28E and 28H TRANSMITTER-DISTRIBUTOR UNIT

REQUIREMENTS AND ADJUSTMENTS

CONTENTS PAGE

CONTENTS PAGE

CONTENTS PAGE

CONTENTS PAGE

1. GENERAL

1.01 This section contains the requirements and adjusting procedures for the maintenance of the 28E and 28H transmitter-distributor units.

1.02 This section is reissued to add adjustment information for modification kits which have been approved for use with these transmitter-distributor units and to bring all adjustment information up to date.

1.03 In this section, left or right, front or rear, and top or bottom apply to the apparatus in its normal operating position as viewed from the front.

1.04 When the requirement calls for the clutch to be disengaged, the clutch-shoe lever must be fully latched between its triplever and latchlever so that the clutch shoes release their tension on the clutch drum. When engaged, the clutch-shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

Note: When the main shaft is rotated by hand, the clutch does not fully disengage upon reaching its stop position. In order to relieve the drag on the clutch and permit the main shaft to rotate freely, apply pressure on a lug of the clutch disc with a screwdriver to cause it to engage its latchlever and thus disengage the internal expansion clutch shoes from the clutch drum.

1.05 The covers may be removed for inspection and minor repair of the unit; however, when more extensive maintenance is to be undertaken, it is recommended that the unit be disconnected from its source of power as a safety precaution.

1.06 Requirements and adjustments for the timing mechanism required for the transmitter-distributor unit to operate in conjunction with horizontal or vertical tabulation of the typing unit are given in the section covering 28 typing unit requirements and adjustments.

2. REQUIREMENTS AND ADJUSTMENTS

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

A. Transmitter-Distributor Unit

2.02 Cover Assemblies

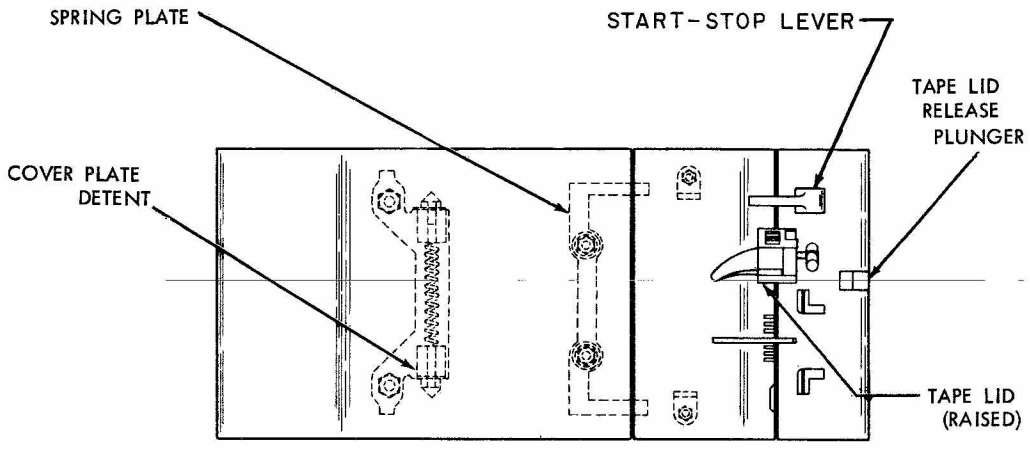
INSTRUCTIONS FOR

(A) REMOVING FRONT PANEL----PULL OUTWARD ON LOWER RIGHT AND LEFT REAR CORNER OF FRONT PANEL AND SLIDE PANEL TOWARD THE FRONT. REPLACE IN REVERSE ORDER.

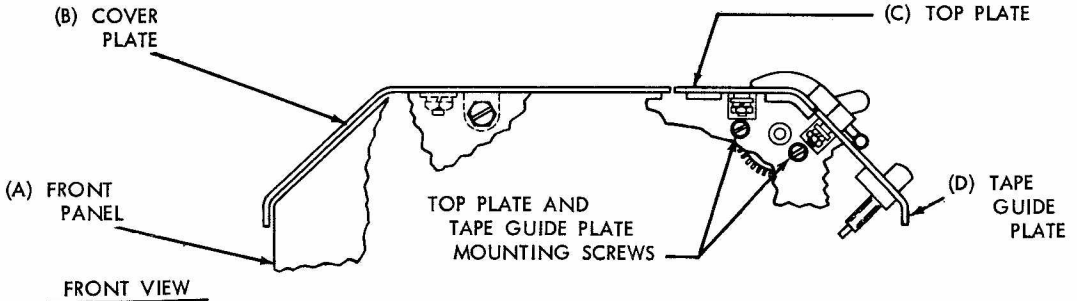
(B) REMOVING COVER PLATE----LIFT LEFT END OF COVER PLATE TO DISENGAGE DETENTS, THEN SLIDE PLATE TOWARD THE LEFT TO DISENGAGE SPRING PLATE. REPLACE IN REVERSE ORDER.

(C) REMOVING TOP PLATE----WITH FRONT AND REAR MOUNTING SCREWS LOOSENED (DO NOT DISTURB MOUNTING NUTS) AND TAPE LID RAISED, LIFT PLATE UPWARD. REFER TO TAPE-GUIDE PLATE REQUIREMENT WHEN REPLACING PLATE.

(D) REMOVING TAPE GUIDE PLATE----WITH FRONT AND REAR MOUNTING SCREWS LOOSENED (DO NOT DISTURB MOUNTING NUTS) AND TAPE LID RAISED, LIFT PLATE UPWARD. REFER TO TAPE-GUIDE PLATE MOUNTING REQUIREMENT WHEN REPLACING THE PLATE.



TOP VIEW

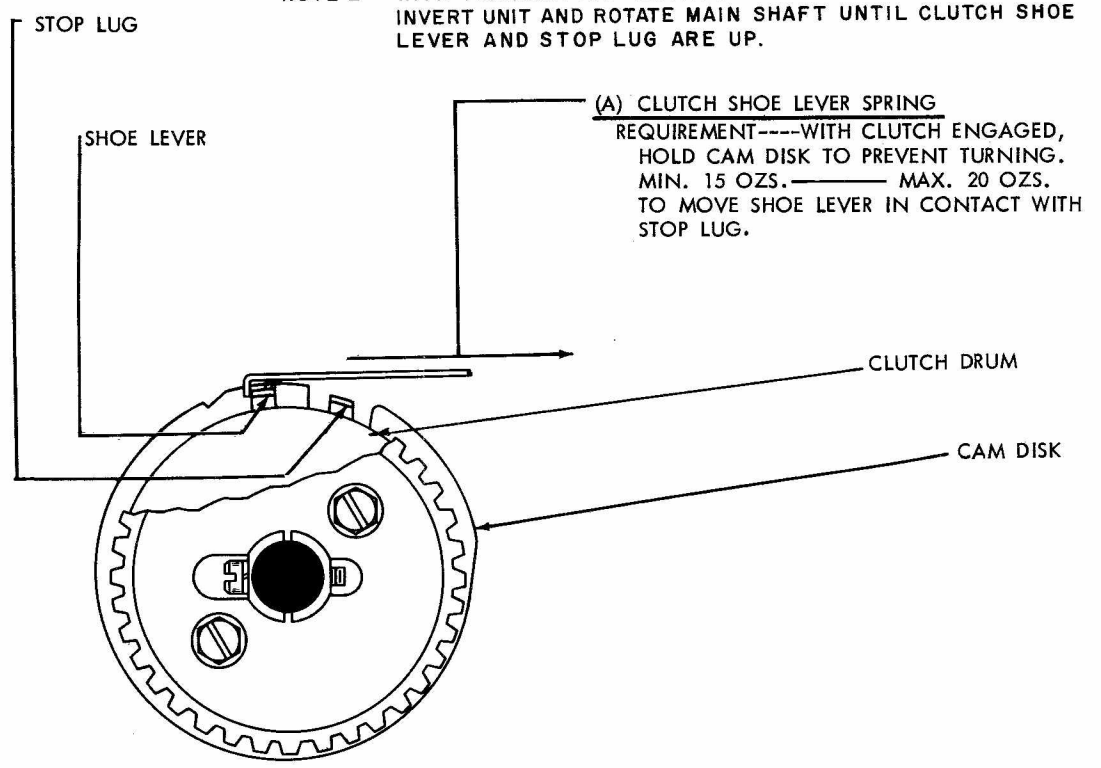


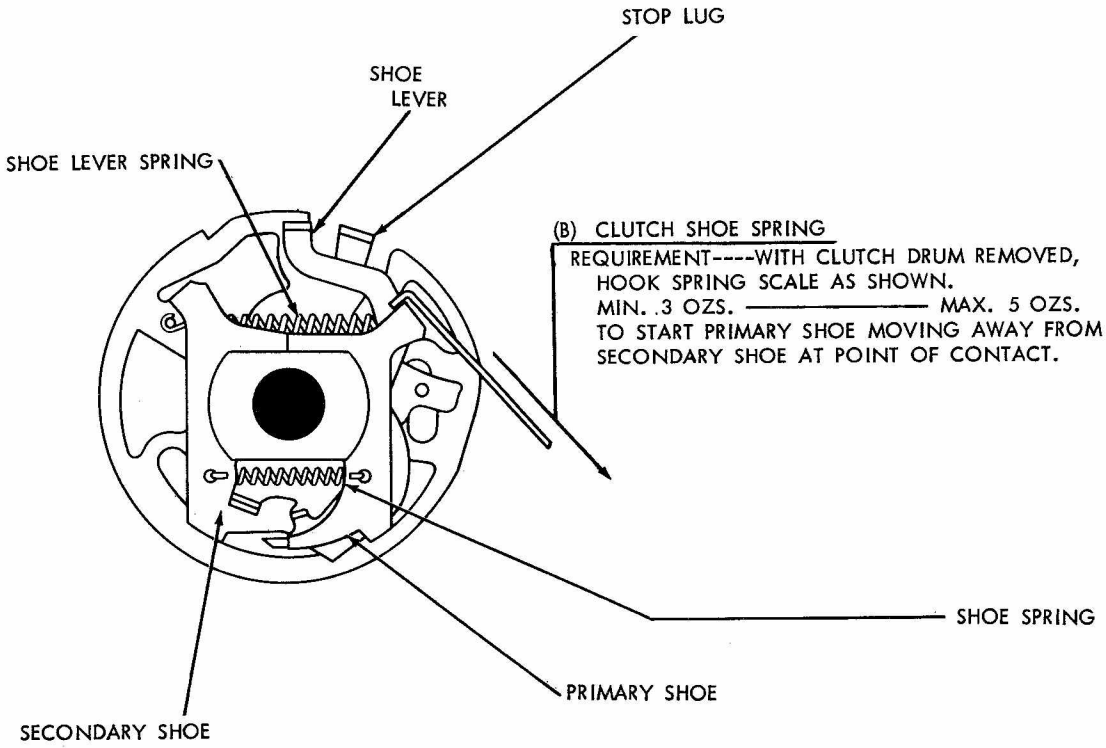
FRONT VIEW

2.03 Clutch Mechanism

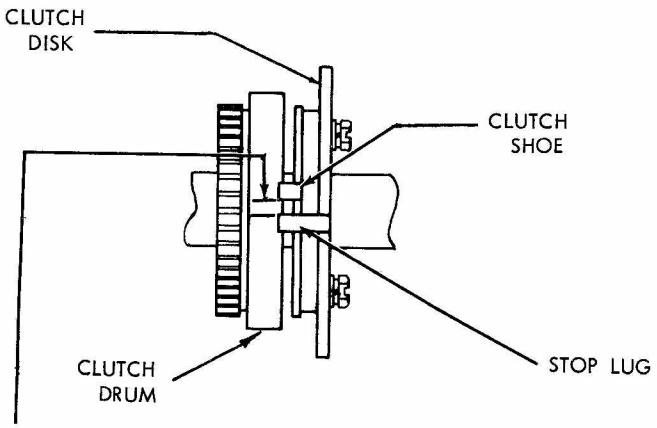
NOTE 1----REQUIREMENTS (A) & (B) ARE ADJUSTED AT THE FACTORY AND SHOULD NOT BE DISTURBED UNLESS ASSOCIATED MECHANISMS HAVE BEEN REMOVED FOR SERVICING OR THERE IS REASON TO BELIEVE THAT THE REQUIREMENTS ARE NOT MET.

NOTE 2 -- WITH TRANSMITTER-DISTRIBUTOR UNIT REMOVED FROM BASE, INVERT UNIT AND ROTATE MAIN SHAFT UNTIL CLUTCH SHOE LEVER AND STOP LUG ARE UP.





2.04 Clutch Trip Mechanism



(C) CLUTCH LATCH LEVER SPRING

REQUIREMENT

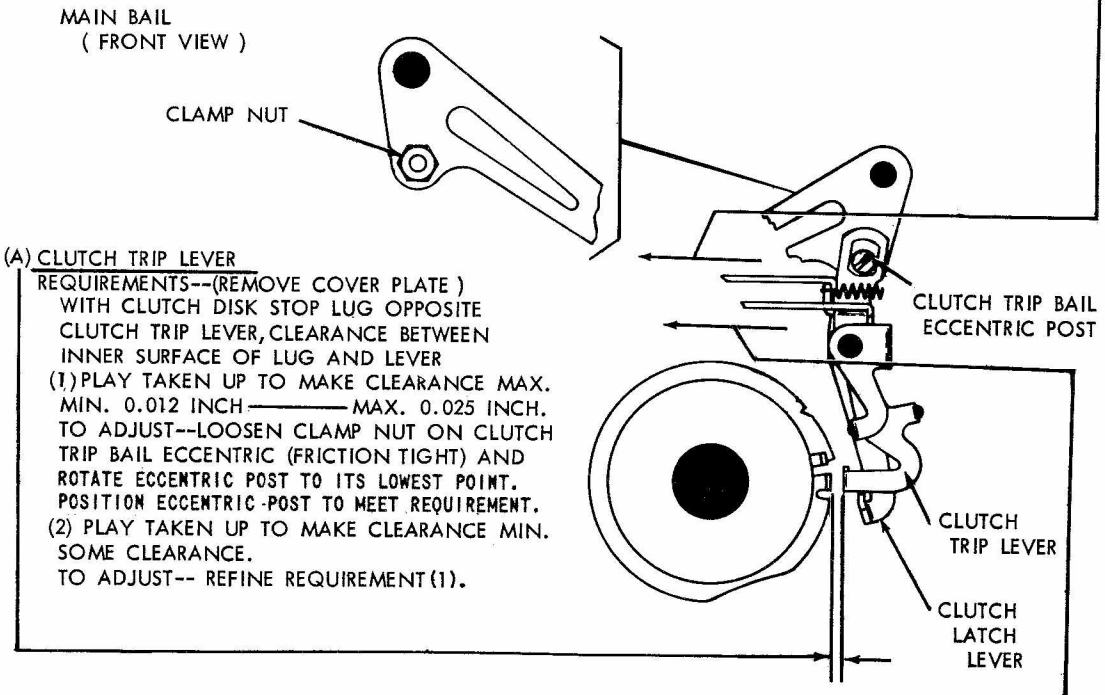
CLUTCH ENGAGED AND ROTATED UNTIL LATCHLEVER IS ON LOW PART OF DISC.
MIN. 3 OZS.--- MAX. 5-1/2 OZS. TO START LATCH MOVING.

(B) CLUTCH SHOE LEVER

REQUIREMENT----CLEARANCE AS SHOWN SHOULD BE 0.055 INCH ——— TO ——— 0.085 INCH GREATER WITH CLUTCH ENGAGED* THAN WITH CLUTCH DISENGAGED-
* (PULL SHOE LEVER WITH FORCE OF 32 OZS. AND RELEASE SLOWLY TO ENGAGE CLUTCH SHOES.)

TO ADJUST----WITH CLUTCH DISK CLAMPING SCREWS LOOSENED, PLACE WRENCH OVER STOP LUG AND MOVE DISK.

CAUTION----MAKE SURE THAT DRUM DOES NOT DRAG ON SHOES WHEN CLUTCH IS DISENGAGED AND DRUM IS RQTATED IN ITS NORMAL DIRECTION. REFINE ABOVE ADJUSTMENT TO CORRECT SHOE DRAG.



(A) CLUTCH TRIP LEVER

REQUIREMENTS--(REMOVE COVER PLATE)
WITH CLUTCH DISK STOP LUG OPPOSITE CLUTCH TRIP LEVER, CLEARANCE BETWEEN INNER SURFACE OF LUG AND LEVER
(1) PLAY TAKEN UP TO MAKE CLEARANCE MAX. MIN. 0.012 INCH ——— MAX. 0.025 INCH.
TO ADJUST--LOOSEN CLAMP NUT ON CLUTCH TRIP BAIL ECCENTRIC (FRICTION TIGHT) AND ROTATE ECCENTRIC POST TO ITS LOWEST POINT. POSITION ECCENTRIC POST TO MEET REQUIREMENT.
(2) PLAY TAKEN UP TO MAKE CLEARANCE MIN. SOME CLEARANCE.
TO ADJUST-- REFINE REQUIREMENT (1).

