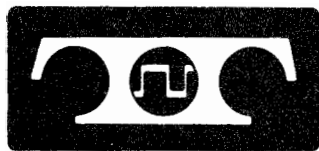
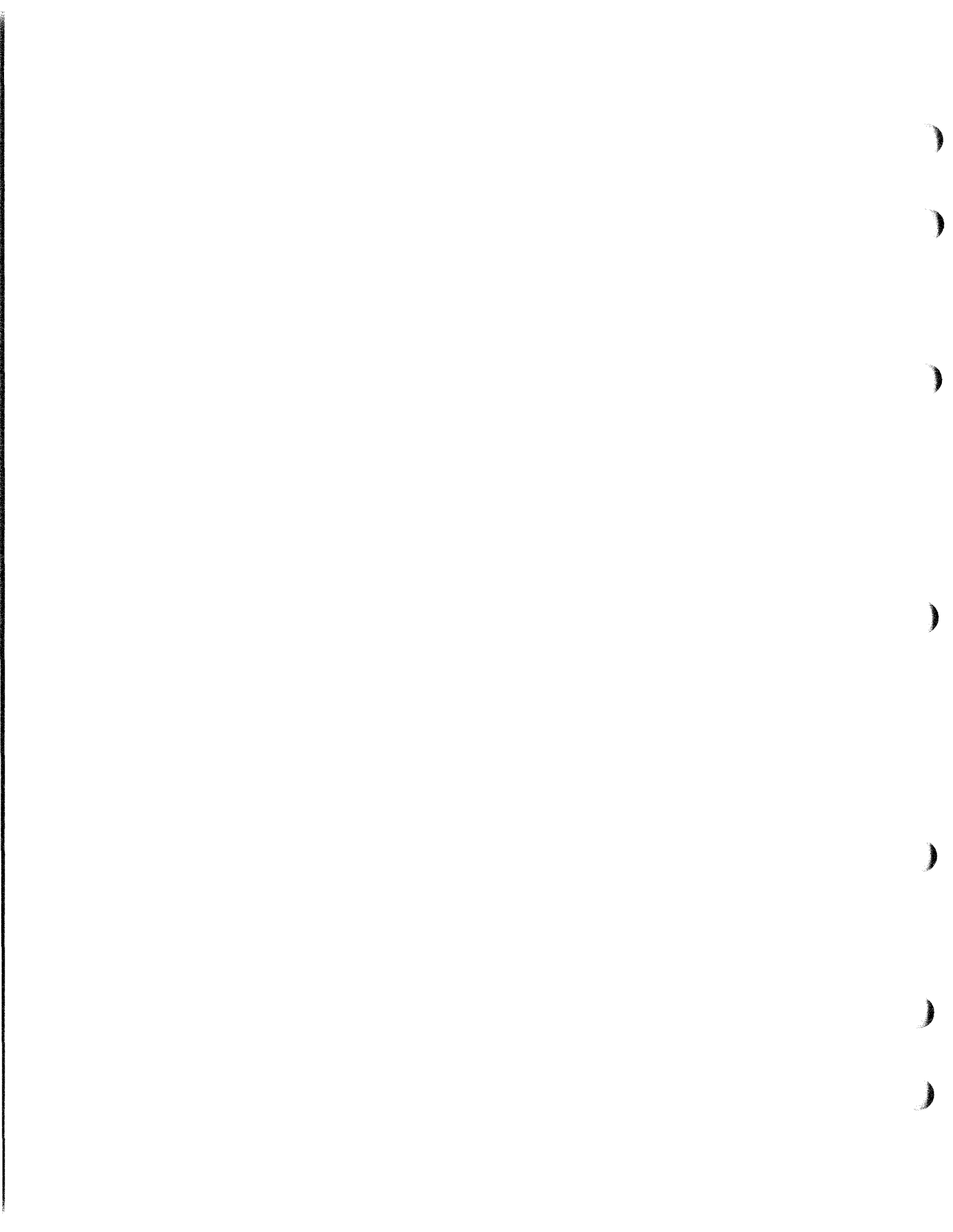


BULLETIN 290B
TECHNICAL MANUAL
35 TRANSMITTER-DISTRIBUTOR SETS
(LXD, LBXD, LXDB, LBXB)



TELETYPE[®]
CORPORATION
5555 TOUHY AVENUE, SKOKIE, ILLINOIS



INTRODUCTION

Bulletin 290B is a technical manual that provides general and specific technical information for the 35 Transmitter-Distributor Sets and their component units.

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

The identifying number of a section, a 9-digit number, appears at the top of each page of the section, in the left corner of left-hand pages and the right corner of right-hand pages. The sections are placed in the manual in ascending numerical order.

To locate specific information refer to the table of contents on the following page. Find the name of the involved component in column one and the title of the section in column two. The correct 9-digit section number will then be found in column three. Turn to page one of the section indicated where the contents of that section will be found.

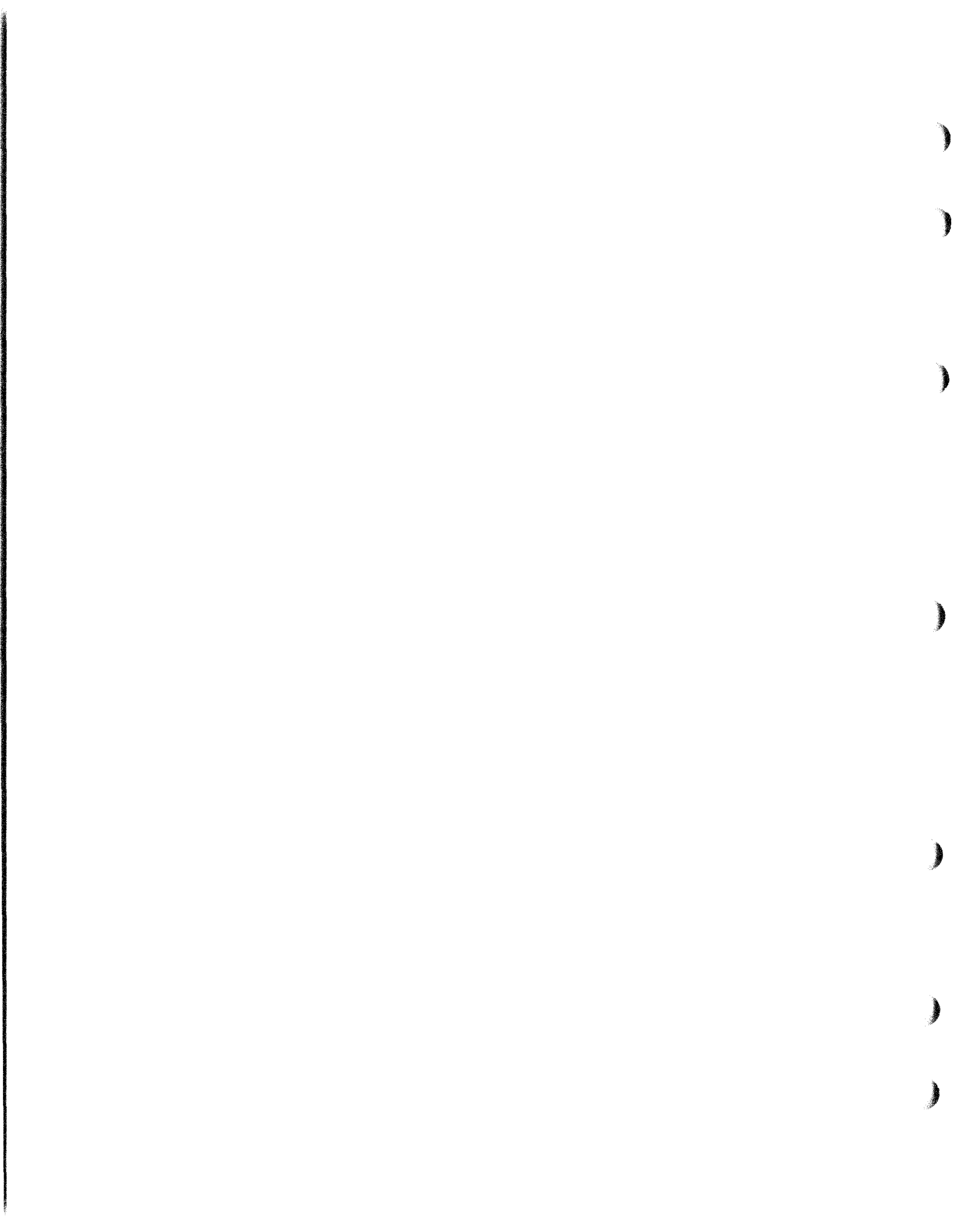
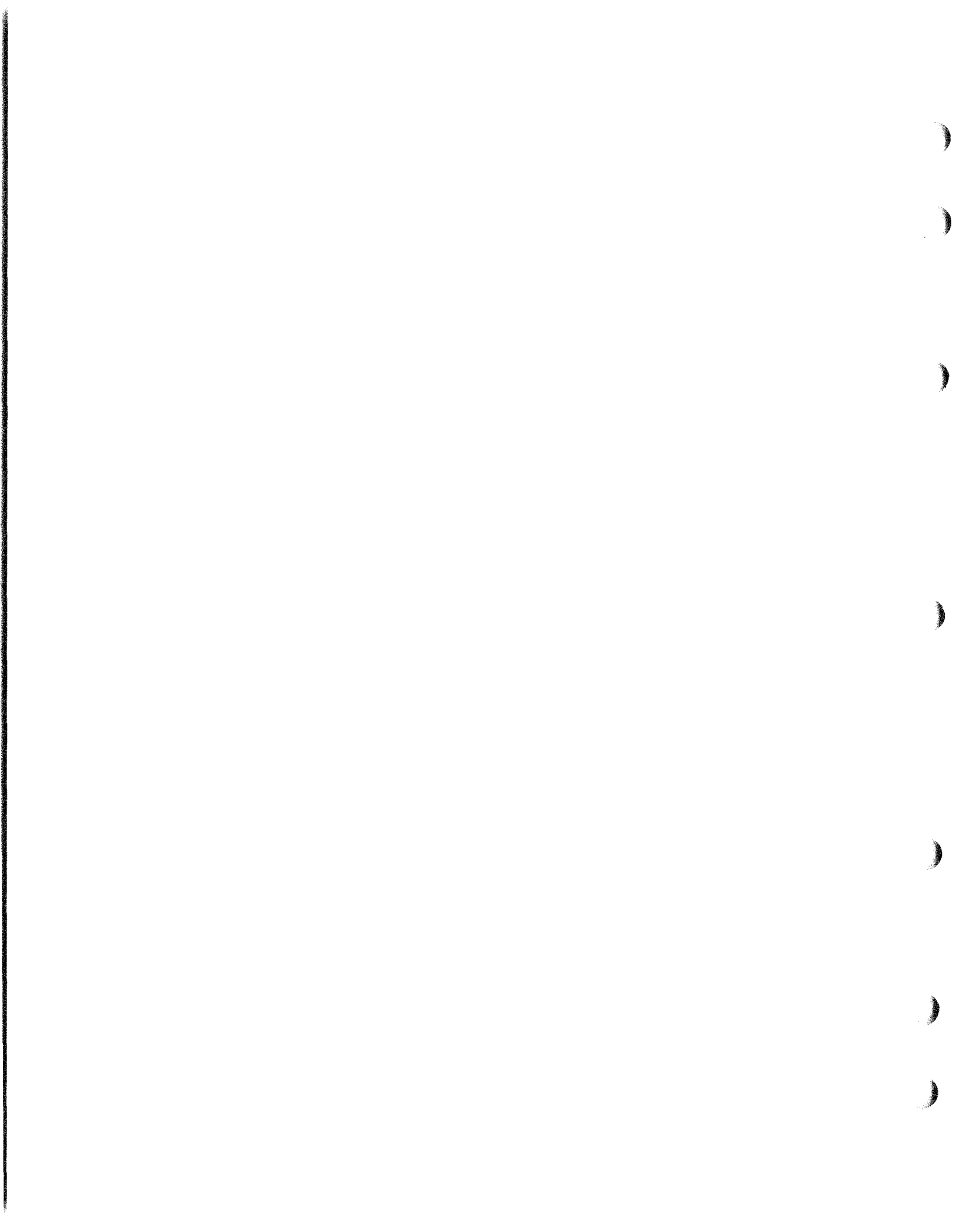


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3. When the issue of a section changes, replace the old issue with the attached new one.
4. In the case of addendums, turn to the affected section and follow the instructions on the first page of the attached addendum.
5. Replace the old table of contents with this new one.

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35 TRANSMITTER-DISTRIBUTOR SETS

DESCRIPTION

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1. GENERAL

1.01 The 35 Transmitter-Distributor Sets are electromechanical devices which read intelligence from code combinations perforated in a 1-inch, 8-level tape and translate them into electrical impulses for transmission over a signal line. The tape may be either chadless or fully perforated.

1.02 Three sets are described herein. Each is a complete self-contained set providing its own motive power requiring a 115-volt power line and a signal line, each of which must be brought in and wired into furnished connectors or terminal blocks when installation is made. See Figure 1 for typical set.

2. COMPONENTS

2.01 A complete set consists of a base unit, a one-piece cover, a motor, and a transmitter-distributor unit. On each set, a power switch is provided through the top of the cover for convenience in switching motor power on or off. The motor power is directed through a slow-blow fuse. Each transmitter-distributor unit is provided with a three-position control switch which can be positioned for RUN, STOP, and FREE wheeling. The free wheeling position is one in which, in addition to stopping the unit, the feed wheel is set free so that tape may be moved forward or backward without raising the tape lid. A tape lid release button is provided to open the tape lid for inserting or removing tape from the transmitter. Each set is equipped with a line shunt switch to close the signal line when the

transmitter-distributor unit is removed from its base. Ground connections are provided in each set. Refer to Figure 2.

3. CHARACTERISTICS

3.01 The compact set is 12-11/16 inches long, 7-3/4 inches wide, 5-5/8 inches high, and weighs approximately 18-1/2 pounds. The larger standard sets (both single and multi-contact) use the same base pan and cover and therefore are the same size and differ only in weight. The single contact set weighs approximately 27 pounds. The multicontact set weighs approximately 28 pounds. These sets are 15-7/8 inches long, 9-7/8 inches wide, and 6-3/4 inches high.

3.02 The 35 Transmitter-Distributor Sets operate on an 11-bit code consisting of a one-bit start pulse, eight one-bit information pulses and a double-bit stop pulse. The information is read from the 8-level tape, translated to electrical impulses and transmitted sequentially over a signal line at a 60, 75, or 100 words per minute rate of speed depending on the set of gears used.

4. VARIABLE FEATURES

4.01 In addition to the standard features of the sets, provisions have been made for the installation of some variable features.

4.02 Where an installation requires the signal distortion be held to within +5%, a signal regenerator may be used on the single contact sets to transmit the signals with greater accuracy. It is mounted on the base beside the motor.

4.03 Where installations require that parallel output signals be transmitted in addition to sequential signals, code reading contacts may be added to some single-contact sets.

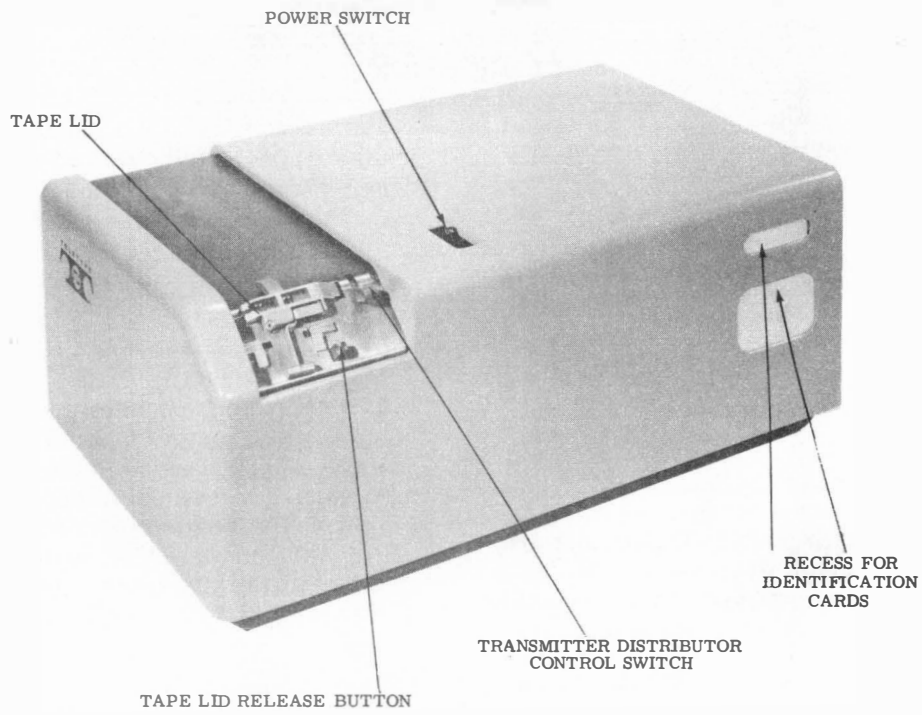


Figure 1 - 35 Transmitter Distributor Set

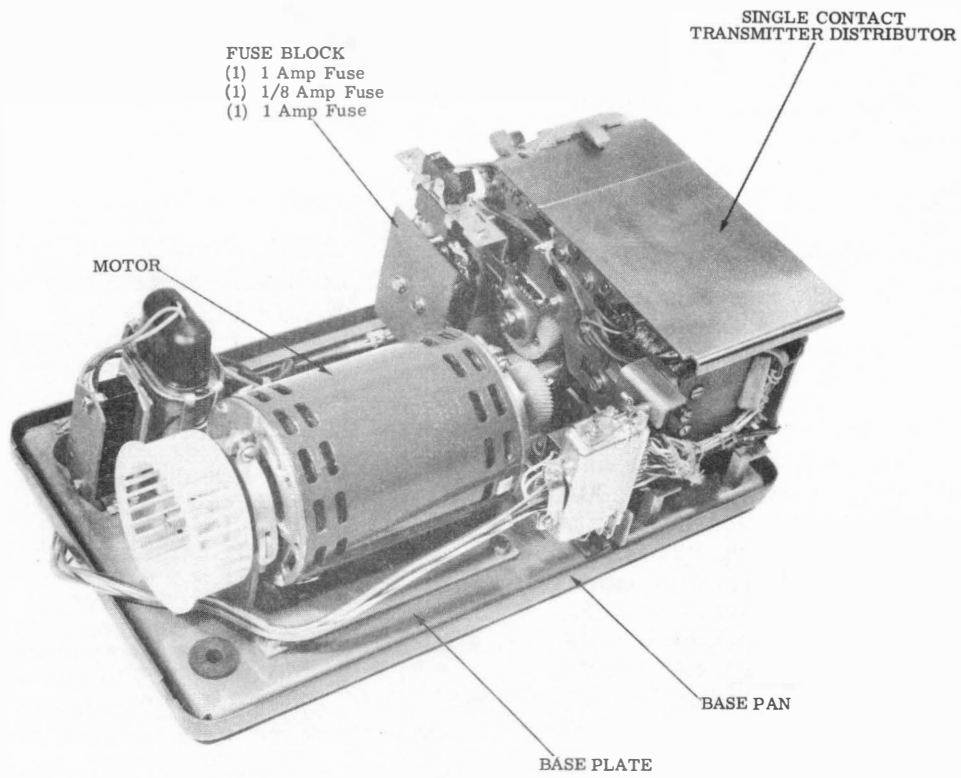


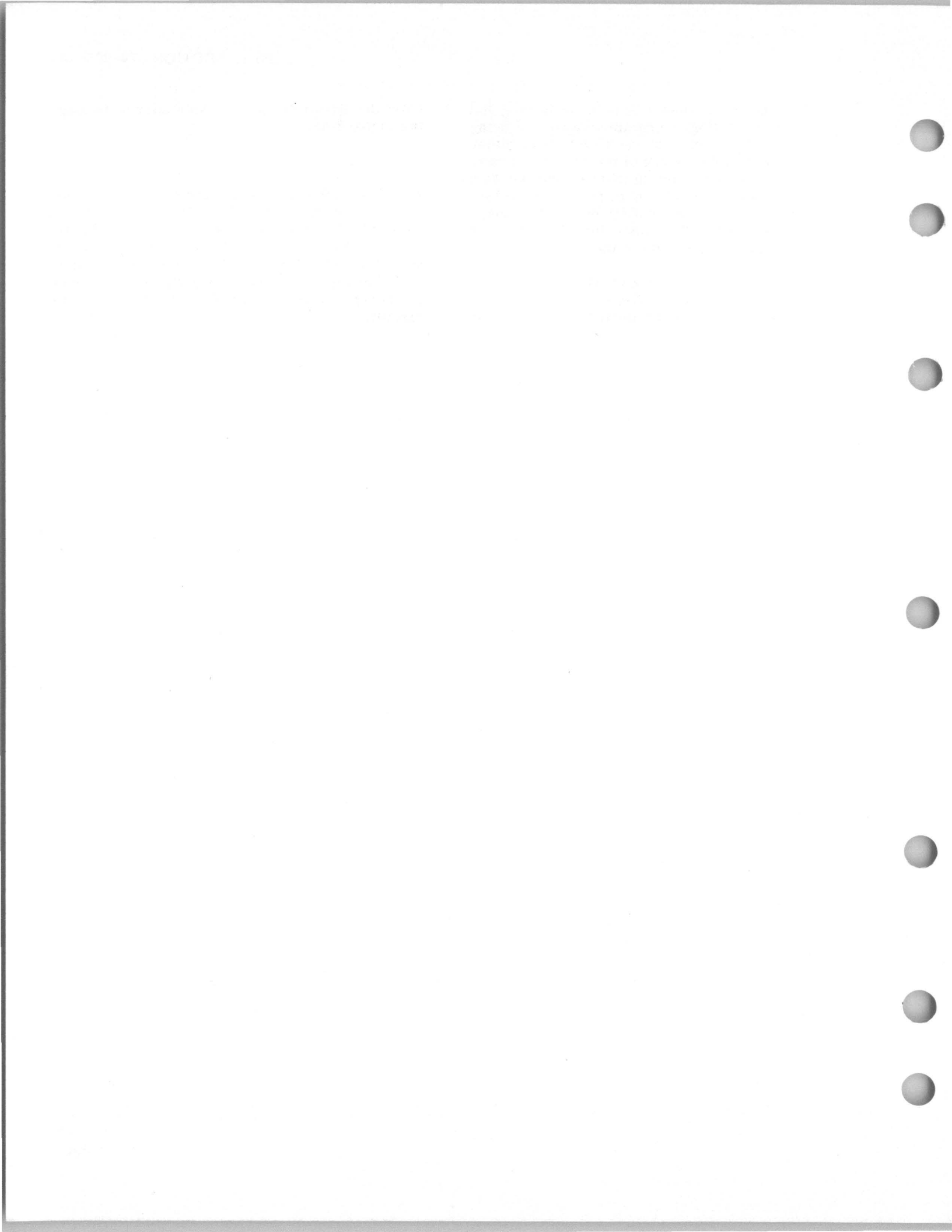
Figure 2 - Typical 35 Transmitter Distributor Set With Cover Removed

4.04 The multicontact sets have sensing and distributing mechanisms capable of being actuated independently of one another from either a local or remote source of power. A dc power unit is available for use in installations where a local dc power supply is required to operate either the transmitter or distributor clutch magnets. Provisions are made for mounting this power supply on the base of the set.

4.05 An electrical motor control unit is available for the multicontact sets in installations where it is desirable to stop or

start the motor from a remote source through the signal line.

4.06 A control relay assembly consisting of a magnet coil, relay and switch is available for the multicontact sets in installations where it is required to stop the motor with the end of tape. This unit is wired in with the tape-out contact circuit and, through its relay actuates a switch in the motor power circuit.



BASES FOR 35 TRANSMITTER-DISTRIBUTOR SETS
DESCRIPTION AND PRINCIPLES OF OPERATION

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1. GENERAL	
1.01 This section describes and outlines the principles of operation of the units which provide mounting facilities for 35 Transmitter-Distributor Sets. Different style bases are described herein including a compact unit with motor and other larger units which do not include a motor, but provide facilities for mounting a choice of motor units. Refer to Figures 1, 2 and 3.	
2. DESCRIPTION	
2.01 In general, each base unit consists of a base plate and pan with four rubber mounts press fitted into holes from the bottom side. The mounts are of nonmarking rubber which supports the pan on a table or desk top as a means of reducing vibration. Four notches are in the upturned edge of the pan to support a cover.	
2.02 The base plates differ in construction and design. Each, however, is fastened to the base pan by rubber isolators. A multiple plug is provided with each base for wiring in external circuitry.	

COMPACT UNIT

2.03 The base plate in the compact unit, approximately 6-1/2 inches by 11-1/2 inches, contains openings and other mounting facilities for a motor, capacitor, switch bracket, terminal block, signal regenerator, bracket and a single shaft transmitter distributor. This plate is fastened to the base pan by means of rubber mounts pressed through holes in the plate which isolate it from the pan.

STANDARD UNIT

2.04 Base plates for the standard units are approximately 8-1/2 inches wide and 14 inches long. They are fastened to the base pan by means of four rubber block bracket arrangements which provide shock mounting. Provisions are made on the plate for mounting a motor unit (either synchronous or series governed), intermediate gear assembly, terminal block, switch bracket, signal regenerator and a transmitter distributor.

COMPONENTS

2.05 All the base plates are equipped with a switch bracket to which a fuse holder and a power switch are mounted. The switch is mounted at the top of the bracket so that its lever protrudes through the cover into a recessed area for accessibility when the cover is installed. The switch lever is recessed to prevent accidental operation.

2.06 Each plate is also equipped with a terminal block or a plug for making power connections.

2.07 A gear bracket assembly on each plate provides gear connection between the motor and the transmitter distributor. The assembly consists of a casting and a shaft with ball bearings. The assembly casting is isolated from the base plate by rubber mounts to reduce transmission of noise from the gears and ball bearings to the plate.

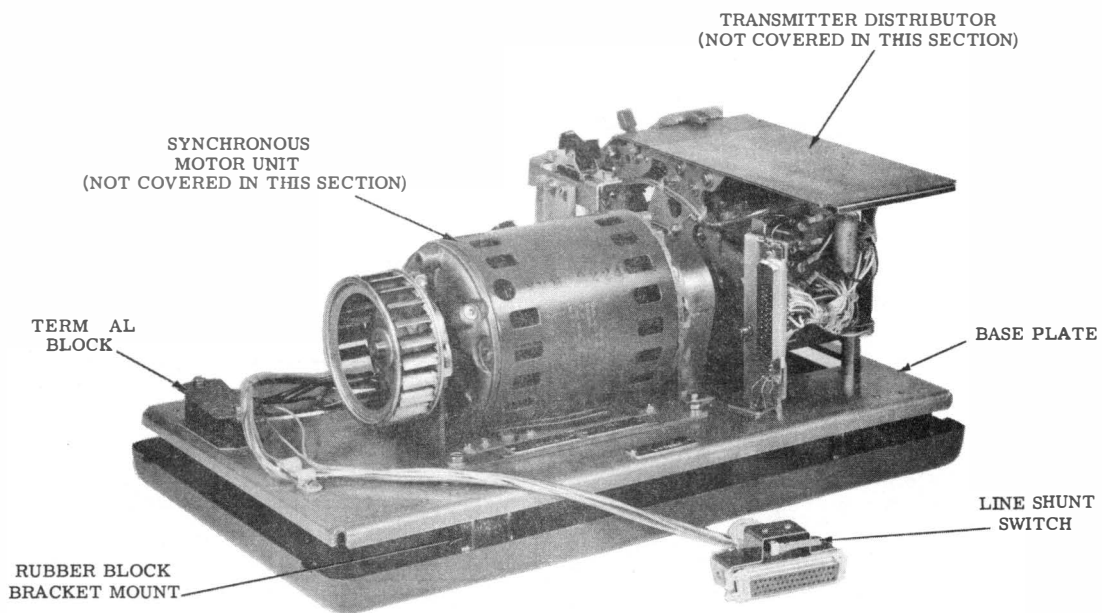
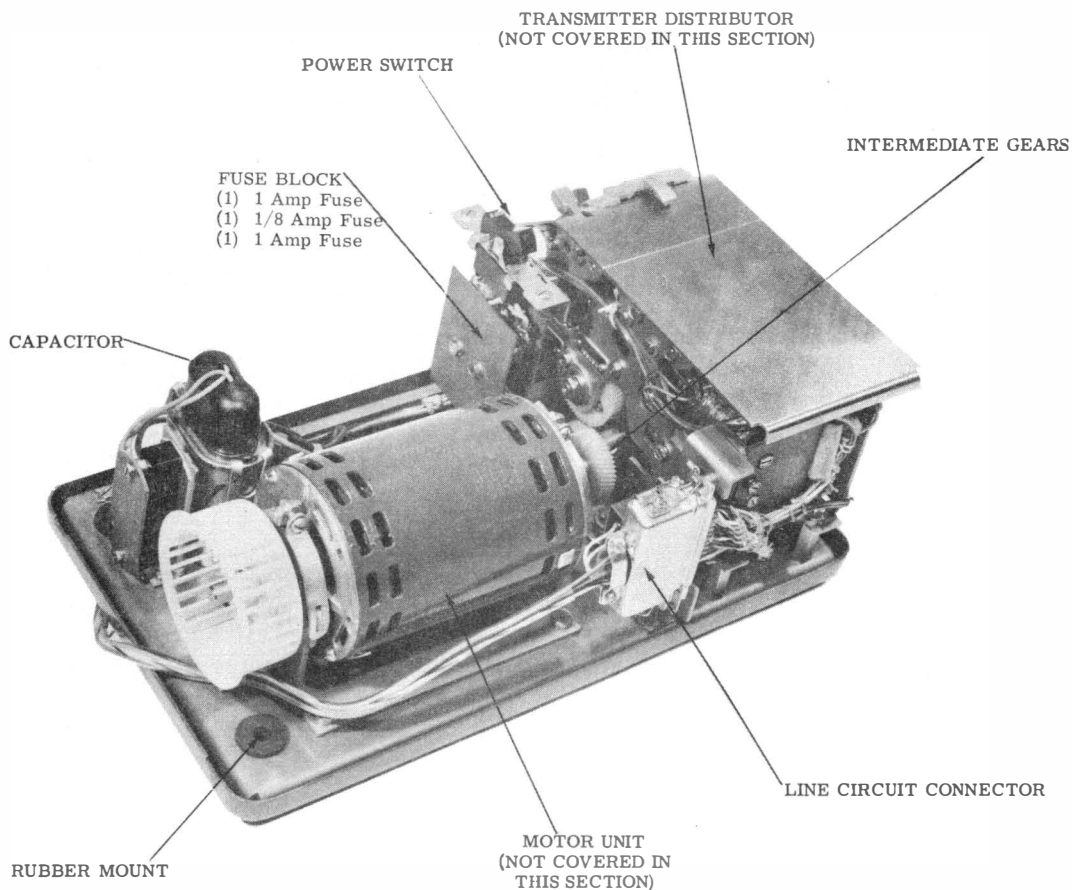


Figure 2 - Standard 35 Transmitter-Distributor Base with Cover Removed, and with Single Contact Transmitter Distributor and Synchronous Motor Unit in Place

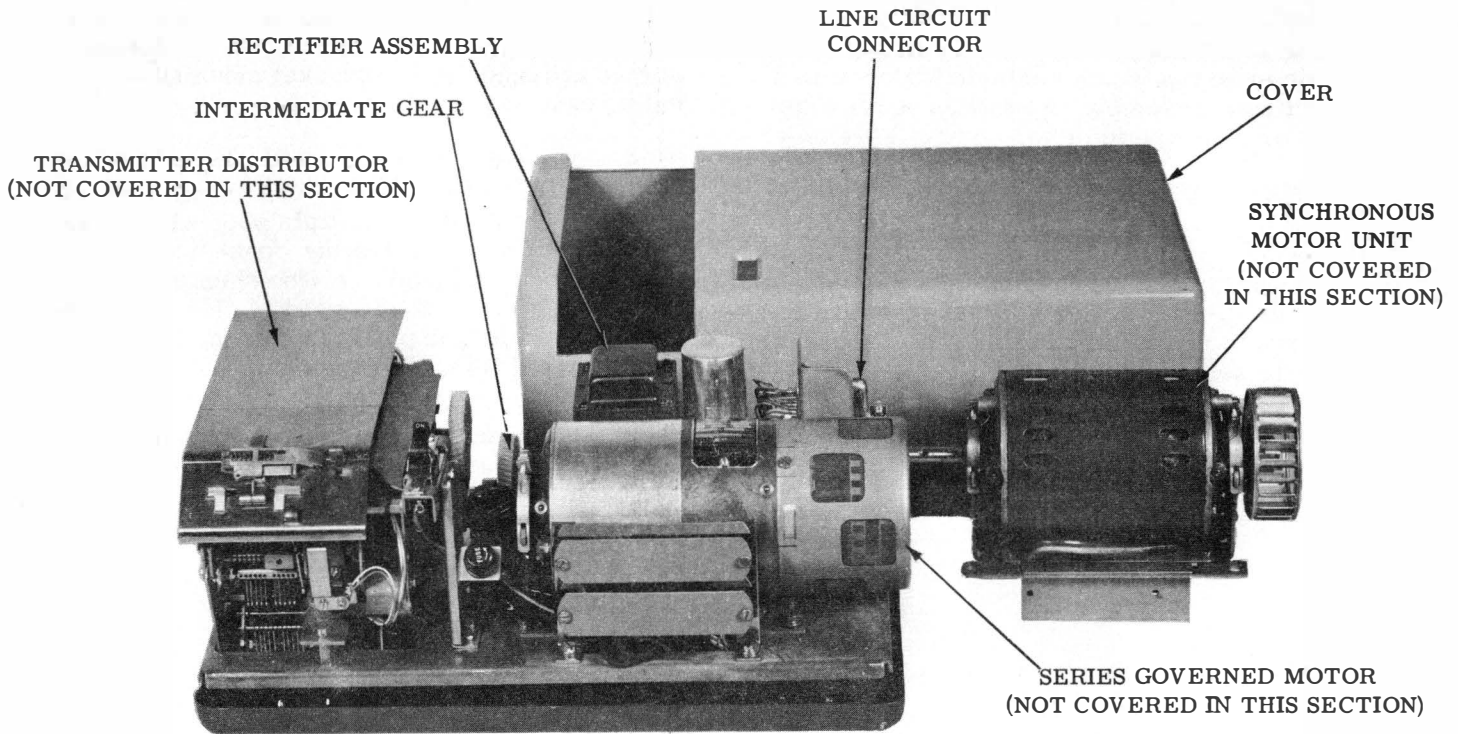


Figure 3 - Standard 35 Transmitter-Distributor Base and Cover with Multicontact Transmitter Distributor, Series Governed Motor Unit and dc Power Supply in Place (Alternate Synchronous Motor on Side)

2.08 A connector connecting the single-contact transmitter-distributor control circuitry is provided. This connector plugs into its mate on the transmitter distributor. A line shunt switch is mounted to the side of the connector cover for closing the line circuit when the transmitter distributor is removed from the base.

2.09 Three posts are provided to mount the transmitter distributor over an opening at the front of the base.

2.10 The compact unit includes a motor and a permanent split phase capacitor which are mounted to the base plate, whereas the standard base units require a complete motor unit either synchronous or governed. (See appropriate section for description of motor units.) The motor is a four-pole, 1/100 horsepower, 60 cycle, 1800 rpm, single phase, permanent split capacitor synchronous type with sintered bronze

bearings. The combination of low speed, capacitor run operation and the sleeve bearings provide an extremely low operating noise level. A slow-blow fuse is provided to open the power circuit when the motor becomes stalled. The capacitor is a metal encased oval type with paper and oil dielectric and dual blade connectors.

2.11 The base plate used with the multicontact transmitter distributor is provided with a mounted receptacle near the front of the base plate for connection with a multiple point plug on the transmitter distributor. A line shunt switch is provided on the left side of the base plate to shunt the signal line when the transmitter distributor unit is removed from the base. A second connector is mounted on a bracket at the rear of the base plate. A cable is provided between these two connectors to bring the circuitry to the rear. A mating connector is provided at the rear of the unit for connecting to external circuitry. A sec-

SECTION 574-223-101

ond bracket is provided with a three-point power receptacle with a plug to which power must be connected. Two other brackets are provided for mounting two terminal blocks. Provisions are made for mounting some variable features such as a rectifier assembly, a dc control relay assembly, or an electric motor control assembly.

3. PRINCIPLES OF OPERATION

3.01 The transmitter-distributor base functions as a mounting unit for a motor, a transmitter-distributor unit, set of gears and the necessary power and signal line wiring to operate a complete set.

3.02 The motor, through a set of gears, drives the transmitter-distributor unit at speeds of 60, 75 or 100 words per minute depending on the set of gears used.

3.03 When installed, a power input of 115 volts passes through a power switch and a fuse for control and protection to the motor. Connections for the motor, switch, fuse and accessories are made on two bracket mounted terminal blocks.

3.04 The circuitry for the single contact transmitter distributors used on the bases is wired into a multiple plug which connects directly to its mating connector on the transmitter distributor. A line shunting switch built on the connector is used to close the line circuit when it is disconnected from the transmitter distributor. See Figure 2.

3.05 The circuitry for the multicontact transmitter distributor is wired into the base by a cable which connects with external circuitry through a multiple plug near the rear of the base.

BASES FOR 35 TRANSMITTER-DISTRIBUTOR SETS

ADJUSTMENTS AND LUBRICATION

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1. GENERAL

1.01 This section covers the requirements for adjusting and lubricating the self-contained 35 transmitter distributor bases.

1.02 The cover may be removed by lifting it off 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.

1.03 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 operator's position.

2. ADJUSTMENTS

2.01 Power Switch Position

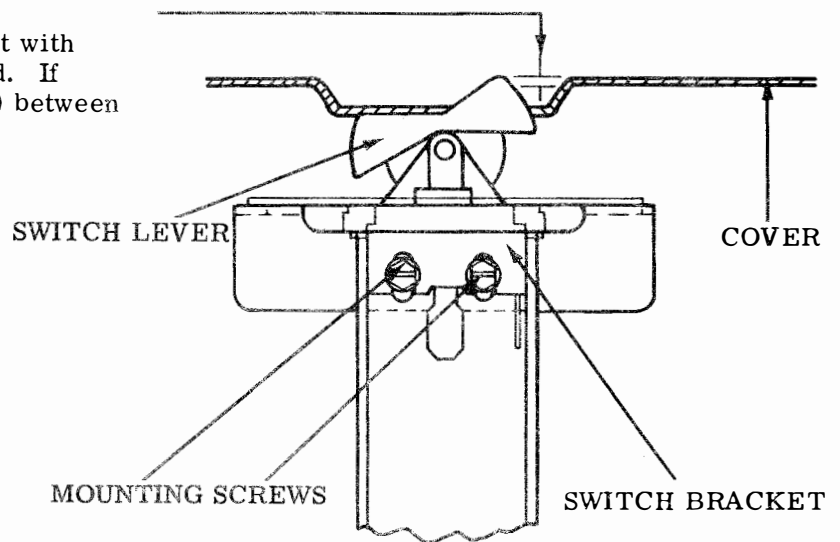
POWER SWITCH POSITION

Requirement

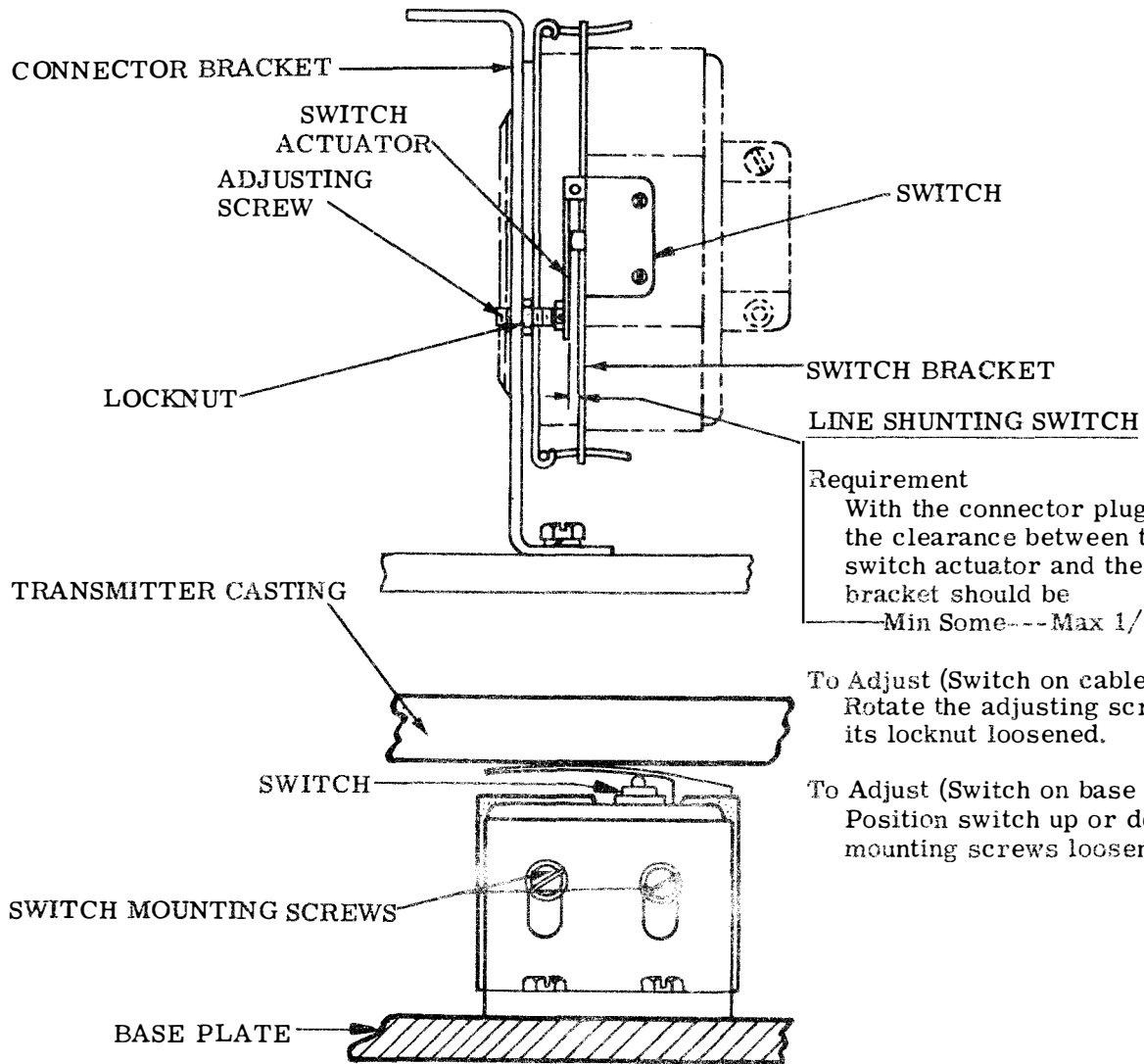
The upper edge of the switch lever should be flush with or 1/16 inch below the surface of the cover.

To Adjust

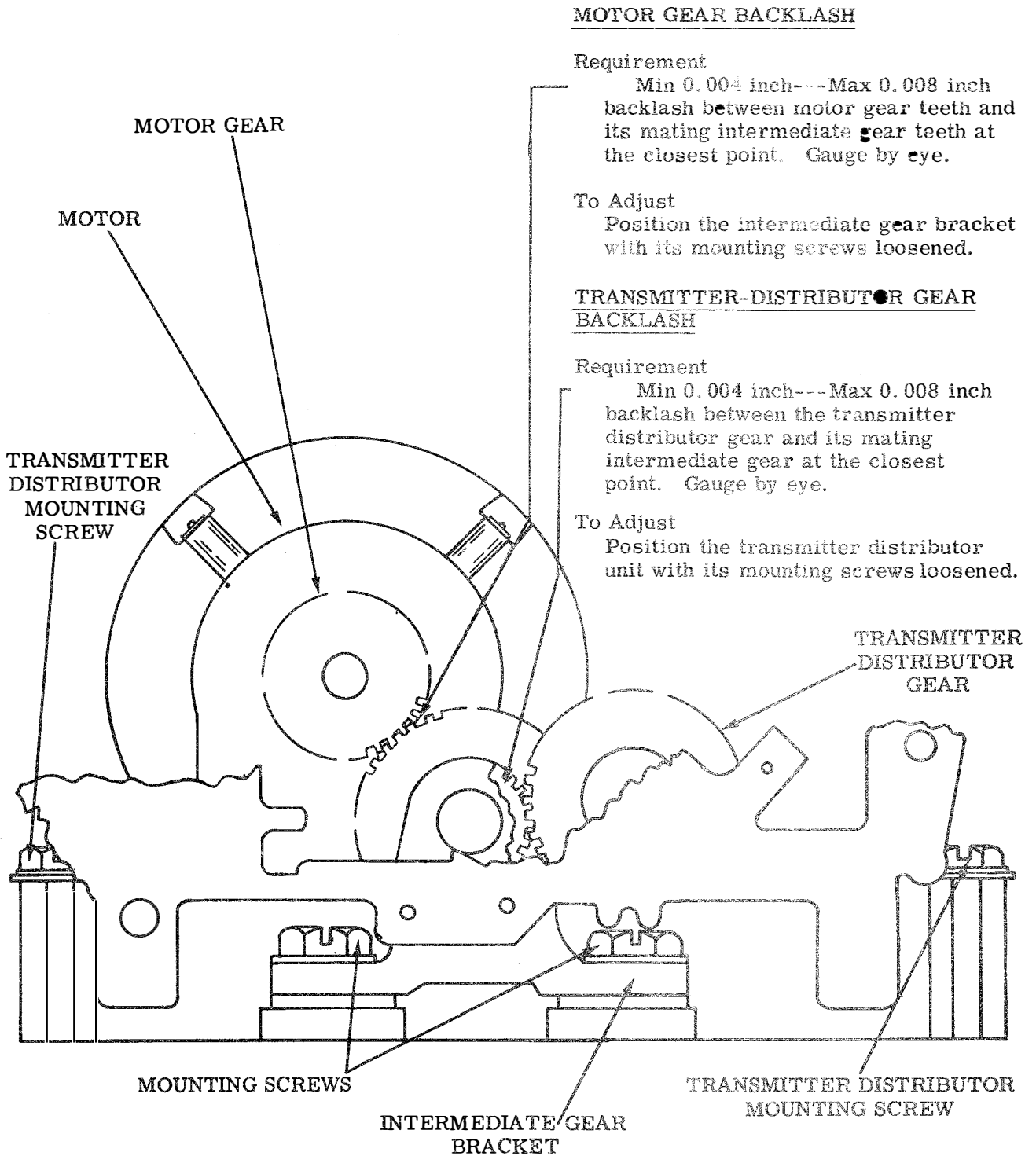
Raise or lower the switch bracket with its two mounting screws loosened. If necessary use spacers (provided) between switch and its bracket.



2.02 Line Shunting Switch



2.03 Intermediate Gear



MOTOR GEAR BACKLASH

Requirement

Min 0.004 inch---Max 0.008 inch backlash between motor gear teeth and its mating intermediate gear teeth at the closest point. Gauge by eye.

To Adjust

Position the intermediate gear bracket with its mounting screws loosened.

TRANSMITTER-DISTRIBUTOR GEAR BACKLASH

Requirement

Min 0.004 inch---Max 0.008 inch backlash between the transmitter distributor gear and its mating intermediate gear at the closest point. Gauge by eye.

To Adjust

Position the transmitter distributor unit with its mounting screws loosened.

3. LUBRICATION

3.01 The transmitter distributor base should be lubricated before placing it in service. Afterwards, the following lubrication schedule should be observed:

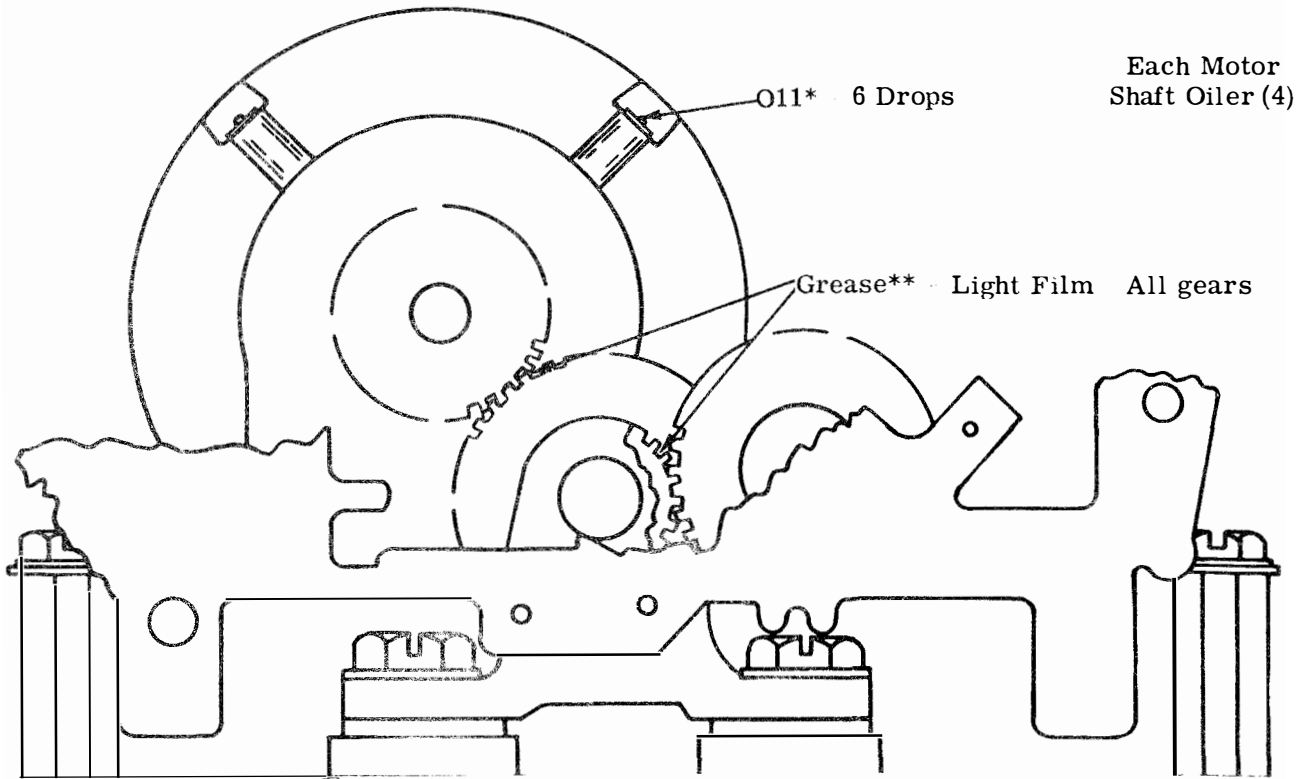
OPERATING
SPEED

60
75
100

LUBRICATING
INTERVAL

3000 hours or 1 year*
2400 hours or 9 months*
1500 hours or 6 months*

*Whichever occurs first.



*KS7470 Oil
**KS7471 Grease

35 TRANSMITTER DISTRIBUTOR (SINGLE CONTACT)

GENERAL DESCRIPTION AND PRINCIPLES OF OPERATION

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1. GENERAL DESCRIPTION

1.01 This section is reissued to convert it from a preliminary publication to a stand-ard publication.

1.02 The 35 Transmitter Distributor provides means for translating code combinations, perforated in a paper tape, into electrical pulses and transmitting these pulses in the form of a eight-unit, start-stop permutation code to one or more receiving stations. Features incor-porated in the design of the unit include the all steel internal expansion clutch, sensing pins located in line with the axis of the feed wheel, longer travel of the sensing pins, increased number of feed pins engaging the feed holes in the tape and minimum maintenance. Paragraph 1 of this section presents a brief description of the physical characteristics and functions of the unit. Paragraph 2 describes the principles of operation with a step by step accounting of the events occurring in a complete cycle.

1.03 Reference in the text to left, right, front or rear apply to the unit in its normal operating position as viewed from the front or operator's position. Pivot points are shown in the drawings by circles or ellipses which are solid black to indicate fixed points.

GENERAL

1.04 The 35 Transmitter-Distributor Unit is an electromechanical device using a single cam shaft to initiate and sequentially perform the functions of sensing the intelligence stored in the tape. An electrical contact is linked to certain mechanisms to translate the intelligence sensed into pulses of current (marking) and no current (spacing). The unit will accept an eight level tape of one inch width fully perforated. The tape may be inserted without lifting the tape lid by moving the start-stop lever to the free wheeling position. Otherwise, the feed wheel is detented and the tape-out pin extended so that the tape is blocked from sliding under the lid.

1.05 The unit is arranged so that the com-ponents are readily accessible for adjust-ment or replacement. In the same manner, new features or mechanisms may be installed with a minimum amount of disassembly.

PHYSICAL DESCRIPTION

1.06 The mechanisms of the transmitter dis-tributor are supported between three ver-

tical plates (front, center, and rear) which are separated a fixed distance by spacers or tie bars. The cam shaft is located in the lower right section of the unit with the outer race of each ball bearing clamped to the respective front and rear plate. Motive power to the shaft is controlled by the clutch located on the rear end of the shaft and the clutch trip magnet assembly attached to the rear plate. See Figure 3. As the clutch trip magnet is energized, the clutch mechanism is allowed to engage the outer drum that is rotating continuously, transmitting its motion to the cam shaft. The top of the unit is enclosed by three formed plates -- the tape guide plate, the top plate and the cover plate. With tape in the transmitter distributor, movement of the start-stop lever to the right oper-

ates contacts to energize the clutch trip magnet which releases the main bail and the clutch. The main bail causes the sensing fingers to sense the tape perforations and initiates the tape feed operation. The clutch is engaged to start the cam shaft rotating. Transfer levers associated with the sensing pins cause the transfer bail to be shifted to the right or left in accordance with the intelligence sensed. The transfer bail in turn moves the signal generator toggle link and contacts to their marking or spacing position. Thus the perforations for each character in the tape are read and pulses, number 1 through 8, are generated sequentially. The tape is advanced to the next character and the cycle repeated. The unit operates at a speed of 100 words per minute.

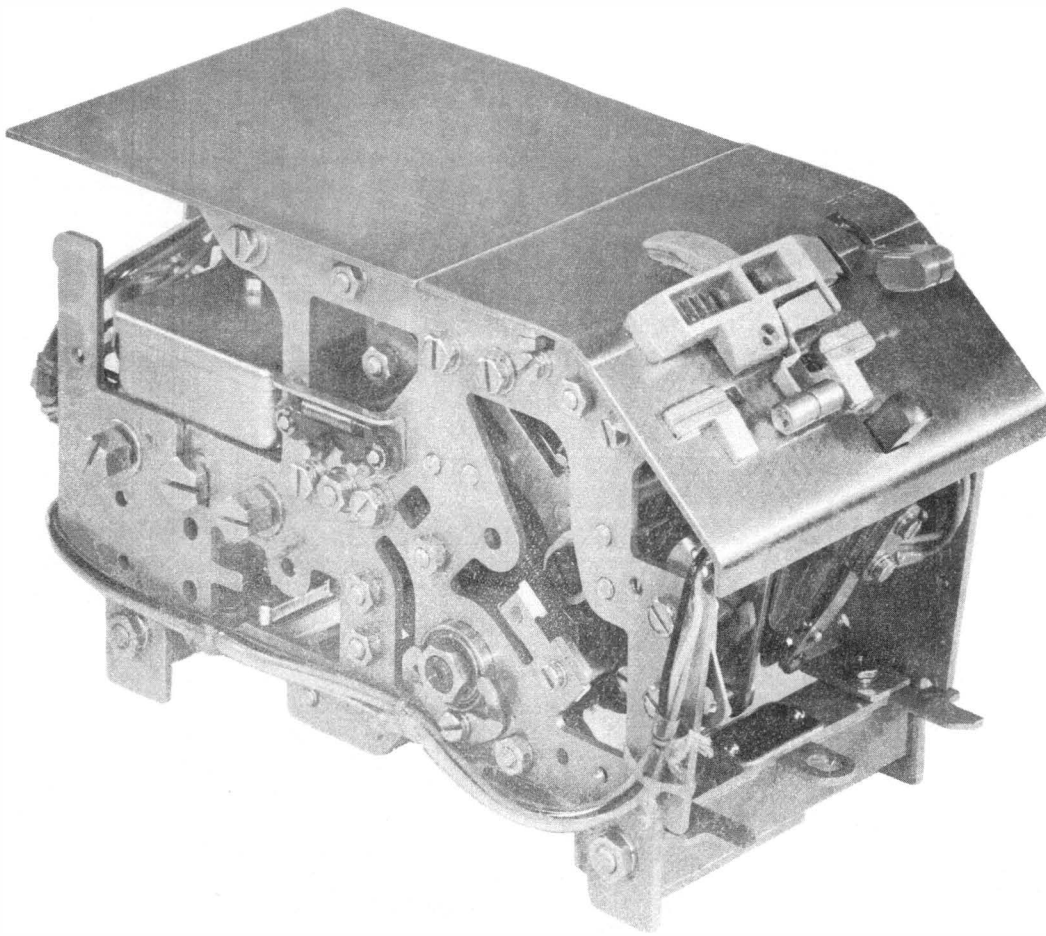


Figure 1 - 35 Transmitter Distributor Assembly

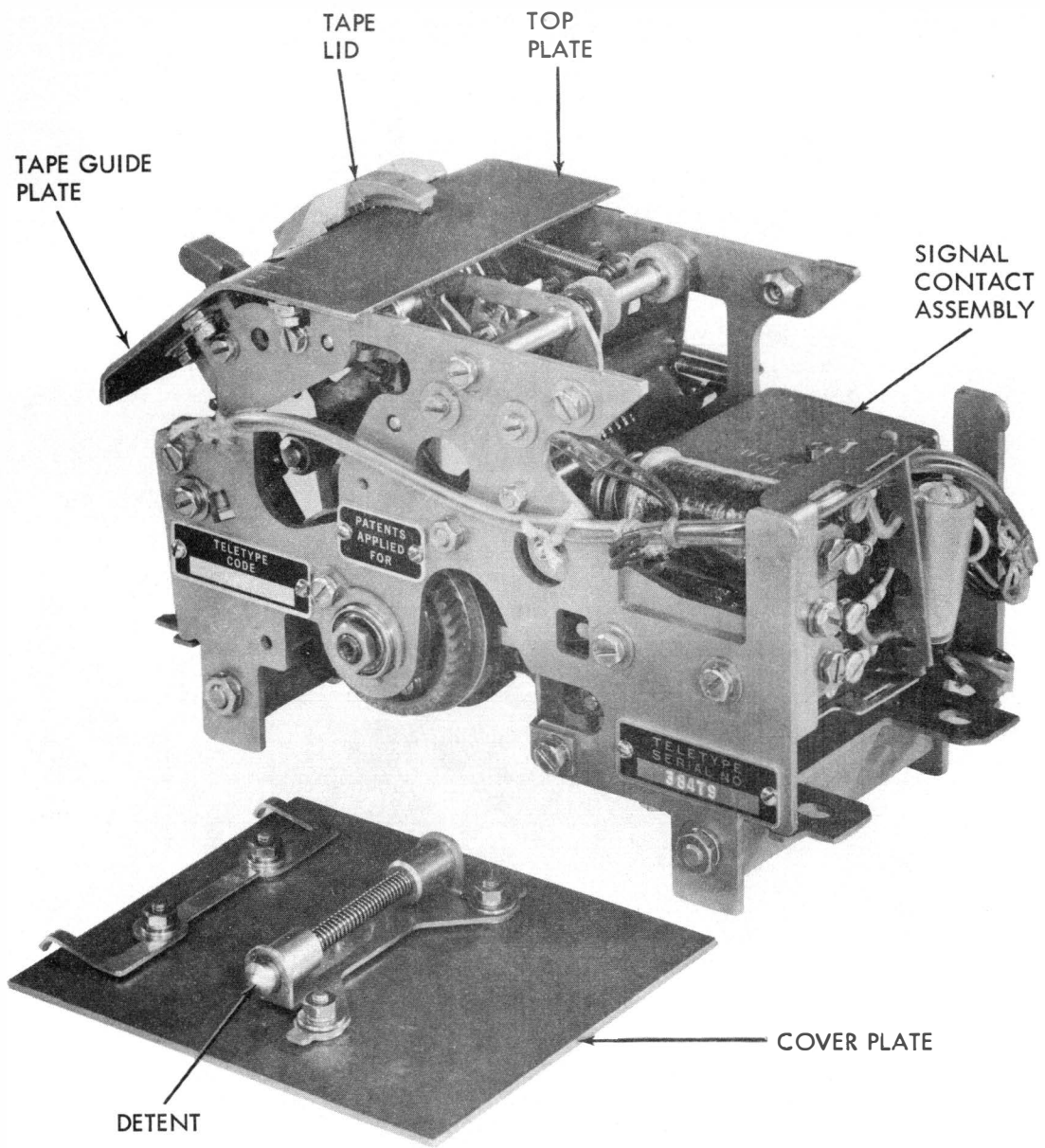


Figure 2 - 35 Transmitter Distributor Cover Plate Removed

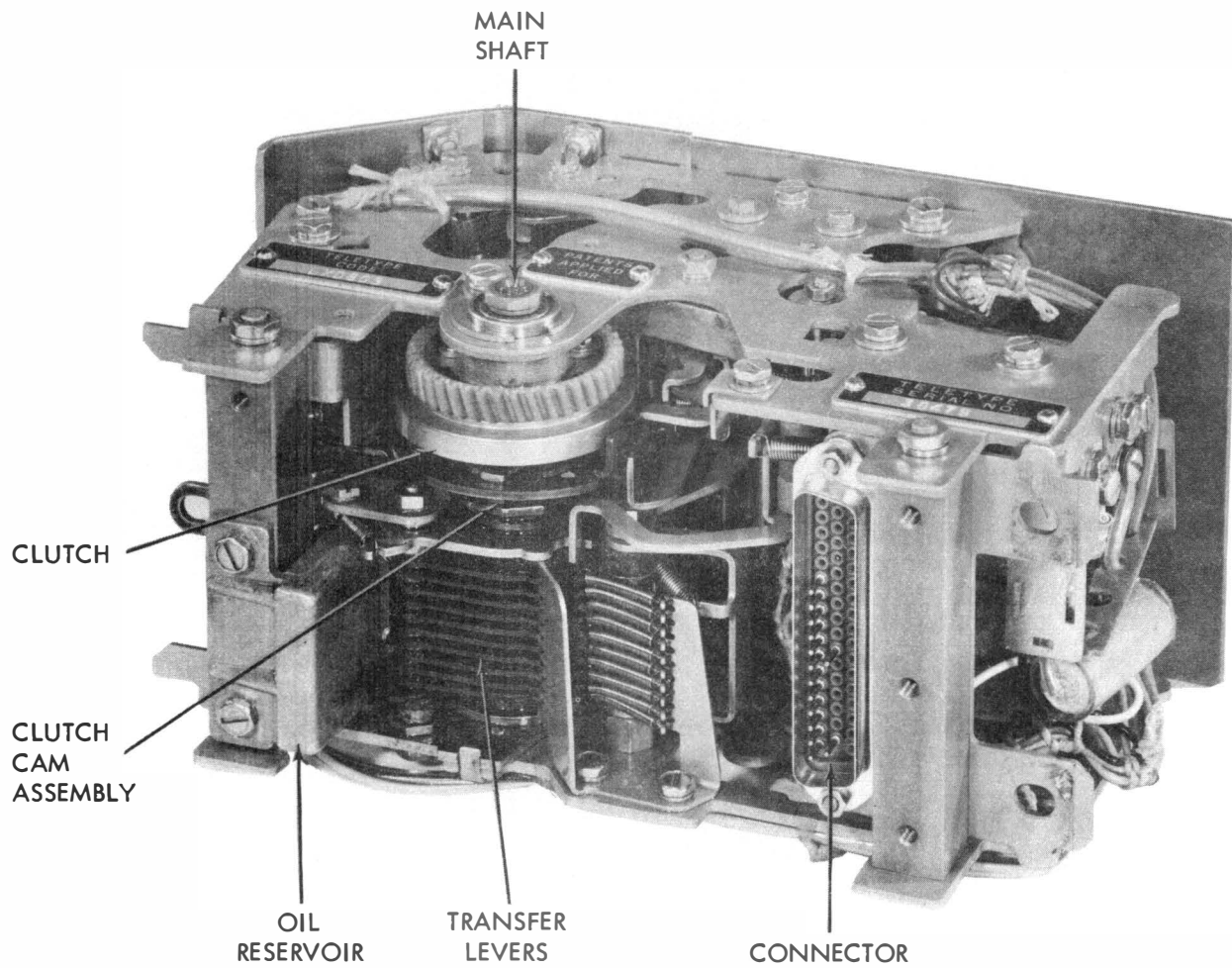


Figure 3 - 35 Transmitter Distributor, Bottom View

A. Special Features

- 1.07 Accommodates fully perforated eight level tape.
- 1.08 A control lever with start-stop and free-wheeling positions. The latter position permits free wheeling of the tape feed wheel which facilitates insertion or removal of tape.
- 1.09 A pair of adjustable guides are provided for aligning and locating tape over the feed wheel. Figure 4.
- 1.10 An index line has been scored in the tape guides 0.600" (six characters) ahead of the sensing pins to aid in aligning tape start position.
- 1.11 A tight tape device on the tape lid stops transmission if the tape becomes taut or tangled.
- 1.12 A tape-out pin located to the right of the sensing pins stops transmission if there is no tape in the sensing head. (The pin is advanced 4 characters from the sensing pins. A rub-out deleter mechanism consisting of a bail, a guide and a spring is located among the sensing levers. This mechanism causes the clutch magnet circuit to open when an all marking combination is sensed by the transmitter.
- 1.13 A spring loaded tape lid that snaps open when the red tape lid button is depressed.
- 1.14 A quick disconnect connect plug which aligns with its mate on the base and facilitates making electrical connections as well as simplifying handling during servicing. Figure 3.

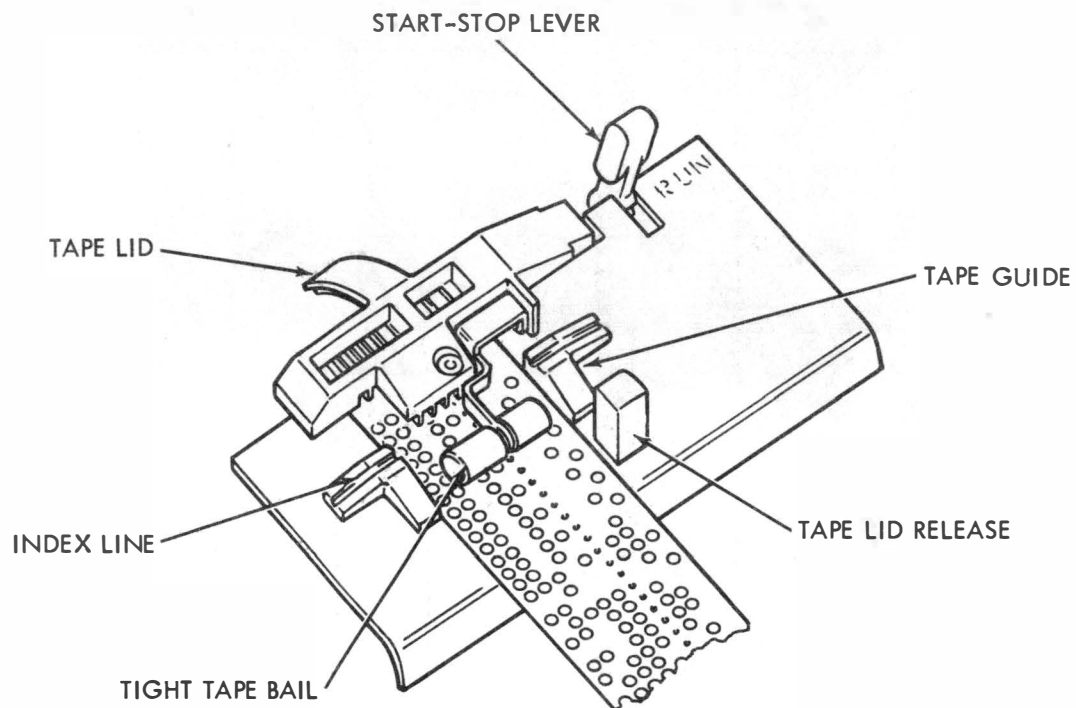


Figure 4 - Tape Guide Plate

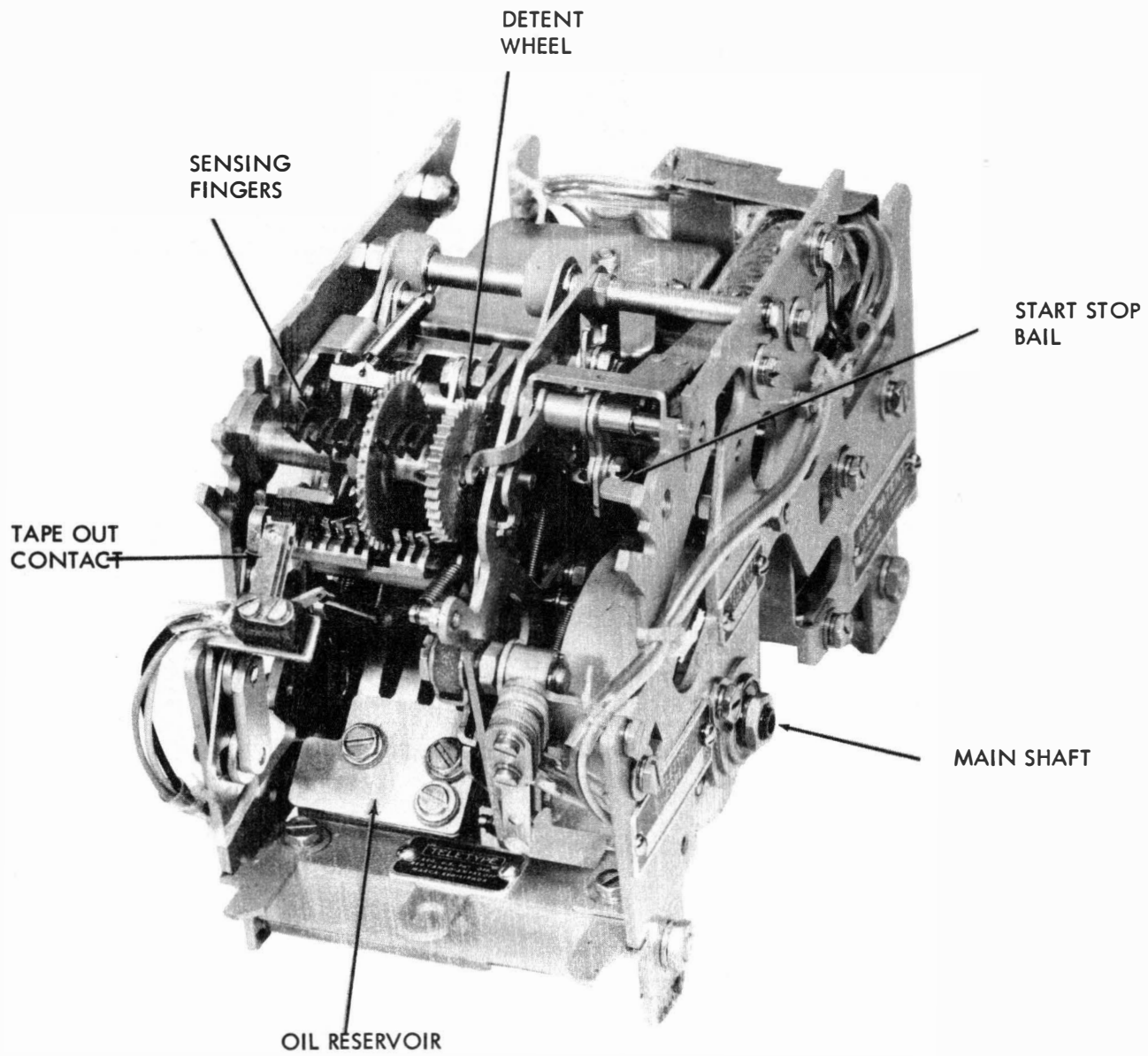


Figure 5 - Transmitter Distributor, Covers Removed (End View)

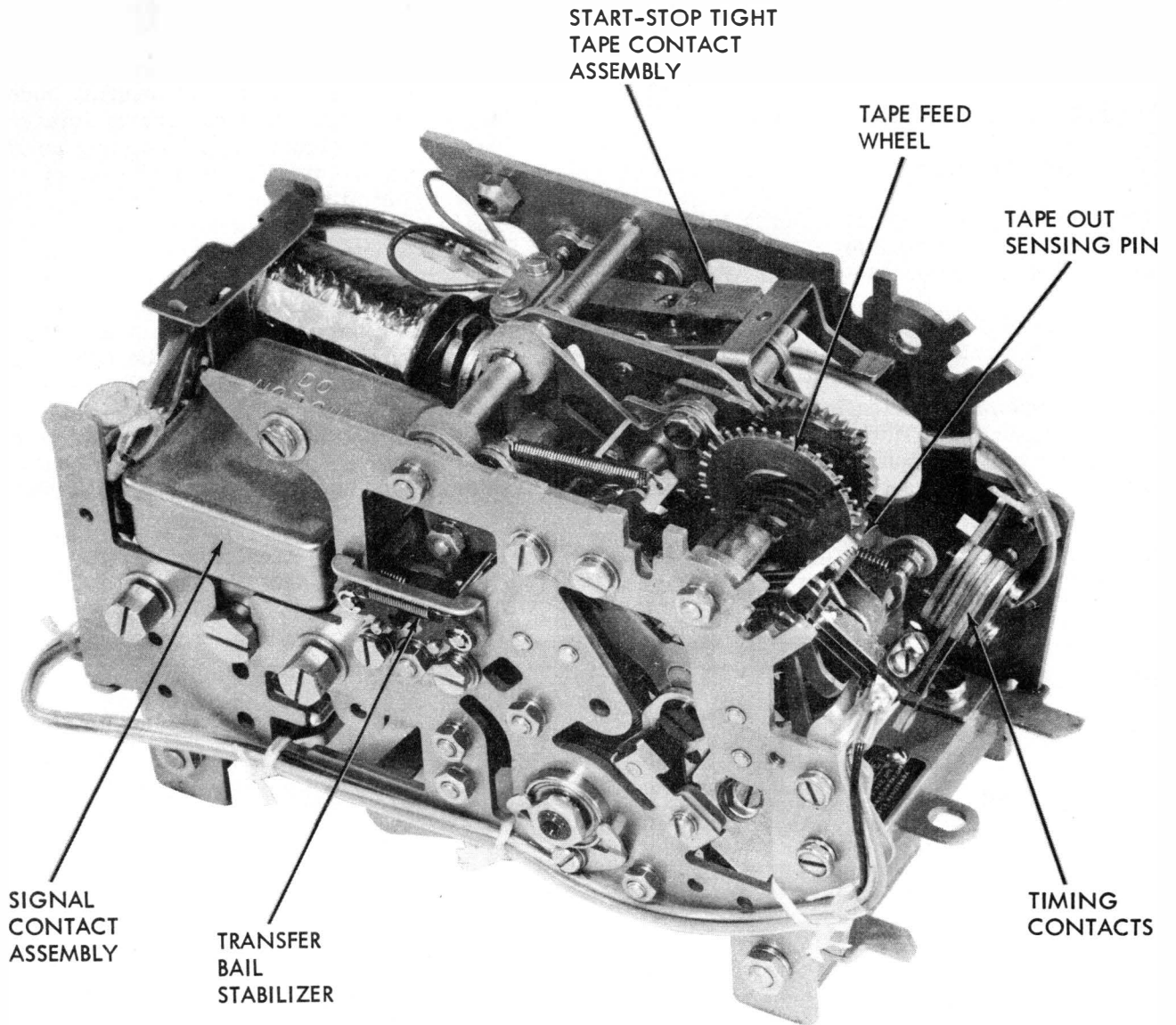


Figure 6 - Transmitter Distributor, Covers Removed (Side View)

B. Physical Data

Approximate dimensions of transmitter:

- Width - - - - - 7-1/2 inches
- Depth - - - - - 3-5/8 inches
- Height - - - - - 5 inches
- Weight - - - - - 7 pounds

Note: Overload protection must be provided external to the unit.

