28 PERFORATOR-TRANSMITTER-BASE LUBRICATION

CONTENTS

1. GENERAL

1.01   This section contains the specific lubrication procedures for the 28 perforator-transmitter-base. The material herein, together with the section containing the general lubrication instructions on teletypewriter apparatus, provides the complete lubrication information for maintenance.

1.02   This section is reissued to revise various lubrication procedures in accordance with changes authorized for this apparatus by P98 series Bell System Practices listed at the end of this section and to include other authorized revisions and additions to bring the section generally up to date. Since this is a general revision, the marginal arrows ordinarily used to indicate changes have been omitted.

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TRANSMITTER-
BASE
LUBRI-
CATION

1.03   The lubrication symbols used herein are the same as those in the general section. However, the symbol **O** is used in this practice to mean only one drop of oil. Symbols, such as **O**2, **O**3, **O**4, **O**5, and **O**20, are used to indicate respectively two, three, four, five, or twenty drops of oil.
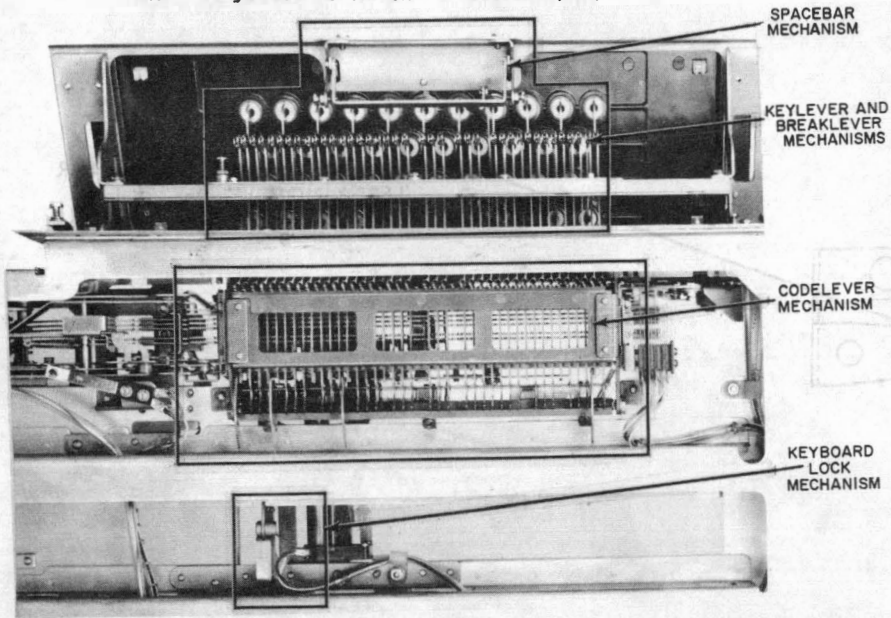
1.04   The apparatus should be lubricated before being placed in service as specified in the section covering the preparation of teletypewriter apparatus for installation. After a few weeks in service, it should be relubricated to make certain that all specified points have lubricant. Thereafter, because of varying conditions at each station, the apparatus should be lubricated as often as specified by local instructions. The following lubrication interval is suggested as a guide for use under normal operating conditions.

Operating Speed (Words per Minute)	Lubrication Interval (Whichever Occurs First)
60	3000 hours or 1 year
75	2400 hours or 9 months
100	1500 hours or 6 months

2. LUBRICATION
A. Keyboard
2.01   **Keyboard Mechanism — Bottom View**

SPACEBAR MECHANISM

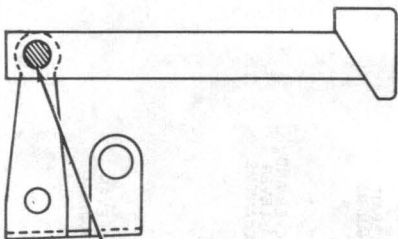KEYLEVER AND BREAKLEVER MECHANISMS

CODELEVER MECHANISM

KEYBOARD LOCK MECHANISM

28 PERFORATOR-
TRANSMITTER-
BASE
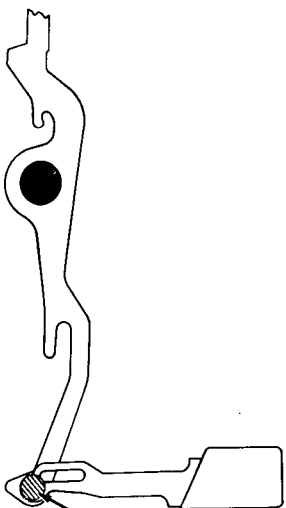LUBRI-
CATION

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2.02 Spacebar Mechanism — See 2.01

O

BEARING SURFACE
(LEFT & RIGHT)

SPACE BAR

2.03 Keylever Mechanism — See 2.01

ENGAGING SUR-
FACE (36 LEVERS)

KEYTOP LEVERS

2.04 Breaklever Mechanism — See 2.01

0	ENGAGING SUR-FACE	BREAK KEYLEVER
0	BEARING SURFACE	FUNCTION LEVER
G	CONTACT SUR-FACE	BREAK LEVER

2.05 Codelever Mechanism — See 2.01

G	CONTACTING SURFACE (32 LEVERS)	CODE LEVER UNIVERSAL BAIL
O	GUIDE SLOTS (32 LEVERS)	CODE LEVERS
SAT	FELT WASHERS (6 WASHERS)	CODE LEVER SHAFT
O	BEARING SURFACES (32 WEDGES)	LOCK BALL TRACK
O	HOOKS-EACH END (40 SPRINGS)	SPRING
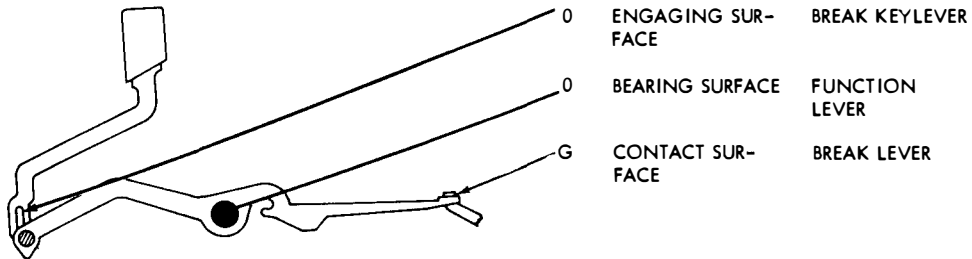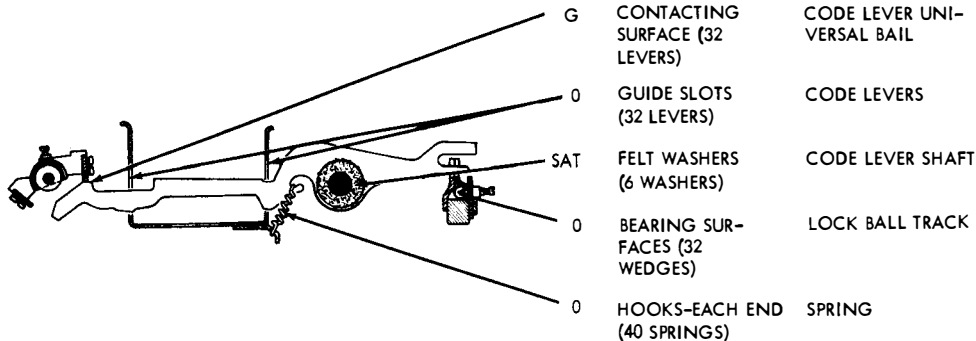
2.06 Keyboard Lock Mechanism — See 2.01

0	GUIDE SLOT	KEYBOARD LOCK PLUNGER
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	KEYBOARD LOCK LEVER
G	ENGAGING SURFACE	KEYBOARD LOCK FUNCTION LEVER
0	BEARING SURFACE	FUNCTION BAIL
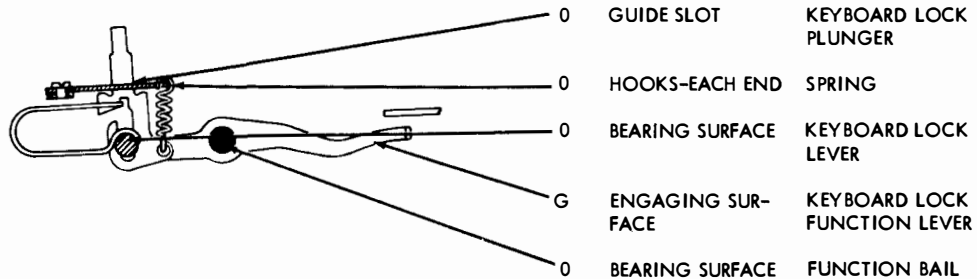
2.07 Keyboard Mechanism — Bottom View

DETENT LEVER MECHANISM

SELECTION LEVER MECHANISM

CODEBAR EXTENSION BAIL MECHANISM

CODEBAR EXTENSION MECHANISM

CLUTCH TRIPBAR LINK MECHANISM

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2.08 Detent Lever Mechanism — See 2.07
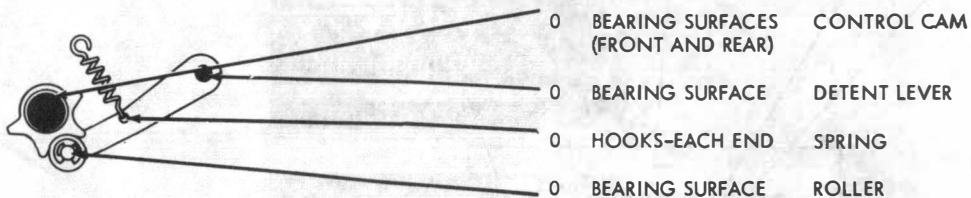
0	BEARING SURFACES (FRONT AND REAR)	CONTROL CAM
0	BEARING SURFACE	DETENT LEVER
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	ROLLER

2.09 Selection Lever Mechanism — See 2.07

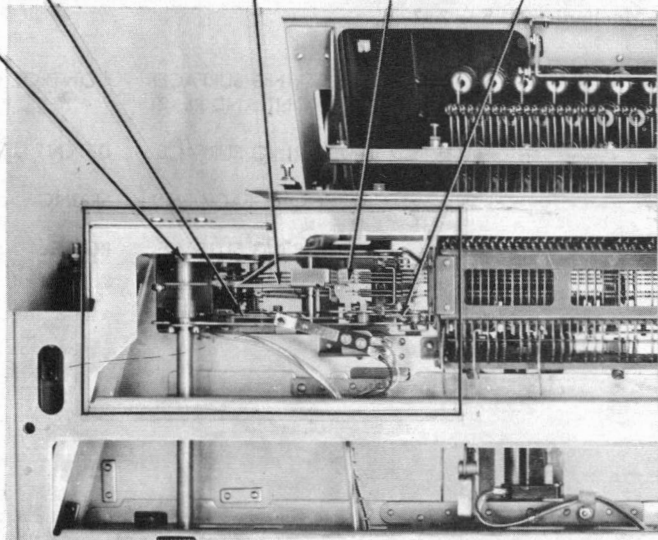|	
0 HOOKS–EACH END (2 SPRINGS)	SPRINGS
0 SLIDING SURFACE	RESET LEVER
0 BEARING SURFACE	KEYBOARD CONTROL SELECTION LEVER
0 BEARING SURFACE	RESET CAM FOLLOWER AND RESET LEVER
0 CAMMING SURFACE	RESET CAM FOLLOWER
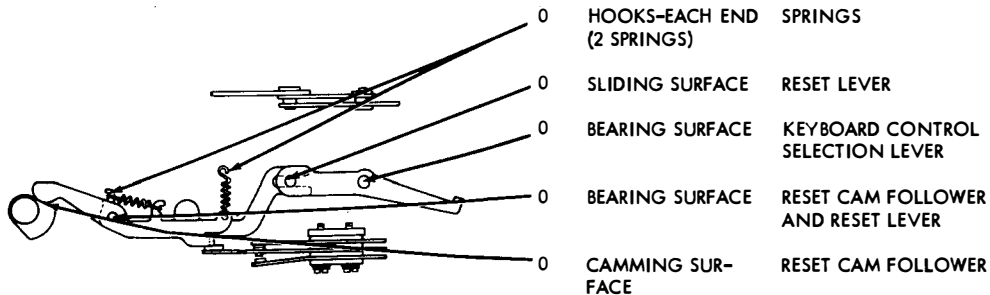
28 PERFORATOR-
TRANSMITTER-
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2.10 Codebar Extension Bail Mechanism — See 2.07

0	CAMMING SUR-FACE	SLIDE ROLLER
0	HOOKS-EACH END	SPRING
0	SLIDING SURFACE (2 PLACES)	LEVER AND EXTENSION
0	ENGAGING SUR-FACES (TWO PLACES)	LEVER
0	SLIDING SURFACE	LEVER
0	SLIDING SURFACE	CONTROL CAM
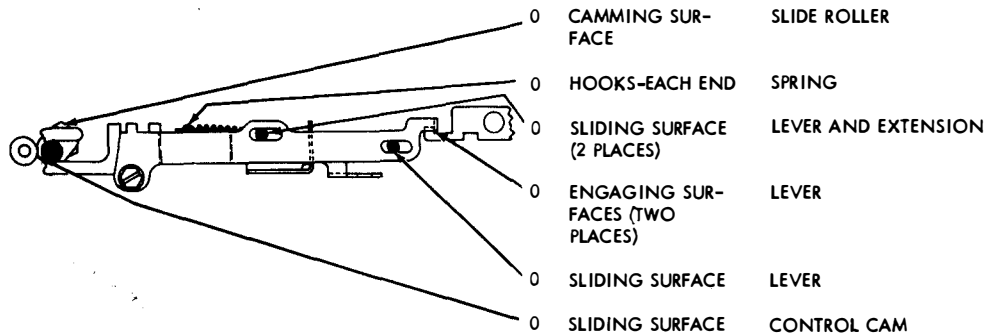
2.11 Codebar Extension Mechanism — See 2.07

0 GUIDE SURFACES (5 EXTENSIONS-TWO PLACES)   CODE BAR EXTENSIONS

0 HOOKS-EACH END (5 SPRINGS)   SPRINGS

0 CONTACT SURFACE (5 EXTENSIONS)   CODE BAR EXTENSION
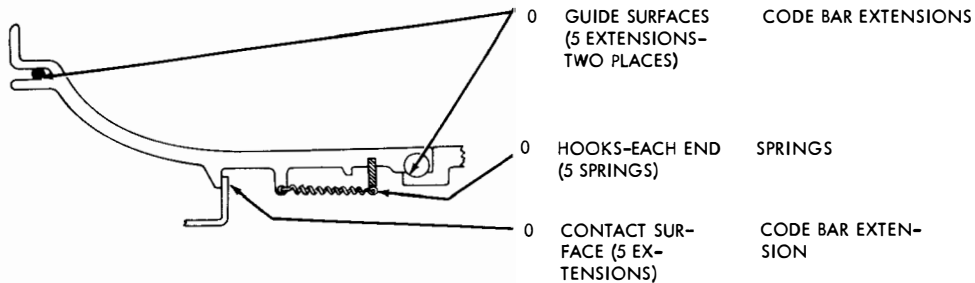
2.12 Clutch Tripbar Link Mechanism — See 2.07

0	CONTACT SURFACE	CLUTCH TRIP BAR LINK EXTENSION
0	COMPRESSION SPRING-EACH END	LINK GUIDE PIN
0	CONTACT SURFACE	TRIP BAR LINK LATCH
0	ENGAGING SURFACE	CLUTCH TRIP BAR LINK
0	BEARING SURFACE	TRIP BAR LINK LATCH
0	CONTACT SURFACE	BELLCRANK
0	BEARING SURFACE AND SLIDING SURFACE	BELLCRANK AND CLUTCH TRIP BAR LINK
0	CONTACT SURFACE (BOTH SIDES)	BELLCRANK
0	SLIDING SURFACE	CLUTCH TRIP BAR LINK

2.13 Keyboard Mechanism — Top View

CODEBAR
MECHANISM

CODELEVER
UNIVERSAL
BAIL MECHANISM

LOCAL CARRIAGE
RETURN MECHANISM

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TRANSMITTER-
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2.14 Codebar Mechanism — See 2.13

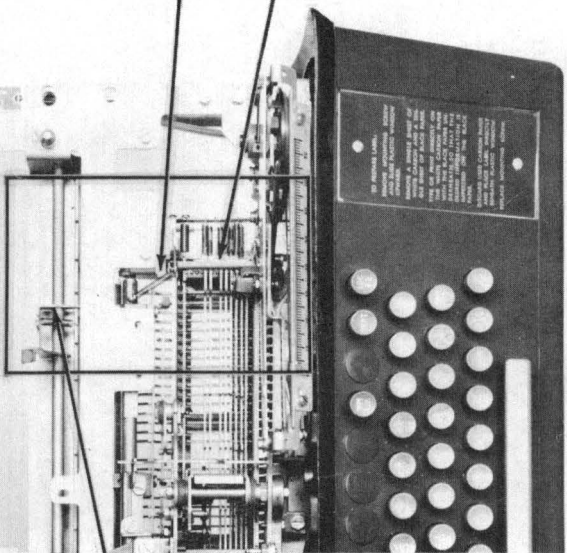

HOOKS–EACH END (8 SPRINGS)   SPRING

GUIDE SLOTS (LEFT AND RIGHT–TOP AND BOTTOM)   CODE BAR GUIDES
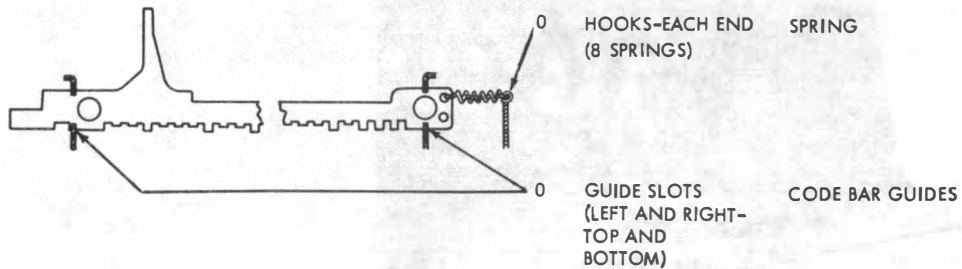
2.15 Codelever Universal Bail Mechanism — See 2.13
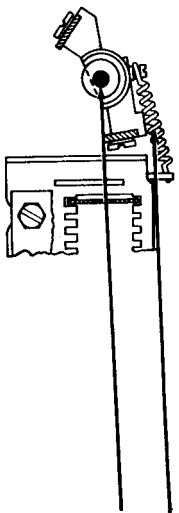
0 HOOKS-EACH END SPRING

