

38 TAPE PUNCH
 ADJUSTMENTS

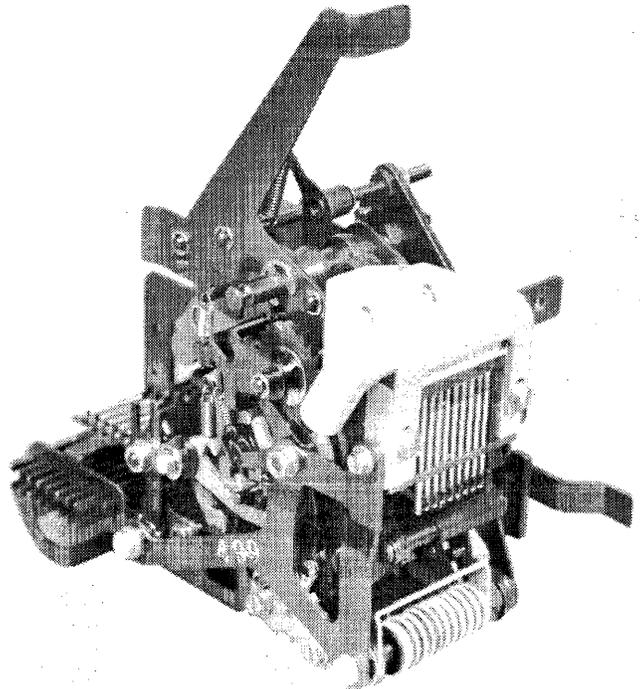
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1. GENERAL

1.01 This section provides Model 38 Tape Punch (see figure) adjustment information. Tools required to perform these adjustments are included in the 185830 maintenance tool kit and are listed in Section 570-005-800TC.

NOTE: Remove all electrical power sources from the unit before checking or performing any adjustments.

1.02 The sequence of the adjustments given in this section should be followed when a complete readjustment of the tape punch is undertaken.



38 Tape Punch

1.03 Read the entire adjustment procedure to fully understand the requirement prior to making an adjustment. Illustration references, left, right, front, rear, etc, refer to the punch as normally viewed (installed in a teletype-writer set) by an operator.

NOTE: All requirement clearances are given in inches, unless specified otherwise.

1.04 Spring tensions may be checked in any sequence. To obtain reliable readings, it is important that the tensions be measured with the spring scales placed as shown on the associated line drawings. Springs that do not meet their requirements should be replaced.

NOTE 1: All spring requirements are given in ounces, unless specified otherwise.

NOTE 2: When a spring tension is measured, other springs may also be measured indirectly in the process. If this is the case and the requirement is not met, replace the springs one at a time, starting with the indicated spring, until the requirement is met.

NOTE 3: Unless specified otherwise, check spring tensions with the punch in the OFF condition.

1.05 Certain adjustments require that the tape punch be either ON or OFF. These conditions are met as follows:

Tape Punch ON

- Control arm positioned at ON.
- On-off bail assembly unlatched.
- Feed pawl engages feed wheel ratchet.

Tape Punch OFF

- Control arm positioned at OFF.
- On-off bail assembly latched.
- Feed pawl cammed away from feed wheel ratchet.

1.06 To set up a specific code combination in the punch:

- Place typing unit selector armature in its attracted (forward) position.
- Latch all typing unit clutches.
- Momentarily allow the selector armature to move to its unattracted (rearward) position and trip selector clutch.
- Rotate main shaft until all typing unit pushlevers are moved under their respective selector levers.
- Use a spring hook to strip the pushlevers from under the selector levers which correspond to the spacing element(s) of the code combination to be set up. For example, to set up nos. 2 and 5 code levels marking, strip the pushlevers from nos. 1, 3, 4, 7, 6, and 8 selector levers.

NOTE: The selector levers are numbered 1, 2, 3, 4, 5, 7, 6, and 8 from left to right.

- Rotate the main shaft until the condition called for in the associated punch adjustment is obtained.

1.07 Some adjustment procedures call for specific positioning (A, B, or C) of the typing unit function clutch. These positions are attained by rotating the typing unit main shaft until the specified lettered notch in the clutch is aligned with the notch in the drive bail link. These function clutch notches, when aligned with the drive bail link notch, place the typing unit in the following conditions:

<u>Alignment</u>	<u>Typing Unit Condition</u>
A	Function bail up
B	Carriage drive bail rearward
C	Function bail down

1.08 Adjustments should be performed with the automatic punch operation blocking clips (mounted on the sensing lever guidepost) removed.

1.09 The chad chute extension may be removed to facilitate making adjustments. Be sure to replace the extension immediately after the adjustments are completed.

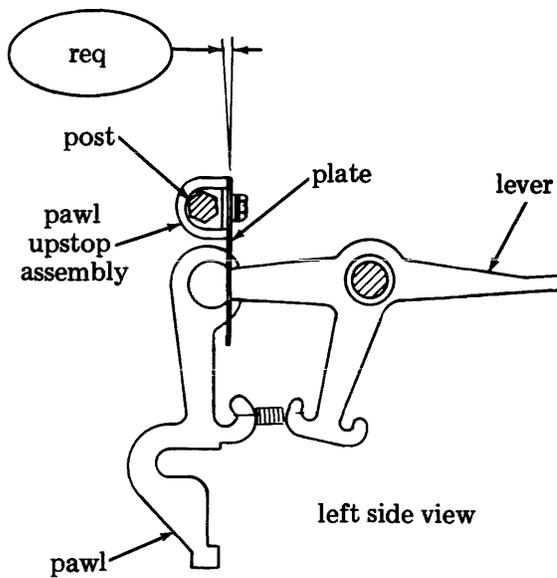
2. BASIC UNIT

PAWL UPSTOP ASSEMBLY — PRELIMINARY

NOTE: Perform this adjustment only after the punch has been disassembled and then reassembled.

Requirement — Pawl upstop assembly positioned so that it is vertical or within 2 degrees clockwise from vertical (gauge by eye).

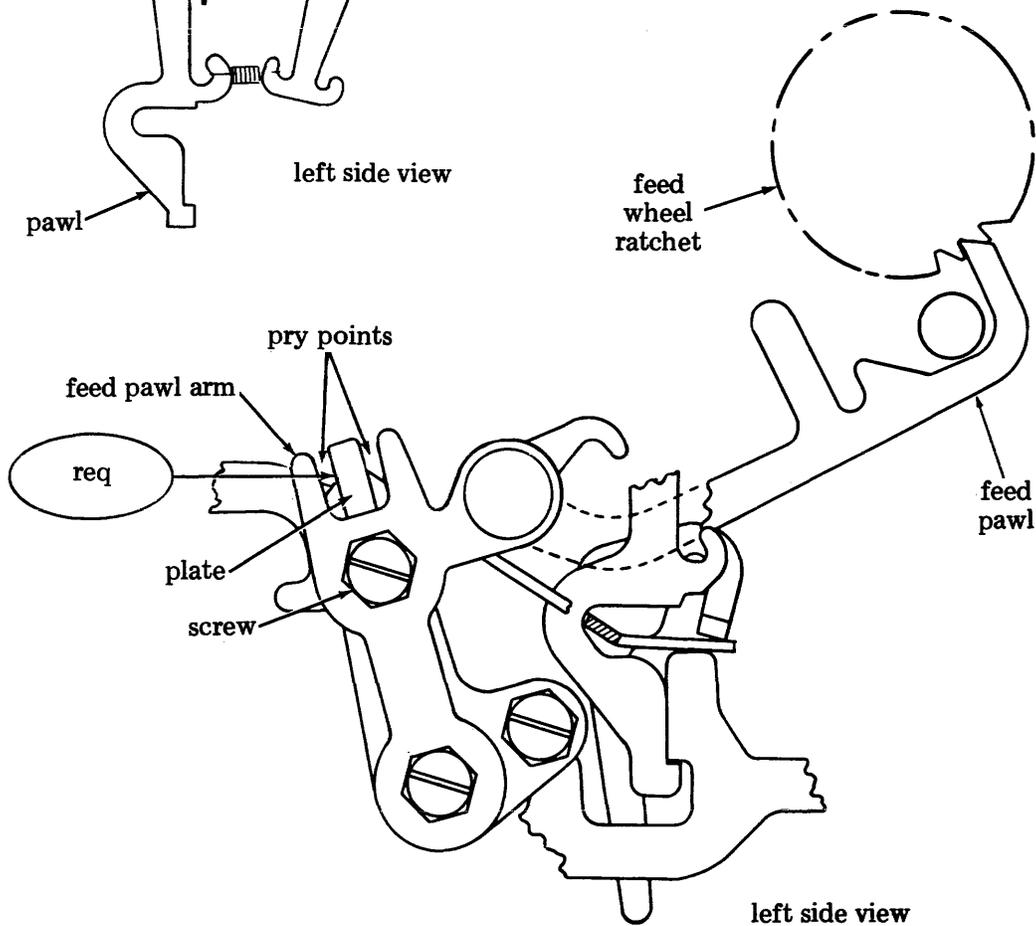
Adjust — Loosen screw which secures pawl upstop assembly post to tape punch casting.
Position pawl upstop assembly.
Tighten screw.



FEED WHEEL RATCHET AND PAWL — PRELIMINARY

Requirement — Plate centered in feed pawl arm.

Adjust — Loosen screw.
Use pry points to position plate.
Tighten screw.

