

28 NONTYPING REPERFORATOR UNIT

ADJUSTMENTS

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1. GENERAL

1.01 This section contains the requirements and adjustments for the 28 nontyping reperforator. The adjustments and requirements apply to the five-level and six-level (including Bell 20-type) reperforator units. In cases where a specific requirement and/or adjustment is applicable to a six-level unit only, the text will so indicate.

1.02 This section is reissued to include authorized revisions and additions to bring the section up to date. Since this is a general revision, marginal arrows are omitted.

1.03 References to left or right, front or rear, and up or down refer to the apparatus in its normal operating position as viewed from the front, with the selector mechanism to the right and the punch mechanism to the left.

1.04 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. When engaged, the clutch shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

Note: When the main shaft is rotated by hand, the clutches do not fully disengage upon reaching their stop positions. In order to relieve the drag on the clutches and permit the main shaft to rotate freely, use a screwdriver to apply pressure on the stop lug of each clutch disc to cause it to engage the latch lever and thus disengage the internal expansion clutch.

1.05 To manually operate the nontyping reperforator, proceed as follows:

(1) Attach the TP312709 armature clip to the selector magnet armature by carefully placing the spring loop over the magnet terminal insulator and pressing down to engage the hook of the clip on the underside of the armature and releasing. The spring tension of the armature clip will hold the selector armature in the marking (attracted) position.

(2) Rotate the main shaft in a counterclockwise direction until all the clutches are brought to their disengaged position.

(3) Fully disengage all clutches in accordance with 1.04, Note.

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

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

(6) Strip the push levers from their selector levers, which are spacing in the code combination of the character function that is being selected, and allow the push levers to move to the right.

(7) The push levers and the selector levers move in succession starting with the inner lever No. 1 to the outer lever No. 5.

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

1.06 Where a nontyping reperforator is used as a component of the 28 reperforator-transmitter unit or the 28 perforator-transmitter base, refer to the applicable adjustment sections for additional requirements or adjustments.

Note: On units equipped with two-cycle cams, both halves of the cam sleeve should be checked.

1.07 The figures in this section show the adjusting tolerances, positions of parts, and spring tensions. The illustrations are arranged so that the adjustments are in the

sequence which 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 shown, is indicated by the letters (A), (B), (C), etc.

1.08 Tools required to make the adjustments and check the spring tensions are not supplied with the equipment, but are listed in the appropriate section. If parts are removed, all adjustments which the removal of the parts might facilitate should be made before the parts are replaced. When a part mounted on shims is removed, the number of shims at each mounting screw should be noted so that the identical shim pile-up can be made when the part is remounted. Unless stated otherwise, all nuts and screws that were loosened should be tightened after an adjustment has been made.

1.09 The spring tensions given in this section are indicated values and should be checked with appropriate scales (listed in the tools section) in the positions shown in the drawings. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

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

Note: Remove power from unit before making adjustments.

2. BASIC UNITS

2.01 Function Mechanism

CLUTCH SHOE LEVER (FUNCTION AND SELECTOR 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

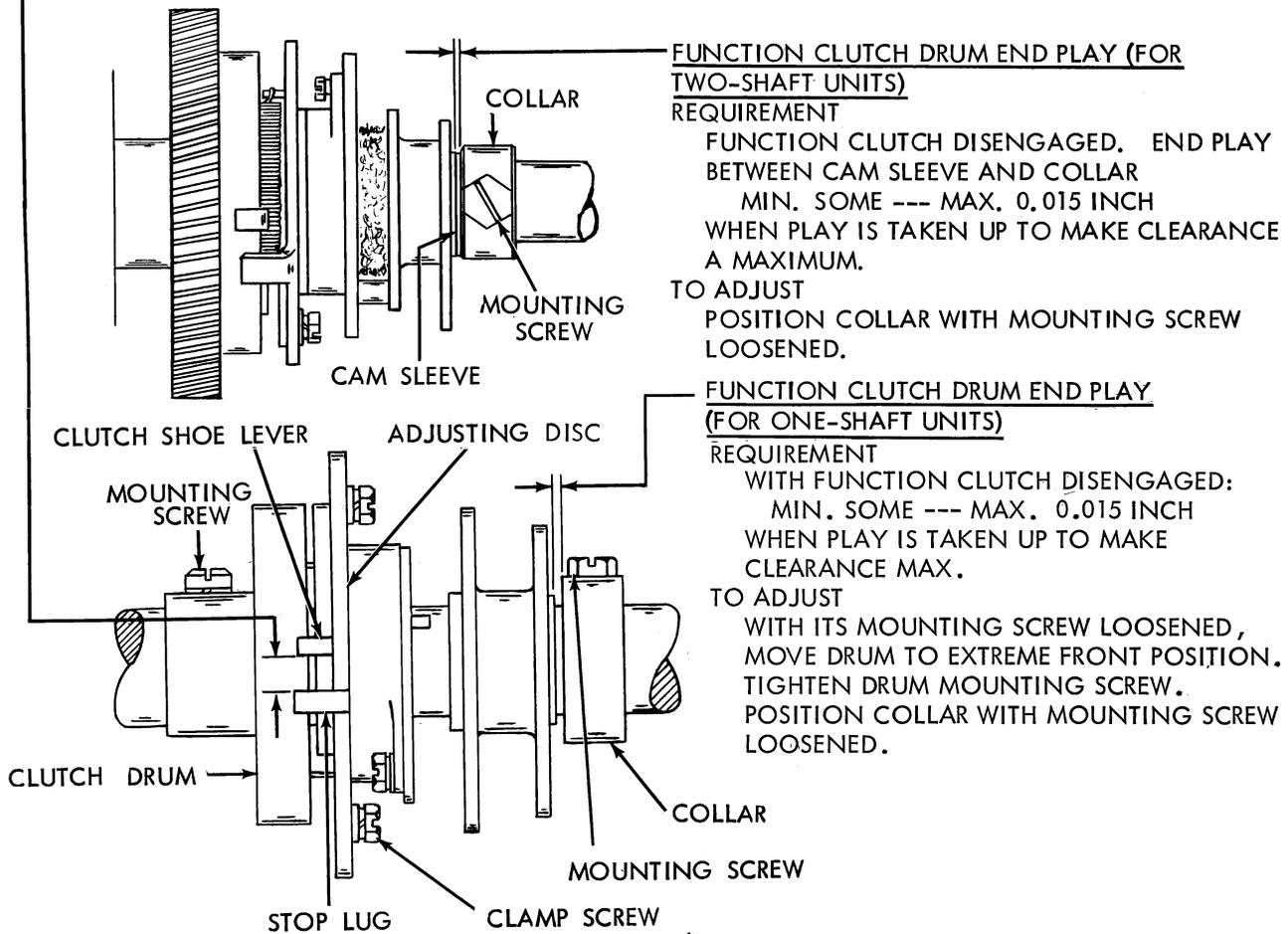
DISENGAGE CLUTCH AND MEASURE GAP. ALIGN HEAD OF DRUM MOUNTING SCREW WITH STOP LUG. ENGAGE CLUTCH. MANUALLY PRESS SHOE LEVER AGAINST STOP LUG AND ALLOW TO SNAP APART. MEASURE GAP WITH CLUTCH ENGAGED.

TO ADJUST

ENGAGE WRENCH OR SCREWDRIVER WITH LUG ON ADJUSTING DISC. ROTATE DISC WITH CLAMP SCREWS LOOSENED.

NOTE

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



* NOTE: ON MULTIPLE STOP CLUTCHES MEASURE THE CLEARANCE AT THE DISC EXTENSION WHICH IS ADJACENT TO THE FORM ON THE CLUTCH ADJUSTING PLATE.

2.02 Function Mechanism - Continued

CLUTCH SHOE LEVER SPRING

REQUIREMENT

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

MIN. 15 OZS. --- MAX. 20 OZS. (1 STOP)*

MIN. 16 OZS. --- MAX. 22 OZS. (2 STOP)

TO MOVE SHOE LEVER IN CONTACT WITH STOP LUG.

CLUTCH SHOE LEVER SPRING

CLUTCH SHOE SPRING

*FOR LRPE 603 (BELL 20C) UNIT
MIN. 9 OZS. --- MAX. 11 OZS.

CLUTCH SHOE SPRING

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.

LATCH LEVER SPRING

FUNCTION CLUTCH LATCH LEVER SPRING

REQUIREMENT

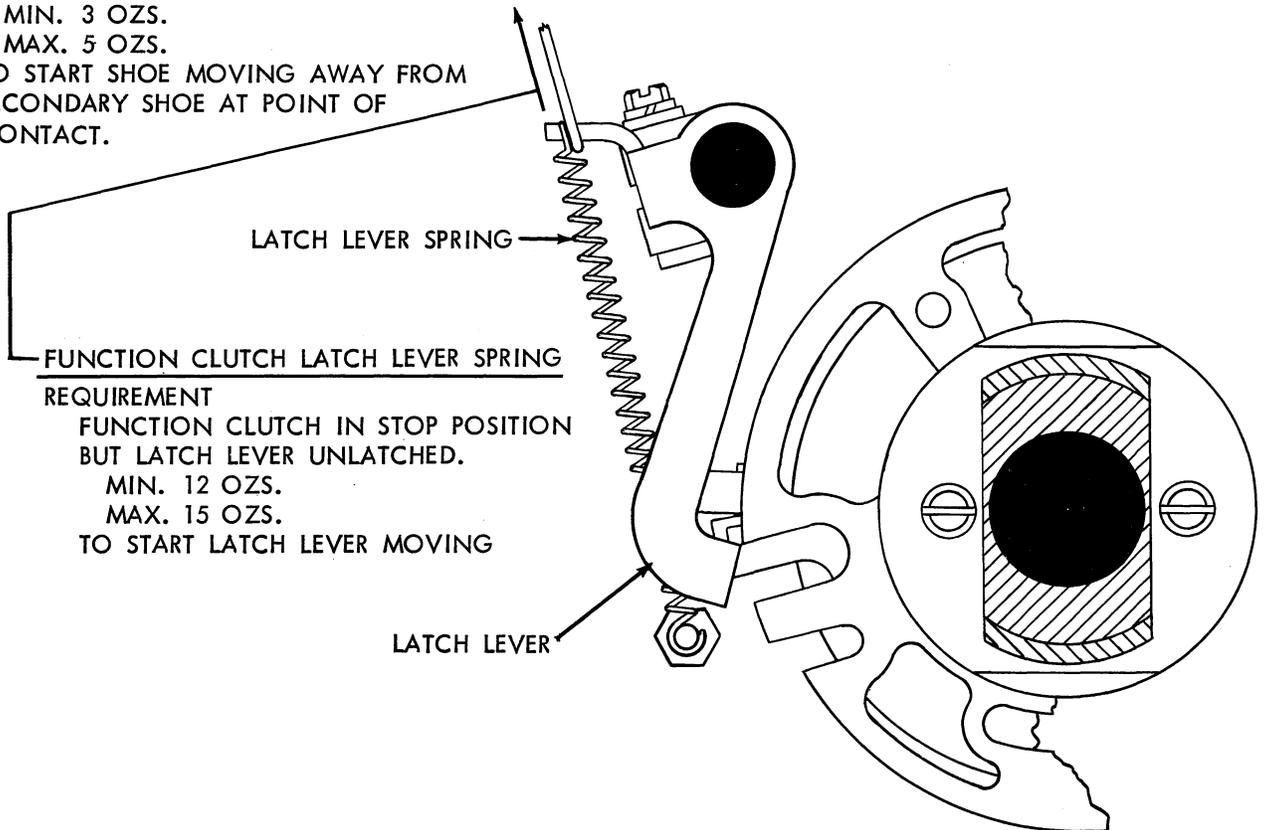
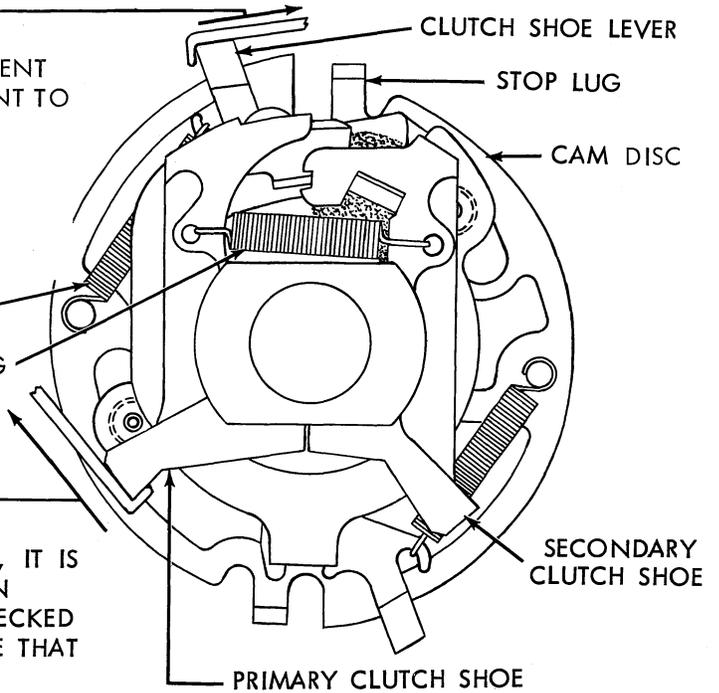
FUNCTION CLUTCH IN STOP POSITION BUT LATCH LEVER UNLATCHED.

MIN. 12 OZS.

MAX. 15 OZS.

TO START LATCH LEVER MOVING

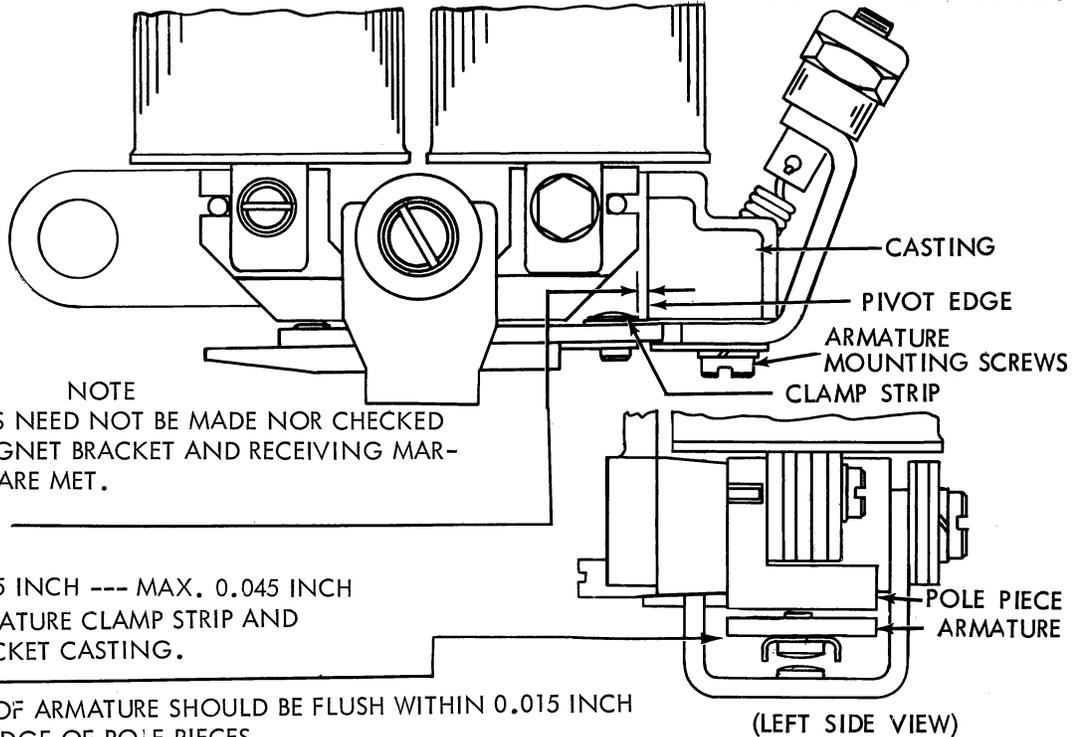
LATCH LEVER



2.03 Selector Mechanism (Two-Cycle)

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

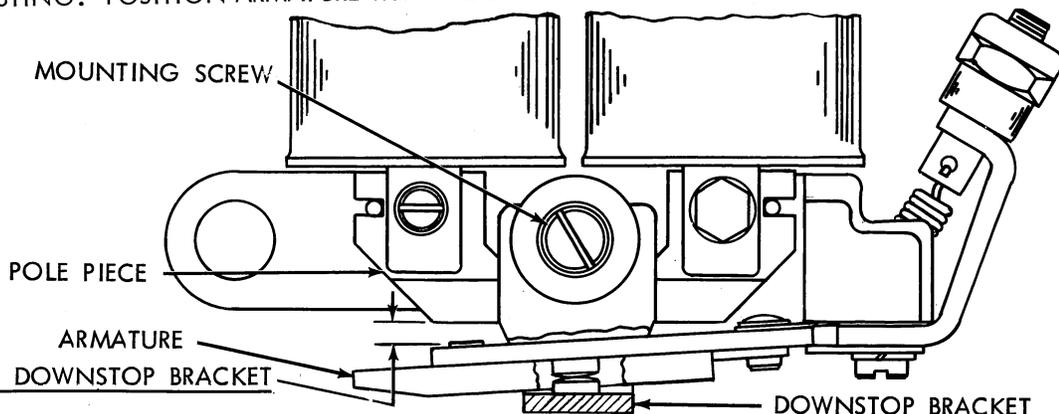
NOTE

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.



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, PAR. 2.19.

2.04 Selector Mechanism (Two-Cycle) - Continued

RANGE FINDER KNOB PHASING

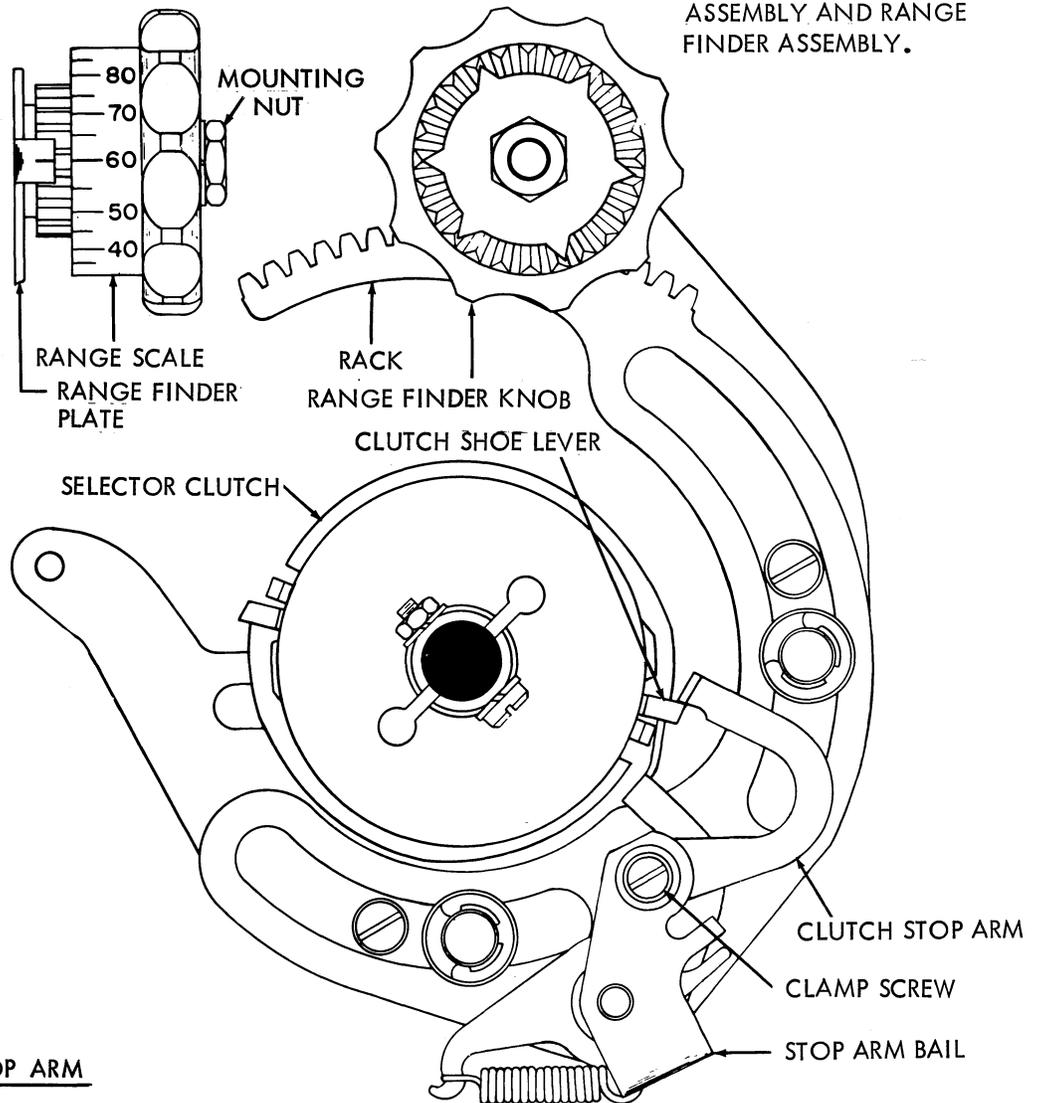
REQUIREMENT

WITH RANGE FINDER KNOB TURNED CLOCKWISE TO END OF RACK, ZERO MARK ON SCALE SHOULD BE IN LINE WITH SCRIBED LINE ON RANGE FINDER PLATE \pm 6 POINTS.

TO ADJUST

POSITION KNOB WITH MOUNTING NUT LOOSENED.

NOTE
REPLACE SELECTOR MAGNET
ASSEMBLY AND RANGE
FINDER ASSEMBLY.



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.

2.05 Selector Mechanism (Two-Cycle) - Continued

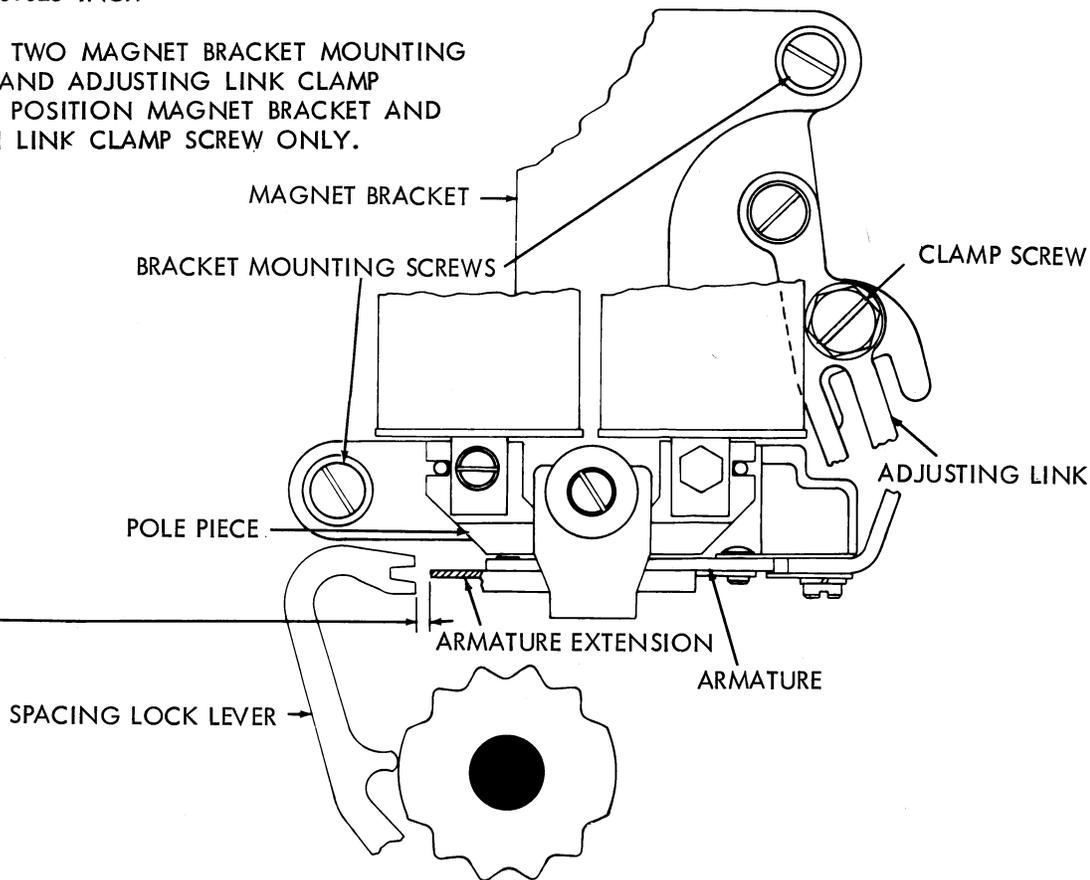
SELECTOR MAGNET BRACKET

(1) REQUIREMENT

SPACING LOCK LEVER ON HIGH PART OF CAM. ARMATURE IN CONTACT WITH POLE PIECE. CLEARANCE BETWEEN SPACING LOCK LEVER AND ARMATURE EXTENSION.
 MIN. 0.015 INCH
 MAX. 0.025 INCH

TO ADJUST

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

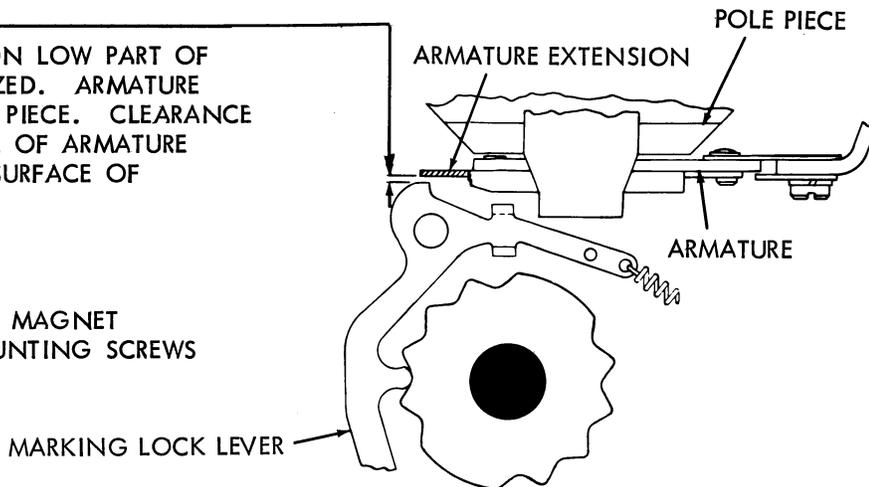


(2) REQUIREMENT

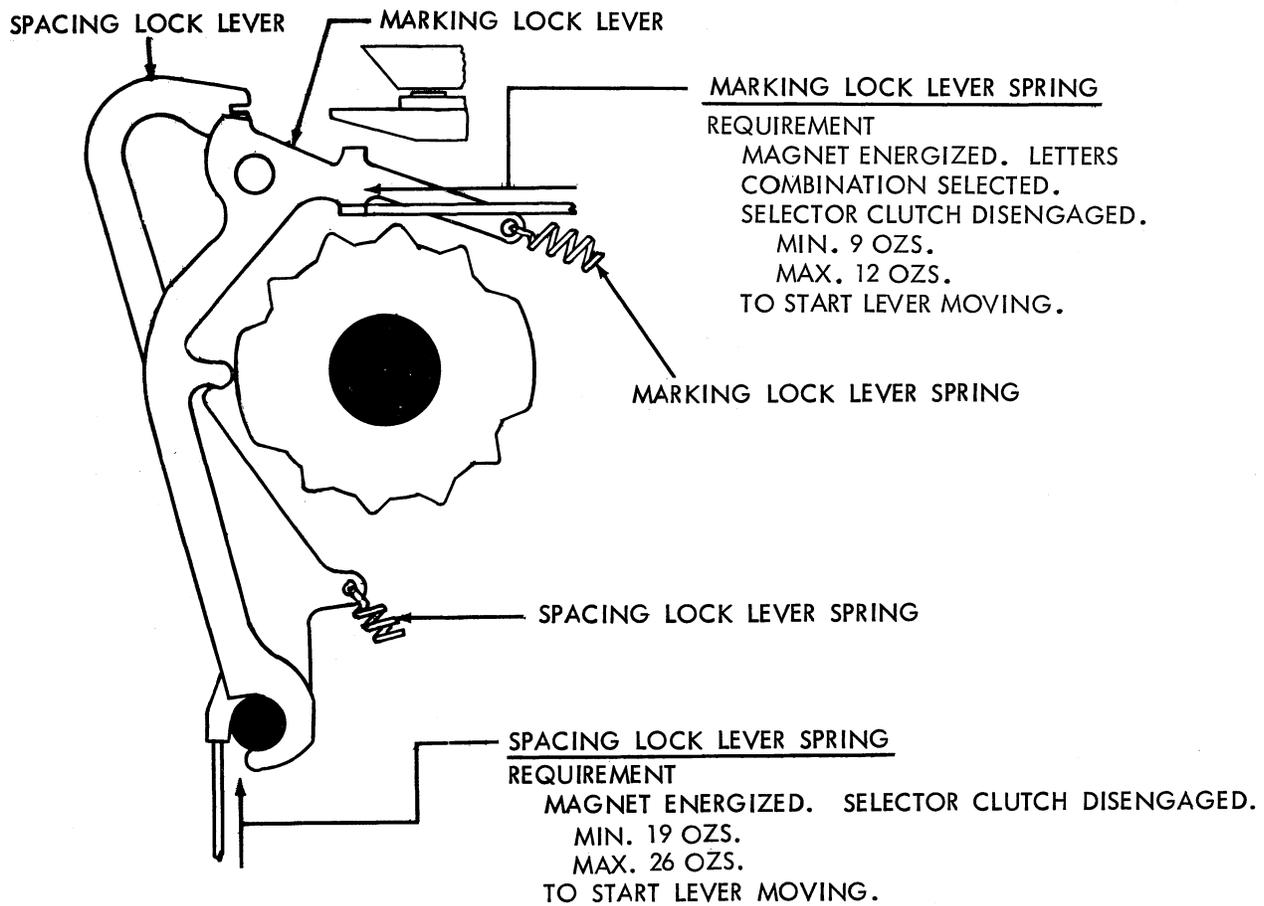
MARKING LOCK LEVER ON LOW PART OF CAM. MAGNET ENERGIZED. ARMATURE IN CONTACT WITH POLE PIECE. CLEARANCE BETWEEN LOWER SURFACE OF ARMATURE EXTENSION AND UPPER SURFACE OF MARKING LOCK LEVER.
 MIN. 0.002 INCH
 MAX. 0.005 INCH

TO ADJUST

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



2.06 Selector Mechanism (Two-Cycle) - Continued



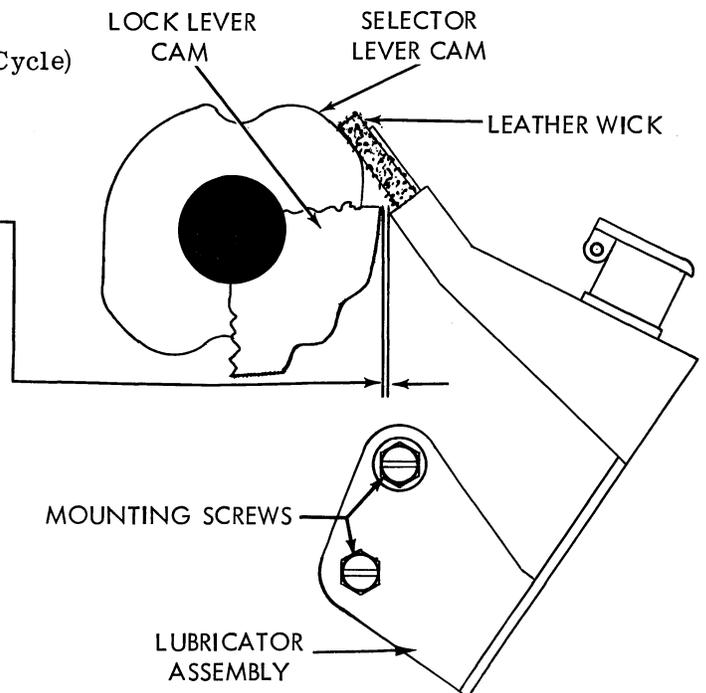
2.07 Selector Mechanism (One-Cycle or Two-Cycle)

SELECTOR CAM LUBRICATOR

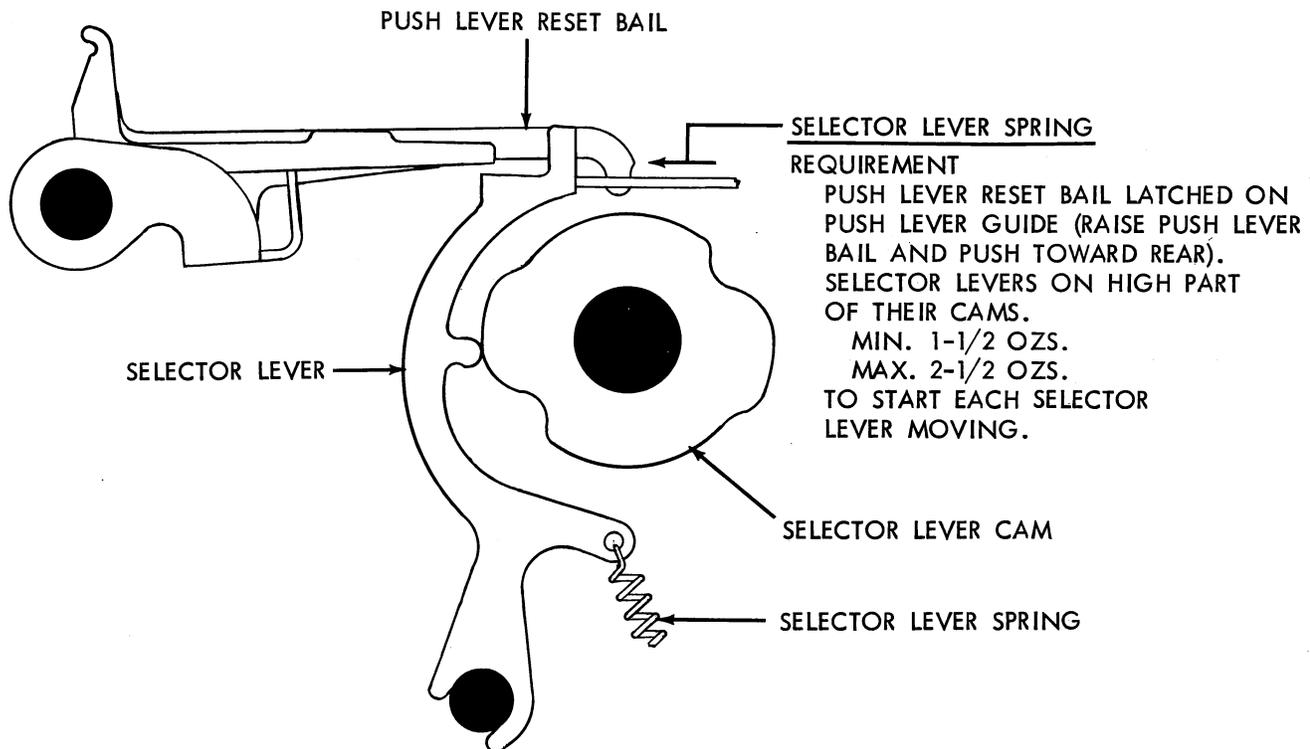
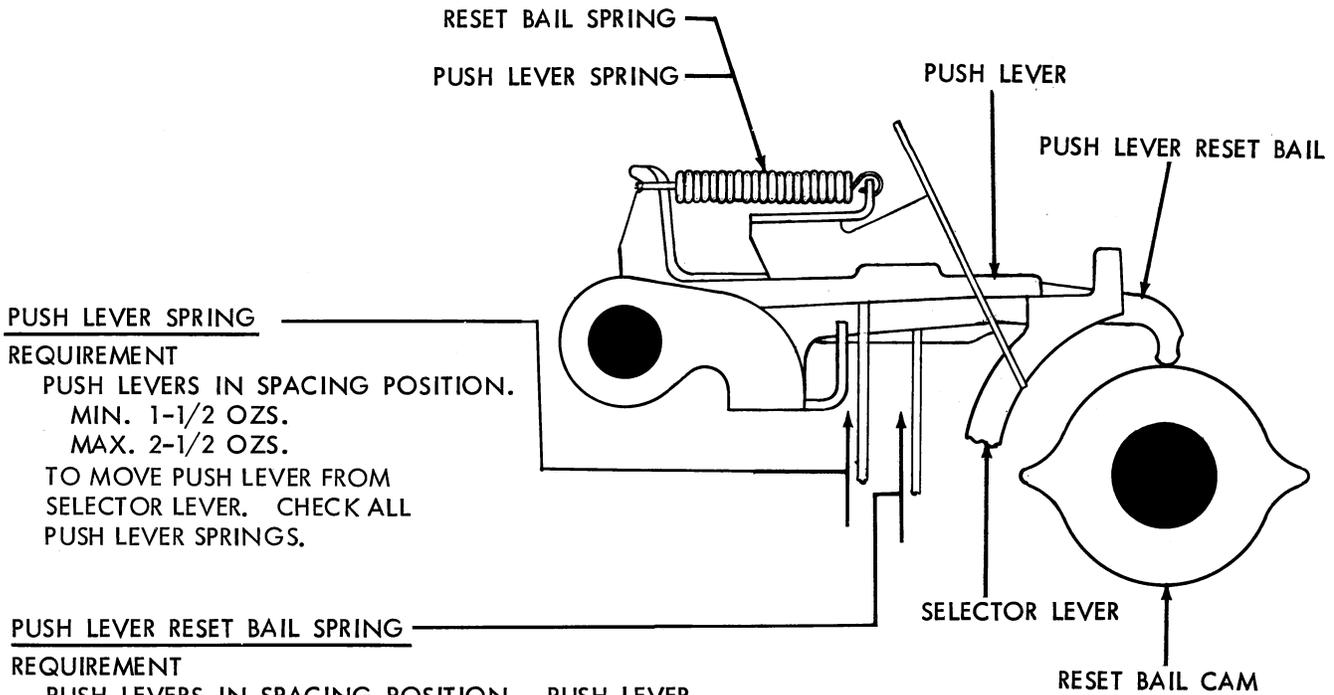
- (1) REQUIREMENT
LUBRICATOR SHOULD CLEAR HIGH PART OF
LOCK LEVER CAM.
MIN. 0.020 INCH
- (2) REQUIREMENT
HIGH PART OF SELECTOR LEVER CAMS
SHOULD CONTACT LEATHER WICK BUT
SHOULD NOT DEFLECT WICK MORE THAN
1/32 INCH GAUGED VISUALLY.

TO ADJUST

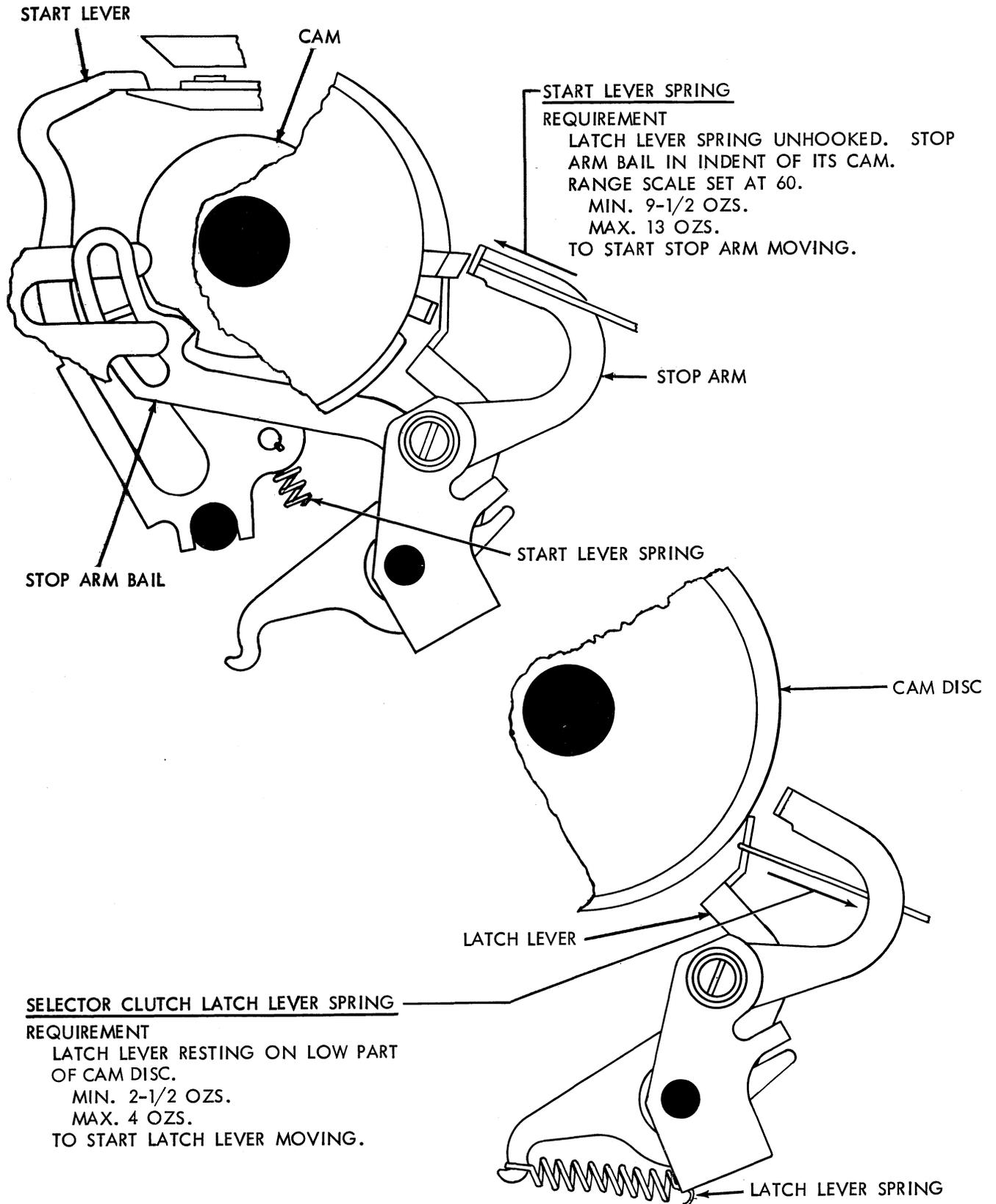
POSITION LUBRICATOR ASSEMBLY AROUND
LOWER SCREW WITH MOUNTING SCREWS
LOOSENED.



2.08 Selector Mechanism (Two-Cycle) - Continued



2.09 Selector Mechanism (Two-Cycle) - Continued



2.10 Selector Mechanism (Two-Cycle) - Continued

SELECTOR ARMATURE SPRING (ONE ANTIFREEZE BUTTON)

(1) REQUIREMENT (PRELIMINARY)

MARKING LOCK LEVER, SPACING LOCK LEVER, AND START LEVER ON HIGH PART OF THEIR CAMS.

MIN. 2 OZS.

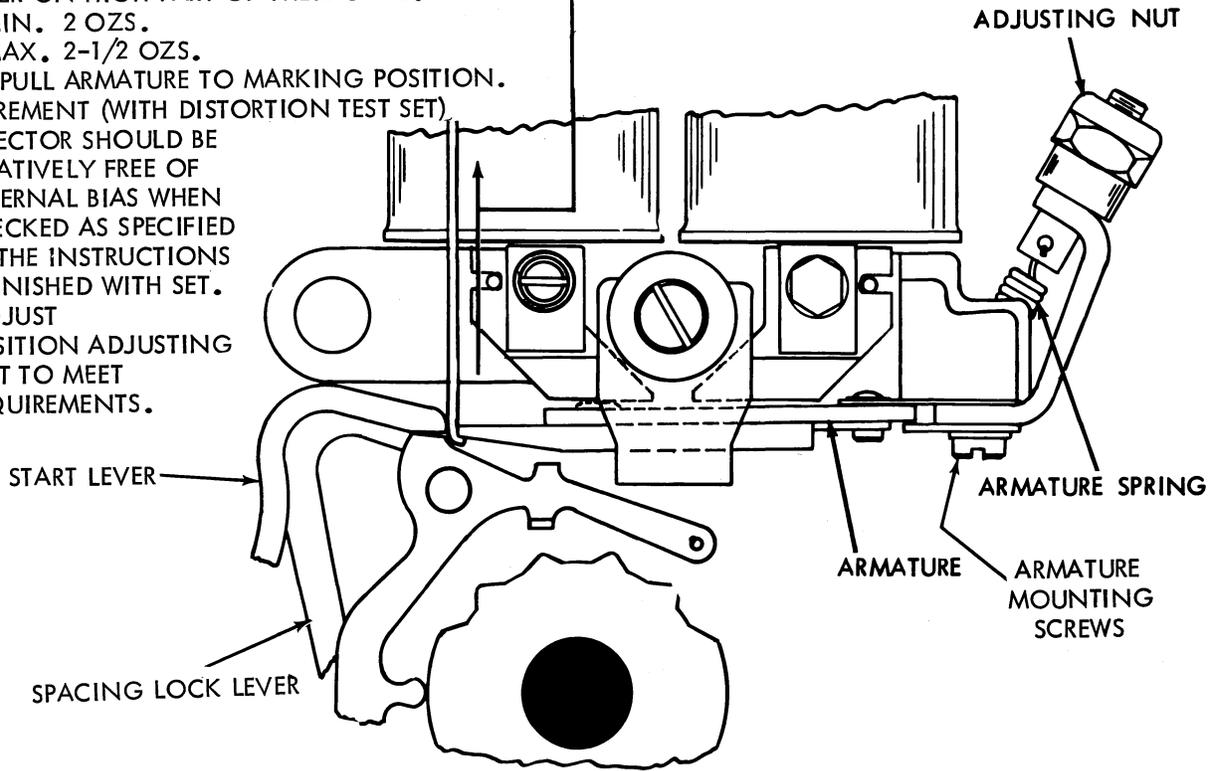
MAX. 2-1/2 OZS.

TO PULL ARMATURE TO MARKING POSITION.

(2) REQUIREMENT (WITH DISTORTION TEST SET)

SELECTOR SHOULD BE RELATIVELY FREE OF INTERNAL BIAS WHEN CHECKED AS SPECIFIED IN THE INSTRUCTIONS FURNISHED WITH SET.

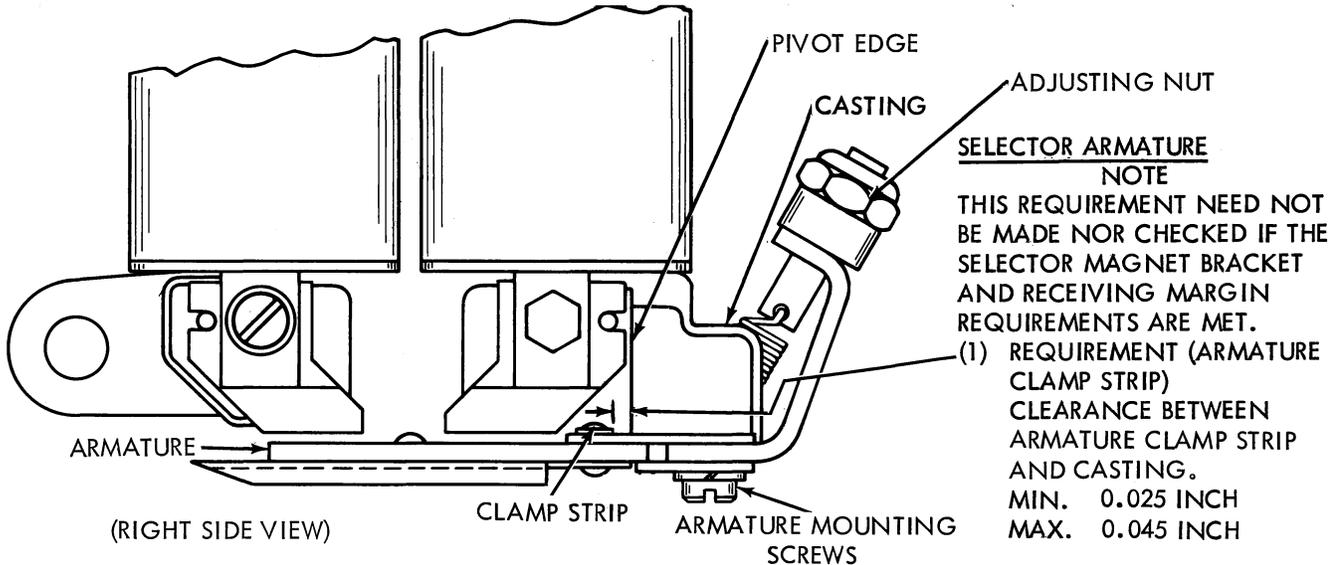
TO ADJUST POSITION ADJUSTING NUT TO MEET REQUIREMENTS.



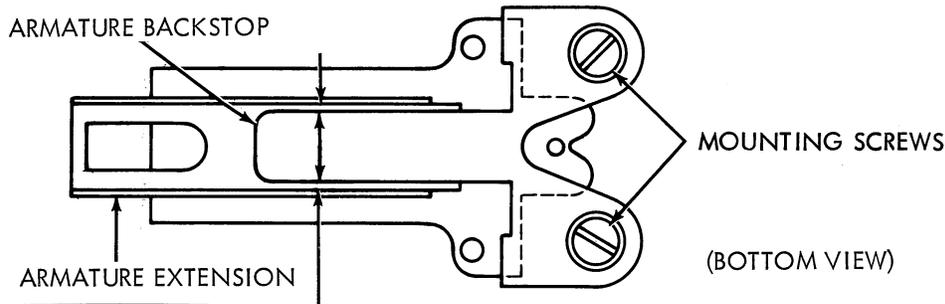
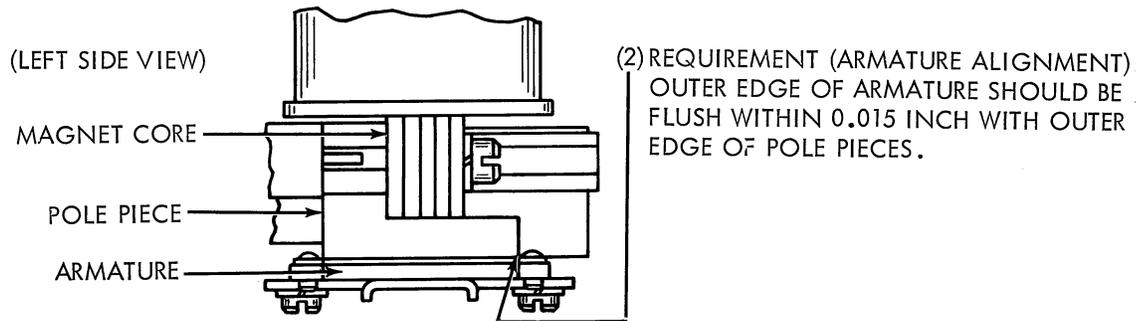
2.11 Selector Mechanism (One-Cycle)

NOTE

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

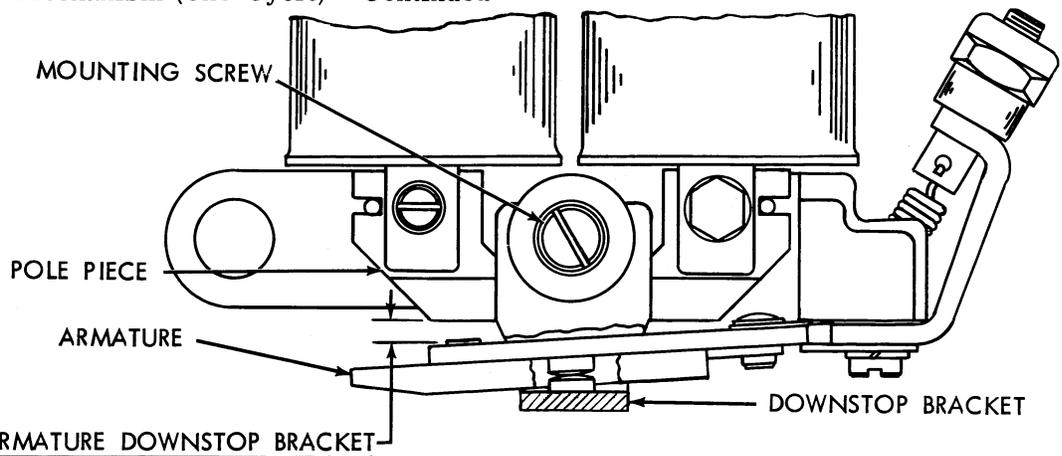


2.11 Selector Mechanism (One-Cycle) - Continued



- (3) REQUIREMENT (ARMATURE BACKSTOP ALIGNMENT - EARLIER DESIGN)
 CLEARANCE BETWEEN SIDES OF BACKSTOP AND SIDES OF ARMATURE EXTENSION.
 MIN. 0.010 INCH
 TO ADJUST
1. POSITION ARMATURE SPRING ADJUSTING NUT TO HOLD ARMATURE FIRMLY AGAINST PIVOT EDGE OF CASTING.
 2. POSITION ARMATURE AND BACKSTOP WITH MOUNTING SCREWS LOOSENED.

