35 KEYBOARD FOR AUTOMATIC SEND-RECEIVE SETS

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 outside margins.

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 veiwed from the front.

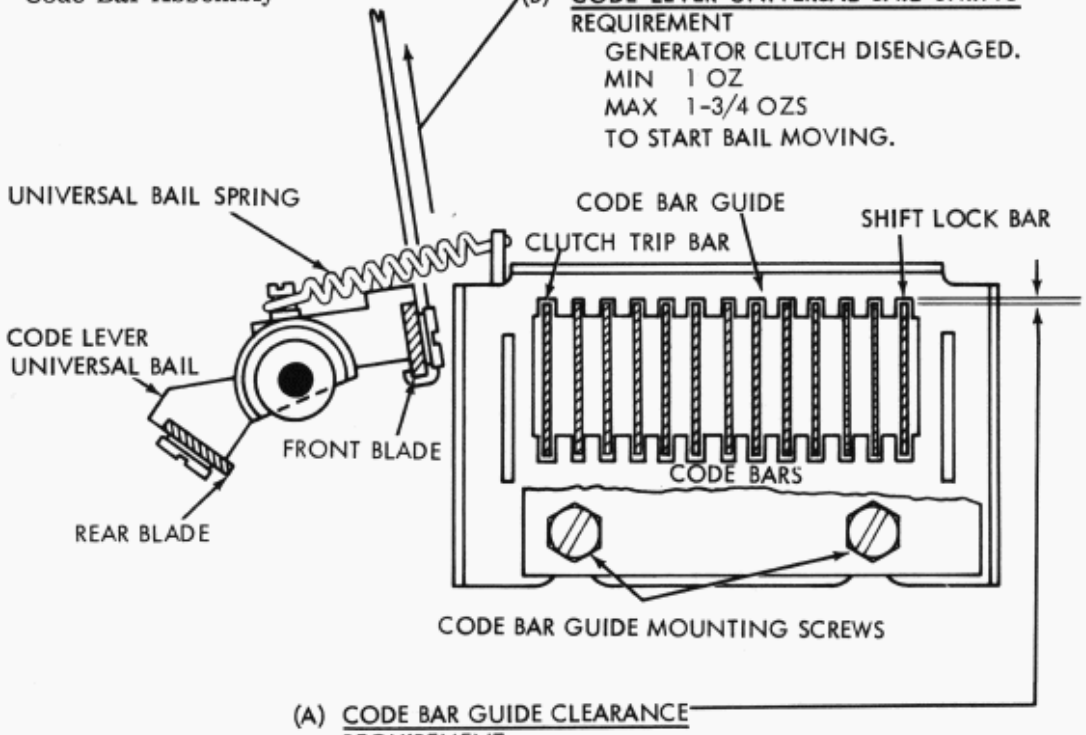
1.05 When a requirement calls for a clutch to be disengaged, the clutch shoe lever must be fully latched between its trip lever and latch lever so that the clutch shoes (2.13) release their tension on the clutch drum. When engaged, the clutch shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

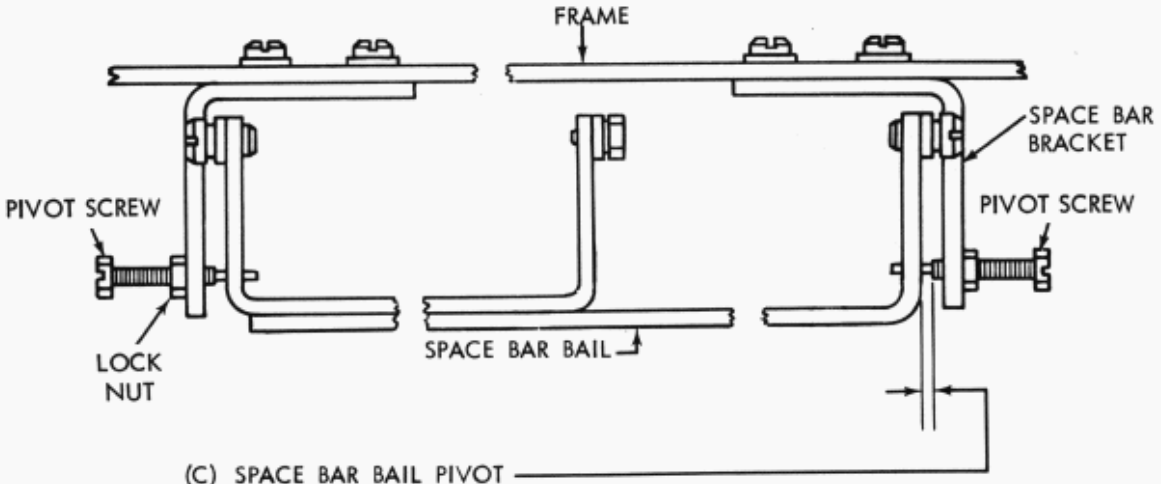
1.06 All electrical contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25 per cent of the contact diameter. Check contacts for pitting and corrosion and clean or burnish them before making specified adjustment or tolerance measurement. Avoid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

NOTE: KEEP ALL ELECTRICAL CONTACTS FREE OF OIL AND GREASE.

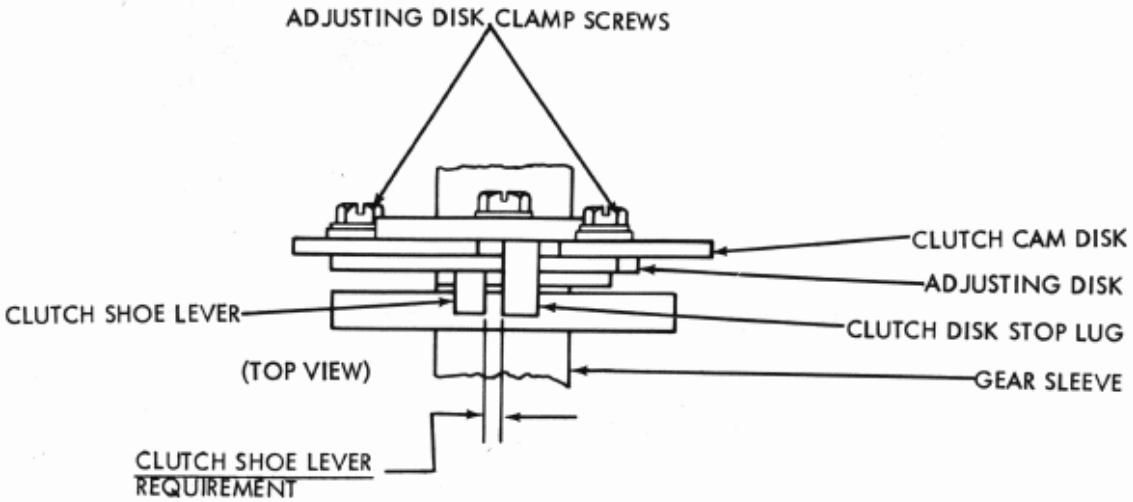
2. BASIC UNIT

2.01 Code Bar Assembly





→2.02 Signal Generator Mechanism



CLUTCH SHOE LEVER

REQUIREMENT

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

TO CHECK

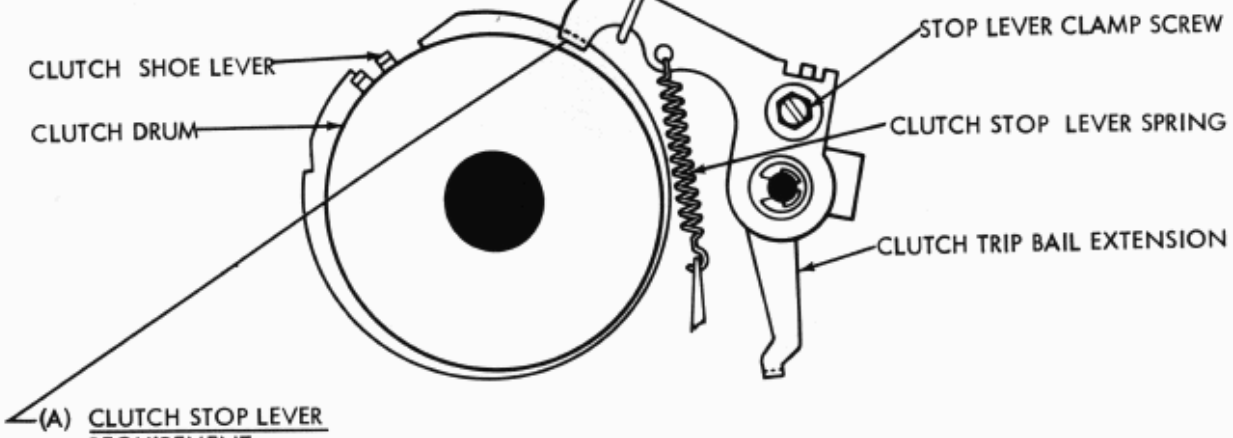
LATCH CLUTCH IN DISENGAGED POSITION AND MEASURE CLEARANCE. ROTATE GEAR UNTIL OIL HOLE IS UPWARD. ENGAGE CLUTCH AND MEASURE CLEARANCE.

TO ADJUST

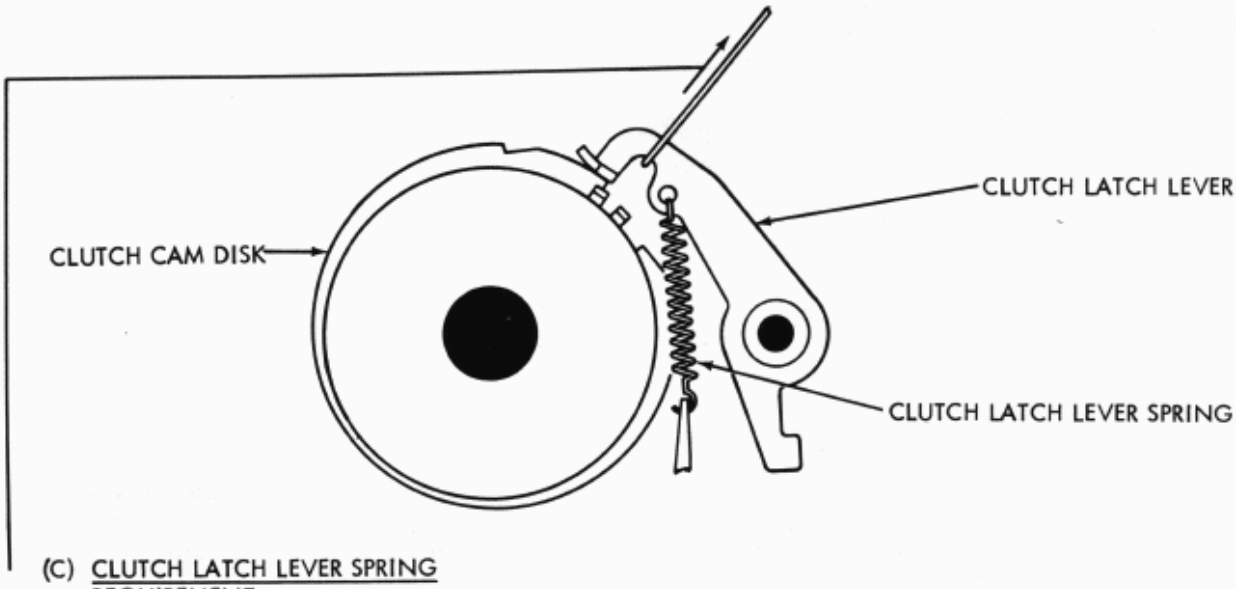
LOOSEN THE TWO ADJUSTING DISK CLAMP SCREWS TO POSITION DISK.

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.

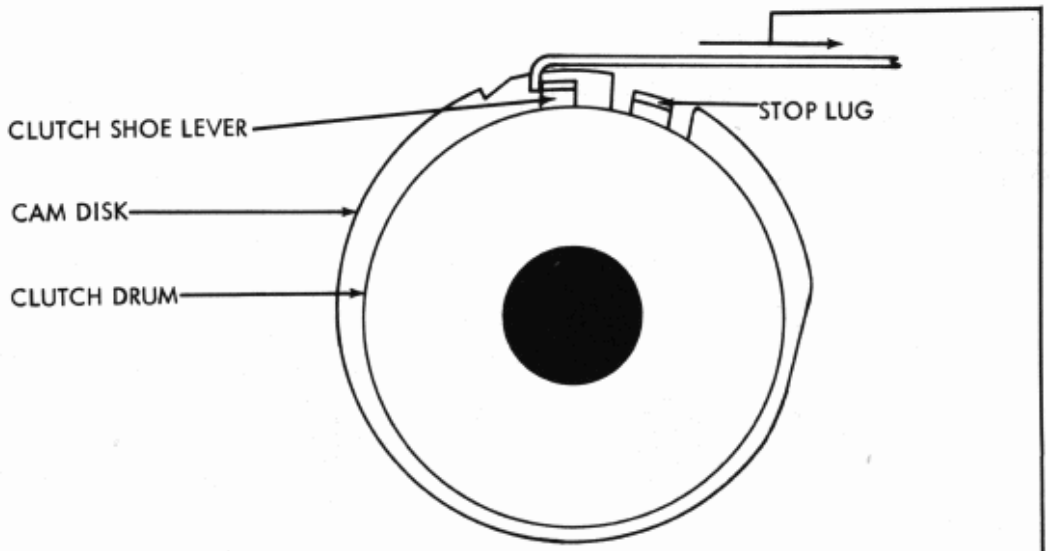


(A) CLUTCH STOP LEVER
REQUIREMENT
SHOULD FULLY ENGAGE CLUTCH SHOE LEVER.
DURING ROTATION, THE LEVER SHOULD NOT TOUCH THE CLUTCH DRUM AT ANY POINT.
TO ADJUST
POSITION STOP LEVER WITH ITS CLAMP

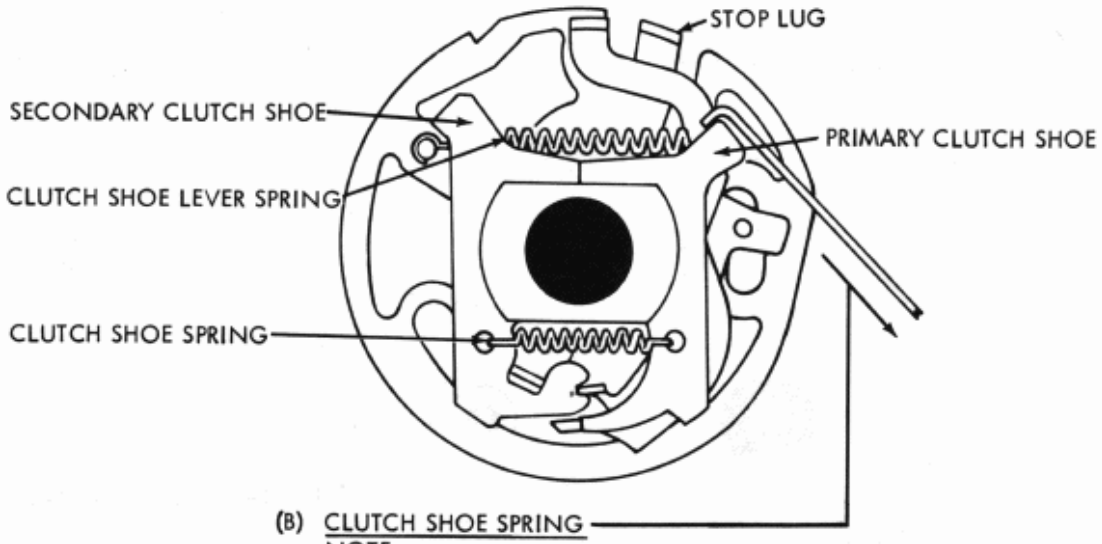


(C) CLUTCH LATCH LEVER SPRING
REQUIREMENT
CLUTCH LATCH LEVER RESTING ON THE HIGHEST POINT OF CLUTCH DISK.
MIN 2 OZS
MAX 3 OZS
TO START LATCH LEVER MOVING.