(D) CLUTCH TRIP LEVER SPRING

REQUIREMENT --- WITH CLUTCH ENGAGED
MIN. 7 OZS. —— MAX. 10-1/2 OZS.
TO START CLUTCH TRIP LEVER MOVING.

2.05 Tape Guide Plate

(A) TAPE LID **(FOR TAPE LID ASSEMBLY WITHOUT TAPE-LID SPRING)**

REQUIREMENTS---(REMOVE TOP & TAPE GUIDE PLATES, LUBRICATE PRIOR TO ADJUSTMENT.)

(1) PRELIMINARY:

WITH TAPE LID HELD AGAINST NOTCH IN TAPE GUIDE PLATE

A FEED WHEEL GROOVE IN TAPE LID SHOULD ALIGN WITH SLOT IN PLATE.

B HOLE IN TAPE LID FOR TAPE-OUT PIN SHOULD ALIGN WITH HOLE IN PLATE. (GAUGE BY EYE)

C CLEARANCE BETWEEN PIVOT SHOULDER AND TAPE LID SOME ——— TO ——— 0.010 INCH MAX.

TO ADJUST---WITH TAPE LID BRACKET MOUNTING NUTS (2) **FRICTION TIGHT (INSERT TIP OF TP156743** GAUGE THROUGH SLOT AND INTO GROOVE OF LID), POSITION TAPE LID BRACKET — **RETIGHTEN NUTS.**

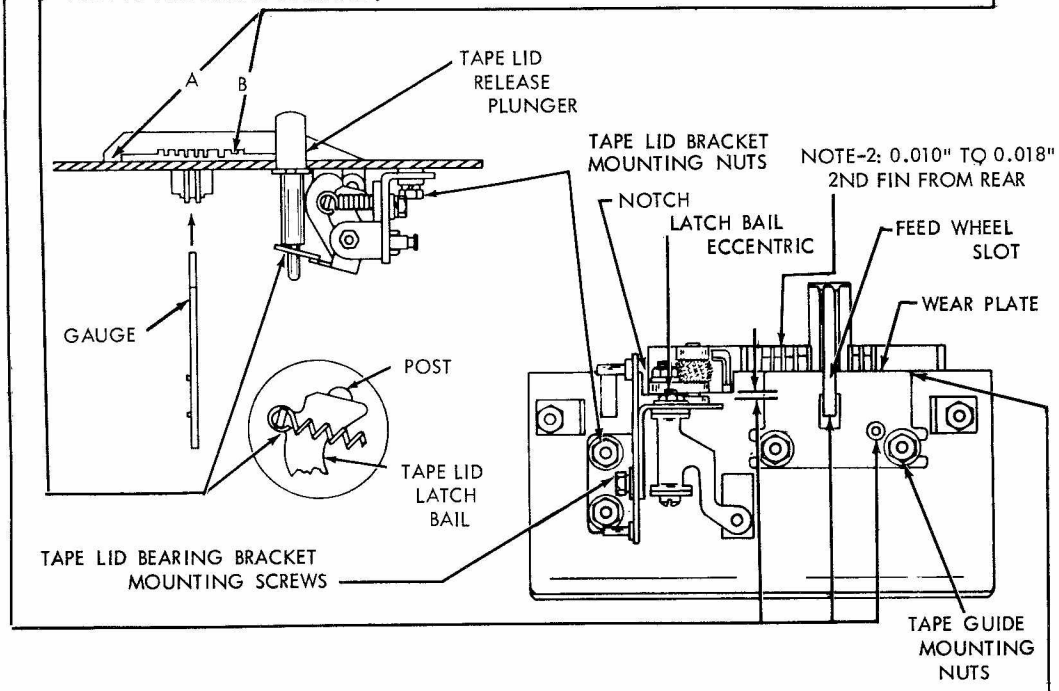
(2) TAPE LID FRONT BEARING SURFACE (A) SHOULD TOUCH TAPE GUIDE PLATE. CLEARANCE (B) MEASURED AT FIN OF TAPE LID WHICH IS IN LINE WITH REAR TAPE GUIDE (SEE NOTE 2) MIN. 0.010 INCH ——— MAX. 0.018 INCH.

NOTE 1 -- WHEN BOTH PLATES ARE ASSEMBLED ON UNIT, LEFT EDGE OF LID MAY TOUCH TOP PLATE AND SOME CHANGE IN THIS CLEARANCE MAY BE EXPECTED.

TO ADJUST -- WITH TAPE LID BEARING BRACKET MOUNTING SCREWS FRICTION TIGHT AND TAPE LID PRESSED AGAINST TAPE GUIDE PLATE, POSITION BEARING BRACKET. RECHECK REQUIREMENT (1).

(3) RELEASE PLUNGER SHOULD HAVE SOME END PLAY WHEN LID IS LATCHED AGAINST TAPE GUIDE PLATE.

TO ADJUST -- WITH ECCENTRIC MOUNTING POST LOCK NUT FRICTION TIGHT AND TAPE LID RAISED, ROTATE HIGH PART OF ECCENTRIC TOWARD TAPE GUIDE PLATE. CLOSE LID AND ROTATE ECCENTRIC TOWARD BRACKET UNTIL LATCH JUST FALLS UNDER FLAT ON POST. RE-CHECK BY DEPRESSING PLUNGER --- WITH LID HELD DOWN, TIP OF LATCH SHOULD CLEAR POST AS PLUNGER IS OPERATED.

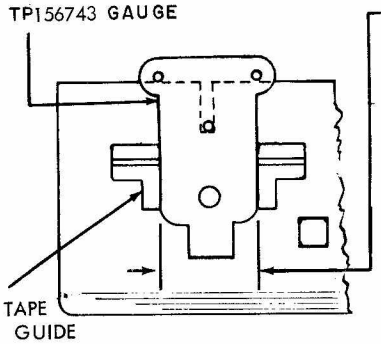


(B) TAPE GUIDE

REQUIREMENTS----WITH TAPE GAUGE POSITIONED AS SHOWN

1. CLEARANCE BETWEEN RIGHT AND LEFT TAPE GUIDE AND GAUGE SOME ——— TO ——— 0.003 INCH.
2. EDGE OF WEAR PLATE SHOULD BE FLUSH WITH EDGE OF TAPE GUIDE PLATE.

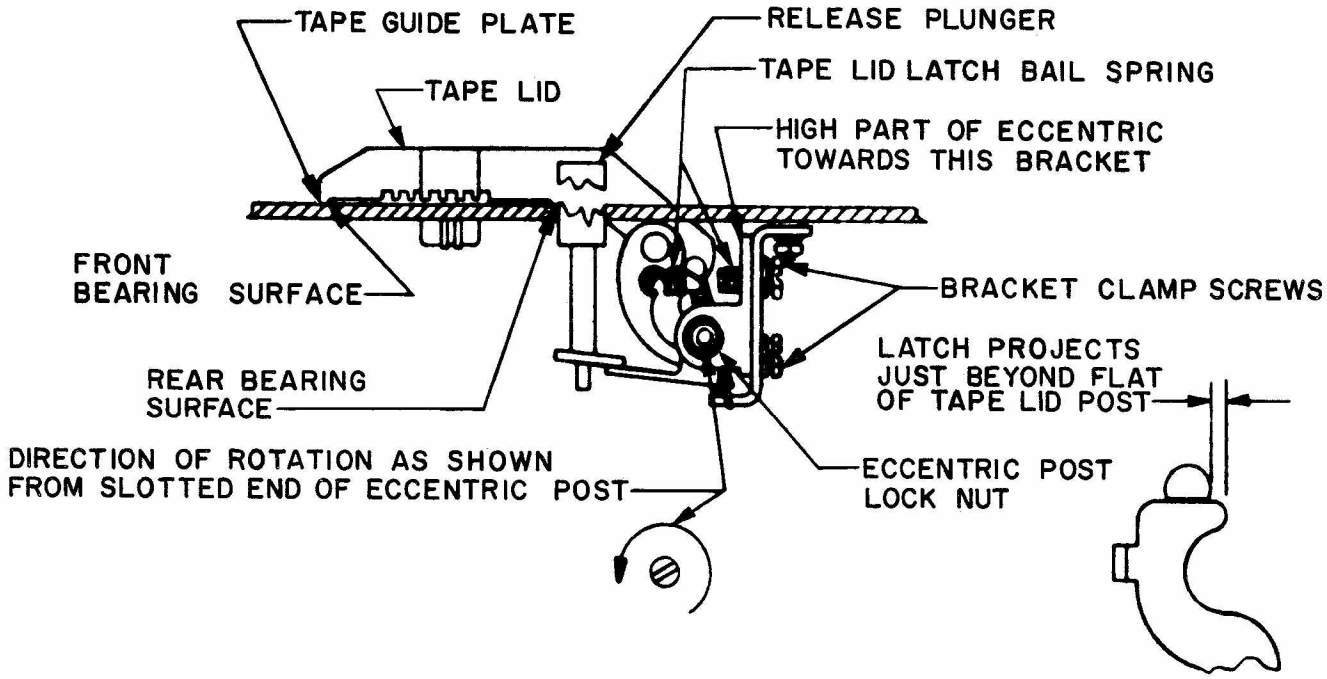
TO ADJUST----WITH EACH TAPE GUIDE MOUNTING NUT FRICTION TIGHT, MOVE WEAR PLATE UPWARD UNTIL IT OVERHANGS EDGE OF TAPE GUIDE PLATE. PLACE GAUGE IN POSITION AND MOVE GAUGE AND WEAR PLATE DOWNWARD UNTIL BOTH STUDS ENGAGE EDGE OF TAPE GUIDE PLATE TO ALIGN COMMON EDGES. HOLD GAUGE AND WEAR PLATE AND POSITION EACH GUIDE. (GAUGE MAY TOUCH BUT NOT BIND.) THE TAPE SHOULD NOT RIDE ON THE SIDE OF EITHER TAPE GUIDE.



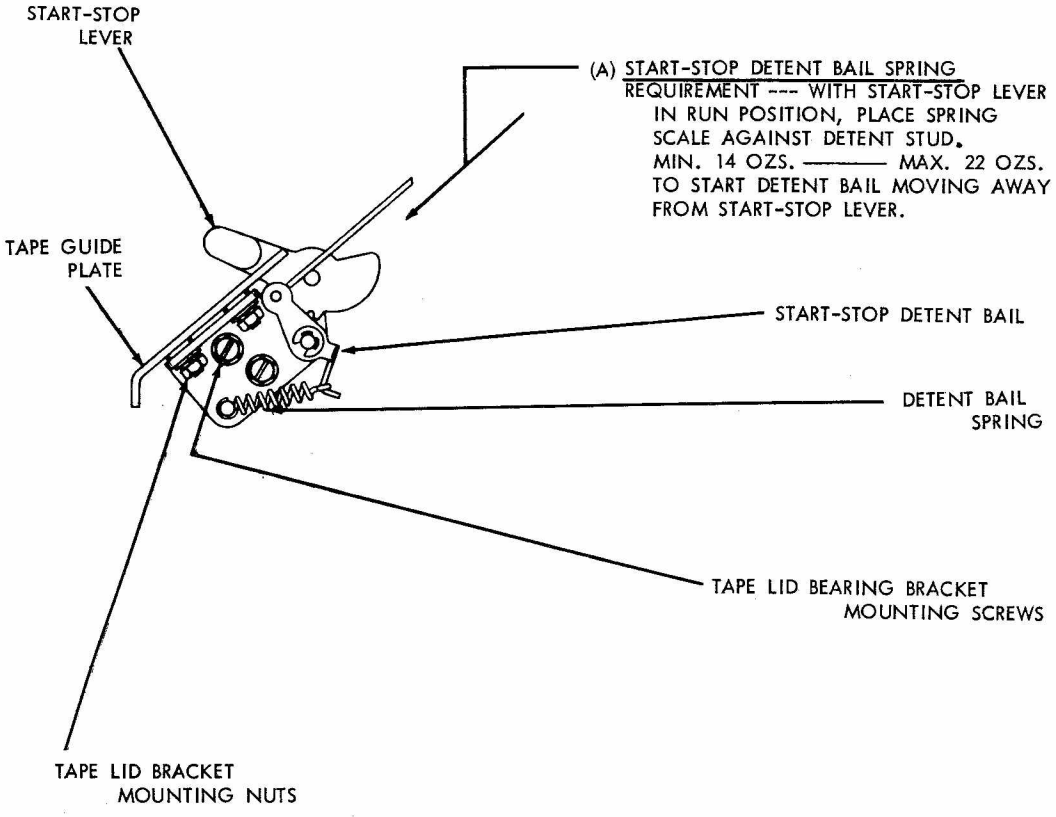
2.06 Tape Guide Plate

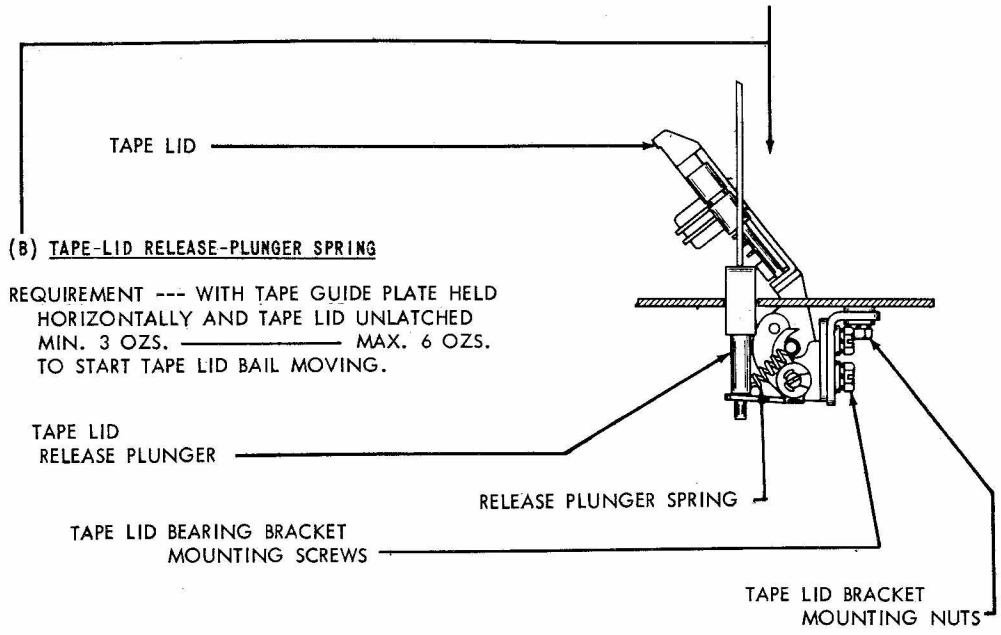
(A) TAPE LID (FOR TAPE LID ASSEMBLY WITH TAPE-LID SPRING)
FOR REQUIREMENTS (1) AND (2), SEE PREVIOUS PARAGRAPH.

(3) REQUIREMENT---RELEASE PLUNGER SHOULD HAVE SOME ENDPLAY WHEN LID IS LATCHED AGAINST TAPE GUIDE PLATE. ECCENTRIC HIGH PART SHOULD BE TOWARD BRACKET.
TO ADJUST---WITH ECCENTRIC MOUNTING-POST LOCKNUT FRICTION TIGHT AND TAPE LID RAISED, ROTATE HIGH PART OF ECCENTRIC TOWARD TAPE-LID BEARING BRACKET. CLOSE TAPE LID AND ROTATE ECCENTRIC IN COUNTER-CLOCKWISE DIRECTION AS VIEWED FROM SLOTTED END OF ECCENTRIC UNTIL THE FLAT OF THE TAPE-LID POST IS FULLY ENGAGED BY THE FLAT OF THE LATCH BAIL. ROTATE ECCENTRIC IN CLOCKWISE DIRECTION TO TAKE UP PLAY IN PARTS SO AS TO FIRMLY SEAT TAPE LID AGAINST TAPE GUIDE PLATE. TIGHTEN NUT. RECHECK BY DEPRESSING PLUNGER - WITH LID HELD DOWN, TIP OF LATCH SHOULD CLEAR POST AS PLUNGER IS OPERATED. WITH THE TAPE LID LATCHED, ROUNDED TIP OF LATCH SHOULD PROJECT JUST BEYOND FLAT OF TAPE-LID POST AND RELEASE PLUNGER SHOULD HAVE SOME ENDPLAY. IF NECESSARY, REFINE THE ADJUSTMENT TO MEET THESE REQUIREMENTS.



