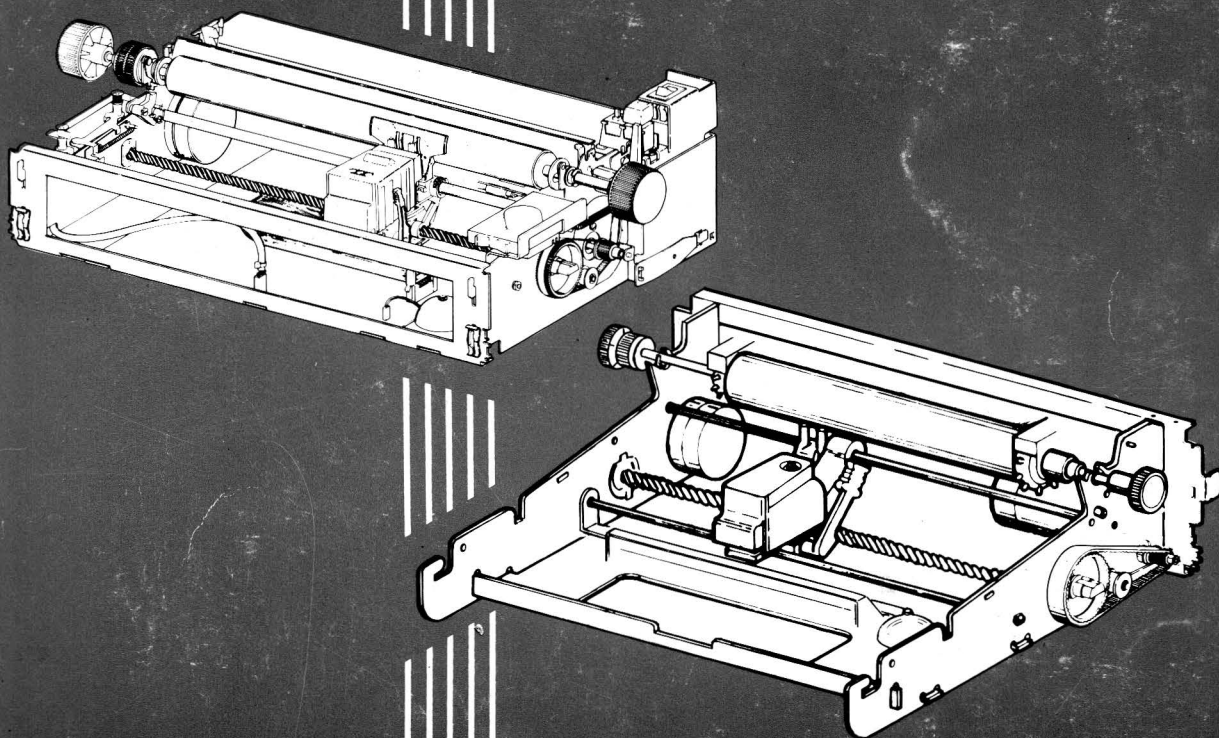




TELETYPE  
CORPORATION

**REPAIR  
MANUAL  
539**



for  
**42, 43 and 45**  
**30 CPS CHARACTER PRINTER**  
**MECHANISMS**



Teletype Corporation Product Service and Education Services

On the following page is a list of Teletype Corporation Product Service locations which provide maintenance service and repair on all Teletype Corporation products. For more information call toll free (US 800-323-4226) (IL 800-942-4192) 7:00 A.M. — 4:00 P.M. CST.

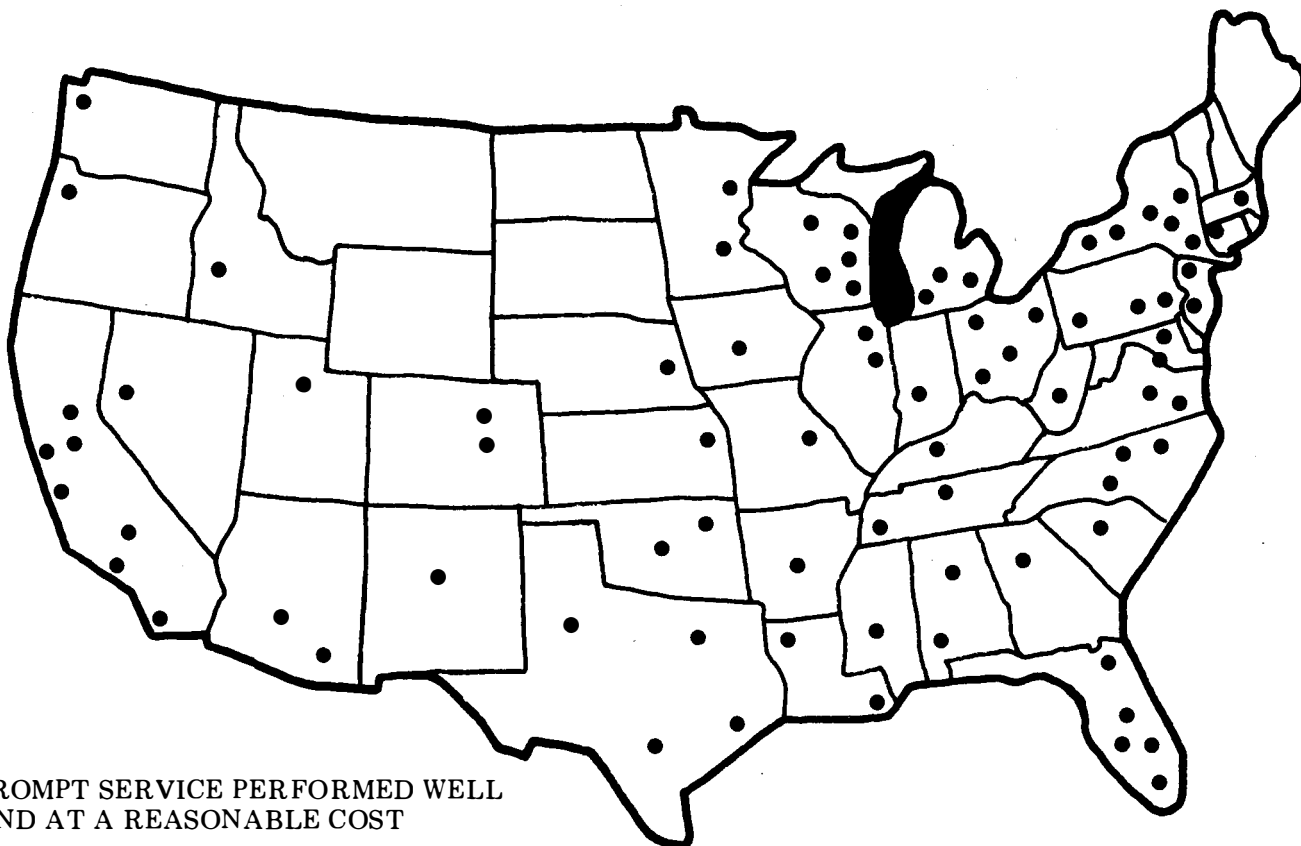
In addition, Teletype Corporation provides Customer Technical Training at its headquarters at 5555 W. Touhy Avenue, Skokie, IL in the northwest suburban area of Chicago. The training covers the installation, maintenance and repair of all Teletype Corporation products. Arrangements can also be made for training to be conducted at customer-selected field sites.

For information about class schedules, enrollment, tuition, on-site training or any special training needs, please contact:

Technical Training Center  
Staff Manager - Operations Support  
Teletype Corporation  
5555 W. Touhy Avenue  
Skokie, Illinois 60077  
Telephone (312) 982-3940  
TLX 25-4051  
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# Teletype Corporation

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Boston	Kalamazoo	Richmond
Buffalo	Kansas City	Rochester
Charleston	Lansing	Sacramento
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Cincinnati	Los Angeles	San Diego
Cleveland	Louisville	Santa Clara
Colorado Springs	Lubbock	Seattle
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Columbus	Memphis	St. Louis
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Decatur	Milwaukee	Tampa
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Call Toll Free 800/323-4226

In Illinois 800/942-4192

In Canada, call 416/745-9474

43, 43 AND 45-30 CPS CHARACTER PRINTER MECHANISMS

REPAIR MANUAL

INTRODUCTION

This manual provides repair information for 42, 43 and 45-30 CPS Character Printer Mechanisms. The manual is intended for field and shop use and is arranged into various parts that include troubleshooting, disassembly/reassembly, adjustments and spring tensions, wiring, lubrication, parts and print head packing information.

Testing is not included in this manual. Therefore printer mechanisms should be tested as part of the teleprinter and troubles are isolated to major areas using the appropriate service manual for the teleprinter. Troubles are isolated within the printer mechanisms in this manual.

The task flow chart on the next page illustrates the intended repair activities and the associated manual parts.

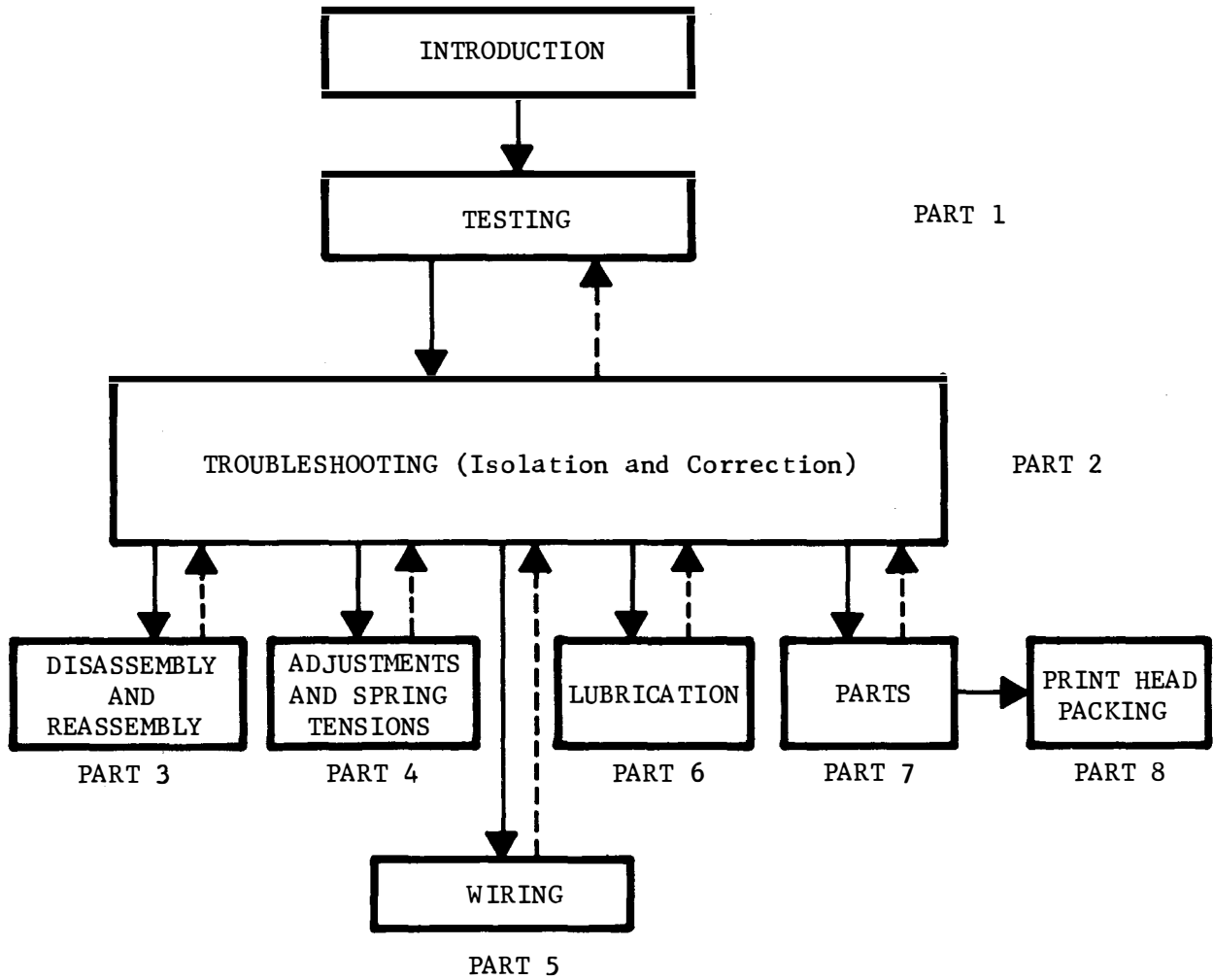
Service parts for repair are available from Teletype Corporation. Service personnel should be properly trained and have access to these parts before attempting repair or printer mechanisms. Contact Teletype Corporation Technical Training Center, Staff Manager-Operations Support, 312-982-3941 for repair courses available.

REPAIR MANUAL FOR  
42, 43 AND 45-30 CPS CHARACTER PRINTER  
MECHANISMS

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PART 2	TROUBLESHOOTING
PART 3	DISASSEMBLY/REASSEMBLY
PART 4	ADJUSTMENTS AND SPRING TENSIONS
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TASK FLOW CHART



PART 1 -- TESTING

Refer to the appropriate service manual for testing information. In the service manual, testing is performed at a terminal level and troubleshooting is based on isolation of troubles to major components.

The list below indicates the printer mechanisms and their associated service manual to date:

<u>PRINTER MECHANISM</u>	<u>SERVICE MANUAL NUMBER</u>	<u>SERVICE MANUAL DESCRIPTION</u>
12 Inch Friction Feed	538*	42 Basic Teleprinter
12 Inch Pin and Friction Feed	369	43 Basic Teleprinter
12 Inch Pin and Friction Feed	406	43 Buffered KSR
12 Inch Pin and Friction Feed	425	42 Buffered KSR
12 Inch Pin and Friction Feed	468*	43 Buffered KSR Selective Calling
12 Inch Pin and Friction Feed	482*	42 Buffered KSR Selective Calling
12 Inch Tractor Feed	369, Issue 4 or later*	43 Basic Teleprinter
12 Inch Tractor Feed	406, Issue 3 or later*	43 Buffered KSR
12 Inch Tractor Feed	425, Issue 2 or later*	42 Buffered KSR
12 Inch Tractor Feed	468*	43 Buffered KSR Selective Calling
12 Inch Tractor Feed	482*	42 Buffered KSR Selective Calling
15 Inch Tractor Feed	499*	15 Inch 30 CPS Character Matrix Printer

\*Until the manuals listed above are available, testing should be performed using the How to Operate manual associated with the teleprinter.



PART 2 – TROUBLESHOOTING

	<u>CONTENTS</u>	<u>PAGE</u>
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C.	12 INCH TRACTOR FEED PRINTER TROUBLESHOOTING GUIDE. ....	2-4
D.	15 INCH TRACTOR FEED PRINTER TROUBLESHOOTING GUIDE. ....	2-7

A. GENERAL

This part provides troubleshooting information for the 12 inch friction feed, sprocket (pin) feed and tractor feed printer mechanisms and the 15 inch tractor feed printer mechanism.

Printer troubleshooting is initiated either by the associated teleprinter troubleshooting sections in the applicable service manual or when trouble in the printer is suspected from symptoms observed.

Trouble analysis is presented in the form of a "20 Questions" routine in the Troubleshooting Guides. The guides, with questions and yes or no columns, should be used always starting with the first question and proceeding according to the "Yes" or "No" directive.

**B. 12 INCH SPROCKET (PIN) AND FRICTION FEED PRINTER TROUBLESHOOTING GUIDE**

QUESTION	YES	NO
1. Does test message print and paper advance properly while PRINTER TEST key is depressed? (or switch on logic card is operated on)	Go to 2.	Go to 1a.
1a. Does carriage space and return properly?	Go to 1b.	<p>Check for mechanical bind by moving carriage manually with power off.</p> <p>Check for proper spacing belt spring tension.</p> <p>Check platen end play adjustment.</p> <p>Check continuity of spacing motor and encoder.</p> <p>Check switch on print head circuit card.</p> <p>Replace spring motor and/or encoder or cable.</p> <p>Replace lead screw nut.</p>
1b. Does paper advance properly? (Successive lines uniformly spaced)	Go to 1c.	<p>Check line feed belt tension.</p> <p>Check for mechanical bind by rotating platen manually with power off.</p> <p>Check platen end play adjustment.</p> <p>Check line feed follower pulley stop bracket and pressure roller bail adjustment (friction feed).</p> <p>With power on (reset) check platen detenting through full rotation by turning platen knob.</p> <p>Check continuity of line feed motor.</p> <p>Replace motor or cable parts.</p>
1c. Sprocket Feed — Do sprocket pins on platen line up with paper and with paper guides?	Go to 1d.	<p>Check left and right sprocket adjustment.</p> <p>Check left and right paper guide adjustment.</p>
1d. Are any characters printed?	Go to 1e.	Check continuity of print head and cable.

QUESTION	YES	NO
1e. Are any dots missing from printed characters?	<p>Check print head for: open coil, cracked wire guides, split or missing armature sleeves.</p> <p>Check print head armature adjustment.</p> <p>Replace print head or cable.</p>	Go to 1f.
1f. Are any dots noticeably out of line on characters with vertical segments.	<p>Examine print head wire guides for cracks or wear.</p> <p>Replace print head.</p>	Go to 1g.
1g. Are characters excessively compressed or expanded horizontally?	<p>Check for loose encoder disc.</p> <p>Check for excessive play between lead screw and nut.</p> <p>Replace lead screw nut.</p>	Go to 1h.
1h. Is proper print density obtained (good ribbon, proper multi-copy paper)?	Go to 1i.	<p>Check print head to platen adjustment.</p> <p>With power off and carriage moved manually, check that ribbon moves with carriage without slipping during return and does not move when carriage is moved to the right.</p> <p>Check carriage and left bracket ribbon rollers for "one way" rotation.</p>
1i. Sprocket Feed — Does printed copy align properly with edge of paper (prints equally on each side of page perforation)?	<p>Undefined problem during PRINTER TEST.</p> <p>Go to Teleprinter Troubleshooting in Service Manual.</p>	Check printed line position adjustment.
2. Did bell ring during PRINTER TEST.	Go to 3.	Go to 2a.
2a. Does bell ring under any conditions (CTRL G R.H. margin, etc)?	Go to Teleprinter Troubleshooting in Service Manual.	<p>Check bell coil and cable continuity.</p> <p>Check for freedom of bell plunger.</p>
3. Sprocket Feed — Does ALARM indicator light when a paper out condition is sensed?	<p>Undefined trouble.</p> <p>Go to Teleprinter Troubleshooting in Service Manual.</p>	<p>Check continuity of paper out cable and contacts.</p> <p>Check paper alarm contact adjustment.</p>

C. 12 INCH TRACTOR FEED PRINTER TROUBLESHOOTING GUIDE

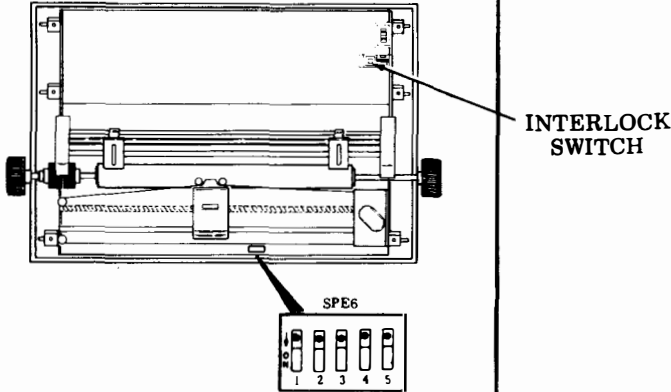
QUESTION	YES	NO
1. Does test message print and paper advance properly while <b>PRINTER TEST</b> key is depressed (or switch on logic card) is operated?	Go to 2.	Go to 1a.
1a. Is red lamp on power supply lit?	Go to 1b.	Go to Teleprinter Troubleshooting in Service Manual.  Check circuit in printer that failed for shorts.
1b. Does anything print or perform?	Go to 1c.	Go to Teleprinter Troubleshooting in Service Manual.
1c. Does carriage space and return properly?	Go to 1d.	Check for mechanical bind by moving carriage manually with power off. Check for proper lead screw lubrication. Check for proper spacing belt spring tension. Check continuity of spacing motor and encoder. Check switch on print head. Replace motor and/or encoder or cable. Replace lead screw nut.
1d. Does paper advance properly (successive lines uniformly spaced)?	Go to 1e.	Check for mechanical bind by rotating platen manually with power off. Check for both tractor rotation as platen knob is rotated. Check <b>PLATEN END PLAY</b> adjustment. Check line feed motor gear backlash. Check idler gear to platen gear backlash. With power on (reset) check platen detenting through full rotation by turning platen knob. Check continuity of line feed motor. Replace motor or cable.

QUESTION	YES	NO
1e. Do tractor pins line up with paper holes?	Go to 1f.	Check paper specifications.
1f. Are any characters printed?	Go to 1g.	Check continuity of print head and cable. Go to Teleprinter Troubleshooting in Service Manual.
1g. Are any dots missing from printed characters?	Check continuity of associated print magnet.  Check <u>PRINT HEAD ARMATURE</u> adjustment.  Replace print head or cable.	Go to 1h.
1h. Are any dots noticeably out of line on characters with vertical segments?	Replace print head.	Go to 1i.
1i. Is proper print density obtained (good ribbon, proper multicopy paper)?	Go to 2.	Check <u>PRINT HEAD TO PLATEN</u> adjustment.  With power off and carriage moved manually, check that ribbon moves with carriage during return but does not move when carriage is moved to the right.  Check left bracket ribbon rollers for "one way" rotation.
1j. Does printed copy align properly with edge of paper (prints equally on each side of page perforation)?	Undefined problem during <u>PRINTER TEST</u> .  Go to Teleprinter Troubleshooting in Service Manual.	Reposition tractors.  Readjust left margin vernier.

## C. 12 INCH TRACTOR FEED PRINTER TROUBLESHOOTING GUIDE (Contd)

QUESTION	YES	NO
2. Did bell ring during PRINTER TEST?	Go to 3.	Go to 2a.
2a. Does bell ring under any conditions (on power turn on)?	Go to Teleprinter Troubleshooting in Service Manual.	Check bell coil and cable continuity.  Check for freedom of bell plunger.
3. Does ALARM indicator light when a paper-out condition is sensed?	Undefined trouble.  Go to Teleprinter Troubleshooting in Service Manual.	Check continuity of paper-out cable and contacts.  Check <u>PAPER ALARM CONTACT</u> adjustment.

D. 15 INCH TRACTOR FEED PRINTER TROUBLESHOOTING GUIDE

QUESTION	YES	NO
<p>1. Does test message print and paper advance properly while switch SPE6 No. 1 (Printer Test) is operated on the logic card (interlock switch closed)?</p> 	<p>Go to 2.</p>	<p>Go to 1a.</p>
<p>1a. Does carriage space and return properly?</p>	<p>Go to 1b.</p>	<p>Check for mechanical bind by moving carriage manually with power off.</p> <p>Check spacing belt tension arm spring.</p> <p>Check continuity of spacing motor and encoder.</p> <p>Check switch on the print head.</p> <p>Replace spacing motor and/or encoder or cable.</p> <p>Replace lead screw nut.</p>
<p>1b Does paper advance properly (successive lines uniformly spaced)?</p>	<p>Go to 1c.</p>	<p>Check for mechanical bind by rotating platen manually with power off.</p> <p>Check line feed motor gear backlash adjustment.</p> <p>Check printer idler gear and platen gear adjustment.</p> <p>Check tractor mechanism idler gear backlash adjustment.</p>

## D. 15 INCH TRACTOR FEED PRINTER TROUBLESHOOTING GUIDE (Contd)

QUESTION	YES	NO
1b. (Contd)		<p>Check tractor mechanism idler gear to printer platen gear adjustment.</p> <p>Check form feed tape to optical switch assembly adjustment.</p> <p>Check tractor gear to platen bushing adjustment.</p> <p>Check paper deflector shield adjustment.</p> <p>With power on (reset) check platen detenting through full rotation by turning platen knob.</p> <p>Check continuity of line feed motor.</p> <p>Replace motor or cable.</p>
1c. Are any characters printed?	Go to 1d.	<p>Check continuity of print head and cable.</p> <p>Replace logic card.</p>
1d. Are any dots missing from printed characters?	<p>Check continuity of associated print magnet.</p> <p>Check print head armature adjustment.</p> <p>Replace print head or cable.</p> <p>Replace logic card.</p>	Go to 1e.
1e. Are any dots noticeably out of line on characters with vertical segments?	Replace print head.	Go to 1f.
1f. Is proper print density obtained (good ribbon, proper multicopy paper)?	Go to 1g.	<p>Check print head to platen adjustment.</p> <p>Check that platen detent lever is in proper position for the number of ply paper being used (see How To Operate Manual for location of platen detent lever).</p>



QUESTION	YES	NO
1f. (Contd)		With power off and carriage moved manually fully right and left, check that the general direction of ribbon movement is counterclockwise as viewed from the top. If not, check carriage and left bracket ribbon for "one way" rotation.
1g. Does printed copy align properly with edge of paper (prints equally on each side of page perforation)?	Undefined problem during printer test.	Check horizontal line alignment adjustment.
2. Does alarm indicator light when a paper-out condition is sensed?	Go to 3.	Check continuity of paper-out cable and switch.  Check paper-out switch adjustment.  Check continuity of paper-out lamp (forward and reverse bias) and paper-out lamp cable.  Replace logic card.
3. Does printer form feed properly on local form feed?	Undefined problem.	Go to 3a.
3a. Does paper feed at all when FORM key is depressed?	Go to 3b.	Check continuity of form switch and cable.  Replace logic card.
3b. Does paper feed continually for about 9 seconds when FORM key is depressed?	Check form feed tape to optical switch assembly adjustment.  Check continuity of form feed tape reader cable and led.  Replace form feed tape reader.  Replace logic card.	Go to 3c.
3c. Does paper feed only while FORM key is depressed?	Check that form feed tape is in form feed tape reader.  Replace the form feed tape reader.  Replace the logic card.	Undefined problem.

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## 1. GENERAL

- 1.01 This part provides disassembly/reassembly procedures for the 12 inch friction feed, sprocket (pin) feed and tractor feed printer mechanisms and the 15 inch tractor feed printer mechanism.
- 1.02 The printer mechanism is not considered a field replaceable item. Any trouble can be corrected by adjustments or by replacement with maintenance spares.
- 1.03 Procedures are provided to remove individual assemblies and parts and are intended to directly access any assembly or part, insofar as possible, without total disassembly of the unit.
- 1.04 When removing a subassembly or part from the printer, follow the removal procedure and note the sequence of removal to enable proper reassembly. For reassembly, reverse the procedure except where different instructions are given. Perform any adjustments indicated using Part 4.
- 1.05 Disassembly of printer parts except the print head, platen, paper deflector shield, bridge assembly and tractor mechanism will require the removal of the set housing and rear frame. Refer to the appropriate service manual for set housing and rear frame removal and replacement procedures.
- 1.06 Disassembly of the printer motors will require the removal of the logic card.
- 1.07 Disassembly of the printer lead screw, carriage with post assembly, lead screw nut(s), and collar with link will require the removal of the keyboard, if present.
- 1.08 After replacing printer parts, refer to the lubrication procedures in Part 6 and lubricate any parts requiring lubrication.
- 1.09 When ordering replaceable parts or components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP430047).
- 1.10 Reference in the procedures to left and right, up or down, and top or bottom, etc, refer to the printer in its normal operating position as viewed by the operator.

## 2. TOOLS REQUIRED

- 2.01 The following tools may be required when performing the printer disassembly/reassembly procedures. Most of these items should normally be present in standard maintenance tool kits.

<u>Part No.</u>	<u>Description</u>
75765	Hook, Pull Spring
95368	Screwdriver, 1/8 Inch, 2 Inch Blade
100704	Screwdriver With Clip, 10 Inch Blade
100982	Screwdriver With Clip, 1/4 Inch, 6 Inch Blade
108285	Pliers, Long-Nose
110271	Wrench, Hex Key
124682	Wrench, Hex Key
125752	Wrench, 3/16 Inch Socket
129534	Wrench, Open End, 3/16 Inch and 1/4 Inch
142554	Hook, Pull Spring
142555	Hook, Push Spring
151392	Tweezers
152835	Wrench, Open End, 5/16 Inch and 3/8 Inch
348097	Nut Driver, 1/4 Inch
348098	Nut Driver, 5/16 Inch
407326	Extractor, I.C.

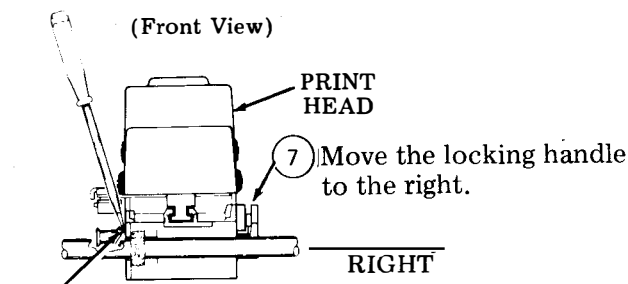
### 3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY

#### PRINT HEAD WITH COVER

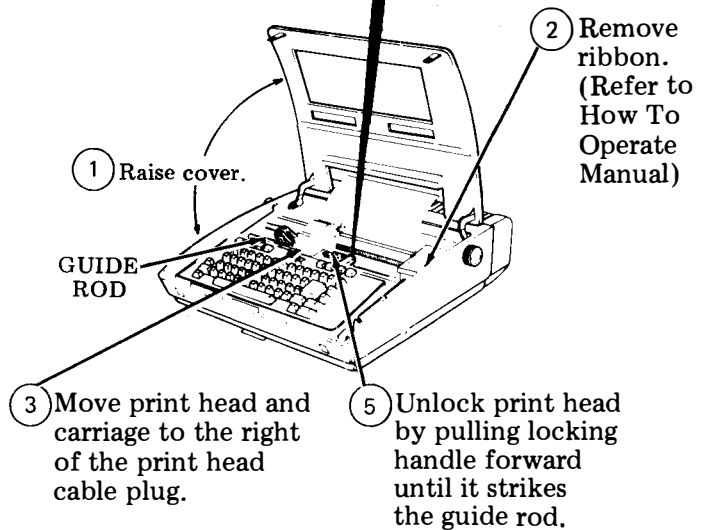
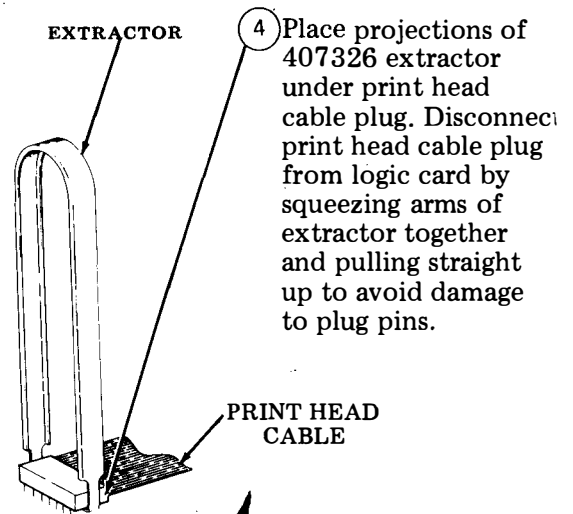
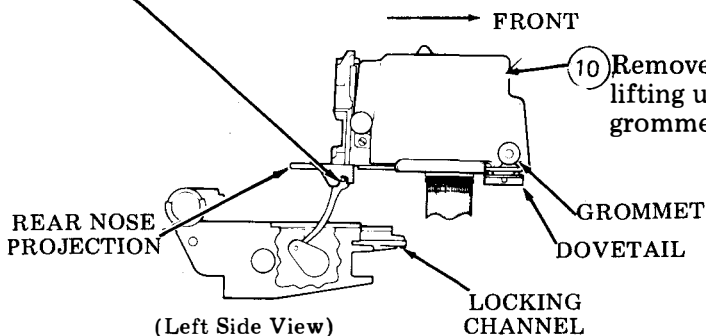
3.01 To remove the print head with cover:

*Caution: When handling loose print heads, care must be taken to prevent print head cable connector pins from being bent.*

- 8 Grasp print head and pull forward. Lift front of print head to disengage locking channels.



- 9 Disengage print head from roll pin on end of link. Remove print head.

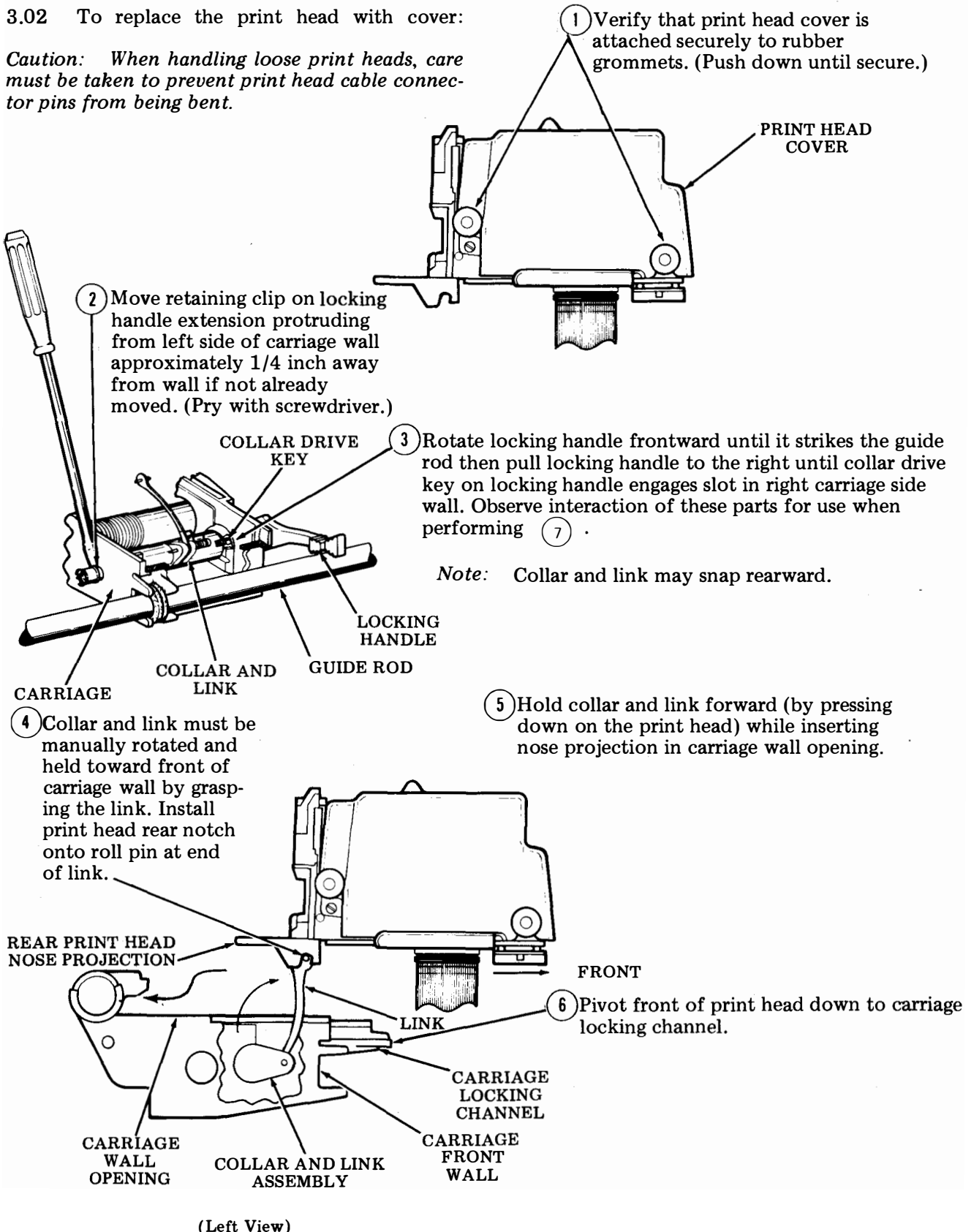


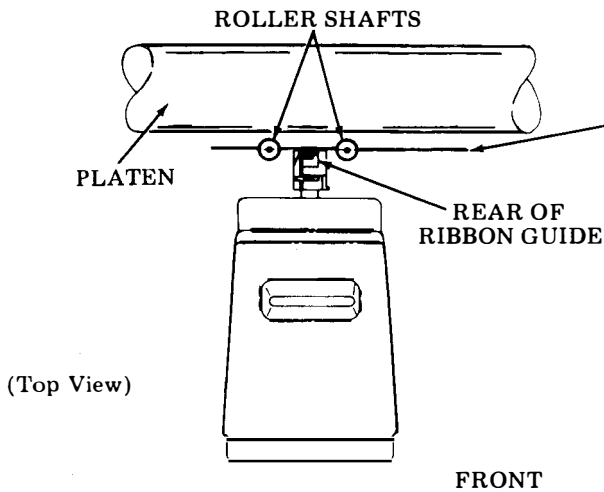
3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

PRINT HEAD WITH COVER (Contd)

3.02 To replace the print head with cover:

*Caution: When handling loose print heads, care must be taken to prevent print head cable connector pins from being bent.*





(Top View)

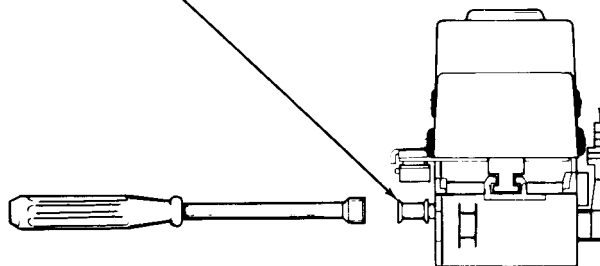
FRONT

- 7 Slowly push print head rearward and further into the carriage locking channel until the rear of the ribbon guide is even with center of roller shafts. Apply continuous leftward pressure to locking handle at its pivot shaft, while slowly pulling print head forward until collar drive key on handle engages (snaps) into slot in collar.

Note: Parts referred to were visible in 3

- 9 Position and hold print head and carriage assembly to right side of printer and use a 5/16 inch socket wrench to push clip against carriage wall.

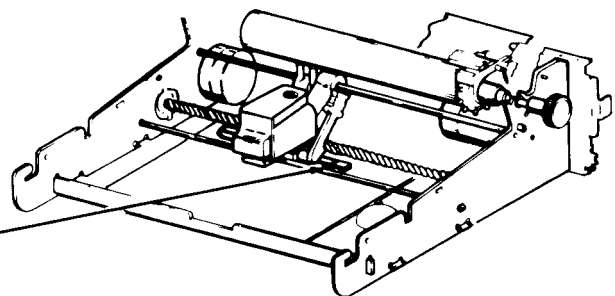
(Front View)



- 8 Move the handle all the way to the rear, locking the print head in close proximity to the platen by the additional force necessary to detent the handle. If handle does not move to rear, the drive key did not properly engage the collar slot 7.

Note: Check to make sure there is some clearance between print head and platen before detenting handle. Check PRINT HEAD TO PLATEN adjustment.

- 10 Check that no connector pins are bent and carefully connect the print head cable plug to the logic card. Make sure cable does not touch left side frame when the carriage moves fully left.

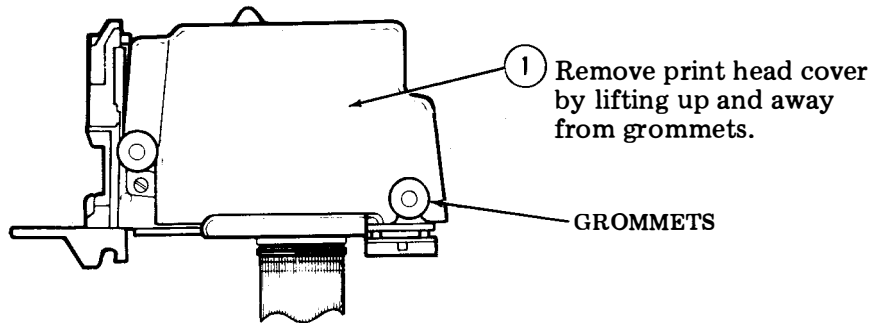


- 11 Install ribbon. (Refer to How To Operate Manual.)

3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

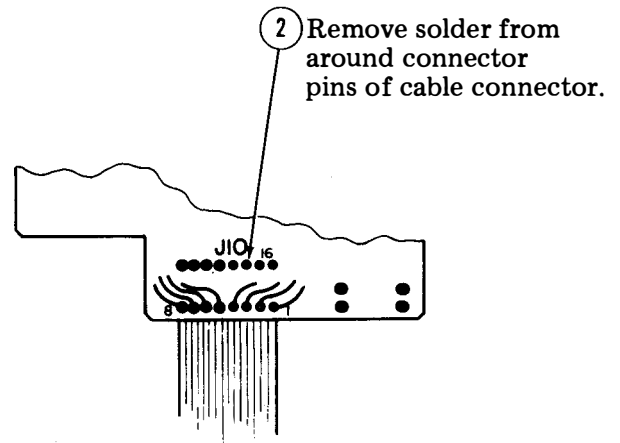
PRINT HEAD WITH COVER (Contd)

3.03 To remove the cover:

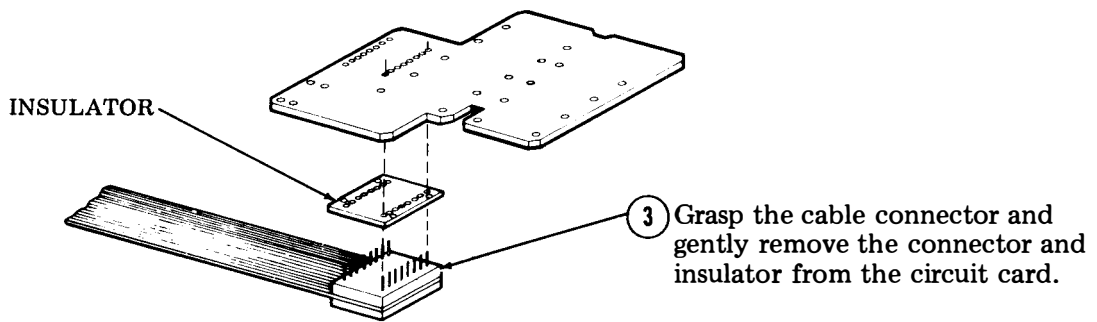


3.04 To remove the cable:

1 Remove print head cover (perform 3.03, 1).

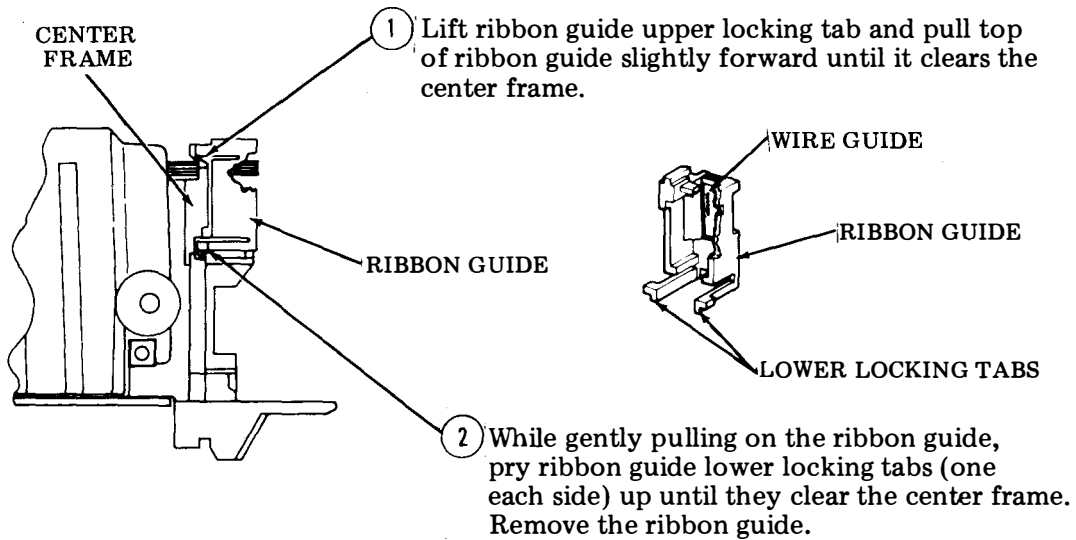


*Warning: Use a grounded, low-wattage soldering iron (avoid prolonged contact with pins) along with a desoldering tool to prevent damage to card circuits and components.*



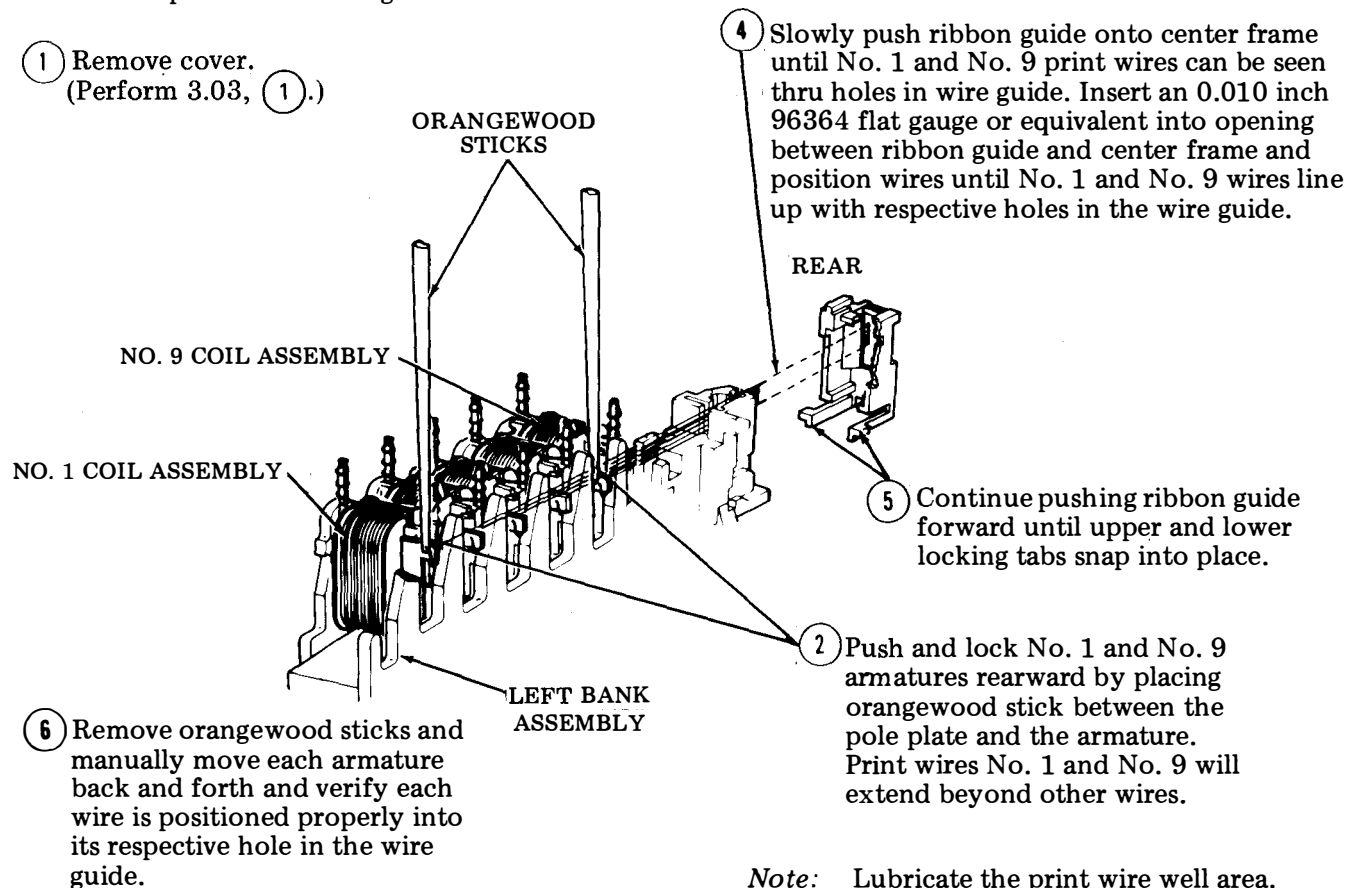
*Note: In reassembly, make sure insulator is positioned between cable connector and circuit card as shown.*

3.05 To remove the ribbon guide:



*Note:* Visually inspect the wire guide for cracks or damage whenever the ribbon guide is removed, and replace if damaged.

3.06 To replace the ribbon guide:



*Note:* Lubricate the print wire well area.

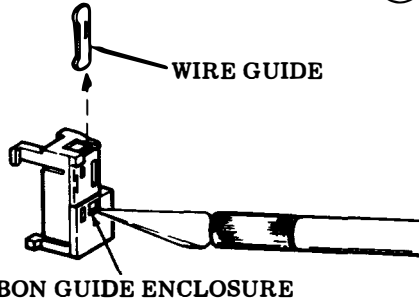


3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

PRINT HEAD WITH COVER (Contd)

3.07 To remove the wire guide:

- ① Remove the ribbon guide (perform 3.05, ① and ②).

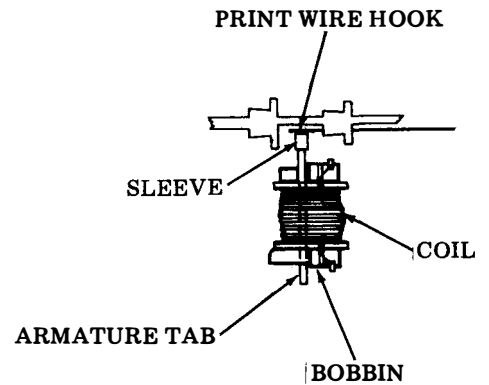
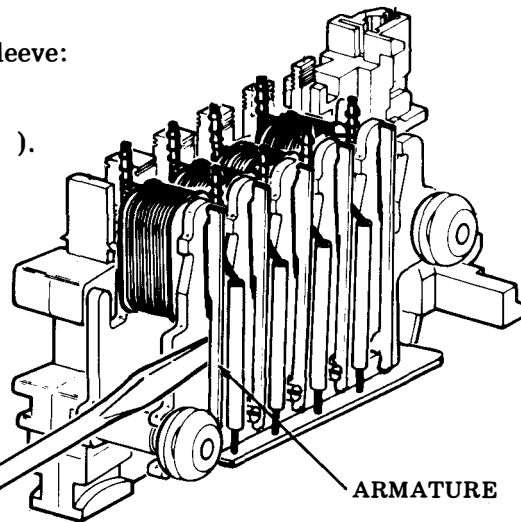


- ② Insert pointed flat blade (hobby knife) under wire guide and gently pry up until bottom of wire guide clears ribbon guide enclosure. Grasp wire guide and pull straight up to remove.

*Note:* In reassembly, insert wire guide into ribbon guide as shown above and push down until bottom of wire guide is against bottom of ribbon guide enclosure.

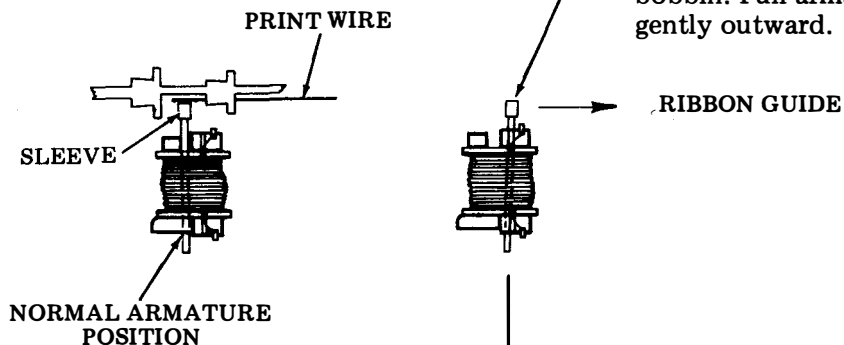
3.08 To remove the sleeve:

- ① Remove the cover (perform 3.03, ①).



- ② Pry armature gently outward (away from print wires) until sleeve slides free of print wire hook and armature tab clears bobbin.

- ③ Grasp armature and push toward ribbon guide (magnet will pull armature away from ribbon guide) until armature touches bobbin. Pull armature and sleeve gently outward.

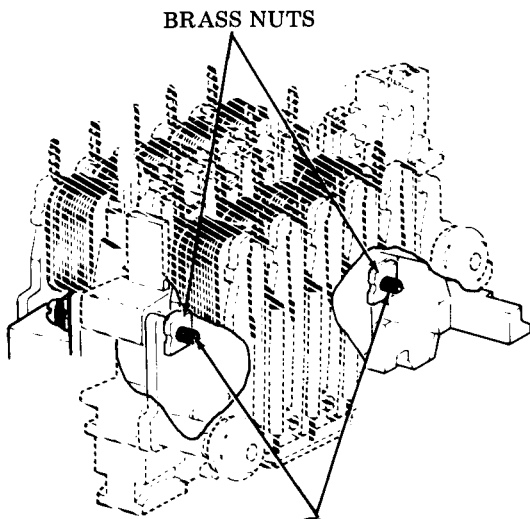


- ④ Remove sleeve from armature extension.

*Note:* In reassembly, make sure sleeve is positioned over grooves in armature extension and flush with extension edge. Lubricate any armatures removed and replaced.

3.09 To remove the coil assembly:

- ① Remove print head cover (perform 3.03, ①).

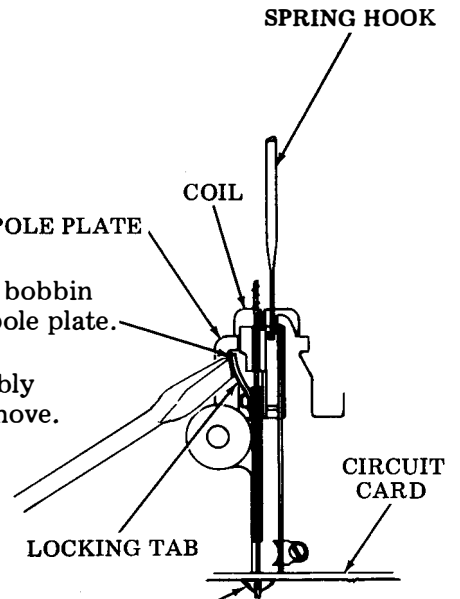


- ② Loosen two pole plate screws.

- ③ Remove armature (perform 3.08, ② and ③).

- ⑤ Pry locking tab on bobbin until it clears the pole plate.

- ⑥ Pull the coil assembly straight up and remove. Use a spring hook.



- ④ Remove solder from around coil assembly terminals.

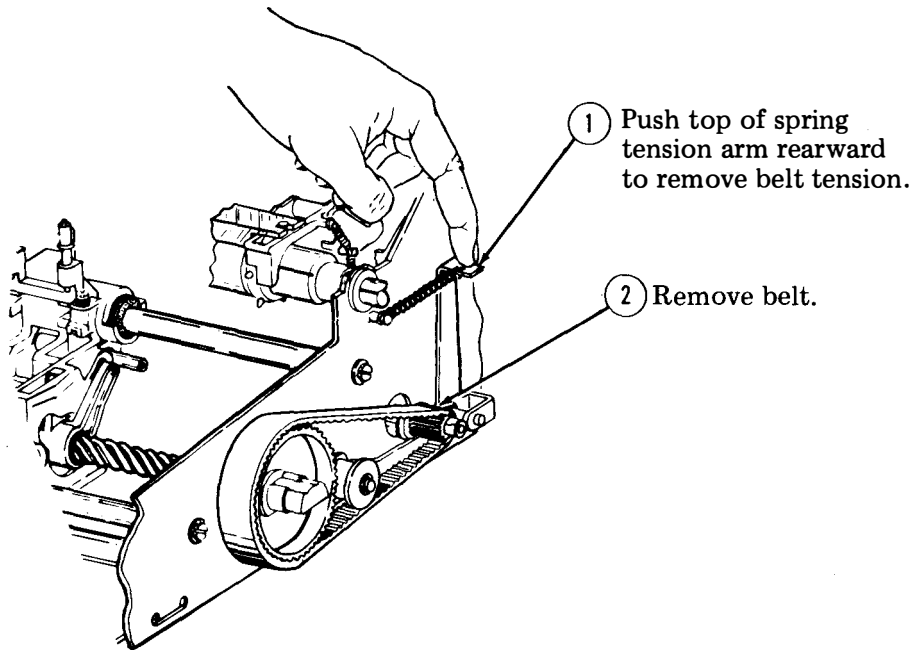
*Note:* In reassembly, note positioning of brass nuts and verify correct position as shown before tightening screws. Lubricate any armatures removed and replaced.

*Warning:* Use a low wattage soldering iron (avoid prolonged contact with terminals) along with a desoldering tool to prevent damage to circuitry.

3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

SPACING MOTOR BELT

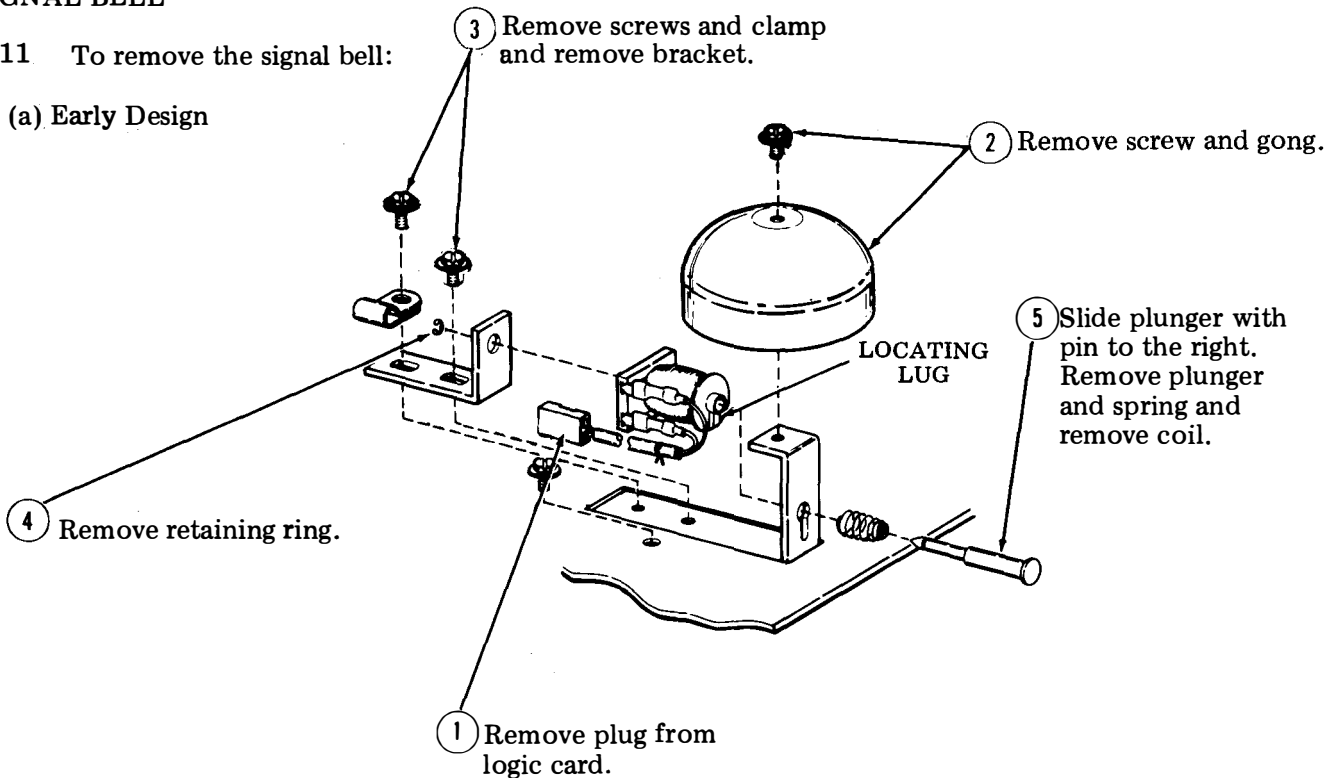
3.10 To remove the spacing motor belt:



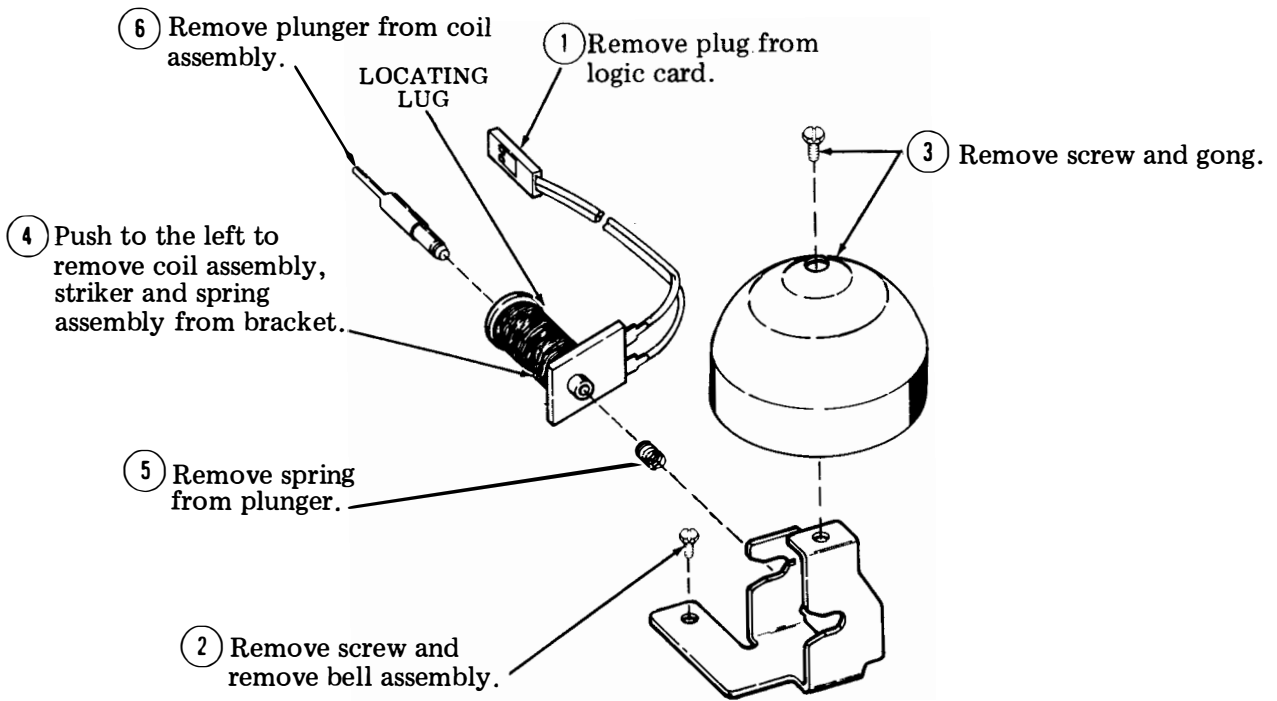
SIGNAL BELL

3.11 To remove the signal bell:

(a) Early Design



(b) Late Design

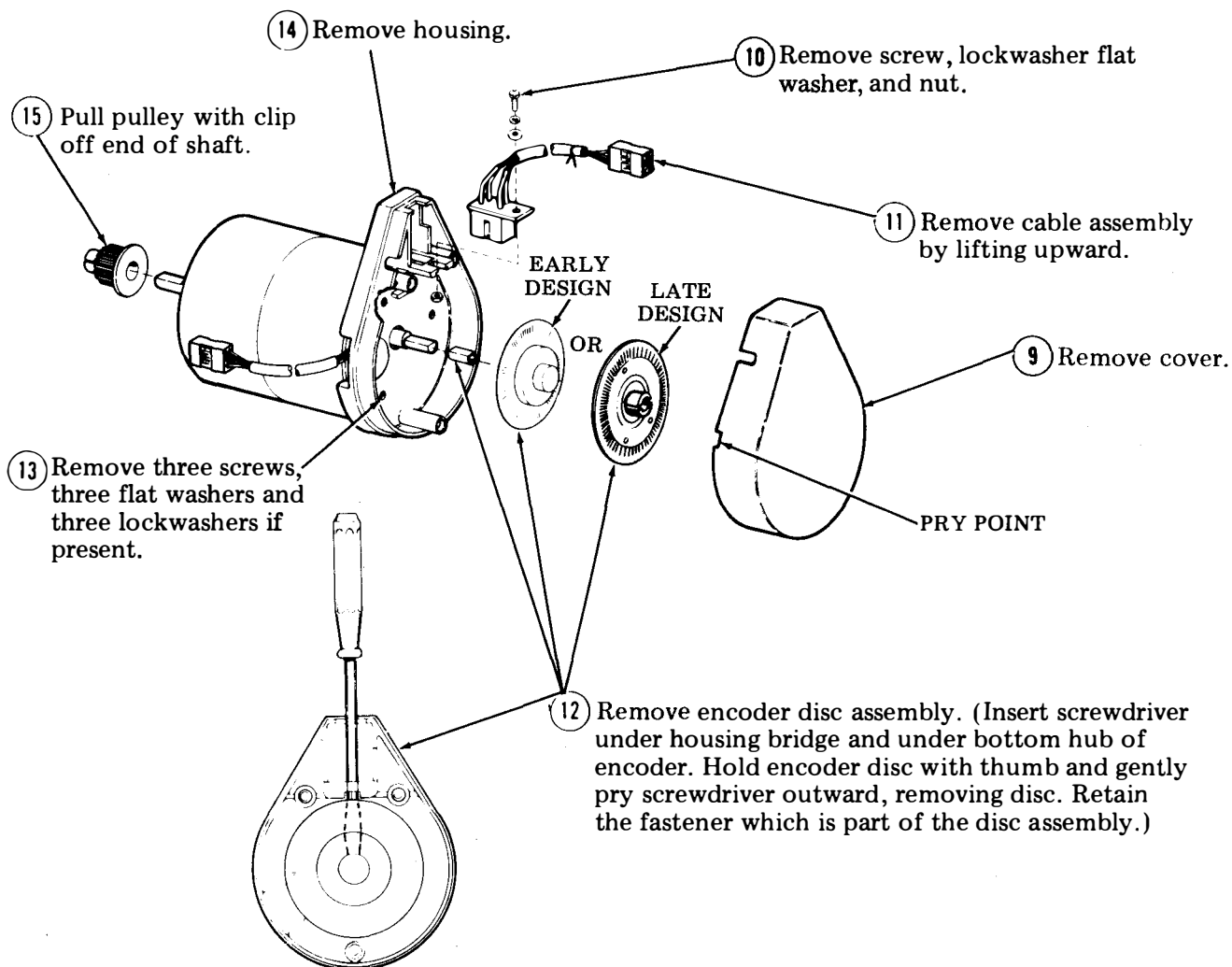
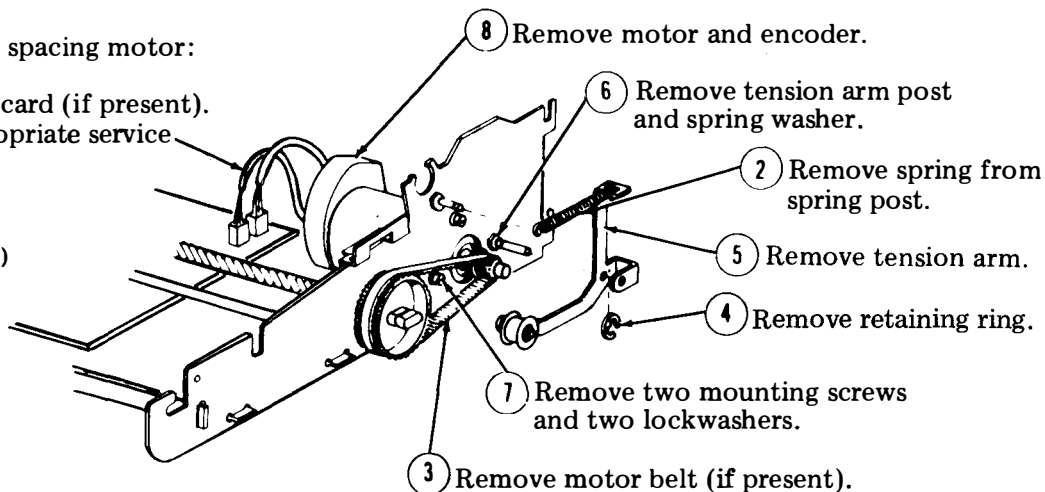


3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)SPACING MOTOR WITH CABLE AND ENCODER

3.12 To remove the spacing motor:

- ① Remove the logic card (if present). Refer to the appropriate service manual.

(Right Side View)



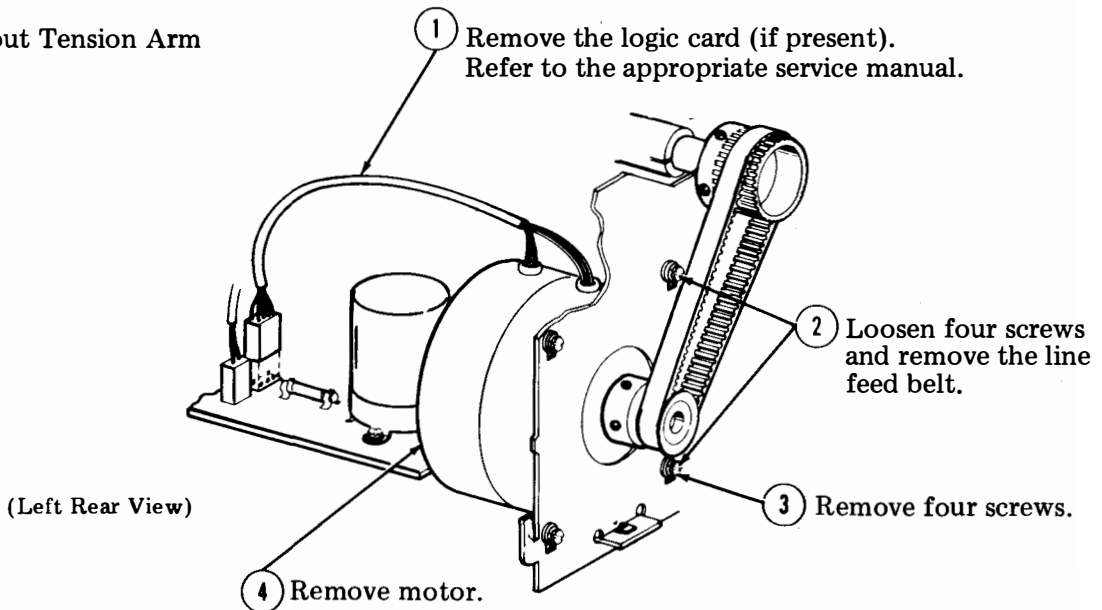
*Note:* In reassembly, make sure disc does not rub on encoder assembly.

*Warning:* Do not pull on metal disc edges as this will deform encoder disc causing it to rub against the encoder.

**LINE FEED MOTOR**

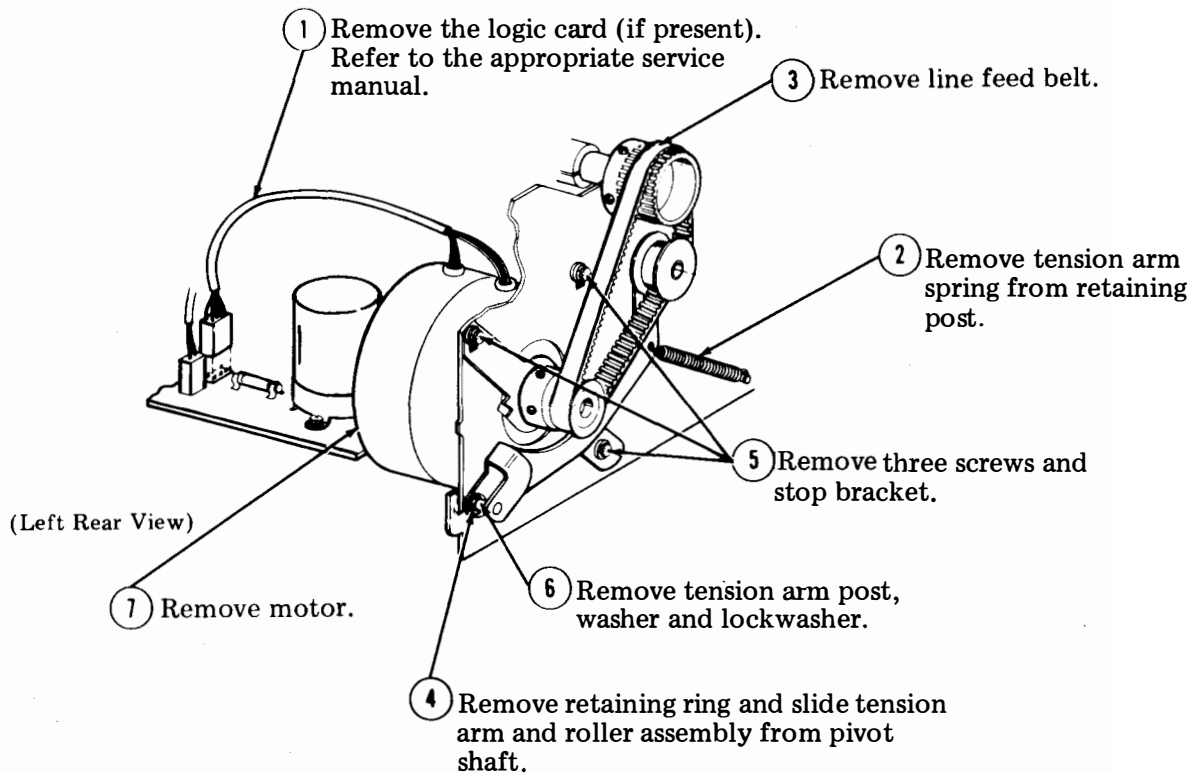
3.13 To remove the line feed motor:

(a) Without Tension Arm



Note: In reassembly, perform LINE FEED BELT TENSION adjustment.