B. Signal Circuit

1.17 The Signal Contacts in the transmitter signal generator operates on 40 milliamperes at -20 volts DC to +20 volts DC.

1.18 The signalling code transmitted is an eight unit, start-stop neutral code consisting of current and no current intervals, or pulses. See Figure 7. A marking pulse is a measured interval of time during which current flow is permitted through closure of a contact. A spacing pulse is a measured interval of time during which the flow of current is interrupted through the opening of a contact. The transmission pattern for a complete character consists of a start pulse (always spacing), eight code pulses (any one of which may be either marking or spacing) and a stop pulse (always marking). The start and stop pulses are necessary to keep the receiving telegraph apparatus in synchronism with the transmitter. See eight level data interchange code section, for code arrangements.

ELECTRICAL CHARACTERISTICS

A. Control Circuit

1.15 The control circuit (clutch trip magnet) should operate from a 48 VDC $\pm 10\%$ power source with an external 500 ohm resistor.

1.16 The tight tape, tape-out and manual control mechanisms operate contact assemblies which are in series with the clutch trip magnet assembly. Actuation of any one of these devices opens the clutch trip magnet circuit which causes the clutch to be disengaged and the transmitter goes into an idle line condition.

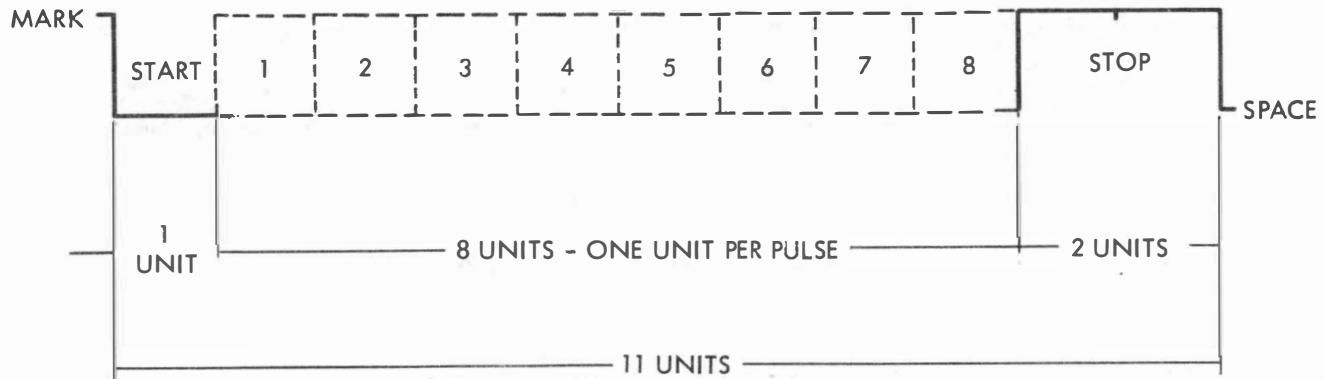


Figure 7 - Eleven Unit Transmission Pattern

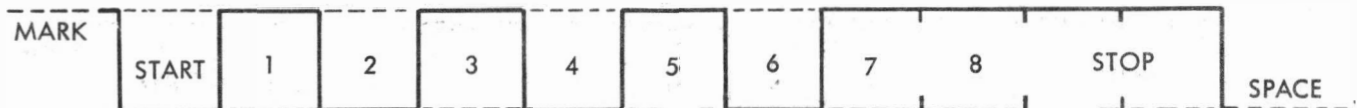
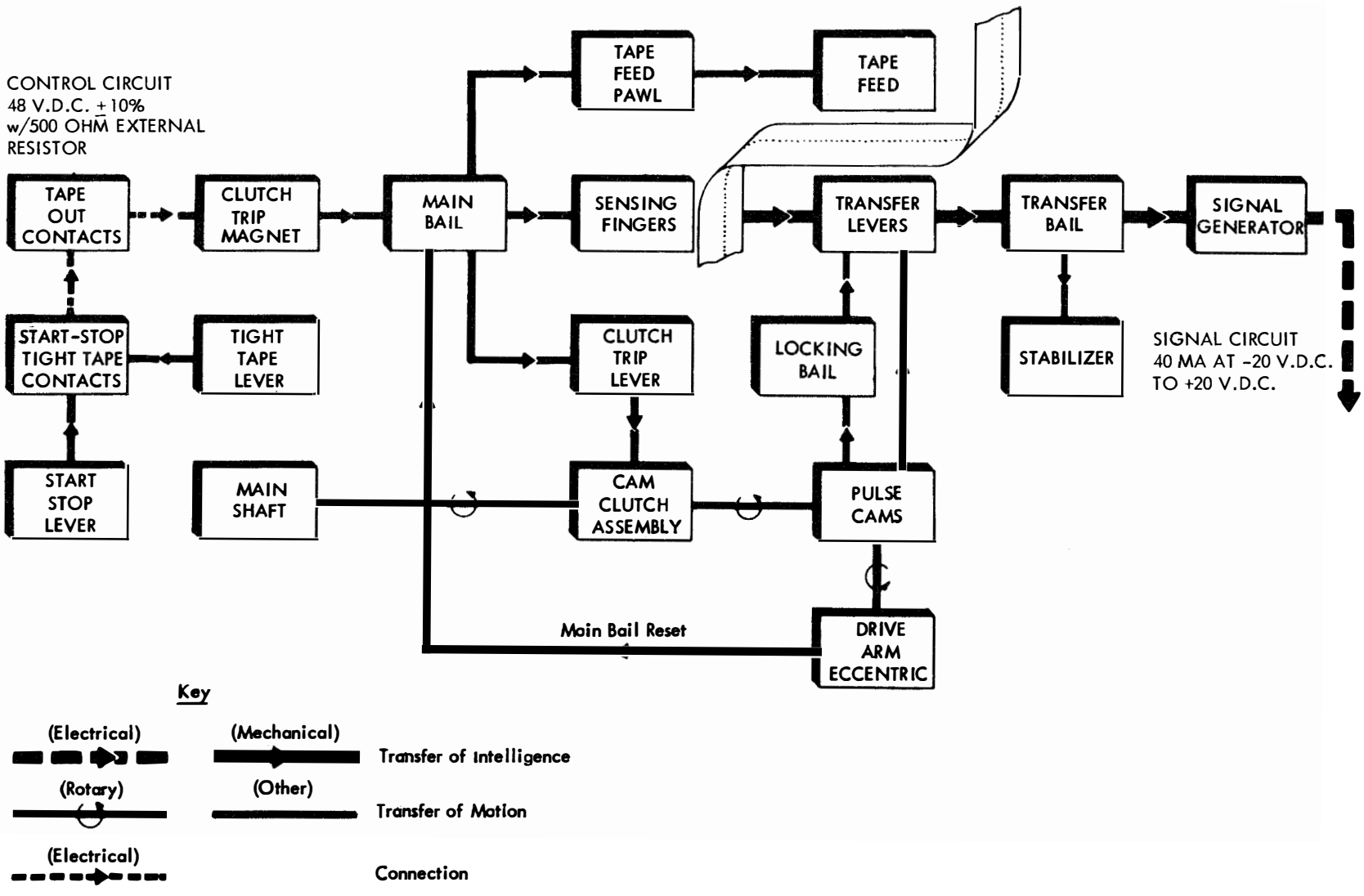


Figure 8 - Graphic Representation of the Letter "U"
(See Eight Level Data Interchange Code for Code Arrangements)

Figure 9 - Functional Block Diagram of Transmitter Distributor



2. PRINCIPLES OF OPERATION

GENERAL

2.01 In the following description of the sequence of operations of the 35 Transmitter Distributor, the unit is assumed to be operating under normal conditions.

2.02 External portions of the transmitter-distributor circuits completed (i.e. correct source of operating potential across both control circuit and signal generating circuit as covered in Paragraph 1).

2.03 Start-stop lever in its off (center) position.

2.04 Driving motor running and the unit in the idle line condition (clutch disengaged and main shaft stationary).

2.05 Tape in the transmitter-distributor guide plate with the lid closed

OPERATING SEQUENCE

A. Clutch Trip Magnet

2.06 Push the start-stop lever to its (RUN) position. The camming surface of the start-stop lever allows the start-stop bail to move upward. As the bail pivots on its mounting, the left extension of the bail moves away from the bakelite portion of the swinger of the start-stop tight-tape contact assembly. Thus the contact is closed to complete the clutch trip magnet circuit, energize the magnet and pull the armature up. The armature bail extension cams the main bail latch lever about its pivot post to release the main bail.

B. Main Bail

2.07 The main bail swings upward due to the tension of the main bail spring and initiates the actions as follows.

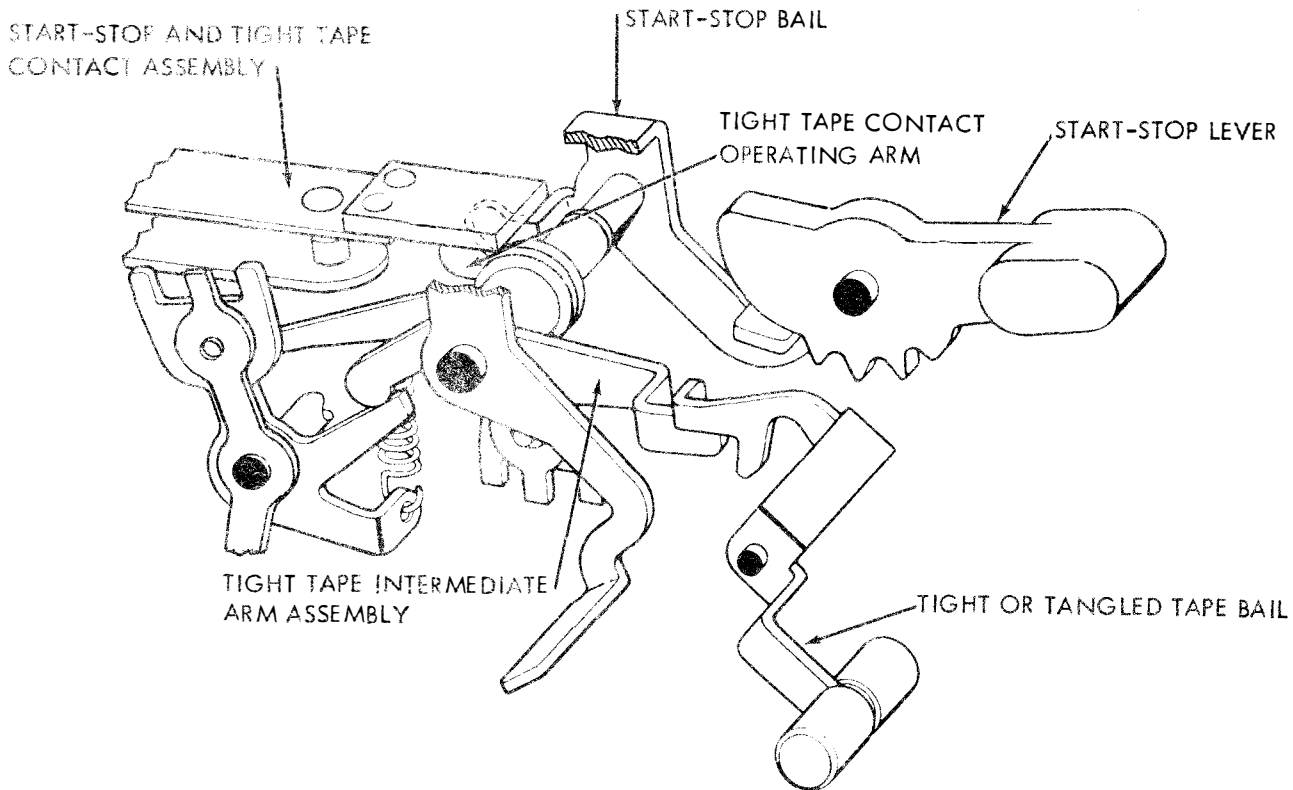


Figure 10 - Start-Stop and Tight Tape Switch Mechanisms

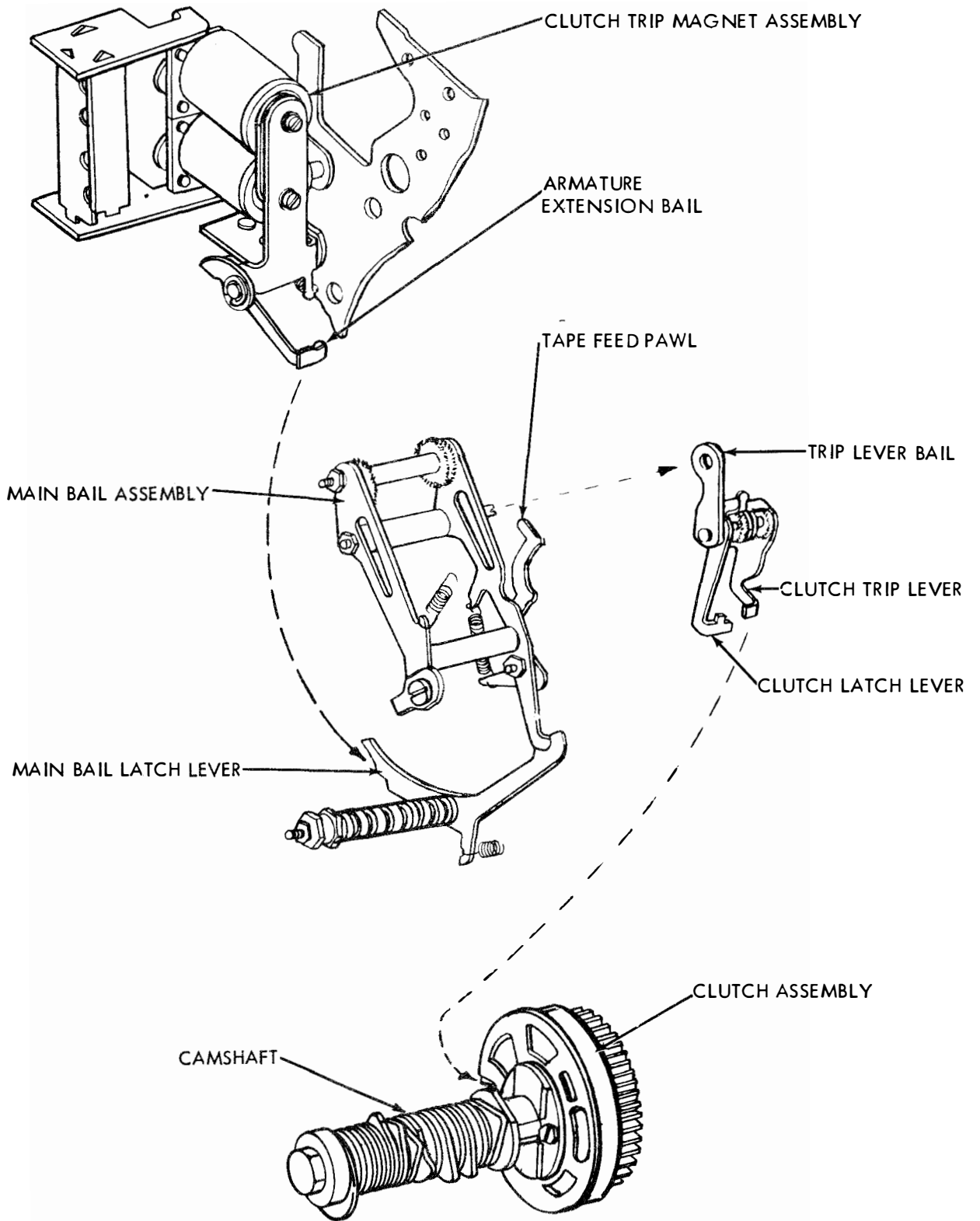


Figure 11 - Function Control Mechanism

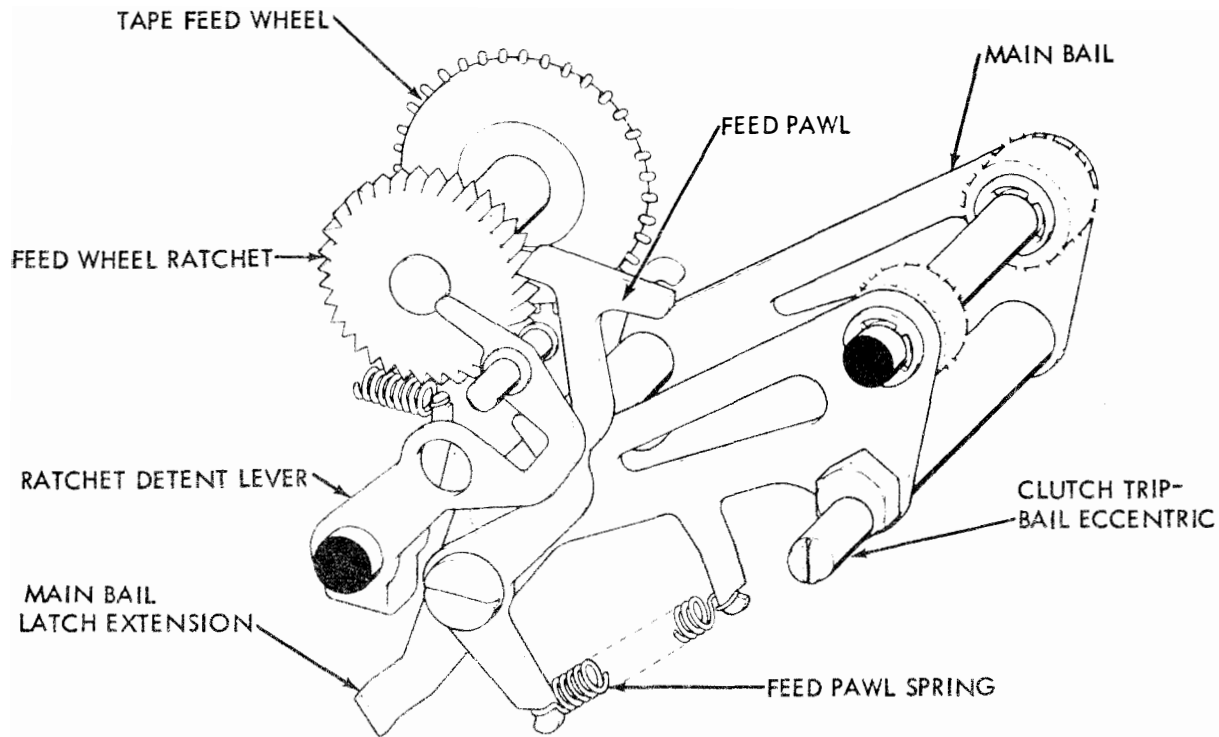


Figure 12 - Tape Feed Mechanism - Rear View

2.08 The feed pawl is raised one tooth on the feed wheel ratchet. Figure 12.

2.09 The clutch trip lever moves away from its latch when the eccentric post on the spring biased main bail cams the clutch trip bail; the trip bail in turn moves the clutch trip lever. (The eccentric on the main bail rides in the slot of the clutch trip bail so that when the main bail is released the clutch trip bail is also released by the interconnection.) Figure 11.

2.10 The sensing fingers, responding to the action of their springs, follow the main bail in its upward travel to sense the tape in the tape guide plate. If one or more of the sensing fingers encounter a perforation in the tape the fingers will extend through the perforations until the projections on the sensing fingers strike the bottom of the main bail spacer post. The sensing fingers that extend through the tape move their associated transfer levers upward so that they are brought above the line of action of the blade on the locking bail. If any of the

sensing fingers do not sense a perforation in the tape the associated transfer levers remain stationary and their extensions remain below the line of action of the locking blade on the locking bail. Figure 14.

C. Clutch Trip Lever

2.11 During the movement of the main bail, the clutch trip bail pivots on its axis and pushes the clutch trip lever away from the shoe release lever to engage the clutch and start the main shaft rotating. Figure 11.

D. Locking Bail

2.12 As the cam sleeve continues its rotation, the high part of the locking bail cam moves away from the locking bail and permits the locking bail to be pulled upward by its spring. In its upward travel, the locking blade of the bail is positioned between the lower extensions of the selected transfer levers and locks them in position. Figure 13.

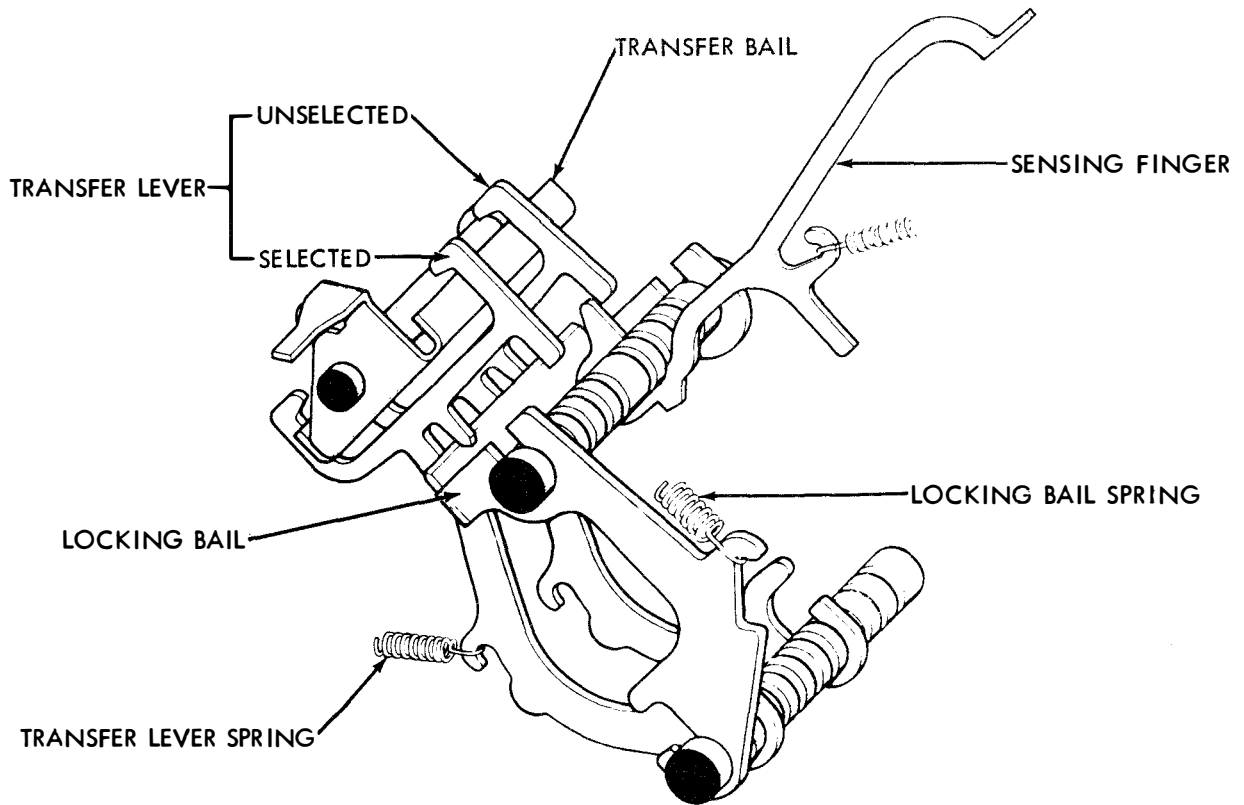


Figure 13 - Locking Bail and Transfer Lever Mechanisms

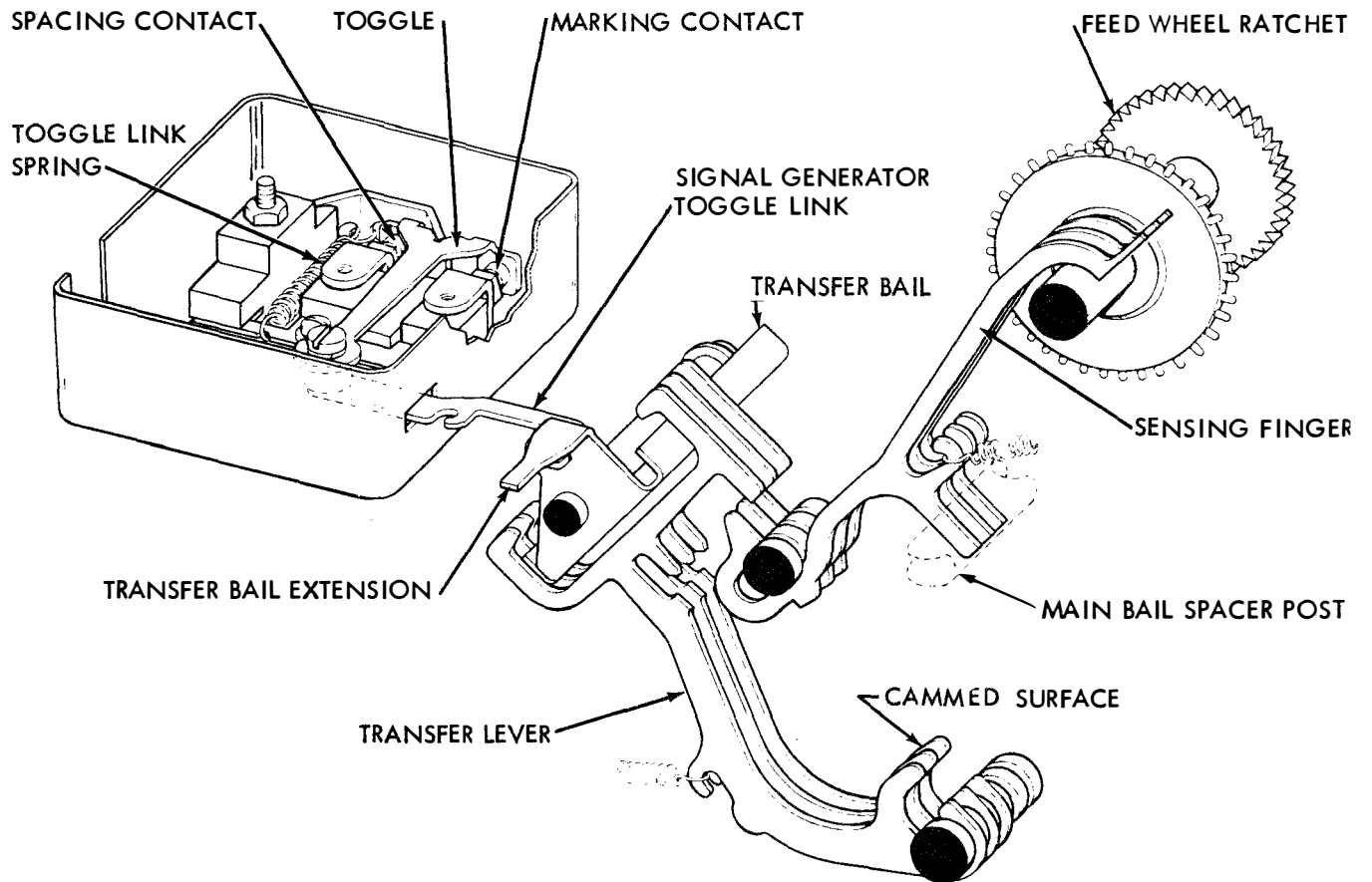


Figure 14 - Transfer Lever and Signal Generator Mechanisms

E. Start Pulse

2.13 Further rotation of the main shaft moves the lobe of the start cam into position and shifts its transfer lever downward. Since the start transfer lever has no sensing finger, the lever is always in the spacing position. The start transfer lever's upper finger hooks the upper side of the transfer bail and causes it to move clockwise. (NOTE: All transfer levers except the start and stop are arranged to move in two directions. The forked end of these eight levers can be moved from the spacing position to the marking position by the associated sensing levers. The transfer levers are also moved downward and to the right in a sequence that is timed to actuate the transfer bail in accordance with the 11.0 unit transmission pattern. See Figure 7. The transfer bail extension moves the signal generator toggle link which causes the toggle to open the marking contact and close the spacing contact in the signal generator contact assembly. Figure 14. The extension, in moving to the spacing position, forces the marking latch on the stabilizer Figures 6 and 15 out of its way and continues its travel far enough to let the spacing latch fall into the latching position simulating a detent action.

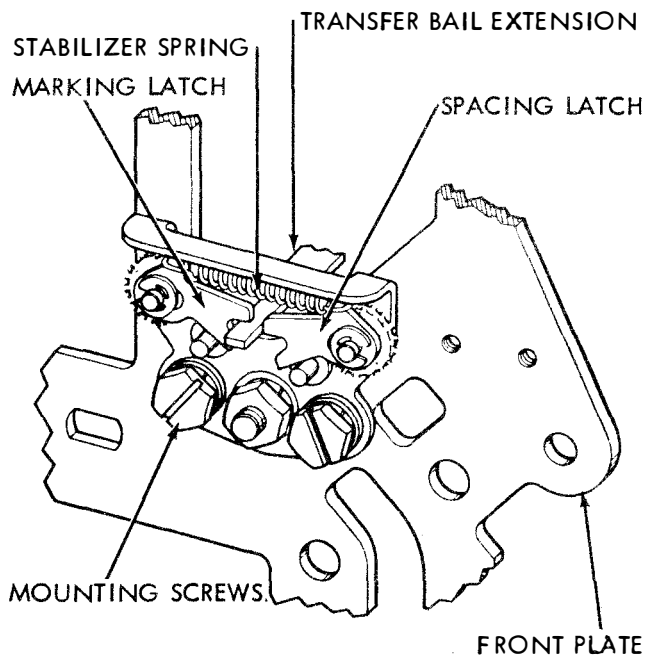


Figure 15 - Transfer Bail Stabilizer

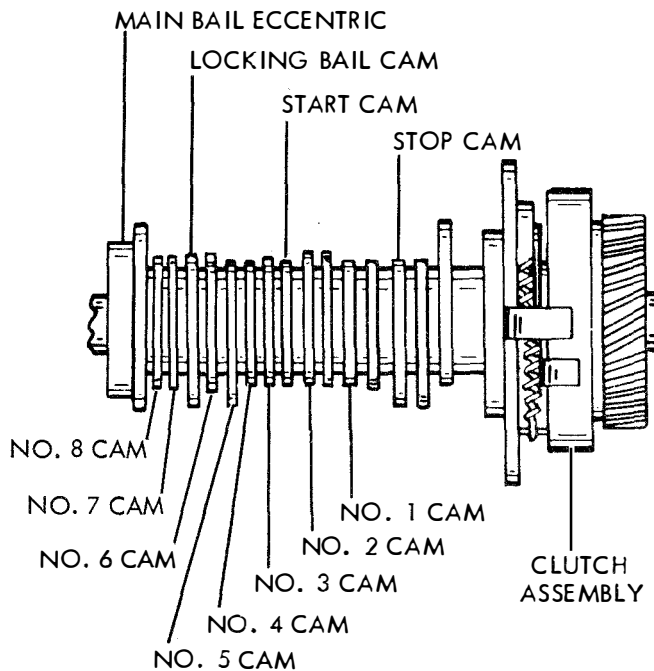


Figure 16 - Clutch Camshaft Assembly

F. First Pulse

2.14 As the shaft rotates further, the cam for the first pulse moves its transfer lever downward and toward the right. Depending on the position of the transfer lever finger (upper fork engaging bail - spacing; lower fork engaging bail - marking), the transfer bail is rotated if the pulse to be transmitted is not the same as the preceding pulse. If the preceding pulse is the same no action occurs because the bail has been previously rotated. If the preceding pulse was different, the extension on the transfer bail moves the toggle link and causes the toggle to open the closed contact and close the open contact.

G. Succeeding Pulses

2.15 The remaining pulses are generated in the same manner as the first. The action is repeated as each cam moves its associated transfer lever, in sequence, as described in Paragraph 2.14.

H. Stop Pulse

2.16 The stop pulse cam follows the eighth pulse cam as the main shaft is completing its cycle. Again the action is the same as that for the first pulse, except that, since the stop pulse has no sensing finger and its transfer

lever is blocked, its lower finger always hooks the transfer bail resulting in a marking pulse on the completion of each character.

I. Main Bail Drive Arm

2.17 As the cam for the first pulse starts its action, the drive arm eccentric (Figure 18) starts to cam the drive arm downward. The drive arm pulls on the eccentric stud of the main bail causing the main bail to pivot downward to complete the operations initiated when the main bail was originally released (Paragraphs 2.06 and 2.07).

2.18 The main bail in pivoting downward withdraws the sensing fingers that are extended.

2.19 It pulls down on the tape feed pawl advancing the tape to the next set of perforations.

2.20 The main bail is moved to its latching position, however, it does not latch since tape is still in the tape head and the latch is held in the nonlatching position by the armature bail extension.

J. Tape Feed

2.21 The tape feed pawl advances the tape feed ratchet one tooth against the action of the ratchet detent roller. The tape feed ratchet is part of the tape feed wheel. The tape feed wheel advances the tape one character. The ratchet detent roller bears between two teeth on the ratchet and serves to hold the feed wheel and tape in position during the sensing portion of the operating cycle. Figure 12.

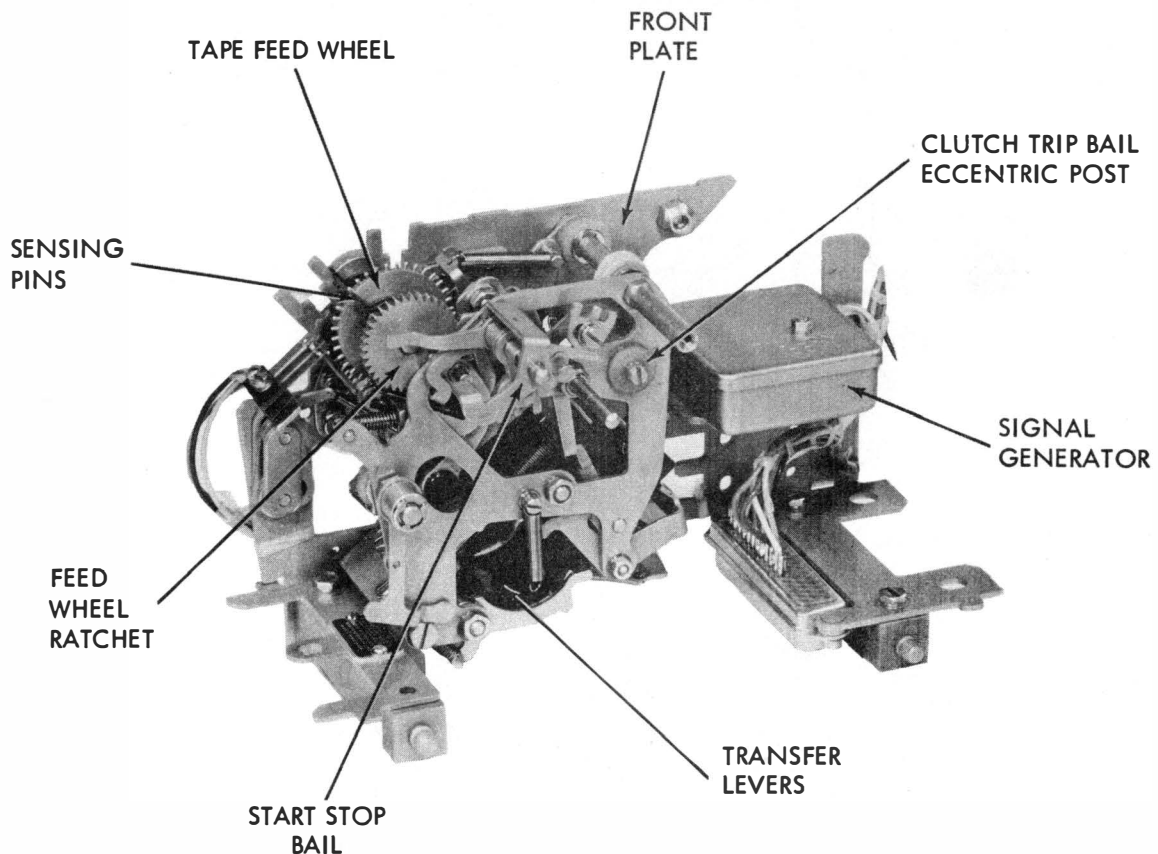


Figure 17 - Front Plate Assembly - Rear View

K. Repeating the Action

2.22 Since the clutch trip bail does not latch, the drive arm moves again to its upper position. In so doing, repetition occurs when the main bail swings upward and the main shaft starts to rotate, until the unit runs out of tape.

STOPPING THE ACTION

A. Tape Out Sensing

2.23 The code sensing fingers cannot differentiate between a no tape condition and perforations; therefore, the unit operates as if eight perforations were sensed and goes through the actions previously described. However, the tape out sensing pin features senses that there is no tape in the tape guide plate. The tape-out pin moves upward to lift the swinger of the tape-out

contact assembly and open the clutch trip magnet circuit.

B. Latching Main Bail

2.24 Since the tape-out contacts are in series with the start-stop tight-tape contacts, the clutch trip magnet becomes de-energized and releases its armature. This permits the armature extension to pivot out of its blocking position and allow the main bail latch to be moved by its spring. Figures 11 and 19.

C. Blocking Action of Clutch

2.25 As the main bail is latched the clutch trip lever blocks the clutch shoe lever. When the clutch is blocked the inertia of the mechanism causes the clutch to rotate far enough to permit its latch to fall into the notch on the clutch cam disk.

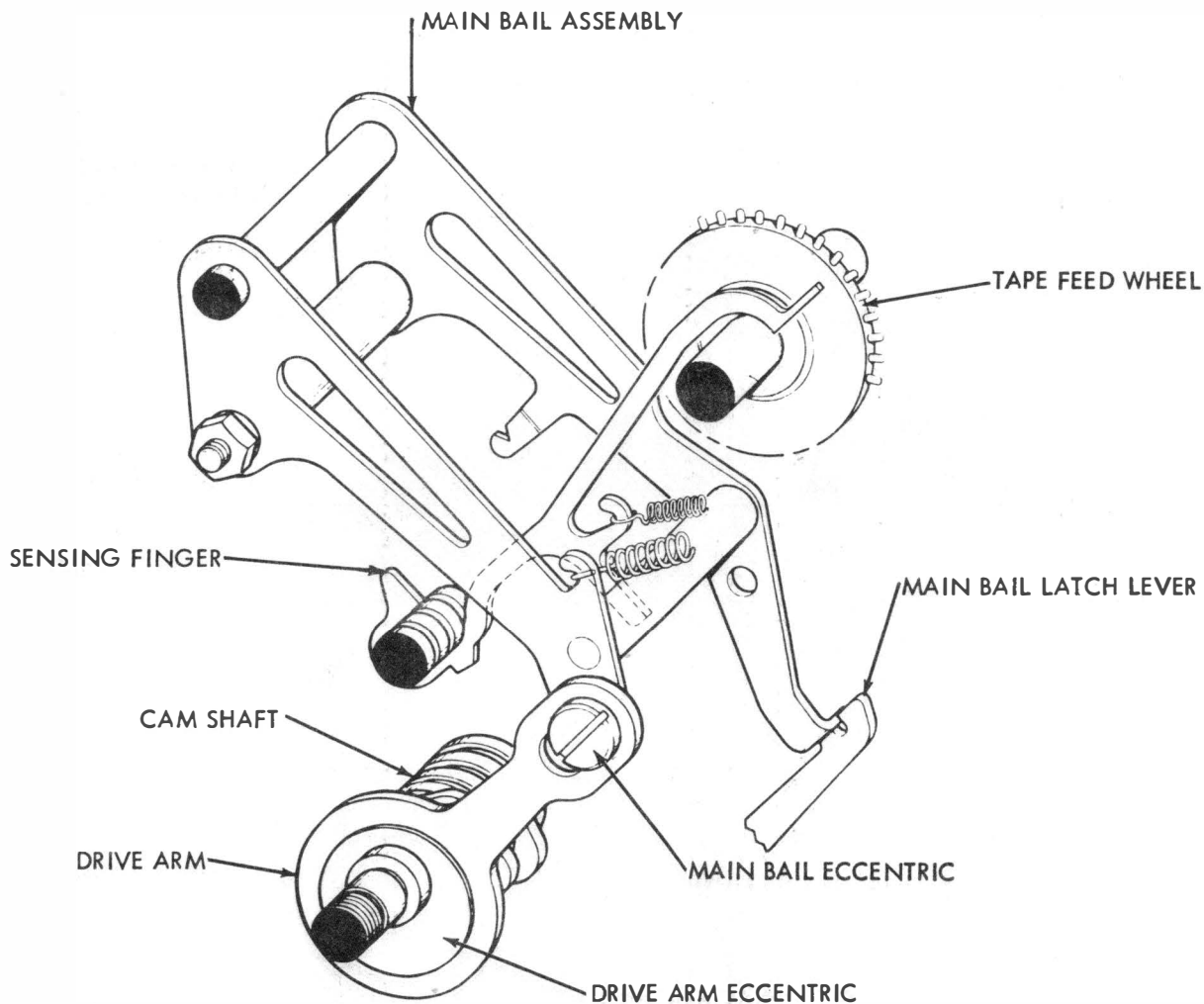


Figure 18 - Main Bail and Drive Arm Mechanism

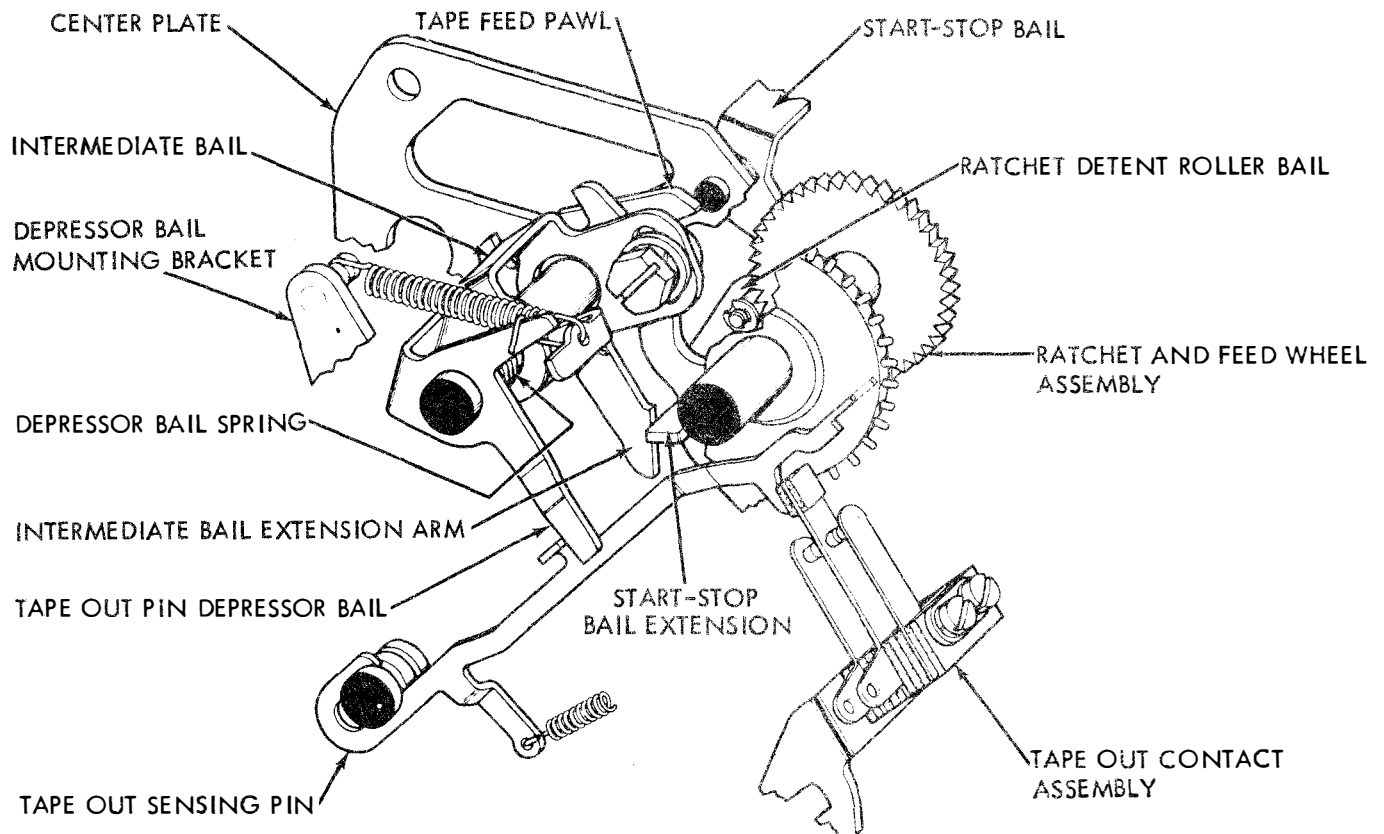


Figure 19 - Free Wheeling and Tape Out Mechanisms

CLUTCH OPERATION

A. Clutch Engagement

2.26 Figure 20A is accomplished by releasing the lower end of lever B. The upper end of lever B pivots about its ear C (which bears against the upper end of the secondary shoe) and moves its ear D, and the upper end of the primary shoe, toward the left until the shoe makes contact with the drum at point E. As the drum turns counterclockwise, it drives the primary shoe downward, so that it again makes contact with the drum, this time at point F. There, the combined forces acting on the primary shoe cause it to push against the secondary shoe at point G. The lower end of the secondary shoe then bears against the drum at point H. The revolving drum acts to drive this shoe upward so that it again makes contact with the drum at point I. Since the forces involved are multiplied at each succeeding step, the final force developed at point I is very great. This force is applied to the lug J on the clutch cam disk to cause it to turn in step with the drum. The cam disk on the clutch is connected to the cam shaft imparting rotary motion to the cam assembly.

B. Clutch Disengagement

2.27 Figure 20B is accomplished by bringing together lug A on the clutch cam disk, and the lower end of the clutch shoe lever B. The upper end of lever B pivots about its ear C and allows its other ear D to move toward the right. The upper spring then pulls the two shoes together and away from the drum.

TAPE LID OPERATION

A. Opening

2.28 When the tape lid button is pressed, the shaft portion of the button presses against the tape lid plunger bail extension causing the bail to pivot. The bail, in pivoting, moves its latching extension from under the tape lid latching post permitting the post to swing downward under action of its spring. Since the latching post is mounted on the tape lid behind the pivot point and below the tape guide plate it causes the main part of the tape lid to swing upward (open) when the post swings downward. Figure 21.

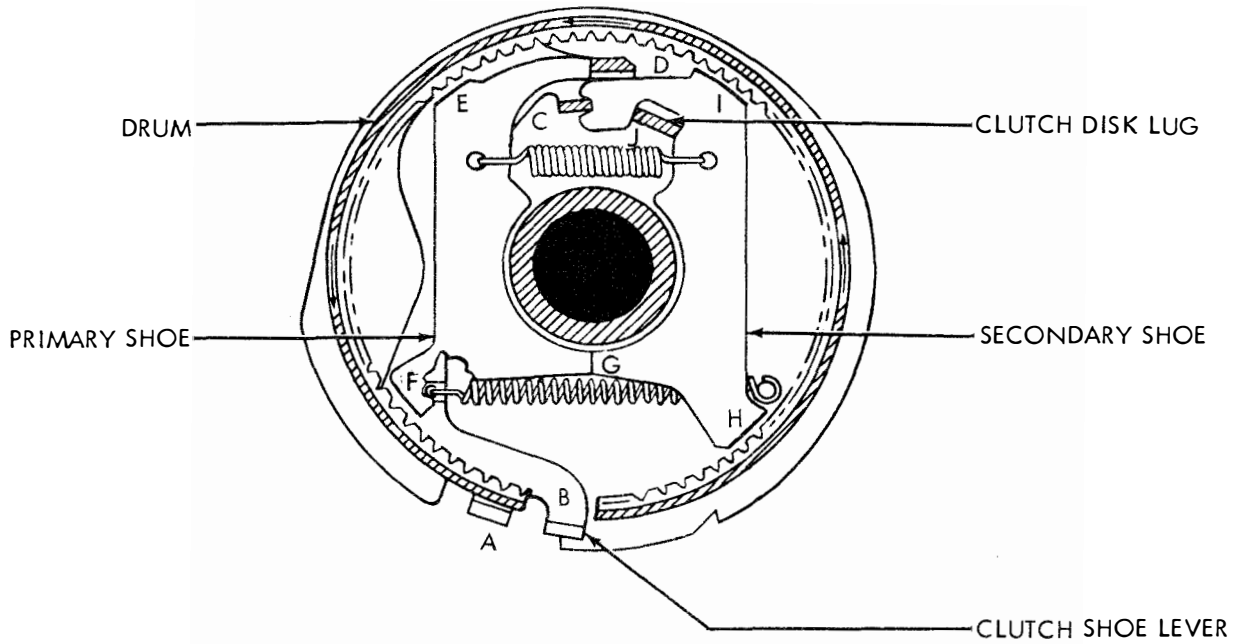


Figure 20A - Clutch - Engaged

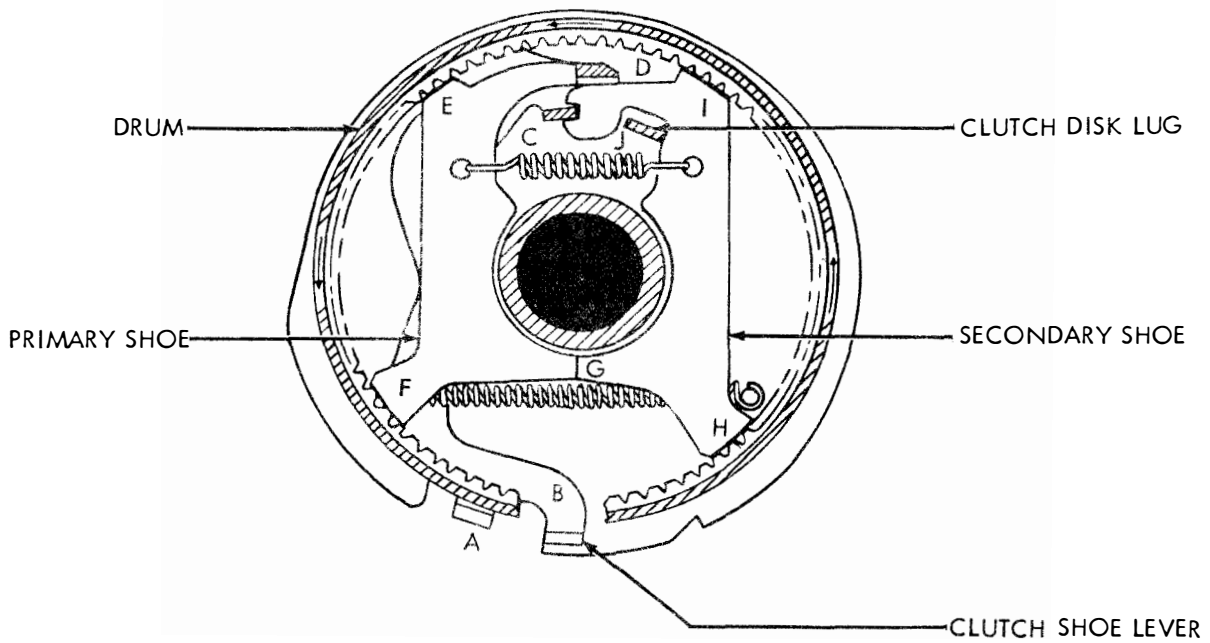


Figure 20B - Clutch - Disengaged

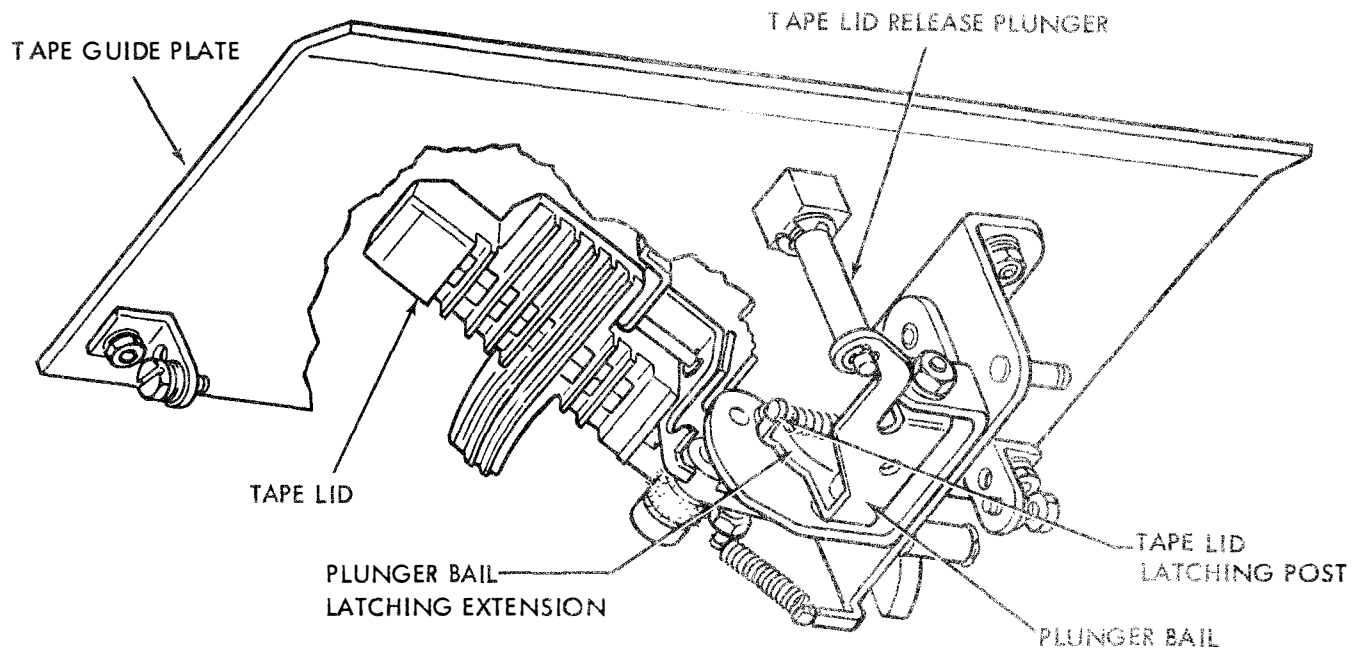


Figure 21 - Tape Lid Mechanism - Bottom View

B. Closing

2.29 The tape lid is closed manually by pressing it against the tape position. When the tape lid is closed, the latching post swings up and cams the latching extension out of its way until it passes the end of the extension which then is pulled under the post, by spring action, latching the post and tape lid.

START STOP LEVER

A. Start Position

2.30 To start transmission - see Paragraph 2.06.

B. Stop Position

2.31 To stop transmission. When the control lever is pushed to its center or stop position, the cam surface of the lever cams the control lever bail causing the bail to pivot. As the bail pivots, its extension cams the swinger pad upward on the start-stop contact assembly opening the contacts. This breaks the circuit to the clutch magnet assembly causing the armature to be released to its unattracted position. Figure 10.

C. Free Wheeling Position

2.32 Free wheeling feed wheel (Figure 19). The control lever is operated the same as in Par. 2.31 except that the lever is pushed to the extreme left position and the extension on the start-stop bail pushes the feed pawl and the ratchet detent roller away from the feed ratchet allowing the feed wheel to rotate freely. The bail extension also cams the intermediate bail extension arm which rotates the intermediate bail. The intermediate bail, in rotating, permits the spring loaded tape-out pin depressor bail to follow. The depressor bail, with its operating mechanism, is mounted on a bracket. The bracket is, in turn, mounted on the front plate. The result of this camming action is the depressing of the tape-out sensing pin to a flush or below flush condition relative to the tape guide plate. This permits free passage of the tape under the tape lid.

TIGHT OR TANGLED TAPE FEATURE

2.33 Tight or Tangled Tape raises the tight tape bail arm (Figure 10). The bail pivots and its extension cams the tight tape intermediate arm assembly on which is secured the tight tape arm. When the arm assembly is

cammed, the associated tight tape arm lifts the swinger of the start-stop, tight tape contact assembly upwards and opens the clutch trip magnet circuit. Transmission stops.

TAPE OUT SENSING PIN

2.34 Tape-out sensing pin (Figure 19) is located on the tape guide plate to the right and slightly forward of the eight tape sensing fingers. With the tape-out pin in the depressed position, the swinger on the tape-out contact assembly is released and its contacts closed. The unit will then transmit if the series wired start-stop tight tape contacts are closed. Therefore, when tape is in the unit with the tape lid closed, the tape holds the tape out sensing pin in the depressed position and allows the unit to run. When no tape is sensed the spring loaded sensing pin travels upward and into a hole provided in the tape lid. An extension on the pin engages the swinger on the tape out contact assembly pushing the swinger up opening its contacts. This interrupts the clutch magnet circuit so that transmission ceases.

2.35 A rub-out deleter bail is held up against the lower projections of the sensing pins by a spring. When an all marking code combination is sensed in the tape, all sensing pins move upward followed by the deleter bail at approximately 72 degrees of the main shaft cycle. The projection of the bail presses the start transfer bail upward. At 81 degrees in the cycle, the

tape-out contact opens the circuit to the transmitter clutch magnet. The locking bail locks the transfer bail and the transfer levers in their selected position. The lobe of the start pulse cam moves its transfer lever as the cycle continues. The lower finger of the start transfer lever hooks the lower side of the transfer bail leaving it in the marking condition caused by the previous stop pulse. The other transfer levers being in the marking condition cause the transfer bail to remain in the marking position until the tape advances and the new permutation code is read. The clutch trip magnet circuit closes again at 212 degrees of the cycle. The effect on the line is a continual flow of current as if the unit had stopped sending for the period of time necessary to transmit one level of code information. When any permutation code other than all marking is sensed, the rub-out bail is held downward and a normal space start pulse is sent.

ELECTRICAL CIRCUITS

2.36 Electrical circuits in the transmitter distributor are the clutch trip magnet circuit, and the timing pulse circuit. The clutch trip magnet circuit consists of the clutch trip magnet coils in series with the start-stop, tight-tape, and tape-out contact assemblies. The signal circuit consists of the transmitter signal generator contacts wired to provide neutral operation. The timing pulse circuit consists of the timing pulse contacts wired to provide an open pulse for each unit of the eleven unit code.

35 TRANSMITTER DISTRIBUTOR (SINGLE CONTACT)

ADJUSTMENTS

CONTENTS	PAGE	CONTENTS	PAGE
1. GENERAL	1-2	Tape out contact assembly	9 ←
2. ADJUSTMENTS	3-22	Tape out contact bracket	9
Armature bail spring	18	Tape out sensing pin	10 ←
Cover plate detent spring	19	Tape out sensing pin spring	9
Clutch latch lever spring	5	Tight tape intermediate arm	11
Clutch magnet	18	spring	11
Clutch shoe lever	5	Tight tape start stop contact	
Clutch shoe lever spring	4	spring	11
Clutch shoe spring	4	Transfer bail stabilizer	16 ←
Clutch trip lever	5	Transfer lever spring	14
Clutch trip lever spring	5	Transmitter distributor gear	20
Control lever detent spring	12 ←	3. VARIABLE FEATURES	23-26 ←
Depressor bail torsion spring	10	Cam follower spring	23
Feed pawl	14	Rubout sensing mechanism	26
Feed pawl spring	14	Timing bail spring	26
Feed ratchet detent spring	12 ←	Timing contact bracket	23
Feed wheel detent	13	Timing contact requirements	
Intermediate tape out bail spring ..	10	(strobe)	24-25
Locking bail spring	15	Timing contact spring	23
Main bail	15	Timing contact swinger	23 ←
Main bail latch spring	18		
Main bail spring	12	1. GENERAL	
Main bail trip lever	12	1.01 This section is reissued to include Part	
Removing cover plate	3	3, Variable Features, and to add recent	
Removing front panel	3	engineering changes.	
Removing tape guide plate	3	1.02 This section contains the requirements	
Removing top plate	3	and adjusting procedures for the mainte-	
Removing transmitter distributor		nance of the 35 Transmitter Distributor.	
assembly	3	1.03 The adjustment of the 35 Transmitter	
Replacing and positioning cover		Distributor is arranged in a sequence	
plate	8	that would be followed if a complete readjustment	
Replacing and positioning tape		of the unit were undertaken.	
guide plate	7	1.04 After an adjustment has been completed,	
Replacing and positioning top plate ..	8	be sure to tighten nuts or screws that	
Sensing finger spring	13	may have been loosened.	
Signal contact	17	1.05 The covers may be removed for inspec-	
Signal contact link spring	17	tion and minor repair of the unit; how-	
Signal contact spring	17	ever, when more extensive maintenance is to be	
Signal pulse refinement (strobe) ...	21-22 ←	undertaken, it is recommended that the unit be	
Stabilizer spring	16		
Start-stop switch bracket	11		
Tape guide	6		
Tape lid	6		
Tape lid release plunger spring ...	19		
Tape lid spring	19		

SECTION 574-225-700

disconnected from its source of power as a safety precaution.

1.06 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.

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

1.08 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.

1.09 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 new springs.

1.10 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 operator's position.

1.11 Where reference is made to a LETTERS combination, select the RUBOUT code. If reference is made to a BLANKS combination, select the SPACE code.

1.12 When a requirement calls for the clutch to be disengaged, the clutch shoe lever must be fully latched between its trip lever and latchlever so that the clutch shoes release their tension on the clutch drum. To accomplish this, rotate the main shaft by hand until the clutch reaches its stop position, then apply a screwdriver to the cam disk stop lug and push the disk in its normal direction of shaft rotation until the latch lever seats in its notch in the disk.

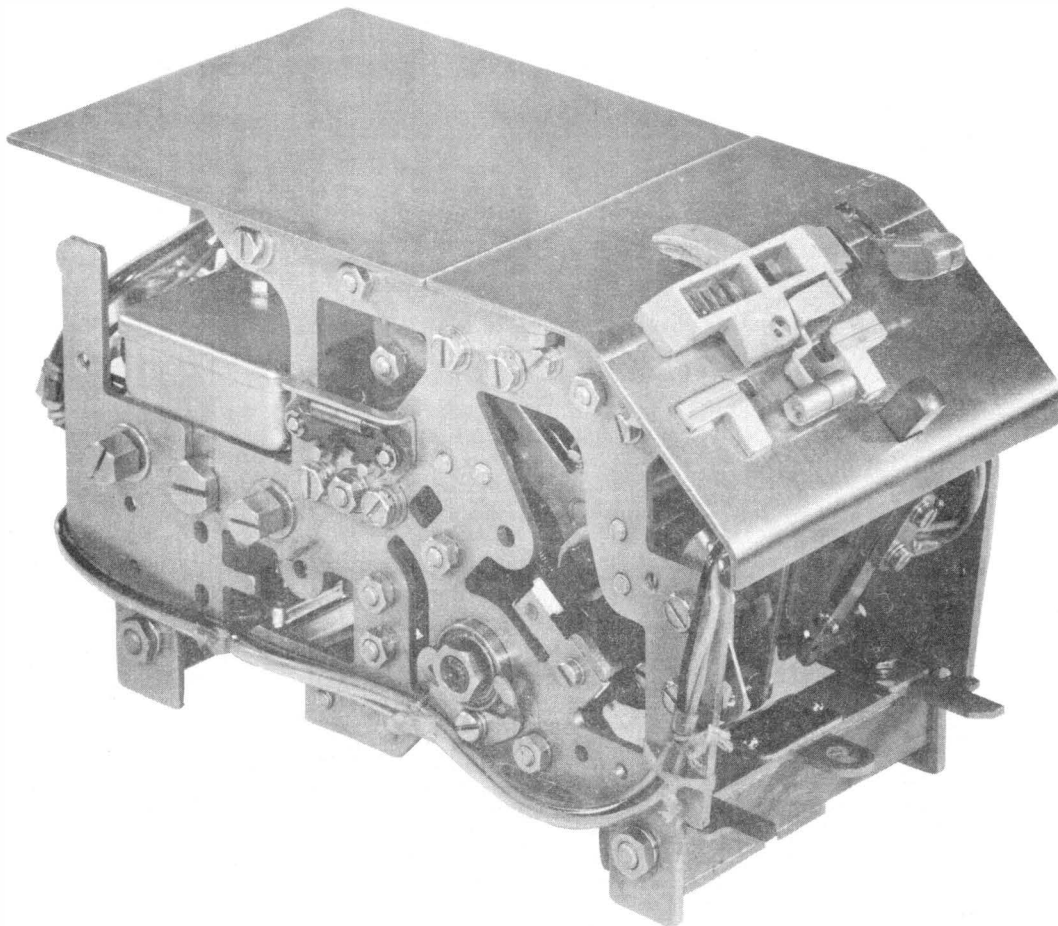


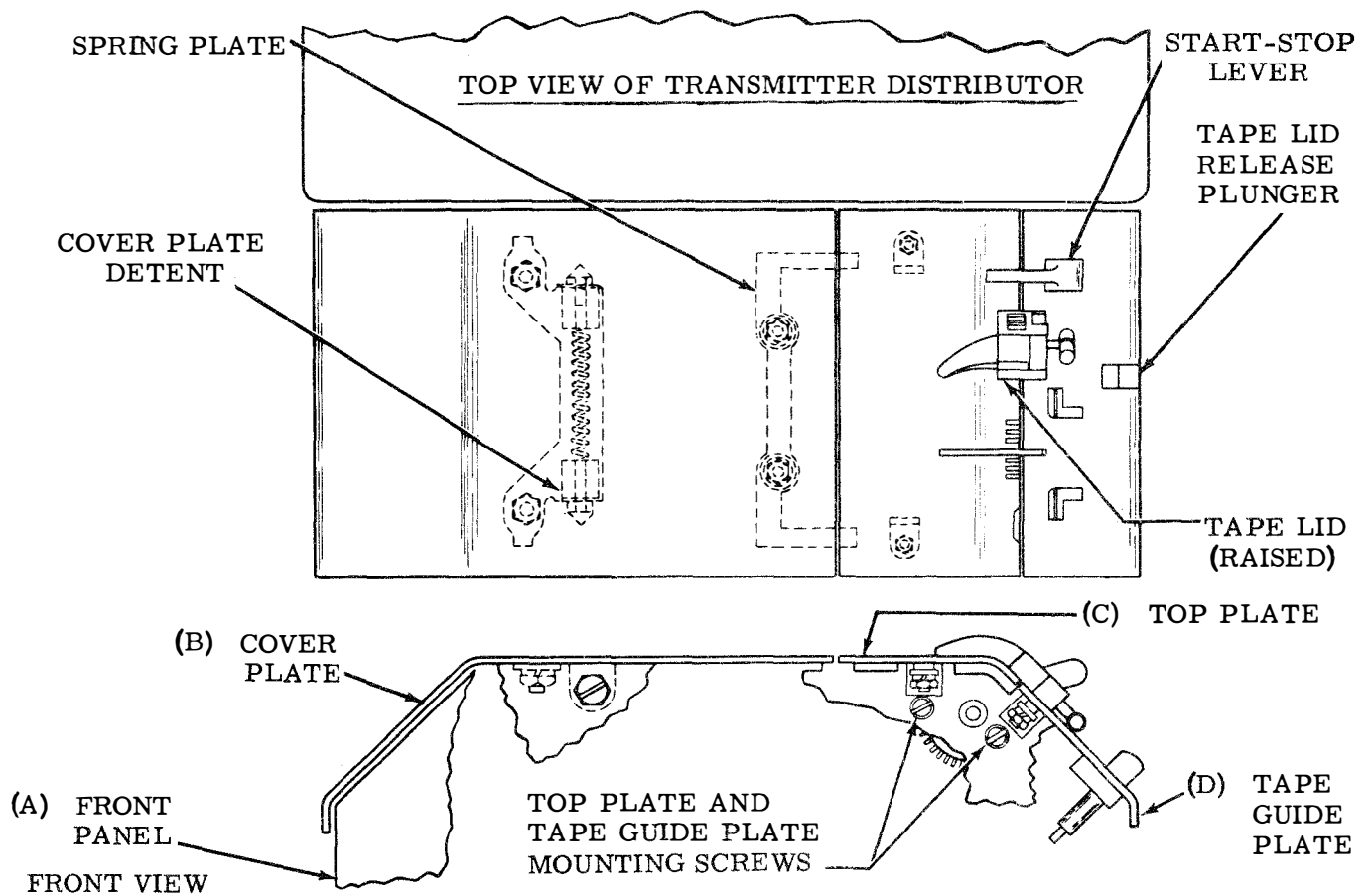
Figure 1 - 35 Transmitter Distributor (Right Front View)

2. ADJUSTMENTS

2.01 Cover Assemblies

INSTRUCTIONS FOR

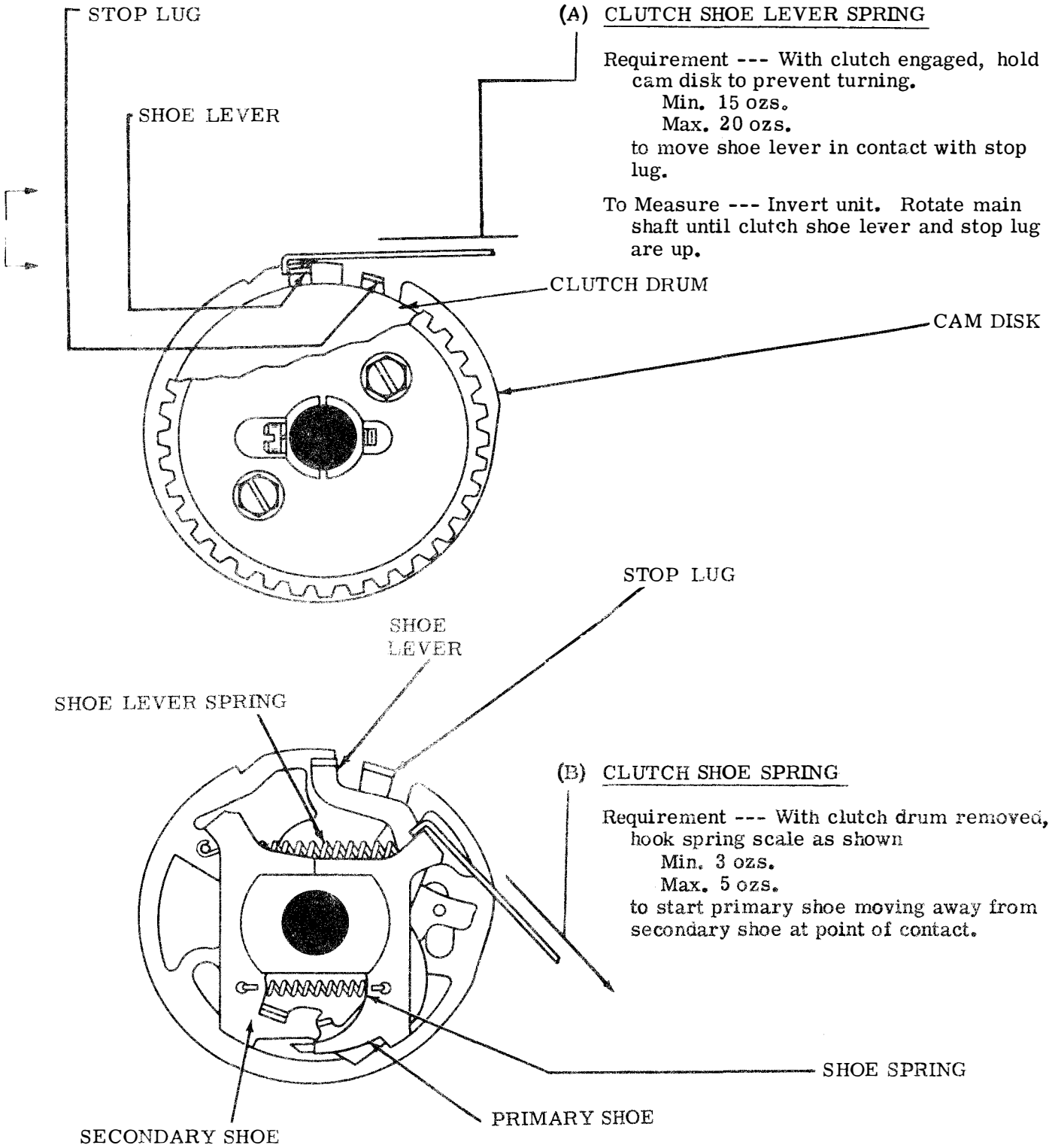
- (A) REMOVING FRONT PANEL --- Pull outward on lower right and left rear corner of front panel and slide panel toward the front. Replace in reverse order.
- (B) REMOVING COVER PLATE --- Lift left end of cover plate to disengage detents then slide plate toward the left to disengage spring plate. Replace 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 2.04 when replacing the 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 2.05 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. Transmitter is equipped with plug that mates with connector in base. After unit is plugged in, insert mounting screws (3). Check alignment of main shaft gear with driving gear.



