MODEL 40 PAPER WINDER

CONTENTS

1. GENERAL

1.01 This section provides description, installation, adjustments, lubrication and troubleshooting for Model 40 Paper Winders (40PWU101 and 40PWU102).

1.02 The 40PWU101 paper winder (Fig. 1—early design or Fig. 2—late design or 40PWU102) is a self-contained unit. It is operable with a friction feed printer operating at a line feed rate of 5.2 lines per second or less, and is recommended for single-copy paper only.

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

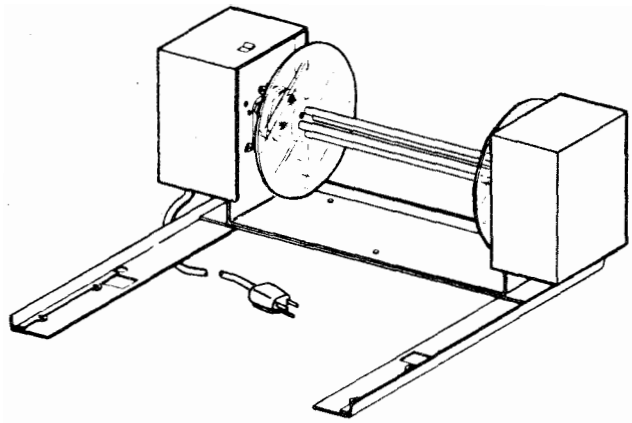


Fig. 1—40PWU101 Paper Winder (Early Design)

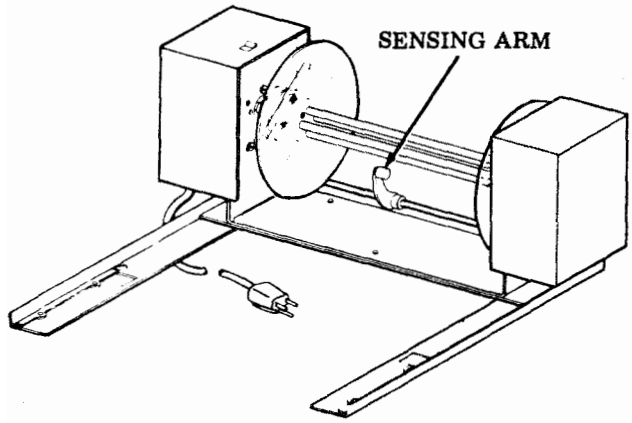


Fig. 2—40PWU101 (Late Design) or 40PWU102 Paper Winders

2. DESCRIPTION

2.01 These paper winders consist of a winder frame, paper spool, mounting frame, and mounting hardware.

2.02 The paper spool consists of a two-piece spindle with plastic flanges. The spindle can be easily separated for paper removal.

2.03 The 40PWU101 late design and 40PWU102 paper winders also include a sensing arm mechanism, a mercury switch, and a 2-stage (high-low) slide resistor.

TECHNICAL DATA

2.04 Electrical Characteristics

(a) Power . . . . . 115 volts ac ±10%, 50/60 Hz single phase

(b) Power dissipation at full load . . . . . 45 watts

2.05 Physical Characteristics

(a) Dimensions . . . . . 6-5/8" high
16" deep
17" wide

(b) Weight . . . . . 9-1/2 lbs (unpacked)

(c) Paper capacity . . . . . 5" dia roll, single ply, approximately 490' long, not more than 4-1/2 lbs, 8-7/16" wide or less

3. OPERATION

3.01 The drive motor, located on the winder frame, provides the power for winding the paper from the printer onto the paper spool. A slip clutch equipped with a drive brace w/hub, mounted on the motor shaft, supports one end of the paper spool and provides the motion to it through the motor shaft. The brace is driven through a drive disc that is between two clutch washers. A friction sleeve, disc, spring, and nut apply pressure on the drive disc through the two clutch washers.

40PWU101 EARLY DESIGN PAPER WINDER (Without Sensing Arm)

3.02 A slack paper condition causes the friction pressure to rotate the drive brace and in turn rotates the paper spool. A taut paper condition holds the drive brace stationary, causing a slippage that enables the motor shaft to continue to rotate. The amount of slippage can be varied through the amount of compression placed on the friction spring by adjusting the friction nut. Spent paper may be pulled back off the paper spool, overcoming the torque produced in the clutch mechanism, allowing the copy to be viewed.

40PWU101 LATE DESIGN PAPER WINDER (With Sensing Arm) AND 40PWU102 PAPER WINDER (17- and 20-Inch Mounting Brackets for Friction Cabinets)

3.03 A provision termed the "stalled" motor concept is used for controlling the output torque of the clutch. A sensing arm follows the change in the diameter of the paper roll. At a 3 inch diameter roll, a mercury switch is activated, transferring low torque to high torque by means of a 2-stage slide resistor. A slack paper condition allows the motor to rotate the drive brace which rotates the paper spool. A taut paper condition holds the drive brace stationary and essentially "stalls" the motor. The motor having a determined amount of voltage applied to it by the resistor is readied for immediate rotation. Spent paper may be pulled back off the paper spool, overcoming the clutch torque or the internal gearing within the motor, allowing the copy to be viewed.

3.04 The paper winder has been factory adjusted for operating at 60 hertz. For 50 hertz operation, the low and high resistor values must be readjusted to meet the specified torque requirements shown in LOW MOTOR TORQUE and HIGH MOTOR TORQUE adjustments.

4. INSTALLATION

Danger: Disconnect all power to the printer cabinet.

4.01 Carefully remove the paper winder assembly, paper spool, and mounting frame from the carton and place on a suitable working surface near the cabinet.

4.02 Parts List

(a) For 40PWU101, remove the loose parts from a muslin bag tied to the mounting frame. The loose parts consist of:

Qty	Part No.	Description
4	2191	Lockwasher
3	3646	Lockwasher
4	111427	Washer, Flat
4	151632	Screw, 6-40 x 3/8 Hex
3	156768	Screw, 8-32 x 9/32 Hex
3	181204	Washer, Flat
2	401203	Bumper
2	408898	Tape (3-inch length)

(b) For 40PWU102, place the following parts on a suitable surface for assembly. The loose parts consist of the following:

Qty	Part No.	Description
2	2191	Lockwasher
*2	2322	Lockwasher
*2	2846	Washer, Flat
*4	3292	Nut, 1/4-20 Hex
4	3646	Lockwasher
2	408898	Tape (3-inch length)
2	111427	Washer, Flat
2	151631	Screw, 6-40 x 5/16 Hex
4	156768	Screw, 8-32 x 9/32 Hex
4	181204	Washer, Flat
4	401203	Bumper
*2	407161	Leveler, Leg
*2	407162	Cap
1	407478	Bracket, Right
1	407479	Bracket, Left

*Not used with 40CAB371 cabinets.

4.03 Remove display monitor (if applicable) (Fig. 3) from printer cabinet. Grasp monitor by sides near supports and simply lift up. Electrical cable connectors are part of support assembly.

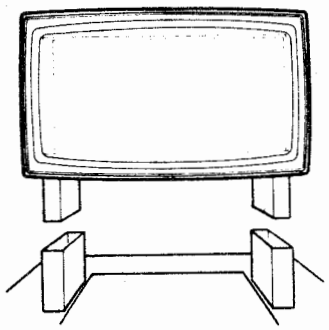


Fig. 3—Display Monitor

4.04 Remove printer from cabinet (Fig. 4).

(1) Open cover.

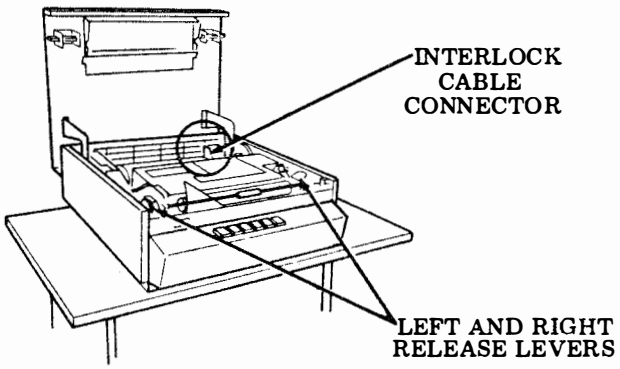


Fig. 4—Printer in Cabinet

(2) Disconnect interlock cable connector.

(3) Remove paper roll.

(4) Release printer to tilt position (Fig. 5) by depressing left and right release levers.

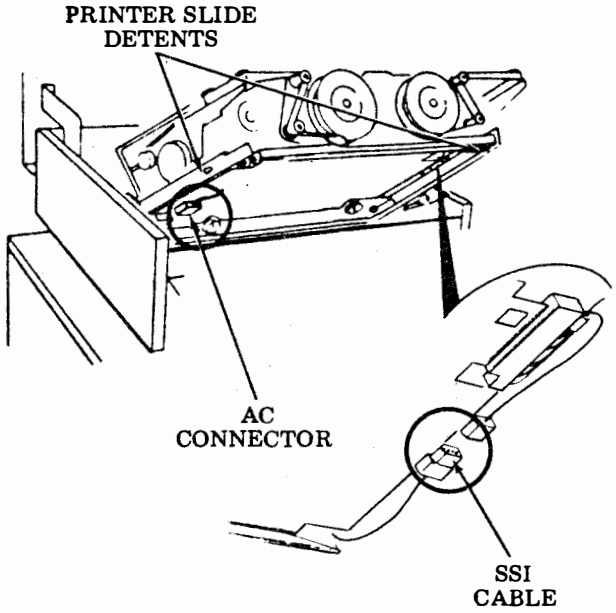


Fig. 5—Printer in Tilt Position

(5) Disconnect 115 V ac connector.

(6) Disconnect SSI cable from printer cable.

(7) Release (push in) printer slide detents and pull printer out by grasping it by the frame (front bottom).

4.05 Assemble paper winder to cabinet. Use Fig. 6 for 40PWU101 and Figs. 7 and 8 for 40PWU102.

Warning: At no time should the cabinet be lifted using the winder frame as one end of the lifting surface.

(1) The 40CAB251/AA cabinets are equipped with a 402143 cable clamp. Remove the cable clamp and cut off approximately 1/2 inch of the right side using a diagonal cutter. Replace the cable clamp.

(2) Reinstall the printer into the cabinet by reversing the procedure used for removal.

(3) Reinstall the display monitor (if so equipped).

(4) Insert the plug of the paper winder cord into a 110 volt power source.

(5) With the power switch in OFF position, feed approximately eight inches of paper from the printer and insert through spindle, rotating the spindle to the rear to take up the slack paper. Depress power switch to ON position.