(b) With Tension Arm

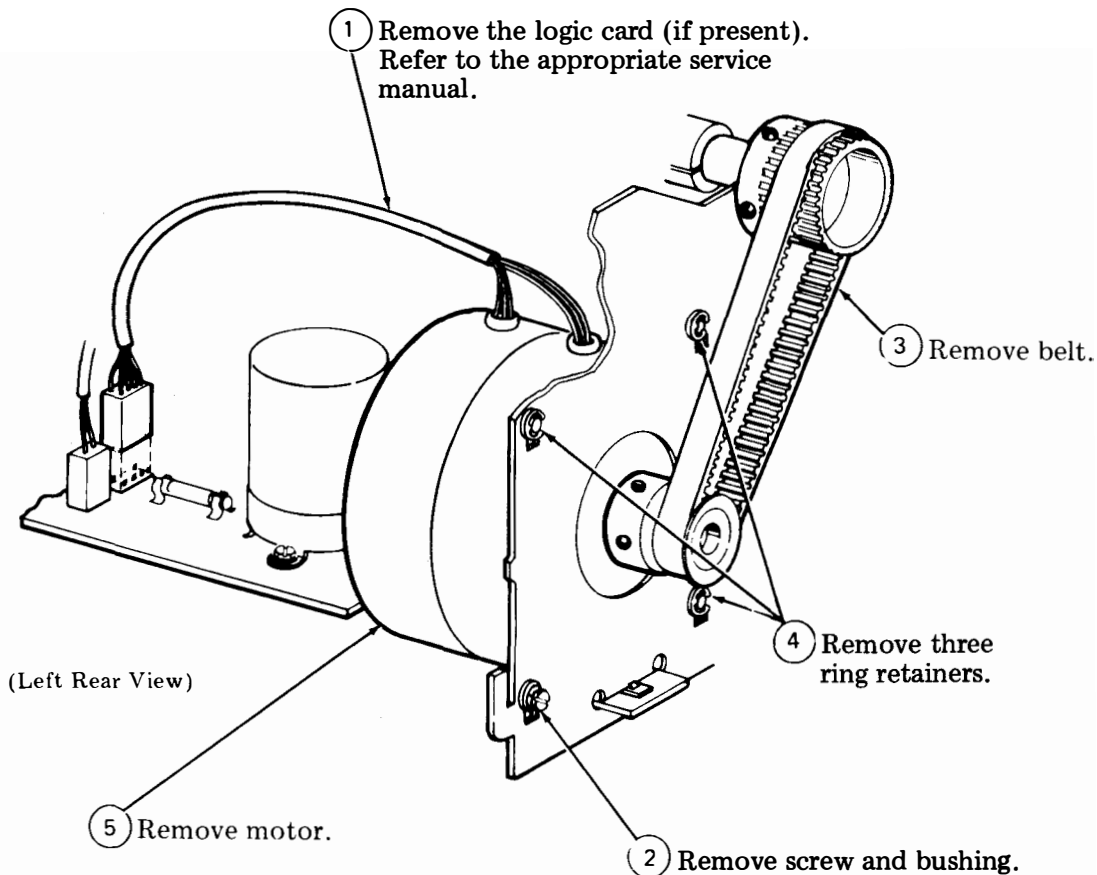


Note: In reassembly, perform STOP BRACKET adjustment.

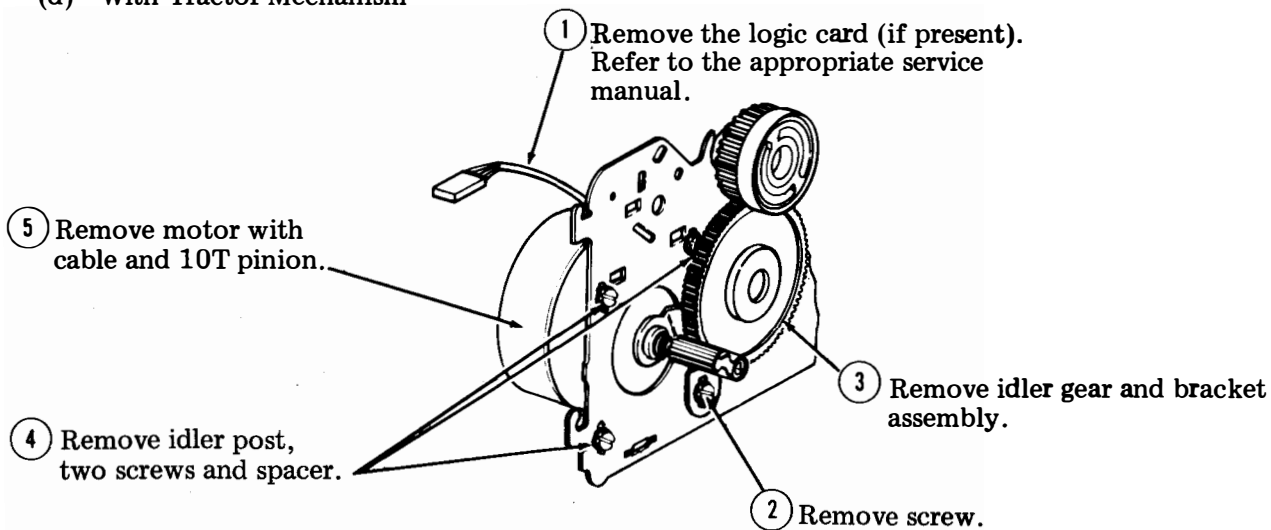
3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

LINE FEED MOTOR (Contd)

(c) With Floating Motor



(d) With Tractor Mechanism

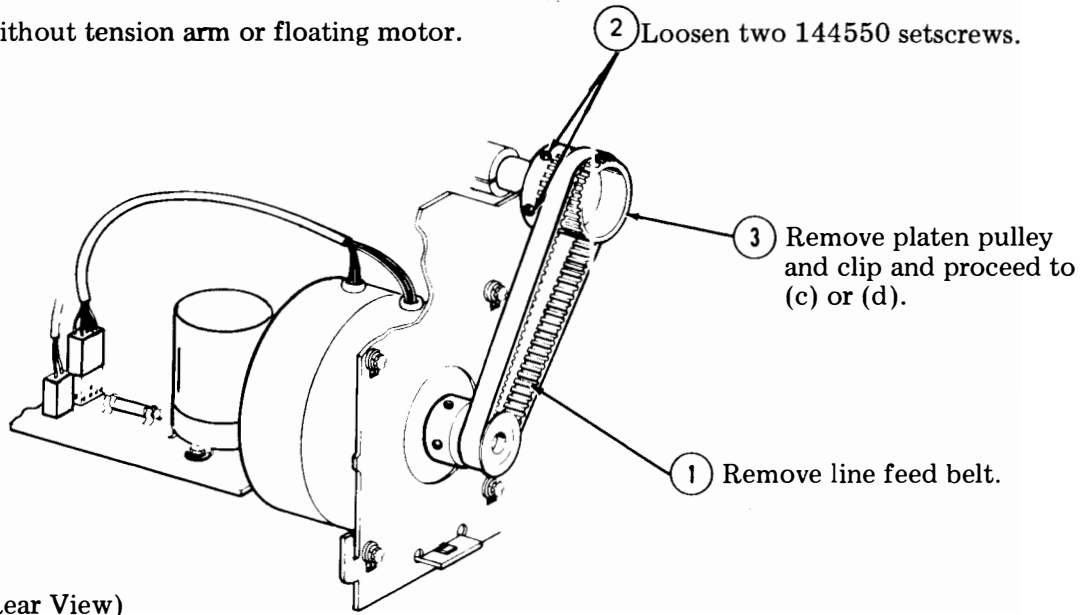


**Note:** In reassembly, perform the IDLER GEAR and PLATEN GEAR adjustments and the LINE FEED MOTOR GEAR - BACKLASH adjustment.

PLATEN

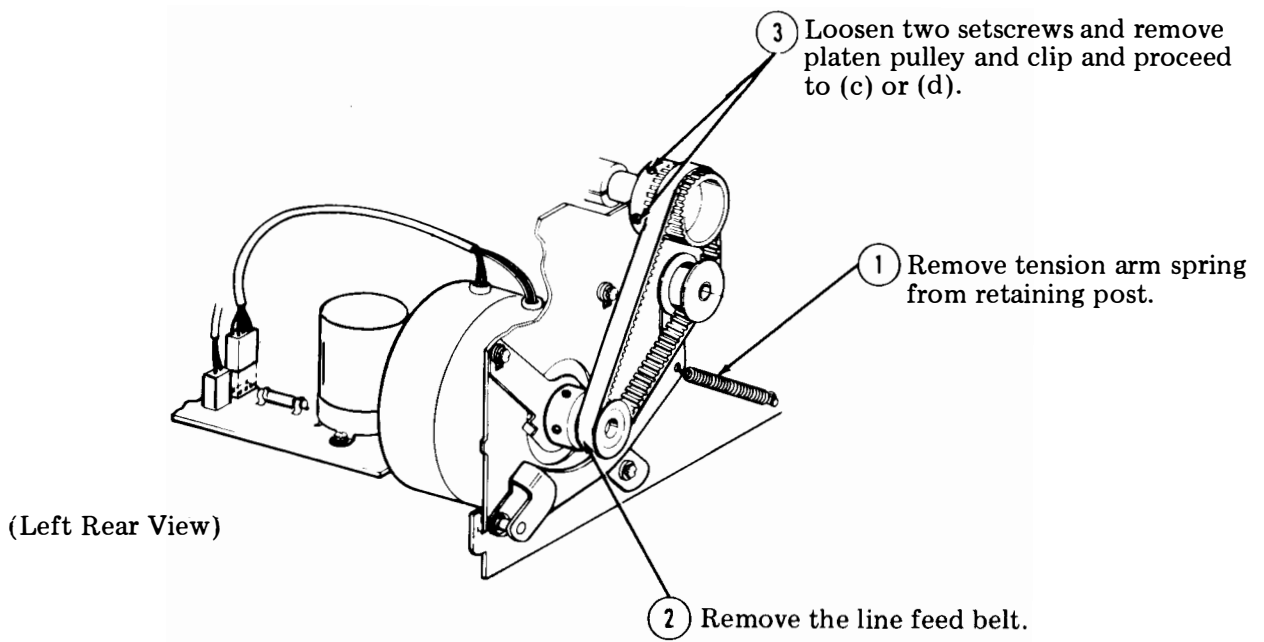
3.14 To remove the platen:

(a) Motor without tension arm or floating motor.



*Note:* In reassembly, position the setscrews away from the slot in the platen clip.

(b) Motor with tension arm.

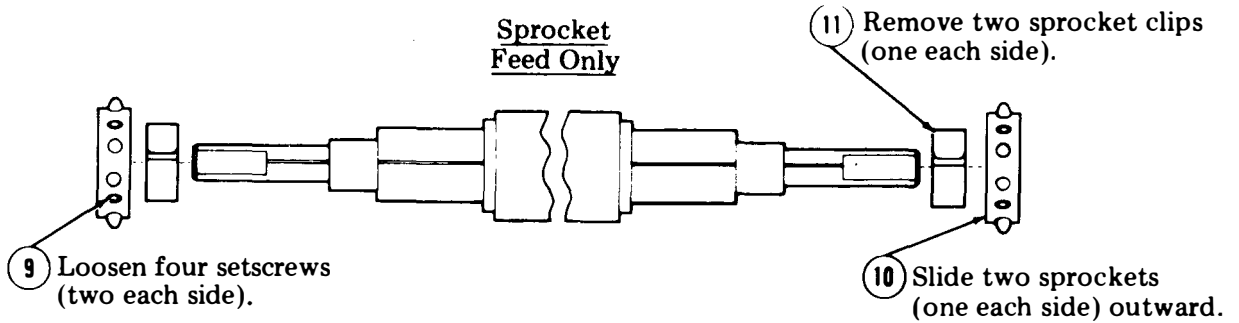
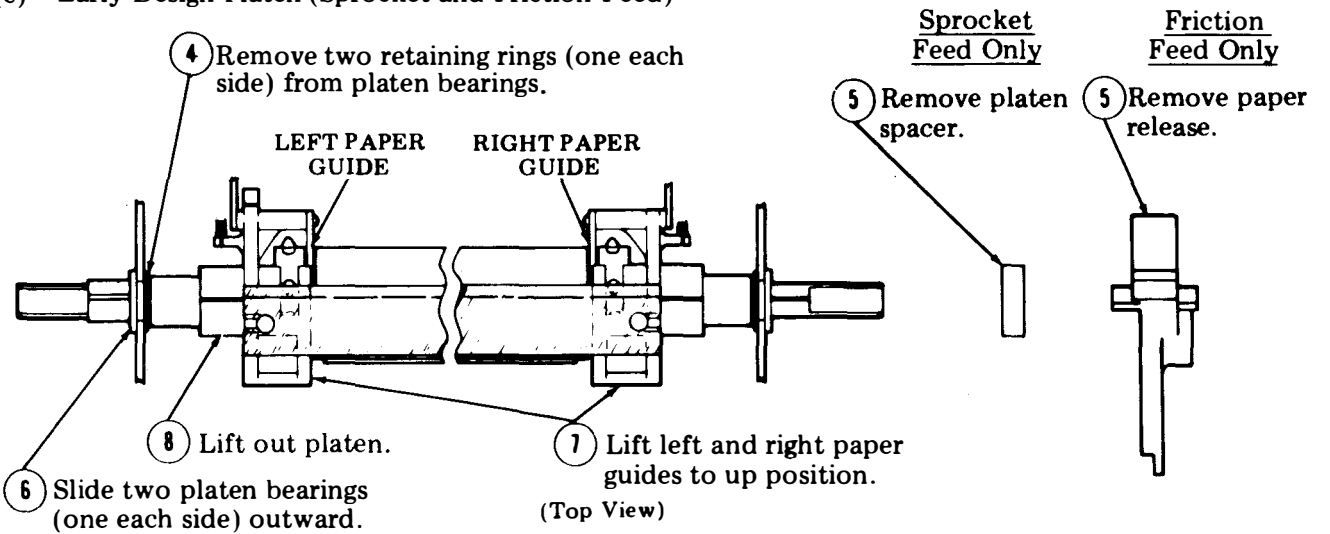




3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

PLATEN (Contd)

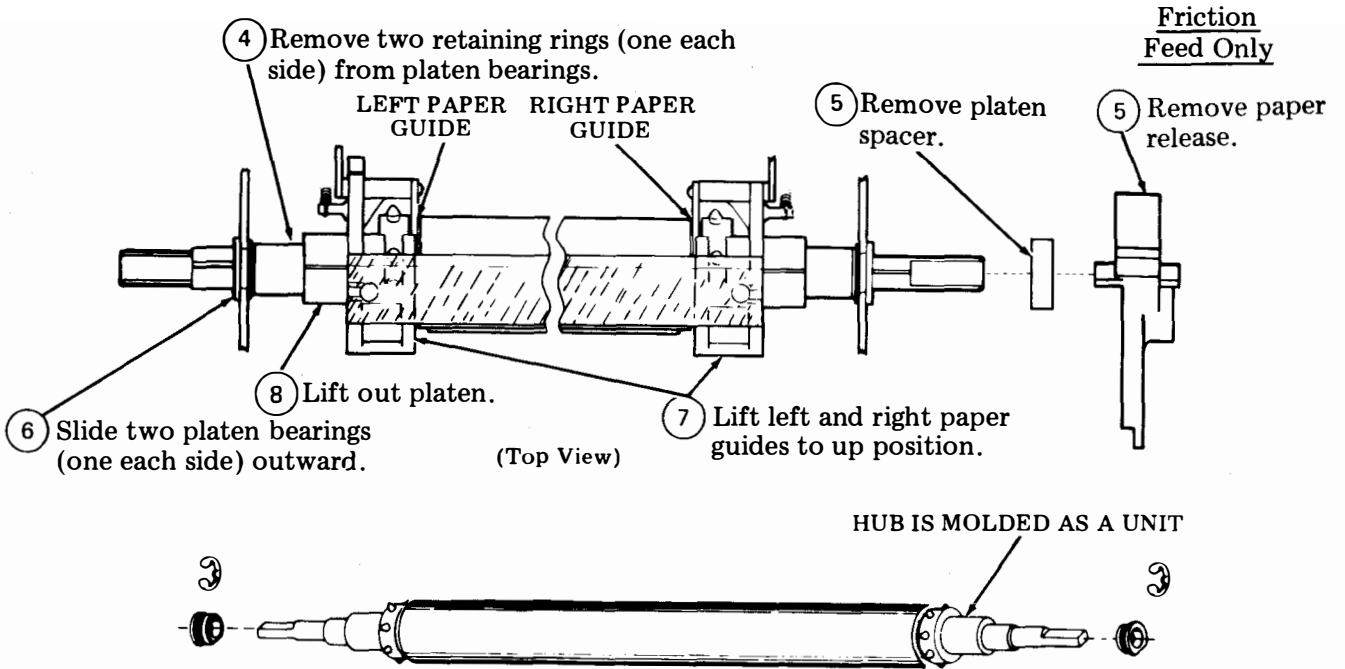
(c) Early Design Platen (Sprocket and Friction Feed)



*Note:* In reassembly, position the setscrews away from the slot in the sprocket clip.

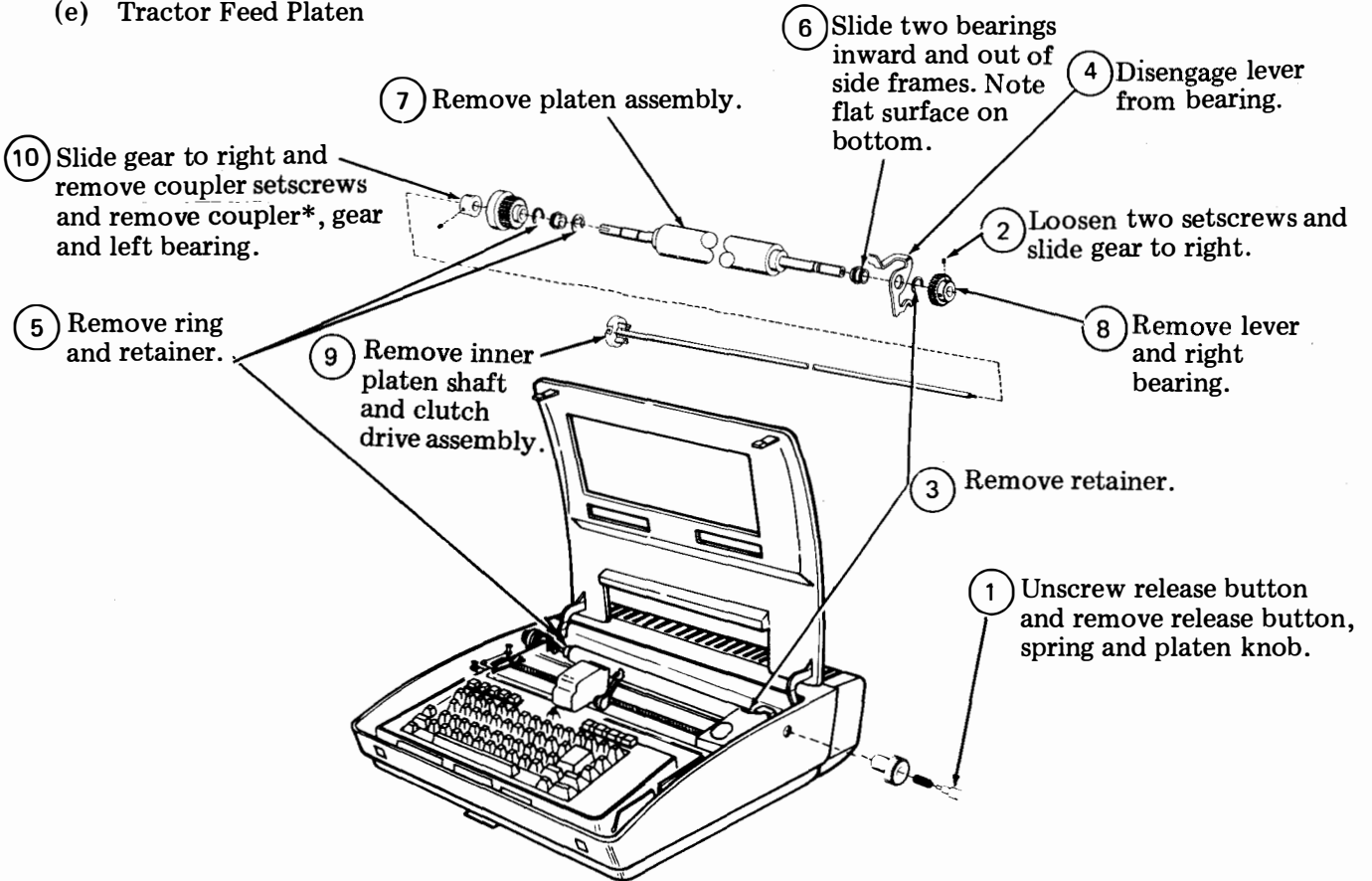
Perform the LEFT and RIGHT SPROCKET adjustments and PRINTED LINE POSITION and PLATEN ENDPLAY adjustments.

(d) Late Design Platen (Sprocket and Friction Feed)



Note: In reassembly, perform the PLATEN ENDPLAY adjustments.

(e) Tractor Feed Platen



\*In reassembly, clutch drive must be engaged with coupler when coupler setscrews are tightened.

Note: In reassembly, perform PLATEN ENDPLAY adjustment.

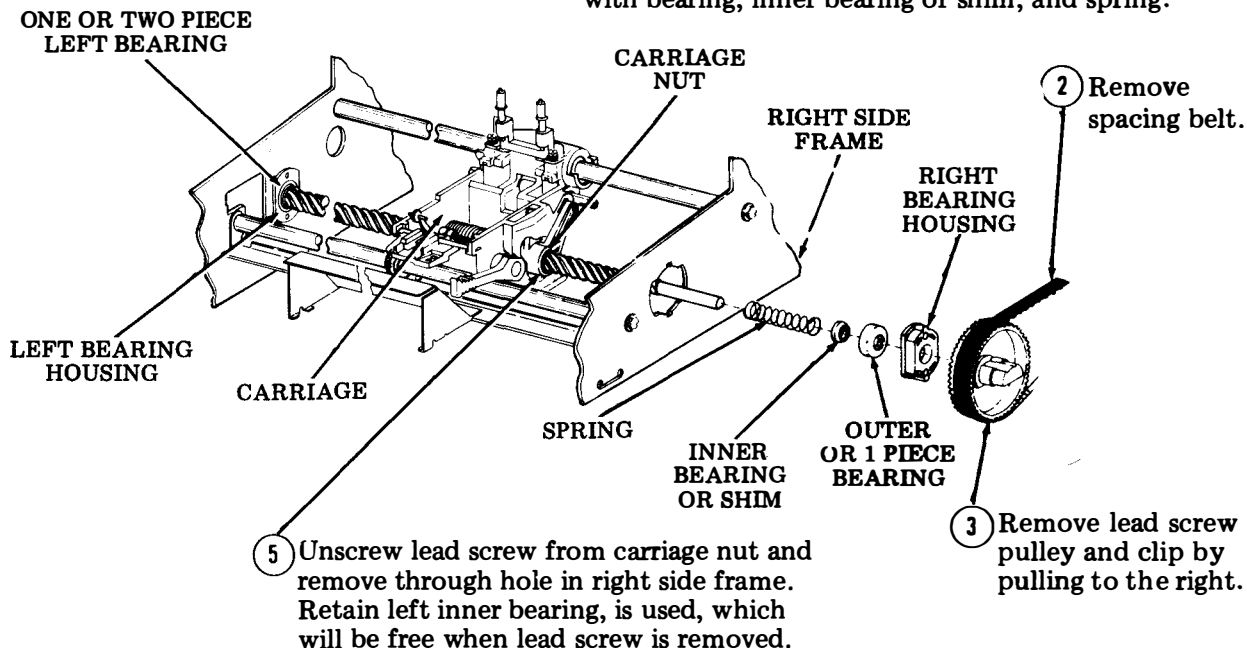
3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

LEAD SCREW

3.15 To remove the lead screw:

① Remove keyboard if present.  
Refer to the appropriate service manual.

④ Push in right bearing housing to clear right frame. Rotate 90 degrees and spring will force bearing and housing away from side frame. Remove housing with bearing, inner bearing or shim, and spring.

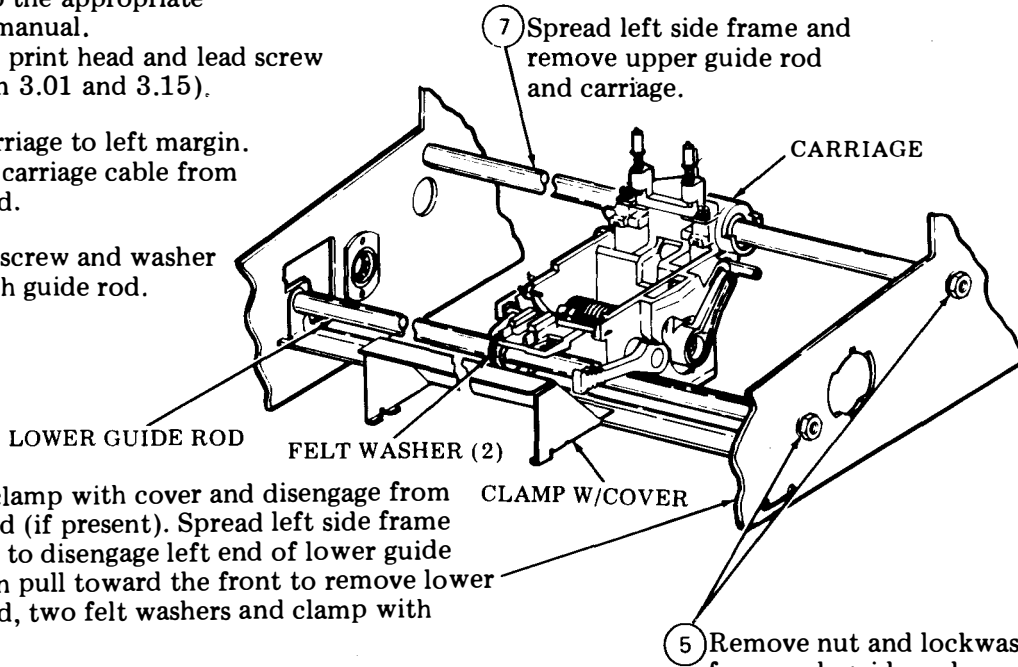


CARRIAGE WITH POST ASSEMBLY

3.16 To remove the carriage with post assembly:

*Note:* The upper guide rod must be nickel plated. The lower guide rod may be nickel plated or black oxide.

- ① Remove keyboard, if present. Refer to the appropriate service manual.
- ② Remove print head and lead screw (perform 3.01 and 3.15).
- ③ Move carriage to left margin. Remove carriage cable from logic card.
- ④ Remove screw and washer from each guide rod.

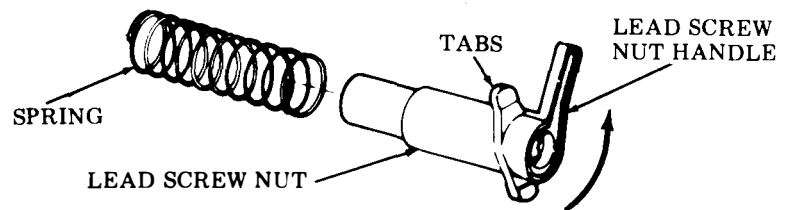


- ⑥ Spread clamp with cover and disengage from logic card (if present). Spread left side frame outward to disengage left end of lower guide rod, then pull toward the front to remove lower guide rod, two felt washers and clamp with cover.

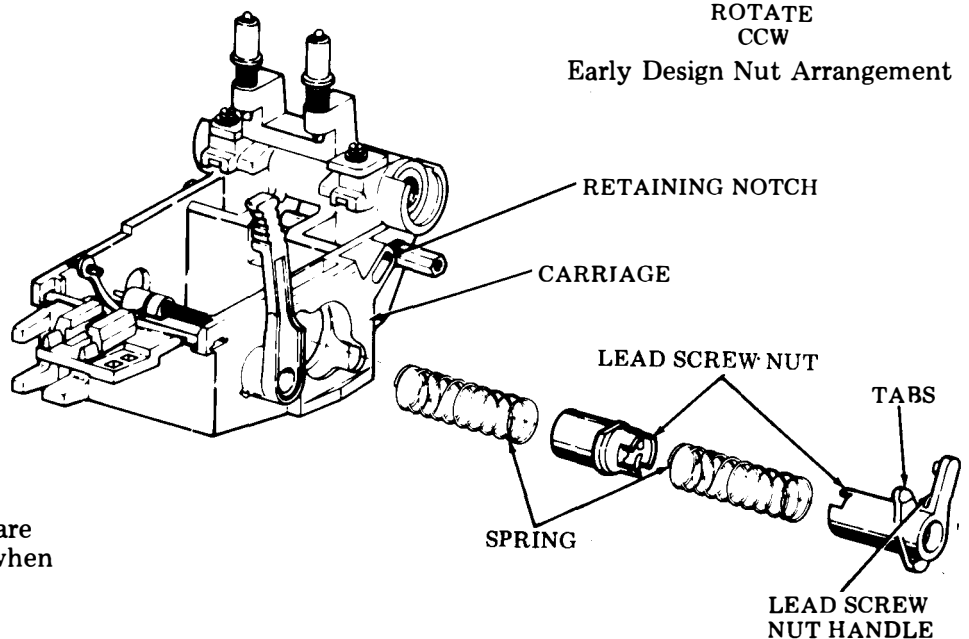
- ⑤ Remove nut and lockwasher from each guide rod.

3.17 To remove the lead screw nut:

- ① Remove keyboard, if present. Refer to the appropriate service manual.
- ② Remove print head and lead screw (perform 3.01 and 3.15).
- ③ Tilt lead screw nut handle outward to clear retaining notch in carriage. Rotate counterclockwise (CCW) until tabs on nut align with opening in carriage. Spring will force nut away from carriage.
- ④ Remove springs and nuts.



ROTATE CCW  
Early Design Nut Arrangement



Late Design Nut Arrangement

*Note:* The lead screw nuts are keyed and must be engaged when properly installed.

3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

COLLAR WITH LINK

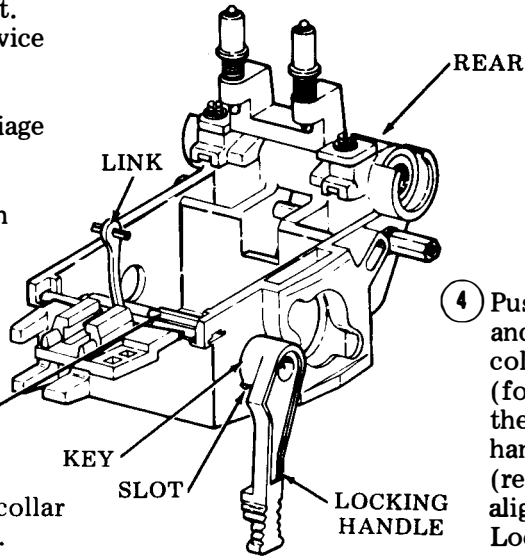
3.18 To remove the collar with link:

① Remove keyboard, if present. Refer to the appropriate service manual.

② Remove print head and carriage (perform 3.01 and 3.16).

③ Remove compression ring.

⑤ Remove collar with link.



④ Push locking handle to the left and rotate locking handle and collar fully counterclockwise (forward). Pull the handle to the right while slowly rotating handle and collar clockwise (rearward) until key on handle aligns with slot in carriage. Locking handle will pop out.

PRINT HEAD SHIELD (TRACTOR FEED) AND BRIDGE ASSEMBLY

3.19 To remove the print head shield (tractor feed) and bridge assembly:

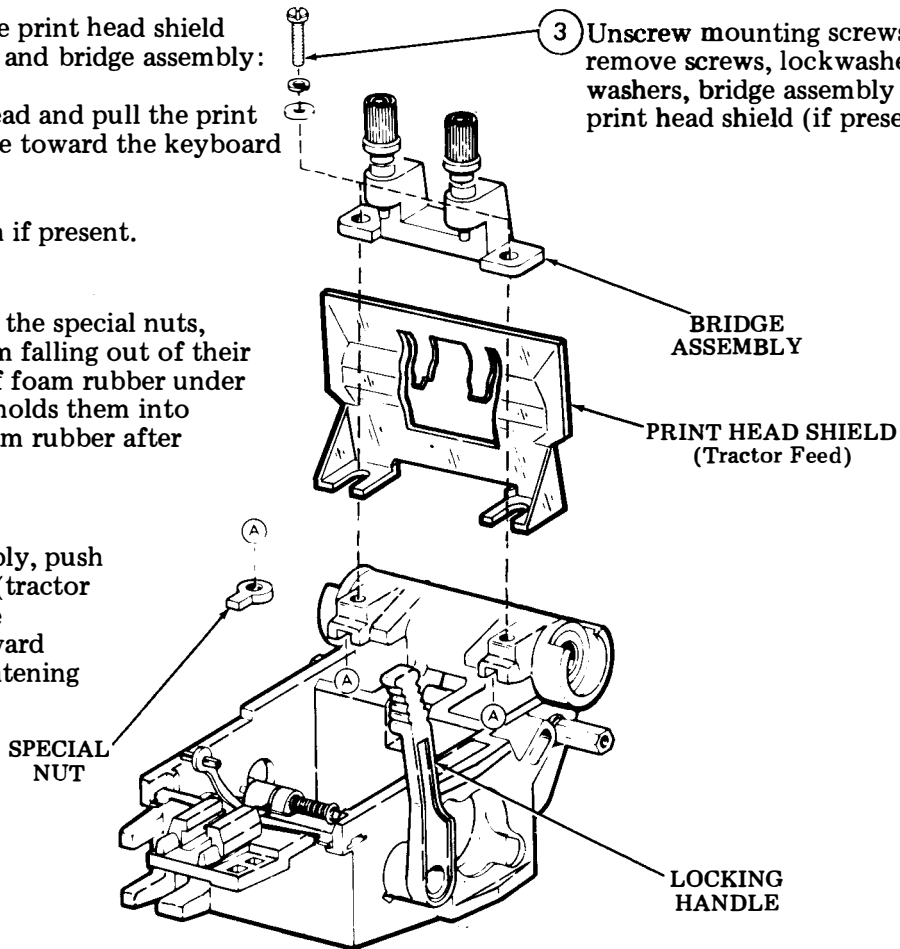
① Center the print head and pull the print head locking handle toward the keyboard as far as it will go.

② Remove the ribbon if present.

*Note 1:* To prevent the special nuts, which are keyed, from falling out of their slots, insert a piece of foam rubber under the nuts such that it holds them into position. Remove foam rubber after reassembly.

*Note 2:* In reassembly, push the print head shield (tractor feed) fully against the mounting screws (toward keyboard) before tightening mounting screws.

③ Unscrew mounting screws and remove screws, lockwashers, washers, bridge assembly and print head shield (if present).

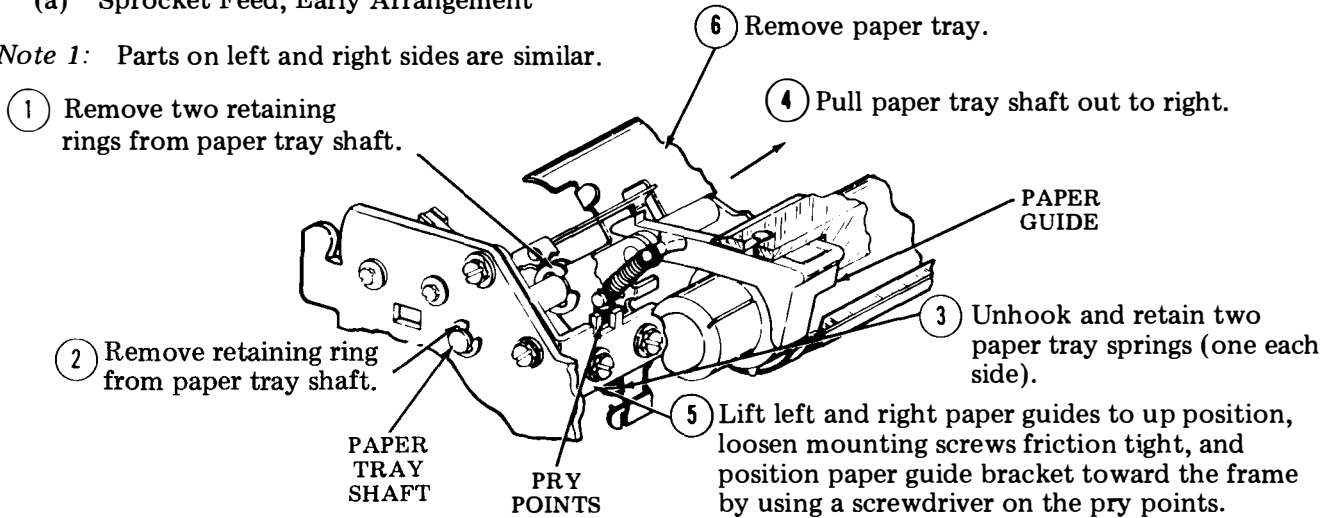


PAPER TRAY

3.20 To remove the paper tray:

(a) Sprocket Feed, Early Arrangement

*Note 1:* Parts on left and right sides are similar.

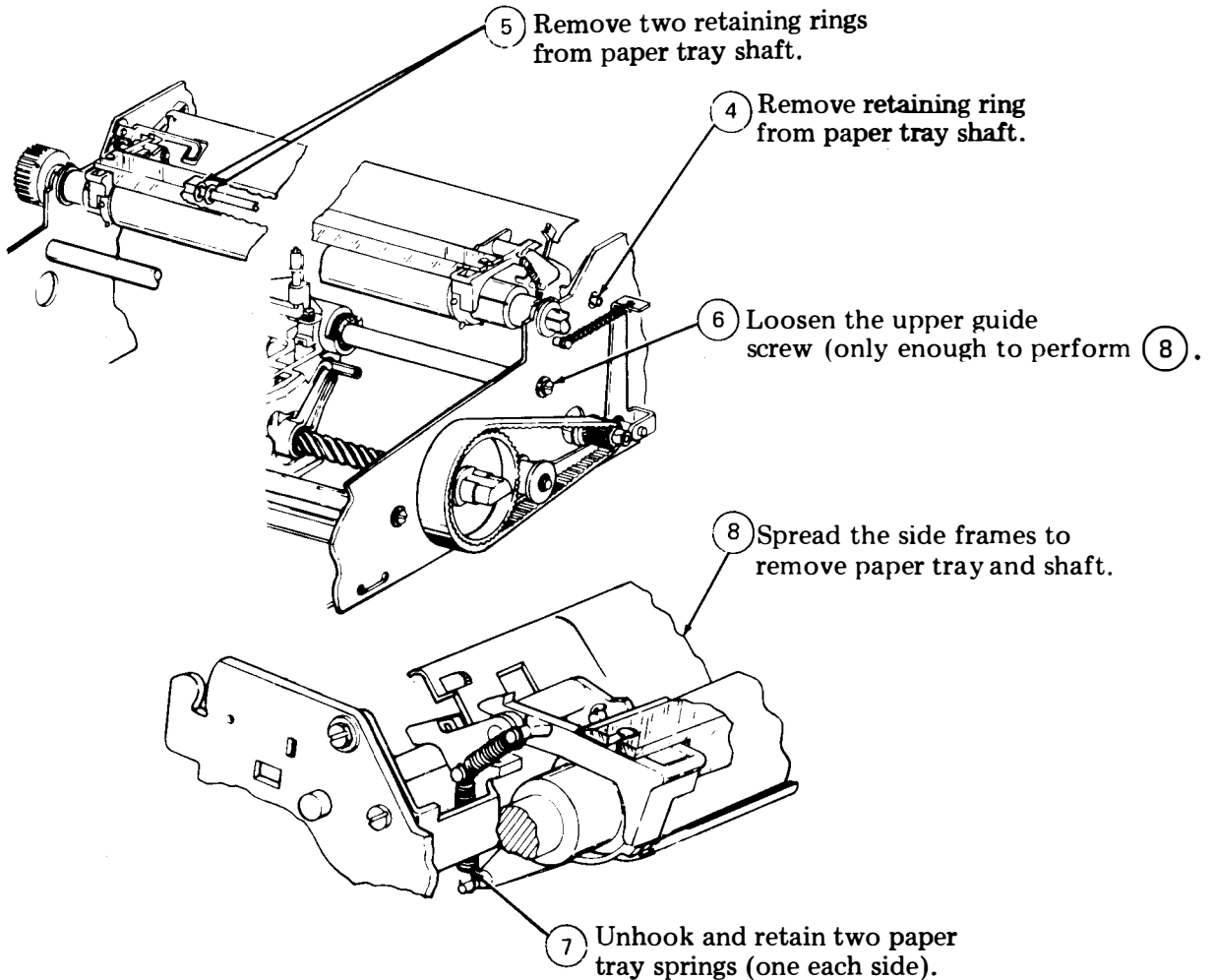
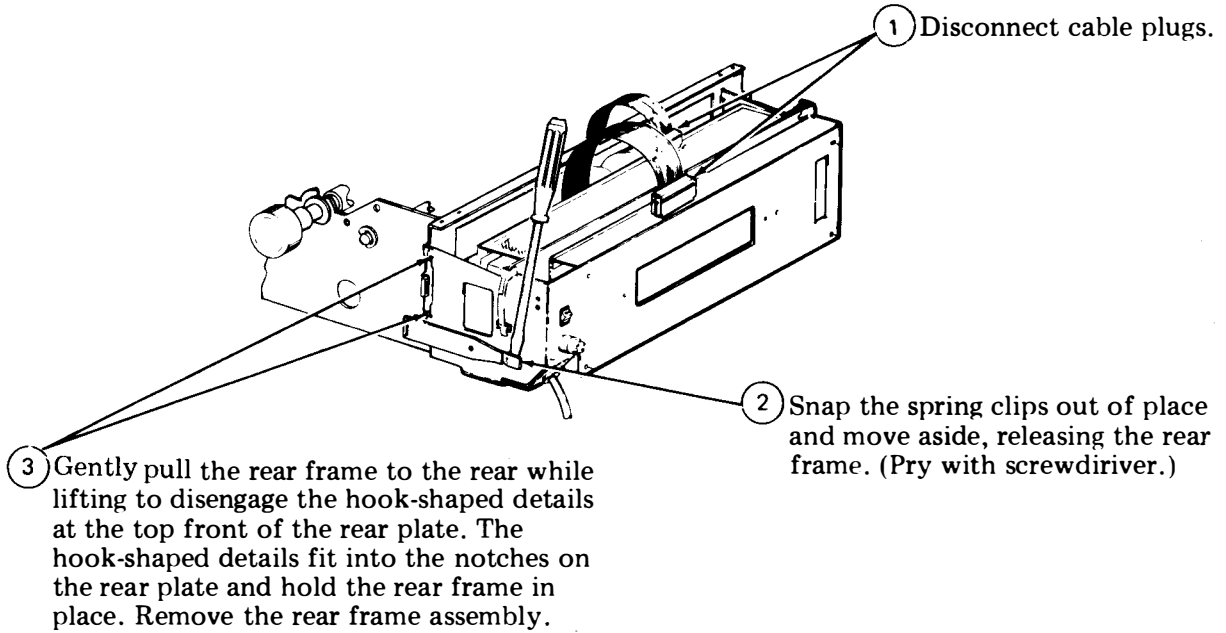


*Note 2:* In reassembly, LEFT and RIGHT PAPER GUIDE adjustments must be made.

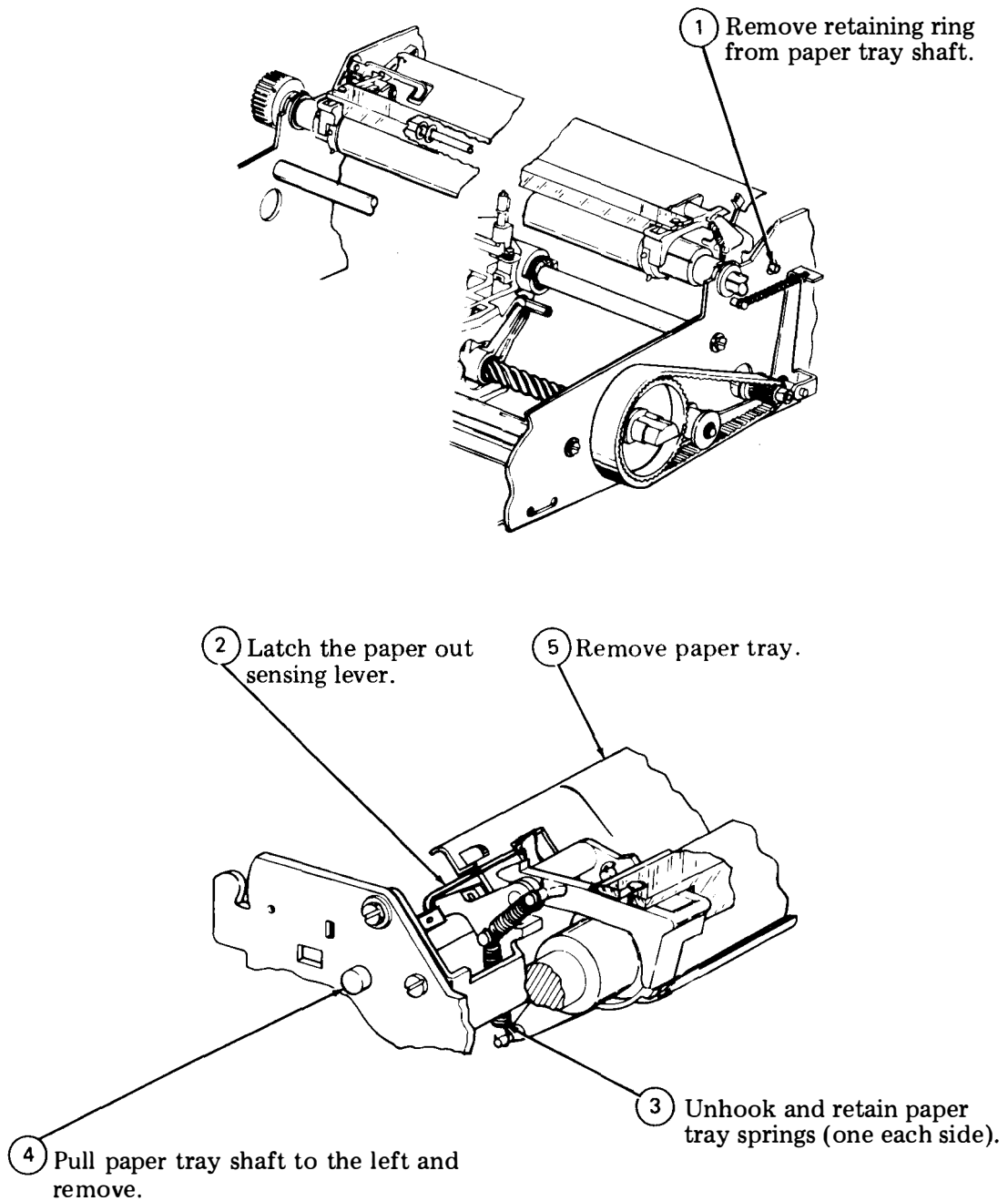
3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

PAPER TRAY (Contd)

(b) Sprocket Feed (Intermediate Design) and Friction Feed (Early Design)



(c) Sprocket Feed, Late Design

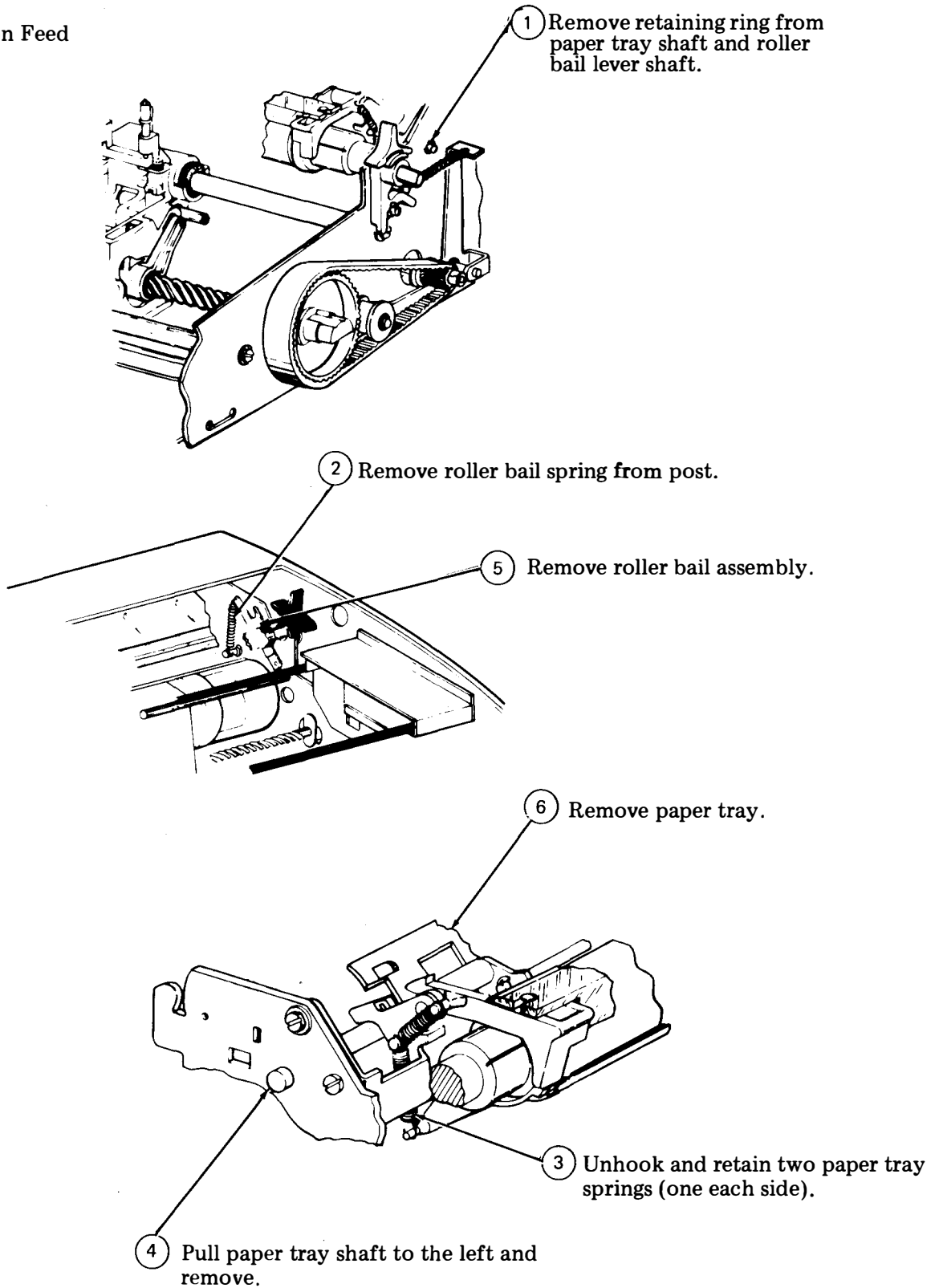




3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

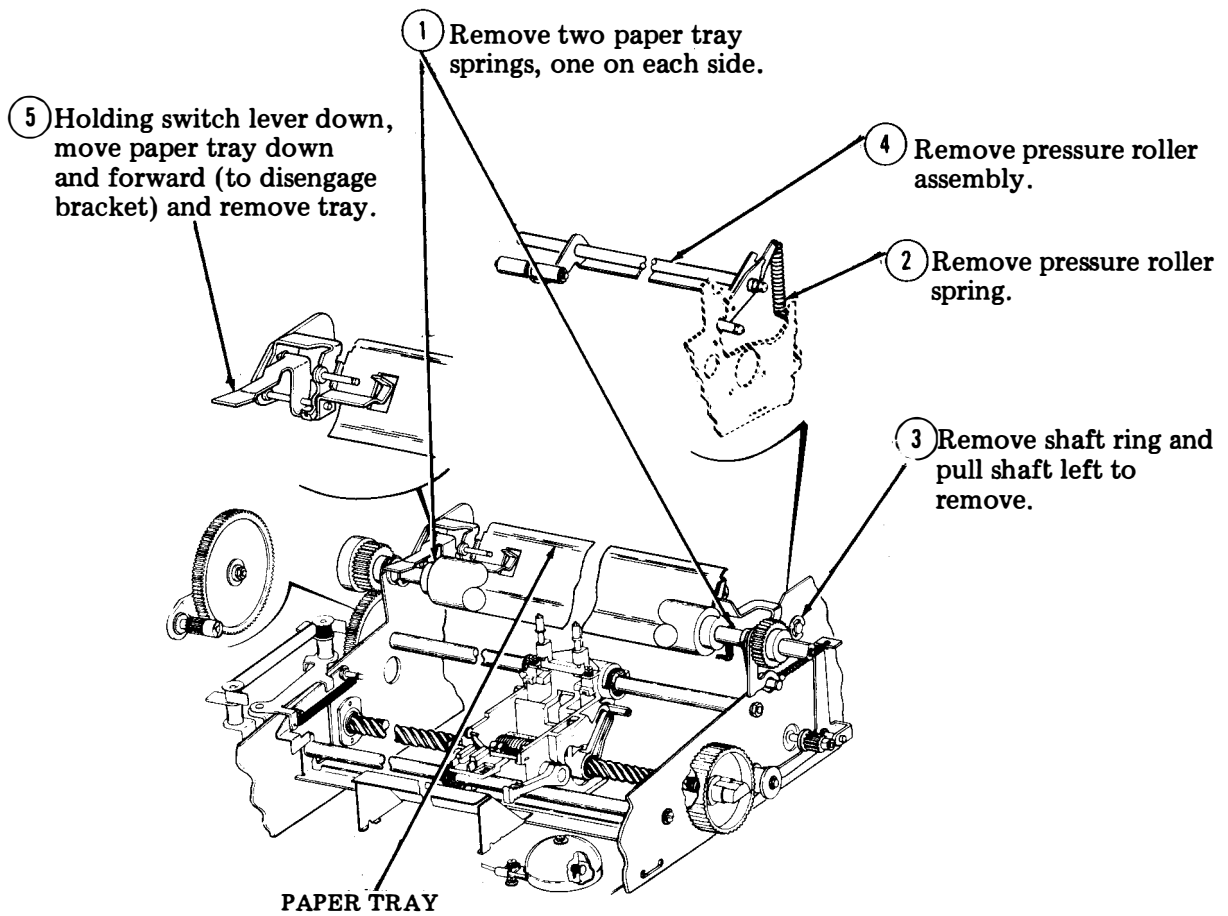
PAPER TRAY (Contd)

(d) Friction Feed



*Note:* In reassembly, verify left end of roller bail assembly is placed between two guides on paper tray.

(e) Tractor Feed



*Note:* In reassembly, verify that left end of pressure roller assembly is placed between two guides on paper tray.

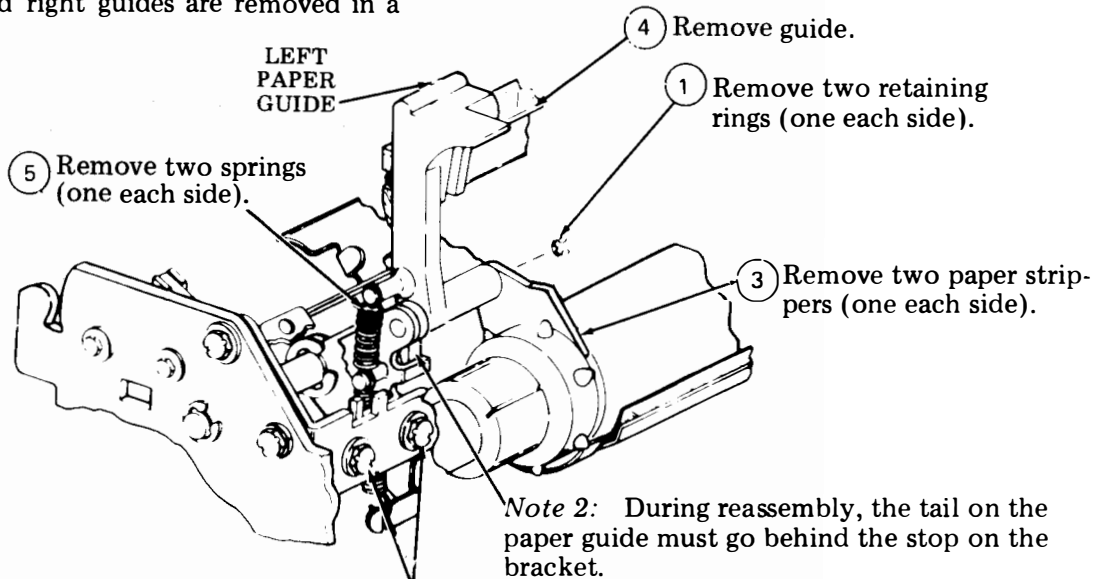
3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

PAPER GUIDES

3.21 To remove the paper guide:

(a) Sprocket Feed, Early Design

*Note 1:* Left and right guides are removed in a similar manner.



*Note 2:* During reassembly, the tail on the paper guide must go behind the stop on the bracket.

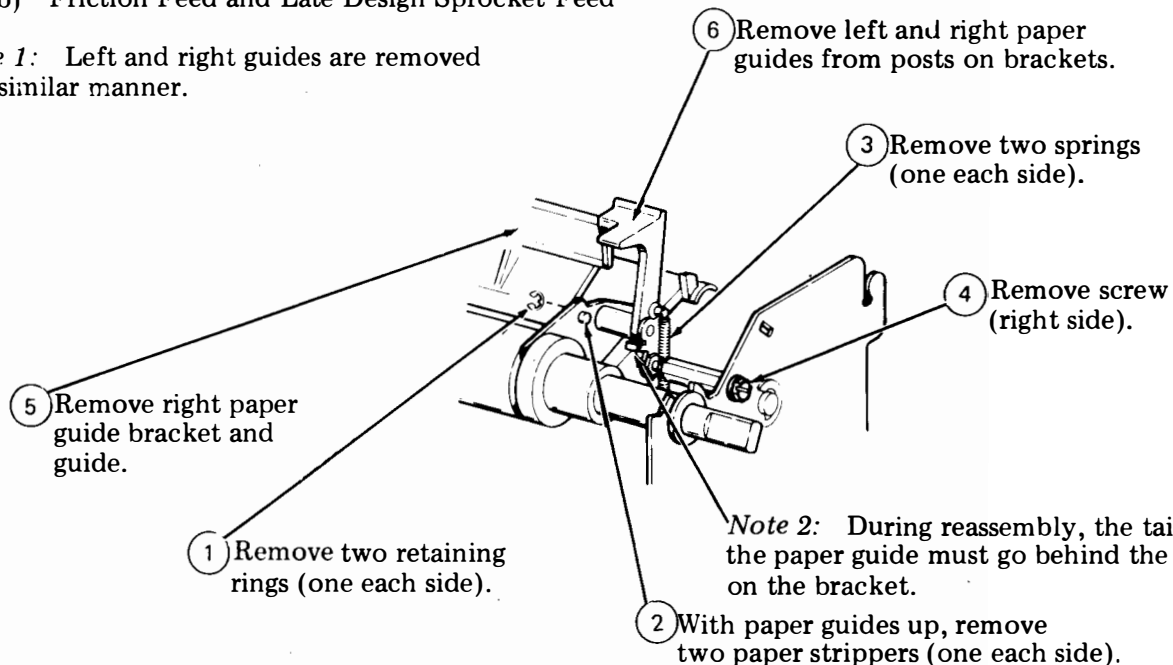
6 Remove left and right paper guides from posts on brackets.

2 With paper guides up, loosen mounting screws friction tight; position paper guide bracket toward the frame by using a screwdriver in the pry points.

*Note 3:* In reassembly, LEFT PAPER GUIDE adjustment must be made.

(b) Friction Feed and Late Design Sprocket Feed

*Note 1:* Left and right guides are removed in a similar manner.



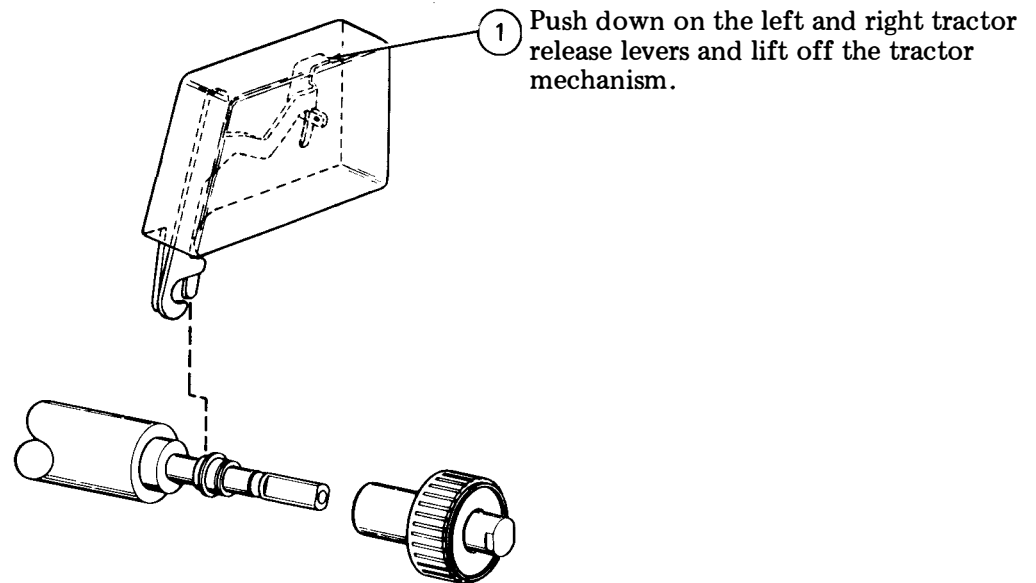
*Note 2:* During reassembly, the tail on the paper guide must go behind the stop on the bracket.

2 With paper guides up, remove two paper strippers (one each side).

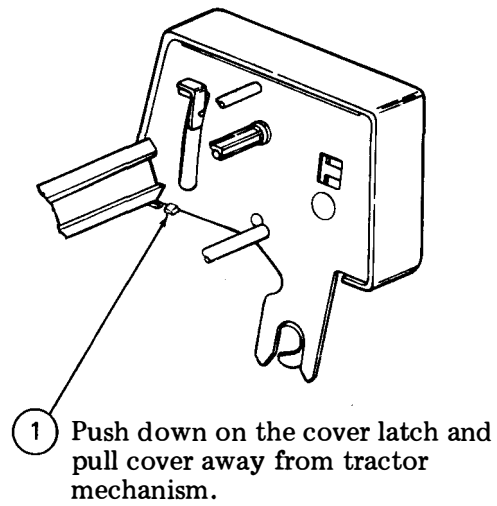
*Note 3:* In reassembly, RIGHT PAPER GUIDE adjustment must be made.

TRACTOR MECHANISM

3.22 To remove the tractor mechanism:

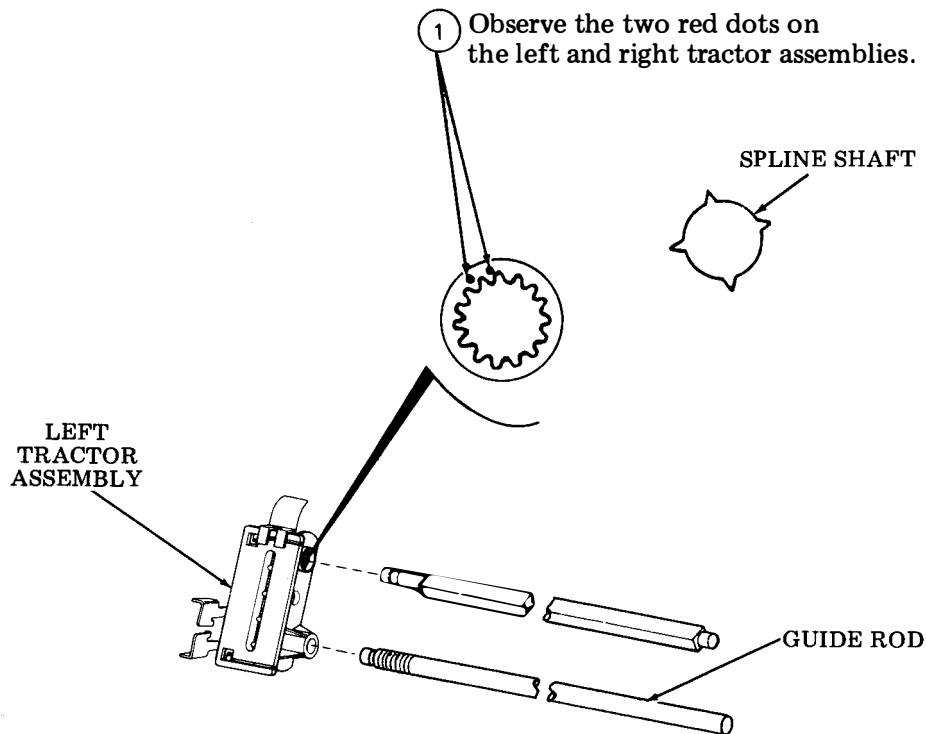


3.23 To disassemble the tractor mechanism:



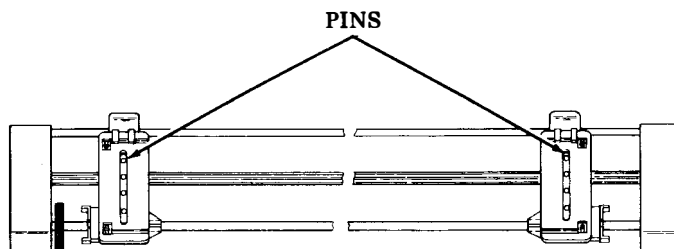
3. 12 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)TRACTOR MECHANISM (Contd)

3.24 To reassemble the tractor mechanism:

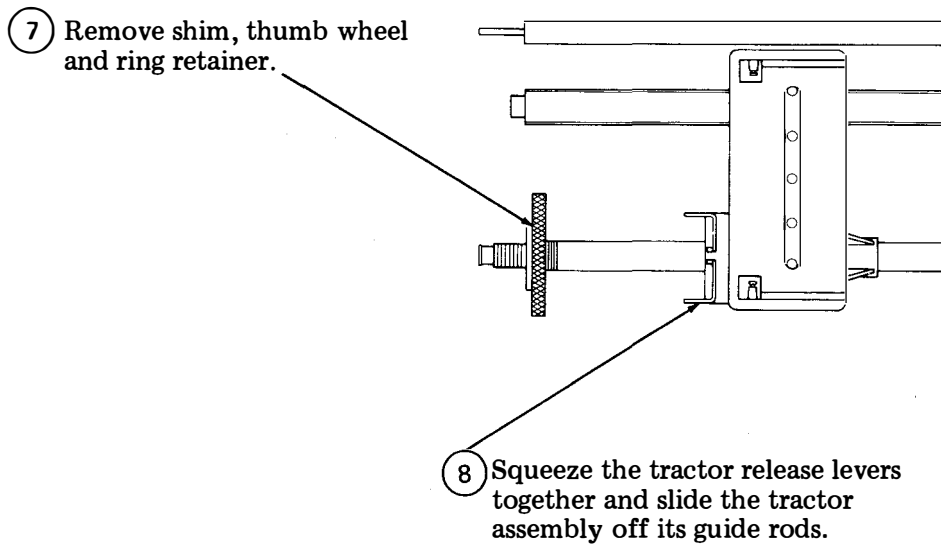
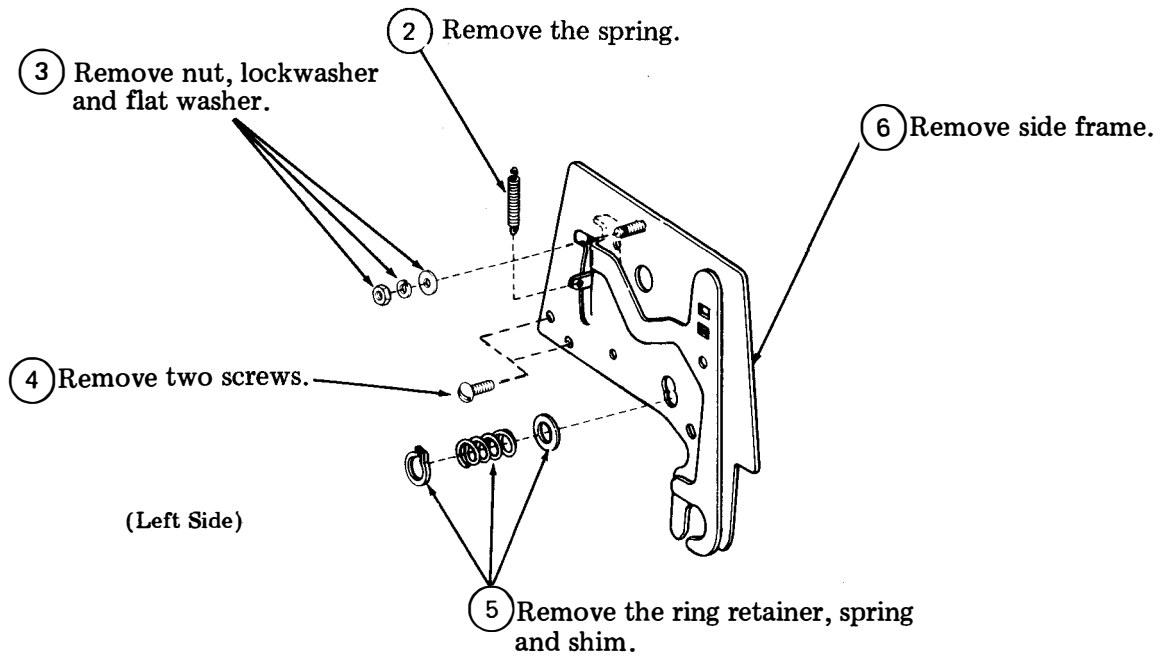


- ② Squeeze the tractor release levers together and slide the right tractor assembly onto the guide rod and the spline shaft. Be sure the release lever is facing the right side frame. When sliding onto the spline shaft make sure one of the splines fits into the sprocket located between the two red dots shown in ①.

- ③ Squeeze the tractor release levers together and slide the left tractor assembly onto the guide rod and the spline shaft. When sliding onto the spline shaft, make sure the sprocket located between the two red dots (shown in ①) fits over the same spline as the left tractor assembly.



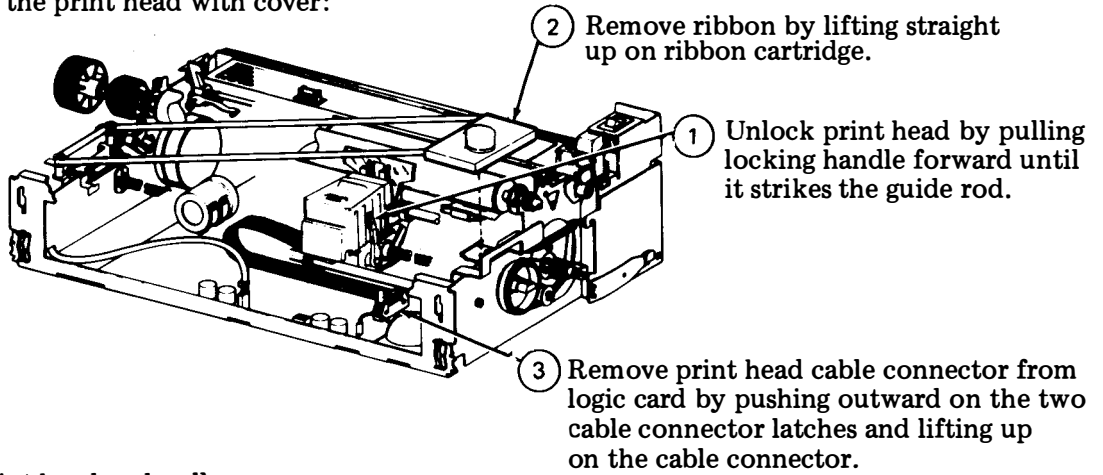
- ④ Reassemble the remainder of the components removed in (b).



