~~I.O.S.H~~

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BULLETIN 280B
VOL. 2

TECHNICAL MANUAL
MODEL 35
AUTOMATIC SEND-RECEIVE
TELETYPEWRITER SET
(ASR)

TELETYPE®
CORPORATION
5555 TOUHY AVENUE, SKOKIE, ILLINOIS

BULLETIN 280B
VOL. 2

TECHNICAL MANUAL
MODEL 35
AUTOMATIC SEND-RECEIVE
TELETYPEWRITER SET
(ASR)

CONTENTS

Adjustments

TELETYPE® CORPORATION
5555 TOUHY AVENUE, SKOKIE, ILLINOIS

Printed in U.S.A

INTRODUCTION

Bulletin 280B is a technical manual that provides general and specific technical information about the Model 35 Automatic Send-Receive Teletypewriter Set (ASR) and its component units.

The bulletin is made up of two volumes. Volume 1 contains descriptions and principles of operation, lubrication, and disassembly and reassembly. Volume 2 contains adjustments.

Each volume is made up of a group of appropriate independent sections. The sections are complete within themselves; they are separately identified by title and section number and the pages of each section are numbered consecutively, independent of other sections.

The identifying number of a section, a 9-digit number, appears at the top of each page of the section, in the upper left corner of left-hand pages and the upper right corner of right-hand pages.

The sections are arranged as shown in the table of contents on the following page. They are in ascending numerical order except where this is contrary to a logical presentation of material.

To locate specific information, proceed as follows:

- Find the involved equipment in the first column of the table of contents.
- Find the type of information in the second column.
- Find the correct 9-digit number opposite these in the third column.
- Turn to Page 1 of the section where its contents can be found.

TABLE OF CONTENTS

FILING INSTRUCTIONS

1. The following filing instructions apply to changes sent to the field.
2. Asterisks (*) in the table of contents indicate changes.
3. When the issue of a section changes, replace the old issue with the attached new one.
4. In the case of addendums, turn to the affected section and follow the instructions on the first page of the attached addendum.
5. Replace the old table of contents with this new one.

Note: For information on motor units, see Bulletin 295B.

35 TYPING UNIT

ADJUSTMENTS

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1. GENERAL

1.01 This section has been revised to include recent engineering changes, to add late 35 type equipment, and to rearrange the text. Changes and additions are indicated by arrows placed in the margins.

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

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

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

1.05 All electrical contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25 per cent of the contact diameter. Check contacts for pitting and corrosion and clean or burnish them before making specified adjustment or tolerance measurement. Avoid sharp kinks or bends in the contact springs.

→ CAUTION: KEEP ALL ELECTRICAL CONTACTS FREE OF OIL AND GREASE.

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

1.07 When making a complete adjustment of the unit, the following conditioning operations should be performed to prevent damage:

(a) Loosen the shift lever drive arm clamp screw (Par 2.12).

(b) Move the right and left vertical positioning lever eccentric studs (Par 2.27 and 2.28) in rocker shaft brackets to their lowest position.

(c) Loosen the two bearing stud mounting screws and the two connecting strip clamp screws in the horizontal positioning drive linkage (Par. 2.33).

(d) Loosen the clamp screws and move the reversing slide brackets to their uppermost position (Par 2.32).

(e) Loosen the function reset bail blade mounting screws (Par 2.31).

(f) Loosen the carriage return lever clamp screw (Par 2.44).

(g) Loosen the clamp screws in the oscillating rail slide (Par 2.39).

(h) Loosen the reversing slide adjusting stud (Par 2.32).

(i) Loosen clamp and pivot screws on shift arm bearing bracket and move to extreme downward position (Par 2.33).

(j) Loosen the clamp screw on the shift drive pawl operating bail (Par 2.36).

(k) Check the following adjustments during each lubricating period:

(1) Printing carriage position (Par 2.43).

(2) Printing hammer bearing stud (Par 2.43).

(3) Printing hammer stop bracket. Also see Note in Par 2.49.

(4) Lower draw wire rope (Par 2.40).

(5) Dashpot vent screw adjustment and check transfer slide for binds (Par 2.45).

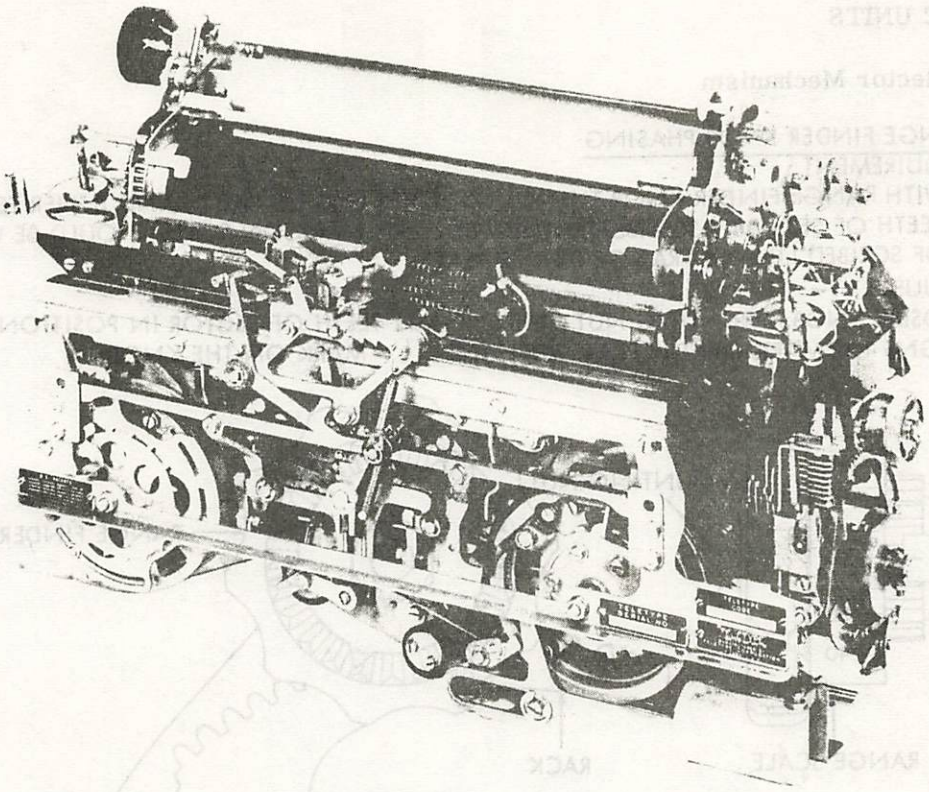


Figure 1 - 35 Typing Unit (Friction Feed)

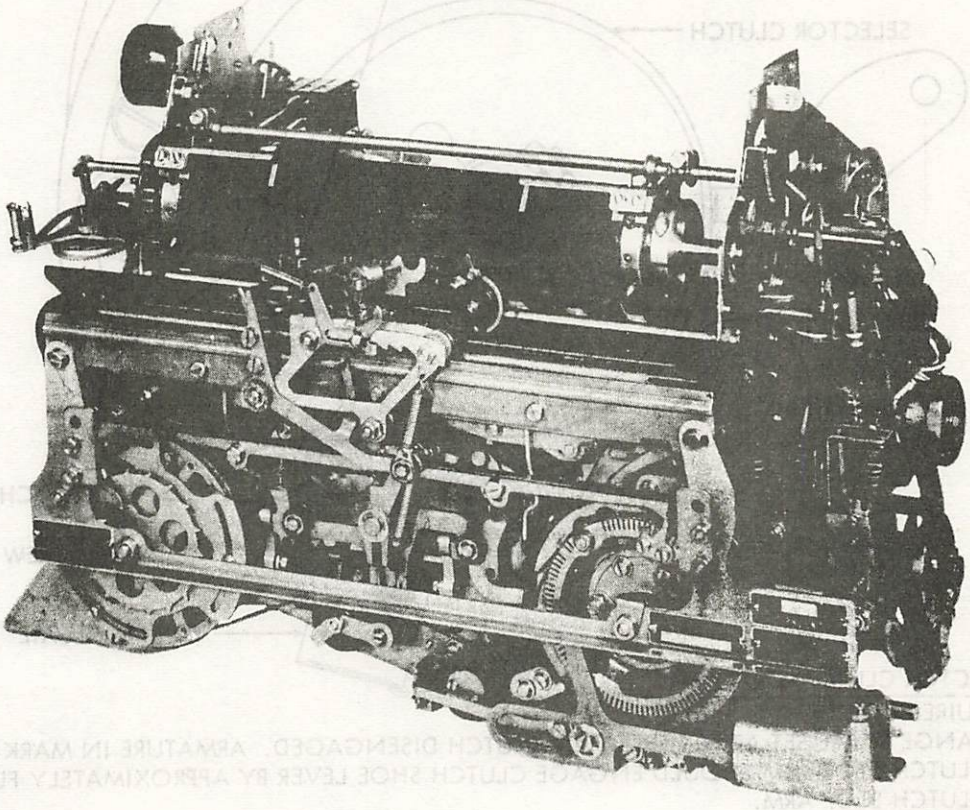


Figure 2 - 35 Typing Unit (Sprocket Feed)

2. BASIC UNITS

2.01 Selector Mechanism

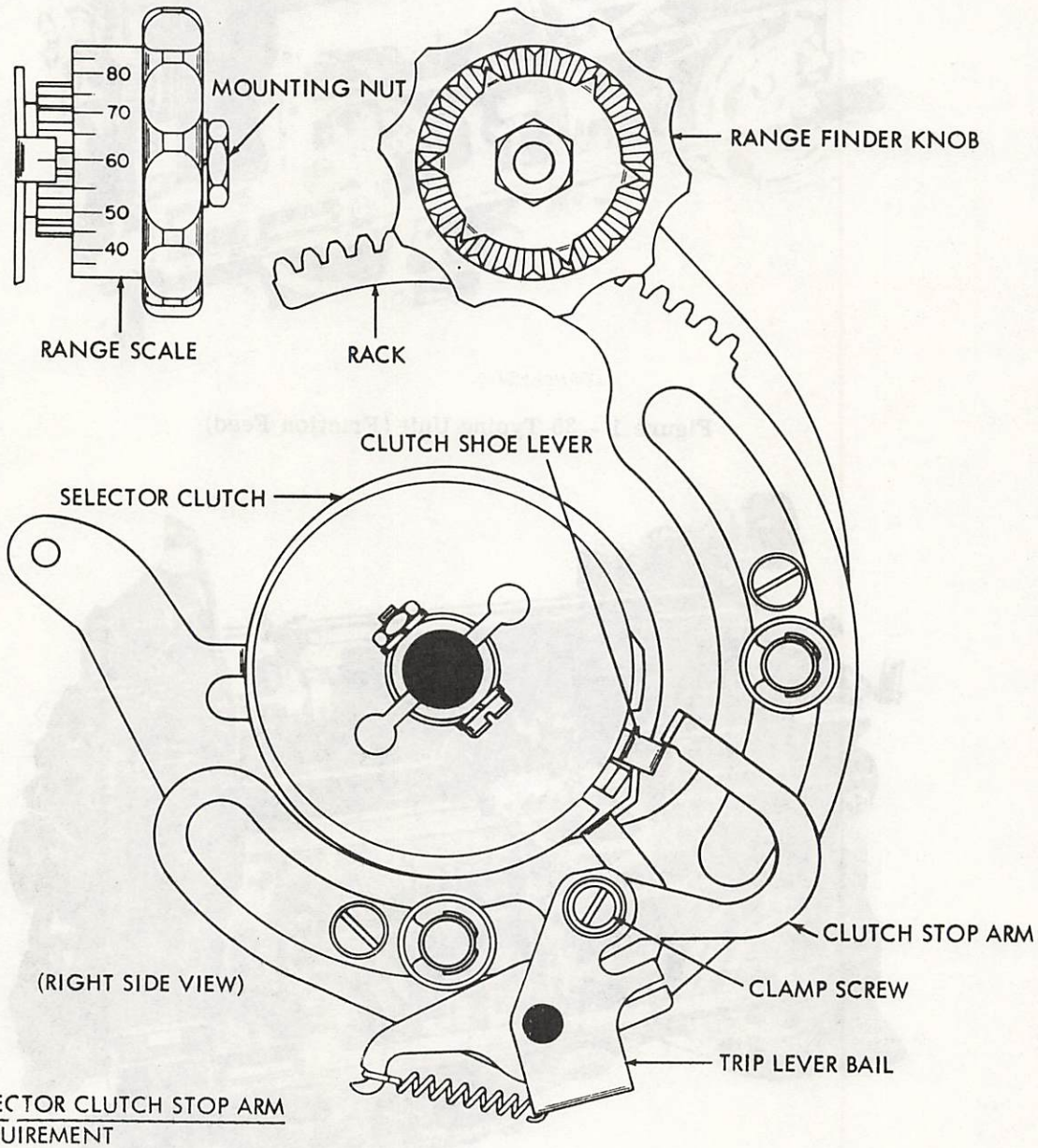
(A) RANGE FINDER KNOB PHASING

REQUIREMENT

WITH RANGE FINDER KNOB TURNED TO EITHER END OF RACK, AND INNER TEETH OF KNOB AND TEETH OF SECTOR ASSEMBLY ENGAGED, ℄ MARK ON SCALE SHOULD BE WITHIN ± 3 DIVISIONS OF SCRIBED LINE ON RANGE FINDER PLATE.

TO ADJUST

LOOSEN KNOB MOUNTING NUT AND ENGAGE TEETH OF SECTOR IN POSITION THAT MOST CLOSELY ALIGNS THE MARK ON THE PLATE WITH THE ℄ MARK ON THE KNOB.



(B) SELECTOR CLUTCH STOP ARM

REQUIREMENT

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

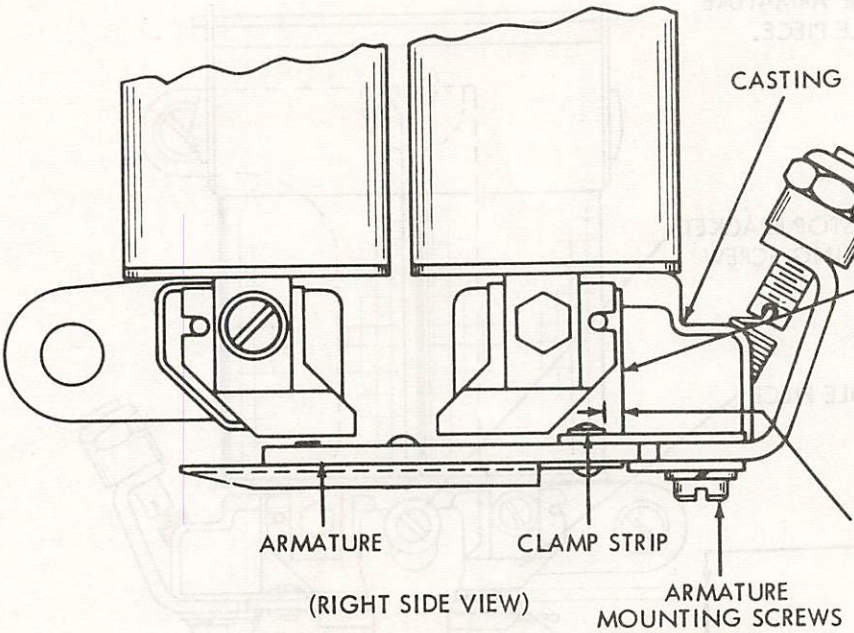
TO ADJUST

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

2.02 Selector Mechanism continued

NOTE

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



(RIGHT SIDE VIEW)

SELECTOR ARMATURE

NOTE

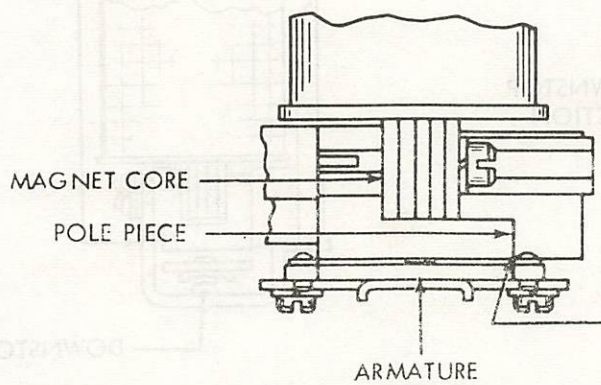
THIS REQUIREMENT NEED NOT BE MADE NOR CHECKED IF THE SELECTOR MAGNET BRACKET AND RECEIVING MARGIN REQUIREMENTS ARE MET.

(1) REQUIREMENT (ARMATURE CLAMP STRIP)
CLEARANCE BETWEEN ARMATURE CLAMP STRIP AND CASTING.
MIN 0.025 INCH
MAX 0.045 INCH

(2) REQUIREMENT (ARMATURE ALIGNMENT)
OUTER EDGE OF ARMATURE SHOULD BE FLUSH WITHIN 0.015 INCH WITH OUTER EDGE OF POLE PIECES.

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.



(FRONT VIEW)

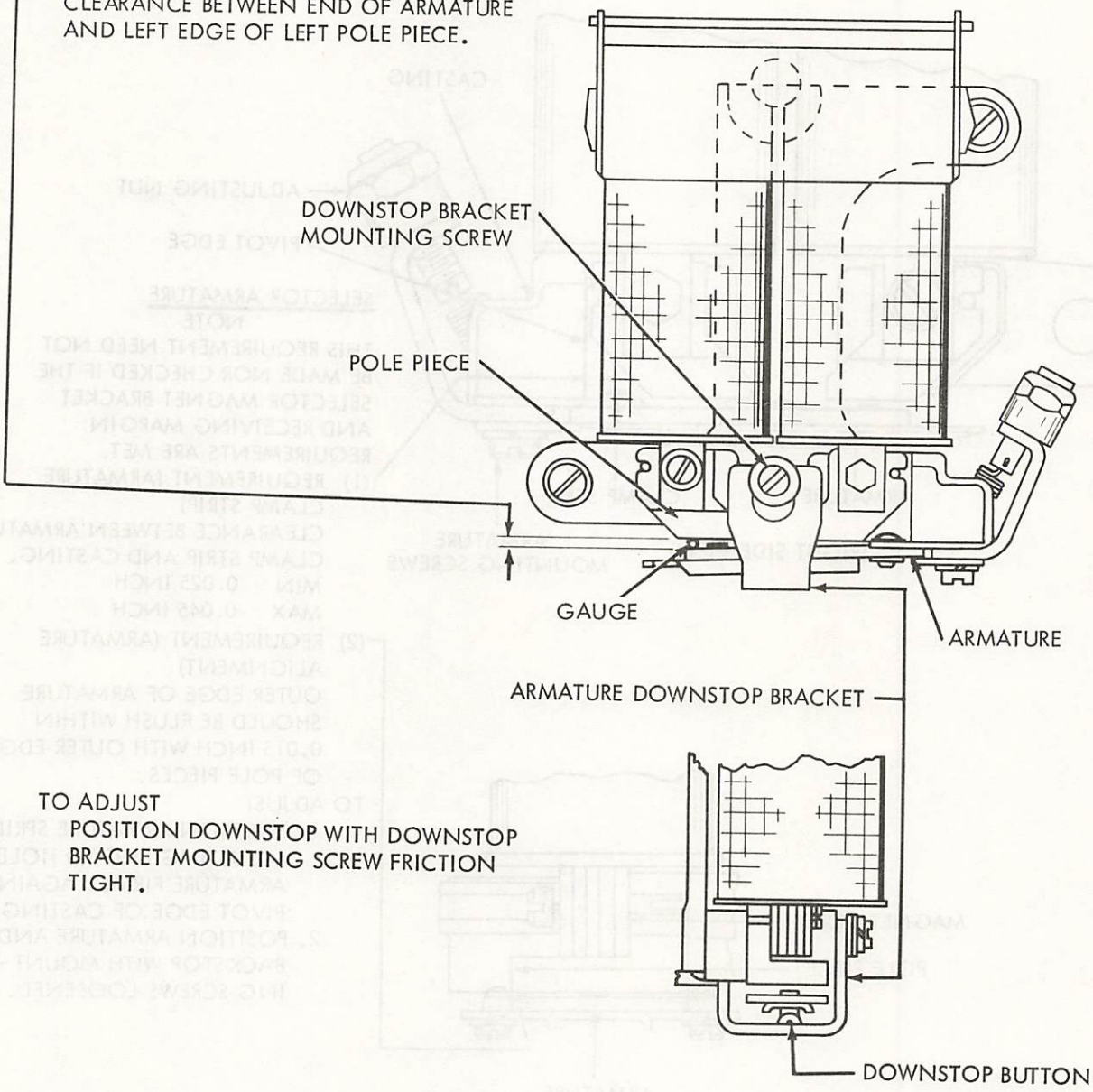
2.03 Selector Mechanism continued

SELECTOR ARMATURE DOWNSTOP - PRELIMINARY

REQUIREMENT

MAGNET DE-ENERGIZED. LOCK LEVERS ON HIGH PART OF CAM. WITH ARMATURE RESTING AGAINST DOWNSTOP

MIN 0.025 INCH --- MAX 0.030 INCH CLEARANCE BETWEEN END OF ARMATURE AND LEFT EDGE OF LEFT POLE PIECE.



TO ADJUST

POSITION DOWNSTOP WITH DOWNSTOP BRACKET MOUNTING SCREW FRICTION TIGHT.

2.04 Selector Mechanism continued

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

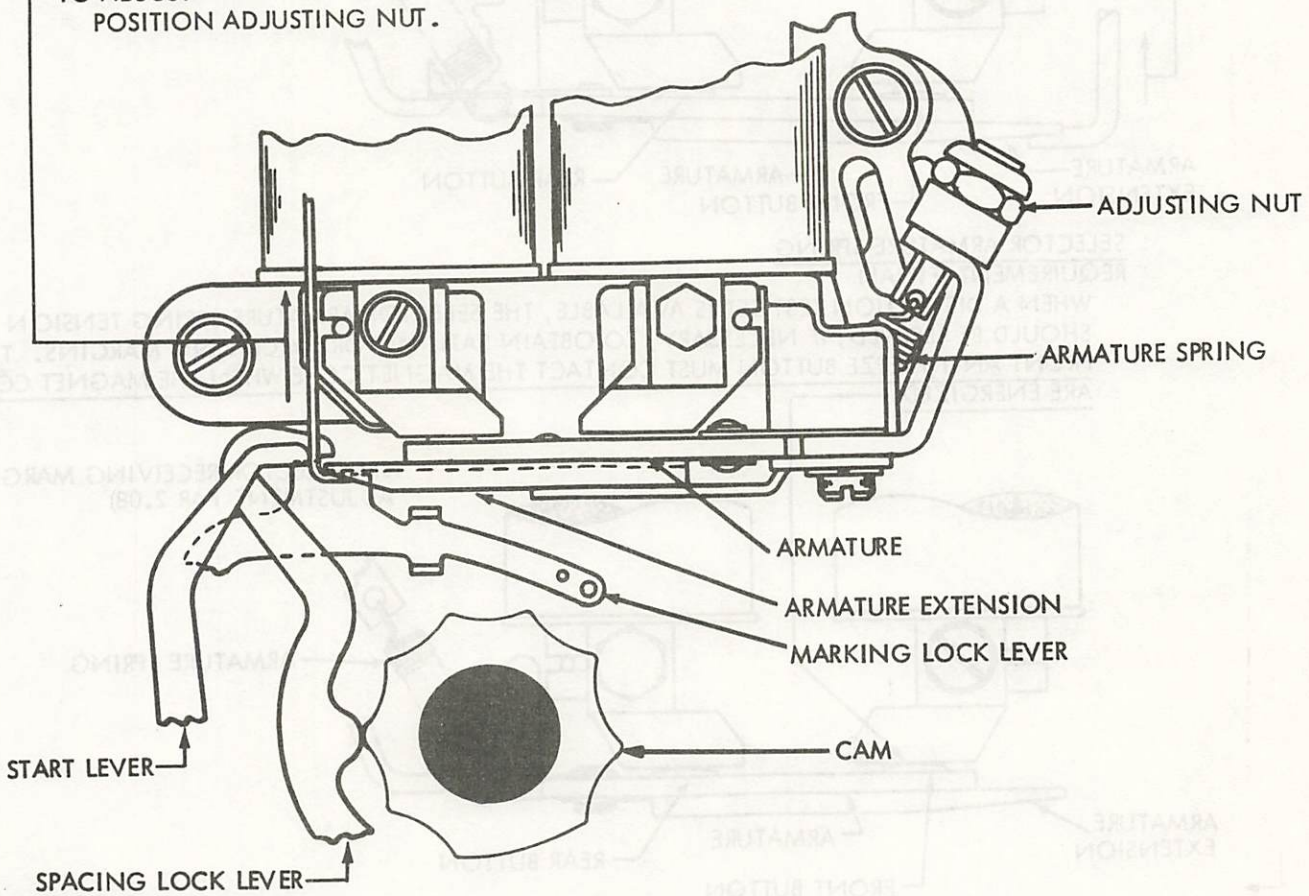
WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE THE FOLLOWING TENSIONS TO MOVE ARMATURE TO MARKING POSITION:

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

NOTE

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

TO ADJUST
POSITION ADJUSTING NUT.



REQUIREMENT (FINAL)
SEE SELECTOR RECEIVING MARGIN ADJUSTMENT (2.08)

2.05 Selector Mechanism continued

SELECTOR ARMATURE SPRING

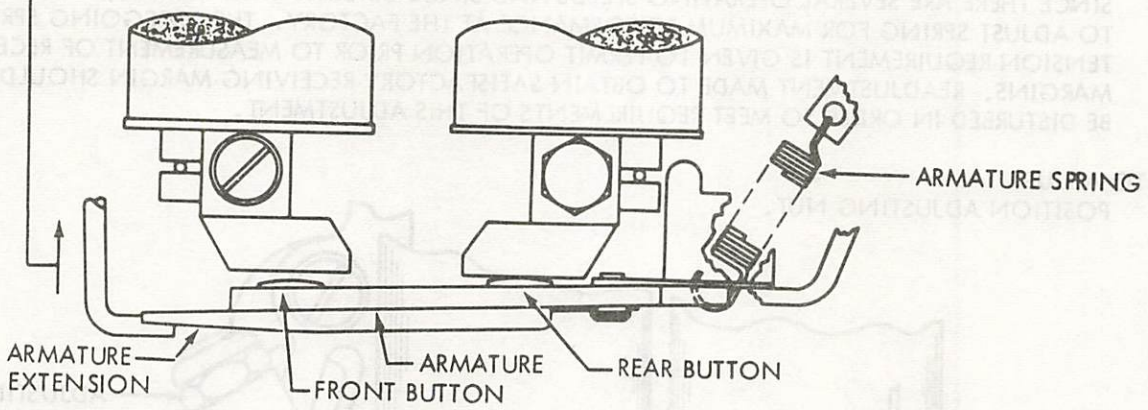
(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH TWO ANTI-FREEZE BUTTONS ONLY).

REQUIREMENT (PRELIMINARY)

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

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

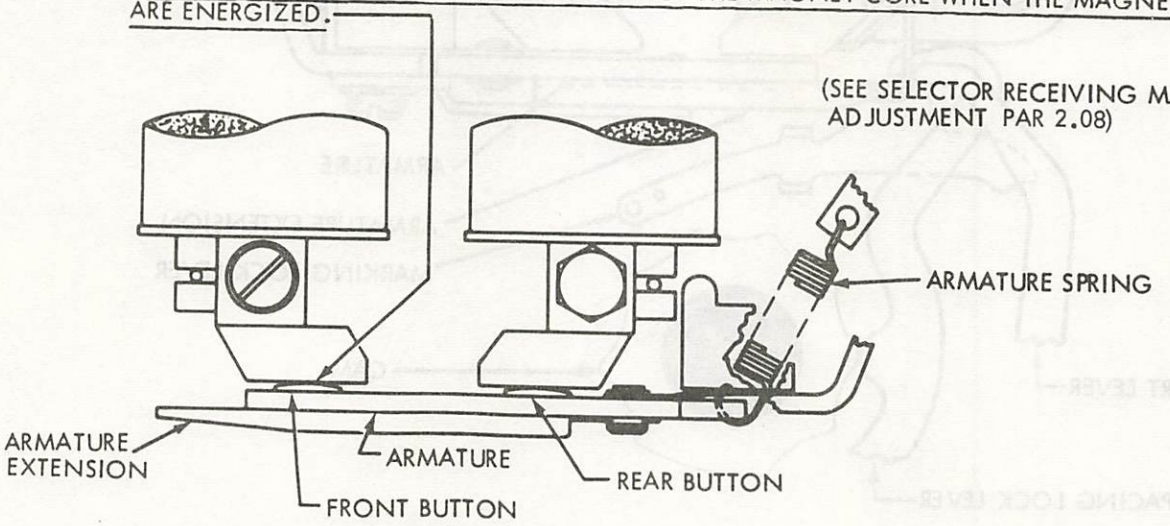
TO ADJUST
POSITION ADJUSTING NUT.



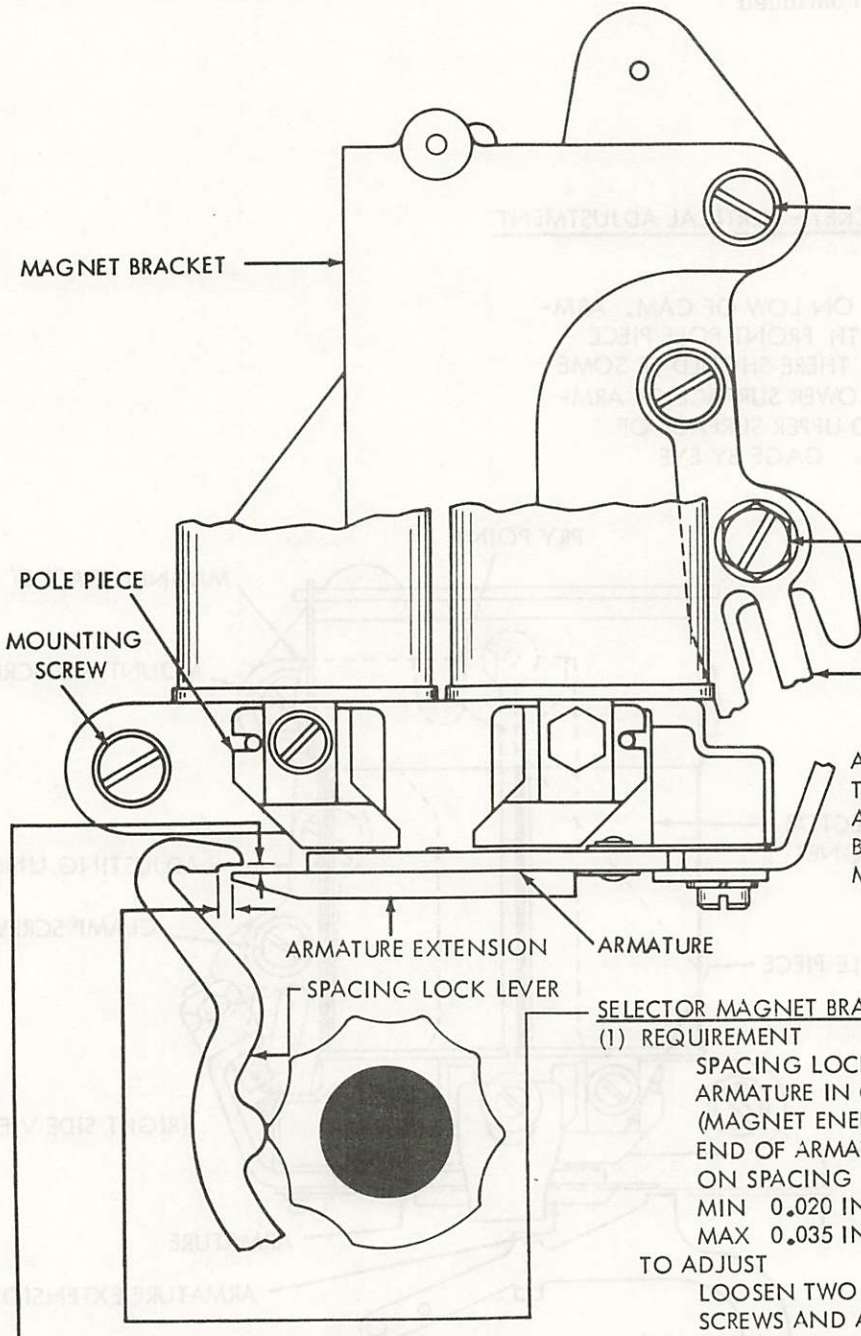
SELECTOR ARMATURE SPRING
REQUIREMENT (FINAL)

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

(SEE SELECTOR RECEIVING MARGIN ADJUSTMENT PAR 2.08)



2.06 **Selector Mechanism** continued



NOTE
APPROPRIATE PRELIMINARY SELECTOR ARMATURE SPRING TENSION ADJUSTMENT MUST BE MADE BEFORE THE FOLLOWING ADJUSTMENT.

SELECTOR MAGNET BRACKET

(1) REQUIREMENT

SPACING LOCK LEVER ON EACH PEAK OF CAM. ARMATURE IN CONTACT WITH FRONT POLE PIECE (MAGNET ENERGIZED). CLEARANCE BETWEEN END OF ARMATURE EXTENSION AND SHOULDER ON SPACING LOCK LEVER.
MIN 0.020 INCH
MAX 0.035 INCH

TO ADJUST

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

(2) REQUIREMENT

ARMATURE IN CONTACT WITH FRONT POLE PIECE (MAGNET ENERGIZED). CLEARANCE BETWEEN UPPER SURFACE OF ARMATURE EXTENSION AND LOWER SURFACE OF SPACING LOCK LEVER WHEN LOCK LEVER IS HELD DOWNWARD.
MIN SOME
MAX 0.003 INCH

TO ADJUST

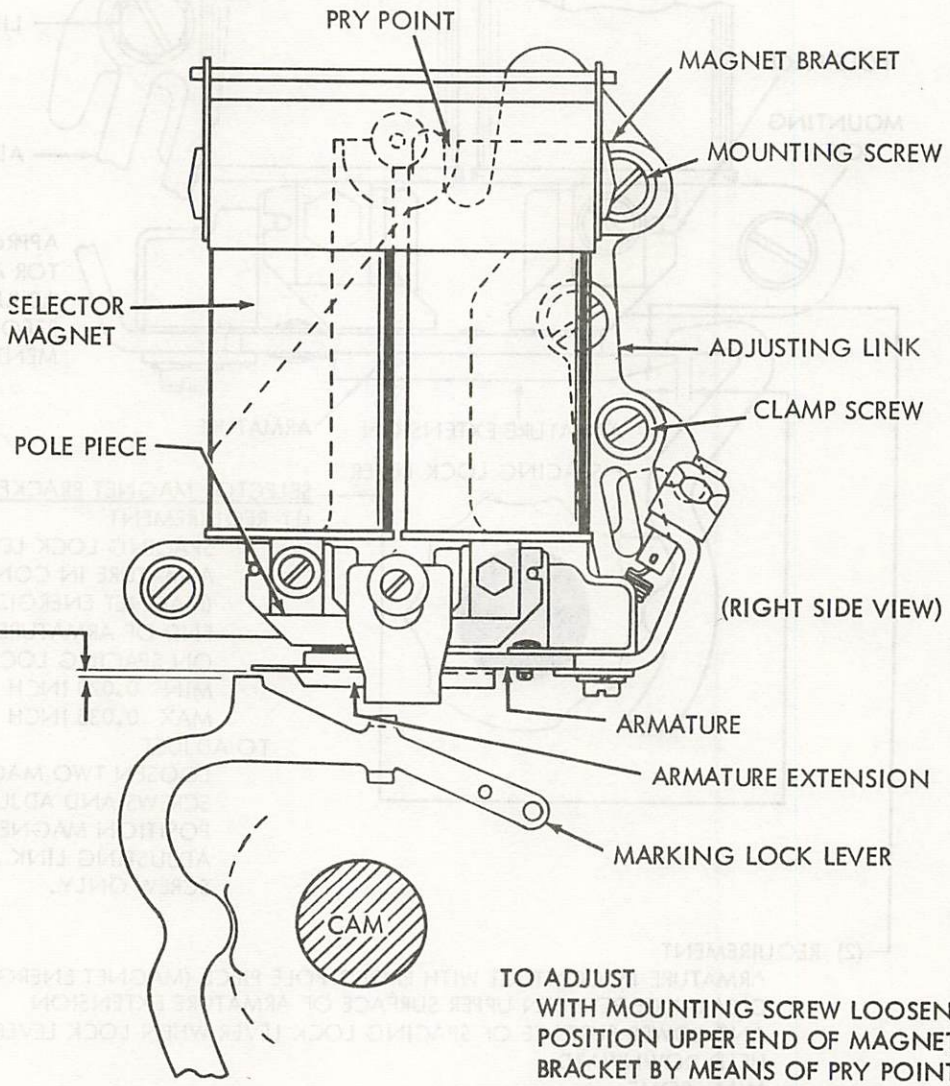
POSITION UPPER END OF MAGNET BRACKET. TIGHTEN TWO MAGNET BRACKET MOUNTING SCREWS. RECHECK REQUIREMENT (1).

2.07 Selector Mechanism continued

SELECTOR MAGNET BRACKET - VERTICAL ADJUSTMENT

(3) REQUIREMENT

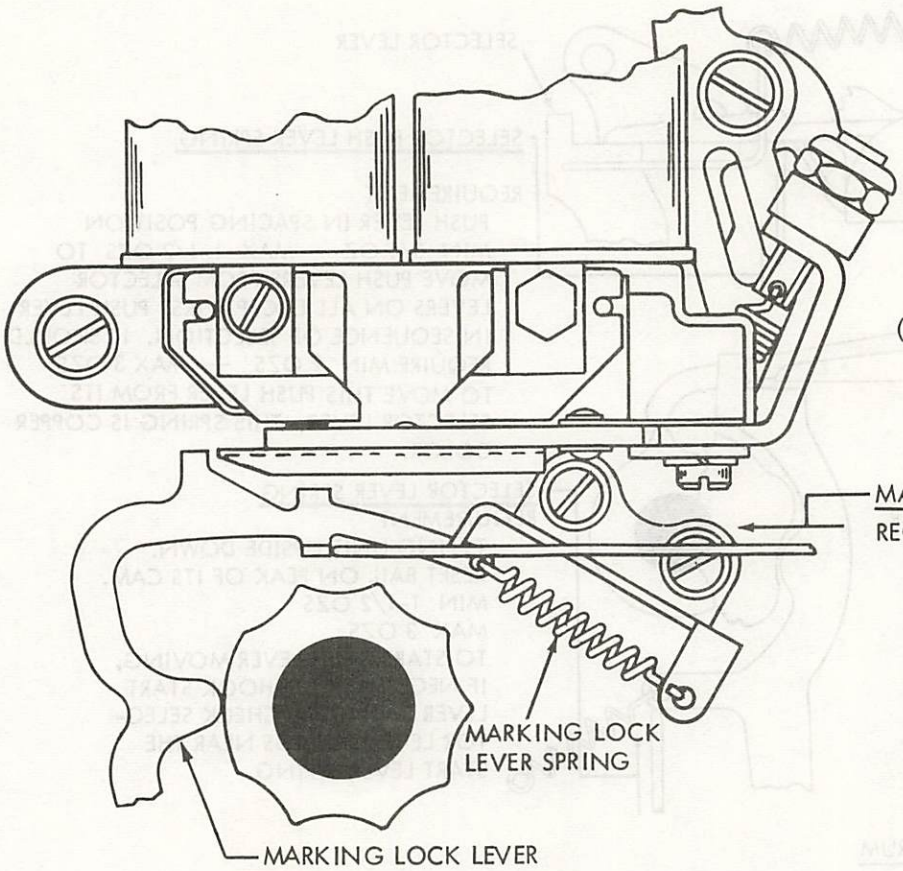
MARKING LOCK LEVER ON LOW OF CAM. ARMATURE IN CONTACT WITH FRONT POLE PIECE (MAGNET ENERGIZED). THERE SHOULD BE SOME CLEARANCE BETWEEN LOWER SURFACE OF ARMATURE EXTENSION AND UPPER SURFACE OF MARKING LOCK LEVER. GAGE BY EYE



TO ADJUST

WITH MOUNTING SCREW LOOSENED POSITION UPPER END OF MAGNET BRACKET BY MEANS OF PRY POINT. RECHECK REQUIREMENTS (1) AND (2).

2.08 Selector Mechanism continued



SELECTOR RECEIVING MARGIN

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

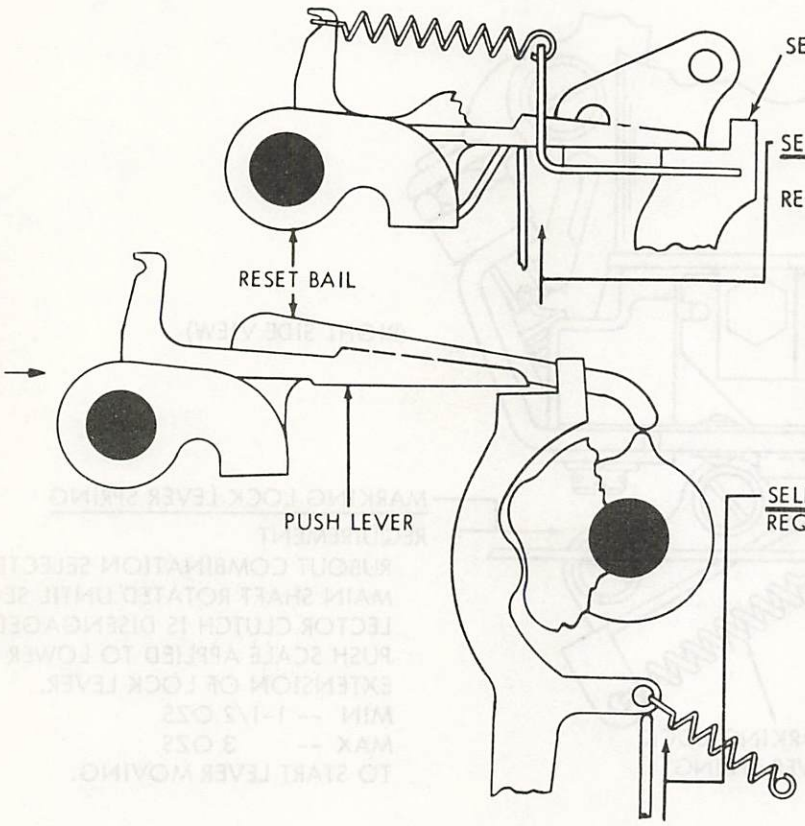
REQUIREMENT (FOR UNITS EMPLOYING ARMATURE WITH TWO ANTI-FREEZE BUTTONS)
WHEN A DISTORTION TEST SET IS AVAILABLE, THE SELECTOR ARMATURE SPRING TENSION SHOULD BE REFINED, IF NECESSARY, TO OBTAIN SATISFACTORY RECEIVING MARGINS. THE FRONT ANTI-FREEZE BUTTON MUST CONTACT THE MAGNET CORE WHEN THE MAGNET COILS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

TO ADJUST: REFINE THE SELECTOR ARMATURE SPRING

SELECTOR RECEIVING MARGIN MINIMUM REQUIREMENTS

CURRENT	SPEED IN WPM	POINTS RANGE WITH ZERO DISTORTION	PERCENTAGE OF MARKING AND SPACING BIAS	END DISTORTION TOLERATED WITH SCALE AT BIAS OPTIMUM SETTING
0.060 OR 0.500 AMP (WINDINGS PARALLEL)	100	72	38	35

→2.09 Selector Mechanism continued



SELECTOR PUSH LEVER SPRING

REQUIREMENT

PUSH LEVER IN SPACING POSITION MIN 3/4 OZ -- MAX 1-1/2 OZS TO MOVE PUSH LEVERS FROM SELECTOR LEVERS ON ALL EXCEPT FIRST PUSH LEVER IN SEQUENCE OF SELECTION. IT SHOULD REQUIRE MIN 2 OZS --- MAX 3 OZS TO MOVE THIS PUSH LEVER FROM ITS SELECTOR LEVER. THIS SPRING IS COPPER COLOR.

SELECTOR LEVER SPRING

REQUIREMENT

TYPING UNIT UPSIDE DOWN. RESET BAIL ON PEAK OF ITS CAM. MIN 1-1/2 OZS MAX 3 OZS TO START EACH LEVER MOVING, IF NECESSARY, UNHOOK START LEVER SPRING TO CHECK SELECTOR LEVER SPRINGS NEAR THE START LEVER SPRING.

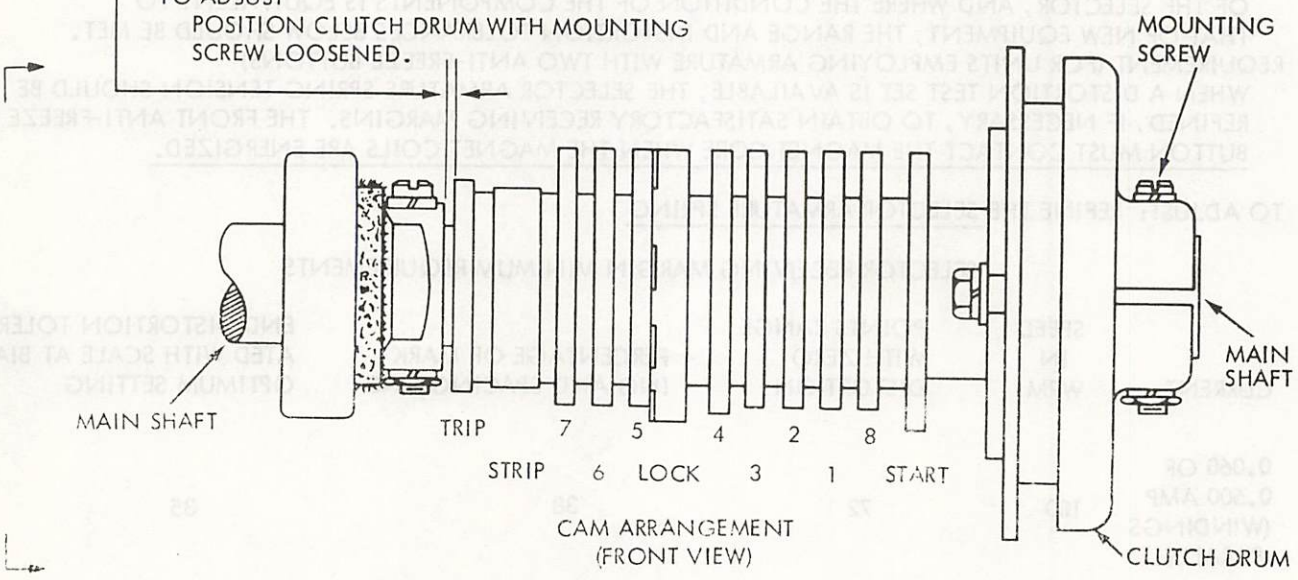
SELECTOR CLUTCH DRUM

REQUIREMENT

CLUTCH LATCHED IN STOP POSITION. CLUTCH DRUM AGAINST SHOULDER ON MAIN SHAFT. CAM-CLUTCH ASSEMBLY SHOULD HAVE SOME END PLAY MAX 0.010 INCH

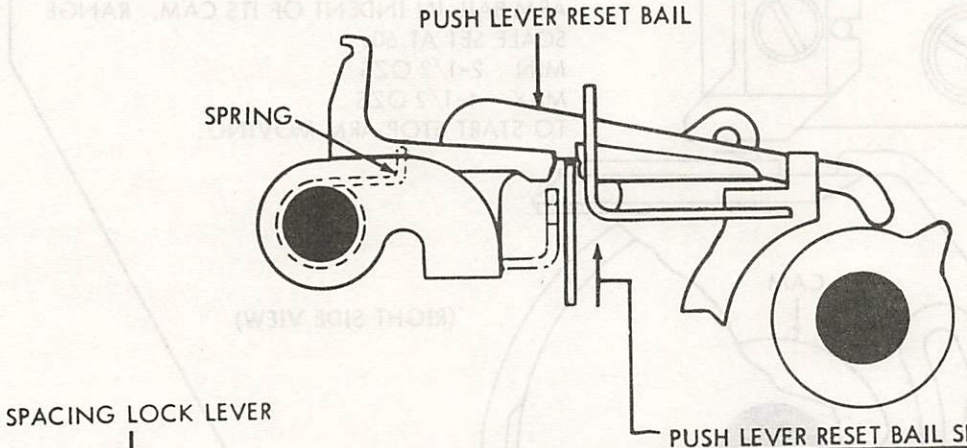
TO ADJUST

POSITION CLUTCH DRUM WITH MOUNTING SCREW LOOSENED.

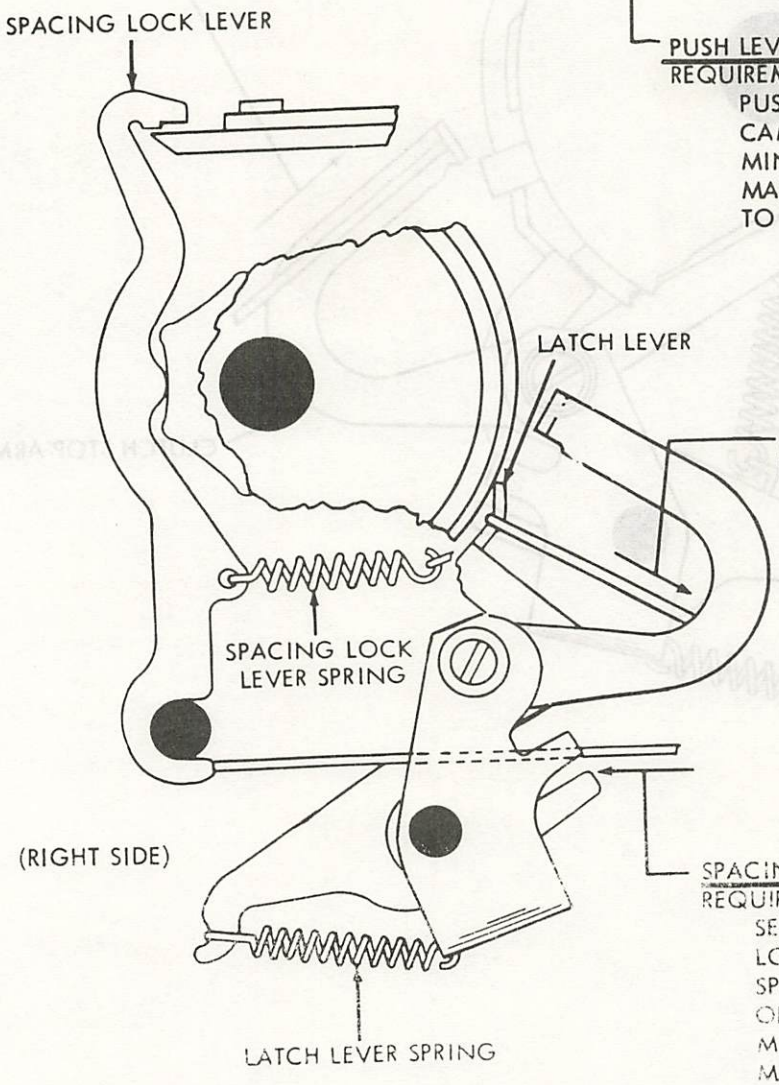


CAM ARRANGEMENT (FRONT VIEW)

2.10 Selector Mechanism continued



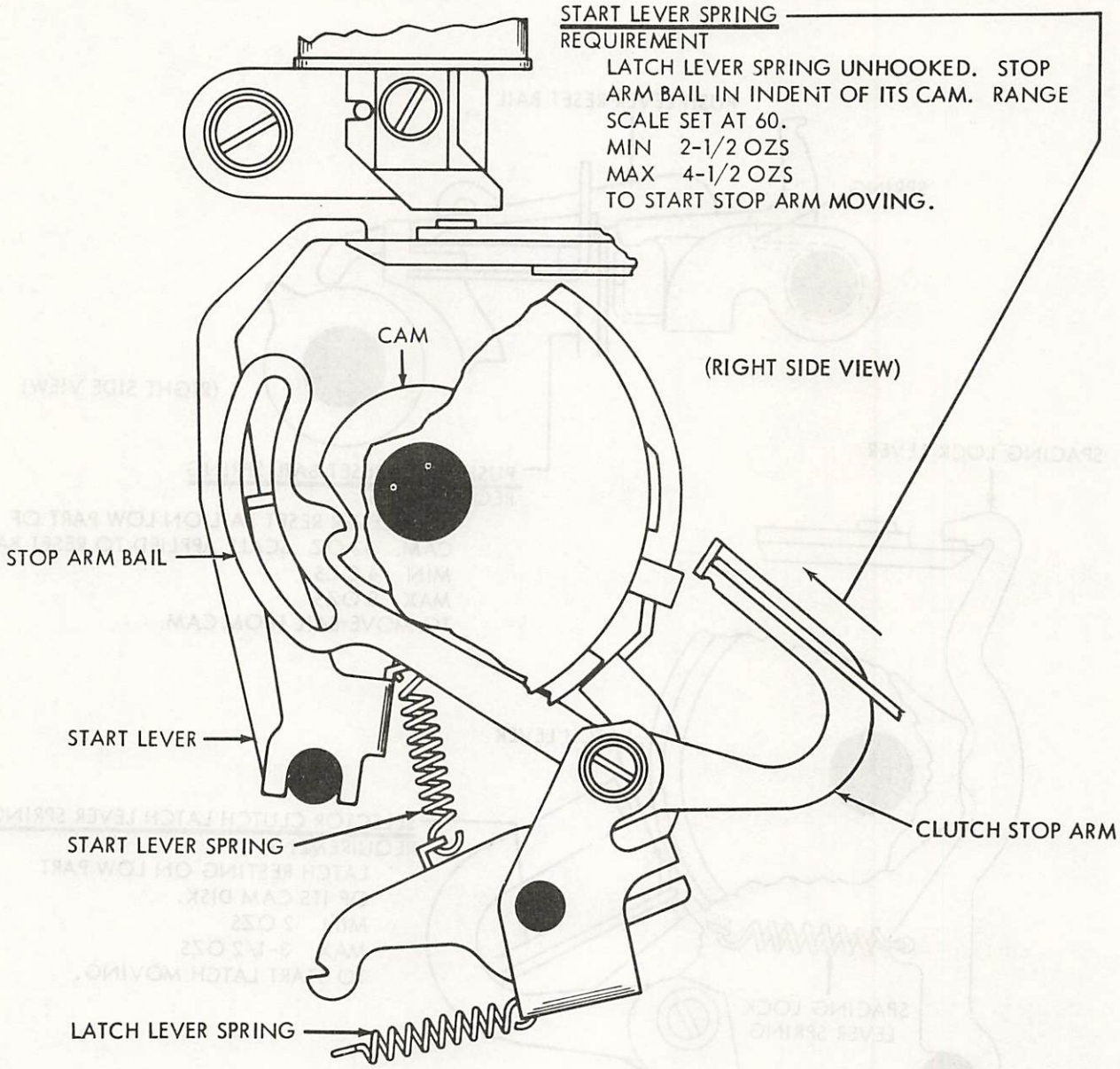
PUSH LEVER RESET BAIL SPRING
REQUIREMENT
PUSH LEVER RESET BAIL ON LOW PART OF CAM. 32 OZ SCALE APPLIED TO RESET BAIL.
MIN 4 OZS
MAX 8 OZS
TO MOVE BAIL FROM CAM.



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

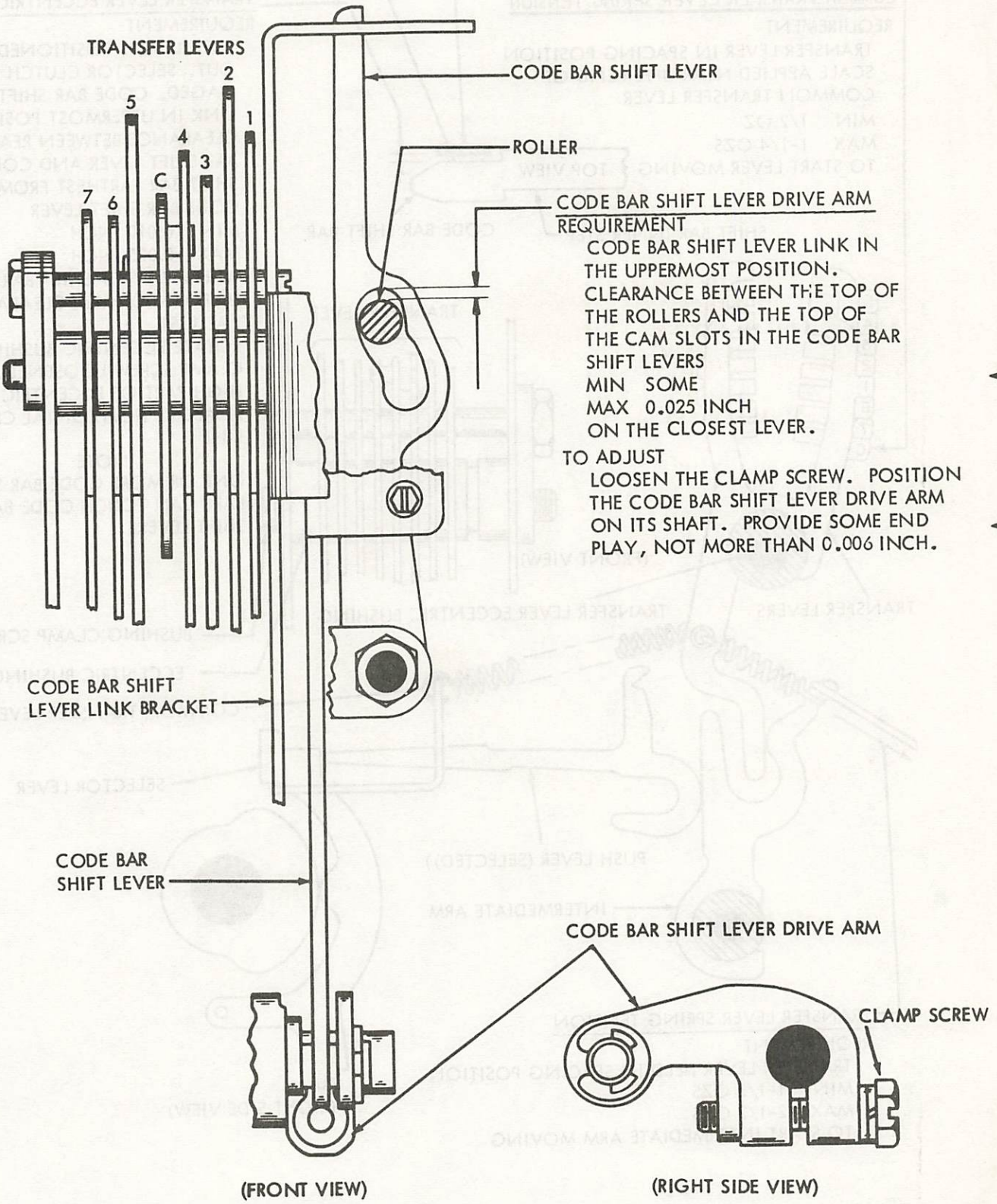
SPACING LOCK LEVER SPRING
REQUIREMENT
SELECTOR ARMATURE RELEASED. SPACING LOCK LEVER ON LOW PART OF ITS CAM. SPRING SCALE APPLIED TO LOWER END OF SPACING LOCK LEVER.
MIN 3 OZS
MAX 6 OZS
TO MOVE SPACING LOCK LEVER FROM ITS PIVOT SHAFT.

→2.11 Selector Mechanism continued

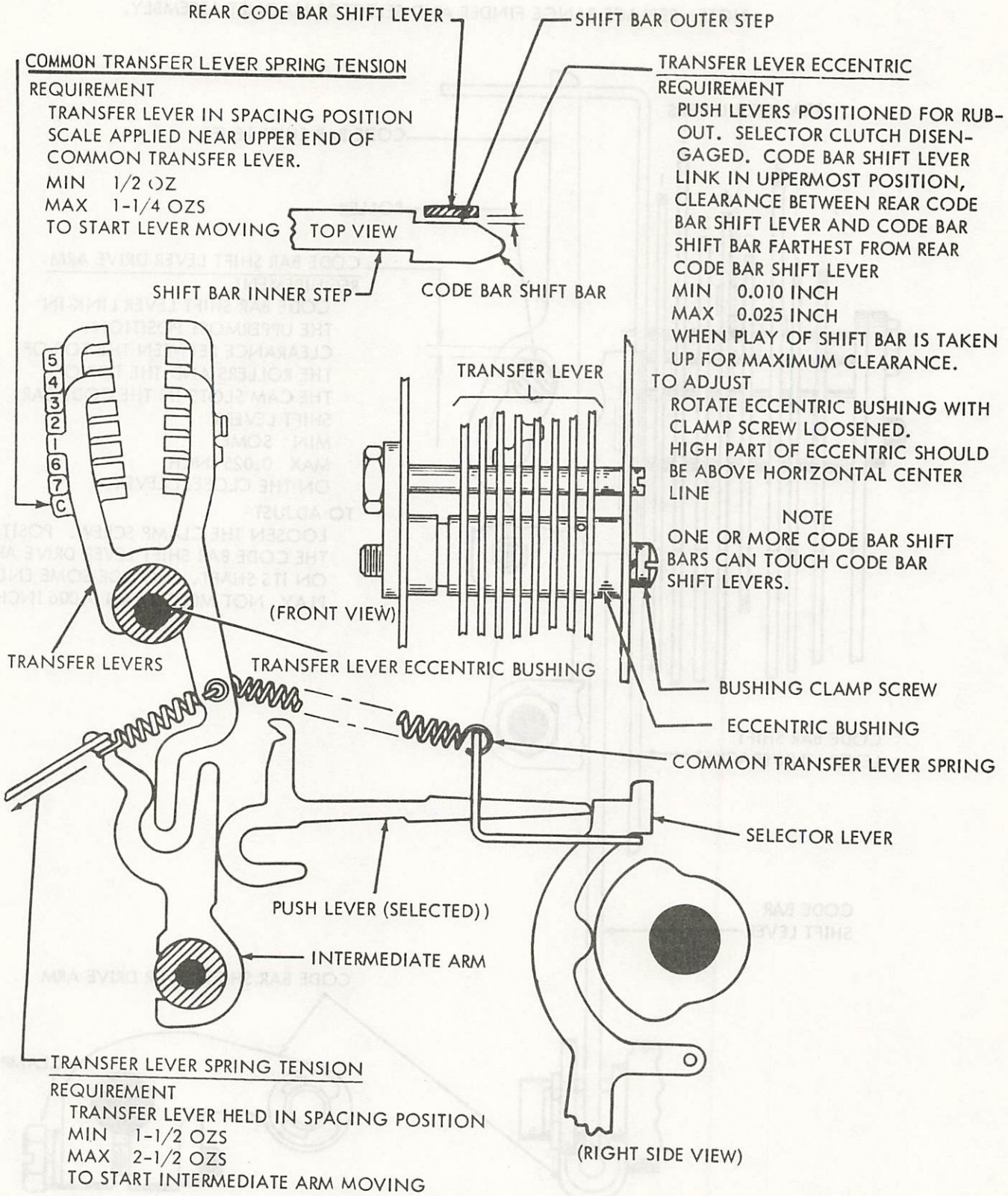


2.12 Code Bar Mechanism

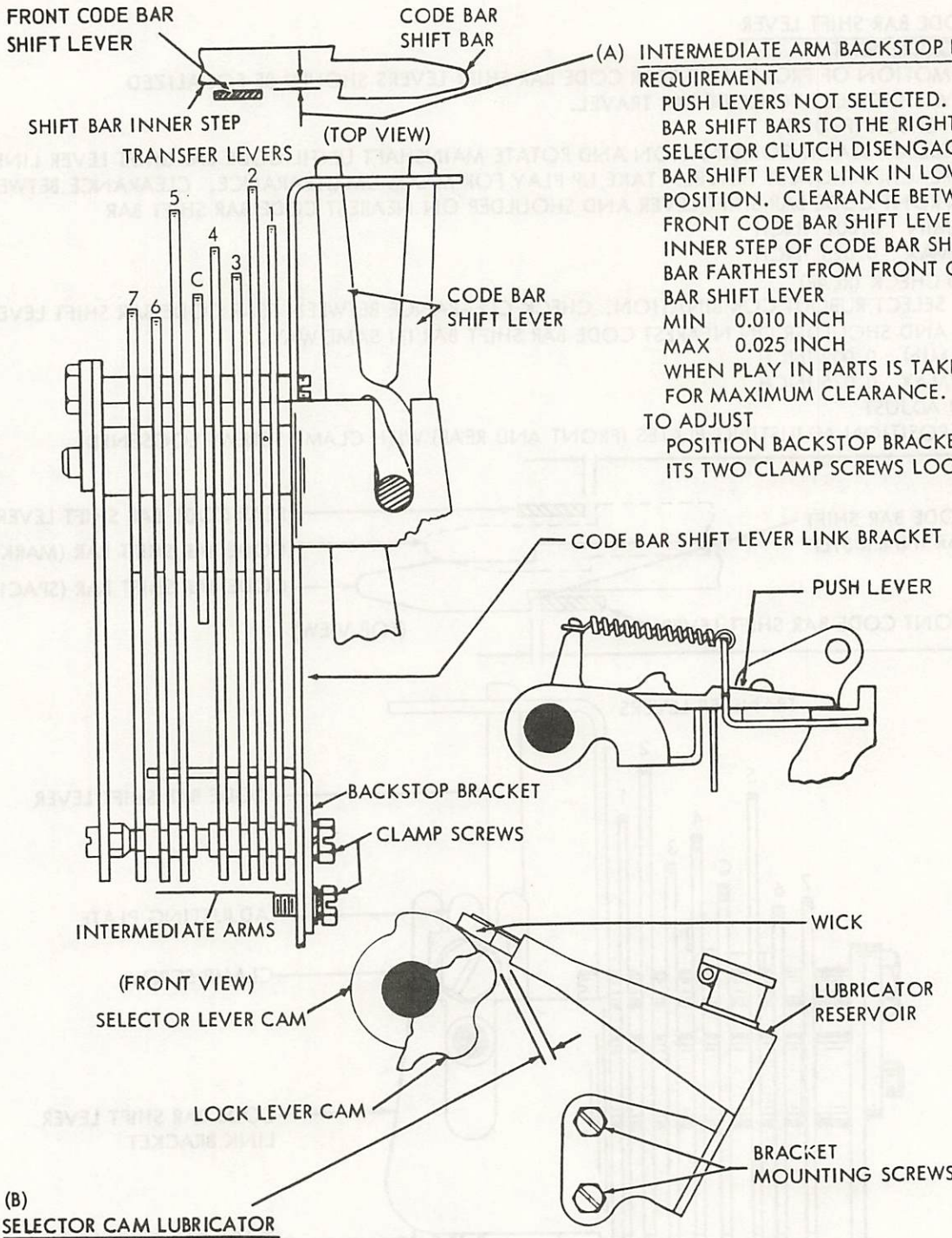
NOTE: REPLACE RANGE FINDER AND SELECTOR MAGNET ASSEMBLY.



→2.13 Code Bar Mechanism continued



2.14 Code Bar Mechanism continued



(A) INTERMEDIATE ARM BACKSTOP BRACKET

REQUIREMENT

PUSH LEVERS NOT SELECTED. ALL CODE BAR SHIFT BARS TO THE RIGHT. SELECTOR CLUTCH DISENGAGED. CODE BAR SHIFT LEVER LINK IN LOWERMOST POSITION. CLEARANCE BETWEEN FRONT CODE BAR SHIFT LEVER AND INNER STEP OF CODE BAR SHIFT BAR FARTHEST FROM FRONT CODE BAR SHIFT LEVER

MIN 0.010 INCH

MAX 0.025 INCH

WHEN PLAY IN PARTS IS TAKEN UP FOR MAXIMUM CLEARANCE.

TO ADJUST

POSITION BACKSTOP BRACKET WITH ITS TWO CLAMP SCREWS LOOSENED.

(B)

SELECTOR CAM LUBRICATOR

REQUIREMENT

THE LUBRICATOR TUBE SHOULD CLEAR THE HIGH PART OF THE LOCK LEVER CAM

MIN 0.020 INCH

THE HIGH PART OF THE SELECTOR LEVER CAMS SHOULD TOUCH THE LUBRICATOR WICK, BUT SHOULD NOT RAISE IT MORE THAN 1/32 INCH.

NOTE: THERE SHOULD BE SOME CLEARANCE BETWEEN THE MARKING LOCK LEVER SPRING AND THE RESERVOIR.

TO ADJUST

POSITION THE LUBRICATOR BRACKET WITH ITS MOUNTING SCREWS LOOSENED.

→2.15 Code Bar Mechanism continued

CODE BAR SHIFT LEVER

REQUIREMENT

MOTION OF FRONT AND REAR CODE BAR SHIFT LEVERS SHOULD BE EQUALIZED WITH RESPECT TO CODE BAR TRAVEL.

TO CHECK (FRONT)

SELECT BLANK COMBINATION AND ROTATE MAINSHAFT UNTIL CODE BAR SHIFT LEVER LINK REACHES HIGHEST TRAVEL. TAKE UP PLAY FOR MAXIMUM CLEARANCE. CLEARANCE BETWEEN FRONT CODE BAR SHIFT LEVER AND SHOULDER ON NEAREST CODE BAR SHIFT BAR

MIN 0.002 INCH
MAX 0.025 INCH

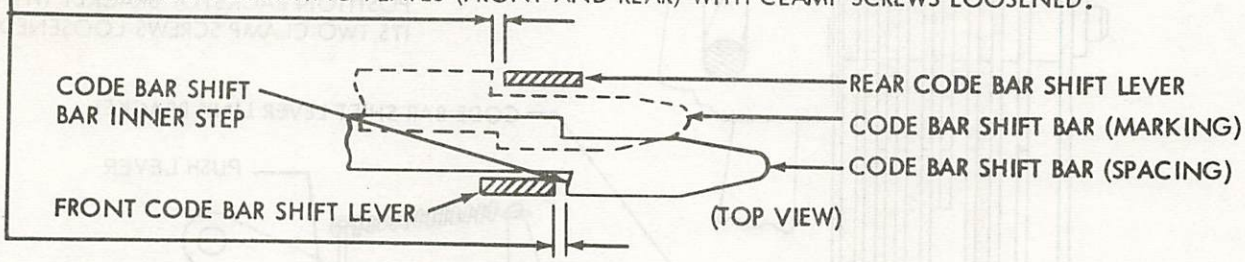
TO CHECK (REAR)

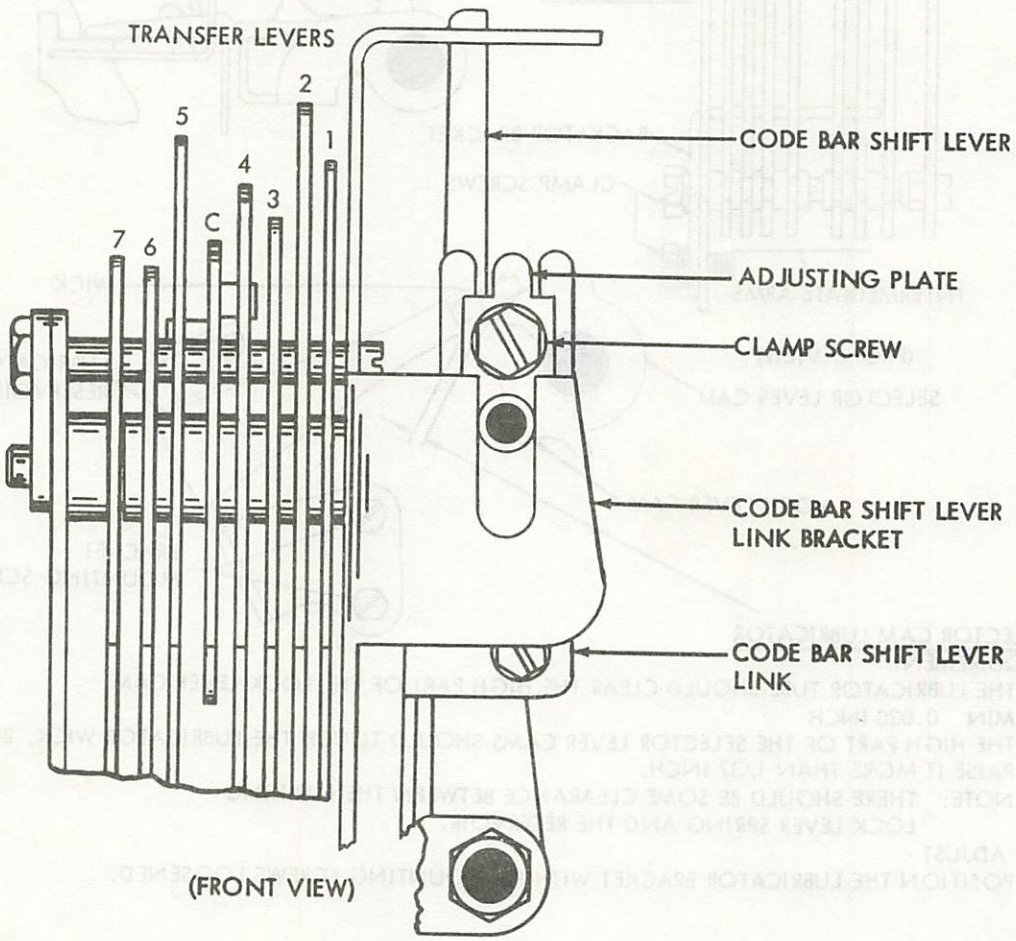
SELECT RUBOUT COMBINATION. CHECK CLEARANCE BETWEEN REAR CODE BAR SHIFT LEVER AND SHOULDER ON NEAREST CODE BAR SHIFT BAR IN SAME WAY.

MIN 0.002 INCH
MAX 0.025 INCH

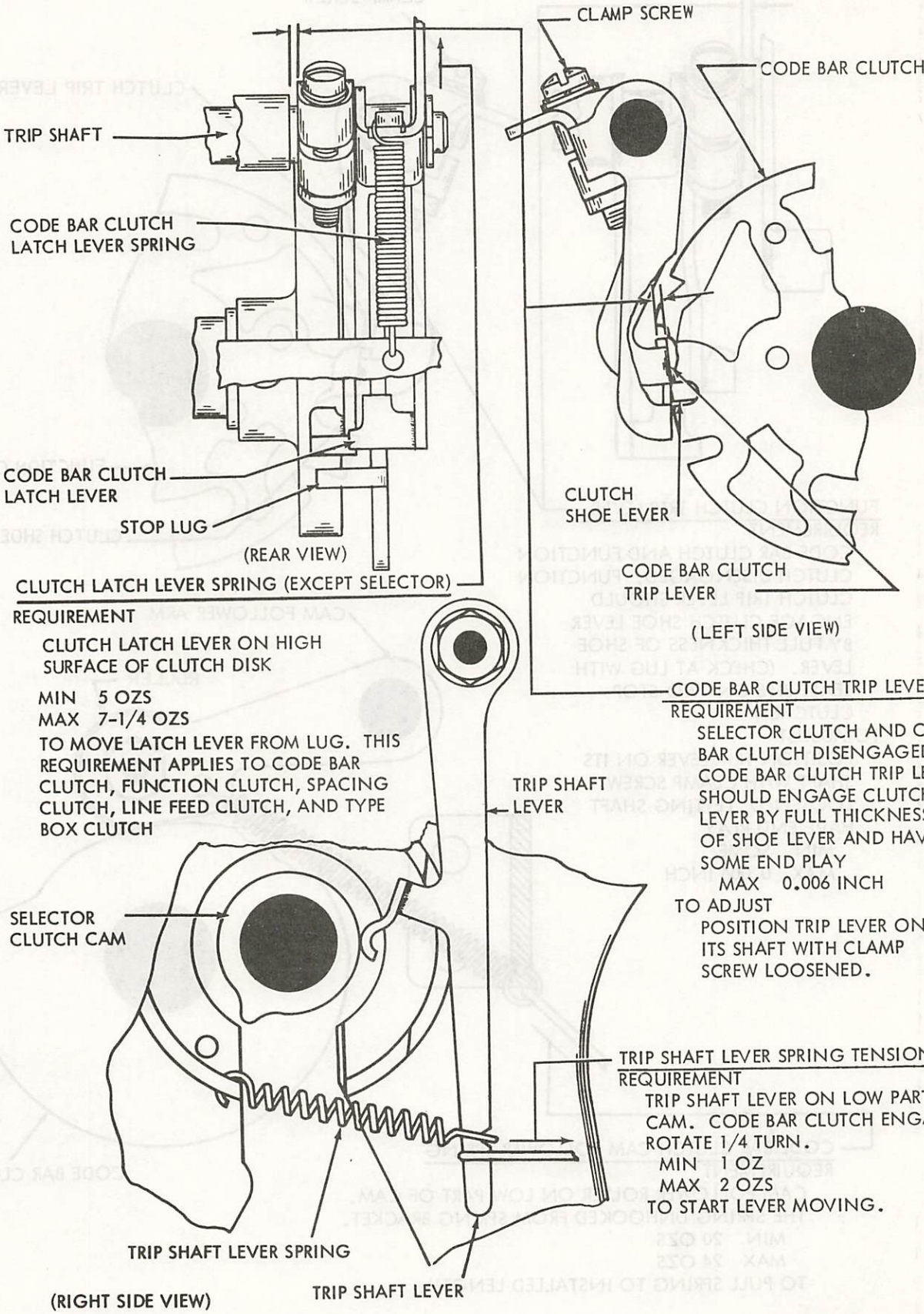
TO ADJUST

POSITION ADJUSTING PLATES (FRONT AND REAR) WITH CLAMP SCREWS LOOSENED.

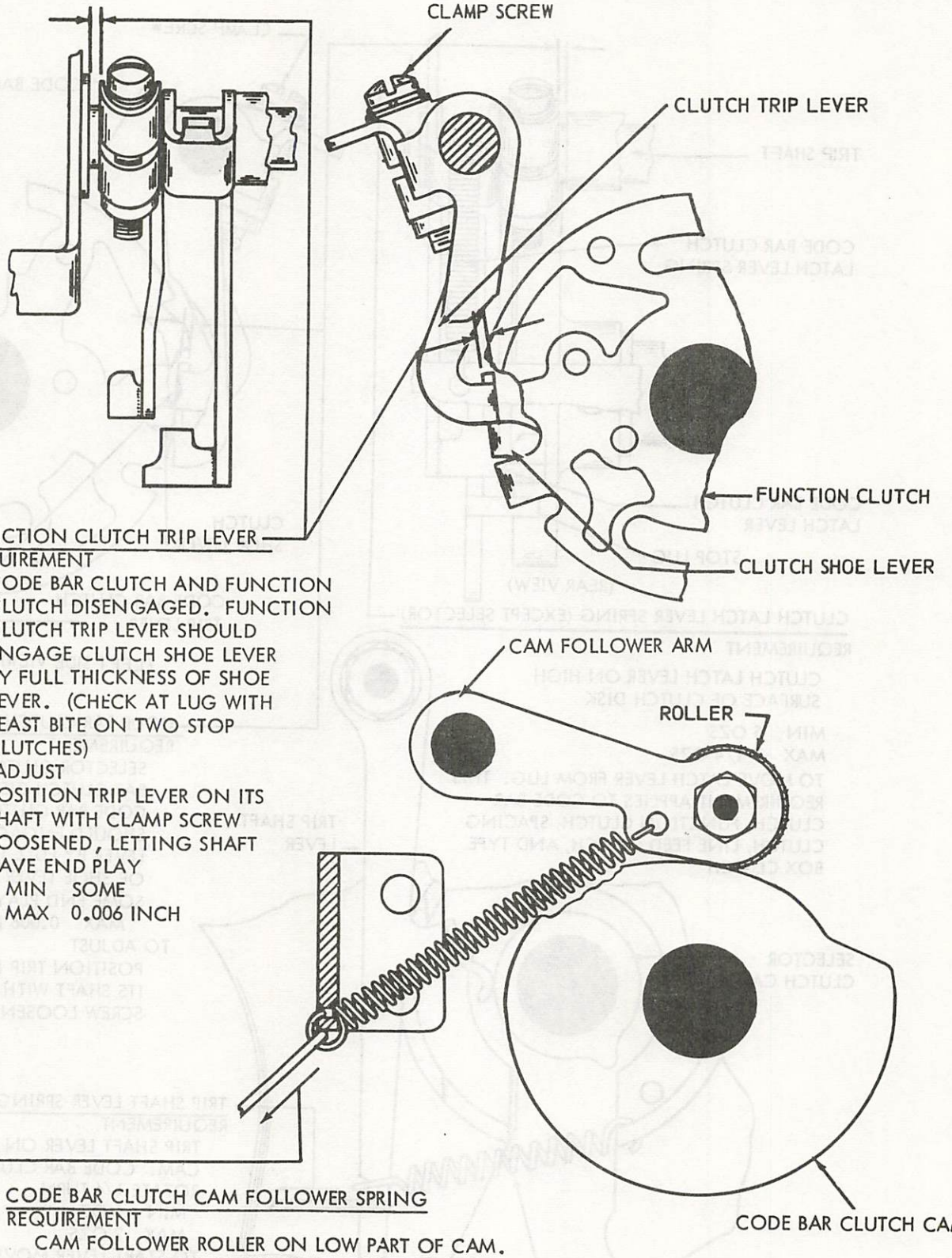




2.16 Main Shaft and Trip Shaft Mechanisms



→2. 17 Main Shaft and Trip Shaft Mechanisms continued



FUNCTION CLUTCH TRIP LEVER

REQUIREMENT

CODE BAR CLUTCH AND FUNCTION CLUTCH DISENGAGED. FUNCTION CLUTCH TRIP LEVER SHOULD ENGAGE CLUTCH SHOE LEVER BY FULL THICKNESS OF SHOE LEVER. (CHECK AT LUG WITH LEAST BITE ON TWO STOP CLUTCHES)

TO ADJUST

POSITION TRIP LEVER ON ITS SHAFT WITH CLAMP SCREW LOOSENED, LETTING SHAFT HAVE END PLAY

MIN SOME
MAX 0.006 INCH

CODE BAR CLUTCH CAM FOLLOWER SPRING

REQUIREMENT

CAM FOLLOWER ROLLER ON LOW PART OF CAM. THE SPRING UNHOOKED FROM SPRING BRACKET.

