOWER END OF SPACING LOCK LEVER.
MIN. 3 OZS.
MAX. 6 OZS.
TO MOVE SPACING LOCK LEVER FROM ITS PIVOT SHAFT.

2.12 Selector Mechanism (continued)



SELECTOR PUSH LEVER SPRING

REQUIREMENT

PUSH LEVER IN SPACING POSITION
MIN. 1 OZ. --- MAX. 2 OZS.
FOR ALL EXCEPT FIRST IN SEQUENCE
MIN. 2 OZS. --- MAX. 3 OZS.
FOR FIRST IN SEQUENCE (COPPER COLORED)
TO MOVE PUSH LEVER FROM SELECTOR LEVER. CHECK EIGHT SPRINGS.

SELECTOR LEVER SPRING

REQUIREMENT

TYPING UNIT UPSIDE DOWN.
RESET BAIL ON PEAK OF ITS CAM.
MIN. 1-1/2 OZS.
MAX. 3 OZS.
TO START EACH LEVER MOVING CHECK EIGHT SPRINGS. IF NECESSARY, UNHOOK START LEVER SPRING TO CHECK NO. 4 SELECTOR LEVER SPRING.

SELECTOR CLUTCH DRUM END PLAY

REQUIREMENT

CLUTCH LATCHED IN STOP POSITION. CAM ASSEMBLY SHOULD HAVE SOME END PLAY, NOT MORE THAN 0.010 INCH.

TO ADJUST

POSITION CLUTCH DRUM ON MAIN SHAFT WITH MOUNTING SCREW LOOSENED.

2.13 Selector Mechanism (continued)

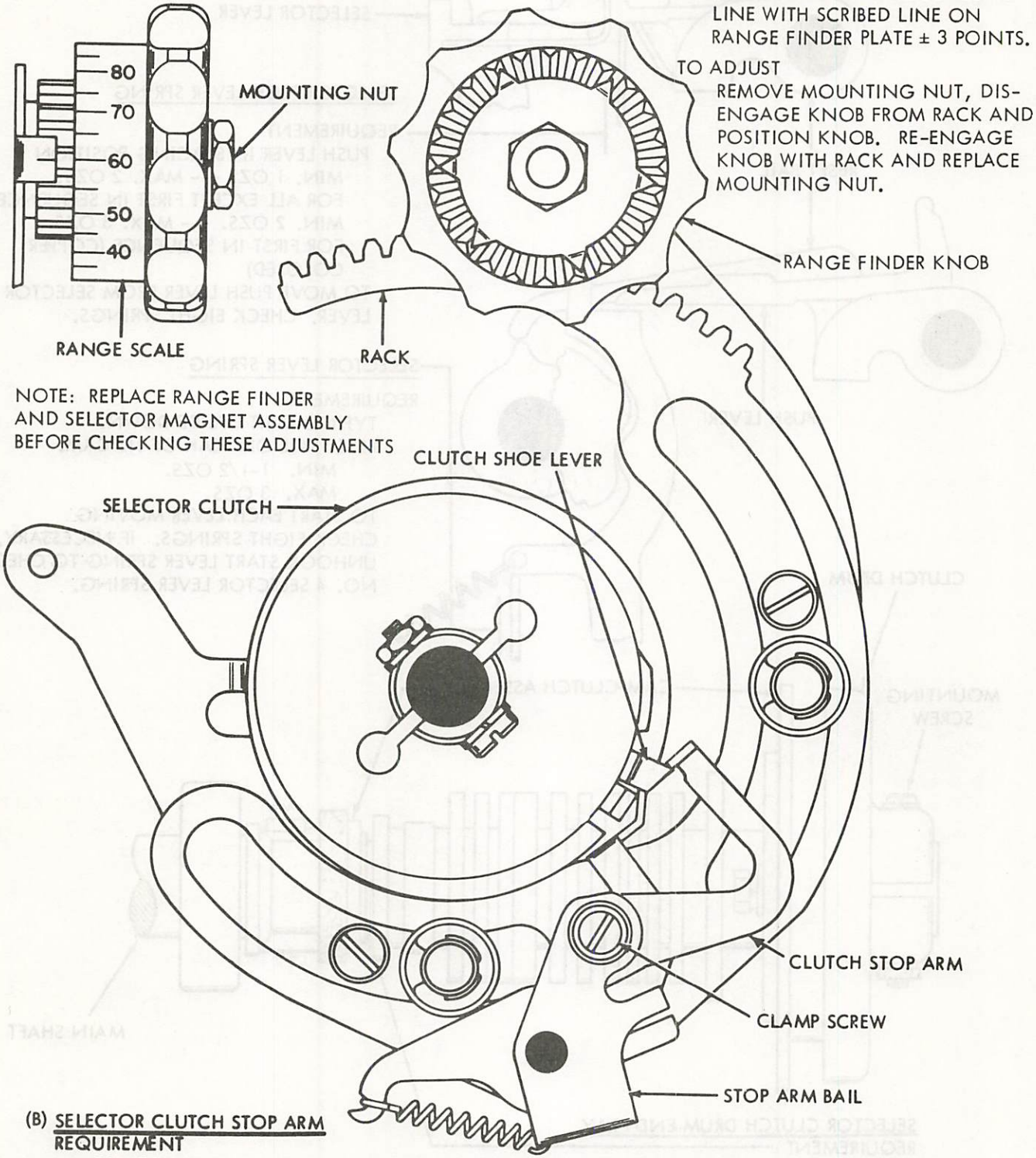
(A) RANGE FINDER KNOB PHASING

REQUIREMENT

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

TO ADJUST

REMOVE MOUNTING NUT, DISENGAGE KNOB FROM RACK AND POSITION KNOB. RE-ENGAGE KNOB WITH RACK AND REPLACE MOUNTING NUT.



NOTE: REPLACE RANGE FINDER AND SELECTOR MAGNET ASSEMBLY BEFORE CHECKING THESE ADJUSTMENTS

(B) SELECTOR CLUTCH STOP ARM

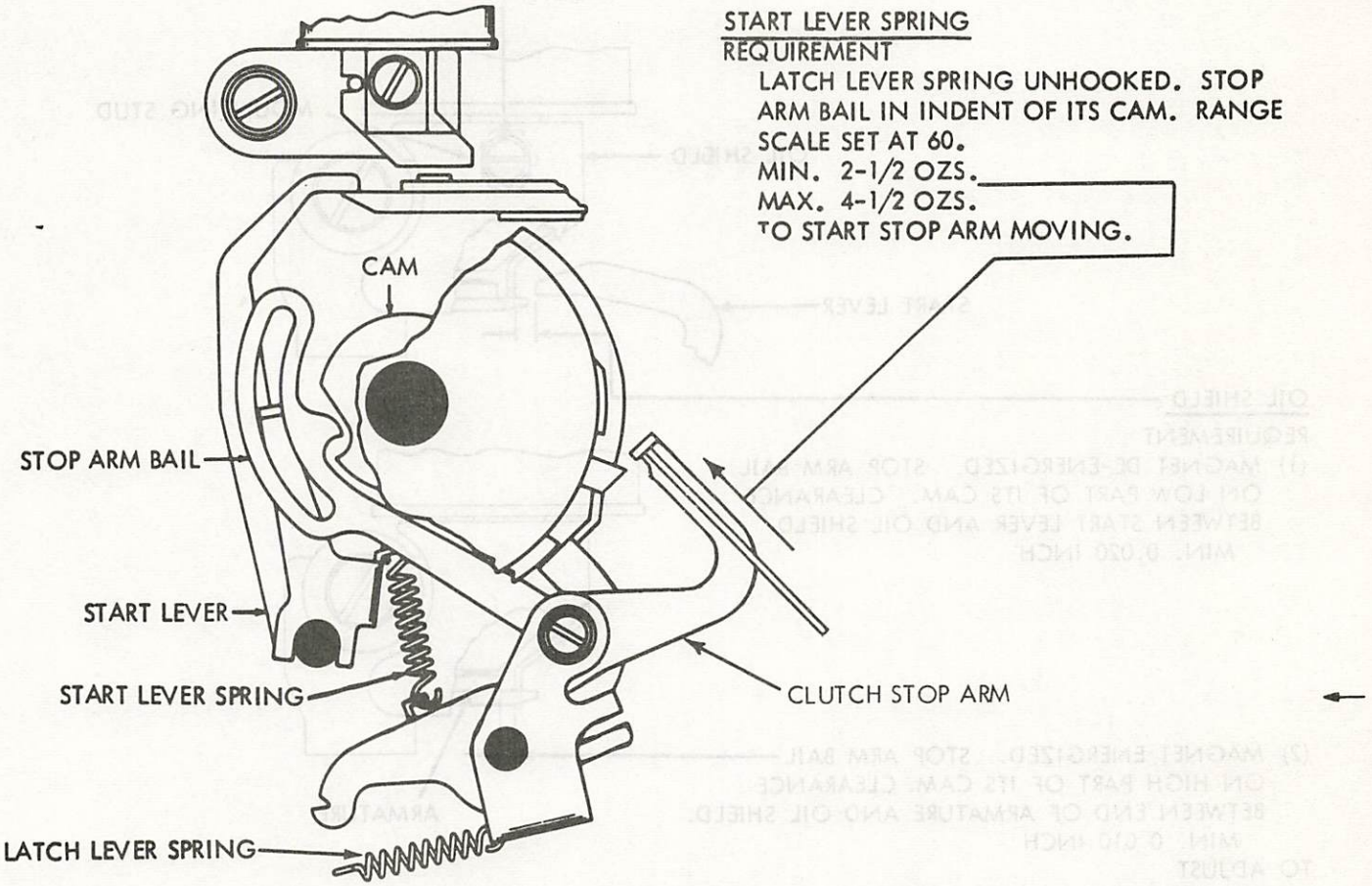
REQUIREMENT

RANGE SCALE SET AT 60. SELECTOR CLUTCH DISENGAGED. ARMATURE IN MARKING POSITION. CLUTCH STOP ARM SHOULD ENGAGE CLUTCH SHOE LEVER BY APPROXIMATELY FULL THICKNESS OF STOP ARM.

TO ADJUST

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

2.14 Selector Mechanism (continued)



SELECTOR RECEIVING MARGIN

REQUIREMENT (FOR UNITS EMPLOYING ARMATURE WITH ONE ANTI-FREEZE BUTTON)
WHEN A SIGNAL DISTORTION TEST SET IS USED FOR DETERMINING THE RECEIVING MARGINS OF THE SELECTOR, AND WHERE THE CONDITION OF THE COMPONENTS IS EQUIVALENT TO THAT OF NEW EQUIPMENT, THE RANGE AND DISTORTION TOLERANCES BELOW SHOULD BE MET.

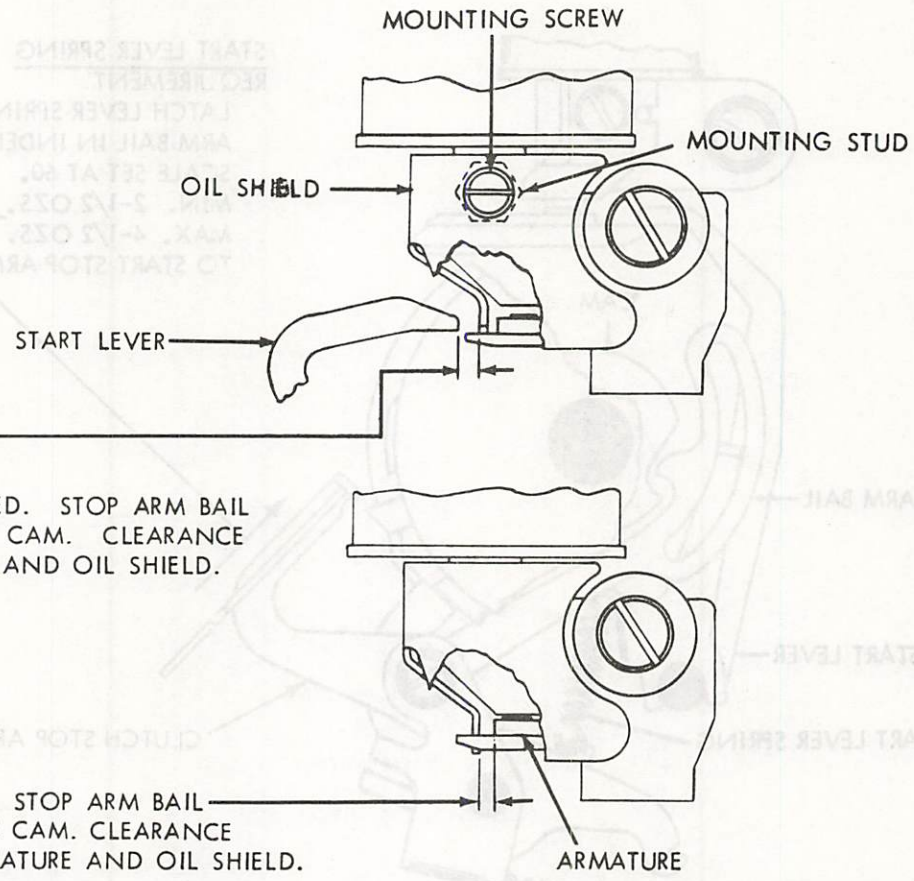
REQUIREMENT (FOR UNITS EMPLOYING ARMATURE WITH TWO ANTI-FREEZE BUTTONS)
WHEN A DISTORTION TEST SET IS AVAILABLE, THE SELECTOR ARMATURE SPRING TENSION SHOULD BE REFINED, IF NECESSARY, TO OBTAIN SATISFACTORY RECEIVING MARGINS. THE FRONT ANTI-FREEZE BUTTON MUST CONTACT THE MAGNET CORE WHEN THE MAGNET COILS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

TO ADJUST: REFINE THE SELECTOR ARMATURE SPRING ADJUSTMENT

SELECTOR RECEIVING MARGIN MINIMUM REQUIREMENTS

CURRENT	SPEED IN W.P.M.	POINTS RANGE WITH ZERO DISTORTION	PERCENTAGE OF MARKING AND SPACING BIAS	END DISTORTION TOLERATED WITH SCALE AT BIAS OPTIMUM SETTING
0.500 AMP (WINDINGS SERIES)	100	72	38	35

2.15 Selector Mechanism (continued)



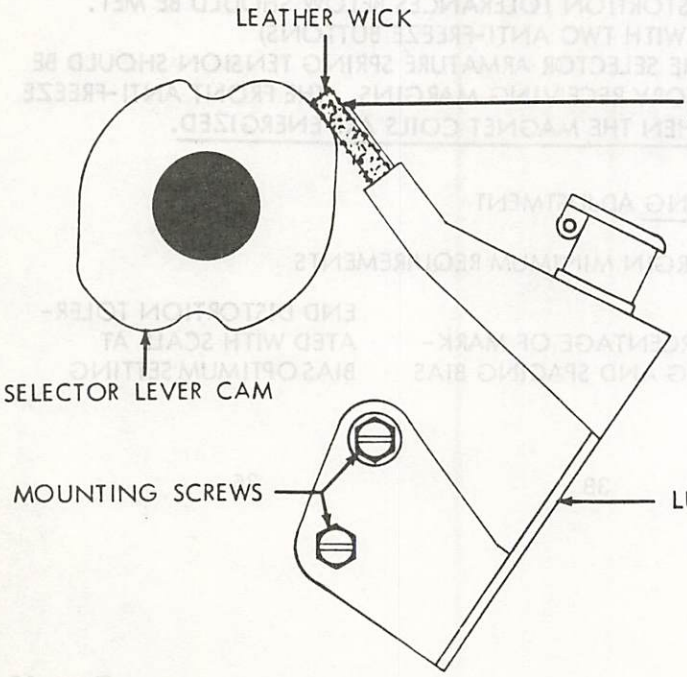
REQUIREMENT

(1) MAGNET DE-ENERGIZED. STOP ARM BAIL ON LOW PART OF ITS CAM. CLEARANCE BETWEEN START LEVER AND OIL SHIELD. MIN. 0.020 INCH

(2) MAGNET ENERGIZED. STOP ARM BAIL ON HIGH PART OF ITS CAM. CLEARANCE BETWEEN END OF ARMATURE AND OIL SHIELD. MIN. 0.010 INCH

TO ADJUST

POSITION SHIELD WITH MOUNTING SCREW LOOSENED. MAKE SURE OIL SHIELD MOUNTING STUD IS SECURE BEFORE MAKING ADJUSTMENT.



SELECTOR CAM LUBRICATOR

REQUIREMENT

HIGH PART OF SELECTOR LEVER CAMS SHOULD CONTACT LEATHER WICK BUT SHOULD NOT DEFLECT WICK MORE THAN 1/32 INCH GAUGED VISUALLY.

TO ADJUST

POSITION LUBRICATOR ASSEMBLY AROUND LOWER SCREW WITH MOUNTING SCREWS LOOSENED.

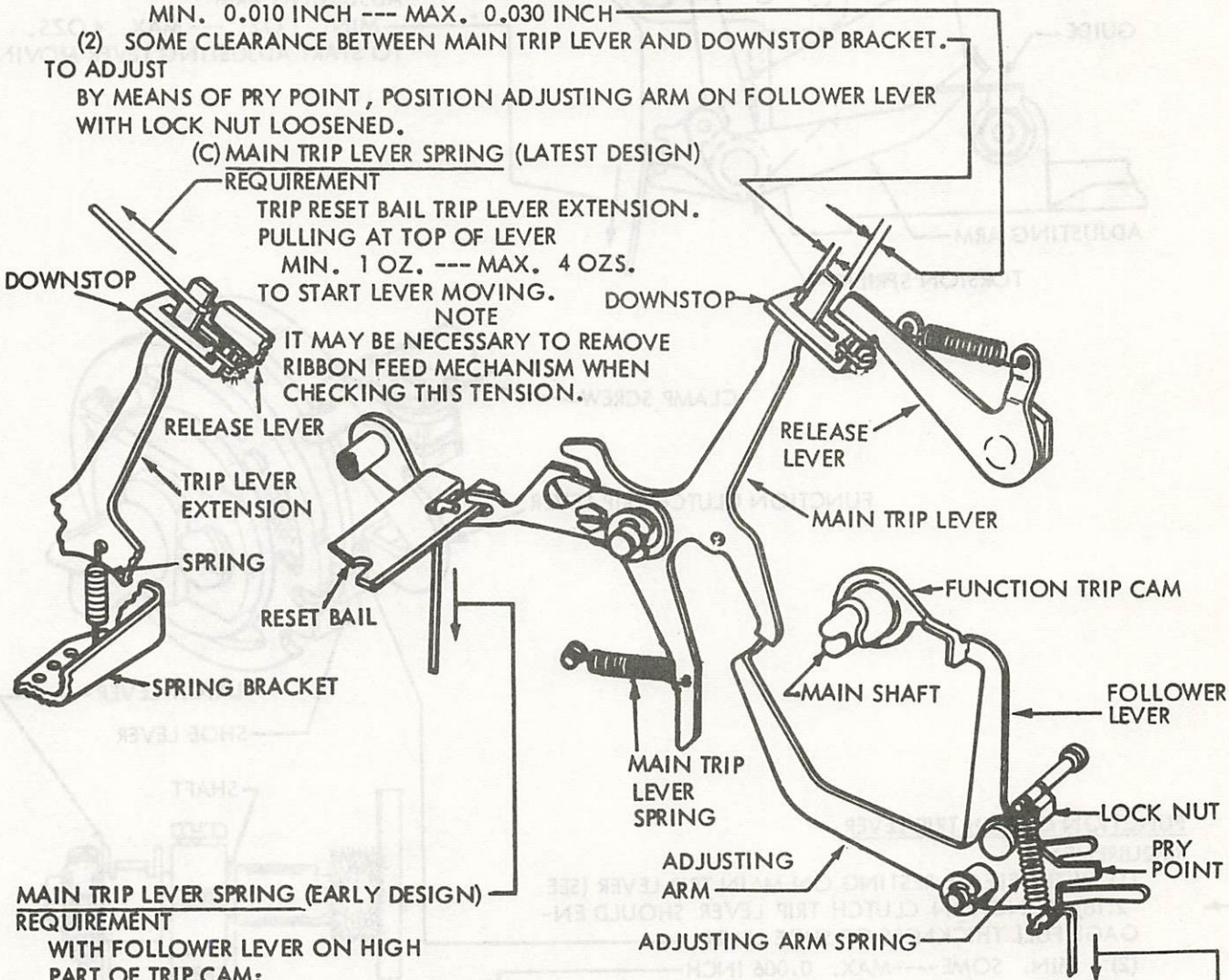
2.16 Function Mechanism (continued)

NOTE: FOR UNITS EQUIPPED WITH AUTOMATIC NON-INTERFERING RUBOUT TAPE FEED-OUT MECHANISM, SUBSTITUTE ADJUSTMENT IN VARIABLE FEATURES, PART 3.

(A) FOLLOWER LEVER
REQUIREMENT
WITH FOLLOWER LEVER ON HIGH PART OF CAM:
(1) CLEARANCE BETWEEN RELEASE AND MAIN TRIP LEVER:
MIN. 0.010 INCH --- MAX. 0.030 INCH
(2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.
TO ADJUST
BY MEANS OF PRY POINT, POSITION ADJUSTING ARM ON FOLLOWER LEVER WITH LOCK NUT LOOSENED.

(C) MAIN TRIP LEVER SPRING (LATEST DESIGN)
REQUIREMENT
TRIP RESET BAIL TRIP LEVER EXTENSION.
PULLING AT TOP OF LEVER
MIN. 1 OZ. --- MAX. 4 OZS.
TO START LEVER MOVING.

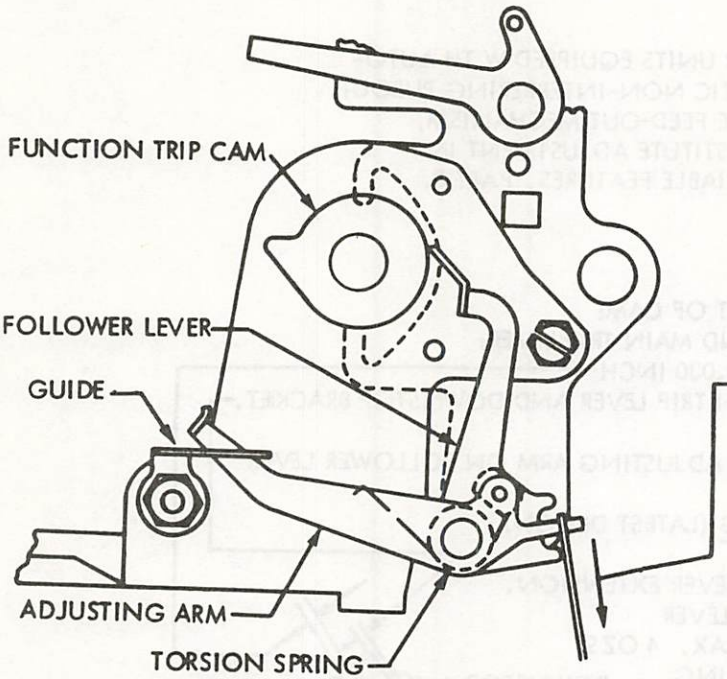
NOTE
IT MAY BE NECESSARY TO REMOVE RIBBON FEED MECHANISM WHEN CHECKING THIS TENSION.



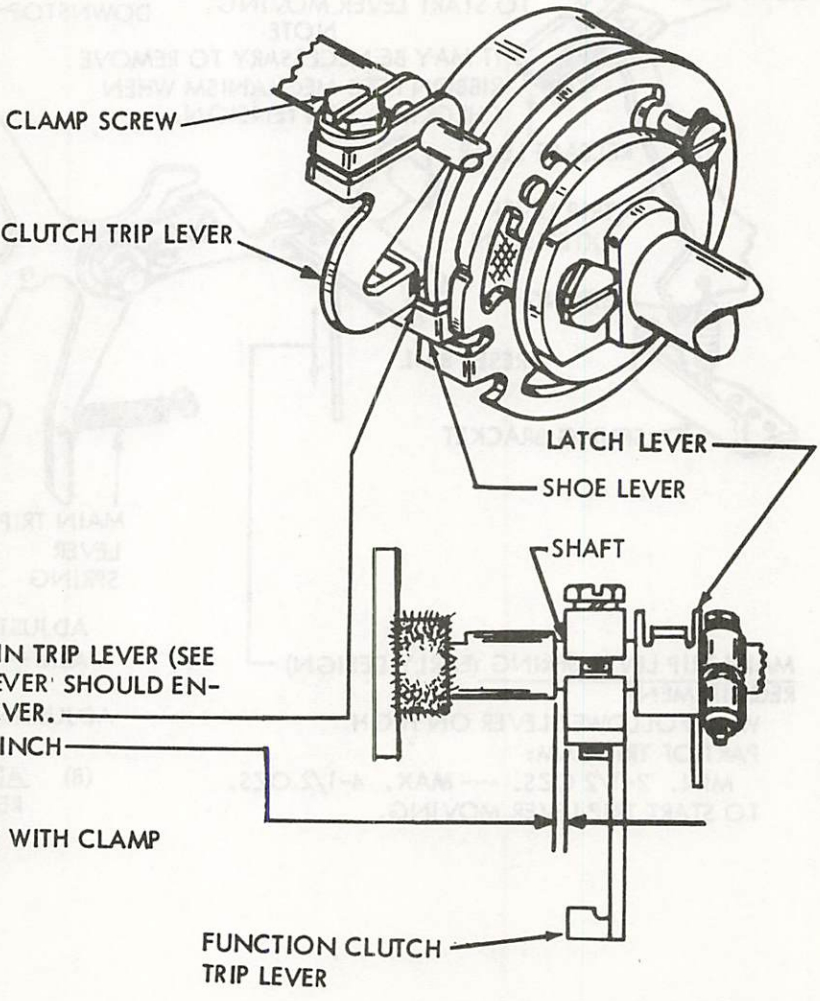
MAIN TRIP LEVER SPRING (EARLY DESIGN)
REQUIREMENT
WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM:
MIN. 2-1/2 OZS. --- MAX. 4-1/2 OZS.
TO START TRIP LEVER MOVING.

(B) ADJUSTING ARM SPRING
REQUIREMENT (EARLY DESIGN)
WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM AND MAIN TRIP LEVER HELD AWAY FROM ADJUSTING ARM:
MIN. 2-1/2 OZS. --- MAX. 4 OZS.
TO START ADJUSTING LEVER MOVING.

2.17 Function Mechanism (continued)



ADJUSTING ARM TORSION SPRING
(LATEST DESIGN)
WITH FOLLOWER LEVER ON LOW PART OF TRIP CAM AND MAIN TRIP LEVER HELD AWAY FROM ADJUSTING ARM
—MIN. 1 OZ. --- MAX. 4 OZS. TO START ADJUSTING LEVER MOVING.



FUNCTION CLUTCH TRIP LEVER
REQUIREMENT
(1) WITH RELEASE RESTING ON MAIN TRIP LEVER (SEE 2.18), FUNCTION CLUTCH TRIP LEVER SHOULD ENGAGE FULL THICKNESS OF SHOE LEVER.
(2) MIN. SOME----MAX. 0.006 INCH END PLAY IN TRIP LEVER.
TO ADJUST
POSITION TRIP LEVER ON ITS SHAFT WITH CLAMP SCREW LOOSENED.

(RIGHT SIDE VIEWS)

2.18 Function Mechanism (continued)

(A)

RESET ARM

TO CHECK

TRIP FUNCTION CLUTCH AND POSITION MAIN SHAFT SO THAT RESET ARM IS HELD IN ITS HIGHEST POSITION BY CAM PIN.

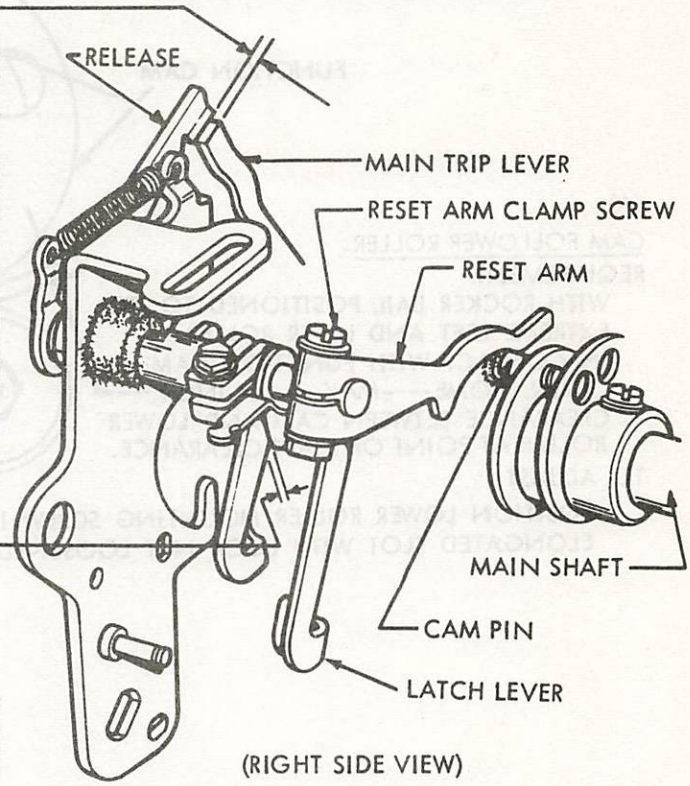
REQUIREMENT

(1) CLEARANCE BETWEEN RELEASE AND MAIN TRIP LEVER:
MIN. 0.010 INCH----MAX. 0.030 INCH

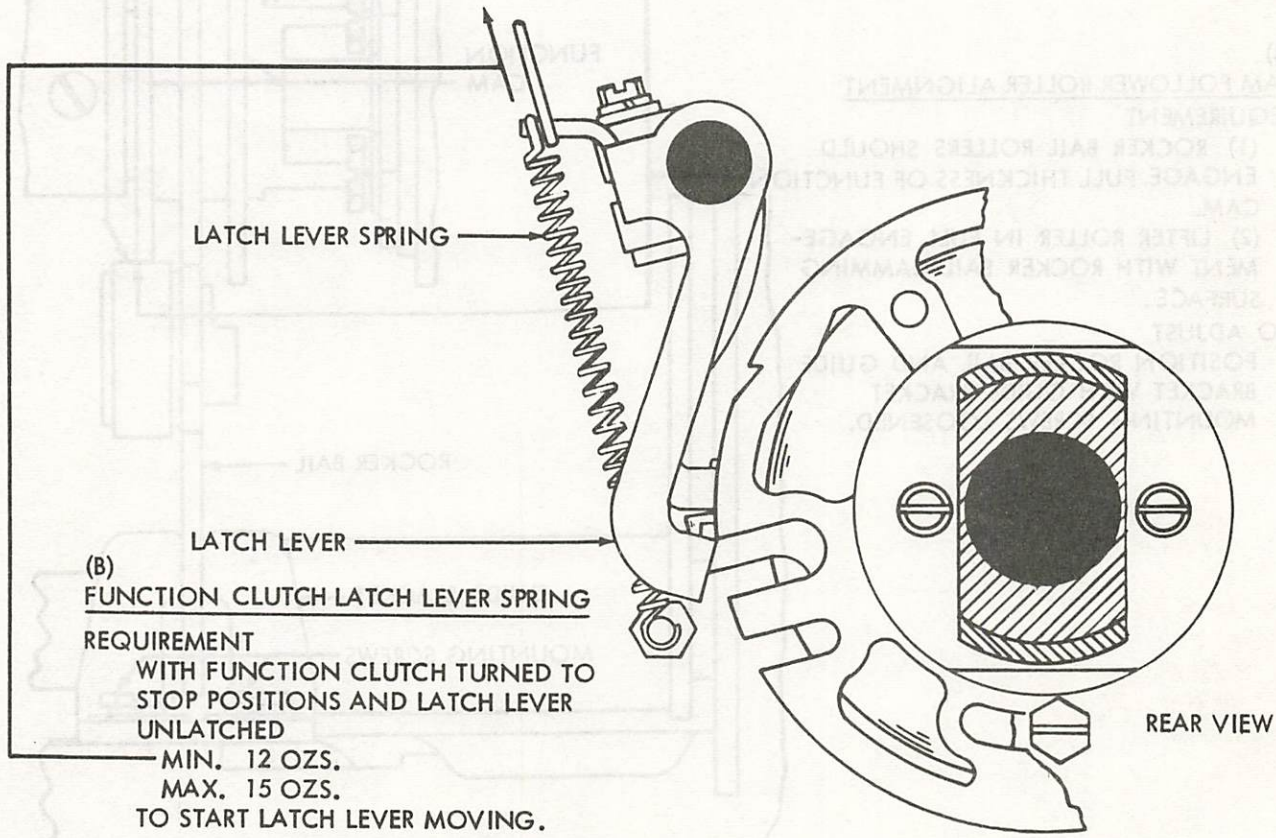
(2) LATCH LEVER END PLAY:
MIN. SOME----MAX. 0.010 INCH

TO ADJUST

POSITION RESET ARM WITH CLAMP SCREW LOOSENED.



(RIGHT SIDE VIEW)



REAR VIEW

(B)

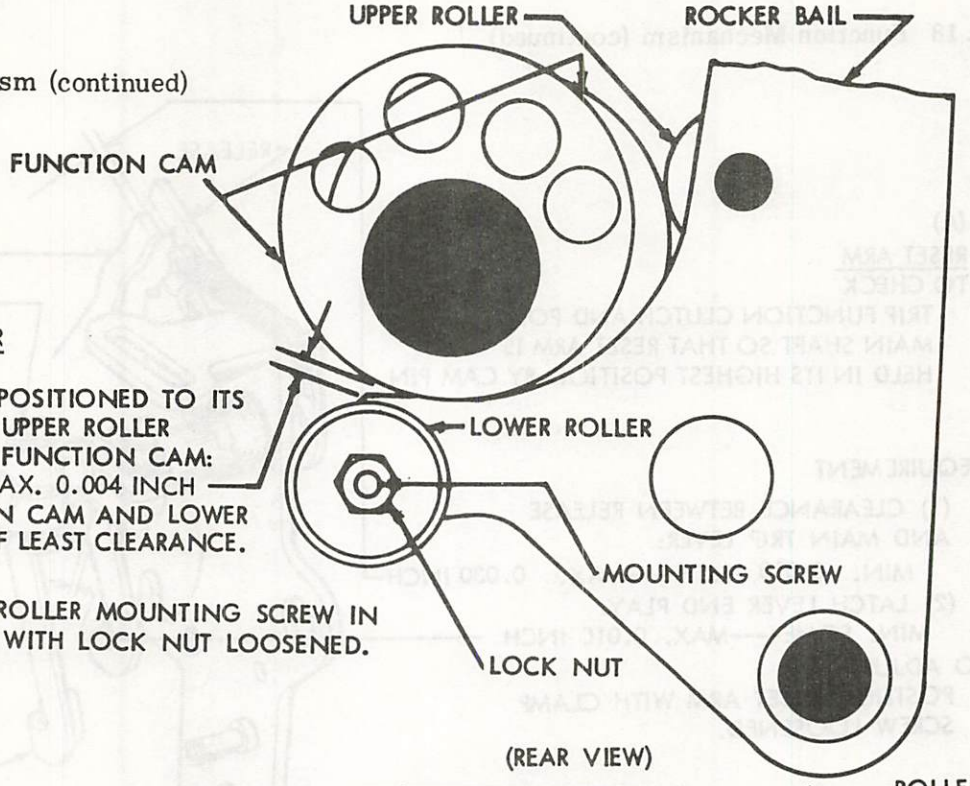
FUNCTION CLUTCH LATCH LEVER SPRING

REQUIREMENT

WITH FUNCTION CLUTCH TURNED TO STOP POSITIONS AND LATCH LEVER UNLATCHED

MIN. 12 OZS.
MAX. 15 OZS.
TO START LATCH LEVER MOVING.

2.19 Function Mechanism (continued)



(A)

CAM FOLLOWER ROLLER

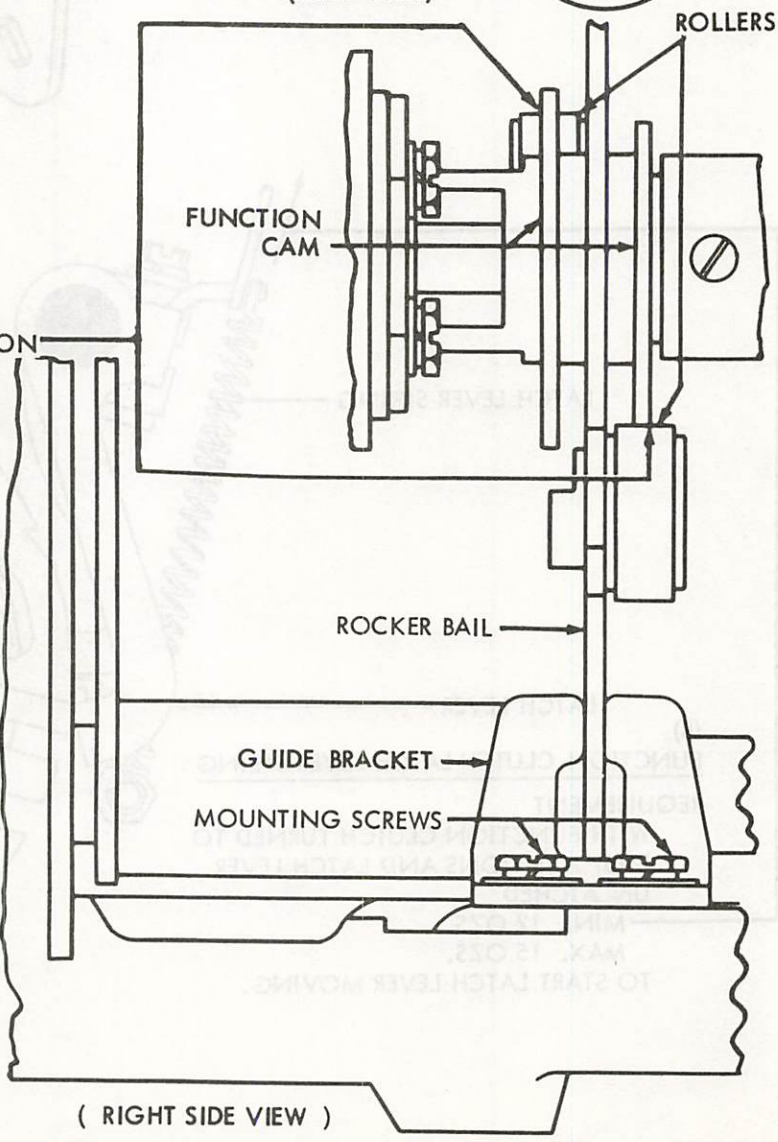
REQUIREMENT

WITH ROCKER BAIL POSITIONED TO ITS EXTREME LEFT AND UPPER ROLLER IN CONTACT WITH FUNCTION CAM:
MIN. SOME----MAX. 0.004 INCH
CLEARANCE BETWEEN CAM AND LOWER ROLLER AT POINT OF LEAST CLEARANCE.

TO ADJUST

POSITION LOWER ROLLER MOUNTING SCREW IN ELONGATED SLOT WITH LOCK NUT LOOSENED.

(REAR VIEW)



(RIGHT SIDE VIEW)

(B)

CAM FOLLOWER ROLLER ALIGNMENT

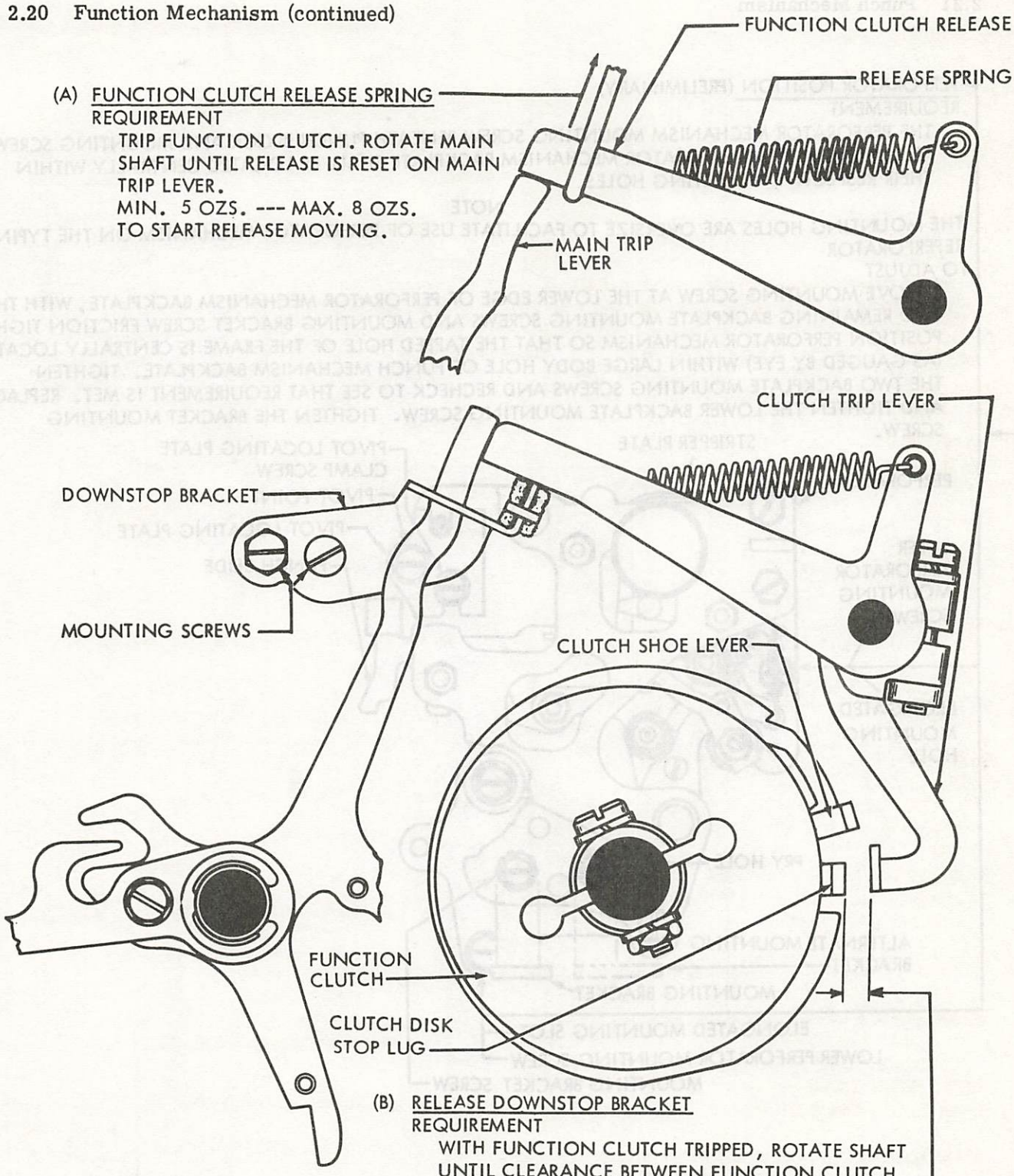
REQUIREMENT

(1) ROCKER BAIL ROLLERS SHOULD ENGAGE FULL THICKNESS OF FUNCTION CAM.
(2) LIFTER ROLLER IN FULL ENGAGEMENT WITH ROCKER BAIL CAMMING SURFACE.

TO ADJUST

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

2.20 Function Mechanism (continued)



(A) FUNCTION CLUTCH RELEASE SPRING

REQUIREMENT

TRIP FUNCTION CLUTCH. ROTATE MAIN SHAFT UNTIL RELEASE IS RESET ON MAIN TRIP LEVER.
MIN. 5 OZS. --- MAX. 8 OZS. TO START RELEASE MOVING.

(B) RELEASE DOWNSTOP BRACKET

REQUIREMENT

WITH FUNCTION CLUTCH TRIPPED, ROTATE SHAFT UNTIL CLEARANCE BETWEEN FUNCTION CLUTCH DISK STOP LUG AND CLUTCH STOP LEVER IS AT A MINIMUM. RELEASE RESTING AGAINST DOWN-STOP BRACKET. CLEARANCE BETWEEN FUNCTION CLUTCH DISK STOP LUG AND STOP LEVER: MIN. 0.002 INCH --- MAX. 0.045 INCH

TO ADJUST

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

2.21 Punch Mechanism

PERFORATOR POSITION (PRELIMINARY)

REQUIREMENT

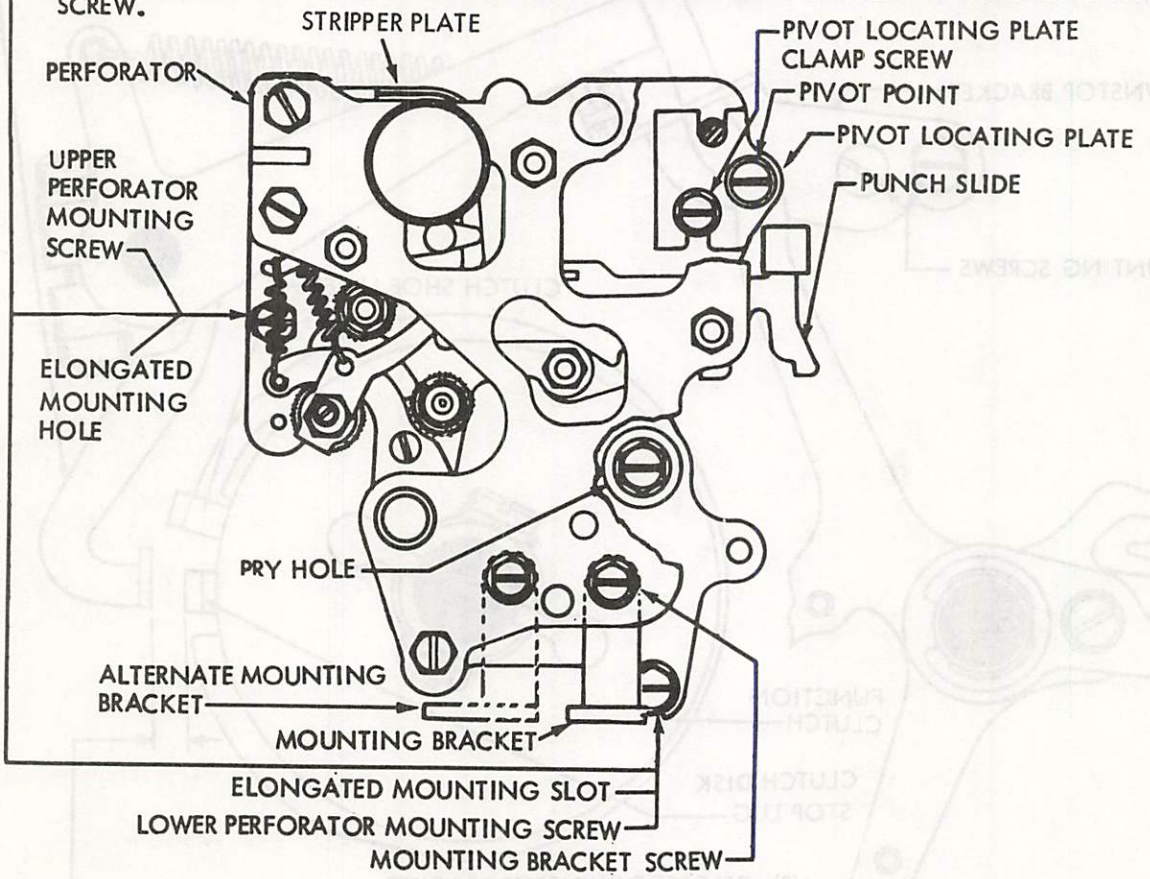
THE PERFORATOR MECHANISM MOUNTING SCREW BENEATH PUNCH BLOCK AND MOUNTING SCREW AT LOWER EDGE OF PERFORATOR MECHANISM BACKPLATE SHALL BE LOCATED CENTRALLY WITHIN THEIR RESPECTIVE MOUNTING HOLES.

