

INSTRUCTIONS FOR INSTALLING THE 407790 MODIFICATION KIT TO PROVIDE  
A REINKING DEVICE ON A MODEL 40 132-COLUMN TRACTOR FEED PRINTER

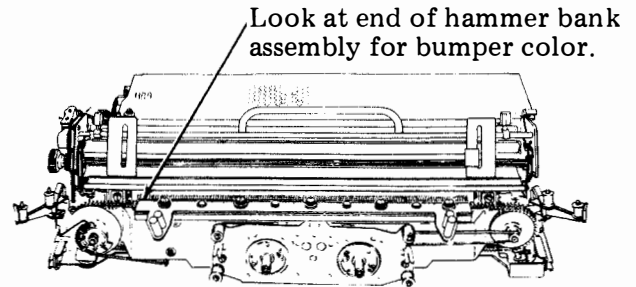
1. GENERAL

1.01 The 407790 modification kit when installed on a Model 40 132-column printer will extend the density life of the ribbon to a minimum of 20,000,000 characters printed. This is under normal operating conditions and customer's preference as to density of copy.

1.02 This reinking device is intended for heavy user applications and may not be acceptable for low volume use due to print density variations.

*Caution: The printer being modified must be equipped with the new style 400113 hammer bumper (red and black in color). If not present, it must be ordered and installed. Refer to Part 7 for Installation Instructions.*

*Note: It is not recommended that the installation of this modification kit be attempted on customer site, if the hammer bumper must be replaced, but rather in some appropriate shop location.*



2. MODIFICATION KIT PART LISTING

2.01 The 407790 modification kit consists of the following parts:

<u>Qty</u>	<u>Part No.</u>	<u>Description</u>
2	5599	Nut, 8-32 hex
2	185871	Screw w/lockwasher, 8-32 x 3/8 hex
1	406280	Left arm assembly
1	406281	Right arm assembly
1	407777	Cartridge, ribbon
1	407786	Bracket w/insulator
1	407800	Meter roller set

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# SPECIFICATION 50905S

## 3. INSTALLATION

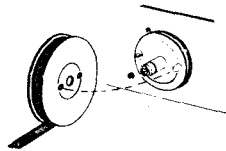
3.01 Installation of the 407790 modification kit requires the following steps:

*Danger: Remove all ac power from printer cabinet.*

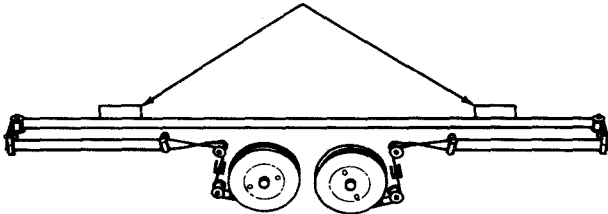
- Remove printer from cabinet and place on a suitable working surface.

### 402444 Ribbon — Removal

The ribbon spools are held in position by a spring clip and drive pin. Pull outward to remove. Remove ribbon and spools.

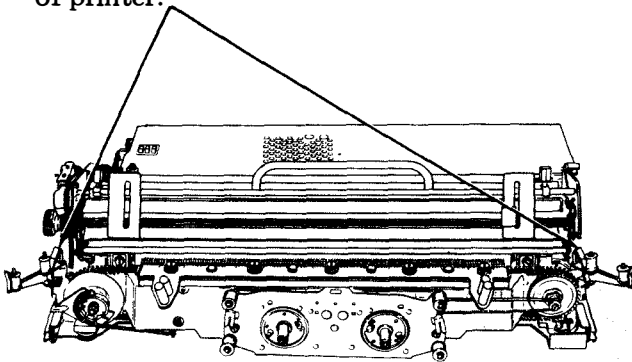


CLEAR PLASTIC  
(Tractor Feed Printers)

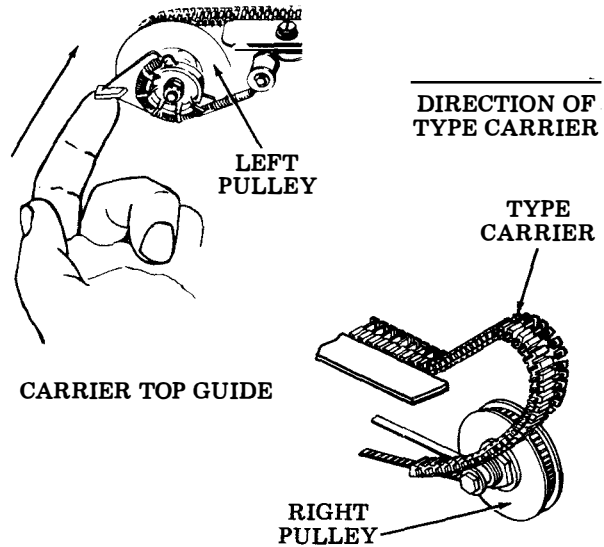


### Type Carrier — Removal

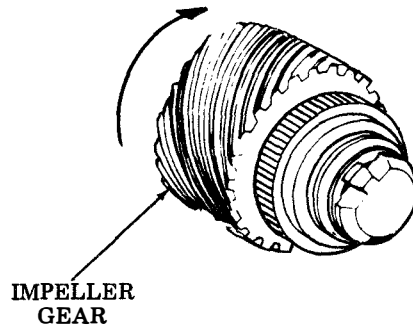
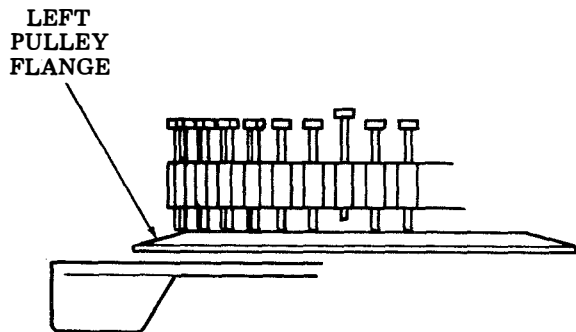
- ① Release thumb levers on left and right ribbon guide brackets allowing guides to spring to sides of printer.



- ② Lift finger lever on left pulley and hold. Remove type carrier starting at right pulley as shown. Release finger lever, retain.



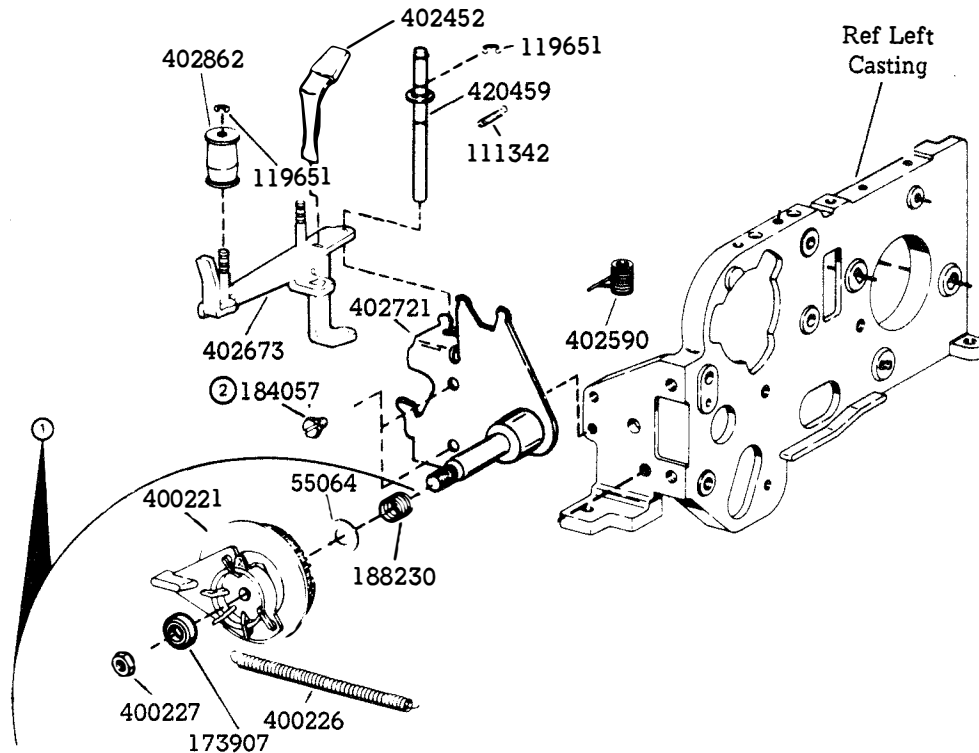
*Note:* In reassembling, start type carrier at the left pulley. Rotate type carrier one revolution by turning impeller gear by hand clockwise. At the same time, align any protruding type pallets against the left pulley flange.