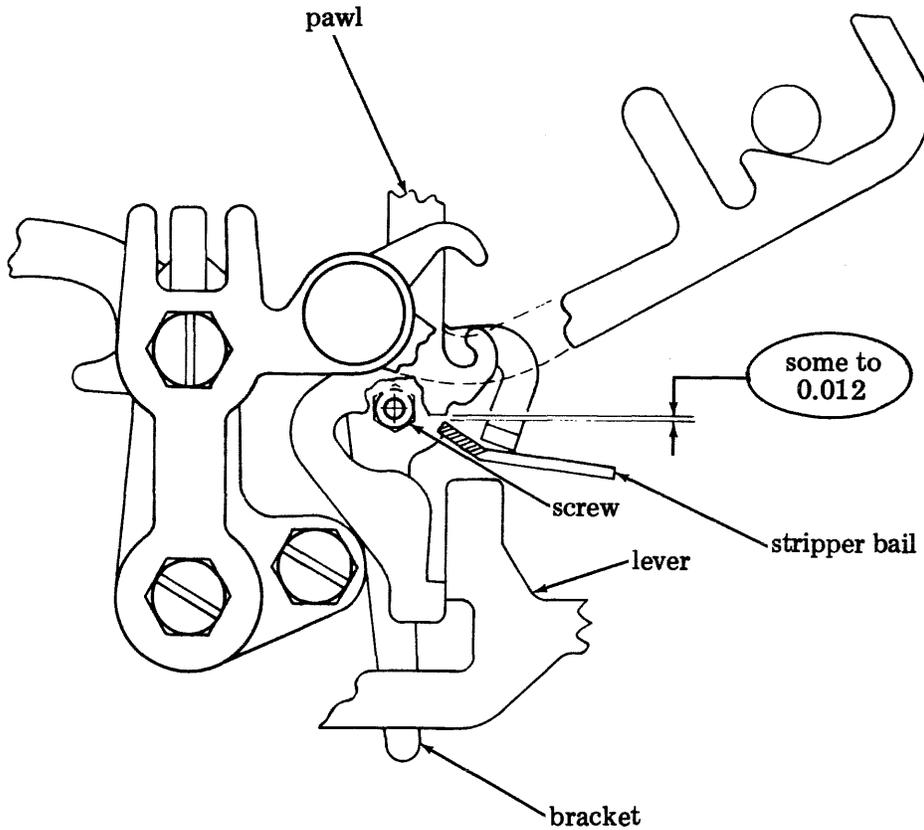


STRIPPER BAIL UPSTOP

- Turn punch OFF.
- Place all sensing pawls in uppermost (unlatched) position.

Adjust — Loosen screw.
Rotate bracket.
Tighten screw.

Requirement — Some to 0.012 between stripping surface of sensing (lowermost) pawl and stripper bail.



left side view

NOTE 1: For the adjustments which follow, the tape punch should be mounted to a typing unit.

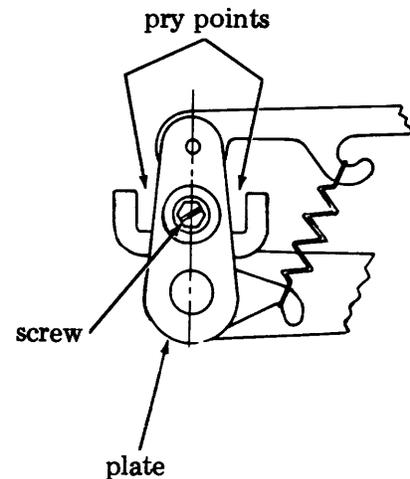
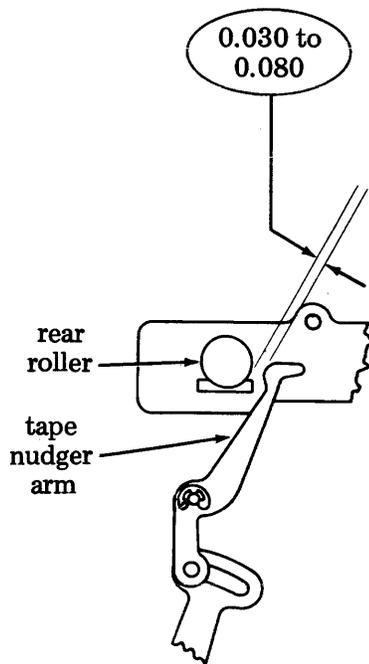
NOTE 2: The following adjustments must be made in sequence: **TAPE PUNCH DRIVE**, **PUNCH PENETRATION**, **PAWL UPSTOP ASSEMBLY — FINAL**, and **FEED WHEEL RATCHET AND PAWL — FINAL**. Prior to making the above adjustments, check or make the following Tape Punch Area adjustments: **PAWL UPSTOP ASSEMBLY — PRELIMINARY**, **FEED WHEEL RATCHET AND PAWL — PRELIMINARY**, and **STRIPPER BAIL UPSTOP**.

TAPE PUNCH DRIVE

- Remove tape from punch.
- Place function clutch in position "C."
- Take up play in roller and tape nudger arm to maximize gap.

Requirement — 0.030 to 0.080 between rear roller and tape nudger arm.

Adjust — Loosen screw (friction tight).
Use pry points to position plate.
Tighten screw.



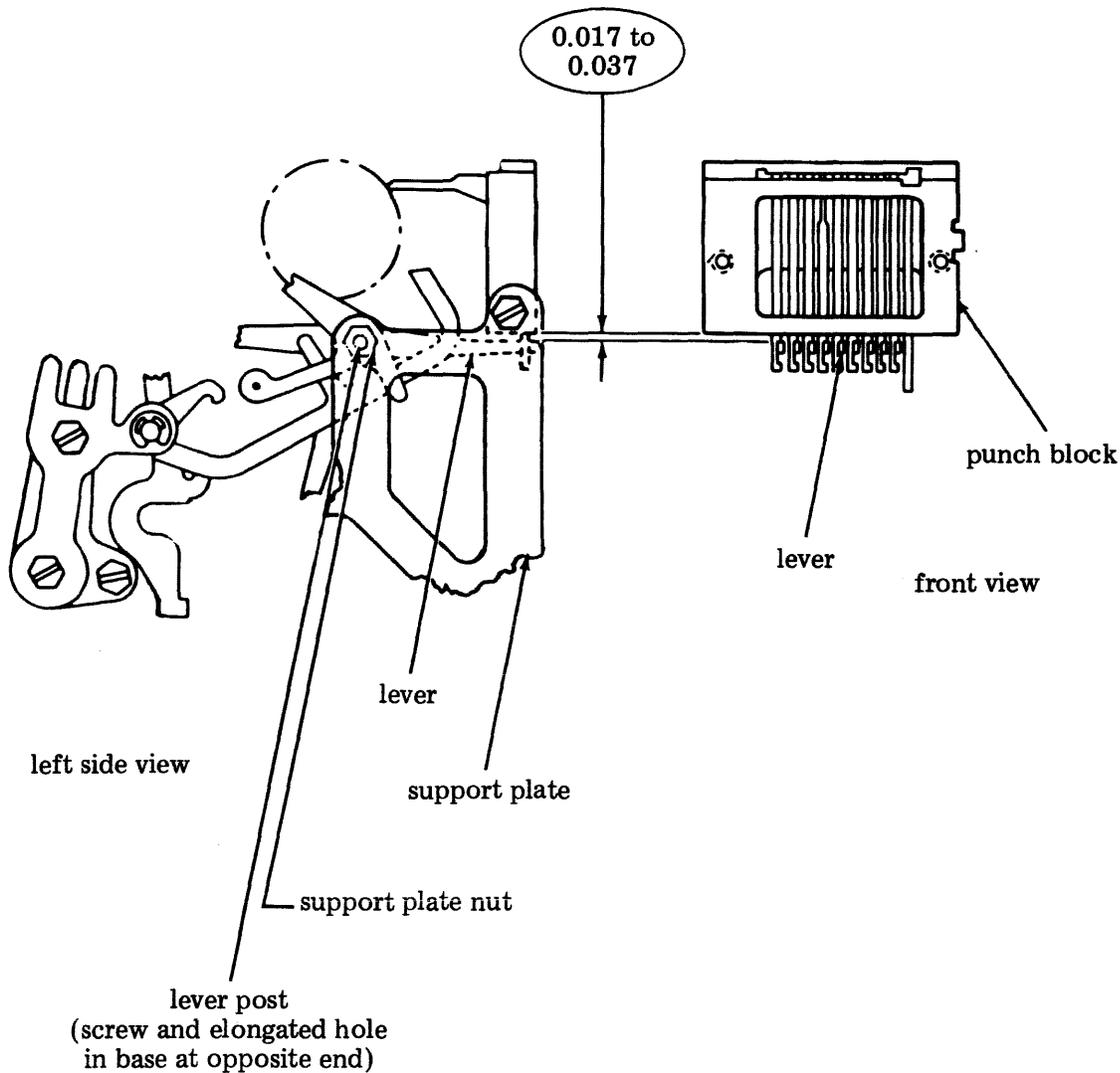
left side view

PUNCH PENETRATION

- Turn punch ON.
- Set up “rubout” code (all levels marking) in punch.
- Place function clutch in position “C.”

Requirement — 0.017 to 0.037 between top surface of any lever and bottom of punch block.

Adjust — Loosen (friction tight) lever post mounting screw and support plate nut. Use pry point (directly under mounting post) to position lever post within the elongated base and support plate holes. Tighten screw and nut.



PAWL UPSTOP ASSEMBLY — FINAL

- Set up “rubout” code (all levels marking) in punch.
- Place function clutch in position “A.”

Requirement 1 — 0.005 to 0.020 between no. 1 sensing lever and pawl (second pawl from outside).

Requirement 2 — Some clearance between each remaining sensing lever and pawl, and between feed lever and pawl.

NOTE: Do not adjust just to bias the low or high side of the clearance.

Adjust — Loosen screw which secures pawl upstop assembly post to punch casting. Rotate pawl upstop assembly.

CAUTION: AVOID ROTATING PLATE COUNTERCLOCKWISE FROM ITS VERTICAL POSITION. CHECK THAT PAWL UPSTOP ASSEMBLY ALWAYS GUIDES PAWL AND LEVER SIMULTANEOUSLY.

