33 TYPING UNIT

LUBRICATION

1. GENERAL

1.01 This section provides lubrication instruc-
tions for the 33 typing unit. It is reissued
to include lubrication instructions for the print
nonprint mechanisms present on 3300 Series
Coded Sets and Computer Input/Output Sets.
Marginal arrows indicate the addition as well as a
few minor corrections throughout the section.

1.02 The general lubrication areas are illus-
trated by photographs. The specific
points to receive lubricant are indicated on line
drawings with appropriate textual instructions.
Line drawings and textual instructions follow
each photograph and are keyed to the photograph
by paragraph numbers.

1.03   Thoroughly lubricate the typing unit, but avoid overlubrication that might permit the lubricant to drip or be thrown onto adjacent parts. Saturate all felt washers and oilers with oil, and apply oil to each end of all bearings.

1.04   Lubricate the typing unit before placing it into service or prior to storage. After a short period of service, relubricate it to make sure no areas have been missed. Thereafter, lubricate the typing unit at regular intervals as indicated below:

Operating Speed (Words per Minute)	Lubrication Interval
100	500 hrs* or 6 mo.**

*Station set operating hours
**Whichever comes first

1.05   On occasion when the printer is disassembled, apply a coat of thoroughly mixed 50 percent KS7470 oil and 50 percent KS7471 grease at places indicated below.

Selector Cam Surfaces (2.44)
Spacing Gear Teeth (2.23)
Codebar Pivot Shaft (2.17 and 2.18)
Eccentric Cams (2.02 and 2.04)
Stop Bail Adjusting Tab (2.11)
Platen Shaft Bearings-Sprocket Feed Units only (2.49)
Distributor Shaft Cam Roller (Early Design) or Stud (Late Design) (2.13)
H-Lever (2.13)

Note 1: On occasion when the clutch is disassembled, lubricate the Internal Clutch Assemblies (2.02, 2.04, 2.44, and 2.53 on Form Feed Mechanisms only) as follows: Apply a thin coat of KS7471 grease at the loops of the clutch shoe lever spring, and lubricate the internal mechanism of the clutch with KS7470 oil.

Note 2: At regular lubrication intervals lubricate the clutch mechanism with KS-7470 oil only.

1.06   The textual instructions that accompany the line drawings consist of abbreviated directions, specific lubrication points, and parts affected. The meanings of the abbreviated directions (symbols) follow:

Symbol	Meaning
D	Keep dry — no lubricant permitted.
G	Apply thin coat of grease (KS7471).
O	Oil (KS7470).

1.07   References to left, right, front, or rear, etc, consider the typing unit to be viewed from a position where the carriage area faces up and the selector area is located to the viewer's left.

CAUTION: DO NOT USE ALCOHOL, MINERAL SPIRITS, OR OTHER SOLVENTS TO CLEAN PLASTIC PARTS OR PARTS WITH PROTECTIVE-DECORATIVE FINISHES. NORMALLY, A SOFT, DRY CLOTH SHOULD BE USED TO REMOVE DUST, OIL, GREASE, OR OTHERWISE CLEAN PARTS OR SUBASSEMBLIES. IF NECESSARY, A SOFT CLOTH DAMPENED WITH SOAP OR MILD DETERGENT MAY BE USED. AFTERWARDS, RINSE EACH CLEANED PART OR SUBASSEMBLY WITH SOFT, DAMP CLOTH AND BUFF WITH A SOFT, DRY CLOTH.

1.08   Tools and materials needed for teletypewriter lubrication are listed in Section 570-005-800TC.
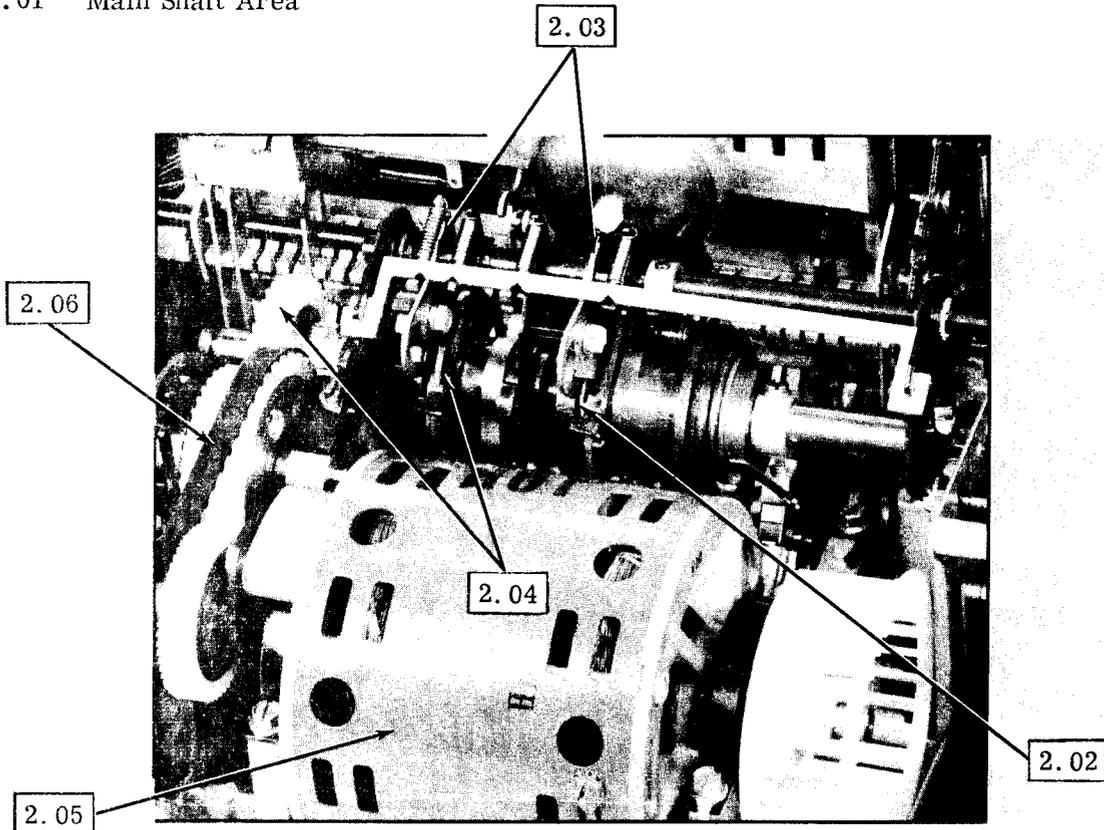
1.09   For disassembly and reassembly information, refer to Section 574-122-702TC.

CAUTION: ALL ELECTRICAL POWER MUST BE REMOVED FROM UNIT BEFORE LUBRICATING OR REMOVING COMPONENTS FOR LUBRICATION.

2. BASIC UNITS

COMMON MECHANISMS

2.01   Main Shaft Area

(Rear View)

2.02   Function Clutch

O	Shaft (Each End)	Roller
O*	Internal Mechanism	Clutch
O*	Camming Surfaces	Eccentric Cams
O	Contact Surface	Carriage Drive Arm
O	Felt Washer	Function Drive Arm
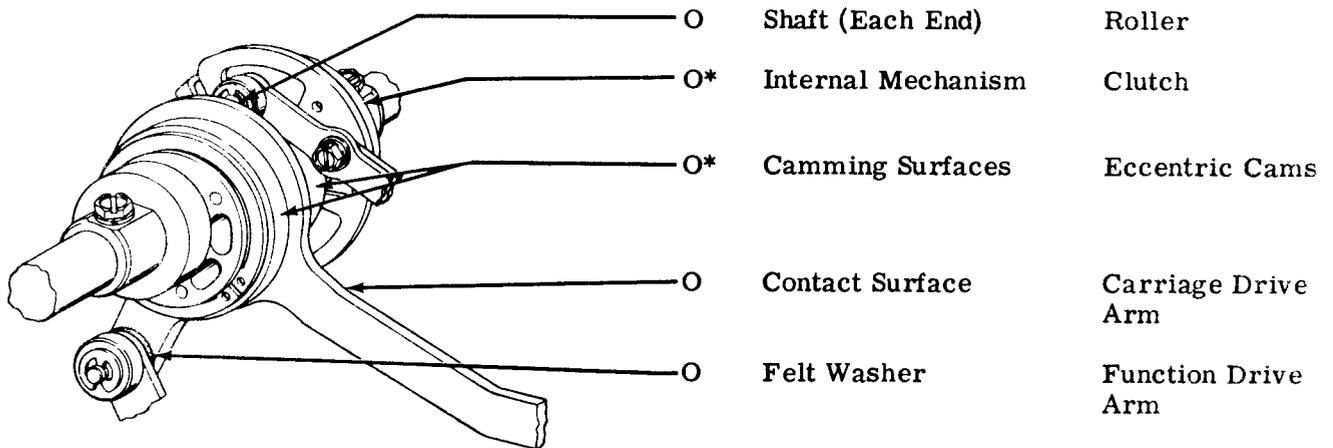
*Refer to 1.05.

(Left Front View)

2.03 **Trip Shaft**

O	Hooks (Each End)	Springs (4)
O	Pivot Bearings	Shaft (6 Points)
O	Latching Surface	Trip Levers (2)
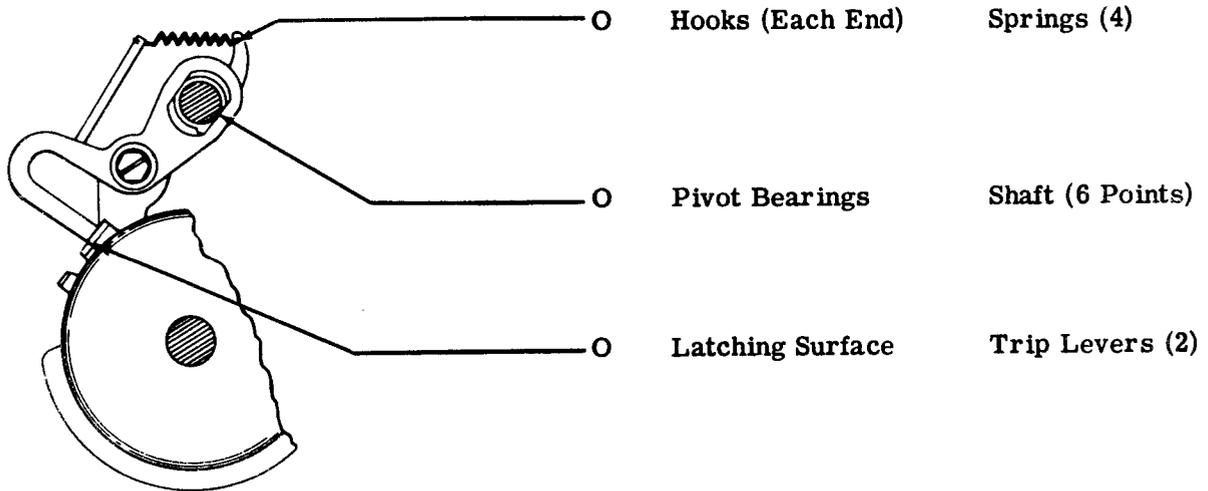
(Left Side View)

2.04 **Codebar Clutch**

G	Teeth	Distributor Gear
	(Do not grease teeth of motor belt sprocket)	
O*	Camming Surfaces	Eccentric Cams
O*	Interior Mechanism	All Clutches
O	Interior Felt Washer	All Clutches
O	Bearings (Both Ends)	Main Shaft
G	Teeth	Gear
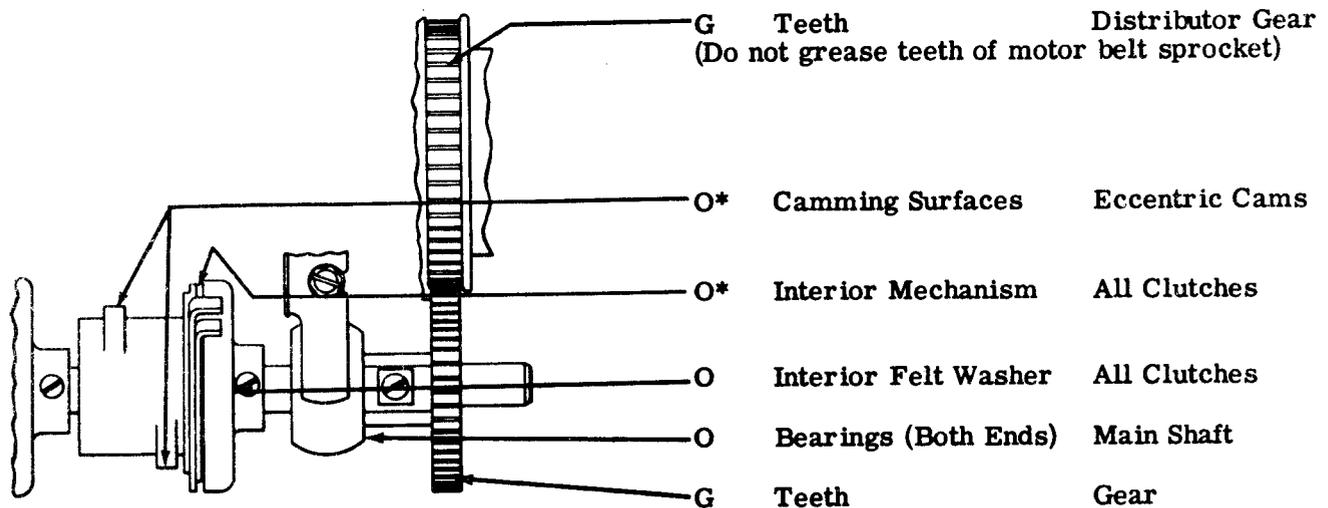
(Top View)   *Refer to 1.05.