*Warning:* Damage to the type carrier or printer will result if any protruding type pallet is left unchecked.

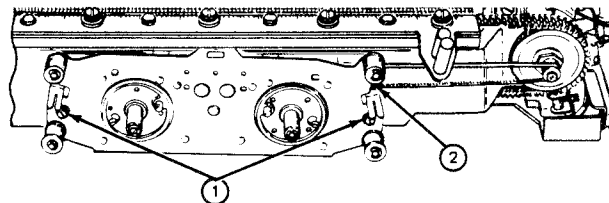
Left Arm Assembly — Disassembly and Removal

- Remove and retain the 400221 idler sprocket assembly as follows:
  - ① Remove and retain the 400227 nut, 173907 spacer, 55064 washer, 188230 spring and 400226 spring.
  - ② Remove the 402721 bracket with post and its component parts by removing and retaining two 184057 screws with lockwashers.
- Remove the 402721 bracket with left arm assembly and discard.



Ribbon Feed Assembly — Removal

- ① Remove two nuts, lockwashers and flat washers.
- ② Move ribbon assembly forward and right to remove 400635 belt and ribbon feed mechanism.

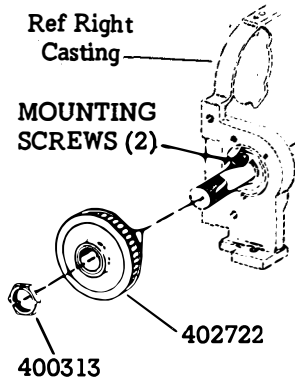


In reassembly, perform Ribbon Feed Drive Belt Tension adjustment.

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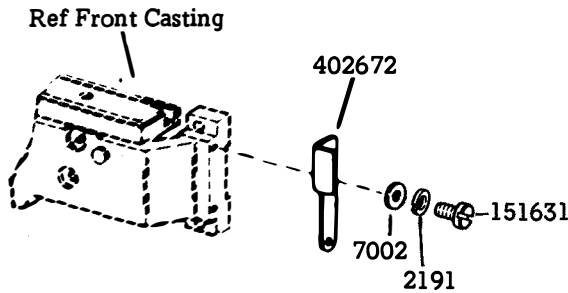
## Sprocket -- Removal

Loosen the two mounting screws and push in on the sprocket and remove and retain the 400313 adjusting nut. The 402722 sprocket can now be removed.



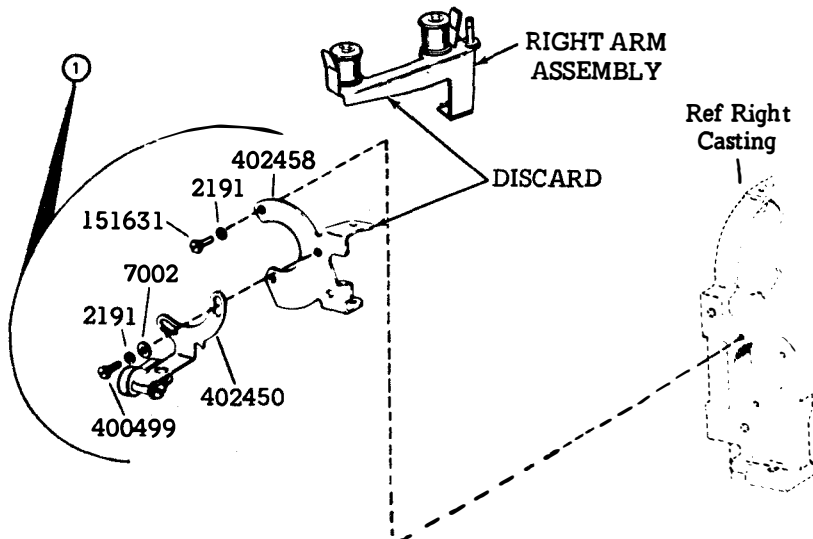
## Right Ribbon Guide -- Removal

Remove and retain the 402672 right ribbon guide and its mounting hardware.



## Right Arm Assembly -- Dissassembly and Removal

① Remove and retain the 151631 screw, 2191 lockwasher and two 400499 screws, 2191 lockwashers and 7002 flat washers used to mount the 402450 sensor bracket and 402458 right ribbon guide arm assembly bracket. Discard the 402458 bracket and right arm assembly.



All parts shown come assembled as a 406280 assembly.