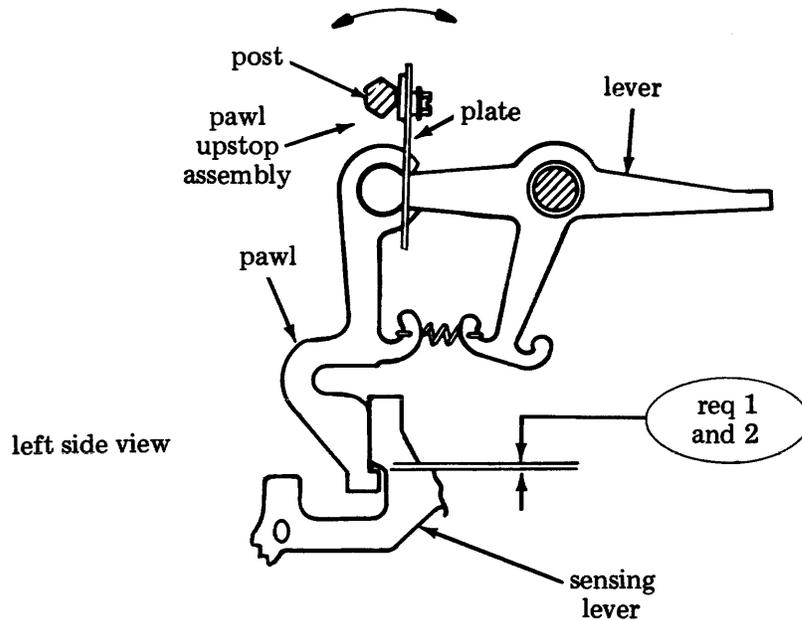
Tighten screw.

Check *TAPE PUNCH DRIVE* adjustment.

- Manually bias codelevers downward at front of punch pins.
- Press down on rearmost portion of each sensing lever.

Requirement 3 — Some movement in each sensing lever before pawl is moved.

Adjust — Recheck requirement 1.



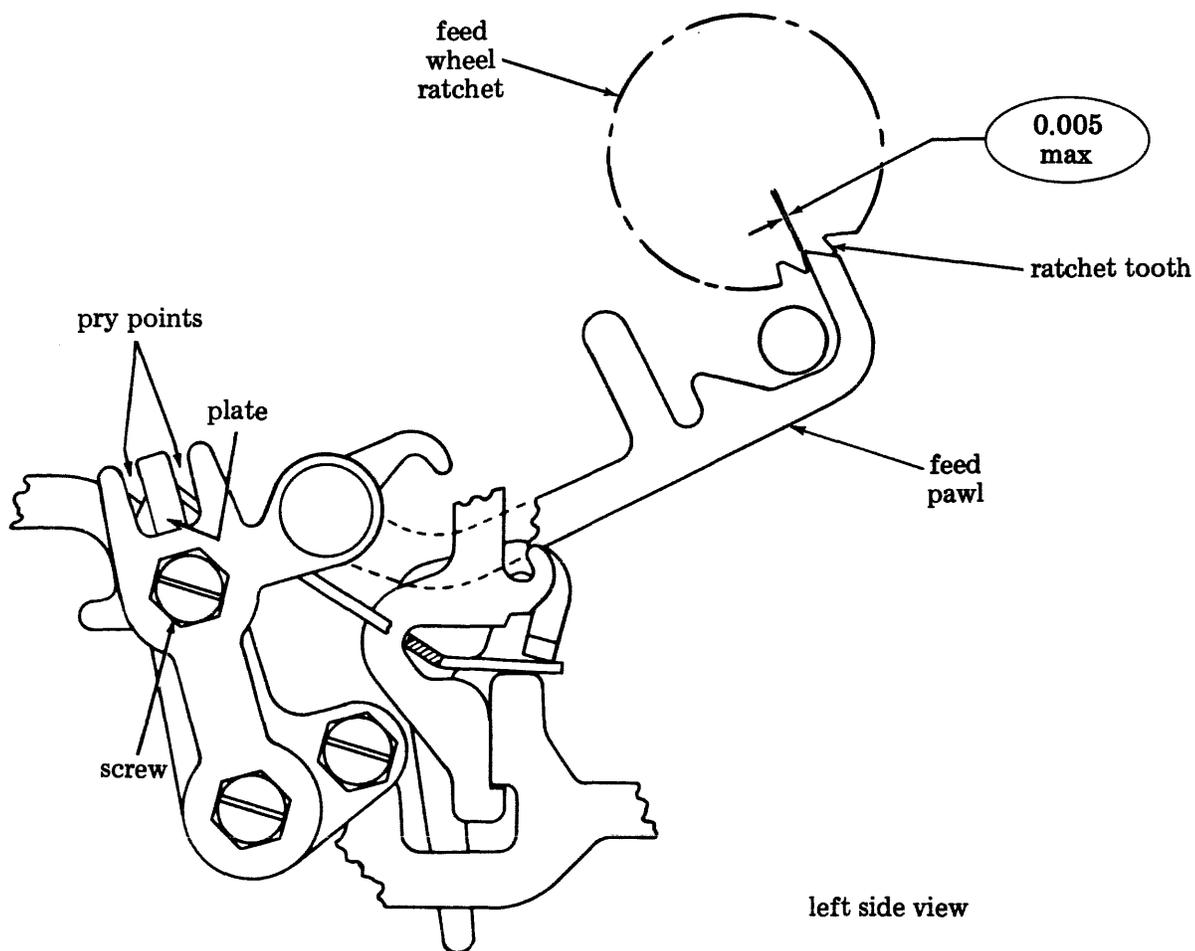
FEED WHEEL RATCHET AND PAWL — FINAL

- Turn punch ON.
- Remove tape from punch.
- Place function clutch in position "A."
- Take up stripper bail play toward front.
- Position feed wheel ratchet fully detented.

Requirement 1 — 0.005 maximum clearance between feed pawl and ratchet tooth.

Requirement 2 — When feed pawl is pulled out of engagement with the feed wheel tooth then released, it should fall back into full engagement with the same feed wheel tooth.

Adjust — Loosen screw (friction tight).
Use pry points to position plate.
Tighten screw.
Backspace ratchet one full revolution in one tooth intervals and recheck (gauge by eye) requirements 1 and 2.



TEN CHARACTERS PER INCH

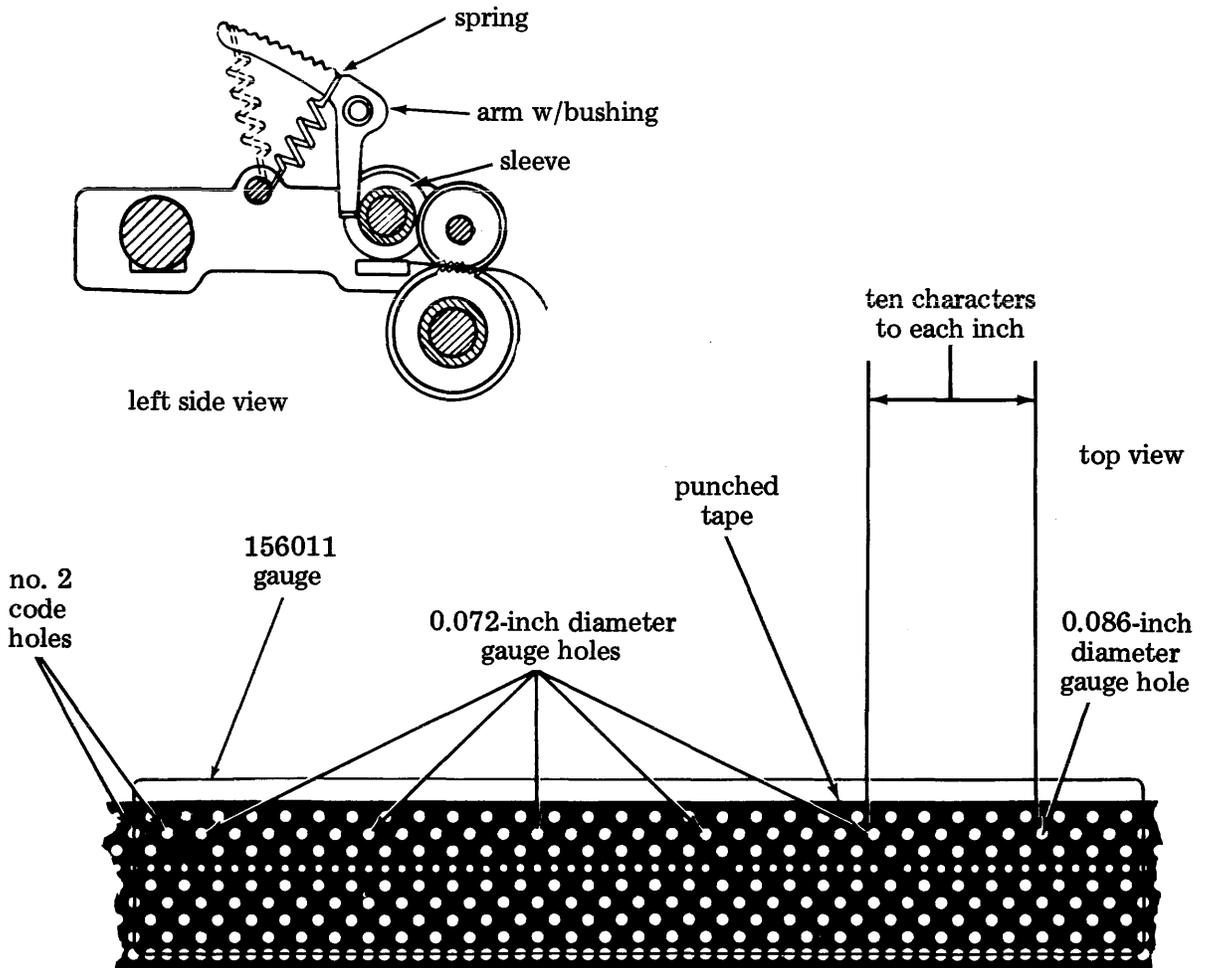
- Operate punch under power.
- Prepare 8 inches of tape with alternate "R" and hyphen codes.
- Place a no. 2 punched code hole concentrically over the first 0.072-inch hole of 156011 gauge.