2.07 Tape-lid Assembly (Without Tape-lid Spring)



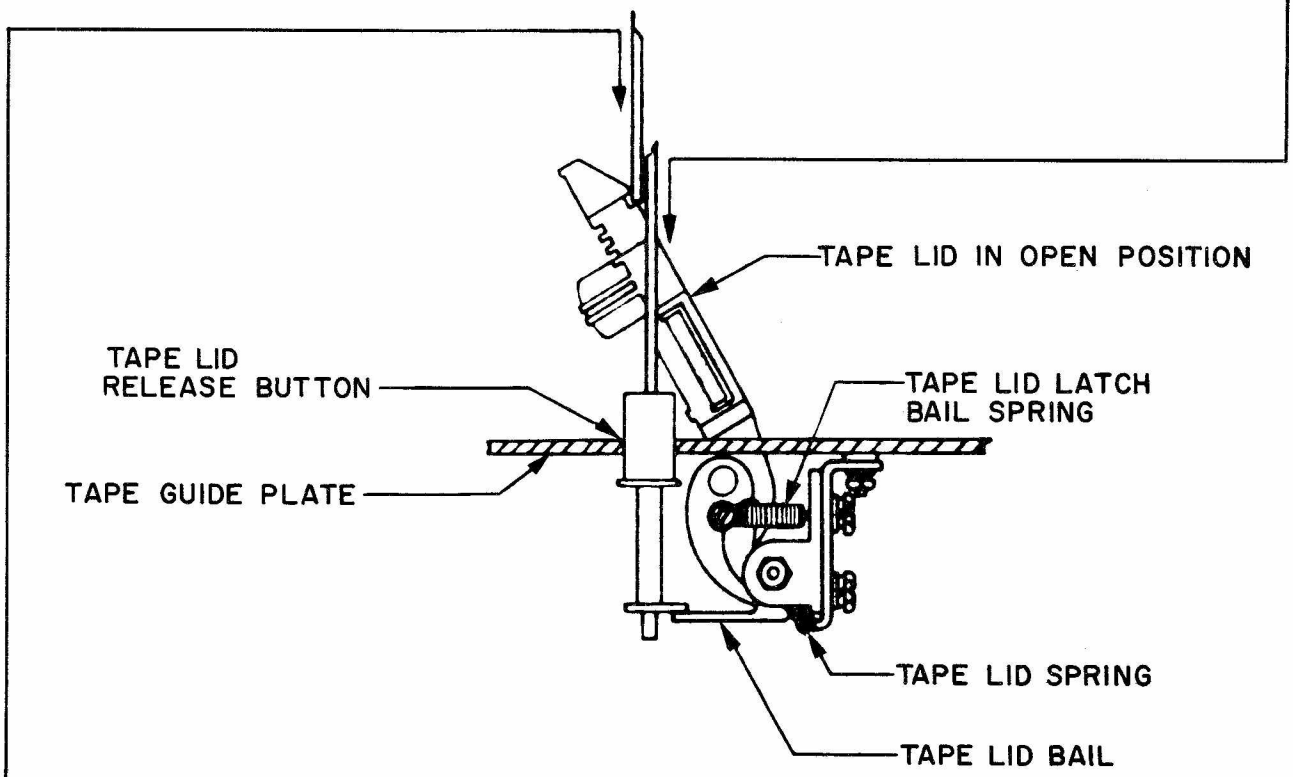


2.08 Tape-lid Assembly (With Tape-lid Spring)

(A) FOR REQUIREMENT (A) START-STOP DETENT-BAIL SPRING, SEE PREVIOUS PARAGRAPH.

(B) TAPE-LID RELEASE-PLUNGER SPRING

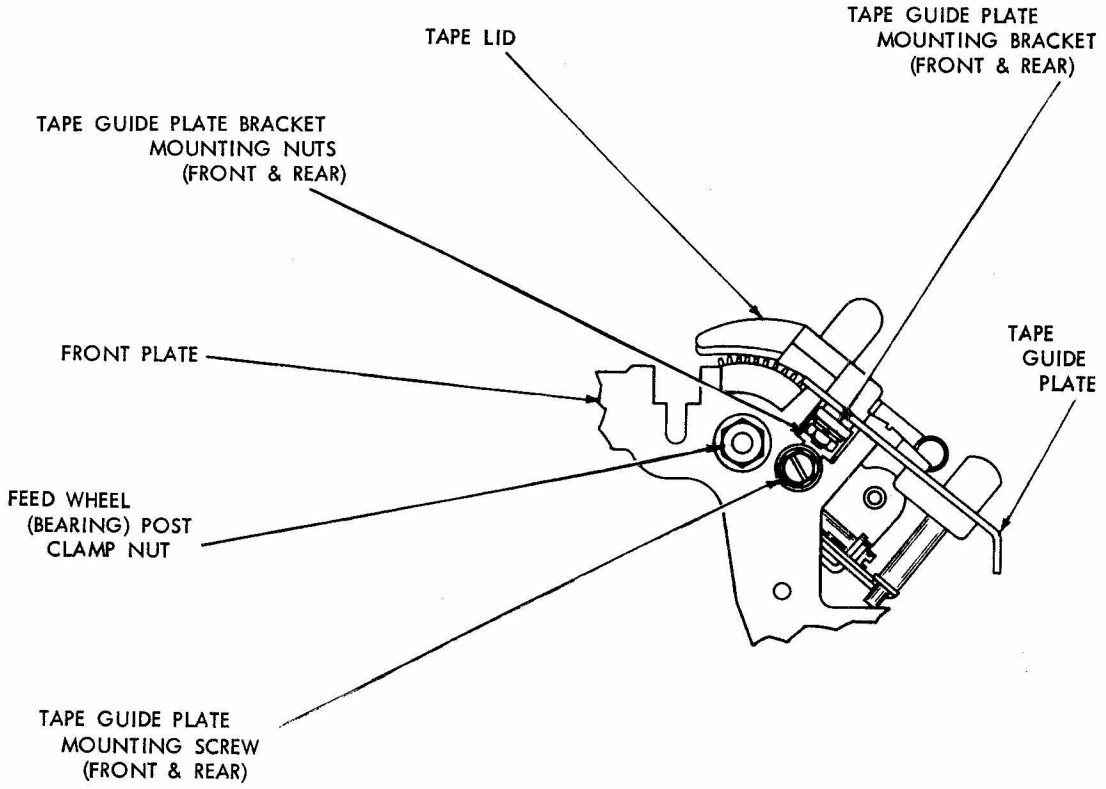
REQUIREMENT---WITH TAPE GUIDE PLATE POSITIONED IN A HORIZONTAL PLANE AND TAPE LID IN ITS OPEN POSITION
MIN. 28 OZS.----------MAX. 48 OZS.
TO START TAPE-LID BAIL MOVING.



(C) TAPE-LID SPRING

REQUIREMENT---TAPE GUIDE PLATE POSITIONED IN A HORIZONTAL PLANE AND TAPE LID IN ITS OPEN POSITION. WITH RELEASE PLUNGER HELD FULLY DEPRESSED, APPLY SPRING SCALE AT TOP OF TAPE LID TO THE IMMEDIATE LEFT OF THE TAPE-OUT PIN HOLE AND PUSH VERTICALLY DOWNWARD.
MIN. 3 OZS.----------MAX. 4-1/2 OZS.
TO MOVE OPEN END OF TAPE LID AGAINST TAPE GUIDE PLATE.

2.09 Tape Guide Plate Mounting



INSTRUCTIONS FOR

REPLACING AND POSITIONING TAPE GUIDE PLATE

REQUIREMENTS----

(1) SHOULDER OF FEED WHEEL POST SHOULD NOT INTERFERE WITH TOP PLATE OR TAPE GUIDE PLATE MOUNTING BRACKETS.
TO ADJUST---- SEE NOTE 1. WITH (FEED WHEEL) BEARING POST CLAMP NUT FRICTION TIGHT, POSITION THE POST.

(2) TAPE GUIDE PLATE SHOULD REST FIRMLY AGAINST AT LEAST THREE PROJECTIONS OF FRONT AND REAR PLATE.
TO ADJUST---- SEE NOTE 1. WITH CLAMP NUT THAT SECURES TAPE GUIDE PLATE MOUNTING BRACKET (FRONT & REAR) FRICTION TIGHT, TRIP CLUTCH AND ROTATE SHAFT UNTIL SENSING PINS ARE IN THEIR UPPERMOST POSITION. WITH TAPE LID RAISED AND START-STOP LEVER IN RUN POSITION, PRESS GUIDE PLATE INTO POSITION WHILE GUIDING MOUNTING SCREWS INTO NOTCH OF FRONT AND REAR PLATE. ENGAGE TIP OF TAPE OUT PIN WITH HOLE IN TAPE GUIDE PLATE.

(3) OUTER EDGE OF FRONT AND REAR MOUNTING BRACKET SHOULD BE LOCATED FLUSH WITH SHOULDER OF MOUNTING STUD SO THAT EDGE OF TAPE GUIDE PLATE PROJECTS OVER FRONT AND REAR PLATE BY AN EQUAL AMOUNT. (GAUGE BY EYE.) SEE COVER PLATE REQUIREMENT.
TO ADJUST----MOVE TAPE PLATE TOWARD THE FRONT OR REAR. TIGHTEN NUTS ONLY AFTER TOP PLATE IS ADJUSTED.

NOTE 1---POSITION TAPE-OUT SENSING PIN STOP ARM (SEE TAPE-OUT SENSING PIN REQUIREMENT.) IN ITS LOWEST POSITION AND HOLD START-STOP BAIL EXTENSION FROM RATCHET WHEEL.

2.10 Top Plate and Cover Plate Mounting

INSTRUCTIONS FOR

REPLACING AND POSITIONING TOP PLATE----LOOSEN NUTS (FRICTION TIGHT) THAT SECURE MOUNTING BRACKETS TO PLATE. PRESS TOP PLATE INTO POSITION WHILE GUIDING TOP PLATE MOUNTING SCREWS INTO NOTCH OF FRONT AND REAR PLATE. POSITION EACH SENSING PIN IN ITS SLOT. MAKE SURE THAT TOP PLATE SEATS FIRMLY AGAINST PROJECTIONS OF FRONT AND REAR PLATE (3 PROJECTIONS SHOULD ENGAGE) AND TIGHT TAPE ARM EXTENSION IS UNDER TOP PLATE.

REQUIREMENTS----

1. MATING EDGE OF TOP PLATE SHOULD BE FLUSH TO 0.003 INCH UNDER FLUSH WITH EDGE OF TAPE GUIDE PLATE (WITHIN AREA OF TAPE LID) WHEN PLATE ENGAGES AT LEAST 3 PROJECTIONS

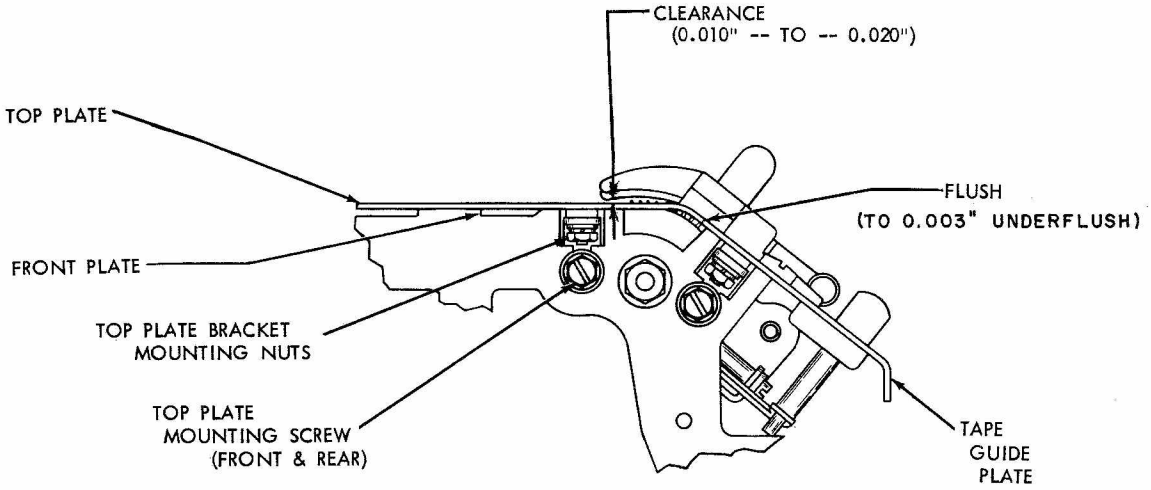
TO ADJUST----POSITION TOP PLATE, TIGHTEN MOUNTING SCREWS AND THEN TIGHTEN NUTS THAT SECURE TAPE GUIDE PLATE MOUNTING BRACKETS.

2. FEEDWHEEL SLOT SHOULD ALIGN WITH SLOT IN TAPE GUIDE PLATE SO THAT FEED WHEEL ROTATES FREELY WITH DETENTS AND FEED PAWL DISENGAGED (FREEWHEELING).

TO ADJUST----POSITION TOP PLATE TOWARD FRONT OR REAR TO ALIGN SLOT.

3. THE CLEARANCE BETWEEN THE TAPE-LID EXTENSION WHICH COVERS THE FEED-WHEEL SLOT AND THE TOP PLATE SHALL BE 0.010-TO-0.020 INCH AT THE CURVED PORTION AND 0.010-TO-0.025 INCH AT THE FLAT PORTION (PLAY TAKEN UP TOWARD TAPE-GUIDE PLATE).

TO ADJUST --- IF NECESSARY, LOOSEN TAPE-LID BEARING BRACKET MOUNTING SCREWS AND POSITION TAPE LID. RETIGHTEN SCREWS AND RECHECK REQUIREMENTS.



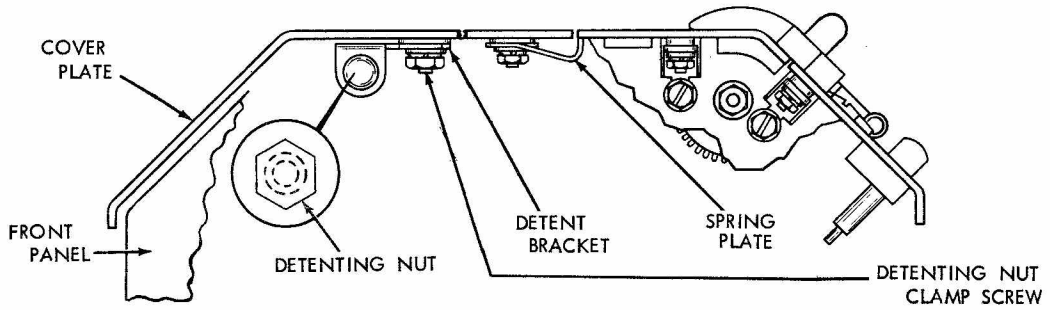
INSTRUCTIONS FOR

REPLACING AND POSITIONING COVER PLATE

REQUIREMENT----

1. RIGHT EDGE OF COVER PLATE SHOULD BE HELD FLUSH AGAINST LEFT EDGE OF TOP PLATE BY THE COVER PLATE DETENTS.
2. COVER PLATE SHOULD REST AGAINST AT LEAST THREE OF THE FOUR PROJECTIONS (FRONT & REAR PLATE).
3. FRONT EDGE OF COVER PLATE AND TOP PLATE SHOULD ALIGN.

TO ADJUST----WITH DETENTING NUT CLAMP SCREW (FRONT & REAR PLATE) FRICTION TIGHT, MOVE CLAMP SCREWS TO THEIR EXTREME LOWER RIGHT POSITION THEN TIGHTEN SCREWS. LOOSEN DETENT BRACKET AND SPRING PLATE MOUNTING NUTS. PLACE COVER ON UNIT AND POSITION HORIZONTALLY TO MEET THE REQUIREMENTS. RETIGHTEN MOUNTING NUTS.