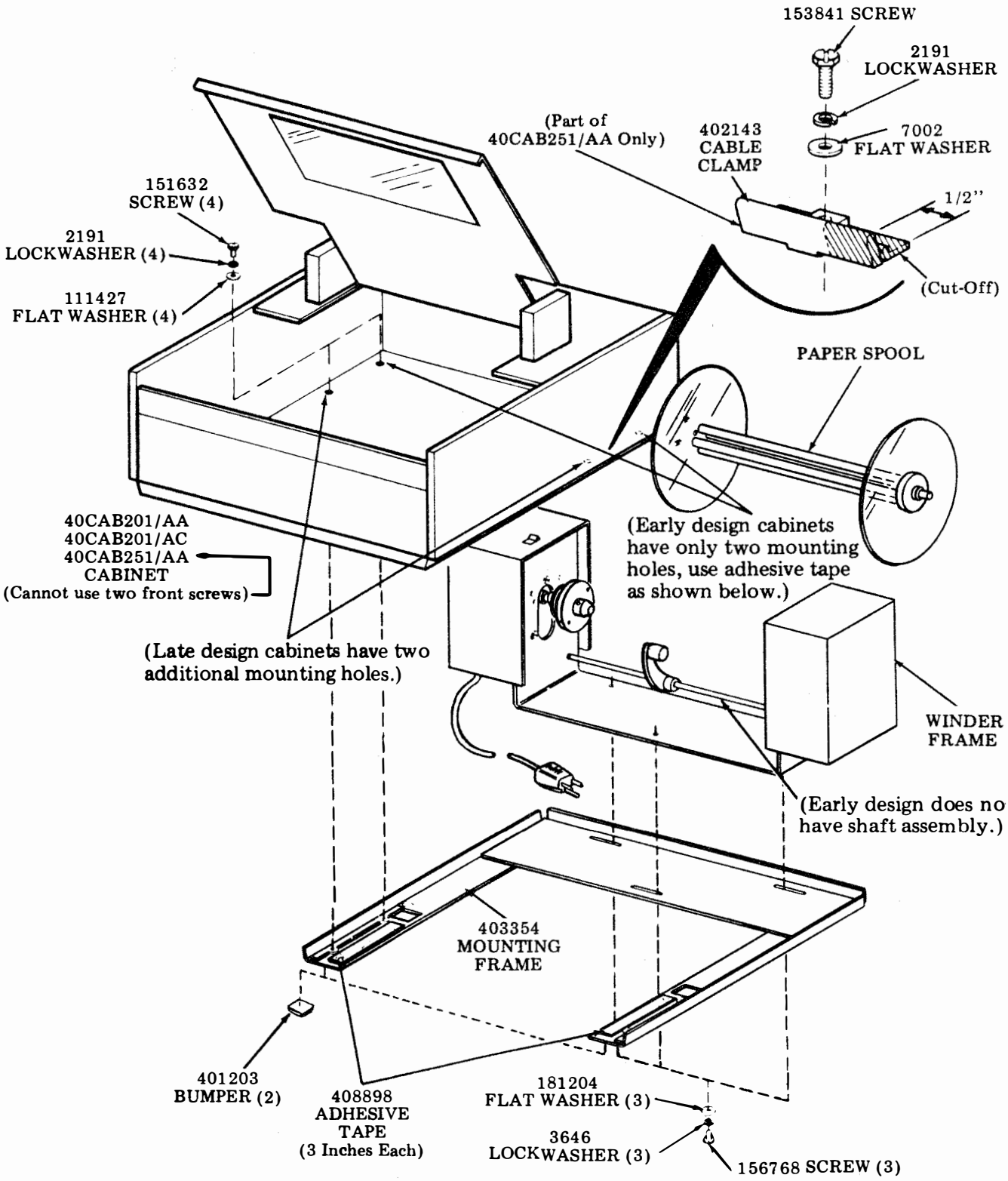


Fig. 6—40PWU101 Paper Winder Mounted Under Cabinet (17-Inch Wide)

Note: For 40CAB201/AA/AC and 40CAB251/AA cabinets, two leveling feet are to be installed in the holes located at each front corner of the cabinet. Adjust the levelers to meet the difference in height by raising and lowering the nut located outside of the cabinet.

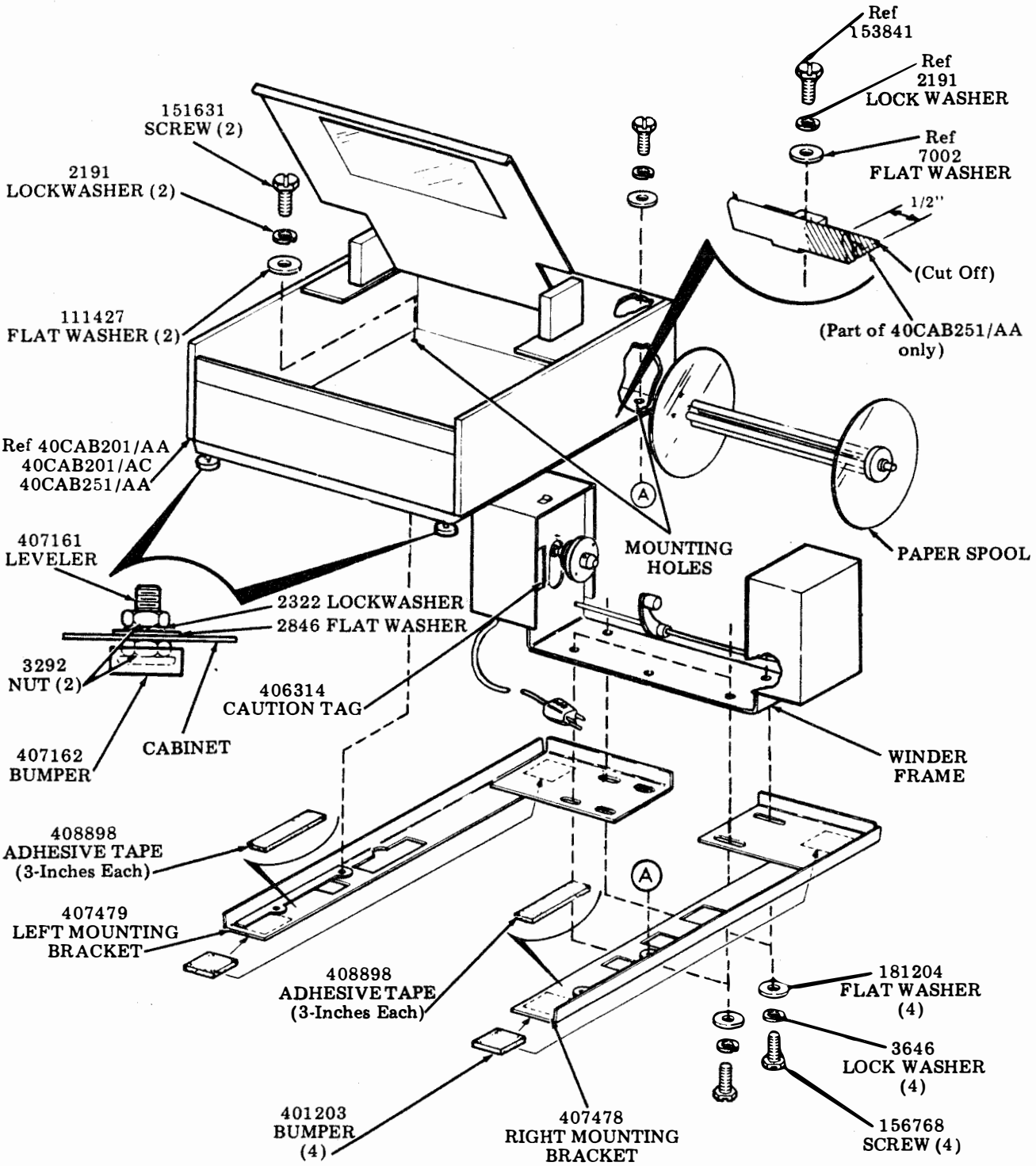


Fig. 7—40PWU102 Paper Winder Mounted Under Cabinet (17 Inch Wide)

Note: The 40CAB371/AA cabinet has its own leveling feed and can be adjusted for any difference in height, therefore, the leveling feet required for other cabinets is not used.

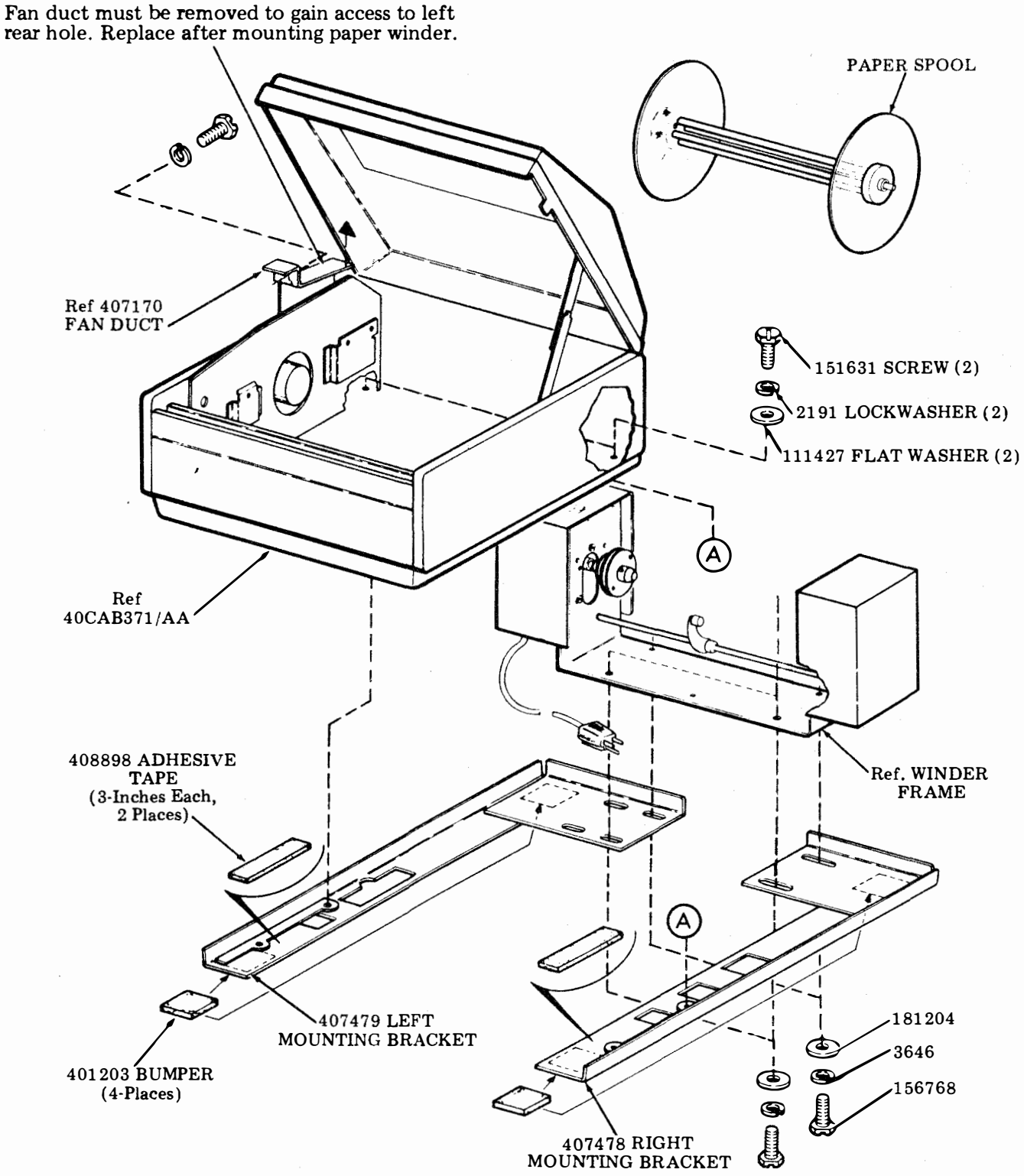


Fig. 8—40PWU102 Paper Winder Mounted Under Cabinet (20 Inch Wide)

5. ADJUSTMENTS

• Adjustments are common to all paper winders, unless otherwise specified.

