BULLETIN 235B

ADJUSTMENTS AND LUBRICATION MODEL 28 TRANSMITTER DISTRIBUTOR LXD; LXDB; LXDC

TELETYPE®
CORPORATION
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LIST OF EFFECTIVE PAGES

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PAGE NUMBER	CHANGE IN EFFECT
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3-1 to 3-11	Original

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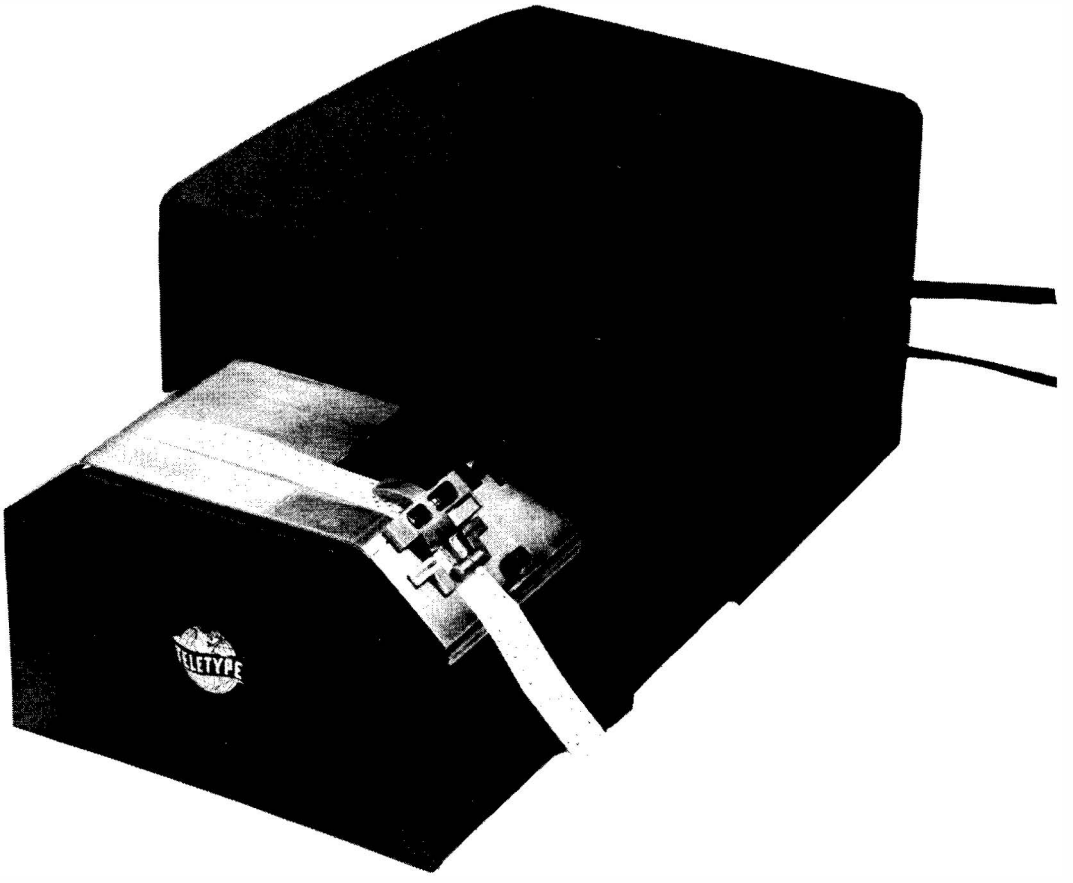
TELETYPE AND BELL SYSTEM CODE REFERENCE CHART

ADJUSTMENT AND LUBRICATION OF THE MODEL 28 AUTOMATIC SEND-RECEIVE SET (ASR)- TRANSMITTER DISTRIBUTOR -	
TELETYPE CODE AND DESCRIPTION	BELL SYSTEM CODE
LXD3 TRANSMITTER DISTRIBUTOR	28E
ADJUSTMENTS AND LUBRICATION OF THE MODEL 28 TRANSMITTER DISTRIBUTOR SELF CONTAINED SET (28TD) COVERED IN THIS BULLETIN.	
LXD1 TRANSMITTER DISTRIBUTOR LXDB1 BASE LXDC200 COVER LMU3 SYNCHRONOUS MOTOR UNIT	28A

TRANSMITTER DISTRIBUTOR
(Fixed Head - Single Contact)



The Transmitting Distributor is arranged for two applications:

1. A Self Contained Unit consisting of a Base LXDB , Transmitter Distributor LXD , Motor Unit LMU , and a Cover LXDC See Fig. 2-1. Interchangeable gears may be obtained for 60, 75 and 100 W.P.M.

2. An Externally Driven Unit for the Automatic Send-Receive Set - consisting of a Casting and Transmitter Distributor LXD. See Fig. 2-2. Gears may be obtained for 60, 75 and 100 W.P.M.

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SECTION 1

ADJUSTMENTS

1. GENERAL

a. The adjustment of the Single-Shaft Transmitter Distributor is arranged in a sequence that should be followed if a complete readjustment of the unit were undertaken.

b. After an adjustment has been completed, be sure to tighten any nuts or screws that may have been loosened.

c. Tools and spring scales required to perform the adjustments are listed in Teletype Bulletin 1124B, but are not supplied as a part of the equipment.

d. The adjusting illustrations, in addition to indicating the adjusting tolerances, positions of moving parts and spring tensions, also show the angle at which the scale should be applied when measuring spring tensions.

e. From time to time the requirements and procedures for the various adjustments may change. For this reason, the text of the adjustment in the latest issue should be read through before proceeding to make any readjustment.

f. 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 shim pile-up may be replaced when the part is remounted.

g. If parts or assemblies are removed to facilitate readjustment and subsequently replaced, recheck any adjustment that may have been affected by the removal of these parts or assemblies.

h. The spring tensions given in this bulletin are indications (not exact values) and should be checked with proper spring scales in the position indicated. Springs which do not meet the requirement and for which no adjusting procedure is given should be replaced by a new spring.

NOTE

When rotating the main shaft 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 disk with a screw driver to cause it to engage its latch lever and thus DISENGAGE the internal expansion clutch shoes from the clutch drum.

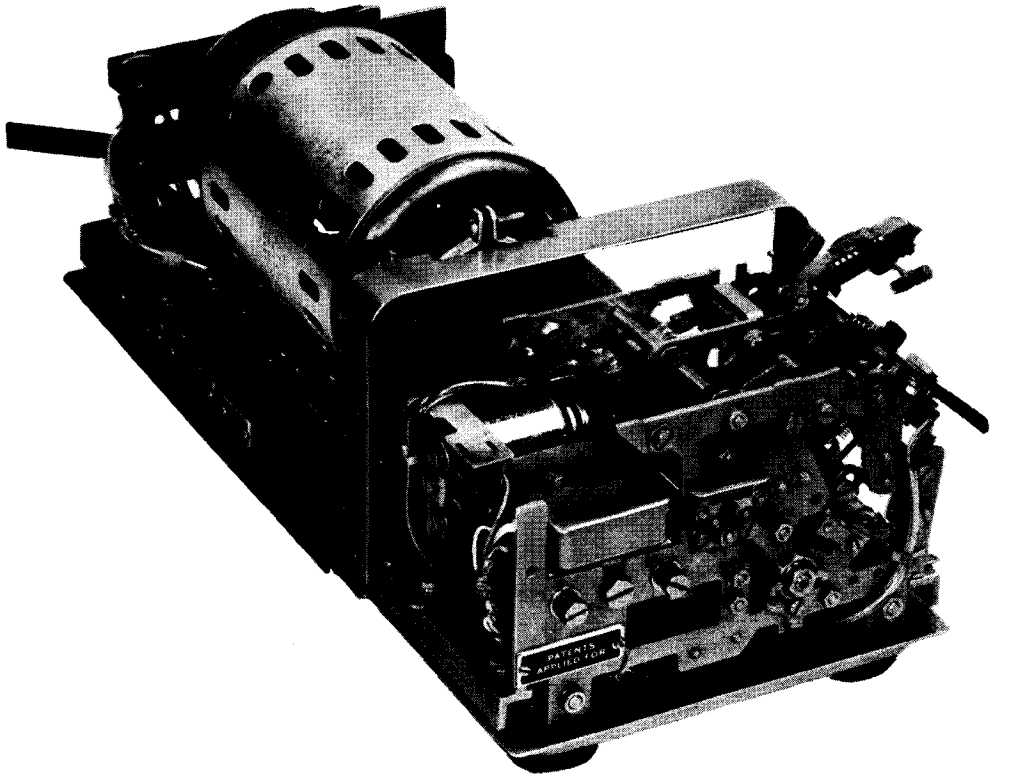
i. References made to left or right, up or down, front or rear etc. apply to the unit in its normal operating position as viewed from the operators position opposite the end with the motor and terminal blocks.

j. When the requirement calls for the clutch to be DISENGAGED the clutch shoe lever must be fully latched between its trip lever and latch lever so that the clutch shoes release their tension on the clutch drum. When ENGAGED, the clutch shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

k. All contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25% of the contact diameter Avoid sharp kinks or bends in the contact springs.

l. 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.

m. Should the rotor of the synchronous motor become blocked for several seconds by an overload, the thermal cut-out switch will de-energize the motor until the manual reset button is depressed. However, allow at least 5 minutes for the motor to cool before attempting to reset the switch and start the motor.



TRANSMITTER DISTRIBUTOR
(WITH MOTOR COVER, TOP PLATE AND COVER PLATE REMOVED)

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 FIGURE 1-4 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 FIGURE 1-6 WHEN REPLACING THE PLATE.

(E) REMOVING TRANSMITTER DISTRIBUTOR ASSEMBLY----REMOVE RIGHT AND LEFT MOUNTING SCREWS ATTACHED TO BASE AND LIFT ASSEMBLY UPWARD TO DISENGAGE MAIN SHAFT GEAR. A GENEROUS LENTH OF CABLE IS SUPPLIED TO FACILITATE INSPECTION OR REPAIR OF UNIT WITHOUT DISCONNECTING LEADS.
CAUTION----IN REPLACING ASSEMBLY, ROUTE CABLE AWAY FROM MOVING PARTS AND CHECK ALIGNMENT OF MAIN SHAFT GEAR WITH INTERMEDIATE GEAR.

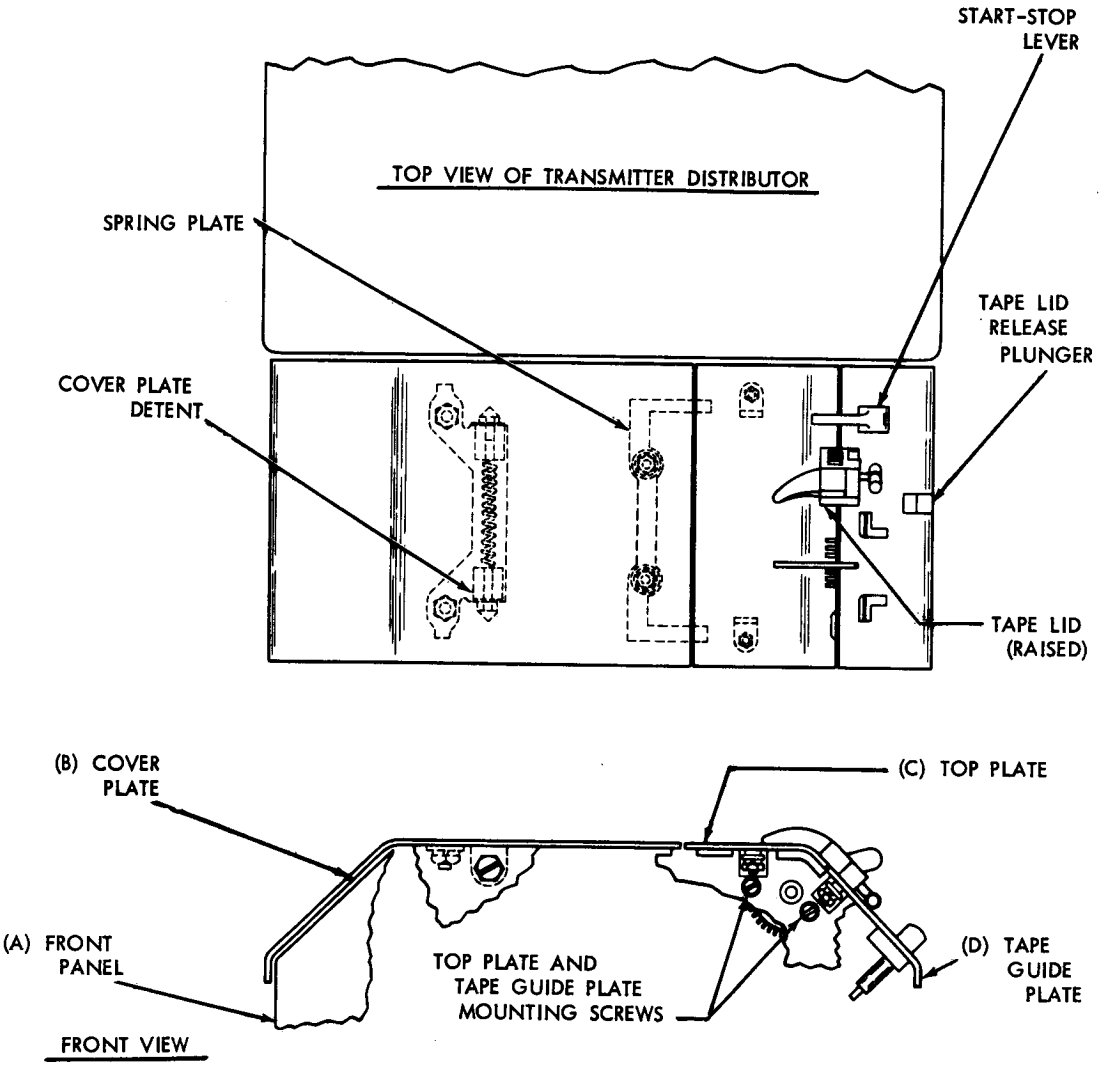


FIGURE 1-1. COVER ASSEMBLIES

NOTE----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.

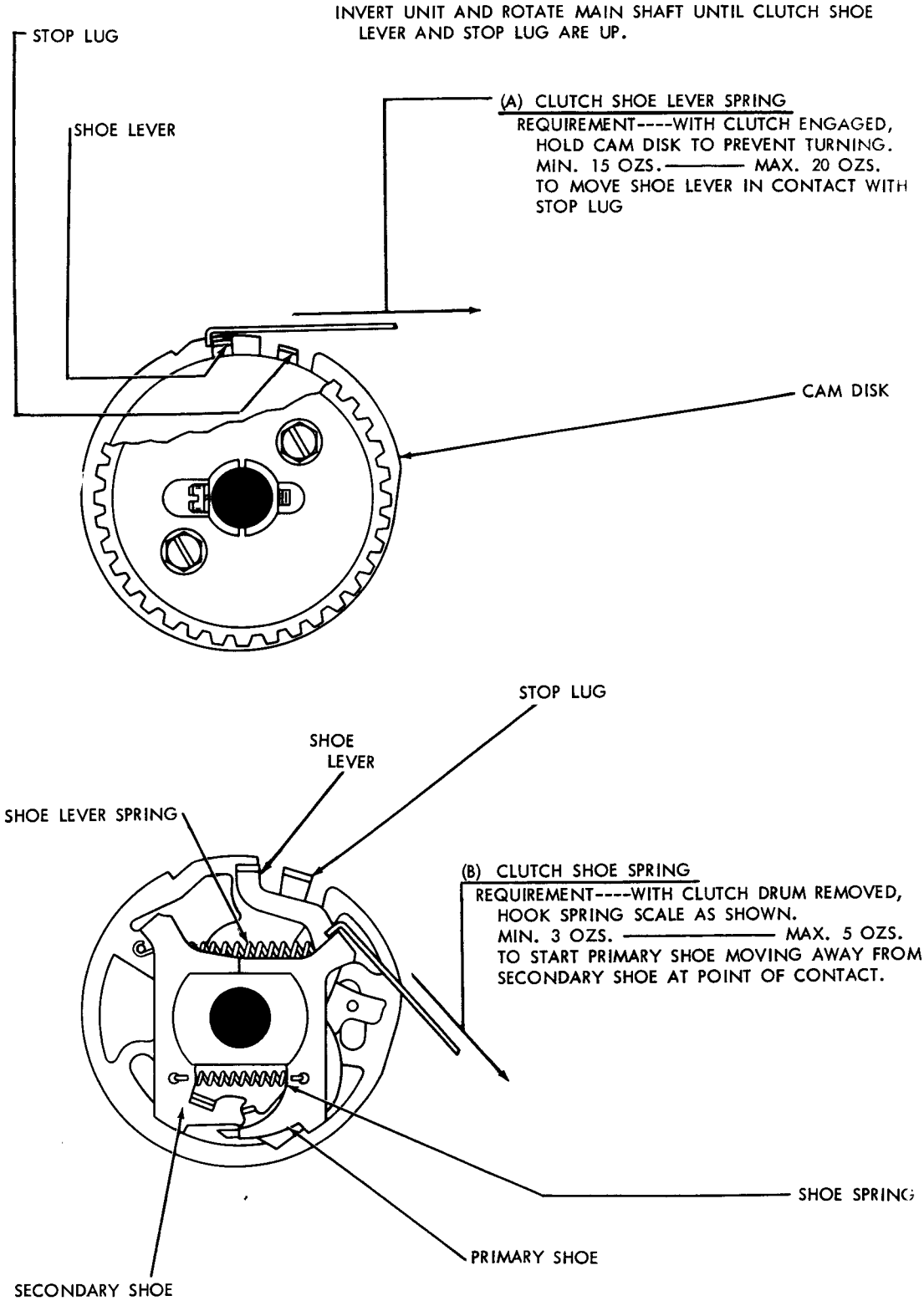
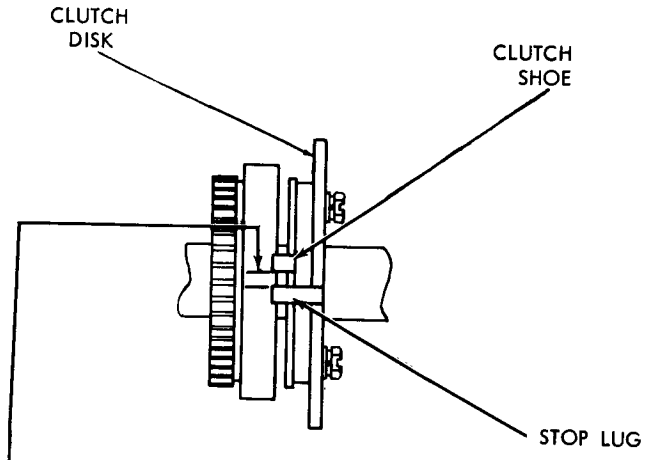