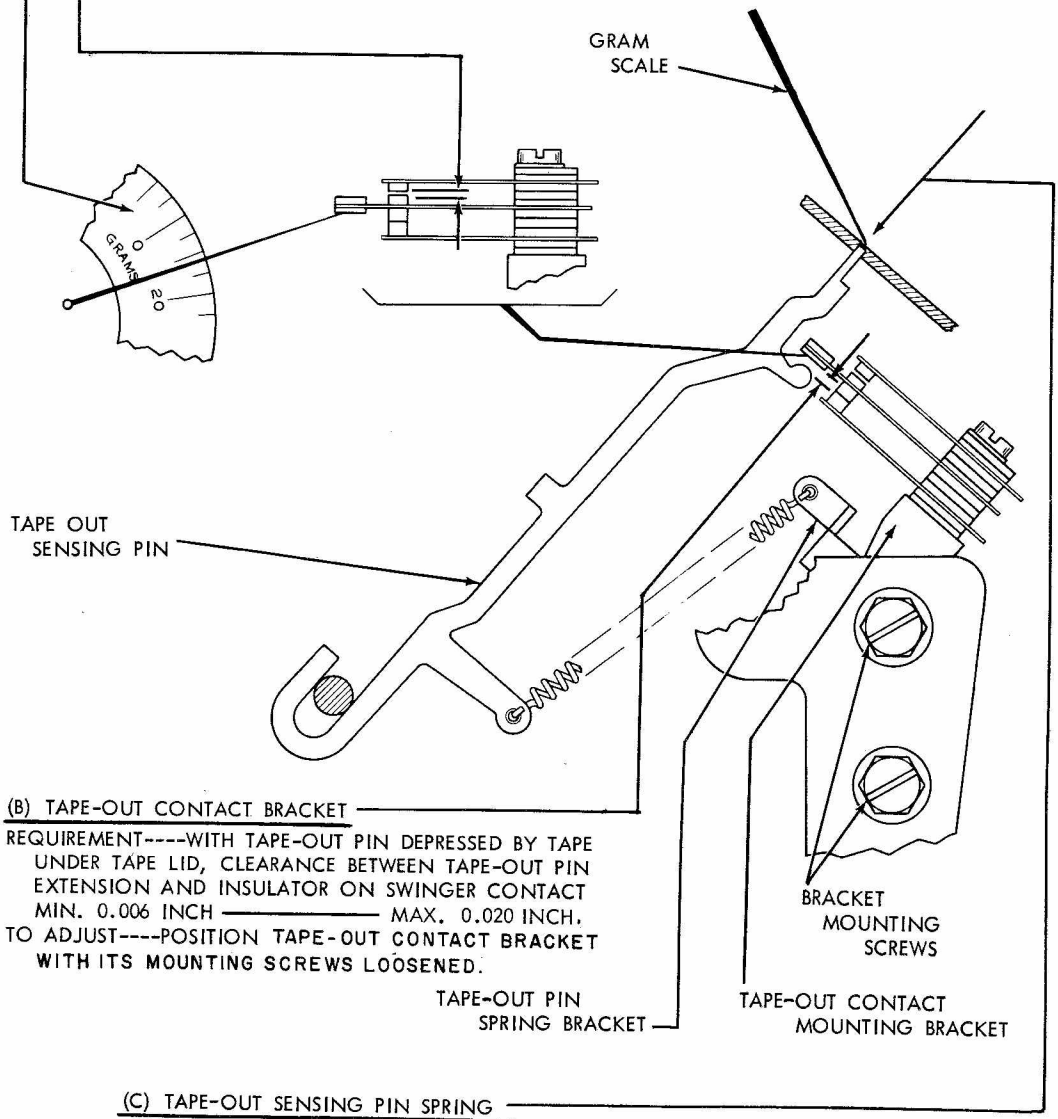
2.11 Tape-out Contact Assembly

(A) TAPE-OUT CONTACT ASSEMBLY

REQUIREMENT --- (COVER PLATE AND TOP PLATE REMOVED; START-STOP SWITCH IN STOP POSITION; REMOVAL OF TAPE GUIDE PLATE OPTIONAL.) WITH TAPE-OUT SPRING BRACKET FRICTION TIGHT, MOVE BRACKET DOWNWARD UNTIL TAPE-OUT PIN EXTENSION CLEARS INSULATED PORTION OF CONTACT SWINGER.

1. WITH GRAM SCALE APPLIED AS SHOWN
   MIN. 8 GRAMS ——— MAX. 15 GRAMS
   TO SEPARATE NORMALLY CLOSED CONTACTS.
   TO ADJUST----REMOVE BAIL SPRING AND CONTACT ASSEMBLY. FORM THE CONTACT SWINGER WITH TP110445 SPRING BENDER.

2. CLEARANCE BETWEEN NORMALLY OPEN CONTACTS
   MIN. 0.008 INCH ——— MAX. 0.015 INCH.
   TO ADJUST----FORM UPPER CONTACT SPRING USING THE TP110445 SPRING BENDER.
   NOTE----REPLACE CONTACT ASSEMBLY WITH SWINGER OVER TAPE-OUT PIN EXTENSION. PLACE SPRING BRACKET SHOULDER BUSHING ON UPPER HOLE AND THE WASHER ON LOWER MOUNTING HOLE.



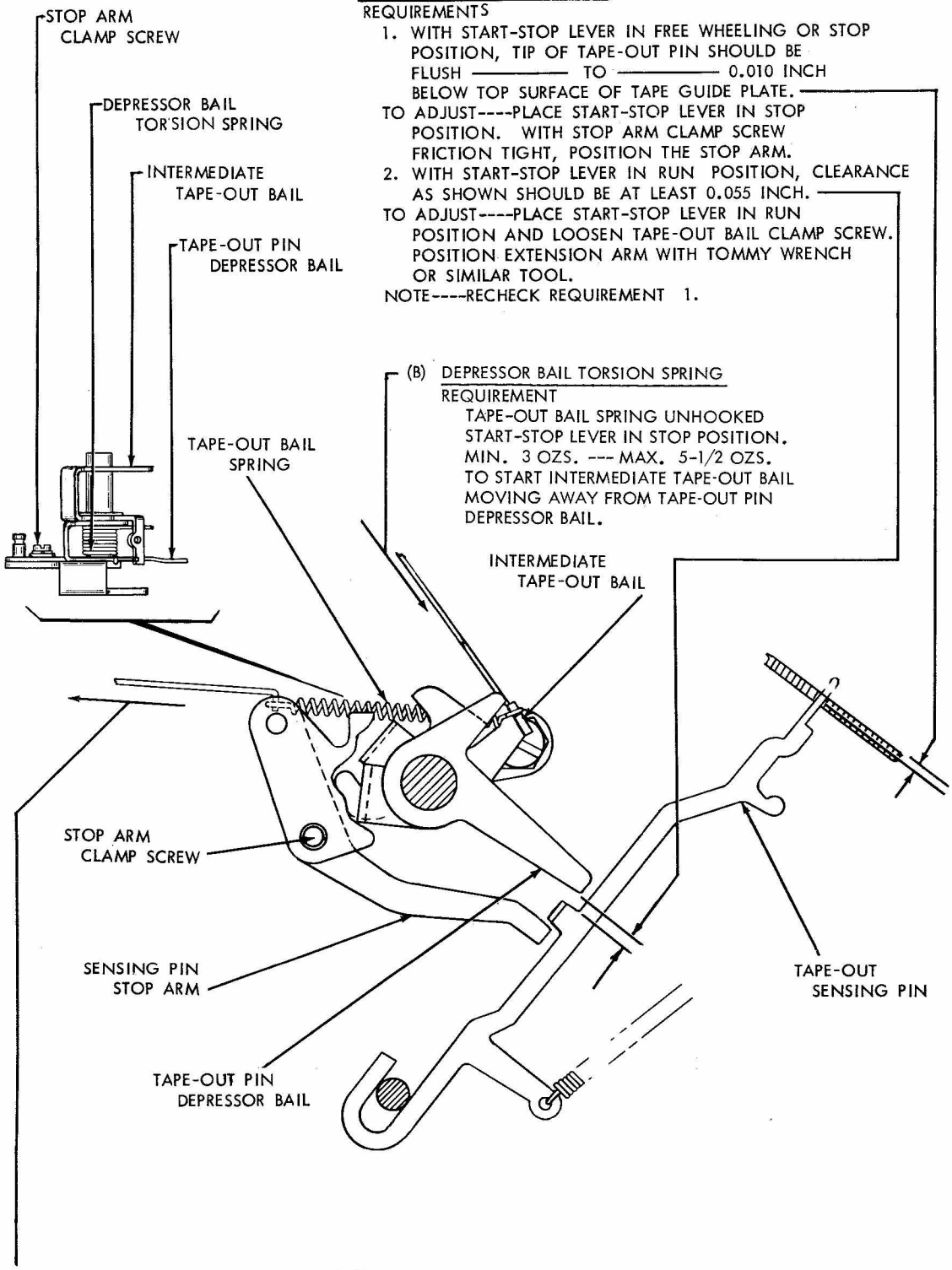
(B) TAPE-OUT CONTACT BRACKET

REQUIREMENT----WITH TAPE-OUT PIN DEPRESSED BY TAPE UNDER TAPE LID, CLEARANCE BETWEEN TAPE-OUT PIN EXTENSION AND INSULATOR ON SWINGER CONTACT
MIN. 0.006 INCH ——— MAX. 0.020 INCH.
TO ADJUST----POSITION TAPE-OUT CONTACT BRACKET WITH ITS MOUNTING SCREWS LOOSENED.

(C) TAPE-OUT SENSING PIN SPRING

REQUIREMENT----WITH START-STOP LEVER IN RUN POSITION
MIN. 38 GRAMS --- MAX. 45 GRAMS
TO MOVE PIN TO A POSITION FLUSH WITH TAPE GUIDE PLATE.
TO ADJUST --- WITH CONTACT BRACKET LOWER MOUNTING SCREW LOOSENED POSITION THE SPRING BRACKET.

2.12 Tape-out Sensing Pin



(A) TAPE-OUT SENSING PIN

REQUIREMENTS

1. WITH START-STOP LEVER IN FREE WHEELING OR STOP POSITION, TIP OF TAPE-OUT PIN SHOULD BE FLUSH ——— TO ——— 0.010 INCH BELOW TOP SURFACE OF TAPE GUIDE PLATE.

TO ADJUST----PLACE START-STOP LEVER IN STOP POSITION. WITH STOP ARM CLAMP SCREW FRICTION TIGHT, POSITION THE STOP ARM.

2. WITH START-STOP LEVER IN RUN POSITION, CLEARANCE AS SHOWN SHOULD BE AT LEAST 0.055 INCH.

TO ADJUST----PLACE START-STOP LEVER IN RUN POSITION AND LOOSEN TAPE-OUT BAIL CLAMP SCREW. POSITION EXTENSION ARM WITH TOMMY WRENCH OR SIMILAR TOOL.

NOTE----RECHECK REQUIREMENT 1.

(B) DEPRESSOR BAIL TORSION SPRING

REQUIREMENT

TAPE-OUT BAIL SPRING UNHOOKED START-STOP LEVER IN STOP POSITION. MIN. 3 OZS. --- MAX. 5-1/2 OZS. TO START INTERMEDIATE TAPE-OUT BAIL MOVING AWAY FROM TAPE-OUT PIN DEPRESSOR BAIL.

(C) INTERMEDIATE TAPE-OUT BAIL SPRING

REQUIREMENT --- WITH START-STOP LEVER IN ITS RUN POSITION, HOOK SPRING SCALE IN LOOP.

MIN. 3 OZS. ——— MAX. 5 OZS.

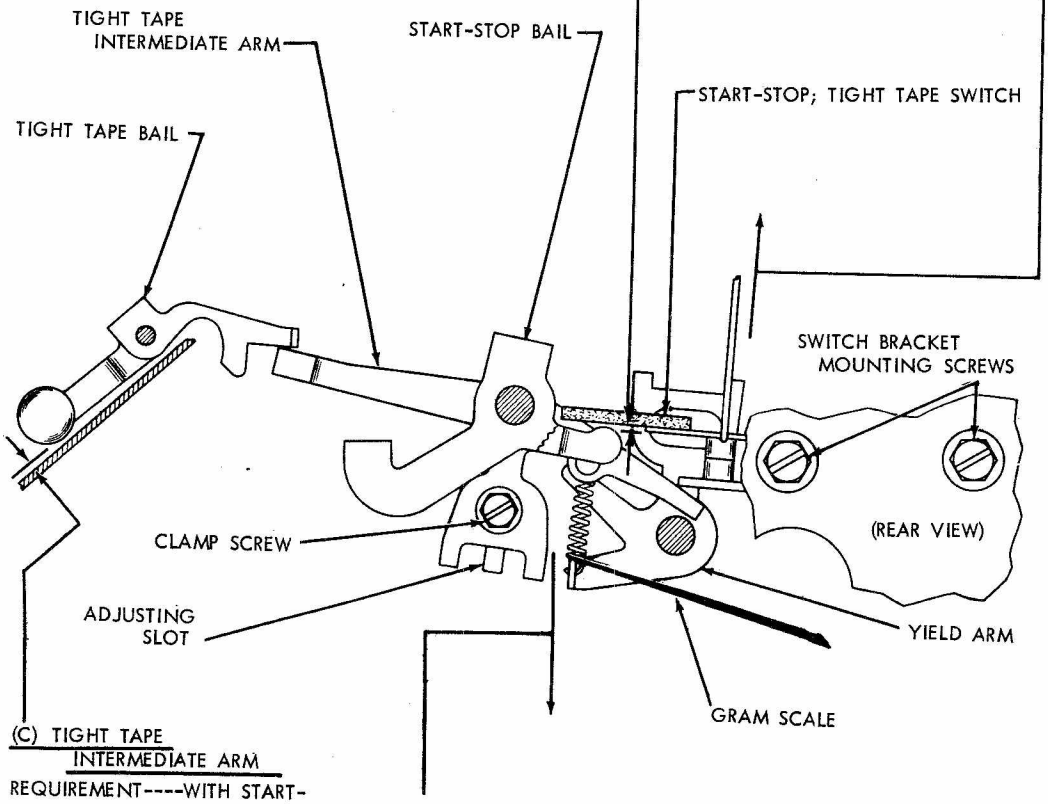
TO PULL SPRING TO ITS INSTALLED LENGTH.

2.13 Start-Stop Switch Assembly

(A) START - STOP SWITCH BRACKET
REQUIREMENTS ---
1. WITH START - STOP LEVER IN RUN POSITION AND CLUTCH IN ITS DISENGAGED POSITION, CLEARANCE BETWEEN START - STOP BAIL EXTENSION AND INSULATOR ON START - STOP SWITCH SWINGER
MIN. 0.006 INCH ——— MAX. 0.015 INCH.
TO ADJUST --- WITH SWITCH BRACKET MOUNTING SCREWS LOOSENED, POSITION THE BRACKET.
2. START - STOP BAIL EXTENSION SHOULD FULLY ENGAGE INSULATED PORTION OF SWITCH SWINGER.
TO ADJUST --- LOOSEN CONTACT PILE-UP MOUNTING SCREWS AND ALIGN CONTACT ASSEMBLY.

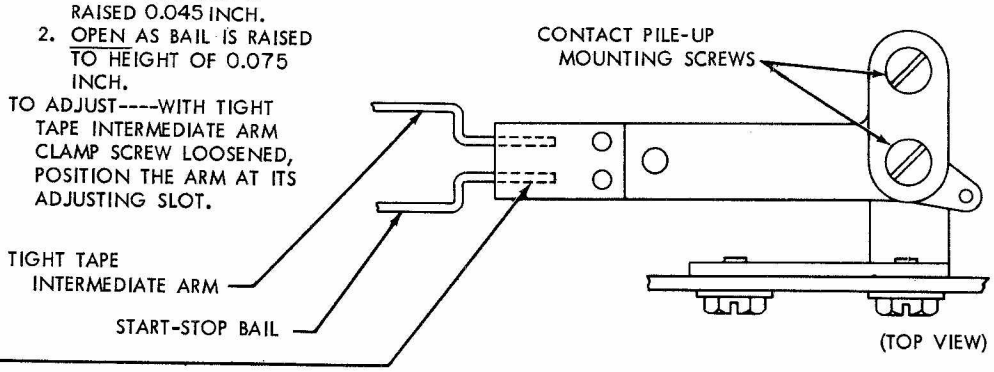
(B) TIGHT TAPE; START-STOP CONTACT SPRING
REQUIREMENT----WITH START-STOP LEVER IN RUN POSITION
MIN. 3 OZS.
MAX. 4 OZS.
TO SEPARATE CONTACTS.
TO ADJUST----FORM SWINGER WITH TP110445 SPRING BENDER.

NOTE----RECHECK REQUIREMENTS (A) & (C).