Note: Remove paper winder motor cover when making the following adjustments.

PAPER SPOOL ENDPLAY

Requirement

With the plastic pilot seated in the retainer spring on the right and the drive pin seated in the spool hub on the left, there should be a clearance of

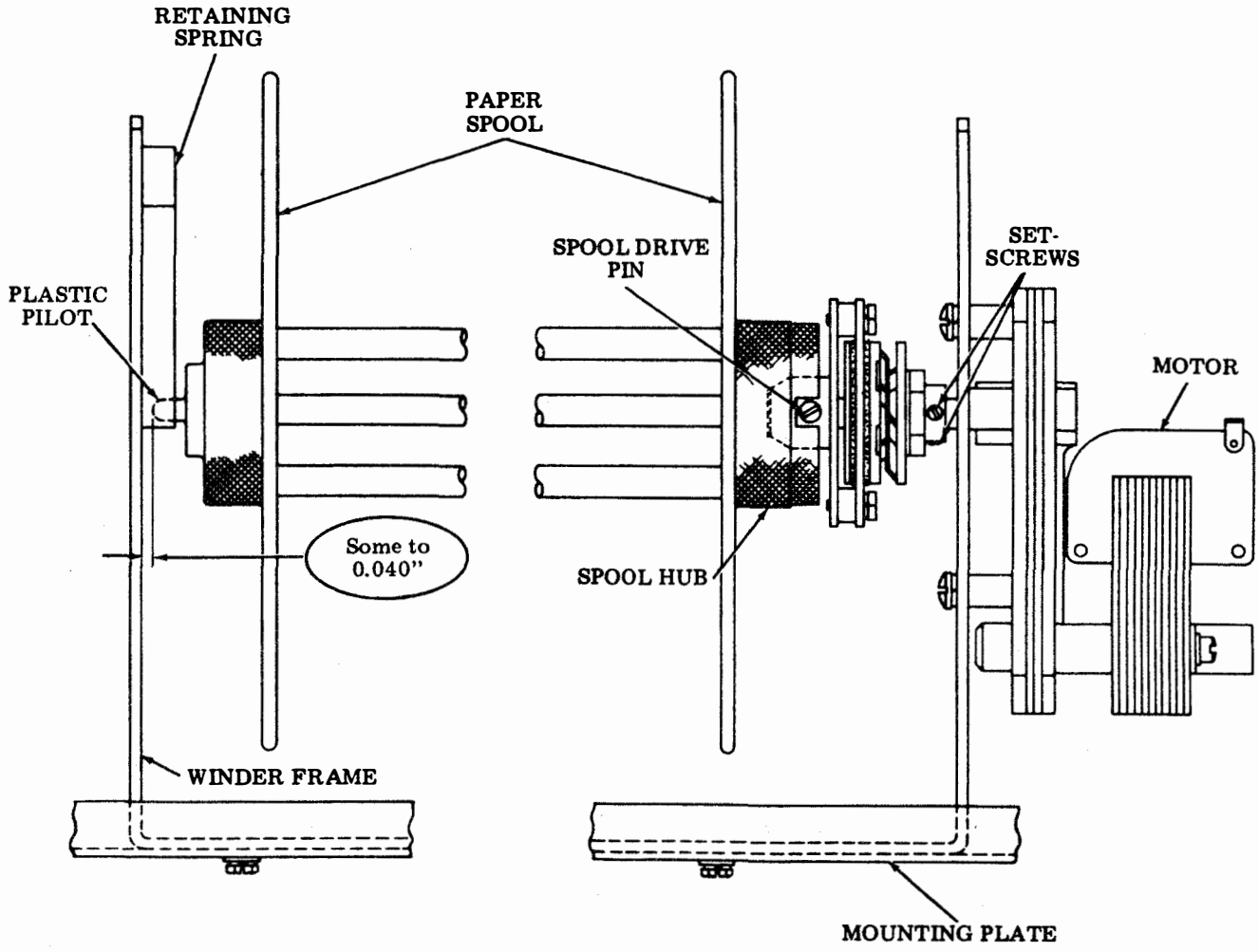
Min Some---Max 0.040 inch

between the plastic pivot and frame when the endplay in the motor shaft is taken up to make the clearance a minimum.

To Adjust

Loosen the two setscrews that secure the clutch assembly to the motor shaft. Position the clutch assembly to meet the requirement. Tighten both setscrews. Check that the spool drive pin seats in the spool hub and that the spool rotates freely through the complete revolution.

Warning: Do not distort the vertical ends of the winder frame when making the adjustment.

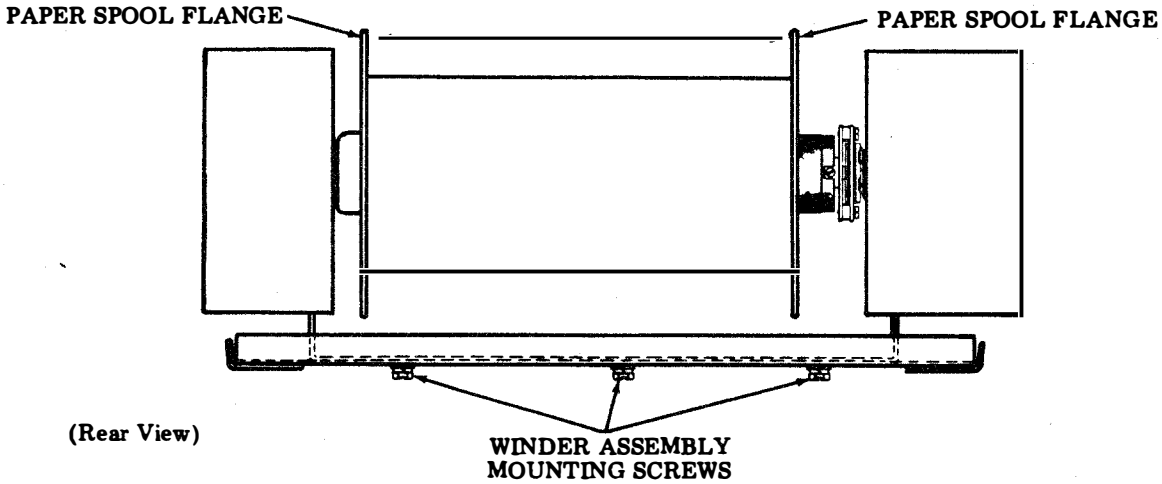


(Rear View)

LATERAL WINDER POSITION (40PWU101)

Requirement
The paper spool flange must align with spent paper exiting from printer, and the paper should be flat on cabinet top when being wound.

To Adjust
Loosen the three winder assembly mounting screws. Position the winder left or right to meet requirement.

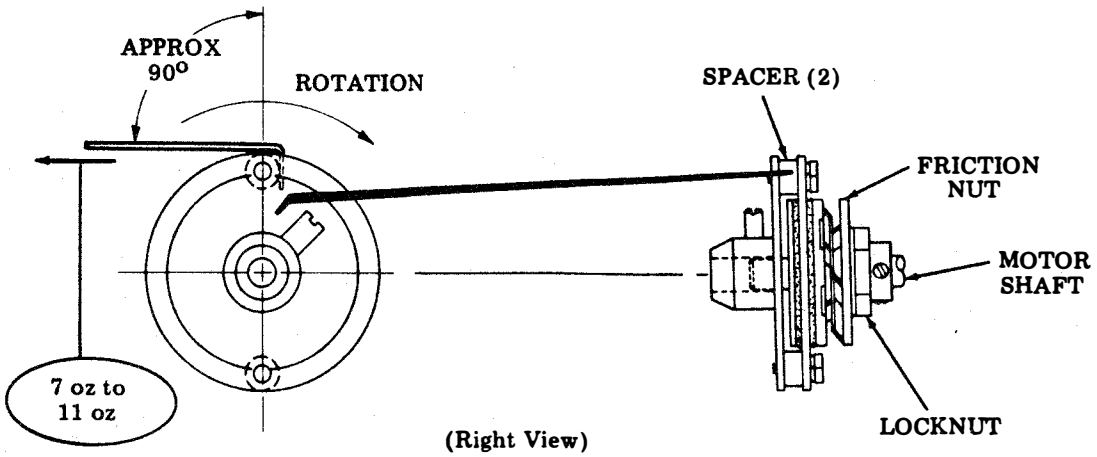


CLUTCH TORQUE (40PWU101 Early Design)

Note: Remove paper spool assembly and motor cover.

Requirement
It should require
Min 7 ounces---Max 11 ounces
to stop rotation of the drive brace with hub.

To Adjust
Operate the winder and hook a spring scale over one of the spacers between the drive disc and drive brace with hub. Loosen the locknut and rotate the friction nut in or out to meet the requirement. Tighten the locknut.

