

INSTRUCTIONS FOR INSTALLING THE 198500 MODIFICATION KIT  
TO PROVIDE PRINT OR FUNCTION SUPPRESSION ON MODEL 35  
PRINTERS (LP)

1. GENERAL

- a. The 198500 Modification Kit provides electrically controlled print and/or function suppression on Model 35, 8-level printers.
- b. The 198500 Modification Kit provides the select, non-print; select, print; non-select, non-print and non-select, print operating modes. The 198500 Modification Kit when installed and wired with the necessary stunt box contacts will provide the response to individual regional and broadcast call-directing codes, the end-of-address and the end-of-message codes.
- c. The 198500 Modification Kit is not recommended for use on the Model 35 Sprocket Feed LP805 Printers.
- d. The 198500 Modification Kit operates at speeds up to 100 WPM.
- e. The print or function suppression mechanism is solenoid driven and may be controlled by a printer stunt box contact (latching for AC or DC operation) or a contact from some other source. The solenoid may be operated from 48V DC  $\pm$  10% or 117V AC  $\pm$  10% at a frequency of 60 cycles per second.
- f. The 198500 Modification Kit may be used as an alternate mode device in which printing is not inhibited. This is done by removing a portion of the upper blocking lever. See Figure 7.
- g. All wiring is supplied by the customer. Suggested selective calling wiring appears in this specification. (See Figures 1, 2, and 3).

\*h. The 198500 Modification Kit consists of:

6	2191	Washer, Lock	1	82548	Insulator
1	3640	Washer, Lock	1	104807	Washer, Flat
2	3646	Washer, Lock	1	106281	Screw, Shoulder
2	5816	Washer	3	110743	Washer, Lock
4	7002	Washer, Flat	2	119648	Retainer
1	41732	Plate	1	125011	Washer, Flat
2	74728	Terminal	2	125390	Washer, Flat
2	77039	Insulator	2	126250	Washer, Flat
1	80854	Screw	1	150089	Screw
2	82547	Insulator			

\*Indicates a change

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3	151630	Screw	1	198456	Link
1	151658	Screw	1	198457	Bracket, Mounting
1	151687	Screw	1	198492	Post
1	151880	Nut	1	198496	Solenoid
1	152875	Spacer	1	198497	Lever, w/Hub
1	152893	Screw	1	198498	Bail
1	153631	Network	1	198502	Pin
1	158816	Spring w/Contact Point	1	198503	Bushing, Shoulder
1	160583	Contact w/Point and Button	1	198506	Spring
6	173940	Terminal (Male)	1	198507	Resistor
6	173941	Terminal (Female)	1	312395	Bracket, Contact Mounting
1	198454	Arm, Power Drive	1	319936	Screw, Shoulder
1	198455	Link	1	319937	Bracket
			1	321782	Cover, Contact

i. For parts ordering information see Teletype Parts Bulletin 1187B.

2. INSTALLATION (See Figures 4 through 10)

NOTES

The 198500 Modification Kit is installed on the outside surface of the printer left side frame when the printer is viewed from the front in its normal operating position.

The necessary stunt box parts should be installed in accordance with standard practice. An uncoded function bar may be ordered, as necessary, under part number 153440.

The following kits may be ordered to provide all parts, except the function bar, for one stunt box slot position:

Kit 153915 to provide Sequential Function Lever operation. (Not momentary).

Kit 153917 to provide function lever latching by stripper bail latch.

Kit 153918 to provide function lever latching with release latch (use the 157205 Release Lever with the 157203 Release Lever Stud for higher or lower numbered slots or 152357 Release Lever Stud for higher numbered slots only).

a. Install the 198457 Mounting Bracket (See Figure 5) as follows:

(1) Remove and discard 151693 Screw from bracket on side of printer being careful not to drop the standard 152571 Spacer. Discard 7002 Flat Washer and retain 2191 Lock Washer.

(2) Remove and discard 151657 Screw from side of printer. Retain 2191 Lock Washer.

NOTE

Use caution so that screwdriver shank does not disengage the 74701 Springs from the standard 150355 Latch Lever and the standard 150358 Lever on the printer.

(3) Screw 198492 Post into upper mounting position. Post must seat on retained 2191 Lock Washer.

(4) Insert 151658 Screw through retained 2191 Lock Washer, through 7002 Flat Washer and into side frame. Do not tighten.

(5) Install slotted end of 198457 Bracket onto 151658 Screw between 7002 Flat Washer and printer side frame and move bracket against upper mounting position. Insert 151630 Screw and 2191 Lock Washer through bracket and into 198492 Post. Tighten screws. Reinstall the 74701 Springs, if necessary.

b. Install the 198497 Upper Blocking Lever and 198498 Bail (See Figures 6 and 7) as follows:

(1) The standard 154650 Lock Clip, Figure 7, and the standard 192540 Upper Blocking Lever and the standard 192548 Blocking Bail must be removed from the printer in order to replace them with the modified blocking lever and blocking bail.

(2) Remove and discard the 154650 Lock Clip and the 192540 Blocking Lever. Remove and retain the 192541 Middle Blocking Lever and 7655 Spring. Remove the 192548 Blocking Bail and 7603 Spring. Discard the bail but retain the 7603 Spring.

(3) Install the 198498 Bail and replace 7603 Spring. Replace the 192541 Blocking Lever and 7655 Spring.

(4) Install 198455 Link on 198497 Upper Blocking Lever with 106281 Shoulder Screw and tighten.

(5) Install the 198497 Upper Blocking Lever with 198455 Link on post and in slot of suppression code bar. Be sure oiled felt washer is replaced on top of lever mounting post.

c. Install the 198496 Solenoid (See Figure 5) as follows:

(1) Fasten 198496 Solenoid to large mounting bracket with two 126250 Screws, two 3646 Lock Washers and two 125390 Flat Washers and tighten lightly.

(2) Insert plunger into solenoid.

d. Install the linkage (See Figures 6 and 7) as follows:

(1) Insert 198502 Pin through half of plunger from bottom and pass pin through 152875 Spacer and 198454 Arm and through hole in upper half of plunger. Snap 119648 Retainer onto portion of pin extending out of top surface of plunger. Snap another 119648 Retainer onto lower portion of pin.

(2) Install 198456 Link on underside of flange on the large mounting bracket with 319936 Shoulder Screw. (Figure 7).

(3) Bring loose ends of two links and one arm together and line up holes. 198456 Link with tapped hole should be on bottom, 198454 Arm should be in the middle, and the 198455 Link should be on top. Insert 198503 Bushing into two upper parts and fasten with 152893 Screw and 110743 Lock Washer. Parts should be free from binds after screw is tightened.

(4) Install the 319937 Stop Bracket over threaded stud of 319936 Shoulder Screw as shown in Figure 7. Flange of 319937 Stop Bracket should be pointing downward. Add 125011 Flat Washer, 3640 Lock Washer, and 151880 Nut and tighten.

e. Contact Assembly.

NOTE

The early version of the solenoid latch contact involves an old style 198453 Contact Mounting Bracket and old style contact arrangement. The later version involves a new style 312395 Contact Mounting Bracket and new style contact arrangement.

(1) Old style 198453 Contact Mounting Bracket--Construct the contact spring pile-up in Figure 8 and install on 198453 Bracket. Arrange pile-up according to Figure 8 with parts listed below.

\*(2) New Style 312395 Contact Mounting Bracket--Construct the contact spring pile-up in Figure 8A and install on 312395 Bracket. Arrange pile-up according to Figure 8A with parts listed below:

1	82548	Insulator	1	41732	Plate
2	80755	Insulator (Old Style)	2	151688	Screw (Old Style)
2	77039	Insulator (New Style)	2	151687	Screw (New Style)
2	74728	Terminal	2	110743	Lock Washer
1	160583	Contact	1	158816	Spring w/Contact (Old Style)
2	82547	Insulator			Style)
1	74728	Terminal (Old Style)	1	150089	Screw
1	158816	Spring w/Contact	1	104807	Washer
1	82548	Insulator (Old Style)	1	321728	Cover, Contact

f. Installation of the old style 198453 Contact Mounting Bracket (Figure 5) or new style 312395 Contact Mounting Bracket.