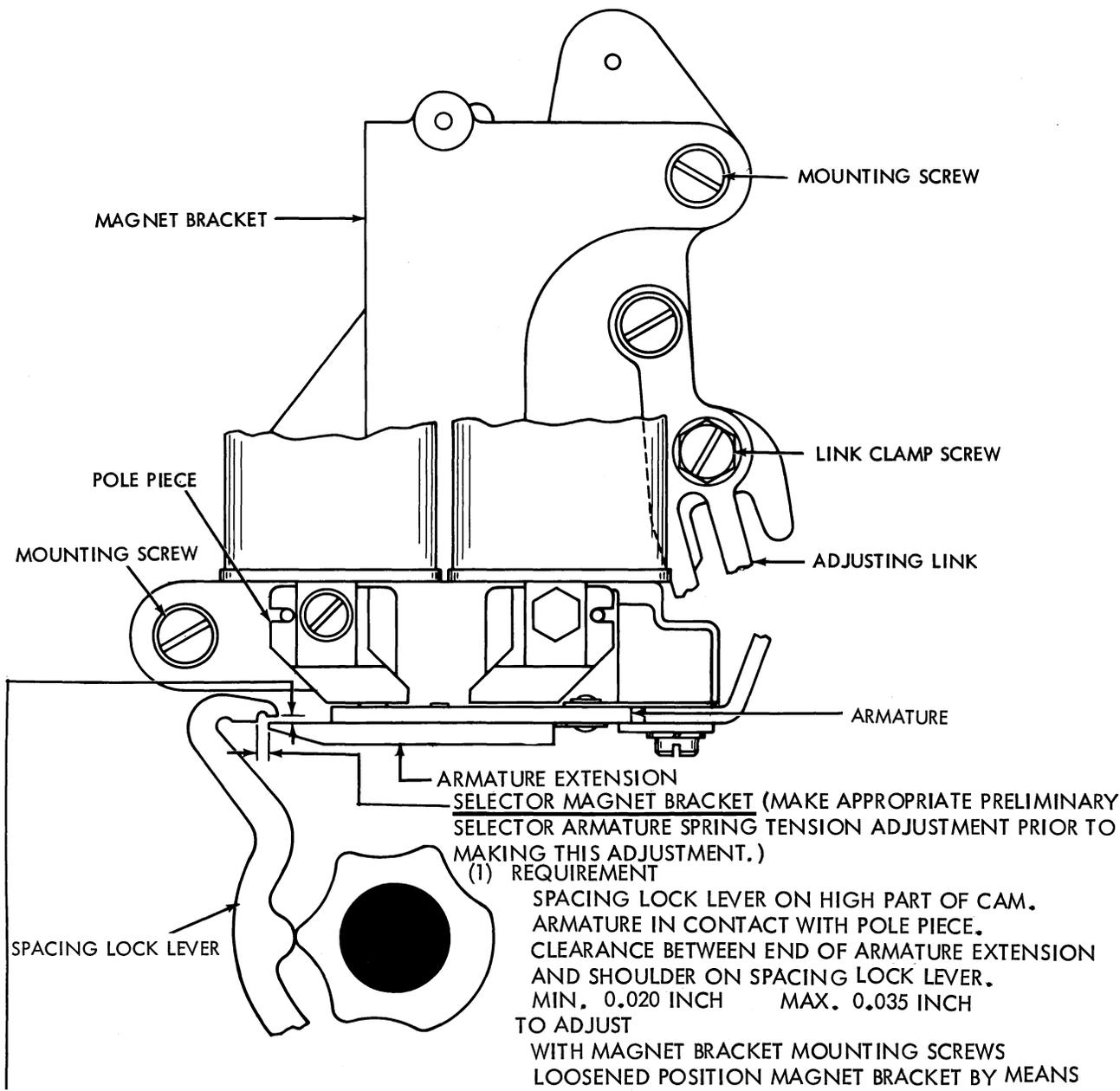
2.12 Selector Mechanism (One-Cycle) - Continued



- 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, PAR. 2. 19.

2.13 Selector Mechanism (One-Cycle) - Continued



- (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 WITH MAGNET BRACKET MOUNTING SCREWS LOOSENED POSITION MAGNET BRACKET BY MEANS OF ITS ADJUSTING LINK. TIGHTEN LINK CLAMP SCREW ONLY.
- (2) REQUIREMENT
 ARMATURE IN CONTACT WITH POLE PIECE. CLEARANCE BETWEEN UPPER SURFACE OF ARMATURE EXTENSION AND UPPER STEP OF SPACING LOCK LEVER WHEN LOCK LEVER IS HELD DOWN TO MAKE CLEARANCE A MINIMUM, MAX. 0.003 INCH
 TO ADJUST POSITION UPPER END OF MAGNET BRACKET. TIGHTEN BRACKET MOUNTING SCREWS.
- (3) REQUIREMENT
 MARKING LOCK LEVER ON LOW PART OF CAM. MAGNET ENERGIZED, SOME CLEARANCE BETWEEN LOWER SURFACE OF ARMATURE EXTENSION AND UPPER SURFACE OF MARKING LOCK LEVER
 TO ADJUST WITH MOUNTING SCREWS LOOSENED POSITION UPPER END OF MAGNET BRACKET. RECHECK REQUIREMENTS (1) AND (2).

2.14 Selector Mechanism (One-Cycle) - Continued

CAUTION

BEFORE PROCEEDING WITH THE SELECTOR ARMATURE SPRING ADJUSTMENT, THE TYPE OF ARMATURE (ONE ANTIFREEZE BUTTON OR TWO ANTIFREEZE BUTTONS) MUST BE KNOWN. EXCESSIVE TENSION ON, OR THE MISHANDLING OF A TWO BUTTON ARMATURE CAN DAMAGE THE THIN LEAF SPRING ATTACHED TO THE PIVOT END. IF REMOVAL FOR EXAMINATION IS NECESSARY, DISASSEMBLE AS FOLLOWS:

- (1) DISCONNECT ARMATURE SPRING.
- (2) REMOVE ARMATURE MOUNTING SCREWS.
- (3) WITHDRAW ARMATURE FROM SELECTOR.

REASSEMBLE AND RECHECK THE FOLLOWING ADJUSTMENTS:

- SELECTOR ARMATURE
- SELECTOR ARMATURE DOWNSTOP BRACKET
- SELECTOR MAGNET BRACKET

**SELECTOR ARMATURE SPRING (ONE ANTIFREEZE BUTTON)*
REQUIREMENT (PRELIMINARY)**

WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE THE FOLLOWING TENSIONS TO MOVE ARMATURE TO MARKING POSITION:

0.060 AMPERES

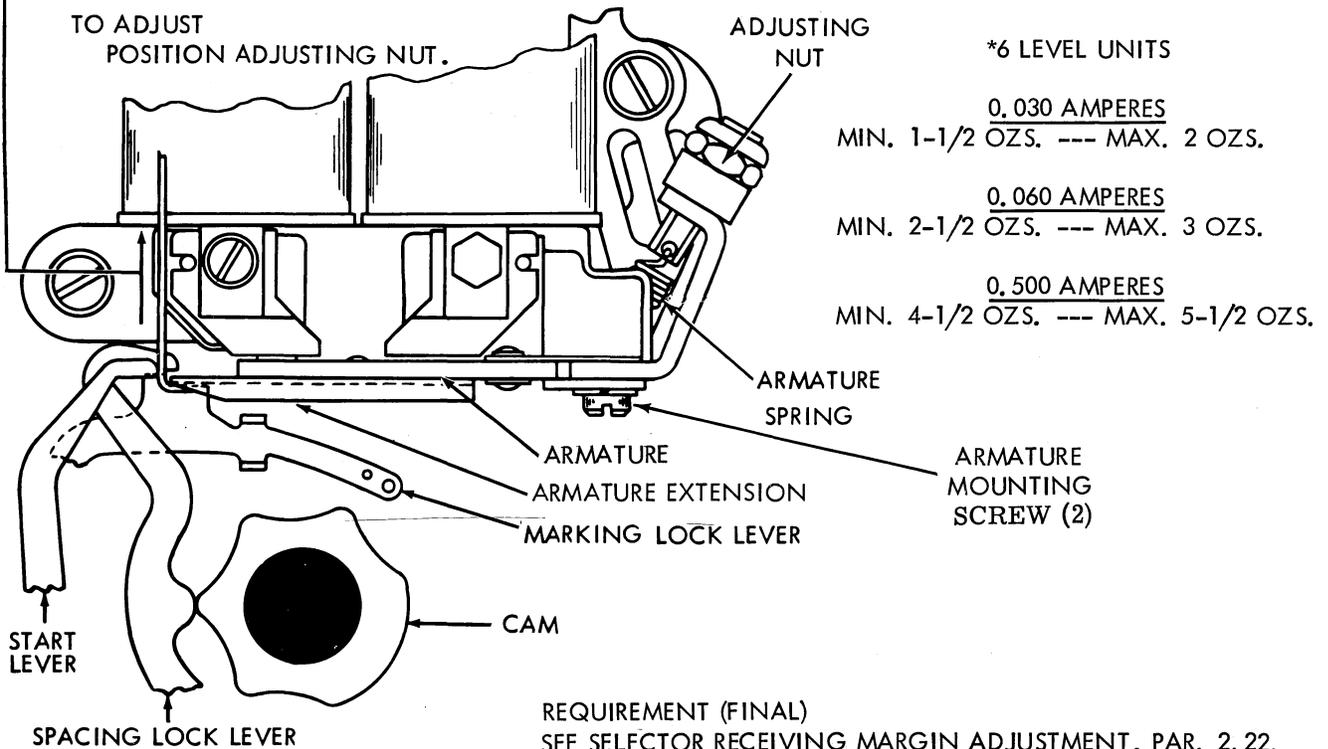
MIN. 2-1/2 OZS. --- MAX. 3 OZS.

0.020 AMPERES

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

NOTE

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



2.15 Selector Mechanism (One-Cycle) - Continued

CAUTION

BEFORE PROCEEDING WITH THE SELECTOR ARMATURE SPRING ADJUSTMENT, THE TYPE OF ARMATURE (ONE ANTIFREEZE BUTTON OR TWO ANTIFREEZE BUTTONS) MUST BE KNOWN. EXCESSIVE TENSION ON, OR THE MISHANDLING OF A TWO BUTTON ARMATURE CAN DAMAGE THE THIN LEAF SPRING ATTACHED TO THE PIVOT END. IF REMOVAL FOR EXAMINATION IS NECESSARY, DISASSEMBLE AS FOLLOWS:

- (1) DISCONNECT ARMATURE SPRING.
- (2) REMOVE ARMATURE MOUNTING SCREWS.
- (3) WITHDRAW ARMATURE FROM SELECTOR.

REASSEMBLE AND RECHECK THE FOLLOWING ADJUSTMENTS:

- SELECTOR ARMATURE
- SELECTOR ARMATURE DOWNSTOP BRACKET
- SELECTOR MAGNET BRACKET

SELECTOR ARMATURE SPRING (TWO ANTIFREEZE BUTTONS) *

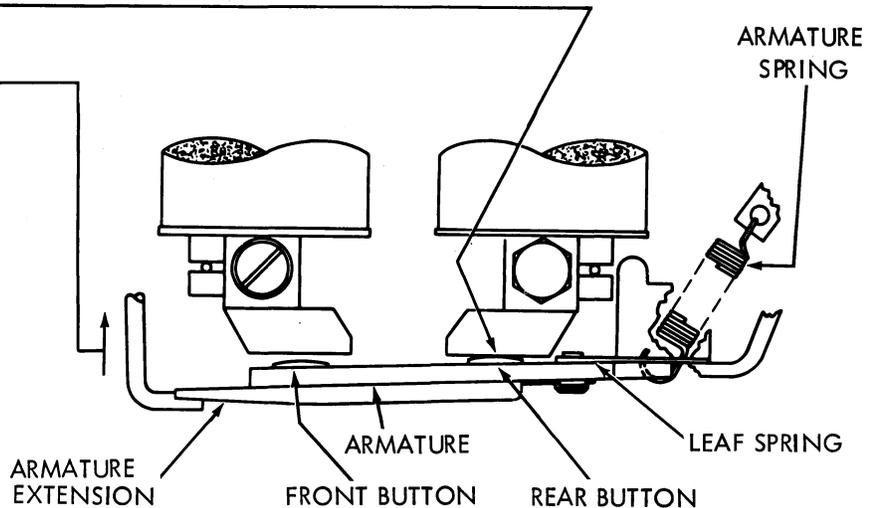
REQUIREMENT (PRELIMINARY)

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 ANTIFREEZE BUTTON AGAINST THE MAGNET CORE:

- 0.060 AMPERES
APPROXIMATELY 3/4 OZ.
- 0.020 AMPERES
APPROXIMATELY 1/2 OZ.

- *6 LEVEL UNITS
0.030 AMPERE
APPROXIMATELY 5/8 OZ.
- 0.060 AMPERE
APPROXIMATELY 3/4 OZ.
- 0.500 AMPERE
APPROXIMATELY 1-1/8 OZS.

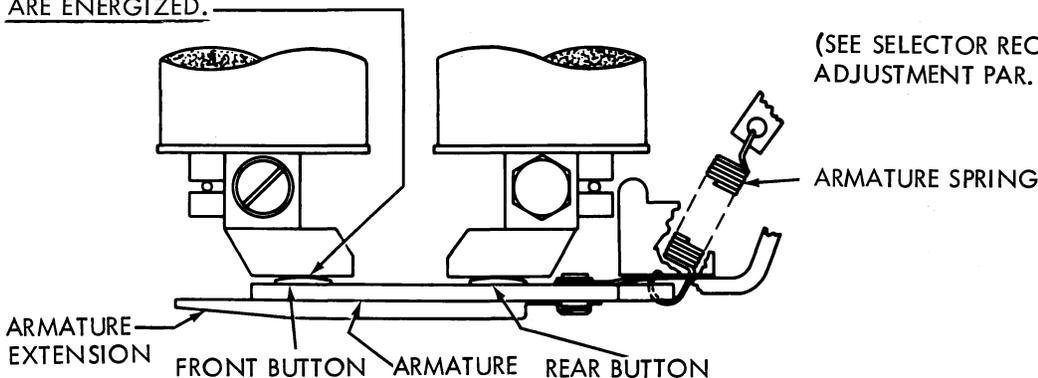
TO ADJUST
POSITION ADJUSTING NUT.



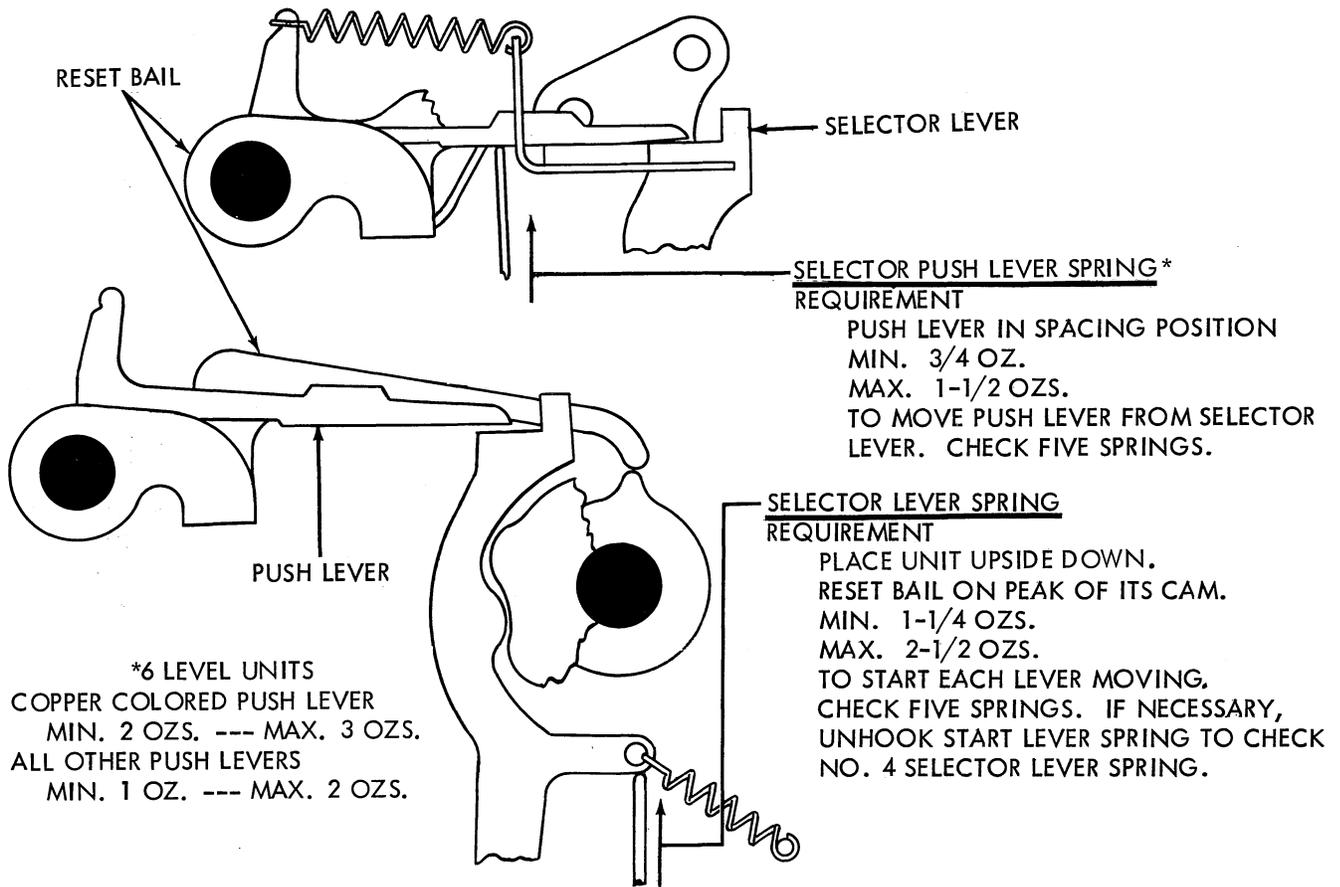
REQUIREMENT (FINAL)

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

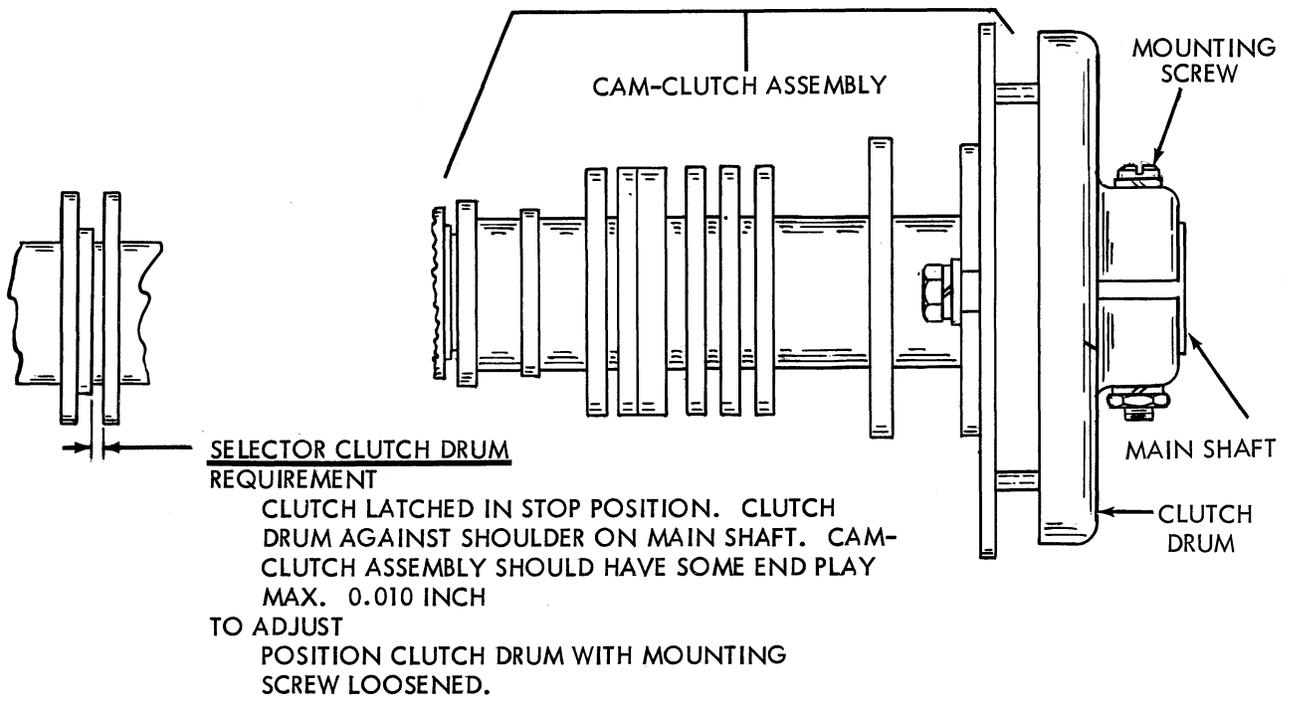
(SEE SELECTOR RECEIVING MARGIN
ADJUSTMENT PAR. 2.22.)



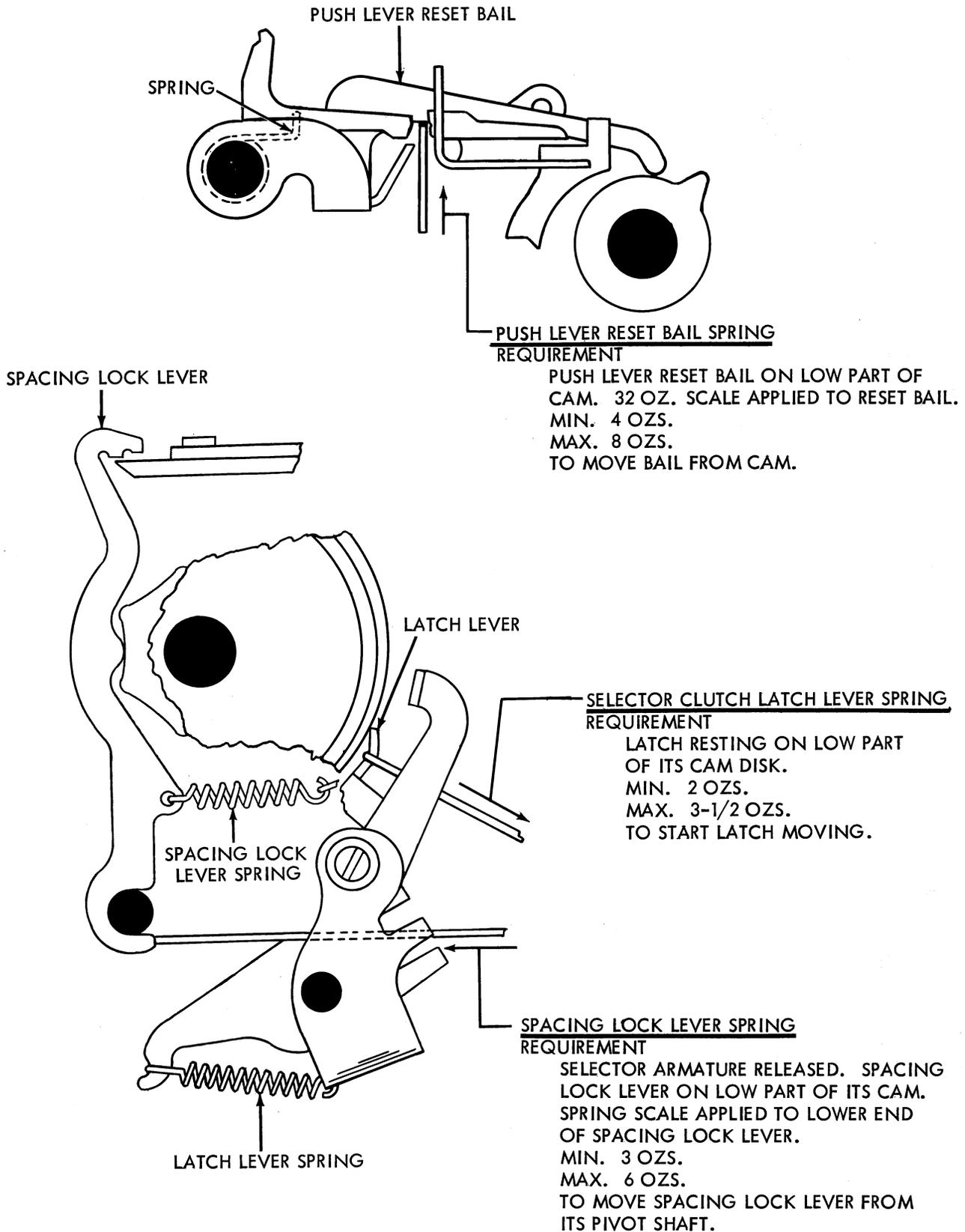
2.16 Selector Mechanism (One-Cycle) - Continued



2.17 Selector Mechanism (One-Cycle or Two-Cycle) - Continued



2.18 Selector Mechanism (One-Cycle) - Continued

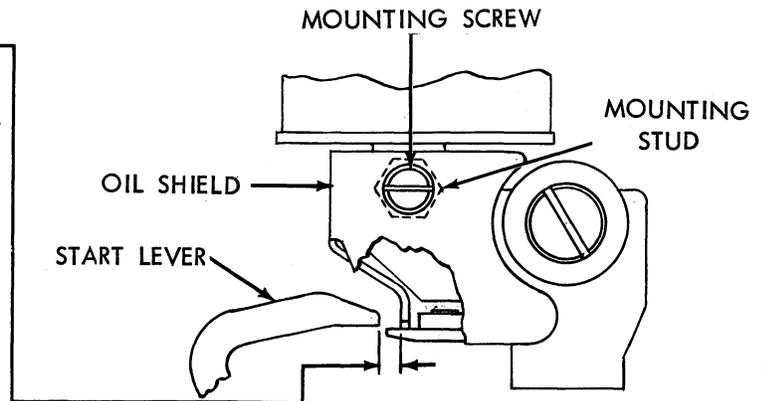


2.19 Selector Mechanism (One-Cycle or Two-Cycle) - Continued

OIL SHIELD

REQUIREMENT

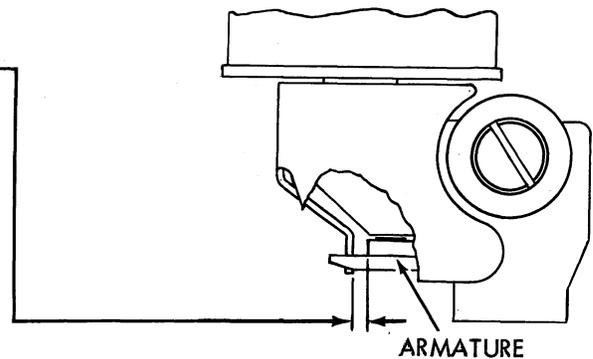
- (1) MAGNET DE-ENERGIZED. STOP ARM BAIL ON LOW PART OF ITS CAM. CLEARANCE BETWEEN START LEVER AND OIL SHIELD. MIN. 0.020 INCH



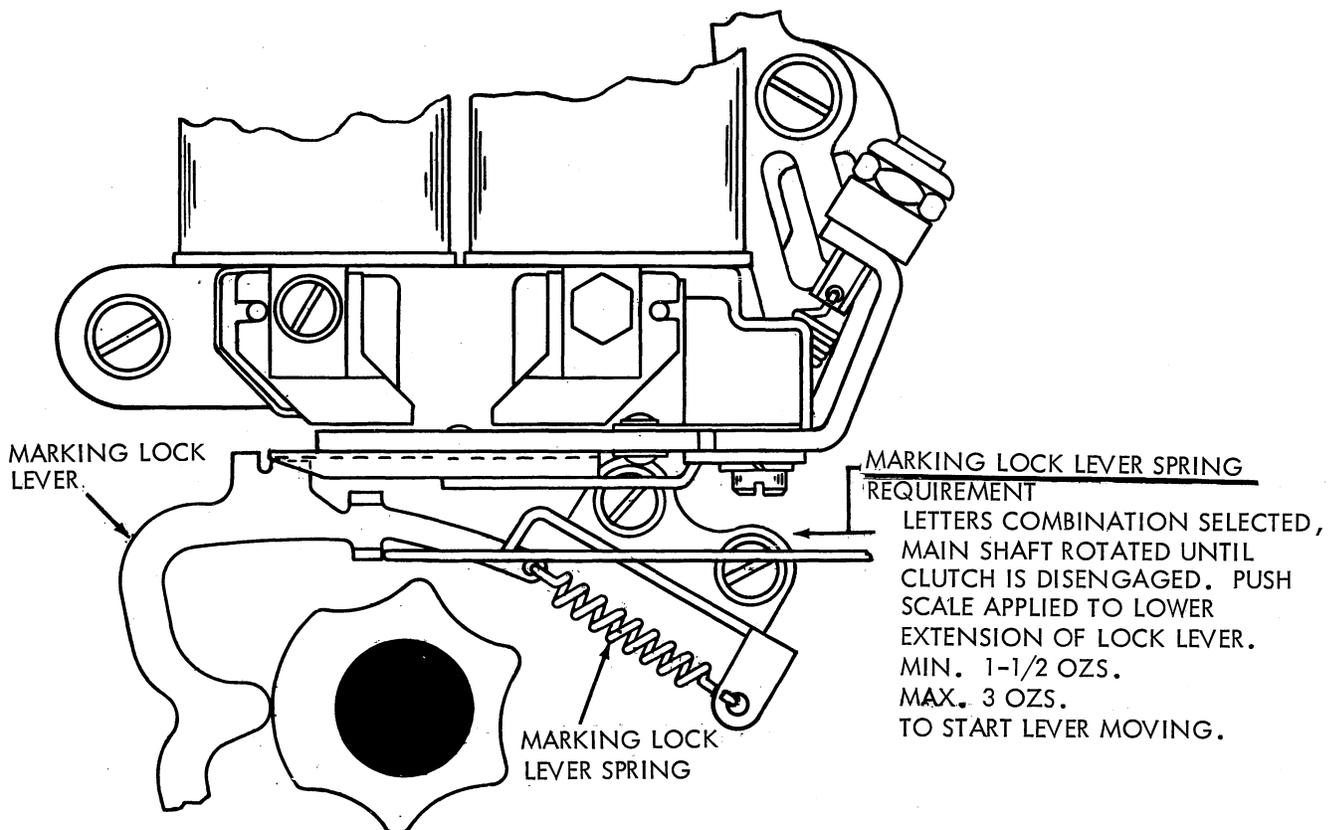
- (2) MAGNET ENERGIZED. STOP ARM BAIL ON HIGH PART OF ITS CAM. CLEARANCE BETWEEN END OF ARMATURE AND OIL SHIELD. MIN. 0.010 INCH

TO ADJUST

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



2.20 Selector Mechanism (One-Cycle) - Continued



MARKING LOCK LEVER SPRING REQUIREMENT

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

2.21 Selector Mechanism (One-Cycle) - Continued

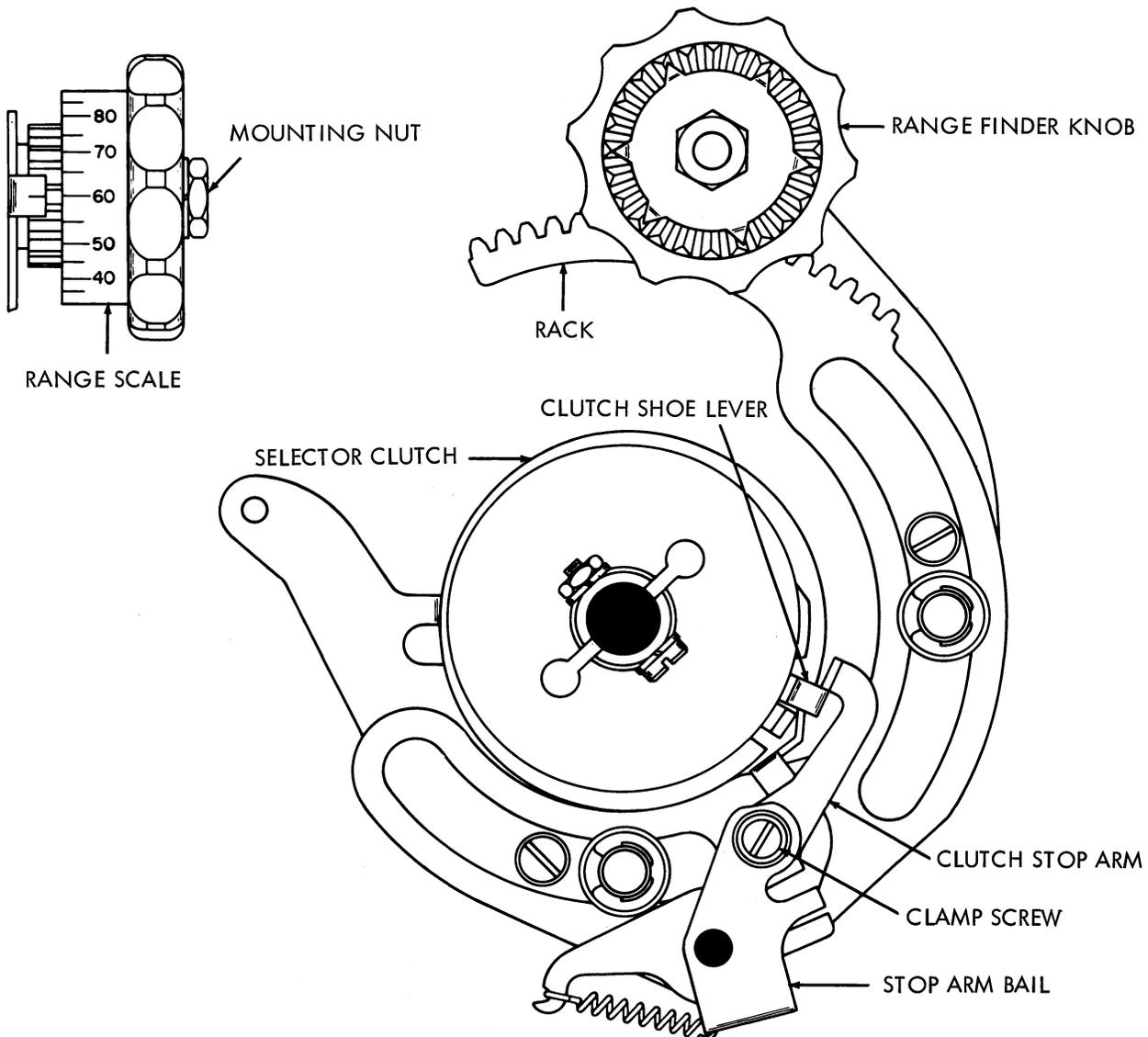
NOTE: REPLACE RANGE FINDER AND SELECTOR MAGNET ASSEMBLY.

(A) RANGE FINDER KNOB PHASING
REQUIREMENT

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

TO ADJUST

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



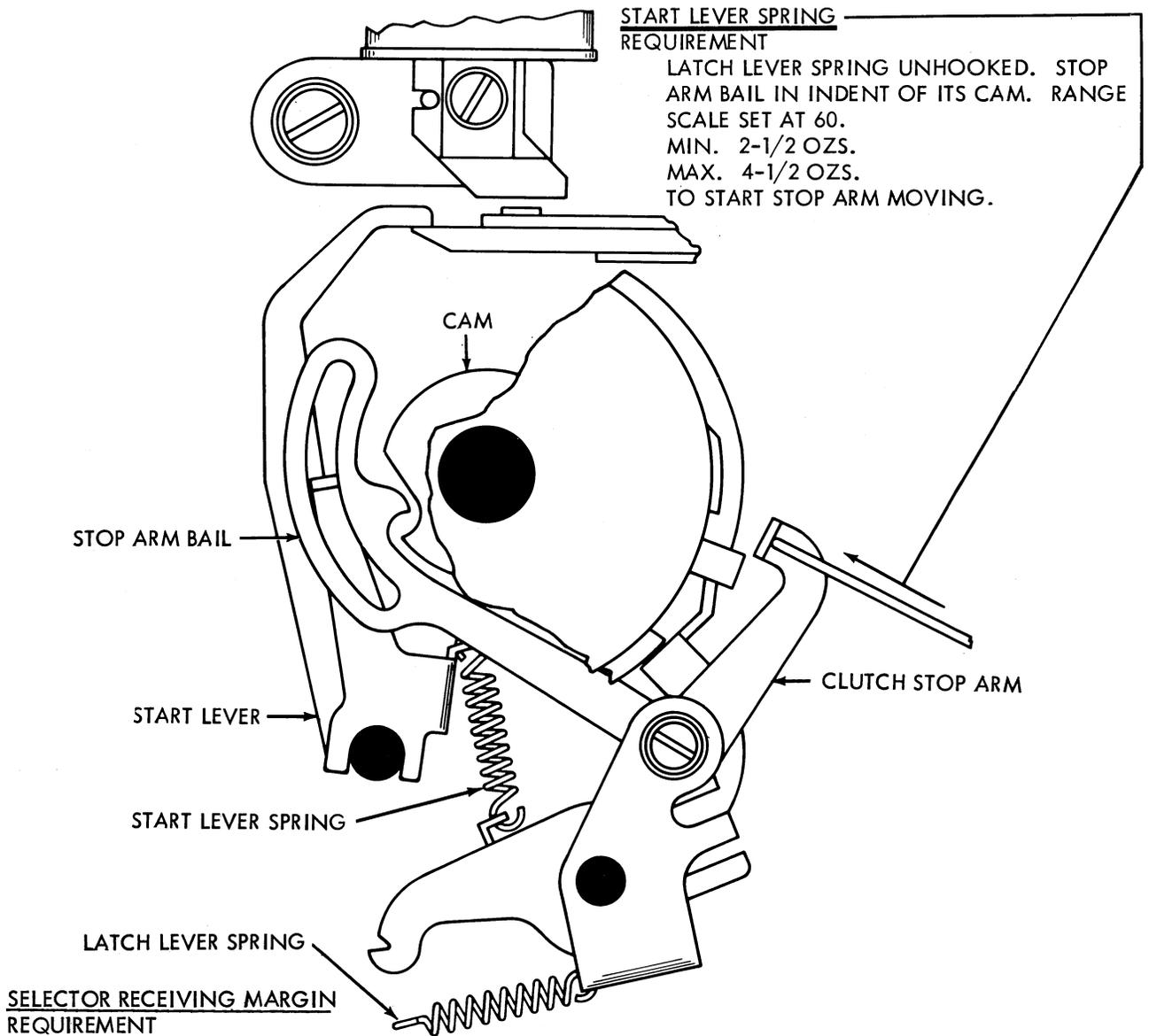
(B) SELECTOR CLUTCH STOP ARM
REQUIREMENT

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

TO ADJUST

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

2.22 Selector Mechanism (One-Cycle) - Continued

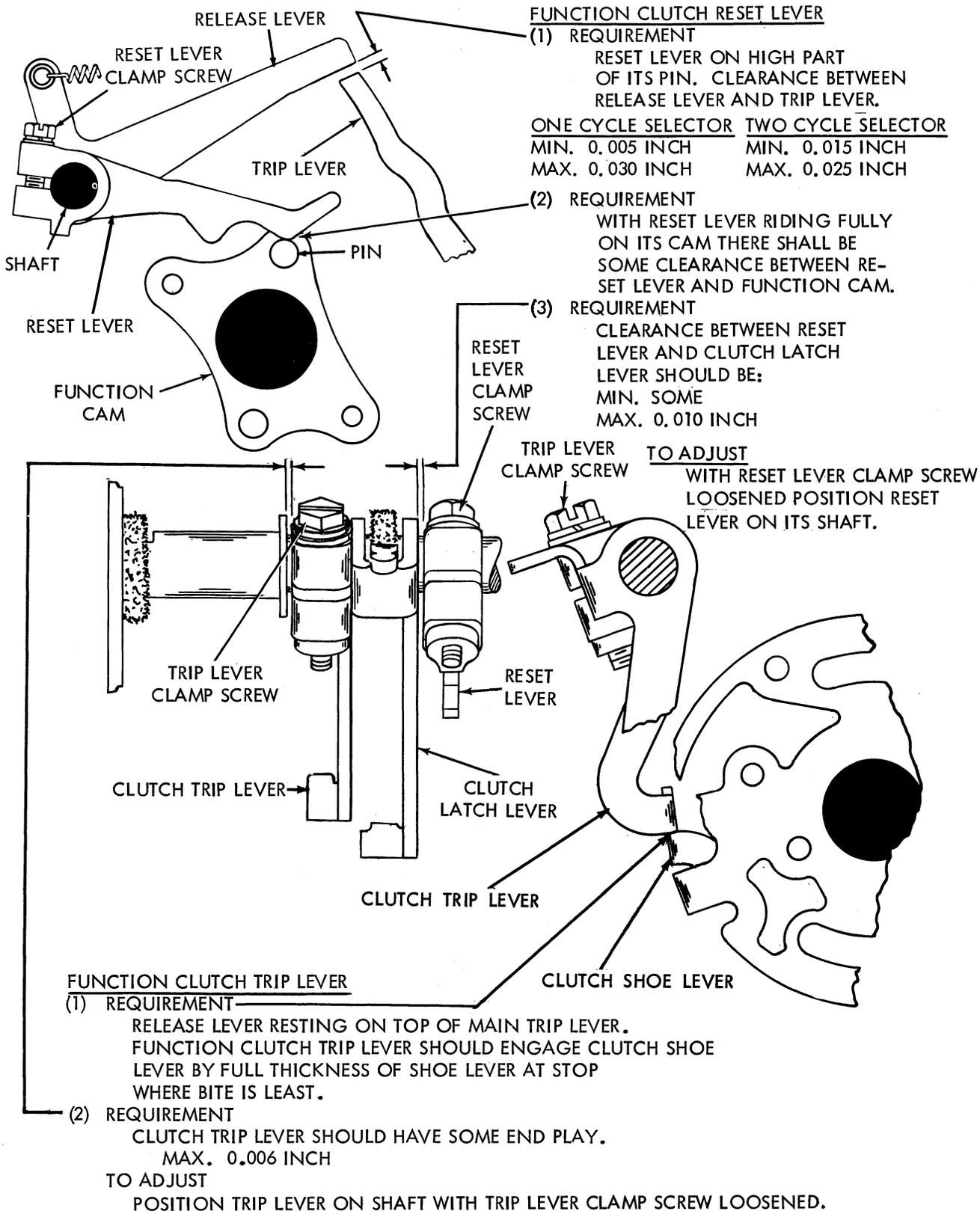


WHEN A SIGNAL DISTORTION TEST SET IS USED FOR DETERMINING RECEIVING MARGINS OF THE SELECTOR, AND WHERE CONDITION OF COMPONENTS IS EQUIVALENT TO NEW EQUIPMENT, RANGE AND DISTORTION TOLERANCES SHOULD BE MET AS FOLLOWS:

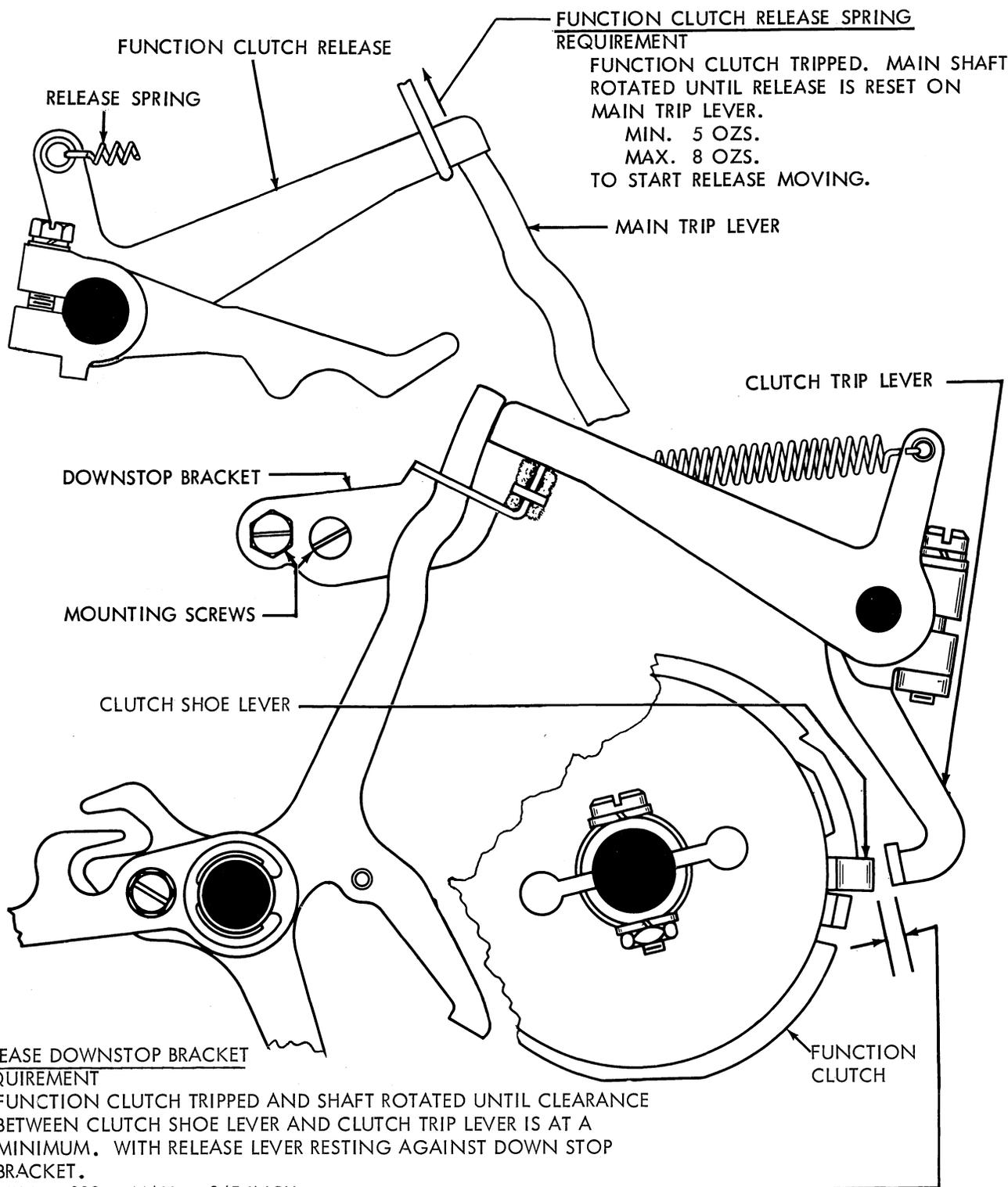
| CURRENT | SPEED WPM | POINTS RANGE (ZERO DISTORTION) | PERCENT MARKING AND SPACING BIAS TOLERATED | END DISTORTION TOLERATED (SCALE SET AT BIAS OPTIMUM) |
|--------------------------------|-----------|--------------------------------|--|--|
| 0.060A. (WINDINGS PARALLEL) | 60 | 72 | 40 | 35 |
| | 75 | | | |
| | 100 | | | |
| 0.020A. (WINDINGS SERIES) | 60 | 72 | 40 | 35 |
| | 75 | | | |
| 6 LEVEL 0.060 A. | 100 | 72 | 40 | 35 |
| 6 LEVEL 0.060 A. | 120 | 47 | 0 | 0 |

TO ADJUST: REFINE SELECTOR ARMATURE SPRING (PAR. 2.14 or 2.15).

2.23 Function Mechanism - Continued



2.24 Function Mechanism - Continued



FUNCTION CLUTCH RELEASE SPRING REQUIREMENT

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

RELEASE DOWNSTOP BRACKET REQUIREMENT

FUNCTION CLUTCH TRIPPED AND SHAFT ROTATED UNTIL CLEARANCE BETWEEN CLUTCH SHOE LEVER AND CLUTCH TRIP LEVER IS AT A MINIMUM. WITH RELEASE LEVER RESTING AGAINST DOWN STOP BRACKET.

MIN. .002---MAX. .045 INCH

AT STOP WHICH PROVIDES THE LEAST CLEARANCE.

TO ADJUST

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

2.25 Function Mechanism - Continued

TRIP CAM FOLLOWER LEVER REQUIREMENT

FOLLOWER LEVER ON HIGH PART OF ITS CAM. CLEARANCE BETWEEN MAIN TRIP LEVER AND RELEASE.

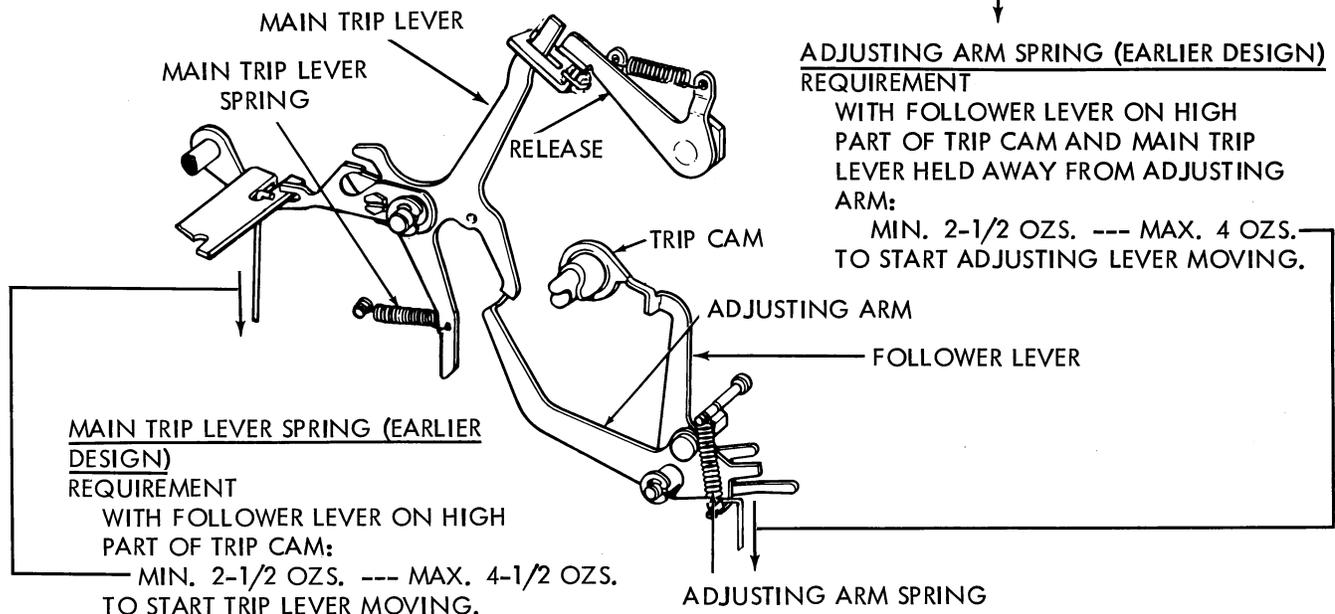
- | | | |
|-----|---|---|
| (1) | <u>ONE CYCLE SELECTOR</u> MIN. 0.010 INCH MAX. 0.030 INCH | <u>TWO CYCLE SELECTOR</u> MIN. 0.005 INCH MAX. 0.020 INCH |
| (2) | SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET. TO ADJUST POSITION ADJUSTING ARM AT PRY POINT WITH LOCK NUT LOOSENED. | (2) NO REQUIREMENT |

MAIN TRIP LEVER SPRING REQUIREMENT

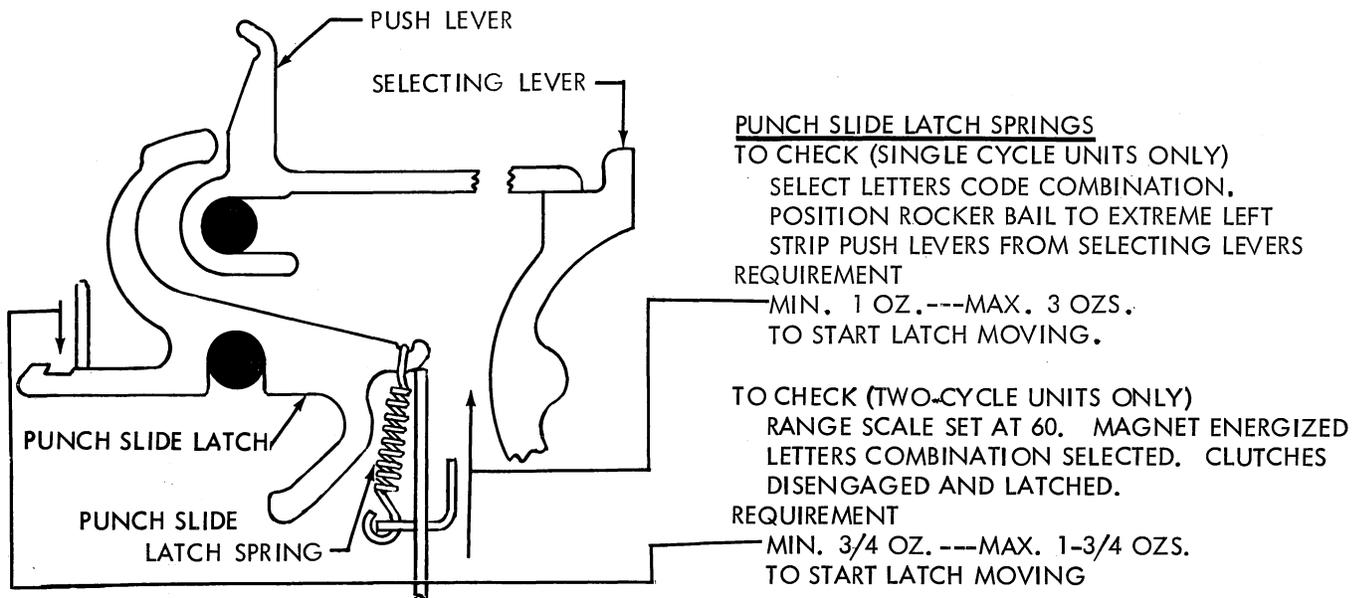
WITH MAIN TRIP LEVER RELEASED
MIN. 1 OZ. --- MAX. 4 OZS.
TO START TRIP LEVER MOVING.