→2.04 Signal Generator Mechanism continued

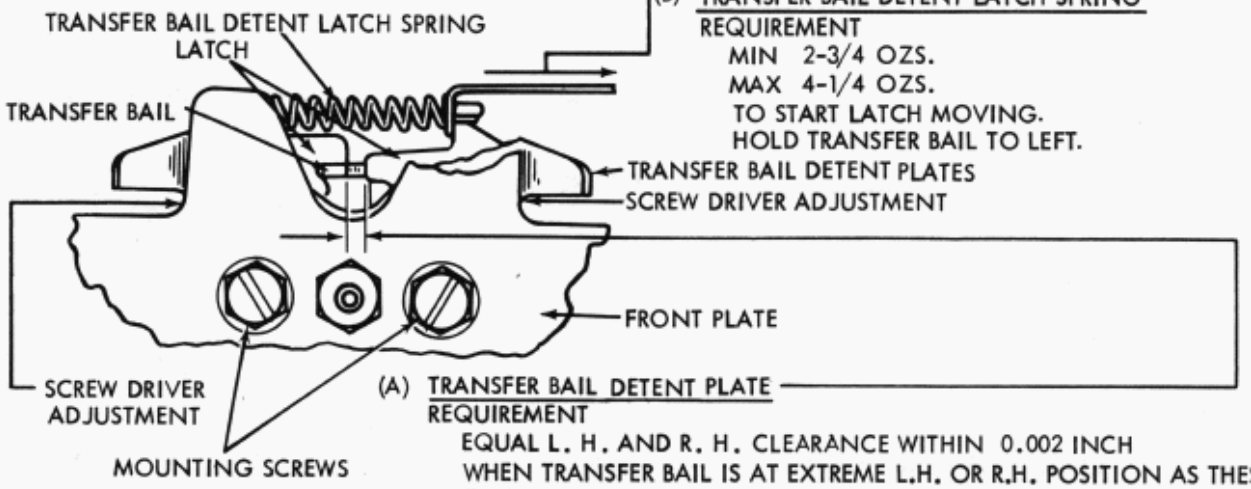


(A) CLUTCH SHOE LEVER SPRING
REQUIREMENT
CLUTCH ENGAGED
CAM DISK HELD TO PREVENT TURNING
MIN 15 OZS
MAX 20 OZS
TO MOVE SHOE LEVER IN CONTACT WITH STOP LUG.



(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



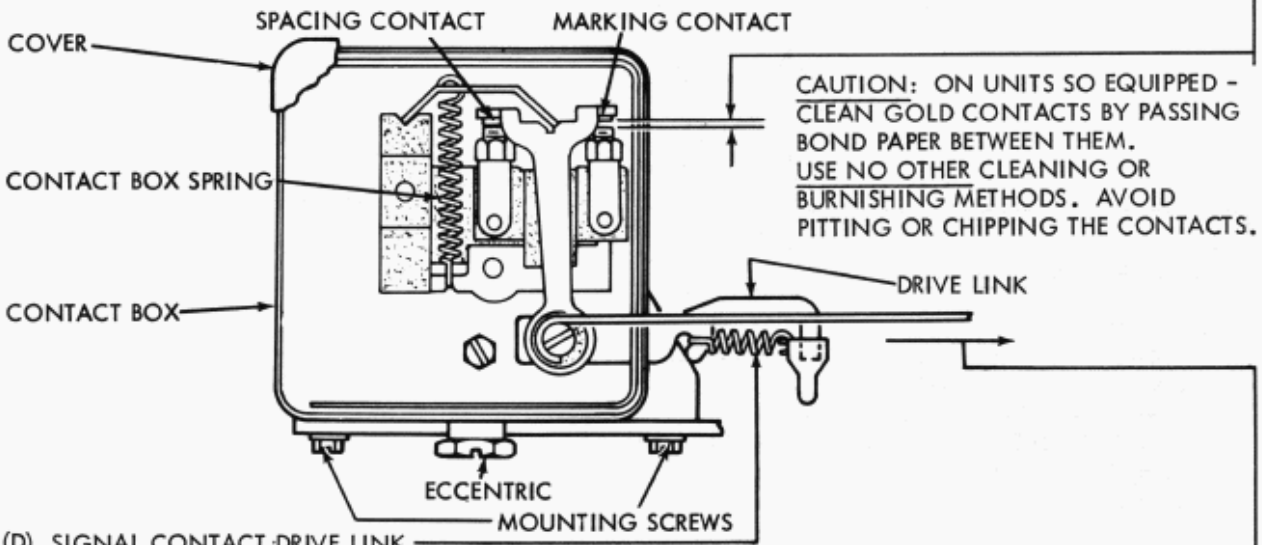
(B) TRANSFER BAIL DETENT LATCH SPRING
REQUIREMENT
MIN 2-3/4 OZS.
MAX 4-1/4 OZS.
TO START LATCH MOVING.
HOLD TRANSFER BAIL TO LEFT.

(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 (2.16).



CAUTION: ON UNITS SO EQUIPPED - CLEAN GOLD CONTACTS BY PASSING BOND PAPER BETWEEN THEM. USE NO OTHER CLEANING OR BURNISHING METHODS. AVOID PITTING OR CHIPPING THE CONTACTS.

(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.

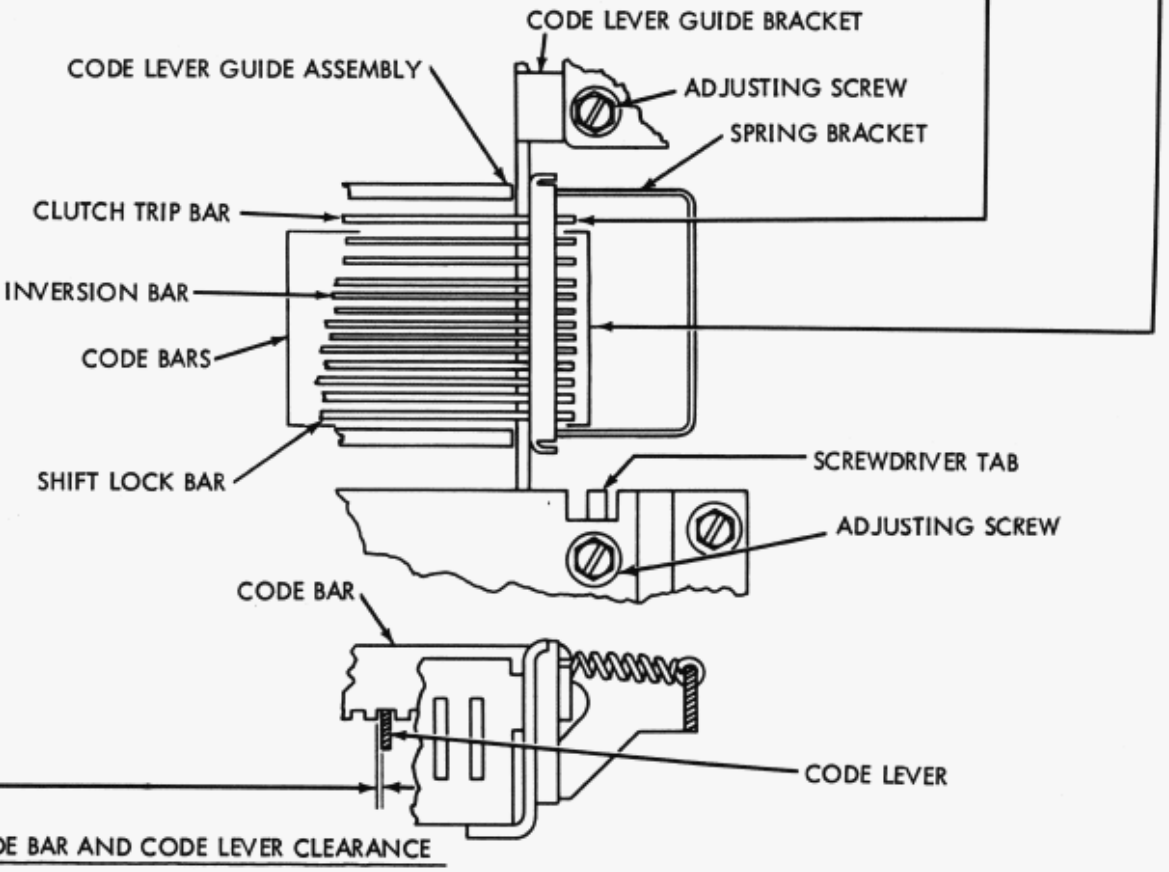
2.06 Code Bar Assembly continued

(C) CODE BARS, SHIFT LOCK BAR AND INVERSION BAR SPRINGS

REQUIREMENT
DEPRESS RUB OUT OR DELETE KEY. POWER OFF. TRANSFER LEVERS HELD RIGHT
MIN 2 OZS --- MAX 4 OZS
TO START EACH BAR MOVING.

(B) CLUTCH TRIP BAR SPRING

REQUIREMENT
CLUTCH DISENGAGED. POWER OFF
MIN 8 OZS
MAX 12 OZS
TO MOVE BAR.



(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

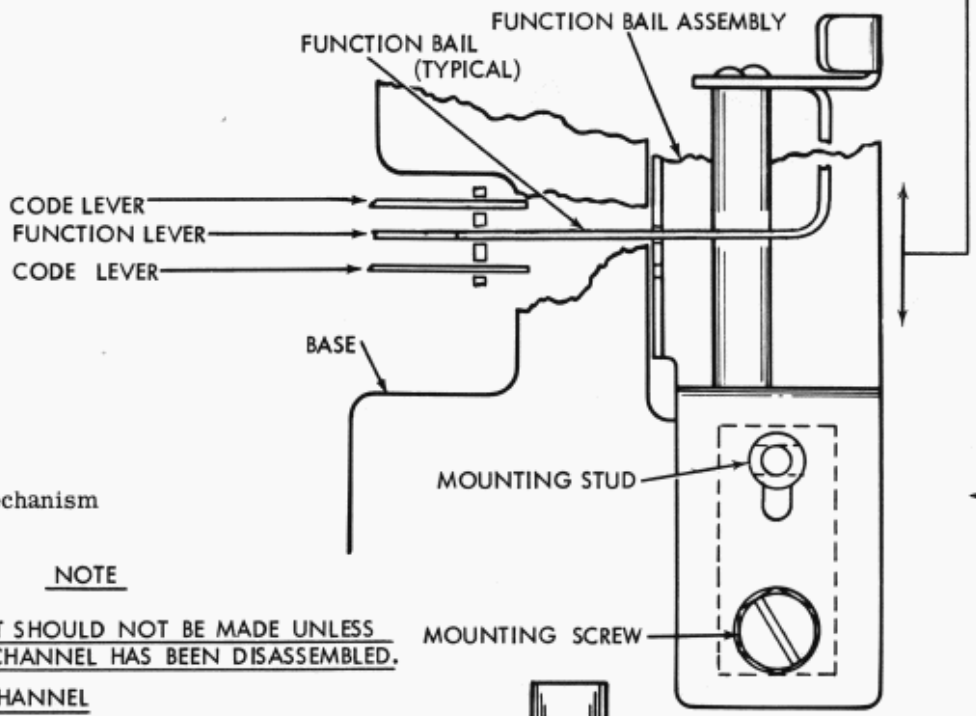
(A) FUNCTION BAIL LEVERS AND CODE LEVER CLEARANCE

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.

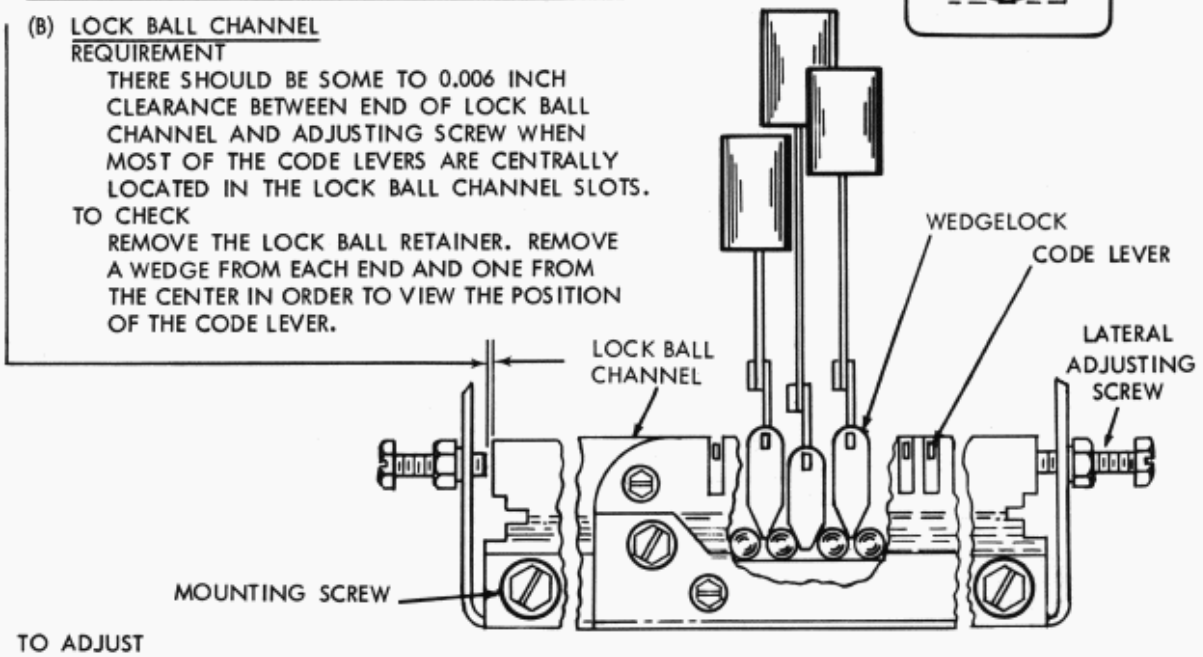
(B) LOCK BALL CHANNEL

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

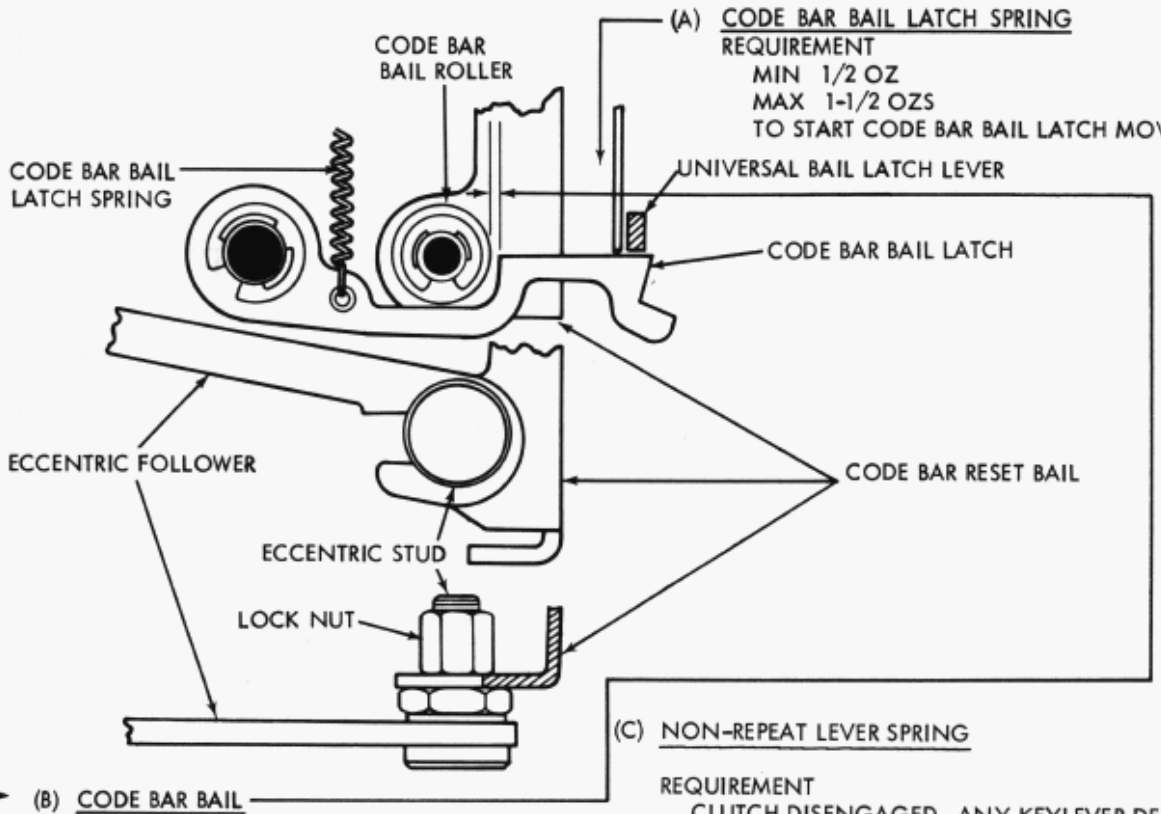
REMOVE THE LOCK BALL RETAINER. REMOVE A WEDGE FROM EACH END AND ONE FROM THE CENTER IN ORDER TO VIEW THE POSITION OF THE CODE LEVER.