NOTE: There are six holes in the 156011 gauge — five with 0.072-inch diameters and one with a 0.086-inch diameter.

Requirement 1 — Remaining four 0.072-inch gauge holes visible through corresponding no. 2 code holes.

Requirement 2 — Sixth no. 2 code hole, which corresponds with 0.086-inch gauge hole, lies entirely within perimeter of that gauge hole.

Adjust — Reposition spring in higher or lower notch.



TAPE BIAS SPRING

- Remove tape from punch.

Requirement — Tape bias spring should rest against side of die plate, symmetrical about tape opening (gauge by eye).

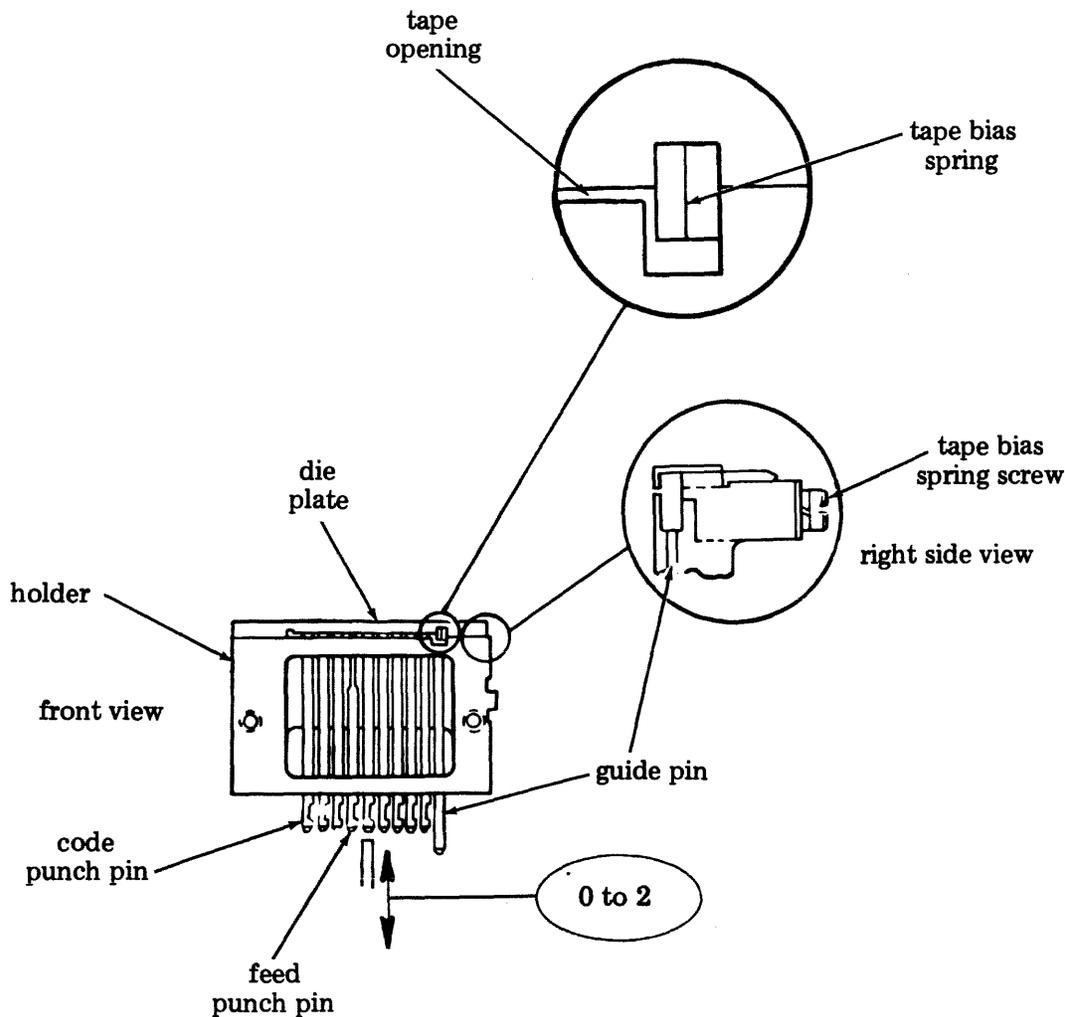
Adjust — Loosen tape bias spring screw.
Position tape bias spring.
Tighten screw.

PUNCH BLOCK ASSEMBLY

- Remove punch block assembly from tape punch (replace assembly immediately after completing this adjustment).
- Position punch pin slots to face guide pin.
- Check requirement thru entire distance of each pin's travel in holder.

Requirement — 0 to 2 to start punch pin moving.

Adjust — If properly lubricated punch pins fail to meet the requirement, replace assembly.



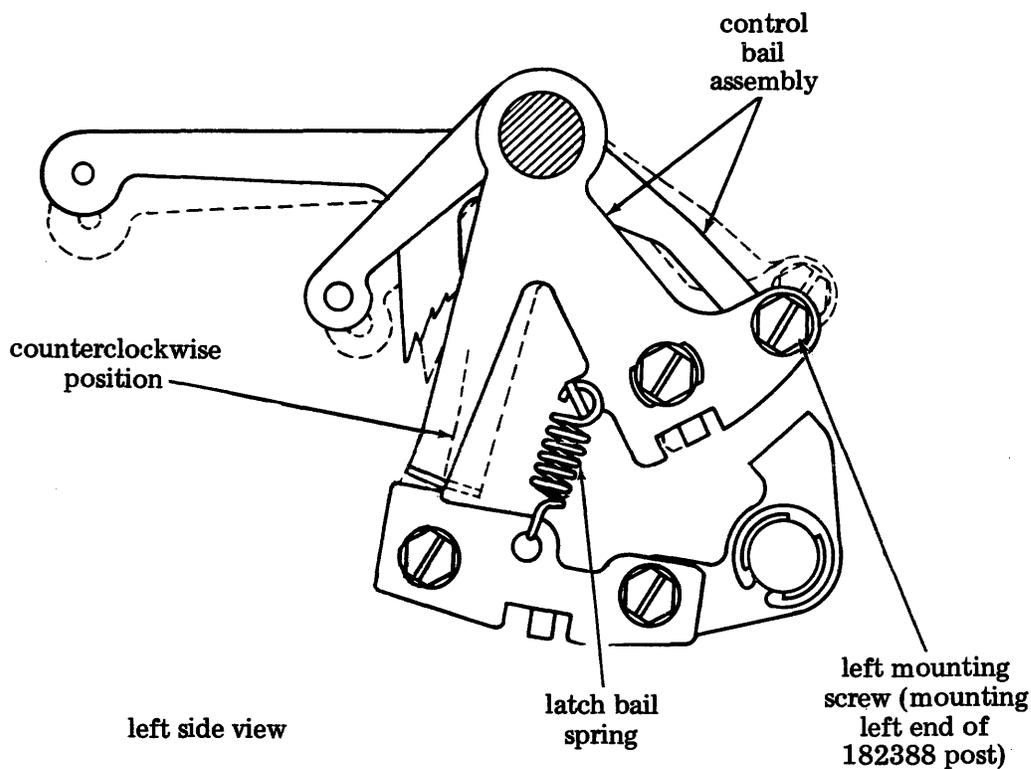
CONTROL BAIL ASSEMBLY

- Hold typing unit selector armature in its attracted (forward) position.
- Latch (fully disengage) all typing unit clutches.
- Turn punch ON.
- Gently rock control bail assembly forward and rearward.

Requirement 1 — Control bail assembly is free of binds along its normal travel.

Requirement 2 — When released from counterclockwise position, control bail assembly returns freely, under spring tension, to its clockwise position.

Adjust — Remove latch bail spring, control bail spring (not shown) and screw which mounts the left side of 182388 post. Loosen, then immediately retighten mounting screw on right side. If post threaded hole is not concentric with left mounting screw hole, bend post about its right mounting screw (not shown). Replace and tighten screw. Replace springs. Recheck requirements.

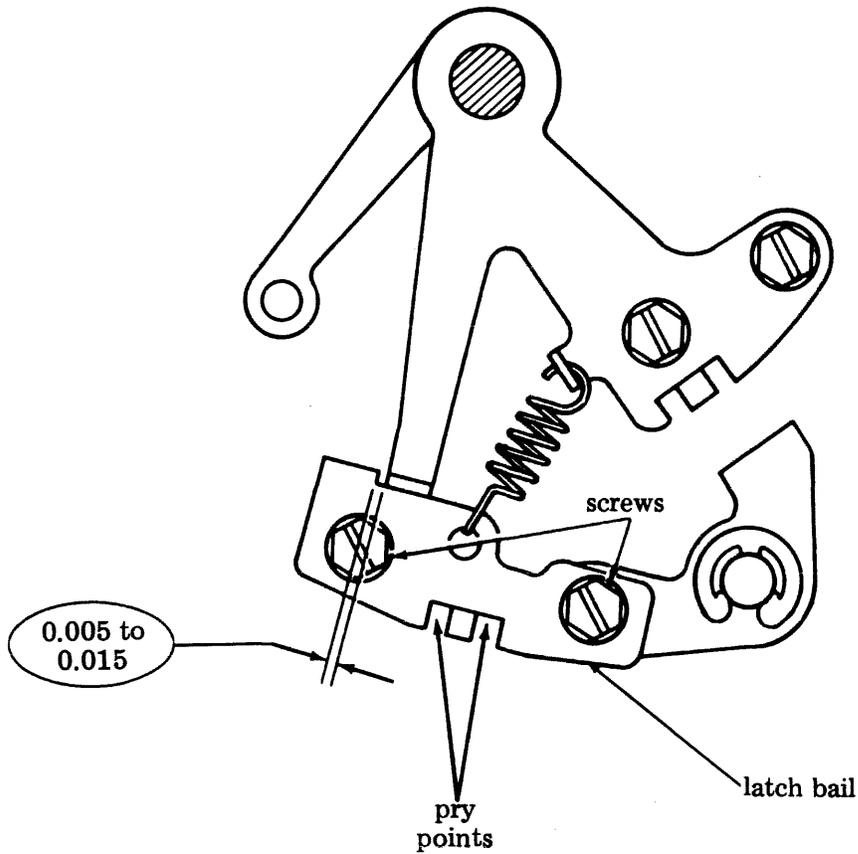


LEVER OVERTRAVEL

- Set up “punch off” code (nos. 3 and 5 code levels marking) in the typing unit.
- Rotate main shaft until function clutch is in position “C.”