02 BEARING SURFACE CODE LEVER UNIVER-
SAL BAIL

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TRANSMITTER-
BASE
LUBRI-
CATION

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2.16 Local Carriage Return Mechanism — See 2.13
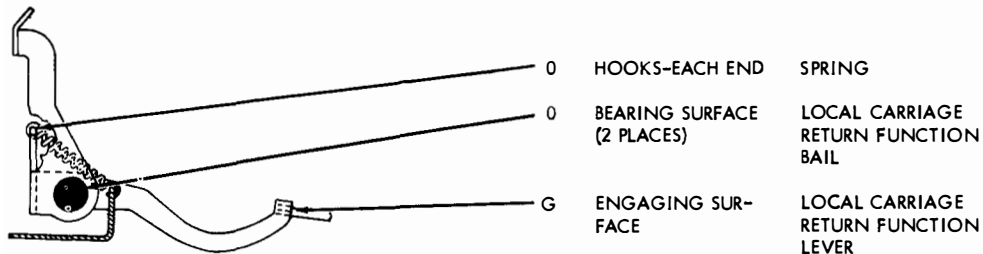
O	HOOKS-EACH END	SPRING
O	BEARING SURFACE (2 PLACES)	LOCAL CARRIAGE RETURN FUNCTION BAIL
G	ENGAGING SUR-FACE	LOCAL CARRIAGE RETURN FUNCTION LEVER

2.17 Keyboard Mechanism — Rear View

NONE REPEAT LEVER MECHANISM

CLUTCH TRIPBAR MECHANISM

TRANSFER LEVER MECHANISM

CONTACT BOX

TRANSFER BAIL MECHANISM

KEYBOARD CLUTCH MECHANISM

LOCKBAR LATCH MECHANISM

MARGIN INDICATING MECHANISM

LOCAL LINE FEED MECHANISM

KEYBOARD SHAFT MECHANISM

INTERMEDIATE GEAR MECHANISM
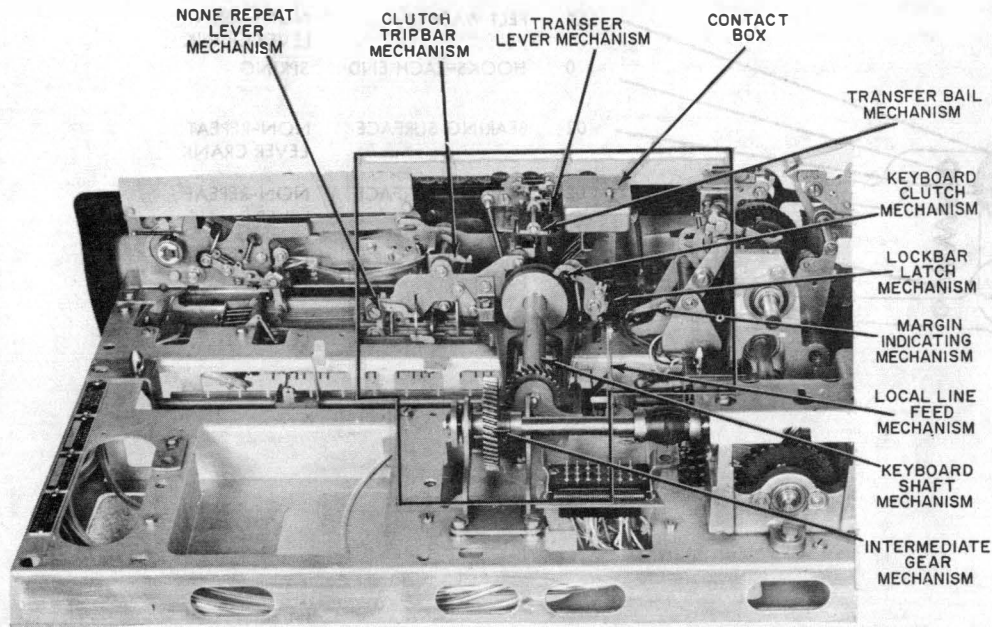
2.18 Nonrepeat Lever Mechanism — See 2.17
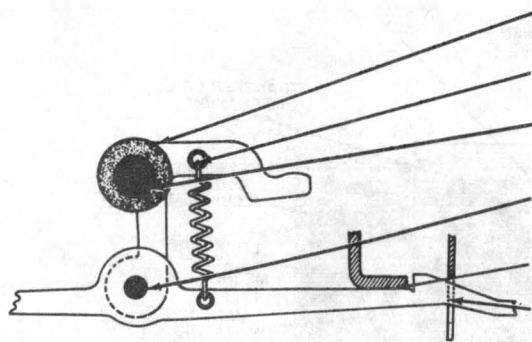
SAT	FELT WASHER	NON-REPEAT LEVER CRANK
0	HOOKS—EACH END	SPRING
02	BEARING SURFACE	NON-REPEAT LEVER CRANK
02	BEARING SURFACE	NON-REPEAT LEVER
G	ENGAGING SURFACE	NON-REPEAT LEVER
02	GUIDE SLOT	NON-REPEAT LEVER

2.19 Clutch Tripbar Mechanism — See 2.17
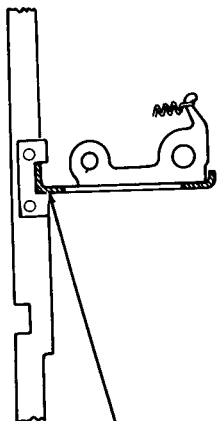
G SAT

SLOT

CLUTCH TRIP BAR
WEAR PLATE

28 PERFORATOR-
TRANSMITTER-
BASE
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2.20 Transfer Lever Mechanism — See 2.17

0	GUIDE SLOTS	TRANSFER LEVERS (7 LEVERS)
0	HOOKS-EACH END (7 SPRINGS)	SPRING
0	GUIDE SLOTS	TRANSFER LEVERS (7 LEVERS)
SAT	FELT WASHERS (4 WASHERS)	CAMMING SURFACES
0	GUIDE SLOTS	TRANSFER LEVERS (7 LEVERS)
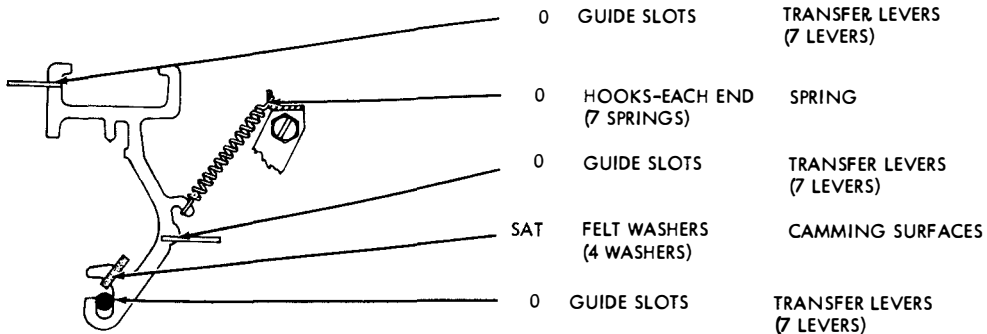
2.21 Contact Box — See 2.17
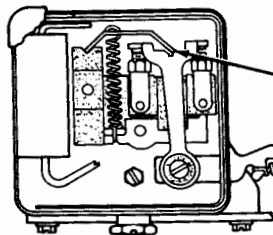
DISASSEMBLY: REMOVE NUT AND LOCK WASH-
ER SECURING CONTACT BOX
COVER AND REMOVE COVER.

G   ENGAGING SUR-   CONTACT TOGGLE
      FACE

0   HOOKS-EACH END   SPRING

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BASE
LUBRI-
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2.22 Transfer Bail Mechanism — See 2.17

SAT	FELT WASHERS (2 WASHERS)	LATCHES
G	ENGAGING SURFACES	TRANSFER BAIL
O	HOOKS-EACH END (2 SPRINGS)	SPRING
O2	BEARING SURFACE (EACH END)	TRANSFER BAIL
SAT	OIL WICK	TRANSFER BAIL
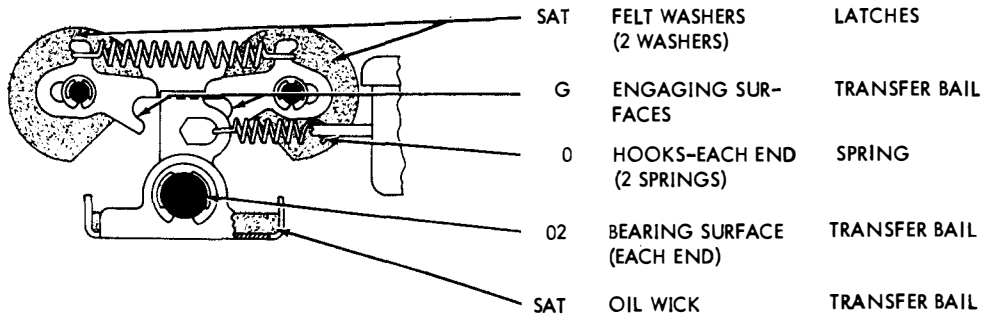
2.23 **Keyboard Clutch Mechanism — See 2.17**

02	LATCHING SUR-FACE	CLUTCH STOP LEVER AND CLUTCH LATCH LEVER
0	HOOKS-EACH END (2 SPRINGS)	SPRING
SAT	FELT WASHERS (2 FRONT & REAR)	CLUTCH TRIP BAIL
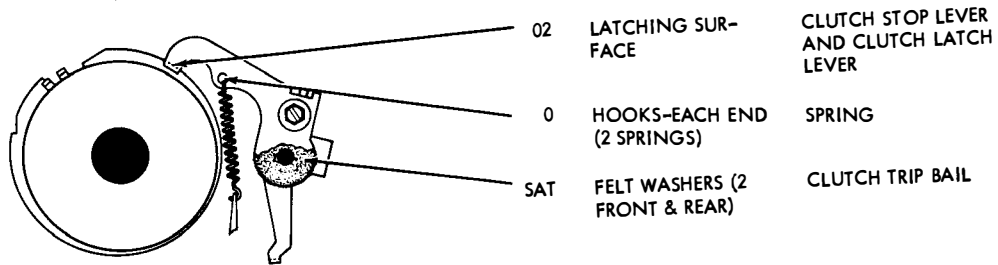
2.24 Lockbar Latch Mechanism — See 2.17
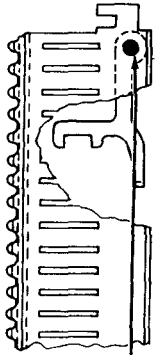
0 BEARING SURFACE

LOCK BAR LATCH

2.25 Margin Indicating Mechanism — See 2.17

Note: If a switch is equipped with a nylon actuator, lubricant shall **not** be applied to the engaging surface.

0	ENGAGING SUR- FACE	MARGIN INDICATOR SWITCH
0	BEARING SURFACE	SWITCH LEVER
0	HOOKS—EACH END	SPRING
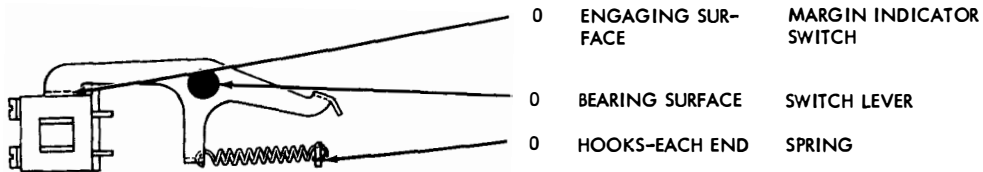
28 PERFORATOR-
TRANSMITTER-
BASE
LUBRI-
CATION

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2.26 Local Line-feed Mechanism — See 2.17

02	GUIDE SLOT	LOCAL LINE FEED TRIP LINK
0	BEARING SURFACE	LOCAL LINE FEED FUNCTION LEVER
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	FUNCTION BAIL
G	ENGAGING SUR-FACE	LOCAL LINE FEED FUNCTION LEVER
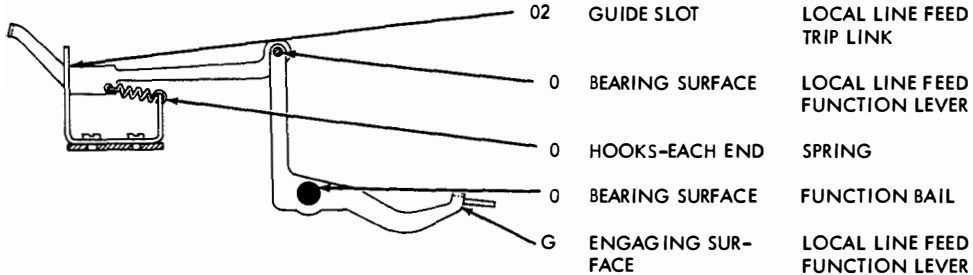
2.27 Keyboard Shaft Mechanism — See 2.17
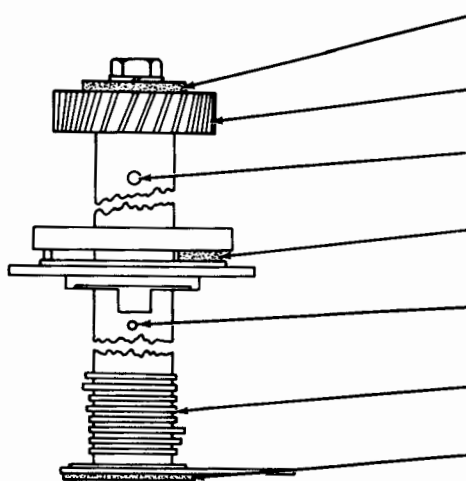
SAT	FELT WASHER	SIGNAL GENERATOR SHAFT
G	GEAR TEETH	SIGNAL GENERATOR SHAFT
020	OIL HOLE	SIGNAL GENERATOR SHAFT
04	INTERNAL MECHANISM	KEYBOARD CLUTCH
SAT	FELT WICK	
020	OIL HOLE	SIGNAL GENERATOR CAM
02	CAMMING SURFACE EACH CAM	SIGNAL GENERATOR CAM
SAT	FELT WASHER	SIGNAL GENERATOR SHAFT

2.28 Intermediate Gear Mechanism — See 2.17

Note: Lubrication instructions for the motor unit are given in the section containing the lubrication details for the 28 Motor.

G	TEETH (2 GEARS)	INTERMEDIATE GEARS
02	BALL BEARING (2 BEARINGS)	INTERMEDIATE GEAR SHAFT

LOCKING BAIL

CAMMING SLI...

FACES

BAIL LOCKING POST

LOCKING BAIL SPRING

WASHER (2) FRONT

WASHER FELT

NO BEAR...