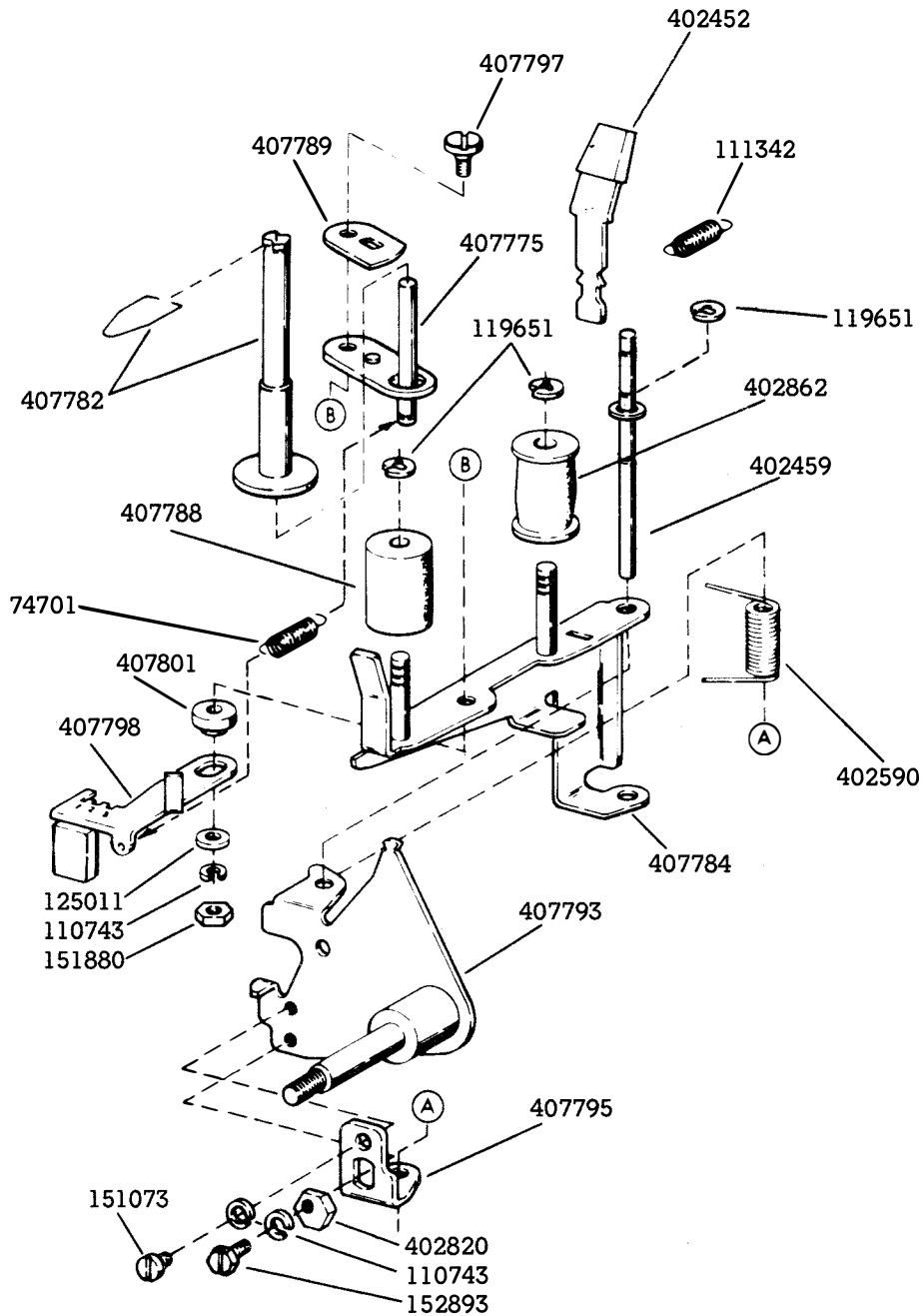


Fig. 1—406280 Left Arm Assembly

Mount the 406280 left arm assembly to the printer in the same location as indicated in Left Arm Assembly — Disassembly and Removal, using hardware retained in Step 2, also mount all parts shown in Step 1 onto 407793 bracket. Attach 400226 spring to the post on the front casting.

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All parts shown come assembled as a 406281 assembly.

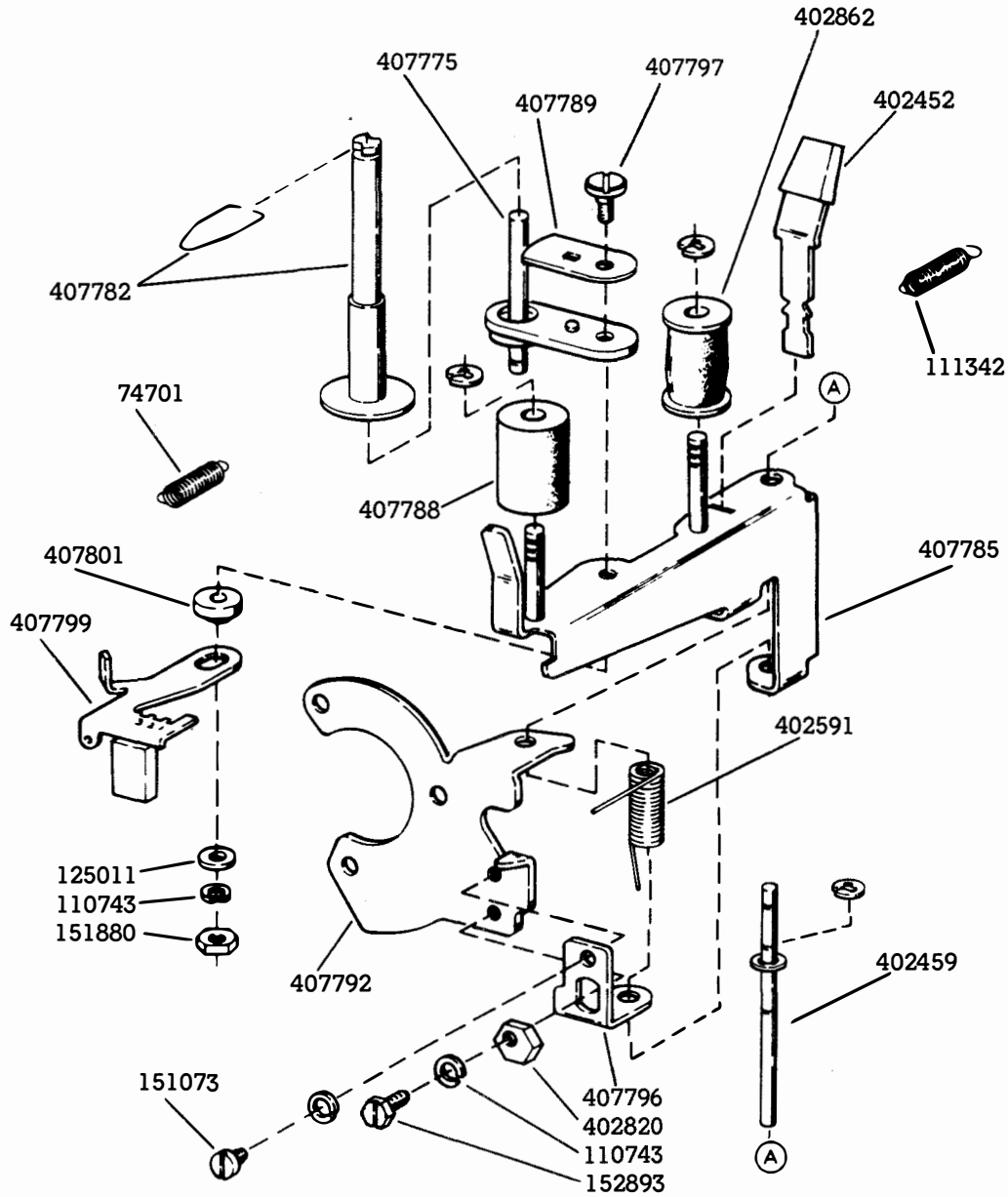


Fig. 2—406281 Right Arm Assembly

Mount the 406281 right arm assembly to the printer in the same location as indicated in Right Arm Assembly — Disassembly and Removal, using all parts shown in Step 1.

*Note:* Reassemble by reversing the following procedures:

- Sprocket — Removal.
- Right Ribbon Guide — Removal.
- Ribbon Feed Assembly — Removal.

At this point the following adjustments should be checked and remade, if necessary. (Refer to Manual 347, 355 or BSP 582-210-700.)

- Ribbon Feed Drive Belt Tension adjustment.
- Backup Bar adjustment.

*Warning:* A poor back-up bar adjustment will cause the ribbon to wear out before the ink is used up.

- Right Carrier Sprocket adjustment.
- Left Carrier Sprocket adjustment.
- Right Ribbon Guide adjustment.

Continue Reassembly:

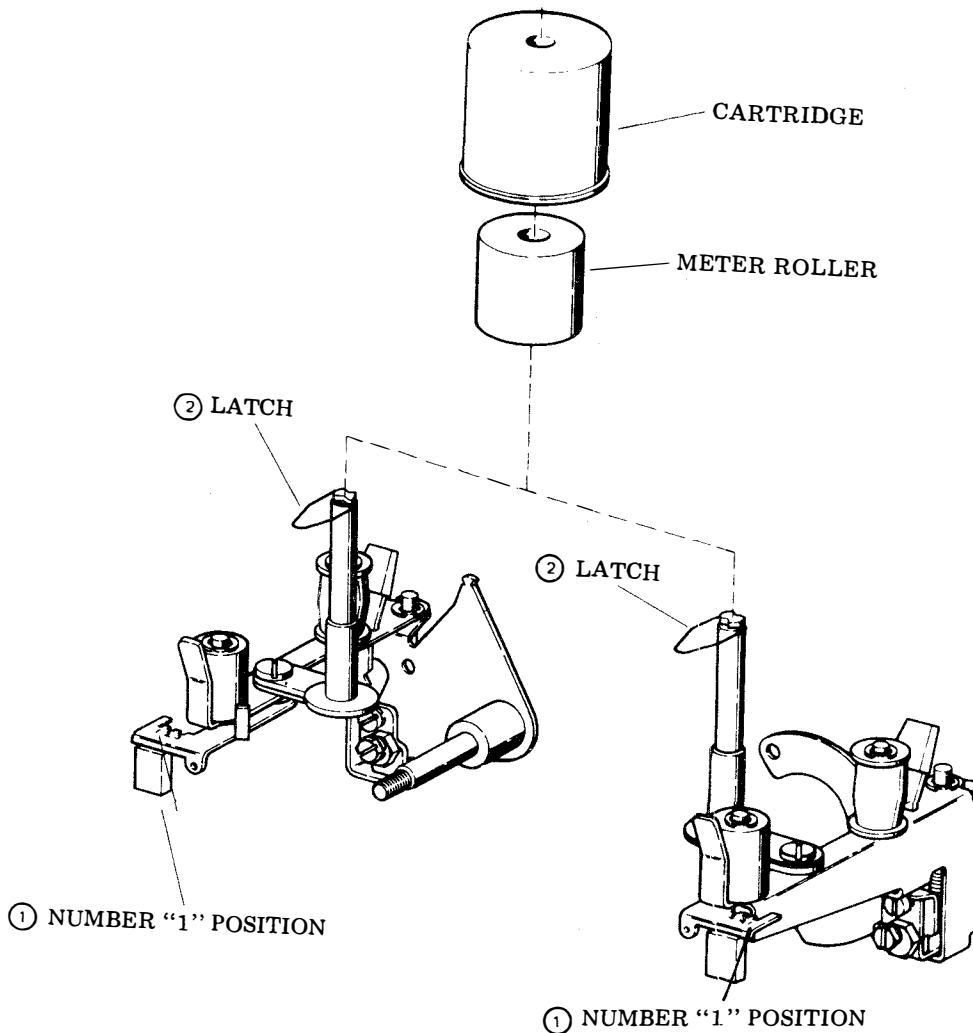
- Type Carrier — Removal.
- Install new ribbon.

Check the following adjustments:

- Ribbon Tracking adjustment (Part 4 of this specification).
- Flag Sensor Gap adjustment.
- Flag Sensor (Final — Under Power).

Continue Reassembly:

- ① Place both the right and left reinker detent lever in the number "1" position. Install the meter roller over the right and left bushing with latch using the enclosed disposable glove from the 407800 meter roller set.
- ② Remove the lid from the cartridges and install one on the right and one on the left bushing with latch. Place the latches in their closed position (horizontal).



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3. INSTALLATION (Cont)

Continue Reassembly : (Cont)

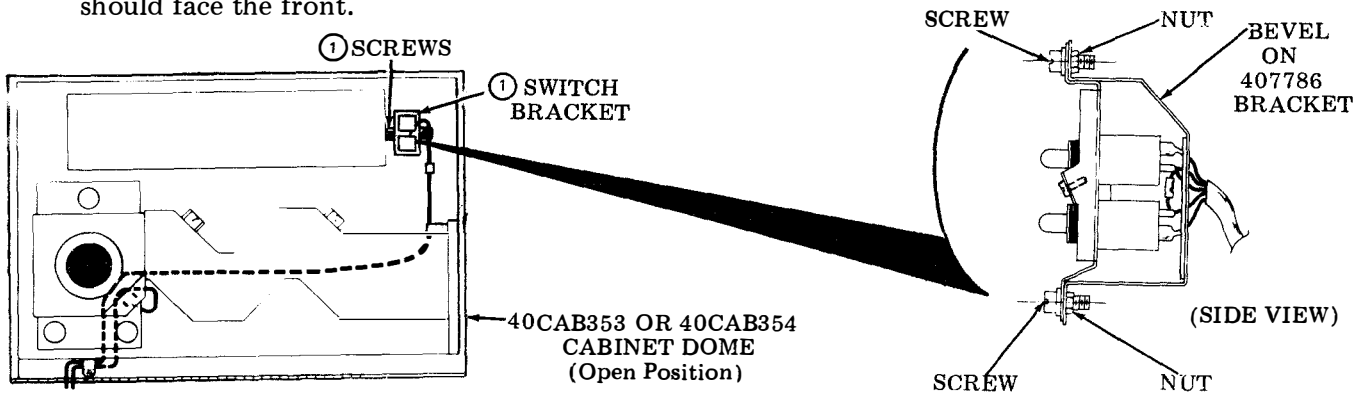
*Note 1:* If the printer is to be installed in a 40CAB353 or 40CAB354 cabinet, the 407786 bracket with insulator must be installed inside the cabinet over the switch assembly to keep the cable from interfering with the reinker.

① a. Cabinet with sheet metal dome

Remove and retain the two 154249 screws used to mount the 403824 switch bracket inside the cabinet. Mount the 407786 bracket with insulator, using the mounting holes for the switch bracket and the retained 154249 screws. The beveled portion should face the front.

① b. Cabinet with cast aluminum dome

Remove and retain the two 154249 screws used to mount the 403824 switch bracket inside the cabinet. Fasten 407786 bracket w/insulator to 403824 switch bracket using two 185871 screws and two 5599 nuts as shown. Remount brackets with retained 154249 screws. The beveled portion should face the front.



*Note 2:* This completes installation. Refer to Part 6, TESTING, to verify proper operation.

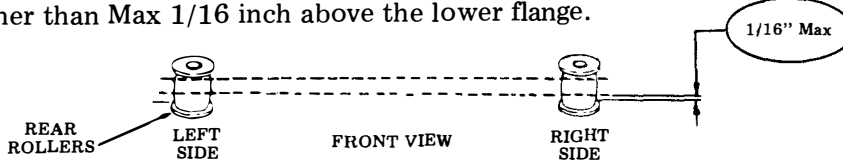
4. ADJUSTMENT

Ribbon Tracking

4.01 Using a new ribbon and the unit running, check the position of the ribbon on the rear rollers of the right and left ribbon guide arms as the ribbon moves towards the right and then as it moves towards the left. The ribbon should track as follows:

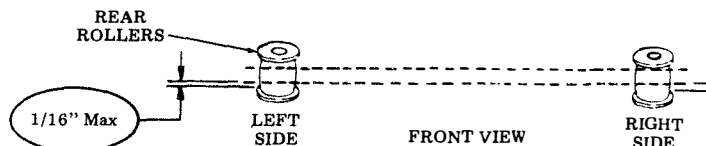
(a) Requirement

With the ribbon tracking in its lowest position on the right hand roller, ribbon moving in either direction, the ribbon should not ride so low as to cause a curl to form on the lower flange of the roller or any higher than Max 1/16 inch above the lower flange.



(b) Requirement

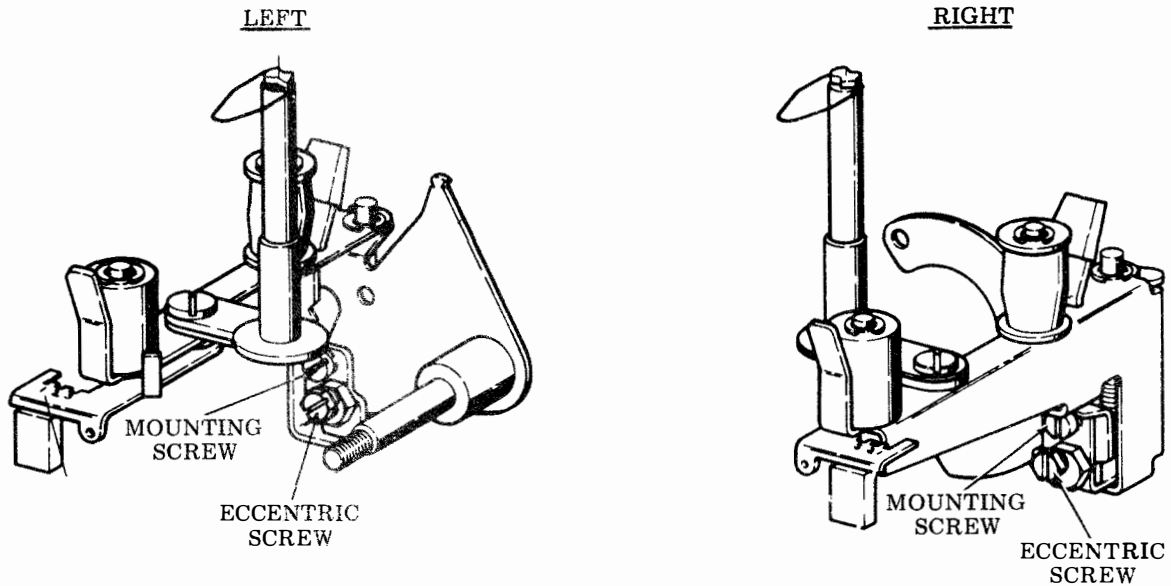
With the ribbon tracking in its lowest position on the left hand roller, ribbon moving in either direction, the ribbon should not ride so low as to cause a curl to form on the lower flange of the roller or any higher than Max 1/16 inch above the lower flange.