MIN 20 OZS
MAX 24 OZS

TO PULL SPRING TO INSTALLED LENGTH.

2.18 Main Shaft and Trip Shaft Mechanisms continued

(A) CLUTCH TRIP SHAFT SET COLLARS

(1) REQUIREMENT

SPACING CUT-OUT LEVER SHOULD HAVE SIDE PLAY

MIN SOME
MAX 0.008 INCH

TO ADJUST

POSITION SPACING CUT-OUT LEVER SET COLLAR

(2) REQUIREMENT

APPROXIMATE ALIGNMENT OF RIGHT END OF STOP EXTENSIONS ON TRIP LEVER AND SHOE LEVER.

TO ADJUST

POSITION LINE FEED CLUTCH TRIP LEVER SET COLLAR

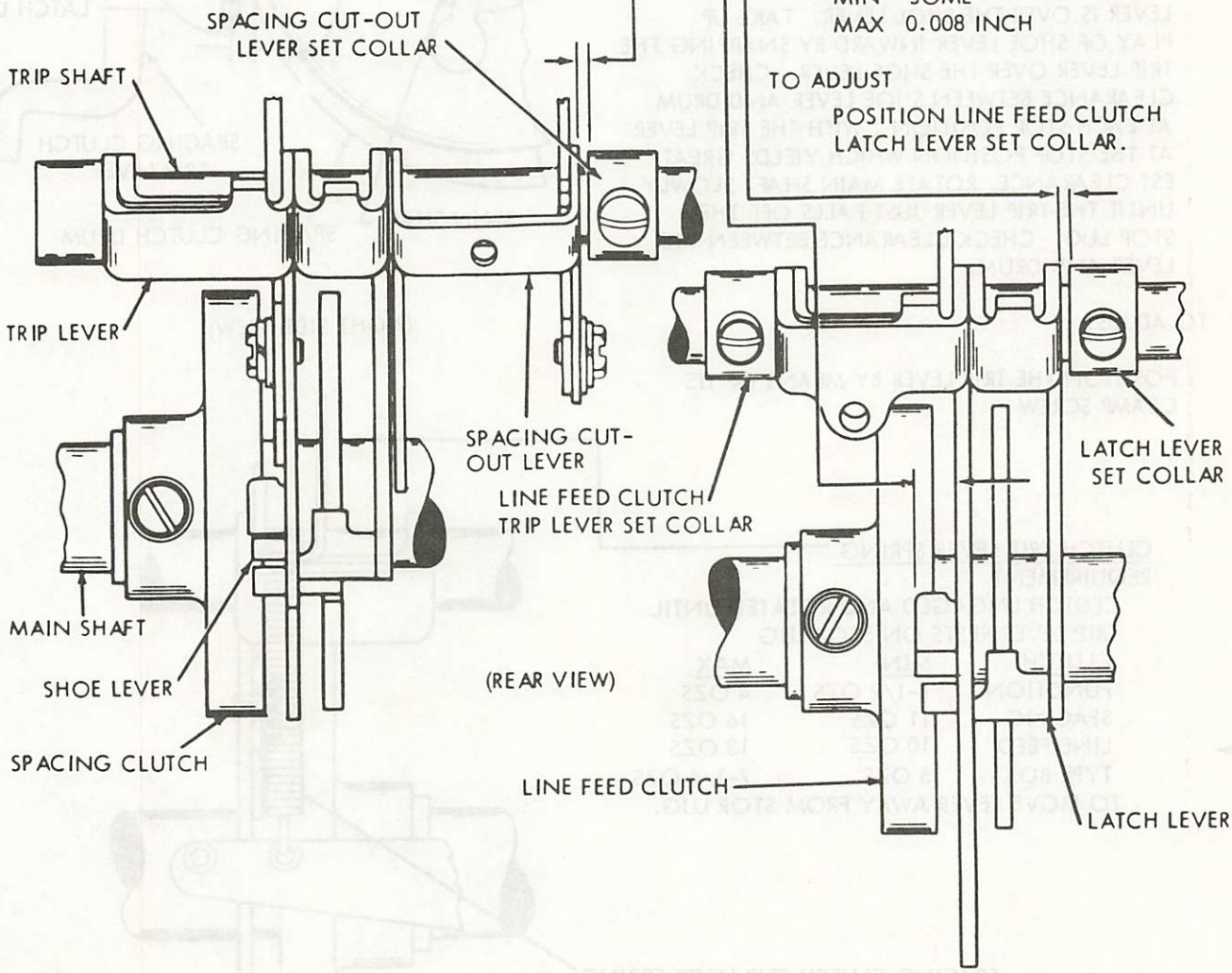
(3) REQUIREMENT

LINE FEED CLUTCH LATCH LEVER SHOULD HAVE SIDE PLAY.

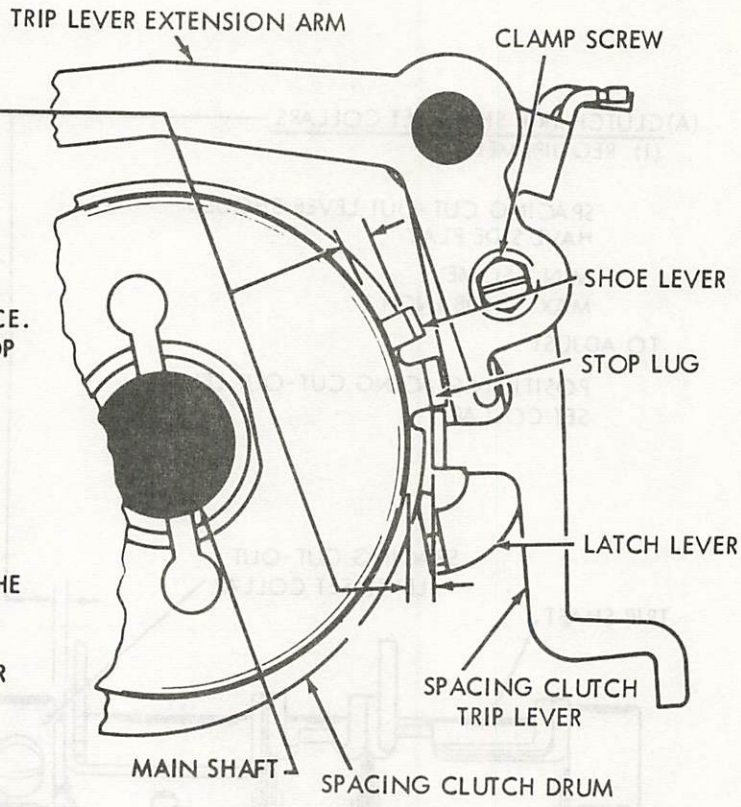
MIN SOME
MAX 0.008 INCH

TO ADJUST

POSITION LINE FEED CLUTCH LATCH LEVER SET COLLAR.



→2.19 Main Shaft and Trip Shaft Mechanisms continued



(RIGHT SIDE VIEW)

SPACING CLUTCH TRIP LEVER

REQUIREMENT

CLEARANCE BETWEEN TRIP LEVER AND CLUTCH DRUM SHOULD BE 0.018 TO 0.035 INCH LESS THAN CLEARANCE BETWEEN SHOE LEVER AND DRUM AT STOP SHOWING GREATEST CLEARANCE. THERE SHOULD BE SOME OVERBITE ON ALL STOP LUGS. GAUGE BY EYE.

TO CHECK

DISENGAGE THE CLUTCH. TRIP CLUTCH TRIP LEVER AND ROTATE MAIN SHAFT UNTIL TRIP LEVER IS OVER THE SHOE LEVER. TAKE UP PLAY OF SHOE LEVER INWARD BY SNAPPING THE TRIP LEVER OVER THE SHOE LEVER. CHECK CLEARANCE BETWEEN SHOE LEVER AND DRUM AT EACH STOP POSITION. WITH THE TRIP LEVER AT THE STOP POSITION WHICH YIELDS GREATEST CLEARANCE, ROTATE MAIN SHAFT SLOWLY UNTIL THE TRIP LEVER JUST FALLS OFF THE STOP LUG. CHECK CLEARANCE BETWEEN TRIP LEVER AND DRUM.

TO ADJUST

POSITION THE TRIP LEVER BY MEANS OF ITS CLAMP SCREW.

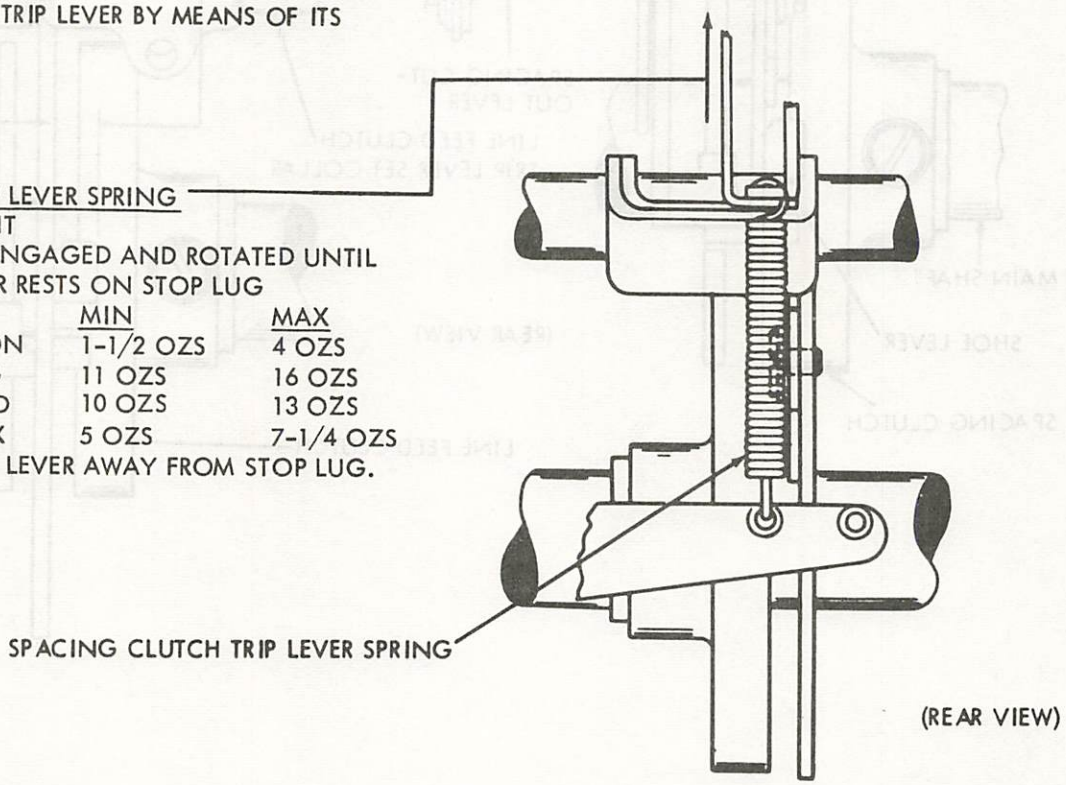
CLUTCH TRIP LEVER SPRING

REQUIREMENT

CLUTCH ENGAGED AND ROTATED UNTIL TRIP LEVER RESTS ON STOP LUG

CLUTCH	MIN	MAX
FUNCTION	1-1/2 OZS	4 OZS
SPACING	11 OZS	16 OZS
→ LINE FEED	10 OZS	13 OZS
TYPE BOX	5 OZS	7-1/4 OZS

TO MOVE LEVER AWAY FROM STOP LUG.



(REAR VIEW)

2.20 Main Shaft and Trip Shaft Mechanisms continued

LINE FEED CLUTCH TRIP LEVER ECCENTRIC POST

REQUIREMENT

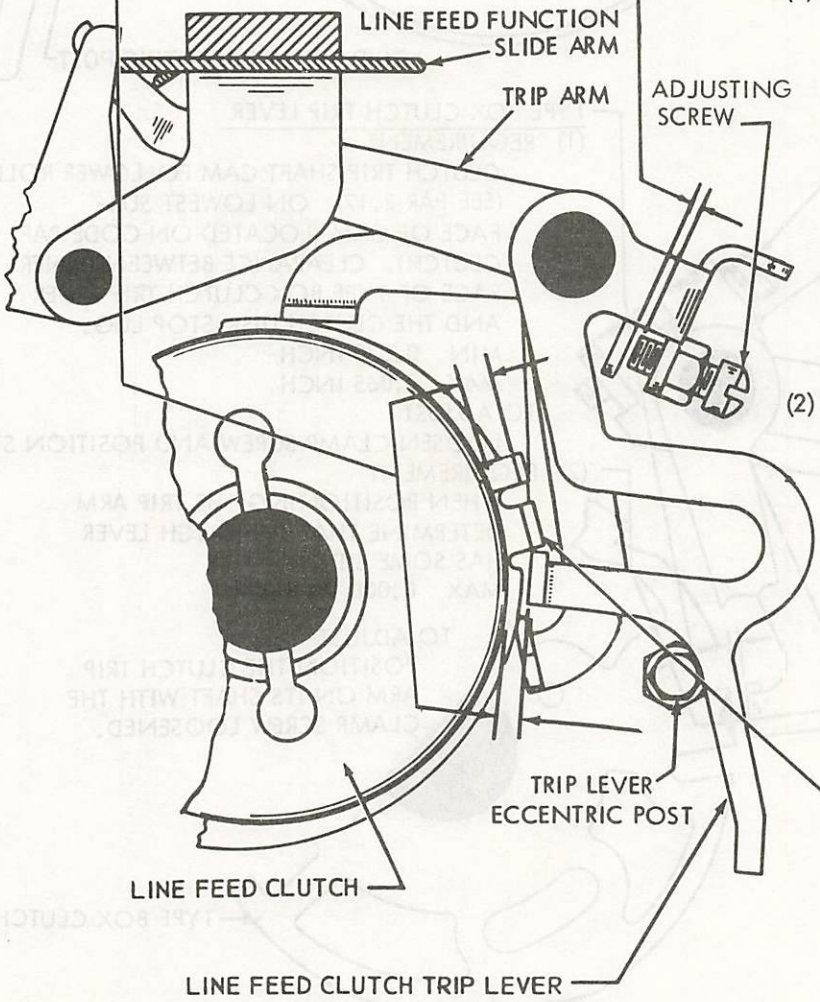
CLEARANCE BETWEEN TRIP LEVER AND CLUTCH DRUM SHOULD BE:
FOR 3-STOP CLUTCH - 0.018 INCH TO 0.035 INCH
FOR 6-STOP CLUTCH - 0.012 INCH TO 0.025 INCH
LESS THAN CLEARANCE BETWEEN SHOE LEVER AND DRUM AT STOP WHICH SHOWS LEAST CLEARANCE.

TO CHECK

DISENGAGE CLUTCH. TRIP CLUTCH TRIP LEVER AND ROTATE MAIN SHAFT UNTIL TRIP LEVER IS OVER SHOE LEVER. TAKE UP PLAY OF SHOE LEVER INWARD BY SNAPPING TRIP LEVER OVER SHOE LEVER. CHECK CLEARANCE BETWEEN SHOE LEVER AND DRUM AT EACH STOP POSITION. WITH TRIP LEVER AT STOP POSITION WHICH YIELDS LEAST CLEARANCE, ROTATE MAIN SHAFT SLOWLY UNTIL TRIP LEVER JUST FALLS OFF STOP LUG. CHECK CLEARANCE BETWEEN TRIP LEVER AND DRUM.

TO ADJUST

BACK OFF TRIP LEVER ADJUSTING SCREW AND POSITION TRIP LEVER ECCENTRIC STOP POST.



LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW

(1) REQUIREMENT

CLEARANCE BETWEEN END OF TRIP LEVER ADJUSTING SCREW AND TRIP ARM
MIN 0.002 INCH
MAX 0.006 INCH

TO CHECK

LINE FEED FUNCTION SLIDE ARM IN REAR POSITION. CLUTCH TRIP LEVER AGAINST ITS ECCENTRIC POST. TRIP ARM HELD AGAINST ITS FUNCTION SLIDE ARM.

TO ADJUST

POSITION ADJUSTING SCREW.

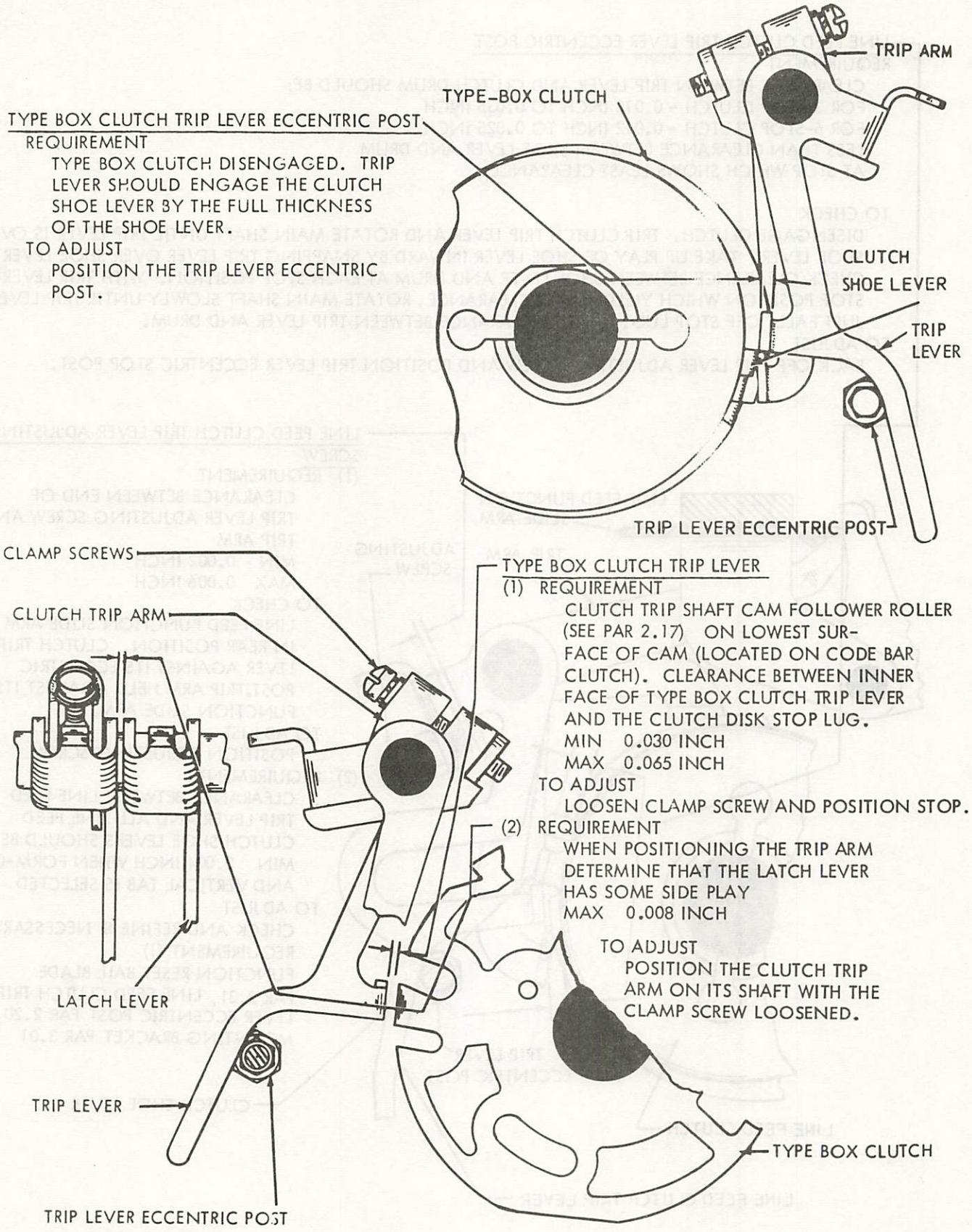
(2) REQUIREMENT

CLEARANCE BETWEEN LINE FEED TRIP LEVER AND ALL LINE FEED CLUTCH SHOE LEVERS SHOULD BE MIN 0.004 INCH WHEN FORM-OUT AND VERTICAL TAB IS SELECTED

TO ADJUST

CHECK AND REFINE IF NECESSARY: REQUIREMENT (1) FUNCTION RESET BAIL BLADE PAR 2.31, LINE FEED CLUTCH TRIP LEVER ECCENTRIC POST PAR 2.20, MOUNTING BRACKET PAR 3.01

2.21 Main Shaft and Trip Shaft Mechanisms continued



2.22 Main Shaft and Trip Shaft Mechanisms continued

CLUTCH SHOE LEVER

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 THE CLUTCH IS DISENGAGED.

TO CHECK

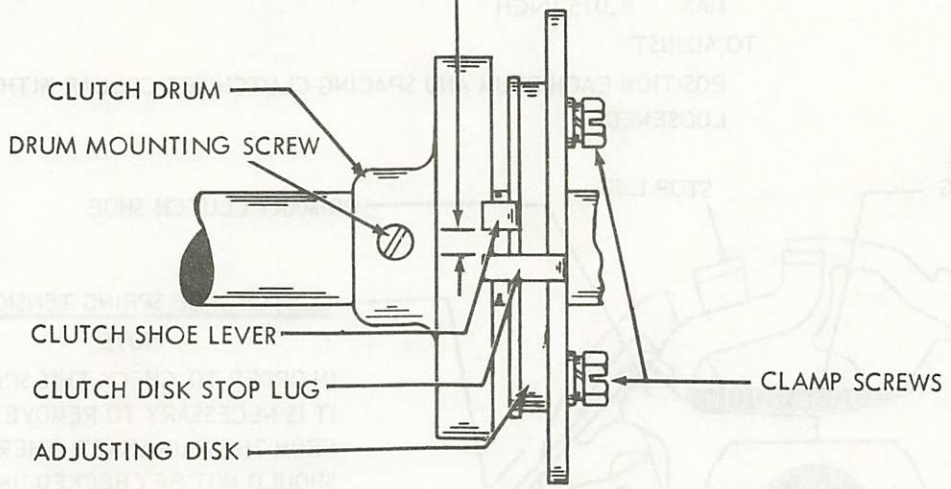
DISENGAGE THE CLUTCH AND MEASURE THE GAP. TRIP THE CLUTCH AND ROTATE IT UNTIL THE CLUTCH SHOE LEVER IS TOWARD THE BOTTOM OF THE UNIT. AGAIN MEASURE THE GAP WITH THE CLUTCH THUS ENGAGED.

NOTE

ON MULTIPLE STOP CLUTCHES CHECK THE CLEARANCE AT THE STOP LUG THAT IS ADJACENT TO THE FORM IN THE CLUTCH ADJUSTING DISK.

TO ADJUST

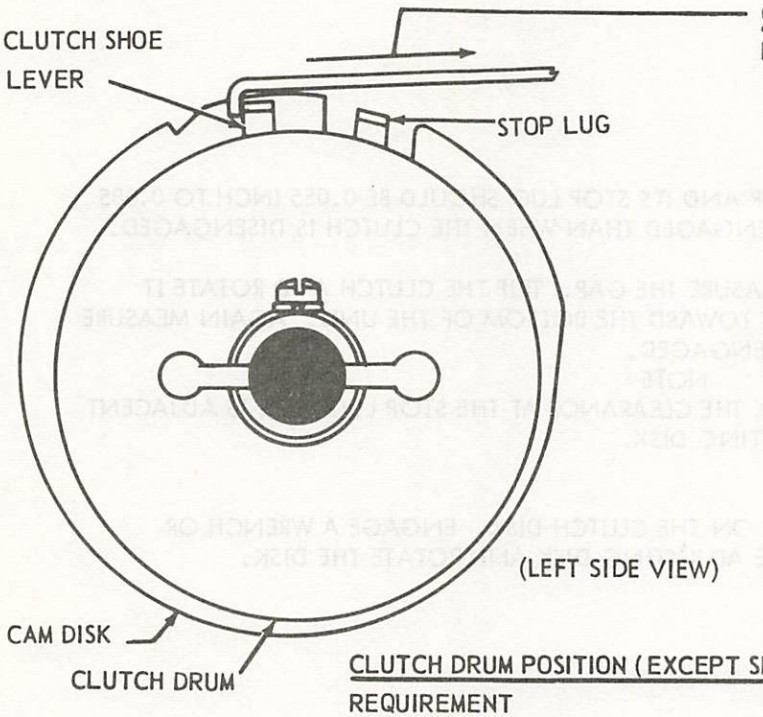
LOOSEN THE TWO CLAMP SCREWS ON THE CLUTCH DISK. ENGAGE A WRENCH OR SCREWDRIVER ON THE LUG OF THE ADJUSTING DISK AND ROTATE THE DISK.



NOTE

AFTER ABOVE ADJUSTMENT IS MADE, DISENGAGE CLUTCH, REMOVE DRUM MOUNTING SCREW AND ROTATE DRUM IN ITS NORMAL DIRECTION OF ROTATION TO MAKE CERTAIN THAT IT DOES NOT DRAG ON SHOE, IF DRUM DRAGS, REFINE ABOVE ADJUSTMENT TOWARDS MAXIMUM

→2.23 Main Shaft and Trip Shaft Mechanisms continued



CLUTCH SHOE LEVER SPRING TENSIONS

REQUIREMENT

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

MIN 15 OZS
MAX 20 OZS ONE-STOP CLUTCHES

MIN 16 OZS
MAX 22 OZS MULTIPLE-STOP CLUTCHES

TO MOVE THE SHOE LEVER IN CONTACT WITH THE STOP LUG.

CLUTCH DRUM POSITION (EXCEPT SELECTOR)

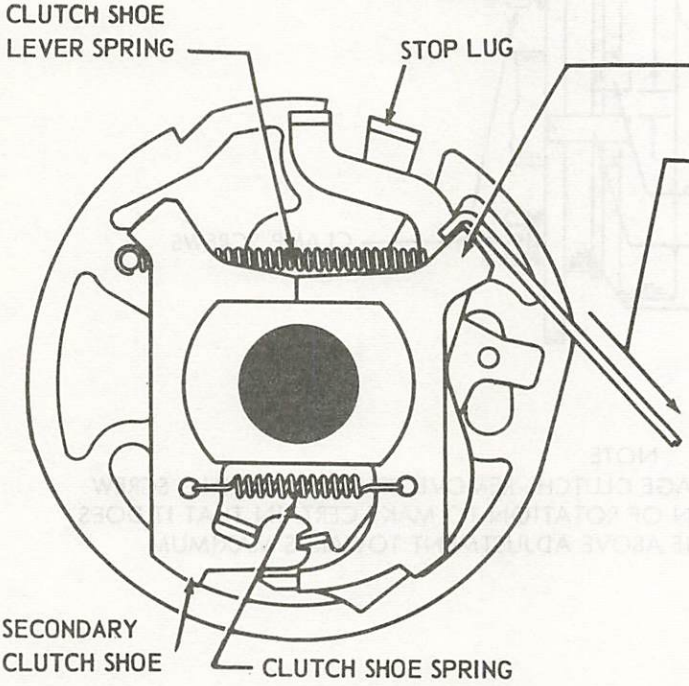
REQUIREMENT

CLUTCH SHOE LEVER HELD DISENGAGED. CLUTCH SHOULD HAVE SOME END PLAY

MAX 0.015 INCH

TO ADJUST

POSITION EACH DRUM AND SPACING CLUTCH SET COLLAR WITH MOUNTING SCREW LOOSENED



CLUTCH SHOE SPRING TENSION

NOTE

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

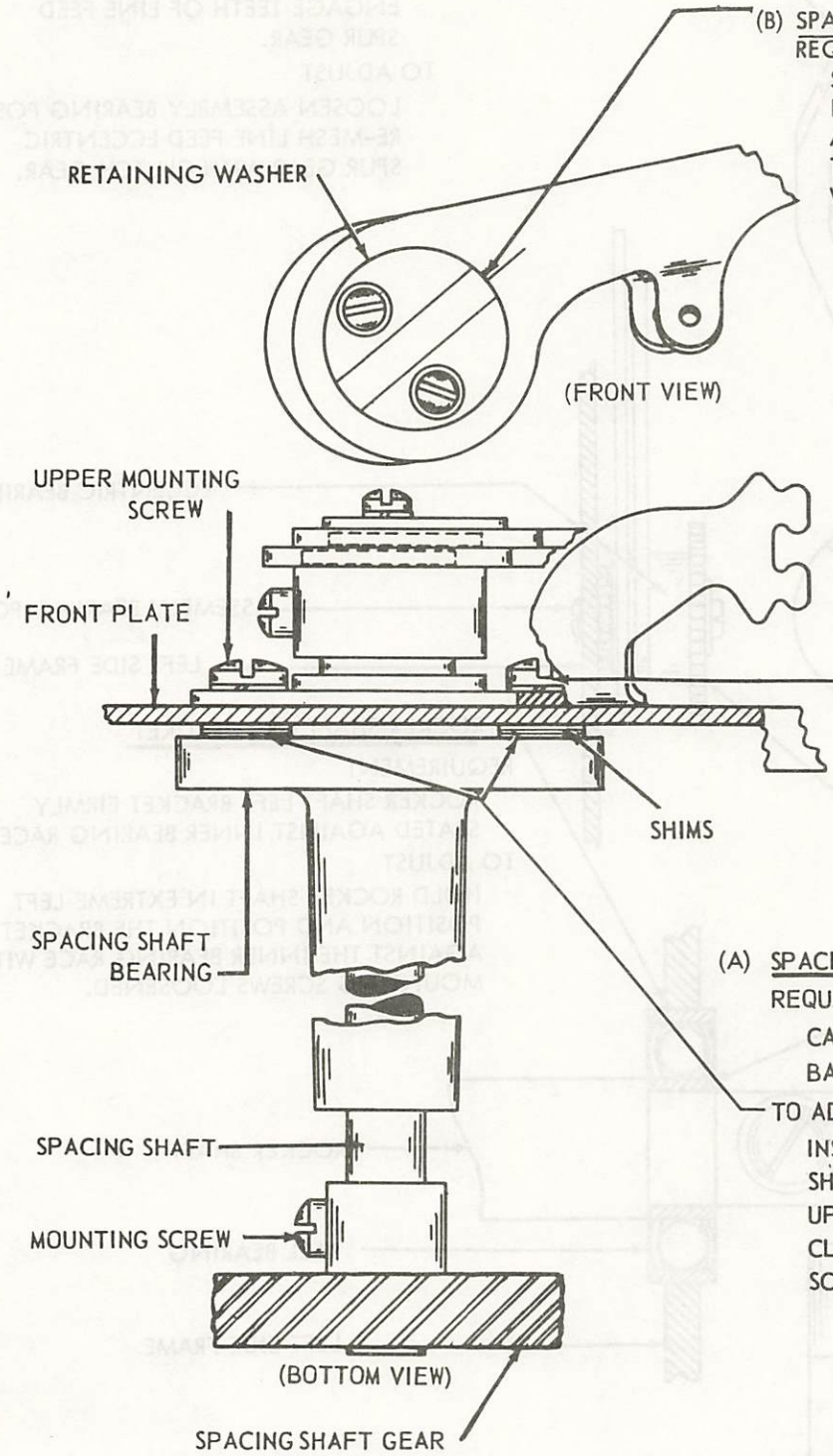
REQUIREMENT

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

MIN 3 OZS
MAX 5 OZS

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

2.24 Spacing Mechanism



(B) SPACING GEAR PHASING REQUIREMENT

SPACING CLUTCH DISENGAGED. INDEX LINE ON THE SPACING PAWL SHOULD BE AS NEAR AS POSSIBLE TO THE CENTER OF THE TWO LINES ON THE PAWL RETAINING WASHER.

TO ADJUST

REMOVE THE MOUNTING SCREW FROM THE SPACING SHAFT GEAR. HOLD THE PAWLS IN ALIGNMENT AND ENGAGE THE SPACING SHAFT GEAR WITH THE CLUTCH GEAR AT A POINT WHERE THE SPACING SHAFT GEAR MOUNTING SCREW HOLE IS IN LINE WITH THE TAPPED HOLE IN THE SPACING SHAFT AND INSERT THE MOUNTING SCREW

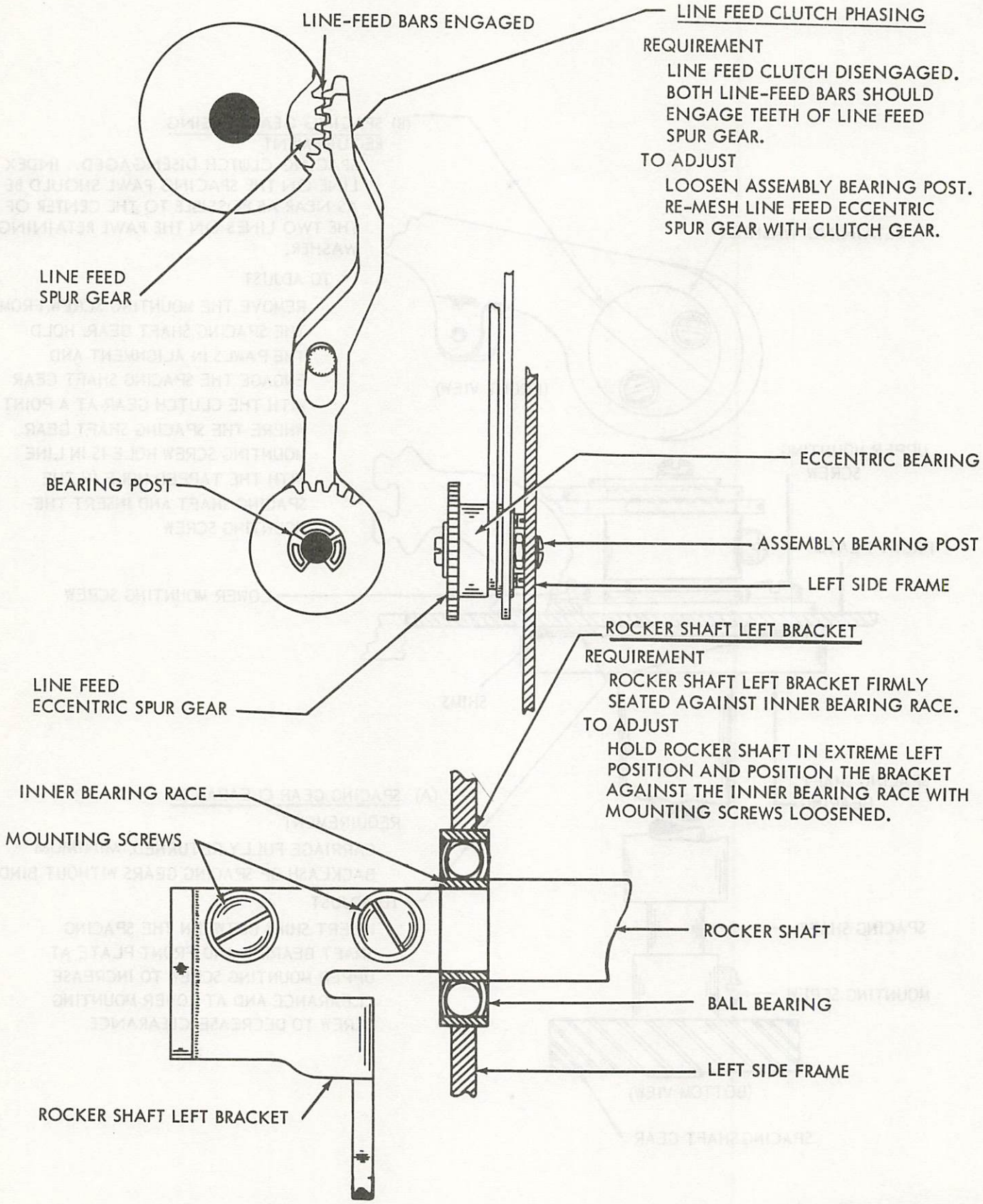
(A) SPACING GEAR CLEARANCE REQUIREMENT

CARRIAGE FULLY RETURNED. MINIMUM BACKLASH OF SPACING GEARS WITHOUT BIND.

TO ADJUST

INSERT SHIMS BETWEEN THE SPACING SHAFT BEARING AND FRONT PLATE AT UPPER MOUNTING SCREW TO INCREASE CLEARANCE AND AT LOWER MOUNTING SCREW TO DECREASE CLEARANCE.

2.25 Line Feed and Platen Mechanism



2.26 Positioning Mechanism

ROCKER SHAFT BRACKET ECCENTRIC STUD

(1) REQUIREMENT

TYPE BOX CLUTCH DISENGAGED. PLAY IN LOCKING ARM TAKEN TOWARDS FRONT. GAP BETWEEN LOWER SIDE OF LOCK LEVER ROLLER AND TOP EDGE OF SHOULDER ON HORIZONTAL POSITIONING LOCK LEVER

MIN 0.055 INCH
MAX 0.090 INCH

TO ADJUST

POSITION ECCENTRIC STUD IN LOWER END OF ROCKER SHAFT LEFT BRACKET. KEEP HIGH PART OF ECCENTRIC (MARKED WITH DOT) BELOW CENTER LINE OF DRIVE LINK.

(2) REQUIREMENT

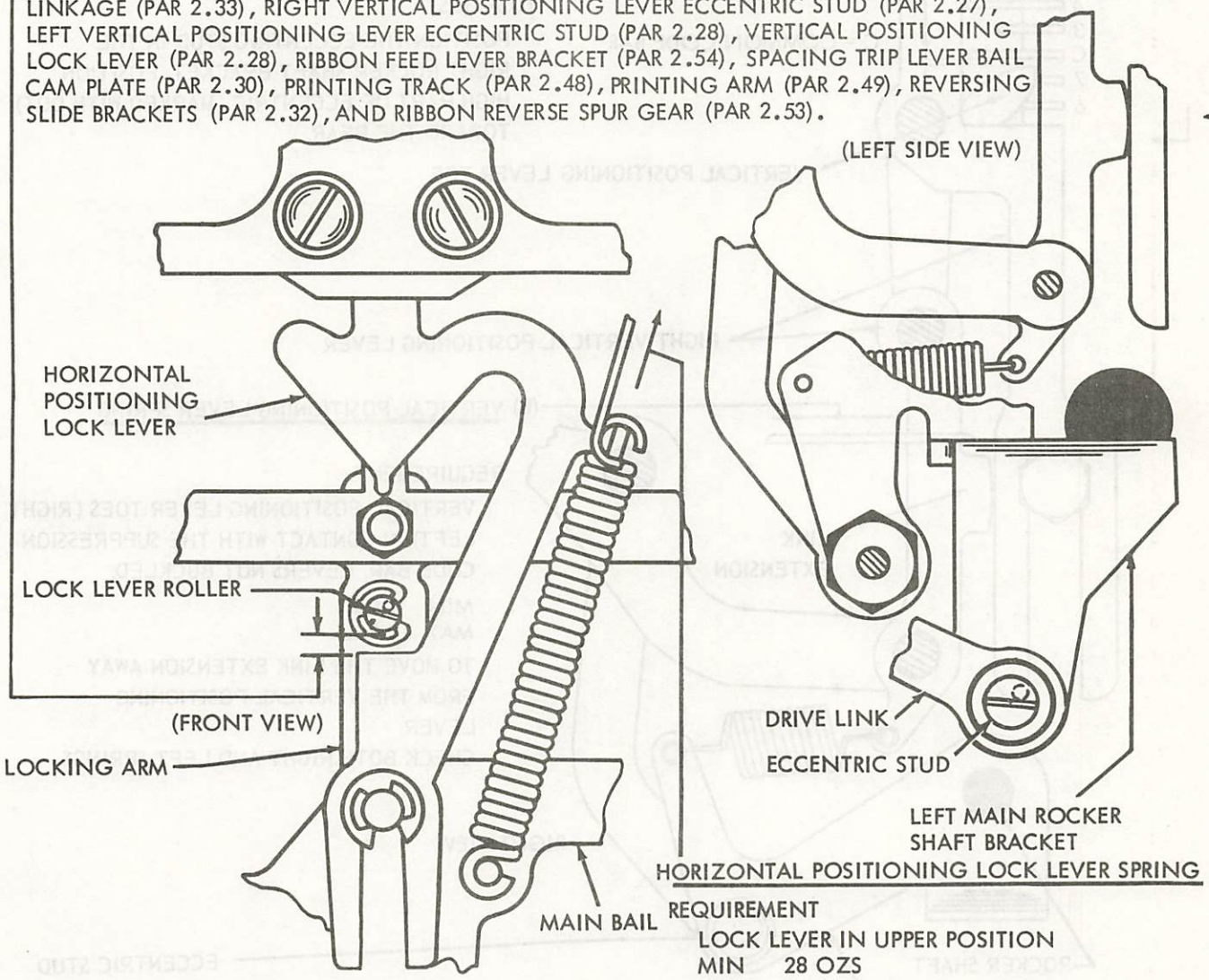
ROCKER SHAFT DRIVE LINK BEARING STUD SHOULD BE FREE TO MOVE, PARALLEL TO THE MAIN SHAFT, IN ITS TYPE BOX CLUTCH BEARING WHEN THE CLUTCH IS IN STOP AND 180 DEGREE POSITION

TO ADJUST

REFINE THE ABOVE ADJUSTMENT

NOTE:

ANY CHANGE IN THIS ADJUSTMENT AFTER MAKING RELATED ADJUSTMENTS WILL REQUIRE A RECHECKING OF THE FOLLOWING ADJUSTMENTS: HORIZONTAL POSITIONING DRIVE LINKAGE (PAR 2.33), RIGHT VERTICAL POSITIONING LEVER ECCENTRIC STUD (PAR 2.27), LEFT VERTICAL POSITIONING LEVER ECCENTRIC STUD (PAR 2.28), VERTICAL POSITIONING LOCK LEVER (PAR 2.28), RIBBON FEED LEVER BRACKET (PAR 2.54), SPACING TRIP LEVER BAIL CAM PLATE (PAR 2.30), PRINTING TRACK (PAR 2.48), PRINTING ARM (PAR 2.49), REVERSING SLIDE BRACKETS (PAR 2.32), AND RIBBON REVERSE SPUR GEAR (PAR 2.53).



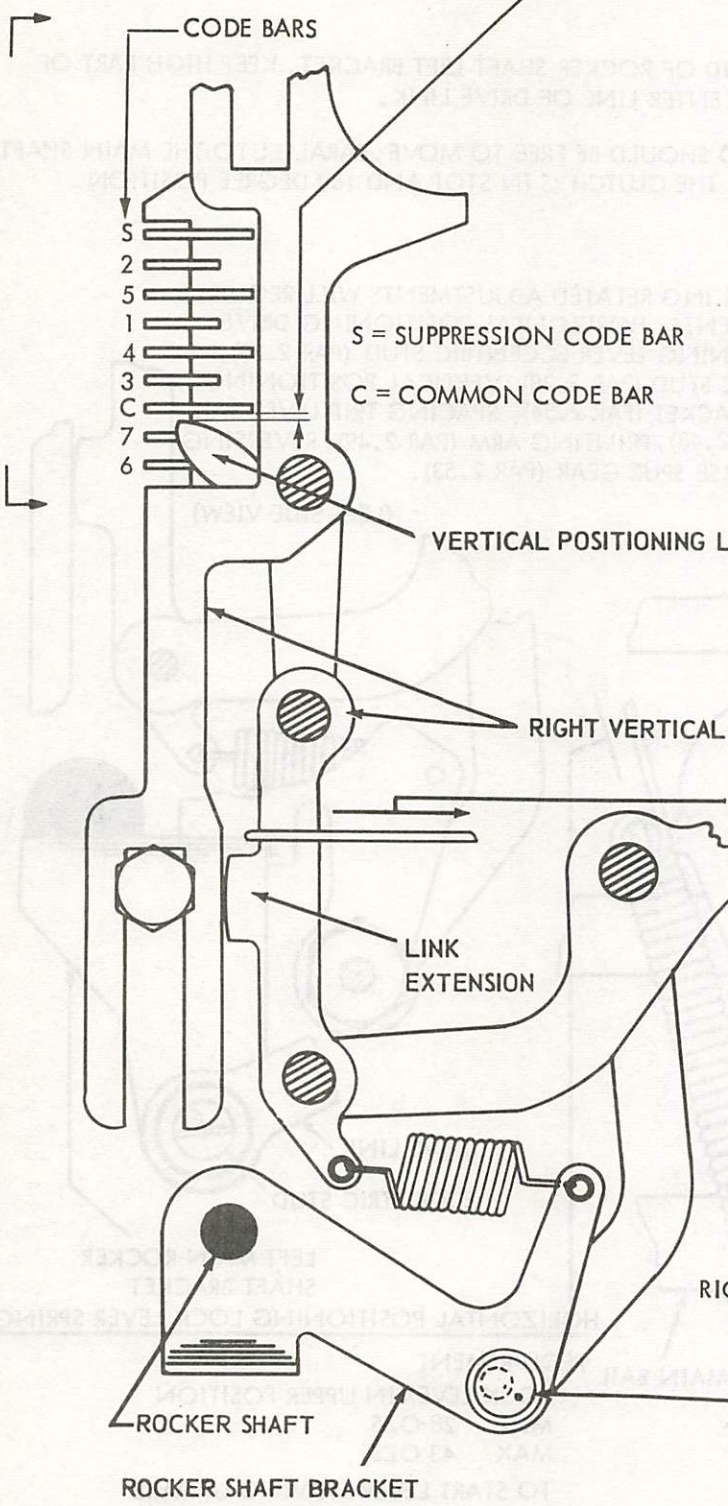
HORIZONTAL POSITIONING LOCK LEVER SPRING

REQUIREMENT

LOCK LEVER IN UPPER POSITION
MIN 28 OZS
MAX 43 OZS

TO START LEVER MOVING UPWARD

→2.27 Positioning Mechanism continued



(A) RIGHT VERTICAL POSITIONING LEVER ECCENTRIC STUD

REQUIREMENT

TYPE BOX CLUTCH DISENGAGED, COMMON CODE BAR IN SPACING POSITION. PLAY TAKEN UP BY PRESSING DOWNWARD ON COMMON CODE BAR AT GUIDE BLOCK.

MIN 0.030 INCH
MAX 0.050 INCH

CLEARANCE BETWEEN THE TOE OF VERTICAL POSITIONING LEVER AND THE BOTTOM OF THE COMMON CODE BAR WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE A MINIMUM

TO ADJUST

POSITION THE ECCENTRIC STUD IN THE RIGHT ROCKER SHAFT BRACKET. POSITION HIGH PART OF ECCENTRIC (MARKED WITH DOT) TOWARD THE REAR.

(B) VERTICAL POSITIONING LEVER SPRING

REQUIREMENT

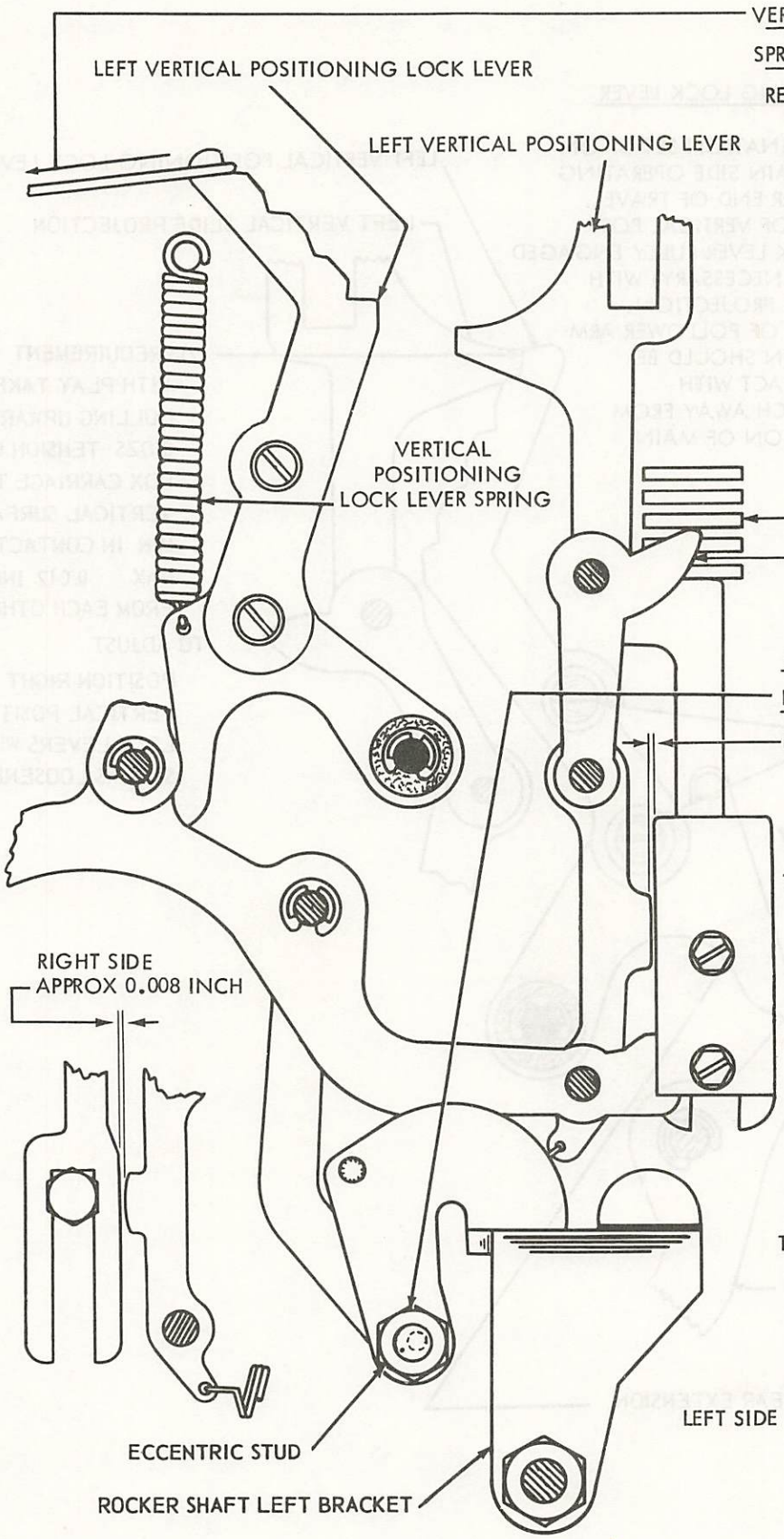
VERTICAL POSITIONING LEVER TOES (RIGHT AND LEFT) IN CONTACT WITH THE SUPPRESSION CODE BAR, LEVERS NOT BUCKLED.

MIN 4 OZS
MAX 12 OZS

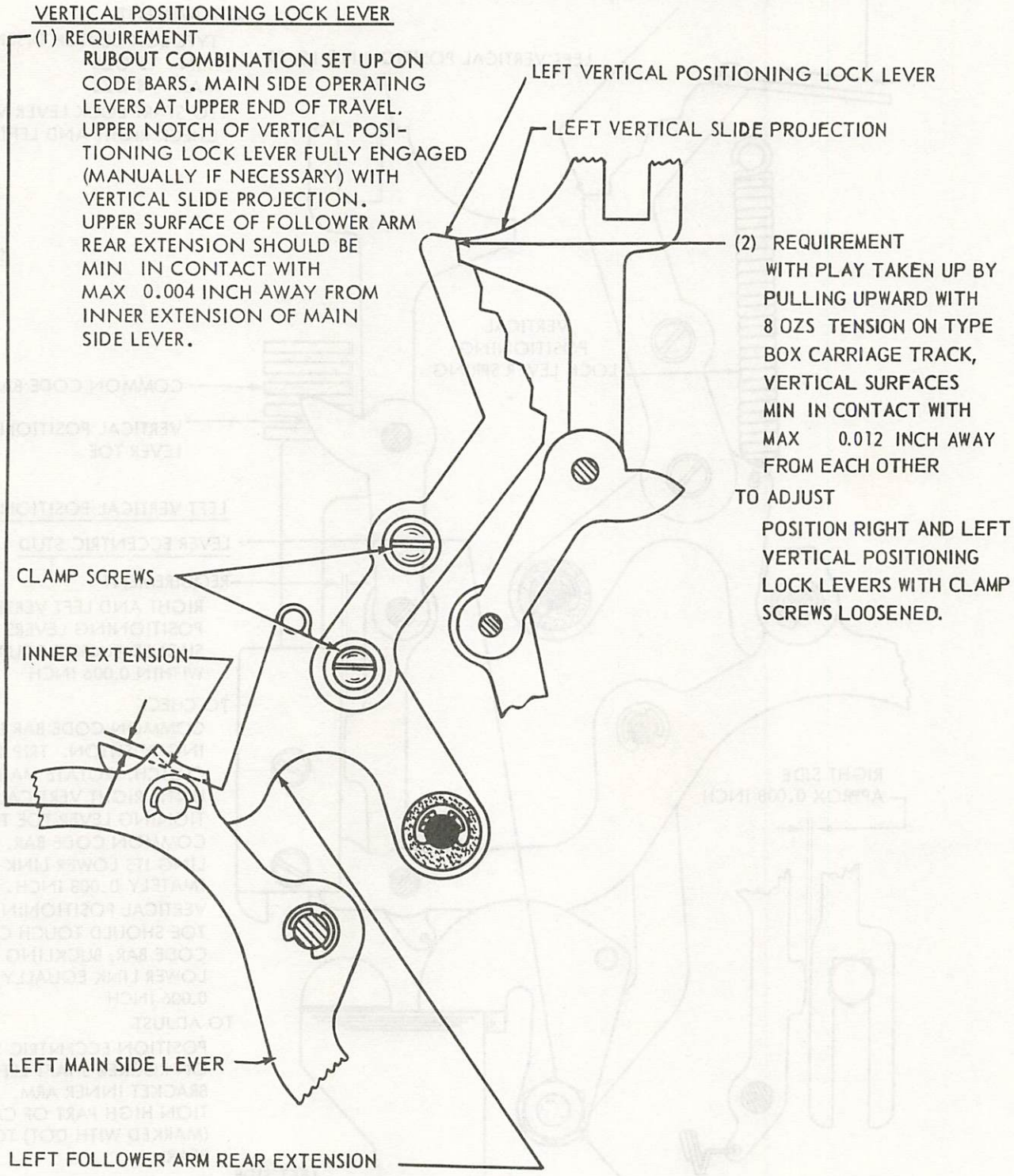
TO MOVE THE LINK EXTENSION AWAY FROM THE VERTICAL POSITIONING LEVER.

CHECK BOTH RIGHT AND LEFT SPRINGS.

2.28 Positioning Mechanism continued



→2.29 Positioning Mechanism continued



2.30 Spacing Mechanism

(A) SPACING TRIP LEVER BAIL CAM PLATE

REQUIREMENT

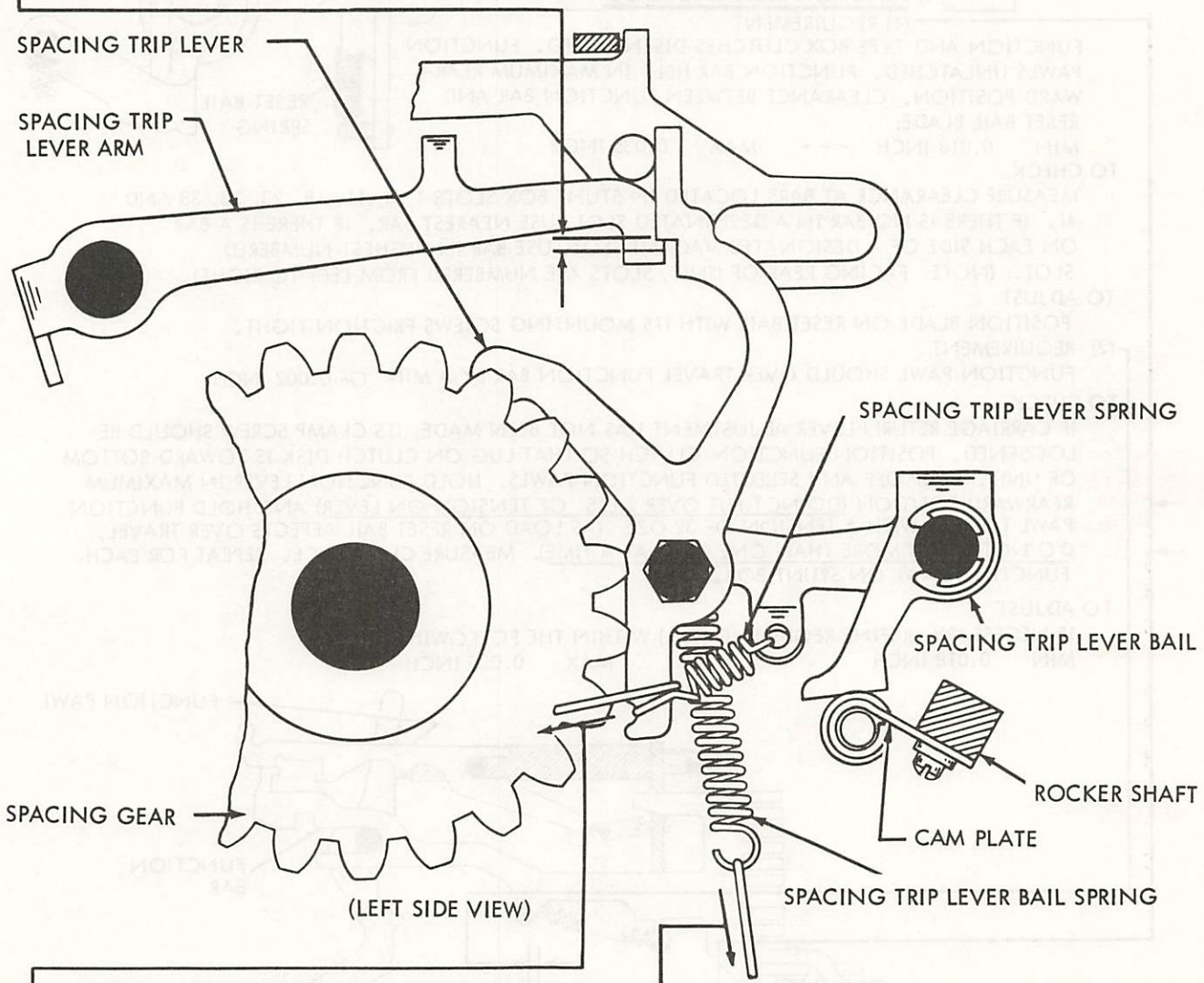
SPACING TRIP LEVER ARM IN UPWARD POSITION. TYPE BOX CLUTCH ROTATED THROUGH APPROXIMATELY ONE-HALF OF ITS CYCLE. ALL FUNCTION PAWLS DISENGAGED FROM FUNCTION BARS. CLEARANCE BETWEEN TOP SURFACE OF TRIP LEVER ARM EXTENSION AND SPACING TRIP LEVER SHOULDER

MIN 0.010 INCH

MAX 0.040 INCH

TO ADJUST

POSITION CAM PLATE ON ROCKER SHAFT WITH MOUNTING SCREWS LOOSENED. POSITION FORWARD EDGE OF CAM PLATE PARALLEL TO SHAFT.



(B) SPACING TRIP LEVER SPRING

REQUIREMENT

TYPE BOX CLUTCH DISENGAGED.

MIN 2-1/2 OZS

MAX 5 OZS

TO START LEVER MOVING.

(C) SPACING TRIP LEVER BAIL SPRING

REQUIREMENT

SPACING TRIP LEVER BAIL AGAINST STOP. SPACING TRIP LEVER BAIL SPRING UNHOOKED.

MIN 8 OZS

MAX 12 OZS

TO PULL SPRING TO INSTALLED LENGTH.

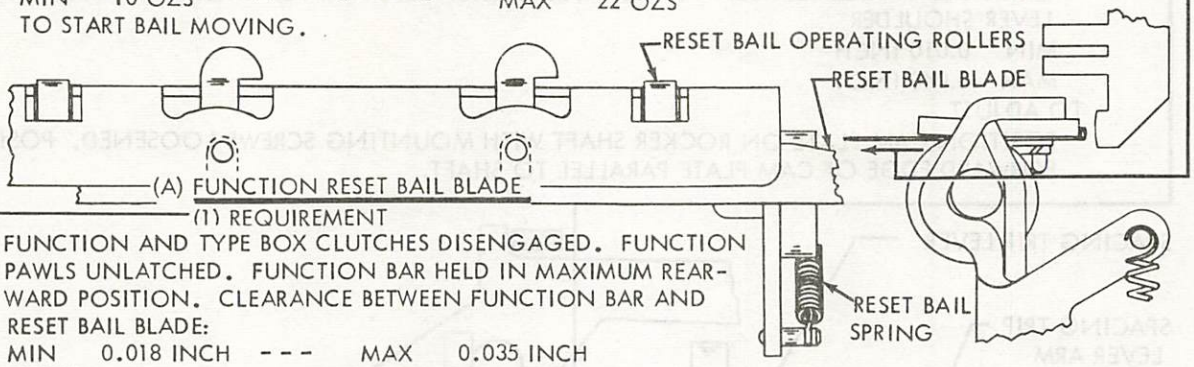
→2.31 Function Mechanism

(B) FUNCTION RESET BAIL SPRING

WITH TYPING UNIT UPSIDE DOWN, HOLD #1 CODEBAR IN ITS MARKING POSITION SO THAT NO FUNCTION BAR IS SELECTED. ROTATE THE MAIN SHAFT UNTIL THE FUNCTION RESET BAIL SPRINGS ARE IN THEIR MINIMUM LENGTH POSITION. PLACE PULL ROD OF 32 OUNCE SCALE BETWEEN CLUTCH TRIP SHAFT AND SPACE SUPPRESSION BAIL, HOOK SCALE ON FRONT EDGE OF RESET BAIL (AT MIDDLE OF BAIL) AND PULL TOWARD REAR.

MIN 10 OZS – – – MAX 22 OZS

TO START BAIL MOVING.



(1) REQUIREMENT

FUNCTION AND TYPE BOX CLUTCHES DISENGAGED. FUNCTION PAWLS UNLATCHED. FUNCTION BAR HELD IN MAXIMUM REARWARD POSITION. CLEARANCE BETWEEN FUNCTION BAR AND RESET BAIL BLADE:

MIN 0.018 INCH - - - MAX 0.035 INCH

TO CHECK

MEASURE CLEARANCE AT BARS LOCATED IN STUNT BOX SLOTS 1, 4, 11, 18, 23, 33, 38 AND 41. IF THERE IS NO BAR IN A DESIGNATED SLOT, USE NEAREST BAR. IF THERE IS A BAR ON EACH SIDE OF A DESIGNATED VACANT SLOT, USE BAR IN HIGHEST NUMBERED SLOT. (NOTE: FACING REAR OF UNIT, SLOTS ARE NUMBERED FROM LEFT TO RIGHT).

TO ADJUST

POSITION BLADE ON RESET BAIL WITH ITS MOUNTING SCREWS FRICTION TIGHT.

(2) REQUIREMENT

FUNCTION PAWL SHOULD OVER TRAVEL FUNCTION BAR BY A MIN OF 0.002 INCH

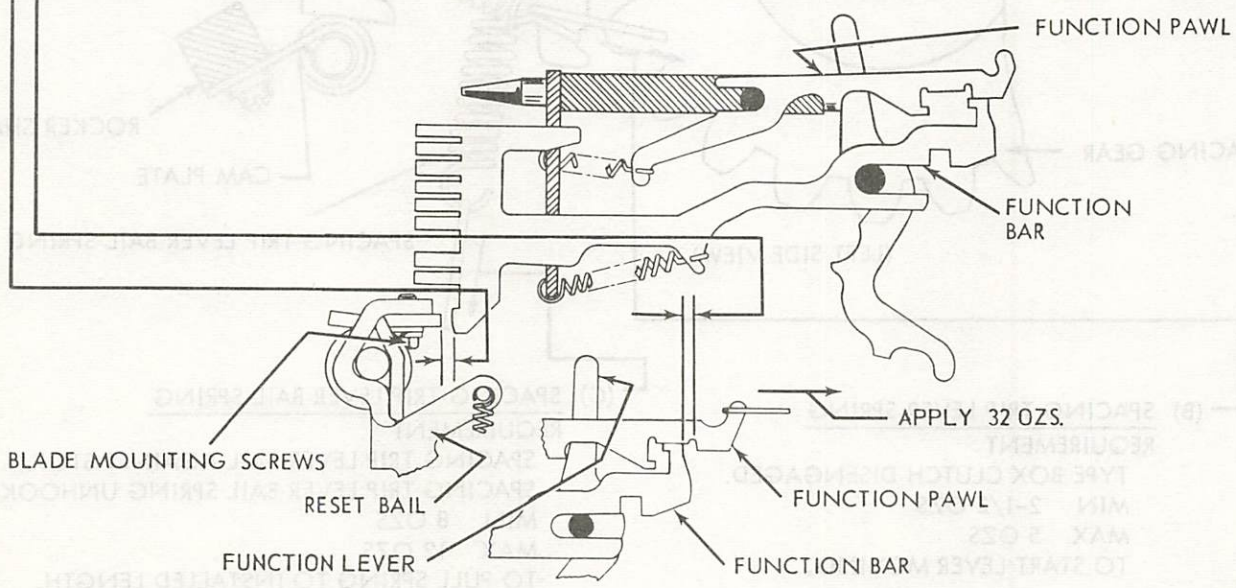
TO CHECK

IF CARRIAGE RETURN LEVER ADJUSTMENT HAS NOT BEEN MADE, ITS CLAMP SCREW SHOULD BE LOOSENED. POSITION FUNCTION CLUTCH SO THAT LUG ON CLUTCH DISK IS TOWARD BOTTOM OF UNIT. STRIP OFF ANY SELECTED FUNCTION PAWLS. HOLD FUNCTION LEVER IN MAXIMUM REARWARD POSITION (DO NOT PUT OVER 2 LBS OF TENSION ON LEVER) AND HOLD FUNCTION PAWL TO REAR WITH A TENSION OF 32 OZS (AS LOAD ON RESET BAIL AFFECTS OVER TRAVEL, DO NOT LATCH MORE THAN ONE PAWL AT A TIME). MEASURE CLEARANCE. REPEAT FOR EACH FUNCTION PAWL ON STUNT BOX.

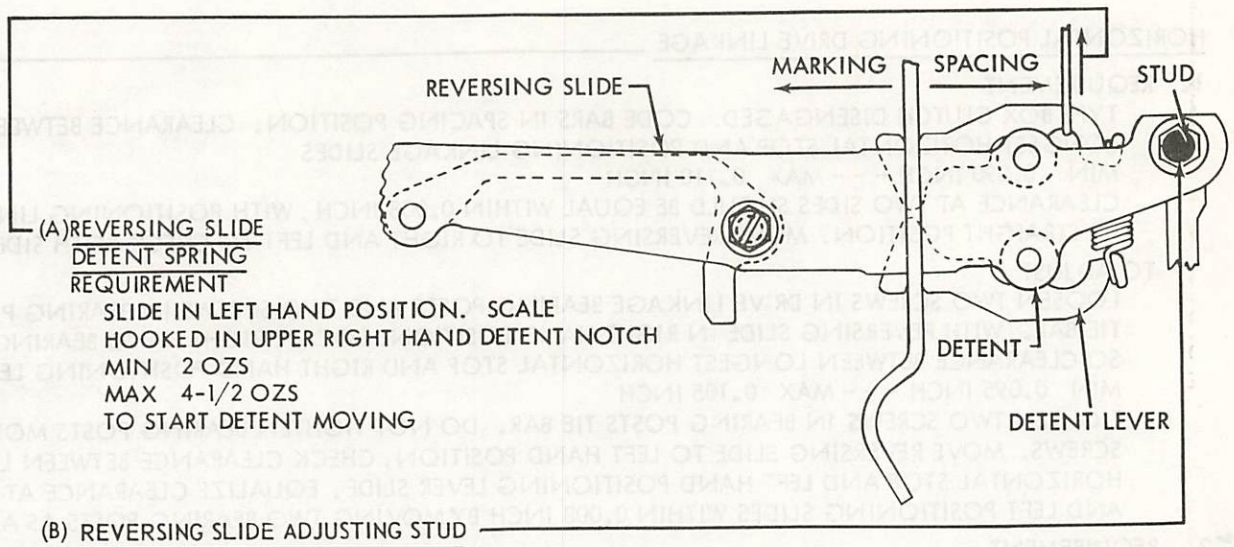
TO ADJUST

IF NECESSARY, REFINE REQUIREMENT (1) WITHIN THE FOLLOWING LIMITS:

MIN 0.018 INCH MAX 0.035 INCH



2.32 Positioning Mechanism continued



(A) REVERSING SLIDE DETENT SPRING REQUIREMENT

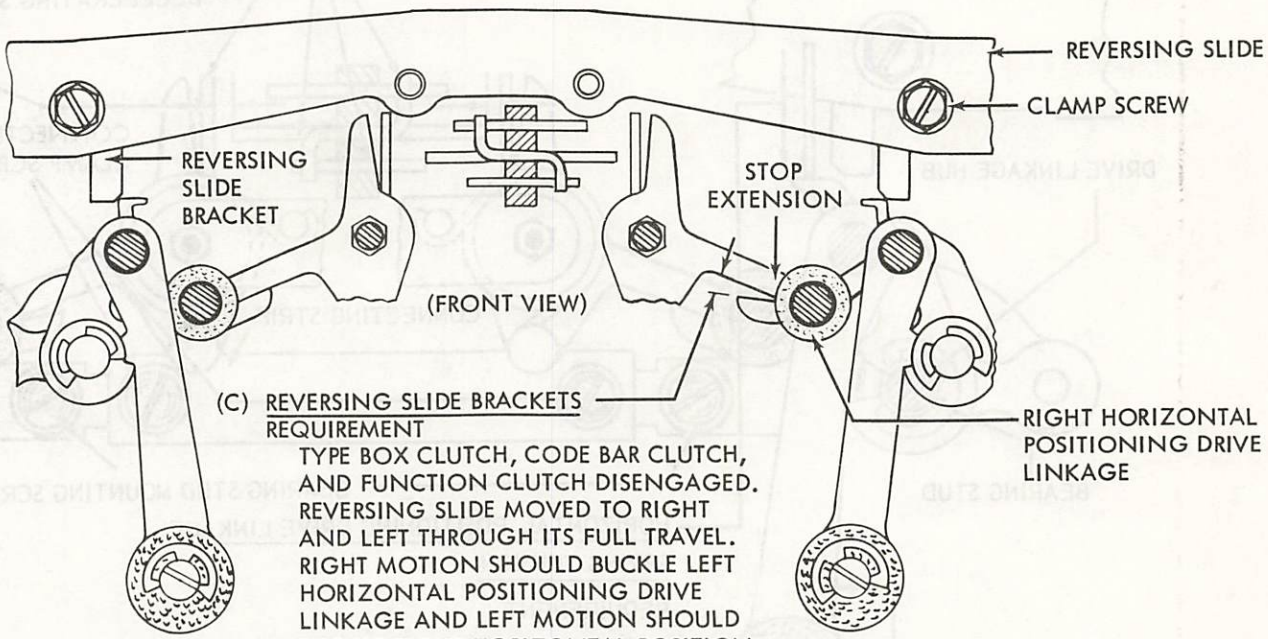
SLIDE IN LEFT HAND POSITION. SCALE HOOKED IN UPPER RIGHT HAND DETENT NOTCH
MIN 2 OZS
MAX 4-1/2 OZS
TO START DETENT MOVING

(B) REVERSING SLIDE ADJUSTING STUD REQUIREMENT

TYPE BOX CLUTCH DISENGAGED.
WITH NO. 3 CODE BAR IN SPACING POSITION (RIGHT), THE REVERSING SLIDE DETENT ROLLERS SHOULD BE FULLY SEATED IN THE RIGHT-HAND NOTCHES OF THE DETENT LEVER.
WITH NO. 3 CODE BAR IN MARKING POSITION (LEFT), THE REVERSING SLIDE DETENT ROLLERS SHOULD BE FULLY SEATED IN THE LEFT-HAND NOTCHES OF THE DETENT LEVER.

TO ADJUST

POSITION THE REVERSING SLIDE STUD IN ITS ELONGATED HOLE WITH ITS MOUNTING NUT LOOSENED.



(C) REVERSING SLIDE BRACKETS REQUIREMENT

TYPE BOX CLUTCH, CODE BAR CLUTCH, AND FUNCTION CLUTCH DISENGAGED. REVERSING SLIDE MOVED TO RIGHT AND LEFT THROUGH ITS FULL TRAVEL. RIGHT MOTION SHOULD BUCKLE LEFT HORIZONTAL POSITIONING DRIVE LINKAGE AND LEFT MOTION SHOULD BUCKLE RIGHT HORIZONTAL POSITIONING DRIVE LINKAGE. THE AMOUNT OF BUCKLING IN EACH CASE SHOULD BE
MIN 0.030 INCH
MAX 0.050 INCH
MEASURED AT POINT OF MAXIMUM CLEARANCE

TO ADJUST

POSITION EACH REVERSING SLIDE BRACKET WITH ITS CLAMP SCREW LOOSENED.

→2.33 Positioning Mechanism continued

HORIZONTAL POSITIONING DRIVE LINKAGE

1. REQUIREMENT

TYPE BOX CLUTCH DISENGAGED. CODE BARS IN SPACING POSITION. CLEARANCE BETWEEN LONGEST HORIZONTAL STOP AND POSITIONING LINKAGE SLIDES
MIN 0.090 INCH - - - MAX 0.110 INCH
CLEARANCE AT TWO SIDES SHOULD BE EQUAL WITHIN 0.008 INCH, WITH POSITIONING LINKAGE IN STRAIGHT POSITION. MOVE REVERSING SLIDE TO RIGHT AND LEFT TO CHECK BOTH SIDES.

TO ADJUST

LOOSEN TWO SCREWS IN DRIVE LINKAGE BEARING POSTS AND TWO SCREWS IN BEARING POSTS TIE BAR. WITH REVERSING SLIDE IN RIGHT HAND POSITION, LOCATE RIGHT HAND BEARING POST SO CLEARANCE BETWEEN LONGEST HORIZONTAL STOP AND RIGHT HAND POSITIONING LEVER SLIDE
MIN 0.095 INCH - - - MAX 0.105 INCH
TIGHTEN TWO SCREWS IN BEARING POSTS TIE BAR. DO NOT TIGHTEN BEARING POSTS MOUNTING SCREWS. MOVE REVERSING SLIDE TO LEFT HAND POSITION, CHECK CLEARANCE BETWEEN LONGEST HORIZONTAL STOP AND LEFT HAND POSITIONING LEVER SLIDE. EQUALIZE CLEARANCE AT RIGHT AND LEFT POSITIONING SLIDES WITHIN 0.008 INCH BY MOVING TWO BEARING POSTS AS A UNIT.

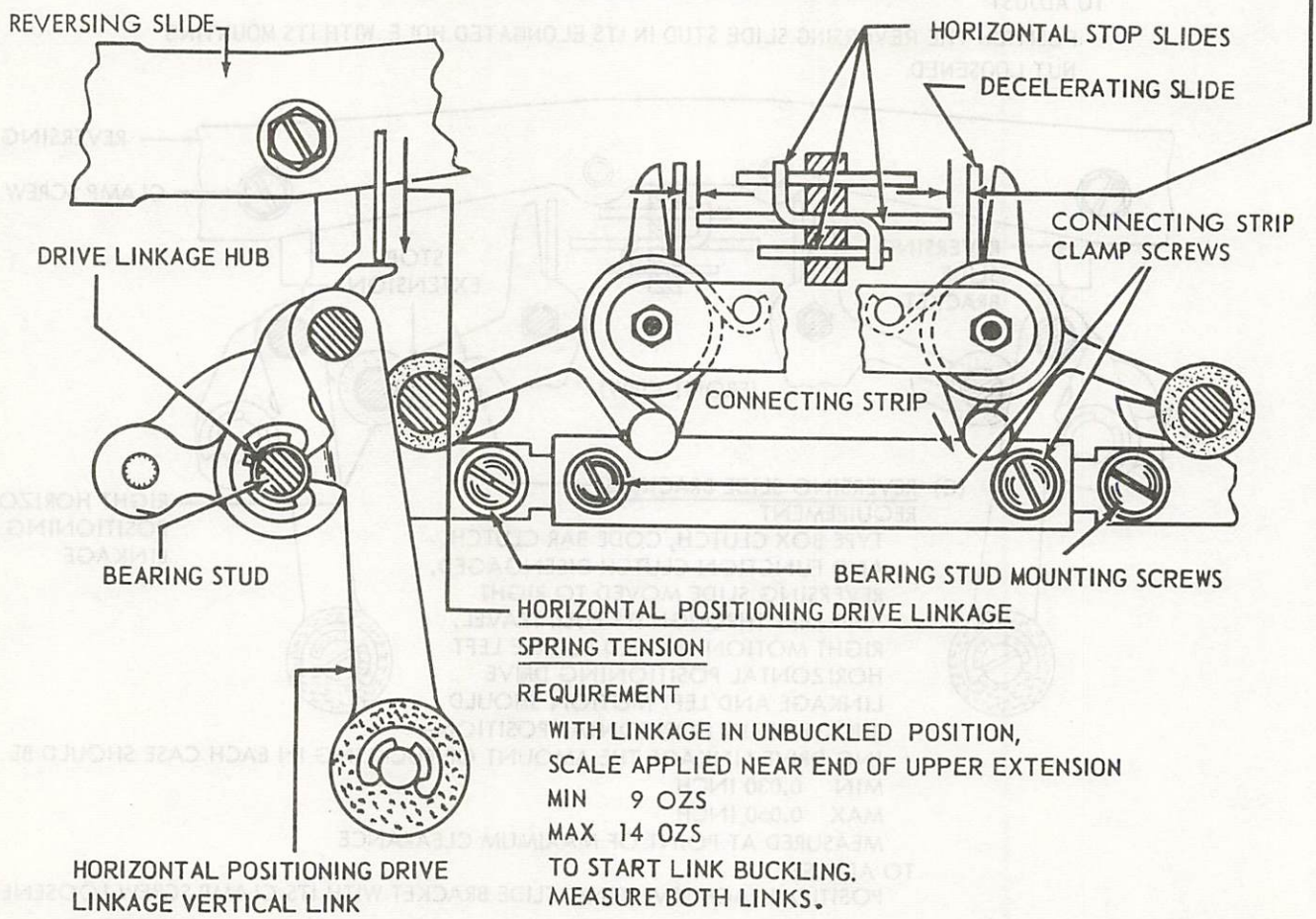
→2. REQUIREMENT

HORIZONTAL POSITIONING MECHANISM SHOULD BE FREE OF JAMS OR BINDS.

TO CHECK

TYPE BOX CLUTCH DISK SHOULD HAVE SOME MOVEMENT IN THE NORMAL DIRECTION OF ROTATION IN THE STOP POSITION.