HOOK-E-LATCH END SPRING

UNIVERSAL BAIL LATCHLEVER MECHANISM

CODEBAR BAIL MECHANISM

LOCKING BAIL MECHANISM

0	HOOKS—EACH END	SPRING
SAT	FELT WASHERS (2 WASHERS - FRONT AND REAR)	LOCKING BAIL POST
SAT	FELT WICK	CAMMING SUR-FACES
0	GUIDE SLOTS (3 SLOTS)	LOCKING BAIL
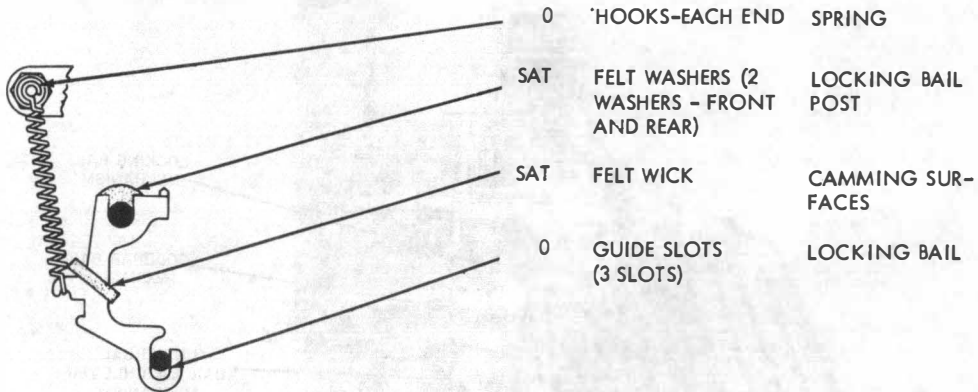
2.31 Codebar Bail Mechanism — See 2.29

SAT	FELT WASHERS (TWO WASHERS)	CODE BAR BAIL
0	BEARING SURFACE (2 PLACES)	CODE BAR BAIL
0	HOOKS–EACH END (2 SPRINGS)	SPRING
SAT	FELT WASHER	CODE BAR BAIL LATCH
04	BEARING	CODE BAR BAIL
02	BEARING SURFACE	CODE BAR BAIL LATCH
02	ENGAGING SUR-FACE	ECCENTRIC FOLLOWER
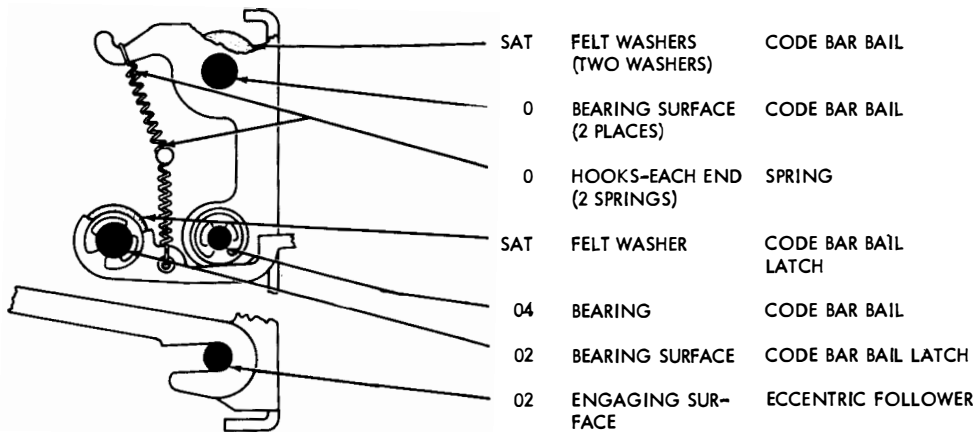
28 PERFORATOR-
TRANSMITTER-
BASE
LUBRI-
CATION

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2.32 Universal Bail Latchlever Mechanism — See 2.29

0	HOOKS (EACH END)	SPRING
02	GUIDE SLOT (EACH SIDE OF SLOT)	UNIVERSAL BAIL LATCH LEVER
G	ENGAGING SURFACE	CODE BAR BAIL EXTENSION
0	ENGAGING SURFACE	RESET BAIL LATCH
SAT	FELT WASHER	UNIVERSAL BAIL LATCH LEVER
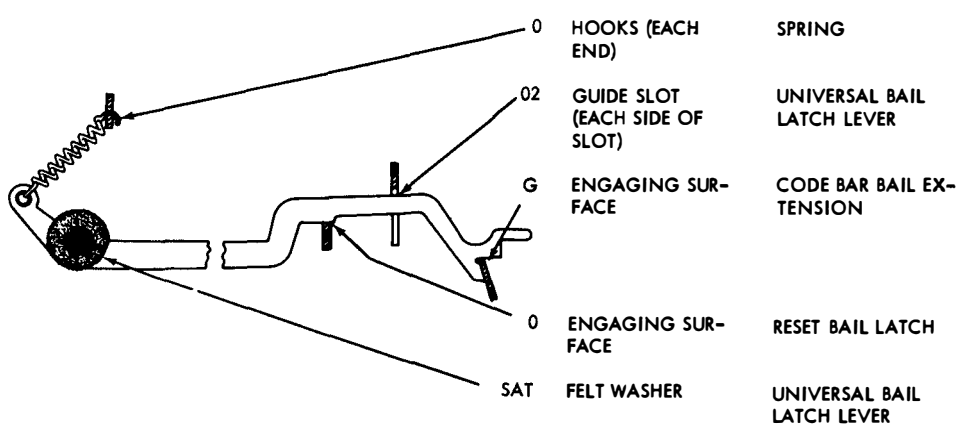
2.33 Tape-out Switch Mechanism — See 2.56

O	HOOKS–EACH END (2 SPRINGS)	SPRINGS
O	BEARING SURFACE (FRONT AND REAR)	TAPE LEVER
G	CONTACT SUR-FACE	SWITCH LEVER
O	BEARING SURFACE	SWITCH LEVER
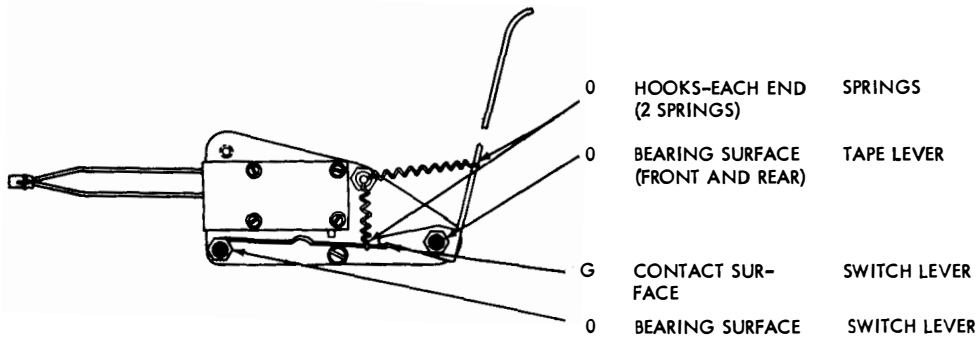
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2.34 Electrical Line-break Mechanism — See 2.41

O HOOKS–EACH END	SPRING
G CONTACT SUR-FACE	SENSITIVE SWITCH
O BEARING SURFACE	BREAK LEVER
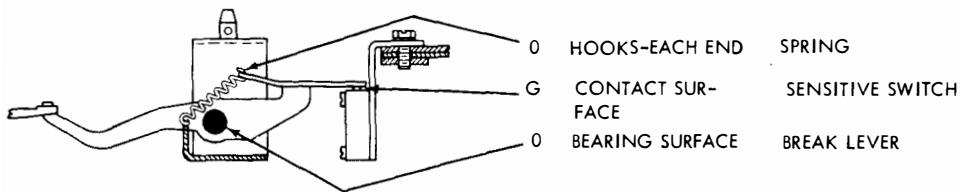
2.35 **Keyboard Mechanism — Right Side View**
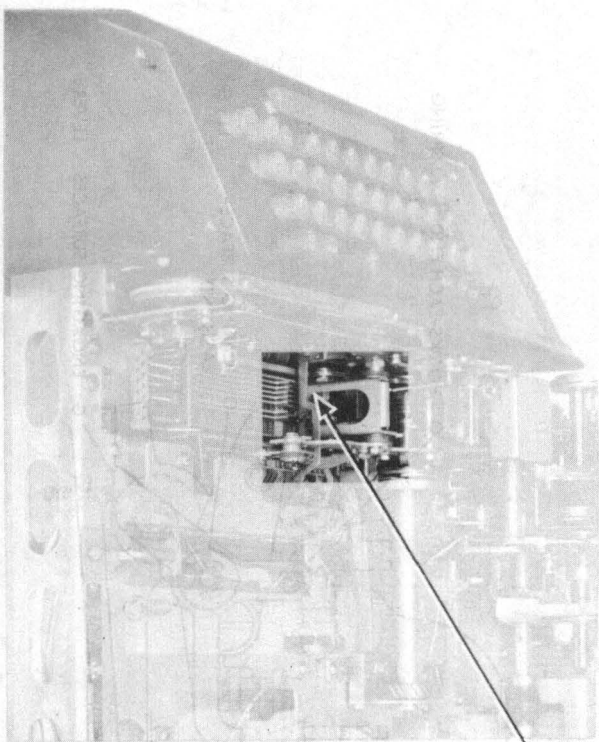
REPEAT-ON-SPACE
MECHANISM

HOOKS-EACH END   SPRING

BEARING SURFACE-
EACH END   LEVER

G ENGAGING SURFACES   LEVER
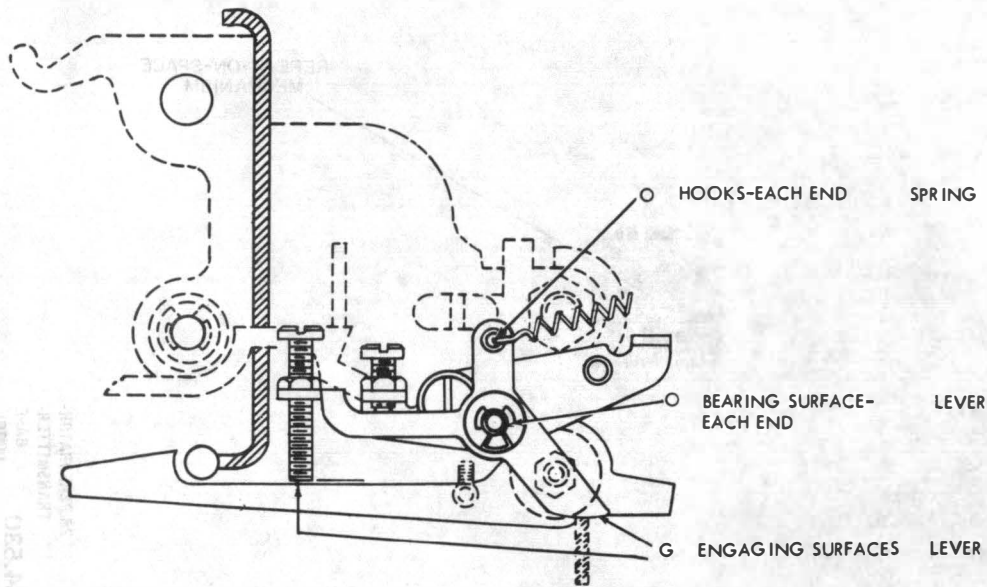
2.37 Repeat-on-Space Mechanism — Earlier Design — See 2.35

O SPRING - EACH END

O LEVER - EACH END

G LEVER - ENGAGING SURFACES WITH
THE NON-REPEAT LEVER

G SCREW - ENGAGING SURFACE OF SCREW
AND THE SPACE KEYLEVER
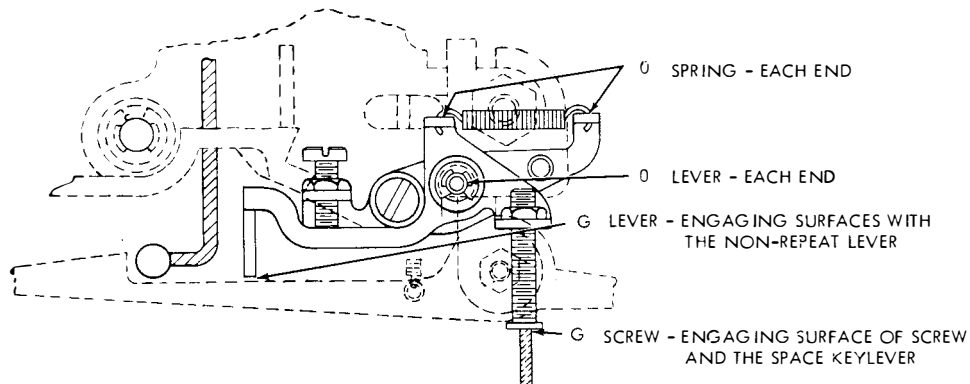
28 PERFORATOR-
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2.38 "HERE IS" Keylever Contact Mechanism (TWX)

O ENGAGING SURFACE "HERE IS" KEYTOP LEVER ("FIGS" "C")

G ENGAGING SURFACE INSULATOR
(THIN FILM)

"HERE IS" KEYLEVER CONTACT ASSEMBLY ("FIGS" "C")

G CONTACTING SURFACE CAM

PULSING (BLINDING) CONTACT ASSEMBLY
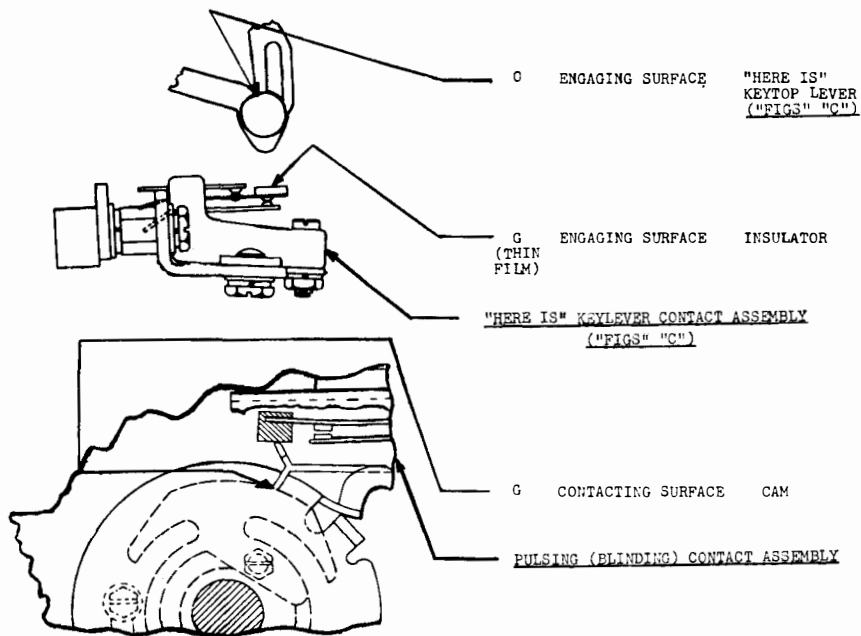
2.39 Time-delay Mechanism

SAT	FELT WASHER	ECCENTRIC FOLLOWER PAWL
G	BEARING SURFACE	ECCENTRIC FOLLOWER PAWL
O2	GUIDE SLOT	ECCENTRIC FOLLOWER PAWL
SAT	FELT WASHER	LATCH PAWL
G	TEETH (2 WHEELS)	RATCHET WHEELS
O2	BEARING SURFACE EACH END	RATCHET WHEEL SHAFT
SAT	FELT WASHER	CONTACT PAWL
G	ENGAGING SURFACE	ECCENTRIC FOLLOWER PAWL
SAT	FELT WASHER	LATCH LEVER
O	HOOKS - EACH END (3 SPRINGS)	SPRING

2.40 Form Feed-out Mechanism

O PIVOTS — TRIP LEVER

O LOOPS - EACH END — SOLENOID TORSION SPRING

O SLIDING SURFACE — FORM FEED-OUT LINK

O PIVOT — FORM FEED-OUT LINK

O LOOPS - EACH END — FORM FEED-OUT LINK SPRING

2.41 Keyboard Mechanism — Rear View

CHARACTER COUNTER MECHANISM

ELECTRICAL LINE BREAK MECHANISM

SINGLE AUXILIARY TIMING CONTACTS MECHANISM

2.42 Character Counter Mechanism — See 2.41

G	ENGAGING SURFACE	COUNTER SCALE BRACKET
0	BEARING SURFACE	INDICATOR CORD PULLEY
0	HOOKS-EACH END	SPRING
0	BEARING SURFACE	RATCHET LATCH LEVER
0	BEARING SURFACE	RATCHET DRIVE LEVER

2.43 Character Counter Mechanism — See 2.41

0	CONTACT SUR-FACE	ANTI-BOUNCE LATCH
0	BEARING SURFACE	ANTI-BOUNCE LATCH
02	BEARING SURFACE	RATCHET DRUM
G	TEETH	RATCHET
0	ENGAGING SUR-FACES (2 PLACES)	RESET LEVER EXTEN-SION
0	HOOKS–EACH END (3 SPRINGS)	SPRING
0	BEARING SURFACE	RESET BAIL
0	BEARING SURFACE	DRIVE LEVER FEED BAIL
0	ENGAGING SUR-FACES (3 SURFACES)	DRIVE LEVER FEED BAIL & RESET BAIL

SAT FELT WICK

TRANSMITTER POWER TAKE-OFF

G GEAR TEETH

TEN GEARS INCLUDING
MOTOR PINION

O2 OILITE BEARINGS (2)   TRANSMITTER POWER TAKE-OFF
(OIL EACH SIDE OF BEARINGS) DRIVEN GEAR BEARINGS

SAT FELT WICKS(7)   SPRING CLUTCHES

SAT FELT WICK   IDLER GEAR

O LOOPS - EACH END ARMATURE SPRING

O2 BEARING POINTS   ARMATURE SHAFT

O2 OILITE BEARINGS (2)   IDLER GEAR BEARINGS
(OIL EACH SIDE OF BEARINGS)

O CLUTCH SPRINGS AND HUBS   SPRING CLUTCHES
(APPLY LIGHT FILM DURING
REASSEMBLY)

O2 OILITE BEARING WASHERS (4)   SPRING CLUTCHES

O2 OILITE BEARINGS (2)   60 AND 100 WPM DRIVER GEAR
(OIL EACH SIDE OF BEARINGS) BEARINGS

B. Typing and Nontyping Perforators

2.45 Typing and Nontyping Perforator Mechanism — Top View

PERFORATOR CLUTCH
DRIVING SHAFT
MECHANISM

RESET
CAMFOLLOWER
MECHANISM

PERFORATOR
CLUTCH GEAR
MECHANISM

PERFORATOR CLUTCH
AND RESET CAM
MECHANISM

ROCKER
BAIL
MECHANISM

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BASE
LUBRI-
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2.46 Reset Camfollower Mechanism — Typing and Nontyping Perforators — See 2.45