Requirement — 0.005 to 0.015 between lever and latch bail.

Adjust — Loosen screws.
Use pry points to position latch bail.
Tighten screws.



left side view

FEED WHEEL RATCHET AND PAWL GAP

- Turn punch OFF.
- Rotate main shaft to obtain minimum clearance between feed pawl and a feed wheel ratchet tooth.

Requirement 1 — 0.015 to 0.030 between feed pawl and ratchet tooth.

- Turn punch ON.
- Rotate main shaft until feed pawl engages a feed wheel ratchet tooth.

Requirement 2 — Feed pawl fully engages ratchet tooth.

Adjust — Loosen screw.

Use pry points to position lever.

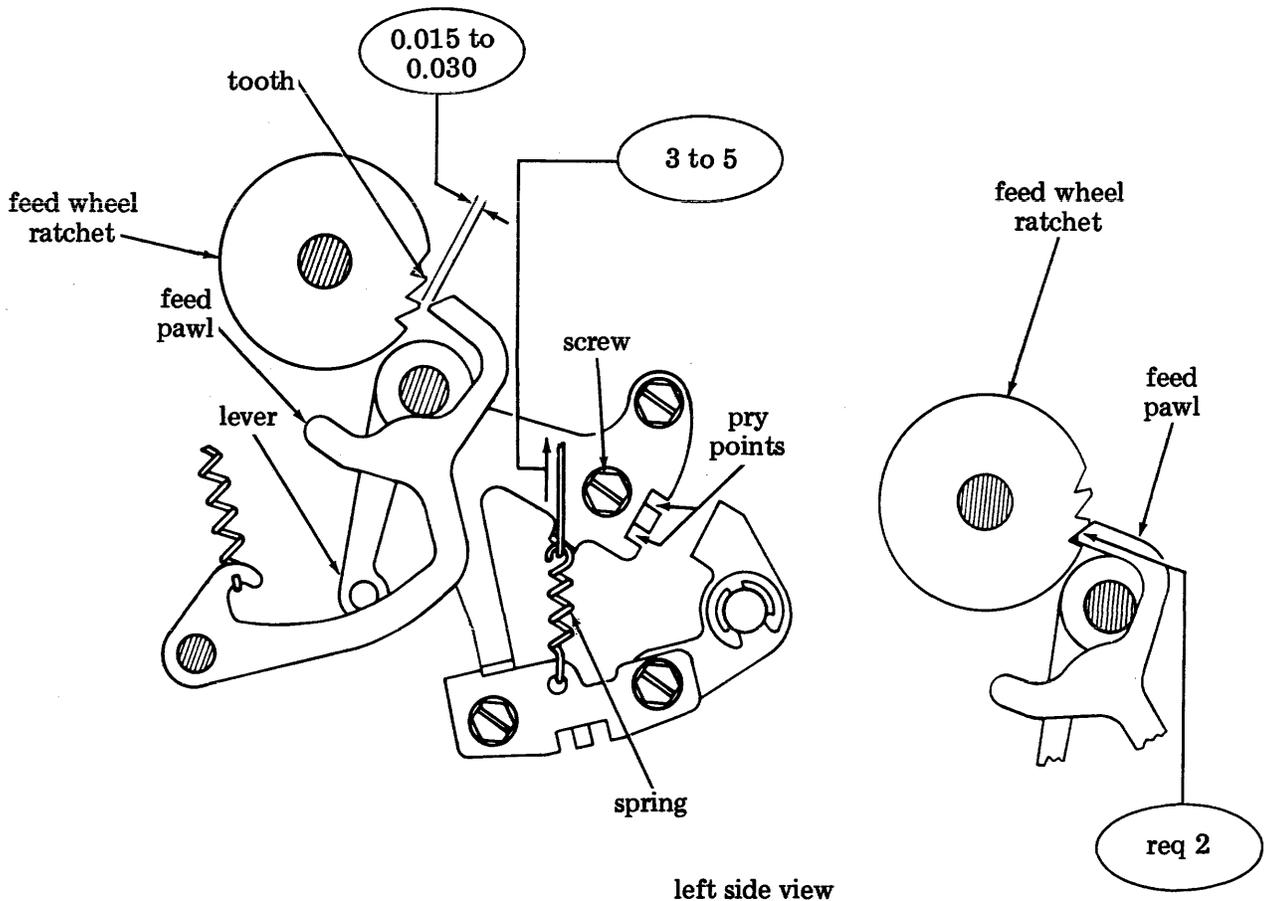
Tighten screw.

Recheck each requirement, refine adjustment if necessary.

LATCH BAIL SPRING

- Turn punch OFF.

Requirement — 3 to 5 to pull spring to installed length.

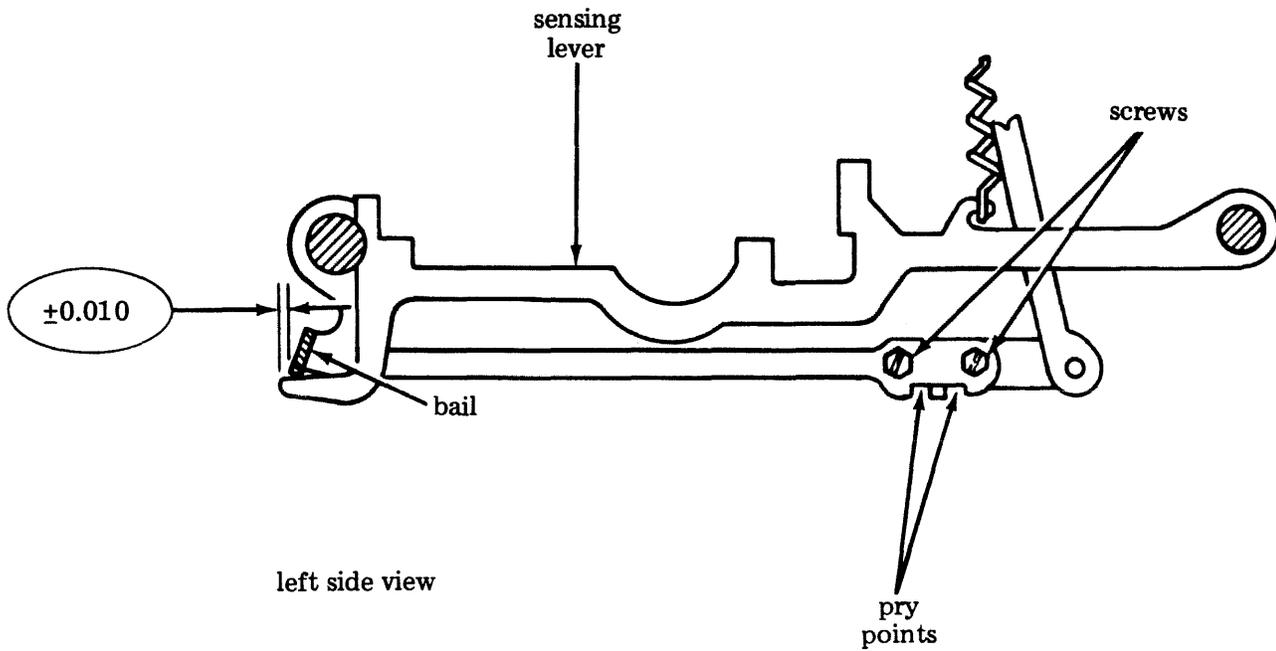


SENSING LEVER AND BAIL GAP

- Turn punch OFF.

Requirement — Leftmost sensing lever 0.010 underflush to 0.010 overflush with the bail.

Adjust — Loosen screws.
Use pry points to position bail.
Tighten screws.