NOTE: EACH POSITIONING LINKAGE SHOULD RETURN FREELY TO ITS STRAIGHT POSITION AFTER BUCKLING. RECHECK REVERSING SLIDE BRACKETS (PAR 2.32).



SPRING TENSION

REQUIREMENT

WITH LINKAGE IN UNBUCKLED POSITION,
SCALE APPLIED NEAR END OF UPPER EXTENSION
MIN 9 OZS
MAX 14 OZS
TO START LINK BUCKLING.
MEASURE BOTH LINKS.

→ HORIZONTAL POSITIONING DRIVE LINKAGE VERTICAL LINK

2.34 Positioning Mechanism continued

SHIFT LINKAGE - PRELIMINARY

REQUIREMENT

WITH CODE BAR AND TYPE BOX CLUTCHES DISENGAGED

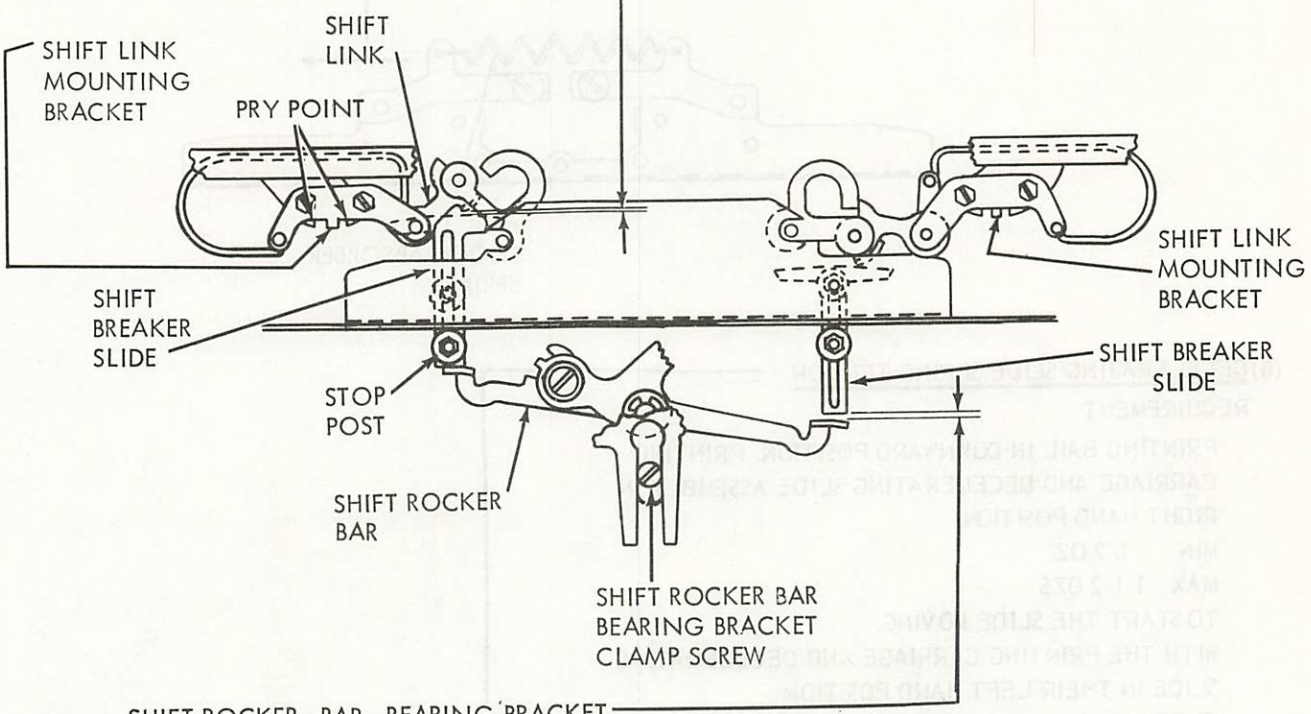
MIN 0.030 INCH

MAX 0.050 INCH

BETWEEN SHIFT BREAKER SLIDE AND PAD ON SHIFT LINK, WITH LINK BUCKLED AND SHIFT BREAKER SLIDE PUSHED UPWARDS AGAINST STOP. CLEARANCE AT TWO SIDES EQUAL WITHIN 0.010 INCH.

TO ADJUST

POSITION SHIFT LINK MOUNTING BRACKETS UP OR DOWN BY MEANS OF PLAY IN MOUNTING HOLES.



SHIFT ROCKER BAR BEARING BRACKET

REQUIREMENT (VERIFY SHIFT BAR ADJUSTMENT (PAR 2.36) BEFORE PROCEEDING WITH THIS ADJUSTMENT)

CODE BAR AND TYPE BOX CLUTCHES DISENGAGED. CLEARANCE BETWEEN SHIFT ROCKER BAR AND LOWER END OF RIGHT SHIFT BREAKER SLIDE

MIN 0.050 INCH

MAX 0.070 INCH

CHECK LEFT SIDE IN SIMILAR MANNER.

TO CHECK

RAISE LEFT END OF SHIFT ROCKER BAR TO UPPERMOST POSITION, HOLDING LEFT SHIFT BREAKER SLIDE AGAINST STOP. MAKE SURE RIGHT SHIFT LINK IS STRAIGHT, AND HOLD RIGHT SHIFT BREAKER SLIDE AGAINST SHIFT LINK PAD.

TO ADJUST

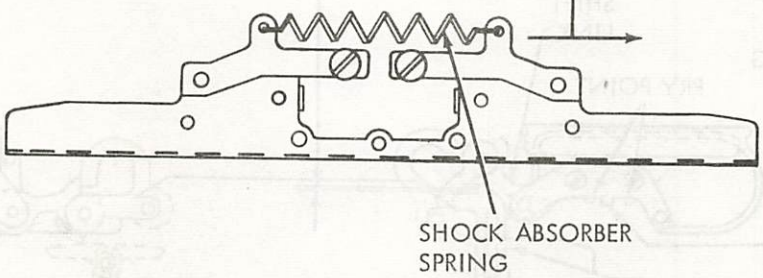
POSITION SHIFT ROCKER BAR BEARING BRACKET WITH CLAMP SCREW FRICTION TIGHT.

→2.35 Positioning Mechanism continued

(A) HORIZONTAL SHIFT LINK SHOCK ABSORBER SPRING TENSION

REQUIREMENT

TYPE BOX CARRIAGE AT LEFT SIDE OF TYPING UNIT. RIGHT HAND SHIFT LINK IN STRAIGHT OR UNBUCKLED POSITION.
MIN 10 LBS
MAX 12 LBS
TO START SHOCK ABSORBER SLIDE MOVING.

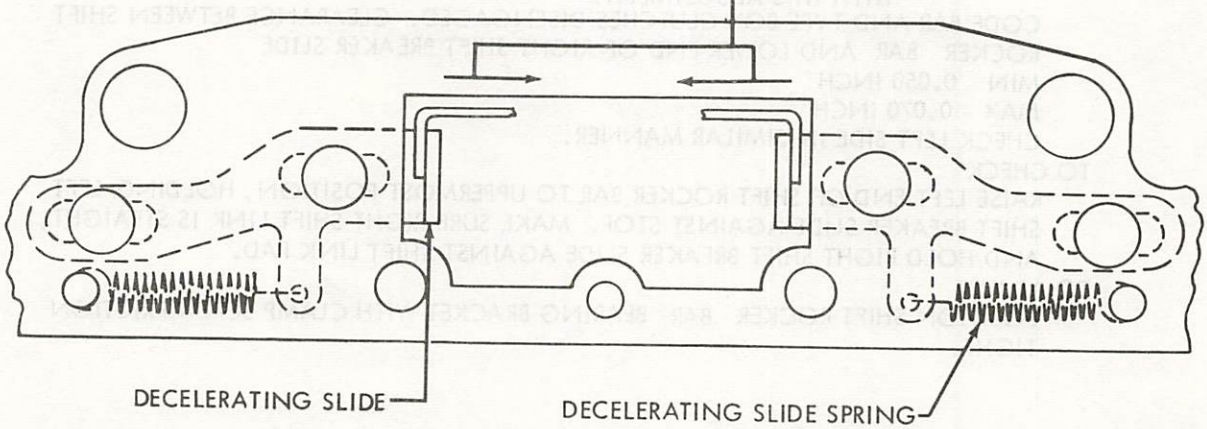


(B) DECELERATING SLIDE SPRING TENSION

REQUIREMENT

PRINTING BAIL IN DOWNWARD POSITION. PRINTING CARRIAGE AND DECELERATING SLIDE ASSEMBLY IN RIGHT HAND POSITION.
MIN 1/2 OZ
MAX 1 1/2 OZS
TO START THE SLIDE MOVING.
WITH THE PRINTING CARRIAGE AND DECELERATING SLIDE IN THEIR LEFT HAND POSITION
CHECK THE LEFT HAND DECELERATING SLIDE SPRING

(FRONT VIEW)



2.36 Positioning Mechanism continued

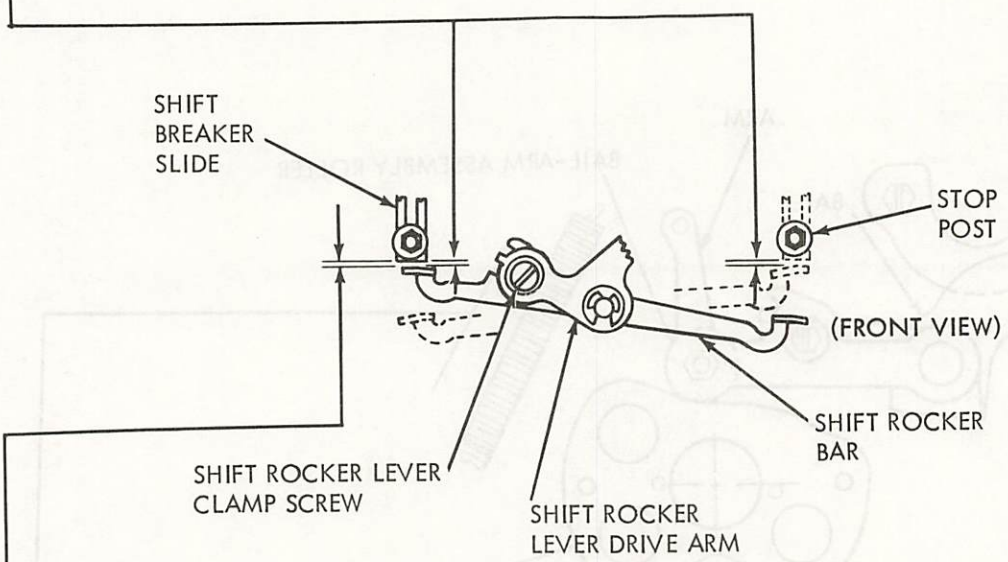
SHIFT ROCKER LEVER

REQUIREMENT

WITH ALTERNATE LEFT AND RIGHT SHIFT SELECTION MADE, AND BAIL-ARM ASSEMBLY ROLLER ON HIGH PART OF CAM. CLEARANCE BETWEEN RAISED END OF SHIFT ROCKER BAR AND LOWER END OF ASSOCIATED SHIFT BREAKER SLIDE, WHEN SLIDE IS HELD AGAINST STOP, SHOULD BE EQUAL WITHIN 0.010 INCH WITH CLEARANCE ON OPPOSITE SIDE WHEN THAT SIDE IS SELECTED.

TO ADJUST

LOOSEN SHIFT ROCKER BAR CLAMP SCREW FRICTION TIGHT AND POSITION SHIFT ROCKER BAR.



SHIFT DRIVE PAWL OPERATING BAIL

REQUIREMENT

WITH SHIFT DRIVE PAWL OPERATING BAIL CAM FOLLOWER ON HIGH DWELL OF CAM, CLEARANCE BETWEEN SHIFT ROCKER BAR AND LOWER END OF RAISED SHIFT BREAKER SLIDE

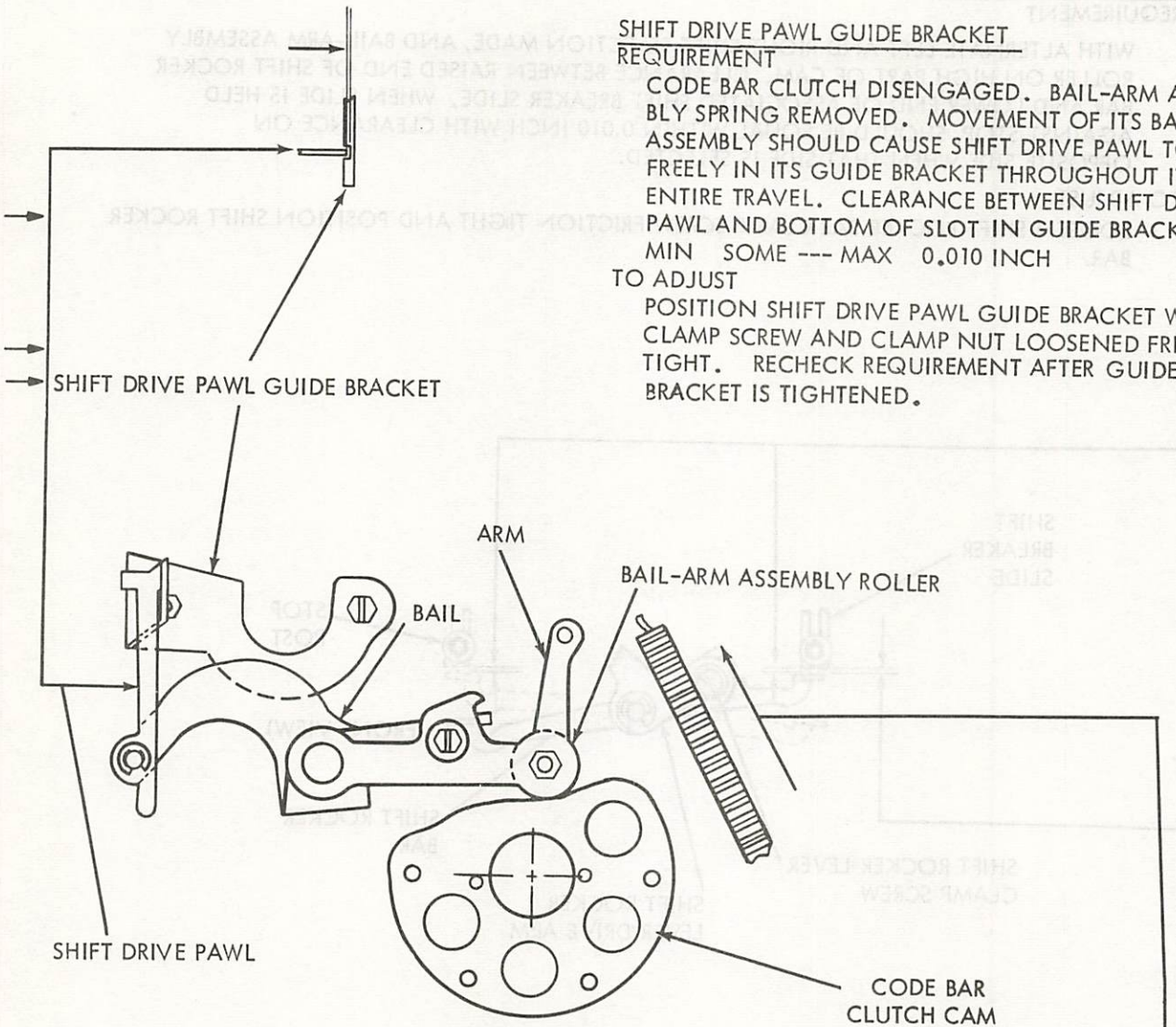
MIN SOME
MAX 0.015 INCH

WHEN SLIDE IS HELD AGAINST STOP.

TO ADJUST

POSITION OPERATING BAIL CAM FOLLOWER ARM BY MEANS OF ITS CLAMP SCREW. RECHECK SHIFT ROCKER BAR ADJUSTMENT.

→2.37 Positioning Mechanism continued



SHIFT DRIVE PAWL GUIDE BRACKET

REQUIREMENT

CODE BAR CLUTCH DISENGAGED. BAIL-ARM ASSEMBLY SPRING REMOVED. MOVEMENT OF ITS BAIL-ARM ASSEMBLY SHOULD CAUSE SHIFT DRIVE PAWL TO MOVE FREELY IN ITS GUIDE BRACKET THROUGHOUT ITS ENTIRE TRAVEL. CLEARANCE BETWEEN SHIFT DRIVE PAWL AND BOTTOM OF SLOT IN GUIDE BRACKET

MIN SOME --- MAX 0.010 INCH

TO ADJUST

POSITION SHIFT DRIVE PAWL GUIDE BRACKET WITH CLAMP SCREW AND CLAMP NUT LOOSENED FRICTION TIGHT. RECHECK REQUIREMENT AFTER GUIDE BRACKET IS TIGHTENED.

BAIL-ARM ASSEMBLY SPRING TENSION

REQUIREMENT

DRIVE PAWL BAIL ARM ASSEMBLY ON LOW PART OF CAM. UNHOOK SPRING.

MIN 6 OZS --- MAX 12 OZS

TO PULL SPRING TO INSTALLED LENGTH.

2.38 Positioning Mechanism continued

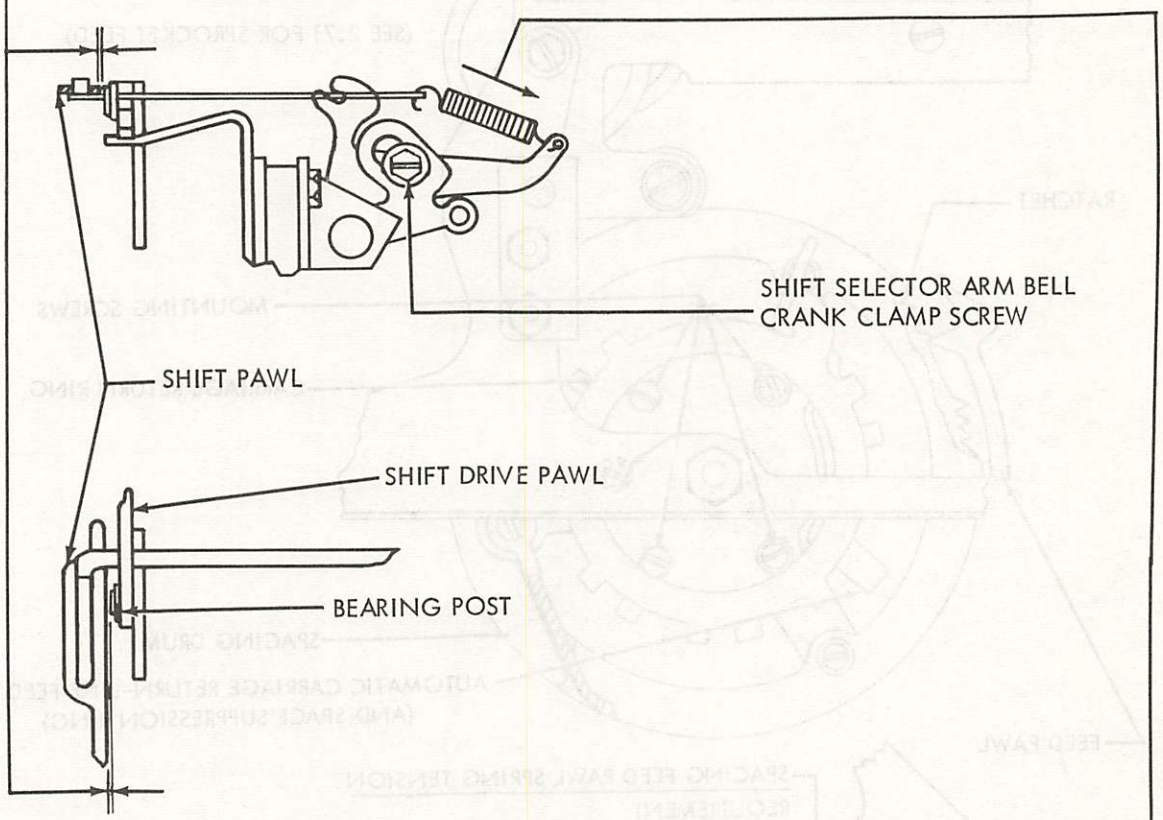
SHIFT SELECTOR ARM BELL CRANK ADJUSTMENT

REQUIREMENT

SHIFT PUSH LEVER MARKING POSITION (TOWARD FRONT)
SELECTOR CLUTCH AND CODE BAR CLUTCH DISENGAGED.
SHIFT PAWL SHOULD CLEAR END OF SHIFT DRIVE PAWL BEARING POST.
MIN SOME --- MAX 0.008 INCH

TO ADJUST

LOOSEN SHIFT SELECTOR ARM BELL CRANK CLAMP SCREW FRICTION TIGHT. POSITION TO MEET REQUIREMENT.



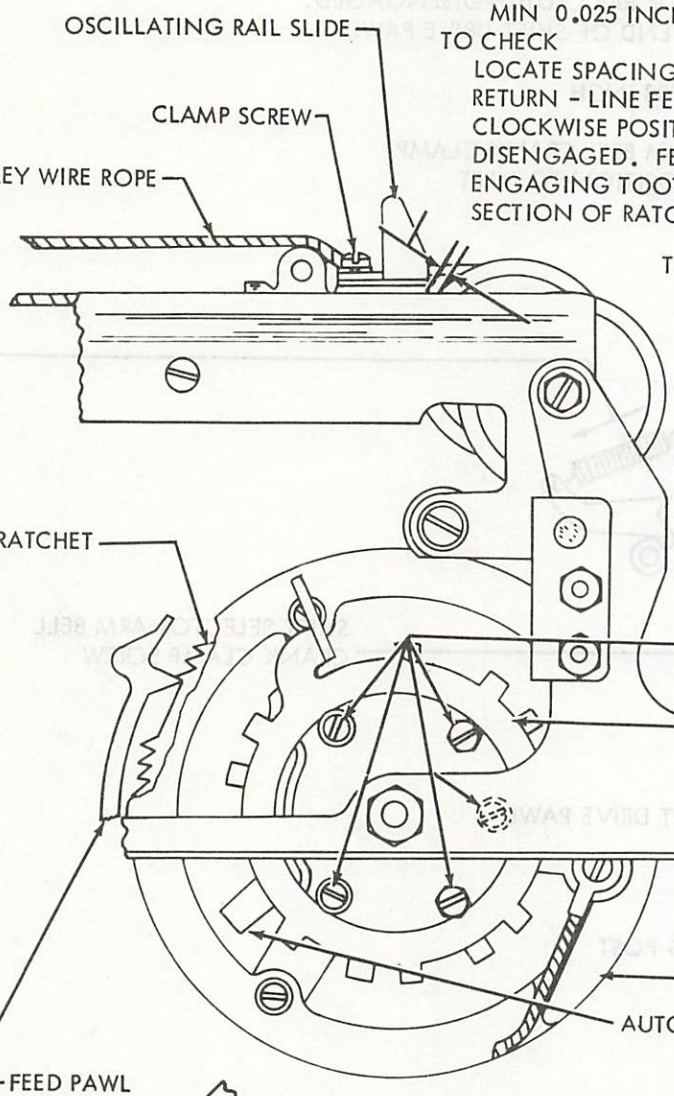
SHIFT PAWL SELECTOR LINK YIELD SPRING

REQUIREMENT

SHIFT PUSH LEVER MARKING POSITION.
SELECTOR CLUTCH AND CODE BAR CLUTCH DISENGAGED
MIN 5 OZS
MAX 7 OZS
TO PULL SPRING TO INSTALLED LENGTH.

→2.39 Spacing Mechanism continued

NOTE: CHECK RELATED ADJUSTMENTS, (SEE 2.43, 2.50, AND 2.51) IF THE FOLLOWING ADJUSTMENTS ARE REMADE.



OSCILLATING RAIL SLIDE POSITION - FRICTION FEED

REQUIREMENT

RIGHT END OF OSCILLATING RAIL SLIDE SHOULD CLEAR EDGE OF PULLEY

MIN 0.025 INCH --- MAX 0.050 INCH

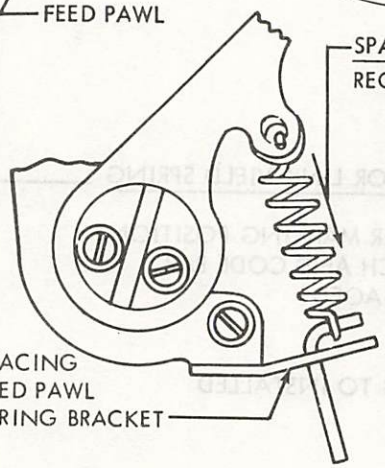
TO CHECK

LOCATE SPACING CUT-OUT ARM AND AUTOMATIC CARRIAGE RETURN - LINE FEED ARM (IF USED) IN MAXIMUM COUNTER-CLOCKWISE POSITION ON SPACING DRUM. SPACING CLUTCH DISENGAGED. FEED PAWL WHICH IS FARTHEST ADVANCED ENGAGING TOOTH IMMEDIATELY ABOVE CUT-AWAY SECTION OF RATCHET.

TO ADJUST

POSITION SLIDE ON WIRE ROPE WITH CLAMP SCREWS LOOSENED.

(SEE 2.71 FOR SPROCKET FEED)



SPACING FEED PAWL SPRING TENSION

REQUIREMENT

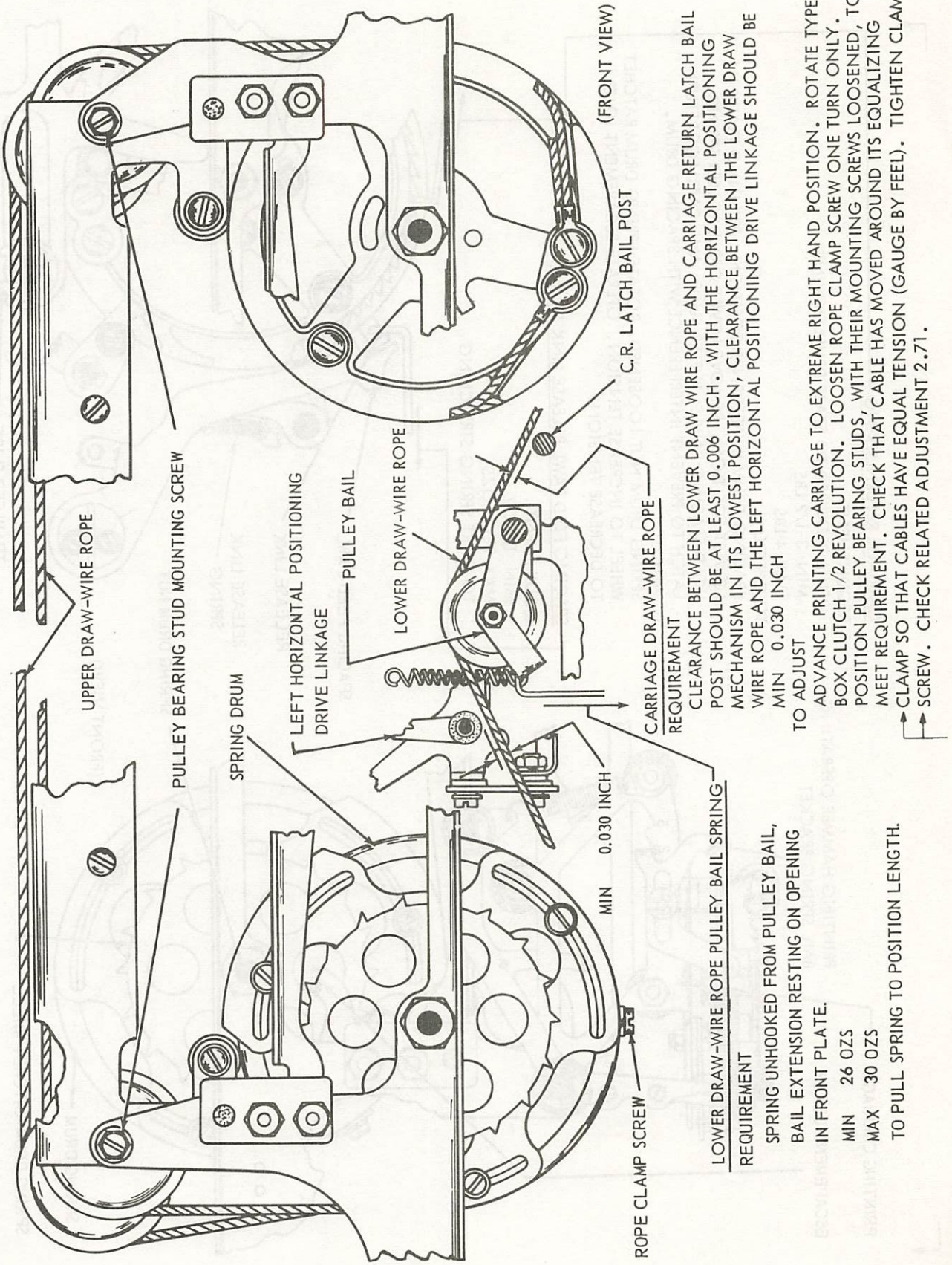
EACH SPACING PAWL IN LEAST ADVANCED POSITION RESTING AGAINST RATCHET WHEEL. EACH SPRING UNHOOKED FROM BRACKET

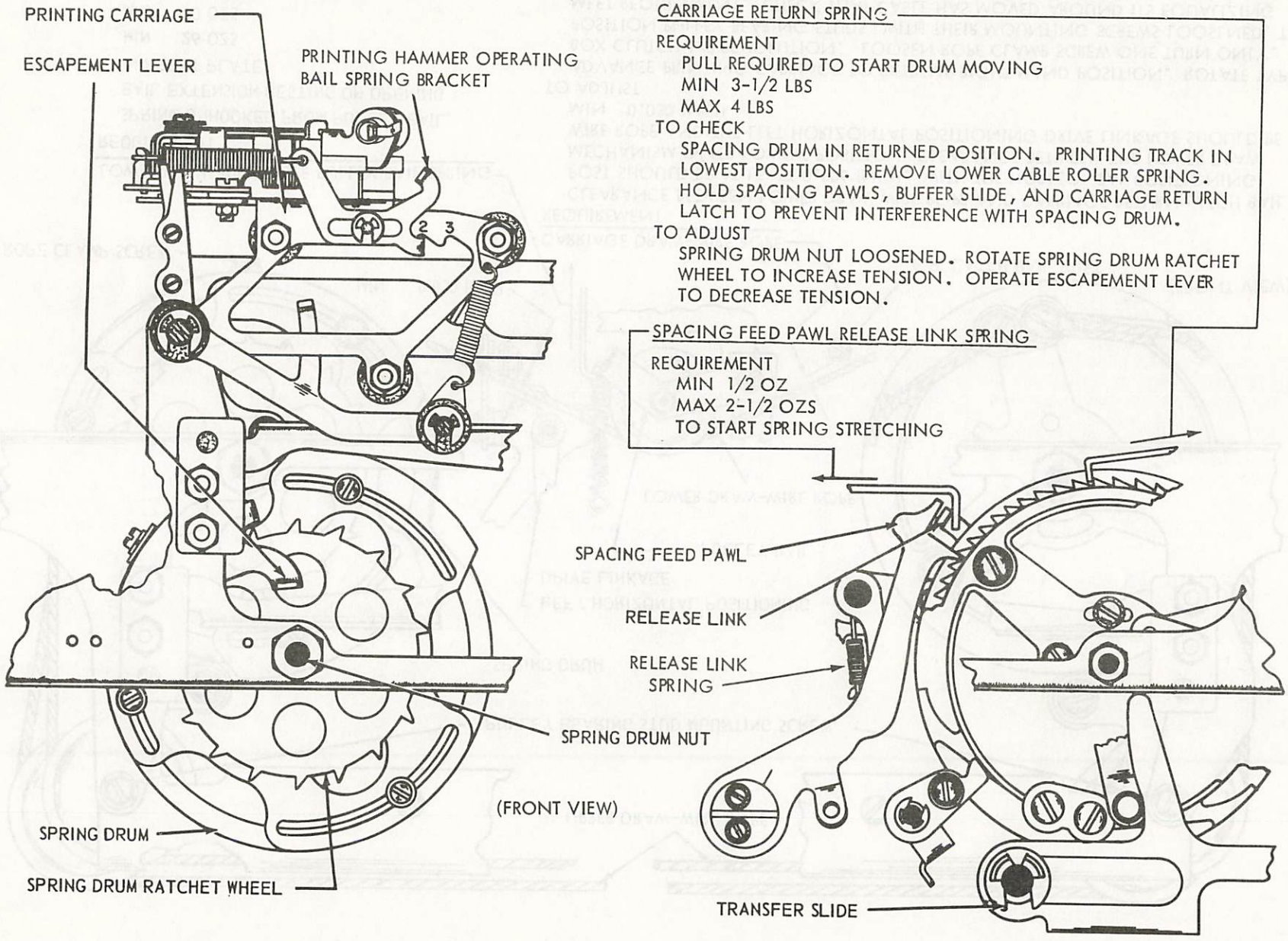
MIN 3 OZS

MAX 5 OZS

TO PULL SPRINGS TO INSTALLED LENGTH.

2.40 Spacing Mechanism continued





CARRIAGE RETURN SPRING

REQUIREMENT
PULL REQUIRED TO START DRUM MOVING
MIN 3-1/2 LBS
MAX 4 LBS

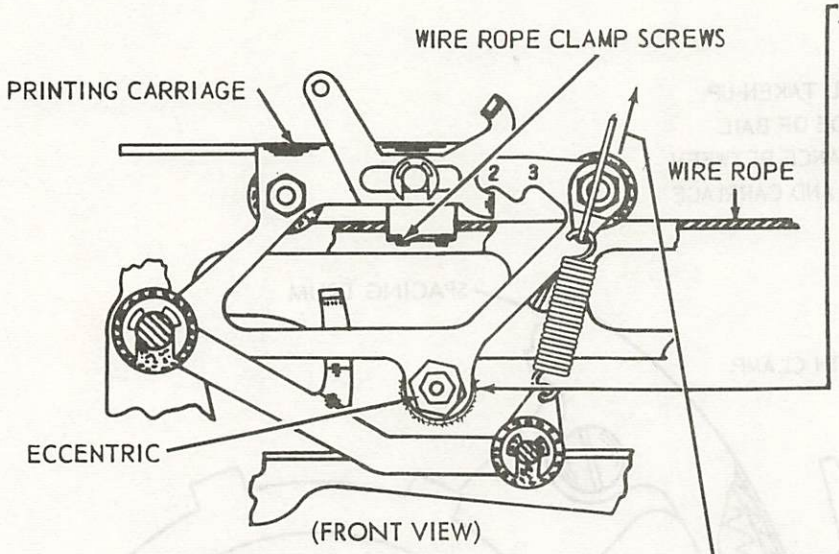
TO CHECK
SPACING DRUM IN RETURNED POSITION. PRINTING TRACK IN LOWEST POSITION. REMOVE LOWER CABLE ROLLER SPRING. HOLD SPACING PAWLS, BUFFER SLIDE, AND CARRIAGE RETURN LATCH TO PREVENT INTERFERENCE WITH SPACING DRUM.

TO ADJUST
SPRING DRUM NUT LOOSENED. ROTATE SPRING DRUM RATCHET WHEEL TO INCREASE TENSION. OPERATE ESCAPEMENT LEVER TO DECREASE TENSION.

SPACING FEED PAWL RELEASE LINK SPRING

REQUIREMENT
MIN 1/2 OZ
MAX 2-1/2 OZS
TO START SPRING STRETCHING

2.42 Printing Mechanism



PRINTING CARRIAGE LOWER ROLLER

REQUIREMENT
CARRIAGE VERTICAL PLAY ON TRACK MINIMUM WITHOUT BINDING

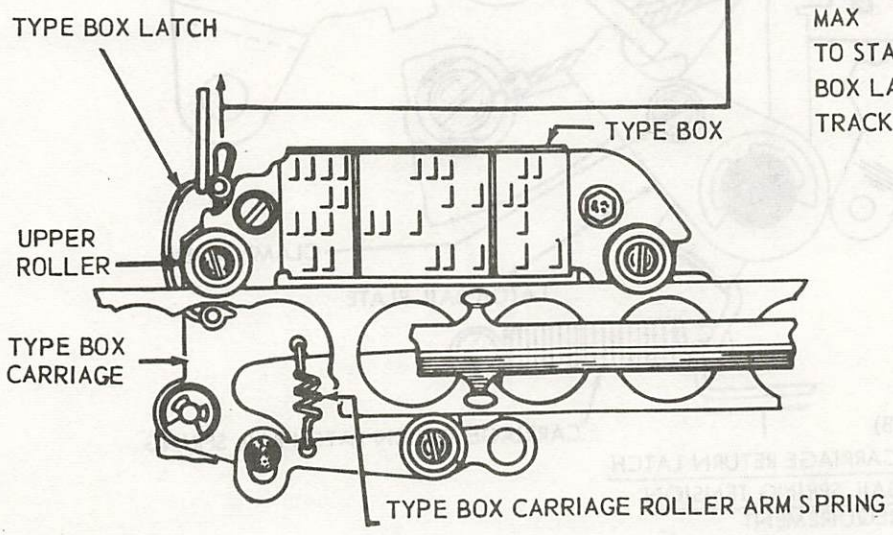
TO ADJUST
POSITION ECCENTRIC OF LOWER ROLLER WITH SCREW NUT LOOSENED. KEEP HIGH PART OF ECCENTRIC (CHAMFERED CORNER) TOWARD RIGHT.

STABILIZING SPRING

REQUIREMENT
TYPE BOX CLUTCH DISENGAGED
MIN 5 OZS
MAX 8 OZS
TO PULL SPRING TO INSTALLED LENGTH.

TYPE BOX CARRIAGE ROLLER ARM SPRING

REQUIREMENT
MIN 28 OZS
MAX 36 OZS
TO START UPPER ROLLER, NEAREST TYPE BOX LATCH, MOVING AWAY FROM CARRIAGE TRACK.



(REAR VIEW)

→2.43 Spacing Mechanism continued

(A)

CARRIAGE RETURN LATCH BAIL

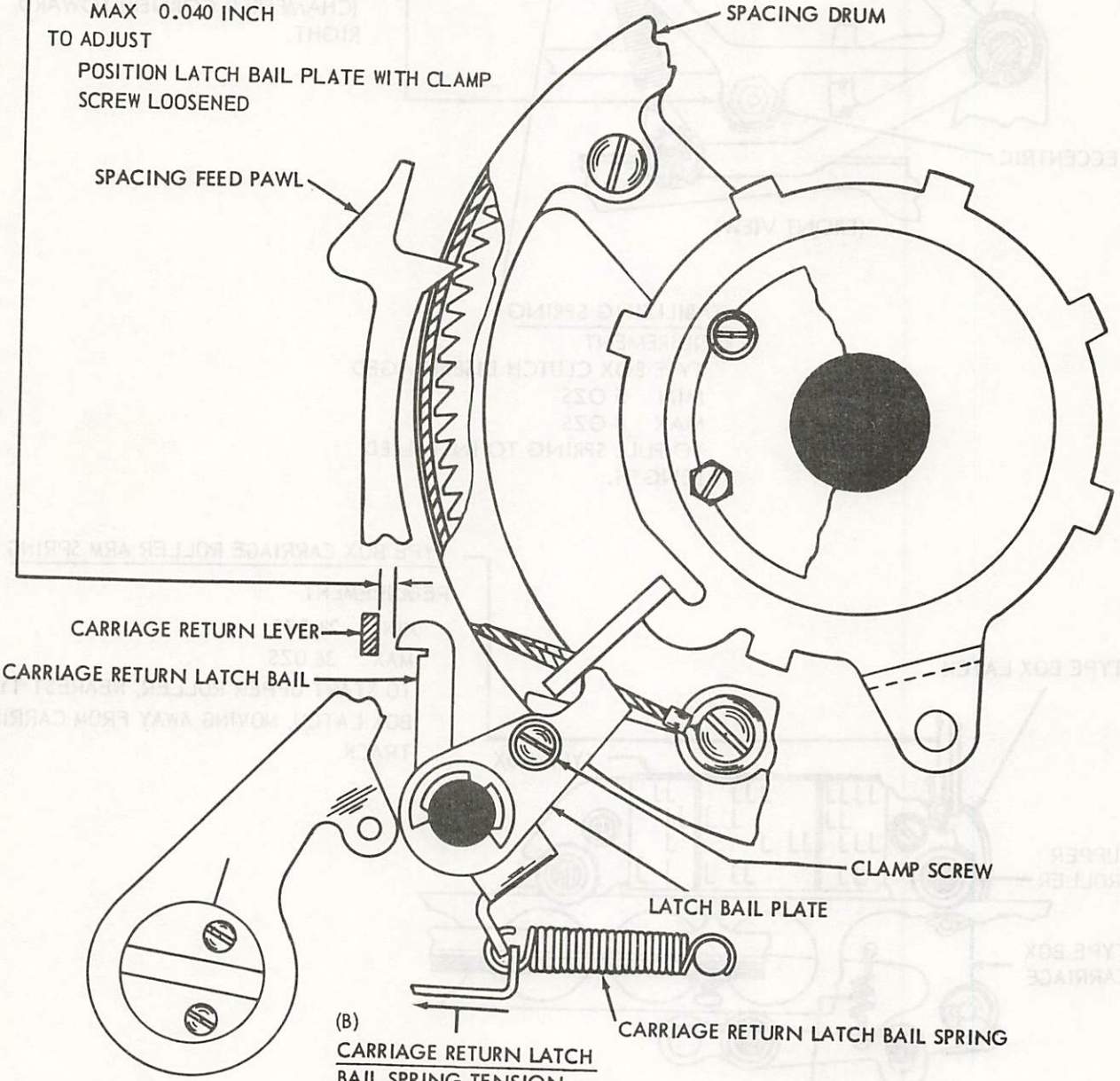
REQUIREMENT

CARRIAGE FULLY RETURNED
PLAY IN CARRIAGE RETURN BAIL TAKEN UP TO RIGHT BY HOLDING RIGHT SIDE OF BAIL AGAINST ITS RETAINER. CLEARANCE BETWEEN CARRIAGE RETURN LATCH BAIL AND CARRIAGE RETURN LEVER.

MIN 0.004 INCH
MAX 0.040 INCH

TO ADJUST

POSITION LATCH BAIL PLATE WITH CLAMP SCREW LOOSENED



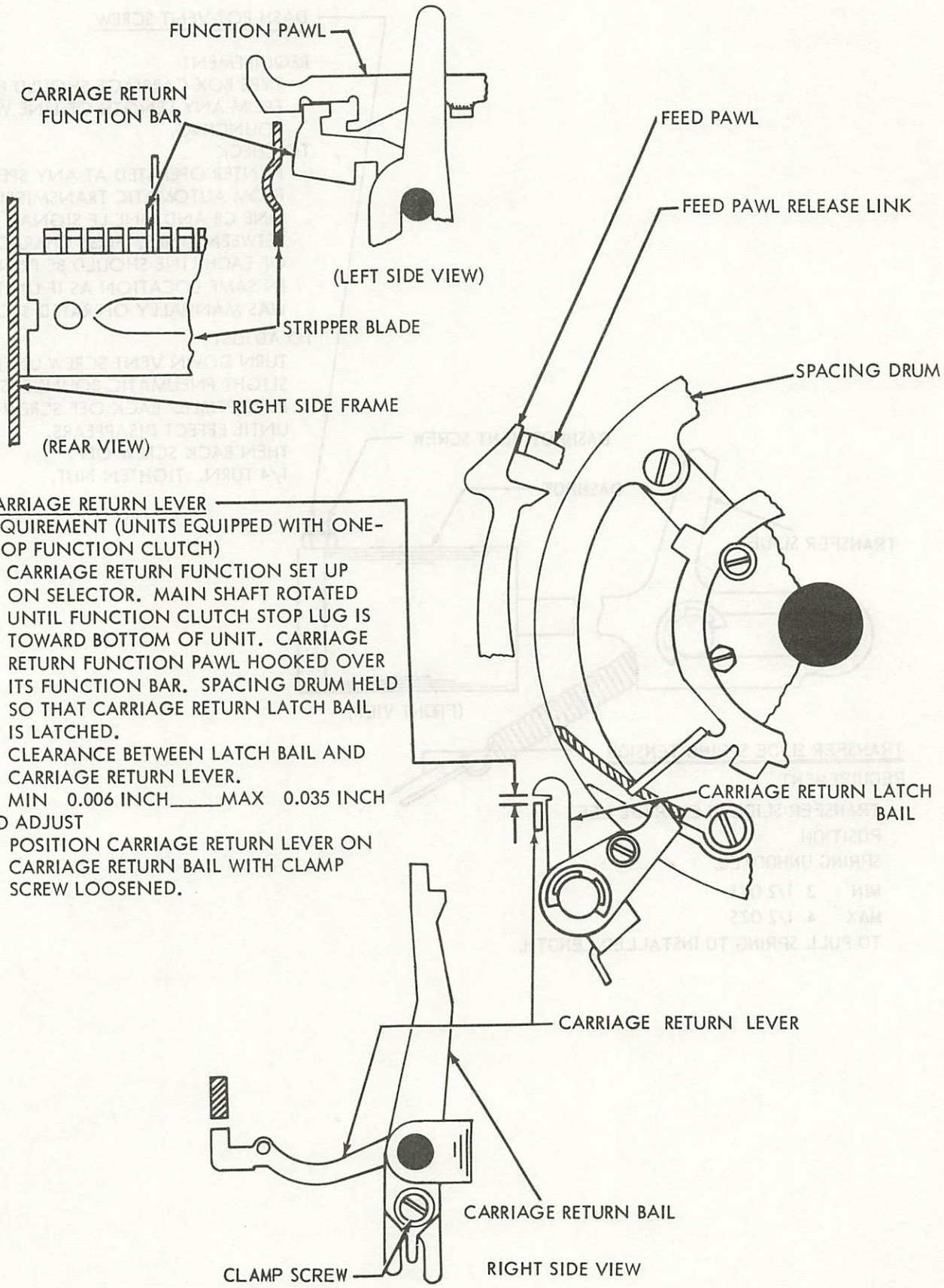
(B)

CARRIAGE RETURN LATCH BAIL SPRING TENSION

REQUIREMENT

SPACING DRUM FULLY RETURNED
MIN 3 OZS
MAX 4 1/2 OZS
TO START LATCH BAIL MOVING

2.44 Spacing Mechanism continued



CARRIAGE RETURN LEVER

REQUIREMENT (UNITS EQUIPPED WITH ONE-STOP FUNCTION CLUTCH)

CARRIAGE RETURN FUNCTION SET UP ON SELECTOR. MAIN SHAFT ROTATED UNTIL FUNCTION CLUTCH STOP LUG IS TOWARD BOTTOM OF UNIT. CARRIAGE RETURN FUNCTION PAWL HOOKED OVER ITS FUNCTION BAR. SPACING DRUM HELD SO THAT CARRIAGE RETURN LATCH BAIL IS LATCHED.

CLEARANCE BETWEEN LATCH BAIL AND CARRIAGE RETURN LEVER.

MIN 0.006 INCH_____MAX 0.035 INCH

TO ADJUST

POSITION CARRIAGE RETURN LEVER ON CARRIAGE RETURN BAIL WITH CLAMP SCREW LOOSENED.

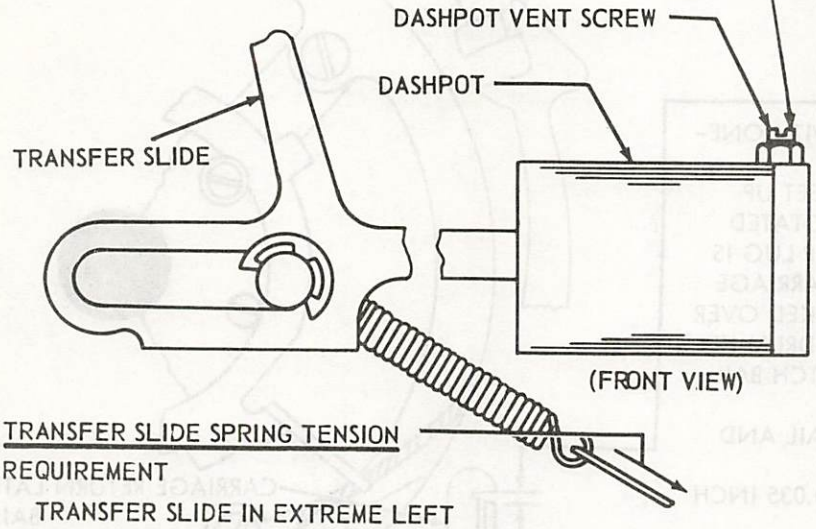
→2.45 Spacing Mechanism continued

DASH POT VENT SCREW

REQUIREMENT
TYPE BOX CARRIAGE SHOULD RETURN FROM ANY LENGTH OF LINE WITHOUT BOUNCING.

TO CHECK
PRINTER OPERATED AT ANY SPEED FROM AUTOMATIC TRANSMISSION WITH ONE CR AND ONE LF SIGNAL BETWEEN LINES. FIRST CHARACTER OF EACH LINE SHOULD BE PRINTED IN SAME LOCATION AS IF UNIT WAS MANUALLY OPERATED SLOWLY.

TO ADJUST
TURN DOWN VENT SCREW UNTIL SLIGHT PNEUMATIC BOUNCE IS PERCEPTIBLE. BACK OFF SCREW UNTIL EFFECT DISAPPEARS. THEN BACK SCREW OFF 1/4 TURN. TIGHTEN NUT.

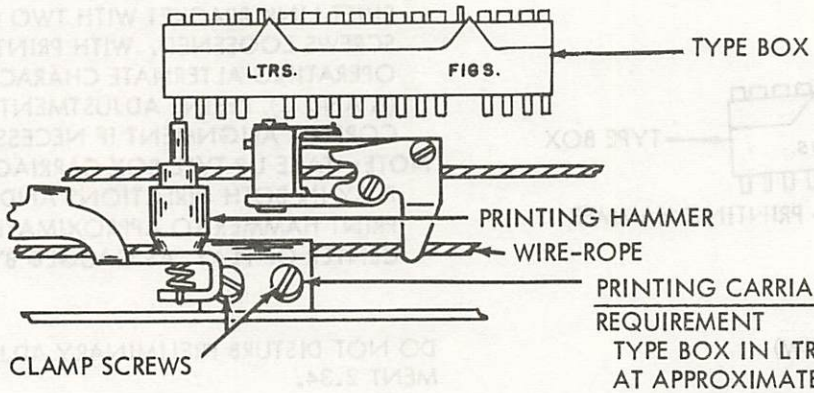


TRANSFER SLIDE SPRING TENSION

REQUIREMENT
TRANSFER SLIDE IN EXTREME LEFT POSITION.
SPRING UNHOOKED.
MIN 3 1/2 OZS
MAX 4 1/2 OZS
TO PULL SPRING TO INSTALLED LENGTH.

2.46 Printing Mechanism continued

NOTE: CHECK RELATED ADJUSTMENTS (PARS 2.39,2.41, AND 2.51), IF THE FOLLOWING ADJUSTMENTS ARE REMADE.



(TOP VIEW)

PRINTING CARRIAGE POSITION

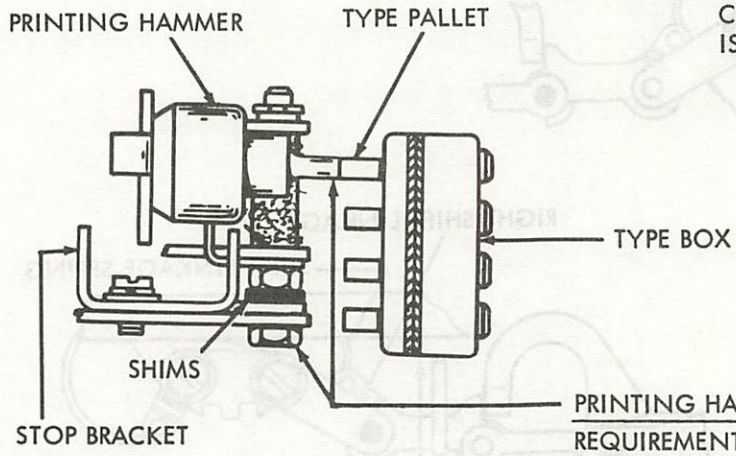
REQUIREMENT

TYPE BOX IN LTRS POSITION AND PRINTING CARRIAGE AT APPROXIMATE MID-POINT OF TRACK. SET UP COMBINATION TO POSITION PRINT HAMMER IN UPPER LEFT CORNER OF TYPE BOX. ROTATE PRINTER SHAFT SO TYPE BOX IS IN PRINTING POSITION. PROPER TYPE PALLET SHOULD BE APPROXIMATELY IN CENTER OF PRINTING HAMMER.

TO ADJUST

POSITION PRINTING CARRIAGE ON WIRE ROPE WITH CLAMP SCREW LOOSENED.

NOTE: TAKE UP PLAY IN TYPE BOX CARRIAGE ALTERNATELY IN EACH DIRECTION. SECURE CARRIAGE AT POINT WHERE PRINT HAMMER IS AT APPROXIMATELY CENTER OF PLAY.



(RIGHT SIDE VIEW)

PRINTING HAMMER BEARING STUD

REQUIREMENT

TYPE BOX IN UPPER LEFT CORNER OF FIGS FIELD (NEAR CENTER OF TYPE BOX) AND PRINT HAMMER IN CONTACT WITH TYPE PALLET, FACE OF HAMMER SHOULD BE FULLY ON END OF TYPE PALLET.

TO ADJUST

ADD OR REMOVE SHIMS BETWEEN SHOULDER ON BEARING POST AND STOP BRACKET. WHEN CHECKING, TAKE UP PLAY IN HAMMER OPERATING BAIL DOWNWARD ON POST.

→2.47 Positioning Mechanism continued

(A) SHIFT LINKAGE - FINAL

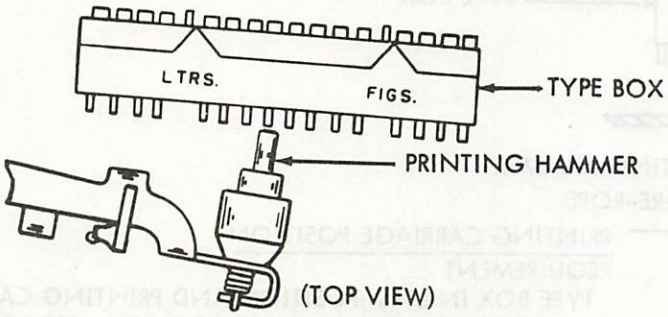
REQUIREMENT

TYPE BOX IN POSITION TO PRINT UPPER LEFT CORNER CHARACTER AT MID-POINT OF PLATEN. SHIFT TYPE BOX TO FIGS POSITION. PROPER TYPE PALLET SHOULD ALIGN WITH PRINT HAMMER.

TO ADJUST

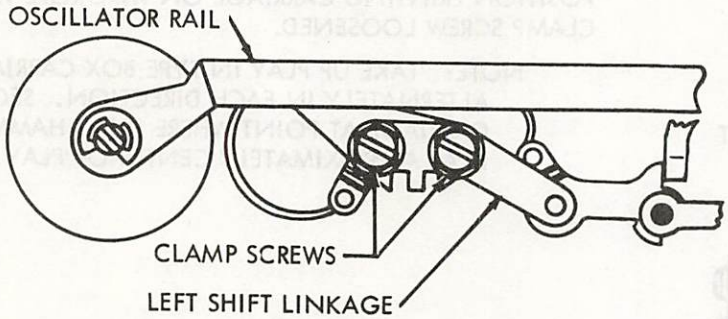
POSITION OSCILLATOR LEFT HAND SHIFT LINK BRACKET WITH TWO CLAMP SCREWS LOOSENED. WITH PRINTER OPERATING ALTERNATE CHARACTERS (& AND C), REFINE ADJUSTMENT FOR CORRECT ALIGNMENT IF NECESSARY.

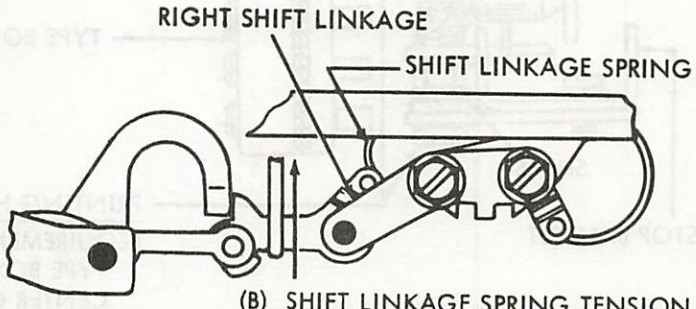
NOTE: TAKE UP TYPE BOX CARRIAGE PLAY IN BOTH DIRECTIONS AND SET PRINT HAMMER TO APPROXIMATE CENTER OF PLAY, AS GAUGED BY EYE.



→ (TOP VIEW)

DO NOT DISTURB PRELIMINARY ADJUSTMENT 2.34.





(FRONT VIEW)

(B) SHIFT LINKAGE SPRING TENSION

REQUIREMENT

LINK IN STRAIGHT POSITION
MIN 6 OZS
MAX 14 OZS
TO START EACH LINK MOVING.
MEASURE BOTH RIGHT AND LEFT LINKS.

2.48 Printing Mechanism continued

(A) PRINTING TRACK

REQUIREMENT

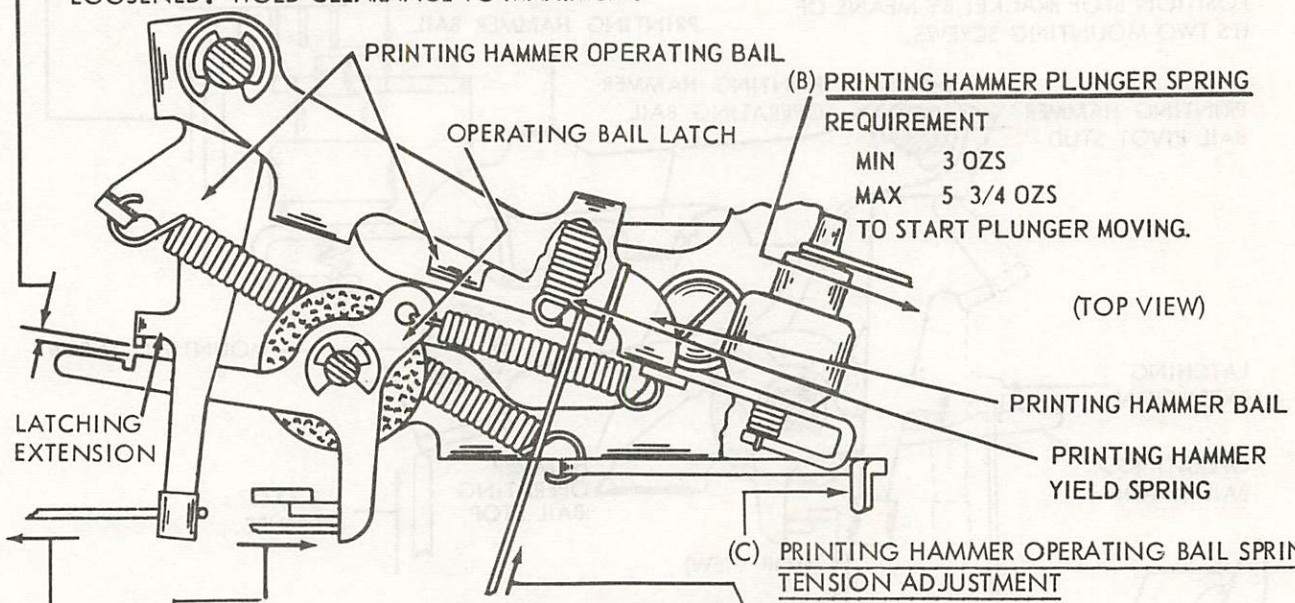
PRINTING TRACK IN ITS EXTREME DOWNWARD POSITION. BLANK SELECTION IN FIGURES. PRINTING HAMMER OPERATING BAIL LATCHING EXTENSION HELD WITH LEFT FACE IN LINE WITH THE LATCH SHOULDER. PRINTING ARM SLIDE POSITIONED ALTERNATELY OVER EACH TRACK MOUNTING SCREW. PRINTING BAIL RESET EACH TIME. CLEARANCE BETWEEN LATCHING EXTENSION AND OPERATING BAIL LATCH SHOULD BE

MIN 0.015 INCH

MAX 0.040 INCH

TO ADJUST

POSITION THE PRINTING TRACK UP OR DOWN WITH ITS MOUNTING SCREWS LOOSENED. HOLD CLEARANCE TO MAXIMUM.



(TOP VIEW)

(B) PRINTING HAMMER PLUNGER SPRING

REQUIREMENT

MIN 3 OZS

MAX 5 3/4 OZS

TO START PLUNGER MOVING.

(C) PRINTING HAMMER OPERATING BAIL SPRING TENSION ADJUSTMENT

REQUIREMENT

USE NOTCH NO. 1 FOR PRINTING ONE TO THREE COPIES, NO. 2 FOR FOUR OR FIVE COPIES, AND NO. 3 FOR SIX OR MORE COPIES.

TO ADJUST

POSITION SPRING ADJUSTING BRACKET IN REQUIRED NOTCH.

(D) PRINTING HAMMER YIELD SPRING TENSION

REQUIREMENT

PRINTING HAMMER OPERATING BAIL AGAINST ITS STOP

MIN 1 OZ

MAX 2 - 1/2 OZS

TO START HAMMER BAIL MOVING (HORIZONTAL POSITION).

(E) PRINTING HAMMER OPERATING BAIL LATCH SPRING TENSION (NOT AS ILLUSTRATED)

REQUIREMENT

PRINTING TRACK IN ITS EXTREME UPWARD POSITION

MIN 3 OZS

MAX 4 - 1/2 OZS

TO START LATCH MOVING.

(F) PRINTING HAMMER OPERATING BAIL SPRING (NOT AS ILLUSTRATED)

REQUIREMENT

OPERATING BAIL LATCHED. SPRING ADJUSTING BRACKET IN LEFT HAND (NO. 1) NOTCH. HAMMER YIELD SPRING UNHOOKED

MIN 10 OZS

MAX 13 OZS

TO START BAIL MOVING.

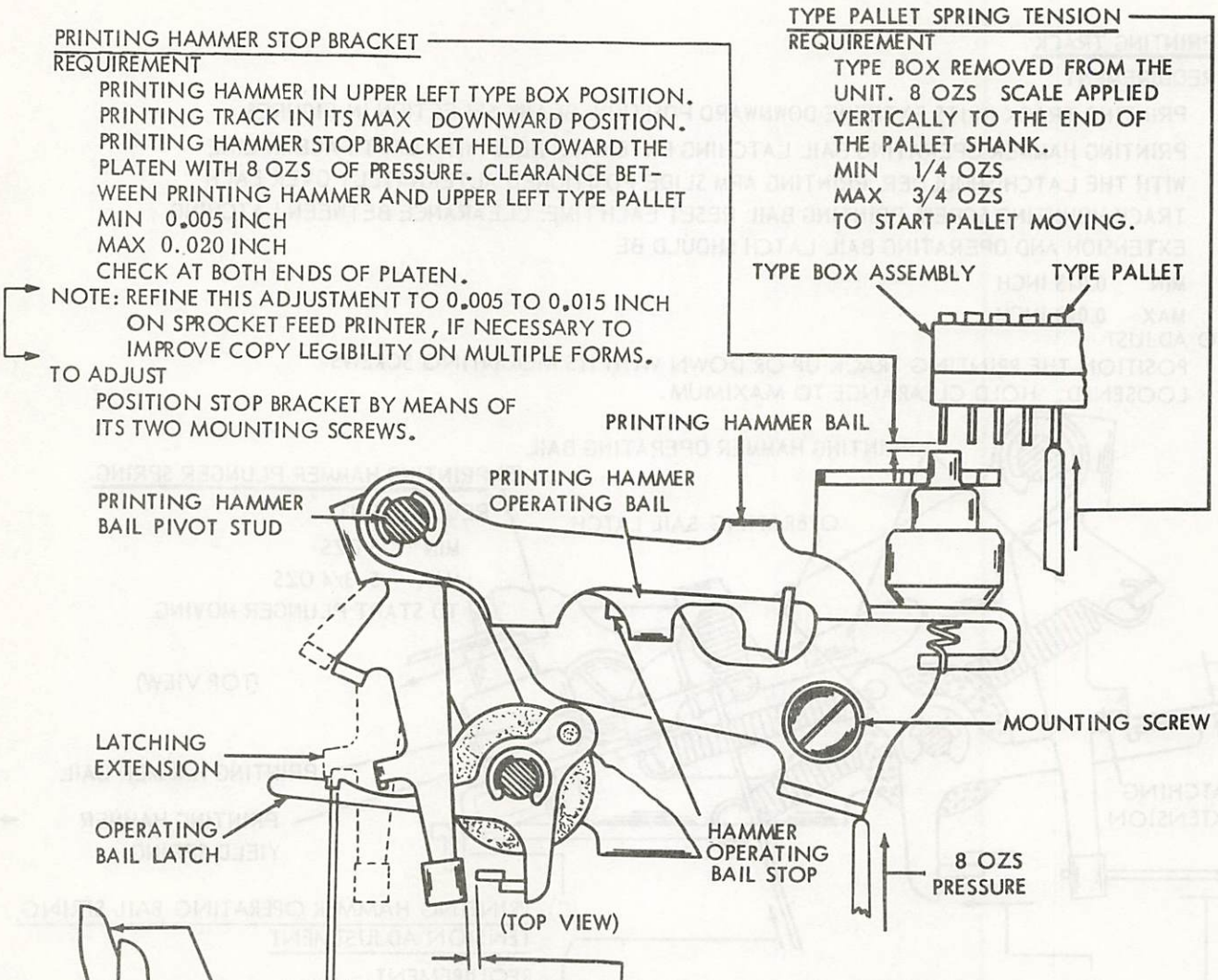
2.49 Printing Mechanism continued

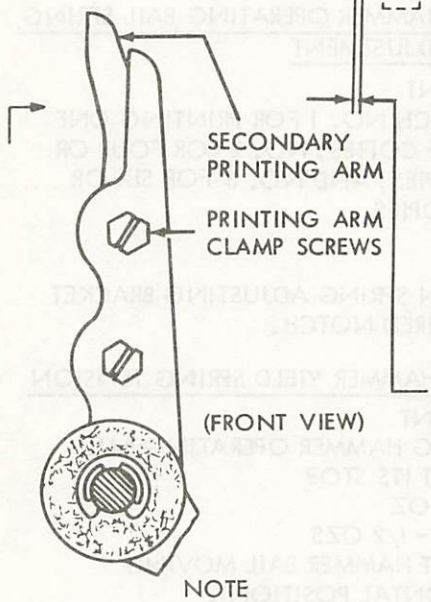
PRINTING HAMMER STOP BRACKET
REQUIREMENT
PRINTING HAMMER IN UPPER LEFT TYPE BOX POSITION.
PRINTING TRACK IN ITS MAX DOWNWARD POSITION.
PRINTING HAMMER STOP BRACKET HELD TOWARD THE PLATEN WITH 8 OZS OF PRESSURE. CLEARANCE BETWEEN PRINTING HAMMER AND UPPER LEFT TYPE PALLET
MIN 0.005 INCH
MAX 0.020 INCH
CHECK AT BOTH ENDS OF PLATEN.

NOTE: REFINE THIS ADJUSTMENT TO 0.005 TO 0.015 INCH ON SPROCKET FEED PRINTER, IF NECESSARY TO IMPROVE COPY LEGIBILITY ON MULTIPLE FORMS.

TO ADJUST
POSITION STOP BRACKET BY MEANS OF ITS TWO MOUNTING SCREWS.

TYPE PALLET SPRING TENSION
REQUIREMENT
TYPE BOX REMOVED FROM THE UNIT. 8 OZS SCALE APPLIED VERTICALLY TO THE END OF THE PALLET SHANK.
MIN 1/4 OZS
MAX 3/4 OZS
TO START PALLET MOVING.





PRINTING ARM
(1) REQUIREMENT
CLEARANCE BETWEEN SECONDARY PRINTING ARM AND FORWARD EXTENSION OF HAMMER OPERATING BAIL
MIN SOME --- MAX 0.015 INCH
TO CHECK
PRINTING CARRIAGE NEAR MIDDLE OF PLATEN. PRINTING HAMMER OPERATING BAIL SPRING BRACKET IN NO. 1 POSITION. PRINTING TRACK IN MAX DOWNWARD POSITION. PRINTING HAMMER OPERATING BAIL AGAINST STOP.

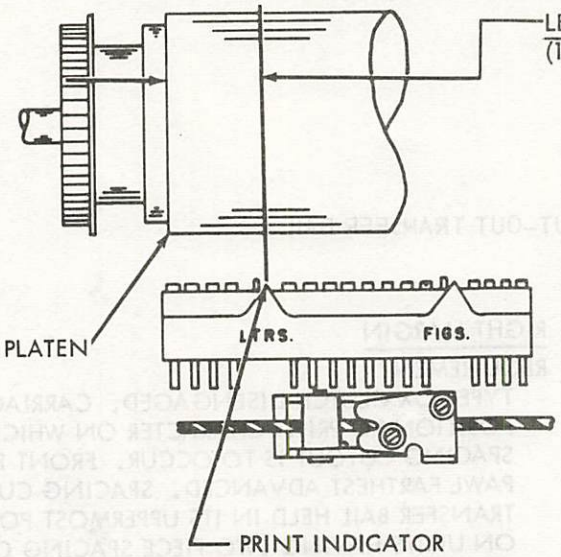
(2) REQUIREMENT
CLEARANCE BETWEEN LATCHING EXTENSION OF PRINTING HAMMER OPERATING BAIL AND LATCHING SURFACE OF OPERATING BAIL LATCH
MIN 0.006 INCH
TO CHECK
PRINTING TRACK IN UPPERMOST POSITION. CHECK BOTH RIGHT AND LEFT POSITIONS
TO ADJUST
POSITION SECONDARY PRINTING ARM WITH CLAMP SCREWS LOOSENED.

NOTE
THE PRINTING HAMMER OPERATING BAIL SPRING BRACKET POSITIONS NO. 2 AND 3 ARE TO BE USED ONLY FOR MAKING MULTIPLE COPIES.

2.50 Spacing Mechanism continued

NOTE 1. CHECK RELATED ADJUSTMENTS (PARS 2.39,2.43, AND 2.51), IF THE FOLLOWING ADJUSTMENTS ARE REMADE.

NOTE 2. FOR SPROCKET FEED UNITS SEE PARS 2.70 THRU 2.77.

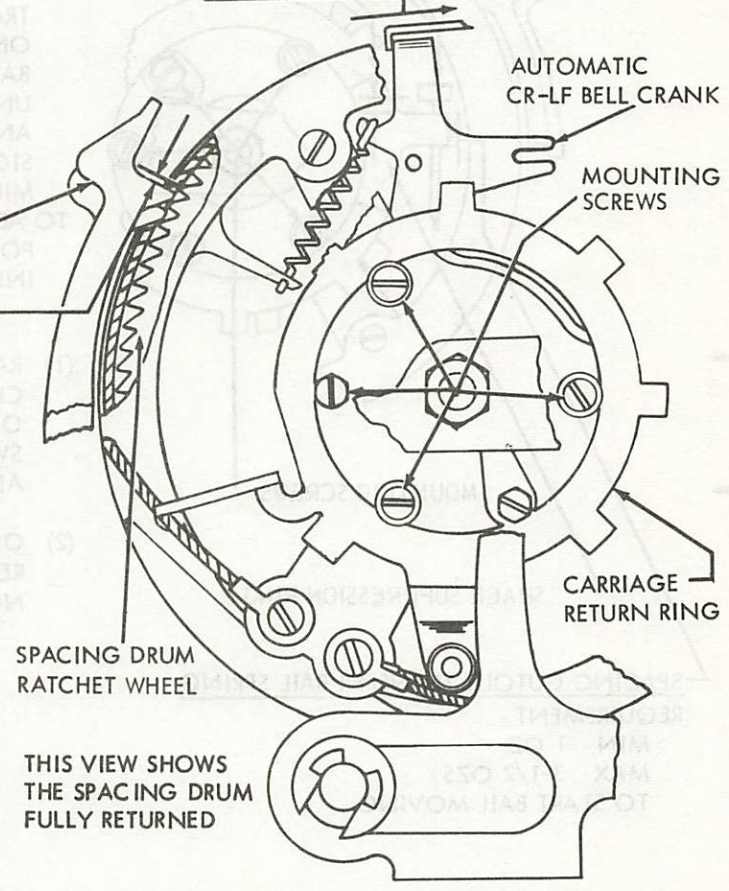


LEFT MARGIN

(1) REQUIREMENT (72 CHARACTER LINE). TYPE BOX CLUTCH DISENGAGED. SPACING DRUM IN RETURNED POSITION. TYPE BOX SHIFTED TO LTRS POSITION. CLEARANCE BETWEEN LEFT EDGE OF PLATEN AND LTRS PRINT INDICATOR
MIN 15/16 INCH --- MAX 1-1/16 INCH
(IN BELL SYSTEM SWITCHED-NETWORK SERVICES - MIN 9/16 INCH --- MAX 11/16 INCH)

AUTOMATIC CR-LF BELL CRANK SPRING

(FOR UNITS SO EQUIPPED)
REQUIREMENT
FUNCTION CLUTCH DISENGAGED.
MIN 6 1/2 OZS --- MAX 11 OZS
TO MOVE THE BELL CRANK.



(2) REQUIREMENT
SPACING CLUTCH DISENGAGED. FRONT SPACING FEED PAWL FARTHEST ADVANCED. SPACING DRUM FULLY RETURNED. PLAY IN SPACING SHAFT GEAR (PAR 2.24) TAKEN UP CLOCKWISE. CLEARANCE BETWEEN PAWL AND SHOULDER OF RATCHET WHEEL TOOTH IMMEDIATELY AHEAD
MIN 0.002 INCH
MAX 0.015 INCH

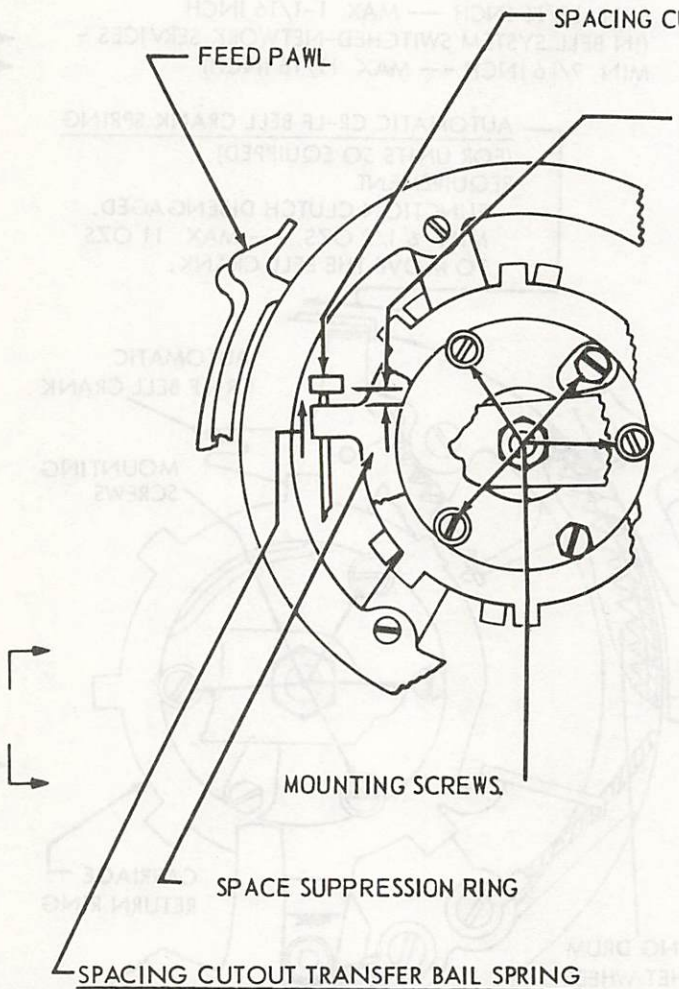
(3) REQUIREMENT
REAR PAWL, WHEN FARTHEST ADVANCED, SHOULD REST AT BOTTOM OF INDENTATION BETWEEN RATCHET WHEEL TEETH.

TO ADJUST
SHIFT TYPE BOX TO LTRS POSITION. RETURN PRINT CARRIAGE TO ITS LEFT POSITION. LOOSEN FOUR INDICATED CARRIAGE RETURN RING MOUNTING SCREWS. HOLD CARRIAGE RETURN RING IN ITS COUNTER-CLOCKWISE POSITION. LOCATE TYPE BOX SO ITS LTRS INDICATOR IS IN THE REQUIRED POSITION. TIGHTEN THE FOUR MOUNTING SCREWS.

NOTE: THE LEFT MARGIN MAY BE VARIED AS REQUIRED. MAXIMUM RANGE OF ADJUSTMENT FOR MECHANISMS WITH STANDARD 10 CHARACTERS PER INCH SPACING IS: FRICTION FEED PLATEN 85 CHARACTERS AND SPROCKET FEED PLATEN 74 CHARACTERS.

→2.51 Spacing Mechanism continued

→NOTE: CHECK RELATED ADJUSTMENTS (PARS 2.39,2.50, AND 2.43), IF THE FOLLOWING ADJUSTMENTS ARE REMADE.



RIGHT MARGIN

REQUIREMENT

TYPE BOX CLUTCH DISENGAGED. CARRIAGE IN POSITION TO PRINT CHARACTER ON WHICH SPACING CUTOUT IS TO OCCUR. FRONT FEED PAWL FARTHEST ADVANCED. SPACING CUTOUT TRANSFER BAIL HELD IN ITS UPPERMOST POSITION. ON UNITS HAVING TWO PIECE SPACING CUTOUT BAIL PUSH THE CUTOUT BAIL TOWARDS REAR OF UNIT THROUGH HOLE IN FRONT PLATE. CLEARANCE BETWEEN EXTENSION ON SPACE SUPPRESSION RING AND TRANSFER BAIL

MIN 0.006 INCH — MAX 0.025 INCH

TO ADJUST

POSITION SPACE SUPPRESSION RING WITH FOUR INDICATED MOUNTING SCREWS LOOSENED.

NOTE

(1) RANGE OF ADJUSTMENT IS FROM O TO 85 CHARACTERS ON UNITS WITH RING-TYPE CUT-OUT ARM. (PRINTERS USED IN BELL SYSTEM SWITCHED NETWORK SERVICES SHOULD BE ADJUSTED TO 72 CHARACTERS)

(2) ON UNITS EQUIPPED WITH AUTOMATIC CARRIAGE RETURN-LINE FEED RING, THIS ADJUSTMENT IS NOT APPLICABLE.