(1) Mount old style 198453 Bracket or new style 312395 Bracket and contact pile-up with two 151630 Screws, two 2191 Lock Washers and two 7002 Flat Washers and tighten lightly.

g. Add 153631 Network, 185A, across solenoid coil to reduce contact arcing (Figure 5).

h. Remove and discard the standard printer suppression bar return spring, 31636, and replace with 198506 Spring per Figure 9.

i. If the solenoid is to operate on 48 V DC, add 198507 Resistor as shown in Figure 5 using the 80854 Screw, two 5816 Fiber Washers, one 7002 Flat Washer and one 2191 Lock Washer.

(1) Insert the 173715 Terminal into the printer connector as required to suit customer wiring.

(2) Insert the 173716 Terminal in the mating connector as required.

j. Modification of 198497 Upper Blocking Lever for Alternate Mode Operation (Figure 7).

(1) Removal of the hook on the 198497 Lever will permit the parts to function without blocking type box printing.

(2) Clamp the lever in a vice or similar clamping device to prevent the remainder of the part from being distorted while breaking off the hook with a pliers.

k. Modifications of New Style Contact Arrangement to Provide SPDT Contact Operation.

(1) In applications where the solenoid latching contact must be a transfer type (single pole-double throw) rather than the make type (single pole-single throw) which is provided in the 198500 Modification Kit, the following parts must be obtained to perform the conversion:

2	80755	Insulator
1	74728	Terminal
1	158816	Spring W/Contact
1	82548	Insulator
2	151687	Screw

\*The following parts must be discarded:

2	77039	Insulator	1	151678	Screw
1	151688	Screw	2	77039	Insulator
			1	150089	Screw

(2) The contact arrangement would take the form of the old style assembly as shown in Figure 8 but would be installed on new style bracket 312395 provided in the 198500 Modification Kit.

#### NOTES

Check the condition of all electrical contacts when a malfunction of circuit operation occurs. The stunt box contacts are particularly vulnerable to heat generated when a contact breaks an inductive load. Spark protection networks should be used across contacts subject to heavy duty operation.

Check all linkage pivot points for binds if the mechanism fails to operate easily.

### 3. ADJUSTMENTS AND LUBRICATION

a. For standard adjustments and lubrication procedure refer to the standardized information.

b. SOLENOID PLUNGER (See Figures 4, 5, 6, and 7)

Requirement 1

With the solenoid plunger held against the stop within the solenoid, the end of the suppression code bar should line up with the ends of code bar 1, 2, 3, 4, 5, 6, or 7 when these bars are in their spacing position. An alternate means to adjust the solenoid may be achieved by vertically aligning the tines of the suppression bar to the tines of the #2 code bar.

To Adjust

Loosen the solenoid mounting screws and move the solenoid forward or backward to meet both of these requirements. Check the outer edges of the bars and the tine line-up by eye. Check tines by sighting over and through stunt box at rear of unit. Recheck Requirement 1. Tighten screws.

Requirement 2

With 117 V AC or 48 V DC applied to the solenoid, recheck Requirement 1. The suppression code bar shall not overtravel when the solenoid is energized.

To Adjust

Use same adjustment as for Requirement 1.

Requirement 3

When the solenoid de-energizes the plunger shall not travel more than 1/8" away from the solenoid pole face.

To Adjust

Loosen nut and adjust stop bracket against link as shown in Figure 7. Vertically align suppression code bar with other code bars by eye as shown in Figure 4. Solenoid travel should not exceed 1/8". Tighten nut.

c. Make the solenoid contact adjustments.

SOLENOID CONTACT (Using old style contact arrangement and 198453 Bracket (See Figures 5, 6, and 8).

#### NOTE

Bend normally closed contact away from swinger as shown in Figure 6 before making the following adjustments.

#### \*NOTE

Open the 321782 contact cover to facilitate making the adjustments.

Requirement 1

With solenoid in the de-energized position and the notch in the suppression code bar approximately lined up with the notch in the #2 code bar when it is in the marking position; it shall require 20 to 40 grams to start the swinger moving in a direction away from the plunger stud.

To Adjust

Loosen the contact bracket mounting screws and position the bracket forward or backward to meet the requirement.

Requirement 2

With the solenoid in the de-energized position and the notch in the suppression code bar approximately lined up with the notch in the #2 code bar when it is in the marking position; there should be 0.010" to 0.020" clearance between the normally open contact and swinger contact.

\*To Adjust

Bend the normally open contact spring to meet the requirement and then close the 321782 contact cover.

Requirement 3

All pivot points on the solenoid linkage must be free of binds. With the solenoid plunger in its unoperated position, a force of no more than 1-1/4 ounces applied to the end of the plunger should move the plunger through its entire travel (Figure 7) when the suppression bar return spring (Figure 9) is removed.

To Adjust

Inspect all pivot points for binds.

d. SOLENOID CONTACT (Using new style contact arrangement and 312395 Bracket) (See Figures 5, 6A, 6B, 8A, and 10).

Requirement 1

With the solenoid de-energized and the plunger in the unoperated position there should be 0.010" to 0.020" gap between the contacts. Figures 6A and 8A.

To Adjust

Bend the contact springs to meet the requirement.

Requirement 2

With the solenoid plunger held against the solenoid pole face, the solenoid pin shall operate the contact swinger and close the contacts. It shall require a force of at least 2 ounces to separate the contacts. Figure 6B.

To Adjust

Loosen the contact bracket mounting screws and position the bracket so that the solenoid pin strikes the contact button just before the end of the plunger travel. Tighten screws. Bend the stationary contact to meet the requirement. Recheck requirement 1.

Requirement 3

The swinger contact button and the solenoid plunger pin shall be aligned by eye such that the pin strikes the flat surface of the button. Figure 10.

To Adjust

Loosen the contact pile-up mounting screws and move the contact left or right to gain alignment of button and pin. Check to see that the contact points mate fully and then close the 321782 contact cover.

Requirement 4

All pivot points on the solenoid linkage must be free of binds.

To Check

With the solenoid plunger in its unoperated position, a force of no more than 1-1/4 ounces applied to the end of the plunger (Figure 7) should move the plunger when the suppression bar return spring (Figure 9) is removed.

e. SUPPRESSION BAR RETURN (Figure 9)

Requirement

With the solenoid de-energized and the suppression bar moved to the left, push against the left end of the bar and parallel to the bar with an 8 ounce scale. All bearing points in solenoid linkage must be free of binds.

To Check

It shall require 2-1/2 to 4-1/2 ounces to start the bar moving to the right.

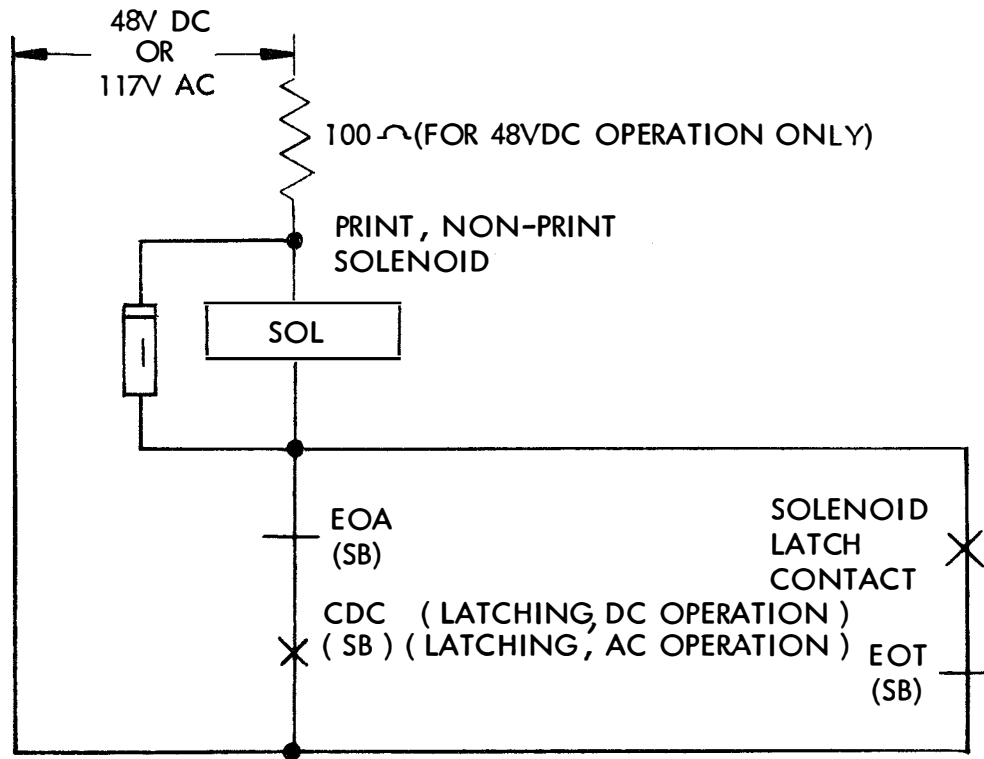
f. Oil all pivot points on mechanism. Do not oil sliding cylindrical surface or pole face on end of plunger. Wipe off excess oil from pivot points.