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.

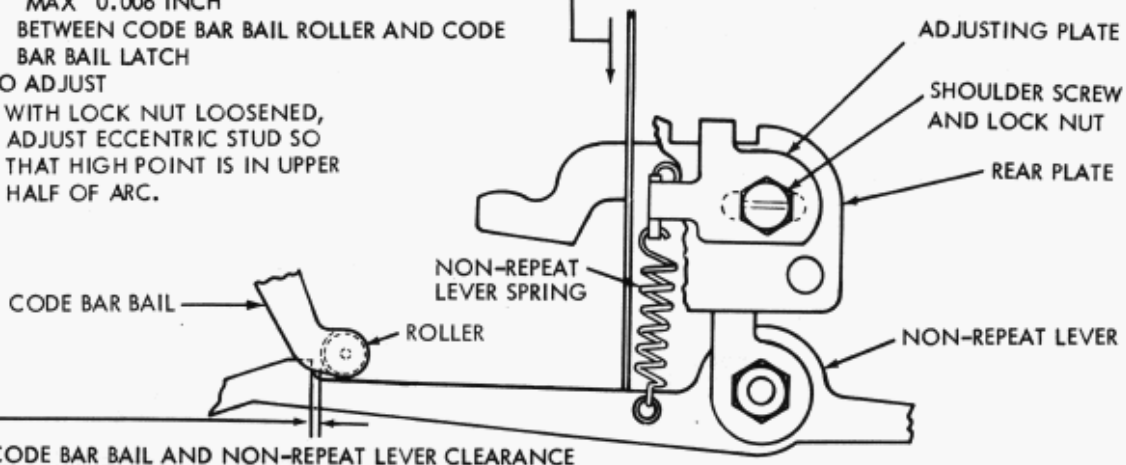
→2.09 Code Bar Assembly continued



(A) CODE BAR BAIL LATCH SPRING
REQUIREMENT
MIN 1/2 OZ
MAX 1-1/2 OZS
TO START CODE BAR BAIL LATCH MOVING.

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

→ (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.



(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

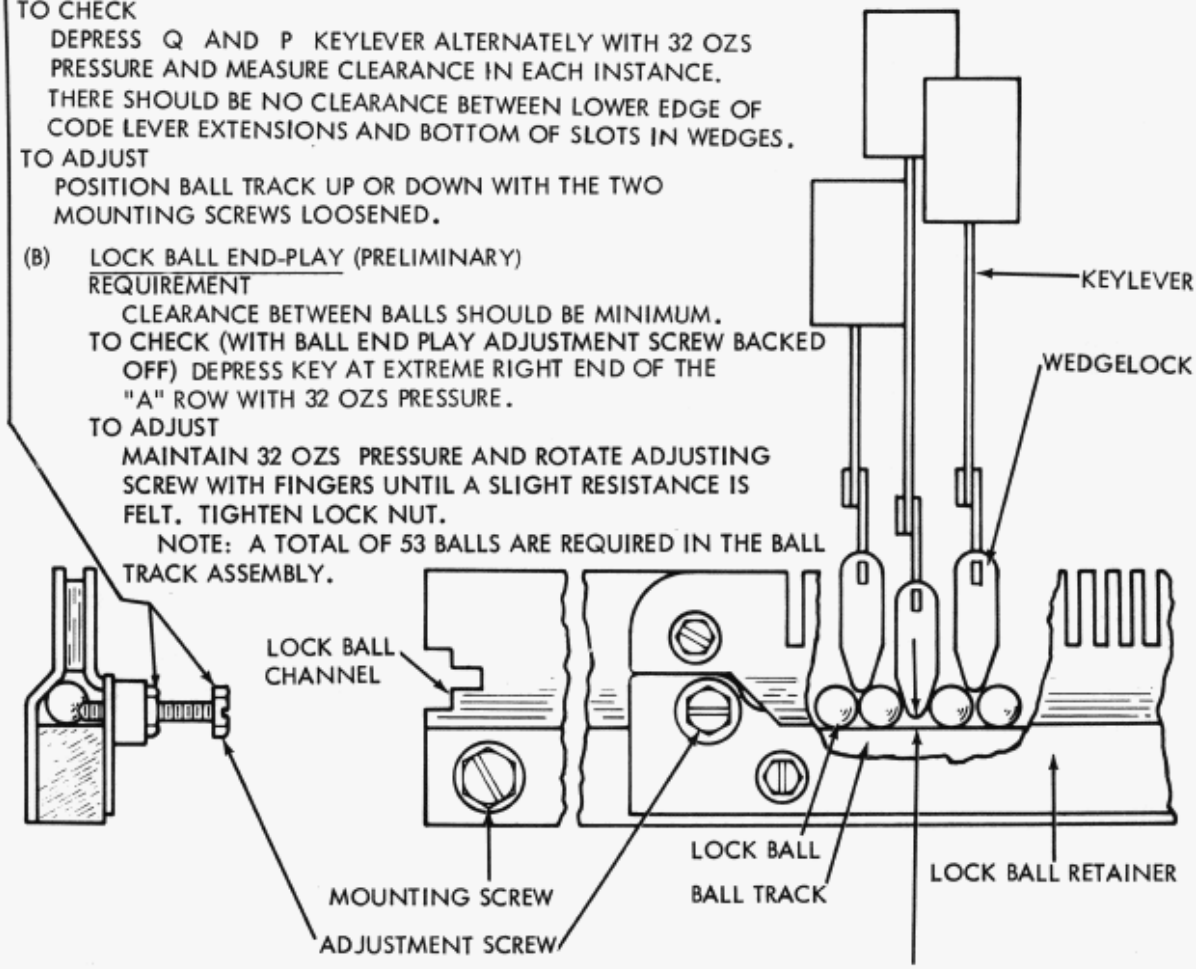
CLEARANCE BETWEEN BALLS SHOULD BE MINIMUM.

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

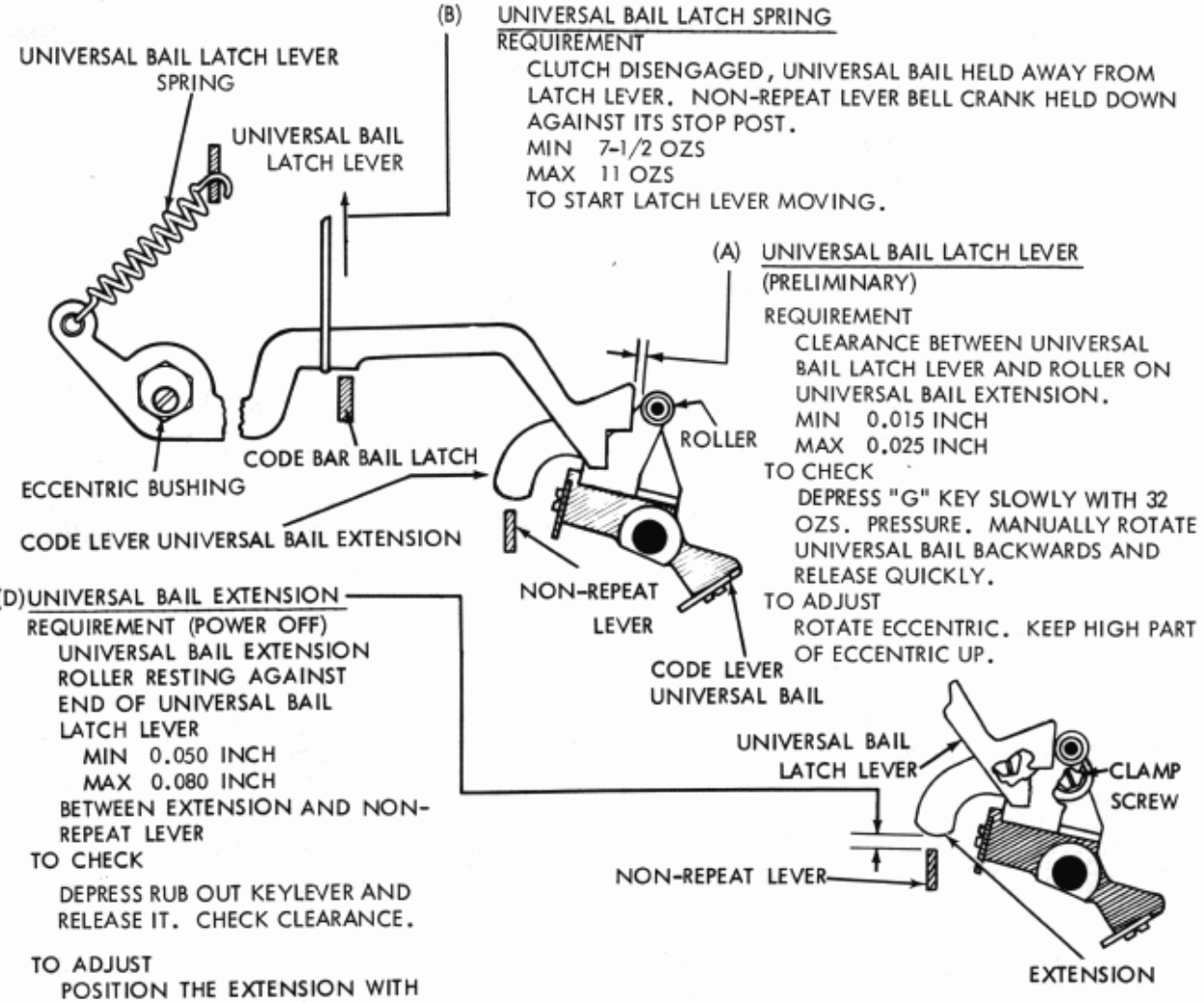
REQUIREMENT (UNDER POWER)

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

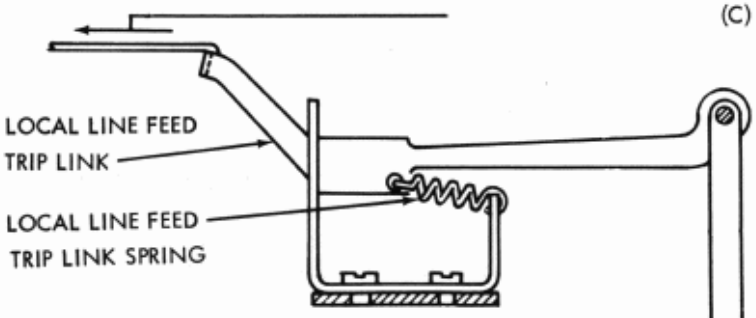


(B) UNIVERSAL BAIL LATCH SPRING
REQUIREMENT
CLUTCH DISENGAGED, UNIVERSAL BAIL HELD AWAY FROM LATCH LEVER. NON-REPEAT LEVER BELL CRANK HELD DOWN AGAINST ITS STOP POST.
MIN 7-1/2 OZS
MAX 11 OZS
TO START LATCH LEVER MOVING.

(A) UNIVERSAL BAIL LATCH LEVER (PRELIMINARY)
REQUIREMENT
CLEARANCE BETWEEN UNIVERSAL BAIL LATCH LEVER AND ROLLER ON UNIVERSAL BAIL EXTENSION.
MIN 0.015 INCH
MAX 0.025 INCH
TO CHECK
DEPRESS "G" KEY SLOWLY WITH 32 OZS. PRESSURE. MANUALLY ROTATE UNIVERSAL BAIL BACKWARDS AND RELEASE QUICKLY.
TO ADJUST
ROTATE ECCENTRIC. KEEP HIGH PART OF ECCENTRIC UP.

(D) UNIVERSAL BAIL EXTENSION
REQUIREMENT (POWER OFF)
UNIVERSAL BAIL EXTENSION ROLLER RESTING AGAINST END OF UNIVERSAL BAIL LATCH LEVER
→ MIN 0.050 INCH
MAX 0.080 INCH
BETWEEN EXTENSION AND NON-REPEAT LEVER
TO CHECK
→ DEPRESS RUB OUT KEYLEVER AND RELEASE IT. CHECK CLEARANCE.
TO ADJUST
POSITION THE EXTENSION WITH ITS CLAMP SCREW LOOSENED.