NOTE

THE MOUNTING HOLES ARE OVERSIZE TO FACILITATE USE OF PERFORATOR MECHANISM ON THE TYPING REPERFORATOR

TO ADJUST

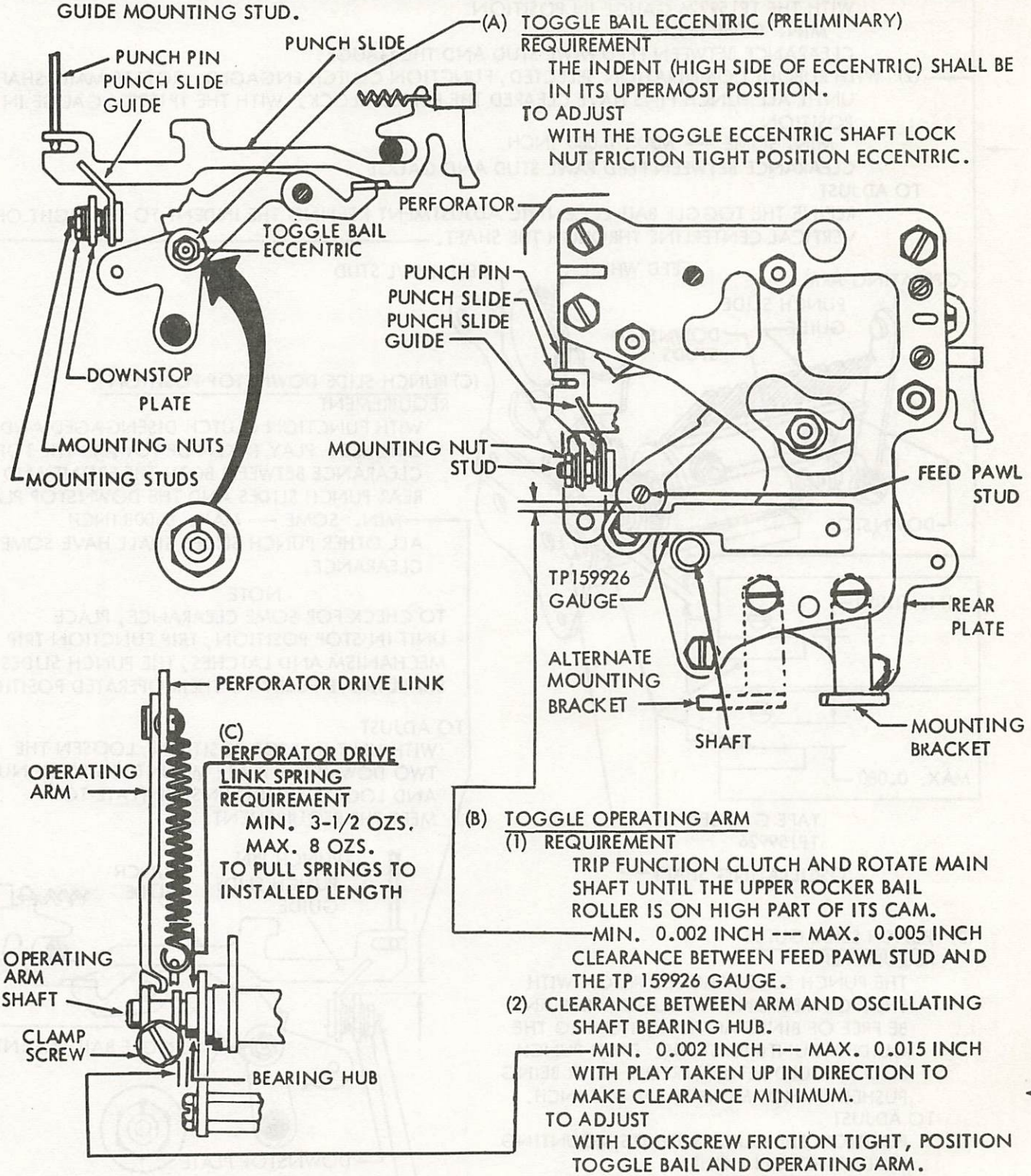
REMOVE MOUNTING SCREW AT THE LOWER EDGE OF PERFORATOR MECHANISM BACKPLATE, WITH THE TWO REMAINING BACKPLATE MOUNTING SCREWS AND MOUNTING BRACKET SCREW FRICTION TIGHT POSITION PERFORATOR MECHANISM SO THAT THE TAPPED HOLE OF THE FRAME IS CENTRALLY LOCATED (AS GAUGED BY EYE) WITHIN LARGE BODY HOLE OF PUNCH MECHANISM BACKPLATE. TIGHTEN THE TWO BACKPLATE MOUNTING SCREWS AND RECHECK TO SEE THAT REQUIREMENT IS MET. REPLACE AND TIGHTEN THE LOWER BACKPLATE MOUNTING SCREW. TIGHTEN THE BRACKET MOUNTING SCREW.



2.22 Punch Mechanism (continued)

NOTE

BEFORE PROCEEDING WITH THE PUNCH MECHANISM ADJUSTMENTS, CHECK THE ROCKER BAIL LOWER ROLLER ADJUSTMENT AND LOOSEN THE PUNCH SLIDE DOWNSTOP MOUNTING NUT AND GUIDE MOUNTING STUD.



(A) TOGGLE BAIL ECCENTRIC (PRELIMINARY)

REQUIREMENT

THE INDENT (HIGH SIDE OF ECCENTRIC) SHALL BE IN ITS UPPERMOST POSITION.

TO ADJUST

WITH THE TOGGLE ECCENTRIC SHAFT LOCK NUT FRICTION TIGHT POSITION ECCENTRIC.

(B) TOGGLE OPERATING ARM

(1) REQUIREMENT

TRIP FUNCTION CLUTCH AND ROTATE MAIN SHAFT UNTIL THE UPPER ROCKER BAIL ROLLER IS ON HIGH PART OF ITS CAM.

MIN. 0.002 INCH --- MAX. 0.005 INCH CLEARANCE BETWEEN FEED PAWL STUD AND THE TP 159926 GAUGE.

(2) CLEARANCE BETWEEN ARM AND OSCILLATING SHAFT BEARING HUB.

MIN. 0.002 INCH --- MAX. 0.015 INCH WITH PLAY TAKEN UP IN DIRECTION TO MAKE CLEARANCE MINIMUM.

TO ADJUST

WITH LOCKSCREW FRICTION TIGHT, POSITION TOGGLE BAIL AND OPERATING ARM.

(C) PERFORATOR DRIVE LINK SPRING REQUIREMENT

MIN. 3-1/2 OZS.
MAX. 8 OZS.
TO PULL SPRINGS TO INSTALLED LENGTH

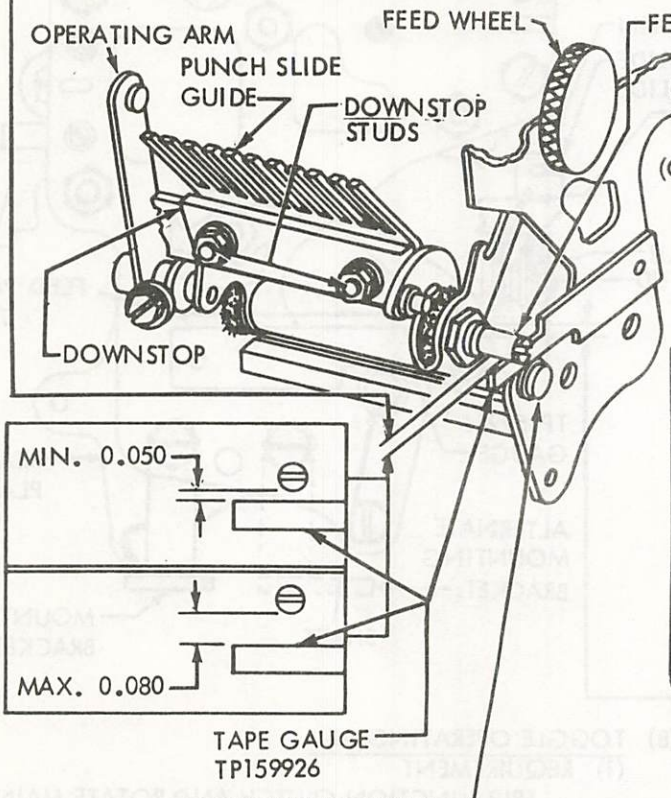
2.23 Punch Mechanism (continued)

(A) PUNCH PIN PENETRATION
REQUIREMENT

(1) WITH THE RUBOUT COMBINATION SELECTED, FUNCTION CLUTCH ENGAGED. ROTATE MAIN SHAFT UNTIL ALL PUNCH PINS ARE INTO OR ABOVE THE TAPE APERTURE IN PUNCH BLOCK. WITH THE TP159926 GAUGE IN POSITION
MIN. 0.050 INCH
CLEARANCE BETWEEN FEED PAWL STUD AND THE GAUGE.

(2) WITH RUBOUT COMBINATION SELECTED, FUNCTION CLUTCH ENGAGED. ROTATE MAIN SHAFT UNTIL ALL PUNCH PINS HAVE CLEARED THE PUNCH BLOCK. WITH THE TP159926 GAUGE IN POSITION
MIN. SOME --- MAX. 0.080 INCH
CLEARANCE BETWEEN FEED PAWL STUD AND GAUGE.

TO ADJUST
REFINE THE TOGGLE BAIL ECCENTRIC ADJUSTMENT KEEPING THE INDENT TO THE RIGHT OF A VERTICAL CENTERLINE THROUGH THE SHAFT.



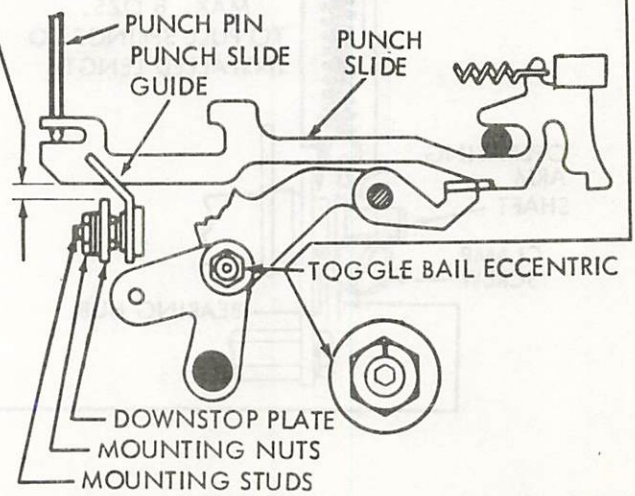
(B) PUNCH SLIDE GUIDE
REQUIREMENT
THE PUNCH SLIDES SHOULD ALIGN WITH THEIR CORRESPONDING PUNCH PINS AND BE FREE OF BINDS AFTER TIGHTENING THE GUIDE MOUNTING STUDS. EACH PUNCH SLIDE SHOULD RETURN FREELY AFTER BEING PUSHED IN NOT MORE THAN 1/16 INCH.

TO ADJUST
POSITION THE GUIDE WITH ITS MOUNTING STUDS FRICTION TIGHT.

(C) PUNCH SLIDE DOWNSTOP POSITION
REQUIREMENT
WITH FUNCTION CLUTCH DISENGAGED AND LATCHED. PLAY TAKEN UP TOWARD THE TOP, CLEARANCE BETWEEN BOTH THE FRONT AND REAR PUNCH SLIDES AND THE DOWNSTOP PLATE
MIN. SOME --- MAX. 0.008 INCH
ALL OTHER PUNCH SLIDES SHALL HAVE SOME CLEARANCE.

NOTE
TO CHECK FOR SOME CLEARANCE, PLACE UNIT IN STOP POSITION, TRIP FUNCTION TRIP MECHANISM AND LATCHES, THE PUNCH SLIDES SHALL MOVE FULLY TO THEIR OPERATED POSITION.

TO ADJUST
WITH UNIT IN STOP POSITION, LOOSEN THE TWO DOWNSTOP PLATE MOUNTING LOCK NUTS AND LOCATE THE DOWNSTOP PLATE TO MEET THE REQUIREMENT.



2.24 Punch Mechanism (continued)

PERFORATOR POSITION----FINAL

(1) TO CHECK

SELECT RUBOUT CODE COMBINATION (12345678). ROTATE UNTIL FUNCTION CLUTCH TRIPS WITH PUNCH LEVERS IN EXTREME LEFT-HAND POSITION.

REQUIREMENT

CLEARANCE BETWEEN PUNCH SLIDE AND PUNCH SLIDE LATCH:
MIN. 0.015 INCH----MAX. 0.045 INCH
AT SLIDE WHERE CLEARANCE IS LEAST.

TO ADJUST

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

(2) TO CHECK

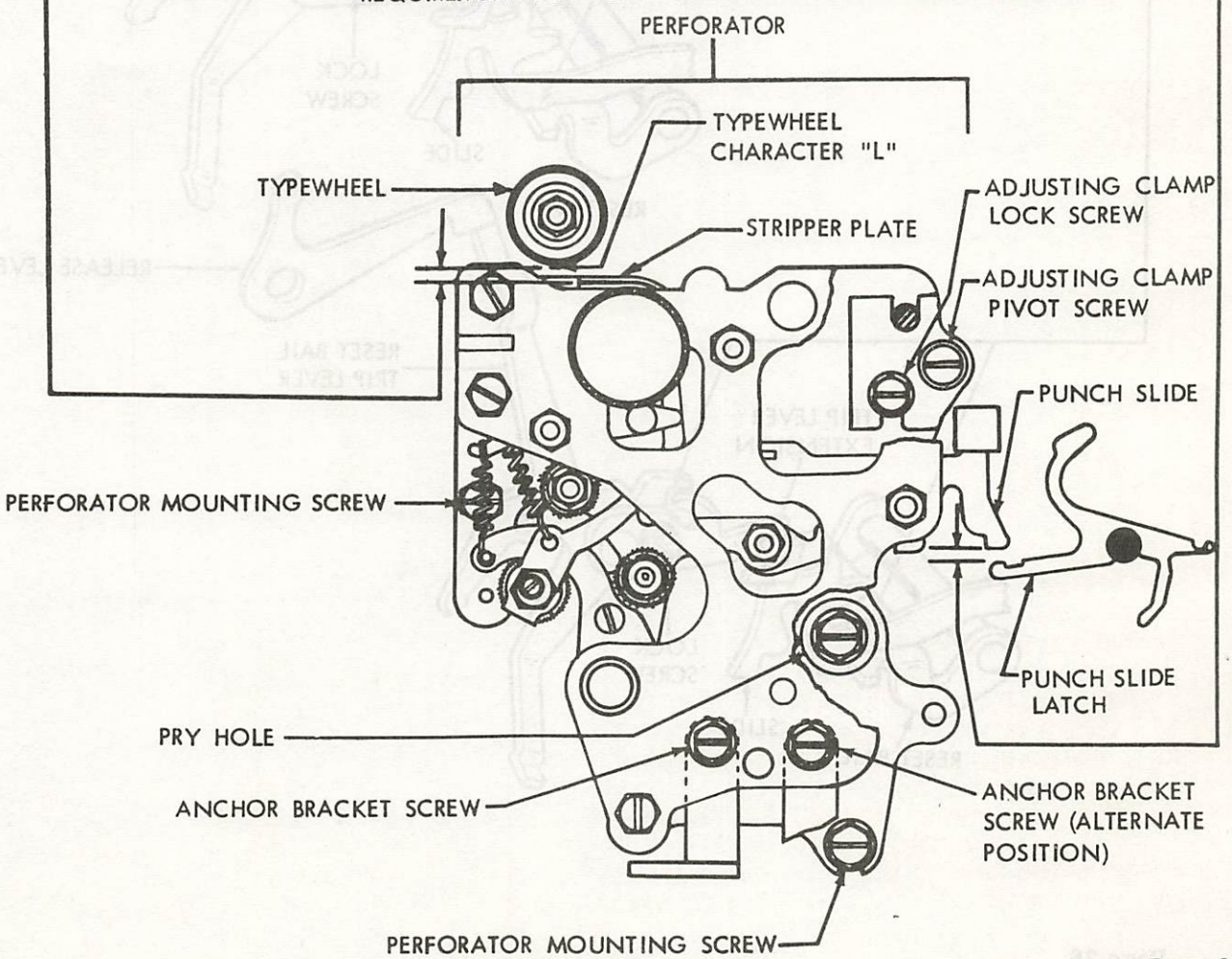
SELECT "L" CODE COMBINATION (--34--78). TRIP FUNCTION CLUTCH AND MOVE ROCKER BAIL TO EXTREME LEFT.

REQUIREMENT

CLEARANCE BETWEEN STRIPPER PLATE AND TYPEWHEEL CHARACTER "L":
MIN. 0.075 INCH----MAX. 0.085 INCH

TO ADJUST

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



2.25 Punch Mechanism (continued)

RESET BAIL TRIP LEVER

REQUIREMENT

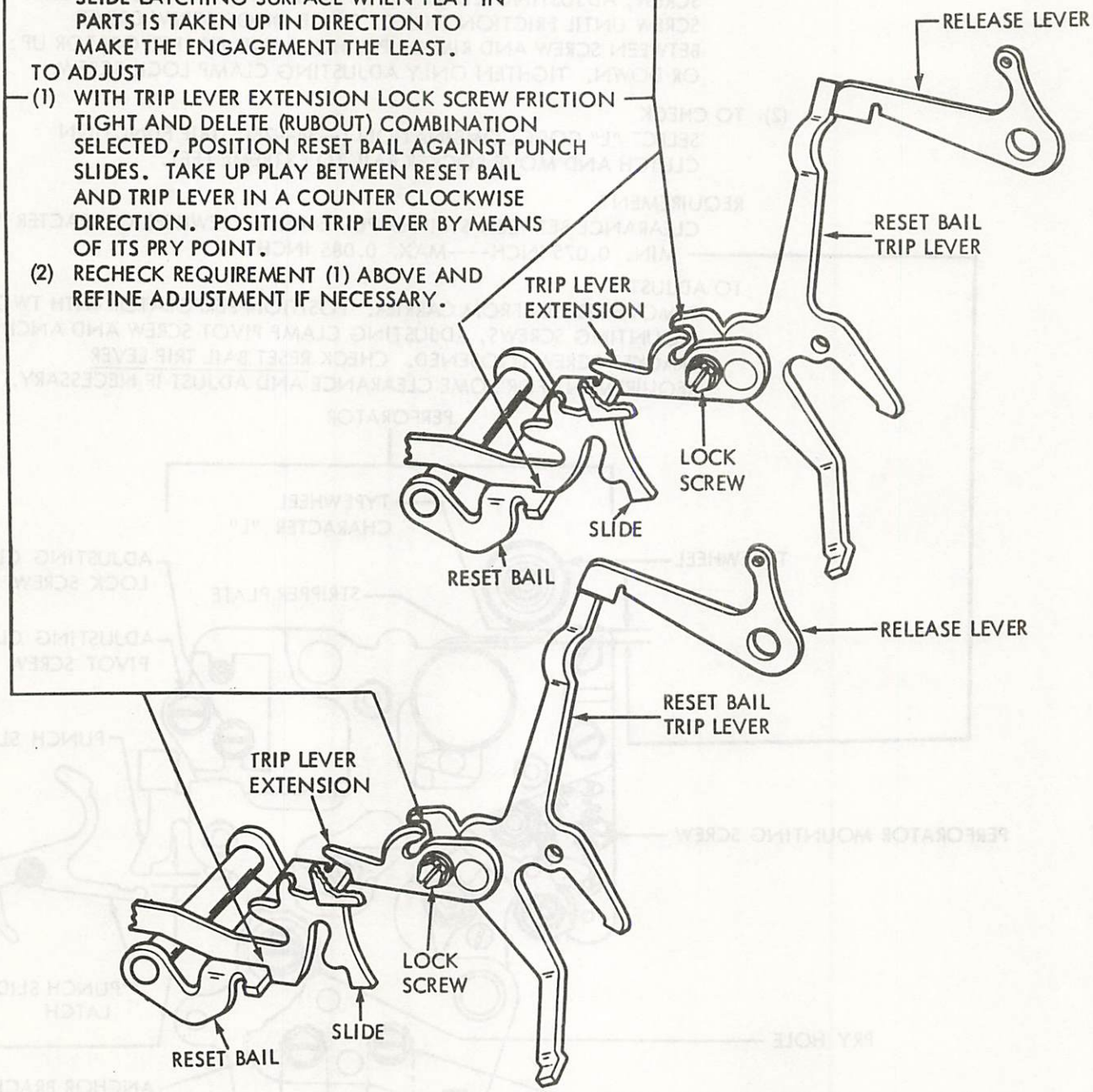
(1) MANUALLY SELECT AN ALL SPACING COMBINATION. MANUALLY ROTATE RESET BAIL TRIP LEVER. THE PUNCH SLIDE RESET BAIL SHALL TRIP BEFORE THE FUNCTION CLUTCH IS TRIPPED.

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

TO ADJUST

(1) WITH TRIP LEVER EXTENSION LOCK SCREW FRICTION TIGHT AND DELETE (RUBOUT) COMBINATION SELECTED, POSITION RESET BAIL AGAINST PUNCH SLIDES. TAKE UP PLAY BETWEEN RESET BAIL AND TRIP LEVER IN A COUNTER CLOCKWISE DIRECTION. POSITION TRIP LEVER BY MEANS OF ITS PRY POINT.

(2) RECHECK REQUIREMENT (1) ABOVE AND REFINE ADJUSTMENT IF NECESSARY.



2.26 Punch Mechanism (continued)

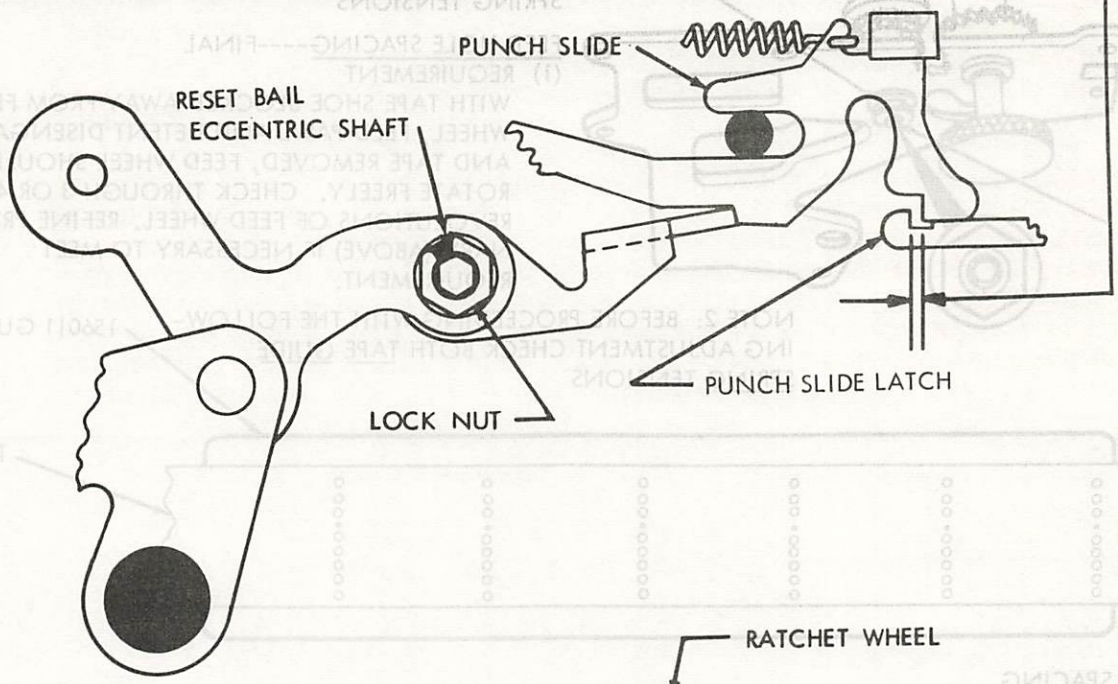
(A) PUNCH SLIDE RESET BAIL

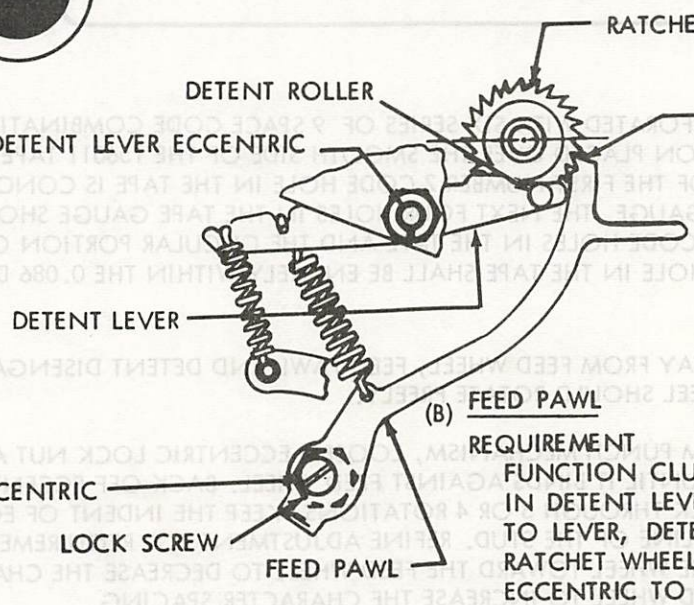
REQUIREMENT

WITH FUNCTION CLUTCH DISENGAGED:
MIN. 0.005 INCH---MAX. 0.015 INCH
BETWEEN PUNCH SLIDE AND PUNCH SLIDE LATCH.

TO ADJUST

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





(B) FEED PAWL

REQUIREMENT

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

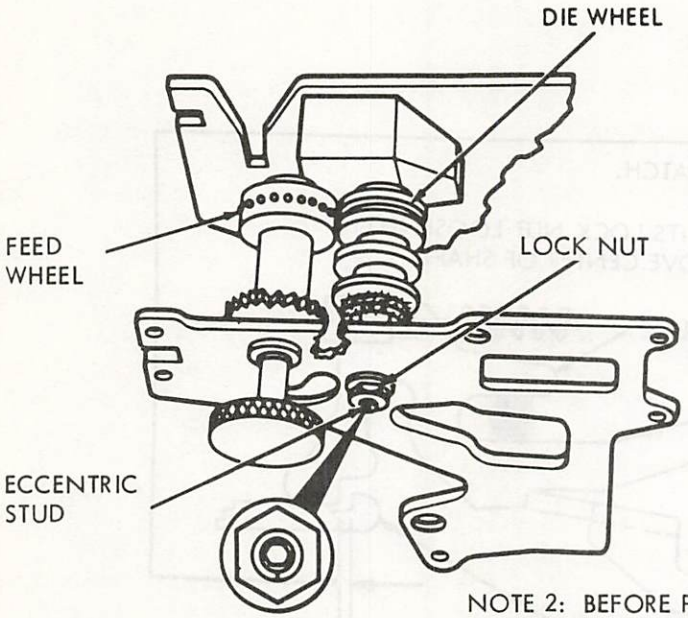
TO ADJUST

ROTATE THE FEED PAWL ECCENTRIC WITH LOCK SCREW LOOSENED.

NOTE

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

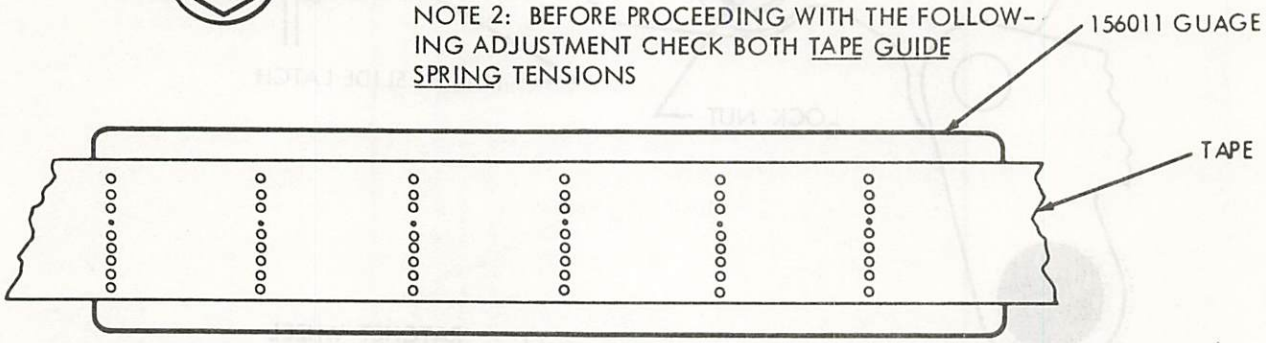
2.27 Punch Mechanism (continued)



FEED HOLE SPACING----PRELIMINARY
REQUIREMENT
INDENT OF DIE WHEEL ECCENTRIC STUD POINTING DOWNWARD.
TO ADJUST
POSITION DIE WHEEL ECCENTRIC STUD WITH LOCK NUT LOOSENED.
NOTE 1: BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENTS, CHECK BOTH TAPE GUIDE SPRING TENSIONS

FEED HOLE SPACING----FINAL
(1) REQUIREMENT
WITH TAPE SHOE BLOCKED AWAY FROM FEED WHEEL, FEED PAWL AND DETENT DISENGAGED, AND TAPE REMOVED, FEED WHEEL SHOULD ROTATE FREELY. CHECK THROUGH 3 OR 4 REVOLUTIONS OF FEED WHEEL. REFINE PRELIMINARY (ABOVE) IF NECESSARY TO MEET REQUIREMENT.

NOTE 2: BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENT CHECK BOTH TAPE GUIDE SPRING TENSIONS



FEED HOLE SPACING
(1) REQUIREMENT
WITH A PIECE OF TAPE PERFORATED WITH SIX SERIES OF 9 SPACE CODE COMBINATIONS FOLLOWED BY A RUBOUT COMBINATION PLACED OVER THE SMOOTH SIDE OF THE 156011 TAPE GAUGE SO THAT THE CIRCULAR PORTION OF THE FIRST NUMBER 2 CODE HOLE IN THE TAPE IS CONCENTRIC WITH THE FIRST HOLE OF THE TAPE GAUGE. THE NEXT FOUR HOLES IN THE TAPE GAUGE SHOULD BE VISIBLE THROUGH THE NUMBER 2 CODE HOLES IN THE TAPE AND THE CIRCULAR PORTION OF THE LAST (SIXTH) NUMBER 2 CODE HOLE IN THE TAPE SHALL BE ENTIRELY WITHIN THE 0.086 DIAMETER HOLE OF THE TAPE GAUGE.

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

TO ADJUST
WITH TAPE REMOVED FROM PUNCH MECHANISM, LOOSEN ECCENTRIC LOCK NUT AND ROTATE DIE WHEEL ECCENTRIC SHAFT UNTIL IT BINDS AGAINST FEED WHEEL. BACK OFF ECCENTRIC UNTIL DIE WHEEL IS JUST FREE. CHECK THROUGH 3 OR 4 ROTATIONS. KEEP THE INDENT OF ECCENTRIC BELOW THE HORIZONTAL CENTERLINE OF THE STUD. REFINE ADJUSTMENT FOR REQUIREMENT (1), IF NECESSARY, BY MOVING THE DIE WHEEL TOWARD THE FEED WHEEL TO DECREASE THE CHARACTER SPACING AND AWAY FROM THE FEED WHEEL TO INCREASE THE CHARACTER SPACING.

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

NOTE 3: FIRST THROUGH FIFTH HOLES IN GAUGE ARE SAME SIZE AS CODE HOLES IN TAPE (0.072 INCH DIAMETER). SIXTH HOLE IN GAUGE IS LARGER (0.086 INCH). THIS ARRANGEMENT ALLOWS ± 0.007 INCH VARIATION IN 5 INCHES.

2.28 Punch Mechanism (continued)

(FOR LATEST DESIGN SEE PARAGRAPH 2.29)

LATERAL AND FRONT TO REAR FEED WHEEL POSITION DETENT (EARLY DESIGN)

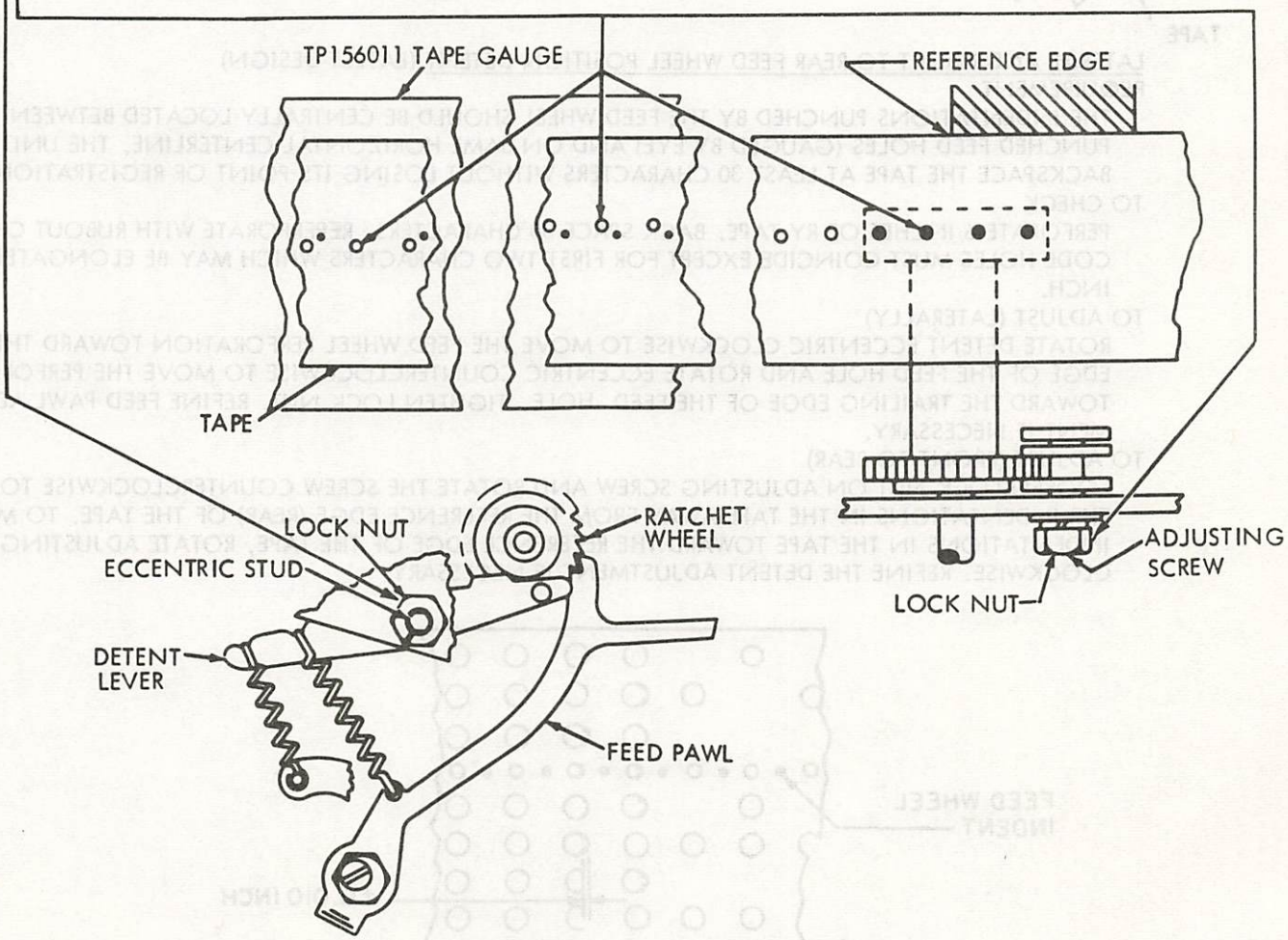
REQUIREMENT

WITH THE REPERFORATOR OPERATING UNDER POWER, OBTAIN A TAPE SAMPLE CONSISTING OF A SERIES OF "SPACE" PERFORATIONS, BY A VISUAL INSPECTION OF THE PERFORATED FEED HOLES, LATERALLY AND FRONT TO REAR, THE INDENTATIONS OF THE FEED WHEEL SHALL BE FULLY PUNCHED OUT.

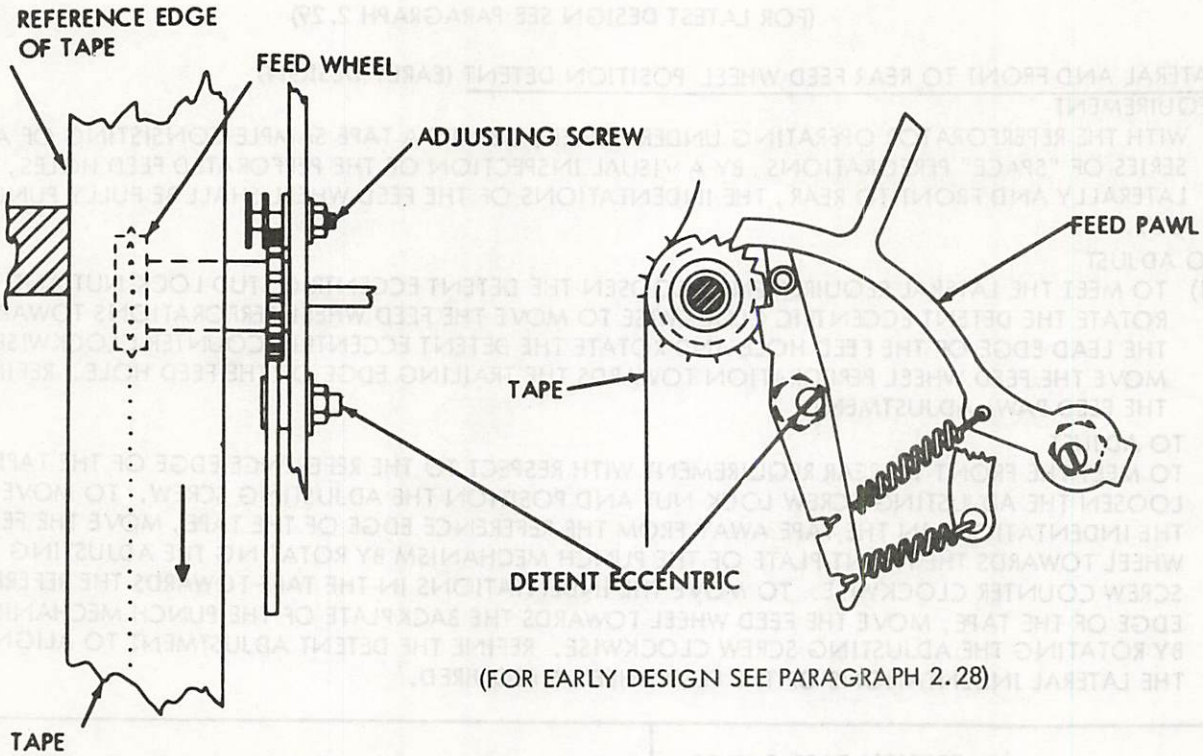
TO ADJUST

(1) TO MEET THE LATERAL REQUIREMENT. LOOSEN THE DETENT ECCENTRIC STUD LOCK NUT AND ROTATE THE DETENT ECCENTRIC CLOCKWISE TO MOVE THE FEED WHEEL PERFORATIONS TOWARDS THE LEAD EDGE OF THE FEED HOLE AND ROTATE THE DETENT ECCENTRIC COUNTER CLOCKWISE TO MOVE THE FEED WHEEL PERFORATION TOWARDS THE TRAILING EDGE OF THE FEED HOLE. REFINE THE FEED PAWL ADJUSTMENT.

(2) TO ADJUST
TO MEET THE FRONT TO REAR REQUIREMENT WITH RESPECT TO THE REFERENCE EDGE OF THE TAPE, LOOSEN THE ADJUSTING SCREW LOCK NUT AND POSITION THE ADJUSTING SCREW. TO MOVE THE INDENTATIONS IN THE TAPE AWAY FROM THE REFERENCE EDGE OF THE TAPE, MOVE THE FEED WHEEL TOWARDS THE FRONT PLATE OF THE PUNCH MECHANISM BY ROTATING THE ADJUSTING SCREW COUNTER CLOCKWISE. TO MOVE THE INDENTATIONS IN THE TAPE TOWARDS THE REFERENCE EDGE OF THE TAPE, MOVE THE FEED WHEEL TOWARDS THE BACKPLATE OF THE PUNCH MECHANISM BY ROTATING THE ADJUSTING SCREW CLOCKWISE. REFINE THE DETENT ADJUSTMENT TO ALIGN THE LATERAL INDENTATIONS OF THE FEED WHEEL IF REQUIRED.



2.29 Punch Mechanism (continued)



(FOR EARLY DESIGN SEE PARAGRAPH 2.28)

LATERAL AND FRONT TO REAR FEED WHEEL POSITION DETENT (LATEST DESIGN)

REQUIREMENT

THE INDENTATIONS PUNCHED BY THE FEED WHEEL SHOULD BE CENTRALLY LOCATED BETWEEN THE PUNCHED FEED HOLES (GAUGED BY EYE) AND ON SAME HORIZONTAL CENTERLINE. THE UNIT MUST BACKSPACE THE TAPE AT LEAST 30 CHARACTERS WITHOUT LOSING ITS POINT OF REGISTRATION.

TO CHECK

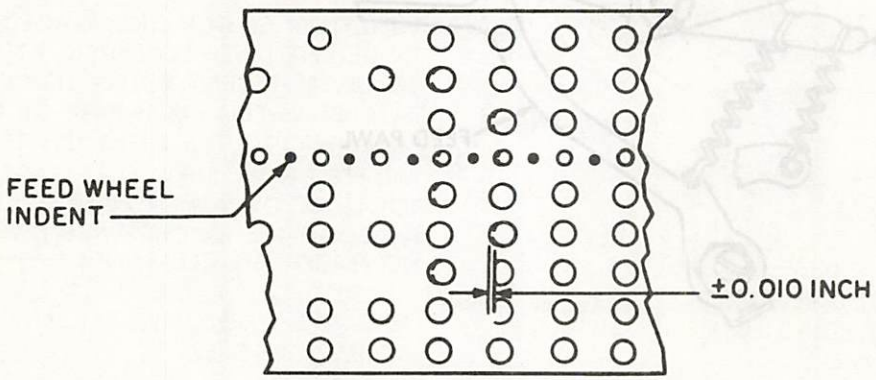
PERFORATE 6 INCHES OF RY TAPE. BACK SPACE 30 CHARACTERS. REPERFORATE WITH RUBOUT CHARACTERS. CODE HOLES MUST COINCIDE EXCEPT FOR FIRST TWO CHARACTERS WHICH MAY BE ELONGATED ±0.010 INCH.

TO ADJUST (LATERALLY)

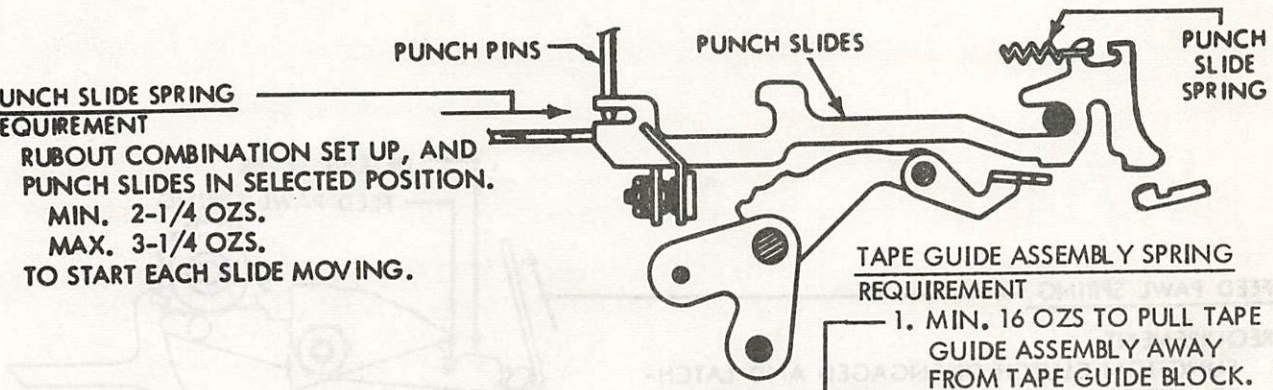
ROTATE DETENT ECCENTRIC CLOCKWISE TO MOVE THE FEED WHEEL PERFORATION TOWARD THE LEADING EDGE OF THE FEED HOLE AND ROTATE ECCENTRIC COUNTERCLOCKWISE TO MOVE THE PERFORATION TOWARD THE TRAILING EDGE OF THE FEED HOLE. TIGHTEN LOCK NUT. REFINE FEED PAWL ADJUSTMENT IF NECESSARY.