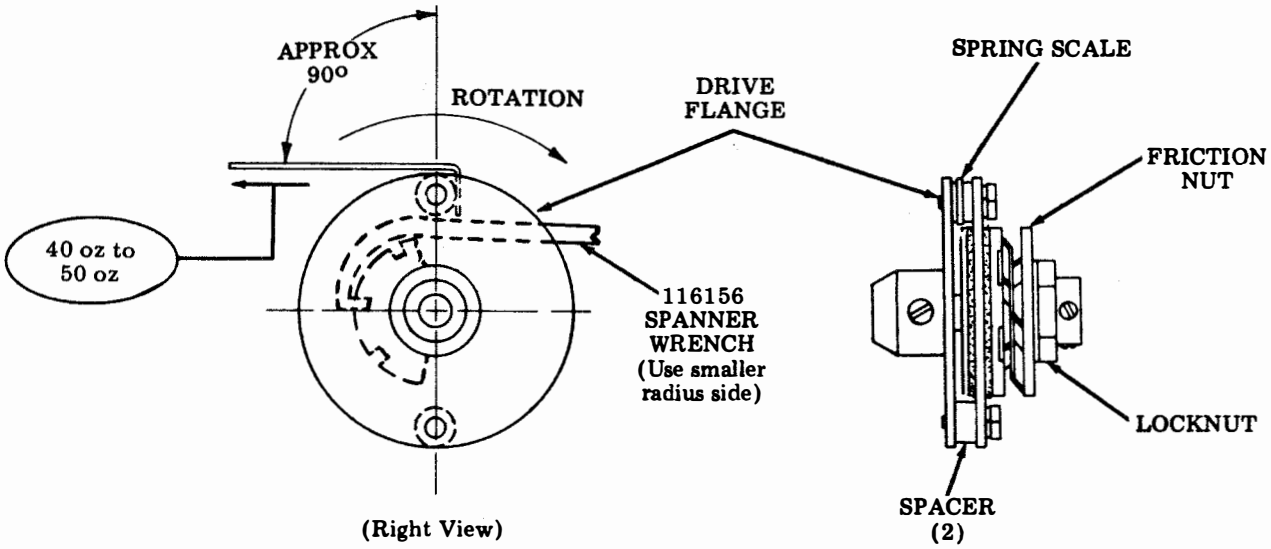


CLUTCH TORQUE (40PWU101 Late Design)

Requirement
With motor side of the clutch in a locked position (use spanner wrench on friction nut) and spring scale hook applied over one of the spacers on the clutch, it should require
Min 40 ounces---Max 50 ounces
to move drive flange.

Note: Take up play in direction of pull before reading scale.

To Adjust
Loosen locknut. Rotate friction nut in or out to meet requirement. Tighten locknut.

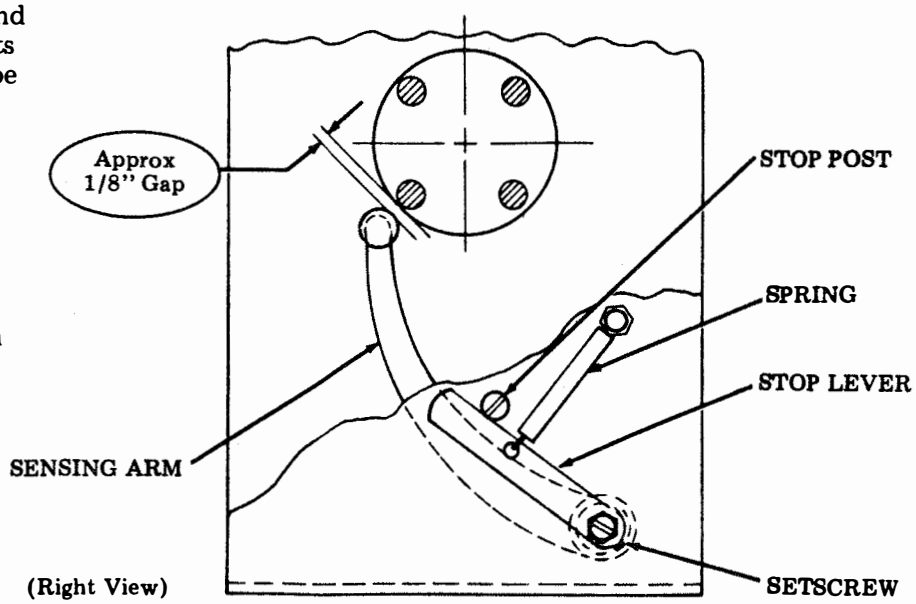


(Right View)

SENSING ARM (40PWU101 Late Design and 40PWU102)

Requirement
With an empty paper spool installed in the winder and the stop lever engaging its stop post, there should be approximately
1/8 inch gap
between closest paper spool rod and sensing arm extension post.

To Adjust
With setscrew associated with sensing arm friction tight, position arm to meet requirement. Tighten setscrew.



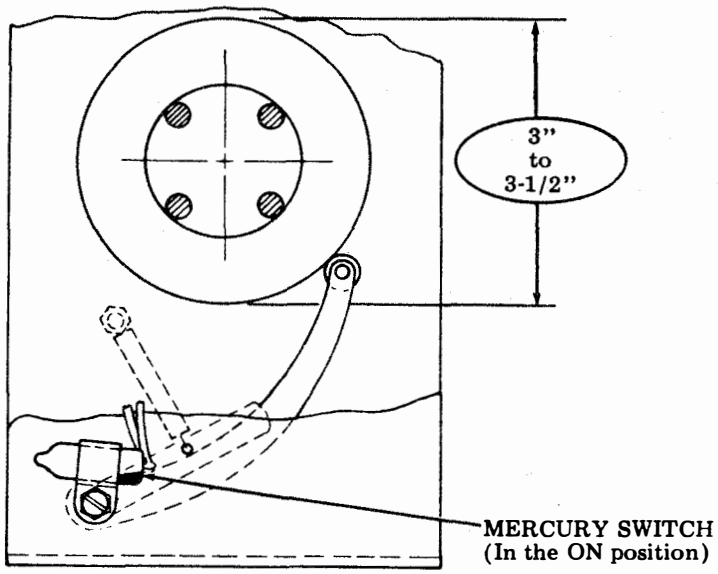
(Right View)

MERCURY SWITCH (40PWU101 Late Design and 40PWU102)

Requirement
The mercury switch should be activated to the ON position at a Min 3 inch---Max 3-1/2 inch roll diameter.

Danger: Adjustment to be made with unit in the OFF condition.

To Adjust
With mercury switch friction tight and sensing arm rotated to obtain a 3 inch to 3-1/2 inch roll diameter, position switch to a point of just making contact. Tighten screw and recheck requirement.



(Left View)

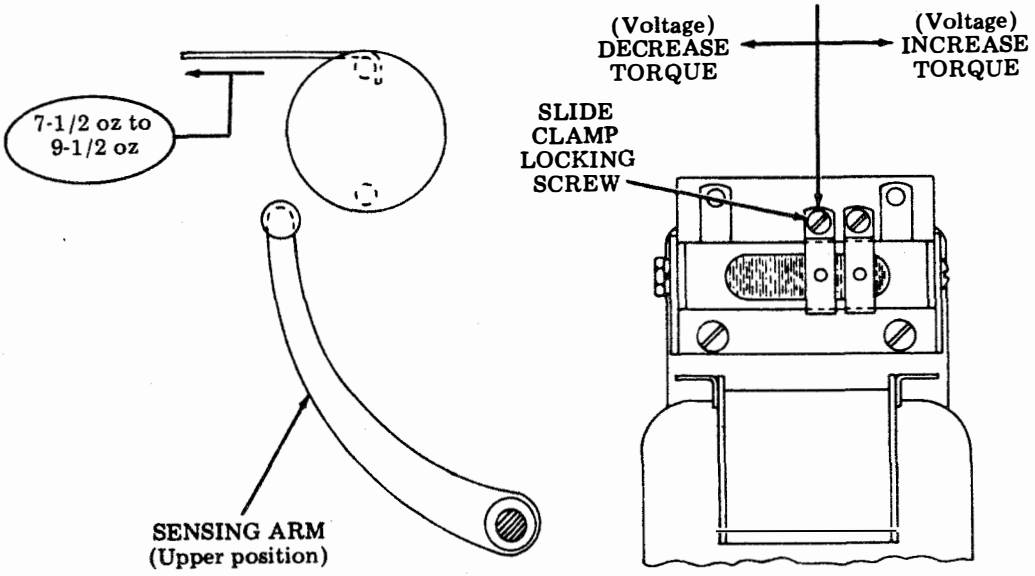
LOW CLUTCH TORQUE (40PWU101 Late Design)

Requirement (Without Paper Spool)
With unit in the ON position, sensing arm in upper position, and spring scale hook applied over the spacer on the clutch, it should require
Min 7-1/2 ounces---Max 9-1/2 ounces
to allow the clutch to rotate.

Note: Apply greater spring tension than required, then relax tension to obtain values of adjustment.

Danger: Adjustment to be made with unit disconnected from ac line voltage.

To Adjust
Loosen slide clamp locking screw friction tight. Position resistor slide clamp to obtain requirement. Tighten clamp screw. (To prevent damage to resistor, do not overtighten clamp.) Recheck requirement.



(Left View)

Resistor Assembly for Low Torque

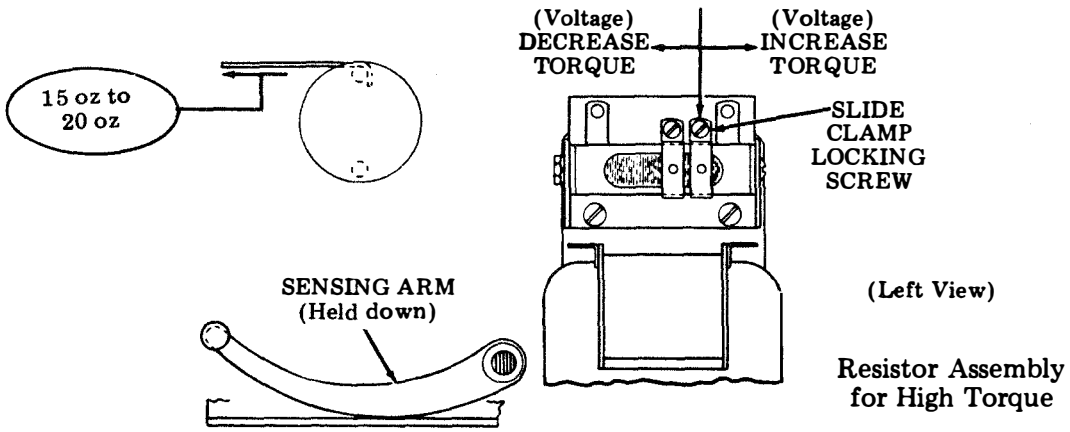
HIGH CLUTCH TORQUE (40PWU101 Late Design)

Requirement (Without Paper Spool)
With unit in the ON position, sensing arm held down, and spring scale hook applied over the spacer on the clutch, it should require
Min 15 ounces---Max 20 ounces
to allow clutch to rotate.

Note: Apply greater spring tension than required, then relax tension to obtain values of adjustment.

Danger: Adjustment to be made with unit disconnected from ac line voltage.

To Adjust
Loosen slide clamp locking screw friction tight, position resistor slide clamp to obtain requirement. Tighten clamp screw. (To prevent damage to resistor, do not overtighten clamp.) Recheck requirement.