SPACING CUTOUT TRANSFER BAIL SPRING

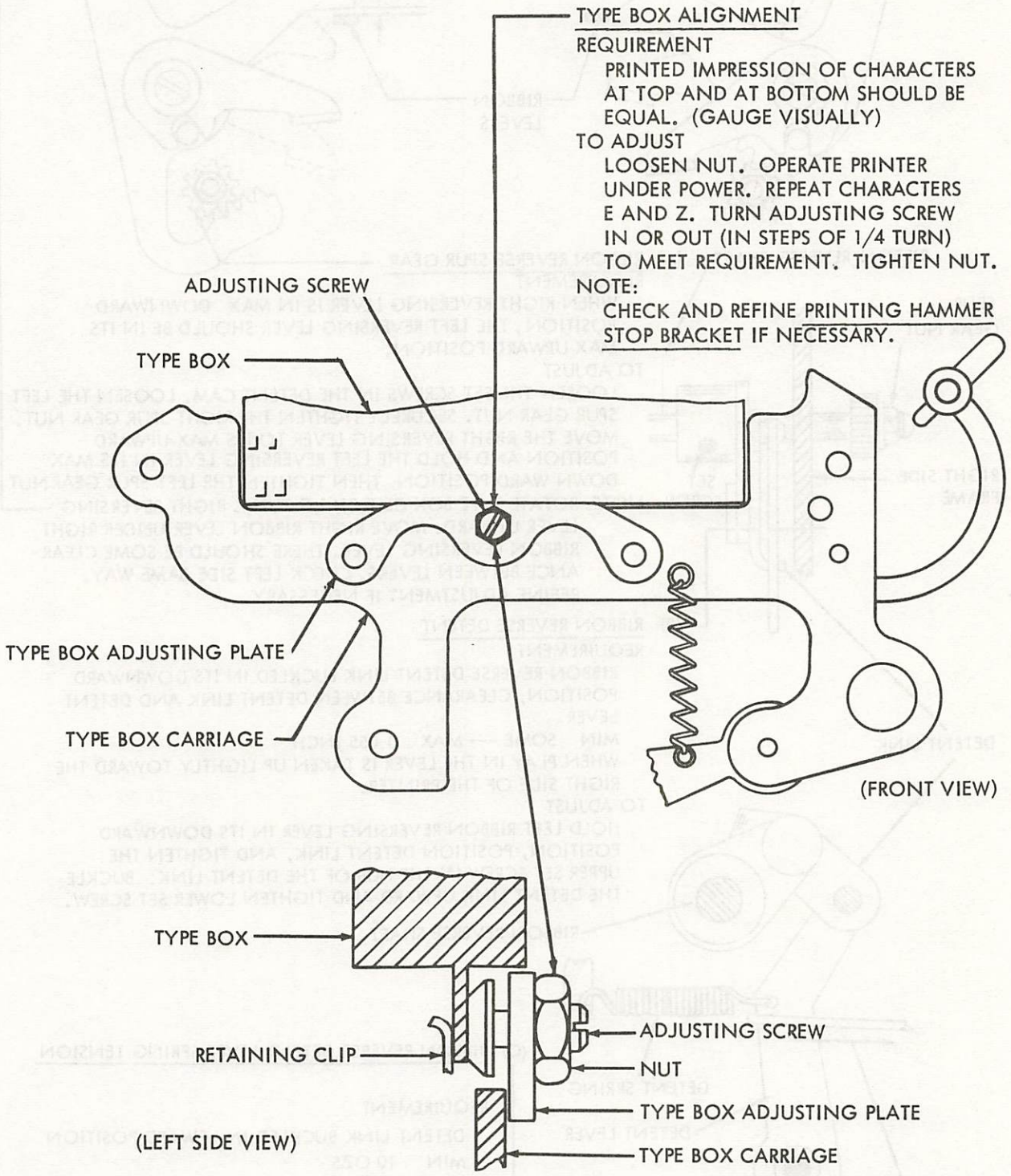
REQUIREMENT

MIN 1 OZ

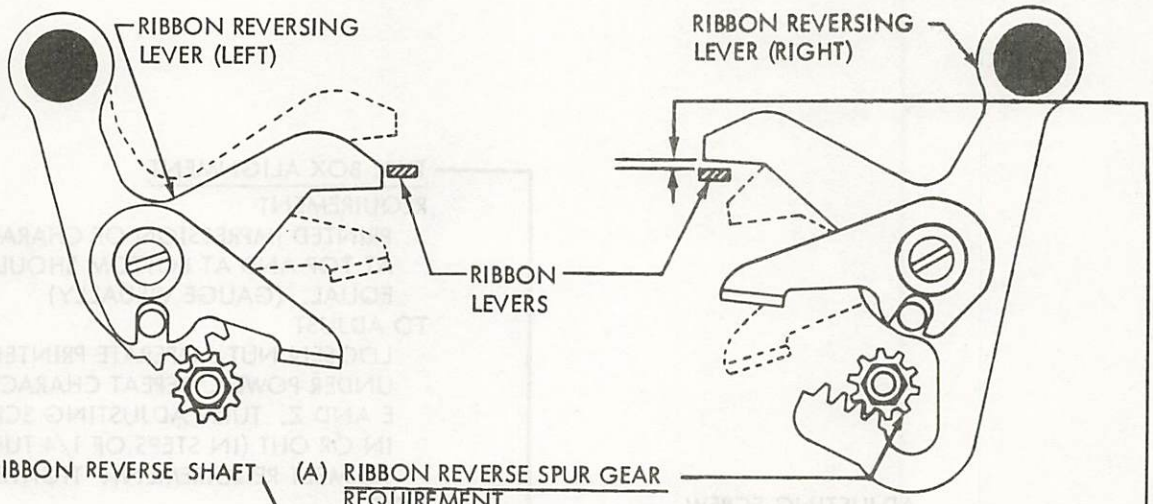
MAX 3-1/2 OZS

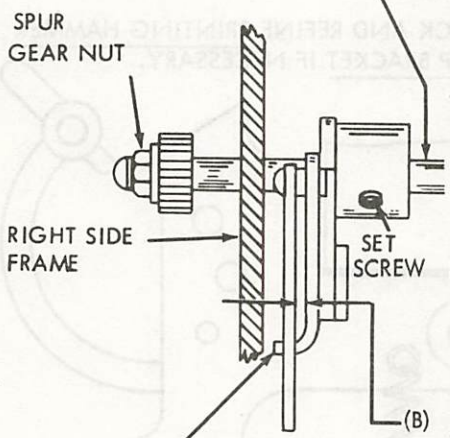
TO START BAIL MOVING.

2.52 Printing Mechanism continued



→2.53 Printing Mechanism continued





(A) RIBBON REVERSE SPUR GEAR

REQUIREMENT

WHEN RIGHT REVERSING LEVER IS IN MAX DOWNWARD POSITION, THE LEFT REVERSING LEVER SHOULD BE IN ITS MAX UPWARD POSITION.

TO ADJUST

LOOSEN THE SET SCREWS IN THE DETENT CAM. LOOSEN THE LEFT SPUR GEAR NUT. SECURELY TIGHTEN THE RIGHT SPUR GEAR NUT. MOVE THE RIGHT REVERSING LEVER TO ITS MAX UPWARD POSITION AND HOLD THE LEFT REVERSING LEVER IN ITS MAX DOWN WARD POSITION. THEN TIGHTEN THE LEFT SPUR GEAR NUT.

NOTE: ROTATE TYPE BOX CLUTCH 1/2 TURN. RIGHT REVERSING LEVER UPWARD. MOVE RIGHT RIBBON LEVER UNDER RIGHT RIBBON REVERSING LEVER. THERE SHOULD BE SOME CLEARANCE BETWEEN LEVERS. CHECK LEFT SIDE SAME WAY. REFINE ADJUSTMENT IF NECESSARY.

(B) RIBBON REVERSE DETENT

REQUIREMENT

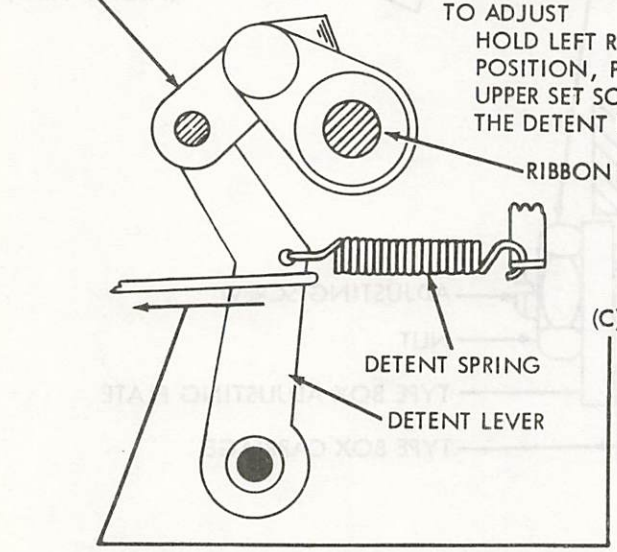
RIBBON REVERSE DETENT LINK BUCKLED IN ITS DOWNWARD POSITION, CLEARANCE BETWEEN DETENT LINK AND DETENT LEVER

MIN SOME --- MAX 0.055 INCH

WHEN PLAY IN THE LEVER IS TAKEN UP LIGHTLY TOWARD THE RIGHT SIDE OF THE PRINTER.

TO ADJUST

HOLD LEFT RIBBON REVERSING LEVER IN ITS DOWNWARD POSITION, POSITION DETENT LINK, AND TIGHTEN THE UPPER SET SCREW IN THE HUB OF THE DETENT LINK. BUCKLE THE DETENT LINK UPWARD AND TIGHTEN LOWER SET SCREW.



(C) RIBBON REVERSE DETENT LEVER SPRING TENSION

REQUIREMENT

DETENT LINK BUCKLED IN UPWARD POSITION

MIN 10 OZS

MAX 18 OZS

TO START DETENT LEVER MOVING TOWARD REAR.

2.54 Printing Mechanism continued

RIBBON FEED LEVER BRACKET

(1) REQUIREMENT (LEFT-HAND MECHANISM)

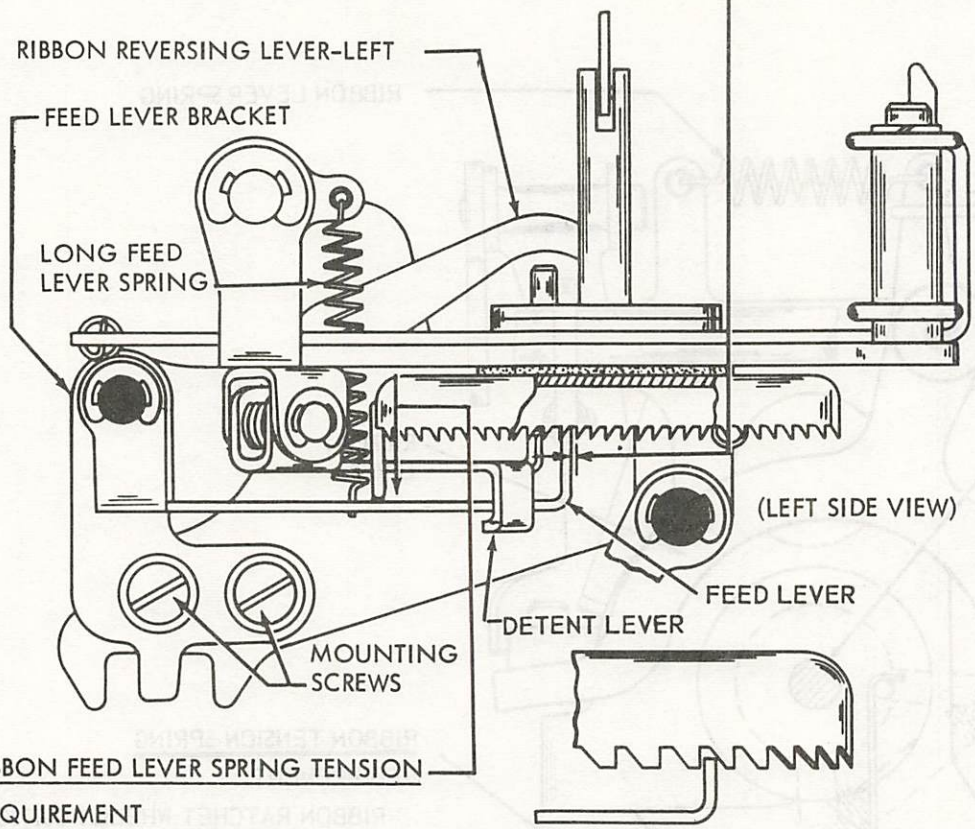
LEFT REVERSING LEVER IN UPWARD POSITION.
RIBBON MECHANISM IN UPPER POSITION.
RATCHET WHEEL HELD AGAINST THE DETENT LEVER.
CLEARANCE BETWEEN THE FRONT FACE OF THE FEED LEVER AND THE SHOULDER OF A TOOTH ON THE RATCHET WHEEL

MIN 0.015 INCH
MAX 0.035 INCH

TO ADJUST
POSITION THE FEED LEVER BRACKET WITH ITS MOUNTING SCREWS LOOSENED.

(2) REQUIREMENT (RIGHT-HAND MECHANISM)
RIGHT REVERSING LEVER AND RIBBON MECHANISM IN UPWARD POSITION.
ADJUST FEED LEVER BRACKET IN THE SAME MANNER.

NOTE
ROTATE THE MAIN SHAFT. THE RATCHET WHEEL SHOULD STEP ONE TOOTH ONLY WITH EACH OPERATION



RIBBON FEED LEVER SPRING TENSION

REQUIREMENT
RIBBON FEED LEVERS IN UPPERMOST POSITION.
FOR LONG LEVER: PUSH DOWNWARD NEAR ITS SPRING.
FOR SHORT LEVER: PUSH DOWNWARD AT POINT NEAR LONG LEVER SPRING.
MIN 3/4 OZ
MAX 2 OZS
TO START FEED LEVERS MOVING.
MEASURE ALL FOUR LEVERS.

NOTE: IF MINIMUM REQUIREMENT OF SHORT LEVER IS NOT MET, PULL LOWER END OF TORSION SPRING TO REAR.

RIBBON RATCHET WHEEL FRICTION SPRING TENSION

REQUIREMENT
FEED LEVERS DISENGAGED.
MIN 3 OZS
MAX 7 1/2 OZS
TO START THE RATCHET WHEEL MOVING.

→2.55 Printing Mechanism continued

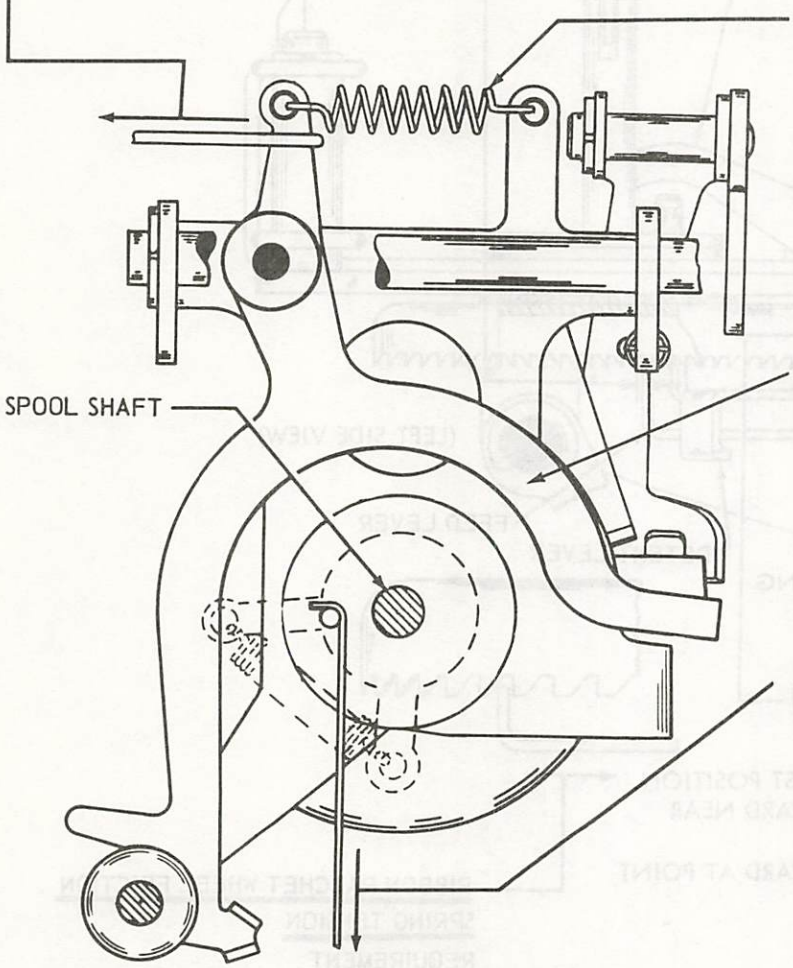
RIBBON LEVER SPRING TENSION

REQUIREMENT

MIN 1 1/2 OZS

MAX 3 OZS

TO START THE LEVER MOVING. CHECK BOTH RIGHT AND LEFT SPRINGS



RIBBON TENSION SPRING

REQUIREMENT

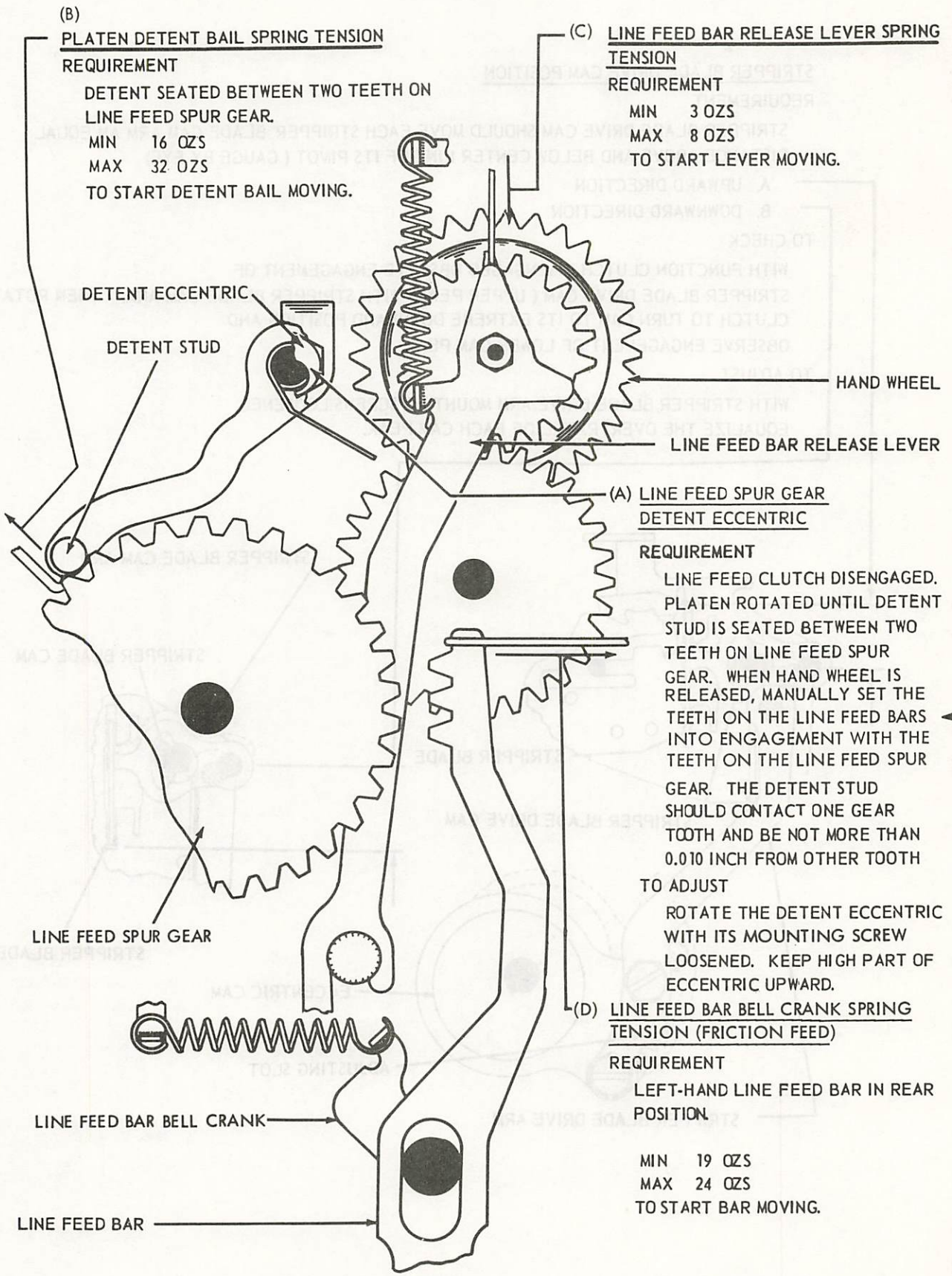
RIBBON RATCHET WHEEL POSITIONED SO THAT EACH DRIVING PIN IS TOWARD THE OUTSIDE OF THE SPOOL SHAFT.

MIN 3 OZS

MAX 5 1/2 OZS

TO START SPOOL SHAFT MOVING.

2.56 Line Feed and Platen Mechanism continued



→2.57 · Function Mechanism continued

STRIPPER BLADE DRIVE CAM POSITION

REQUIREMENT

STRIPPER BLADE DRIVE CAM SHOULD MOVE EACH STRIPPER BLADE CAM ARM AN EQUAL DISTANCE ABOVE AND BELOW CENTER LINE OF ITS PIVOT (GAUGE BY EYE)

A. UPWARD DIRECTION

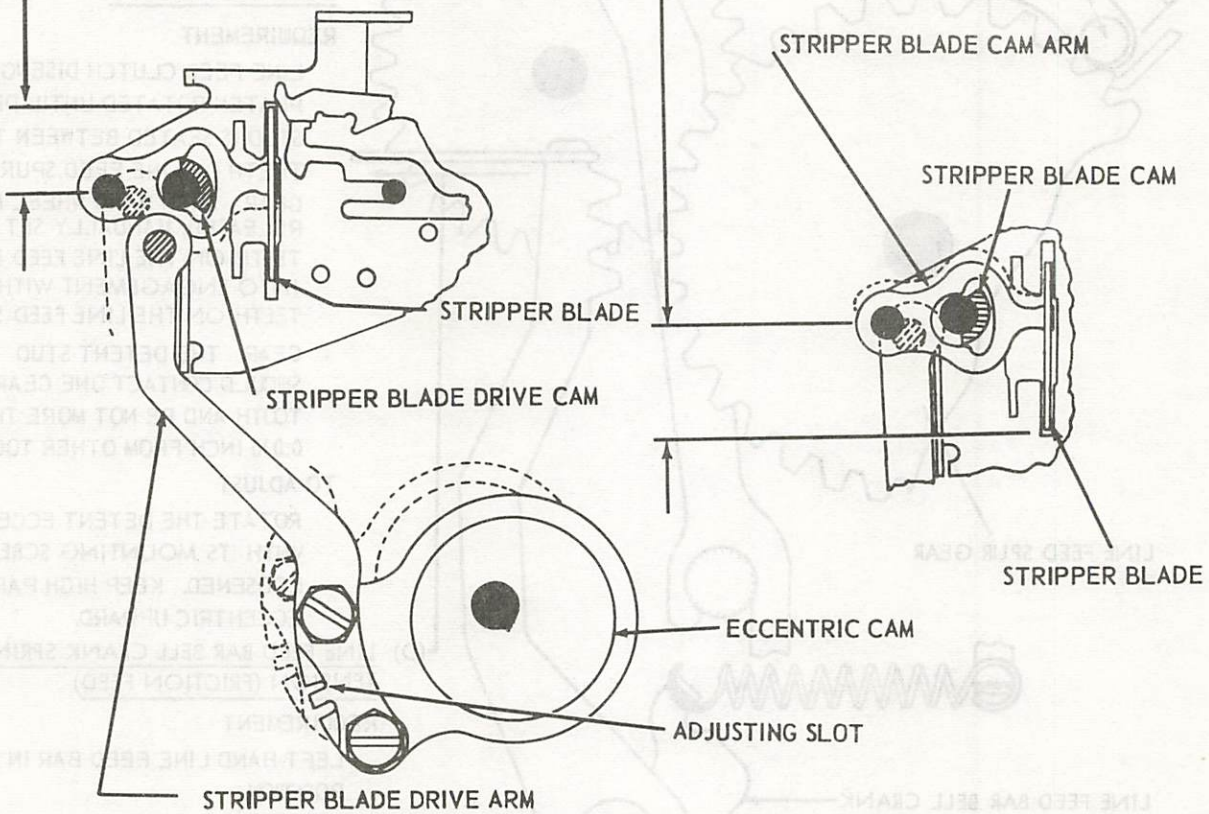
B. DOWNWARD DIRECTION

TO CHECK

WITH FUNCTION CLUTCH DISENGAGED OBSERVE ENGAGEMENT OF STRIPPER BLADE DRIVE CAM (UPPER PEAK) WITH STRIPPER BLADE CAM ARM. THEN ROTATE CLUTCH TO TURN CAM TO ITS EXTREME DOWNWARD POSITION AND OBSERVE ENGAGEMENT OF LOWER CAM PEAK.

TO ADJUST

WITH STRIPPER BLADE DRIVE ARM MOUNTING SCREWS LOOSENED, EQUALIZE THE OVERTRAVEL OF EACH CAM PEAK.



2.58 Function Mechanism continued

(A) FUNCTION LEVER SPRING TENSION

NOTE: IF A FUNCTION LEVER OPERATES A CONTACT OR A SLIDE, HOLD OFF THE CONTACT OR SLIDE WHEN CHECKING THE SPRING TENSION

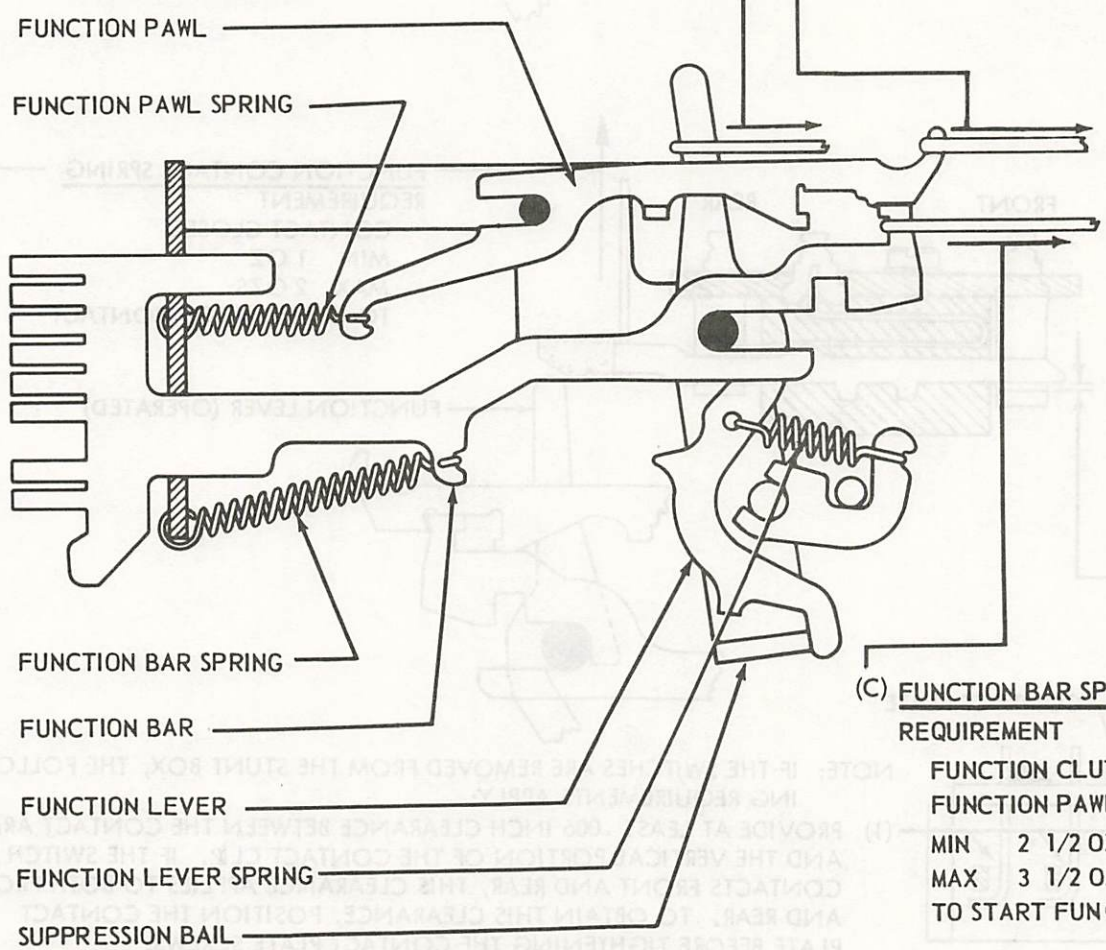
REQUIREMENT

FUNCTION LEVER IN UNOPERATED POSITION.
SUPPRESSION BAIL HELD FORWARD.
MIN 1 1/2 OZS
MAX 2 3/4 OZS
TO START FUNCTION LEVER MOVING.
CHECK EACH SPRING.

(B) FUNCTION PAWL SPRING TENSION

REQUIREMENT

REAR END OF FUNCTION PAWL RESTING ON FUNCTION BAR
MIN 3 OZS
MAX 5 OZS
TO START PAWL MOVING, CHECK EACH SPRING.



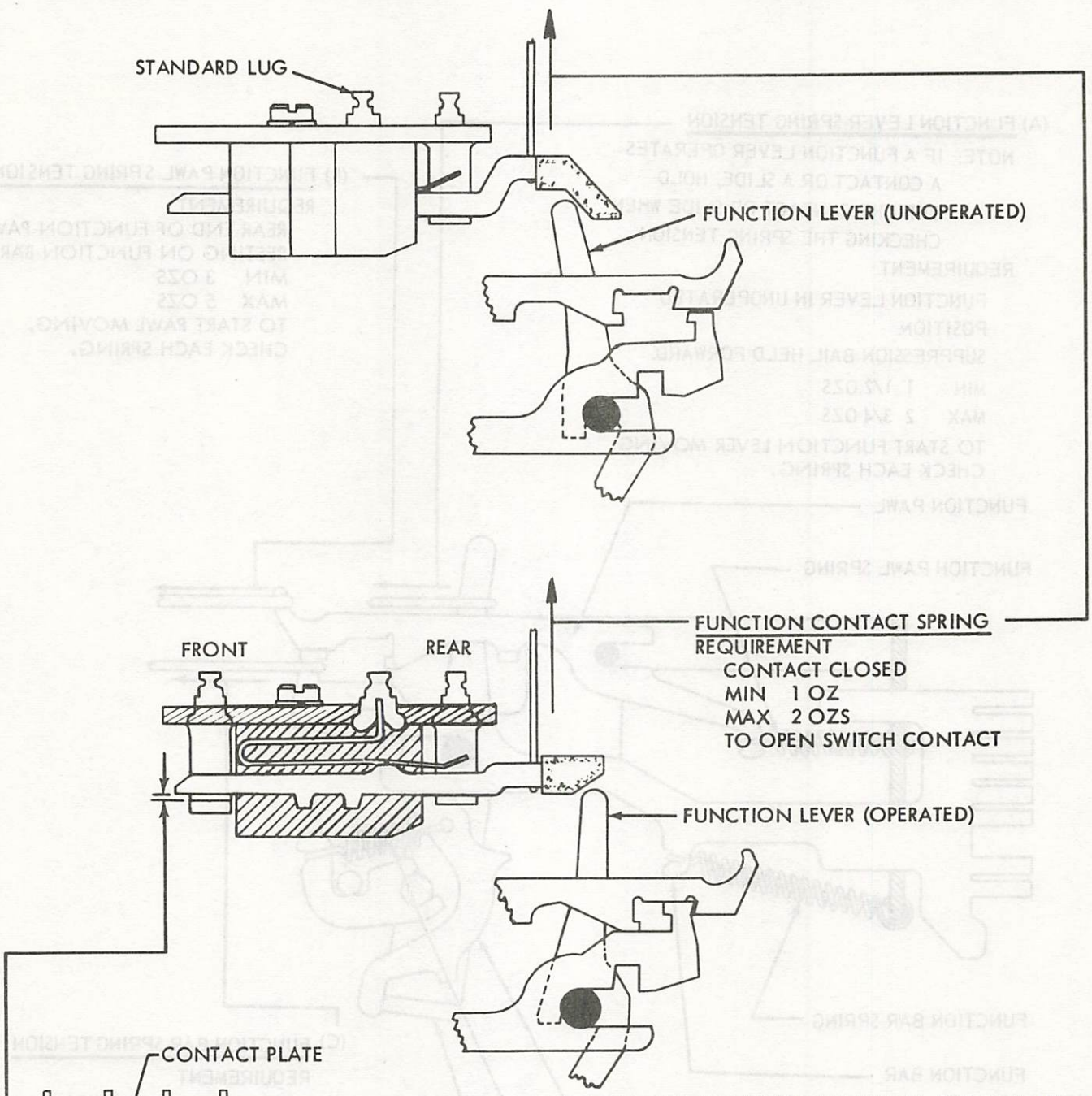
(C) FUNCTION BAR SPRING TENSION

REQUIREMENT

FUNCTION CLUTCH DISENGAGED.
FUNCTION PAWL HELD AWAY.
MIN 2 1/2 OZS
MAX 3 1/2 OZS
TO START FUNCTION BAR MOVING.

CAUTION: SEVERE WEAR TO THE POINT OF OPERATIONAL FAILURE WILL RESULT IF THE TELETYPEWRITER IS OPERATED WITHOUT EACH FUNCTION PAWL HAVING EITHER A RELATED FUNCTION BAR OR, WHERE A FUNCTION BAR IS MISSING, A RELATED FUNCTION PAWL CLIP TO HOLD THE FUNCTION PAWL AWAY FROM THE STRIPPER BLADE.

→2.59 Function Mechanism continued

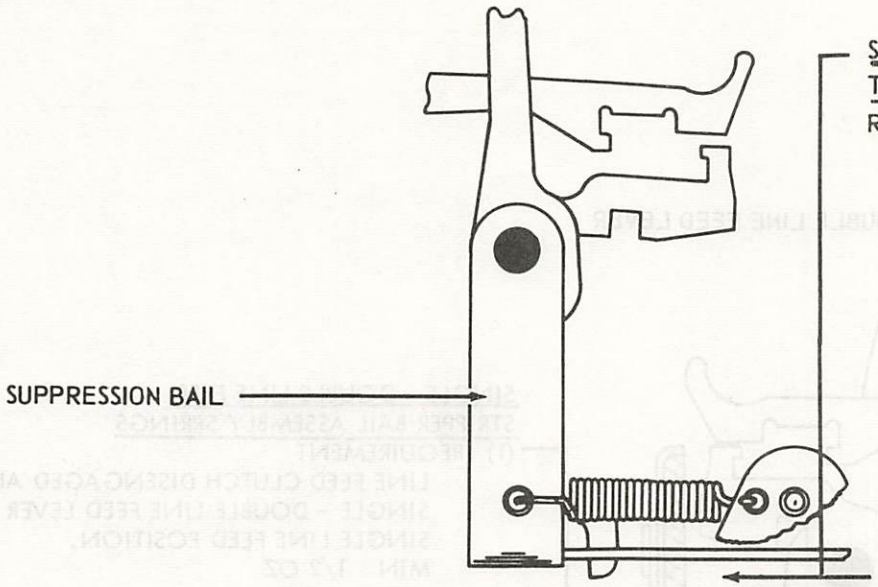


NOTE: IF THE SWITCHES ARE REMOVED FROM THE STUNT BOX, THE FOLLOWING REQUIREMENTS APPLY:

(1) PROVIDE AT LEAST .006 INCH CLEARANCE BETWEEN THE CONTACT ARM AND THE VERTICAL PORTION OF THE CONTACT CLIP. IF THE SWITCH HAS CONTACTS FRONT AND REAR, THIS CLEARANCE APPLIES TO BOTH FRONT AND REAR. TO OBTAIN THIS CLEARANCE, POSITION THE CONTACT PLATE BEFORE TIGHTENING THE CONTACT PLATE SCREWS.

(2) ON SWITCHES WITH CONTACTS FRONT AND REAR, CHECK TO SEE THAT THERE IS A GAP OF NOT LESS THAN .008 INCH BETWEEN THE FORMED-OVER END OF THE FRONT CONTACT CLIP AND THE BOTTOM OF THE CONTACT ARM WHEN THE REAR CONTACT IS CLOSED.

2. 60 Spacing Mechanism continued



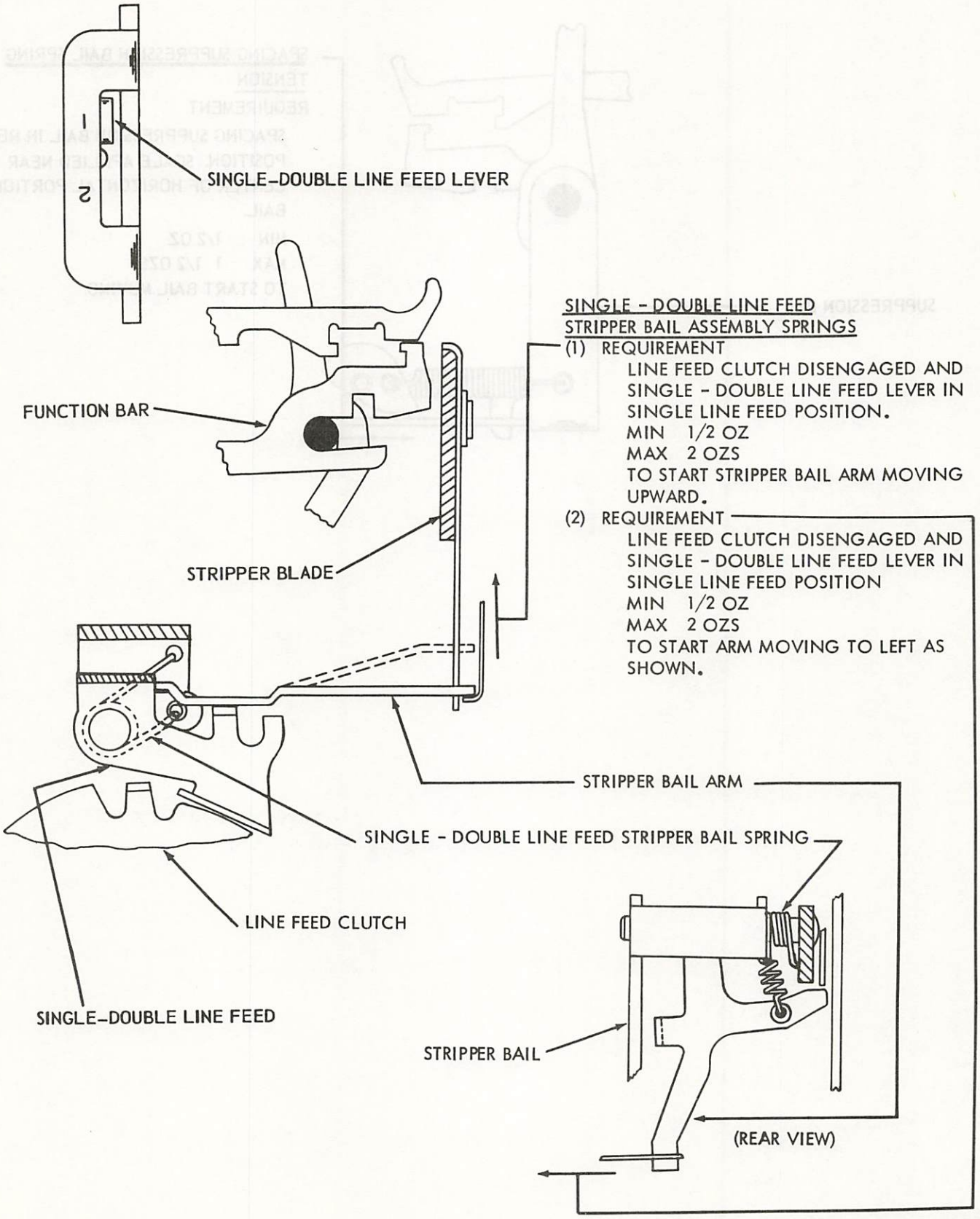
SPACING SUPPRESSION BAIL SPRING TENSION

REQUIREMENT

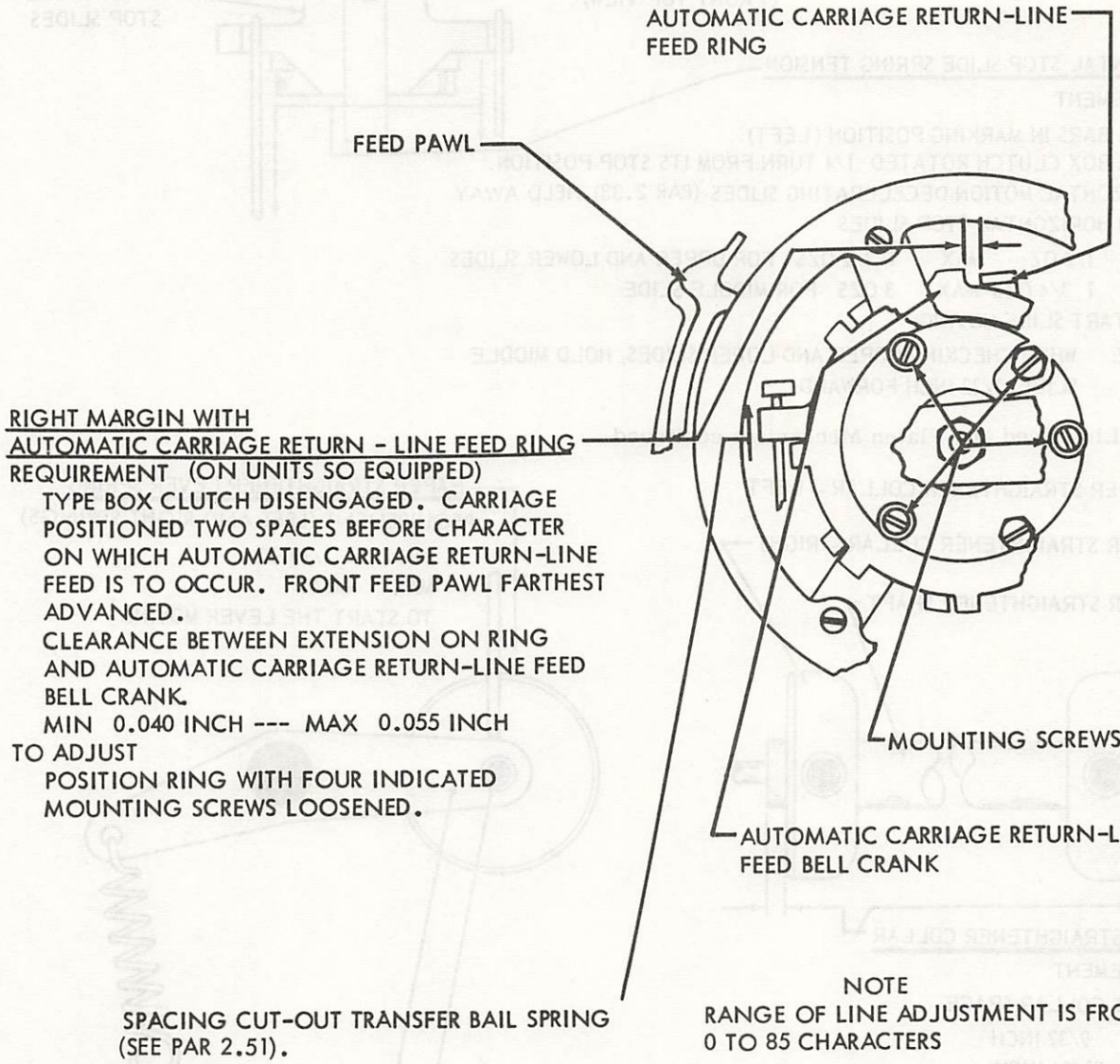
SPACING SUPPRESSION BAIL IN REAR POSITION. SCALE APPLIED NEAR CENTER OF HORIZONTAL PORTION OF BAIL.

MIN 1/2 OZ
MAX 1 1/2 OZS
TO START BAIL MOVING.

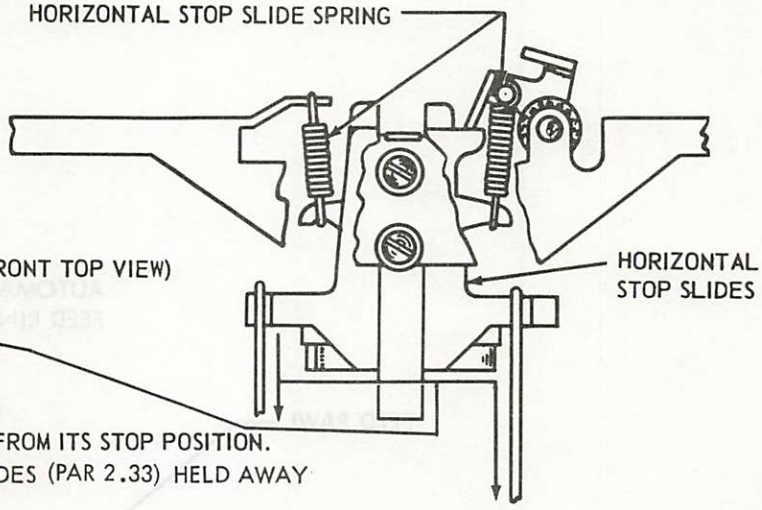
→2.61 Line Feed and Platen Mechanism continued



2.62 Line Feed and Platen Mechanism continued



→2.63 Positioning Mechanism continued



HORIZONTAL STOP SLIDE SPRING TENSION

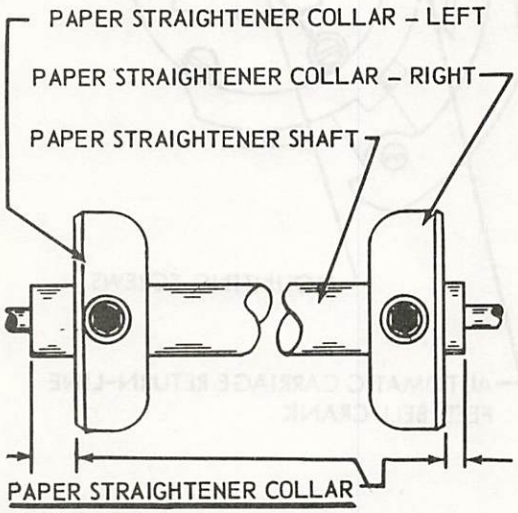
REQUIREMENT

CODE BARS IN MARKING POSITION (LEFT)
TYPE BOX CLUTCH ROTATED 1/4 TURN FROM ITS STOP POSITION.
HORIZONTAL MOTION DECELERATING SLIDES (PAR 2.33) HELD AWAY
FROM HORIZONTAL STOP SLIDES

MIN 1/2 OZ MAX 1 1/2 OZS FOR UPPER AND LOWER SLIDES
MIN 1 3/4 OZS MAX 3 OZS FOR MIDDLE SLIDE
TO START SLIDE MOVING.

NOTE: WHEN CHECKING UPPER AND LOWER SLIDES, HOLD MIDDLE SLIDE 1/32 INCH FORWARD.

2.64 Line Feed and Platen Mechanism continued



PAPER STRAIGHTENER COLLAR

REQUIREMENT

LEFT COLLAR SPACE
MIN 9/32 INCH
MAX 21/64 INCH
FROM THE LEFT SHOULDER ON THE PAPER STRAIGHTENER SHAFT.
RIGHT COLLAR SPACED.
MIN 1/16 INCH
MAX 5/64 INCH
FROM THE RIGHT SHOULDER.

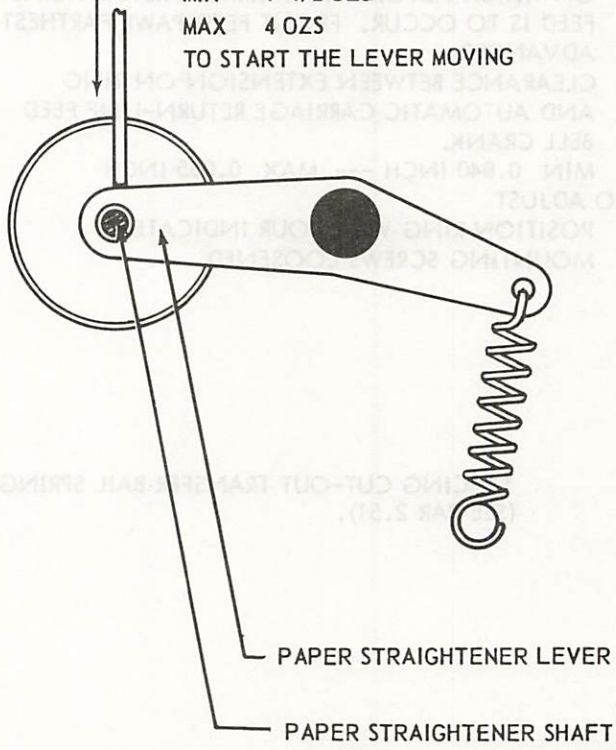
TO ADJUST

POSITION COLLARS ON SHAFT WITH SET SCREWS LOOSENED

PAPER STRAIGHTENER LEVER SPRING

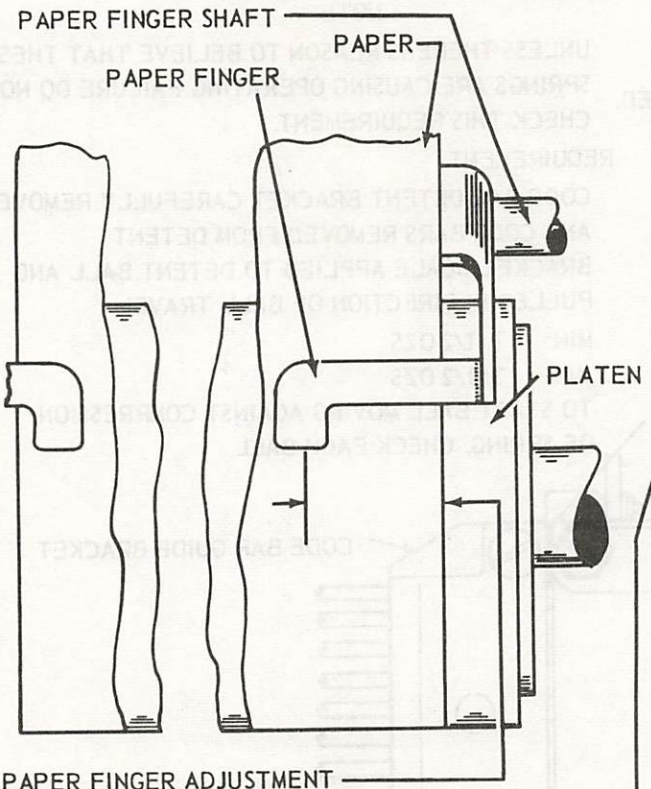
REQUIREMENT (LEFT AND RIGHT SPRINGS)

MIN 1 1/2 OZS
MAX 4 OZS
TO START THE LEVER MOVING



NOTE: FOR SPROCKET FEED MECHANISM SEE PAR 2.70.

2.65 Line Feed and Platen Mechanism continued



PAPER FINGER ADJUSTMENT

REQUIREMENT

THE PRESSURE END OF THE PAPER FINGERS SHOULD OVERLAP THE PAPER FROM 3/8 INCH TO 1/2 INCH.

TO ADJUST

POSITION THE PAPER FINGERS BY SLIDING THEM ON THEIR SHAFT.

PAPER FINGER SPRING TENSION

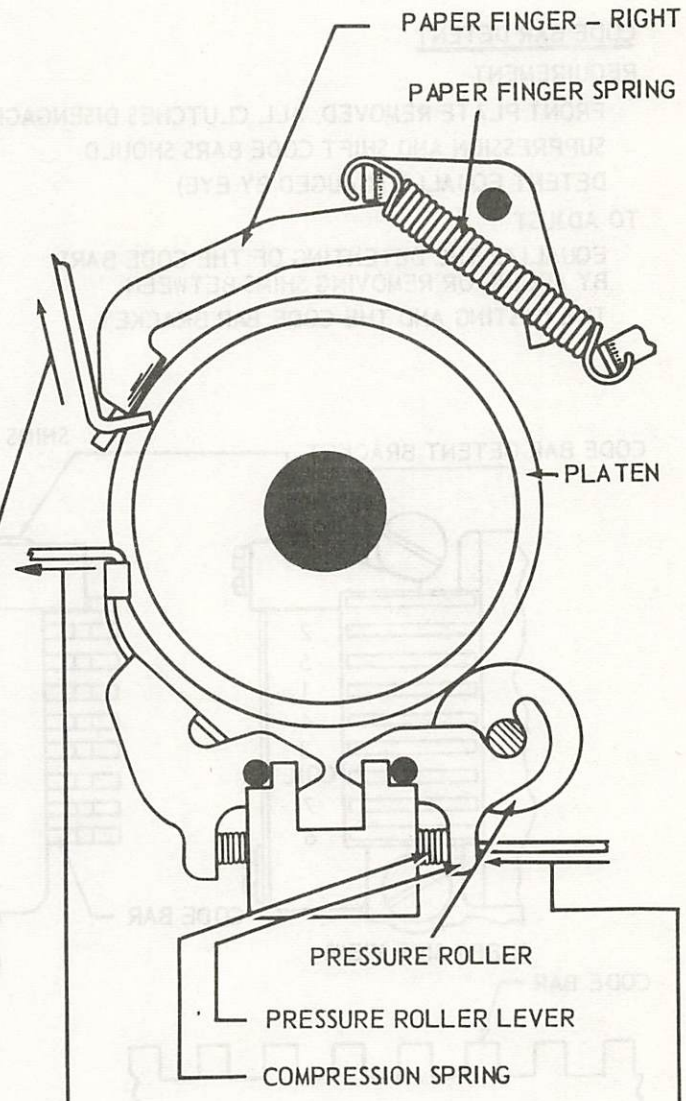
REQUIREMENT

PULL UPWARD ON RIGHT PAPER FINGER TO START LEFT PAPER FINGER MOVING FROM PLATEN.

MIN 3 OZS

MAX 6 OZS

NOTE: FOR SPROCKET FEED MECHANISM SEE PAR 2.74



PRESSURE ROLLER LEVER SPRING

REQUIREMENT

MIN 28 OZS

MAX 36 OZS

TO START EACH CENTER LEVER MOVING ALTERNATELY

PAPER PRESSURE BAIL SPRING TENSION

REQUIREMENT

SCALE HOOKED OVER PRESSURE BAIL AT EACH END OF PLATEN.

MIN 10 OZS

MAX 20 OZS

TO MOVE PRESSURE BAIL FROM PLATEN.

→2.66 Code Bar Mechanism continued

CODE BAR DETENT

REQUIREMENT

FRONT PLATE REMOVED. ALL CLUTCHES DISENGAGED. SUPPRESSION AND SHIFT CODE BARS SHOULD DETENT EQUALLY (GAUGED BY EYE)

TO ADJUST

EQUALIZE THE DETENTING OF THE CODE BARS BY ADDING OR REMOVING SHIMS BETWEEN THE CASTING AND THE CODE BAR BRACKET.

CODE BAR DETENT SPRING TENSION

NOTE

UNLESS THERE IS REASON TO BELIEVE THAT THESE SPRINGS ARE CAUSING OPERATING FAILURE DO NOT CHECK THIS REQUIREMENT.

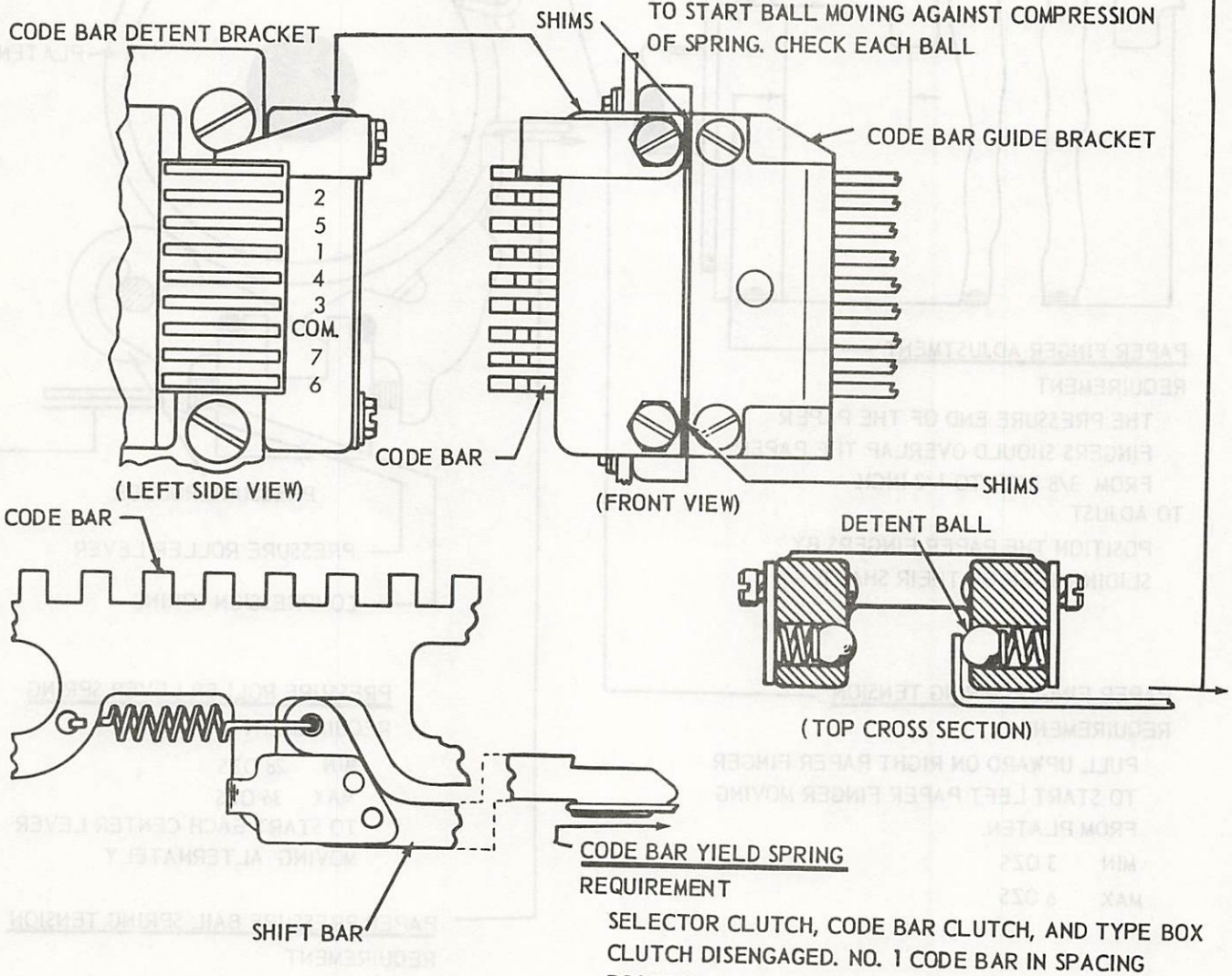
REQUIREMENT

CODE BAR DETENT BRACKET CAREFULLY REMOVED AND CODE BARS REMOVED FROM DETENT BRACKET. SCALE APPLIED TO DETENT BALL AND PULLED IN DIRECTION OF BALL TRAVEL

MIN 1 1/2 OZS

MAX 3 1/2 OZS

TO START BALL MOVING AGAINST COMPRESSION OF SPRING. CHECK EACH BALL



CODE BAR YIELD SPRING

REQUIREMENT

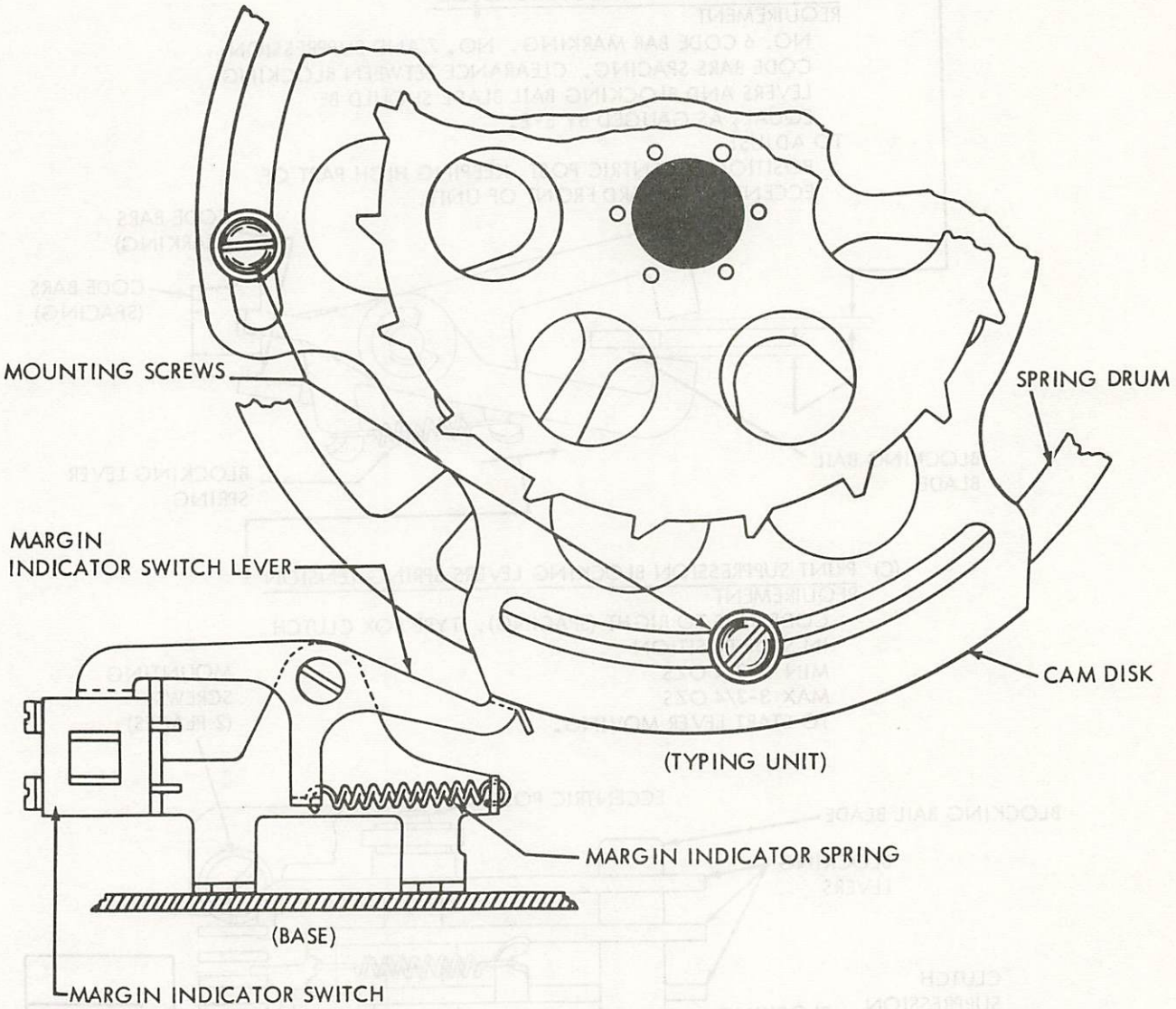
SELECTOR CLUTCH, CODE BAR CLUTCH, AND TYPE BOX CLUTCH DISENGAGED. NO. 1 CODE BAR IN SPACING POSITION

MIN 14 OZS

MAX 23 OZS

TO START CODE BAR SHIFT BAR PIVOT MOVING AWAY FROM CODE BAR. CHECK NO. 2 AND COMMON CODE BAR SHIFT BAR IN THE SAME MANNER.

2.67 Spacing Mechanism continued



MARGIN INDICATOR LAMP

REQUIREMENT

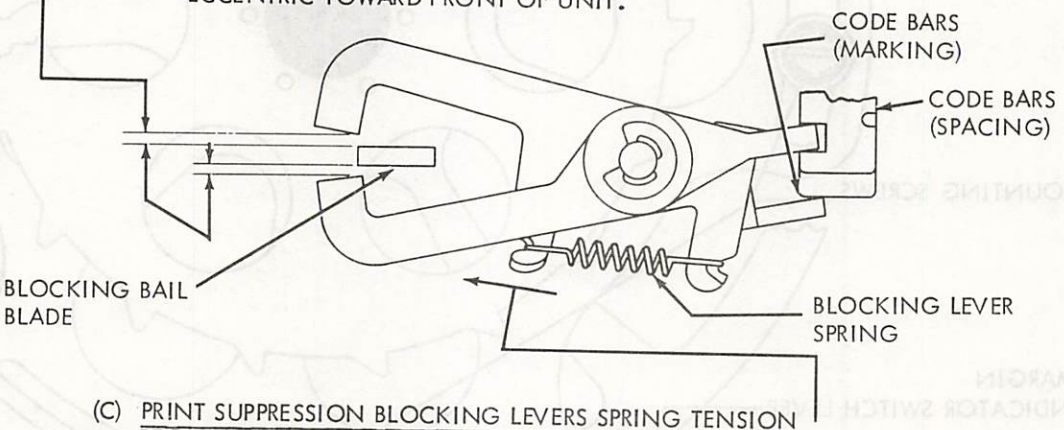
OPERATING UNDER POWER, THE LAMP SHOULD LIGHT ON THE DESIRED CHARACTER.

TO ADJUST

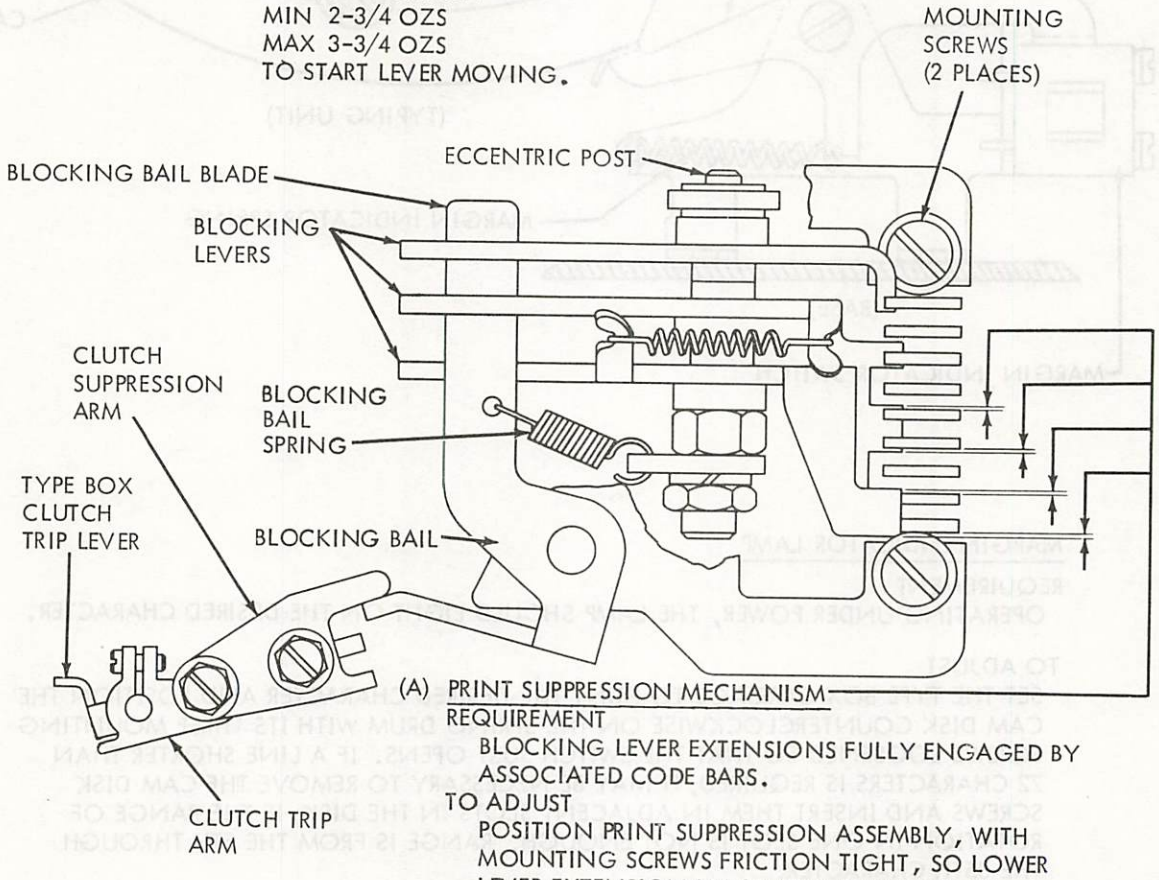
SET THE TYPE BOX CARRIAGE TO PRINT THE DESIRED CHARACTER AND POSITION THE CAM DISK COUNTERCLOCKWISE ON THE SPRING DRUM WITH ITS THREE MOUNTING SCREWS LOOSENED SO THAT THE SWITCH JUST OPENS. IF A LINE SHORTER THAN 72 CHARACTERS IS REQUIRED, IT MAY BE NECESSARY TO REMOVE THE CAM DISK SCREWS AND INSERT THEM IN ADJACENT SLOTS IN THE DISK, IF THE RANGE OF ROTATION IN ONE SLOT IS NOT ENOUGH. RANGE IS FROM THE 5TH THROUGH THE 85TH CHARACTER.
(MIN 65 CHARACTERS --- MAX 69 CHARACTERS
IN BELL SYSTEM SWITCHED NETWORK SERVICE)

→2. 68 Printing Mechanism continued

(B) PRINT SUPPRESSION BLOCKING LEVERS
REQUIREMENT
NO. 6 CODE BAR MARKING. NO. 7 AND SUPPRESSION CODE BARS SPACING. CLEARANCE BETWEEN BLOCKING LEVERS AND BLOCKING BAIL BLADE SHOULD BE EQUAL, AS GAUGED BY EYE.
TO ADJUST
POSITION ECCENTRIC POST, KEEPING HIGH PART OF ECCENTRIC TOWARD FRONT OF UNIT.



(C) PRINT SUPPRESSION BLOCKING LEVERS SPRING TENSION
REQUIREMENT
CODE BARS TO RIGHT (SPACING). TYPE BOX CLUTCH IN STOP POSITION
MIN 2-3/4 OZS
MAX 3-3/4 OZS
TO START LEVER MOVING.



(A) PRINT SUPPRESSION MECHANISM
REQUIREMENT
BLOCKING LEVER EXTENSIONS FULLY ENGAGED BY ASSOCIATED CODE BARS.
TO ADJUST
POSITION PRINT SUPPRESSION ASSEMBLY, WITH MOUNTING SCREWS FRICTION TIGHT, SO LOWER LEVER EXTENSION IS EQUALLY ENGAGED BY NO. 6 AND NO. 7 CODE BARS AS GAUGED BY EYE.

2.69 Printing Mechanism continued

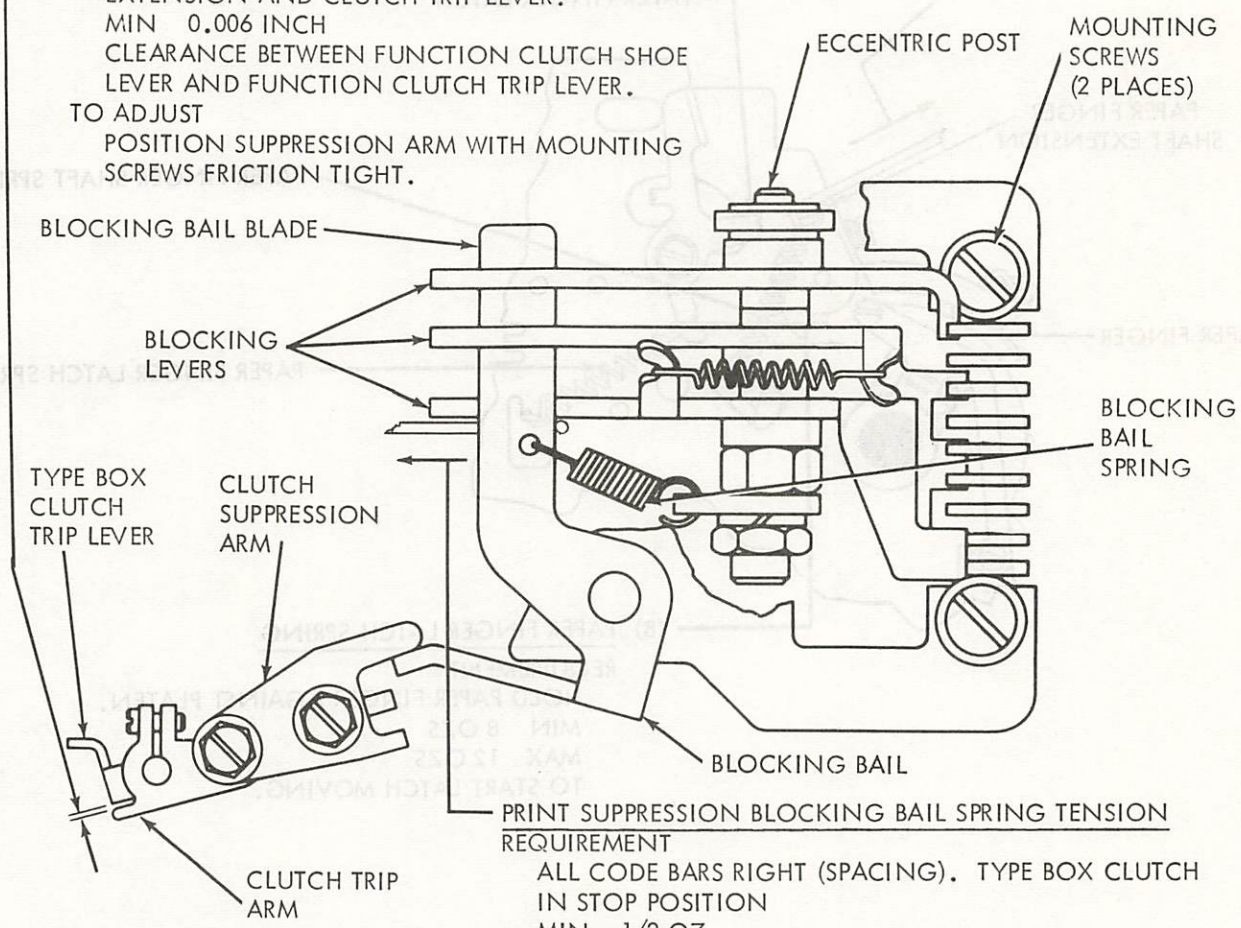
TYPE BOX CLUTCH SUPPRESSION ARM

REQUIREMENT

BLOCKING BAIL BLOCKED. ROTATE MAIN SHAFT UNTIL FUNCTION CLUTCH SHOE LEVER IS OPPOSITE FUNCTION CLUTCH TRIP LEVER.
MIN 0.003 INCH
CLEARANCE BETWEEN TYPE BOX CLUTCH TRIP ARM EXTENSION AND CLUTCH TRIP LEVER.
MIN 0.006 INCH
CLEARANCE BETWEEN FUNCTION CLUTCH SHOE LEVER AND FUNCTION CLUTCH TRIP LEVER.

TO ADJUST

POSITION SUPPRESSION ARM WITH MOUNTING SCREWS FRICTION TIGHT.

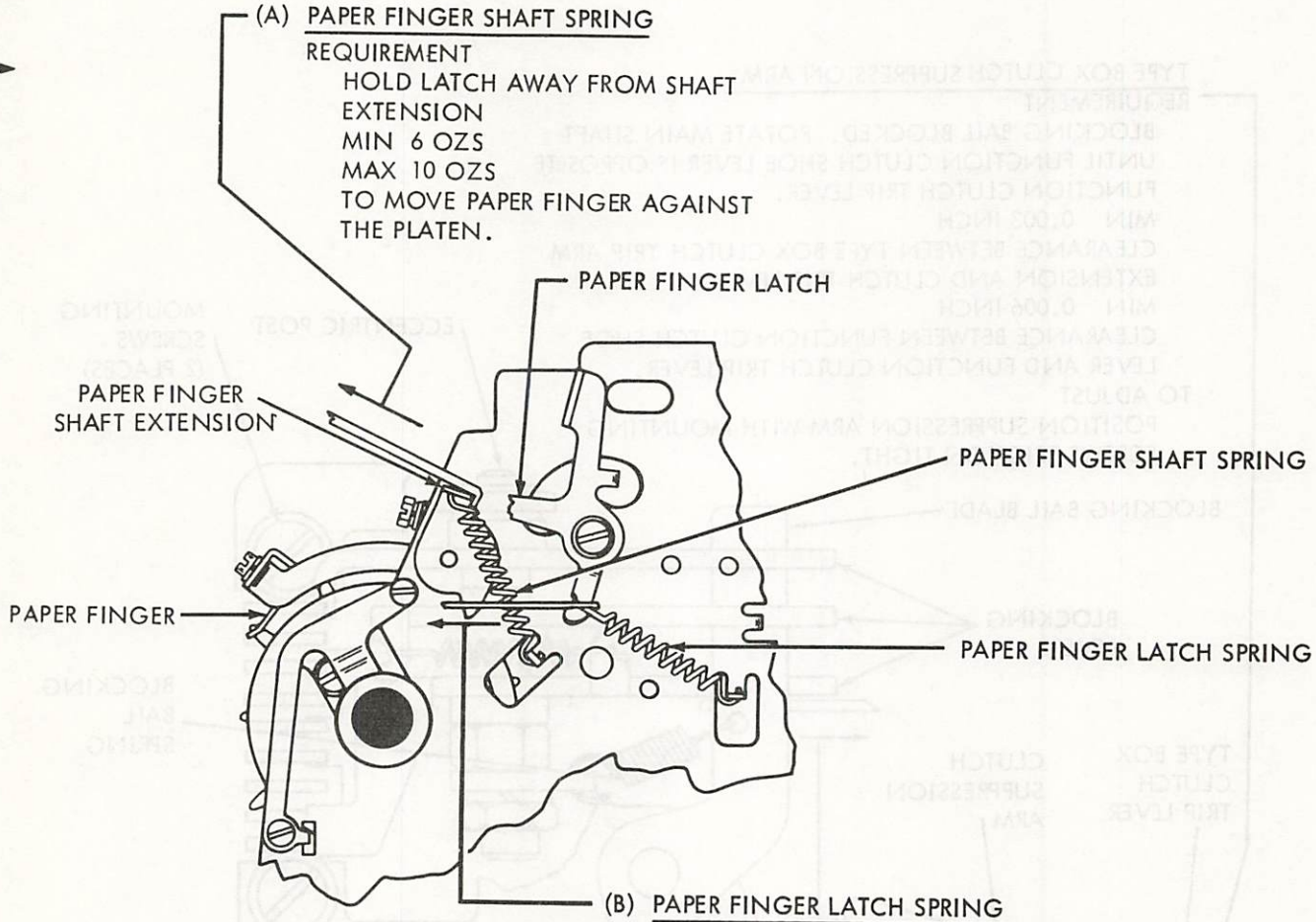


PRINT SUPPRESSION BLOCKING BAIL SPRING TENSION

REQUIREMENT

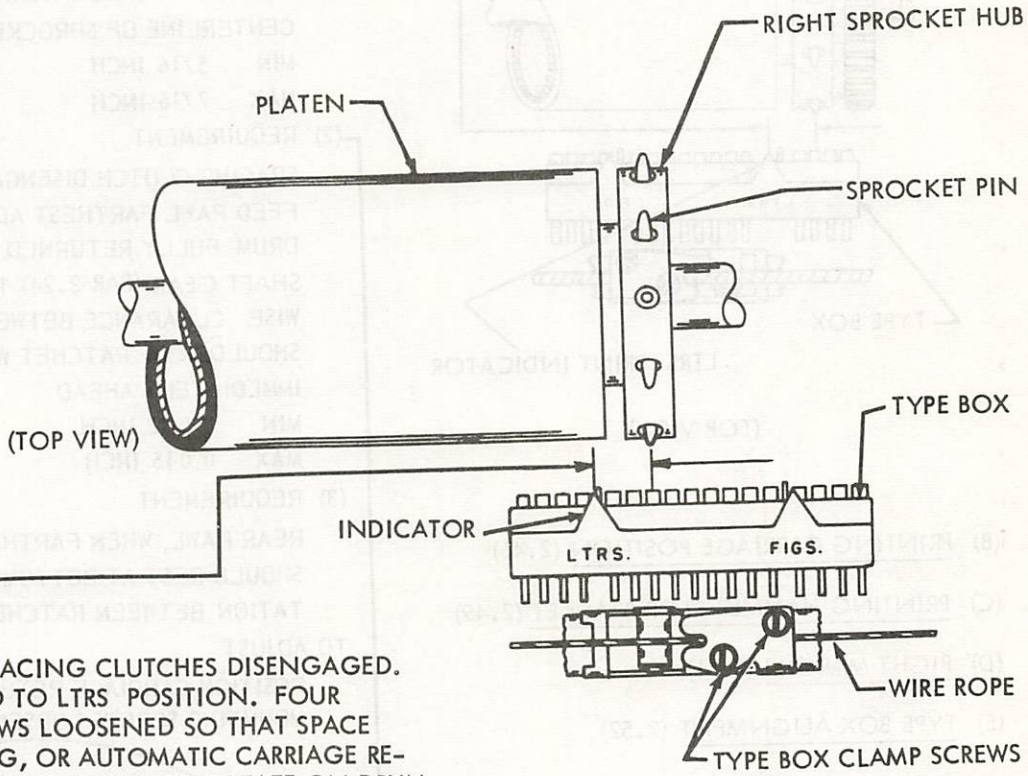
ALL CODE BARS RIGHT (SPACING). TYPE BOX CLUTCH IN STOP POSITION
MIN 1/2 OZ
MAX 1-1/2 OZS
TO START BAIL MOVING.