To Adjust

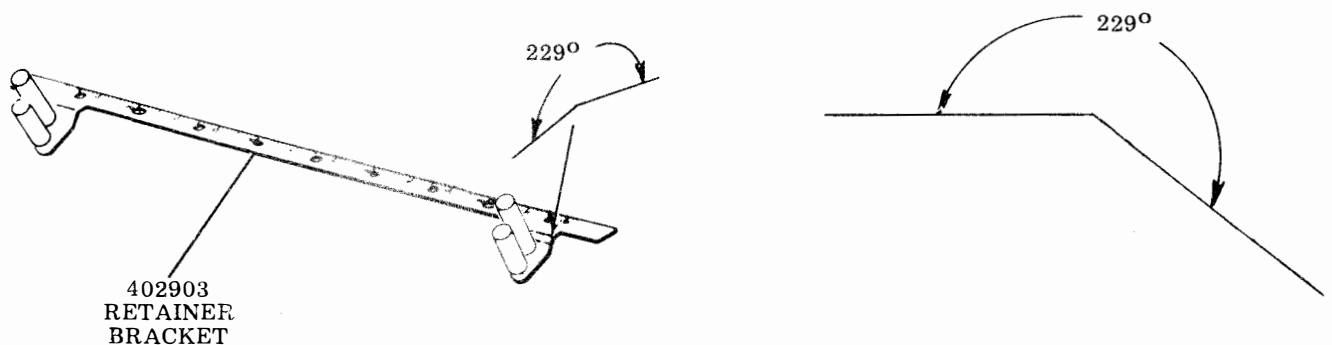
If the new ribbon does not track per this requirement, loosen the right and left adjusting bracket mounting screws and eccentric clamp screws. If the ribbon is tracking high on the right hand roller, rotate the high point on the eccentric toward the left. If it is tracking low, move the high point on the eccentric towards the right. If the ribbon is tracking high on the left hand roller, rotate the high point on the eccentric towards the right. If it is tracking low, move the high point on the eccentric towards the left.



To Check

See that the ribbon is tracking properly in both directions; if not, refine the adjustment. Tighten the right and left adjusting bracket mounting screws and eccentric clamp screws.

*Note:* If the ribbon cannot be made to track properly, check and see that the posts on the ribbon feed mechanism are square and that the 402903 retainer bracket has the correct angle for the guide posts. The correct angle between the top surface of the bracket and the top surface of the two ears, used to mount the ribbon guide posts, should be approximately 229 degrees.



5. LUBRICATION

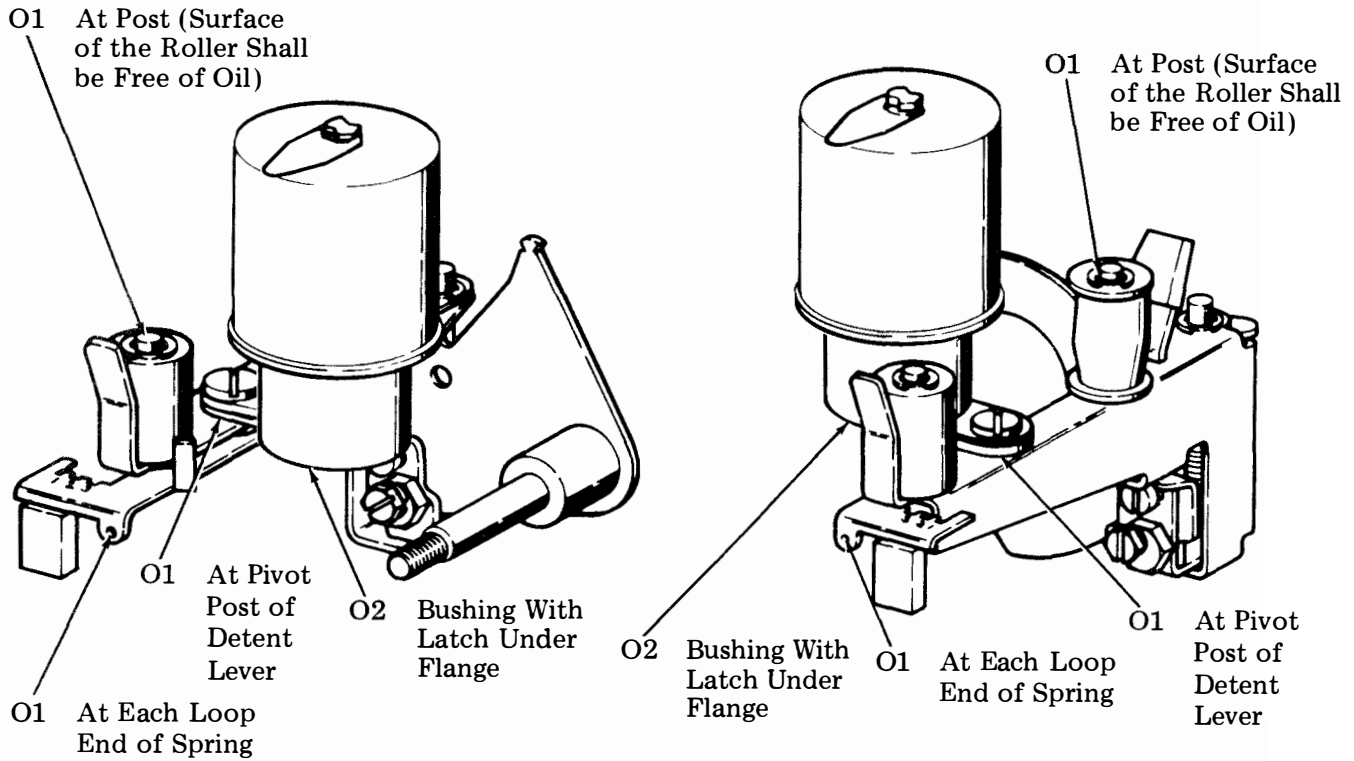
5.01 The reinker mechanism should be lubricated at the time it is put in service and shall be relubricated with the printer thereafter using the same lubricant as the printer.

*Note:* Lubrication interval is 2000 hours or 1 year, whichever comes first.

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5. LUBRICATION (Cont)

<u>SYMBOL</u>	<u>MEANING</u>
O1	Apply one drop of KS7470 oil.
O2	Apply two drops of KS7470 oil.