SAT	FELT WASHER	ROLLER
O	BEARING SURFACE	RETAINING RING
SAT	FELT WASHERS (FRONT & REAR)	RESET CAM FOLLOWER SHAFT
05	OIL HOLE	RESET CAM FOLLOWER SHAFT
O	HOOKS—EACH END	SPRING
O	ENGAGING SUR-FACE	RESET LEVER
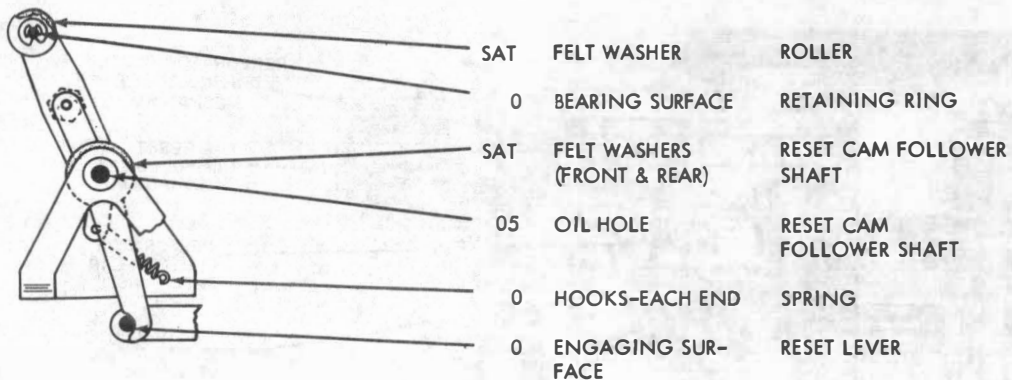
2.47 Rocker Bail Mechanism — Nontyping Perforator Only — See 2.45

SAT	FELT WASHER	ROCKER BAIL
SAT	FELT WICK (USE OIL HOLE)	ROCKER BAIL
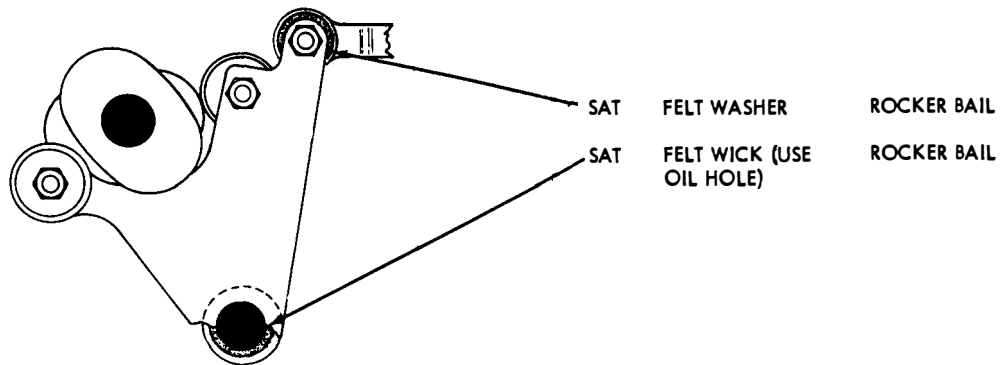
2.48   Perforator Clutch Driving Shaft Mechanism — Nontyping Perforator Only — See 2.45

02   BALL BEARING   PERFORATOR CLUTCH
                            DRIVING SHAFT
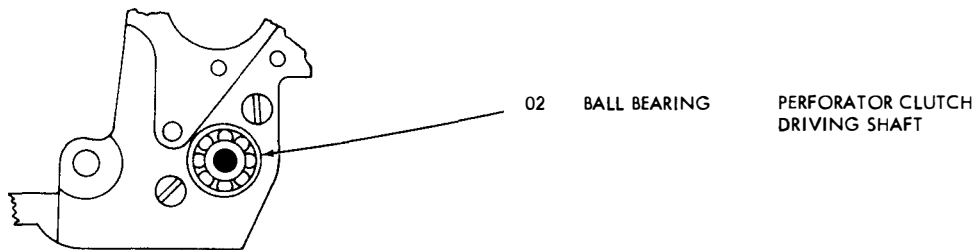
2.49 Perforator Clutch and Reset Cam Mechanism — Nontyping Perforator Only — See 2.45

04 FUNCTION CAM NEEDLE BEARING (3)   BOTH ENDS OF SLEEVE AND OIL HOLE IN SLEEVE

02 ROLLER PIVOT   FUNCTION CAM

03 CAMMING SURFACE (EACH CAM)   RESET CAM SLEEVE
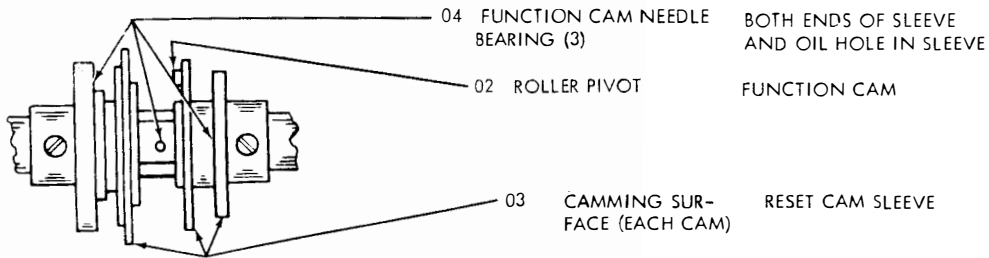
2.50 Perforator Clutch Mechanism — Nontyping Perforator Only — See 2.45

SAT	FELT WASHER	CLUTCH LATCH LEVER
0	HOOKS-EACH END	SPRING
0	LATCHING SURFACE	CLUTCH TRIP LEVER
0	LATCHING SURFACE	CLUTCH LATCH LEVER
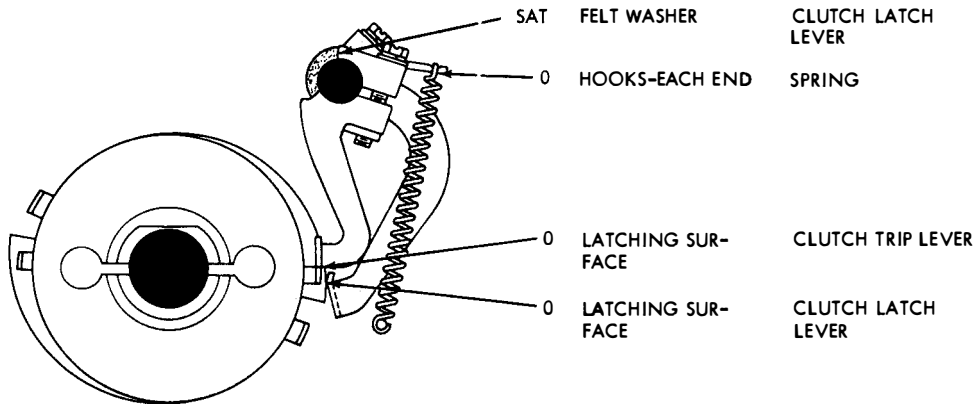
2.51 Perforator Clutch Gear Mechanism — Nontyping Perforator Only — See 2.45
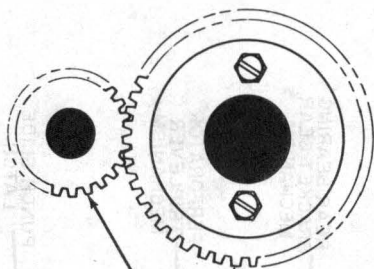
G GEAR TEETH

PERFORATOR CLUTCH
DRIVE AND DRIVEN
GEARS

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REAR BEARING
BRACKET GEAR
MECHANISM

PERFORATOR
TRIPLEVER
MECHANISM

PUNCH SLIDE
LATCH
MECHANISM
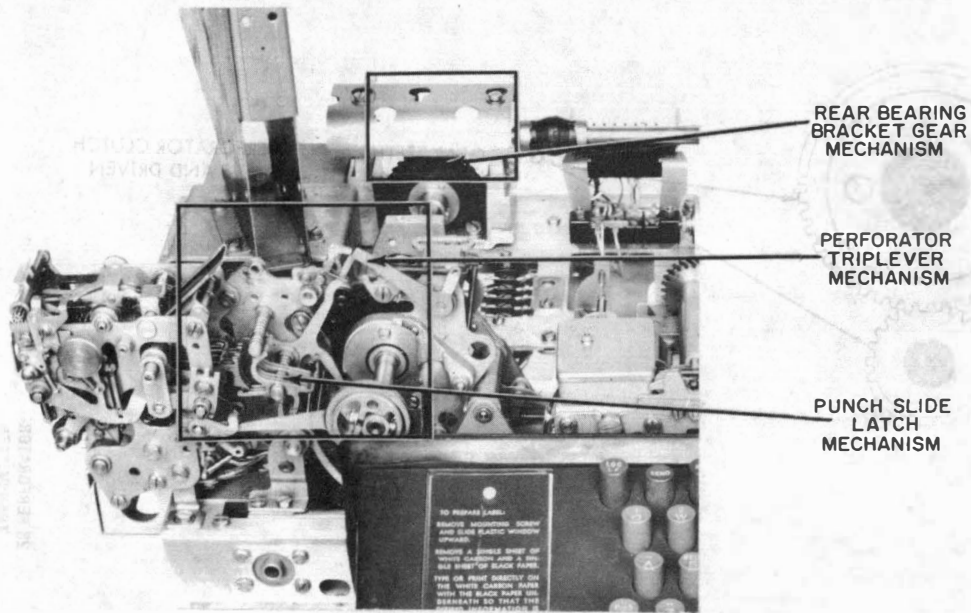
2.53 Rear Bearing Bracket Gear Mechanism — Typing and Nontyping Perforators — See 2.52
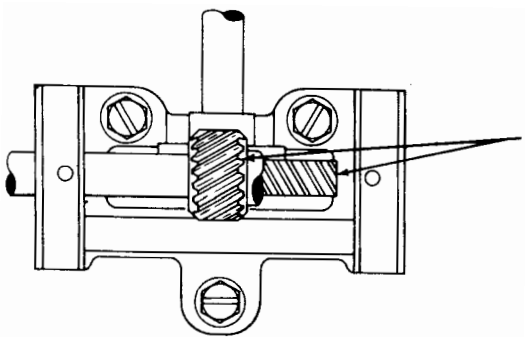
G   GEAR TEETH

REAR BEARING BRAC-
KET GEAR

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2.54 Perforator Triplever Mechanism — Nontyping Perforator Only — See 2.52

0	CONTACT SUR-FACE	PERFORATOR TRIP LEVER
SAT	FELT WICK	PERFORATOR TRIP LEVER
SAT	FELT WASHER	CLUTCH RELEASE
0	BEARING SURFACE	PERFORATOR TRIP LEVER
0	HOOKS–EACH END	SPRING
0	ENGAGING SUR-FACE	PERFORATOR TRIP LEVER LATCH
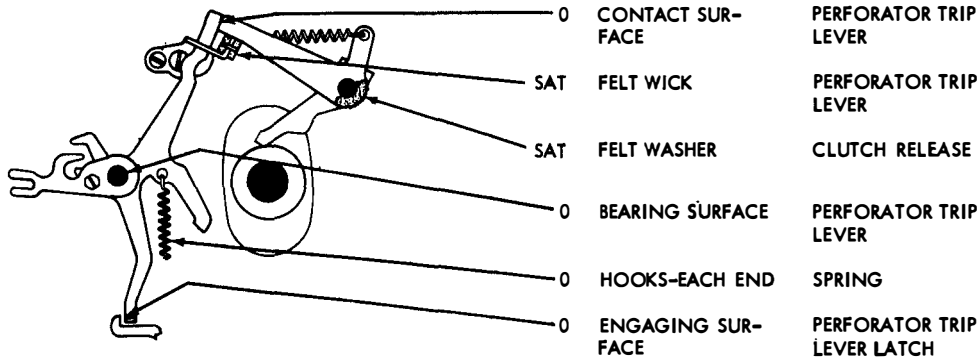
2.55 **Punch Slide Latch Mechanism for Chadless Tape or Fully Perforated Tape — Typing and Nontyping Perforators — See 2.52**

0	ENGAGING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH
0	ENGAGING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH
0	BEARING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH
0	HOOKS–EACH END (5 SPRINGS)	SPRINGS
0	ENGAGING SURFACE (5 LATCHES)	PUNCH SLIDE LATCH
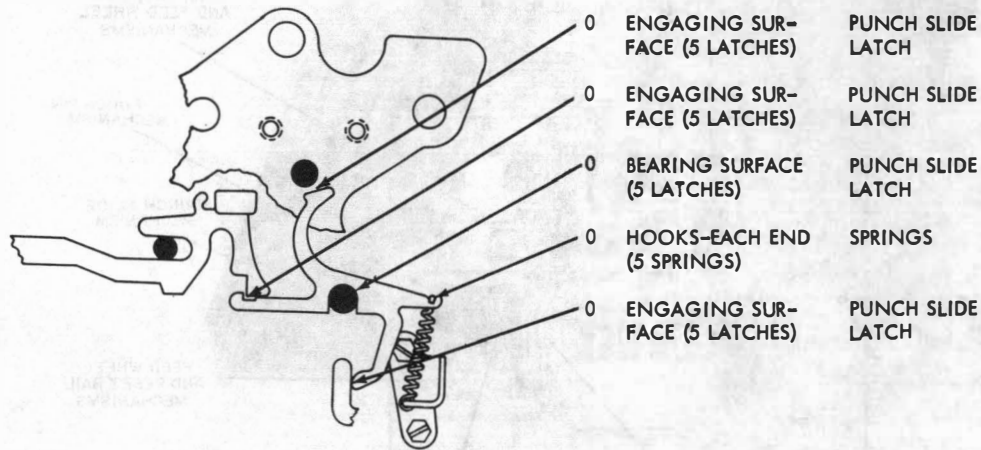
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2.57 **Tape Shoe Arm Mechanism for Chadless Tape or Fully Perforated Tape — Typing and Nontyping Perforators — See 2.56**

O	BEARING SURFACE	TAPE SHOE
O	BEARING SURFACE (2) (FRONT AND REAR)	TAPE SHOE ARM
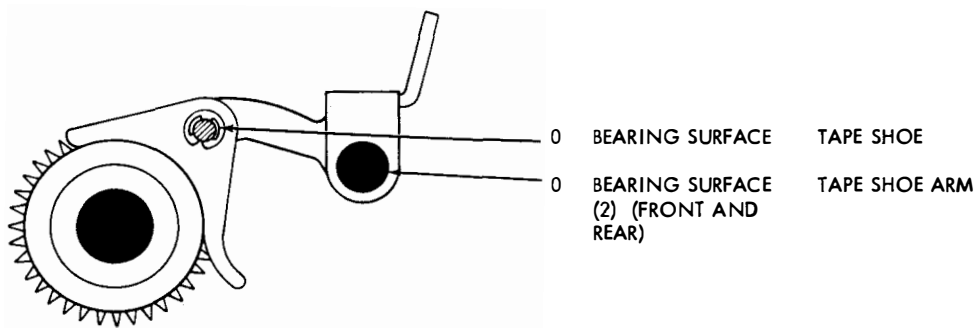
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2.58 Retractor Bail Mechanism for Chadless Tape of Fully Perforated Tape — Typing and Nontyping Perforators — See 2.56

0	HOOKS-EACH END (4 SPRINGS)	ROCKER BAIL SPRING
SAT	FELT WASHERS (2-FRONT & REAR)	RETRACTOR BAIL
0	BEARING SURFACE (2-FRONT & REAR)	RETRACTOR BAIL
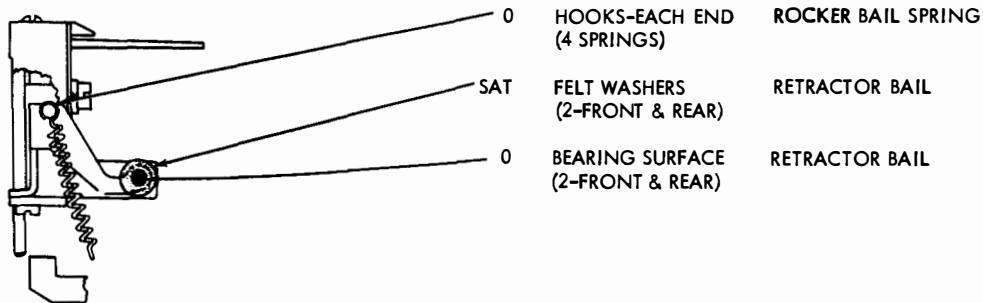
2.59 **Punch Pin Penetration for Chadless Tape Only — Typing and Nontyping Perforators — See 2.56**

GUIDES AND NOTCHES (3 PLACES)   PUNCH PINS

SPRINGS (2)   RETRACTOR SPRINGS

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2.60 Punch Slide Mechanism for Chadless Tape or Fully Perforated Tape — Typing and Non-typing Perforators — See 2.56