→2.70 Line Feed and Platen Mechanism continued



PLATEN DETENT BAIL SPRING TENSION
USE PAR 2.56

2.71 Positioning Mechanism continued



TYPE BOX POSITION

REQUIREMENT

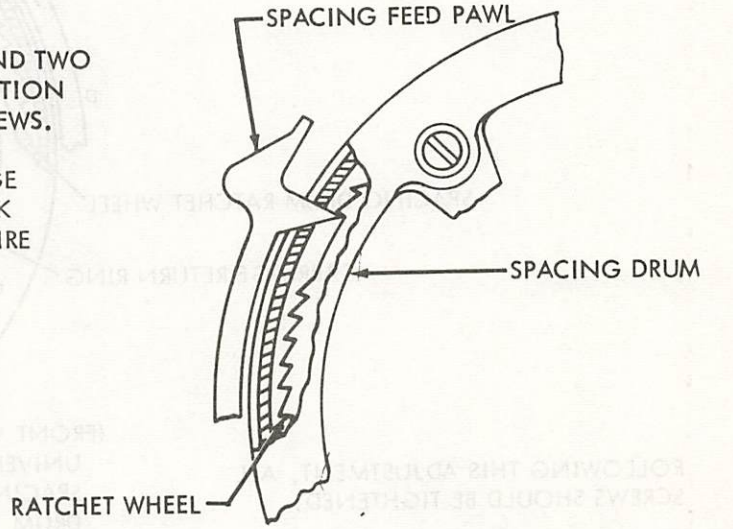
TYPE BOX AND SPACING CLUTCHES DISENGAGED. TYPE BOX SHIFTED TO LTRS POSITION. FOUR MOUNTING SCREWS LOOSENED SO THAT SPACE SUPPRESSION RING, OR AUTOMATIC CARRIAGE RETURN LINE FEED RING, IS FREE TO ROTATE ON DRUM. CLEARANCE BETWEEN LTRS PRINT INDICATOR AND CENTER LINE OF SPROCKET PINS IN RIGHT HUB:

MIN 5/16 INCH

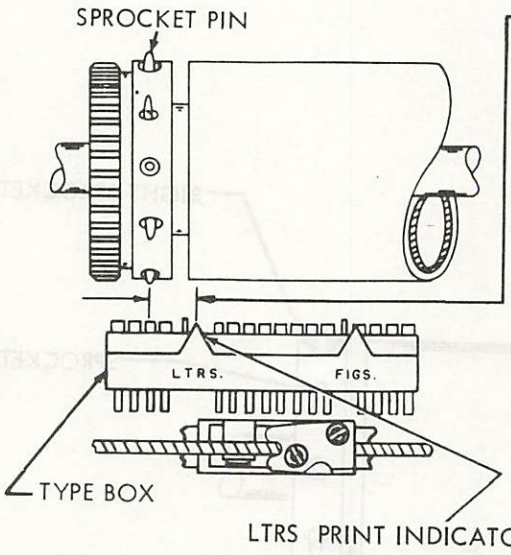
MAX 7/16 INCH

TO ADJUST

LOOSEN TWO TYPE BOX CLAMP SCREWS AND TWO PRINTING CARRIAGE CLAMP SCREWS. POSITION TYPE BOX. TIGHTEN TYPE BOX CLAMP SCREWS. LEAVE PRINTING CARRIAGE CLAMP SCREWS FRICTION TIGHT UNTIL PRINTING CARRIAGE POSITION ADJUSTMENT IS MADE. RECHECK RELATED ADJUSTMENT, CARRIAGE DRAW WIRE ROPE, PAR 2.40.



→2.72 Line Feed and Platen Mechanism continued



(TOP VIEW)

(A) LEFT MARGIN

(1) REQUIREMENT

TYPE BOX CLUTCH DISENGAGED. SPACING DRUM FULLY RETURNED. TYPE BOX SHIFTED TO LTRS POSITION. CLEARANCE BETWEEN CENTER OF LTRS PRINT INDICATOR ON TYPE BOX AND CENTERLINE OF SPROCKET PINS IN LEFT HUB

MIN 5/16 INCH

MAX 7/16 INCH

(2) REQUIREMENT

SPACING CLUTCH DISENGAGED. FRONT SPACING FEED PAWL FARTHEST ADVANCED. SPACING DRUM FULLY RETURNED. PLAY IN SPACING SHAFT GEAR (PAR 2.24) TAKEN UP CLOCKWISE. CLEARANCE BETWEEN PAWL AND SHOULDER OF RATCHET WHEEL TOOTH IMMEDIATELY AHEAD

MIN 0.002 INCH

MAX 0.015 INCH

(3) REQUIREMENT

REAR PAWL, WHEN FARTHEST ADVANCED, SHOULD REST AT BOTTOM OF INDENTATION BETWEEN RATCHET WHEEL TEETH

TO ADJUST

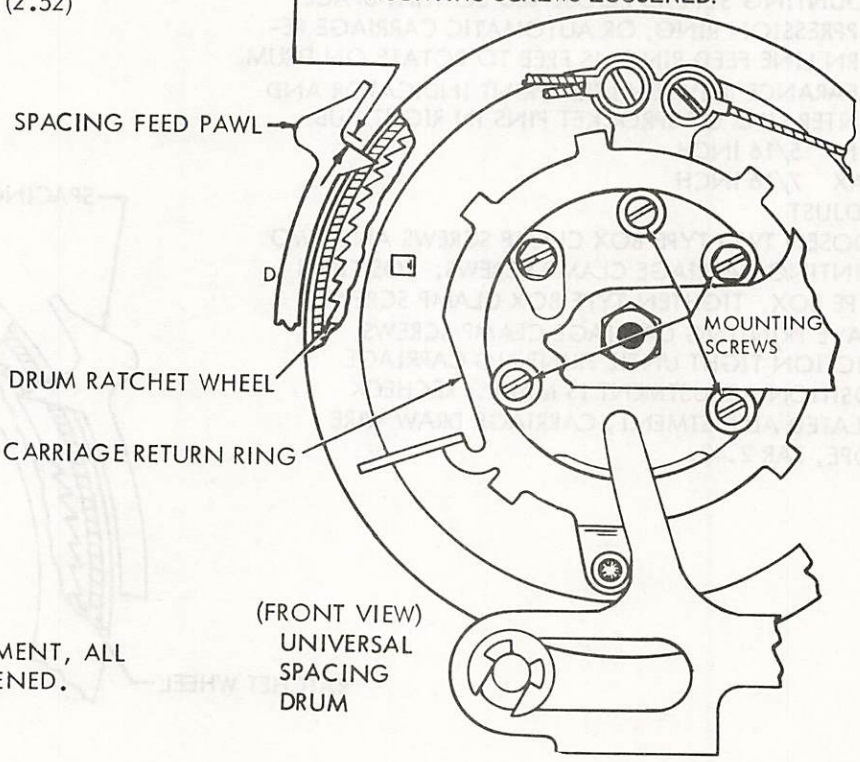
POSITION CARRIAGE RETURN RING WITH MOUNTING SCREWS LOOSENED.

(B) PRINTING CARRIAGE POSITION (2.46)

(C) PRINTING HAMMER STOP BRACKET (2.49)

(D) RIGHT MARGIN (2.51)

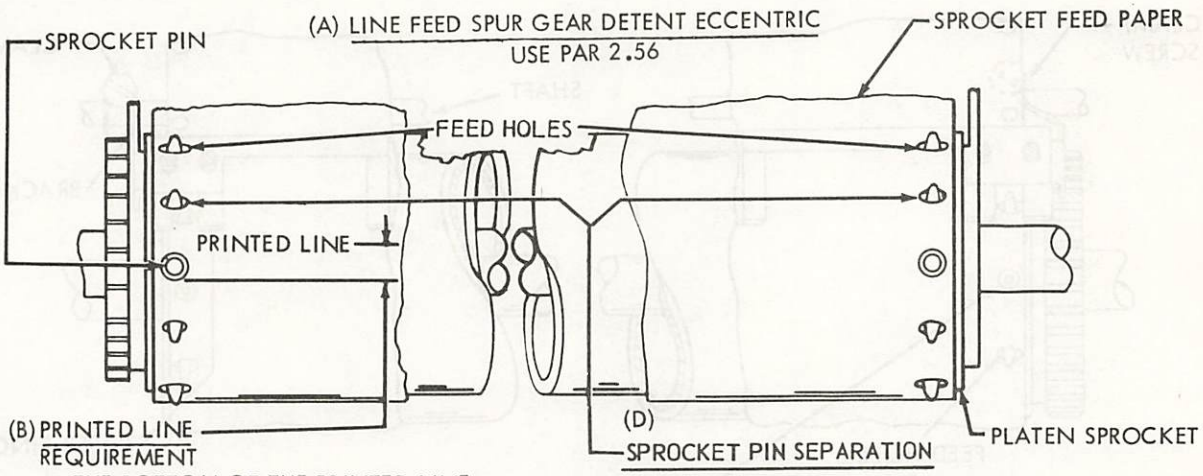
(E) TYPE BOX ALIGNMENT (2.52)



(FRONT VIEW)
UNIVERSAL SPACING DRUM

FOLLOWING THIS ADJUSTMENT, ALL SCREWS SHOULD BE TIGHTENED.

2.73 Line Feed and Platen Mechanism continued



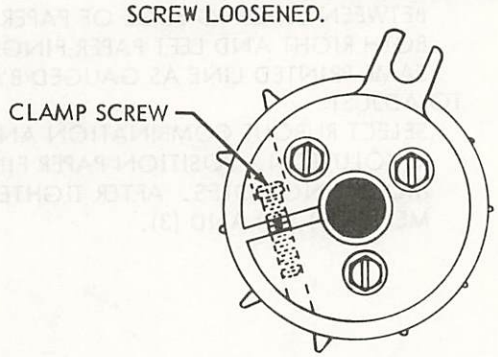
(B) PRINTED LINE
REQUIREMENT
THE BOTTOM OF THE PRINTED LINE SHOULD BE 1/32 INCH ±1/64 INCH (PLUS A MULTIPLE OF 1/6 INCH IF REQUIRED) ABOVE A HORIZONTAL LINE DRAWN EVEN WITH THE BOTTOM EDGE OF ANY SPROCKET HOLE.
TO ADJUST
LOOSEN SCREWS AND POSITION LEFT SPROCKET

NOTE: SPUR GEAR AND LEFT PLATEN RETAINER MUST BE REMOVED TO MAKE PRINTED LINE ADJUSTMENT.

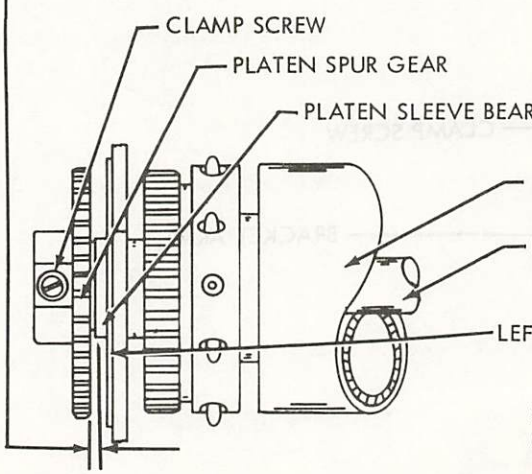
(D) SPROCKET PIN SEPARATION
(1) REQUIREMENT
WITH SINGLE SHEET OF SPROCKET FEED PAPER PLACED ON THE PLATEN THE SPROCKET PINS SHOULD BE CENTRALLY LOCATED IN THE FEED HOLES OF THE PAPER

(2) REQUIREMENT
PRINTED LINE SHOULD BE PARALLEL TO A LINE DRAWN PERPENDICULAR TO EDGE OF PAPER WITHIN PLUS OR MINUS 1/32 INCH
TO ADJUST
POSITION RIGHT SPROCKET WITH CLAMP SCREW LOOSENED.

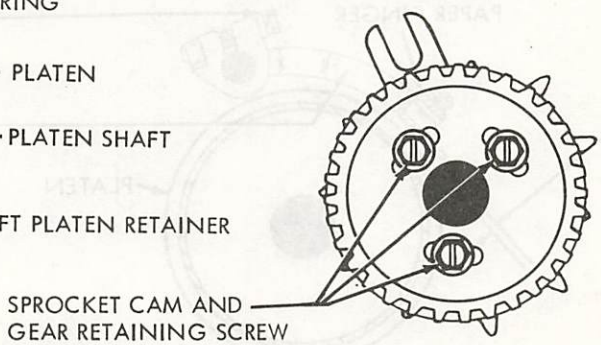
(C) PLATEN END PLAY
REQUIREMENT
LINE FEED PAWLS DISENGAGED.
PLATEN SHAFT SHOULD HAVE SOME END PLAY
MAX 0.010 INCH
TO ADJUST
POSITION PLATEN SPUR GEAR WITH CLAMP SCREW LOOSENED.



(RIGHT SIDE SPROCKET)

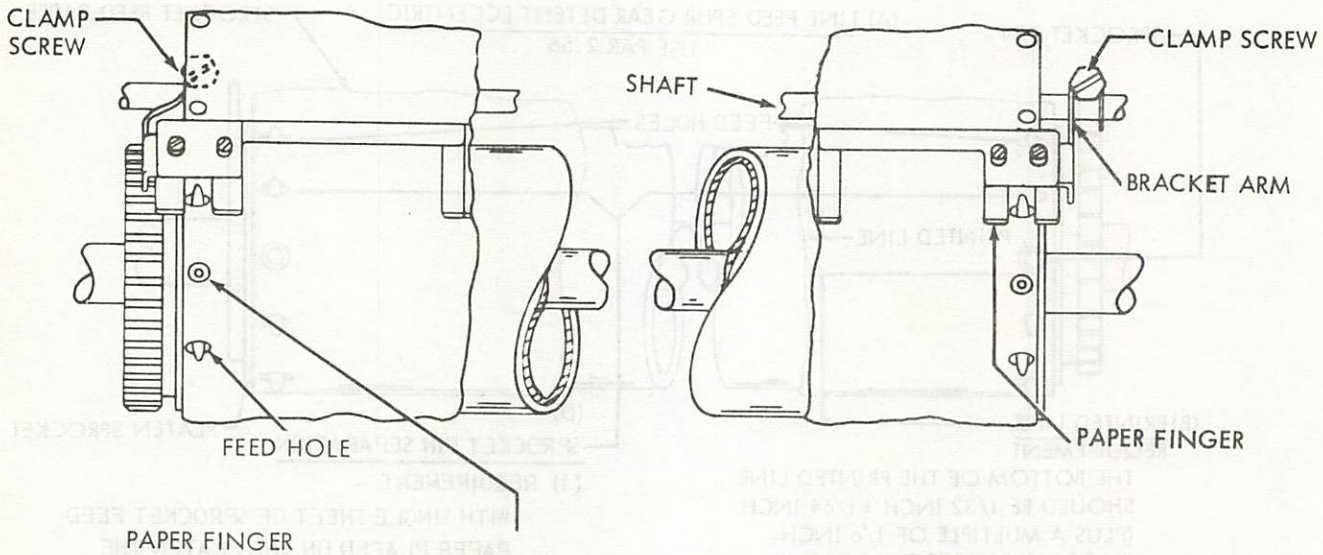


(FRONT VIEW)



(LEFT SIDE SPROCKET)

→2.74 Line Feed and Platen Mechanism continued



PAPER FINGER

(1) REQUIREMENT

SPROCKET PIN SHOULD BE CENTRALLY LOCATED IN THE PAPER FINGER SLOT.

(2) REQUIREMENT

THE GAP BETWEEN THE PLATEN AND THE PAPER FINGER SHOULD BE MIN 0.050 INCH --- MAX 0.105 INCH

TO ADJUST

WITH PAPER FINGER ASSEMBLY IN LATCHED POSITION, LOOSEN BOTH CLAMP SCREWS, POSITION ASSEMBLY HORIZONTALLY TO MEET REQUIREMENT (1). ROTATE ASSEMBLY TO MEET REQUIREMENT (2).

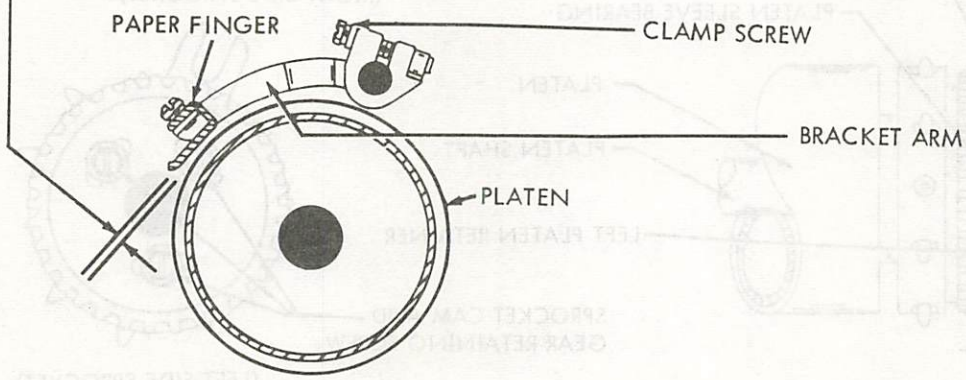
(3) REQUIREMENT (NOT ILLUSTRATED)

MIN 0.035 INCH

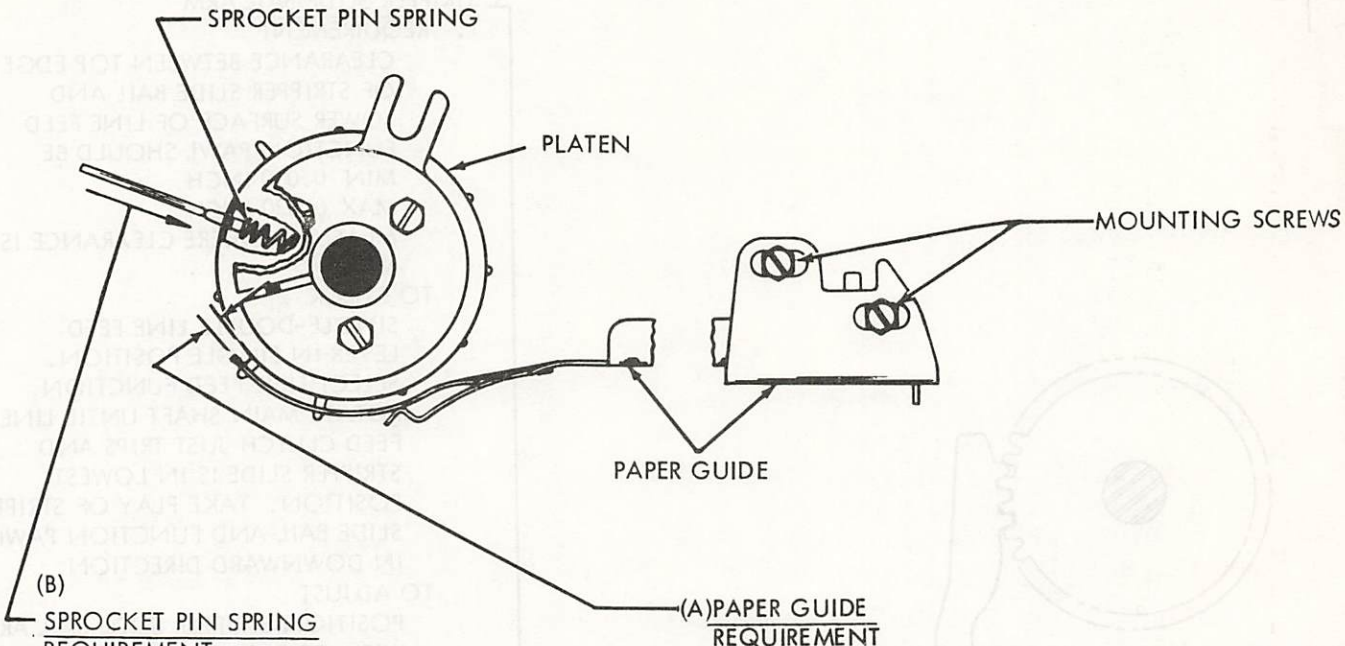
BETWEEN LEADING EDGE OF PAPER FINGER AND RIBBON GUIDE. BOTH RIGHT AND LEFT PAPER FINGERS MUST BE PARALLEL TO THE SAME PRINTED LINE AS GAUGED BY EYE.

TO ADJUST

SELECT RUBOUT COMBINATION AND ROTATE TYPE BOX CLUTCH 1/2 REVOLUTION. POSITION PAPER FINGERS BY MEANS OF ELONGATED MOUNTING HOLES. AFTER TIGHTENING THE SCREWS RECHECK REQUIREMENTS (1), (2) AND (3).



2.75 Line Feed and Platen Mechanism continued



(B)
SPROCKET PIN SPRING
REQUIREMENT
PINS TO BE TESTED ALIGNED
WITH SLOTS IN GUIDE BRACKET.
MIN 6 OZS
MAX 8 OZS
TO START DEPRESSING THE PIN.

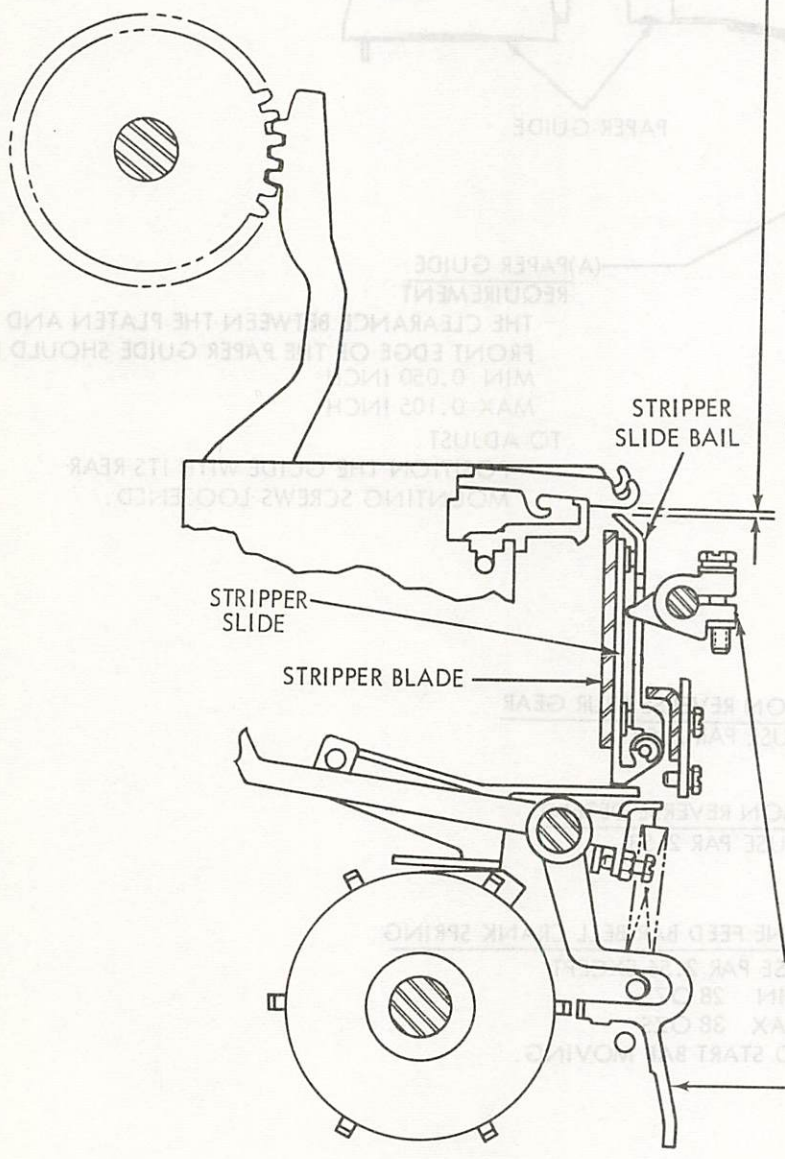
(A)PAPER GUIDE
REQUIREMENT
THE CLEARANCE BETWEEN THE PLATEN AND THE FRONT EDGE OF THE PAPER GUIDE SHOULD BE
MIN 0.050 INCH
MAX 0.105 INCH
TO ADJUST
POSITION THE GUIDE WITH ITS REAR MOUNTING SCREWS LOOSENED.

(C)RIBBON REVERSE SPUR GEAR
USE PAR 2.53

(D)RIBBON REVERSE DETENT
USE PAR 2.53

(E) LINE FEED BAR BELL CRANK SPRING
USE PAR 2.56 EXCEPT
MIN 28 OZS
MAX 38 OZS
TO START BAR MOVING.

→2.76 Function Mechanism continued



STRIPPER SLIDE BAIL ARM

1. REQUIREMENT

CLEARANCE BETWEEN TOP EDGE OF STRIPPER SLIDE BAIL AND LOWER SURFACE OF LINE FEED FUNCTION PAWL SHOULD BE
MIN 0.010 INCH
MAX 0.020 INCH
MEASURED WHERE CLEARANCE IS MIN.

TO CHECK

SINGLE-DOUBLE LINE FEED LEVER IN SINGLE POSITION. SELECT LINE FEED FUNCTION. ROTATE MAIN SHAFT UNTIL LINE FEED CLUTCH JUST TRIPS AND STRIPPER SLIDE IS IN LOWEST POSITION. TAKE PLAY OF STRIPPER SLIDE BAIL AND FUNCTION PAWl IN DOWNWARD DIRECTION.

TO ADJUST

POSITION STRIPPER SLIDE BAIL ARM WITH ITS CLAMPING SCREW LOOSENED. POSITION ARM LATERALLY TO CLEAR STRIPPER SLIDE WHEN SCREW IS TIGHTENED.

2. REQUIREMENT

THE LINE FEED TRIP LEVER SHOULD RESET AT A POINT OVER, OR JUST PAST, THE SECOND STOP LUG BY NOT MORE THAN 1/3 THE DISTANCE BETWEEN LUGS.

TO CHECK

SINGLE-DOUBLE LINE FEED LEVER IN DOUBLE POSITION. SELECT LINE FEED FUNCTION AND ROTATE MAIN SHAFT.

TO ADJUST

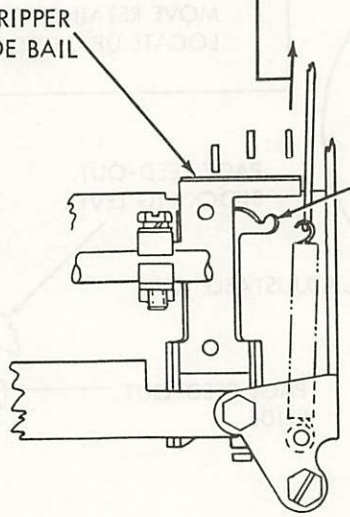
REFINE LINE FEED CLUTCH TRIP LEVER ADJUSTING SCREW (2.20), IF NECESSARY. RECHECK REQUIREMENT 1 OF THIS ADJUSTMENT.

2.77 Function Mechanism continued

STRIPPER SLIDE SPRING TENSION

REQUIREMENT

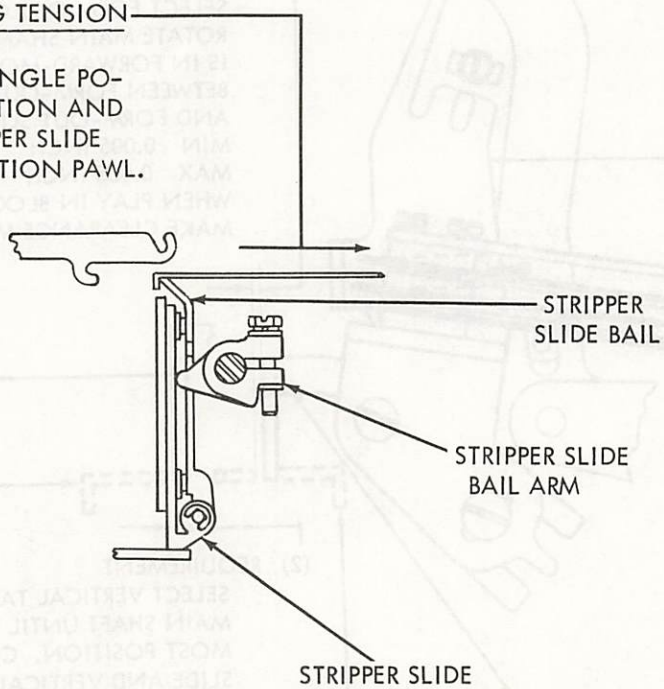
STRIPPER BLADE IN ITS LOWERMOST POSITION.
MIN 2 OZS
MAX 3 OZS
TO PULL SPRING TO INSTALLED LENGTH.



STRIPPER SLIDE BAIL TORSION SPRING TENSION

REQUIREMENT

SINGLE-DOUBLE FEED LEVER IN SINGLE POSITION. SELECT LINE-FEED FUNCTION AND ROTATE MAIN SHAFT UNTIL STRIPPER SLIDE BAIL JUST STRIPS LINE-FEED FUNCTION PAWL.
MIN 1 OZ
MAX 1-1/2 OZS
TO JUST START BAIL MOVING.



3. VARIABLE FEATURES

3.01 Vertical Tabulator Mechanism (For Bell System Switched Network Service)

(A) VERTICAL TABULATOR SLIDE RETAINER

REQUIREMENT

CLEARANCE BETWEEN VERTICAL TAB SLIDE AND RETAINING EDGE OF RETAINER

MIN SOME

MAX 0.012 INCH

TO ADJUST

MOVE RETAINER TO EXTREME FORWARD POSITION AND LOCATE UP OR DOWN TO MEET REQUIREMENT.

(B) MOUNTING BRACKET

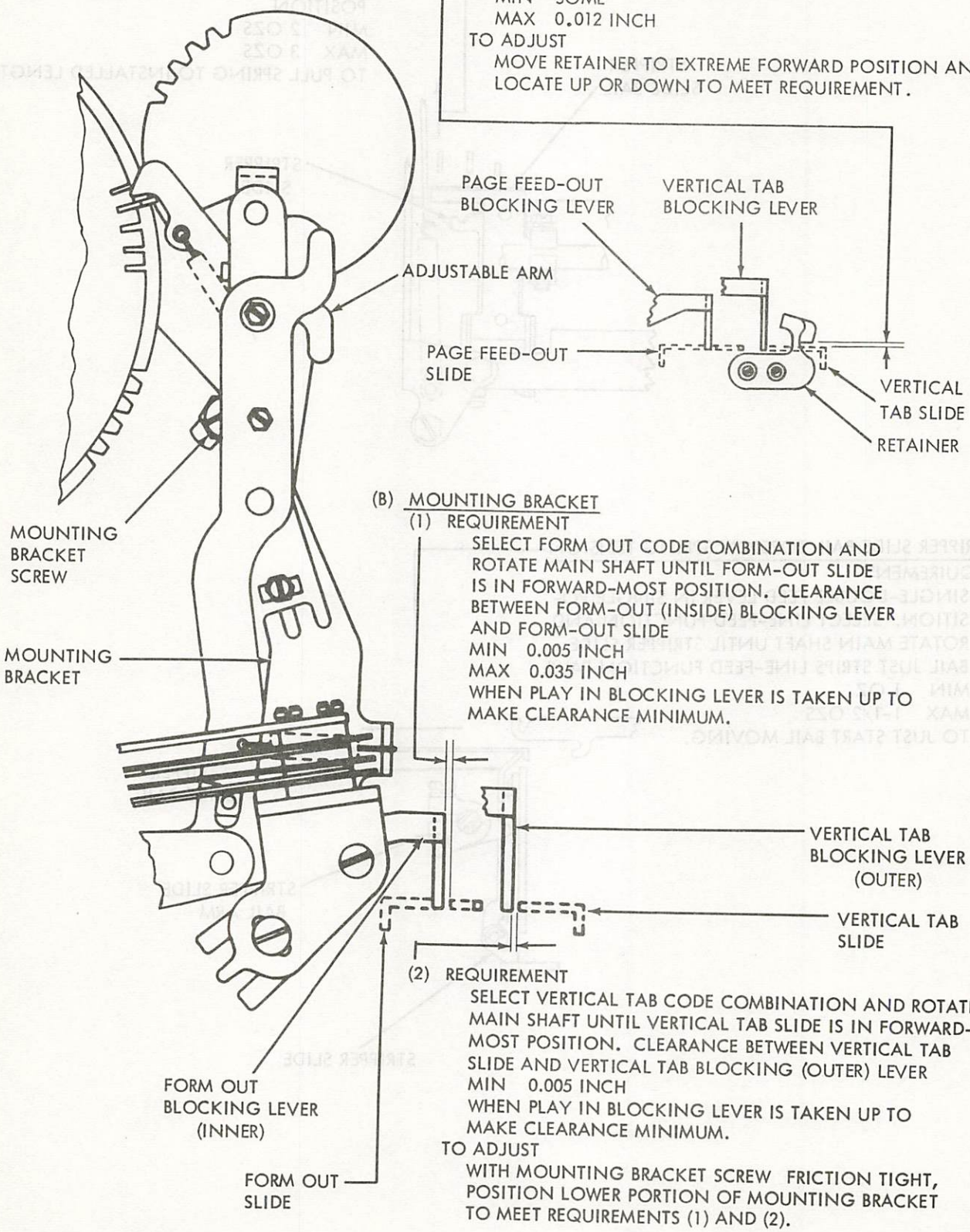
(1) REQUIREMENT

SELECT FORM OUT CODE COMBINATION AND ROTATE MAIN SHAFT UNTIL FORM-OUT SLIDE IS IN FORWARD-MOST POSITION. CLEARANCE BETWEEN FORM-OUT (INSIDE) BLOCKING LEVER AND FORM-OUT SLIDE

MIN 0.005 INCH

MAX 0.035 INCH

WHEN PLAY IN BLOCKING LEVER IS TAKEN UP TO MAKE CLEARANCE MINIMUM.



(2) REQUIREMENT

SELECT VERTICAL TAB CODE COMBINATION AND ROTATE MAIN SHAFT UNTIL VERTICAL TAB SLIDE IS IN FORWARD-MOST POSITION. CLEARANCE BETWEEN VERTICAL TAB SLIDE AND VERTICAL TAB BLOCKING (OUTER) LEVER

MIN 0.005 INCH

WHEN PLAY IN BLOCKING LEVER IS TAKEN UP TO MAKE CLEARANCE MINIMUM.

TO ADJUST

WITH MOUNTING BRACKET SCREW FRICTION TIGHT, POSITION LOWER PORTION OF MOUNTING BRACKET TO MEET REQUIREMENTS (1) AND (2).

3.02 Vertical Tabulator Mechanism continued
(For Bell System Switched Network Service)

(B) INDEXING DISC

REQUIREMENT

LINE FEED CLUTCH DISENGAGED. FORM-OUT STOP PLATE ADJACENT TO FORM-OUT FOLLOWER. CLEARANCE BETWEEN STOP PLATE AND FOLLOWER.
MIN 0.020 INCH
MAX 0.040 INCH
WITH SLACK TAKEN UP IN IDLER AND FORM START GEARS TO MAKE GAP MINIMUM

TO ADJUST

FULL GEAR OUT OF ENGAGEMENT WITH IDLER. TURN HANDWHEEL CLOCKWISE UNTIL A STOP PLATE JUST OPERATES FOLLOWER AND THEN ENGAGE FIRST TOOTH ON IDLER. POSITION DISK WITH THREE MOUNTING SCREWS.

(C)

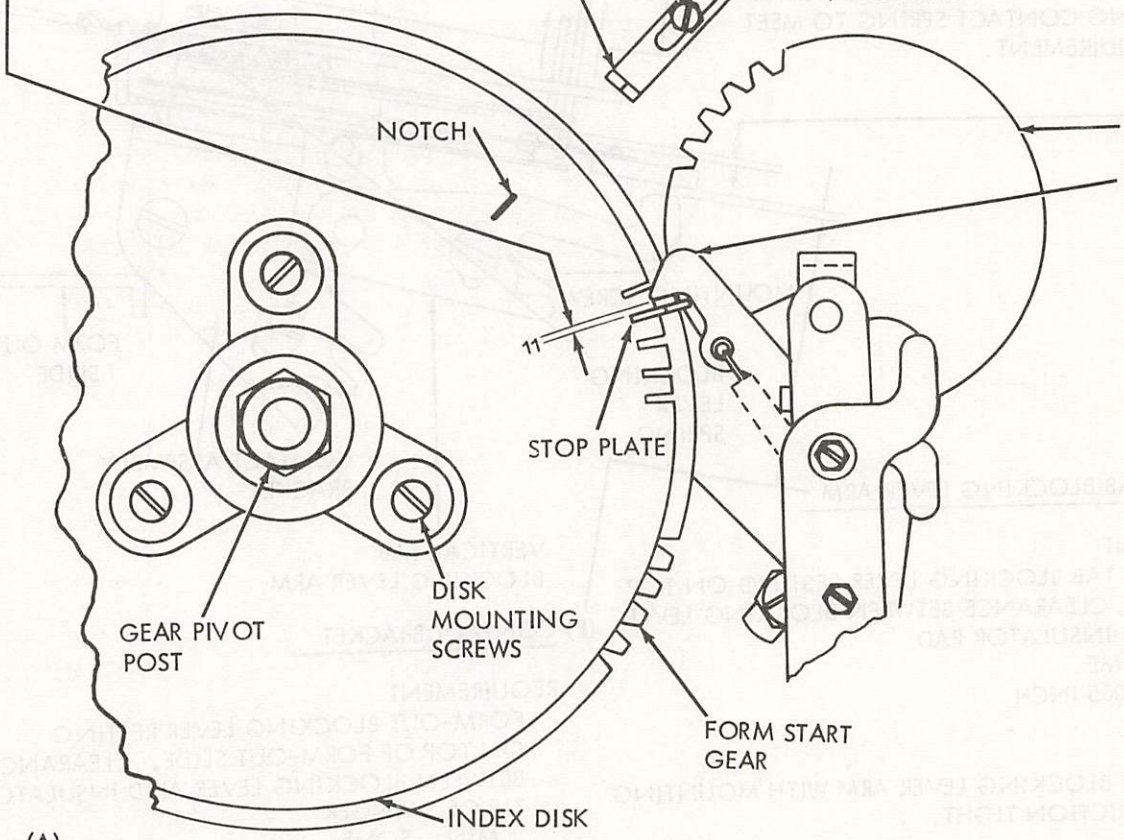
POINTER ADJUSTMENT

REQUIREMENT

LINE FEED CLUTCH DISENGAGED. FORM-OUT STOP PLATE ADJACENT TO FOLLOWER. POINTER ON PRINTER SIDE FRAME SHALL LINE UP WITH NOTCH IN INDEX DISK.

TO ADJUST

POINTER MOUNTING SCREW, ON PRINTER SIDE FRAME, FRICTION TIGHT. POSITION POINTER SO IT LINES UP WITH NOTCH ON INDEX DISK, AND CLEARS ANY STOP PLATE BY APPROXIMATELY 1/16 INCH.



(A)

FORM START GEAR PLAY

REQUIREMENT

BARELY PERCEPTIBLE BACKLASH BETWEEN IDLER GEAR AND FORM START GEAR

TO ADJUST

POSITION GEAR PIVOT POST ON BRACKET BY NUT IN CENTER OF HANDWHEEL. CHECK IN AT LEAST THREE POSITIONS, 120° APART.

3.03 Vertical Tabulator Mechanism continued
(For Bell System Switched Network Service)

(Transmitter Control Switch Adjustments)

(H) VERTICAL TAB BLOCKING LEVER SPRING

REQUIREMENT
BLOCKING LEVER ARMS RESTING ON TOP OF THEIR SLIDES. UNHOOK BLOCKING LEVER SPRING FROM MOUNTING BRACKET.
MIN 9 OZS
MAX 11 OZS
TO PULL SPRING TO OPERATING LENGTH. CHECK BOTH BLOCKING LEVER SPRINGS.

(D) NORMALLY OPEN CONTACT GAP

REQUIREMENT
BLOCKING LEVERS UNOPERATED. GAP BETWEEN NORMALLY OPEN CONTACTS
MIN 0.003 INCH
MAX 0.012 INCH

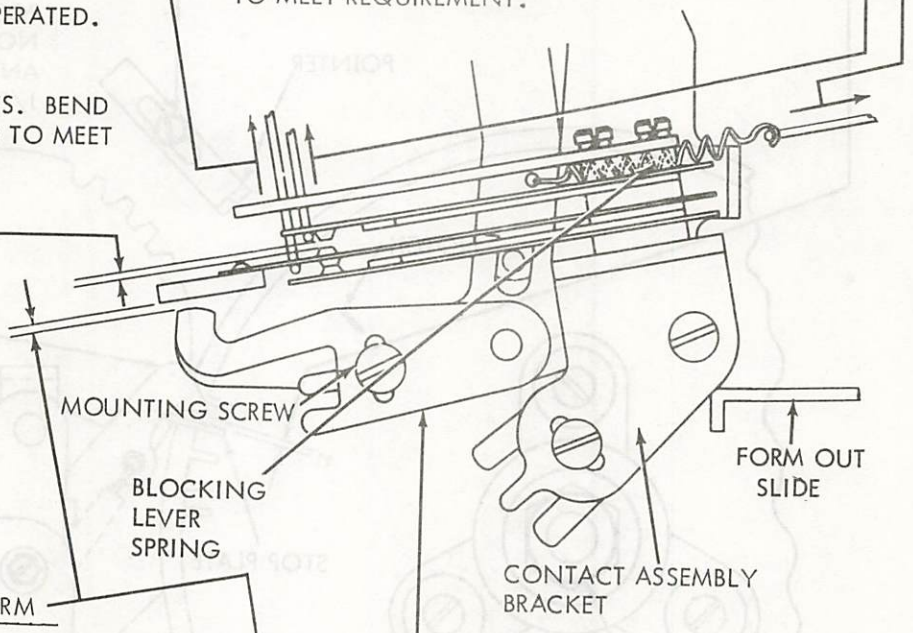
TO ADJUST
BEND STIFFENER.

(B) NORMALLY OPEN CONTACT SPRING

REQUIREMENT
BLOCKING LEVERS UNOPERATED
MIN 1 OZ
MAX 2 OZS
TO JUST MOVE SHORT CONTACT SPRING AWAY FROM STIFFENER. BEND SHORT CONTACT SPRING TO MEET REQUIREMENT.

(A) TRANSFER CONTACT SPRING

REQUIREMENT
BLOCKING LEVERS UNOPERATED.
MIN 2 OZS
MAX 3 OZS
TO JUST OPEN CONTACTS. BEND LONG CONTACT SPRING TO MEET REQUIREMENT.



(F) VERTICAL TAB BLOCKING LEVER ARM

REQUIREMENT
VERTICAL TAB BLOCKING LEVER RESTING ON TOP OF SLIDE, CLEARANCE BETWEEN BLOCKING LEVER ARM AND INSULATOR PAD
MIN SOME
MAX 0.005 INCH

TO ADJUST
POSITION BLOCKING LEVER ARM WITH MOUNTING SCREWS FRICTION TIGHT.

(E) CONTACT BRACKET

REQUIREMENT
FORM-OUT BLOCKING LEVER RESTING ON TOP OF FORM-OUT SLIDE. CLEARANCE BETWEEN BLOCKING LEVER AND INSULATOR TIP OF SWINGER
MIN SOME
MAX 0.005 INCH

TO ADJUST
POSITION CONTACT ASSEMBLY BRACKET WITH MOUNTING SCREWS FRICTION TIGHT.

3.04 Vertical Tabulator Mechanism continued
(For Bell System Switched Network Service)
(Transmitter Control Switch Adjustments)

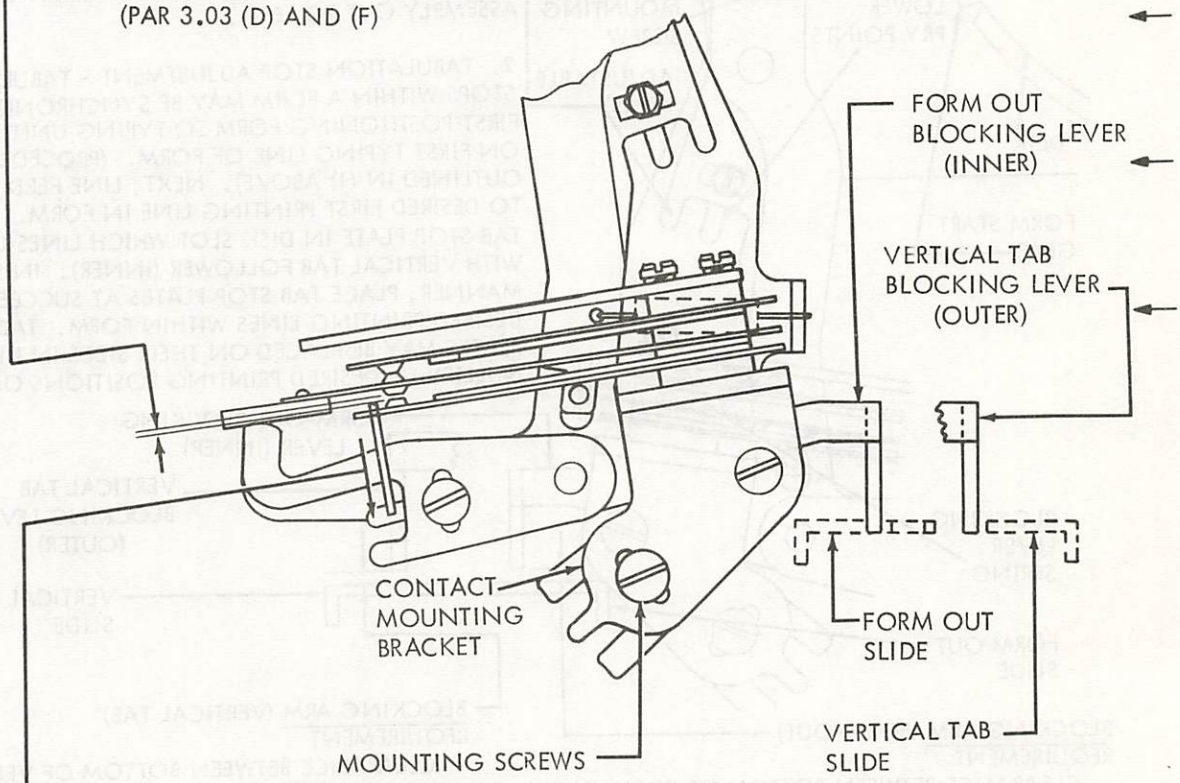
(G) NORMALLY CLOSED CONTACT GAP

(1) REQUIREMENT
SELECT FORM-OUT CODE COMBINATION. ROTATE MAIN SHAFT UNTIL FORM-OUT SLIDE IS IN FORWARD-MOST POSITION AND FORM-OUT BLOCKING LEVER DROPS BEHIND SLIDE. CLEARANCE BETWEEN NORMALLY CLOSED CONTACT POINTS
MIN 0.008 INCH

(1) TO ADJUST
REFINE NORMALLY OPEN CONTACT GAP ADJUSTMENT AND CONTACT BRACKET ADJUSTMENT (PAR 3.03, (D) AND (E)

(2) REQUIREMENT
SELECT VERTICAL TAB CODE COMBINATION. ROTATE MAIN SHAFT UNTIL VERTICAL TAB SLIDE IS IN FORWARD-MOST POSITION AND VERTICAL TAB BLOCKING LEVER DROPS BEHIND SLIDE. CLEARANCE BETWEEN NORMALLY CLOSED CONTACT POINTS
MIN 0.008 INCH

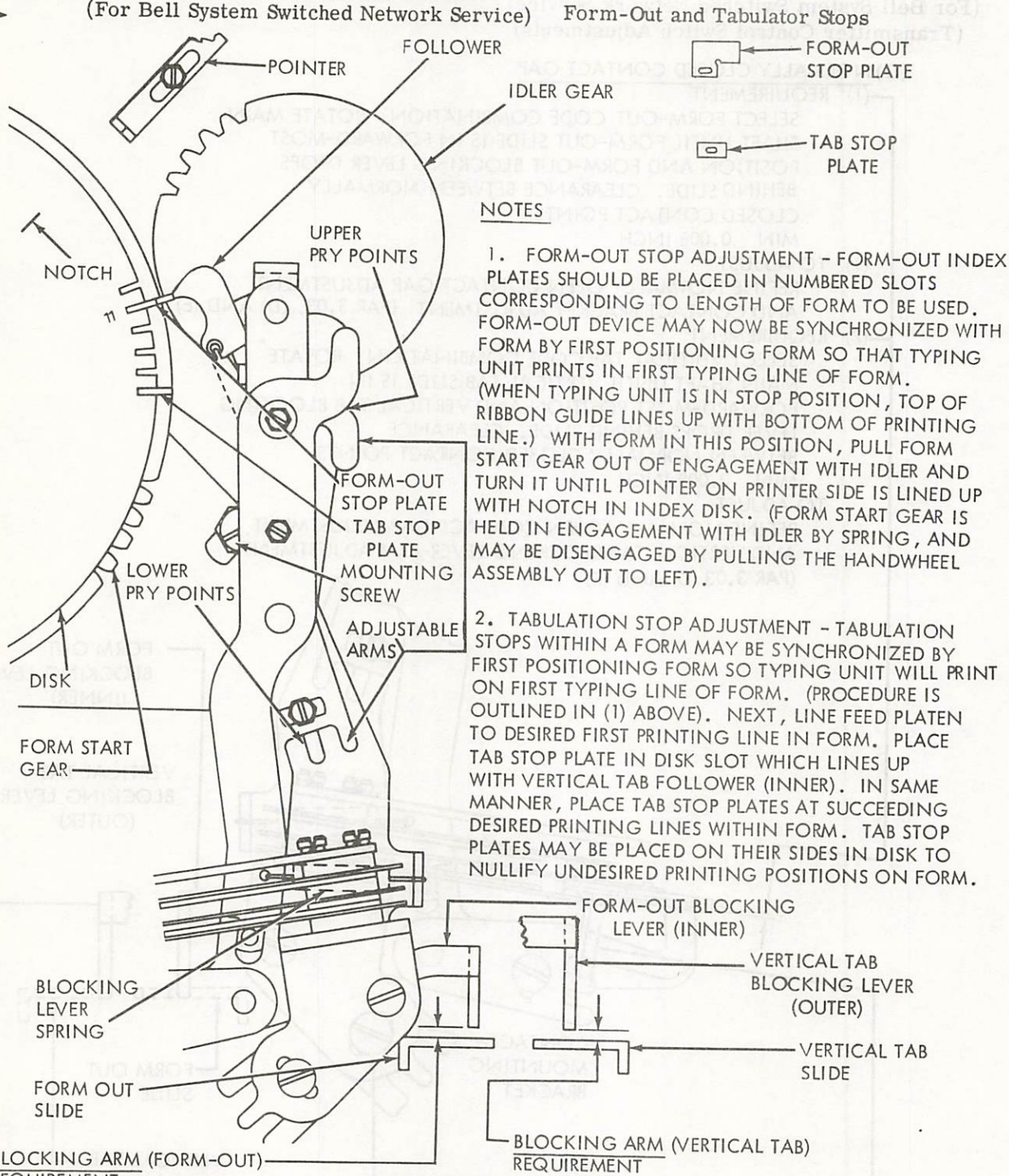
TO ADJUST
REFINE NORMALLY OPEN CONTACT GAP ADJUSTMENT AND VERTICAL TAB BLOCKING LEVER ARM ADJUSTMENT (PAR 3.03 (D) AND (F)



(C) NORMALLY CLOSED CONTACT SPRING

REQUIREMENT
BLOCKING LEVERS OPERATED
MIN 2 OZS
MAX 3 OZS
TO JUST MOVE SHORT CONTACT SPRING AWAY FROM STIFFENER. BEND SHORT CONTACT SPRING TO MEET REQUIREMENT

3.05 Vertical Tabulator Mechanism continued
(For Bell System Switched Network Service)



NOTES

1. FORM-OUT STOP ADJUSTMENT - FORM-OUT INDEX PLATES SHOULD BE PLACED IN NUMBERED SLOTS CORRESPONDING TO LENGTH OF FORM TO BE USED. FORM-OUT DEVICE MAY NOW BE SYNCHRONIZED WITH FORM BY FIRST POSITIONING FORM SO THAT TYPING UNIT PRINTS IN FIRST TYPING LINE OF FORM. (WHEN TYPING UNIT IS IN STOP POSITION, TOP OF RIBBON GUIDE LINES UP WITH BOTTOM OF PRINTING LINE.) WITH FORM IN THIS POSITION, PULL FORM START GEAR OUT OF ENGAGEMENT WITH IDLER AND TURN IT UNTIL POINTER ON PRINTER SIDE IS LINED UP WITH NOTCH IN INDEX DISK. (FORM START GEAR IS HELD IN ENGAGEMENT WITH IDLER BY SPRING, AND MAY BE DISENGAGED BY PULLING THE HANDWHEEL ASSEMBLY OUT TO LEFT).

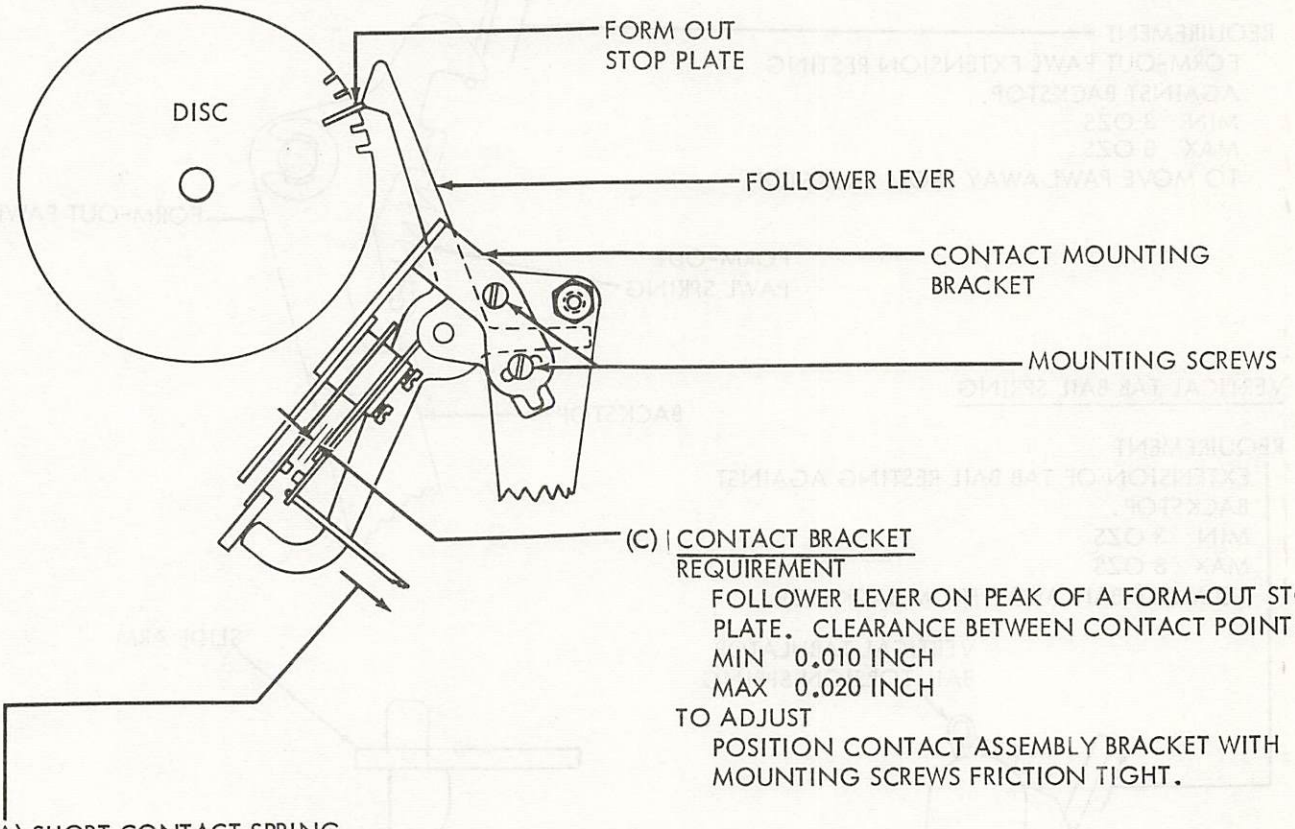
2. TABULATION STOP ADJUSTMENT - TABULATION STOPS WITHIN A FORM MAY BE SYNCHRONIZED BY FIRST POSITIONING FORM SO TYPING UNIT WILL PRINT ON FIRST TYPING LINE OF FORM. (PROCEDURE IS OUTLINED IN (1) ABOVE). NEXT, LINE FEED PLATEN TO DESIRED FIRST PRINTING LINE IN FORM. PLACE TAB STOP PLATE IN DISK SLOT WHICH LINES UP WITH VERTICAL TAB FOLLOWER (INNER). IN SAME MANNER, PLACE TAB STOP PLATES AT SUCCEEDING DESIRED PRINTING LINES WITHIN FORM. TAB STOP PLATES MAY BE PLACED ON THEIR SIDES IN DISK TO NULLIFY UNDESIRED PRINTING POSITIONS ON FORM.

BLOCKING ARM (FORM-OUT)
REQUIREMENT
CLEARANCE BETWEEN BOTTOM OF FORM-OUT BLOCKING LEVER AND TOP OF FORM-OUT SLIDE
MIN 0.005 INCH --- MAX 0.045 INCH
TO CHECK
TRIP LINE FEED CLUTCH. ROTATE MAIN SHAFT UNTIL FORM-OUT FOLLOWER IS ON PEAK OF FORM-OUT STOP PLATE.
TO ADJUST
POSITION ADJUSTABLE ARM AT LOWER PRY POINTS WITH CLAMP SCREW LOOSENED.

BLOCKING ARM (VERTICAL TAB)
REQUIREMENT
CLEARANCE BETWEEN BOTTOM OF VERTICAL TAB BLOCKING LEVER AND TOP OF VERTICAL TAB SLIDE
MIN 0.005 INCH --- MAX 0.045 INCH
TO CHECK
TRIP LINE FEED CLUTCH. ROTATE MAIN SHAFT UNTIL VERTICAL TAB FOLLOWER IS ON PEAK OF TAB STOP PLATE.
TO ADJUST
POSITION ADJUSTABLE ARM AT UPPER PRY POINTS WITH CLAMP SCREW LOOSENED.

3.06 Vertical Tabulator Mechanism continued
(For Bell System Switched Network Service)

(Off Normal Contact Adjustments)

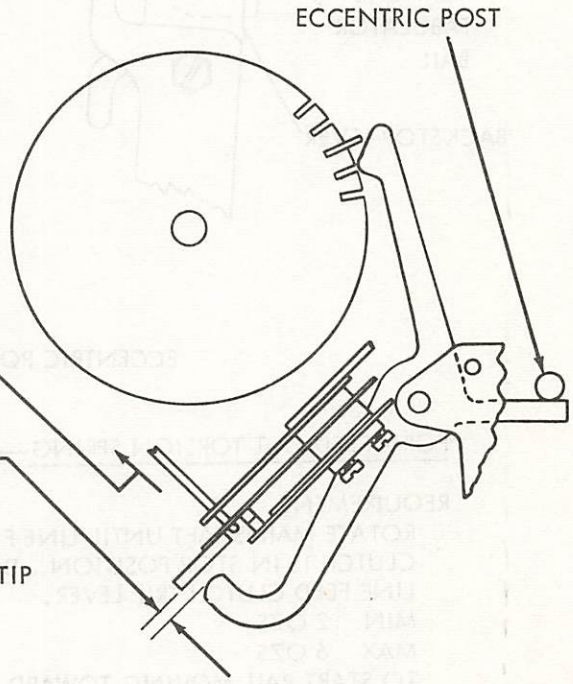


(C) CONTACT BRACKET
REQUIREMENT
FOLLOWER LEVER ON PEAK OF A FORM-OUT STOP PLATE. CLEARANCE BETWEEN CONTACT POINTS
MIN 0.010 INCH
MAX 0.020 INCH
TO ADJUST
POSITION CONTACT ASSEMBLY BRACKET WITH MOUNTING SCREWS FRICTION TIGHT.

(A) SHORT CONTACT SPRING
REQUIREMENT
FOLLOWER LEVER OPERATED.
MIN 2 OZS
MAX 3 OZS
TO JUST MOVE SHORT CONTACT SPRING AWAY FROM STIFFENER. BEND SHORT CONTACT SPRING TO MEET REQUIREMENT.

(B) LONG CONTACT SPRING
REQUIREMENT
FOLLOWER LEVER UNOPERATED.
MIN 2 OZS
MAX 3 OZS
TO JUST OPEN CONTACTS. BEND LONG CONTACT SPRING TO MEET REQUIREMENT.

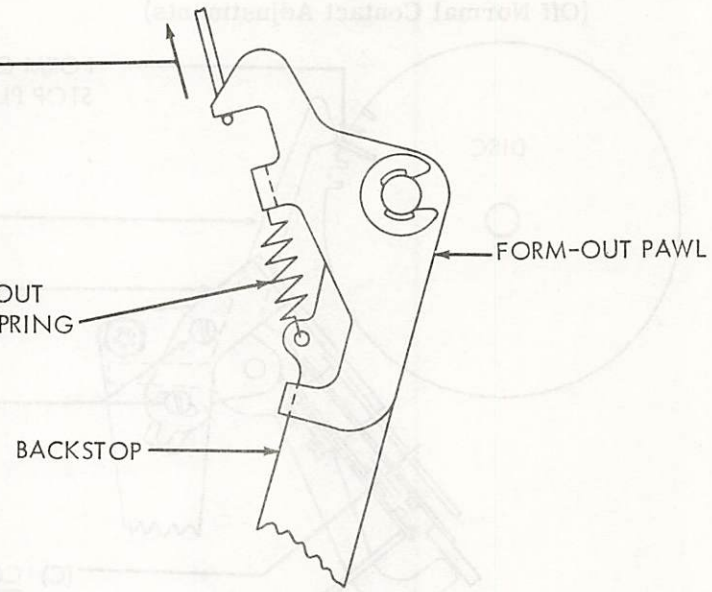
(D) FOLLOWER LEVER
REQUIREMENT
INDEX DISK ROTATED TO BRING FORM-OUT STOP PLATE ONE SLOT AWAY FROM OPERATING POSITION.
CLEARANCE BETWEEN FOLLOWER LEVER AND INSULATOR TIP
MIN 0.010
MAX 0.020
TO ADJUST
ROTATE ECCENTRIC POST UNTIL REQUIREMENT IS MET.



→3.07 Vertical Tabulator Mechanism continued
(Common to 3.01 and 3.24)

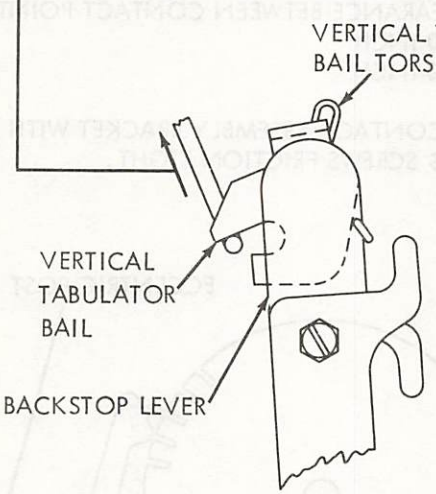
FORM-OUT PAWL SPRING

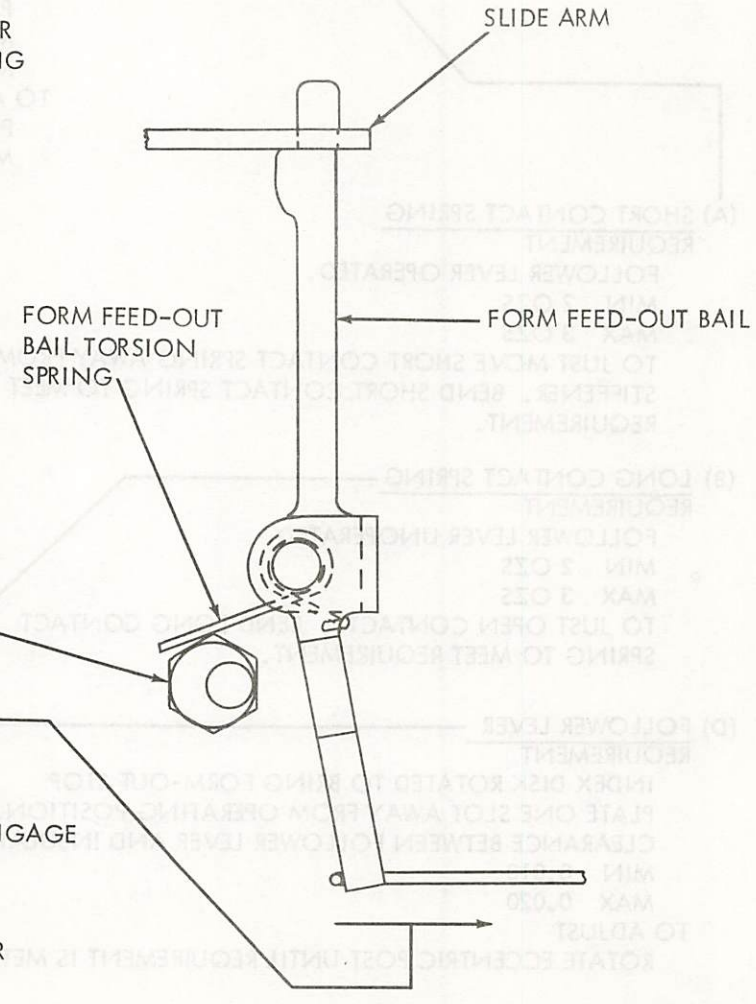
REQUIREMENT
FORM-OUT PAWL EXTENSION RESTING AGAINST BACKSTOP.
MIN 3 OZS
MAX 8 OZS
TO MOVE PAWL AWAY FROM BACKSTOP.



VERTICAL TAB BAIL SPRING

REQUIREMENT
EXTENSION OF TAB BAIL RESTING AGAINST BACKSTOP.
MIN 3 OZS
MAX 8 OZS
TO MOVE BAIL AWAY FROM BACKSTOP.





FORM FEED OUT TORSION SPRING

REQUIREMENT
ROTATE MAINSHAFT UNTIL LINE FEED CLUTCH IS IN STOP POSITION. DISENGAGE LINE FEED CLUTCH TRIP LEVER.
MIN 2 OZS
MAX 6 OZS
TO START BAIL MOVING TOWARD REAR OF UNIT.

3.08 Form-Out Mechanism

(A) FORM-OUT LEVER BACKSTOP

REQUIREMENT

LINE FEED CLUTCH TRIP LEVER AGAINST ECCENTRIC POST. FORM-OUT LEVER AGAINST FORMED EXTENSION OF MOUNTING PLATE. CLEARANCE BETWEEN TRIP LEVER AND FORM-OUT LEVER.
MIN SOME --- MAX 0.010 INCH

TO ADJUST

LOOSEN ADJUSTING SCREW. HOLD LOWER END OF FORM-OUT LEVER AGAINST EXTENSION OF MOUNTING PLATE. POSITION UPPER END OF FORM-OUT LEVER. TIGHTEN SCREW.

(B) SOLENOID LEVER (SEE ALSO PAR 3.09)

REQUIREMENT

WHEN SOLENOID PLUNGER IS SEATED, FORM-OUT SLIDE, THROUGH COMBINED MOTIONS OF NON-REPEAT SLIDE, FORM-OUT LEVER AND FORM-OUT BAIL, SHALL HAVE MOVED FORWARD TO PERMIT FORM-OUT BLOCKING LEVER TO FALL IN BEHIND IT.
CLEARANCE BETWEEN SLIDE AND BLOCKING LEVER
MIN 0.020 INCH
MAX 0.030 INCH

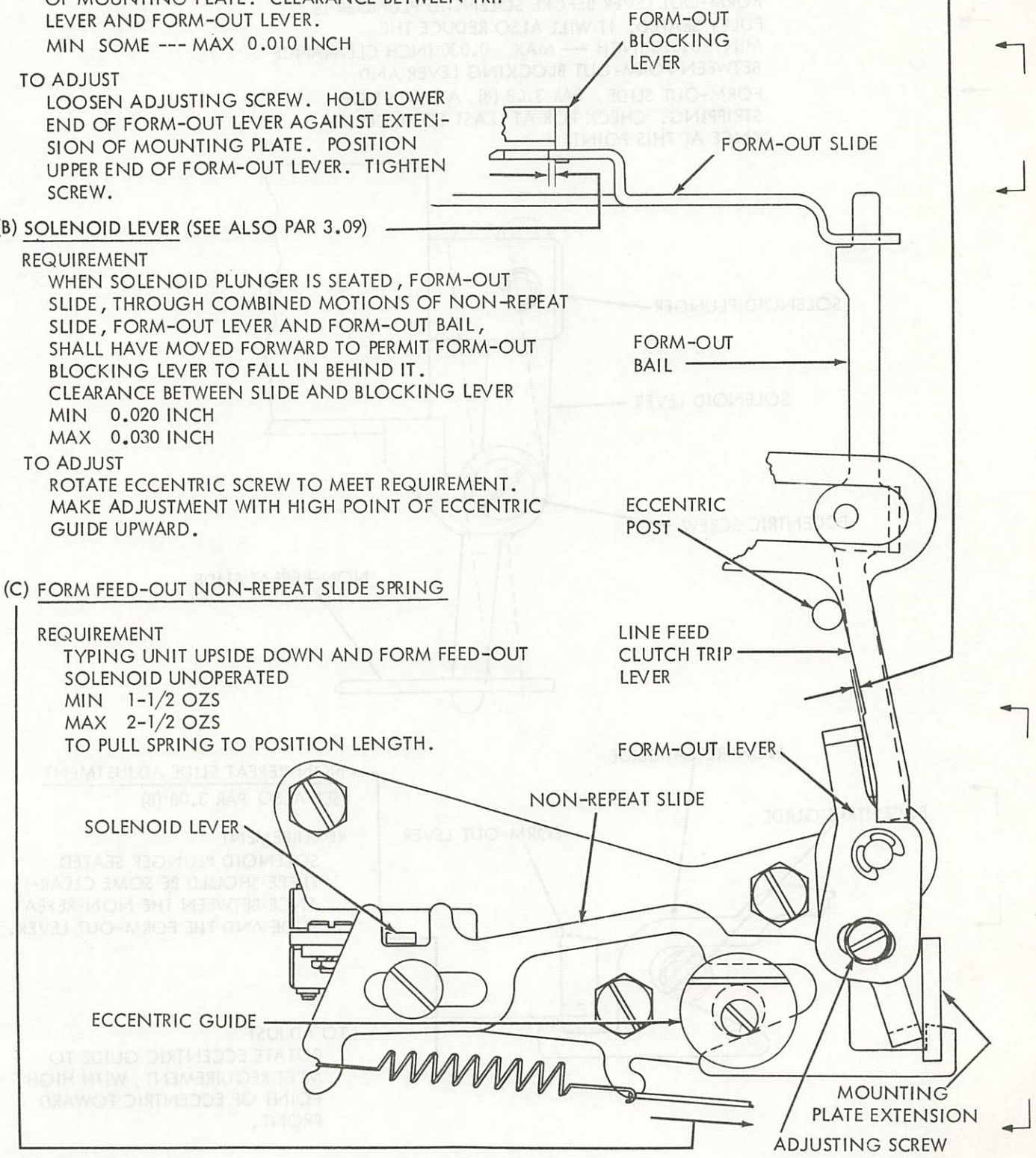
TO ADJUST

ROTATE ECCENTRIC SCREW TO MEET REQUIREMENT. MAKE ADJUSTMENT WITH HIGH POINT OF ECCENTRIC GUIDE UPWARD.

(C) FORM FEED-OUT NON-REPEAT SLIDE SPRING

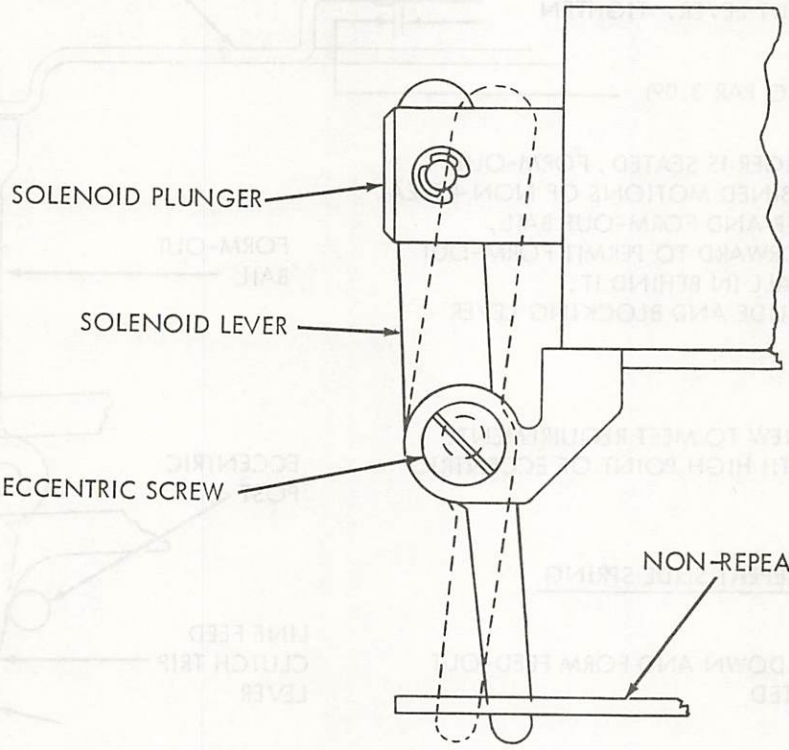
REQUIREMENT

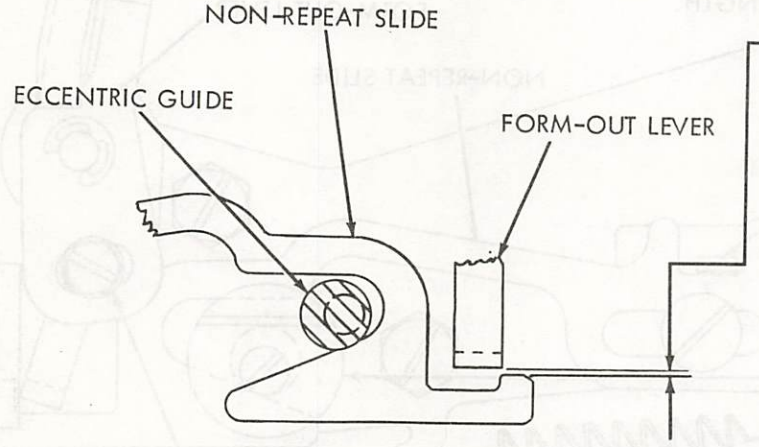
TYPING UNIT UPSIDE DOWN AND FORM FEED-OUT SOLENOID UNOPERATED
MIN 1-1/2 OZS
MAX 2-1/2 OZS
TO PULL SPRING TO POSITION LENGTH.



→3.09 Form-Out Mechanism continued

NOTE: THIS ADJUSTMENT INSURES THAT NON-REPEAT SLIDE IS STRIPPED OUT OF ENGAGEMENT WITH FORM-OUT LEVER BEFORE SOLENOID PLUNGER IS FULLY SEATED. IT WILL ALSO REDUCE THE MIN 0.020 INCH --- MAX 0.030 INCH CLEARANCE BETWEEN FORM-OUT BLOCKING LEVER AND FORM-OUT SLIDE, PAR 3.08 (B), AT POINT OF STRIPPING. CHECK FOR AT LEAST SOME CLEARANCE AT THIS POINT.





NON-REPEAT SLIDE ADJUSTMENT
(SEE ALSO PAR 3.08 (B)

REQUIREMENT
SOLENOID PLUNGER SEATED. THERE SHOULD BE SOME CLEARANCE BETWEEN THE NON-REPEAT SLIDE AND THE FORM-OUT LEVER.

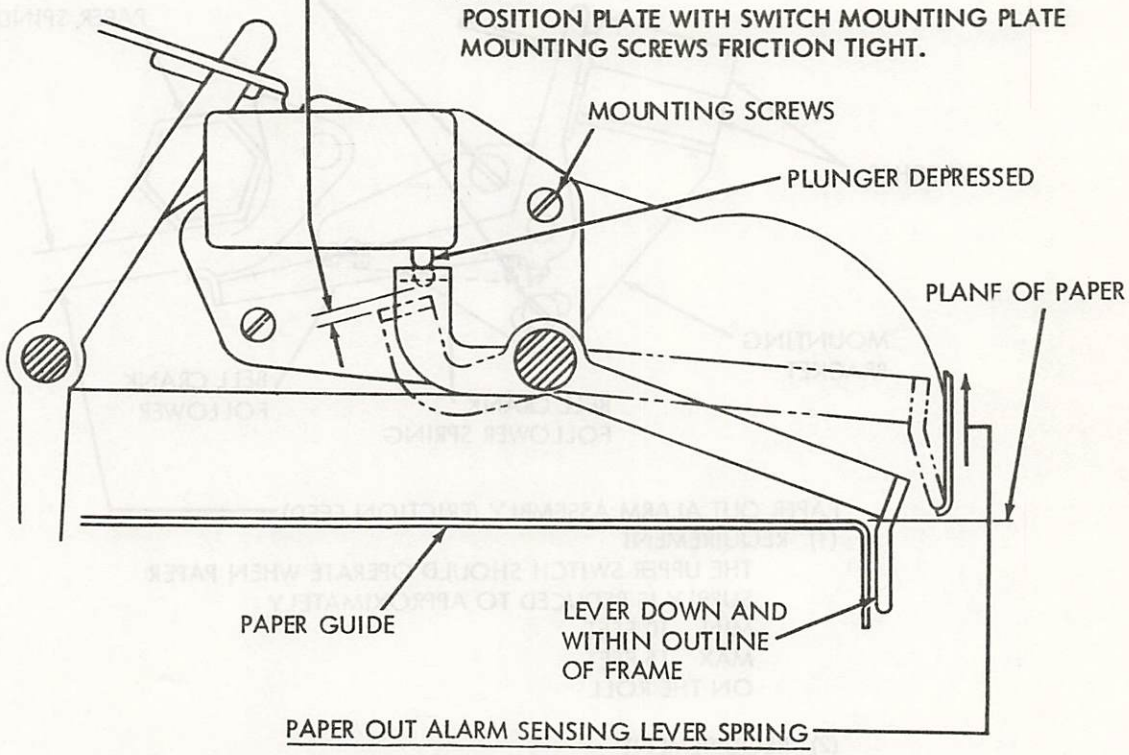
TO ADJUST
ROTATE ECCENTRIC GUIDE TO MEET REQUIREMENT, WITH HIGH POINT OF ECCENTRIC TOWARD FRONT.

3.10 Low Paper and Paper Out Alarm Mechanisms

LOW PAPER AND PAPER OUT ALARM (SPROCKET FEED ONLY)

(1) REQUIREMENT
WITHOUT PAPER IN UNIT, REAR ENDS OF SWITCH OPERATING LEVERS SHOULD BE IN LOWERMOST POSITION. SWITCH PLUNGERS SHOULD BE DEPRESSED. NORMALLY OPEN CONTACTS SHOULD BE CLOSED. ENDS OF SWITCH LEVERS SHOULD BE WITHIN OUTLINE OF TYPING UNIT FRAME.

(2) REQUIREMENT
REAR ENDS OF SWITCH OPERATING LEVERS LIFTED TO HEIGHT OF PLANE OF UPPER SURFACE OF PAPER GUIDE, SWITCH PLUNGERS SHOULD BE EXTENDED.
MIN: SOME CLEARANCE BETWEEN SWITCH LEVERS AND PLUNGERS.
TO ADJUST
POSITION PLATE WITH SWITCH MOUNTING PLATE MOUNTING SCREWS FRICTION TIGHT.