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BASIC SELECTIVE CALLING CIRCUIT  
WITH PRINTING AFTER CDC AND  
BEFORE EOT.  
(MODEL 28 APPROACH)

SB=STUNT BOX

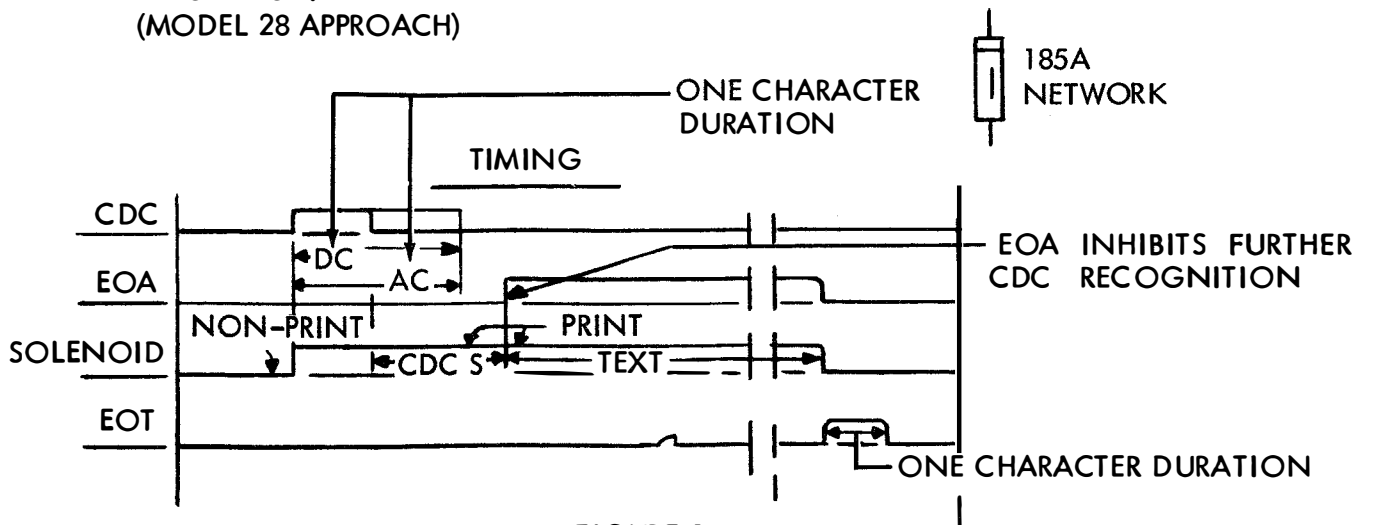
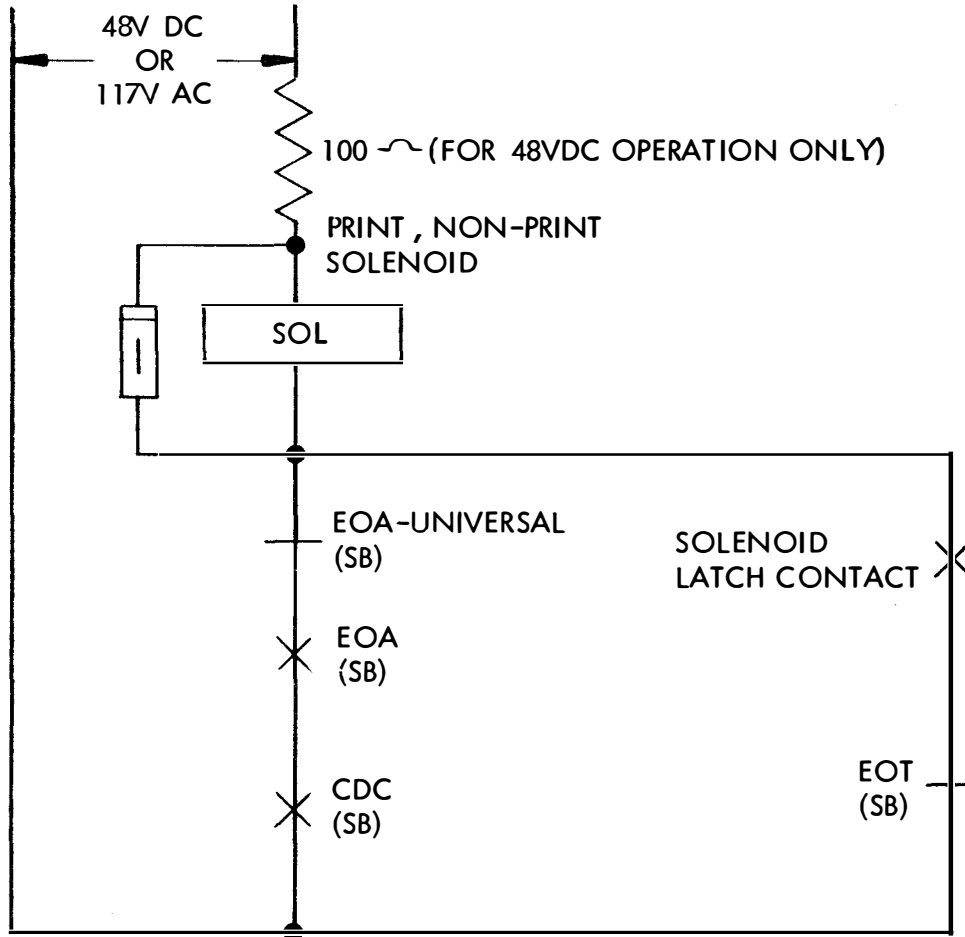


FIGURE 1

SELECTIVE CALLING CIRCUIT  
WITH PRINTING ONLY AFTER  
EOA AND BEFORE EOT



SB=STUNT BOX

PROPOSED MODEL 35 SELECTIVE  
CALLING CIRCUIT WITH PRINTING  
ONLY AFTER EOA AND BEFORE EOT.