2.05   Motor Area

O	Bearings (Each End)	Motor Shaft
G	Teeth	Intermediate Gear
G	Pack Grease in Space Between Two Oilite Bearings. Intermediate Gear And Motor Must Be Removed.	Intermediate Gear
G	Teeth	Motor Pinion
D	Interior Areas	Motor

(Top View)

CAUTION: MOTOR START RELAY AND CAPACITOR MUST BE KEPT FREE OF LUBRICANTS.

2.06   Intermediate Gears

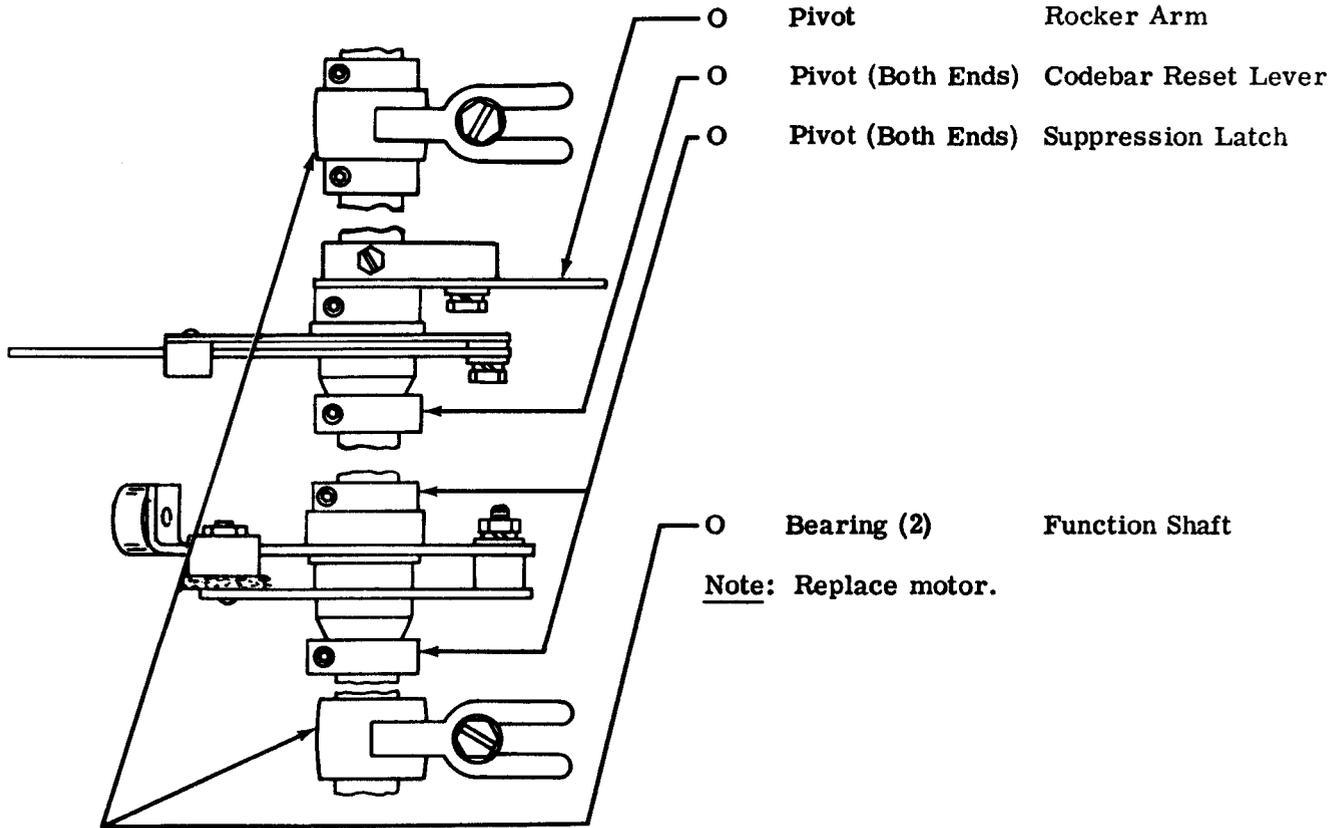|		
D	Motor Belt	Motor Gear
D	Teeth	Sprockets (2)

(Right Side View)
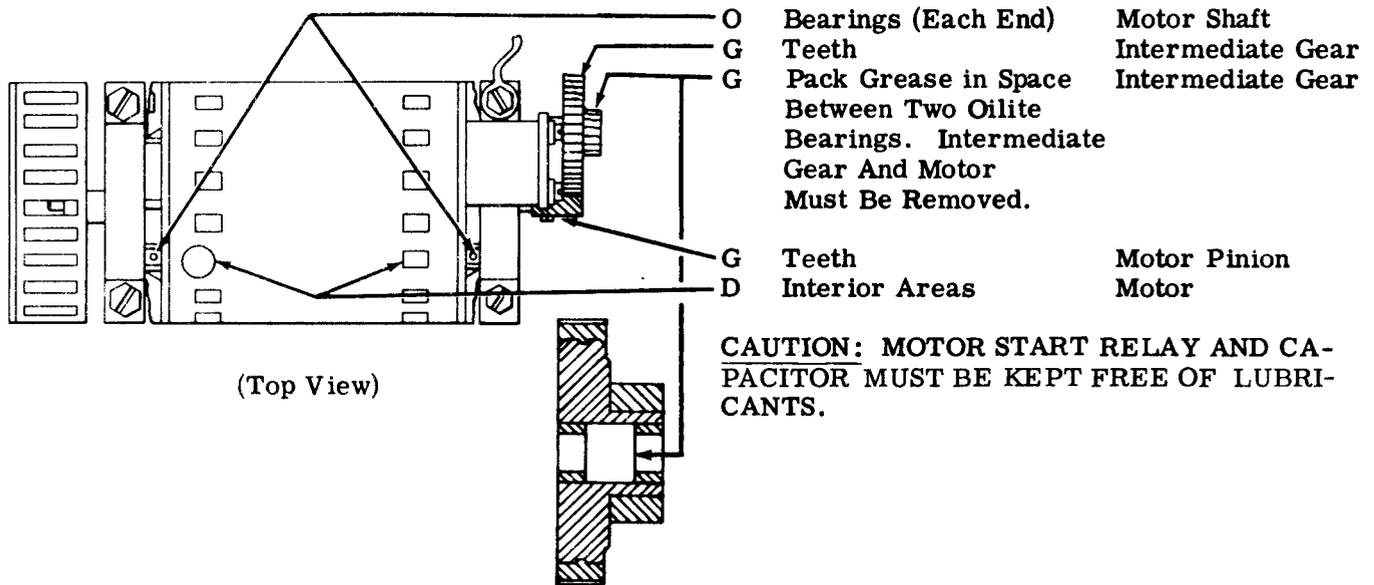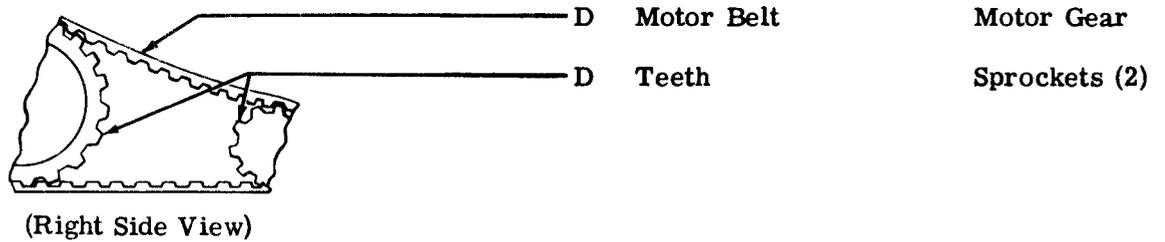
2.07   Function Shaft Area

2.08
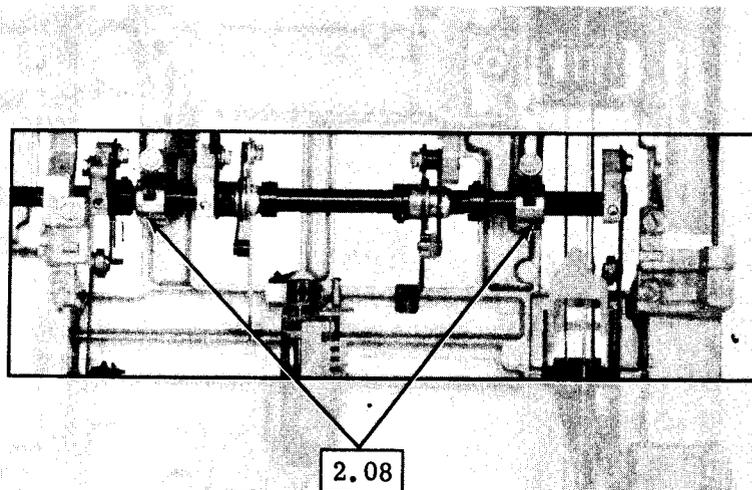
(Top View)   (Typing unit disassembled for illustration only.)

2.08   Function Rocker Shaft

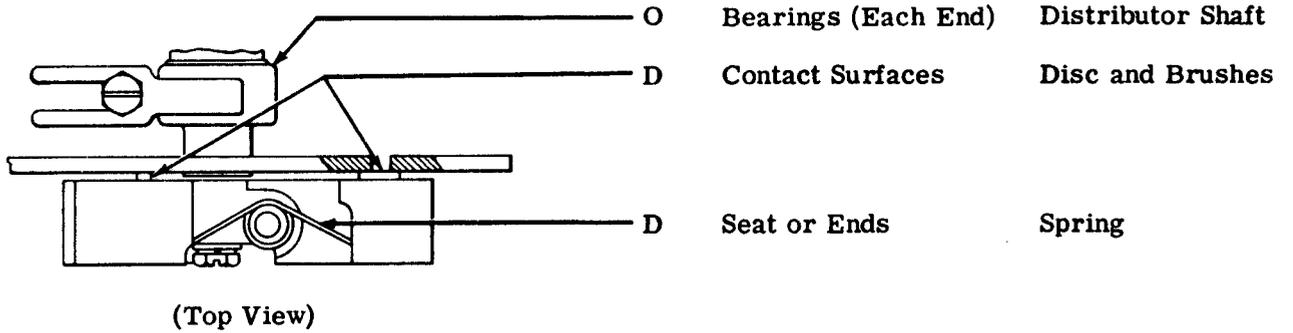|		
O	**Pivot**	Rocker Arm
O	**Pivot (Both Ends)**	Codebar Reset Lever
O	**Pivot (Both Ends)**	Suppression Latch
O	**Bearing (2)**	Function Shaft

Note: Replace motor.

2.09   Distributor Area
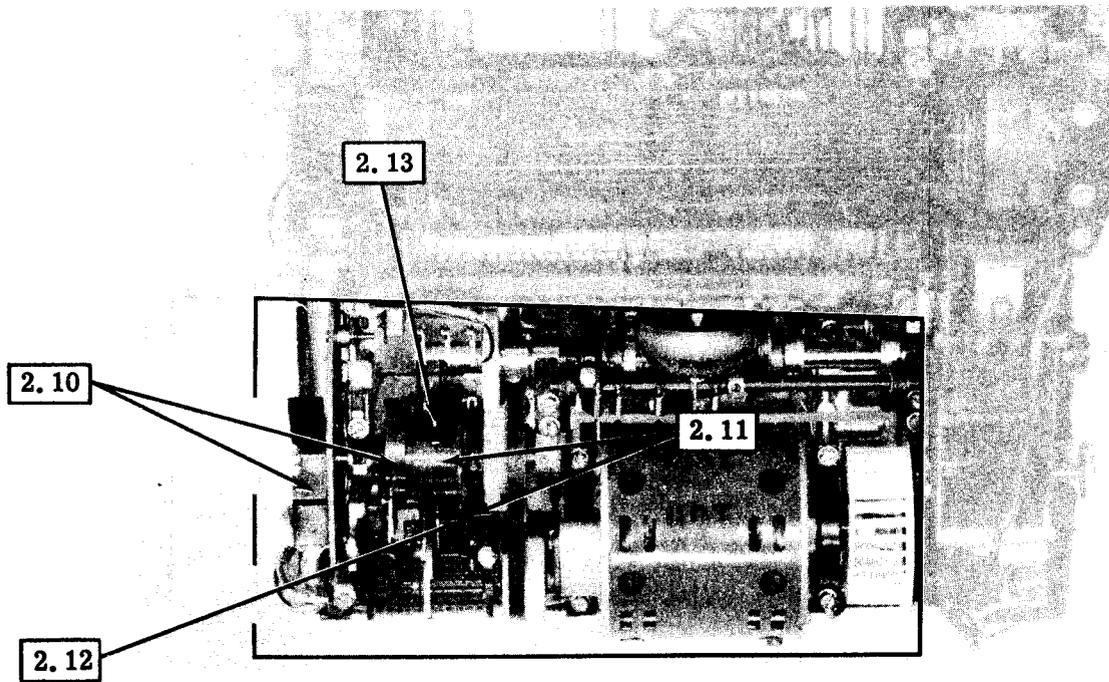
(Top View)

2.10   Disc and Brushes

O	Bearings (Each End)	Distributor Shaft
D	Contact Surfaces	Disc and Brushes
D	Seat or Ends	Spring

(Top View)

2.11   Stop Bail

Note: Remove answer-back drum.