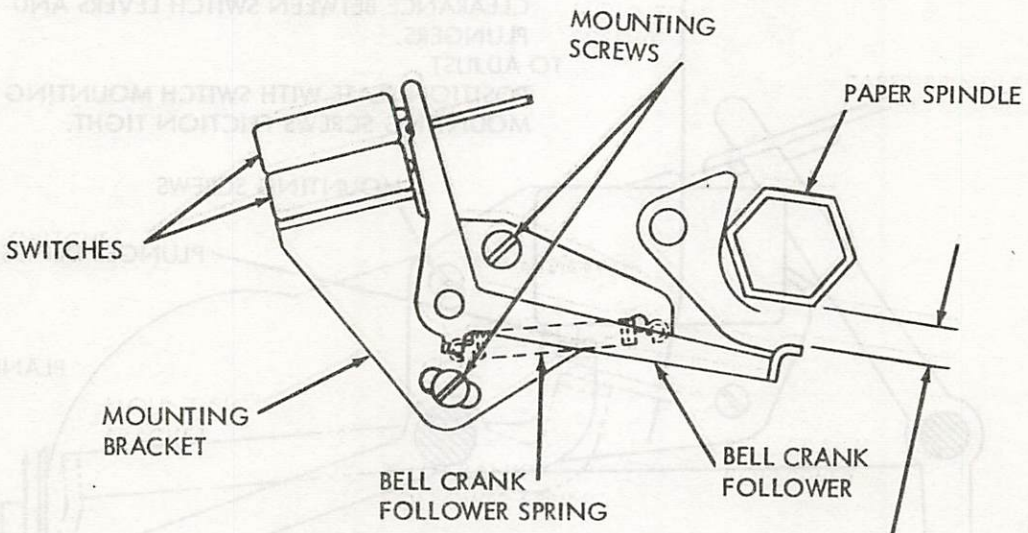
PAPER OUT ALARM SENSING LEVER SPRING

REQUIREMENT (SPROCKET FEED ONLY)
MIN 1/2 OZ
MAX 1 OZ
TO LIFT END OF LEVER, WHICH RIDES PAPER, TO SAME PLANE AS UPPER SURFACE OF PAPER GUIDE. MEASURE BOTH SENSING LEVER SPRINGS IN SAME MANNER.

3.11 Paper Out Alarm Mechanism continued

PAPER OUT ALARM BELL CRANK FOLLOWER SPRING
(FRICTION FEED ONLY)

REQUIREMENT
ROLL OF PAPER REMOVED FROM UNIT.
MIN 3-1/2 OZS
MAX 4-1/2 OZS
TO MOVE LEVER FAR ENOUGH TO JUST CLEAR
LOWER SWITCH.



PAPER OUT ALARM ASSEMBLY (FRICTION FEED)

(1) REQUIREMENT
THE UPPER SWITCH SHOULD OPERATE WHEN PAPER SUPPLY IS REDUCED TO APPROXIMATELY
MIN 10 FEET
MAX 15 FEET
ON THE ROLL

(2) REQUIREMENT
PAPER FOLLOWER BELL CRANK SHOULD OPERATE UPPER SWITCH AT APPROXIMATELY 1/4 INCH FROM FLAT SIDE OF EMPTY PAPER SPOOL.

TO ADJUST
POSITION BRACKET WITH TWO BRACKET MOUNTING SCREWS FRICTION TIGHT.

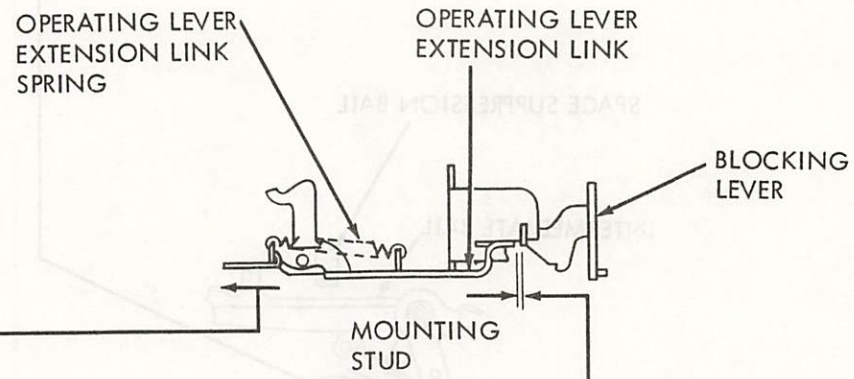
3.12 Horizontal Tabulator Mechanism

HORIZONTAL TAB OPERATING LEVER EXTENSION LINK SPRING

REQUIREMENT

UNHOOK TRIP ARM LATCH LEVER SPRING. OPERATING LEVER IN OPERATED POSITION. SLIDE ARM AGAINST BLOCKING LEVER.
MIN 8-3/4 OZS
MAX 10-3/4 OZS
TO START LINK MOVING.

NOTE. ON UNITS EQUIPPED WITH TRANSMITTER CONTROL CONTACTS, HOLD CONTACT SPRING AWAY FROM STUD WHILE MEASURING TENSION.



HORIZONTAL TAB OPERATING LEVER LINK

REQUIREMENT

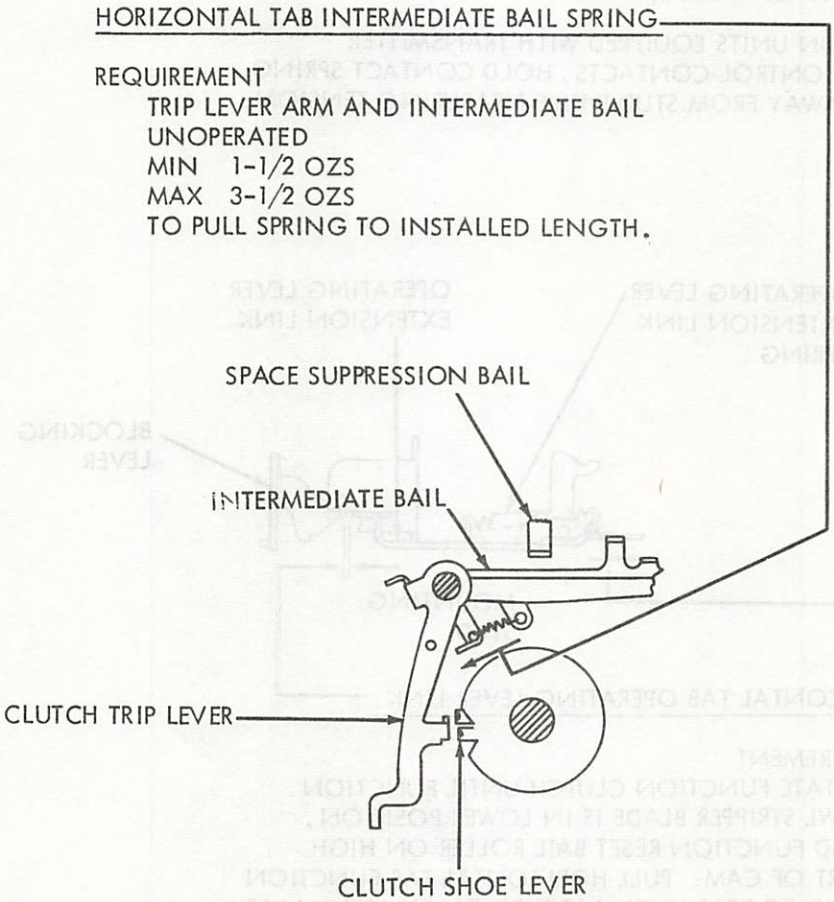
ROTATE FUNCTION CLUTCH UNTIL FUNCTION PAWL STRIPPER BLADE IS IN LOWER POSITION, AND FUNCTION RESET BAIL ROLLER ON HIGH PART OF CAM. PULL HORIZONTAL TAB FUNCTION PAWL TO REAR UNTIL LATCHED ON FUNCTION BAR. CLEARANCE BETWEEN OPERATING LEVER EXTENSION LINK AND BLOCKING LEVER
MIN 0.005 INCH
MAX 0.025 INCH
WITH PLAY TAKEN UP TO MINIMIZE CLEARANCE.

TO ADJUST

POSITION EXTENSION LINK ON OPERATING LEVER WITH MOUNTING STUD FRICTION TIGHT.

NOTE: WHEN PULLING FUNCTION PAWL TO REAR, IF OPERATING LEVER CAM PLATE SHOULD BE STRIPPED OFF THE TAB SLIDE ARM BEFORE FUNCTION PAWL IS LATCHED ON FUNCTION BAR, TEMPORARILY DISABLE CAM PLATE STRIPPER BAIL ARM BY LOOSENING ITS ADJUSTING SCREW.

3.13 Horizontal Tabulator Mechanism continued

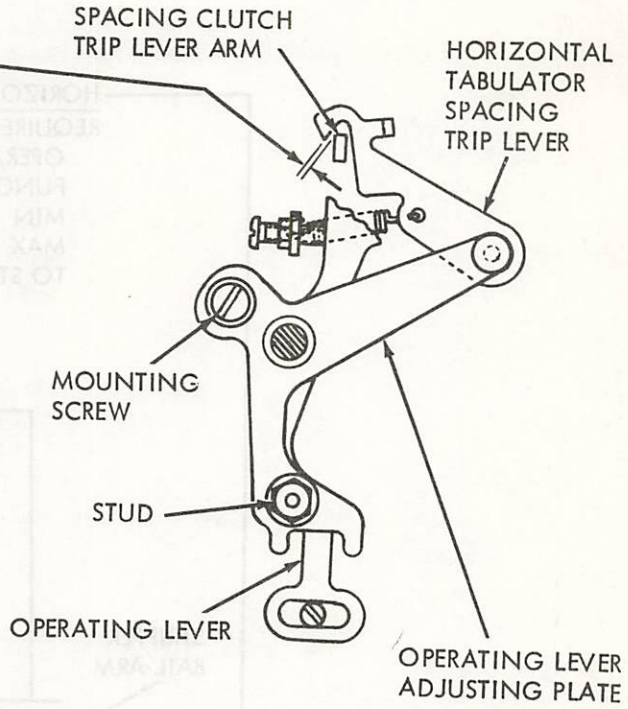


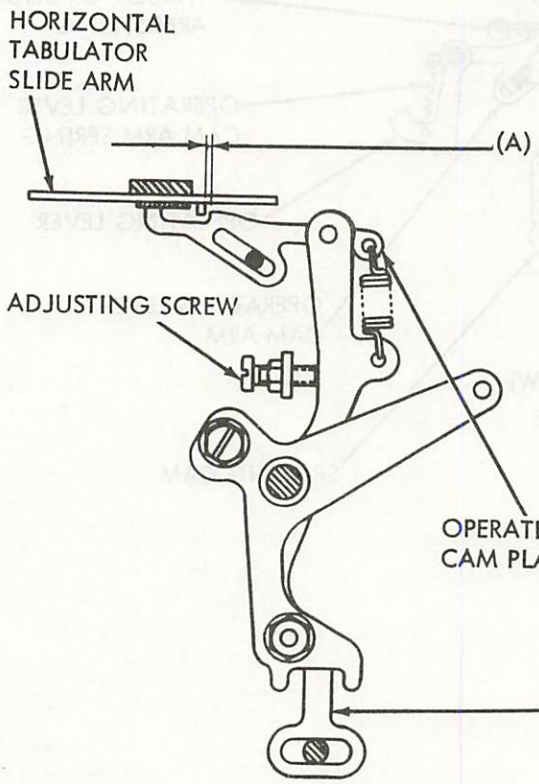
3.14 **Horizontal Tabulator Mechanism continued**

(B) HORIZONTAL TAB SPACING TRIP LEVER

REQUIREMENT
SPACING CLUTCH TRIP LEVER ARM AGAINST ITS STOP. OPERATING LEVER AGAINST ADJUSTING SCREW. CLEARANCE BETWEEN SPACING TRIP LEVER AND TRIP LEVER ARM
MIN SOME
MAX 0.010 INCH

TO ADJUST
LOOSEN MOUNTING SCREW AND MOUNTING STUD FRICTION TIGHT. WITH SPACING TRIP LEVER RIDING ON CLUTCH TRIP LEVER ARM, SLOWLY ROTATE OPERATING LEVER ADJUSTING PLATE BY MEANS OF SCREWDRIVER PRY SLOTS UNTIL SPACING TRIP LEVER JUST FALLS OFF TRIP LEVER ARM.



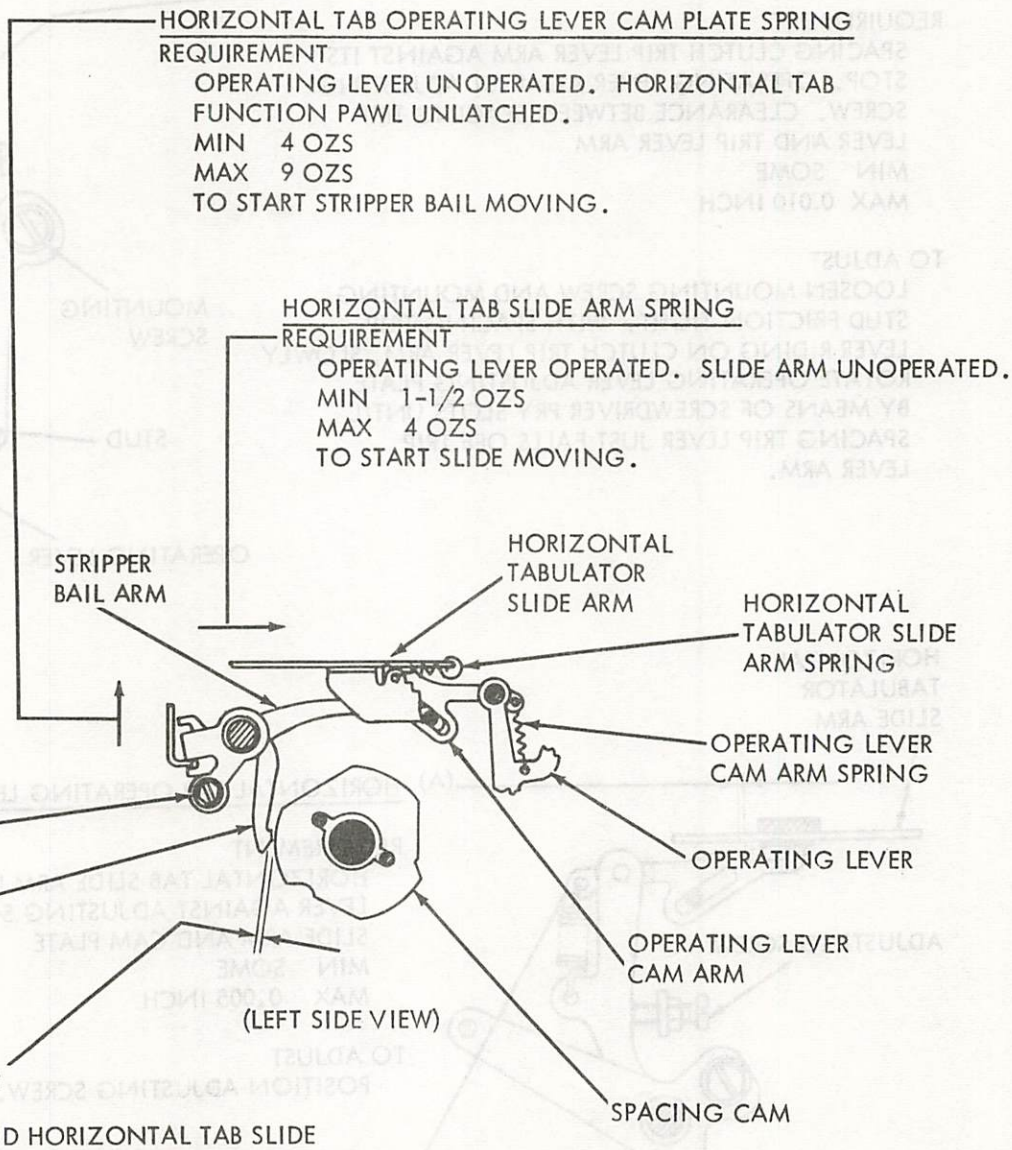


(A) HORIZONTAL TAB OPERATING LEVER CAM PLATE

REQUIREMENT
HORIZONTAL TAB SLIDE ARM UNOPERATED. OPERATING LEVER AGAINST ADJUSTING SCREW. CLEARANCE BETWEEN SLIDE ARM AND CAM PLATE
MIN SOME
MAX 0.005 INCH

TO ADJUST
POSITION ADJUSTING SCREW.

3.15 Horizontal Tabulator Mechanism continued

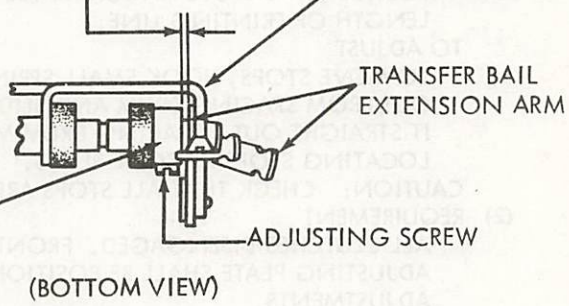


3.16 Horizontal Tabulator Mechanism continued

(A) SPACING CUT-OUT TRANSFER BAIL SET COLLAR

REQUIREMENT
TRANSFER BAIL SHOULD HAVE
MIN SOME
MAX 0.008 INCH
END PLAY

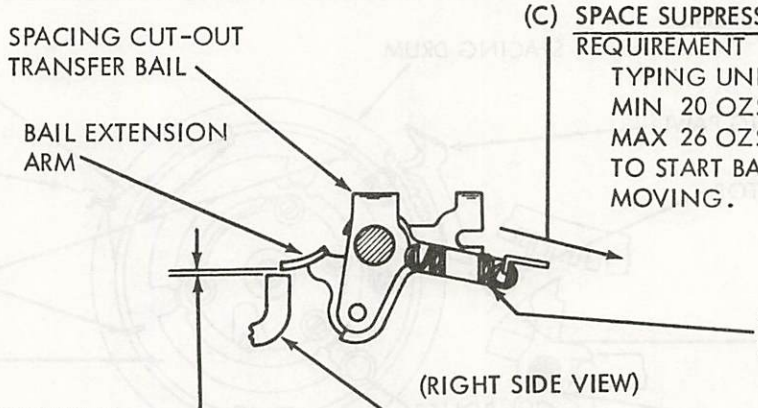
TO ADJUST
POSITION SET COLLAR WITH ADJUSTING SCREW LOOSENED.



(BOTTOM VIEW)

(C) SPACE SUPPRESSION BY-PASS SPRING

REQUIREMENT
TYPING UNIT UPSIDE DOWN
MIN 20 OZS
MAX 26 OZS
TO START BAIL EXTENSION MOVING.



(RIGHT SIDE VIEW)

(B) RIGHT MARGIN ADJUSTMENT

REQUIREMENT
CLEARANCE BETWEEN SPACING CUT-OUT LEVER ON SPACING DRUM AND BAIL EXTENSION ARM
MIN 0.006 INCH
MAX 0.025 INCH

TO CHECK
PLACE TYPEBOX IN POSITION TO PRINT CHARACTER ON WHICH SPACING CUT-OUT IS DESIRED. PULL FORWARD ON PART OF TRANSFER BAIL EXTENDING BELOW MOUNTING SHAFT UNTIL BAIL IS IN FULLY OPERATED POSITION. GAUGE CLEARANCE.

TO ADJUST
POSITION CUT-OUT LEVER WITH CLAMP SCREWS LOOSENED.

NOTE: FOUR SCREWS MUST BE LOOSENED TO ADJUST CUT-OUT LEVER (SEE FIGURE IN 2.51). DO NOT LOOSEN HEX HEAD SCREW THAT CLAMPS FRONT RING.

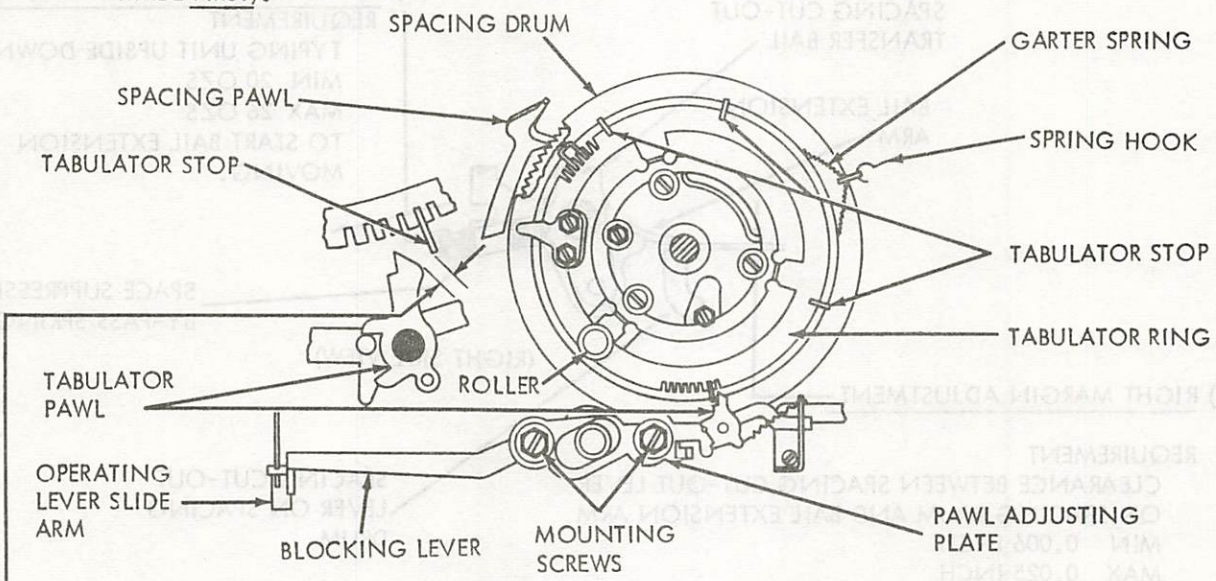
3.17 Horizontal Tabulator Mechanism continued

TABULATOR PAWL - PRELIMINARY

NOTE: PRIOR TO ADJUSTMENT, CHECK LEFT MARGIN AND SPACING GEAR PHASING ADJUSTMENTS.

(1) REQUIREMENT
BEGINNING WITH 15TH SLOT (COUNTERCLOCKWISE FROM ROLLER ON SLOTTED RING), POSITION TAB STOPS APPROXIMATELY AN EQUAL NUMBER OF SLOTS APART OVER REMAINING LENGTH OF PRINTING LINE.
TO ADJUST
TO MOVE STOPS, HOOK SMALL SPRING HOOK IN HOLE OF STOP. PULL TAB STOP STRAIGHT OUT FROM SPACING DRUM AND SLIDE IT ON GARTER SPRING WHILE CONTINUING TO PULL IT STRAIGHT OUT. SPACING DRUM MAY HAVE TO BE ROTATED MANUALLY TO FACILITATE LOCATING STOPS IN SOME SLOTS.
CAUTION: CHECK THAT ALL STOPS ARE FULLY SEATED IN SLOTS, AND NOT TURNED SIDEWAYS.

(2) REQUIREMENT
ALL CLUTCHES DISENGAGED. FRONT SPACING FEED PAWL IN LOWER POSITION, PAWL ADJUSTING PLATE SHALL BE POSITIONED AT CENTER OF VERTICAL AND HORIZONTAL ADJUSTMENTS.
TO ADJUST
VERTICALLY --- POSITION WITH BOTH RIGHT AND LEFT SCREWS LOOSENED. HORIZONTALLY POSITION WITH ONLY LEFT SCREW LOOSENED. (VERTICAL ADJUSTMENT IS ALWAYS MADE FIRST).



(3) REQUIREMENT
DISENGAGE SPACING FEED PAWLS. LET SPACING DRUM RETURN TO MAXIMUM COUNTERCLOCKWISE POSITION. KEEP SPACING CLUTCH DISENGAGED MANUALLY. ADVANCE SPACING DRUM UNTIL FIRST STOP IS IMMEDIATELY LEFT OF PAWL.
TO ADJUST
ADJUST HORIZONTAL POSITION OF PAWL ADJUSTING PLATE SO TABULATOR STOP IS IN LINE WITH LEFT EDGE OF SHOULDER ON PAWL.

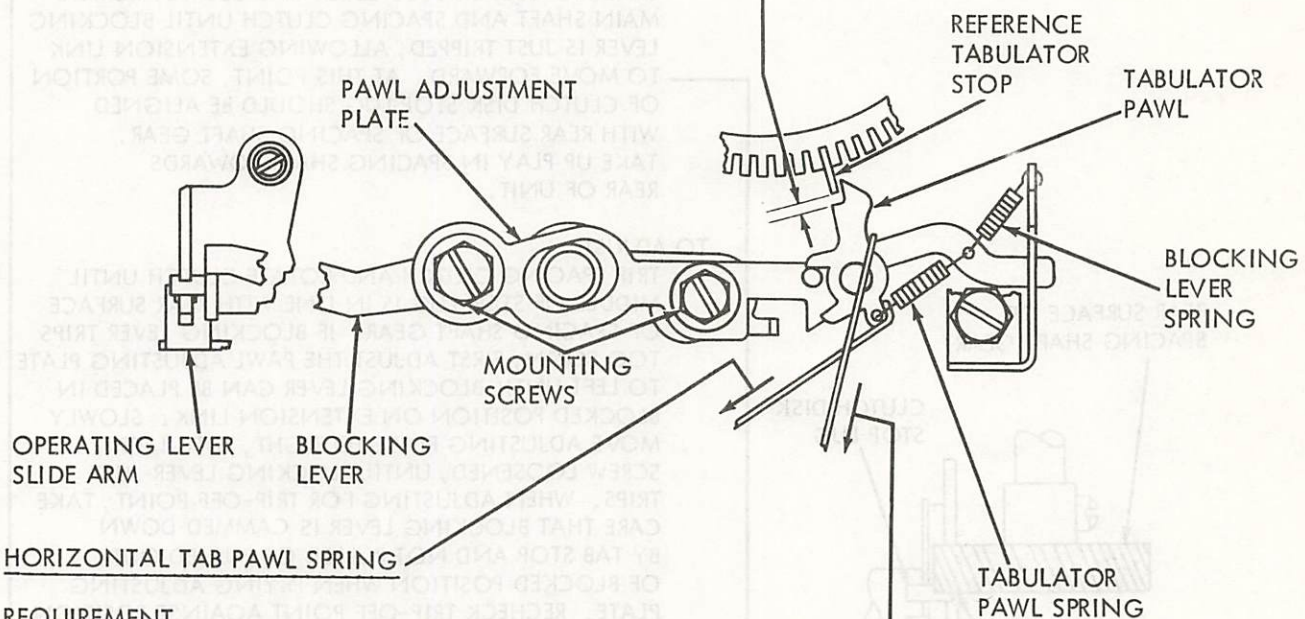
(4) REQUIREMENT
WITH BLOCKING LEVER AND OPERATING LEVER EXTENSION LINK UNBLOCKED, DISENGAGE SPACING FEED PAWLS AND LET SPACING DRUM MOVE BACK EXACTLY 2 FULL SPACES. BOTH SPACING FEED PAWLS SHOULD BE FULLY ENGAGED.
TO ADJUST
WITH EXTENSION LINK BLOCKED BY BLOCKING LEVER, GAUGE CLEARANCE BETWEEN SLOPE ON PAWL AND TAB STOP. NOTE CLEARANCE. ADVANCE DRUM UNTIL NEXT STOP IS JUST LEFT OF TAB PAWL. LET SPACING DRUM MOVE BACK TWO FULL SPACES. WITH EXTENSION LINK BLOCKED BY BLOCKING LEVER, GAUGE AND NOTE CLEARANCE AS BEFORE. REPEAT PROCEDURE FOR REMAINING THREE STOPS. NOTE STOP THAT GIVES MAXIMUM CLEARANCE. USE THIS STOP AS REFERENCE STOP FOR FINAL VERTICAL AND HORIZONTAL ADJUSTMENTS.

3.18 **Horizontal Tabulator Mechanism** continued

TABULATOR PAWL VERTICAL ADJUSTMENT - FINAL

REQUIREMENT
USING STOP WITH MAXIMUM CLEARANCE (DETERMINED BY PRELIMINARY ADJUSTMENT), POSITION SPACING DRUM UNTIL TAB STOP IS OPPOSITE SHOULDER ON TAB PAWL. WITH OPERATING LEVER EXTENSION LINK BLOCKED BY BLOCKING LEVER
MIN 0.060 INCH
MAX 0.070 INCH
CLEARANCE BETWEEN TAB STOP AND TAB PAWL.

TO ADJUST
POSITION PAWL ADJUSTING PLATE WITH BOTH SCREWS LOOSENED. TIGHTEN RIGHT SCREW ONLY, USING WRENCH TO HOLD BUSHING FROM TURNING.



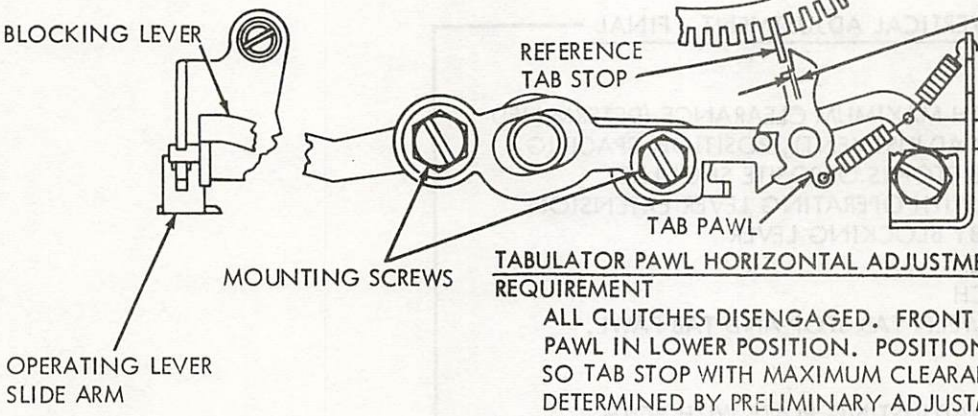
HORIZONTAL TAB PAWL SPRING

REQUIREMENT
TAB PAWL UNOPERATED
MIN 3 OZS
MAX 5 OZS
TO START PAWL MOVING.

HORIZONTAL TAB BLOCKING LEVER RETURN SPRING

REQUIREMENT
OPERATING LEVER SLIDE ARM HELD TO REAR
MIN 2-1/2 OZS
MAX 4-1/2 OZS
TO START LEVER MOVING

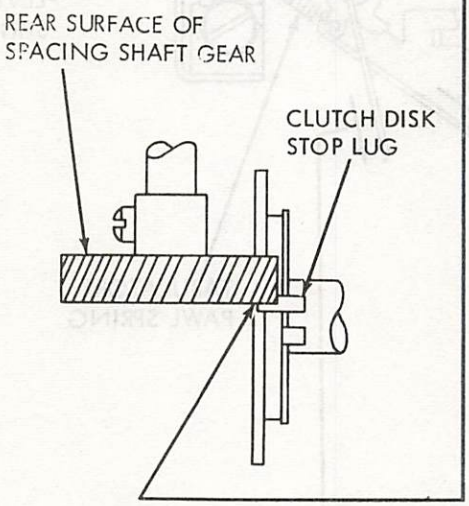
3.19 Horizontal Tabulator Mechanism continued



TABULATOR PAWL HORIZONTAL ADJUSTMENT

REQUIREMENT

ALL CLUTCHES DISENGAGED. FRONT SPACING FEED PAWL IN LOWER POSITION. POSITION SPACING DRUM SO TAB STOP WITH MAXIMUM CLEARANCE (AS DETERMINED BY PRELIMINARY ADJUSTMENT) IS IMMEDIATELY LEFT OF PAWL. OPERATING LEVER EXTENSION LINK FORWARD IN UNBLOCKED POSITION. DISENGAGE FEED PAWLS, LET SPACING DRUM MOVE BACK ONE FULL SPACE. BOTH FEED PAWLS SHOULD BE FULLY ENGAGED. PULL BACK EXTENSION LINK TO BLOCKED POSITION ON BLOCKING LEVER. TRIP SPACING CLUTCH STOP LEVER AND SLOWLY ROTATE MAIN SHAFT AND SPACING CLUTCH UNTIL BLOCKING LEVER IS JUST TRIPPED, ALLOWING EXTENSION LINK TO MOVE FORWARD. AT THIS POINT, SOME PORTION OF CLUTCH DISK STOP LUG SHOULD BE ALIGNED WITH REAR SURFACE OF SPACING SHAFT GEAR. TAKE UP PLAY IN SPACING SHAFT TOWARDS REAR OF UNIT.



TO ADJUST

TRIP SPACING CLUTCH AND ROTATE CLUTCH UNTIL MIDDLE OF STOP LUG IS IN LINE WITH REAR SURFACE OF SPACING SHAFT GEAR. IF BLOCKING LEVER TRIPS TOO SOON, FIRST ADJUST THE PAWL ADJUSTING PLATE TO LEFT UNTIL BLOCKING LEVER CAN BE PLACED IN BLOCKED POSITION ON EXTENSION LINK. SLOWLY MOVE ADJUSTING PLATE TO RIGHT, WITH LEFT SCREW LOOSENED, UNTIL BLOCKING LEVER JUST TRIPS. WHEN ADJUSTING FOR TRIP-OFF POINT, TAKE CARE THAT BLOCKING LEVER IS CAMMED DOWN BY TAB STOP AND NOT PULLED OR PUSHED OUT OF BLOCKED POSITION WHEN PRYING ADJUSTING PLATE. RECHECK TRIP-OFF POINT AGAINST POSITION OF CLUTCH STOP LUG AS BEFORE.

NOTE: AFTER OBTAINING TRIP OFF POINT OF BLOCKING LEVER, CONTINUE ROTATING SPACING CLUTCH TO FULL STOP POSITION. TAB PAWL SHOULD BE RIGHT OF TAB STOP. WHEN EXTENSION LINK IS MOVED TO REAR, BLOCKING LEVER SHOULD MOVE TO BLOCKED POSITION. IF TIP OF PAWL SHOULD REMAIN ON END OF TAB STOP, READJUST PAWL TO RIGHT UNTIL THERE IS
MIN 0.003 INCH
MAX 0.008 INCH
CLEARANCE BETWEEN RIGHT SURFACE ON TAB STOP AND LEFT EDGE OF PAWL TIP.

3.20 Horizontal Tabulator Mechanism continued

(C) RIGHT MARGIN TABULATOR STOP (WITH WIDE SHELF)

REQUIREMENT

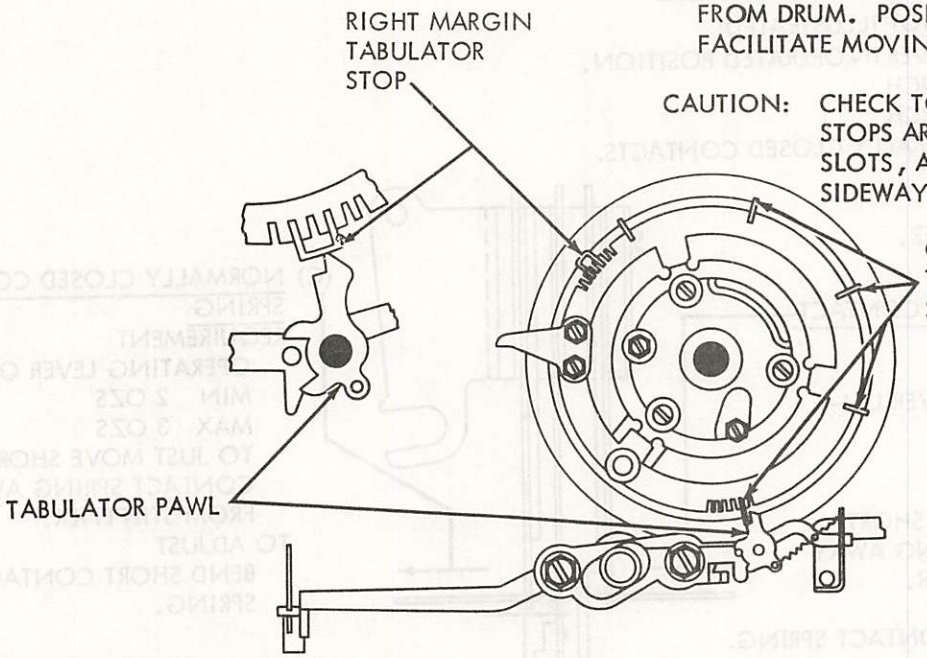
CHECK RIGHT MARGIN AND TABULATOR PAWL ADJUSTMENTS. POSITION PRINTING CARRIAGE AT RIGHT MARGIN (SPACING CUTOUT OPERATED). INSERT STOP WITH WIDE SHELF IN SLOT IMMEDIATELY TO LEFT OF PAWL. SHELF SHOULD EXTEND TO RIGHT SO PAWL RESTS ON IT.

(A) TABULATOR STOPS SETTINGS

REQUIREMENT

TO MOVE STOPS, HOOK SMALL SPRING HOOK IN HOLE IN STOP AND PULL STRAIGHT OUT FROM DRUM. SLIDE STOP ON SPRING WHILE CONTINUING TO PULL-OUT FROM DRUM. POSITION DRUM TO FACILITATE MOVING STOPS.

CAUTION: CHECK TO INSURE THAT ALL STOPS ARE FULLY SEATED IN SLOTS, AND NOT TURNED SIDEWAYS.



(B) COLUMNAR TABULATOR STOPS

REQUIREMENT

PLACE CARRIAGE IN POSITION TO PRINT FIRST CHARACTER IN COLUMN. INSERT STOP IN SLOT IMMEDIATELY TO LEFT OF TAB PAWL. TO FACILITATE INSTALLATION, MARK DESIRED SLOT POSITION, ROTATE DRUM TO A MORE ACCESSIBLE POSITION. FOR SLOTS NEAR LEFT MARGIN, COUNT NUMBER OF SPACE OPERATIONS FROM LEFT MARGIN AND PLACE STOP IN CORRESPONDING SLOT NUMBER, BEGINNING WITH SLOT NO. 1 JUST TO RIGHT OF ROLLER.

NOTE: WHEN PRINTING FORMS, CHECK STOP SETTINGS WITH RELATION TO COLUMNS. CORRESPONDING STOPS ON ALL MACHINES CONNECTED IN A CIRCUIT MUST BE SAME NUMBER OF SPACING OPERATIONS FROM LEFT MARGIN.

3.21 Transmitter Distributor Transfer Control Contacts

(D) PRELIMINARY CONTACT ASSEMBLY BRACKET

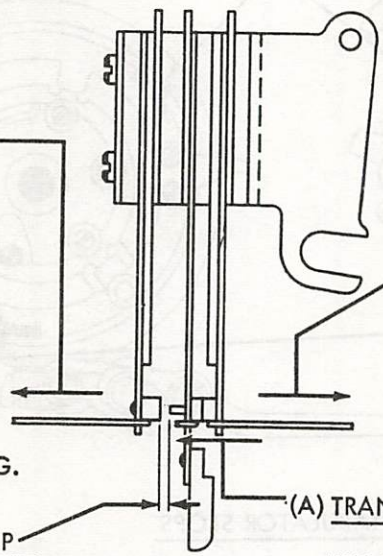
REQUIREMENT (NOT ILLUSTRATED)
OPERATING LEVER UNOPERATED. CLEARANCE BETWEEN STUD ON OPERATING LEVER AND LONG CONTACT SPRING
MIN 0.020 INCH
MAX 0.025 INCH

TO ADJUST
POSITION CONTACT ASSEMBLY BRACKET WITH MOUNTING SCREWS LOOSENED. THE BRACKET PIVOTS ABOUT A PIN AT UPPER END OF BRACKET.

(E) TRANSMITTER CONTROL CONTACT GAP

REQUIREMENT (NOT ILLUSTRATED)
OPERATING LEVER IN OPERATED POSITION.
MIN 0.010 INCH
MAX 0.015 INCH
BETWEEN NORMALLY CLOSED CONTACTS.

TO ADJUST
BEND STIFFENER.



(B) NORMALLY OPEN CONTACT SPRING

REQUIREMENT
OPERATING LEVER UNOPERATED
MIN 1 OZ
MAX 2 OZS
TO JUST MOVE SHORT CONTACT SPRING AWAY FROM STIFFENER.

TO ADJUST
BEND SHORT CONTACT SPRING.

(C) NORMALLY CLOSED CONTACT SPRING

REQUIREMENT
OPERATING LEVER OPERATED.
MIN 2 OZS
MAX 3 OZS
TO JUST MOVE SHORT CONTACT SPRING AWAY FROM STIFFENER.

TO ADJUST
BEND SHORT CONTACT SPRING.

(A) TRANSFER CONTACT SPRING

REQUIREMENT
OPERATING LEVER UNOPERATED.
MIN 2-1/2 OZS
MAX 3-1/2 OZS
TO JUST OPEN CONTACTS.

TO ADJUST
BEND LONG CONTACT SPRING.

(F) NORMALLY OPEN CONTACT GAP

REQUIREMENT
OPERATING LEVER UNOPERATED.
MIN 0.010 INCH
MAX 0.015 INCH
BETWEEN NORMALLY OPEN CONTACTS.

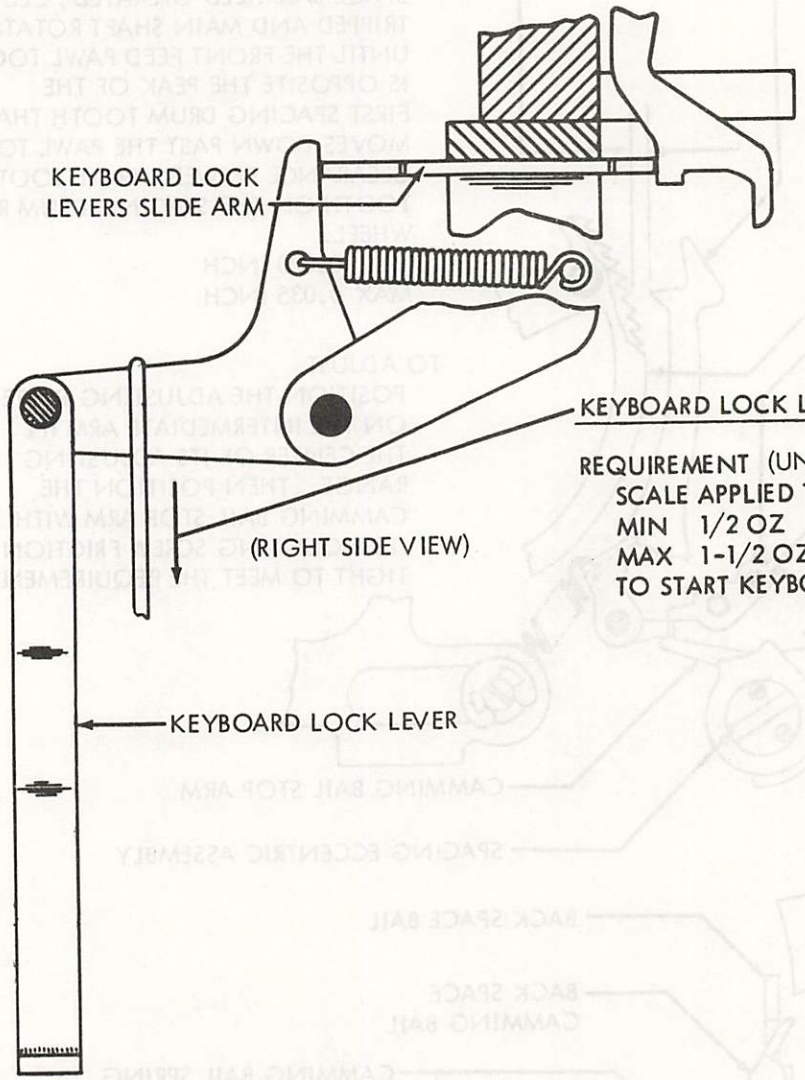
TO ADJUST
BEND STIFFENER

(G) FINAL CONTACT BRACKET ADJUSTMENT

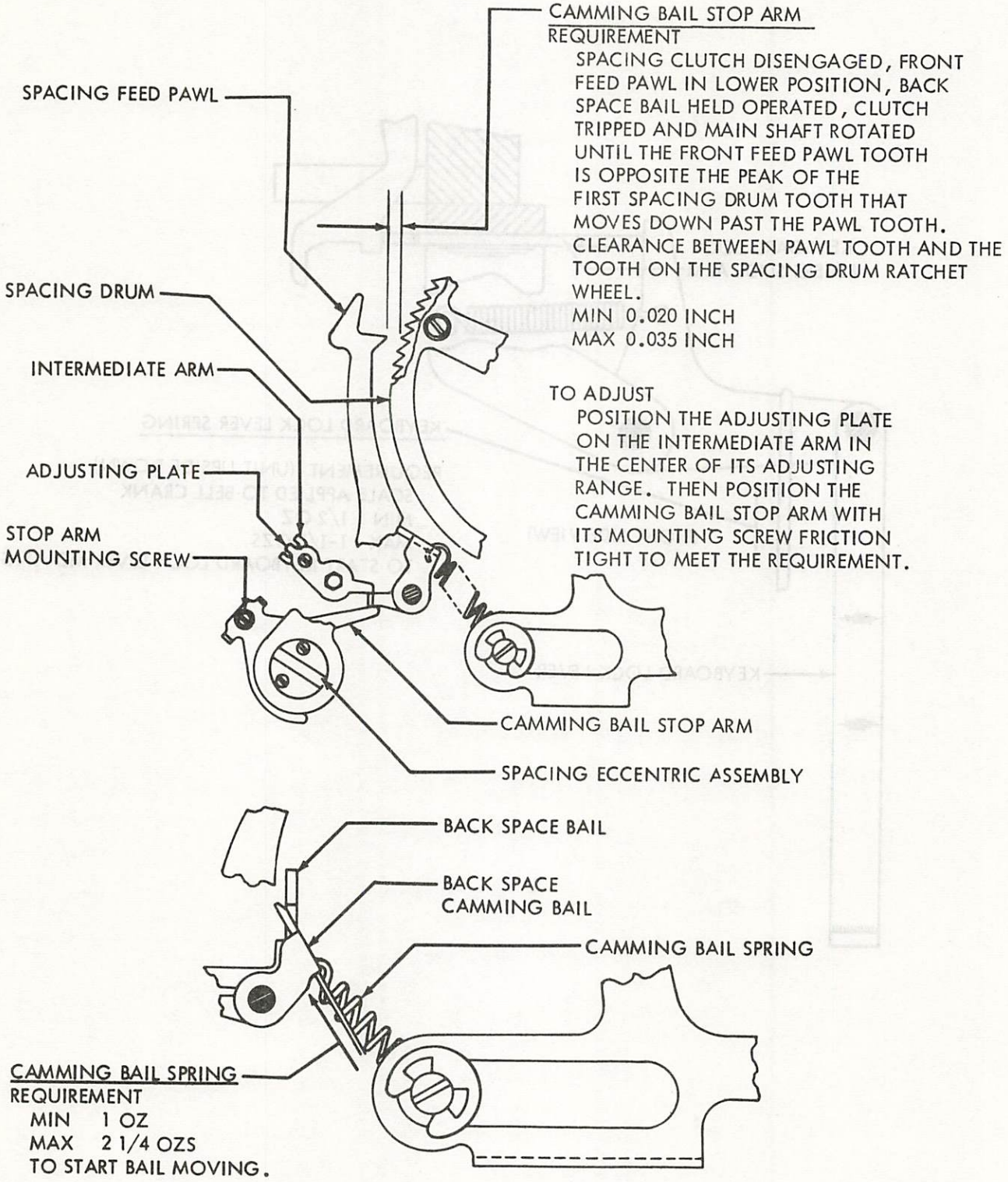
REQUIREMENT
OPERATING LEVER UNOPERATED. THERE SHOULD BE SOME CLEARANCE BETWEEN STUD ON OPERATING LEVER, AND LONG CONTACT SPRING.

TO ADJUST
REMAKE ADJUSTMENTS (D), (E) AND (F).

3.22 Keyboard Lock Mechanism



3.23 Local Back Space Mechanism



SEE APPROPRIATE SECTION FOR RELATED KEYBOARD ADJUSTMENTS

3.24 Vertical Tabulator Mechanism

(C) FORM-START GEAR PLAY

REQUIREMENT

BARELY PERCEPTIBLE BACKLASH BETWEEN IDLER GEAR AND FORM-START GEAR

TO ADJUST

POSITION GEAR PIVOT POST WITH NUT LOOSENED

NOTE: GEARS SHOULD MESH ACCURATELY WHEN CHECKED AT 3 EQUAL DISTANCES AROUND CIRCUMFERENCE OF GEAR.

(E) INDEXING DISK

REQUIREMENT

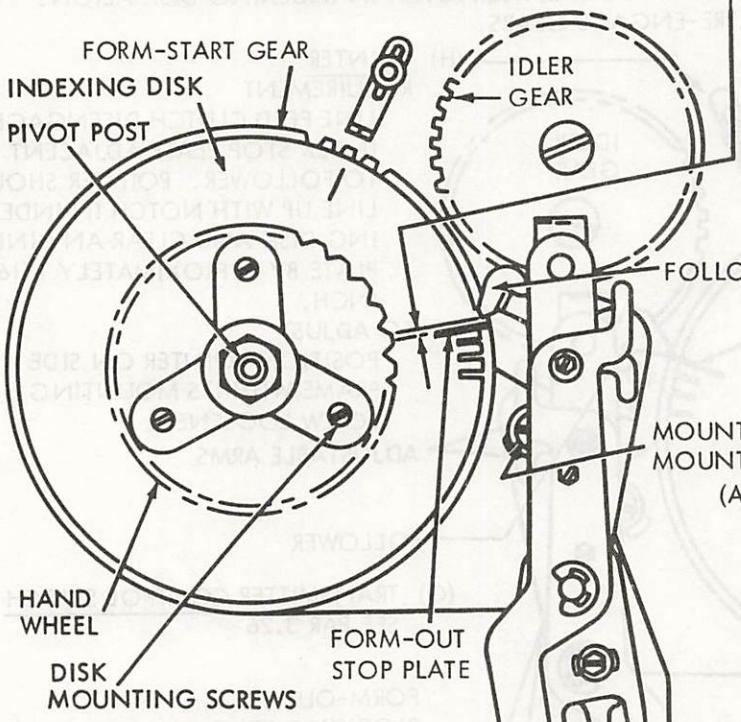
CLEARANCE BETWEEN FORM-OUT STOP PLATE AND FOLLOWER SHOULD BE MIN 0.020 INCH --- MAX 0.040 INCH

TO CHECK

LINE FEED CLUTCH DISENGAGED. STOP PLATE ADJACENT TO FOLLOWER. SLACK IN GEARS TAKEN UP TO MAKE GAP A MAXIMUM.

TO ADJUST

PULL GEAR OUT OF ENGAGEMENT WITH IDLER GEAR. TURN HAND WHEEL CLOCKWISE UNTIL STOP PLATE JUST OPERATES THE FOLLOWER, THEN ENGAGE FIRST TOOTH ON IDLER. POSITION INDEXING DISK WITH THREE MOUNTING SCREWS LOOSENED.



(A) VERTICAL TABULATOR SLIDE RETAINER

REQUIREMENT

CLEARANCE BETWEEN VERTICAL TAB SLIDE AND RETAINING EDGE OF RETAINER SHOULD BE

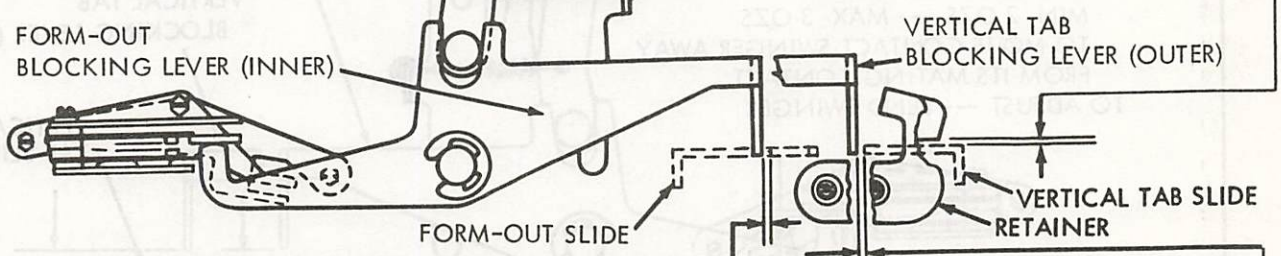
MIN SOME --- MAX 0.012

TO ADJUST

POSITION RETAINER FORWARD AND LOCATE IT UP OR DOWN WITH MOUNTING SCREWS LOOSENED.

(D) BLOCKING LEVER

SEE PAR 3.25



(B) MOUNTING BRACKET

REQUIREMENT

1. CLEARANCE BETWEEN FORM-OUT BLOCKING LEVER (INNER LEVER) AND FORM-OUT SLIDE MIN 0.002 INCH --- MAX 0.015 INCH

TO CHECK

SELECT UPPER CASE "Z". ROTATE MAIN SHAFT UNTIL FORM-OUT SLIDE IS IN MOST FORWARD POSITION. TAKE UP PLAY IN FORM-OUT BLOCKING LEVER TO MAKE CLEARANCE MIN.

2. CLEARANCE BETWEEN VERTICAL TAB SLIDE AND VERTICAL TAB BLOCKING LEVER (OUTER LEVER) MIN 0.002 INCH

TO CHECK

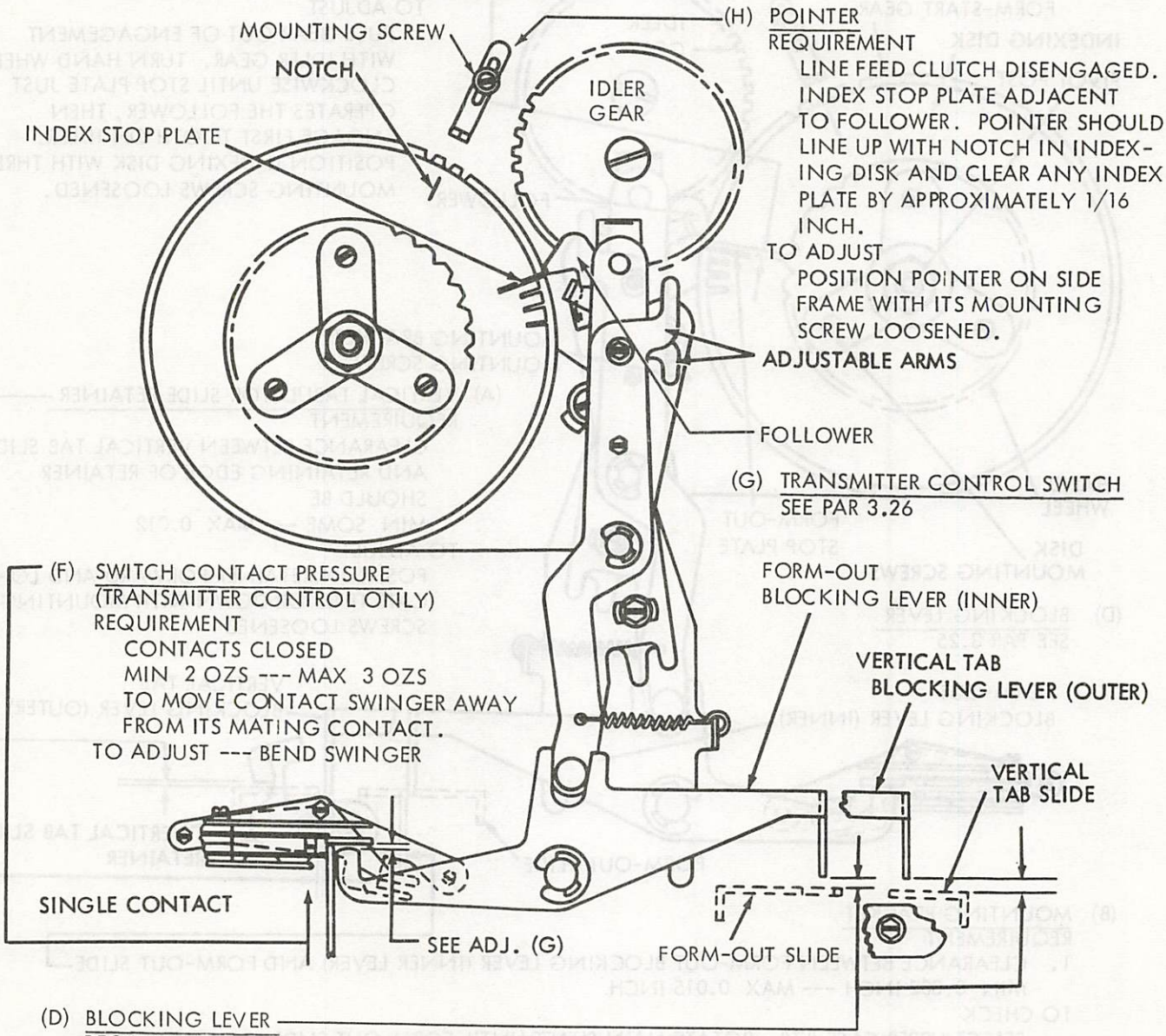
SELECT UPPER CASE "J". ROTATE MAIN SHAFT UNTIL VERTICAL TAB SLIDE IS IN MOST FORWARD POSITION. TAKE UP PLAY IN VERTICAL TAB BLOCKING LEVER TO MAKE CLEARANCE MIN.

TO ADJUST

POSITION LOWER PORTION OF MOUNTING BRACKET WITH MOUNTING SCREWS LOOSENED.

3.25 Vertical Tabulator Mechanism continued

(I) FORM-OUT STOP PLATE POSITION
REQUIREMENT --- PLACE A FORM-OUT STOP PLATE IN THE NUMBERED SLOTS ON DISK CORRESPONDING TO LENGTH OF PAGE FORM TO BE USED. SYNCHRONIZE FORM-OUT DEVICE WITH A FORM BY POSITIONING FORM SO THAT TYPING UNIT WILL PRINT IN FIRST TYPING LINE OF THE FORM. WHEN TYPING UNIT IS IN STOP POSITION, TOP OF RIBBON GUIDE SHOULD ALIGN WITH BOTTOM OF PRINTING LINE.
TO POSITION --- WITH PAGE FORM IN DESIRED POSITION, DISENGAGE FORM-STOP GEAR FROM ITS IDLER GEAR. ROTATE FORM-START GEAR UNTIL NOTCH IN INDEXING DISK ALIGNS WITH POINTER ON SIDE OF PRINTER. RE-ENGAGE GEARS.



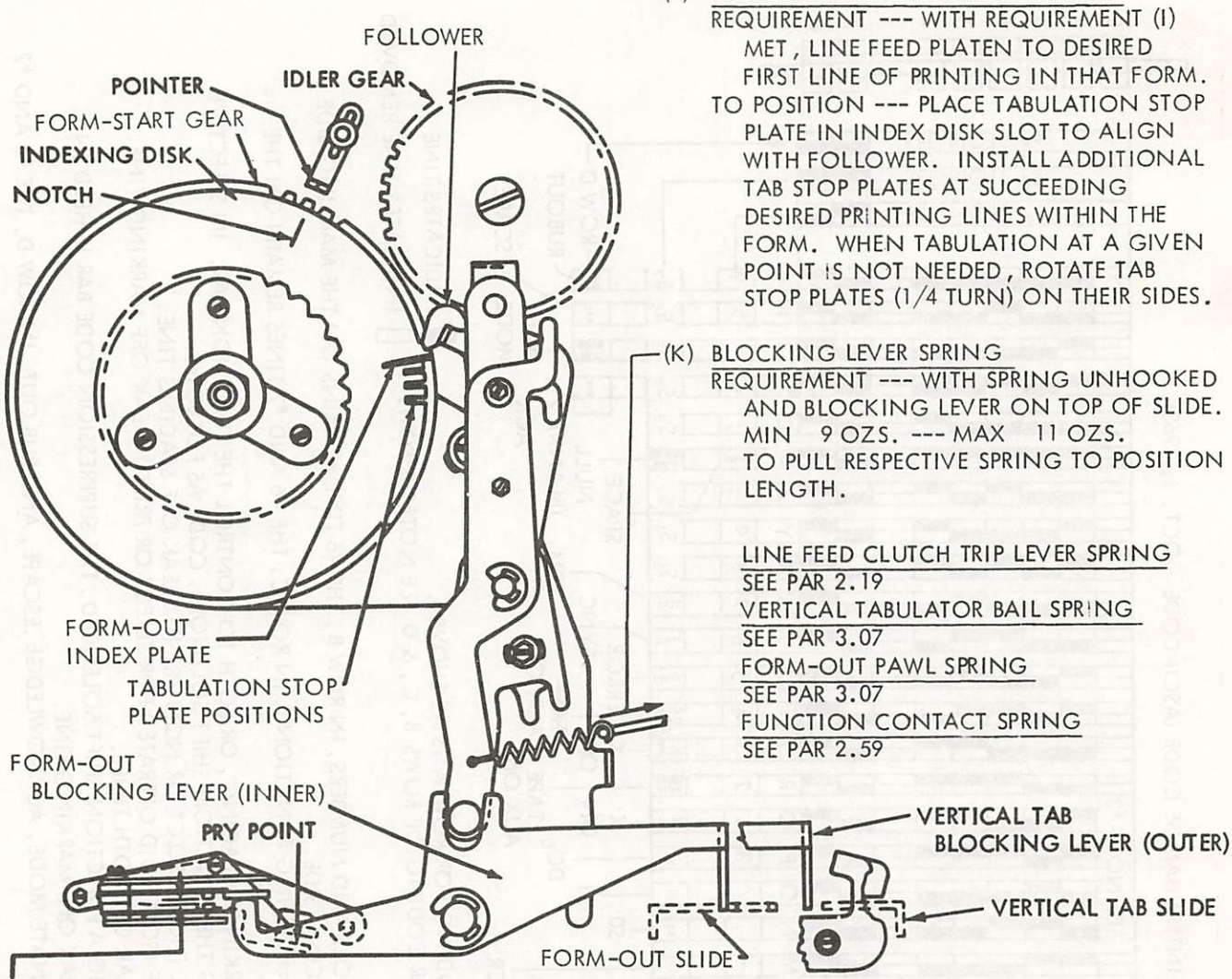
(H) POINTER
REQUIREMENT
LINE FEED CLUTCH DISENGAGED. INDEX STOP PLATE ADJACENT TO FOLLOWER. POINTER SHOULD LINE UP WITH NOTCH IN INDEXING DISK AND CLEAR ANY INDEX PLATE BY APPROXIMATELY 1/16 INCH.
TO ADJUST
POSITION POINTER ON SIDE FRAME WITH ITS MOUNTING SCREW LOOSENED.

(G) TRANSMITTER CONTROL SWITCH
SEE PAR 3.26

(F) SWITCH CONTACT PRESSURE
(TRANSMITTER CONTROL ONLY)
REQUIREMENT
CONTACTS CLOSED
MIN 2 OZS --- MAX 3 OZS
TO MOVE CONTACT SWINGER AWAY FROM ITS MATING CONTACT.
TO ADJUST --- BEND SWINGER

(D) BLOCKING LEVER
REQUIREMENT
CLEARANCE BETWEEN BOTTOM OF BLOCKING LEVER AND TOP OF SLIDE WHEN FOLLOWER IS ON PEAK OF A STOP PLATE SHOULD BE
MIN 0.005 INCH --- MAX 0.045 INCH
TO ADJUST
TRIP LINE FEED CLUTCH. ROTATE MAIN SHAFT UNTIL FOLLOWER IS ON PEAK OF STOP PLATE. POSITION ADJUSTABLE ARM WITH MOUNTING SCREWS LOOSENED. MAKE ADJUSTMENT FOR EACH BLOCKING LEVER.

3.26 Vertical Tabulator Mechanism continued



(J) TABULATION STOP PLATE POSITION

REQUIREMENT --- WITH REQUIREMENT (I) MET, LINE FEED PLATEN TO DESIRED FIRST LINE OF PRINTING IN THAT FORM.

TO POSITION --- PLACE TABULATION STOP PLATE IN INDEX DISK SLOT TO ALIGN WITH FOLLOWER. INSTALL ADDITIONAL TAB STOP PLATES AT SUCCEEDING DESIRED PRINTING LINES WITHIN THE FORM. WHEN TABULATION AT A GIVEN POINT IS NOT NEEDED, ROTATE TAB STOP PLATES (1/4 TURN) ON THEIR SIDES.

(K) BLOCKING LEVER SPRING

REQUIREMENT --- WITH SPRING UNHOOKED AND BLOCKING LEVER ON TOP OF SLIDE. MIN 9 OZS. --- MAX 11 OZS. TO PULL RESPECTIVE SPRING TO POSITION LENGTH.

LINE FEED CLUTCH TRIP LEVER SPRING
SEE PAR 2.19

VERTICAL TABULATOR BAIL SPRING
SEE PAR 3.07

FORM-OUT PAWL SPRING
SEE PAR 3.07

FUNCTION CONTACT SPRING
SEE PAR 2.59

(G) TRANSMITTER CONTROL SWITCH (SINGLE-CONTACT TYPE)

REQUIREMENT

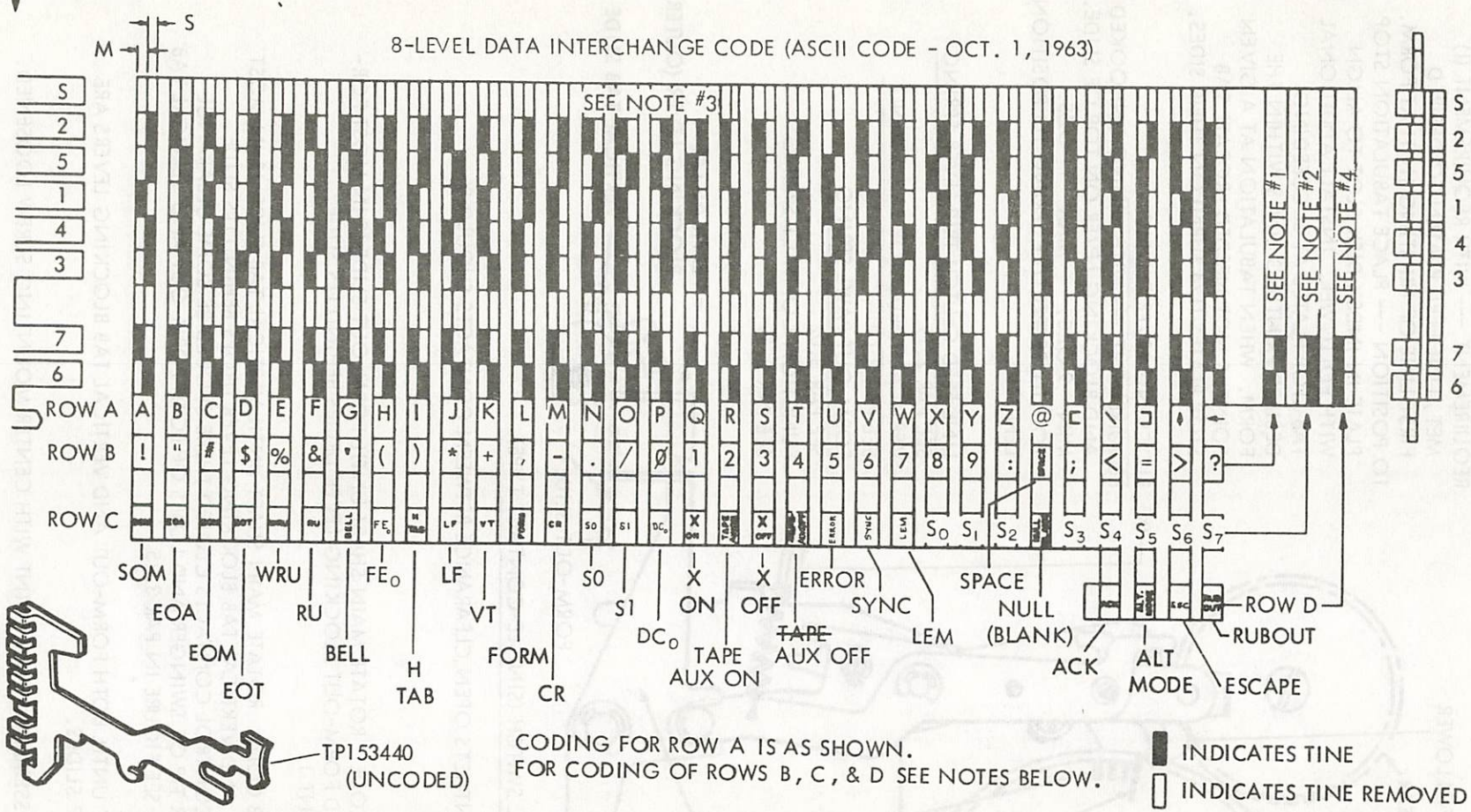
1. WITH CONTROL CONTACTS OPEN CLEARANCE BETWEEN CONTACTS SHOULD BE
   MIN 0.010 INCH
   MAX 0.020 INCH

   TO CHECK
   SELECT FORM-OUT CODE. ROTATE MAIN SHAFT UNTIL FORM-OUT SLIDE IS IN MOST FORWARD POSITION AND FORM-OUT BLOCKING LEVER DROPS BEHIND ITS SLIDE.
2. SAME AS REQUIREMENT 1.

   TO CHECK
   SELECT VERTICAL TAB CODE. ROTATE MAIN SHAFT UNTIL VERTICAL TAB SLIDE IS IN MOST FORWARD POSITION AND VERTICAL TAB BLOCKING LEVER DROPS BEHIND ITS SLIDE.
3. WITH TRANSMITTER CONTROL CONTACTS CLOSED THERE SHOULD BE SOME CLEARANCE BETWEEN INSULATOR TIP OF SWINGER AND LOBES OF BOTH FORM-OUT AND VERTICAL TAB BLOCKING LEVERS - SEE FIGURE IN PAR 3.25.

   TO CHECK
   ROTATE MAIN SHAFT UNTIL BOTH FORM-OUT AND VERTICAL TAB BLOCKING LEVERS ARE RESTING ON TOP OF SLIDES.

   TO ADJUST
   POSITION SWITCH ASSEMBLY AT PRY POINT WITH CENTER MOUNTING SCREW LOOSENED.



1. TO OPERATE FUNCTION BARS ON SYMBOLS AND NUMBERS, IN ROW B, THE #6 TINE REMAINS ON THE MARKING SIDE AND THE #7 TINE REMAINS ON THE SPACING SIDE.
2. TO OPERATE FUNCTION BARS ON NON-PRINTING FUNCTIONS, IN ROW C, THE #6 AND #7 TINES REMAIN ON THE SPACING SIDE.
3. SUPPRESSION TINES CAN BE CODED MARKING, SPACING, OR BOTH TO CONTROL THE FUNCTION BAR. IN SELECTIVE CALLING SYSTEMS AND SYSTEMS USING THE FUNCTION SHIFT SOLENOID, CODE AS FOLLOWS:
   A. TO SENSE SUPPRESSION BAR IN MARK (NON-SELECT OR NON-PRINT) BREAK OFF SPACING TINE.
   B. TO SENSE SUPPRESSION BAR IN SPACE (SOLENOID OPERATED FOR SELECT OR PRINT) BREAK OFF MARKING TINE.
   C. TO SENSE IN EITHER CONDITION BREAK OFF BOTH TINES.
   IN TWX AND OTHER SYSTEMS NOT USING A FUNCTION SHIFT SOLENOID, THE SUPPRESSION CODE BAR IS HELD IN THE SPACING POSITION BY A CLIP. BREAK OFF MARKING TINE.
4. TO OPERATE FUNCTION BARS ON ALTERNATE MODE, ACKNOWLEDGE, ESCAPE, AND RUB OUT, IN ROW D, THE #6 AND #7 TINES ARE LEFT ON THE MARKING SIDE.
5. THERE IS NO #8 CODE BAR IN THE TYPING UNIT SINCE THE 8TH CODE BIT IS NOT USED FOR PRINTING OR NON-PRINTING FUNCTIONS INTHIS MECHANISM.

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

SECTION 574-222-700TC
Issue 4, April, 1965

35 KEYBOARD FOR AUTOMATIC SEND-RECEIVE SETS

ADJUSTMENTS

CONTENTS

CONTENTS PAGE

CONTENTS PAGE

1. GENERAL

1.01 This section is reissued to add information on gold-plated, signal generator contacts and later-design even parity. Arrows in the margins indicate changes and additions.

1.02 The adjustments of each unit are arranged in a sequence that should be followed if a complete readjustment of the unit were undertaken. The tools and spring scales required to perform these adjustments are listed in the applicable section. After an adjustment is completed, be sure to tighten any nuts or screws that are loosened. The adjusting illustrations indicate tolerances, positions of moving parts, spring tensions and the angles at which scales should be applied when measuring spring tensions. If a part that is mounted on shims is removed, the number of shims used at each of its mounting screws should be noted so that the same number is replaced when the part is remounted.

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

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

1.05 When a requirement calls for a clutch to be disengaged, the clutch shoe lever must be fully latched between its trip lever and latch lever so that the clutch shoes (2.13) 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.

1.06 All electrical contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25 per cent of the contact diameter. Check contacts for pitting and corrosion and clean or burnish them before making specified adjustment or tolerance measurement. Avoid sharp kinks or bends in the contact springs.

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

1.07 Gold-Plated Signal Contacts

(a) All units now being manufactured have signal contacts made of gold-plated tungsten. Older units may have unplated tungsten contacts. If in doubt as to the type of contacts, remove signal generator cover and inspect contacts for gold plating.

(b) Servicing - For standard applications including those with data sets, observe standard maintenance intervals. For special low-current applications, see below.

(c) Cleaning

(1) Use twill jean cloth (KS2423) to clean gold-plated contacts.

(2) Open contacts. Drop strip of twill jean between them.

(3) Close contacts. Draw twill jean part way through. Open contacts and withdraw twill jean.

(4) This procedure prevents small fibers at edges of twill jean strip from becoming lodged between contacts.

(5) Clean unplated tungsten contacts in accordance with standard procedures.

(d) Special Low-Voltage Applications

Note: Following does not apply to standard applications.

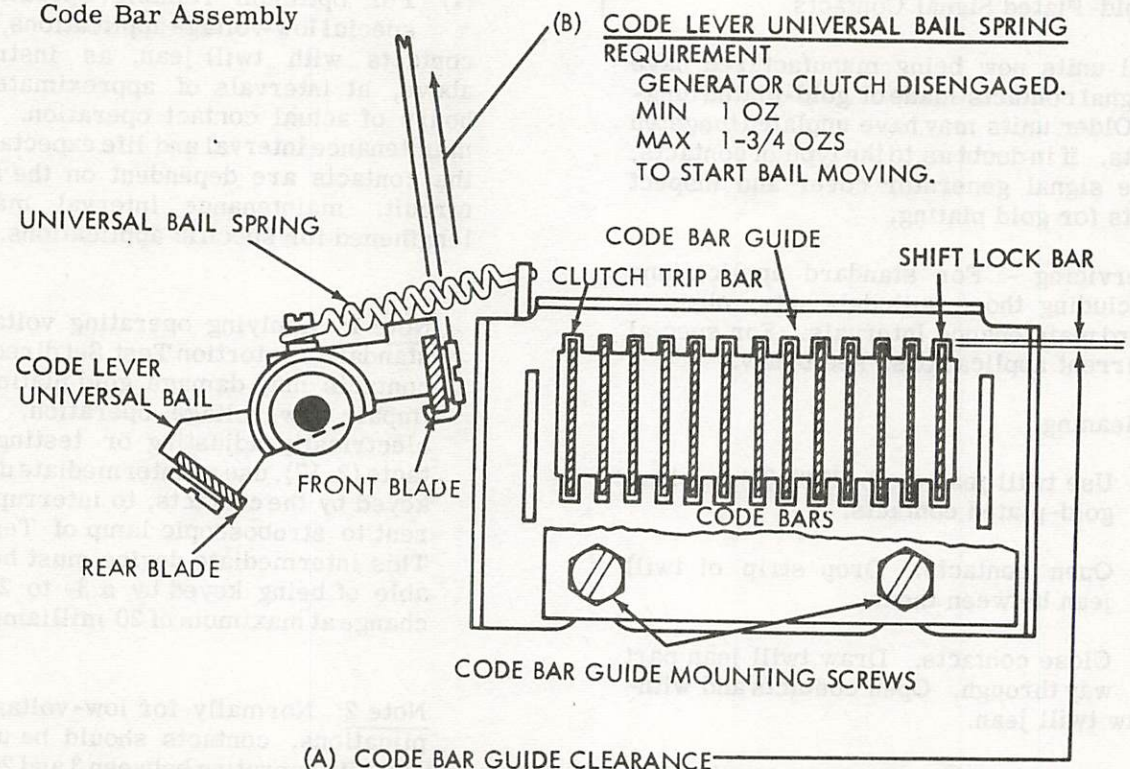
(1) For optimum reliable operation in special low-voltage applications, clean contacts with twill jean, as instructed above, at intervals of approximately 50 hours of actual contact operation. Since maintenance interval and life expectancy of the contacts are dependent on the signal circuit, maintenance interval may be lengthened for specific applications.

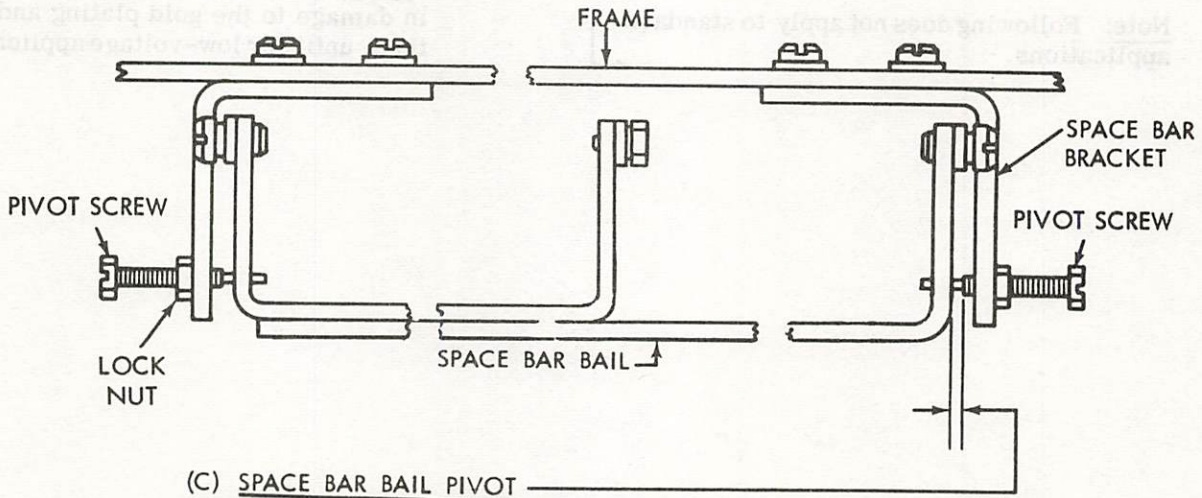
Note 1: Applying operating voltage of standard Distortion Test Set directly to contacts may damage gold plating and impair low-voltage operation. When electrically adjusting or testing contacts (2.17), use an intermediate device, keyed by the contacts, to interrupt current to stroboscopic lamp of Test Set. This intermediate device must be capable of being keyed by a 3- to 20-volt change at maximum of 20 milliamperes.

Note 2: Normally for low-voltage applications, contacts should be used in circuits operating between 3 and 20 volts dc at a current level not to exceed 60 milliamperes. Between 20 and 70 volts dc the current should be adjusted so as not to exceed a 120 milliwatt power level. The contacts are not normally intended for use on voltages above 70 volts dc. Exceeding these levels for an appreciable length of time may result in damage to the gold plating and make them unfit for low-voltage applications.

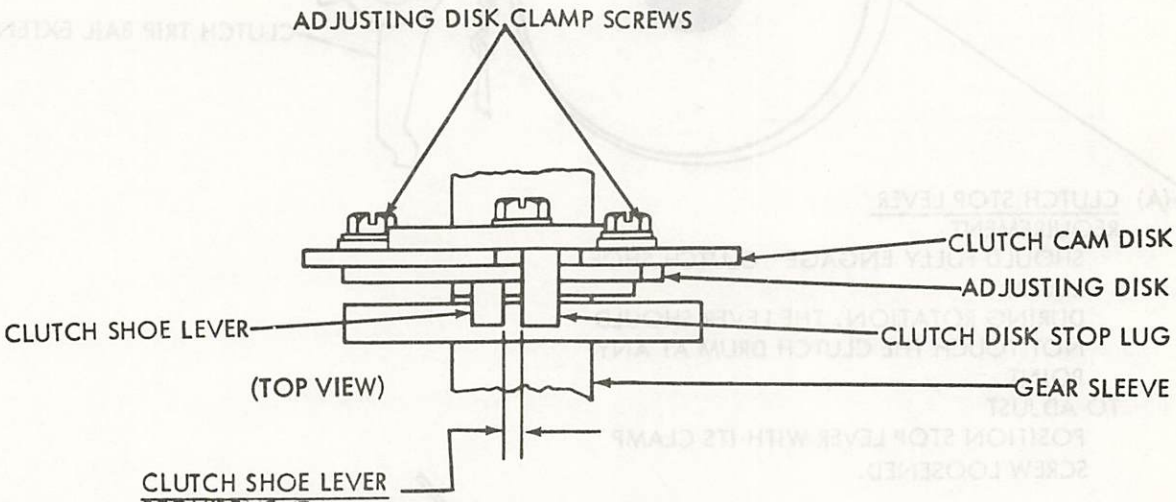
2. BASIC UNIT

2.01 Code Bar Assembly





2.02 Signal Generator Mechanism



REQUIREMENT

CLEARANCE WHEN CLUTCH IS DISENGAGED SHOULD BE 0.055 INCH TO 0.085 INCH LESS THAN WHEN CLUTCH IS ENGAGED.