TO ADJUST (FRONT TO REAR)

LOOSEN LOCK NUT ON ADJUSTING SCREW AND ROTATE THE SCREW COUNTERCLOCKWISE TO MOVE THE INDENTATIONS IN THE TAPE AWAY FROM THE REFERENCE EDGE (REAR) OF THE TAPE. TO MOVE INDENTATIONS IN THE TAPE TOWARD THE REFERENCE EDGE OF THE TAPE, ROTATE ADJUSTING SCREW CLOCKWISE. REFINE THE DETENT ADJUSTMENT IF NECESSARY.



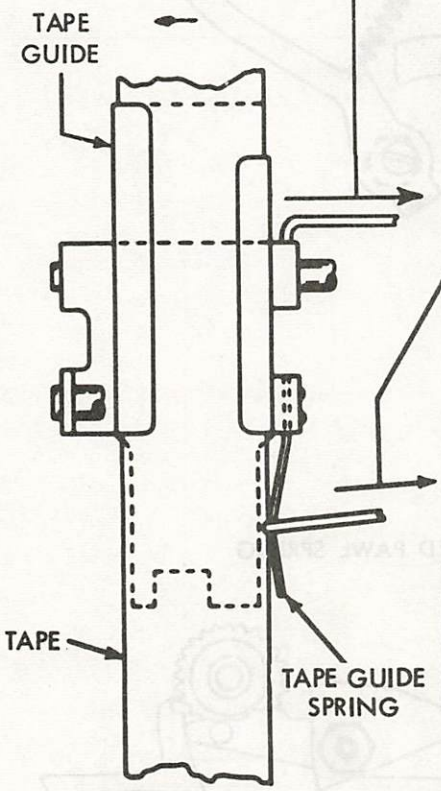
2.30 Punch Mechanism (continued)



PUNCH SLIDE SPRING
REQUIREMENT
RUBOUT COMBINATION SET UP, AND PUNCH SLIDES IN SELECTED POSITION.
MIN. 2-1/4 OZS.
MAX. 3-1/4 OZS.
TO START EACH SLIDE MOVING.

TAPE GUIDE ASSEMBLY SPRING
REQUIREMENT
1. MIN. 16 OZS TO PULL TAPE GUIDE ASSEMBLY AWAY FROM TAPE GUIDE BLOCK.
2. TAPE GUIDE ASSEMBLY SHOULD MOVE FREELY ON SHAFT.

TO ADJUST
POSITION MOUNTING POST.



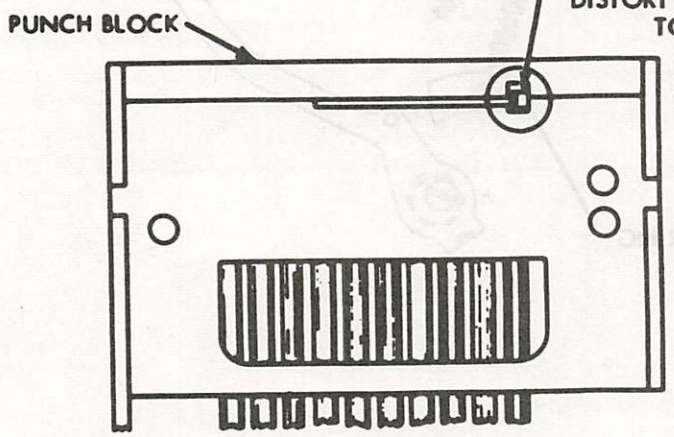
TAPE GUIDE SPRING
REQUIREMENT
WITH SELECTOR AND FUNCTION CLUTCHES DISENGAGED AND LATCHED, TAPE THREADED THROUGH PUNCH MECHANISM, IT SHOULD REQUIRE
MIN. 1-1/4 OZS.
MAX. 2-1/4 OZS.
TO JUST MOVE THE SPRING AWAY FROM THE TAPE.

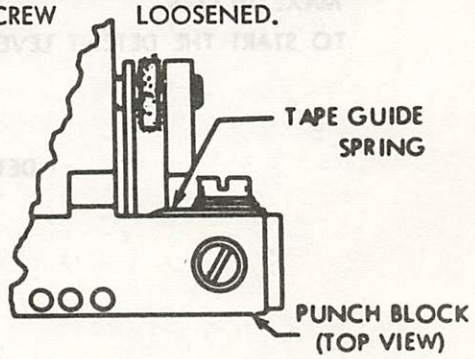
TO ADJUST
BEND THE SPRING.

NOTE
IT IS NECESSARY TO REMOVE SEVERAL PARTS, ON UNITS EQUIPPED WITH BACK SPACE MECHANISM. IN ORDER TO CHECK THIS SPRING TENSION. IT SHOULD NOT BE CHECKED UNLESS THERE IS GOOD REASON TO BELIEVE THAT REQUIREMENTS ARE NOT MET.

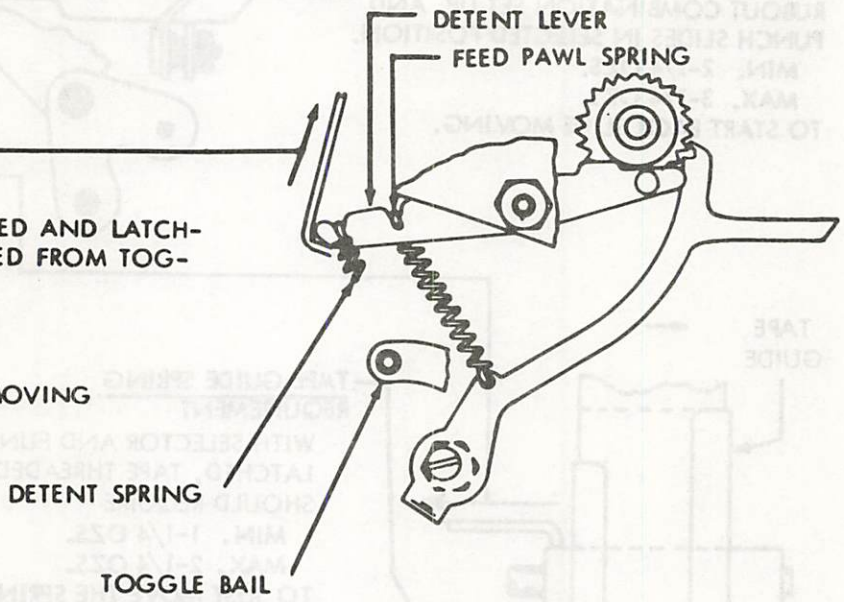
TAPE GUIDE SPRING (PUNCH BLOCK)
(1) REQUIREMENT
WITH TAPE REMOVED FROM THE PUNCH BLOCK THE TAPE GUIDE SPRING SHOULD REST AGAINST THE CLEARANCE SLOT IN THE BLOCK IN A SYMETRICAL MANNER.
(2) REQUIREMENT
WITH TAPE IN THE PUNCH BLOCK AND THE REPERFORATOR OPERATING UNDER POWER. THE SPRING SHOULD NOT DISTORT THE EDGE OF THE TAPE.

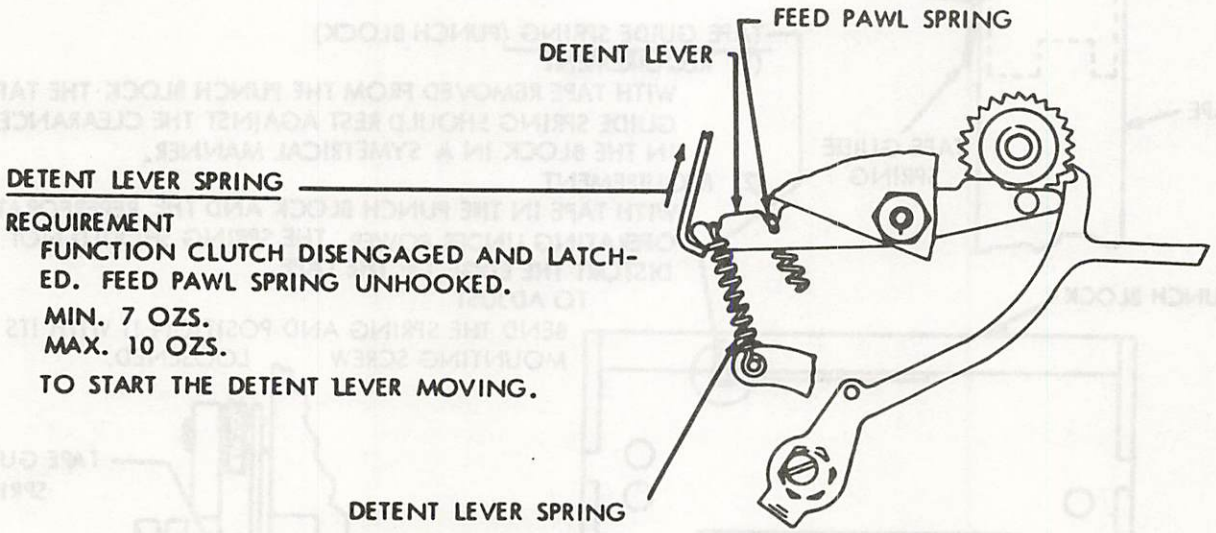
TO ADJUST
BEND THE SPRING AND POSITION IT WITH ITS MOUNTING SCREW LOOSENED.



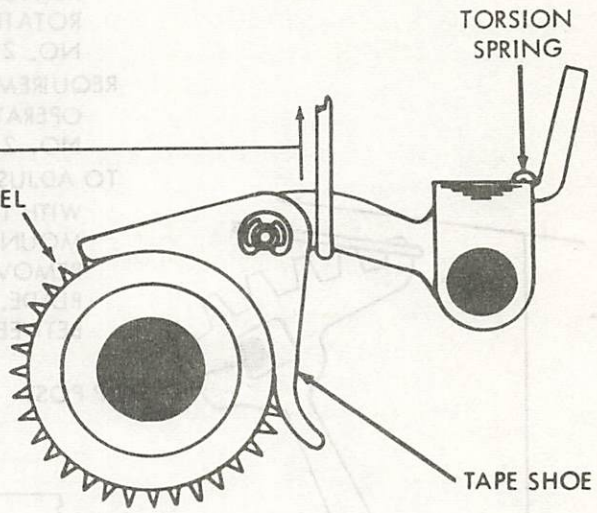


2.31 Punch Mechanism (continued)





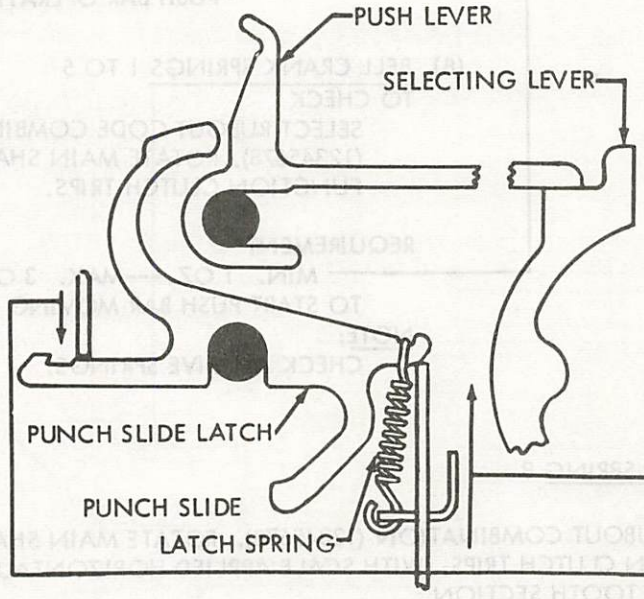
2.32 Punch Mechanism (continued)



TAPE TORSION SPRING

REQUIREMENT

MIN. 13 OZS.
MAX. 18 OZS.
TO MOVE TAPE SHOE FROM FEED WHEEL.



PUNCH SLIDE LATCH SPRING

TO CHECK

SELECT RUBOUT CODE COMBINATION (12345678). POSITION ROCKER BAIL TO EXTREME LEFT. STRIP PUSH LEVERS FROM SELECTING LEVERS.

REQUIREMENT

FOR ONE-SHAFT UNIT
MIN. 1 OZS. --- MAX. 3 OZS.
TO START LATCH MOVING.

FOR TWO-SHAFT UNIT
MIN. 3/4 OZS. --- MAX. 2 OZS.
TO START LATCH MOVING.

2.33 Typing Mechanism

(A) PUSH BAR OPERATING BLADE (PRELIMINARY)

TO CHECK

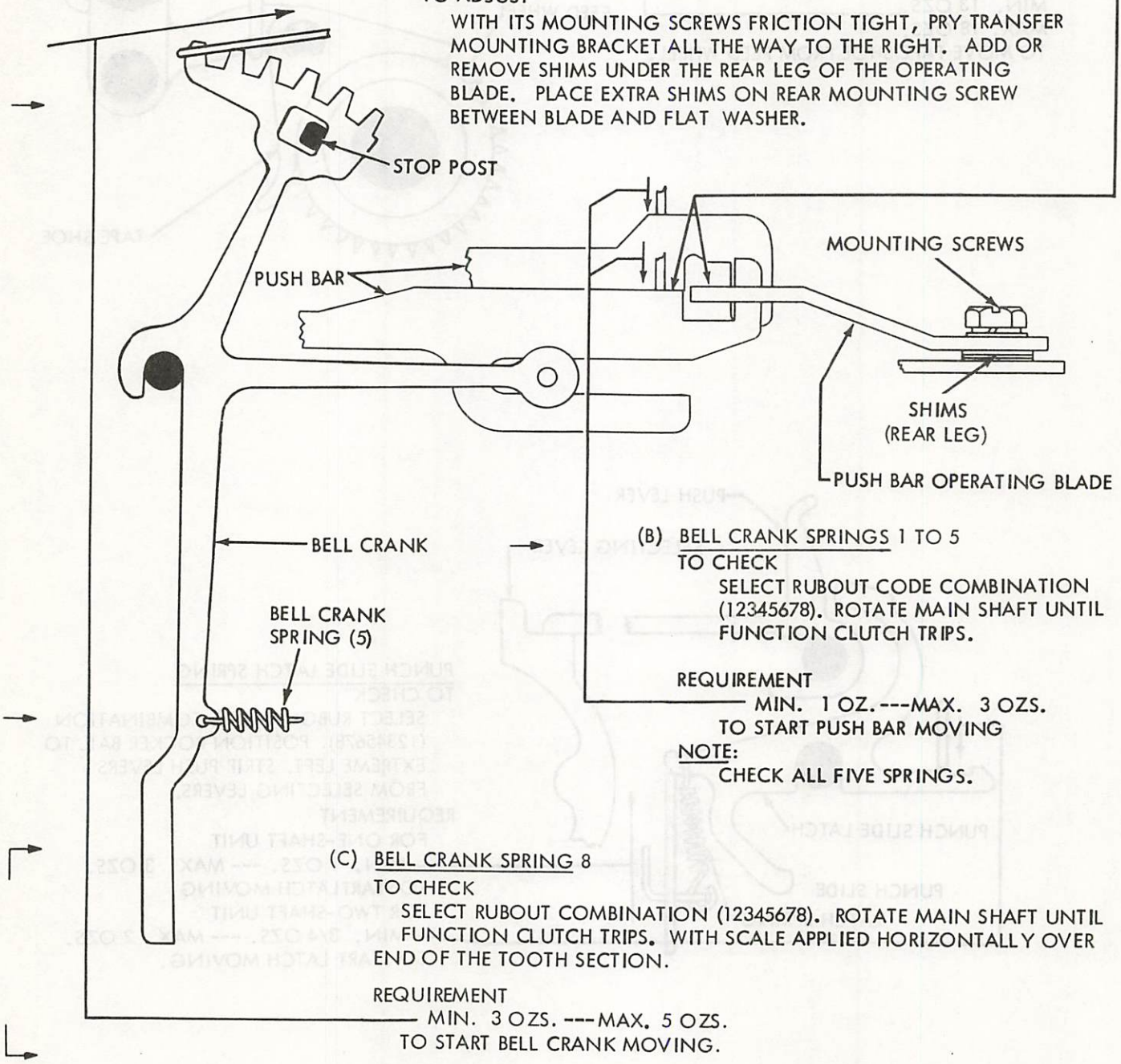
MANUALLY SELECT RUBOUT CODE COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. HOLD NO. 2 AND 3 BELL CRANKS AGAINST STOP POST.

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. ADD OR REMOVE SHIMS UNDER THE REAR LEG OF THE OPERATING BLADE. PLACE EXTRA SHIMS ON REAR MOUNTING SCREW BETWEEN BLADE AND FLAT WASHER.



(B) BELL CRANK SPRINGS 1 TO 5

TO CHECK

SELECT RUBOUT CODE COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS.

REQUIREMENT

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

NOTE:

CHECK ALL FIVE SPRINGS.

(C) BELL CRANK SPRING 8

TO CHECK

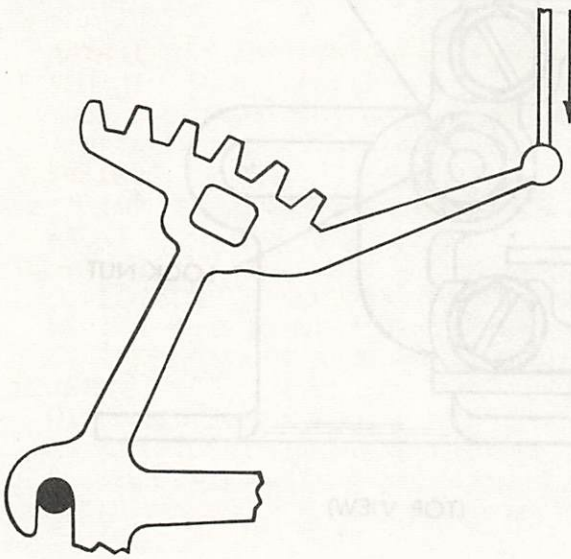
SELECT RUBOUT COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. WITH SCALE APPLIED HORIZONTALLY OVER END OF THE TOOTH SECTION.

REQUIREMENT

MIN. 3 OZS. ---MAX. 5 OZS. TO START BELL CRANK MOVING.

NOTE: THIS ADJUSTMENT IS COMPLETED ON THE FOLLOWING PAGE.

2.34 Typing Mechanism (continued)



(D) BELL CRANK SPRINGS 6 AND 7

TO CHECK

SELECT RUBOUT COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS.

(1) REQUIREMENT (BELL CRANK SPRING 6)
WITH SCALE APPLIED VERTICALLY TO BALL END OF BELL CRANK CONTACT OPERATING ARM.

MIN. 2 OZS. --- MAX. 4 OZS.
TO START BELL CRANK MOVING

(2) REQUIREMENT (BELL CRANK SPRING 7)
WITH SEVEN-PULSE BEAM SPRING REMOVED AND SCALE APPLIED VERTICALLY TO BALL END OF BELL CRANK OPERATING ARM.

MIN. 3 OZS. --- MAX. 6 OZS.
TO START BELL CRANK MOVING.

PUSH BAR OPERATING BLADE (FINAL)

(1) TO CHECK

MANUALLY SELECT RUBOUT CODE COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. MANUALLY SEAT PUSH BARS IN DETENTED POSITION. IN BAR WHICH IS NEAREST LEFT EDGE OF BLADE, TAKE UP PLAY TO LEFT AND REAR, AND THEN RELEASE.

REQUIREMENT

CLEARANCE BETWEEN BAR AND LEFT EDGE OF BLADE:
MIN. 0.015 INCH --- MAX. 0.030 INCH

(2) REQUIREMENT

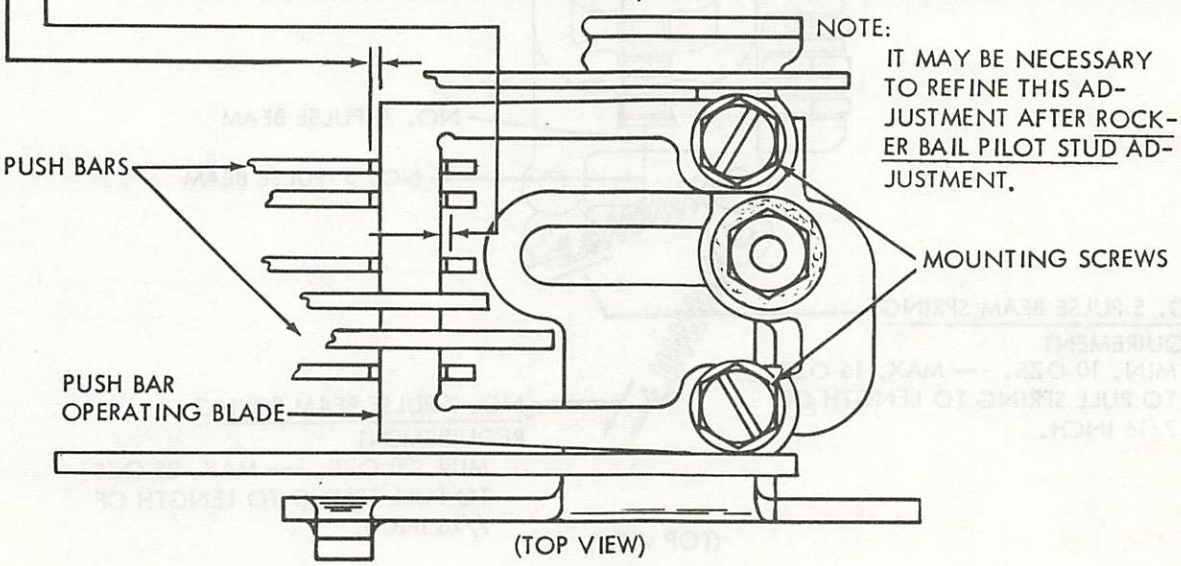
SOME CLEARANCE BETWEEN RIGHT EDGE OF BLADE AND PUSH BARS WHEN PLAY IN BARS HAS BEEN TAKEN UP TO RIGHT AND RELEASED.

(3) REQUIREMENT

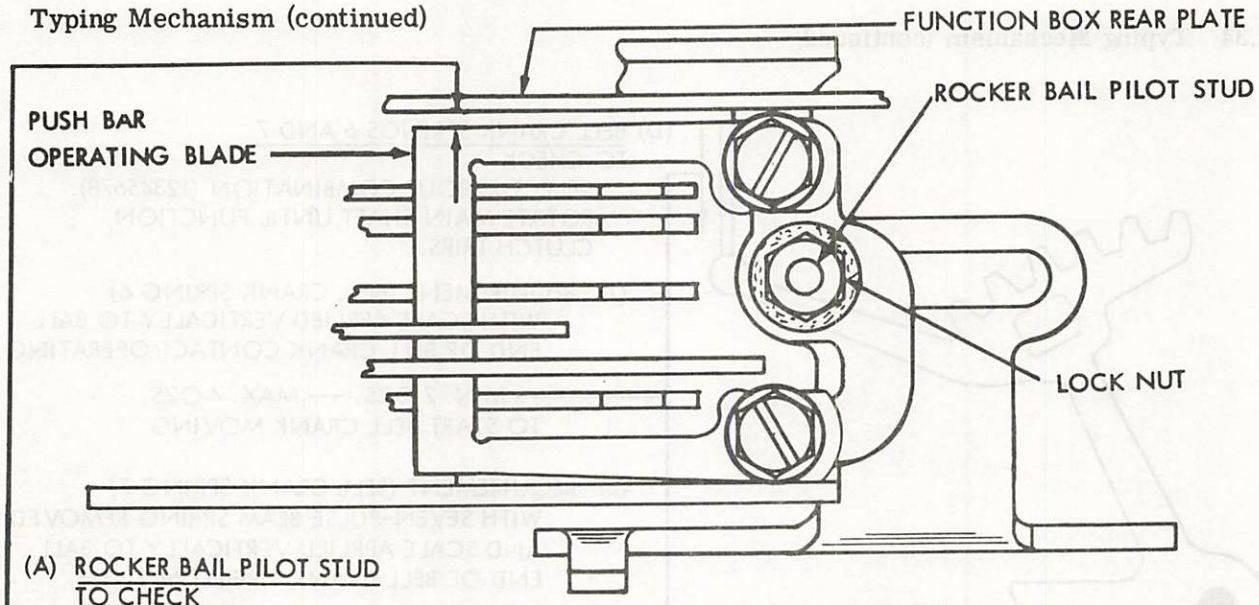
WITH UNIT IN STOP POSITION, SOME CLEARANCE BETWEEN RIGHT EDGE OF BLADE AND BARS WHEN PLAY IN BARS HAS BEEN TAKEN UP TO RIGHT AND RELEASED.

TO ADJUST

WITH MOUNTING SCREWS LOOSENED, POSITION OPERATING BLADE IN ELONGATED HOLES.



2.35 Typing Mechanism (continued)



(TOP VIEW)

(A) ROCKER BAIL PILOT STUD

TO CHECK

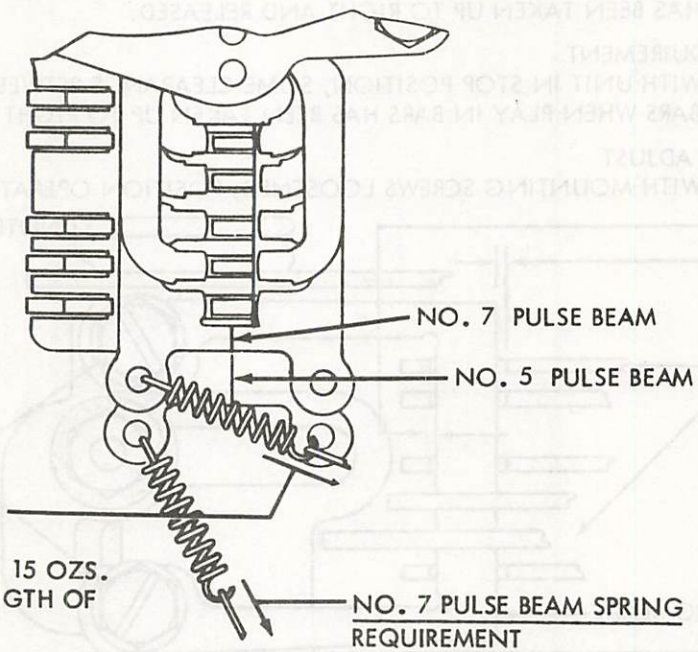
SELECT SPACE COMBINATION. POSITION ROCKER BAIL THROUGH A COMPLETE CYCLE TO INSURE THE CLEARANCE IS A MINIMUM.

REQUIREMENT

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

TO ADJUST

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



NO. 5 PULSE BEAM SPRING

REQUIREMENT

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

NO. 7 PULSE BEAM SPRING

REQUIREMENT

MIN. 20 OZS. --- MAX. 25 OZS TO PULL SPRING TO LENGTH OF 7/16 INCH.

(TOP VIEW)

2.36 Typing Mechanism (continued)

FUNCTION BOX

REQUIREMENT

WITH LETTERS (RUBOUT) PUSH BAR TO EXTREME RIGHT AND FULLY DETENTED, RUBOUT CODE (12345678) SELECTED, PUNCH SLIDES DISENGAGED AND FUNCTION CLUTCHED TRIPPED. ELIMINATE PLAY IN DOWNWARD DIRECTION, THEN RELEASE. KEEP OPERATING BLADE PARALLEL WITH NO. 2 AND NO. 3 PUSH BARS AND TAKE-UP FUNCTION BOX PLAY IN A CLOCKWISE DIRECTION. THE TOP OF THE OPERATING BLADE SHALL BE

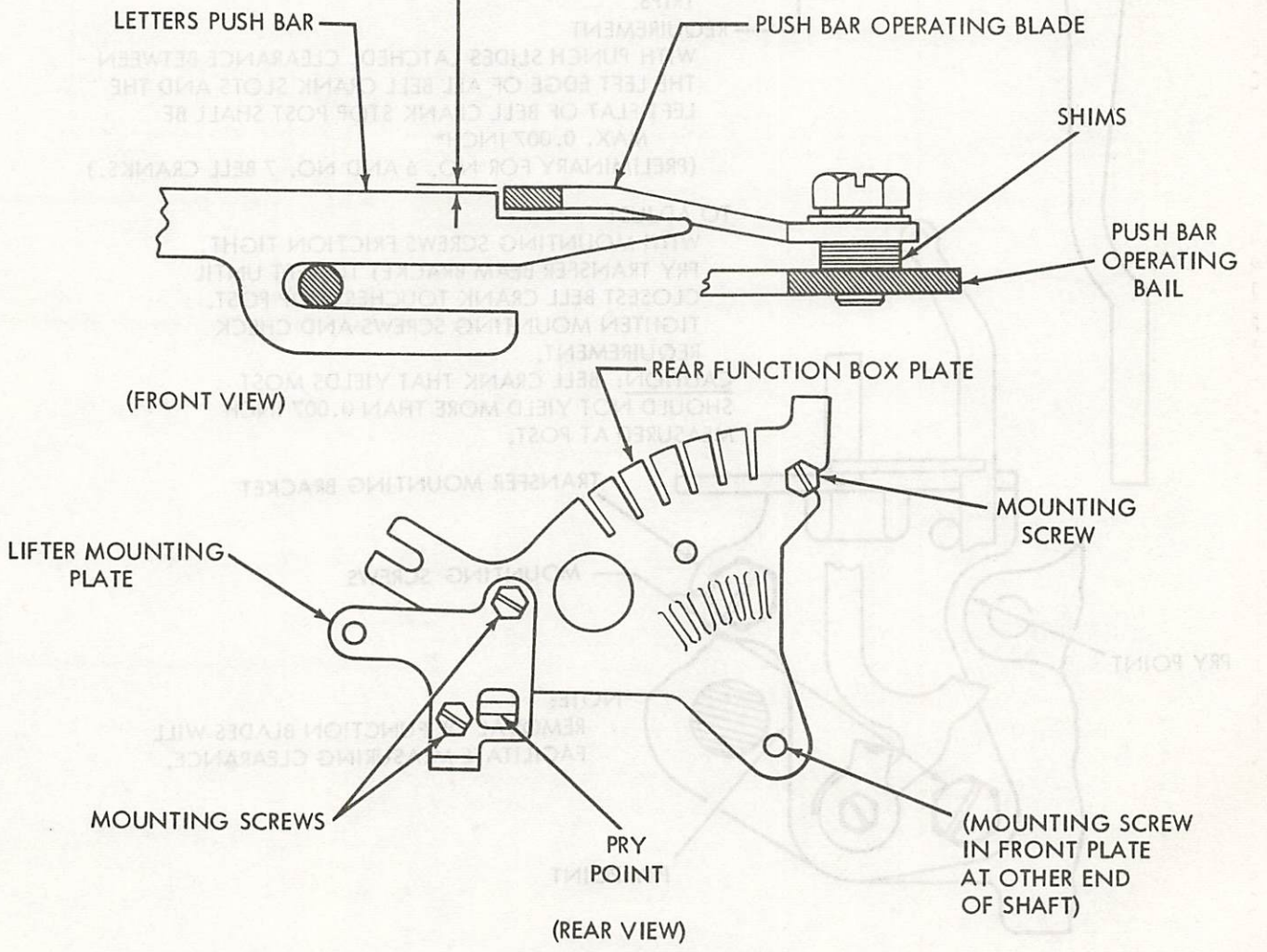
MIN. FLUSH --- MAX. 0.020 INCH ABOVE TOP RUBOUT PUSH BARS.

TO ADJUST

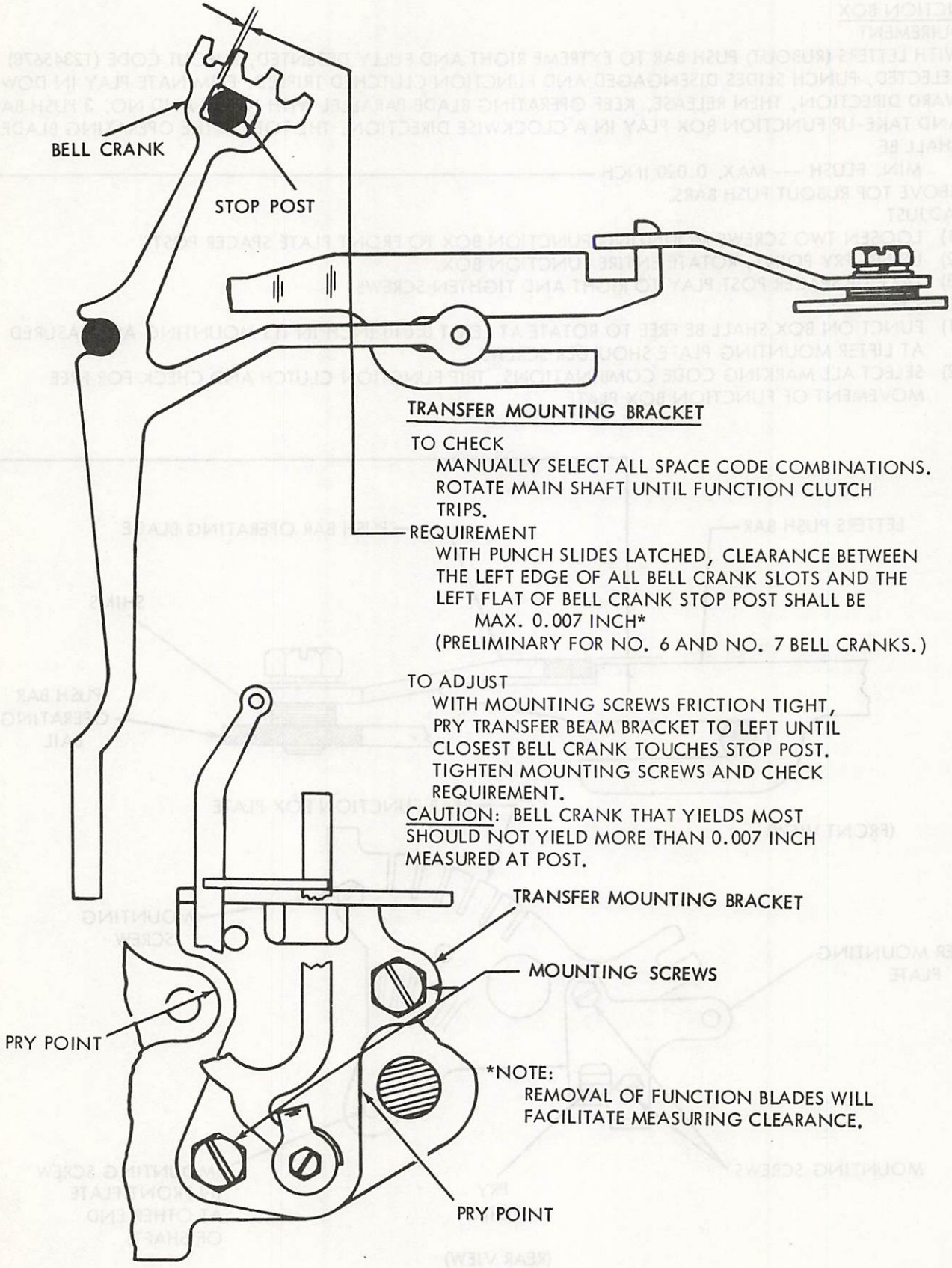
(1) LOOSEN TWO SCREWS MOUNTING FUNCTION BOX TO FRONT PLATE SPACER POSTS
(2) USING PRY POINT, ROTATE ENTIRE FUNCTION BOX.
(3) TAKE UP SPACER POST PLAY TO RIGHT AND TIGHTEN SCREWS.

TO CHECK

(1) FUNCTION BOX SHALL BE FREE TO ROTATE AT LEAST 0.010 INCH IN ITS MOUNTING AS MEASURED AT LIFTER MOUNTING PLATE SHOULDER SCREWS.
(2) SELECT ALL MARKING CODE COMBINATIONS, TRIP FUNCTION CLUTCH AND CHECK FOR FREE MOVEMENT OF FUNCTION BOX PLATE.



2.37 Typing Mechanism (continued)



2.38 Ribbon Shift and Print Suppression Mechanism

NOTE: REFER TO VARIABLE FEATURES (PART 3) FOR ADDITIONAL ADJUSTMENTS APPLYING TO PRINT SUPPRESSION ONLY.

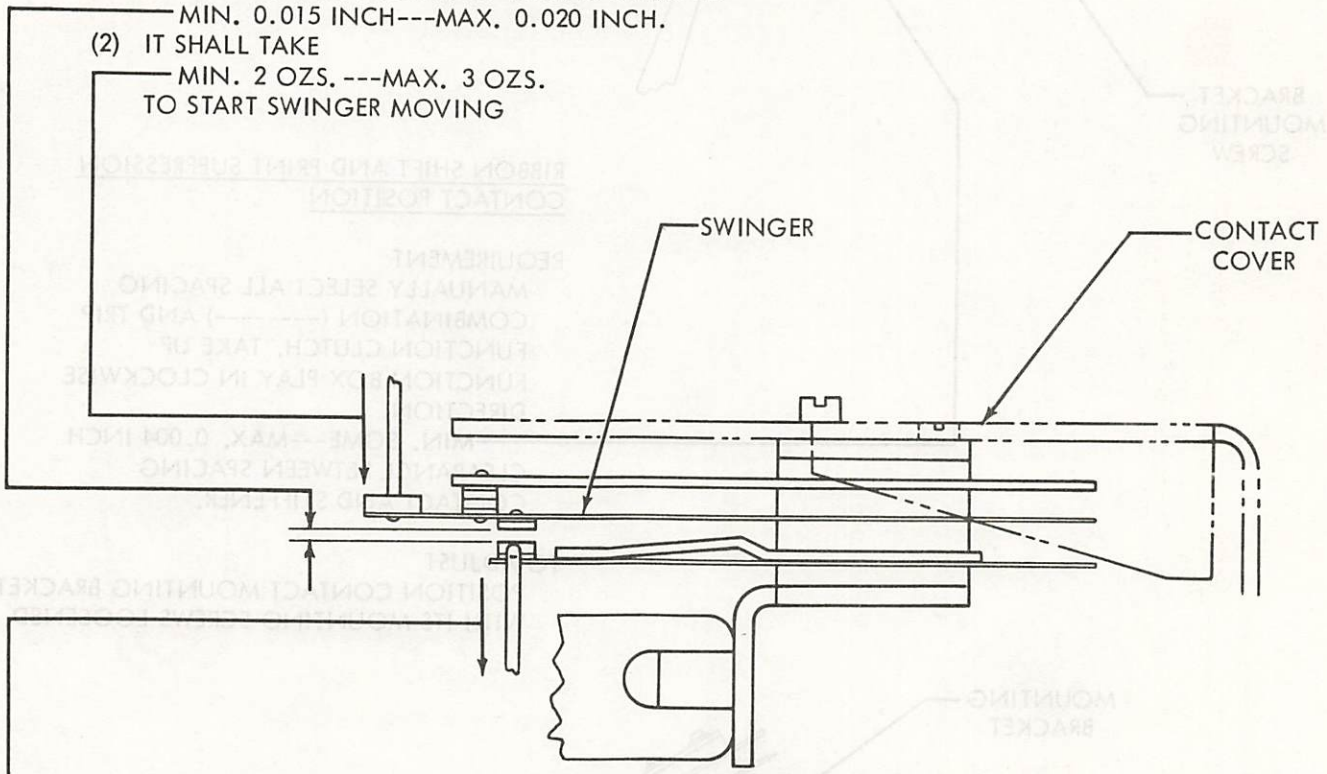
RIBBON SHIFT AND PRINT SUPPRESSION CONTACTS

REQUIREMENT

DISCONNECT ALL POWER FROM UNIT. REMOVE CONTACT ASSEMBLY FROM FUNCTION BOX.

(1) CLEARANCE BETWEEN SWINGER CONTACT POINTS AND NORMALLY OPEN CONTACT POINTS SHALL BE MIN. 0.015 INCH---MAX. 0.020 INCH.

(2) IT SHALL TAKE MIN. 2 OZS. ---MAX. 3 OZS. TO START SWINGER MOVING

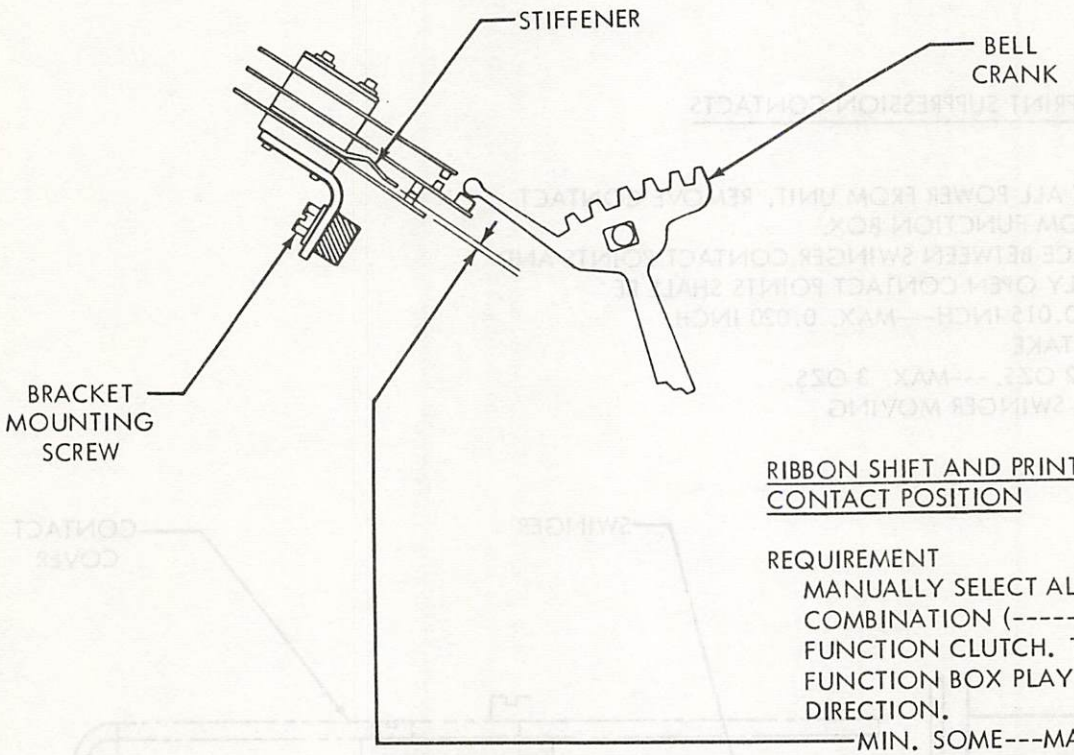


(3) IT SHALL TAKE MIN. 2 OZS. ---MAX. 3 OZS. TO START NORMALLY OPEN CONTACT MOVING.

TO ADJUST

REMOVE COVER AND REPLACE COVER SCREWS. BEND CONTACTS WITH CONTACT ADJUSTING TOOL.

2.39 Ribbon Shift and Print Suppression Mechanism (continued)



RIBBON SHIFT AND PRINT SUPPRESSION CONTACT POSITION

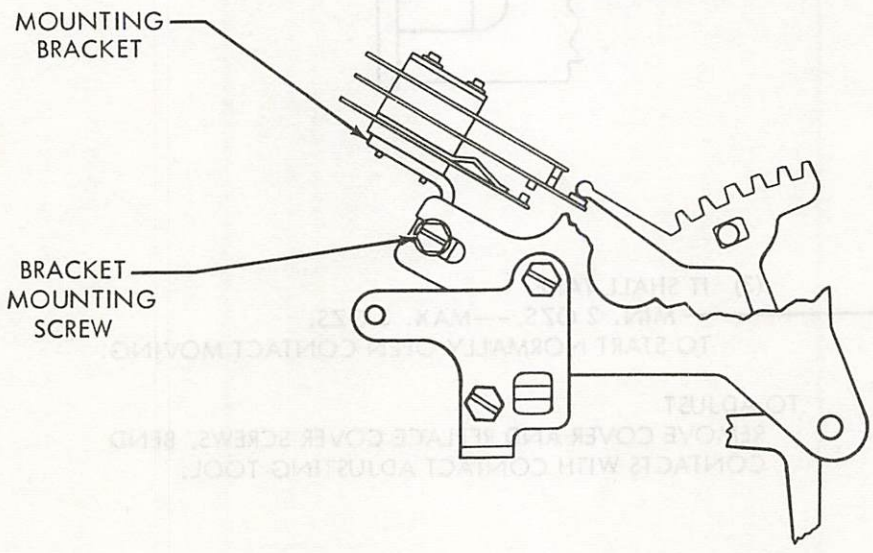
REQUIREMENT

MANUALLY SELECT ALL SPACING COMBINATION (--------) AND TRIP FUNCTION CLUTCH. TAKE UP FUNCTION BOX PLAY IN CLOCKWISE DIRECTION.

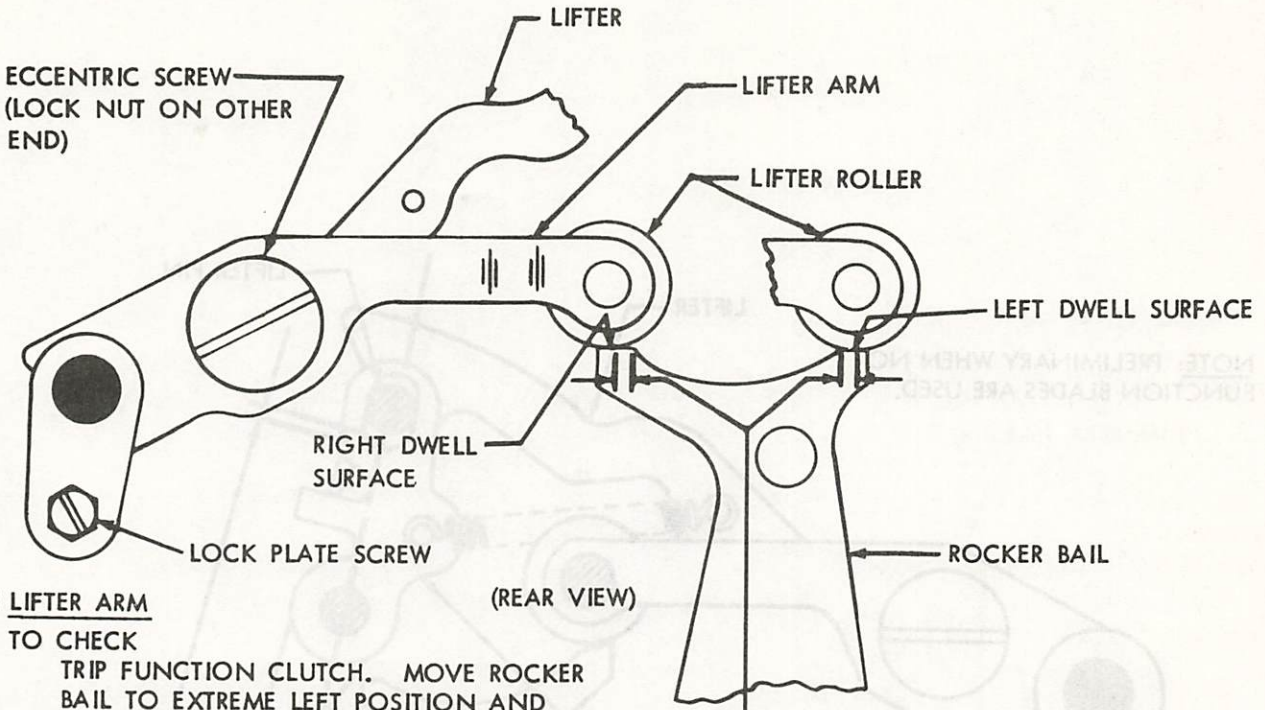
MIN. SOME---MAX. 0.004 INCH CLEARANCE BETWEEN SPACING CONTACT AND STIFFENER.