FIGURE 1-2. CLUTCH MECHANISM



(B) CLUTCH SHOE LEVER

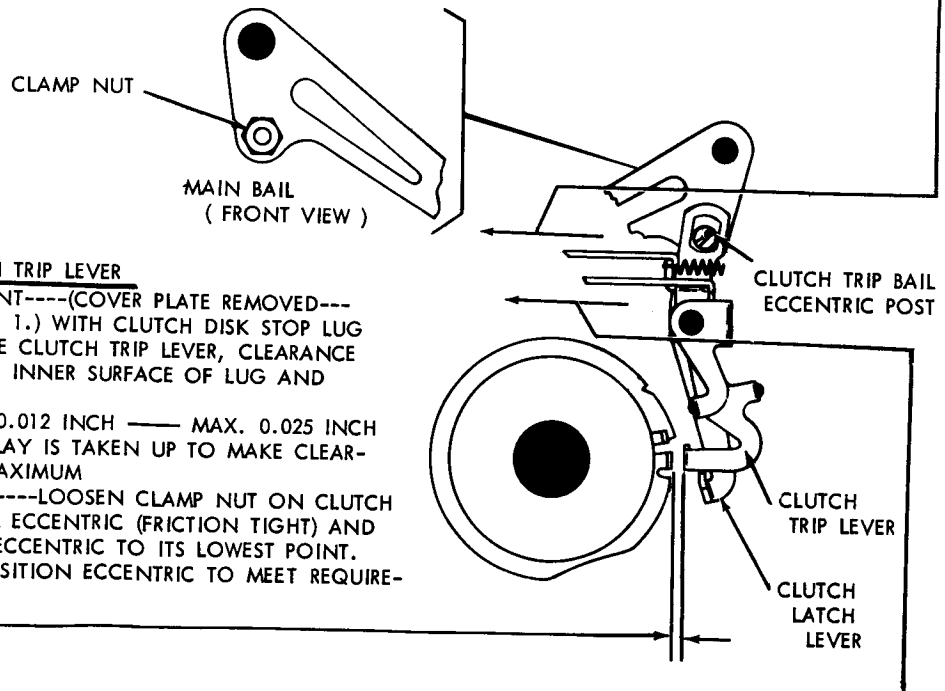
REQUIREMENT----CLEARANCE AS SHOWN SHOULD BE 0.050 INCH ——— TO ——— 0.080 INCH GREATER WITH CLUTCH ENGAGED* THAN WITH CLUTCH DISENGAGED- * (PULL SHOE LEVER WITH FORCE OF 32 OZS. AND RELEASE SLOWLY TO ENGAGE CLUTCH SHOES).

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 ROTATED IN ITS NORMAL DIRECTION. REFINE ABOVE ADJUSTMENT TO CORRECT SHOE DRAG.

(C) CLUTCH LATCH LEVER SPRING

REQUIREMENT --- (TAPE GUIDE PLATE REMOVED AND TAPE OUT DE-PRESSOR BAIL SPRING UNHOOKED). ENGAGE CLUTCH AND ROTATE CLUTCH UNTIL LATCH LEVER IS ON LOW PART OF DISK MIN. 3 OZS. MAX. 5 1/2 OZS. TO START LATCH MOVING.



(A) CLUTCH TRIP LEVER

REQUIREMENT----(COVER PLATE REMOVED--- SEE FIG. 1.) WITH CLUTCH DISK STOP LUG OPPOSITE CLUTCH TRIP LEVER, CLEARANCE BETWEEN INNER SURFACE OF LUG AND LEVER MIN. 0.012 INCH —— MAX. 0.025 INCH WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE MAXIMUM

TO ADJUST----LOOSEN CLAMP NUT ON CLUTCH TRIP BAIL ECCENTRIC (FRICTION TIGHT) AND ROTATE ECCENTRIC TO ITS LOWEST POINT. THEN POSITION ECCENTRIC TO MEET REQUIREMENT.

(D) CLUTCH TRIP LEVER SPRING

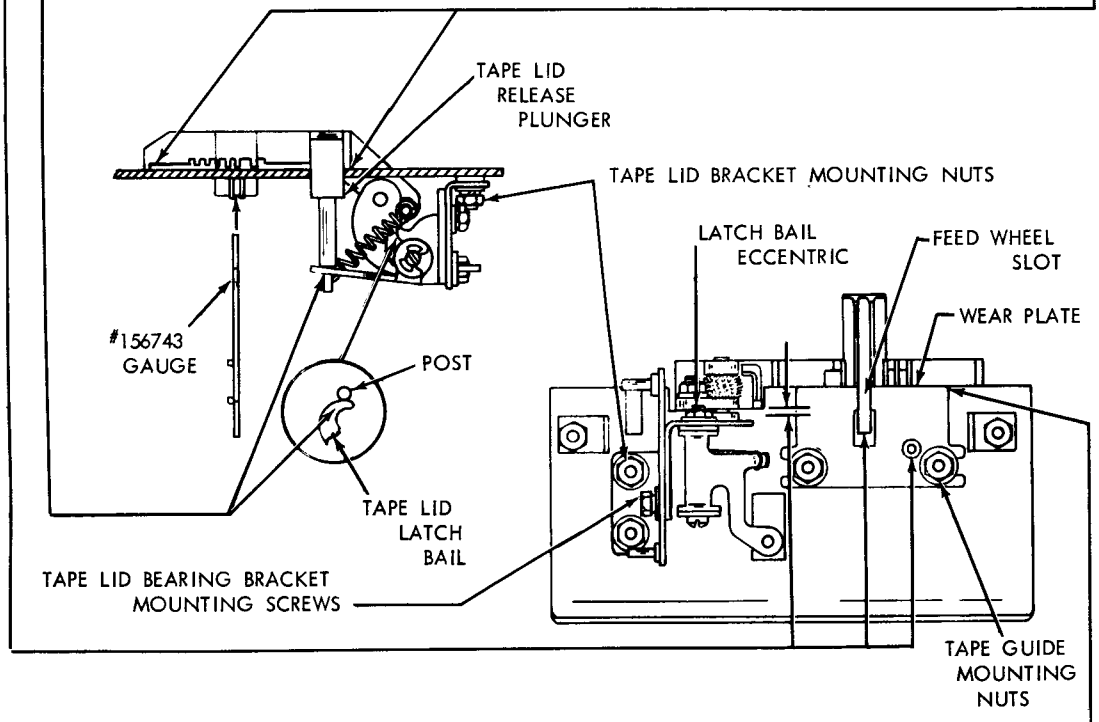
REQUIREMENT --- WITH CLUTCH ENGAGED MIN. 7 OZS.—— MAX. 10 1/2 OZS. TO START CLUTCH TRIP LEVER MOVING.

FIGURE 1-3. CLUTCH TRIP MECHANISM

(A) TAPE LID

REQUIREMENT----(REMOVE TOP & TAPE GUIDE PLATES; LUBRICATE ASSEMBLY PRIOR TO ADJUSTMENT)

1. 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 SHOULDER AND TAPE LID BEARING.
   SOME ——— TO ——— 0.010 INCH
   TO ADJUST----WITH TAPE LID BRACKET MOUNTING NUTS (2) FRICTION TIGHT (INSERT) TIP OF #156743 GAUGE THROUGH SLOT AND INTO GROOVE OF LID, POSITION TAPE LID BRACKET; RE-TIGHTEN NUTS.
2. TAPE LID FRONT BEARING SURFACE SHOULD REST SQUARELY AGAINST TAPE GUIDE PLATE; REAR BEARING SURFACE MAY HAVE SOME CLEARANCE BUT NOT MORE THAN 0.003 INCH (GAUGE BY EYE) NOTE----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 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 156743 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).

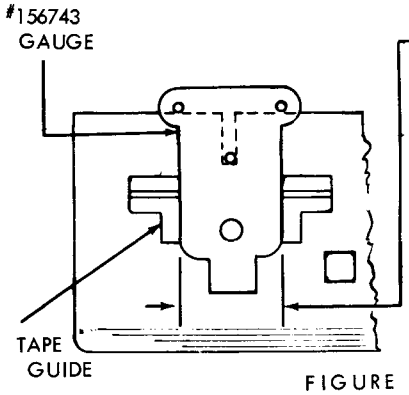
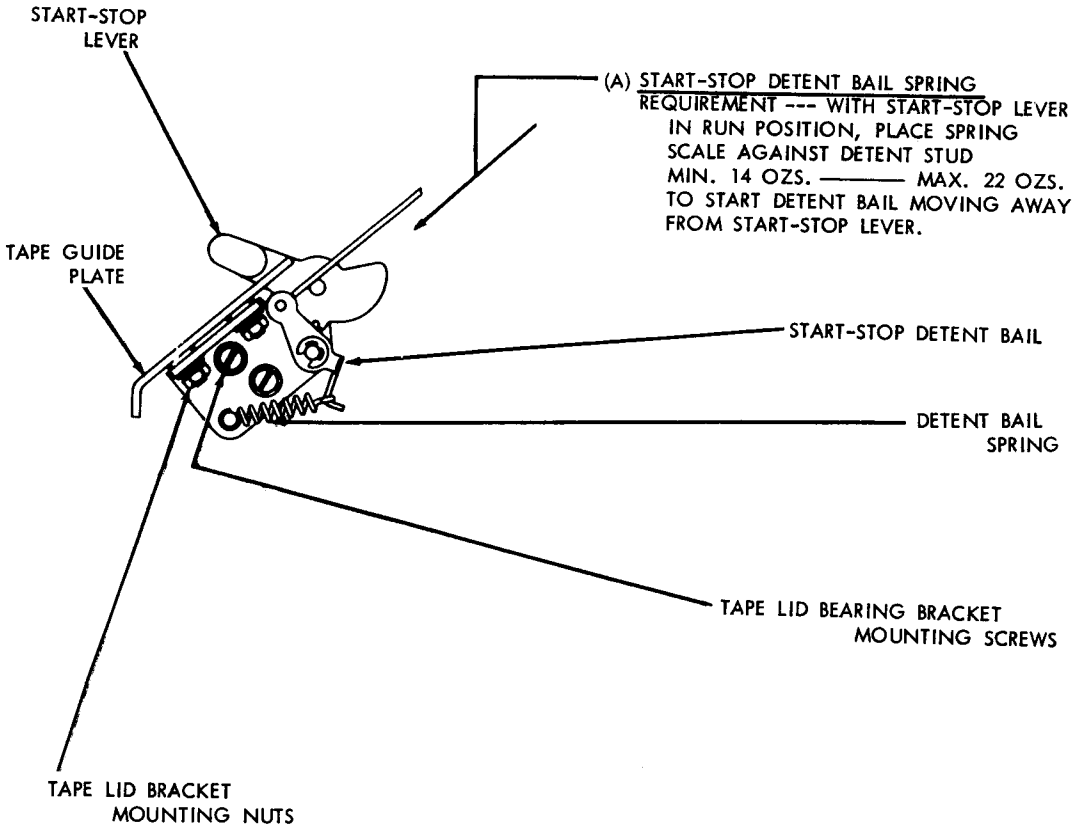


FIGURE 1-4 . TAPE GUIDE PLATE



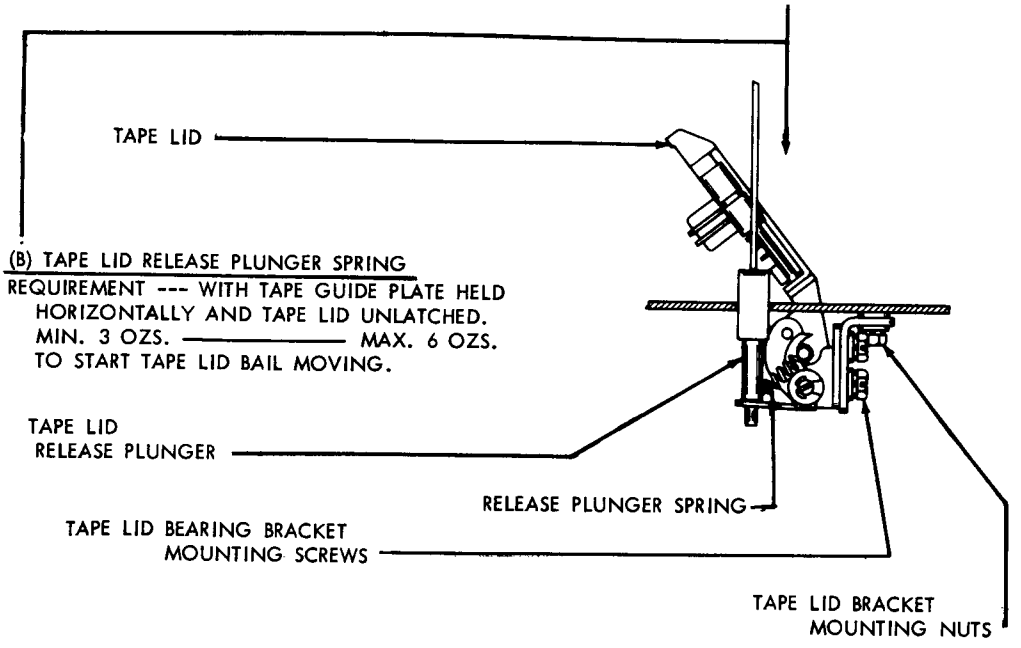
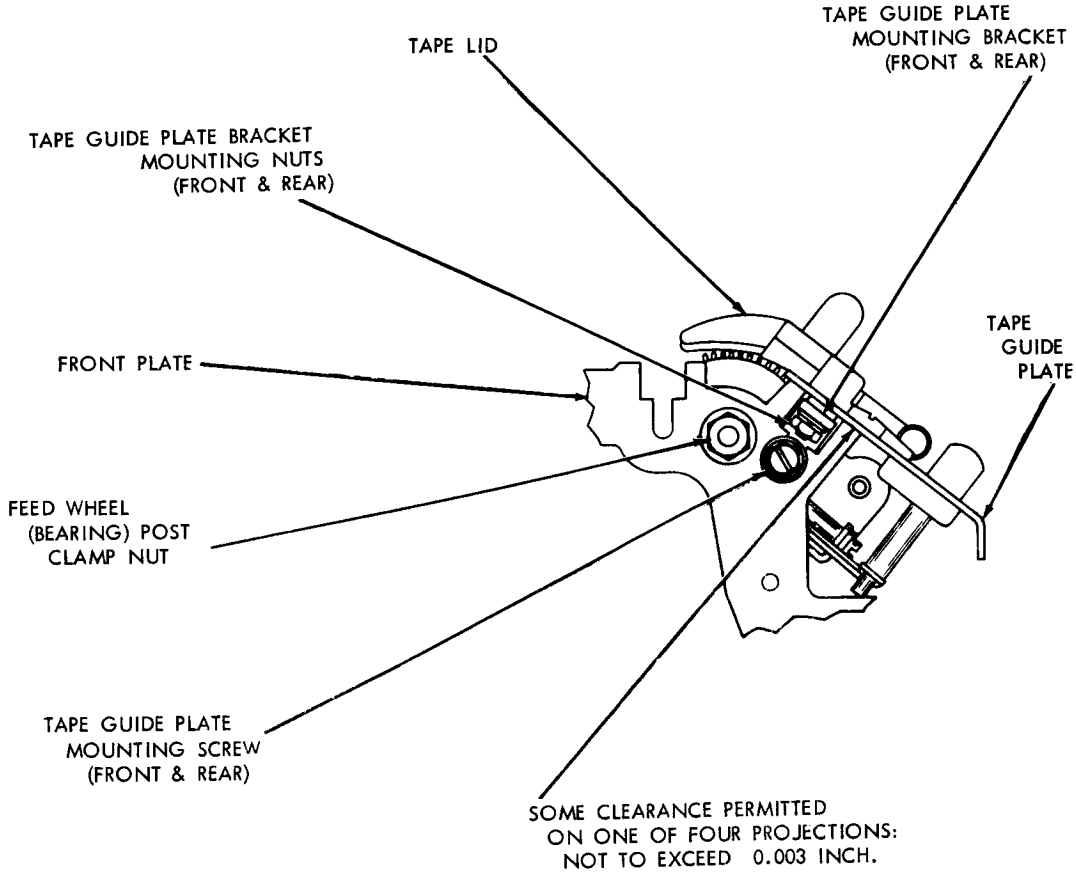


FIGURE 1-5 . TAPE LID ASSEMBLY



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. CLEARANCE ON REMAINING PROJECTION SHOULD NOT EXCEED 0.003 INCH.
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 FIG. 1-18.
TO ADJUST----MOVE TAPE PLATE TOWARD THE FRONT OR REAR. TIGHTEN NUTS ONLY AFTER TOP PLATE IS ADJUSTED.