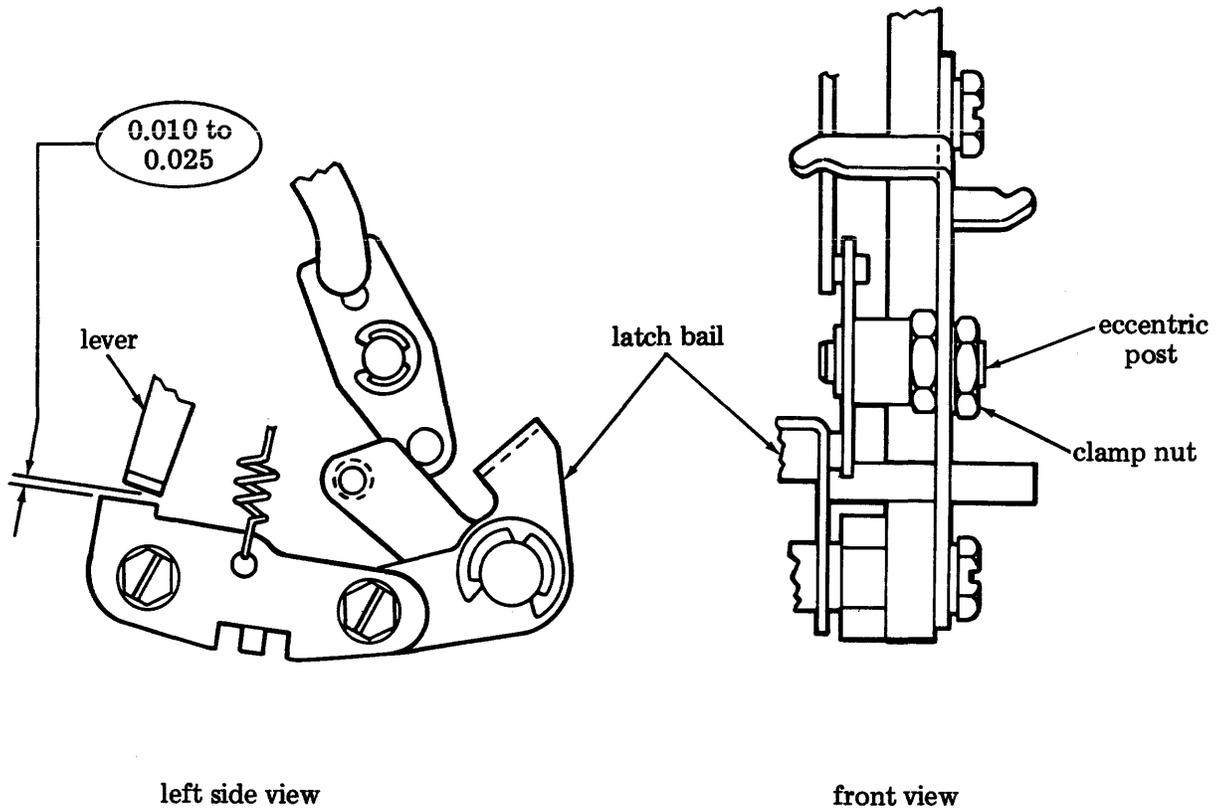


AUTOMATIC "ON"

- Turn punch ON.
- Set up nos. 2 and 5 code levels marking in typing unit.
- Rotate main shaft until drive link is in its most forward position.

Requirement — 0.010 to 0.025 between latch bail and lever.

**Adjust — Loosen clamp nut.
Rotate eccentric post.
Tighten nut.**

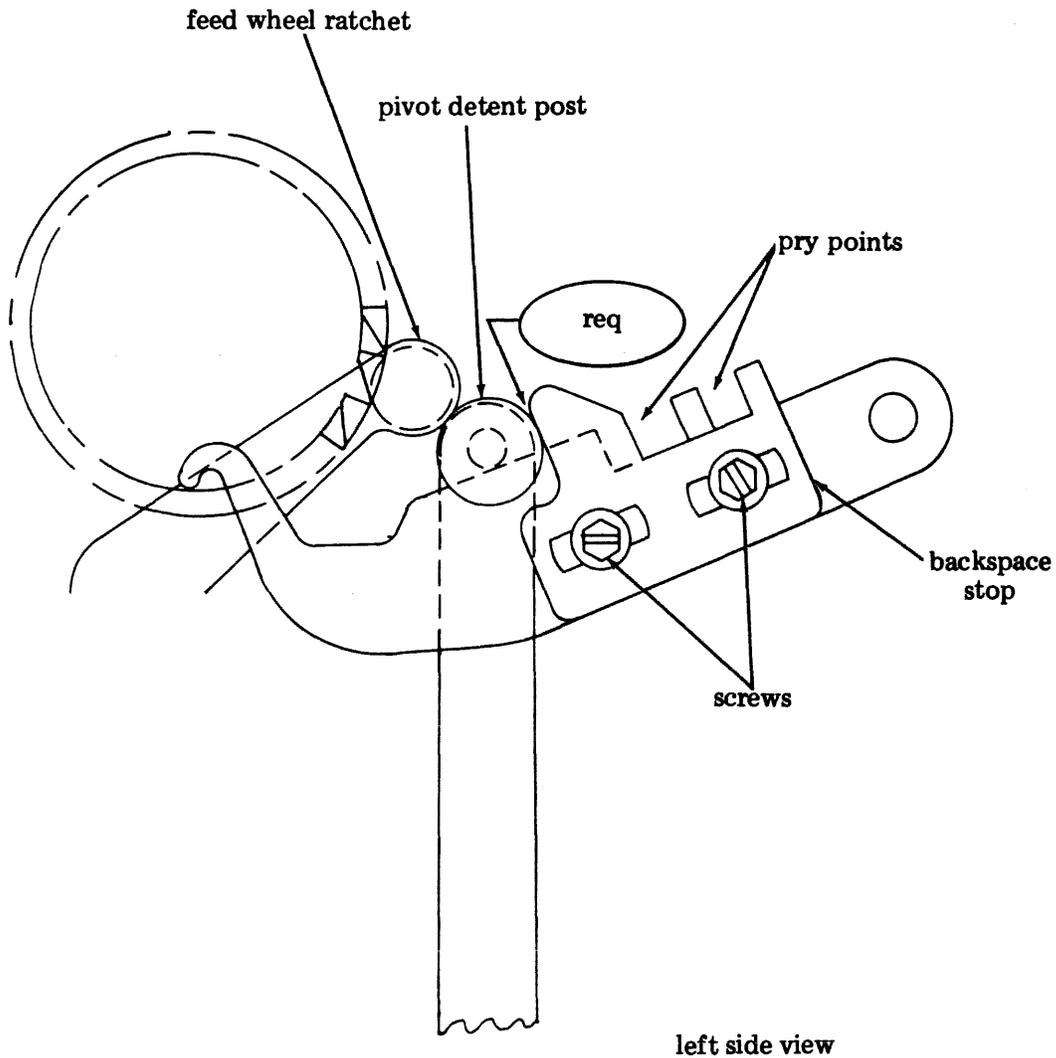


BACKSPACE STOP

- Turn punch OFF.
- Operate control arm to provide a backspace.
- Position feed wheel ratchet fully detented.

Requirement — Backspace stop against (lightly) the larger diameter of pivot detent post.

Adjust — Loosen screws.
Use pry points to position backspace stop.
Tighten screws.



MANUAL CONTROL

- Turn punch OFF.
- Position control arm to rest on latch bail pin.

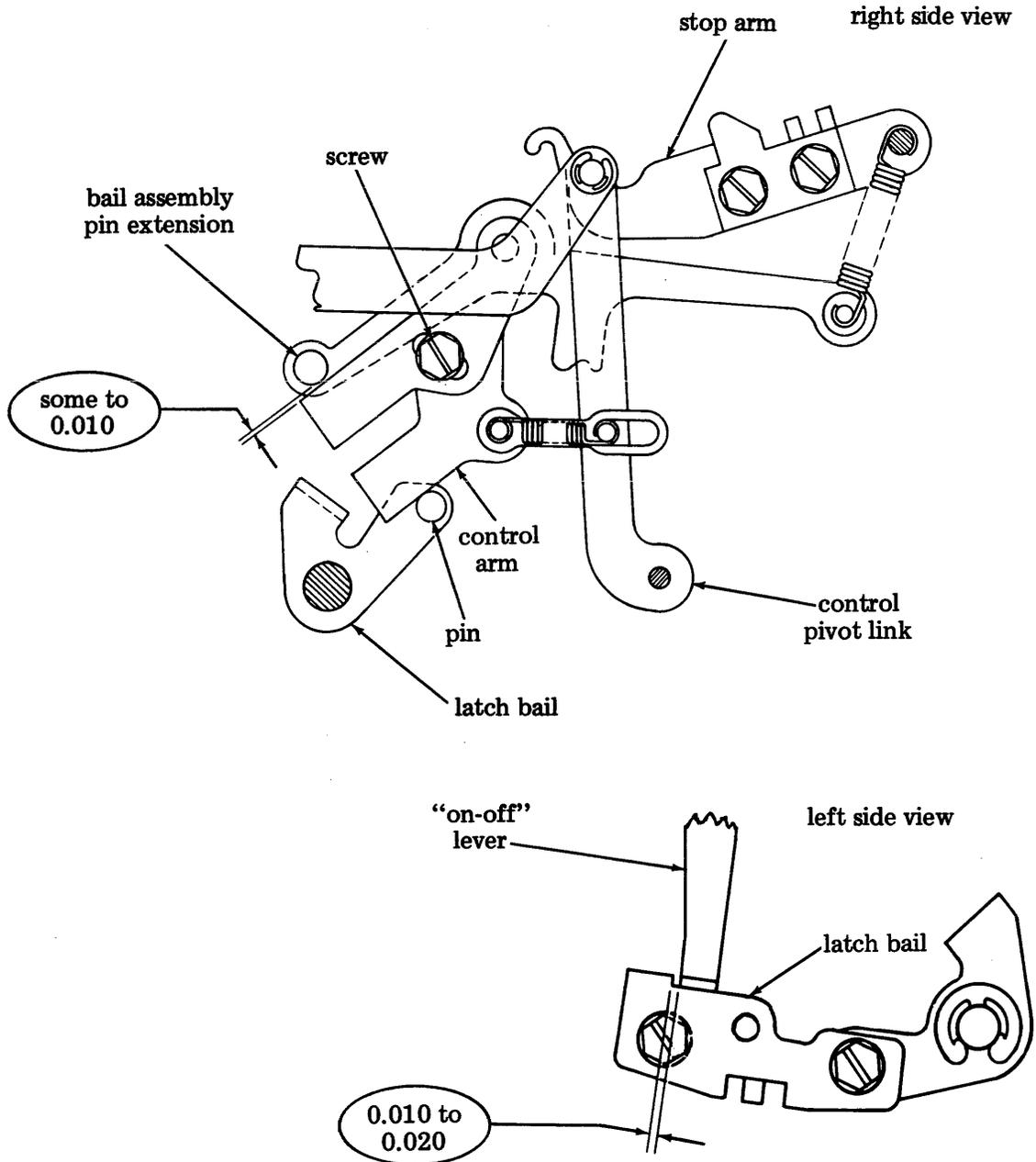
Requirement 1 — Some to 0.010 between control arm and bail assembly pin extension.

Adjust — Loosen screw.
Position control arm.
Tighten screw.

- Position control pivot link forward and against its stop arm.