TO ADJUST

POSITION CONTACT MOUNTING BRACKET WITH ITS MOUNTING SCREWS LOOSENED.



2.40 Typing Mechanism (continued)



(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.

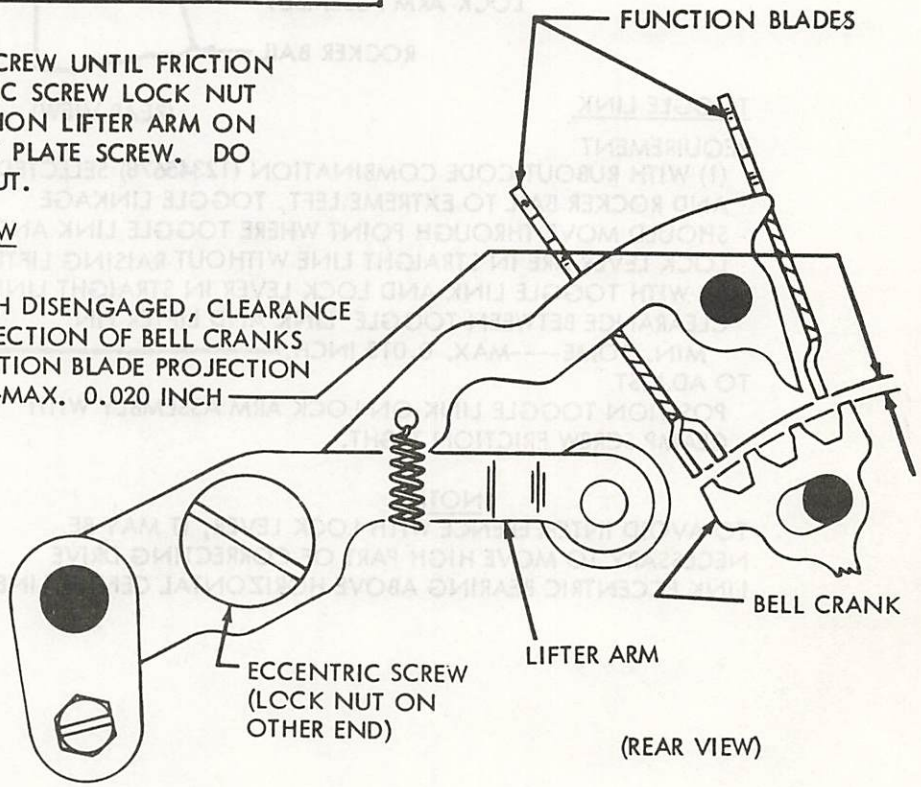
(B) LIFTER ARM ECCENTRIC SCREW

REQUIREMENT

WITH FUNCTION CLUTCH DISENGAGED, CLEARANCE BETWEEN CLOSEST PROJECTION OF BELL CRANKS AND ASSOCIATED FUNCTION BLADE PROJECTION MIN. 0.008 INCH----MAX. 0.020 INCH

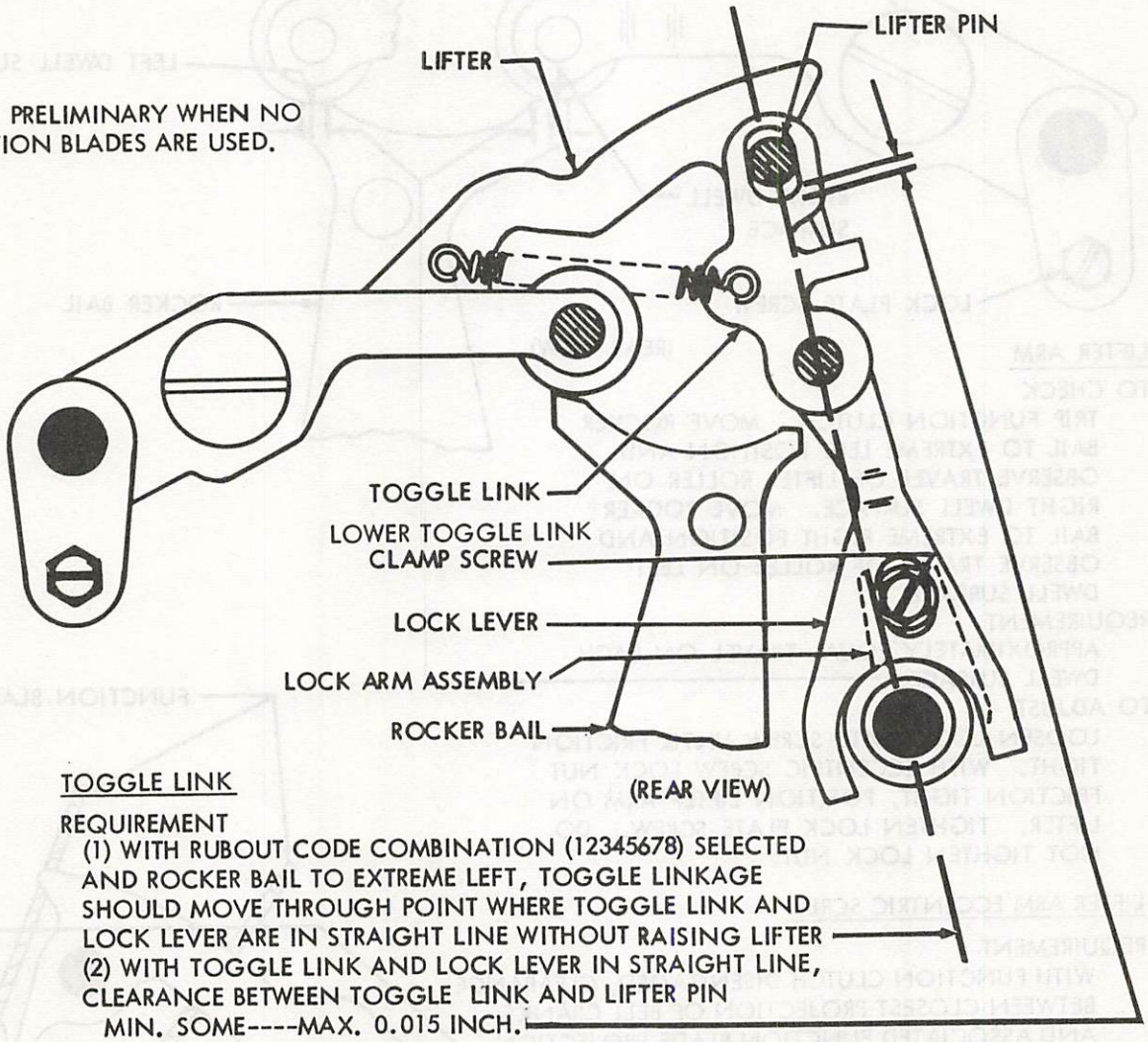
TO ADJUST

POSITION LIFTER ARM ECCENTRIC SCREW WITH LOCK NUT LOOSENED.



2.41 Typing Mechanism (continued)

NOTE: PRELIMINARY WHEN NO FUNCTION BLADES ARE USED.



TOGGLE LINK

REQUIREMENT

(1) WITH RUBOUT CODE COMBINATION (12345678) 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. 0.015 INCH.

TO ADJUST

POSITION TOGGLE LINK ON LOCK ARM ASSEMBLY WITH CLAMP SCREW FRICTION TIGHT.

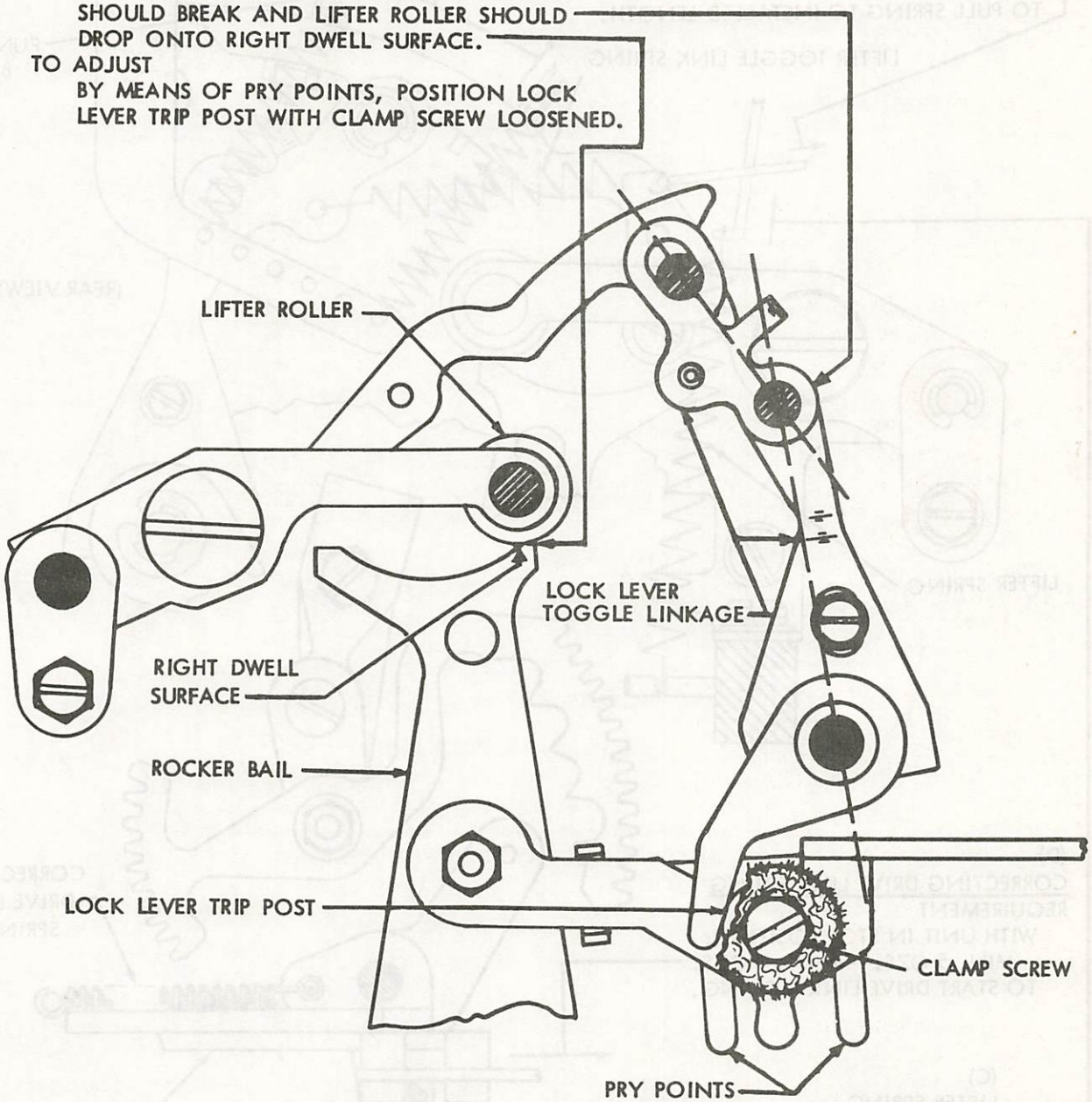
NOTE

TO AVOID INTERFERENCE WITH LOCK LEVER, IT MAY BE NECESSARY TO MOVE HIGH PART OF CORRECTING DRIVE LINK ECCENTRIC BEARING ABOVE HORIZONTAL CENTER LINE.

2.42 Typing Mechanism (continued)

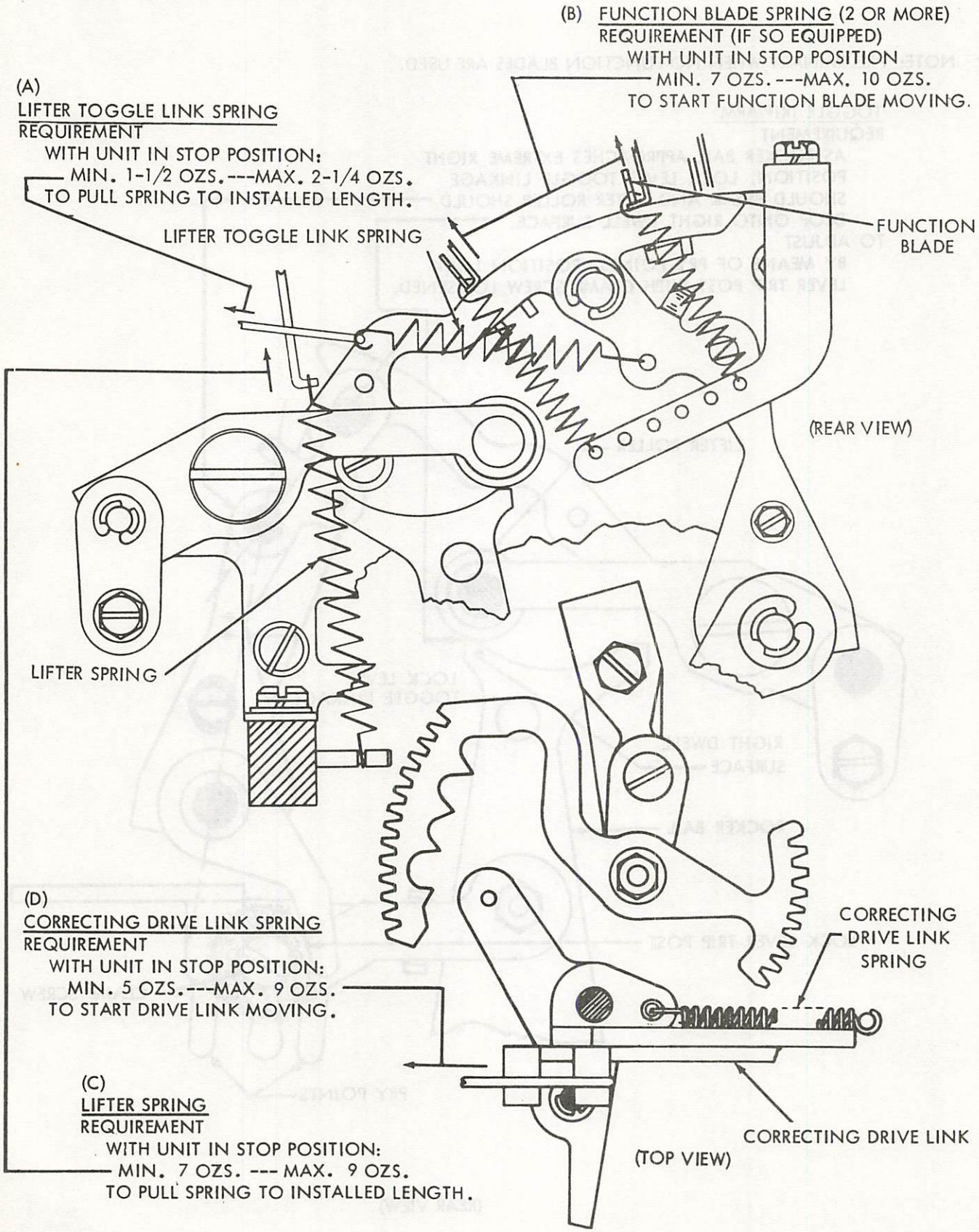
→ NOTE: PRELIMINARY WHEN NO FUNCTION BLADES ARE USED.

TOGGLE TRIP ARM
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)

2.43 Typing Mechanism (continued)



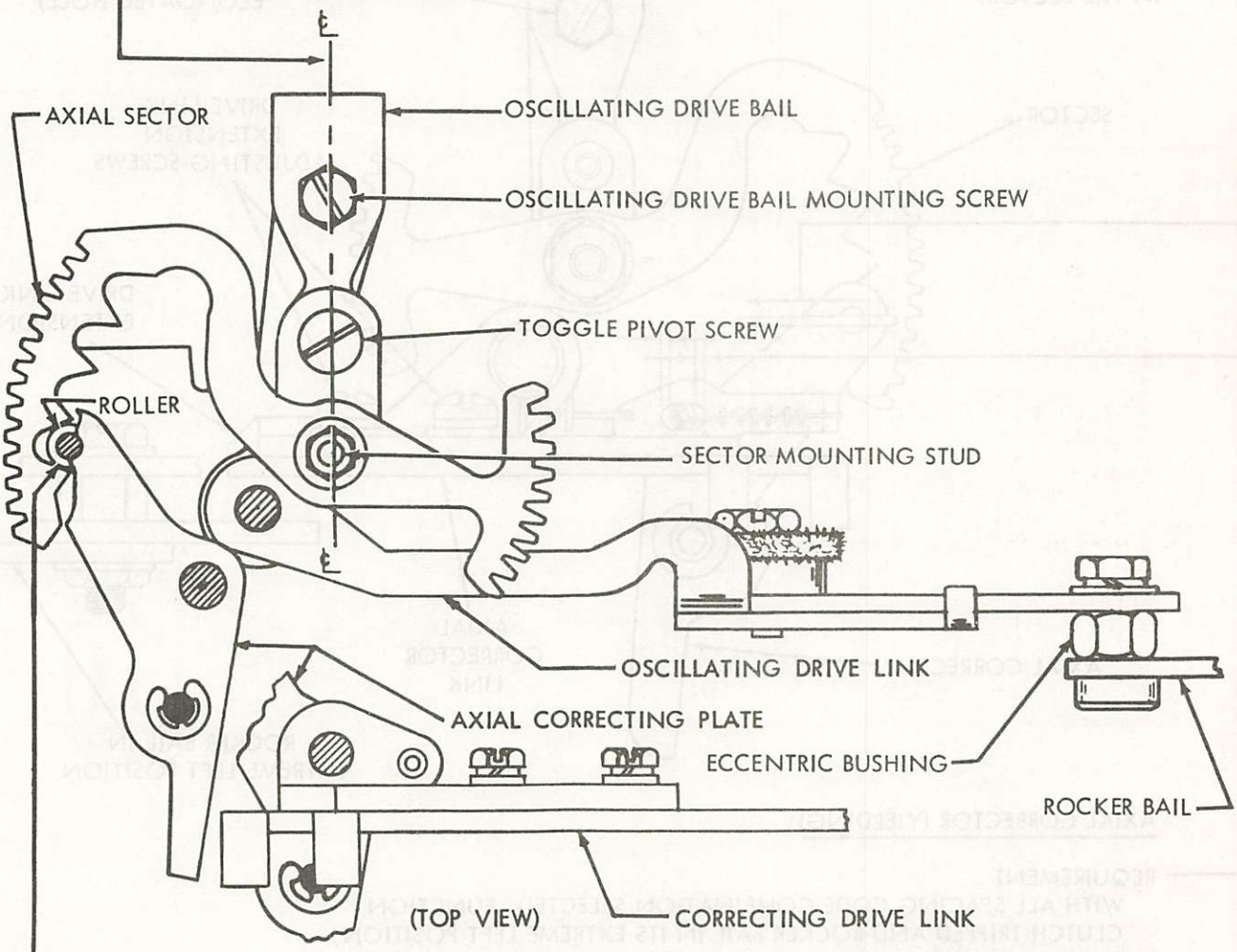
2.44 Typing Mechanism (continued)

(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)

AXIAL CORRECTOR (NON-YIELDING)

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

REQUIREMENT
ROLLER ON AXIAL CORRECTING PLATE SEATED FIRMLY IN CENTER OF FIRST NOTCH OF AXIAL SECTOR.

TO ADJUST
(1) LOOSEN DRIVE LINK ADJUSTING SCREWS. FIRMLY SEAT AXIAL CORRECTOR ROLLER INTO FIRST NOTCH OF SECTOR BY MANUALLY APPLYING AND HOLDING THIS POSITION FOR NEXT PART OF ADJUSTMENT.
(2) APPLY MANUAL PRESSURE ON DRIVE LINK TO BOTTOM ITS SLOT AGAINST ROCKER BAIL BUSHING.
(3) MAINTAIN PRESSURE AT THESE TWO PLACES. TIGHTEN ADJUSTING SCREWS.

2.45 Typing Mechanism (continued)

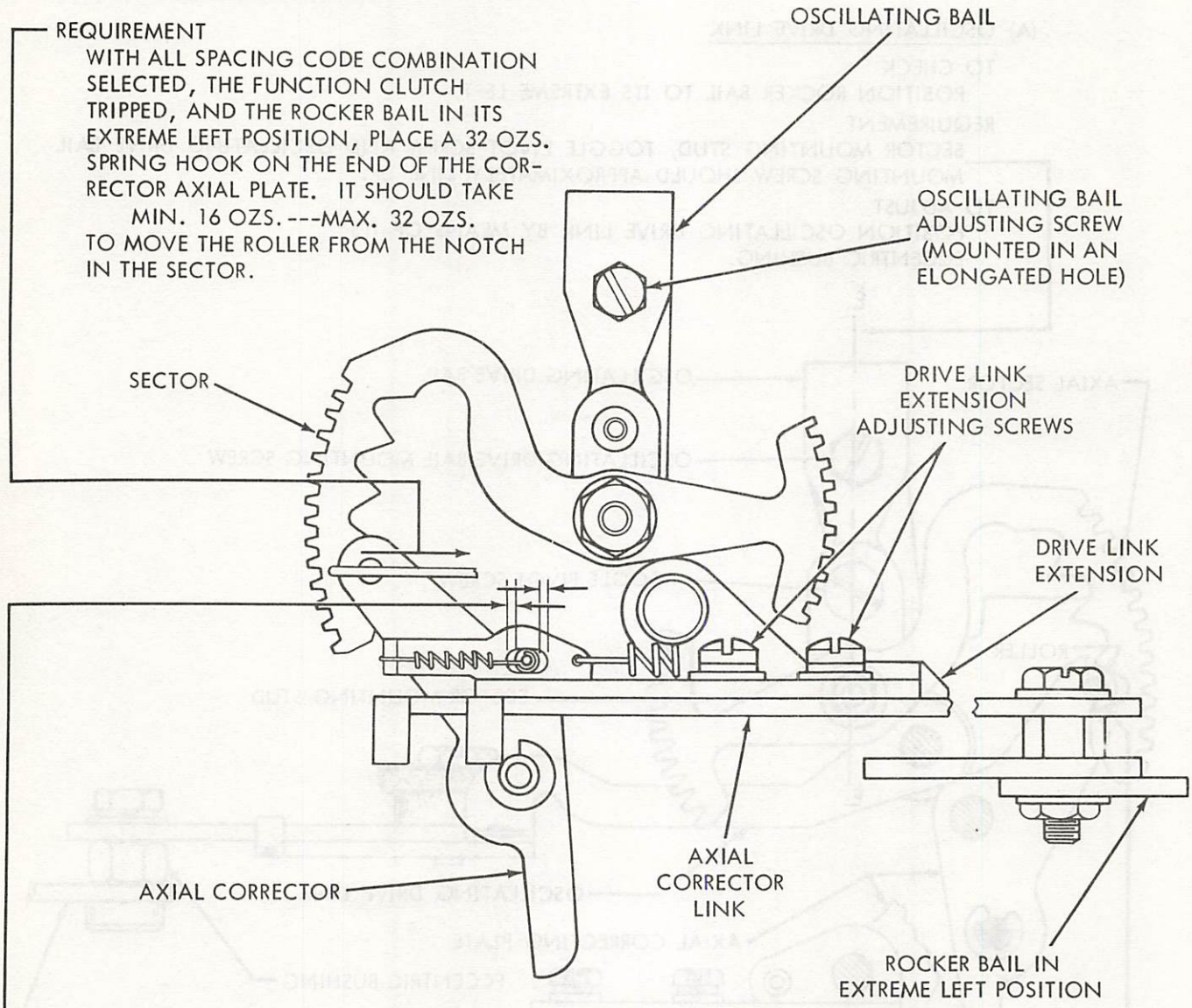
CORRECTOR DRIVE LINK (YIELDING)
EXTENSION SPRING TENSION

REQUIREMENT

WITH ALL SPACING CODE COMBINATION SELECTED, THE FUNCTION CLUTCH TRIPPED, AND THE ROCKER BAIL IN ITS EXTREME LEFT POSITION, PLACE A 32 OZS. SPRING HOOK ON THE END OF THE CORRECTOR AXIAL PLATE. IT SHOULD TAKE

MIN. 16 OZS. ---MAX. 32 OZS.

TO MOVE THE ROLLER FROM THE NOTCH IN THE SECTOR.



AXIAL CORRECTOR (YIELDING)

REQUIREMENT

WITH ALL SPACING CODE COMBINATION SELECTED, FUNCTION CLUTCH TRIPPED AND ROCKER BAIL IN ITS EXTREME LEFT POSITION, THE AXIAL CORRECTOR ROLLER SHOULD SEAT IN THE FIRST SECTOR NOTCH AND THERE SHOULD BE

MIN. 0.005 INCH

BETWEEN THE ENDS OF THE SLOT AND THE SPRING POST. CHECK BOTH SIDES AND CHECK SEATING IN FOURTH NOTCH (LETTERS SELECTION). TURN THE RETAINING RING THAT FASTENS THE DRIVE LINK EXTENSION TO THE CORRECTOR PLATE TO CHECK THE MINIMUM REQUIREMENT.

TO ADJUST

LOOSEN TWO DRIVE LINK ADJUSTING SCREWS. POSITION DRIVE LINK TO MEET THE REQUIREMENT AND RETIGHTEN THE SCREWS.

2.46 Typing Mechanism (continued)

(A) AXIAL SECTOR ALIGNMENT

REQUIREMENT

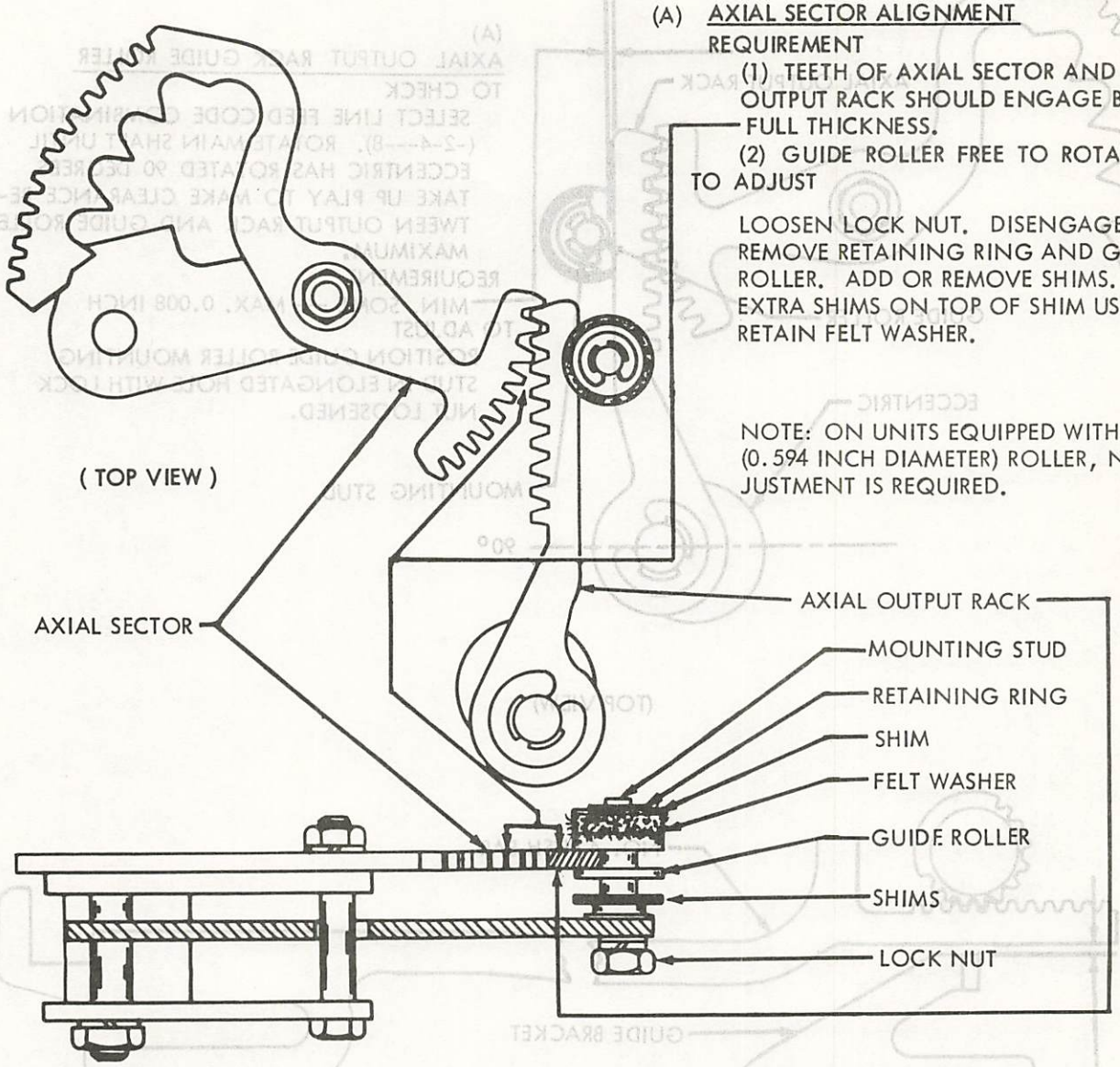
(1) TEETH OF AXIAL SECTOR AND AXIAL OUTPUT RACK SHOULD ENGAGE BY THEIR FULL THICKNESS.

(2) GUIDE ROLLER FREE TO ROTATE.

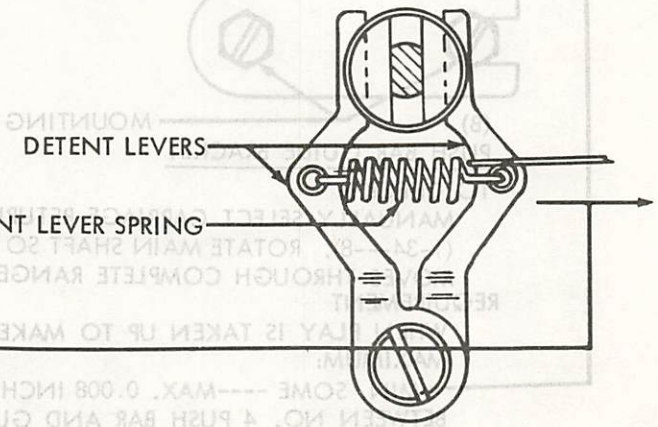
TO ADJUST

LOOSEN LOCK NUT. DISENGAGE RACK. REMOVE RETAINING RING AND GUIDE ROLLER. ADD OR REMOVE SHIMS. PLACE EXTRA SHIMS ON TOP OF SHIM USED TO RETAIN FELT WASHER.

NOTE: ON UNITS EQUIPPED WITH LARGER (0.594 INCH DIAMETER) ROLLER, NO ADJUSTMENT IS REQUIRED.



(FRONT VIEW)



(TOP VIEW OF SPRINGS ON AXIAL POSITIONING MECHANISM)

ECCENTRIC SHAFT

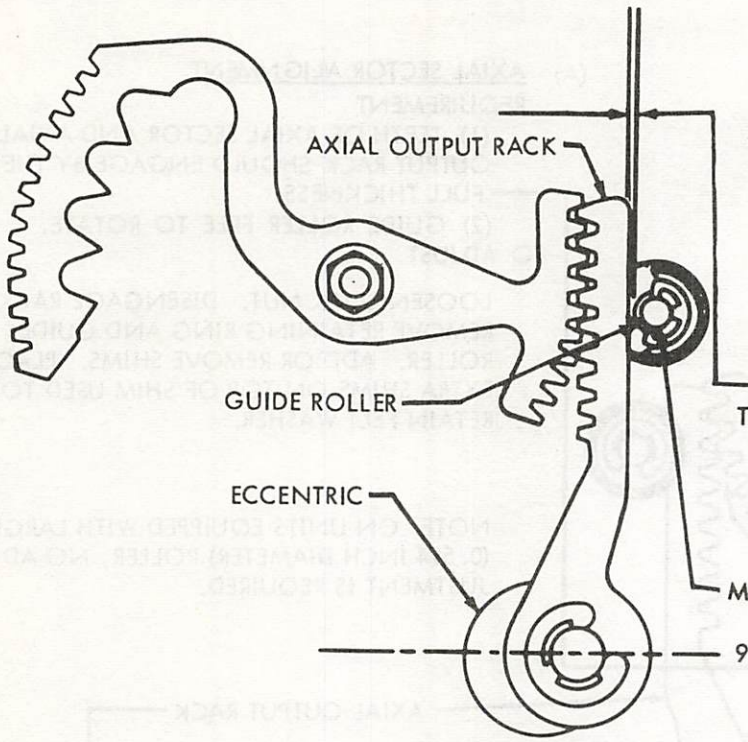
(B) DETENT LEVER SPRING (6)

MIN. 7 OZS.---MAX. 10 OZS. TO START DETENT LEVER MOVING.

NOTE:

CHECK ALL 6 SPRINGS. THERE ARE TWO ON THE AXIAL POSITIONING MECHANISM AND FOUR ON THE ROTARY POSITIONING MECHANISM.

2.47 Typing Mechanism (continued)



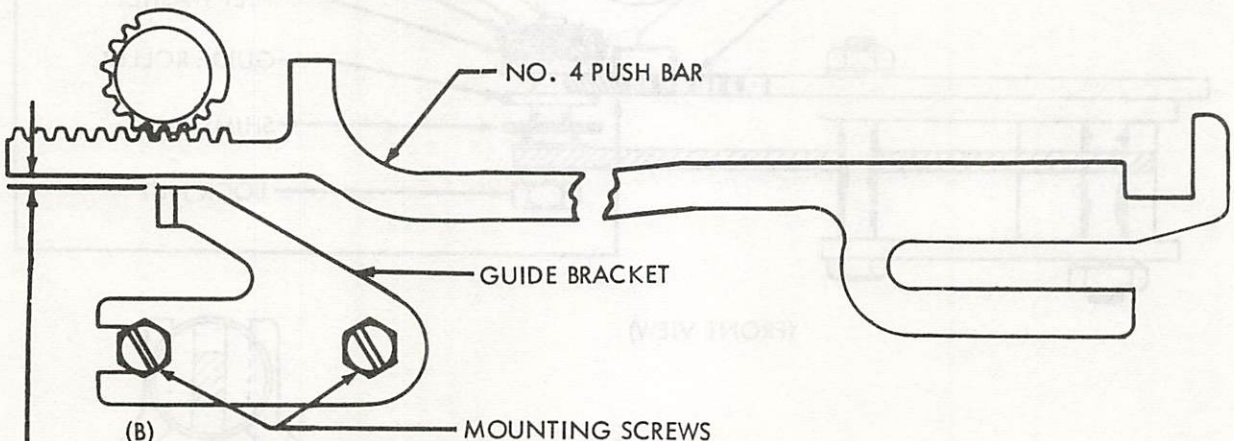
(A)
AXIAL OUTPUT RACK GUIDE ROLLER

TO CHECK
SELECT LINE FEED CODE COMBINATION (-2-4---8). ROTATE MAIN SHAFT UNTIL ECCENTRIC HAS ROTATED 90 DEGREES. TAKE UP PLAY TO MAKE CLEARANCE BETWEEN OUTPUT RACK AND GUIDE ROLLER MAXIMUM.

REQUIREMENT
MIN. SOME --- MAX. 0.008 INCH

TO ADJUST
POSITION GUIDE ROLLER MOUNTING STUD IN ELONGATED HOLE WITH LOCK NUT LOOSENED.

(TOP VIEW)



(B)
PUSH BAR GUIDE BRACKET

TO CHECK
MANUALLY SELECT CARRIAGE RETURN CODE COMBINATION (1-34---8). 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. 0.008 INCH
BETWEEN NO. 4 PUSH BAR AND GUIDE BRACKET THROUGHOUT COMPLETE TRAVEL OF BAR.

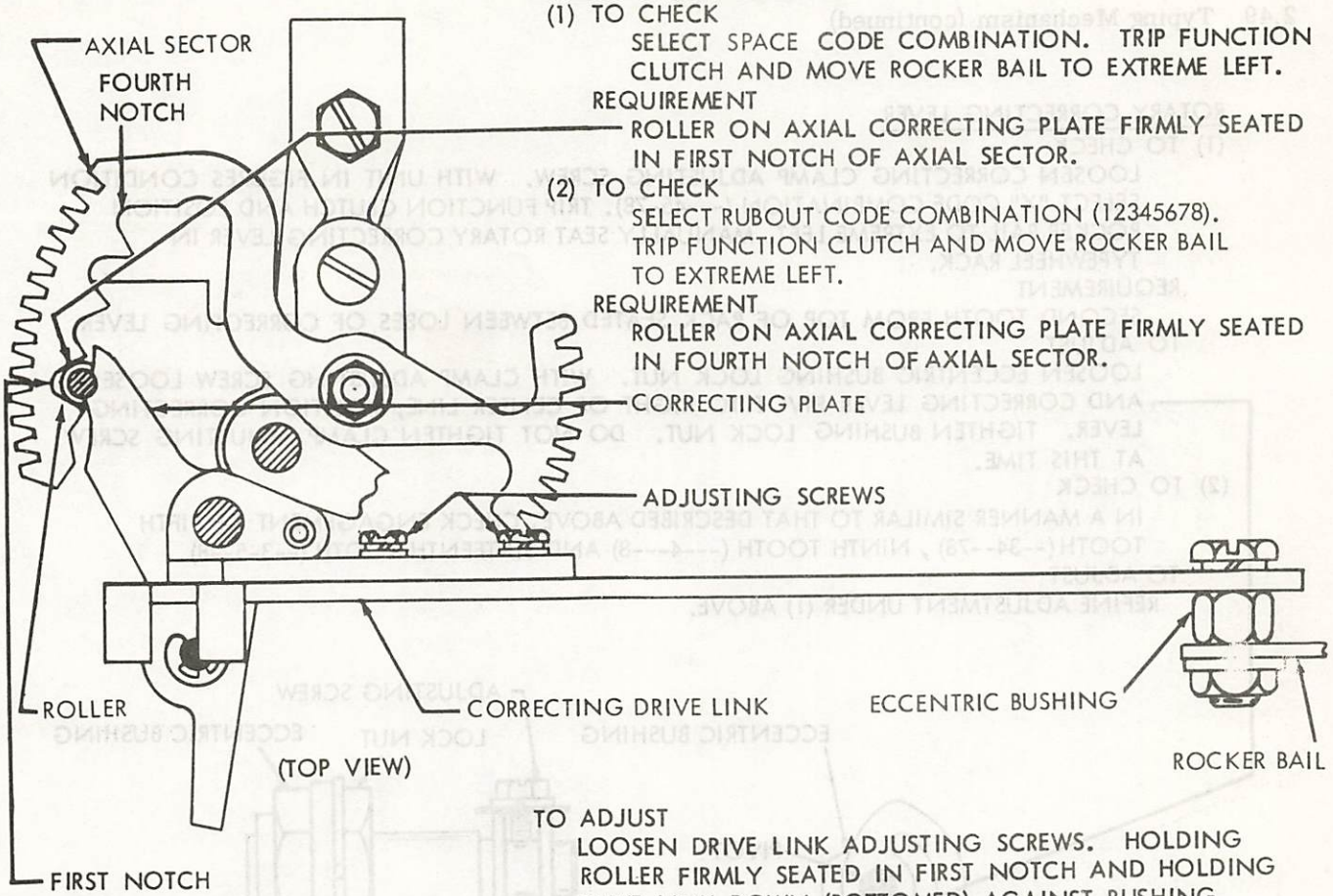
TO ADJUST
POSITION GUIDE BRACKET WITH MOUNTING SCREWS LOOSENED.

2.48 Typing Mechanism (continued)

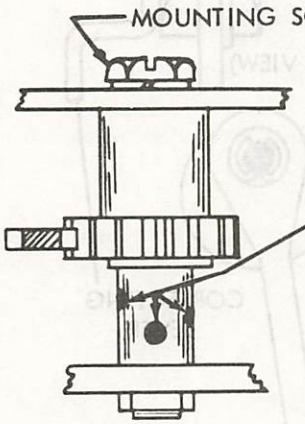
(A)
CORRECTING DRIVE LINK

(1) TO CHECK
SELECT SPACE CODE COMBINATION. TRIP FUNCTION CLUTCH AND MOVE ROCKER BAIL TO EXTREME LEFT.
REQUIREMENT
ROLLER ON AXIAL CORRECTING PLATE FIRMLY SEATED IN FIRST NOTCH OF AXIAL SECTOR.

(2) TO CHECK
SELECT RUBOUT CODE COMBINATION (12345678). TRIP FUNCTION CLUTCH AND MOVE ROCKER BAIL TO EXTREME LEFT.
REQUIREMENT
ROLLER ON AXIAL CORRECTING PLATE FIRMLY SEATED IN FOURTH NOTCH OF AXIAL SECTOR.



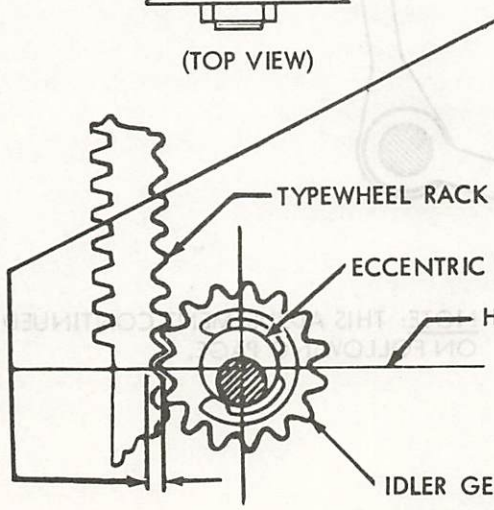
TO ADJUST
LOOSEN DRIVE LINK ADJUSTING SCREWS. HOLDING ROLLER FIRMLY SEATED IN FIRST NOTCH AND HOLDING DRIVE LINK DOWN (BOTTOMED) AGAINST BUSHING, TIGHTEN ADJUSTING SCREWS.



(B) IDLER GEAR ECCENTRIC SHAFT

REQUIREMENT
WITH UNIT IN RUBOUT CONDITION AND FUNCTION CLUTCH DISENGAGED:
MIN. SOME ---- MAX. 0.015 INCH
CLEARANCE BETWEEN TYPEWHEEL RACK TOOTH AND IDLER GEAR TOOTH.

TO ADJUST
WITH MOUNTING SCREW LOOSENED, POSITION IDLER GEAR ECCENTRIC SHAFT BY MEANS OF THREE ADJUSTING HOLES. CHECK RACK THROUGHOUT ITS TRAVEL FOR BINDS.



2.49 Typing Mechanism (continued)

ROTARY CORRECTING LEVER

(1) TO CHECK

LOOSEN CORRECTING CLAMP ADJUSTING SCREW. WITH UNIT IN FIGURES CONDITION SELECT "X" CODE COMBINATION (---45-78). TRIP FUNCTION CLUTCH AND POSITION ROCKER BAIL TO EXTREME LEFT. MANUALLY SEAT ROTARY CORRECTING LEVER IN TYPEWHEEL RACK.

REQUIREMENT

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

TO ADJUST

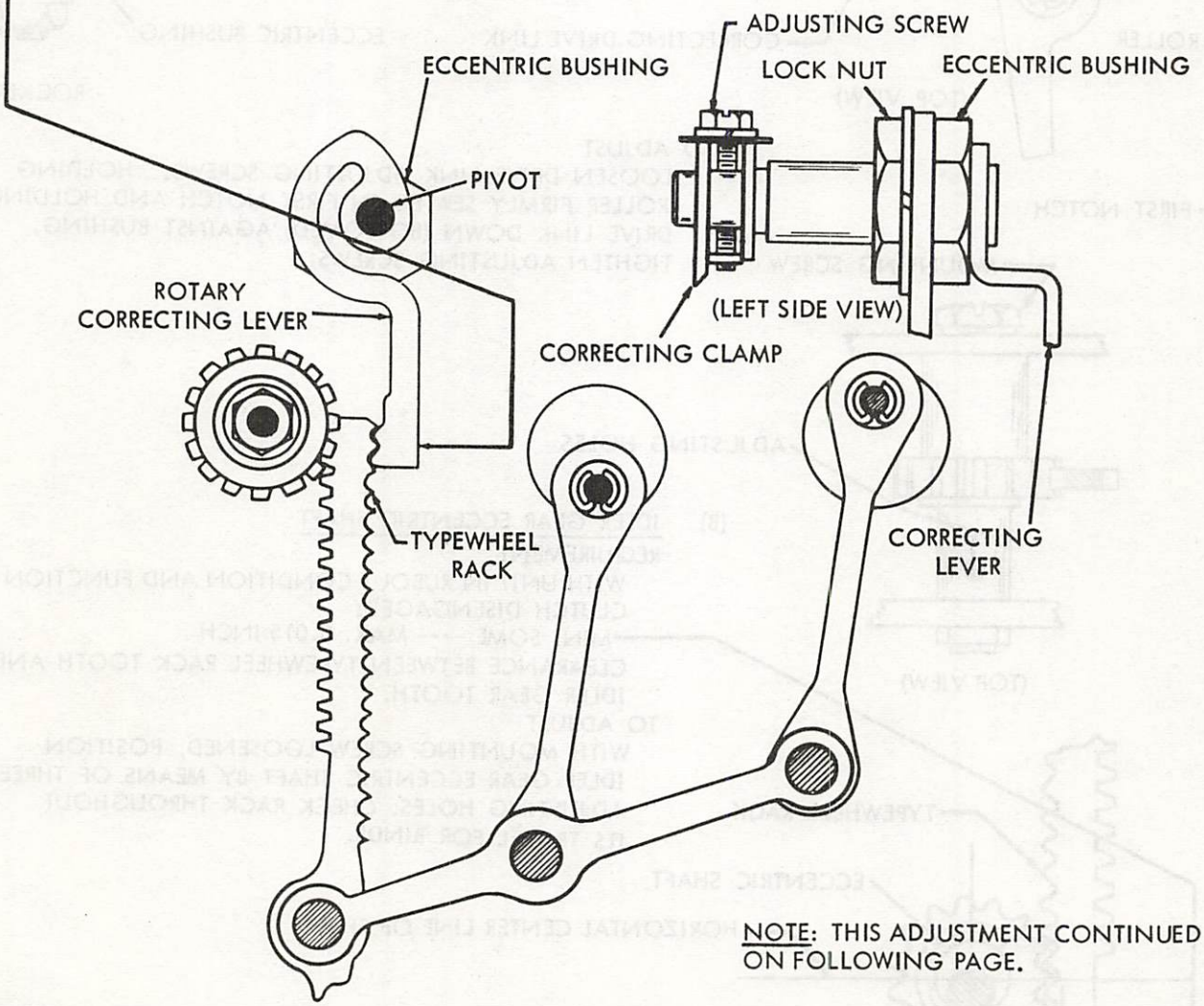
LOOSEN ECCENTRIC BUSHING LOCK NUT. WITH CLAMP ADJUSTING SCREW LOOSENED AND CORRECTING LEVER PIVOT TO RIGHT OF CENTER LINE, POSITION CORRECTING LEVER. TIGHTEN BUSHING LOCK NUT. DO NOT TIGHTEN CLAMP ADJUSTING SCREW AT THIS TIME.