O	Camming Surface	Distributor Clutch
O	Latching Surface	Stop Bail
O	Hooks (Each End)	Stop Bail Spring
O*	Contact Surface	Adjusting Tab
O	Pivots (2)	Stop Bail
O	Hooks (Each End)	Follower Lever Spring

* Refer to 1.05.

(Right Side View)

2.12   Latchlever

O	Latching Surface	Latchlever
O	Pivot	Trip Shaft
O	Hooks (Each End)	Spring

(Right Side View)

2.13   Trip Lever

O	Pivot	Trip Shaft
O*	Shaft (Both Ends)	Roller (Early Design) or ←
		Stud (Late Design) ←
O	Sliding Surface	Roller Follower
O	Pivot	Trip Lever

Note: Replace answer-back drum.

O*	Engaging Tabs (4 Places)	H-Lever ← ←
O	Pivot	H-Lever
O	Pivot	Trip Lever
O	Seat (Each End)	H-Lever Spring

(Left Front View)

*Refer to 1.05. ←

2.14   Function Area

2.15 Function Levers

O	Hooks (Each End)	Springs
O	Engaging Surfaces	Function Levers

(Right Side View)
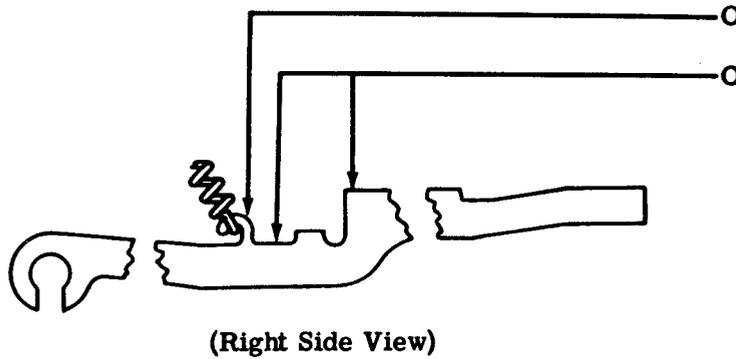
2.16 Stripper Drive Lever

(Right Side View)
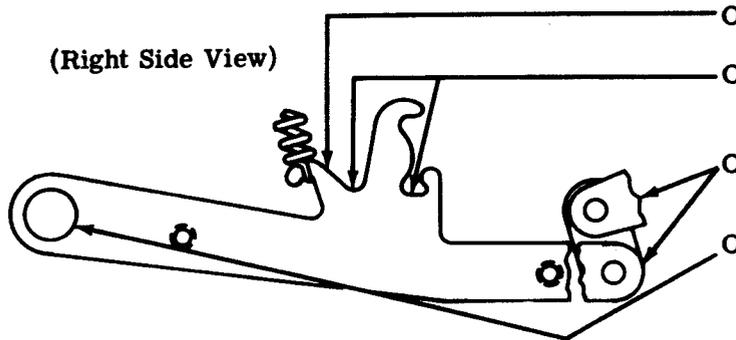
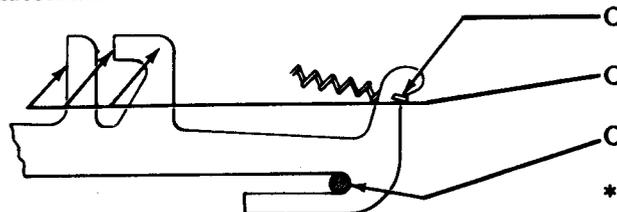|		
O	Hooks (Each End)	Springs
O	Engaging Surfaces	Stripper Drive Lever
O	Pivots	Stripper Drive Link
O	Felt Washers (2) (Each End of Shaft)	Front Function Shaft

2.17 Codebars
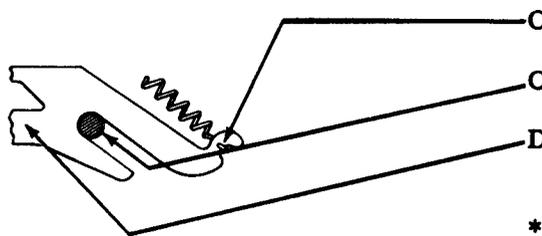
O	Hooks (Each End)	Springs
O*	Pivots	Shaft
D	Area Between Codebars	

* Refer to 1.05.

(Front View)

2.18 Automatic Codebar

O	Hooks (Each End)	Spring
O	Blocking Contact	Tab (1 of 3)
O*	Pivot	Shaft

* Refer to 1.05.

(Front View)

2.19   Rocker and Pawls

O	Hooks (Each End)	Pawl Springs
O	Pivots	Shaft
O	Latching Surfaces	Pawls
O	Engaging Surfaces	Pawls
O	Engaging Surfaces	Function Levers
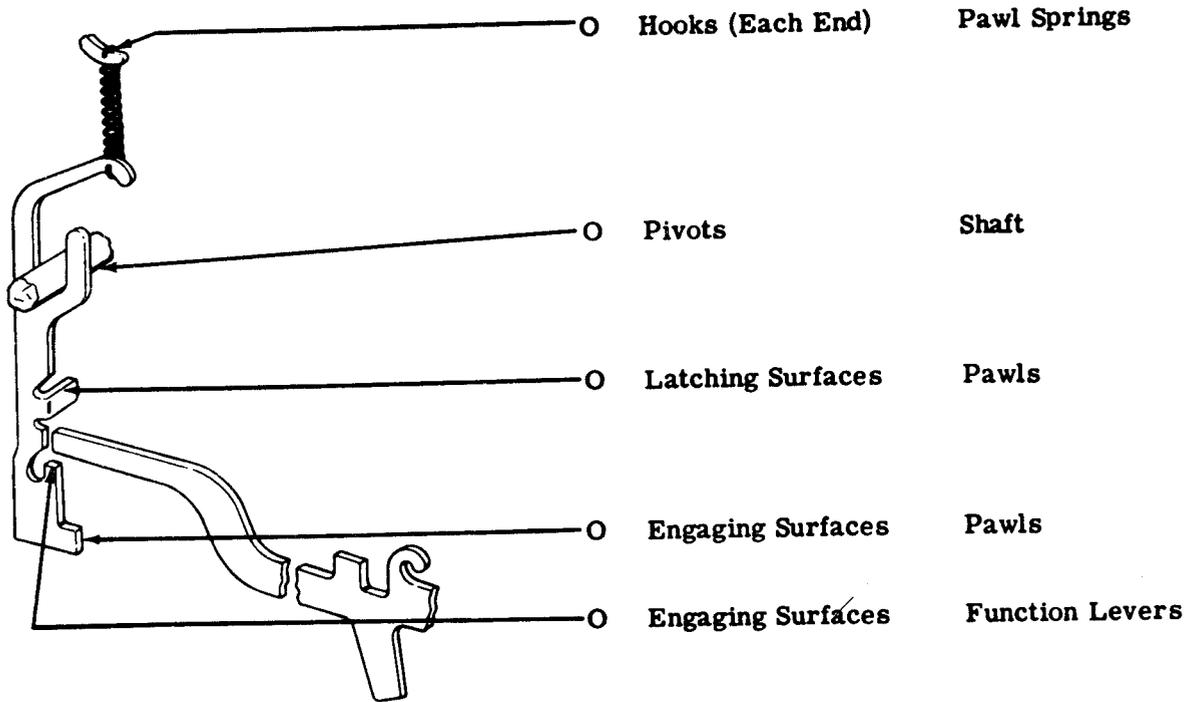
(Left Front View)

2.20   Reset Bail

O	Felt Washers (2)	Reset Bail Shaft
O	Hooks (Each End)	Spring
O	Contact Surfaces	Codebar Engaging Tines
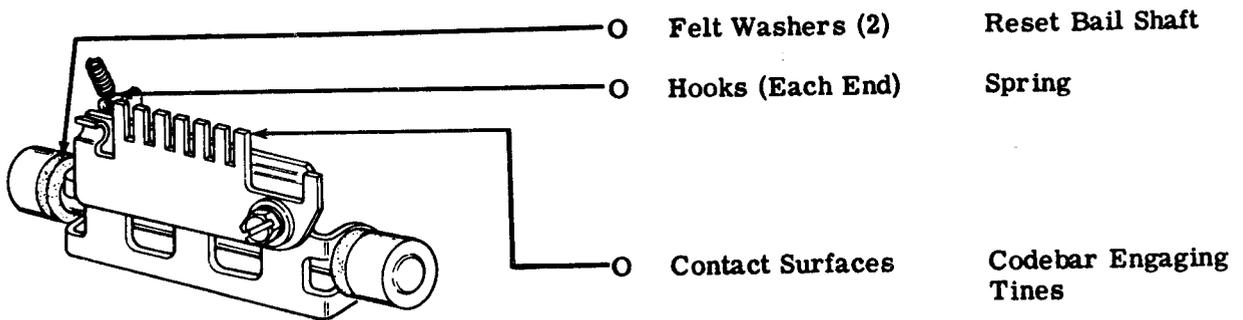
(Left Front View)

2.21   Spacing Area

(Left Front View)

2.22   Space Bellcrank

(Right Side View)
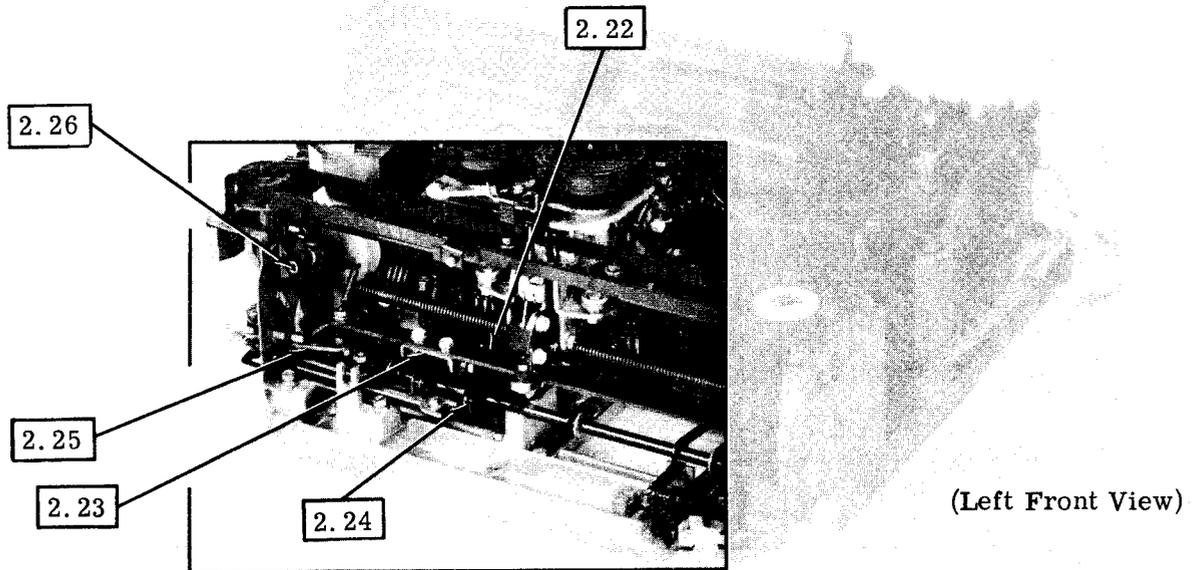
O	Pivot	Bellcrank
O	Pivot	Spacing Lever
O	Hooks (Each End)	Spring
O	Pivot	Bellcrank

2.23   Drive Mechanism

(Left Front View)

O	Felt Washers (2)	Carriage Drive Bail
O	Bearings (2)	Front Bearings
O	Pivot	Drive Arm
O	Felt Washers	Drive Arm Bail
O	Roller	Drive Roller
O	Pivot	Feed Pawl
G*	Teeth	Spacing Gear