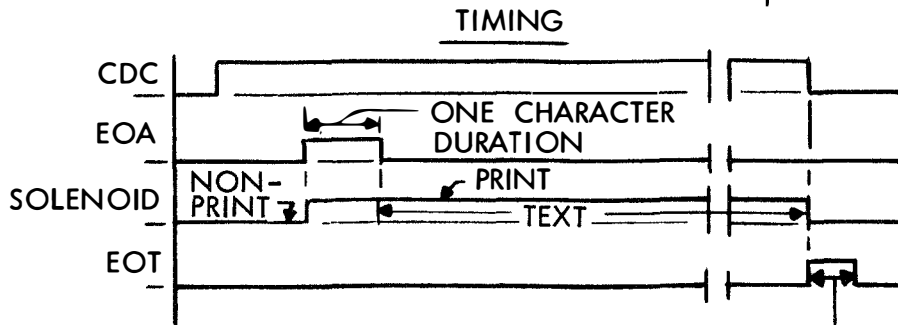
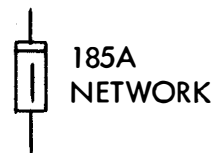
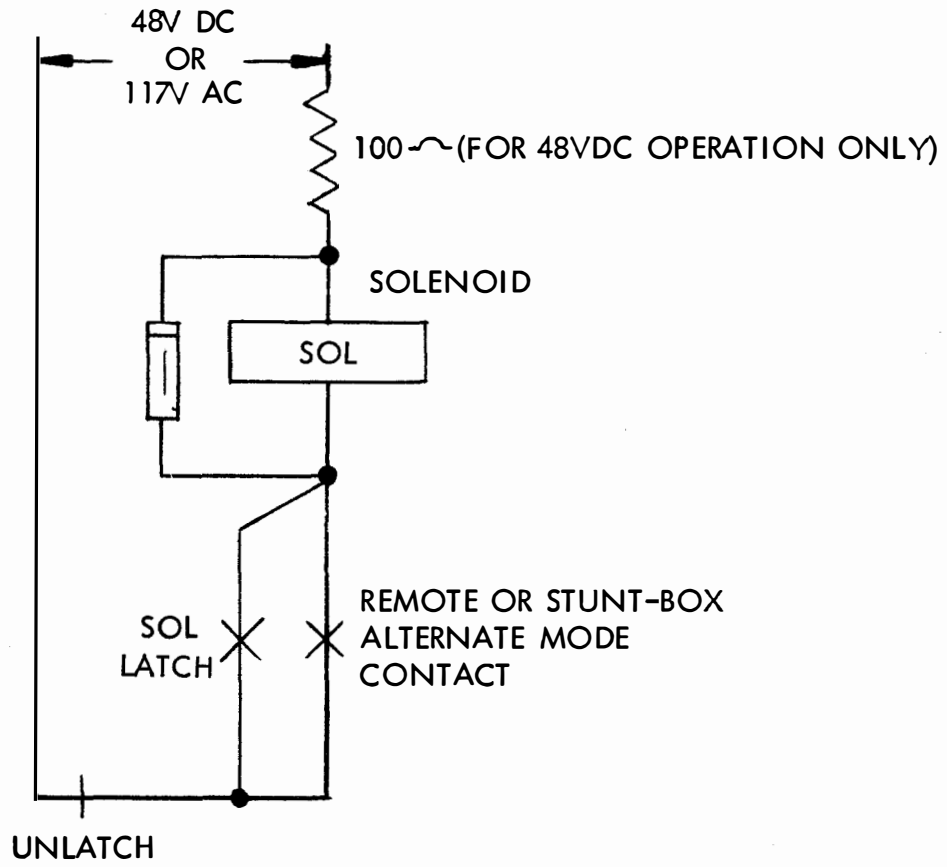