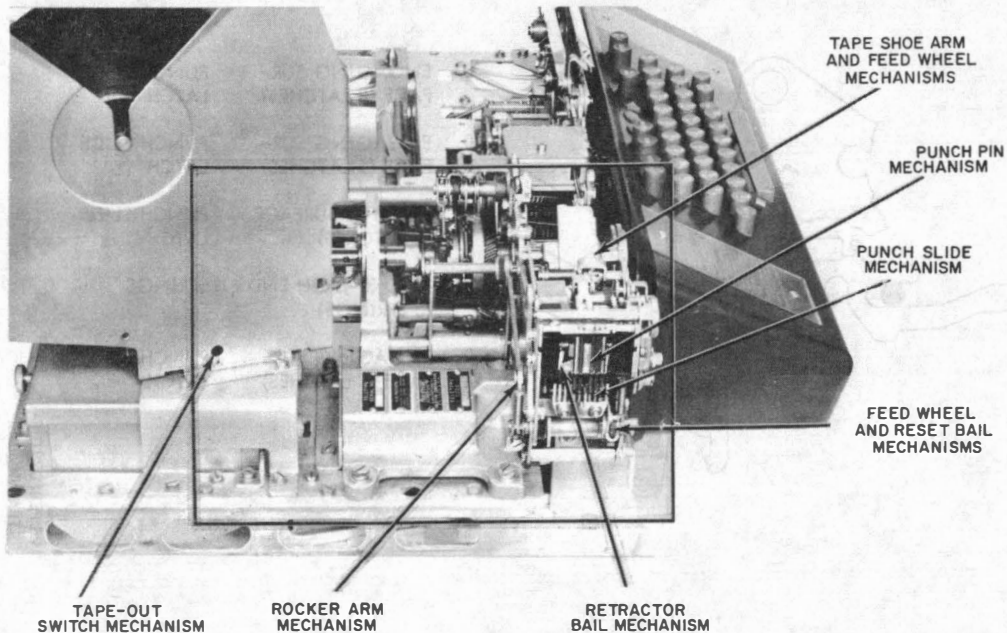|		
02	ENGAGING SURFACE	PUNCH SLIDE GUIDE
0	HOOKS-EACH END (5 SPRINGS)	SPRINGS
G	ENGAGING SURFACE (5)	RESET BAIL

2.61 Feed Wheel Mechanism for Chadless Tape Only — Typing and Nontyping Perforators — See 2.56

O	BEARING SURFACE	FEED WHEEL KNOB
O	RATCHET TEETH (2 PLACES)	FEED WHEEL
SAT	FELT WASHER	FEED WHEEL
SAT	FELT WASHER	DIE WHEEL
SAT	FELT WICKS (2)	SPRING WICKS
O	HOOKS-EACH END (2 SPRINGS)	SPRING
SAT	FELT WASHER	FEED PAWL
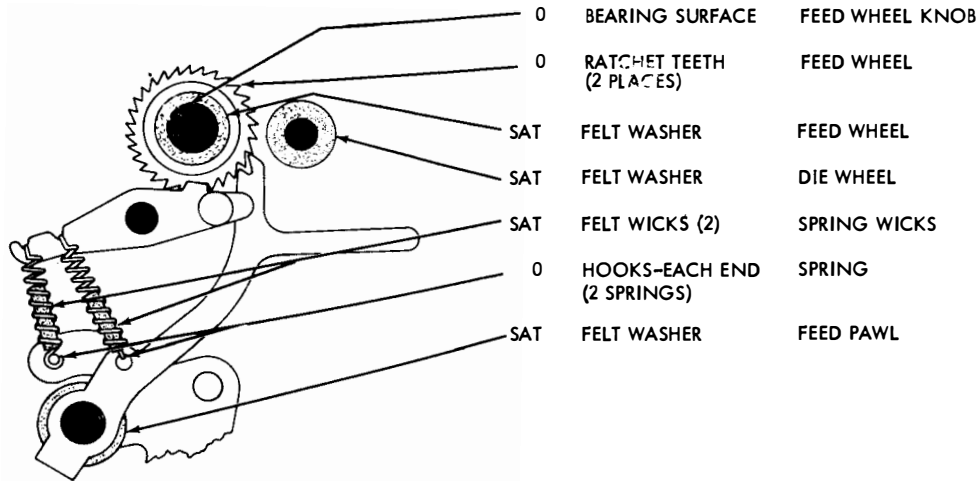
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2.62 Punch Pin Penetration for Fully Perforated Tape Only — Typing and Nontyping Perforators — See 2.56

O	SLIDING SURFACE (6) (UPPER GUIDE)	PUNCH PIN
O	SLIDING SURFACE (6) (LOWER GUIDE)	PUNCH PIN
O	SLIDING SURFACE (6)	PUNCH PIN
O	SLIDING SURFACE (6)	PUNCH SLIDE GUIDE
O	HOOKS-EACH END	SPRING
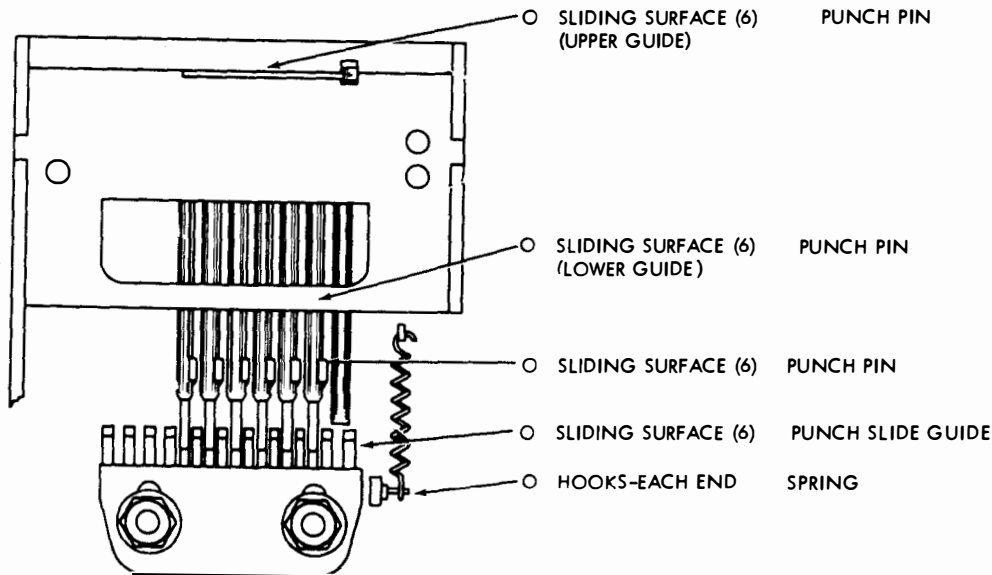
2.63 **Feed Wheel Mechanism for Fully Perforated Tape Only — Typing and Nontyping Perforators — See 2.56**
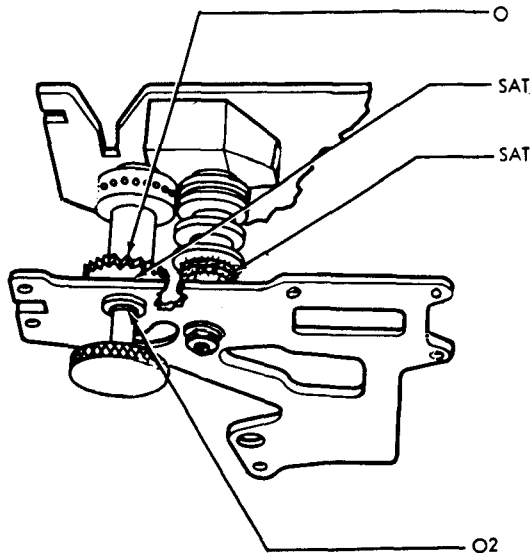
O	RATCHET TEETH (2)	FEED WHEEL
SAT	PIVOT POINT (FELT WASHER)	FEED WHEEL
SAT	PIVOT POINT (FELT WASHER)	DIE WHEEL
O2	PIVOT POINTS (2)	HANDWHEEL BEARING

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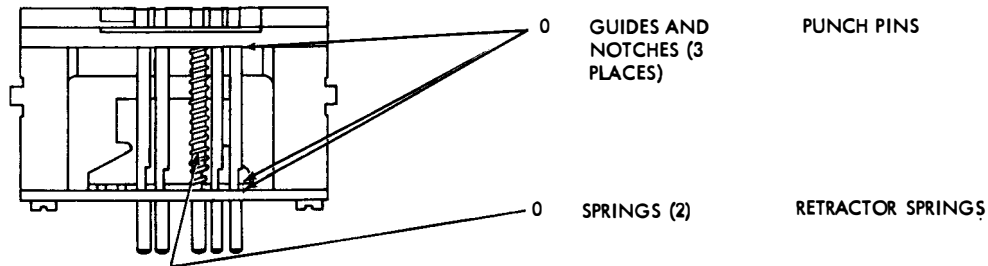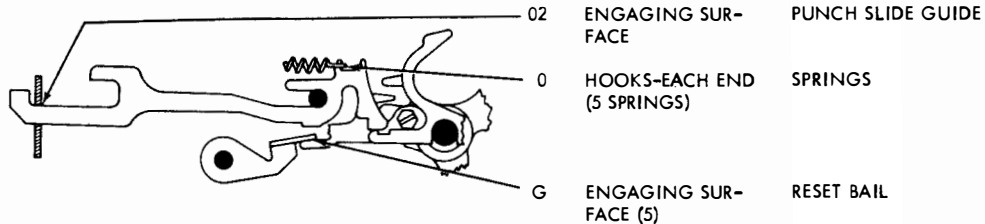**2.64 Reset Bail Mechanism for Chadless Tape or Fully Perforated Tape — Typing and Non-typing Perforators — See 2.56**

SAT	FELT WASHER (2 WASHERS - FRONT & REAR)	TOGGLE LINKS
SAT	FELT WASHERS (2 WASHERS - FRONT & REAR)	RESET BAIL
0	ENGAGING SURFACE	RESET BAIL
SAT	FELT WASHERS (2 WASHERS - FRONT & REAR)	TOGGLE BAIL
SAT	FELT WASHERS (2 WASHERS - FRONT & REAR)	TOGGLE BAIL
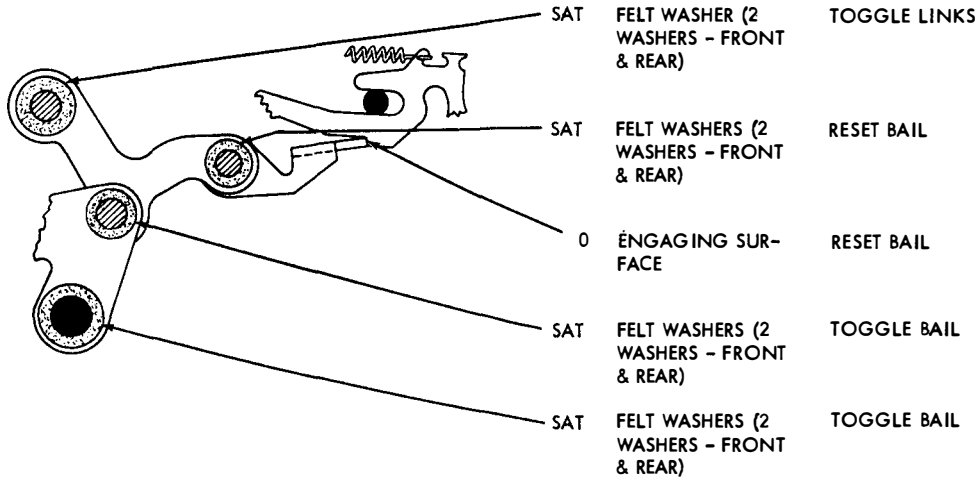
2.65 Rocker Arm Mechanism for Chadless Tape or Fully Perforated Tape — Typing and Non-typing Perforators — See 2.56

SAT	FELT WASHER	DRIVE LINK
0	ENGAGING SURFACE	ROCKER ARM
0	HOOKS-EACH END	SPRING
SAT	FELT WICK	SPRING WICK
0	BEARING SURFACE	ROCKER ARM
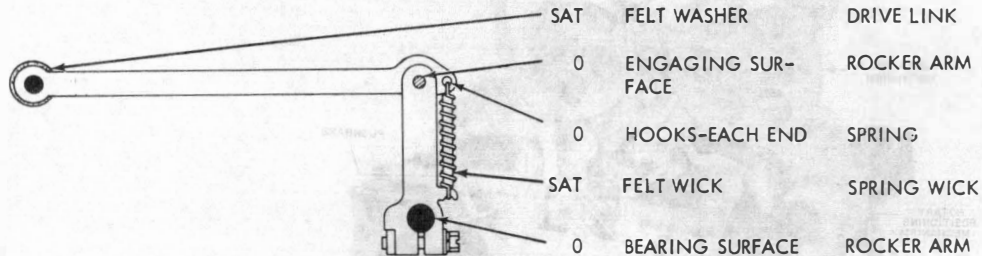
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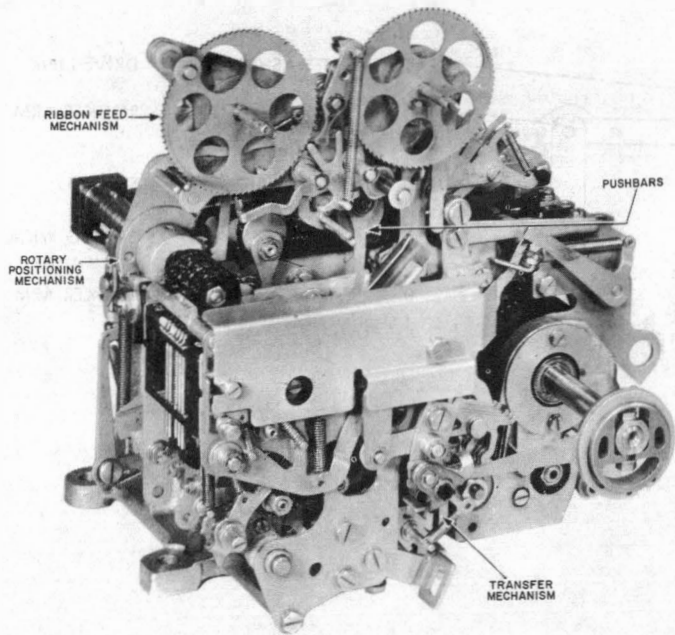
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2.67 Ribbon-feed Mechanism — Later Design — Typing Perforator Only — See 2.66

O	HOOKS (2)	SPRING
O2	PIVOT POINT	FEED PAWL
O2	PIVOT	CHECK PAWL
O2	PIVOT POINTS (2)	REVERSING ARM
G	CONTACTING SURFACE	DRIVE ARM ADJUSTABLE EXTENSION
SAT	FELT WASHER	DRIVE ARM ROLLER

O	HOOKS (2)	SPRINGS (2)
G	TEETH	RATCHET WHEEL
O2	SHAFT	ROLLERS (2)
O2	SHAFT, FELT WASHERS	RATCHET WHEEL
O2	PIVOT	DETENT
G	CONTACTING SURFACES	DETENT
O2	UPPER AND LOWER BUSHING	SLIDE LEVER
O2	PIVOT	DRIVE ARM

2.69   **Ribbon-feed Mechanism — Earlier Design — Typing Perforator Only — See 2.66**

O2	PIVOT POINTS (2)	RIBBON ROLLER
O	HOOKS - EACH END (2)	SPRINGS
O2	PIVOT POINT	FEED PAWL
O2	PIVOT POINTS (2)	REVERSING ARM
G	CONTACT SURFACE	DRIVE ARM
O2	PIVOT POINTS (2)	RIBBON ROLLER
O2	PIVOT POINTS (2)	REVERSING ARM
O2	PIVOT POINT	REVERSING LEVER RETAINING PAWL
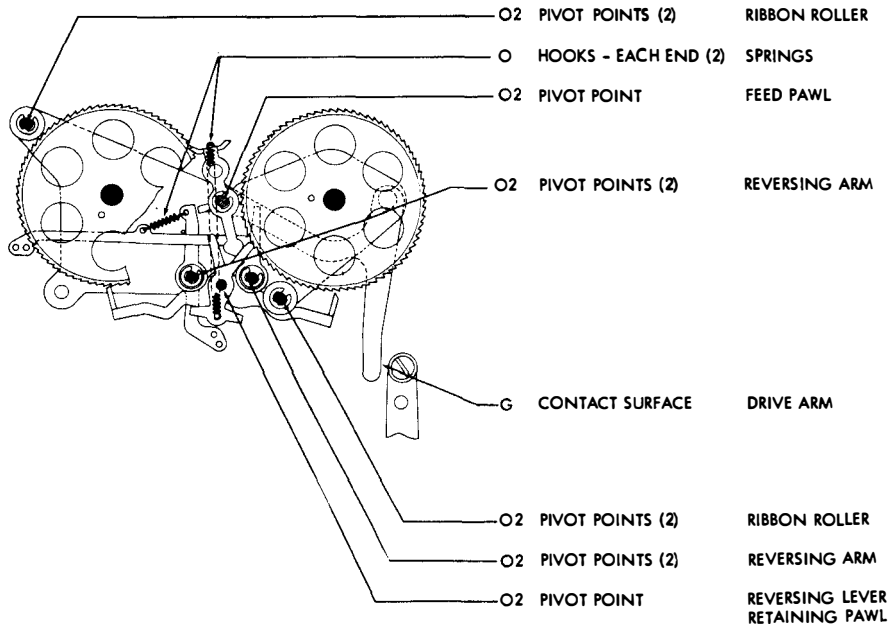
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2.70 Ribbon-feed Mechanism — Earlier Design — Rear View Typing Perforator Only — See 2.66

O2 PIVOT POINT DRIVE ARM

SAT PIVOT POINTS (2) SHAFTS
  (FELT WASHERS)

O HOOKS - EACH END SPRING
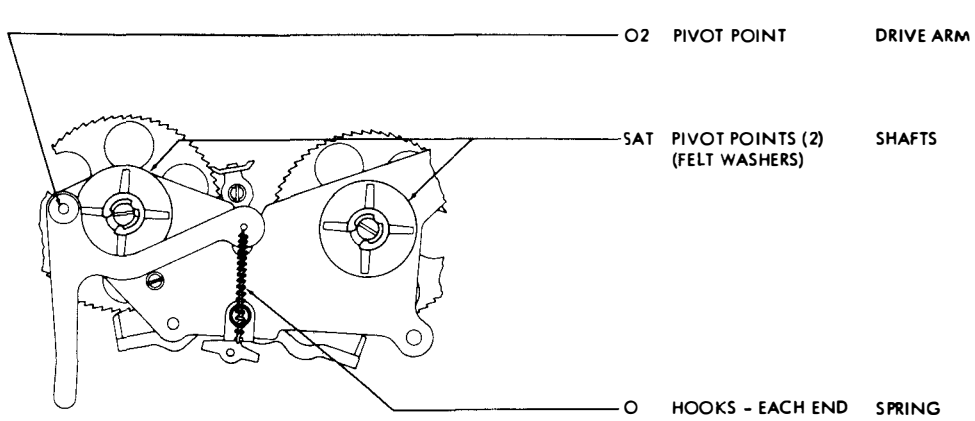
2.71 Rotary Positioning Mechanism — Typing Perforator Only — See 2.66