4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY

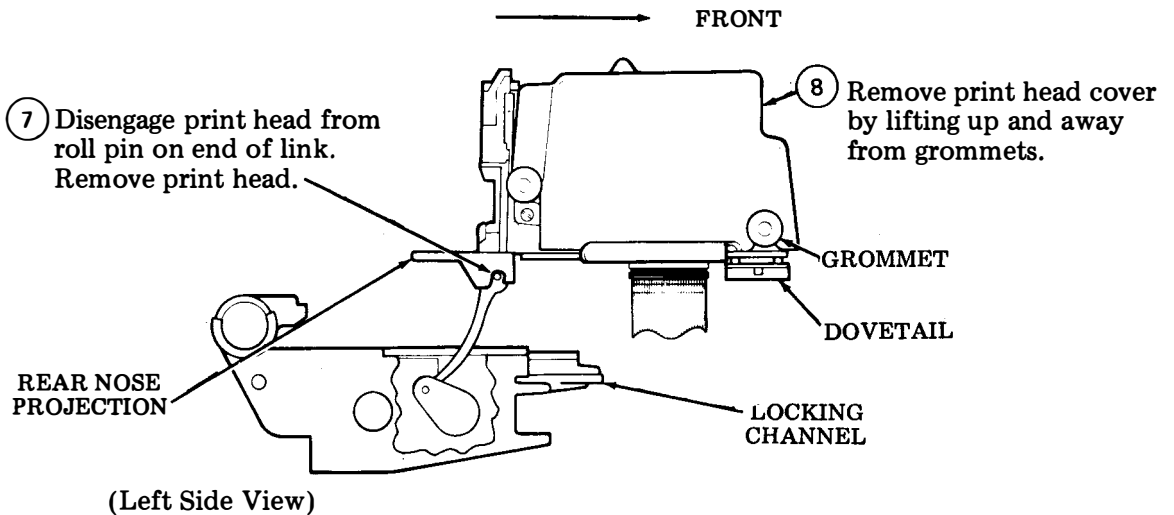
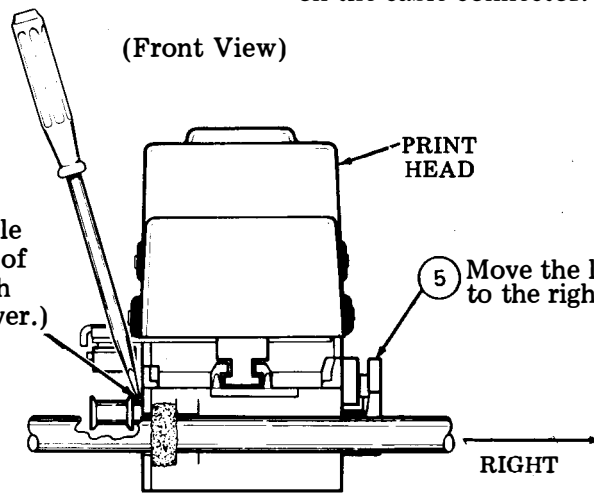
PRINT HEAD WITH COVER

4.01 To remove the print head with cover:

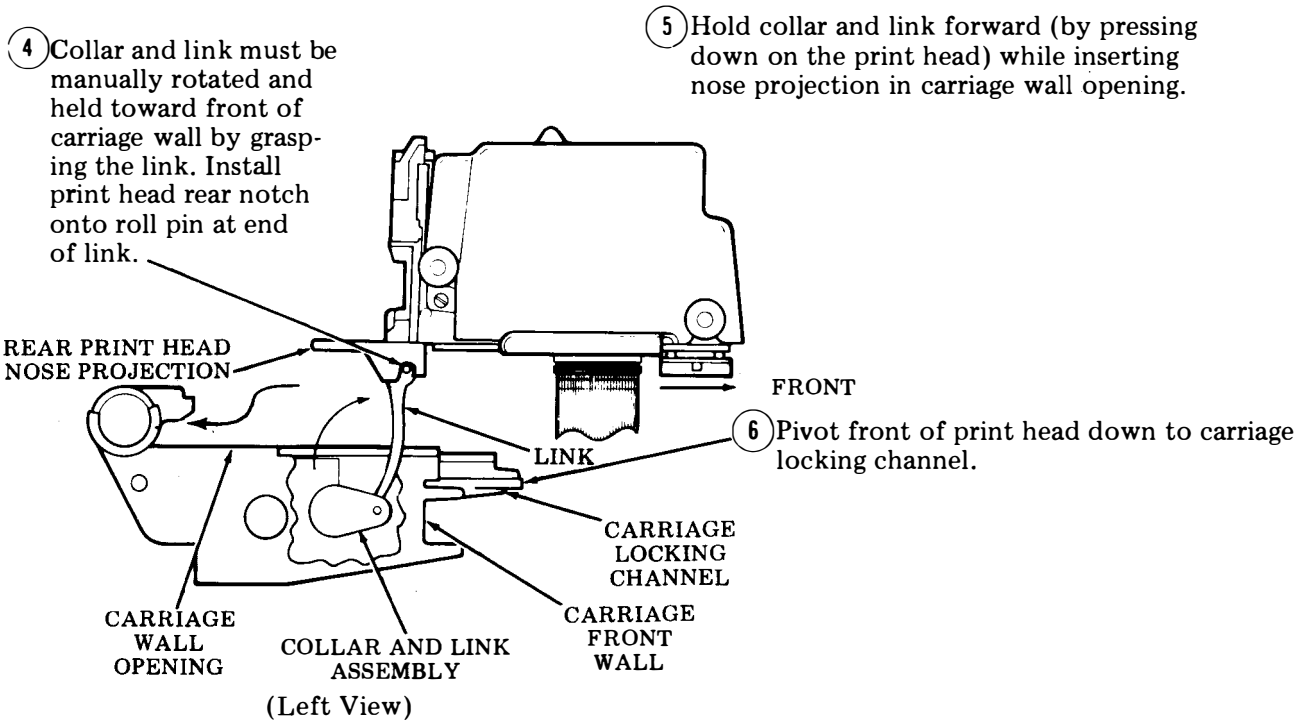
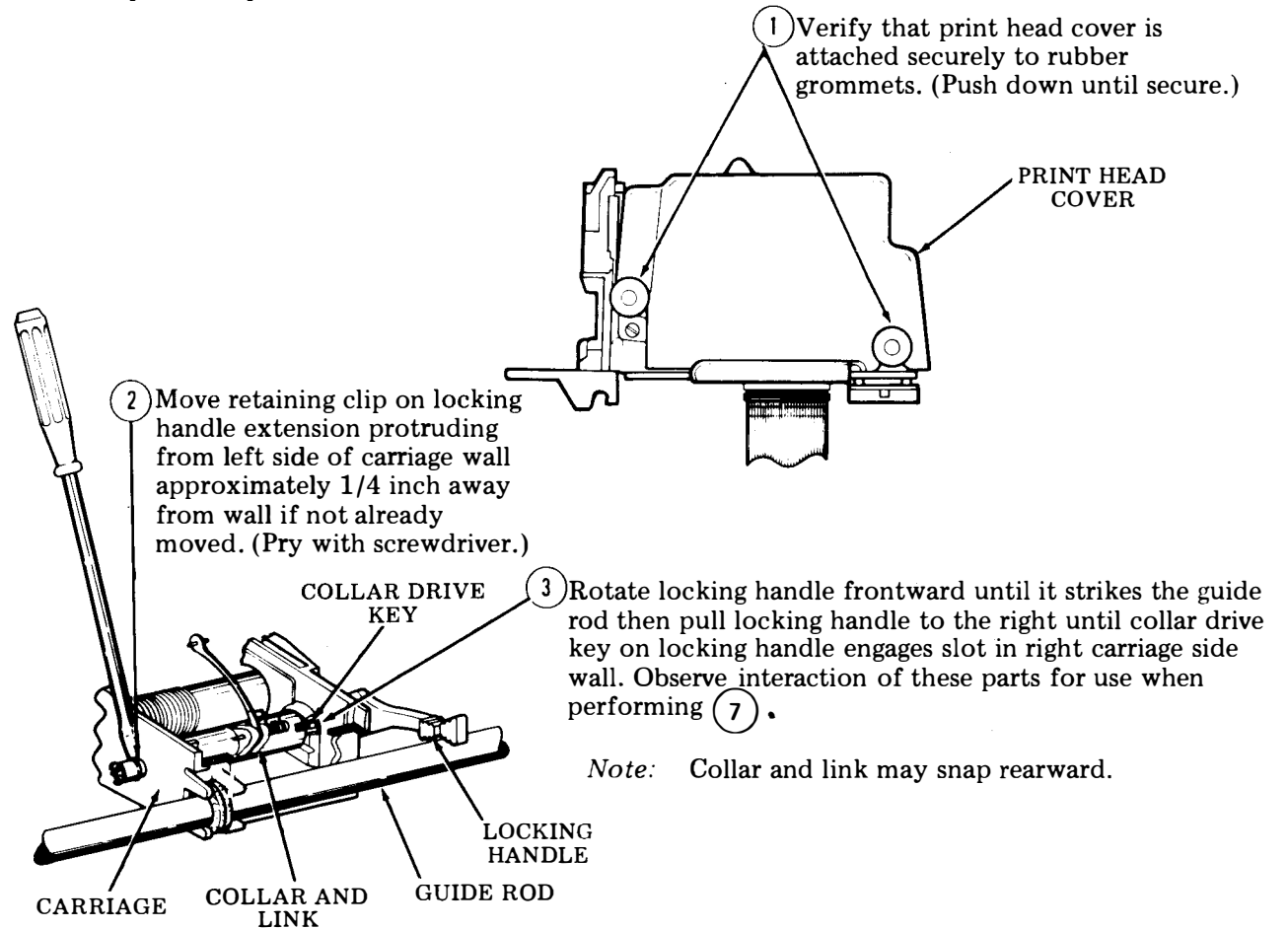


⑥ Grasp print head and pull forward. Lift front of print head to disengage locking channels.

④ Move retaining clip on locking handle extension protruding from left side of carriage wall approximately 1/4 inch away from wall. (Pry with screwdriver.)



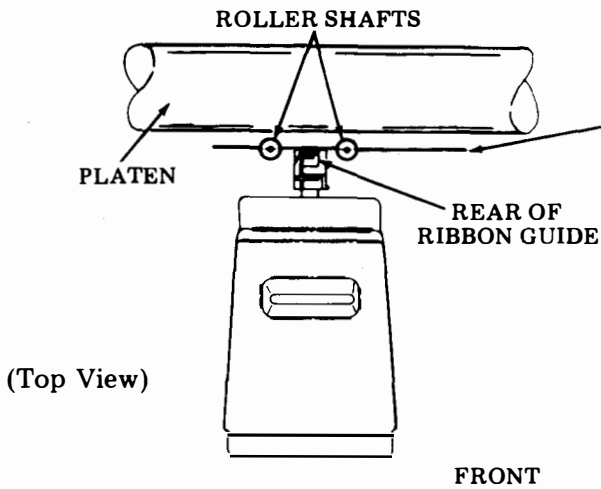
4.02 To replace the print head with cover:





4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

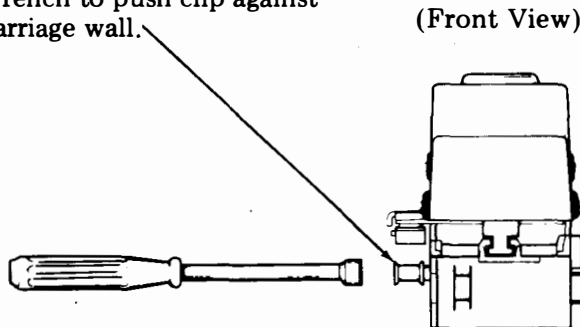
PRINTER HEAD WITH COVER (Contd)



7 Slowly push print head rearward and further into the carriage locking channel until the rear of the ribbon guide is even with center of roller shafts. Apply continuous leftward pressure to locking handle at its pivot shaft, while slowly pulling print head forward until collar drive key on handle engages (snaps) into slot in collar.

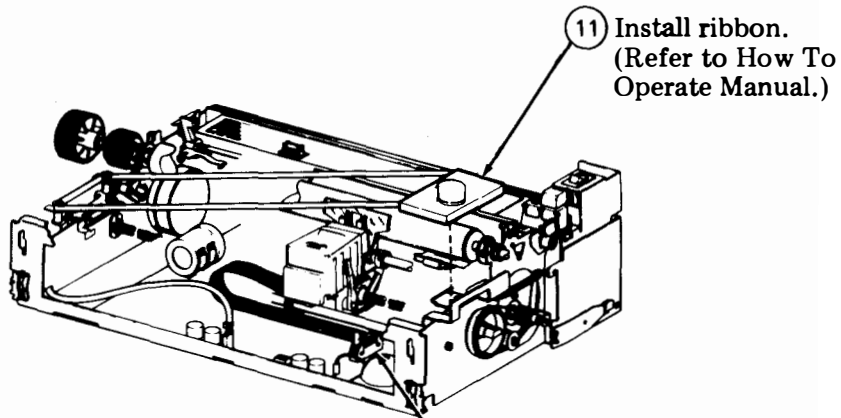
Note: Parts referred to were visible in (3).

9 Position and hold print head and carriage assembly to right side of printer and use a 5/16 inch socket wrench to push clip against carriage wall.



8 Move the handle all the way to the rear, locking the print head in close proximity to the platen by the additional force necessary to detent the handle. If handle does not move to rear, the drive key did not properly engage the collar slot (7).

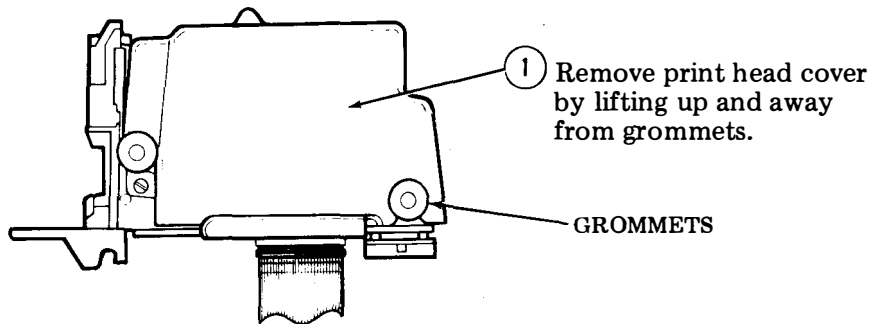
**Warning:** Check to make sure there is some clearance between print head and platen before detenting handle. Check PRINT HEAD TO PLATEN adjustment.



10 Connect the print head cable plug to the logic card. Depress the cable connector until the latches snap over the connector.

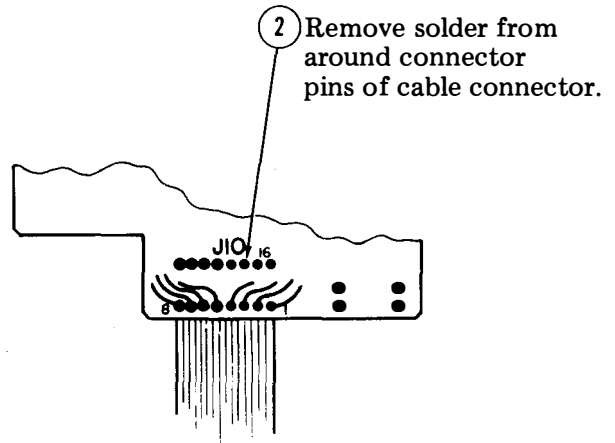
11 Install ribbon. (Refer to How To Operate Manual.)

4.03 To remove the cover:

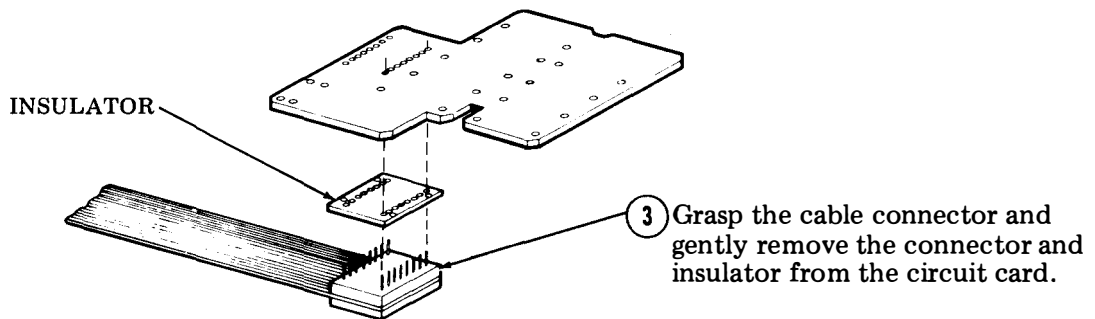


4.04 To remove the cable:

① Remove print head cover (perform 4.03, ①).



**Warning:** Use a grounded, low-wattage soldering iron (avoid prolonged contact with pins) along with a desoldering tool to prevent damage to card circuits and components.

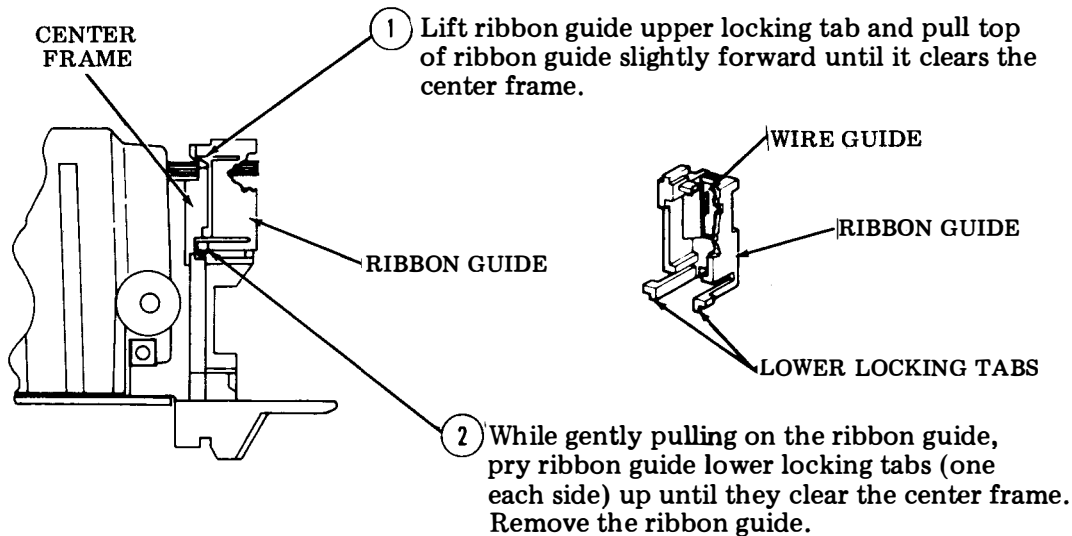


**Note:** In reassembly, make sure insulator is positioned between cable connector and circuit card as shown.

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

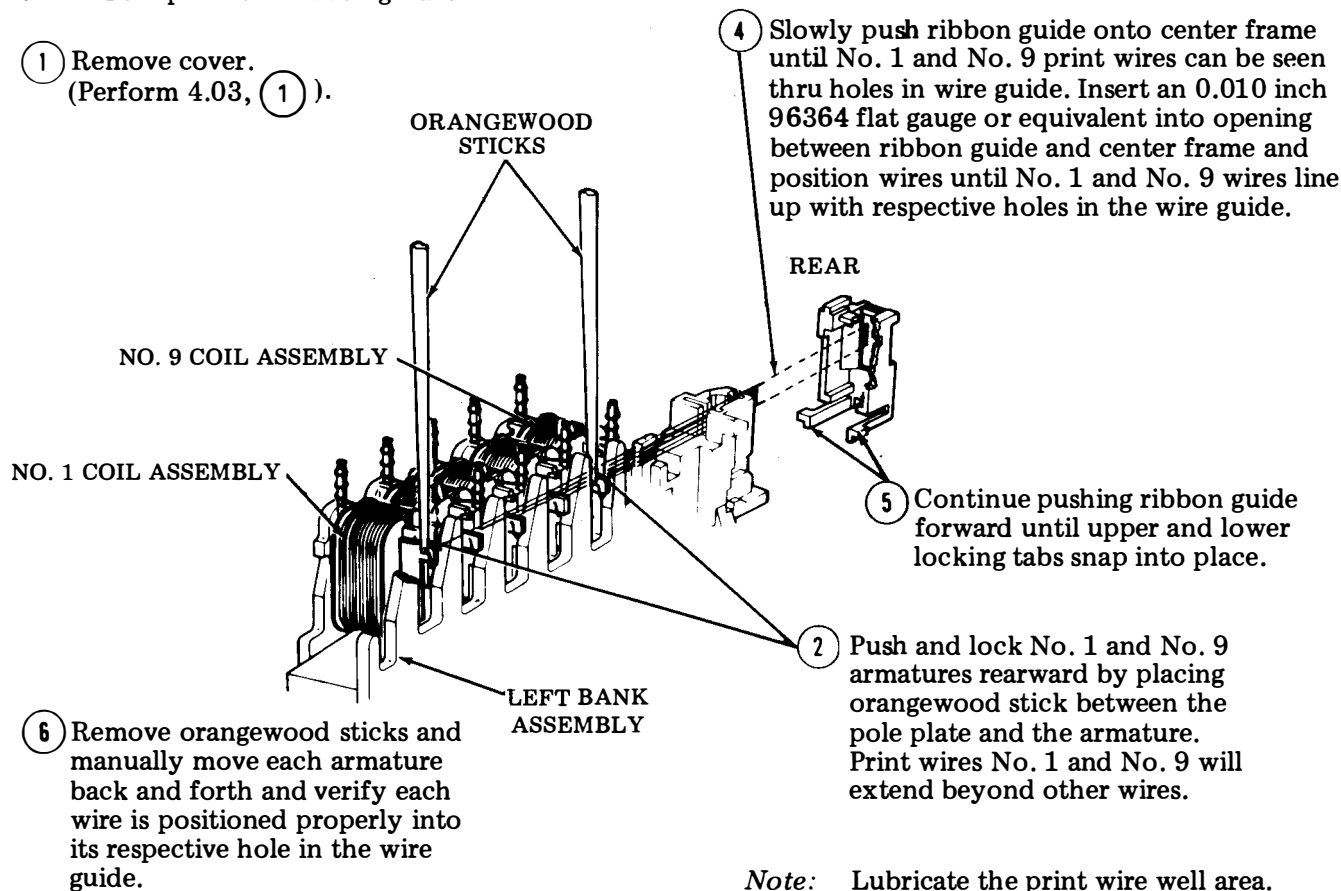
PRINT HEAD WITH COVER (Contd)

4.05 To remove the ribbon guide:



*Note:* Visually inspect the wire guide for cracks or damage whenever the ribbon guide is removed, and replace if damaged.

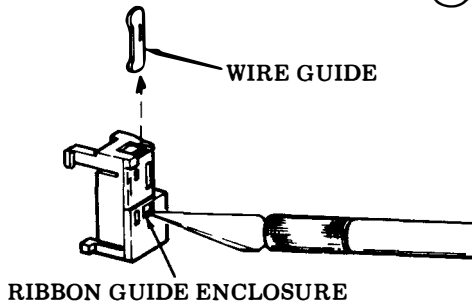
4.06 To replace the ribbon guide:



*Note:* Lubricate the print wire well area.

4.07 To remove the wire guide:

- ① Remove the ribbon guide (perform 4.05, ① and ②).

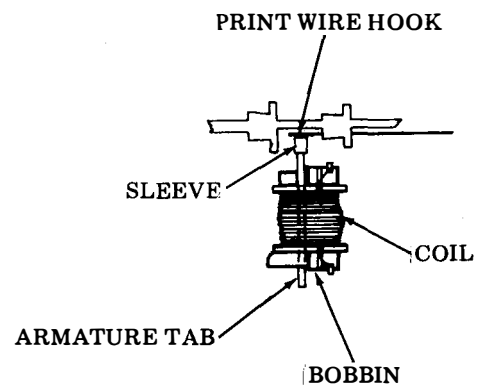
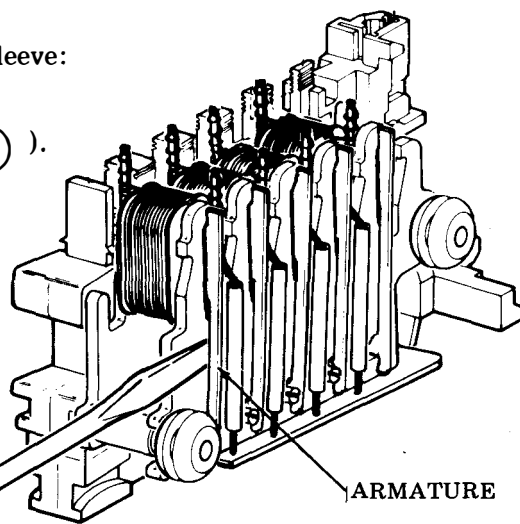


- ② Insert pointed flat blade (hobby knife) under wire guide and gently pry up until bottom of wire guide clears ribbon guide enclosure. Grasp wire guide and pull straight up to remove.

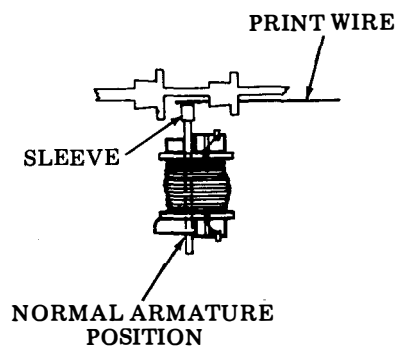
*Note:* In reassembly, insert wire guide into ribbon guide as shown above and push down until bottom of wire guide is against bottom of ribbon guide enclosure.

4.08 To remove the sleeve:

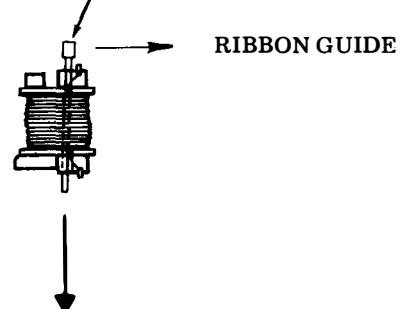
- ① Remove the cover (perform 4.03, ①).



- ② Pry armature gently outward (away from print wires) until sleeve slides free of print wire hook and armature tab clears bobbin.



- ③ Grasp armature and push toward ribbon guide (magnet will pull armature away from ribbon guide) until armature touches bobbin. Pull armature and sleeve gently outward.



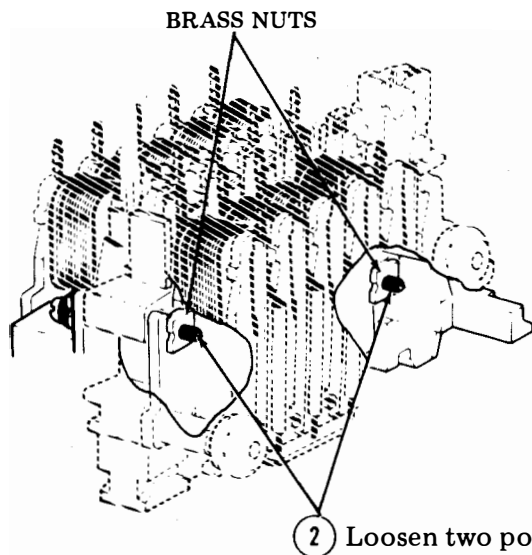
- ④ Remove sleeve from armature extension.

*Note:* In reassembly, make sure sleeve is positioned over grooves in armature extension and flush with extension edge. Lubricate any armatures removed and replaced.

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)PRINT HEAD WITH COVER (Contd)

4.09 To remove the coil assembly:

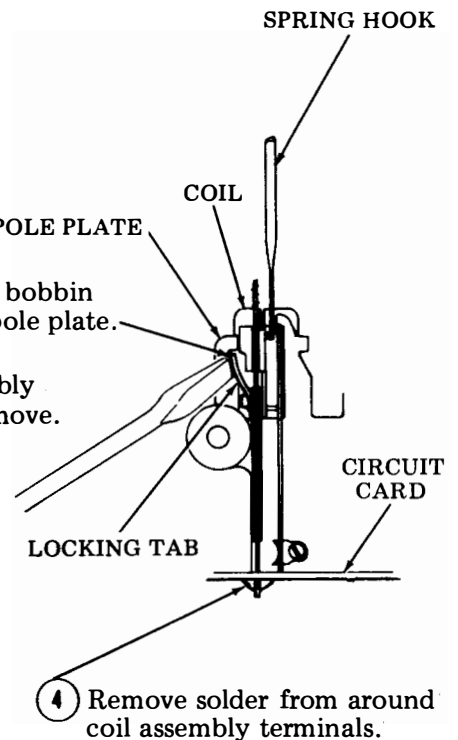
- ① Remove print head cover (perform 4.03, ①).



- ③ Remove armature (perform 4.08, ② and ③).

**Note:** In reassembly, note positioning of brass nuts and verify correct position as shown before tightening screws. Lubricate any armatures removed and replaced.

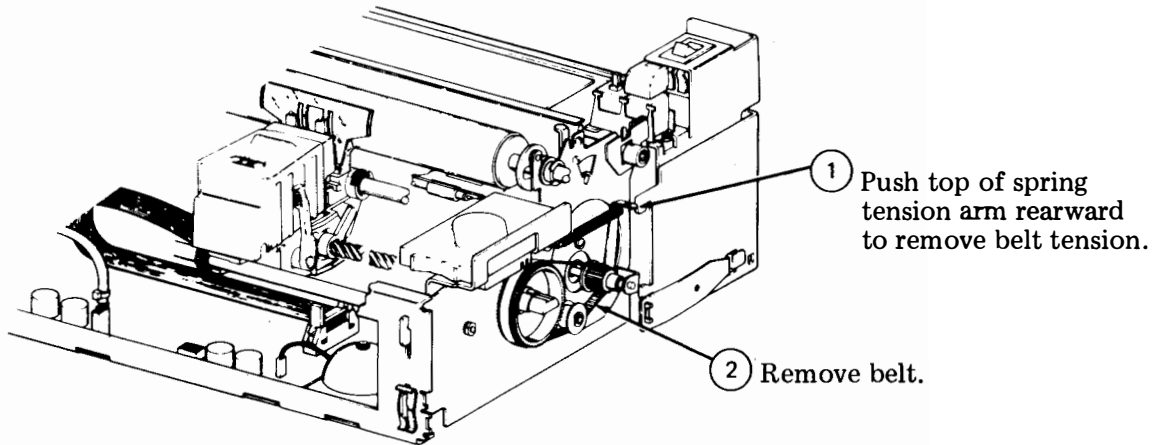
- ⑤ Pry locking tab on bobbin until it clears the pole plate.
- ⑥ Pull the coil assembly straight up and remove. Use a spring hook.



**Warning:** Use a low wattage soldering iron (avoid prolonged contact with terminals) along with a desoldering tool to prevent damage to circuitry.

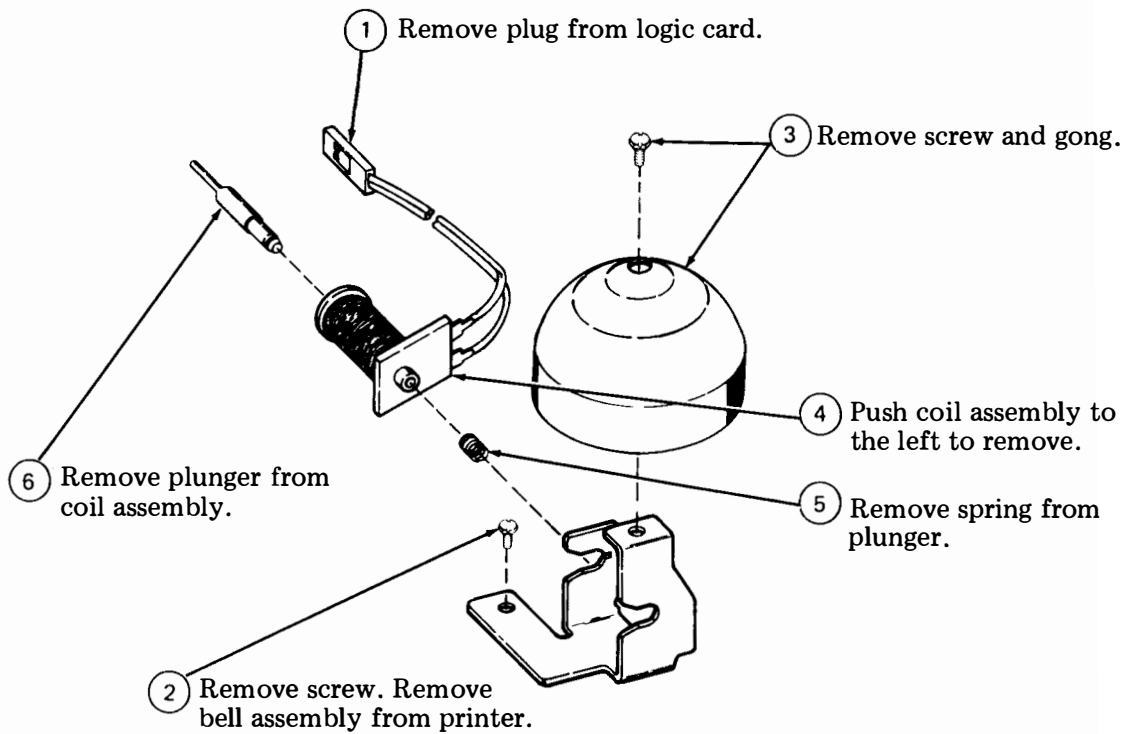
SPACING MOTOR BELT

4.10 To remove the spacing motor belt:



SIGNAL BELL

4.11 To remove the signal bell:

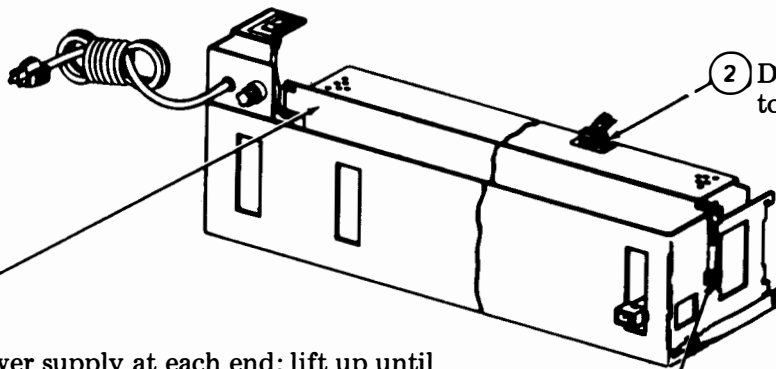
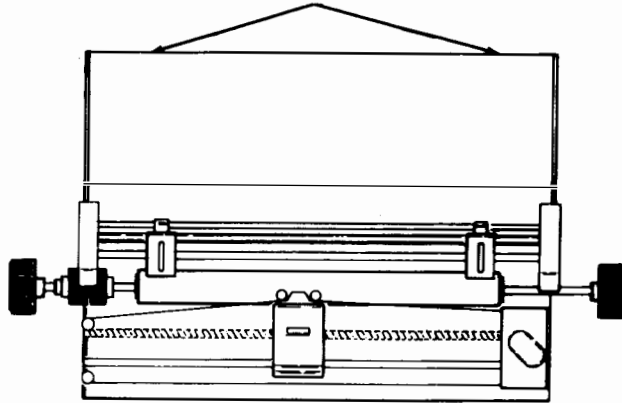


4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

430780 POWER SUPPLY

4.12 To remove power supply if present:

- ① Grasp outer rear edges of paper guide. Lift up and pull rearward to remove paper guide.

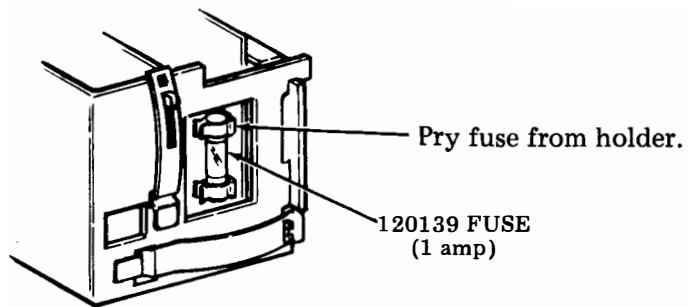


- ② Disconnect cable plug from top of power supply.

- ④ Grasp power supply at each end; lift up until ac plug can be removed. Remove ac plug and continue lifting up to remove power supply.

- ③ Use screwdriver and pry two clips (left and right) outward.

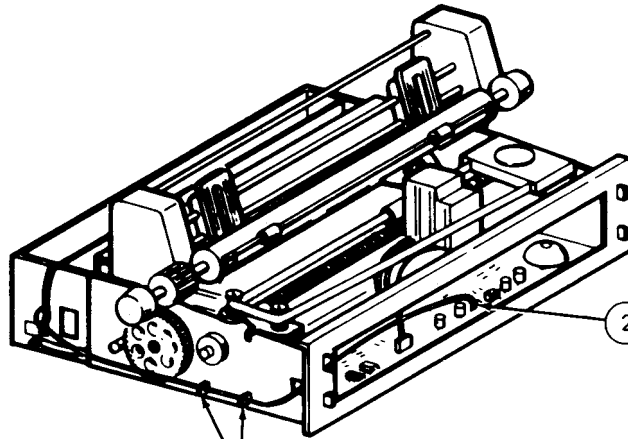
4.13 To remove power supply fuse:



430643 LOGIC CARD

4.14 To remove the logic card:

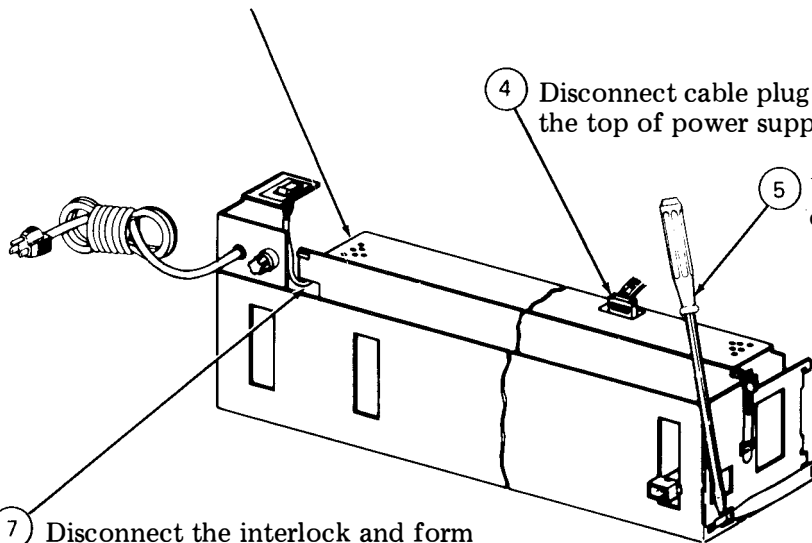
- ① Remove paper guide (perform 4.12, ① ).



② Disconnect SSI cable connector from logic card and route cable out through printer side frame.

③ Remove cable from clamps by spreading open clamps.

- ⑥ Gently pull the rear frame to the rear while lifting to disengage the hook-shaped details at the top front of the rear plate. The hook-shaped details fit into the notches on the rear plate and hold the rear frame in place. Pull rear frame back about 6 inches.



④ Disconnect cable plug from the top of power supply.

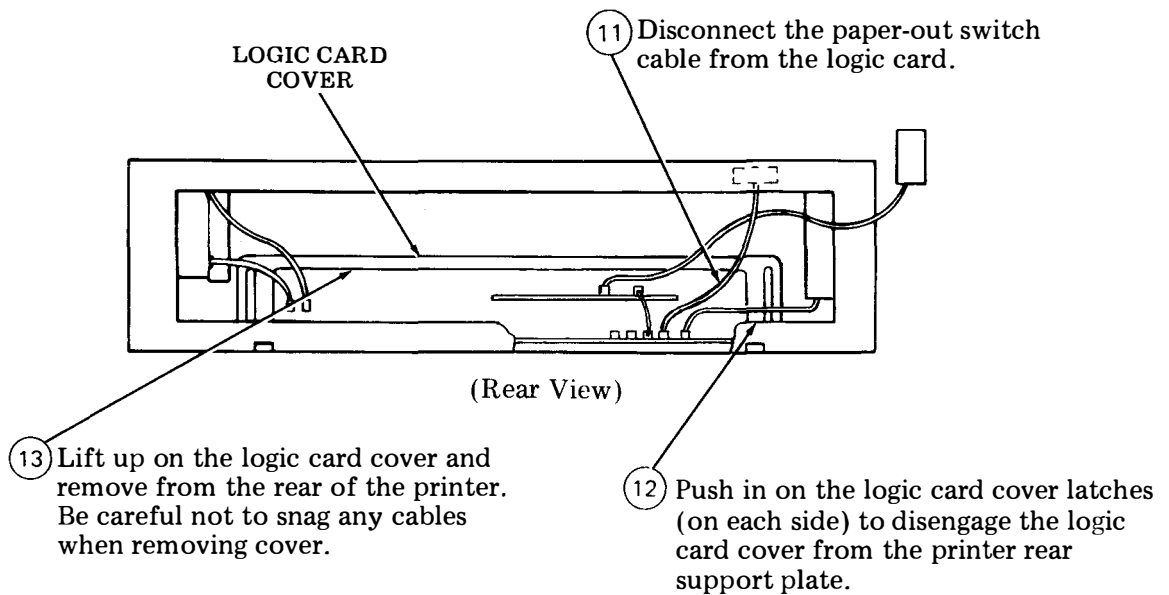
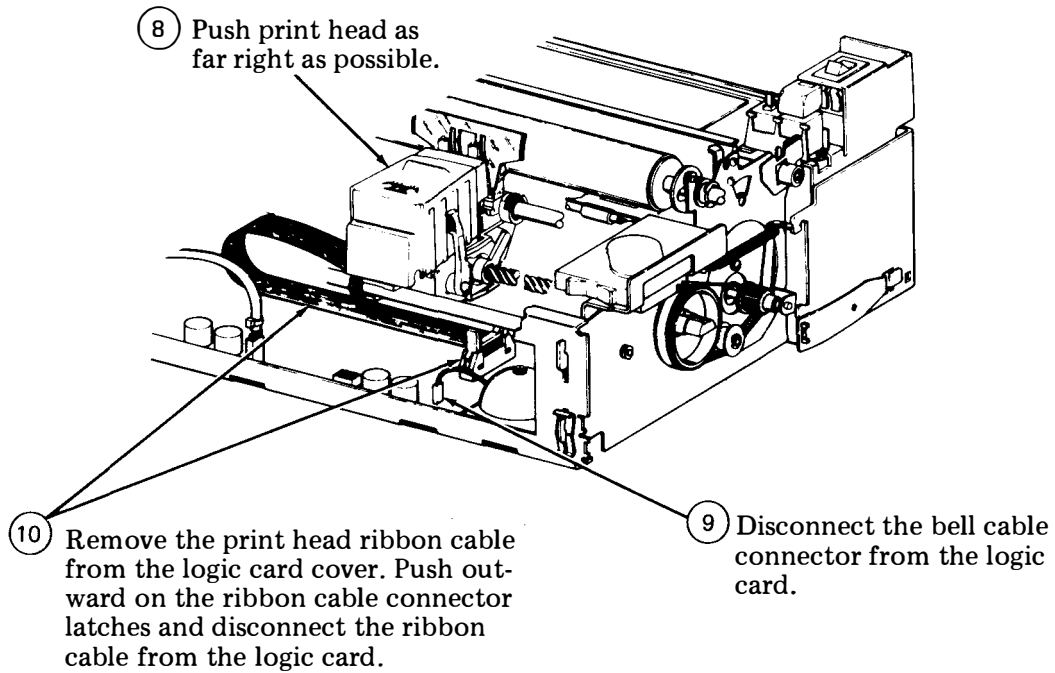
⑤ Use screwdriver and pry two clips (left and right) outward.

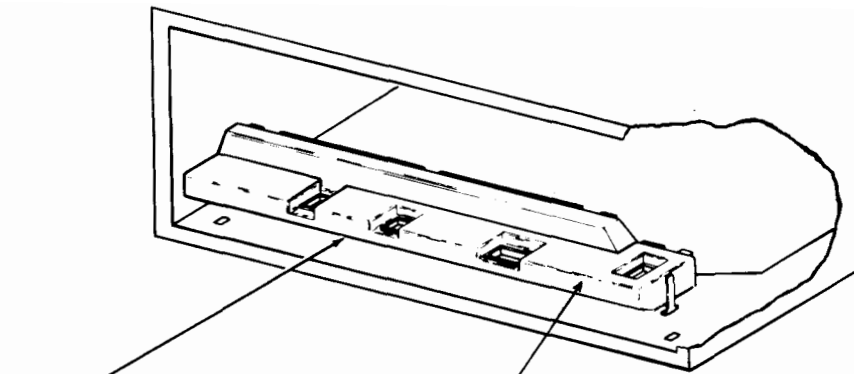
⑦ Disconnect the interlock and form feed cable from the logic card and remove the rear frame.



4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

430643 LOGIC CARD (Contd)

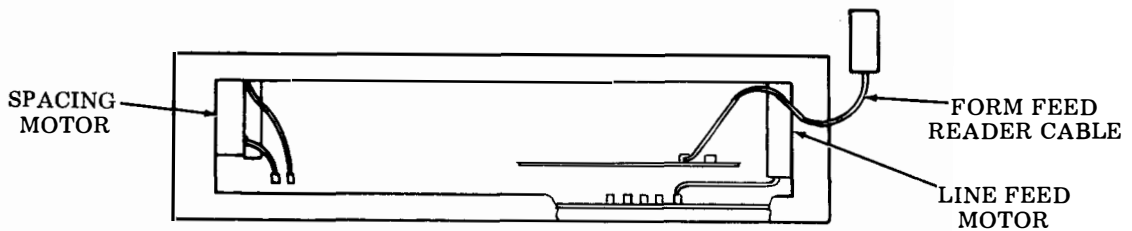




Front portion logic card cover.

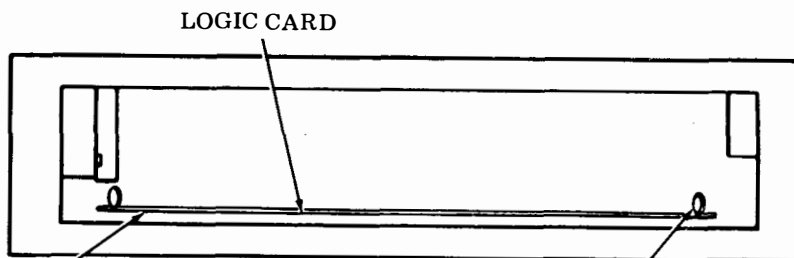
(Front View)

- 14 Install the front portion of the logic card cover making sure the two hooks (left and right) are in the two holes in the printer bottom plate. Lock in place by sliding forward.



(Rear View)

- 15 Disconnect the form feed reader cable, line feed motor cable and two spacing motor cables from the logic card.



(Rear View)

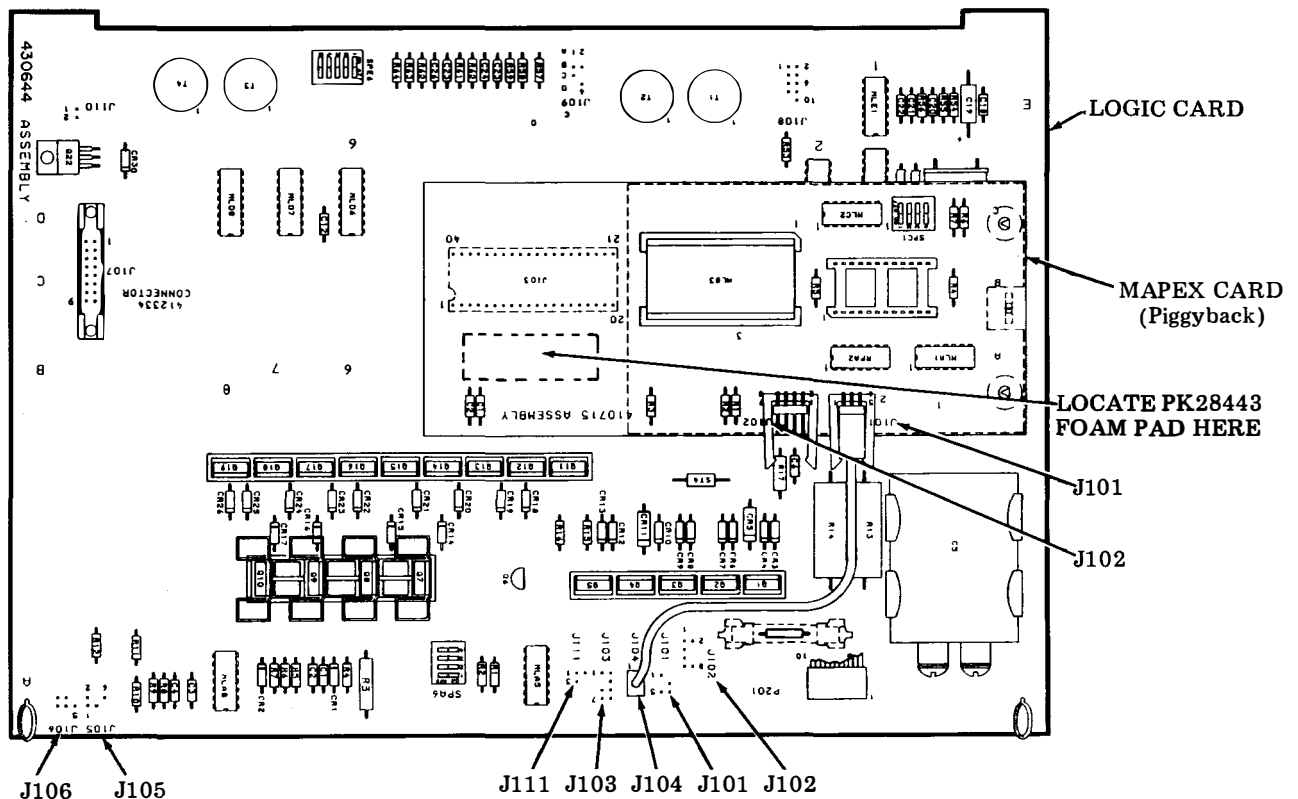
- 17 Pull the logic card to the rear removing it from the printer.

- 16 Pull up on the two nylon rings at the rear of the logic card to disengage the logic card from the two circuit board supports.

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)430643 LOGIC CARD (Contd)

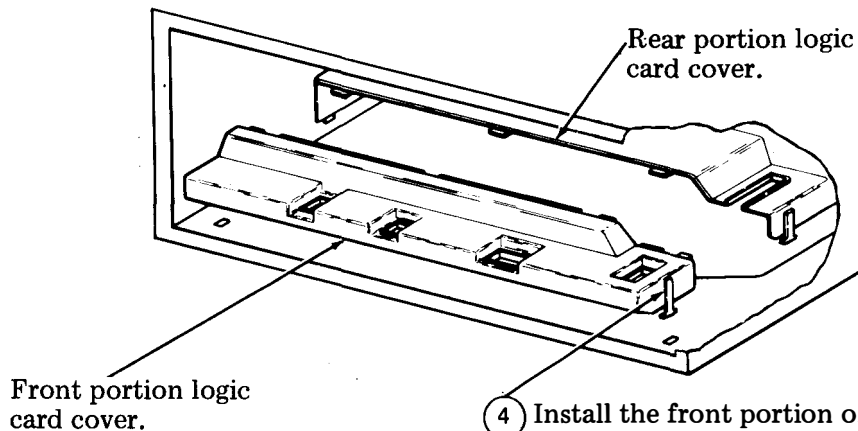
4.15 To reinstall the logic card:

- ① Slide the logic card into the rear of the printer until the front two protrusions on the logic card extend through the slots in the front of the printer frame.
- ② Seat the logic card over the two circuit board supports and push down on the card until it is fully seated.



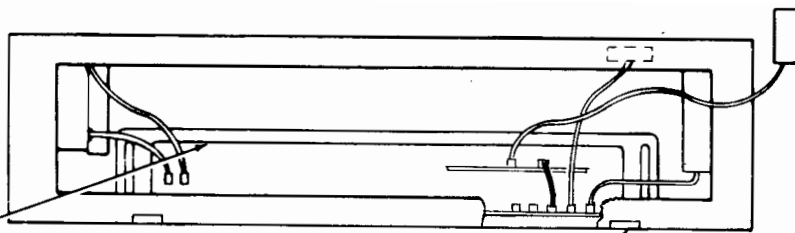
*Note:* Insure foam pad (PK28443) is located over mapex card in area shown.

- ③ Connect the spacing motor cables to J105 and J106. Connect the line feed motor cable to J102 on the logic card and connect the form feed tape reader cable to J102 on the 410715 mapex card.



(Front View)

- ④ Install the front portion of the logic card cover making sure the two hooks (left and right) are in the two holes in the printer bottom plate. Lock in place by sliding forward.



(Rear View)

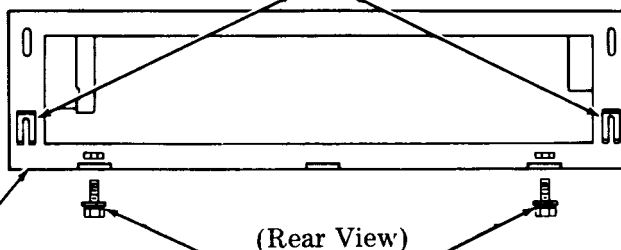
- 5 Install the back portion of the logic card cover. Make sure it interlocks with the front portion and that its two (one left and one right) hooks engage the printer bottom plate (visible in 4).
- 6 Push down on logic card cover until the latches (left and right) engage the slot in the printer rear support plate.
- 7 Connect the paper-out switch cable to J101 on the logic card (see 2).
- 8 Connect the print head cable and bell cable and assemble the rear frame by reversing the removal procedures.

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)SPACING MOTOR WITH CABLE AND ENCODER

4.16 To remove the spacing motor:

- ① Remove the rear frame and back portion of the logic card cover (perform 4.14 ① through ⑬ except ⑨).

- ② Remove two clips.



- ③ Remove two screws and two nuts.

- ④ Pull back on the bottom of the rear support plate then lift up to unhook from the side frames.

- ⑤ Disconnect spacing motor cables (two) from logic card.

- ⑫ Remove motor and encoder.

- ⑩ Remove tension arm post and lockwasher.

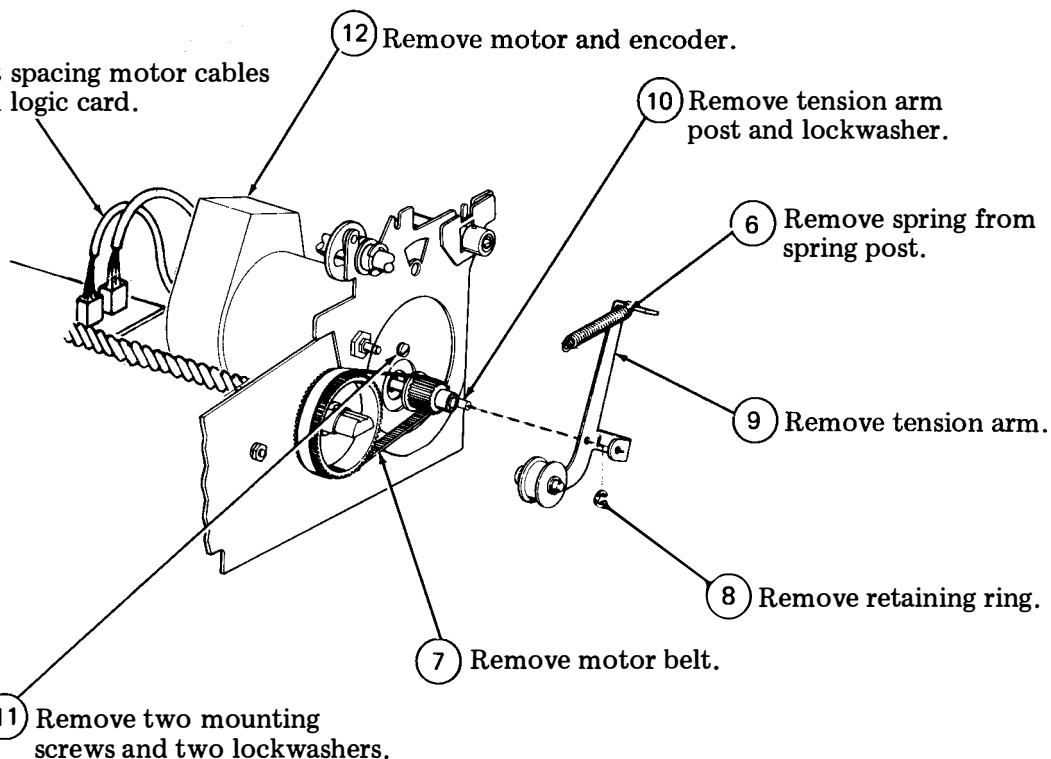
- ⑥ Remove spring from spring post.

- ⑨ Remove tension arm.

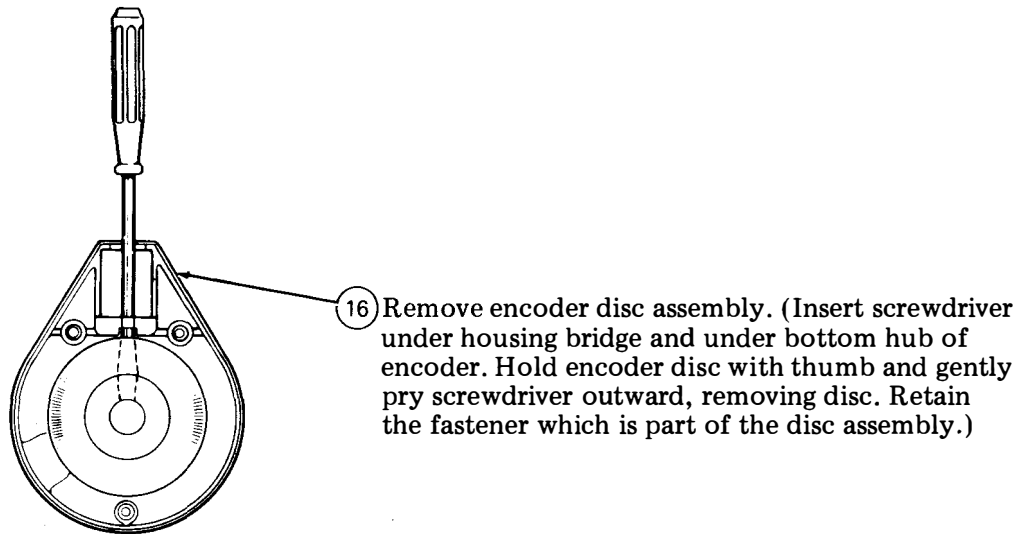
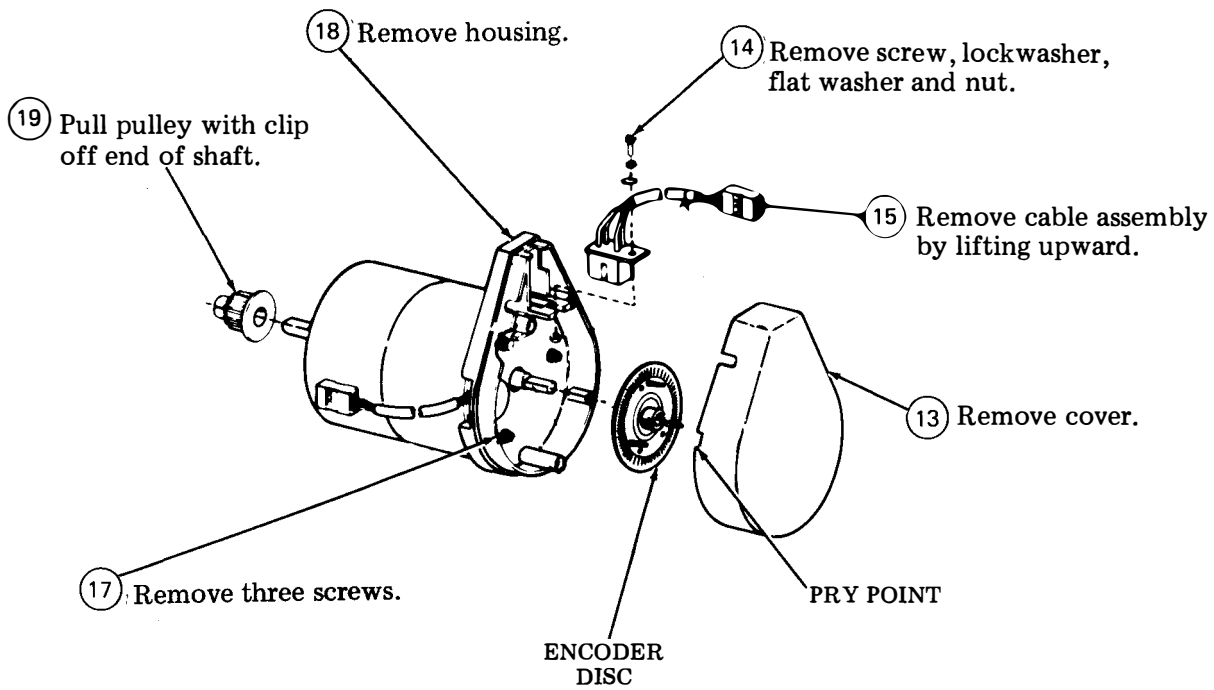
- ⑧ Remove retaining ring.

- ⑦ Remove motor belt.

- ⑪ Remove two mounting screws and two lockwashers.



430441 motor with cable and encoder.



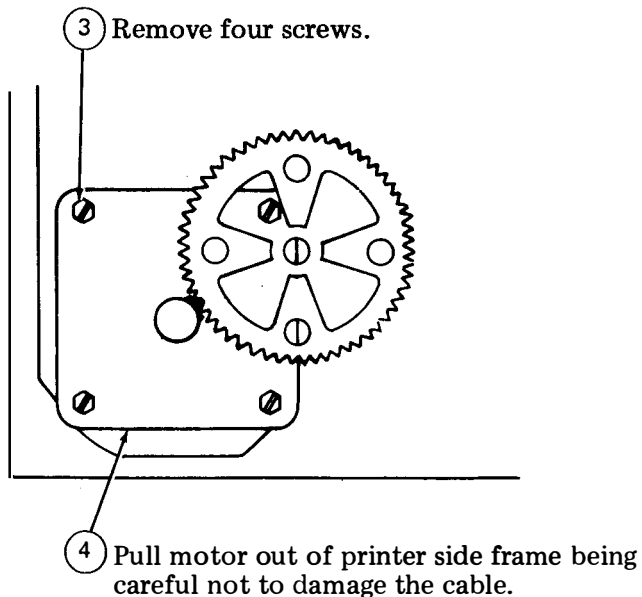
**Warning:** In reassembly, make sure disc does not rub on encoder assembly.

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

LINE FEED MOTOR

4.17 To remove the line feed motor:

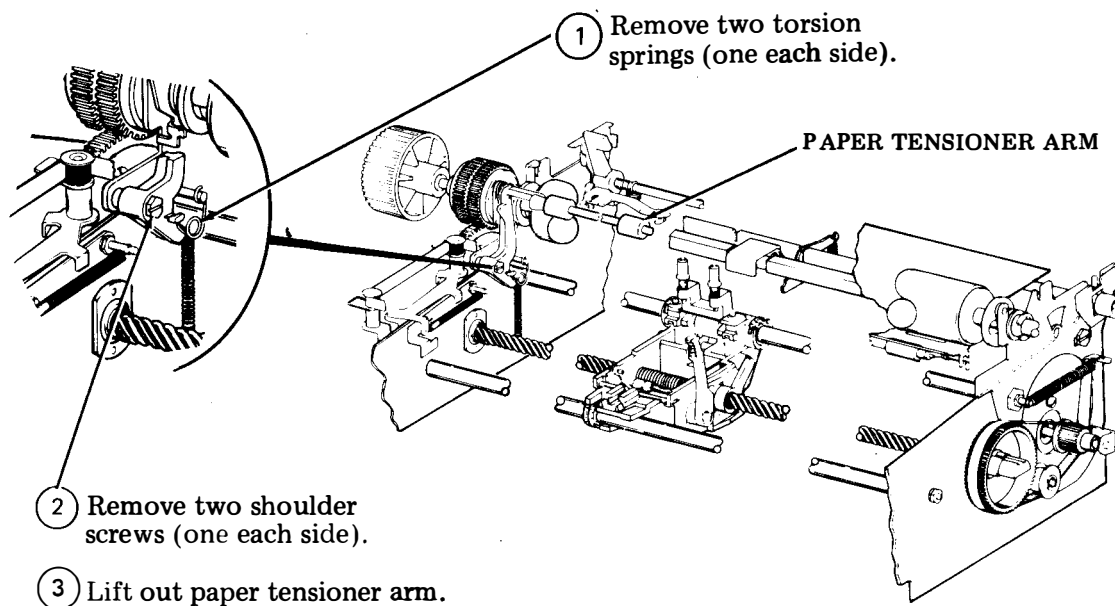
- ① Remove the rear frame assembly. Perform 4.14, ① through ⑦ .
- ② Disconnect the line feed motor cable from the logic card.



*Note:* In reassembly, perform IDLER GEAR TO PLATEN GEAR adjustment.

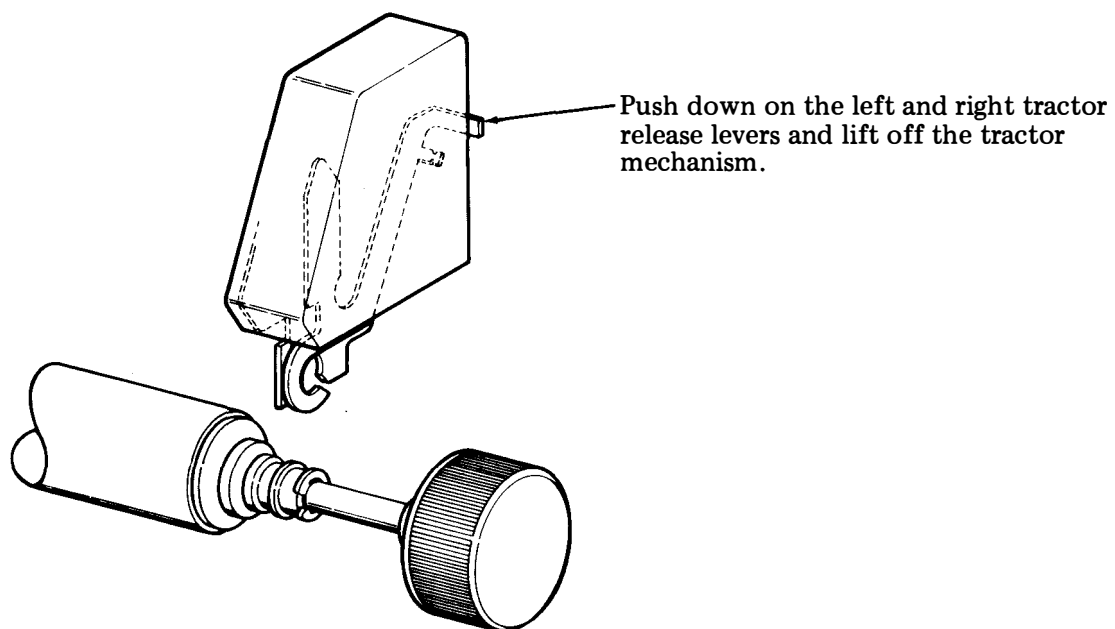
PAPER TENSIONER ARM

4.18 To remove the paper tensioner arm:

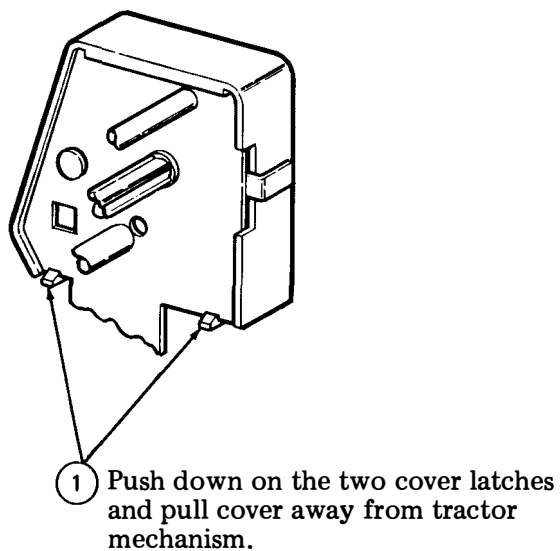


TRACTOR MECHANISM

4.19 (a) To remove the tractor mechanism:



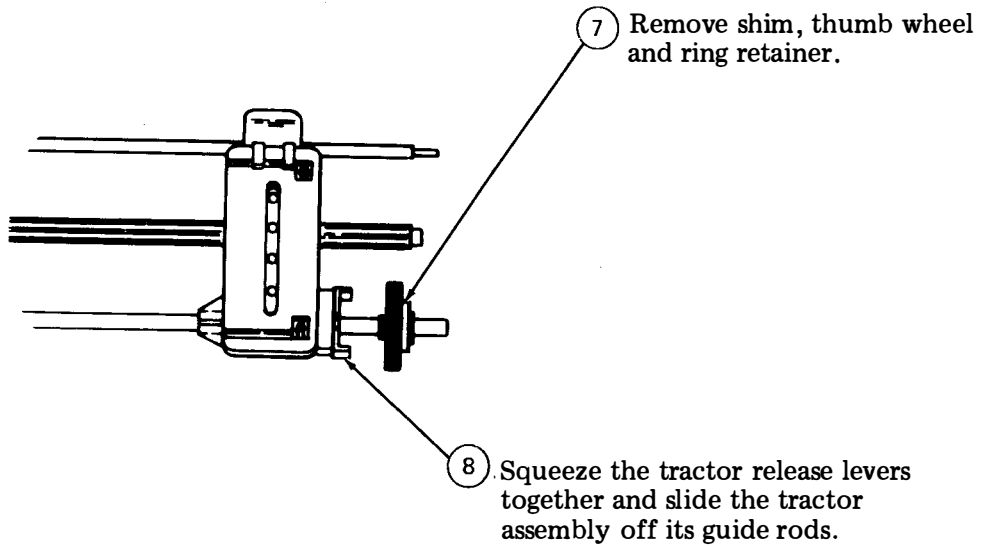
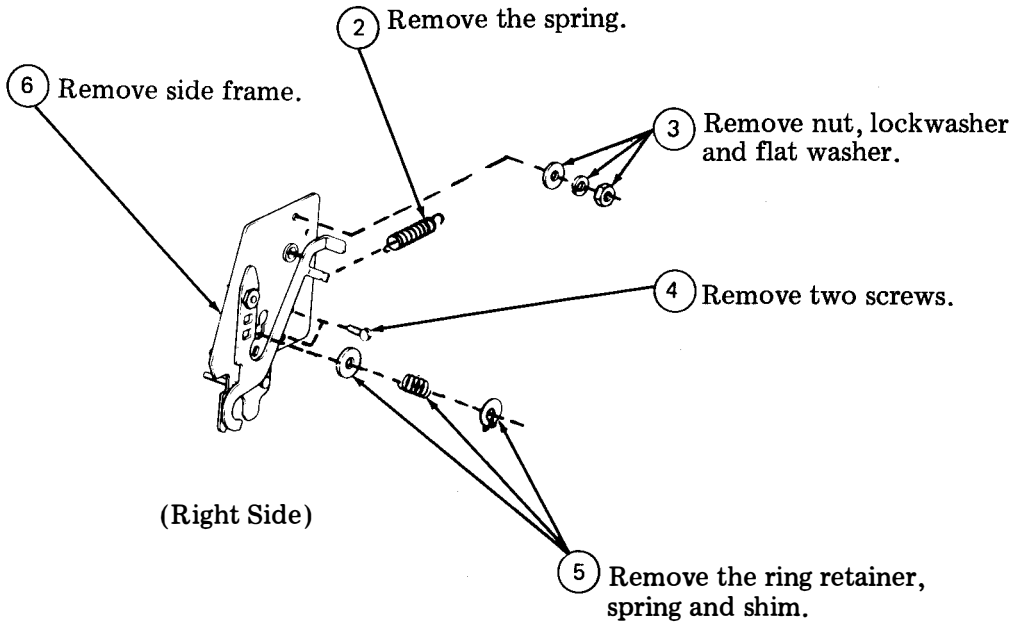
4.19 (b) To disassemble the tractor mechanism:



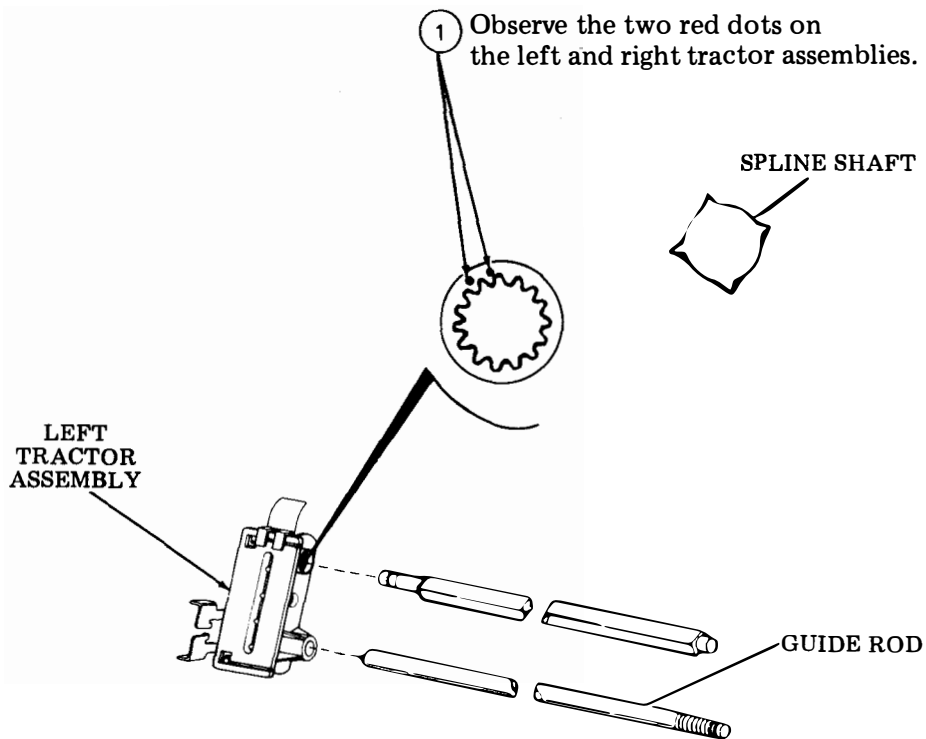


4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

TRACTOR MECHANISM (Contd)



4.19 (c) To reassemble the tractor mechanism:



② Squeeze the tractor release levers together and slide the left tractor assembly onto the guide rod and the spline shaft. When sliding onto the spline shaft, make sure one of the splines fits into the sprocket located between the two red dots shown in ① .

③ Squeeze the tractor release levers together and slide the right tractor assembly onto the guide rod and the spline shaft. When sliding onto the spline shaft, make sure the sprocket located between the two red dots (shown in ① ) fits over the same spline as did the left tractor assembly.

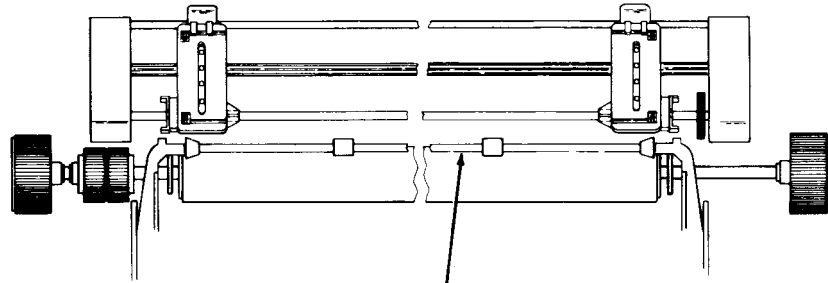
④ Reassemble the remainder of the components removed in (b).