2.02 Clutch Mechanism

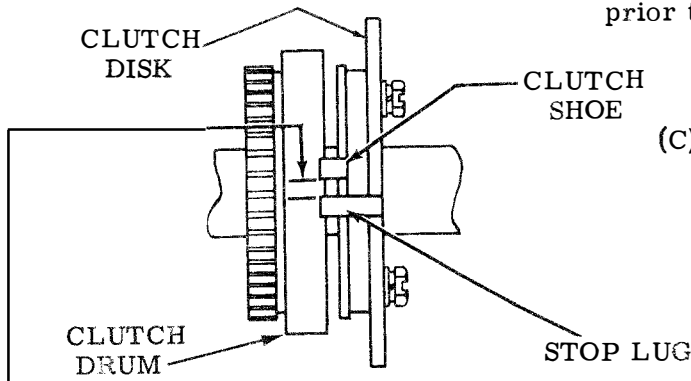
Note 1 --- Requirements (A) & (B) are adjusted at the factory and should not be disturbed unless associated mechanisms have been removed for servicing or there is reason to believe that the requirements are not met.

Note 2 --- Remove transmitter distributor from its base prior to adjustment. See 2.01 Note (E).



2.0 Clutch Trip Mechanism

Note---Remove transmitter distributor from its base prior to adjustment. See 2.01 Note (E).



(C) CLUTCH LATCH LEVER SPRING

Requirement

Clutch engaged and rotated until latch lever is on low part of disk

Min. 3 ozs.

Max. 5-1/2 ozs.
to start latch moving.

(B) CLUTCH SHOE LEVER

Requirement --- Clearance as shown should be

Min. 0.055 inch

Max. 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 rotated in its normal direction. Refine above adjustment to correct shoe drag.

MAIN BAIL
(FRONT VIEW)

(A) CLUTCH TRIP LEVER

Requirement

(Remove cover plate, see 2.01).
With clutch stop lug opposite clutch trip lever, clearance between inner surface of lug and lever

(1) Play taken up to make clearance maximum

Min. 0.012 inch

Max. 0.025 inch

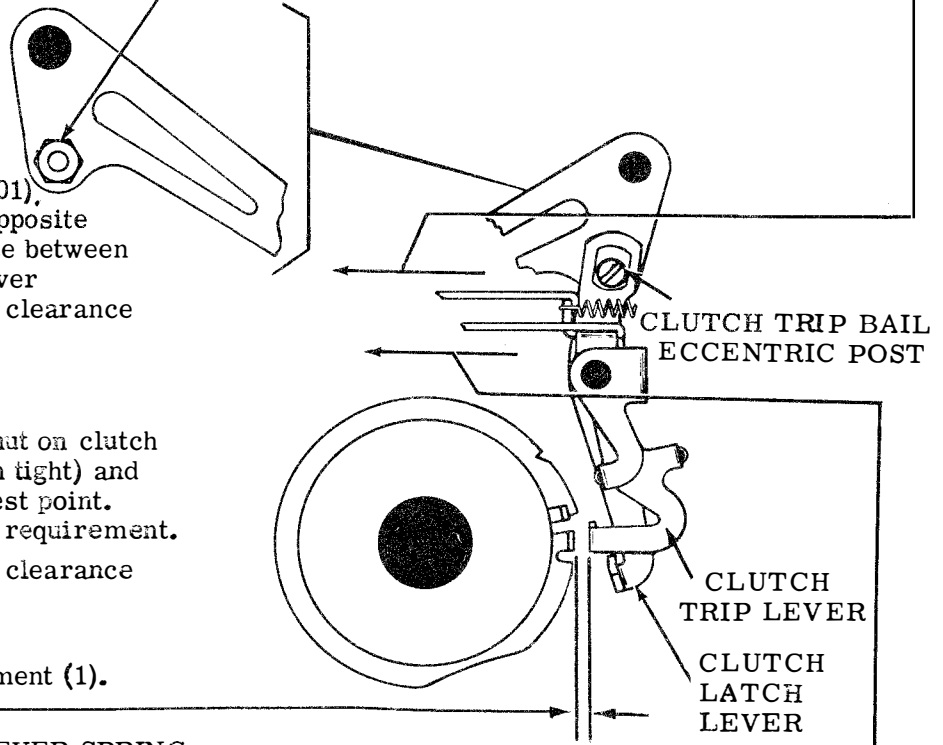
To Adjust --- Loosen clamp nut on clutch trip bail eccentric (friction tight) and rotate eccentric to its lowest point. Position eccentric to meet requirement.

(2) Play taken up to make clearance minimum.

Some clearance.

To Adjust --- Refine requirement (1).

CLAMP NUT



(D) CLUTCH TRIP LEVER SPRING

Requirement --- With clutch engaged

Min. 7 ozs.

Max. 10-1/2 ozs.

to start clutch trip lever moving.

2.04 Tape Guide Plate

(A) TAPE LID

Requirement --- (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

Min. Some

Max. 0.010 inch

To Adjust --- With tape lid bracket mounting nuts (2) loosened (insert tip of TP170283 gauge through slot and into groove of lid), position tape lid bracket. Re-tighten nuts.

(2) Tape lid front bearing surface, A, should touch tape guide plate. Clearance, B, measured at fin of tape which is in line with rear tape guide (see Note 2).

Min. 0.010 inch

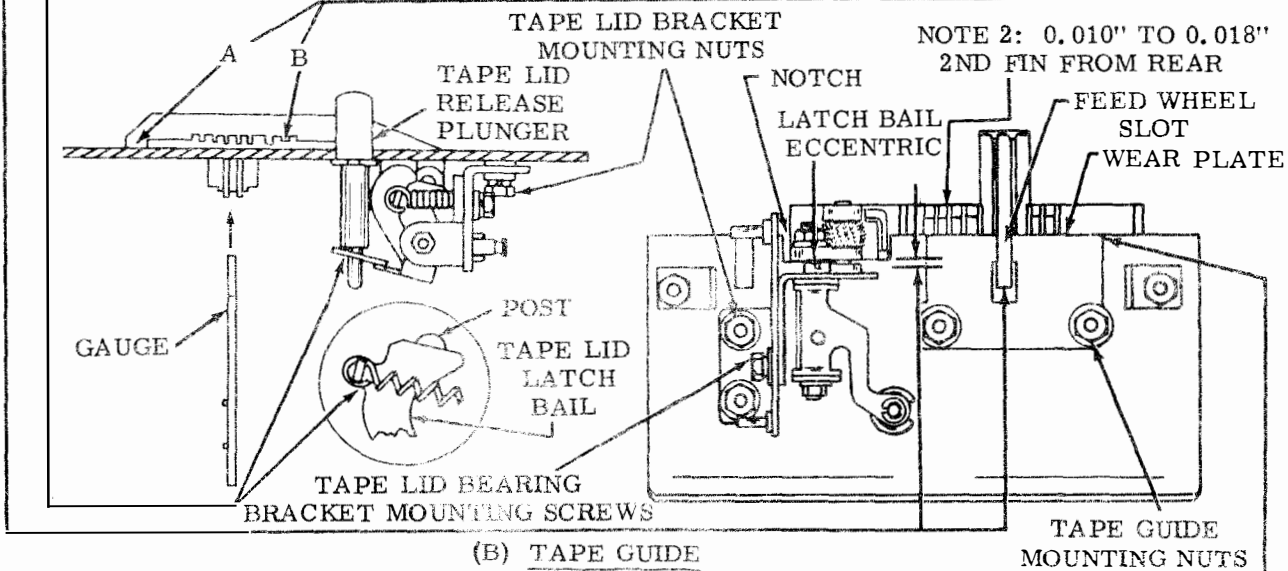
Max. 0.018 inch

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.

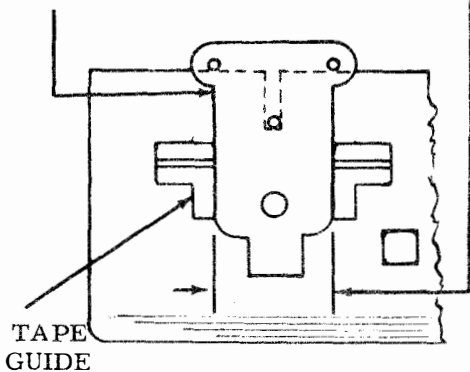
(3) Release plunger should have some end play when lid is latched against tape guide plate.

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. Recheck by depressing plunger --- With lid held down, tip of latch should clear post as plunger is operated.



(B) TAPE GUIDE

TP170283 GAUGE



Requirements --- With tape gauge positioned as shown

1. Clearance between right and left tape guide and gauge.

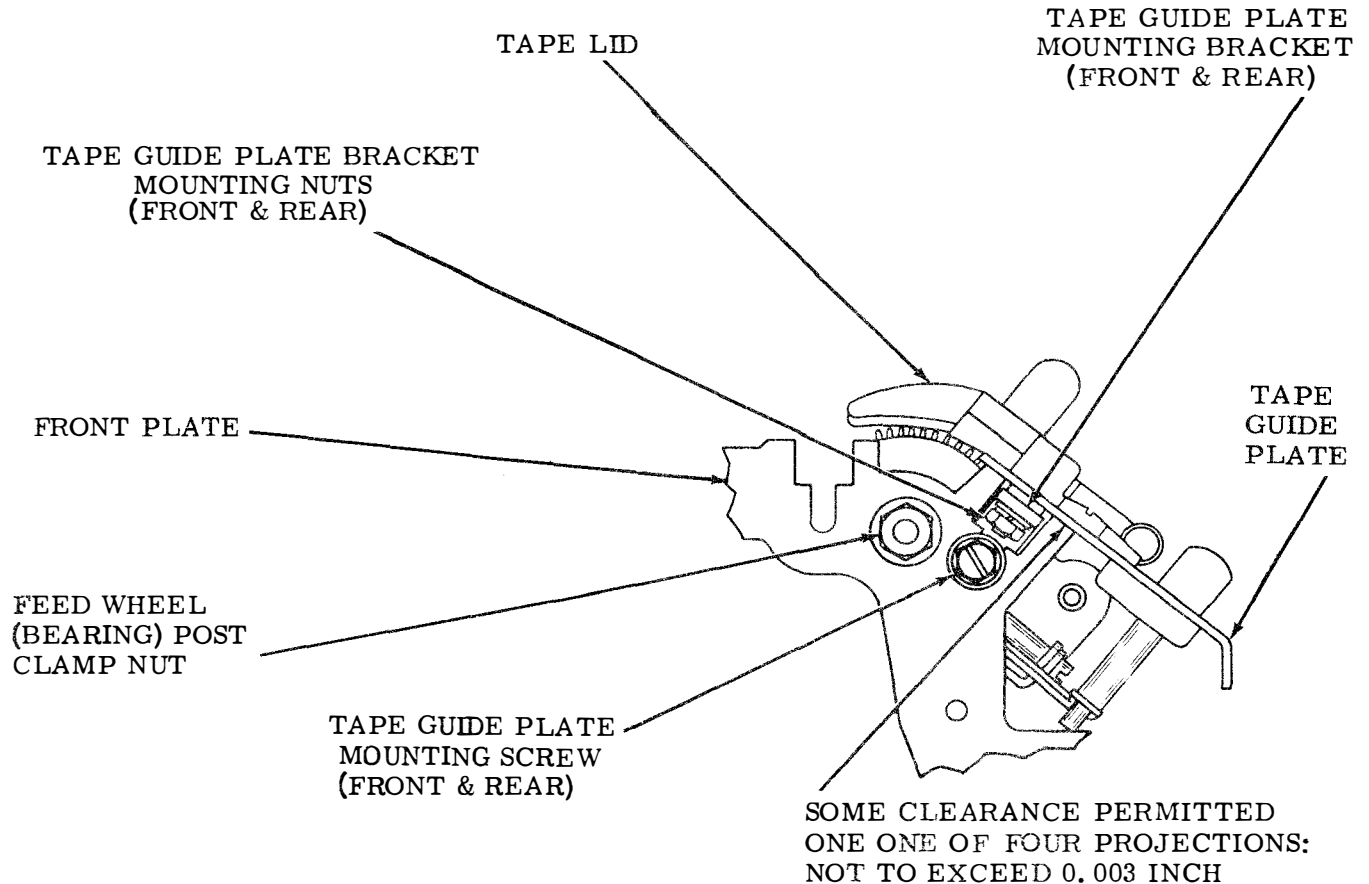
Min. Some

Max. 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 edge. 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.

2.05 Tape Guide Mounting Plate

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 2.17.

To Adjust --- Move tape plate toward the front or rear. Tighten nuts only after top plate (2.06) is adjusted.

Note 1 --- Position tape-out sensing pin stop arm (see 2.08) in its lowest position and hold start-stop bail extension from ratchet wheel.

2.06 Top Plate and Cover Plate Mounting

INSTRUCTIONS FOR REPLACING AND POSITIONING TOP PLATE

Loosen nuts (friction tight) that secure mounting screws 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 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 (2.05).

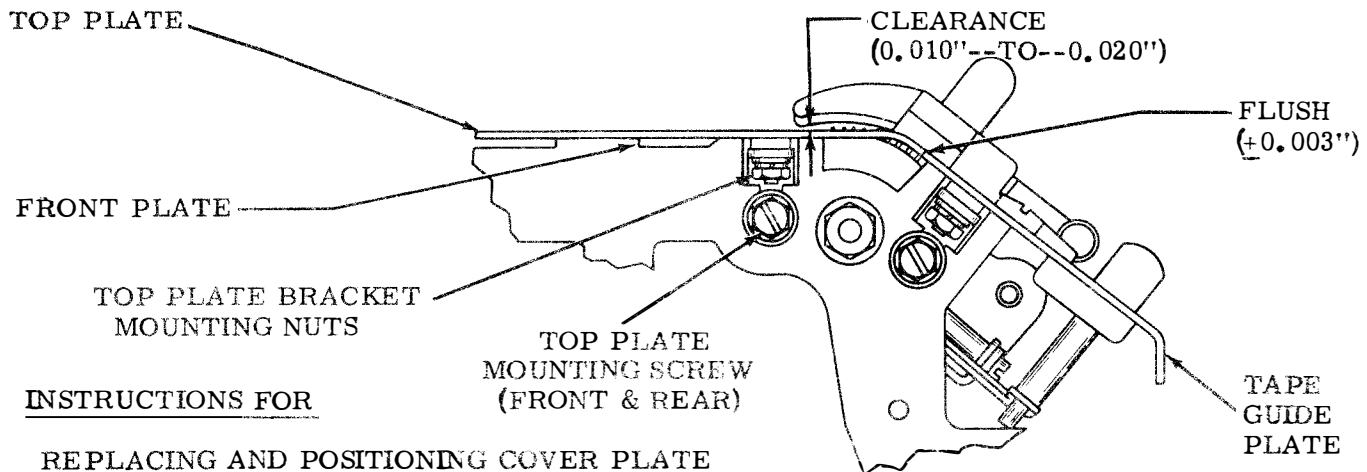
2. Feed wheel slot should align with slot in tape guide plate so that feed wheel rotates freely with detents and feed pawl disengaged (freewheeling).

To Adjust --- Position top plate toward front or rear to align slot.

3. Clearance between projection of tape lid and top plate (tape lid latched)

Min. 0.010 inch	Min. 0.010 inch
Max. 0.020 inch at curved portion	Max. 0.018 inch at flat portion

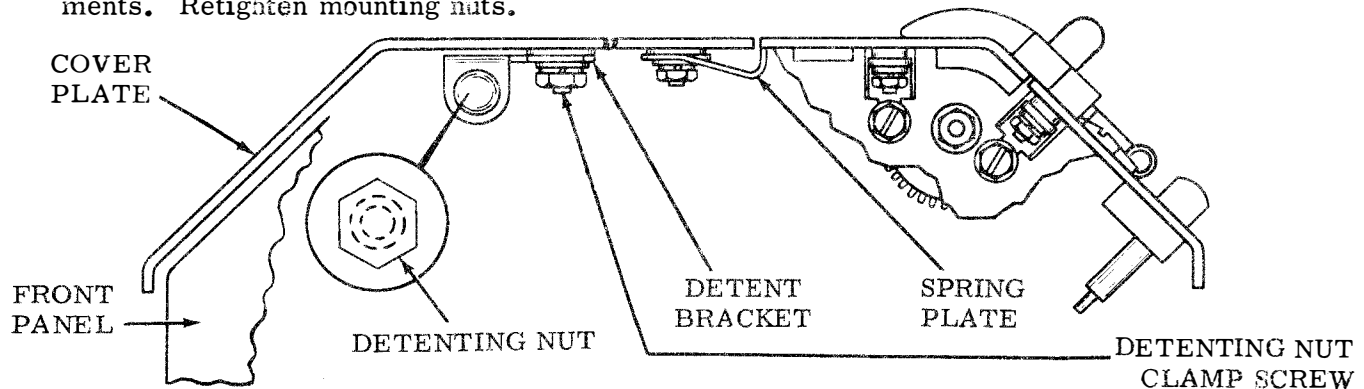
To Adjust --- if necessary, loosen tape lid bearing bracket mounting screws (see 2.04) and position tape lid. Retighten screws and recheck requirements in par. 2.04.

INSTRUCTIONS FORREPLACING 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 and 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.



2.07 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.

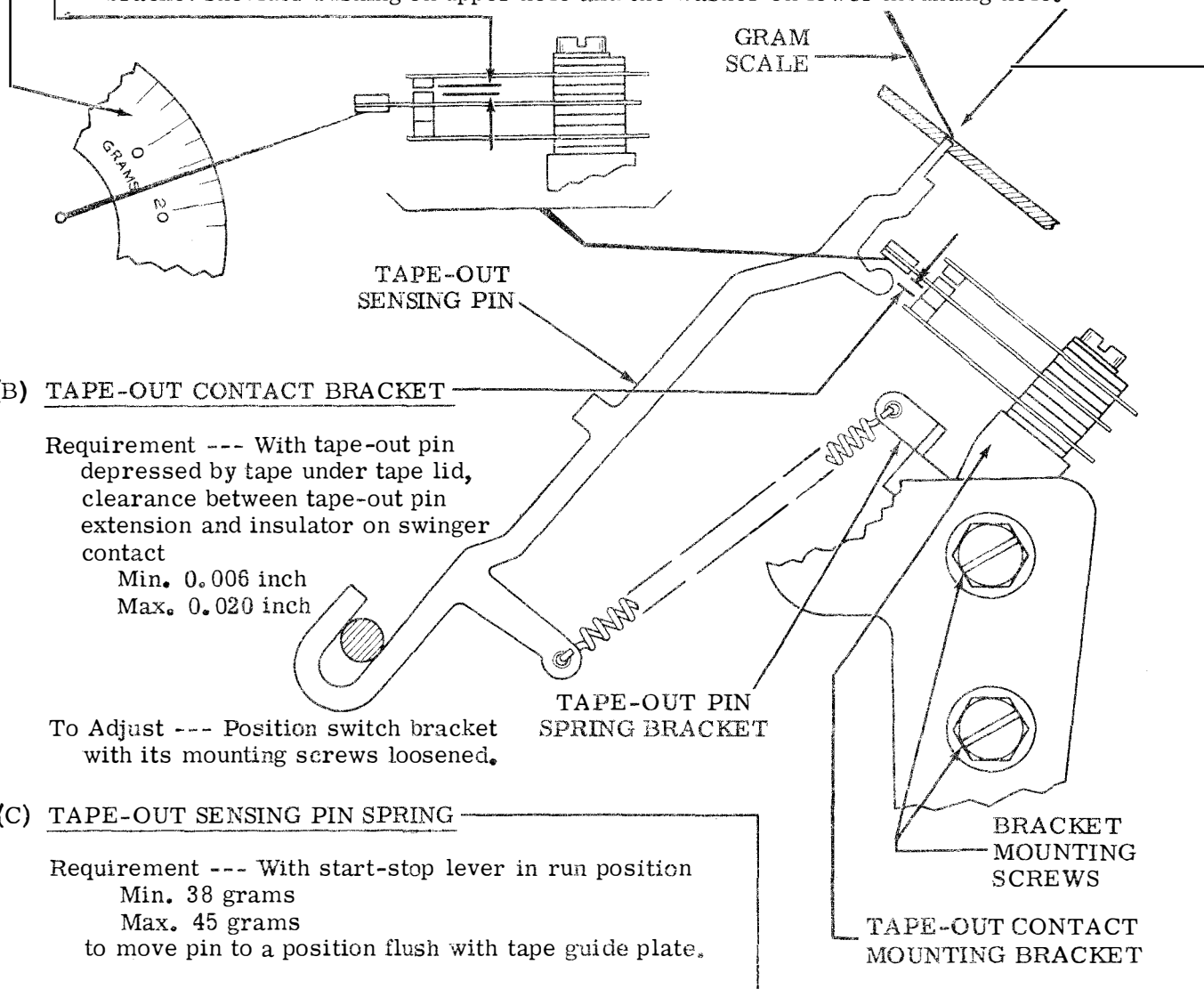
1. With gram scale applied as shown. Min. 8 grams
Max. 15 grams
to separate normally closed contacts.

To Adjust --- Remove bail spring and contact assembly. Form the contact swinger with the TP110445 spring bender.

2. Clearance between normally closed 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 switch 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.

2.08 Tape-Out Sensing Pin

(A) TAPE-OUT SENSING PIN

Requirement

1. With start-stop lever in free wheeling or stop position, tip of tape-out pin should be flush to 0.010 inch under flush 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

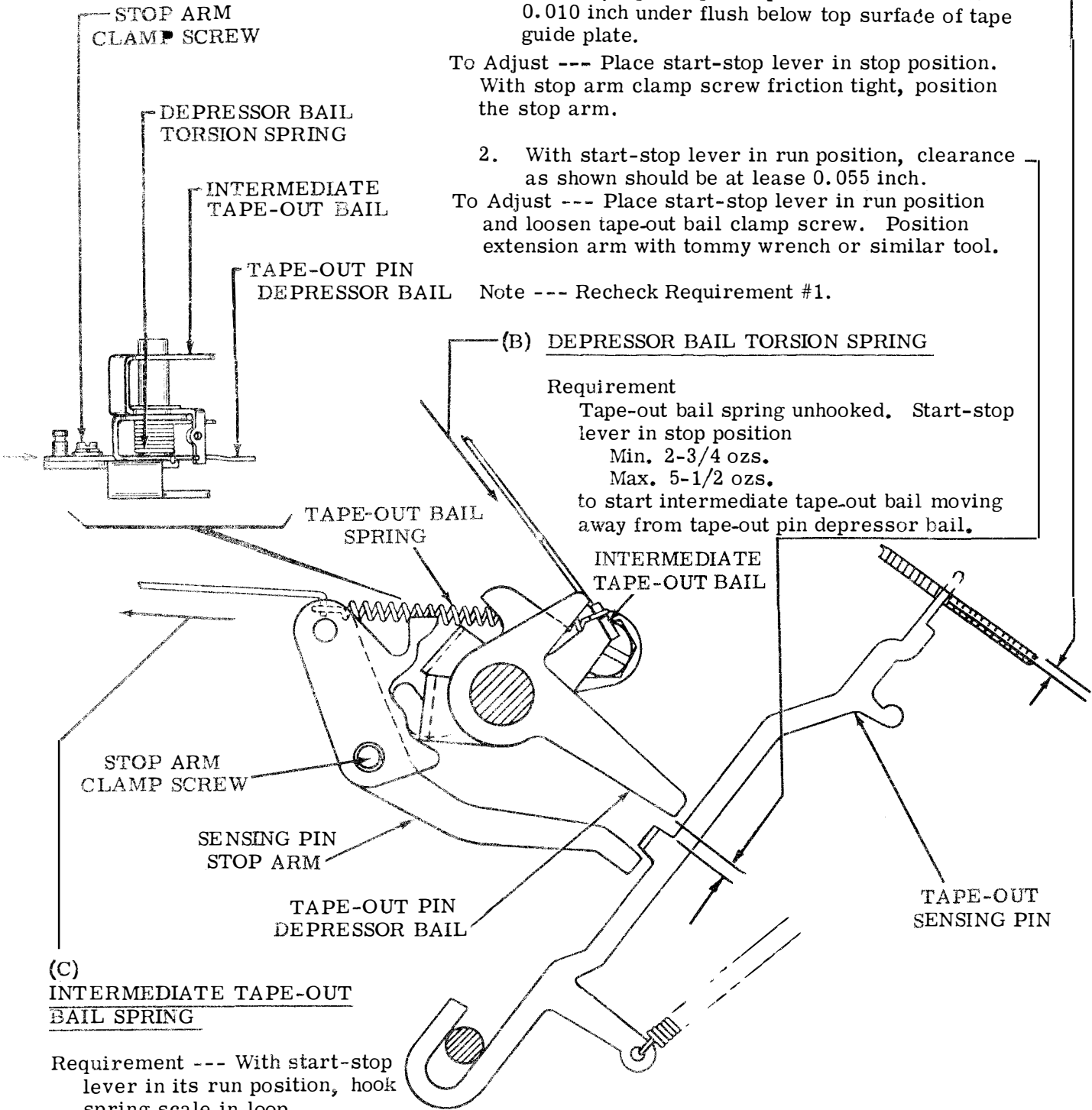
Requirement

Tape-out bail spring unhooked. Start-stop lever in stop position

Min. 2-3/4 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.

2.09 Start-Stop Switch Assembly

(A) START-STOP SWITCH BRACKET

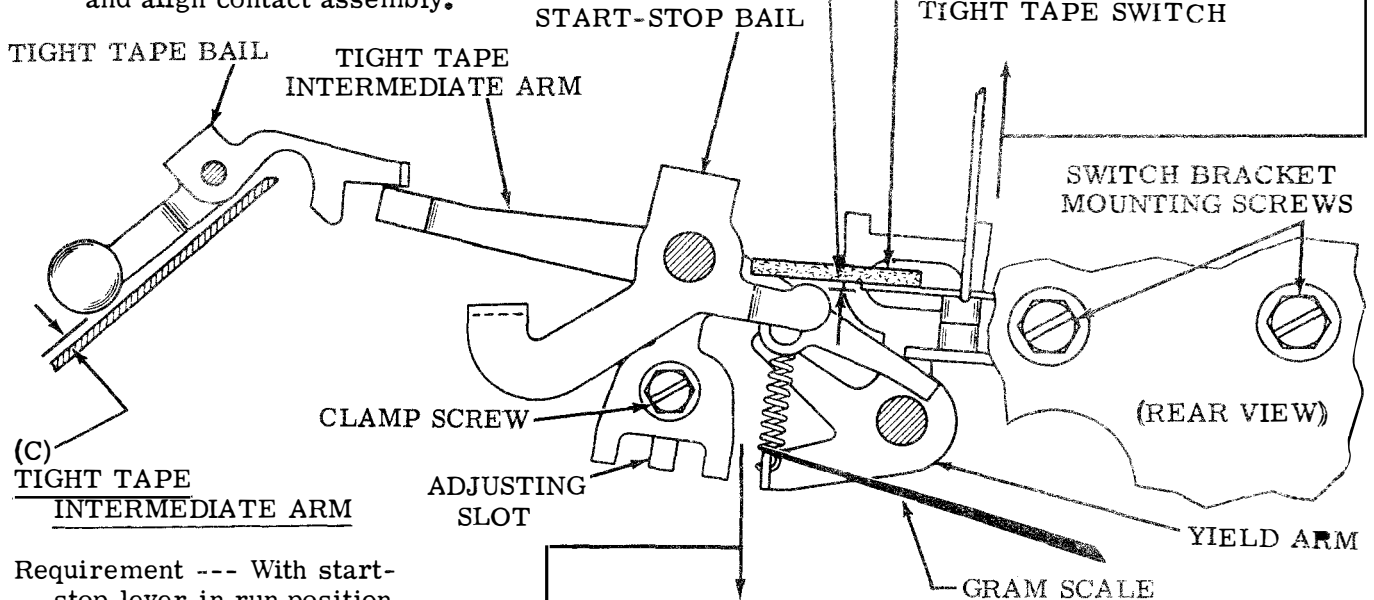
Requirements (Clutch disengaged)

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.

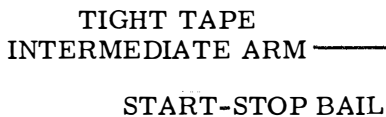


(C) TIGHT TAPE INTERMEDIATE ARM

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.



(B) TIGHT TAPE START-STOP CONTACT SPRING

Requirement --- With start-stop lever in run position
 Min. 3 ozs.
 Max. 4 ozs.
 to separate contacts.

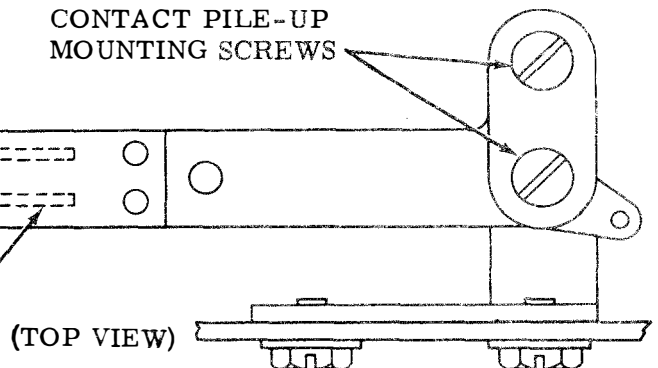
To Adjust --- Form swinger with TP110445 spring bender.

Note --- Recheck requirements (A) & (C).

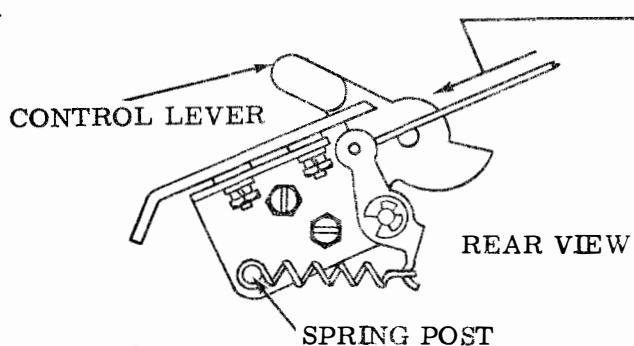
(D) TIGHT TAPE INTERMEDIATE ARM SPRING

Requirement --- With start-stop lever in run position,
 Min. 20 grams (3/4 ozs.)
 Max. 40 grams (1-1/2 ozs.)
 to start intermediate arm moving away from its yield arm.

CONTACT PILE-UP MOUNTING SCREWS



2.10 Main Bail Assembly



(C) CONTROL LEVER DETENT SPRING
(Not on relay controlled unit)

Requirement --- Control lever in run position
Min. 14 ozs.
Max. 22 ozs.
to start detent bail moving away from control lever detent.

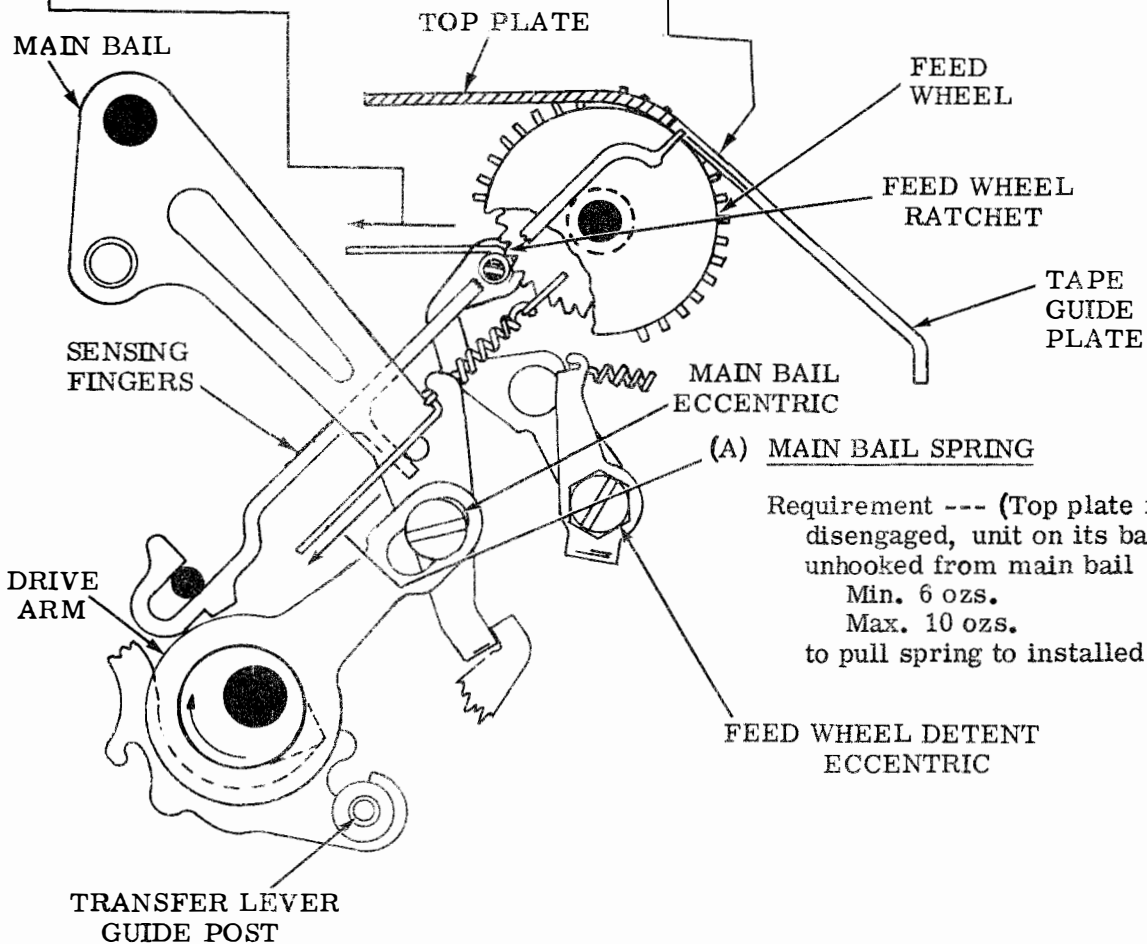
(B) FEED RATCHET DETENT SPRING

Requirement --- With mainshaft in stop position and feed pawl held away from its ratchet.
Min. 8 ozs.
Max. 13 ozs.
to start roller moving away from ratchet.

(D) MAIN BAIL TRIP LEVER

Requirement --- (Replace top plate)
Unit in stop position, clearance between tip of highest sensing pin and top surface of tape guide plate should be flush to 0.005 inch below.

To Adjust
Loosen front and rear transfer lever guide post nuts and rotate post so that its eccentric positions trip lever.



(A) MAIN BAIL SPRING

Requirement --- (Top plate removed) clutch disengaged, unit on its back. Spring unhooked from main bail
Min. 6 ozs.
Max. 10 ozs.
to pull spring to installed length.

2.11 Code Sensing Fingers

(A) SENSING FINGER SPRING

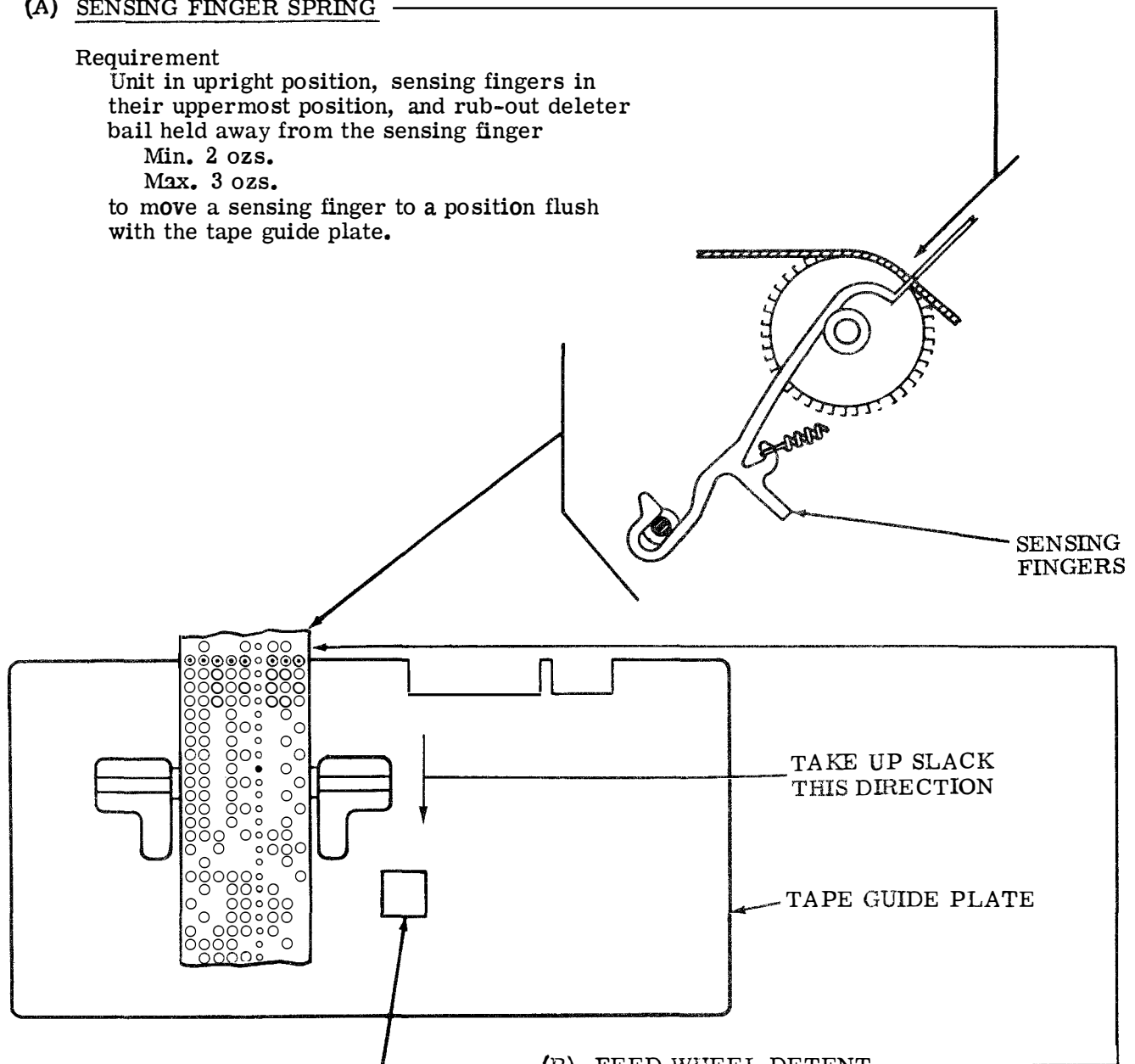
Requirement

Unit in upright position, sensing fingers in their uppermost position, and rub-out deleter bail held away from the sensing finger

Min. 2 ozs.

Max. 3 ozs.

to move a sensing finger to a position flush with the tape guide plate.



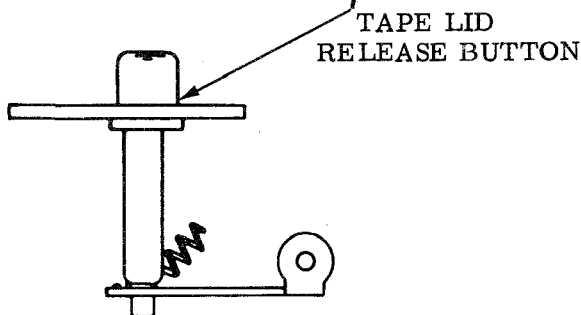
(B) FEED WHEEL DETENT

Requirement

With tape lid raised, sensing fingers down, high part of feed wheel detent 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. See figure on page 12.



2.12 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.

Min. Some

Max. 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.

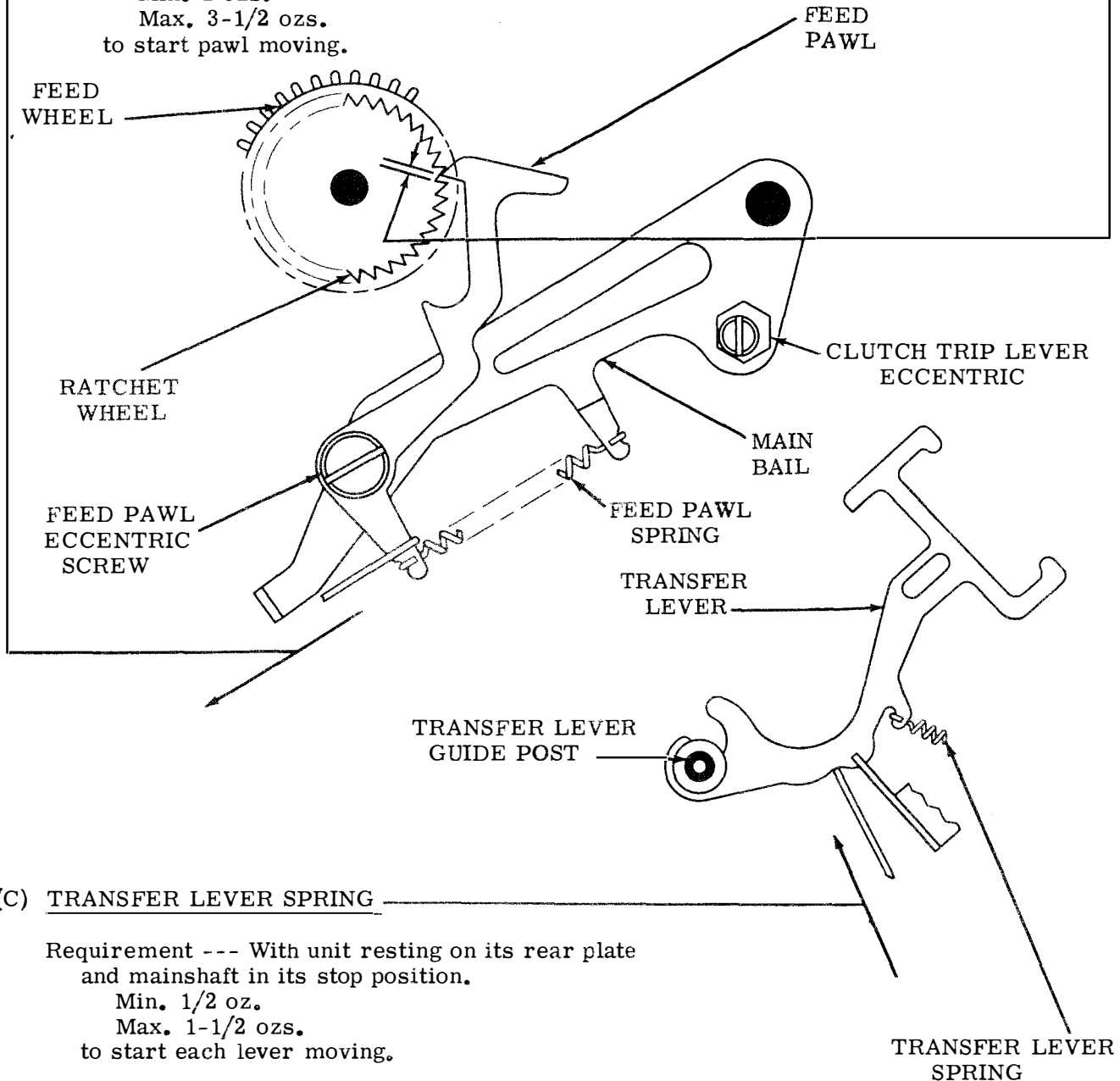
(B) FEED PAWL SPRING

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.

2.13 Main Bail Trip Assembly

(A) MAIN BAIL

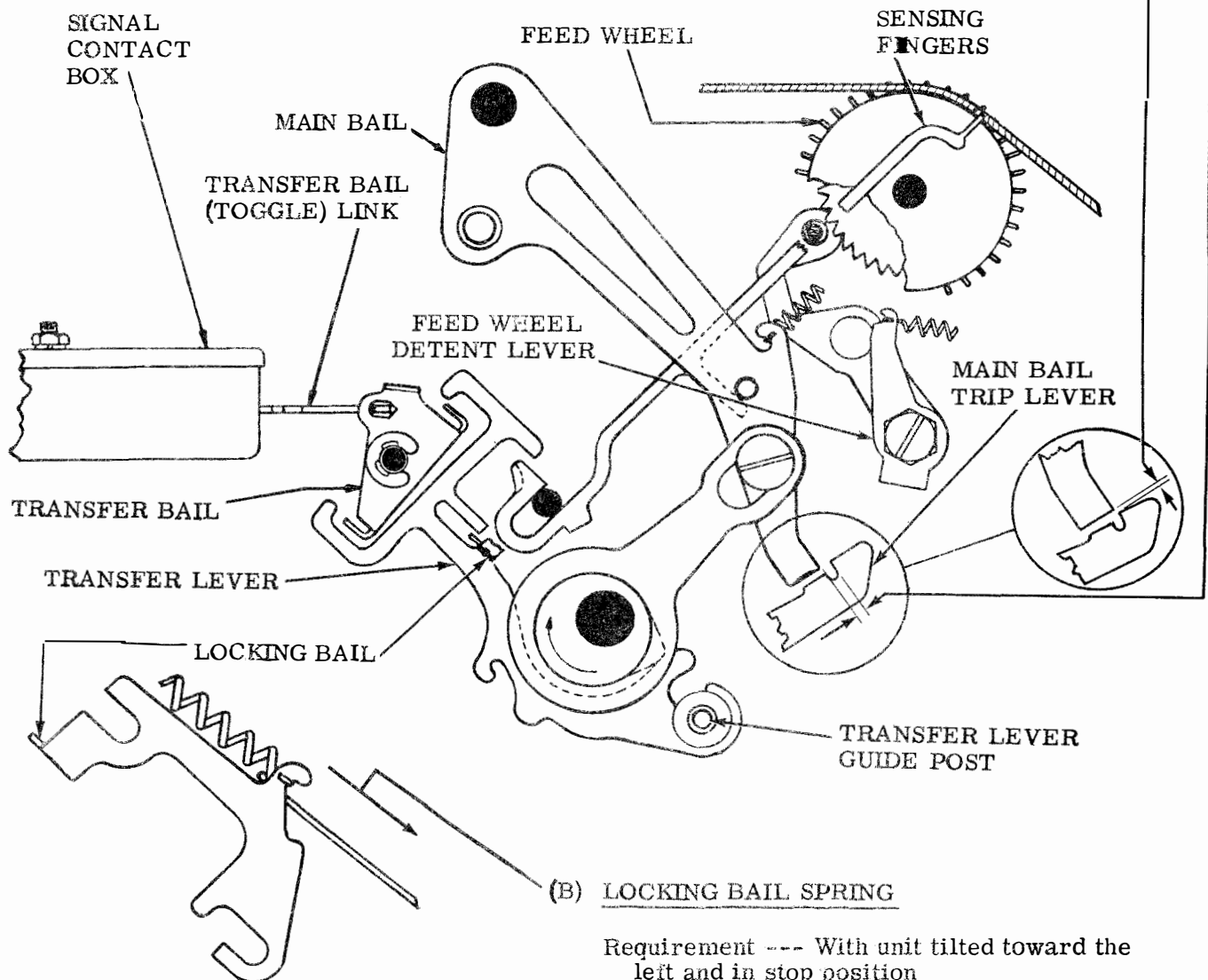
Requirement (Replace top plate)

1. Main bail in lowest position, horizontal clearance between main bail arm and main bail trip lever should be
 Min. Some
 Max. 0.015 inch

2. Main bail in lowest position and clutch magnet operated, clearance between vertical surfaces should be
 Min. 0.005 inch

To Adjust

Position main bail eccentric with nut on eccentric screw loosened. Check and refine, if necessary, main bail trip lever adjustment (see 2.10).



(B) LOCKING BAIL SPRING

Requirement --- With unit tilted toward the left and in stop position

Min. 10 ozs.

Max. 14 ozs.

to start bail moving.

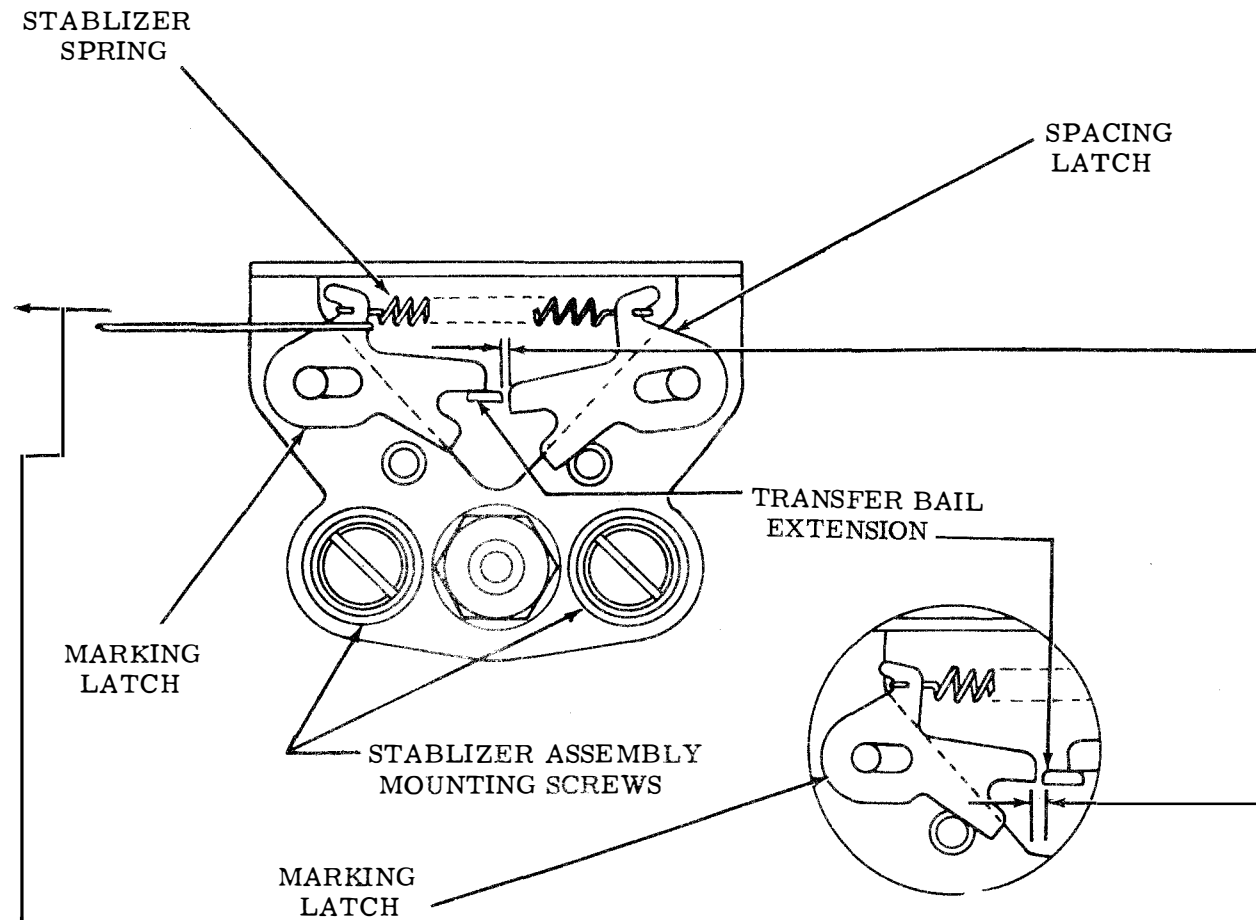
2.14 Transfer Bail Stabilizer

(A) TRANSFER BAIL STABILIZER

Requirement --- (1) With a RUBOUT 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 SPACE 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. Where possible, use a signal checking device to refine this adjustment following signal contact adjustment (2.15).



(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.

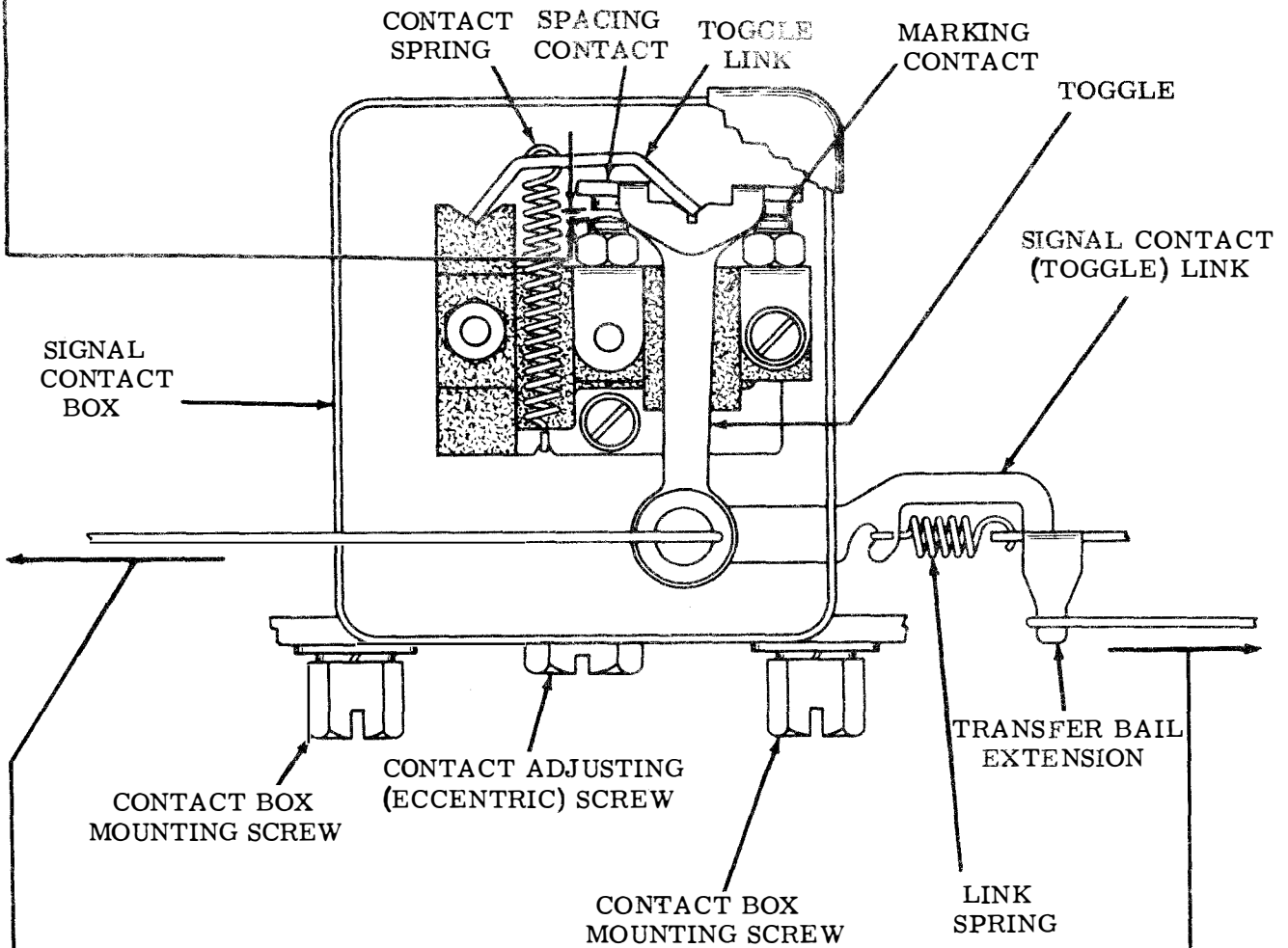
2.15 Signal Contact Assembly

(A) SIGNAL CONTACT

Requirement --- (Cover plate and contact box cover removed). Contact gap in the MARKING position and the SPACING position should be equal when clearance between respective contacts is maximum. (Engage clutch and rotate mainshaft slowly.)

To Adjust --- With contact box mounting screws friction tight, position box with its eccentric.

Note --- Use test set such as DXD where possible to refine adjustment. Refer to 2.19.



(B) SIGNAL CONTACT SPRING

Requirement
 With mainshaft in stop position and cover of contact box removed, unhook toggle link spring and move transfer bail to spacing position (right)
 Min. 2 ozs.
 Max. 3-1/2 ozs.
 to open spacing contacts (left).

(C) SIGNAL CONTACT LINK SPRING

Requirement - With mainshaft in stop position and stabilizer spring unhooked, move latches away from transfer bail extension (2.14). Hold toggle firmly against contacts.
 Min. 6 ozs.
 Max. 12 ozs.
 to start transfer bail extension moving.

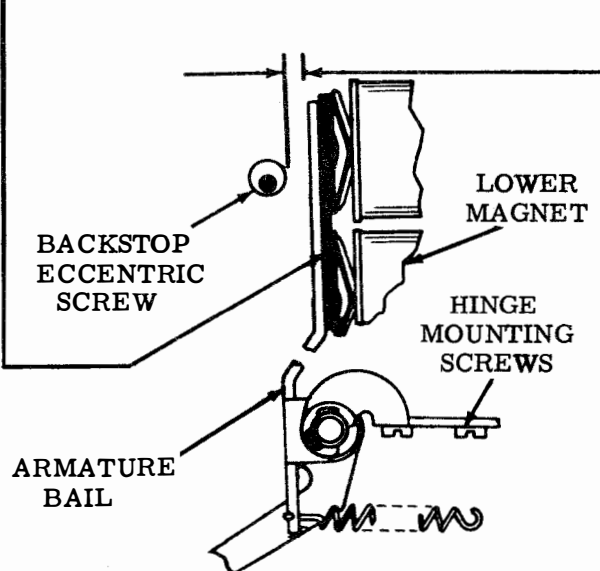
2.16 Clutch Trip Magnet Assembly

(A) CLUTCH MAGNET

Requirement

1. With armature in its energized position, the armature should contact the core of the magnet farthest away from the armature hinge. Clearance between armature and core nearest armature hinge
 Min. Some
 Max. 0.004 inch
 at point of least clearance.

To Adjust --- With magnet assembly mounting screws removed, lift assembly from unit. Invert assembly, loosen hinge bracket mounting screws and position bracket.



2. With armature in its energized position and high part of backstop eccentric upward, clearance between armature bail and backstop
 Min. 0.045 inch
 Max. 0.055 inch

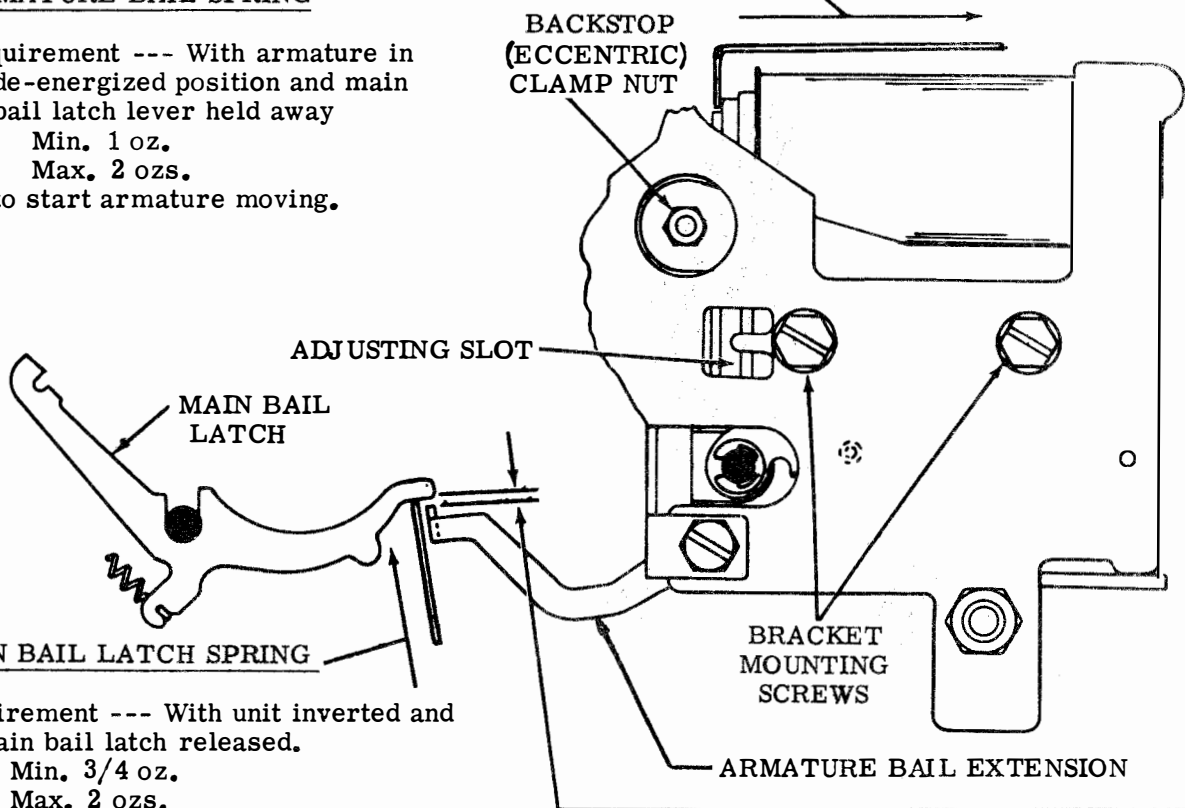
To Adjust --- Loosen backstop clamp nut and position the eccentric.

3. With magnet assembly replaced and clutch disengaged, clearance between end of armature bail extension and main bail latch
 Min. 0.007 inch
 Max. 0.015 inch

To Adjust --- With bracket mounting screws friction tight, move assembly to its lowermost position then position bracket by its adjusting slot. Refine requirements if necessary.

(B) ARMATURE BAIL SPRING

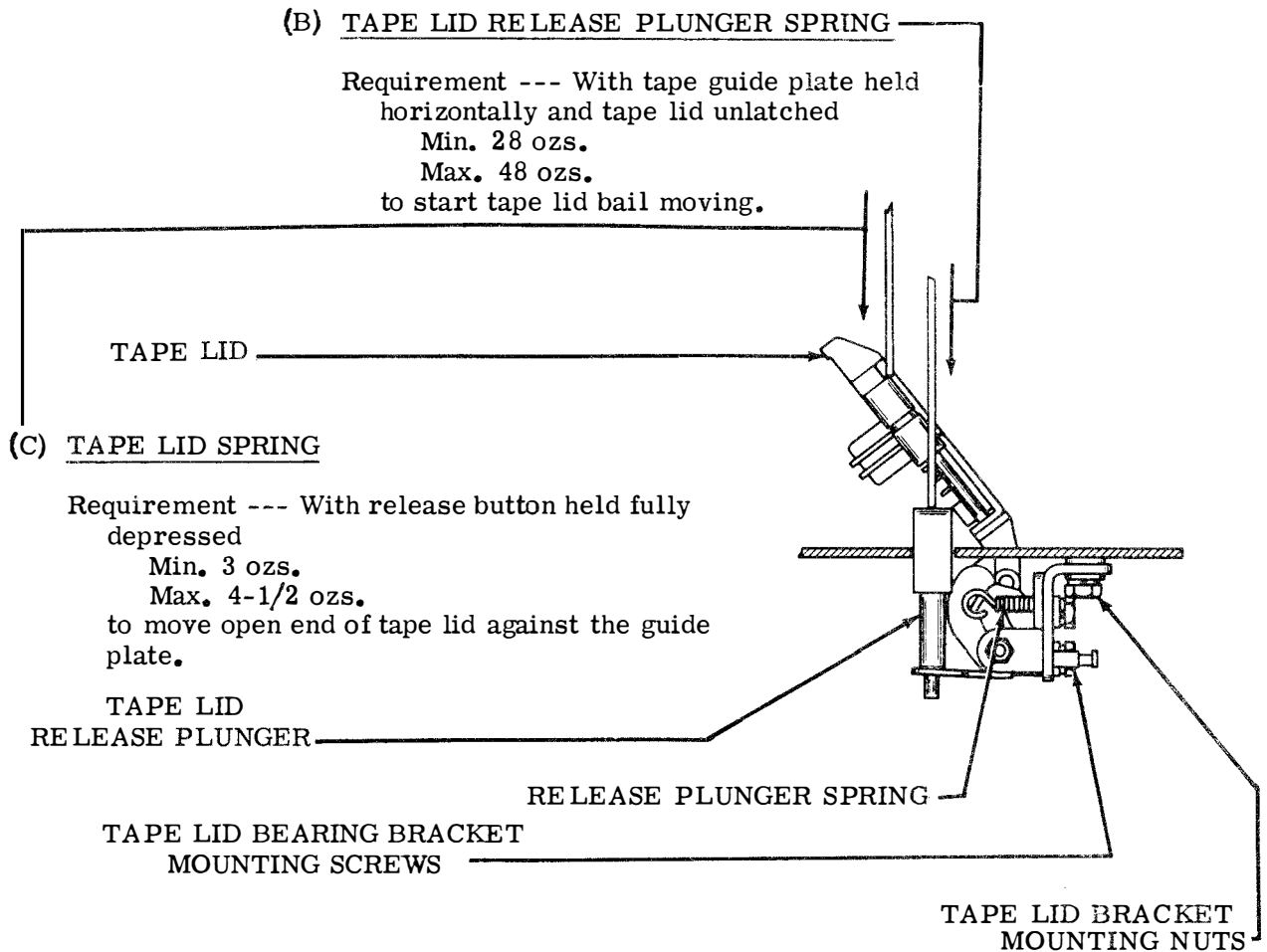
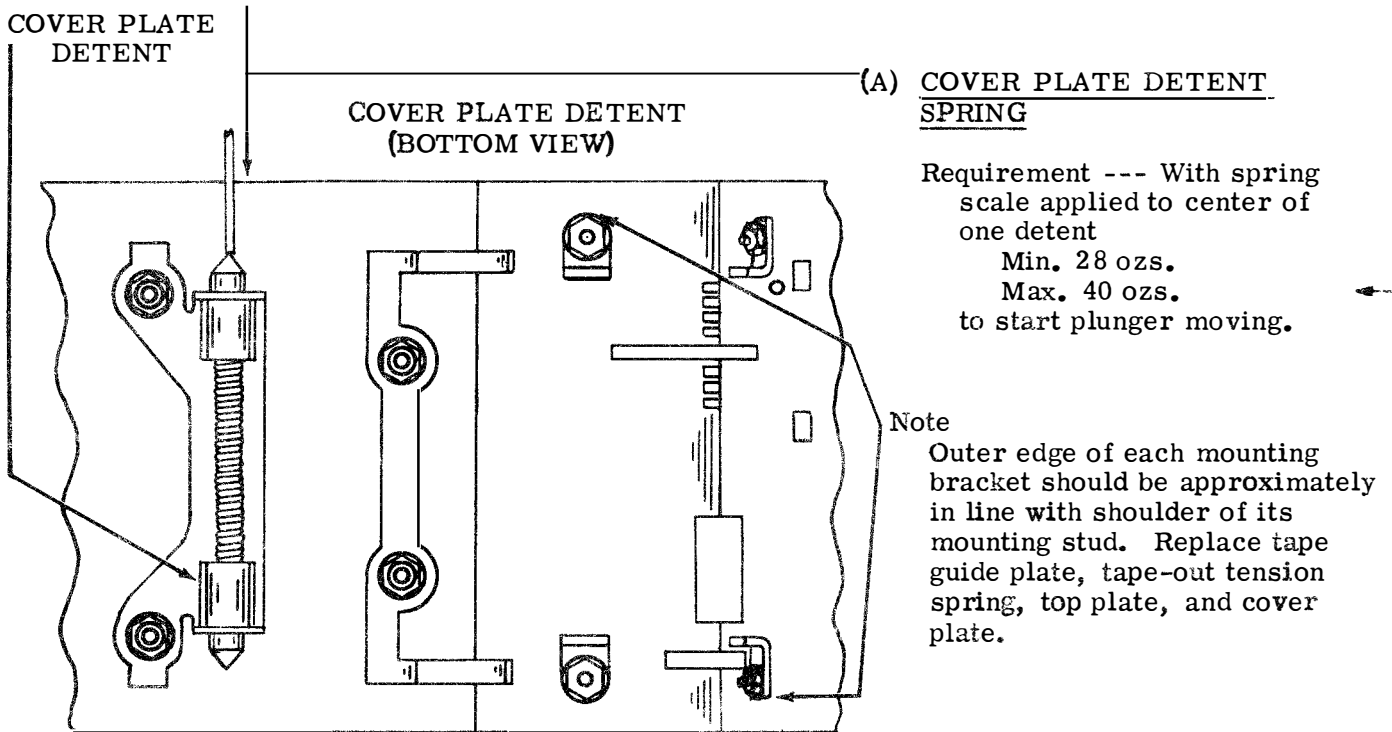
Requirement --- With armature in de-energized position and main bail latch lever held away
 Min. 1 oz.
 Max. 2 ozs.
 to start armature moving.



(C) MAIN BAIL LATCH SPRING

Requirement --- With unit inverted and main bail latch released.
 Min. 3/4 oz.
 Max. 2 ozs.
 to start main bail latch moving.

2.17 Tape Lid Assembly

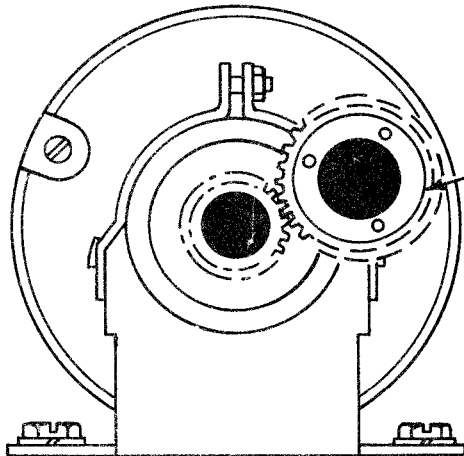


2.18 Transmitter Distributor Gear

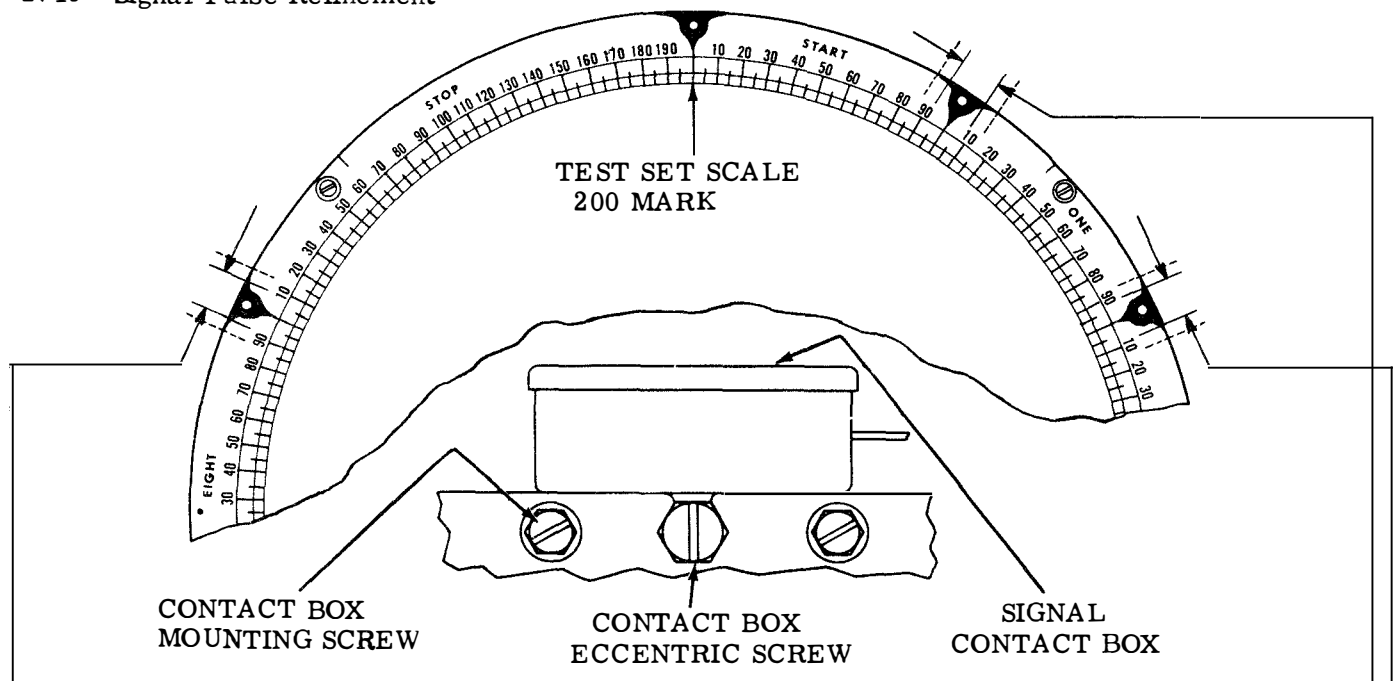
TRANSMITTER DISTRIBUTOR GEAR

Requirement --- There should be only a perceptible amount of backlash between the intermediate drive gear and transmitter distributor gear.

To Adjust --- With transmitter distributor mounting screws (3) loosened, position the unit on base.



2.19 Signal Pulse Refinement



SIGNAL PULSE REFINEMENT - FINAL ADJUSTMENT WITH DXD OR STROBE
 (11.0 Unit Code - Speeds up to and including 100 WPM)

Procedure --- Plug signal distortion test set into 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 200 mark on DXD scale when both units are operated at same speed and transmission is continuous.

NOTE 1 --- Figures appearing in () in par. 2.19 and 2.20 are relaxed requirements for transmitter distributor sets used in circuits that employ a signal regenerator.

NOTE 2 --- End of stop pulse image should not vary from the 200 mark by more than one scale division. If a greater variation occurs, move the scale until the variations extend equally on either side of the 200 mark.

1. Requirement

- a. Each marking code pulse should start no later than the 8th (12th) mark of the pulse under observation and start no earlier than 92nd (88th) mark of the previous pulse.
- b. Each marking code pulse should end no earlier than the 92nd (88th) mark of the pulse under observation and no later than the 8th (12th) mark of the following pulse.
- c. Each marking code pulse may have one break provided the break is not over three divisions wide and provided the break occurs only at the end of the code pulse image between the 92nd (88th) mark and the end of the image.
- d. The stop pulse should start no earlier than the 92nd (88th) mark of the last intelligence pulse and start no later than the 8th (12th) mark of the stop position.
- e. The stop image should not change in length or position, when viewed on DXD, to exceed one division while changing from R to Y selection (or equivalent codes). If necessary, reorient 200 mark on stop scale with end of stop pulse image.

2.20 Signal Pulse Refinement Continued

To Adjust --- With signal contact box mounting screws friction tight, rotate the eccentric (right or left). Tighten mounting screws and recheck adjustment.

2. Requirement

When the spacing contact of the signal generator is wired the spacing contact should meet the following requirements:

- a. Each spacing code pulse should start no later than the 8th (12th) mark of the pulse under observation and start no earlier than the 92nd (88th) mark of the previous pulse.
- b. Each spacing pulse should end no earlier than the 92nd (88th) mark of the pulse under observation and end no later than the 8th (12th) mark of the following pulse.
- c. Each spacing pulse may have one break provided the break is not over three divisions wide and provided the break occurs only at the end of the code pulse image between the 92nd (88th) mark and the end of the image.
- d. The start pulse should start no earlier than the 192nd (188th) mark of the stop pulse and start no later than the 8th (12th) mark of the start pulse. The start pulse should end no earlier than the 92nd (88th) mark of the start pulse and end no later than the 8th (12th) mark of the number one pulse.