NOTE----POSITION TAPE-OUT STOP ARM IN ITS LOWEST POSITION AND HOLD START-STOP BAIL EXTENSION FROM RATCHET WHEEL.

FIGURE 1-6 . TAPE GUIDE 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. MAKE SURE THAT TOP PLATE SEATS FIRMLY AGAINST PROJECTIONS OF FRONT AND REAR PLATE (5 OF 6 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 5 PROJECTIONS

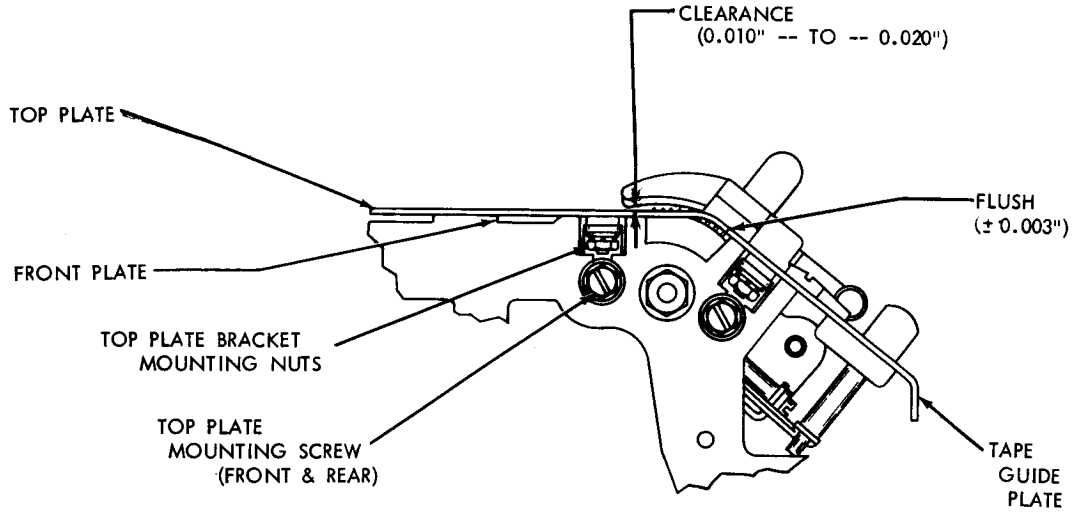
TO ADJUST----POSITION TOP PLATE, TIGHTEN MOUNTING SCREWS AND THEN TIGHTEN NUTS THAT SECURE TAPE GUIDE PLATE MOUNTING BRACKETS.

2. FEEDWHEEL SLOT SHOULD ALIGN WITH SLOT IN TAPE GUIDE PLATE SO THAT FEED WHEEL ROTATES FREELY WITH START-STOP LEVER IN FREE-WHEELING POSITION.

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

3. CLEARANCE BETWEEN PROJECTION OF TAPE LID AND TOP PLATE (TAPE LID LATCHED)
   MIN. 0.010 INCH ——————————————— MAX. 0.020 INCH

TO ADJUST----IF NECESSARY, LOOSEN TAPE LID BEARING BRACKET MOUNTING SCREWS (SEE FIGURE 1-6) AND POSITION TAPE LID. RETIGHTEN SCREWS AND RECHECK REQUIREMENTS - FIGURE 1-6.



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.

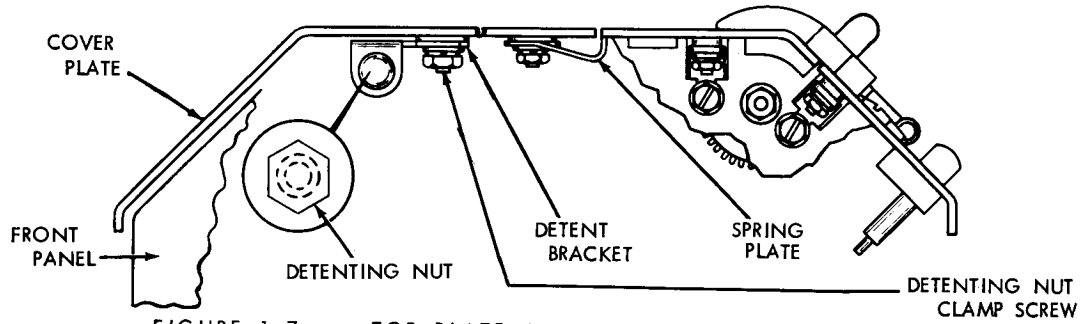


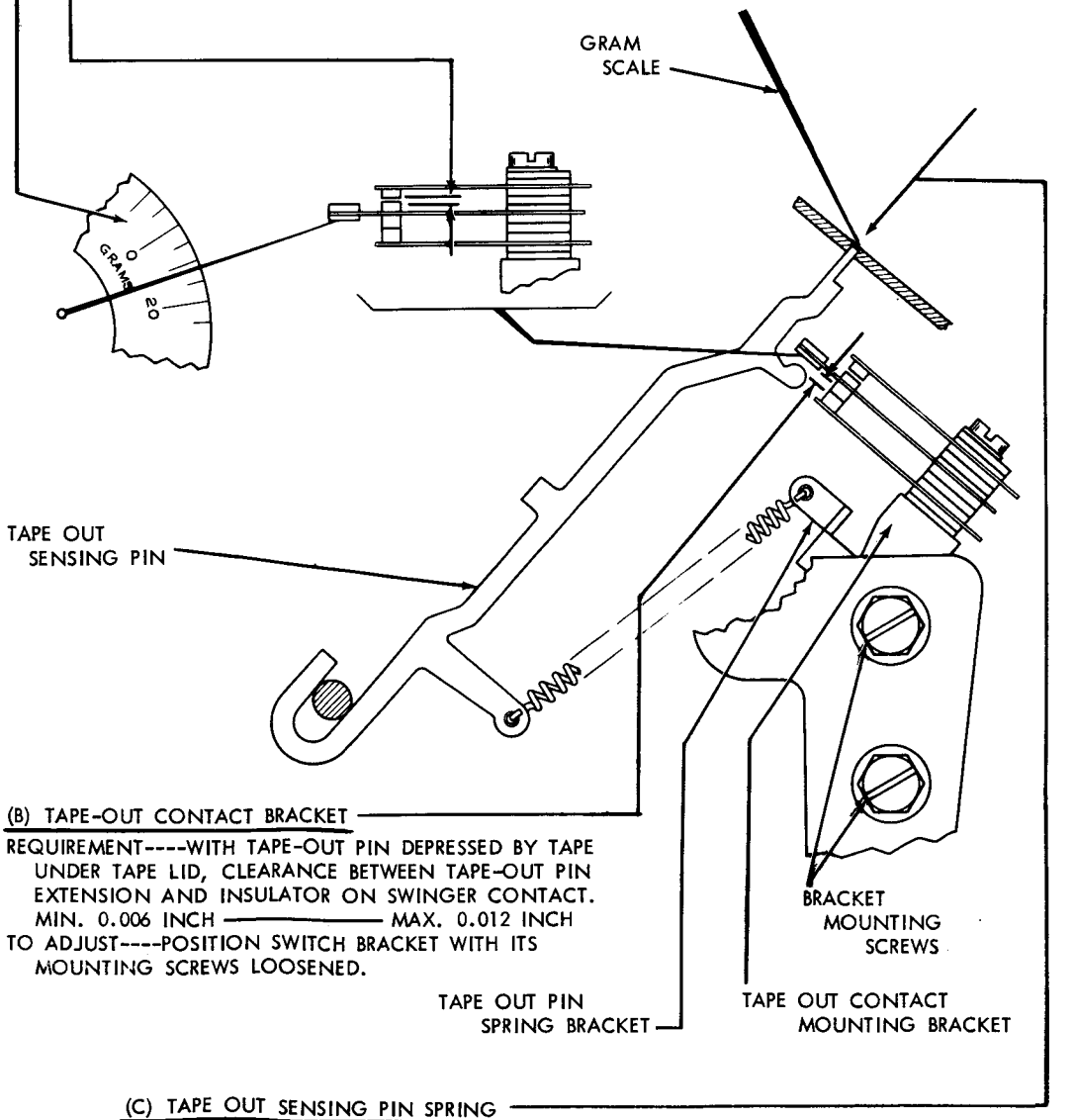
FIGURE 1-7 . TOP PLATE AND COVER PLATE MOUNTING

(A) TAPE-OUT CONTACT ASSEMBLY

REQUIREMENTS----(COVER PLATE AND TOP PLATE REMOVED; 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 THE 110445 SPRING BENDER.

2. CLEARANCE BETWEEN NORMALLY OPEN CONTACTS
   MIN. 0.008 INCH ——— MAX. 0.015 INCH
   TO ADJUST----FORM UPPER CONTACT SPRING USING THE 110445 SPRING BENDER.
   NOTE----REPLACE CONTACT ASSEMBLY WITH SWINGER OVER TAPE-OUT PIN EXTENSION. PLACE SPRING BRACKET SHOULDER BUSHING ON UPPER HOLDE 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. 0.012 INCH
TO ADJUST----POSITION SWITCH BRACKET WITH ITS MOUNTING SCREWS LOOSENED.

(C) TAPE OUT SENSING PIN SPRING

REQUIREMENT----WITH START-STOP LEVER IN RUN POSITION, APPLY GRAM SCALE TO TIP END OF SENSING PIN.
MIN. 38 GRAMS ——— MAX. 45 GRAMS
TO ADJUST----WITH CONTACT BRACKET LOWER MOUNTING SCREW LOOSENED, POSITION THE SPRING BRACKET.

FIGURE 1-8 . TAPE OUT CONTACT ASSEMBLY

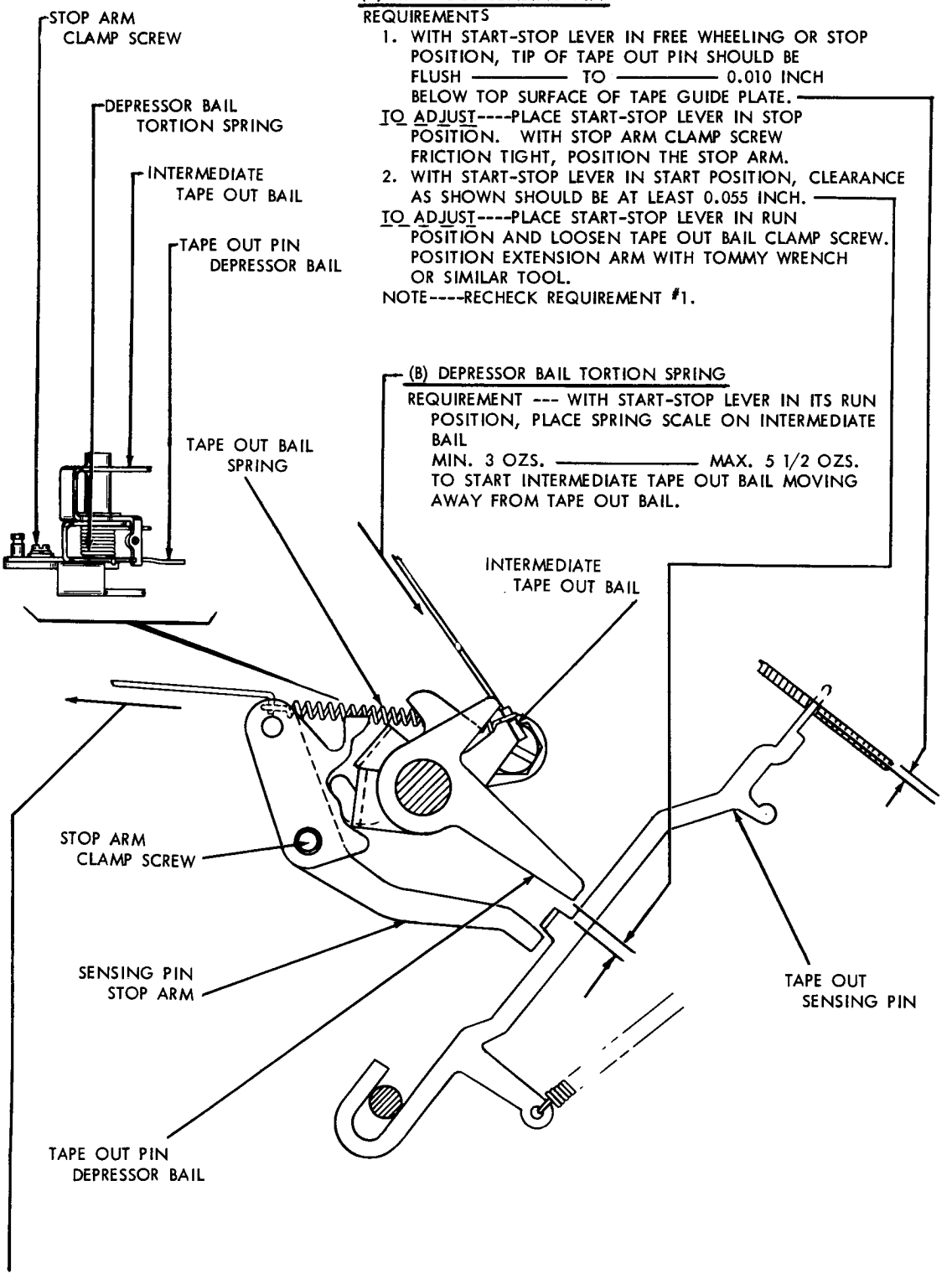


FIGURE 1-9 TAPE OUT SENSING PIN

(A) START-STOP SWITCH BRACKET

REQUIREMENTS----

1. WITH START-STOP LEVER IN RUN 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

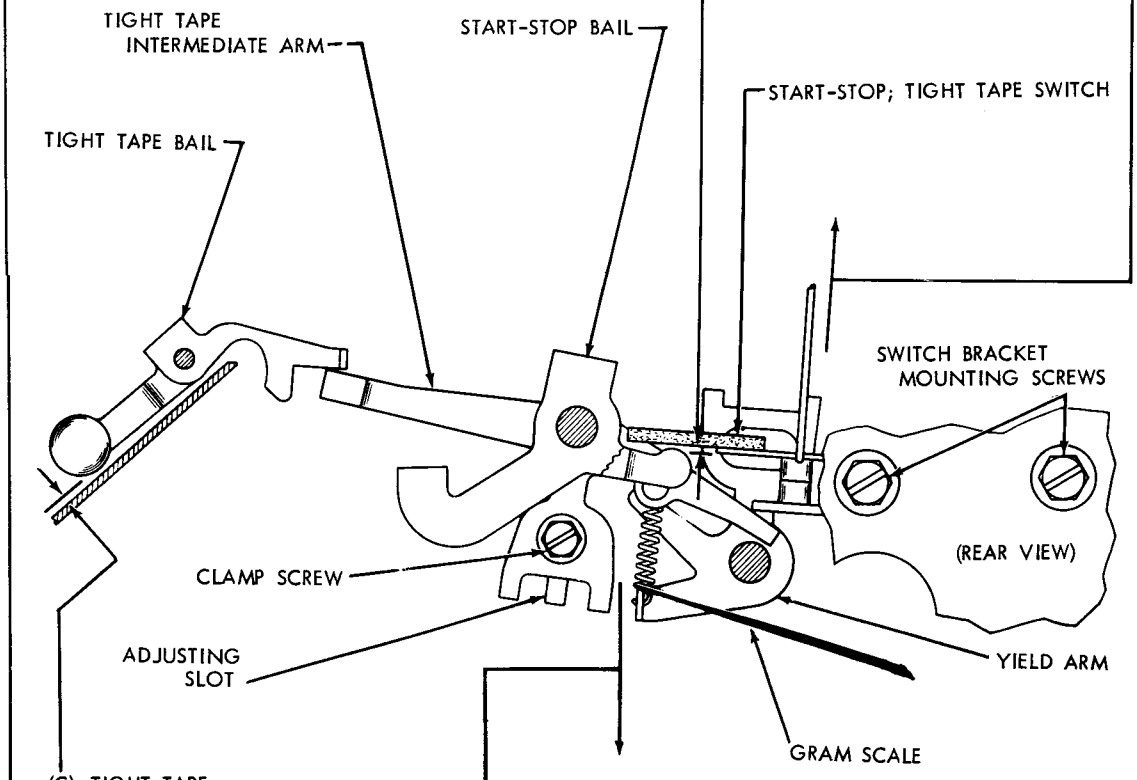
TO ADJUST----LOOSEN CONTACT PILE-UP MOUNTING SCREWS, AND ALIGN CONTACT ASSEMBLY.