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

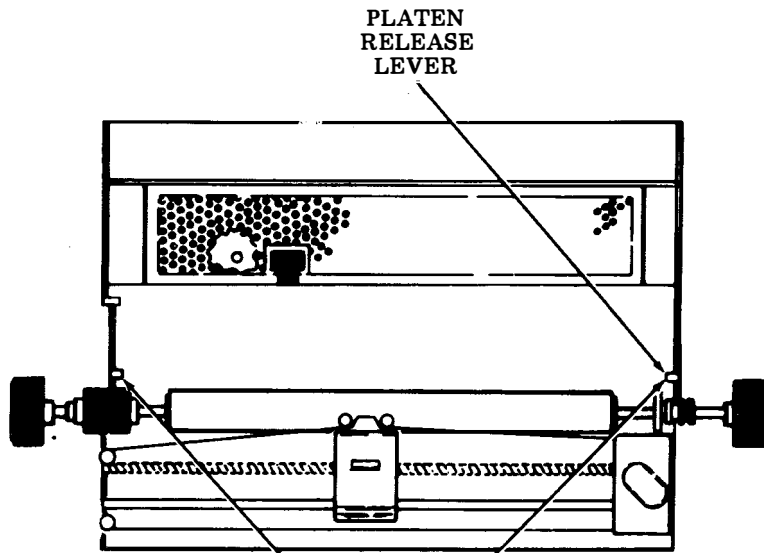
PLATEN ASSEMBLY

4.20 (a) To remove platen assembly:

- ① Remove paper guide (perform 4.12, ①).
- ② Remove tractor mechanism (perform 4.19 (a)).

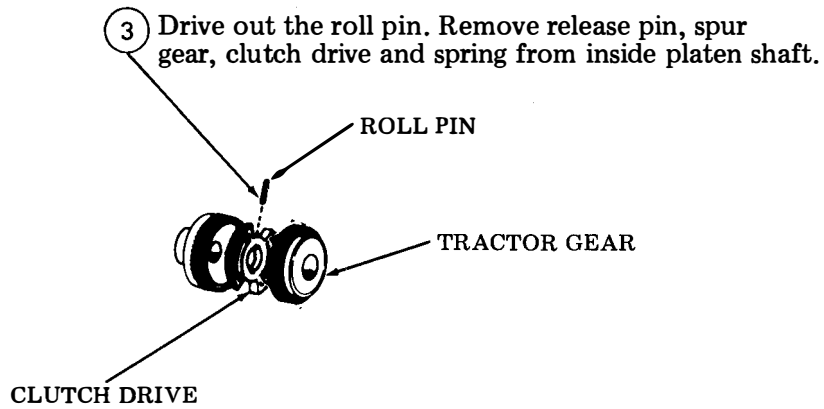
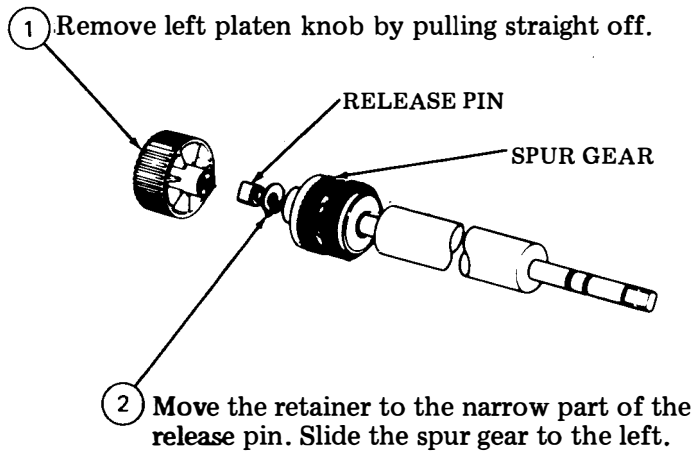


③ Pull the paper tensioner arm forward.



④ Remove platen by depressing left and right platen release lever and lifting out platen.

4.20 (b) To disassemble the platen:



*Warning 1: In reassembly, tapered side of clutch drive faces to the left. If roll pin is damaged in removal, replace it.*

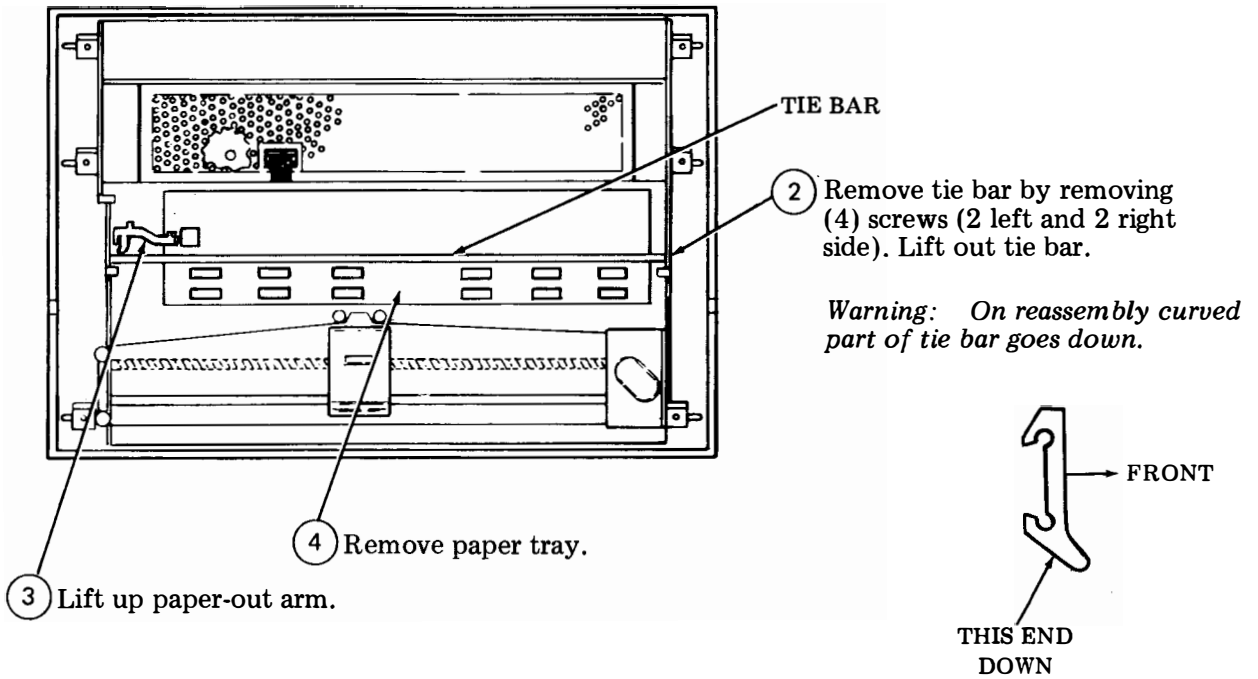
*Warning 2: If the tractor gear is removed perform the TRACTOR GEAR TO PLATEN BUSHING adjustment.*

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

453165 PAPER TRAY

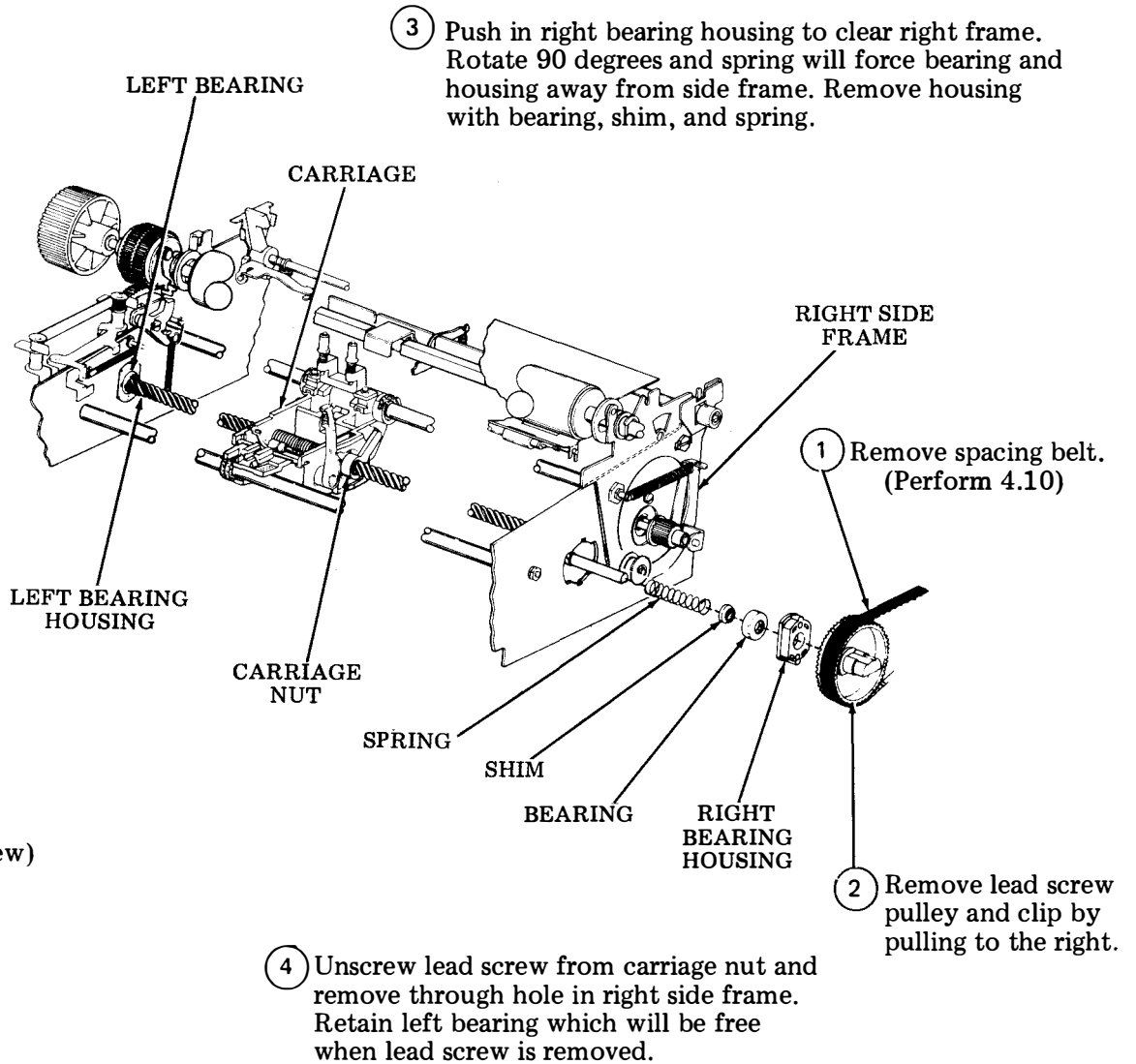
4.21 To remove the paper tray:

- ① Remove the platen assembly (perform 4.20 (a)).



LEAD SCREW

4.22 To remove the lead screw:



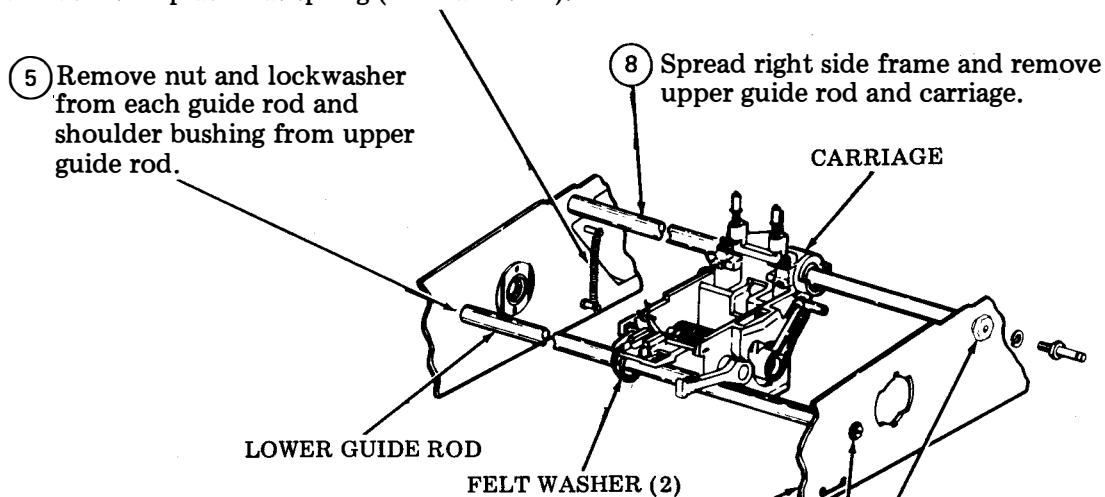
(Right Side View)

4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

CARRIAGE WITH POST ASSEMBLY

4.23 To remove the carriage with post assembly:

- ① Remove paper tray (perform 4.21).
- ② Remove print head and lead screw (perform 4.01 and 4.22).
- ③ Move carriage to left margin. Remove carriage cable from logic card.
- ④ Remove outer side plate bias spring (one each side).



⑤ Remove nut and lockwasher from each guide rod and shoulder bushing from upper guide rod.

⑧ Spread right side frame and remove upper guide rod and carriage.

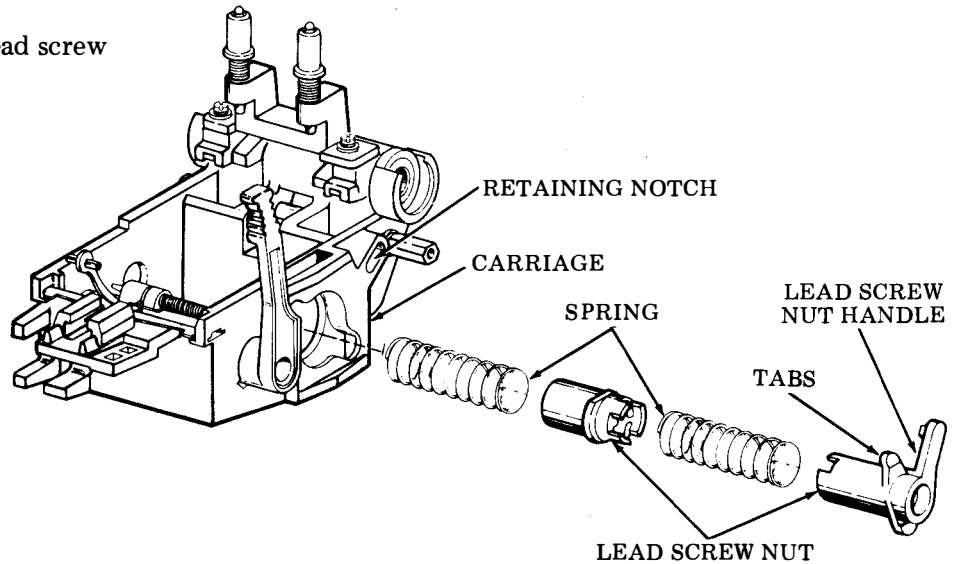
⑦ Spread right side frame outward to disengage right end of lower guide rod, then pull toward the front to remove lower guide rod and two felt washers.

⑥ Remove screw with washer from the lower guide rod and spring post, lockwasher and shoulder bushing from the upper guide rod.

LEAD SCREW NUT

4.24 To remove the lead screw nut:

- ① Remove print head and lead screw (perform 4.01 and 4.22).
- ② Tilt lead screw nut handle outward to clear retaining notch in carriage. Rotate counterclockwise (CCW) until tabs on nut align with opening in carriage. Spring will force nut away from carriage.



- ③ Remove springs and nuts.

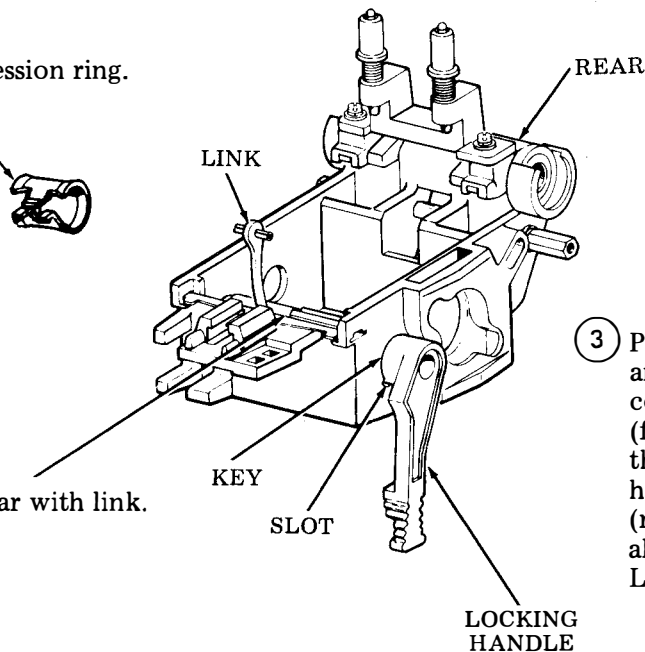
*Warning: The lead screw nuts are keyed and must be engaged when properly installed.*

COLLAR WITH LINK

4.25 To remove the collar with link:

- ① Remove print head and carriage (perform 4.01 and 4.23).

- ② Remove compression ring.



- ④ Remove collar with link.

- ③ Push locking handle to the left and rotate locking handle and collar fully counterclockwise (forward). Pull the handle to the right while slowly rotating handle and collar clockwise (rearward) until key on handle aligns with slot in carriage. Locking handle will pop out.



4. 15 INCH PRINTER DISASSEMBLY/REASSEMBLY (Contd)

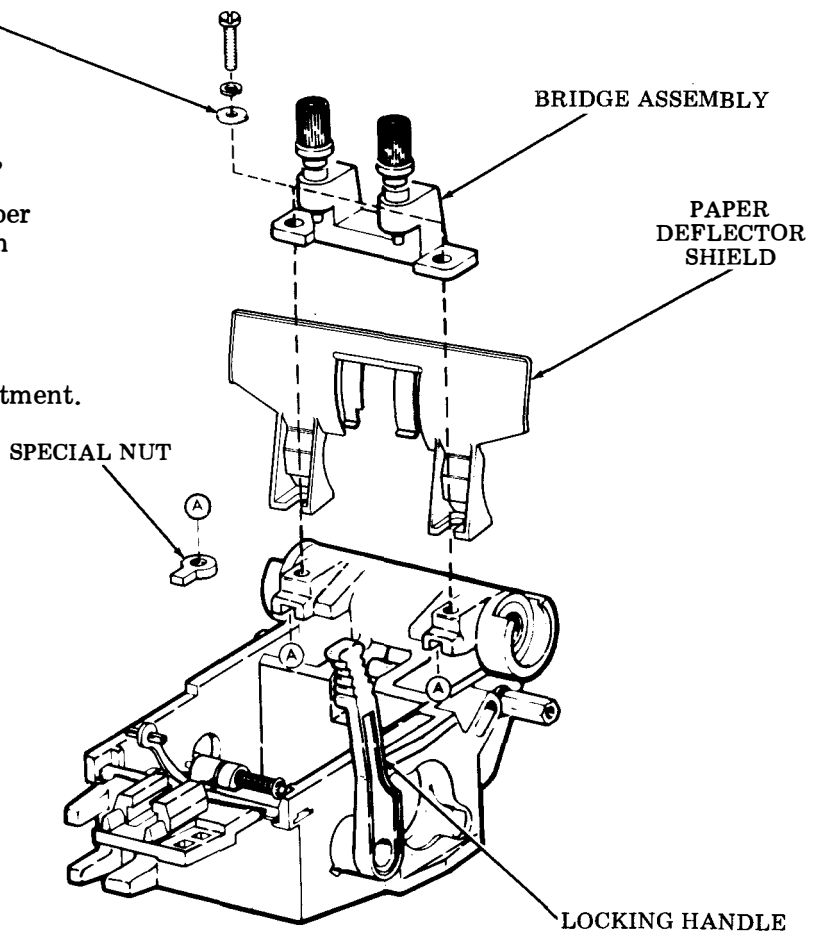
PAPER DEFLECTOR SHIELD AND BRIDGE ASSEMBLY

4.26 To remove the paper deflector shield and bridge assembly:

- ① Center the print head and pull the print head locking handle away from the platen as far as it will go.
- ② Remove the ribbon if present.
- ③ Unscrew mounting screws and remove screws, lockwasher, washers, bridge assembly and paper deflector shield.

*Note 1:* To prevent the special nuts, which are keyed from falling out of their slots, insert a piece of foam rubber under the nuts such that it holds them into position. Remove foam rubber after reassembly.

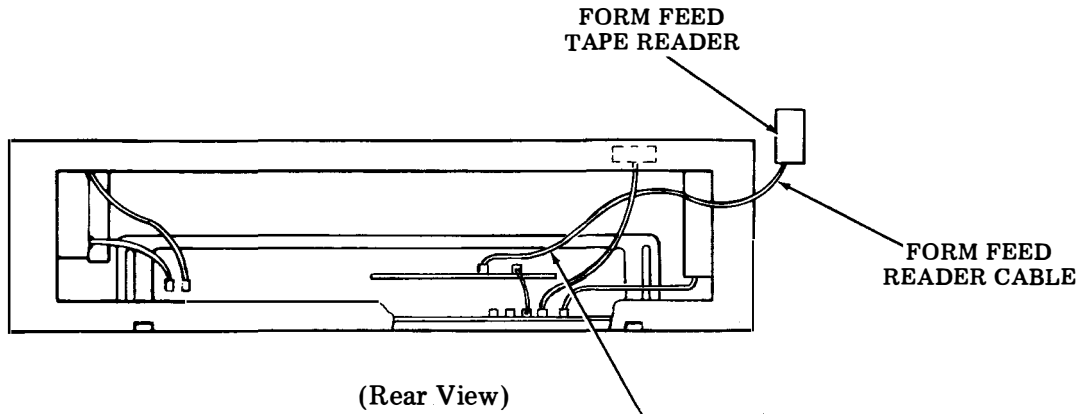
*Note 2:* In reassembly, perform the PAPER DEFLECTOR SHIELD adjustment.



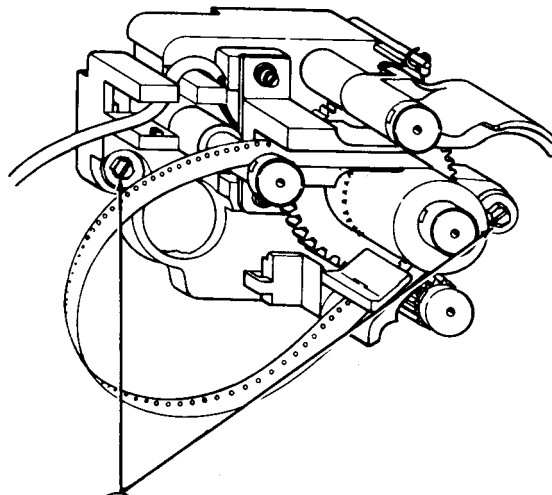
TOP OF FORM TAPE READER

4.27 To remove the top of form tape reader:

- ① Remove the rear frame and back portion of the logic card cover (perform 4.14, ① through ⑬ except ⑨).



- ② Disconnect the top of form tape reader cable from the logic card.



- ③ Remove two (one each side) screws, washers and lockwashers.
- ④ Remove top of form tape reader.

**Warning:** In reassembly check FORM FEED TAPE READER TO INTERMEDIATE GEAR adjustment and FORM FEED TAPE TO OPTICAL SWITCH ASSEMBLY adjustment.

PART 4 — ADJUSTMENTS AND SPRING TENSIONS

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### A. GENERAL

This part provides adjustments and spring tensions for the 12 inch friction, sprocket (pin) feed and tractor feed printer mechanisms, and the 15 inch tractor feed printer mechanisms.

Belt tensions are checked with a spring scale held at the angle shown in the adjustment illustration.

After an adjustment is complete, tighten any screws or nuts loosened to make the adjustment.

Reference in the procedure to left or right, up or down, and top or bottom, etc, refer to the printer in its normal operating position as viewed by the operator from the front.

Adjustments should be checked and performed when a trouble indicates a specific adjustment may be out of tolerance or when an adjustment is disturbed to enable a part to be removed or replaced.

Spring tension checks should be performed when a trouble indicates a possible defective spring or to verify proper part numbers.

Springs that do not meet the tension requirements should be replaced.

*Note:* When ordering replaceable parts or components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410055).

### B. TOOLS REQUIRED

The following tools may be required when performing adjustments or spring tension checks. Most of these items should normally be present in standard maintenance tool kits.

<u>Part No.</u>	<u>Description</u>
75765	Hook, Pull Spring
82711	Scale, Spring (64 ounce)
94647	Screwdriver, 3-1/2 Inch Blade
95368	Screwdriver
100982	Screwdriver With Clip
110443	Scale, Spring (8 ounce)
110444	Scale, Spring (32 ounce)
117781	Gauge Set
124682	Wrench, Hex Key
125752	Wrench, 3/16 Inch Socket
129534	Wrench, 3/16 Inch and 1/4 Inch Open End
135059	Scale, 15 Pound Spring
142554	Hook, Pull Spring
142555	Hook, Push Spring
151392	Tweezers
152835	Wrench, 5/16 Inch and 3/8 Inch Open End
348097	Nut Driver, 1/4 Inch
348098	Nut Driver, 5/16 Inch

C. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER

1. PRINTER ADJUSTMENTS

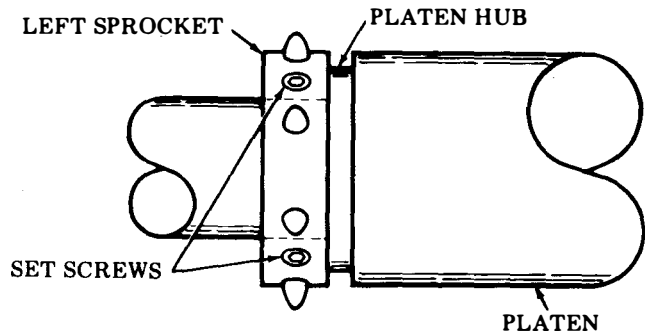
LEFT PAPER SPROCKET (Sprocket Feed Only)  
(Early Design)

Requirement

The left sprocket should be biased against the collar of the platen hub.

To Adjust

Loosen set screws and position left sprocket to meet requirement.



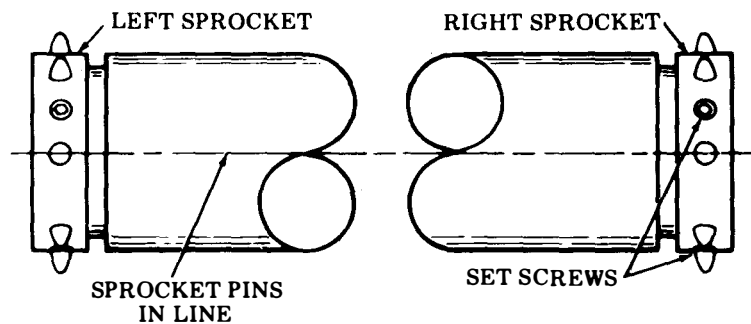
RIGHT PAPER SPROCKET (Sprocket Feed Only)  
(Early Design)

Requirement

The right sprocket should be biased against the collar of the platen hub and the pins should be in line with the pins of the left sprocket.

To Adjust

Loosen set screws and position right sprocket to meet requirement.



*Note:* This adjustment to be refined when making the PRINTED LINE POSITION adjustment.

LEFT AND RIGHT PAPER GUIDES  
(Horizontal Positioning) (Sprocket Feed Only)  
(Early Design)

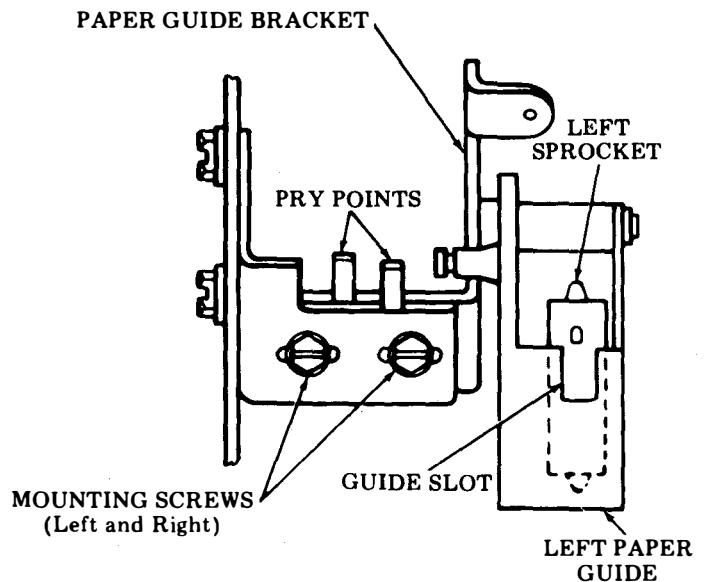
*Note:* Late design brackets do not require this paper guide adjustment.

Requirement

There should be some clearance between the base of the sprocket pins and either side of the paper guide slot.

To Adjust

Loosen screws friction tight and position paper guide bracket by using a screwdriver on the pry points.



## C. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER (Contd)

### 1. PRINTER ADJUSTMENTS (Contd)

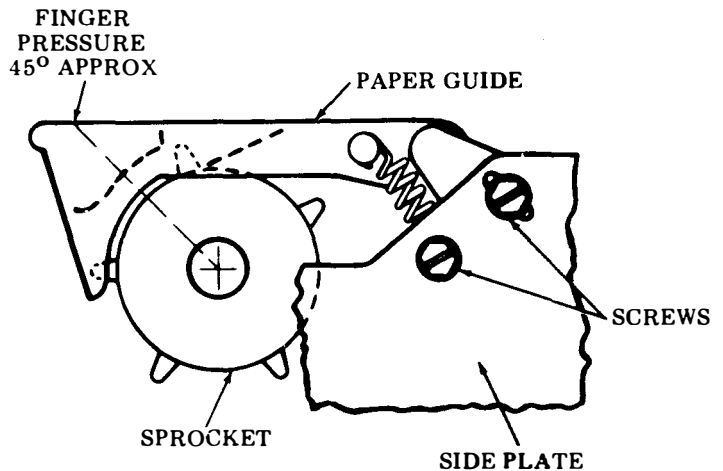
#### LEFT AND RIGHT PAPER GUIDES (Angular Positioning) (Sprocket Feed Only) (Early Design)

##### Requirement

The paper guides should seat fully on the paper sprockets (left and right sides).

##### To Adjust

Loosen screws. To seat the paper guides, apply finger pressure to top of paper guides at 45 degrees and toward center of platen. With finger pressure applied at approximately 45 degrees; tighten screws.



#### LEFT AND RIGHT PAPER GUIDES (Angular Positioning) (Friction Feed and Late Design Sprocket Feed)

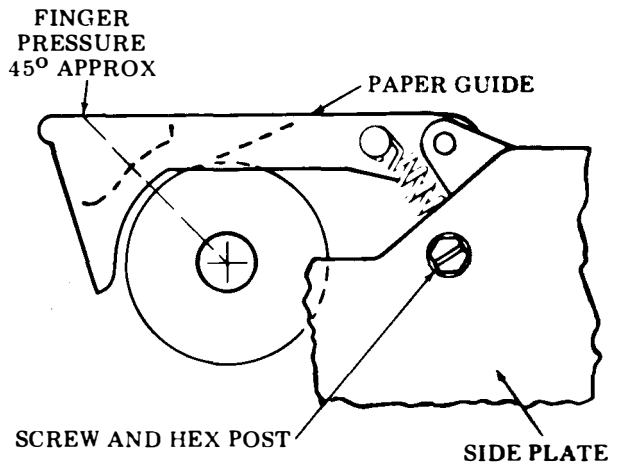
##### Requirement

The left paper guide should seat fully on the hub. The right paper guide should also be fully seated on the hub and the center paper guide should just touch the platen in the middle.

##### To Adjust

On left side, loosen the two mounting screws friction tight and move the left paper guide mounting bracket to meet the adjustment. With finger pressure applied, tighten screws.

On right side, loosen one mounting screw and with an open end wrench applied to the hex post, rotate bracket until adjustment is met. While holding the post, retighten the screw.



#### LINE FEED BELT TENSION (Sprocket Feed Only)

*Note:* This adjustment applies to Sprocket Feed (Early Design) only, without follower pulley.

##### Requirement

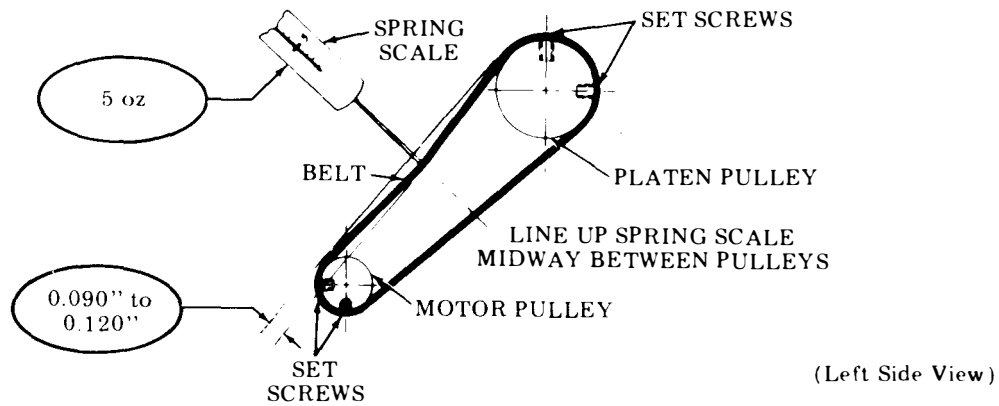
When the belt and sprocket system is at the point of least slack; a force of 5 ounces applied with a spring scale midway between the sprockets the belt should deflect between

Min 0.090 inch---Max 0.120 inch

The point of least slack is the point where the set screws on the platen pulley and those on the motor pulley are set as shown below.

##### To Adjust

Rotate the platen until the set screws on the platen pulley and the set screws on the motor pulley are aligned as shown below. Loosen motor screws, position motor to meet requirement at the point of least slack. Tighten screws.



**LINE FEED MOTOR BELT TENSION (Floating Motor Only)**

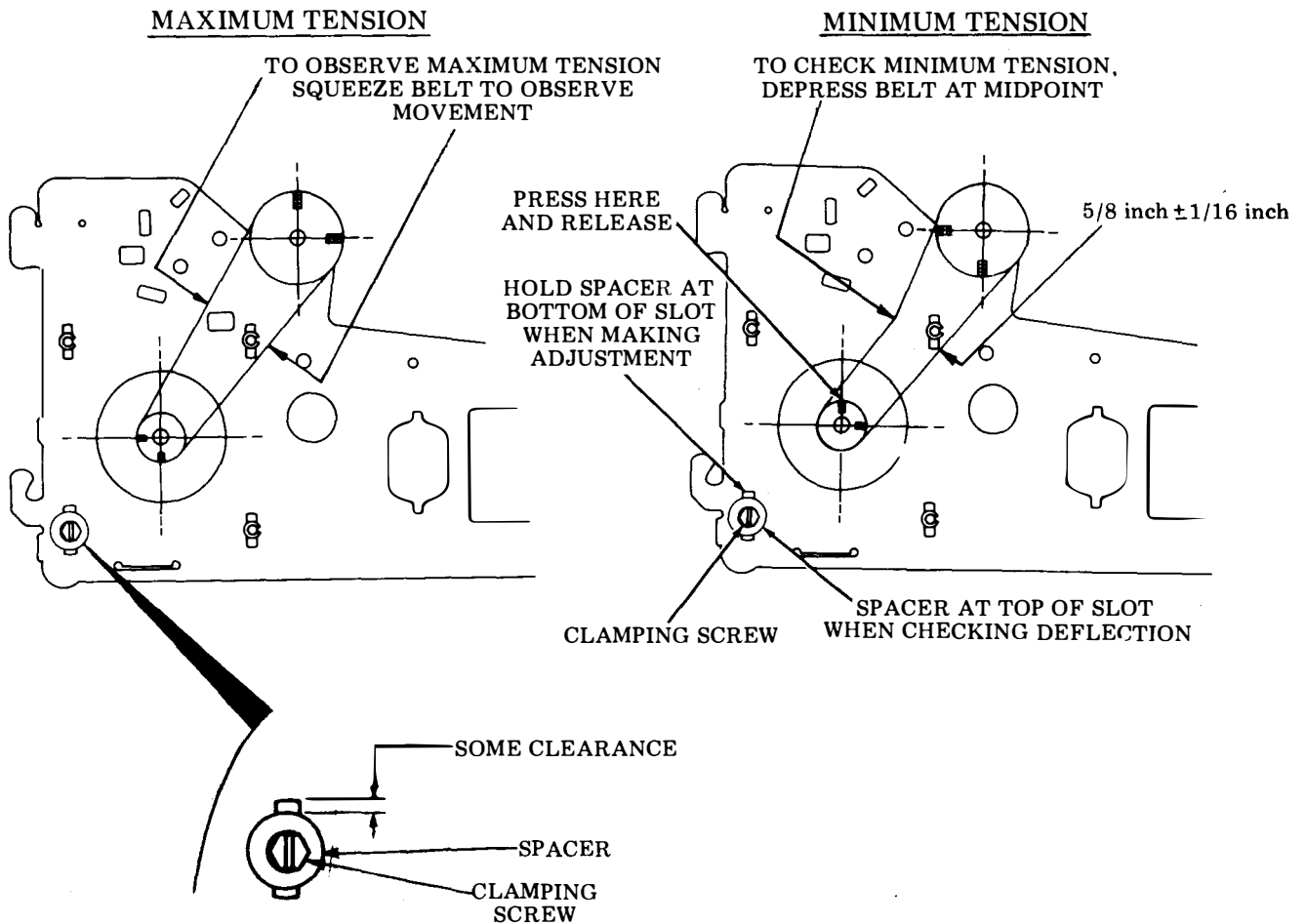
**Requirement:**

When the belt and sprocket system is at the point of maximum tension as shown (pulley screws facing out), there shall be some clearance between the top of the spacer and the top of the slot. Check by squeezing belt while observing upward motor movement.

When the pulleys are at the point of minimum tension (pulley screws facing in), the distance across the belt shall be a minimum of 5/8 inch with the belt deflected until the motor rises to the top of its free travel (spacer at top of slot).

**To Adjust:**

With the system pulleys set up for minimum tension and the clamping screw loose, press down on the motor to reduce any belt slack, then release. Hold spacer down and tighten screw.



C. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER (Contd)

1. PRINTER ADJUSTMENTS (Contd)

PRINT HEAD TO PLATEN

Requirement

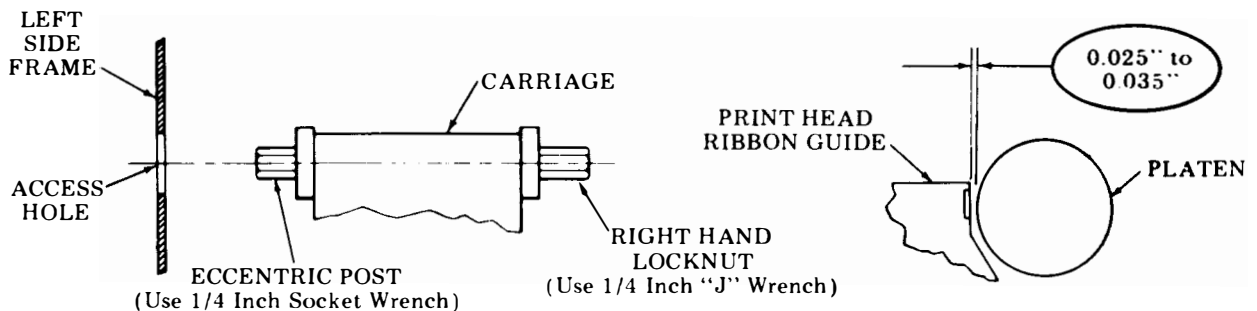
There should be

Min 0.025 inch---Max 0.035 inch

gap between the ribbon guide of the print head and the platen (without paper or ribbon) and at all positions of the carriage and platen, when platen play at the right end is biased down and to the rear and the print head is locked.

To Adjust

Position carriage to the extreme left position. Unlock locking handle, use 1/4 inch "J" wrench to loosen right-hand locknut and with carriage biased rearward, insert 1/4 inch socket wrench through access hole in left side frame and rotate eccentric post to adjust. Tighten locknut. Check adjustment with carriage locked. Check adjustment on extreme right end of platen, while biasing platen down and to the rear. Refine adjustment, if necessary.



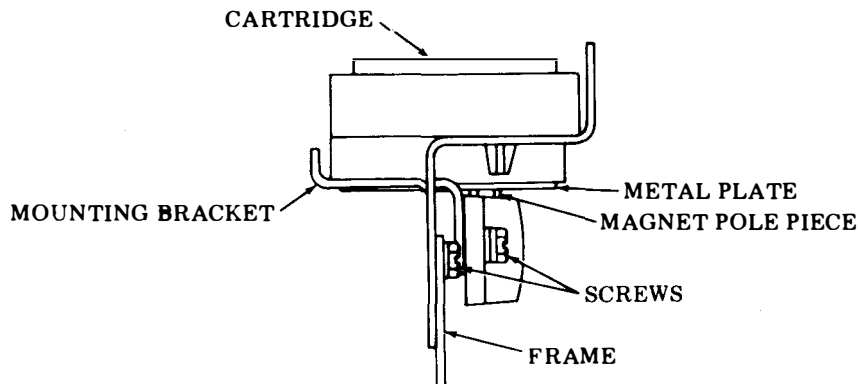


RIBBON CARTRIDGE MAGNETIC LATCH**Requirement**

The magnetic pole pieces of the magnetic latch should be firmly engaged with the cartridge lower metal plate when the cartridge is installed in the right-hand cartridge mounting bracket.

**To Adjust**

Loosen the two magnetic latch mounting screws. Install cartridge onto the mounting bracket. While holding the cartridge down firmly, allow the magnetic latch to fully engage the lower metal plate of the cartridge. Tighten the latch mounting screws.

LINE FEED FOLLOWER PULLEY STOP BRACKET

*Note:* For units with line feed pulleys only.

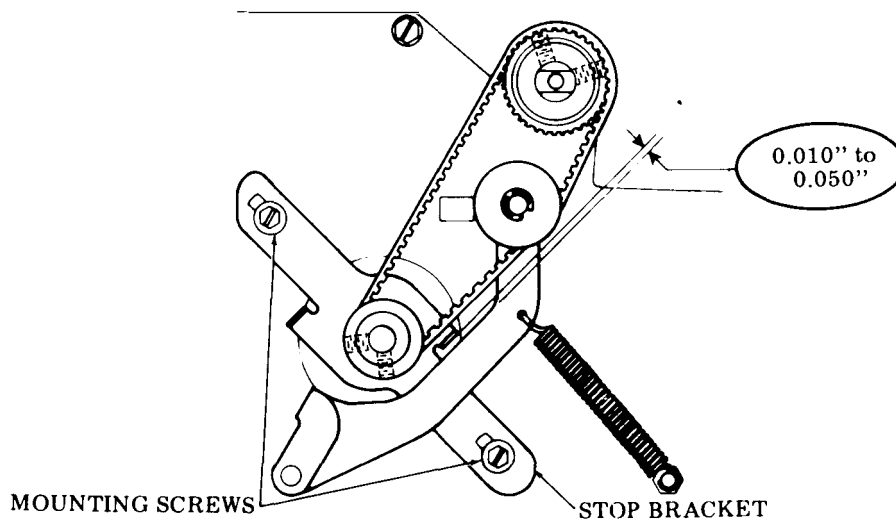
**Requirement**

With the set screws on both pulleys positioned as shown below and with the follower pulley resting on the belt, push the pulley against the belt to take up all friction. Slowly release pressure. Measuring between the follower lever and the adjacent tab of the stop bracket there should be

Min 0.010 inch--Max 0.050 inch  
gap between them.

**To Adjust**

Loosen the two mounting screws on the stop bracket to friction tight and move bracket to meet the adjustment. If the motor mounting holes are slotted, the motor may be repositioned from the center of the slot, if necessary, if the stop bracket adjustment does not meet the requirement.



C. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER (Contd)

1. PRINTER ADJUSTMENTS (Contd)

PRESSURE ROLLER BAIL (Friction Feed Only)

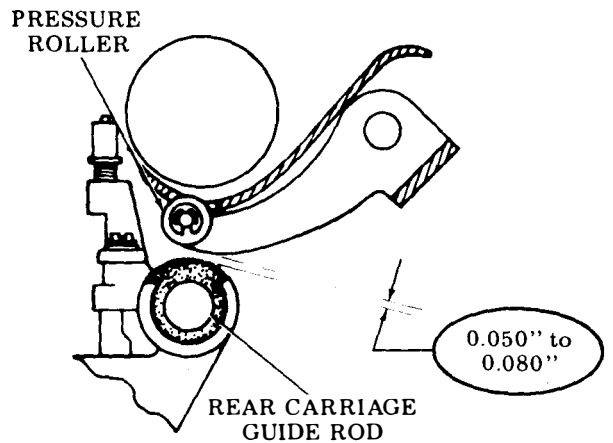
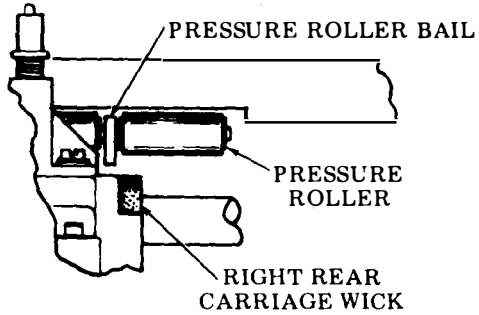
**Requirement**

With the paper release lever in the forward position and the right end of the carriage next to the right rear carriage wick located immediately under the arm of the pressure roller bail (between the two pressure rollers) there should be from

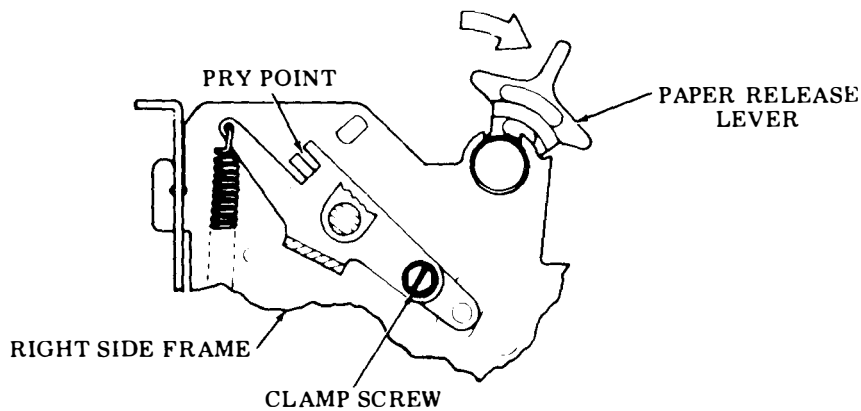
Min 0.050 inch---Max 0.080 inch  
gap between the carriage and the bail arm when measured at the closest point.

**To Adjust**

Loosen the clamp screw to friction tight. Move pry point down to increase gap or up to decrease gap.



(Right Side View)



PAPER GUIDE PLATE CLEARANCE (Sprocket Feed Only)

*Note:* For sprocket feed (Early Design) with metal paper guide only.

(1) Requirement

With no sprocket forms in the platen mechanism and the platen oriented with the slot, or rib, on the right platen hub in the top uppermost position there should be

Min 0.008 inch---Max 0.025 inch between the platen and the left and right ends of the paper guideplate. Record the two clearances.

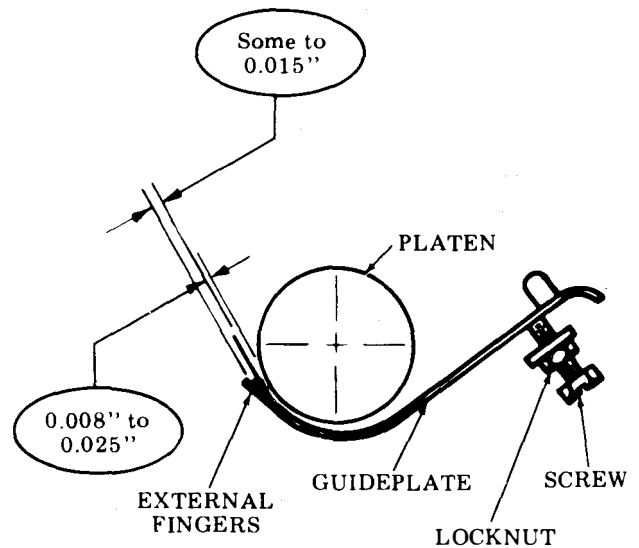
To Adjust

Loosen locknut and adjust screw. Tighten locknut.

(2) Requirement

The fingers at both the left and right ends of the platen should be

Min Some---Max 0.015 inch beyond the recorded gap between the platen and the left and right ends of the paper guideplate.



To Adjust

Bend fingers to meet requirement.

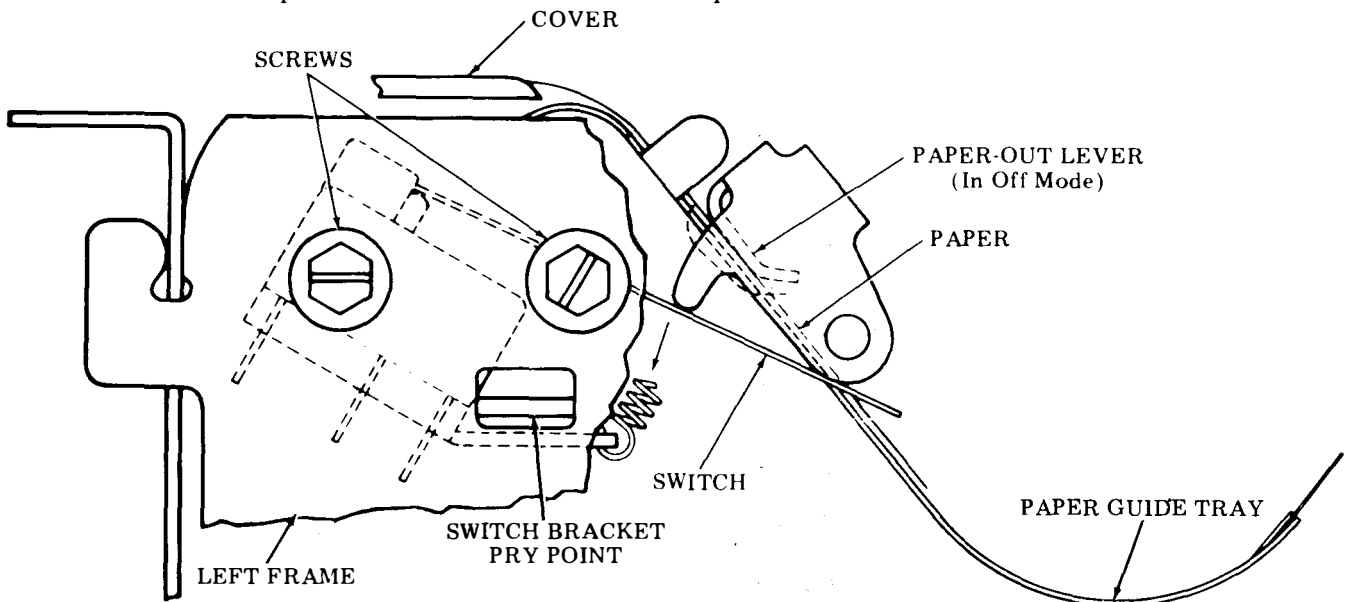
PAPER ALARM CONTACT LEVER (Sprocket Feed Only)

Requirement

With the paper alarm contact lever resting on the paper and the paper held taut over the cutout in the paper guide tray, the switch will be in the off mode (nonalarm). With the paper out, the lever should activate the switch (alarm mode).

To Adjust

Loosen screws and position switch bracket to meet requirement.



(Left Side View)

### C. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER (Contd)

#### 1. PRINTER ADJUSTMENTS (Contd)

##### PLATEN ENDPLAY AND PRINTED LINE POSITION

The following two requirements must be met:

(1) Requirement

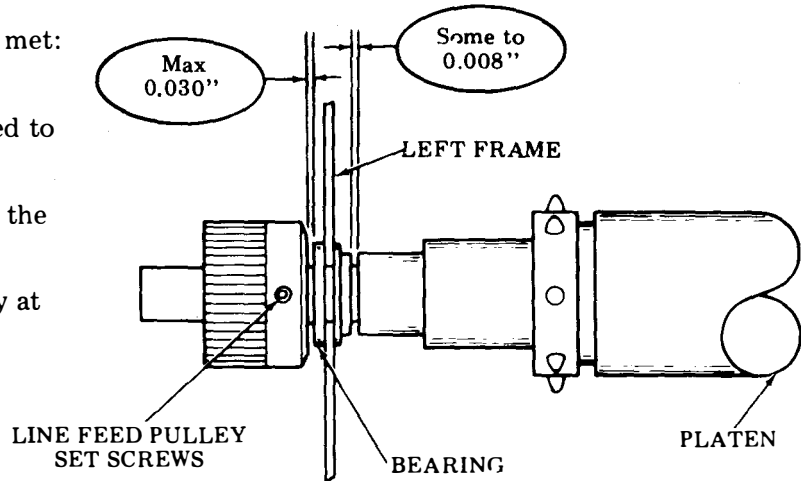
Platen Endplay -- With the platen biased to the right, there should be

Min Some ---Max 0.008 inch clearance between the left bearing and the platen hub, at the closest point, and

Max 0.030 inch between the left bearing and the pulley at the closest point.

To Adjust

Loosen line feed pulley set screws and position.

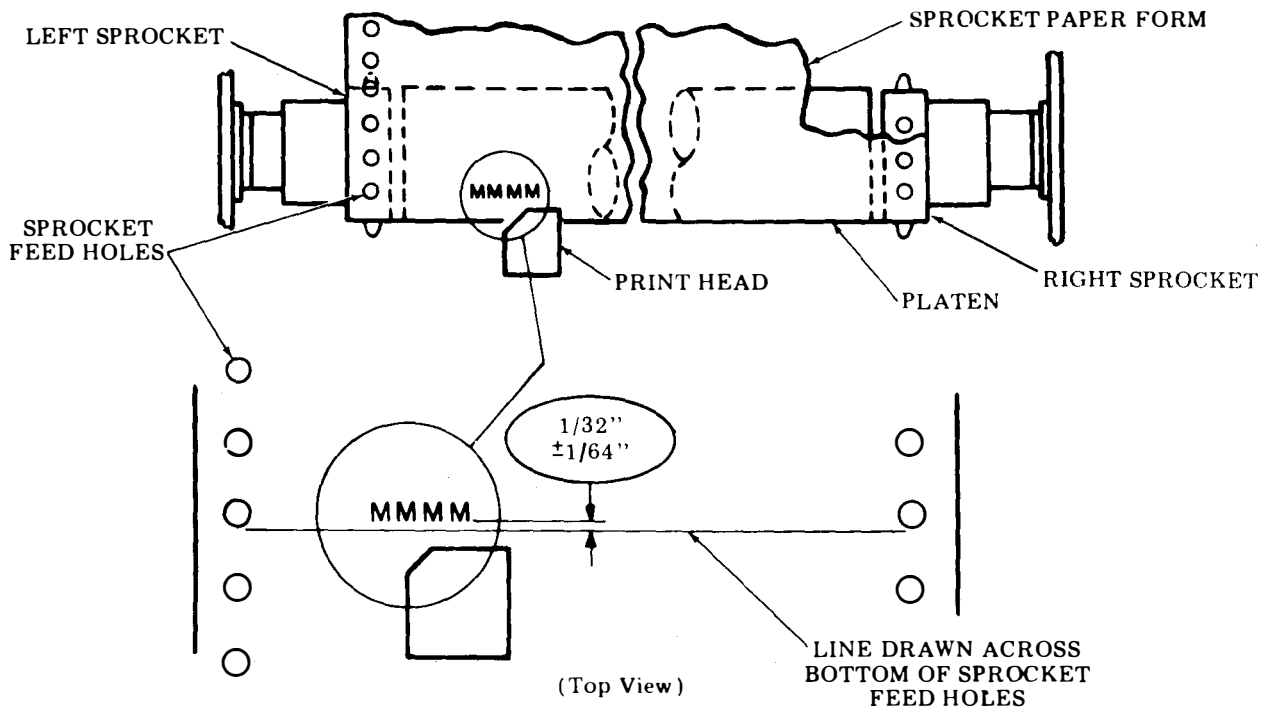


(2) Requirement (Sprocket Feed Only)

Printed Line Position -- The lower edge of a typed line of M characters should be  $1/32 \pm 1/64$  inch above a horizontal line located by any of the following methods:

1. A line drawn between the lower edges of two opposite sprocket holes.
2. A preprinted line on the form the same as in 1. above or in 1/6 inch multiples.
3. A fold midway between two sprocket holes on fanfold paper.

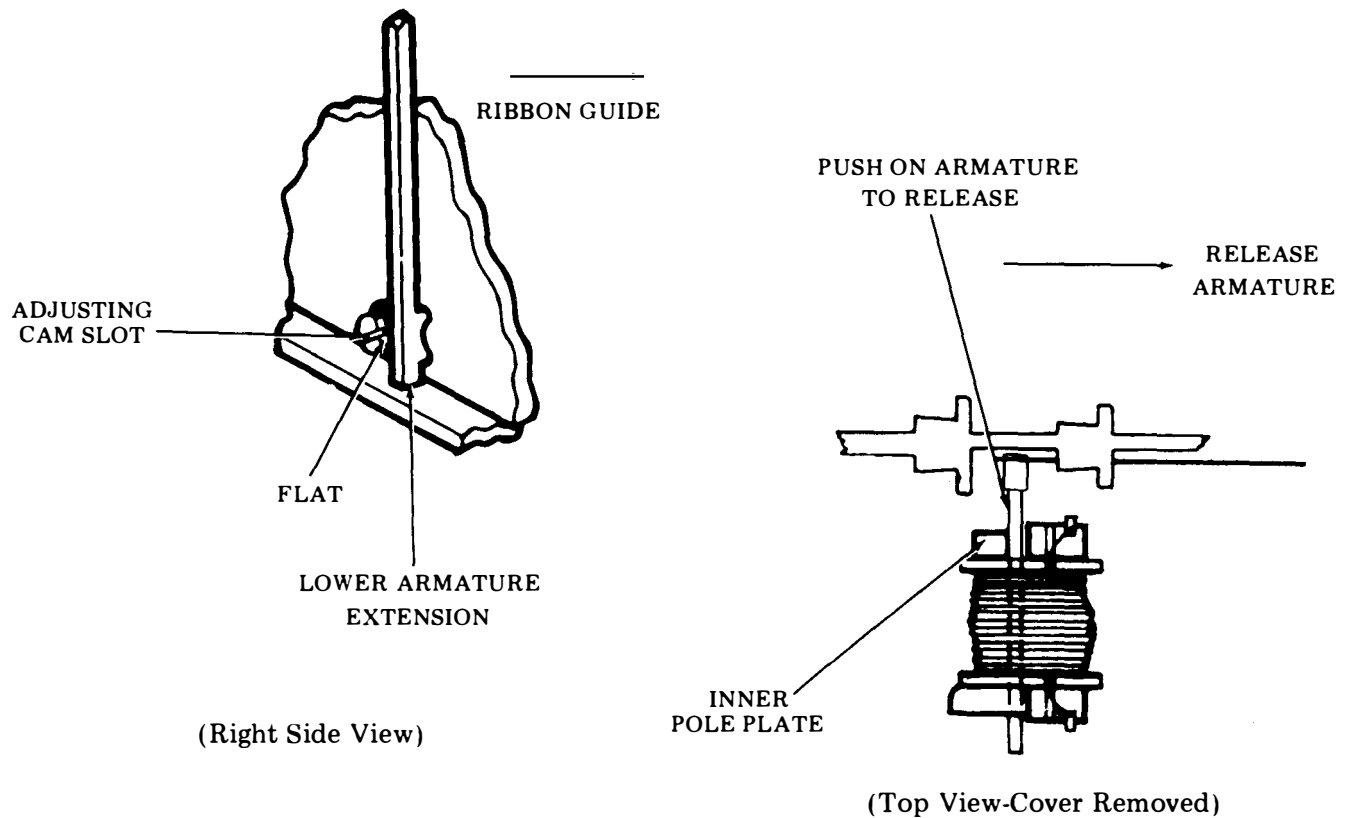
(Power must be on line feed motor for this adjustment.)



To Adjust

Loosen the line feed pulley set screws and position. Print the character "M" across the line and check (2) Requirement. If necessary, (early design platen only) loosen set screw on right sprocket to meet alignment requirement.

PRINT HEAD ARMATURE



**Requirement**

With a good ribbon installed and the print head positioned and locked toward the platen, no wires shall stick through the ribbon (will not retract) and no dots shall be missing or noticeably lighter than other dots on printed copy.

**To Adjust**

*Note:* This adjustment applies to all 9 levels.  
(Power must be off for this adjustment)

Remove the ribbon and print head cover. Release the print head and position away from the platen. With the lower armature extension on the high part of the cam (adjusting cam slot horizontal and the flat facing toward the ribbon guide) and the armature released from the inner pole plate, rotate the adjusting cam slowly clockwise until the armature is magnetically pulled up. Continue rotating cam clockwise for 3 more clicks.

2. SPRING TENSIONS (Spring identification and location found on Page 4-13).

① 430028 Lead Screw Spring

On left side of lead screw, push to start to compress spring — 9 to 11 pounds.

C. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER (Contd)

2. SPRING TENSIONS (Contd)

② 430030 or 430366 Carriage Nut Spring

Place carriage on left side of unit. Hold lead screw pulley. Insert spring scale through top hole of left bearing housing. Push carriage with  $46 \pm 8$  ounces to compress carriage nut spring.

②a 430366 Bias Spring

The free length of the bias spring (not assembled on the lead screw nuts) should be between 1.55 inch and 1.65 inch.

③ 430242 Ribbon Tension Spring

4-1/2 to 6-1/2 ounces to pull spring to installed length with ribbon installed.

④ 101386 Paper Finger Springs (Left and Right) (2)

2 to 4 ounces to start to lift paper fingers at front edge of fingers (with center paper guide installed)

⑤ 430021 SP Belt Tension Arm Spring

18 to 22 ounces to pull spring to installed length.

⑥ 72473 Paper-Out Spring (Sprocket Feed Only)

1/2 to 1 ounce to start paper-out lever moving.

⑦ Bell Plunger (Striker) Spring (Old Bell)

1/2 to 1 ounce to seat plunger (430118).

⑦a 430410 Bell Plunger Spring (New Bell)

1 to 10 grams for striker (430411) to contact gong.

⑧ Link Spring (Part of 430216)

3/4 to 1-1/4 ounces at roll pin to hold spring in lowest position with locking handle in the most forward position.

⑨ 4708 Paper Tray Springs (Left and Right) (2)

On sprocket feed units, lift paper out contact bail to latched position. Move the printhead away from the platen. With a spring scale hooked over the center of the top edge of the tray, and pulling at right angles to the main surface of the tray, it should require 8 to 12 ounces to start the tray moving forward.

⑨a 82463 Paper Tray Springs (Left and Right) (2)

On friction feed sets with plastic paper trays, move the printhead away from the platen. With a spring scale hooked over the center of the top edge of the tray, and pulling at right angles to the main surface of the tray, it should require 1 to 1-1/2 ounce to start the tray moving forward.

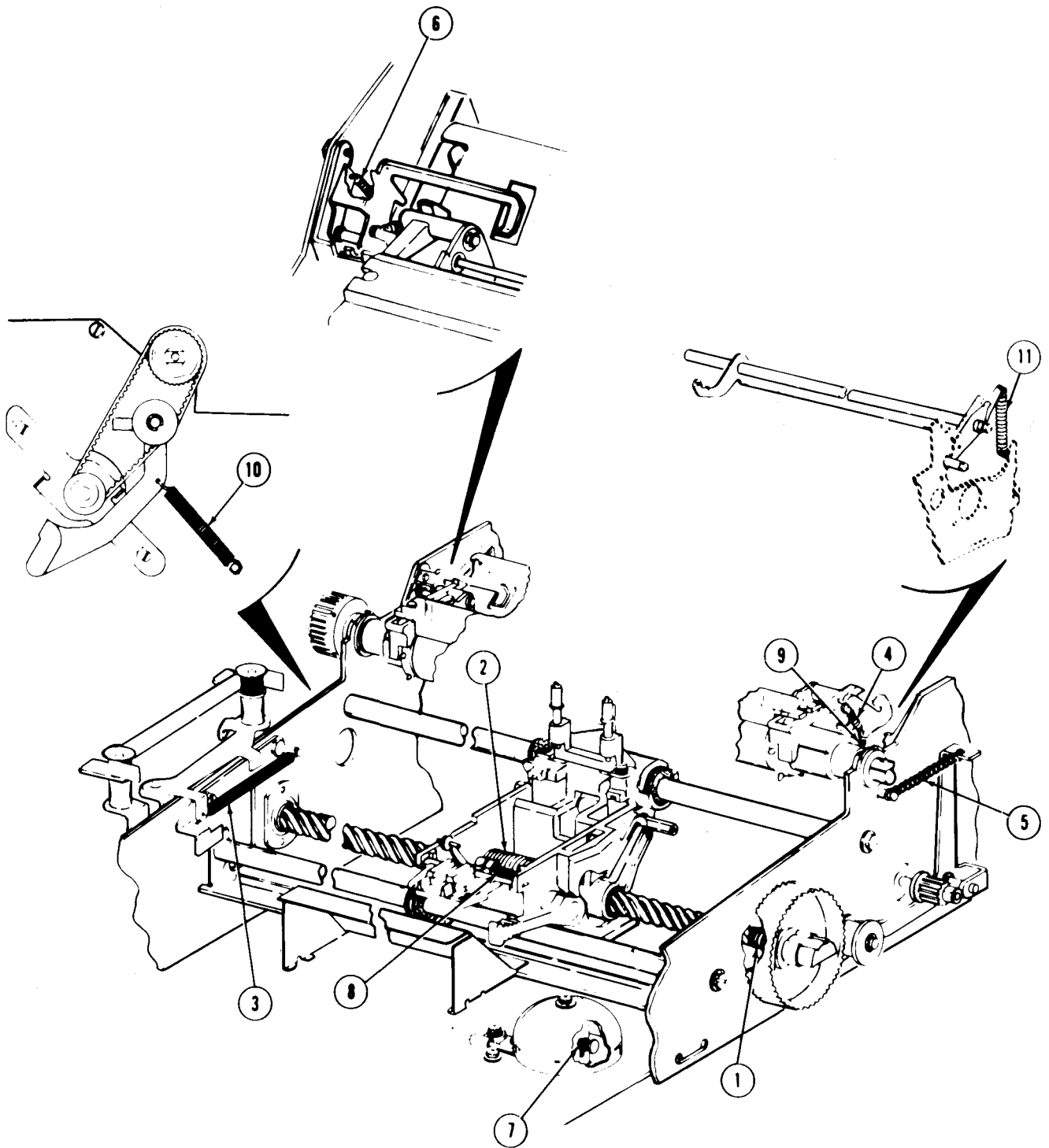
⑩ 430021 Line Feed Belt Tension Arm Spring

10 to 14 ounces to pull spring to installed length.

⑪ 82727 Pressure Roller Bail Spring (Friction Feed Only)

With the paper release lever in the rear position and pulling the pressure roller bail at the spring mounting hole at a right angle to the bail arm, it should take 46 to 56 ounces to start the roller bail moving.

3. SPRING IDENTIFICATION



## D. 12 INCH TRACTOR FEED PRINTER

### 1. PRINTER ADJUSTMENTS

#### PRINT HEAD TO PLATEN

##### Requirement

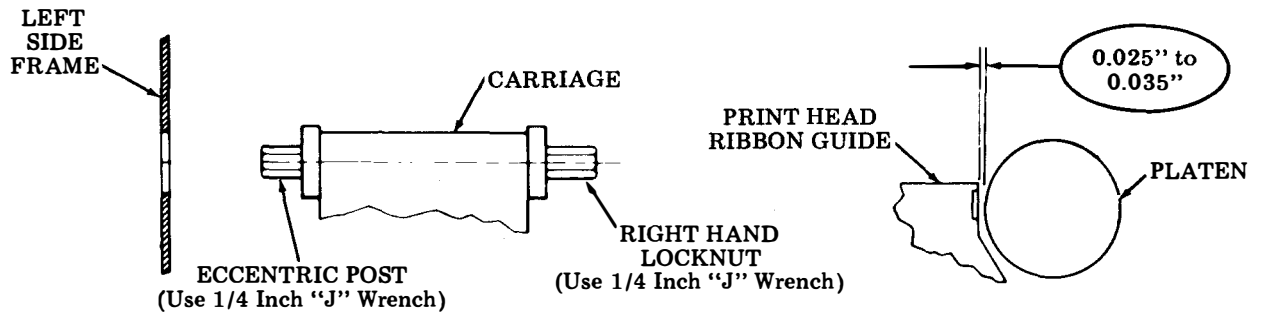
There should be

Min 0.025 inch--Max 0.035 inch

gap between the ribbon guide of the print head and the platen (without paper or ribbon) and at all positions of the carriage and platen, when platen play at the right end is biased down and to the rear and the print head is locked.

##### To Adjust

Position carriage to the extreme left position. Unlock locking handle, use 1/4 inch "J" wrench to loosen right-hand locknut and with carriage biased rearward, rotate eccentric post to **adjust**. Tighten locknut. Check adjustment with carriage locked. Check adjustment on extreme right end of platen, while biasing platen down and to the rear. Refine adjustment, if necessary.



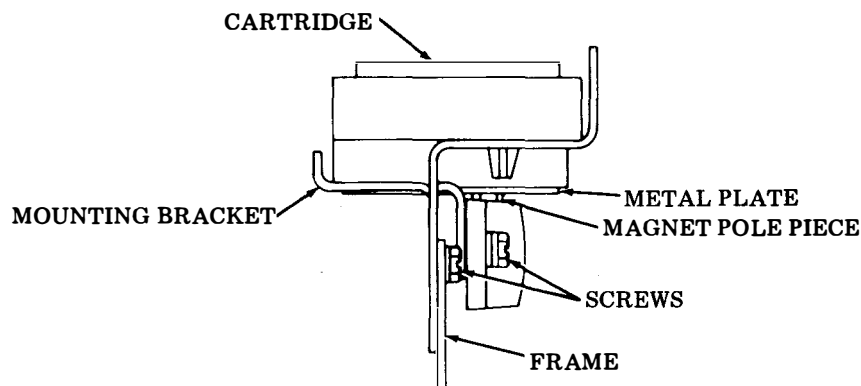
#### RIBBON CARTRIDGE MAGNETIC LATCH

##### Requirement

The magnetic pole pieces of the magnetic latch should be firmly engaged with the cartridge lower metal plate when the cartridge is installed in the right-hand cartridge mounting bracket.

##### To Adjust

Loosen the two magnetic latch mounting screws. Install cartridge onto the mounting bracket. While holding the cartridge down firmly, allow the magnetic latch to fully engage the lower metal plate of the cartridge. Tighten the latch mounting screws.





PRESSURE ROLLER BAIL

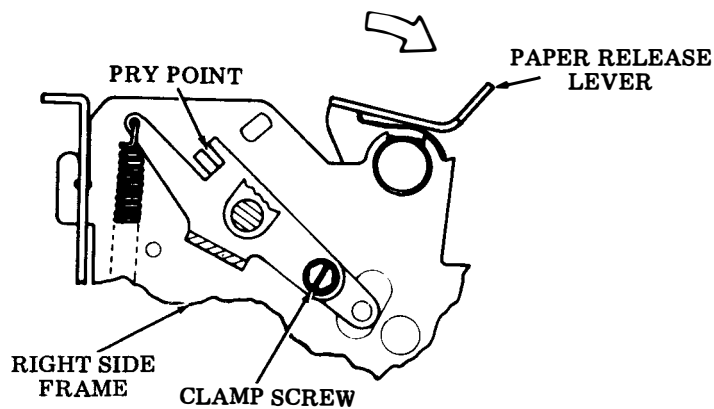
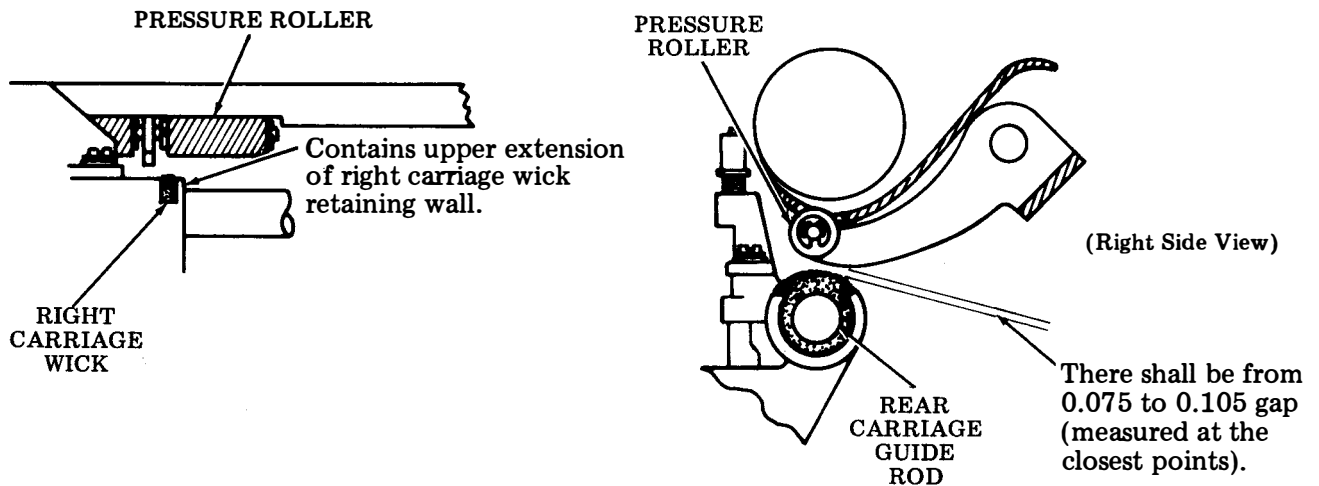
Requirement

With the paper release lever in the forward position and the right end of the carriage next to the right rear carriage wick located immediately under the arm of the pressure roller bail (between the two pressure rollers) there should be from

Min 0.075 inch--Max 0.105 inch gap between the carriage and the bail arm when measured at the closest point.