To Adjust --- Same as above - Recheck marking contact if a spacing adjustment is made.

NOTE 3 --- If the signal requirements cannot be met, refine transmitter distributor gear adjustment (2.18) and stabilizer adjustment (2.14) with signal viewed on DXD.

CAUTION: USE CARE WHEN SERVICING SIGNAL GENERATORS EQUIPPED WITH GOLD CONTACTS. CLEAN THESE CONTACTS BY PASSING A STRIP OF BOND PAPER BETWEEN THEM. CLEANING OR BURNISHING BY OTHER METHODS MAY REMOVE THE THIN GOLD FILM.

USE PROPER PROCEDURE DURING TEST AND ADJUSTMENT OF THE SIGNAL GENERATOR TO AVOID PITTING OR CHIPPING THE CONTACTS. CONTACTS SO DAMAGED MAY PRODUCE BREAKS AND UNACCEPTABLE OPERATION IN LOW LEVEL CIRCUIT APPLICATIONS.

TEST EQUIPMENT USED SHOULD OPERATE ON NON-INDUCTIVE 20 MA AT 40 VDC OR LESS. HIGHER VOLTAGES CAN BE USED, BUT WITH A DROP IN CURRENT TO KEEP THE ENERGY ACROSS THE CONTACTS IN THE SAME ORDER OF MAGNITUDE. LOW LEVEL NON-INDUCTIVE TEST EQUIPMENT IS ESPECIALLY NECESSARY IN WORKING WITH UNITS NOT EQUIPPED WITH ARC SUPPRESSORS.

3. VARIABLE FEATURES

3.01 Timing Contact Mechanism

(C) TIMING CONTACT SPRING

Requirement

Min. 5 ozs.

Max. 8 ozs.

to move spring from stiffener.

To Adjust

Remove contact bracket assembly, loosen contact pileup mounting screws and bend contact spring with bender (TP110445). Retighten pileup mounting screws and check. Replace contact bracket assembly. Refine adjustments (A) and (B), if necessary.

MOUNTING SCREWS

CONTACT BRACKET

(D) CAM FOLLOWER SPRING

Requirement

With unit in stop position and contact spring held away

Min. 2 ozs.

Max. 4 ozs.

STIFFENER

SPRING

CONTACT SPRING

SWINGER

CAM

(B) TIMING CONTACT SWINGER

(A) TIMING CONTACT BRACKET

Requirement

1. With follower on low part of cam contacts should be closed when nylon pad is raised 0.006 inch and open when pad is raised 0.010 inch.
2. With follower on any peak of cam, contact gap should be

Min. 0.003 inch

on units prior to serial No. 42200

Min. 0.015 inch

To Adjust

Place unit in stop position. Adjust contact bracket by means of screwdriver lug, visible through hole in rear plate, with bracket mounting screws loosened.

Requirement

With contact closed

Min. 2 ozs.

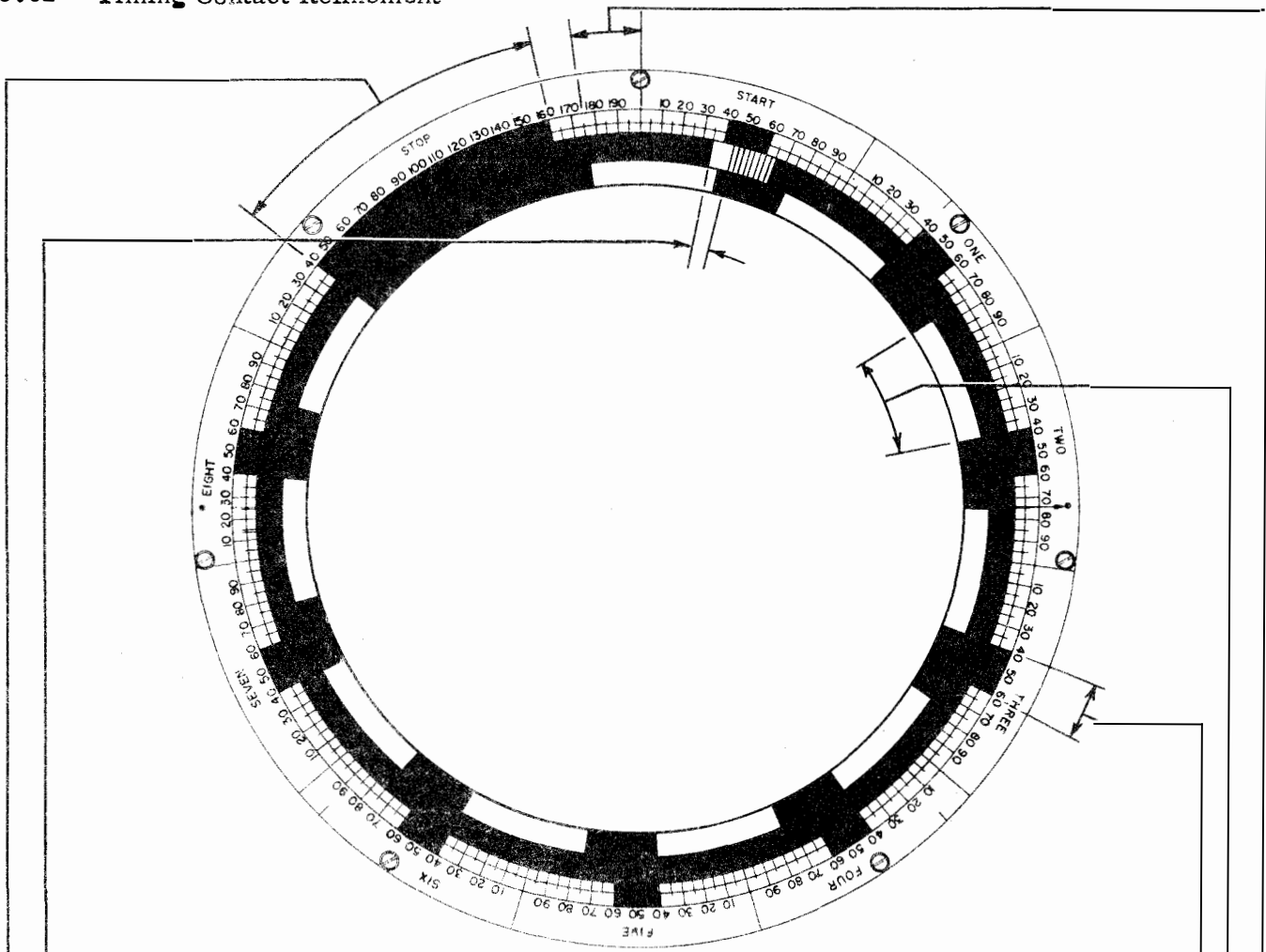
Max. 3 ozs.

to just separate contacts

To Adjust

Bend swinger with spring bender TP110445.

3.02 Timing Contact Refinement



TIMING CONTACT REQUIREMENTS

1. Zero the test set as previously described (2. 19).
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 from the close to open transition of the start pulse.
 - d. There should be no contact break between the 0 division point and the close to open transition point and no contact break between the 75 division point and 100 division point of each pulse. There should be no contact break between 175 division point and the 200 division point of the stop pulse.
- d. Check and refine, if necessary, adjustment (A) in par. 3.01.

3.03 Timing Contact Refinement Continued

- e. The timing contacts should be open in the rest position of the transmitter distributor.

To adjust, loosen the two timing contact bracket mounting screws until they are friction tight. Position the timing contact assembly by means of the screw driver lug on the bracket visible through a hole in the rear plate so that the requirements are met. Tighten the screws and recheck the image on the DXD stroboscope.

3.04 Rubout Sensing Mechanism

(A) RUBOUT SENSING MECHANISM

Requirement

With DELETE (rubout) selection set up and timing bail on low part of its cam, the start-stop contact gap should be

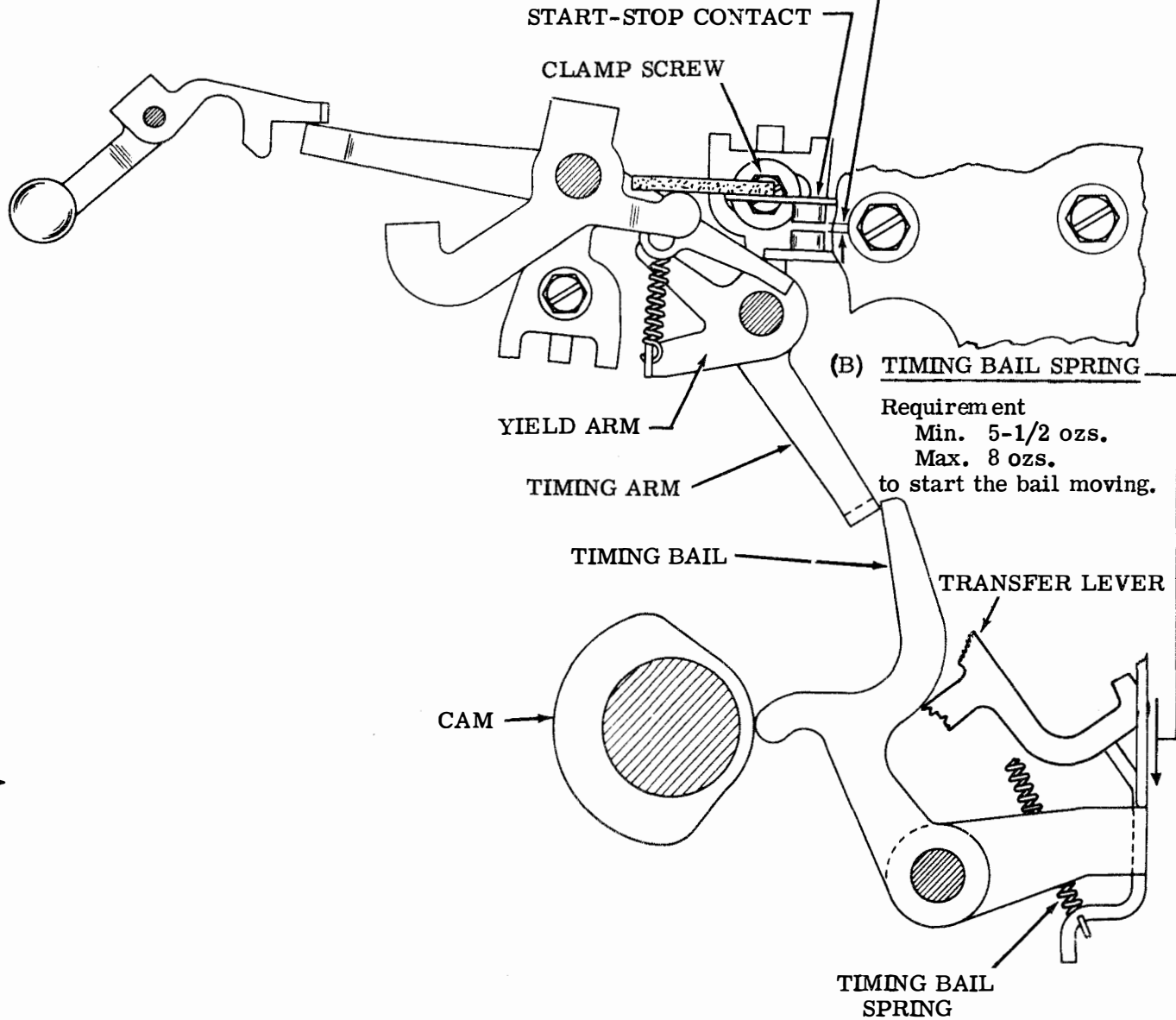
Min. 0.018 inch

Max. 0.025 inch

Use light thumb pressure to hold bail against its cam when checking gap.

To Adjust

Position the timing arm on the yield arm with its clamp screw friction tight.



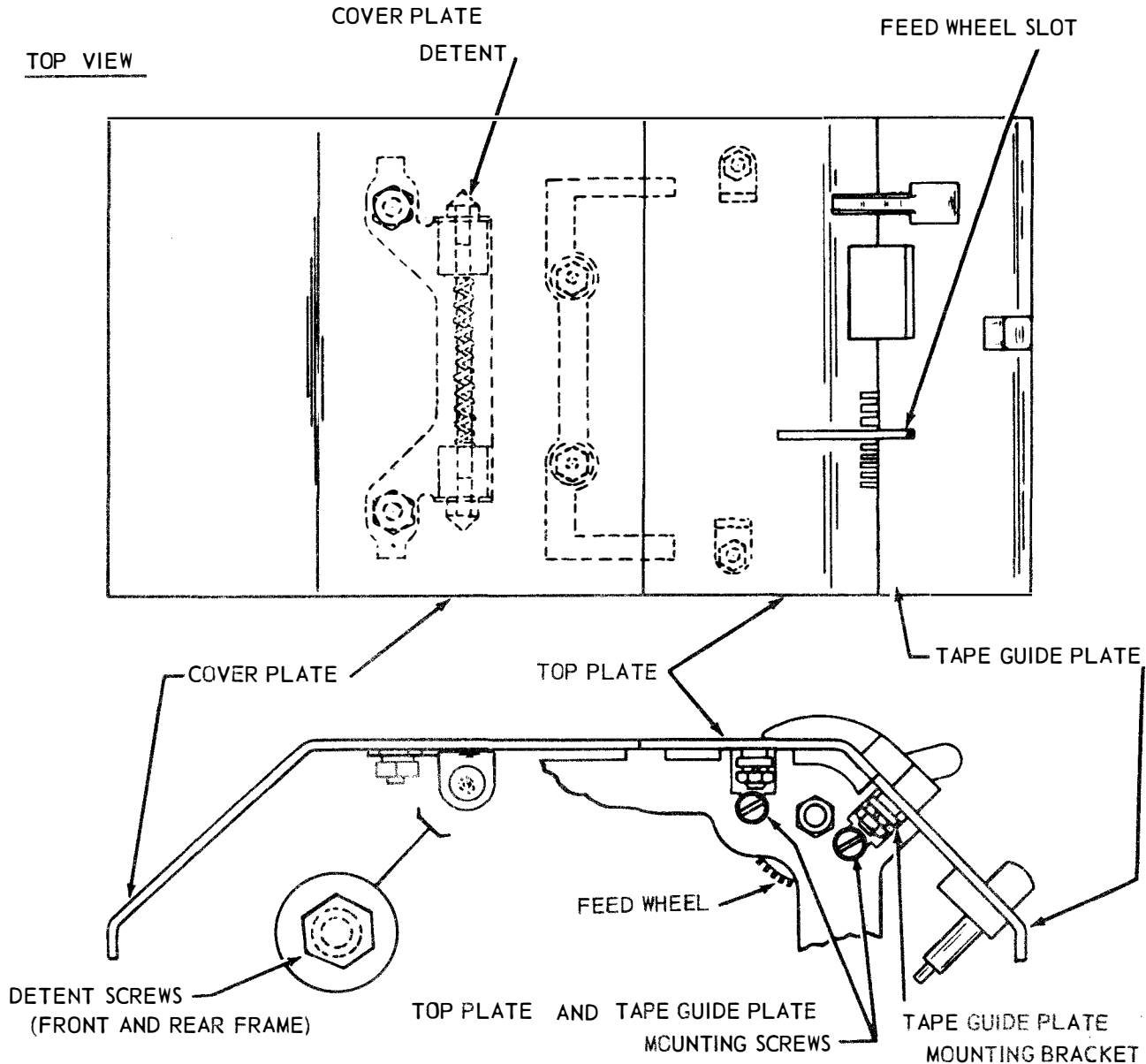
35 TRANSMITTER DISTRIBUTOR (SINGLE CONTACT)

LUBRICATION

CONTENTS	PAR. NO.	<u>Operating Speed</u> (Words per Minute)	<u>Lubricating Interval</u> (Whichever occurs first)
1. GENERAL.	1.01-1.09	60 - - - - -	3000 hrs. or 1 yr.
2. LUBRICATION.	2.01-2.15	75 - - - - -	2400 hrs. or 9 mo.
		100 - - - - -	1500 hrs. or 6 mo.
Center plate assembly	2.09		
Clutch trip assembly.	2.04		
Front plate assembly	2.11		
Gear train.	2.06		
Main shaft.	2.07		
Oil reservoir.	2.08		
Rubout sensing mechanism.	2.14		
Sensing and feed mechanism.	2.12		
Signal contact assembly.	2.03		
Tape guide plate.	2.02		
Timing mechanism.	2.15		
Transfer mechanism.	2.13		
Transmitter distributor, end view.	2.10		
Transmitter distributor, side view	2.05		
Transmitter distributor, top view	2.01		
1. GENERAL			
1.01 This section is reissued to convert it from a preliminary publication to a standard publication.			
1.02 The 35 Transmitter Distributor should be lubricated as directed in this section. The figures indicate points to be lubricated and the kind and quantity of lubricant to be used. Lubricate the unit just prior to placing it in service. After a few weeks in service, re-lubricate to make certain that all points receive lubrication. The following lubrication schedule should be followed thereafter.			
			1.03 Use KS-7470 oil at all locations where the use of oil is indicated. Use KS-7471 grease on all surfaces where grease is indicated.
			1.04 All spring wicks and felt oilers should be saturated. The friction surfaces of all moving parts should be thoroughly lubricated. Overlubrication should be avoided. Special care must be taken to prevent any oil or grease from getting between the clutch armature and its magnetpole faces or between electrical contacts.
			1.05 Apply a thick film of grease to all gears.
			1.06 Apply oil to all cams, including the camming surfaces of the clutch disk.
			1.07 The photographs show the paragraph numbers referring to particular line drawings of mechanisms and where these mechanisms are located on the unit. Parts in the line drawings are shown in an upright position unless otherwise specified.
			1.08 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.
		020	Apply 20 drops of oil, etc.
		G	Apply thin film of grease.
		SAT	Saturate (felt oilers, washer, wicks) with oil.

1.09 Instructions

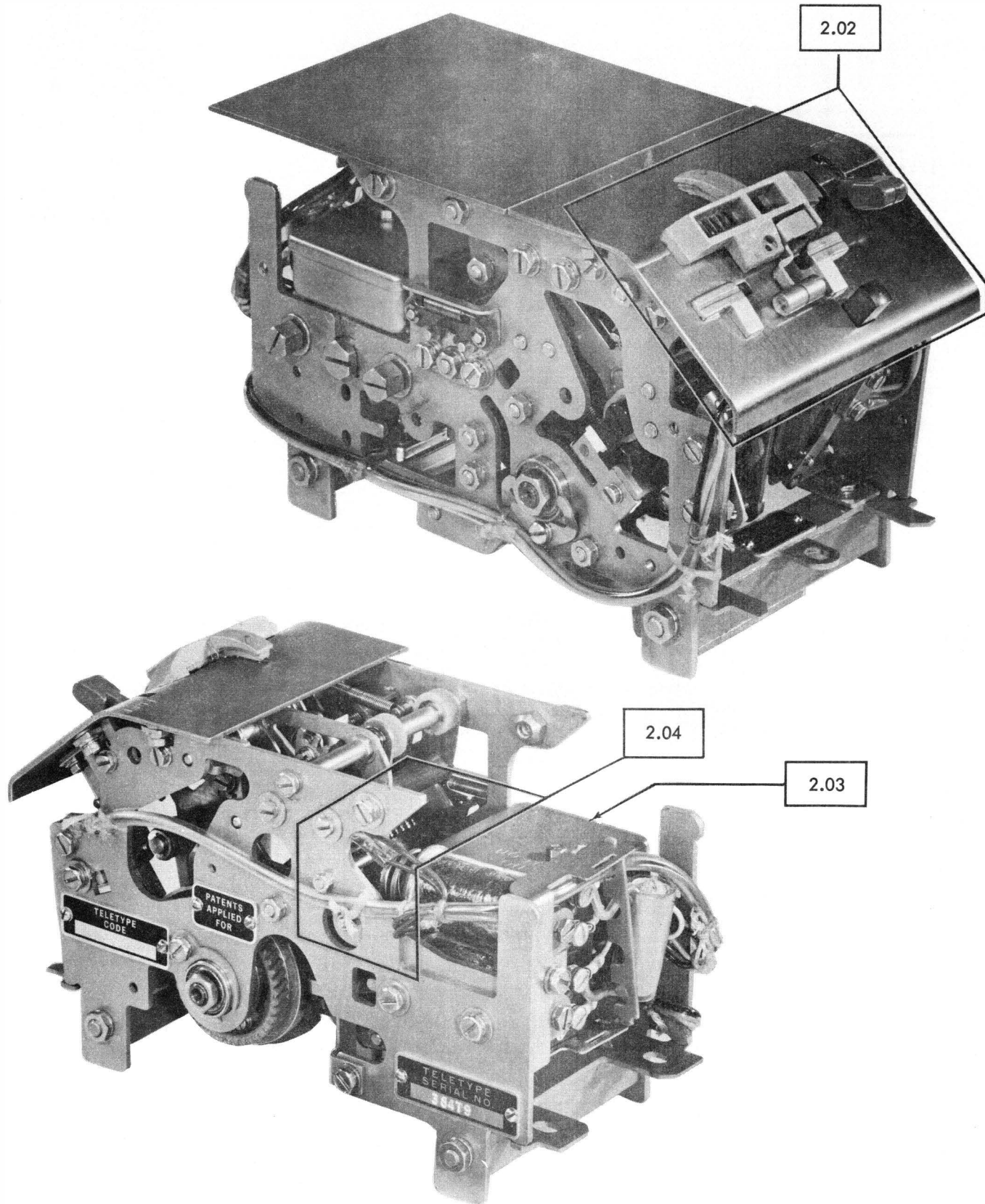
1. REMOVING COVER PLATE: LIFT LEFT END OF PLATE TO RELEASE THE DETENT FASTENERS THEN SLIDE COVERPLATE TOWARD THE LEFT. REPLACE COVER IN THE REVERSE ORDER.
2. REMOVING TOP PLATE: LOOSEN THE FRONT AND REAR MOUNTING SCREWS. LIFT TOP PLATE UPWARD.
3. REMOVING TAPE GUIDE PLATE: LOOSEN THE TAPE GUIDE PLATE MOUNTING SCREWS. LIFT THE TAPE GUIDE PLATE.



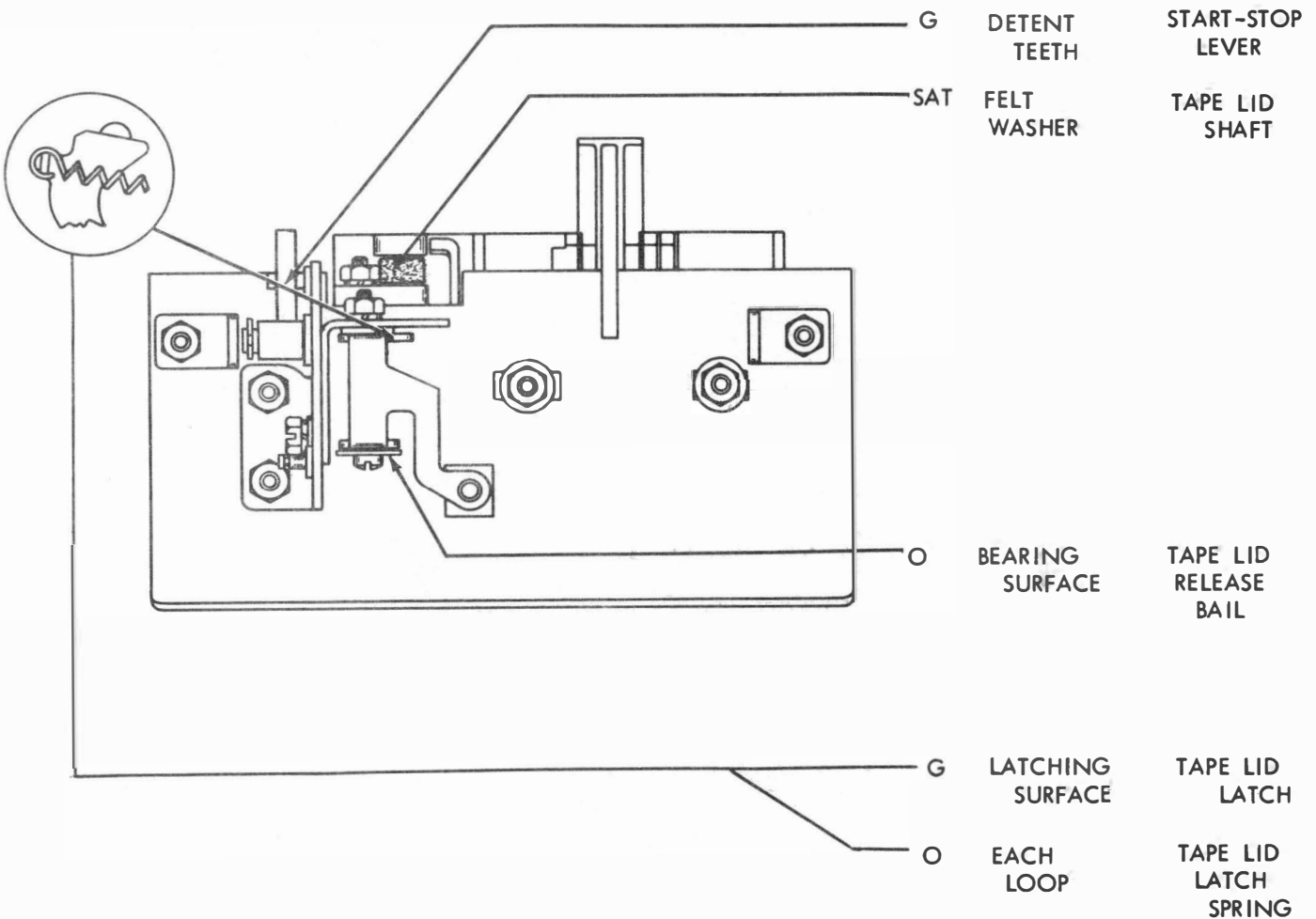
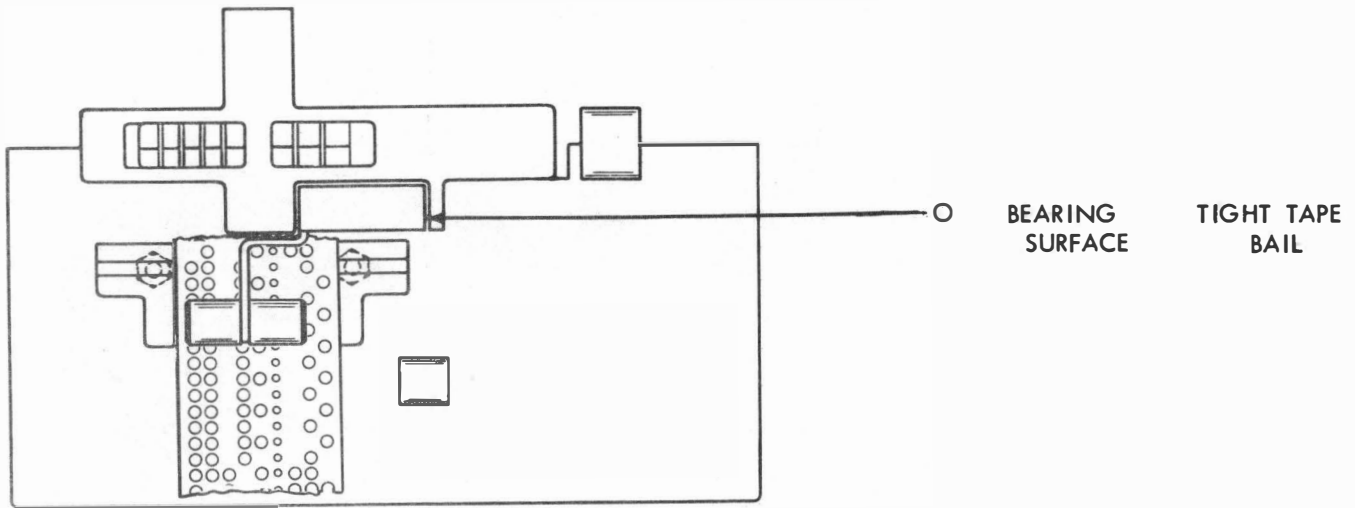
4. REMOVING TRANSMITTER-DISTRIBUTOR ASSEMBLY: REMOVE THE SCREWS WHICH ATTACH THE UNIT TO THE BASE, AND LIFT UNIT UP TO DISENGAGE THE GEARS. DISCONNECT ELECTRICAL PLUG.

2. LUBRICATION

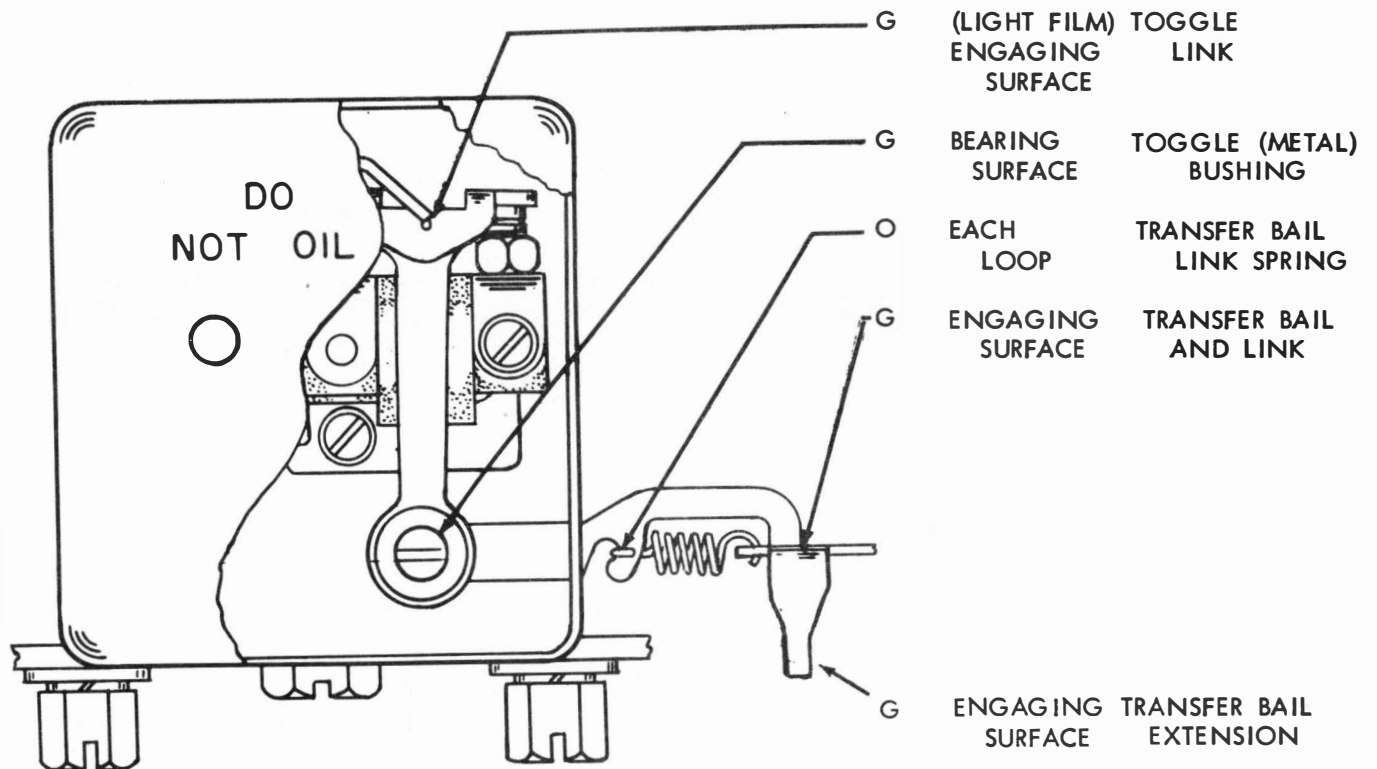
2.01 Transmitter Distributor -- Top View



2.02 Tape Guide Plate



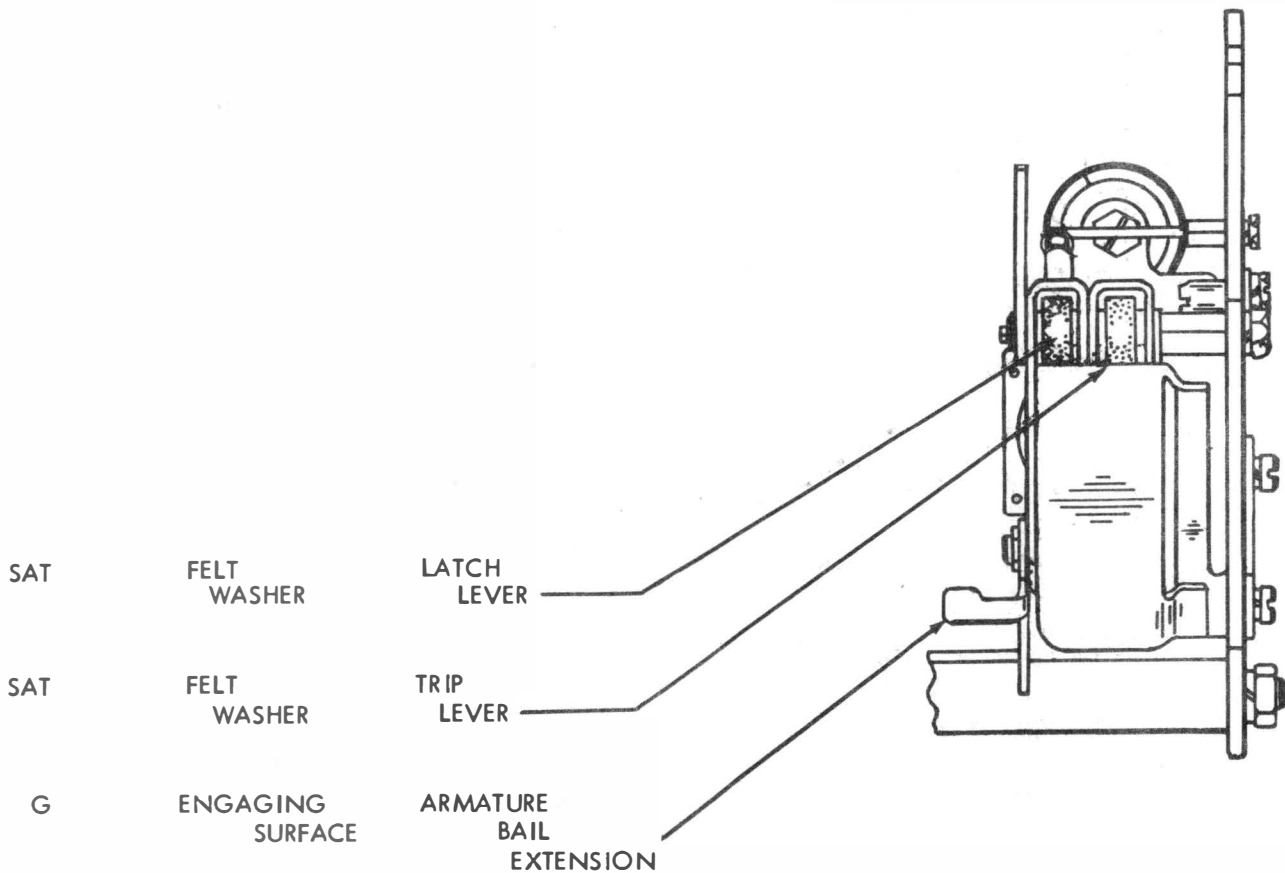
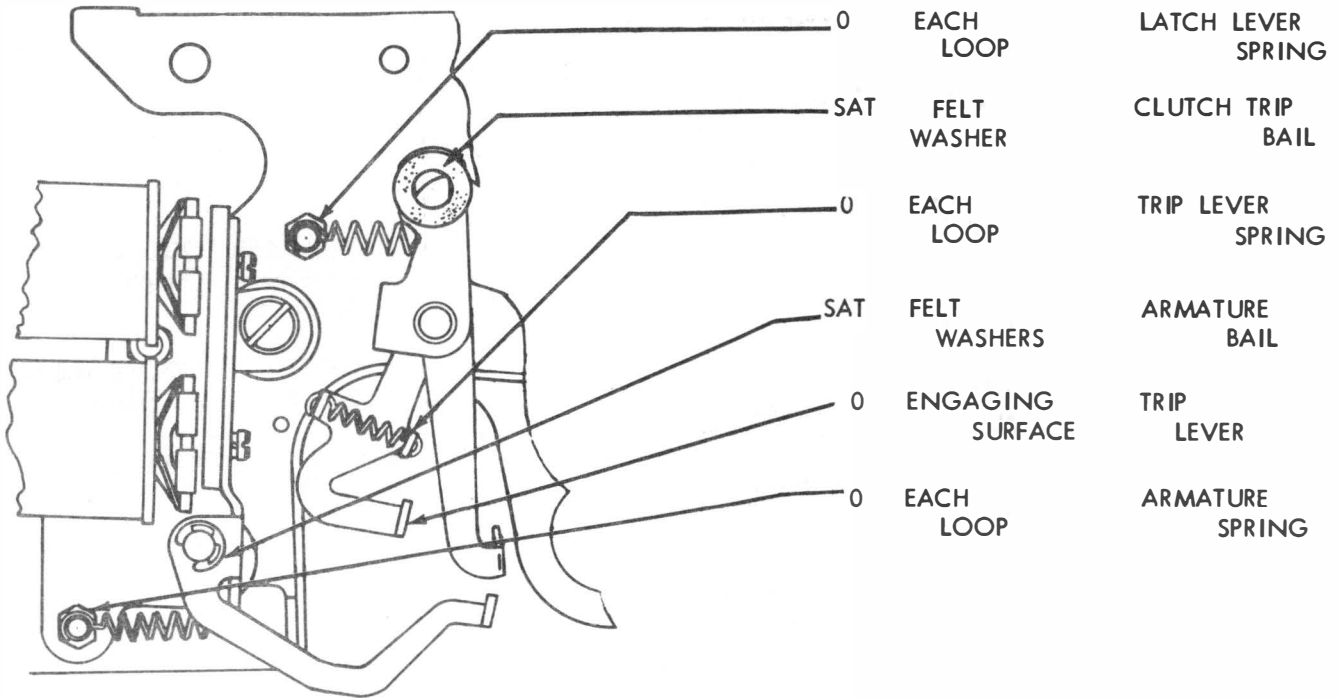
2.03 Signal Contact Assembly



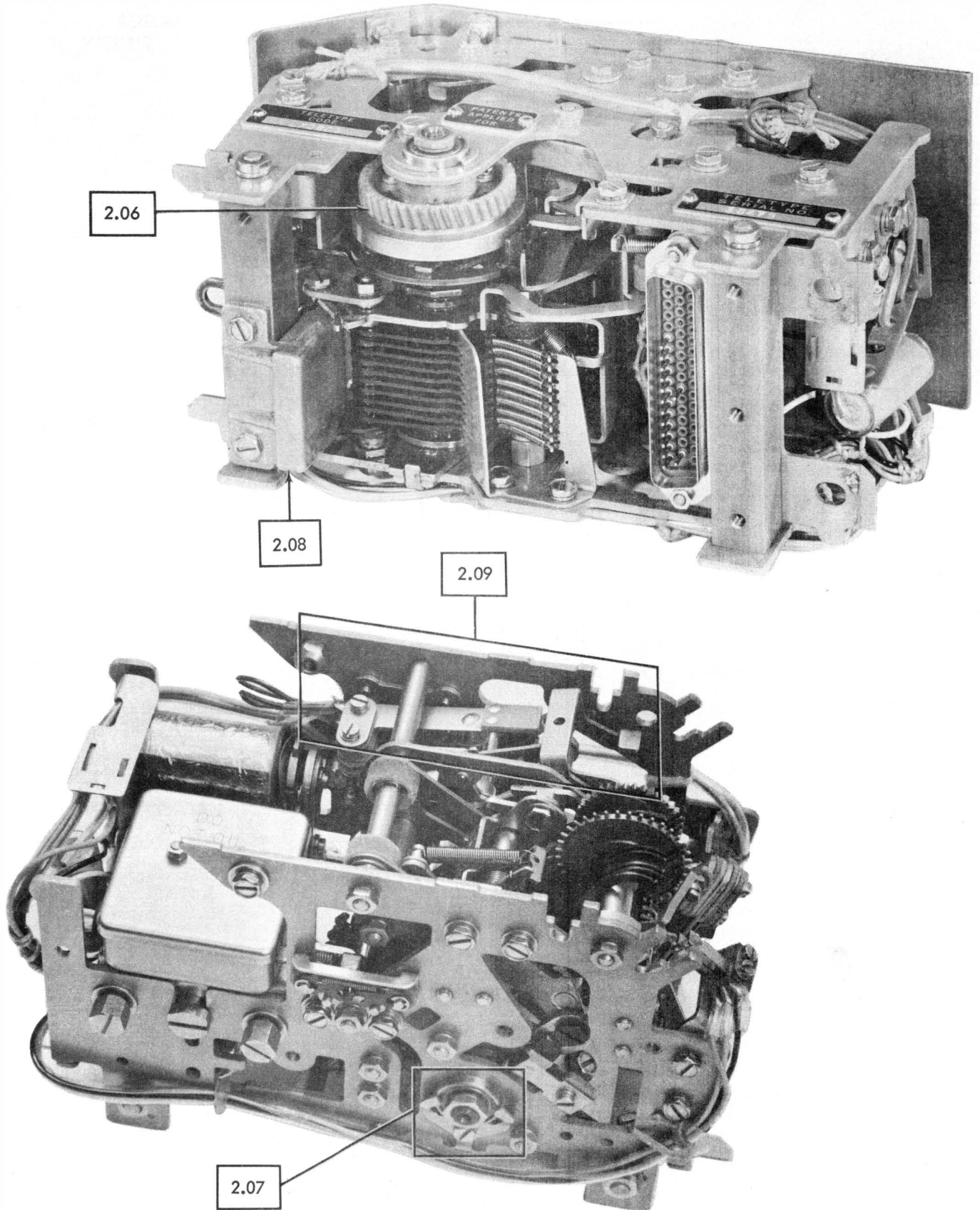
NOTE:

THE MARKING "DO NOT OIL" ON THE SIGNAL CONTACT BOX SHOULD BE INTERPRETED LITERALLY. PORTIONS OF THE MECHANISM SHOULD BE GREASED AS INDICATED, BUT NO OIL SHOULD BE USED.

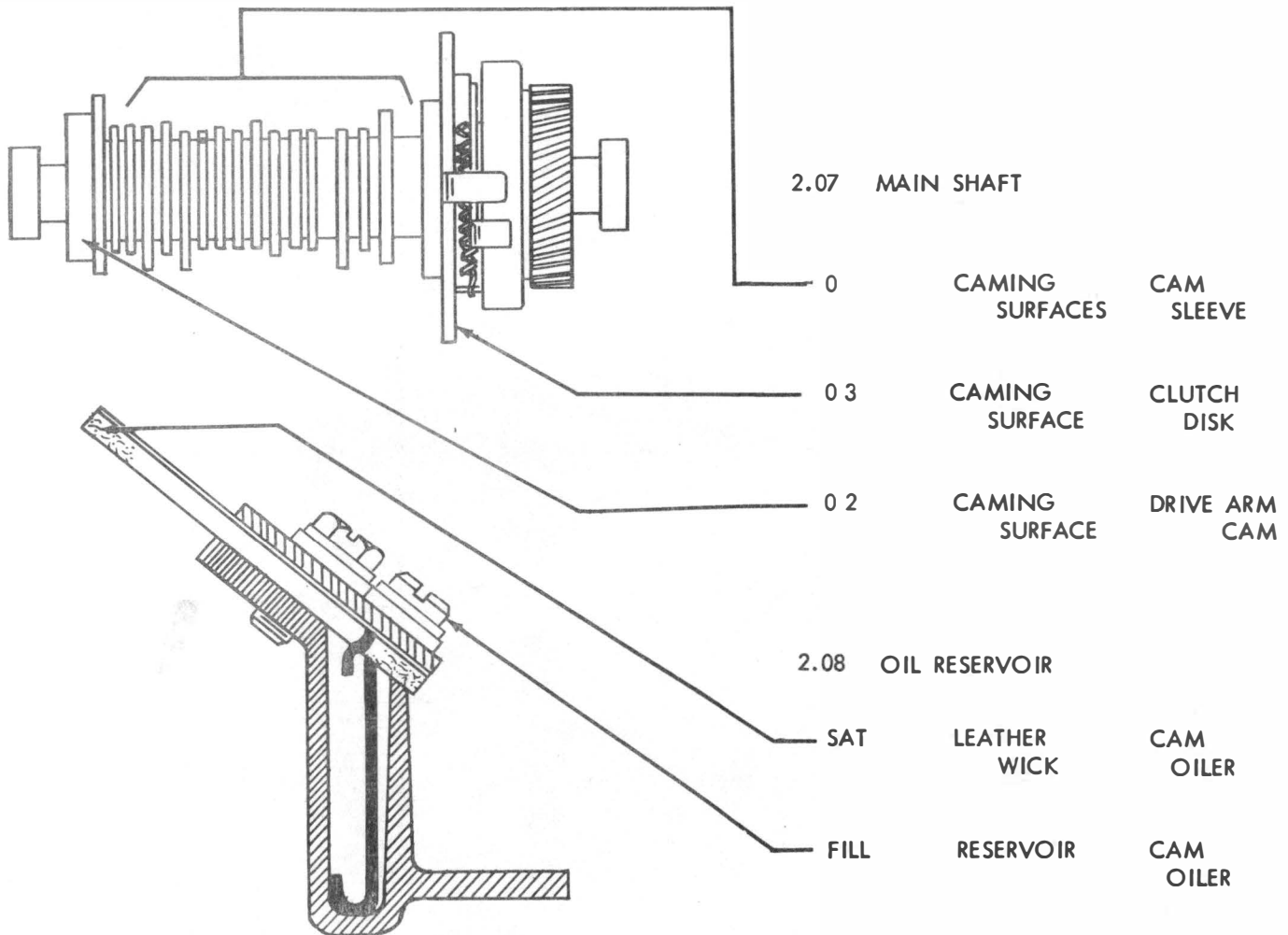
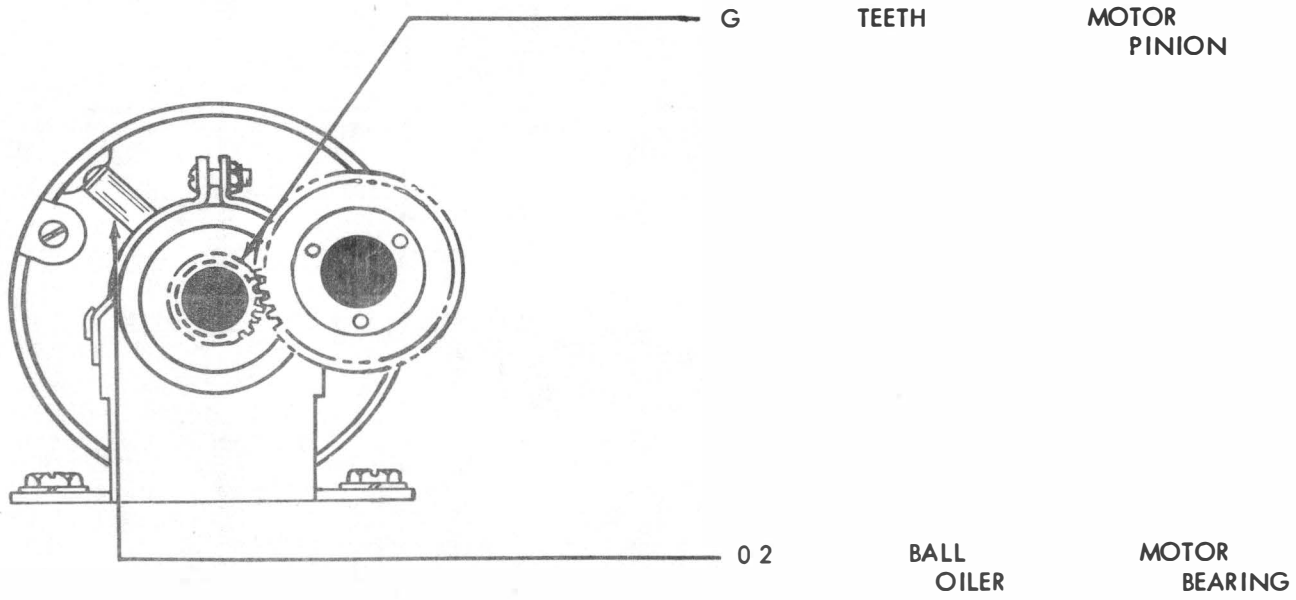
2.04 Clutch Trip Assembly



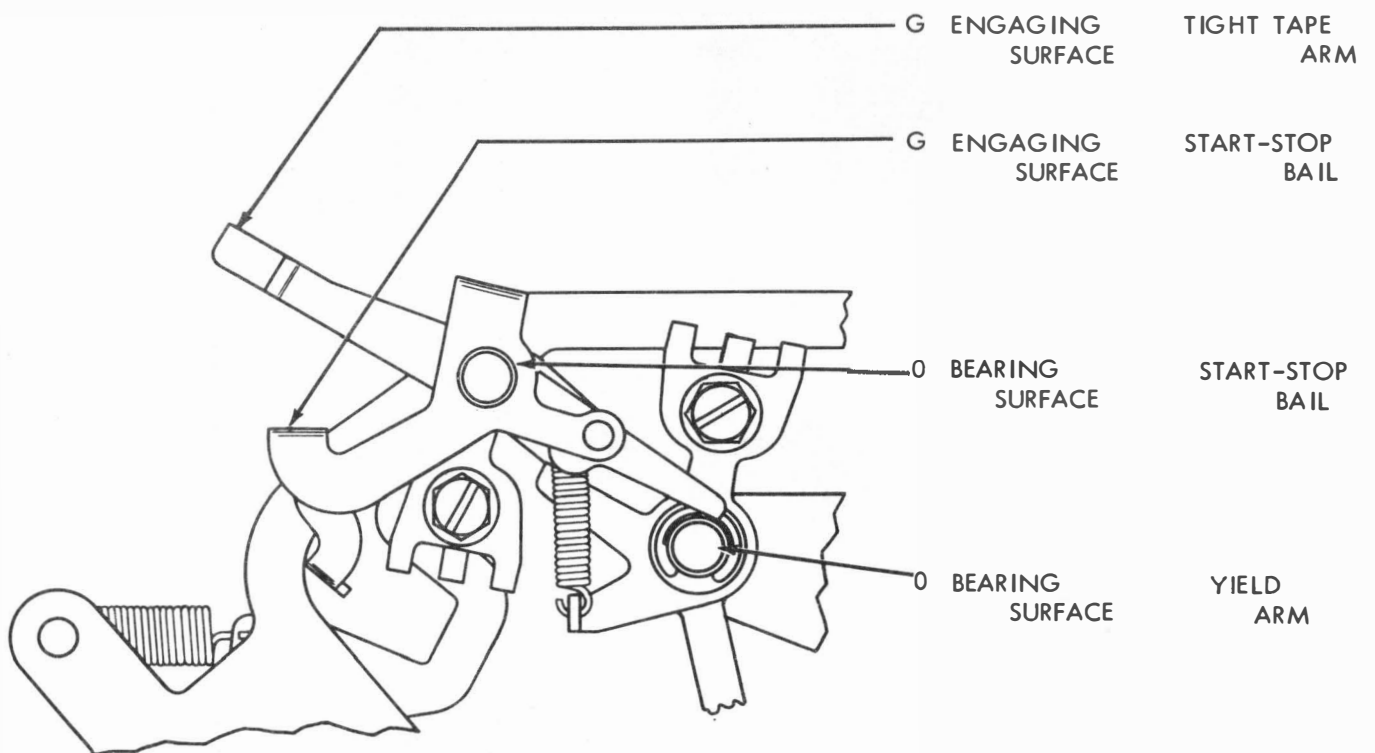
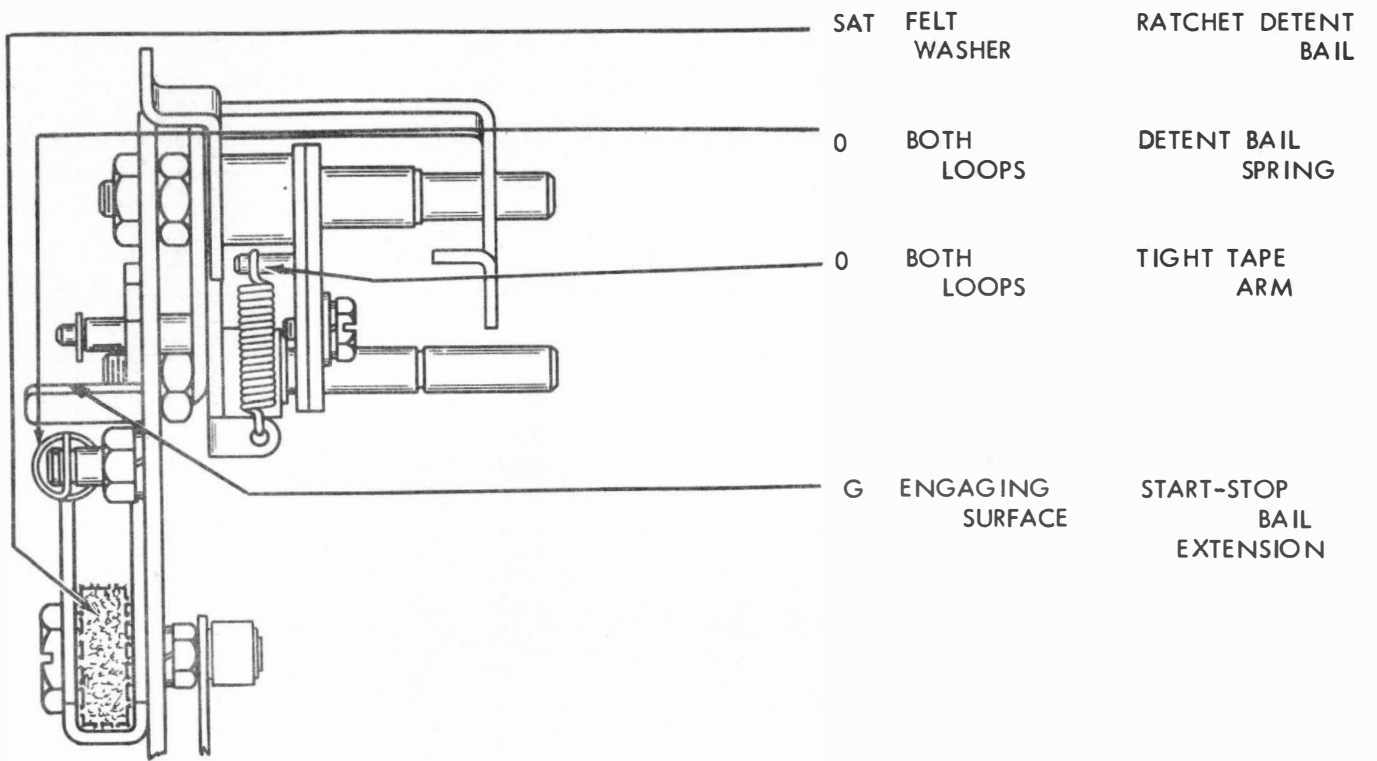
2.05 Transmitter Distributor --- Bottom and Side View



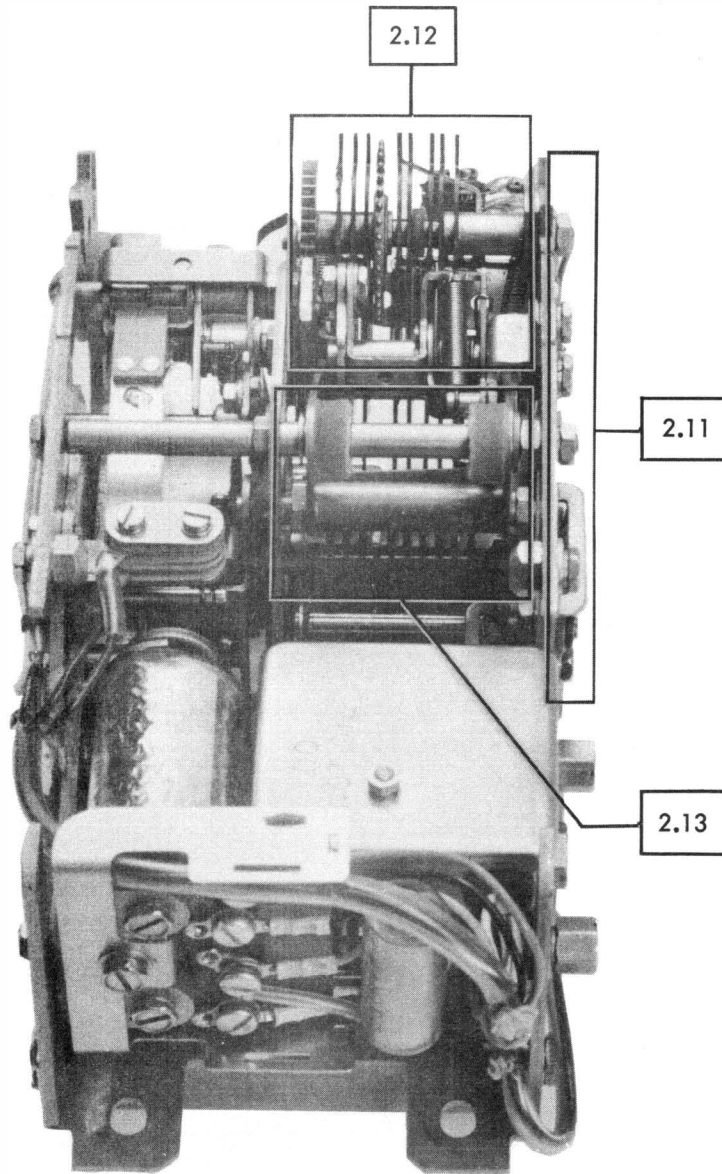
2.06 Gear Train



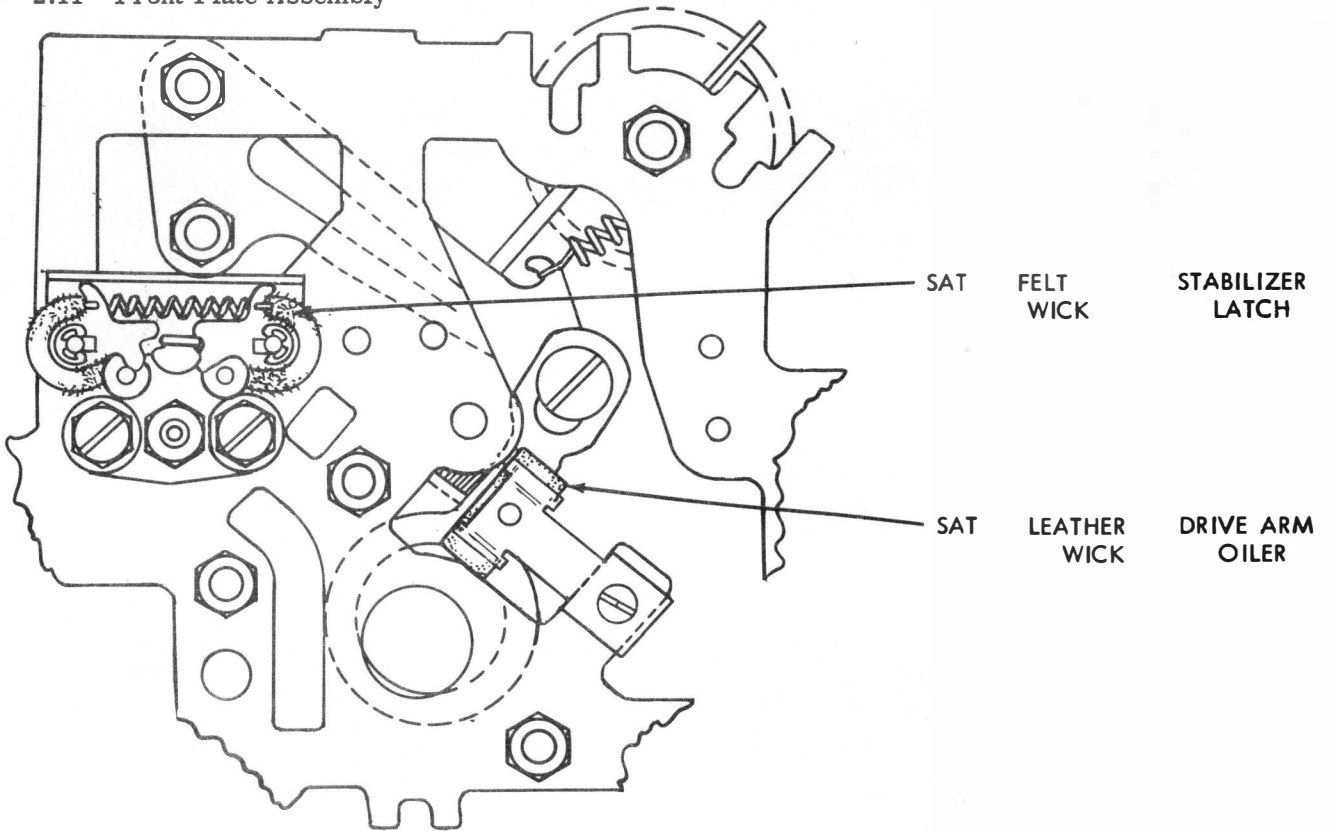
2.09 Center Plate Assembly



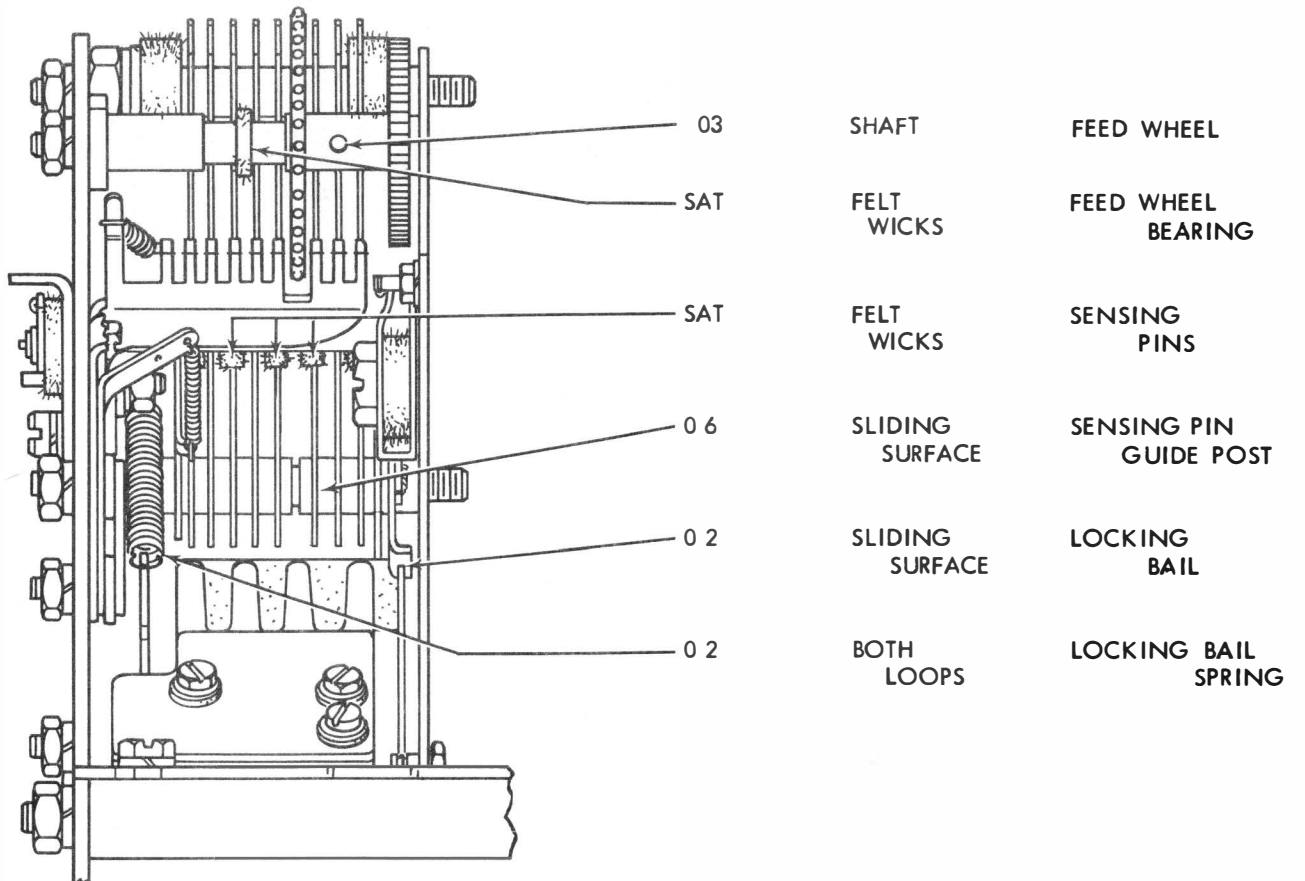
2.10 Transmitter Distributor --- End View



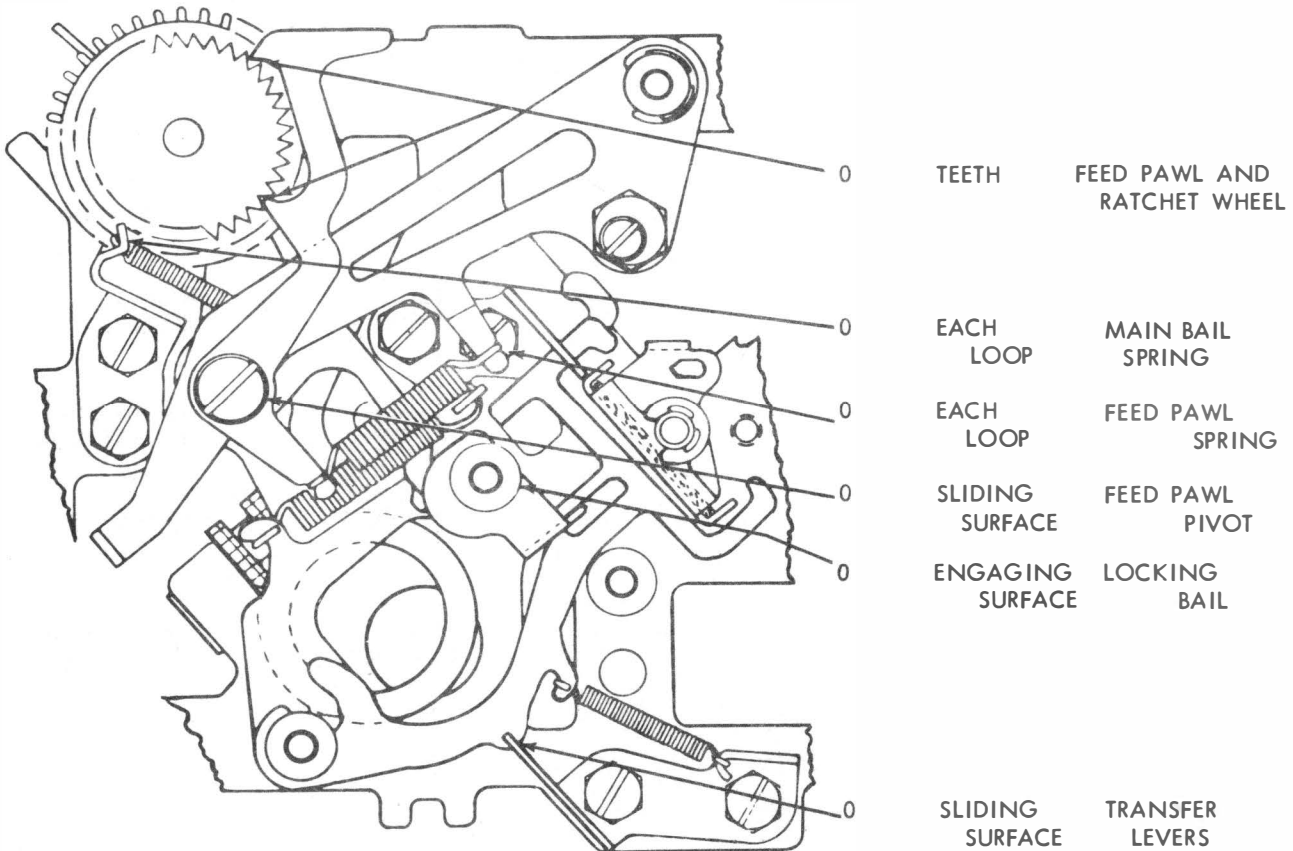
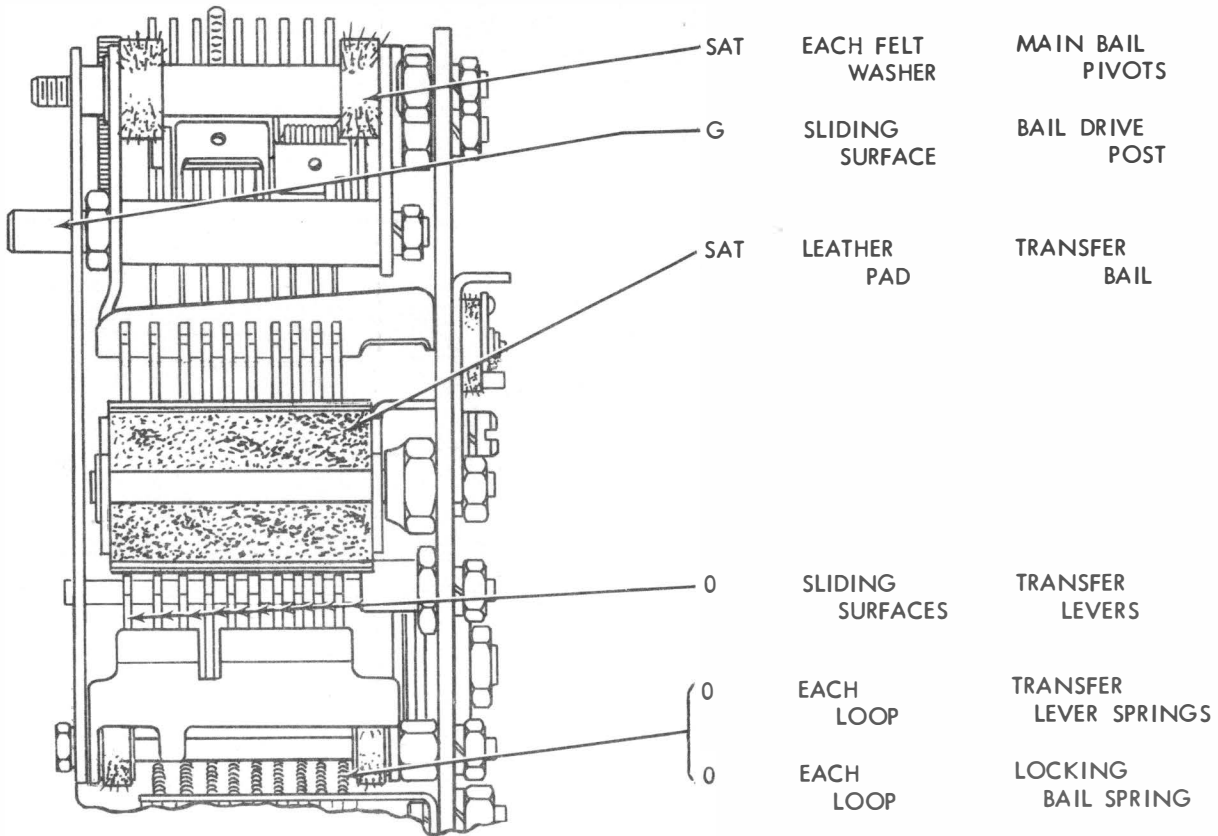
2.11 Front Plate Assembly



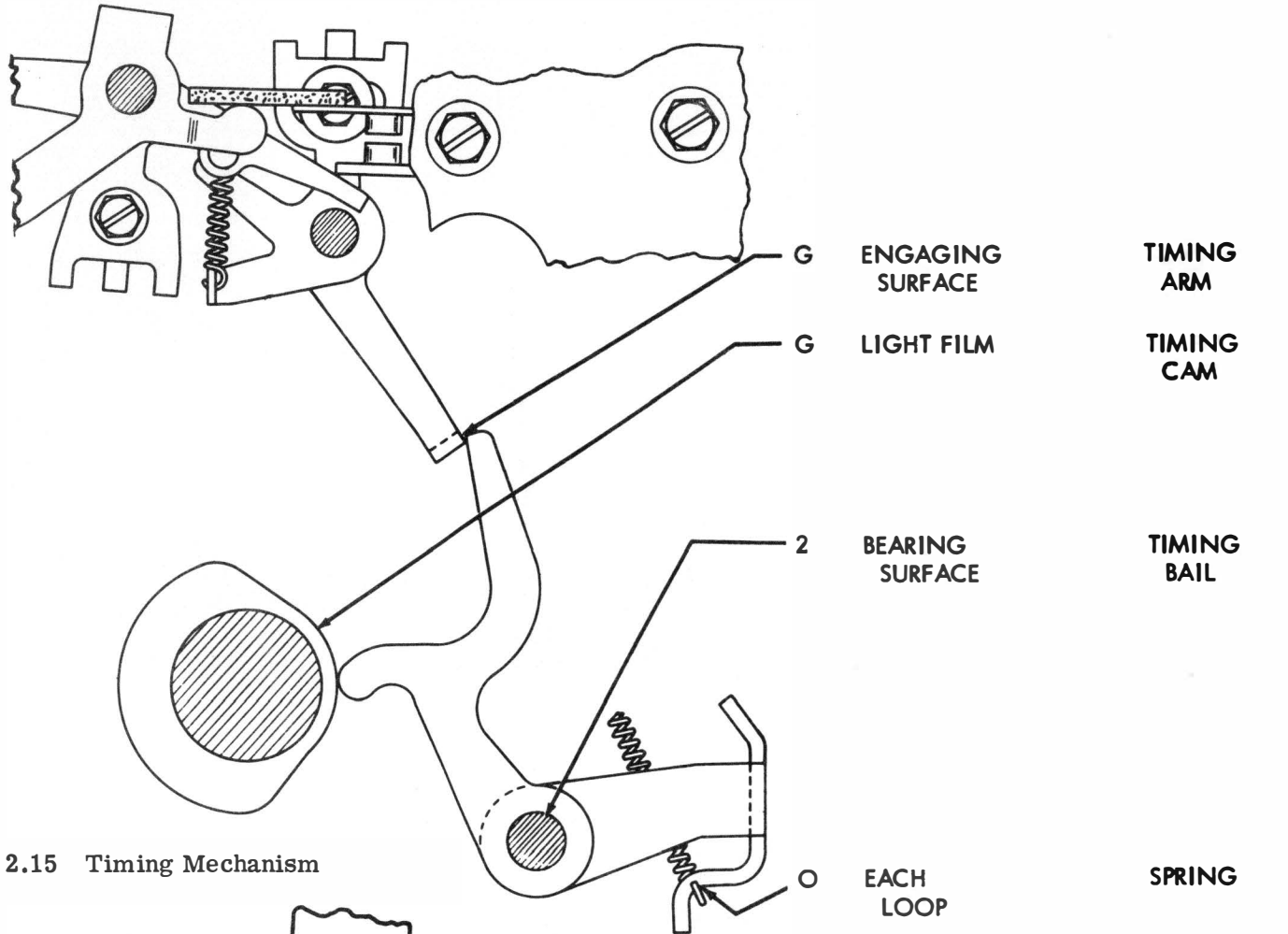
2.12 Sensing and Feed Mechanism



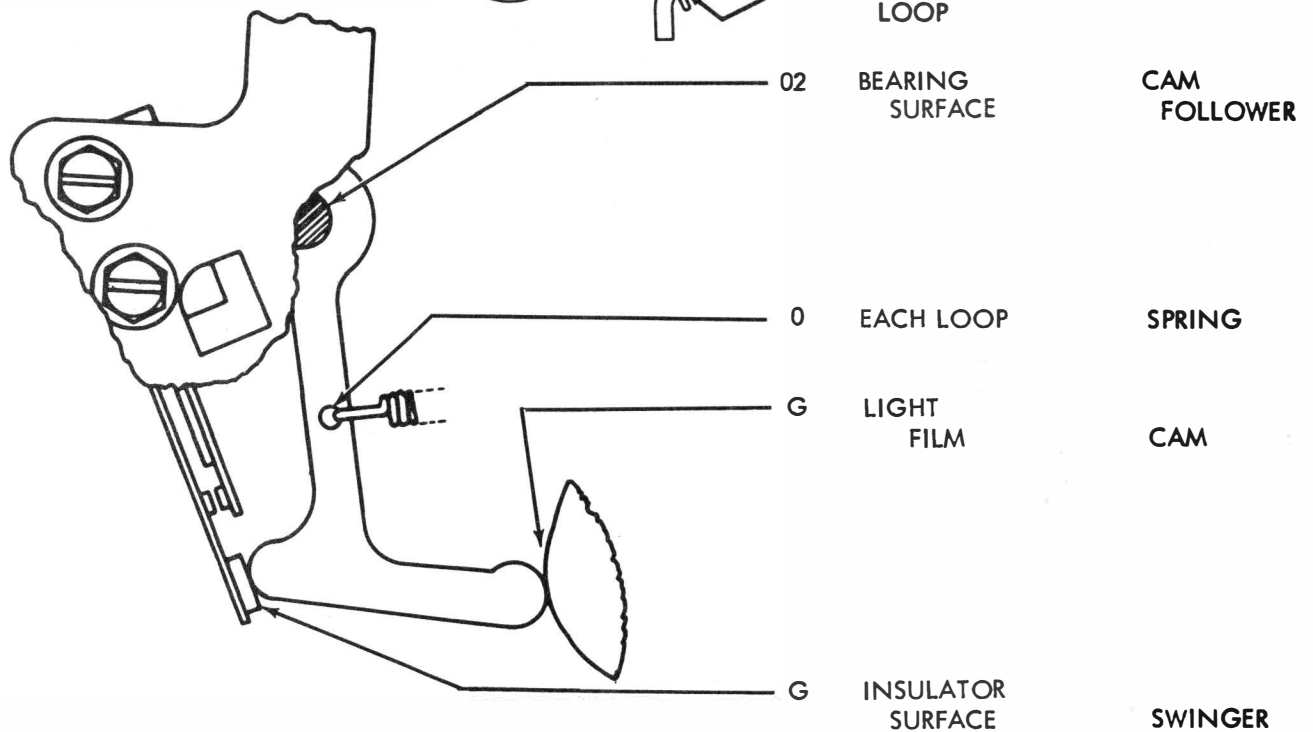
2.13 Transfer Mechanism



2.14 Rubout Sensing Mechanism



2.15 Timing Mechanism





35 TRANSMITTER DISTRIBUTOR (SINGLE CONTACT)

DISASSEMBLY AND REASSEMBLY

1. GENERAL

1.01 Disassembly as outlined in this section covers a procedure for removing the principal sub-assemblies which make up the unit.