Requirement 2 — 0.010 to 0.020 between “on-off” lever and latch bail.

Adjust — Loosen nut on eccentric post.
Rotate eccentric post.
Tighten nut.

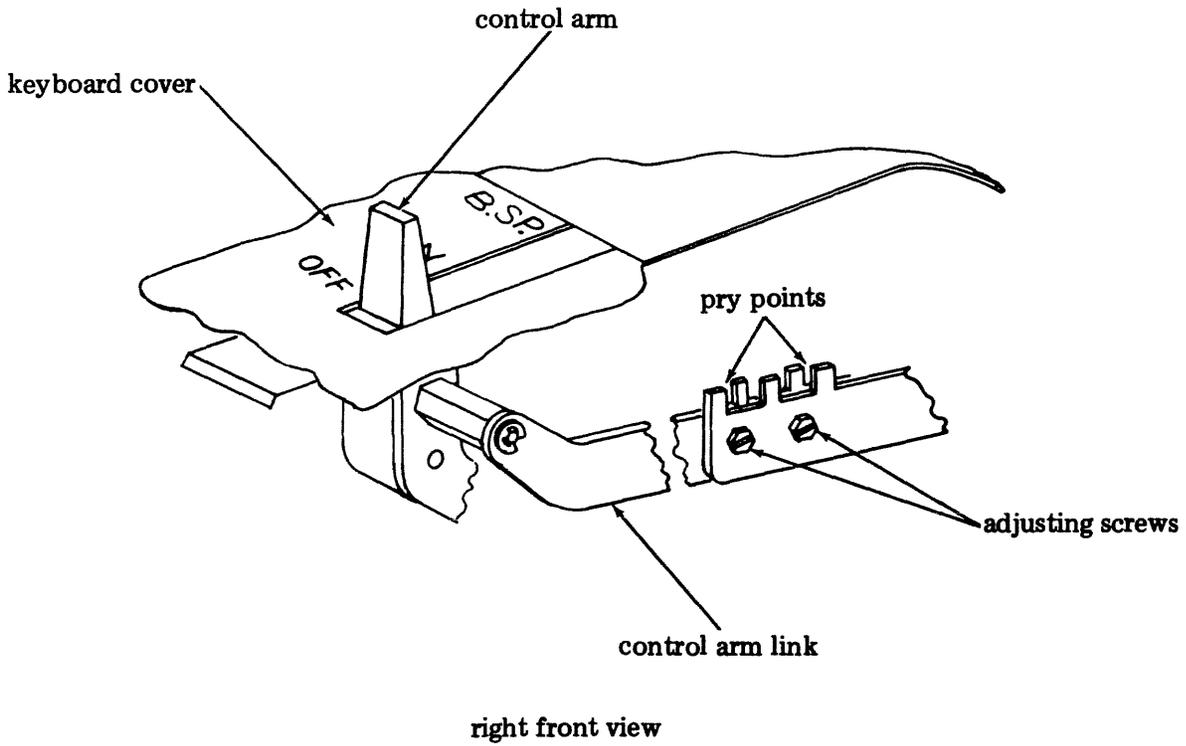


CONTROL ARM ALIGNMENT

- Turn punch OFF.
- Put keyboard hood on.

Requirement — Control arm aligned with OFF position marked on keyboard cover.

Adjust — Loosen adjusting screws.
Use pry points to position control arm link.
Tighten screws.



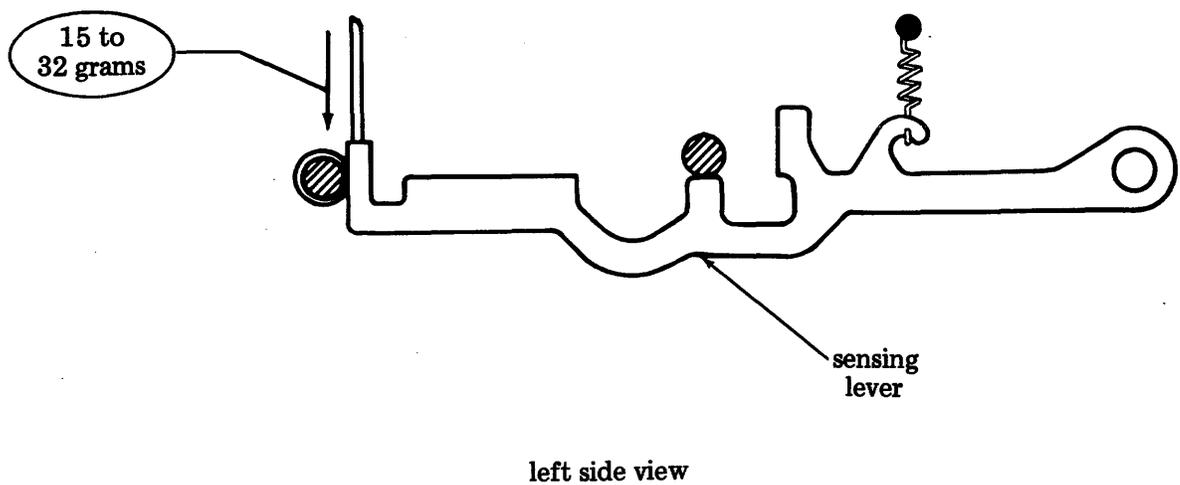
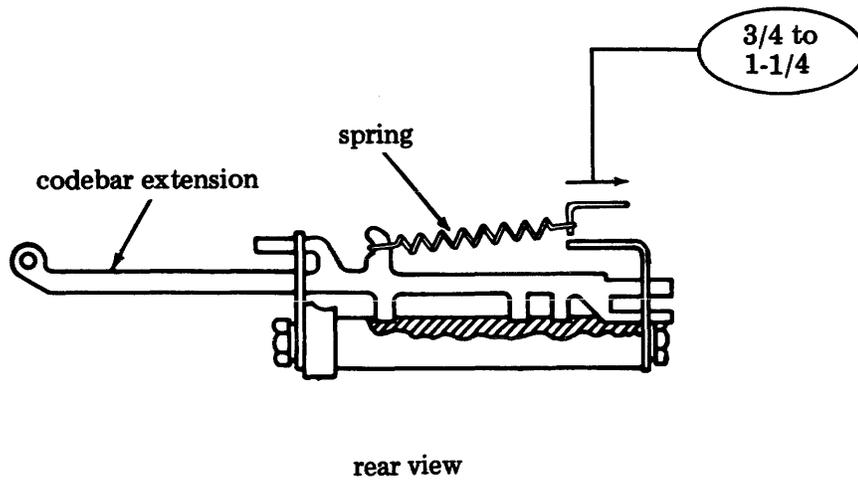
CODEBAR EXTENSION SPRINGS

- Latch (fully disengage) all typing unit clutches.

Requirement — $3/4$ to $1-1/4$ to pull codebar extension spring to its installed length.

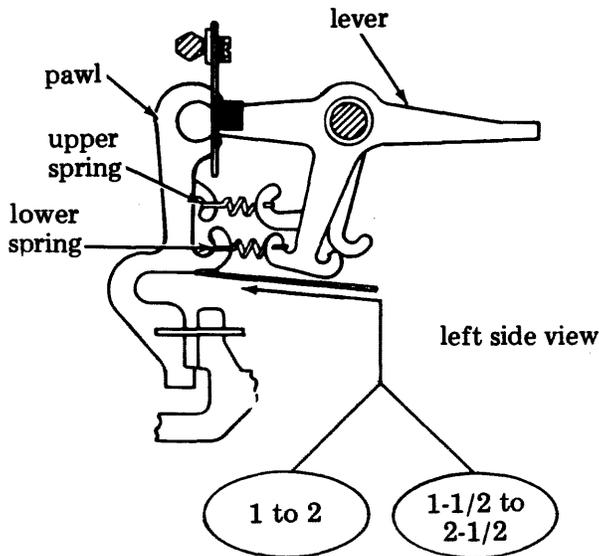
SENSING LEVER SPRINGS

Requirement — 15 to 32 grams to start sensing lever moving.



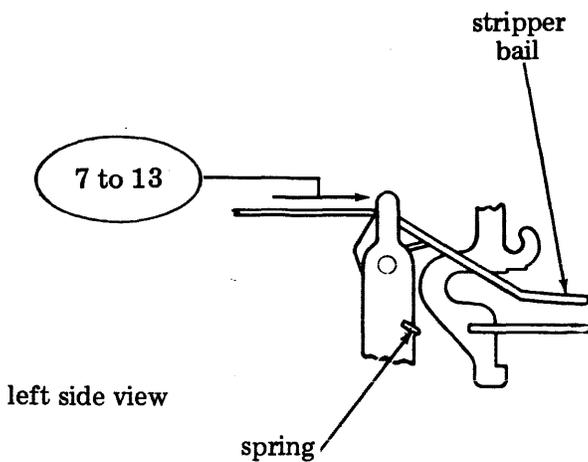
PAWL AND LEVER SPRINGS

Requirement — Upper spring: 1 to 2
 Lower spring: 1-1/2 to 2-1/2 to start pawl moving.



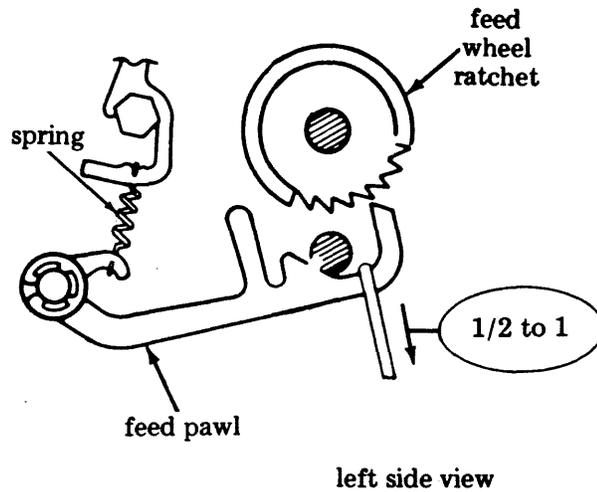
STRIPPER BAIL SPRING

Requirement — 7 to 13 to start stripper bail moving.