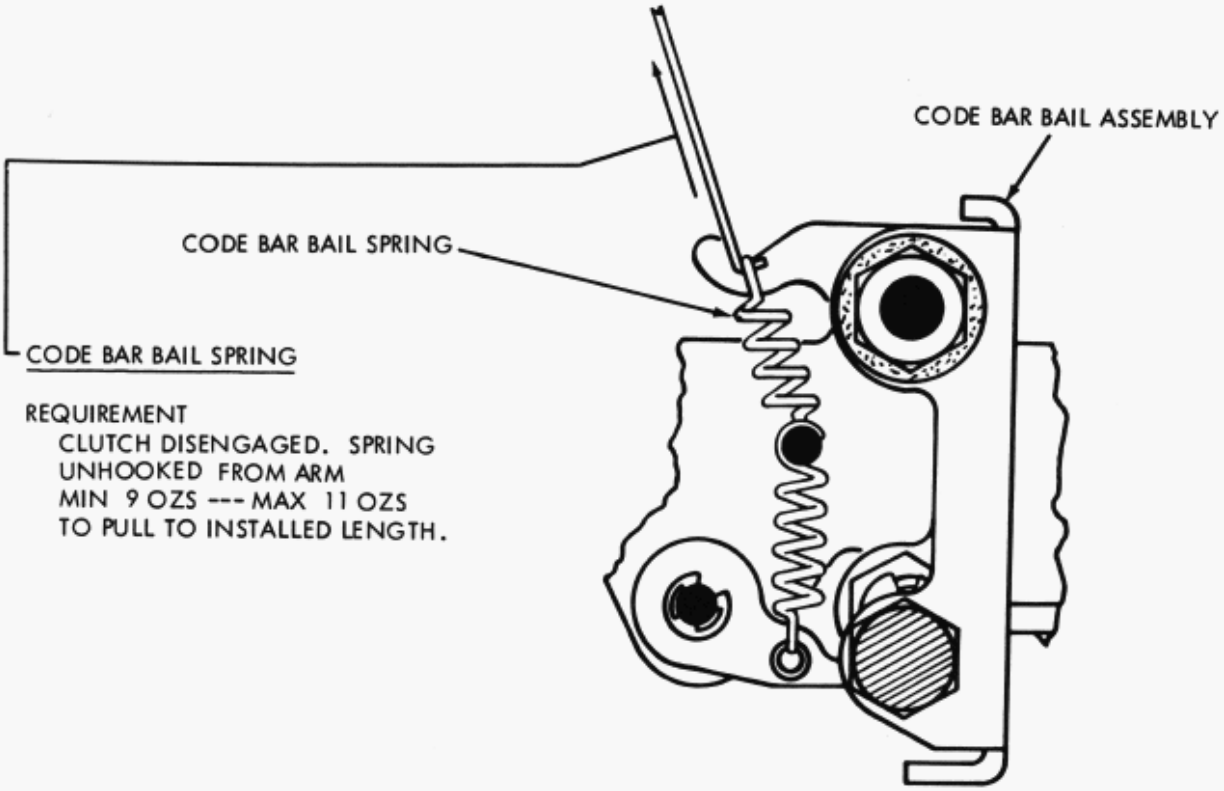
→2.12 Keyboard Mechanism continued



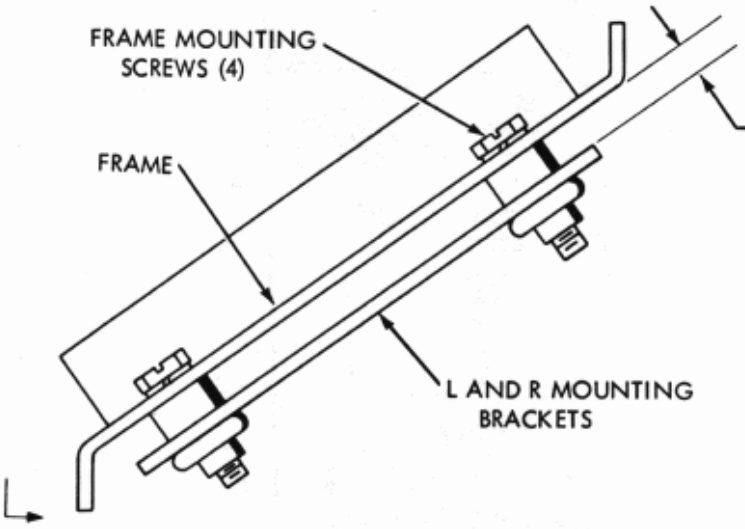
(C) LOCAL LINE FEED TRIP LINK SPRING
REQUIREMENT
MIN 5 OZS
MAX 10 OZS
TO START LINK MOVING

(E) BALL WEDGELOCK, BALL END-PLAY AND UNIVERSAL BAIL LATCH (FINAL) SEE 2.10

2.13 Code Bar Assembly continued



2.14 Keyboard Mechanism continued



KEYTOP GUIDE SPACING

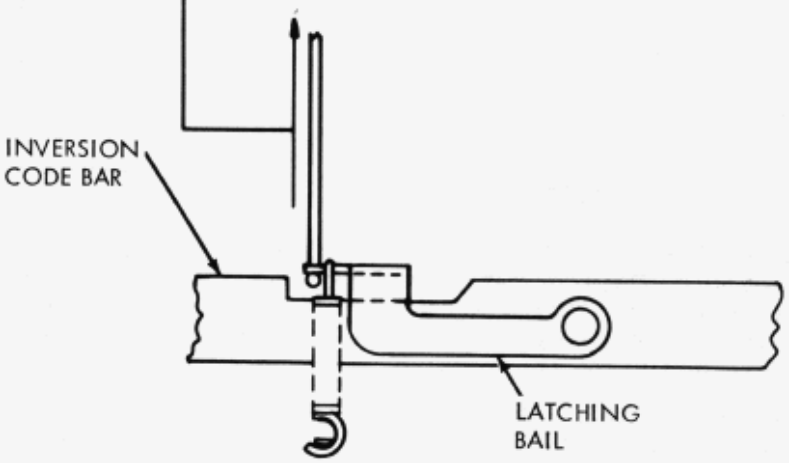
REQUIREMENT
GAP BETWEEN FRAME AND LEFT AND RIGHT MOUNTING BRACKET SHOULD BE
MIN 0.141 INCH
MAX 0.171 INCH

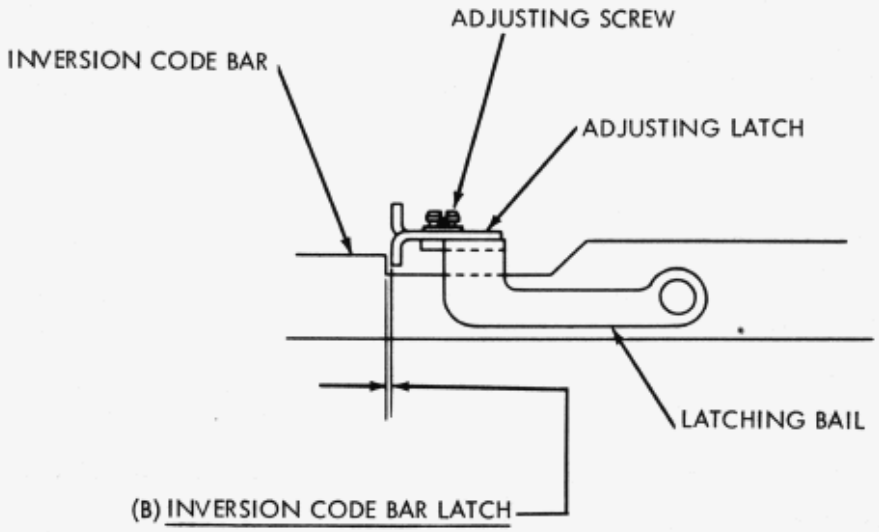
TO ADJUST
TIGHTEN OR LOOSEN AS REQUIRED THE FOUR FRAME MOUNTING SCREWS.

2.15 Code Bar Assembly continued

(A) INVERSION LATCH SPRING TENSION

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



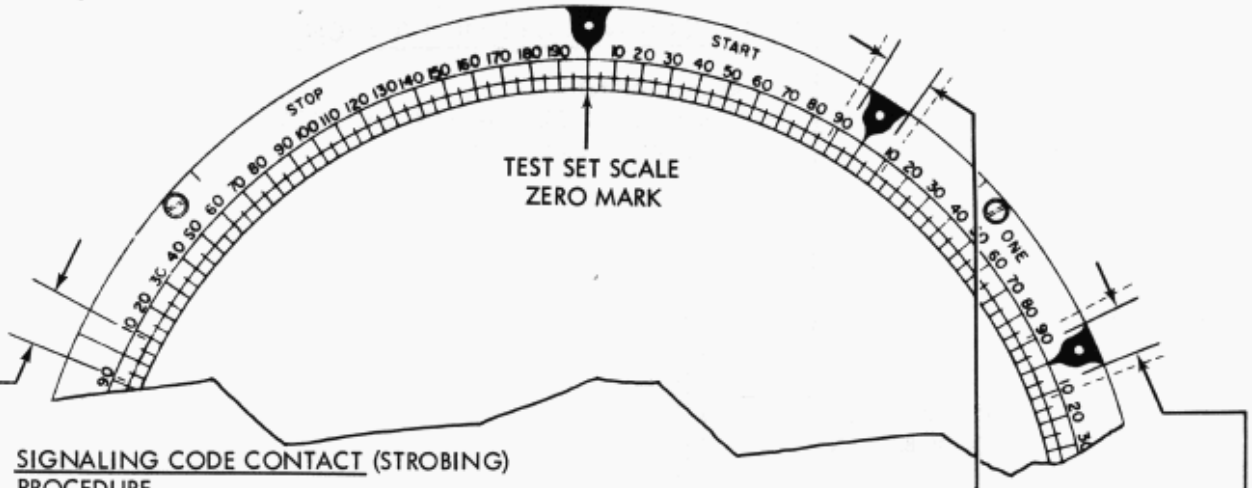


(B) INVERSION CODE BAR LATCH

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 Signal Generator Mechanism continued



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.

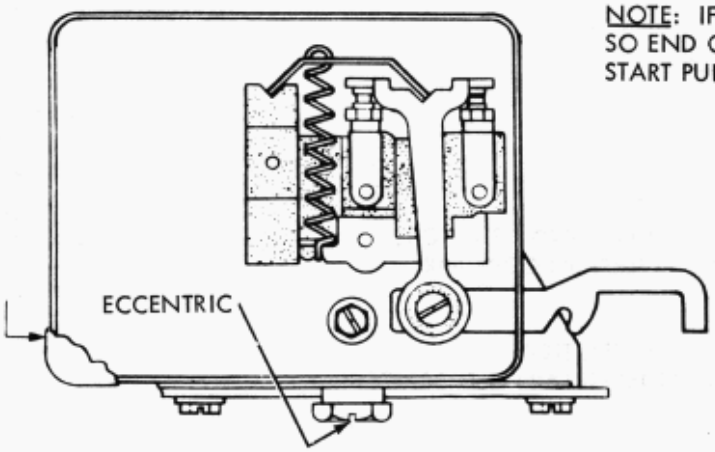
REQUIREMENT

(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.)

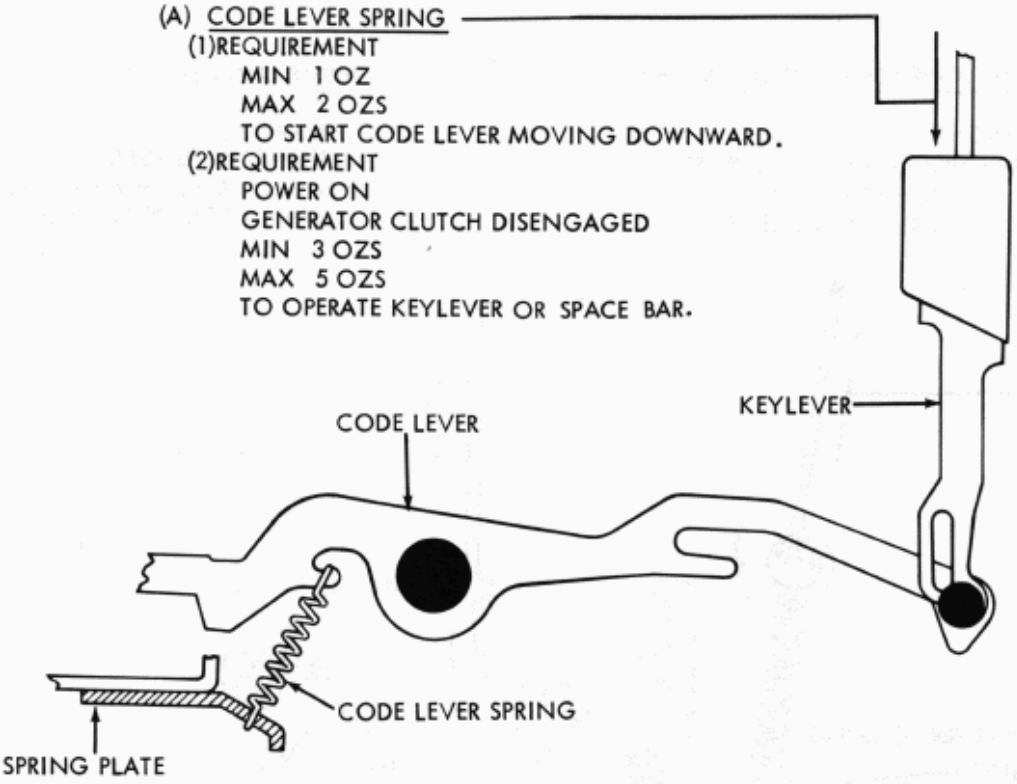
(5) DXD STROBING SHOULD YIELD ALLOWABLE SPACING SIGNAL DISTORTION OF ±12%.

TO ADJUST

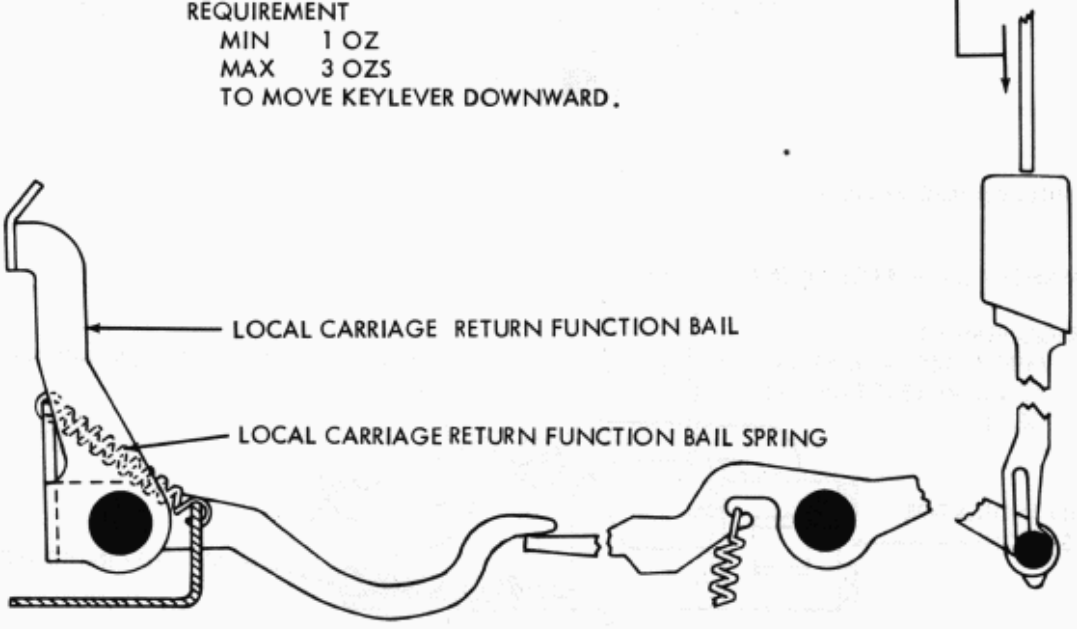
LOOSEN MOUNTING SCREWS AND MOVE CONTACT BOX BY MEANS OF ECCENTRIC.

2.17 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.