1.02 The technician should refer to the exploded views found in the appropriate parts literature for an illustration of the mechanism to be disassembled, for location and visual identification of parts and detailed disassembly and reassembly features.

1.03 Most maintenance, lubrication and adjustments can be accomplished simply by removing the subject component from the cabinet. If possible, disassembly should be confined to sub-assemblies, which can, in some cases, be removed without disturbing adjustments. When reassembling the sub-assemblies, be sure to check all associated adjustments, clearances and spring tensions.

1.04 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 can be replaced when the part is remounted.

1.05 Retaining rings are made of spring steel and have a tendency to release suddenly when being removed. Loss of these retainers can be minimized as follows: Hold the retainer with the left hand to prevent it from rotating. Place the blade of a suitable screwdriver in one of the slots of the retainer. Rotate the screwdriver in a direction to increase the diameter of the retainer for removal.

1.06 Avoid loss of springs in disassembly by holding one spring loop with the left hand while gently removing the opposite loop with a spring hook. Do not stretch or distort springs in removing them.

1.07 Raise the upper cover and unplug the copy light cord. Lower the upper cover to its first latched position. Remove the control panel bezel at the right end of the cover. Unlatch the lower cover and raise it 90 degrees.

Note: On sets equipped with a form supply container on the rear of the cabinet, rearward foot extensions should be in position on the cabinet. This prevents the cabinet from tilting when components are removed.

2. DISASSEMBLY AND REASSEMBLY

2.01 In removing a sub-assembly from the unit, the procedure followed and the location from which parts are removed must be carefully noted so that reassembly can be done correctly. Where no specific instructions are given for reassembly, reverse the procedure used in removing it.

2.02 Remove the tape chute at right end of the transmitter distributor by removing two screws underneath the cabinet shelf which secure the tape chute bracket to the cabinet shelf.

2.03 Remove the three screws which secure the transmitter to its base studs and lift the unit off.

2.04 Remove the TP192237 cover plate assembly by lifting it upward out of its detented position.

2.05 To remove the TP192599 top plate assembly, loosen the TP152893 clamp screw on each side of the unit and slide the top plate upward.

2.06 Remove the TP163999 tape guide plate assembly, loosen the clamp screw on each side of the unit and lift the guide plate upward.

2.07 Remove the 10-32 nuts and lock washers from the rear of the bottom posts. Remove the TP156588 bearing clamp from rear plate at the main shaft bearing.

2.08 Remove the 6-40 screw which secures the rear plate to the TP156622 post.

2.09 Pull the rear plate assembly apart from the front plate assembly. The wiring may be left intact unless it is necessary to remove it.

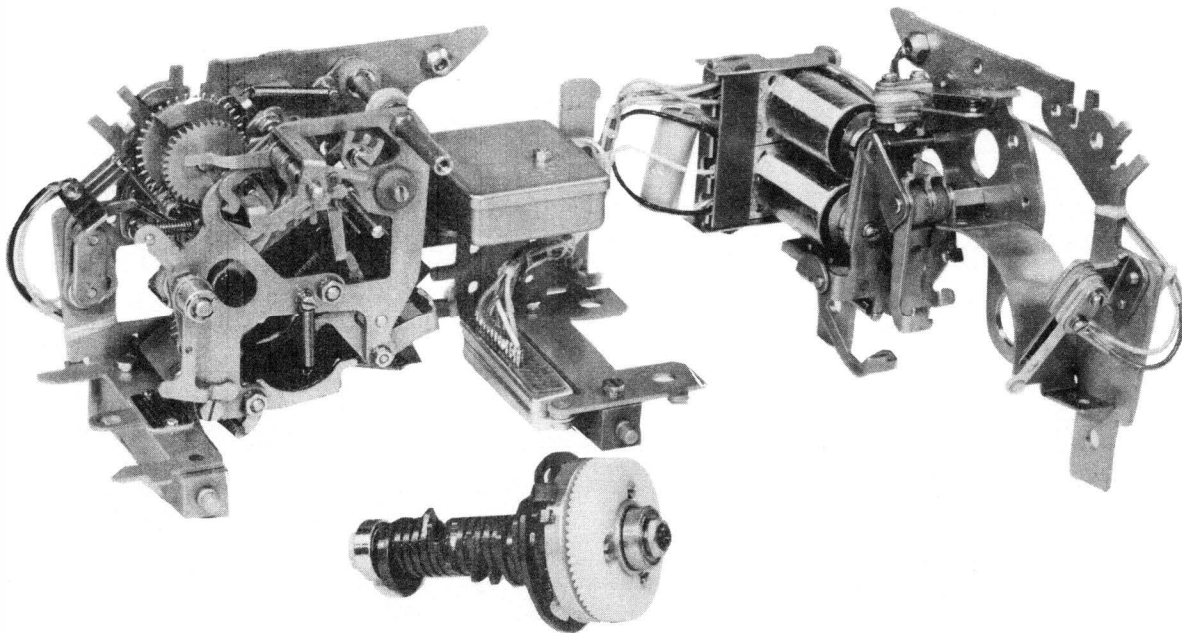
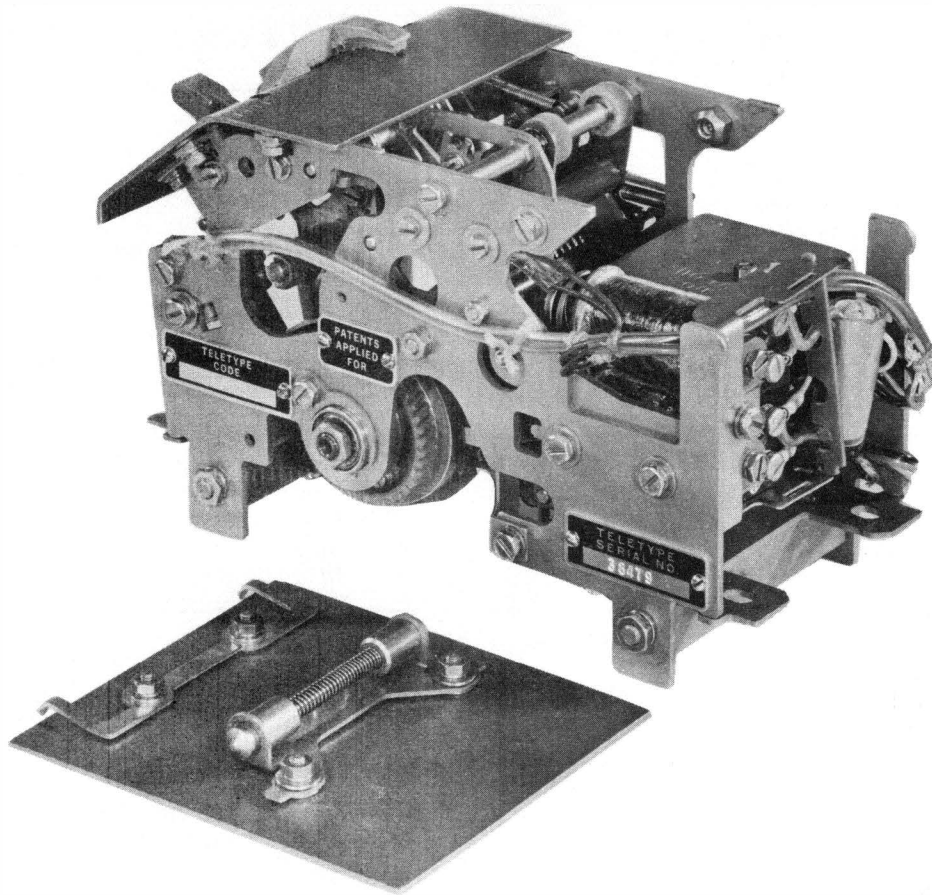


Figure 1 - 35 Transmitter Distributor-Cover Plate Removed (Upper)
Main Sub-Assemblies Removed (Lower)

2.10 To remove the main shaft, remove the TP156831 main shaft bearing clamp and the TP156832 plate from the front plate.

2.11 Remove the main shaft assembly.

2.12 Remove the two 6-40 nuts which secure the center plate to the two guide posts. Remove the TP7603 main bail latch spring.

2.13 Remove the center plate assembly.

2.14 To remove the clutch trip magnets, remove the two screws, lock washers, and flat washers that secure the bracket to the rear plate.

2.15 For further disassembly refer to the exploded views in parts literature. It may be necessary in some instances to remove some wiring. When this is done, make note of how wiring was originally placed.



35 TRANSMITTER-DISTRIBUTOR UNIT (MULTICONTACT)
DESCRIPTION AND PRINCIPLES OF OPERATION

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1. GENERAL

1.01 This section provides description and principles of operation for the 35 transmitter-distributor unit (multicontact). It is re-issued to make it a standard publication, add engineering changes, and rearrange the text. Since it is a general revision, marginal arrows ordinarily used to indicate changes and additions are omitted.

1.02 The transmitter-distributor is an electromechanical device that converts information from code holes in paper tape to corresponding electrical signals. It accommodates 8-level, fully perforated tape, and can produce both multiwire (parallel) and sequential signals.

1.03 All references to left or right, front or rear, up or down are made from a position in front of the unit. See Figure 1.

2. FUNCTION AND CONFIGURATION

FUNCTION

2.01 The transmitter-distributor (Figures 1 through 4) has the combined capability of a tape reader and a multiwire distributor. The tape reader (or transmitter) senses the punched code combinations and transfers the data electrically to the distributor. The distributor converts these parallel signals into sequential, start-stop signals for distribution on line.

2.02 Some units are equipped with code reading contacts (read storing switch - Figure 1) to provide parallel outputs.

2.03 The unit may be used with a base and motor unit in self-contained Transmitter-Distributor Sets, or it may be a component of larger equipment groupings such as Torn Tape or Automatic Send-Receive Sets.

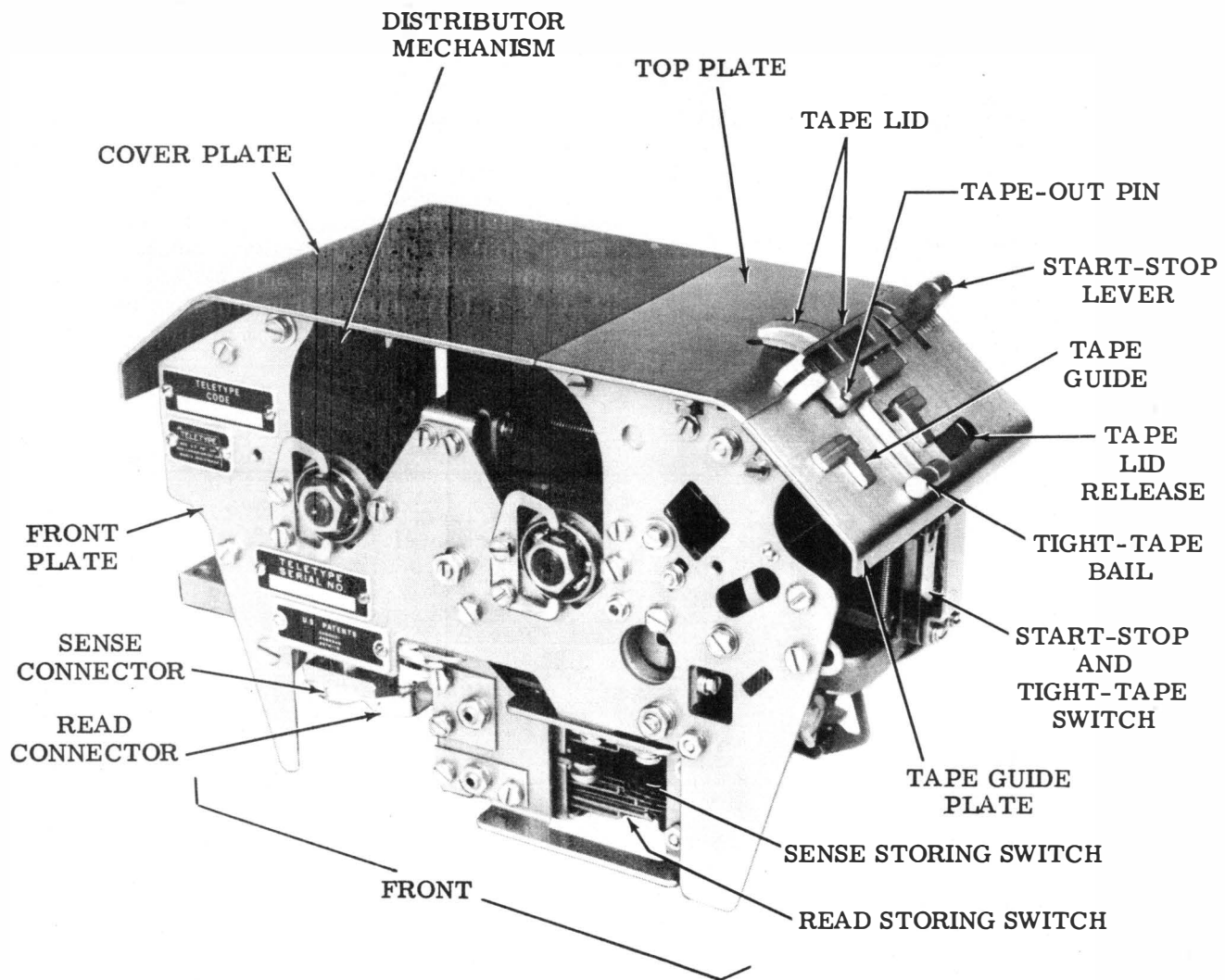


Figure 1 - Typical 35 Transmitter-Distributor Unit

COMPONENTS

2.04 The following mechanisms are mounted on a main casting and mounting plates (Figures 1 through 4):

(a) A tape sensing mechanism consisting of sensing pins, transfer, and latch levers, arranged in the following left to right order as viewed from the left side of the unit: auxiliary A, auxiliary B (clutch trip), 1, 2, 3, 4, 5, 6, 7, and 8 (Figure 2).

(b) A distributor block (Figure 2) consisting of a bank of ten contacts: a start-stop contact, an auxiliary contact, and eight code contacts. As viewed from the left side of the unit the contacts are arranged in this left to right order: 1, 2, 3, 4, 5, and 6, start-stop, 7, 8, and auxiliary.

(c) A main drive mechanism which receives rotary power from an external source and which consists of the following:

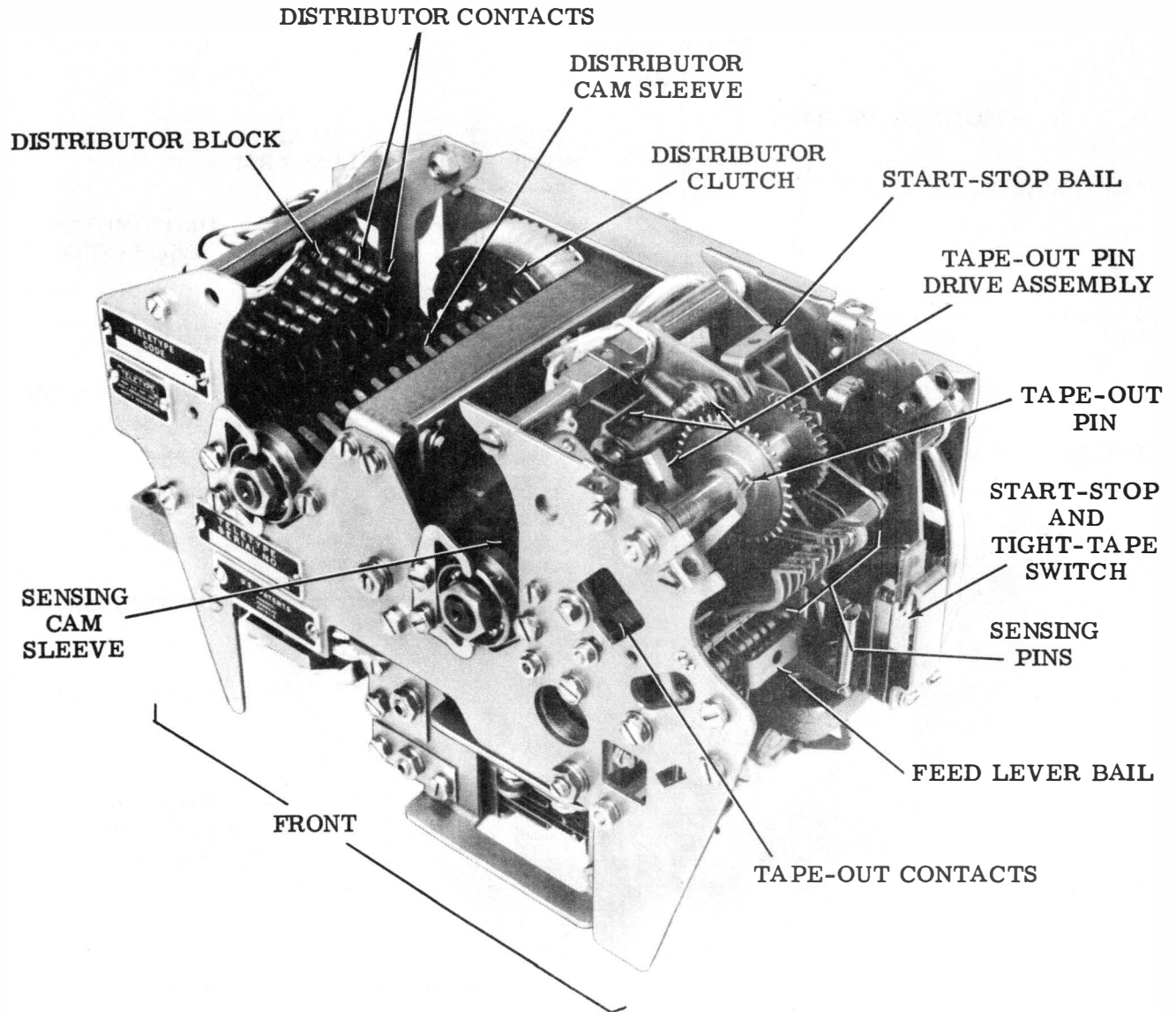


Figure 2 - Typical 35 Transmitter-Distributor Unit, Top, Cover, and Tape Guide Plates Removed

- (1) Two independent clutch-controlled cam sleeves: one for actuation of the tape sensing and tape feeding mechanisms, the other for the distributor (Figures 2 and 3).
- (2) Two clutch trip magnets for control of the cam sleeves (Figure 4).
- (3) Two shafts for driving the cam sleeves. A gear on each shaft and an idler gear provide a constant speed (Figure 4).
- (d) A sense storing switch for storage of the last character sensed. The switch applies a parallel output to the distributor (Figures 1 and 4).
- (e) A read storing switch (on some units) for parallel outputs (Figures 1 and 4).
- (f) A tape feed mechanism (Figure 1).
- (g) A tape lid mechanism (Figure 1).

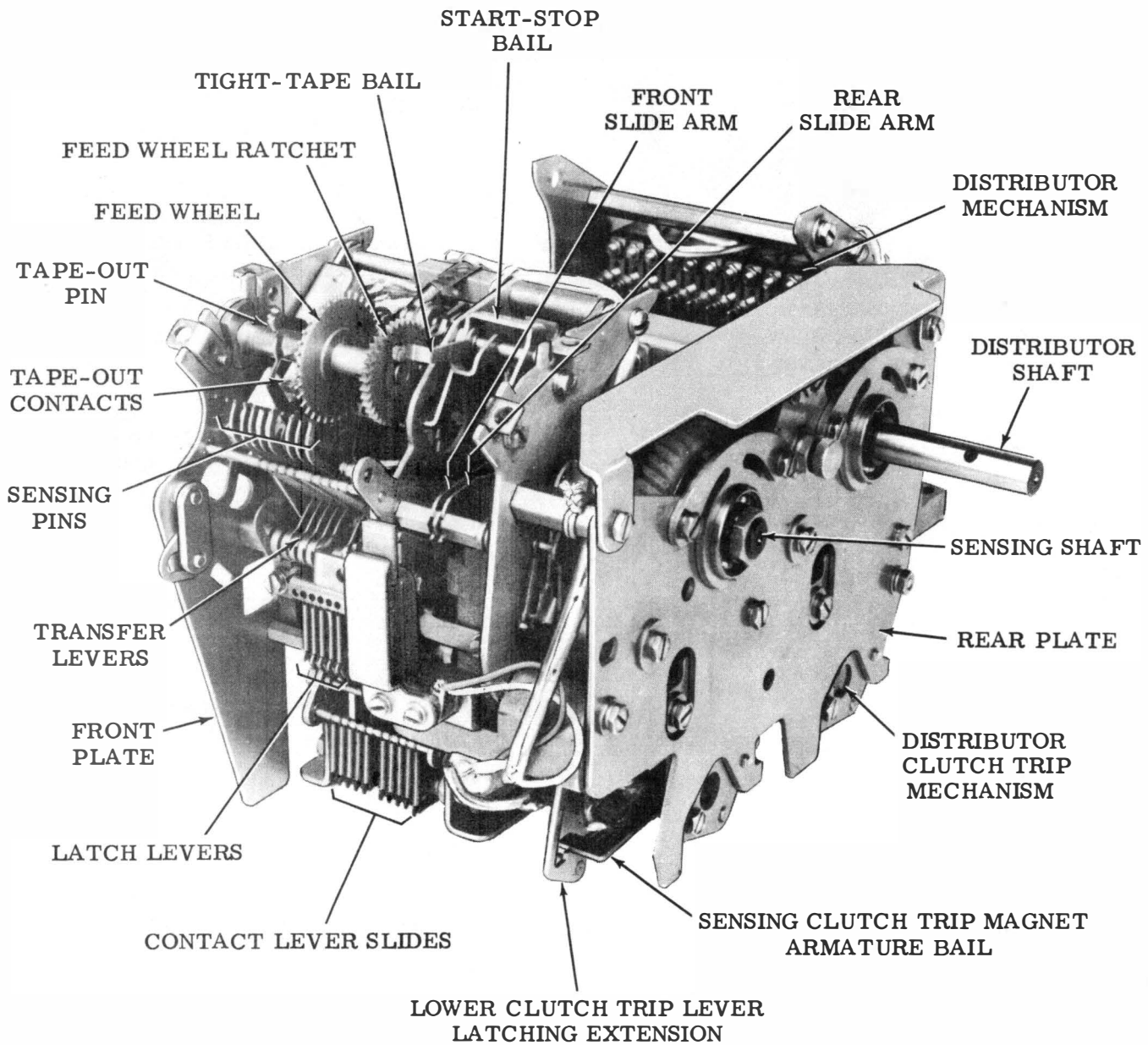


Figure 3 - Typical 35 Transmitter-Distributor, Top, Cover, and Tape Guide Plates Removed

- (h) A three-position start-stop lever for manual control of the unit. The lever positions are RUN, STOP, and FREE (Figure 1).
- (i) Tape-out and tight-tape contacts (Figure 3).
- (j) An adjustable tape guide (Figure 1).
- (k) A top plate and cover (Figure 1).

- (l) An electrical connector for terminating all wiring including the signal circuits. An additional connector is used for the read storing switch on units so equipped (Figure 4).

ELECTRICAL CIRCUITS

2.05 There are two separate electrical circuits associated with the transmitter-distributor: The clutch trip magnet circuit and

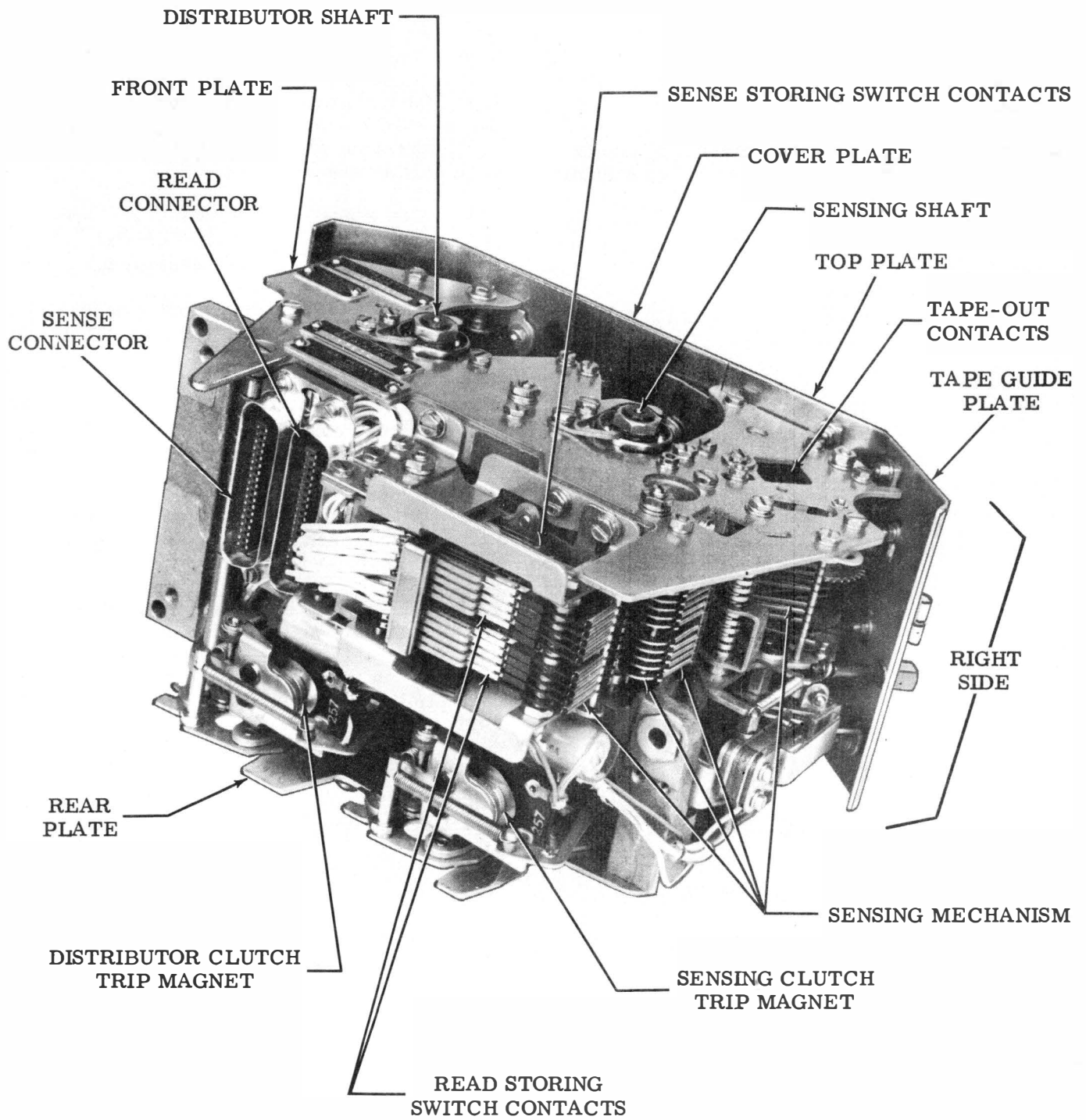


Figure 4 - Typical 35 Transmitter-Distributor Unit, Bottom View

the signal circuit. The clutch trip magnet circuit consists of the clutch trip magnet coils in series with both the start-stop and tape-out contacts. See Figure 8.

2.06 The signal circuit consists of the sense and distributor contacts in series. This connection must be made externally. See Figure 16.

3. TECHNICAL DATA

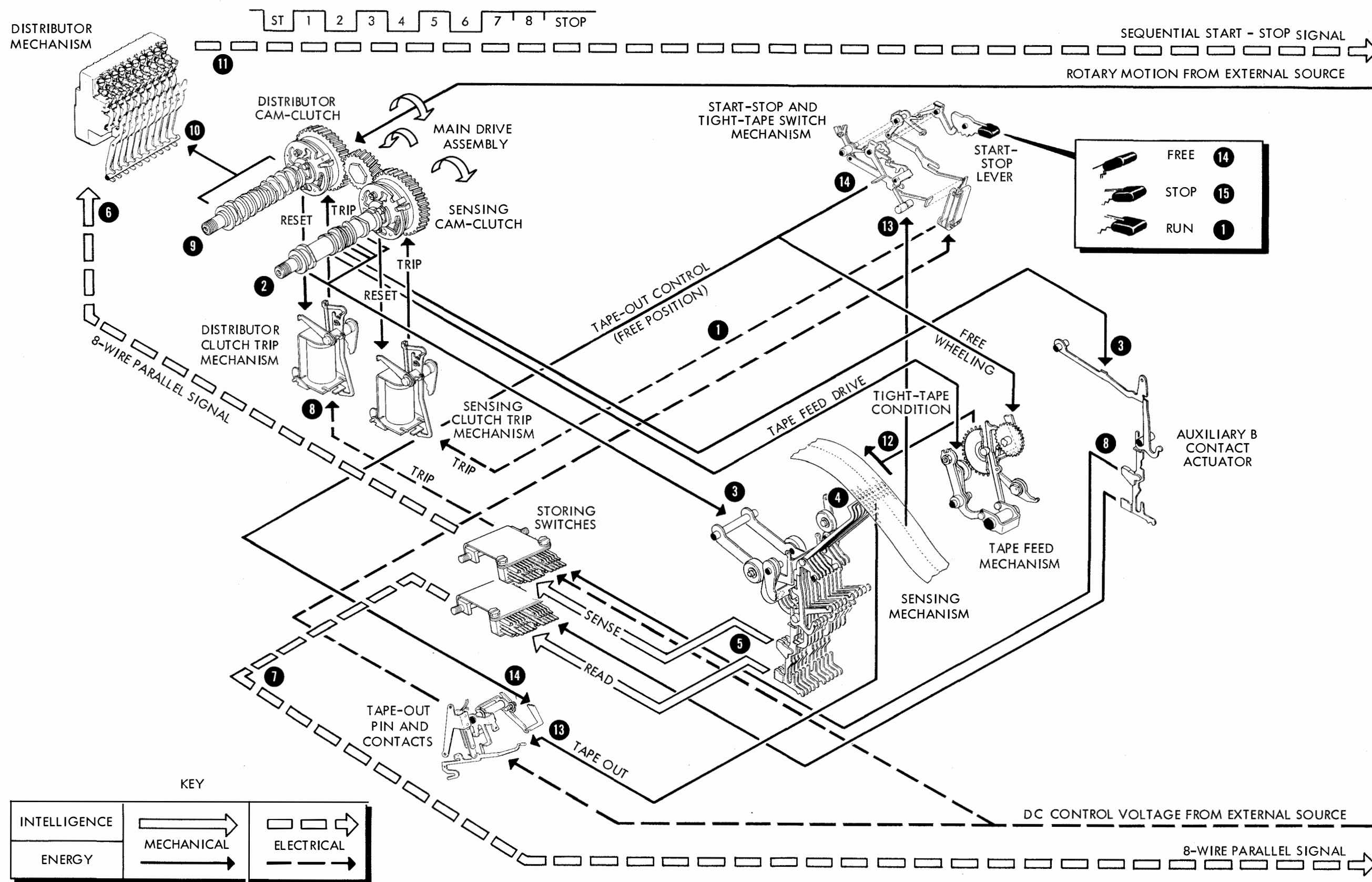
Signals

- Code American Standard Code for Information Interchange (ASCII)
- Distributor Contacts 11-unit sequential start-stop code
- Read Storing Switch Contacts (if so equipped) 8-level parallel code
- Operating Speed Various speeds up to 100 wpm. Speed is varied by making external gear changes
- Tape 8-level fully perforated tape
- Clutch Trip Magnets . . Operate from external 110-120 v dc or, with external current limiting resistor, 45-55 v dc. May be operated remotely.
- Motive Power . . . From external motor unit
- Dimensions (approximate) 6-1/2 high, 9 inches wide, 5-1/2 inches deep

4. GENERAL OPERATION

- 4.01 The following paragraphs describe the general operation of the transmitter-distributor unit. Refer to Figure 5 which illustrates the functional relationship of the operating mechanisms.
- 4.02 With an idle signal line, drive motor operating, and tape in the unit, moving the start-stop lever from the STOP position to the RUN position energizes the sensing clutch trip magnet through the tape-out contacts and the start-stop and tight-tape switch.
- 4.03 The sensing clutch trip mechanism trips the sensing clutch which rotates the sensing cam sleeve.
- 4.04 The rotating sensing cam sleeve actuates the sensing mechanism and the auxiliary B contact actuator, and resets the sensing clutch trip mechanism.

- 4.05 The sensing pins in the sensing mechanism rise to read the perforations in the tape. Each character sensed (or read) is first set up mechanically in the sensing mechanism which then transfers this data to the sense and read storing switches.
- 4.06 The sense storing switch connects the character sensed to the contacts on the distributor mechanism in 8-level form.
- 4.07 The read storing switch connects the character sensed to external circuits in 8-level form.
- 4.08 The auxiliary B contact actuator operates the auxiliary B contact in the sense storing switch, which energizes the distributor clutch trip mechanism.
- 4.09 The trip mechanism trips the distributor clutch which rotates the distributor cam sleeve.
- 4.10 The rotating distributor cam sleeve sequentially actuates the contacts on the distributor mechanism. The actuated contacts, connected to the signal line, thus generate a sequential signal consisting of a start bit, eight intelligence bits corresponding to the sensed character, and a stop bit. The rotating cam sleeve also resets the distributor clutch trip mechanism.
- 4.11 The tape feed mechanism actuated by the sensing cam sleeve advances the tape to the next character.
- 4.12 The tape-out contacts (held closed by the tape-out pin when there is tape in the unit) and the tight-tape switch (controlled by the tight-tape bail positioned by the tape) are in series with the sensing clutch trip magnet circuit. If either a tape-out or a tight-tape condition occur, the sensing clutch trip magnet will de-energize and tape sensing will stop.
- 4.13 Placing the start-stop lever in the STOP position stops tape sensing and tape feeding by opening the start-stop and tight-tape switch.
- 4.14 Placing the start-stop lever in the FREE position stops tape sensing and tape feeding by opening the start-stop and tight-tape switch and by disengaging the feed pawl, permits the tape feed mechanism to free wheel to facilitate tape loading.



OUTLINE OF OPERATION

- 1 When operator places START-STOP lever in RUN position, start-stop and tight-tape contacts energize magnet in sensing clutch trip mechanism which trips clutch.
- 2 Sensing cam sleeve rotates with its shaft.
- 3 Sensing cam sleeve actuates sensing mechanism and auxiliary B contact actuator.
- 4 Sensing pins rise and sense tape.
- 5 Character in the tape is set up in sense and read storing switches.
- 6 Sense storing switch connects character to distributor mechanism in multiwire form.
- 7 Read storing switch applies character to external circuits in multiwire form.
- 8 Actuated auxiliary B contact in sense storing switch energizes magnet in distributor clutch trip mechanism which trips clutch.
- 9 Distributor cam sleeve rotates with its shaft.
- 10 Distributor cam sleeve actuates distributor mechanism contacts.
- 11 Distributor mechanism converts signals to sequential form, adds start and stop elements, and applies character to signal line.
- 12 Tape feed mechanism, actuated by sensing cam, advances tape to next character.
- 13 A tape-out or tight-tape condition will de-energize the sensing clutch trip magnet and stop tape sensing and feeding by disengaging the sensing clutch.
- 14 In a similar manner, placing the START-STOP lever in the FREE position stops tape sensing and feeding but permits tape feed mechanism to free wheel.
- 15 Placing the START-STOP lever in the STOP position stops tape sensing and feeding.

Figure 5 - 35 Transmitter-Distributor Unit, Pictorial Schematic Diagram

5. SIGNAL CODE

5.01 The signal code transmitted is the American Standard Code for Information Interchange (ASCII). The pattern for a complete character transmitted sequentially consists of a start bit (always spacing), eight intelligence bits (any one of which may be marking or spac-

ing) and a stop bit (always marking). See Figure 6. In applications using an error detection technique called even parity, the eighth intelligence bit is made marking or spacing as required to make the total number of marking intelligence bits even. Refer to the appropriate section for additional data on this code.

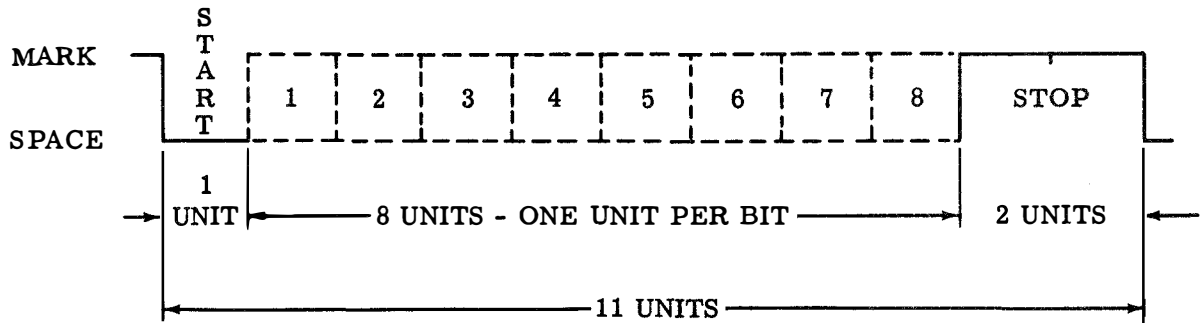


Figure 6 - Eleven Unit Transmission Pattern

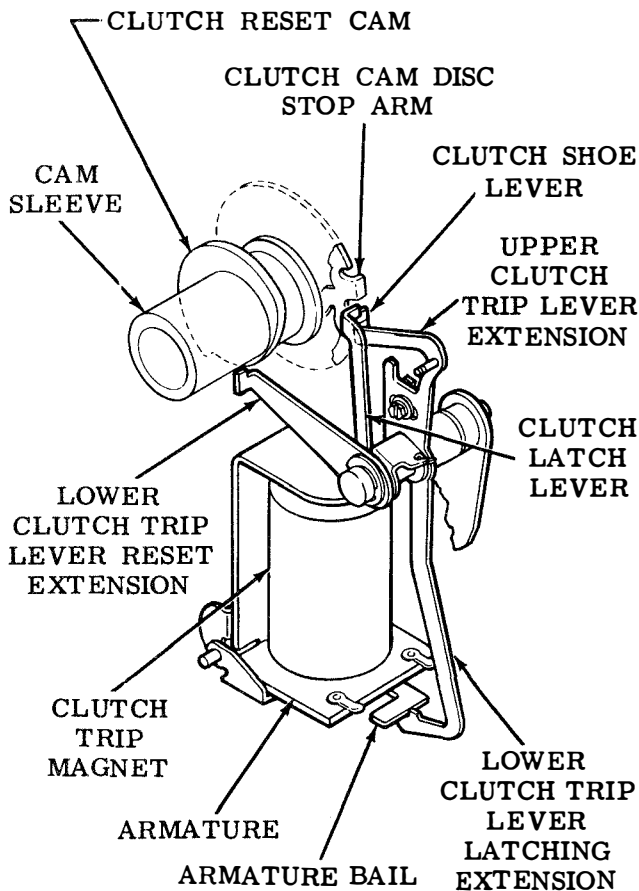


Figure 7 - Clutch Trip Mechanism

6. CLUTCH OPERATION

CLUTCH TRIPPING

6.01 The distributor and sensing clutch trip mechanisms are identical (Figure 7). Clutch tripping is accomplished by closing the electrical contacts of the respective clutch trip magnet circuit (Figure 8).

6.02 The armature of the clutch trip magnet, fastened to the armature bail, is pulled to the magnet core releasing the lower latching extension of the clutch trip lever. The moving clutch trip lever's lower reset extension engages the clutch reset cam of the cam sleeve and the clutch trip lever's upper extension disengages from the clutch shoe lever and disengages the clutch latch lever from the clutch cam disc stop arm. This permits engagement of the clutch with the shaft which starts rotation of the cam sleeve (Figure 9).

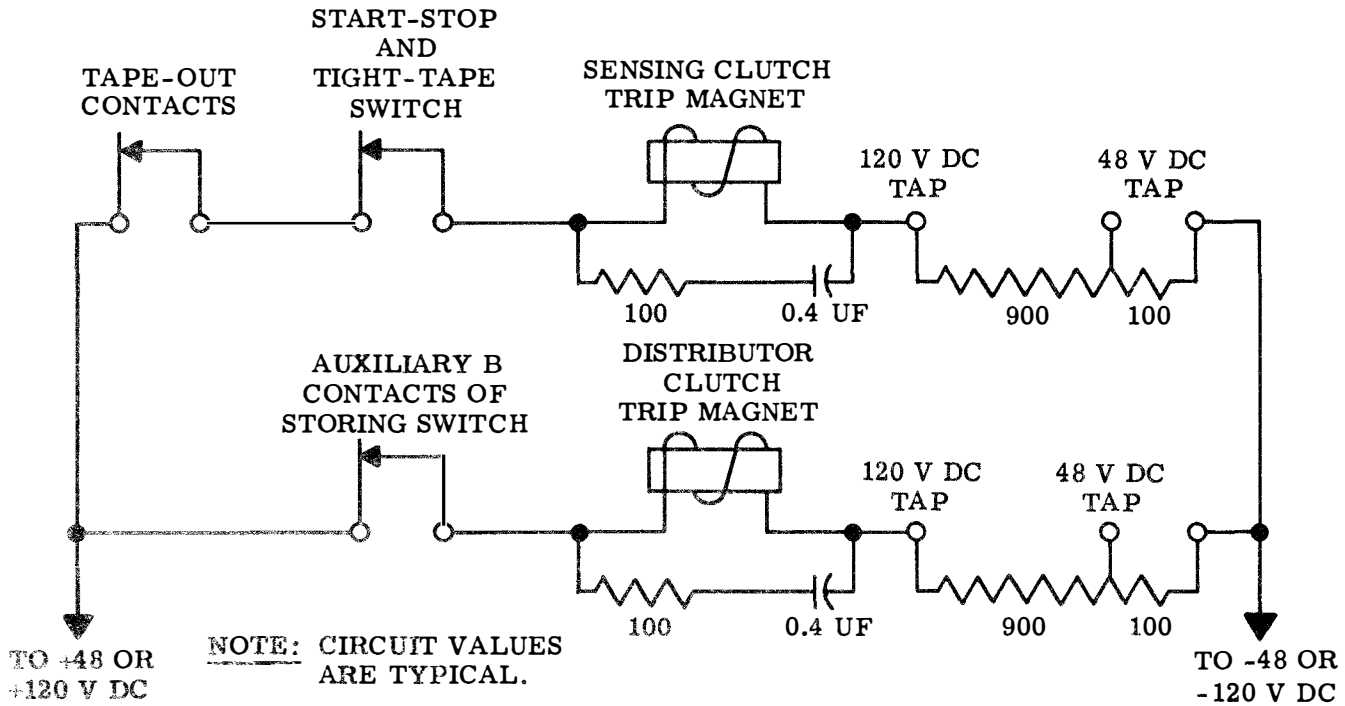


Figure 8 - Clutch Trip Magnet Circuits

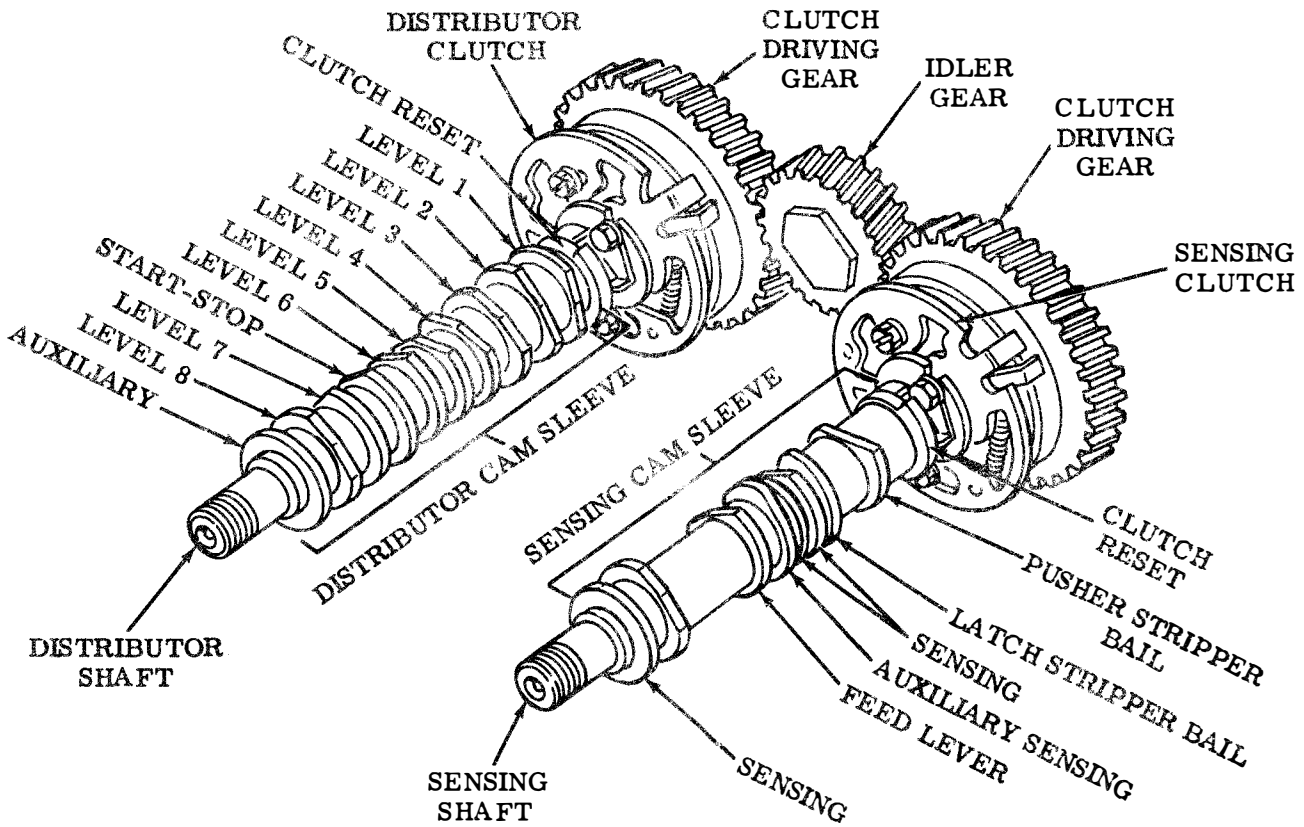


Figure 9 - Main Drive Assembly

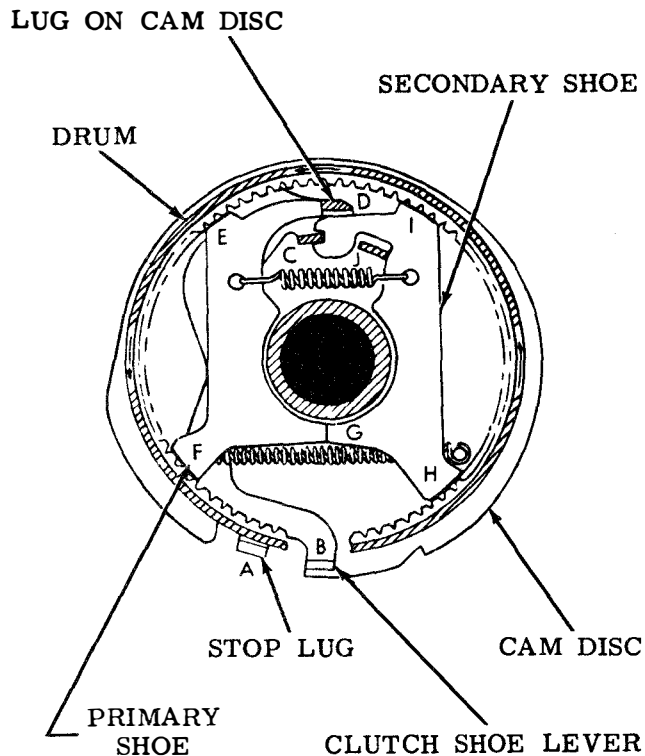


Figure 10 - Clutch - Engaged

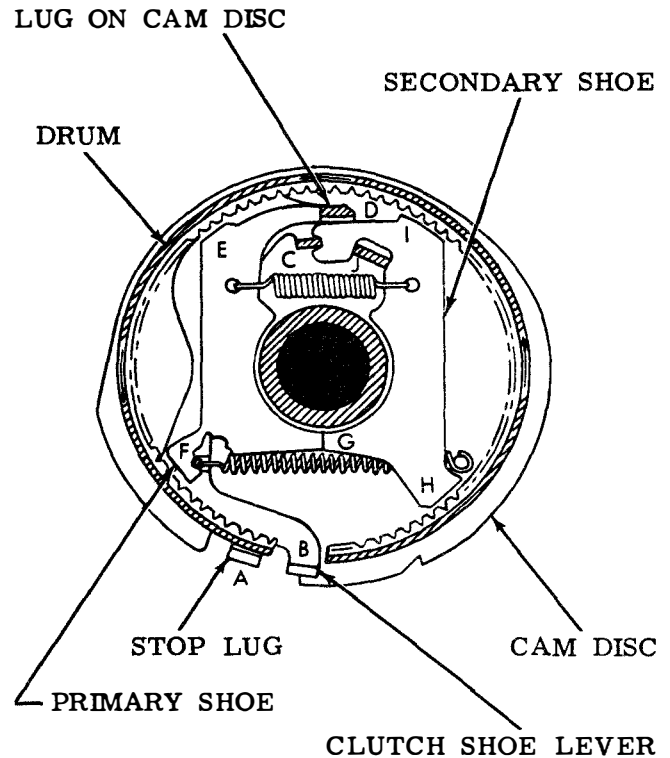


Figure 11 - Clutch - Disengaged

6.03 The sensing clutch trip magnet is controlled by the start-stop and tight-tape switch mechanism (Figure 12) and the tape-out pin and contacts (Figure 18), which are in series with the magnet coil.

6.04 The distributor clutch trip magnet is controlled by the auxiliary B contact actuator mechanism (Figure 14) which depends on the rotation of the sensing cam sleeve.

CLUTCH RESET

6.05 The respective clutch is reset (disengaged) if the corresponding clutch trip magnet circuit is opened. The clutch reset cam of the cam sleeve cams the lower reset extension of the clutch trip lever. The moving lower clutch trip lever latching extension is latched in the reset position by the armature bail as shown in Figure 7. The moving upper clutch trip lever

extension engages the clutch shoe lever disengaging the clutch. The clutch latch lever, attached to the upper clutch trip lever extension by a spring, also moves to engage the clutch cam disc stop arm which stops the disc and cam sleeve.

CLUTCH INTERNAL OPERATION

A. Clutch Engagement

6.06 Clutch engagement (Figure 10) is accomplished by releasing the lower end of lever B. The upper end of lever B pivots about its ear C (which bears against the upper end of the secondary shoe) and moves its ear D, and the upper end of the primary shoe, toward the left until the shoe makes contact with the drum at point E. As the drum turns counterclockwise, it drives the primary shoe downward, so that it again makes contact with the drum, this time at

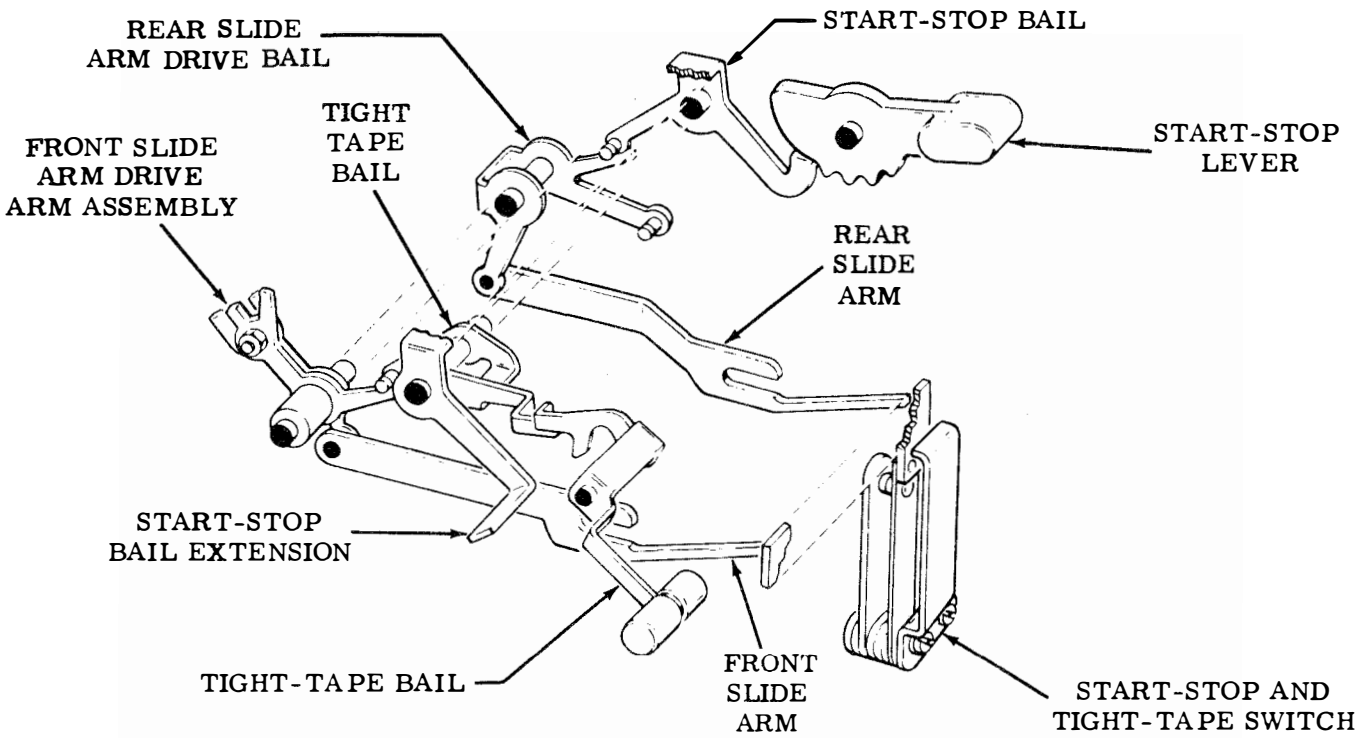


Figure 12 - Start-Stop and Tight-Tape Switch Mechanism

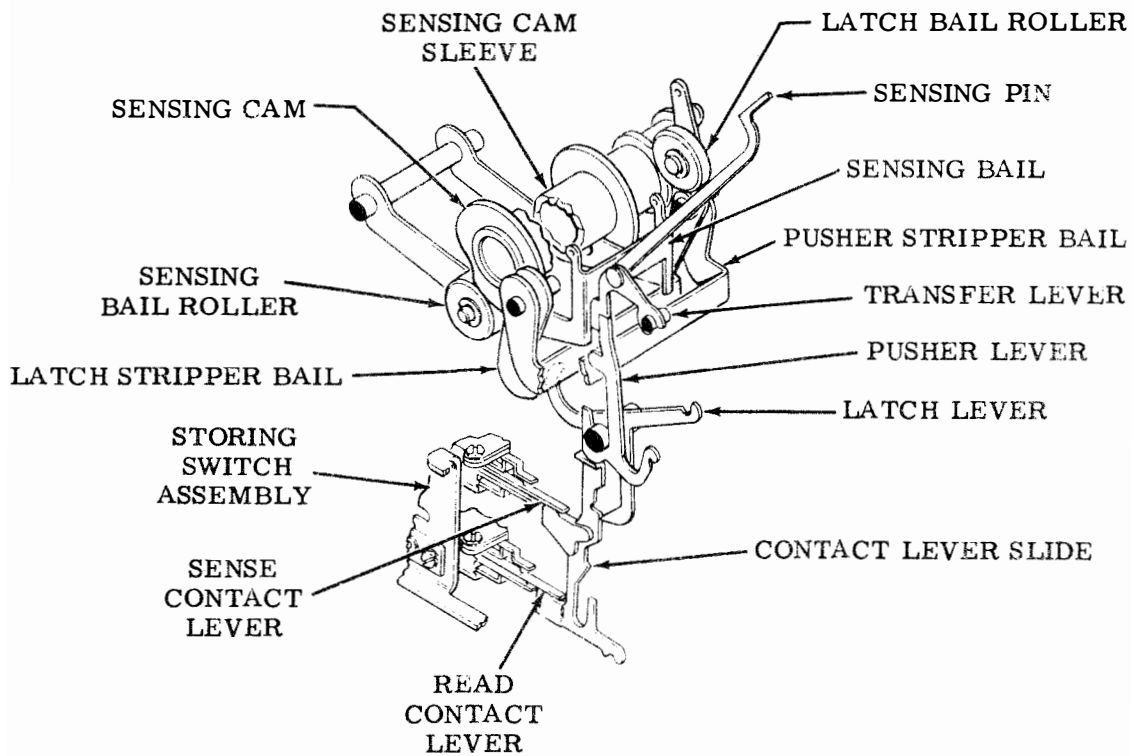


Figure 13 - Tape Sensing Mechanism

point F. There, the combined forces acting on the primary shoe cause it to push against the secondary shoe at point G. The lower end of the secondary shoe then bears against the drum at point H. The revolving drum acts to drive this shoe upward so that it again makes contact with the drum at point I. Since the forces involved are multiplied at each succeeding step, the final force developed at point I is very great. This force is applied to the lug J on the clutch cam disc to cause it to turn in step with the drum. The cam disc on the clutch is connected to the cam shaft imparting rotary motion to the cam sleeve.

B. Clutch Disengagement

6.07 Clutch disengagement (Figure 11) is accomplished by bringing together lug A on the clutch cam disc, and the lower end of the clutch shoe lever B. The upper end of lever B pivots about its ear C and allows its other ear D to move toward the right. The upper spring then pulls the two shoes together and away from the drum.

7. TAPE SENSING

7.01 With the start-stop lever in the RUN position, the cam surface of the lever causes the start-stop bail to pivot on its axis (Figure 12). The pivoted start-stop bail causes the rear slide arm drive bail to pivot and release the rear slide arm. This permits the start-stop and tight-tape switch to close and energize the sensing clutch tripmagnet (Part 6).

7.02 The engaged sensing clutch starts the sensing cam sleeve rotating. The sensing cam, through the sensing bail roller, causes the sensing bail to pivot and the transfer levers and sensing pins to rise (Figure 13).

7.03 If a sensing pin is free to move through a perforation in the tape it continues to follow the sensing bail upward to its fully extended position. A blank in the tape will prevent a sensing pin from reaching its fully extended position. Each sensing pin which moves to its fully extended position allows a pusher lever to fall in behind the recess on the transfer lever through action of its spring. The pusher levers remain stationary until the transfer levers begin their downward rotation with the sensing bail's return stroke.

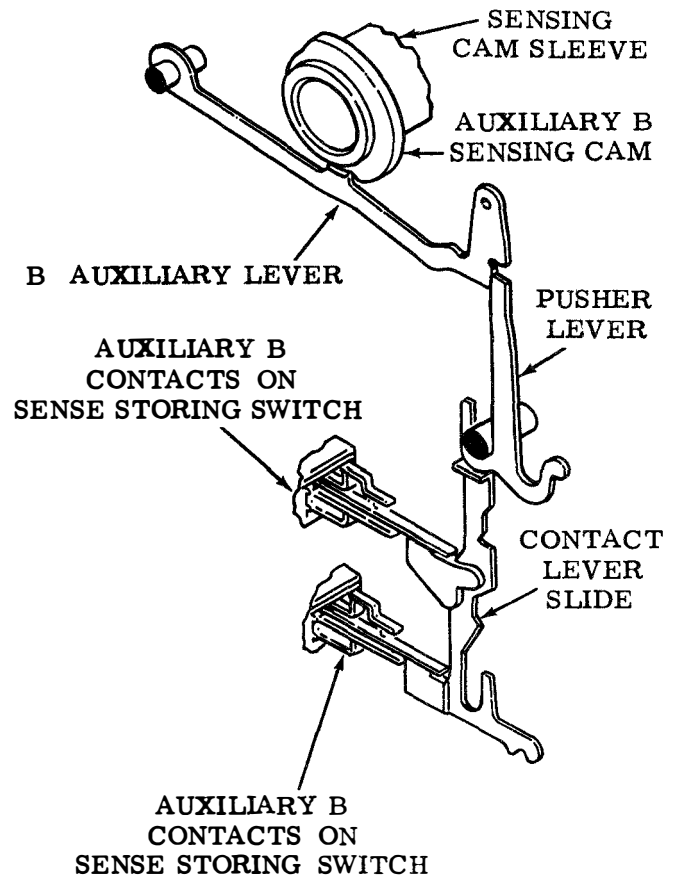


Figure 14 - Auxiliary B Contact Actuator

7.04 After approximately 43 degrees of sensing cam sleeve rotation, the clutch reset cam disengages the clutch triplever (Part 6). After approximately 133 degrees of sensing cam sleeve rotation, the auxiliary B contact (on the sense storing switch) is actuated by the auxiliary B contact actuator (Figure 14).

7.05 The pusher levers (Figure 13) associated with the fully extended sensing pins begin to move downward, engage their associated contact lever slides, and close contacts in the read and sense storing switches. Before contact is made, the latch stripper bail strips the latch levers which held the contact lever slides during the previous cycle. Before completion of this cycle, the latch levers are allowed to reset so that the contact lever slides which were pushed down through the pusher levers are again latched. The unselected pusher levers remain in their upper positions through action of their springs.

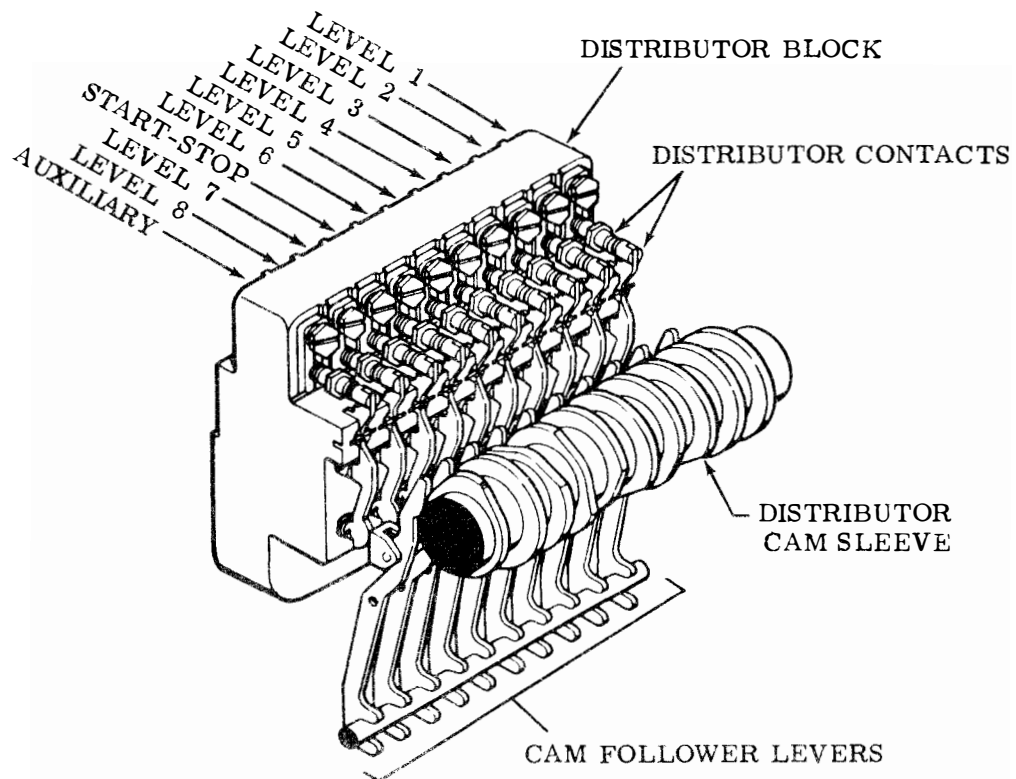


Figure 15 - Distributor Mechanism

7.06 The contacts on the sense storing switch are connected electrically to the contacts on the distributor mechanism contact block (Figures 15, and 16). The read storing switch contacts are connected to external circuits. At this time, the electrical equivalent of the character sensed is set up in the sense and read storing switches.

8. SIGNAL DISTRIBUTION

8.01 The distributor cam sleeve begins its rotation after the auxiliary B contact in the sense storing switch. This action energizes the distributor clutch trip magnet (Figure 8). As the distributor cam sleeve rotates, the cams open and close contacts on the distributor mechanism distributor block for a predetermined interval. A sequential signal is distributed on the signal line corresponding to the character set up in the sense storing switch but also including a start and a stop bit. This cycle is repeated if the sensing clutch magnet remains energized.

8.02 At approximately 250 degrees of sensing cam sleeve rotation, the pusher levers are stripped. As the sensing cam sleeve approaches the end of the cycle, the auxiliary A contact (on the sense storing switch) opens (Figure 16).

9. TAPE FEEDING

9.01 At approximately 250 degrees of sensing cam rotation, the sensing cam sleeve through a mechanical linkage (Figure 17), causes the feed pawl to engage the feed wheel ratchet and rotate the feed wheel. Pins on the feed wheel engage the feed holes and advance the tape one character. A detent lever engages the ratchet and holds the feed wheel and the tape in position for the next sensing cycle.

10. STOPPING THE ACTION

10.01 Positioning the start-stop lever in the STOP position rotates the start-stop bail enough to actuate the start-stop and tight-tape switch, causing a break in the sensing clutch trip magnet circuit (Figures 8 and 12).

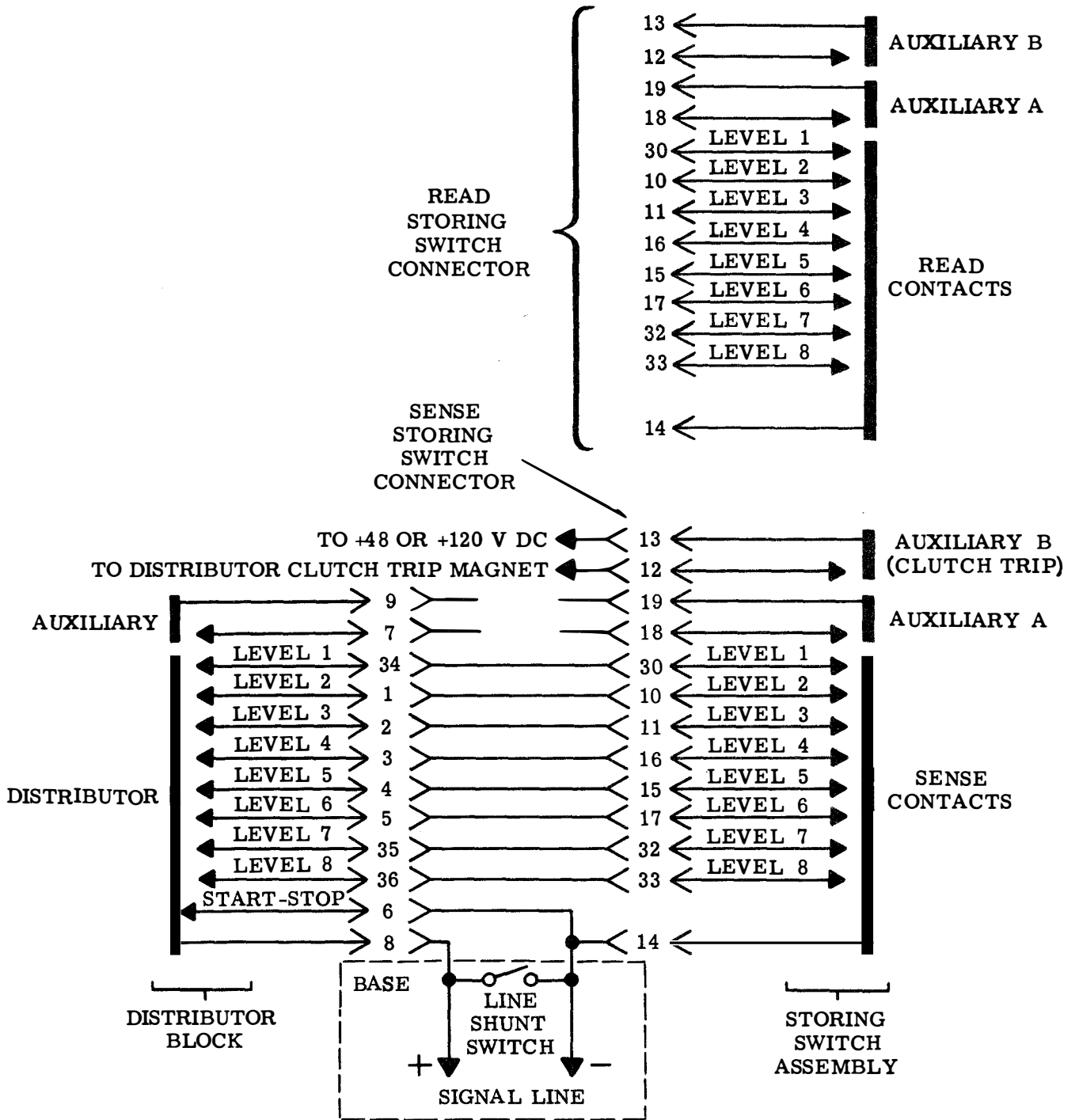


Figure 16 - Signal Circuit

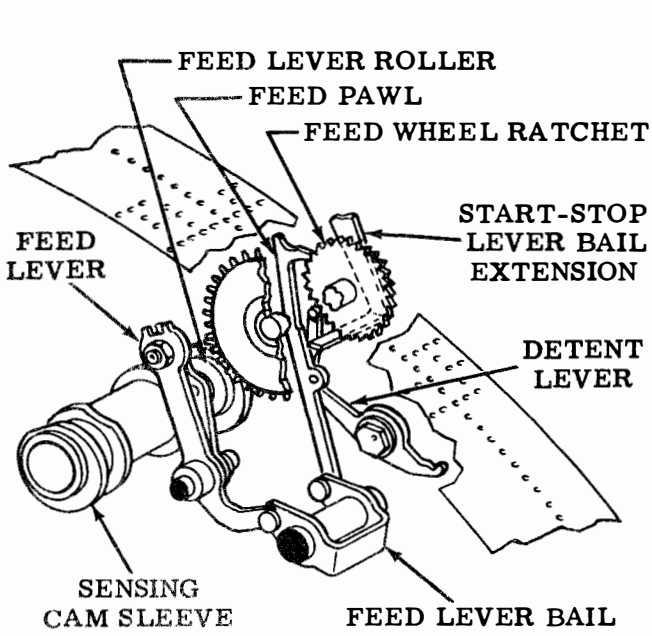


Figure 17 - Tape Feed Mechanism

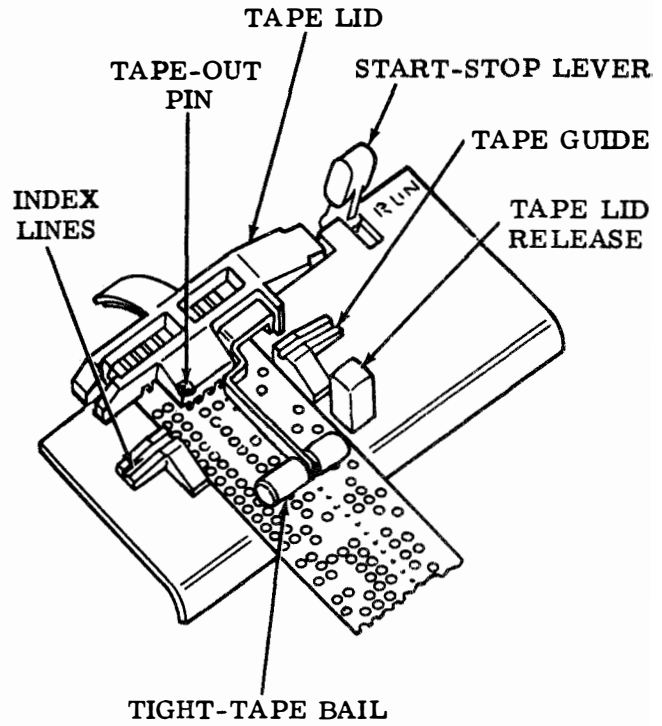


Figure 19 - Tape Guide Plate

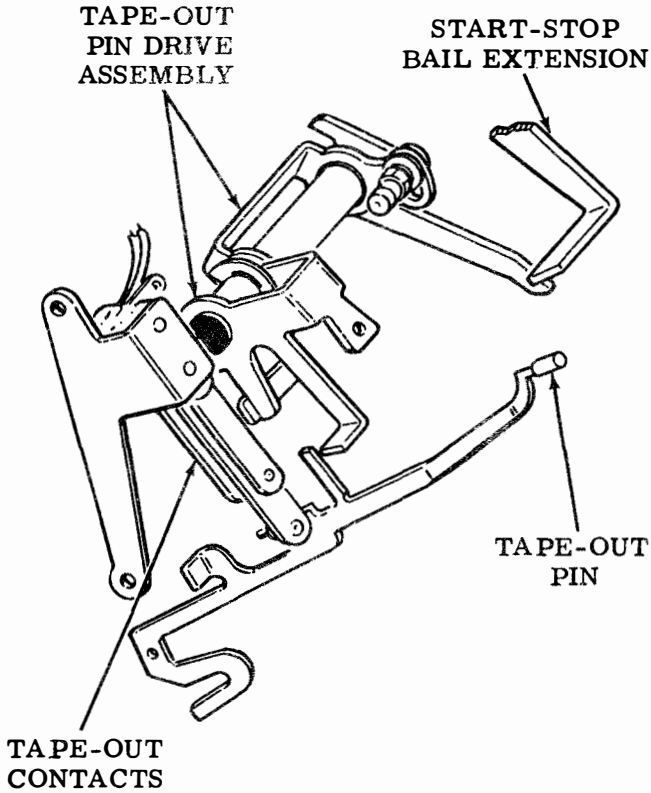


Figure 18 - Tape-Out Pin and Contacts

10.02 Positioning the start-stop lever in the FREE position causes the sensing clutch trip magnet circuit to open (as in 10.01 and also, by moving the tape feed pawl away from the feed wheel ratchet, permits the tape feed wheel to rotate freely (Figure 17).