(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 #110455 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 0.040 INCH.
2. OPEN AS BAIL IS RAISED TO HEIGHT OF 0.060 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 ———— MAX. 40 GRAMS.
TO START INTERMEDIATE ARM MOVING AWAY FROM ITS YIELD ARM

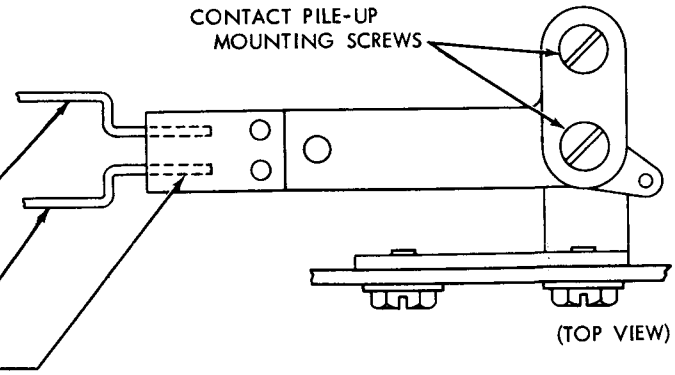


FIGURE 1-10 . START-STOP SWITCH ASSEMBLY

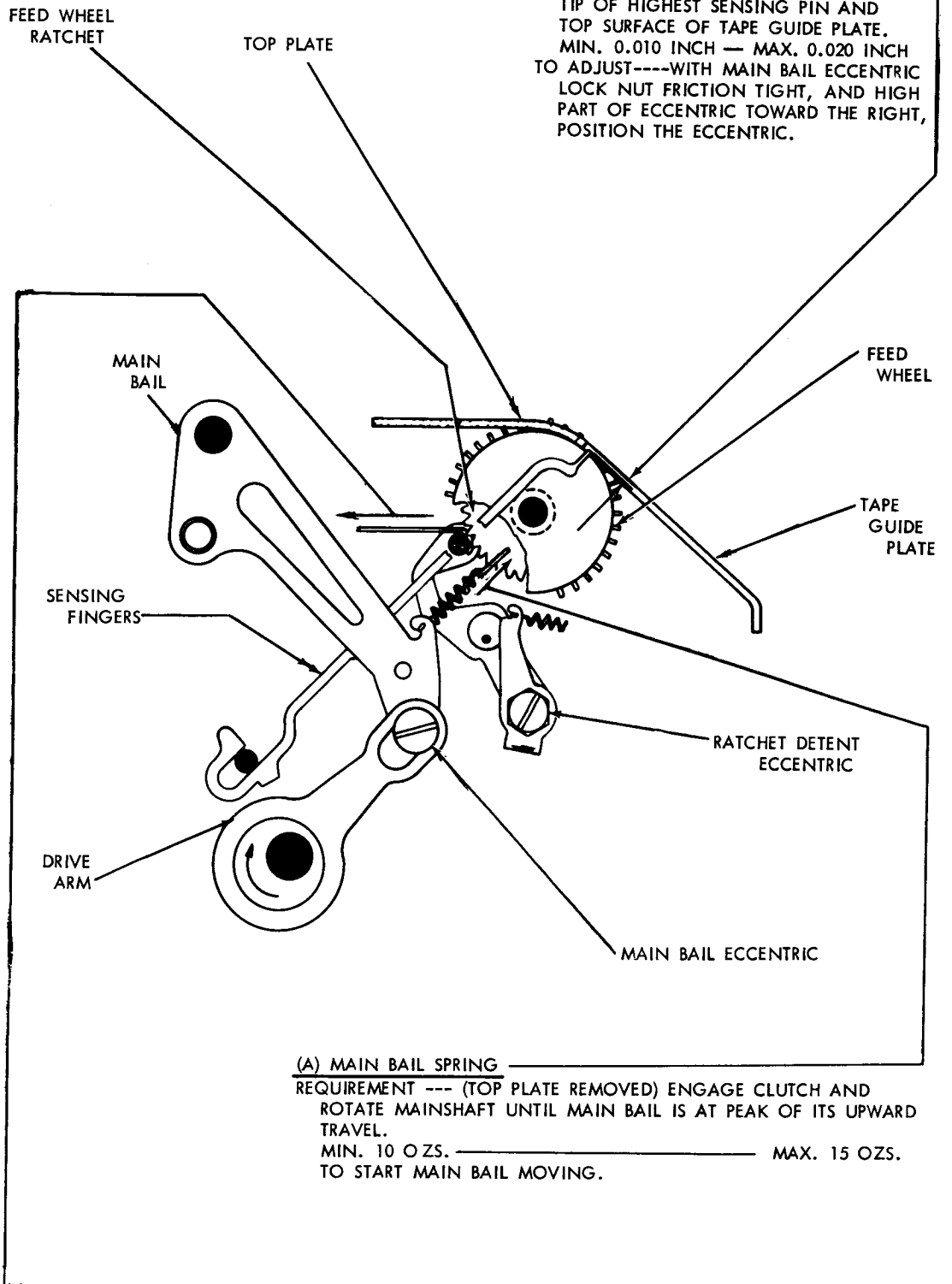


FIGURE 1-11 . MAIN BAIL ASSEMBLY

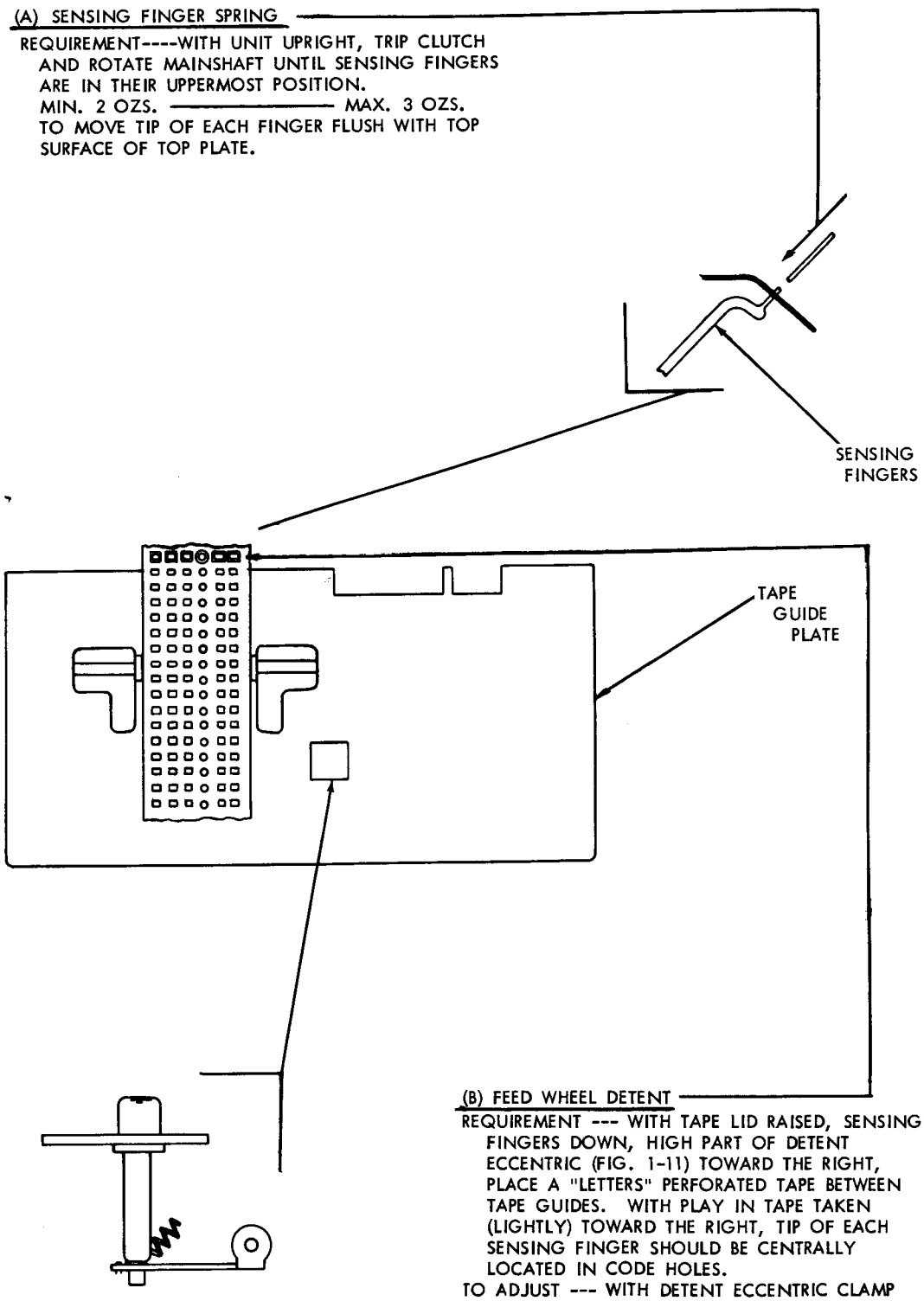


FIGURE 1-12 . CODE SENSING FINGERS

(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 ——— 0.002 INCH

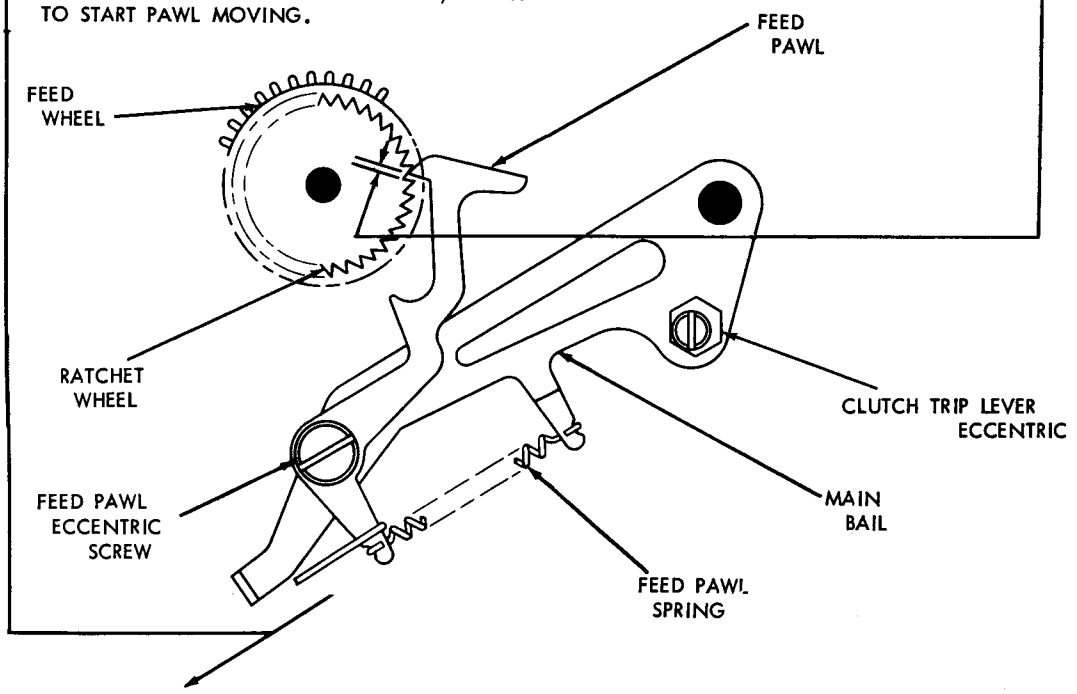
TO ADJUST----WITH ECCENTRIC SCREW LOCK NUT LOOSENED, POSITION THE SCREW. RE-CHECK REQUIREMENT AT FOUR POSITIONS OF RATCHET APPROXIMATELY 90 DEGREES APART.

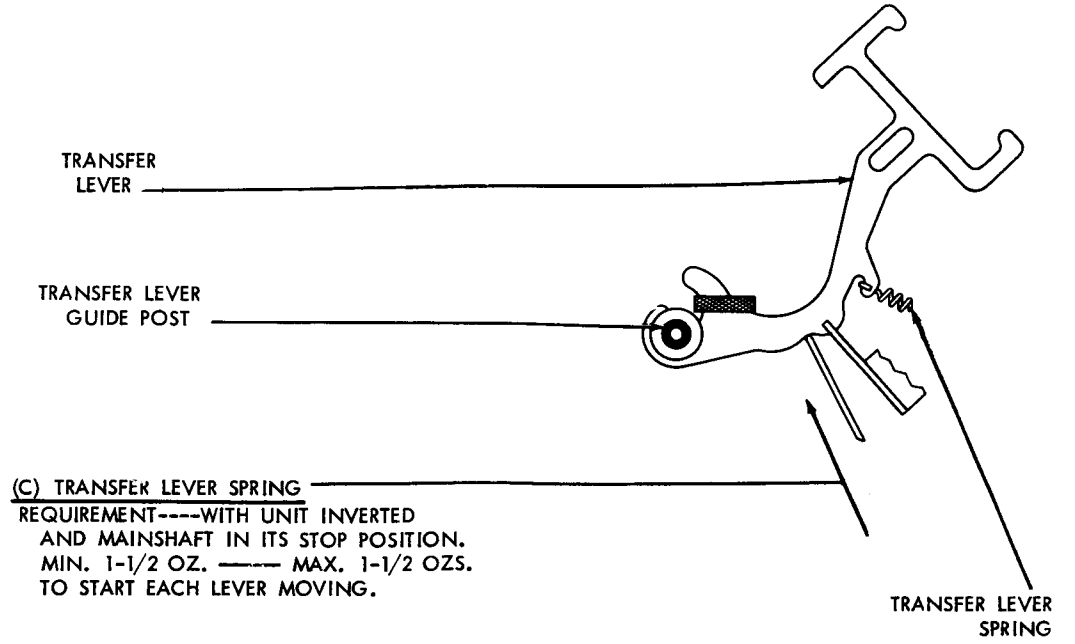
(B) FEED PAWL SPRING

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 INVERTED AND MAINSHAFT IN ITS STOP POSITION.

MIN. 1-1/2 OZ. ——— MAX. 1-1/2 OZS.

TO START EACH LEVER MOVING.