*Refer to 1.05.
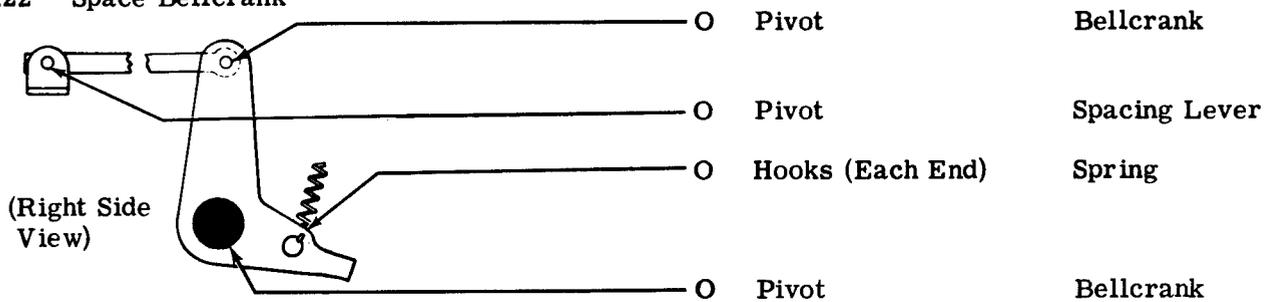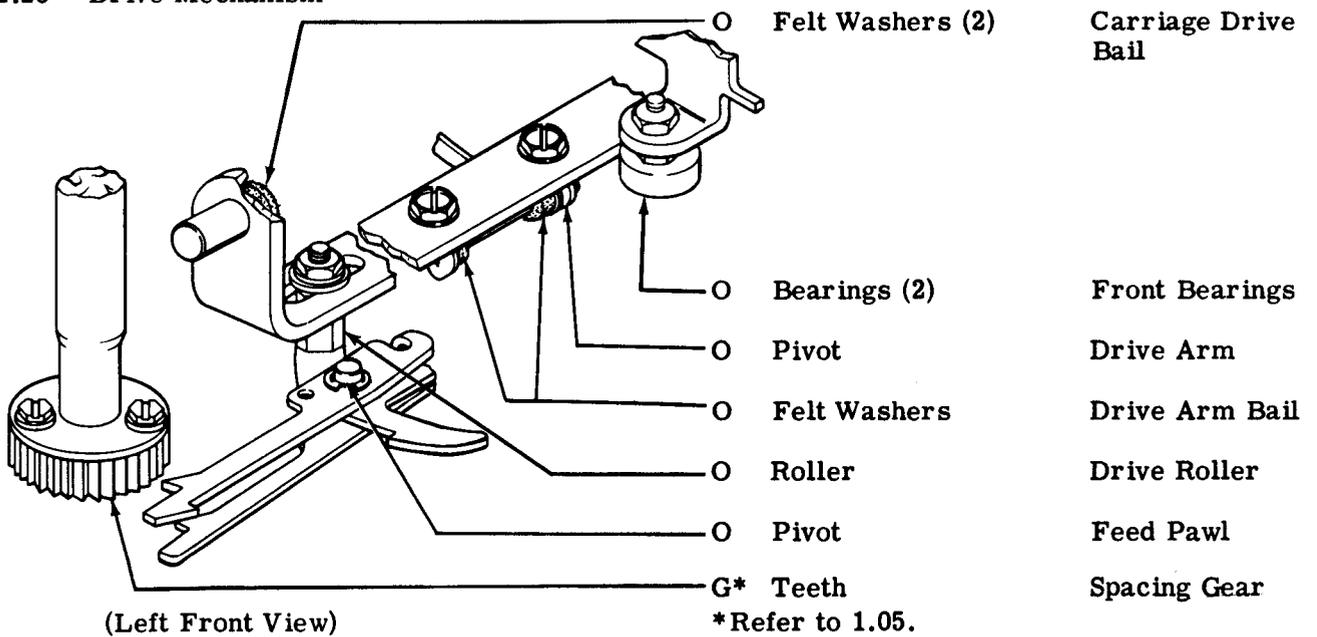
2.24   Carriage Return and Spacing Levers
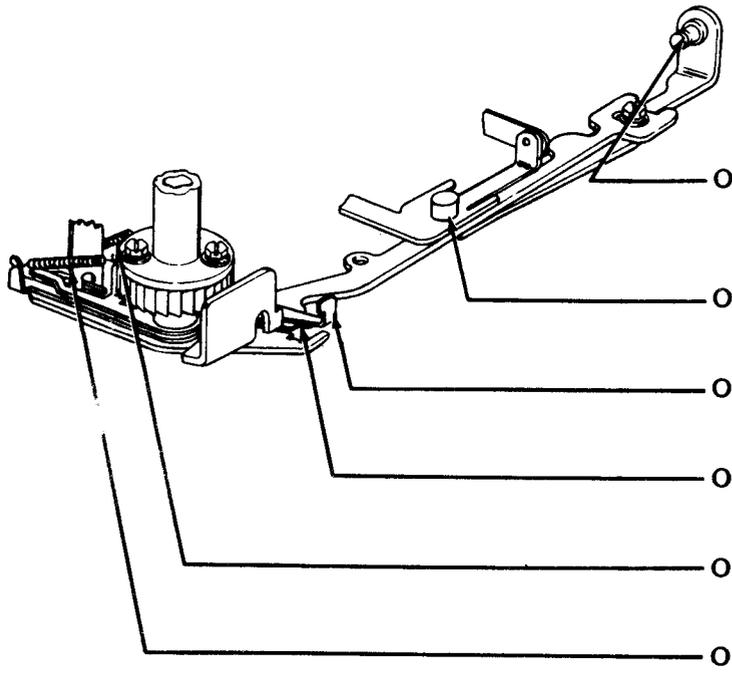
O	Pivot	Carriage Return Lever
O	Pivot	Spacing Mechanism
O	Engaging Surface	Latch
O	Latching Surface	Latch
O	Hooks (Each End)	Latch Spring
O	Hooks (Each End)	Latch Spring

(Left Front View)

2.25   Spacing Mechanism - 1
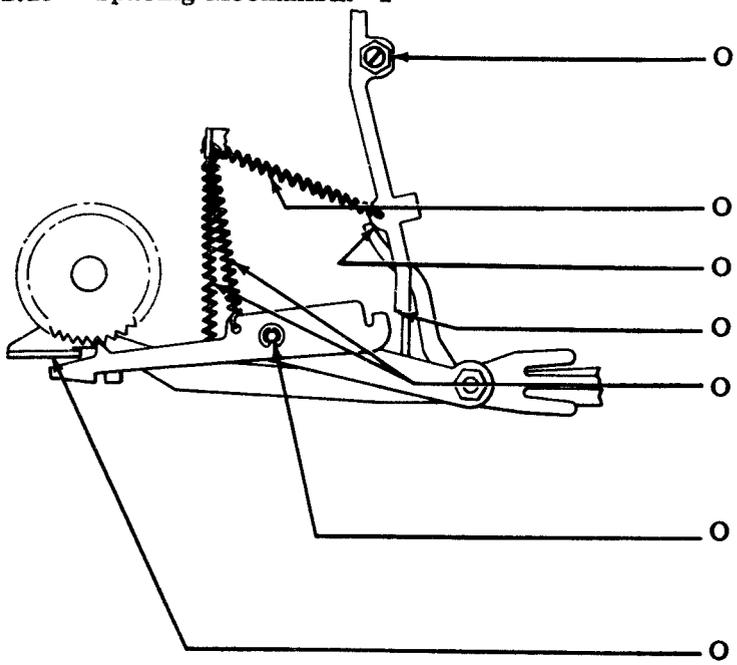
O	Pivot	Eccentric
O	Hooks (Each End)	Spring
O	Engaging Surface	Spacing Lever
O	Latching Surface	Suppression Lever
O	Hooks (Each End)	Springs (3)
O	Pivot	Feed Pawl
O	Engaging Surfaces	Feed and Check Pawls

(Top View)

2.26 Spacing Mechanism - 2

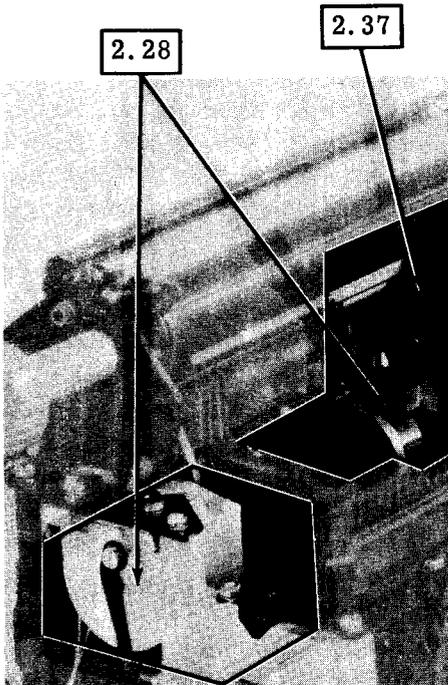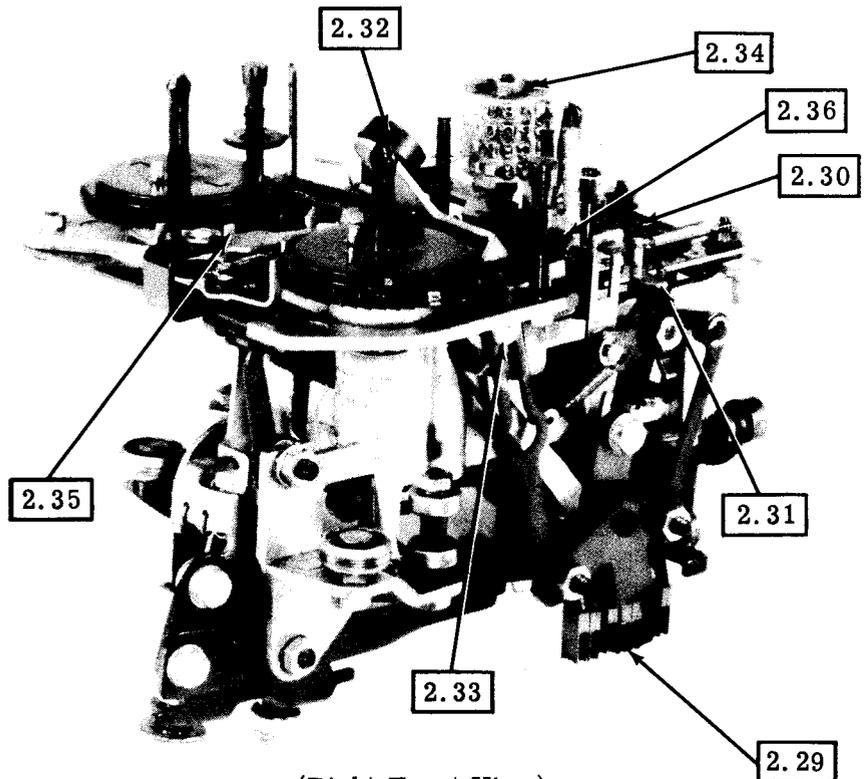|			
O	Pivot	Belt Pulley
D	Belt and Pulley	Spacing Belt
O	Shaft (Remove Bracket and Retaining Ring)	Sprocket
O	Engaging Surface	Suppression Arm
O	Hooks (Each End)	Spring
O	Pivot	Suppression Arm
O	Engaging Surface	Latch Arm
O	Contact Surface	Spring Pulley
O	Pivot	Spring Pulley
O	Engaging Surface	Suppression Latch
O	Pivot	Latch
O	Engaging Surfaces	Latch
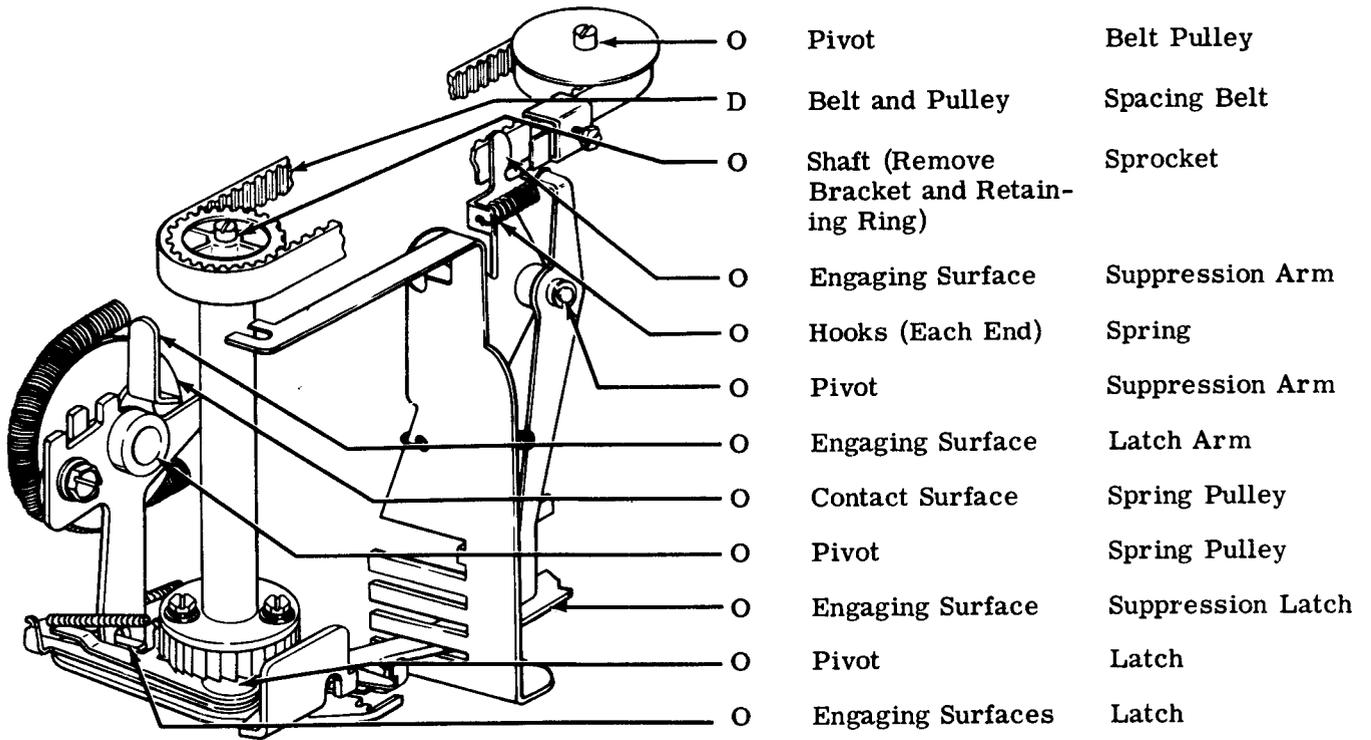
(Left Front View)