11. TAPE CONDITIONS

TAPE OUT

11.01 When the unit is loaded with tape, the pressure of the tape causes the tape-out pin (Figure 18) to hold the tape-out contacts closed. These contacts are in series with the sensing clutch trip magnet circuit. If a tape-out condition occurs, pressure on the pin is removed and, through the tape-out pin drive assembly, the contacts open the sensing clutch trip magnet circuit, stopping transmission.

TIGHT TAPE

11.02 The start-stop and tight-tape switch is in series with the sensing clutch trip magnet circuit. The tight-tape bail (Figure 19)

through the front slide arm, actuates the start-stop and tight-tape switch (Figure 12) opening the sensing clutch trip magnet circuit and stopping transmission, if the tape in the unit becomes tight.

12. TAPE LID OPERATION

12.01 When the tape lid release button (Figures 19 and 20) is pressed, the plunger portion of the button presses against the tape lid plunger bail extension causing the bail to pivot. The bail, in pivoting, moves its latching extension from under the tape lid latching post

to swing downward under action of its spring. Since the latching post is mounted on the tape lid behind the pivot point and below the tape guide plate it causes the main part of the tape lid to swing upward (open) when the post swings downward (Figure 20).

12.02 The tape lid is closed manually by pressing it downward against the tape guide plate. As the tape lid is closed, the latching post swings up and cams the latching extension out of its way until it passes the end of the extension which then is pulled under the post, by spring action, latching the post and tape lid.

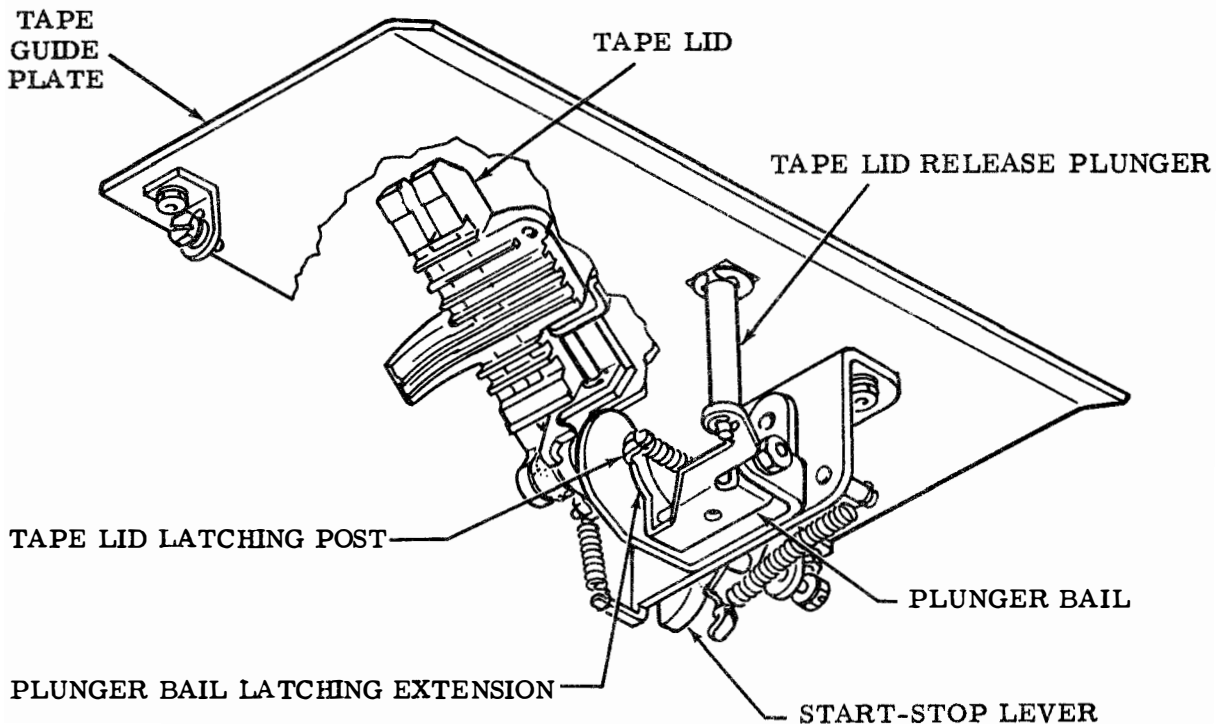
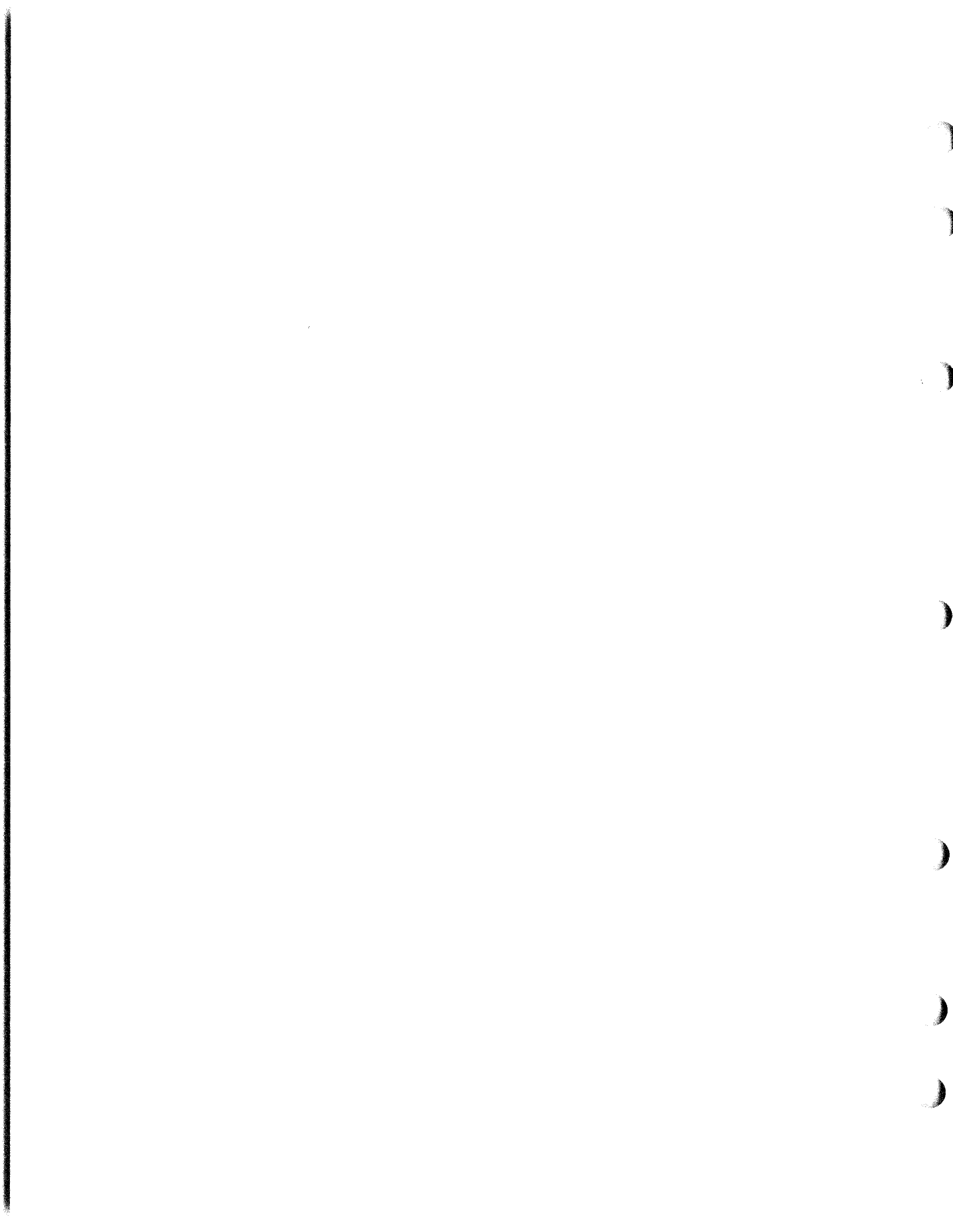


Figure 20 - Tape Lid Mechanism - Bottom View



35 TRANSMITTER-DISTRIBUTOR (MULTICONTACT)

ADJUSTMENTS

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1. GENERAL

1.01 This section covers the adjustment of the 35 Transmitter-Distributor (Multi-Contact). The contact strobing procedure is also included.

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

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

1.04 When rotating the drive shaft gear by hand, the rotation is counterclockwise as viewed from the exposed side of the drive shaft gear.

1.05 When the 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 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 rotating either the sensing or distributor shaft by hand, the respective clutch may not fully disengage upon reaching its stop position. To disengage the clutch, rotate the clutch to its stop position, apply a screwdriver to the cam disk stop lug, and move the disk in the normal direction of the shaft rotation until the latch lever seats in its notch in the disk.

1.06 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 removed from its sub-base to disconnect the power and to permit it to be inverted.

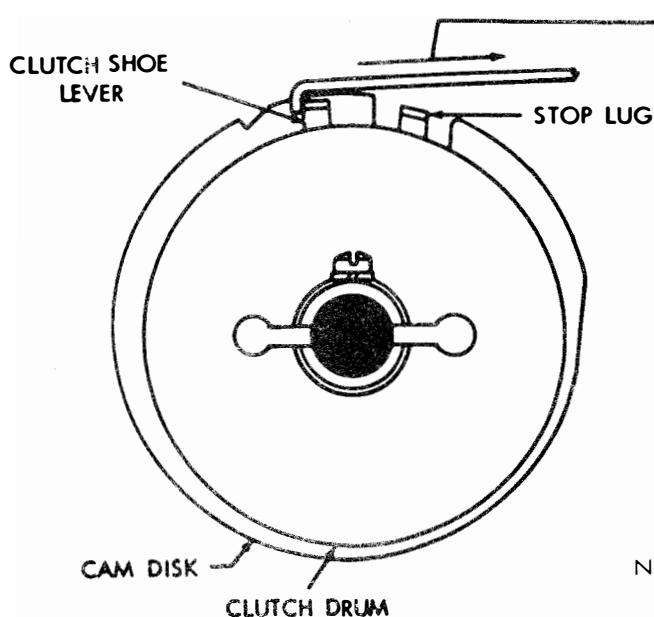
1.07 All electrical contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25 per cent of the contact diameter. Check contacts for pitting and corrosion and clean or bur-nish them before making specified adjustment or tolerance measurement. Avoid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

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

1.08 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 operator's position in front of the unit.

2. BASIC UNIT

2.01 Clutch Mechanism

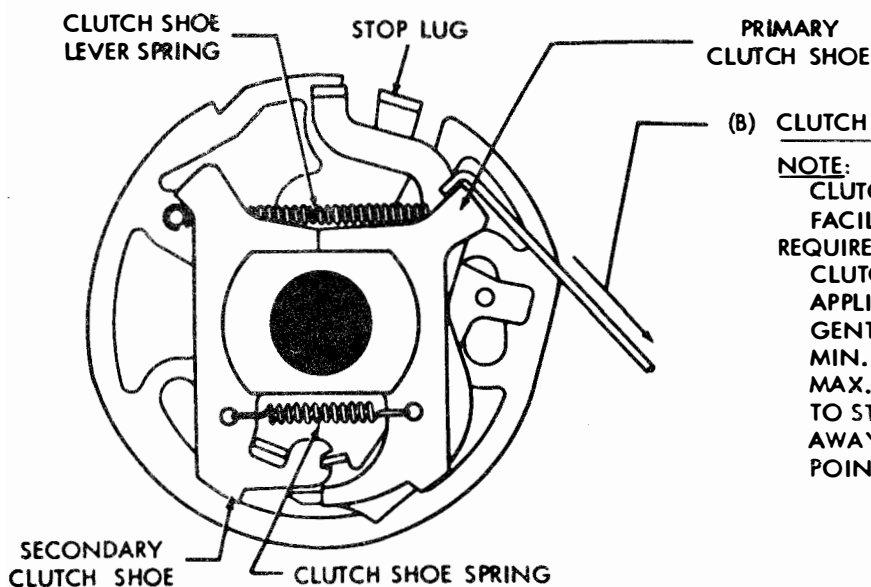


(A) CLUTCH SHOE LEVER SPRING

REQUIREMENT

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

NOTE: REQUIREMENTS A AND 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. REQUIREMENTS A AND B APPLY TO BOTH THE SENSING CLUTCH AND DISTRIBUTOR CLUTCH.



(B) CLUTCH SHOE SPRING

NOTE: IT IS NECESSARY TO REMOVE THE CLUTCH FROM THE MAIN SHAFT TO FACILITATE THIS CHECK.

REQUIREMENT

CLUTCH DRUM REMOVED. SCALE APPLIED TO PRIMARY SHOE AT A TANGENT TO THE FRICTION SURFACE. MIN. 3 OZS. MAX. 5 OZS. TO START PRIMARY SHOE MOVING AWAY FROM SECONDARY SHOE AT POINT OF CONTACT.

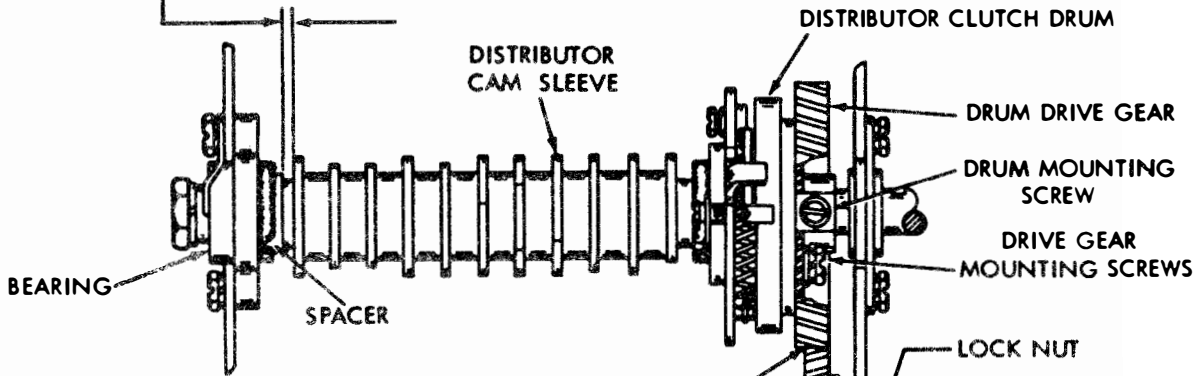
NOTE: THE FOLLOWING REQUIREMENTS APPLY TO BOTH THE DISTRIBUTOR AND SENSING CAM SLEEVES. THESE MECHANISMS SHOULD NOT BE DISTURBED UNLESS THERE IS REASON TO BELIEVE THE REQUIREMENTS ARE NOT MET.

(A) CAM SLEEVE END PLAY

NOTE
MAKE THIS ADJUSTMENT PRIOR TO ASSEMBLING GEAR.

REQUIREMENT
MIN. SOME
MAX. 0.010 INCH
PLAY BETWEEN SLEEVE AND SPACER.

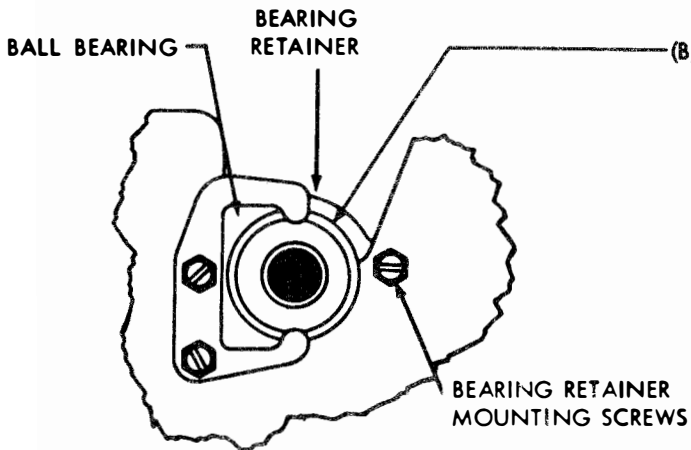
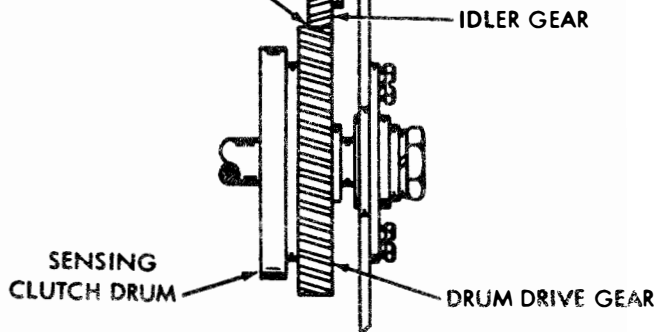
TO ADJUST
REMOVE CLUTCH DRUM DRIVE GEAR AND LOOSEN DRUM MOUNTING SCREW. RELEASE CLUTCH AND POSITION CAM SLEEVE. TIGHTEN CAM SLEEVE MOUNTING SCREW AND REINSTALL DRIVE GEAR.



(C) IDLER GEAR ASSEMBLY

REQUIREMENT
CLEARANCE BETWEEN IDLER GEAR AND SENSING SHAFT GEAR AND BETWEEN IDLER GEAR AND DISTRIBUTOR SHAFT GEAR AT POINT WHERE BACKLASH IS MINIMUM.
MIN. SOME
MAX. 0.003 INCH

TO ADJUST
POSITION IDLER GEAR ASSEMBLY WITH LOCK NUT LOOSENED. RECHECK GEAR PLAY THROUGH ONE REVOLUTION OF GEARS.



(B) CAM SHAFT BEARING RETAINER

REQUIREMENT
WHEN MOUNTING SHAFT ASSEMBLY, BEARING SHALL SEAT PROPERLY. (NO CLEARANCE PERMISSIBLE BETWEEN BEARING AND MOUNTING SURFACE.)

TO ADJUST
ROTATE BEARING RETAINER 180 DEGREES AND POSITION BY PUSHING DOWNWARD FIRMLY.

NOTE: REQUIREMENTS APPLY TO BOTH CLUTCH TRIP MECHANISMS.

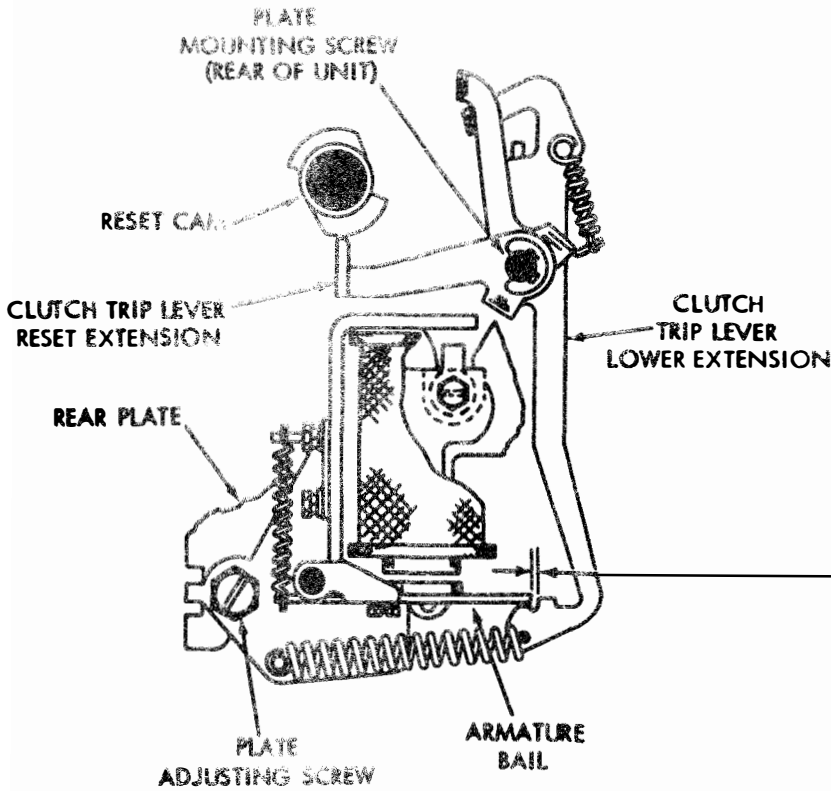
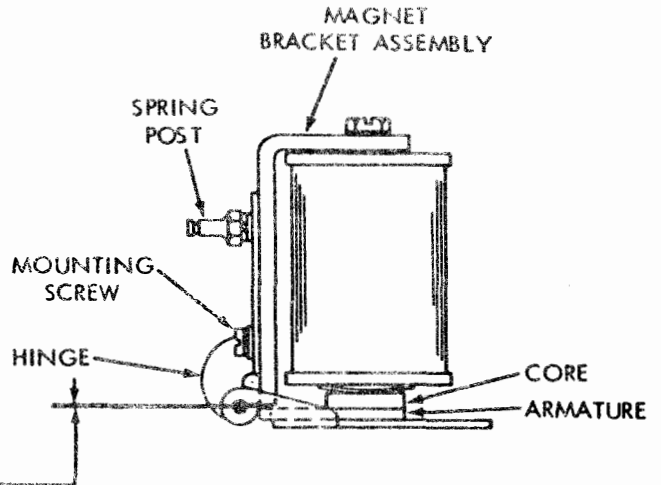
(A) CLUTCH ARMATURE AIR GAP

REQUIREMENT

AIR GAP BETWEEN ARMATURE AND MAGNET ASSEMBLY BRACKET WITH ARMATURE FLUSH AGAINST MAGNET CORE,
 MIN. 0.004 INCH
 MAX. 0.008 INCH

TO ADJUST

REMOVE ARMATURE EXTENSION SPRING, POSITION HINGE WITH SPRING POST AND HINGE MOUNTING SCREW LOOSENED. RECHECK AIR GAP AND REPLACE SPRING.



(B) CLUTCH TRIP ASSEMBLY MOUNTING PLATE

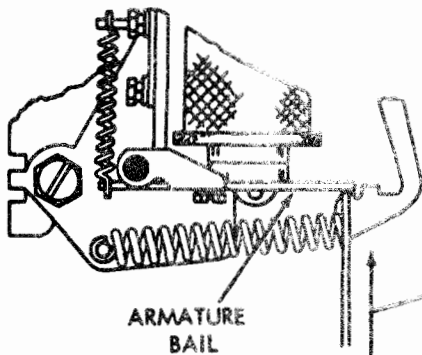
REQUIREMENT

CLEARANCE BETWEEN END OF ARMATURE BAIL AND LATCHING SURFACE OF CLUTCH TRIP LEVER LOWER EXTENSION WITH CLUTCH TRIP LEVER RESET EXTENSION ON HIGH PART OF CAM. (TAKE-UP PLAY IN PARTS FOR MINIMUM CLEARANCE.)

MIN. 0.020 INCH
 MAX. 0.030 INCH

TO ADJUST

POSITION PLATE WITH SCREWDRIVER IN LOWER ADJUSTING SLOT WITH PLATE ADJUSTING SCREW AND PLATE MOUNTING SCREW LOOSENED. (TAKE-UP PLAY IN TRIP LEVER IN DIRECTION OF CAM.)



(C) ARMATURE BAIL SPRING

REQUIREMENT

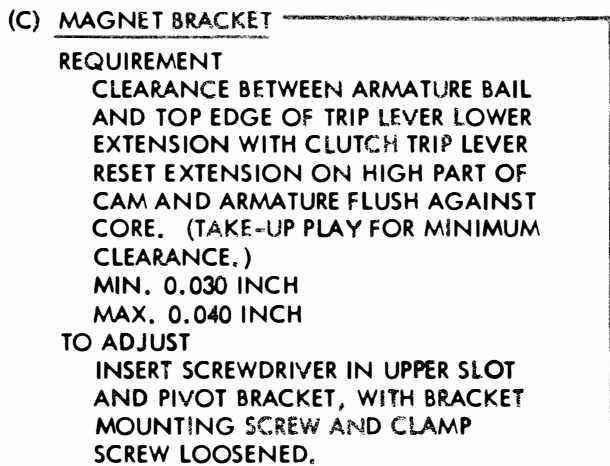
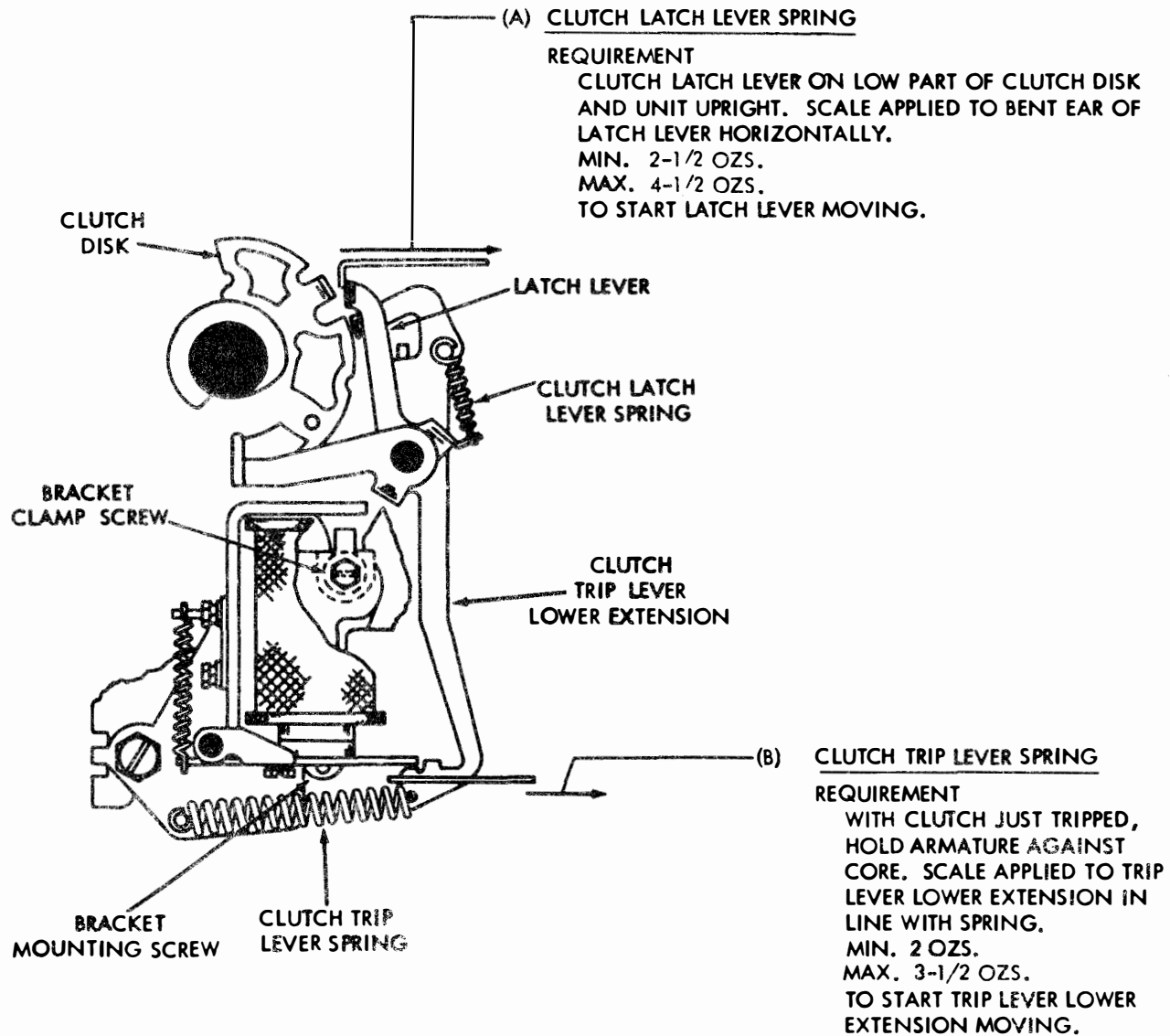
TRIP LEVER RESET EXTENSION ON HIGH PART OF CAM. SCALE APPLIED TO LATCHING END OF ARMATURE BAIL.

MIN. 3 OZS.

MAX. 4-1/2 OZS.

TO START ARMATURE BAIL MOVING.

NOTE: REFER TO REQUIREMENTS IN PAR. 2.03.



2.05 Clutch Mechanism - Continued

NOTE: REQUIREMENTS A AND B APPLY TO BOTH CLUTCHES.

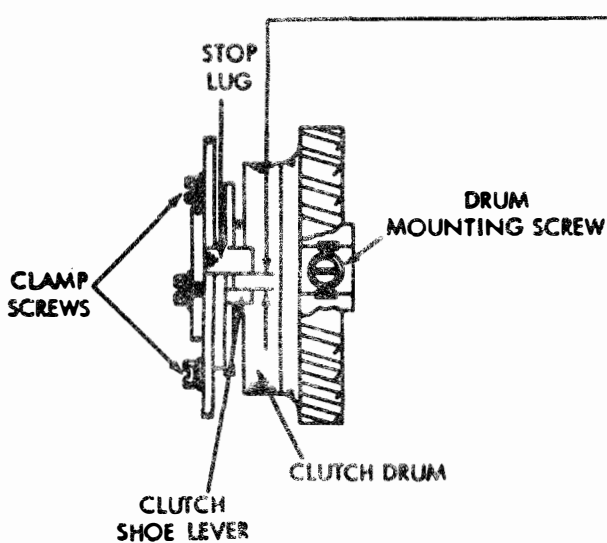
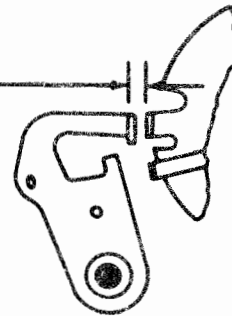
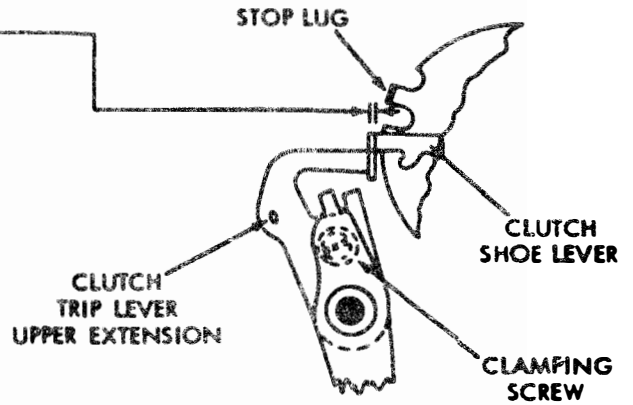
(A) CLUTCH TRIP LEVER UPPER EXTENSION

(1) REQUIREMENT
CLUTCH TRIP LEVER LATCHED (CLUTCH IN STOP POSITION). CLUTCH TRIP LEVER UPPER EXTENSION SHALL FULLY ENGAGE CLUTCH SHOE LEVER.

TO ADJUST
POSITION UPPER EXTENSION, WITH CLUTCH TRIP LEVER CLAMPING SCREW LOOSENED.

(2) REQUIREMENT
WITH ARMATURE IN ATTRACTED POSITION, THERE SHALL BE SOME CLEARANCE BETWEEN CLUTCH TRIP LEVER UPPER EXTENSION AND STOP LUG WHEN CLUTCH IS ROTATED TO MAKE CLEARANCE A MINIMUM.

TO ADJUST
REFINE REQUIREMENT (1), IF NECESSARY, SO THAT CLUTCH TRIP LEVER UPPER EXTENSION IS UNDER OR OVER FLUSH WITH STOP LUG BY NOT MORE THAN 0.015 INCH



(B) CLUTCH SHOE LEVER

REQUIREMENT
GAP BETWEEN CLUTCH SHOE LEVER AND ITS STOP LUG SHOULD BE 0.055 INCH TO 0.085 INCH GREATER WHEN CLUTCH IS ENGAGED THAN WHEN CLUTCH IS DISENGAGED.

TO ADJUST
ENGAGE A WRENCH OR SCREWDRIVER ON A SCREW ON THE ADJUSTING DISK. ROTATE DISK WITH CLAMP SCREWS LOOSENED AND CLUTCH DISENGAGED.

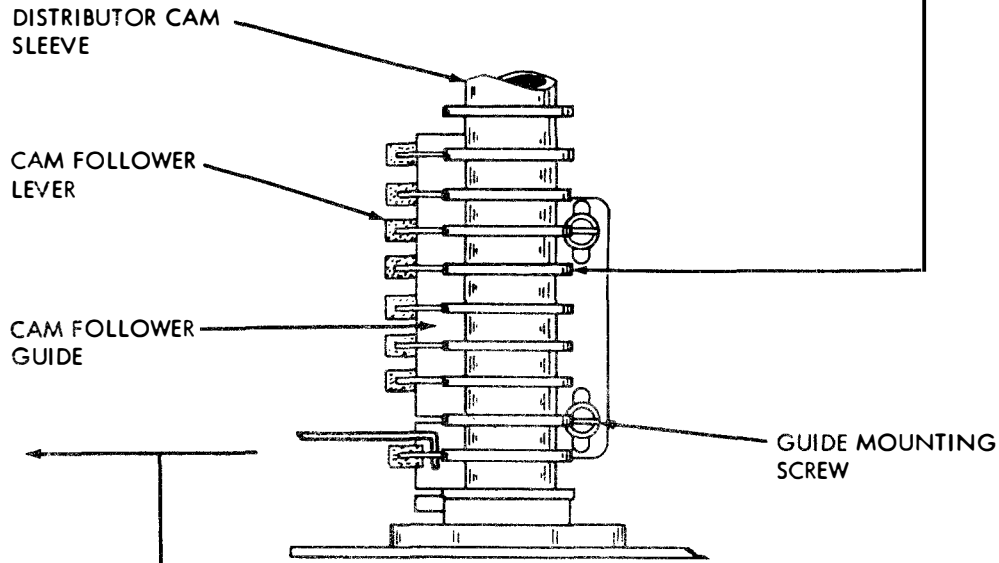
NOTE

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

NOTE

REMOVE OIL RESERVOIR AND DISTRIBUTOR BLOCK ASSEMBLY TO FACILITATE ADJUSTMENT.

- (A) CAM FOLLOWER GUIDE
REQUIREMENT
- (1) CENTER CAM FOLLOWER ENGAGES CAM BY FULL THICKNESS OF FOLLOWER WHEN MOVED FROM SIDE TO SIDE IN ITS GUIDE SLOT.
 - (2) IN SIMILAR MANNER, OTHER FOLLOWER SHOULD ENGAGE CAM BY AT LEAST 75% OF FOLLOWER THICKNESS.
 - (3) ALL FOLLOWERS MOVE FREELY IN THEIR GUIDE SLOTS.
- TO ADJUST
POSITION CAM FOLLOWER GUIDE WITH ITS MOUNTING SCREWS LOOSENED.



- (B) CAM FOLLOWER LEVER SPRING
REQUIREMENT
- CAM FOLLOWER LEVER ON HIGH PART OF CAM. SCALE APPLIED JUST BELOW SLIDING SURFACE OF LEVER HORIZONTALLY.
- MIN. 1/2 OZ.
MAX. 1-1/2 OZS.
- TO START EACH LEVER MOVING.

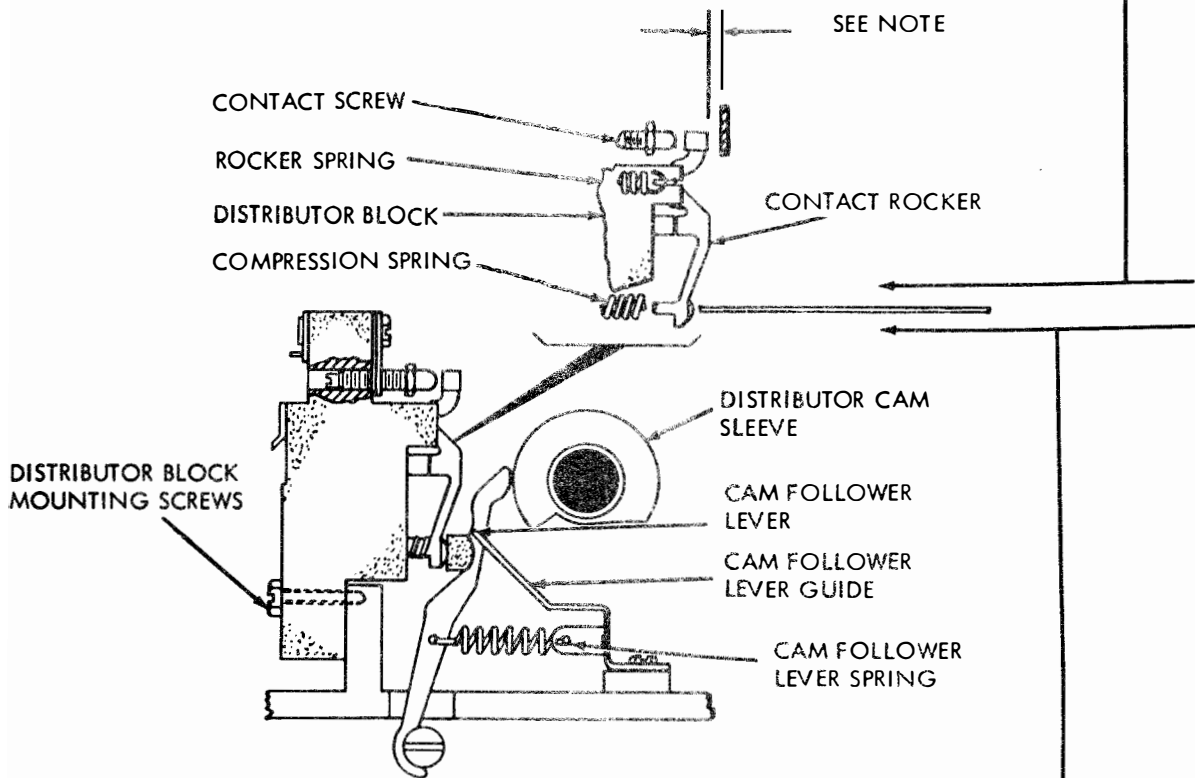
2.07 Distributor Contact Mechanism - Continued

(A) DISTRIBUTOR ROCKER SPRING
TO CHECK

POSITION EACH CONTACT SCREW SO ITS CONTACT SURFACE IS ABOUT 1/32 INCH FROM EDGE OF BLOCK.

REQUIREMENT

WITH COMPRESSION SPRINGS REMOVED, HOLD DISTRIBUTOR BLOCK IN HORIZONTAL POSITION. PUSH SPRING SCALE DOWNWARD (VERTICALLY).
MIN. 3 OZS.
MAX. 4 OZS.
TO SEPARATE CONTACTS.



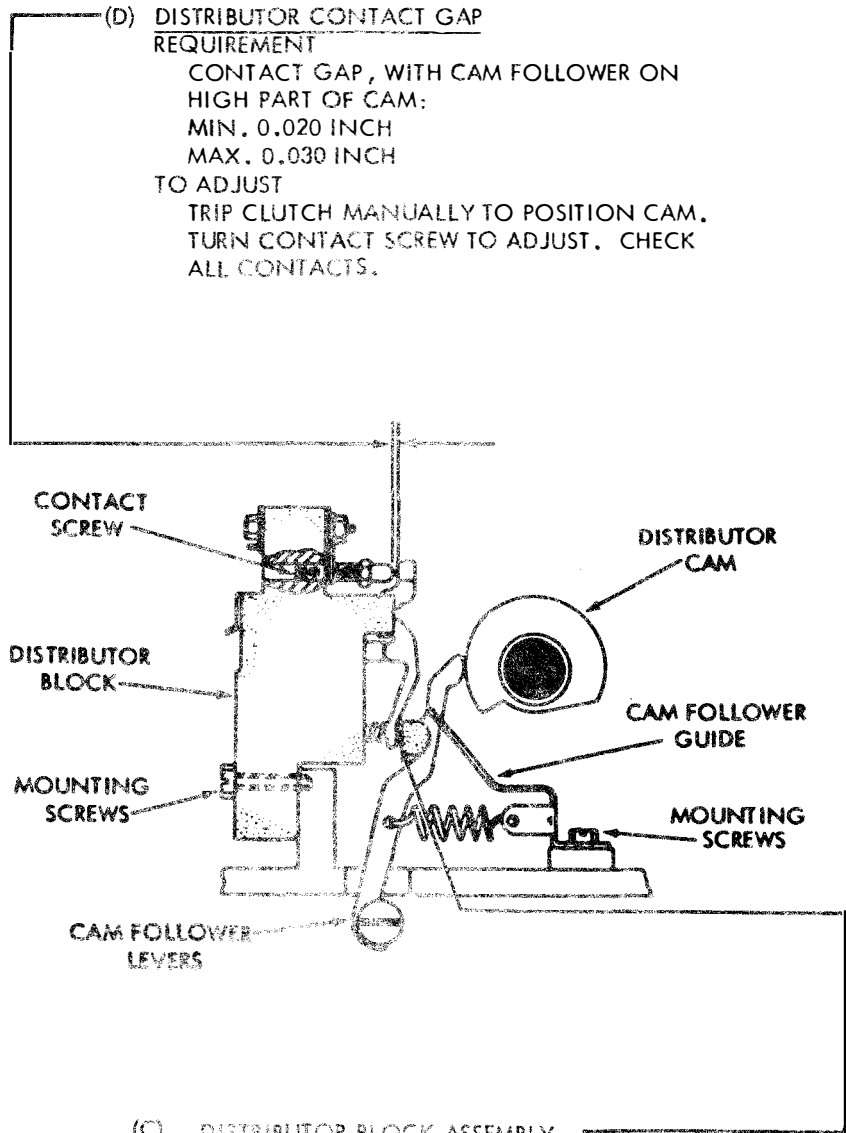
(B) DISTRIBUTOR ROCKER COMPRESSION SPRINGS
REQUIREMENT

WITH COMPRESSION SPRINGS INSTALLED, AND BLOCK IN A HORIZONTAL POSITION, APPLY SPRING SCALE AT LOWER END OF ROCKER AND PUSH DOWNWARD.
MIN. 6-1/2 OZS.
MAX. 9-1/2 OZS.
TO SEPARATE CONTACTS.

NOTE

WITH DISTRIBUTOR BLOCK REMOVED, ADJUST CONTACTS SO THAT THERE IS 0.070 TO 0.080 INCHES BETWEEN ROCKER LEVERS AND OIL GUARD.

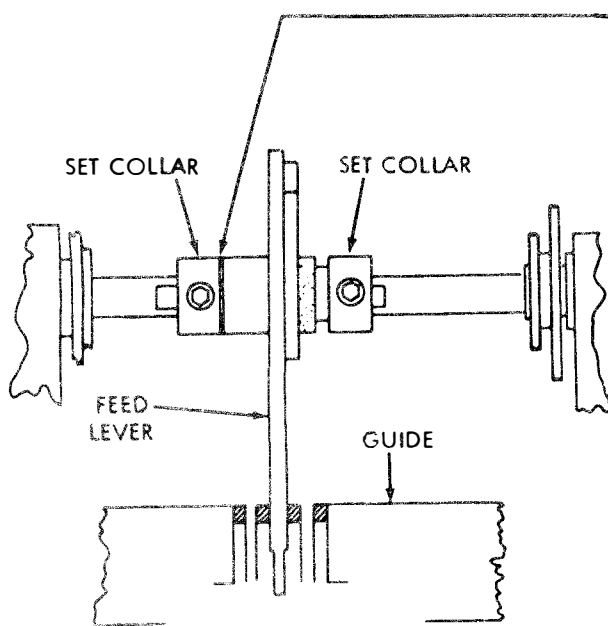
2.08 Distributor Contact Mechanism - Continued



(C) DISTRIBUTOR BLOCK ASSEMBLY
REQUIREMENT
ROCKERS SHOULD FULLY ENGAGE IN-
SULATED PORTIONS OF RESPECTIVE CAM
FOLLOWER LEVERS.
TO ADJUST
POSITION DISTRIBUTOR BLOCK WITH
MOUNTING SCREWS LOOSENED.

NOTE
FOR REFINEMENT OF DISTRIBUTOR CONTACT ADJUSTMENTS, REFER TO PARAGRAPH 3,
DISTRIBUTOR AND TRANSMITTER CONTACT STROBING.

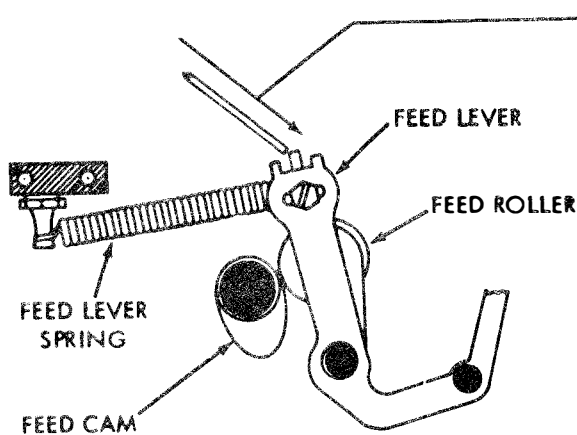
2.09 Feed Lever Mechanism



(A) FEED LEVER SET COLLAR

REQUIREMENT
 MIN. SOME
 MAX. 0.015 INCH
 CLEARANCE BETWEEN FEED LEVER AND
 COLLAR WHEN FEED LEVER IS FREE IN
 ITS GUIDE SLOT.
 TO ADJUST
 POSITION FEED LEVER WITH SET COLLAR
 SCREWS LOOSENED. FEED LEVER SHOULD
 MOVE FREELY WITHOUT BINDING AT
 GUIDE OR COLLARS.

NOTE
 AFTER TIGHTENING SET SCREWS, RECHECK
 ADJUSTMENT FOR BINDS BETWEEN FEED LEVER
 AND COLLARS, AND BETWEEN FEED LEVER
 AND GUIDE.



(B) FEED LEVER SPRING
 TO CHECK

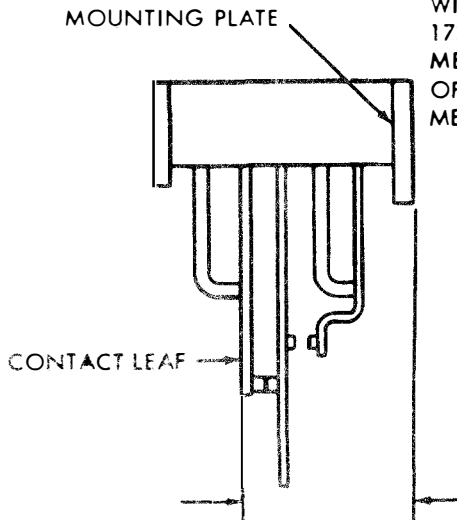
ROTATE SENSING SHAFT UNTIL CLUTCH IS
 IN STOP POSITION.
 REQUIREMENT
 MIN. 10 OZS.
 MAX. 17 OZS.
 TO MOVE FEED LEVER AWAY FROM CAM.

NOTE
 THIS ADJUSTMENT IS MADE WITH THE FEED LEVER
 CAM FOLLOWER ROLLER ON THE LOW PART OF
 THE SENSING CAM.

STORING SWITCH CONTACT ASSEMBLY (TRANSFER TYPE)

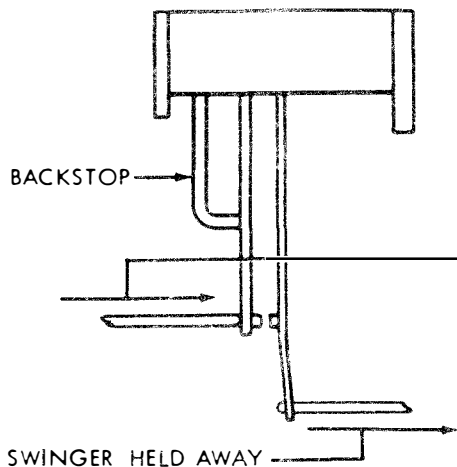
NOTE

FOLLOWING ADJUSTMENTS (PAR. 2.10 AND 2.11) ARE TO BE MADE WITH THE CONTACT ASSEMBLIES REMOVED FROM THE UNIT. USE A 172060 ADJUSTING TOOL TO BEND THE CONTACTS. FOR EACH ADJUSTMENT START WITH THE CONTACT PILE-UP FARTHEST FROM THE HANDLE OF THE BENDING TOOL TO AVOID DISTURBING COMPLETED ADJUSTMENTS.



(1) BACKSTOP - NORMALLY CLOSED CONTACT REQUIREMENT

FIVE OR EIGHT NORMALLY CLOSED CONTACT LEAFS PARALLEL TO MOUNTING PLATE AND IN LINE WITH EACH OTHER AS GAUGED BY EYE.
TO ADJUST
BEND BACKSTOP.

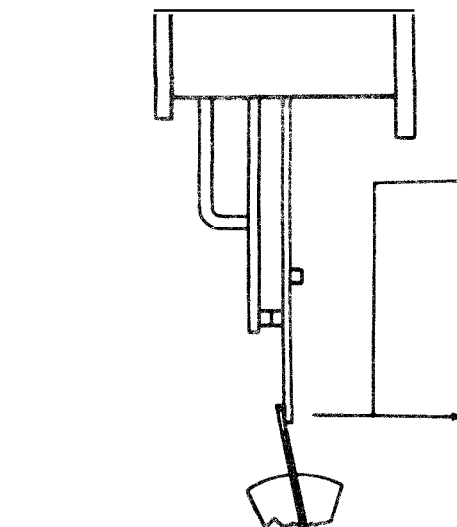


(2) SPRING TENSION - NORMALLY CLOSED CONTACT REQUIREMENT

WITH SWINGER CONTACT HELD AWAY
MIN. 2 OZS.
MAX. 6 OZS.
TO MOVE EACH NORMALLY CLOSED LEAF AWAY FROM BACKSTOP.
TO ADJUST
BEND NORMALLY CLOSED LEAF SPRING

NOTE

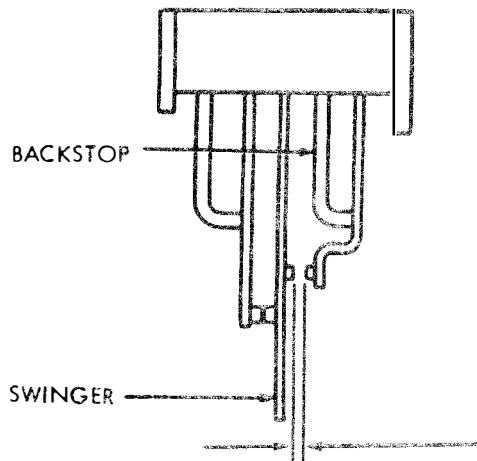
TO INCREASE TENSION OF NORMALLY CLOSED LEAF, IT MAY BE NECESSARY TO BEND BACKSTOP AWAY FROM LEAF, BEND LEAF, AND THEN REMAKE ADJUSTMENT (1).



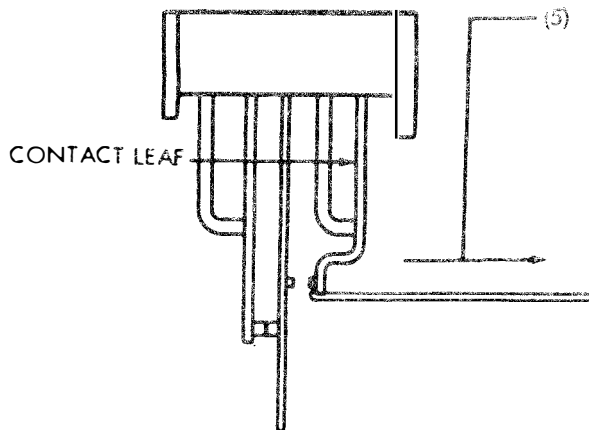
(3) SWINGER SPRING TENSION REQUIREMENT

MIN. 35 GRAMS
MAX. 50 GRAMS
TO OPEN NORMALLY CLOSED CONTACT
TO ADJUST
BEND SWINGER LEAF

2.11 Transfer Type Storing Switch Mechanism - Continued



(4) NORMALLY OPEN CONTACT GAP
 REQUIREMENT
 MIN. 0.010 INCH
 MAX. 0.015 INCH
 CLEARANCE
 TO ADJUST
 BEND NORMALLY OPEN CONTACT BACKSTOP



(5) SPRING TENSION - NORMALLY OPEN CONTACT
 REQUIREMENT
 MIN. 35 GRAMS
 MAX. 50 GRAMS
 TO MOVE EACH NORMALLY OPEN LEAF AWAY FROM
 ITS BACKSTOP
 TO ADJUST
 BEND NORMALLY OPEN LEAF SPRING

NOTE
 TO INCREASE TENSION OF NORMALLY OPEN LEAF SPRING,
 IT MAY BE NECESSARY TO BEND BACKSTOP AWAY FROM
 LEAF, BEND LEAF, AND THEN REMAKE ADJUSTMENT (5).

INSTRUCTIONS FOR REPLACING AND POSITIONING STORING SWITCH ASSEMBLY (TRANSFER TYPE)

PLACE SWITCH ASSEMBLY ON LOWER SURFACE OF MAIN CASTING. EXERCISE CARE IN SEATING SLIDE LEVERS AGAINST PUSHER LEVERS AND LATCH LEVERS IN APPROPRIATE SLOT OF SLIDE LEVER GUIDE.

STORING SWITCH ASSEMBLY

REQUIREMENT

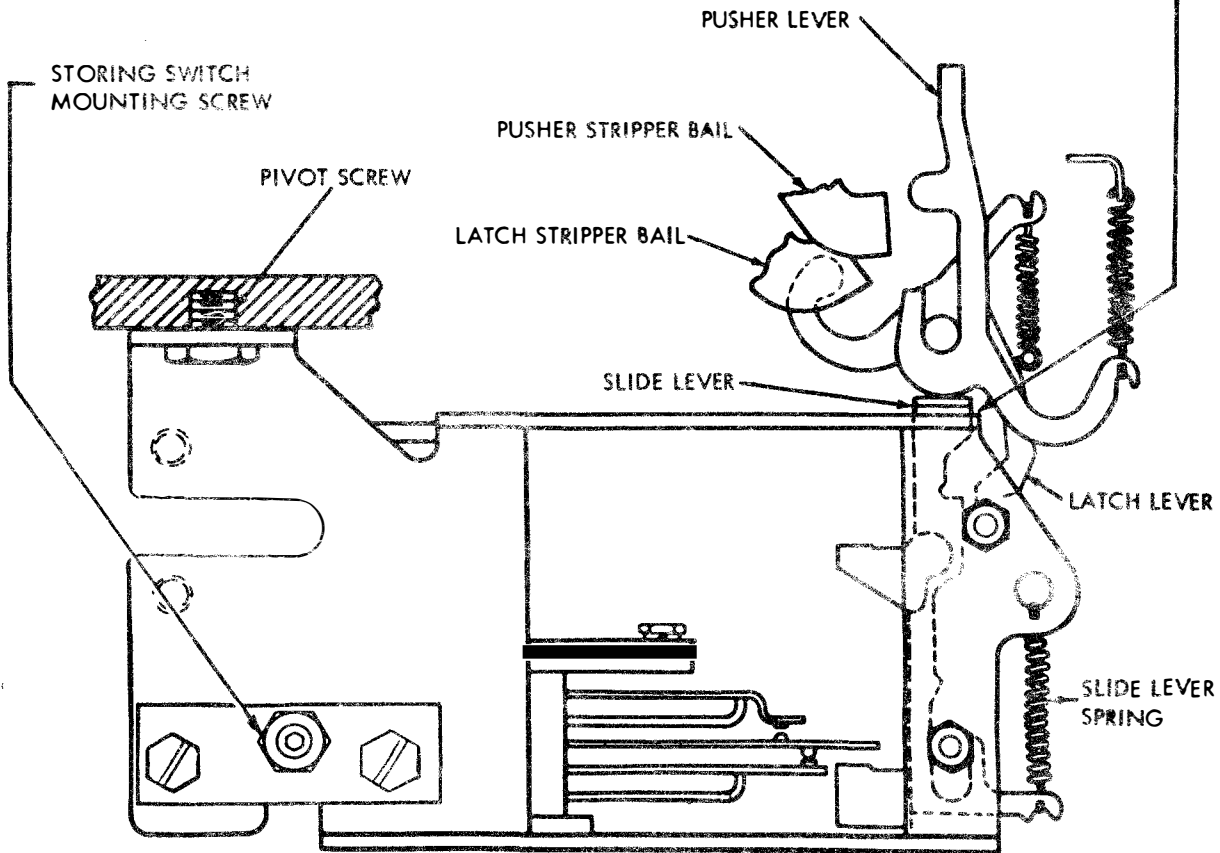
WITH TOP PLATE IN PLACE, SELECT A LETTERS - BLANK - LETTERS COMBINATION AND OBSERVE LATCH AND PUSHER LEVER ACTION. STORING SWITCH SHOULD ALIGN WITH LATCH LEVER SO THAT LATCH LEVERS AND SLIDES FUNCTION WITHOUT BINDING.

TO ADJUST

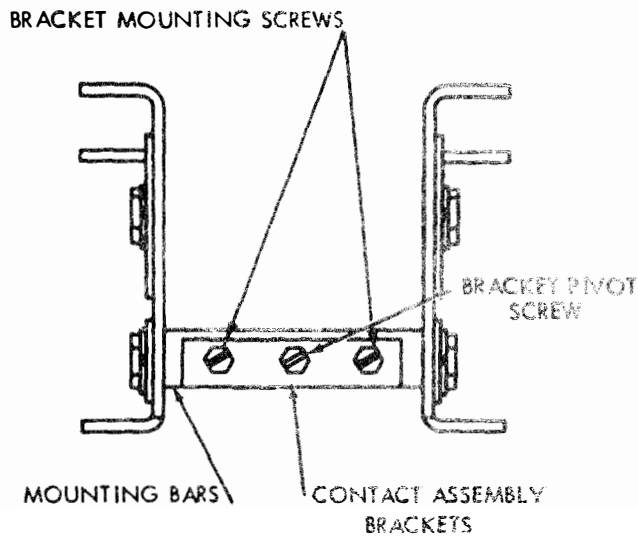
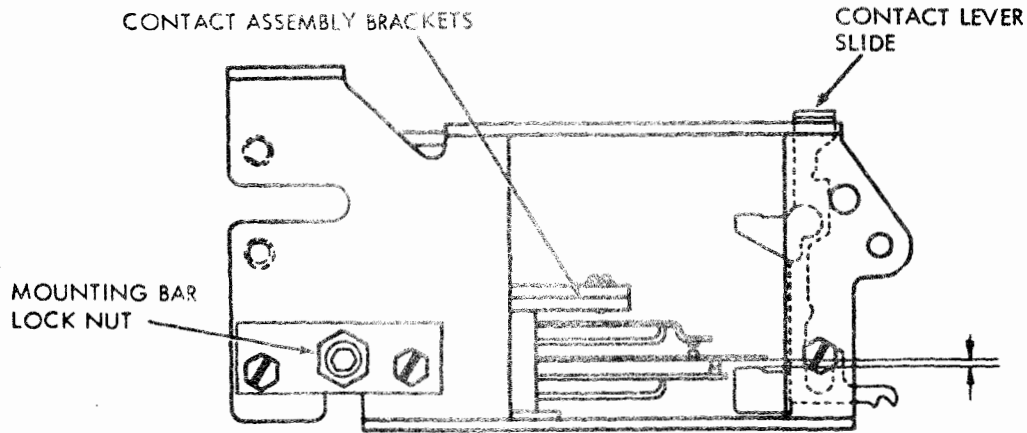
POSITION SWITCH ASSEMBLY WITH ITS MOUNTING SCREWS LOOSENED. RECHECK REQUIREMENT AFTER TIGHTENING SCREWS.

NOTE

A MINOR ADJUSTMENT OF THE SENSING PIN AND PUSHER LEVER GUIDE MAY BE NECESSARY.



2.13 Transfer Type Storing Switch Mechanism - Continued



SLIDE LEVER REQUIREMENT

MIN. 0.005 INCH
MAX. 0.020 INCH

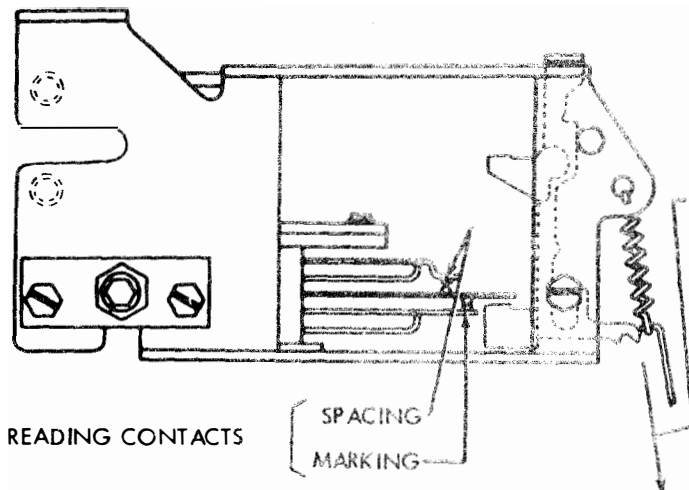
CLEARANCE BETWEEN ALL SENSING SLIDES AND CONTACT SWINGERS.

TO CHECK

STORING SWITCH ASSEMBLY INSTALLED (SEE PAR. 2.12). SENSING SLIDES SELECTED AND LATCHED.

TO ADJUST

LOOSEN MOUNTING BAR LOCK NUTS AND BRACKET MOUNTING SCREWS TO FRICTION TIGHT. INSERT AN ALLEN WRENCH IN END OF CONTACT ASSEMBLY MOUNTING BAR. POSITION CONTACT ASSEMBLY BY ROTATING BAR TO PIVOT CONTACT ASSEMBLY. CHECK AT ALL SWINGERS.



SLIDE LEVER SPRING

TO CHECK

PLACE SLIDE LEVERS IN UPPERMOST POSITION (BLANK SELECTED, LATCHES STRIPPED). HOOK SPRING SCALE IN THE SPRING LOOP.

REQUIREMENT

MIN. 6 OZS.
MAX. 9 OZS.

TO PULL EACH SPRING TO ITS INSTALLED LENGTH.

2.14 Tape Lid Mechanism

TAPE LID

NOTE

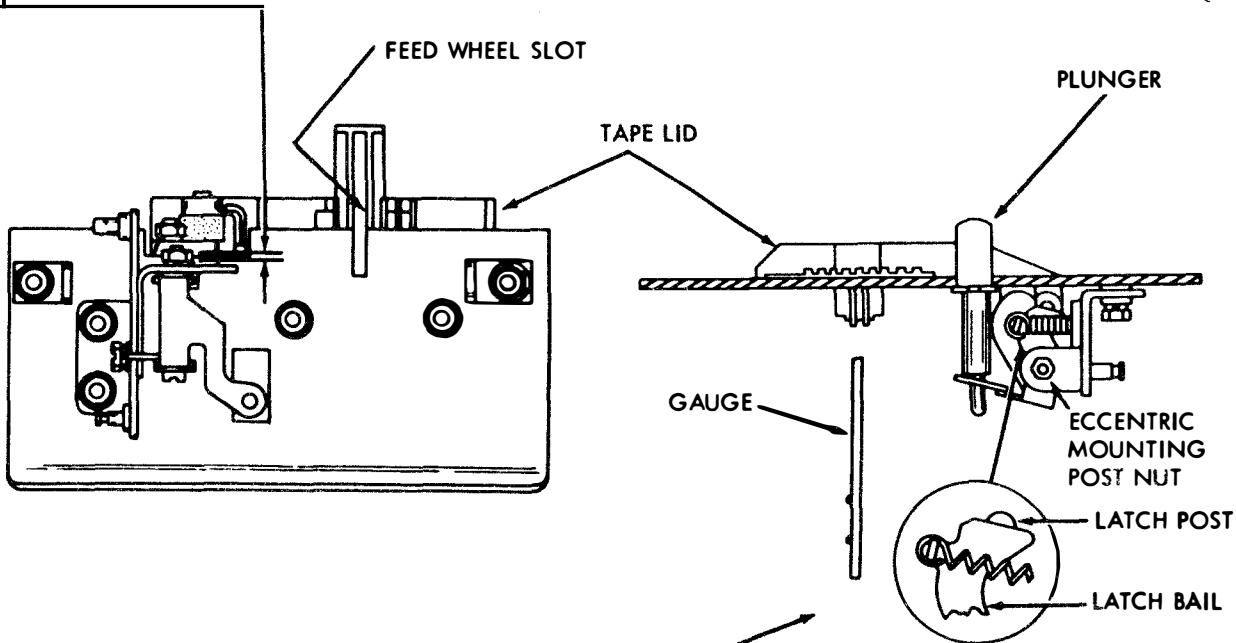
REMOVE TOP AND TAPE GUIDE PLATES. LUBRICATE MATING SURFACES PRIOR TO ADJUSTMENT.

(1) REQUIREMENT
MIN. SOME
MAX. 0.010 INCH
CLEARANCE BETWEEN PIVOT SHOULDER AND TAPE LID WHEN LID IS PRESSED AGAINST NOTCH IN TAPE GUIDE PLATE, AND FEED WHEEL SLOTS AND TAPE-OUT PIN HOLES ARE LINED UP.

TO ADJUST

LOOSEN TAPE LID BRACKET MOUNTING NUTS. USING A 156743 GAUGE, LINE UP FEED WHEEL GROOVE IN TAPE LID WITH SLOT IN TAPE GUIDE PLATE. POSITION TAPE LID BRACKET TO MEET REQUIREMENT.

(2) REQUIREMENT - (SEE PAR. 2.15).



(3) REQUIREMENT
SOME END PLAY IN RELEASE PLUNGER WHEN LID IS LATCHED AGAINST TAPE GUIDE PLATE

TO ADJUST

WITH ECCENTRIC MOUNTING POST NUT FRICTION TIGHT AND TAPE LID RAISED, ROTATE HIGH PART OF ECCENTRIC POST TOWARDS MOUNTING BRACKET. CLOSE TAPE LID. ROTATE ECCENTRIC COUNTERCLOCKWISE (AS VIEWED FROM SLOTTED END OF ECCENTRIC POST) UNTIL FLAT OF LATCH POST FULLY ENGAGES LATCH BAIL FLAT. ROTATE ECCENTRIC CLOCKWISE TO TAKE UP ALL PLAY IN PARTS, AND TO SEAT OPEN END OF TAPE LID AGAINST TAPE GUIDE PLATE.

TO CHECK

WITH TAPE LID HELD DOWN MANUALLY, LATCH TIP SHOULD CLEAR LATCH POST WHEN RELEASE BUTTON IS OPERATED. WITH TAPE LID LATCHED, TIP OF LATCH SHOULD PROJECT BEYOND FLAT OF LATCH POST, AND THERE SHOULD BE SOME END PLAY IN RELEASE BUTTON.

2.15 Tape Lid Mechanism - Continued

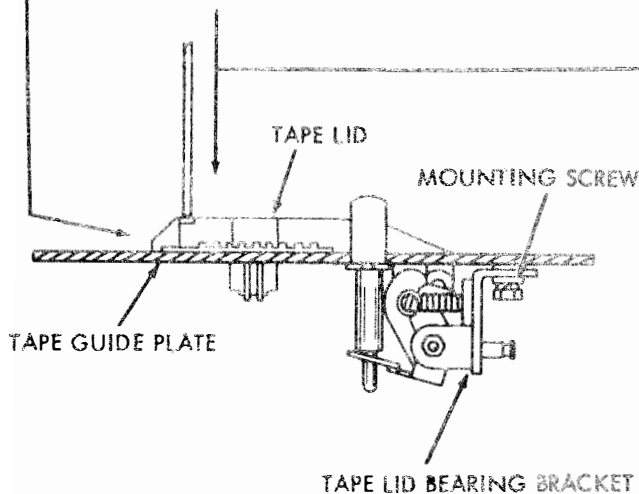
(2) **REQUIREMENT**
 WITH TAPE LID FRONT BEARING SURFACE TOUCHING TAPE GUIDE PLATE, CLEARANCE BETWEEN TAPE LID AND TAPE GUIDE PLATE:
 MIN. 0.010 INCH
 MAX. 0.018 INCH
 MEASURED AT TAPE LID FIN IN LINE WITH REAR TAPE GUIDE. 2ND. FIN FROM REAR

NOTE

WHEN BOTH TOP AND TAPE GUIDE 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).

(1) AND (3) REQUIREMENTS - (SEE PAR. 2.14).



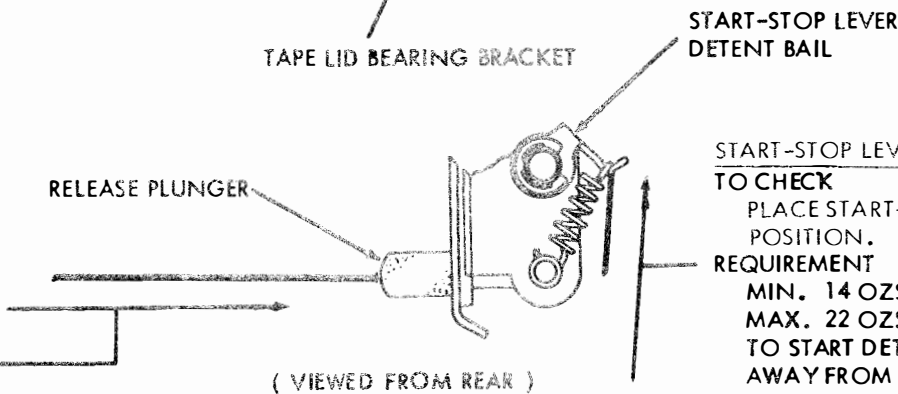
TAPE LID SPRING TO CHECK

OPEN TAPE LID. HOLD UNIT SO TAPE GUIDE PLATE IS HORIZONTAL. APPLY SCALE AT TOP OF LID IMMEDIATELY LEFT OF TAPE-OUT PIN HOLE. HOLD PLUNGER FULLY DEPRESSED.

REQUIREMENT

MIN. 1/8 OZ.
 MAX. 1 OZ.

TO MOVE OPEN END OF TAPE LID AGAINST TAPE GUIDE PLATE.



START-STOP LEVER DETENT SPRING TO CHECK

PLACE START-STOP LEVER IN RUN POSITION.

REQUIREMENT

MIN. 14 OZS.
 MAX. 22 OZS.

TO START DETENT BAIL MOVING AWAY FROM CONTROL LEVER DETENT.

TAPE LID RELEASE PLUNGER SPRING TO CHECK

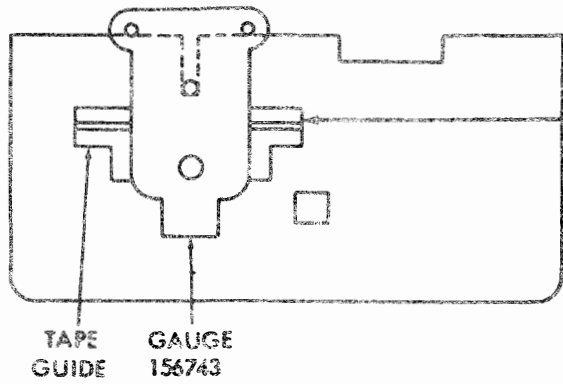
HOLD TAPE GUIDE PLATE SO TOP SURFACE IS HORIZONTAL. OPEN TAPE LID.