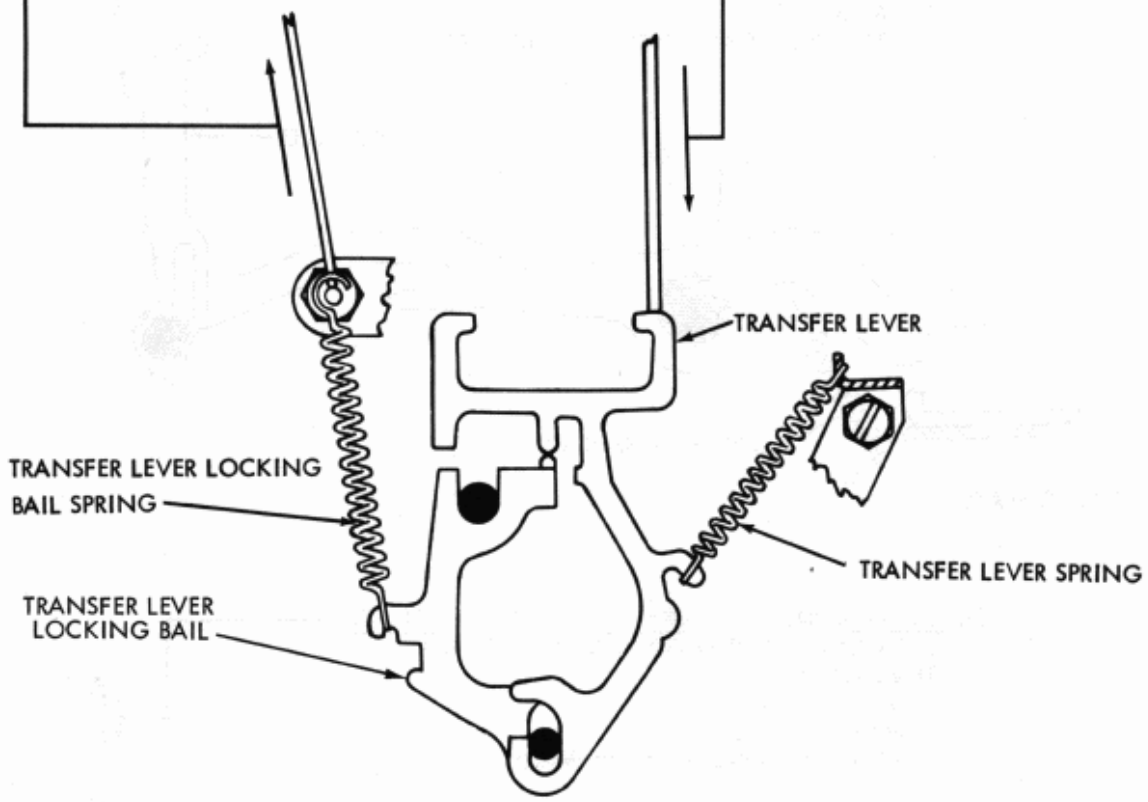
2.18 Code Bar Assembly continued

(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

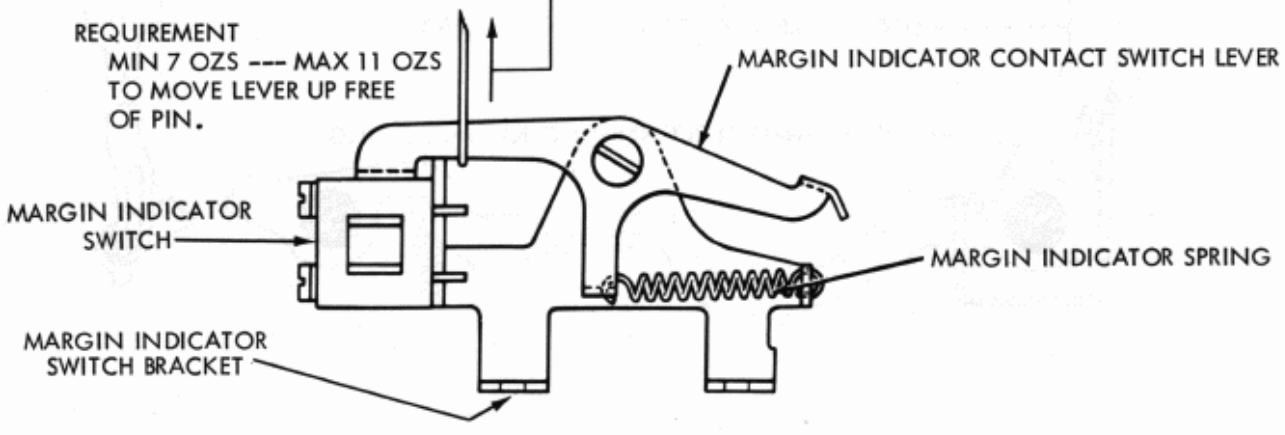
REQUIREMENT
CLUTCH DISENGAGED
MIN 1-1/2 OZS --- MAX 2-1/2 OZS
TO START EACH OF 10 LEVERS MOVING.



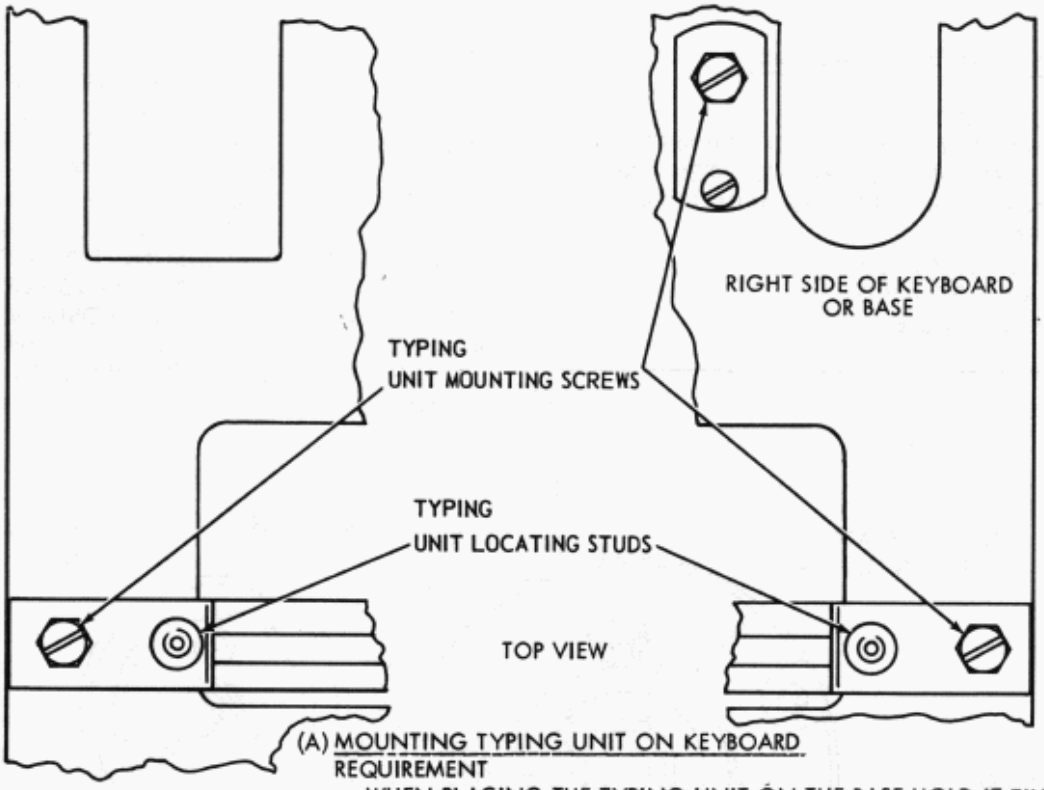
2.19 Interrelated Features

(C) MARGIN INDICATOR SPRING

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



2.20 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.

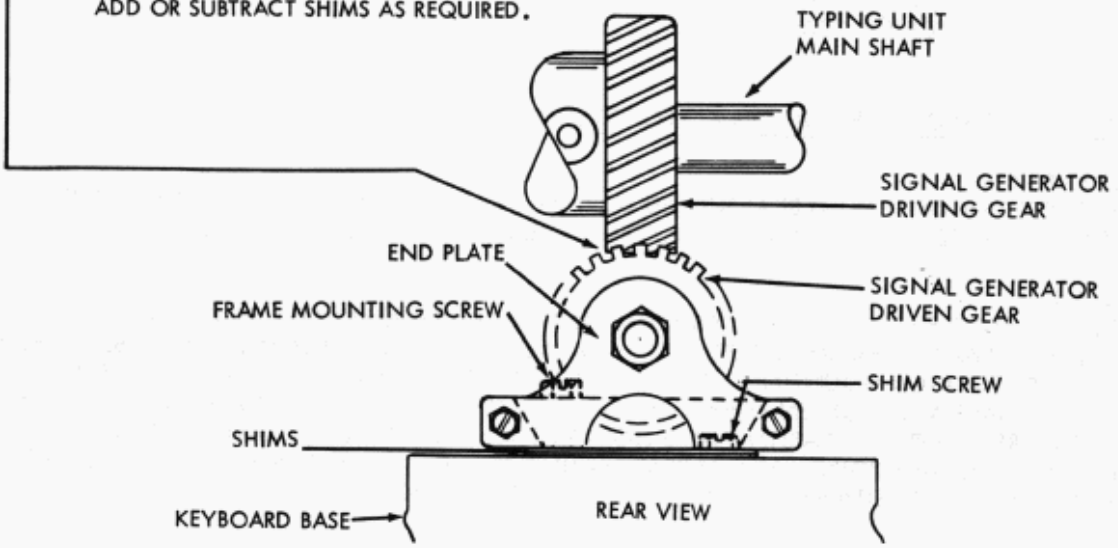
(B) SIGNAL GENERATOR FRAME

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.

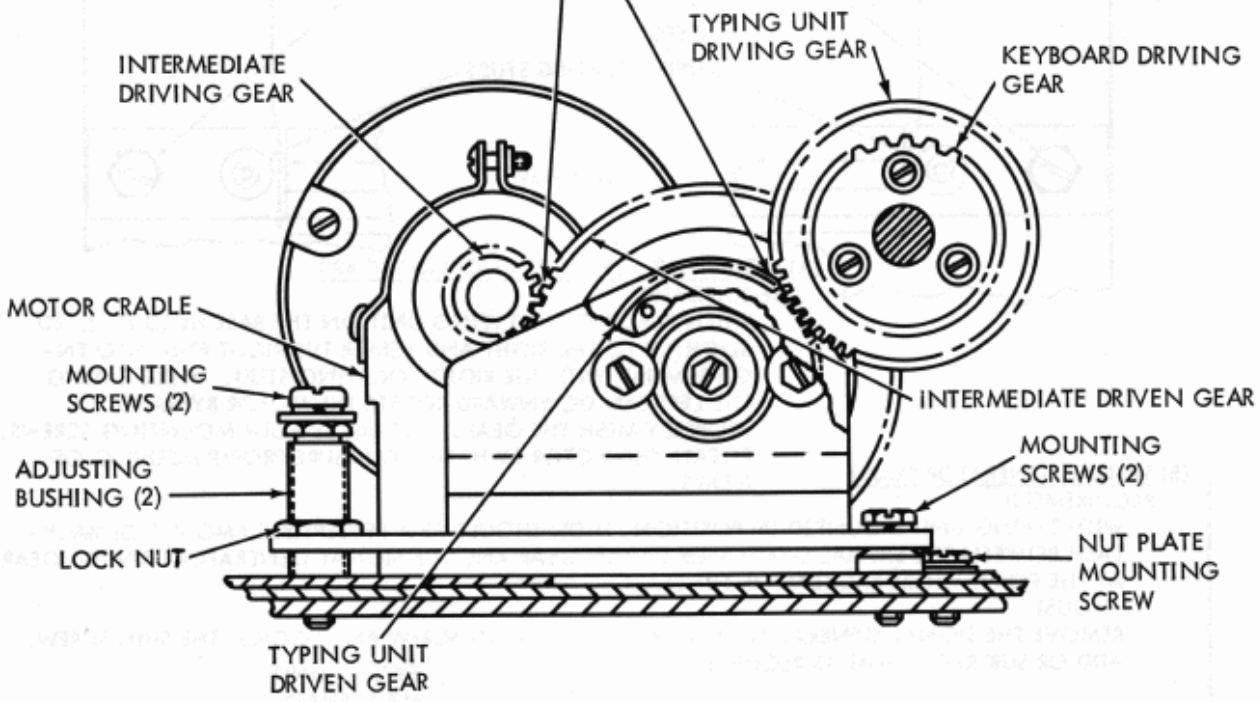


→2.21 Interrelated Features continued

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.

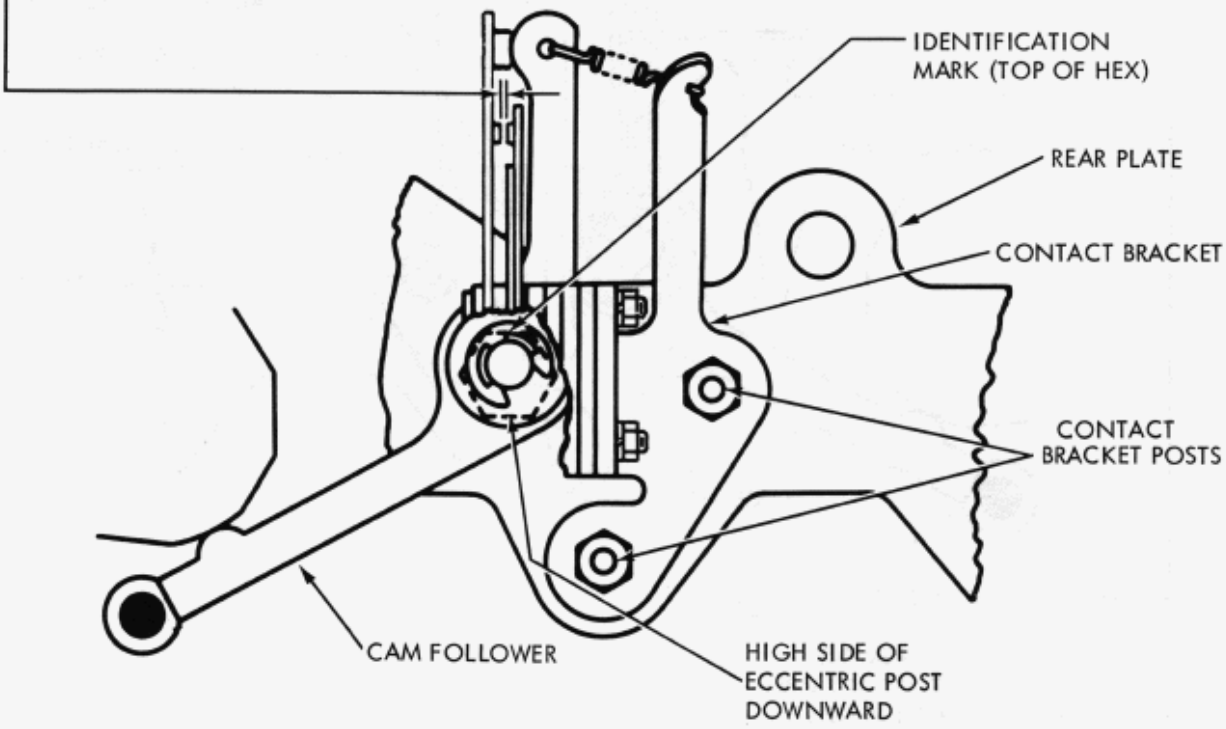
3. VARIABLE FEATURES

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

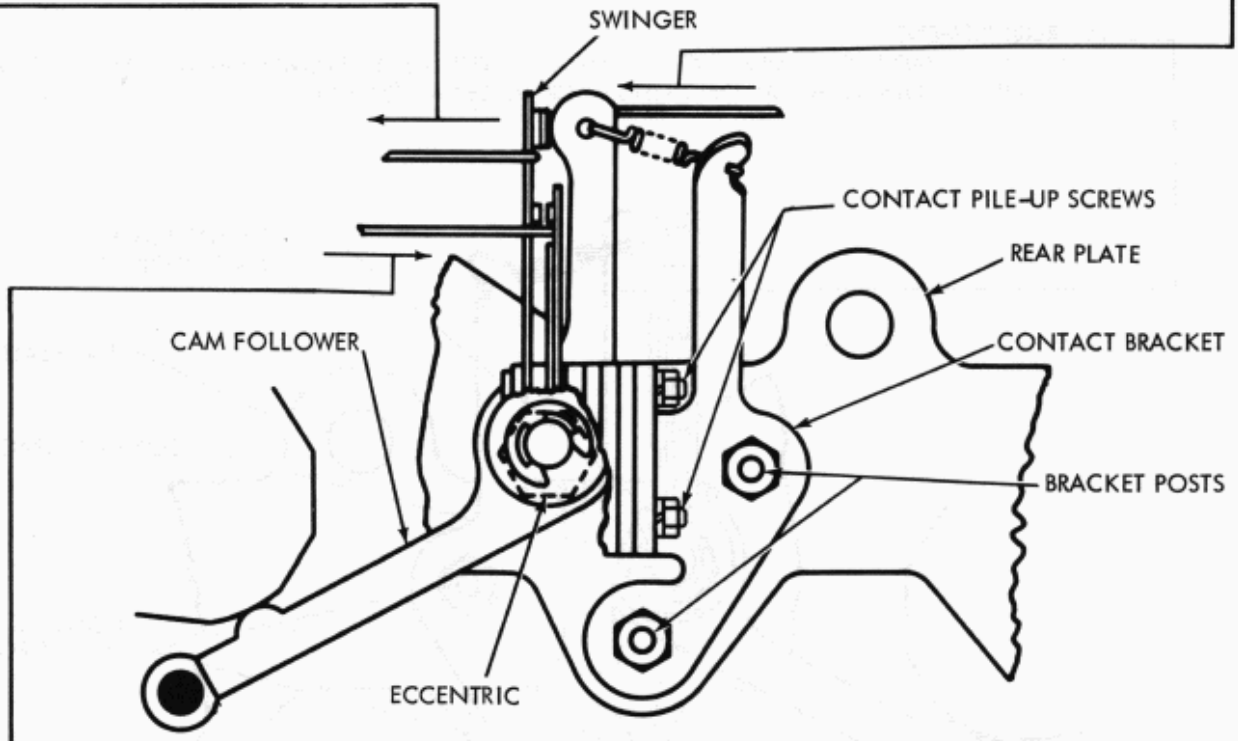
(A) CONTACT SWINGER

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.