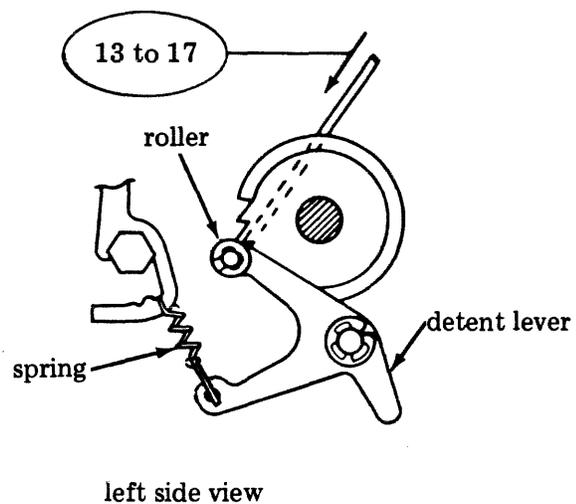
FEED PAWL SPRING

Requirement — 1/2 to 1 to start feed pawl moving.



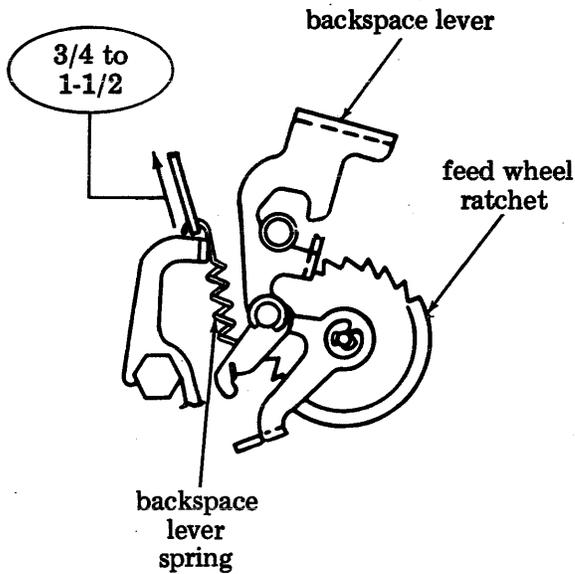
DETENT LEVER SPRING

Requirement — 13 to 17 to start detent lever moving (while pushing down on inside of lever at roller).



BACKSPACE LEVER SPRING

Requirement — 3/4 to 1-1/2 to pull backspace lever spring to its installed length.

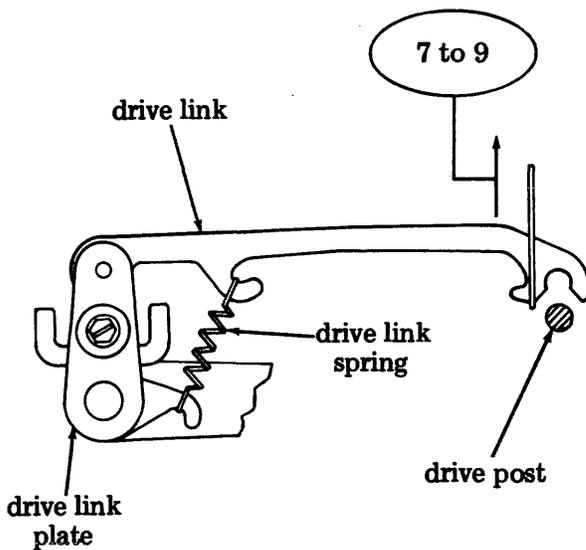


left side view

DRIVE LINK SPRING

- Latch (fully disengage) all typing unit clutches.
- Turn punch OFF.

Requirement — 7 to 9 to move drive link.

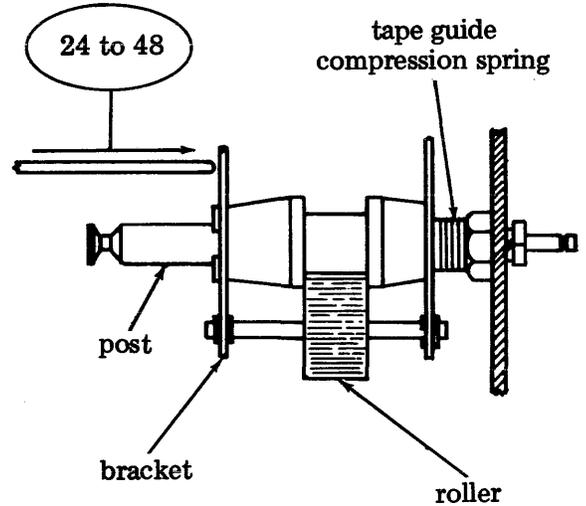


left side view

TAPE GUIDE COMPRESSION SPRING

- Remove tape guide tension spring.
- Raise roller slightly above feed wheel.

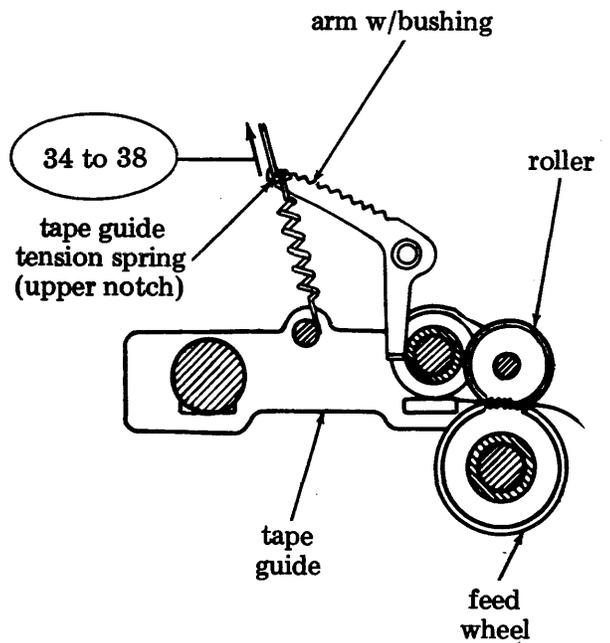
Requirement — 24 to 48 to start tape chute assembly moving.



front view

TAPE GUIDE TENSION SPRING

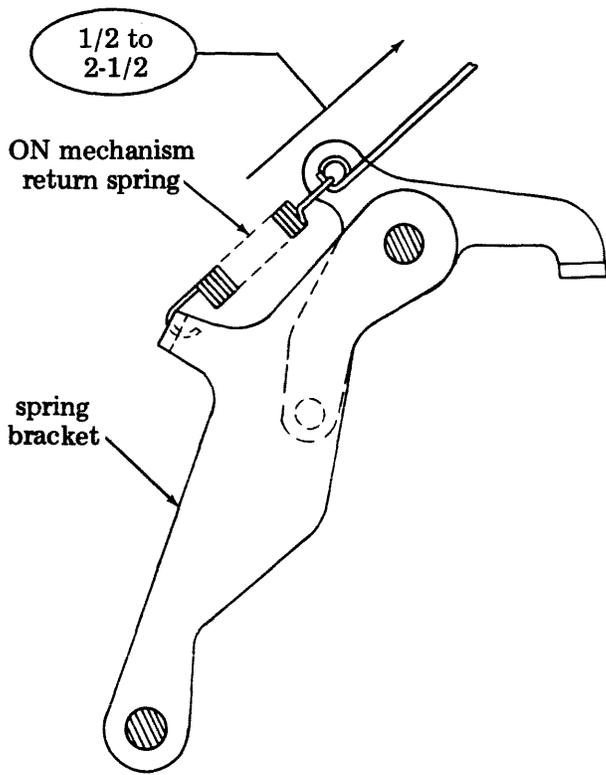
Requirement — 34 to 38 to pull tape guide tension spring to its installed (upper notch) length.



left side view

"ON" MECHANISM RETURN SPRING

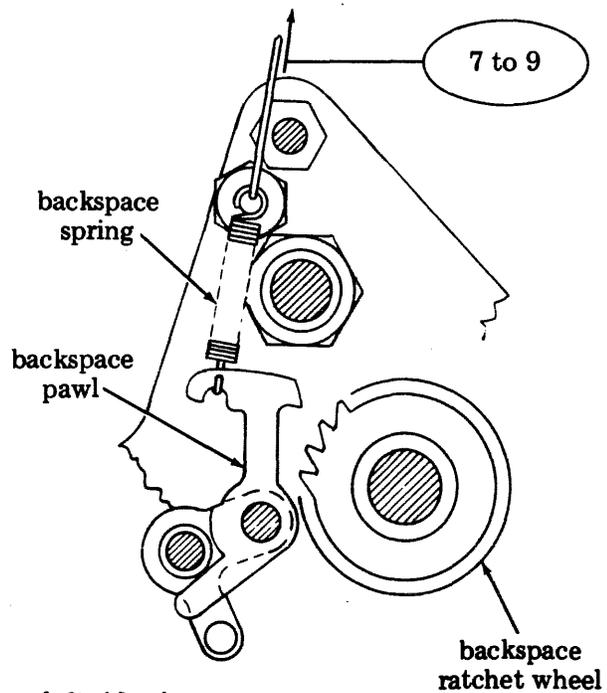
Requirement — 1/2 to 2-1/2 to pull ON mechanism return spring to its installed length.



right side view

BACKSPACE SPRING

Requirement — 7 to 9 to pull backspace spring to its installed length.



left side view

"ON-OFF" BAIL RETURN SPRING

Requirement — 2-1/2 to 3-1/4 to pull ON-OFF bail spring to its installed length.

STOP ARM SPRING

Requirement — 1/2 to 1-1/2 to pull stop arm spring to its installed length.

CONTROL PIVOT LINK YIELD SPRING

Requirement — 32 to 38 to pull control pivot link yield spring to its installed position.