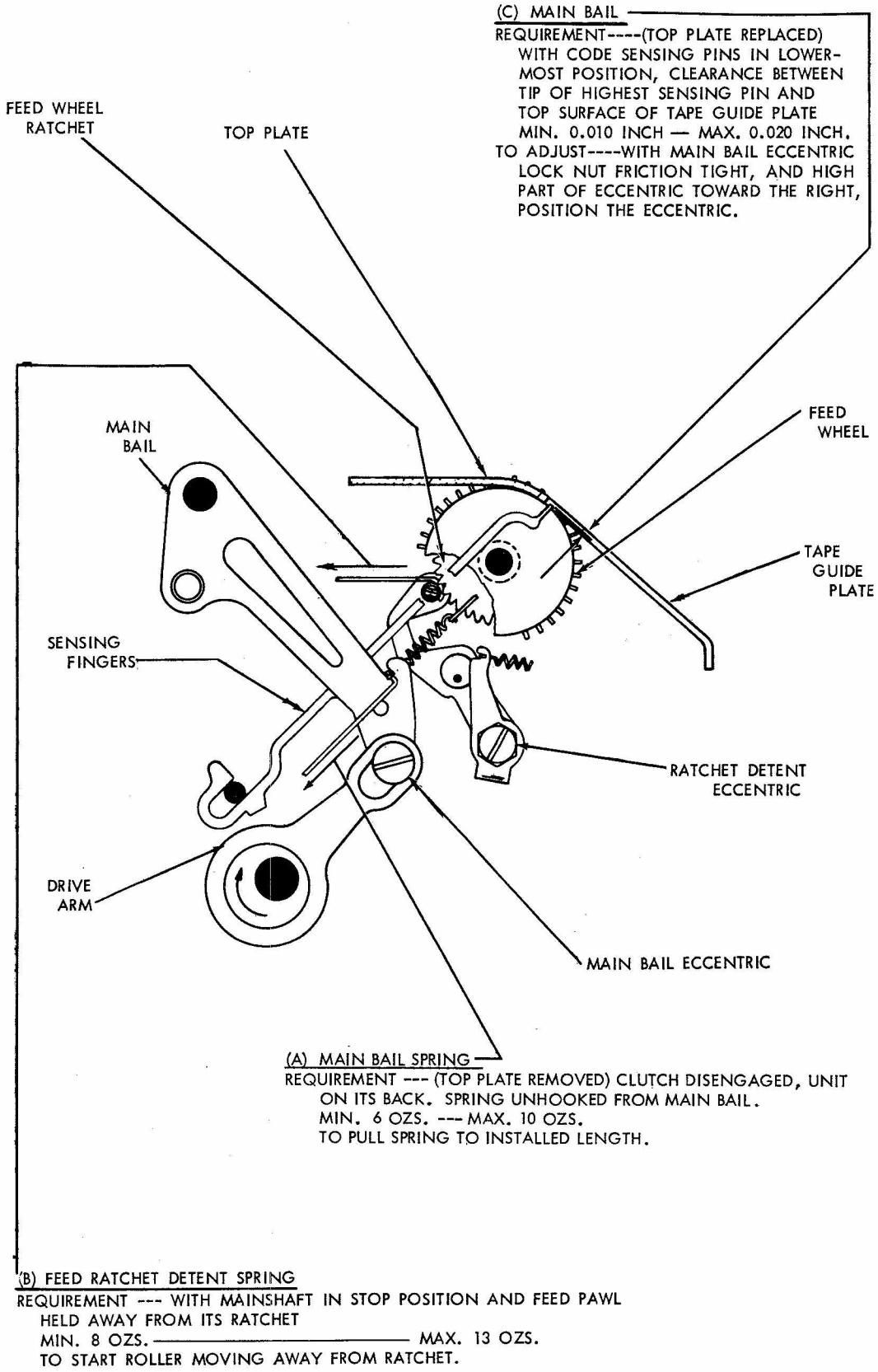


(C) TIGHT TAPE INTERMEDIATE ARM
REQUIREMENT----WITH START-STOP LEVER IN RUN POSITION, TIGHT TAPE; START-STOP CONTACTS SHOULD FUNCTION AS FOLLOWS:
1. REMAIN CLOSED WHEN TIGHT TAPE BAIL IS RAISED 0.045 INCH.
2. OPEN AS BAIL IS RAISED TO HEIGHT OF 0.075 INCH.
TO ADJUST----WITH TIGHT TAPE INTERMEDIATE ARM CLAMP SCREW LOOSENED, POSITION THE ARM AT ITS ADJUSTING SLOT.

(D) TIGHT TAPE INTERMEDIATE ARM SPRING
REQUIREMENT----WITH START-STOP LEVER IN RUN POSITION,
MIN. 20 GRAMS (3/4 OZ.) ——— MAX. 40 GRAMS (1-1/2 OZ.)
TO START INTERMEDIATE ARM MOVING AWAY FROM ITS YIELD ARM.



2.14 Main Bail Assembly

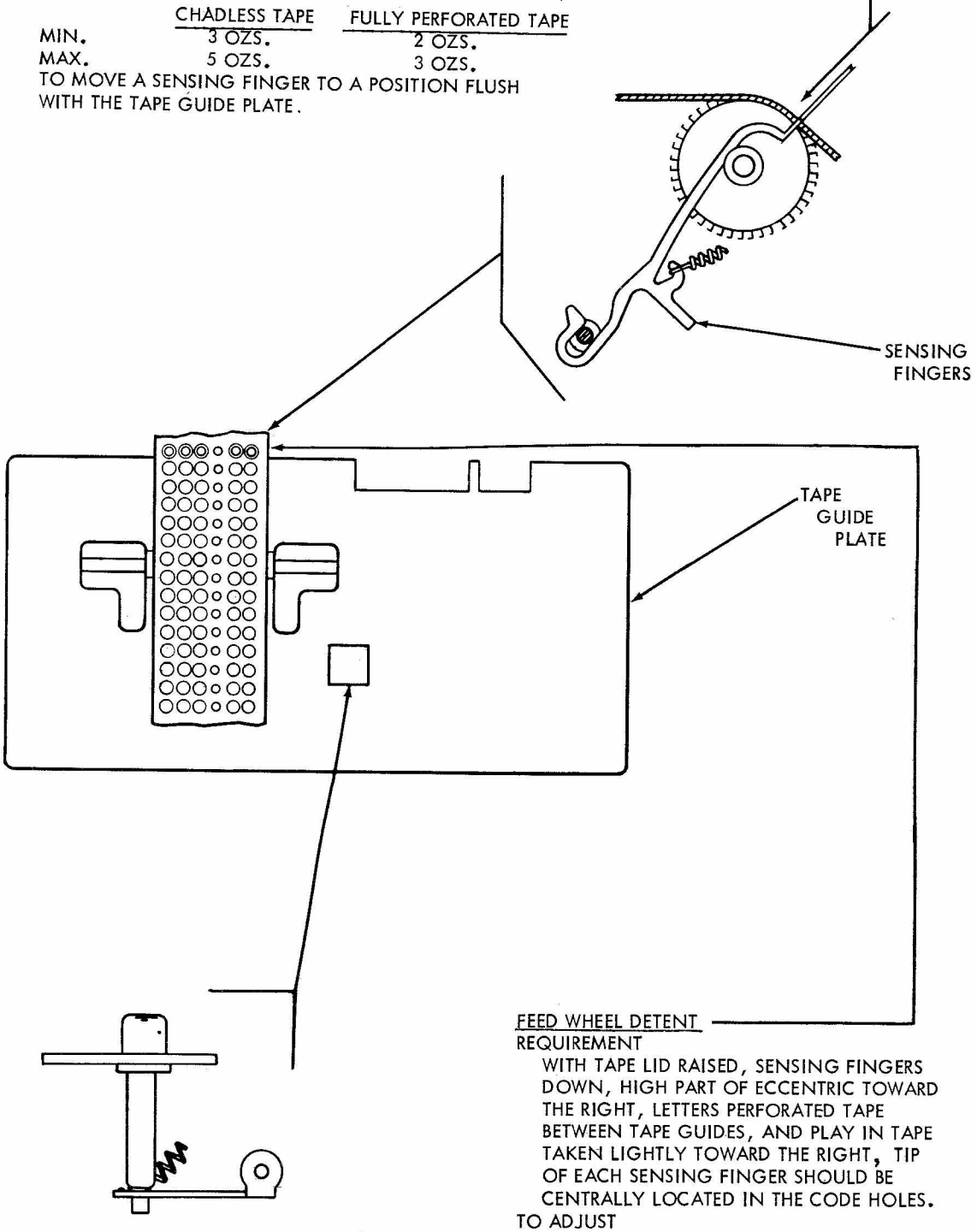


2.15 Code-sensing Fingers

SENSING FINGER SPRING.
REQUIREMENT
UNIT IN UPRIGHT POSITION, SENSING FINGERS IN THEIR UPPERMOST POSITION.

	CHADLESS TAPE	FULLY PERFORATED TAPE
MIN.	3 OZS.	2 OZS.
MAX.	5 OZS.	3 OZS.

TO MOVE A SENSING FINGER TO A POSITION FLUSH WITH THE TAPE GUIDE PLATE.



FEED WHEEL DETENT
REQUIREMENT
WITH TAPE LID RAISED, SENSING FINGERS DOWN, HIGH PART OF ECCENTRIC TOWARD THE RIGHT, LETTERS PERFORATED TAPE BETWEEN TAPE GUIDES, AND PLAY IN TAPE TAKEN LIGHTLY TOWARD THE RIGHT, TIP OF EACH SENSING FINGER SHOULD BE CENTRALLY LOCATED IN THE CODE HOLES.
TO ADJUST
HOLD FEED PAWL AWAY AND ROTATE THE FEED WHEEL DETENT ECCENTRIC SCREW.

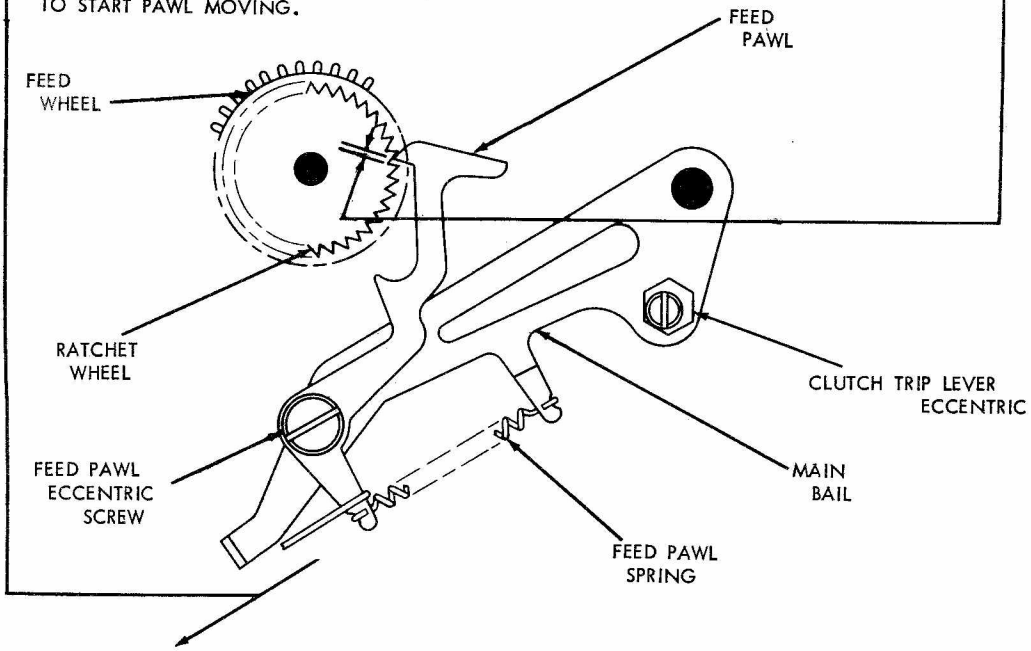
2.16 Feed Pawl Mechanism

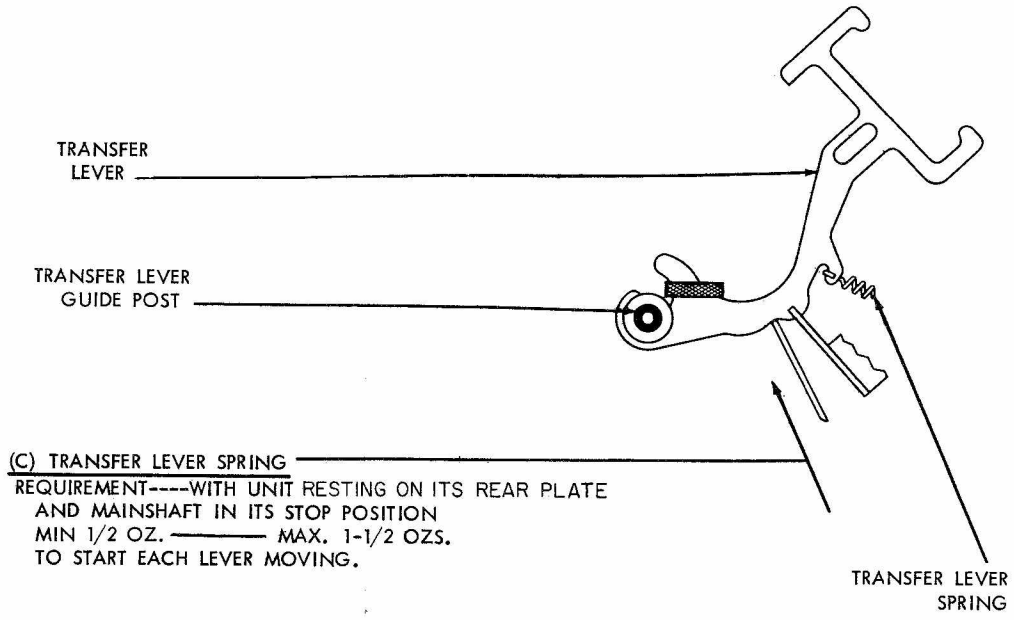
(A) FEED PAWL

REQUIREMENT----(TOP PLATE REMOVED) - WITH HIGH PART OF ECCENTRIC TOWARD THE RIGHT AND SENSING FINGERS IN THEIR LOWERMOST POSITION, CLEARANCE BETWEEN FEED PAWL AND RATCHET TOOTH JUST ENGAGED
SOME ——— TO ——— 0.003 INCH.
TO ADJUST----WITH ECCENTRIC SCREW LOCK NUT LOOSENED, POSITION THE SCREW. RECHECK REQUIREMENT AT FOUR POSITIONS OF RATCHET APPROXIMATELY 90 DEGREES APART.

(B) FEED PAWL SPRING

REQUIREMENT----WITH UNIT TILTED TOWARD THE LEFT AND MAINSHAFT IN ITS STOP POSITION
MIN. 2 OZS. ——— MAX. 3-1/2 OZS.
TO START PAWL MOVING.





(C) TRANSFER LEVER SPRING

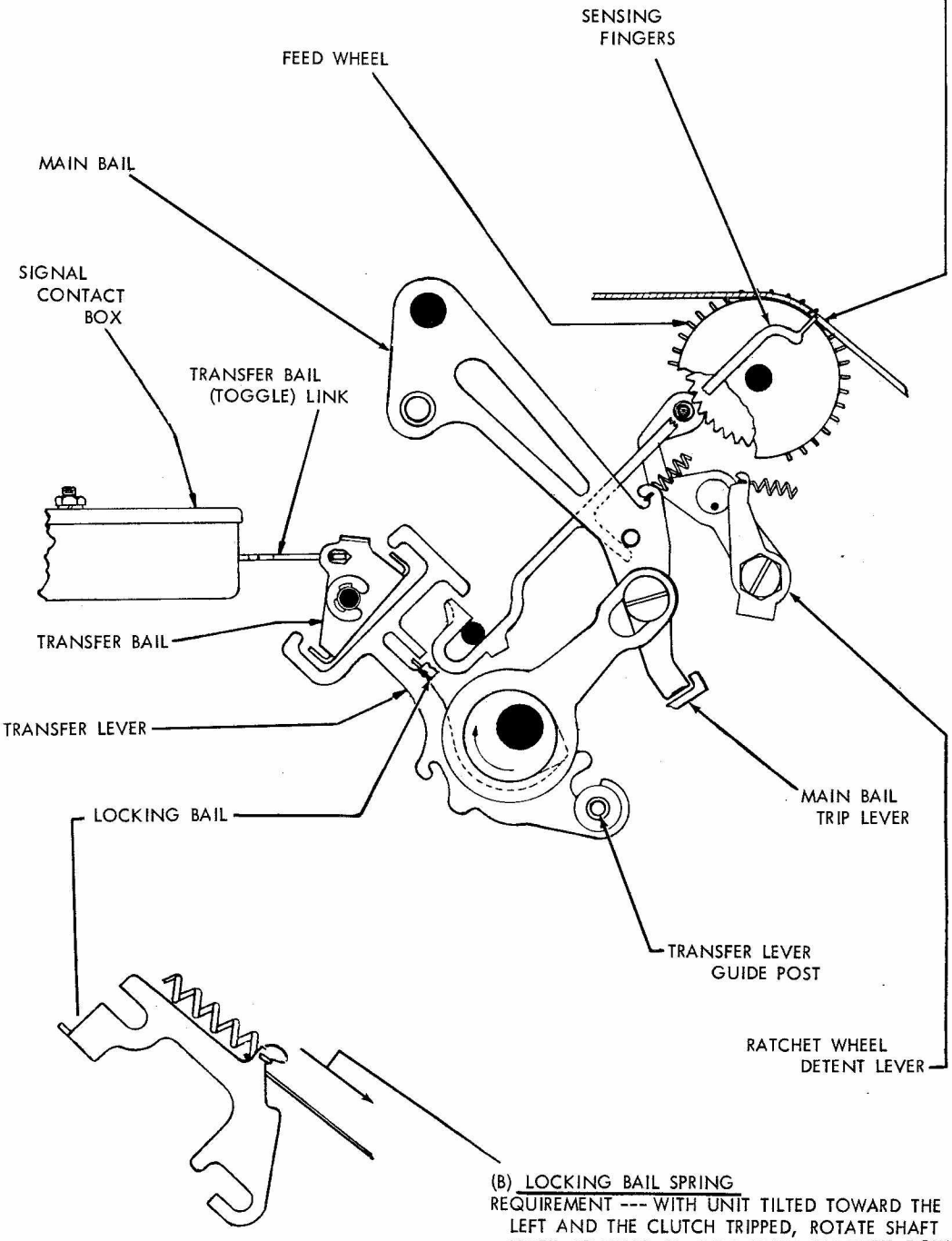
REQUIREMENT----WITH UNIT RESTING ON ITS REAR PLATE AND MAINSHAFT IN ITS STOP POSITION
MIN 1/2 OZ. ——— MAX. 1-1/2 OZS.
TO START EACH LEVER MOVING.