ADJUSTING ARM TORSION SPRING REQUIREMENT

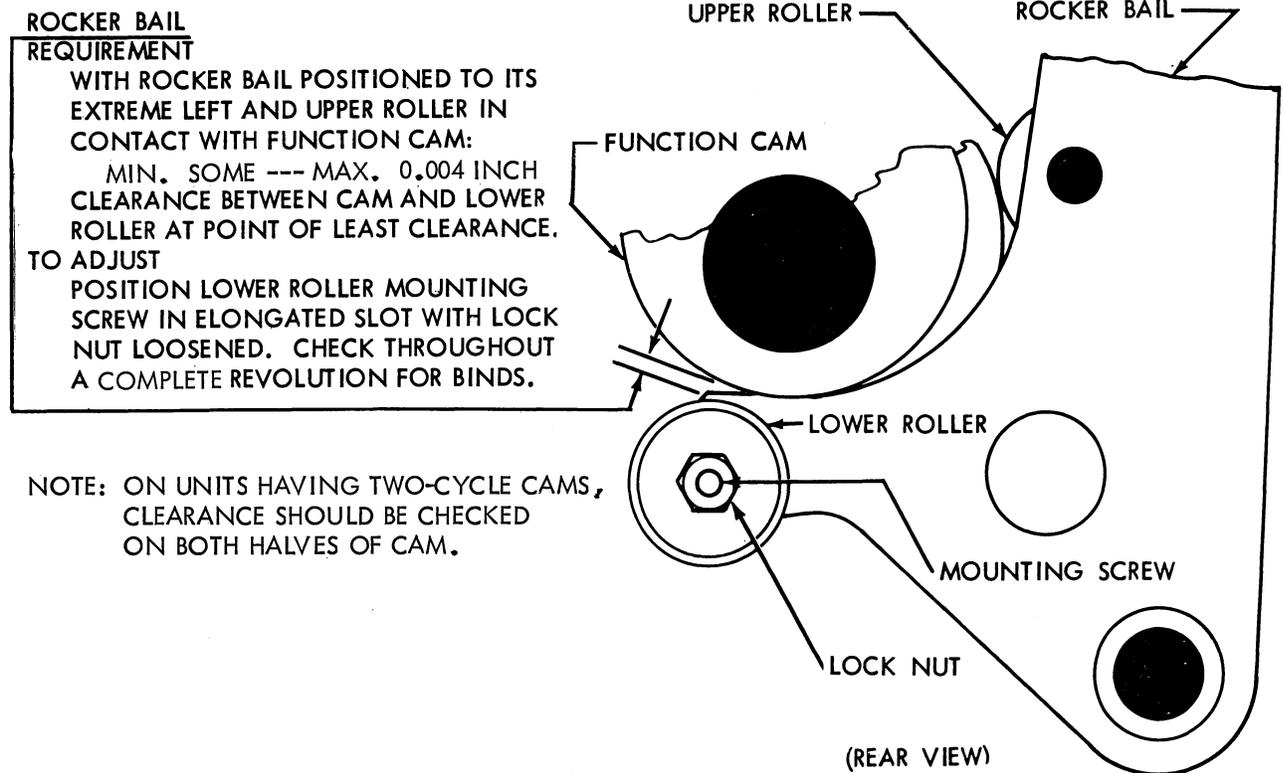
FOLLOWER LEVER ON LOW PART OF TRIP CAM (NOT AS SHOWN -- FOLLOWER LEVER SHOWN ON HIGH PART OF TRIP CAM).
MIN. 1 OZ. --- MAX. 4 OZS.
TO START ADJUSTING ARM MOVING.



2.26 Punch Mechanism for Fully Perforated or Chadless Tape



2.27 Function Mechanism - Continued



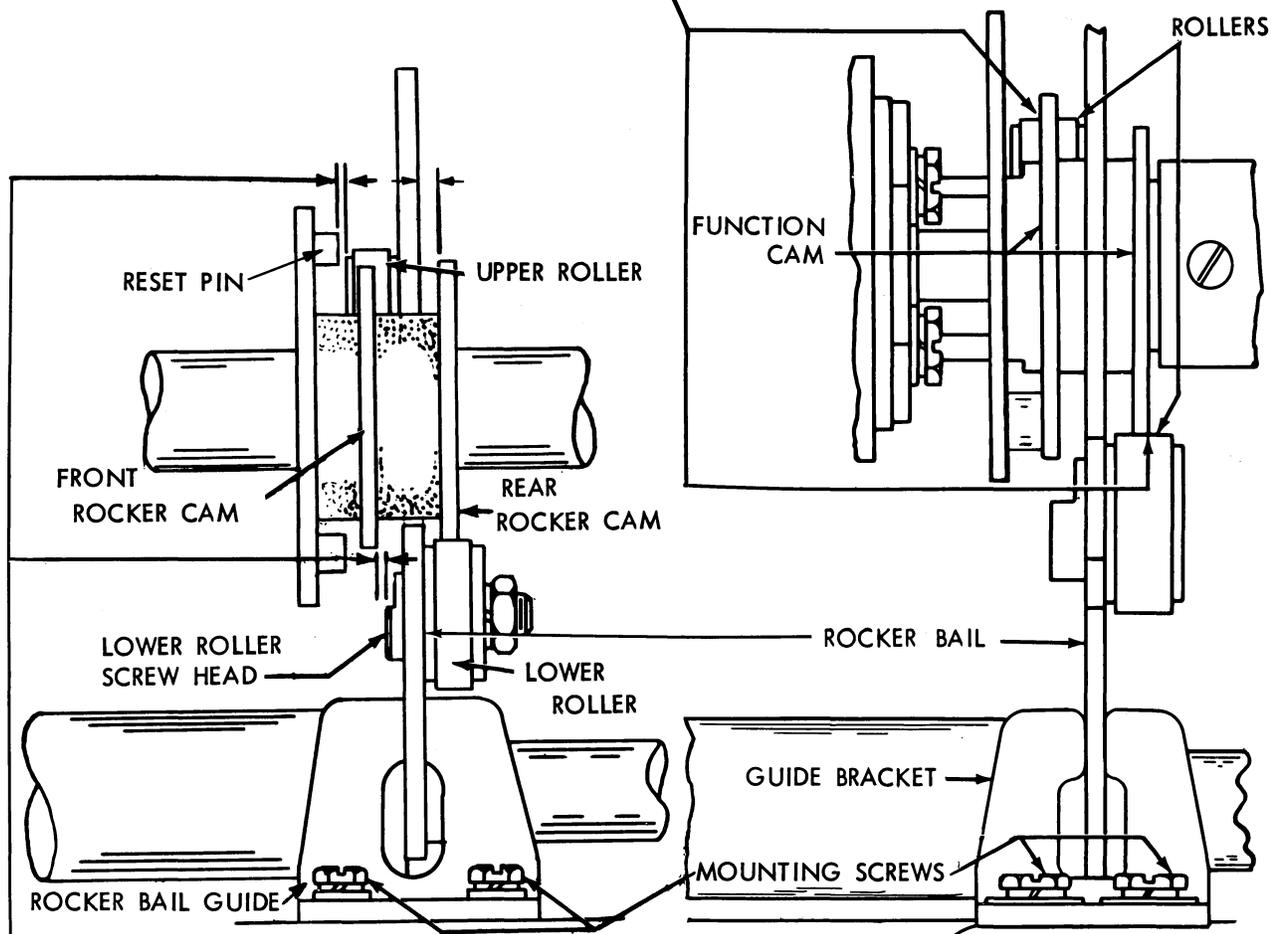
2.28 Function Mechanism - Continued

CAM FOLLOWER ROLLER ALIGNMENT REQUIREMENT

ROCKER BAIL ROLLERS SHOULD ENGAGE FULL THICKNESS OF FUNCTION CAM.

TO ADJUST

WITH GUIDE BRACKET MOUNTING SCREWS LOOSENED, VISUALLY ALIGN ROCKER BAIL UNTIL ROLLERS ARE CENTRALLY LOCATED WITH THEIR CORRESPONDING FUNCTION CAMS.



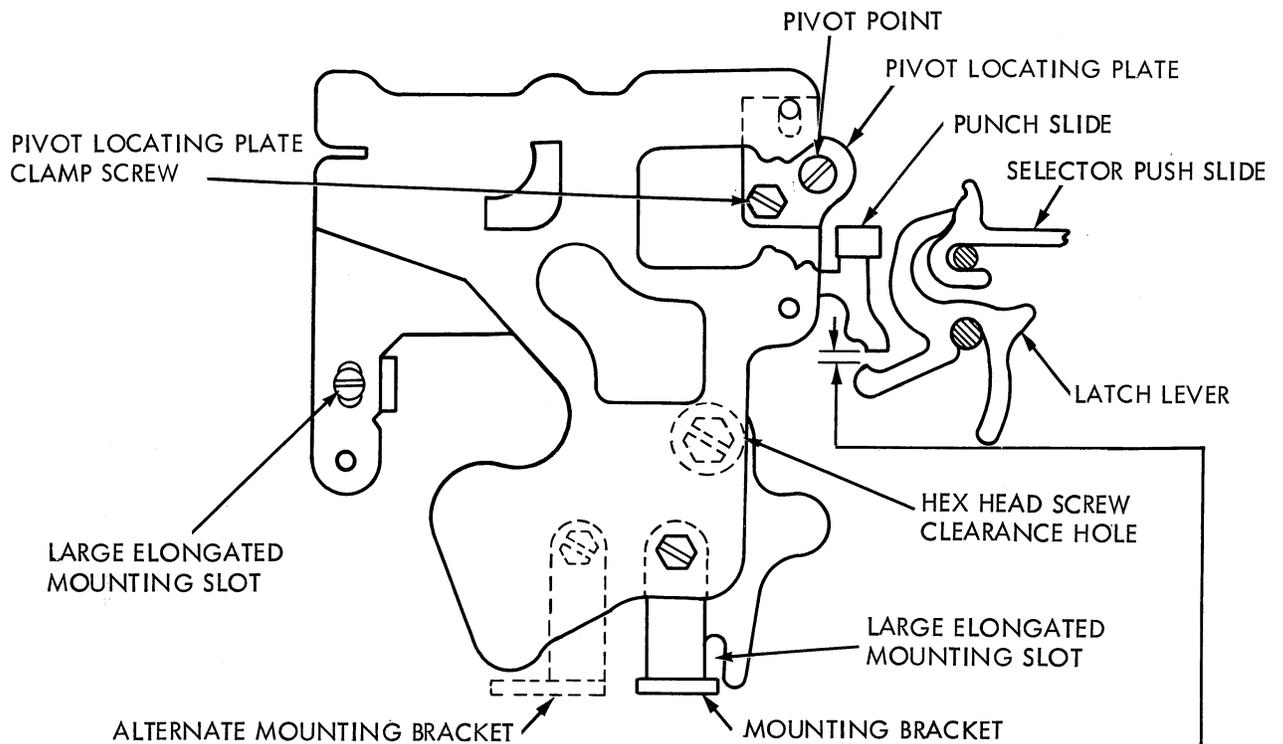
ROCKER BAIL GUIDE BRACKET (UNITS WITH TWO-STOP FUNCTION CLUTCH) REQUIREMENT

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

TO ADJUST

POSITION ROCKER BAIL WITH GUIDE MOUNTING SCREWS LOOSENED.

2.29 Punch Mechanism for Fully Perforated or Chadless Tape - Continued



PUNCH MOUNTING POSITION (PRELIMINARY)
REQUIREMENT

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

NOTE: MOUNTING HOLES ARE OVERSIZE TO FACILITATE MOUNTING THE PUNCH MECHANISM.

TO ADJUST

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

NOTE: THE FOLLOWING ADJUSTMENT SHOULD BE MADE AFTER THE PUNCH SLIDE GUIDE POSITION ADJUSTMENT.

PUNCH MOUNTING POSITION (FINAL)
REQUIREMENT

LETTERS CODE COMBINATION SELECTED AND FUNCTION CLUTCH TRIPPED. CLEARANCE BETWEEN LATCH LEVER AND ASSOCIATED PUNCH SLIDE.

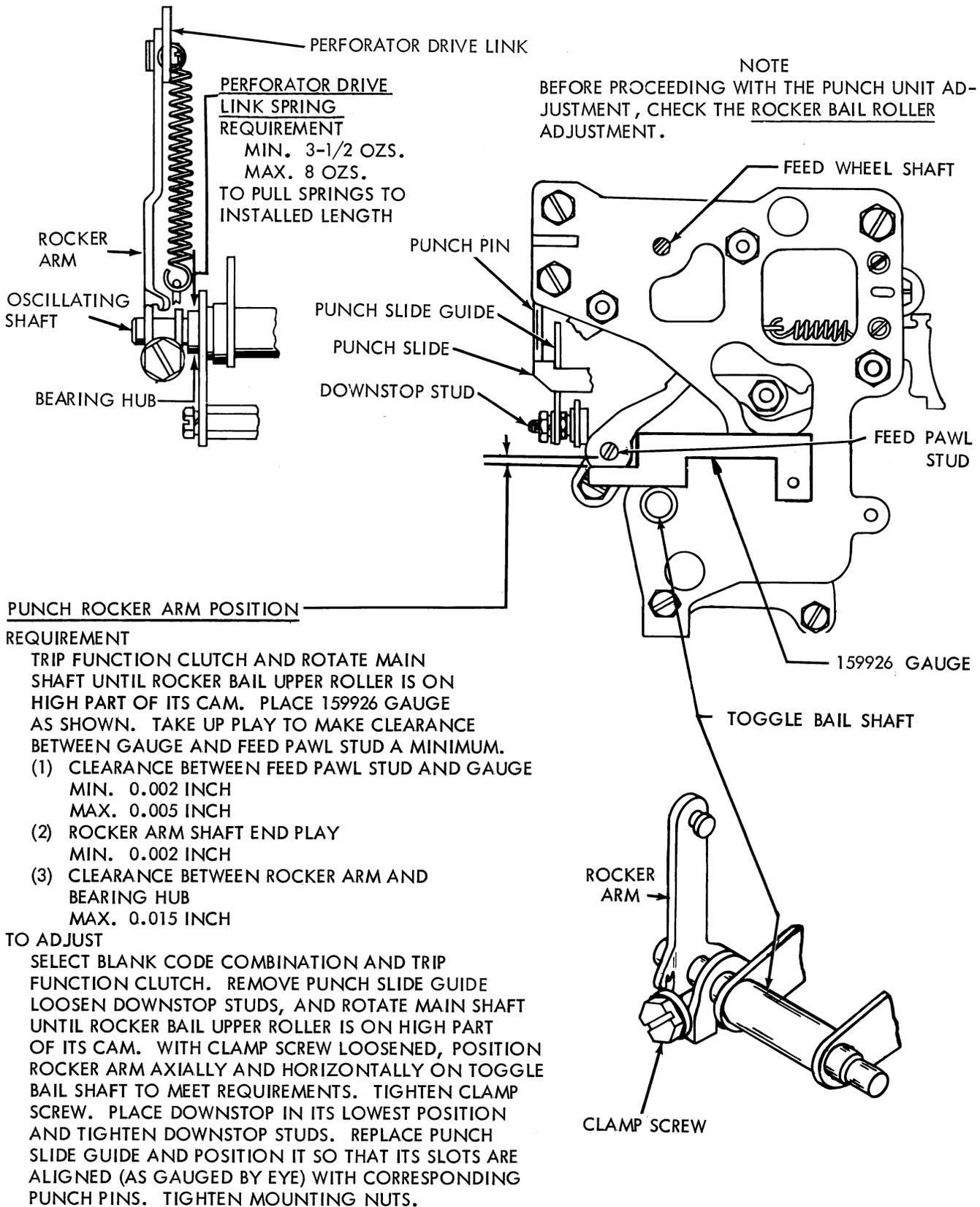
MIN. 0.015 INCH

MAX. 0.045 INCH

TO ADJUST

LOOSEN (FRICTION TIGHT) THE REAR FRAME MOUNTING SCREWS AND THE FRONT FRAME MOUNTING BRACKET SCREWS. PLACE TIP OF SCREWDRIVER BETWEEN HEX-HEAD SCREW AND ITS CLEARANCE HOLE RIM AND PRY UP OR DOWN TO MEET REQUIREMENT. TIGHTEN SCREWS.

2.30 Punch Mechanism for Fully Perforated or Chadless Tape - Continued

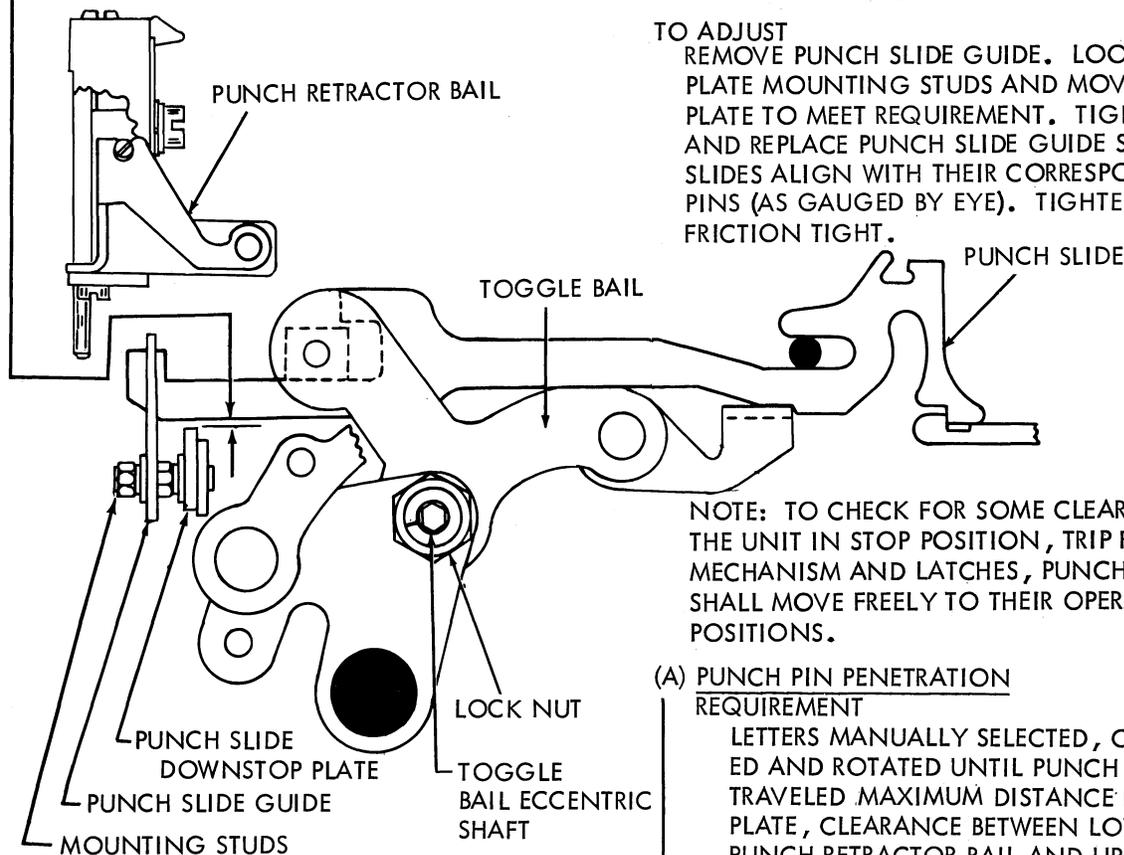


2.31 Punch Mechanism for Chadless Tape

(B) PUNCH SLIDE DOWNSTOP POSITION
REQUIREMENT

FUNCTION CLUTCH DISENGAGED AND LATCHED IN POSITION WHICH GIVES LEAST CLEARANCE BETWEEN SLIDES AND DOWNSTOP. PLAY IN LEFT END OF PUNCH SLIDES TAKEN UP TOWARD

TOP. CLEARANCE BETWEEN FRONT AND REAR PUNCH SLIDE AND DOWNSTOP
MIN. SOME
MAX. 0.008 INCH
ALL OTHER SLIDES TO HAVE SOME CLEARANCE.



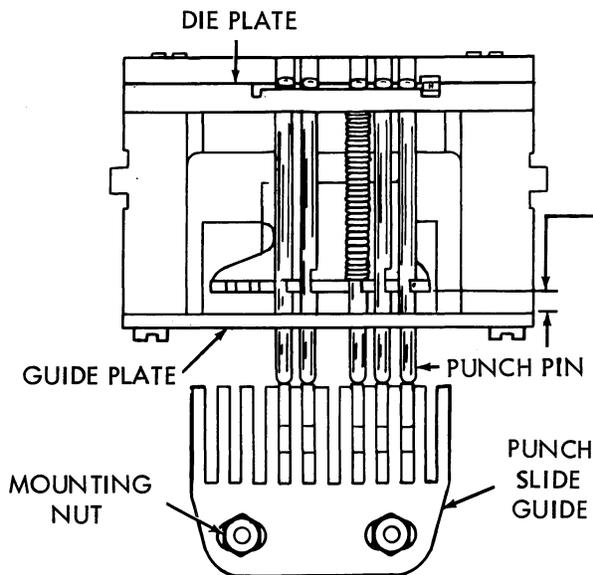
TO ADJUST
REMOVE PUNCH SLIDE GUIDE. LOOSEN DOWNSTOP PLATE MOUNTING STUDS AND MOVE DOWNSTOP PLATE TO MEET REQUIREMENT. TIGHTEN STUDS AND REPLACE PUNCH SLIDE GUIDE SO THAT PUNCH SLIDES ALIGN WITH THEIR CORRESPONDING PUNCH PINS (AS GAUGED BY EYE). TIGHTEN LOCK NUTS FRICTION TIGHT.

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

(A) PUNCH PIN PENETRATION
REQUIREMENT

LETTERS MANUALLY SELECTED, CLUTCH ENGAGED AND ROTATED UNTIL PUNCH PINS HAVE TRAVELED MAXIMUM DISTANCE INTO THE DIE PLATE, CLEARANCE BETWEEN LOWER EDGE OF PUNCH RETRACTOR BAIL AND UPPER SIDE OF GUIDE PLATE (MEASURED AT LEFT EDGE OF PUNCH PINS WHERE CLEARANCE IS LEAST).
MIN. 0.060 INCH
MAX. 0.075 INCH

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



(C) PUNCH SLIDE GUIDE POSITION
REQUIREMENT

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

TO ADJUST
POSITION THE PUNCH SLIDE GUIDE WITH ITS MOUNTING NUTS LOOSENED.

2.32 Punch Mechanism for Fully Perforated Tape

(C)

PUNCH SLIDE DOWNSTOP POSITION REQUIREMENT

FUNCTION CLUTCH DISENGAGED AND LATCHED. PLAY IN THE PUNCH SLIDES TAKEN UP TOWARD THE TOP, CLEARANCE BETWEEN OUTER PUNCH SLIDES AND DOWNSTOP PLATE SHOULD BE:
 MIN. SOME --- MAX. 0.008 INCH
 OTHER PUNCH SLIDES SHOULD HAVE AT LEAST SOME CLEARANCE.

TO ADJUST POSITION DOWNSTOP PLATE WITH ITS MOUNTING LOCK NUTS LOOSENED.

(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.

(A)

PUNCH PIN PENETRATION

(1) REQUIREMENT

WITH ALL PUNCH PINS SELECTED, FUNCTION CLUTCH ENGAGED, AND TP159926 GAUGE IN POSITION, ROTATE MAIN SHAFT UNTIL ALL PUNCH PINS ARE INTO OR ABOVE TAPE APERTURE IN PUNCH BLOCK. CLEARANCE BETWEEN FEED PAWL STUD AND GAUGE SHOULD BE

MIN. 0.050 INCH

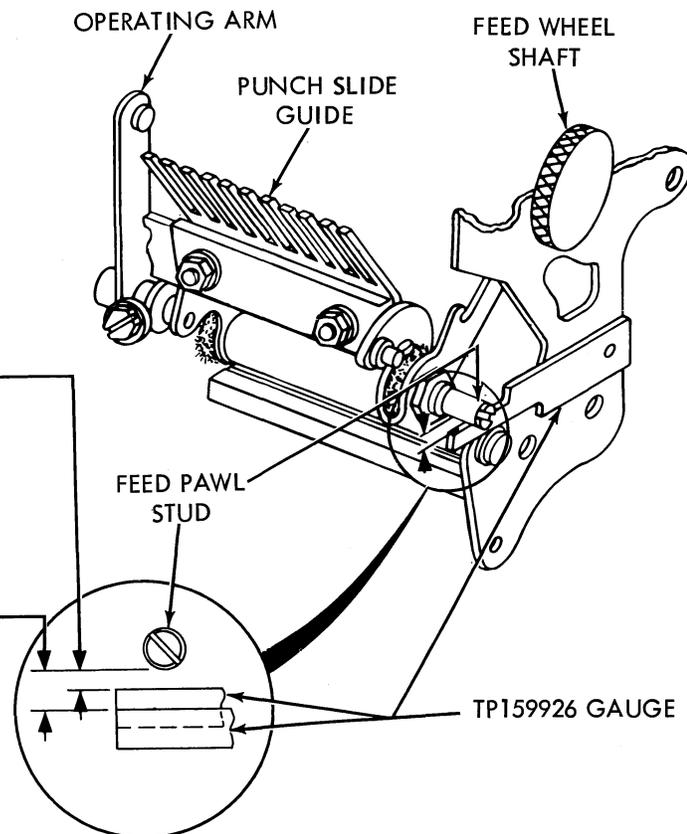
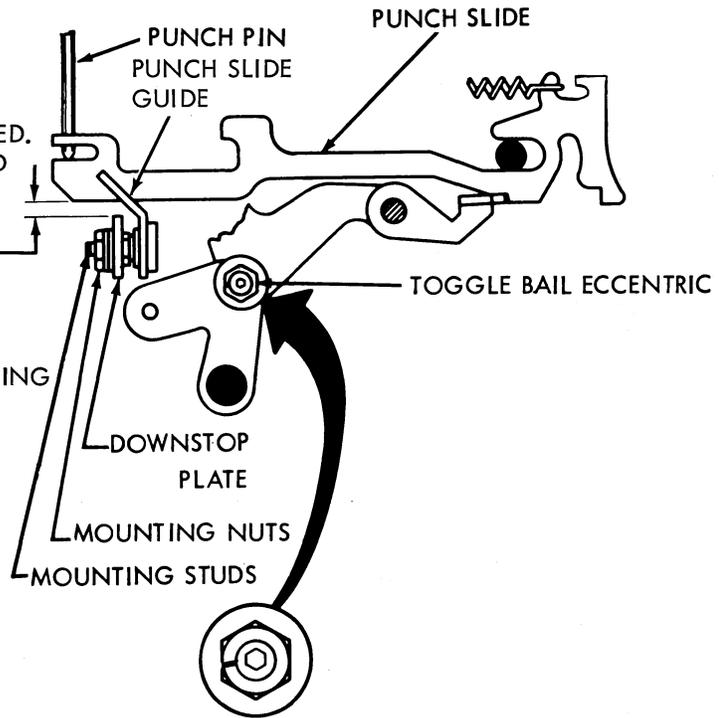
(2) REQUIREMENT

WITH ALL PUNCH PINS SELECTED, FUNCTION CLUTCH ENGAGED, AND TP159926 GAUGE IN POSITION, ROTATE MAIN SHAFT UNTIL ALL PUNCH PINS HAVE CLEARED PUNCH BLOCK. CLEARANCE BETWEEN FEED PAWL STUD AND GAUGE SHOULD BE

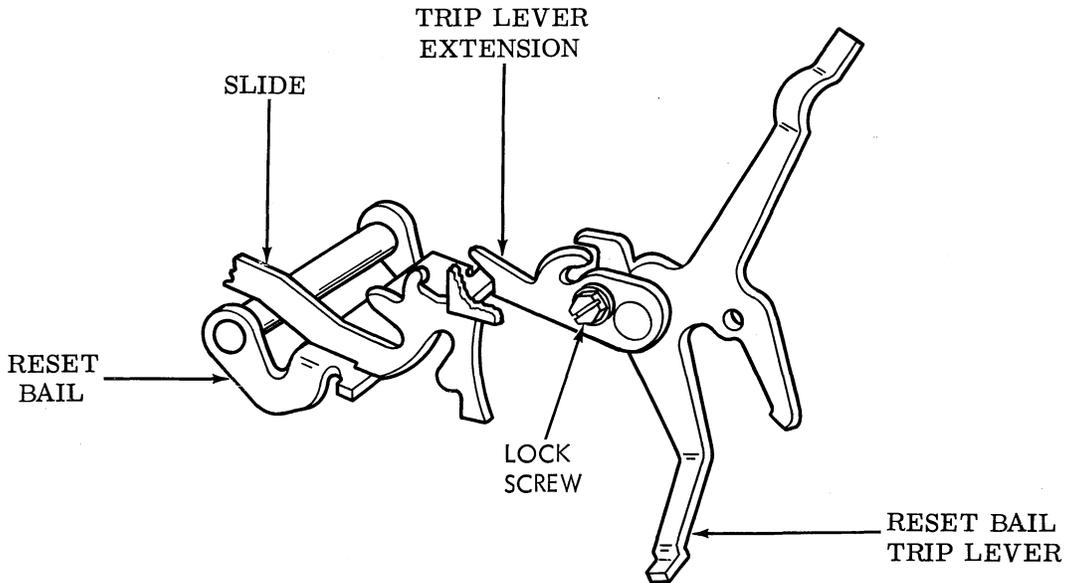
MAX. 0.080 INCH

TO ADJUST

ROTATE THE TOGGLE BAIL ECCENTRIC WITH ITS LOCK NUT LOOSENED. KEEP THE INDENT TO THE RIGHT OF A VERTICAL CENTERLINE THROUGH THE SHAFT.



2.33 Punch Mechanism for Fully Perforated or Chadless Tape - Continued

RESET BAIL TRIP LEVER

(1) REQUIREMENT

BLANK COMBINATION SELECTED, MANUALLY ROTATE RESET BAIL TRIP LEVER. PUNCH SLIDE RESET BAIL SHALL TRIP BEFORE THE FUNCTION CLUTCH TRIPS

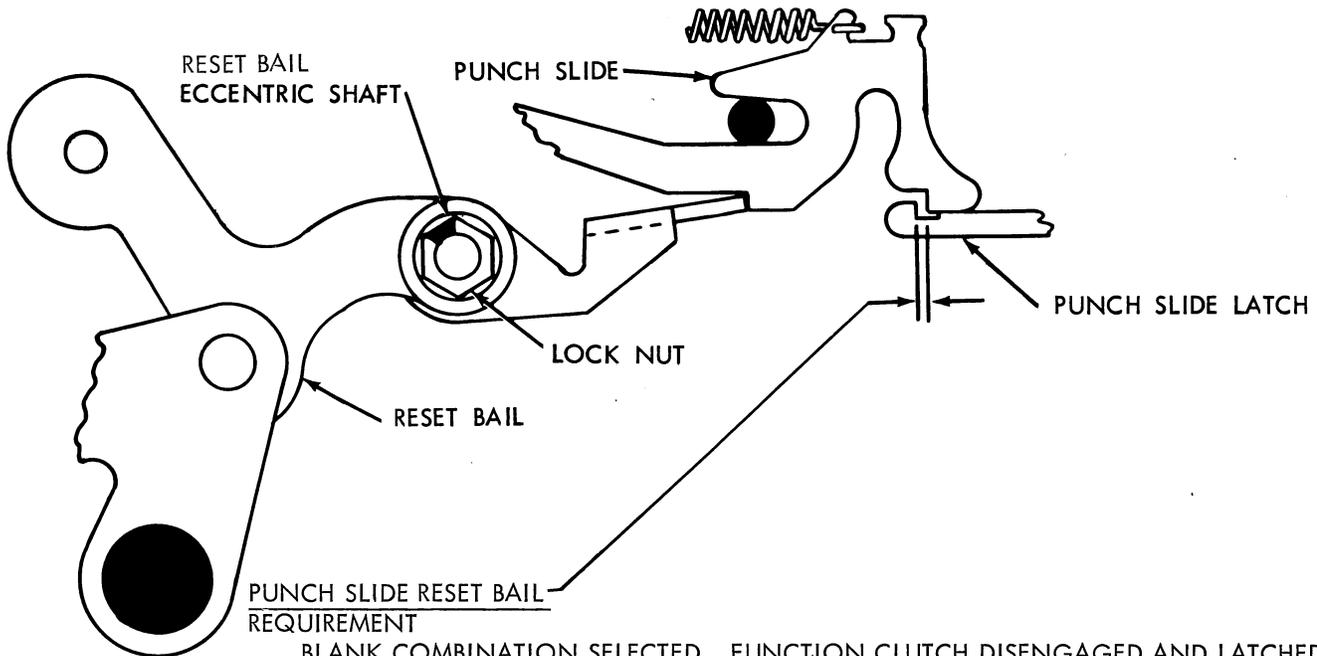
(2) REQUIREMENT

FUNCTION AND SELECTOR CLUTCHES DISENGAGED AND LATCHED, THE PUNCH SLIDE RESET BAIL SHALL FULLY ENGAGE THE PUNCH SLIDE LATCHING SURFACE WHEN PLAY IS TAKEN UP TO MAKE ENGAGEMENT THE LEAST.

TO ADJUST

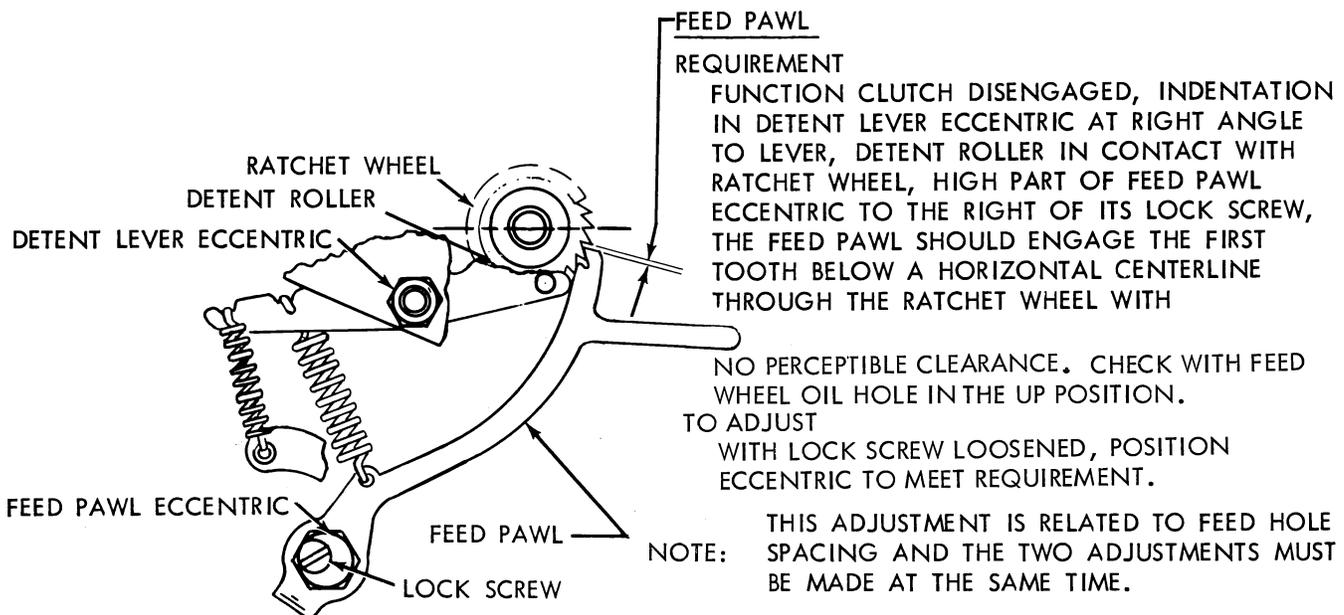
TRIP LEVER EXTENSION LOCK SCREW FRICTION TIGHT AND LETTERS COMBINATION SELECTED, POSITION RESET BAIL AGAINST PUNCH SLIDES. PLAY BETWEEN RESET BAIL AND TRIP LEVER TAKEN UP IN A COUNTERCLOCKWISE DIRECTION. POSITION TRIP LEVER AT ITS PRY POINT. TIGHTEN LOCK SCREW. RECHECK BLANK ADJUSTMENT ABOVE AND REFINE IF NECESSARY.

2.34 Punch Mechanism for Fully Perforated or Chadless Tape - Continued



PUNCH SLIDE RESET BAIL REQUIREMENT
 BLANK COMBINATION SELECTED. FUNCTION CLUTCH DISENGAGED AND LATCHED.
 CLEARANCE BETWEEN PUNCH SLIDE LATCH AND PUNCH SLIDE HAVING LEAST
 CLEARANCE.
 MIN. 0.008 INCH
 MAX. 0.020 INCH
 TO ADJUST
 ROTATE RESET BAIL ECCENTRIC SHAFT WITH ITS LOCK NUT LOOSENED. KEEP
 INDENTATION IN SHAFT ABOVE CENTERLINE THROUGH SHAFT.

2.35 Feed Mechanism for Fully Perforated or Chadless Tape



FEED PAWL REQUIREMENT
 FUNCTION CLUTCH DISENGAGED, INDENTATION
 IN DETENT LEVER ECCENTRIC AT RIGHT ANGLE
 TO LEVER, DETENT ROLLER IN CONTACT WITH
 RATCHET WHEEL, HIGH PART OF FEED PAWL
 ECCENTRIC TO THE RIGHT OF ITS LOCK SCREW,
 THE FEED PAWL SHOULD ENGAGE THE FIRST
 TOOTH BELOW A HORIZONTAL CENTERLINE
 THROUGH THE RATCHET WHEEL WITH
 NO PERCEPTIBLE CLEARANCE. CHECK WITH FEED
 WHEEL OIL HOLE IN THE UP POSITION.
 TO ADJUST
 WITH LOCK SCREW LOOSENED, POSITION
 ECCENTRIC TO MEET REQUIREMENT.
 NOTE: THIS ADJUSTMENT IS RELATED TO FEED HOLE
 SPACING AND THE TWO ADJUSTMENTS MUST
 BE MADE AT THE SAME TIME.

2.36 Feed Mechanism for Chadless Tape

FEED HOLE SPACING (PRELIMINARY)

REQUIREMENT

INDENT OF DIE WHEEL ECCENTRIC STUD POINTING DOWNWARD.

TO ADJUST

POSITION DIE WHEEL ECCENTRIC STUD WITH LOCK NUT LOOSENED.

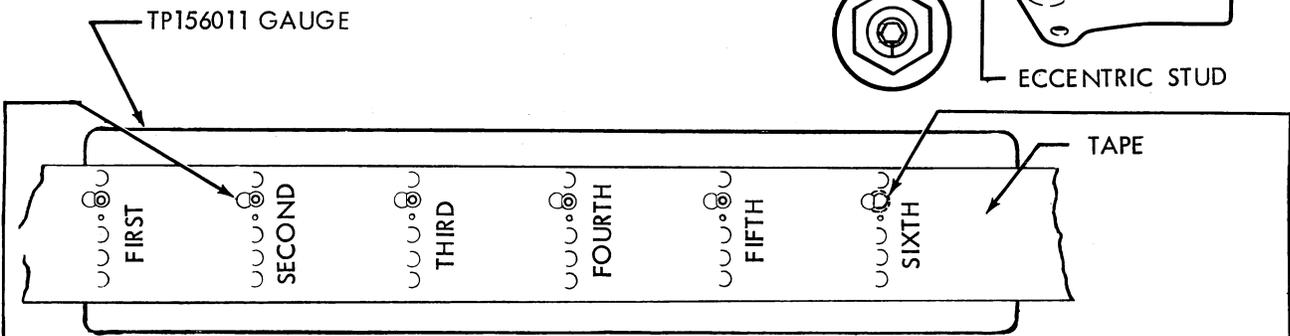
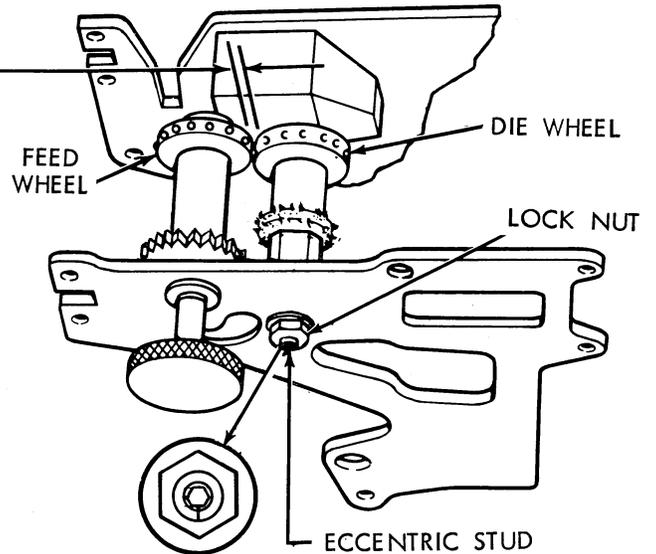
NOTE:

BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENTS, CHECK BOTH TAPE GUIDE SPRING TENSIONS (PAR. 2.37).

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.



(2) REQUIREMENT

PERFORATE IN ORDER SIX SEQUENCES MADE UP OF NINE BLANK CODE COMBINATIONS FOLLOWED BY A LETTERS COMBINATION. OPEN CHADS SO CODE HOLES ARE VISIBLE. PLACE TAPE OVER SMOOTH SIDE OF TP156011 TAPE GAUGE SO FIRST NO. 2 CODE HOLE IS CONCENTRIC WITH FIRST 0.072-INCH HOLE IN GAUGE (SEE NOTE BELOW). SECOND THROUGH FIFTH HOLES IN GAUGE SHOULD BE VISIBLE THROUGH NO. 2 CODE HOLES IN TAPE. CIRCULAR PORTION OF SIXTH NO. 2 CODE HOLE SHOULD BE ENTIRELY WITHIN 0.086-INCH HOLE IN GAUGE.

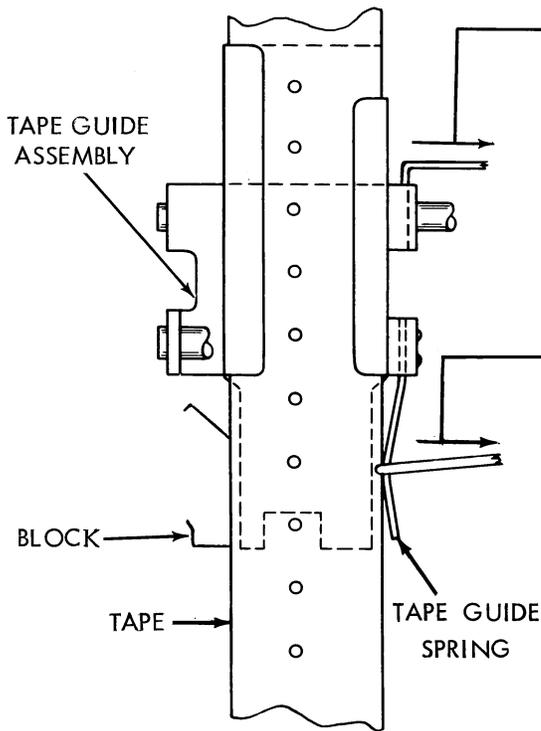
TO ADJUST

- (A) WITH TAPE REMOVED, POSITION DIE WHEEL ECCENTRIC STUD (INDENT KEPT BELOW CENTER OF STUD) WITH LOCK NUT LOOSENED SO DIE WHEEL JUST BINDS ON FEED WHEEL. BACK OFF ECCENTRIC SO DIE WHEEL IS JUST FREE (CHECK THROUGH 3 REVOLUTIONS).
- (B) REFINE ABOVE ADJUSTMENT TO MEET REQUIREMENT (2). MOVE INDENT IN ECCENTRIC STUD TOWARD FEED WHEEL TO DECREASE SPACING AND AWAY FROM FEED WHEEL TO INCREASE SPACING. CAUTION: WITH TAPE REMOVED, MAKE SURE FEED WHEEL AND DIE WHEEL DO NOT BIND. RECHECK REQUIREMENT (1). IF NECESSARY, REFINE.

NOTE:

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

2.37 Feed Mechanism for Chadless Tape - Continued



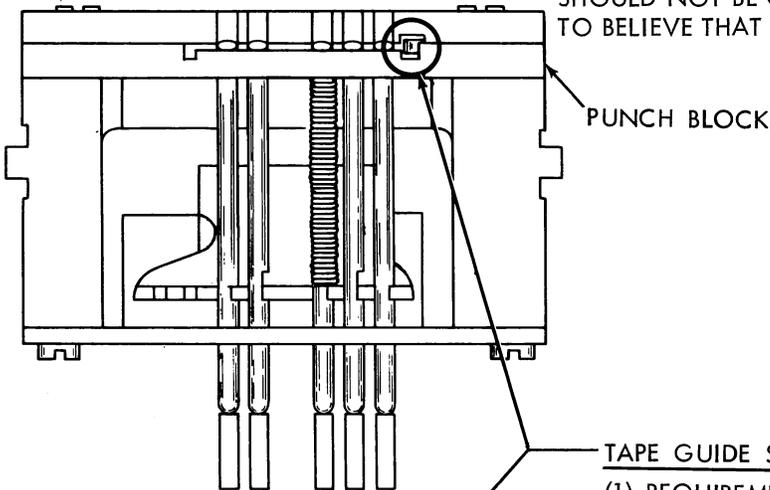
TAPE GUIDE ASSEMBLY SPRING

- (1) REQUIREMENT
MIN. 16 OZS.
TO PULL TAPE GUIDE ASSEMBLY AWAY FROM BLOCK.
- (2) REQUIREMENT
TAPE GUIDE ASSEMBLY SHOULD RETURN FREELY AGAINST BLOCK.
TO ADJUST (FOR REQUIREMENT 2) REPOSITION MOUNTING POST TO FREE TAPE GUIDE ASSEMBLY.

TAPE GUIDE SPRING (TAPE CHUTE)

- REQUIREMENT
CLUTCH DISENGAGED AND LATCHED. TAPE THREADED THROUGH THE PUNCH ASSEMBLY 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 SPRING TO MEET REQUIREMENT.

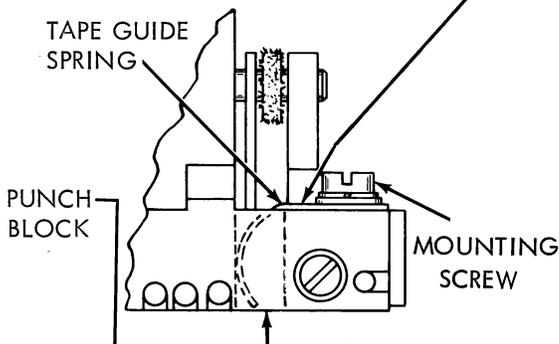
NOTE: IN ORDER TO CHECK THIS SPRING TENSION ON UNITS EQUIPPED WITH BACK SPACE MECHANISM, IT IS NECESSARY TO REMOVE SEVERAL PARTS. THEREFORE, THIS SPRING TENSION SHOULD NOT BE CHECKED UNLESS THERE IS GOOD REASON TO BELIEVE THAT IT DOES NOT MEET ITS REQUIREMENT.



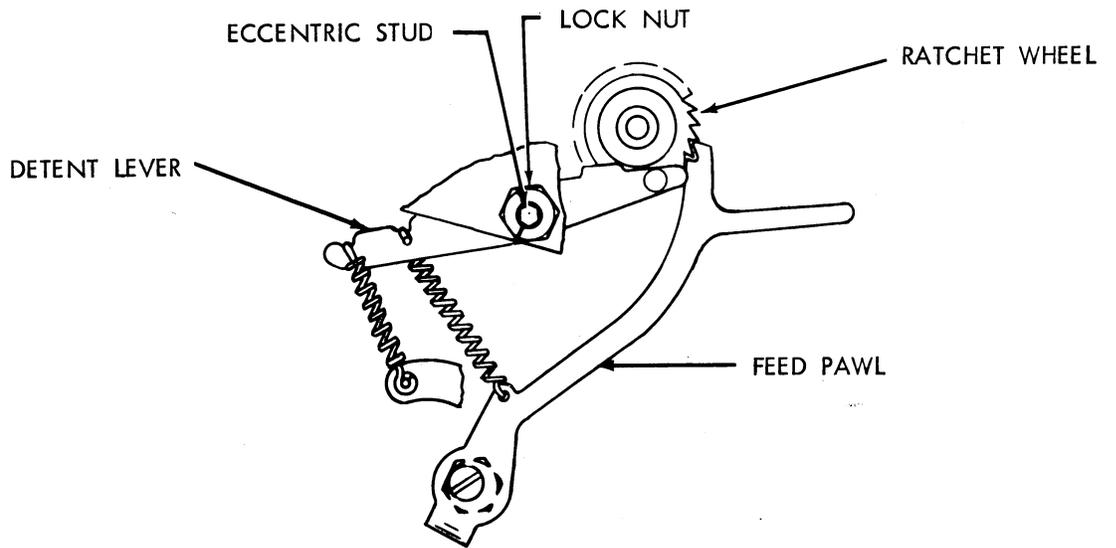
TAPE GUIDE SPRING (PUNCH BLOCK)

- (1) REQUIREMENT
WITH TAPE REMOVED FROM PUNCH BLOCK, TAPE GUIDE SPRING SHOULD REST AGAINST CLEARANCE SLOT IN BLOCK IN A SYMMETRICAL MANNER AS GAUGED BY EYE.
- (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



2.38 Feed Mechanism for Chadless Tape - Continued



DETENT

REQUIREMENT

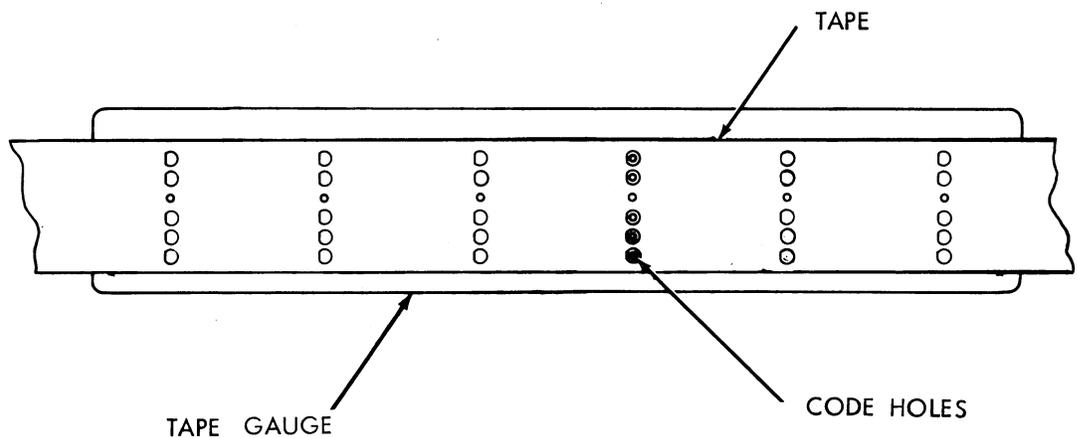
A PIECE OF TAPE CONTAINING NINE FEED HOLES FOLLOWED BY A LETTERS COMBINATION PERFORATED ON THE REPERFORATOR MUST CONFORM TO THE TP156011 TAPE GAUGE.