(2) TO CHECK

IN A MANNER SIMILAR TO THAT DESCRIBED ABOVE, CHECK ENGAGEMENT OF FIFTH TOOTH (--34--78), NINTH TOOTH (---4---8) AND SIXTEENTH TOOTH (--3-5--8).

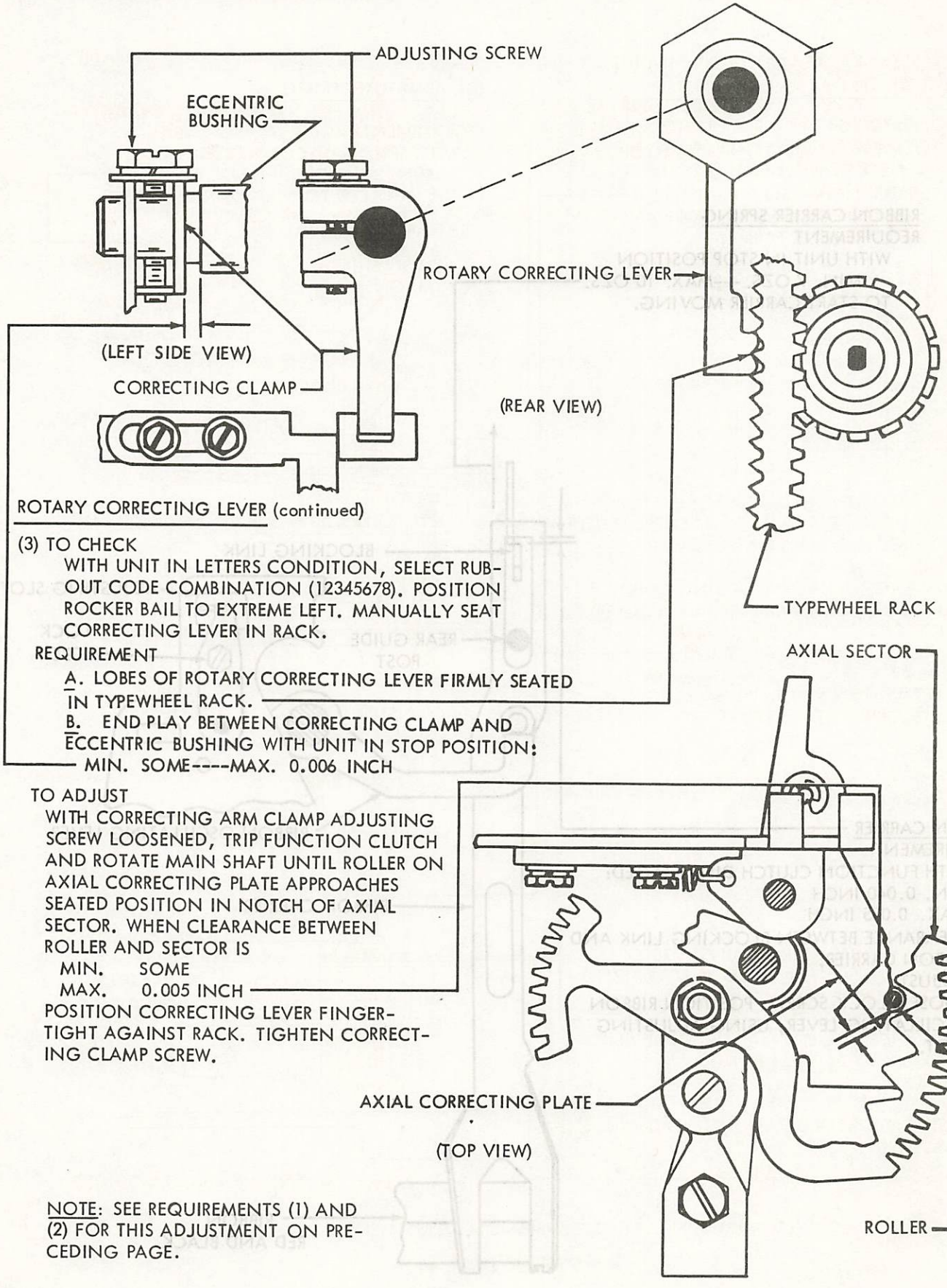
TO ADJUST

REFINE ADJUSTMENT UNDER (1) ABOVE.



NOTE: THIS ADJUSTMENT CONTINUED ON FOLLOWING PAGE.

2.50 Typing Mechanism (continued)



ROTARY CORRECTING LEVER (continued)

(3) TO CHECK
WITH UNIT IN LETTERS CONDITION, SELECT RUB-OUT CODE COMBINATION (12345678). POSITION ROCKER BAIL TO EXTREME LEFT. MANUALLY SEAT CORRECTING LEVER IN RACK.

REQUIREMENT

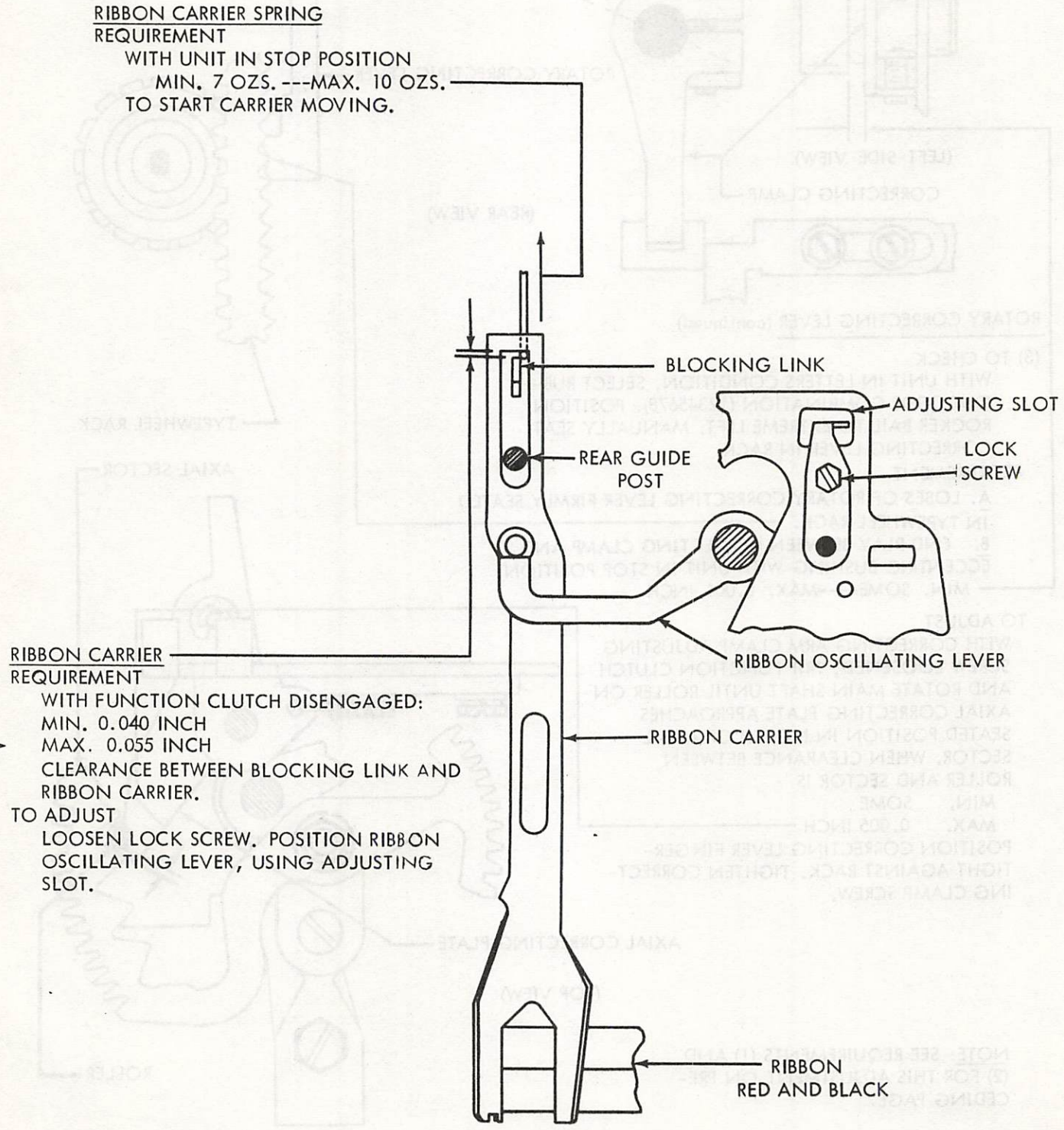
A. LOBES OF ROTARY CORRECTING LEVER FIRMLY SEATED IN TYPEWHEEL RACK.

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

TO ADJUST
WITH CORRECTING ARM 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 SCREW.

NOTE: SEE REQUIREMENTS (1) AND (2) FOR THIS ADJUSTMENT ON PRECEDING PAGE.

2.51 Ribbon Shift and Print Suppression Mechanism (continued)



2.52 Ribbon Shift and Print Suppression Mechanism - Early Design (continued)

(B) ARMATURE AIR GAP

REQUIREMENT
WITH ARMATURE ON DOWNSTOP SCREW
MIN. 0.015 INCH---MAX. 0.020 INCH
CLEARANCE BETWEEN MAGNET CORE AND ARMATURE AT CLOSEST POINT AND
MIN. SOME---MAX. 1/32 INCH
CLEARANCE BETWEEN REAR OF ARMATURE SLOT AND BLOCKING LINK AS GAGED BY EYE.

TO ADJUST
POSITION MAGNET BRACKET WITH SCREWS LOOSENED. CHECK FOR BINDS.

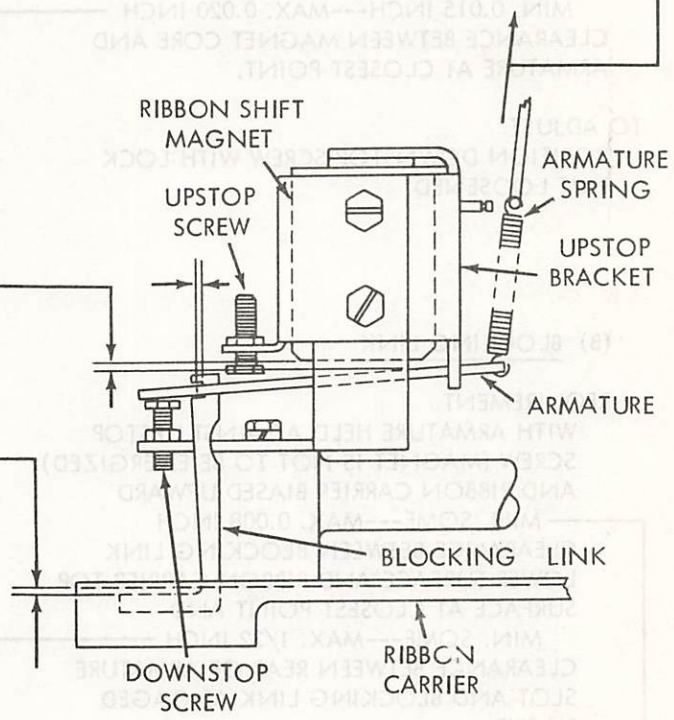
(A) ARMATURE DOWNSTOP

REQUIREMENT
WITH ROCKER BAIL IN EXTREME LEFT POSITION AND RIBBON CARRIER BIASED DOWNWARD
MIN. SOME---MAX. 0.005 INCH
CLEARANCE BETWEEN TOP SURFACE OF BLOCKING LINK AND LOWER SURFACE OF RIBBON CARRIER

TO ADJUST
POSITION ARMATURE DOWNSTOP SCREW WITH LOCK NUT LOOSENED.

(D) ARMATURE SPRING

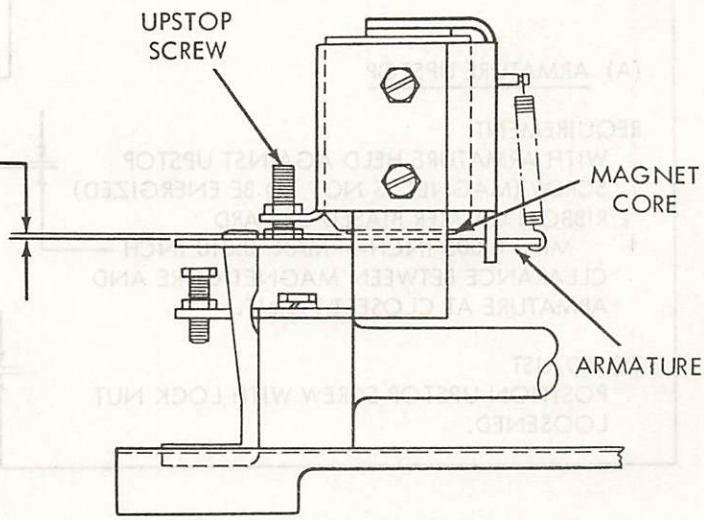
REQUIREMENT
WITH SPRING DISCONNECTED
MIN. 3-1/2 OZS. ---MAX. 4-1/2 OZS.
WHEN PULLED TO INSTALLED LENGTH.



(C) ARMATURE UPSTOP

REQUIREMENT
WITH ARMATURE HELD AGAINST UPSTOP SCREW (MAGNET IS NOT TO BE ENERGIZED)
MIN. 0.004 INCH---MAX. 0.007 INCH
CLEARANCE BETWEEN MAGNET CORE AND ARMATURE AT CLOSEST POINT.

TO ADJUST
POSITION UPSTOP SCREW WITH LOCK NUT LOOSENED.



NOTE: REFER TO PART 3 FOR ADDITIONAL PRINT SUPPRESSION ADJUSTMENTS.

2.53 Ribbon Shift and Print Suppression Mechanism - Latest Design (continued)

(C) ARMATURE AIR GAP AND DOWNSTOP

REQUIREMENT
WITH ARMATURE RESTING ON DOWNSTOP SCREW
MIN. 0.015 INCH---MAX. 0.020 INCH CLEARANCE BETWEEN MAGNET CORE AND ARMATURE AT CLOSEST POINT.

TO ADJUST
POSITION DOWNSTOP SCREW WITH LOCK NUT LOOSENED.

(B) BLOCKING LINK

REQUIREMENT
WITH ARMATURE HELD AGAINST UPSTOP SCREW (MAGNET IS NOT TO BE ENERGIZED) AND RIBBON CARRIER BIASED UPWARD
MIN. SOME---MAX. 0.008 INCH CLEARANCE BETWEEN BLOCKING LINK LOWER SURFACE AND RIBBON CARRIER TOP SURFACE AT CLOSEST POINT AND
MIN. SOME---MAX. 1/32 INCH CLEARANCE BETWEEN REAR OF ARMATURE SLOT AND BLOCKING LINK AS GAGED BY EYE.

TO ADJUST
POSITION MAGNET BRACKET WITH SCREW LOOSENED.

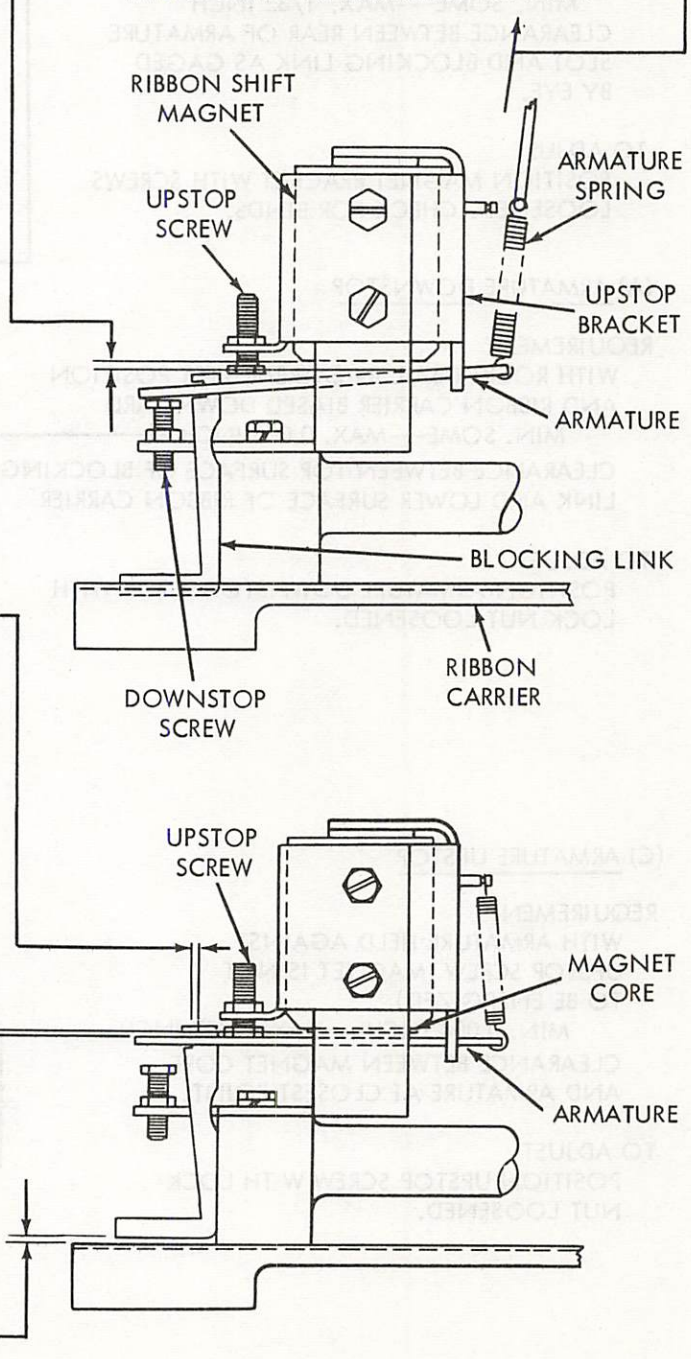
(A) ARMATURE UPSTOP

REQUIREMENT
WITH ARMATURE HELD AGAINST UPSTOP SCREW (MAGNET IS NOT TO BE ENERGIZED) RIBBON CARRIER BIASED UPWARD
MIN. 0.005 INCH---MAX. 0.010 INCH CLEARANCE BETWEEN MAGNET CORE AND ARMATURE AT CLOSEST POINT.

TO ADJUST
POSITION UPSTOP SCREW WITH LOCK NUT LOOSENED.

(D) ARMATURE SPRING

REQUIREMENT
WITH SPRING DISCONNECTED
MIN. 3-1/2 OZS.---MAX. 4-1/2 OZS. WHEN PULLED TO INSTALLED LENGTH.



NOTE: REFER TO PART 3 FOR ADDITIONAL PRINT SUPPRESSION ADJUSTMENTS.

2.54 Typing Mechanism (continued)

PRINTING TRIP LINK

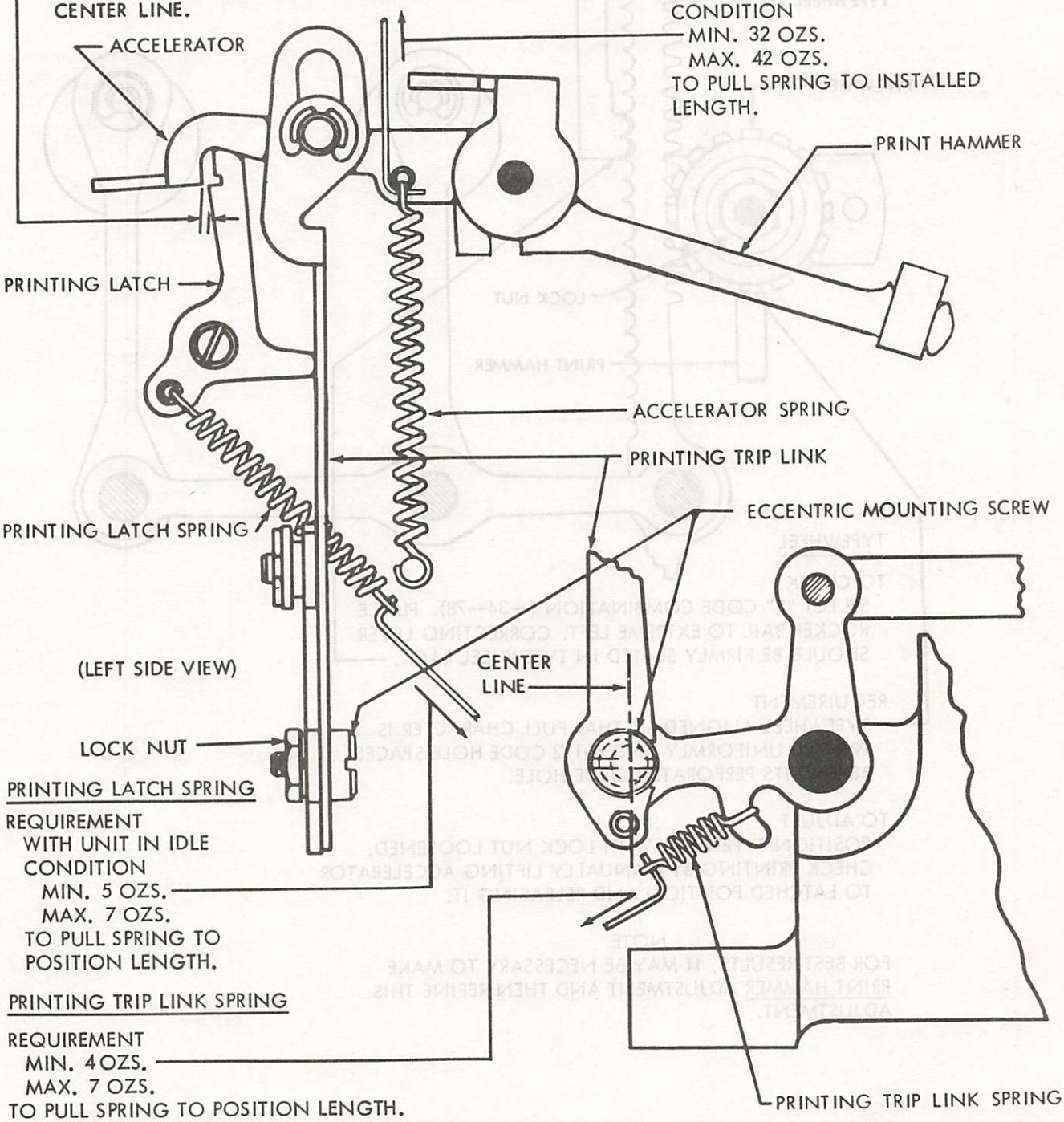
TO CHECK
TRIP FUNCTION CLUTCH AND POSITION ROCKER BAIL TO EXTREME LEFT. MANUALLY LIFT ACCELERATOR SO THAT LATCHING SURFACES OF PRINTING LATCH AND ACCELERATOR ARE EVEN.

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

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

ACCELERATOR SPRING

REQUIREMENT
WITH UNIT IN STOP CONDITION
MIN. 32 OZS.
MAX. 42 OZS.
TO PULL SPRING TO INSTALLED LENGTH.



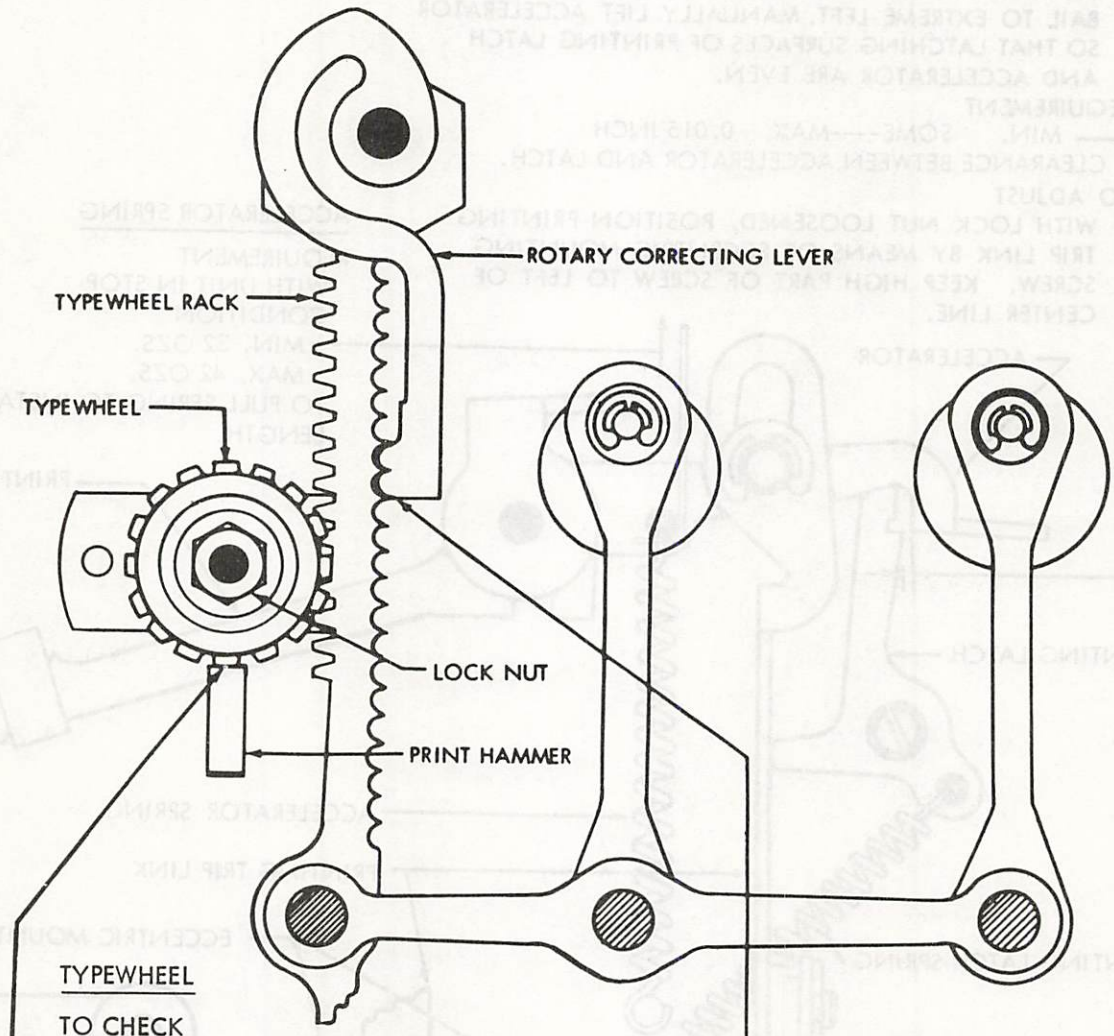
PRINTING LATCH SPRING

REQUIREMENT
WITH UNIT IN IDLE CONDITION
MIN. 5 OZS.
MAX. 7 OZS.
TO PULL SPRING TO POSITION LENGTH.

PRINTING TRIP LINK SPRING

REQUIREMENT
MIN. 4 OZS.
MAX. 7 OZS.
TO PULL SPRING TO POSITION LENGTH.

2.55 Typing Mechanism (continued)



TYPEWHEEL

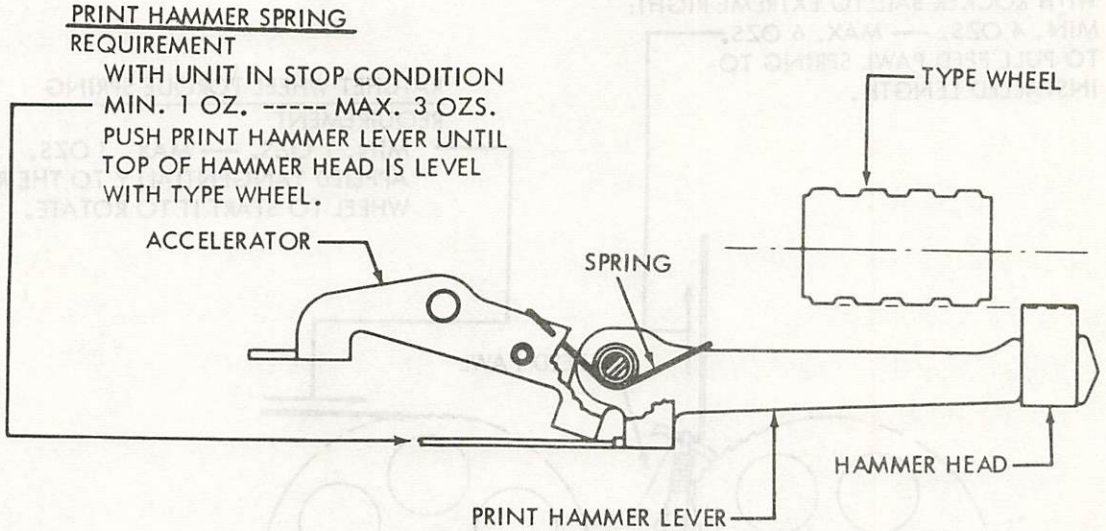
TO CHECK
SELECT "L" CODE COMBINATION (--34--78). PLACE ROCKER BAIL TO EXTREME LEFT. CORRECTING LEVER SHOULD BE FIRMLY SEATED IN TYPEWHEEL RACK.

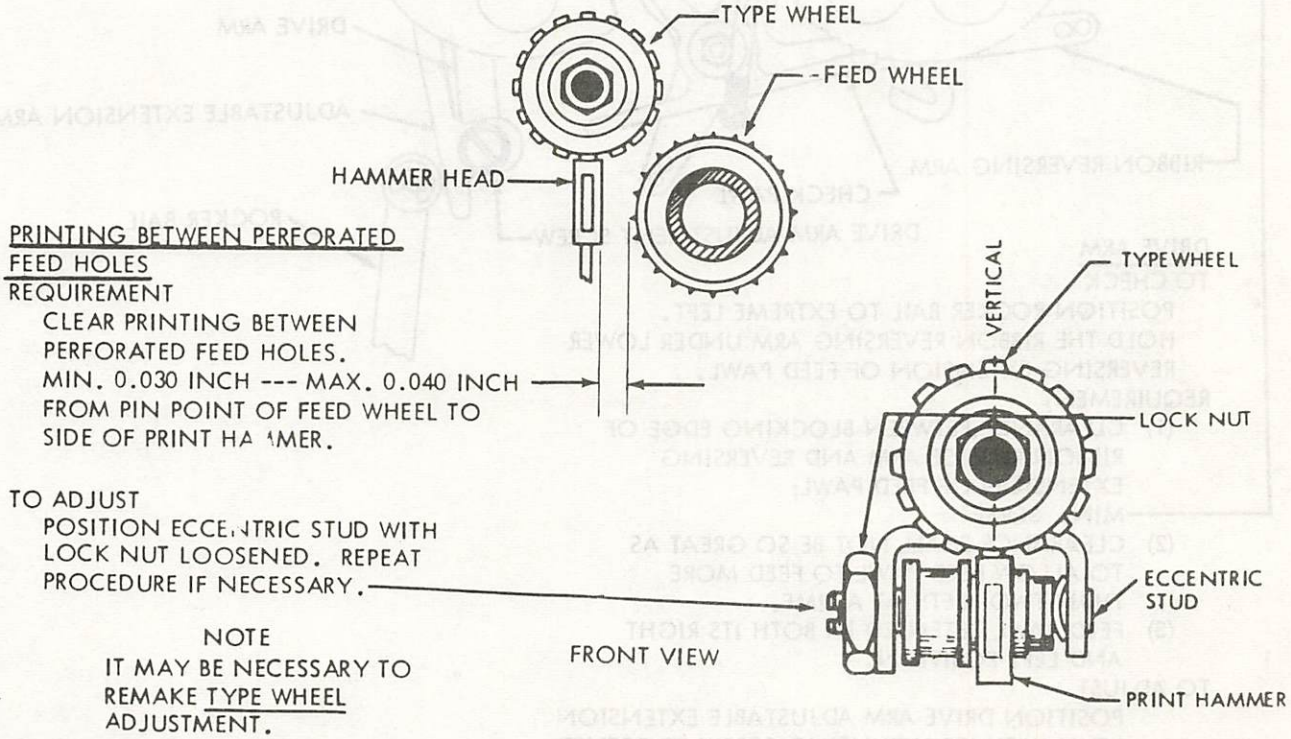
REQUIREMENT
TYPEWHEEL ALIGNED SO THAT FULL CHARACTER IS PRINTED UNIFORMLY AND 6-1/2 CODE HOLE SPACES BEHIND ITS PERFORATED CODE HOLE.

TO ADJUST
POSITION TYPEWHEEL WITH LOCK NUT LOOSENED. CHECK PRINTING BY MANUALLY LIFTING ACCELERATOR TO LATCHED POSITION AND RELEASING IT.

NOTE
FOR BEST RESULTS, IT MAY BE NECESSARY TO MAKE PRINT HAMMER ADJUSTMENT AND THEN REFINE THIS ADJUSTMENT.

2.56 Typing Mechanism (continued)





2.57 Typing Mechanism (continued)

FEED PAWL SPRING

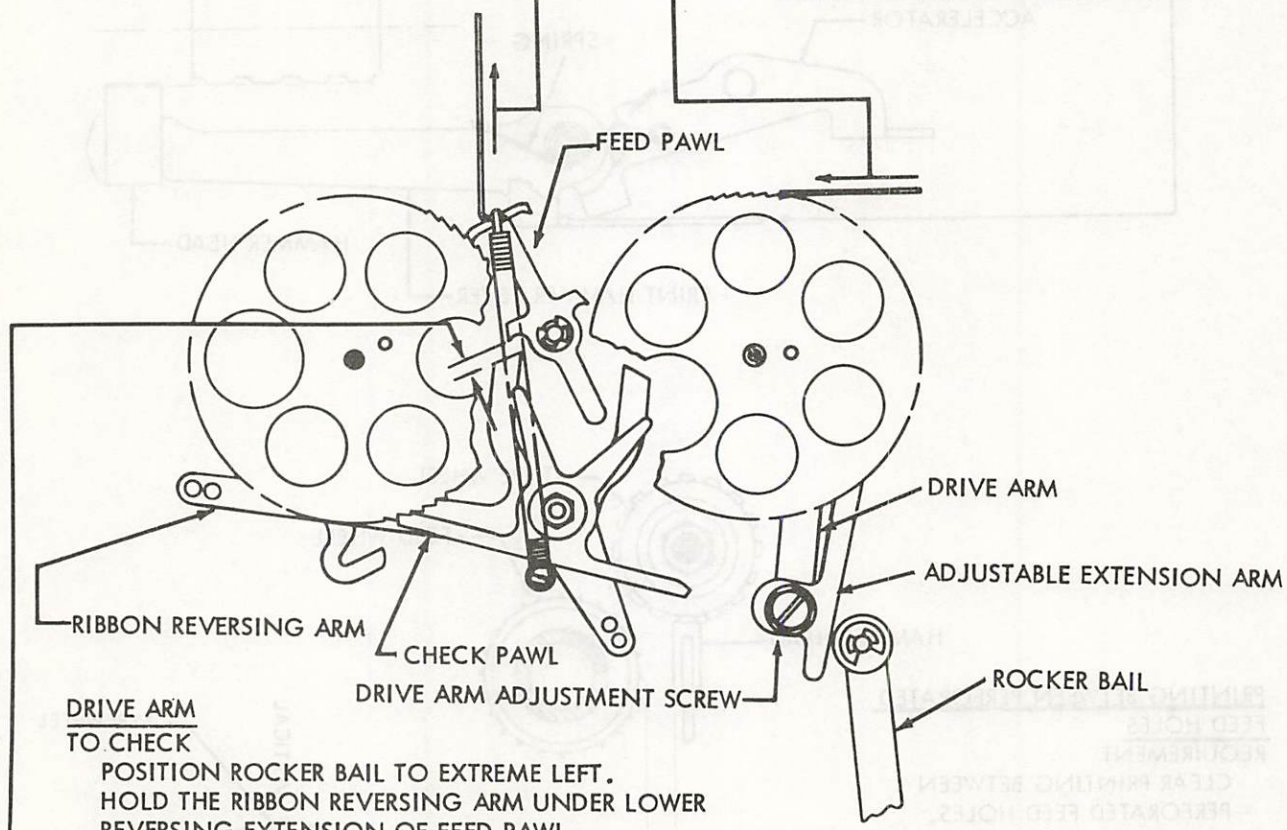
REQUIREMENT

WITH ROCKER BAIL TO EXTREME RIGHT:
MIN. 4 OZS. --- MAX. 6 OZS.
TO PULL FEED PAWL SPRING TO
INSTALLED LENGTH.

RATCHET WHEEL TORQUE SPRING

REQUIREMENT

MIN. 1 OZS. --- MAX. 3 OZS.
APPLIED TANGENTIALLY TO THE RATCHET
WHEEL TO START IT TO ROTATE.



DRIVE ARM

TO CHECK

POSITION ROCKER BAIL TO EXTREME LEFT.
HOLD THE RIBBON REVERSING ARM UNDER LOWER
REVERSING EXTENSION OF FEED PAWL.

REQUIREMENT

(1) CLEARANCE BETWEEN BLOCKING EDGE OF
RIBBON REVERSE ARM AND REVERSING
EXTENSION OF FEED PAWL:
MIN. SOME

(2) CLEARANCE SHALL NOT BE SO GREAT AS
TO ALLOW FEED PAWL TO FEED MORE
THAN TWO TEETH AT A TIME.

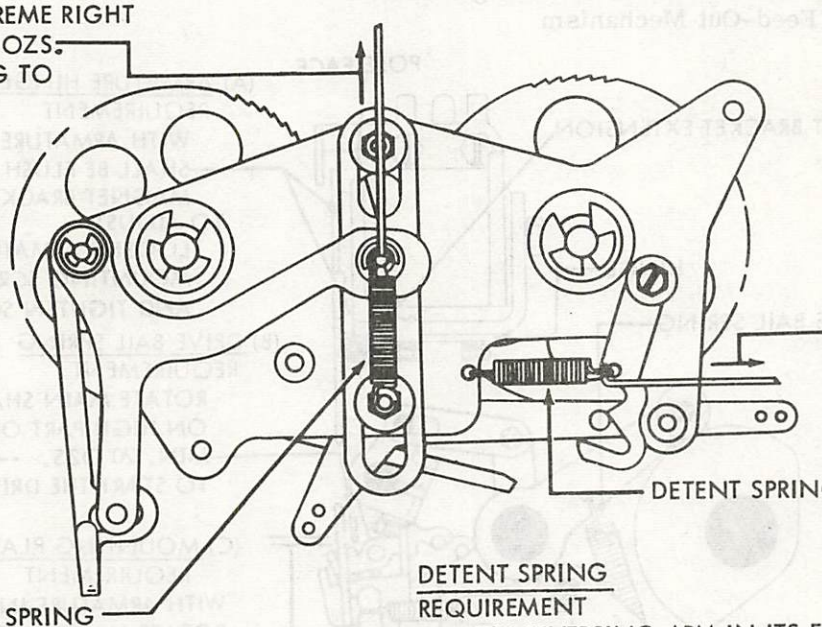
(3) FEED PAWL DETENTED IN BOTH ITS RIGHT
AND LEFT POSITION.

TO ADJUST

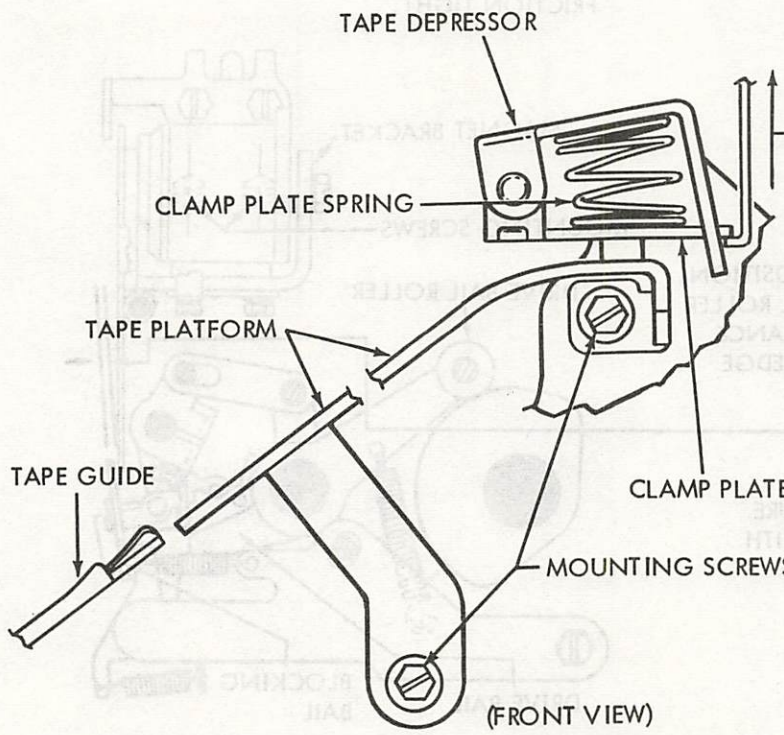
POSITION DRIVE ARM ADJUSTABLE EXTENSION
LEVER WITH ITS MOUNTING SCREW LOOSENED.

2.58 Typing and Tape Depressor Mechanisms

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



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



TAPE PLATFORM
REQUIREMENT
TOP SURFACE OF TAPE PLATFORM
SHOULD BE FLUSH WITH TOP
SURFACE OF TAPE GUIDE.

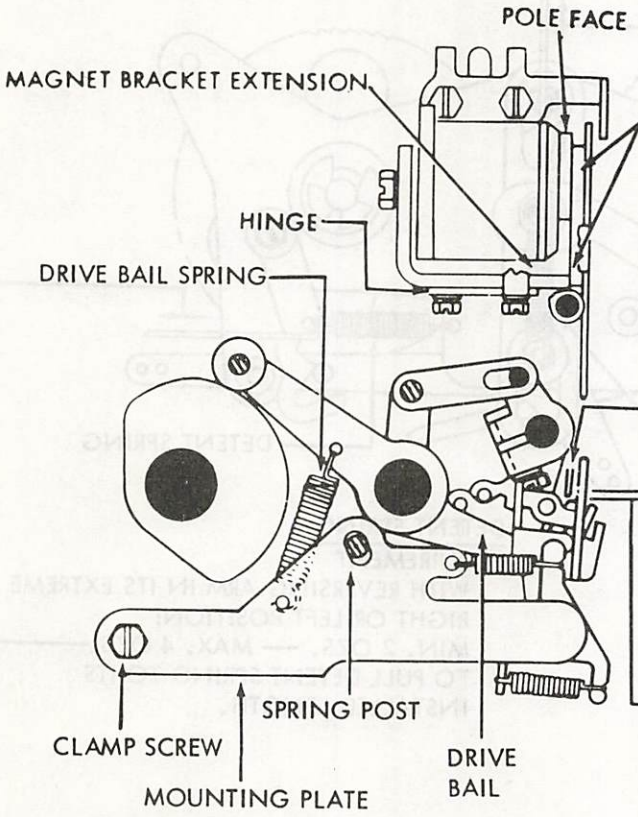
TO ADJUST
WITH TAPE PLATFORM MOUNTING
SCREWS LOOSENED, POSITION
TAPE PLATFORM.

CLAMP PLATE SPRING
REQUIREMENT
FUNCTION CLUTCH DISENGAGED
AND LATCHED. CLAMP PLATE SPRING
BOWED TO THE RIGHT.
MIN. 18 OZS. --- MAX. 24 OZS.
TO MOVE CLAMP PLATE FROM BOTTOM
OF SLOT IN TAPE DEPRESSOR.