To Adjust

Loosen the clamp screw to friction tight. Move pry point down to increase gap or up to decrease gap.

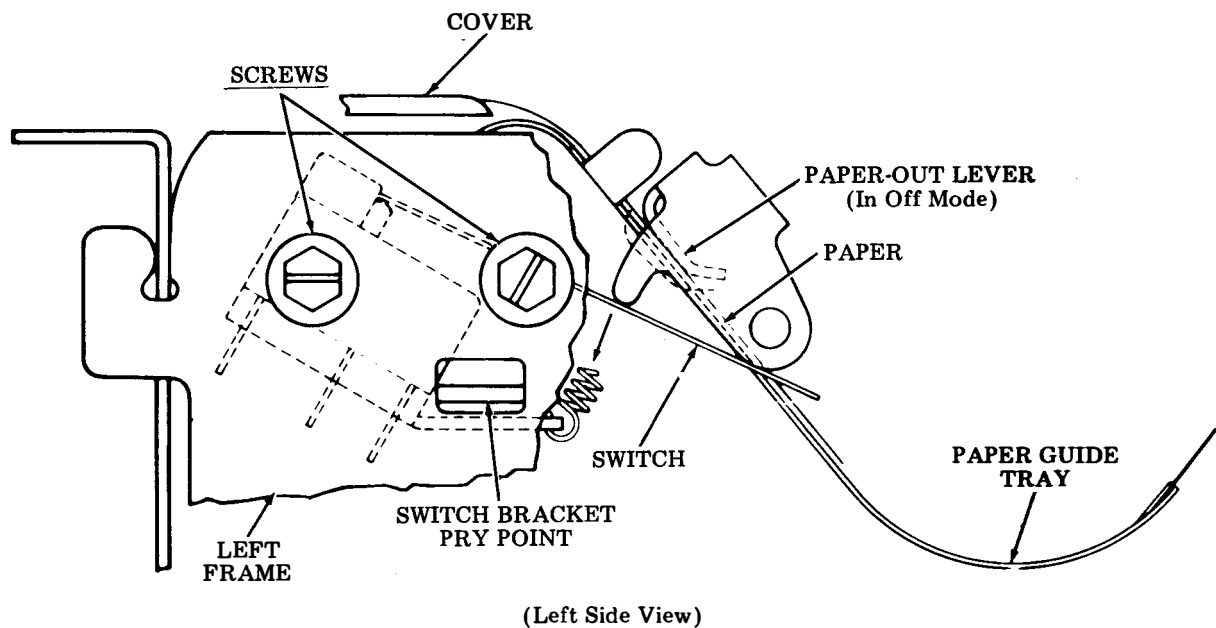


D. 12 INCH TRACTOR FEED PRINTER (Contd)1. PRINTER ADJUSTMENTS (Contd)PAPER ALARM CONTACT LEVER**Requirement**

With the paper alarm contact lever resting on the paper and the paper held taut over the cutout in the paper guide tray, the switch will be in the off mode (nonalarm). With the paper out, the lever should activate the switch (alarm mode).

**To Adjust**

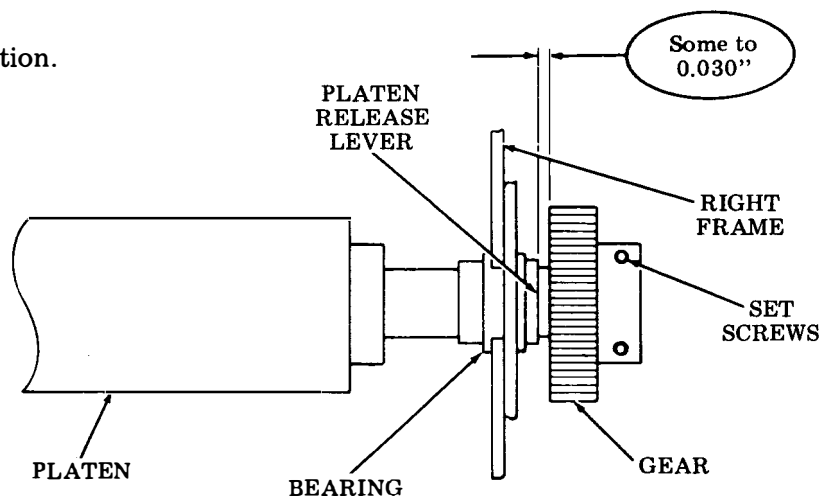
Loosen screws and position switch bracket to meet requirement.

PLATEN ENDPLAY**Requirement**

With the platen biased against the right bearing, there shall be  
Min some---Max 0.030 inch  
clearance between the right bearing and the gear.

**To Adjust**

Loosen the gear set screws and position.



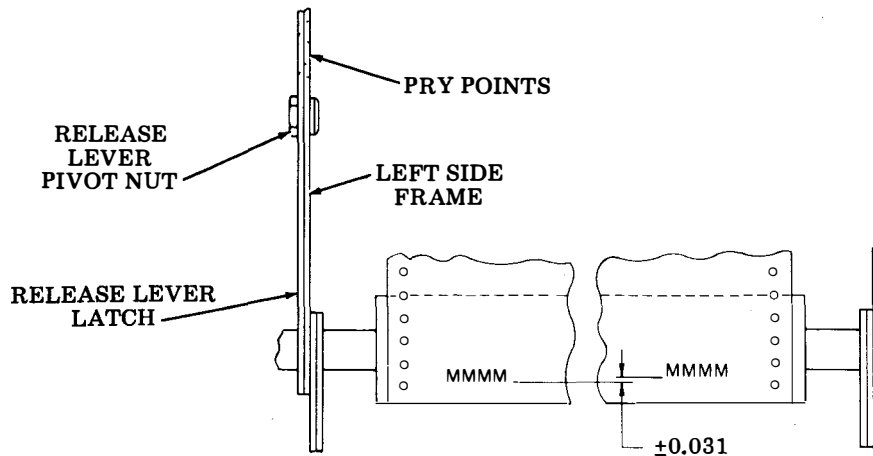
PRINTED LINE POSITION

Requirement

The printed line shall not vary more than  $\pm 0.031$  from an arbitrary horizontal reference line (lined paper) when a line is drawn even with the bottom of the first and last character of a 10 inch long printed line. It is recommended that a single character (ie, M) be repeated on the entire line.

To Adjust

Remove the left end cover, loosen the release lever pivot nut and position release lever latch to meet the requirement. Retighten the shoulder nut and recheck the requirement.



PRINT HEAD ARMATURE

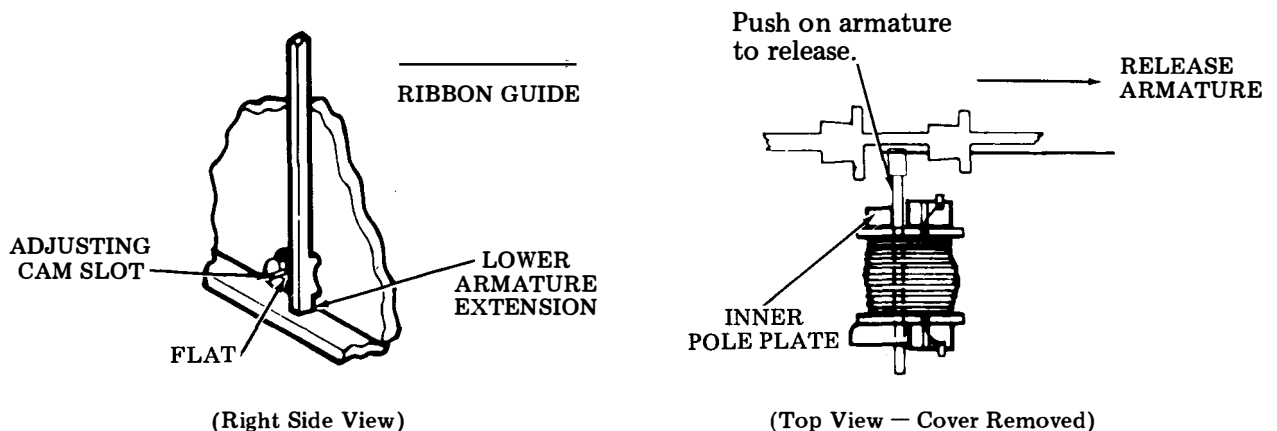
Requirement

With a good ribbon installed and the print head positioned and locked toward the palten, no wires shall stick through the ribbon (will not retract) and no dots shall be missing or noticeably lighter than other dots on printed copy.

To Adjust

*Note:* This adjustment applies to all nine levels. (Power must be off for this adjustment.)

Remove the ribbon and print head cover. Release the print head and position away from the palten. With the lower armature extension on the high part of the cam (adjusting cam slot horizontal and the flat facing toward the ribbon guide) and the armature released from the inner pole plate, rotate the adjusting cam slowly clockwise until the armature is magnetically pulled up. Continue rotating cam clockwise for 3 more clicks.



## D. 12 INCH TRACTOR FEED PRINTER (Contd)

### 1. PRINTER ADJUSTMENTS (Contd)

#### LINE FEED MOTOR GEAR-BACKLASH

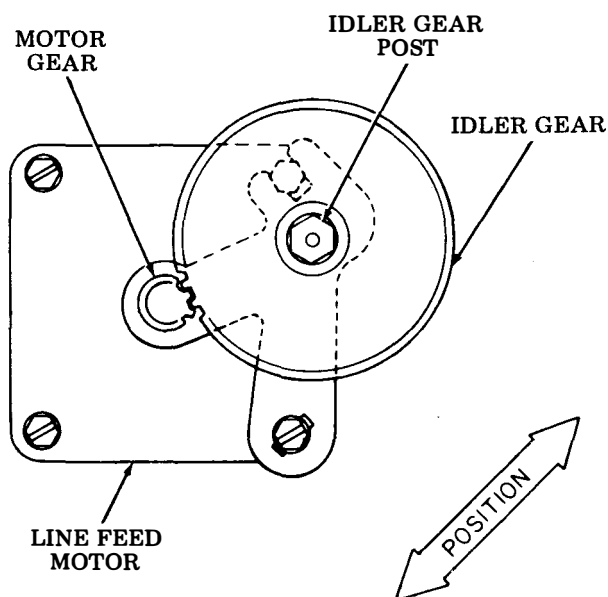
##### Requirement

There should be a minimum backlash between the motor pinion and the idler gear, when checked at point of least clearance between gears.

##### To Adjust

Rotate gears until the least clearance between the gears is found. Loosen the nut on the idler gear post and position the idler gear to minimize the backlash. Retighten the nut. Turn the gear and check for any binding. Remake the adjustment if necessary.

*Note:* When loosening the idler gear post, be careful not to loosen more than just enough to slide gear in and out towards the motor gear. If post is too loose, it will come out of the slot in the mounting bracket.



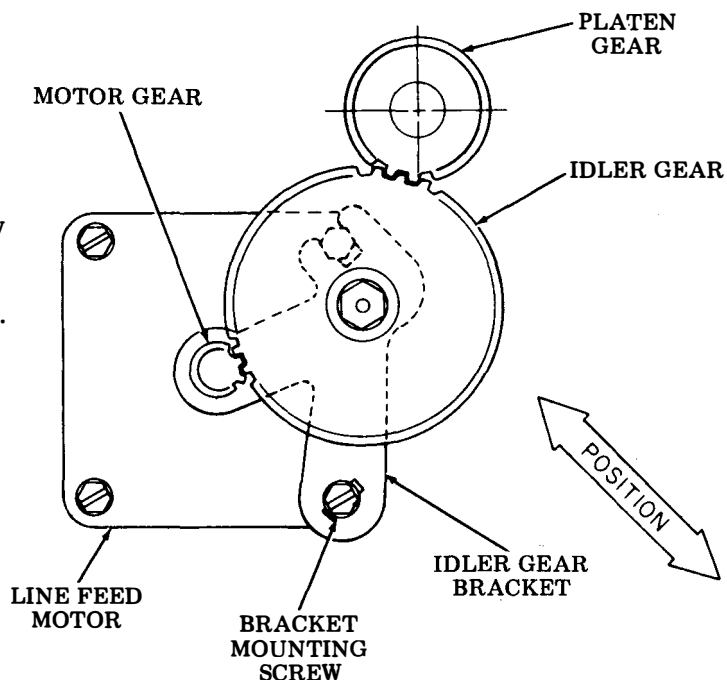
#### IDLER GEAR AND PLATEN GEAR

##### Requirement

There should be a minimum backlash between the idler gear and the platen gear.

##### To Adjust

Loosen the idler gear bracket mounting screw friction tight. Position the idler gear to minimize the backlash. Retighten the mounting screw. Turn the platen and check for binding. Remake the adjustment if necessary.



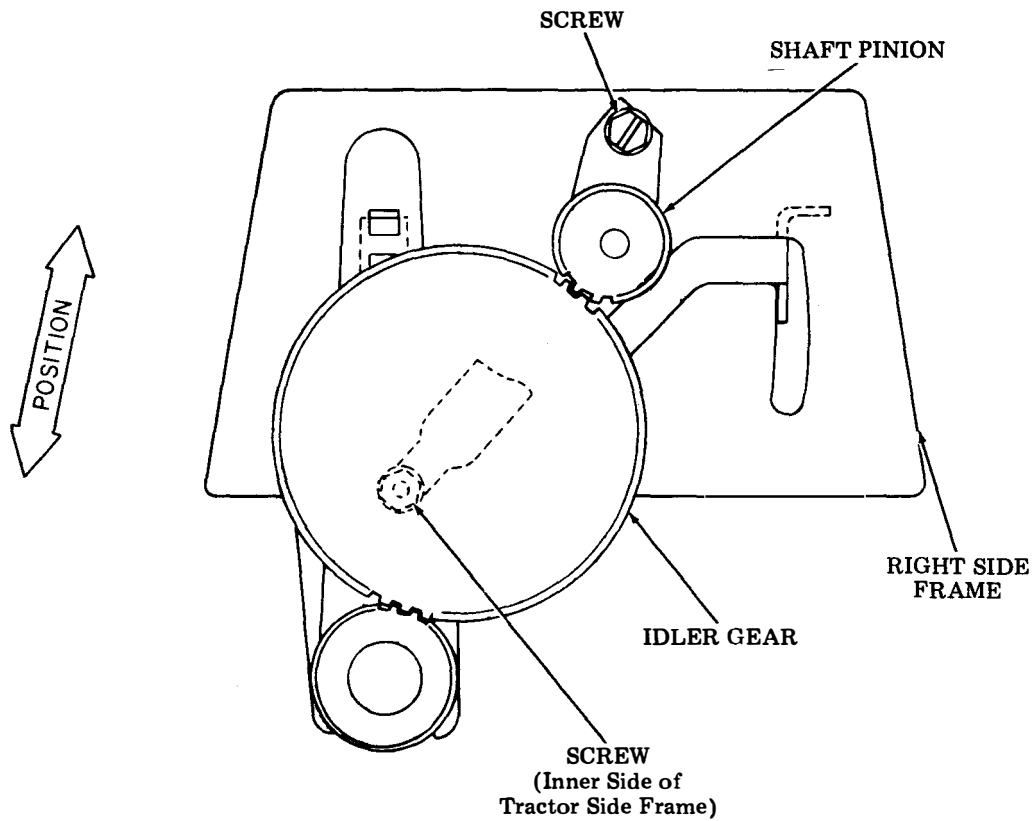
**TRACTOR IDLER GEAR BACKLASH**

**Requirement**

There should be a minimum backlash between the tractor idler gear and the shaft pinion.

**To Adjust**

Loosen the screws securing the idler gear bracket to the side frame and position the idler gear to minimize the backlash. Retighten the screws and turn the gear to insure free rotation. Remake the adjustment, if necessary.

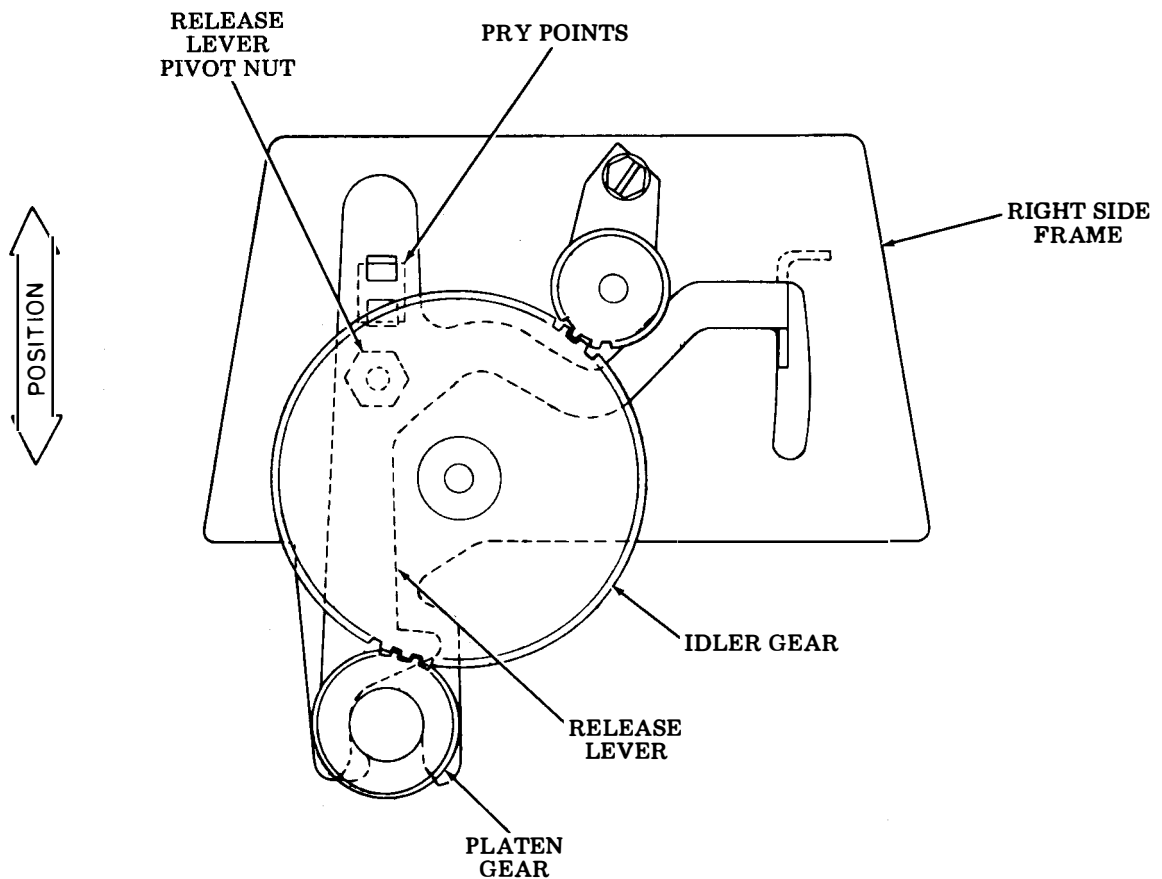


D. 12 INCH TRACTOR FEED PRINTER (Contd)1. PRINTER ADJUSTMENTS (Contd)TRACTOR IDLER GEAR TO PLATEN GEAR**Requirement**

With the tractor mechanism installed on the printer (latched on the platen bushings) there should be a minimum backlash between the platen drive gear and the tractor idler gear.

**To Adjust**

Remove the end cover from the right tractor frame, loosen the release lever pivot shoulder nut, and use the pry points to make the adjustment. Retighten the shoulder nut and rotate the platen with the line feed motor de-clutched (soft roll) to insure the mechanism rotates freely and there is no binding. Remake the adjustment, if necessary.



2. SPRING TENSIONS (Spring identification and location found on Page 4-22).

① 430028 Lead Screw Spring

On left-side of lead screw, push to start to compress spring — 9 to 11 pounds.

② 430366 Carriage Nut Spring

Place carriage on left-side of unit. Hold lead screw pulley. Insert spring scale through top hole of left bearing housing. Push carriage with  $46 \pm 8$  ounces to compress carriage nut spring.

③ 430366 Bias Spring

The free length of the bias spring (not assembled on the lead screw nuts) should be between 1.55 inch and 1.65 inch.

④ 130242 Ribbon Tension Spring

4-1/2 to 6-1/2 ounces to pull spring to installed length with ribbon installed.

⑤ 430021 SP Belt Tension Arm Spring

13-1/2 to 18-1/2 ounces to pull spring to installed length.

⑥ 110437 Paper-Out Spring

1/2 to 1 ounce to start paper-out lever moving.

⑦ 430410 Bell Plunger Spring

1 to 10 grams for striker (430411) to contact gong.

⑧ Link Spring (Part of 430216)

3/4 to 1-1/4 ounces at roll pin to hold spring in lowest position with locking handle in the most forward position.

⑨ 82727 Pressure Roller Bail Spring

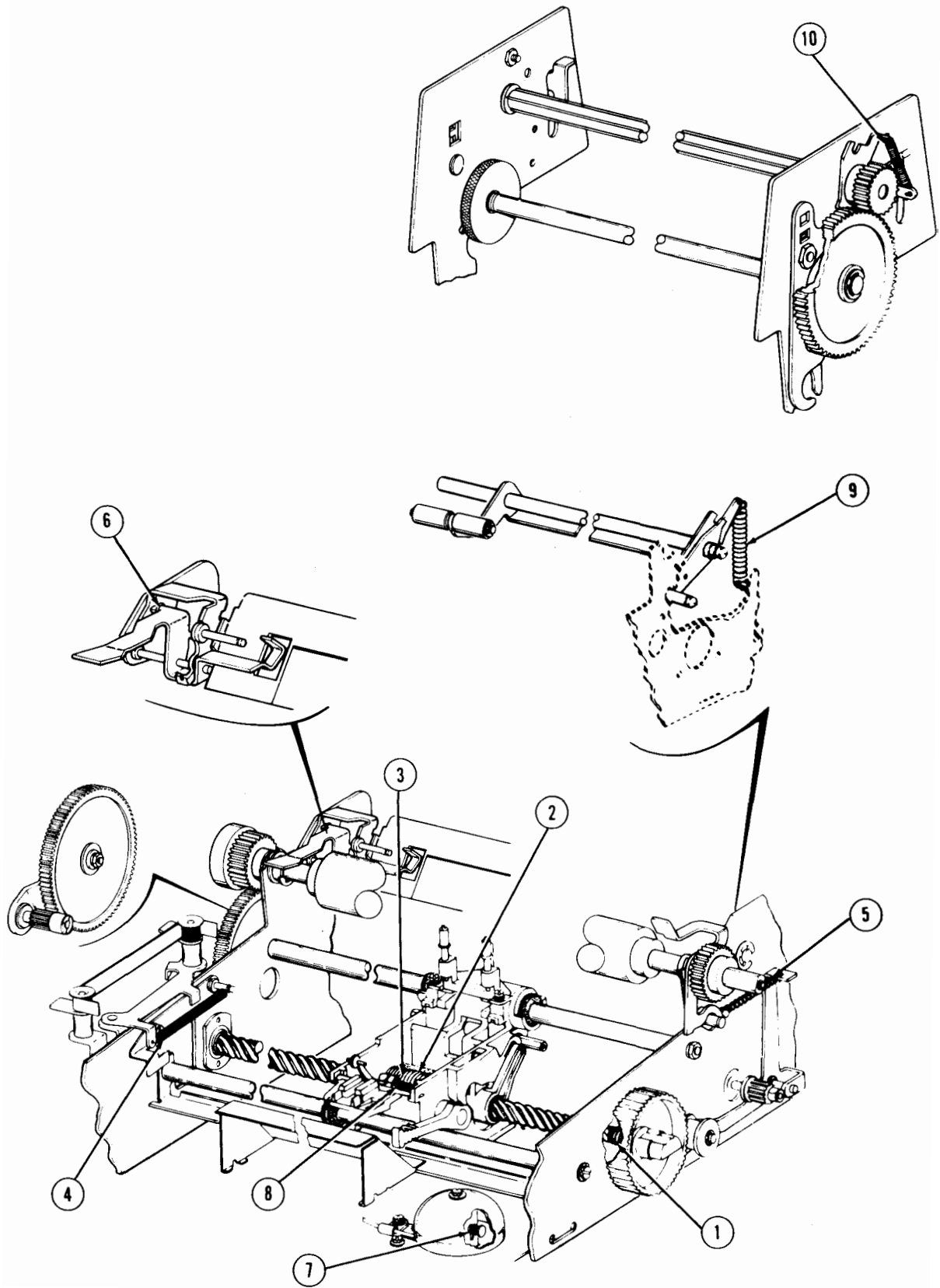
With the paper release lever in the rear position and pulling the pressure roller bail at the spring mounting hole at a right angle to the bail arm, it should take 46 to 56 ounces to start the roller bail moving.

⑩ 152871 Tractor Latch Lever Spring

10 to 20 ounces to pull spring to installed length.

D. 12 INCH TRACTOR FEED PRINTER (Contd)

3. SPRING IDENTIFICATION





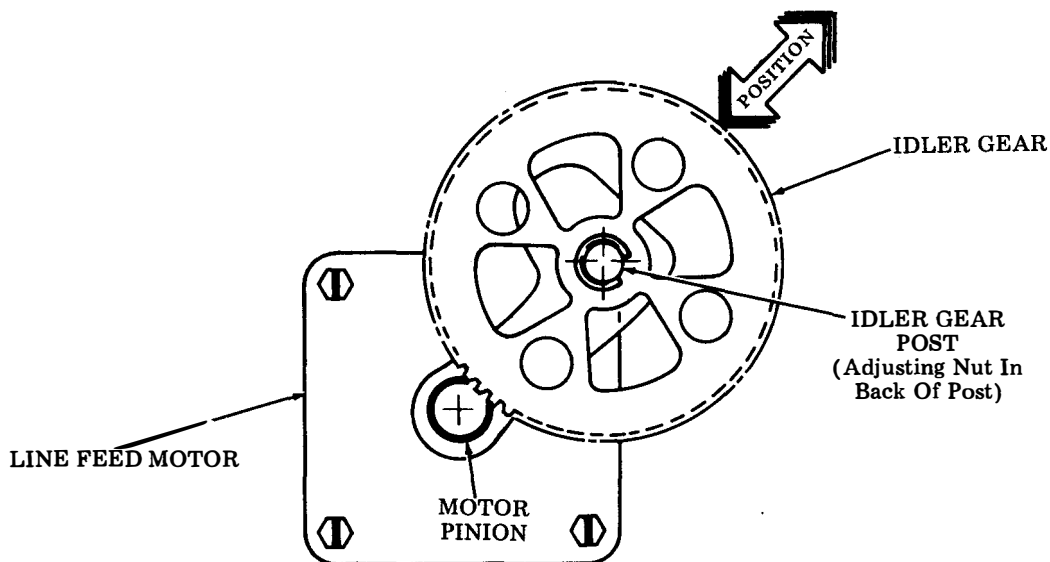
E. 15 INCH TRACTOR FEED PRINTER1. PRINTER ADJUSTMENTSLINE FEED MOTOR GEAR BACKLASH

## Requirement

There should be minimum backlash between the motor pinion and the idler gear.

## To Adjust

Loosen the nut on the idler gear post and position the idler gear to minimize the backlash. Retighten the nut. Turn the gear and check for any binding. Remake the adjustment if necessary.



E. 15 INCH TRACTOR FEED PRINTER (Contd)

1. PRINTER ADJUSTMENTS (Contd)

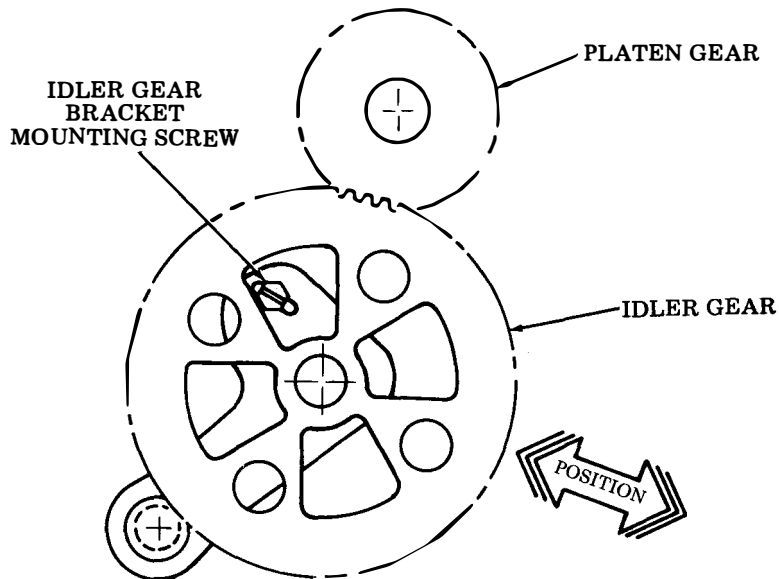
IDLER GEAR TO PLATEN GEAR

Requirement

There should be minimum backlash between the idler gear and the platen gear.

To Adjust

Loosen the idler gear bracket mounting screw friction tight. Position the idler gear to minimize the backlash. Retighten the mounting screw. Turn the platen and check for binding. Remake the adjustment if necessary.



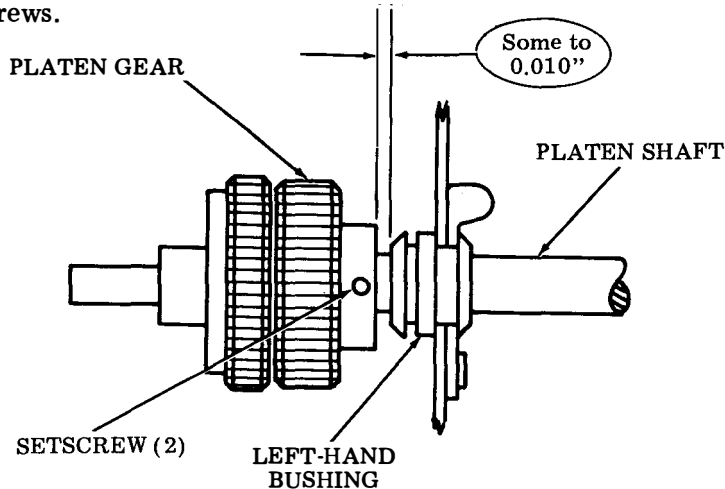
PLATEN GEAR TO PLATEN BUSHING

Requirement

There should be  
Min some---Max 0.010 inch  
clearance between the platen gear and the left hand bushing.

To Adjust

Loosen two setscrews on the platen gear hub and adjust for proper gap.  
Tighten the setscrews.



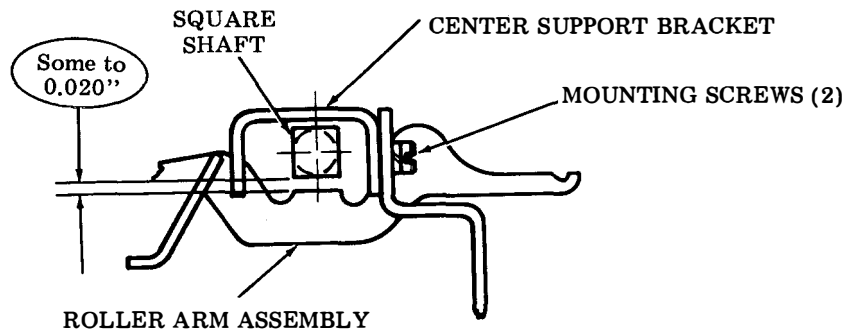
SQUARE SHAFT SUPPORT BRACKET

Requirement

There should be  
 Min some--- Max 0.020 inch  
 clearance between the bottom of the square shaft and the top of the two roller arm  
 assemblies adjacent to the center support bracket.

To Adjust

Remove the platen assembly, tie bar, and the paper tray. Reinstall the platen assembly. Make sure that the platen release latches are completely engaged. Loosen two mounting screws holding the center support bracket of the square shaft and position the bracket to meet the requirement. Tighten the screws, remove the platen, and assemble the unit in reverse order of disassembly.



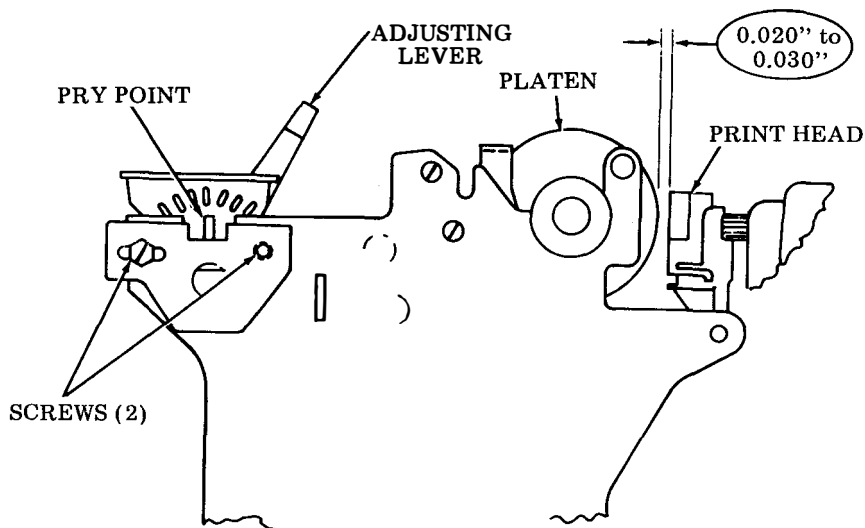
PLATEN TO PRINT HEAD GAP

Requirement

With the platen gap adjusting lever in the first detent position (minimum platen to print head gap), the gap between the print head and platen as measured at both ends of the platen should be  
 Min 0.020--Max 0.030 inch  
 this gap should be measured without ribbon or paper.

To Adjust

Loosen the two screws holding the adjusting plates and use the pry points to position each side of the platen to the required gap. Retighten the screws.



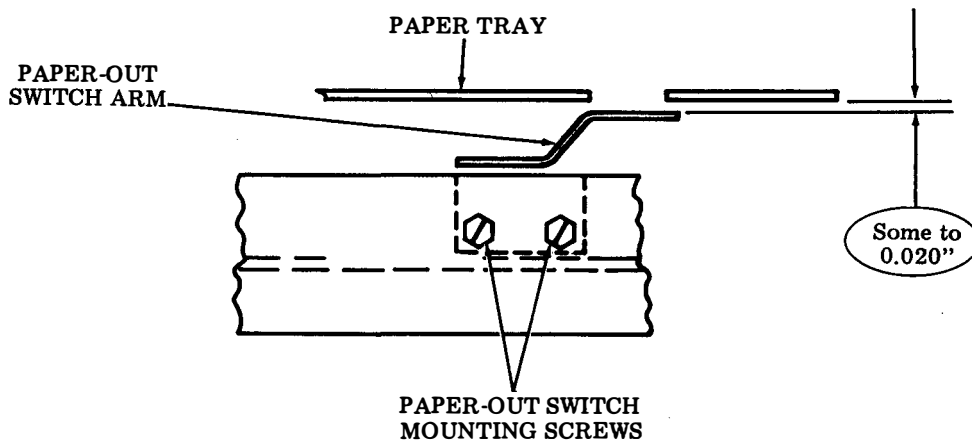
E. 15 INCH TRACTOR FEED PRINTER (Contd)1. PRINTER ADJUSTMENTS (Contd)PAPER-OUT SWITCH

## Requirement

- (1) The paper-out switch arm should be approximately parallel to the paper tray.
- (2) There should be  
Min some--Max 0.020 inch  
gap between the bottom of the left hand slot on the paper tray and the top of the switch arm.

## To Adjust

Loosen the paper-out switch mounting screws. Position the switch to meet the requirement. Tighten the screws. Check and refine the adjustment if necessary.

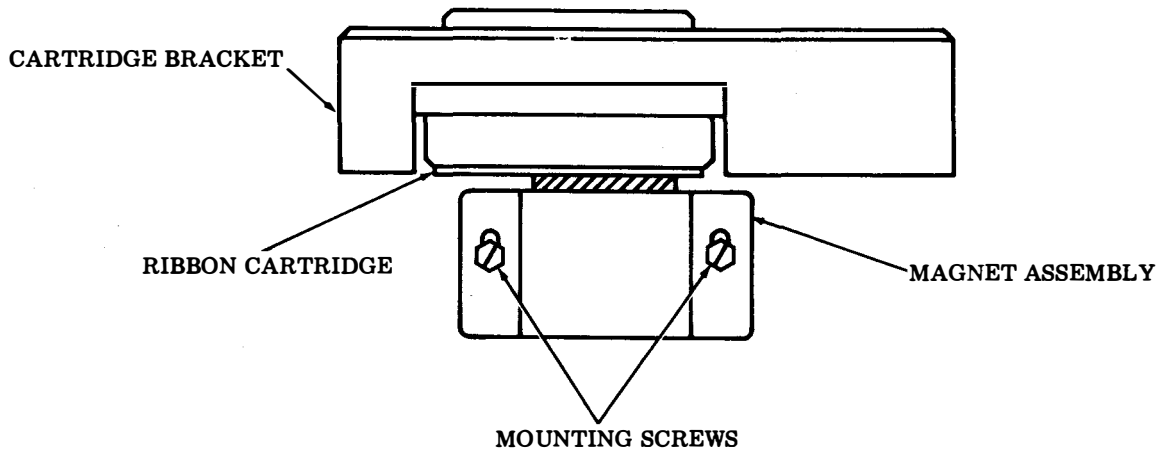
RIBBON CARTRIDGE TO MAGNET

## Requirement

With the ribbon cartridge in place, the magnet assembly should be parallel and against the bottom plate of the ribbon cartridge.

## To Adjust

Loosen the magnet assembly mounting screws. Position the magnet to meet the requirement. Tighten the screws.



PAPER DEFLECTOR SHIELD

**Requirement**

There should be

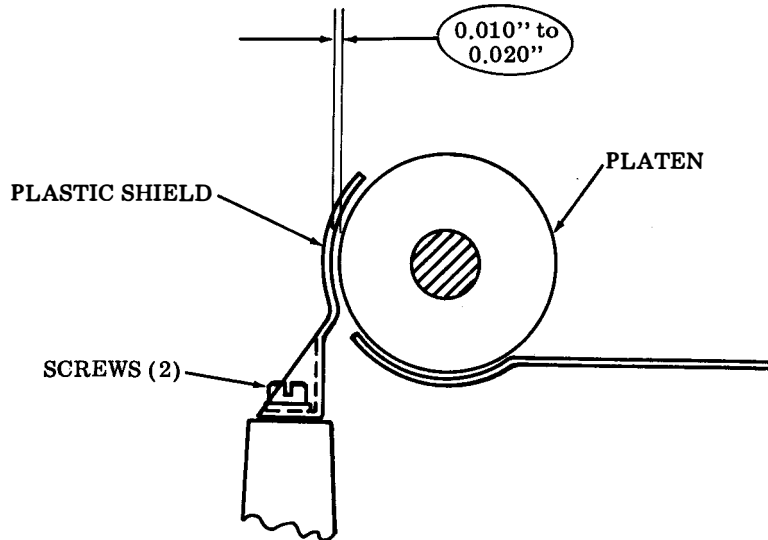
Min 0.010--Max 0.020 inch

clearance between the platen and the plastic shield, with platen positioned so this clearance is at its minimum (detent lever in first position). (Without paper or ribbon.)

**To Adjust**

Loosen two screws holding the plastic shield, position the shield to meet the requirement. Tighten the screws. Check and refine adjustment if necessary.

*Note:* This adjustment must be made after the PLATEN TO PRINT HEAD GAP adjustment.



ECENTRIC BUSHING

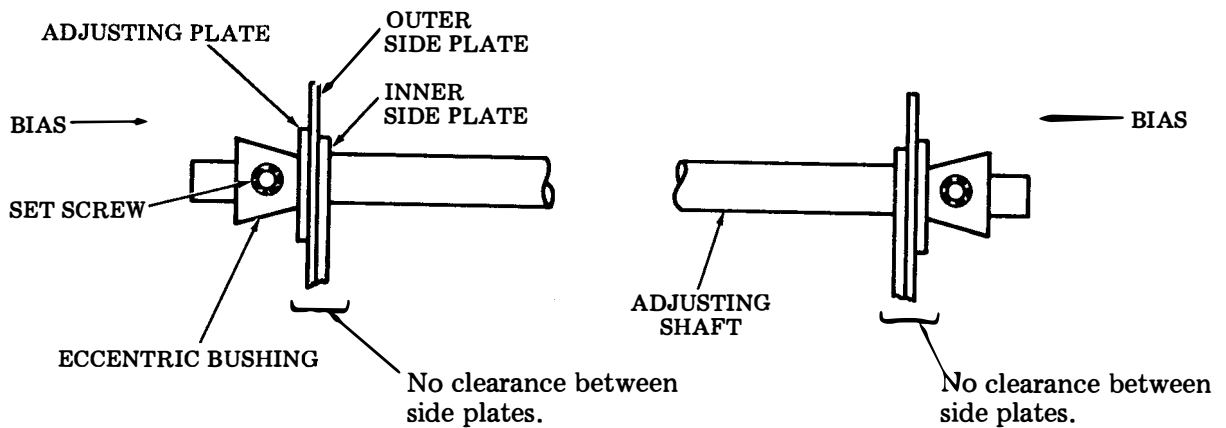
**Requirement**

There should be no clearance between the eccentric bushing and the outer side plate.

**To Adjust**

Loosen the setscrews securing the eccentric bushing to the shaft and bias it so as to take up all clearance between the bushing and the inner and outer side plates. Retighten the setscrews. Operate the mechanism to insure free motion between side plates and, if necessary, readjust.

*Note:* This adjustment must be made before the PLATEN TO PRINT HEAD GAP adjustment.



## E. 15 INCH TRACTOR FEED PRINTER (Contd)

### 1. PRINTER ADJUSTMENTS (Contd)

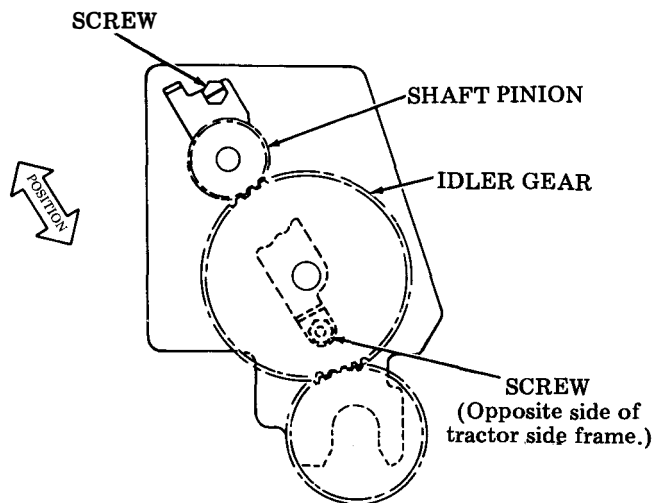
#### TRACTOR IDLER GEAR BACKLASH

##### Requirement

There should be a minimum backlash between the idler gear and the shaft pinion.

##### To Adjust

Loosen the two screws securing the idler gear bracket to the side frame and position the idler gear to minimize the backlash. Retighten the screws and turn the gear to insure free rotation. Remake the adjustment, if necessary.



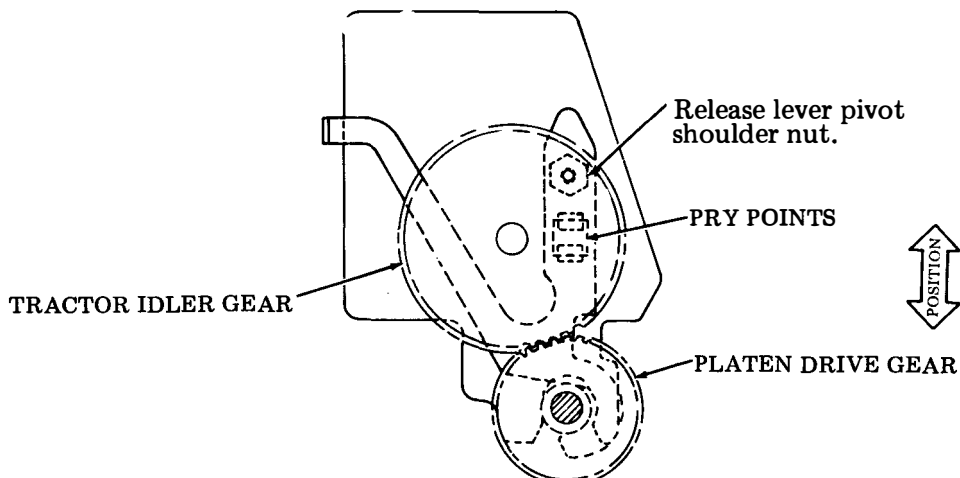
#### TRACTOR IDLER GEAR TO PLATEN GEAR

##### Requirement

With the tractor mechanism installed on the printer (latched on the platen bushings) there should be minimum backlash between the platen drive gear and the tractor idler gear.

##### To Adjust

Remove the end cover from the left tractor frame, loosen the release lever pivot shoulder nut, and use the pry points to make the adjustment. Retighten the shoulder nut and rotate the platen with the line feed motor de-clutched (soft roll) to insure the mechanism rotates freely and there is no binding. Remake the adjustment, if necessary.



## HORIZONTAL LINE ALIGNMENT

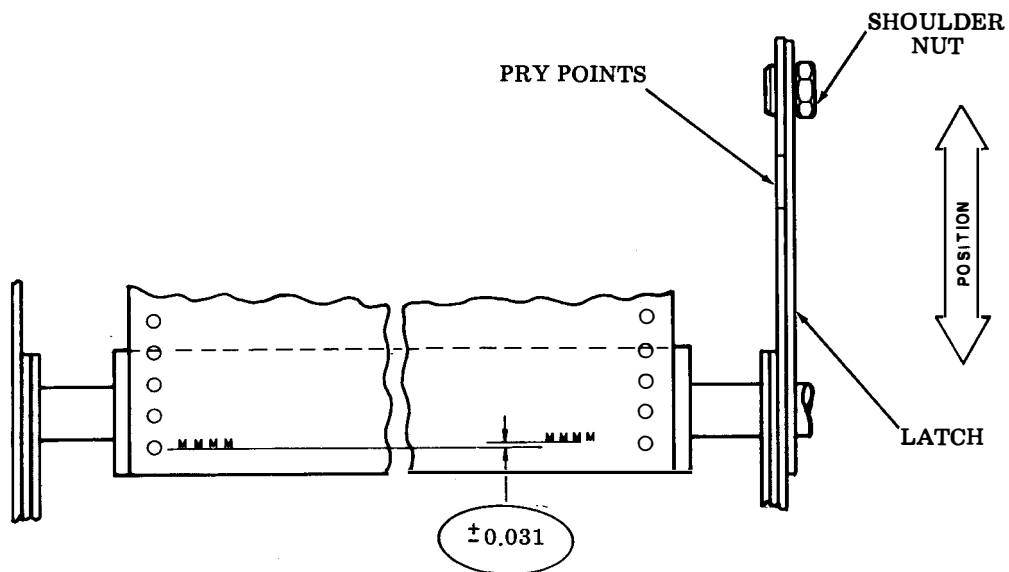
### Requirement

The printed line should not vary more than  $\pm 0.031$  from an arbitrary horizontal reference line (lined paper) when a line is drawn even with the bottom of the character. This requirement is for a 132 character line.

### To Adjust

Remove the tractor right end cover, loosen the shoulder nut and position the latch by means of its pry points to meet the requirement. Retighten the shoulder nut and recheck the requirement.

*Note:* It is recommended that a single character such as M be repeated across the entire page for the above adjustment.



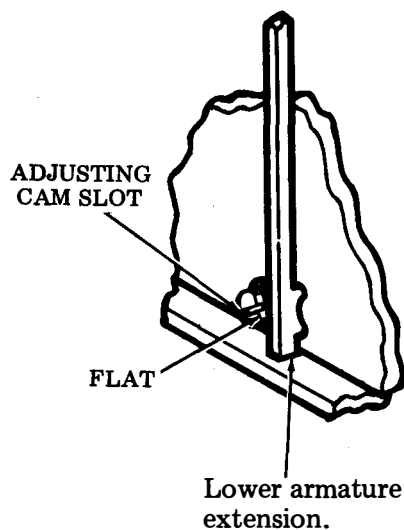
E. 15 INCH TRACTOR FEED PRINTER (Contd)1. PRINTER ADJUSTMENTS (Contd)PRINT HEAD ARMATURE**Requirement**

With a good ribbon installed and the print head positioned and locked toward the platen, no wires should stick through the ribbon (will not retract) and no dots should be missing or noticeably lighter than other dots on printed copy.

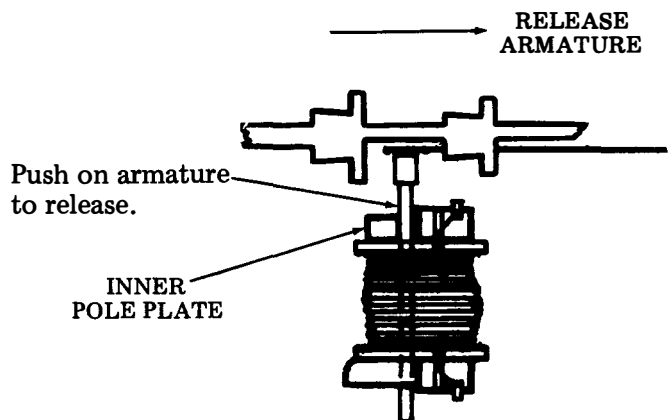
**To Adjust**

*Note:* This adjustment applies to all 9 levels.  
(Power must be off for this adjustment.)

Remove the ribbon and print head cover. Release the print head and position away from the platen. With the lower armature extension on the high part of the cam (adjusting cam slot horizontal and the flat facing toward the ribbon guide) and the armature released from the inner pole plate, rotate the adjusting cam slowly clockwise until the armature is magnetically pulled up. Continue rotating cam clockwise for 3 more clicks.



(Right Side View)



(Top View — Cover Removed)



FORM FEED TAPE READER TO INTERMEDIATE GEAR

Requirement

There should be

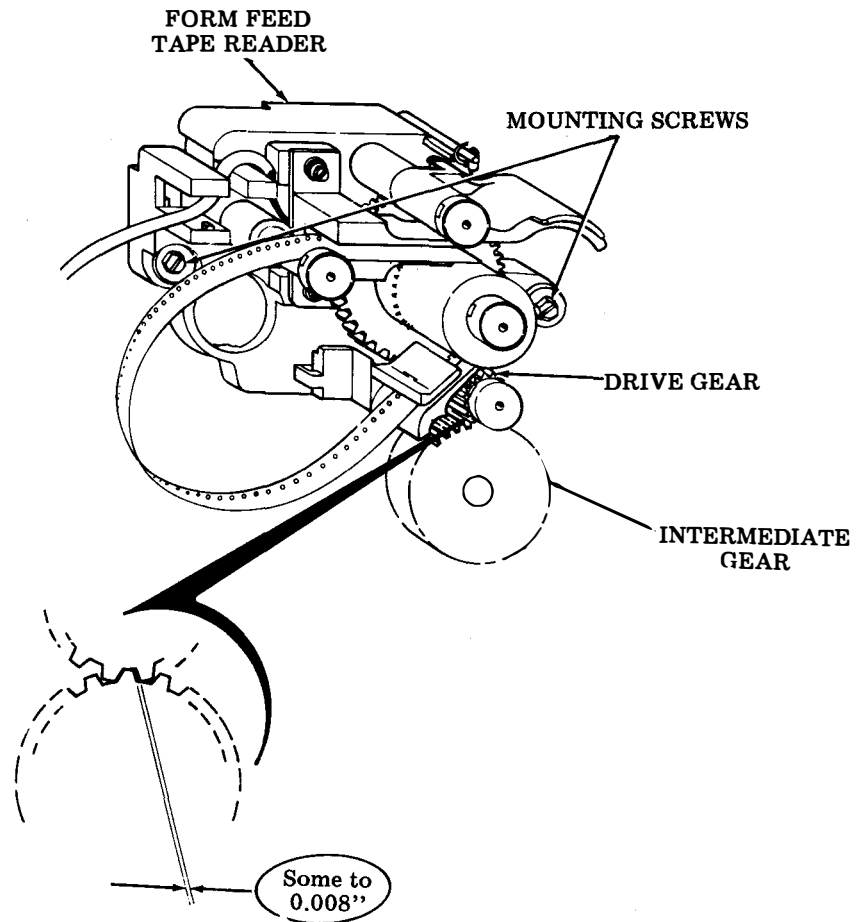
Min some---Max 0.008 inch

backlash between the form feed tape reader drive gear and the intermediate gear.

To Adjust

Loosen the two form feed tape reader mounting screws and position the form feed tape reader.

Tighten the mounting screws.

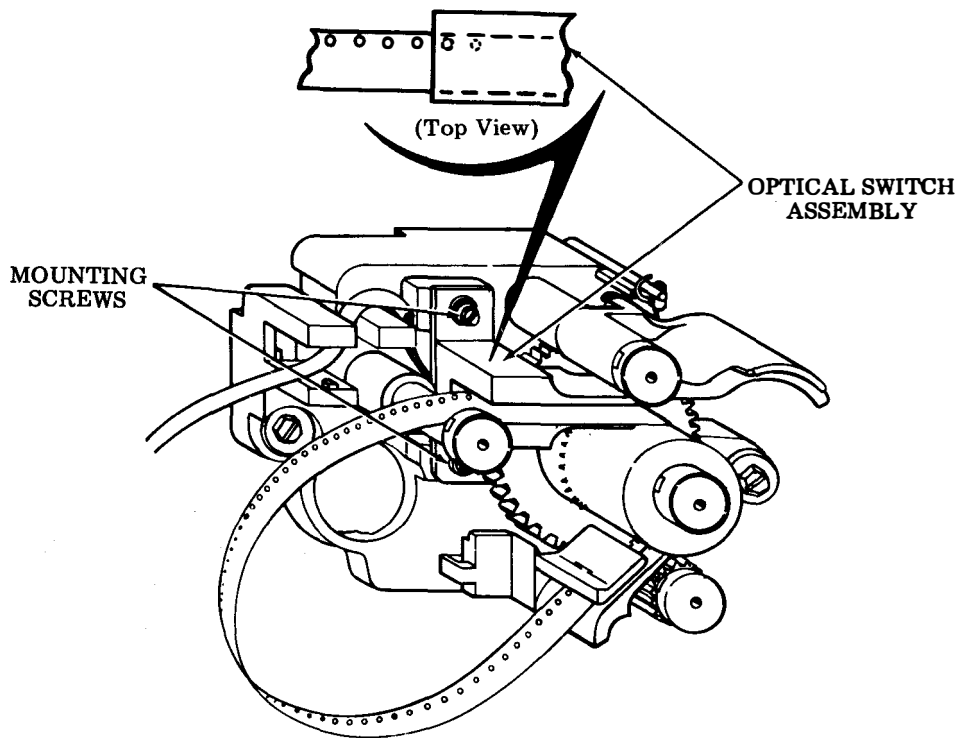


E. 15 INCH TRACTOR FEED PRINTER (Contd)1. PRINTER ADJUSTMENTS (Contd)FORM FEED TAPE TO OPTICAL SWITCH ASSEMBLY**Requirement**

The rear edge of the optical switch assembly should be approximately lined up with a point half way between two feed holes of the form feed tape loop.

**To Adjust**

Loosen the two optical switch assembly mounting screws. Slide the switch assembly forward or back until the rear edge of the assembly is approximately lined up with a point half way between feed holes. Retighten the screws.

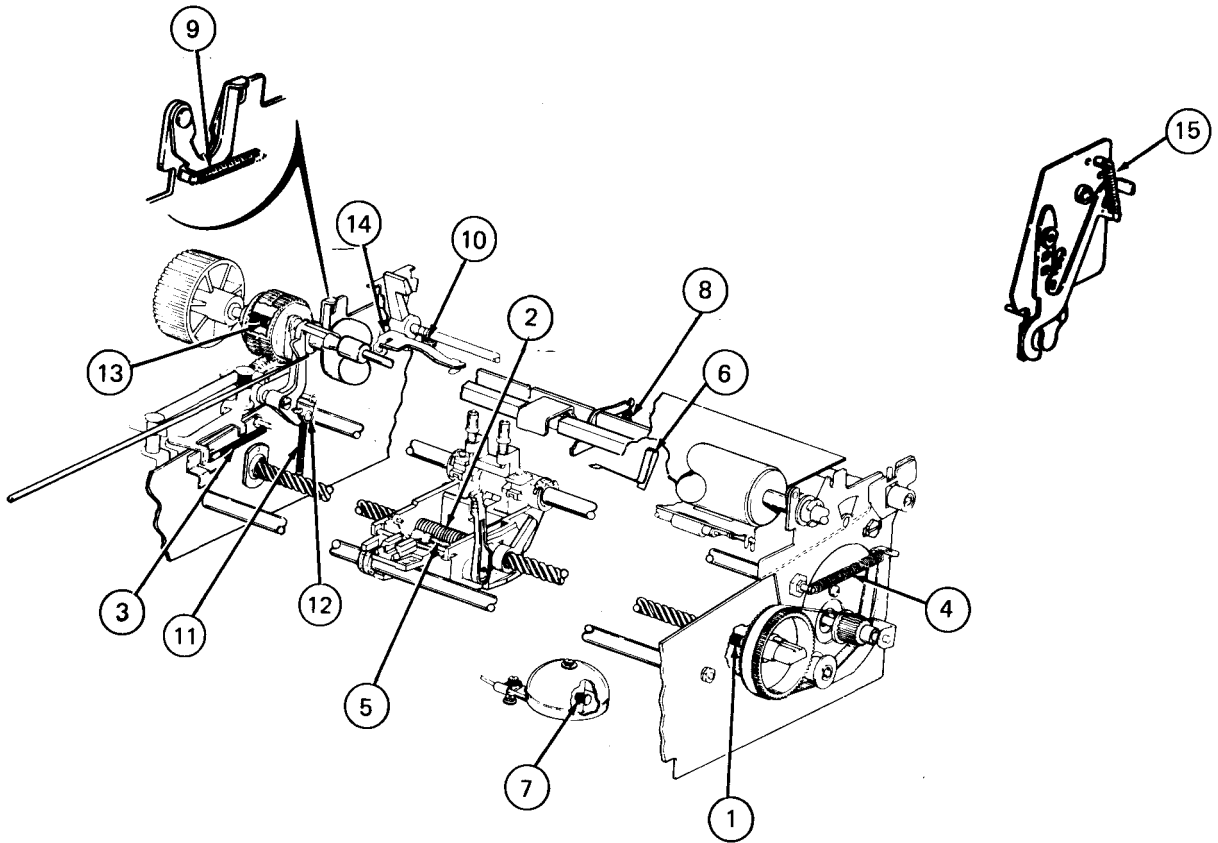


2. SPRING TENSIONS (Spring identification and location found on Page 4-34).

- ① 430028 Lead Screw Spring  
On left side of lead screw push to start to compress spring — 9 to 11 lbs.
- ② 430366 Carriage Nut Spring  
Place carriage on left side of unit. Hold lead screw pulley. Insert spring scale through top hole of left bearing housing. Push the carriage,  $46 \pm 8$  oz. should begin compressing the carriage nut spring. (Begin moving the carriage drive nut.)
- ③ 430242 Ribbon Tension Spring  
4-1/2 to 6-1/2 oz. to pull spring to installed length.(with ribbon installed).
- ④ 430021 Spacing Belt Tension Arm Spring  
26 to 34 oz. to pull spring to installed length.
- ⑤ Carriage Link Spring (Part of 430216)  
3/4 to 1-1/4 oz. at the pin to hold spring in lowest position with locking handle in most forward position.
- ⑧ 453234 Tray Spring (Left and Right) (2)  
Remove platen. Push in the middle of the tray in area directly underneath the platen. It should require 4 to 10 oz. to push the tray so that it bottoms in its slot.
- ⑦ 430410 Bell Plunger Spring  
1 to 10 grams for striker to contact gong.
- ⑧ 34464 Platen Pressure Arm Spring (4)  
Rollers against the platen. 44 to 50 oz. to stretch the spring to installed position.
- ⑨ 80848 Platen Latch Lever Spring (Left and Right) (2)  
Platen removed. 32 to 36 oz. to pull at the front spring anchor and start it moving.
- ⑩ 151559 Eccentric Shaft Spring (Left and Right) (2)  
6 to 8 lbs. to stretch spring to installed length.
- ⑪ 86835 Printer Outer-Frame Bias Spring (Left and Right) (2)  
5 to 7 lbs. to stretch spring to installed length.
- ⑫ 453177 Platen Roller Arm Spring (over centering) (Left and Right) (2)  
One roller arm at the platen. 2 to 3 oz. to move the roller arm away from the platen.
- ⑬ 453139 Platen Soft Roll Plunger Spring  
4 to 6 lbs. to start the plunger moving.
- ⑭ 49420 Paper-Out Lever Spring  
12 to 16 oz. to stretch spring to installed position with the paper-out lever in its up position.
- ⑮ 152871 Tractor Latch Lever Spring (Left and Right) (2)  
The latch lever springs will require 10 to 20 oz. to pull to the installed length.

E. 15 INCH TRACTOR FEED PRINTER (Contd)

3. SPRING IDENTIFICATION



PART 5 — WIRINGCONTENTSPAGE

A. GENERAL .....	5-1
B. 12 INCH PRINTER MECHANISM WIRING .....	5-2
C. 15 INCH PRINTER MECHANISM WIRING .....	5-3

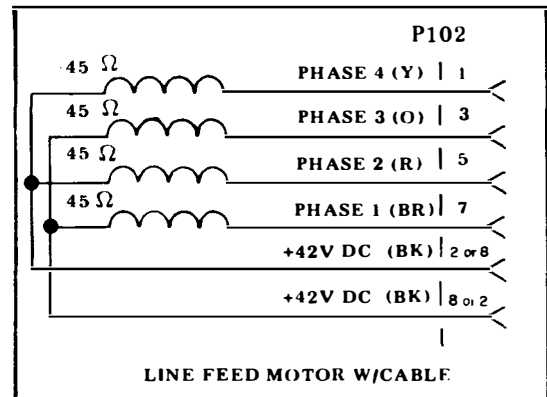
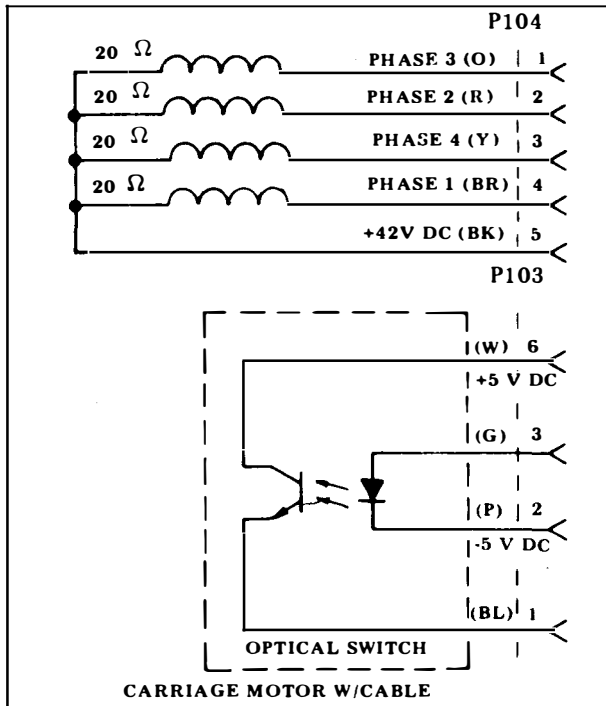
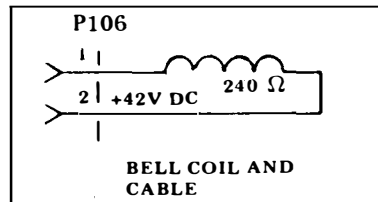
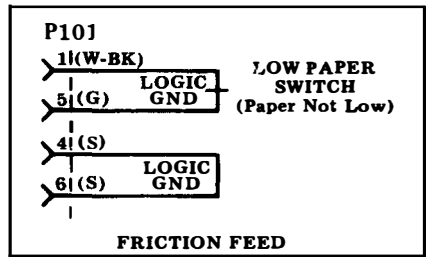
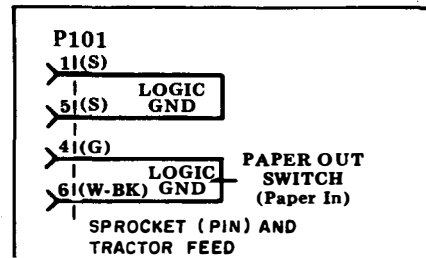
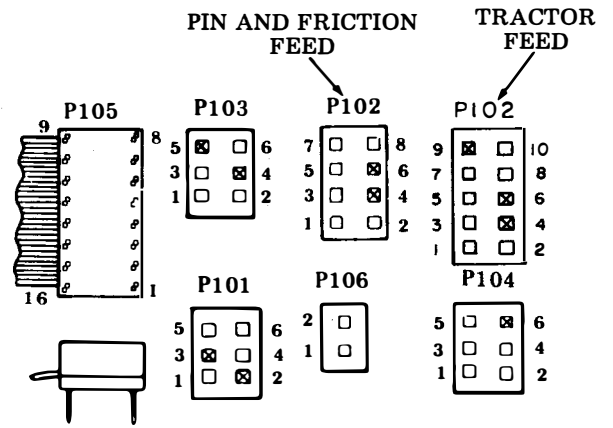
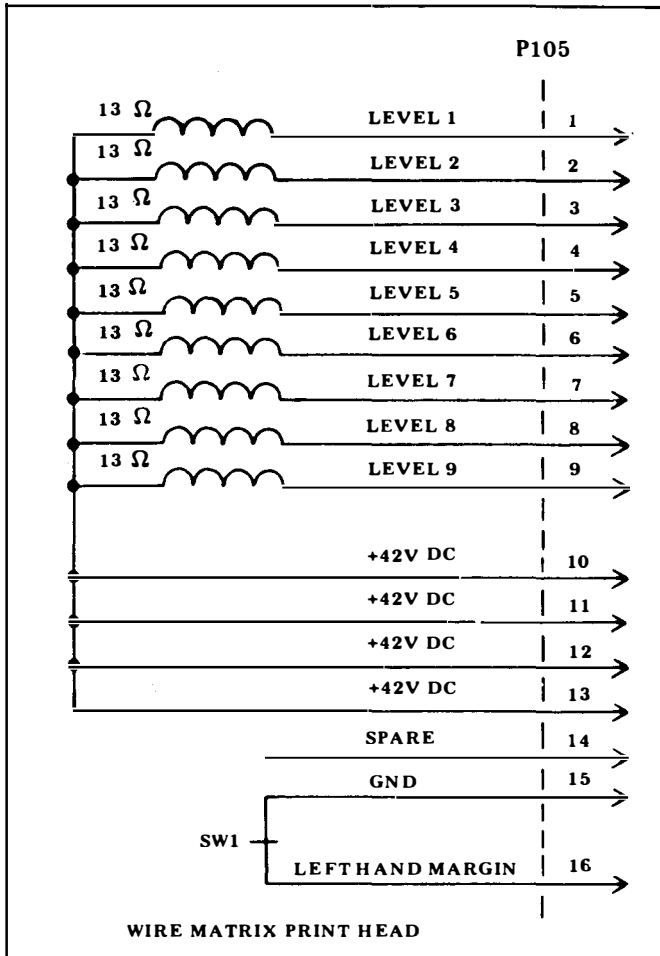
A. GENERAL

This part provides wiring information for 42, 43 and 45-30 CPS Character Printer Mechanisms.

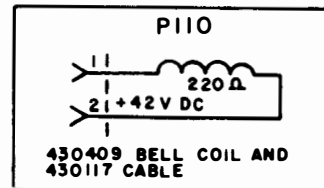
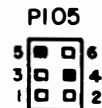
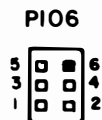
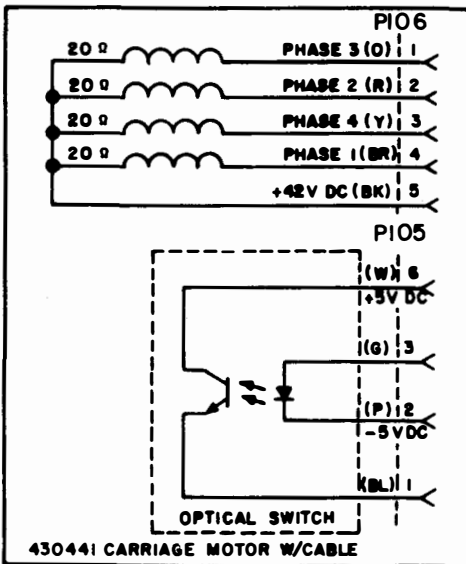
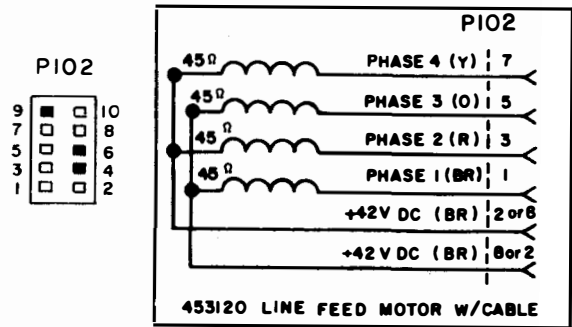
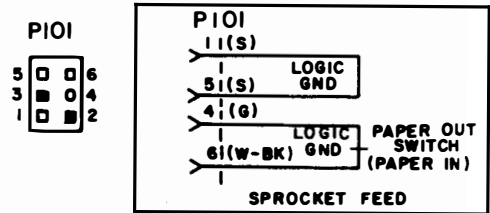
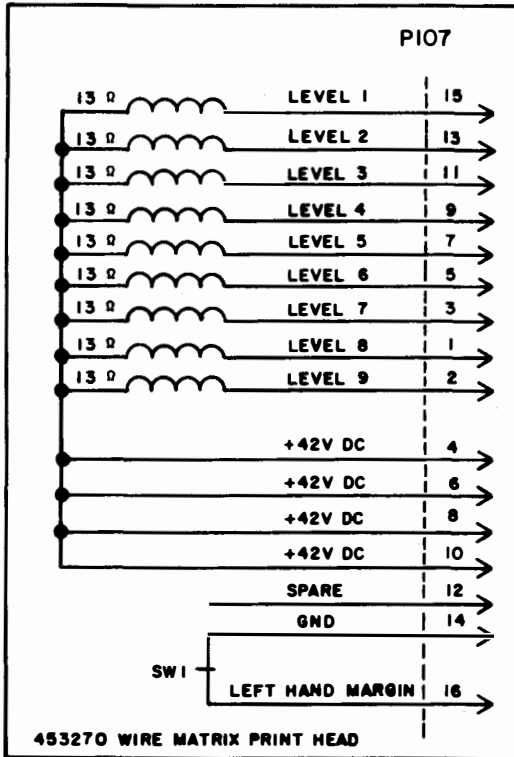
All numbers shown on the printer wiring diagrams do not appear on the plugs.

*Note:* When ordering replaceable parts or components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410055).

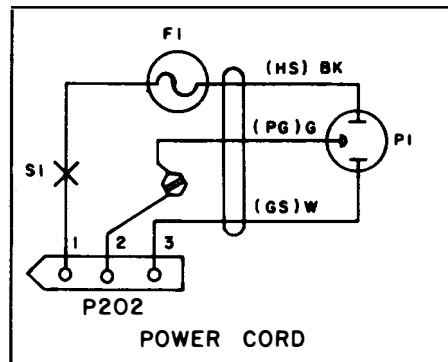
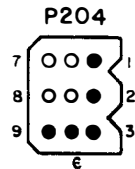
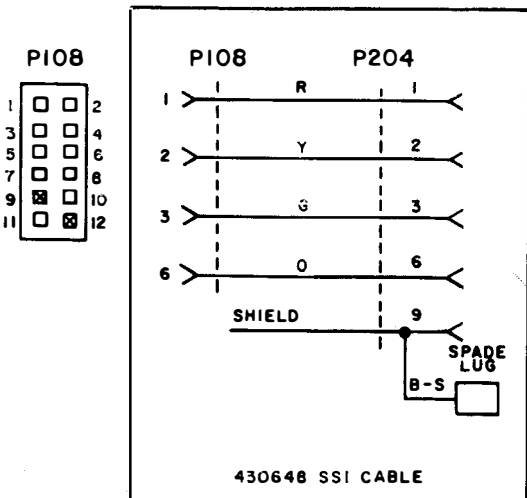
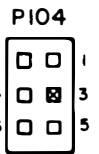
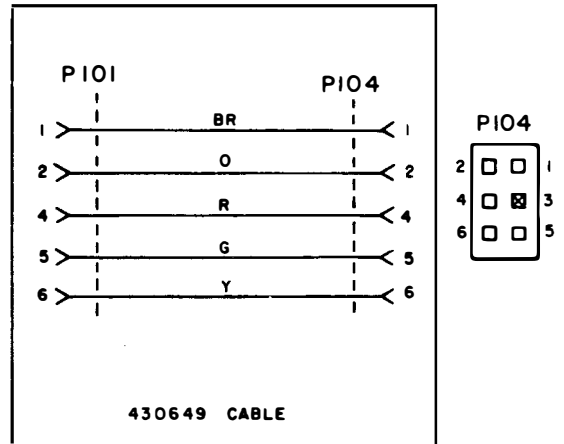
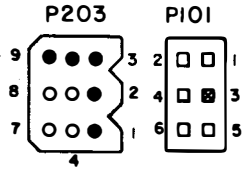
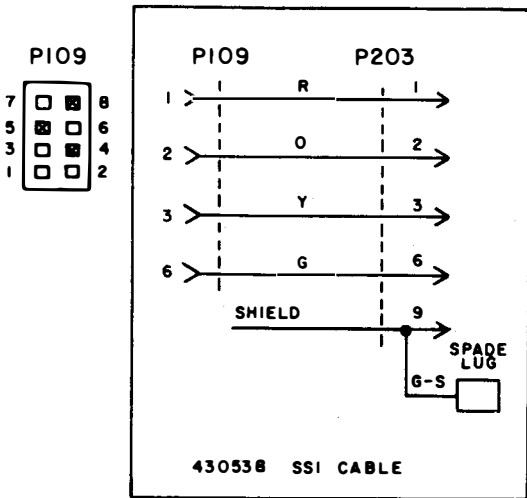
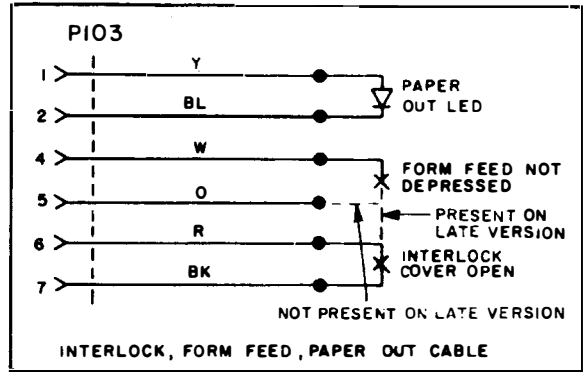
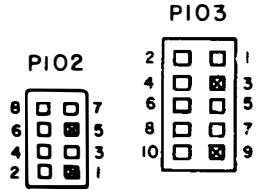
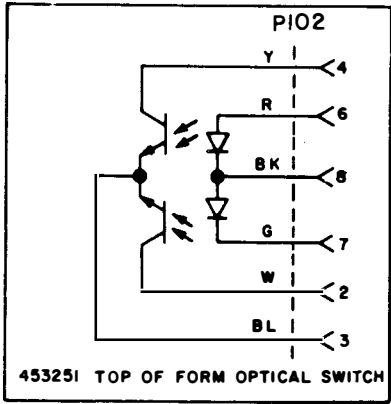
**B. 12 INCH PRINTER MECHANISM WIRING**



C. 15 INCH PRINTER MECHANISM WIRING



C. 15 INCH PRINTER MECHANISM WIRING (Contd)



ALL CONNECTORS SHOWN FROM FRONT VIEW



PART 6 – LUBRICATION

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1. LUBRICATION PROCEDURES.....	6-9
2. LUBRICATION POINTS .....	6-11

A. GENERAL

This part provides lubrication procedures for the 42, 43 and 45-30 CPS Character Printer Mechanisms.