THE LATERAL CENTERLINE THROUGH THE CODE HOLES IN THE TAPE SHOULD COINCIDE WITH A LATERAL CENTERLINE THROUGH THE HOLES IN THE GAUGE.

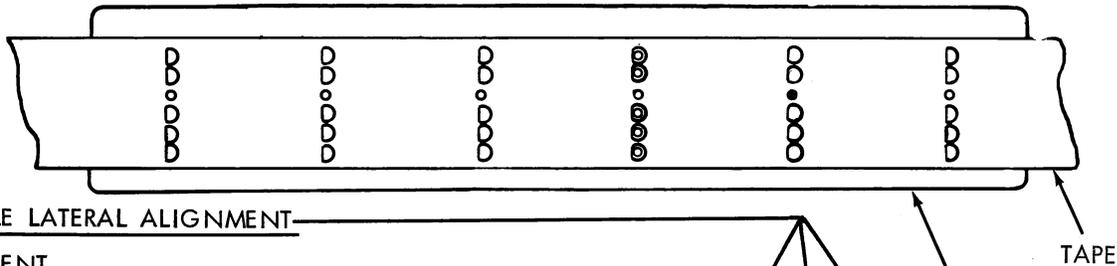
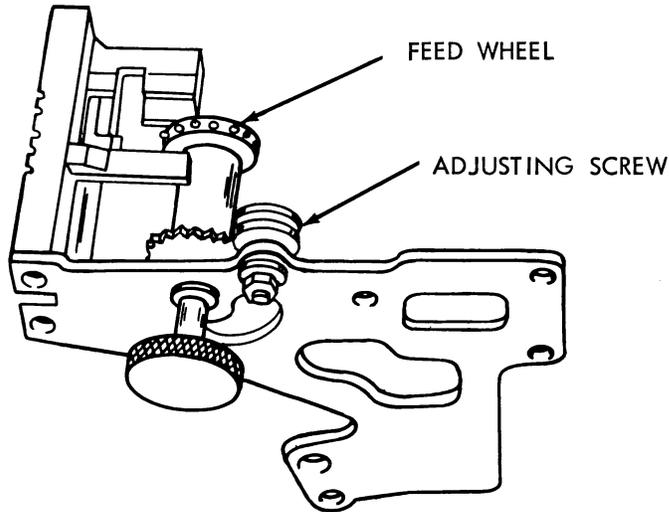
TO ADJUST

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

RECHECK FEED PAWL ADJUSTMENT (PAR. 2.35).



2.39 Feed Mechanism for Chadless Tape - Continued



FEED HOLE LATERAL ALIGNMENT

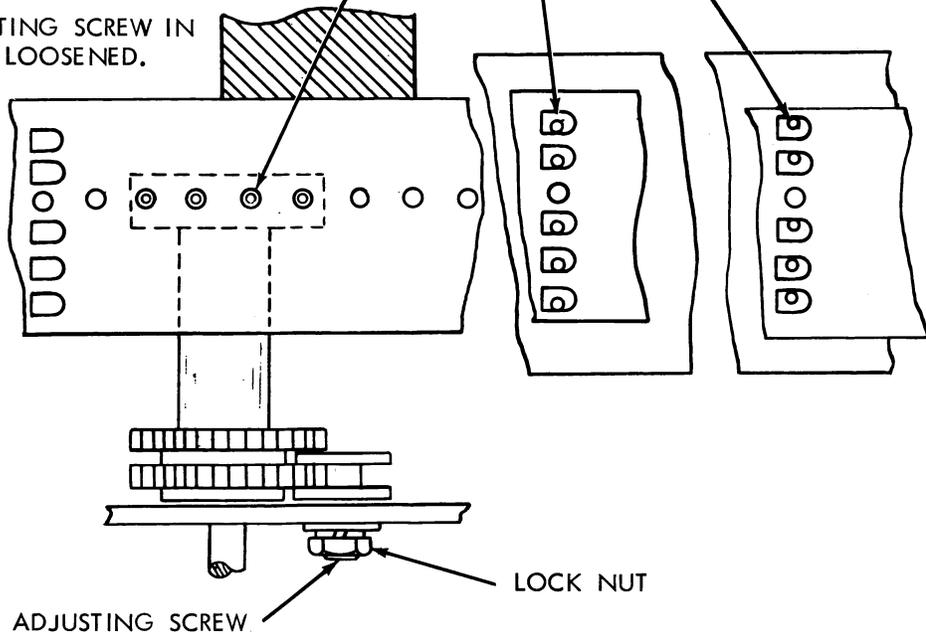
REQUIREMENT

WHEN A PIECE OF TAPE CONTAINING NINE FEED HOLES FOLLOWED BY A LETTERS COMBINATION ARE PERFORMED BY THE REPERFORATOR AND CHECKED BY THE TAPE GAUGE, THE CODE HOLES IN THE TAPE SHOULD BE CONCENTRIC WITH THE HOLES IN THE GAUGE

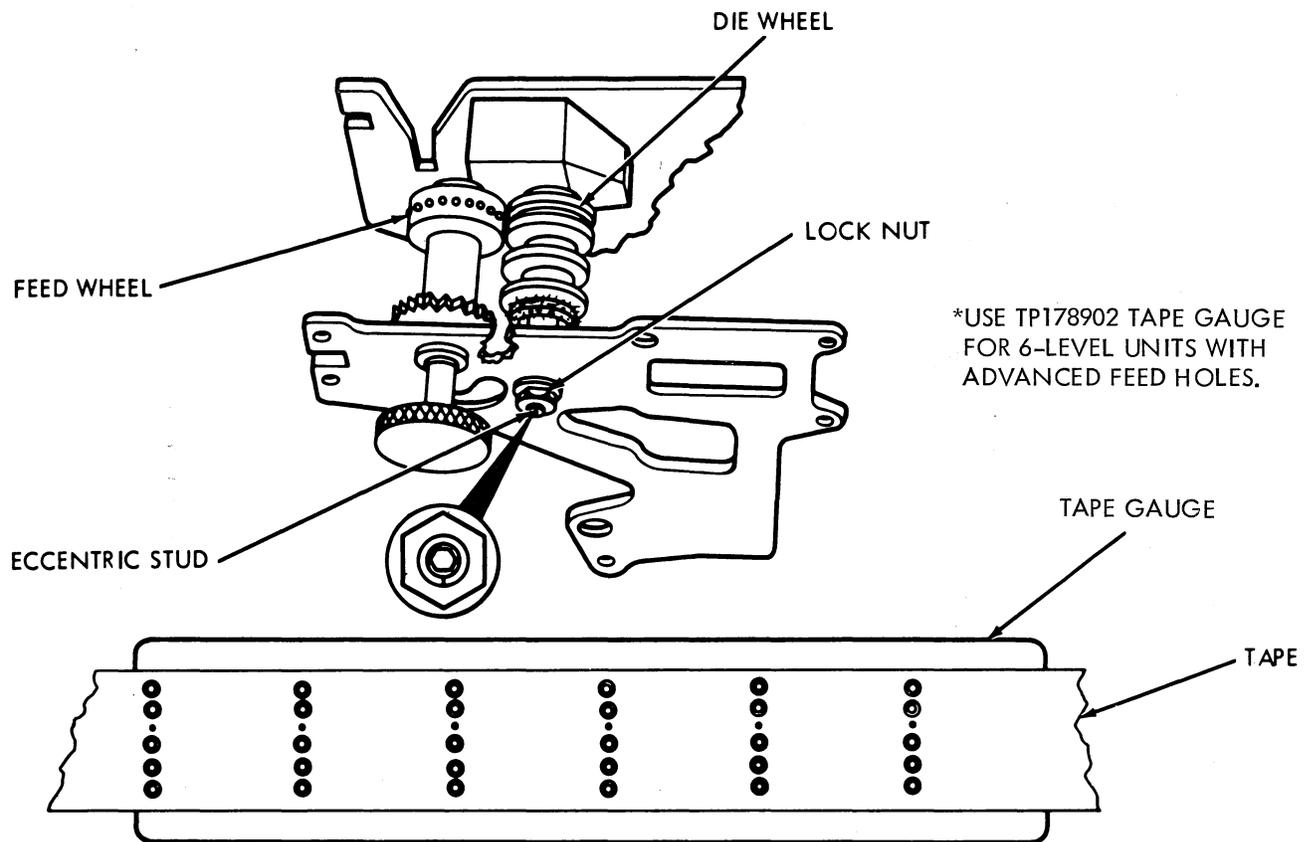
TO ADJUST

TURN THE FEED WHEEL ADJUSTING SCREW IN OR OUT WITH ITS LOCK NUT LOOSENED.

REFINE DETENT ADJUSTMENT (PAR. 2.38) IF NECESSARY.



2.40 Feed Mechanism for Fully Perforated Tape



*USE TP178902 TAPE GAUGE FOR 6-LEVEL UNITS WITH ADVANCED FEED HOLES.

NOTE

BEFORE PROCEEDING WITH THE FOLLOWING ADJUSTMENT
CHECK BOTH TAPE GUIDE SPRING TENSIONS (PAR. 2.41).

FEED HOLE SPACING

(1) REQUIREMENT

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

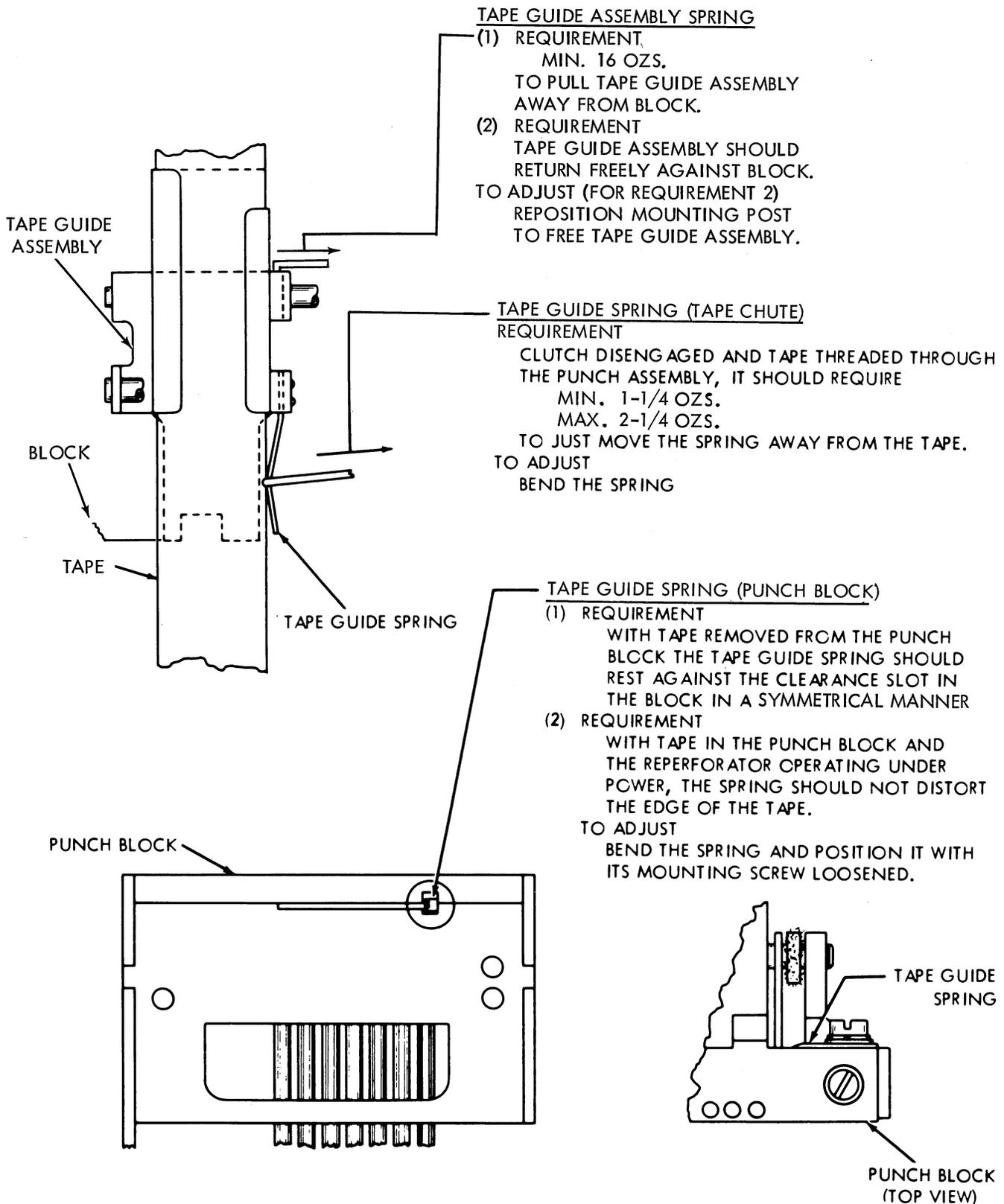
(2) REQUIREMENT

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

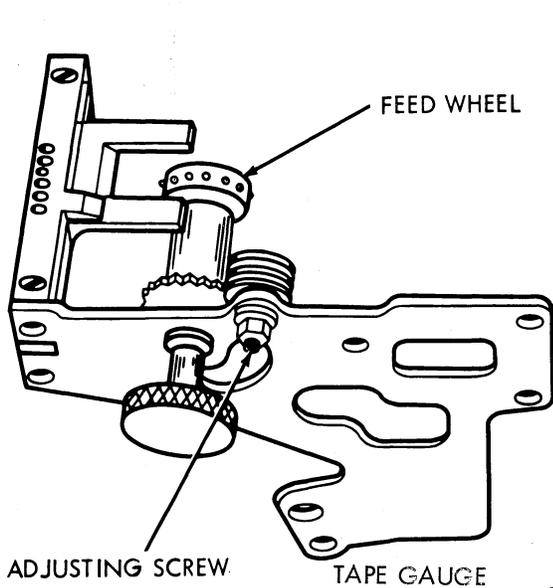
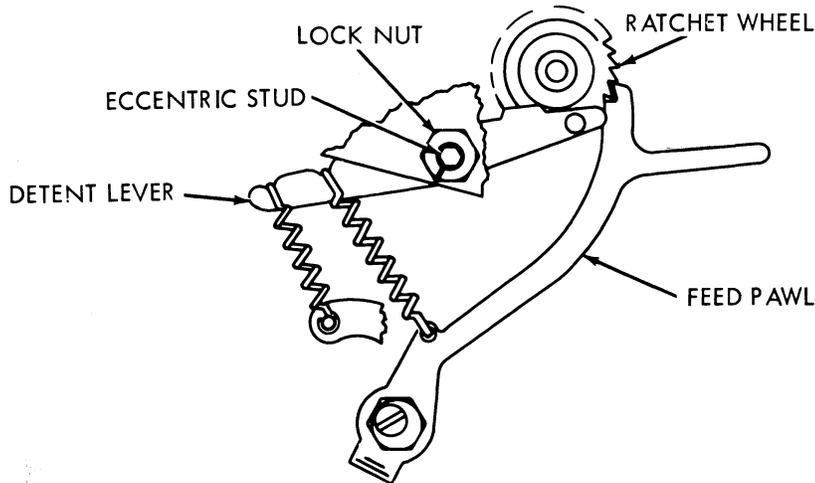
TO ADJUST

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.

2.41 Feed Mechanism for Fully Perforated Tape - Continued



2.42 Feed Mechanism for Fully Perforated Tape - Continued



FEED HOLE LATERAL ALIGNMENT (DETENT)

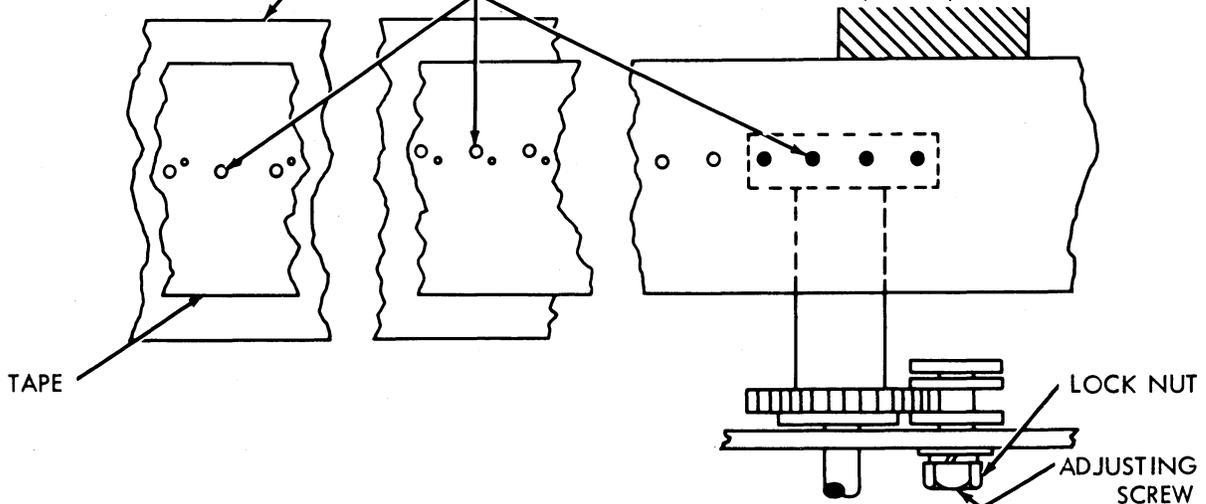
(1) REQUIREMENT

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

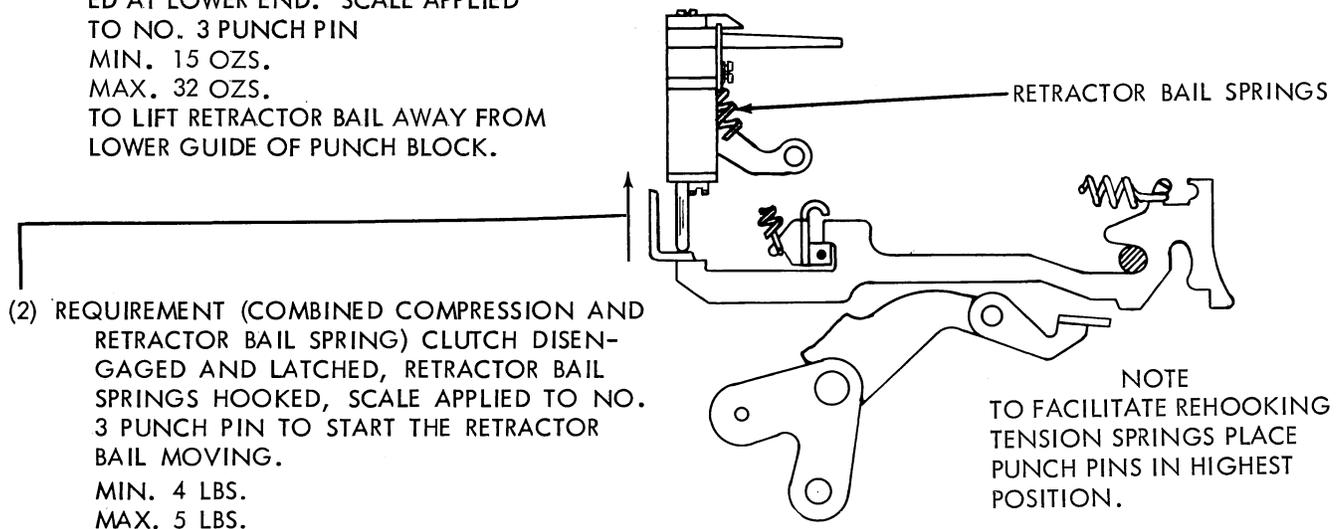
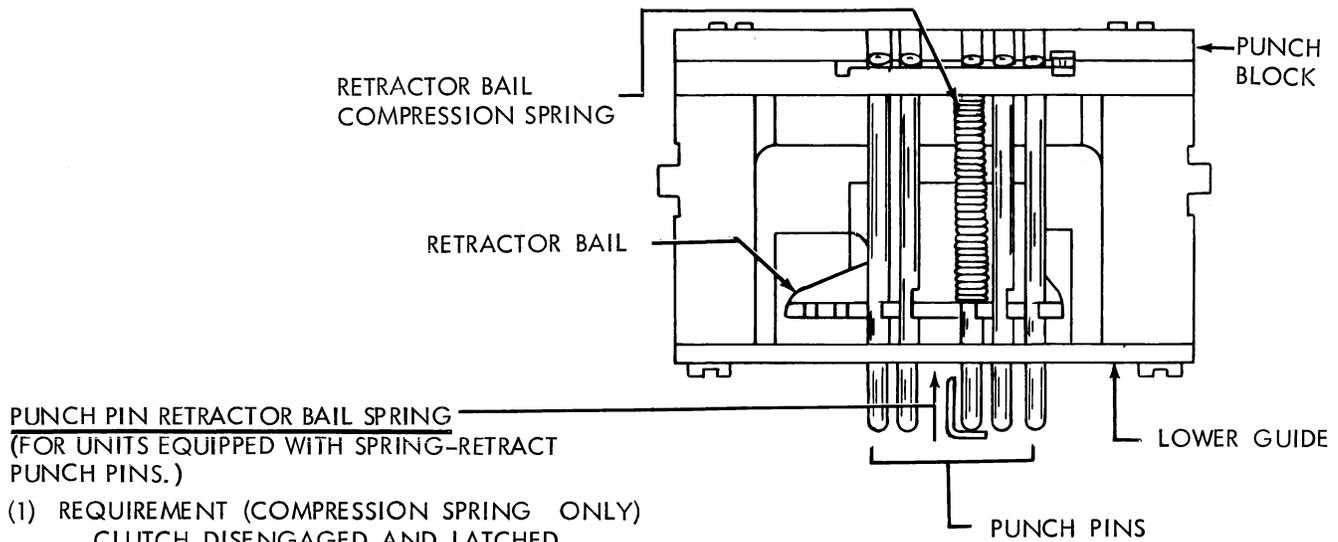
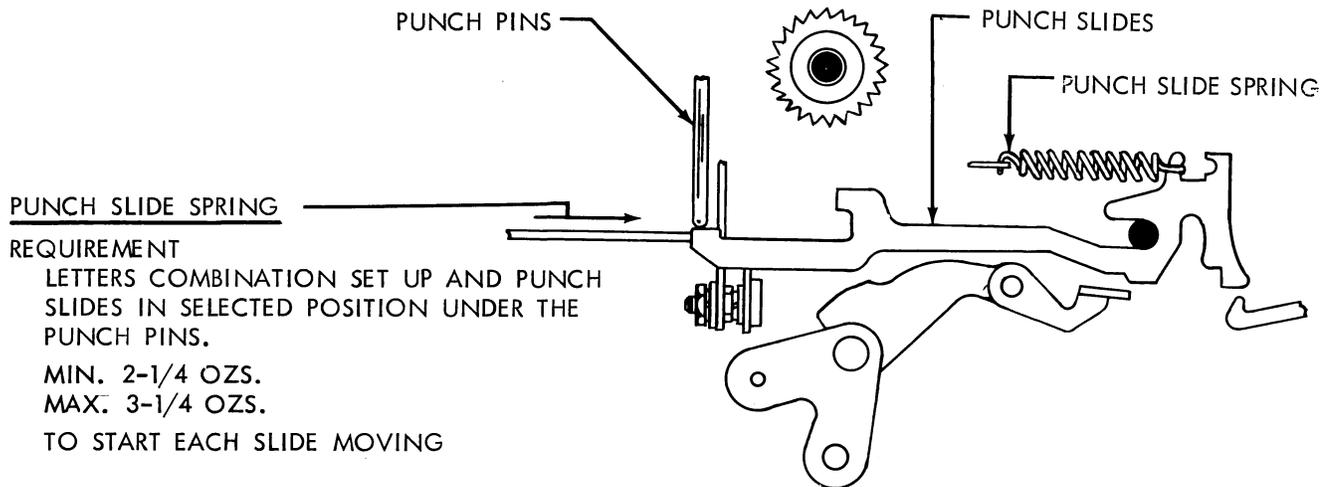
TO ADJUST

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

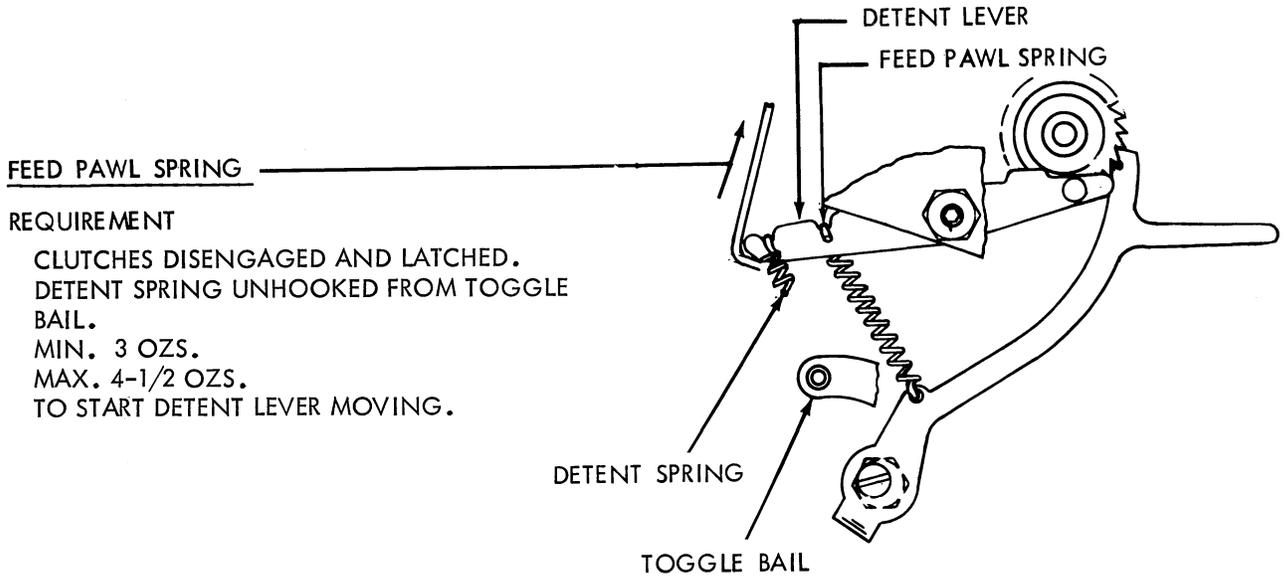
FRONT TO REAR, LOOSEN THE LOCK NUT ON THE ADJUSTING SCREW AND TURN THE SCREW CLOCKWISE TO MOVE TAPE TOWARD REFERENCE EDGE (REAR), AND COUNTERCLOCKWISE TO MOVE THE TAPE AWAY FROM REFERENCE EDGE (FRONT).



2.43 Punch Mechanism for Fully Perforated or Chadless Tape - Continued

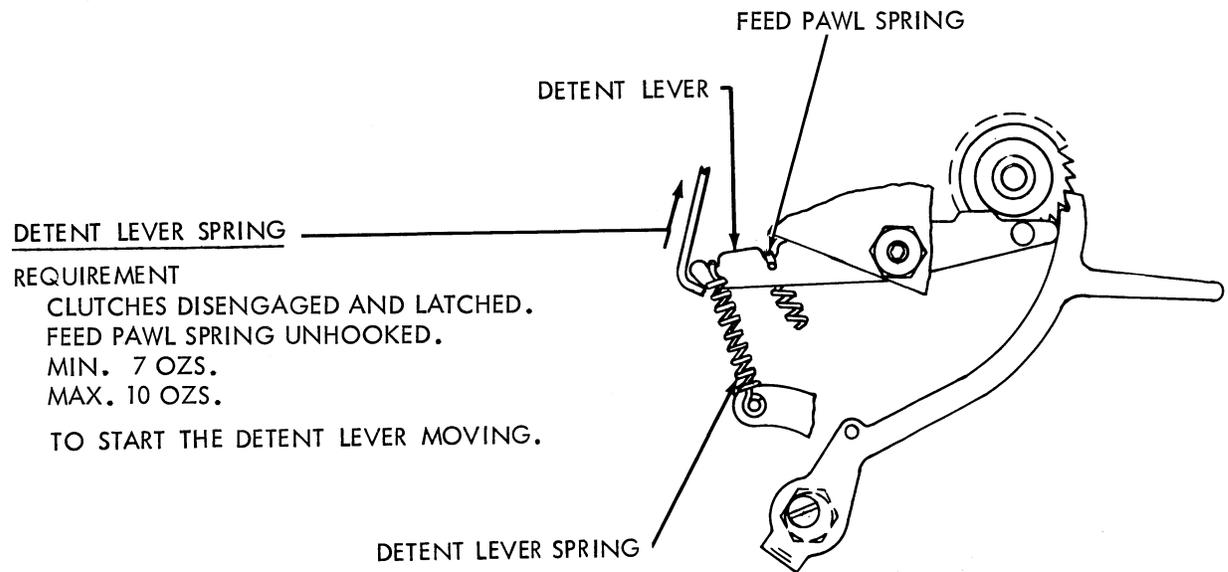


2.44 Feed Mechanism for Fully Perforated or Chadless Tape - Continued



REQUIREMENT

CLUTCHES DISENGAGED AND LATCHED.
 DETENT SPRING UNHOOKED FROM TOGGLE BAIL.
 MIN. 3 OZS.
 MAX. 4-1/2 OZS.
 TO START DETENT LEVER MOVING.



REQUIREMENT

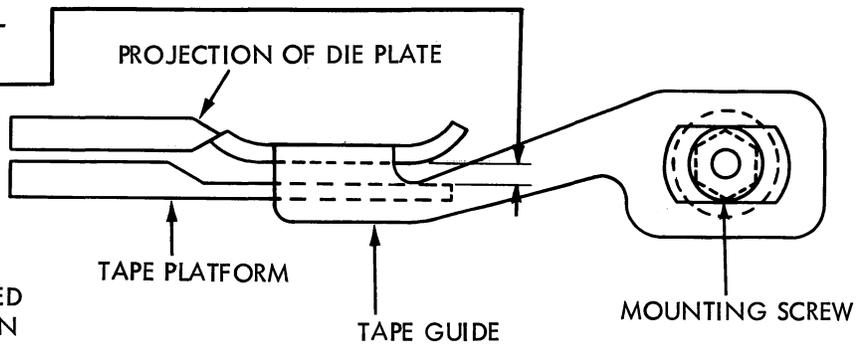
CLUTCHES DISENGAGED AND LATCHED.
 FEED PAWL SPRING UNHOOKED.
 MIN. 7 OZS.
 MAX. 10 OZS.
 TO START THE DETENT LEVER MOVING.

2.45 Feed Mechanism for Fully Perforated or Chadless Tape - Continued

TAPE GUIDE REQUIREMENT

WITH TAPE GUIDE UNDER AND IN CONTACT WITH V-SHAPED PROJECTION OF PUNCH DIE PLATE
 MIN. 0.008 INCH
 MAX. 0.015 INCH
 CLEARANCE BETWEEN TOP OF PUNCH STRIPPER PLATE AND BOTTOM OF THE DEPRESSOR AT THE CLOSEST POINT.

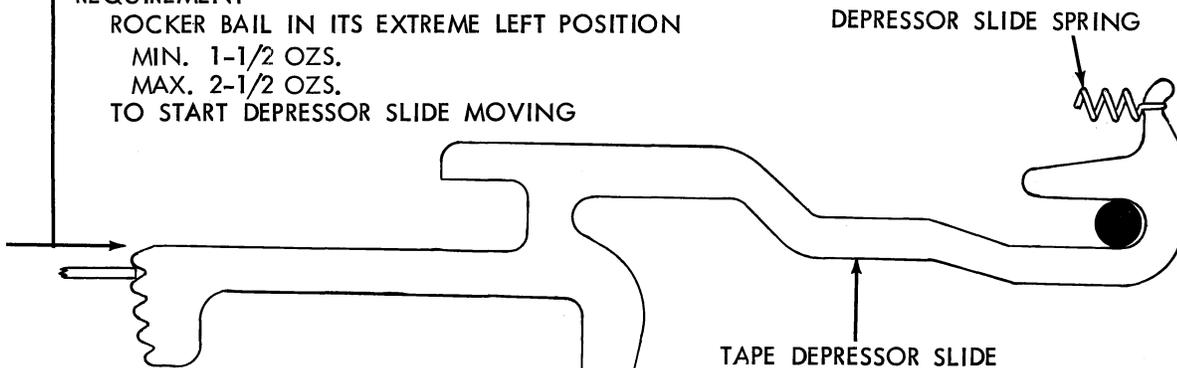
TO ADJUST WITH MOUNTING SCREW LOOSENED PLACE A .010 FLAT GAUGE BETWEEN THE GUIDE AND TAPE PLATFORM, PRESS TAPE GUIDE DOWNWARD AND TO THE LEFT. TIGHTEN SCREW.



NOTE: IN CONTACT IS CONSIDERED MET IF A .0015 GAUGE WILL NOT ENTER.

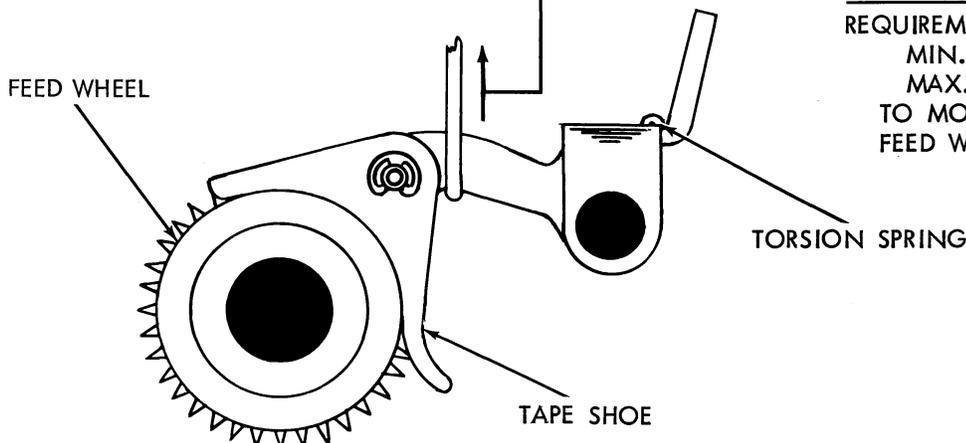
TAPE DEPRESSOR SLIDE SPRING REQUIREMENT

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



TAPE SHOE TORSION SPRING REQUIREMENT

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



3. VARIABLE FEATURES

3.01 Automatic Noninterfering Letters Tape Feed-Out Mechanism

(A) LATCH LEVER

TO CHECK

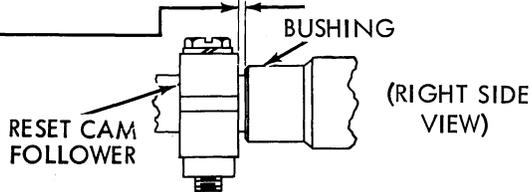
TRIP SELECTOR CLUTCH. ROTATE MAIN SHAFT UNTIL RESET CAM FOLLOWER IS ON PEAK OF RESET BAIL CAM, WHERE THE CLEARANCE FOR THE FOLLOWING ADJUSTMENT IS AT A MINIMUM.

REQUIREMENT

- (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 RESET CAM FOLLOWER LOOSENED.



(B) SAFETY LATCH

- (1) TO CHECK: TRIP FUNCTION CLUTCH BY ROTATING MAIN TRIP LEVER COUNTERCLOCKWISE (SEE PAR. 2.23). ROTATE MAIN SHAFT UNTIL DRIVE LINK IS TO EXTREME LEFT. TRIP SELECTOR CLUTCH AND ROTATE MAIN SHAFT UNTIL RESET CAM FOLLOWER IS ON PEAK OF CAM WHERE CLEARANCE BETWEEN SAFETY LATCH AND LATCH LEVER IS MIN. TAKE UP PLAY IN SAFETY LATCH TO MAKE CLEARANCE MINIMUM.

REQUIREMENT

MIN. SOME---MAX. 0.005 INCH

TO ADJUST: WITH SMALL NUT LOOSENED, POSITION SAFETY LATCH PIVOT BY MEANS OF PRY POINT.

(2) TO CHECK

TRIP SELECTOR CLUTCH. ROTATE MAIN SHAFT UNTIL RIGHT EDGE OF SAFETY LATCH AND CONTACTING EDGE OF LATCH LEVER ARE IN LINE.

REQUIREMENT

MAX. OF 0.030 INCH OF SAFETY LATCH NOT ENGAGED BY LATCH LEVER.

TO ADJUST

REFINE (1) ABOVE AND LATCH LEVER ADJUSTMENT.

(E) SAFETY LATCH SPRING

TO CHECK

TRIP FUNCTION CLUTCH BY PIVOTING MAIN TRIP LEVER COUNTERCLOCKWISE (SEE PAR. 2.23). ROTATE MAIN SHAFT UNTIL DRIVE LINK IS TO EXTREME LEFT. TRIP SELECTOR CLUTCH AND ROTATE MAIN SHAFT UNTIL RESET CAM FOLLOWER IS ON PEAK OF CAM.

REQUIREMENT

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

(D) LATCH LEVER SPRING

TO CHECK

TRIP SELECTOR CLUTCH. ROTATE MAIN SHAFT UNTIL RESET CAM FOLLOWER IS ON PEAK OF RESET BAIL CAM.

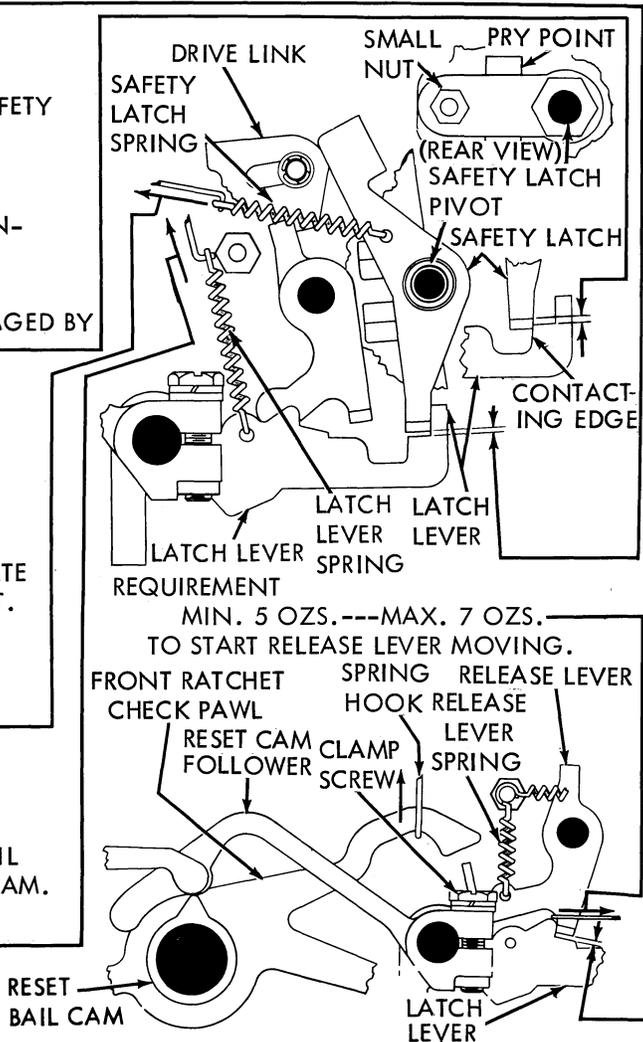
REQUIREMENT

MIN. 2 OZS.---MAX. 4 OZS. TO PULL SPRING TO INSTALLED LENGTH.

(C) 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.



3.02 Automatic Noninterfering Letters Tape Feed-Out Mechanism - Continued

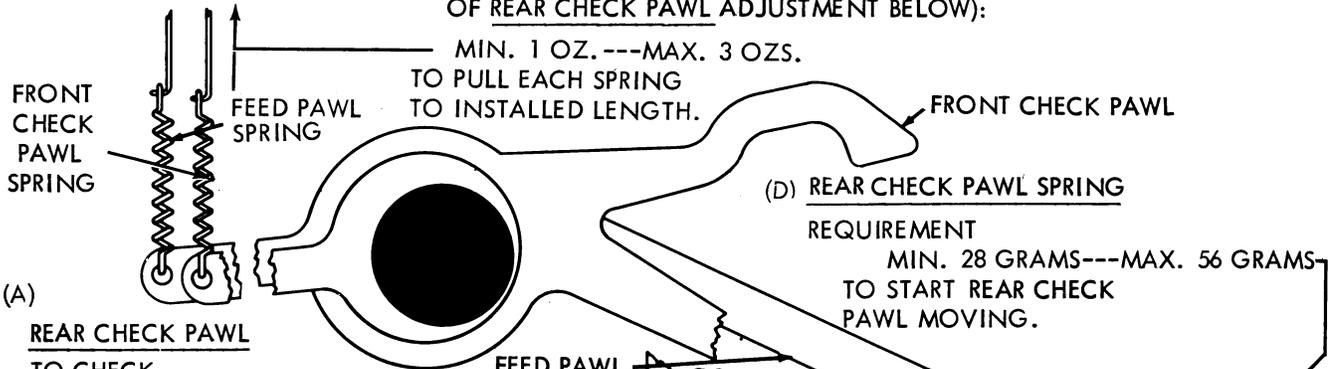
(C) FEED PAWL AND FRONT CHECK PAWL SPRINGS

REQUIREMENT

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

MIN. 1 OZ. --- MAX. 3 OZS.

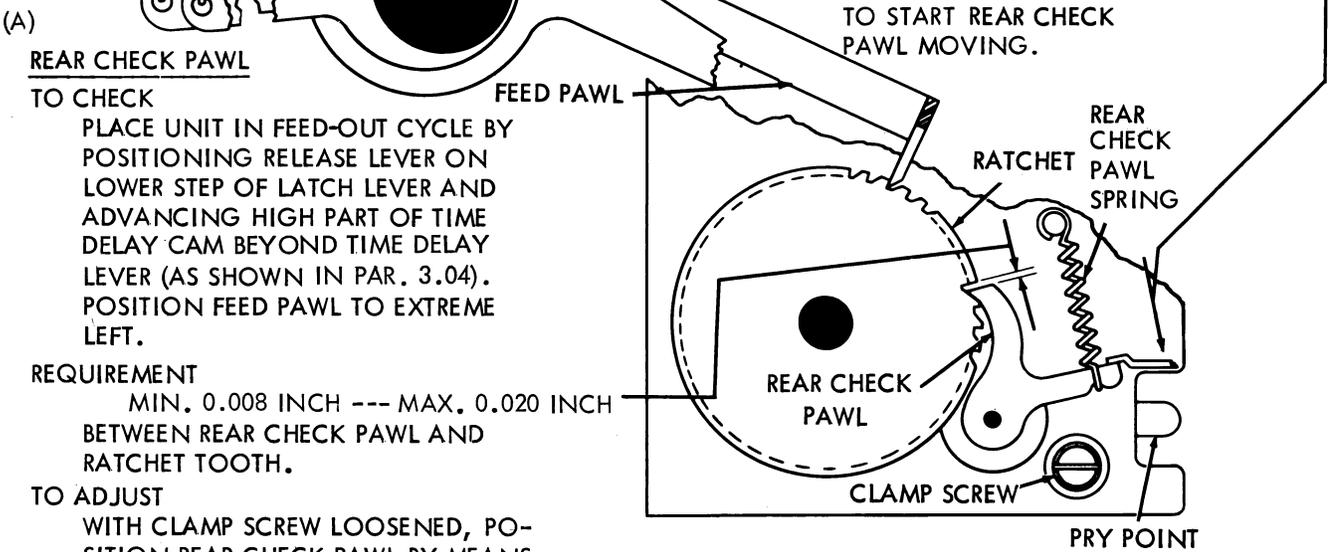
TO PULL EACH SPRING TO INSTALLED LENGTH.



(D) REAR CHECK PAWL SPRING

REQUIREMENT

MIN. 28 GRAMS --- MAX. 56 GRAMS TO START REAR CHECK PAWL MOVING.



(A) REAR CHECK PAWL

TO CHECK

PLACE UNIT IN FEED-OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN IN PAR. 3.04). POSITION FEED PAWL TO EXTREME LEFT.

REQUIREMENT

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

TO ADJUST

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

(B) RATCHET STOP BLOCK

TO CHECK

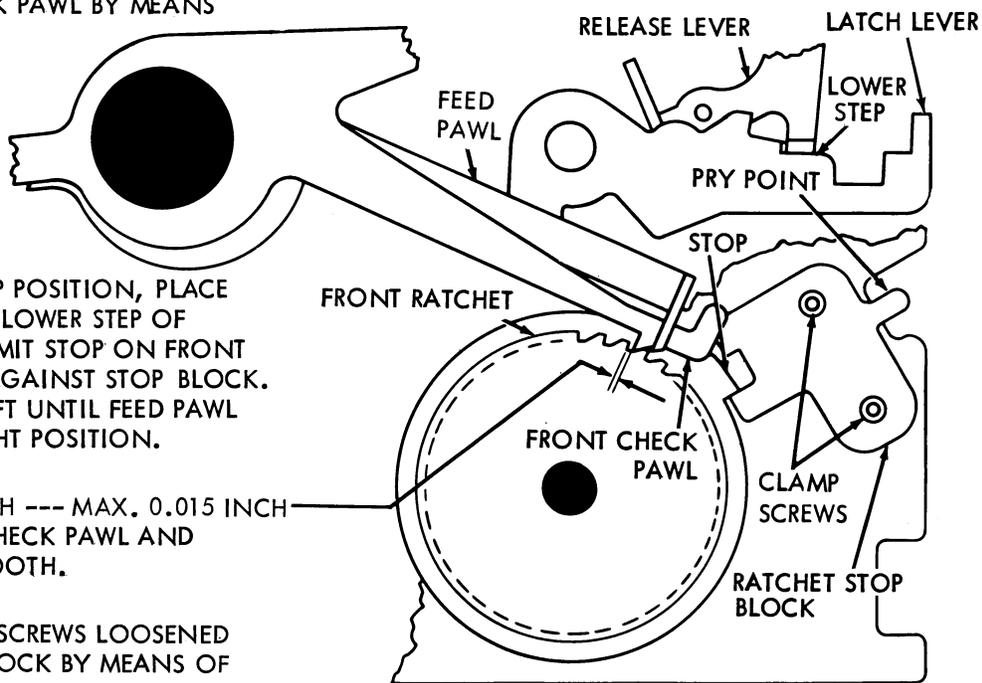
WITH UNIT IN STOP POSITION, PLACE RELEASE LEVER ON LOWER STEP OF LATCH LEVER. PERMIT STOP ON FRONT RATCHET TO REST AGAINST STOP BLOCK. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN EXTREME RIGHT POSITION.

REQUIREMENT

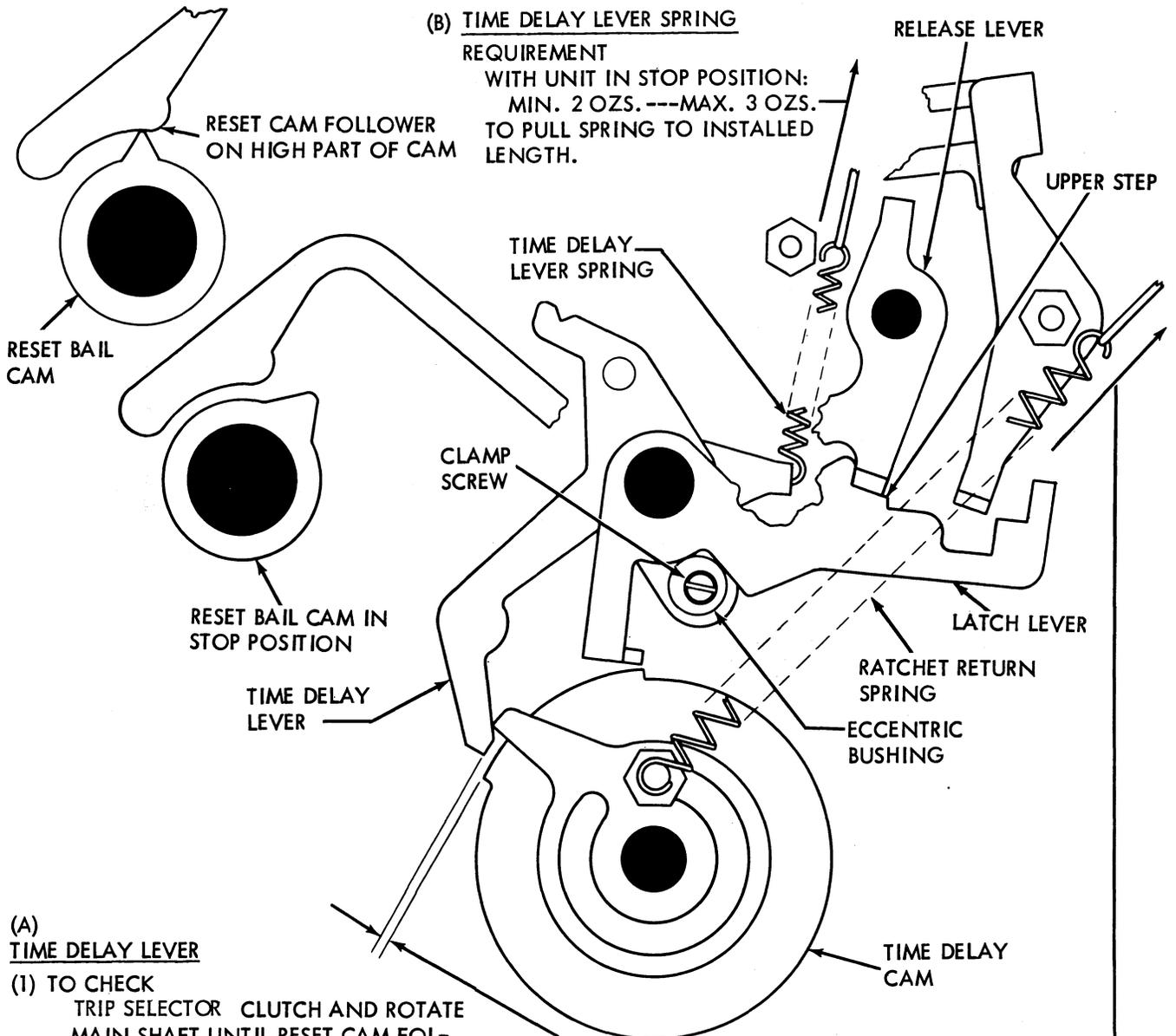
MIN. 0.002 INCH --- MAX. 0.015 INCH BETWEEN FRONT CHECK PAWL AND FRONT RATCHET TOOTH.

TO ADJUST

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



3.03 Automatic Noninterfering Letters Tape Feed-Out Mechanism - Continued



(B) TIME DELAY LEVER SPRING

REQUIREMENT
 WITH UNIT IN STOP POSITION:
 MIN. 2 OZS. ---MAX. 3 OZS.
 TO PULL SPRING TO INSTALLED
 LENGTH.