FIGURE 1-13 . FEED PAWL MECHANISM

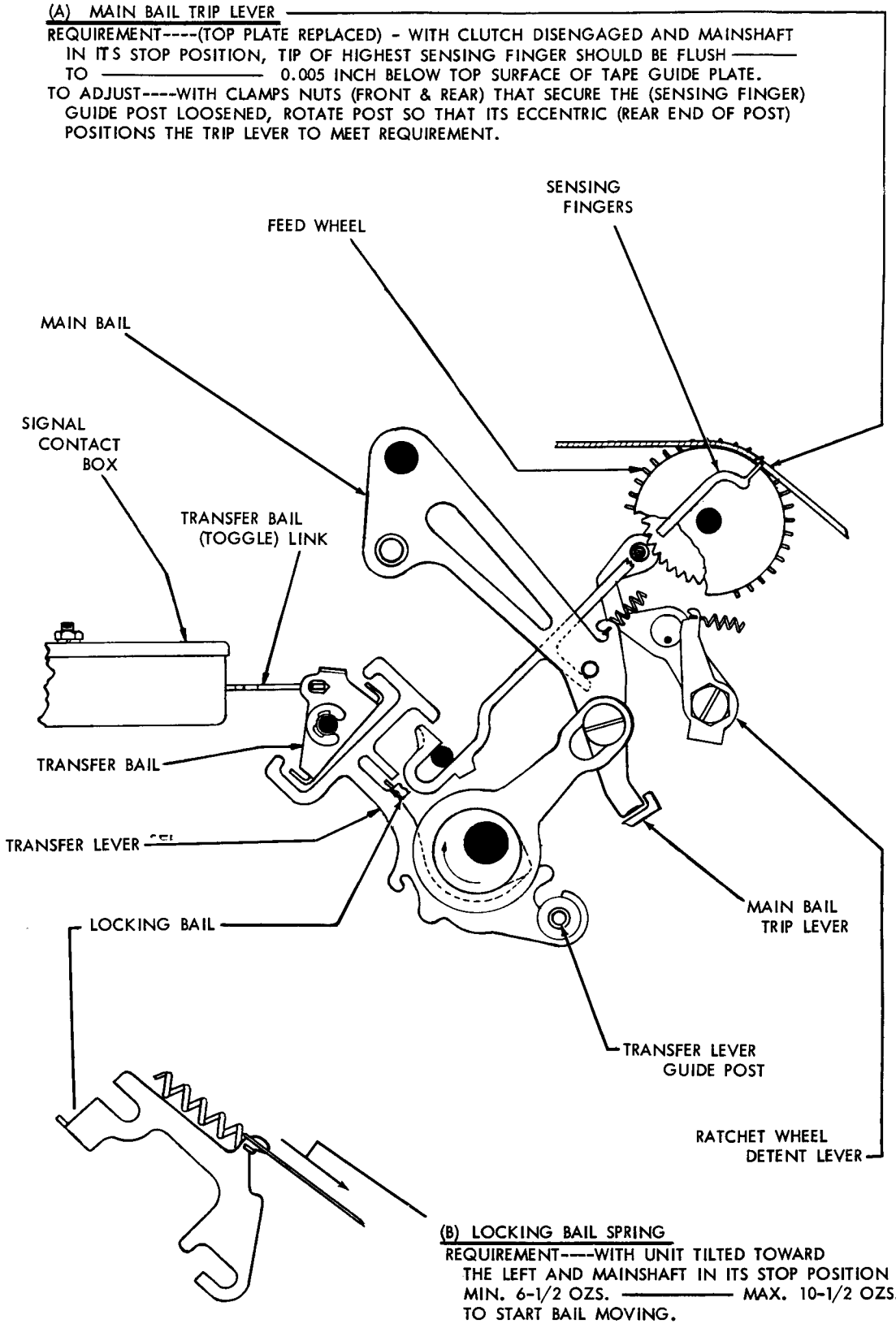


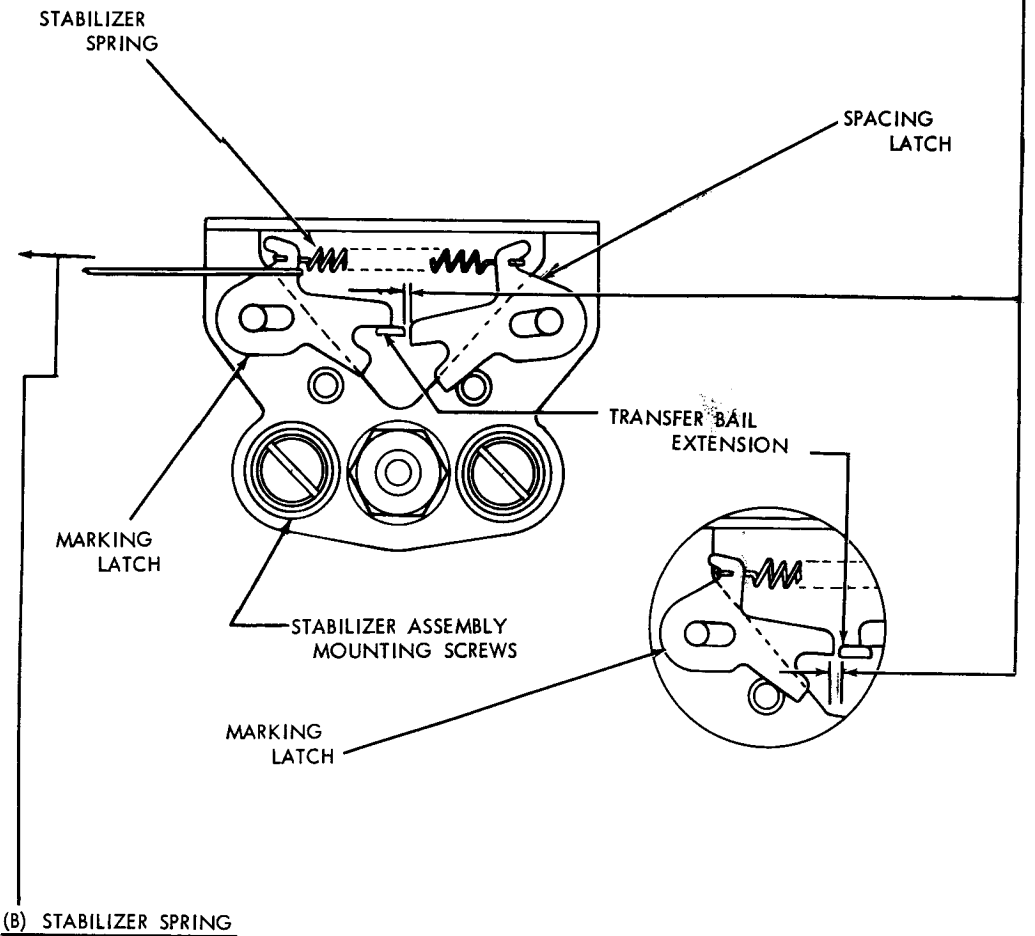
FIGURE 1-14 . MAIN BAIL TRIP ASSEMBLY

(A) TRANSFER BAIL STABILIZER

REQUIREMENT --- (1) WITH A "LETTERS" 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.

FIGURE 1-15 . TRANSFER BAIL STABILIZER

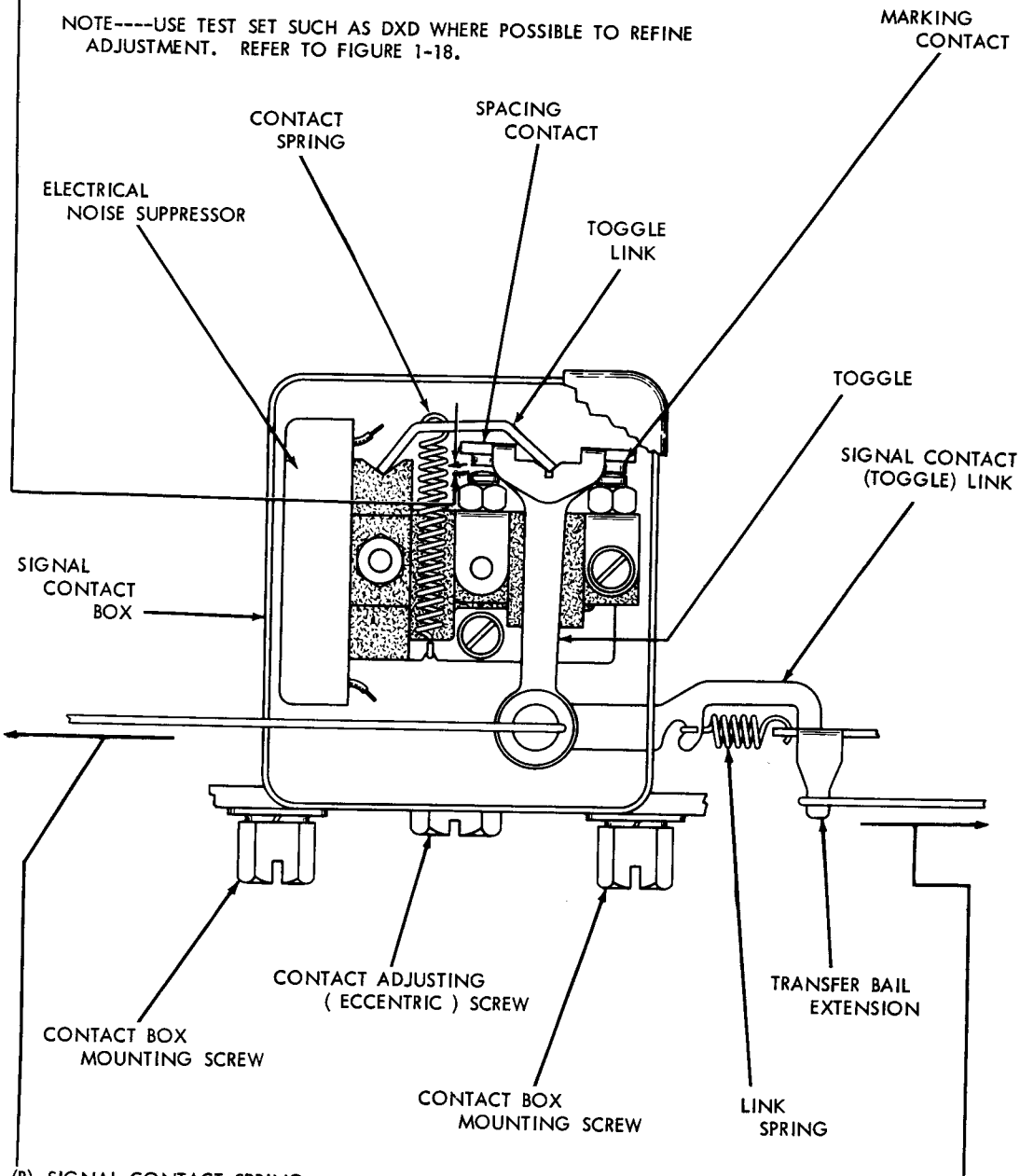


FIGURE 1-16 . SIGNAL CONTACT ASSEMBLY

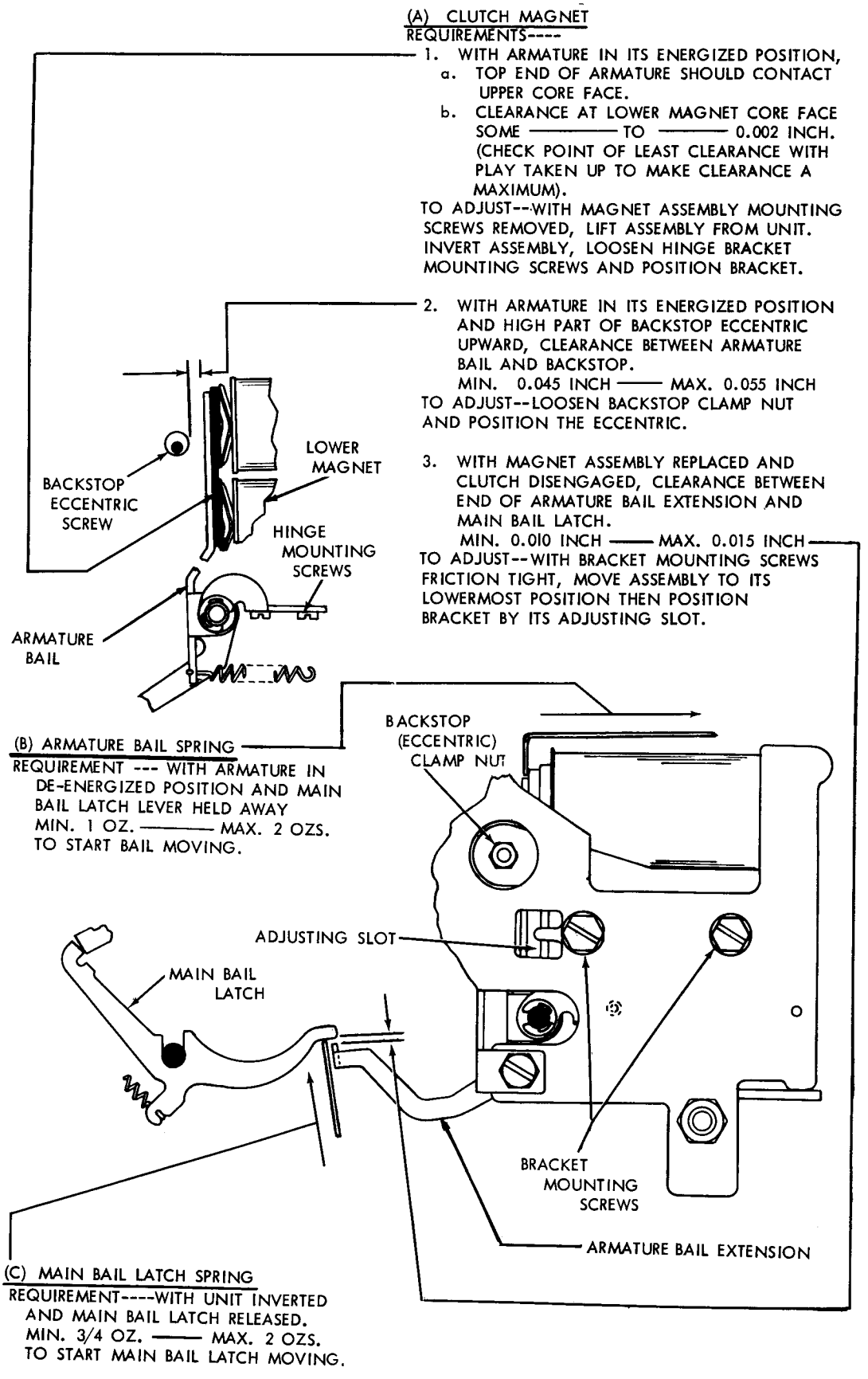
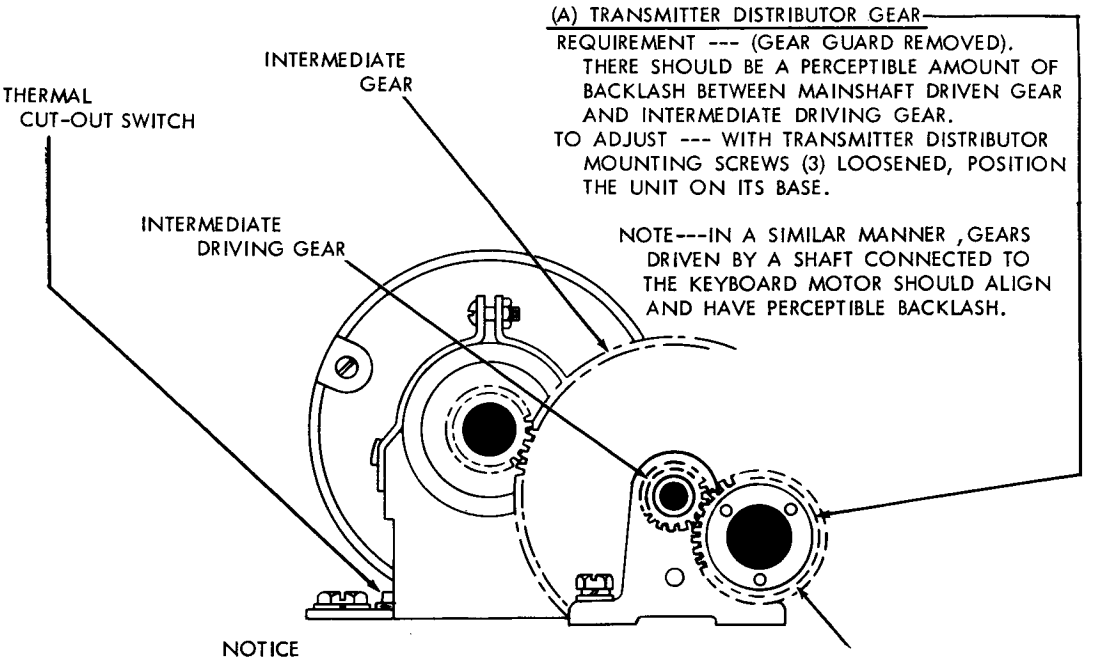


FIGURE 1-17 . CLUTCH TRIP MAGNET ASSEMBLY



NOTICE

Should the Rotor of the Synchronous Motor become blocked for several seconds by an overload, the thermal cut-out switch will de-energize the motor until the manual reset button is depressed. However, allow at least 5 minutes for the motor to cool before attempting to reset the switch and start the motor.

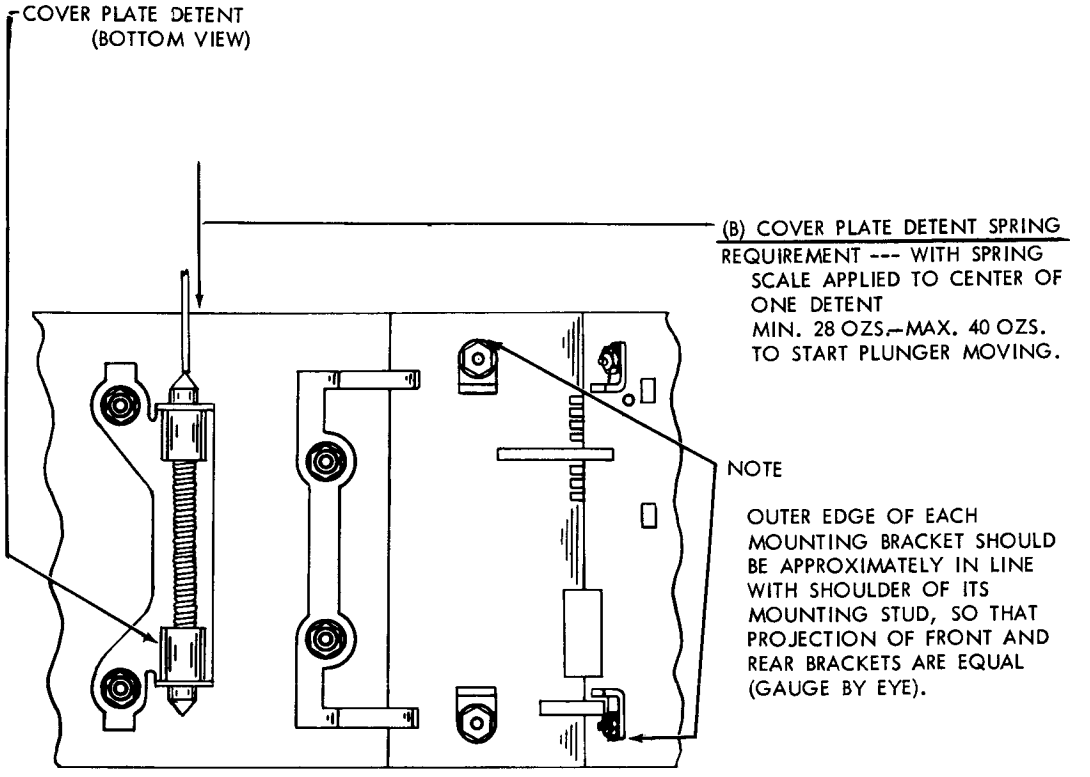


FIGURE 1-18 . INTERMEDIATE GEAR ASSEMBLY

SIGNAL PULSE (FINAL ADJUSTMENT WITH DXD OR STROBE)