FIGURE 2

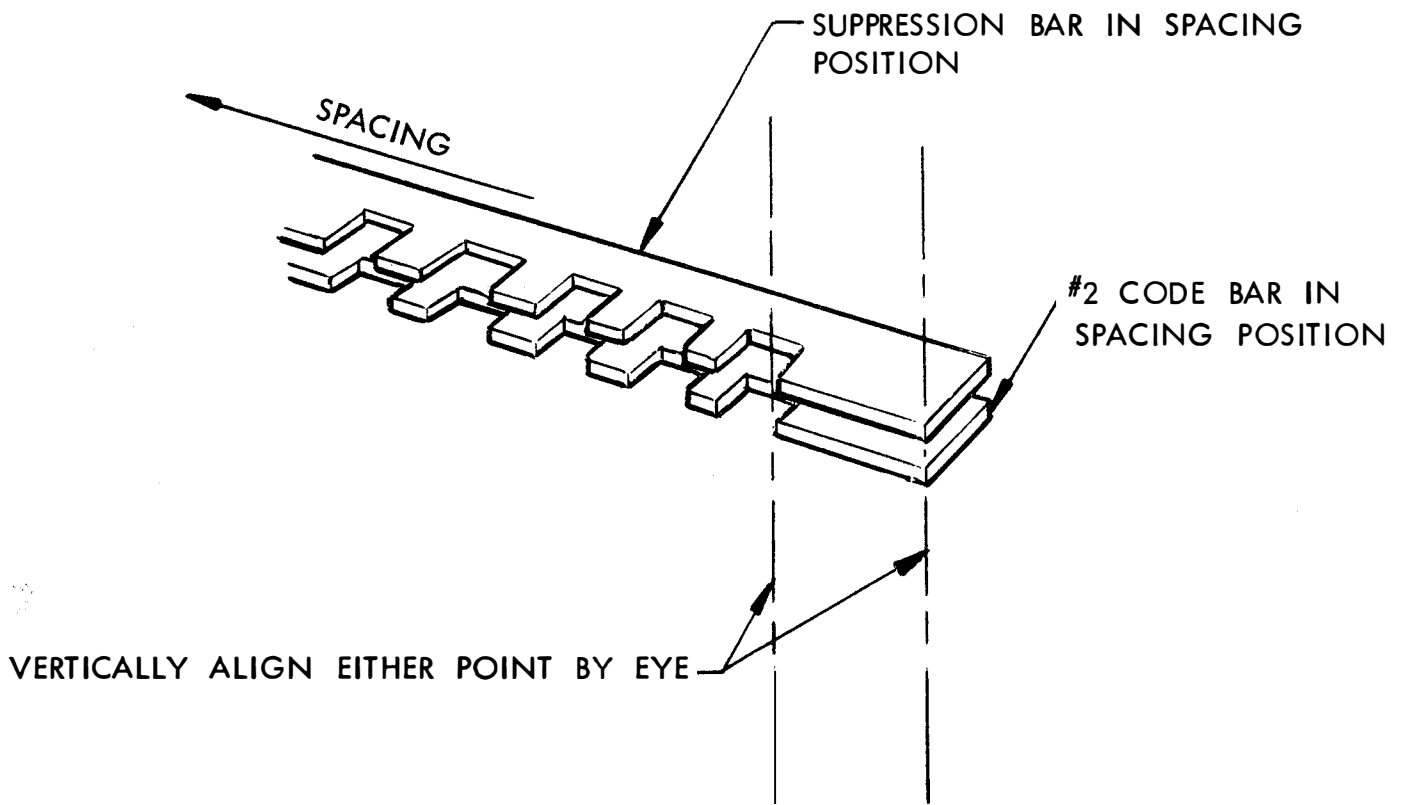
ONE CHARACTER DURATION



AN ALTERNATE MODE ARRANGEMENT



FIGURE 3



SOLENOID PLUNGER ADJUSTMENT

FIGURE 4

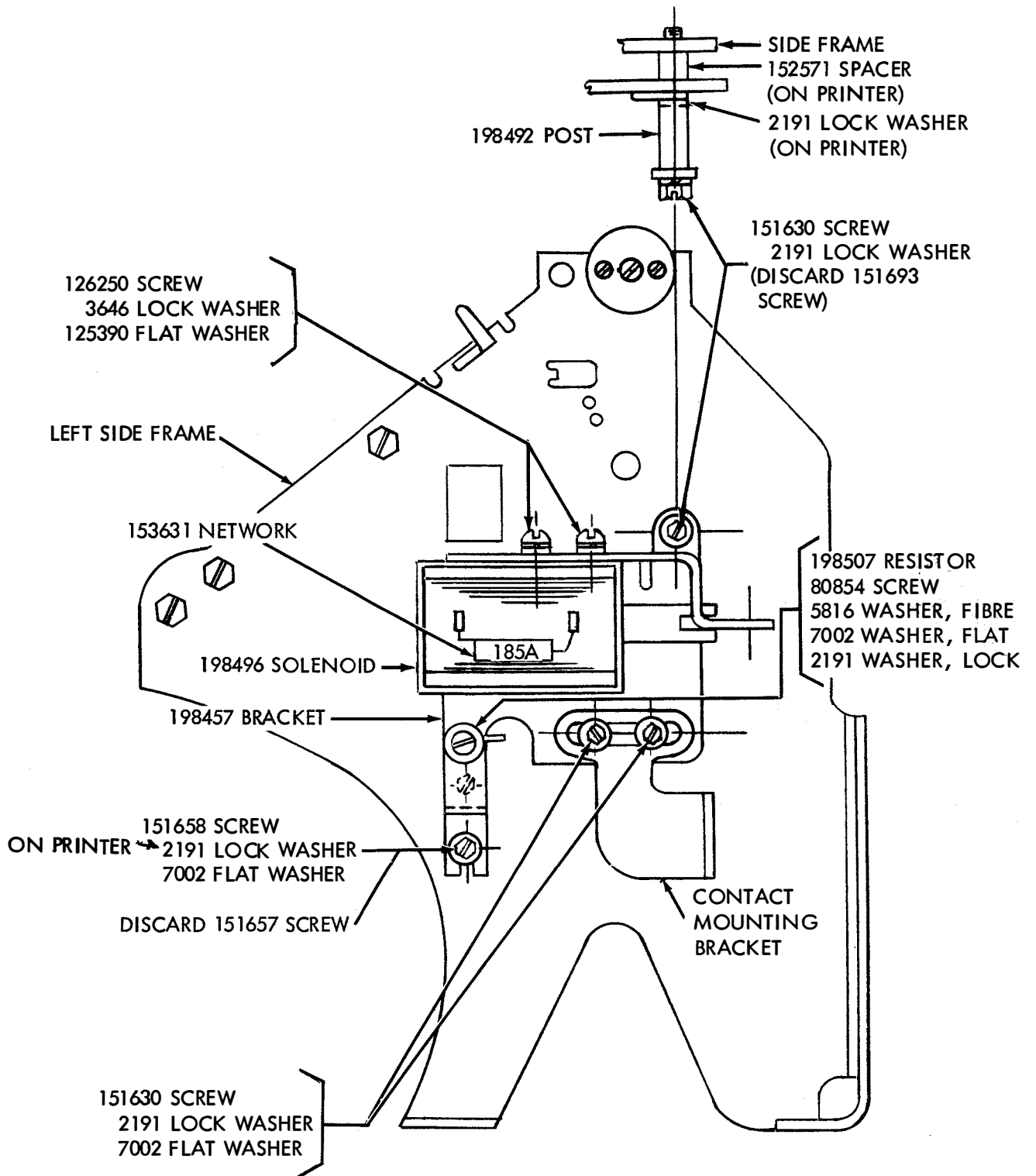
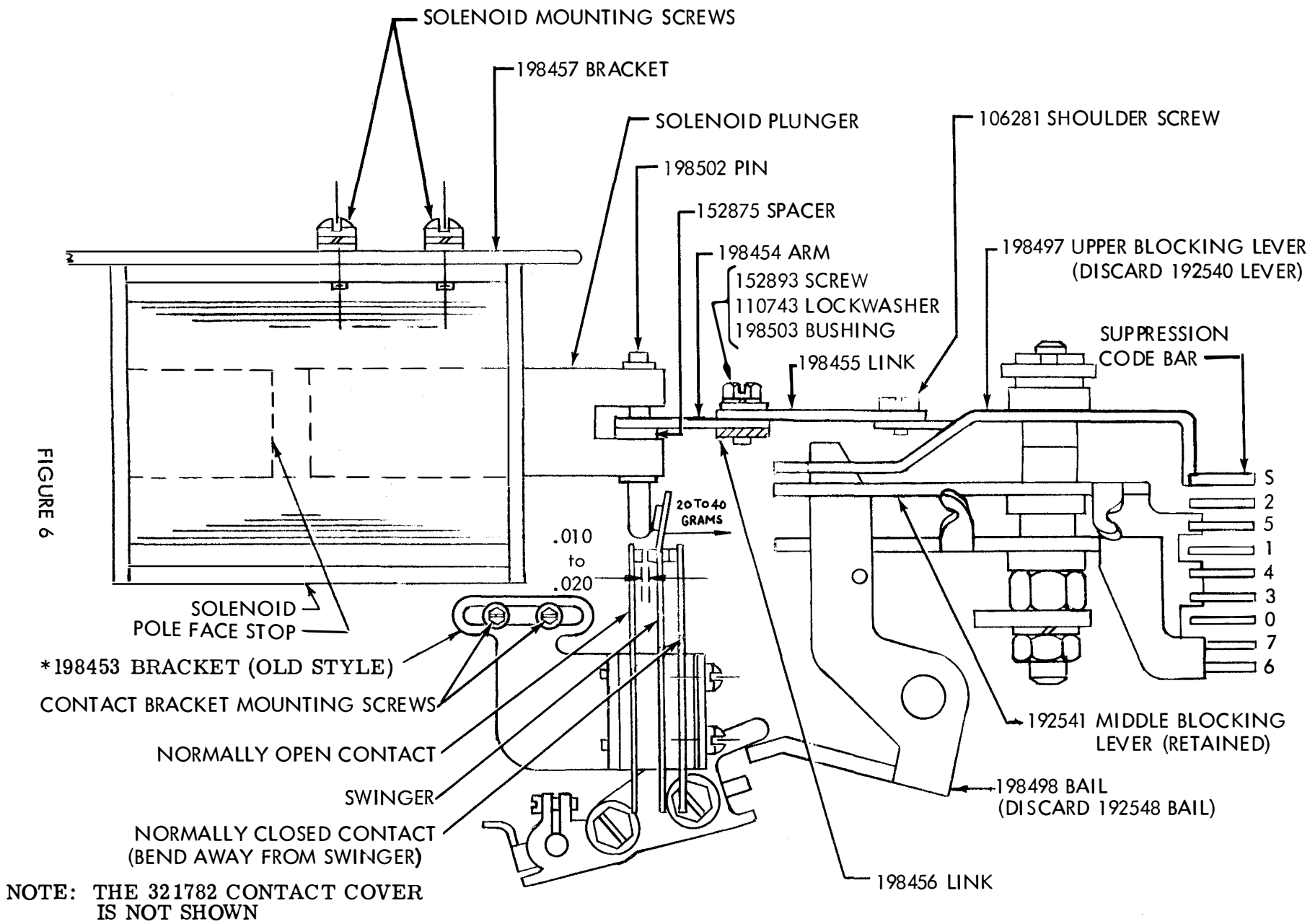


FIGURE 5

FIGURE 6

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NOTE: THE 321782 CONTACT COVER IS NOT SHOWN

\* PRINT, NON-PRINT SOLENOID MECHANISM WITH OLD STYLE CONTACT ARRANGEMENT

(SOLENOID DEENERGIZED)