(A) TIME DELAY LEVER

- (1) TO CHECK
 TRIP SELECTOR CLUTCH AND ROTATE
 MAIN SHAFT UNTIL RESET CAM FOL-
 LOWER IS ON HIGH PART OF RESET BAIL
 CAM.
 REQUIREMENT
 MIN. 0.040 INCH ---MAX. 0.060 INCH ---
 CLEARANCE BETWEEN TIME DELAY LEVER AND
 HIGH PART OF TIME DELAY CAM.
- (2) REQUIREMENT
 WITH UNIT IN STOP POSITION:
 MIN. SOME
 CLEARANCE BETWEEN TIME DELAY LEVER AND
 HIGH PART OF TIME DELAY CAM.

TO ADJUST
 WITH CLAMP SCREW LOOSENED, POSITION
 ECCENTRIC BUSHING.

(C) RATCHET RETURN SPRING

REQUIREMENT
 WITH UNIT IN STOP POSITION:
 MIN. 5 OZS. ---MAX. 7 OZS.
 TO PULL SPRING TO INSTALLED
 LENGTH.

3.04 Automatic Noninterfering Letters Tape Feed-Out Mechanism - Continued

(A)
RELEASE ARM
TO CHECK

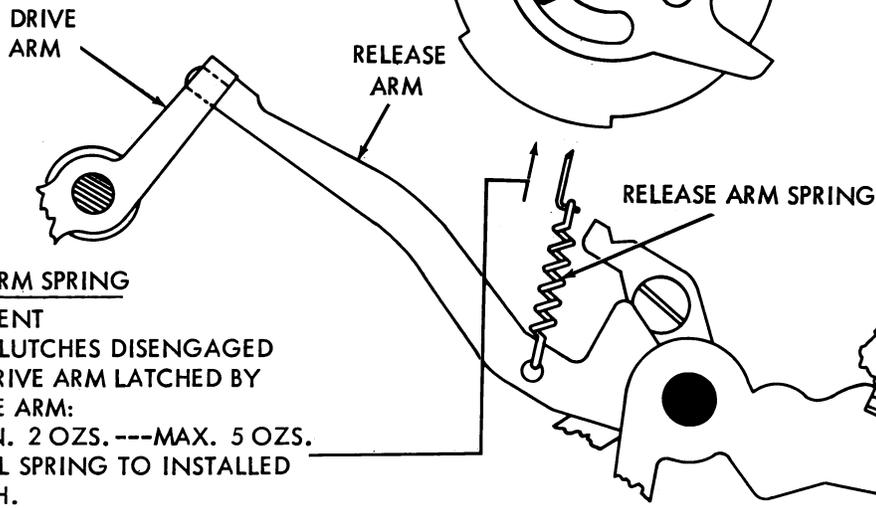
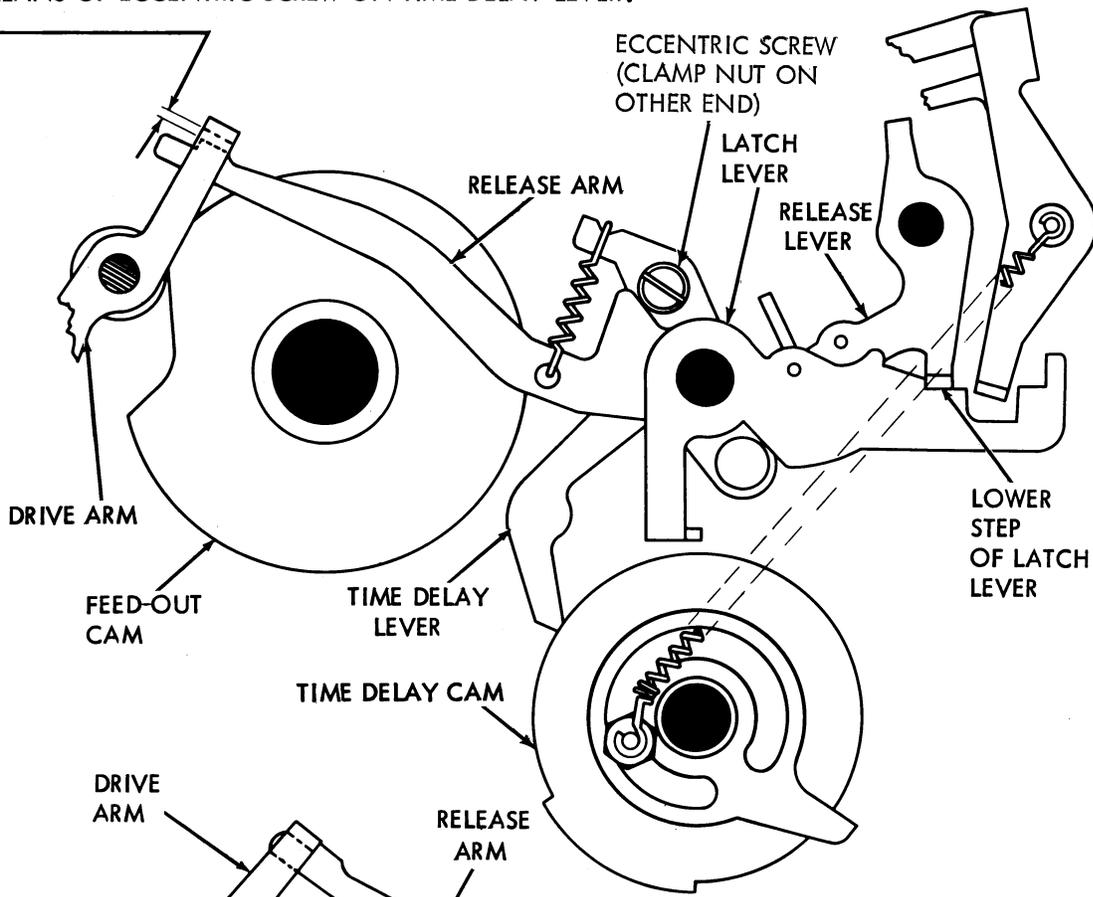
PLACE UNIT IN FEED-OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER. ADVANCE RATCHETS BEYOND TIME DELAY (HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER). POSITION FEED-OUT CAM AS SHOWN.

REQUIREMENT

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

TO ADJUST

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



(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.

3.05 Automatic Noninterfering Letters Tape Feed-Out Mechanism - Continued

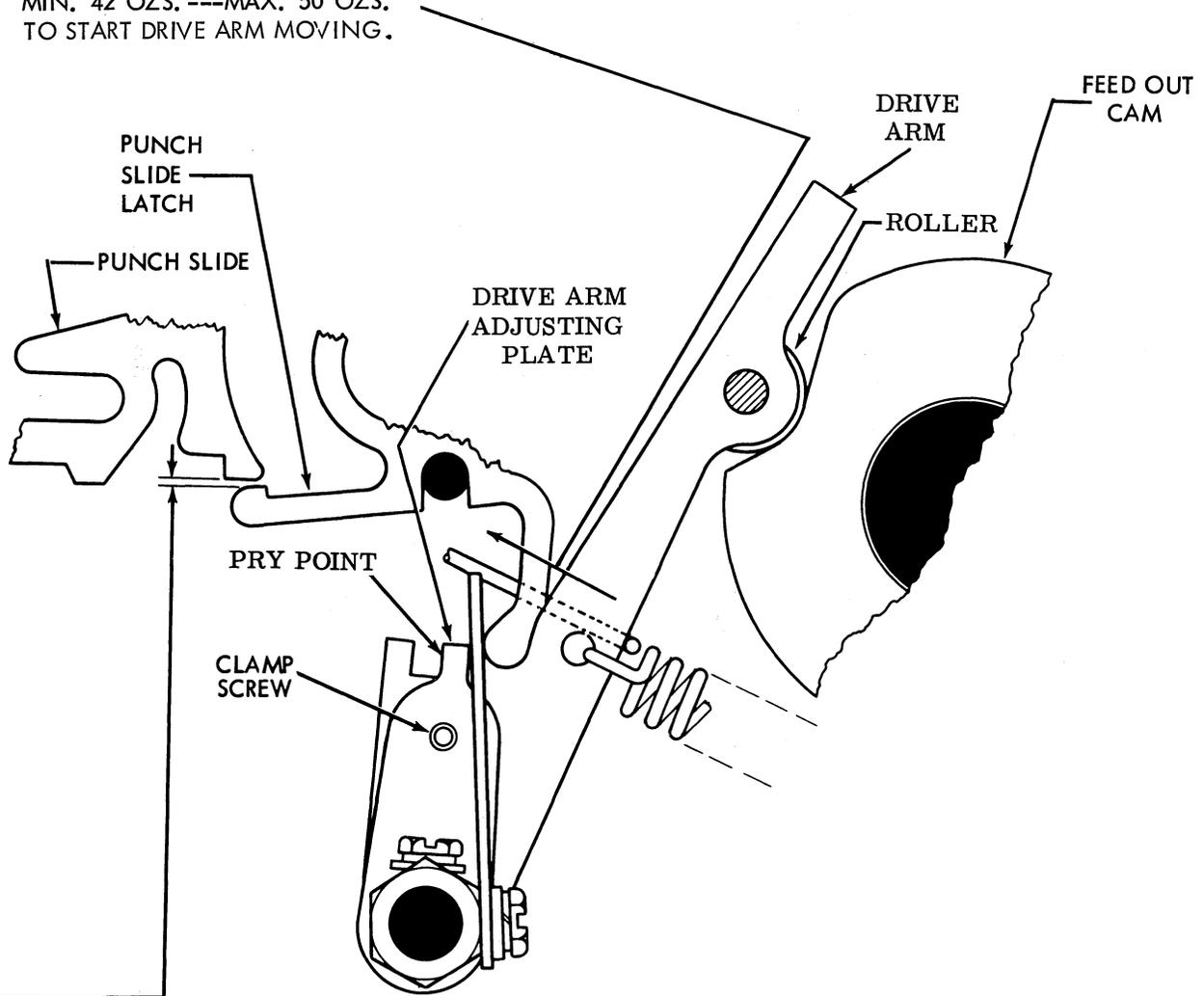
(A)

DRIVE ARM SPRING

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.

REQUIREMENT

MIN. 42 OZS. ---MAX. 50 OZS.
TO START DRIVE ARM MOVING.



(B)

DRIVE ARM ADJUSTING PLATE
TO CHECK

SET UP BLANK CODE COMBINATION(-----) IN SELECTOR. PLACE UNIT IN FEED-OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN IN PAR. 3.04). ROTATE MAIN SHAFT UNTIL DRIVE ARM ROLLER IS ON LOW PART OF FEED-OUT CAM. MAKE SURE THAT RESET BAIL IS IN LOWER POSITION.

REQUIREMENT

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

TO ADJUST

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

3.06 Automatic Noninterfering Letters 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 (AS SHOWN IN PAR. 3.08). POSITION MAIN SHAFT SO THAT DRIVE ARM ROLLER IS ON LOW PART OF FEED-OUT CAM.

REQUIREMENT

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

TO ADJUST

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

(A) FOLLOWER LEVER

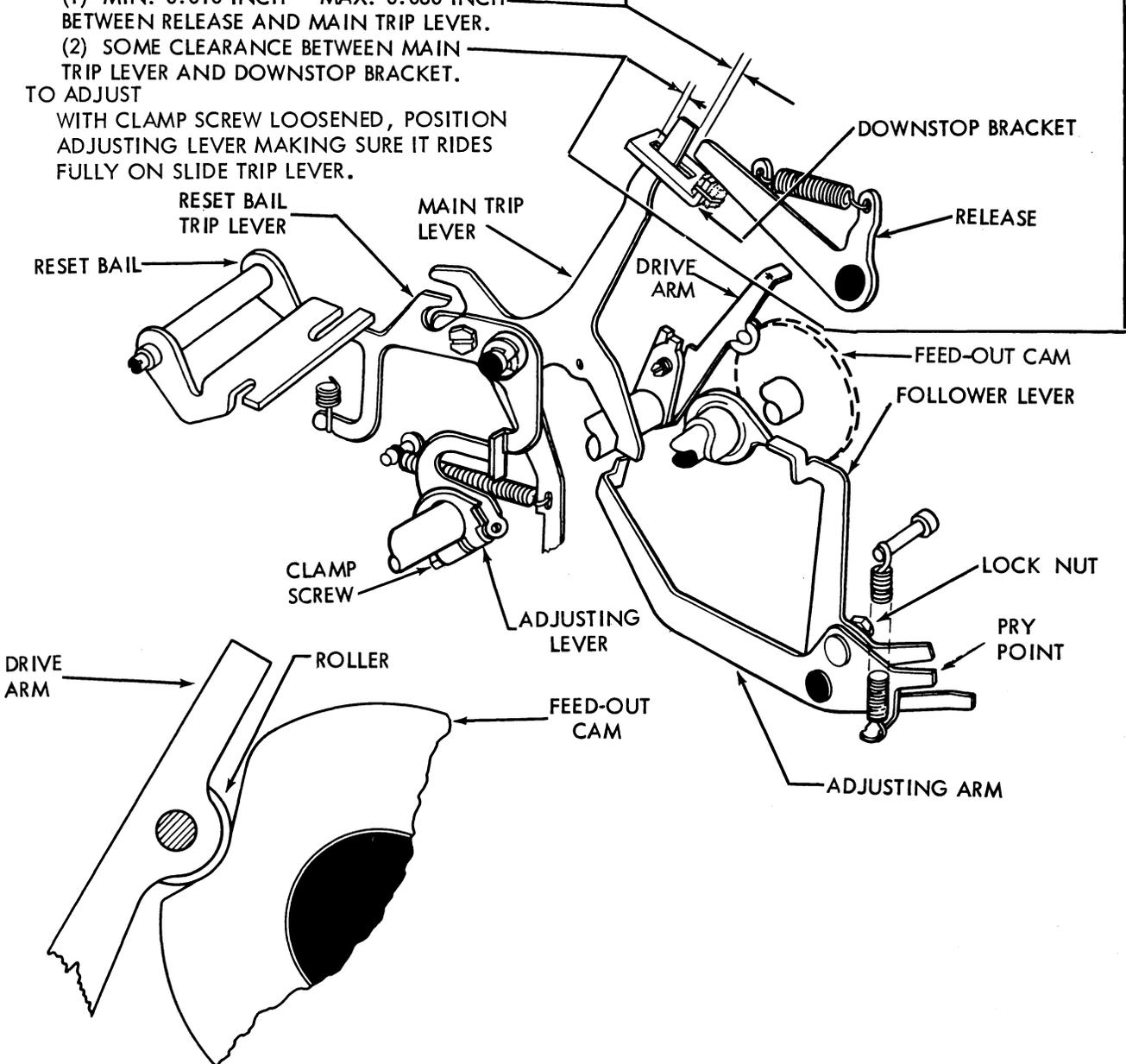
REQUIREMENT

WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM:

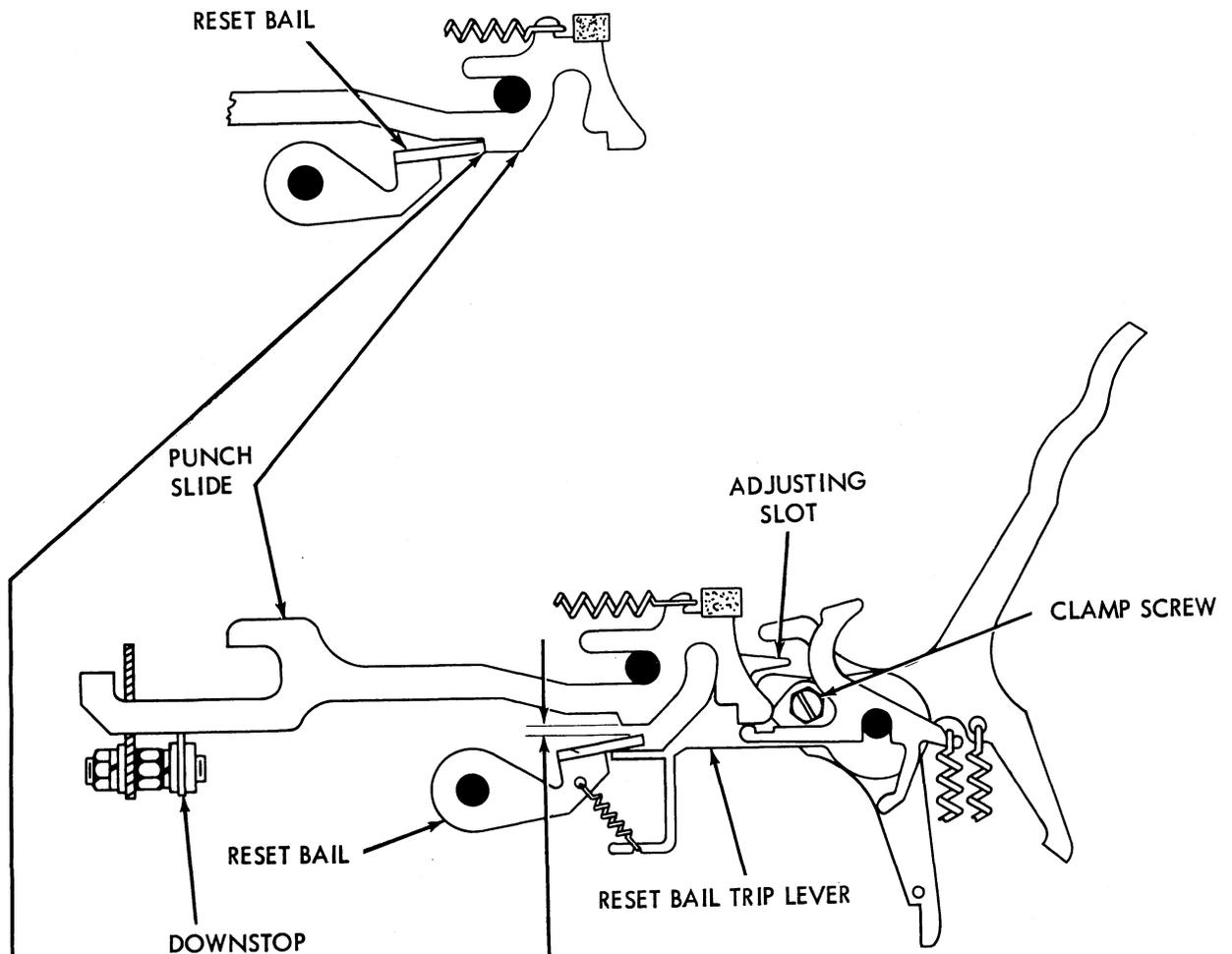
- (1) MIN. 0.010 INCH---MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
- (2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

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



3.07 Automatic Noninterfering Letters Tape Feed-Out Mechanism - Continued

**RESET BAIL TRIP LEVER**

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

REQUIREMENT

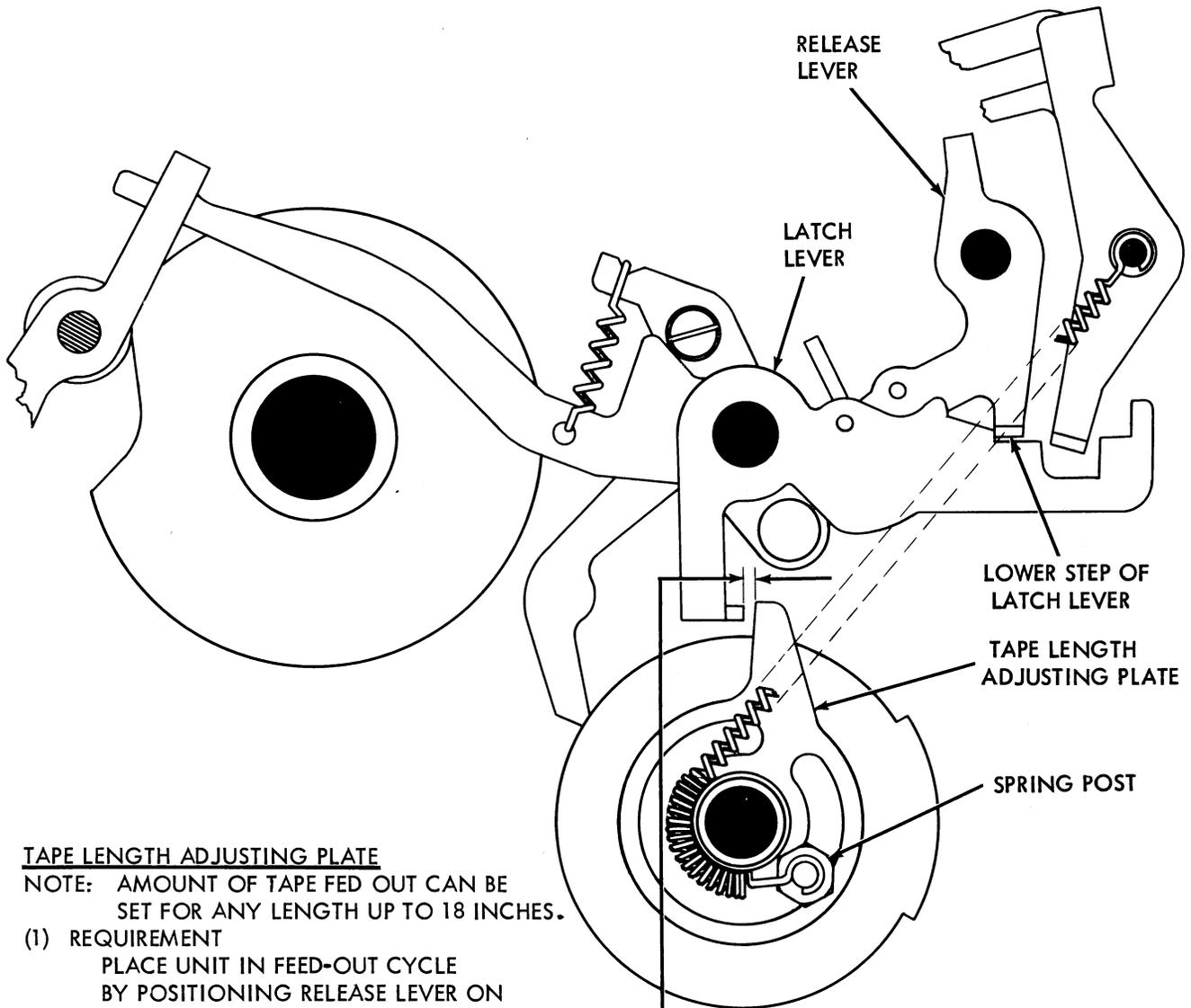
MIN. 0.008 INCH --- MAX. 0.020 INCH
 BETWEEN PUNCH SLIDE AND RESET BAIL.

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

TO ADJUST

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

3.08 Automatic Noninterfering Letters 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 TOOTH PRECEDING TRIP OFF. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN EXTREME LEFT POSITION. CLEARANCE BETWEEN ADJUSTING PLATE AND LATCH LEVER PROJECTION: MIN. 0.002 INCH --- MAX. 0.020 INCH

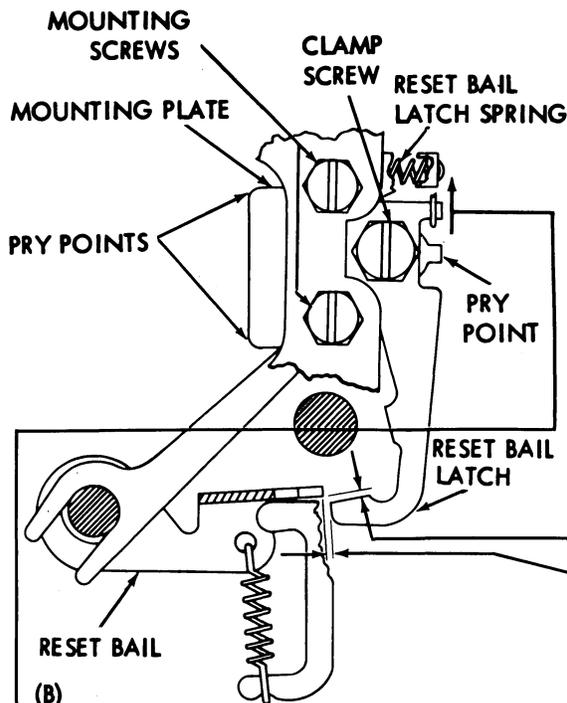
(2) REQUIREMENT

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

TO ADJUST

WITH SPRING POST LOOSENED, POSITION ADJUSTING PLATE.

3.09 Automatic Noninterfering Letters Tape Feed-Out Mechanism - Continued



(A) RESET BAIL LATCH

- (1) TO CHECK (VERTICAL CLEARANCE)
 SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS AND PUNCH SLIDES ARE TO EXTREME LEFT. SET UP BLANK CODE COMBINATION (-----) IN SELECTOR BY STRIPPING ALL PUSH LEVERS FROM SELECTING LEVERS (SEE PAR. 2.08 OR 2.16). ROTATE MAIN SHAFT UNTIL PUNCH SLIDES ARE JUST LATCHED.

REQUIREMENT

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

TO ADJUST

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

- (2) REQUIREMENT (HORIZONTAL CLEARANCE)

WITH CLUTCHES DISENGAGED,
 MIN. 0.005 INCH---MAX. 0.020 INCH
 BETWEEN RESET BAIL AND RESET BAIL LATCH.

TO ADJUST

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

- (3) TO CHECK

SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. SET UP BLANK CODE COMBINATION (-----) IN SELECTOR BY STRIPPING ALL PUSH LEVERS FROM SELECTING LEVERS (SEE PAR. 2.08 OR 2.16). ROTATE MAIN SHAFT TO STOP POSITION.

REQUIREMENT

PUNCH SLIDES LATCHED BY PUNCH SLIDE LATCHES.

TO ADJUST

REFINE (1) AND (2) ABOVE.

(C) RESET BAIL TRIP LEVER SPRING

TO CHECK

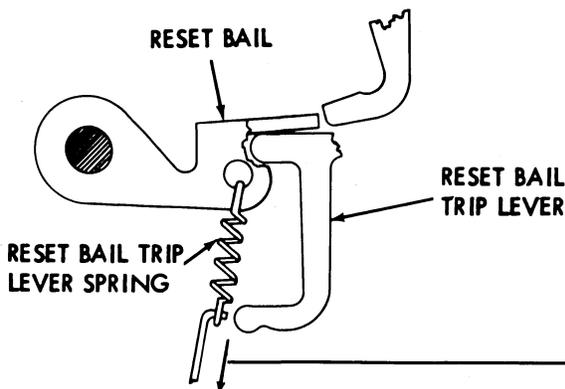
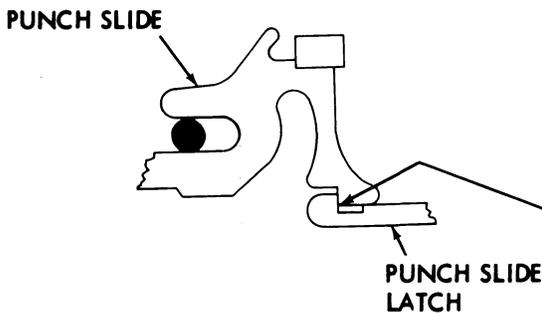
DISENGAGE BOTH CLUTCHES. TRIP FUNCTION CLUTCH BY PIVOTING MAIN TRIP LEVER COUNTERCLOCKWISE (SEE PAR. 2.23). HOLD RESET BAIL TRIP LEVER UP AGAINST RESET BAIL.

REQUIREMENT

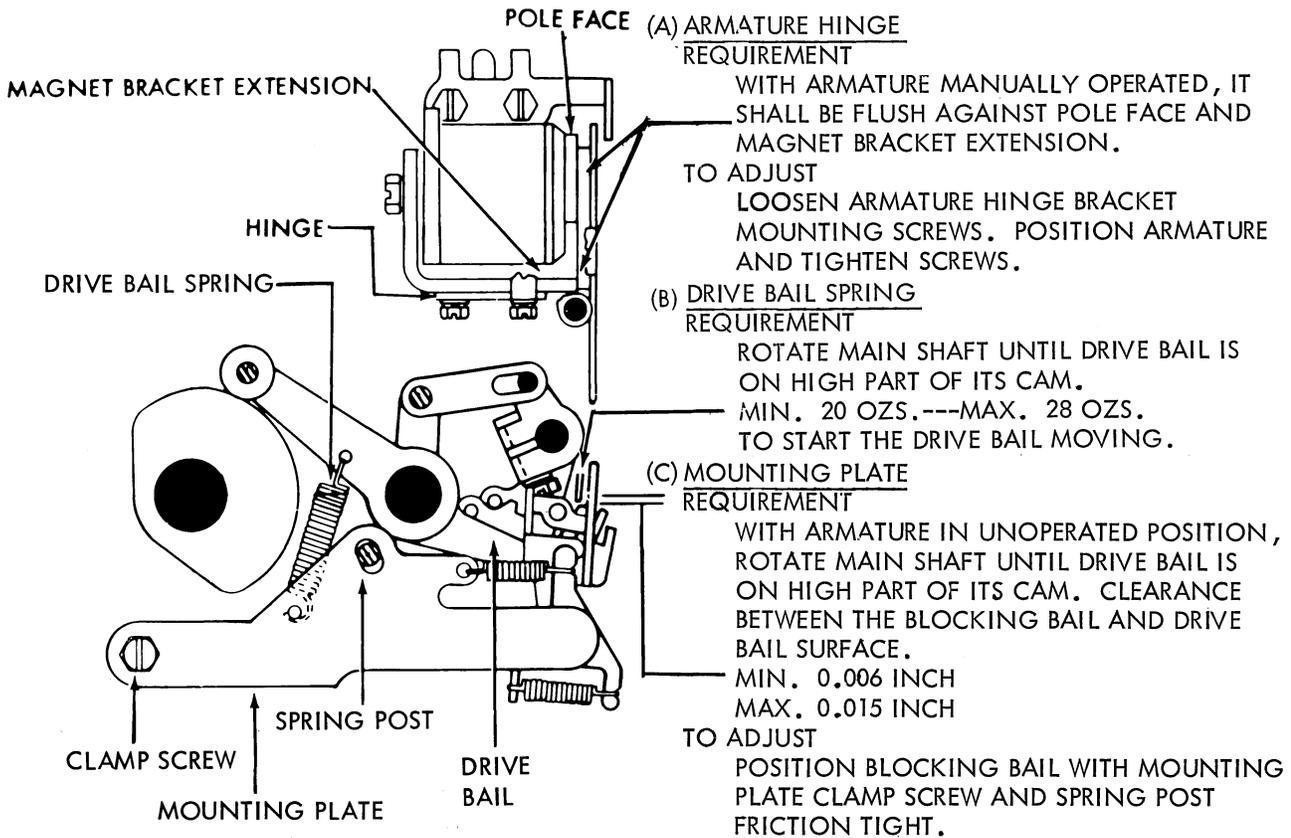
MIN. 18 OZS.---MAX. 24 OZS.
 TO PULL SPRING TO INSTALLED LENGTH.

(B) RESET BAIL LATCH SPRING

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



3.10 Remote Control Noninterfering Letters Tape Feed-Out Mechanism

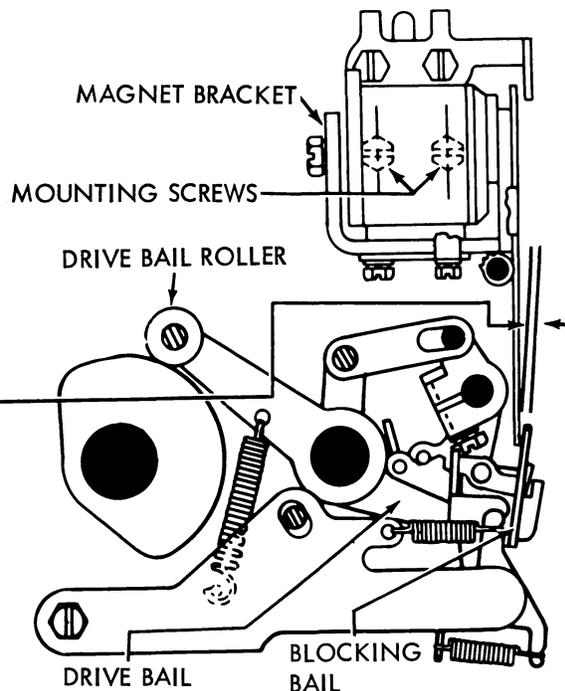


(D) MAGNET ASSEMBLY REQUIREMENT

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

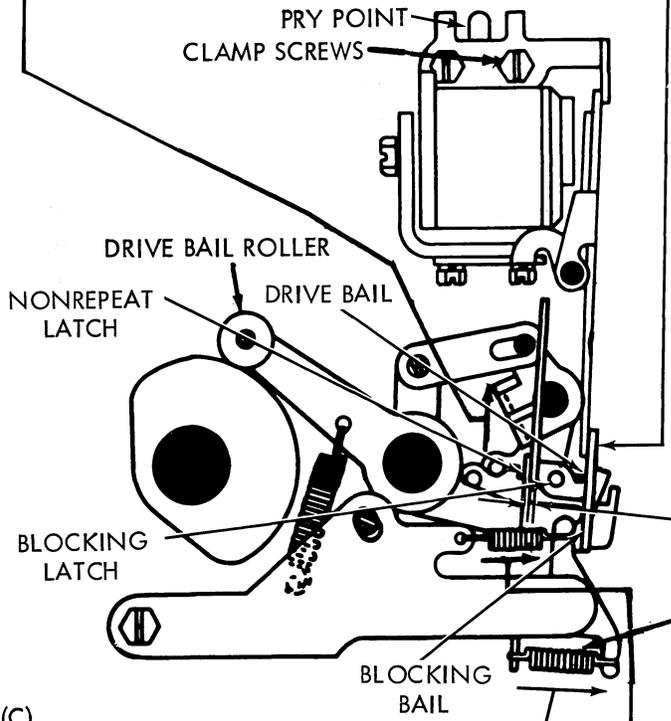
TO ADJUST
 POSITION MAGNET ASSEMBLY, ARMATURE HELD AGAINST MAGNET POLE PIECE WITH MAGNET BRACKET MOUNTING SCREWS FRICTION TIGHT.



3.11 Remote Control Noninterfering Letters 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
REQUIREMENT

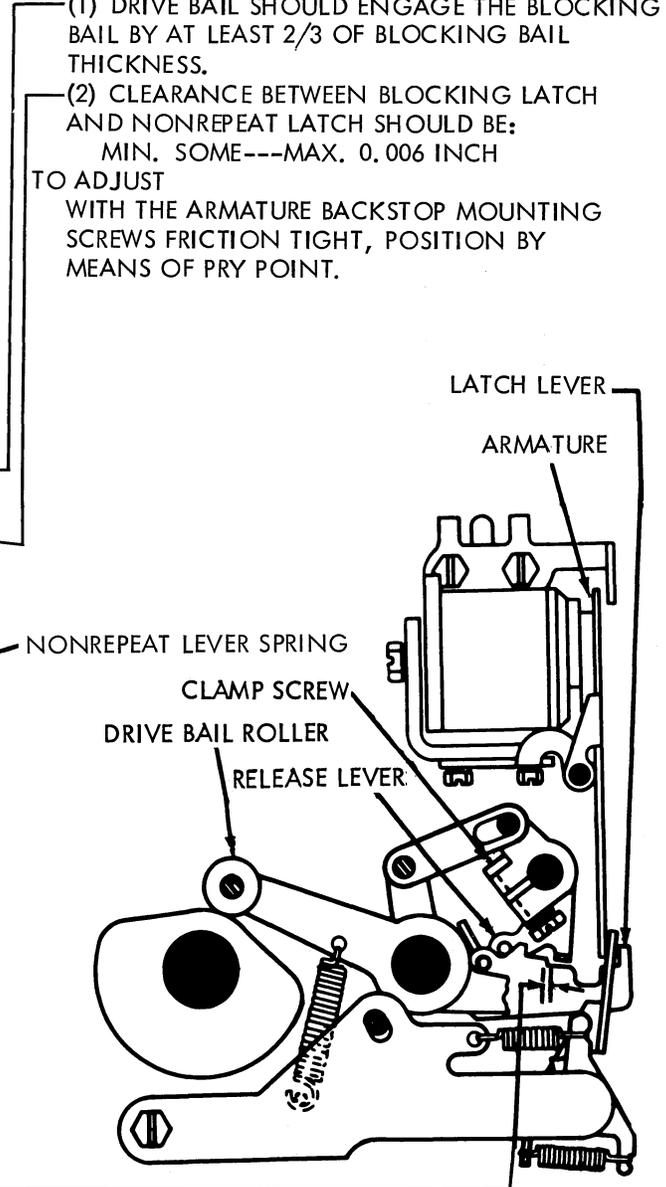
WITH ARMATURE IN UNOPERATED POSITION, ROTATE MAIN SHAFT UNTIL DRIVE BAIL ROLLER IS ON HIGH PART OF ITS CAM.

(1) DRIVE BAIL SHOULD ENGAGE THE BLOCKING BAIL BY AT LEAST 2/3 OF BLOCKING BAIL THICKNESS.

(2) CLEARANCE BETWEEN BLOCKING LATCH AND NONREPEAT LATCH SHOULD BE:
MIN. SOME---MAX. 0.006 INCH

TO ADJUST

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



(C)
NONREPEAT LEVER SPRING
REQUIREMENT

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

(D)
BLOCKING BAIL SPRING
REQUIREMENT

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

(E)
RELEASE LEVER
REQUIREMENT

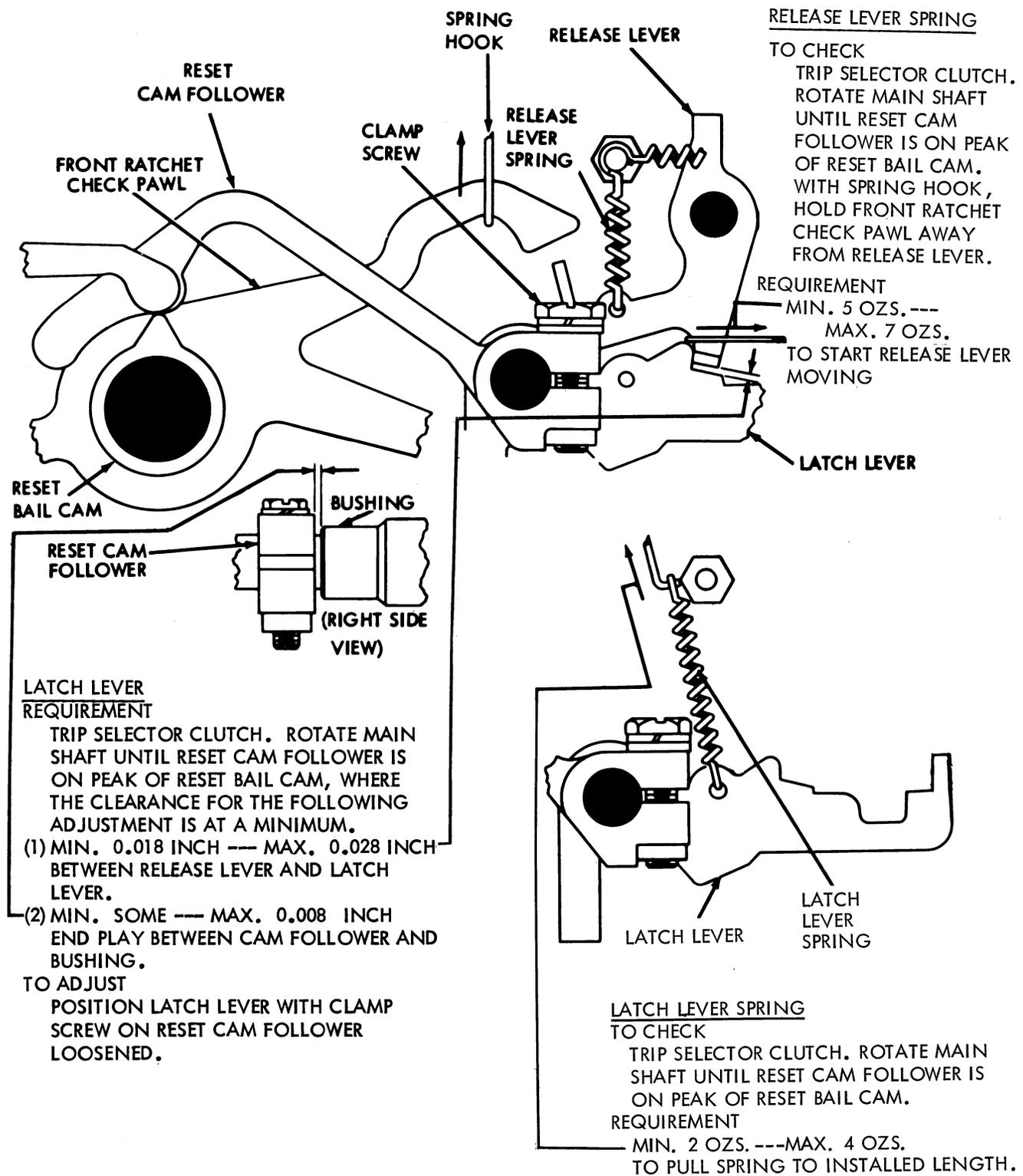
WITH ARMATURE IN OPERATED POSITION, ROTATE MAIN SHAFT UNTIL DRIVE BAIL ROLLER IS IN IN- DENT OF ITS CAM. CLEARANCE BETWEEN RELEASE LEVER AND LATCH LEVER.

MIN. 0.010 INCH
MAX. 0.025 INCH

TO ADJUST

WITH CLAMP SCREW FRICTION TIGHT POSITION RELEASE LEVER.

3.12 Remote Control Noninterfering Letters Tape Feed-Out Mechanism - Continued



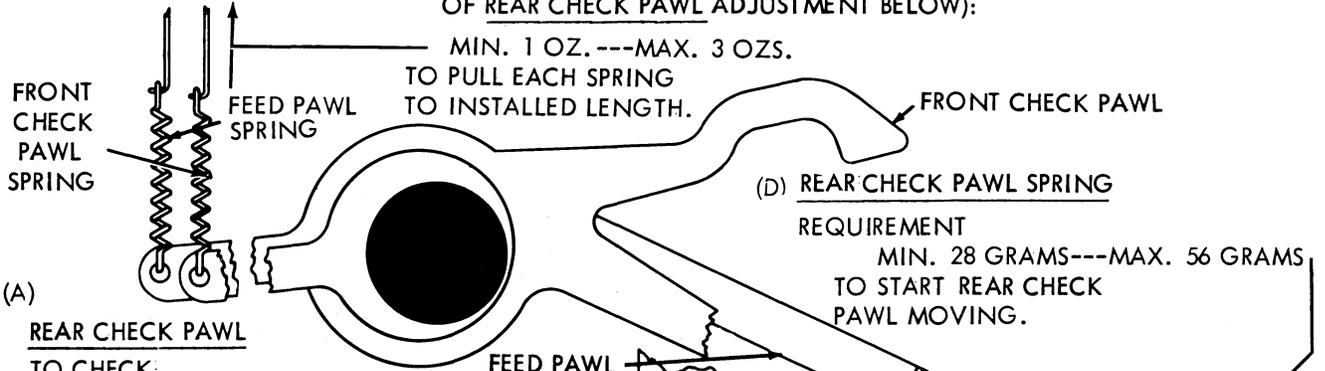
3.13 Remote Control Noninterfering Letters Tape Feed-Out Mechanism - Continued

(C) FEED PAWL AND FRONT CHECK PAWL SPRINGS

REQUIREMENT

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

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



(A)

REAR CHECK PAWL

TO CHECK:

PLACE UNIT IN FEED-OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN IN PAR. 3.15). POSITION FEED PAWL TO EXTREME LEFT.

REQUIREMENT

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

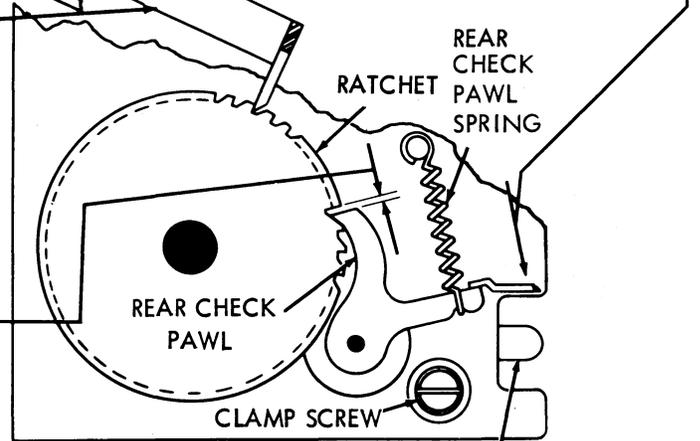
TO ADJUST

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

(D) REAR CHECK PAWL SPRING

REQUIREMENT

MIN. 28 GRAMS --- MAX. 56 GRAMS TO START REAR CHECK PAWL MOVING.



(B)

RATCHET STOP BLOCK

TO CHECK

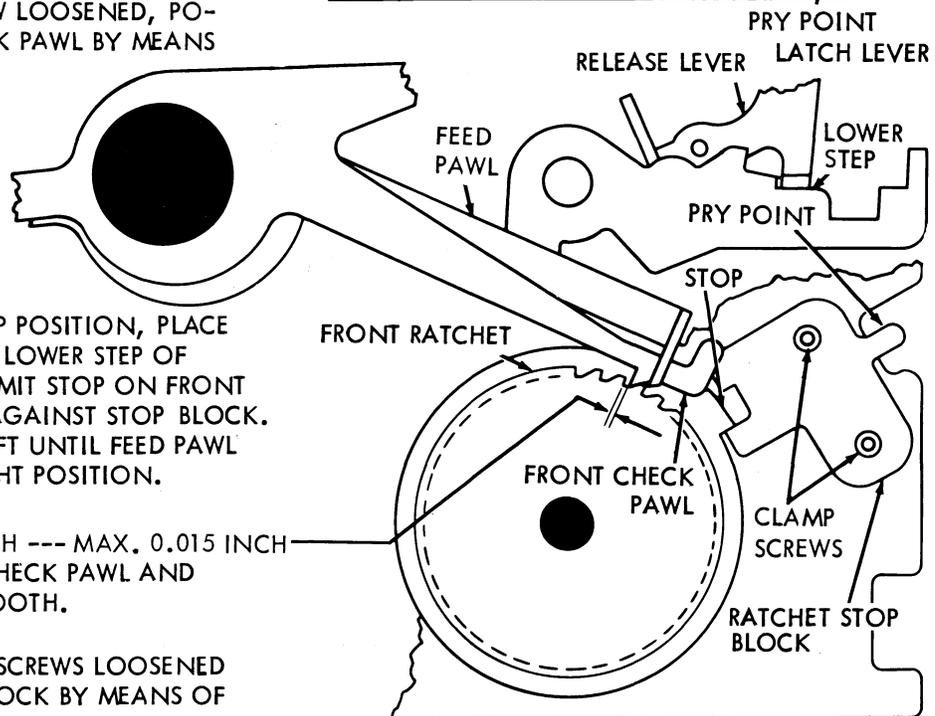
WITH UNIT IN STOP POSITION, PLACE RELEASE LEVER ON LOWER STEP OF LATCH LEVER. PERMIT STOP ON FRONT RATCHET TO REST AGAINST STOP BLOCK. ROTATE MAIN SHAFT UNTIL FEED PAWL IS IN EXTREME RIGHT POSITION.

REQUIREMENT

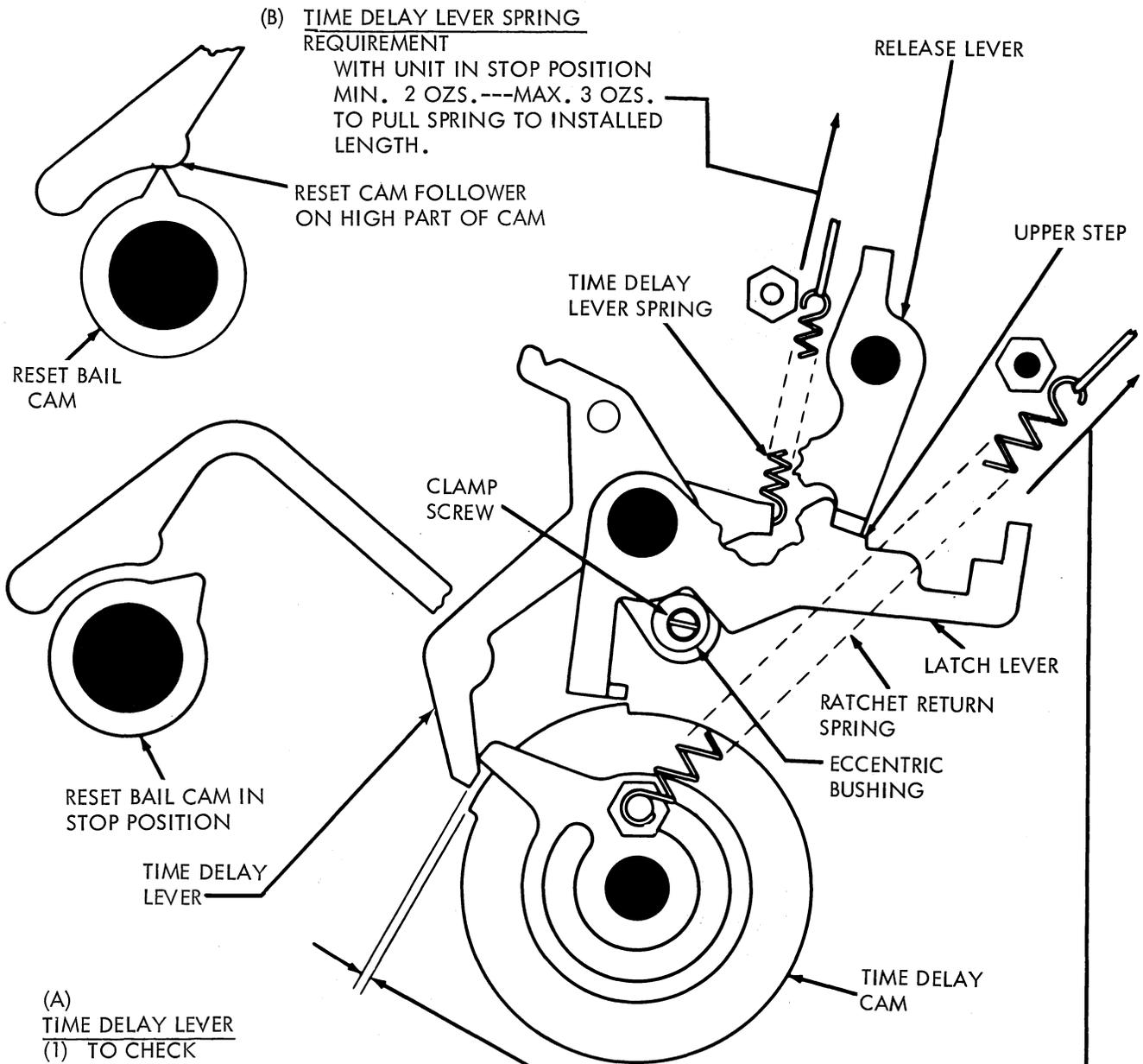
MIN. 0.002 INCH --- MAX. 0.015 INCH BETWEEN FRONT CHECK PAWL AND FRONT RATCHET TOOTH.

TO ADJUST

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



3.14 Remote Control Noninterfering Letters Tape Feed-Out Mechanism - Continued



(B) TIME DELAY LEVER SPRING
REQUIREMENT
 WITH UNIT IN STOP POSITION
 MIN. 2 OZS.---MAX. 3 OZS.
 TO PULL SPRING TO INSTALLED
 LENGTH.

(A) TIME DELAY LEVER
 (1) TO CHECK
 TRIP SELECTOR CLUTCH AND ROTATE
 MAIN SHAFT UNTIL RESET CAM FOLLOWER
 IS ON HIGH PART OF RESET BAIL CAM.
REQUIREMENT
 MIN. 0.040 INCH---MAX. 0.060 INCH---
 CLEARANCE BETWEEN TIME DELAY LEVER AND
 HIGH PART OF TIME DELAY CAM.
 (2) REQUIREMENT
 WITH UNIT IN STOP POSITION
 MIN. SOME CLEARANCE BETWEEN TIME DELAY LEVER AND HIGH PART OF TIME DELAY
 CAM.
 TO ADJUST
 WITH CLAMP SCREW LOOSENED, POSITION ECCENTRIC BUSHING.

(C) RATCHET RETURN SPRING
REQUIREMENT
 WITH UNIT IN STOP POSITION.
 MIN. 5 OZS.---MAX. 7 OZS.
 TO PULL SPRING TO INSTALLED LENGTH.