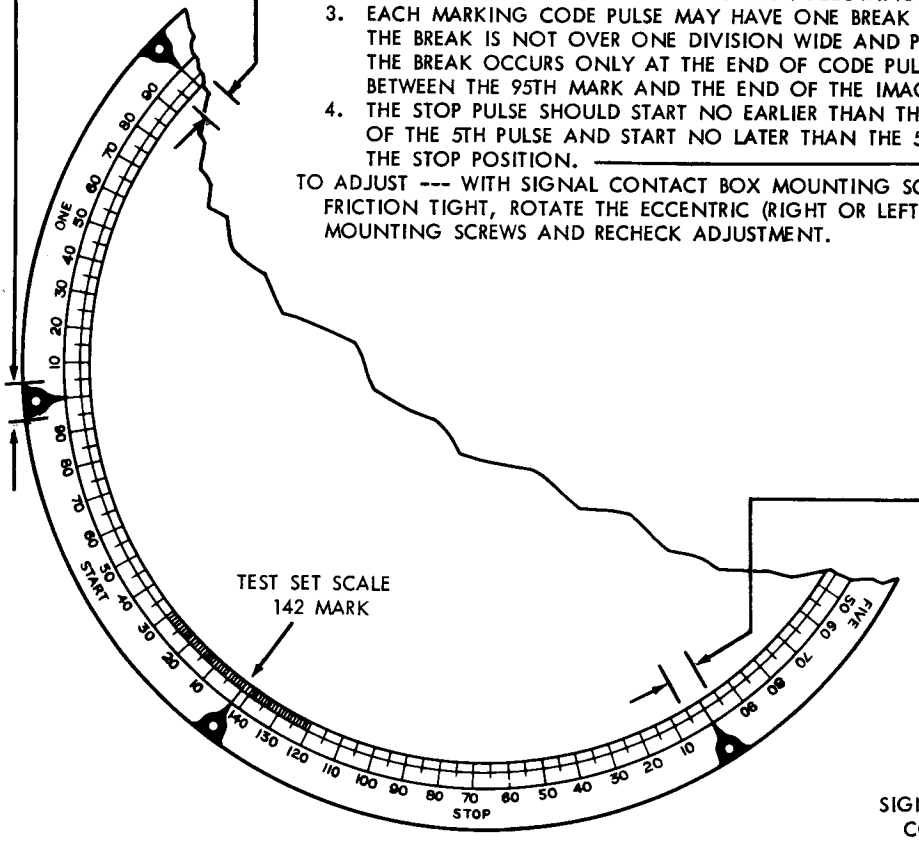
PROCEDURE --- PLUG SIGNAL DISTORTION TEST SET INTO (LXD) SIGNAL LINE TO VIEW PULSE IMAGE GENERATED BY THE MARKING AND SPACING CONTACTS. SYNCHRONIZE SIGNAL GENERATOR WITH DXD SO THAT END OF STOP PULSE IMAGE ALIGNS WITH THE 142 MARK ON DXD SCALE WHEN BOTH UNITS ARE OPERATED AT SAME SPEED AND TRANSMISSION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

NOTE --- 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.

REQUIREMENT (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.

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



NOTE --- IF ABOVE REQUIREMENTS CANNOT BE MET REFINE REQUIREMENT "A" PAGE 1-20 AND REQUIREMENT "A" PAGE 1-17 WITH SIGNAL VIEWED ON DXD.

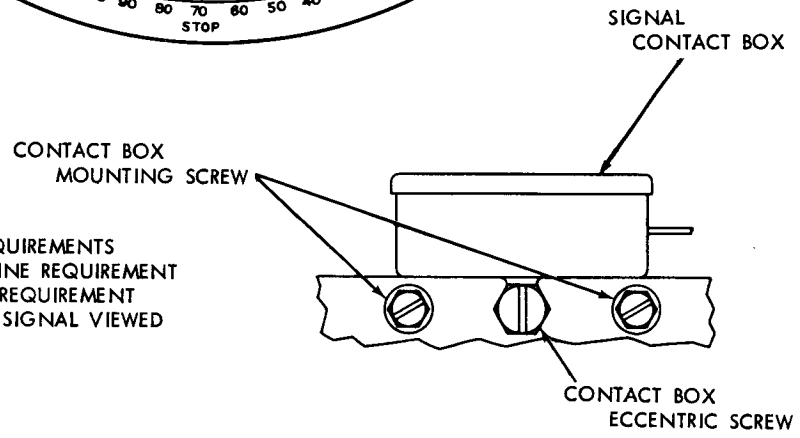


FIGURE 1-19 . SIGNAL PULSE REFINEMENT

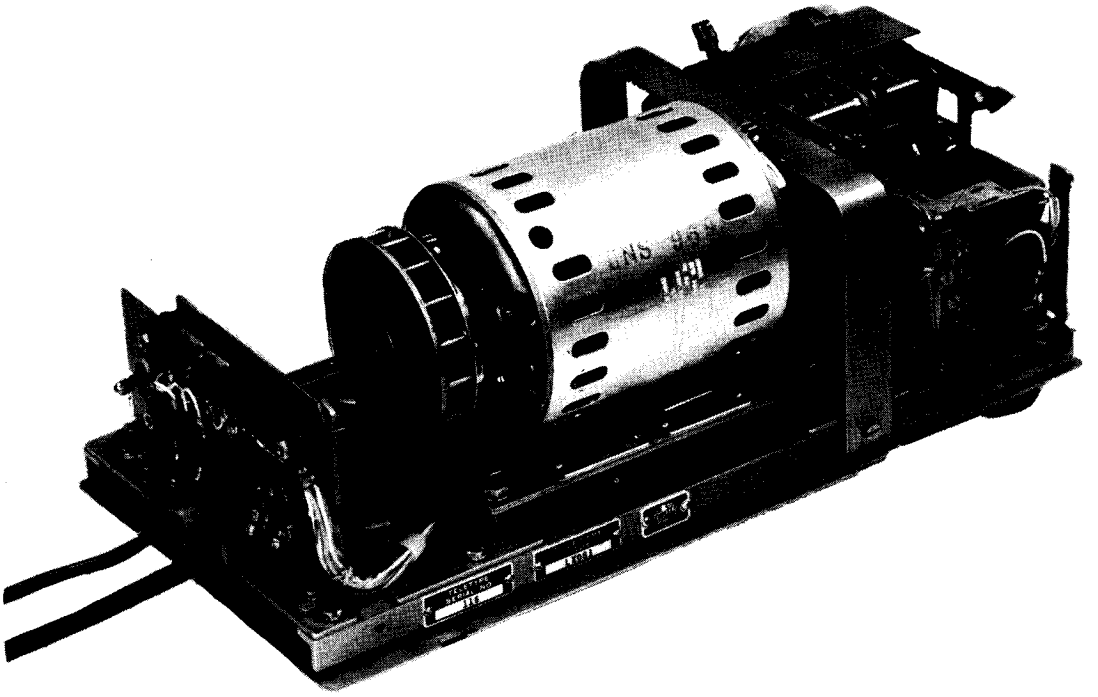


FIGURE 2-1 SELF CONTAINED TRANSMITTER DISTRIBUTOR

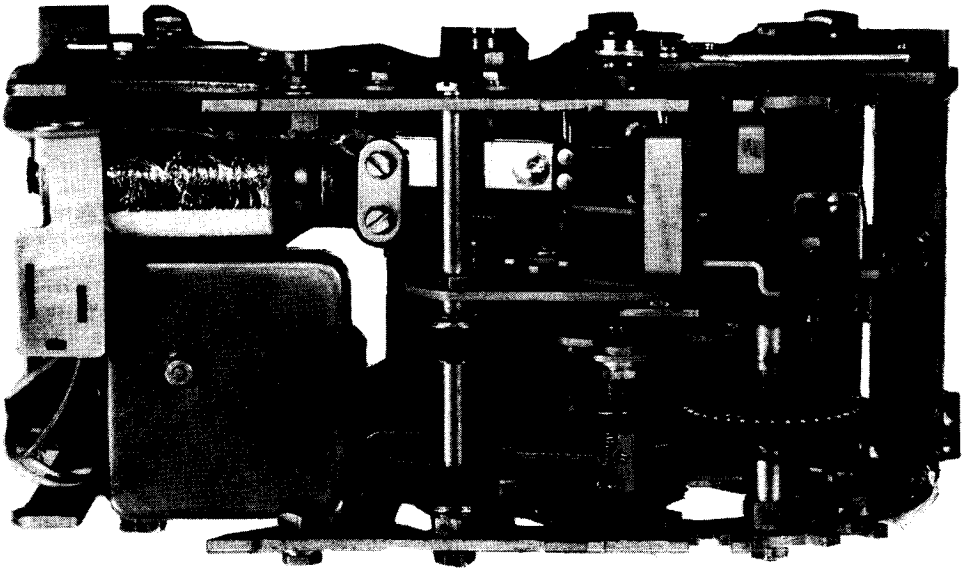


FIGURE 2-2 TRANSMITTER DISTRIBUTOR FOR AUTOMATIC SEND-RECEIVE SET

SECTION 2

DISASSEMBLY AND REASSEMBLY

1. GENERAL

The various covers may be removed for inspection, lubrication or minor repair of the unit; however, a complete adjustment will necessitate the removal of the transmitting distributing mechanism from its base. To facilitate adjustment, a generous length of cable is provided between the unit and its terminal block in order that the unit may be rotated or inverted. The AC or DC potential should be disconnected from its power source.

Care should be exercised when the unit is replaced to keep the cable free of any moving parts. For more detailed illustration of the assemblies referred to in the following text, see the Teletype Model 28 Transmitter Distributor (LXD) Parts Bulletin.

NOTE

Retaining rings (tru-arc) are of spring steel and have a tendency to release suddenly. Loss of these can be minimized as follows: Hold the ring with your left hand to prevent it from rotating. Place the blade of a suitable screwdriver in one of the slots of the ring. Rotate the screwdriver in a direction to increase the diameter of the ring. The retaining rings will come off easily without flying.

2. DISASSEMBLY AND REASSEMBLY

a. Motor Cover - To remove the cover that houses the motor unit, lift upward. Replace in reverse order.

b. Front (Snap) Panel

(1) To remove the front panel, pull outward on the lower right and left rear corner of the front panel and slide the panel toward the front.

(2) To replace the front panel, mate the slide on the frame and push toward the rear.

c. Cover Plate

(1) To remove the 156607 cover plate, lift the left end upward and slide the plate toward the left to disengage the spring clip. (See Figure 1-1)

(2) To replace the cover plate, reverse the procedure. (See page 1-9)

d. Top Plate

(1) To remove the 156606 top plate, loosen the front and rear mounting screw, see figure 1-1, and lift the plate upward.

(2) To replace the top plate, guide the mounting screws into the notch of the front and rear plate. Align the sensing pins and feed wheel with their respective slots. Refer to adjusting procedure page 1-9 if the plates do not align.

e. Tape Guide Plate

(1) To remove the 156550 tape guide plate, loosen the front and rear mounting screw and slide the plate upward. (See Figure 1-1)

(2) To replace the tape guide plate, guide the mounting screws into the respective notch of the front and rear plate while guiding the tape-out pin into its notch and locating the sensing pins against the left edge of the tape guide plate. Refer to page 1-8 and 1-9.

f. Oil Reservoir

(1) To remove the oil reservoir, remove the screws that secure the casting and lift the assembly upward and toward the right.

(2) To replace the oil reservoir, reverse the procedure. See Figure

g. Rear Plate Assembly

(1) Remove cable assembly leads from start-stop contact assembly and magnet assembly.

(2) Remove right rear and left front 112626 nuts (10-32) and 2669 lockwashers from bottom posts.

(3) Remove 156588 clamp.

(4) Remove 151630 screws securing plate to 156622 post.

(5) Remove the two 151630 screws which secure the 156541 clutch trip magnet to the rear plate and remove clutch trip magnet assembly.

(6) Remove rear plate assembly from the remainder of the unit.

(7) To replace, reverse the procedure.

h. Main Shaft Assembly

(1) Remove the 156831 clamp and 156832 plate from the front plate assembly.

(2) Remove the main shaft assembly.

(3) Replace in the reverse order.

i. Center Plate Assembly

(1) Remove the 156622 post.

(2) Remove the two nuts (6-40) which secure the center plate to the two guide posts.

(3) Remove the 7603 spring.

(4) Remove the center plate assembly.

(5) Replace in reverse order.

3. Mounting of Unit

a. The LXD1 unit mounts on the Model 28 Transmitter Distributor Base, LXDB 1

b. The LXD3 unit mounts on the base provided in the Automatic Send-Receive Set.

c. Place the unit on the front part of the base and secure screws furnished with the base in the three holes provided in the left and right mounting plates. Screws should be friction tight.

d. Position the unit from left to right so that there is barely perceptible gear play. Tighten the three mounting screws.

SECTION 3

LUBRICATION

1. GENERAL

1.01 The transmitter distributor should be lubricated before being stored or placed in service. After a few weeks of service, relubricate to make certain that all points of each mechanism receive lubrication. The following lubrication schedule should be followed thereafter:

OPERATING SPEED	LUBRICATION INTERVAL
(1) 60 W.P.M.	3000 Hours or 1 Year *
(2) 75 W.P.M.	2400 Hours or 9 Months *
(3) 100 W.P.M.	1500 Hours or 6 Months *

* Whichever occurs first.

1.02 KS7470 oil should be used for the lubrication of all points where oil is specified. KS7471 grease shuold be used at all points where grease is specified. All felt lubricating washers and all moving surfaces should be thoroughly lubricated. However, over lubrication which would allow oil to drip or grease to be thrown on other parts should be avoided. Exercise the utmost care to avoid getting oil or grease on the face of any contact point or the magnet pole face.

1.03 Should the motor be disassembled at any time, repack the bearings with KS7471 grease.

1.04 On units that are powered from the motor located on the keyboard (Automatic Send-Receive Set), make sure that the driving gears are lubricated. A change of gears to accommodate a new speed should include lubrication.

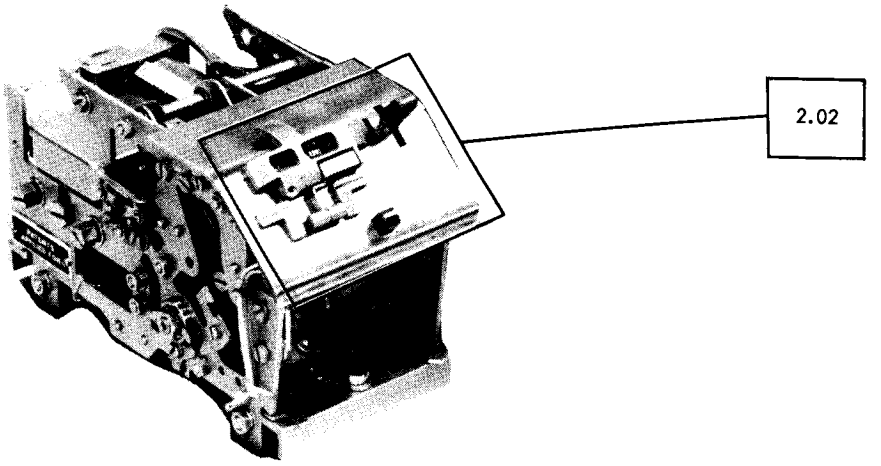
1.05 The photographs show the paragraph numbers referring to a particular line drawings of mechanisms and where these mechanisms are located on the unit.

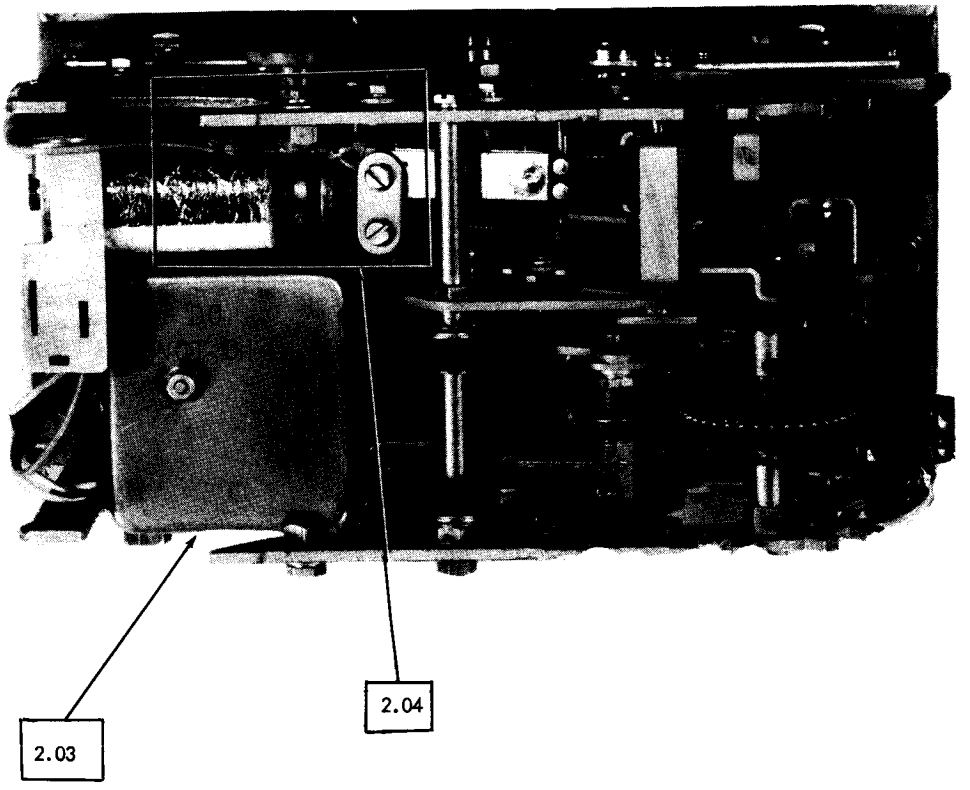
1.06 The illustration symbols indicate the following lubrication directions:

0 Apply 1 drop of oil.
02 Apply 2 drops of oil.
03 Apply 3 drops of oil.
G Apply thin film of grease.
SAT Saturate (Felt Washers, Wicks) with oil.