REQUIREMENT

MIN. 28 OZS.
 MAX. 48 OZS.

TO START TAPE LID BAIL MOVING.

2.16 Tape Guide Plate



TAPE GUIDE REQUIREMENT

WITH GAUGE PROPERLY POSITIONED:
MIN. SOME
MAX. 0.003 INCH
BETWEEN GAUGE AND TAPE GUIDES

TO ADJUST

LOOSEN TAPE GUIDE MOUNTING NUTS TO FRICTION TIGHT. PROPERLY POSITION GAUGE ON TAPE GUIDE PLATE. POSITION TAPE GUIDES TO MEET REQUIREMENT.

TAPE GUIDE PLATE

(1) **REQUIREMENT**

SHOULDER OF FEED WHEEL POST SHOULD NOT INTERFERE WITH TOP PLATE OR TAPE GUIDE PLATE MOUNTING BRACKETS.

TO ADJUST

ROTATE FEED WHEEL POST WITH ITS MOUNTING NUT LOOSENED.

(2) **REQUIREMENT**

TAPE GUIDE PLATE SHOULD REST FIRMLY AGAINST AT LEAST THREE PROJECTIONS OF THE FRONT AND REAR PLATE.

TO ADJUST

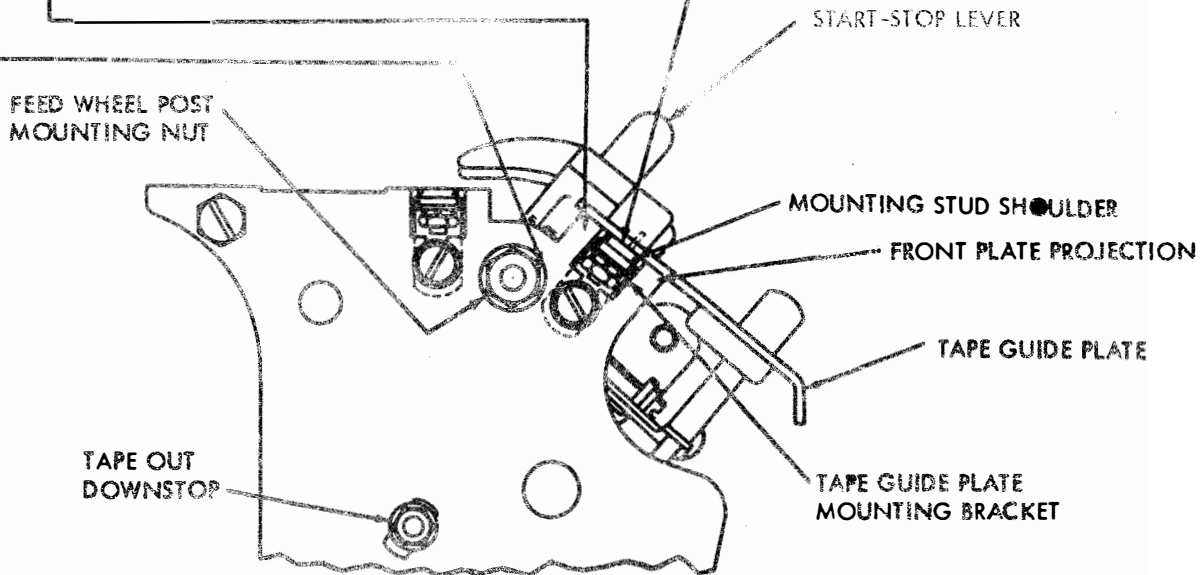
WITH TAPE-OUT DOWNSTOP IN ITS LOWERMOST POSITION, AND TAPE GUIDE PLATE MOUNTING BRACKET (FRONT AND REAR) NUTS FRICTION TIGHT, TRIP CLUTCH AND ROTATE SHAFT UNTIL SENSING PINS ARE IN THEIR UPPERMOST POSITION. WITH TAPE LID RAISED AND START-STOP LEVER IN RUN POSITION, PRESS TAPE GUIDE PLATE INTO POSITION. GUIDE MOUNTING SCREWS INTO NOTCH OF FRONT AND REAR PLATE, AND PLACE SENSING PINS ADJACENT TO LEFT EDGE OF GUIDE PLATE. PLACE TAPE-OUT PIN INTO ITS HOLE. TIGHTEN EACH BRACKET MOUNTING.

(3) **REQUIREMENT**

OUTER EDGES OF MOUNTING BRACKETS AND OUTER EDGES OF MOUNTING STUD SHOULDERS SHOULD ALIGN AND PROJECT EQUALLY ON FRONT AND REAR BRACKETS.

TO ADJUST

MOVE TAPE GUIDE PLATE TOWARD FRONT OR REAR. TIGHTEN NUTS ONLY AFTER TOP PLATE IS ADJUSTED (SEE PAR. 2.17).



2.17 Top Plate Assembly

TOP PLATE

(1) REQUIREMENT

TOP PLATE FLUSH TO 0.003 INCH UNDER FLUSH WITH TAPE GUIDE PLATE WITHIN WIDTH OF TAPE LID.

TO ADJUST

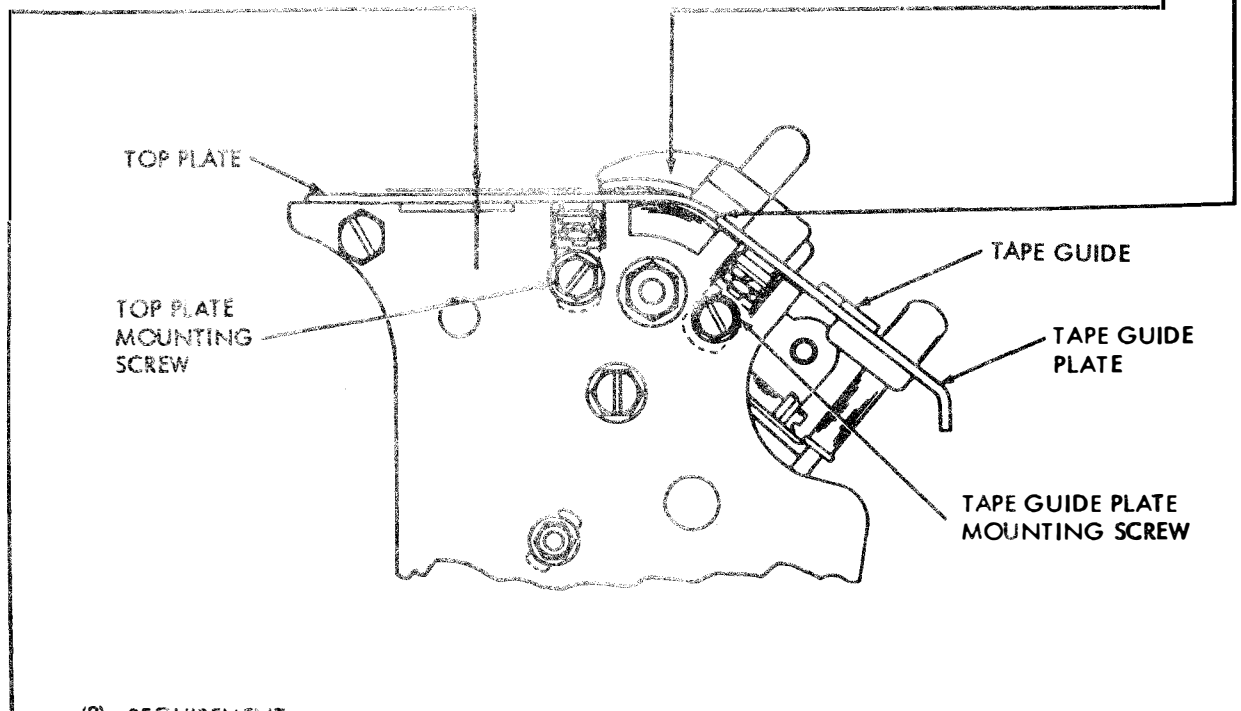
LOOSEN MOUNTING BRACKET NUTS UNTIL BRACKETS ARE FRICTION TIGHT. PRESS TOP PLATE INTO POSITION. TOP PLATE SHOULD REST ON AT LEAST THREE PROJECTIONS OF SIDE PLATES. MAKE SURE THE TIGHT-TAPE ARM EXTENSION IS UNDER THE TOP PLATE.

(2) REQUIREMENT

FEED WHEEL SLOT AND TAPE GUIDE PLATE SLOT SHOULD LINE UP

TO ADJUST

MOVE TOP PLATE TO LINE UP FEED WHEEL SLOT. DO NOT DISTURB REQUIREMENT (2) OF TAPE GUIDE PLATE ADJUSTMENT (SEE PAR. 2.16).



(3) REQUIREMENT

WITH TAPE LID LATCHED, CLEARANCE BETWEEN TAPE LID EXTENSION COVERING FEED WHEEL SLOT, AND TOP PLATE:

MIN. 0.010 INCH

MAX. 0.020 INCH

MEASURED AT CURVED PORTION OF TOP PLATE, AND

MIN. 0.010 INCH

MAX. 0.025 INCH

MEASURED AT FLAT PORTION OF TOP PLATE.

ALSO:

MIN. 0.010 INCH

MAX. 0.018 INCH

CLEARANCE BETWEEN TAPE LID AND TAPE GUIDE PLATE MEASURED IN AREA BETWEEN TAPE GUIDES (PLAY IN TAPE LID TAKEN TOWARD TAPE GUIDE PLATE).

TO ADJUST

LOOSEN TWO SCREWS HOLDING TAPE LID MOUNTING BRACKETS TOGETHER, AND POSITION TAPE LID. RECHECK ADJUSTMENTS (1) AND (2) OF TAPE LID ADJUSTMENT (SEE PAR. 2.14).

(2) REQUIREMENT
 MIN. 0.008 INCH
 MAX. 0.015 INCH
 CLEARANCE BETWEEN NORMALLY OPEN CONTACTS.

TO ADJUST
 FORM UPPER CONTACT LEAF WITH A 110445 SPRING BENDER.

NOTE
 WHEN REPLACING SWITCH ASSEMBLY, MAKE SURE CONTACT SWINGER IS OVER TAPE-OUT PIN EXTENSION, AND EXTENSION BAIL SPRING CLIP IS KEPT HORIZONTAL.

TAPE-OUT SWITCH

(REAR VIEW)

(A) TAPE-OUT SWITCH TO CHECK

REMOVE COVER AND TOP PLATE. LOOSEN TAPE-OUT SPRING ADJUSTING BRACKET. POSITION BRACKET SO TAPE-OUT EXTENSION IS NOT TOUCHING SWINGER PAD.

(1) REQUIREMENT

MIN. 8 GRAMS
 MAX. 15 GRAMS
 TO JUST SEPARATE NORMALLY CLOSED CONTACTS (SCALE AT CENTER OF SWINGER PAD).

TO ADJUST
 DISCONNECT TAPE-OUT EXTENSION BAIL. REMOVE SWITCH ASSEMBLY (SEE PAR. 2.29). FORM CONTACT SWINGER WITH A 110445 SPRING BENDER.

(B) TAPE-OUT PIN

(1) REQUIREMENT

WHEN START-STOP LEVER IS IN FREE WHEEL OR STOP POSITION, TAPE-OUT PIN SHOULD BE FLUSH TO 0.010 INCH BELOW SURFACE OF TAPE GUIDE PLATE.

TO ADJUST
 POSITION TAPE-OUT PIN DOWNSTOP WITH ITS MOUNTING NUT LOOSENED.

(2) REQUIREMENT

WITH CONTROL LEVER IN RUN POSITION:
 MIN. 0.055 INCH
 CLEARANCE BETWEEN TAPE-OUT PIN EXTENSION AND CONTROL LEVER BAIL EXTENSION.

TO ADJUST
 POSITION EXTENSION BAIL WITH ITS MOUNTING SCREW LOOSENED.

TAPE GUIDE PLATE

CONTROL LEVER BAIL EXTENSION

TAPE-OUT PIN

(C) TAPE-OUT SWITCH BRACKET

TO CHECK
 INSERT PIECE OF UN-PERFORATED TAPE UNDER TAPE LID.

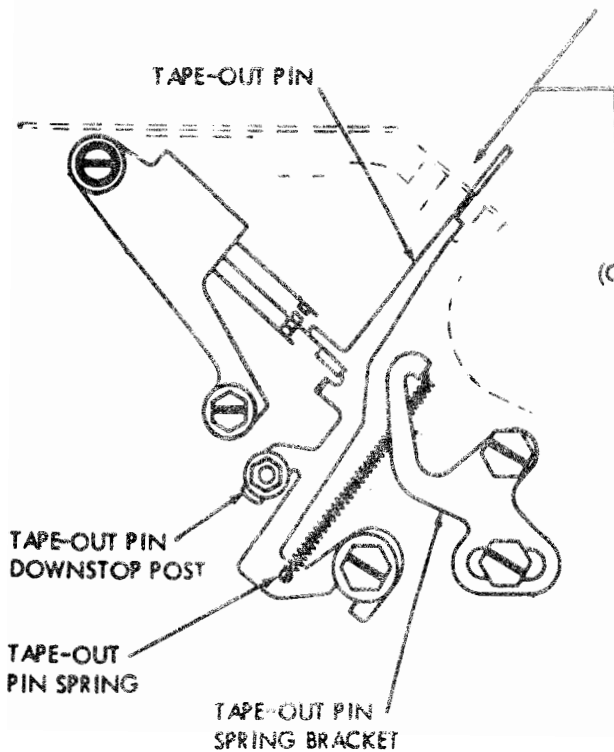
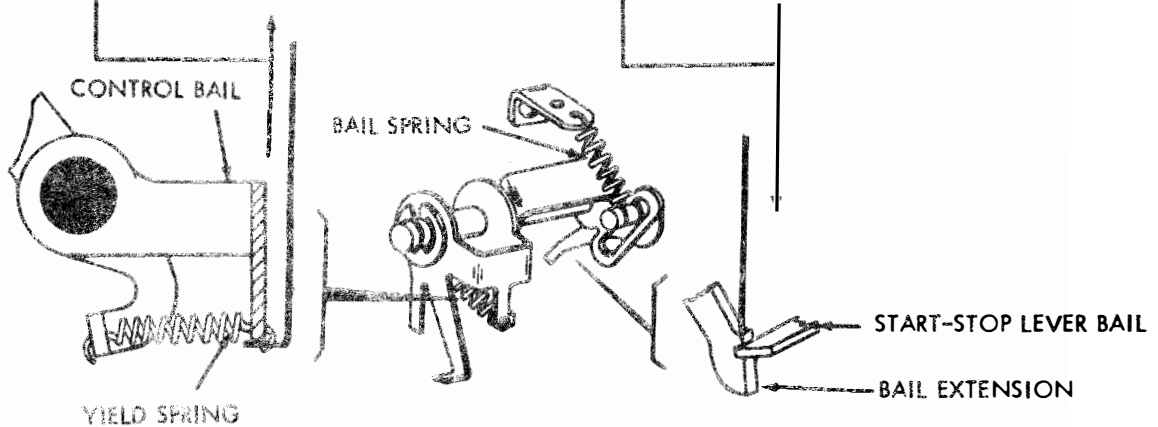
REQUIREMENT
 MIN. 0.006 INCH
 MAX. 0.020 INCH
 CLEARANCE BETWEEN TAPE-OUT PIN EXTENSION AND CONTACT SWINGER PAD.

TO ADJUST
 POSITION SWITCH BRACKET WITH ITS MOUNTING SCREW LOOSENED.

2.19 Tape-Out Switch Assembly - Continued

(A) TAPE-OUT BAIL YIELD SPRING
 TO CHECK
 PLACE START-STOP LEVER IN
 RUN POSITION.
 REQUIREMENT
 MIN. 3 OZS.
 MAX. 5 OZS.
 TO SEPARATE BAILS.

(B) TAPE-OUT EXTENSION BAIL SPRING
 TO CHECK
 PLACE START-STOP LEVER IN RUN POSITION.
 REQUIREMENT
 MIN. 1 OZ.
 MAX. 2-1/2 OZS.
 TO START BAIL MOVING.

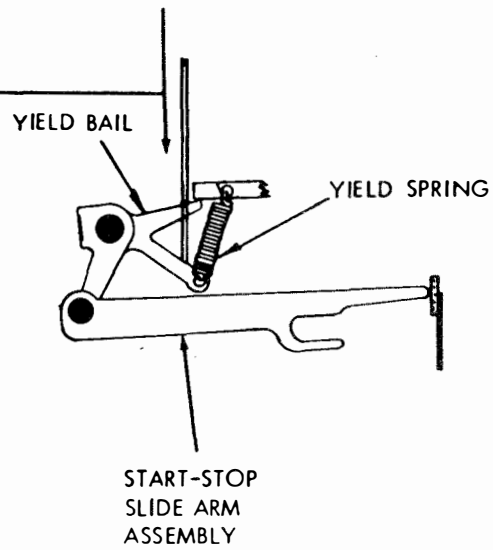


(C) TAPE-OUT PIN SPRING
 TO CHECK
 PLACE START-STOP LEVER IN RUN POSITION.
 REQUIREMENT
 MIN. 38 GRAMS
 MAX. 45 GRAMS
 TO MOVE PIN FLUSH WITH TAPE GUIDE PLATE
 TO ADJUST
 POSITION SPRING BRACKET WITH ITS MOUNTING
 SCREWS LOOSENED. RECHECK REQUIREMENT.

2.20 Start-Stop Switch Assembly

START-STOP BAIL YIELD SPRING TO CHECK

PLACE START-STOP LEVER IN RUN POSITION.
 REQUIREMENT
 MIN. 4 OZS.
 MAX. 6 OZS.
 TO SEPARATE BAILS.



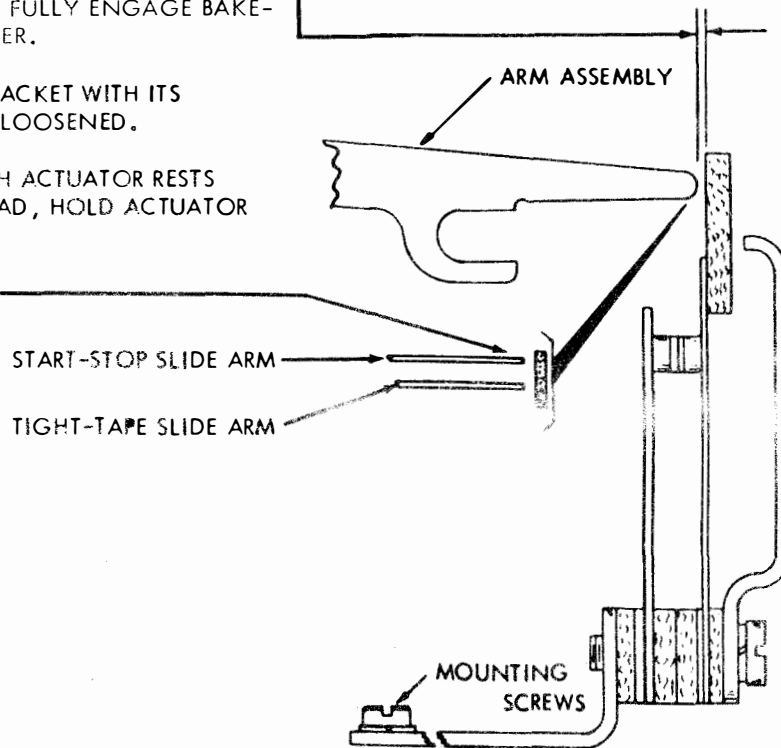
CONTROL LEVER SWITCH BRACKET

(1) REQUIREMENT
 WITH START-STOP LEVER IN RUN POSITION:
 MIN. 0.006 INCH
 MAX. 0.015 INCH
 CLEARANCE BETWEEN SWITCH ACTUATOR
 AND BAKELITE PAD ON SWINGER.

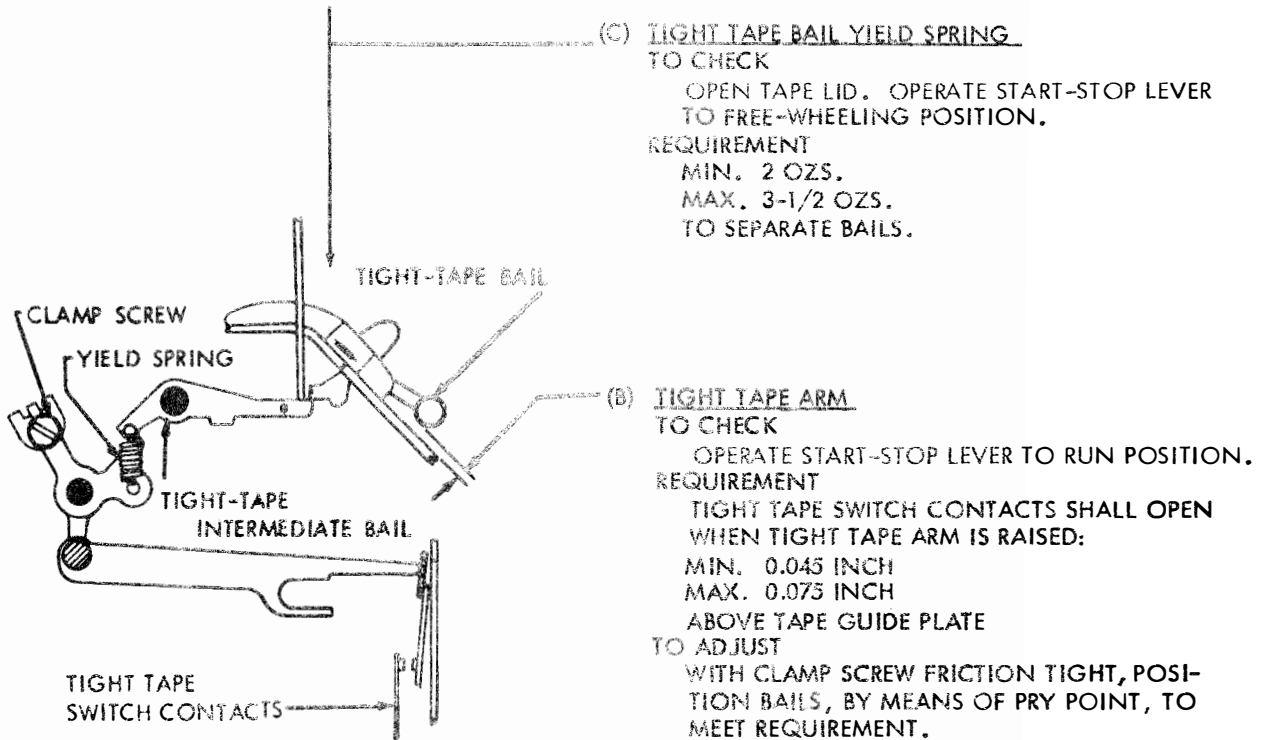
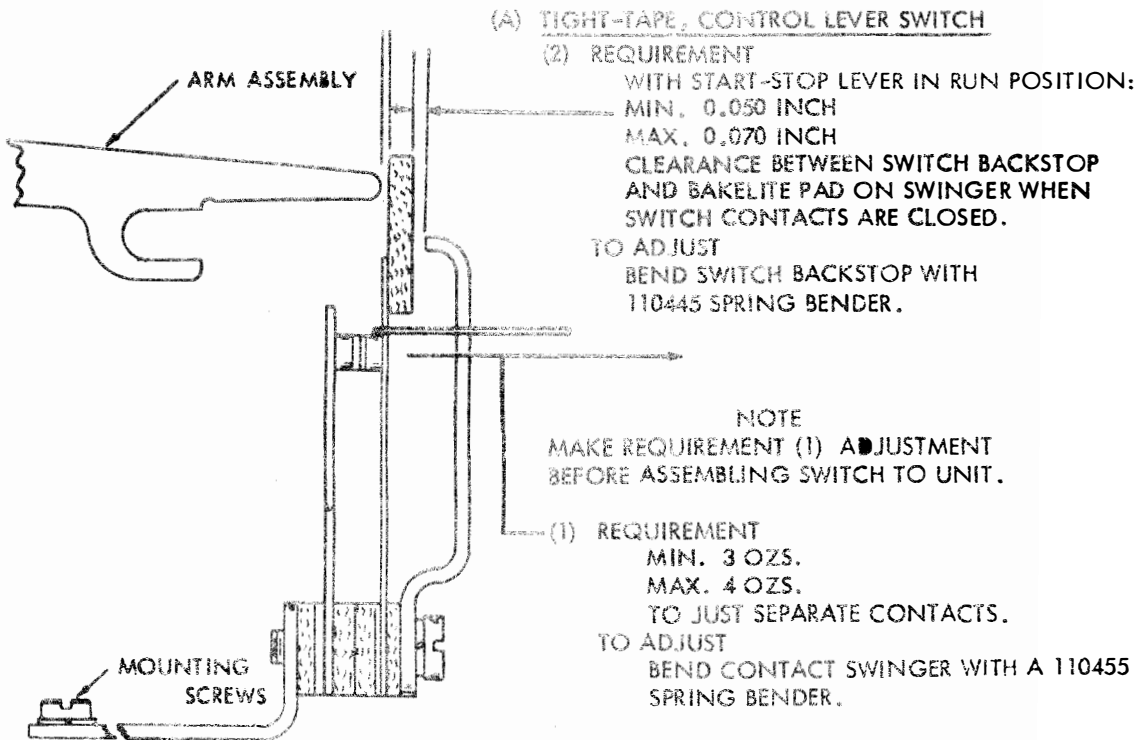
(2) REQUIREMENT
 START-STOP LEVER AND TIGHT TAPE SWITCH
 ACTUATORS SHOULD FULLY ENGAGE BAKE-
 LITE PAD ON SWINGER.

TO ADJUST
 POSITION SWITCH BRACKET WITH ITS
 MOUNTING SCREWS LOOSENED.

NOTE
 IF TIGHT TAPE SWITCH ACTUATOR RESTS
 AGAINST BAKELITE PAD, HOLD ACTUATOR
 AWAY.



2.21 Tight Tape Mechanism



SECTION 574-239-700

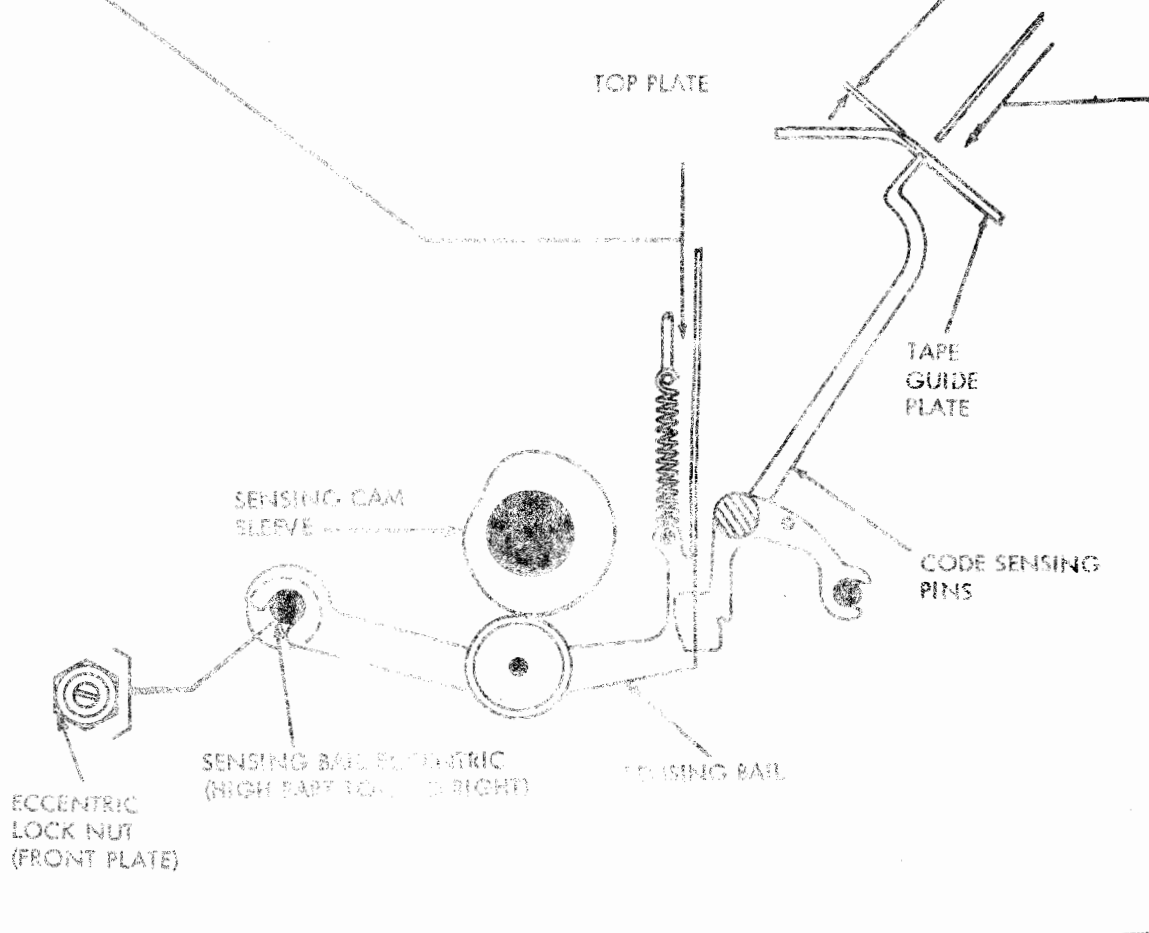
2.22 Sensing Pin Assembly

(A) SENSING BAIL SPRINGS
TO CHECK

REMOVE TOP PLATE. WITH BLANK TAPE UNDER TAPE LID, TRIP CLUTCH MAGNET AND MANUALLY ROTATE SHAFT UNTIL SENSING BAIL IS IN UPPERMOST POSITION. APPLY SCALE TO BAIL BETWEEN SPRINGS.
REQUIREMENT
MIN. 1/4 OZ.
MAX. 2 OZS.
TO START BAIL MOVING.

(C) SENSING PIN
TO CHECK

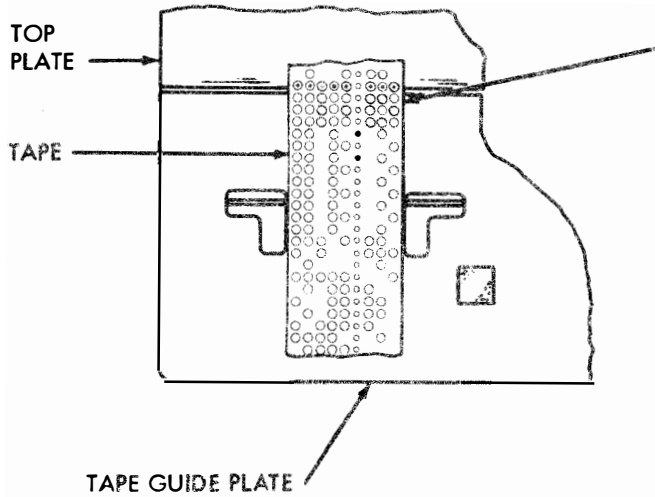
REPLACE TOP PLATE. DISENGAGE SENSING CLUTCH.
REQUIREMENT
WITH SENSING BAIL ECCENTRIC INDENT TOWARD RIGHT, TIP ON HIGHEST SENSING PIN SHALL BE FLUSH TO 0.005 INCH BELOW TOP SURFACE OF TAPE GUIDE PLATE.
TO ADJUST
LOOSEN ECCENTRIC SHAFT LOCK NUT AND POSITION ECCENTRIC. RECHECK REQUIREMENT AFTER LOCK NUT IS TIGHTENED.



(B) SENSING PIN SPRING
TO CHECK

TRIP SENSING CLUTCH AND ROTATE SHAFT UNTIL SENSING PINS ARE IN THEIR UPPERMOST POSITION. HOLD PUSHER LEVERS AWAY MANUALLY.
REQUIREMENT
MIN. 2 OZS.
MAX. 3 OZS.
TO MOVE EACH PIN FLUSH WITH TOP SURFACE OF TAPE GUIDE PLATE.

2.23 Tape Feed Mechanism



(A) FEED WHEEL DETENT

NOTE

PLACE START-STOP LEVER IN STOP POSITION. TO CHECK

PLACE A "RUBOUT" PERFORATED TAPE OVER FEED WHEEL, TAKING UP PLAY IN FEED HOLES TOWARD THE RIGHT.

REQUIREMENT

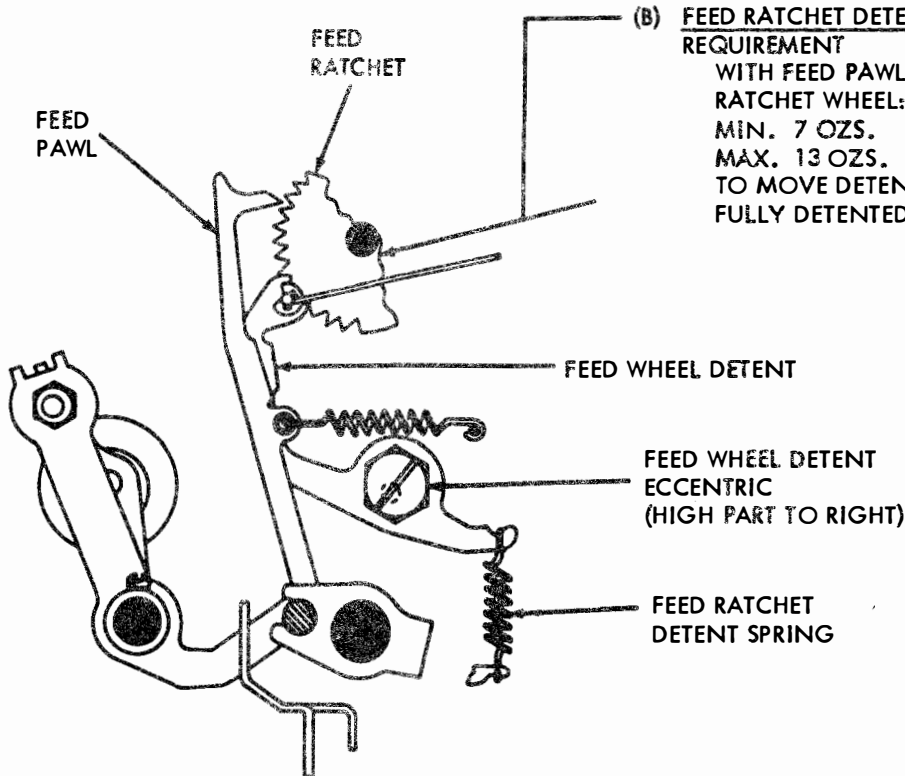
SENSING PINS CENTRALLY LOCATED IN CODE HOLES.

TO ADJUST

POSITION FEED WHEEL DETENT ECCENTRIC WITH ITS LOCK SCREW FRICTION TIGHT. HIGH PART OF ECCENTRIC SHOULD BE TOWARD RIGHT. HOLD ECCENTRIC AND TIGHTEN GUIDE POST AND LOCK SCREW. RECHECK ADJUSTMENT.

NOTE

HOLD FEED PAWL AWAY TO FACILITATE ADJUSTMENT.



(B) FEED RATCHET DETENT SPRING

REQUIREMENT

WITH FEED PAWL HELD AWAY FROM RATCHET WHEEL:

MIN. 7 OZS.

MAX. 13 OZS.

TO MOVE DETENT ROLLER AWAY FROM FULLY DETENTED POSITION.

(B) FEED PAWL SPRING
TO CHECK

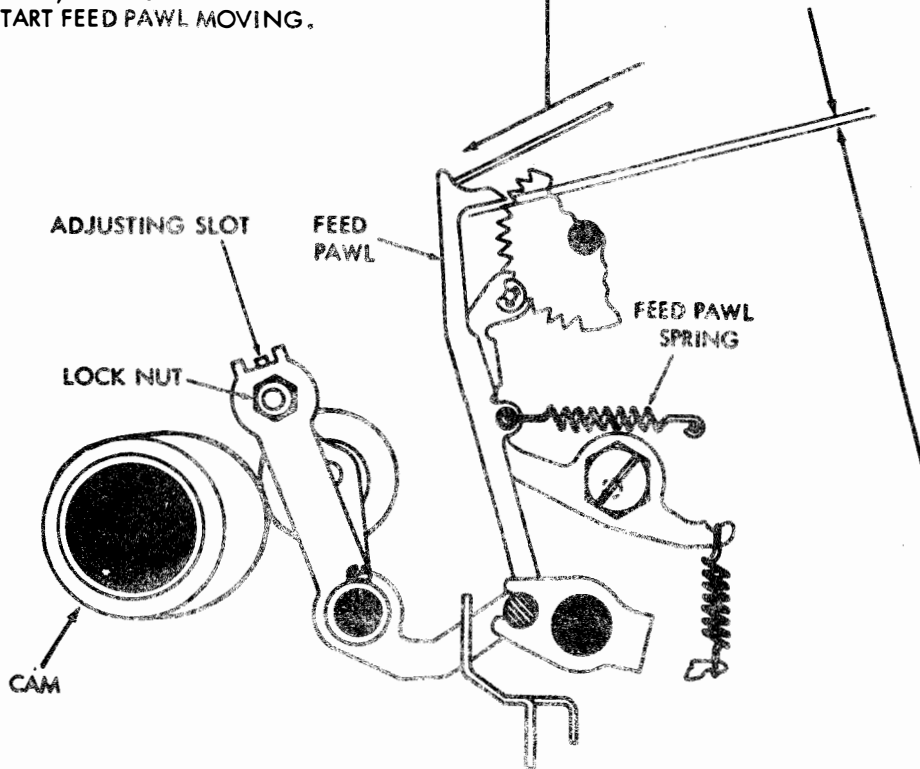
PLACE START-STOP LEVER IN STOP POSITION.
REMOVE TOP PLATE. DISENGAGE CLUTCH.

REQUIREMENT

MIN. 1/4 OZ.

MAX. 1-1/2 OZS.

TO START FEED PAWL MOVING.



(A) FEED PAWL
TO CHECK

PLACE START-STOP LEVER IN STOP POSITION.
REMOVE TOP PLATE. TRIP CLUTCH, AND ROTATE CAM
SHAFT UNTIL FEED ROLLER IS ON HIGH PART OF CAM.
ROTATE RATCHET WHEEL UNTIL OIL HOLE IS UP. TAKE
UP PLAY BY PRESSING DOWN LIGHTLY ON RIGHT END
OF FEED PAWL BAIL.

REQUIREMENT

MIN. SOME

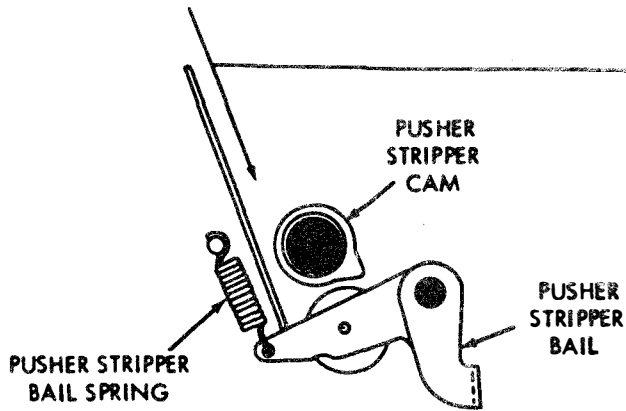
MAX. 0.003 INCH

CLEARANCE BETWEEN FEED PAWL AND RATCHET TOOTH.

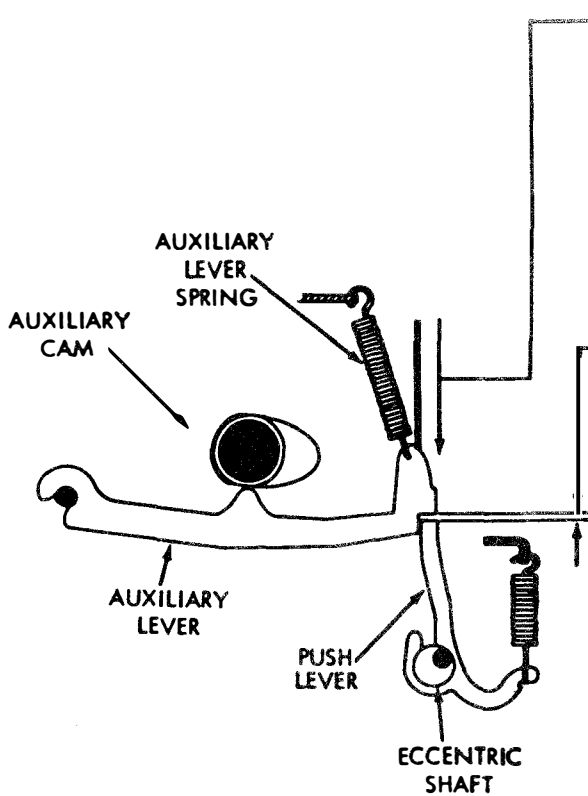
TO ADJUST

POSITION FEED LEVER BY MEANS OF THE ADJUSTING
SLOT WITH ITS LOCK NUT LOOSEMED.

2.25 Sensing Mechanism



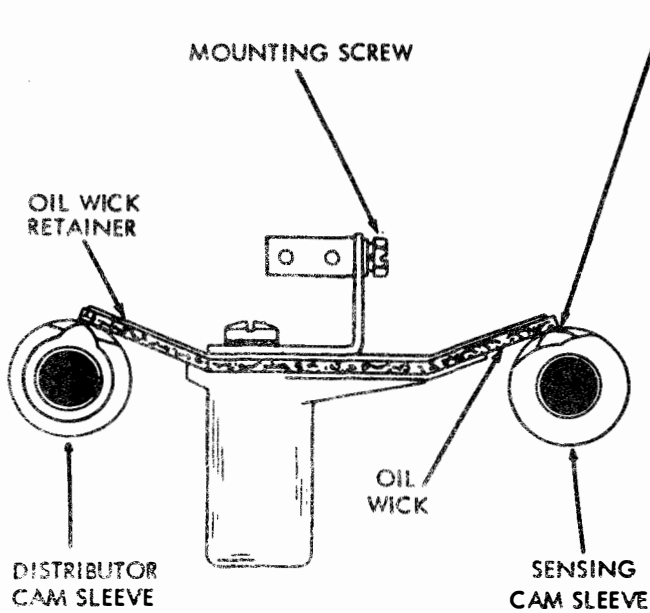
(A) PUSHER STRIPPER BAIL SPRING
 TO CHECK
 SELECT BLANK COMBINATION. TRIP CLUTCH AND ROTATE SHAFT TO STOP POSITION.
 REQUIREMENT
 MIN. 7 OZS.
 MAX. 11 OZS.
 TO START BAIL MOVING AWAY FROM CAM.



(C) AUXILIARY LEVER SPRING
 TO CHECK
 EACH AUXILIARY LEVER ON LOW PART OF ITS CAM. SCALE APPLIED TO LEVER JUST RIGHT OF SPRING. PUSHER LEVER HELD AWAY.
 REQUIREMENT
 MIN. 1/2 OZ.
 MAX. 3 OZS.
 TO START AUXILIARY LEVER MOVING.

(B) PUSH LEVER
 REQUIREMENT
 WITH FIRST ONE AND THEN THE OTHER OF THE TWO AUXILIARY LEVERS ON THE LOW PART OF THE CAM, THE AUXILIARY LEVER WITH THE LEAST CLEARANCE SHOULD CLEAR THE TIP OF ITS PUSH LEVER BY
 MIN. 0.020 INCH
 MAX. 0.045 INCH
 TO ADJUST
 WITH PUSH LEVER ECCENTRIC SHAFT LOCK NUT (FRONT PLATE) LOOSENED AND HIGH PART OF ECCENTRIC LOCATED TOWARD THE UPPER RIGHT, ROTATE ECCENTRIC TOWARD RIGHT OR LEFT.

2.26 Sensing Mechanism - Continued



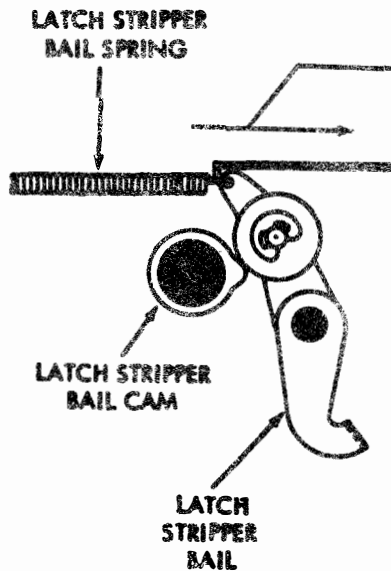
(B) OIL RESERVOIR

REQUIREMENT

EACH OIL WICK RESTS LIGHTLY ON HIGH PARTS OF FRONT AND REAR CAM OF EACH CAM SLEEVE.

TO ADJUST

TRIP BOTH ARMATURES AND ROTATE SHAFT UNTIL HIGH PART OF FRONT AND REAR CAM OF EACH SLEEVE IS UNDER ITS WICK. POSITION OIL RESERVOIR ASSEMBLY WITH ITS MOUNTING SCREWS (4) LOOSENED. WHEN CAM SLEEVE IS ROTATED, TEETH OF WICK RETAINER SHOULD NOT DEFLECT UPWARD MORE THAN 1/32 INCH (GAUGE BY EYE). REFINE ADJUSTMENT BY SLIGHTLY BENDING TEETH ON WICK COMB SPRING.



(A) LATCH STRIPPER BAIL SPRING

TO CHECK

TRIP CLUTCH, ROTATE SHAFT SO LATCH BAIL FOLLOWER ROLLER IS ON LOW PART OF CAM. APPLY SCALE TO TOP OF LATCH STRIPPER BAIL.

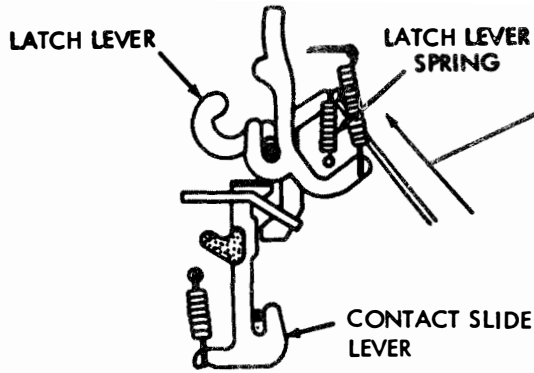
REQUIREMENT

MIN. 2-3/4 OZS.

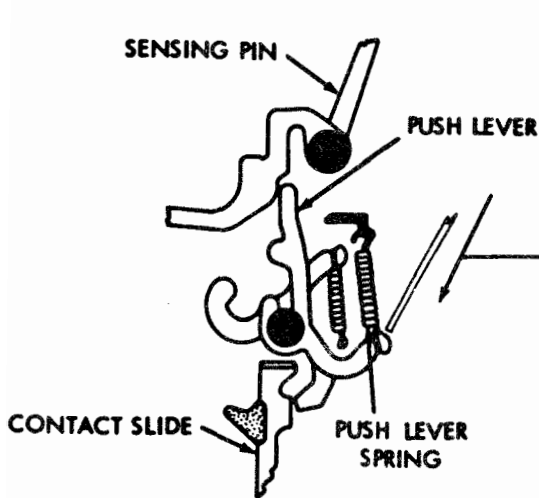
MAX. 6 OZS.

TO START LATCH STRIPPER BAIL MOVING.

2.27 Sensing Mechanism - Continued



(C) LATCH LEVER SPRING TO CHECK
 SELECT BLANK COMBINATION. TRIP SENSING CLUTCH AND ROTATE SHAFT TO STOP POSITION. SLIDE LEVERS SHOULD BE IN UPPERMOST POSITION.
REQUIREMENT
 MIN. 1 OZ.
 MAX. 3 OZS.
 TO START LATCH LEVER MOVING.
NOTE
 TAKE CARE NOT TO DAMAGE PUSH LEVER SPRINGS IN CHECKING REQUIREMENT.



(B) PUSH LEVER SPRING TO CHECK
 SELECT "RUBOUT" COMBINATION, AND LATCH SENSING CLUTCH. TRIP CLUTCH AND ROTATE SHAFT UNTIL PUSH LEVERS ARE STRIPPED.
REQUIREMENT
 MIN. 1/4 OZ.
 MAX. 1-1/2 OZS.
 TO START PUSH LEVER MOVING.
NOTE
 BE SURE CONTACT SLIDES DO NOT INTERFERE WITH MOVEMENT OF PUSH LEVERS.

SECTION 574-239-700

2.28 Cover and Panel Assembly

(A) COVER PLATE

(1) REQUIREMENT

COVER PLATE HELD FLUSH AGAINST TOP PLATE BY DETENT ACTION.

(2) REQUIREMENT

COVER PLATE RESTS ON AT LEAST THREE SIDE FRAME PROJECTIONS.

(3) REQUIREMENT

FRONT EDGE OF COVER AND TOP PLATES IN LINE.

TO ADJUST

LOOSEN DETENT NUTS ON SIDE FRAMES, AND MOVE THEM TO EXTREME LOWER RIGHT POSITION. TIGHTEN NUTS. LOOSEN FOUR BRACKET MOUNTING NUTS ON COVER PLATE. PLACE COVER INTO POSITION, AND POSITION TO MEET REQUIREMENTS. TIGHTEN NUTS. RECHECK AND REFINE REQUIREMENTS.

COVER PLATE DETENT SPRING
TO CHECK

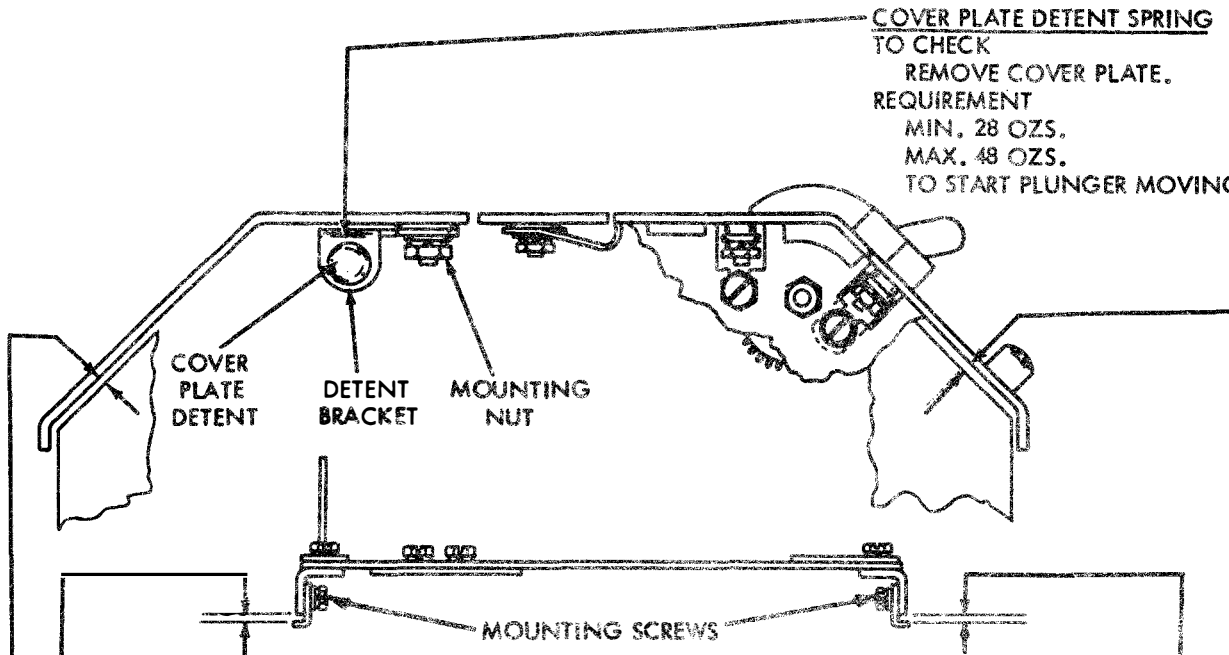
REMOVE COVER PLATE.

REQUIREMENT

MIN. 28 OZS.

MAX. 48 OZS.

TO START PLUNGER MOVING



(B) FRONT PANEL

NOTE

REMOVE COVER PLATE PRIOR TO INSTALLING OR REMOVING FRONT PANEL. PANEL SLIDES SHOULD ENGAGE GUIDES ON BASE SO THAT TOP EDGE OF PANEL PASSES UNDER TAPE GUIDE PLATE.

(1) REQUIREMENT

FRONT PANEL LATCHES SECURELY AT LOWER RIGHT AND LEFT CORNERS, AND PANEL SLIDES FULLY ENGAGE BASE GUIDES.

MIN. 0.085 INCH

MAX. 0.105 INCH

CLEARANCE BETWEEN BOTTOM EDGE OF BASE RAIL AND PANEL GUIDE FLANGE.

TO ADJUST

REMOVE TRANSMITTER FROM BASE. USE SHIMS TO OBTAIN LATERAL POSITION OF PANEL SLIDES, AND POSITION GUIDES VERTICALLY (PLACE UNUSED SHIMS UNDER HEAD OF MOUNTING SCREW). REPLACE TRANSMITTER ON BASE.

(2) REQUIREMENT

MIN. 0.015 INCH

MAX. 0.060 INCH

CLEARANCE BETWEEN PANEL TOP EDGE AND FRONT EDGE OF COVER AND TAPE GUIDE PLATES. THE UPPER PANEL SIDES SHOULD NOT TOUCH THE COVER AND TAPE GUIDE PLATE EAVES.

TO ADJUST

WITH FRONT PANEL IN PLACE, LOOSEN PANEL GUIDE MOUNTING SCREWS AND POSITION THE GUIDE. TO FACILITATE ADJUSTMENT, REMOVE THE FOUR VIBRATION MOUNT NUTS AND SWING SUB-BASE AWAY.

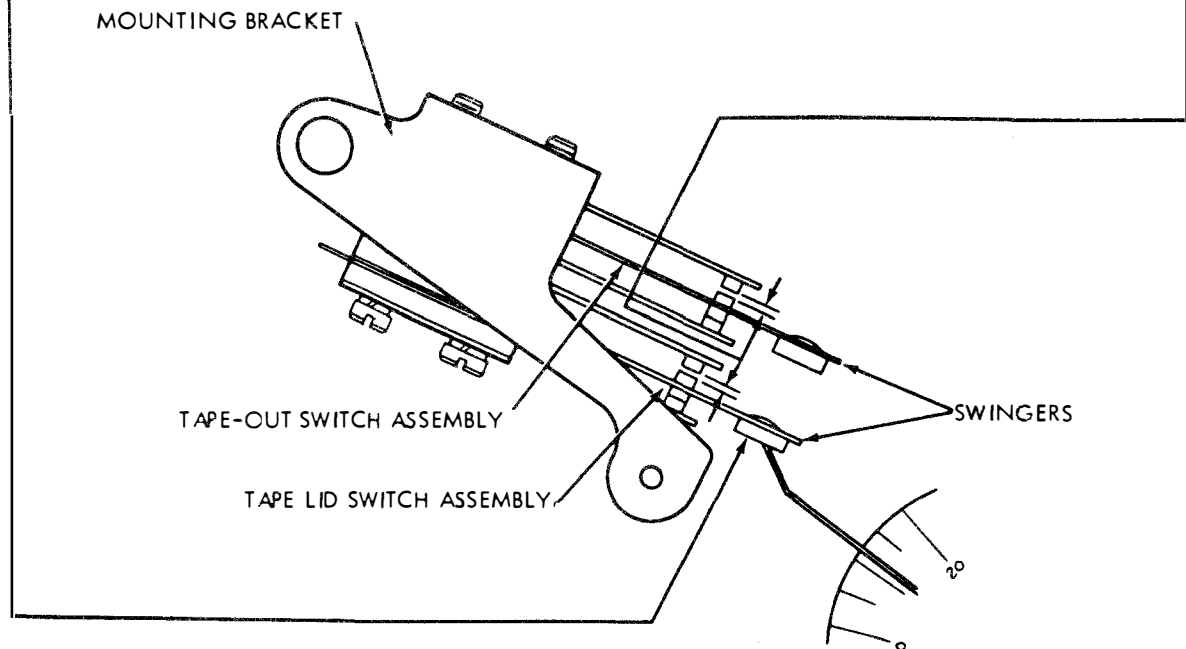
2.29 Tape-Out and Tape Lid Switch Assembly

TAPE-OUT AND TAPE LID SWITCH

NOTE

MAKE THIS ADJUSTMENT BEFORE ASSEMBLING SWITCH TO UNIT.

- (1) REQUIREMENT
 MIN. 8 GRAMS
 MAX. 15 GRAMS
 TO JUST SEPARATE NORMALLY CLOSED CONTACTS (APPLY SCALE TO CENTER OF NYLON PAD).
 TO ADJUST
 BEND CONTACT SWINGER WITH A 110445 SPRING BENDER.
- (2) REQUIREMENT
 MIN. 0.008 INCH
 MAX. 0.015 INCH
 GAP BETWEEN NORMALLY OPEN CONTACTS.
 TO ADJUST
 BEND UPPER CONTACT LEAF WITH A 110445 SPRING BENDER.



NOTE

TO REMOVE TAPE-OUT AND TAPE LID SWITCH ASSEMBLY

- (1) REMOVE COVER AND TOP PLATES.
- (2) REMOVE 111342 SPRING ATTACHED TO BRACKET ON 158535 GUIDE POST.
- (3) LOOSEN SCREW SECURING GUIDE POST TO REAR PLATE.
- (4) REMOVE SCREW AND LOCK WASHER FROM FRONT END OF GUIDE POST.
- (5) REMOVE ADJUSTING SCREW FROM LOWER END OF SWITCH BRACKET.
- (6) GUIDE POST AND SWITCH ASSEMBLY CAN NOW BE REMOVED. TAKE CARE NOT TO DISTORT SWITCH LEAF SPRINGS

TO REPLACE SWITCH ASSEMBLY

REVERSE DISASSEMBLY PROCEDURE.

2.30 Tape-Out and Tape Lid Pin Mechanism

(B) TAPE-OUT PIN SPRING BRACKET

REQUIREMENT

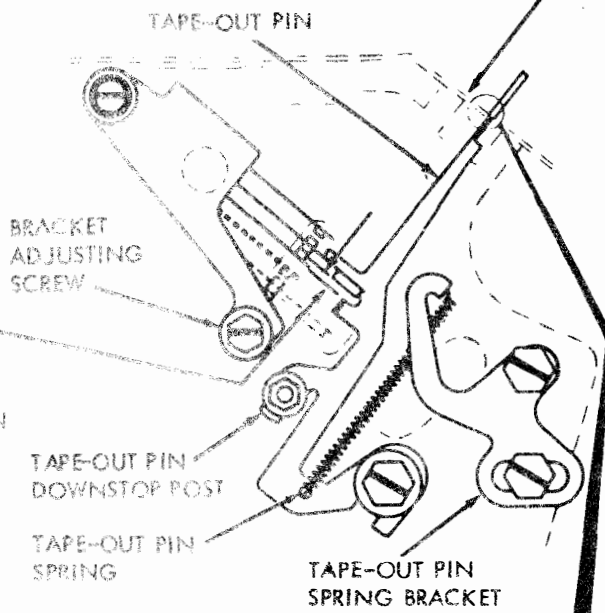
MIN. 38 GRAMS

MAX. 45 GRAMS

TO DEPRESS TAPE-OUT PIN UNTIL FLUSH WITH TAPE GUIDE PLATE.

TO ADJUST

POSITION TAPE-OUT PIN SPRING BRACKET WITH ITS MOUNTING SCREWS FRICTION TIGHT. TIGHTEN SCREWS AND RECHECK REQUIREMENT.



(A) TAPE-OUT AND TAPE LID SWITCH BRACKET

REQUIREMENT

MIN. 0.006 INCH

MAX. 0.020 INCH

CLEARANCE BETWEEN TAPE-OUT PIN EXTENSION AND CONTACT SWINGER INSULATOR WHEN TAPE-OUT PIN IS HELD DOWN.

TO ADJUST

INSERT A LENGTH OF UN-PERFORATED TAPE UNDER TAPE LID. ADJUST SWITCH BRACKET WITH ITS MOUNTING SCREW LOOSENED.

(C) TAPE-OUT AND TAPE LID PIN DOWNSTOP

REQUIREMENT

WHEN DEPRESSED TO THEIR LOWERMOST POSITIONS, TAPE-OUT AND TAPE LID PINS SHOULD BE FLUSH TO 0.005 INCH BELOW SURFACE OF TAPE GUIDE PLATE.

TO ADJUST

POSITION RESPECTIVE DOWNSTOP POST WITH ITS MOUNTING NUT LOOSENED.

(D) TAPE LID PIN SPRING

REQUIREMENT

MIN. 1-1/2 OZS.

MAX. 3 OZS.

TO MOVE TAPE LID PIN FLUSH WITH TOP SURFACE OF TOP PLATE.

(F) TAPE LID PIN

TO CHECK

REMOVE COVER PLATE

(2) REQUIREMENT

WITH TAPE LID OPEN, AND NORMALLY OPEN CONTACTS CLOSED BY TAPE LID PIN:

MIN. 0.010 INCH

CLEARANCE BETWEEN SHOULDER ON PIN AND BOTTOM SURFACE OF TAPE GUIDE PLATE

(1) REQUIREMENT

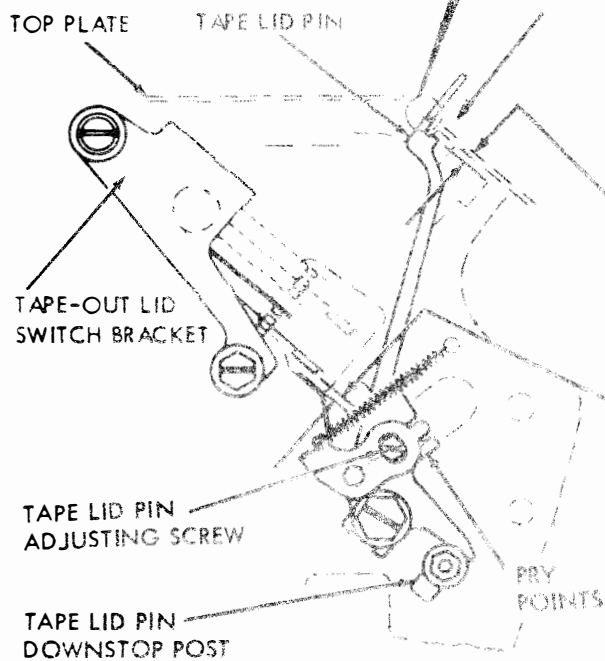
WITH TAPE LID CLOSED:

MIN. 0.005 INCH

CLEARANCE BETWEEN TAPE LID PIN AND SWINGER INSULATOR.

TO ADJUST

LOOSEN CLAMP SCREW TO FRICTION TIGHT AND ADJUST TAPE LID PIN BY MEANS OF ITS PRY POINT.



TAPE LID SWITCH

3. CONTACT STROBING

3.01 Distributor Contacts

Note: Use a 7.42 unit code distortion test disc for checking all contacts.

Distributor Contacts (See Figures 1 and 2)

(a) Stop Contact:

- (1) With a Distortion Test Set (DXD) operating at the same speed as transmitter-distributor, load the unit with "blank" perforated tape.
- (2) Adjust the stop contact adjusting screw so that stop pulse length is 135 scale divisions.

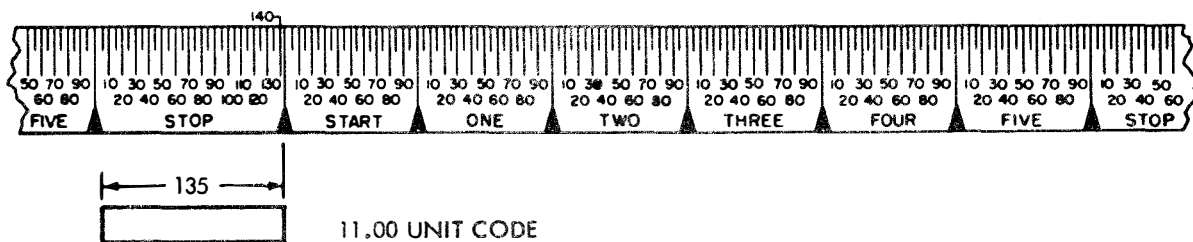


Figure 1

(b) Contacts #0 - #7

- (1) Load the transmitter-distributor with tape punched in levels 1, 3, 5, and 7. Align the end of the stop pulse with the 142 scale division on the stop segment of the test scale.
- (2) Adjust the distributor contact screws so that images are 67.5 scale divisions in total length, within $\pm 3\%$ on each end.
- (3) Repeat the above procedure for levels 2, 4, 6 and 8.

Note: It may be necessary to hold stop contact open to determine length of #8 pulse.

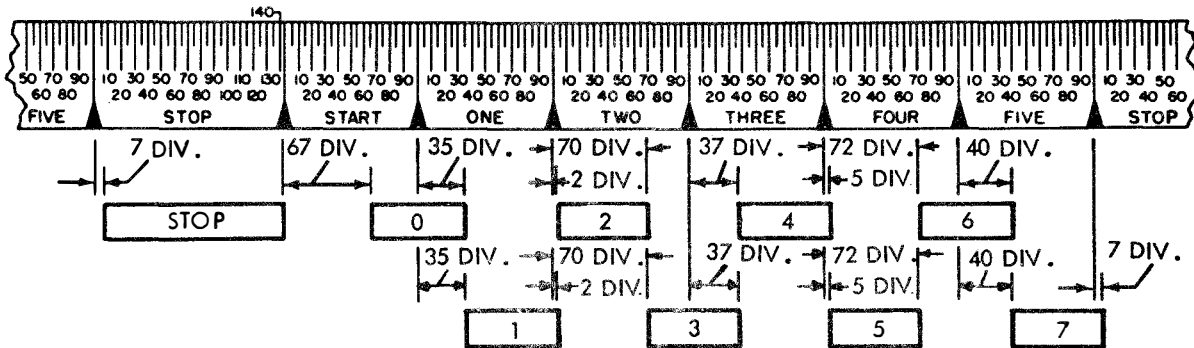


Figure 2

3.02 Distributor Contacts - Continued

EIGHT LEVEL PULSE IMAGE TRANSITION POINTS

ON FIVE LEVEL TEST SET SCALE - 11.00 UNIT CODE

CODE PULSE	END AT SCALE DIVISION	BEGIN AT SCALE DIVISION
STOP	7 IN STOP SEGMENT	142 IN STOP SEGMENT
1	67 IN START SEGMENT	35 IN #1 SEGMENT
2	35 IN #1 SEGMENT	2 IN #2 SEGMENT
3	2 IN #2 SEGMENT	70 IN #2 SEGMENT
4	70 IN #2 SEGMENT	37 IN #3 SEGMENT
5	37 IN #3 SEGMENT </td <td>5 IN #4 SEGMENT</td>	5 IN #4 SEGMENT
6	5 IN #4 SEGMENT	72 IN #4 SEGMENT
7	72 IN #4 SEGMENT	40 IN #5 SEGMENT
8	40 IN #5 SEGMENT	7 IN STOP SEGMENT

Distributor Auxiliary Contact (See Figures 3 and 4)

- (a) Align end of stop pulse image with 142 mark on test scale stop segment. Adjust the auxiliary contact to:

Close at 110, ± 5 divisions in stop segment.
 Open at 31, ± 8 divisions in stop segment.

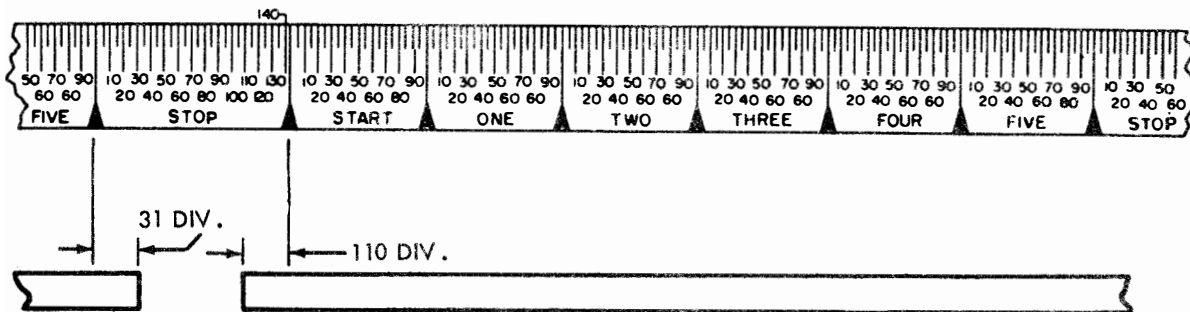


Figure 3

3.03 Distributor Contacts - Continued

- (b) Transmitter Contacts: With unit sensing "letters" tape, end of stop pulse aligned with 142 mark on test scale stop segment, the beginning and end of each contact trace should occur:

Before 80 divisions in start segment.
After 20 divisions in stop segment.

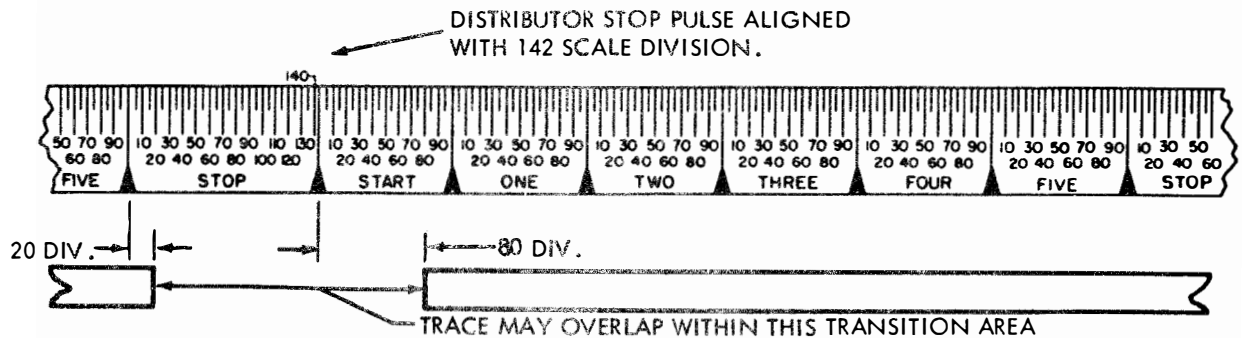


Figure 4

To adjust, position respective contact screw or refine transfer contact adjustments as necessary.

(c) Sensing Auxiliary Contacts (See Figures 5 and 6)

- (1) Both magnets de-energized, distributor and transmitter shaft clutches latched and in the stop position. Turn motor off.
- (2) Hold distributor and transmitter shaft gears against rotation. Energize both clutch trip magnets.
- (3) Release gears and turn motor on.
- (4) Align the end of the distributor stop pulse image with the 142 scale division on the stop segment of the test set scale.

(5) Clutch trip marking contacts should:

Close at 90 ± 10 divisions in start segment.
Open at 64 ± 20 divisions in #2 segment.

(6) Clutch trip spacing contacts should:

Open at 80 ± 10 divisions in start segment.
Close at 74 ± 20 divisions in #2 segment.

(7) Auxiliary marking contacts should:

Close at 80 ± 10 divisions in #2 segment.
Open at 31 ± 20 divisions in stop segment.

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3.04 Distributor Contacts - Continued

(8) Auxiliary spacing contacts should:

Open at 72 ± 10 divisions in #2 segment.
Close at 41 ± 20 divisions in stop segment.

(9) To adjust, refine transfer contact adjustment as necessary.

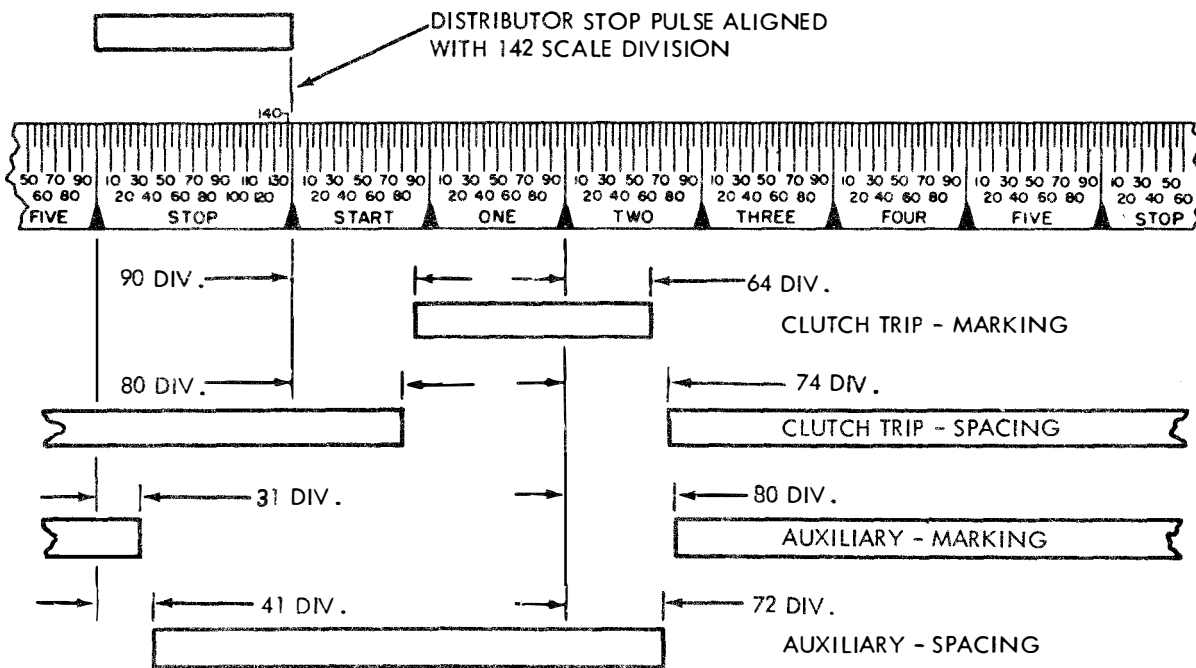


Figure 5

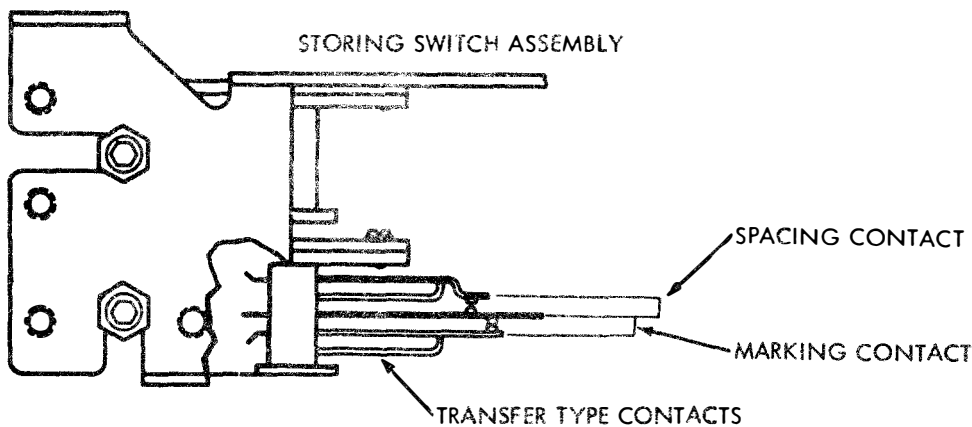


Figure 6

Final Operating Requirements

- (a) There shall be no breaks in the transmitted signal pulses.
- (b) The beginning and end of the transmitted pulses should not deviate more than $\pm 3\%$.
- (c) The tape-out contact should operate from the normally closed position with tape in the unit. With no tape in the unit, the tape-out contact should operate from the open position.