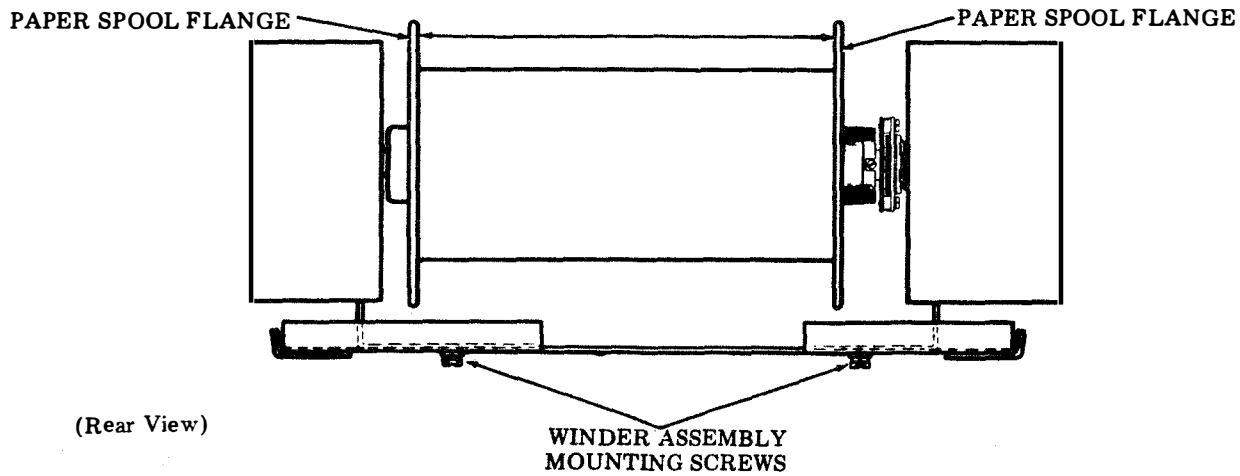


Resistor Assembly for High Torque

LATERAL WINDER POSITION (40PWU102)

Requirement
The paper spool flange must align with spent paper exiting from printer, and the paper should be flat on cabinet top when being wound.

To Adjust
Loosen the four winder assembly mounting screws. Position the winder left or right to meet requirement.



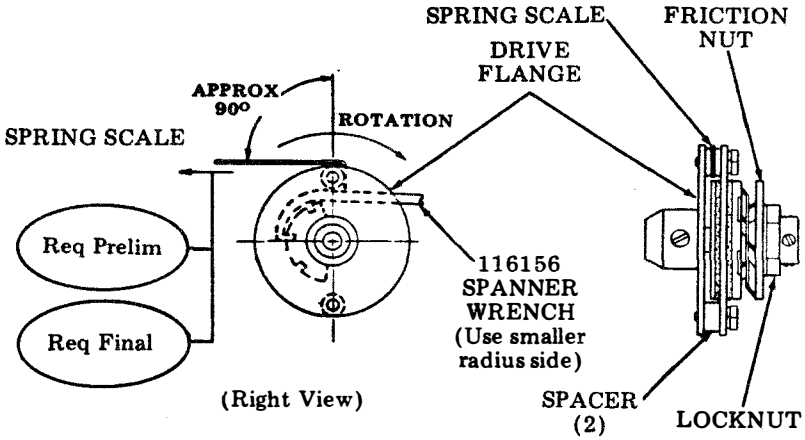
CLUTCH TORQUE (40PWU102)

Requirement (Preliminary)
With motor side of the clutch in a locked position (use spanner wrench on friction nut) and spring scale hook applied over one of the spacers on the clutch, it should require
Min 40 ounces---Max 50 ounces
to move drive flange.

Note: Take up play in direction of pull before reading scale.

To Adjust
Loosen locknut. Rotate friction nut in or out to meet requirement. Tighten locknut.

Requirement (Final)
After installing the clutch on motor shaft, and operating unit for a period of time, clutch torque should measure
Min 25 ounces.
If below 25 ounces, readjust clutch.



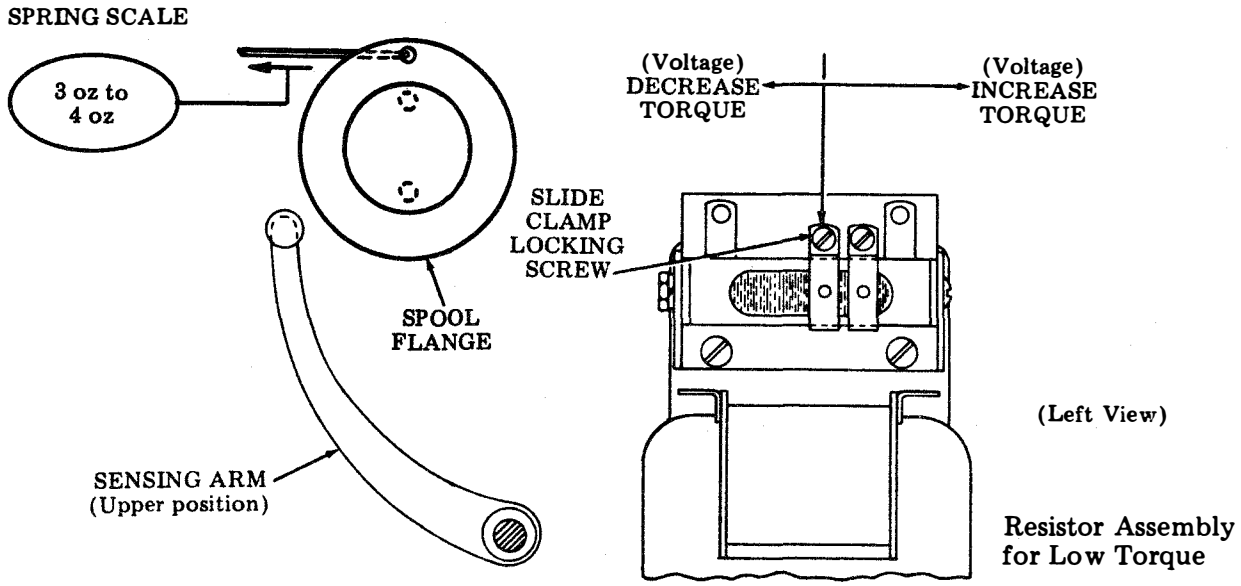
LOW MOTOR TORQUE (40PWU102)

Requirement
With unit in the ON position, sensing arm in upper position, and spring scale hook applied into the hole of spool flange, it should require
Min 3 ounces---Max 4 ounces
to allow the clutch to rotate.

Note: Apply greater spring tension than required, then relax tension to obtain values of adjustment.

Danger: Adjustment to be made with unit disconnected from ac line voltage.

To Adjust
Loosen slide clamp locking screw friction tight. Position resistor slide clamp to obtain requirement. Tighten clamp screw. (To prevent damage to resistor, do not overtighten clamp.) Recheck requirement.



Resistor Assembly for Low Torque

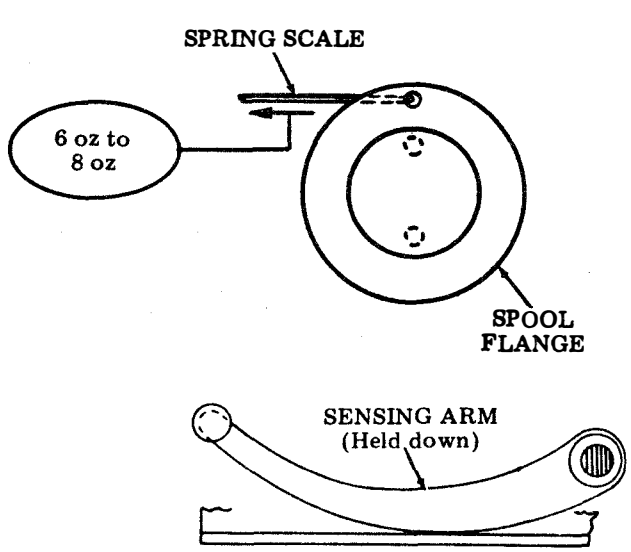
HIGH MOTOR TORQUE (40PWU102)

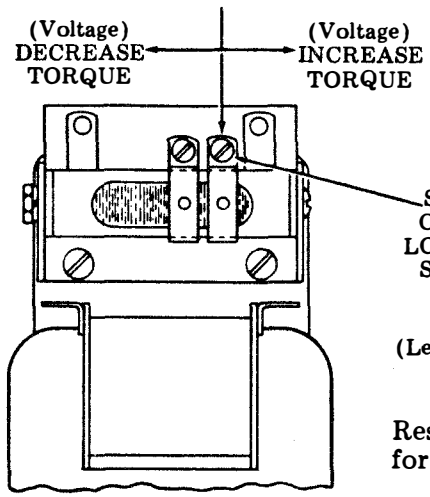
Requirement
With unit in the ON position, sensing arm held down, and spring scale hook applied into the hole of spool flange, it should require
Min 6 ounces---Max 8 ounces
to allow clutch to rotate.

Note: Apply greater spring tension than required, then relax tension to obtain values of adjustment.

Danger: *Adjustment to be made with unit disconnected from ac line voltage.*

To Adjust
Loosen slide clamp locking screw friction tight. Position resistor slide clamp to obtain requirement. Tighten clamp screw. (To prevent damage to resistor, do not overtighten clamp.) Recheck requirement.





Resistor Assembly for High Torque

6. LUBRICATION

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

6.01 The following symbols are used to indicate the kind and quantity of lubricant to be used in a specific area:

SYMBOL	MEANING
O2	Apply one drop of KS7470 oil.
O15	Apply 15 drops of KS7470 oil.
SAT	Saturate.
D	Dry (no lubrication required).