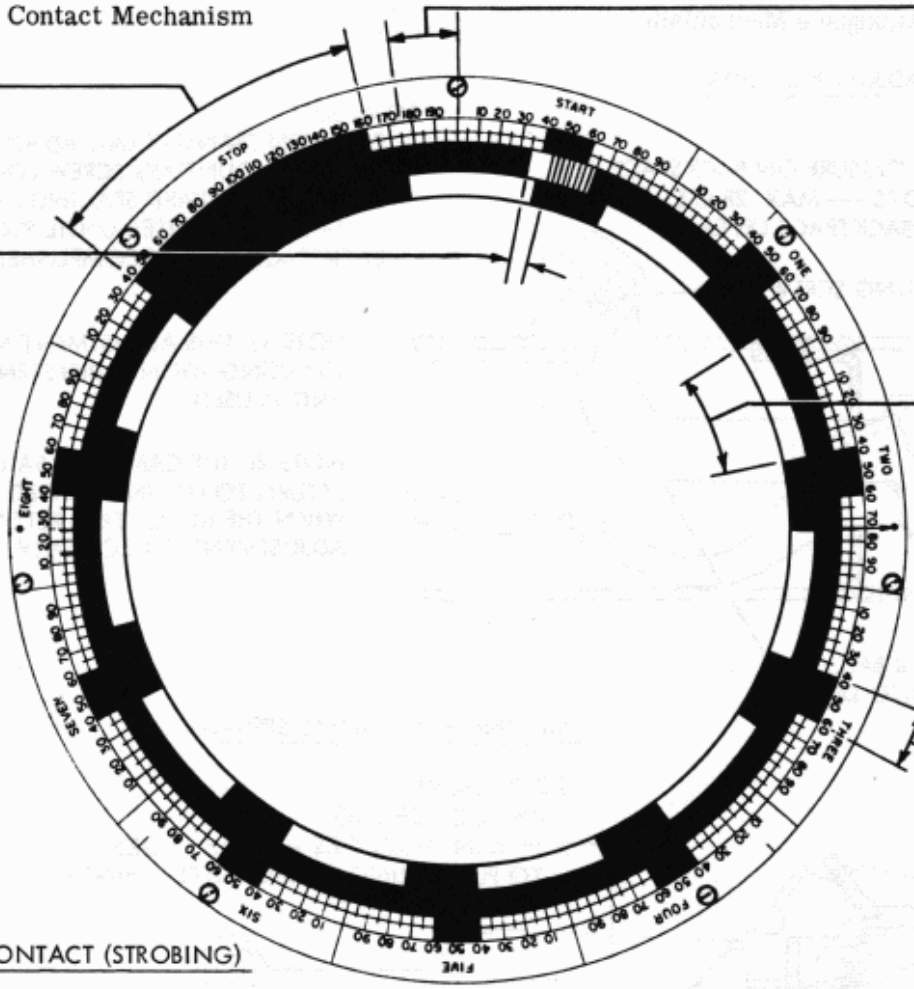
(C) CONTACT STIFFENER

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 2.16

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 ± 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

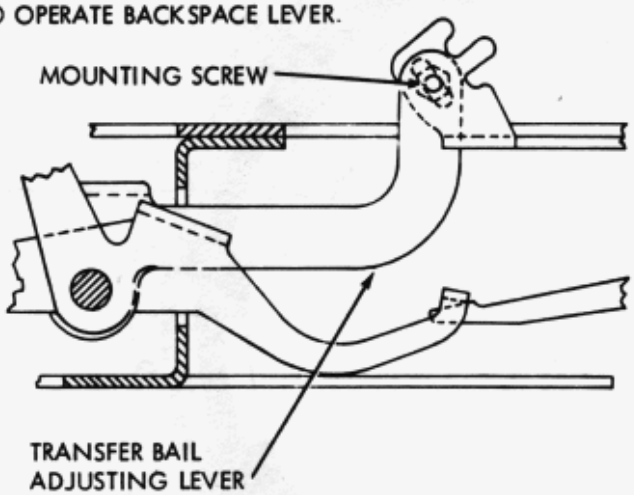
NOTE: THE TIMING CONTACTS SHOULD BE OPEN WHEN THE CLUTCH IS DISENGAGED.

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.

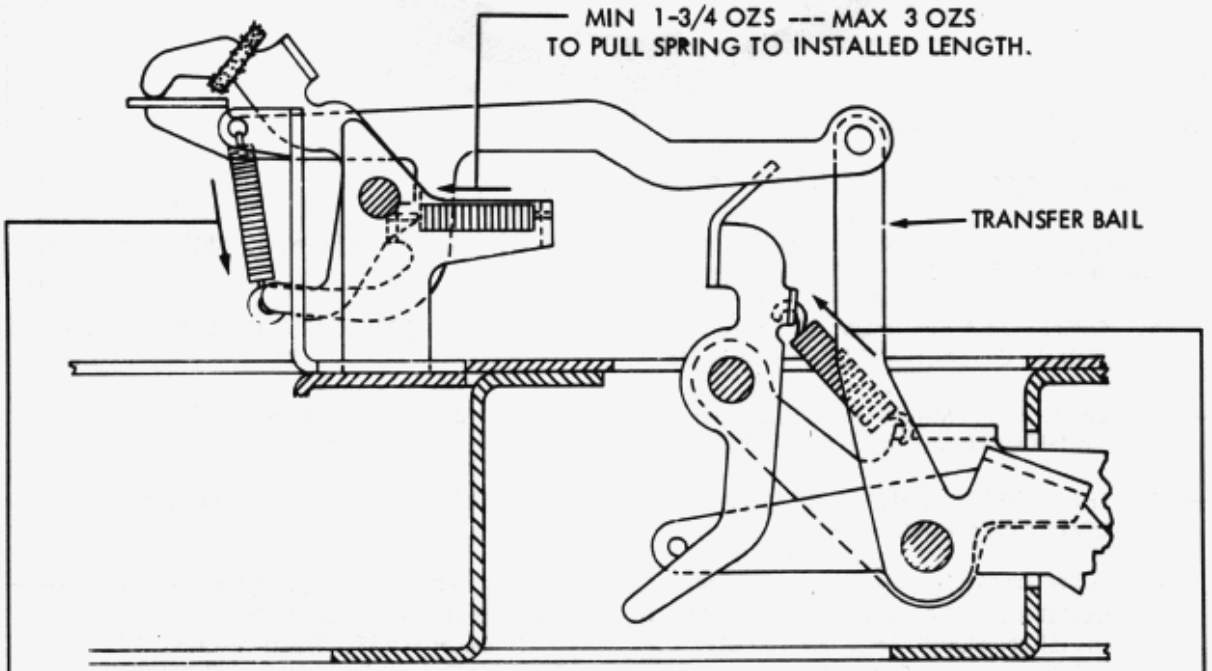


NOTE 1: THIS ADJUSTMENT MAY REQUIRE REMAKING WHEN A DIFFERENT TYPING UNIT IS USED.

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.

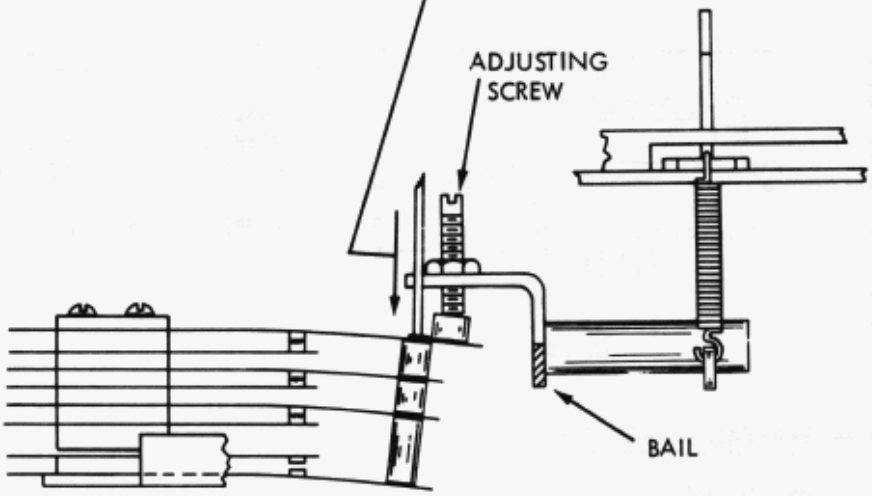
TO CHECK
KEYBOARD LOCK PLUNGER IN DOWN-WARD POSITION. FUNCTION BAIL LATCHED.

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

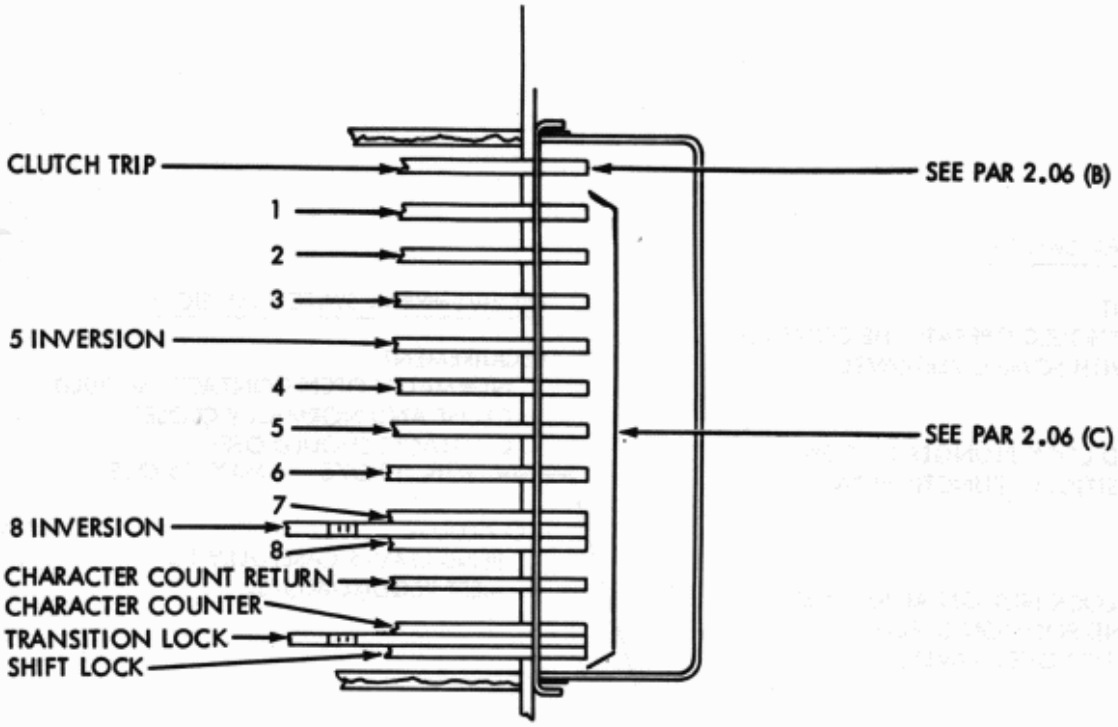
RECEIVE-BREAK SWITCH TENSION

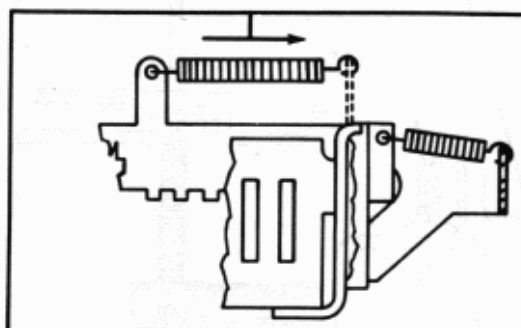
REQUIREMENT
NORMALLY OPEN CONTACTS SHOULD CLOSE AND NORMALLY CLOSED CONTACTS SHOULD OPEN
MIN 10 OZS --- MAX 16 OZS

TO ADJUST
BEND LEAVES CAREFULLY TO MEET REQUIREMENTS.



3.06 Code Bar Arrangement for Even Parity





NO. 8 INVERSION BAR SPRING

REQUIREMENT
CODE BAR IN LATCHED POSITION
UNHOOK SPRING AT GUIDE
MIN 6 OZS---MAX 8 OZS
TO PULL TO INSTALLED LENGTH.

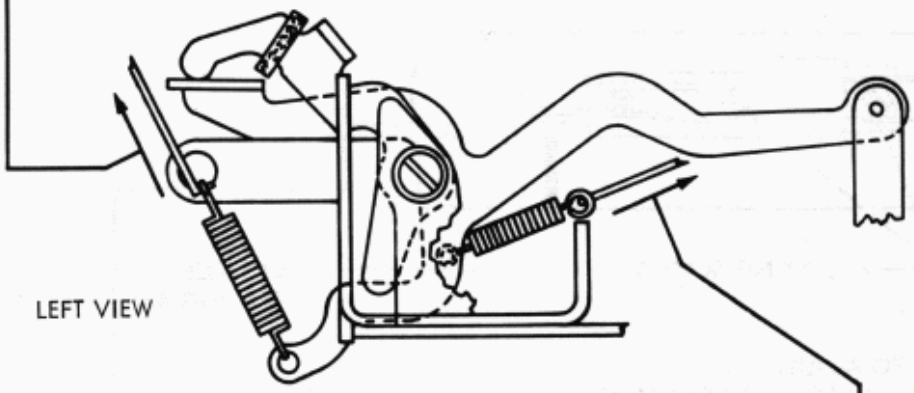
TRANSITION BAR SPRING

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

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

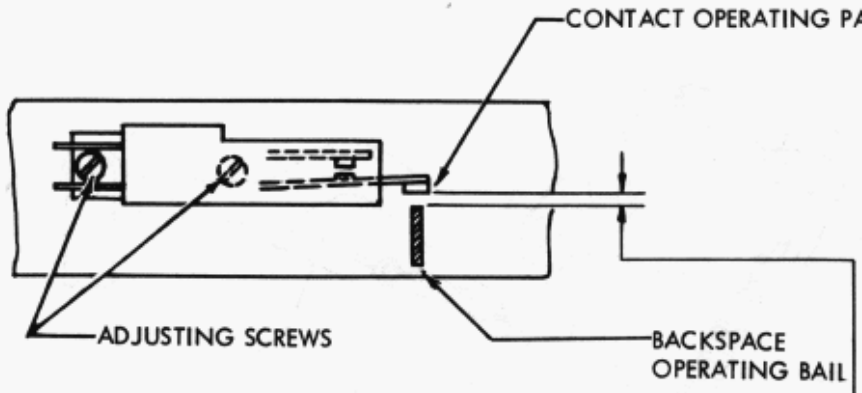
(FRONT SPRING AS VIEWED FROM LEFT)

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

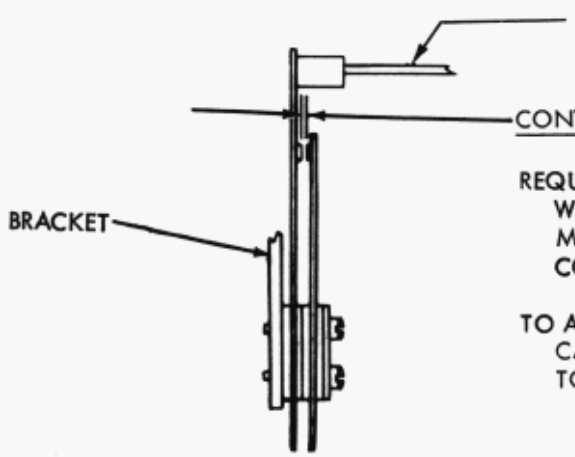
REQUIREMENT
DEPRESSING LOC BSP KEY SHOULD CLOSE NORMALLY OPEN REPERFORATOR BACKSPACE ACTUATING SWITCH.