35 TRANSMITTER-DISTRIBUTOR UNIT (MULTICONTACT)

LUBRICATION

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1. GENERAL	1
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Clutch trip and storage switch area . . .	2
Clutch trip assemblies	3
Cover plate	12
Deflector bracket	13
Distributor and sensing shaft assemblies	4
Distributor block assembly	5
Feed mechanism	8, 9
Latch and pusher stripper bail	7
Oil reservoir	6
Pusher levers	8
Start-stop slide arm assembly	10
Storing switch	3
Tape lid and cover plate area	12
Tape lid mechanism	11
Tape lid and tape guide	12
Tape-out and control mechanism	10
Tape-out mechanism	11
Tape sensing area	6
Tape sensing and distributor area . . .	4
Tape sensing mechanism	7
Tight tape slide arm assembly	10

1. GENERAL

1.01 This section provides lubrication information for the 35 transmitter-distributor unit (multicontact),

CAUTION: THE UNIT IS SHIPPED WITH OIL RESERVOIR EMPTY. REMOVE COVER PLATE FOR ACCESS AND FILL OIL RESERVOIR AS INDICATED IN 2.06.

1.02 In this section, the general areas of the unit are shown by photographs. The specific points of lubrication are indicated by line drawings and descriptive text. The symbols in the text indicate the following directions:

- O Apply one drop of oil.
- O2 Apply two drops of oil, etc.
- G Apply thin coat of grease.
- SAT Saturate with oil (felt washers, etc.)

1.03 Use KS7470 oil at all locations where the use of oil is indicated. Use KS7471 grease on all surfaces where grease is indicated.

1.04 The unit should be thoroughly lubricated, but over-lubrication which might allow oil to drip or grease to be thrown on other parts, should be avoided. Exercise special care to prevent lubricant from getting between armature and pole faces. Keep all electrical contacts free from oil or grease.

1.05 The following general instructions supplement the specific lubricating points illustrated in this section.

- (1) Apply one drop of oil to all spring hooks.
- (2) Apply a light film of oil to all cam surfaces.
- (3) Apply a coat of grease to all gears.
- (4) Saturate all felt washers, oilers, etc.
- (5) Apply oil to all pivot points.
- (6) Apply oil to all sliding surfaces.

1.06 The transmitter-distributor unit should be lubricated before being placed in service or prior to storage. After a few weeks of service, relubricate to make certain that all specified points have received lubricant. Thereafter, the following schedule should be adhered to:

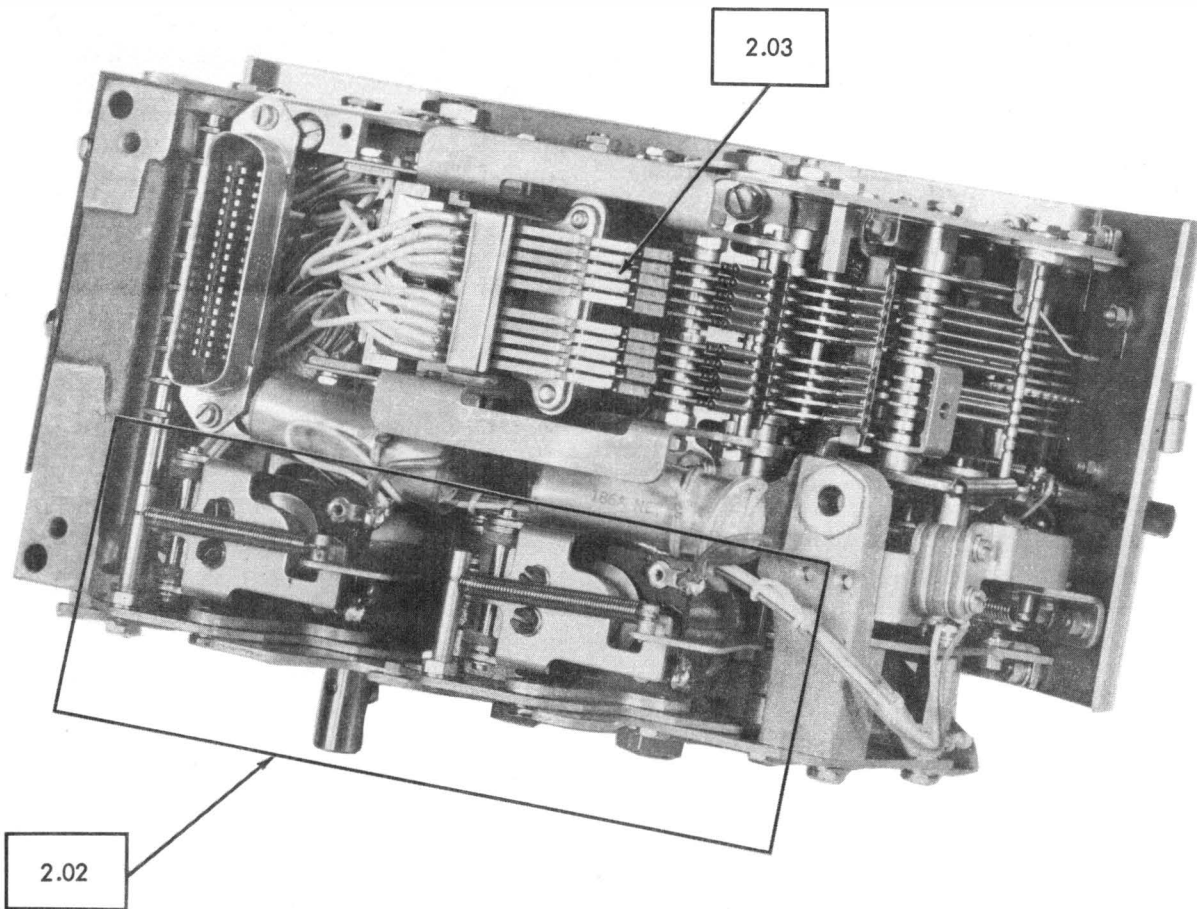
<u>OPERATING SPEED</u>	<u>LUBRICATION INTERVAL</u>
60 wpm	3000 hours or 1 year *
75 wpm	2400 hours or 9 months *
100 wpm	1500 hours or 6 months *

* Whichever occurs first.

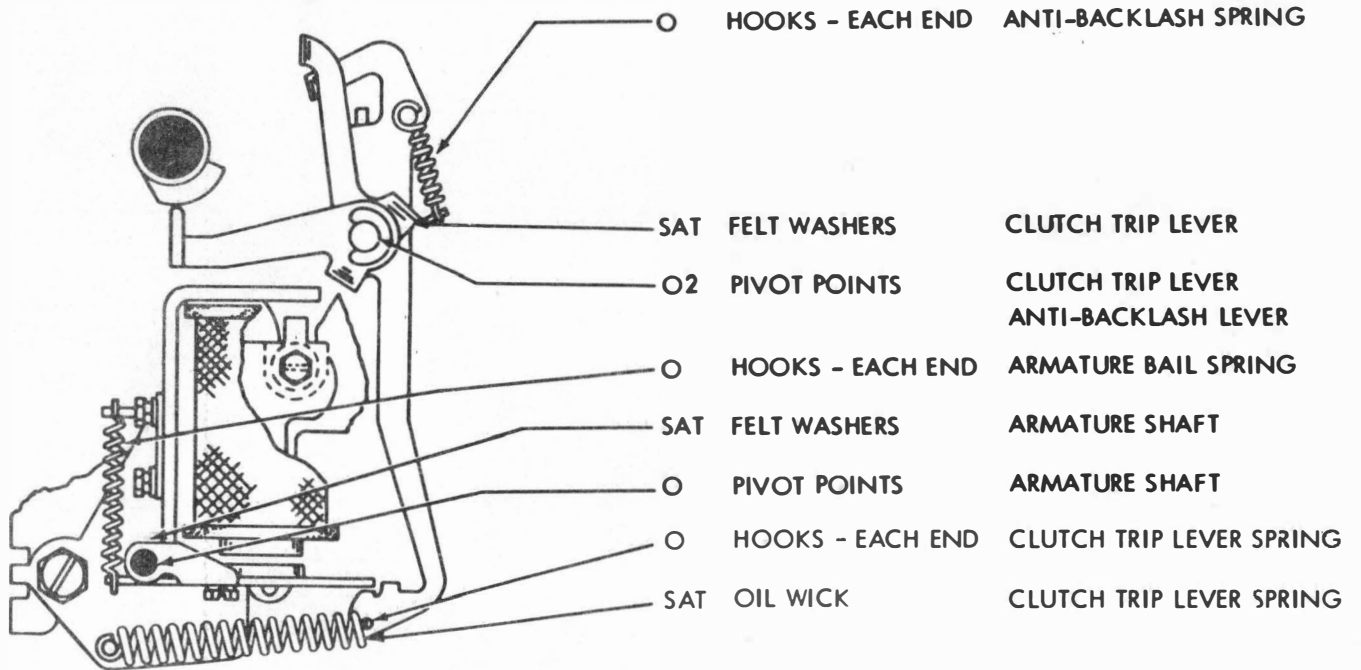
SECTION 574-239-701

2. BASIC UNIT

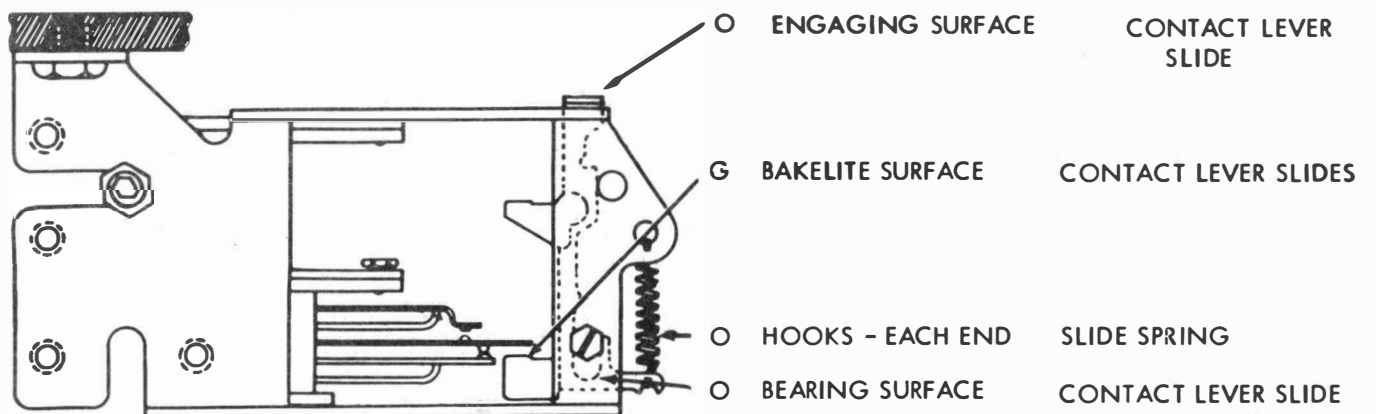
2.01 CLUTCH TRIP AND STORAGE SWITCH AREA



2.02 CLUTCH TRIP ASSEMBLIES



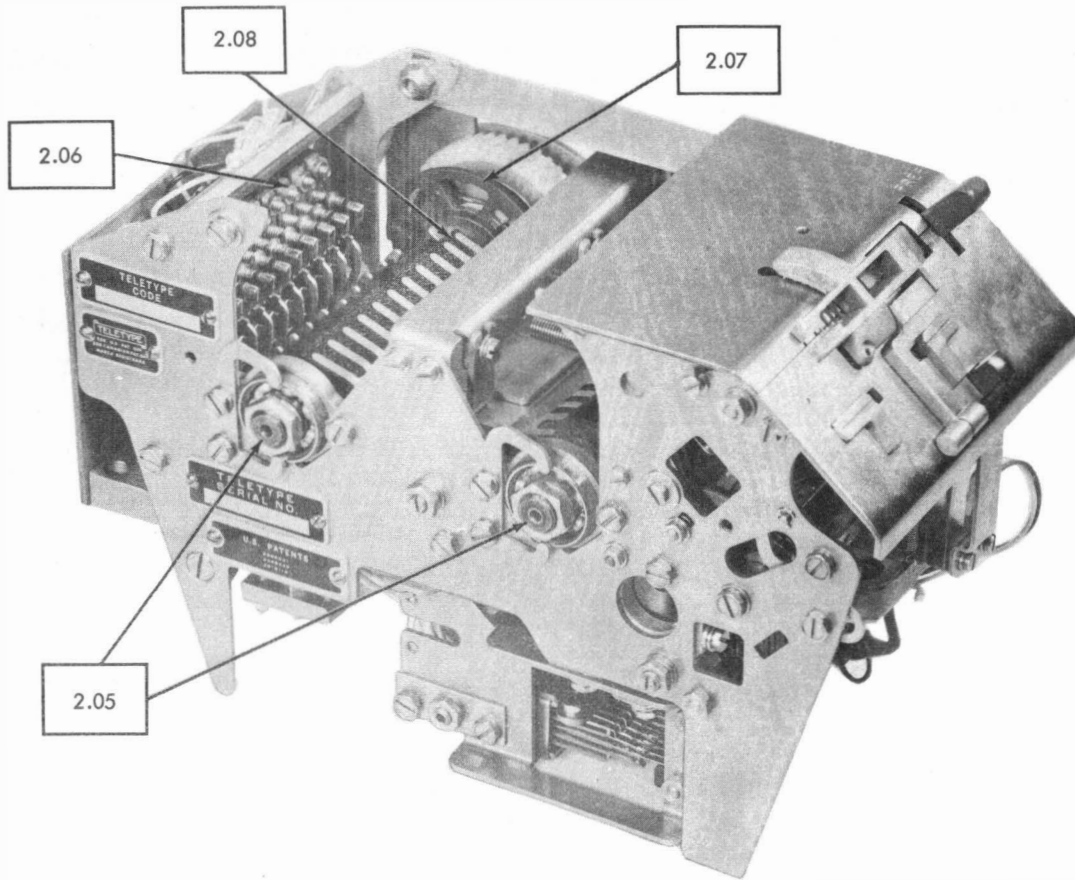
2.03 STORING SWITCH



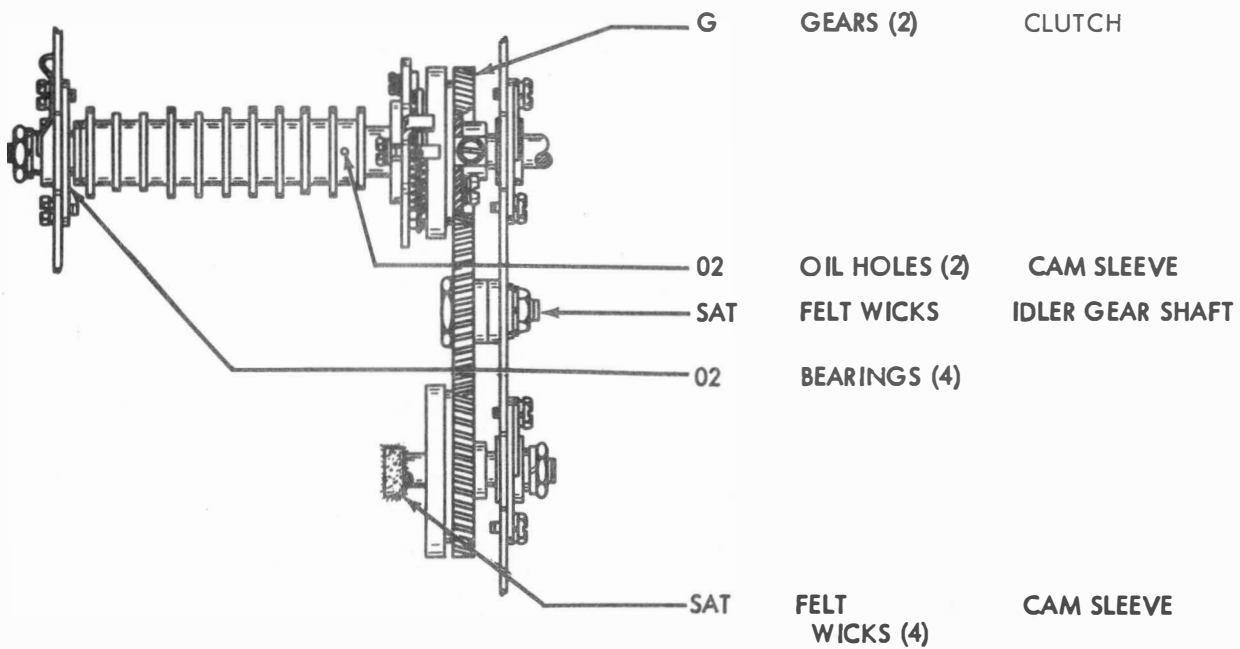
NOTE
KEEP CONTACTS FREE OF GREASE

SECTION 574-239-701

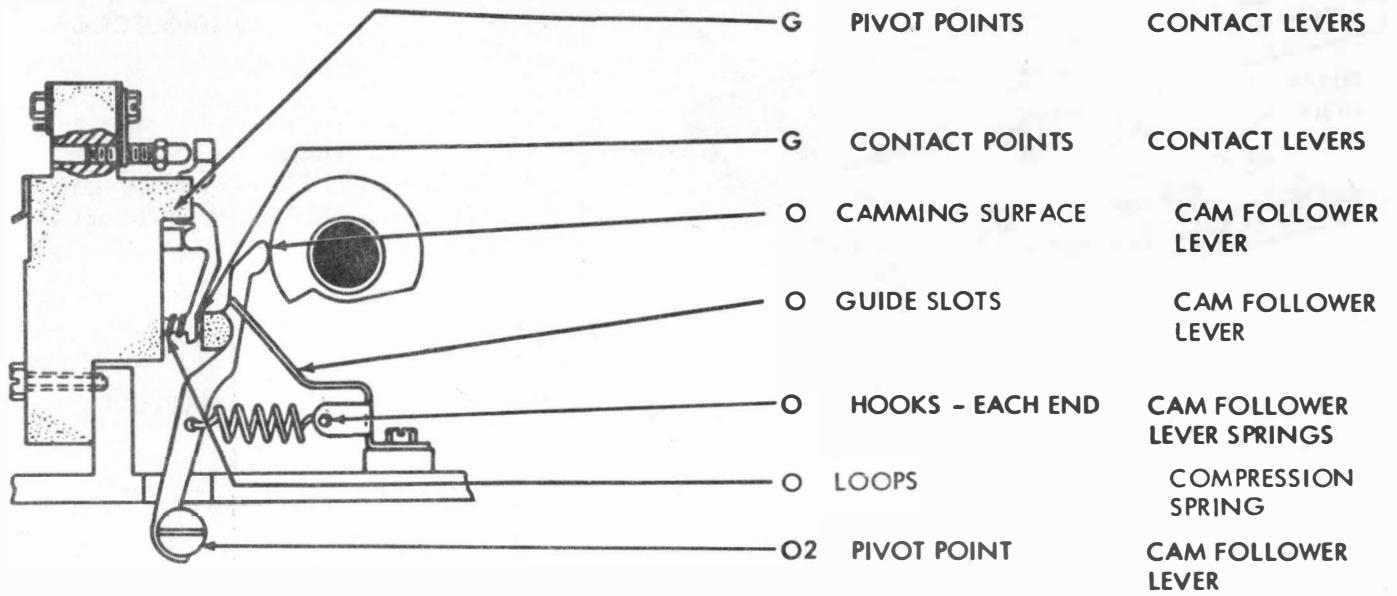
2.04 TAPE SENSING AND DISTRIBUTOR AREA



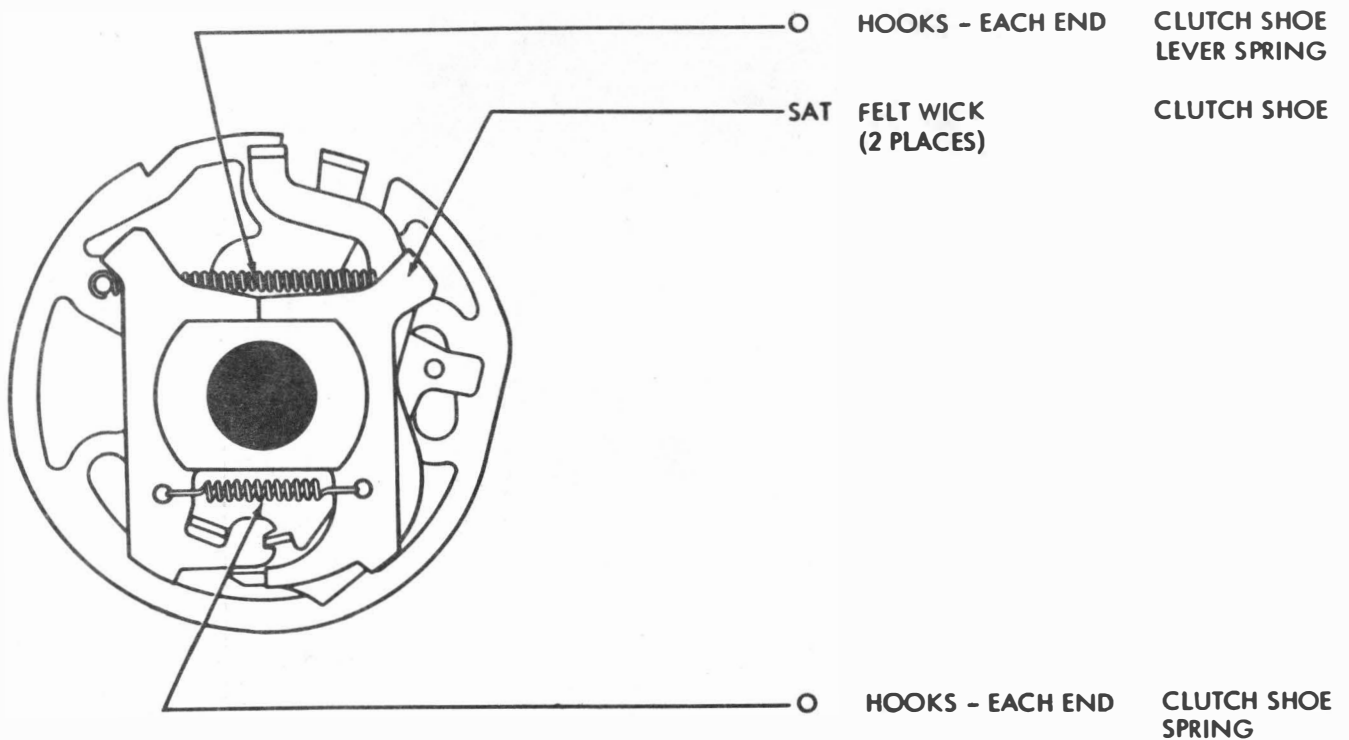
2.05 DISTRIBUTOR AND SENSING SHAFT ASSEMBLIES



2.06 DISTRIBUTOR BLOCK ASSEMBLY

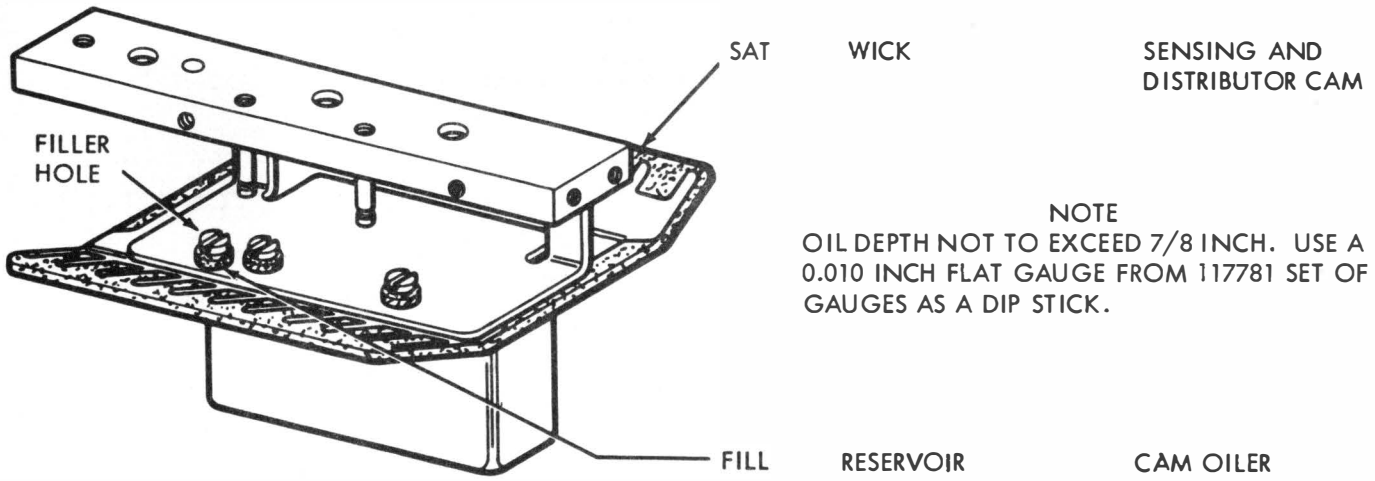


2.07 CLUTCH ASSEMBLIES

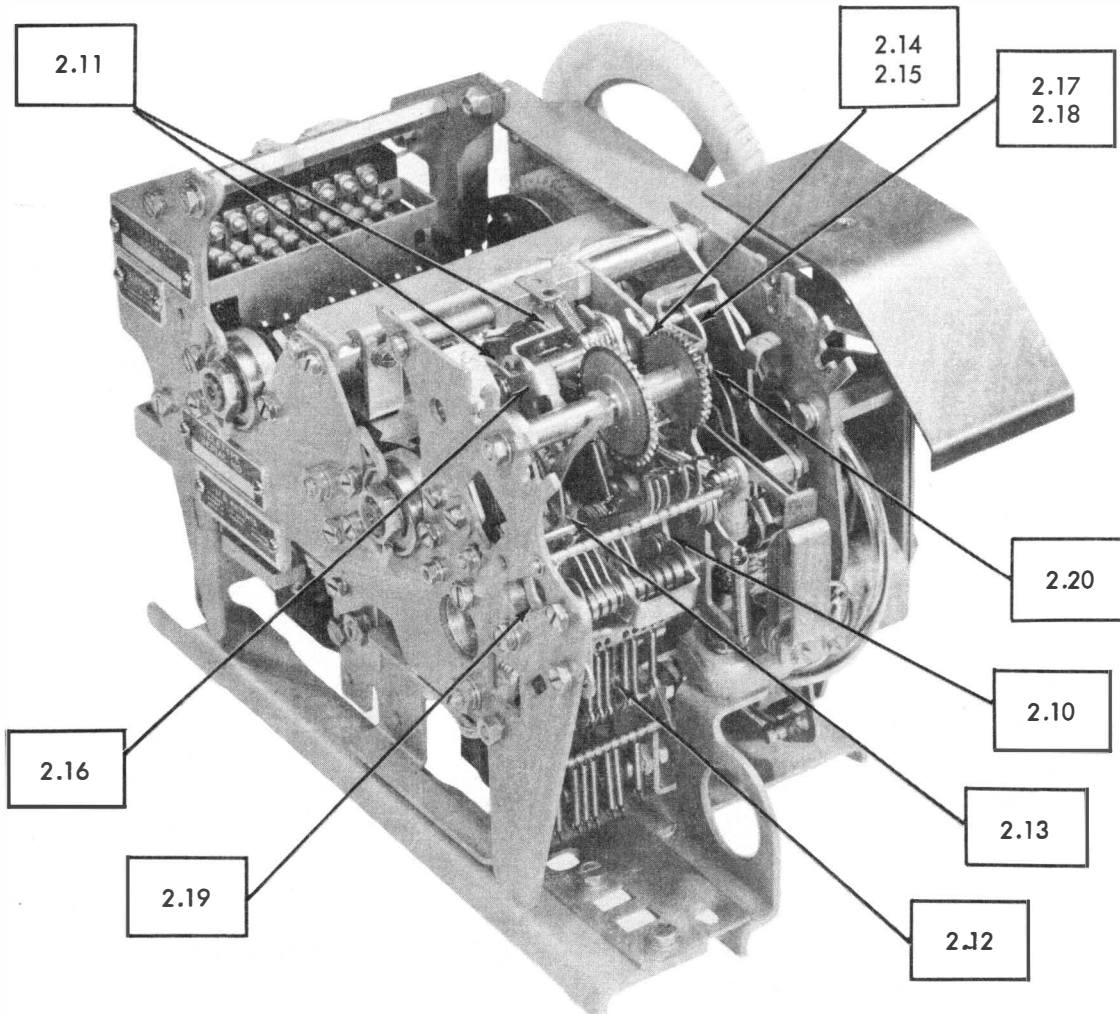


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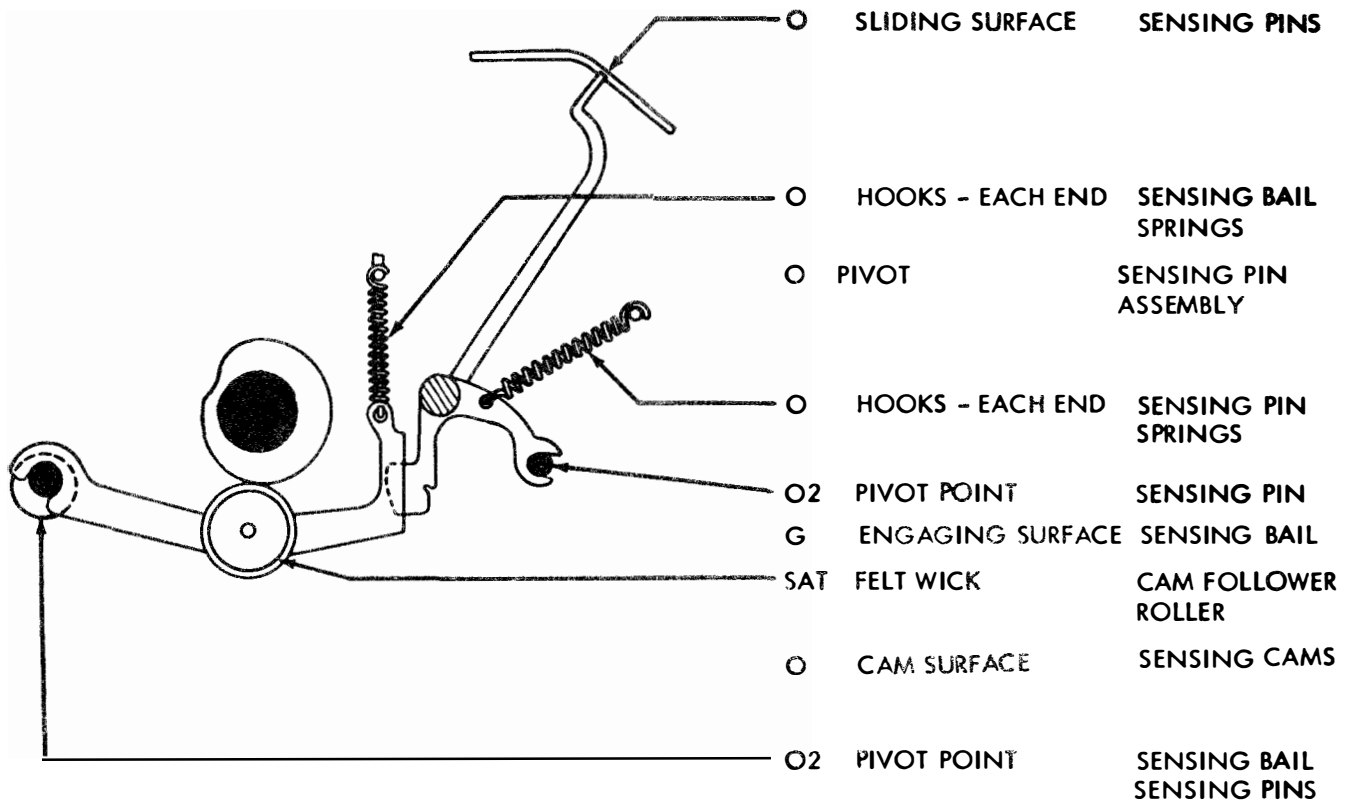
2.08 OIL RESERVOIR



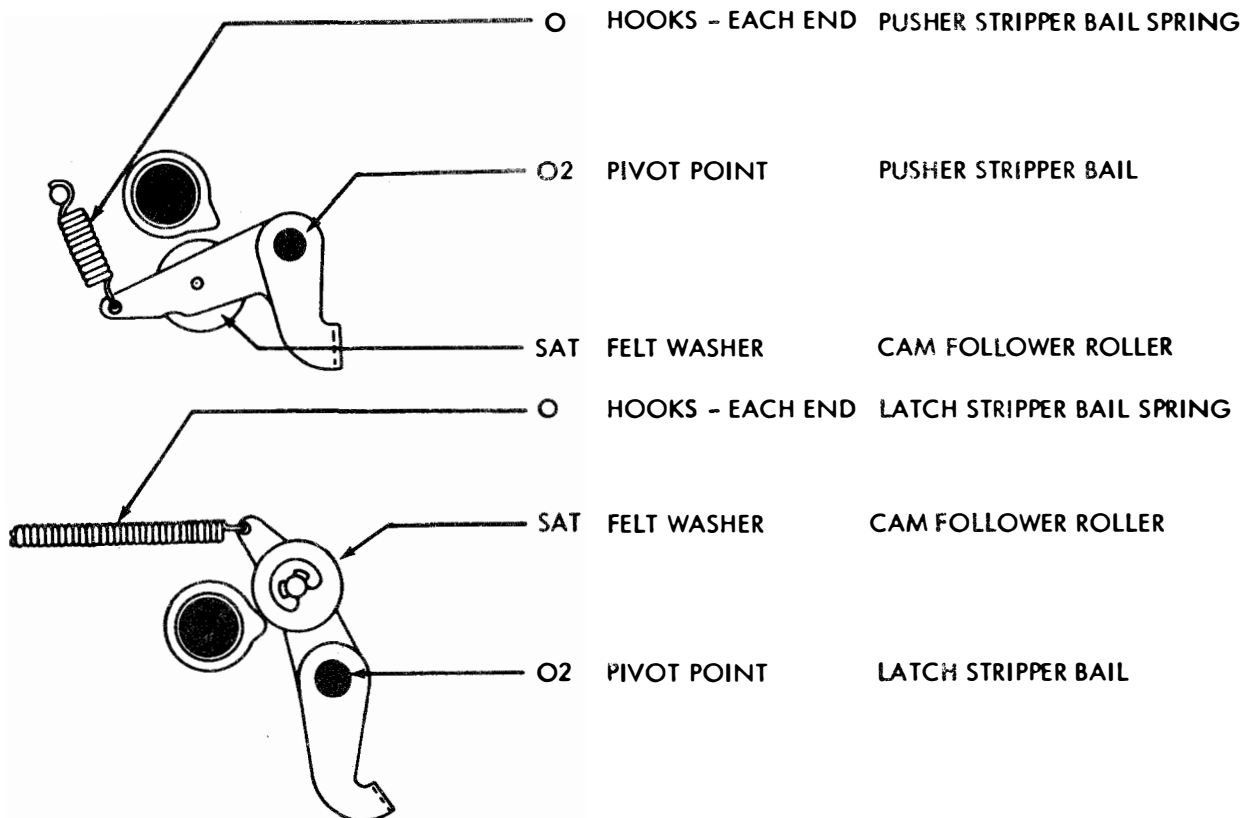
2.09 TAPE SENSING AREA



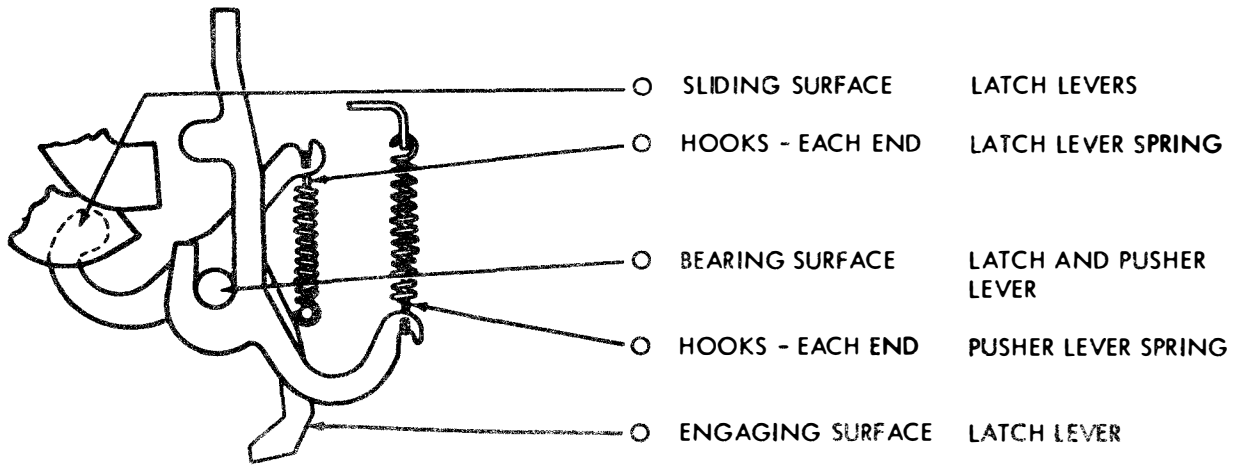
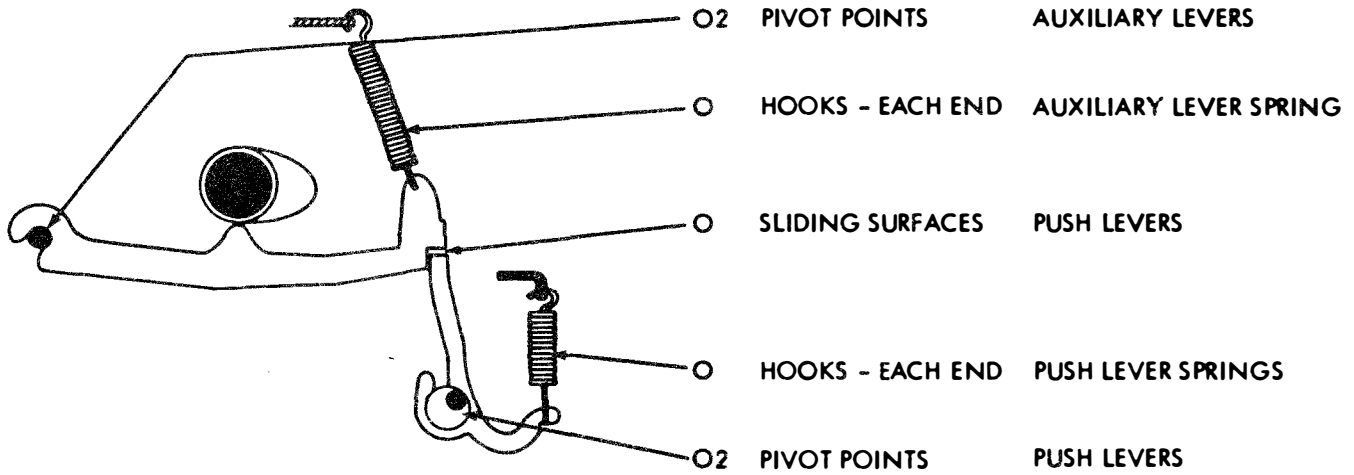
2.10 TAPE SENSING MECHANISM



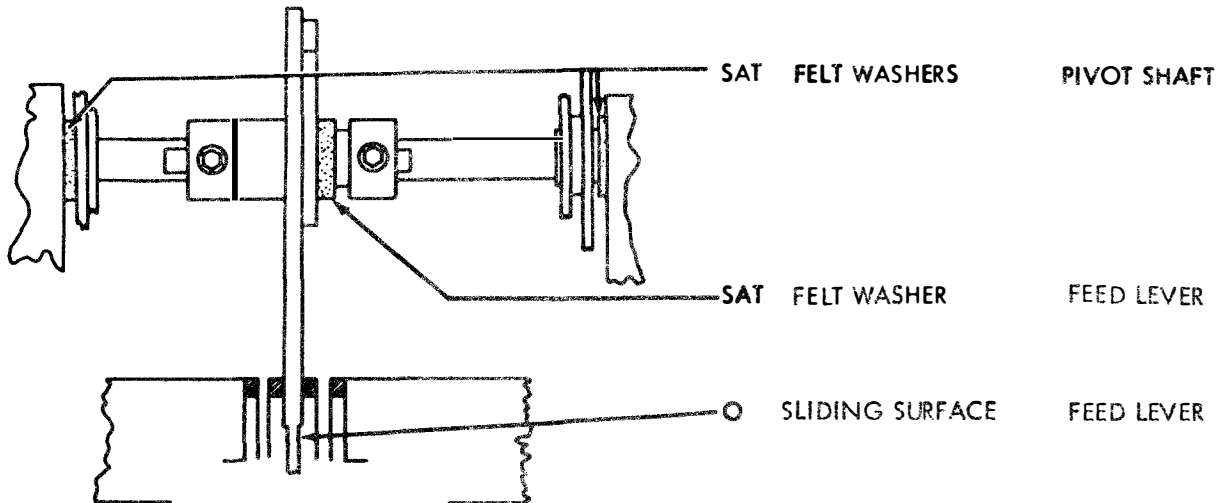
2.11 LATCH AND PUSHER STRIPPER BAIL



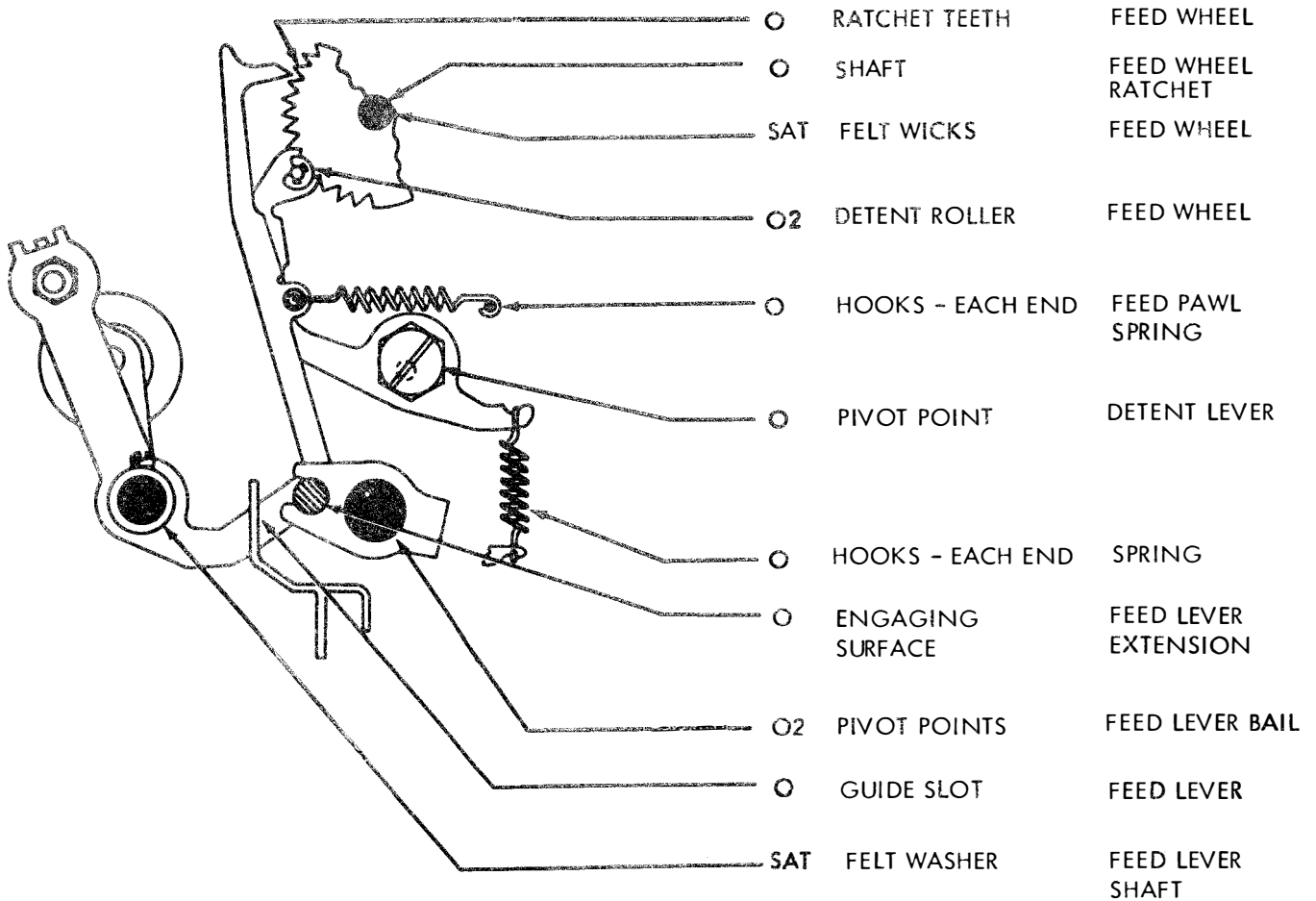
2.12 PUSHER LEVERS



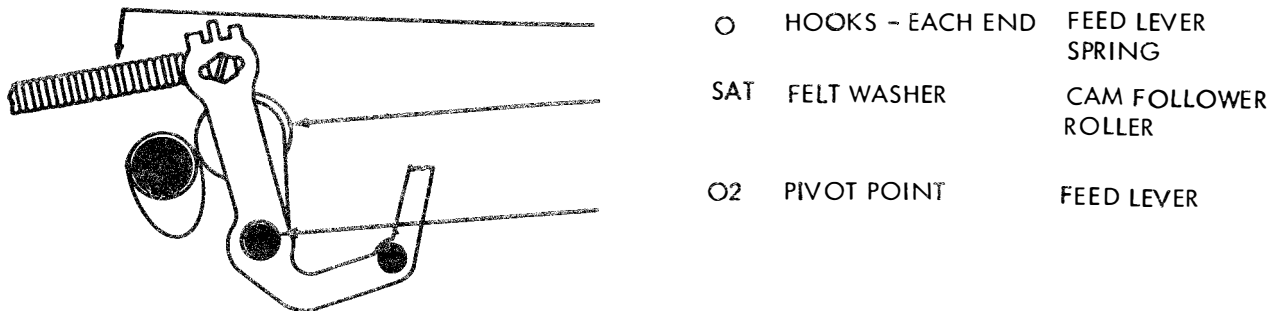
2.13 FEED MECHANISM



2.14 FEED MECHANISM - CONTINUED

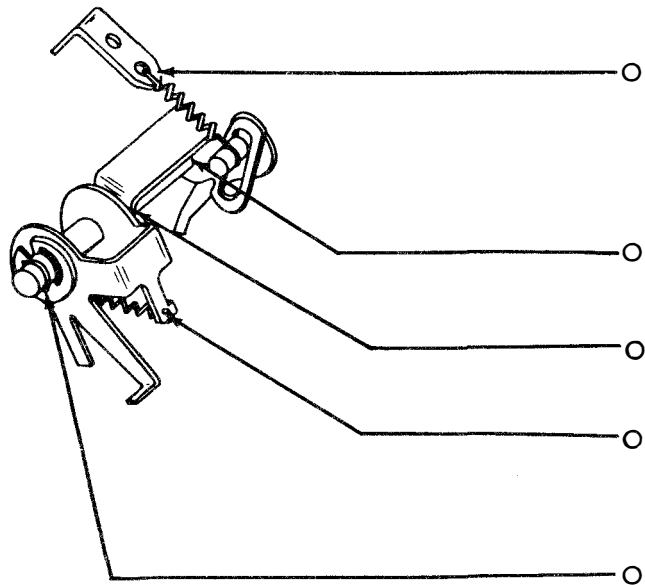


2.15 FEED MECHANISM - CONTINUED



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2.16 TAPE-OUT AND CONTROL MECHANISM



HOOKS
EACH END

YIELD
SPRING

PIVOTS

TAPE-OUT
BAIL

PIVOT

CONTROL
BAIL

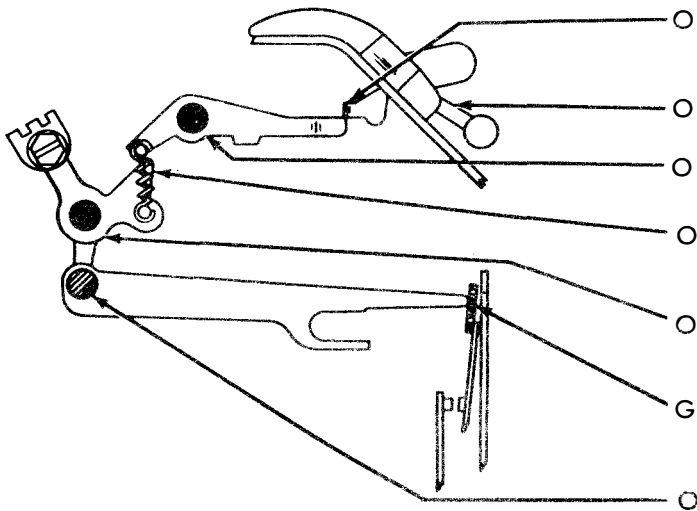
HOOKS
EACH END

YIELD
SPRING

PIVOT

CONTROL
BAIL

2.17 TIGHT TAPE SLIDE ARM ASSEMBLY



SLIDING
SURFACE

TIGHT TAPE BAIL

PIVOT POINT

TIGHT TAPE BAIL

PIVOT

INTERMEDIATE
BAIL

HOOKS
EACH END

YIELD SPRING

PIVOT

SLIDE ARM
ASSEMBLY

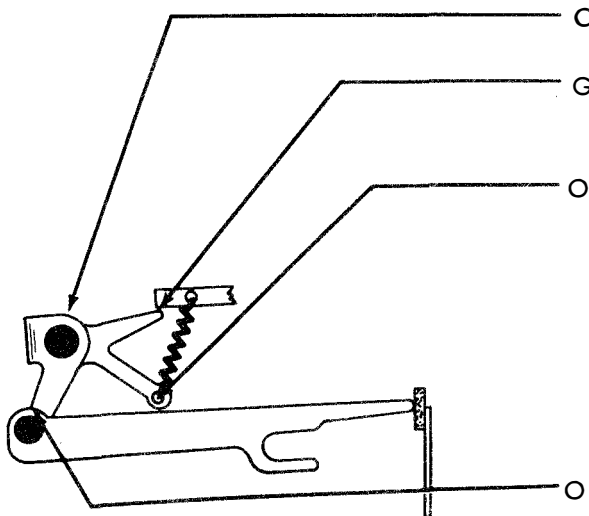
POINT OF
CONTACT

SLIDE ARM
ASSEMBLY

PIVOT

SLIDE ARM
ASSEMBLY

2.18 START-STOP SLIDE ARM ASSEMBLY



PIVOT

YIELD
BAIL

SLIDING
SURFACE

YIELD
BAIL

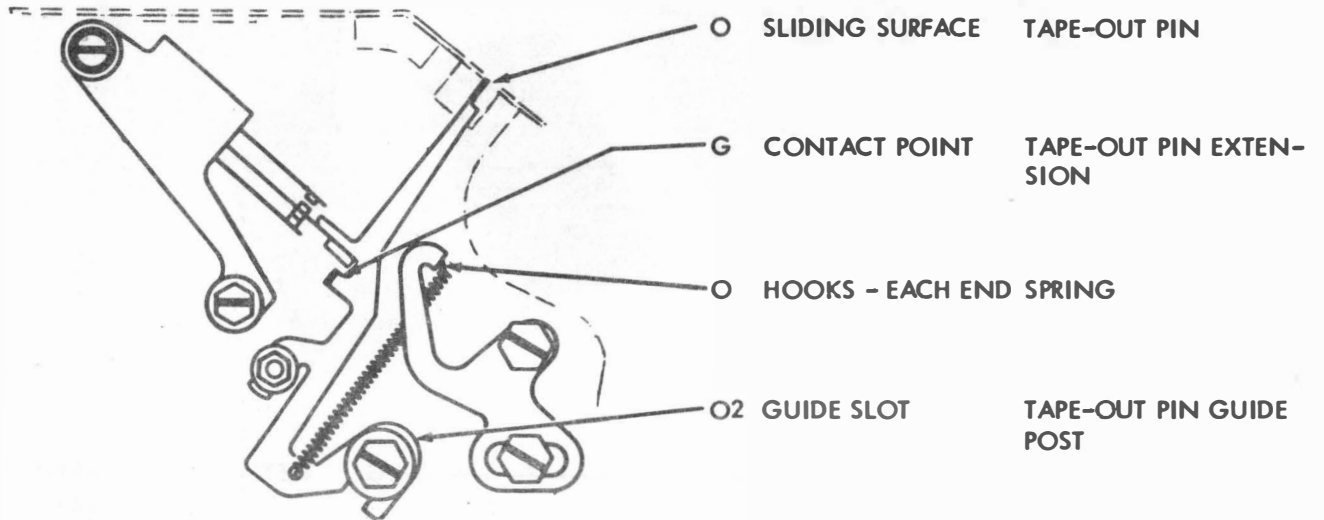
HOOKS
EACH END

YIELD
SPRING

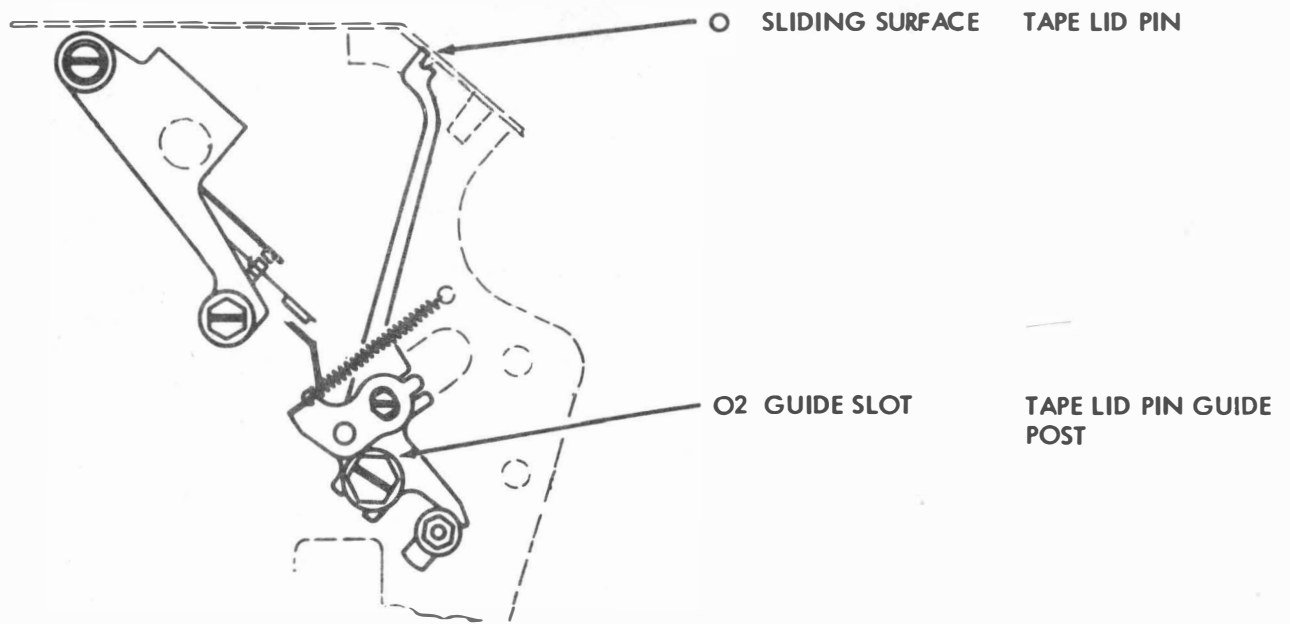
PIVOT

SLIDE ARM

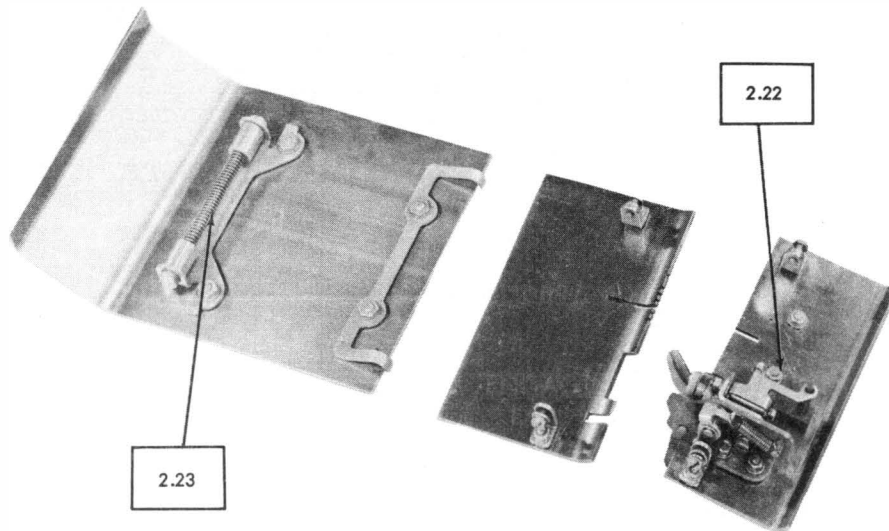
2.19 TAPE-OUT MECHANISM



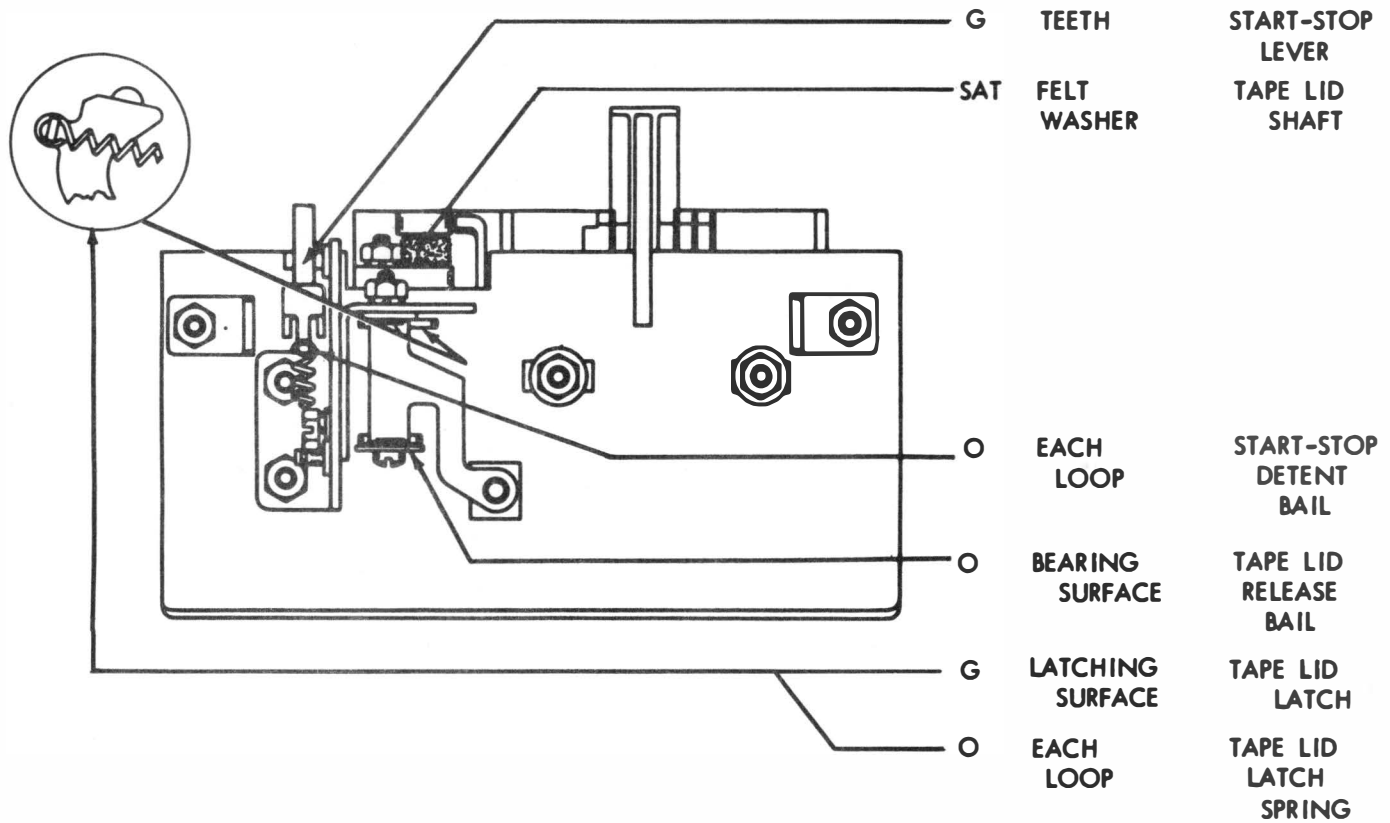
2.20 TAPE LID MECHANISM



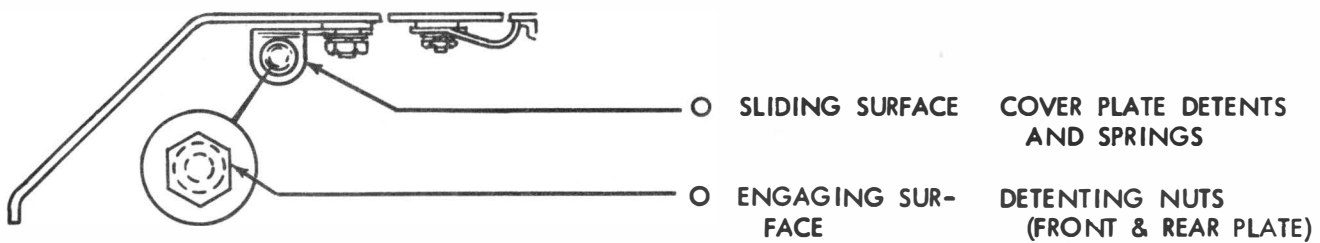
2.21 TAPE LID AND COVER PLATE AREA



2.22 TAPE LID AND TAPE GUIDE



2.23 COVER PLATE



35 TRANSMITTER-DISTRIBUTOR (MULTICONTACT)

DISASSEMBLY AND REASSEMBLY

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PLATE ASSEMBLIES	3
OIL RESERVOIR ASSEMBLY	3
DISTRIBUTOR BLOCK ASSEMBLY . .	3
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PUSHER AND LATCH LEVERS	3
SENSING PINS	4
SWITCH ACTUATING MECHANISM (START-STOP, AND/OR TIGHT TAPE)	4
CENTER PLATE ASSEMBLY	4
SENSING ASSEMBLY	4
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1. GENERAL

1.01 This section contains instructions for the disassembly and reassembly of the transmitter-distributor. The instructions are

arranged in a sequence that should be followed only when a complete disassembly of the unit is required. Disassembly of a specific sub-assembly (for repair or replacement purposes) will normally require removal of associated subassemblies in the same area.

1.02 Refer to the applicable parts publication for illustrations of the parts referenced in the procedure.

1.03 Following reassembly, perform any necessary adjustments that may have been affected. Refer to the applicable publication covering adjustments.

1.04 Unless specified otherwise, reassembly (or replacement) of an assembly or sub-assembly is accomplished by reversing the disassembly procedure. Where necessary, specific reassembly instructions are provided.

Note: Retaining rings (tru-arc) are spring steel and have a tendency to release suddenly during removal. To minimize their loss, remove them as follows: With the ring held to prevent rotation, place the blade of a screwdriver into a slot of the ring. Rotate the screwdriver into the direction that increases the diameter of the ring. The ring will come off easily and without springing away.

2. DISASSEMBLY AND REASSEMBLY
 (FIGS. 1 AND 2)

MOTOR COVER AND FRONT PANEL

2.01 To remove the motor cover, lift it carefully upward to clear the mechanism.

2.02 To remove the front panel, pull outward on the lower right and left rear corners of the front panel, and slide the panel forward. To replace, mate the front panel slides with the frame slides. Push slowly toward the rear, applying even pressure at each edge of the front plate.

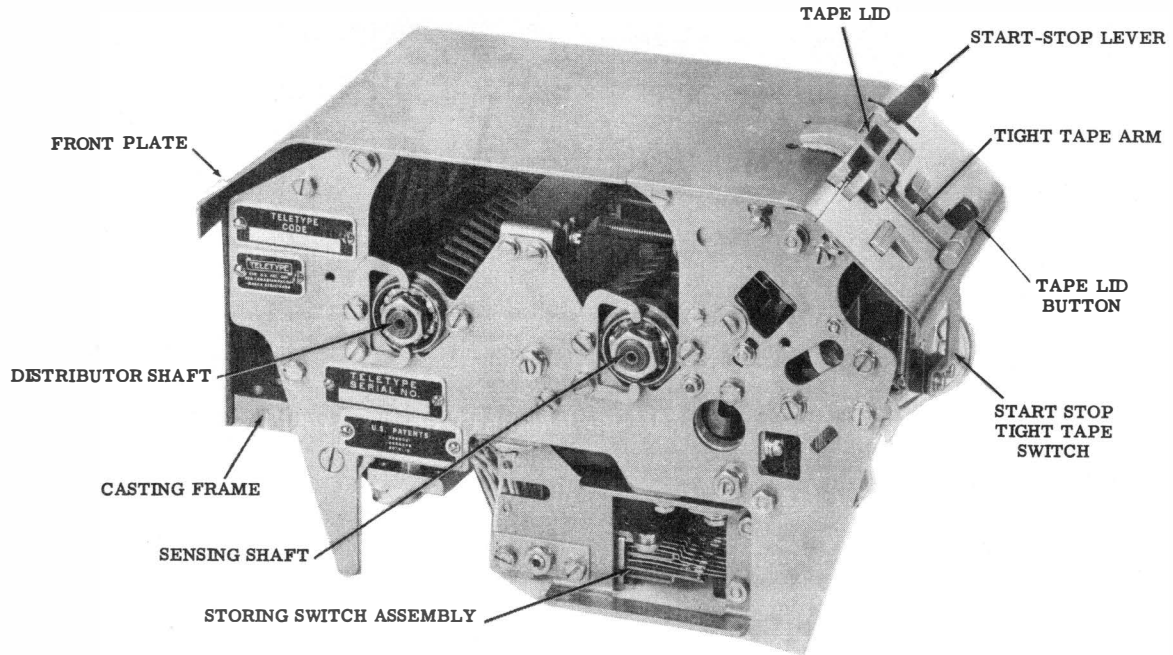


Figure 1 - 35 Transmitter-Distributor, Side View

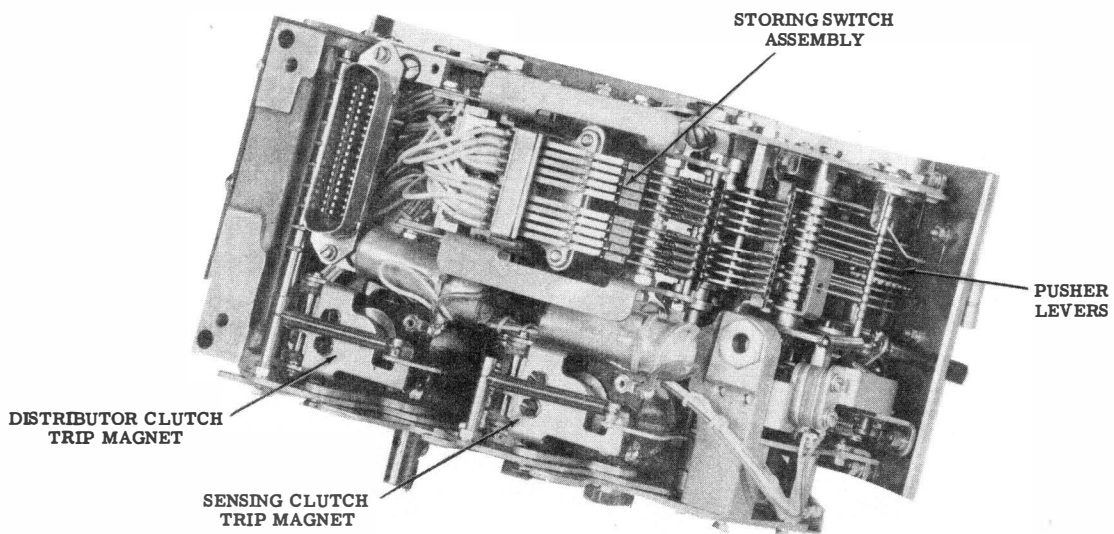


Figure 2 - 35 Transmitter-Distributor, Bottom View

REMOVAL FROM BASE

2.03 To remove the transmitter-distributor from the base, remove the three mounting screws which secure the unit to the base. Slide the unit forward and lift upward to disconnect the latches and electrical connectors.

PLATE ASSEMBLIES

2.04 Cover Plate: Remove the cover plate by lifting the left end upward, and sliding the plate toward the left to disengage the spring clip.

2.05 Top Plate: Remove the top plate by loosening the front and rear mounting screws. Lift the plate upward.

2.06 To replace, guide the mounting screws into their respective notches on the front and rear plates. Align the sensing pins and feed wheel with their respective slots.

2.07 Tape Guide Plate: The tape guide plate is removed by loosening the front and rear mounting screws and sliding the plate upward.

2.08 To replace, guide the mounting screws into their respective notches on the front and rear plate. Guide the tape-out pin into its hole, and locate the sensing pins against the left edge of the tape guide plate.

OIL RESERVOIR ASSEMBLY

2.09 To remove the oil reservoir assembly, unhook the springs attached to the underside of the cross bar. Remove the four screws which secure the cross bar to the front and rear plates and lift the assembly upward.

DISTRIBUTOR BLOCK ASSEMBLY

2.10 To remove the distributor block assembly loosen the two screws to remove the insulating plate. Remove the three screws which secure the assembly and lift it out far enough from the unit to permit the required servicing. (Complete removal of the distributor block will require unsoldering all cable leads from the block terminals.)

IDLER GEAR ASSEMBLY

2.11 To remove the idler gear, remove the locknut securing the shaft to the rear plate. This assembly should be removed be-

fore removal of the sensing and distributor shaft assemblies.

DISTRIBUTOR SHAFT ASSEMBLY

2.12 To remove the distributor shaft, remove the five mounting screws which secure the bearing clamps to the front and rear plates.

SENSING SHAFT ASSEMBLY

2.13 To remove the sensing shaft, remove the five mounting screws which secure the bearing clamps to the front and rear plates. Lift shaft assembly and rotate for clearance.

FEED WHEEL ASSEMBLY

2.14 To remove the feed wheel assembly, remove the nut which secures the feed wheel mounting post to the front plate. Remove the post, with wheel, from the unit.

2.15 When replacing the assembly, make sure the shoulder of the mounting post will not interfere with the top plate or guide plate front mounting brackets when these plates are installed.

STORING SWITCH ASSEMBLY

2.16 To remove the storing switch assembly, remove the four screws which secure the assembly to the main casting. Withdraw the switch far enough to permit servicing, without disconnecting any electrical connections (if possible). When removing the switch, take care not to damage the contact lever slides.

2.17 Reverse the above procedure to reinstall the storing switch assembly. Replace the left front screw first and use it as a pivot when aligning the slides with their respective pusher and latchlevers.

PUSHER AND LATCH LEVERS

2.18 Remove the pusher lever springs. Remove the pusher levers by sliding them downward.

2.19 To remove the latchlevers, remove the latchlever springs. Remove the TP158846 spring post attached to the front plate. Remove the latchlevers by rotating them counterclockwise and lifting upward.

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SENSING PINS

- 2.20 Position the TP158522 sensing bail eccentric shaft to move the sensing bail to the left (toward sensing cam sleeve).
- 2.21 Rotate the sensing shaft until the sensing bail is in its uppermost position.
- 2.22 Remove all the sensing pin springs. Rotate the bell cranks downward and remove each sensing pin assembly.
- 2.23 When replacing the sensing pins, make sure the sensing bail is in position as outlined in 2.20 and 2.21.

SWITCH ACTUATING MECHANISM (START-STOP, AND/OR TIGHT TAPE)

- 2.24 To remove the switch slide arm assembly, remove the two screws, one nut, and spacer which secure the intermediate plate to the center plate. Remove the nut which secures the bail mounting post to the center plate. Remove the intermediate plate, and remove the bail and slide arm assembly. To replace, reverse disassembly procedure.
- 2.25 To remove the tape-out switch, remove the mounting screws that secure the switch to the front plate. Loosen the screw securing the TP158535 post to the center plate. Remove the screw far enough to allow post removal. Replace in reverse order.

CENTER PLATE ASSEMBLY

- 2.26 To remove the center plate assembly, remove the two screws which secure the TP158535 post in position. Remove the post and studs. Remove the screw, lockwasher, and flat washer from the rear of the TP158531 shaft. Pull away by lifting up on the center plate (the center plate is hooked over the pivot shaft), and working it out to the right.

SENSING ASSEMBLY

- 2.27 To remove the sensing mechanism, remove the pivot shaft by loosening the nut, set collars and the two retaining rings. Slide the shaft out and remove latch bail, pusher bail and the feed lever assemblies. Remove the sensing bail.

CLUTCH TRIP ASSEMBLY

- 2.28 To remove either clutch trip assembly, remove the mounting screws and nuts. The wiring will be long enough to permit most servicing without completely removing the assembly. If necessary, unsolder the leads at the magnet coils.

FRAME ASSEMBLY

- 2.29 Remove all screws and/or nuts that secure eccentric shaft to side frame and/or casting. Remove all screws mounting front and rear plates to casting and disassemble completely.