3. VARIABLE FEATURES

REMOTE CONTROL NON-INTERFERING RUBOUT TAPE FEED-OUT MECHANISM

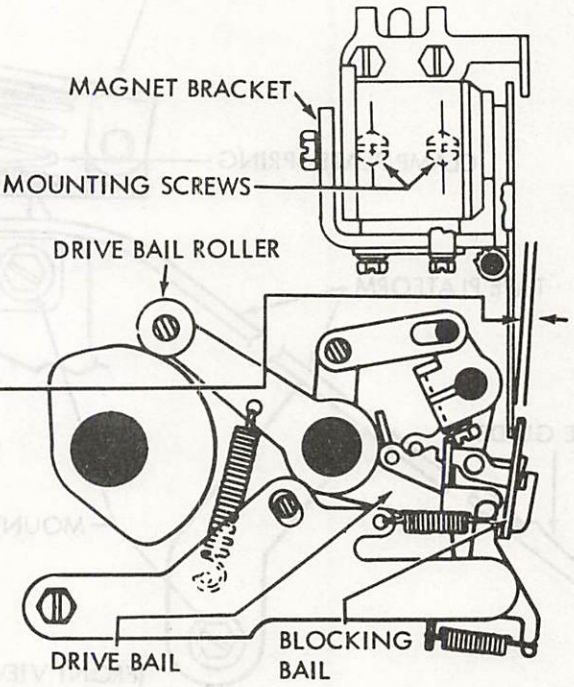
3.01 Remote Control Non-Interfering RUBOUT Tape Feed-Out Mechanism



(A) ARMATURE HINGE
REQUIREMENT
WITH ARMATURE MANUALLY OPERATED, IT SHALL BE FLUSH AGAINST POLE FACE AND MAGNET BRACKET EXTENSION.
TO ADJUST
LOOSEN ARMATURE HINGE BRACKET MOUNTING SCREWS, POSITION ARMATURE AND TIGHTEN SCREWS.

(B) DRIVE BAIL SPRING
REQUIREMENT
ROTATE MAIN SHAFT UNTIL DRIVE BAIL IS ON HIGH PART OF ITS CAM.
MIN. 20 OZS. --- MAX. 28 OZS.
TO START THE DRIVE BAIL MOVING.

(C) MOUNTING PLATE
REQUIREMENT
WITH ARMATURE IN UNOPERATED POSITION. ROTATE MAIN SHAFT UNTIL DRIVE BAIL IS ON HIGH PART OF ITS CAM. CLEARANCE BETWEEN THE BLOCKING BAIL AND DRIVE BAIL SURFACE.
MIN. 0.006 INCH
MAX. 0.015 INCH
TO ADJUST
POSITION BLOCKING BAIL WITH MOUNTING PLATE CLAMP SCREW AND SPRING POST FRICTION TIGHT.

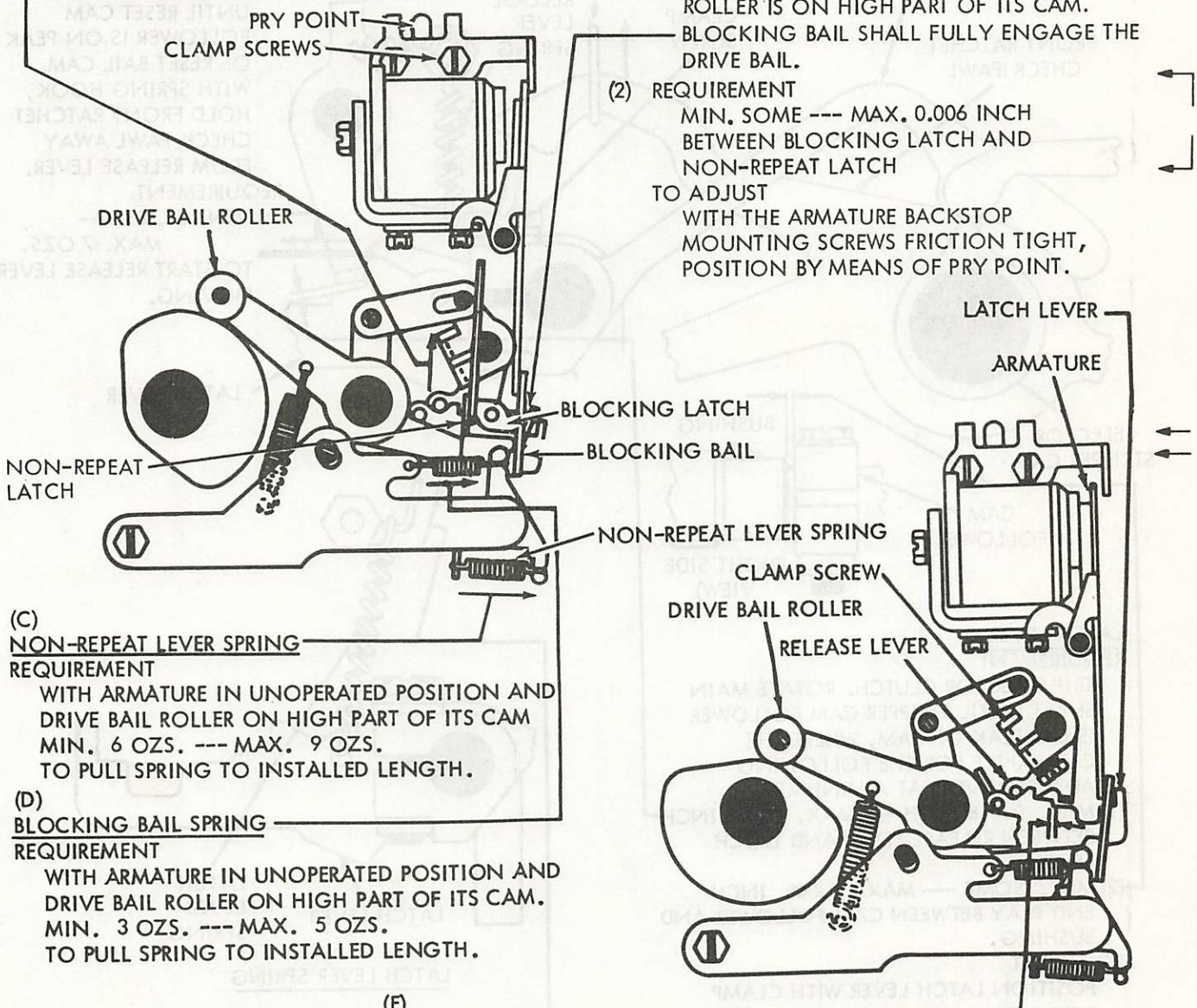


(D) MAGNET ASSEMBLY
REQUIREMENT
WITH ARMATURE HELD IN OPERATED POSITION, ROTATE MAIN SHAFT UNTIL DRIVE BAIL ROLLER IS ON HIGH PART OF ITS CAM. CLEARANCE BETWEEN BLOCKING BAIL AND RIGHT EDGE OF DRIVE BAIL.
MIN. 0.005 INCH
MAX. 0.015 INCH
TO ADJUST
POSITION MAGNET ASSEMBLY, ARMATURE HELD AGAINST MAGNET POLE PIECE WITH MAGNET BRACKET MOUNTING SCREWS FRICTION TIGHT.

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

(A)
BLOCKING LATCH TORSION SPRING
REQUIREMENT
WITH ARMATURE IN UNOPERATED POSITION AND DRIVE BAIL ROLLER ON HIGH PART OF ITS CAM.
MIN. 15 GRAMS.---MAX. 40 GRAMS
TO START BLOCKING LATCH MOVING.

(B)
ARMATURE BACKSTOP
(1) REQUIREMENT
WITH ARMATURE IN UNOPERATED POSITION, ROTATE MAIN SHAFT UNTIL DRIVE BAIL ROLLER IS ON HIGH PART OF ITS CAM.
BLOCKING BAIL SHALL FULLY ENGAGE THE DRIVE BAIL.
(2) REQUIREMENT
MIN. SOME --- MAX. 0.006 INCH
BETWEEN BLOCKING LATCH AND NON-REPEAT LATCH
TO ADJUST
WITH THE ARMATURE BACKSTOP MOUNTING SCREWS FRICTION TIGHT, POSITION BY MEANS OF PRY POINT.

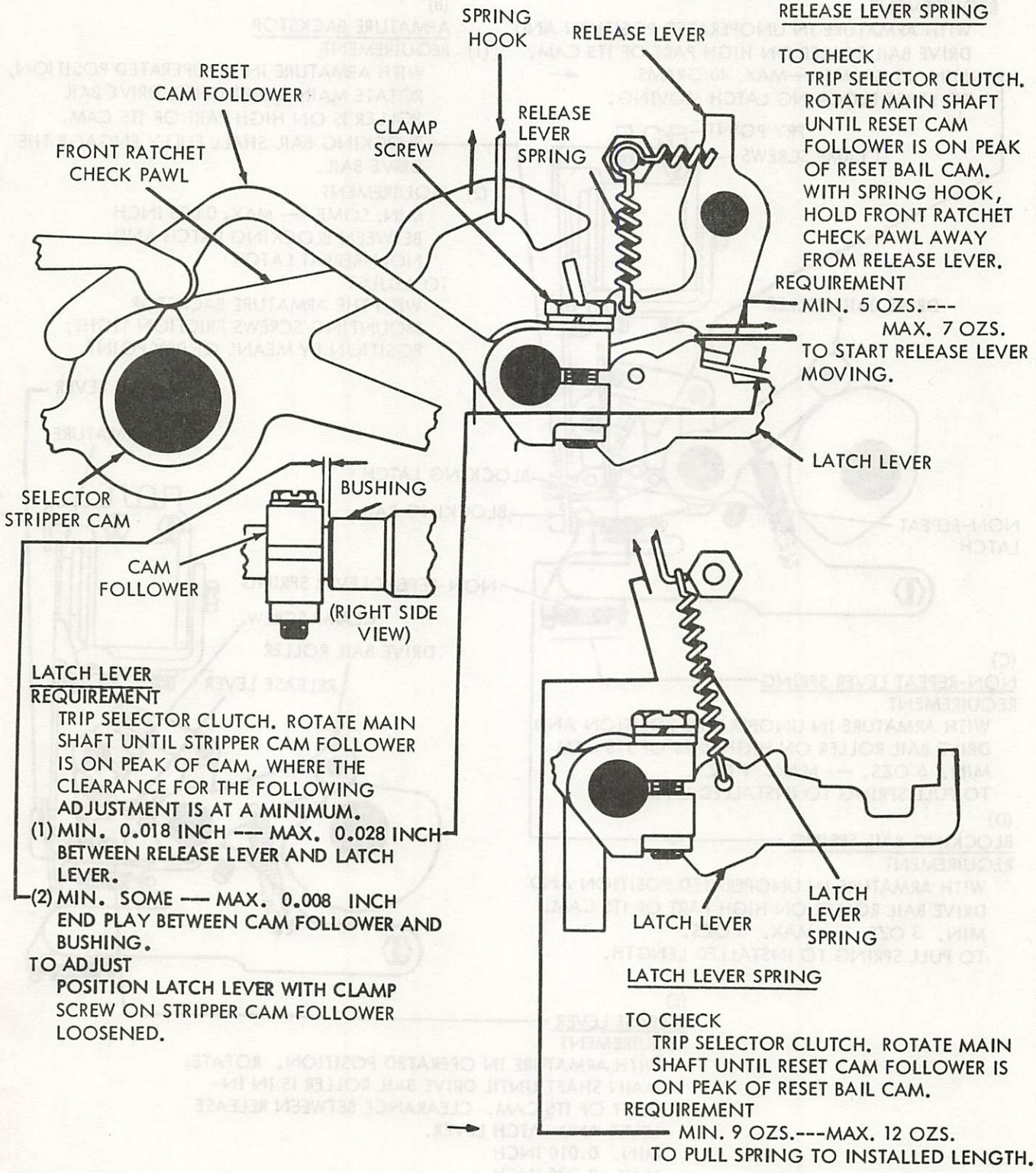


(C)
NON-REPEAT LEVER SPRING
REQUIREMENT
WITH ARMATURE IN UNOPERATED POSITION AND DRIVE BAIL ROLLER ON HIGH PART OF ITS CAM
MIN. 6 OZS. --- MAX. 9 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

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

(E)
RELEASE LEVER
REQUIREMENT
WITH ARMATURE IN OPERATED POSITION. ROTATE MAIN SHAFT UNTIL DRIVE BAIL ROLLER IS IN INDENT OF ITS CAM. CLEARANCE BETWEEN RELEASE LEVER AND LATCH LEVER.
MIN. 0.010 INCH
MAX. 0.025 INCH
TO ADJUST
WITH CLAMP SCREW FRICTION TIGHT POSITION RELEASE LEVER.

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



RELEASE LEVER SPRING

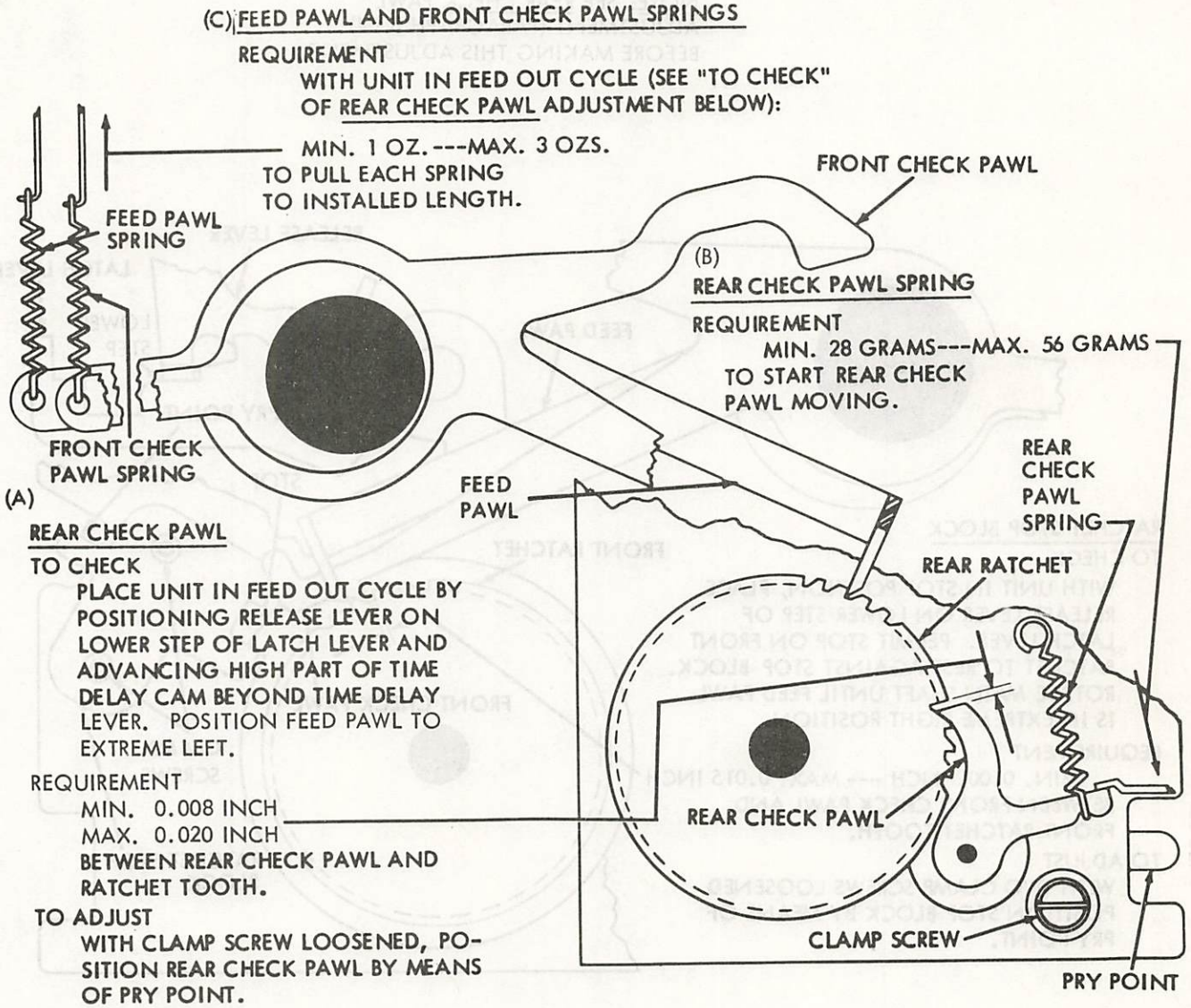
TO CHECK
TRIP SELECTOR CLUTCH. ROTATE MAIN SHAFT UNTIL RESET CAM FOLLOWER IS ON PEAK OF RESET BAIL CAM. WITH SPRING HOOK, HOLD FRONT RATCHET CHECK PAWL AWAY FROM RELEASE LEVER.
REQUIREMENT
MIN. 5 OZS.---
MAX. 7 OZS.
TO START RELEASE LEVER MOVING.

LATCH LEVER
REQUIREMENT
TRIP SELECTOR CLUTCH. ROTATE MAIN SHAFT UNTIL STRIPPER CAM FOLLOWER IS ON PEAK OF CAM, WHERE THE CLEARANCE FOR THE FOLLOWING ADJUSTMENT IS AT A MINIMUM.
(1) MIN. 0.018 INCH --- MAX. 0.028 INCH BETWEEN RELEASE LEVER AND LATCH LEVER.
(2) MIN. SOME --- MAX. 0.008 INCH END PLAY BETWEEN CAM FOLLOWER AND BUSHING.
TO ADJUST
POSITION LATCH LEVER WITH CLAMP SCREW ON STRIPPER CAM FOLLOWER LOOSENED.

LATCH LEVER SPRING

TO CHECK
TRIP SELECTOR CLUTCH. ROTATE MAIN SHAFT UNTIL RESET CAM FOLLOWER IS ON PEAK OF RESET BAIL CAM.
REQUIREMENT
MIN. 9 OZS.---MAX. 12 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

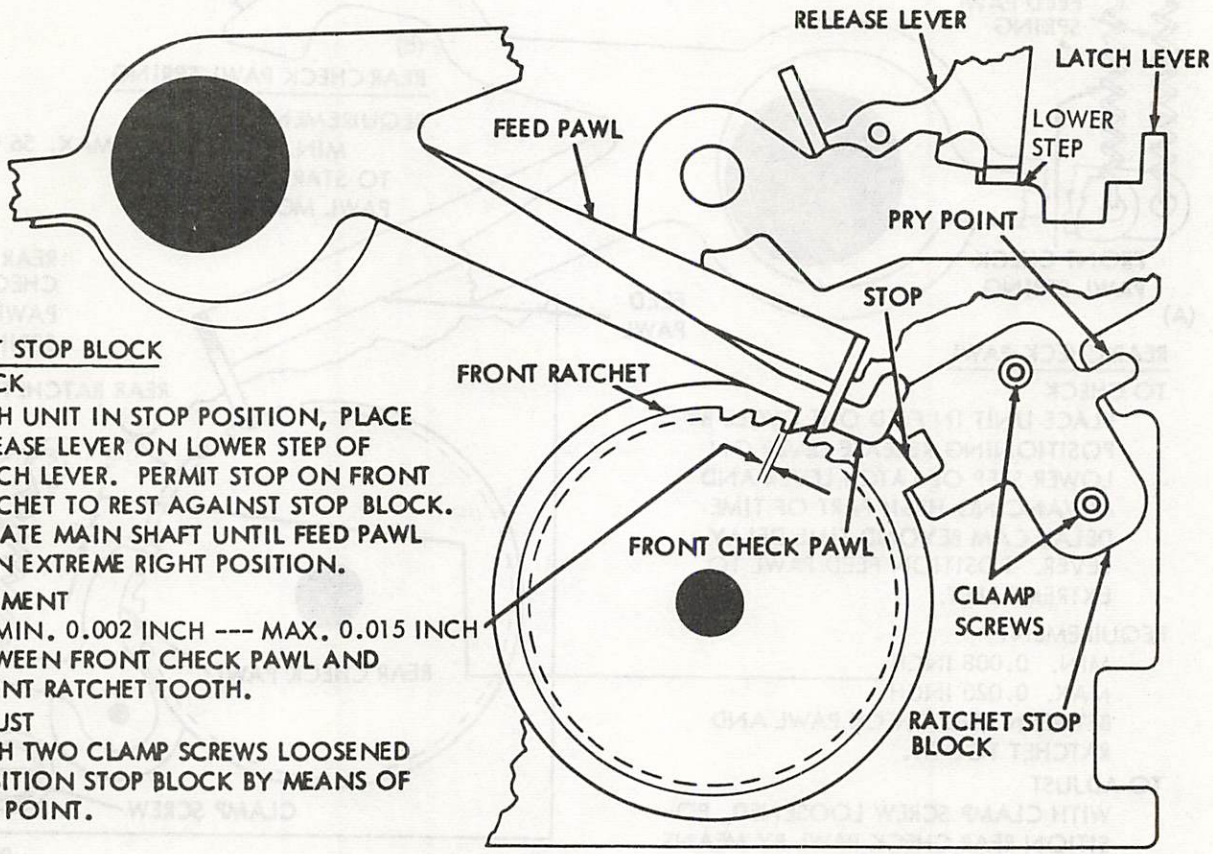
3.04 Remote Control Non-Interfering
RUBOUT Tape Feed-Out Mechanism (continued)



NOTE: PROCEED TO RATCHET STOP BLOCK ADJUSTMENT (PARAGRAPH 3.05).

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

NOTE: SEE REAR CHECK PAWL ADJUSTMENT (PARAGRAPH 3.04) BEFORE MAKING THIS ADJUSTMENT.



RATCHET STOP BLOCK

TO CHECK

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

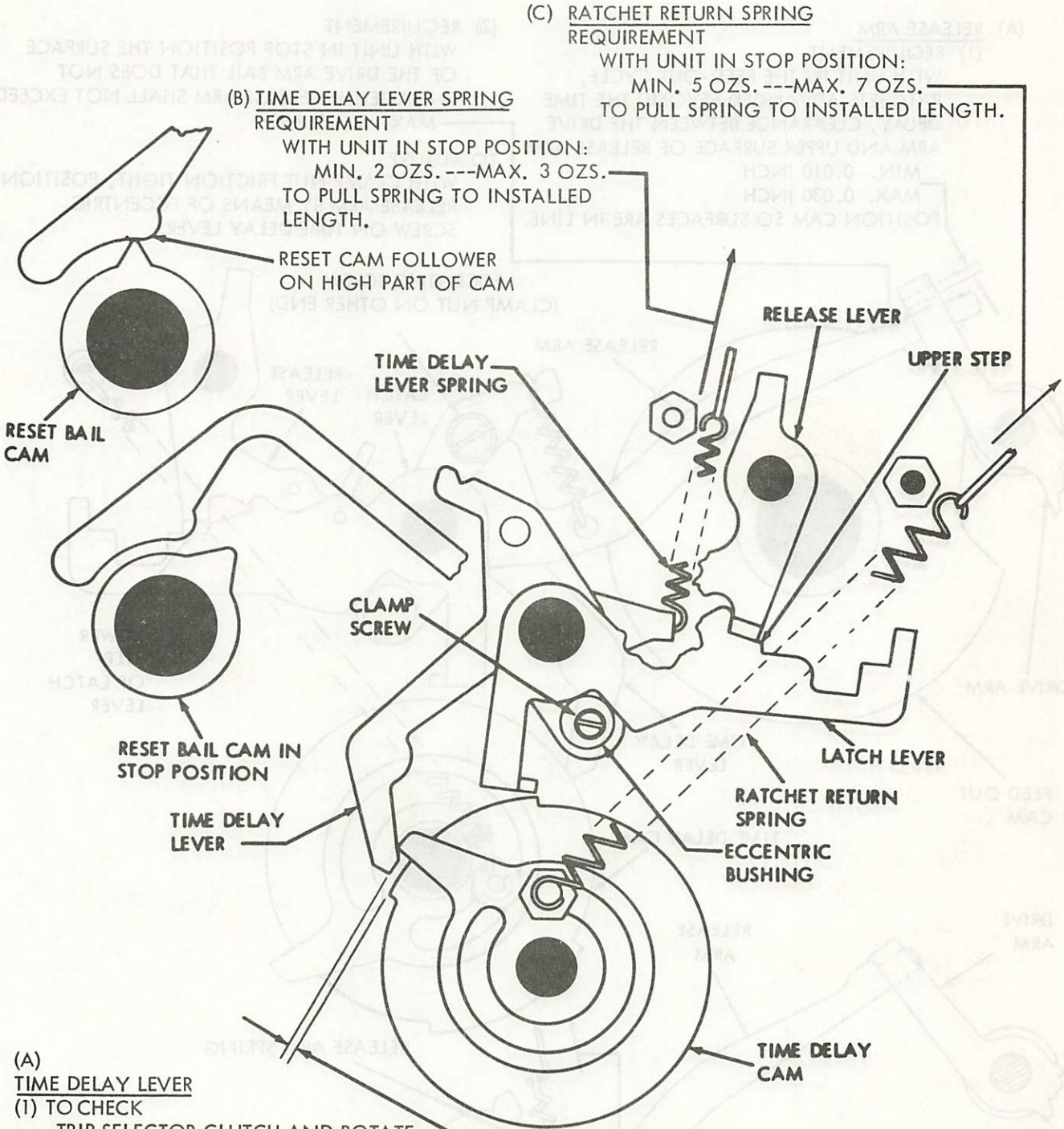
REQUIREMENT

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

TO ADJUST

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

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



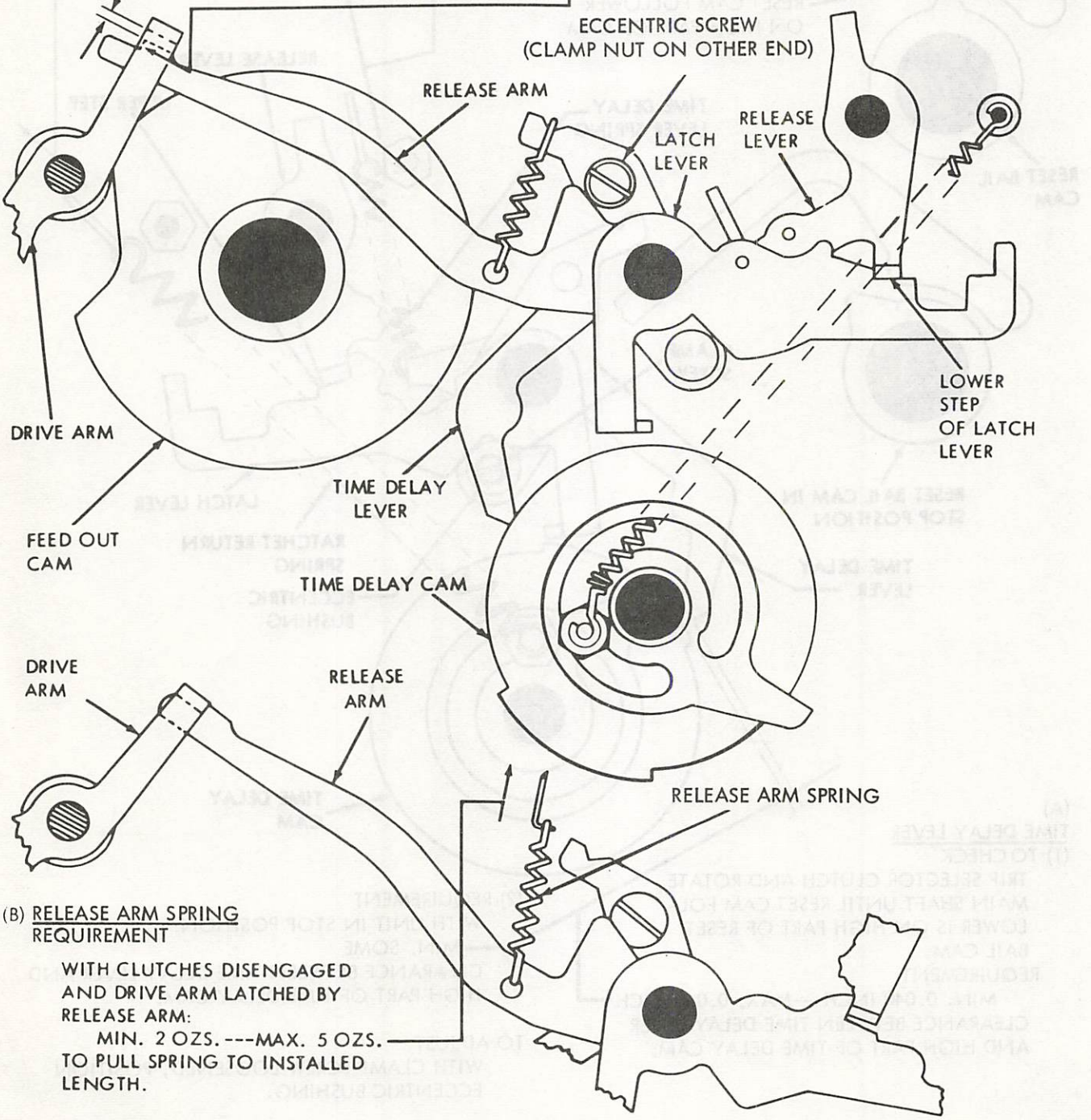
3.07 Remote Control Non-Interfering
RUBOUT Tape Feed-Out Mechanism (continued)

(A) RELEASE ARM

(1) REQUIREMENT
WITH UNIT IN THE FEED-OUT CYCLE, RATCHETS ADVANCED BEYOND THE TIME DELAY, CLEARANCE BETWEEN THE DRIVE ARM AND UPPER SURFACE OF RELEASE ARM
MIN. 0.010 INCH
MAX. 0.030 INCH
POSITION CAM SO SURFACES ARE IN LINE.

(2) REQUIREMENT
WITH UNIT IN STOP POSITION THE SURFACE OF THE DRIVE ARM BAIL THAT DOES NOT ENGAGE THE RELEASE ARM SHALL NOT EXCEED MAX. 0.015 INCH

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



(B) RELEASE ARM SPRING
REQUIREMENT

WITH CLUTCHES DISENGAGED AND DRIVE ARM LATCHED BY RELEASE ARM:
MIN. 2 OZS. ---MAX. 5 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

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

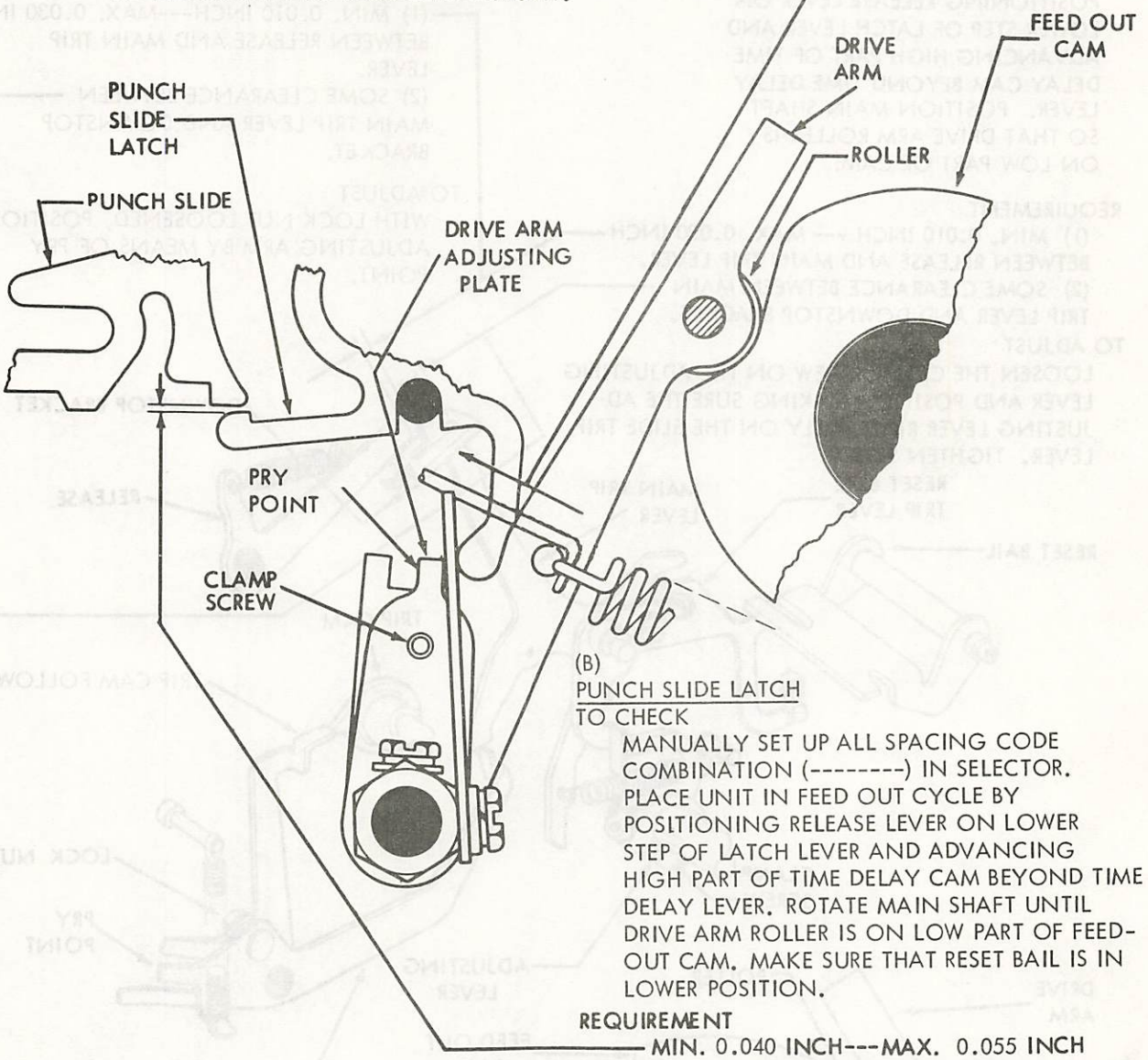
(A) DRIVE ARM SPRING

REQUIREMENT

WITH UNIT IN FEED-OUT CYCLE AND DRIVE ARM ROLLER HELD FIRMLY AGAINST ITS CAM INDENT.

MIN. 42 OZS. ---MAX. 50 OZS.

TO PULL SPRING TO INSTALLED LENGTH.



(B)

PUNCH SLIDE LATCH

TO CHECK

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

REQUIREMENT

MIN. 0.040 INCH---MAX. 0.055 INCH BETWEEN PUNCH SLIDE AND PUNCH SLIDE LATCH AT SLIDE WHERE CLEARANCE IS LEAST.

TO ADJUST

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

NOTE: THERE SHALL BE SOME CLEARANCE BETWEEN THE PUNCH SLIDE LATCHES AND THE PUNCH SLIDE LATCH TRIP PLATE WHEN THE DRIVE ARM IS LATCHED BY THE RELEASE ARM AND THE RELEASE ARM ROLLER IS OVER THE INDENT OF THE CAM. REFINE ADJUSTMENT IF NECESSARY.

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

(B) ADJUSTING LEVER

TO CHECK

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

REQUIREMENT

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

TO ADJUST

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

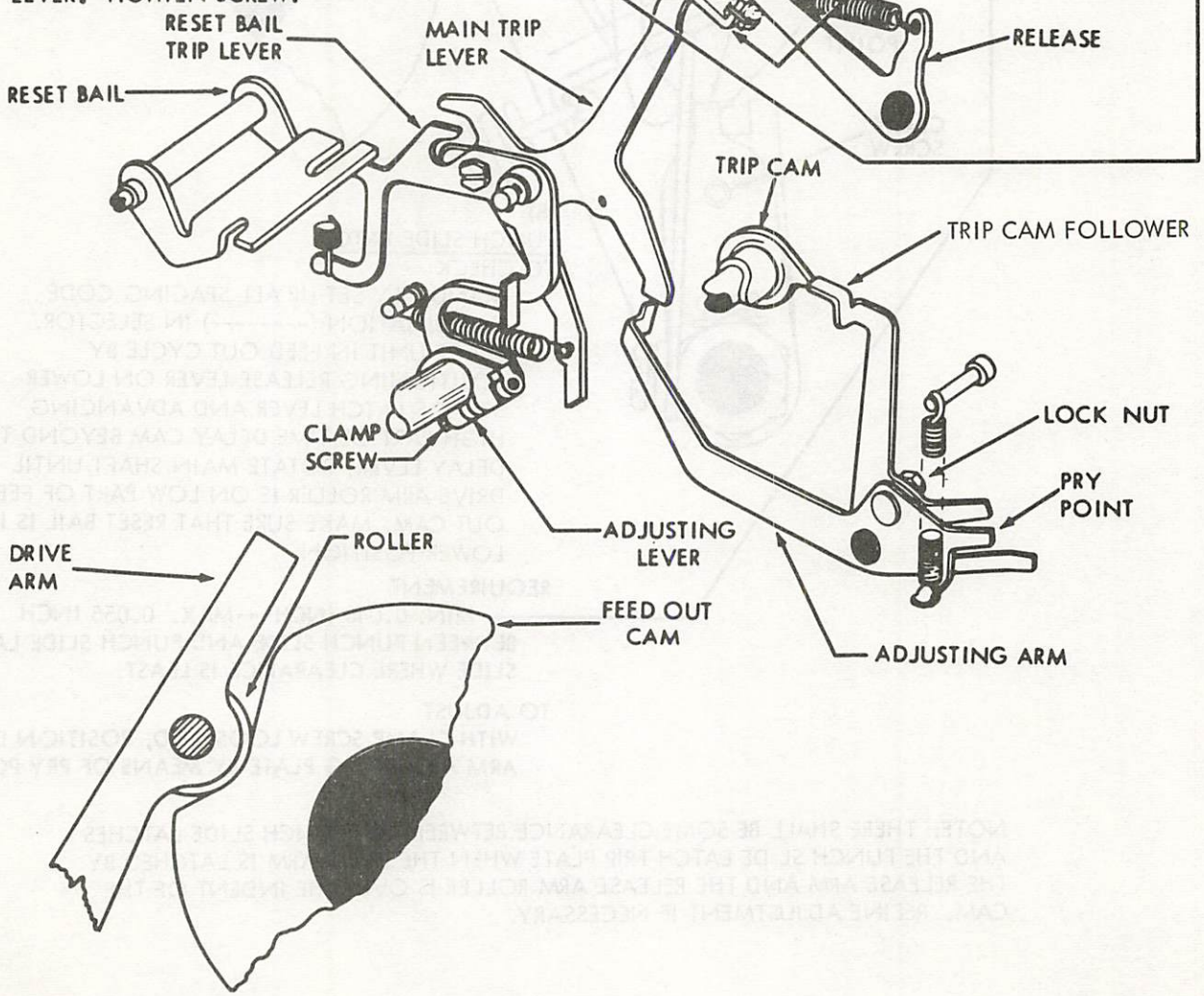
(A) TRIP CAM FOLLOWER

REQUIREMENT

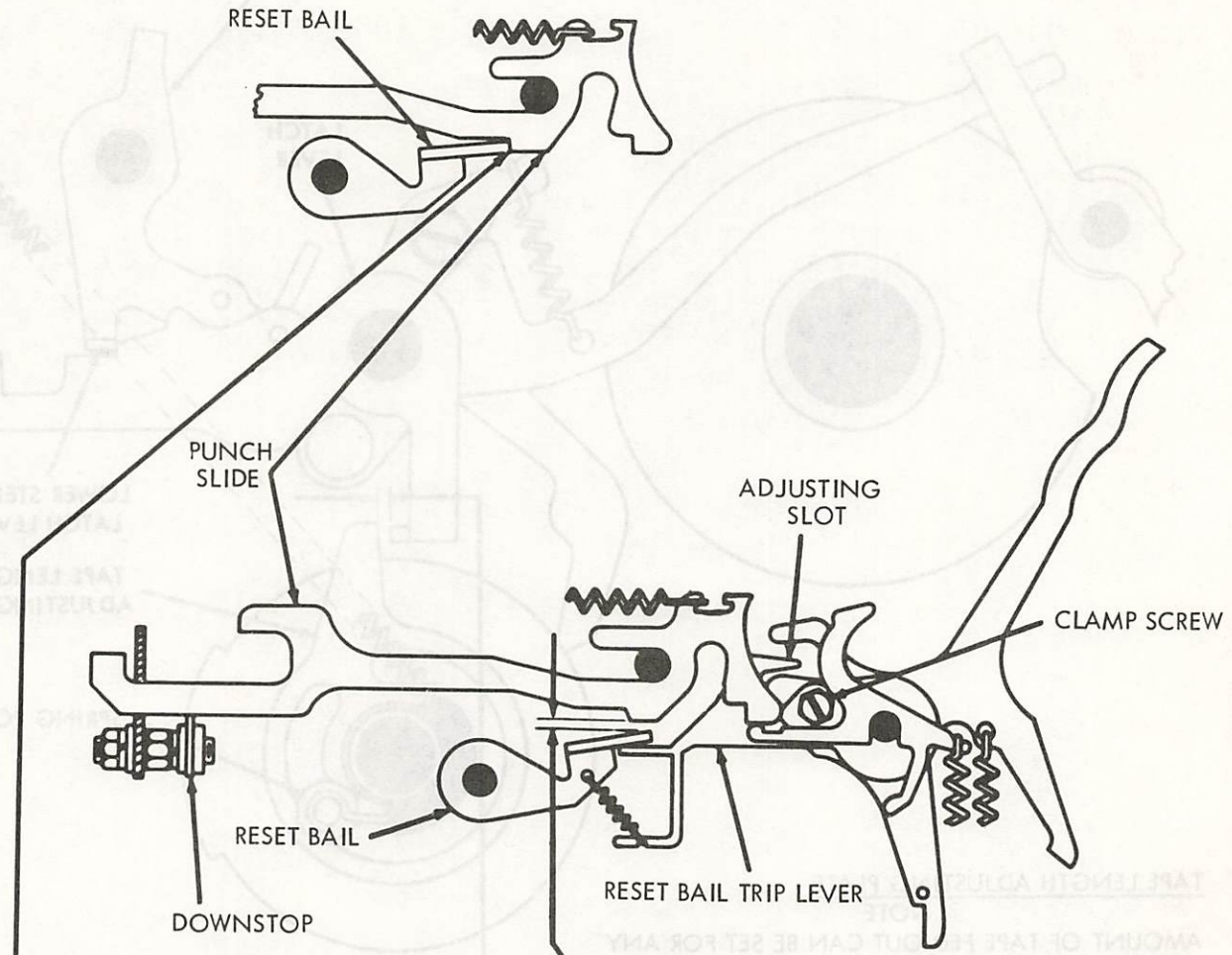
WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM:
(1) MIN. 0.010 INCH---MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
(2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

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



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



RESET BAIL TRIP LEVER

(1) TO CHECK

SELECT RUBOUT CODE COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. POSITION PUNCH SLIDES AGAINST DOWNSTOP. TRIP CAM FOLLOWER ON HIGH PART OF CAM.

REQUIREMENT

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

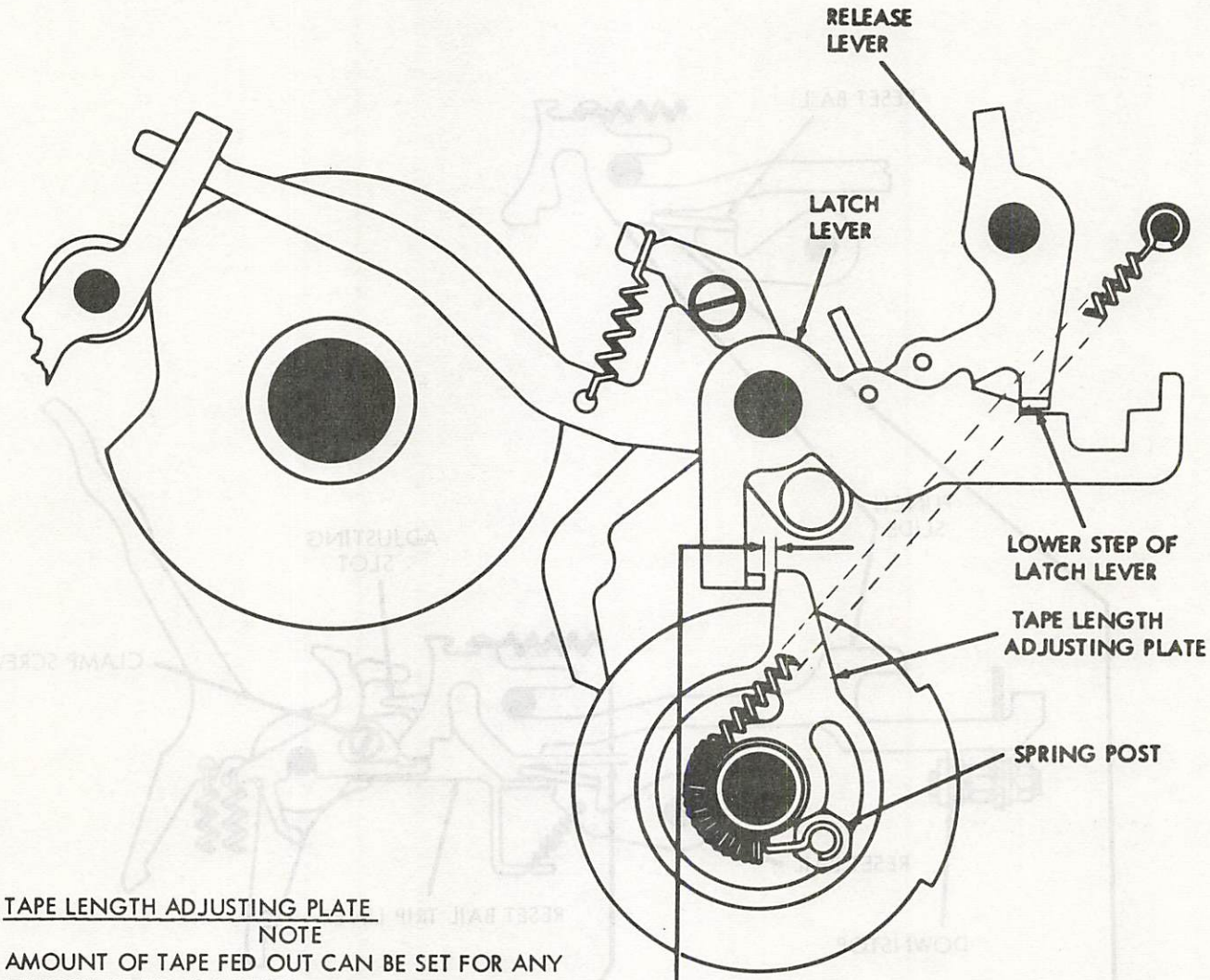
(2) REQUIREMENT

WITH CLUTCHES FULLY DISENGAGED AND LATCHED, RESET BAIL SHOULD FULLY ENGAGE NOTCHES IN PUNCH SLIDES.

TO ADJUST

WITH CLAMP SCREW LOOSENED, POSITION RESET BAIL TRIP LEVER BY MEANS OF ADJUSTING SLOT.