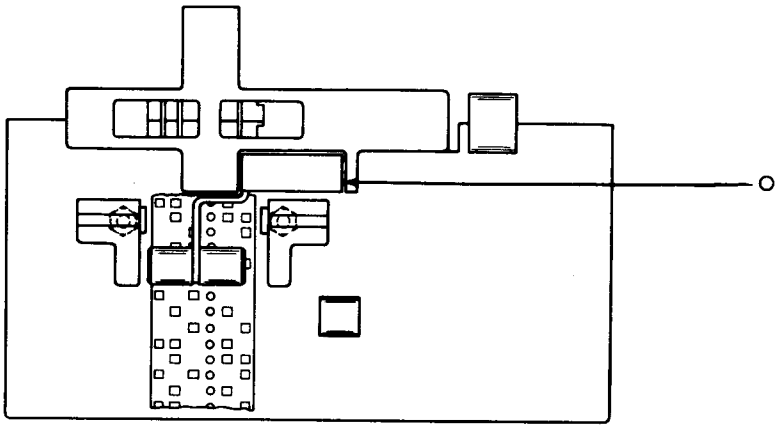
2. STANDARD FEATURES

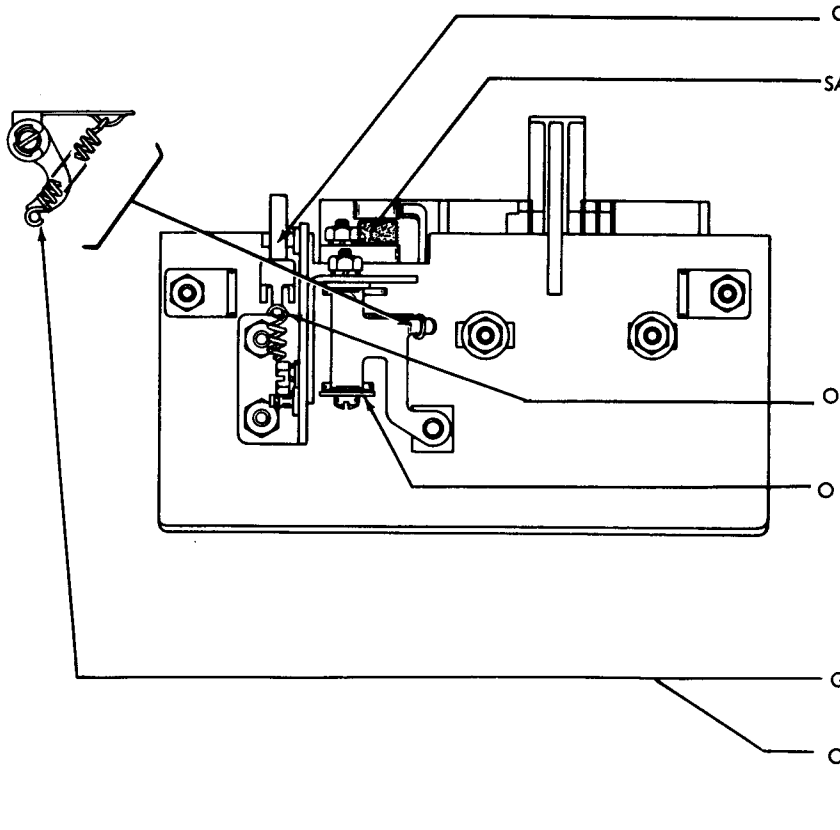
2.01 TRANSMITTER DISTRIBUTOR-- TOP VIEW



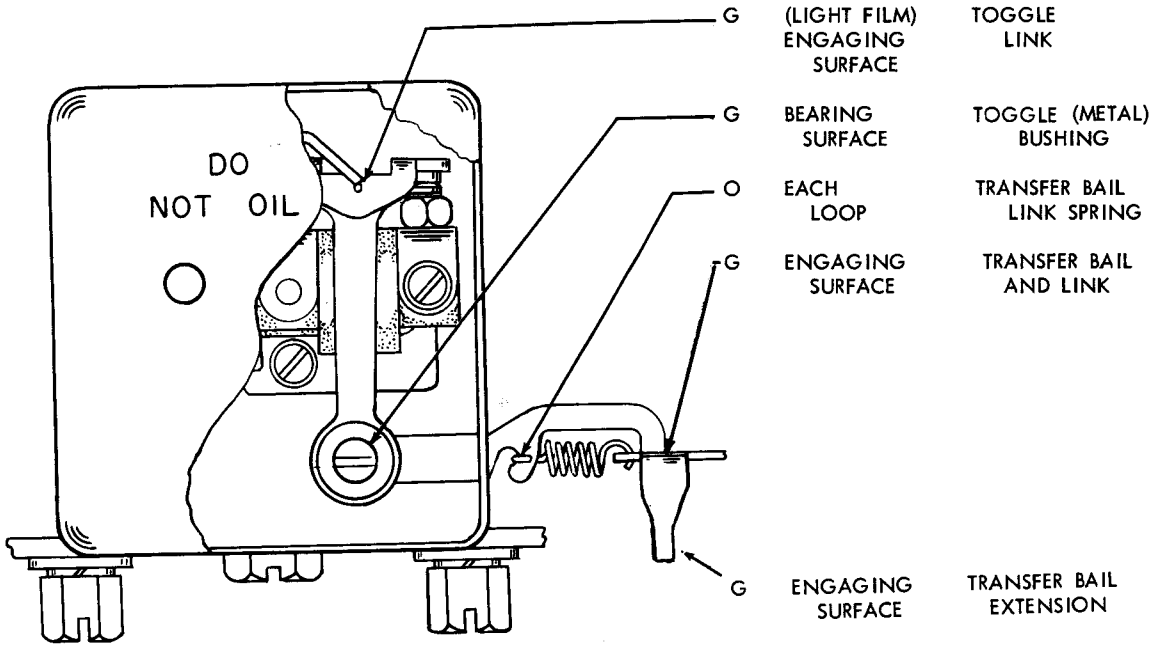


2.02 TAPE GUIDE PLATE

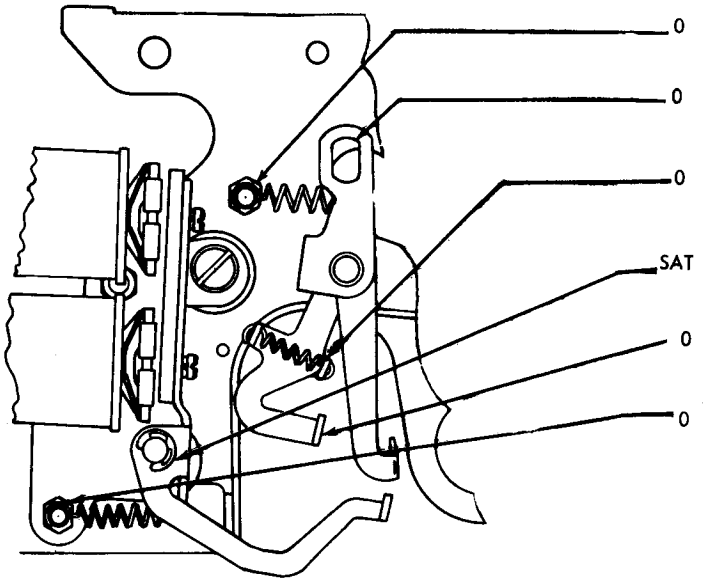




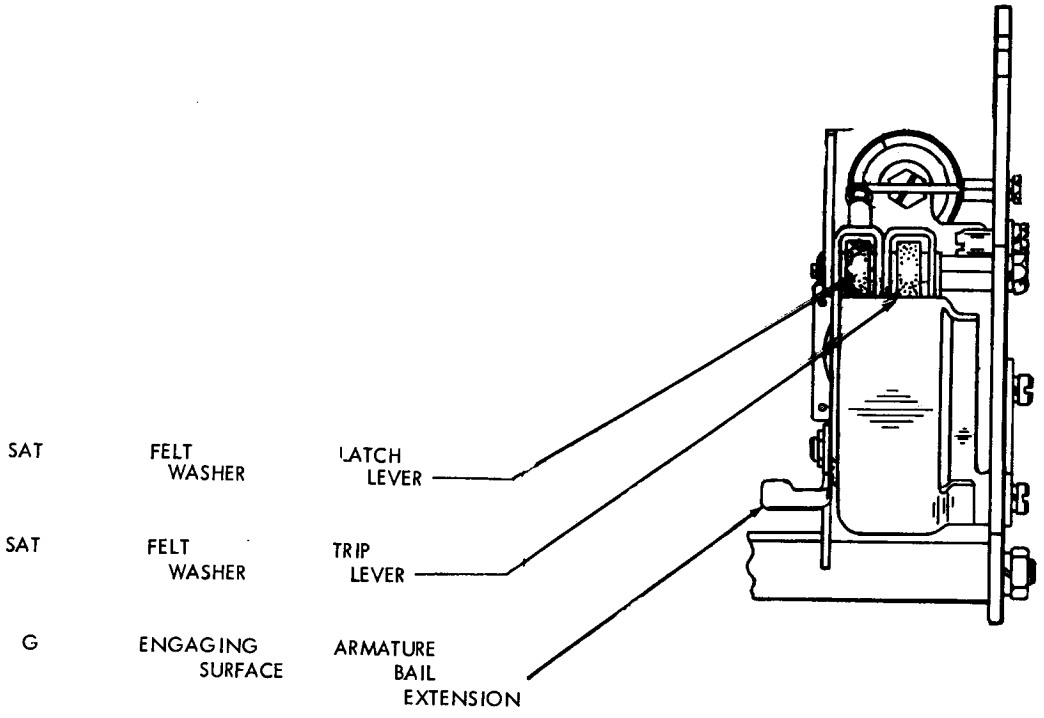
2.03 SIGNAL CONTACT ASSEMBLY



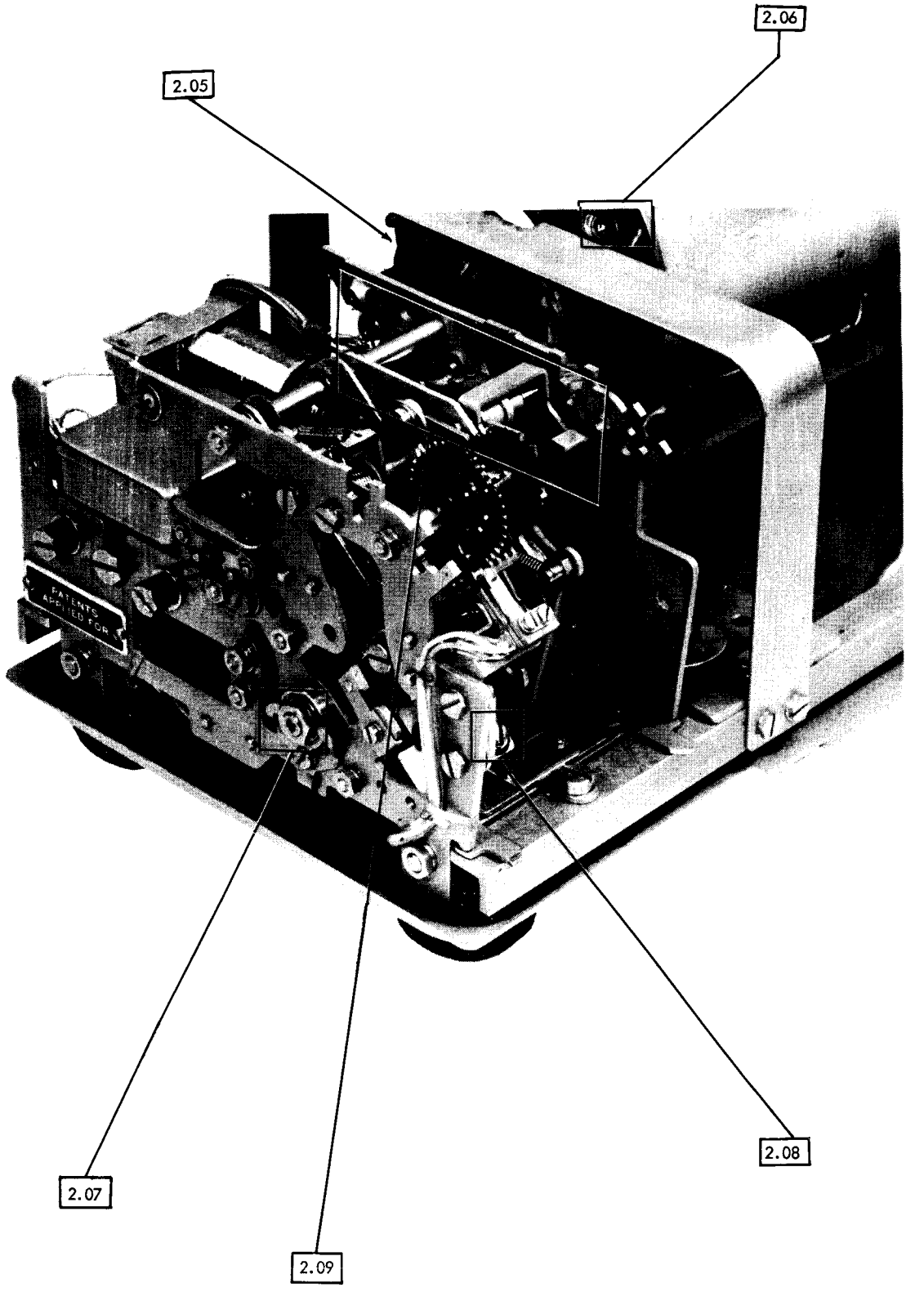
2.04 CLUTCH TRIP ASSEMBLY



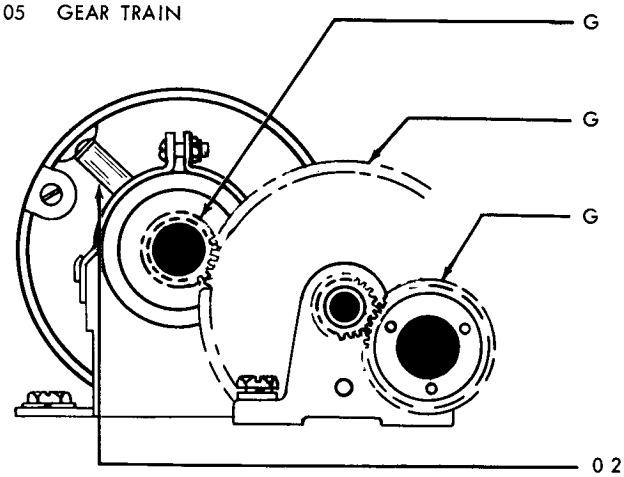
0	EACH LOOP	LATCH LEVER SPRING
0	SLOT	CLUTCH TRIP BAIL
0	EACH LOOP	TRIP LEVER SPRING
SAT	FELT WASHERS	ARMATURE BAIL
0	ENGAGING SURFACE	TRIP LEVER
0	EACH LOOP	ARMATURE SPRING