6.02 The paper winder motor cover must be removed to provide access to lubrication points (Fig. 9).

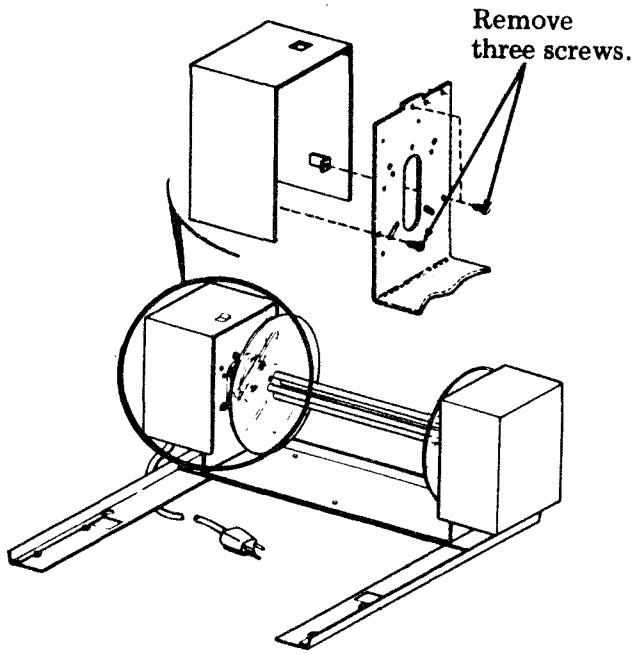
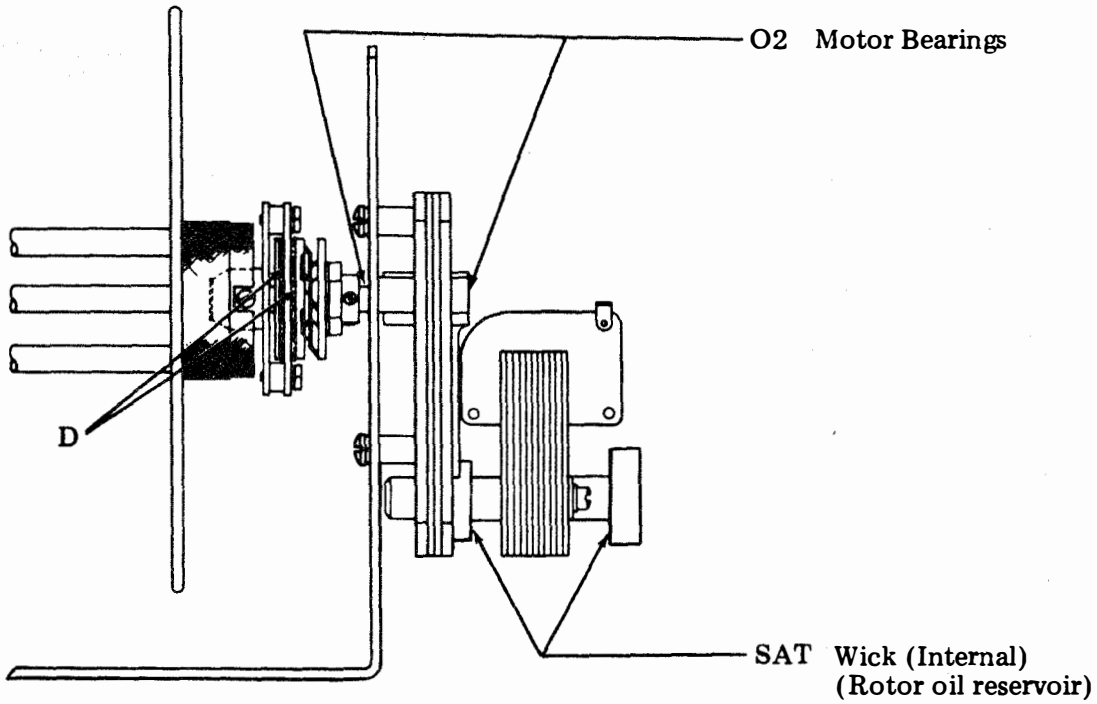
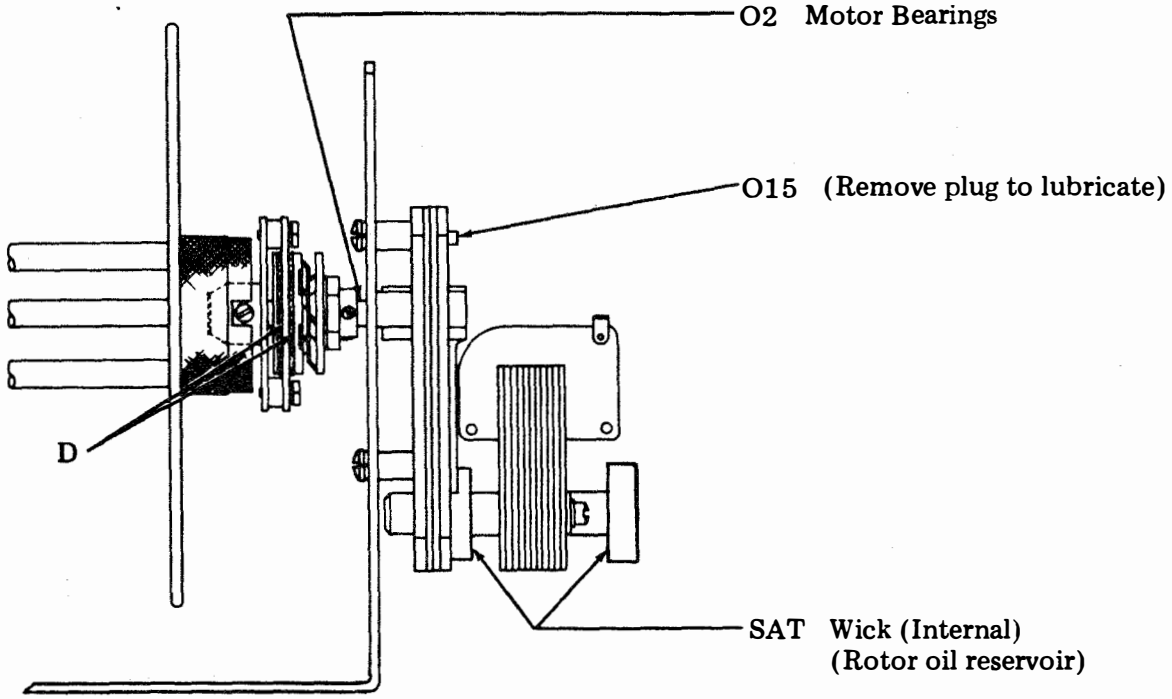


Fig. 9

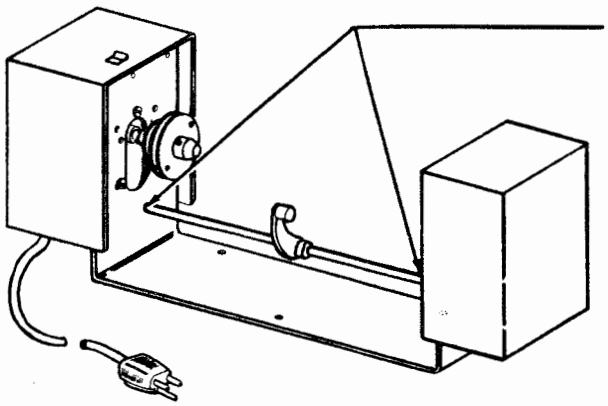
MOTOR ASSEMBLY (40PWU101 Early Design)



MOTOR ASSEMBLY (40PWU101 Late Design and 40PWU102)



SENSING ARM SHAFT MOUNTING HOLES



7. TROUBLESHOOTING

TABLE A

EARLY DESIGN 40PWU101 PAPER WINDER

SYMPTOM	PROBABLE CAUSE
Paper too loose on paper winder (egg shaped roll).	Clutch Torque adjustment. Lubrication on clutch discs, clutch discs should be dry.
Paper edge ruffled on either side of roll.	Lateral Winder Position adjustment. Paper not tracking correctly on printer paper rollers.
Extraneous or irregular line feed on printer.	Clutch Torque adjustment.

TABLE B

LATE DESIGN 40PWU101 PAPER WINDER

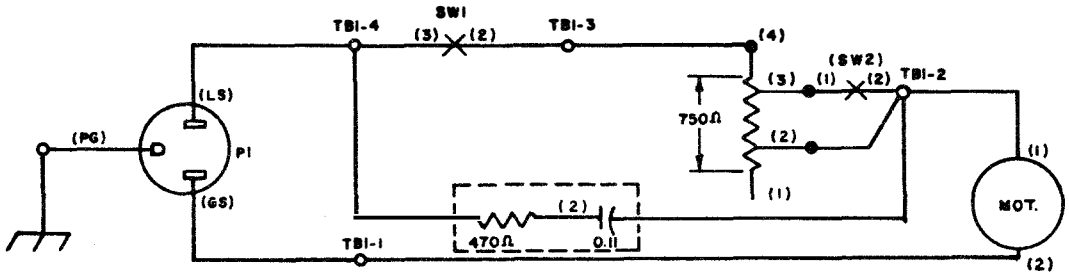
SYMPTOM	PROBABLE CAUSE
Paper too loose on paper winder (egg shaped roll).	High Clutch Torque adjustment. Requirement not met.
Paper edge ruffled on either side of roll.	Lateral Winder Position adjustment. Paper not tracking correctly on printer paper rollers.
Extraneous or irregular line feed on printer.	High clutch torque crossing over before 3 inch diameter roll is on paper winder.

TABLE C

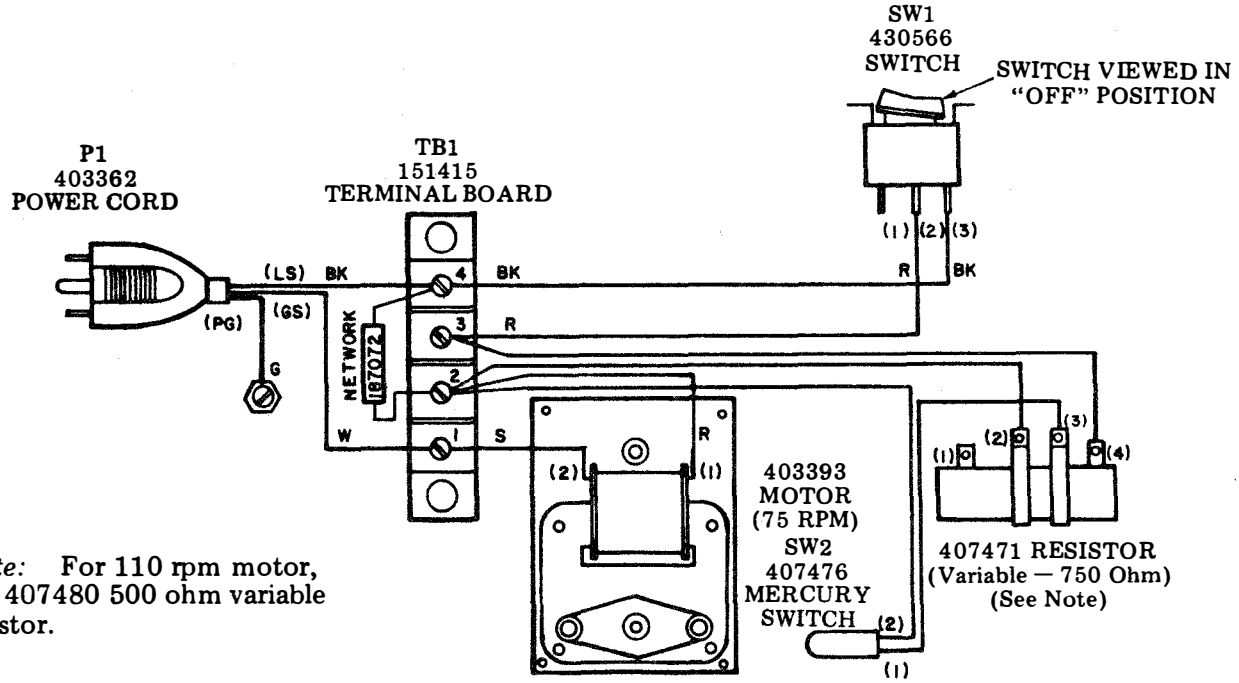
PAPER WINDER (40PWU102)

SYMPTOM	PROBABLE CAUSE
Paper too loose on paper winder (egg shaped roll).	High Motor Torque adjustment. Requirement not met.
Paper edge ruffled on either side of roll.	Lateral Winder Position adjustment. Paper not tracking correctly on printer paper rollers.
Extraneous or irregular line feed on printer.	High motor torque crossing over before 3-inch diameter roll is on paper winder.