G	TEETH	ROTARY OUTPUT RACK
O2	OIL HOLE	TYPE WHEEL HOUSING
G	SPECIAL TEETH	ROTARY OUTPUT RACK
		ROTARY CORRECTING LEVER
O2	PIVOT POINT	ROTARY CORRECTING LEVER SHAFT
O2	PIVOT POINTS (2)	CONNECTING RODS
SAT	PIVOT POINTS (FELT WASHERS)	DETENT LEVERS (8)
O	HOOKS - EACH END	SPRINGS (4)
G	CONTACT POINTS	DETENT LEVERS (8)
O2	SLIDING SURFACE	ROTARY OUTPUT RACK
SAT	PIVOT POINTS (3) (FELT WASHERS)	CROSS LINKS
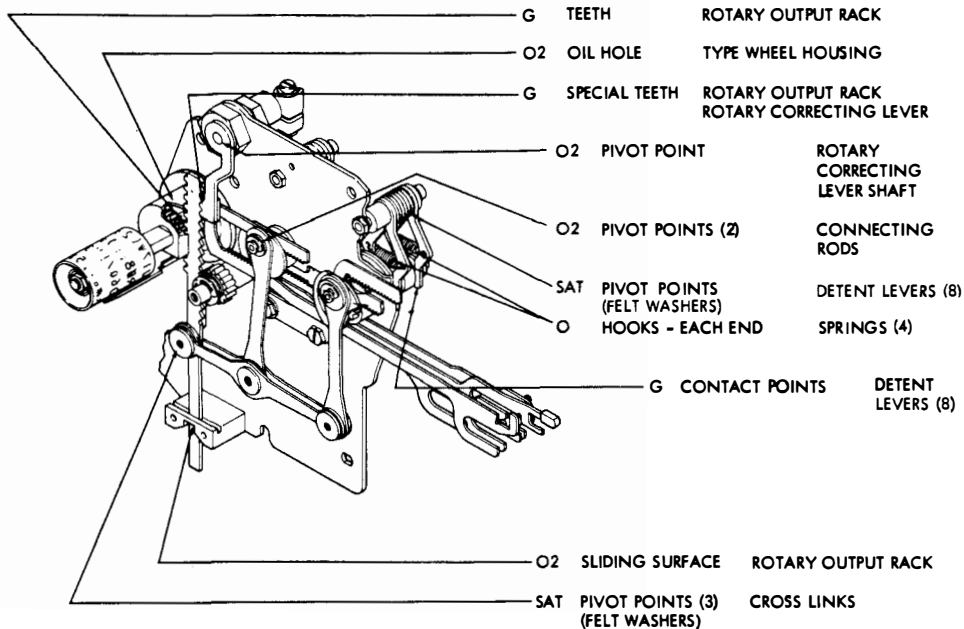
2.72 Transfer Mechanism — Typing Perforator Only — See 2.66

O PIVOT POINTS (5)   PULSE BEAMS

O CONTACT SURFACES (5)   TRANSFER LEVERS

O CONTACT POINTS (5) (EACH END)   PULSE BEAMS

O HOOKS - EACH END   SPRING

O PIVOT POINTS (5)   TRANSFER LEVERS

O SLIDING SURFACES (5) (EACH SIDE)   GUIDE BRACKET
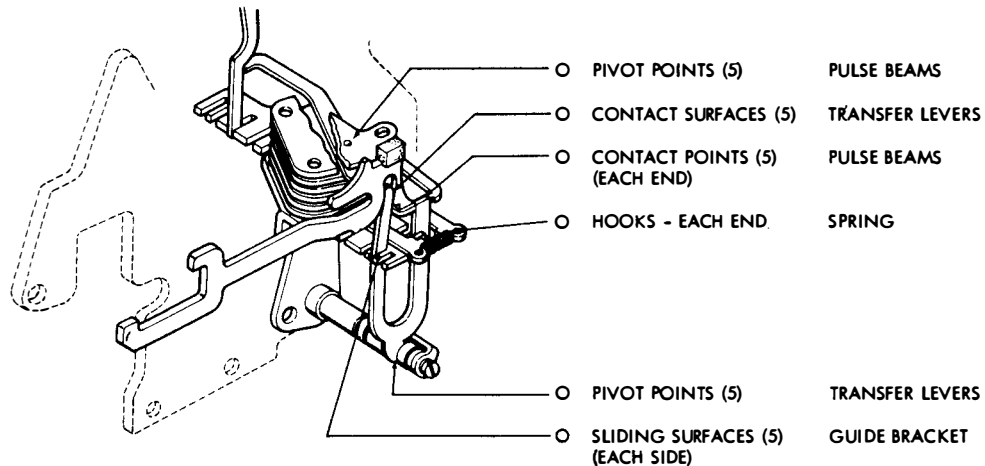
2.73 Pushbars — Typing Perforator Only — See 2.66
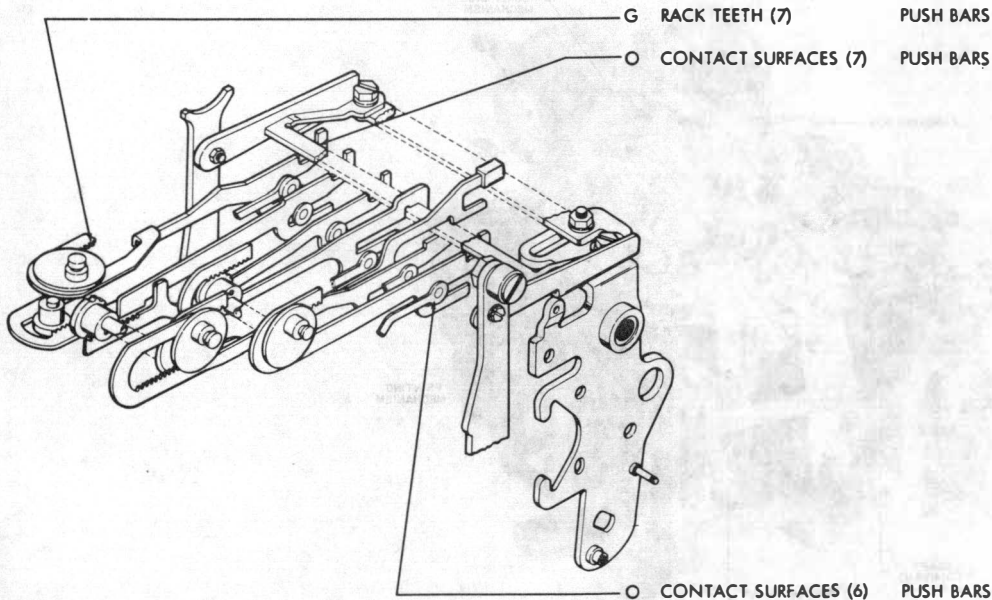
G RACK TEETH (7)   PUSH BARS

O CONTACT SURFACES (7)   PUSH BARS

O CONTACT SURFACES (6)   PUSH BARS

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2.74 Typing Perforator Mechanism — Rear View

ROCKER BAIL MECHANISM

FUNCTION BOX

FUNCTION CAM CLUTCH TRIP MECHANISM

PRINTING MECHANISM

SHAFT MECHANISMS

AXIAL POSITIONING MECHANISM
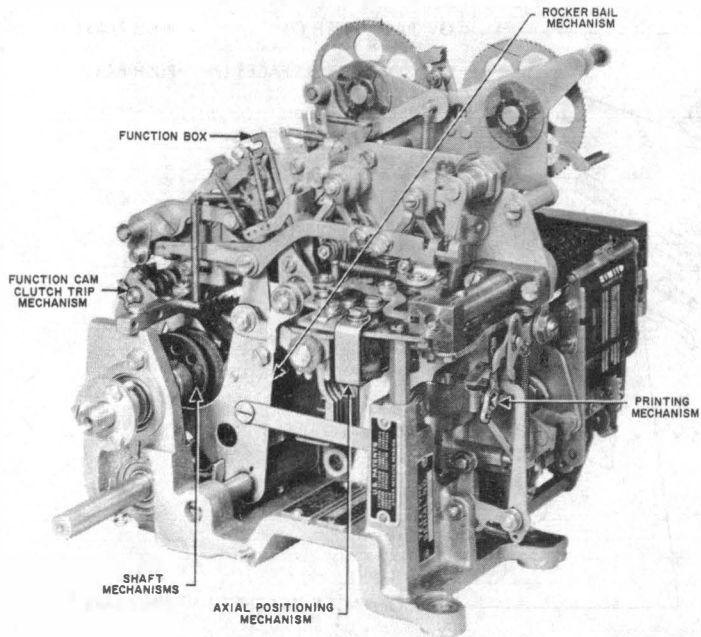
2.75 Function-cam Clutch Trip Mechanism — Typing Perforator Only — See 2.74

O	CONTACT POINTS (2)	MAIN TRIP LEVER
O	HOOKS - EACH END	CLUTCH RELEASE SPRING
G	CONTACT SURFACE	RESET LEVER
SAT	FELT WASHERS	CLUTCH TRIP SHAFT
O	HOOKS - EACH END	LATCH LEVER SPRING
O	CONTACT SURFACE	CLUTCH STOP LUG
O	CONTACT POINT	MAIN TRIP LEVER
O	HOOKS - EACH END	MAIN TRIP LEVER SPRING
O	PIVOT POINT	MAIN TRIP LEVER
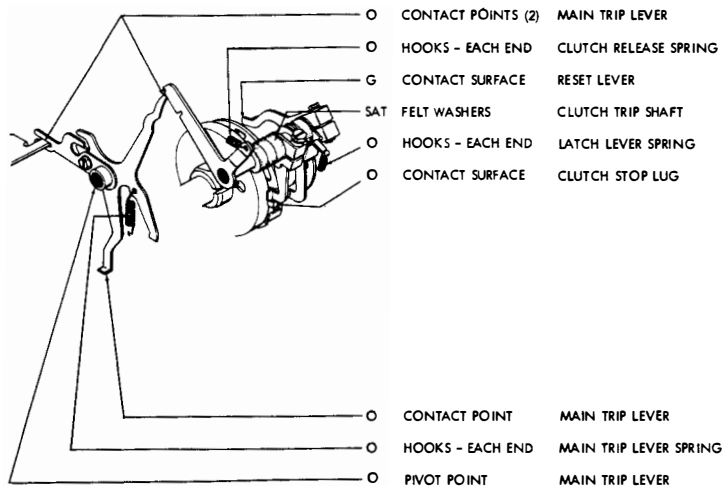
2.76 Function Box — Typing Perforator Only — Rear View — See 2.74

O SLIDING SURFACES   FUNCTION BLADES
(EACH SIDE)

O HOOKS - EACH END (2)   EXTENSION ARM SPRINGS

O PIVOT POINTS   FIGS ARM ASSEMBLY

O HOOKS - EACH END (2)   LTRS-FIGS ARM
ASSEMBLY SPRINGS

O SLIDING SURFACES   FUNCTION BLADES
(EACH SIDE)

G CONTACT POINTS (2)   FUNCTION BLADES

O HOOKS - EACH END   FUNCTION BLADE
SPRINGS (2)

O PIVOT POINT   LIFTER ROLLER

G ROLLER SURFACE   LIFTER ROLLER

O HOOKS - EACH END   LIFTER TOGGLE
LINK SPRING

O HOOKS - EACH END   LIFTER SPRING

O PIVOT POINT   FUNCTION BLADE LIFTER

O PIVOT POINTS (6)   BELL CRANKS

O PIVOT POINTS   LTRS ARM ASSEMBLY
EXTENSION

G SLIDING GUIDE SURFACES CORRECTING DRIVE LINK

O HOOKS - EACH END SPRING

O PIVOT POINT AXIAL OUTPUT RACK

G CONTACT POINTS ROTARY CORRECT-ING CLAMP

O2 PIVOT POINT ROTARY CORRECT-ING LEVER SHAFT

O PIVOT POINT AXIAL CORRECT-ING PLATE

G TEETH AXIAL SECTOR TYPEWHEEL SHAFT

G CONTACT SURFACE AXIAL CORRECT-ING PLATE ROLLER

SAT PIVOT POINTS (FELT WASHERS) OSCILLATING DRIVE BAIL

O PIVOT POINT AXIAL SECTOR

SAT PIVOT POINT (FELT WASHER) GUIDE ROLLER

G TEETH AXIAL SECTOR AXIAL OUTPUT RACK

2.78 Axial Positioning Mechanism — Typing Perforator Only — See 2.74

O	PIVOT POINTS	OSCILLATING BAIL
O	CONTACT SURFACES	RIBBON CARRIER
O	PIVOT POINT	RIBBON OSCILLATING LEVER
O	PIVOT POINT (FELT WASHER)	RIBBON OSCILLATING LEVER
O	CONTACT SURFACES	RIBBON CARRIER
SAT	PIVOT POINTS (2) (FELT WASHERS)	OSCILLATING DRIVE LINK

(LEFT SIDE VIEW)

DETENT ASSEMBLIES (TWO ON AXIAL POSITIONING MECHANISM)

O	DETENT POINTS	DETENT LEVERS (4)
O	HOOKS - EACH END	DETENT LEVER SPRINGS (2)
SAT	PIVOT POINTS (FELT WASHERS)	DETENT LEVERS (4)

(BOTTOM VIEW)

2.79 Shaft Mechanisms — Typing Perforator Only — See 2.74

Note: If unit has oilite or needle bearings, apply four drops of oil to the perforator cam clutch at each of its two lubrication points.

G	TEETH	GEARS
G	CAMMING SURFACES	FUNCTION CAM
O2	BEARING SURFACES	BALL BEARINGS (2)
O	CAMMING SURFACE	CLUTCH CAM DISK
O	BEARING SURFACE	FUNCTION CLUTCH DRUM
O2	BEARING SURFACES	BALL BEARINGS (2)
G	TEETH	GEAR
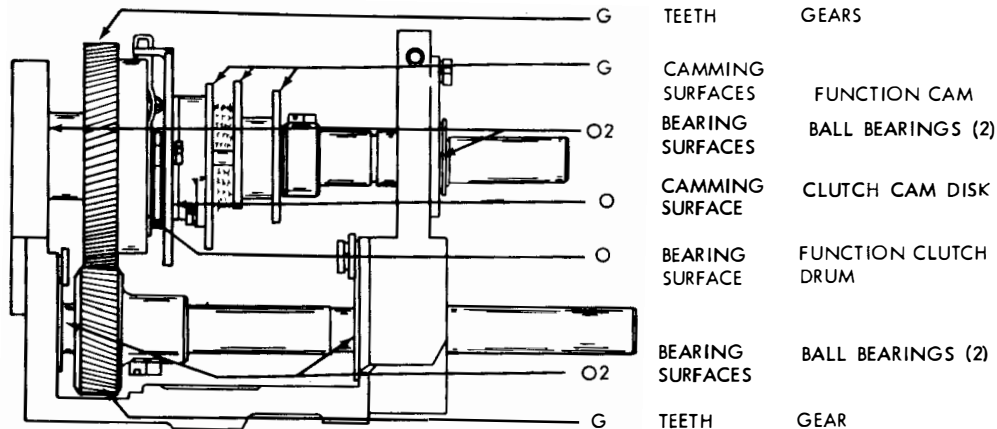
2.80 **Printing Mechanism for Chadless Tape or Fully Perforated Tape — Left Side View — Typing Perforator Only — See 2.74**