3.15 Remote Control Noninterfering Letters 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.

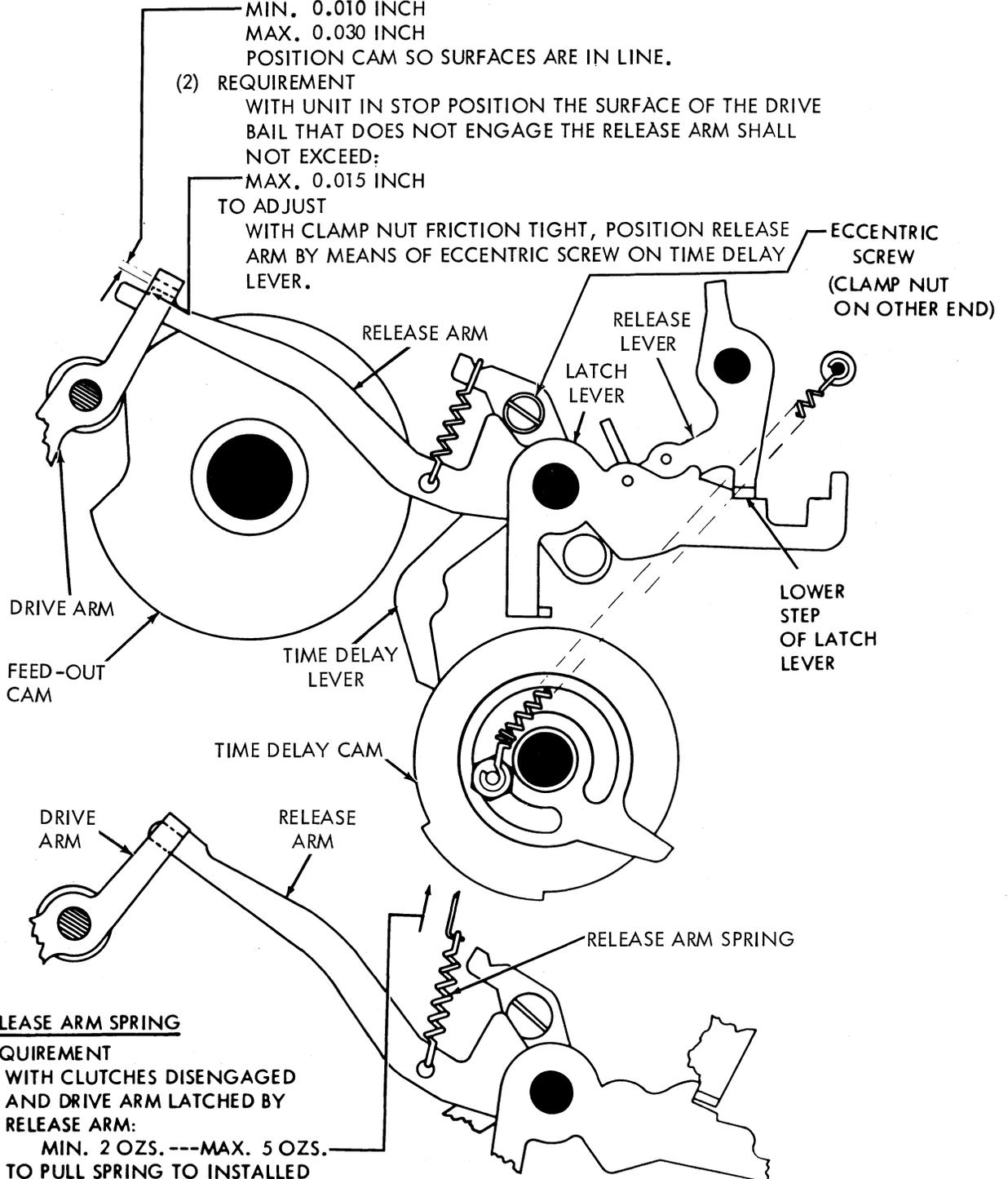
(2) REQUIREMENT

WITH UNIT IN STOP POSITION THE SURFACE OF THE DRIVE 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:

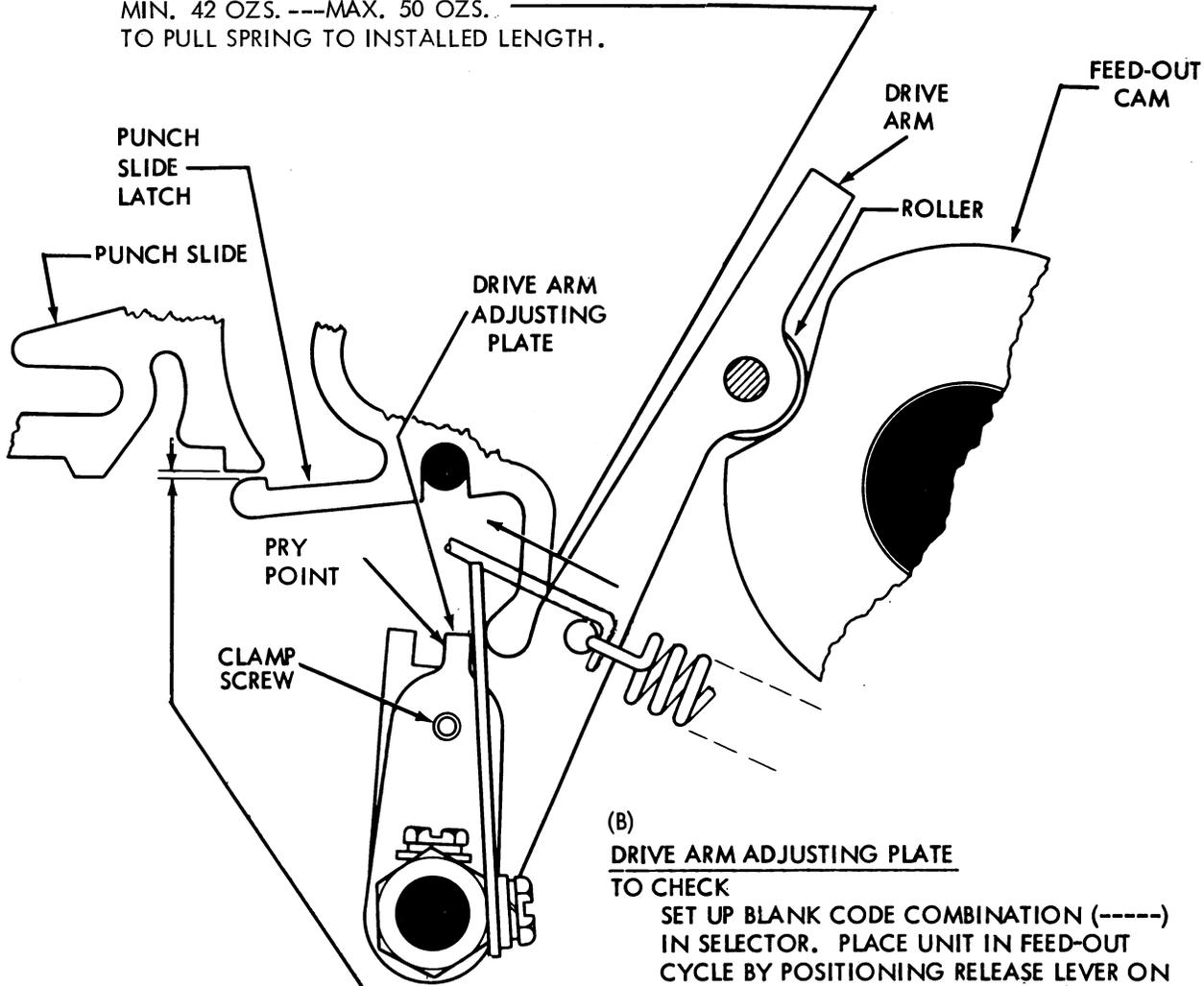
MIN. 2 OZS. ---MAX. 5 OZS.

TO PULL SPRING TO INSTALLED LENGTH.

3.16 Remote Control Noninterfering Letters 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) DRIVE ARM ADJUSTING PLATE
TO CHECK

SET UP BLANK CODE COMBINATION (-----) IN SELECTOR. PLACE UNIT IN FEED-OUT CYCLE BY POSITIONING RELEASE LEVER ON LOWER STEP OF LATCH LEVER AND ADVANCING HIGH PART OF TIME DELAY CAM BEYOND TIME DELAY LEVER (AS SHOWN IN PAR. 3.15) ROTATE MAIN SHAFT UNTIL DRIVE ARM ROLLER IS ON LOW PART OF FEED-OUT CAM. MAKE SURE THAT RESET BAIL IS IN LOWER POSITION.

REQUIREMENT

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

TO ADJUST

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

3.17 Remote Control Noninterfering Letters 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 (AS SHOWN IN PAR. 3.15). POSITION MAIN SHAFT SO THAT DRIVE ARM ROLLER IS ON LOW PART OF FEED-OUT CAM.

REQUIREMENT

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

TO ADJUST

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

(A) FOLLOWER LEVER

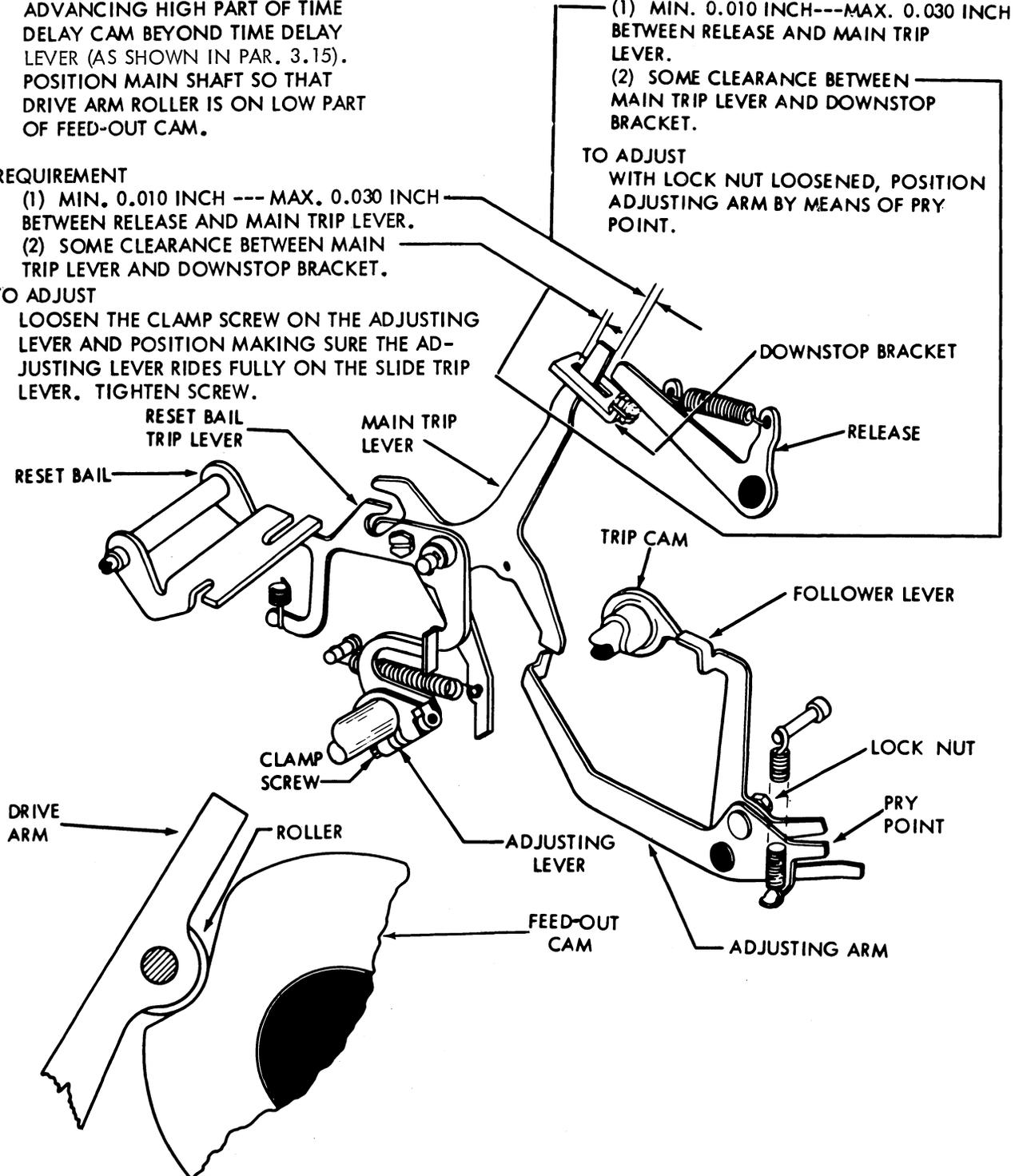
REQUIREMENT

WITH FOLLOWER LEVER ON HIGH PART OF TRIP CAM:

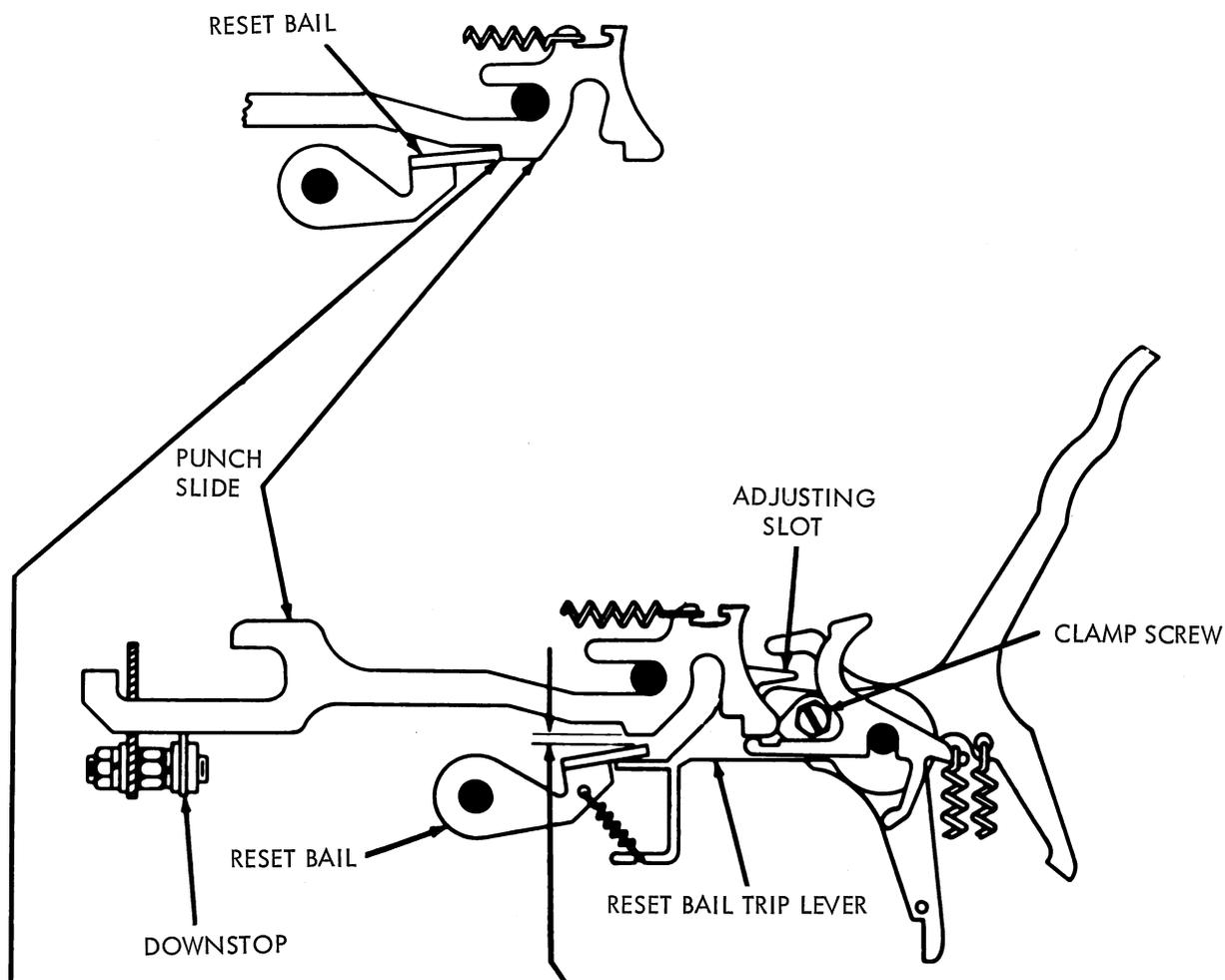
- (1) MIN. 0.010 INCH---MAX. 0.030 INCH BETWEEN RELEASE AND MAIN TRIP LEVER.
- (2) SOME CLEARANCE BETWEEN MAIN TRIP LEVER AND DOWNSTOP BRACKET.

TO ADJUST

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



3.18 Remote Control Noninterfering Letters Tape Feed-Out Mechanism - Continued



RESET BAIL TRIP LEVER

(1) TO CHECK

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

REQUIREMENT

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

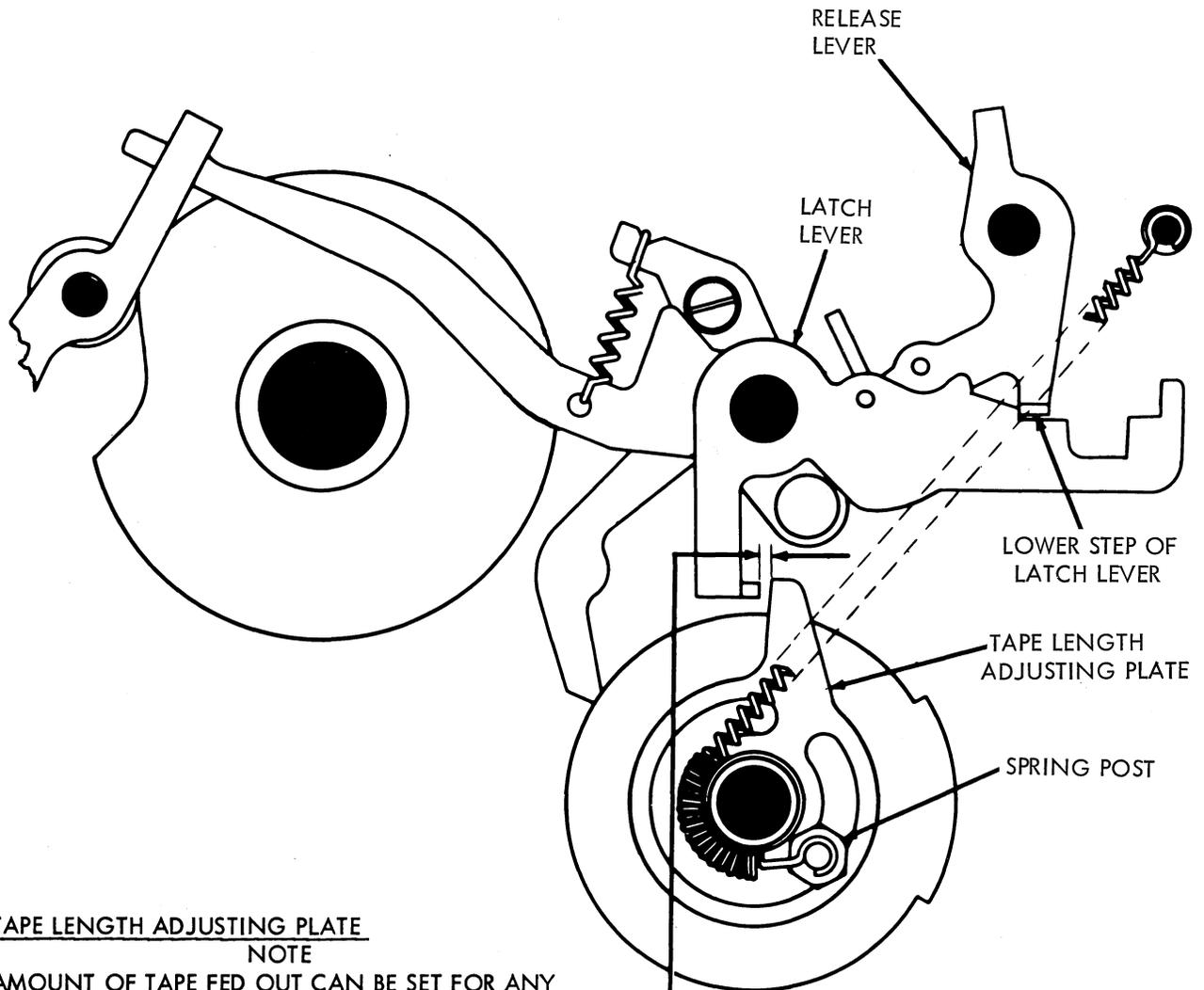
(2) REQUIREMENT

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

TO ADJUST

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

3.19 Remote Control Noninterfering Letters 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.

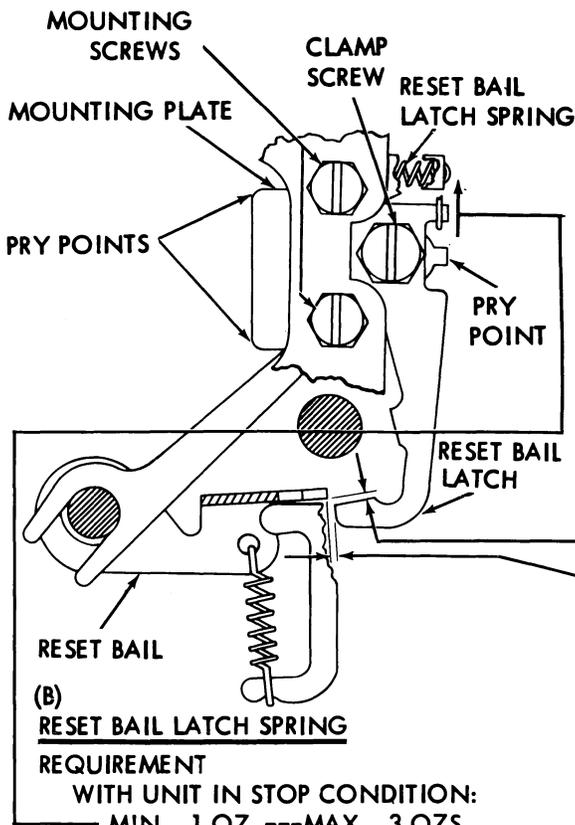
(1) REQUIREMENT

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.

3.20 Remote Control Noninterfering Letters Tape Feed-Out Mechanism - Continued



(A) RESET BAIL LATCH

(1) TO CHECK (VERTICAL CLEARANCE) SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS AND PUNCH SLIDES ARE TO EXTREME LEFT. SET UP BLANK CODE COMBINATION (----) IN SELECTOR BY STRIPPING ALL PUSH LEVERS FROM SELECTING LEVERS (SEE PARAGRAPH 2.08 OR 2.16). ROTATE MAIN SHAFT UNTIL PUNCH SLIDES ARE JUST LATCHED.

REQUIREMENT

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

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

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

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

(3) TO CHECK SELECT LETTERS CODE COMBINATION (12345). ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH TRIPS. SET UP BLANK CODE COMBINATION (----) IN SELECTOR BY STRIPPING ALL PUSH LEVERS FROM SELECTING LEVERS (SEE PARAGRAPH 2.08 OR 2.16). ROTATE MAIN SHAFT TO STOP POSITION.

REQUIREMENT PUNCH SLIDES LATCHED BY PUNCH SLIDE LATCHES.

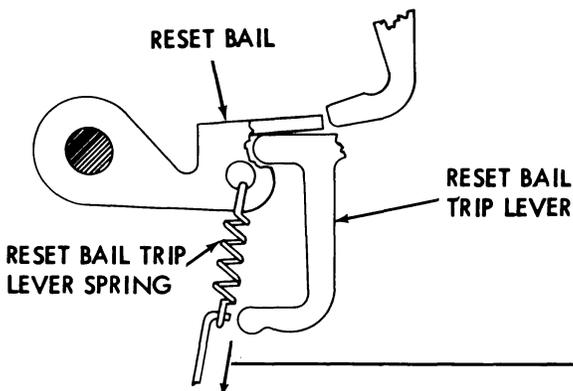
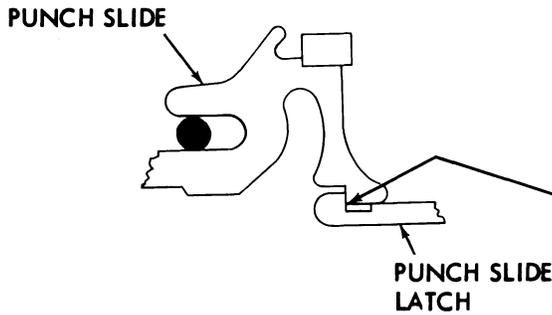
TO ADJUST REFINE (1) AND (2) ABOVE.

(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.

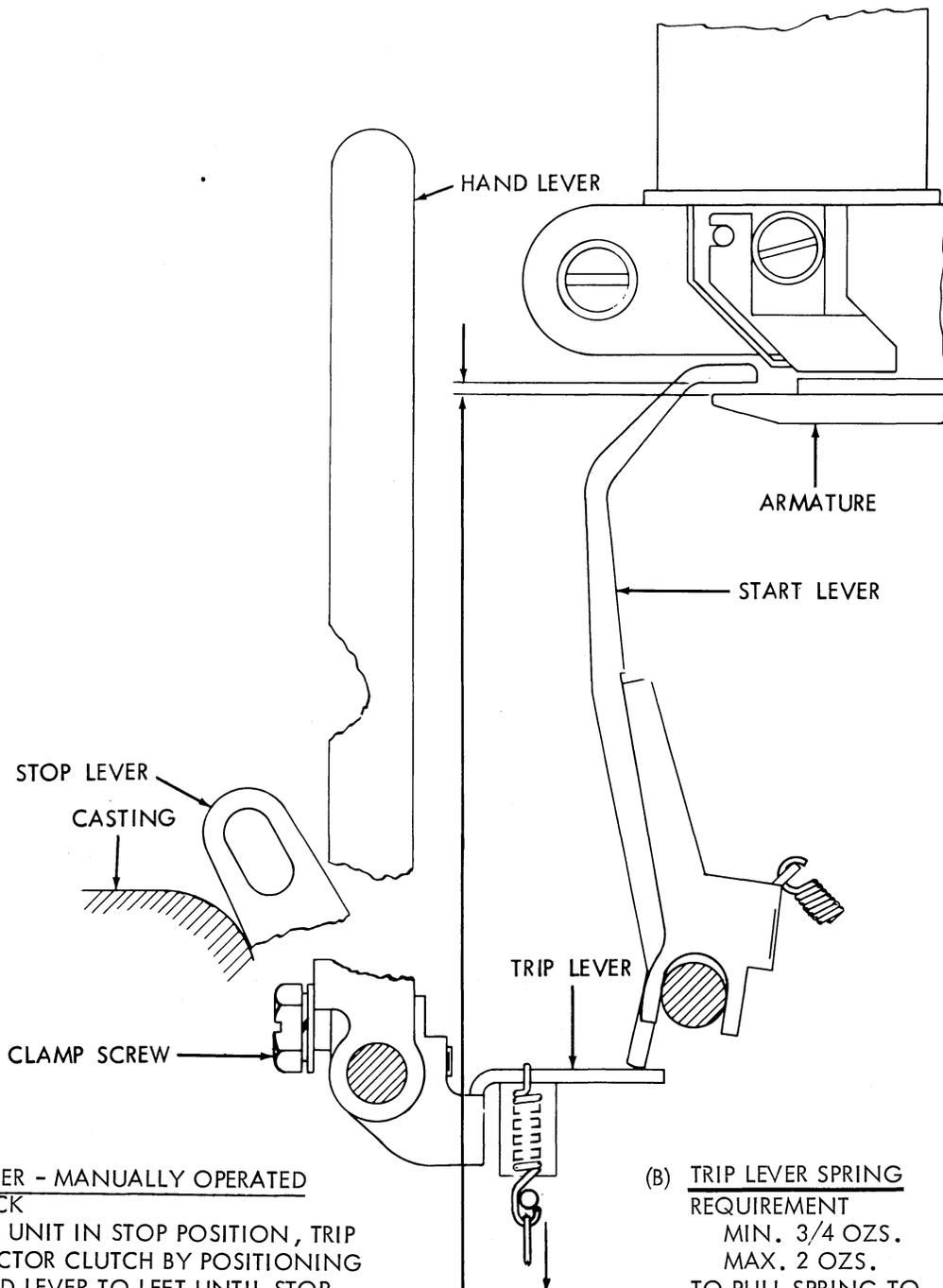
REQUIREMENT

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



*see revised sheets
in front of this section*

3.21 Manually Operated Interfering Letters Tape Feed-Out Mechanism



(A) TRIP LEVER - MANUALLY OPERATED TO CHECK
WITH UNIT IN STOP POSITION, TRIP SELECTOR CLUTCH BY POSITIONING HAND LEVER TO LEFT UNTIL STOP LEVER RESTS AGAINST CASTING.

(B) TRIP LEVER SPRING REQUIREMENT
MIN. 3/4 OZS.
MAX. 2 OZS.
TO PULL SPRING TO ITS INSTALLED LENGTH.

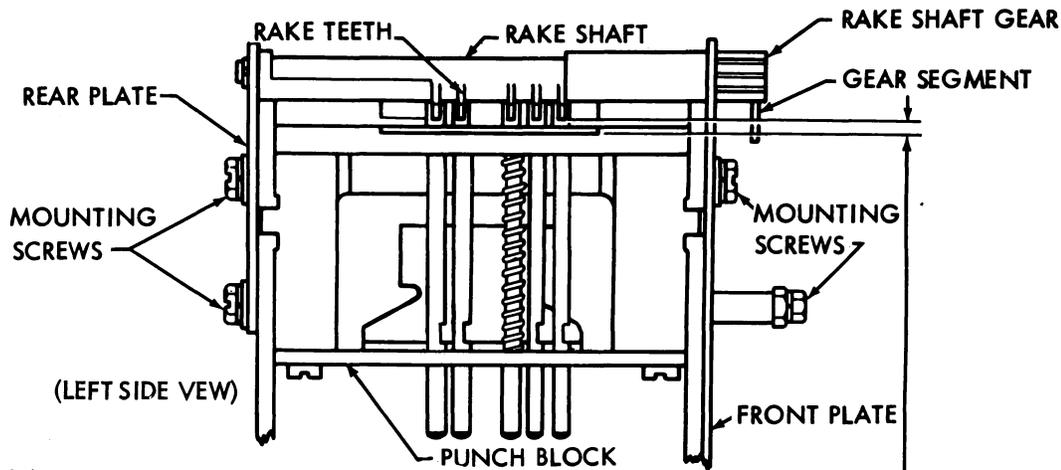
REQUIREMENT

- (1) MIN. SOME---MAX. 0.015 INCH BETWEEN START LEVER AND ARMATURE AT POINT OF MIN. CLEARANCE
- (2) START LEVER ENGAGING APPROXIMATE CENTER OF TRIP LEVER'S OPERATING SURFACE.

TO ADJUST

WITH CLAMP SCREW LOOSENED, POSITION TRIP LEVER ON SHAFT.

3.22 Manual Backspace Mechanism for Chadless Tape

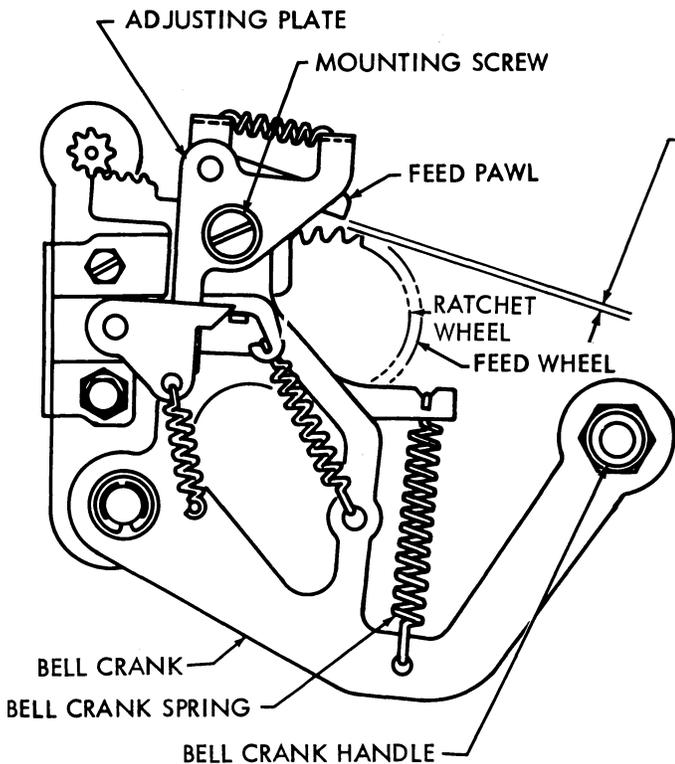


(A) RAKE

(1) REQUIREMENT WITH ROTATIONAL PLAY TAKEN UP TO LEFT, BOTTOM SURFACE OF RAKE TEETH SHOULD BE WITHIN 0.040 INCH OF THE SAME VERTICAL PLANE AS LEFT SIDE OF PUNCH BLOCK.
TO ADJUST REMOVE TWO MOUNTING SCREWS FROM REAR PLATE. POSITION RAKE SHAFT GEAR IN RELATION TO GEAR SEGMENT. REPLACE MOUNTING SCREWS.

(2) REQUIREMENT WITH BELL CRANK SPRING UNHOOKED AND RAKE IN OPERATED POSITION, CLEARANCE BETWEEN RAKE TEETH AND TAPE SLOT:
MIN. 0.007 INCH-----MAX. 0.011 INCH
(CHECK AT NO. 1 AND 5 PUNCH PINS.)

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

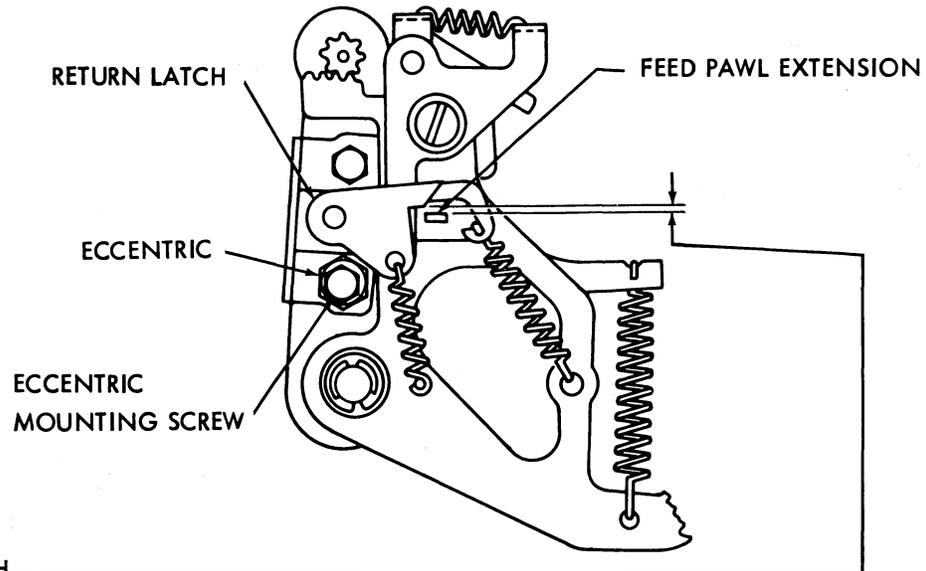


(B) FEED PAWL CLEARANCE REQUIREMENT (PRELIMINARY)
(1) WITH BACKSPACE BELL CRANK ROTATED CLOCKWISE, BACKSPACE FEED PAWL SHOULD MISS FIRST TOOTH BY A CLEARANCE OF:
MIN. 0.006 INCH
MAX. 0.040 INCH
REQUIREMENT (FINAL)
(2) BACKSPACE FEED PAWL SHOULD MISS FIRST TOOTH AND ENGAGE SECOND TOOTH BY AT LEAST 1/2 OF RIGHT ENGAGING SURFACE OF FEED PAWL (AS GAUGED BY EYE) WHEN THE FEED PAWL FIRST CONTACTS RATCHET TOOTH.

TO ADJUST POSITION ADJUSTING PLATE WITH MOUNTING SCREW FRICTION TIGHT.

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

3.23 Manual Backspace Mechanism for Chadless Tape - Continued



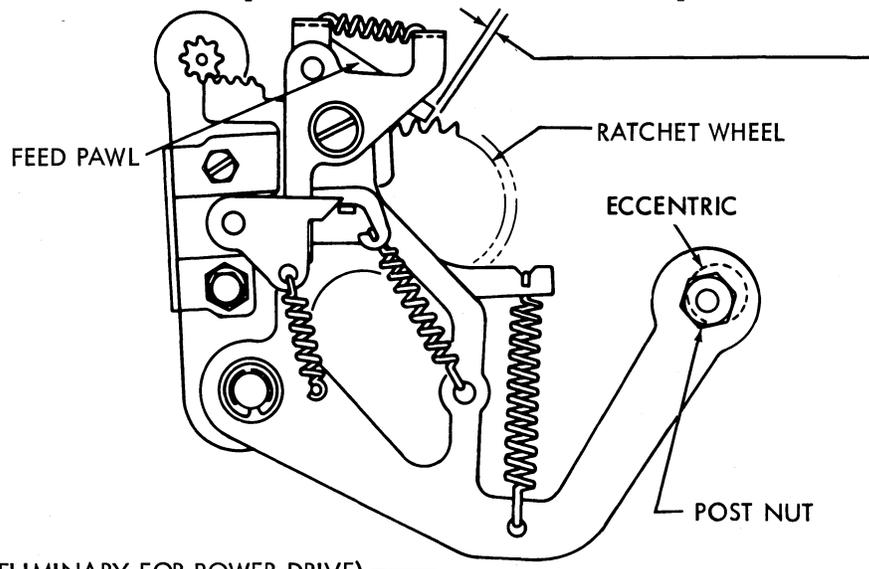
(A) RETURN LATCH
REQUIREMENT

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

TO ADJUST

ADJUST ECCENTRIC WITH MOUNTING SCREW FRICTION TIGHT.

3.24 Manual and Power Drive Backspace Mechanism for Chadless Tape



(B) FEED PAWL (PRELIMINARY FOR POWER DRIVE)
REQUIREMENT

BACKSPACE MECHANISM IN OPERATED POSITION. FEED WHEEL RATCHET IN DETENTED POSITION.
CLEARANCE BETWEEN FEED WHEEL RATCHET TOOTH AND FEED PAWL.
MIN. SOME
MAX. 0.003 INCH

TO ADJUST

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

3.25 Power Drive Backspace Mechanism for Chadless Tape

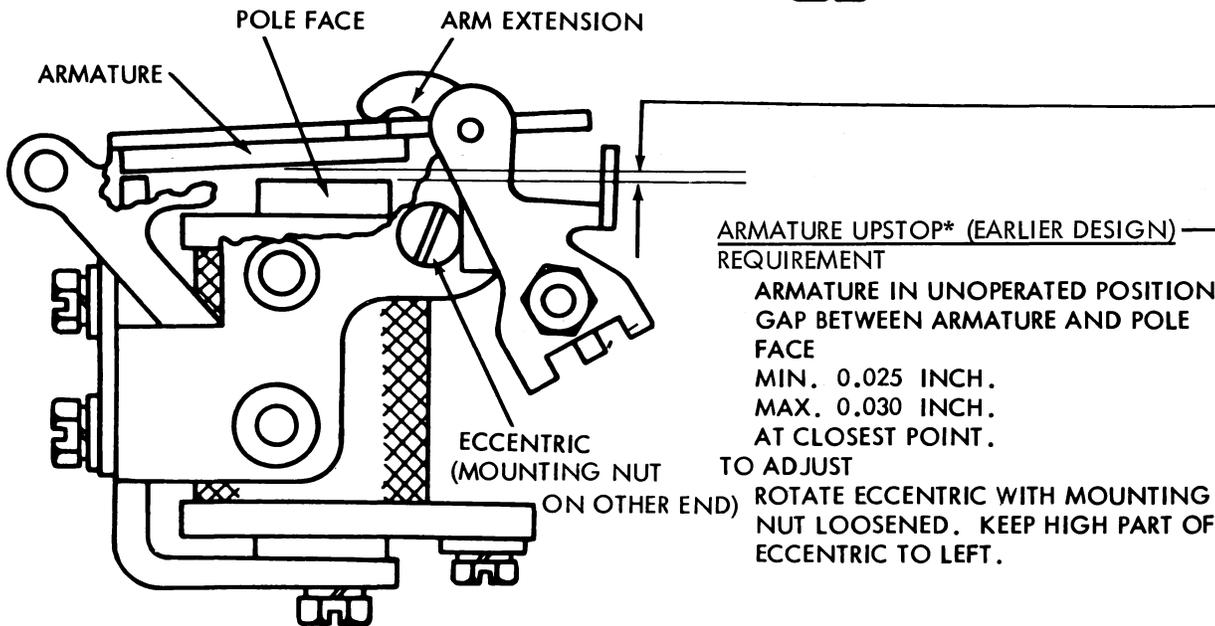
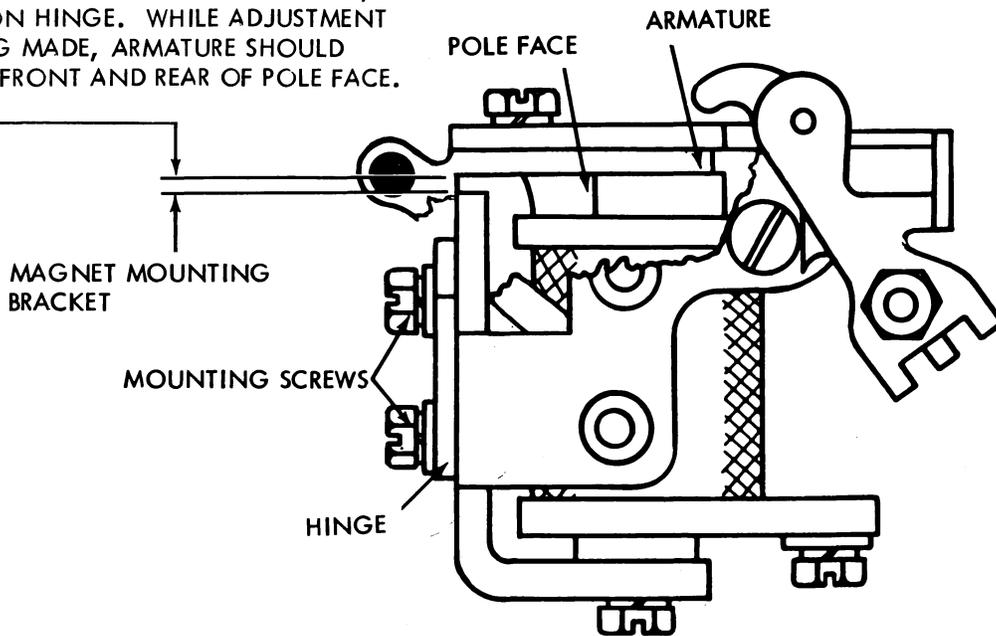
ARMATURE HINGE (EARLIER DESIGN)

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.



ARMATURE UPSTOP* (EARLIER DESIGN)

REQUIREMENT

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

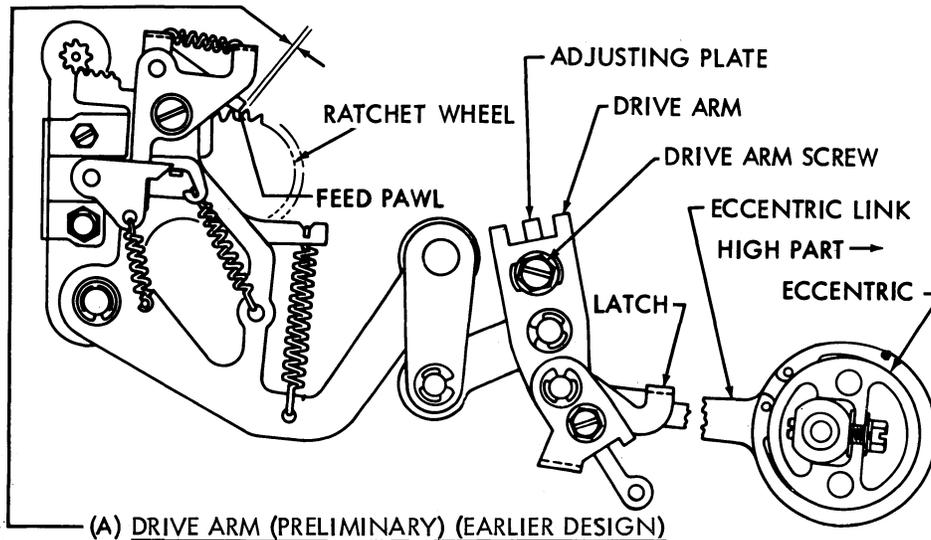
TO ADJUST

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

*NOTE:

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.

3.26 Power Drive Backspace Mechanism for Chadless Tape - Continued



(A) DRIVE ARM (PRELIMINARY) (EARLIER DESIGN)

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

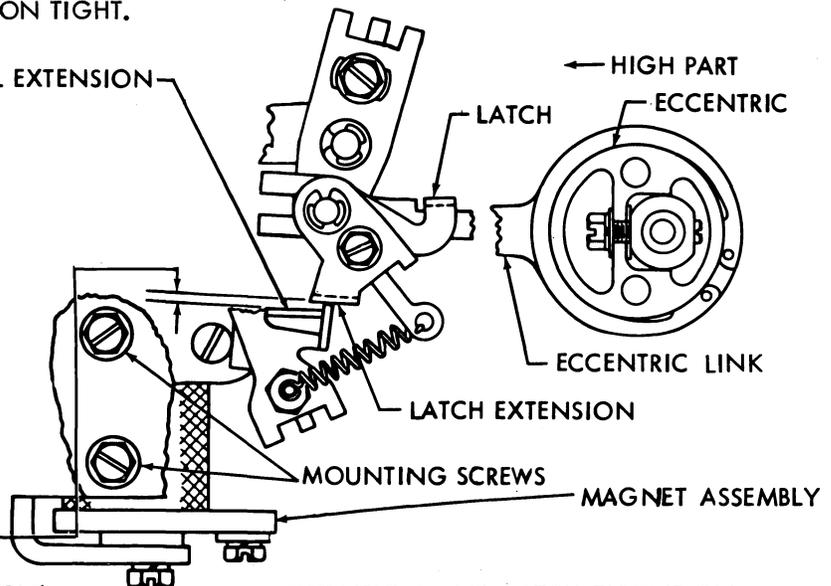
CHECK AT EACH 90° POSITION OF FEED WHEEL.

TO ADJUST

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

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

ARMATURE BAIL EXTENSION



(B) LATCH EXTENSION (EARLIER DESIGN)

REQUIREMENT

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

EXTENSION AND LATCH EXTENSION:

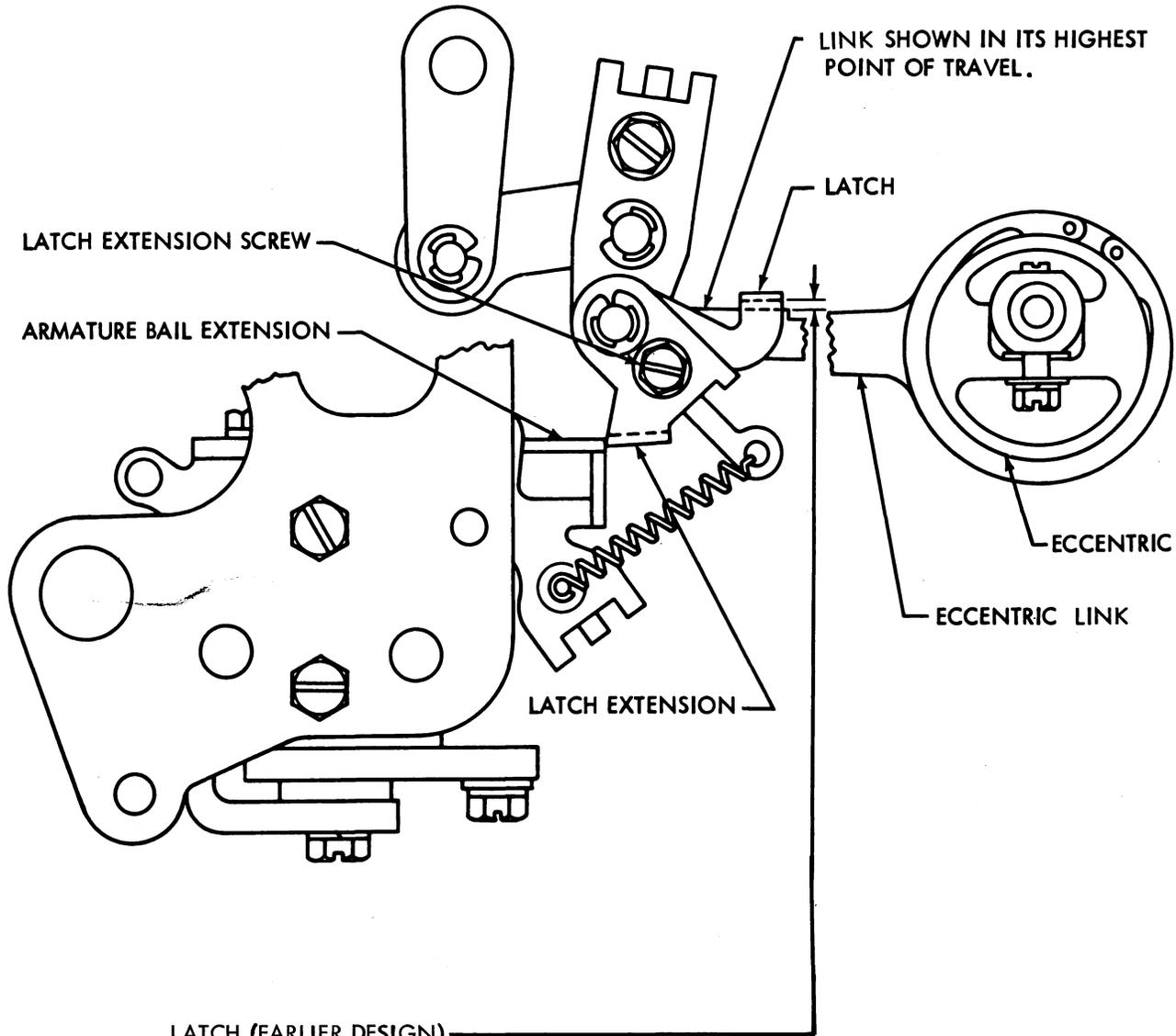
MIN. 0.005 INCH

MAX. 0.020 INCH

TO ADJUST

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

3.27 Power Drive Backspace Mechanism for Chadless Tape - Continued



LATCH (EARLIER DESIGN)

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:

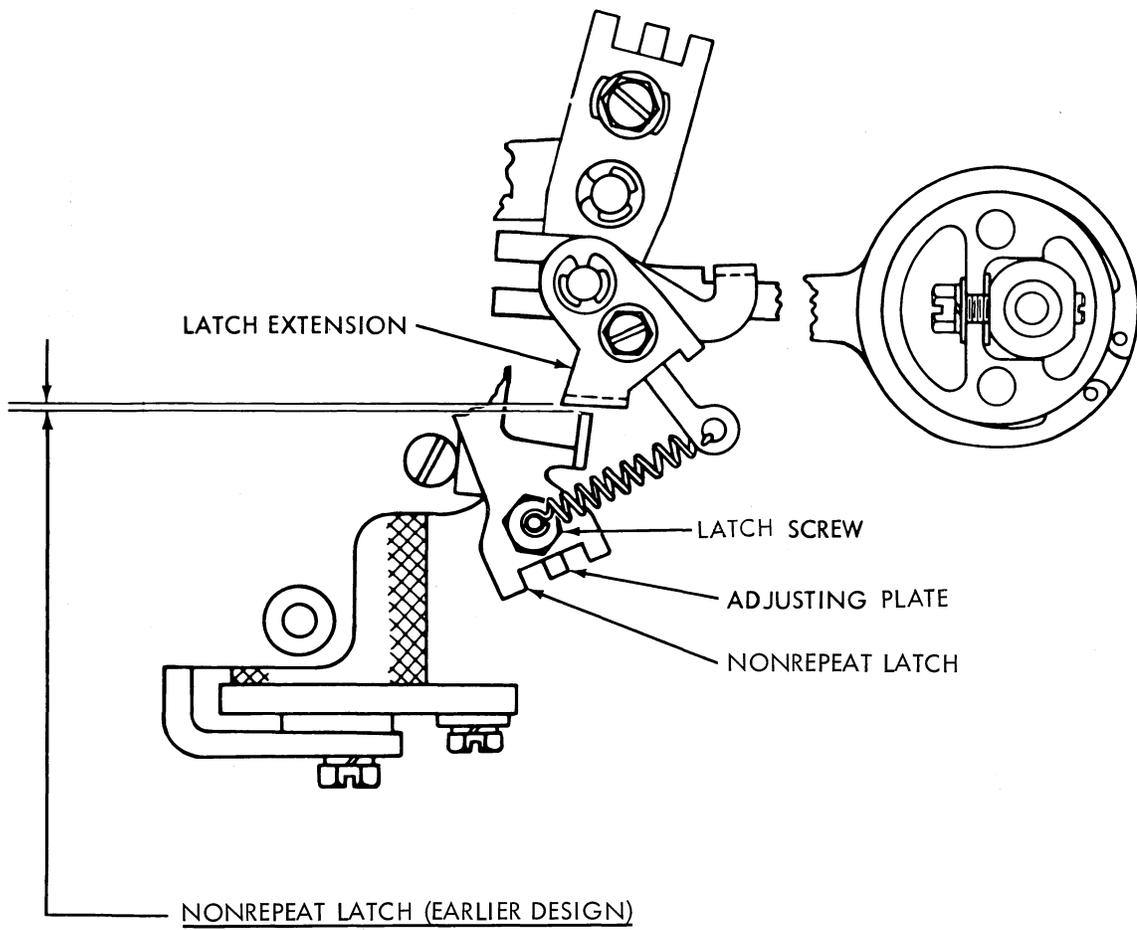
MIN. 0.005 INCH

MAX. 0.025 INCH

TO ADJUST

POSITION LATCH WITH LATCH EXTENSION SCREW LOOSENED.