6. TEST

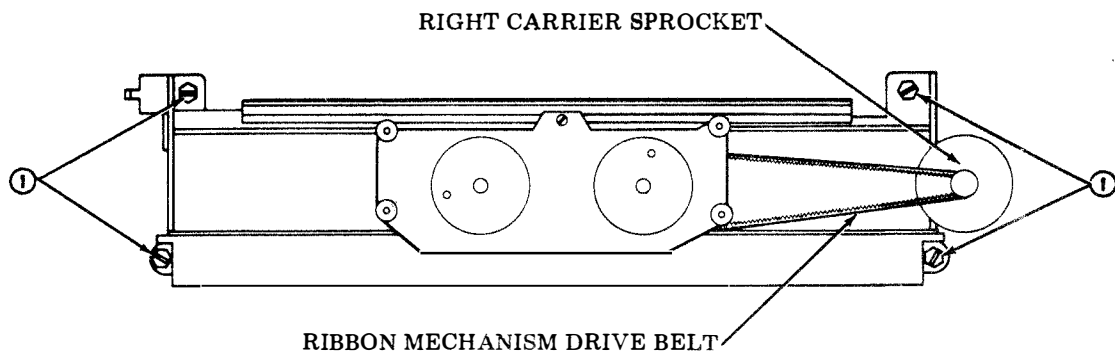
- 6.01 Remove ribbon, in first position ink is not transferred to roller.
- 6.02 Place right detent lever in position "2", note visibility of ink on roller.
- 6.03 Reset right detent lever to position "1".
- 6.04 Replace new ribbon.

7. INSTALLATION INSTRUCTIONS FOR NEW 400113 HAMMER BUMPER

- Remove Ribbon (See 3.01).
- Remove Type Carrier (See 3.01).
- Remove Ribbon Feed Assembly (See 3.01).
- Remove Left Arm Assembly (See 3.01).

Front Plate -- Removal

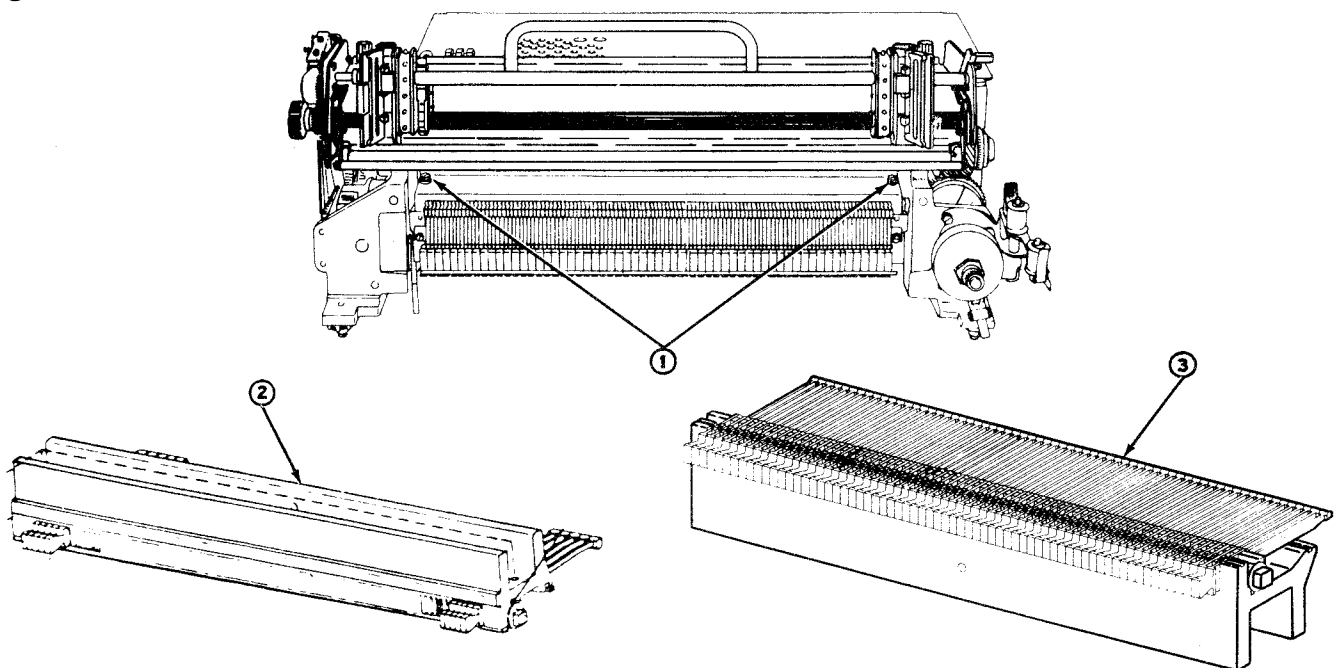
- ① Remove four mounting screws and lockwashers.
- ② Slide assembly up to clear paper chute. Remove front casting assembly.



In reassembly, perform Ribbon Feed Drive Belt Tension adjustment.

Hammer Bank Assembly -- Removal

- ① Remove two screws that secure hammer bank assembly.
- ② Lift hammer bank and raise assembly free from center casting.
- ③ Invert hammer bank and lay on bench with heads face up.



7. INSTALLATION INSTRUCTIONS FOR NEW 400113 HAMMER BUMPER (Cont)

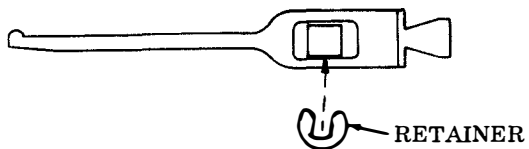
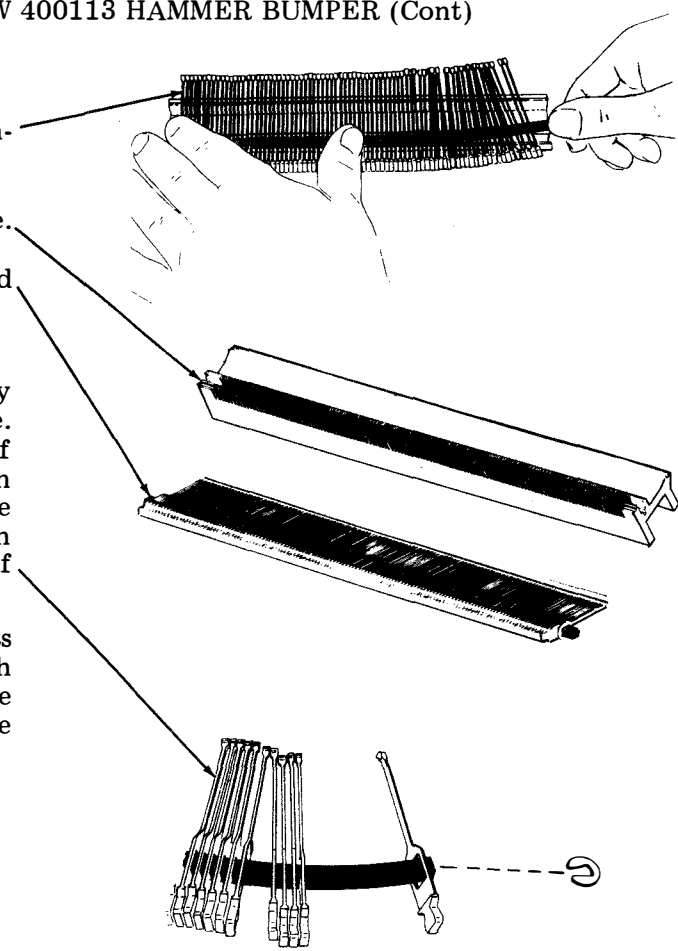
Hammer Bank Assembly — Removal (Cont)

Lift up bumper at right side, removing hammers from their slots.

- ⑤ Remove hammer set from hammer bank guide.
- ⑥ Remove retaining ring from both sides and retain.

Slide old bumper out while simultaneously slipping replacement bumper in its place. \*Black surface of bumper must face head of hammers. (Thicknesses of red and black on bumpers are permitted to be unequal.) Replace retainers 1/4-inch from each end of bumper with open side of retainer adjacent to open side of bumper slot in hammer guide.