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



TAPE LENGTH ADJUSTING PLATE

NOTE

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

(1) REQUIREMENT

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

(2) REQUIREMENT

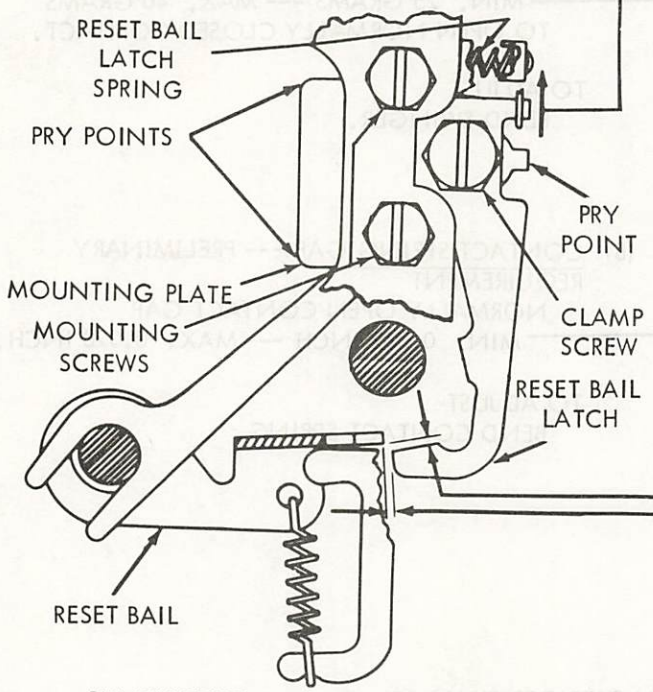
WHEN OPERATING UNDER POWER, UNIT SHOULD FEED OUT CORRECT LENGTH OF TAPE.

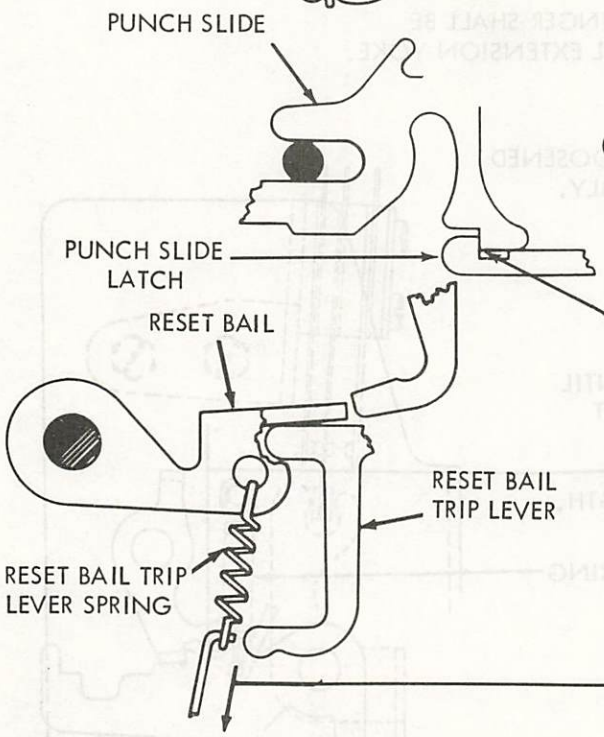
TO ADJUST

WITH SPRING POST FRICTION TIGHT. POSITION ADJUSTING PLATE.

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

(B) RESET BAIL LATCH SPRING
REQUIREMENT
WITH UNIT IN STOP CONDITION
MIN. 1 OZ.----MAX. 3 OZS.
TO START RESET BAIL LATCH MOVING.





(A) RESET BAIL LATCH
TO CHECK
(VERTICAL CLEARANCE) SELECT RUBOUT CODE COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS AND PUNCH SLIDES ARE TO EXTREME LEFT. MANUALLY SET UP ALL SPACING CODE COMBINATION (--------) IN SELECTOR. ROTATE MAIN SHAFT UNTIL PUNCH SLIDES ARE JUST LATCHED.

(1) REQUIREMENT
MIN. 0.008 INCH----MAX. 0.020 INCH BETWEEN RESET BAIL AND RESET BAIL LATCH.

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

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

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

(3) TO CHECK
SELECT RUBOUT CODE COMBINATION (12345678). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. MANUALLY SET UP ALL SPACING CODE COMBINATION (--------). ROTATE MAIN SHAFT TO STOP POSITION.

REQUIREMENT
PUNCH SLIDES LATCHED BY PUNCH SLIDE LATCHES.

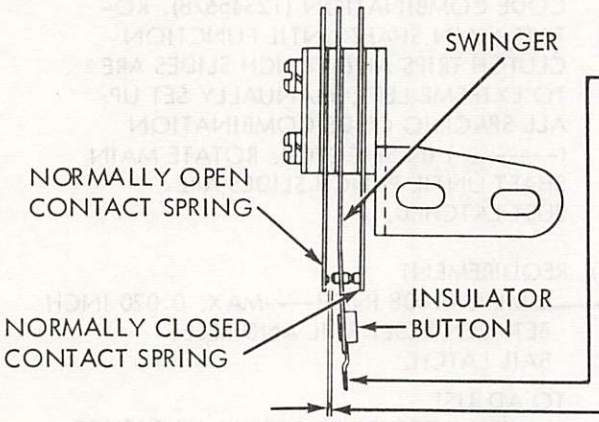
TO ADJUST
REFINE (1) AND (2) ABOVE.

(C) RESET BAIL TRIP LEVER SPRING
TO CHECK
DISENGAGE BOTH CLUTCHES. TRIP FUNCTION CLUTCH BY PIVOTING MAIN TRIP LEVER COUNTERCLOCKWISE. HOLD RESET BAIL TRIP LEVER UP AGAINST RESET BAIL.

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

TIMING CONTACTS

3.13 End of Feed-Out Contacts for Non-Interfering RUBOUT Tape Feed-Out Mechanism.



(A) CONTACT SWINGER --- PRELIMINARY REQUIREMENT

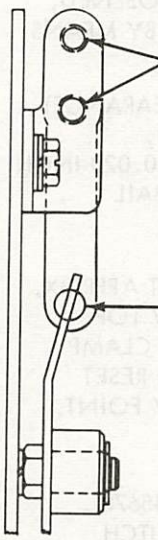
MIN. 25 GRAMS --- MAX. 40 GRAMS TO OPEN NORMALLY CLOSED CONTACT.

TO ADJUST
BEND SWINGER.

(B) CONTACT SPRING GAP --- PRELIMINARY REQUIREMENT

NORMALLY OPEN CONTACT GAP
MIN. 0.012 INCH --- MAX. 0.020 INCH.

TO ADJUST
BEND CONTACT SPRING.



(C) CONTACT ASSEMBLY REQUIREMENT

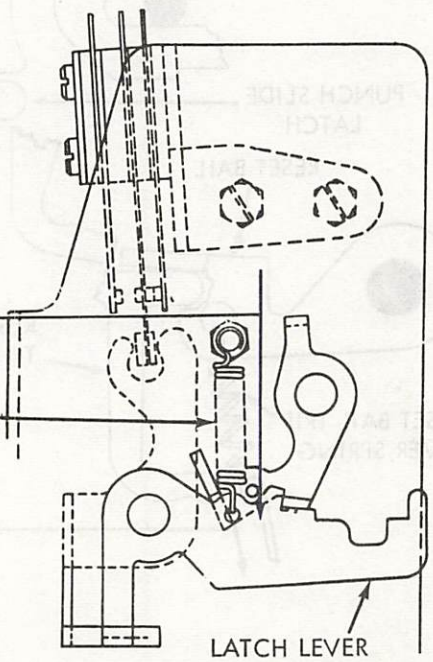
INSULATOR BUTTON ON SWINGER SHALL BE CENTRALLY LOCATED IN BAIL EXTENSION YOKE.

TO ADJUST
WITH MOUNTING SCREWS LOOSENED
POSITION CONTACT ASSEMBLY.

LATCH LEVER SPRING REQUIREMENT

TRIP SELECTOR AND ROTATE MAIN SHAFT UNTIL STRIPPER CAM FOLLOWER LIES ON HIGH PART OF ITS CAM

MIN. 9 OZS. --- MAX. 12 OZS.
TO STRETCH SPRING TO ITS INSTALLED LENGTH.



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

NOTE: SEE PRELIMINARY CONTACT ADJUSTMENTS, PARAGRAPH 3.13,

(E) TAPE LENGTH ADJUSTING PLATE

(1) REQUIREMENT

WITH UNIT IN STOP POSITION AND RELEASE LEVER ON LOWER STEP OF LATCH LEVER, MANUALLY ADVANCE RATCHETS SO THAT FEED PAWL IS IN THE FRONT TOOTH PRECEDING TRIP OFF (NOT IN DEEP TOOTH OF REAR RATCHET). HOLD BAIL LIGHTLY AGAINST LATCH LEVER EXTENSION.

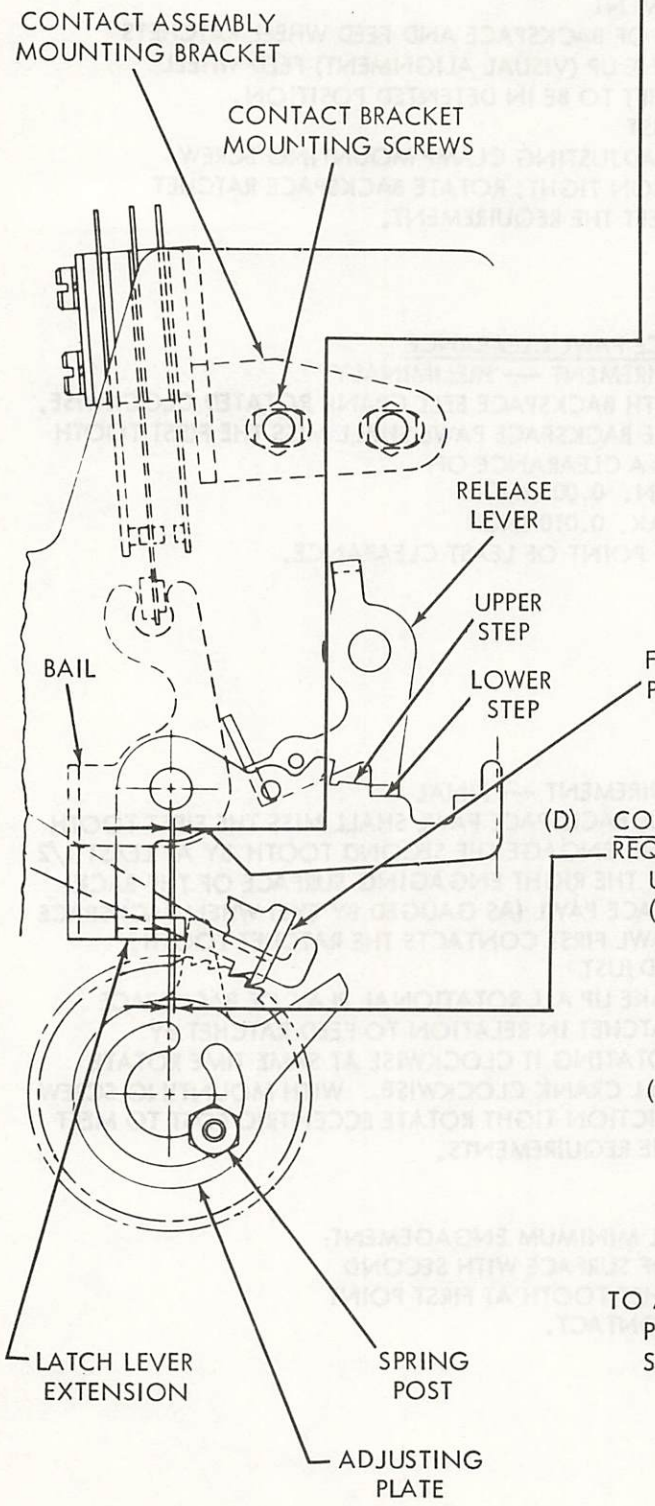
MIN 0.002 INCH --- MAX 0.020 INCH CLEARANCE BETWEEN ADJUSTING PLATE AND BAIL.

(2) REQUIREMENT

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

TO ADJUST

POSITION ADJUSTING PLATE WITH SPRING POST LOOSENED.



(D) CONTACT ASSEMBLY MOUNTING BRACKET

REQUIREMENTS

UNIT IN STOP POSITION

(1) WHEN NORMALLY OPEN CONTACTS ARE USED AND RELEASE LEVER IS ABOVE LOWER STEP OF LATCH LEVER

MIN. 0.005 INCH OVERTRAVEL OF SWINGER AFTER IT MAKES CONTACT WITH NORMALLY OPEN CONTACT.

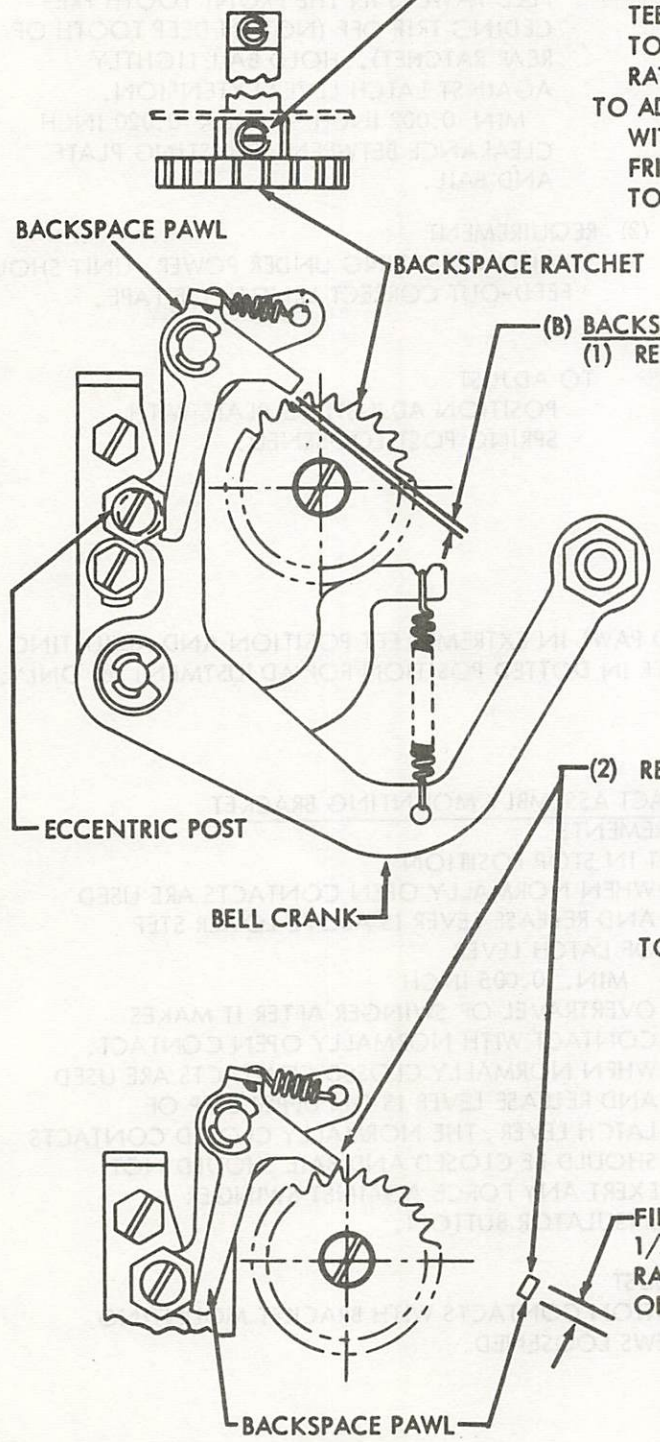
(2) WHEN NORMALLY CLOSED CONTACTS ARE USED AND RELEASE LEVER IS ON UPPER STEP OF LATCH LEVER, THE NORMALLY CLOSED CONTACTS SHOULD BE CLOSED AND BAIL SHOULD NOT EXERT ANY FORCE AGAINST SWINGER INSULATOR BUTTON.

TO ADJUST

POSITION CONTACTS WITH BRACKET MOUNTING SCREWS LOOSENED.

MANUAL AND POWER DRIVE BACKSPACE MECHANISMS

3.15 Manual Backspace Mechanism



(A) BACKSPACE RATCHET

REQUIREMENT

TEETH OF BACKSPACE AND FEED WHEEL RATCHETS TO LINE UP (VISUAL ALIGNMENT) FEED WHEEL RATCHET TO BE IN DETENTED POSITION.

TO ADJUST

WITH ADJUSTING CLAMP MOUNTING SCREW FRICTION TIGHT, ROTATE BACKSPACE RATCHET TO MEET THE REQUIREMENT.

(B) BACKSPACE PAWL CLEARANCE

(1) REQUIREMENT --- PRELIMINALY

WITH BACKSPACE BELL CRANK ROTATED CLOCKWISE, THE BACKSPACE PAWL SHALL MISS THE FIRST TOOTH BY A CLEARANCE OF:

MIN. 0.003 INCH

MAX. 0.010 INCH

AT POINT OF LEAST CLEARANCE.

(2) REQUIREMENT --- FINAL

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

TO ADJUST

TAKE UP ALL ROTATIONAL PLAY OF BACKSPACE RATCHET IN RELATION TO FEED RATCHET BY ROTATING IT CLOCKWISE AT SAME TIME ROTATE BELL CRANK CLOCKWISE.. WITH MOUNTING SCREW FRICTION TIGHT ROTATE ECCENTRIC POST TO MEET THE REQUIREMENTS.

FINAL MINIMUM ENGAGEMENT: 1/2 OF SURFACE WITH SECOND RATCHET TOOTH AT FIRST POINT OF CONTACT.

3.16 Manual and Power Drive Backspace Mechanism

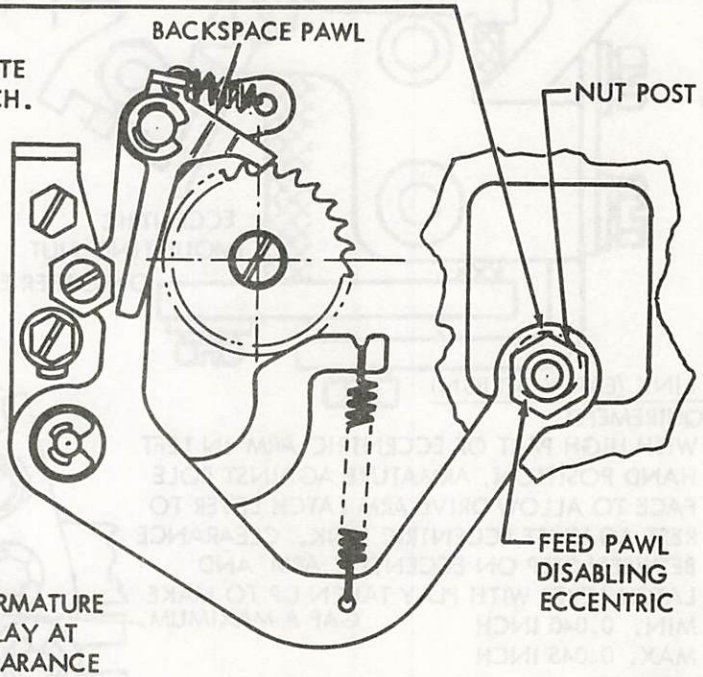
(A) FEED PAWL DISABLING

REQUIREMENT

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

TO ADJUST

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



(B) ARMATURE HINGE (EARLY DESIGN)

REQUIREMENT

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

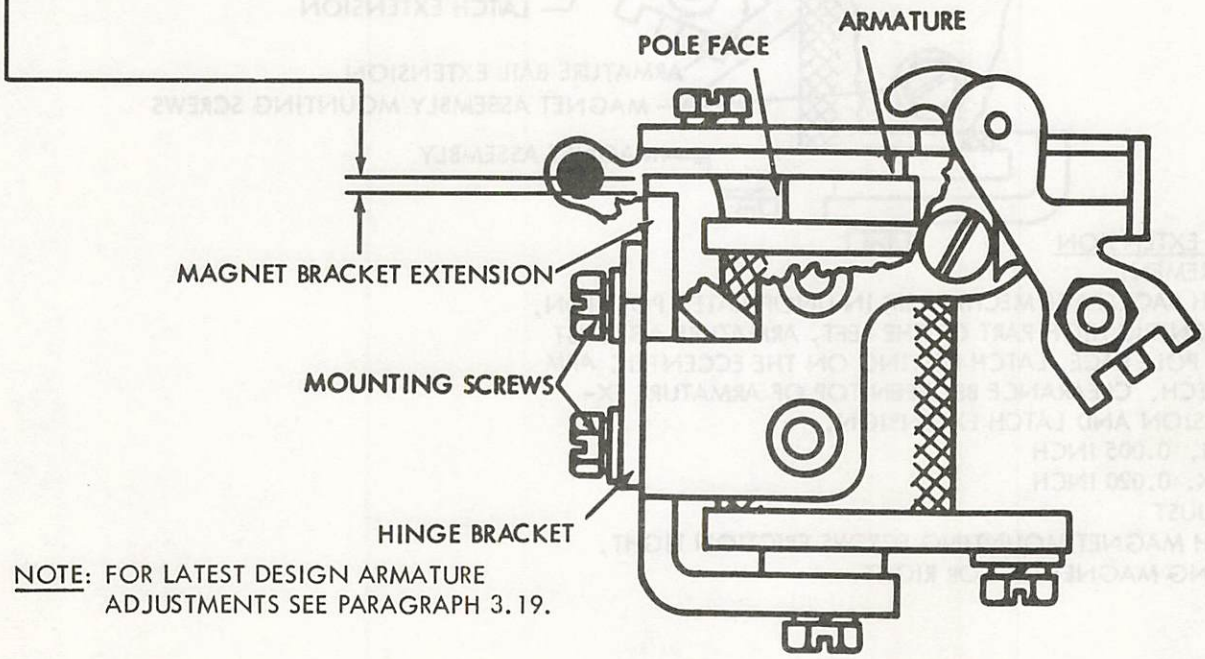
MIN. SOME

MAX. 0.004 INCH

TO ADJUST

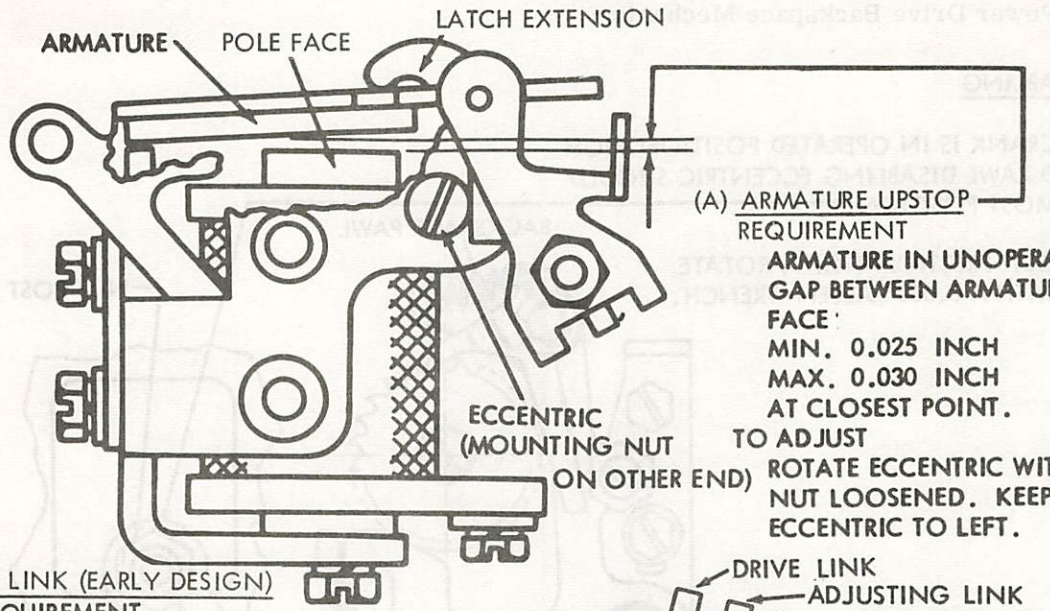
WITH HINGE MOUNTING SCREWS FRICTION TIGHT, POSITION HINGE. ARMATURE SHOULD TOUCH FRONT AND REAR OF POLE FACE. TIGHTEN SCREWS AND RECHECK ADJUSTMENT.

NOTE: FOR DC OPERATION, THE ARMATURE SHALL BE POSITIONED SO THAT THE SIDE MARKED "C" FACES POLE FACE OF MAGNET CORE. FOR AC OPERATION, UNMARKED SIDE FACES POLE.



NOTE: FOR LATEST DESIGN ARMATURE ADJUSTMENTS SEE PARAGRAPH 3.19.

→ 3.17 Power Drive Backspace Mechanism



(A) ARMATURE UPSTOP

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.

(B)

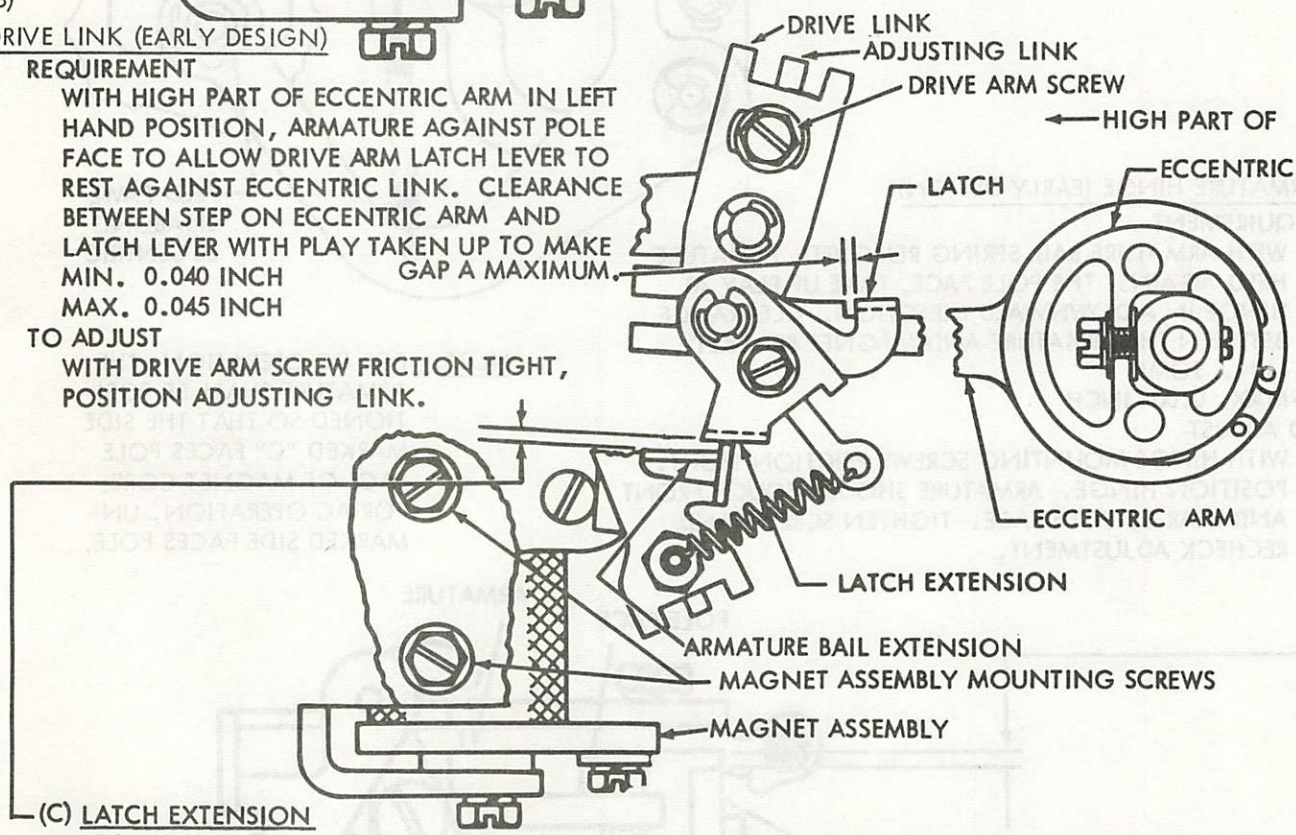
→ DRIVE LINK (EARLY DESIGN)

REQUIREMENT

WITH HIGH PART OF ECCENTRIC ARM IN LEFT HAND POSITION, ARMATURE AGAINST POLE FACE TO ALLOW DRIVE ARM LATCH LEVER TO REST AGAINST ECCENTRIC LINK. CLEARANCE BETWEEN STEP ON ECCENTRIC ARM AND LATCH LEVER WITH PLAY TAKEN UP TO MAKE GAP A MAXIMUM.
MIN. 0.040 INCH
MAX. 0.045 INCH

TO ADJUST

WITH DRIVE ARM SCREW FRICTION TIGHT, POSITION ADJUSTING LINK.



(C) LATCH EXTENSION

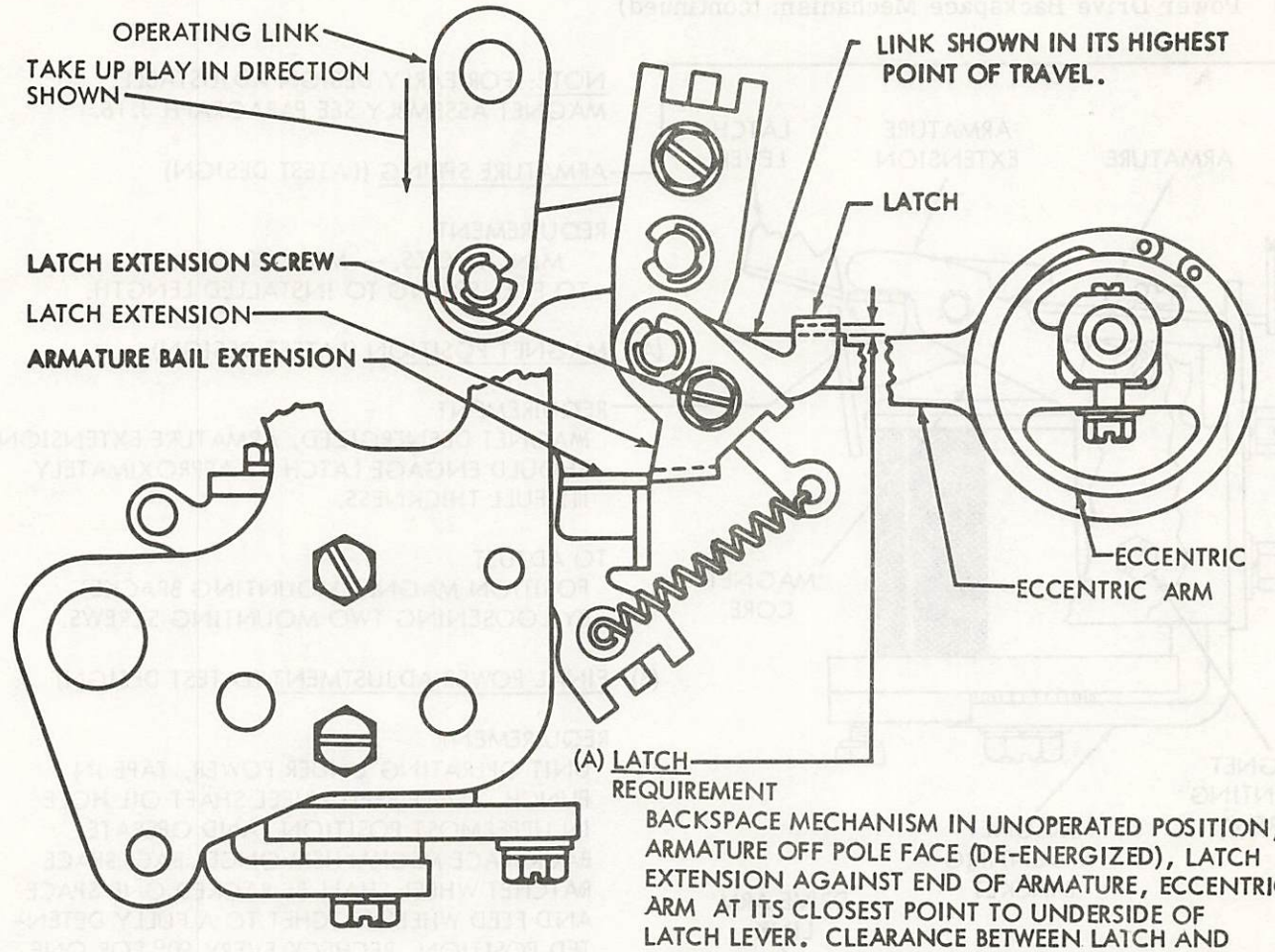
REQUIREMENT

WITH BACKSPACE MECHANISM IN UNOPERATED POSITION, ECCENTRIC HIGH PART OF THE LEFT, ARMATURE AGAINST THE POLE FACE, LATCH RESTING ON THE ECCENTRIC ARM NOTCH. CLEARANCE BETWEEN TOP OF ARMATURE EXTENSION AND LATCH EXTENSION.
MIN. 0.005 INCH
MAX. 0.020 INCH

TO ADJUST

WITH MAGNET MOUNTING SCREWS FRICTION TIGHT, SWING MAGNET LEFT OR RIGHT.

3.18 Power Drive Backspace Mechanism (continued)



(A) LATCH

REQUIREMENT

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

MIN. 0.005 INCH
MAX. 0.025 INCH

TO ADJUST

WITH LATCH EXTENSION SCREW FRICTION TIGHT, POSITION LATCH.

(B) NON-REPEAT ARM

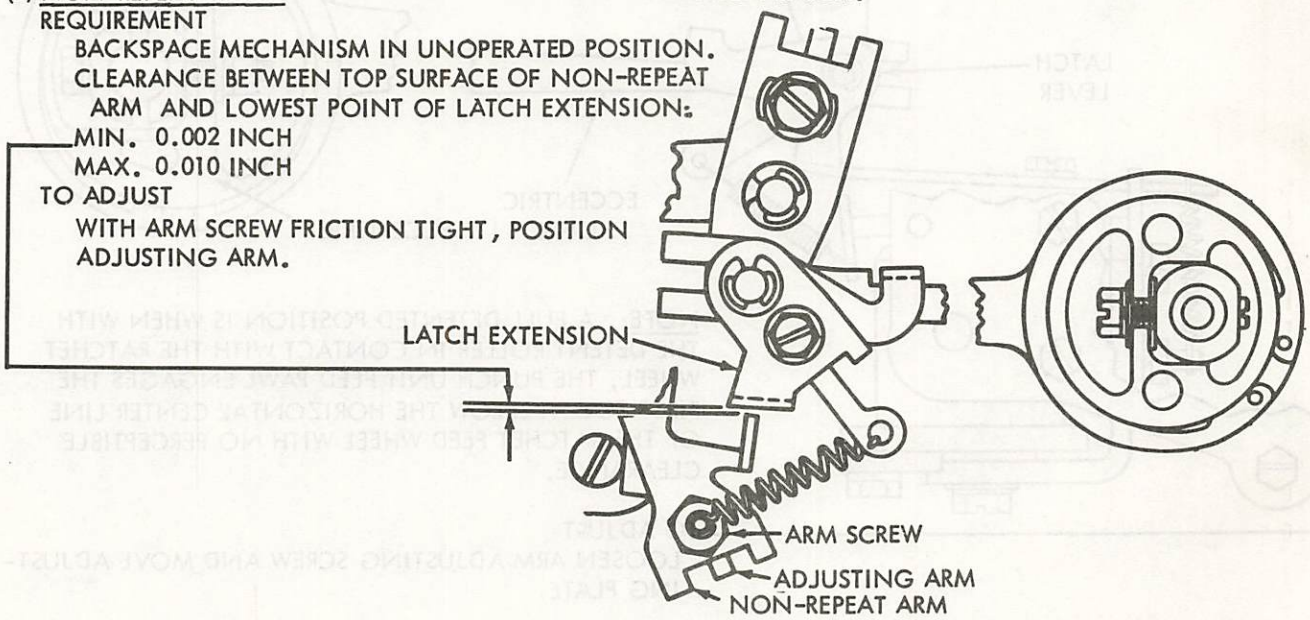
REQUIREMENT

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

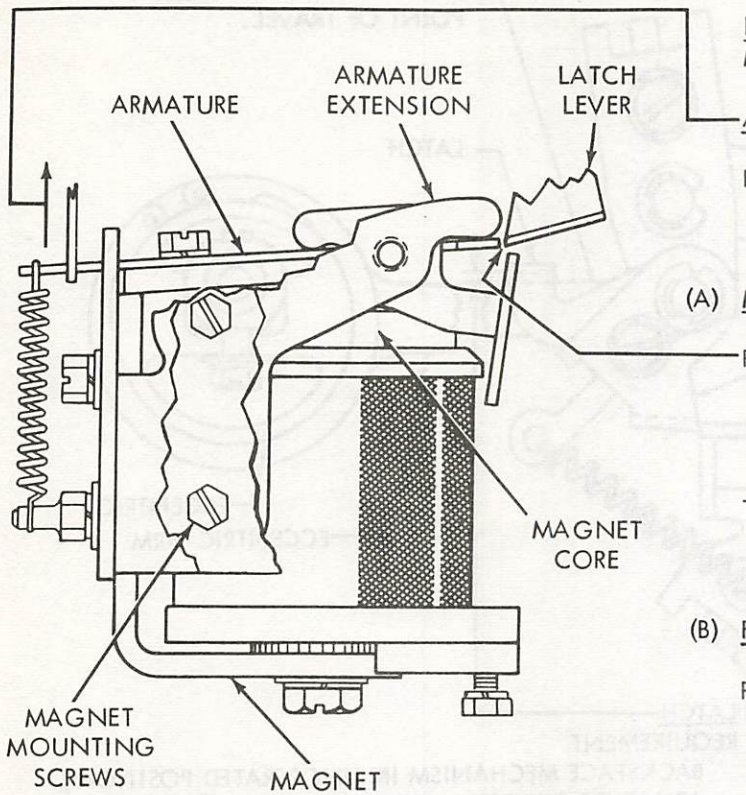
MIN. 0.002 INCH
MAX. 0.010 INCH

TO ADJUST

WITH ARM SCREW FRICTION TIGHT, POSITION ADJUSTING ARM.



3.19 Power Drive Backspace Mechanism (continued)



NOTE: FOR EARLY DESIGN ADJUSTABLE MAGNET ASSEMBLY SEE PARAGRAPH 3.16.

ARMATURE SPRING (LATEST DESIGN)

REQUIREMENT
MIN. 15 OZS. ---MAX. 20 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

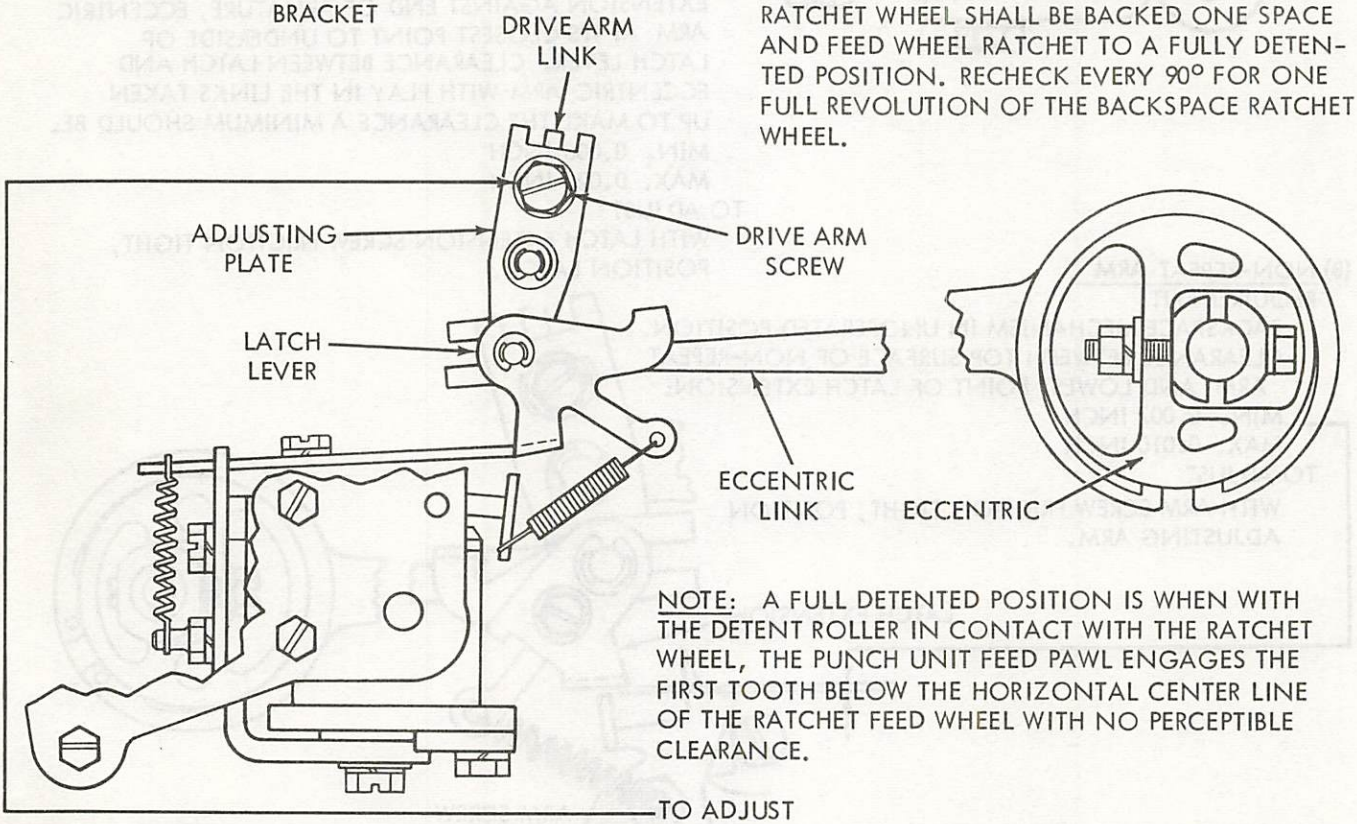
(A) MAGNET POSITION (LATEST DESIGN)

REQUIREMENT
MAGNET DEENERGIZED. ARMATURE EXTENSION SHOULD ENGAGE LATCH BY APPROXIMATELY ITS FULL THICKNESS.

TO ADJUST
POSITION MAGNET MOUNTING BRACKET BY LOOSENING TWO MOUNTING SCREWS.

(B) FINAL POWER ADJUSTMENT (LATEST DESIGN)

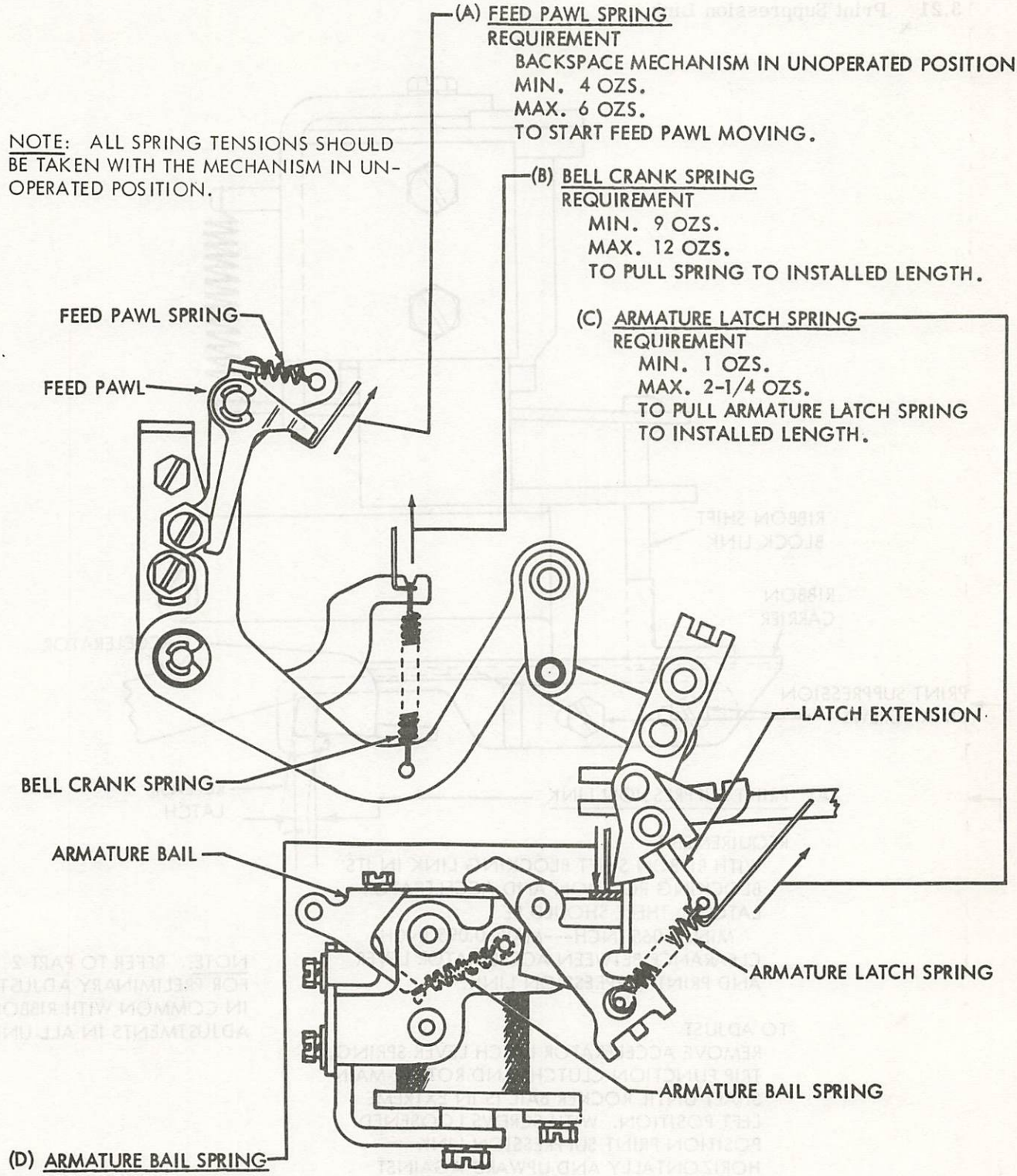
REQUIREMENT
UNIT OPERATING UNDER POWER. TAPE IN PUNCH. PLACE FEED WHEEL SHAFT OIL HOLE IN UPPERMOST POSITION, AND OPERATE BACKSPACE MECHANISM ONCE. BACKSPACE RATCHET WHEEL SHALL BE BACKED ONE SPACE AND FEED WHEEL RATCHET TO A FULLY DETENTED POSITION. RECHECK EVERY 90° FOR ONE FULL REVOLUTION OF THE BACKSPACE RATCHET WHEEL.