SAT	FELT WASHER	LATCH LEVER
SAT	FELT WASHER	TRIP LEVER
G	ENGAGING SURFACE	ARMATURE BAIL EXTENSION

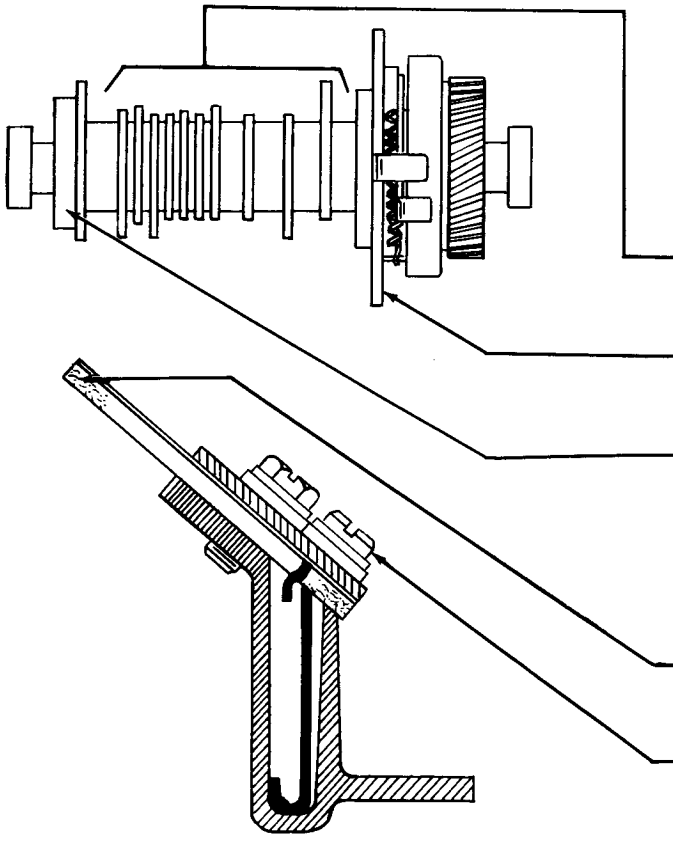

2.06
2.05
PATENTS APPLIED FOR
2.07
2.09
2.08

2.05 GEAR TRAIN



G	TEETH	MOTOR PINION
G	TEETH	INTERMEDIATE GEAR
G	TEETH	TRANSMITTER DISTRIBUTOR DRIVING GEAR
0 2	BALL OILER	MOTOR BEARING

2.06 MOTOR BEARINGS



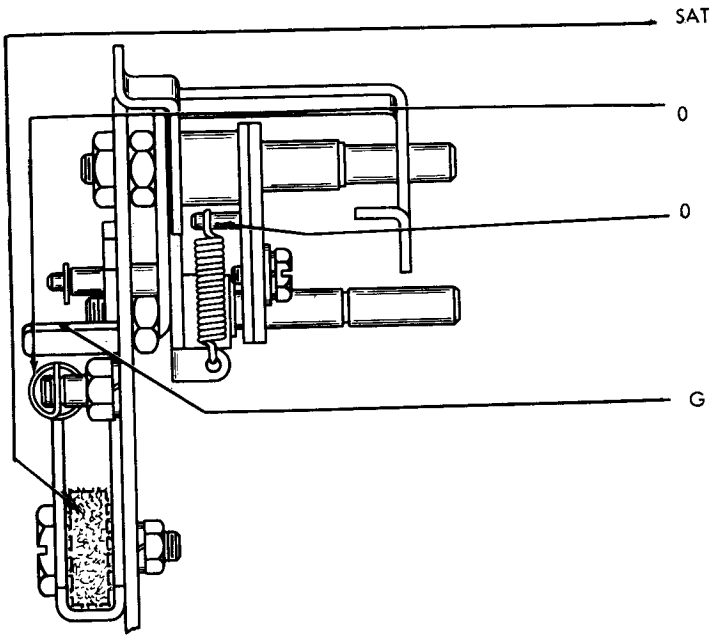
2.07 MAIN SHAFT

0	CAMING SURFACES	CAM SLEEVE
0 3	CAMING SURFACE	CLUTCH DISK
0 2	CAMING SURFACE	DRIVE ARM CAM

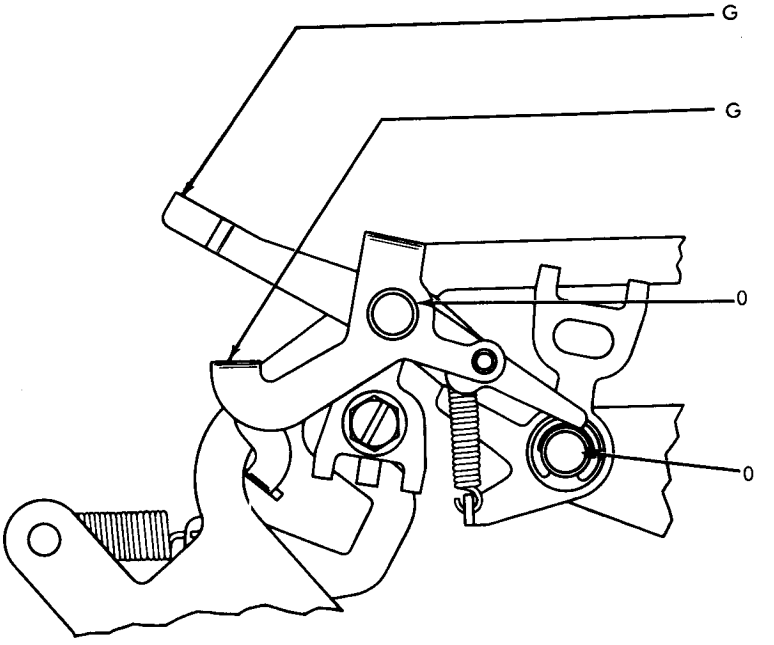
2.08 OIL RESERVOIR

SAT	LEATHER WICK	CAM OILER
FILL	RESERVOIR	CAM OILER

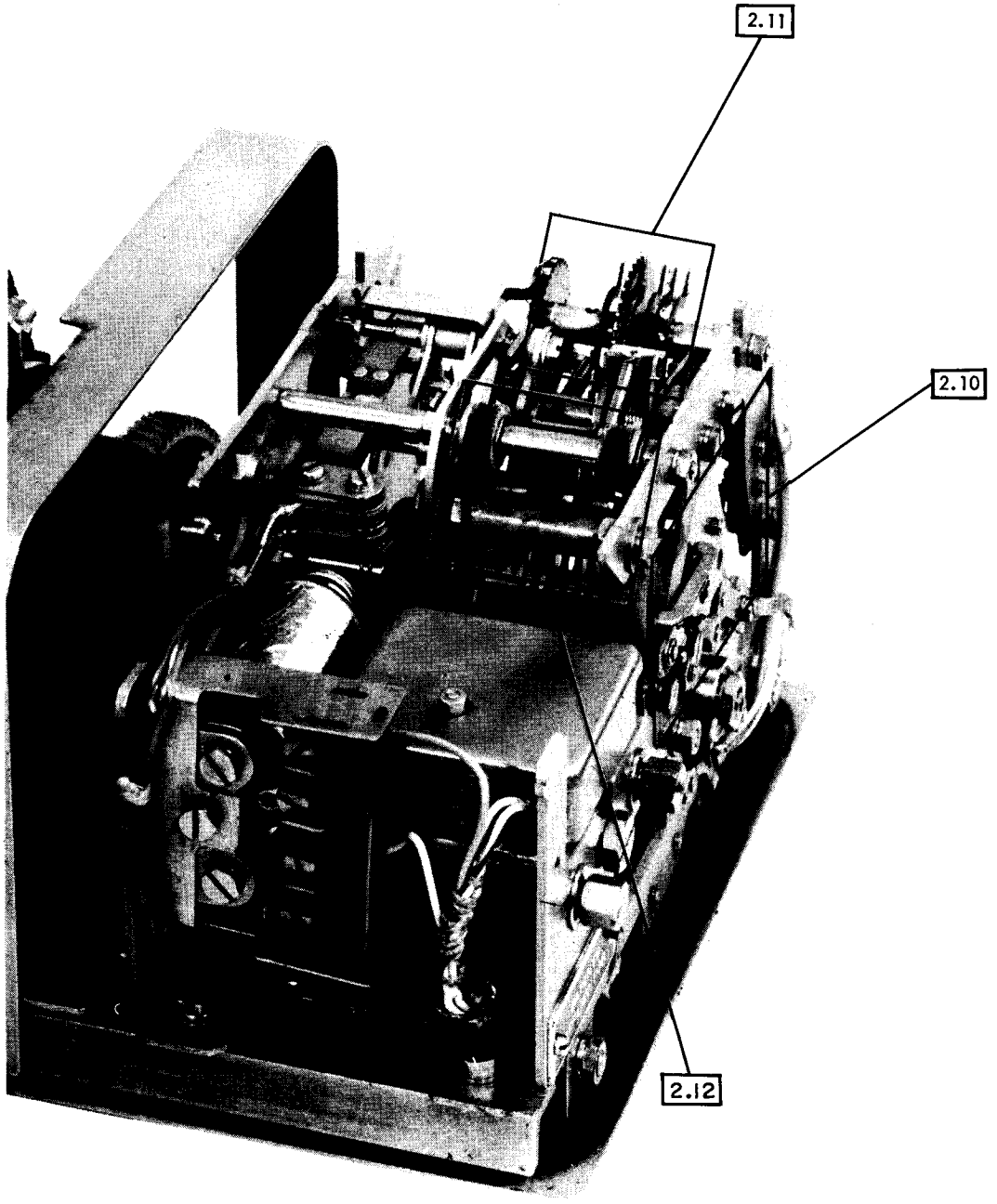
2.09 CENTER PLATE ASSEMBLY



SAT	FELT WASHER	RATCHET DETENT BAIL
0	BOTH LOOPS	DETENT BAIL SPRING
0	BOTH LOOPS	TIGHT TAPE ARM
G	ENGAGING SURFACE	START-STOP BAIL EXTENSION

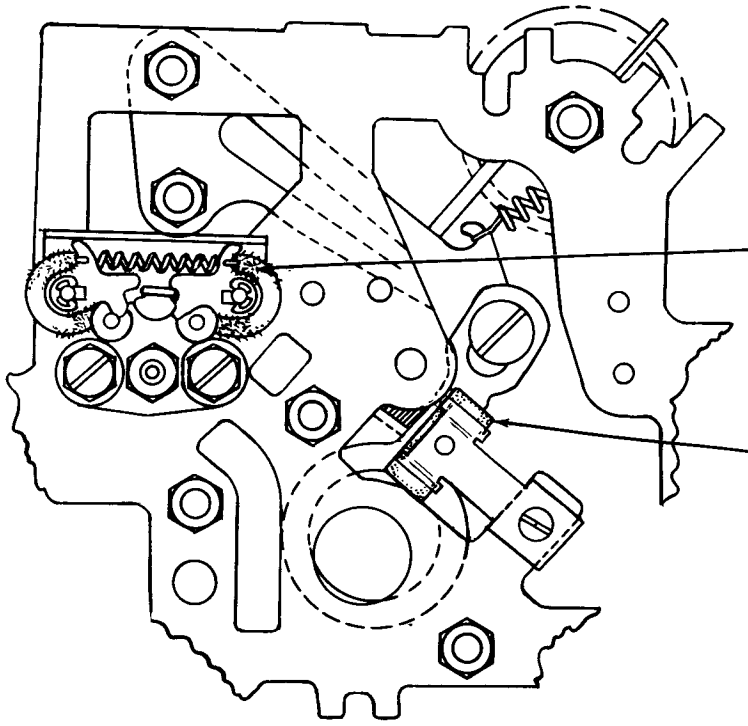


G	ENGAGING SURFACE	TIGHT TAPE ARM
G	ENGAGING SURFACE	START-STOP BAIL
0	BEARING SURFACE	START-STOP BAIL
0	BEARING SURFACE	YIELD ARM


2.11
2.10
2.12

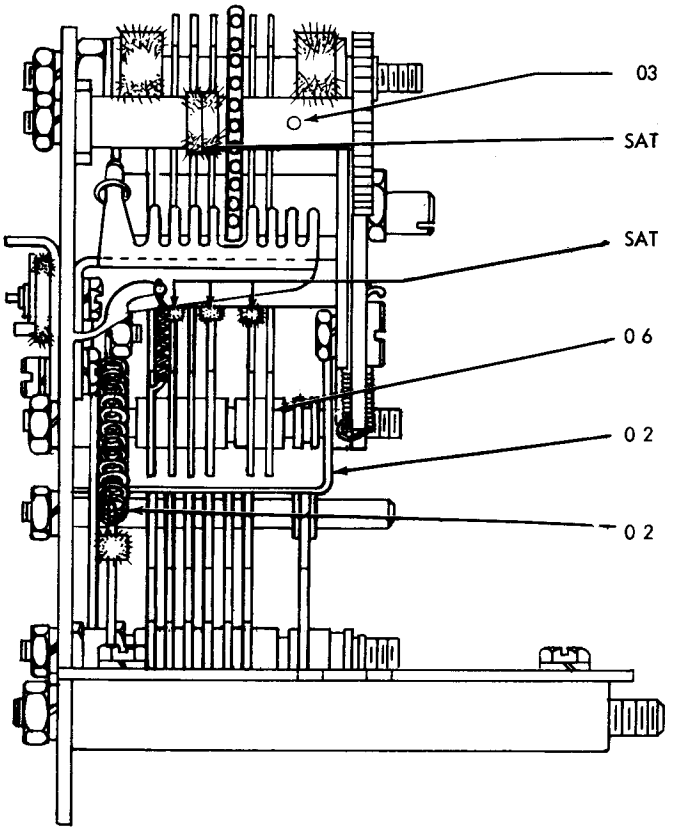
FRONT PLATE ASSEMBLY

2.10 STABILIZER



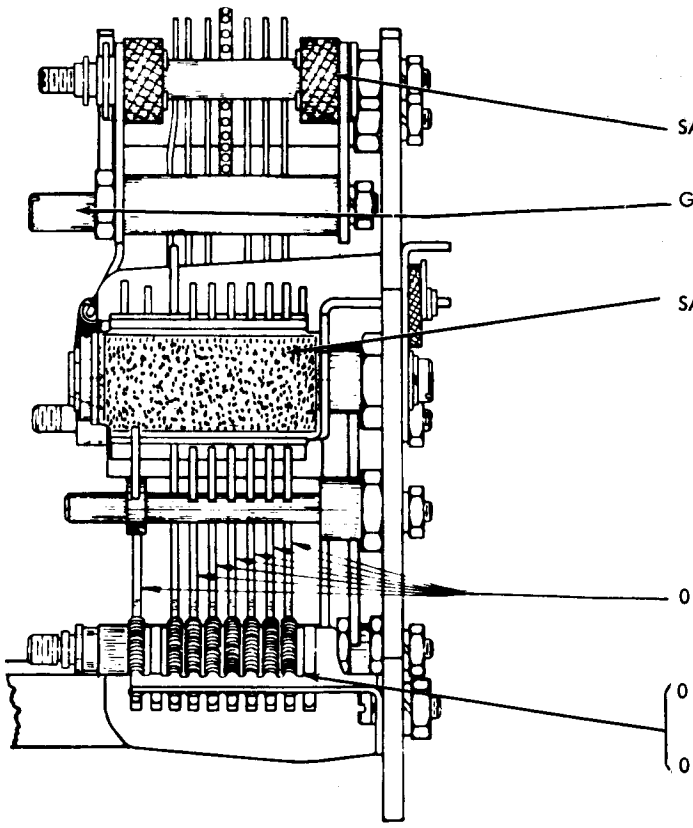
SAT	FELT WICK	STABILIZER LATCH
SAT	LEATHER WICK	DRIVE ARM OILER

2.11 SENSING AND FEED MECHANISM

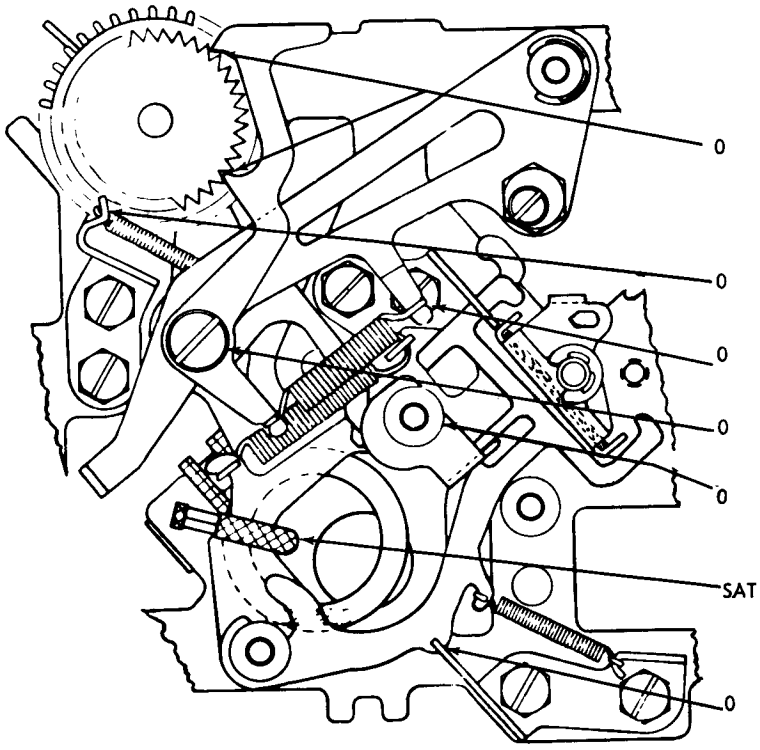


03	SHAFT	FEED WHEEL
SAT	FELT WICKS	FEED WHEEL BEARING
SAT	FELT WICKS	SENSING PINS
0 6	SLIDING SURFACE	SENSING PIN GUIDE POST
0 2	SLIDING SURFACE	LOCKING BAIL
0 2	BOTH LOOPS	LOCKING BAIL SPRING

2.12 TRANSFER MECHANISM



SAT	EACH FELT WASHER	MAIN BAIL PIVOTS
G	SLIDING SURFACE	BAIL DRIVE POST
SAT	LEATHER PAD	TRANSFER BAIL
0	SLIDING SURFACES	TRANSFER LEVERS
0	EACH LOOP	TRANSFER LEVER SPRINGS
0	EACH LOOP	LOCKING BAIL SPRING



0	TEETH	FEED PAWL AND RATCHET WHEEL
0	EACH LOOP	
0	EACH LOOP	FEED PAWL SPRING
0	SLIDING SURFACE	FEED PAWL PIVOT
0	ENGAGING SURFACE	LOCKING BAIL
SAT	FELT WASHER	LOCKING BAIL
0	SLIDING SURFACE	TRANSFER LEVERS