2.27 Carriage Area

(Left Front View)

(Right Front View)

Note: Remove ribbon mechanism and carriage return spring before lubricating. For instructions, see the appropriate disassembly and reassembly section.
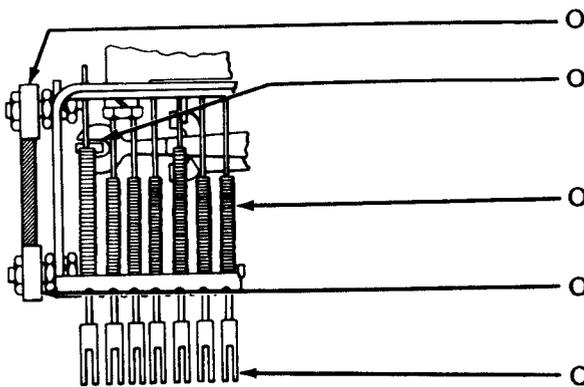
2.28   Dashpot
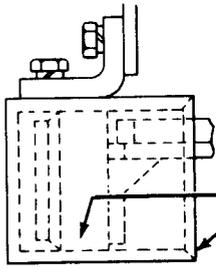
O   Sliding Surfaces   Dashpot and
                              Cylinder
       (Apply with oil dampened cloth. Too
       much lubricant will cause malfunction.)

(Front View)

2.29   Slides

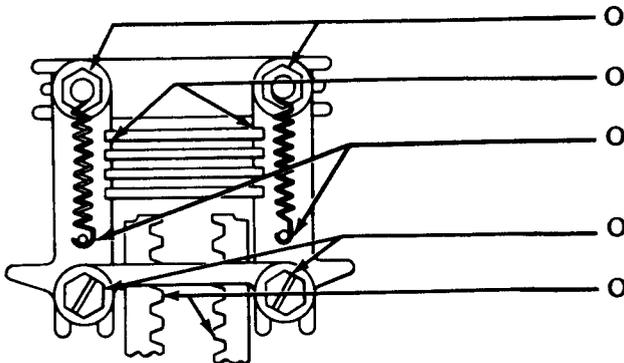O   Bearing   Rear Roller (Top)

O , Engaging Surface   Suppression Latch
                             Fork

O   Seats (Each End)   Slide Guide Springs

O   Bearing   Rear Roller
                             (Bottom)

O   Codebar Contacts   Slides

(Left Side View)
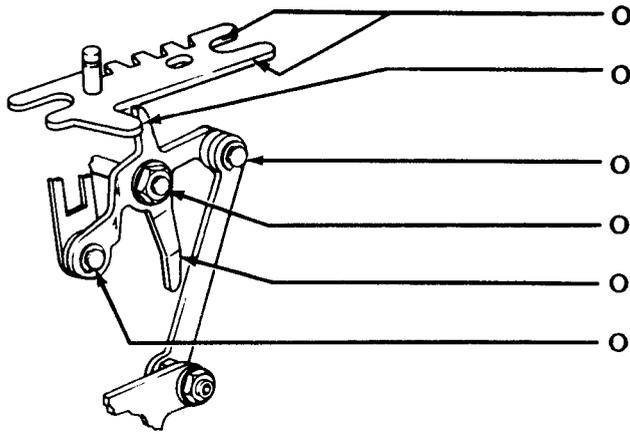
2.30   Slide Guideplates

O   Sliding Contacts   Stop Plate

O   Engaging Surfaces   Stop Slides

O   Hooks (Each End)   Springs

O   Contact Points   Slide Guides
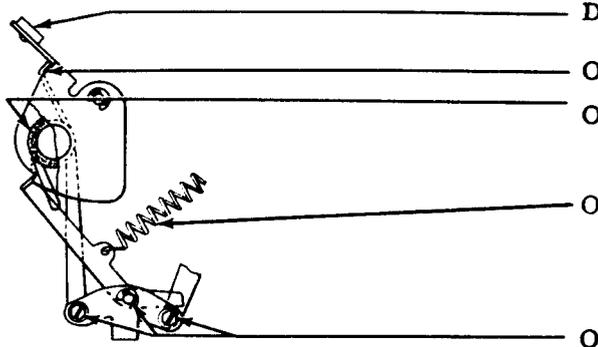
O   Teeth   Pinion Racks

(Top View)

2.31   Drive Arm

O	Contact Surface	Plate
O	Contact Surfaces	Plate and Drive Arm
O	Pivot	Drive Arm
O	Pivot	Drive Arm
O	Contact Surface	Drive Arm
O	Pivot	Link

(Right Side View)

2.32   Print Hammer

D	Surface	Print Hammer
O	Ends (2)	Torsion Spring
O	Pivots (2)	Spring Shaft
O	Hooks (Each End)	Spring
O	Bearings (3)	Drive Bail
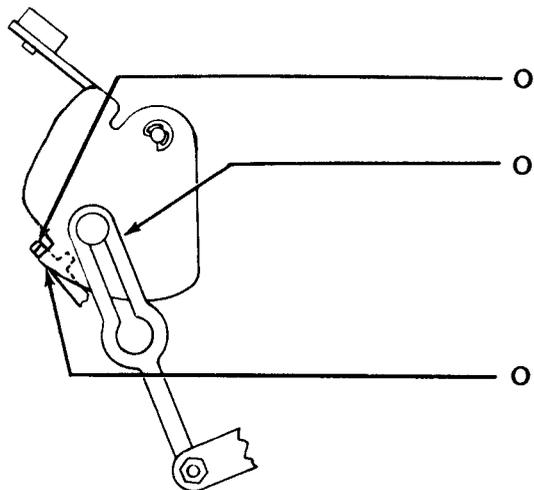
(Right Side View)

2.33   Reset Arm

O	Latching Surface	Trip Lever
O	Sliding Contacts	Reset Arm
O	Camming Surface	Print Hammer Bail

(Right Side View)

2.34 Typewheel Mechanism

D	Printing Surface	Typewheel

Note: Clean typewheel with solvent at each routine maintenance interval.

O	Hooks (Each End)	Return Spring
O	Roller	Return Spring
O	Upper Bearing	Positioning Cage
O	Felt Wick	Typewheel Shaft
O	Engaging Surfaces (2)	Rotary Drive Lever
O	Pivot	Pulse Link (2)
O	Contact Surface	Power Bail
O	Hooks (Each End)	Springs (2)
O	Pivot	Drive Arm
O	Pivot	Power Bail
O	Bearings	Rollers (Front and Rear - 2 Each)

(Right Side View)

2.35 Ribbon Mechanism

O	Pivot Points (2)	Mounting Shaft
D	Slots and Rollers	Ribbon Path
O	Felt Wick	Feed Pawl
O	Hooks (Each End)	Springs (3)
O	Seat (Each End)	Torsion Springs (2)
O	Teeth	Ratchets (2)
O	Pivot	Feed Pawl
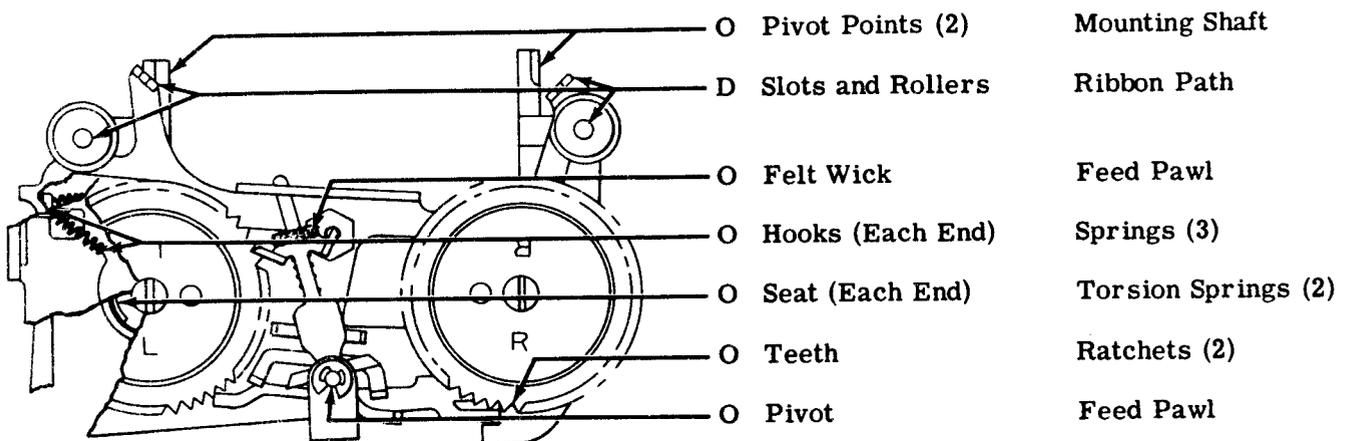
(Top View)

2.36   Ribbon Guide Spring

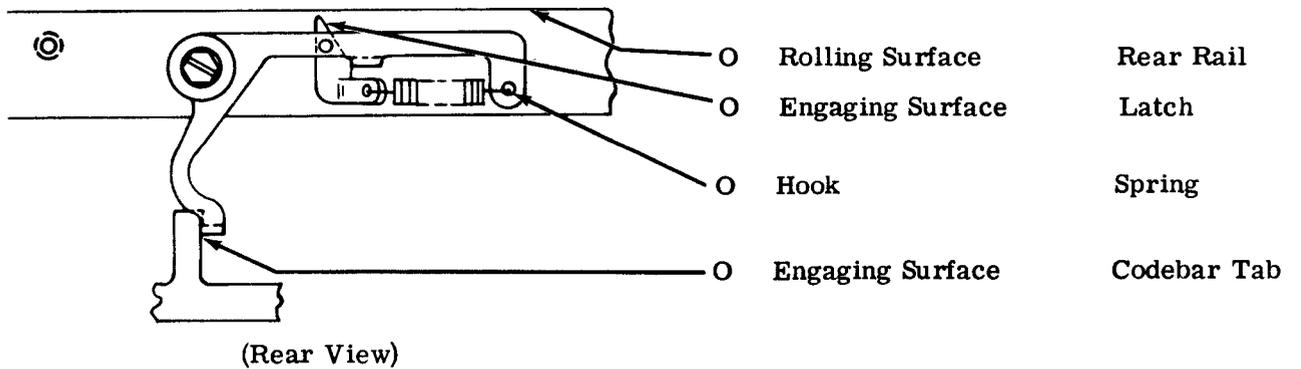|		
D	Surfaces in Contact with Ribbon	Ribbon Guide
O	Seat (Each End)	Springs (2)
O	Sliding Contacts (2)	Lifter Arm

(Right Side View)