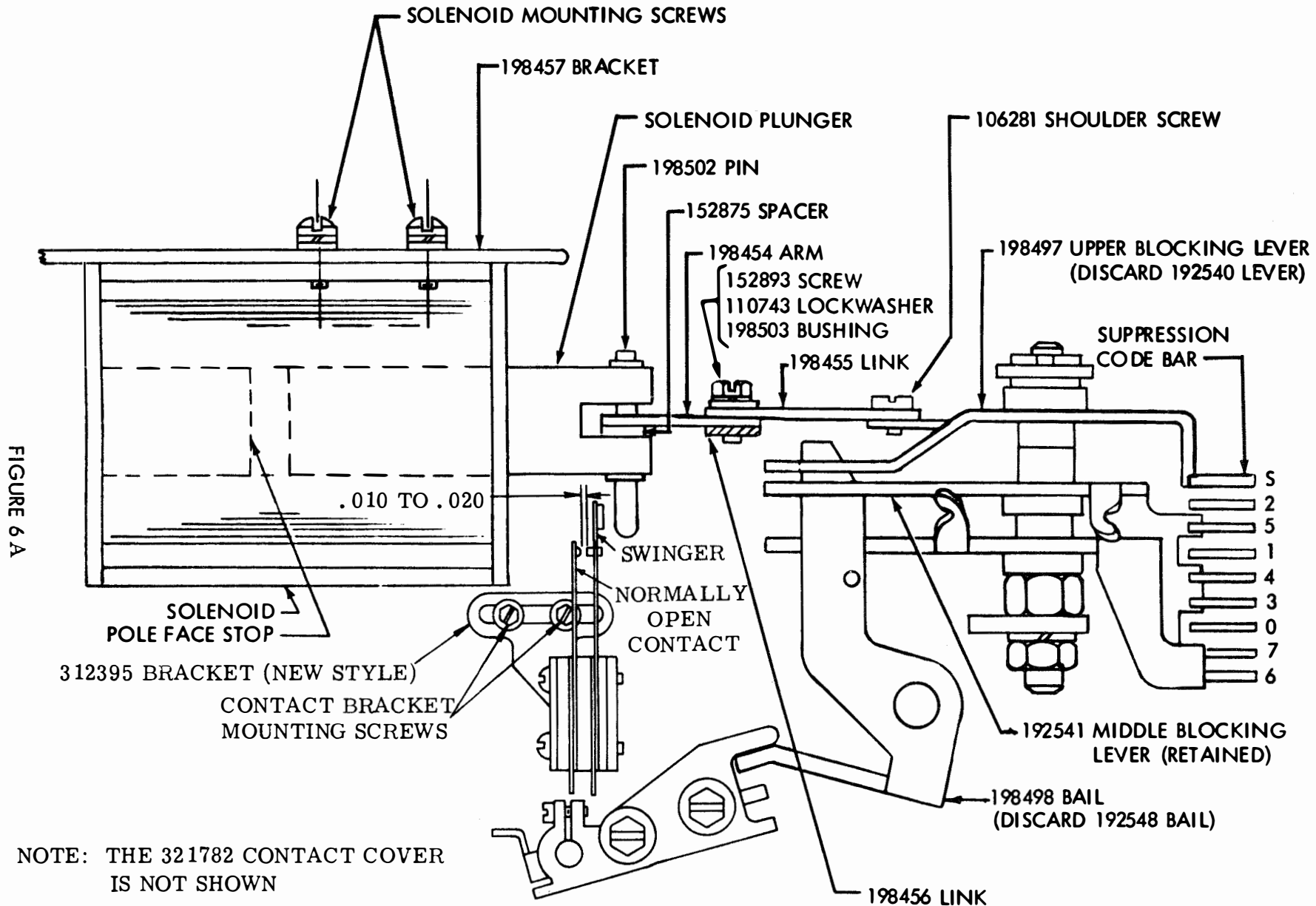


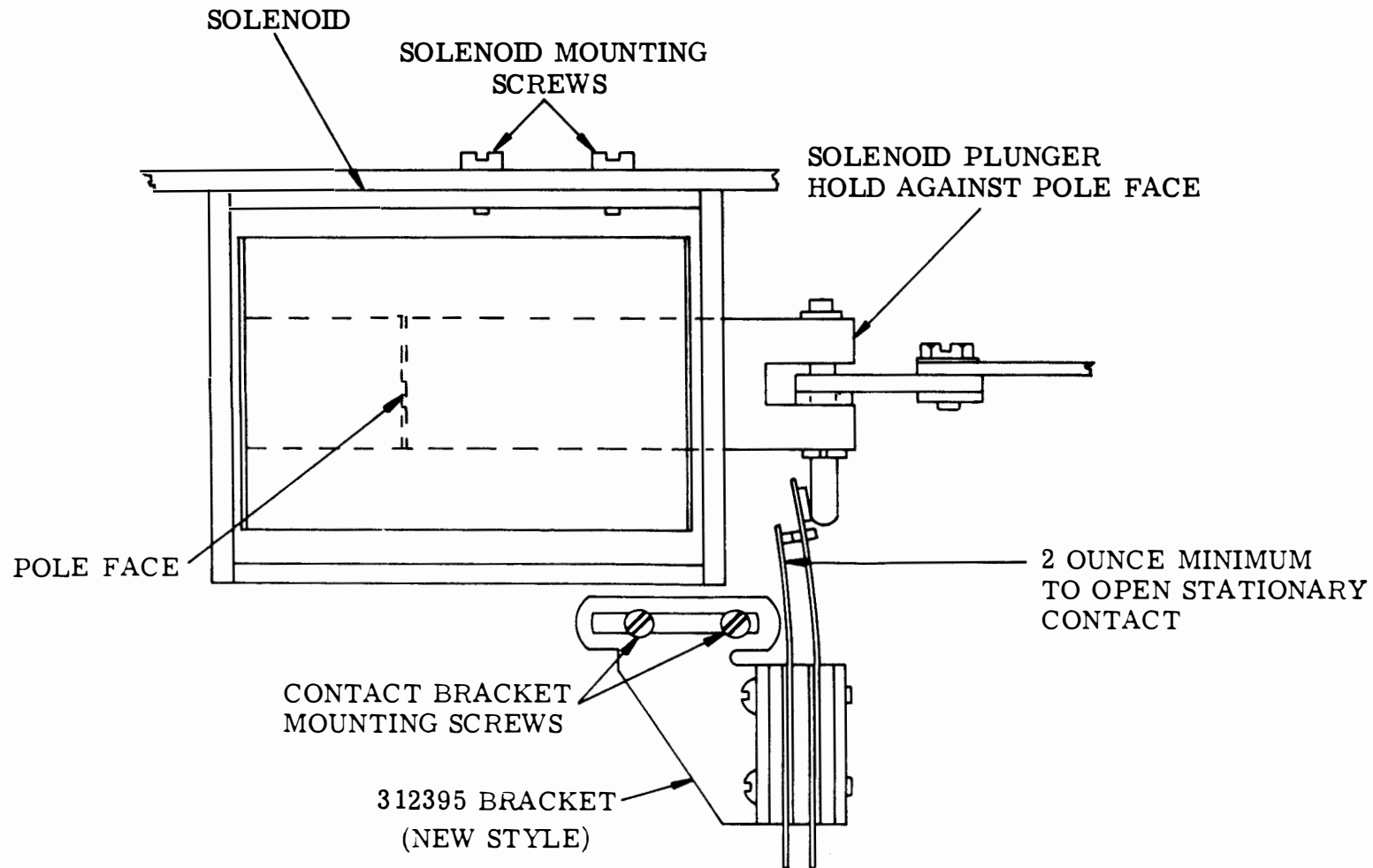
FIGURE 6 A

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NOTE: THE 321782 CONTACT COVER IS NOT SHOWN

PRINT, NON-PRINT SOLENOID MECHANISM WITH NEW STYLE CONTACT ARRANGEMENT  
(SOLENOID DEENERGIZED)