TO CHECK

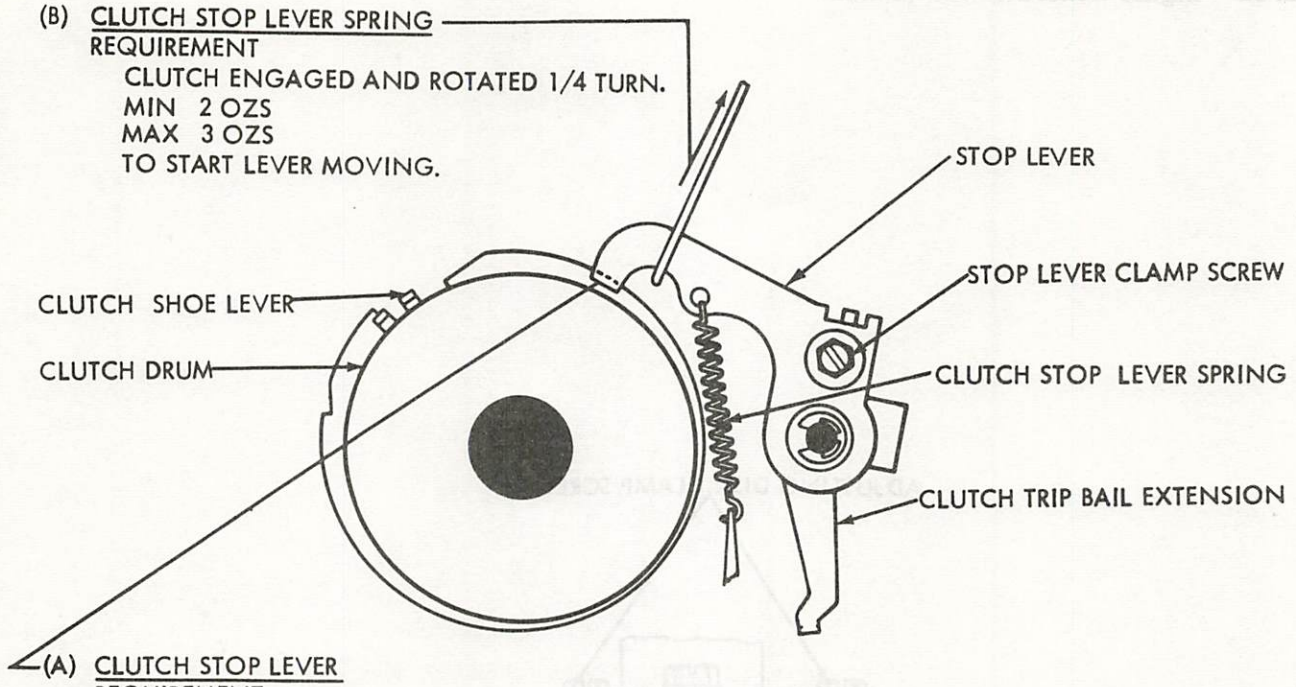
LATCH CLUTCH IN DISENGAGED POSITION AND MEASURE CLEARANCE. ROTATE GEAR UNTIL OIL HOLE IS UPWARD. ENGAGE CLUTCH AND MEASURE CLEARANCE.

TO ADJUST

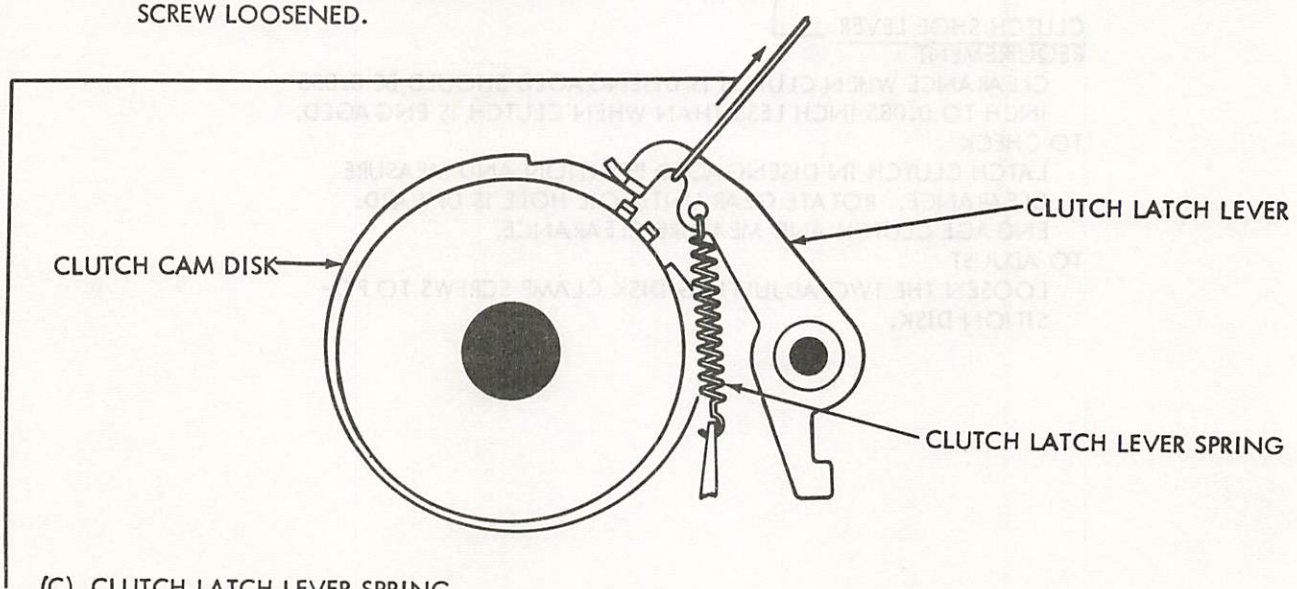
LOOSEN THE TWO ADJUSTING DISK CLAMP SCREWS TO POSITION DISK.

2.03 Signal Generator Mechanism continued

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

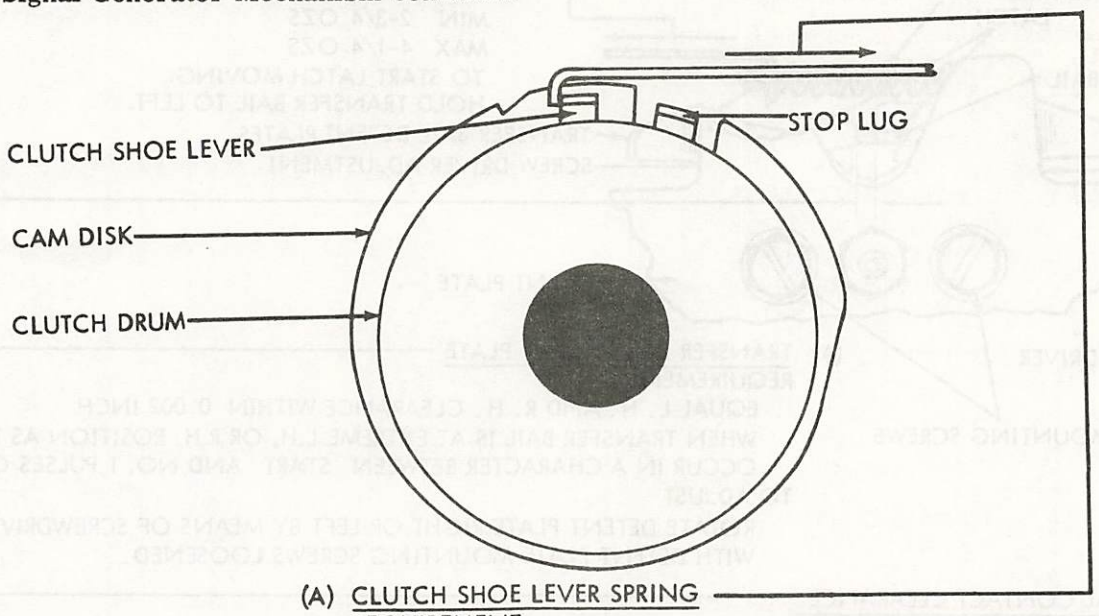


(A) CLUTCH STOP LEVER
REQUIREMENT
SHOULD FULLY ENGAGE CLUTCH SHOE LEVER.
DURING ROTATION, THE LEVER SHOULD NOT TOUCH THE CLUTCH DRUM AT ANY POINT.
TO ADJUST
POSITION STOP LEVER WITH ITS CLAMP SCREW LOOSENED.



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

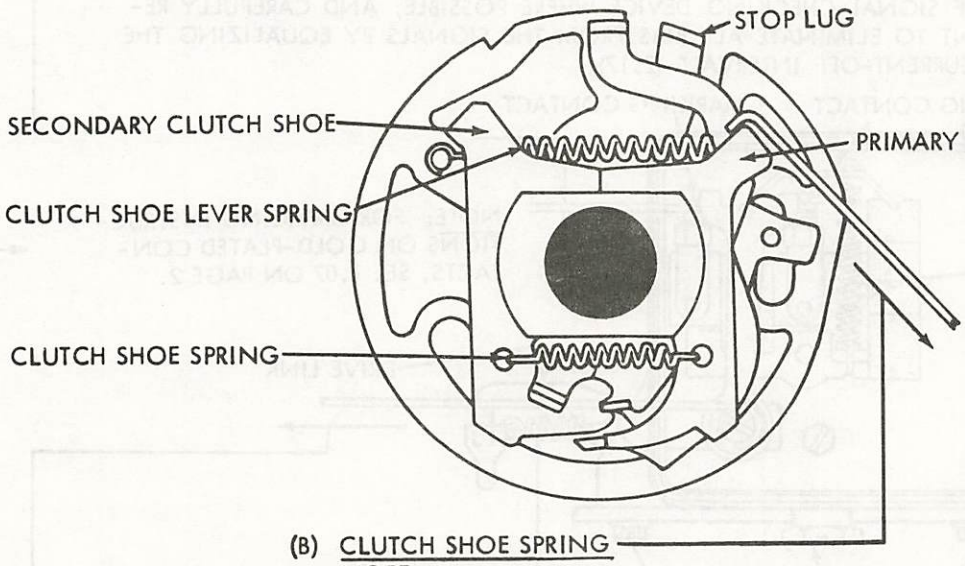
2.04 Signal Generator Mechanism continued



(A) CLUTCH SHOE LEVER SPRING

REQUIREMENT

CLUTCH ENGAGED
CAM DISK HELD TO PREVENT TURNING
MIN 15 OZS
MAX 20 OZS
TO MOVE SHOE LEVER IN CONTACT WITH STOP LUG.



(B) CLUTCH SHOE SPRING

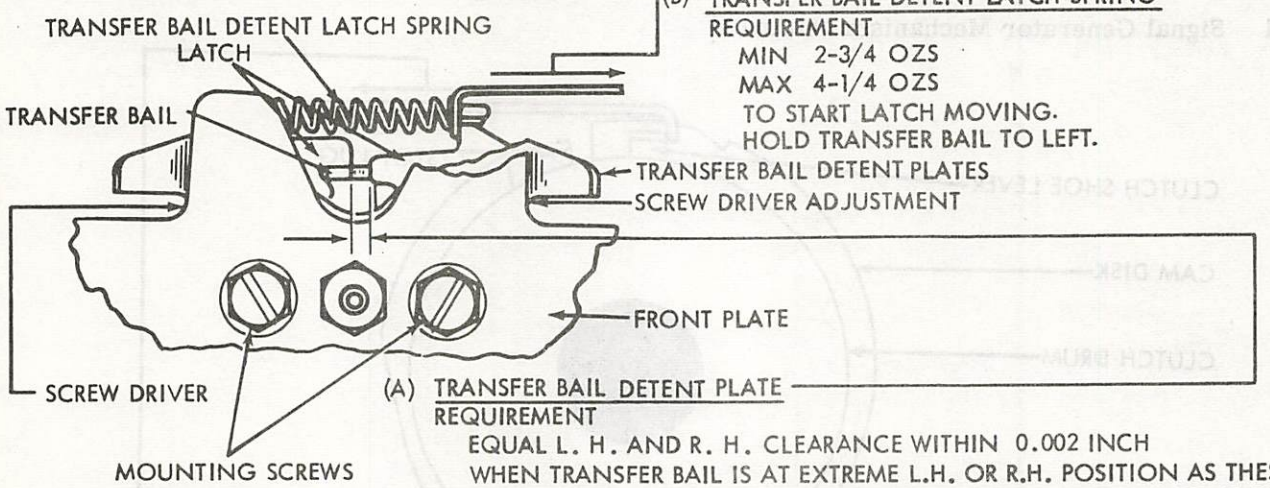
NOTE

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

REQUIREMENT

CLUTCH DRUM REMOVED.
MIN 3 OZS
MAX 5 OZS
TO START PRIMARY SHOE MOVING AWAY FROM SECONDARY SHOE AT POINT OF CONTACT.

2.05 Signal Generator Mechanism continued

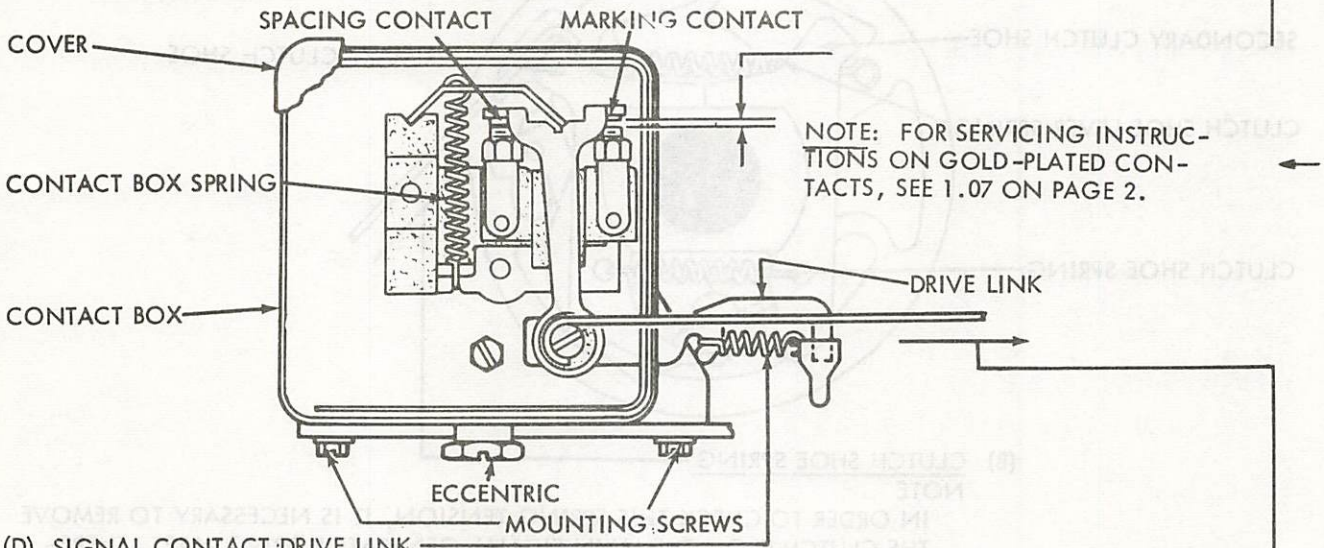


(B) TRANSFER BAIL DETENT LATCH SPRING
REQUIREMENT
MIN 2-3/4 OZS
MAX 4-1/4 OZS
TO START LATCH MOVING.
HOLD TRANSFER BAIL TO LEFT.

(A) TRANSFER BAIL DETENT PLATE
REQUIREMENT
EQUAL L. H. AND R. H. CLEARANCE WITHIN 0.002 INCH WHEN TRANSFER BAIL IS AT EXTREME L.H. OR R.H. POSITION AS THESE OCCUR IN A CHARACTER BETWEEN START AND NO. 1 PULSES ONLY.
TO ADJUST
ROTATE DETENT PLATE RIGHT OR LEFT BY MEANS OF SCREWDRIVER WITH DETENT PLATE MOUNTING SCREWS LOOSENED.

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

NOTE
CHECK BY MEANS OF SIGNAL CHECKING DEVICE WHERE POSSIBLE, AND CAREFULLY REFINE THE ADJUSTMENT TO ELIMINATE ALL BIAS FROM THE SIGNALS BY EQUALIZING THE CURRENT-ON AND CURRENT-OFF INTERVALS (2.17).

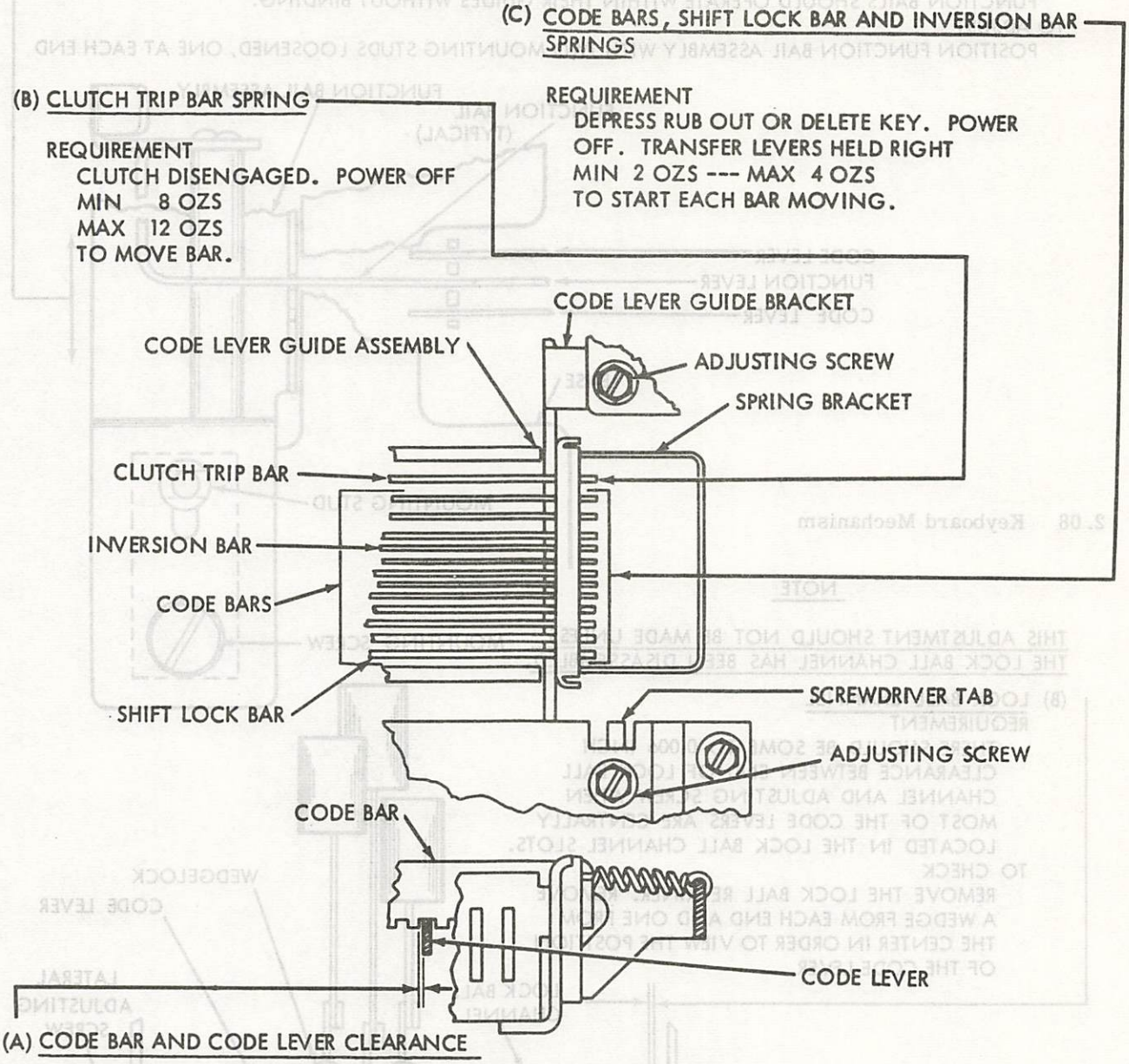


NOTE: FOR SERVICING INSTRUCTIONS ON GOLD-PLATED CONTACTS, SEE 1.07 ON PAGE 2.

(D) SIGNAL CONTACT DRIVE LINK
REQUIREMENT
WITH MAINSHAFT IN STOP POSITION AND TRANSFER BAIL DETENT LATCH SPRING UNHOOKED (SEE FIG ABOVE), MOVE LATCHES AWAY FROM TRANSFER BAIL EXTENSION. HOLD THE TOGGLE FIRMLY AGAINST CONTACTS.
MIN 6 OZS ---MAX. 9 OZS
TO START TRANSFER BAIL EXTENSION MOVING.

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

2.06 Code Bar Assembly continued



(A) CODE BAR AND CODE LEVER CLEARANCE

REQUIREMENT
PERMUTATION MUST BE SUCH THAT HIGHEST LEVEL IS SPACING AND LOCATED FURTHEST RIGHT. WHILE KEY IS HELD DOWN AND CAM CYCLED TO STOP POSITION, GAP BETWEEN L. H. SIDE OF KEY CODE LEVER AND CODE BAR BLOCKED.
MIN 0.006 INCH
MAX 0.017 INCH

TO ADJUST
POSITION GUIDE BY ADJUSTING SLOT WITH 4 MOUNTING SCREWS LOOSENED.

2.07 Code Bar Assembly continued

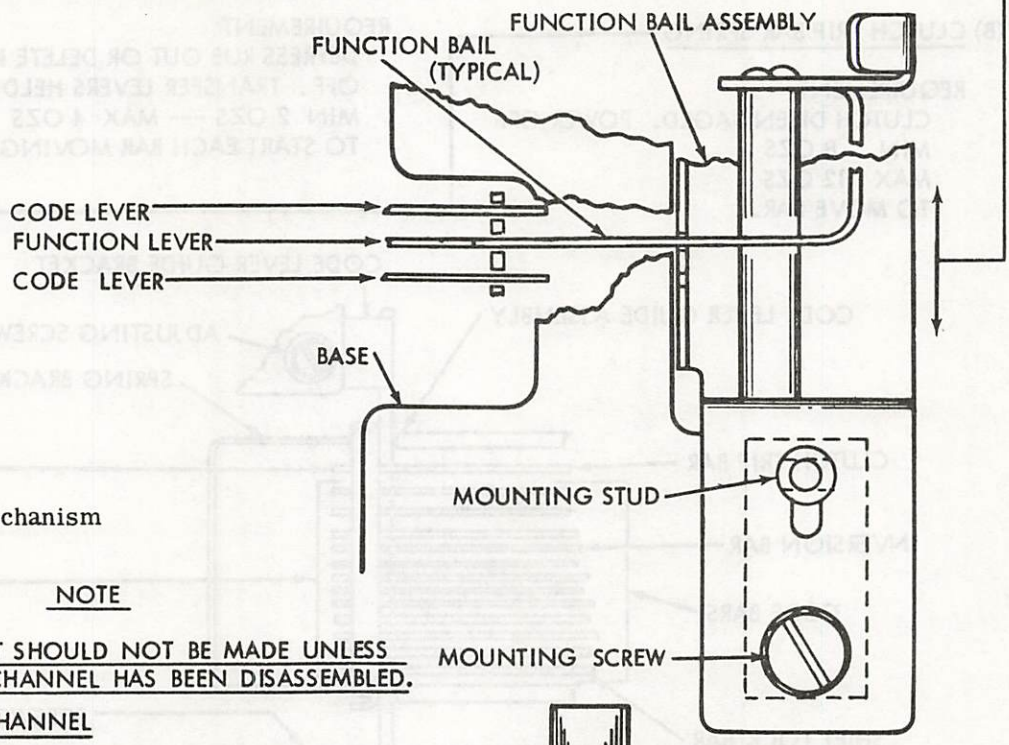
(A) FUNCTION BAIL LEVERS AND CODE LEVER CLEARANCE

REQUIREMENT

FUNCTION BAILS SHOULD OPERATE WITHIN THEIR GUIDES WITHOUT BINDING.

TO ADJUST

POSITION FUNCTION BAIL ASSEMBLY WITH TWO MOUNTING STUDS LOOSENED, ONE AT EACH END



2.08 Keyboard Mechanism

NOTE

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

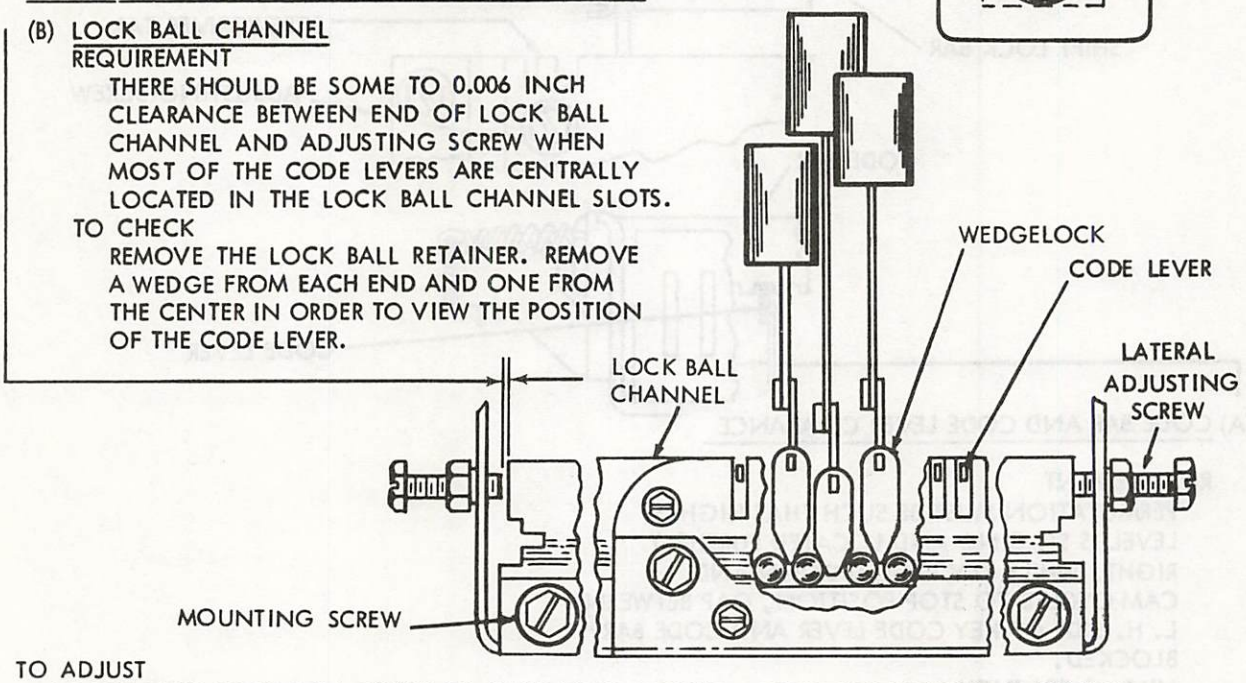
(B) LOCK BALL CHANNEL

REQUIREMENT

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

TO CHECK

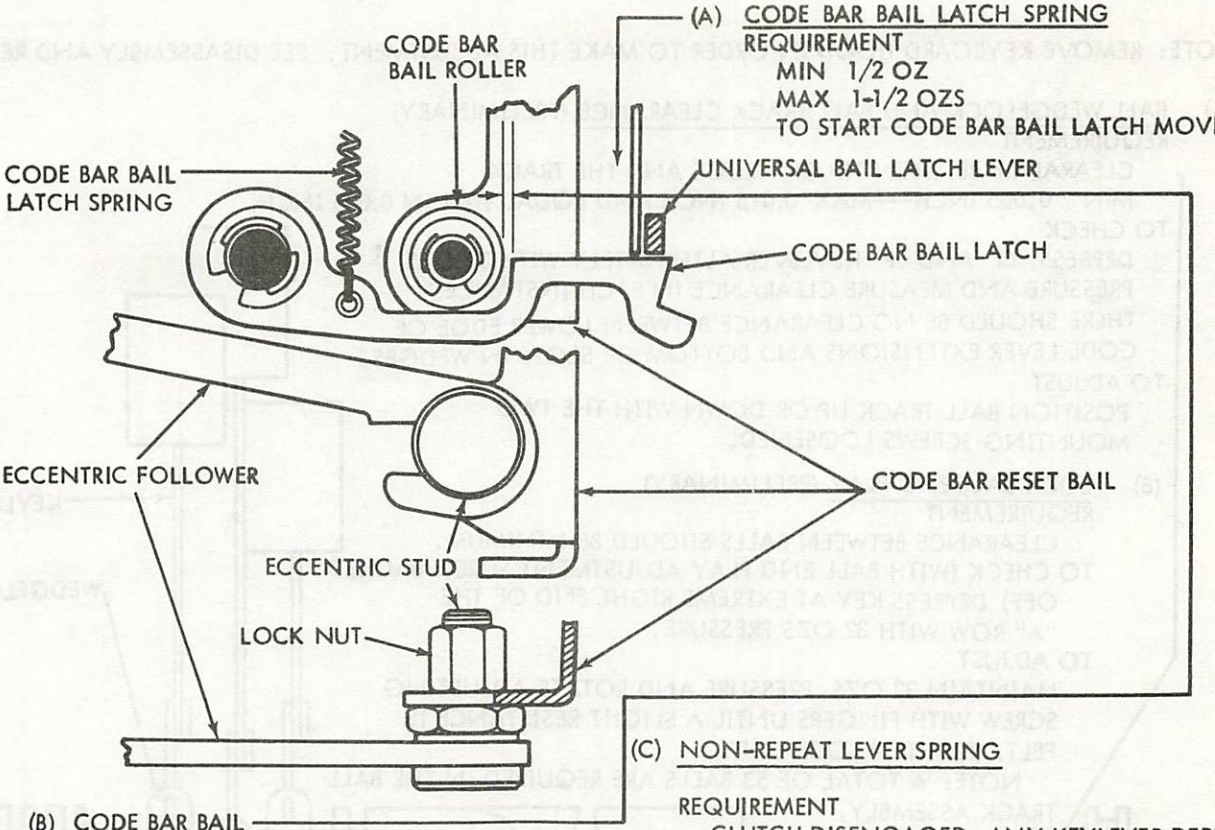
REMOVE THE LOCK BALL RETAINER. REMOVE A WEDGE FROM EACH END AND ONE FROM THE CENTER IN ORDER TO VIEW THE POSITION OF THE CODE LEVER.



TO ADJUST

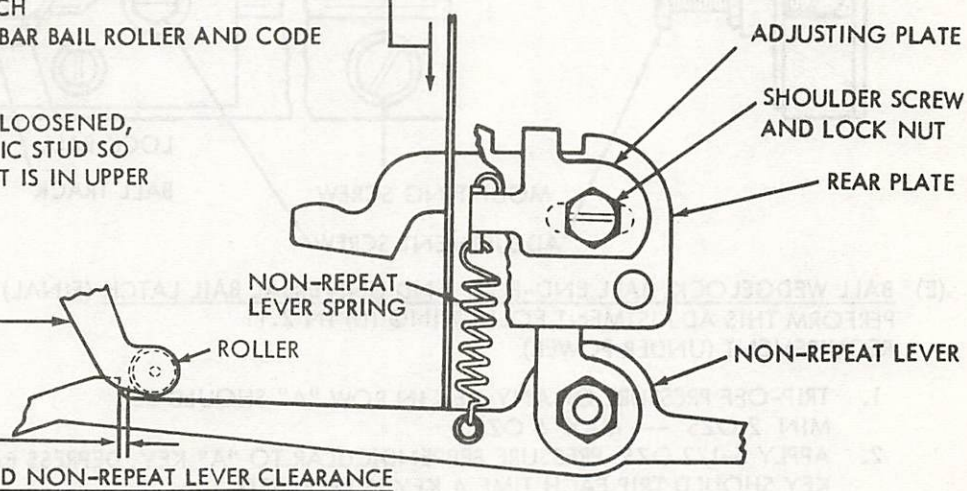
LOOSEN THE LOCK BALL CHANNEL MOUNTING SCREWS. BACK OFF LATERAL ADJUSTING SCREWS AND POSITION CHANNEL. TURN ONE ADJUSTING SCREW IN AGAINST THE END OF THE CHANNEL AND LOCK IT. TURN THE OTHER ADJUSTING SCREW IN TO THE END OF THE CHANNEL AND BACK IT OFF 1/4 TURN. LOCK THE SCREW. REPLACE THE WEDGES AND CHECK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

2.09 Code Bar Assembly continued



(B) CODE BAR BAIL
REQUIREMENT
CAM ECCENTRIC AND ARM WHICH HOLD THE BAIL IN EXTREME RESET POSITION TO THE LEFT.
MIN SOME
MAX 0.006 INCH
BETWEEN CODE BAR BAIL ROLLER AND CODE BAR BAIL LATCH
TO ADJUST
WITH LOCK NUT LOOSENED, ADJUST ECCENTRIC STUD SO THAT HIGH POINT IS IN UPPER HALF OF ARC.

REQUIREMENT
CLUTCH DISENGAGED, ANY KEYLEVER DEPRESSED
MIN 2-1/4 OZS --- MAX 3-1/4 OZS
TO START NON-REPEAT LEVER MOVING DOWNWARD.



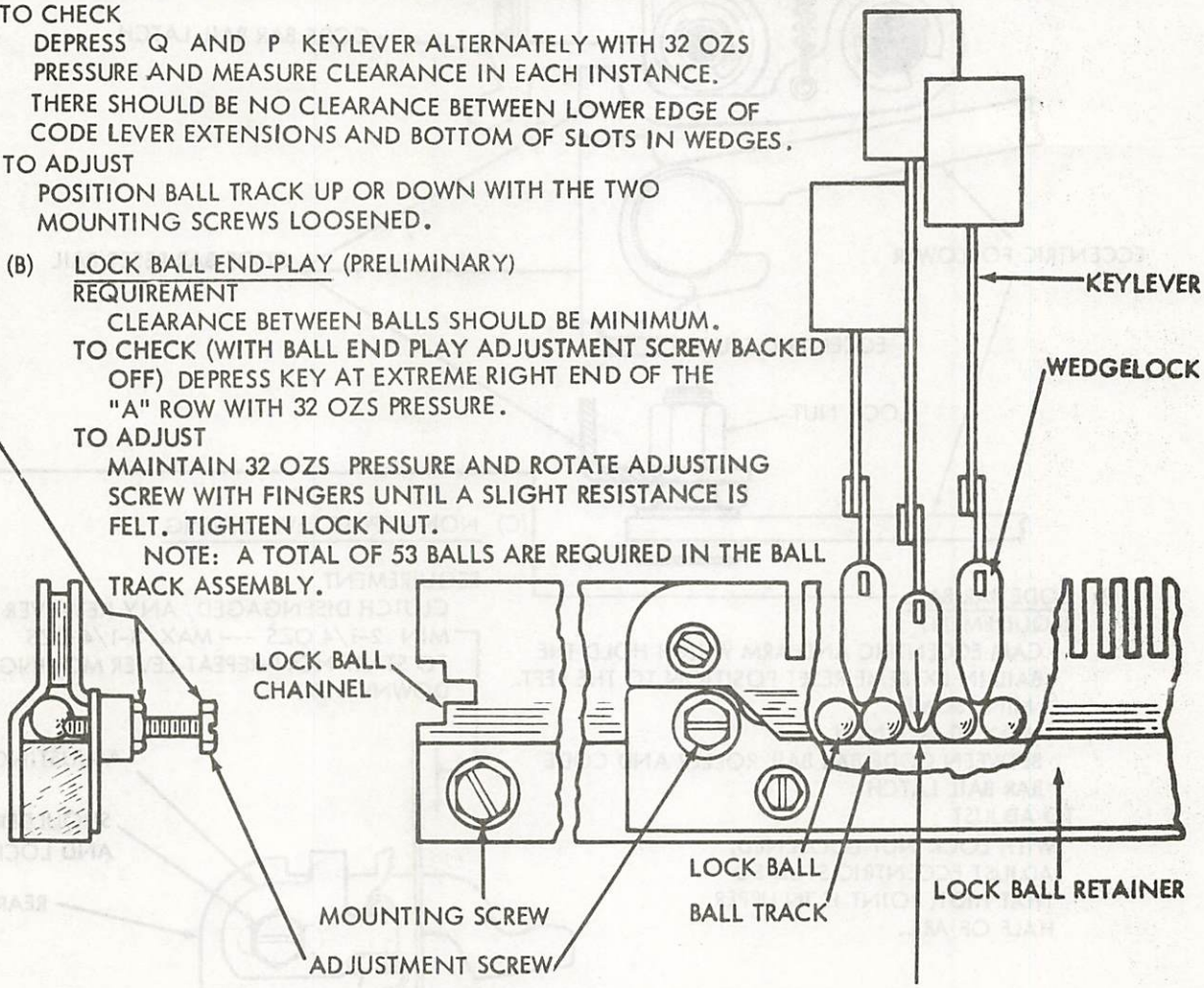
(D) CODE BAR BAIL AND NON-REPEAT LEVER CLEARANCE
REQUIREMENT
MECHANISM IN INITIAL TRIP-OFF POSITION, ANY KEY DEPRESSED, NO POWER.
MIN SOME
MAX 0.010 INCH
BETWEEN ROLLER OF RESET BAIL AND NON-REPEAT LEVER PICK-UP STEP.
TO ADJUST
LOOSEN LOCK NUT AND SHOULDER SCREW AND MOVE MECHANISM LEFT OR RIGHT
NOTE: DO NOT PERMIT CLUTCH TO ROTATE WHEN TRIPPING OFF.

2.10 Keyboard Mechanism continued

NOTE: REMOVE KEYBOARD HOOD IN ORDER TO MAKE THIS ADJUSTMENT. SEE DISASSEMBLY AND REASSEMBLY

(A) BALL WEDGELOCK AND BALL TRACK CLEARANCE (PRELIMINARY)
REQUIREMENT
CLEARANCE BETWEEN TIP OF WEDGE AND THE TRACK
MIN 0.005 INCH---MAX 0.015 INCH AND EQUAL WITHIN 0.005 INCH.
TO CHECK
DEPRESS Q AND P KEYLEVER ALTERNATELY WITH 32 OZS PRESSURE AND MEASURE CLEARANCE IN EACH INSTANCE.
THERE SHOULD BE NO CLEARANCE BETWEEN LOWER EDGE OF CODE LEVER EXTENSIONS AND BOTTOM OF SLOTS IN WEDGES.
TO ADJUST
POSITION BALL TRACK UP OR DOWN WITH THE TWO MOUNTING SCREWS LOOSENED.

(B) LOCK BALL END-PLAY (PRELIMINARY)
REQUIREMENT
CLEARANCE BETWEEN BALLS SHOULD BE MINIMUM.
TO CHECK (WITH BALL END PLAY ADJUSTMENT SCREW BACKED OFF) DEPRESS KEY AT EXTREME RIGHT END OF THE "A" ROW WITH 32 OZS PRESSURE.
TO ADJUST
MAINTAIN 32 OZS PRESSURE AND ROTATE ADJUSTING SCREW WITH FINGERS UNTIL A SLIGHT RESISTANCE IS FELT. TIGHTEN LOCK NUT.
NOTE: A TOTAL OF 53 BALLS ARE REQUIRED IN THE BALL TRACK ASSEMBLY.

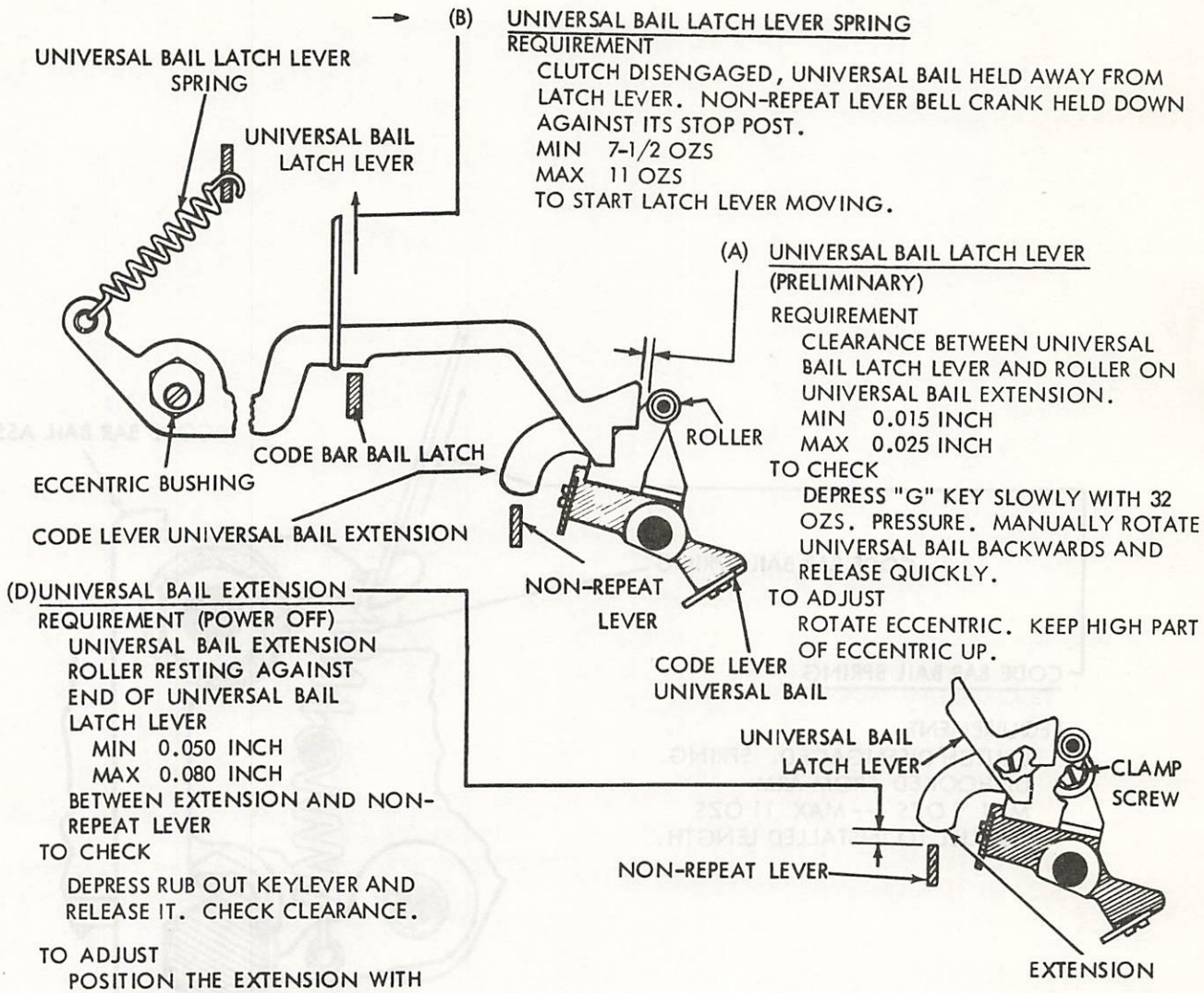


(E) BALL WEDGELOCK, BALL END-PLAY AND UNIVERSAL BAIL LATCH (FINAL)
PERFORM THIS ADJUSTMENT FOLLOWING (D) IN 2.11
REQUIREMENT (UNDER POWER)

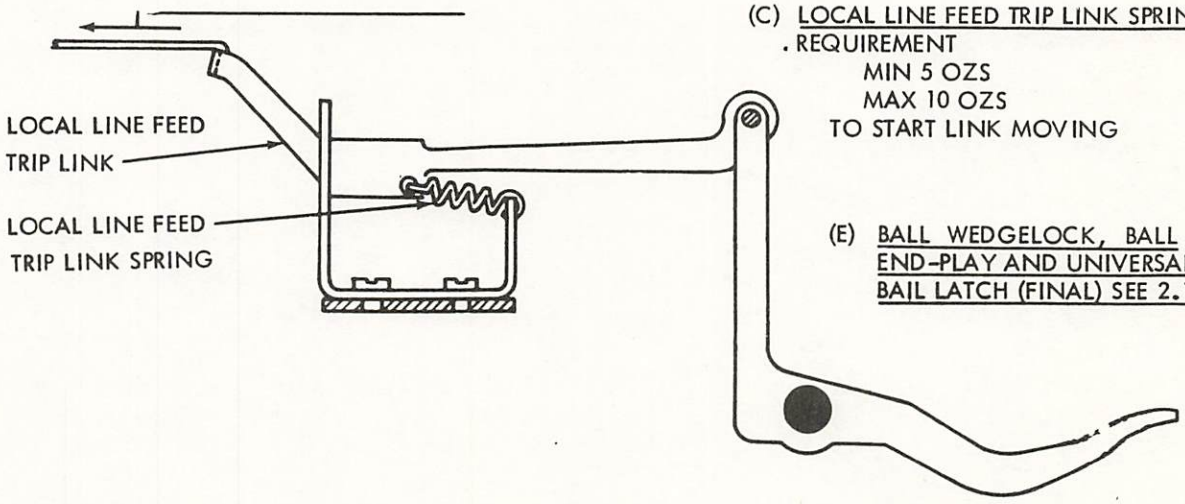
1. TRIP-OFF PRESSURE OF ANY KEY IN ROW "A" SHOULD BE MIN 2 OZS --- MAX 5 OZS
2. APPLY 5-1/2 OZS PRESSURE PERPENDICULAR TO "A" KEY, DEPRESS EACH KEY IN THAT ROW. THE "A" KEY SHOULD TRIP EACH TIME A KEY IS RELEASED.
3. REPEAT 2 WITH THE 5-1/2 OZS PRESSURE ON EXTREME RIGHT KEY IN THAT ROW.
4. THE CLUTCH SHOULD NOT TRIP WHEN TWO KEYS ARE DEPRESSED SIMULTANEOUSLY.

TO ADJUST
IF NECESSARY, REFINE BALL WEDGELOCK AND BALL TRACK CLEARANCE (PRELIMINARY), LOCK BALL END-PLAY (PRELIMINARY), UNIVERSAL BAIL LATCH LEVER (PRELIMINARY), AND UNIVERSAL BAIL EXTENSION.

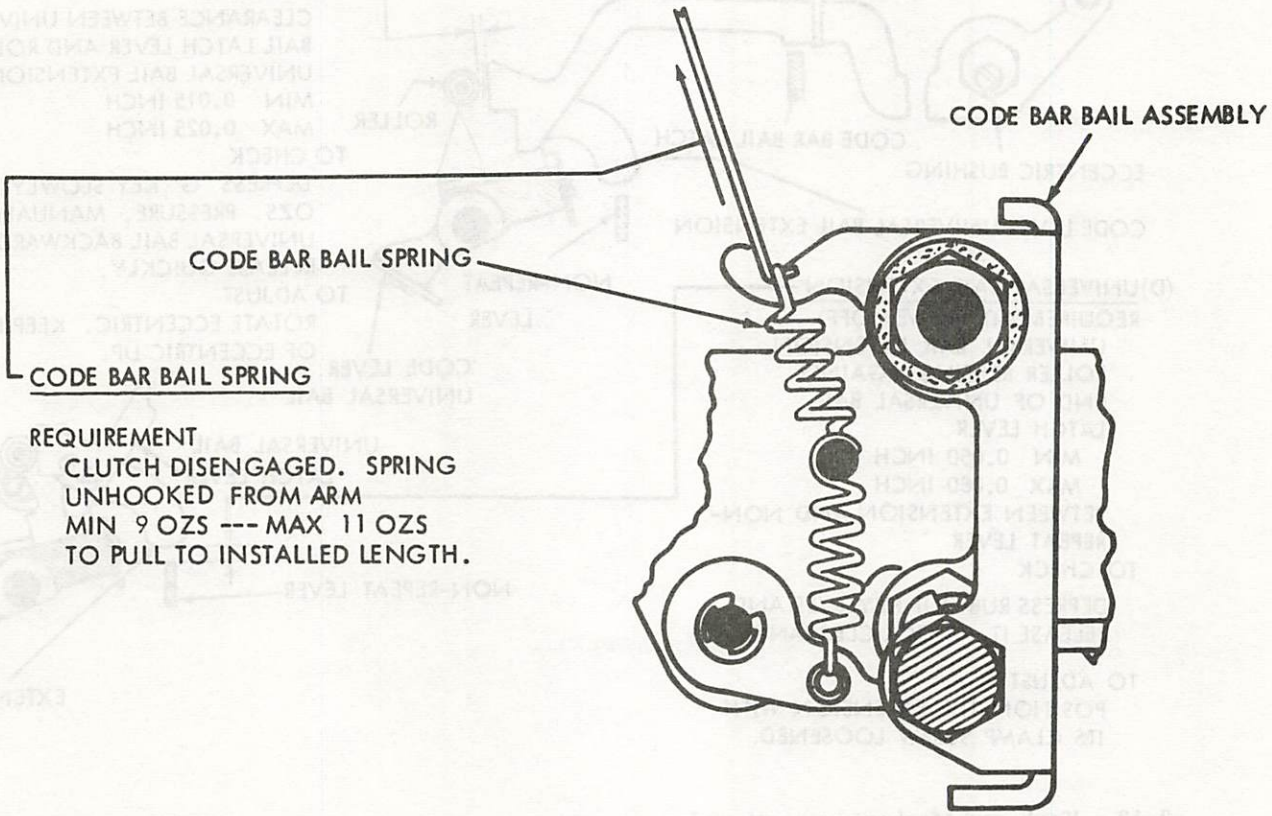
2.11 Code Bar Assembly continued



2.12 Keyboard Mechanism continued

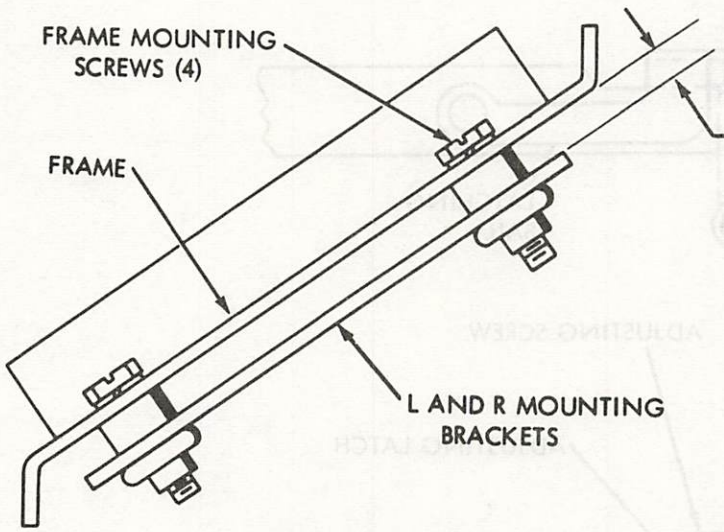


2.13 Code Bar Assembly continued



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

2.14 Keyboard Mechanism continued



KEYTOP GUIDE SPACING

REQUIREMENT
GAP BETWEEN FRAME AND LEFT AND RIGHT MOUNTING BRACKET SHOULD BE
MIN 0.141 INCH
MAX 0.171 INCH

TO ADJUST
TIGHTEN OR LOOSEN AS REQUIRED THE FOUR FRAME MOUNTING SCREWS.

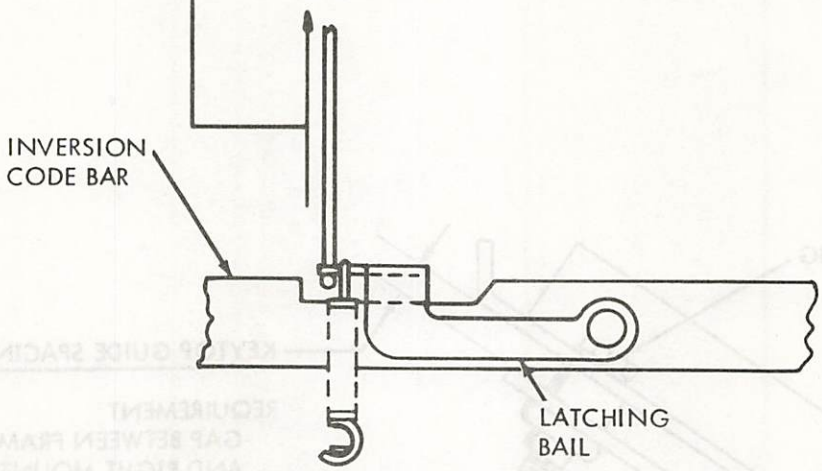
2.15 Code Bar Assembly continued

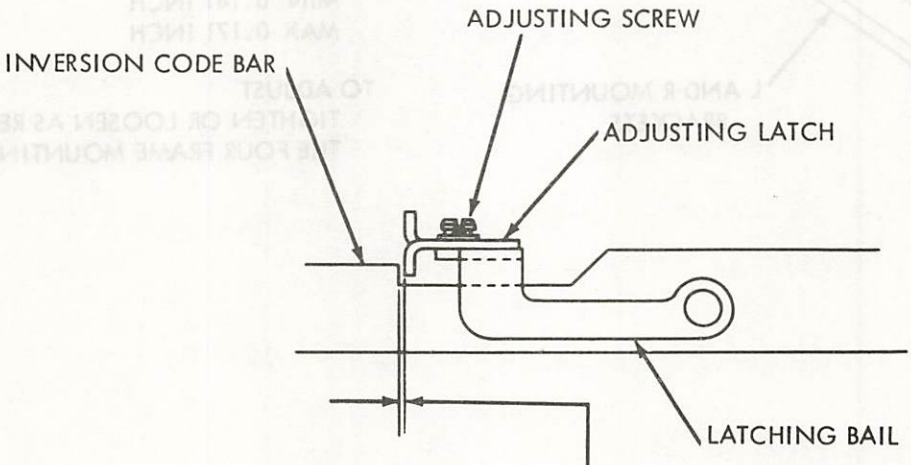
Early Design

(A) INVERSION LATCH SPRING TENSION *

REQUIREMENT
MIN 3-1/2 OZS --- MAX 4-1/2 OZS
TO MOVE BAIL.

* MIN 3/4 OZ --- MAX 1-1/2 OZS
ON NON PARITY KEYBOARDS



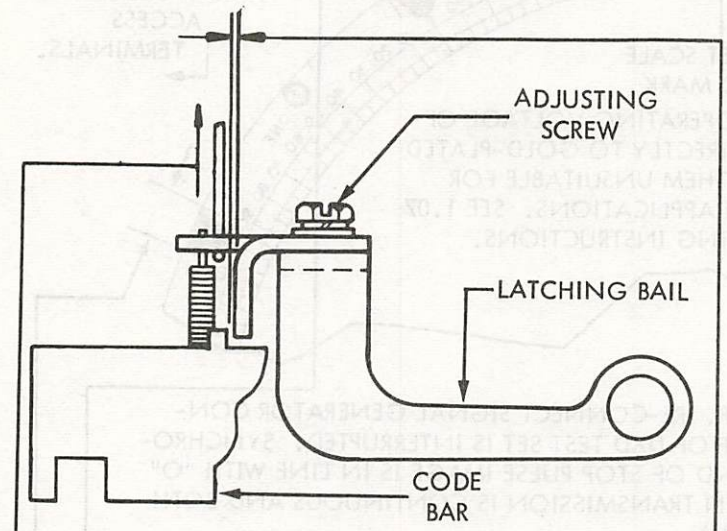


(B) INVERSION CODE BAR LATCH

REQUIREMENT
SIGNAL GENERATOR DISENGAGED
MIN 0.002 INCH
MAX 0.012 INCH
GAP BETWEEN INVERSION CODE BAR AND ITS LATCH.
LATCH SHOULD ALIGN WITH INVERSION CODE BAR.

TO ADJUST
WITH SCREW ON INVERSION BAIL FRICTION TIGHT,
MOVE ADJUSTABLE EXTENSION TO OBTAIN CLEARANCE.

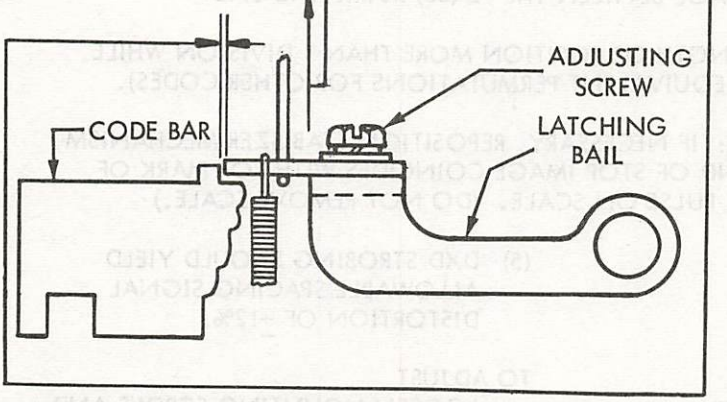
2.16 Code Bar Assembly continued
Later Design



INVERSION BAR LATCHING BAIL SPRING
REQUIREMENT
MIN 2-1/2 OZS --- MAX 3-1/2 OZS
TO MOVE BAIL.

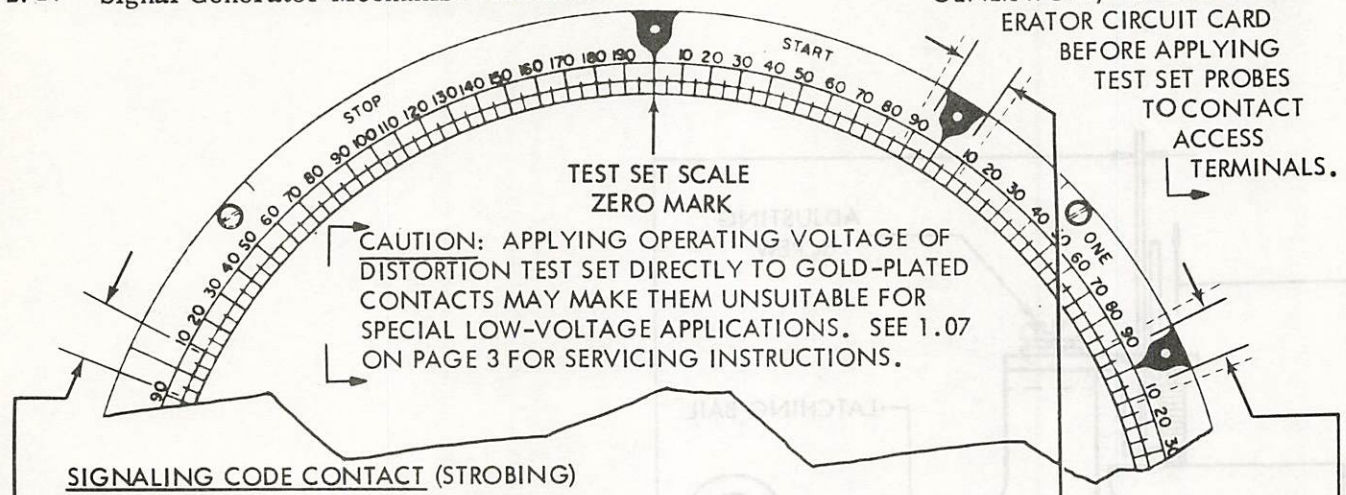
INVERSION CODE BAR LATCH
REQUIREMENT
SIGNAL GENERATOR CLUTCH DISENGAGED.
MIN 0.002 INCH
MAX 0.012 INCH
GAP BETWEEN NUMBER 5 AND 8 INVERSION CODE BARS AND THEIR RESPECTIVE LATCHES. CHECK CLEARANCE AT BOTH THE NUMBER 8 AND 8 INVERSION CODE BARS AND ADJUST TO WHICHEVER IS CLOSEST.

TO ADJUST
WITH RESPECTIVE SCREWS ON INVERSION BAIL LATCH FRICTION TIGHT, MOVE ADJUSTABLE EXTENSION TO OBTAIN CLEARANCE. TIGHTEN SCREWS AND RECHECK CLEARANCE.



2.17 Signal Generator Mechanism continued

NOTE: ON UNITS EQUIPPED WITH SIGNAL REGENERATORS, REMOVE REGENERATOR CIRCUIT CARD BEFORE APPLYING TEST SET PROBES TO CONTACT ACCESS TERMINALS.



CAUTION: APPLYING OPERATING VOLTAGE OF DISTORTION TEST SET DIRECTLY TO GOLD-PLATED CONTACTS MAY MAKE THEM UNSUITABLE FOR SPECIAL LOW-VOLTAGE APPLICATIONS. SEE 1.07 ON PAGE 3 FOR SERVICING INSTRUCTIONS.

SIGNALING CODE CONTACT (STROBING)

PROCEDURE

(1) DISCONNECT ARC SUPPRESSOR OR RF FILTER. RE-CONNECT SIGNAL GENERATOR CONTACTS SO CURRENT TO STROBOSCOPE LAMP OF DXD TEST SET IS INTERRUPTED. SYNCHRONIZE SIGNAL GENERATOR WITH DXD SO END OF STOP PULSE IMAGE IS IN LINE WITH "O" MARK OR START PULSE ON DXD SCALE WHEN TRANSMISSION IS CONTINUOUS AND BOTH UNITS ARE OPERATING AT 100 WPM (600 RPM).

NOTE: IF END OF STOP PULSE VARIES, ADJUST THE SCALE SO THE VARIATION EXTENDS EQUALLY TO EITHER SIDE OF "O" MARK OF START PULSE ON SCALE. NUMBERS IN ( ) ARE FOR UNITS USING TIMING CONTACTS.

(2) NOMINAL LENGTH OF INTELLIGENCE PULSES IS 100 DIVISIONS. IF ADJUSTMENT TO FEELER GAUGES DOES NOT PERMIT PULSE LENGTHS WITHIN TOLERANCE, REFINE CONTACT BOX ADJUSTMENT. FAVOR INTELLIGENCE PULSES BY USING UP TO + 8 DIVISIONS TOLERANCE ON BEGINNING OF STOP PULSE, SO EACH IS NEAR AS POSSIBLE TO 100 DIVISIONS IN LENGTH.

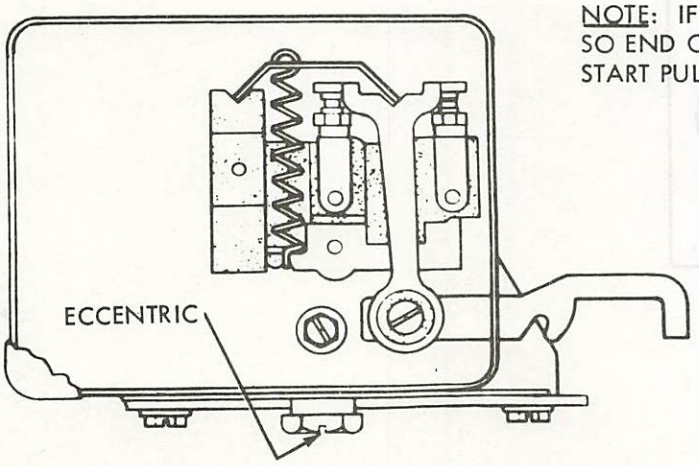
REQUIREMENT

(1) EACH MARKING CODE PULSE TO BEGIN NOT LATER THAN 8 (12) MARK AND NO EARLIER THAN 92 (88) MARK OF PREVIOUS PULSE.

(2) EACH MARKING CODE PULSE TO END NOT EARLIER THAN 92 (88) MARK OR LATER THAN 8 (12) MARK IN PULSE FOLLOWING ONE BEING OBSERVED.

(3) MARKING CODE PULSES MAY HAVE BREAK NOT MORE THAN 3 DIVISIONS WIDE AND OCCURS ONLY AT END OF CODE PULSE IMAGE BETWEEN THE 92 (88) MARK AND END OF IMAGE.

(4) STOP IMAGE SHOULD NOT CHANGE IN LENGTH OR POSITION MORE THAN 1 DIVISION WHILE CHANGING FROM R TO Y SELECTION (OR EQUIVALENT PERMUTATIONS FOR OTHER CODES).



NOTE: IF NECESSARY, REPOSITION STABLIZER MECHANISM SO END OF STOP IMAGE COINCIDES WITH "O" MARK OF START PULSE ON SCALE. (DO NOT REMOVE SCALE.)

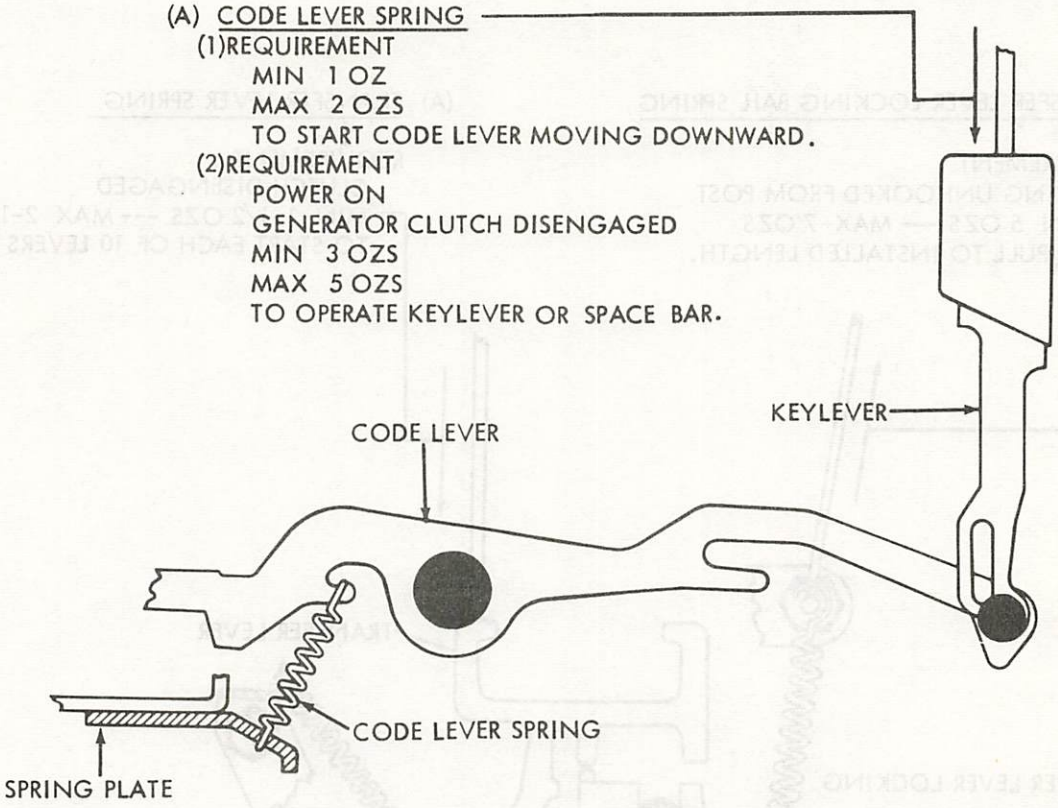
(5) DXD STROBING SHOULD YIELD ALLOWABLE SPACING SIGNAL DISTORTION OF ±12%.

TO ADJUST

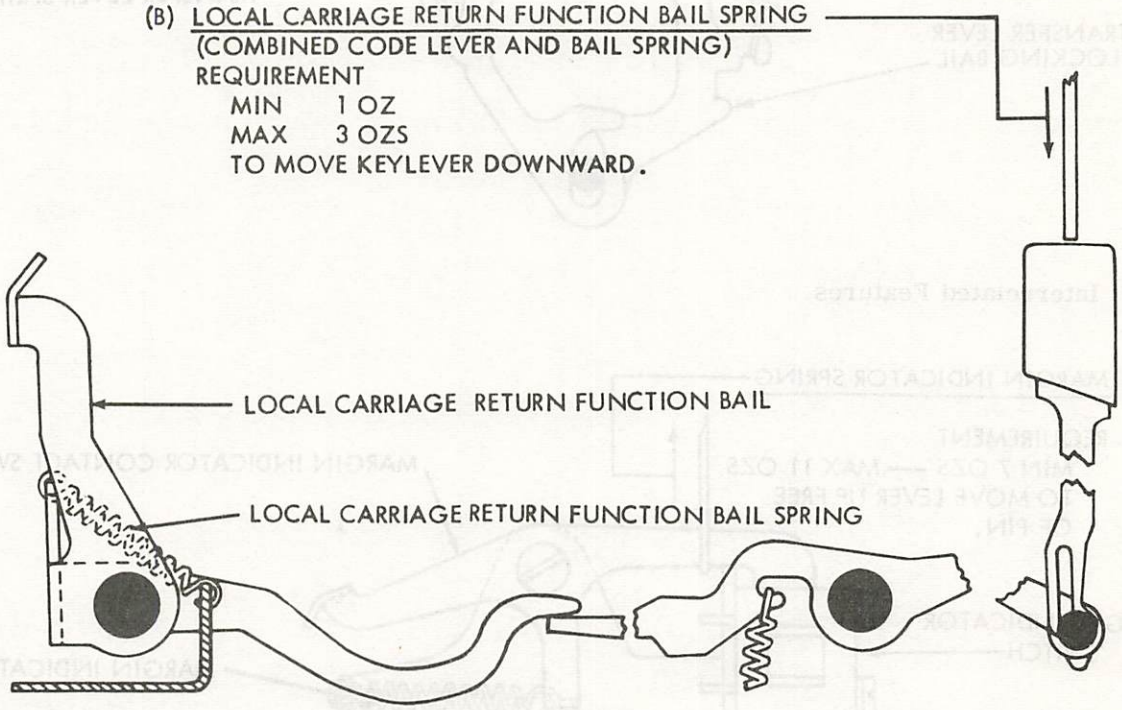
LOOSEN MOUNTING SCREWS AND MOVE CONTACT BOX BY MEANS OF ECCENTRIC.

2.18 Keyboard Mechanism continued

(A) CODE LEVER SPRING
(1)REQUIREMENT
MIN 1 OZ
MAX 2 OZS
TO START CODE LEVER MOVING DOWNWARD.
(2)REQUIREMENT
POWER ON
GENERATOR CLUTCH DISENGAGED
MIN 3 OZS
MAX 5 OZS
TO OPERATE KEYLEVER OR SPACE BAR.



(B) LOCAL CARRIAGE RETURN FUNCTION BAIL SPRING
(COMBINED CODE LEVER AND BAIL SPRING)
REQUIREMENT
MIN 1 OZ
MAX 3 OZS
TO MOVE KEYLEVER DOWNWARD.



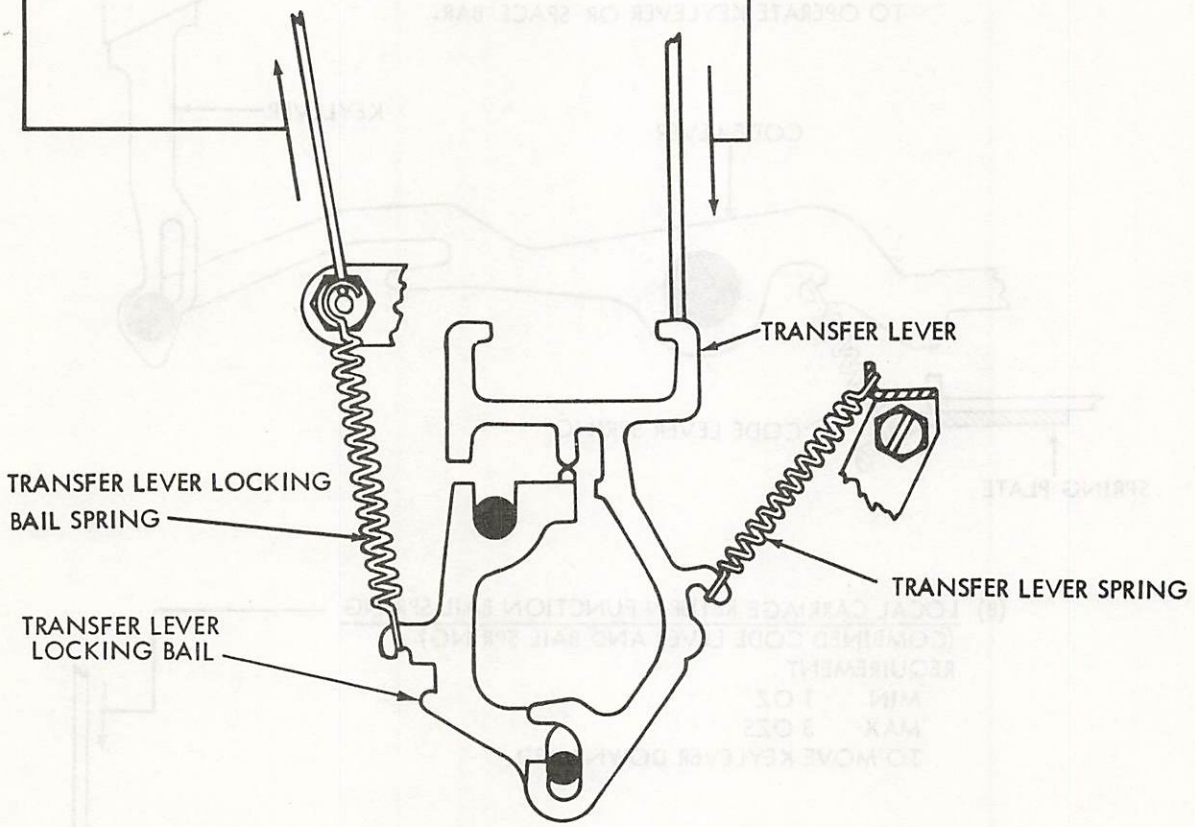
2.19 Code Bar Assembly continued

(B) TRANSFER LEVER LOCKING BAIL SPRING

REQUIREMENT
SPRING UNHOOKED FROM POST
MIN 5 OZS --- MAX 7 OZS
TO PULL TO INSTALLED LENGTH.

(A) TRANSFER LEVER SPRING

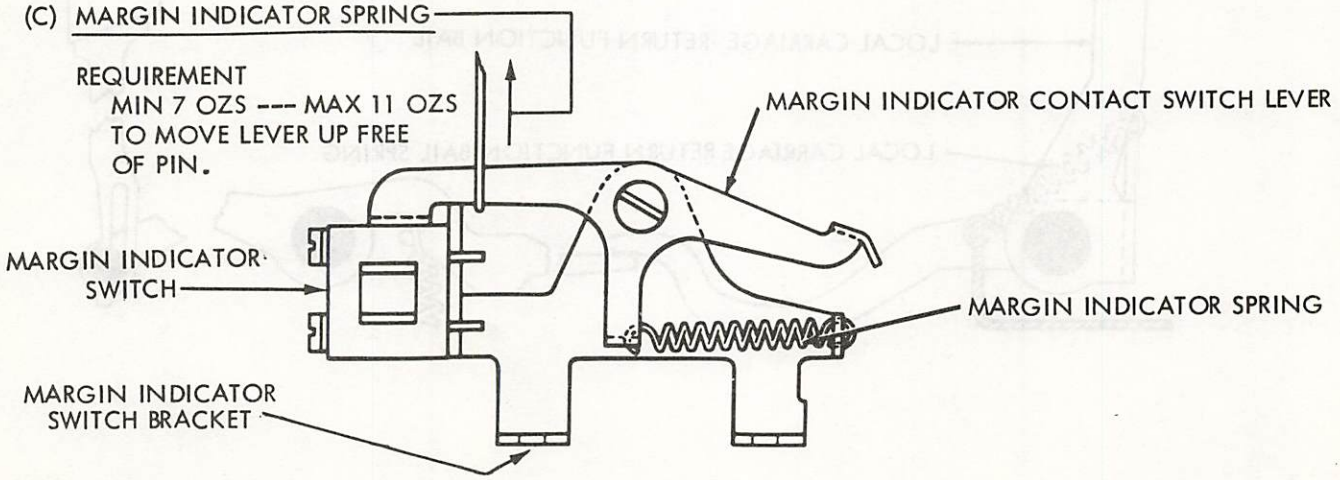
REQUIREMENT
CLUTCH DISENGAGED
MIN 1-1/2 OZS --- MAX 2-1/2 OZS
TO START EACH OF 10 LEVERS MOVING.



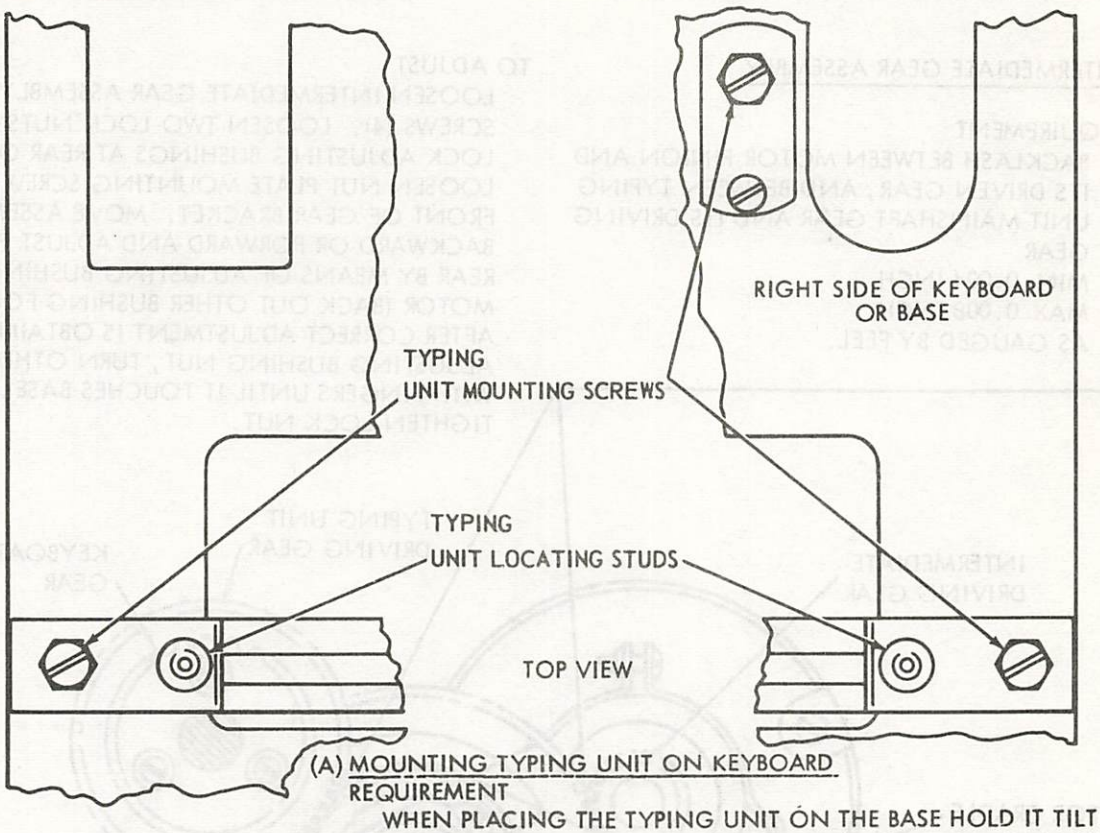
2.20 Interrelated Features

(C) MARGIN INDICATOR SPRING

REQUIREMENT
MIN 7 OZS --- MAX 11 OZS
TO MOVE LEVER UP FREE
OF PIN.



2.21 Interrelated Features continued



(A) MOUNTING TYPING UNIT ON KEYBOARD

REQUIREMENT

WHEN PLACING THE TYPING UNIT ON THE BASE HOLD IT TILTED SLIGHTLY TO THE RIGHT AND LOWER THE RIGHT END INTO ENGAGEMENT WITH THE RIGHT LOCATING STUD. WHILE EASING THE LEFT END DOWNWARD ROTATE THE MOTOR BY HAND TO PROPERLY MESH THE GEARS. SECURE BY FOUR MOUNTING SCREWS. ROTATE THE MOTOR BY HAND TO INSURE PROPER MESHING OF GEARS.