2.17 Main Bail Trip Assembly

(A) MAIN BAIL TRIP LEVER

REQUIREMENT----(TOP PLATE REPLACED) - WITH CLUTCH DISENGAGED AND MAINSHAFT IN ITS STOP POSITION, TIP OF HIGHEST SENSING FINGER SHOULD BE FLUSH TO ——— 0.005 INCH BELOW TOP SURFACE OF TAPE GUIDE PLATE.

TO ADJUST----WITH CLAMP NUTS (FRONT & REAR) THAT SECURE THE TRANSFER LEVER GUIDE POST LOOSENED, ROTATE POST SO THAT ITS ECCENTRIC (REAR END OF POST) POSITIONS THE TRIP LEVER TO MEET REQUIREMENT.



(B) LOCKING BAIL SPRING

REQUIREMENT --- WITH UNIT TILTED TOWARD THE LEFT AND THE CLUTCH TRIPPED, ROTATE SHAFT UNTIL SENSING FINGERS START ON THEIR DOWNWARD TRAVEL.

MIN. 6-1/2 OZS. ——— MAX. 10-1/2 OZS. TO START THE BAIL MOVING.

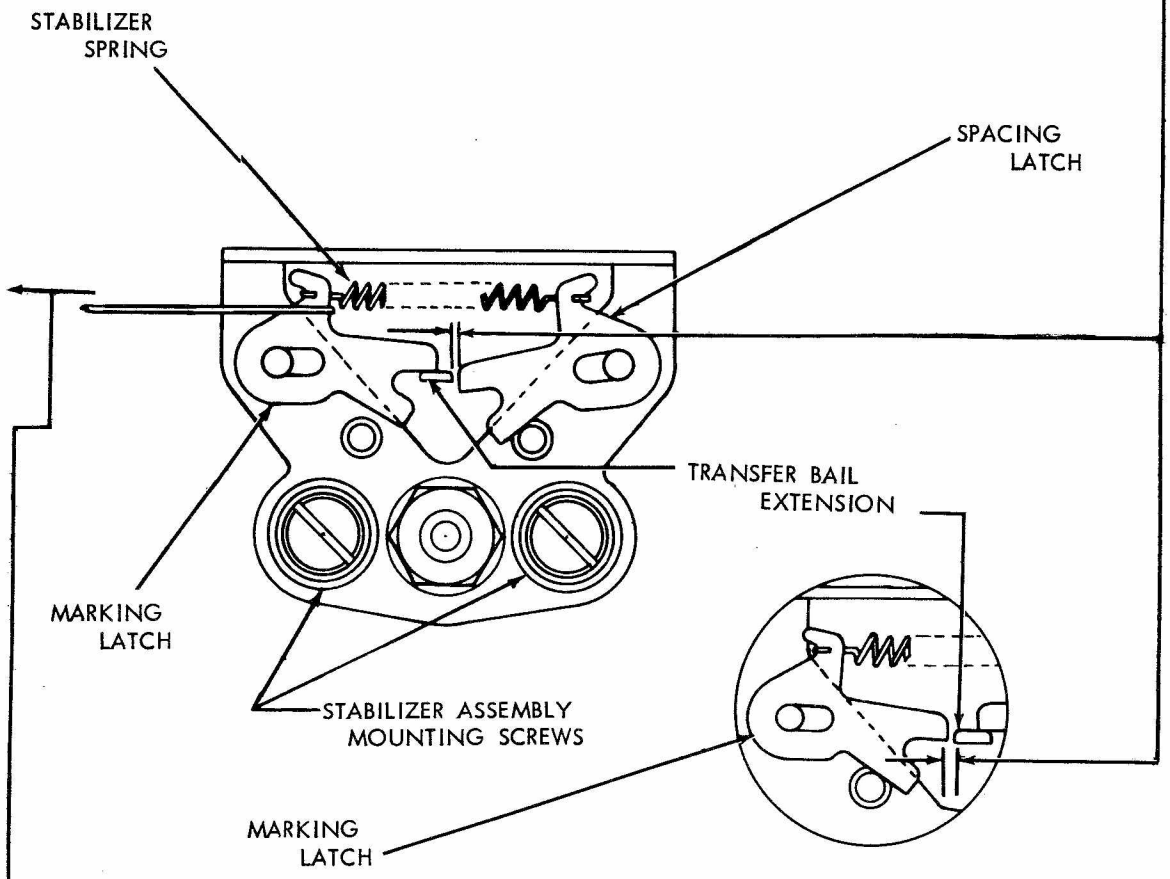
2.18 Transfer Bail Stabilizer

(A) TRANSFER BAIL STABILIZER

REQUIREMENT --- (1) WITH A LTRS COMBINATION SELECTED, ROTATE MAINSHAFT UNTIL #3 TRANSFER LEVER IS ON HIGH PART OF ITS CAM. CHECK CLEARANCE BETWEEN SIDE OF TRANSFER BAIL EXTENSION AND ITS LATCH. (2) REPEAT ABOVE PROCEDURE WITH A BLANKS COMBINATION SELECTED AND CHECK THE CLEARANCE ON OTHER LATCH. CLEARANCE IN MARKING AND SPACING POSITION SHOULD BE EQUAL WITHIN 0.002 INCH.

TO ADJUST --- WITH STABILIZER ASSEMBLY MOUNTING SCREWS FRICTION TIGHT, POSITION THE ASSEMBLY.

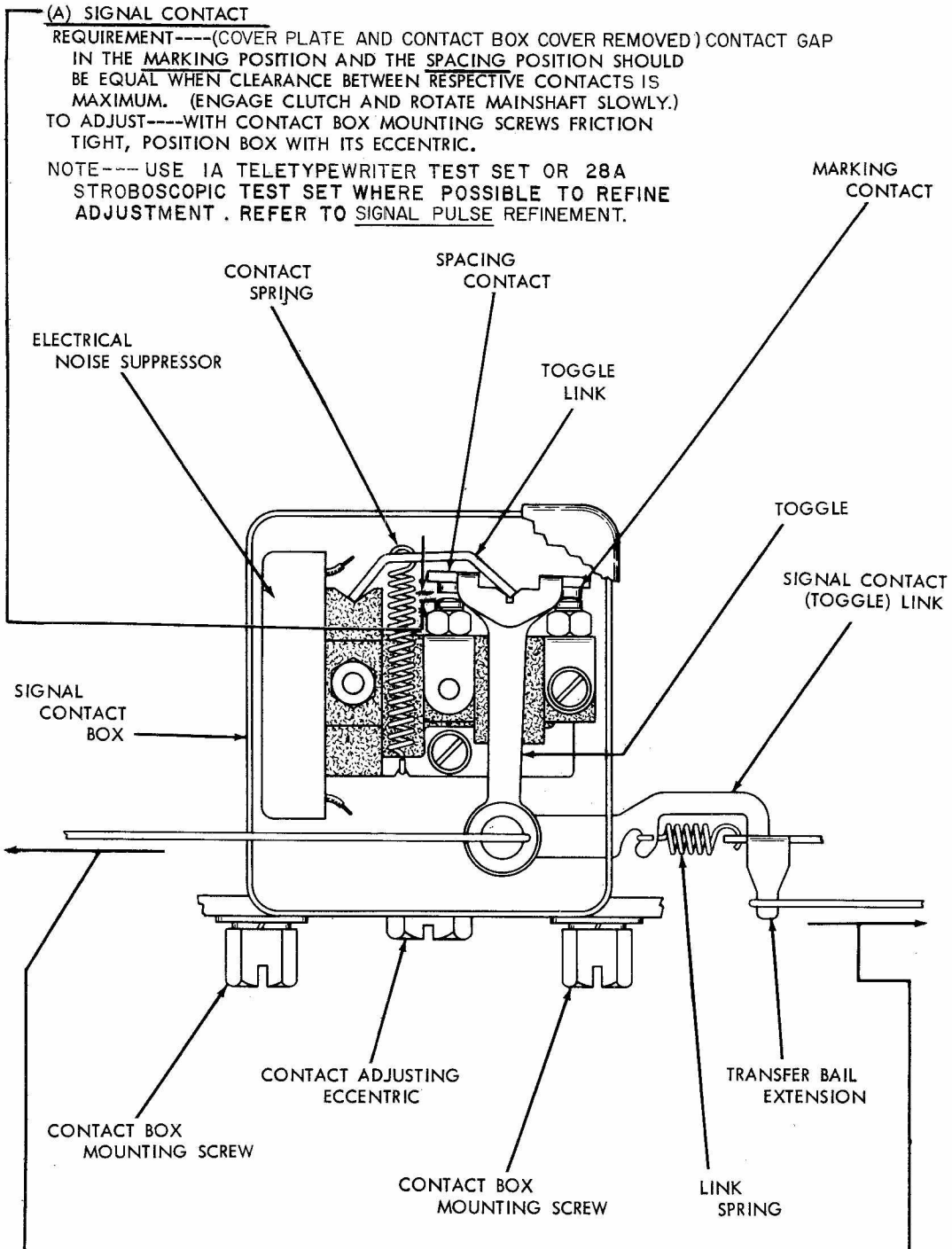
NOTE --- LATCHES SHOULD DROP IN PLACE AS OTHER TRANSFER LEVERS CAM THE TRANSFER BAIL.



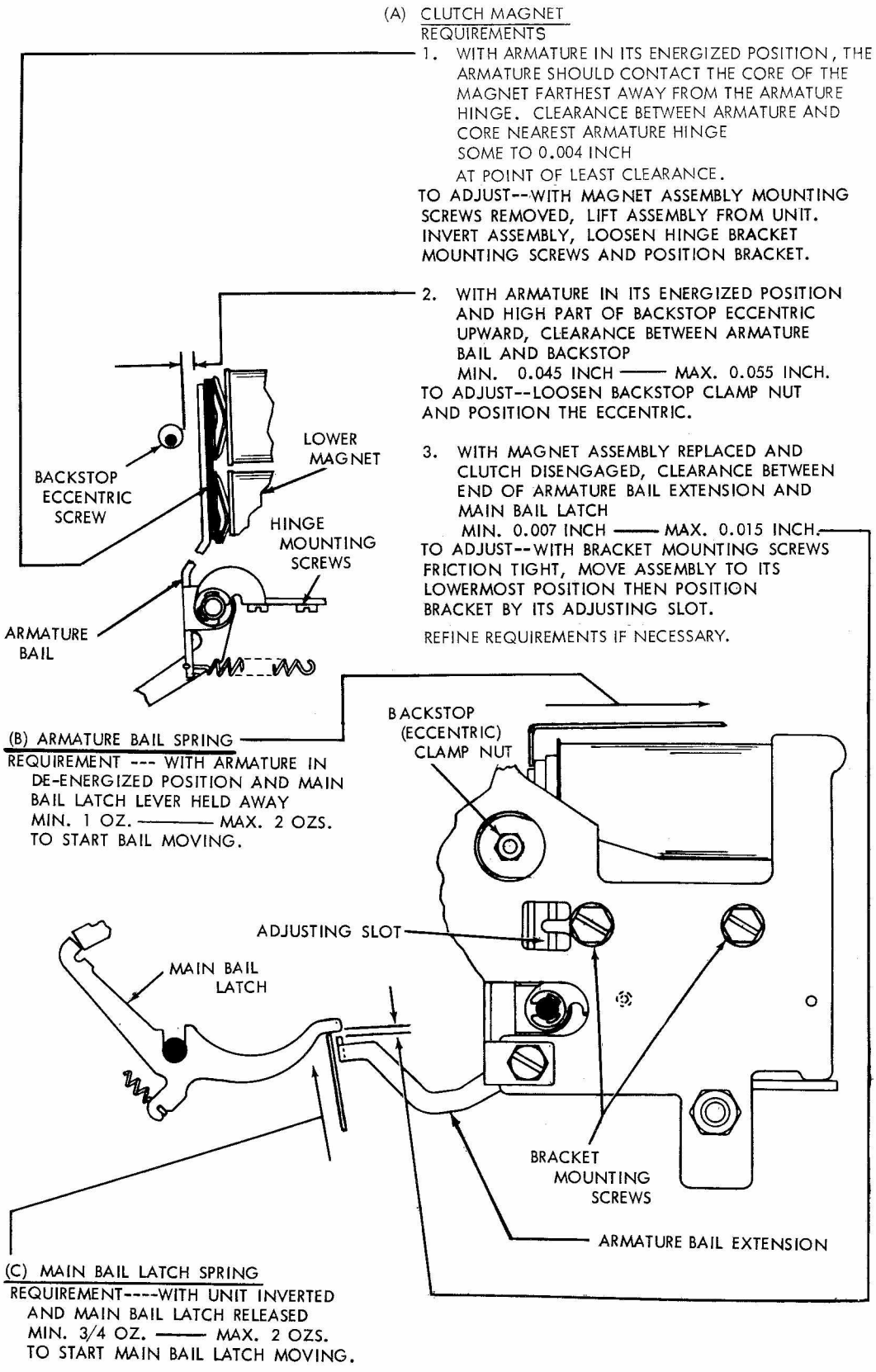
(B) STABILIZER SPRING

REQUIREMENT----WITH UNIT UPRIGHT AND MAINSHAFT IN STOP POSITION
MIN. 2-1/2 OZS. ——— MAX. 5 OZS.
TO START STABILIZER LATCH MOVING.

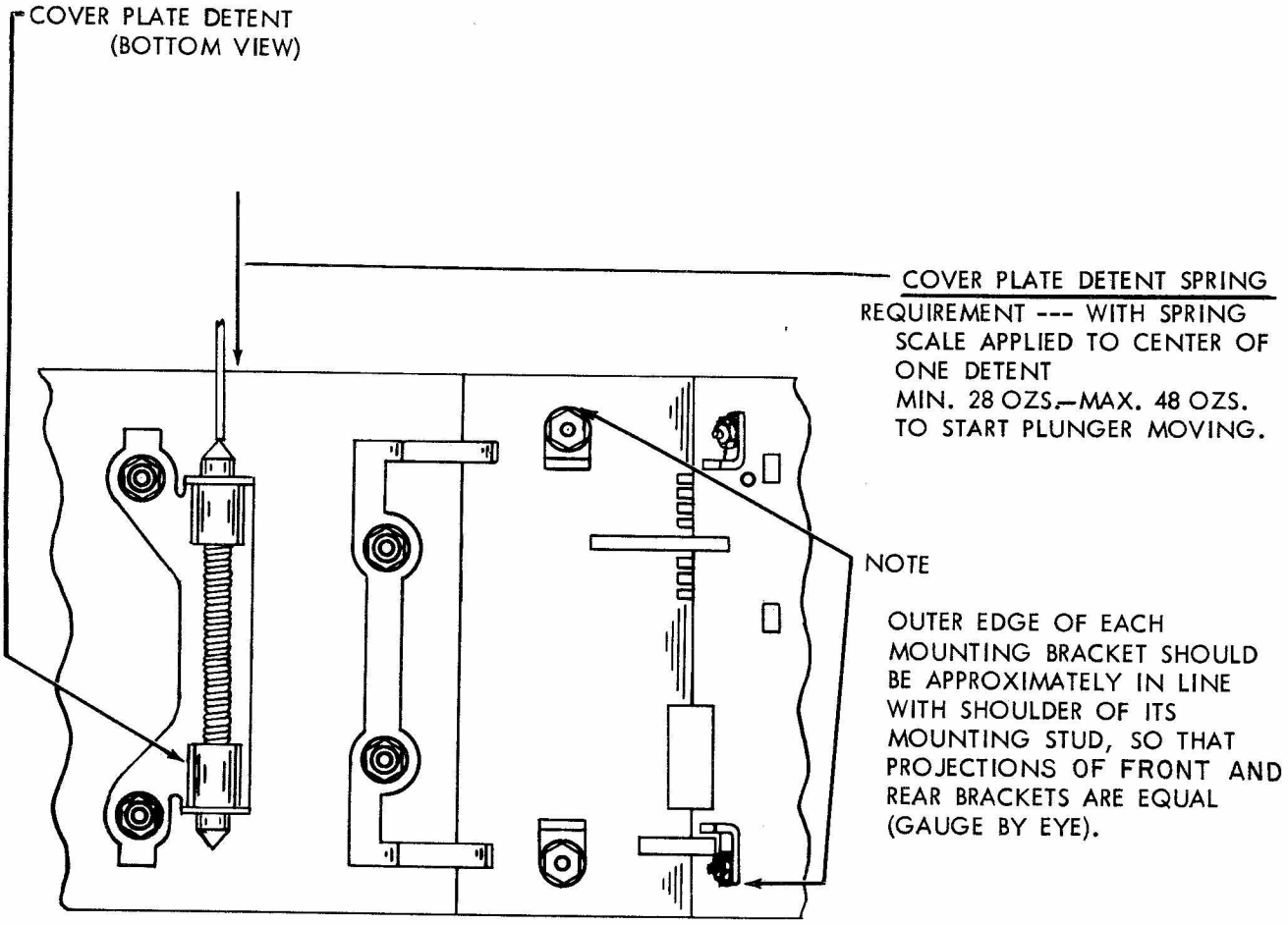
2.19 Signal Contact Assembly



2.20 Clutch Trip Magnet Assembly



2.21 Cover Plate



2. 22 Signal Pulse Refinement

SIGNAL PULSE (FINAL ADJUSTMENT WITH 1A TELETYPEWRITER TEST SET OR 28A STROBOSCOPIC TEST SET)

PROCEDURE --- PLUG TEST SET INTO SIGNAL LINE TO VIEW PULSE IMAGE GENERATED BY THE MARKING AND SPACING CONTACTS. SYNCHRONIZE SIGNAL GENERATOR WITH TEST SET SO THAT END OF STOP PULSE IMAGE ALIGNS WITH THE 142 MARK ON TEST SET SCALE WHEN BOTH UNITS ARE OPERATED AT SAME SPEED AND TRANSMISSION IS CONTINUOUS.