FIGURE 6B



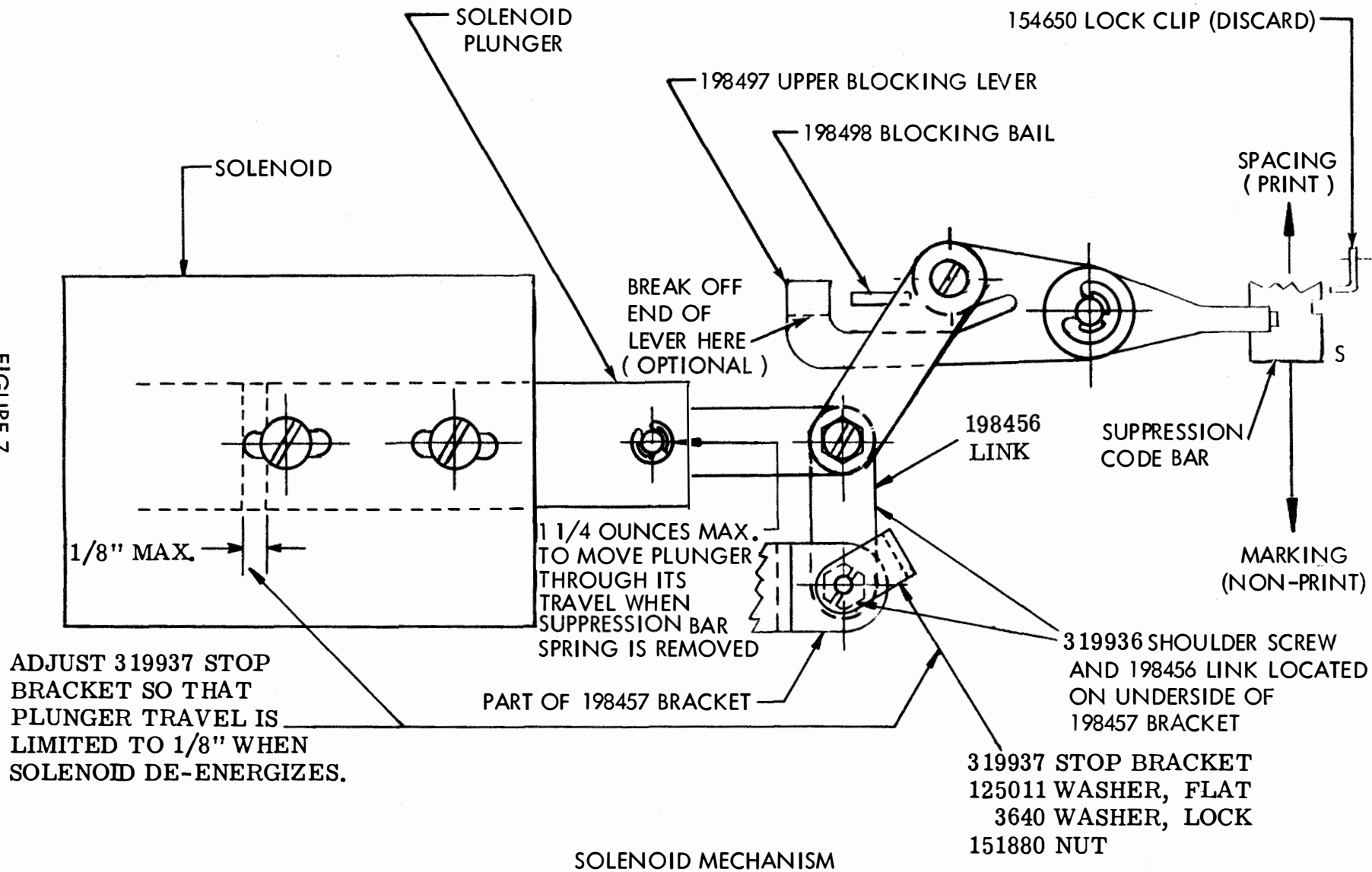
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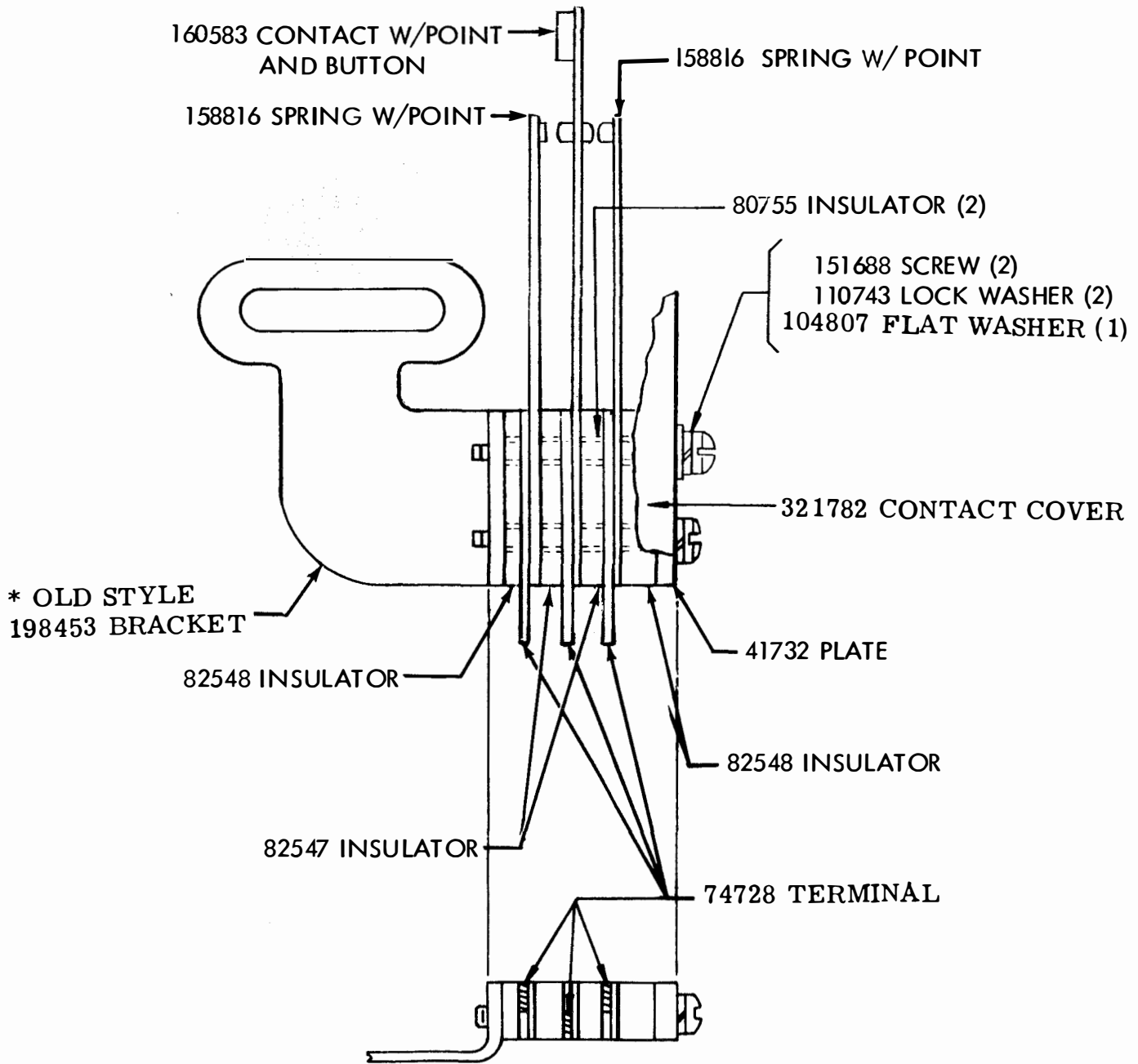
PRINT, NON-PRINT SOLENOID MECHANISM WITH NEW STYLE CONTACT ARRANGEMENT  
(SOLENOID ENERGIZED)