Printer lubrication should be performed at least once per year.

The printer mechanisms can be lubricated by opening the cabinet cover.

*Note:* When ordering replaceable parts or components, unless otherwise specified, prefix each part number with the letters “TP” (ie, TP410055).

B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER

1. LUBRICATION PROCEDURES

Apply lubricant to points as indicated:

- (a) On small parts, a minimum amount of lubricant should be applied so that the lubricant remains on the parts and does not run off.
- (b) Excessive lubricant should be removed with a dry, lint-free cloth.
- (c) The following areas must be kept dry, free of all lubricant: All electrical components, including terminals. All parts normally touched by the operator, including exposed surfaces in ribbon, paper handling areas, and all large flat areas.

B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER (Contd)

1. LUBRICATION PROCEDURES (Contd)

The following symbols indicate the quantity of lubricant to be used in a specified area: Symbols O1, O2, O3, etc, refer to 1, 2, 3, etc, drops of oil.

The following list of symbols applies to the lubrication instructions and the type of lubricant to be used:

- O Oil 88970 (1 quart) or 88971 (1 gallon).
- G-A Apply thin film of 454641 (14 ounce) or 301313 (1-3/4 ounce) grease.
- G-B Apply thin film of Syn-Tech grease (use 430836 tube with grease and 430838 brush).
- G-C Fill with Poly Oil grease (use 430837 injector with grease).
- S Saturate felt oilers, washers, and wicks with oil.
- D Keep dry, no lubricant permitted.

Lubrication checklist:

Lead Screw — Film of grease over the entire threaded portion of lead screw.

Carriage Wicks — Saturate with oil (four places).

Ribbon Guide Rollers — Two drops of oil (two places).

Ribbon Rollers — Two drops of oil (two places).

Ribbon Tension Arm Pivot and Spring — Two drops of oil each (four places).

Spacing Tension Arm Pivot, Roller Spring — Two drops of oil each (four places).

Platen Bearing — Five drops of oil each side (two places).

Finger Pivots — Two drops of oil each side (two places).

Paper-Out Arm Pivot — Two drops of oil on both pivot points (sprocket feed only).

Lead Screw Pulley Clip — Grease between clip and lead screw shaft.

Pressure Roller Bail Spring — Two drops of oil each end (2 places — Friction Feed only).

Platen Tray Shaft — Two drops of oil each end at the side plates (2 places — Friction Feed only).

Pressure Roller Bail — Two drops of oil each end at pivot points on each side of bail (2 places — Friction Feed only).

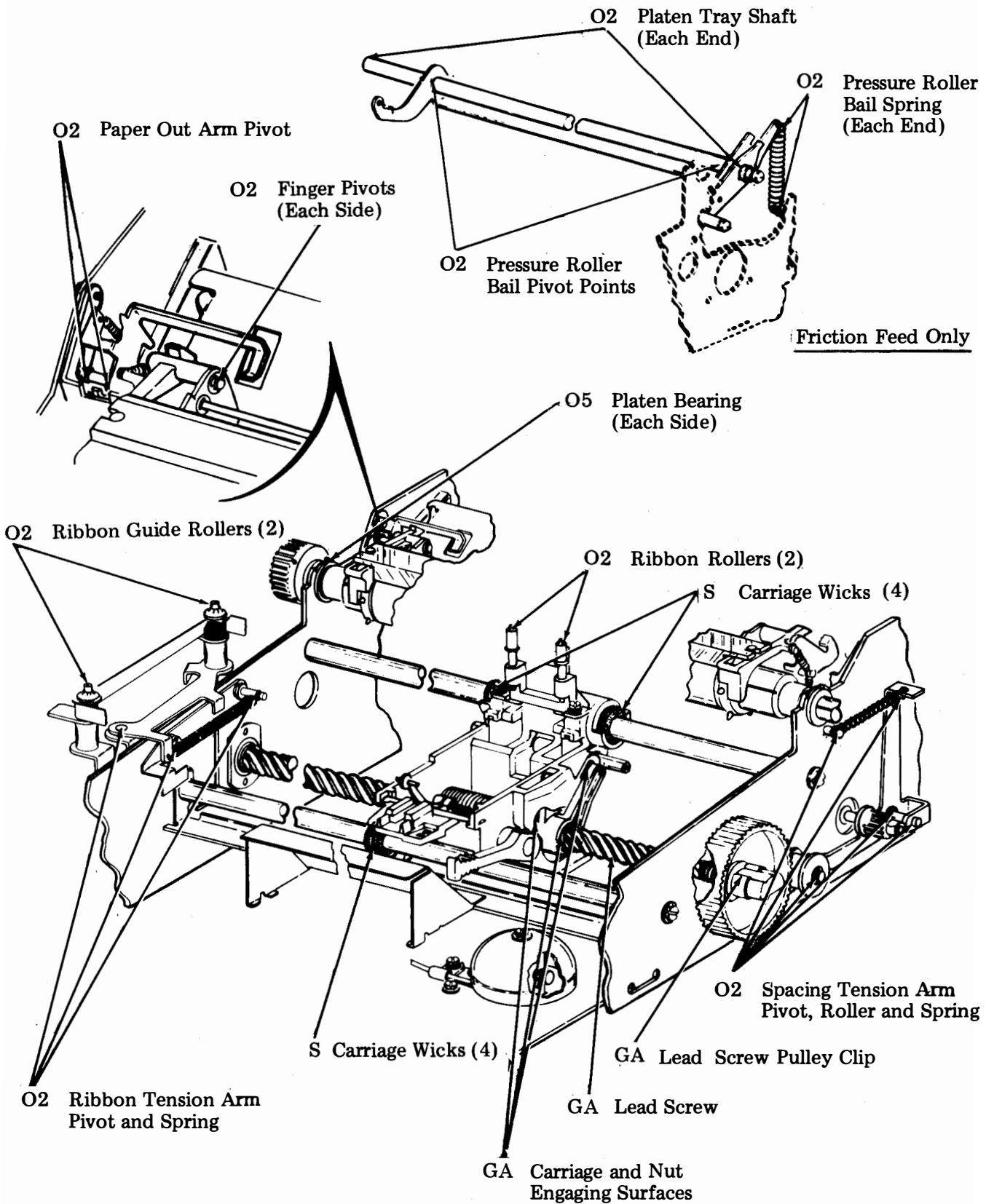
Carriage and Nut Engaging Surfaces:

- (a) Two Nut Drive Arms — Grease four bearing surfaces.
- (b) Nut Keying Arm — Lubricate by packing carriage engaging slot with grease.

Print Head:

- (a) Active Armatures and Outer Pole Plate — Grease at the upper pivot area as well as the lower locator area (9 places).
- (b) Print Wire Well Area — Completely fill with grease.

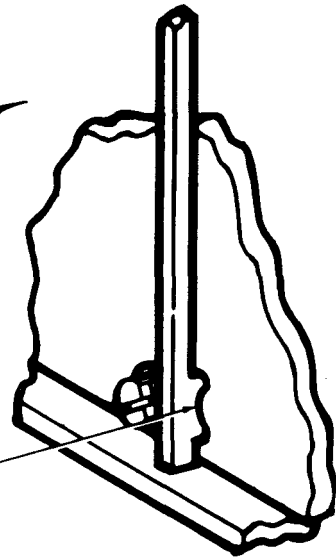
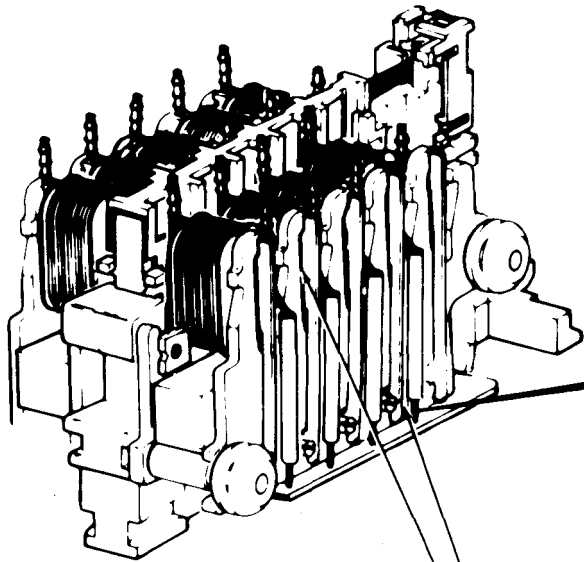
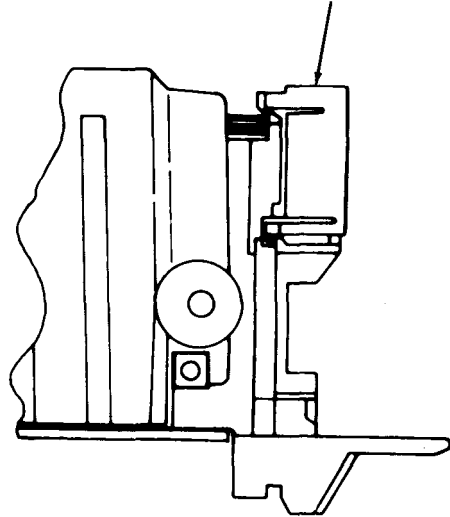
2. LUBRICATION POINTS



B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER (Contd)

2. LUBRICATION POINTS (Contd)

G-C Print Head Well Area



G-B Print Head Active Armatures and Outer Pole Plates

C. 12 INCH TRACTOR FEED PRINTER1. LUBRICATION PROCEDURES

Apply lubricant to points as indicated.

- (a) On small parts, a minimum amount of lubricant should be applied so that the lubricant remains on the parts and does not run off.
- (b) Excessive lubricant should be removed with a dry, lint-free cloth.
- (c) The following areas must be kept dry, free of all lubricant: All electrical components, including terminals. All parts normally touched by the operator, including exposed surfaces in ribbon, paper handling areas, and all large flat areas.

The following symbols indicate the quantity of lubricant to be used in a specified area: Symbols O1, O2, O3, etc, refer to 1, 2, 3, etc, drops of oil.

The following list of symbols applies to the lubrication instructions and the type of lubricant to be used:

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- G-C Fill with Poly Oil grease (use 430837 injector with grease).
- S Saturate felt oilers, washers, and wicks with oil.
- D Keep dry, no lubricant permitted.

Lubrication checklist:

Lead Screw — Film of grease over the entire threaded portion of lead screw.

Carriage Wicks — Saturate with oil (four places).

Carriage Oiler Foam — Saturate with oil.

Ribbon Guide Rollers — Two drops of oil (two places).

Ribbon Roller — Two drops of oil (two places).

Ribbon Tension Arm Pivot and Spring — Two drops of oil each (four places).

Spacing Tension Arm Pivot, Roller and Spring — Two drops of oil each (four places).

Platen Bearing — Five drops of oil each side (two places).

Platen Release Lever — Two drops of oil each side (two places).

Paper-Out Arm Pivot — Two drops of oil on both pivot points.

Lead Screw Pulley Clip — Grease between clip and lead screw shaft.

Pressure Roller Bail Spring — Two drops of oil each end (two places).

Platen Tray Shaft — Two drops of oil each end at the side plates (two places).

Pressure Roller Bail — Two drops of oil each end at pivot points on each side of bail (two places).

C. 12 INCH TRACTOR FEED PRINTER (Contd)

1. LUBRICATION PROCEDURES (Contd)

Carriage and Nut Engaging Surfaces:

- (a) Two Nut Drive Arms — Grease four bearing surfaces.
- (b) Nut Keying Arm — Lubricate by packing carriage engaging slot with grease.

Inner Platen Shaft and Roll Pin — Apply thin film of grease.

Platen Pressure Roller Release Arm Pivot and Working Surfaces — Apply thin film of grease.

Line Feed Motor to Platen Intermediate Gear and Shaft — Apply a thin film of grease.

Tractor:

Spline Shaft — One drop of oil on each bearing (two places).

Margin Adjust Wheel — Oil light coating on threads.

Release Lever Pivots — One drop of oil on each pivot (two places).

Idler Gear Shaft — Light film of grease.

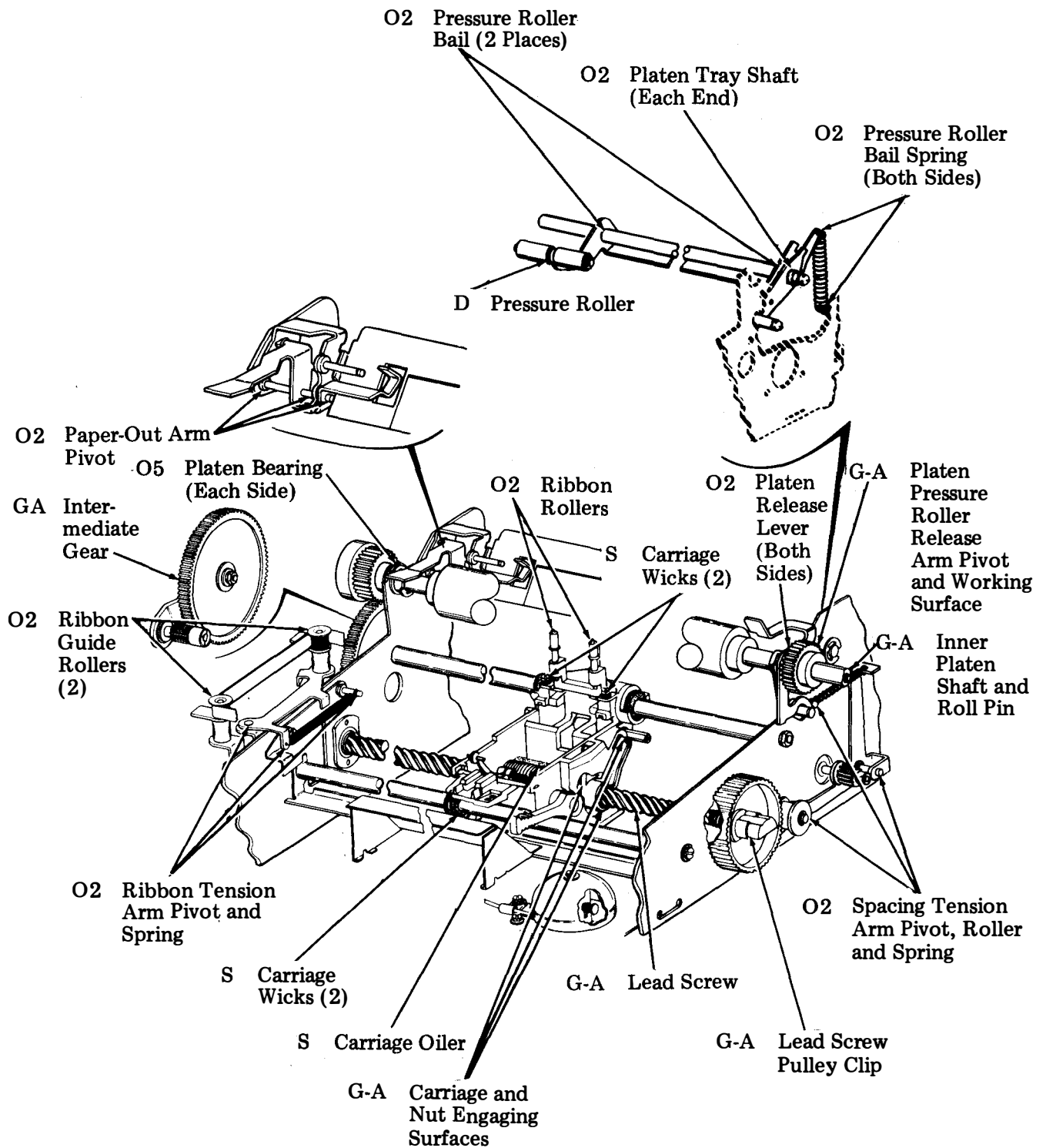
Gear Surfaces — Light film of grease on drive surfaces.

Tractor Release Springs — One drop of oil each end (two springs).

Print Head:

- (a) Active Armatures and Outer Pole Plate — Grease at the upper pivot area as well as the lower locator area (nine places).
- (b) Print Wire Well Area — Completely fill with grease.

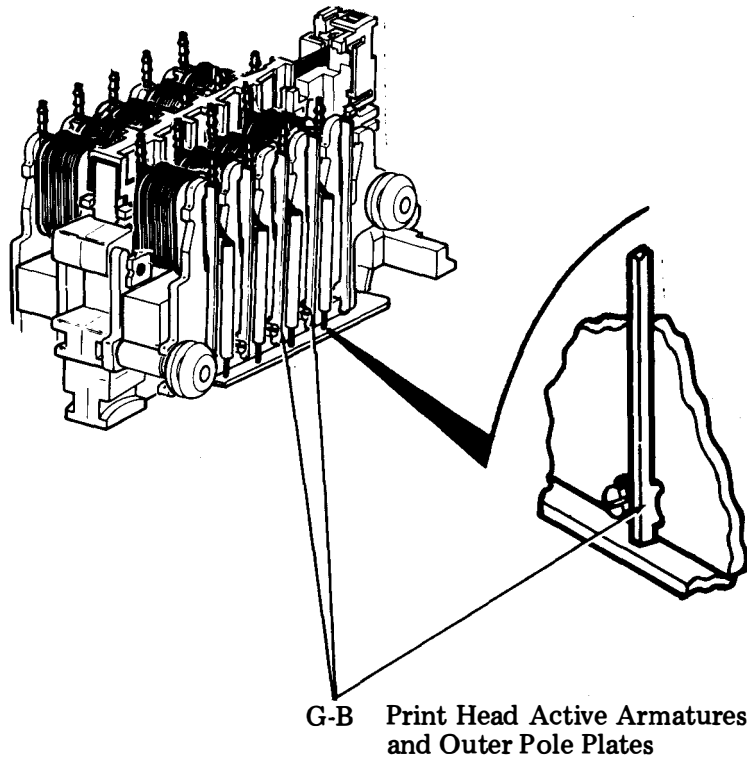
2. LUBRICATION POINTS



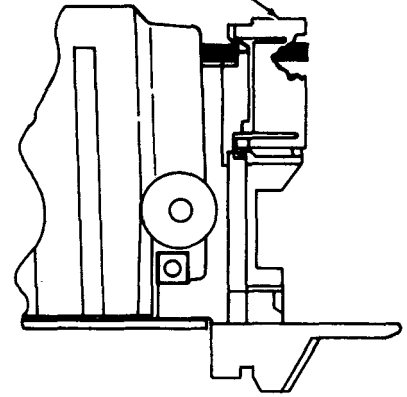
C. 12 INCH TRACTOR FEED PRINTER (Contd)

2. LUBRICATION POINTS (Contd)

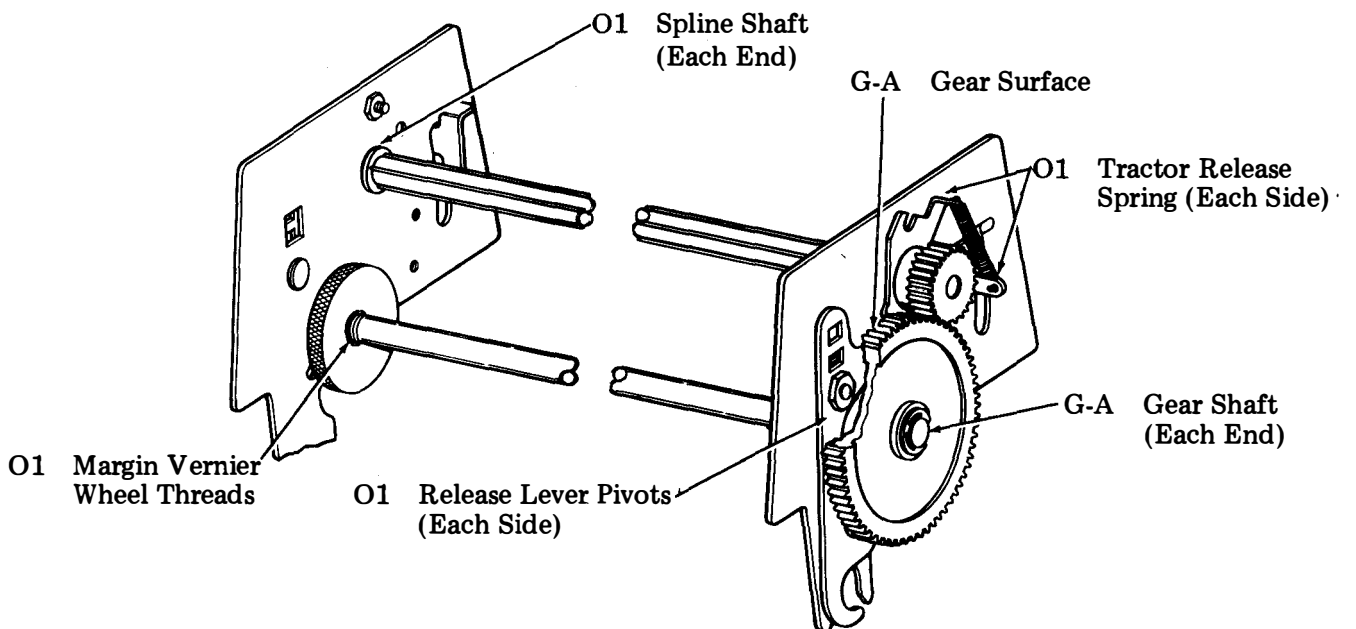
Print Head



G-C Print Head Well Area



Tractor





D. 15 INCH TRACTOR FEED PRINTER1. LUBRICATION PROCEDURES

Apply lubricant to points as indicated.

- (a) On small parts, a minimum amount of lubricant should be applied so that the lubricant remains on the parts and does not run off.
- (b) Excessive lubricant should be removed with a dry, lint-free cloth.
- (c) The following areas must be kept dry, free of all lubricant: All electrical components, including terminals. All parts normally touched by the operator, including exposed surfaces in ribbon, paper handling areas, and all large flat areas.

The following symbols indicate the quantity of lubricant to be used in a specified area: Symbols O1, O2, O3, etc, refer to 1, 2, 3, etc, drops of oil.

The following list of symbols applies to the lubrication instructions and the type of lubricant to be used:

- O Oil 88970 (1 quart) or 88971 (1 gallon).
- G-A Apply thin film of 454641 (14 ounce) or 301313 (1-3/4 ounce).
- G-B Apply thin film of Syn-Tech grease (use 430836 tube with grease and 430838 brush).
- G-C Fill with Poly Oil grease (use 430837 injector with grease).
- S Saturate felt oilers, washers, foam oiler, and wicks with oil.
- D Keep dry, no lubricant permitted.

Lubrication check list:

Lead Screw — Film of grease over entire threaded portion of lead screw.

Carriage Wicks — Saturate with oil (four places).

Ribbon Rollers — Two drops of oil (four places).

Ribbon Tension Arm Pivot Roller and Spring — Two drops of oil each (four places).

Spacing Tension Arm Pivot, Roller and Spring — Two drops of oil each (four places).

Platen Bearing Bushings — Five drops of oil each side (two places).

Platen Pressure Roller Pivot and Spring Post — Two drops oil each side (three places).

Platen Release Lever — Two drops oil each side.

Paper Out Arm Pivot — Two drops of oil on both pivot and spring anchor points.

Lead Screw Pulley Clip — Grease four bearing surfaces.

D. 15 INCH TRACTOR FEED PRINTER (Contd)

1. LUBRICATION PROCEDURES (Contd)

Carriage and Nut Engaging Surfaces:

- (a) Two Nut Drive Arms — Grease four bearing surfaces.
- (b) Nut Keying Arm — Lubricate by packing carriage engaging slot with grease.
- (c) Carriage Oiler Foam — Saturate with oil.

Platen Tray Pivot Points — Two drops of oil.

Line Feed — intermediate gear — light coat of oil and line feed — intermediate gear shaft — Two drops of oil.

Plunger and Spring — platen soft roll — light film of grease.

Slide Plate Assembly Shoulder Screws — Two drops of oil (four places) a drop of oil at every operating point.

Side Frames and the Outer Side Plates — Five drops of oil between the plates each side of the unit.

Outer Side Plate Bias Spring — Two drops of oil (two places).

Platen Front to Back Adjustment Handle Dentent Plate — Light film of grease.

Platen Front to Back Adjusting Shaft Spring Anchors — Two drops of oil each side.

Platen Roller Arm Spring — Two drops of oil (four places).

Platen Adjusting Cam Contact Surfaces — Light coating of grease (two places).

Lead Screw Bearings Both Sides — Three drops of oil.

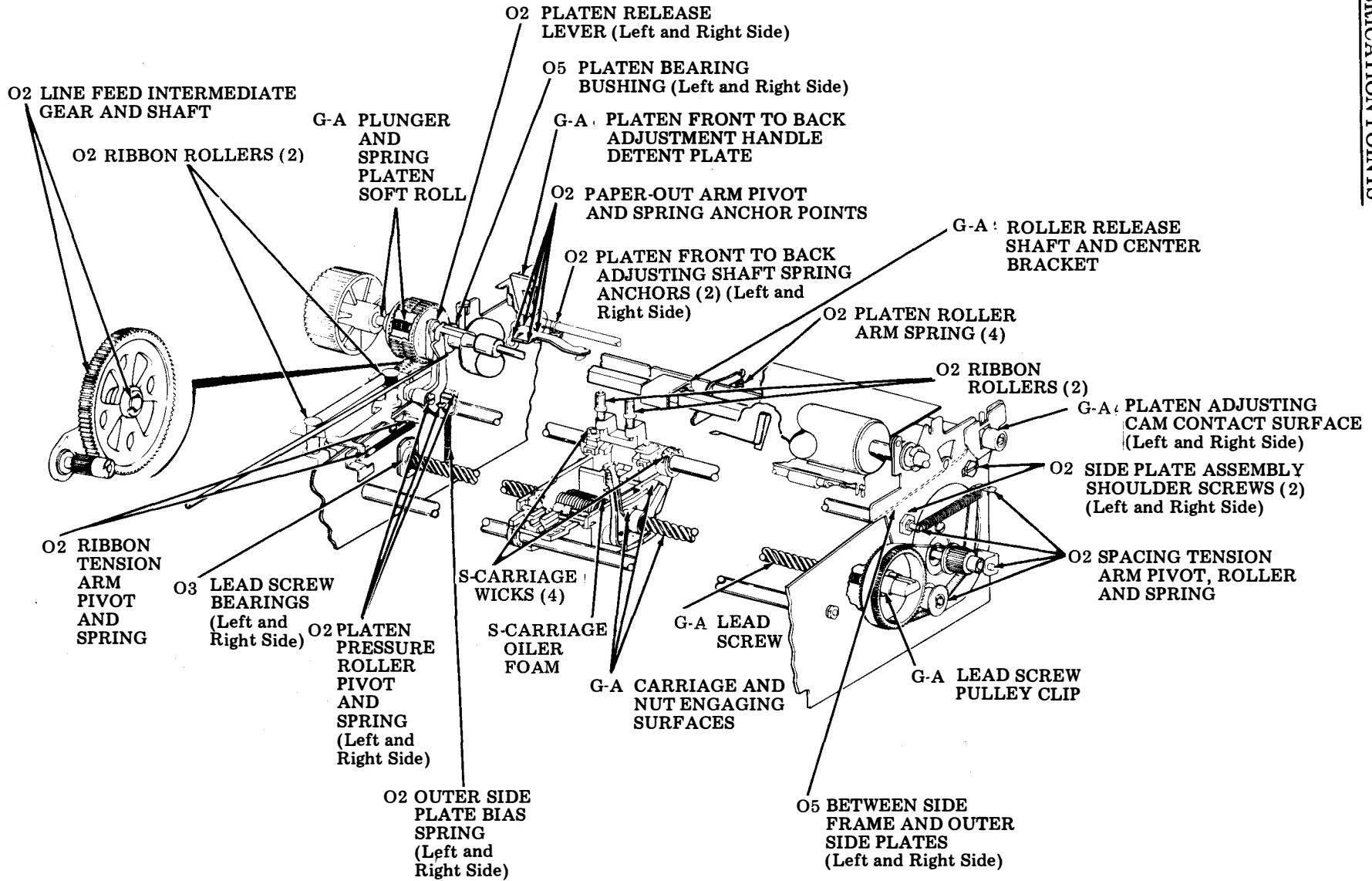
Roller Release Shaft and Center Bracket (under paper tray) — Light coating of grease.

Print Head:

- (a) Active Armatures and Outer Pole Plate — Grease at upper pivot area as well as the lower locator area (nine places).
- (b) Print Wire Well Area — Completely fill with grease.

Tractor Mechanism:

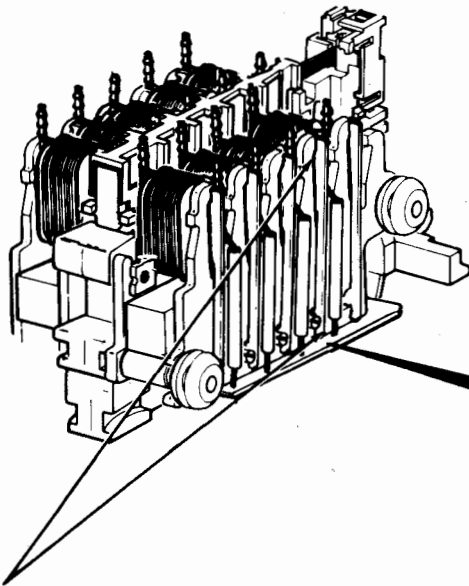
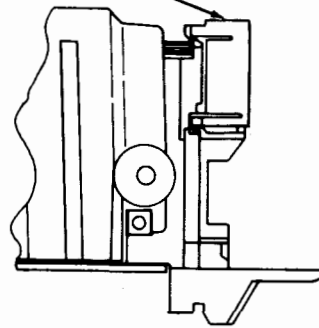
- (a) Spline Shaft — One drop of oil on each bearing.
- (b) Margin Adjust Wheel — Oil light coating on threads.
- (c) Release Level Pivots — One drop of oil on each pivot.
- (d) Idler Gear Shaft — One drop of oil.
- (e) Gear Surfaces — Light coating of oil on drive surfaces.
- (f) Release Lever Spring — One drop each end (two places).



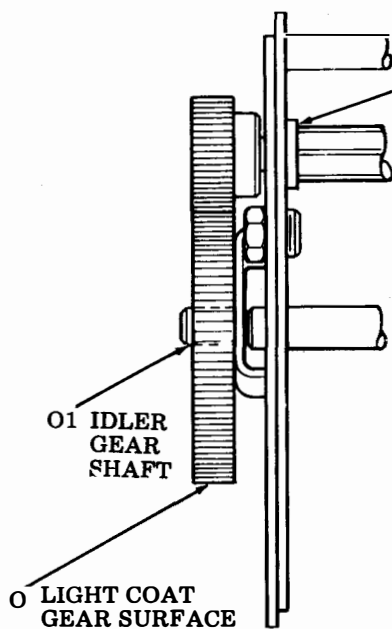
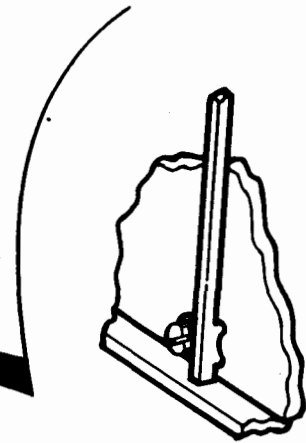
D. 15 INCH TRACTOR FEED PRINTER (Contd)

2. LUBRICATION POINTS (Contd)

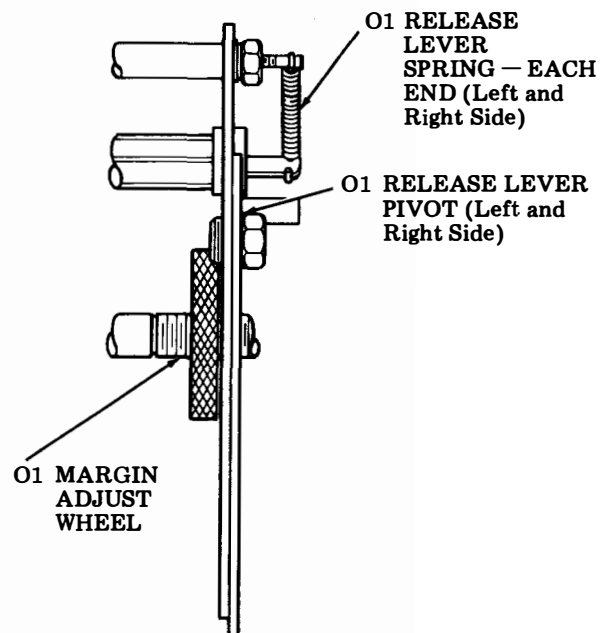
G-C PRINT HEAD WELL AREA



G-B PRINT HEAD ACTIVE ARMATURES AND OUTER POLE PLATES



O1 SPLINE SHAFT (Left and Right Side)



PART 7 — PARTS

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### A. GENERAL

Information on maintenance spare parts is provided in this part for the 42, 43 and 45-30 CPS Character Printer Mechanisms.

All replaceable parts and units are included. Examples of nonreplaceable parts not shown but included in higher order assemblies are as follows:

- (a) Part as supplied would not fit if installed.
- (b) May require manufacturing or shop methods not provided in this manual.
- (c) Part of crimped, riveted, pressed or welded assembly.
- (d) Serial number or registration plates.

Part numbers are listed in the index in numerical order and indicate the page on which the parts appear. Asterisked numbers, stocked as "List 1", indicate a maintenance spare stocking ratio of one spare for the first 50 stations and an additional spare for each additional 200 stations in a maintenance area. Part numbers without asterisks, stocked as "List 2", indicate that one spare should be available in each maintenance area.

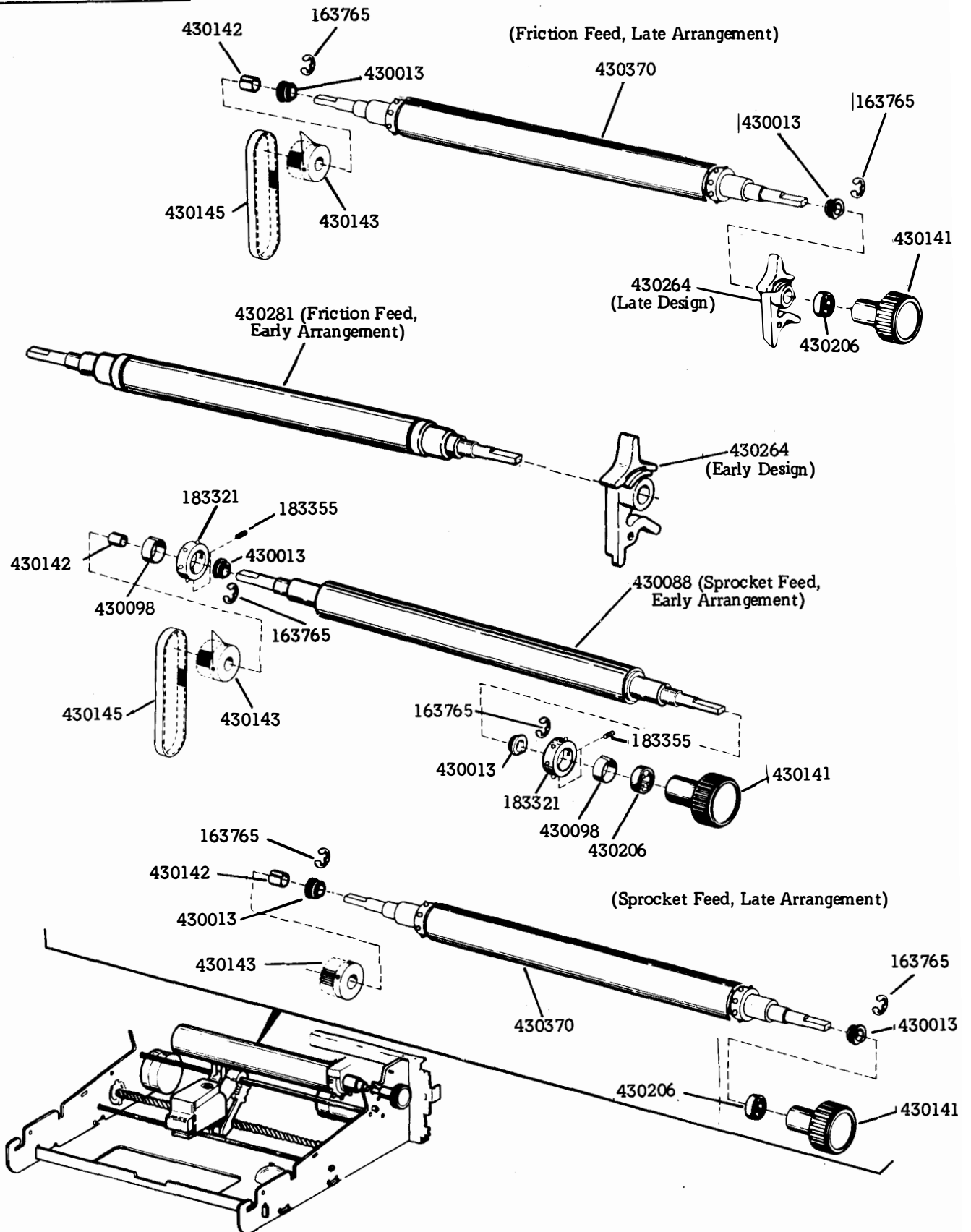
*Note:* When ordering replaceable parts or components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP430019).

Troubleshooting and disassembly/reassembly information for these parts is provided in PARTS 2 and 3, respectively.

Where disassembly/reassembly information is not shown, the illustrations in PART 7 — PARTS provide sufficient information.

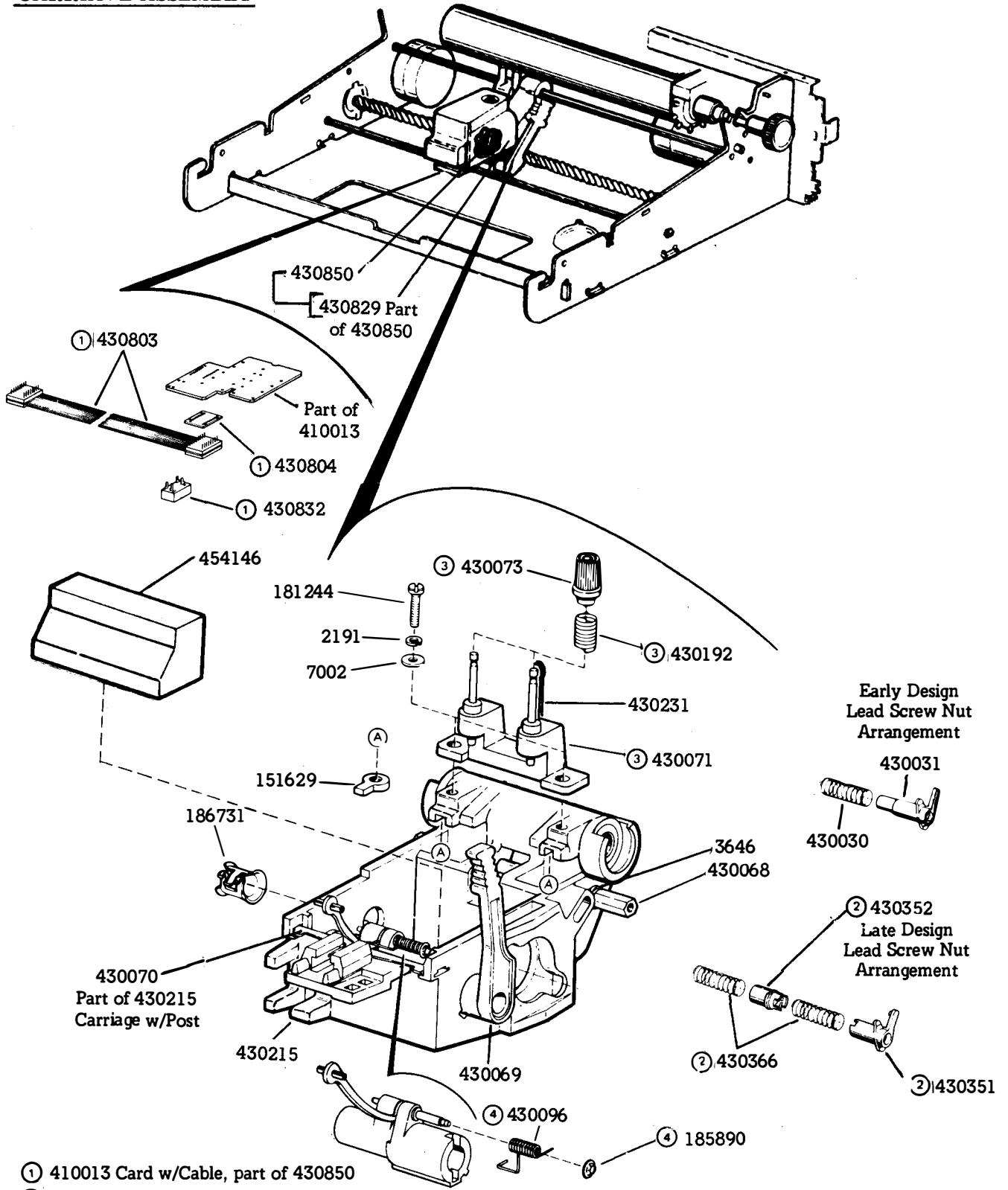
B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER PARTS

PLATEN ASSEMBLY



B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER PARTS (Contd)

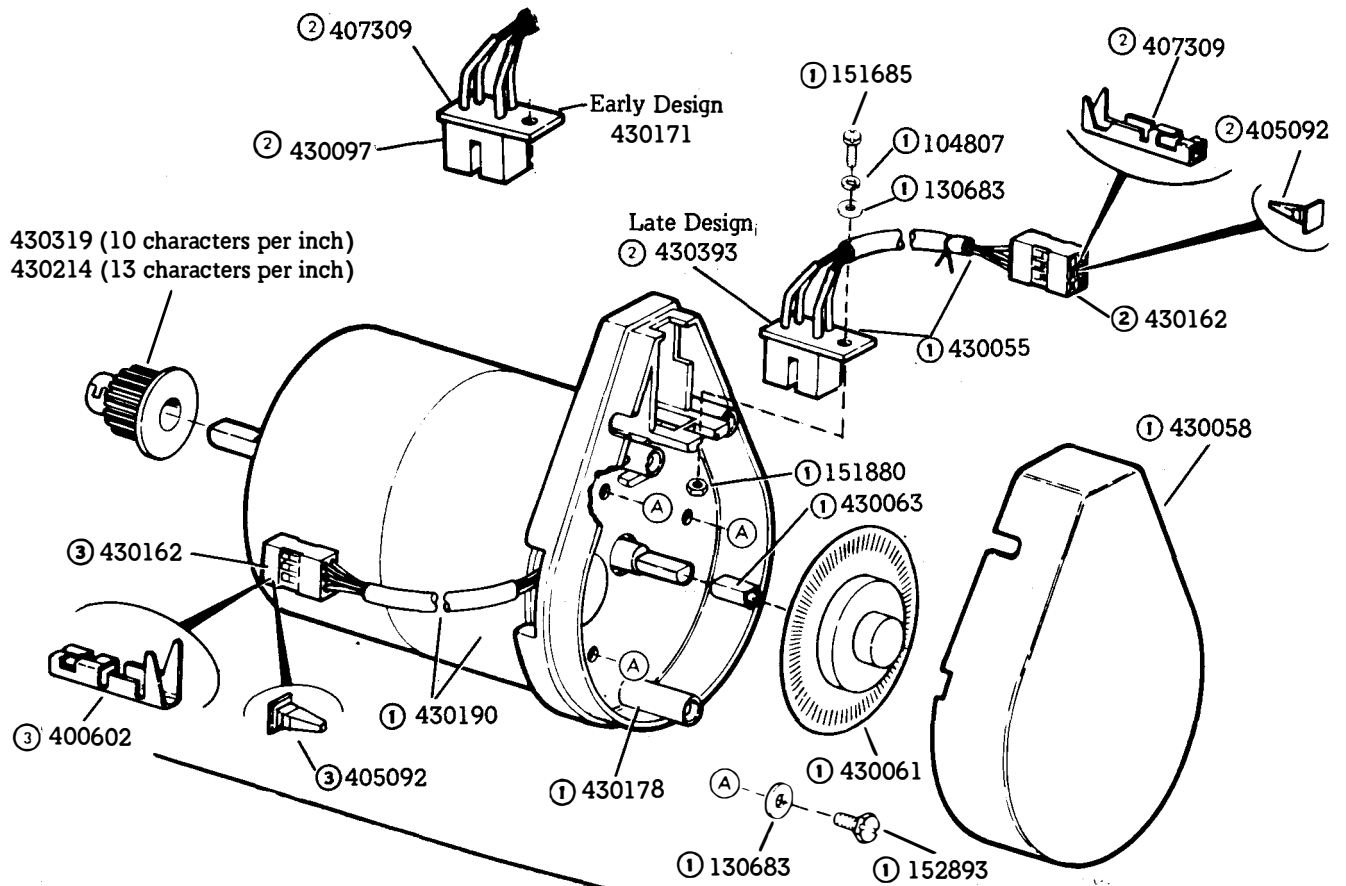
CARRIAGE ASSEMBLY



- ① 410013 Card w/Cable, part of 430850
- ② Part of 430440 Mod Kit (see Page 6-13)
- ③ Part of 430217 Bridge Assembly
- ④ Part of 430216 Collar w/Link



**SPACING MOTOR (430047 MOTOR WITH CABLE AND ENCODER) \***



430319 (10 characters per inch)  
430214 (13 characters per inch)

③ 430162

③ 400602

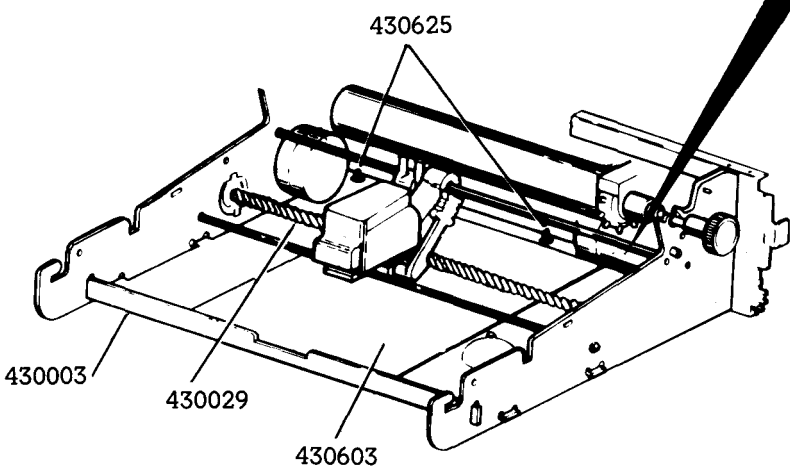
③ 405092

① 430190

① 430178

① 130683

① 152893

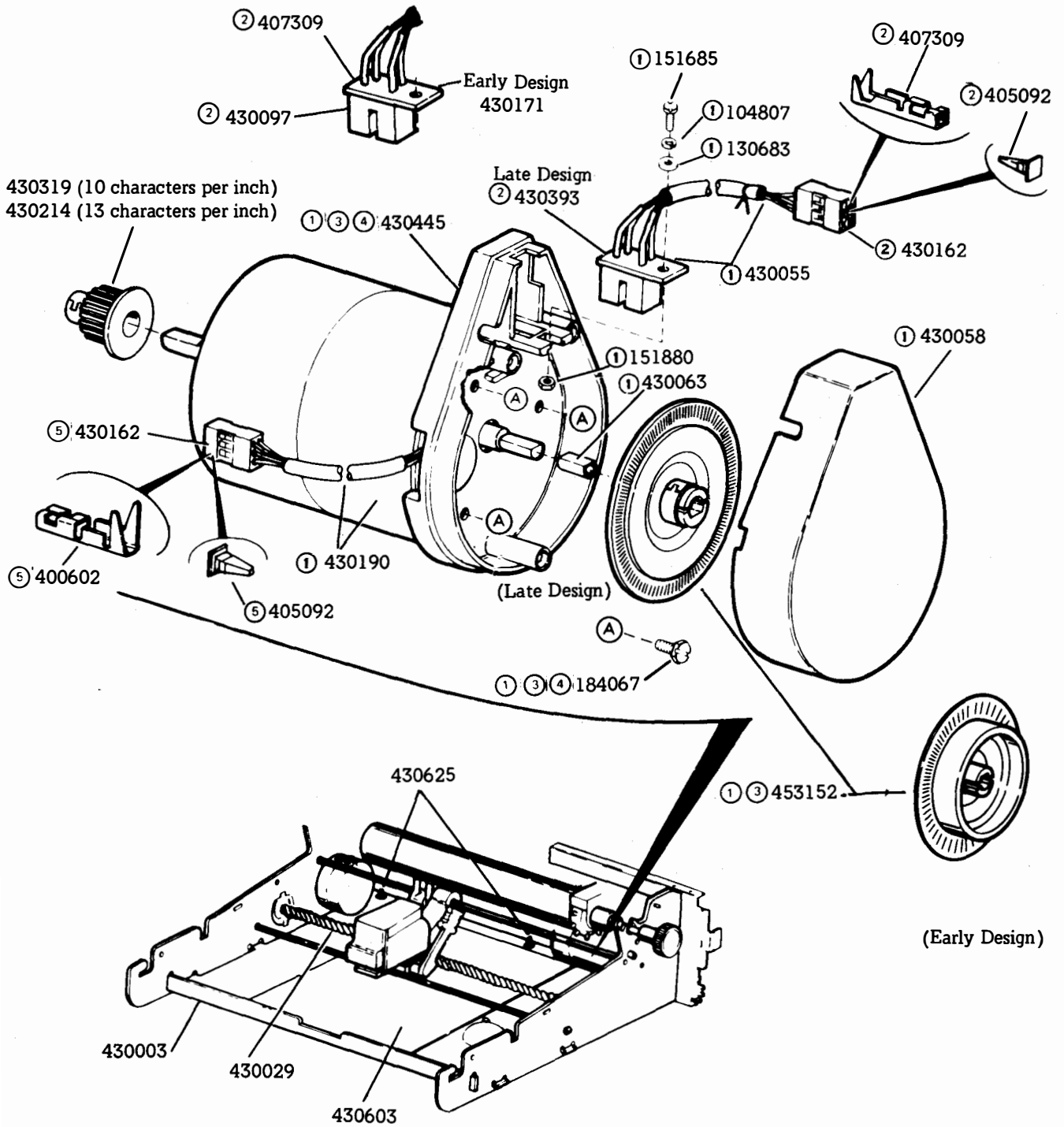


- ① Part of 430047 Motor W/Cable and Encoder
- ② Part of 430055 Cable Assembly
- ③ Part of 430190 Motor W/Cable

\*On orders for 430047, 430441 motor with cable and encoder will be substituted.

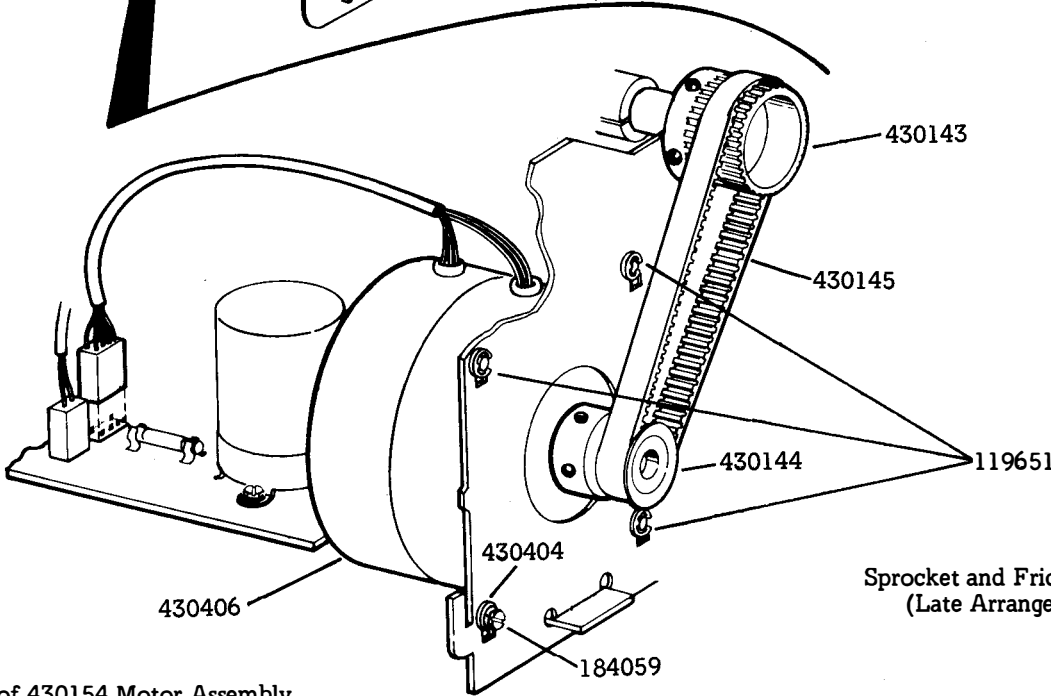
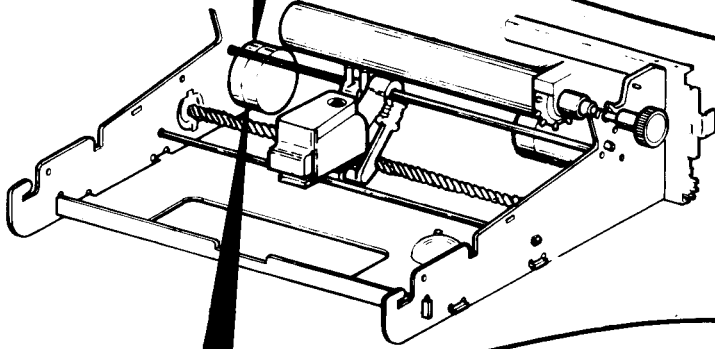
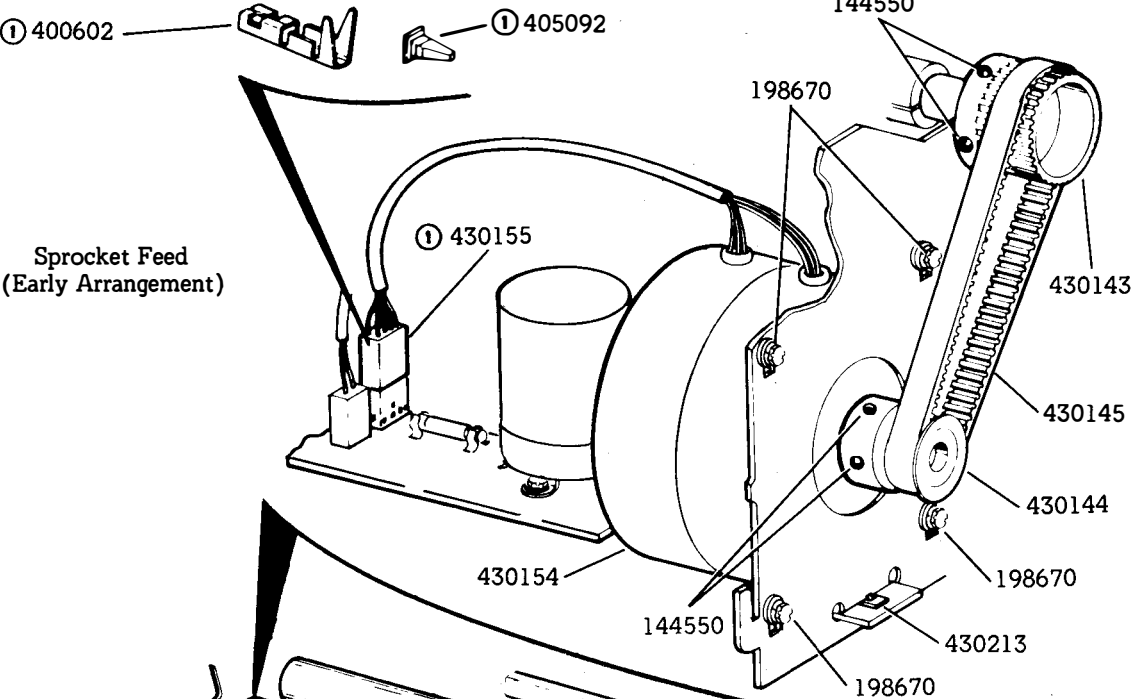
B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER PARTS (Contd)

SPACING MOTOR (430441 MOTOR WITH CABLE AND ENCODER)



- ① Part of 430441 Motor W/Cable and Encoder
- ② Part of 430055 Cable Assembly
- ③ Part of TP430440 Mod Kit (See Page 7-9)
- ④ Part of TP430439 Mod Kit
- ⑤ Part of 430190 Motor W/Cable

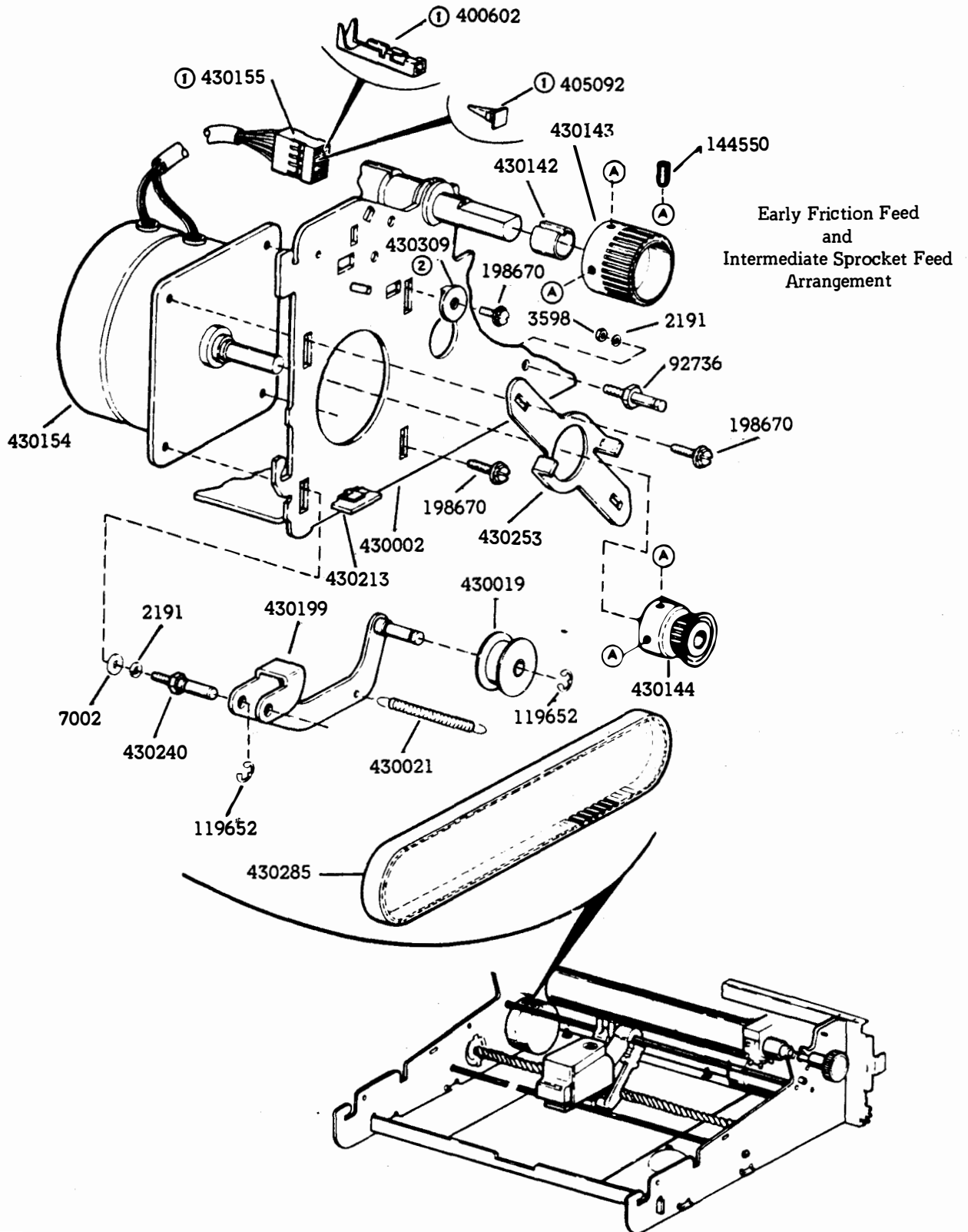
**LINE FEED MOTOR**



① Part of 430154 Motor Assembly

B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER PARTS (Contd)

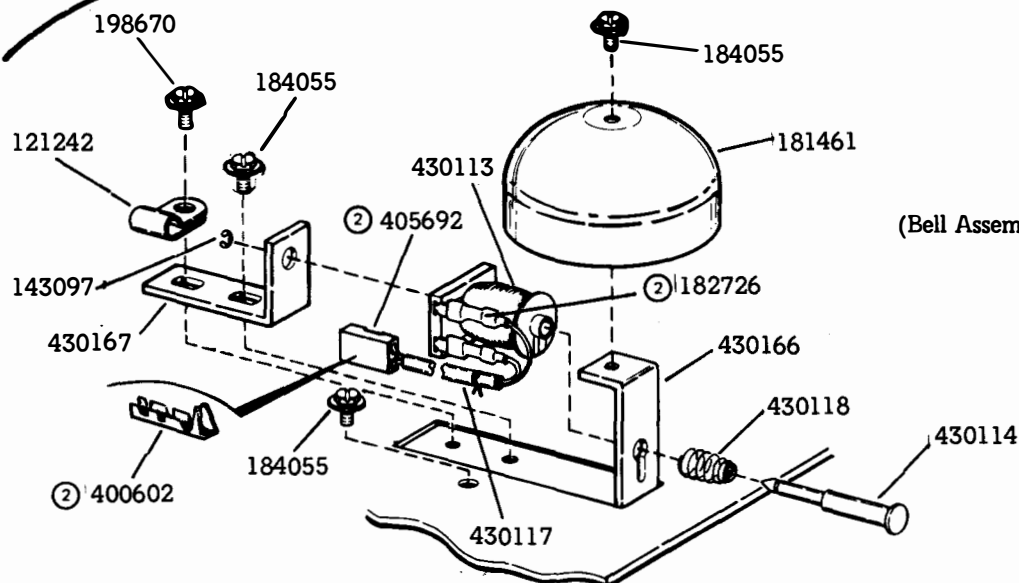
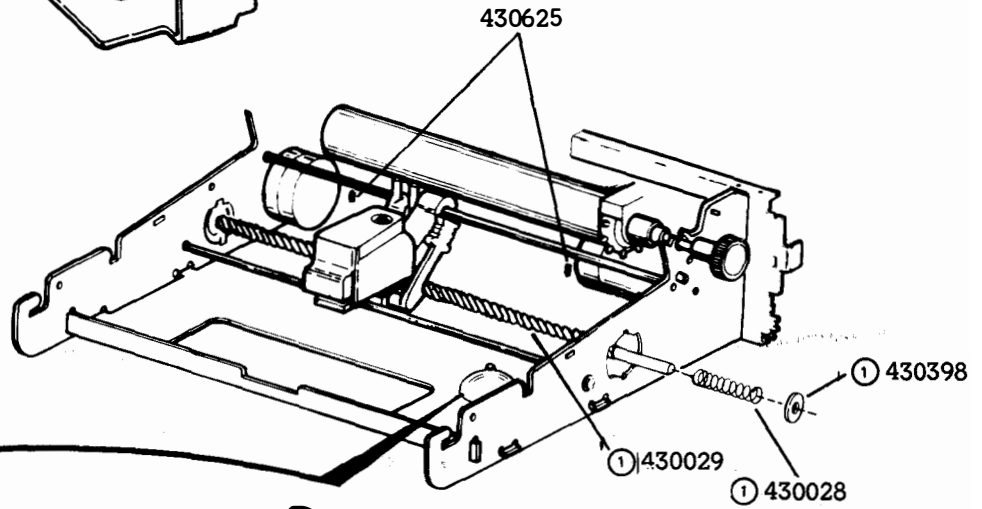
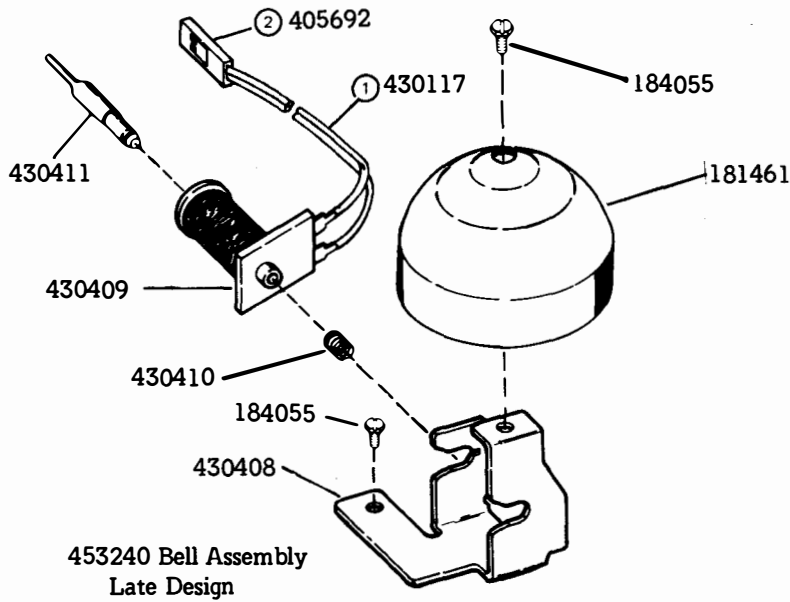
LINE FEED MOTOR (Contd)



① Part of 430154 Motor Assembly

② Present only when Early Design 430002 Left Side Plate is used.