Replace ribbon mechanism and carriage return spring.
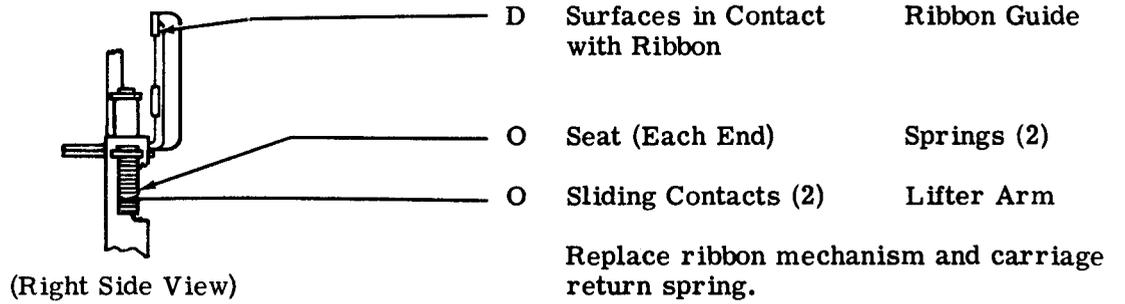
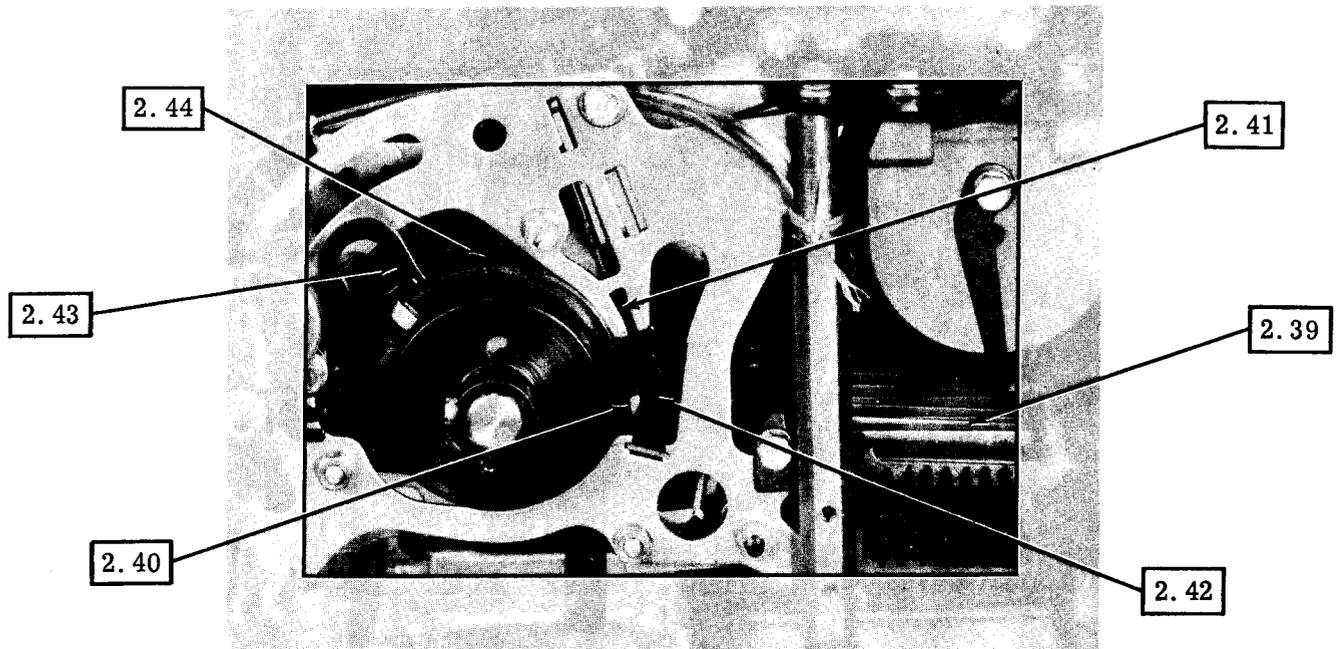2.37   Carriage Rear Rail

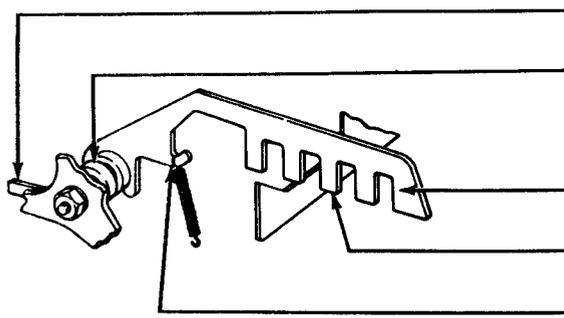Note: These lubrication instructions apply only to typing units equipped with a TP181304 latch.

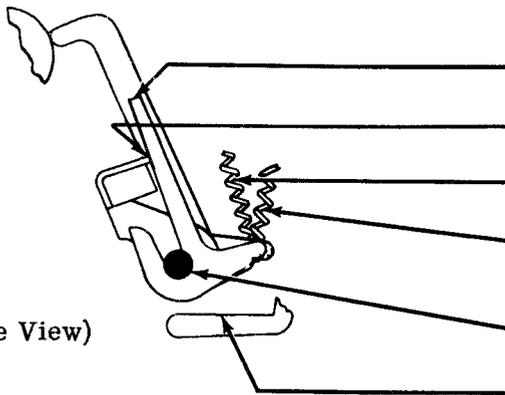|		
O	Rolling Surface	Rear Rail
O	Engaging Surface	Latch
O	Hook	Spring
O	Engaging Surface	Codebar Tab

(Rear View)

2.38   Selector Area

2.44

2.41

2.43

2.39

2.40

2.42

(Left Side View)

2.39   Blocking Levers

O	Contact Surfaces	Blocking Levers
O	Pivots	Shaft
O	Engaging Surfaces	Codebar Slots
O	Contact Surfaces	Tines
O	Hooks	Springs

(Left Front View)

2.40   Pushlevers and Stripper Bail

O	Latching Surface	Pushlevers
O	Contact Surface	Stripper Bail
O	Hooks (Each End)	Bail Spring
O	Hooks (Each End)	Pushlever Springs
O	Pivots	Pushlevers
O	Contact Surfaces	Blocking Levers
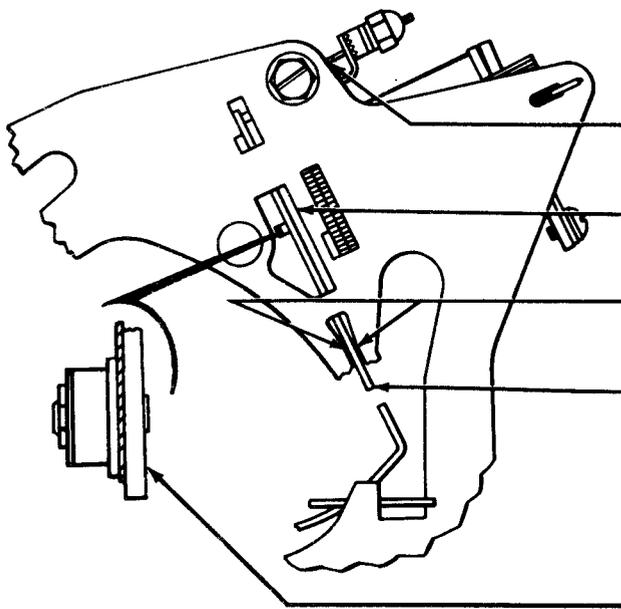
(Left Side View)

2.41   Armature

D	Hooks	Armature Spring
D	Engaging Surfaces	Armature
O	Engaging Surfaces	Side Plates
G	Engaging Surface	Armature
D	Engaging Surface	Armature

(Left Side View)

2.42   Selector Levers
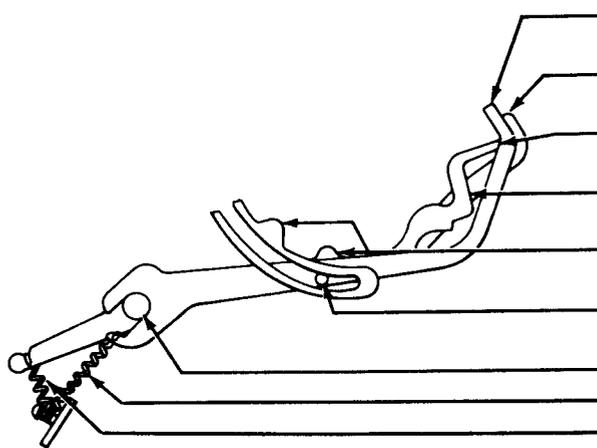
O	Tip	Start Lever
O	Contact Surface	Locklever
O	Contact Surface	Selector Levers
O	Engaging Surface	Selector Levers
O	Camming Surface	Selector Levers
O	Sliding Contact	Start Lever
O	Pivots	Levers
O	Hooks (Each End)	Start Lever Spring
O	Hooks (Each End)	Spring (9)

(Left Side View)

2.43   Latchlever and Trip Lever
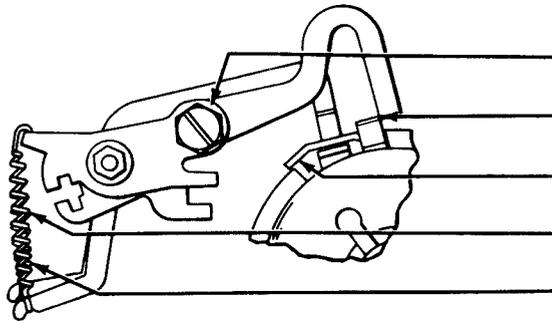
O	Pivots (2)	Levers
O	Engaging Surface	Trip Lever
O	Latching Surface	Latchlever
O	Hooks (Each End)	Trip Lever Spring
O	Hooks (Each End)	Latchlever Spring

(Left Side View)

2.44   Selector Clutch
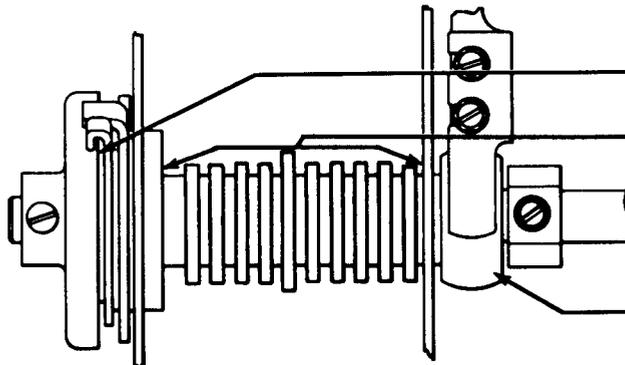
O*	Internal Mechanism	Selector Clutch
O*	Camming Surface	Slector Clutch
O	Bearing (Each End)	Main Shaft

*Refer to 1.05.

(Top View)

FRICTION FEED MECHANISMS

2.45   Paper Feed Area

(Rear View)

2.46   Platen

D   All Surfaces Contacting Paper
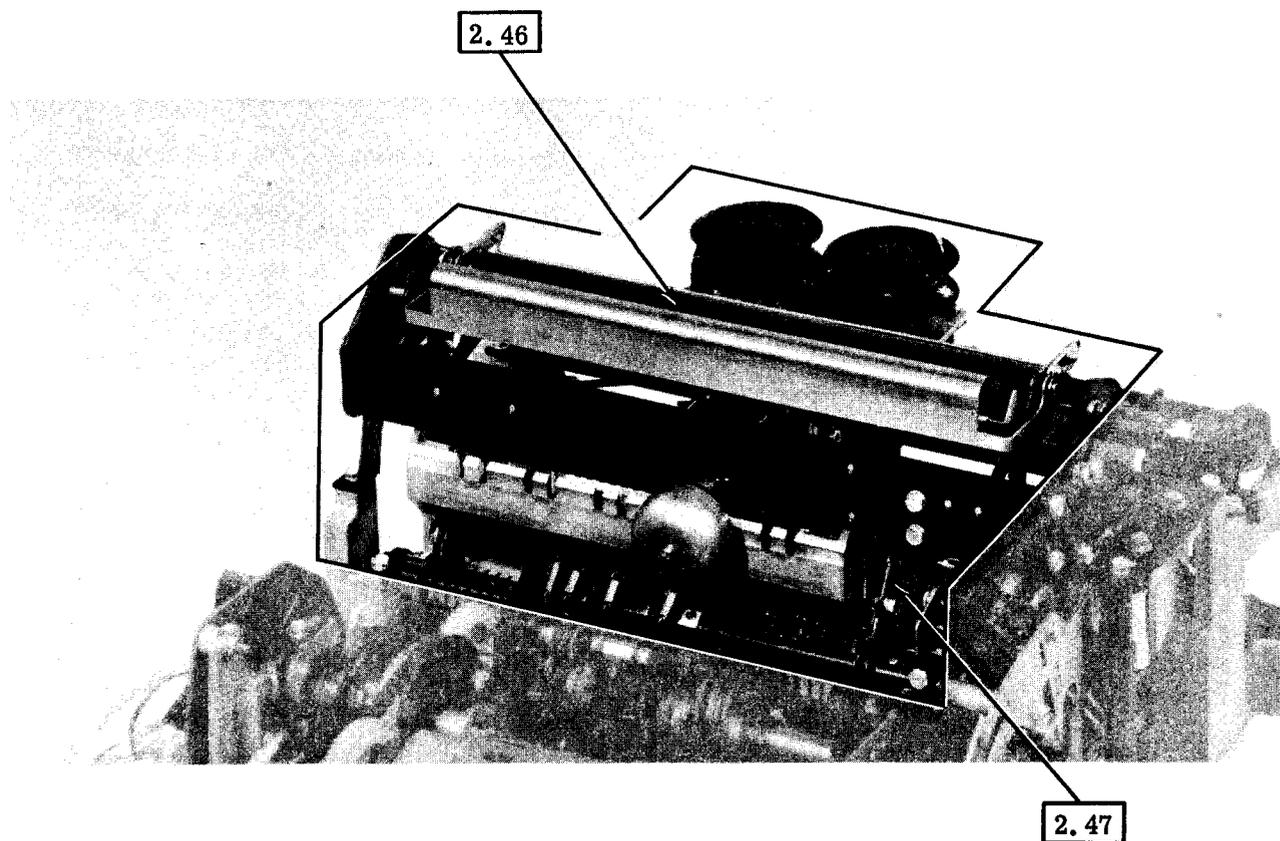
D   All Surfaces Contacting Ribbon
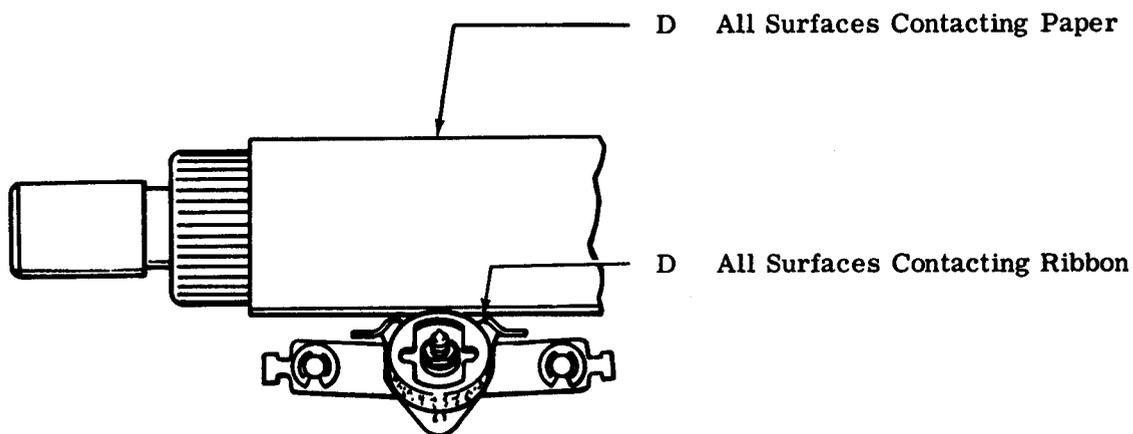
CAUTION: DO NOT CLEAN PLATEN
WITH SOLVENTS.