8. WIRING



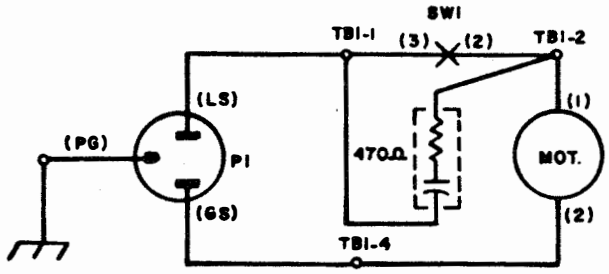
SCHEMATIC DIAGRAM



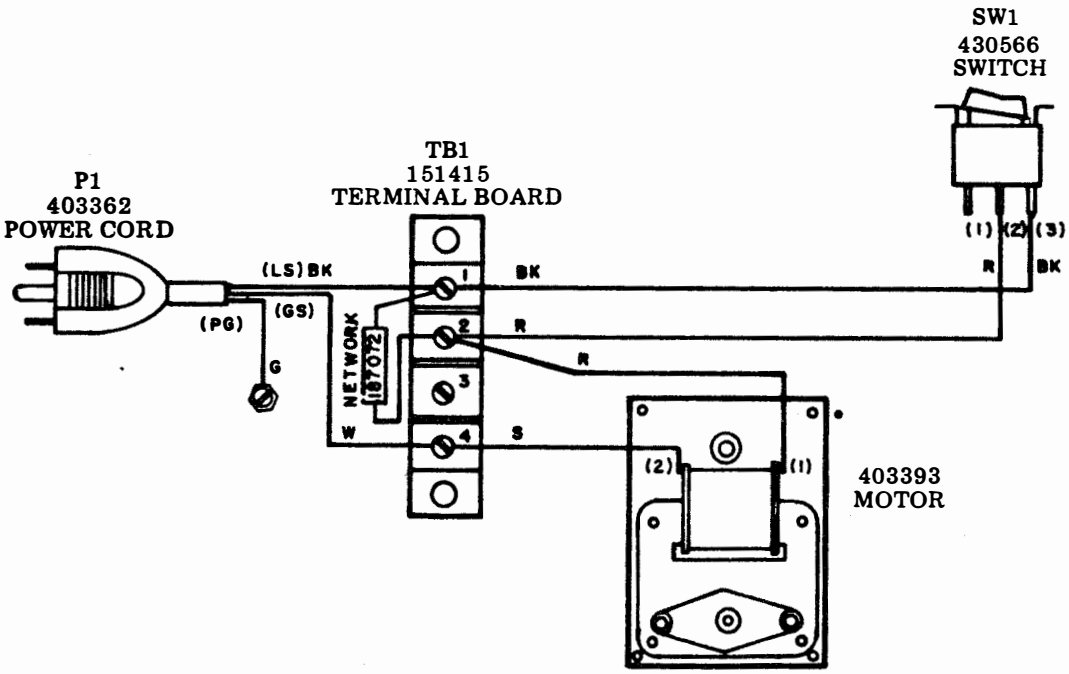
Note: For 110 rpm motor, use 407480 500 ohm variable resistor.

ACTUAL DIAGRAM

Fig. 10—40PWU101 (Late Design) and 40PWU102 Paper Winders



SCHEMATIC DIAGRAM



ACTUAL DIAGRAM

Fig. 11—40PWU101 Paper Winder (Early Design)