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

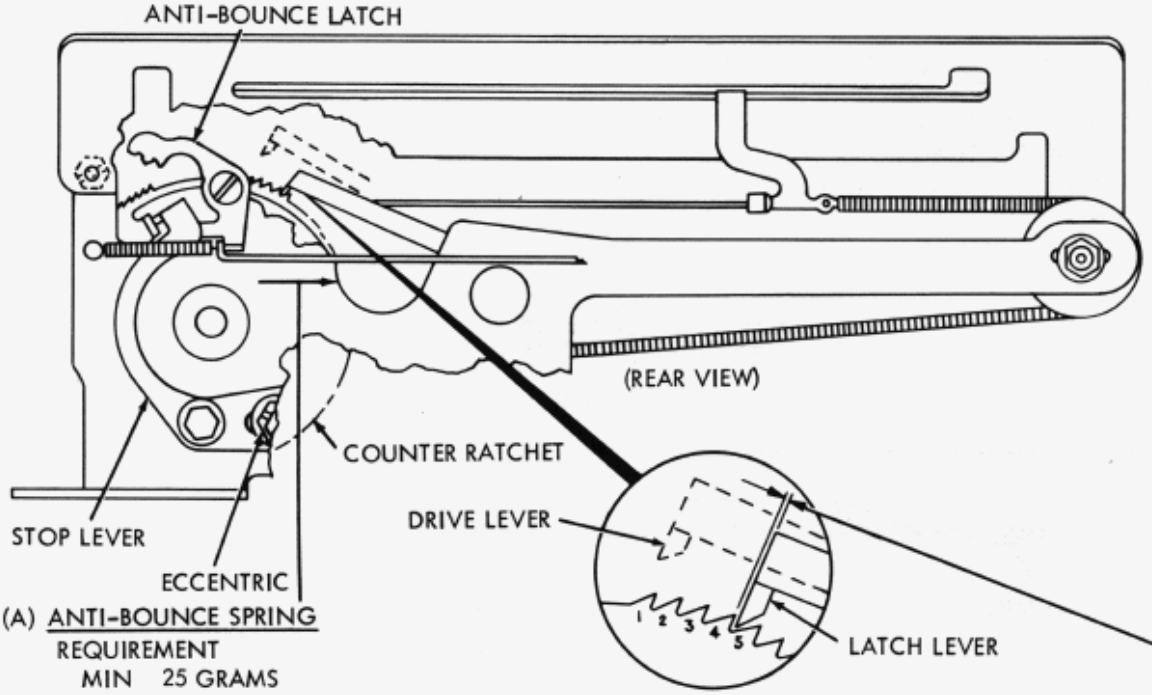


→ REQUIREMENT
WITH CLUTCH LATCHED
MIN 0.010 INCH --- MAX 0.020 INCH CONTACT GAP.

TO ADJUST
CAREFULLY BEND CONTACT SPRING TO MEET REQUIREMENT.

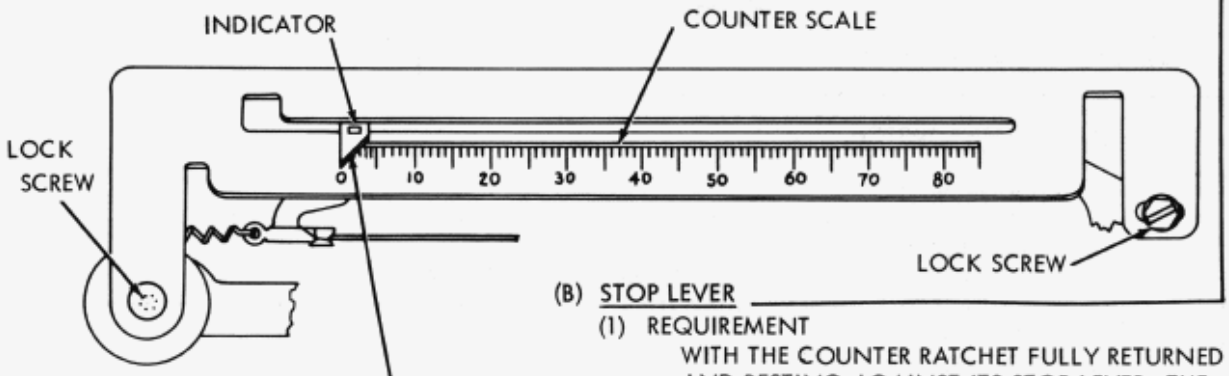
3.10 Character Counter Mechanism

NOTE: CHARACTER COUNTER ADJUSTMENTS MAY BE FACILITATED BY REMOVING THE ASSEMBLY FROM THE KEYBOARD EXCEPT FOR 3.12, 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.

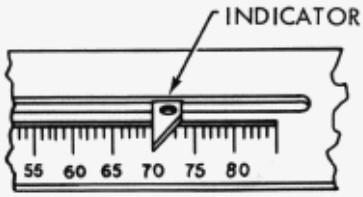
3.11 Character Counter Mechanism continued

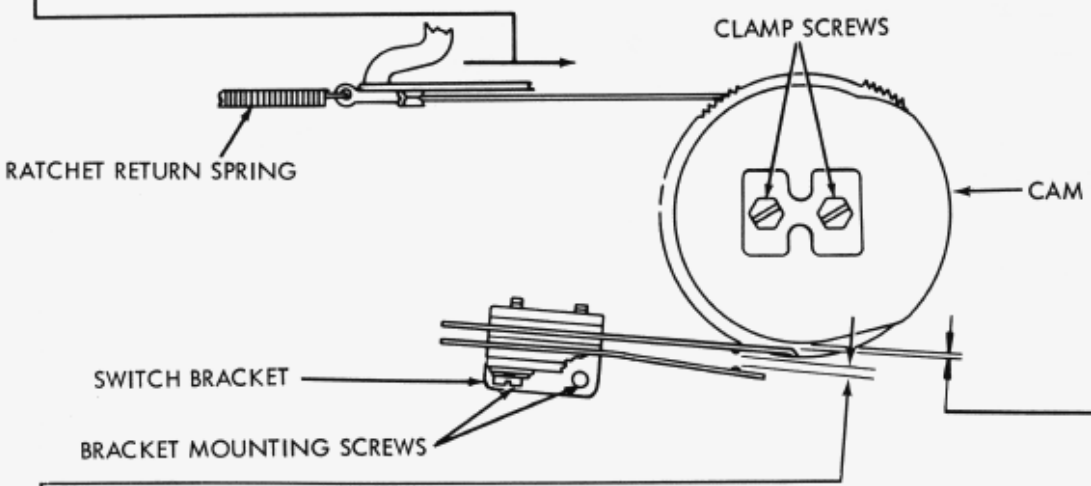
(A) RATCHET DRUM ASSEMBLY RETURN SPRING

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.

3.12 Character Counter Mechanism continued

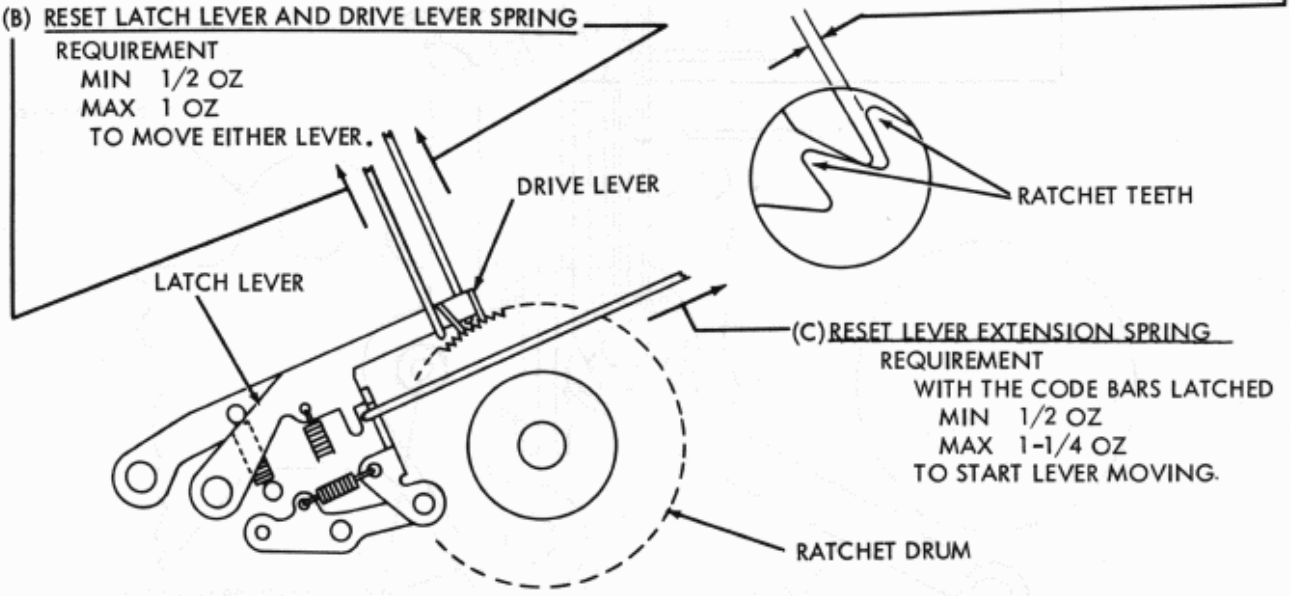
(A) CHARACTER COUNTER STROKE

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.

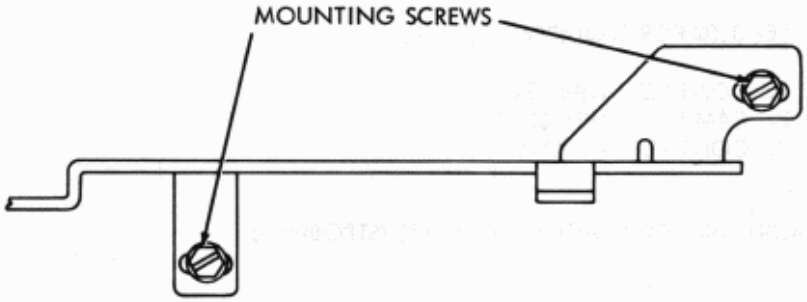
(B) RESET LATCH LEVER AND DRIVE LEVER SPRING

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



(C) RESET LEVER EXTENSION SPRING

REQUIREMENT
WITH THE CODE BARS LATCHED
MIN 1/2 OZ
MAX 1-1/4 OZ
TO START LEVER MOVING.

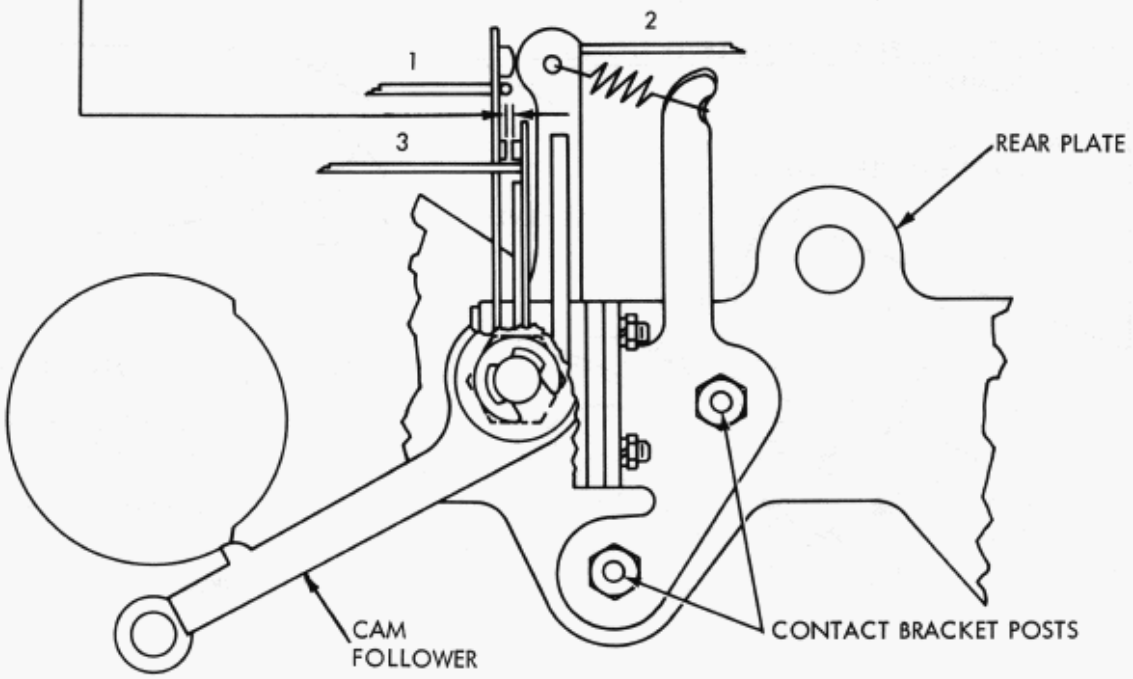


3.13 Auxiliary Contact Mechanism

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 3.19 FOR AUXILIARY CONTACT REFINEMENT (STROBING)

3.14 Code Reading Contact Mechanism

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

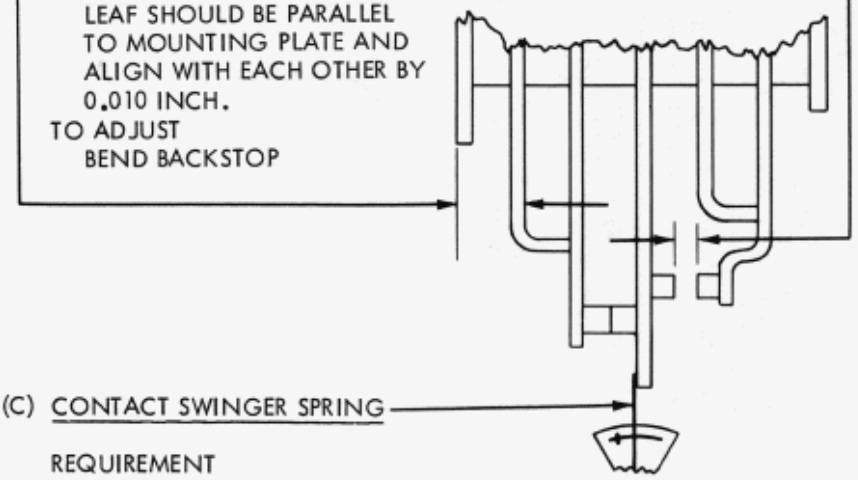
NOTE 2: EACH ADJUSTMENT SHOULD START WITH THE CONTACT PILE-UP FARTHEST FROM THE HANDLE OF THE BENDING TOOL. SEE 3.15