NOTE: THE 321782 CONTACT COVER IS NOT SHOWN



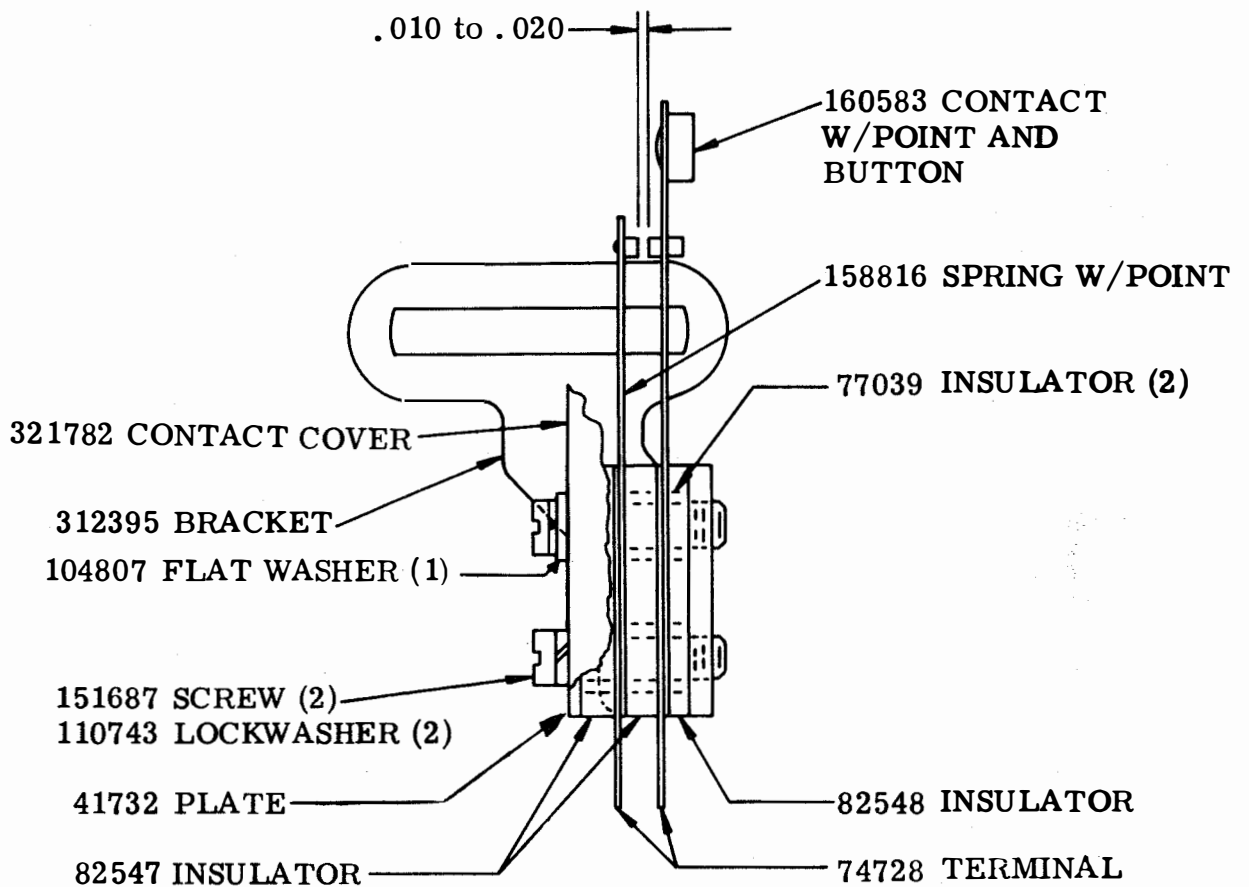
FIGURE 7





\*OLD STYLE CONTACT ARRANGEMENT WITH 198453 BRACKET

FIGURE 8



NEW STYLE CONTACT ARRANGEMENT USING  
312395 BRACKET

FIGURE 8A

FRONT VIEW OF PRINTER

PLATEN

2-1/2 TO 4-1/2 OUNCES  
TO START BAR  
MOVING

FIGURE 9

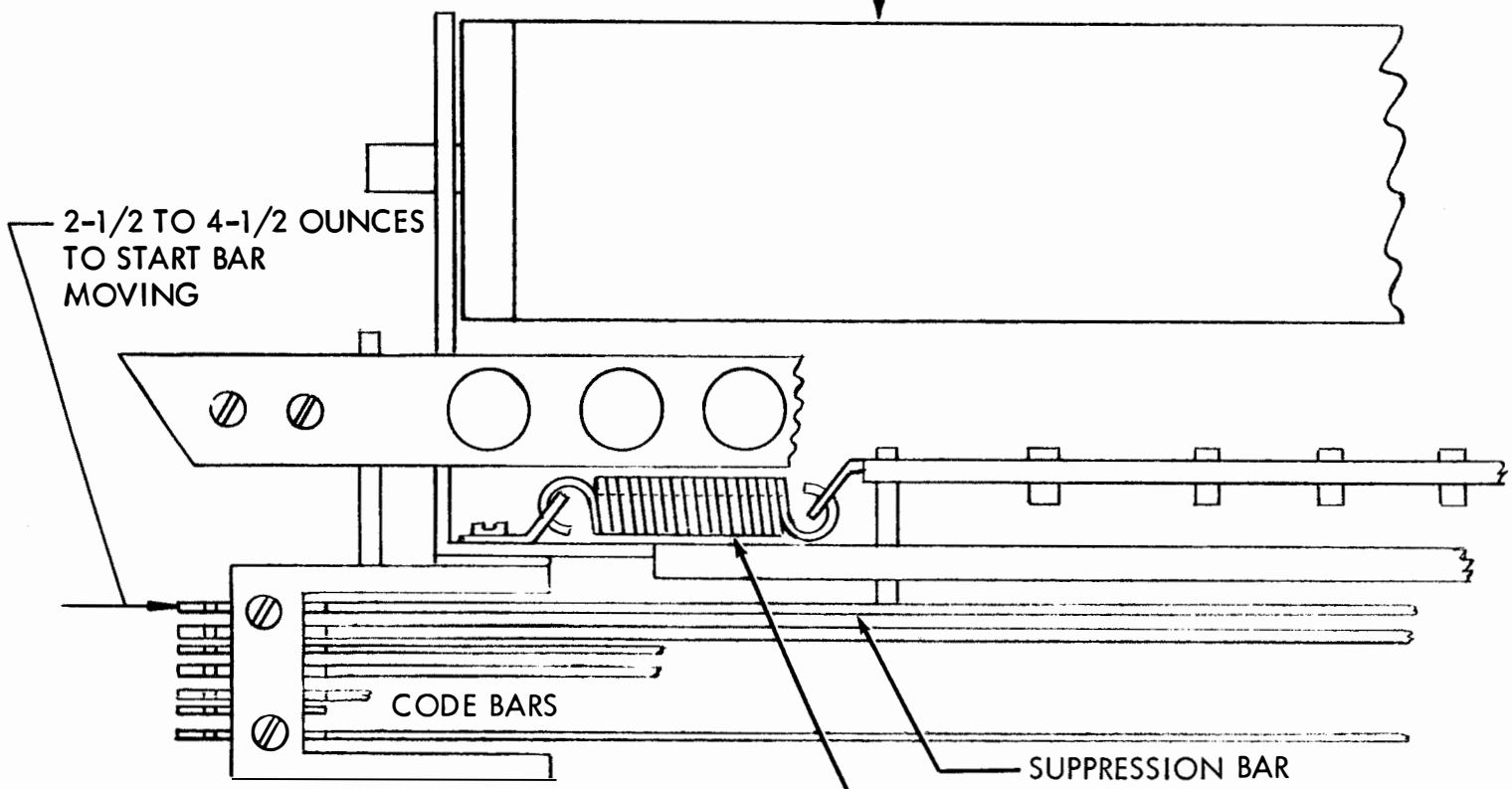
CODE BARS

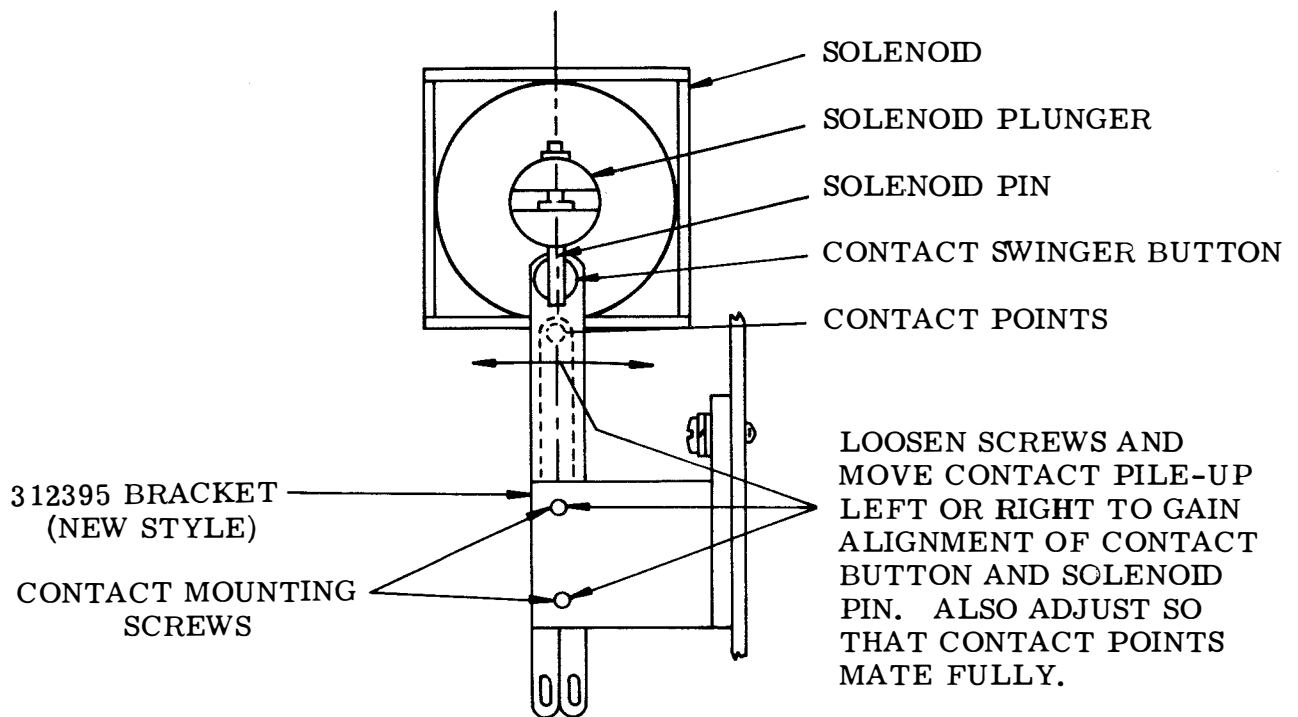
SUPPRESSION BAR

REPLACE STANDARD 31636 SPRING WITH 198506 SPRING.

SUPPRESSION BAR SPRING

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NOTE: THE 321782 CONTACT COVER IS NOT SHOWN

CONTACT BUTTON AND SOLENOID PIN ALIGNMENT  
(NEW STYLE CONTACT ARRANGEMENT)

FIGURE 10