9. PART IDENTIFICATION

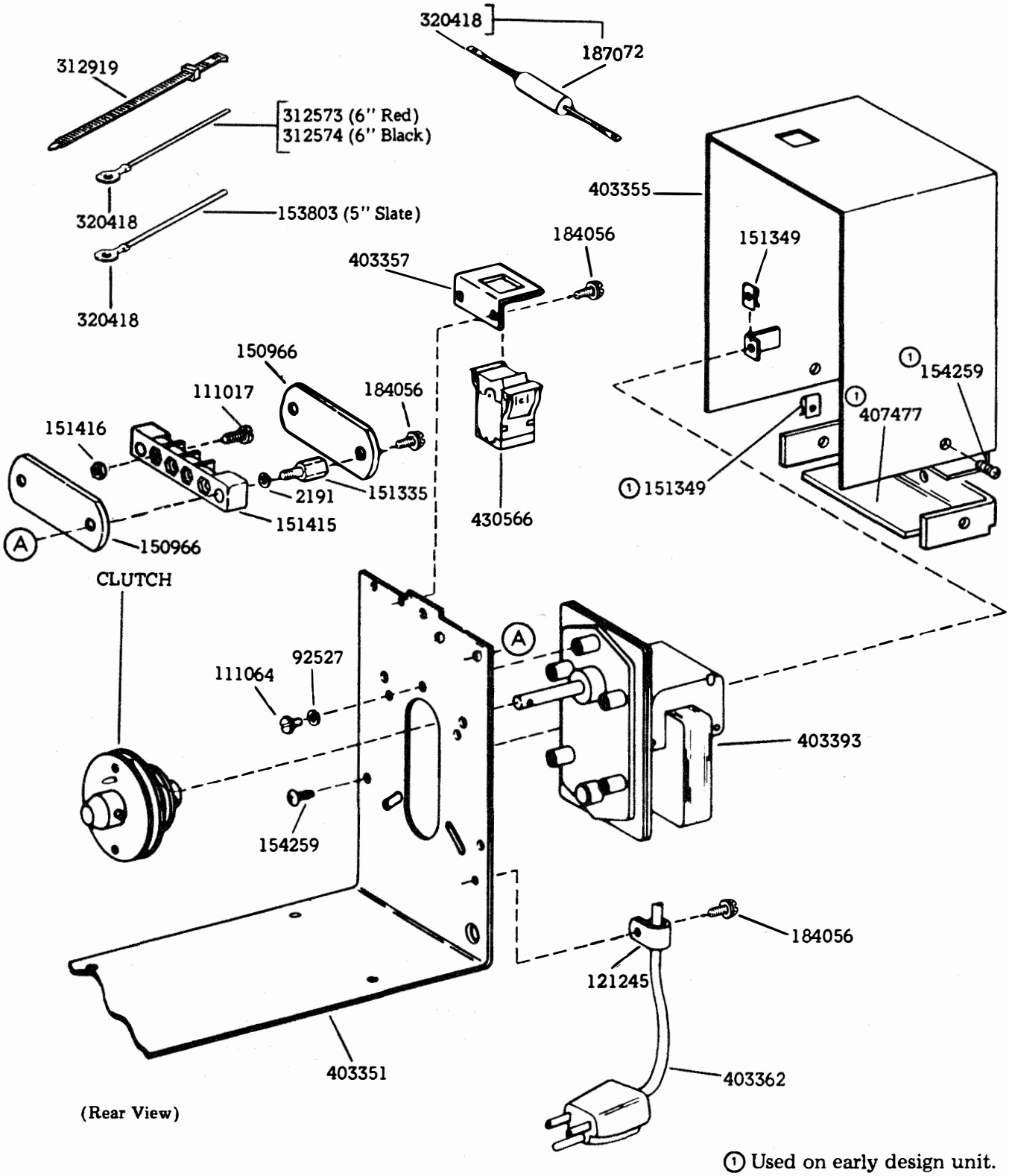


Fig. 12—Motor

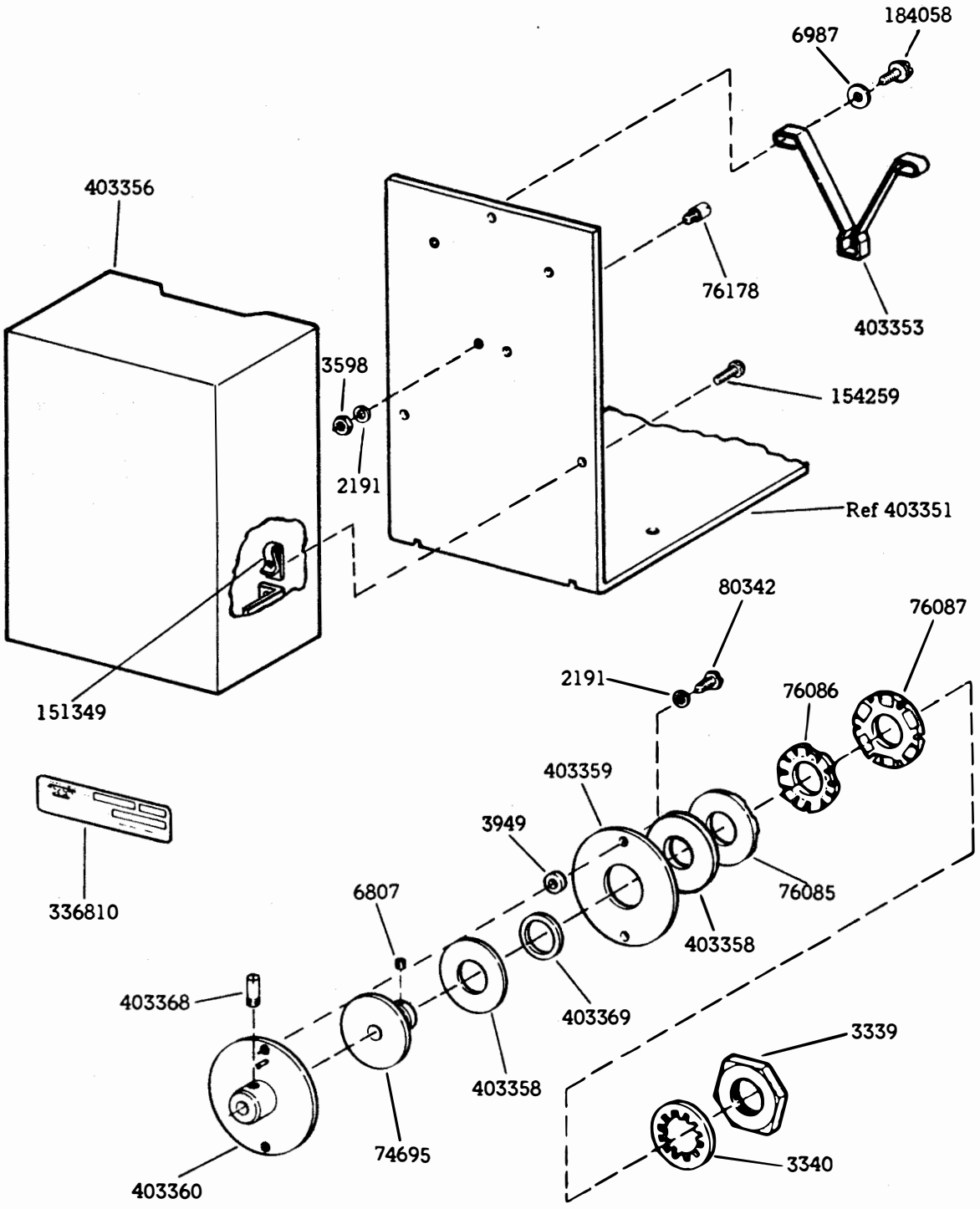


Fig. 13—Clutch Mechanism

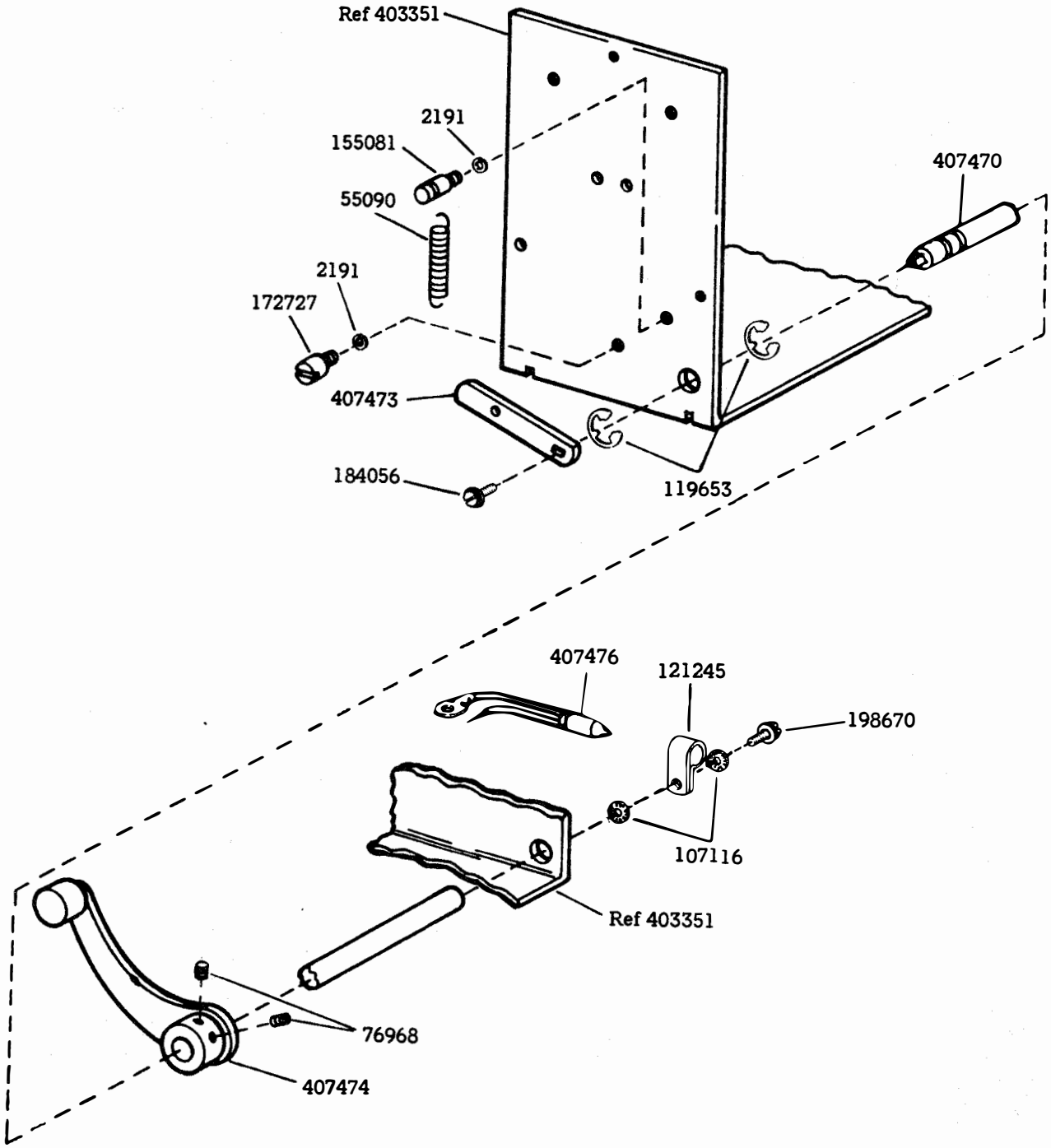


Fig. 14—Paper Sensing Arm Mechanism (Late Design)

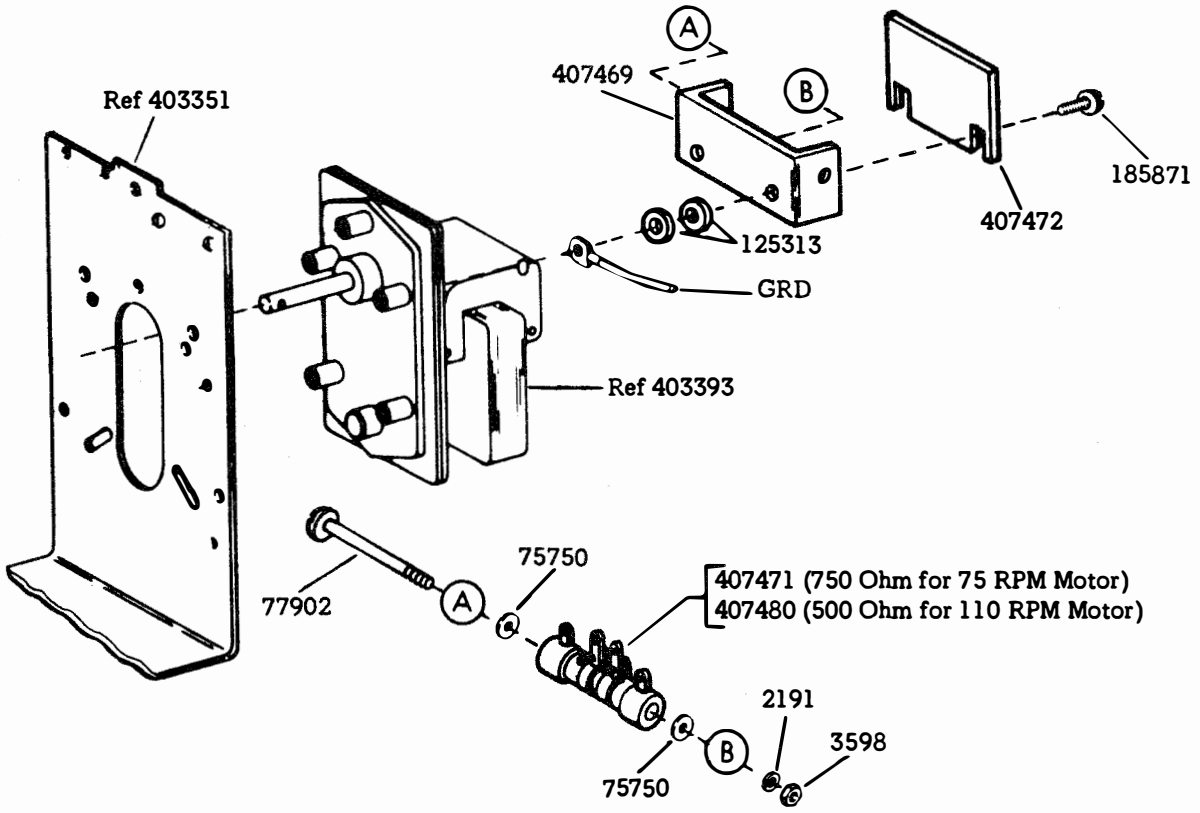


Fig. 15—Variable Resistor (Late Design)

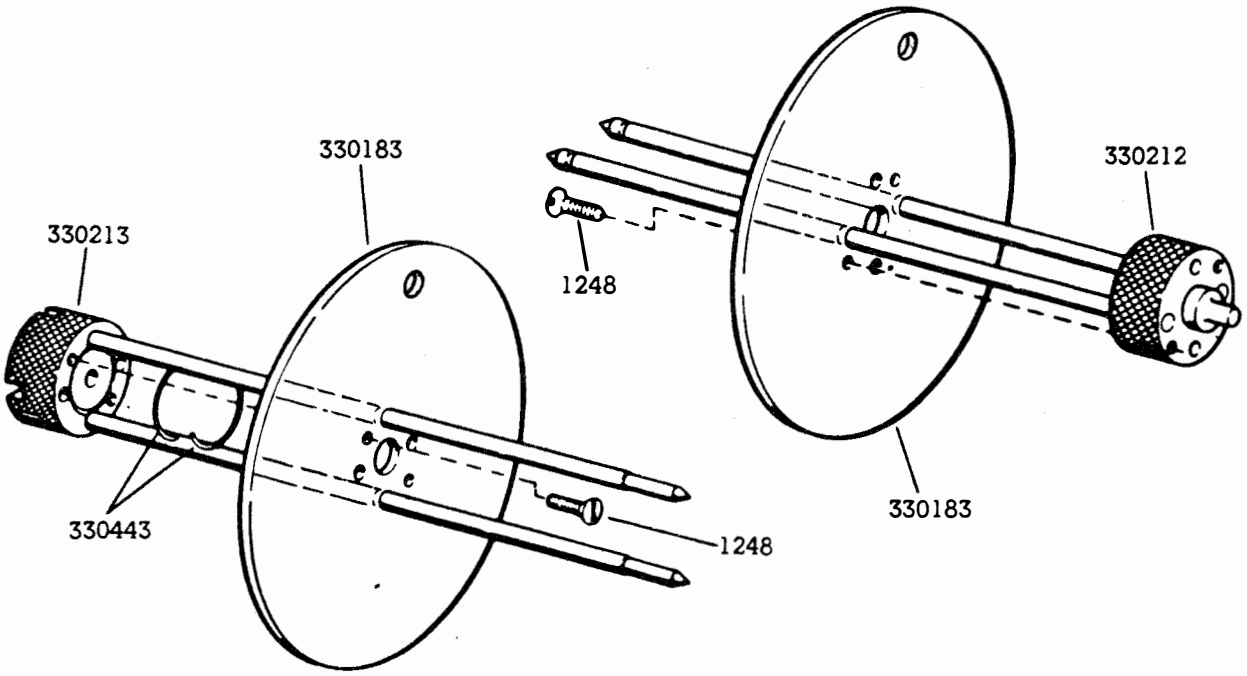


Fig. 16—Paper Spool

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