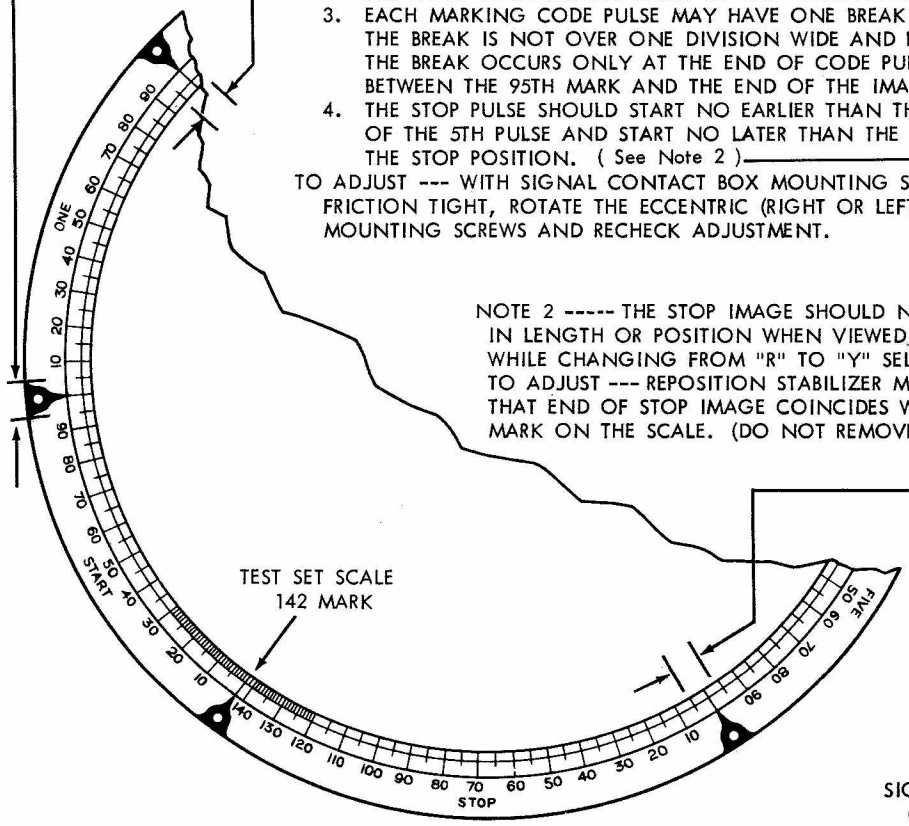
NOTE 1-- END OF STOP PULSE IMAGE SHOULD NOT VARY FROM THE 142 MARK BY MORE THAN 1/2 SCALE DIVISION. IF A GREATER VARIATION OCCURS, MOVE THE SCALE UNTIL THE VARIATIONS EXTEND EQUALLY ON EITHER SIDE OF THE 142 MARK.

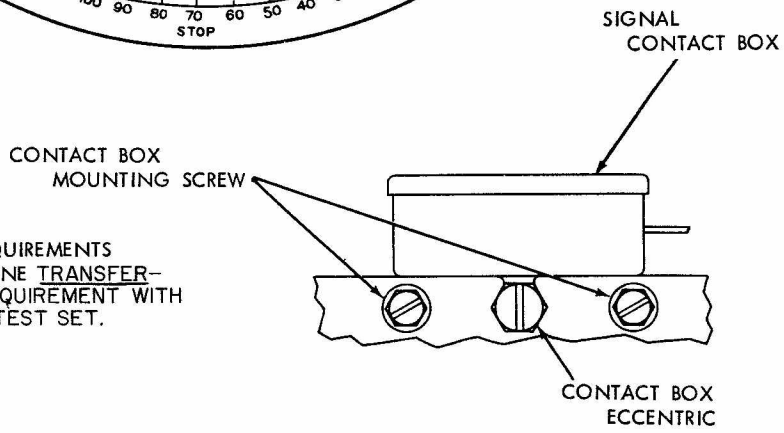
REQUIREMENTS (SPEEDS UP TO AND INCLUDING 100 W.P.M.)

1. EACH MARKING CODE PULSE SHOULD START NO LATER THAN THE 5TH MARK OF THE PULSE UNDER OBSERVATION AND START NO EARLIER THAN 95TH MARK OF THE PREVIOUS PULSE.
2. EACH MARKING CODE PULSE SHOULD END NO EARLIER THAN THE 95TH MARK OF THE PULSE UNDER OBSERVATION AND END NO LATER THAN THE 5TH MARK OF THE FOLLOWING PULSE.
3. EACH MARKING CODE PULSE MAY HAVE ONE BREAK PROVIDED THE BREAK IS NOT OVER ONE DIVISION WIDE AND PROVIDED THE BREAK OCCURS ONLY AT THE END OF CODE PULSE IMAGE BETWEEN THE 95TH MARK AND THE END OF THE IMAGE.
4. THE STOP PULSE SHOULD START NO EARLIER THAN THE 95TH MARK OF THE 5TH PULSE AND START NO LATER THAN THE 5TH MARK OF THE STOP POSITION. (See Note 2)

TO ADJUST --- WITH SIGNAL CONTACT BOX MOUNTING SCREWS FRICTION TIGHT, ROTATE THE ECCENTRIC (RIGHT OR LEFT). TIGHTEN MOUNTING SCREWS AND RECHECK ADJUSTMENT.

NOTE 2 ----- THE STOP IMAGE SHOULD NOT CHANGE IN LENGTH OR POSITION WHEN VIEWED ON TEST SET WHILE CHANGING FROM "R" TO "Y" SELECTION. TO ADJUST --- REPOSITION STABILIZER MECHANISM SO THAT END OF STOP IMAGE COINCIDES WITH THE 142 MARK ON THE SCALE. (DO NOT REMOVE THE SCALE.)





NOTE 3-- IF ABOVE REQUIREMENTS CANNOT BE MET REFINE TRANSFER-BAIL STABILIZER REQUIREMENT WITH SIGNAL VIEWED ON TEST SET.

B. Auxiliary Features

Multiple Wire Output Facilities

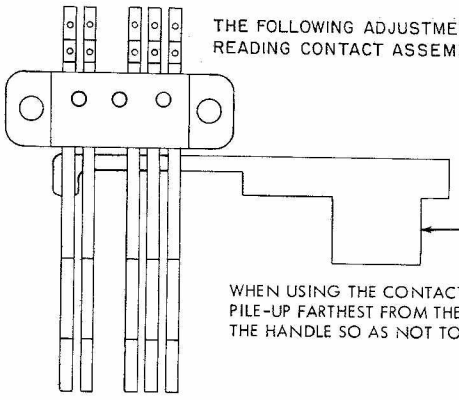
2.23 Code Reading and Timing Contacts

NOTE 1

UNLESS SPECIFICALLY STATED OTHERWISE, THE FOLLOWING CODE READING CONTACT ADJUSTMENTS APPLY TO BOTH THE TRANSFER (BREAK BEFORE MAKE) TYPE AND MAKE TYPE CONTACTS. WHEN AN ADJUSTMENT IS APPLICABLE TO BOTH TYPES, THE TRANSFER TYPE CONTACTS ARE USED IN THE ILLUSTRATIONS. WHEN TESTING THESE CONTACTS ON ASR SETS THE CONTROL KNOB SHOULD BE IN THE K-T POSITION.

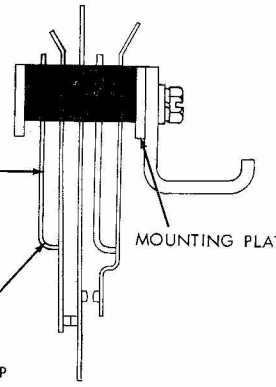
NOTE 2

THE FOLLOWING ADJUSTMENTS SHALL BE MADE ONLY IF THE CODE READING CONTACT ASSEMBLY IS REMOVED FROM THE UNIT.



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

(LEFT SIDE VIEW)



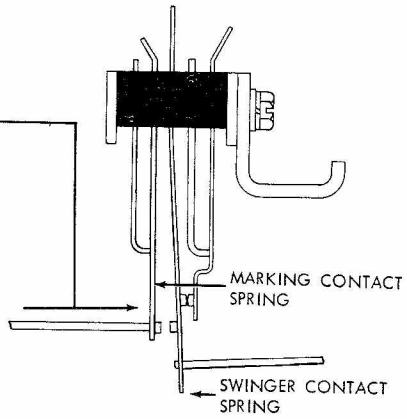
MARKING CONTACT BACKSTOPS

REQUIREMENT

AS GAUGED BY EYE, FIVE MARKING CONTACT SPRINGS SHOULD ALIGN WITH EACH OTHER AND BE PARALLEL WITH MOUNTING PLATE.

TO ADJUST

BEND MARKING CONTACT BACKSTOPS.



MARKING CONTACT SPRINGS-PRELIMINARY

REQUIREMENT

WITH SWINGER CONTACT SPRING HELD AWAY:

MIN. 2 OZS.

MAX. 6 OZS.

TO MOVE EACH SPRING AWAY FROM BACKSTOP.

TO ADJUST

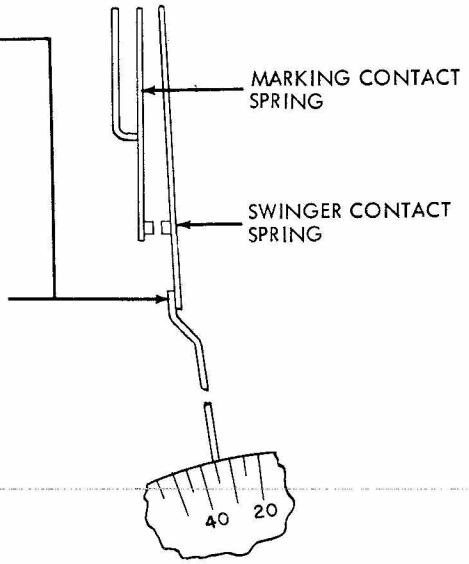
BEND MARKING CONTACT SPRINGS.

NOTE:

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

2.24 Code Reading and Timing Contacts

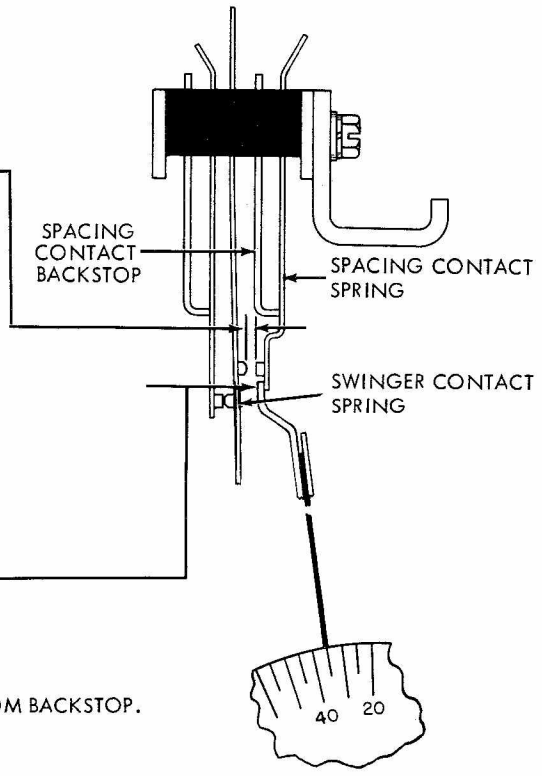
(A) SWINGER CONTACT SPRINGS-PRELIMINARY
REQUIREMENT
MIN. 30 GRAMS
MAX. 40 GRAMS
TO OPEN MARKING CONTACTS.
TO ADJUST
BEND SWINGER CONTACT SPRINGS.



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

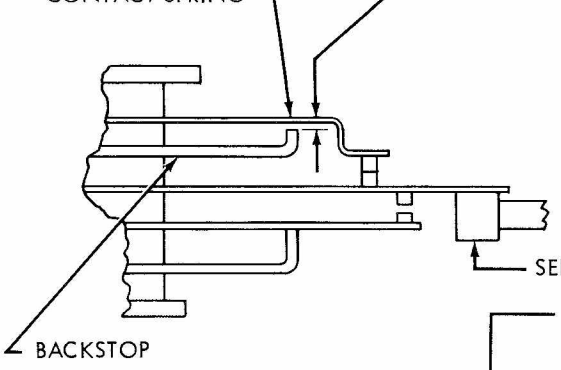
(B) SPACING CONTACT BACKSTOPS - PRELIMINARY
(APPLIES TO TRANSFER TYPE CONTACTS ONLY)
REQUIREMENT
GAP BETWEEN SPACING CONTACTS
MIN. 0.025 INCH
MAX. 0.030 INCH.
TO ADJUST
BEND SPACING CONTACT BACKSTOPS.

(C) SPACING CONTACT SPRINGS-PRELIMINARY
(APPLIES TO TRANSFER TYPE CONTACTS ONLY)
REQUIREMENT
MIN. 30 GRAMS
MAX. 40 GRAMS
TO MOVE EACH CONTACT SPRING AWAY FROM BACKSTOP.
TO ADJUST
BEND SPACING CONTACT SPRINGS.



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

2.25 Code Reading Contacts



(A) CONTACT SENSING ARM UPSTOP

REQUIREMENT

WITH LETTERS SELECTED, CLUTCH ENGAGED AND MAIN SHAFT ROTATED UNTIL SENSING ARMS ARE AT THEIR UPPERMOST POSITION, CLEARANCE BETWEEN CODE READING CONTACT SPRING AND ITS ASSOCIATED BACKSTOP

MIN. SOME

MAX. 0.008 INCH.

TO ADJUST

ROTATE ECCENTRIC UPSTOP POST WITH ITS LOCKING NUT LOOSENED. KEEP HIGH PART OF ECCENTRIC TOWARD LEFT.

(C) AUXILIARY CONTACT (FINAL - ASSEMBLY ON UNIT)

(1) REQUIREMENT

WITH CLUTCH DISENGAGED AND LATCHED, CLEARANCE BETWEEN THE INSULATOR ON THE SWINGER AND THE BAIL

MIN. 0.040 INCH

MAX. 0.050 INCH.

TO ADJUST

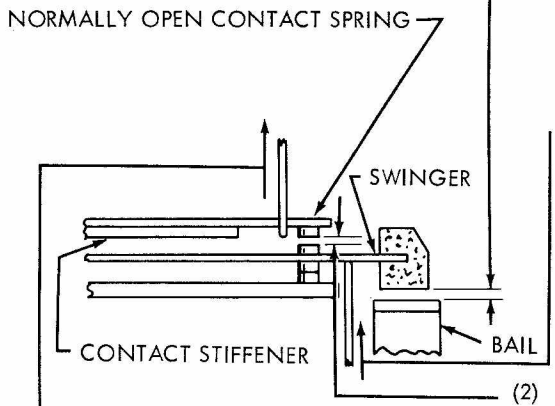
POSITION THE CONTACT BRACKET WITH ITS MOUNTING SCREWS LOOSENED.