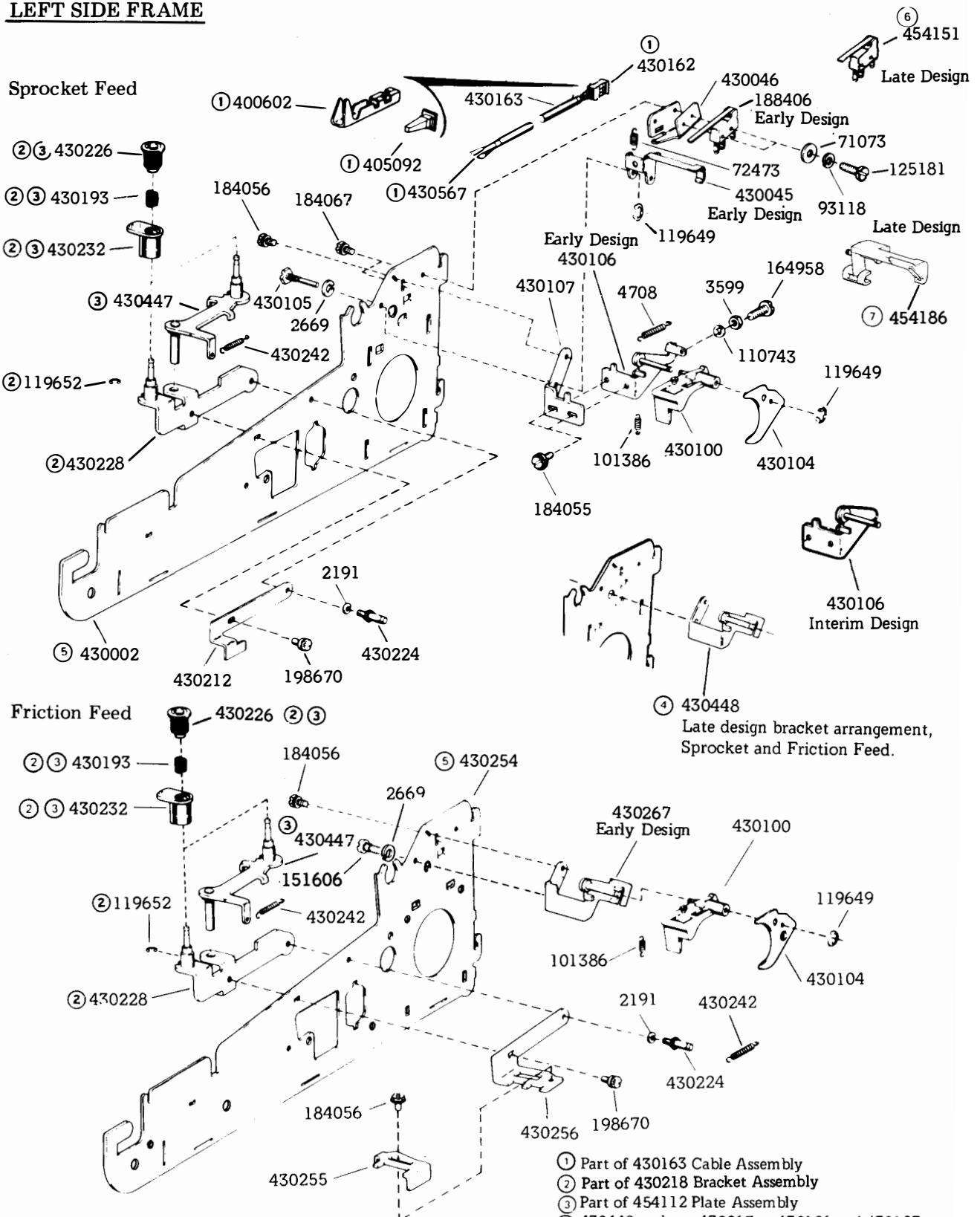
BELL ASSEMBLY



- ① Part of 430440 Mod Kit (See Page 7-6)
- ② Part of 430117 Cable Assembly

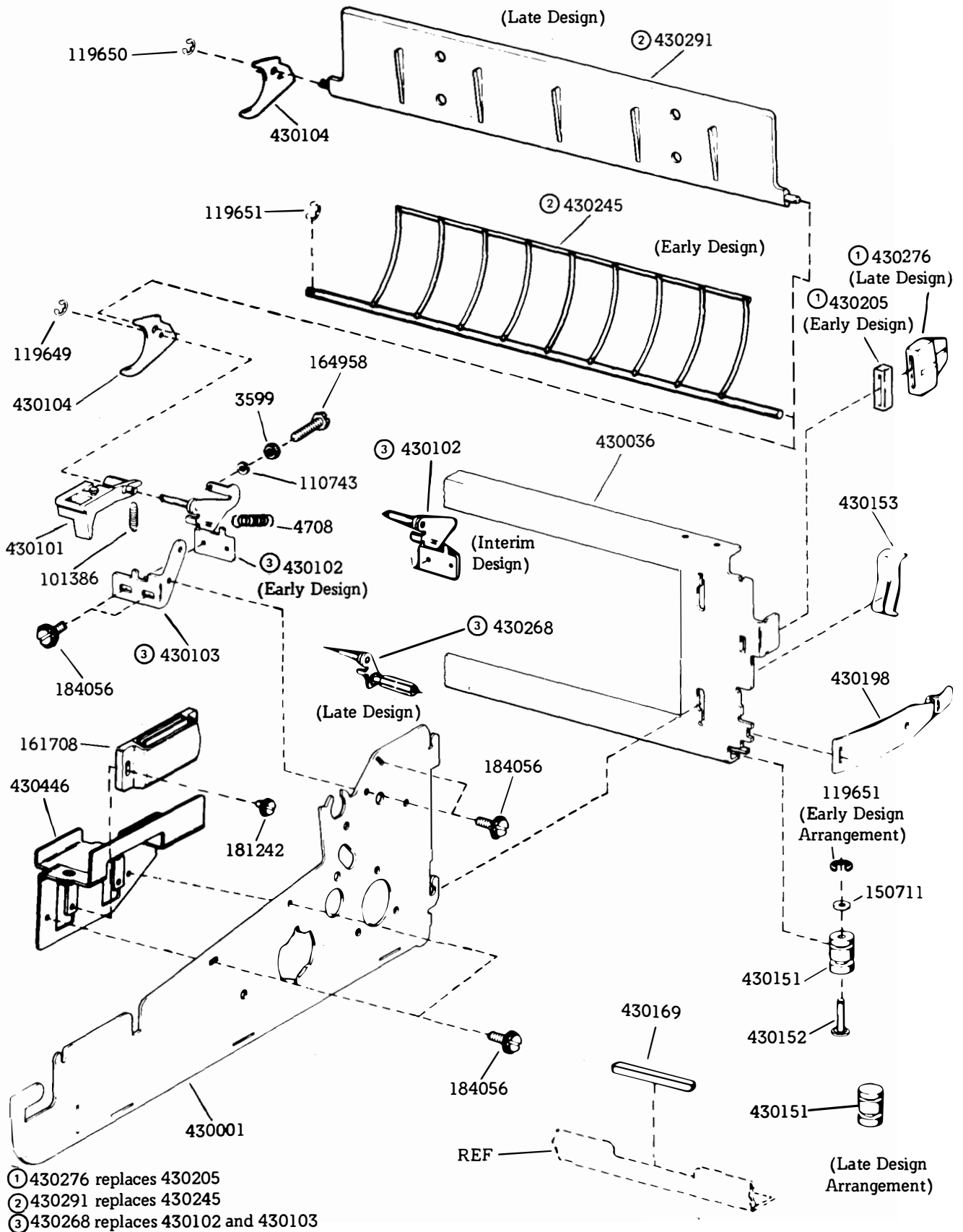
**B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER PARTS (Contd)**

**LEFT SIDE FRAME**



- ① Part of 430163 Cable Assembly
- ② Part of 430218 Bracket Assembly
- ③ Part of 454112 Plate Assembly
- ④ 430448 replaces 430267 or 430106 and 430107
- ⑤ 430443 replaces 430002 and 430254
- ⑥ 454151 replaces 188406, must be used with 454186
- ⑦ 454186 replaces 430045, must be used with 454151

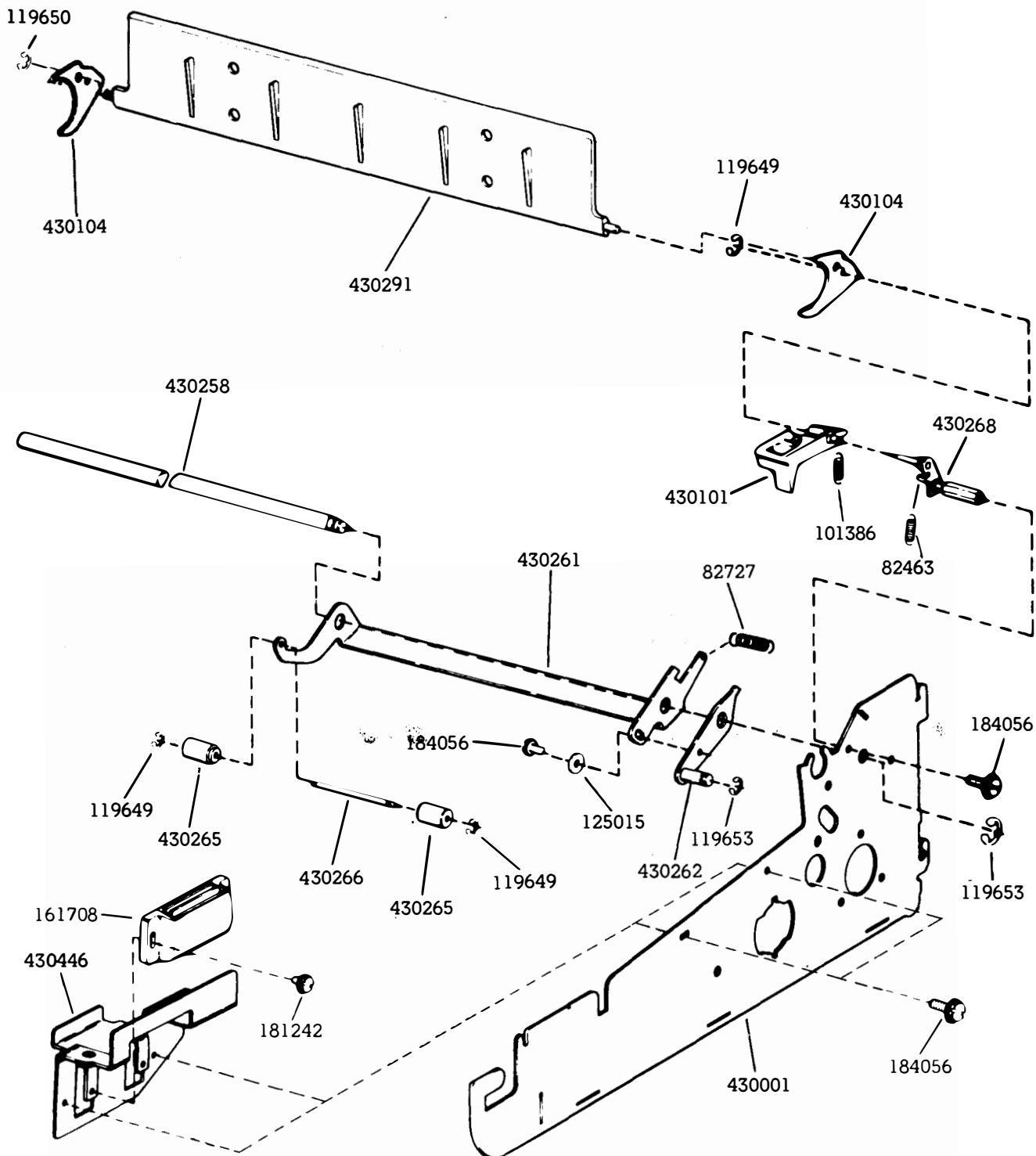
**RIGHT SIDE FRAME AND REAR FRAME (SPROCKET FEED)**



- ① 430276 replaces 430205
- ② 430291 replaces 430245
- ③ 430268 replaces 430102 and 430103

B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER PARTS (Contd)

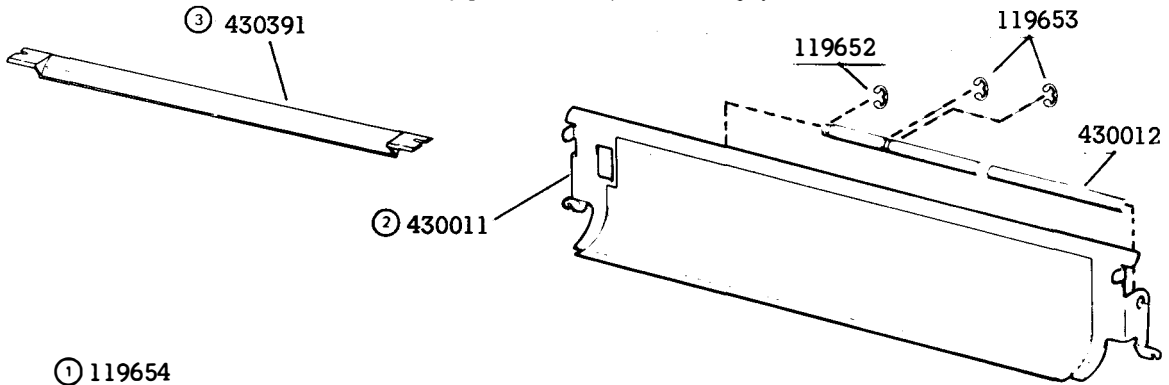
RIGHT SIDE FRAME (FRICTION FEED)



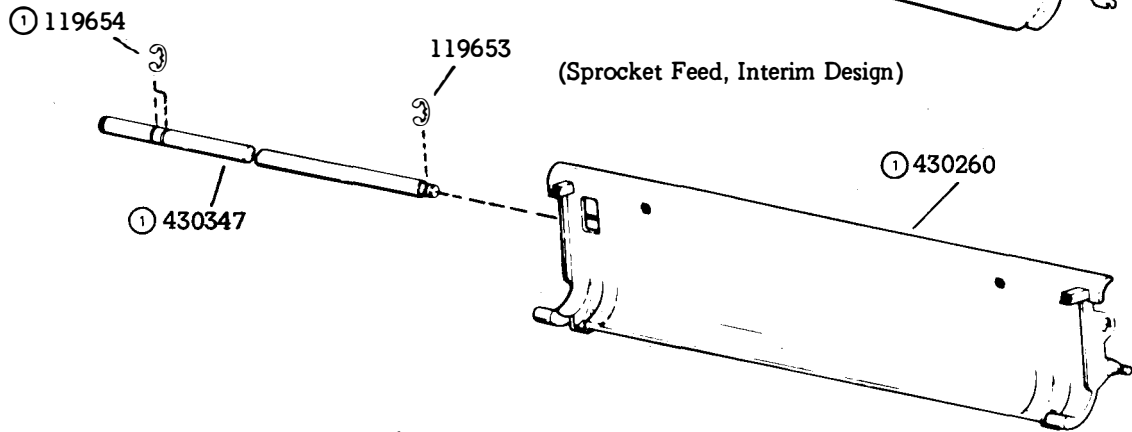


PAPER GUIDE AND PAPER TRAY

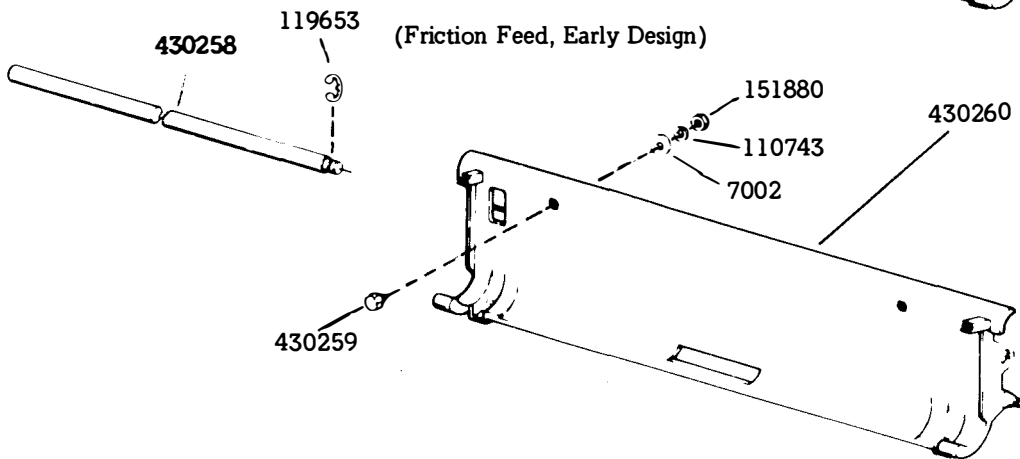
(Sprocket Feed, Early Design)



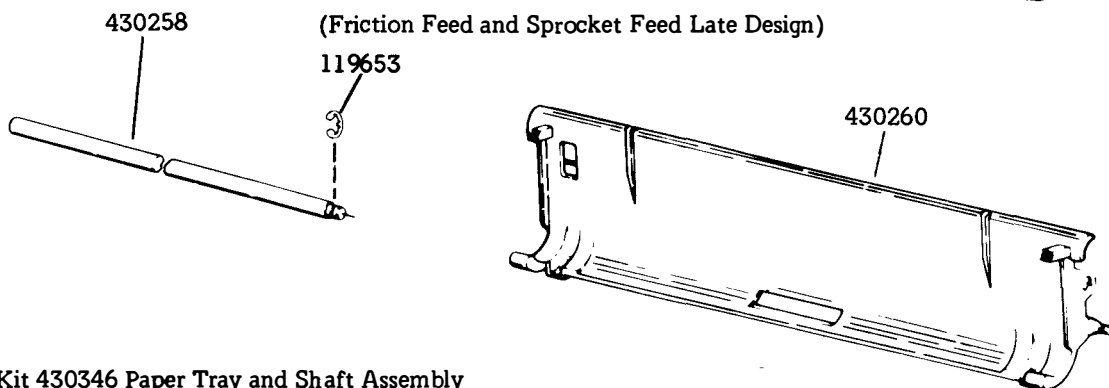
(Sprocket Feed, Interim Design)



(Friction Feed, Early Design)



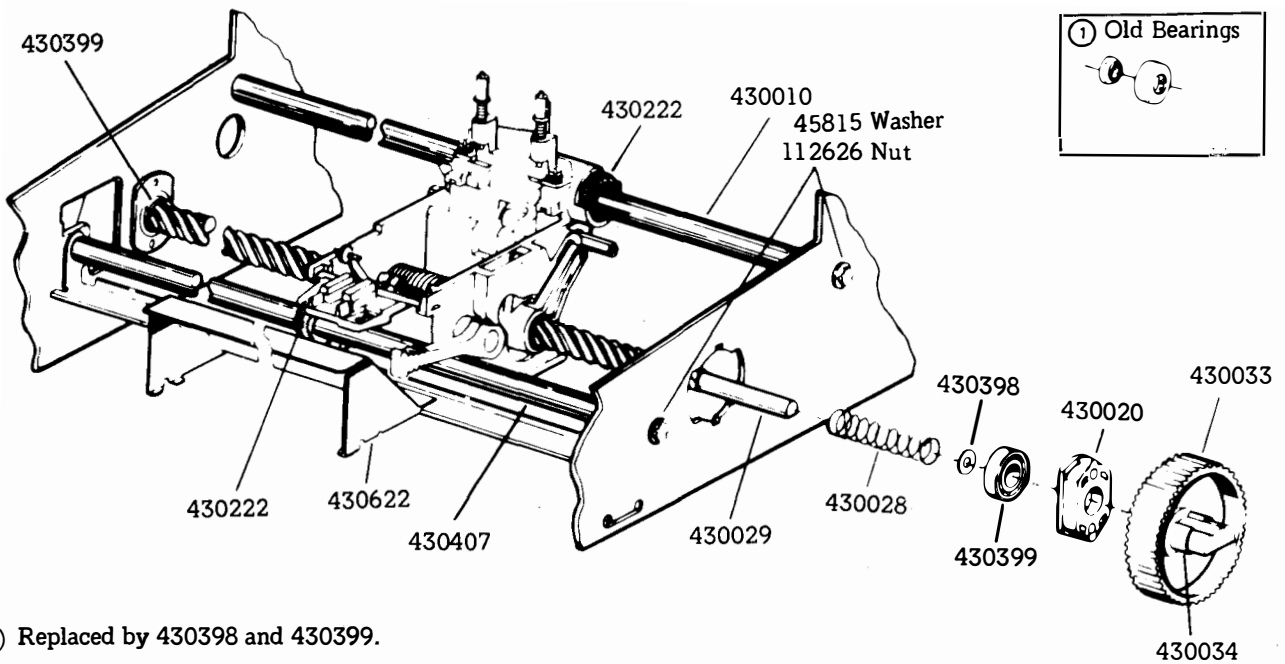
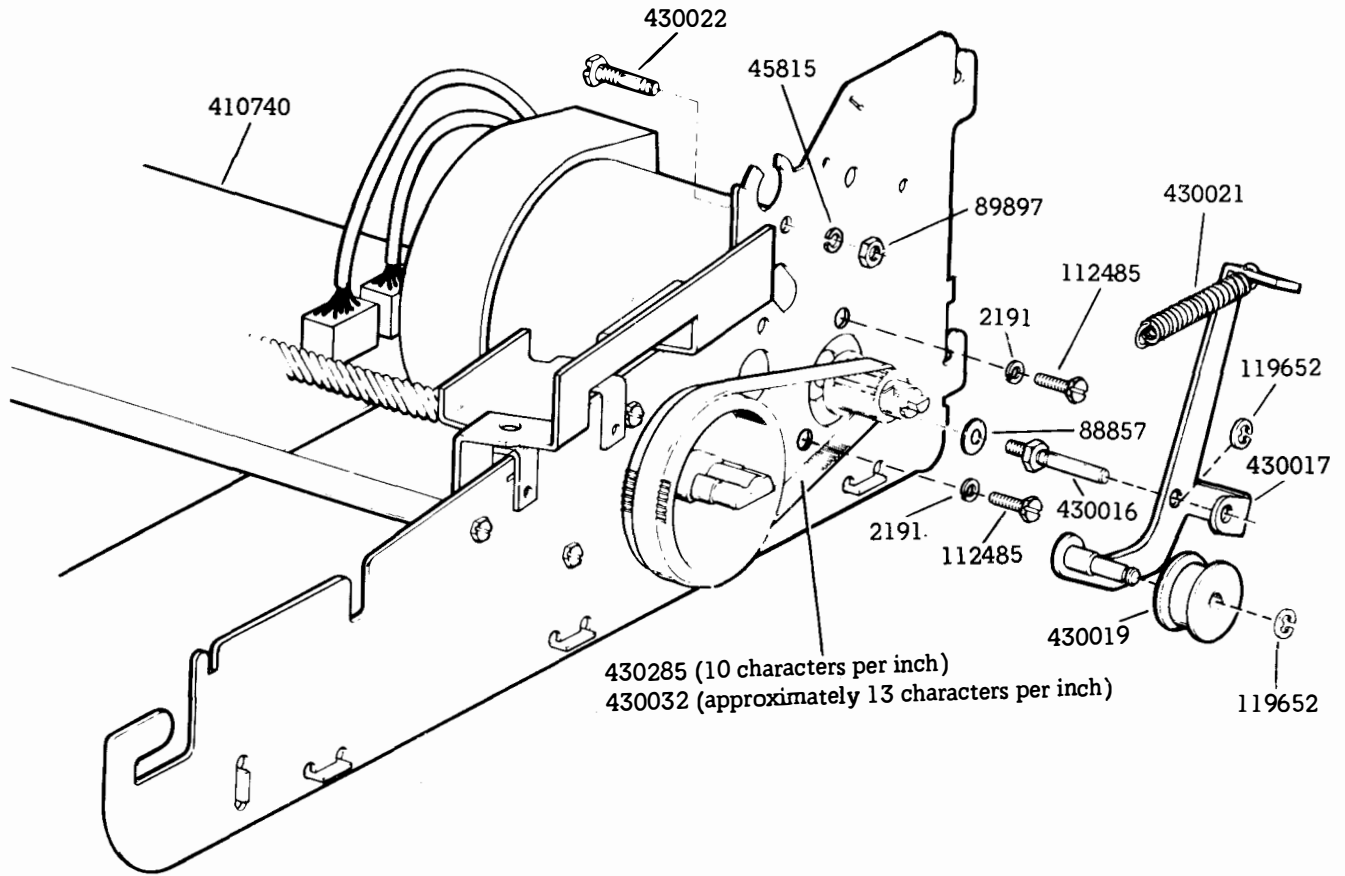
(Friction Feed and Sprocket Feed Late Design)



- ① Mod Kit 430346 Paper Tray and Shaft Assembly
- ② 430346 replaces 430011
- ③ 430391 replaces 430179

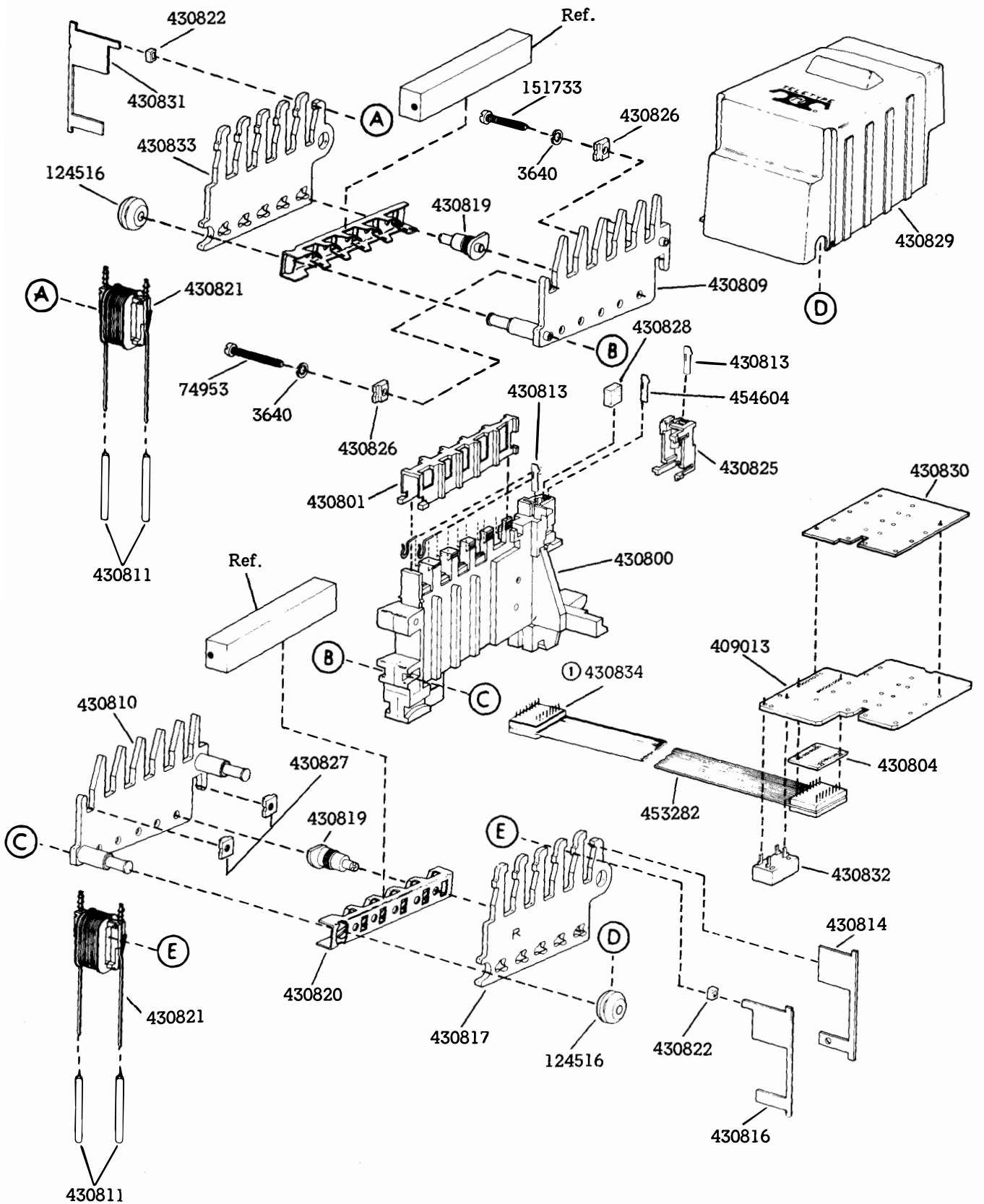
**B. 12 INCH FRICTION AND SPROCKET (PIN) FEED PRINTER PARTS (Contd)**

**SPACING DRIVE AND LEAD SCREW ASSEMBLY**



① Replaced by 430398 and 430399.

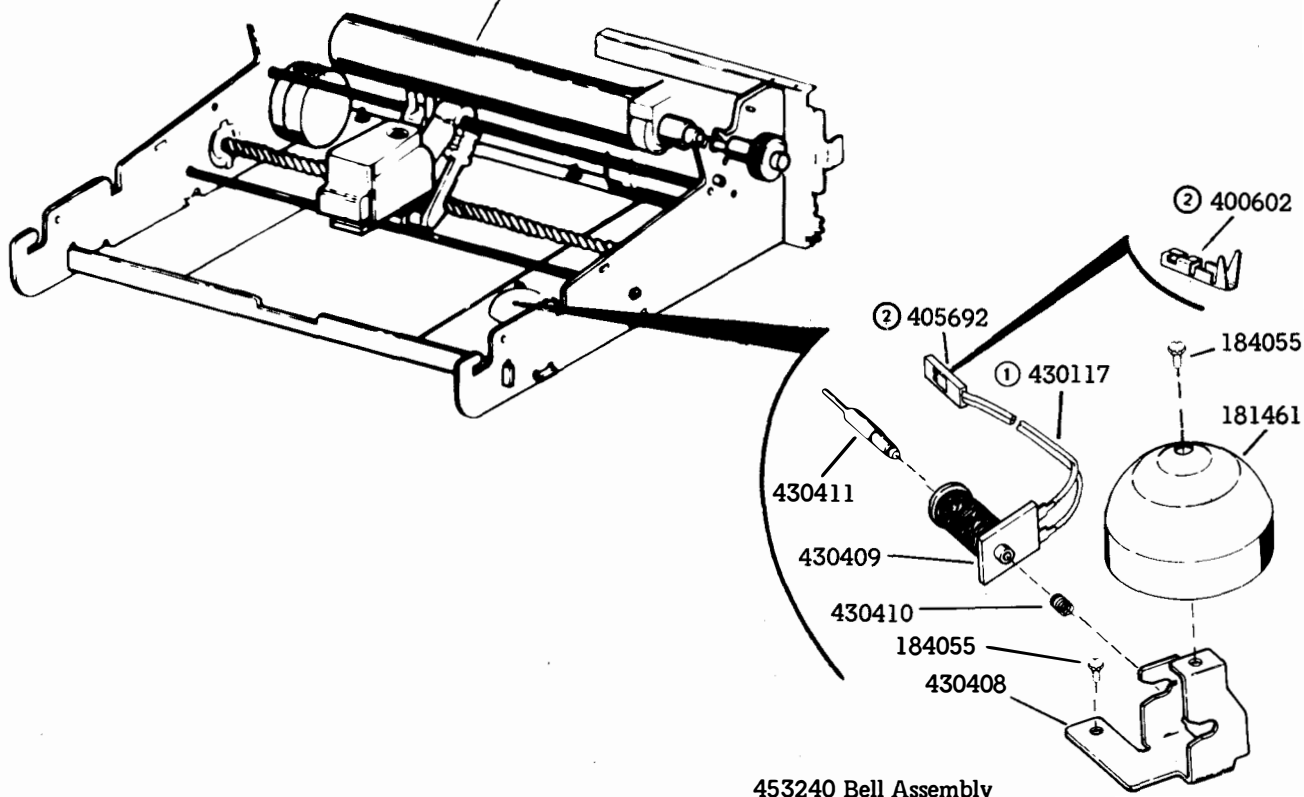
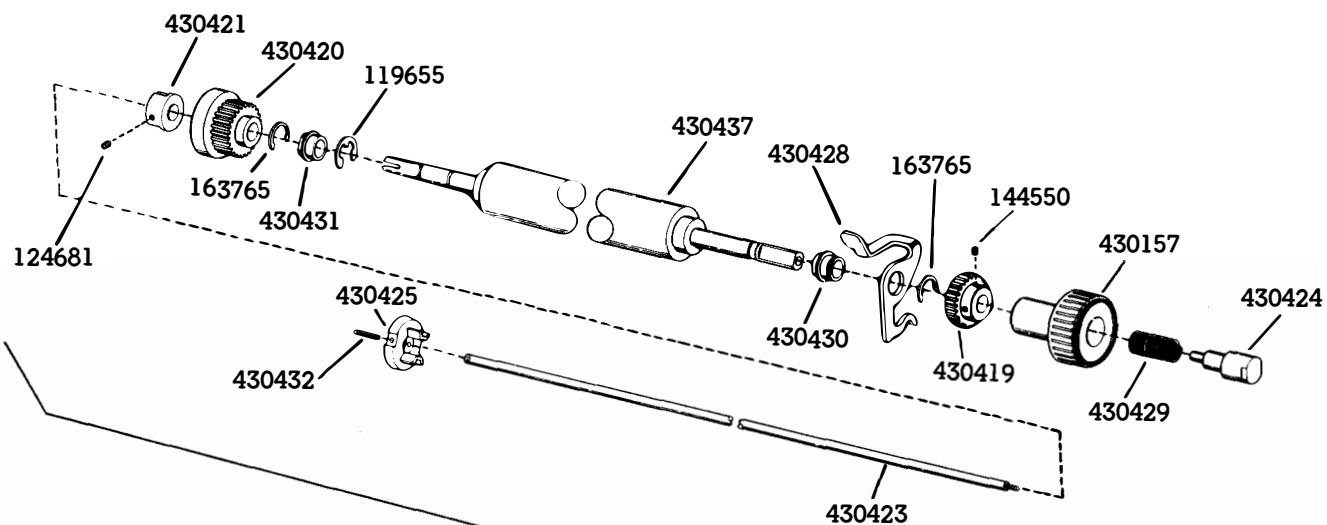
**430850 PRINT HEAD ASSEMBLY**



① Part of 453282 Cable Assembly

C. 12 INCH TRACTOR FEED PRINTER PARTS

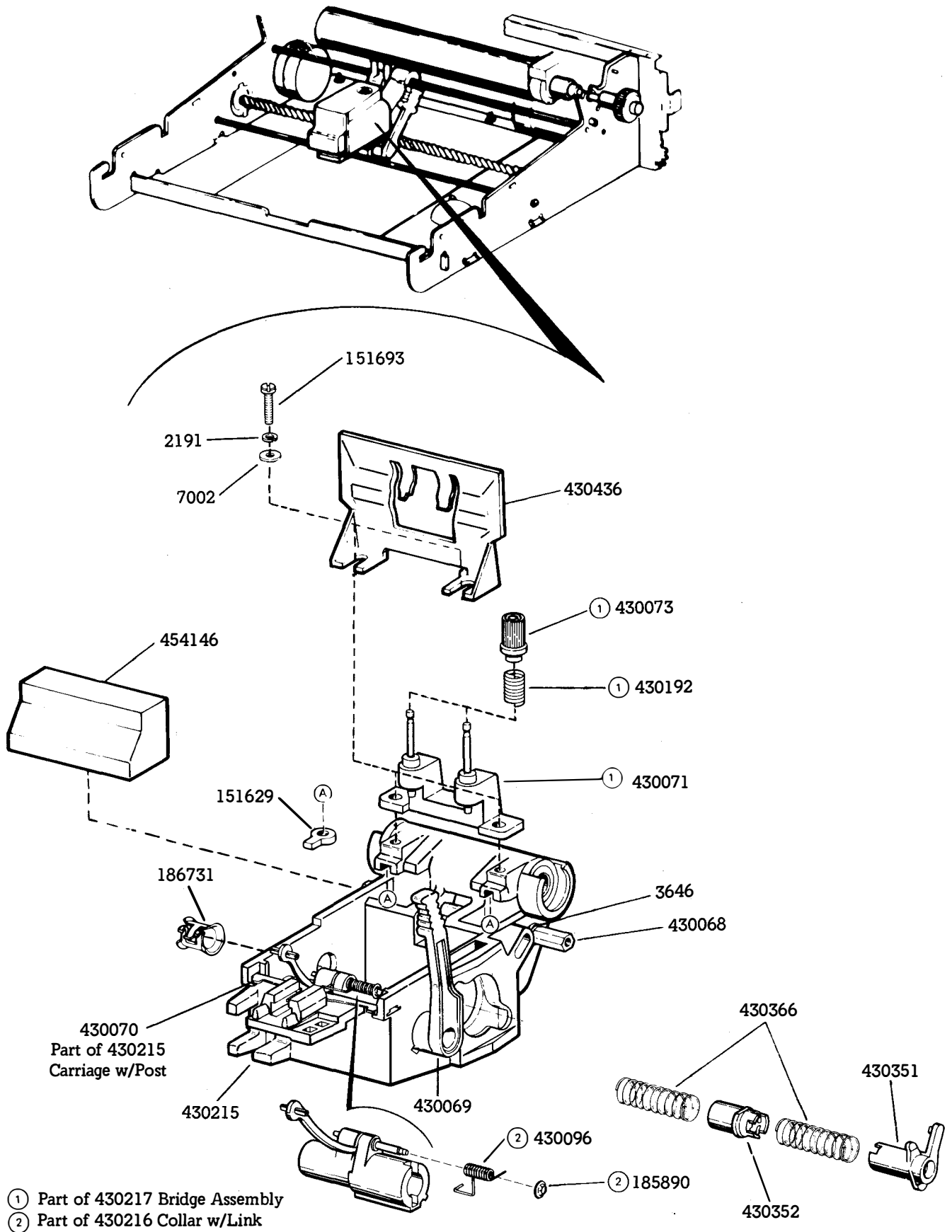
PLATEN AND BELL ASSEMBLY



453240 Bell Assembly

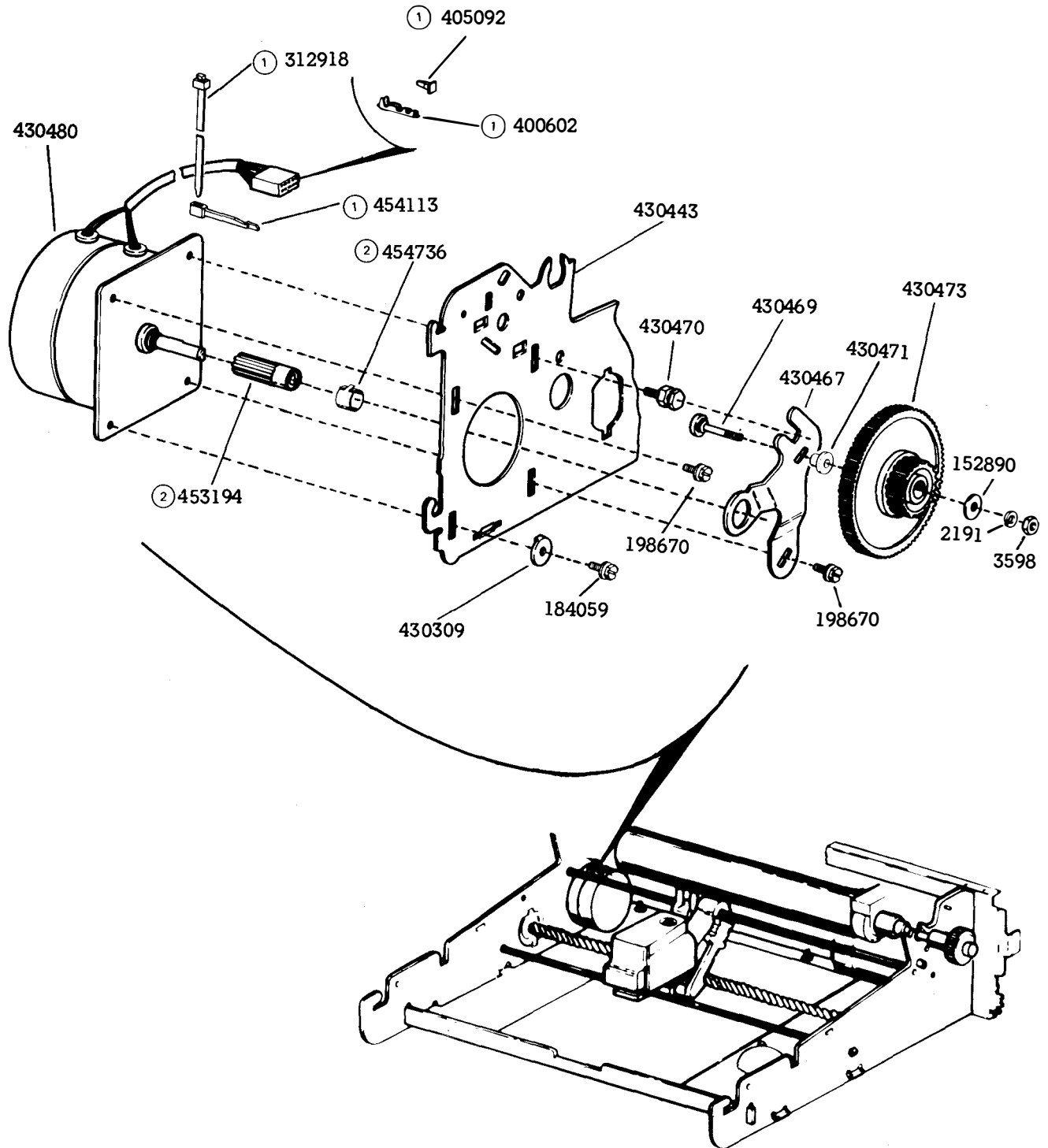
- ① Part of 430409 Bell Coil Assembly
- ② Part of 430117 Cable Assembly

CARRIAGE ASSEMBLY



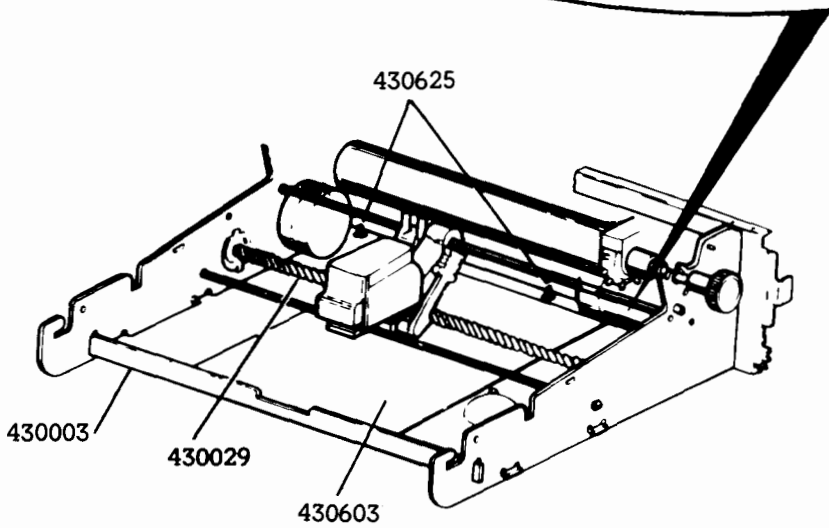
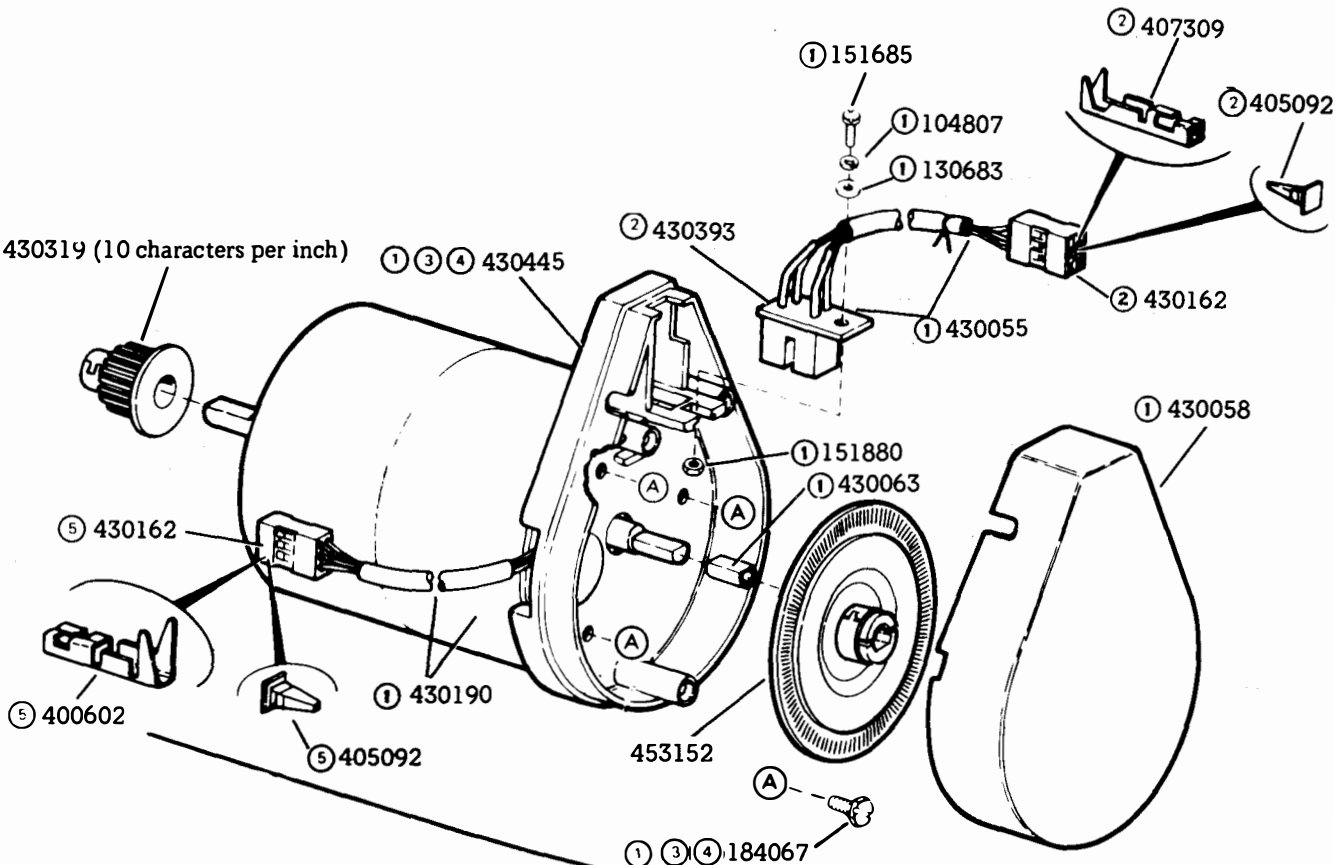
C. 12 INCH TRACTOR FEED PRINTER PARTS (Contd)

LINE FEED SPACING MOTOR



- ① Part of 430480 Motor Assembly
- ② Part of 454165 Parts Kit.

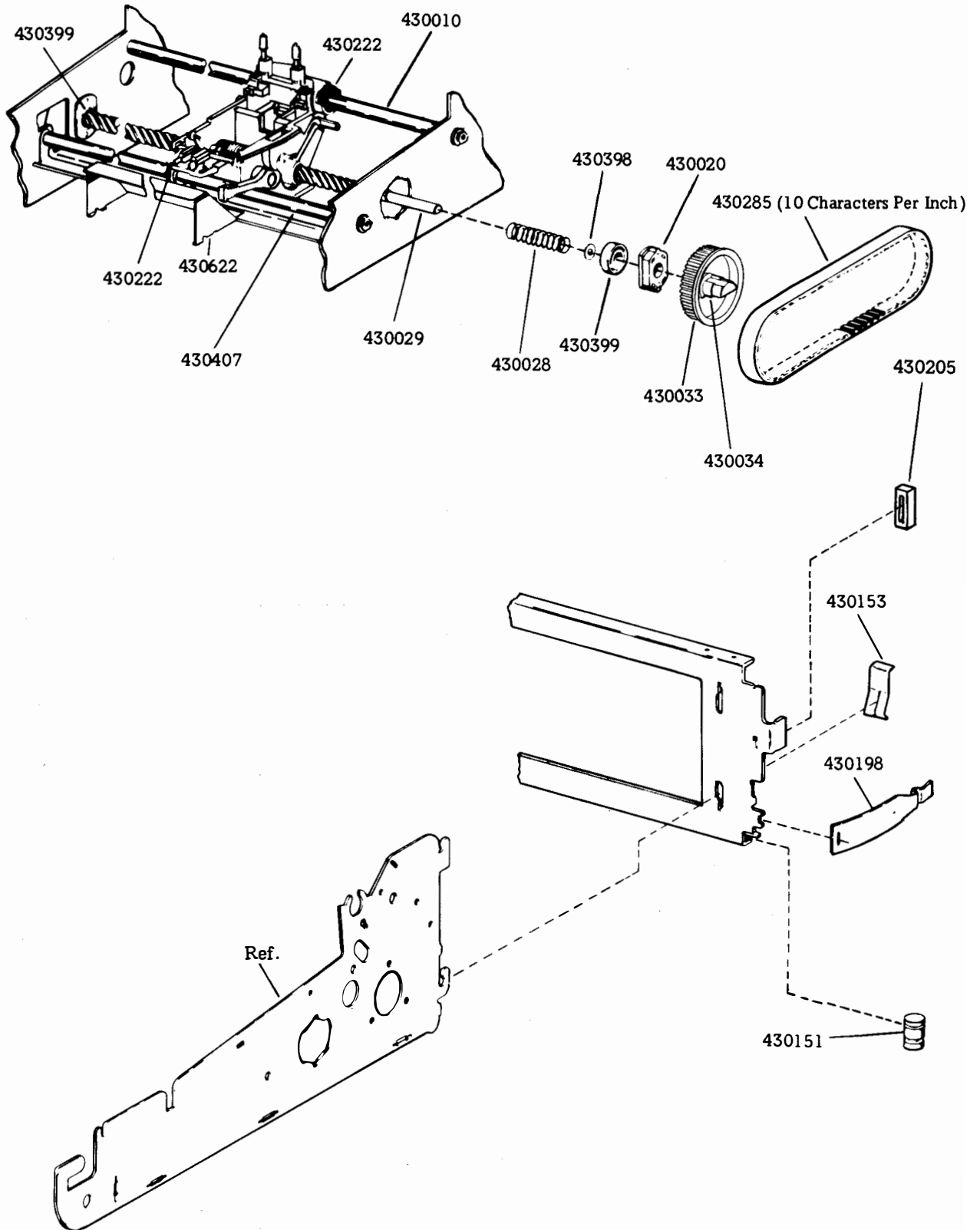
SPACING MOTOR (430441 MOTOR WITH CABLE AND ENCODER)



- ① Part of 430441 Motor W/Cable and Encoder
- ② Part of 430055 Cable Assembly
- ③ Part of 430440 Mod Kit
- ④ Part of 430439 Mod Kit
- ⑤ Part of 430190 Motor W/Cable

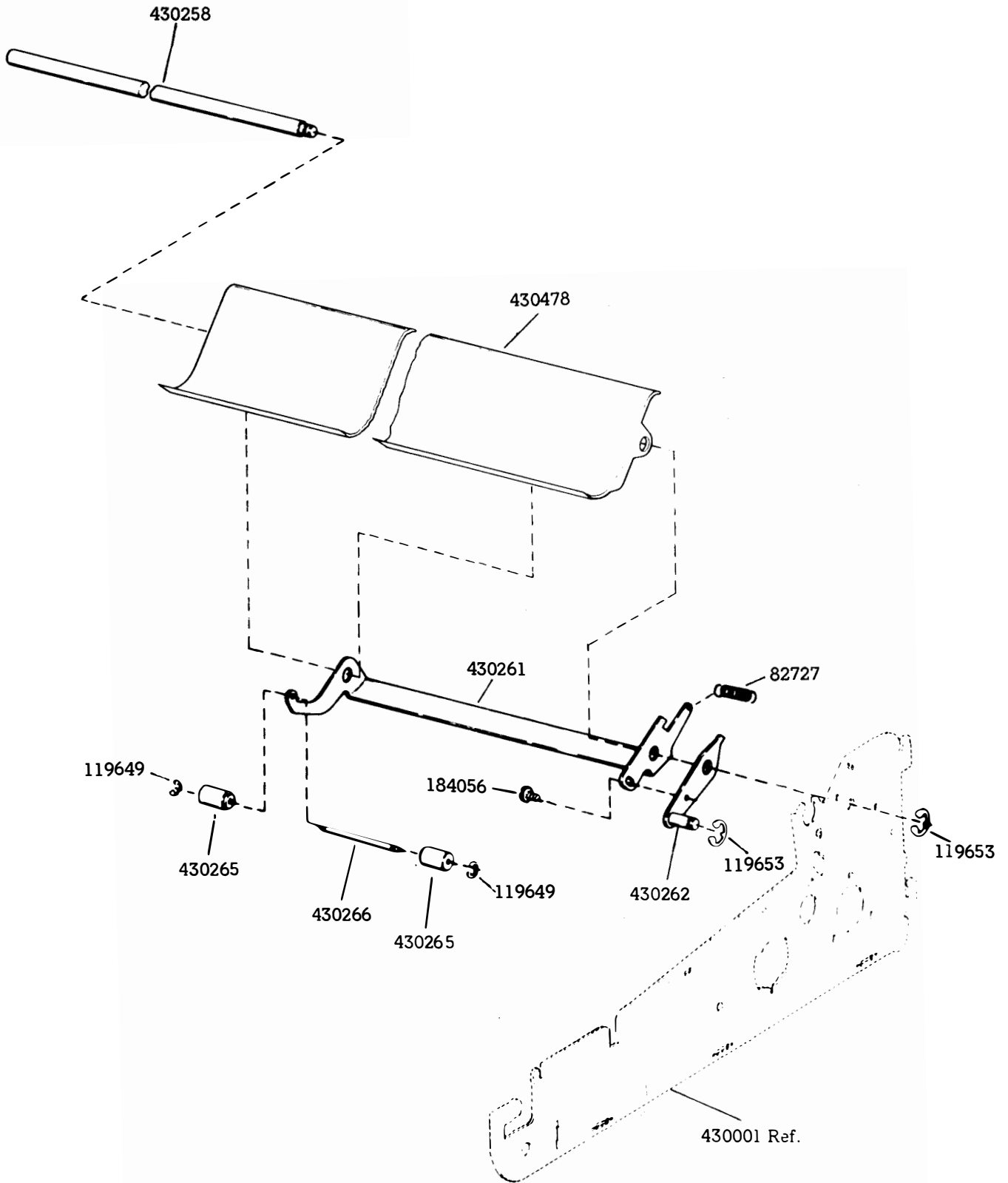
C. 12 INCH TRACTOR FEED PRINTER PARTS (Contd)

LEAD SCREW AND DRIVE



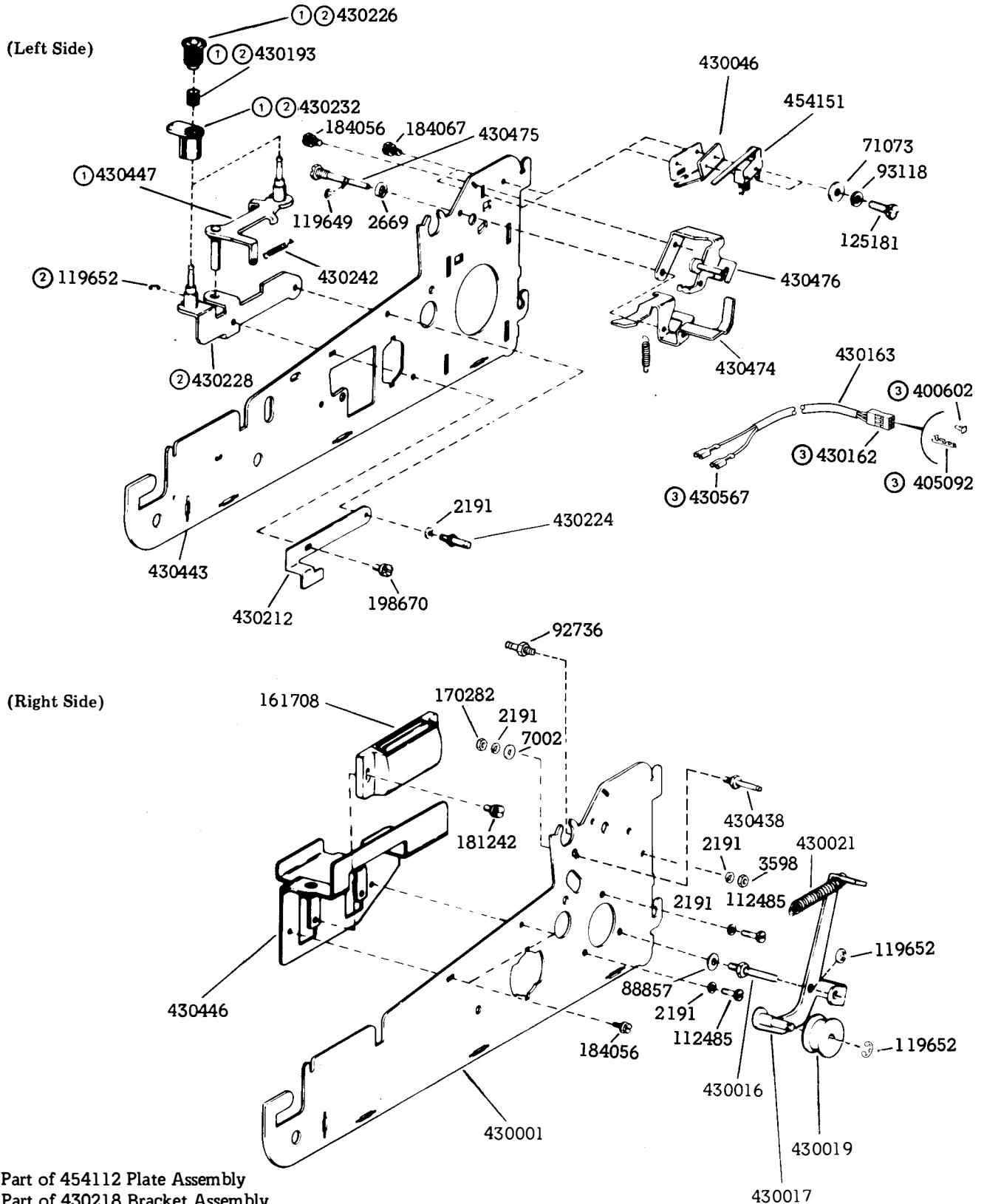


PAPER TRAY AND PRESSURE ROLLER.



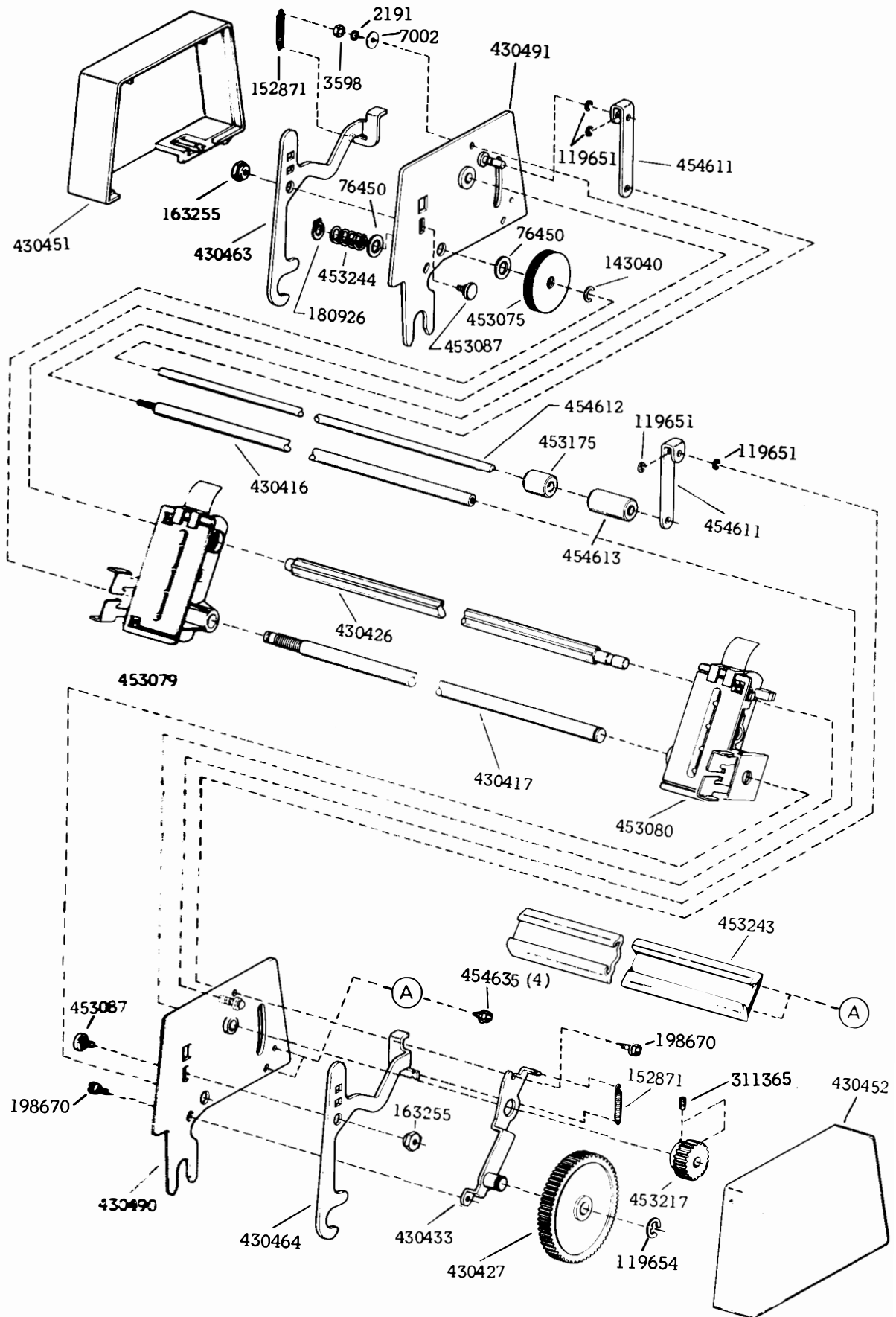
C. 12 INCH TRACTOR FEED PRINTER PARTS (Contd)

LEFT AND RIGHT SIDE FRAME ARRANGEMENTS



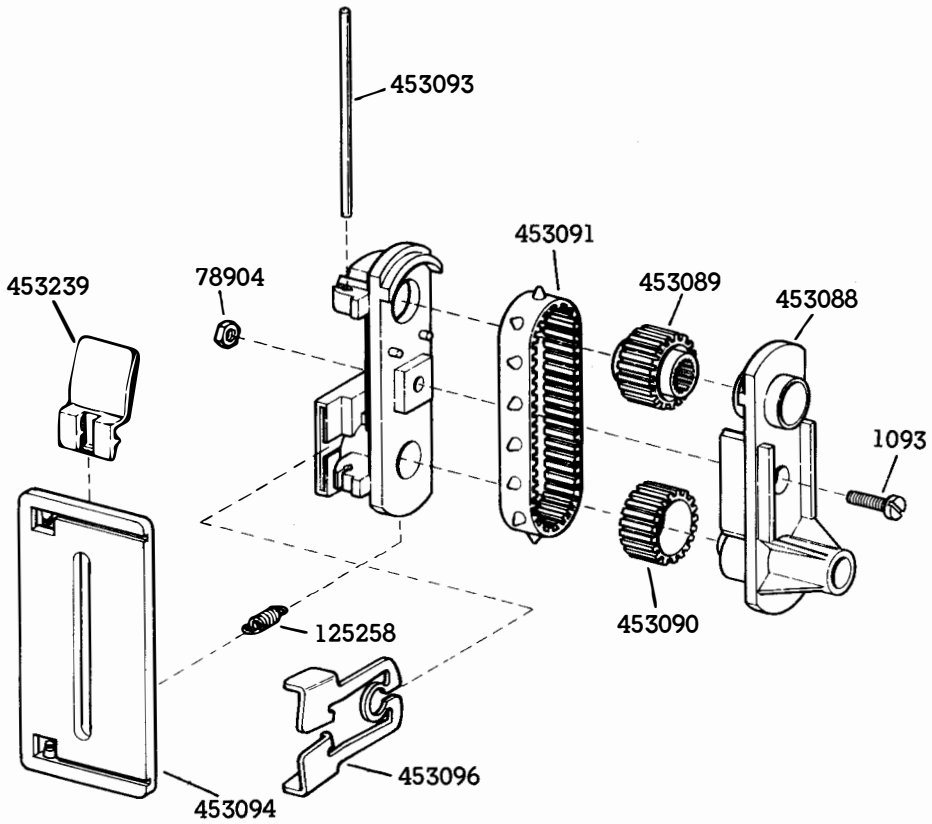
- ① Part of 454112 Plate Assembly
- ② Part of 430218 Bracket Assembly
- ③ Part of 430163 Cable Assembly

**430485 TRACTOR MECHANISM**

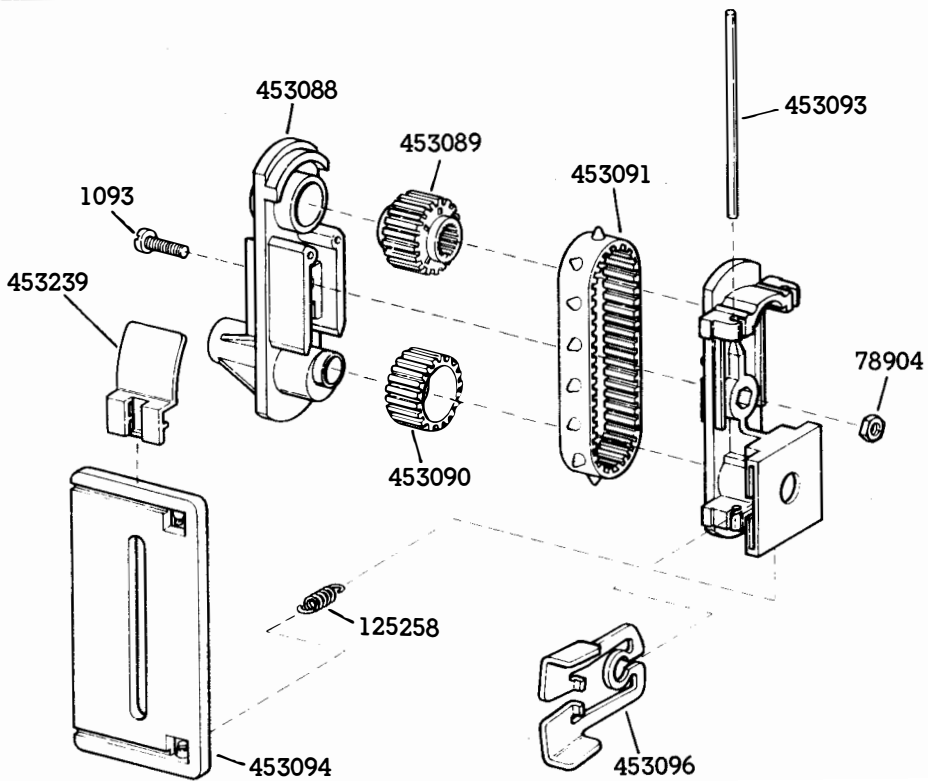


C. 12 INCH TRACTOR FEED PRINTER PARTS (Contd)

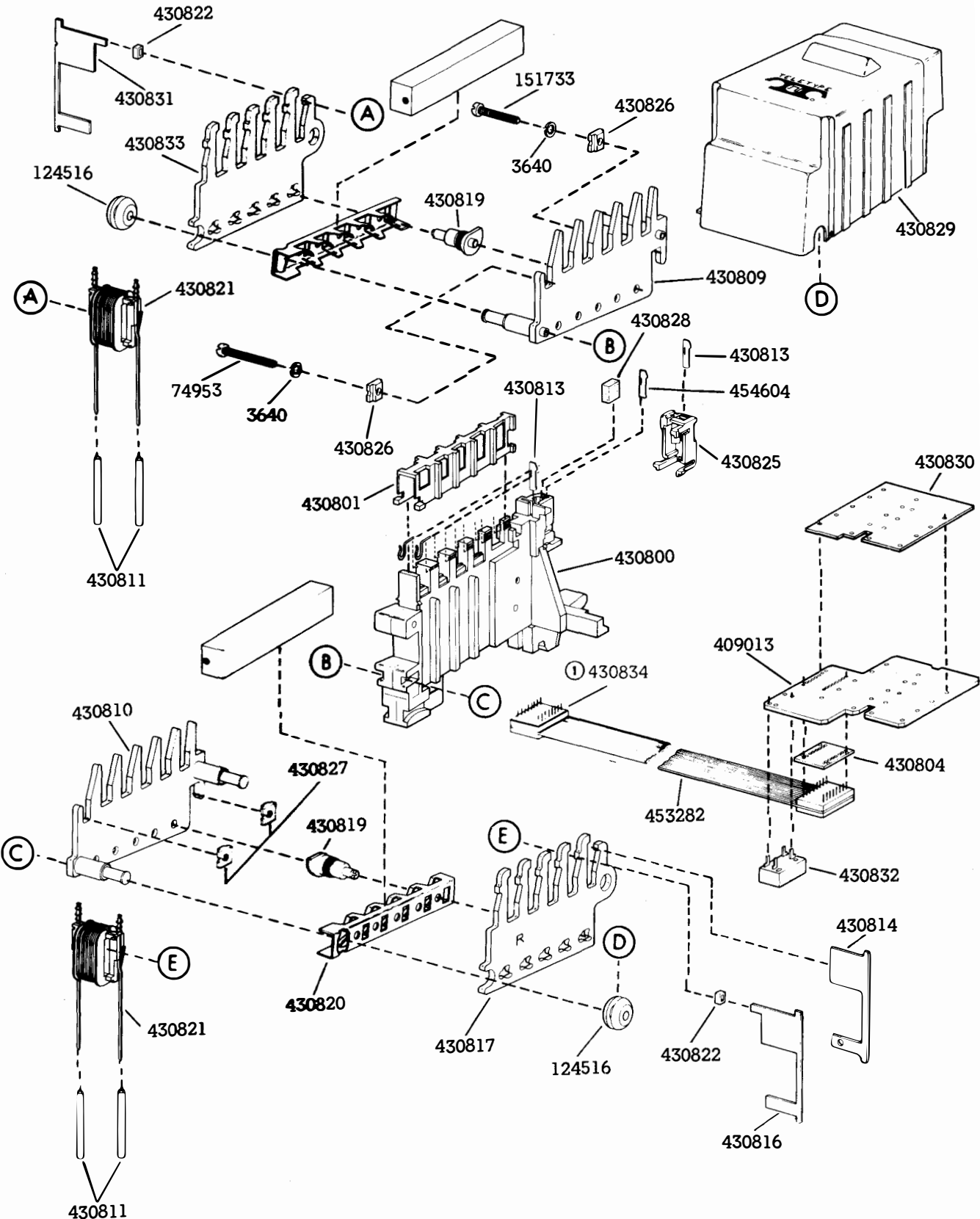
453079 LEFT TRACTOR ASSEMBLY



453080 RIGHT TRACTOR ASSEMBLY



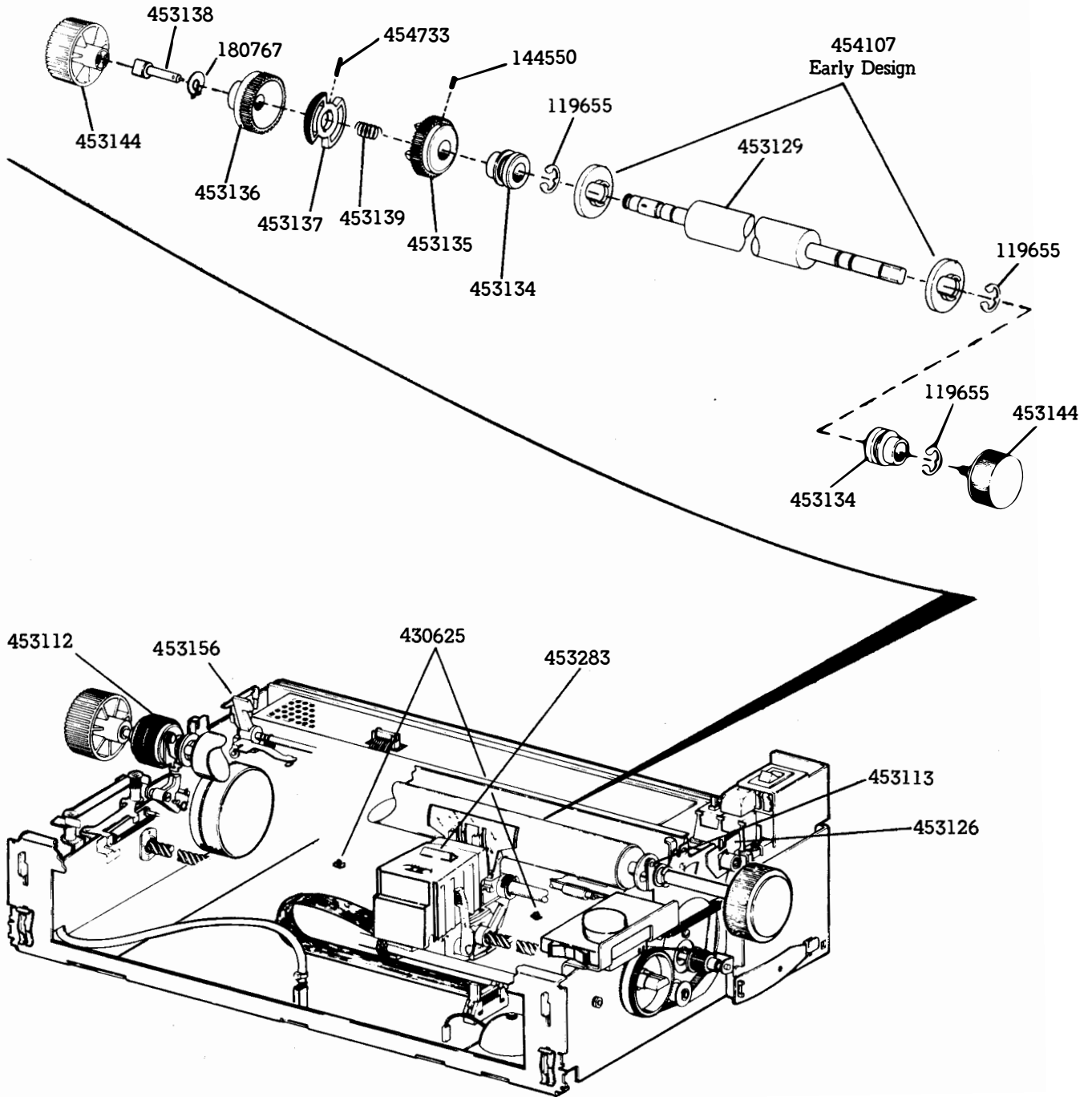
**430850 PRINT HEAD ASSEMBLY**



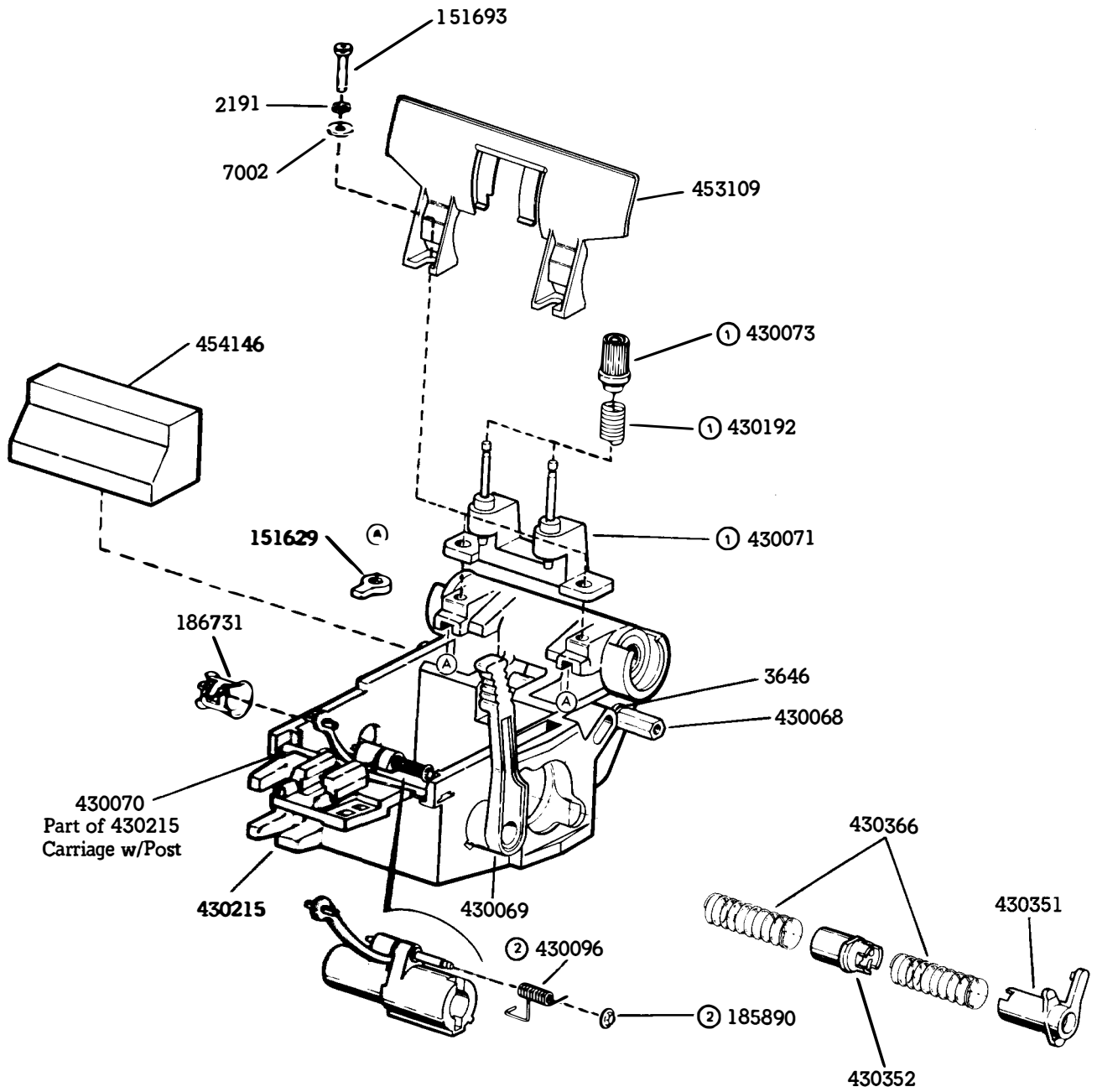
① Part of 453282 Cable Assembly

D. 15 INCH TRACTOR FEED PRINTER PARTS

453140 PLATEN ASSEMBLY



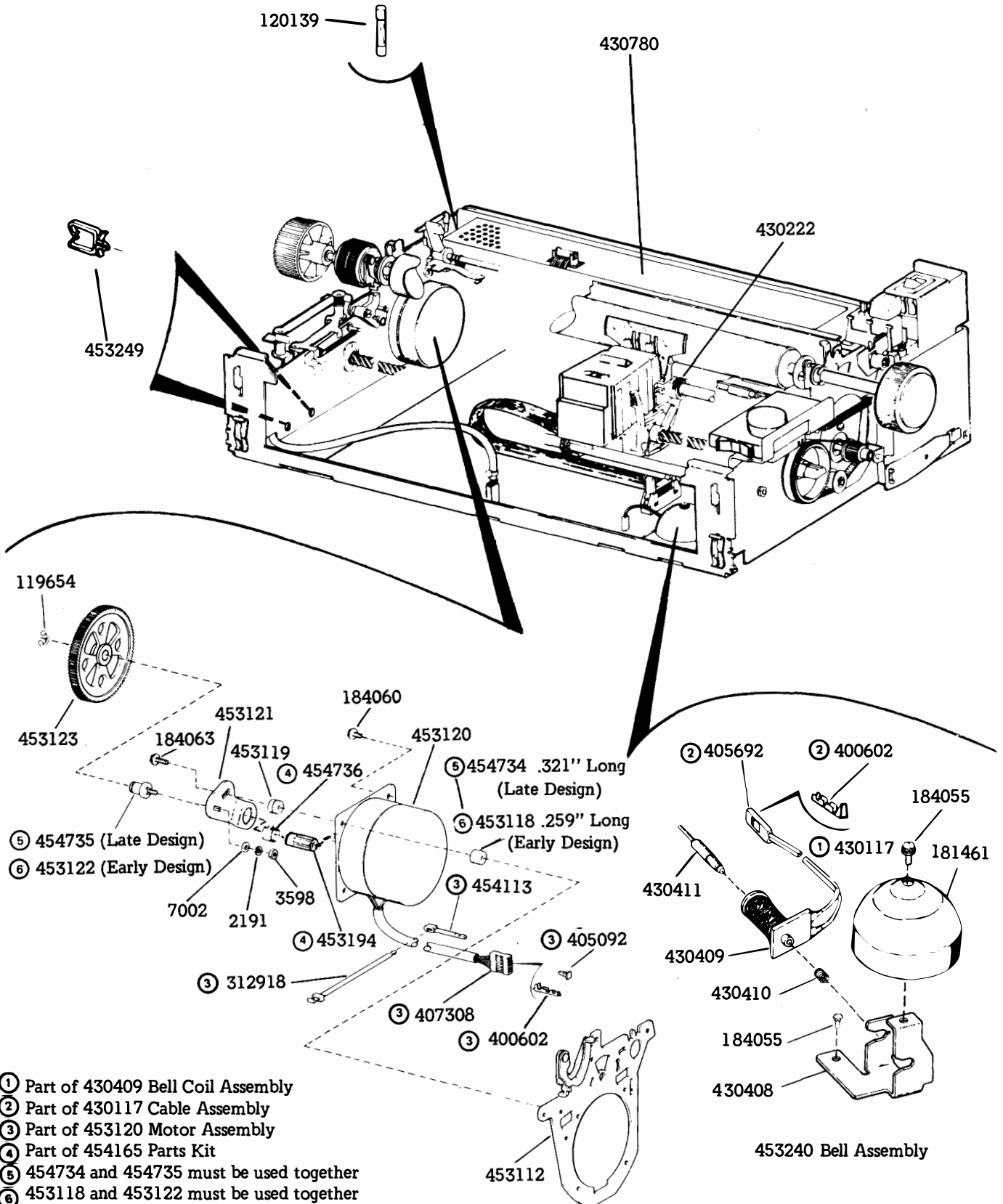
CARRIAGE ASSEMBLY



- ① Part of 430217 Bridge Assembly
- ② Part of 430216 Collar w/Link

D. 15 INCH TRACTOR FEED PRINTER PARTS (Contd)

LINE FEED MOTOR AND BELL ASSEMBLY

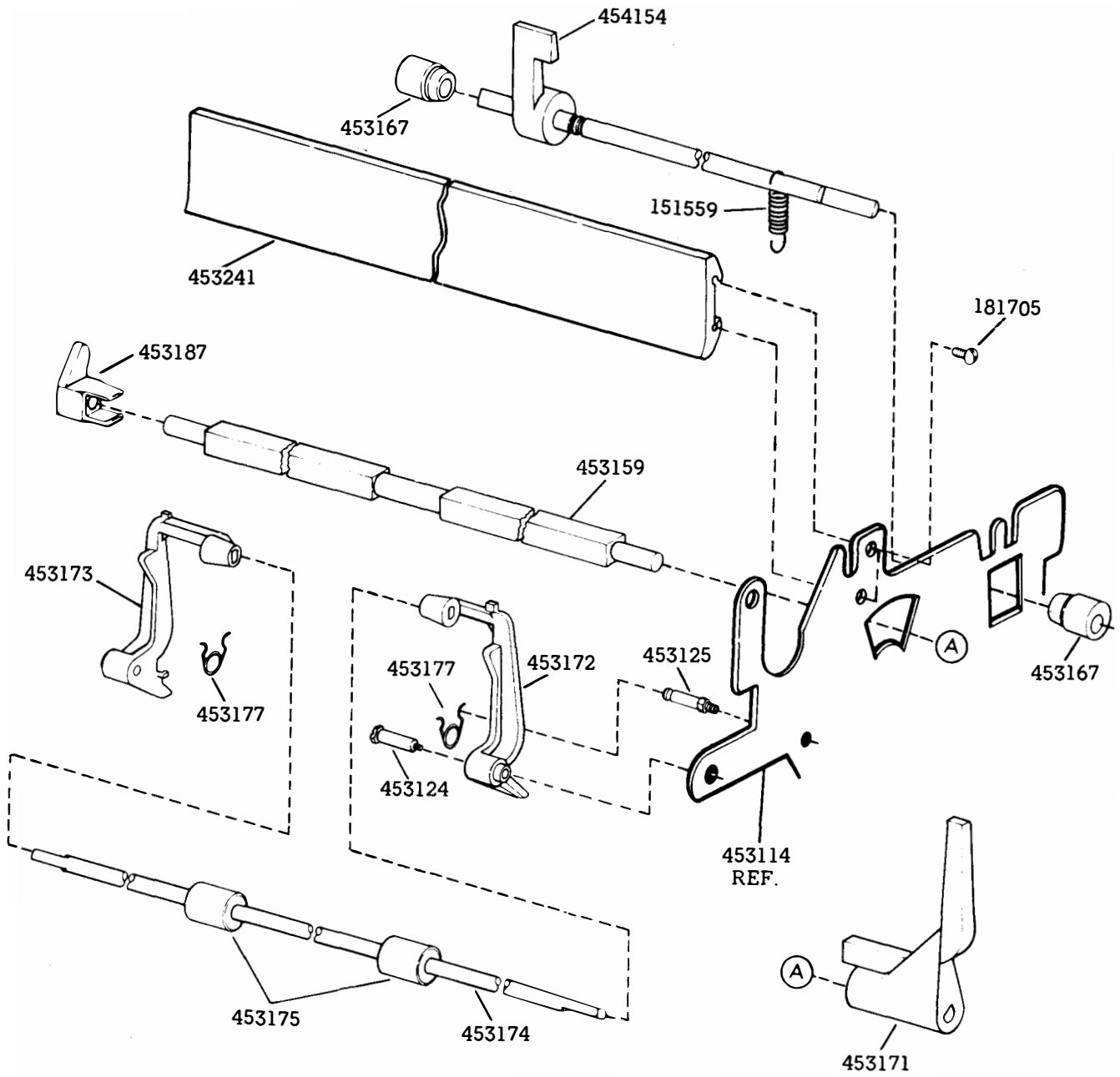


- ① Part of 430409 Bell Coil Assembly
- ② Part of 430117 Cable Assembly
- ③ Part of 453120 Motor Assembly
- ④ Part of 454165 Parts Kit
- ⑤ 454734 and 454735 must be used together
- ⑥ 453118 and 453122 must be used together