3.28 Power Drive Backspace Mechanism for Chadless Tape - Continued



NONREPEAT LATCH (EARLIER DESIGN)
REQUIREMENT

BACKSPACE MECHANISM IN UNOPERATED POSITION. CLEAR-
ANCE BETWEEN TOP SURFACE OF NONREPEAT 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.

3.29 Power Drive Backspace Mechanism for Chadless Tape - Continued

(B) ARMATURE SPRING (LATER DESIGN)

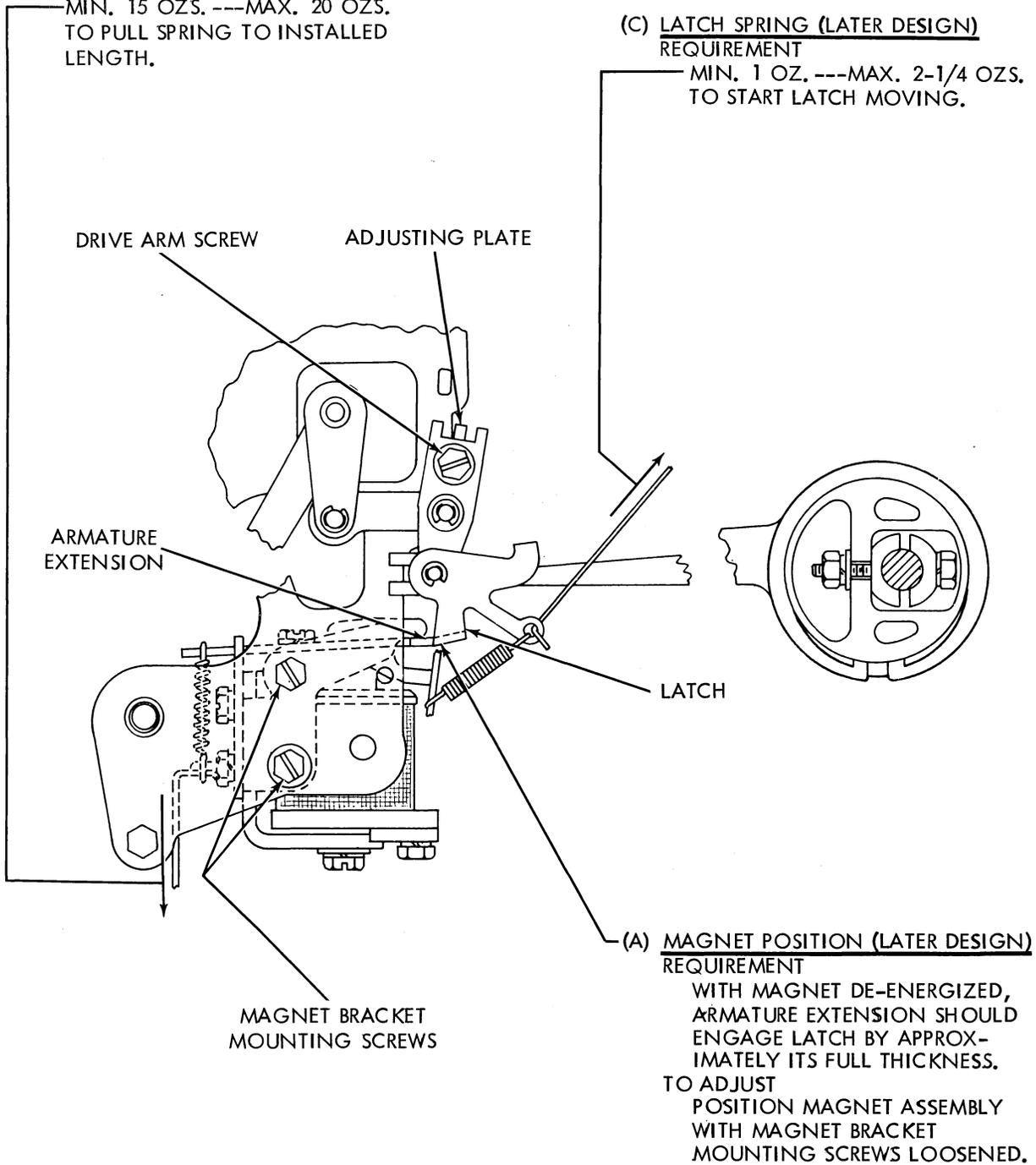
REQUIREMENT

MIN. 15 OZS. ---MAX. 20 OZS.
TO PULL SPRING TO INSTALLED
LENGTH.

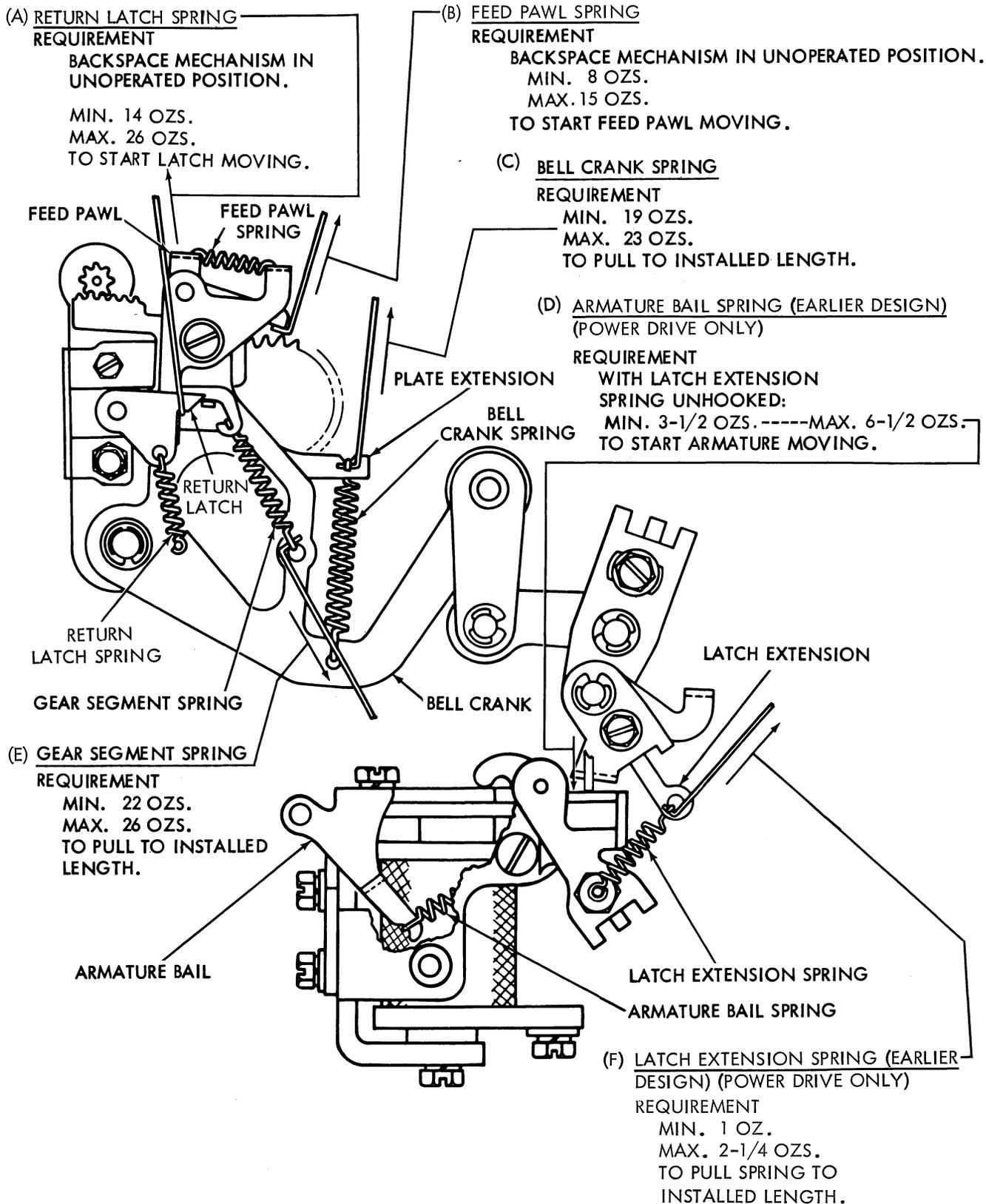
(C) LATCH SPRING (LATER DESIGN)

REQUIREMENT

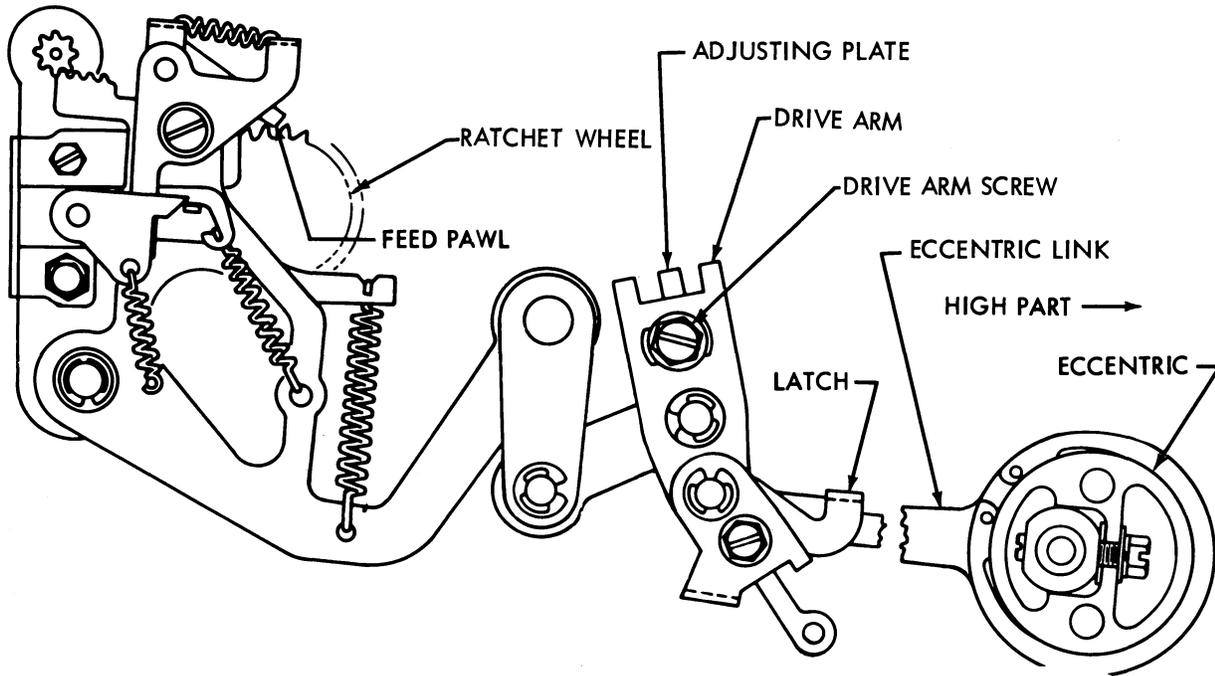
MIN. 1 OZ. ---MAX. 2-1/4 OZS.
TO START LATCH MOVING.



3.30 Manual and Power Drive Backspace Mechanism for Chadless Tape - Continued



3.31 Manual and Power Drive Backspace Mechanism for Chadless Tape - Continued



FINAL POWER OR MANUAL

(1) REQUIREMENT

WITH TAPE IN UNIT AND 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 FEED WHEEL WITH NO PERCEPTIBLE CLEARANCE."

(2) REQUIREMENT

WITH UNIT UNDER POWER AND LETTERS (ALL MARKING) COMBINATION SELECTED, PERFORATE APPROXIMATELY TWO (2) INCHES OF TAPE. BACKSPACE TWELVE (12) CHARACTERS. WITH UNIT STILL UNDER POWER AND LETTERS COMBINATION SELECTED, REPERFORATE TWO (2) INCHES OF TAPE. CODE HOLE CLIPPING SHOULD NOT EXCEED 0.005 INCH AS GAUGED BY EYE.

TO ADJUST (MANUAL)

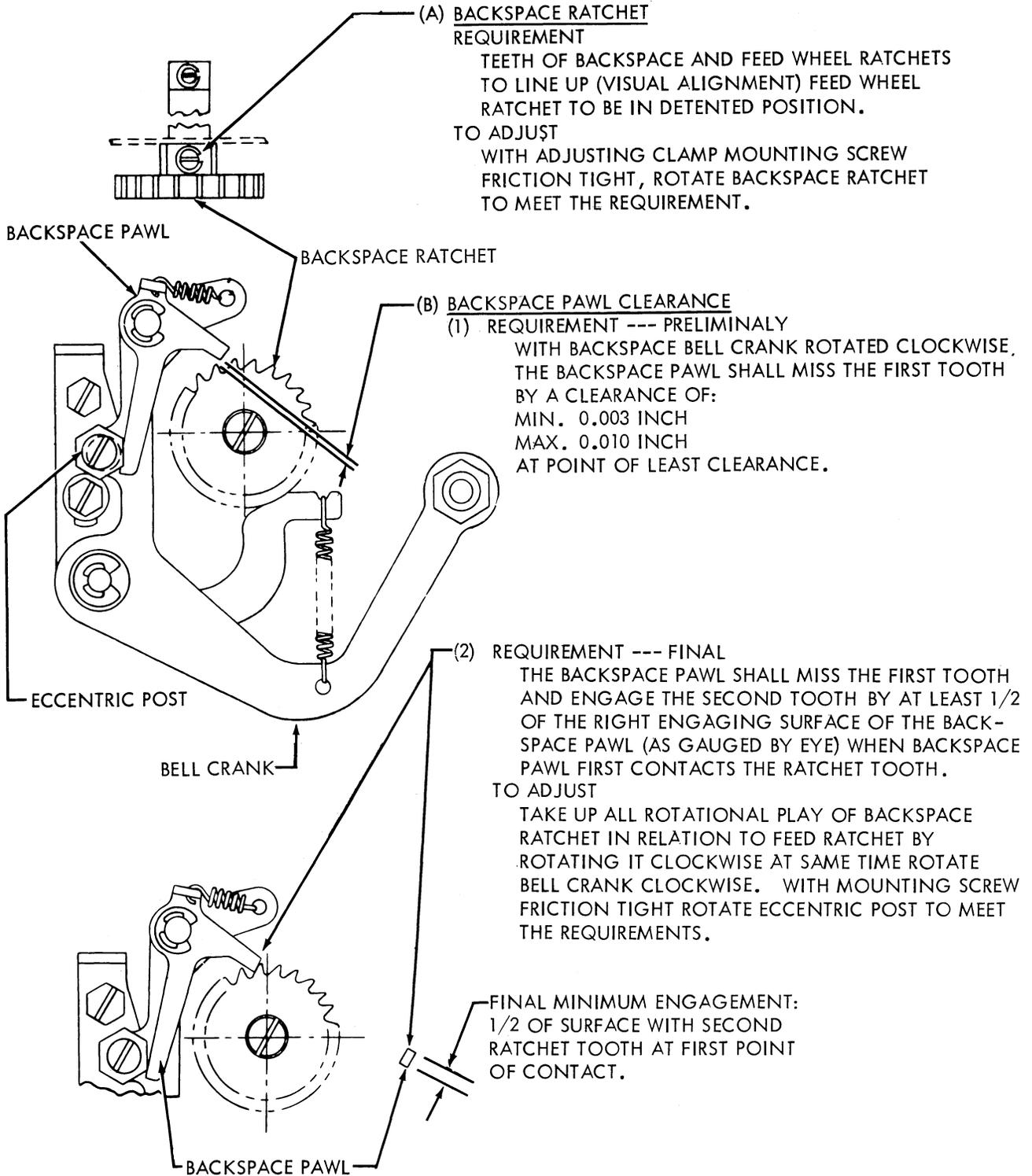
REFINE FEED PAWL ADJUSTMENT (PAR. 3. 24).

TO ADJUST (POWER DRIVE)

POSITION ADJUSTING PLATE WITH DRIVE ARM SCREWS FRICTION TIGHT.

3.32 Power Drive Backspace Mechanism for Fully Perforated Tape

POWER DRIVE BACKSPACE MECHANISM FOR FULLY PERFORATED TAPE.



3.33 Power Drive Backspace Mechanism for Fully Perforated Tape - Continued

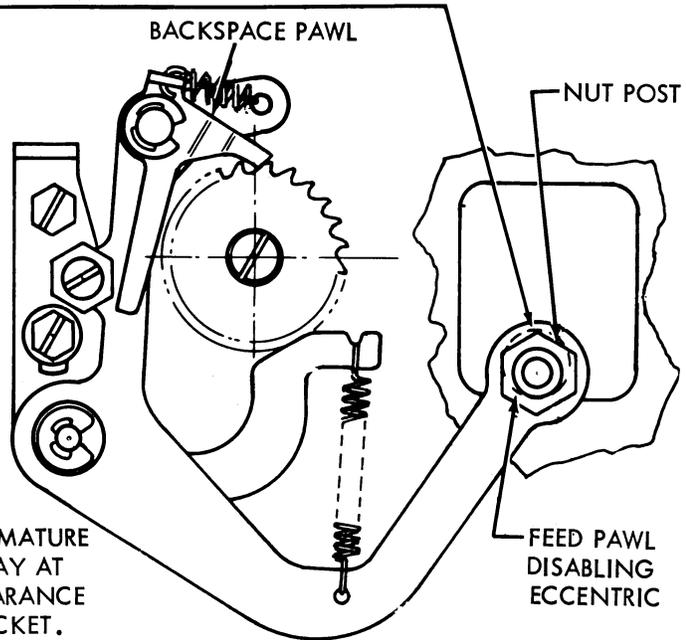
(A) FEED PAWL DISABLING

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 (EARLIER DESIGN)

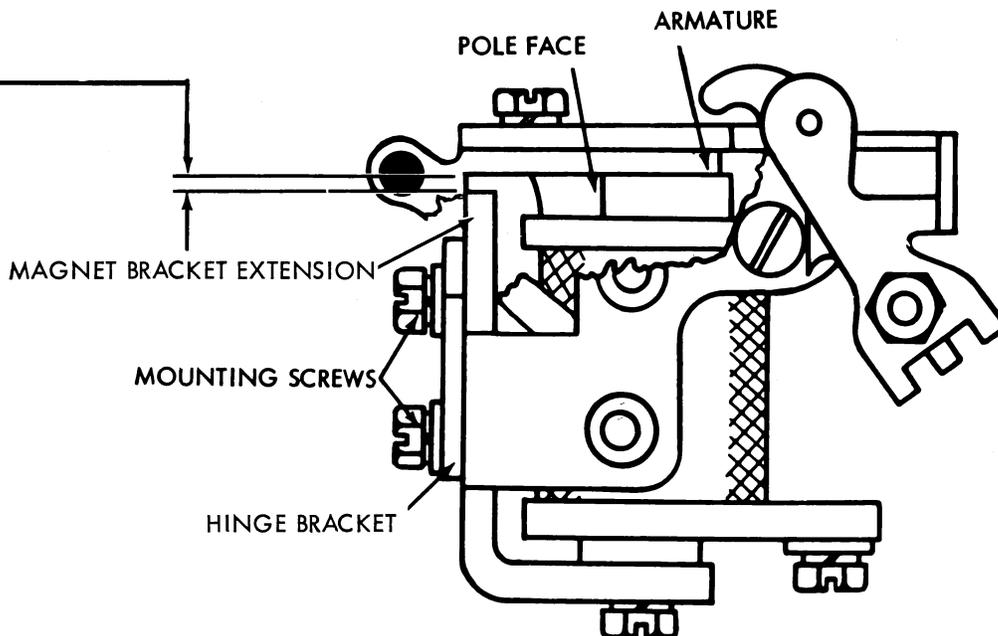
REQUIREMENT

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.

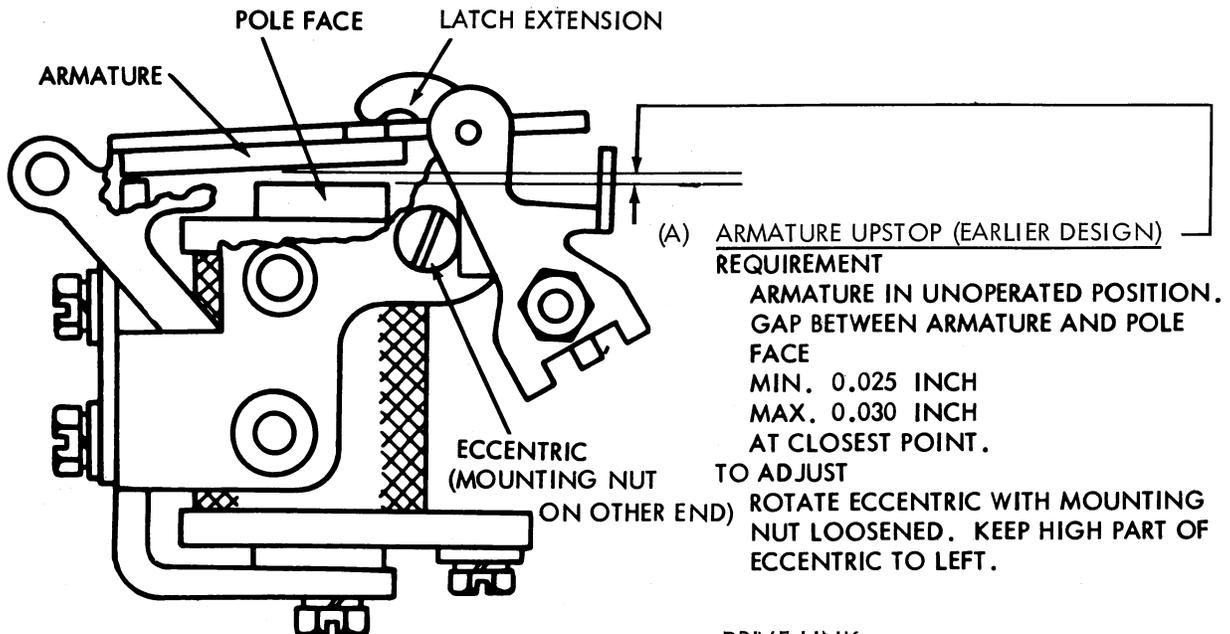
MIN. SOME
MAX. 0.004 INCH

TO ADJUST

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

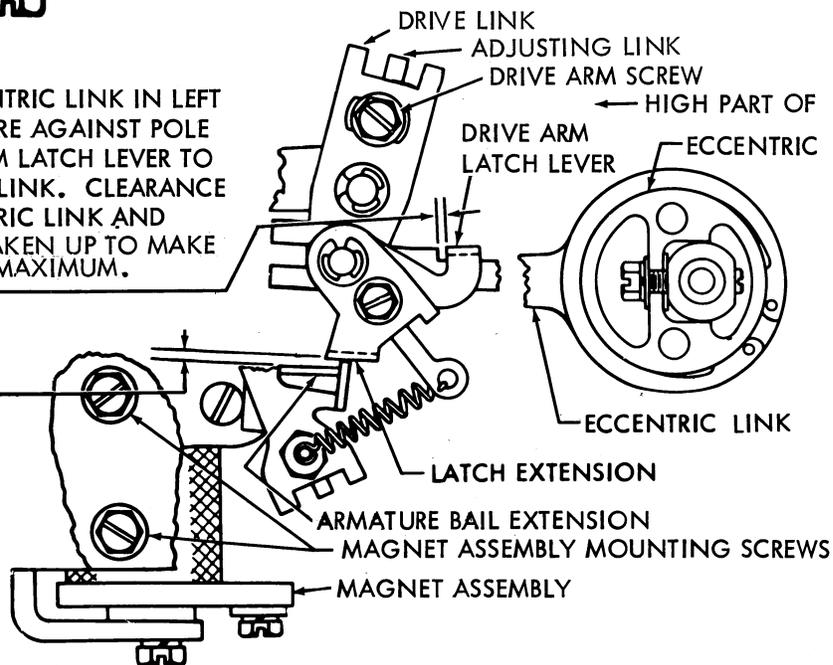


3.34 Power Drive Backspace Mechanism for Fully Perforated Tape - Continued



(B) DRIVE ARM (EARLIER DESIGN)
REQUIREMENT

WITH HIGH PART OF ECCENTRIC LINK IN LEFT HAND POSITION, ARMATURE AGAINST POLE FACE TO ALLOW DRIVE ARM LATCH LEVER TO REST AGAINST ECCENTRIC LINK. CLEARANCE BETWEEN STEP ON ECCENTRIC LINK AND LATCH LEVER WITH PLAY TAKEN UP TO MAKE MIN. 0.040 INCH GAP A MAXIMUM.
 MAX. 0.045 INCH



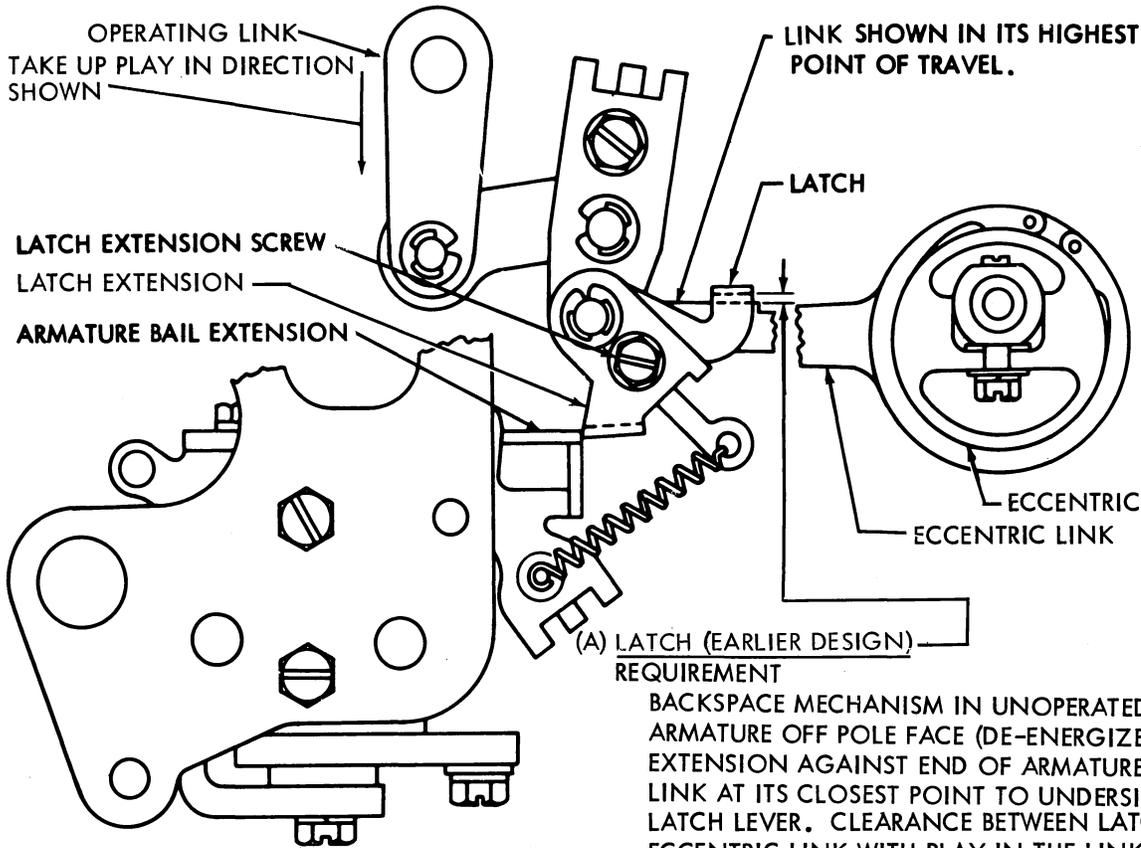
TO ADJUST
 WITH DRIVE ARM SCREW FRICTION TIGHT, POSITION ADJUSTING PLATE

(C) LATCH EXTENSION (EARLIER DESIGN)
REQUIREMENT

WITH BACKSPACE MECHANISM IN UNOPERATED POSITION, ECCENTRIC HIGH PART AT THE LEFT, ARMATURE AGAINST THE POLE FACE, LATCH RESTING ON THE ECCENTRIC LINK 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.

3.35 Power Drive Backspace Mechanism for Fully Perforated Tape - Continued



(A) LATCH (EARLIER DESIGN)
 REQUIREMENT

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

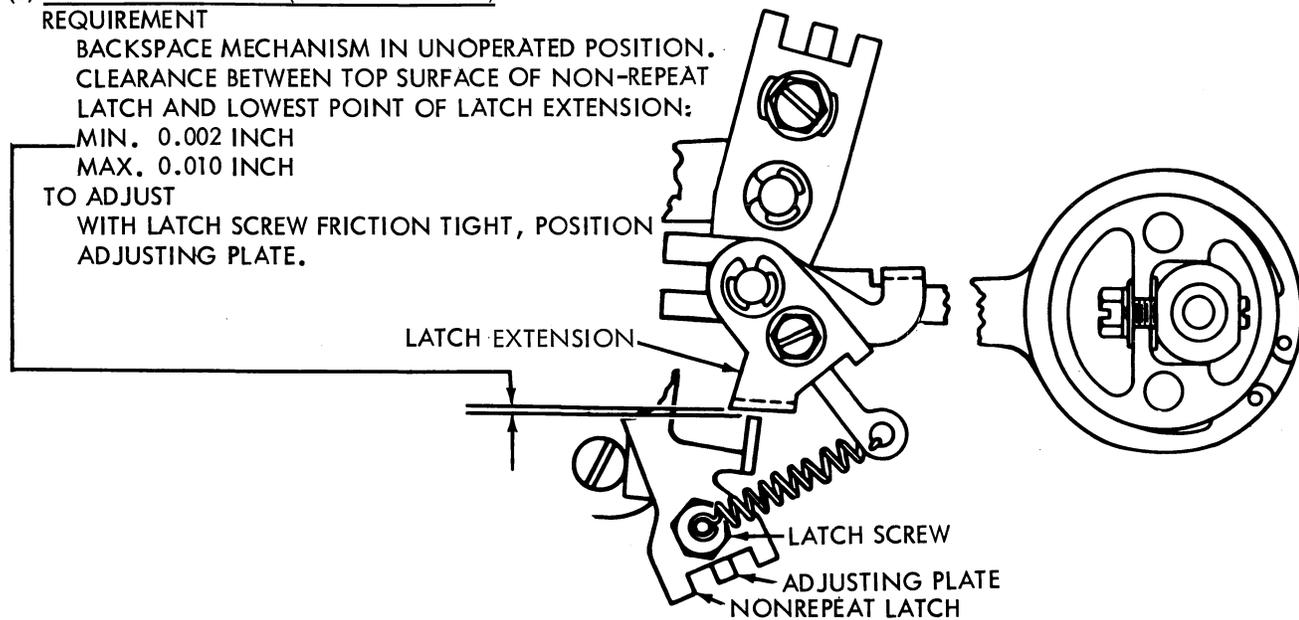
WITH LATCH EXTENSION SCREW FRICTION TIGHT, POSITION LATCH.

(B) NONREPEAT LATCH (EARLIER DESIGN)
 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

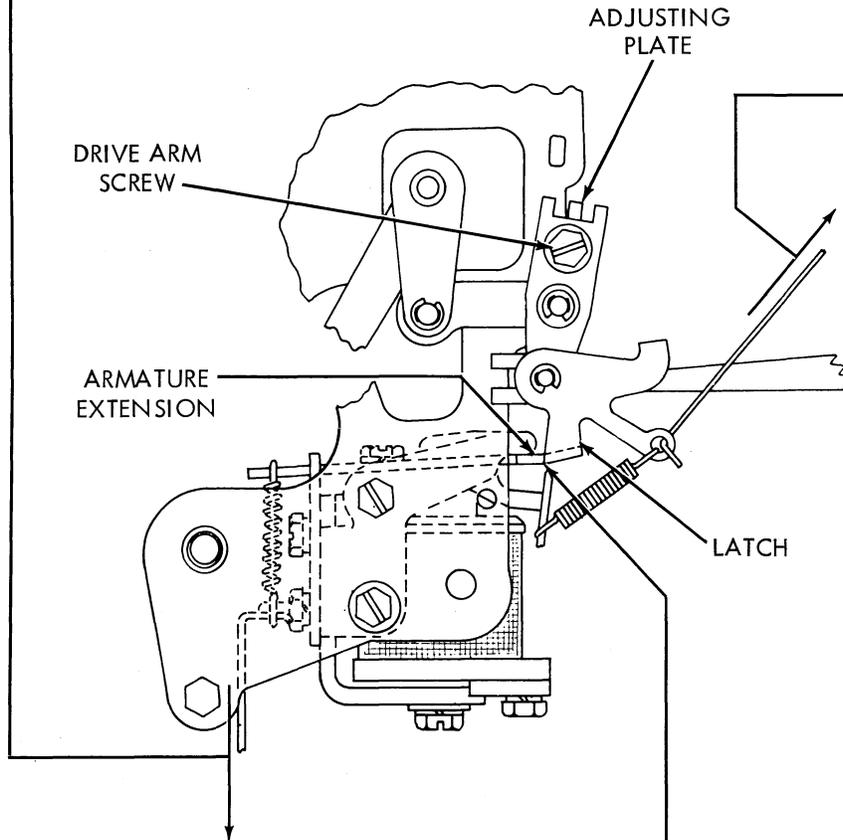
WITH LATCH SCREW FRICTION TIGHT, POSITION ADJUSTING PLATE.



3.36 Power Drive Backspace Mechanism for Fully Perforated Tape - Continued

(B) ARMATURE SPRING (LATER DESIGN)
REQUIREMENT

—MIN. 15 OZS. ---MAX. 20 OZS.
TO PULL SPRING TO INSTALLED LENGTH.



(C) LATCH SPRING (LATER DESIGN)
REQUIREMENT

—MIN. 1 OZ. ---MAX. 2-1/4 OZS.
TO START LATCH MOVING.

(D) FINAL POWER (LATER DESIGN)
REQUIREMENT

WITH TAPE IN UNIT AND FEED WHEEL
SHAFT OIL HOLE IN UPPERMOST PO-
SITION, OPERATE BACKSPACE
MECHANISM ONCE. RATCHET WHEEL
SHOULD BE BACKED ONE SPACE TO
FULLY DETENTED POSITION.

NOTE

A FULLY DETENTED POSITION IS DE-
FINED AS: WITH DETENT ROLLER IN
CONTACT WITH RATCHET WHEEL,
PUNCH UNIT FEED PAWL SHOULD
ENGAGE FIRST TOOTH BELOW HOR-
IZONTAL CENTER LINE OF RATCHET
FEED WHEEL WITH NO PERCEPTIBLE
CLEARANCE.

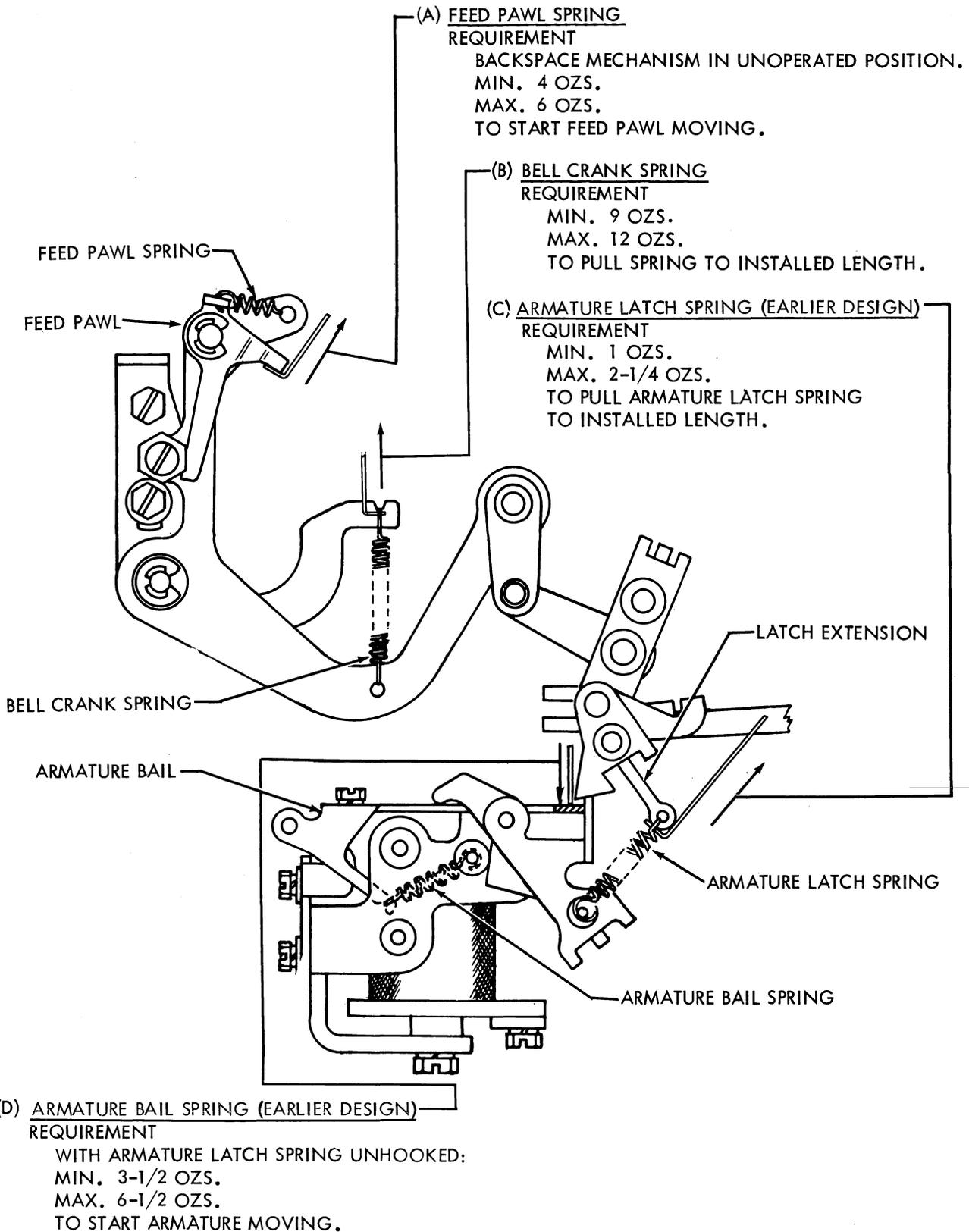
TO ADJUST
POSITION ADJUSTING PLATE WITH
DRIVE ARM SCREW FRICTION TIGHT.

(A) MAGNET POSITION (LATER DESIGN)
REQUIREMENT

WITH MAGNET DE-ENERGIZED,
ARMATURE EXTENSION SHOULD
ENGAGE LATCH BY APPROXIMATELY
ITS FULL THICKNESS.

TO ADJUST
POSITION MAGNET ASSEMBLY
WITH MAGNET BRACKET MOUNT-
ING SCREWS LOOSENED.

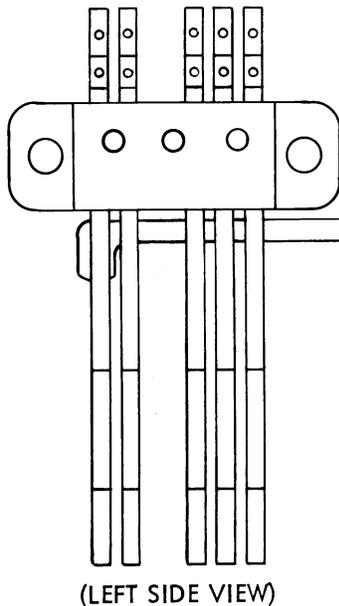
3.37 Power Drive Backspace Mechanism for Fully Perforated Tape - Continued



3.38 Code Reading Contact Mechanism (Make-Type and Transfer-Type)

NOTE 1

UNLESS SPECIFICALLY STATED OTHERWISE, FOLLOWING CODE READING CONTACT ADJUSTMENTS APPLY TO BOTH TRANSFER (BREAK BEFORE MAKE) TYPE AND MAKE-TYPE CONTACTS. TRANSFER-TYPE CONTACTS ARE USED IN ILLUSTRATIONS.



NOTE 2
IT IS RECOMMENDED THAT THE FOLLOWING ADJUSTMENTS BE MADE WITH CODE READING CONTACT ASSEMBLY REMOVED FROM UNIT.

CONTACT SPRING BENDER

WHEN USING THE CONTACT SPRING BENDER, START WITH THE CONTACT PILE-UP FARTHEST FROM THE HANDLE OF THE TOOL AND WORK TOWARD THE HANDLE SO AS NOT TO DISTURB ADJUSTMENTS ALREADY MADE.

(A)

MARKING CONTACT BACKSTOPS REQUIREMENT

FIVE OR EIGHT MARKING CONTACT SHALL BE PARALLEL TO MOUNTING PLATE AND IN LINE WITH EACH OTHER AS GAUGED BY EYE.

TO ADJUST BEND BACKSTOPS TO MEET REQUIREMENT.

MARKING CONTACT BACKSTOP

MOUNTING PLATE

(B) MARKING CONTACT SPRINGS - PRELIMINARY REQUIREMENT

WITH SWINGER CONTACT HELD AWAY:
MIN. 2 OZS.
MAX. 6 OZS.
TO MOVE EACH SPRING AWAY FROM BACKSTOP.

TO ADJUST BEND MARKING CONTACT SPRINGS.

MARKING CONTACT SPRING

SWINGER CONTACT SPRING

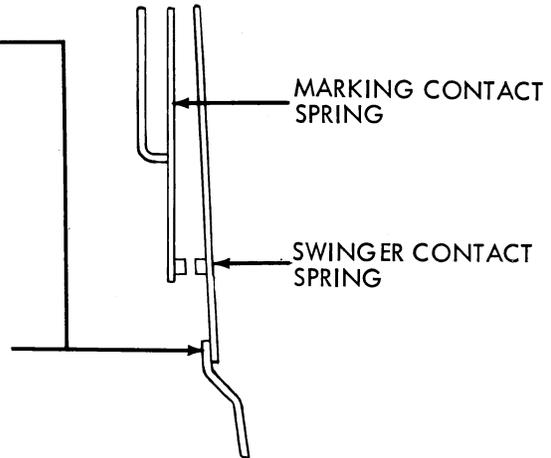
NOTE

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

3.39 Code Reading Contact Mechanism (Make-Type and Transfer-Type) - Continued

(A) SWINGER CONTACT SPRINGS - PRELIMINARY REQUIREMENT

MIN. 30 GRAMS
 MAX. 40 GRAMS
 TO OPEN MARKING CONTACTS.
 TO ADJUST
 BEND SWINGER CONTACT SPRINGS.



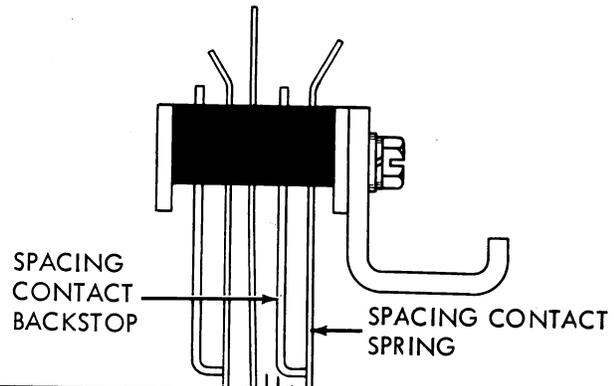
NOTE:

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



(B) SPACING CONTACT BACKSTOPS - PRELIMINARY (APPLIES TO TRANSFER-TYPE CONTACTS ONLY)

REQUIREMENT
 GAP BETWEEN SPACING CONTACTS
 MIN. 0.018 INCH
 MAX. 0.025 INCH
 TO ADJUST
 BEND SPACING CONTACT BACKSTOPS.



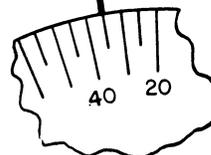
(C) SPACING CONTACT SPRINGS - PRELIMINARY (APPLIES TO TRANSFER-TYPE CONTACTS ONLY)

REQUIREMENT
 MIN. 35 GRAMS
 MAX. 50 GRAMS
 TO MOVE EACH CONTACT SPRING AWAY FROM BACKSTOP.
 TO ADJUST
 BEND SPACING CONTACT SPRINGS.



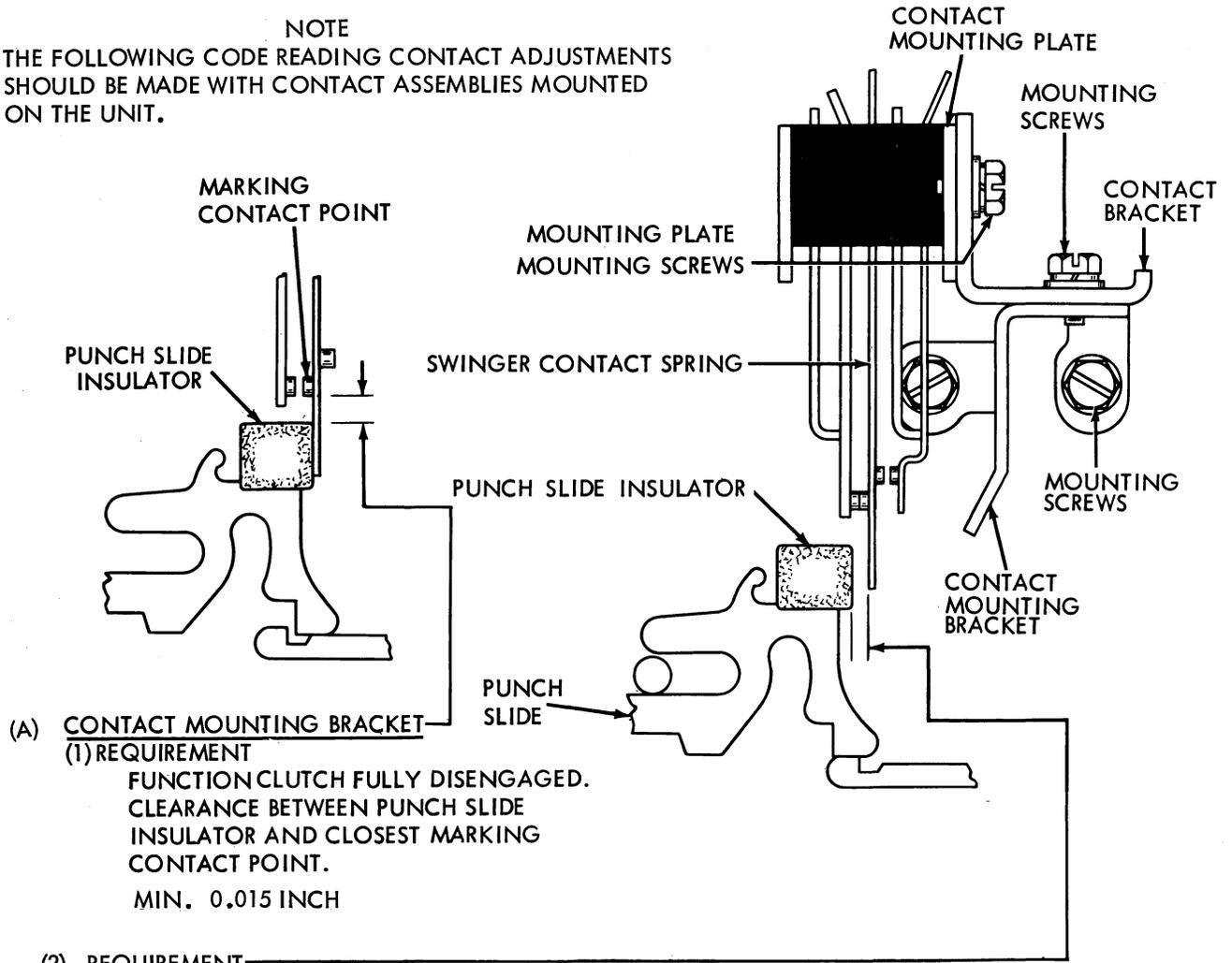
NOTE

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



3.40 Code Reading Contact Mechanism (Make-Type and Transfer-Type) - Continued

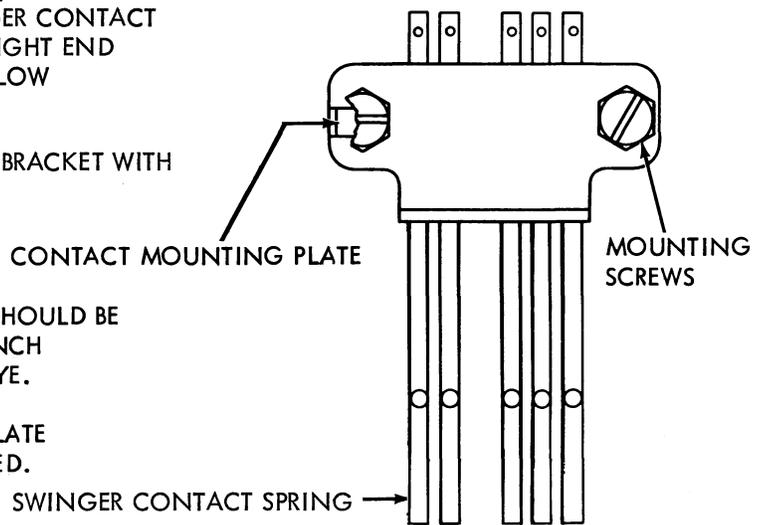
NOTE
THE FOLLOWING CODE READING CONTACT ADJUSTMENTS SHOULD BE MADE WITH CONTACT ASSEMBLIES MOUNTED ON THE UNIT.



- (A) CONTACT MOUNTING BRACKET
(1) REQUIREMENT
FUNCTION CLUTCH FULLY DISENGAGED.
CLEARANCE BETWEEN PUNCH SLIDE
INSULATOR AND CLOSEST MARKING
CONTACT POINT.
MIN. 0.015 INCH

- (2) REQUIREMENT
LETTERS COMBINATION SELECTED, PUNCH PINS IN
THEIR HIGHEST POSITION, SWINGER CONTACT
SPRINGS SHALL BE PARALLEL TO RIGHT END
OF PUNCH SLIDE AND EXTEND BELOW
ITS CENTER AS GAUGED BY EYE.
TO ADJUST
POSITION CONTACT MOUNTING BRACKET WITH
MOUNTING SCREWS LOOSENED.