(2) REQUIREMENT

THE SWINGER INSULATOR SHOULD BE CENTRALLY LOCATED WITH RESPECT TO ITS OPERATING BAIL.

TO ADJUST

LOOSEN THE CONTACT ASSEMBLY SCREWS AND POSITION THE SWINGER AND CONTACT SPRINGS.



(B) AUXILIARY CONTACT (PRELIMINARY)

NOTE - THESE REQUIREMENTS SHOULD BE MET WITH THE CONTACT ASSEMBLY OFF THE UNIT.

(1) REQUIREMENT

MIN. 4 OZS.

MAX. 5 OZS.

TO OPEN THE NORMALLY CLOSED CONTACT.

TO ADJUST

BEND THE SWINGER CONTACT SPRING.

(2) REQUIREMENT

THE NORMALLY OPEN CONTACT GAP

MIN. 0.010 INCH

MAX. 0.020 INCH.

TO ADJUST

BEND THE NORMALLY OPEN CONTACT STIFFENER.

(3) REQUIREMENT

MIN. 5-1/2 OZS.

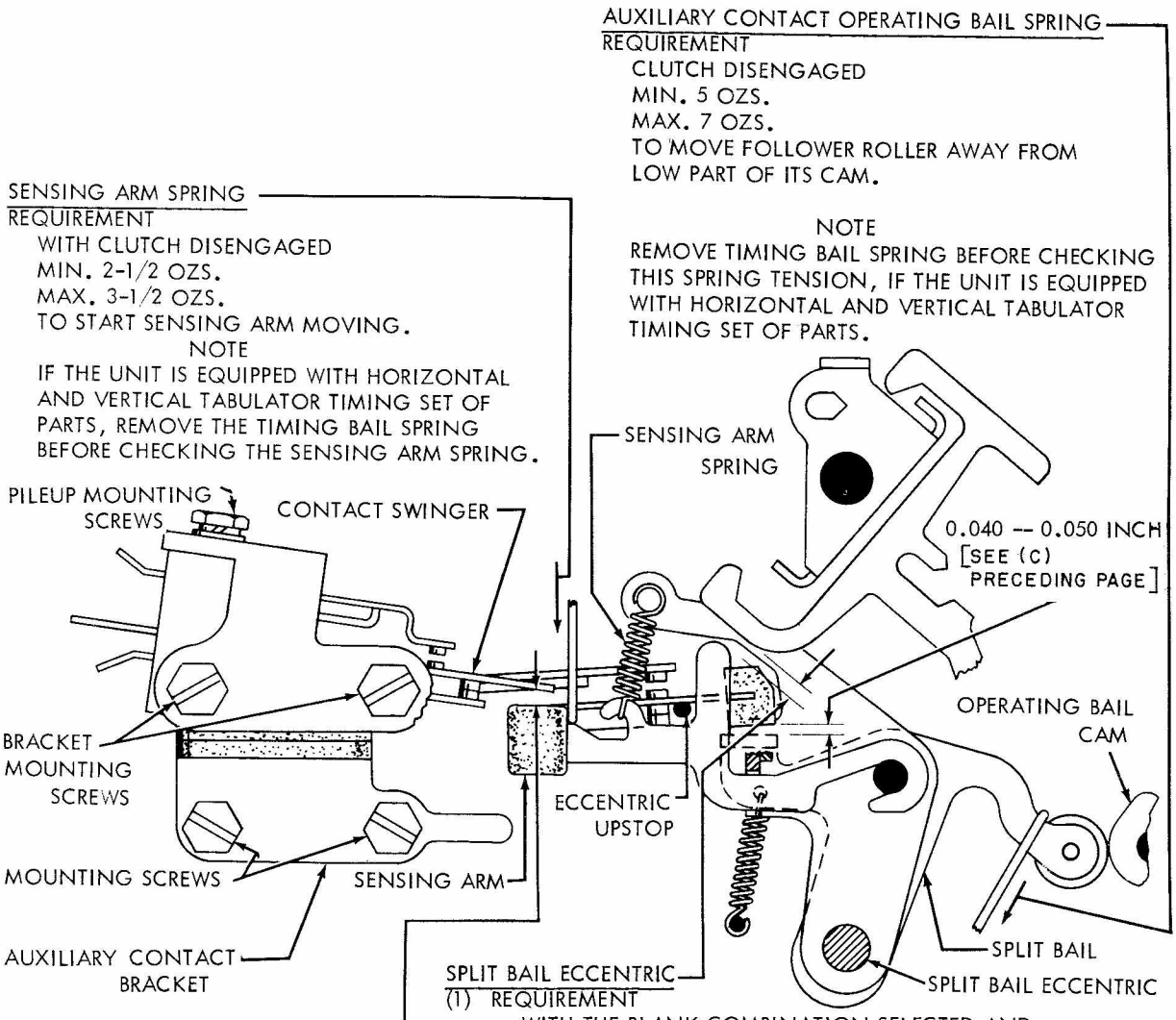
MAX. 6 OZS.

TO MOVE NORMALLY OPEN CONTACT SPRING AWAY FROM ITS STIFFENER.

TO ADJUST

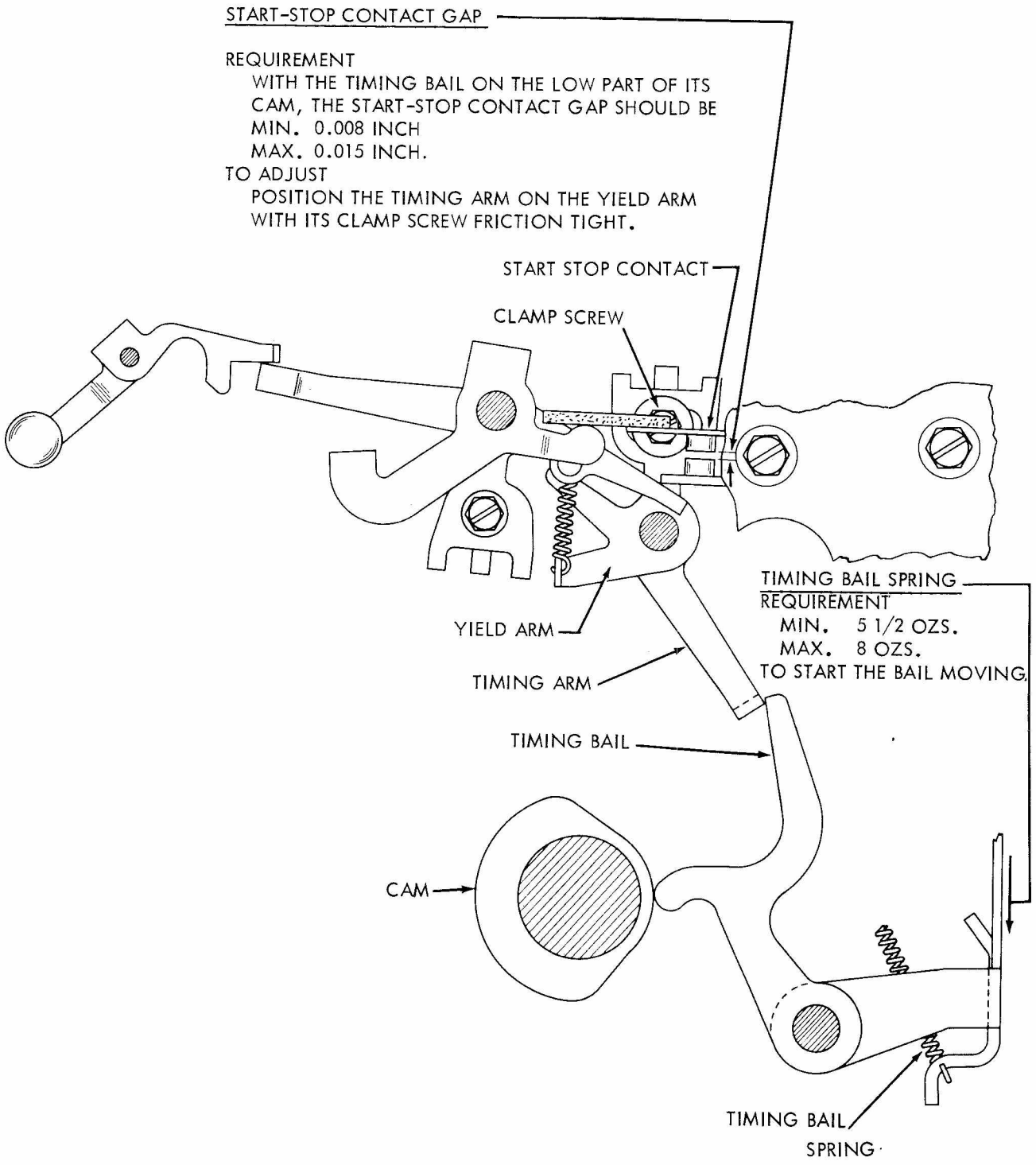
BEND THE NORMALLY OPEN CONTACT.

2.26 Code Reading Contact Sensing Arm



Tabulator Control

2.27 Transmitter-stop Mechanism



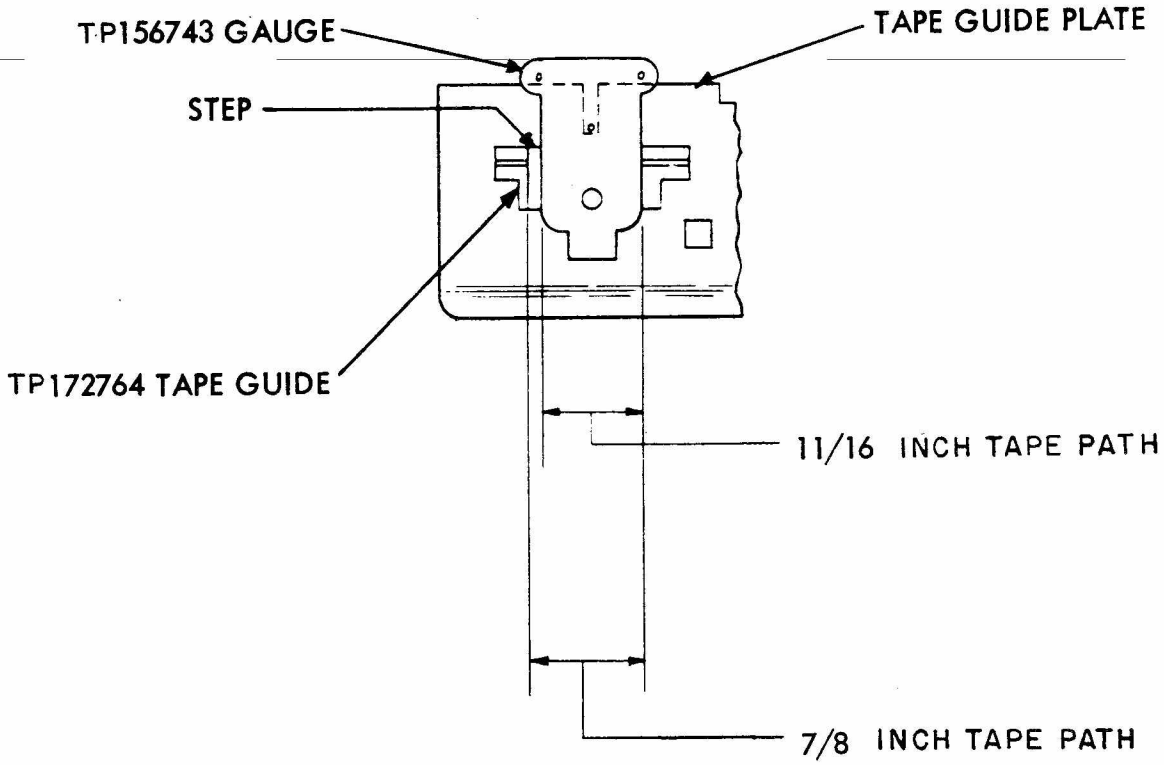
Modification Kit to Permit Use of 11/16-inch and 7/8-inch
5-level Tape Interchangeably

2.28 Tape Guide

RIGHT AND LEFT GUIDE ADJUSTMENT

REQUIREMENT
WITH THE TP156743 GUIDE INSERTED BETWEEN THE RIGHT TAPE GUIDE AND THE LEFT TAPE GUIDE, THE GAUGE MAY TOUCH EITHER GUIDE BUT SHOULD NOT BIND. CLEARANCE SHALL NOT EXCEED 0.003 INCH.

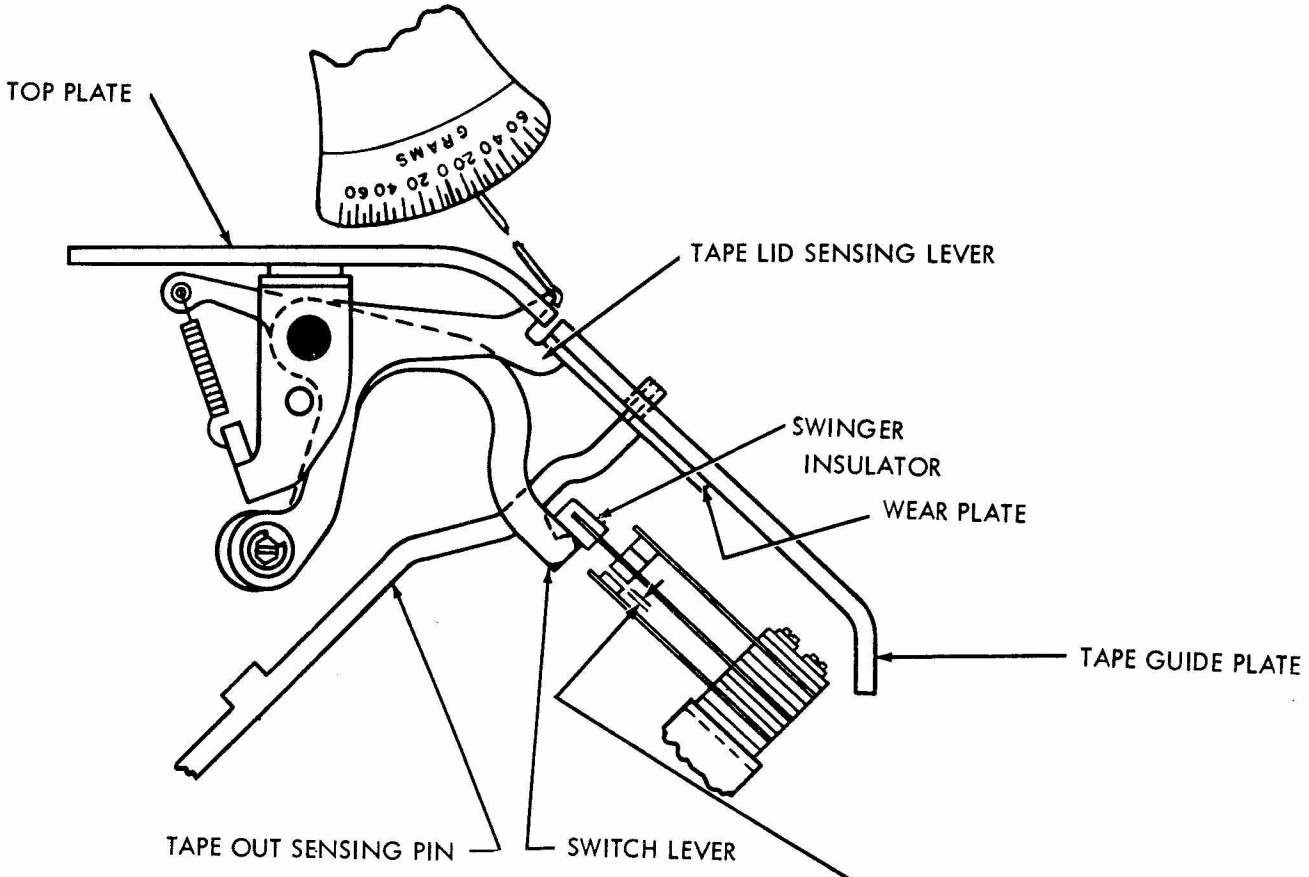
TO ADJUST
POSITION EACH TAPE GUIDE WITH THE TAPE-GUIDE MOUNTING NUTS FRICTION TIGHT.



Modification Kit to Convert 28H to 28H-1 Transmitter-Distributor

2.29 Tape-lid Sensing Lever

TAPE LID SENSING LEVER SPRING
REQUIREMENT
TAPE LID OPEN
MIN. 20 GRAMS
MAX. 35 GRAMS
TO SEPARATE SWITCH LEVER
FROM SWINGER.



SWITCH LEVER
REQUIREMENT
TAPE LID OPEN, TAPE OUT PIN DEPRESSED,
GAP BETWEEN NORMALLY CLOSED CONTACTS
MIN. 0.005 INCH
MAX. 0.015 INCH.
TO ADJUST
POSITION THE TAPE LID SENSING LEVER WITH
ITS CLAMP SCREW LOOSENED.