2.47   Line Feed Mechanism

D	Teeth	Platen Sprocket
O	Hooks (Each End)	Spring
O	Pivots (4)	Line Feed Linkage
O	Hooks (Each End)	Drive Link Spring
O	Engaging Surface	Upstop Bracket
O	Engaging Surface	Block Lever
O	Hooks (Each End)	Blocking Lever Spring
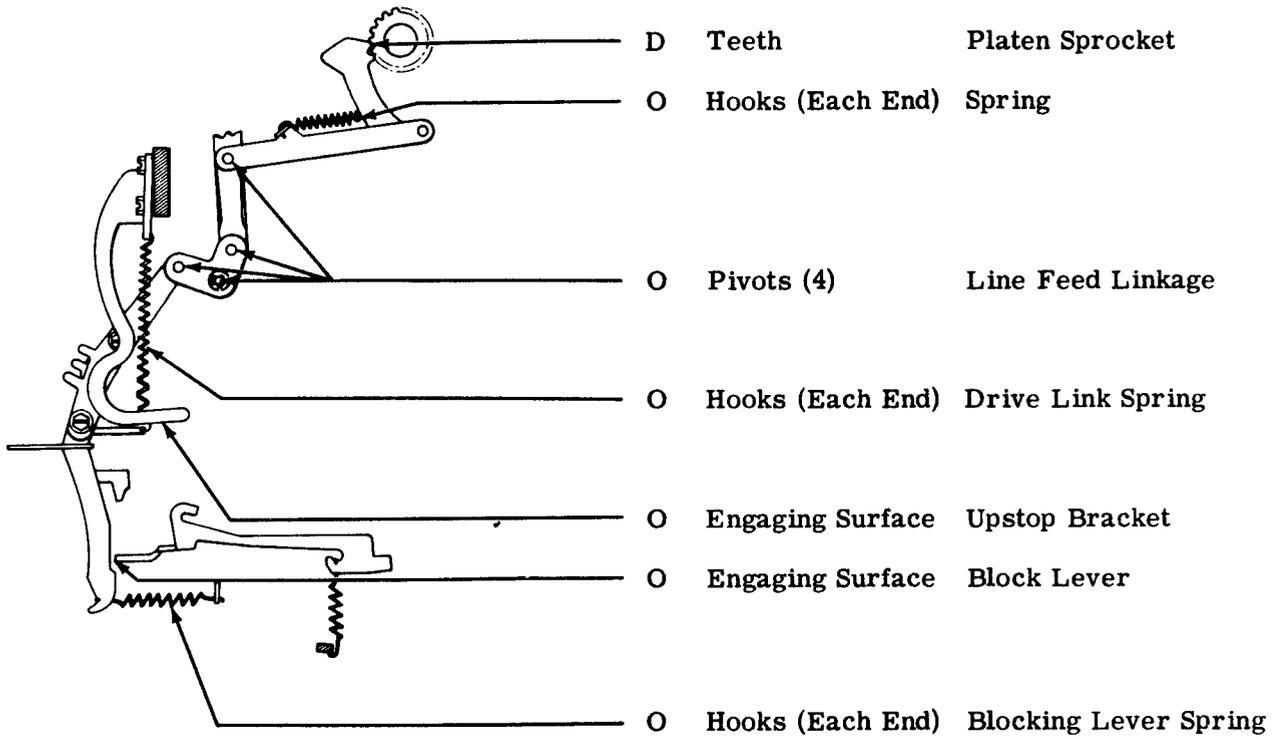
(Left Side View)

SPROCKET FEED MECHANISMS

2.48   Paper Feed Area

2.49
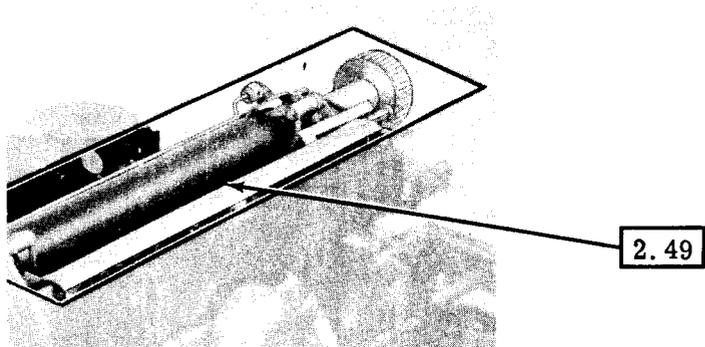
(Right Rear View)

2.49 Platen Mechanism
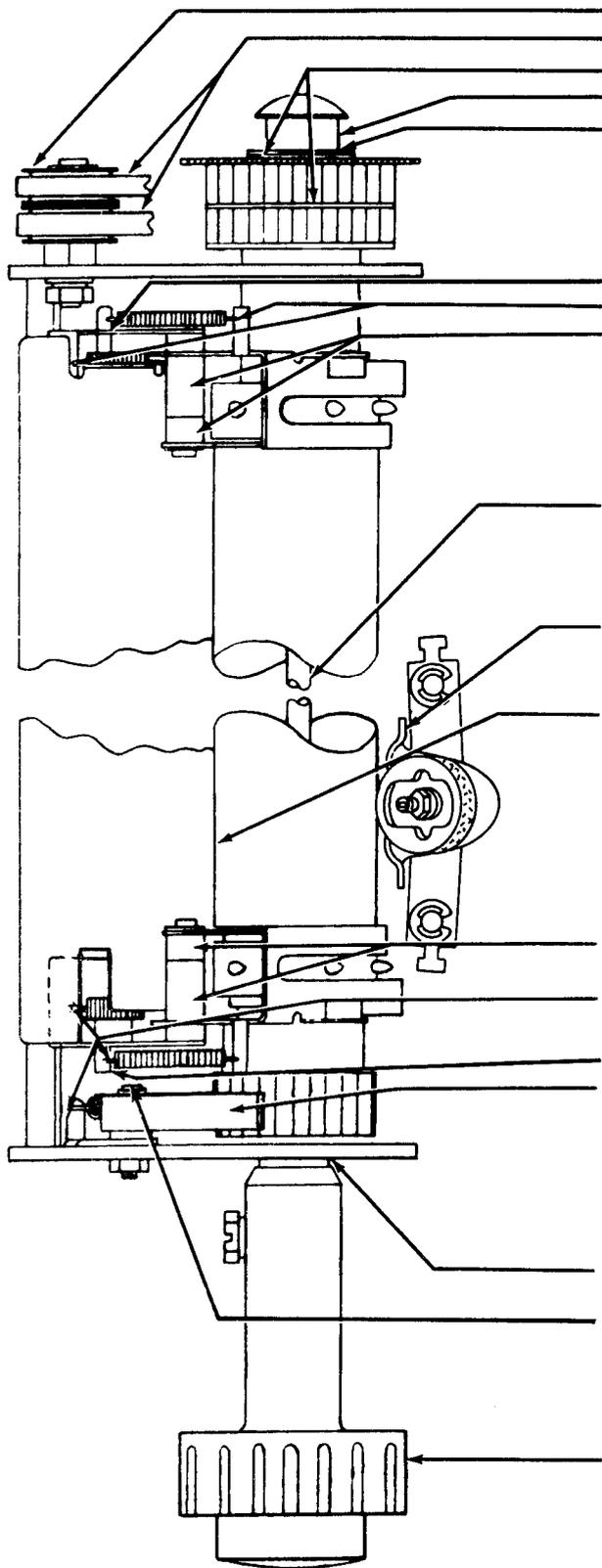
O	Bearing	Idler
D	Belts	Drive
O	Bearing	Pulley
O	Bearing	Button
O	Felt Washers	Shaft
	(2 Within Shaft)	

Note: Shaft must be disassembled. See appropriate disassembly and reassembly section.

O	Pivot	Paper Guide
O	Hooks (Each End)	Spring
O	Bearing	Paper Guide

O* Bearings (Both Ends) Shaft

Note: Reassemble shaft.

D   All Surfaces Contacting Ribbon

D   All Surfaces Contacting Paper

O	Bearing	Paper Guide
O	Hooks (Each End)	Spring
O	Pivot	Paper Guide
O	Bearing	Pawl

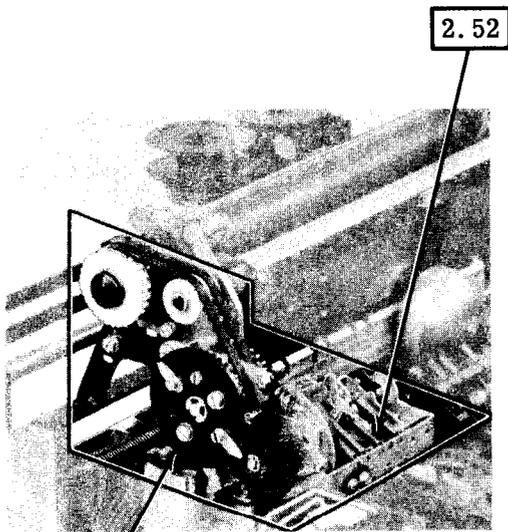O & G**   Bearing   Left and Right Plate

O   Pivot   Detent Lever

D   Bearing   Knob

*Refer to 1.05.

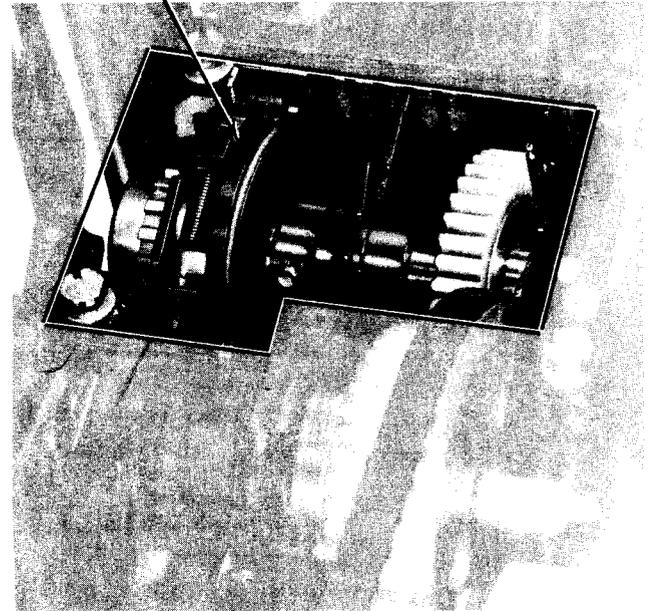**Apply a coat of thoroughly mixed 50 percent KS7470 oil and 50 percent KS7471 grease.

(Top View)

2.50 Platen Drive Area

2.52

(Right Rear View)
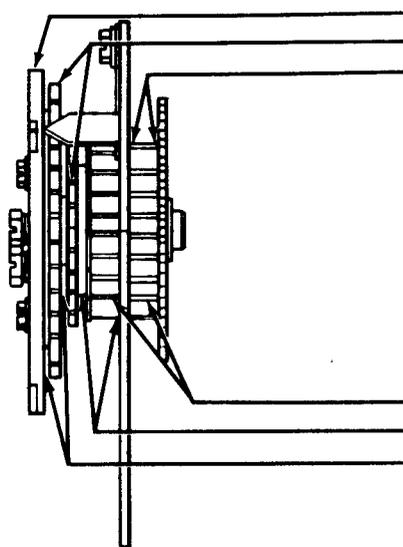
2.51

2.53

(Left Rear View)

(Form-out mechanism removed for illustration purposes. Removal for lubrication is not required.)