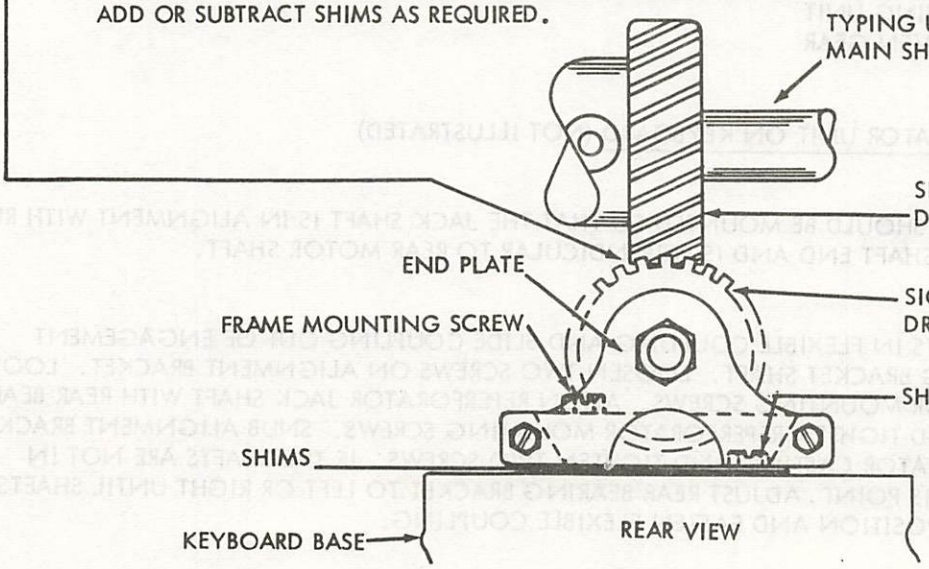
(B) SIGNAL GENERATOR FRAME

REQUIREMENT

WITH TYPING UNIT MOUNTED IN POSITION, THERE SHOULD BE A PERCEPTIBLE AMOUNT OF BACKLASH BETWEEN THE SIGNAL GENERATOR DRIVEN GEAR AND THE SIGNAL GENERATOR DRIVING GEAR AT THE POINT WHERE BACKLASH IS THE LEAST.

TO ADJUST

REMOVE THE SIGNAL GENERATOR FRAME REAR MOUNTING SCREW AND LOOSEN THE SHIM SCREW. ADD OR SUBTRACT SHIMS AS REQUIRED.

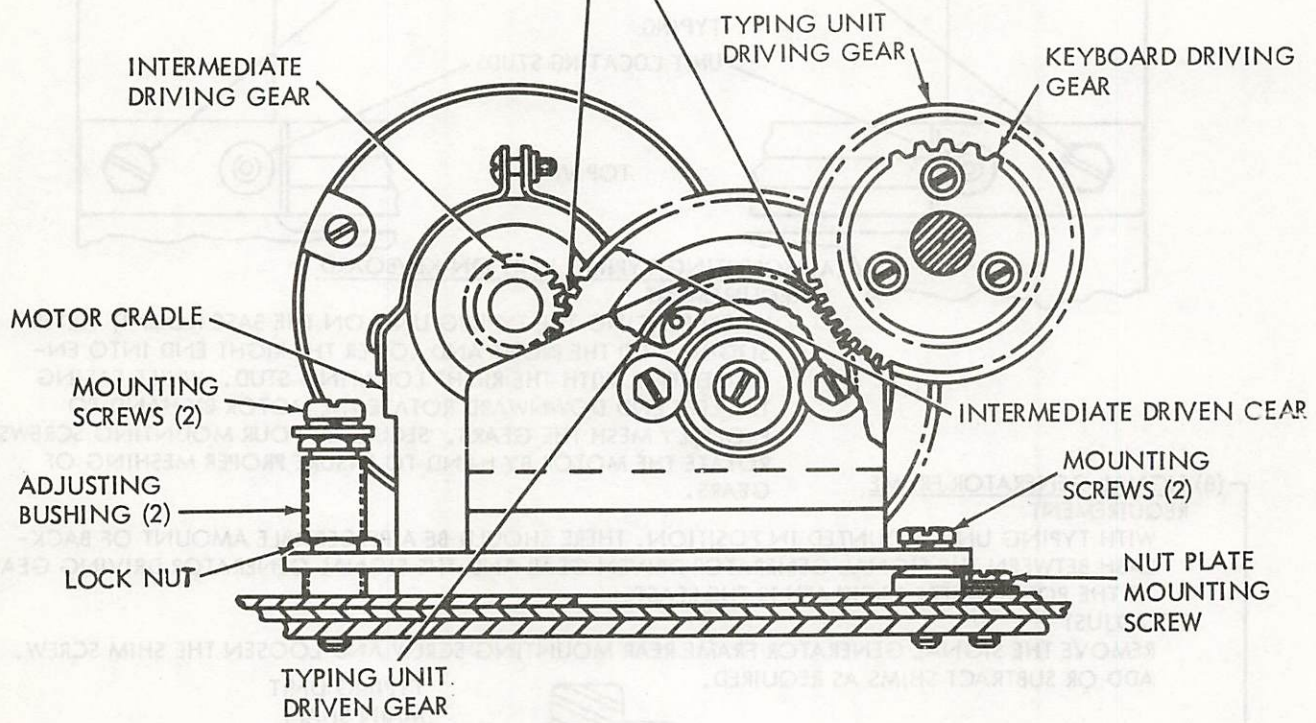


2.22 Interrelated Features continued

INTERMEDIATE GEAR ASSEMBLY

REQUIREMENT
BACKLASH BETWEEN MOTOR PINION AND ITS DRIVEN GEAR, AND BETWEEN TYPING UNIT MAINSHAFT GEAR AND ITS DRIVING GEAR
MIN 0.004 INCH
MAX 0.008 INCH
AS GAUGED BY FEEL.

TO ADJUST
LOOSEN INTERMEDIATE GEAR ASSEMBLY MOUNTING SCREWS (4). LOOSEN TWO LOCK NUTS WHICH LOCK ADJUSTING BUSHINGS AT REAR OF ASSEMBLY. LOOSEN NUT PLATE MOUNTING SCREW JUST IN FRONT OF GEAR BRACKET. MOVE ASSEMBLY BACKWARD OR FORWARD AND ADJUST HEIGHT AT REAR BY MEANS OF ADJUSTING BUSHING NEAREST MOTOR (BACK OUT OTHER BUSHING FOR CLEARANCE AFTER CORRECT ADJUSTMENT IS OBTAINED). LOCK ADJUSTING BUSHING NUT, TURN OTHER BUSHING WITH FINGERS UNTIL IT TOUCHES BASE, AND TIGHTEN LOCK NUT.



MOUNTING REPERFORATOR UNIT ON KEYBOARD (NOT ILLUSTRATED)

REQUIREMENT
THE REPERFORATOR SHOULD BE MOUNTED SO THAT THE JACK SHAFT IS IN ALIGNMENT WITH REAR BEARING BRACKET SHAFT END AND IS PERPENDICULAR TO REAR MOTOR SHAFT.

TO ADJUST
LOOSEN SET SCREWS IN FLEXIBLE COUPLING AND SLIDE COUPLING OUT OF ENGAGEMENT WITH REAR BEARING BRACKET SHAFT. LOOSEN TWO SCREWS ON ALIGNMENT BRACKET. LOOSEN FOUR REPERFORATOR MOUNTING SCREWS. ALIGN REPERFORATOR JACK SHAFT WITH REAR BEARING BRACKET SHAFT AND TIGHTEN REPERFORATOR MOUNTING SCREWS. SNUB ALIGNMENT BRACKET AGAINST REPERFORATOR CASTING AND TIGHTEN TWO SCREWS. IF THE SHAFTS ARE NOT IN ALIGNMENT AT THIS POINT, ADJUST REAR BEARING BRACKET TO LEFT OR RIGHT UNTIL SHAFTS ARE IN ALIGNMENT. POSITION AND FASTEN FLEXIBLE COUPLING.

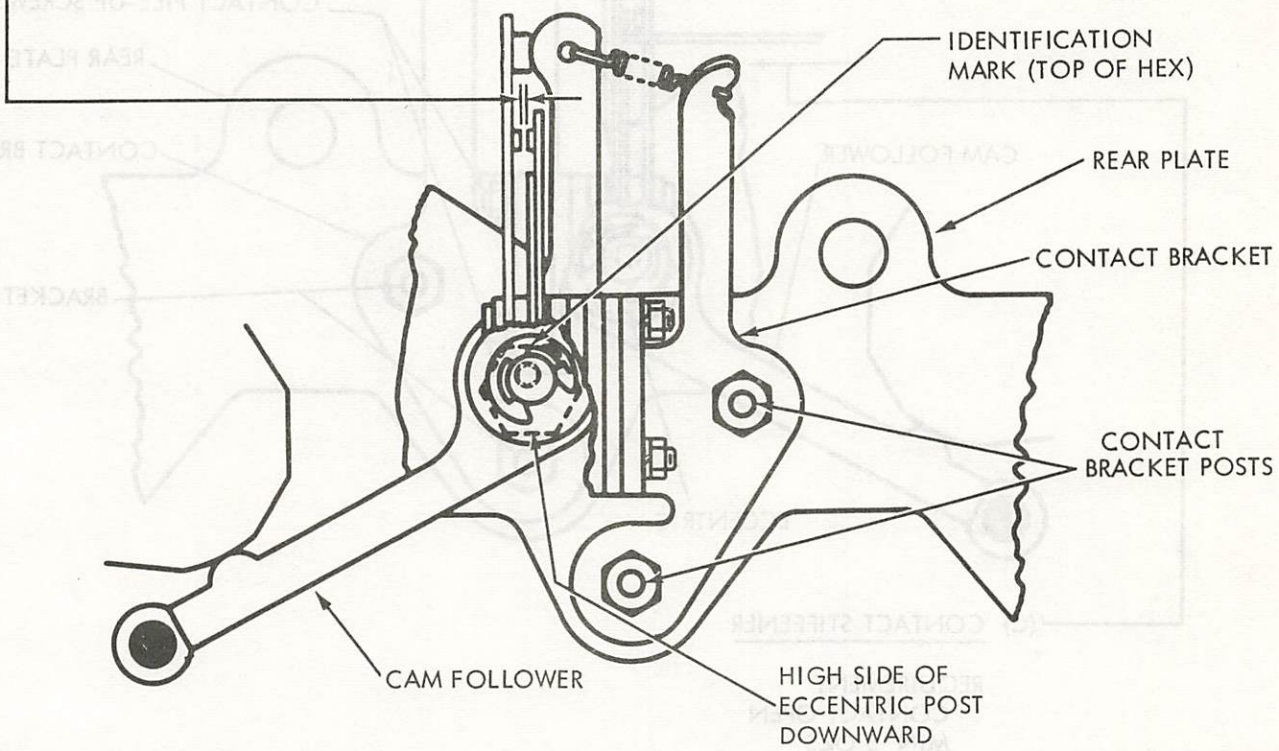
3. VARIABLE FEATURES

3.01 Timing Contact Mechanism

TIMING CONTACT

1. REQUIREMENT
   CONTACTS SHOULD BE CLOSED WHEN NYLON PAD IS RAISED 0.007 INCH.
   CONTACTS SHOULD BE OPEN WHEN NYLON PAD IS RAISED 0.015 INCH.
   TO CHECK
   IDENTIFICATION MARK VIEWED ON TOP SIDE OF HEX
   AND FOLLOWER ON LOW PART OF CAM.

2. REQUIREMENT
   MIN 0.003 INCH GAP BETWEEN CONTACTS WITH THE FOLLOWER ON ANY PEAK OF CAM.
   MIN 0.0015 INCH GAP ON UNITS PRIOR TO SERIAL #88,800.



TO ADJUST
LOOSEN TWO TIMING CONTACT BRACKET POSTS. WITH SCREWDRIVER BETWEEN BRACKET UPRIGHT AND REAR PLATE ADJUST GAP
MIN SOME --- MAX 0.010 INCH
ADJUST ECCENTRIC SCREW TO MEET REQUIREMENTS.

NOTE: USE SIGNAL CHECKING DEVICE TO REFINE THIS ADJUSTMENT

3.02 Timing Contact Mechanism continued

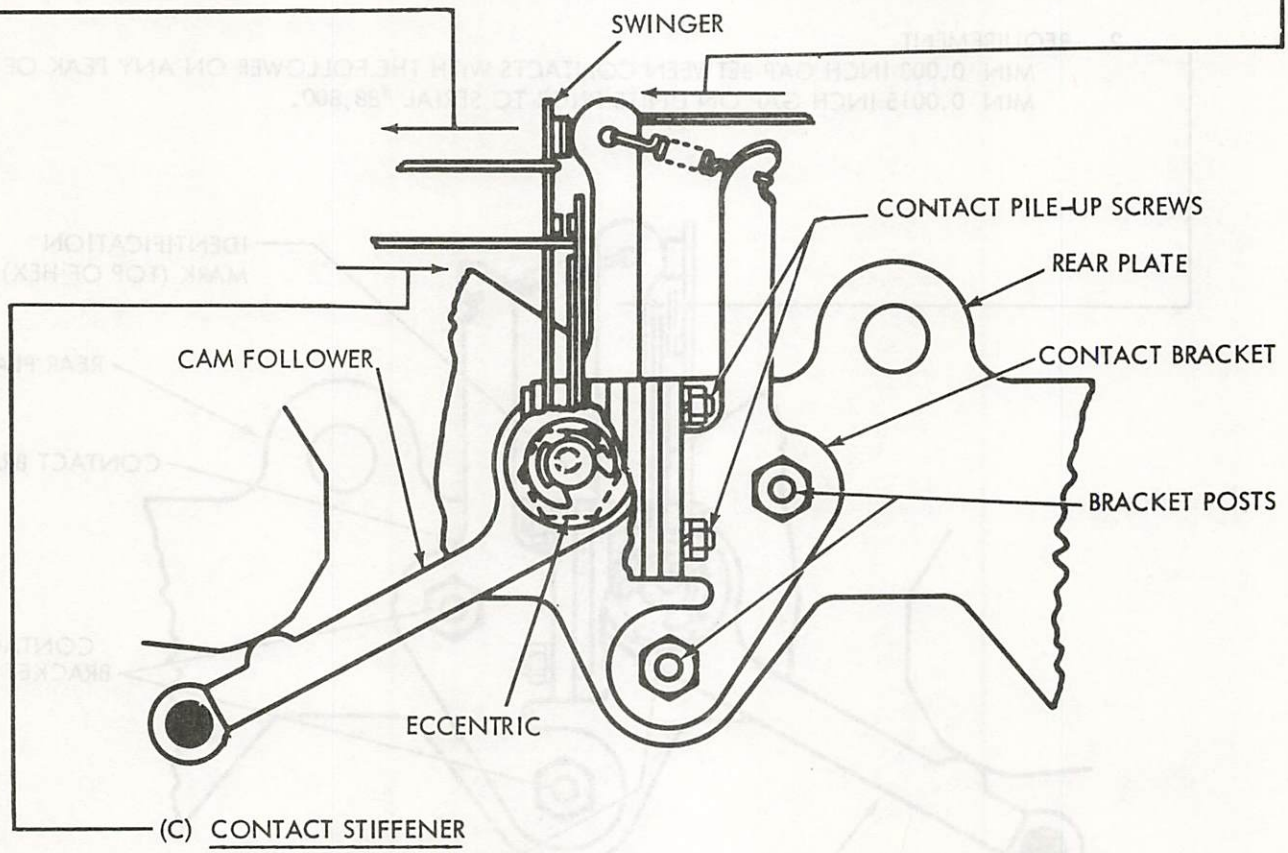
(A) CONTACT SWINGER

REQUIREMENT
CONTACTS CLOSED
MIN 2 OZS
MAX 3-1/2 OZS
TO JUST OPEN CONTACTS.

TO ADJUST
USE TP110455 SPRING BENDER.

(B) CAM FOLLOWER SPRING

REQUIREMENT
SIGNAL GENERATOR LATCHED. CONTACT SPRING HELD BACK
MIN 6 OZS
TO START CAM FOLLOWER MOVING.



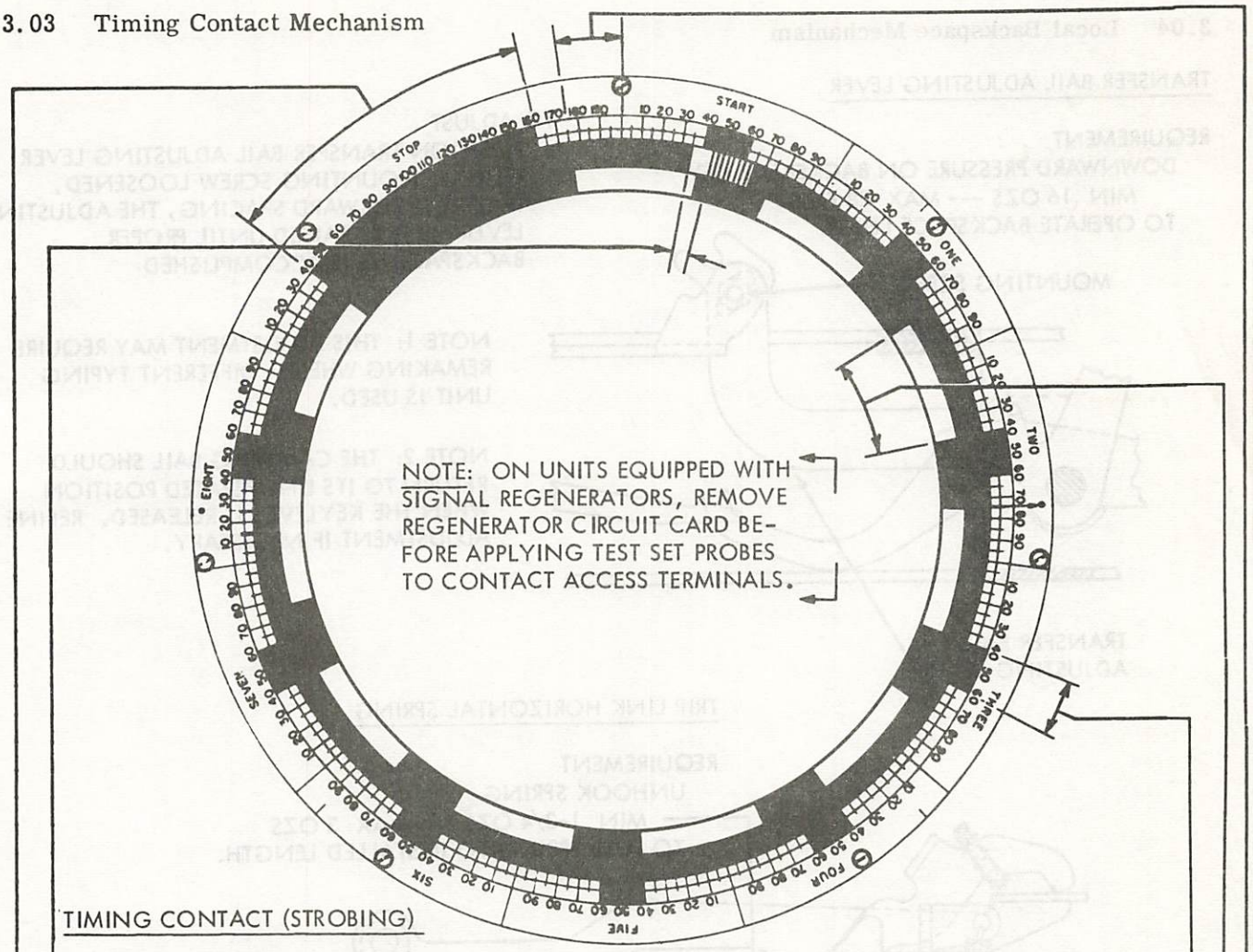
(C) CONTACT STIFFENER

REQUIREMENT
CONTACT OPEN
MIN 5 OZS
MAX 8 OZS
TO MOVE CONTACT

TO ADJUST
REMOVE TRANSPARENT CONTACT GUARD. REMOVE CONTACT ASSEMBLY FROM UNIT BY REMOVING TWO POSTS SECURING IT TO REAR PLATE. LOOSEN TWO SCREWS HOLDING CONTACT PILE-UP TO CONTACT BRACKET. BEND CONTACT USING TP 110445 SPRING BENDER.

NOTE: CHECK (A) AND REFINE IF NECESSARY.
REMAKE 3.01 IF NECESSARY.

3.03 Timing Contact Mechanism



TIMING CONTACT (STROBING)

1. ZERO THE TEST SET AS DESCRIBED IN PROCEDURE (1) OF 2.17.

2. THE LIGHT IMAGE OF THE TIMING CONTACTS SHOULD MEET THE FOLLOWING REQUIREMENTS FOR SPEEDS UP TO AND INCLUDING 100 WPM.

   A. OPEN FOR A MINIMUM OF 20 DIVISIONS BETWEEN THE 25 DIVISION AND 75 DIVISION POINTS OF EACH 100 DIVISION PULSE.

   B. OPEN FOR A MINIMUM OF 120 DIVISIONS BETWEEN THE 25 DIVISION AND 175 DIVISION POINTS OF THE STOP PULSE.

   C. THE CLOSE TO OPEN TRANSITIONS SHOULD BE IN MULTIPLES OF 100 DIVISIONS $\pm$ 5 DIVISIONS OF THE START PULSE.

   D. THERE SHOULD BE NO CONTACT BREAK BETWEEN THE ZERO DIVISION POINT AND THE CLOSE TO OPEN TRANSITION POINT, AND NO CONTACT BREAK BETWEEN THE 75 DIVISION POINT AND THE 100 DIVISION POINT OF EACH PULSE. THERE SHOULD BE NO CONTACT BREAK BETWEEN THE 175 DIVISION POINT AND THE 200 DIVISION POINT OF THE STOP PULSE.

TO ADJUST
CHECK AND REFINE, IF NECESSARY, ADJUSTMENT IN 3.01.

NOTE: THE TIMING CONTACTS SHOULD BE OPEN WHEN THE CLUTCH IS DISENGAGED.

3.04 Local Backspace Mechanism

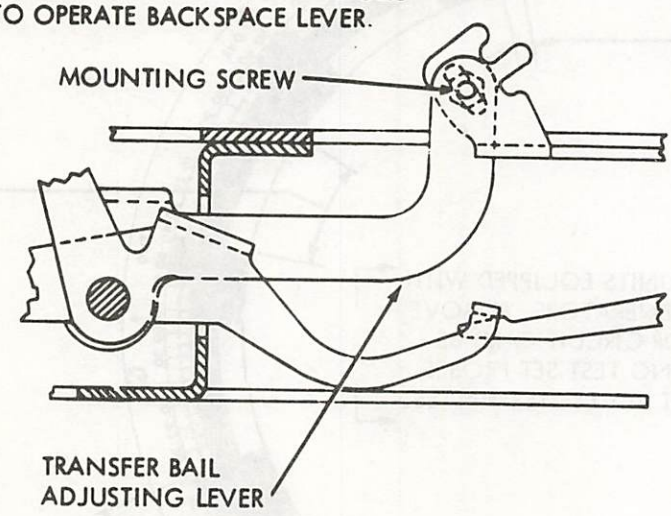
TRANSFER BAIL ADJUSTING LEVER

REQUIREMENT
DOWNWARD PRESSURE ON BACKSPACE KEY
MIN 16 OZS --- MAX 28 OZS
TO OPERATE BACKSPACE LEVER.

TO ADJUST
POSITION TRANSFER BAIL ADJUSTING LEVER WITH ITS MOUNTING SCREW LOOSENED. IF UNIT IS FORWARD SPACING, THE ADJUSTING LEVER MUST BE RAISED UNTIL PROPER BACKSPACING IS ACCOMPLISHED.

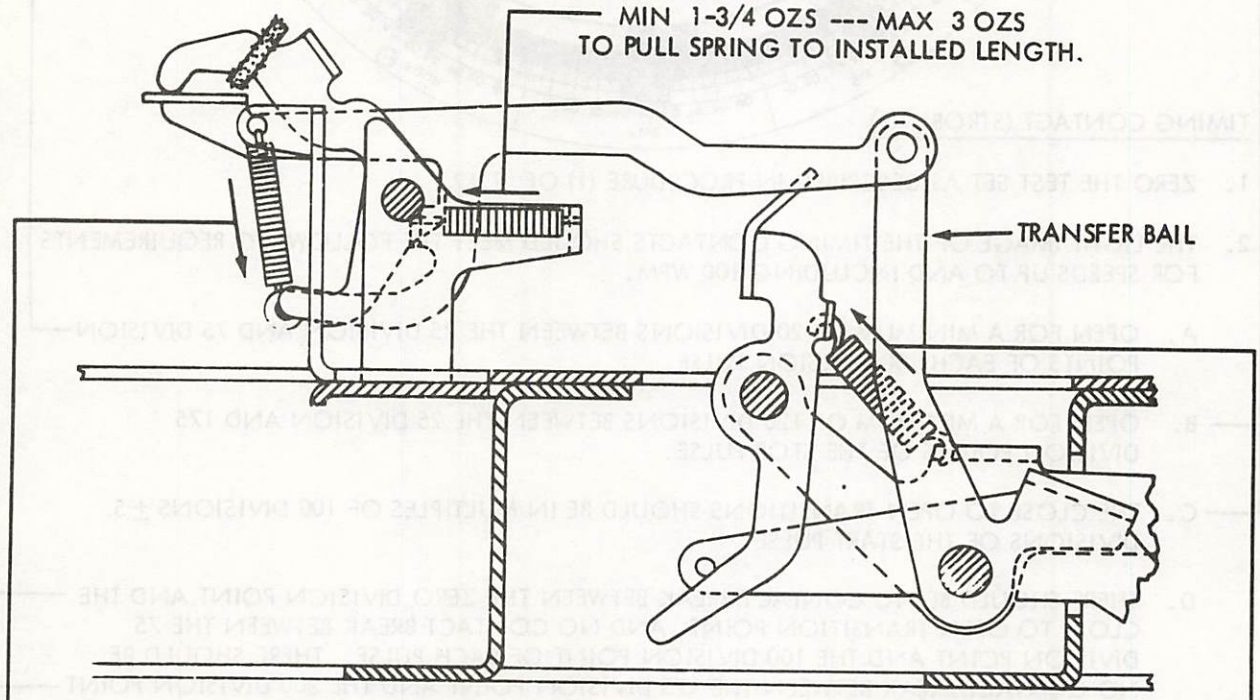
NOTE 1: THIS ADJUSTMENT MAY REQUIRE REMAKING WHEN A DIFFERENT TYPING UNIT IS USED.

NOTE 2: THE CAMMING BAIL SHOULD RETURN TO ITS UNOPERATED POSITION WHEN THE KEYLEVER IS RELEASED. REFINE ADJUSTMENT IF NECESSARY.



TRIP LINK HORIZONTAL SPRING

REQUIREMENT
UNHOOK SPRING
MIN 1-3/4 OZS --- MAX 3 OZS
TO PULL SPRING TO INSTALLED LENGTH.



TRIP LINK VERTICAL SPRING

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

TRANSFER BAIL SPRING

REQUIREMENT
UNHOOK SPRING
MIN 1/2 OZ --- MAX 1 OZ
TO PULL SPRING TO INSTALLED LENGTH.

3.05 Receive-Break Switch Mechanism

RECEIVE-BREAK SWITCH

REQUIREMENT
THE BAIL SHOULD OPERATE THE CONTACT PILE-UP WITH SOME OVERTRAVEL.

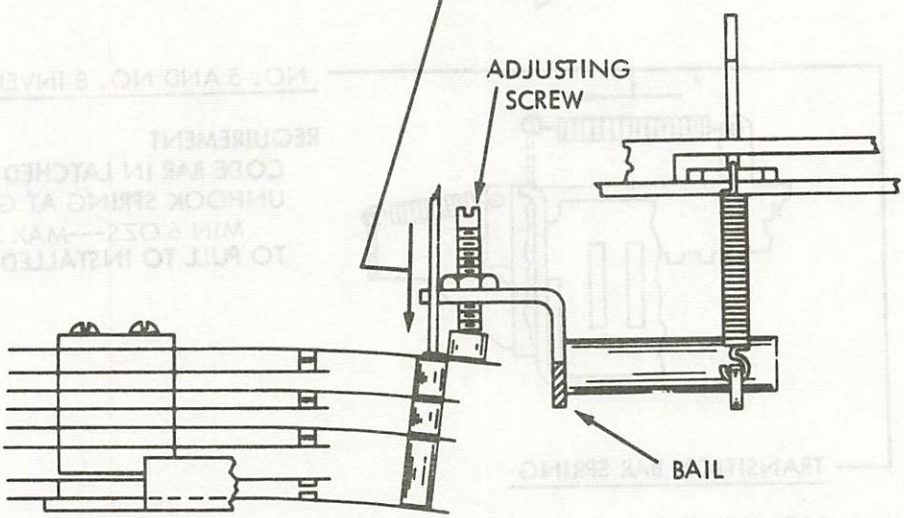
TO CHECK
KEYBOARD LOCK PLUNGER IN DOWNWARD POSITION. FUNCTION BAIL LATCHED.

TO ADJUST
LOOSEN LOCK NUT ON ADJUSTING SCREW AND POSITION SCREW. RECHECK FOR OVERTRAVEL.

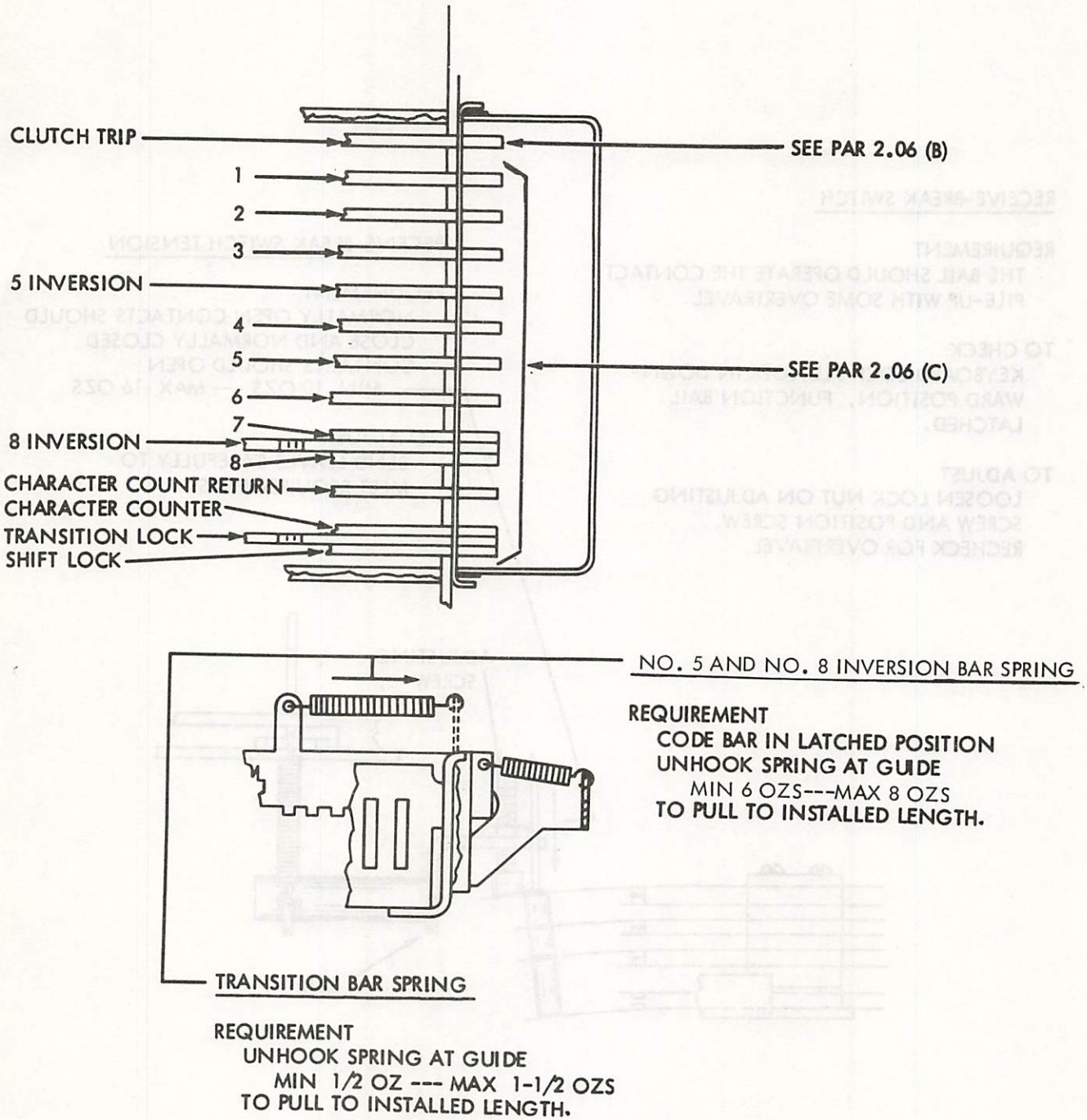
RECEIVE-BREAK SWITCH TENSION

REQUIREMENT
NORMALLY OPEN CONTACTS SHOULD CLOSE AND NORMALLY CLOSED CONTACTS SHOULD OPEN
MIN 10 OZS --- MAX 16 OZS

TO ADJUST
BEND LEAVES CAREFULLY TO MEET REQUIREMENTS.



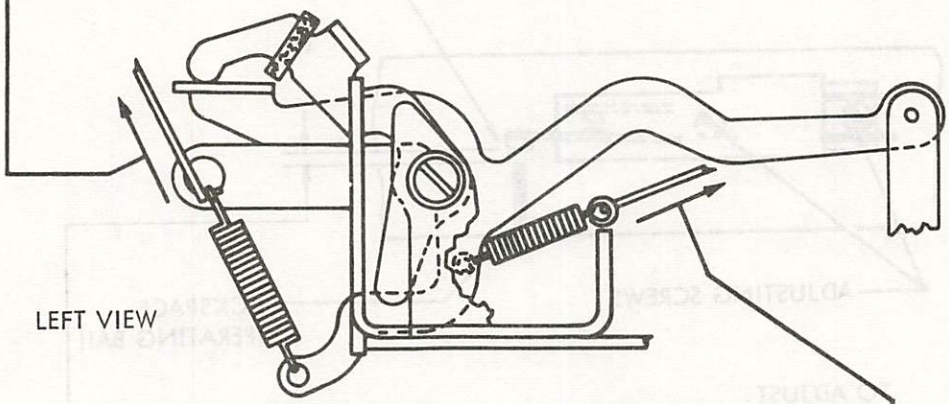
3.06 Code Bar Arrangement for Even Parity



3.07 Local Single Line Feed Mechanism

TRIP LINK VERTICAL SPRING

REQUIREMENT
UNHOOK SPRING
MIN 4 OZS---MAX 5 OZS
TO PULL SPRING TO INSTALLED LENGTH.



LEFT VIEW

TRIP LINK HORIZONTAL SPRING

(REAR SPRING AS VIEWED FROM LEFT)

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

TRIP LINK SPRING

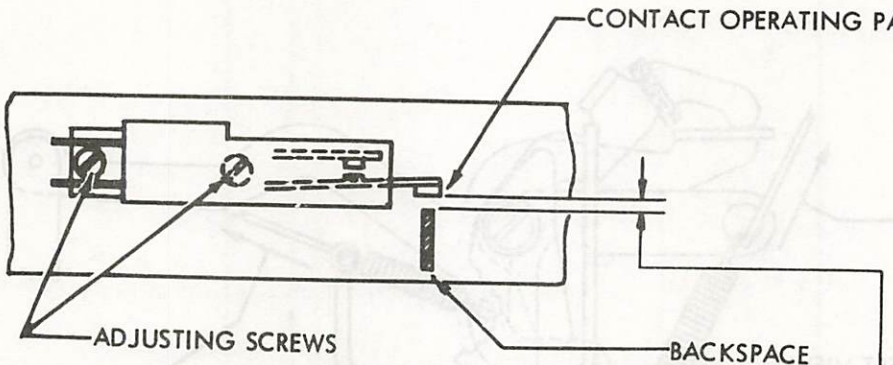
(FRONT SPRING AS VIEWED FROM LEFT)

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

3.08 Reperforator Backspace Actuating Switch Mechanism

OPERATING PAD GAP

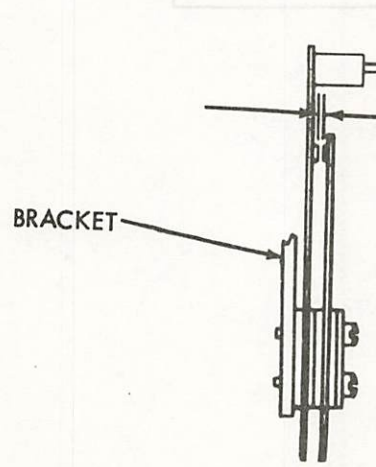
REQUIREMENT
DEPRESSING LOC BSP KEY SHOULD CLOSE NORMALLY OPEN REPERFORATOR BACKSPACE ACTUATING SWITCH.



TO ADJUST
CHECK WITH OHMMETER, SHIFT SWITCH ASSEMBLY ON MOUNTING HOLES.

NOTE:
IDEAL CONDITION EXISTS WHEN PRINTER AND REPERFORATOR BACKSPACE SIMULTANEOUSLY. TO ACHIEVE, ADJUST BY TRIAL AND ERROR WITH PRINTER AND REPERFORATOR MOUNTED. IF REPERFORATOR BACKSPACES BEFORE PRINTER, INCREASE GAP BETWEEN CONTACT OPERATING PAD AND BACKSPACE OPERATING BAIL. IF PRINTER BACKSPACES FIRST, DECREASE GAP.

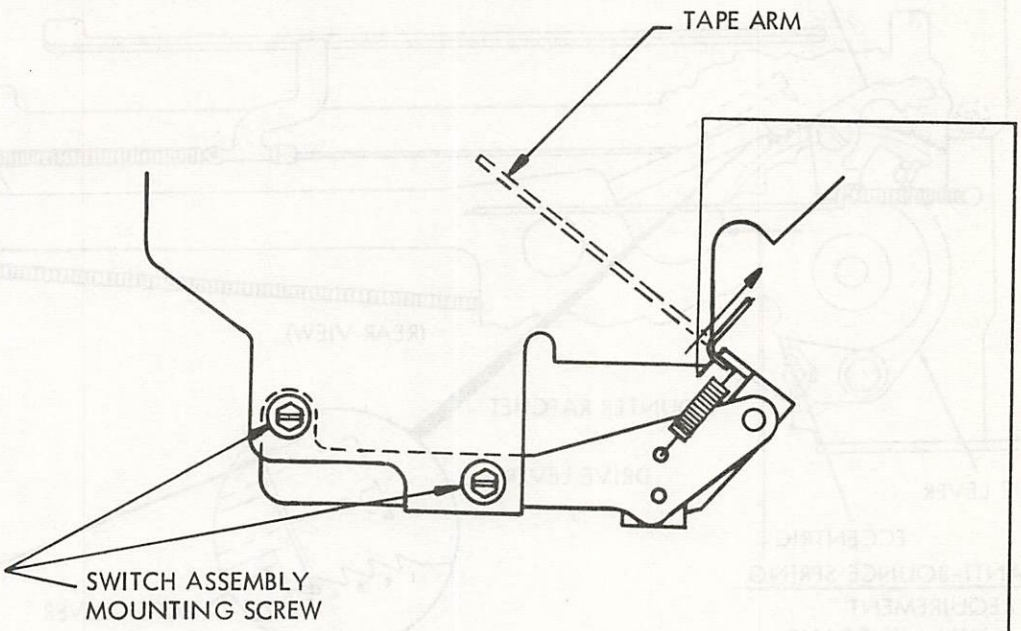
3.09 Keyboard Universal Contact Mechanism



REQUIREMENT
WITH CLUTCH LATCHED
MIN 0.010 INCH --- MAX 0.020 INCH CONTACT GAP.

TO ADJUST
CAREFULLY BEND CONTACT SPRING TO MEET REQUIREMENT.

3.10 Tape Alarm



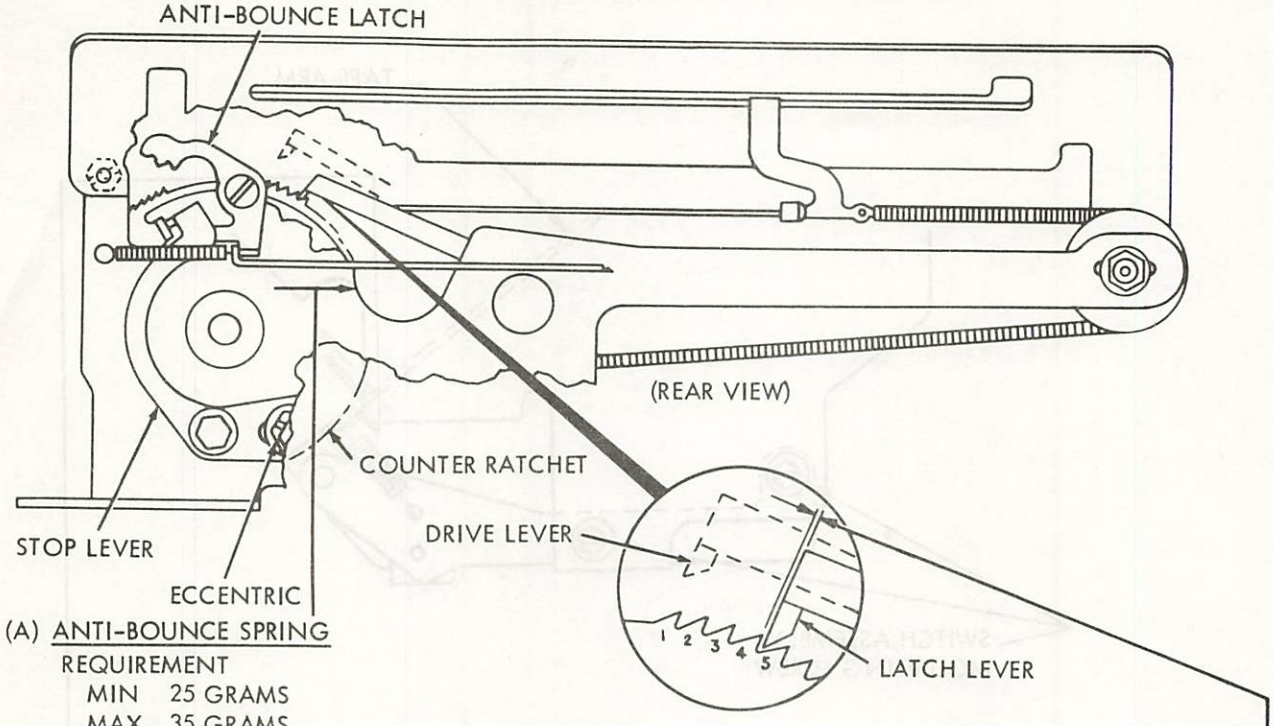
TAPE ALARM SWITCH
REQUIREMENT
SWITCH SHALL OPERATE WHEN ROLL
OF TAPE IS REDUCED IN DIAMETER
MIN 2-3/8 INCHES
MAX 2-1/2 INCHES

TO ADJUST
WITH SWITCH ASSEMBLY MOUNTING SCREWS
LOOSENED POSITION ASSEMBLY IN TAPE
CONTAINER TO MEET REQUIREMENT.
BEND TAPE ARM IF NECESSARY.

TAPE ARM SPRING
REQUIREMENT
HOOK SPRING SCALE OVER TAPE LEVER
AND PULL IN LINE WITH SPRING
MIN 6 OZS --- MAX 10 OZS
TO RELEASE SPRING.

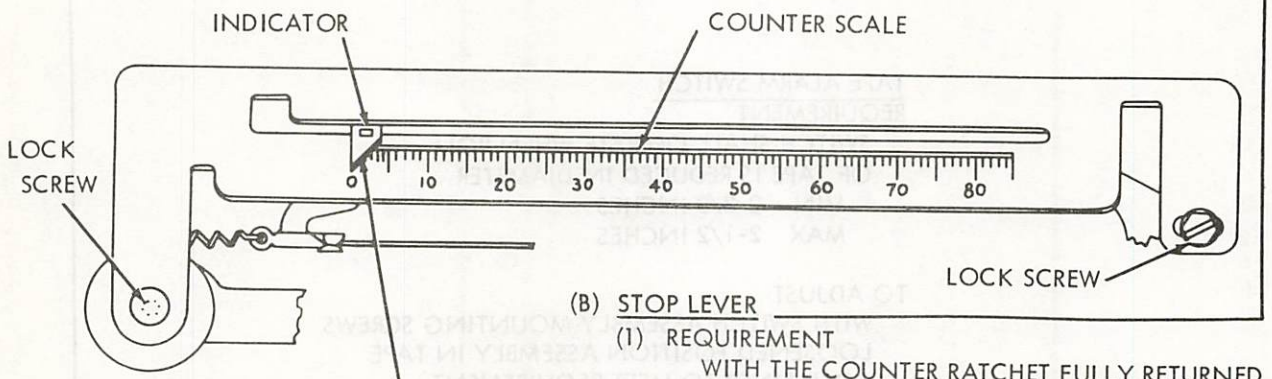
3.11 Character Counter Mechanism

NOTE: CHARACTER COUNTER ADJUSTMENTS MAY BE FACILITATED BY REMOVING THE ASSEMBLY FROM THE KEYBOARD EXCEPT FOR 3.13, CHARACTER COUNTER STROKE.



(A) ANTI-BOUNCE SPRING

REQUIREMENT
MIN 25 GRAMS
MAX 35 GRAMS
TO PULL LATCH TO THE END OF ITS TRAVEL.



(B) STOP LEVER

(1) REQUIREMENT
WITH THE COUNTER RATCHET FULLY RETURNED AND RESTING AGAINST ITS STOP LEVER, THE CLEARANCE BETWEEN THE LATCH LEVER AND THE FACE OF THE 4TH RATCHET TOOTH SHOULD BE
MIN 0.002 INCH
MAX 0.010 INCH

(2) REQUIREMENT
THE ANTI-BOUNCE LATCH SHOULD NOT INTERFERE WITH THE ROTATION OF THE RATCHET.

TO ADJUST
HOLD THE DRIVE LEVER OUT OF ENGAGEMENT WITH THE RATCHET AND ROTATE THE STOP LEVER ECCENTRIC.

(C) CHARACTER COUNTER SCALE

(1) REQUIREMENT
WHEN INDICATOR IS AT EXTREME LEFT OF SCALE, IT SHOULD POINT TO ZERO.

TO ADJUST
SET INDICATOR TO LEFT. LOOSEN LOCK SCREWS AND POSITION SCALE.

(2) REQUIREMENT
POINT OF INDICATOR SHOULD NOT TOUCH THROUGHOUT ITS ENTIRE TRAVEL.

TO ADJUST
FORM THE INDICATOR.

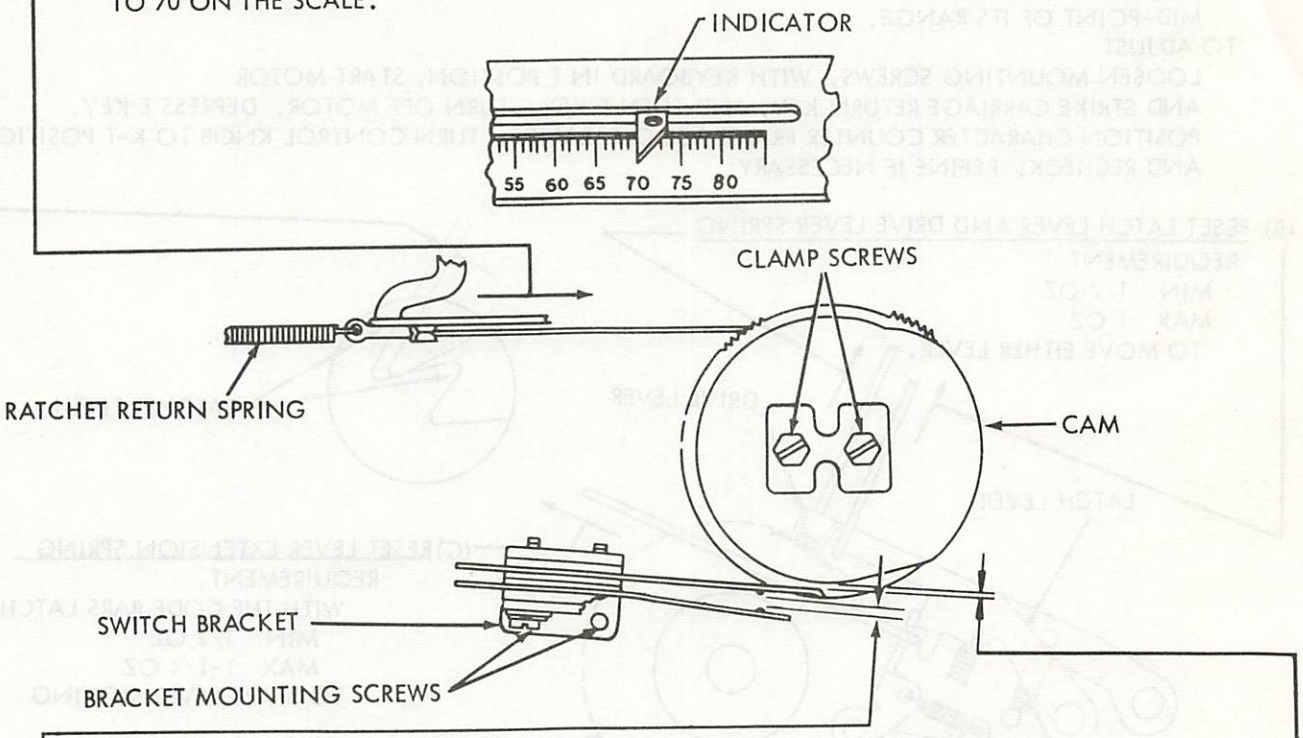
3.12 Character Counter Mechanism continued

(A) RATCHET DRUM ASSEMBLY RETURN SPRING

REQUIREMENT

1/2 TO 1-1/2 OZS WHEN INDICATOR POINTS TO 35 ON THE SCALE.

1-1/2 TO 2-1/2 OZS WHEN INDICATOR POINTS TO 70 ON THE SCALE.



(B) END-OF-LINE SWITCH

1. REQUIREMENT

SWITCH LEAVES SHOULD BE APPROXIMATELY PARALLEL TO SWITCH MOUNTING BRACKET AS GAUGED BY EYE.

UPPER SWITCH LEAF SHOULD CLEAR LOW PART OF CAM MIN SOME --- MAX 0.025 INCH AT CLOSEST POINT.

TO ADJUST

LOOSEN SWITCH BRACKET MOUNTING SCREWS AND POSITION ASSEMBLY.

2. REQUIREMENT

CLEARANCE BETWEEN CONTACTS OF SWITCH LEAVES SHOULD BE MIN 0.005 INCH --- MAX 0.020 INCH

TO ADJUST

BEND LOWER LEAF OF SWITCH.

3. REQUIREMENT

SWITCH SHOULD CLOSE AT A PRESET NUMBER OF CHARACTERS WITH A SMALL AMOUNT OF OVERTRAVEL BY BOTH CONTACT LEAVES.

TO ADJUST

SET INDICATOR TO COUNT DESIRED. LOOSEN CLAMP SCREWS AND ADJUST CAM UNTIL SWITCH JUST CLOSES. TIGHTEN SCREWS. CHECK OPERATION AND REFINE 1, 2 AND 3 IF NECESSARY.

3.13 Character Counter Mechanism continued

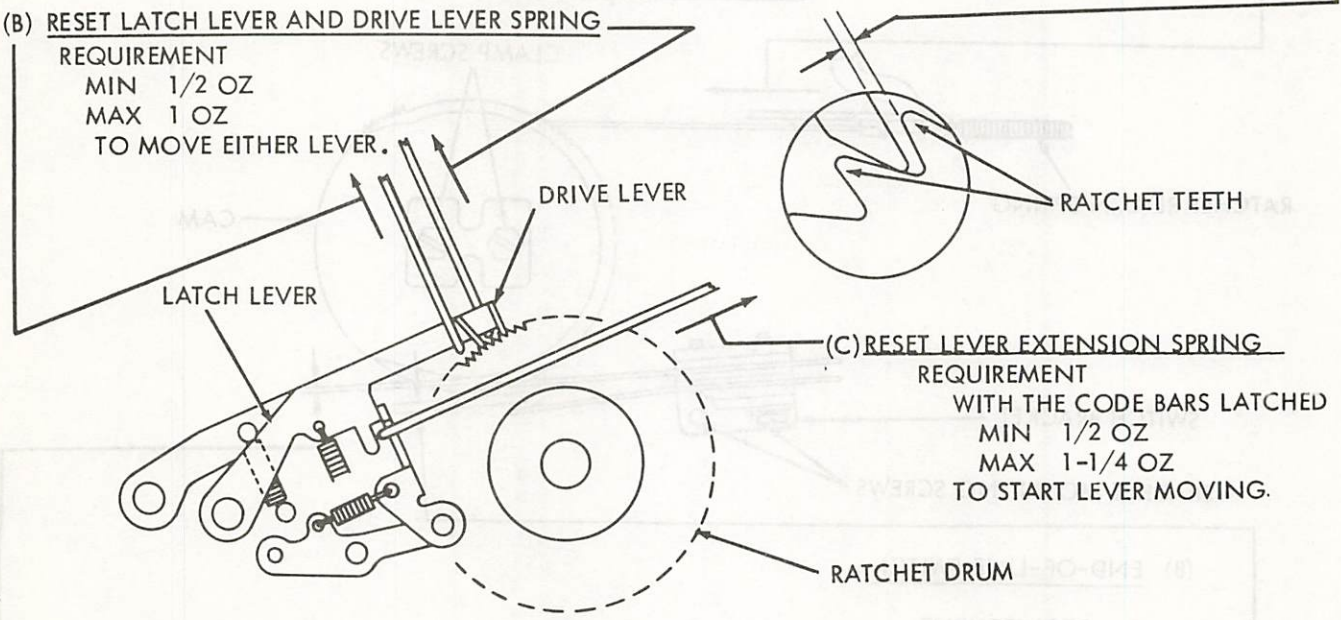
(A) CHARACTER COUNTER STROKE

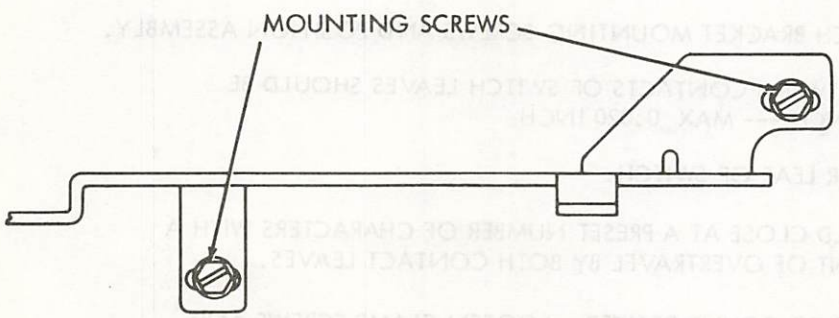
REQUIREMENT - MOUNT ASSEMBLY ON KEYBOARD
WHEN CHARACTER AND REPEAT KEYS ARE DEPRESSED, THE COUNTER SHOULD OPERATE CONSISTENTLY IN T OR K-T POSITION. WHEN CARRIAGE RETURN KEY IS DEPRESSED, THE COUNTER SHOULD RESET WITHOUT BINDING. THE MECHANISM SHOULD COUNT THE FIRST CHARACTER ON A RESTART AFTER RESET CONDITION.
MIN 0.006---MAX 0.015 INCH
BETWEEN DRIVE LEVER AND RATCHET TOOTH, WHEN COUNTER IS SET NEAR MID-POINT OF ITS RANGE.

TO ADJUST
LOOSEN MOUNTING SCREWS. WITH KEYBOARD IN T POSTION, START MOTOR AND STRIKE CARRIAGE RETURN KEY, AND THEN E KEY. TURN OFF MOTOR. DEPRESS E KEY. POSITION CHARACTER COUNTER FRAME FOR CLEARANCE. TURN CONTROL KNOB TO K-T POSITION AND RECHECK. REFINE IF NECESSARY.

(B) RESET LATCH LEVER AND DRIVE LEVER SPRING

REQUIREMENT
MIN 1/2 OZ
MAX 1 OZ
TO MOVE EITHER LEVER.



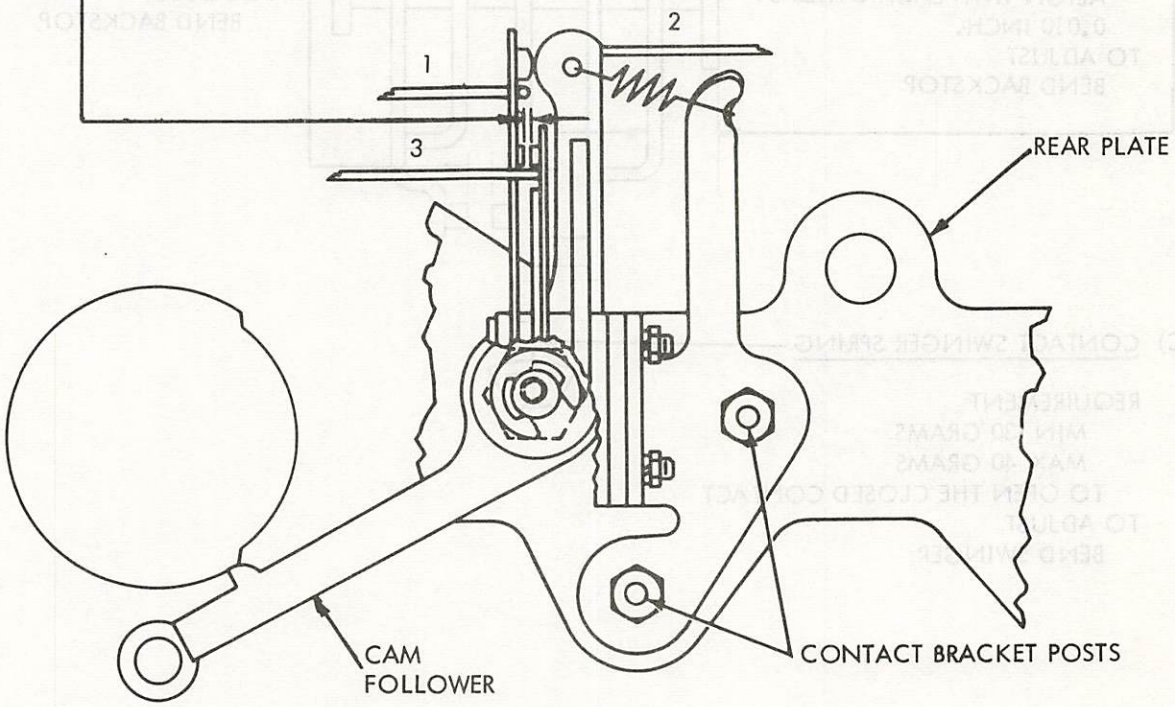


3.14 Auxiliary Contact Mechanism

CONTACT GAP

REQUIREMENT
CLUTCH LATCHED, CAM FOLLOWER ON HIGH PART OF CAM.
CONTACT GAP SHOULD BE
MIN 0.005 INCH --- MAX 0.015 INCH

TO ADJUST
LOOSEN POSTS THAT HOLD CONTACT BRACKET.
POSITION BRACKET BY USE OF SCREWDRIVER PLACED
BETWEEN BRACKET UPRIGHT AND REAR PLATE.



SEE 3.02 FOR REQUIREMENTS OF:

1. CONTACT SWINGER
2. CAM FOLLOWER SPRING
3. CONTACT STIFFENER

SEE 3.20 FOR AUXILIARY CONTACT REFINEMENT (STROBING)

3.15 Code Reading Contact Mechanism

NOTE 1: ADJUSTMENTS ON THIS PAGE SHOULD BE MADE WITH THE CONTACT ASSEMBLY REMOVED FROM THE KEYBOARD.

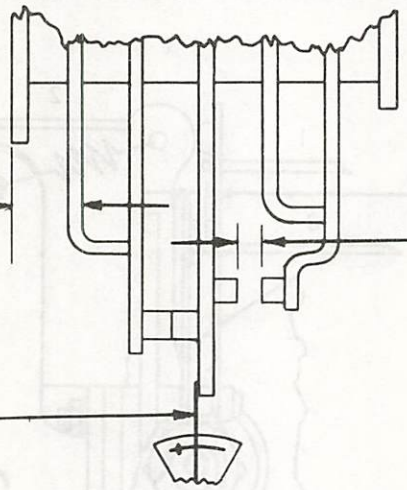
NOTE 2: EACH ADJUSTMENT SHOULD START WITH THE CONTACT PILE-UP FARTHEST FROM THE HANDLE OF THE BENDING TOOL. SEE 3.15

(A) BACKSTOP - NORMALLY CLOSED CONTACT

REQUIREMENT
NORMALLY CLOSED CONTACT LEAF SHOULD BE PARALLEL TO MOUNTING PLATE AND ALIGN WITH EACH OTHER BY 0.010 INCH.
TO ADJUST
BEND BACKSTOP

(D) NORMALLY OPEN CONTACT GAP

REQUIREMENT
MIN 0.018 INCH
MAX 0.030 INCH
NORMALLY OPEN GAP
TO ADJUST
BEND BACKSTOP

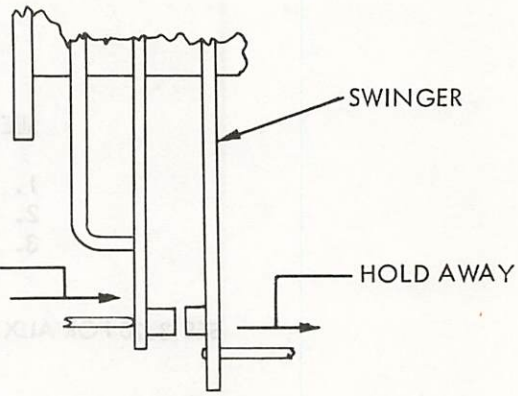


(C) CONTACT SWINGER SPRING

REQUIREMENT
MIN 30 GRAMS
MAX 40 GRAMS
TO OPEN THE CLOSED CONTACT
TO ADJUST
BEND SWINGER

(B) NORMALLY CLOSED CONTACT SPRING

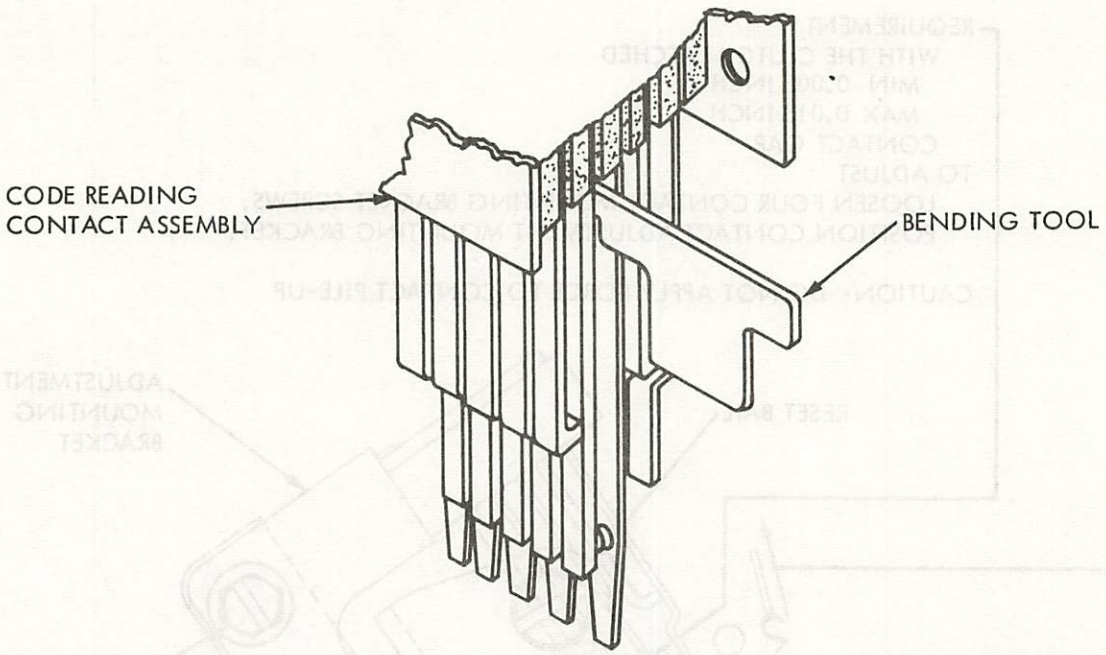
REQUIREMENT
MIN 2 OZS
MAX 6 OZS
TO MOVE CONTACT SPRING AWAY FROM BACKSTOP. HOLD SWINGER AWAY FROM CLOSED CONTACT.
TO ADJUST
BEND SPRING. TO INCREASE TENSION AGAINST BACKSTOP, BEND BACKSTOP AWAY FROM SPRING LEAF AND FORM LEAF TOWARD BACKSTOP, THEN REPOSITION BACKSTOP PER (A) ABOVE.



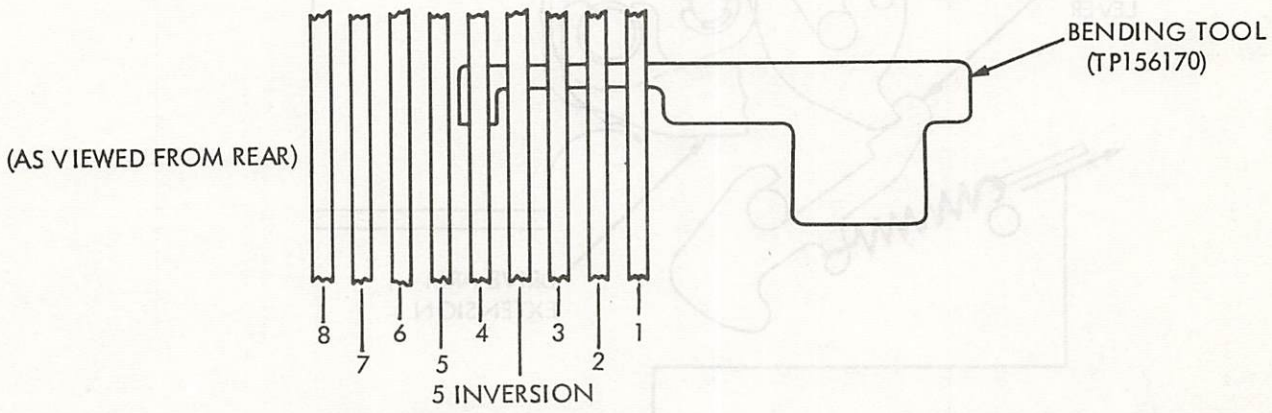
3.16 Code Reading Contact Mechanism continued

ADJUSTING CODE READING CONTACTS

1. THE CONTACT ASSEMBLY SHOULD BE REMOVED FROM THE KEYBOARD TO PERFORM THE ADJUSTMENTS OF 3.15. IT IS NOT NECESSARY TO REMOVE THE WIRES FROM THE ASSEMBLY.



2. EACH ADJUSTMENT SHOULD START WITH THE CONTACT PILE-UP FARTHEST FROM THE HANDLE OF THE BENDING TOOL.



3. AFTER ADJUSTING CONTACT PILE-UPS 4, 5 1, 3, 2, AND 1, INSERT THE BENDING TOOL IN THE OPPOSITE SIDE OF THE ASSEMBLY AND ADJUST CONTACT PILE-UPS 5, 6, 7, AND 8 IN THE ORDER GIVEN.

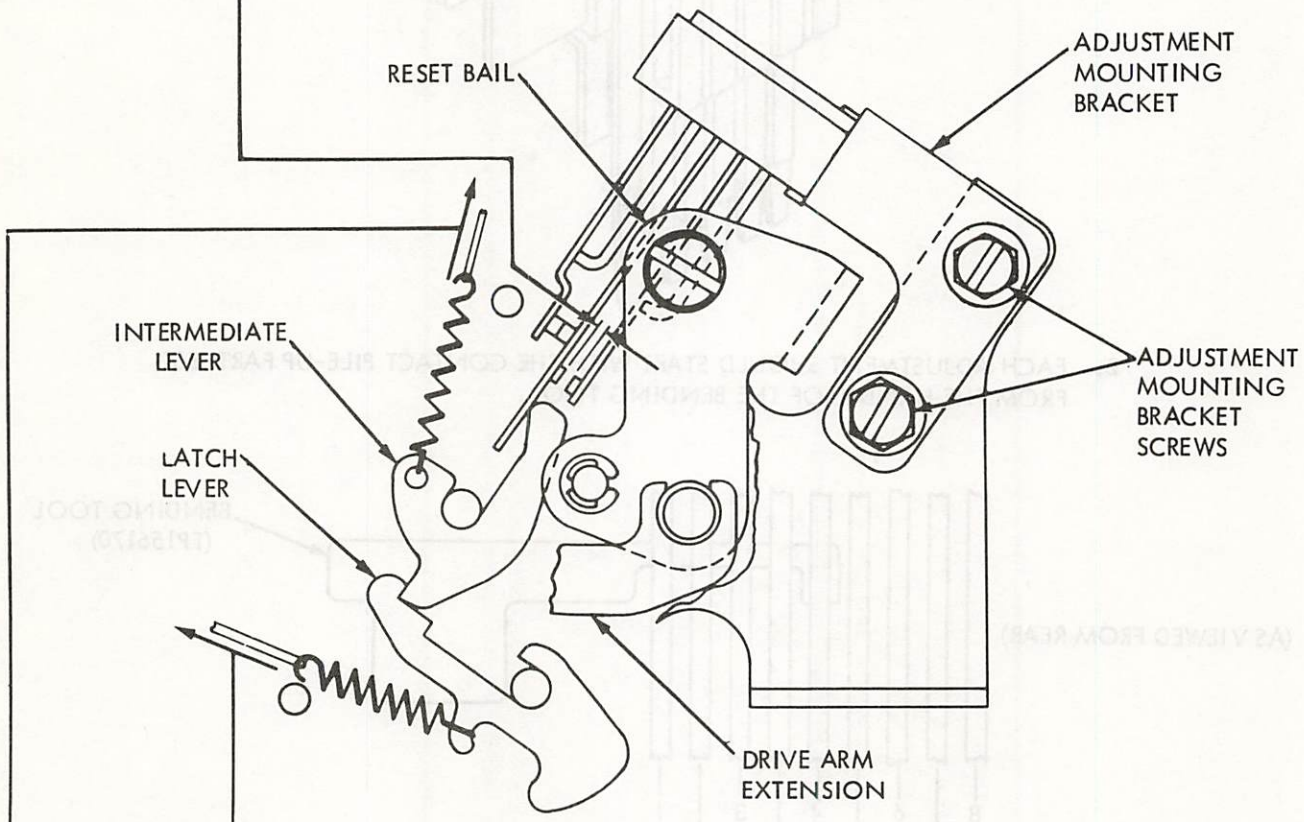
3.17 Code Reading Contact Mechanism continued

NOTE: PERFORM (A), THEN INSTALL CONTACT ASSEMBLY ON THE KEYBOARD FOR THE REMAINING CODE READING CONTACT ADJUSTMENTS.

(B) MARKING CONTACT GAP

REQUIREMENT
WITH THE CLUTCH LATCHED
MIN 0.005 INCH
MAX 0.015 INCH
CONTACT GAP
TO ADJUST
LOOSEN FOUR CONTACT MOUNTING BRACKET SCREWS.
POSITION CONTACT ADJUSTMENT MOUNTING BRACKET.

CAUTION: DO NOT APPLY FORCE TO CONTACT PILE-UP



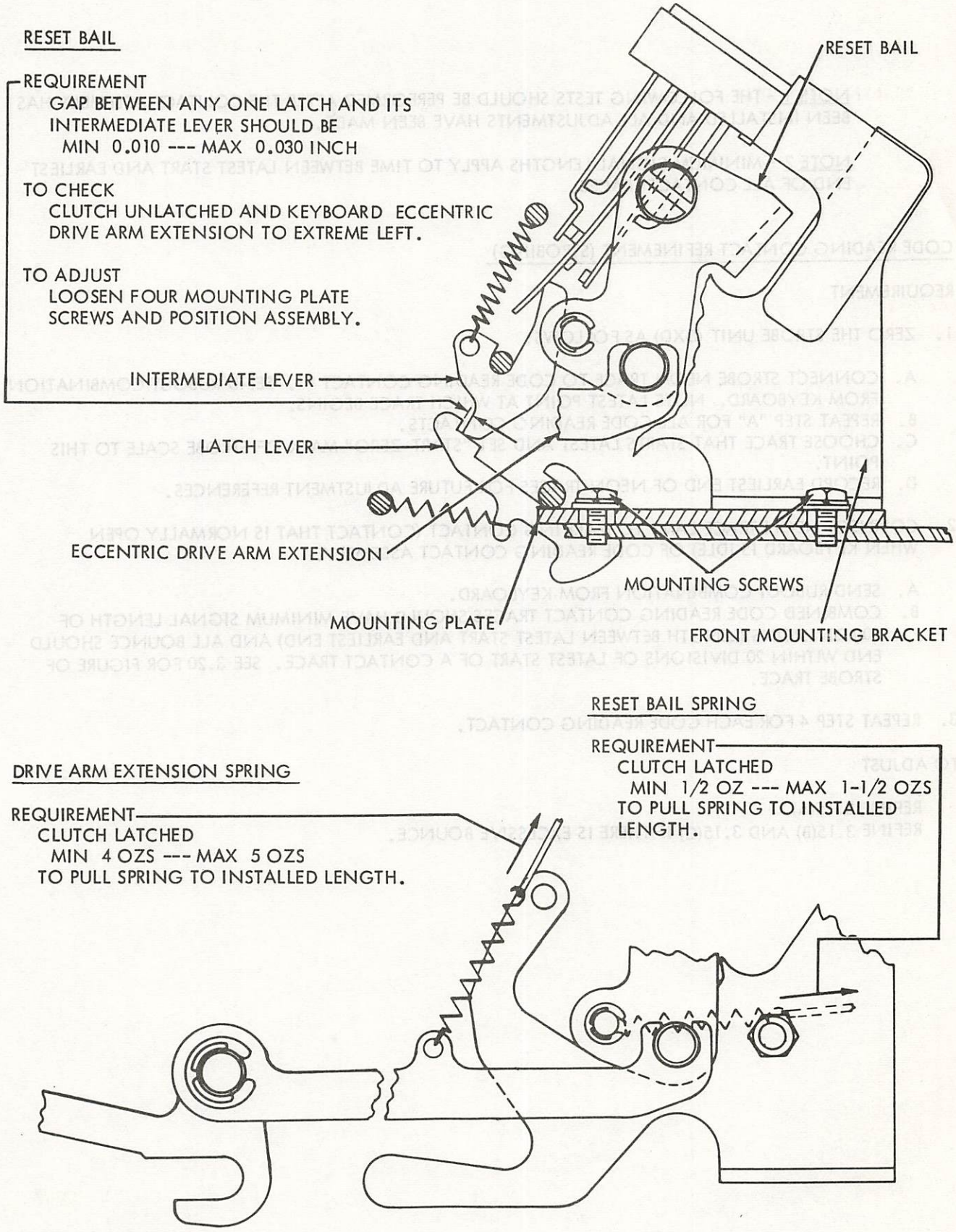
(C) INTERMEDIATE LEVER SPRING

REQUIREMENT
WITH THE CLUTCH LATCHED
MIN 1 OZ
MAX 2 OZS
TO PULL SPRING TO INSTALLED LENGTH.

(A) LATCH LEVER SPRING

REQUIREMENT
WITH THE CLUTCH LATCHED
MIN 2 OZS
MAX 4 OZS
TO PULL SPRING TO INSTALLED LENGTH.

3.18 Code Reading Contact Mechanism continued



3.19 Code Reading Contact Mechanism continued

NOTE 1 - THE FOLLOWING TESTS SHOULD BE PERFORMED AFTER THE CONTACT ASSEMBLY HAS BEEN INSTALLED AND ALL ADJUSTMENTS HAVE BEEN MADE.

NOTE 2 - MINIMUM SIGNAL LENGTHS APPLY TO TIME BETWEEN LATEST START AND EARLIEST END OF ALL CONTACT TRACES.

CODE READING CONTACT REFINEMENT (STROBING)

REQUIREMENT

1. ZERO THE STROBE UNIT (DXD) AS FOLLOWS:

   A. CONNECT STROBE NEON TRACE TO CODE READING CONTACT #1. SEND RUBOUT COMBINATION FROM KEYBOARD. NOTE LATEST POINT AT WHICH TRACE BEGINS.
   B. REPEAT STEP "A" FOR ALL CODE READING CONTACTS.
   C. CHOOSE TRACE THAT STARTS LATEST AND SET "START-ZERO" MARK OF STROBE SCALE TO THIS POINT.
   D. RECORD EARLIEST END OF NEON TRACES FOR FUTURE ADJUSTMENT REFERENCES.

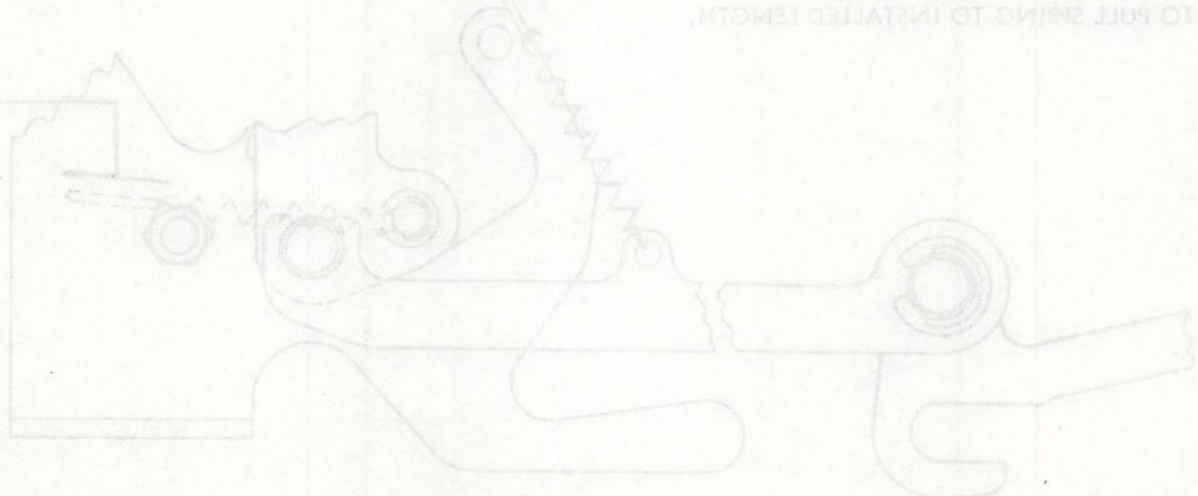
2. CONNECT NEON TRACE LAMP TO MARKING CONTACT (CONTACT THAT IS NORMALLY OPEN WHEN KEYBOARD IS IDLE) OF CODE READING CONTACT ASSEMBLY.

   A. SEND RUBOUT COMBINATION FROM KEYBOARD.
   B. COMBINED CODE READING CONTACT TRACES SHOULD HAVE MINIMUM SIGNAL LENGTH OF 500 DIVISIONS (LENGTH BETWEEN LATEST START AND EARLIEST END) AND ALL BOUNCE SHOULD END WITHIN 20 DIVISIONS OF LATEST START OF A CONTACT TRACE. SEE 3.20 FOR FIGURE OF STROBE TRACE.

3. REPEAT STEP 4 FOR EACH CODE READING CONTACT.

TO ADJUST

REFINE 3.15(A)
REFINE 3.15(B) AND 3.15(C) IF THERE IS EXCESSIVE BOUNCE.



3.20 Code Reading Contact Mechanism continued
Auxiliary Contact Mechanism continued

AUXILIARY CONTACT REFINEMENT (STROBING)

REQUIREMENTS (SEE NOTE 1 AND 2 IN 3.19)

1. ZERO THE STROBE UNIT (DXD) AS EXPLAINED IN STEP 1 OF 3.19.

2. CONNECT STROBE NEON TRACE TO AUXILIARY CONTACTS.

   A. SEND RUBOUT COMBINATION FROM KEYBOARD.
   B. END OF NEON TRACE SHOULD OCCUR AT A MINIMUM OF 22 DIVISIONS BEFORE EARLIEST END OF CODE READ CONTACT TRACES (INCLUDING ANY BOUNCE). START OF TRACE SHOULD BEGIN AT A MINIMUM OF 143 DIVISIONS AFTER THE STROBE "START-ZERO" MARK. THE PULSE MUST BE AT LEAST 250 DIVISIONS LONG.

TO ADJUST
REFINE ADJUSTMENT IN 3.14.