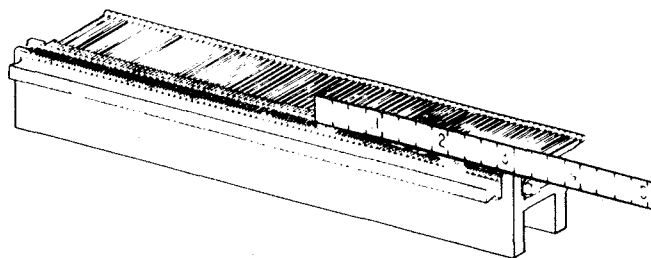
\*Note: Print hammers are machined in sets and therefore are not to be interchanged with print hammers from other sets or the relative positions changed between hammers of the same set.



Hammer With Bumper Installation

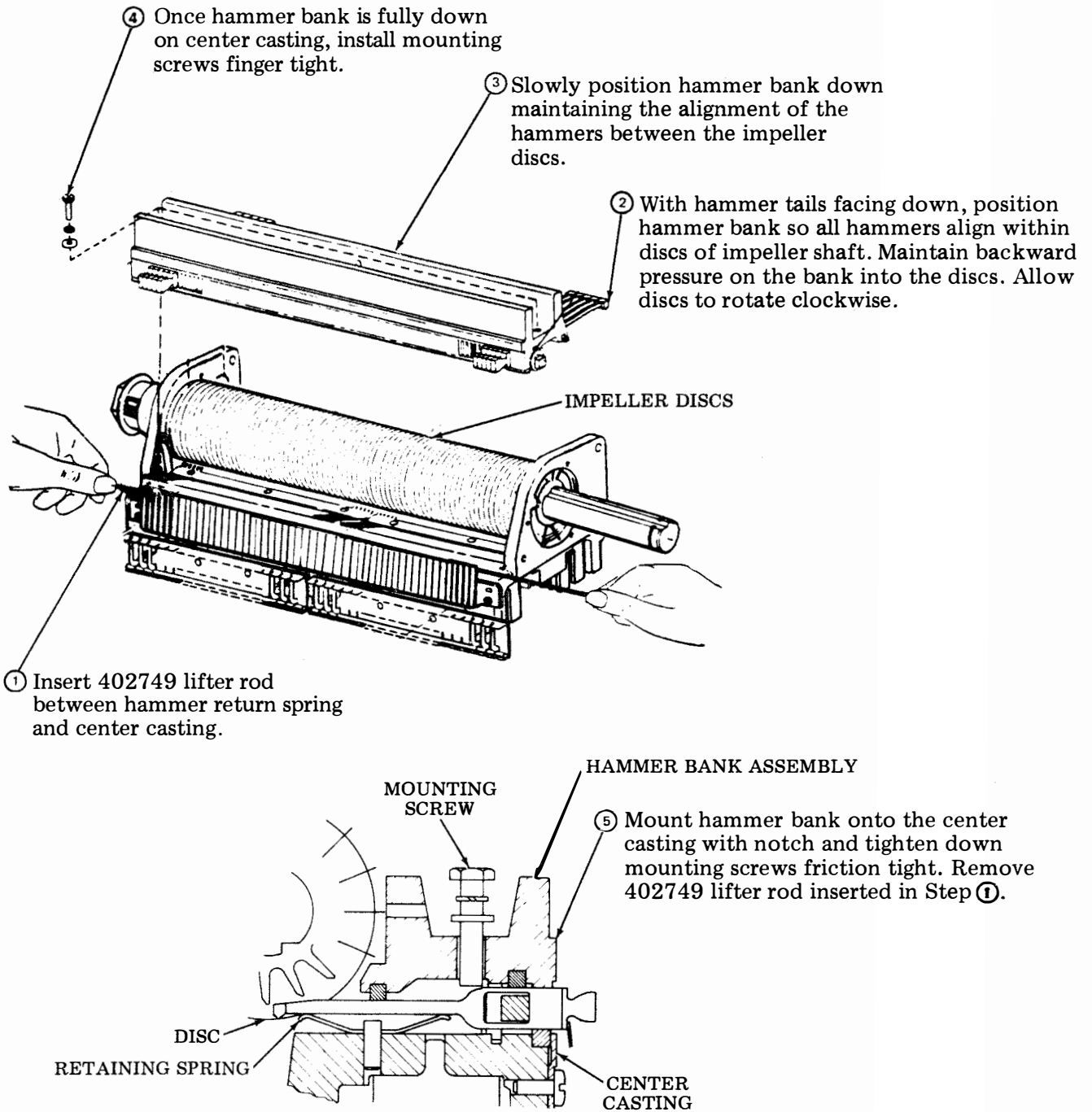
- ① Align hammers and bumper over slots with tails of hammers facing up.
- ② Seat hammer and bumper in their respective slots.
- ③ On units equipped with aluminum bronze wear rods, the bumper should be stretched only enough to slip over end of hammer guide.

- ④ Press down on bumper between every other hammer with orange stick so that bumper is fully seated against bottom of channel.
- ⑤ Run straight edge along front edge after installation to check for proper seating of bumper. Hammers shall not move.



7. INSTALLATION INSTRUCTIONS FOR NEW 400113 HAMMER BUMPER (Cont)

Hammer Bank Assembly Installation (Cont)



Perform the Hammer Bank Assembly and Hammer Return Spring adjustments.

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8. ADJUSTMENTS

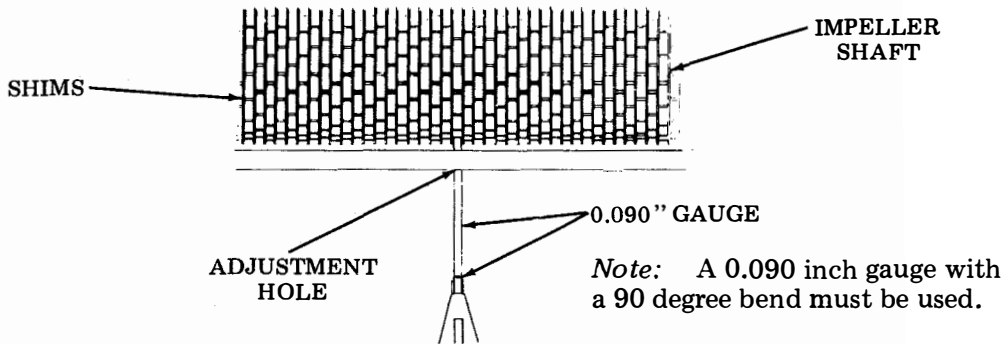
Hammer Bank

Requirement

The center print hammer should be centered between the corresponding impeller shaft shims.

To Check

Remove front casting assembly.



To Adjust

Loosen the hammer bank mounting screws friction tight. Place a 0.090 inch gauge through the adjusting hole. Move the hammer bank from side to side until the sides of the hole clear the sides of the shims. Tighten the mounting screws.

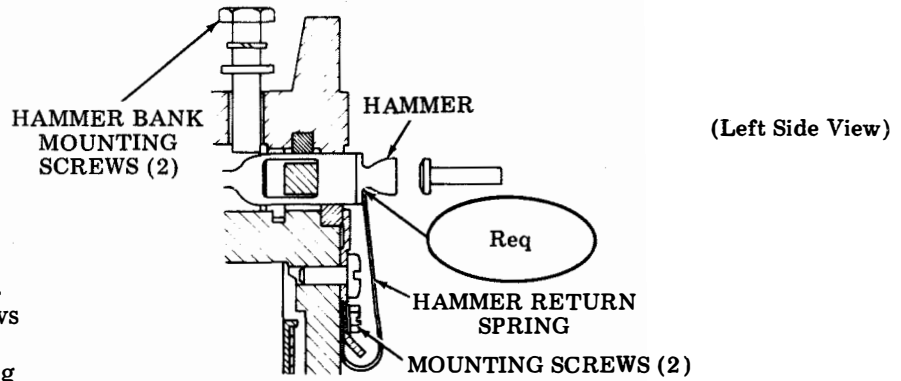
Hammer Return Spring

Requirement

The hammer return springs should be centered on the hammers.