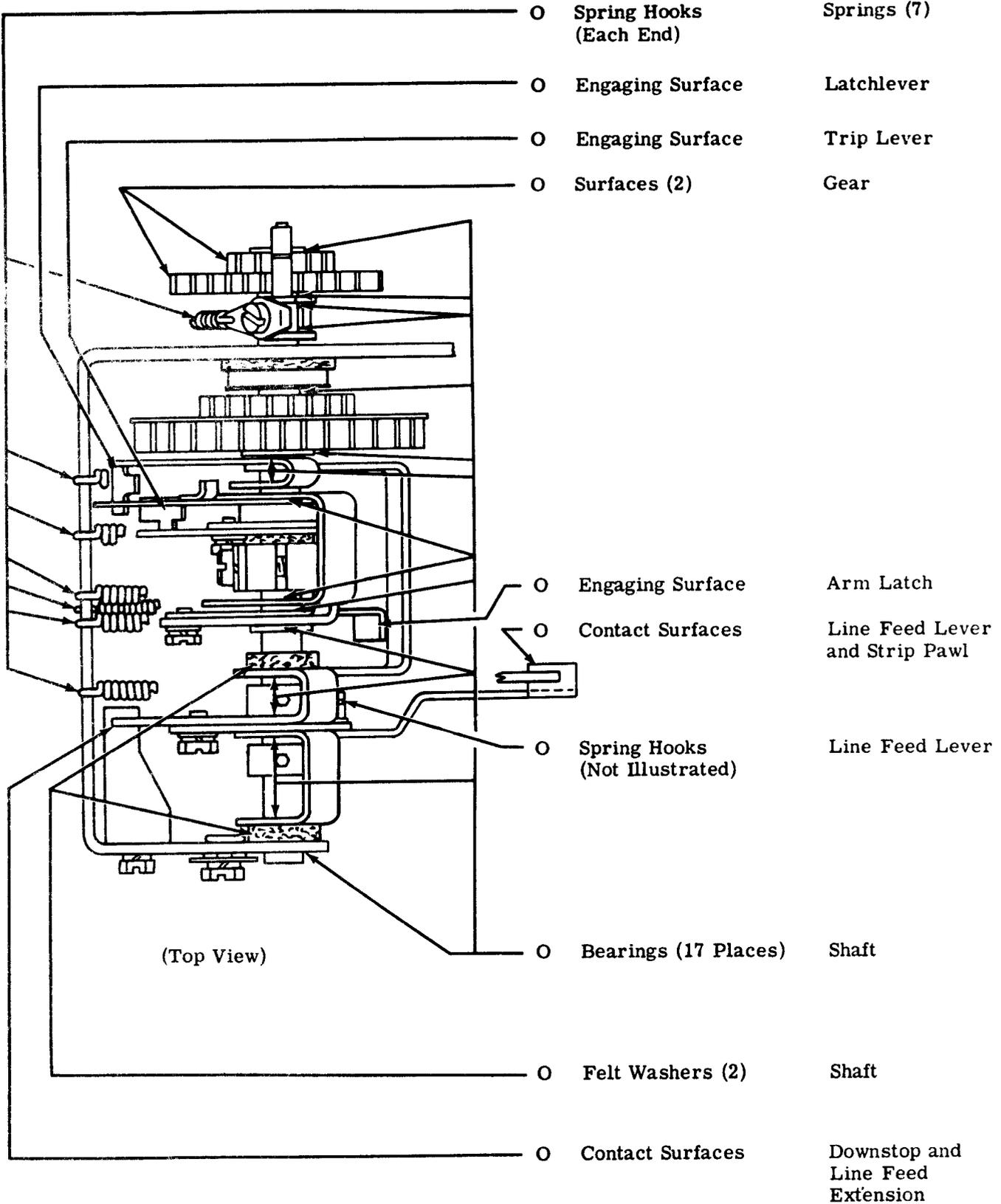## 2.51 Cam, Pulley, and Gear Combination

O	Cam Surface	Cam Gear
O	Gear Surface	Cam Gear
O	Bearing	Gear and Pulley
D	Surface	Pulley
O	Bearing	Gear and Pulley
O	Bearing	Cam Gear

(Top View)

2.52   Form-Out Mechanism

O   Spring Hooks   Springs (7)
    (Each End)

O   Engaging Surface   Latchlever

O   Engaging Surface   Trip Lever

O   Surfaces (2)   Gear

O   Engaging Surface   Arm Latch

O   Contact Surfaces   Line Feed Lever
                          and Strip Pawl

O   Spring Hooks   Line Feed Lever
    (Not Illustrated)

(Top View)

O   Bearings (17 Places) Shaft

O   Felt Washers (2)   Shaft

O   Contact Surfaces   Downstop and
                          Line Feed
                          Extension

2.53   Line Feed Clutch

O	Engaging Surface	Latchlever
O	Engaging Surface	Arm
D	Surface	Pulley
O*	Interior Mechanism	Clutch
O	Felt Washer	Clutch
O	Bearing	Latchlever
O	Cam Surface	Clutch
O	Bearing	Pulley

*Refer to 1.05.
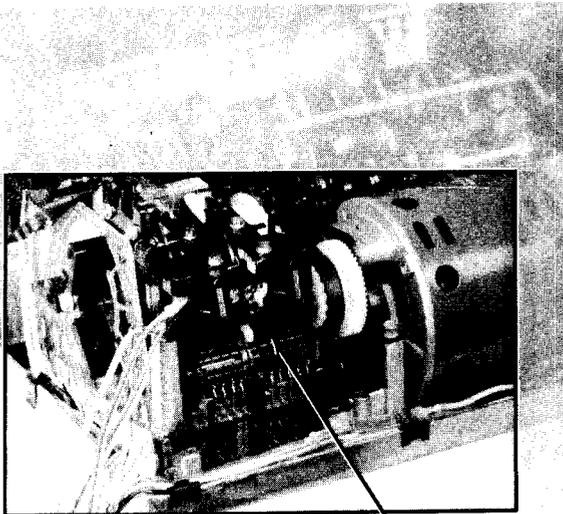
(Top View)

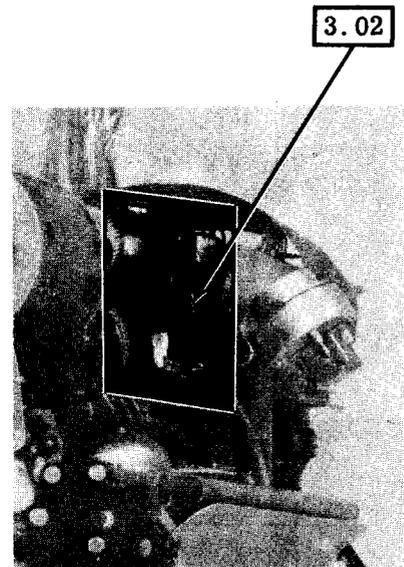## 3.   VARIATIONS TO BASIC UNITS

3.01   Answer-Back Area

3.03

(Left Rear View)

3.02

(Left Side View)

3.02   Trip Magnet

Note: Remove answer-back drum.

O	Pivots (2)	Armature
D	Contact Surface	Armature
O	Hooks (Each End)	Armature Spring
G	Latching Surface	Armature Extension
O	Hooks (Each End)	Lever Spring
O	Hooks (Each End)	Control Lever Spring
O	Hooks (Each End)	Blocking Follower Spring
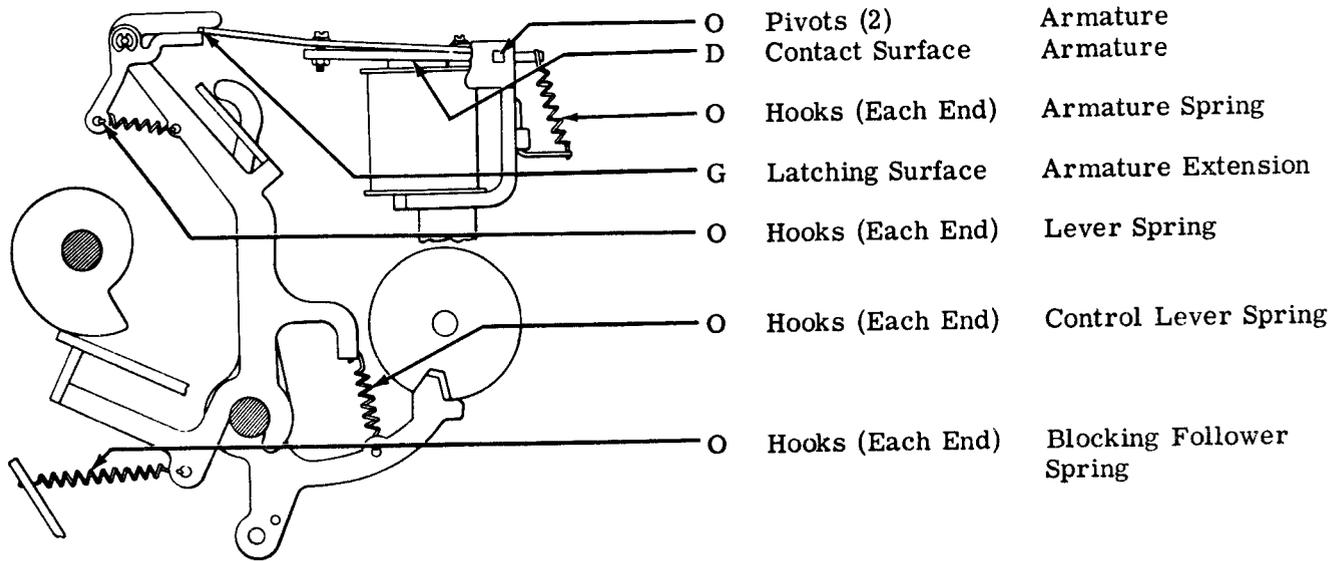
3.03   Answer-Back Mechanism

|		
O	Camming Surface	Follower Lever
O	Pivots (2)	Trip Shaft
O	Camming Surface	Feed Lever
O	Pivot	Feed Pawl
O	Hooks (Each End)	Feed Pawl Spring
D	Tine Surfaces	Drum
D	Feed Ratchet	Drum
O	Hooks (Each End)	Feed Lever Spring
D	Contact Surface	Contact Wires (9)
O	Hooks (Each End)	Control Lever Spring
D	Contact Extension	Break Lever
D	Hooks	Springs (9)
O	Hooks (Each End)	Detent Lever Spring
O	Pivot	Function Lever
O	Hooks (Each End)	Follower Spring

Note: Replace answer-back drum.

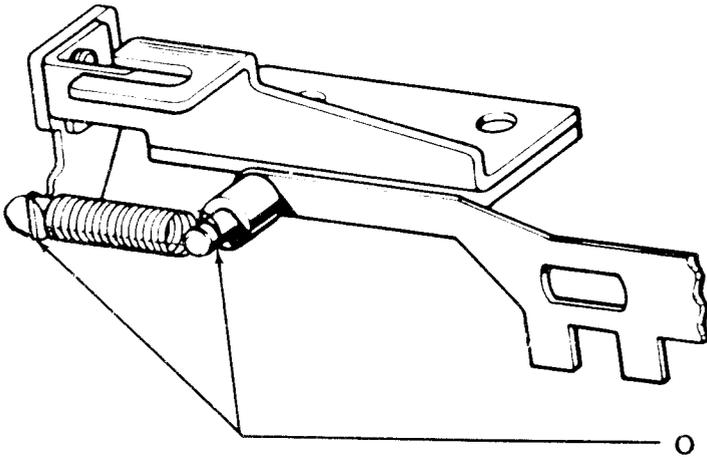CAUTION: DO NOT CLEAN CONTACT BLOCK WITH SOLVENTS.

3.04   Print Nonprint Mechanism

Note: These lubrication instructions apply to both the magnet operated and solenoid operated print nonprint mechanisms.
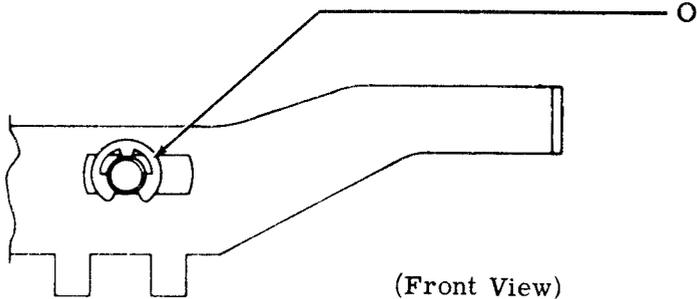
O   Contact Surface   Nonprint Codebar Mounting Posts (Each End of Codebar)

(Front View)

O   Hooks (Each End)   Nonprint Codebar Return Spring

(Right Front View)