G	CONTACT SURFACE	PRINTING LATCH
O2	SLIDING SURFACE	PRINTING TRIP LINK
O2	PIVOT POINT	PRINTING LATCH
O2	PIVOT POINTS	PRINT HAMMER
O	HOOKS - EACH END	PRINT HAMMER SPRING
O	HOOKS - EACH END	HAMMER ACCELERATOR SPRING
O	HOOKS - EACH END	PRINTING LATCH SPRING
O	PIVOT POINT	PRINTING DRIVE LINK
O	HOOKS - EACH END	PRINTING TRIP LINK SPRING
O	PIVOT POINTS (2)	PRINTING PIVOT ARM
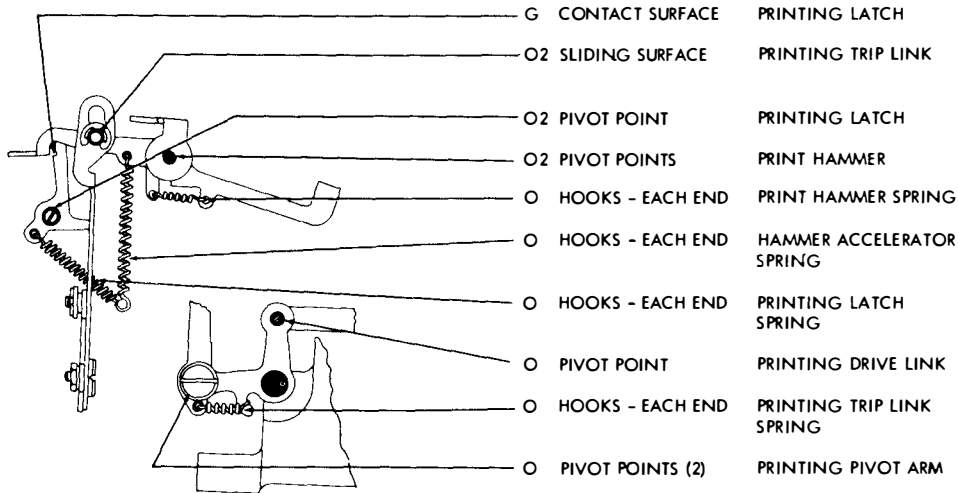
2.81 Rocker Bail Mechanism — Rear View — Typing Perforator Only — See 2.74
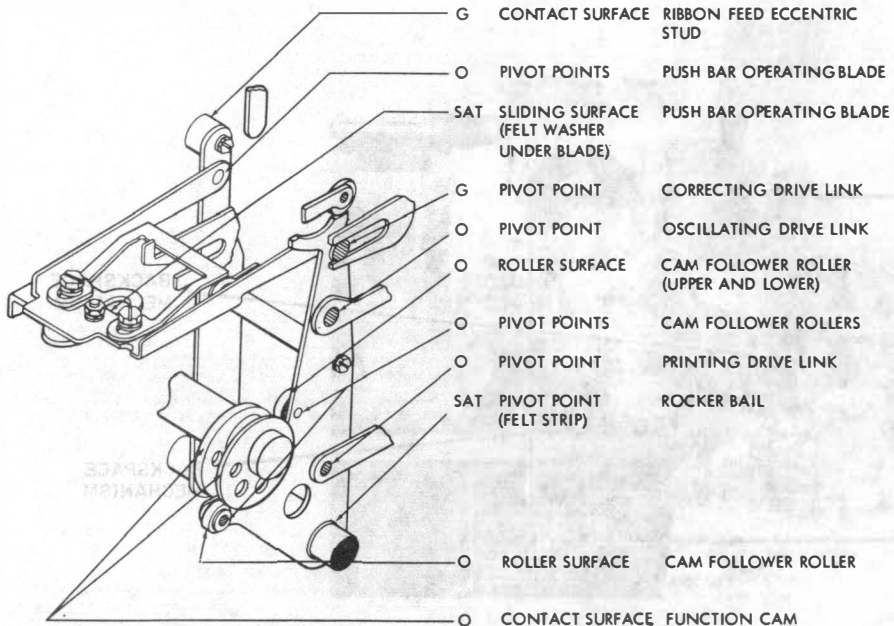
G	CONTACT SURFACE	RIBBON FEED ECCENTRIC STUD
O	PIVOT POINTS	PUSH BAR OPERATING BLADE
SAT	SLIDING SURFACE (FELT WASHER UNDER BLADE)	PUSH BAR OPERATING BLADE
G	PIVOT POINT	CORRECTING DRIVE LINK
O	PIVOT POINT	OSCILLATING DRIVE LINK
O	ROLLER SURFACE	CAM FOLLOWER ROLLER (UPPER AND LOWER)
O	PIVOT POINTS	CAM FOLLOWER ROLLERS
O	PIVOT POINT	PRINTING DRIVE LINK
SAT	PIVOT POINT (FELT STRIP)	ROCKER BAIL
O	ROLLER SURFACE	CAM FOLLOWER ROLLER
O	CONTACT SURFACE	FUNCTION CAM

BACKSPACE
MECHANISM

BACKSPACE
MECHANISM

2.83 Power-drive Backspace Mechanism for Fully Perforated Tape Only — Typing and Nontyping Perforators — See 2.82

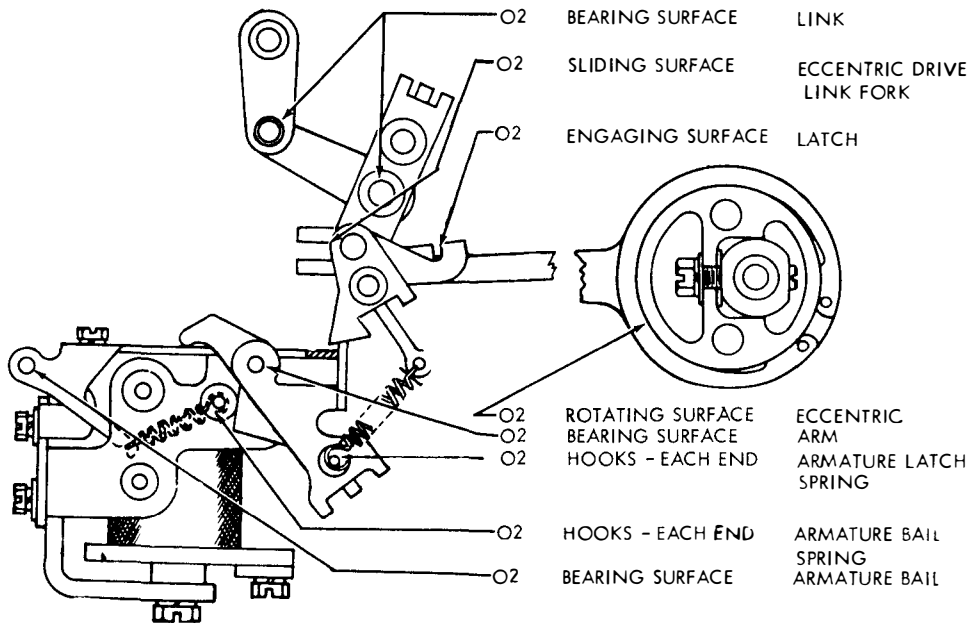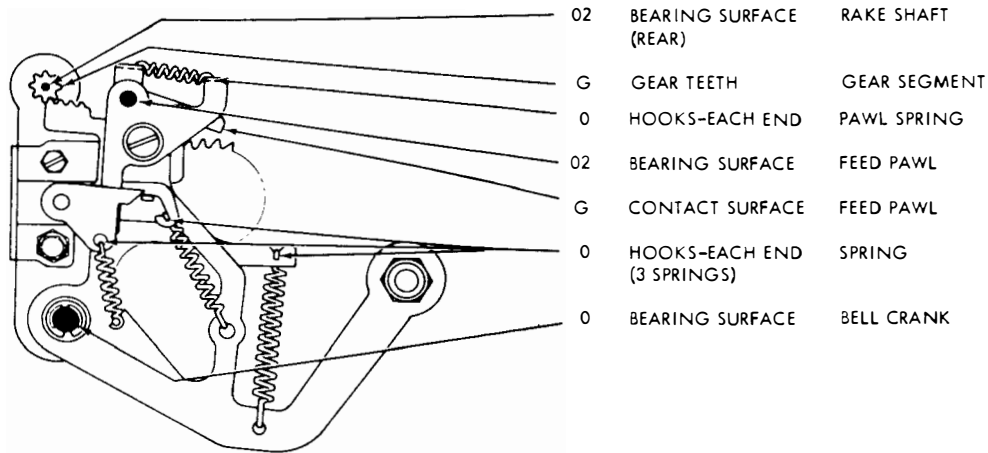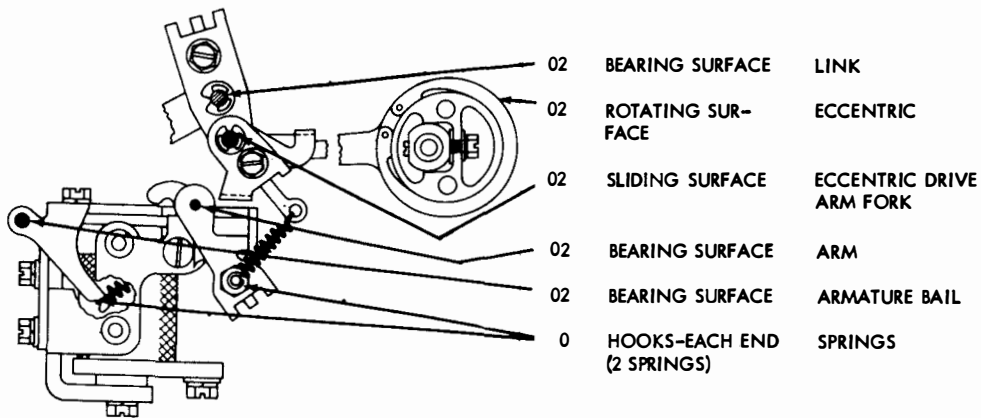|		
O2	HOOKS - EACH END	BACKSPACE PAWL SPRING
O2	BEARING SURFACE	BACKSPACE PAWL
G	FEEDING SURFACE	BACKSPACE PAWL
O2	BEARING SURFACE	NUT, SHOULDER
O2	BEARING SURFACE	BELL CRANK
O2	HOOKS - EACH END	BELL CRANK SPRING
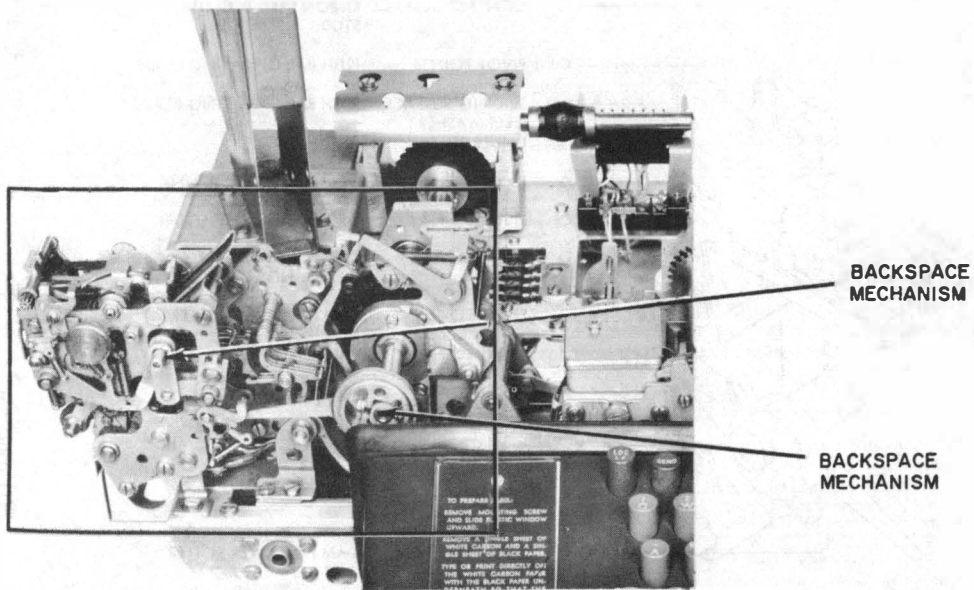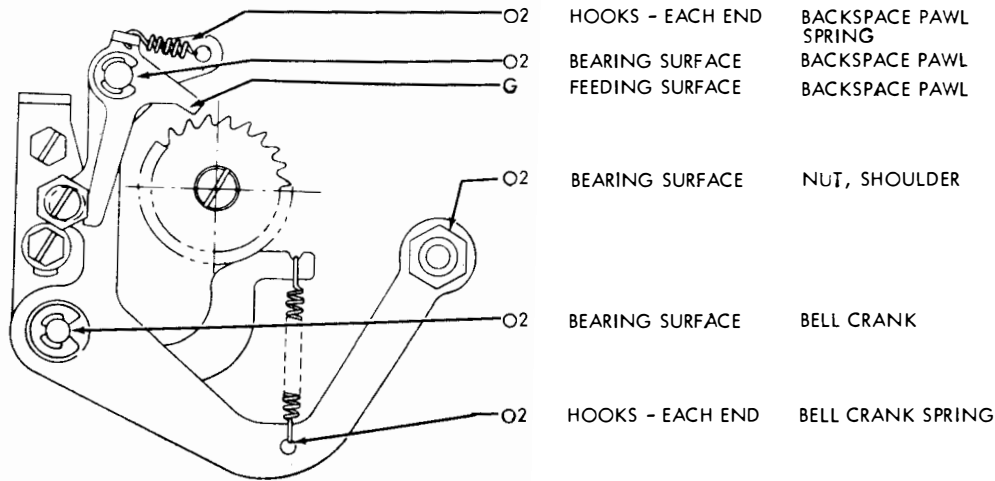
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2.84 Power-drive Backspace Mechanism for Fully Perforated Tape Only — Typing and Non-typing Perforators — See 2.82

O2	BEARING SURFACE	LINK
O2	SLIDING SURFACE	ECCENTRIC DRIVE LINK FORK
O2	ENGAGING SURFACE	LATCH
O2	ROTATING SURFACE	ECCENTRIC
O2	BEARING SURFACE	ARM
O2	HOOKS - EACH END	ARMATURE LATCH SPRING
O2	HOOKS - EACH END	ARMATURE BAIL SPRING
O2	BEARING SURFACE	ARMATURE BAIL

2.85 **Manual Backspace Mechanism for Chadless Tape Only — Typing and Nontyping Perforators — See 2.82**

02	BEARING SURFACE (REAR)	RAKE SHAFT
G	GEAR TEETH	GEAR SEGMENT
0	HOOKS-EACH END	PAWL SPRING
02	BEARING SURFACE	FEED PAWL
G	CONTACT SURFACE	FEED PAWL
0	HOOKS-EACH END (3 SPRINGS)	SPRING
0	BEARING SURFACE	BELL CRANK

28 PERFORATOR-
TRANSMITTER-
BASE
LUBRI-
CATION

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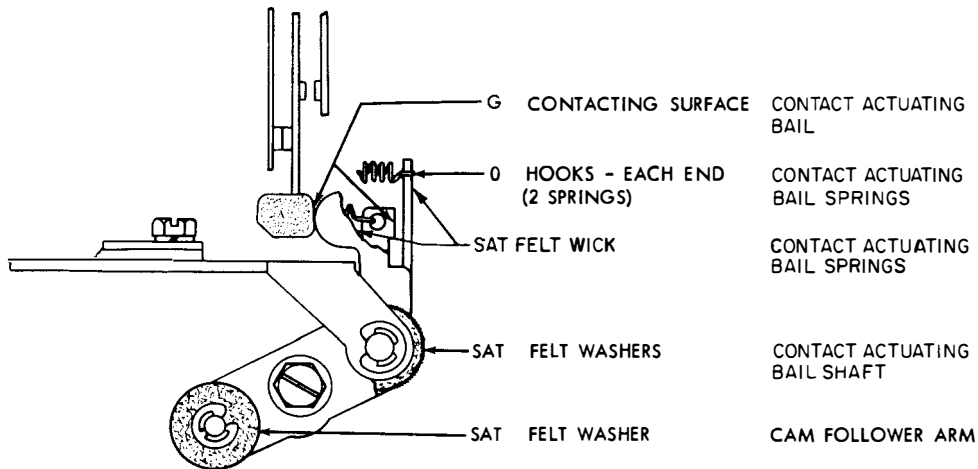### 2.86 Power-drive Backspace Mechanism for Chadless Tape Only — Typing and Nontyping Perforators — See 2.82

02	BEARING SURFACE	LINK
02	ROTATING SURFACE	ECCENTRIC
02	SLIDING SURFACE	ECCENTRIC DRIVE ARM FORK
02	BEARING SURFACE	ARM
02	BEARING SURFACE	ARMATURE BAIL
0	HOOKS-EACH END (2 SPRINGS)	SPRINGS

2.87 **Single Auxiliary Timing Contacts Mechanism — Typing and Nontyping Perforators —**
See 2.41

G CONTACTING SURFACE CONTACT ACTUATING BAIL

O HOOKS - EACH END (2 SPRINGS) CONTACT ACTUATING BAIL SPRINGS

SAT FELT WICK CONTACT ACTUATING BAIL SPRINGS

SAT FELT WASHERS CONTACT ACTUATING BAIL SHAFT

SAT FELT WASHER CAM FOLLOWER ARM

O HOOKS-EACH END   SPRING

O SLOT   FUNCTION BOX REAR PLATE

O SLOT   FUNCTION BOX FRONT PLATE

O GUIDE EXTENSION   FUNCTION BLADE
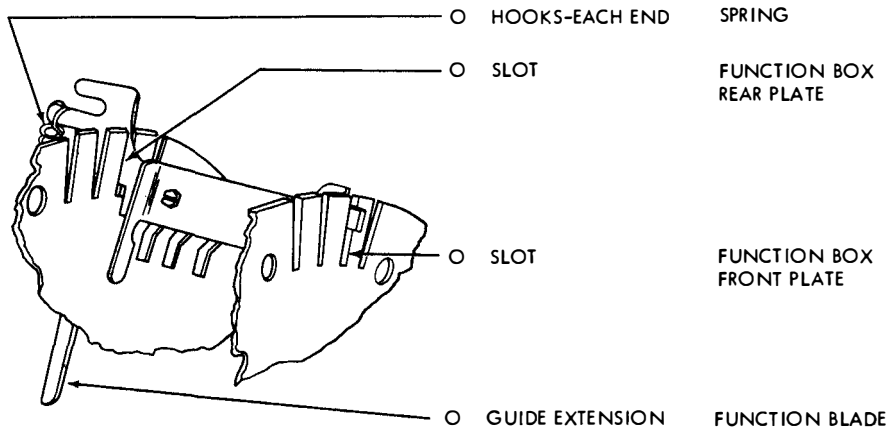
2.89 Signal Bell Contact Mechanism — Typing Perforator Only
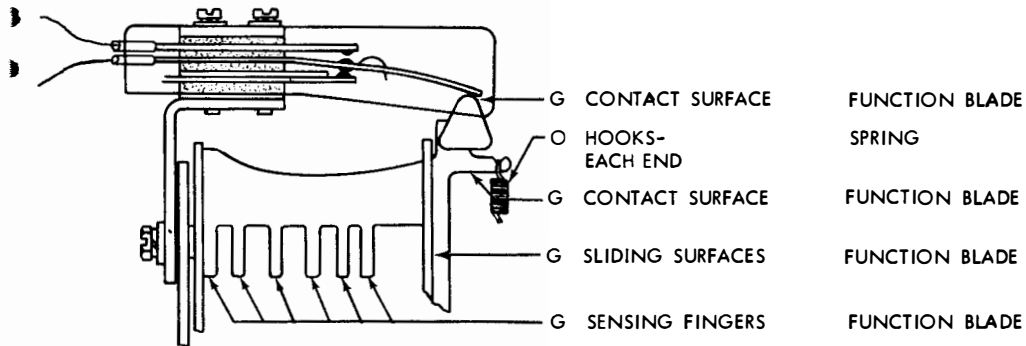
G	CONTACT SURFACE	FUNCTION BLADE
O	HOOKS-EACH END	SPRING
G	CONTACT SURFACE	FUNCTION BLADE
G	SLIDING SURFACES	FUNCTION BLADE
G	SENSING FINGERS	FUNCTION BLADE