To Adjust

Remove front casting assembly. Loosen the two mounting screws and shift the springs to meet requirement. Tighten mounting screws.



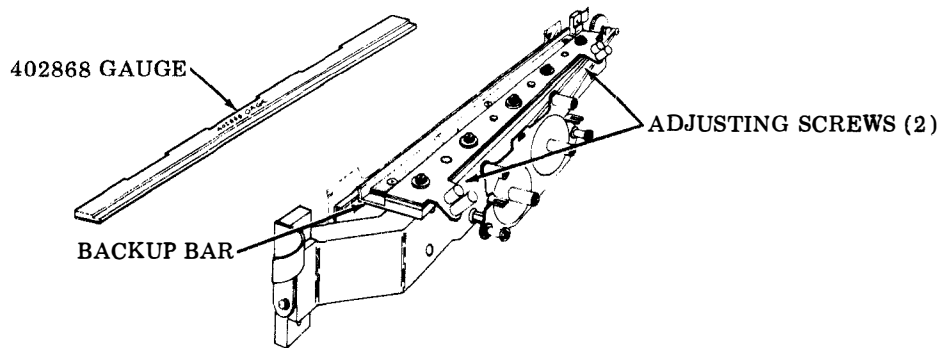
Note: At this point, reassemble Front Casting, Left Arm Assembly and Ribbon Feed Assembly. Perform Ribbon Feed Drive Belt Tension adjustment.

Installation of 402868 Adjusting Gauge For BACKUP BAR Adjustment

*Note 1:* For optimum print quality and maximum ribbon life the unit should be adjusted after being at room ambient of 65 to 85 degrees Fahrenheit with all power off for at least three hours.

*Note 2:* The BACKUP BAR (Final – Under Power) adjustment using the 402868 adjusting gauge, is changed to specify use of a single sheet of paper when performing the adjustment on a printer equipped with a late design printer hammer bumper (black and red).

- (1) Insert a single sheet of paper.
- (2) Insert 402868 adjusting gauge on Type Carrier with front edge against backup bar.  
Position gauge first at the left end, then at the right end of carrier track.



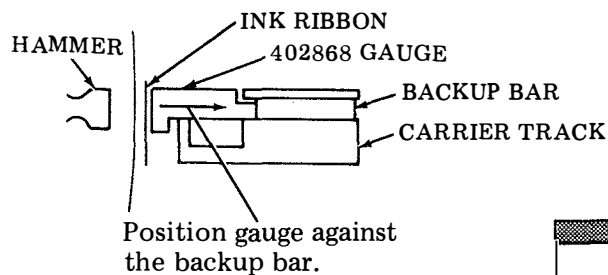
132-Column Tractor Feed Printer

BACKUP BAR (Final -- Under Power)

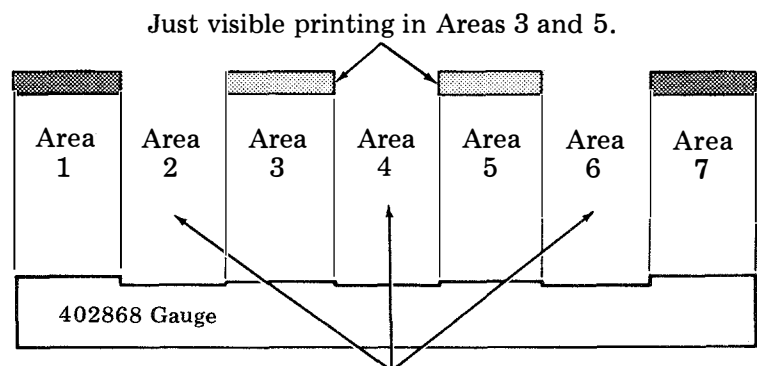
**Requirement**

The overall printing density shall be uniform and acceptable across the full width of the page. If the whole character is present and legible, some variation in density is allowed, provided the density variation is not consistently repeated.

*Note:* When the unit is properly adjusted for acceptable density, adequate ribbon life will also be achieved; however, if the printer is adjusted for darker density levels, ribbon life will be proportionately reduced.



(Left Side View)



No visible printing in Areas 2 and 4 with gauge positioned at left end of track or Areas 6 and 4 with gauges positioned at right end of track. Occasional light marks permissible in Areas 6 and 2 when gauge is at left and right ends, respectively.

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### To Adjust

With unit turned on, hole 402868 gauge firmly against backup bar. Place printer test switch in ON position and pass a steel object over flag sensor to initiate hammer firing.

Printed pattern should be noted with gauge positioned at left end of track and again with gauge positioned at right end of track. Loosen five (5) track assembly mounting screws friction tight and turn two (2) adjusting screws until some printing occurs in only Areas 1 and 7 when gauge is positioned at each end of track. From this point turn both left and right adjusting screws clockwise until Areas 3 and 5 show evidence of some printing, but not necessarily in all columns. This also applies to Areas 1 and 7 where printing will become darker but still may have blank spaces. No printing is permitted in Areas 2 and 4 when gauge is positioned at left end of track or Areas 6 and 4 when gauge is positioned at right end of track. Due to relative length of gauge with respect to 132-column page and tolerances of associated piece parts, it is permissible to observe occasional light marks in Areas 6 and 2 when gauge is at the left and right ends, respectively. Tighten five (5) track assembly screws.

### To Check

Install the type carrier. Insert a single sheet of paper and with a random test, check the copy density for conformance to the requirement.

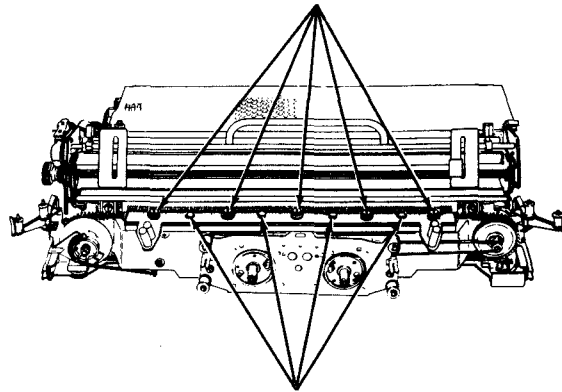
*Note:* Each time the BACKUP BAR (Final — Under Power) adjustment is made, the following adjustments must also be made:

#### LEFT AND RIGHT CARRIER SPROCKETS

#### LEFT AND RIGHT RIBBON GUIDES (Preliminary and Final)

- Remove gauges, assemble type carrier.

MOUNTING SCREWS



*Caution: Do not loosen these screws.*



Refer to How To Operate Manual 364 or Section 999-301-121 for standard paper and ribbon loading information.

CUT ON DASHED LINES  
PLACE IN ATTENDANTS HOW TO OPERATE MANUAL

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- This printer has been equipped with a 407790 modification kit which provides a reinking device.

*Warning: If at any time the ribbon is frayed or torn it should immediately be replaced. If curling of the ribbon occurs notify your maintenance representative. If copy appears over inked move detent levers back one position.*

Reinking settings:

1. Printed copy starts to lighten — move right detent lever to position “2”.
2. As printed copy starts to lighten again — move left detent lever to position “2”.
3. As printed copy begins to lighten once more — move right and left detent levers to position “3”.
4. When printed copy is no longer considered acceptable — replace with 407777 ribbon cartridge assembly.
5. At the time the ribbon and cartridge are replaced, a check for excessive lint buildup should be made of the meter roller and transfer roller. If excessive lint buildup is present, remove the lint with a brush or replace the 407800 meter roller.

*Caution: Do not use solvent or type pallet cleaning solution.*