(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

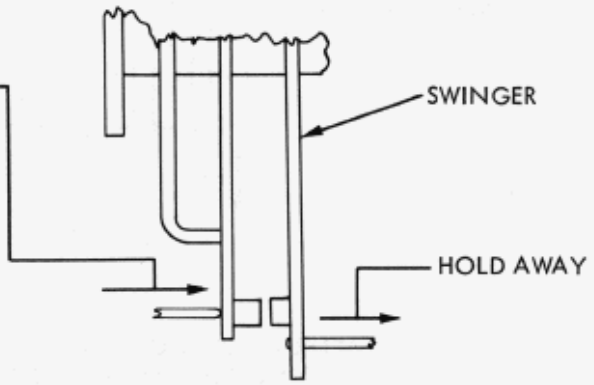


(C) CONTACT SWINGER SPRING

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

(B) NORMALLY CLOSED CONTACT SPRING

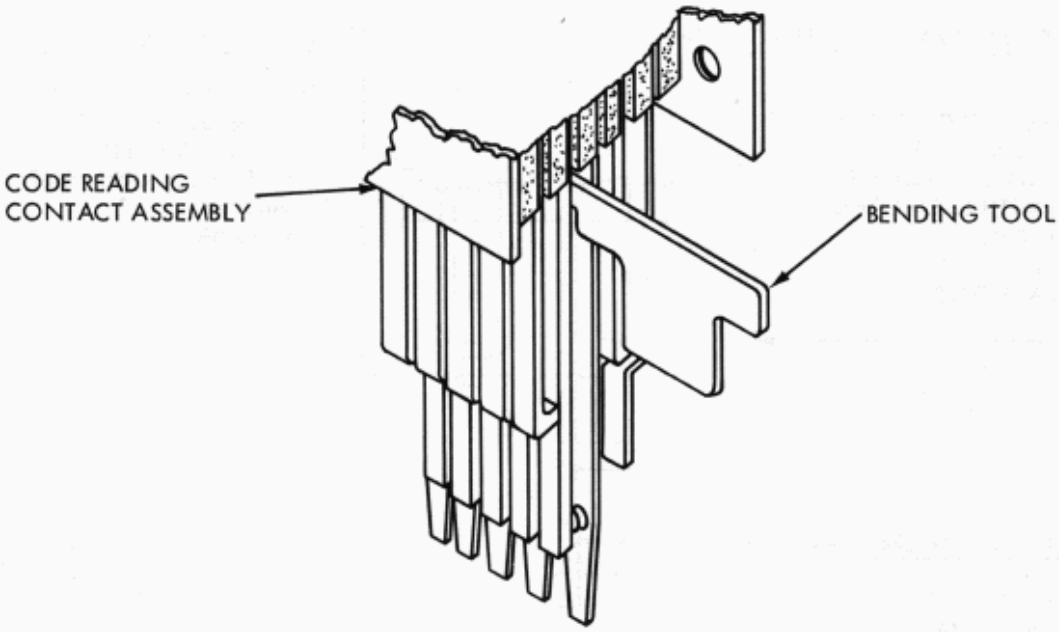
REQUIREMENT
MIN 2 OZS
MAX 6 OZS
TO MOVE CONTACT SPRING AWAY FROM BACKSTOP. HOLD SWINGER AWAY FROM CLOSED CONTACT.
TO ADJUST
BEND SPRING. TO INCREASE TENSION AGAINST BACKSTOP, BEND BACKSTOP AWAY FROM SPRING LEAF AND FORM LEAF TOWARD BACKSTOP, THEN REPOSITION BACKSTOP PER (A) ABOVE.



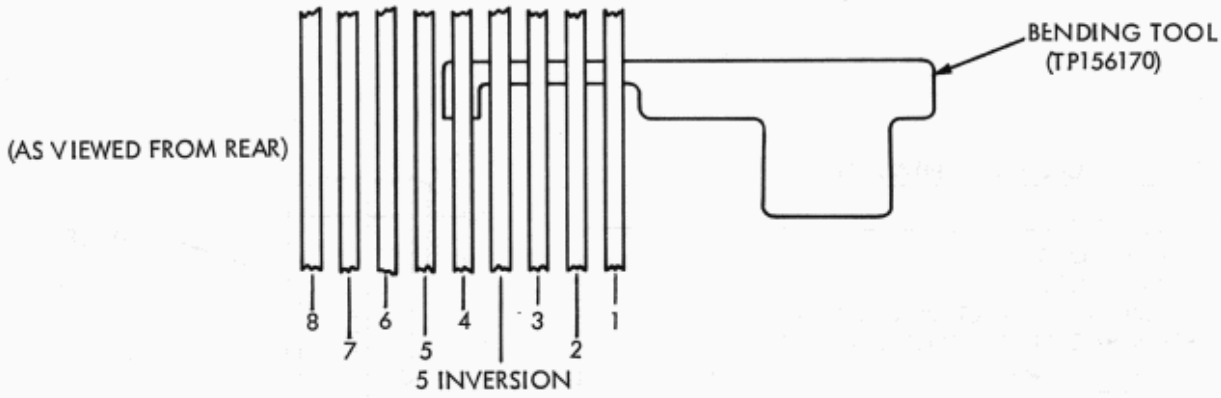
3.15 Code Reading Contact Mechanism continued

ADJUSTING CODE READING CONTACTS

1. THE CONTACT ASSEMBLY SHOULD BE REMOVED FROM THE KEYBOARD TO PERFORM THE ADJUSTMENTS OF 3.14. 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 I, 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.

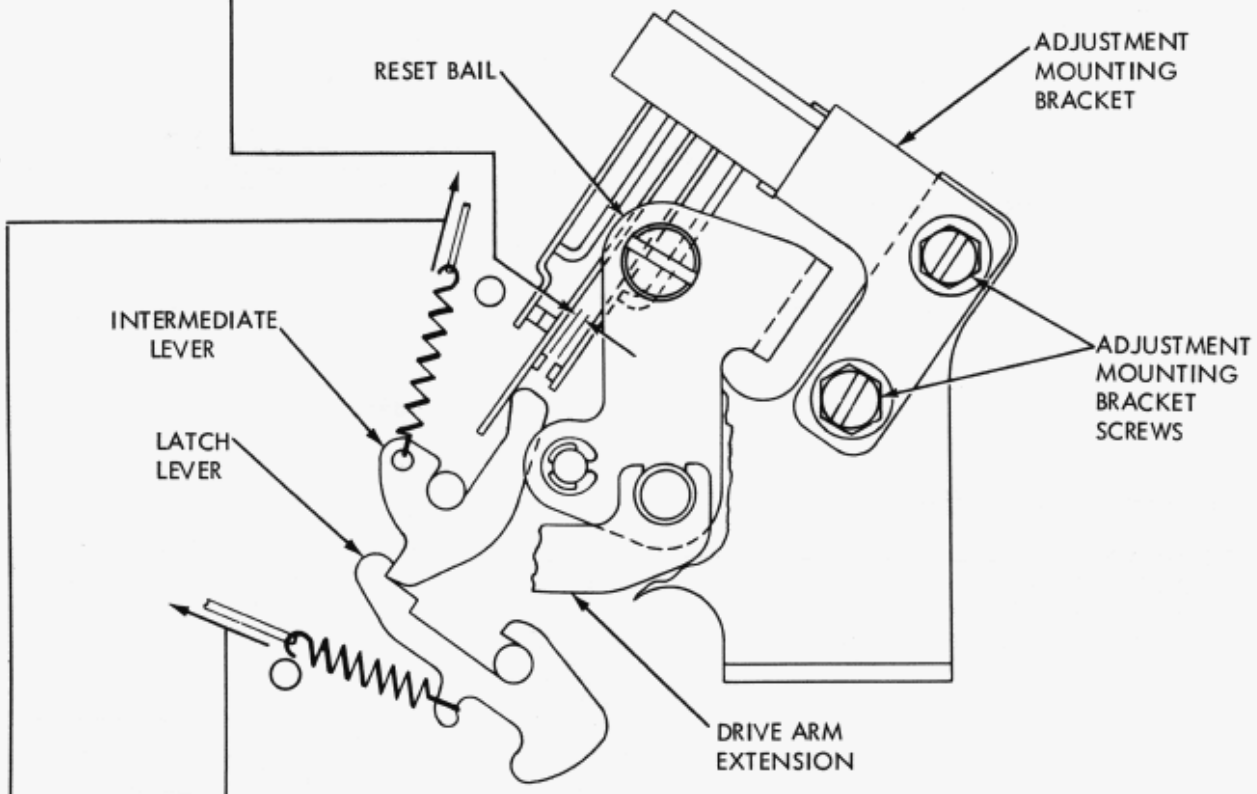
3.16 Code Reading Contact Mechanism continued

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.

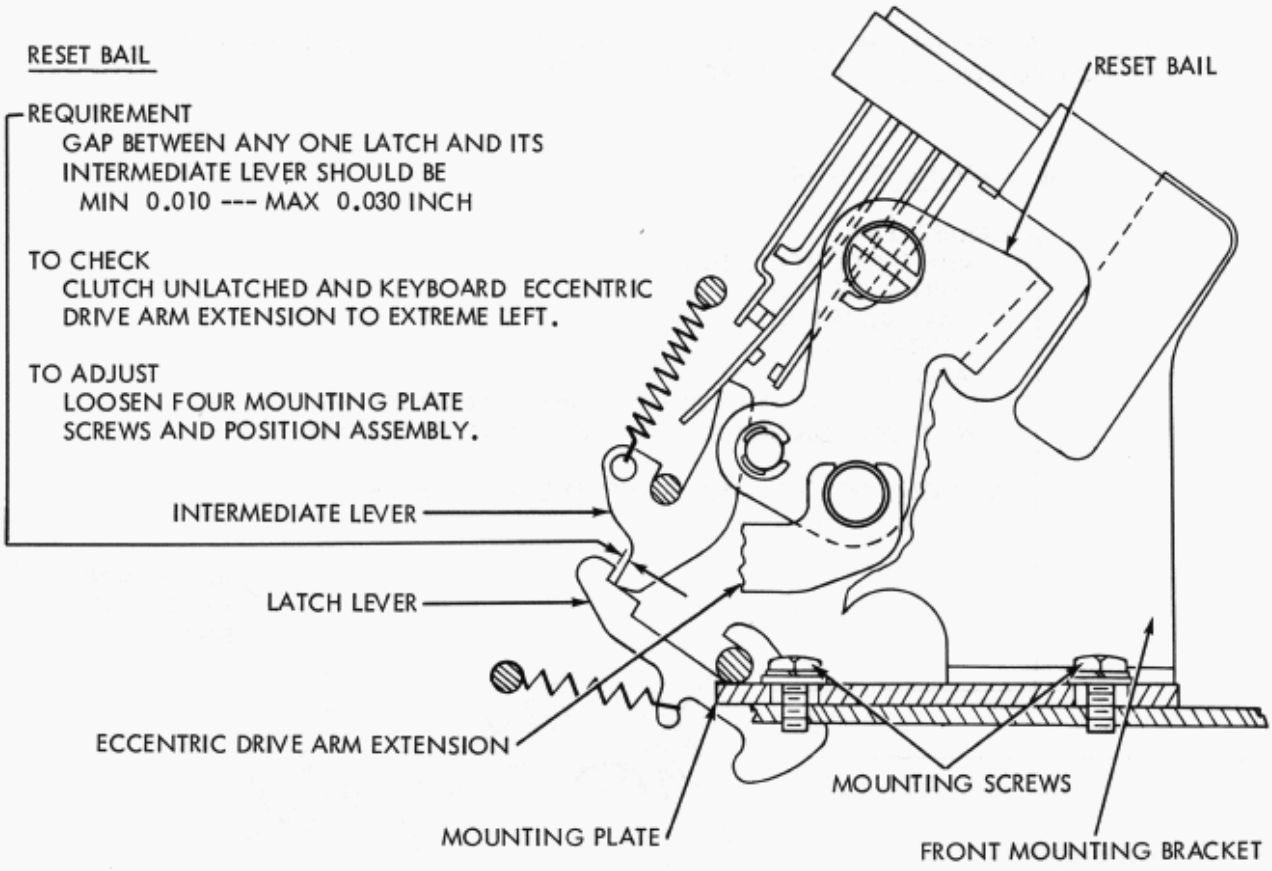
3. 17 Code Reading Contact Mechanism continued

RESET BAIL

REQUIREMENT
GAP BETWEEN ANY ONE LATCH AND ITS INTERMEDIATE LEVER SHOULD BE
MIN 0.010 --- MAX 0.030 INCH

TO CHECK
CLUTCH UNLATCHED AND KEYBOARD ECCENTRIC DRIVE ARM EXTENSION TO EXTREME LEFT.

TO ADJUST
LOOSEN FOUR MOUNTING PLATE SCREWS AND POSITION ASSEMBLY.

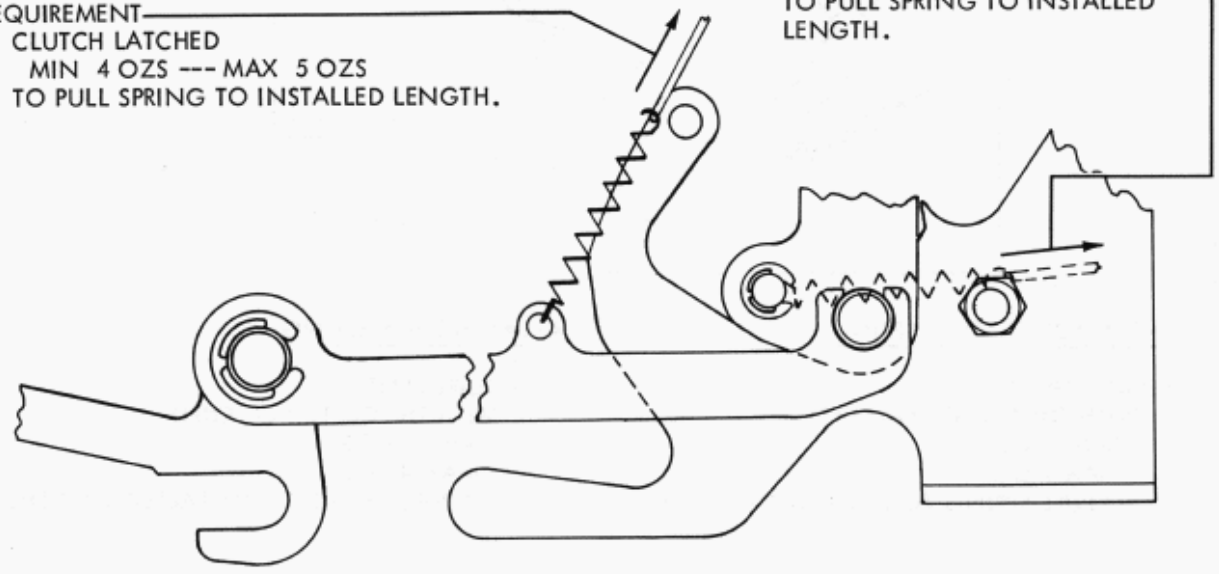


RESET BAIL SPRING

REQUIREMENT
CLUTCH LATCHED
MIN 1/2 OZ --- MAX 1-1/2 OZS
TO PULL SPRING TO INSTALLED LENGTH.

DRIVE ARM EXTENSION SPRING

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



3.18 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 3.19 FOR FIGURE OF STROBE TRACE.

3. REPEAT STEP 4 FOR EACH CODE READING CONTACT.

TO ADJUST

REFINE 3.14(A)
REFINE 3.14(B) AND 3.14(C) IF THERE IS EXCESSIVE BOUNCE.

3.19 Code Reading Contact Mechanism continued
Auxiliary Contact Mechanism continued

AUXILIARY CONTACT REFINEMENT (STROBING)

REQUIREMENTS (SEE NOTE 1 AND 2 IN 3.18)

1. ZERO THE STROBE UNIT (DXD) AS EXPLAINED IN STEP 1 OF 3.18.

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 3.13