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

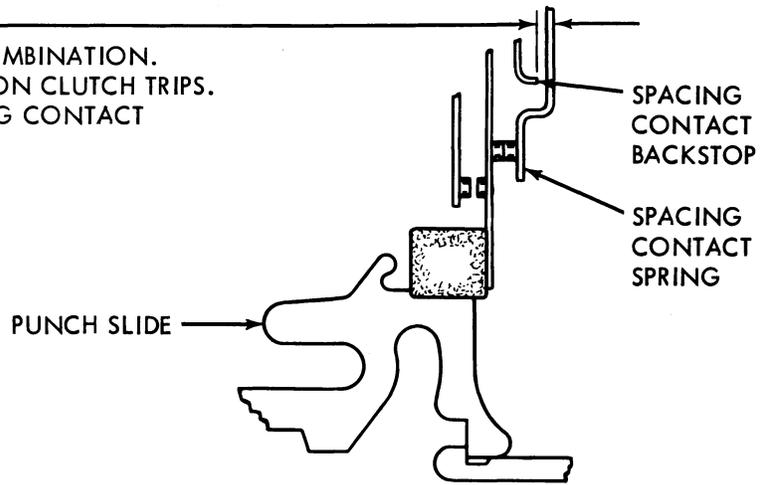


3.41 Code Reading Contact Mechanism (Transfer-Type)

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

(1) REQUIREMENT

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

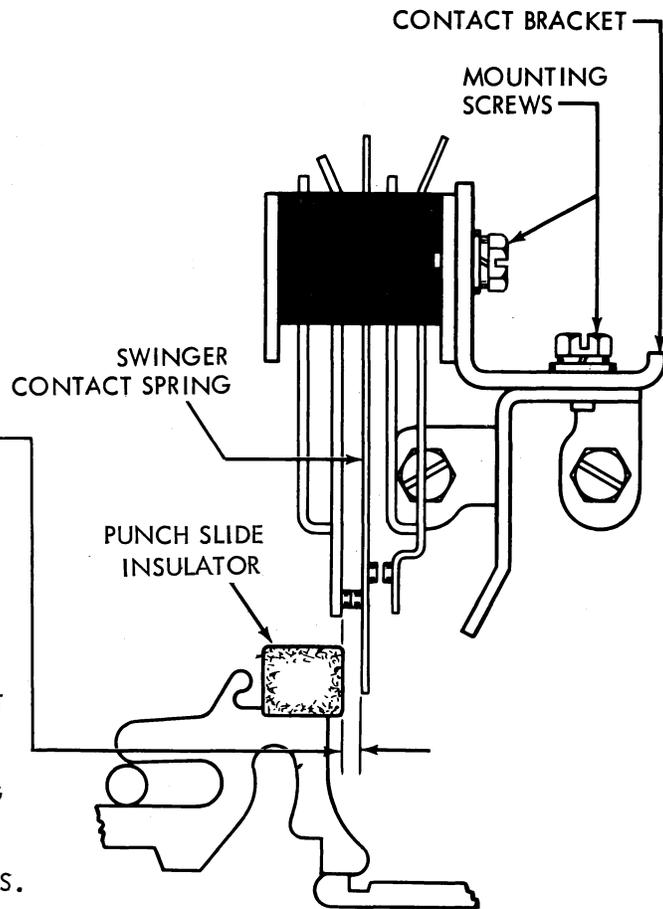


(2) REQUIREMENT

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

TO ADJUST

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

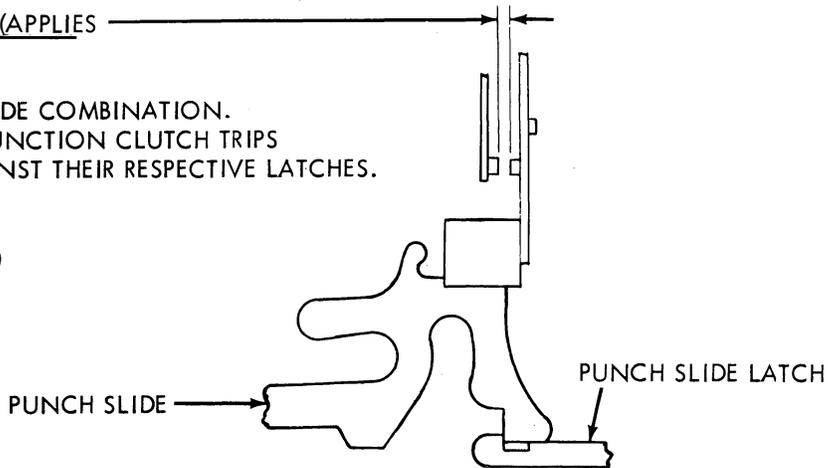


3.42 Code Reading Contact Mechanism (Make-Type)

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

(1) REQUIREMENT

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

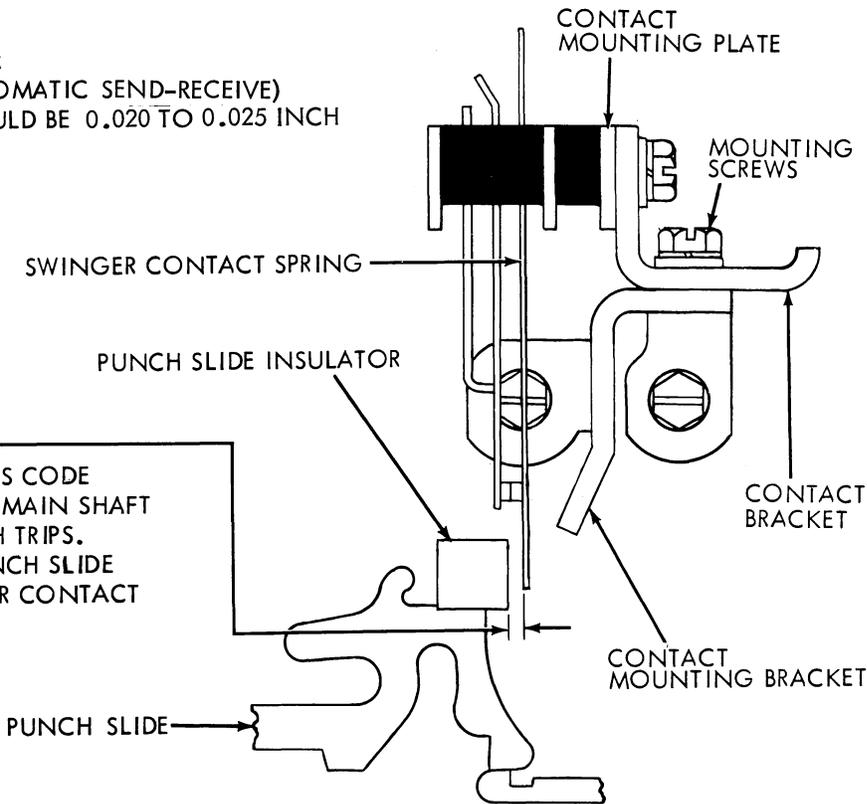


NOTE:

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

(2) REQUIREMENT

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



TO ADJUST

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

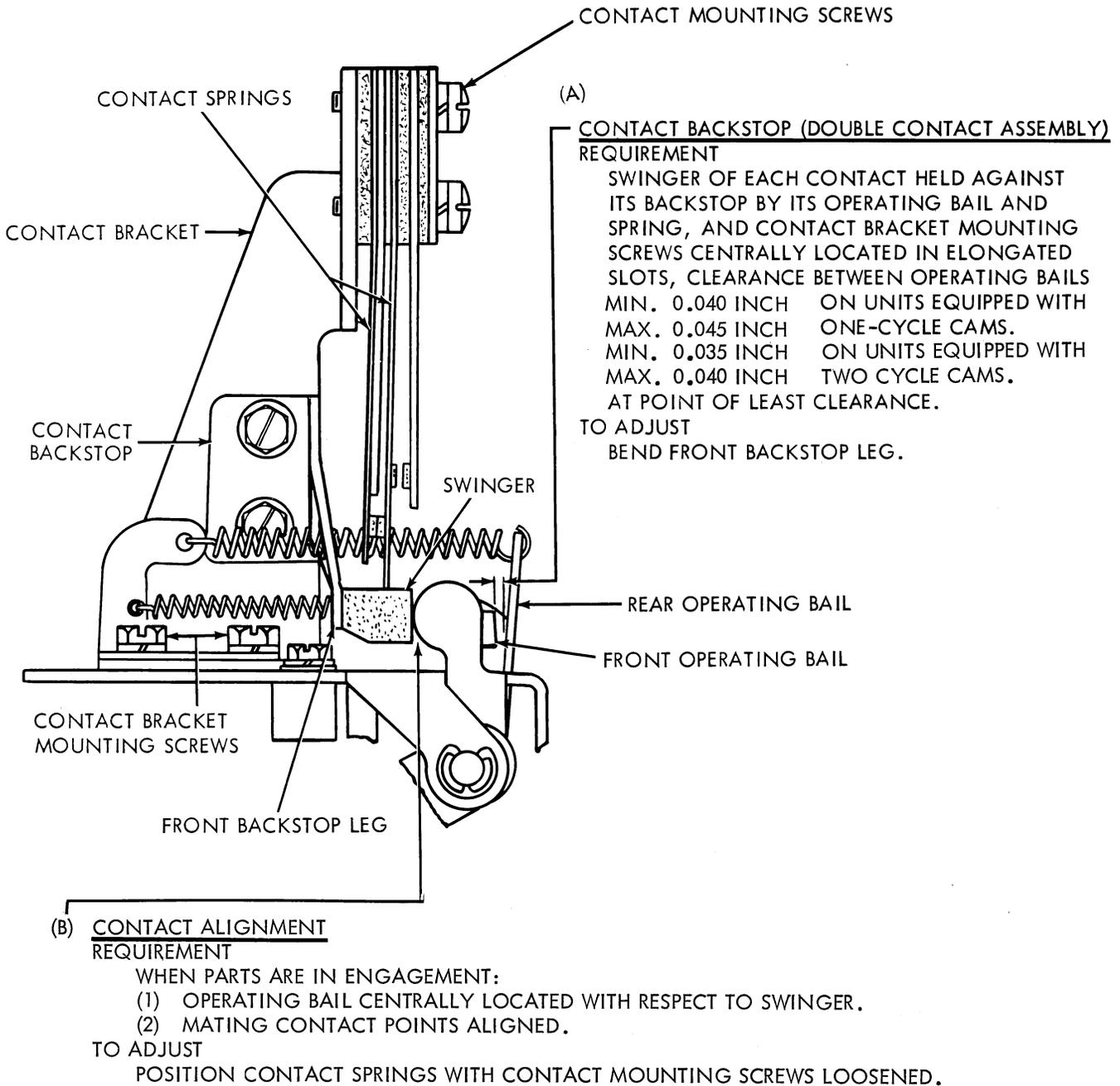
3.43 Auxiliary Timing Contact Mechanism (Single-Contact and Double-Contact Types)

NOTE 1

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

NOTE 2

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



3.44 Auxiliary Timing Contact Mechanism (Single-Contact and Double-Contact Types) - Continued

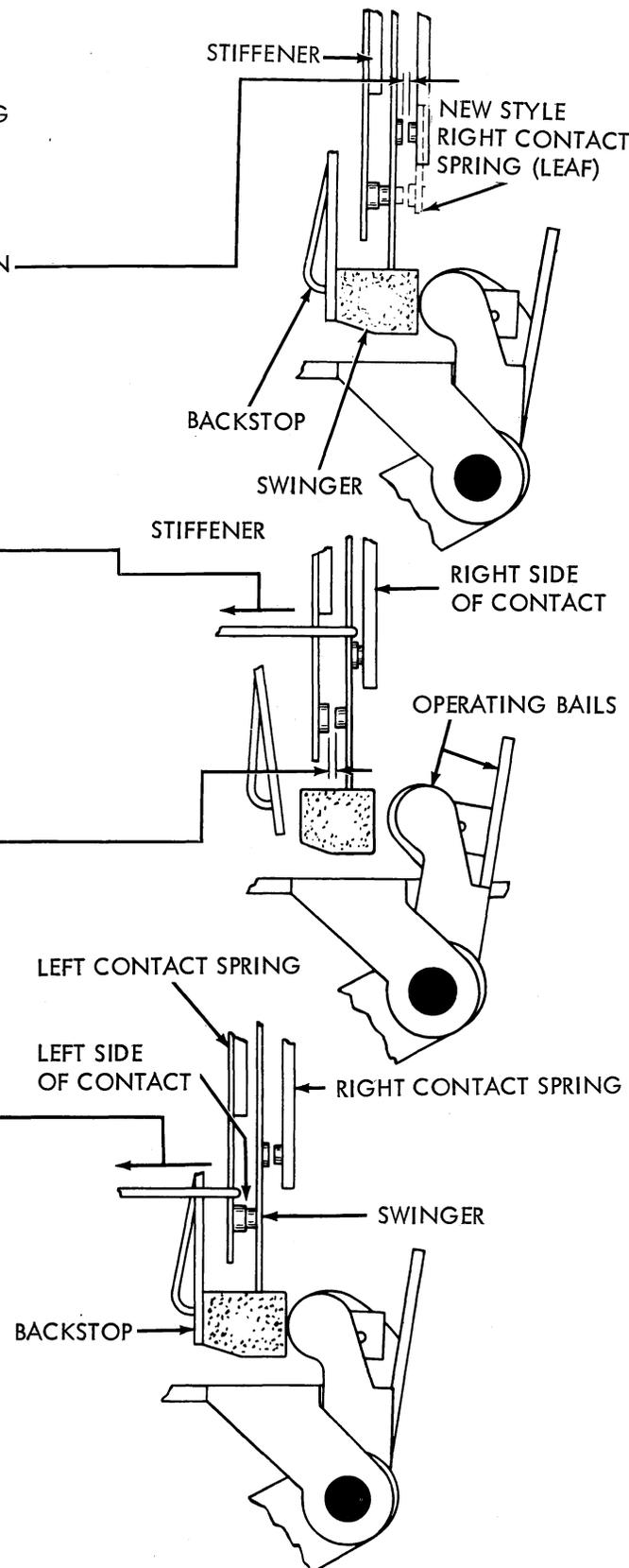
NOTE
 IT IS RECOMMENDED THAT THE FOLLOWING TIMING CONTACT ADJUSTMENTS BE MADE WITH CONTACT ASSEMBLIES REMOVED FROM UNIT.

- (A) RIGHT CONTACT GAP (NORMALLY CLOSED WHEN CONTACT ASSEMBLY IS REMOVED FROM UNIT).
REQUIREMENT
 SWINGER HELD AGAINST ITS BACKSTOP.
 GAP BETWEEN CONTACTS
 MIN. 0.020 INCH
 MAX. 0.025 INCH
 TO ADJUST
 BEND RIGHT CONTACT SPRING.

- (B) SWINGER CONTACT SPRING - PRELIMINARY
REQUIREMENT
 OPERATING BAIL HELD AWAY FROM SWINGER
 MIN. 4-1/2 OZS.
 MAX. 5-1/2 OZS.
 TO OPEN RIGHT SIDE OF CONTACT
 TO ADJUST
 BEND SWINGER CONTACT SPRING. RECHECK RIGHT CONTACT GAP AND READJUST IF NECESSARY.

- (C) LEFT CONTACT GAP (NORMALLY OPEN WHEN CONTACT ASSEMBLY IS REMOVED FROM UNIT)
REQUIREMENT
 OPERATING BAIL HELD AWAY FROM SWINGER, GAP BETWEEN CONTACTS
 MIN. 0.020 INCH
 MAX. 0.025 INCH
 TO ADJUST
 BEND STIFFENER.

- (D) LEFT CONTACT SPRING - PRELIMINARY
REQUIREMENT
 SWINGER HELD AGAINST BACKSTOP BY ITS OPERATING BAIL AND SPRING.
 MIN. 4-1/2 OZS.
 MAX. 5-1/2 OZS.
 TO OPEN LEFT SIDE OF CONTACT.
 TO ADJUST
 BEND LEFT CONTACT SPRING. RECHECK RIGHT CONTACT GAP AND LEFT CONTACT GAP AND READJUST IF NECESSARY.



3.45 Auxiliary Timing Contact Mechanism (Single-Contact and Double-Contact Types) - Continued

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

OPERATING BAIL SPRINGS
REQUIREMENT

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

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

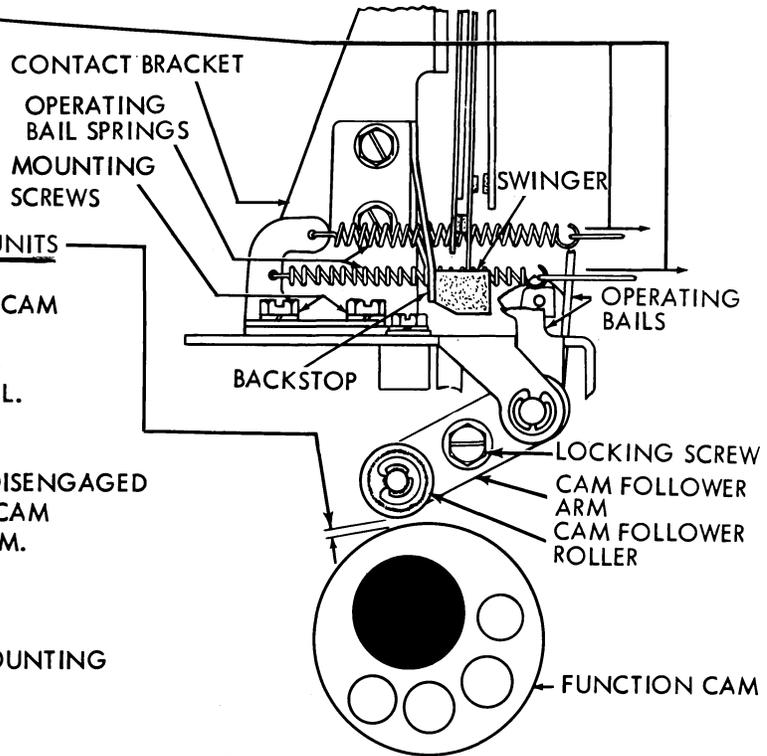
LOOSEN LOCKING SCREW. POSITION CAM FOLLOWER ARM, BY MEANS OF ITS ELONGATED MOUNTING HOLE, TO ITS MINIMUM LENGTH ON OPERATING BAIL. TIGHTEN LOCKING SCREW.

REQUIREMENT

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

TO ADJUST

POSITION CONTACT BRACKET WITH MOUNTING SCREWS LOOSENED.



NOTE:

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

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

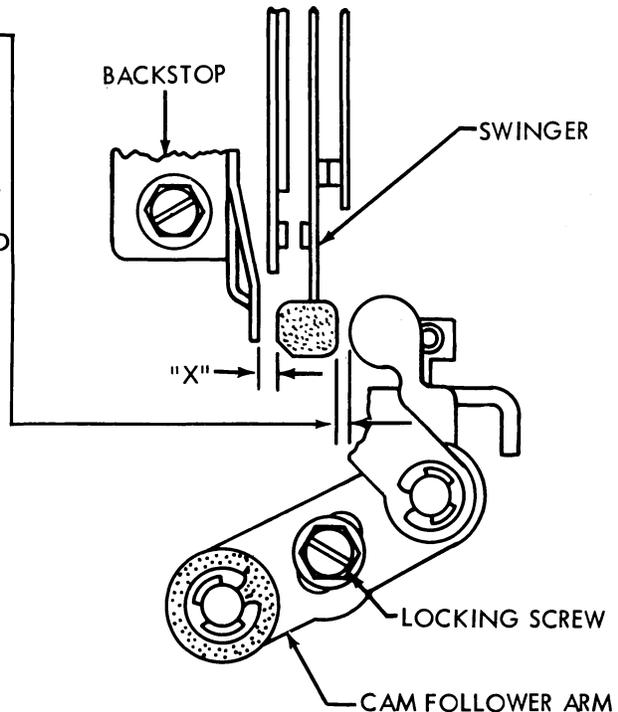
LOOSEN LOCKING SCREW. POSITION CAM FOLLOWER ARM, BY MEANS OF ITS ELONGATED MOUNTING HOLES, TO ITS MAXIMUM LENGTH ON OPERATING BAIL. TIGHTEN LOCKING SCREW.

REQUIREMENT

SELECTOR AND FUNCTION CLUTCHES DISENGAGED AND LATCHED. CLEARANCE BETWEEN BAIL AND SWINGER INSULATOR OF PILE-UP HAVING LEAST CLEARANCE SHOULD BE 0.118 INCH MINUS CLEARANCE "X" BETWEEN BACKSTOP AND SWINGER INSULATOR.

TO ADJUST

POSITION CONTACT BRACKET WITH ITS MOUNTING SCREWS LOOSENED.



NOTE

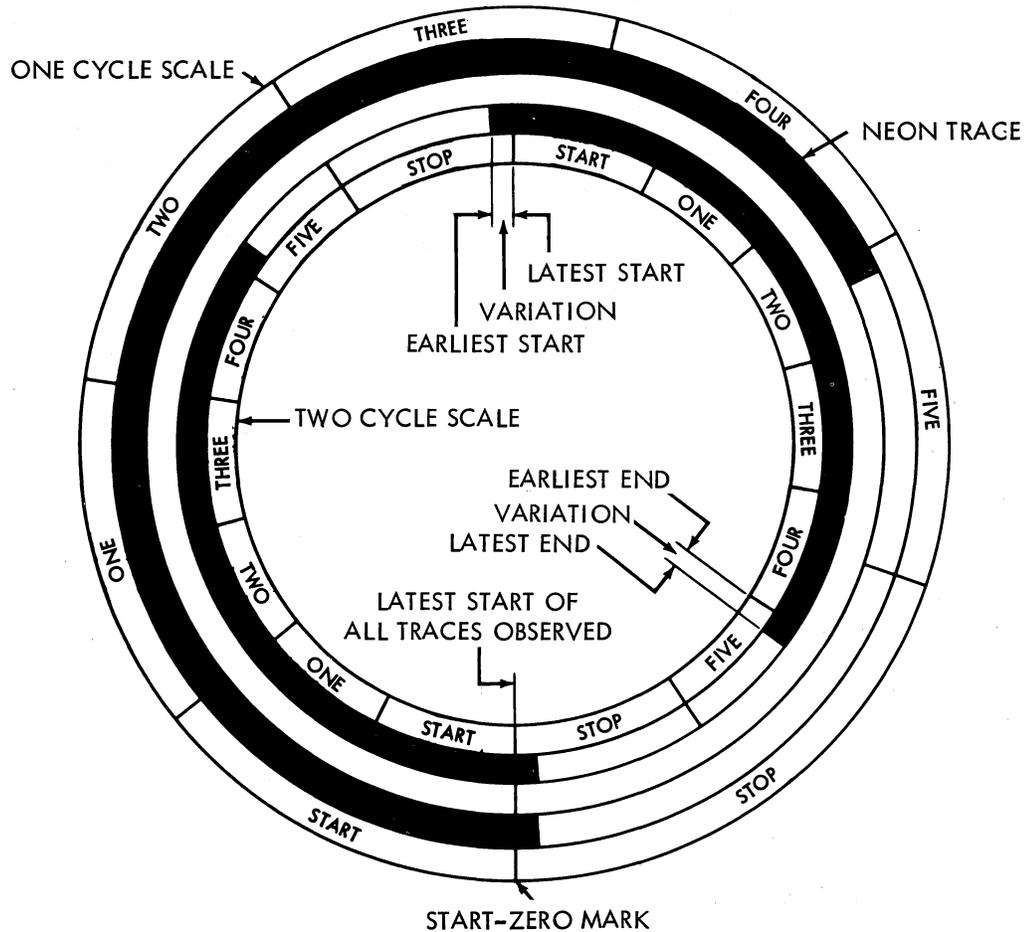
THE RANGE OF THIS ADJUSTMENT IS 0.005 INCH. FOR EXAMPLE; IF CLEARANCE "X" IS 0.080 INCH, THE NOMINAL ADJUSTMENT IS 0.038 INCH AND THE RANGE OF ADJUSTMENT IS 0.035 INCH TO 0.040 INCH.

3.46 Contact Timing Measurements (To Zero Test Set)

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

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

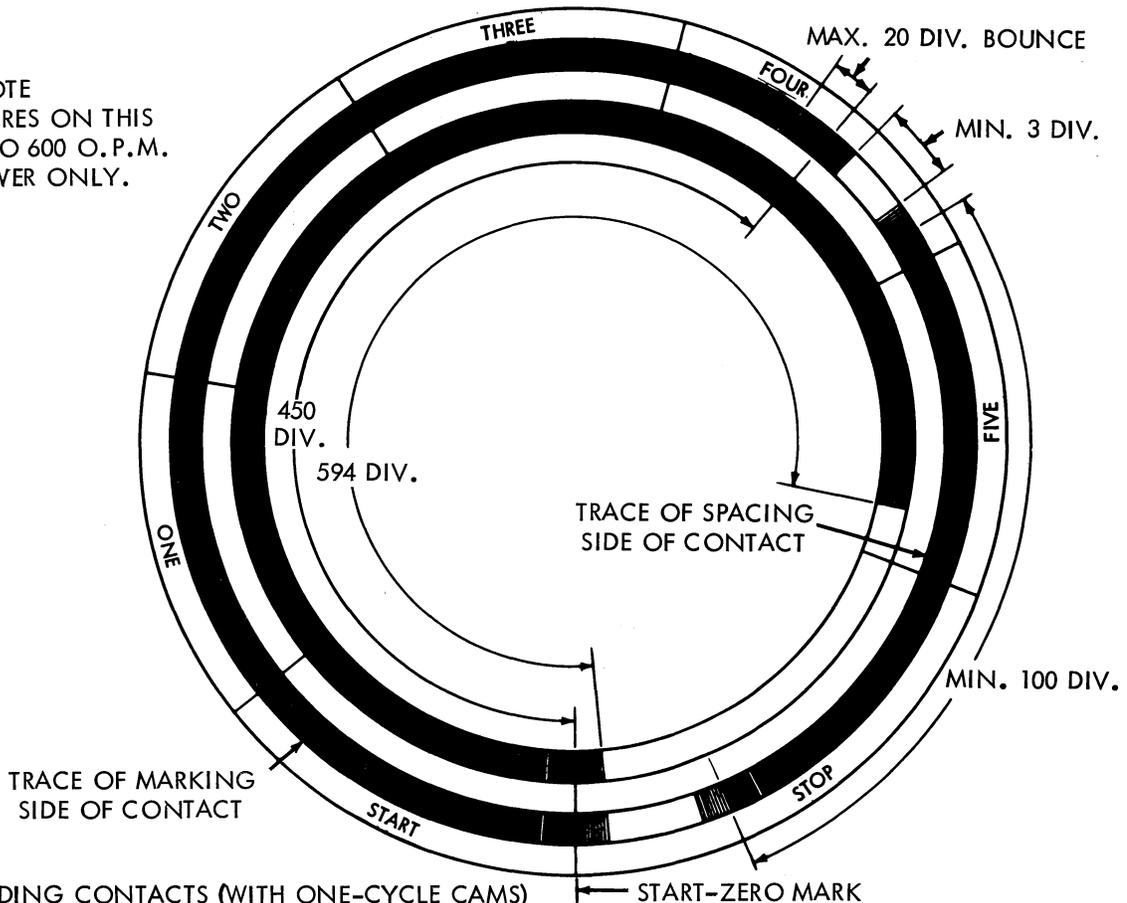
OBSERVATIONS ARE TO BE MADE OF A NEON TRACE ON THE GRADUATED DISK OF A TEST SET. TRACE WILL HAVE TENDENCY TO "JUMP"; THAT IS, IT WILL NOT BE STEADY ENOUGH TO BE ACCURATELY MEASURED. VARIATION MAY BE AS HIGH AS TEN DIVISIONS ON SCALE. MINIMUM SIGNAL LENGTH IS MEASURED BETWEEN LATEST START AND EARLIEST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

TO ZERO TEST SET

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

3.47 Code Reading Contact Timing Measurements (For Units Equipped with One-Cycle Cams)

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



CODE READING CONTACTS (WITH ONE-CYCLE CAMS)

(1) ZERO TEST SET AS PREVIOUSLY INSTRUCTED.

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

REQUIREMENTS

A. SIGNAL LENGTH FOR EACH CONTACT TRACE AND COMBINED CONTACT TRACES.

MIN. 450 DIVISIONS

MAX. 594 DIVISIONS

B. BOUNCE SHOULD END WITHIN MAX. OF 20 DIVISIONS OF EARLIEST START AND LATEST END OF ALL TRACES.

(3) (APPLIES TO TRANSFER TYPE CONTACTS ONLY) CONNECT NEON TRACE TO BOTH SIDES OF CONTACT. WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE.

REQUIREMENTS

A. BREAK IN TRACE INDICATING BREAK BEFORE MAKE.

MIN. 3 DIVISIONS

B. SIGNAL LENGTH OF SPACING SIDE OF CONTACT

MIN. 100 DIVISIONS

C. NO BREAKS WITHIN THE MINIMUM LENGTH REQUIREMENTS.

(4) TO ADJUST

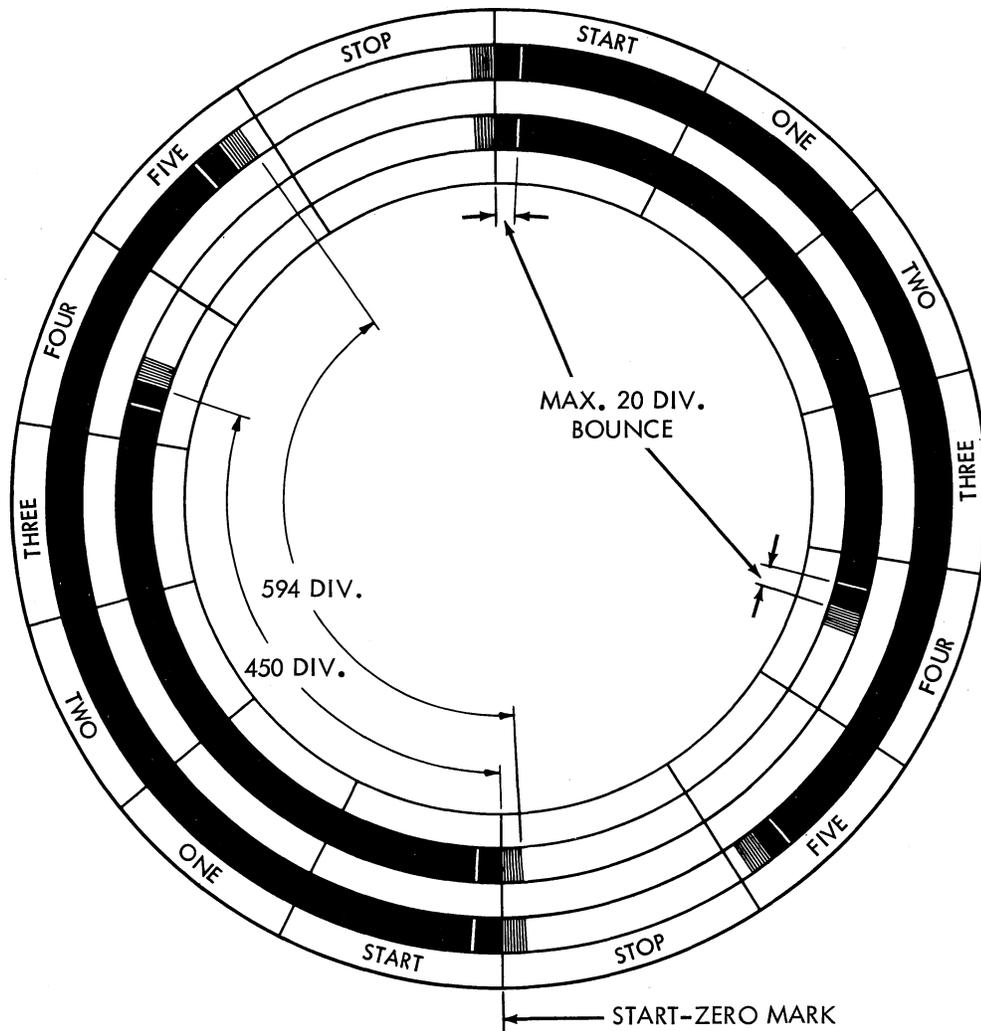
A. IF REQUIREMENTS UNDER (2) A., (3) A., OR (3) B. ARE NOT MET, REFINE CONTACT BRACKET ADJUSTMENT. WHEN REFINING (2) A., ATTEMPT TO ADJUST TOWARD MAXIMUM SIGNAL LENGTH.

B. IF BOUNCE REQUIREMENTS UNDER (2) B. AND (3) C. ARE NOT MET, REFINE MARKING AND SWINGER CONTACT SPRING AND SPACING CONTACT SPRING TENSIONS.

C. IF ANY REFINEMENTS ARE NECESSARY, REPEAT COMPLETE TEST PROCEDURE.

3.48 Code Reading Contact Timing Measurements (For Units Equipped with Two-Cycle Cams)

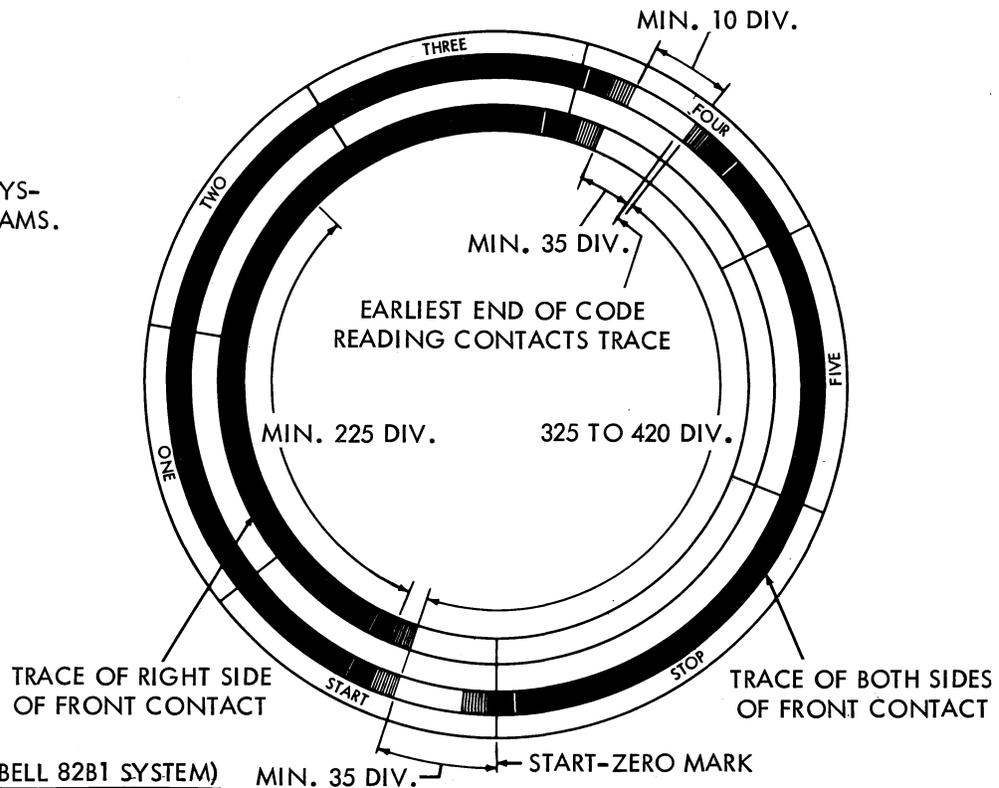
NOTE
TEST PROCEDURES ON THIS PAGE APPLY TO 1200 O.P.M. UNITS ONLY.

CODE READING CONTACTS (WITH TWO-CYCLE CAMS)

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

3.49 Auxiliary Timing Contact Measurements (For Bell 82B1 System)

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



TIMING CONTACTS (FOR BELL 82B1 SYSTEM)

(1) ZERO TEST SET AS PREVIOUSLY DESCRIBED.

(2) REAR CONTACT

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

1. EARLIEST START MIN. OF 35 DIVISIONS AFTER START ZERO MARK.
2. LATEST END MIN. OF 35 DIVISIONS BEFORE EARLIEST END OF CODE READING CONTACT TRACES RECORDED WHEN ZEROING TEST SET.
3. MIN. TRACE LENGTH 225 DIVISIONS.
4. BOUNCE SHOULD END WITHIN MAX. 5 DIVISIONS OF START AND END OF ANY TRACE.

(3) FRONT CONTACT

A. CONNECT NEON TRACE TO BOTH SIDES OF FRONT CONTACT. WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE.

REQUIREMENTS

1. BREAK IN TRACE TO INDICATE BREAK BEFORE MAKE.
MIN. 10 DIVISIONS
2. BETWEEN EARLIEST STARTS OF TRACES OF RIGHT AND LEFT (NORMALLY OPEN AND NORMALLY CLOSED) SIDES OF CONTACT.
MIN. 325 DIVISIONS---MAX. 420 DIVISIONS
3. BOUNCE SHOULD END WITHIN MAX. 5 DIVISIONS OF EARLIEST START AND LATEST END OF ANY TRACE.

(4) TO ADJUST

A. IF TIMING REQUIREMENTS UNDER (2) A. 1., 2., 3., AND (3) A. 1. AND 2. ARE NOT MET, REFINE CONTACT BRACKET ADJUSTMENT AND/OR RIGHT CONTACT GAP, LEFT CONTACT GAP, SWINGER CONTACT SPRING, AND LEFT CONTACT SPRING ADJUSTMENTS.

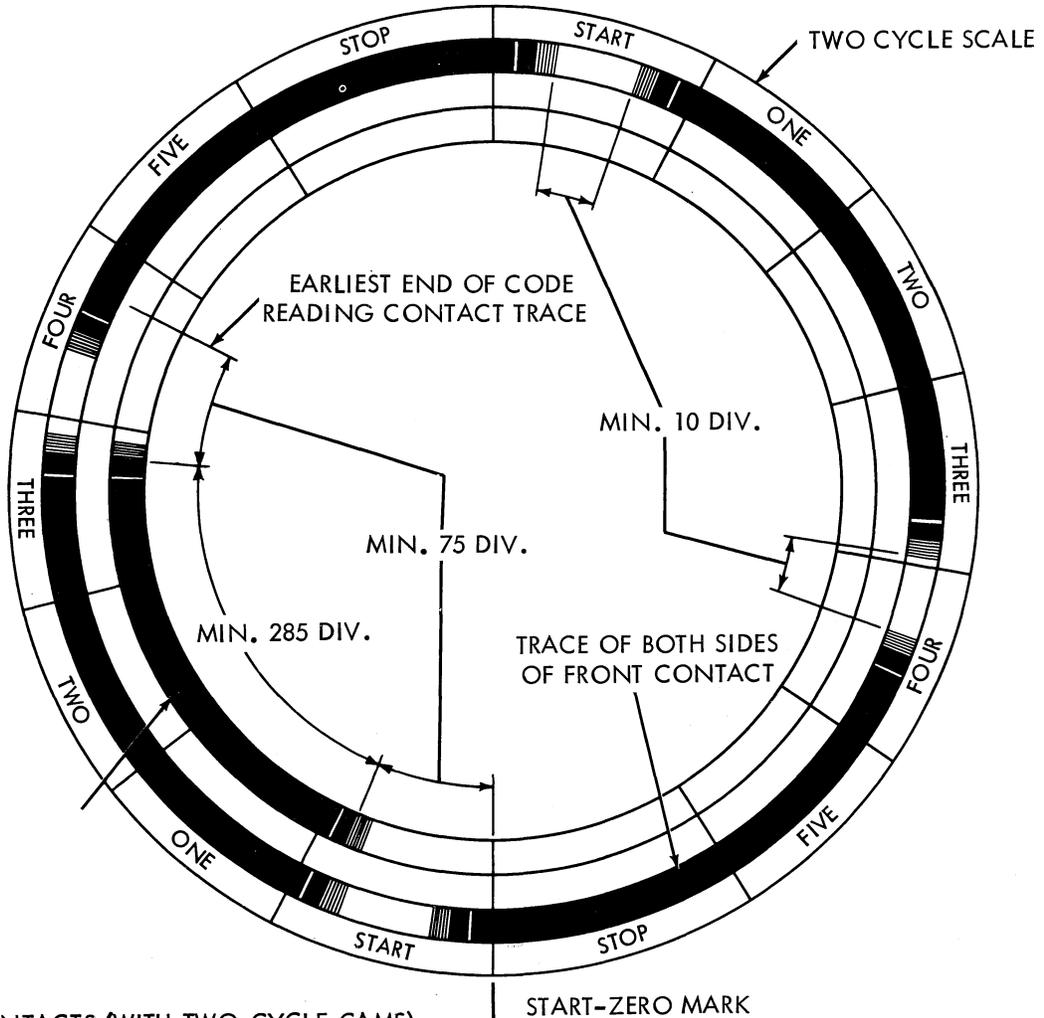
B. IF BOUNCE REQUIREMENTS UNDER (2) A. 4. AND (3) A. 3. ARE NOT MET, REFINE SWINGER CONTACT SPRING AND LEFT CONTACT SPRING TENSIONS.

C. IF ANY REFINEMENTS ARE NECESSARY, REPEAT COMPLETE TEST PROCEDURE.

3.50 Auxiliary Timing Contact Measurements (For Units Equipped with Two-Cycle Cams)

NOTE

TEST PROCEDURES ON THIS PAGE AND THE FOLLOWING PAGE APPLY TO 1200 O.P.M. UNITS ONLY.



TIMING CONTACTS (WITH TWO-CYCLE CAMS)

(1) ZERO TEST SET AS PREVIOUSLY DESCRIBED.

(2) FRONT CONTACT

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

REQUIREMENTS

1. EARLIEST START MIN. 75 DIVISIONS AFTER START-ZERO MARK.
2. LATEST END MIN. 75 DIVISIONS BEFORE EARLIEST END OF CODE READING CONTACTS RECORDED WHEN ZEROING TEST SET.
3. SHORTEST TRACE LENGTH MIN. OF 285 DIVISIONS.
4. BOUNCE SHOULD END WITHIN MAX. OF 10 DIVISIONS OF EARLIEST START AND LATEST END OF ANY TRACE.

B. CONNECT NEON TRACE TO BOTH SIDES OF FRONT CONTACT. WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE.

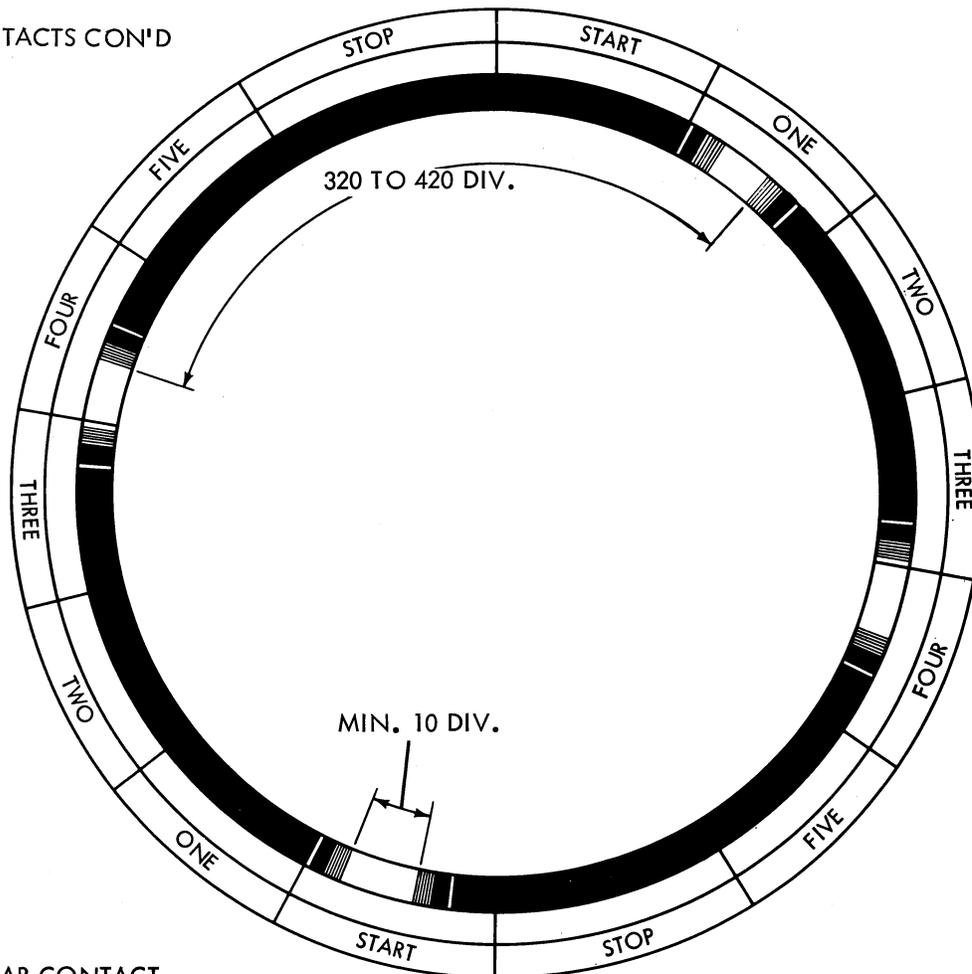
REQUIREMENT

1. MIN. 10 DIVISION BREAK IN TRACE AT FOUR PLACES TO INDICATE BREAK BEFORE MAKE.

TEST CONTINUED ON NEXT PAGE.

3.51 Auxiliary Timing Contact Measurements (For Units Equipped with Two-Cycle Cams)-
Continued

TIMING CONTACTS CON'D



(3) REAR CONTACT

- A. CONNECT NEON TRACE TO BOTH SIDES OF REAR CONTACT. WITH UNIT RECEIVING LETTERS CODE COMBINATIONS, OBSERVE TRACE. REQUIREMENTS

1. MIN. 10 DIVISION BREAK IN TRACE AT FOUR PLACES TO INDICATE BREAK BEFORE MAKE.
2. BETWEEN EARLIEST START OF ANY NORMALLY OPEN CONTACT TRACE TO EARLIEST START OF NEXT NORMALLY CLOSED CONTACT TRACE.
MIN. 320 DIVISIONS
MAX. 420 DIVISIONS

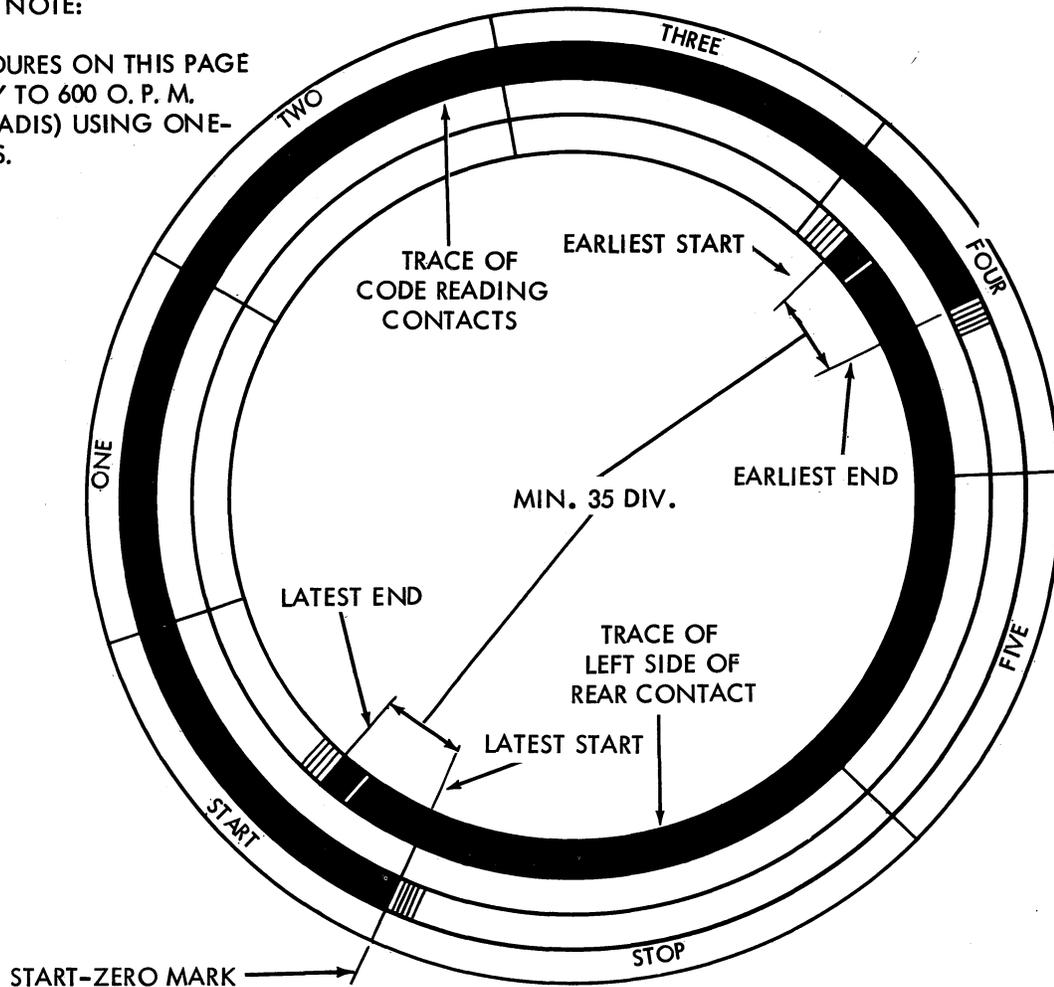
(4) TO ADJUST

- A. IF TRACE LENGTHS UNDER (2) A. 3. AND (3) A. 2. ARE BOTH TOO SHORT, REFINE CONTACT BRACKET ADJUSTMENT. IF TRACE LENGTH UNDER (2) A. 3. ONLY IS SHORT, REFINE CONTACT BACKSTOP ADJUSTMENT AND RECHECK TRACE LENGTH IN (3) A. 2.
- B. IF TIMING REQUIREMENTS UNDER (2) A. 1. AND (2) A. 2. ARE NOT MET, REFINE TRACE LENGTH AS IN (4) A. ABOVE, AND/OR RIGHT CONTACT GAP, LEFT CONTACT GAP, SWINGER CONTACT SPRING, AND LEFT CONTACT SPRING ADJUSTMENTS.
- C. IF BREAK BEFORE MAKE REQUIREMENTS UNDER (2) B. 1. AND (3) A. 1. ARE NOT MET, REFINE RIGHT CONTACT GAP, LEFT CONTACT GAP, SWINGER CONTACT SPRING, AND LEFT CONTACT SPRING.
- D. IF BOUNCE REQUIREMENTS UNDER (2) A. 4. ARE NOT MET, REFINE SWINGER CONTACT SPRING AND LEFT CONTACT SPRING TENSIONS.
- E. IF ANY REFINEMENTS ARE NECESSARY, REPEAT COMPLETE TEST PROCEDURE.

3.52 Auxiliary Timing Contact Measurements (For FAA ADIS Units)

NOTE:

TEST PROCEDURES ON THIS PAGE
APPLY ONLY TO 600 O. P. M.
UNITS (FAA ADIS) USING ONE-
CYCLE CAMS.

**TIMING CONTACTS (FOR FAA ADIS UNITS)**

(1) ZERO TEST SET AS PREVIOUSLY DESCRIBED.

(2) REAR CONTACT

A. CONNECT NEON TRACE TO LEFT SIDE OF REAR CONTACT (NORMALLY CLOSED WHEN UNIT IS IN IDLE CONDITION). WITH UNIT RECEIVING LETTERS CODE COMBINATION OBSERVE TRACE.

REQUIREMENTS

1. EARLIEST START MIN. OF 35 DIVISIONS BEFORE EARLIEST END OF ALL CODE READING CONTACTS.
2. LATEST END MIN. OF 35 DIVISIONS AFTER THE LATEST START OF ALL CODE READING CONTACTS.
3. BOUNCE SHOULD END WITHIN MAX. 10 DIVISIONS OF START AND END OF ANY TRACE.

(3) TO ADJUST

- A. IF TIMING REQUIREMENTS UNDER (2) A. 1. AND 2. ARE NOT MET, REFINE CONTACT BRACKET ADJUSTMENT AND/OR RIGHT CONTACT GAP, LEFT CONTACT GAP, SWINGER CONTACT SPRING AND LEFT CONTACT SPRING ADJUSTMENTS.
- B. IF BOUNCE REQUIREMENTS UNDER (2) A. 3. ARE NOT MET, REFINE SWINGER CONTACT SPRING AND LEFT CONTACT SPRING TENSIONS.
- C. IF ANY REFINEMENTS ARE NECESSARY REPEAT COMPLETE TEST PROCEDURE.