NOTE: A FULL DETENTED POSITION IS WHEN WITH THE DETENT ROLLER IN CONTACT WITH THE RATCHET WHEEL, THE PUNCH UNIT FEED PAWL ENGAGES THE FIRST TOOTH BELOW THE HORIZONTAL CENTER LINE OF THE RATCHET FEED WHEEL WITH NO PERCEPTIBLE CLEARANCE.

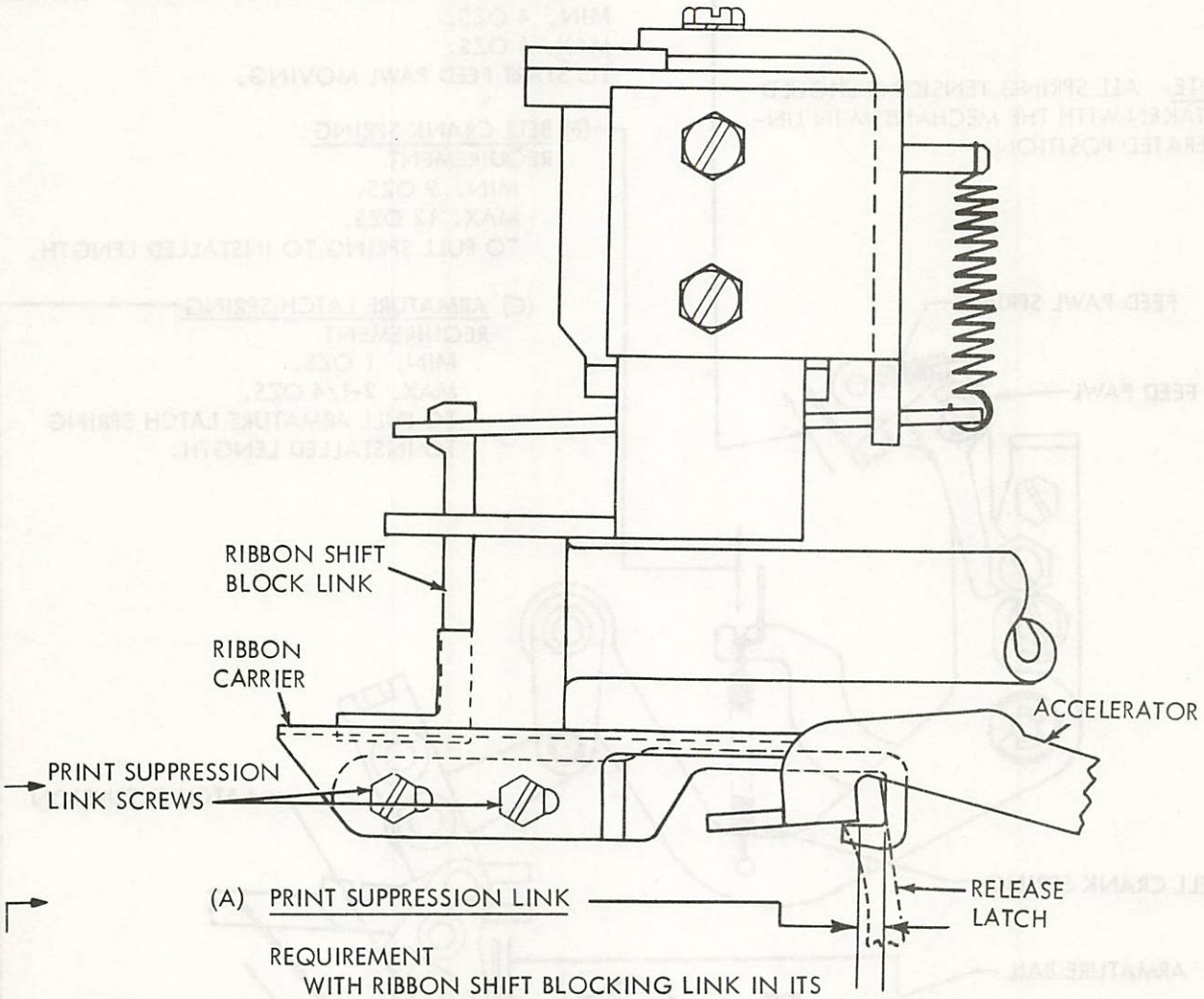
TO ADJUST
LOOSEN ARM ADJUSTING SCREW AND MOVE ADJUSTING PLATE.

3.20 Power Drive Backspace Mechanism (continued)



PRINT SUPPRESSION MECHANISMS

3.21 Print Suppression Link



(A) PRINT SUPPRESSION LINK

REQUIREMENT

WITH RIBBON SHIFT BLOCKING LINK IN ITS BLOCKING POSITION AND ACCELERATOR LATCHED THERE SHOULD BE

MIN. 0.065 INCH---MAX. 0.095 INCH

CLEARANCE BETWEEN ACCELERATOR LEVER AND PRINT SUPPRESSION LINK.

TO ADJUST

REMOVE ACCELERATOR LATCH LEVER SPRING, TRIP FUNCTION CLUTCH, AND ROTATE MAIN SHAFT UNTIL ROCKER BAIL IS IN EXTREME LEFT POSITION. WITH SCREWS LOOSENED POSITION PRINT SUPPRESSION LINK HORIZONTALLY AND UPWARD AGAINST RIBBON CARRIER TO MEET REQUIREMENT.

NOTE: REFER TO PART 2 FOR PRELIMINARY ADJUSTMENTS IN COMMON WITH RIBBON SHIFT ADJUSTMENTS IN ALL UNITS.

3.22 Manual Print Suppression Mechanism

CONTROL LEVER (MANUAL)

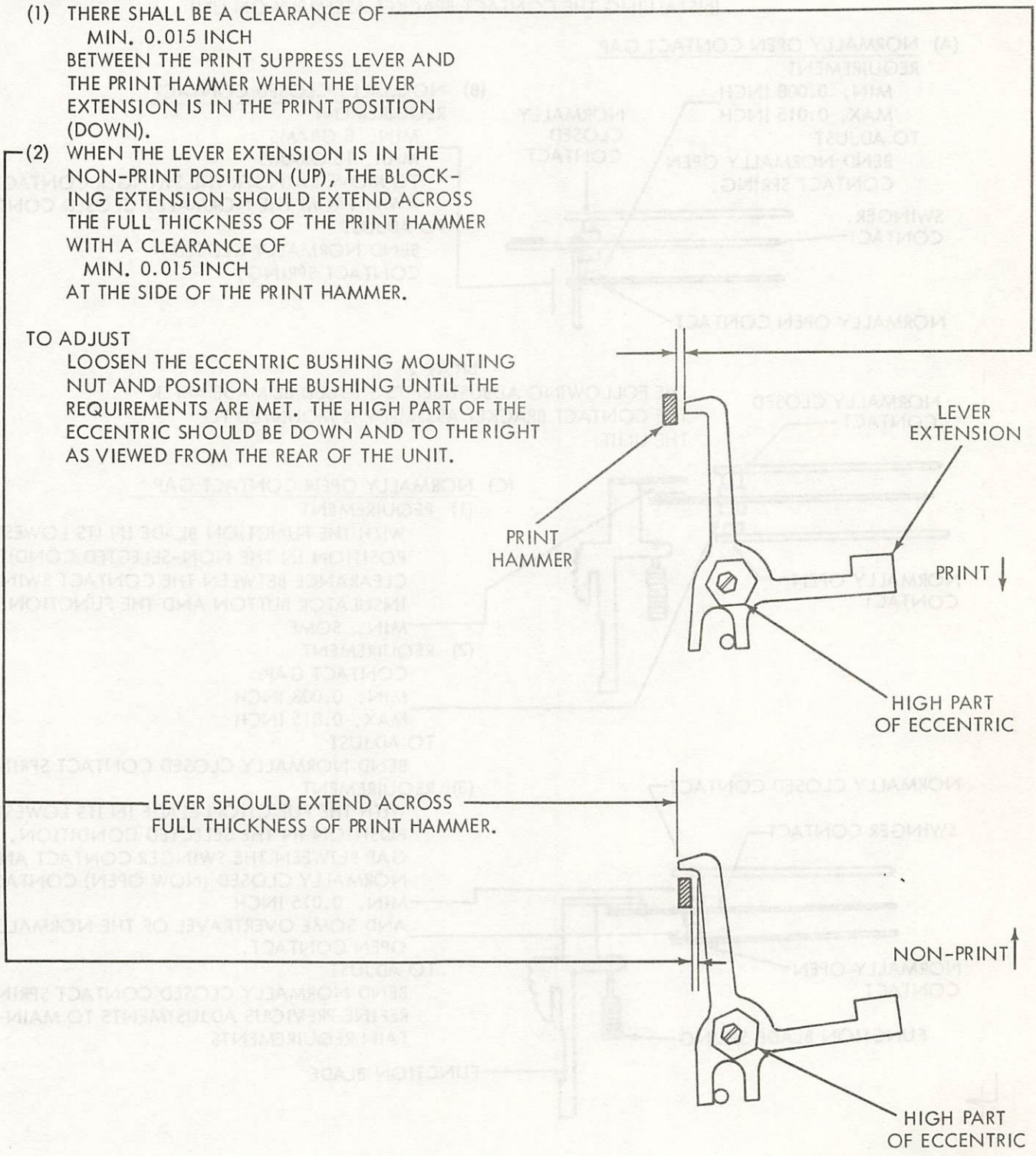
REQUIREMENT

(1) THERE SHALL BE A CLEARANCE OF MIN. 0.015 INCH BETWEEN THE PRINT SUPPRESS LEVER AND THE PRINT HAMMER WHEN THE LEVER EXTENSION IS IN THE PRINT POSITION (DOWN).

(2) WHEN THE LEVER EXTENSION IS IN THE NON-PRINT POSITION (UP), THE BLOCKING EXTENSION SHOULD EXTEND ACROSS THE FULL THICKNESS OF THE PRINT HAMMER WITH A CLEARANCE OF MIN. 0.015 INCH AT THE SIDE OF THE PRINT HAMMER.

TO ADJUST

LOOSEN THE ECCENTRIC BUSHING MOUNTING NUT AND POSITION THE BUSHING UNTIL THE REQUIREMENTS ARE MET. THE HIGH PART OF THE ECCENTRIC SHOULD BE DOWN AND TO THE RIGHT AS VIEWED FROM THE REAR OF THE UNIT.



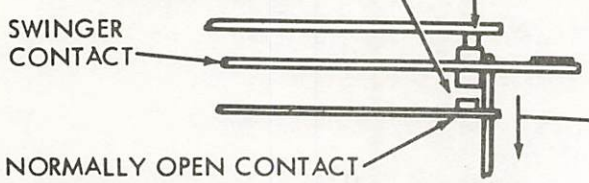
3.23 Signal Bell and EOT Contacts

NOTE 1

THE FOLLOWING ADJUSTMENTS SHOULD BE MADE PRIOR TO INSTALLING THE CONTACT BRACKET ASSEMBLY ON UNIT.

(A) NORMALLY OPEN CONTACT GAP

REQUIREMENT
MIN. 0.008 INCH
MAX. 0.015 INCH
TO ADJUST
BEND NORMALLY OPEN CONTACT SPRING.

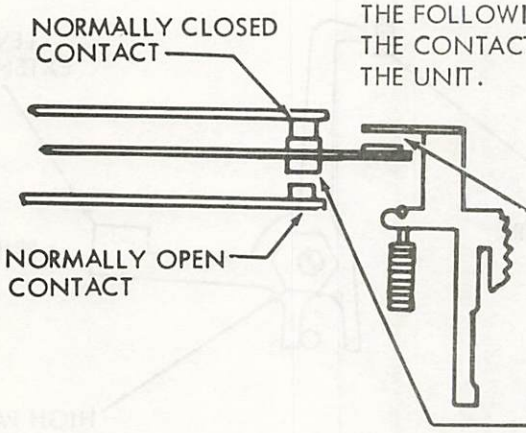


(B) NORMALLY CLOSED CONTACT

REQUIREMENT
MIN. 8 GRAMS
MAX. 15 GRAMS
TO MOVE SWINGER THE SWINGER CONTACT AWAY FROM THE NORMALLY CLOSED CONTACT.
TO ADJUST
BEND NORMALLY CLOSED CONTACT SPRING.

NOTE 2

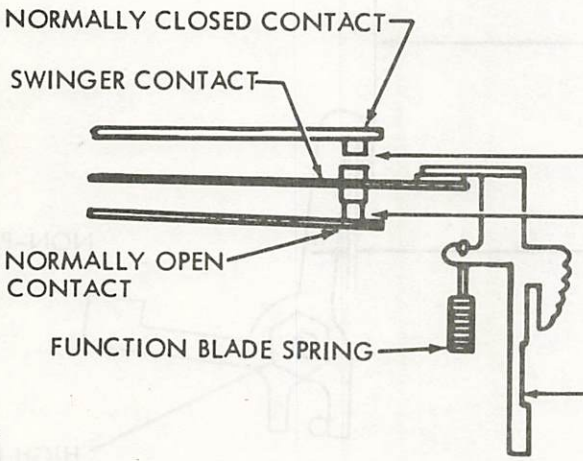
THE FOLLOWING ADJUSTMENTS SHOULD BE MADE AFTER THE CONTACT BRACKET ASSEMBLY IS MOUNTED TO THE UNIT.



(C) NORMALLY OPEN CONTACT GAP

(1) REQUIREMENT
WITH THE FUNCTION BLADE IN ITS LOWEST POSITION IN THE NON-SELECTED CONDITION.
CLEARANCE BETWEEN THE CONTACT SWINGER INSULATOR BUTTON AND THE FUNCTION BLADE:
MIN. SOME

(2) REQUIREMENT
CONTACT GAP:
MIN. 0.008 INCH
MAX. 0.015 INCH
TO ADJUST
BEND NORMALLY CLOSED CONTACT SPRING



(3) REQUIREMENT
WITH THE FUNCTION BLADE IN ITS LOWEST POSITION IN THE SELECTED CONDITION.
GAP BETWEEN THE SWINGER CONTACT AND NORMALLY CLOSED (NOW OPEN) CONTACT:
MIN. 0.015 INCH
AND SOME OVERTRAVEL OF THE NORMALLY OPEN CONTACT.
TO ADJUST
BEND NORMALLY CLOSED CONTACT SPRING.
REFINE PREVIOUS ADJUSTMENTS TO MAINTAIN REQUIREMENTS

28 AND 35 ANSWER-BACK UNIT

ADJUSTMENTS

CONTENTS

1. GENERAL

1.01 This section is reissued to add coverage of the 5- and 8-level answer-back unit. Since this revision is of a general nature, marginal arrows have been omitted.

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

1.03 The adjustment illustrations indicate tolerances, positions of moving parts, spring tensions, and the angle at which scales should be applied. The tools required to make adjustments and check spring tensions are not supplied with the equipment, but are listed in the appropriate section under separate cover. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

1.04 Where adjustment instructions call for removal of components, assemblies, subassemblies, or parts, all adjustments which the removal of these parts might facilitate should be made before the parts are replaced, or as the equipment is reassembled. When a part mounted on shims is removed, the number and location of shims should be noted so that the identical pile-up can be made when the part is replaced.

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

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

1.06 References made to left or right, up or down, and front or rear apply to the answer-back unit as viewed from the side with

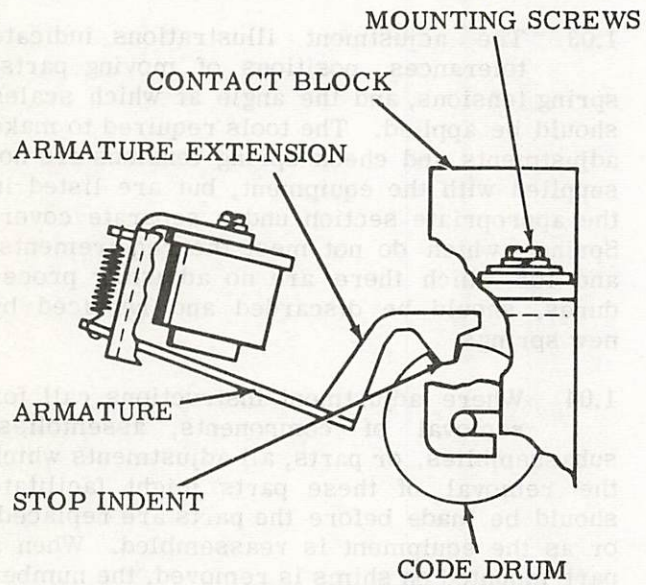
the answer-back mechanism to the left and the motor to the right.

1.07 Unless otherwise specified, where the stop position of the answer-back mechanism is referred to, the lugs of both the clutch release lever and shaft stop lever should be against the armature, with the armature extension resting in the stop indent of the code drum stop cam.

1.08 Instructions for coding the answer-back drum are not included in this section. Refer to the appropriate section covering installation of the answer-back unit for detailed coding instructions.

2. BASIC UNITS

2.01 Trip Mechanism



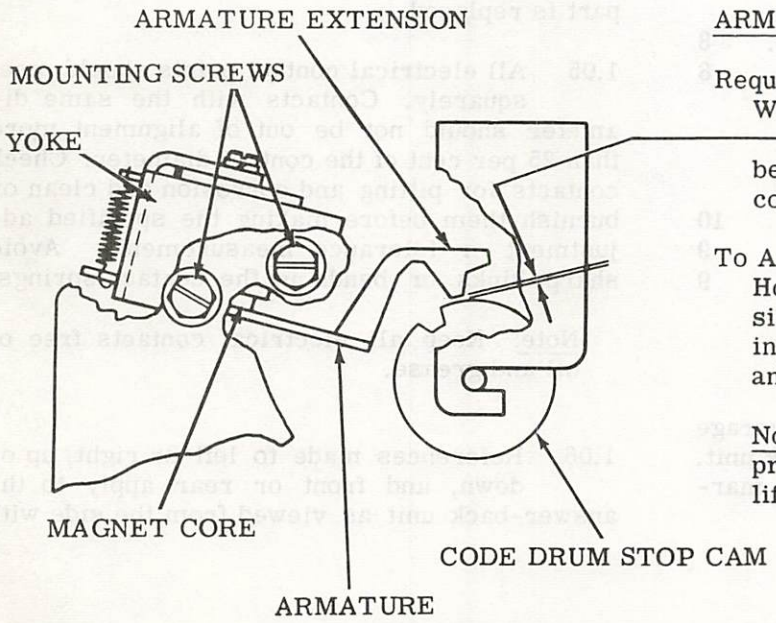
CONTACT BLOCK POSITION (PRELIMINARY)

Requirement

Answer back in stop position, armature extension must drop into stop indent in code drum stop cam.

To Adjust

Step code drum to last character. Rotate main shaft further until the motor hold cam allows armature to drop. Position the contact block until armature extension drops into indent with the contact block mounting screws loosened.



ARMATURE EXTENSION GAP

Requirement

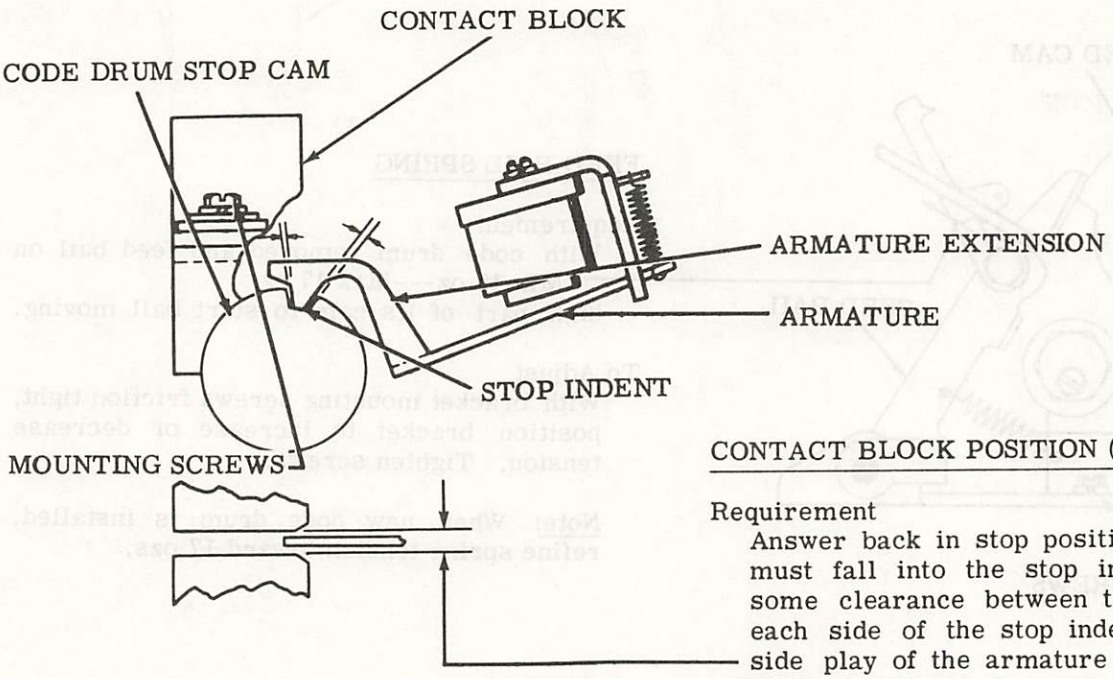
With armature held against magnet core Min some---Max 0.015 inch between armature extension and high part of code drum stop cam.

To Adjust

Hold armature against magnet core and position magnet yoke assembly with its mounting screws friction tight. Recheck clearance after tightening screws.

Note: When holding armature against core, press between pivot and core to prevent lifting armature.

2.02 Trip Mechanism (continued)



CONTACT BLOCK POSITION (FINAL)

Requirement

Answer back in stop position, the armature must fall into the stop indent freely with some clearance between the extension and each side of the stop indent. The side to side play of the armature must be limited by the width of the groove in the contact block rather than the edges of the yoke.

To Adjust

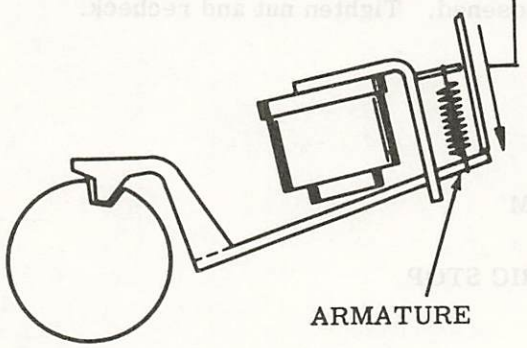
Position the contact block with its mounting screws loosened.

Note: Keep back of block approximately parallel and in line with back of frame.

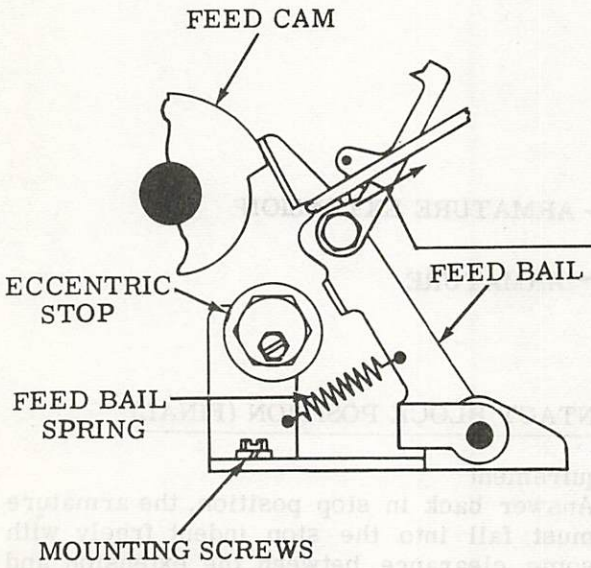
CLUTCH TRIP MAGNET ARMATURE SPRING

Requirement

Min 7 oz---Max 9 oz
to start heel end of armature moving.



2.03 Feed Mechanism

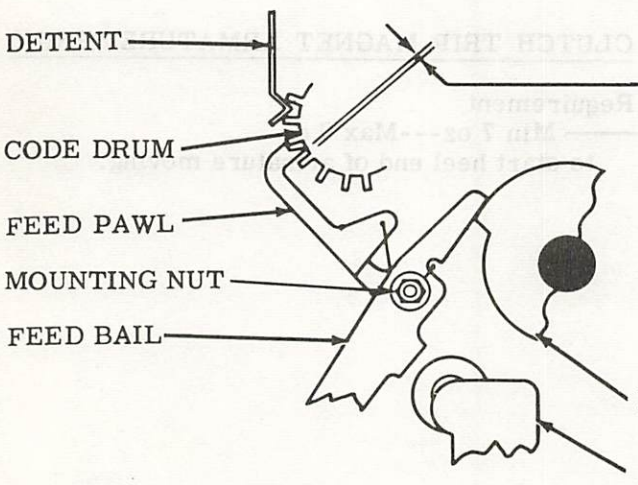


FEED BAIL SPRING

Requirement
With code drum removed and feed bail on high part of its cam to start bail moving.
Min 15 oz---Max 17 oz

To Adjust
With bracket mounting screws friction tight, position bracket to increase or decrease tension. Tighten screws.

Note: When new code drum is installed, refine spring tension toward 17 ozs.

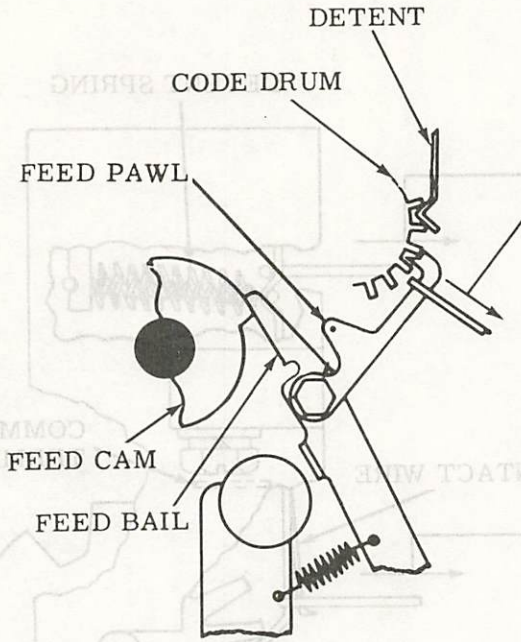


FEED PAWL

Requirement
Answer back in stop position, clearance between feed pawl engaging surface and tooth on code drum.
Min 0.005 inch---Max 0.015 inch

To Adjust
Position feed pawl with its mounting nut loosened. Tighten nut and recheck.

2.04 Feed Mechanism (continued)



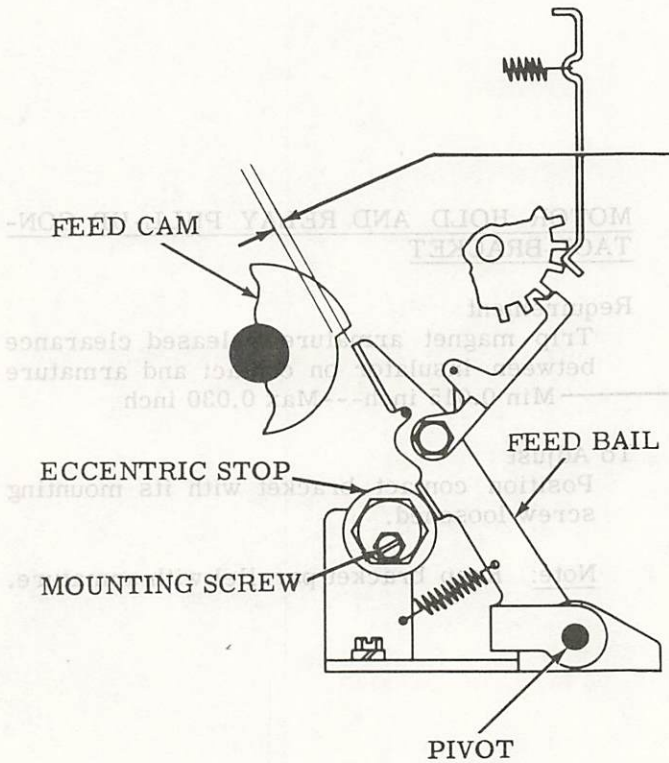
FEED PAWL SPRING

Requirement

With answer back in stop position and code drum in place

Min 1/2 oz---Max 1-1/2 oz

to start pawl moving.



ECCENTRIC STOP POSITION

Requirement

With feed bail in lowest position of its travel opposite low part of its cam resting on eccentric stop, clearance between feed cam and feed bail.

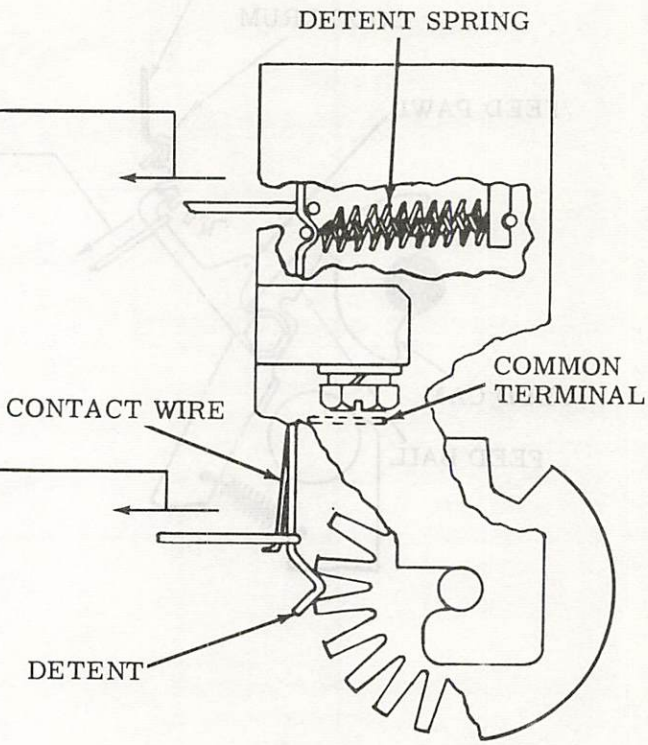
Min 0.055 inch---Max 0.075 inch

To Adjust

Rotate eccentric with its mounting screw loosened.

Note: Keep high part of eccentric away from pivot point of feed bail to insure that eccentric stop bears against flat surface of bail extension and not on its lower edge.

2.05 Feed Mechanism (continued)



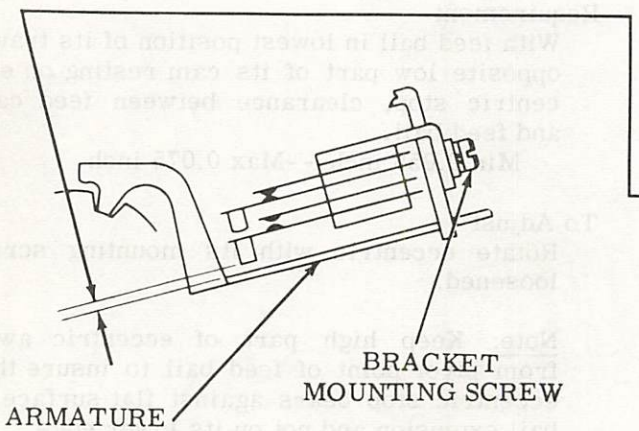
CODE DRUM CONTACT WIRE SPRING

Requirement
Min 1 oz.---Max 2 oz
to start contact wire moving away from common terminal.

CODE DRUM DETENT SPRING

Requirement
Min 9 oz---Max 11 oz
to start detent moving.

2.06 Relay Brackets and Contacts



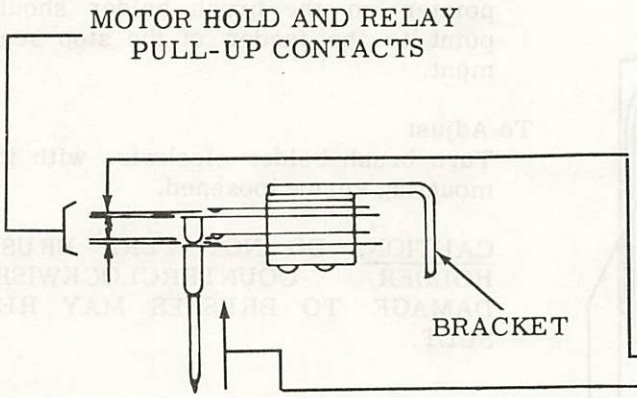
MOTOR HOLD AND RELAY PULL-UP CONTACT BRACKET

Requirement
Trip magnet armature released clearance between insulator on contact and armature
Min 0.015 inch---Max 0.030 inch

To Adjust
Position contact bracket with its mounting screw loosened.

Note: Keep bracket parallel with armature.

2.07 Relay Brackets and Contacts (continued)



MOTOR HOLD AND RELAY PULL-UP CONTACT

Note: The adjustments are made before installation into the unit and should be checked or remade only in case of malfunction attributed to maladjustment of the contacts. If it should become necessary to remake the adjustment, the following procedure should be followed. Remove contact assembly with bracket from magnet yoke.

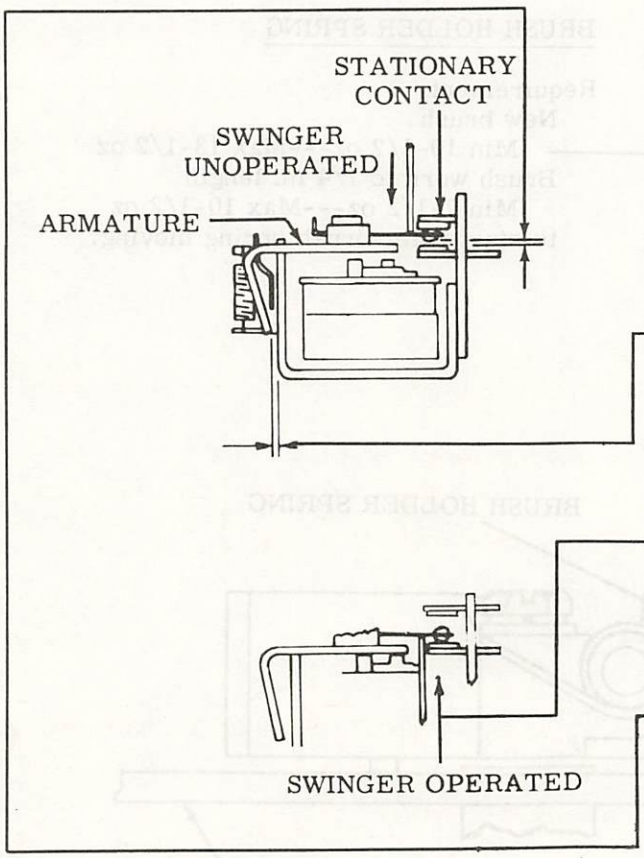
Requirements

(1) The gap between the contacts in the unoperated position should be
Min 0.020 inch---Max 0.030 inch

(2) Min 25 grams---Max 50 grams
to close both contacts.

To Adjust

Bend contacts to meet requirements.



NONREPEAT RELAY

Note: These adjustments are made before installation into the unit and should be checked or remade only in case of malfunction attributed to maladjustment. If it should become necessary to remake the adjustment, the following procedure should be followed:

(1) Requirement
With armature released, clearance between armature stops and frame
Min 0.015 inch---Max 0.025 inch

(2) Requirement
The "make" contact (double) should close a minimum of 0.003 inch before the "break" (single) contact opens.

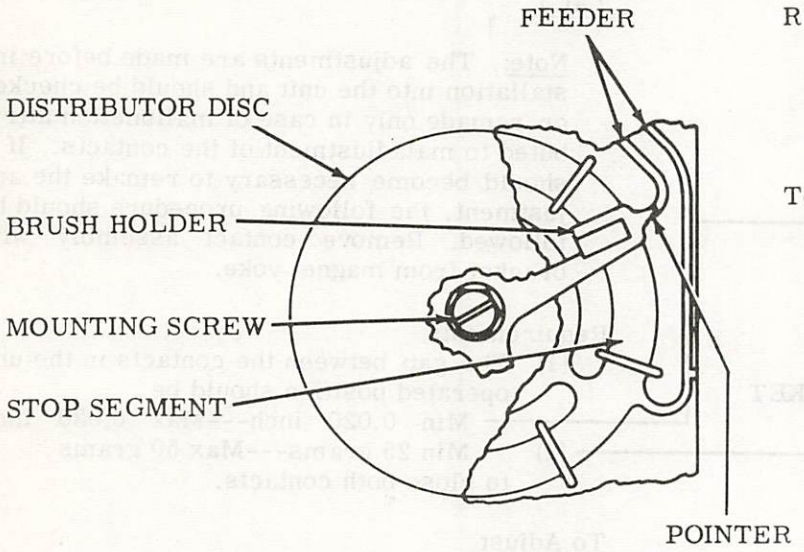
(3) Requirement
Minimum of 15 grams to move the swinger away from the stationary contacts when the armature is in either the operated or unoperated position.

(4) Requirement
The minimum contact gap should be 0.012 inch.

To Adjust

Bend armature stops, stationary contacts, and contact springs to meet requirements.

2.08 Distributor Brushes



DISTRIBUTOR BRUSH HOLDER

Requirement

With answer back in stop position, the pointer on the brush holder should point to the feeder of the stop segment.

To Adjust

Turn brush holder clockwise with its mounting screw loosened.

CAUTION: DO NOT TURN BRUSH HOLDER COUNTERCLOCKWISE. DAMAGE TO BRUSHES MAY RESULT.

BRUSH HOLDER SPRING

Requirement

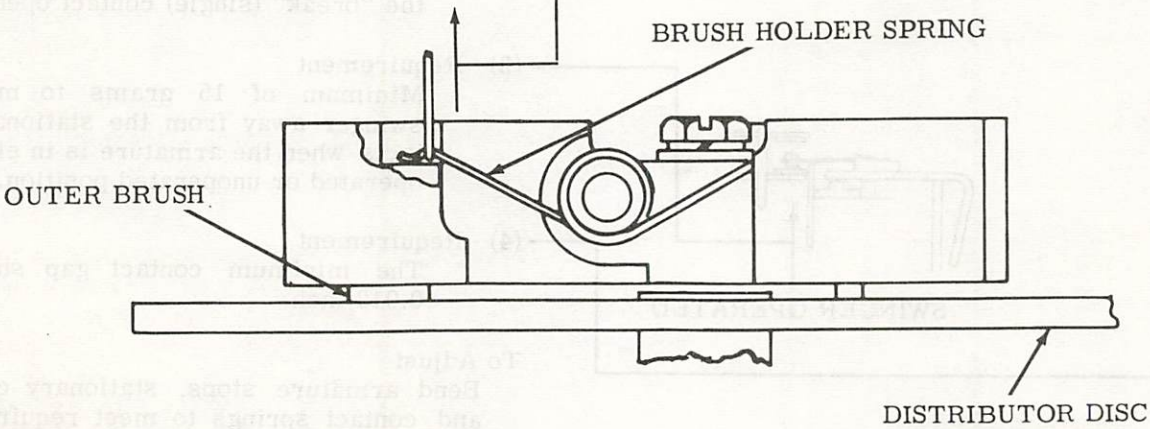
New brush

Min 10-1/2 oz---Max 13-1/2 oz

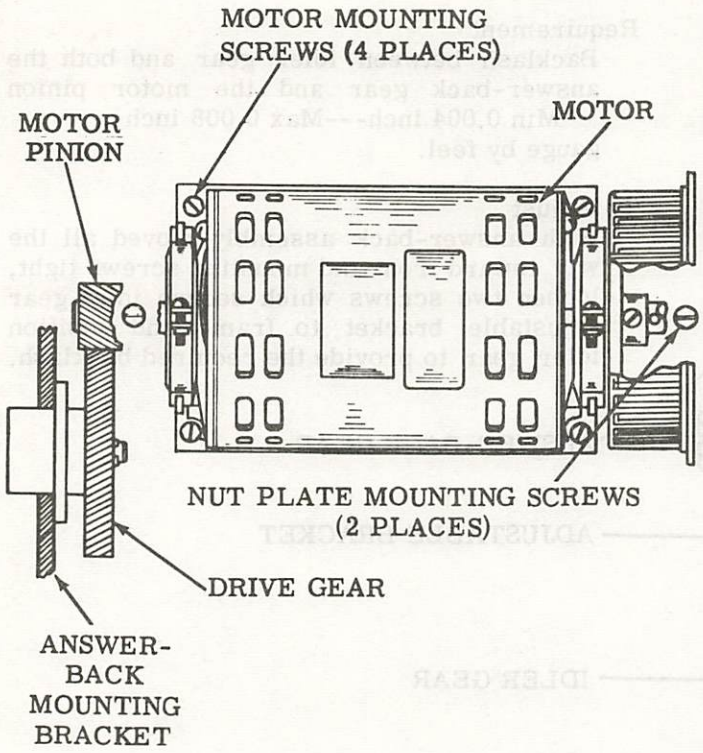
Brush worn to 1/4 in. length

Min 7-1/2 oz---Max 10-1/2 oz

to start outer brush spring moving.



2.09 Gear Backlash



GEAR BACKLASH - SELF-CONTAINED UNIT

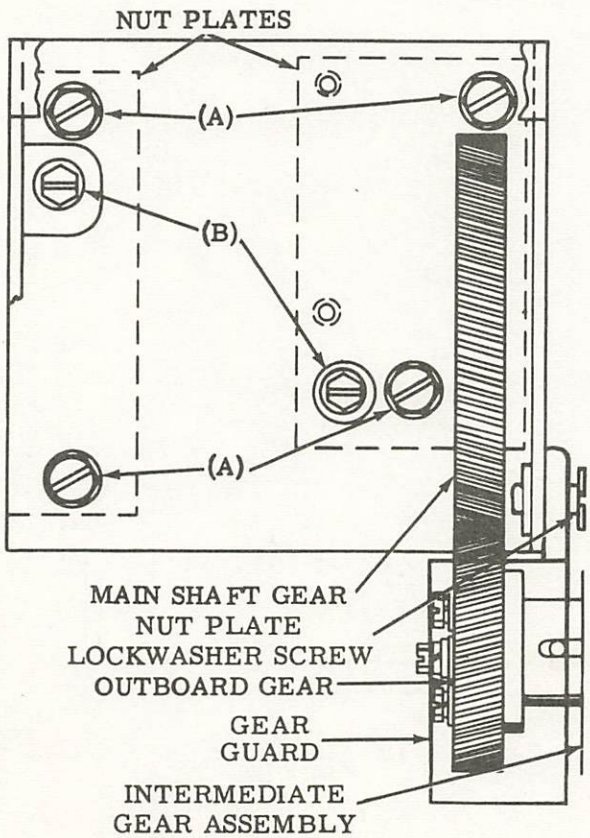
Requirements

(1) Backlash between motor pinion and drive gear should be
Min 0.004 inch---Max 0.008 inch

(2) Adjust for minimum noise.

To Adjust

With motor mounting and nut plate screws friction tight, position motor until requirements are met.



Note: The following adjustment is made after intermediate gear assembly to typing unit gear and motor pinion gear adjustments have been made.

GEAR BACKLASH - RO, KSR

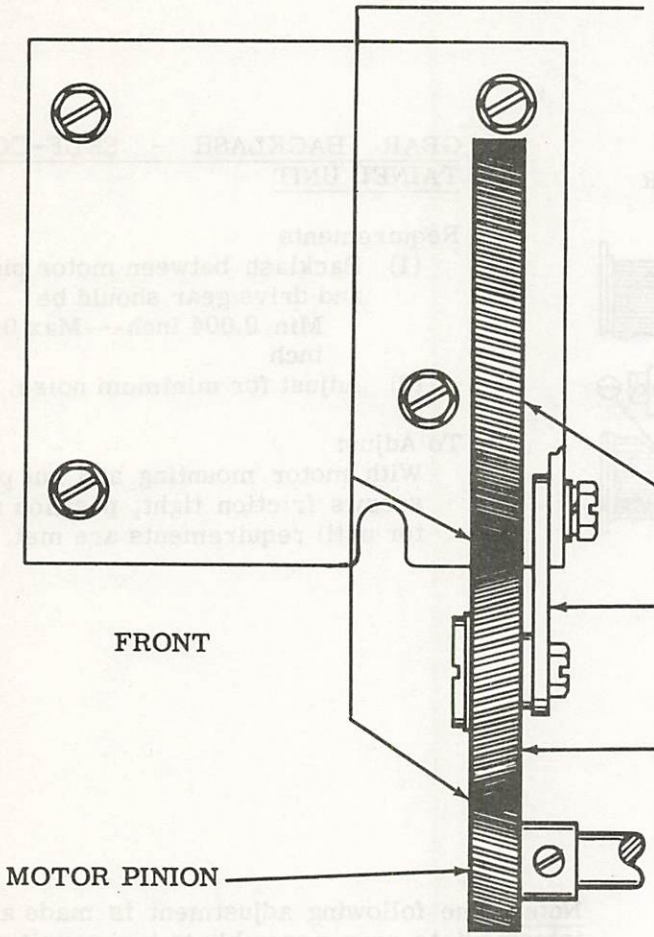
Requirement

Backlash, at point of minimum clearance between answer-back main shaft gear and outboard gear of intermediate gear assembly on base
Min 0.004 inch---Max 0.008 inch
gauge by feel.

To Adjust

With two nut plate screws (B) friction tight, loosen four answer-back mounting screws (A). Move answer back all the way toward front in mounting holes. Tighten four answer-back mounting screws to friction tight and loosen two nut plate screws. Position assembly. Tighten all screws.

2.10 Gear Backlash (continued)



GEAR BACKLASH - ASR (TRANSMITTER BASE)

Requirement

Backlash between idler gear and both the answer-back gear and the motor pinion

Min 0.004 inch---Max 0.008 inch

gauge by feel.

To Adjust

With answer-back assembly moved all the way toward front and mounting screws tight, loosen two screws which secure idler gear adjustable bracket to frame and position idler gear to provide the required backlash.