(RIGHT SIDE VIEW)

2.90 Perforator Motor Pinion and Driven Gear Mechanism — Typing and Nontyping Perforators

G GEAR TEETH

PERFORATOR MOTOR PINION

G GEAR TEETH

DRIVEN GEAR
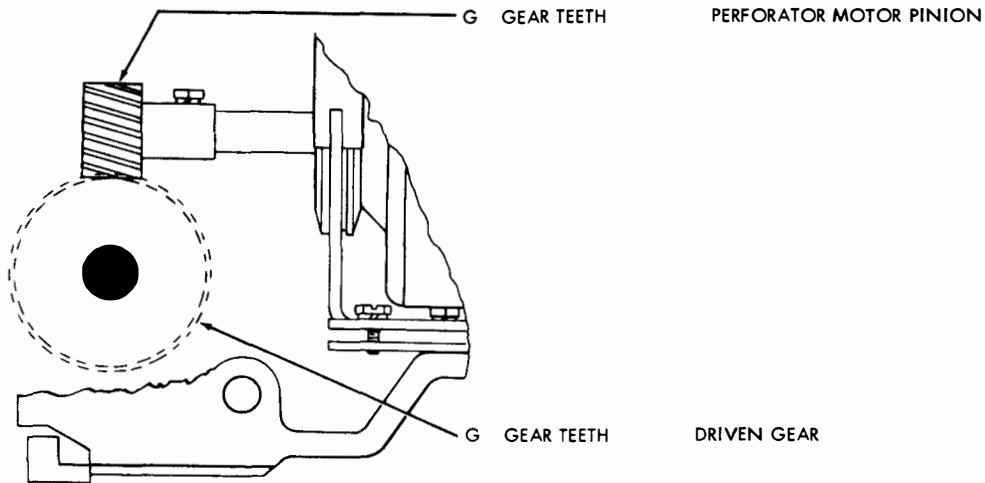
C. Typing and Nontyping Reperforators

2.91 **Single-magnet Nontyping Reperforator:** Where a nontyping reperforator of this design is part of a 28 perforator-transmitter-base, refer to the section containing the lubrication procedures for the 28 single-magnet nontyping reperforator.

2.92 **Multimagnet Nontyping Reperforator:** Where a nontyping reperforator of this design is part of a 28 perforator-transmitter-base, refer to the section containing the lubrication procedures for the 28 multimagnet nontyping reperforator.

2.93 **Single-magnet Typing Reperforator:** Where a typing reperforator is part of a 28 perforator-transmitter-base, refer to the section containing the lubrication procedures for the 28 single-magnet typing reperforator.

3. ASSOCIATED BELL SYSTEM PRACTICE

3.01 The following Bell System Practice provides additional information that may be required in connection with this section.

CHANGES AUTHORIZED BY P98 SERIES BELL SYSTEM PRACTICES

Par. No.	Mechanism	Includes Changes Authorized by Section
2.25	Margin Indicating Mechanism	P98.995

28 PERFORATOR-
TRANSMITTER-
BASE
P34.530 LUBRI-
Page 93 CATION
93 Pages

28 PERFORATOR-TRANSMITTER-BASE LUBRICATION

1. GENERAL

1.001 This addendum supplements Section P34.530, Issue 1.

1.002 This addendum is reissued to include the lubrication information authorized for this apparatus by the P98 sections listed at the end of this addendum and to generally bring the practice up to date.
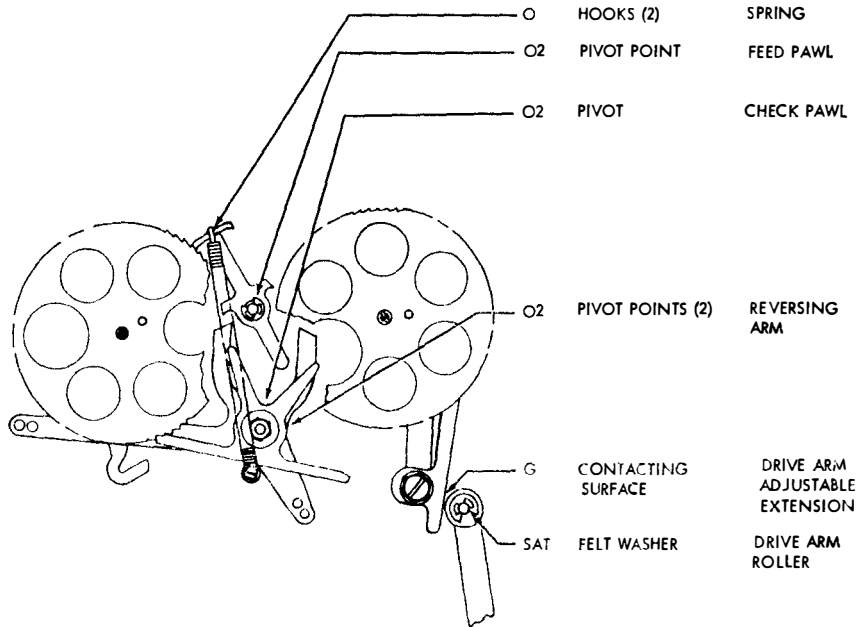
3. STANDARD FEATURES

The following changes apply to Part 3 of the section:

(a) 3.53 and 3.54 — revised paragraph titles only

(b) 3.54.1 and 3.54.2 — added
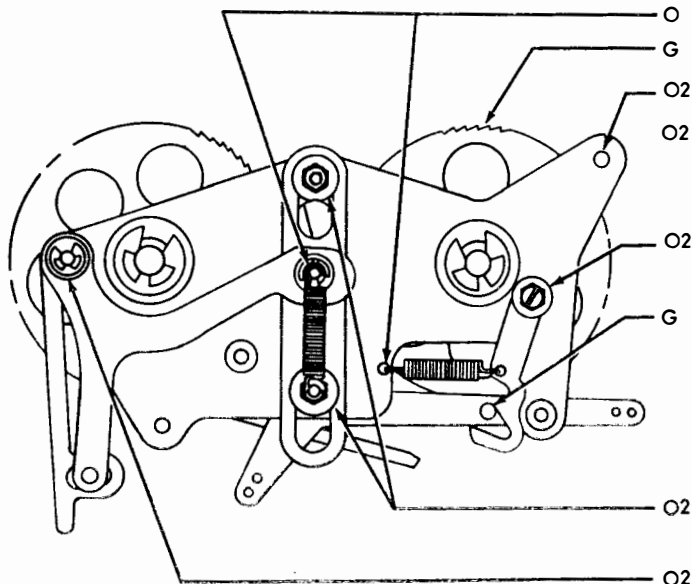
(c) 3.64 — added note

3.53 **Ribbon-feed Mechanism With Spring Washer Behind Each Ribbon Spool (Typing Perforator Only)**

3.54 **Ribbon-feed Mechanism With Spring Washer Behind Each Ribbon Spool (Typing Perforator Only)** (Rear View)

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Page 1

28 PERFORATOR-
TRANS-
MITTER-
BASE

O	HOOKS (2)	SPRING
O2	PIVOT POINT	FEED PAWL
O2	PIVOT	CHECK PAWL
O2	PIVOT POINTS (2)	REVERSING ARM
G	CONTACTING SURFACE	DRIVE ARM ADJUSTABLE EXTENSION
SAT	FELT WASHER	DRIVE ARM ROLLER

3.54.2 Ribbon-feed Mechanism With Helical Spring Behind Each Ribbon Spool (Typing Perforator Only)

	O	HOOKS (2)	SPRINGS (2)
	G	TEETH	RATCHET WHEEL
	O2	SHAFT	ROLLERS (2)
	O2	SHAFT, FELT WASHERS	RATCHET WHEEL
	O2	PIVOT	DETENT
	G	CONTACTING SURFACES	DETENT
	O2	UPPER AND LOWER BUSHING	SLIDE LEVER
	O2	PIVOT	DRIVE ARM

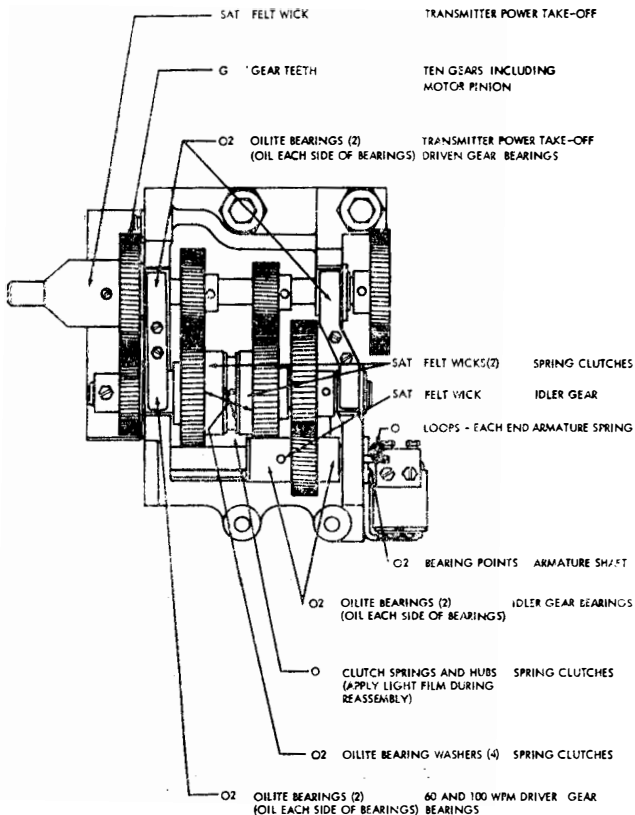3.64 **Printing Mechanism (Typing Perforator Only)** ⌐
(Left-side View)

> **Note:** Printing mechanism with **steel print hammer,** illustrated herein, shall be lubricated as shown. Printing mechanism with **resilient print hammer,** not illustrated, shall be lubricated in same manner as that with steel print hammer, but in addition, the felt washer between the resilient print hammer accelerator and the frame shall be saturated with oil in accordance with general lubrication procedures. Where a mechanism is equipped with print suppression parts, a thin film of grease shall be applied on the print hammer stop at the point of contact with the print hammer lever. ⌐
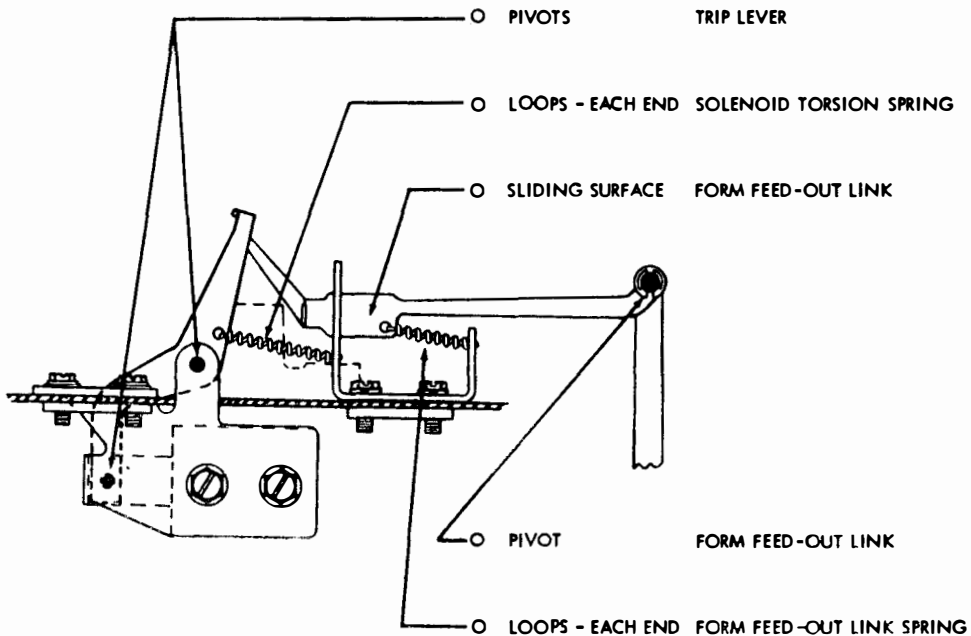
4. VARIABLE FEATURES

The following changes apply to Part 4 of the section:

(a) 4.12, 4.13, and 4.14 — added

(b) 4.15 — added ←

4.12 Remote-control Gear Shift Mechanism

SAT FELT WICK — TRANSMITTER POWER TAKE-OFF

G GEAR TEETH — TEN GEARS INCLUDING MOTOR PINION

O2 OILITE BEARINGS (2) (OIL EACH SIDE OF BEARINGS) — TRANSMITTER POWER TAKE-OFF DRIVEN GEAR BEARINGS

SAT FELT WICKS (2) — SPRING CLUTCHES

SAT FELT WICK — IDLER GEAR

O LOOPS - EACH END ARMATURE SPRING

O2 BEARING POINTS — ARMATURE SHAFT

O2 OILITE BEARINGS (2) (OIL EACH SIDE OF BEARINGS) — IDLER GEAR BEARINGS

O CLUTCH SPRINGS AND HUBS (APPLY LIGHT FILM DURING REASSEMBLY) — SPRING CLUTCHES

O2 OILITE BEARING WASHERS (4) — SPRING CLUTCHES

O2 OILITE BEARINGS (2) (OIL EACH SIDE OF BEARINGS) — 60 AND 100 WPM DRIVER GEAR BEARINGS

4.13 Form Feedout Mechanism

O PIVOTS — TRIP LEVER

O LOOPS - EACH END — SOLENOID TORSION SPRING

O SLIDING SURFACE — FORM FEED-OUT LINK

O PIVOT — FORM FEED-OUT LINK

O LOOPS - EACH END — FORM FEED-OUT LINK SPRING

4.14 Perforator Motor Pinion and Gear

G   GEAR TEETH

G   GEAR TEETH

DRIVEN GEAR

PERFORATOR MOTOR PINION

28 PERFORATOR-
TRANS-
MITTER-
BASE
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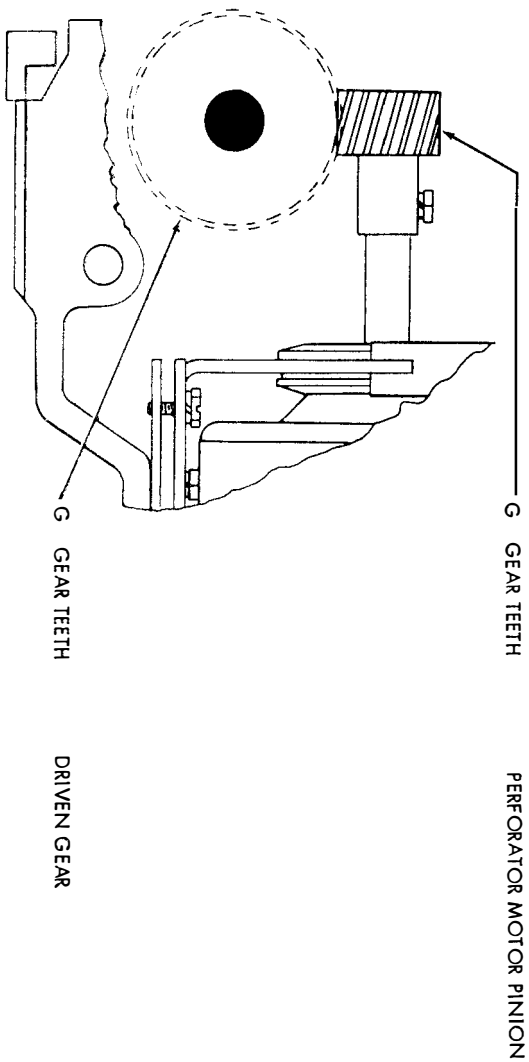
4.15 **Print Suppression Mechanism (Not Illustrated):** ←
Refer to 3.64, Note of this addendum. ←

5. ASSOCIATED BELL SYSTEM PRACTICES

The following change applies to Part 5 of the section:

(a) 5.01 — revised

5.01 (Add the following Bell System Practice.)

Subject	Section
28 Multimagnet Nontyping Reperforator, Lubrication	P34.532

CHANGES AUTHORIZED BY P98 SERIES BELL SYSTEM⌐ PRACTICES

Par. No.	Mechanism	Includes Change As Authorized By Section
3.54.1 and 3.54.2	Ribbon-feed mechanism with helical springs..............	P98.817
3.64	Printing mechanism	P98.856⌐