453240 Bell Assembly

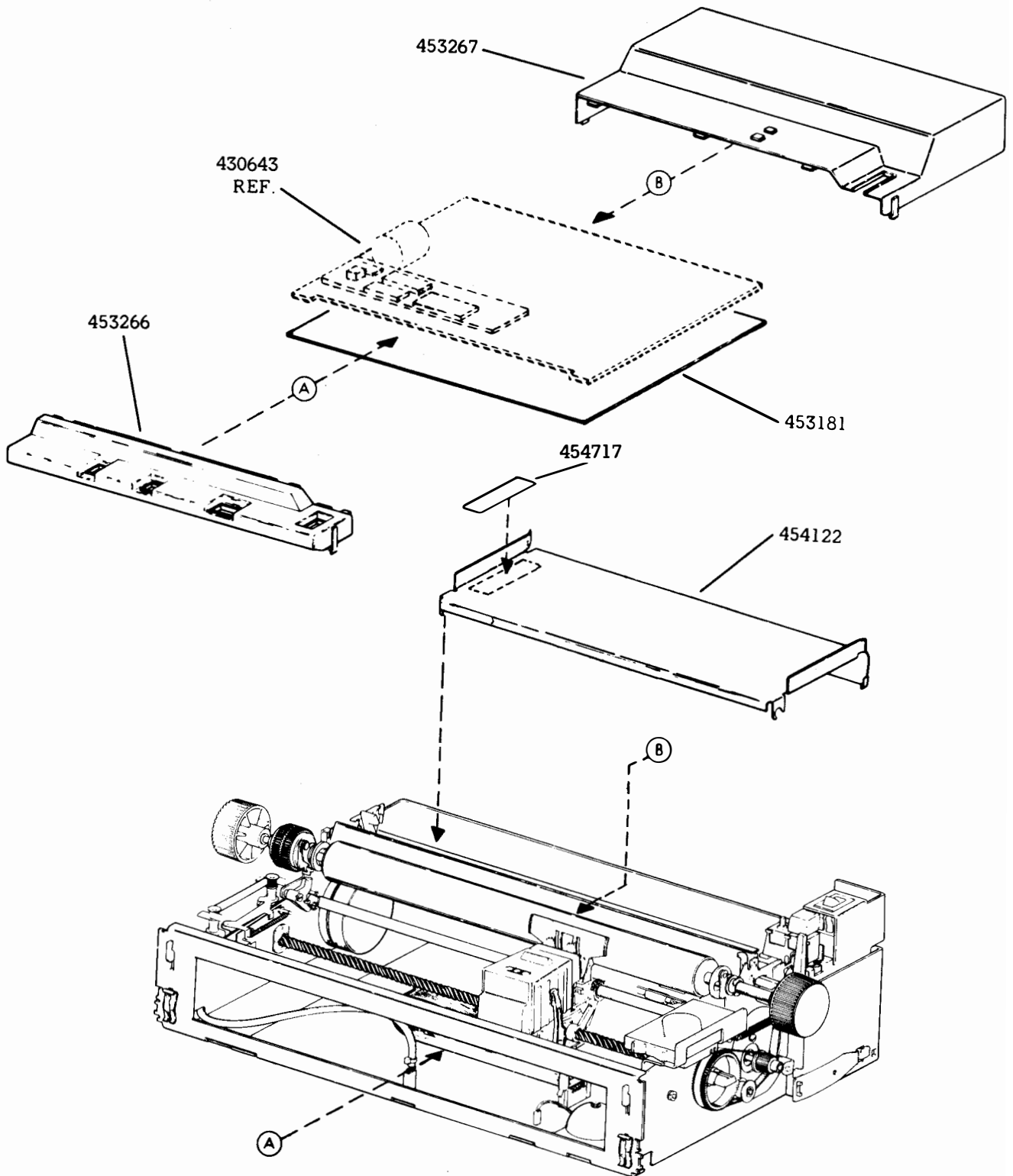


PAPER-OUT AND TENSIONER ARM

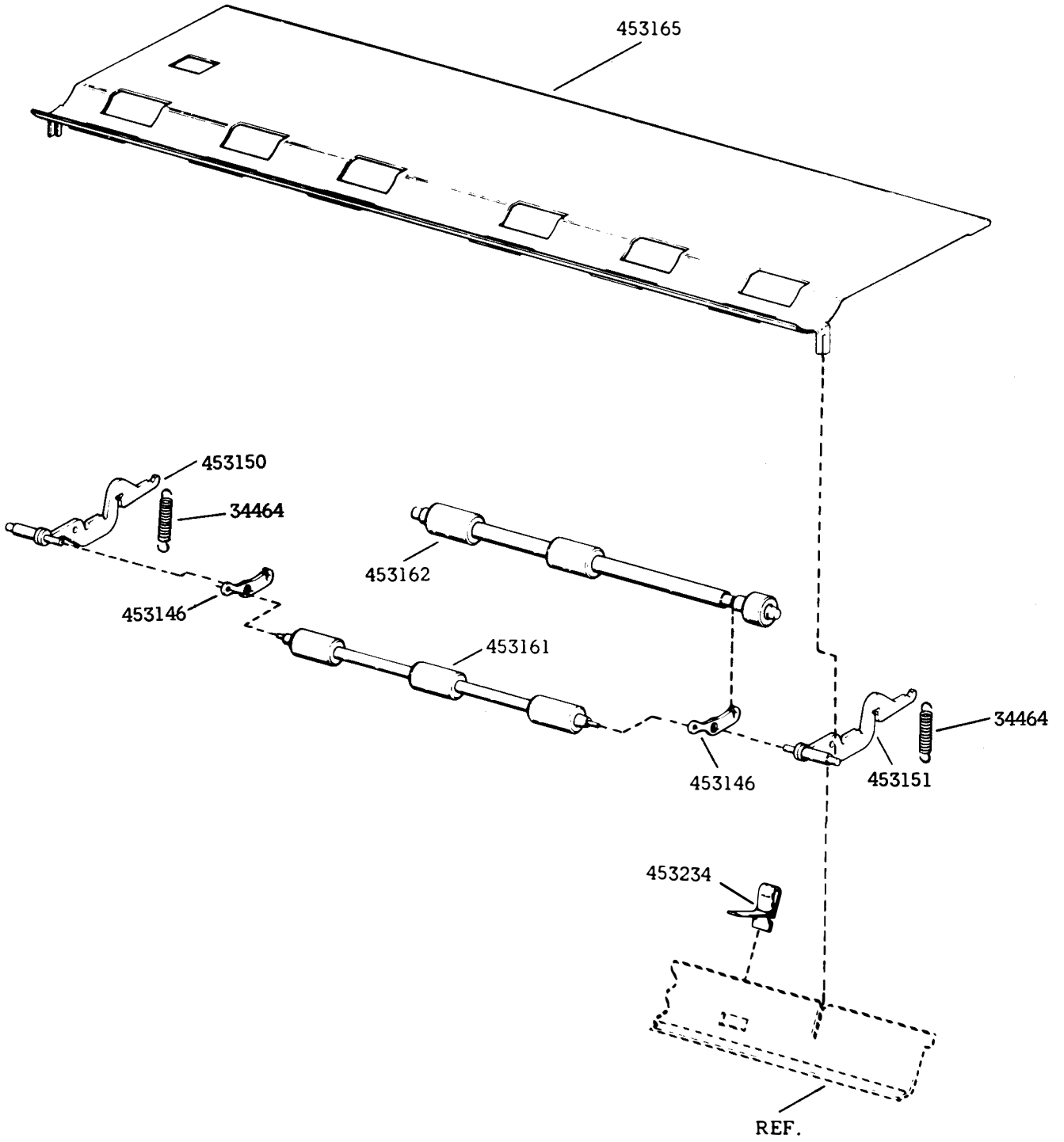


D. 15 INCH TRACTOR FEED PRINTER PARTS (Contd)

COVERS AND GUIDES

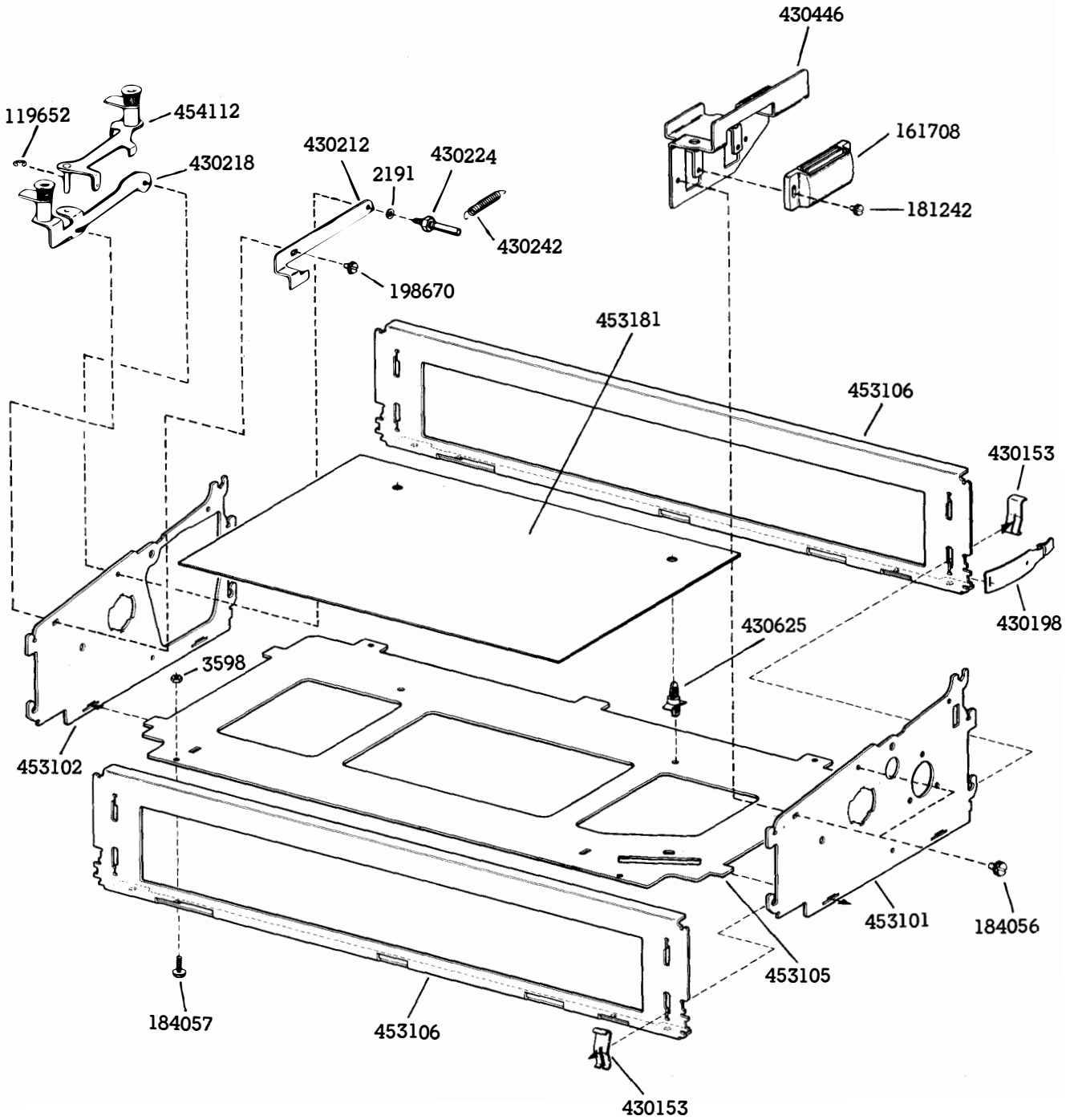


PAPER TRAY

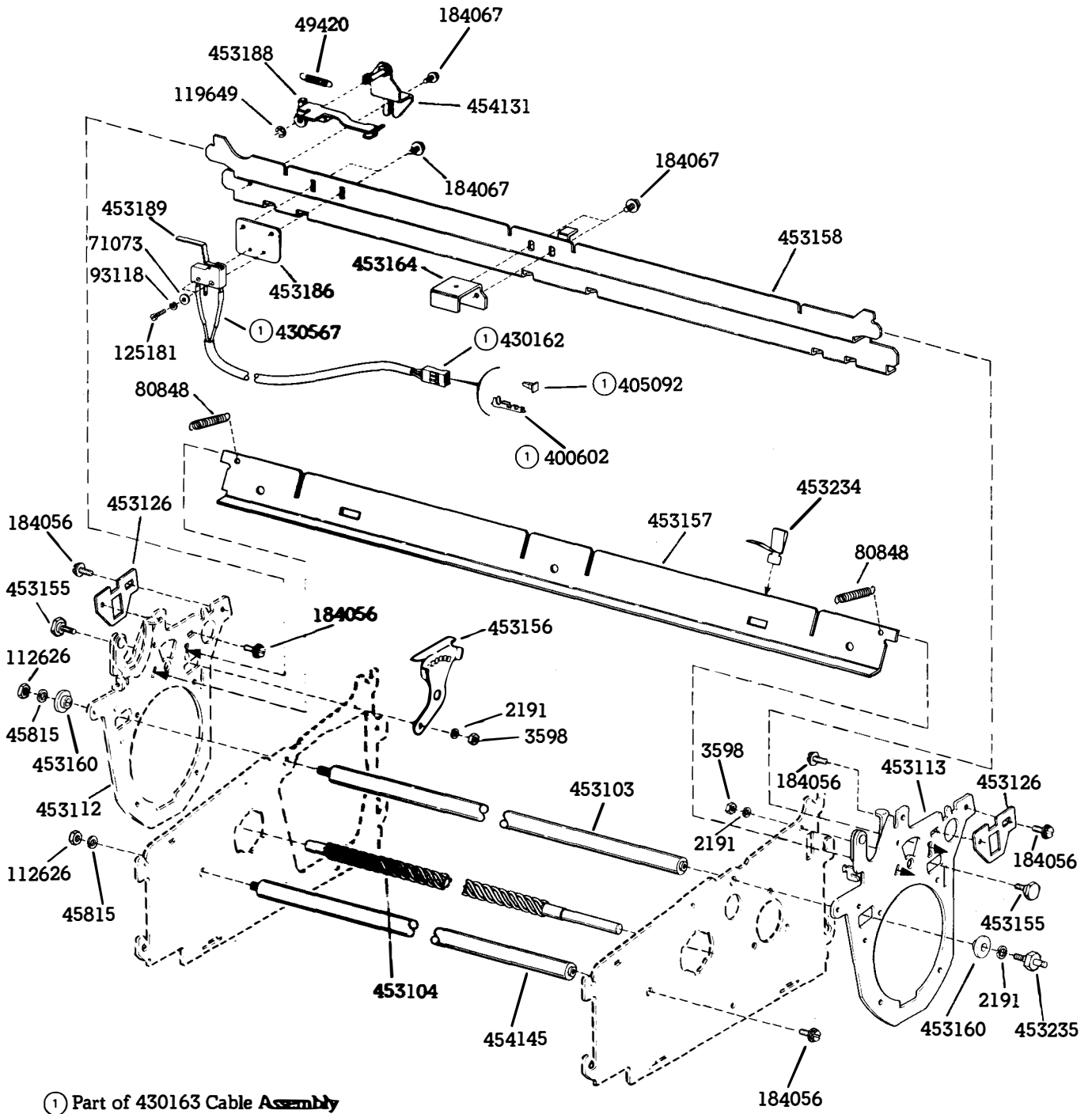


D. 15 INCH TRACTOR FEED PRINTER PARTS (Contd)

FRAME ASSEMBLY AND RIBBON BRACKETS

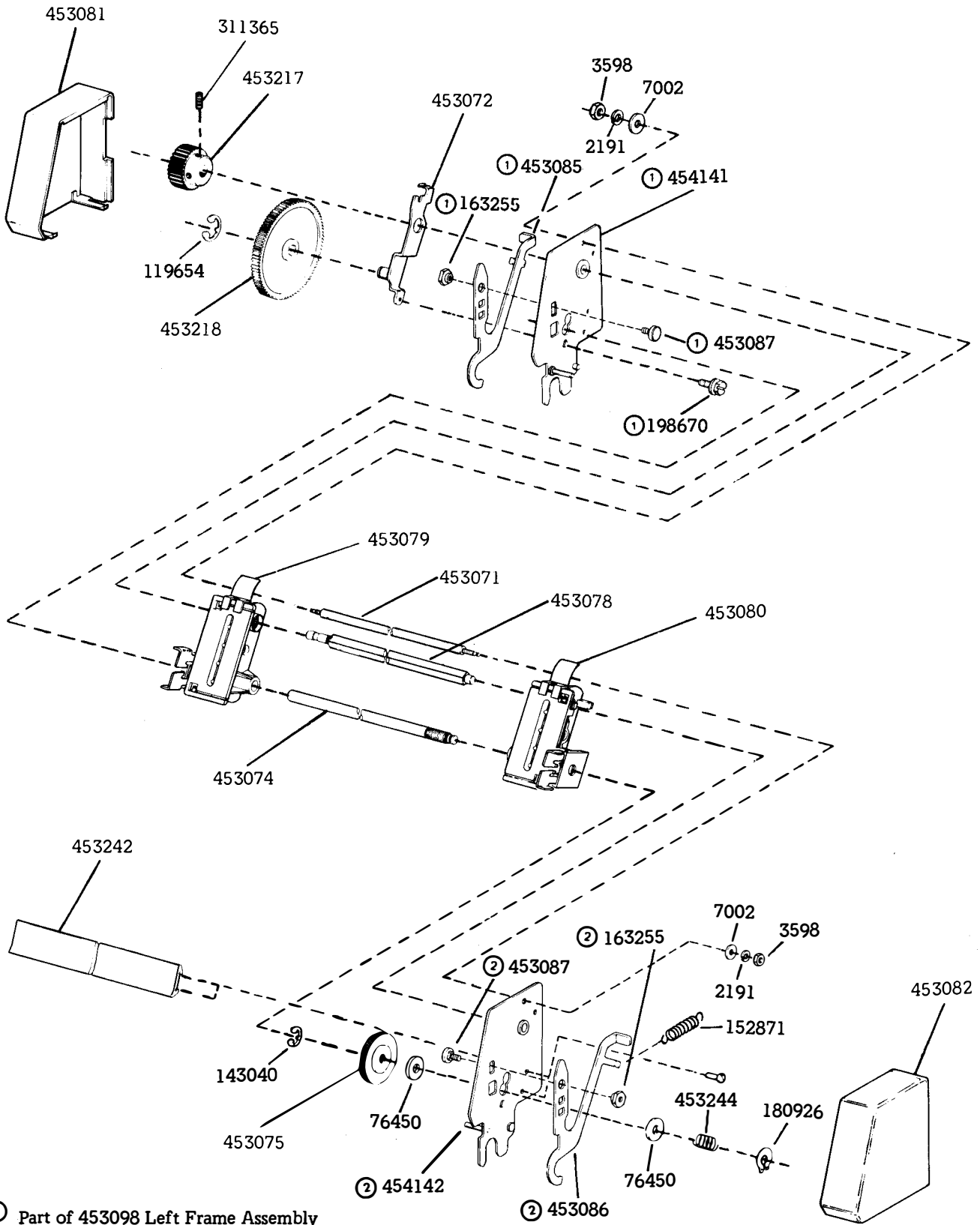


PAPER-OUT SWITCH ASSEMBLY AND SPACING MECHANISM



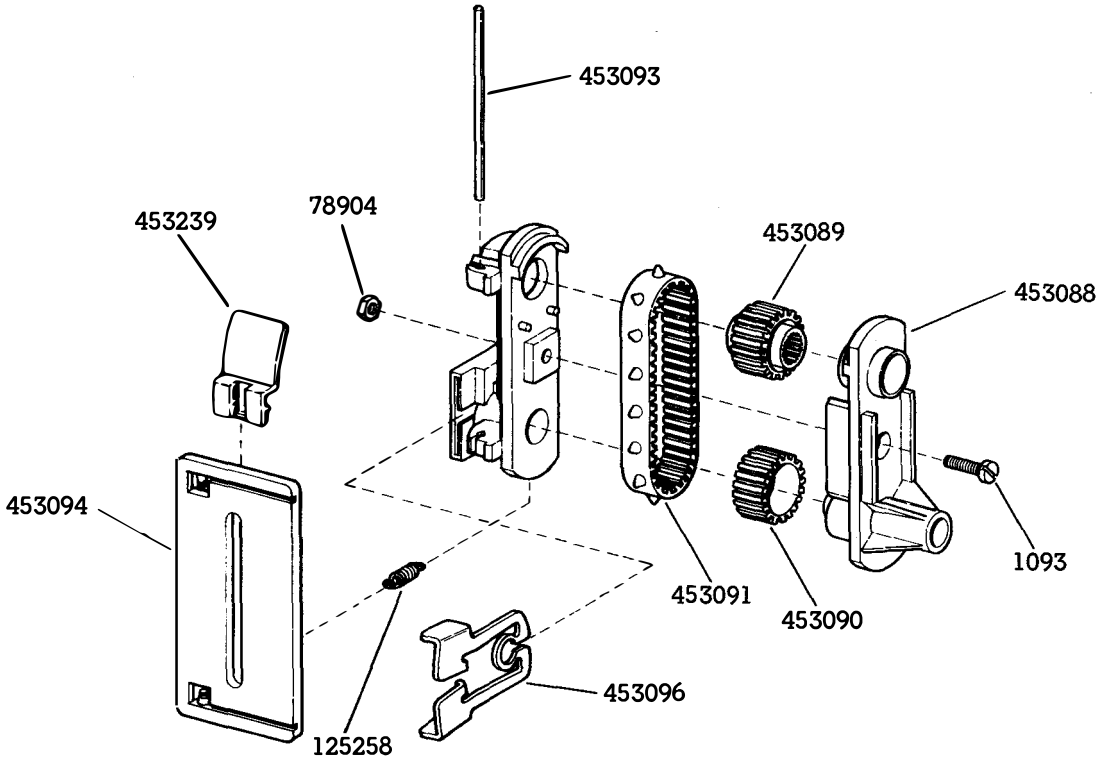
D. 15 INCH TRACTOR FEED PRINTER PARTS (Contd)

453100 TRACTOR ASSEMBLY

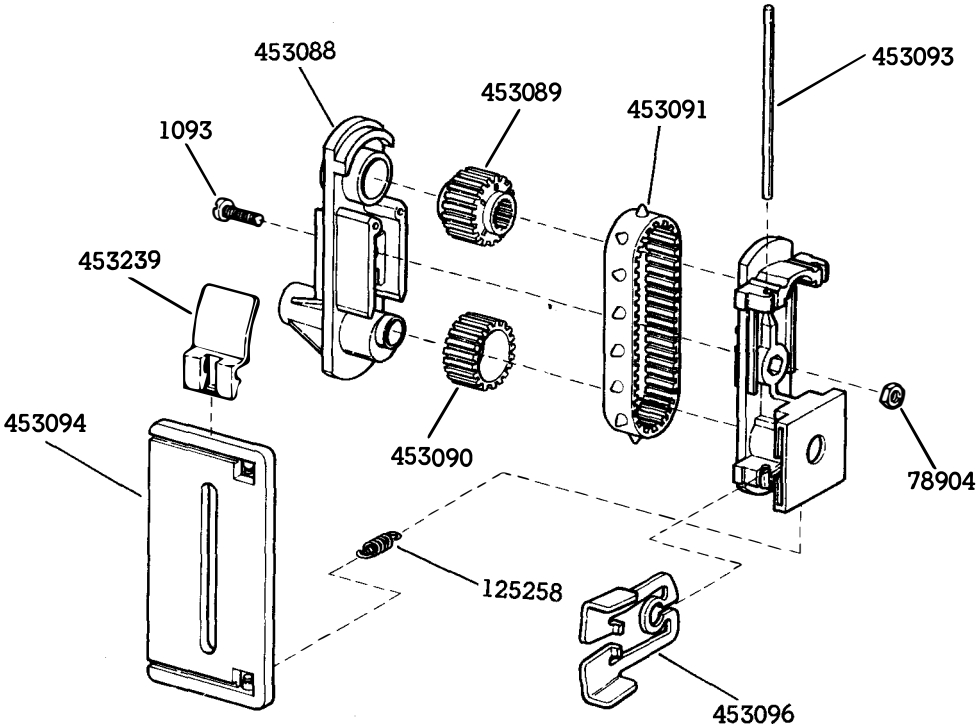


- ① Part of 453098 Left Frame Assembly
- ② Part of 453099 Right Frame Assembly

453079 LEFT TRACTOR ASSEMBLY

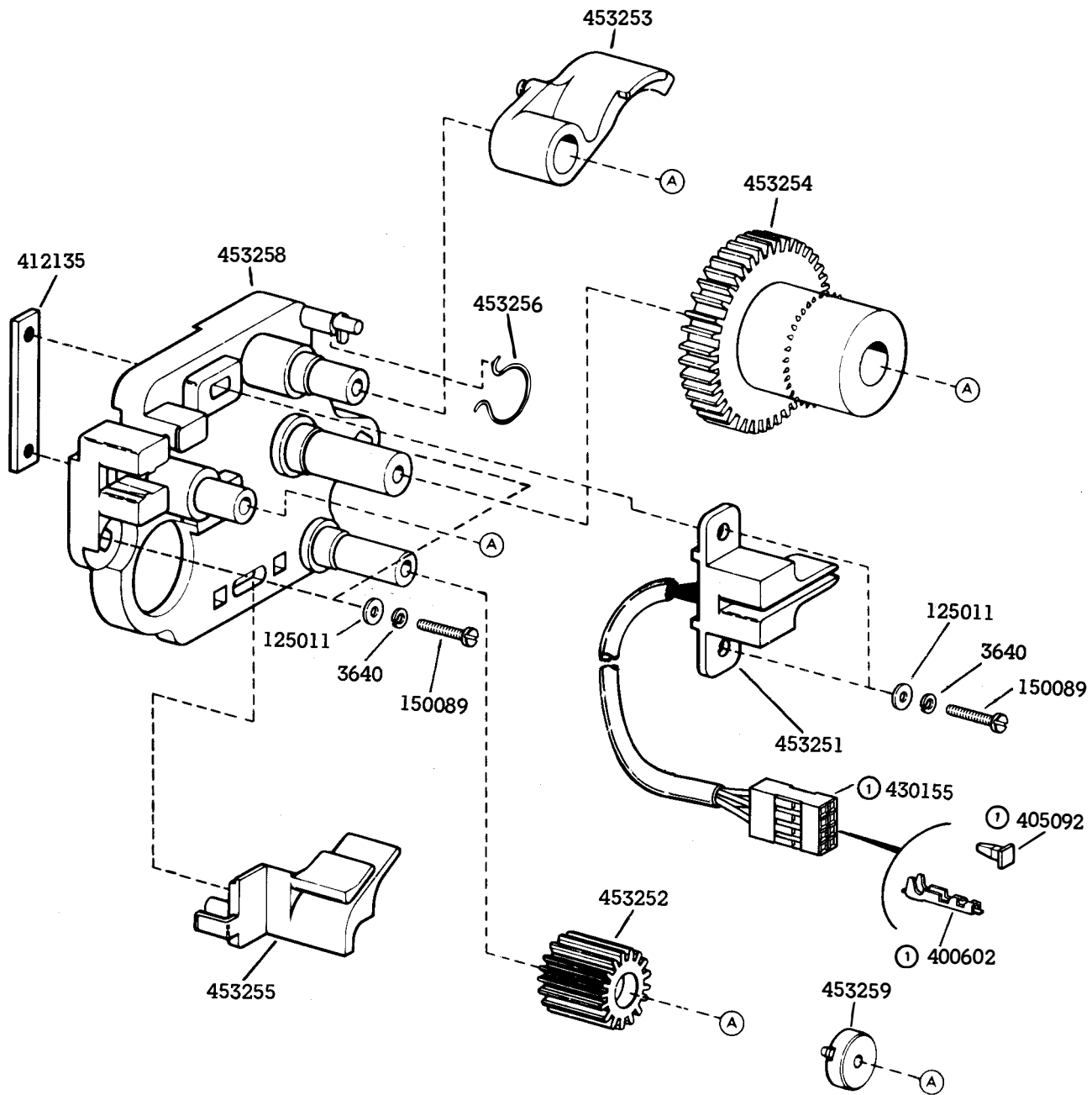


453080 RIGHT TRACTOR ASSEMBLY



D. 15 INCH TRACTOR FEED PRINTER PARTS (Contd)

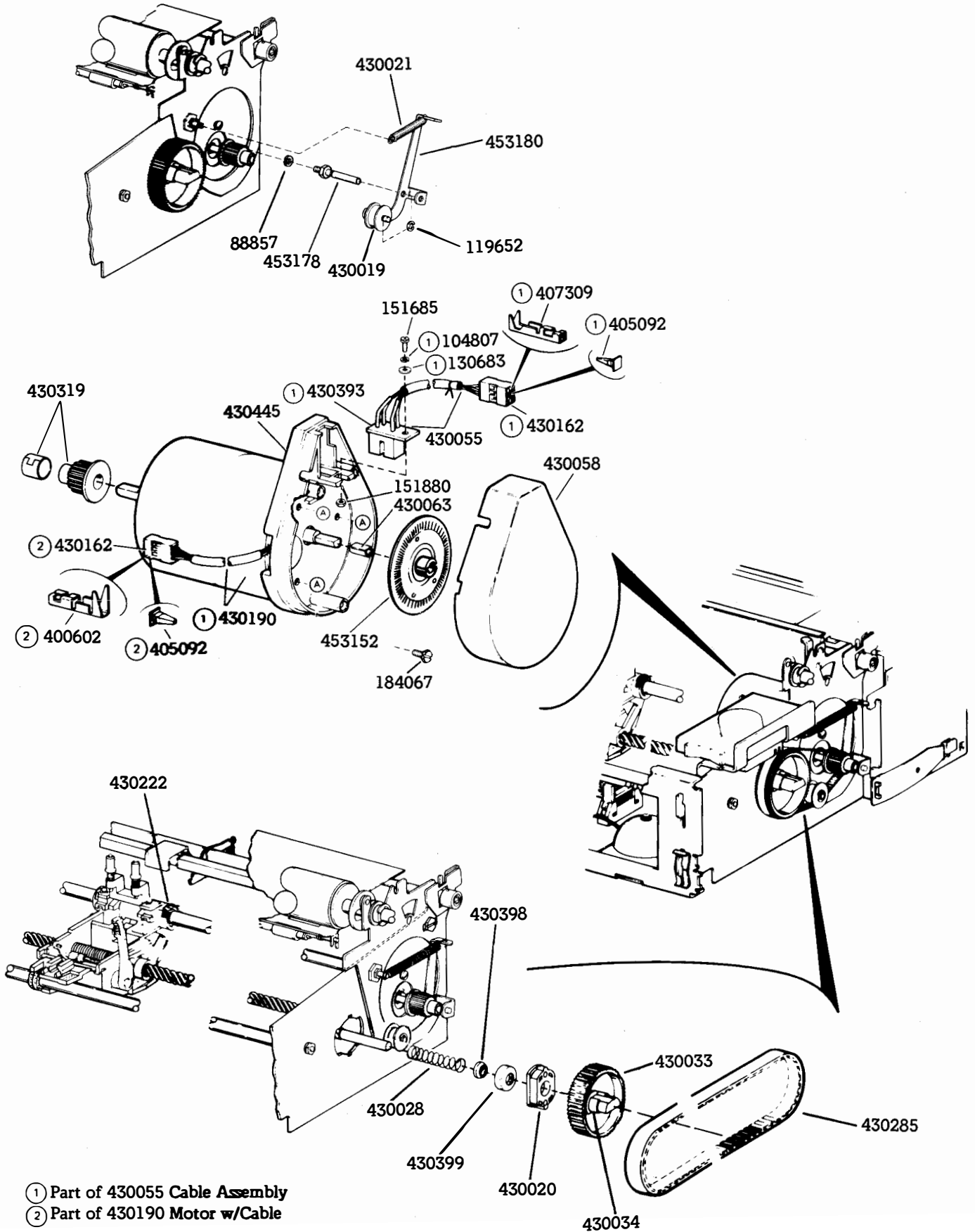
453250 TOP OF FORM ASSEMBLY



① Part of 453251

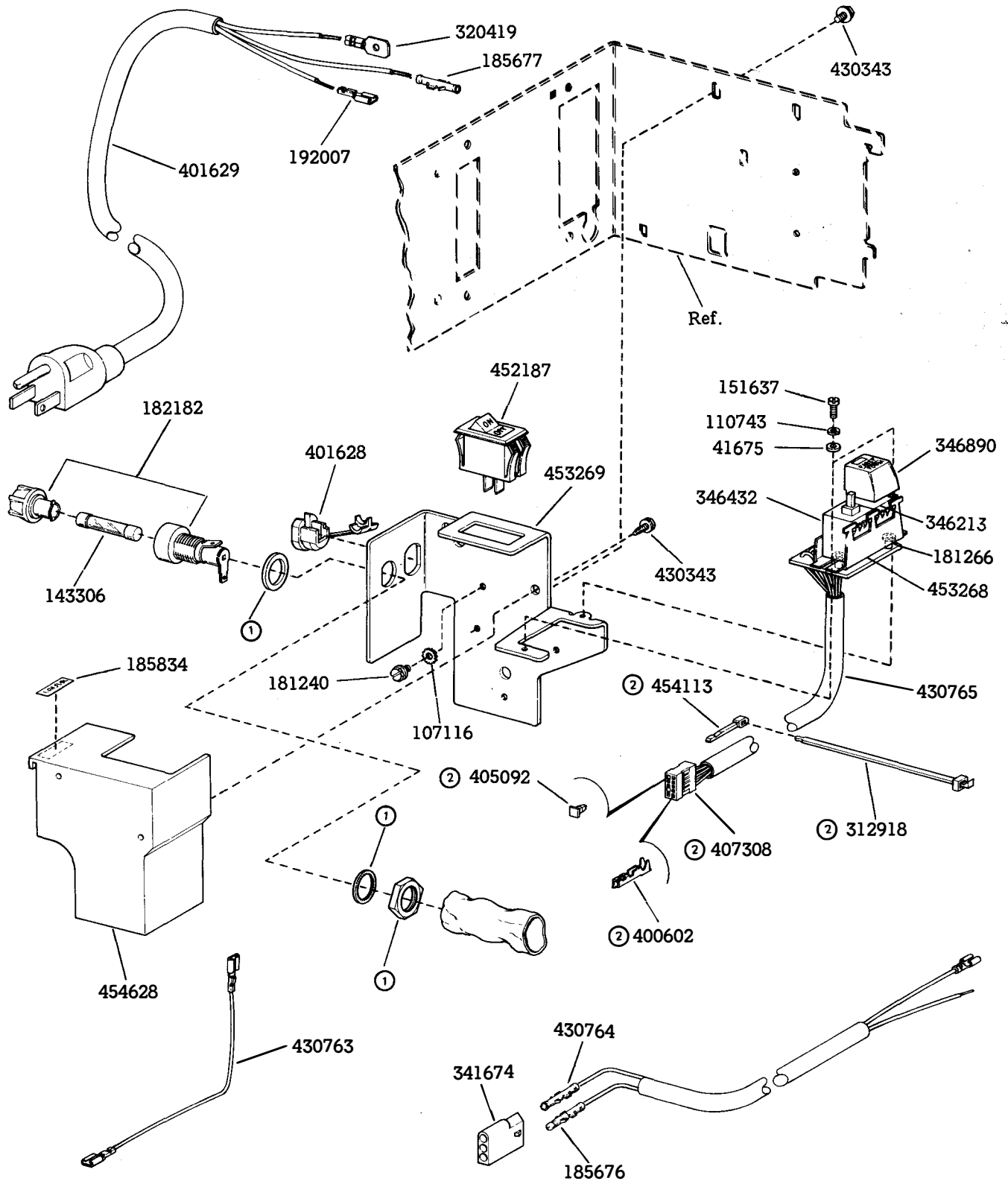


**430441 CHARACTER SPACING MOTOR**



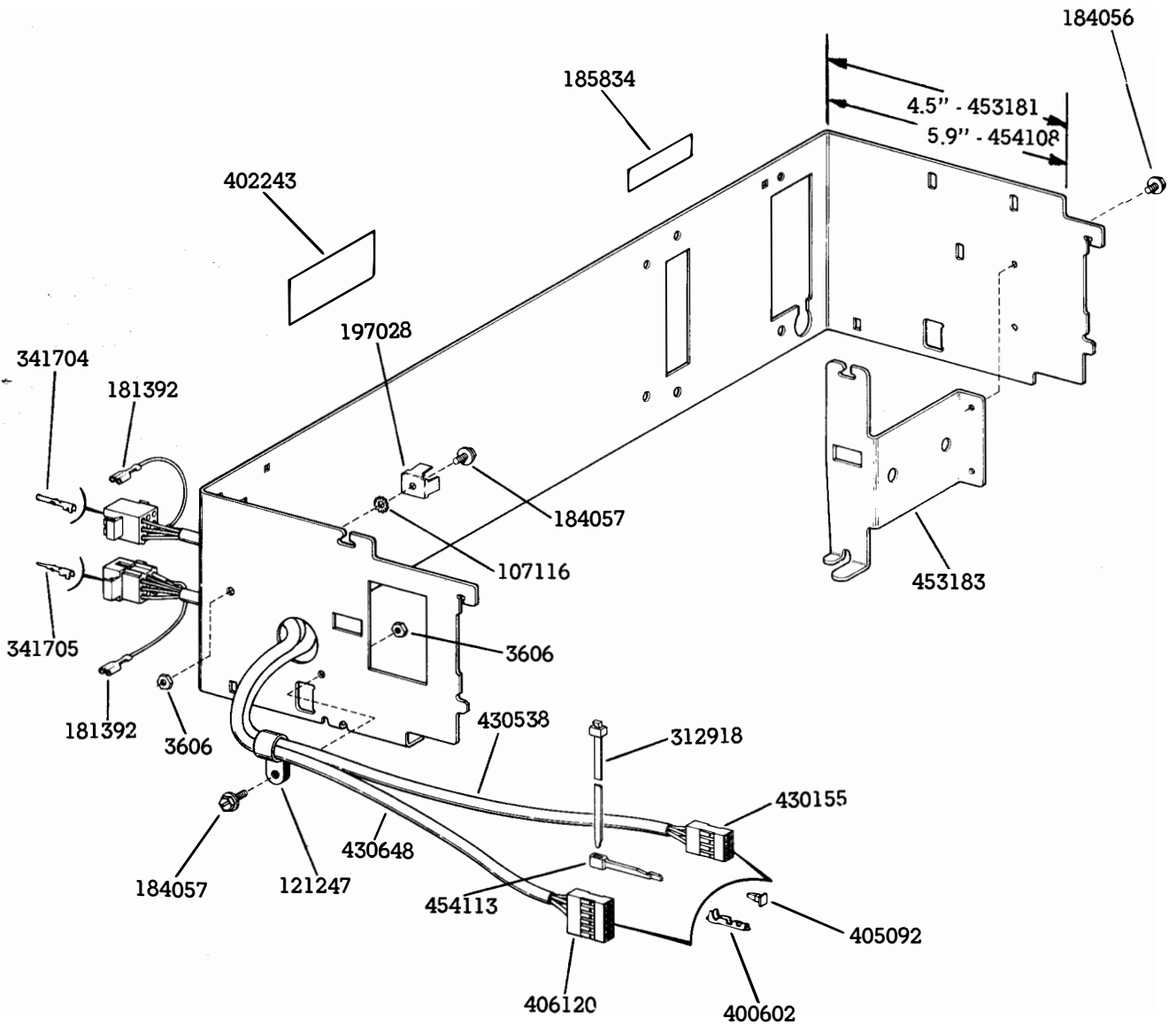
D. 15 INCH TRACTOR FEED PRINTER PARTS (Contd)

430761 SWITCH ASSEMBLY



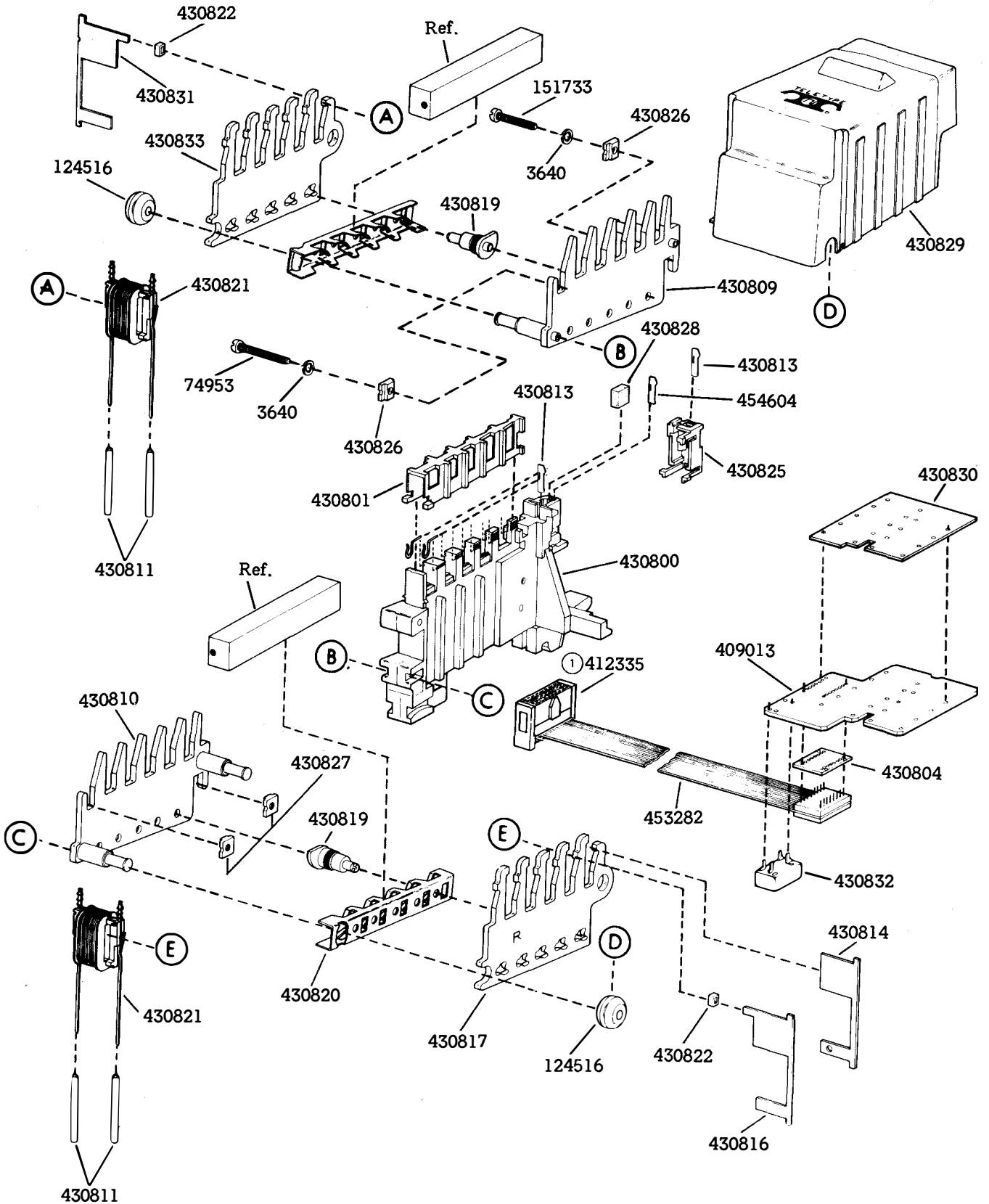
- ① Part of 182182 Fuse Holder
- ② Part of 430765 Cable Assembly

REAR FRAME ASSEMBLY



D. 15 INCH TRACTOR FEED PRINTER PARTS (Contd)

453283 PRINT HEAD ASSEMBLY



① Part of 453282 Cable Assembly

E. NUMERICAL INDEX

Note: One spare should be available in each maintenance area unless otherwise specified in parentheses.

<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>
1093	Screw, 8-32 x 7/16 Fil 24, 35	119653	Ring, Retaining 12, 13, 21	180767	Ring, Retaining 26
2191	Lockwasher 4, 8, 10, 14, 17, 18, 22, 23, 27, 28, 32, 33, 34	119654	Ring, Retaining 12, 23, 28, 34	180926	Ring, Retaining 23, 34
2669	Lockwasher 10, 22	119655	Ring, Retaining 16, 26	181240	Screw w/Lockwasher 6-40 x 3/16 Hex 38
3598	Nut 7-40 Hex 8, 18, 22, 23, 28, 32, 33, 34	120139*	Fuse, 1 amp 28	181242	Screw w/Lockwasher 6-40 x 5/16 Hex 11, 12, 22, 32
3599	Nut, 4-40 Hex 10, 11	121242	Clamp, 1/8 ID Cable 9	181244	Screw w/Lockwasher 6-40 x 7/16 Hex 4
3606	Nut, 6-40 Hex 39	121247	Clamp, 7/16 ID Cable 39	181266	Bushings 38
3640	Lockwasher 15, 25, 36, 40	124516	Grommet, Rubber 15, 25, 40	181392	Terminal, Tab Type 39
3646	Lockwasher 4, 17, 27	124681	Set Screw, 6-40 16	181461	Gong 9, 16, 28
4708	Spring 10, 11	125011	Washer, Flat 36	181705	Screw, #4 Self-Tapping 29
7002	Washer, Flat 4, 8, 13, 17, 22, 23, 27, 28, 34	125015	Washer, Flat 12	182182	Holder, Fuse 38
34464	Spring 31	125181	Screw, 2-56 x 3/8 Fil 10, 22, 33	182726	Terminal, Receptical Type 9
41675	Washer, Flat 38	125258	Spring 24, 35	183321	Sprocket, Feed 3
45815	Lockwasher 14, 33	130683	Lockwasher 5, 6, 19, 37	183355	Set Screw, 6-32 3
49420	Spring, Torsion 33	143040	Ring, Retaining 23, 34	184055	Screw w/Lockwasher, 6-40 x 3/16 Hex 9, 10, 16, 28
71073	Washer, Flat 10, 22, 33	143097	Ring, Retaining 9	184056	Screw w/Lockwasher, 6-40 x 1/4 Hex 10, 11, 12, 21, 22, 32, 33, 39
72473	Spring 10	143306*	Fuse, SL-BL 1 amp 38	184057	Screw w/Lockwasher, 6-40 x 3/8 Hex 32, 39
74953	Screw, 4-40 x 13/16 Fil 15, 25, 40	144550	Set Screw, 6-40 7, 8, 16, 26	184059	Screw w/Lockwasher, 6-40 x 1/2 Hex 7, 18
76450	Shim, .028 IN Thk 23, 34	150089	Screw, 4-40 x 1/2 Fil 36	184060	Screw w/Lockwasher, 6-40 x 9/16 Hex 28
78904	Nut, 8-32 Hex 24, 35	150711	Washer, Flat 11	184067	Screw w/Lockwasher, 4-40 x 5/16 Hex 6, 10, 19, 22, 33, 37
80848	Spring 33	151559	Spring 29	185676	Terminal, Plug Type 38
82463	Spring 12	151606	Screw, 10-32 Hex 10	185677	Terminal, Receptacle Type 38
82727	Spring 12, 21	151629	Nut, 6-40 Lug 4, 17, 27	185834	Plate, Fuse 38, 39
88857	Washer, Spring 14, 22, 37	151637	Screw, 4-40 x 1/4 Fil 38	185890	Push Nut 4, 17, 27
89897	Nut, 10-32 Hex 14	151685	Screw, 4-40 x 5/16 Fil 5, 6, 19, 37	186731	Ring, Compression 4, 17, 27
92736	Post, Spring 8, 22	151693	Screw, 6-40 x 9/16 Fil 17, 27	188406	Switch 10
93118	Lockwasher 10, 22, 33	151733	Screw, 4-40 x 9/16 Fil 15, 25, 40	192007	Terminal, Tab Type 38
101386	Spring 10, 11, 12	151880	Nut, 4-40 Hex 5, 6, 13, 19, 37	197028	Terminal 39
104807	Washer, Flat 5, 6, 19, 37	152871	Spring 23, 34	198670	Screw w/Lockwasher, 6-40 x 5/16 Hex 8, 9, 10, 18, 22, 23, 32, 34
107116	Lockwasher 38, 39	152890	Washer, Flat 18	311365	Screw, 6-40 Set 23, 34
110743	Lockwasher 10, 11, 13, 38	152893	Screw, 4-40 x 1/4 Hex 5	312918	Strap, Cable 18, 28, 38, 39
112485	Screw, 6-32 x 1/4 Fil 14, 22	161708	Latch, Magnetic 11, 12, 22, 32	320419	Terminal, Ring Type 38
112626	Nut, 10-32 Hex 14, 33	163255	Nut, 6-40 Shoulder 23, 34		
119649	Ring, Retaining 10, 11, 12, 21, 22, 33	163765	Ring, Retaining 3, 16		
119650	Ring, Retaining 11, 12	164958	Screw, 4-40 x 1/2 Hex 10, 11		
119651	Ring, Retaining 7, 11, 23	170282	Nut, 6-40 Hex 22		
119652	Ring, Retaining 8, 10, 13, 14, 22, 32, 37				

\*A maintenance spare stocking ratio of one spare for the first 50 stations and one additional spare for each additional 200 stations in a maintenance area.

## E. NUMERICAL INDEX (Contd)

<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>
341674	Connector, 3PT Receptacle 38	430033*	Pulley, 81T 14, 20, 37	430155	Connector 8PT 7, 8, 36, 39
341704	Terminal, Receptacle Type 39	430034	Fastener 14, 20, 37	430157	Knob 16
341705	Terminal, Plug Type 39	430036	Plate Back 11	430162	Connector 6PT 5, 6, 10, 19, 22, 33, 37
346213	Keyswitch Assembly 38	430045	Lever, Switch 10	430163	Cable Assembly 10, 22, 33
346432	Keyswitch 38	430046	Bracket, Switch 10, 22	430166	Bracket, Bell 9
346890	Keytop 38	430047	Motor w/Cable and Encoder 5	430167	Bracket, Bell 9
400602	Terminal 5, 6, 7, 8, 9, 10, 16, 18, 19, 22, 28, 33, 37, 38, 39	430055	Cable Assembly 5, 6, 19, 37	430169	Strip, Insulator 11
401628	Wire, White-Black 38	430058	Cover 5, 6, 19, 37	430171	Plate 5, 6
401629	Cord w/Plug 38	430061	Disc Assembly, Encoder 5	430178	Housing 5
402243	Label, Warning 39	430063	Fastener 5, 6, 19, 37	430179	Guide 13
405092	Plug, Polarizing 5, 6, 7, 8, 10, 18, 19, 22, 28, 33, 36, 37, 38, 39	430068	Nut, 8-32 Spl 4, 17, 27	430190	Motor w/Cable 5, 6, 19, 37
405692	Connector 9, 16	430069	Handle, Locking 4, 17, 27	430192	Bank Right 4, 17, 27
406120	Connector 39	430070	Spring 4, 17, 27	430193	Band Left 10, 22
407308	Connector 28, 38	430071	Bridge w/Post 4, 17, 27	430198	Clamp 11, 20, 32
407309	Terminal 5, 6, 19, 37	430073	Roller 4, 17, 27	430199	Lever w/Stud 8
409013	Board, Circuit 15, 25, 40	430088	Platen 3	430205	Bumper 11, 20
410013	Card Assembly, Circuit 4	430096	Spring Torsion 4, 17, 27	430206	Spacer 3
410740	Card, Logic 14	430097	Switch 5, 6	430212	Bracket, Margin 10, 22, 32
412135	Plate, Nut 36	430098	Clip, Sprocket Feed 3	430213	Nut, Speed 7, 8
412335	Connector 40	430100	Guide, Left Paper 10	430214*	Pulley w/Clip 5, 6
430001	Plate, Right Side 11, 12, 21, 22	430101	Guide, Right Paper 11, 12	430215	Carriage w/Post 4, 17, 27
430002	Plate, Left Side 8, 10	430102	Bracket, Right 11	430216	Collar w/Link 4, 17, 27
430003	Pan 5, 6, 19	430103	Bracket, Left 11	430217*	Bridge w/Assembly 4, 17, 27
430010	Rod, Guide 14, 20	430104	Stripper, Paper 10, 11, 12	430218	Bracket Assembly, Left 10, 22, 32
430011	Tray, Paper 13	430105	Post 10	430222	Washer, Felt 14, 20, 28, 37
430012	Shaft 13	430106	Bracket w/Post, Left 10	430224	Post 10, 22, 32
430013	Bearing, Platen 3	430107	Bracket, Left 10	430226	Roller Left Guide 10, 22
430016	Post 14, 22	430111	Bobbin 13	430228	Bracket 10, 22
430017	Lever 14, 22	430113	Coil Assembly 9	430231	Shield, Ribbon 4
430019*	Roller w/Bearing 8, 14, 22, 37	430114	Plunger w/Pin 9	430232	Rotor 10, 22
430020	Housing, Bearing 14, 20, 37	430117	Cable Assembly 9, 16, 28	430240	Stud 8
430021*	Spring 8, 14, 16, 22, 37	430118*	Spring, Compression 9	430242	Spring 10, 22, 32
430022	Post Spring 14	430141	Knob w/Insert 3	430245	Separator 11
430028	Spring, Compression 9, 14, 20, 37	430142	Clip, Platen 3, 8	430253	Bracket 8
430029	Screw, Lead 5, 6, 9, 14, 19, 20	430143*	Pulley, 42T Platen 3, 7, 8	430254	Plate, Left Side 10
430030	Spring, Compression 4	430144*	Pulley w/Flange, 24T 7, 8	430255	Slide 10
430031*	Nut, Lead Screw 4	430145*	Belt 106T Timing 3, 7	430256	Bracket 10
430032*	Belt, Timing 14	430151	Mount, Rear 11, 20	430258	Shaft 12, 13, 21
		430152	Stud, Rear Mount 11	430259	Stud 13
		430153	Clip 11, 20, 32	430260	Tray, Paper 13
		430154*	Motor w/Cable 7, 8	430261	Bail 12, 21
				430262	Plate w/Post 12, 21
				430264	Lever 3

\*A maintenance spare stocking ratio of one spare for the first 50 stations and one additional spare for each additional 200 stations in a maintenance area.

<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>
430265	Roller 12, 21	430438	Post, Spring 22	430814	Armature 15, 25, 40
430266	Shaft 12, 21	430439	Modification Kit 6	430816	Armature 15, 25, 40
430267	Bracket, Left 10	430440	Modification Kit 4, 6, 9	430817	Plate, Right Pole 15, 25, 40
430268	Bracket w/Post 11, 12			430819	Cam, Adjusting 15, 25, 40
430276	Support Bustle 11	430441*	Motor w/Cable & Encoder 5, 6, 19	430820	Spring, Detent 15, 25, 40
430281	Platen 3	430443	Plate 10, 18, 22	430821	Coil 15, 25, 40
430285	Belt Timing 8, 14, 20, 37	430445	Housing 6, 19, 37	430822	Sleeve 15, 25, 40
430291	Separator Paper 11, 12	430446	Bracket, Right 11, 12, 22, 32	430825	Guide, Ribbon 15, 25, 40
430309	Bushing 8, 18	430447	Plate 10, 22	430826	Washer, Mounting 15, 25, 40
430319*	Pulley w/Clip 5, 6, 19, 37	430448	Bracket, Left 10	430827	Clamp, Mounting 15, 25, 40
430343	Screw, 3/8 Spl 38	430451	Cover, Left 43	430828	Lubricator 15, 25, 40
430346	Modification Kit 13	430452	Cover, Right 23	430829	Cover 4, 15, 25, 40
430347	Shaft 13	430463	Cover, Left Lever 23	430830	Insulator 15, 25, 40
430351*	Nut, Lead Screw 4, 17, 27	430464	Lever, Right Lever 23	430831	Armature 15, 25, 40
430352*	Nut, Lead Screw 4, 17, 27	430467	Plate 18	430832	Switch 4, 15, 25, 40
430366	Spring, Compression 4, 17, 27	430469	Post 18	430833	Plate, Left Pole 15, 25, 40
430370	Platen 3	430470	Post, Guide 18	430834	Connector 15, 25
430391	Guide, Paper 13	430471	Bushing 18	430850*	Head Assembly, Print 4, 25
430393	Switch Assembly 5, 6, 19, 37	430473	Gear, 80T 18	452187*	Switch Rocker 38
430398	Washer, Flat 9, 14, 20, 37	430474	Lever, Switch 22	453071	Rod 34
430399*	Bearing, Ball 14, 20, 37	430475	Post, Switch Lever 22	453072	Plate 34
430404	Spacer, Line Feed 7	430476	Bracket 22	453074	Shaft 34
430406	Motor Assembly 7	430478	Tray, Paper 21	453075	Wheel, Thumb 23, 34
430407	Rod, Lower Guide 14, 20	430480	Motor Assembly 18	453078	Spline Bar, 4T 34
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430409*	Coil 9, 16, 28	430490	Frame, Right Side 23	453080*	Tractor Assembly, Right 23, 24, 34, 35
430410*	Spring, Plunger 9, 16, 28	430491	Frame, Left Side 23	453081	Cover, Left 34
430411	Striker, Bell 9, 16, 28	430538	Cable Assembly 39	453082	Cover, Right 34
430416	Rod, Tractor Guide 23	430567	Terminal 10, 22, 33	453085	Lever, Left Latch 34
430417	Shaft 23	430603	Insulator 5, 6, 19	453087	Screw, 6-40 Shoulder 23, 34
430419	Gear, 35T 16	430622	Clamp 14, 20	453088	Plate 24, 35
430420	Gear, 35T 16	430625	Support 5, 6, 9, 19, 26	453089	Sprocket 34, 35
430423	Shaft 16	430643	Card, Logic 30	453090	Sprocket, Idler 24, 35
430424	Button, Release 16	430648	Cable 39	453091	Belt 24, 35
430425	Clutch, Drive 16	430761	Switch Assembly 38	453093	Shaft 24, 35
430426	Spline Bar, 4T 23	430763	Strap 38	453094	Cover 24, 35
430427	Gear 23	430764	Strap 38	453096	Clamp 24, 35
430428	Lever, Release 16	430765	Cable Assembly 38	453098	Tractor 34
430429	Spring, Compression 16	430780*	Power Supply Assembly 28	453099	Tractor 34
430430	Bearing, Right Platen 16	430800	Frame Center 15, 25, 40	453100	Tractor Assembly 34
430431	Bearing, Left Platen 16	430801	Cover, Guide 15, 25, 40	453101	Plate 32
430432	Rollpin 16	430803	Cable Assembly 4	453102	Plate, Left Inner 32
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\*A maintenance spare stocking ratio of one spare for the first 50 stations and one additional spare for each additional 200 stations in a maintenance area.

E. NUMERICAL INDEX (Contd)

<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>	<u>Part Number</u>	<u>Description and Page Number</u>
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453112	Plate, Left 26, 28, 33	453165	Tray, Paper 31	453266	Cover 30
453113	Plate, Right 26, 33	453167	Eccentric 29	453267	Cover 30
453114	Plate, Outer 29	453171	Arm, Release 29	453268	Channel 38
453118	Spacer 28	453172	Arm, Right 29	453269	Bracket 38
453119	Spacer 28	453173	Arm, Left 29	453282	Cable Assembly 15, 25, 40
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453121	Plate 28	453175	Roller 23, 29	453283*	Head Assembly, Print 26
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453134	Bushing 26	453188	Lever, Switch 33	454122	Guide, Paper 30
453135	Gear, 45T 26	453189	Switch, Actuator 33	454131	Plate 33
453136	Gear, 45T 26	453194	Pinion, 10T 18, 28	454141	Frame, Left Side 34
453137	Clutch, Drive 26	453217	Gear, 25T 23, 34	454142	Frame, Right Side 34
453138	Pin, Release 26	453218	Gear, 70T 34	454145	Rod 33
453139	Spring, Compression 26	453234	Clip, Spring 31, 33	454146	Oiler, Foam 4, 17, 27
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453144	Knob, Platen 26	453239	Guide 24, 35	454154	Shaft 29
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453151	Arm Assembly, Right 31	453242	Bar, 18-1/4" Tie 34	454604	Guide 15, 25, 40
		453243	Bar, 14-1/4" Tie 23	454611	Arm 23
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		453249	Clip 28	454628	Cover, Switch 38
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453157	Guide, Front 33	453251	Switch Assembly 36	454717	Label 30
453158	Guide 33	453252	Gear, 16T 36	454733	Rollpin 26
453159	Shaft 29	453253	Lid 36	454734	Spacer 28
453160	Bushing, Shoulder 33	453254	Wheel, Feed 36	454735	Post 28
453161	Shaft w/Rollers 5" 31	453255	Bracket 36	454736	Fastener 18, 28
				474193	Circuit, Integrated 8

\*A maintenance spare stocking ratio of one spare for the first 50 stations and one additional spare for each additional 200 stations in a maintenance area.



PART 8 — PRINT HEAD PACKING

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A. GENERAL .....	8-1
B. PRINT HEAD PACKING .....	8-1

A. GENERAL

This part provides packing information for the print head.

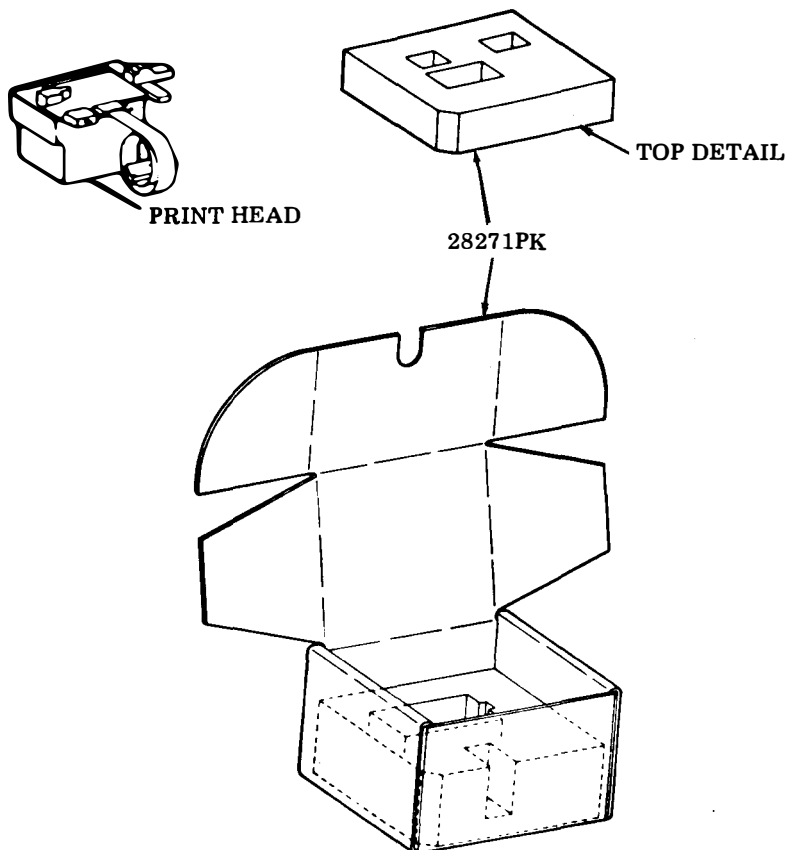
The print head should be properly packed for storage or transportation between service and customer locations. Packing provides protection against damage or contamination and facilitates storage, stock selection and handling.

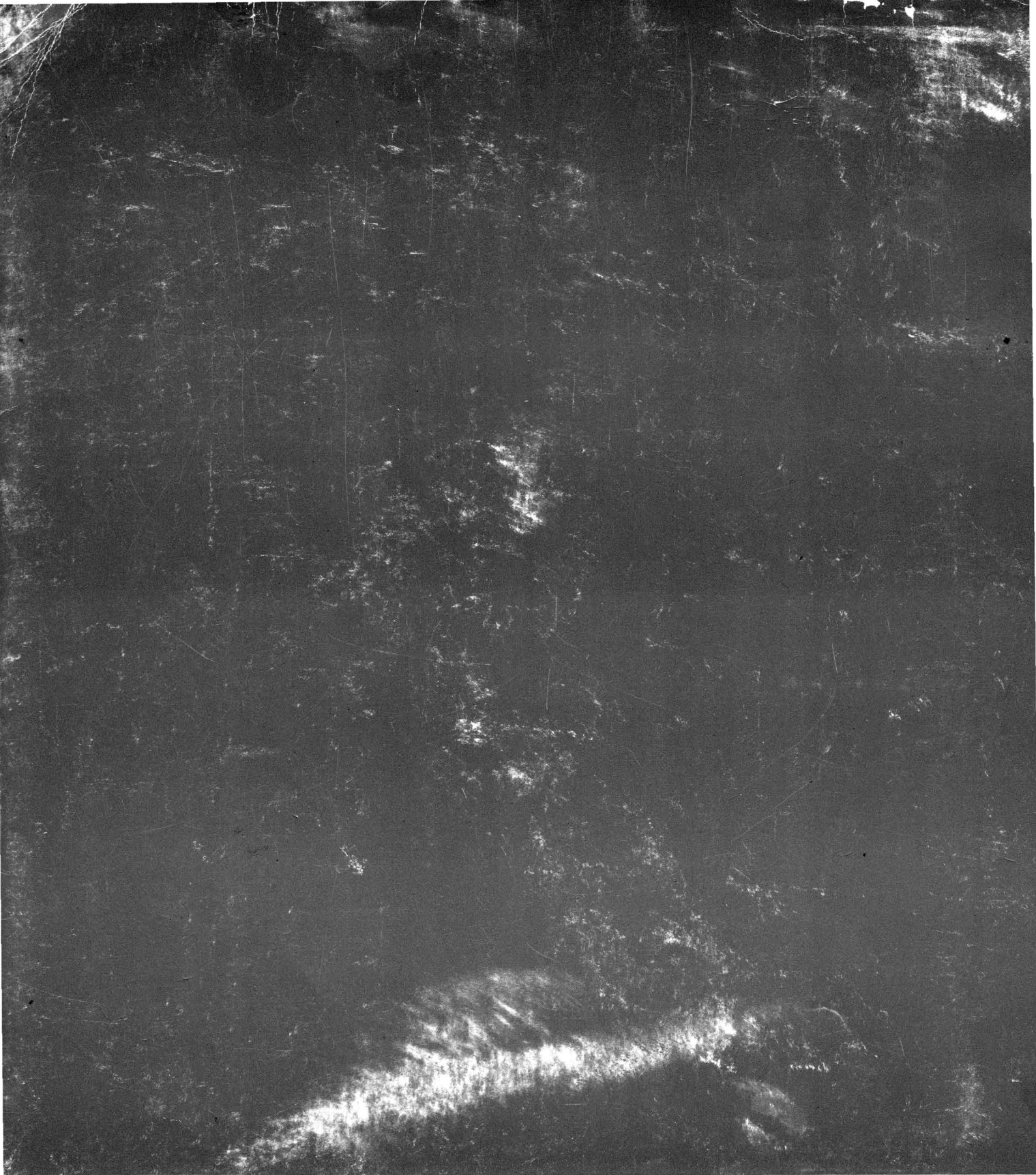
The 28271PK carton with inserts for print head may be obtained from Teletype Corporation or from:

REPUBLIC PACKING CORP.  
9160 S. Green Street  
Chicago, Illinois 60620

Identify the contents on the outside of each carton after packing, with the part number, using indelible markers or premarked adhesive labels.

B. PRINT HEAD PACKING





**TELETYPE CORPORATION**  
5555 Touhy Avenue, Skokie, Illinois 60077  
Telephone: (312) 982-2000

**Repair Manual 539**  
**Issue 1, June 1982**