

INSTRUCTIONS FOR INSTALLING THE 159366 (FOR MODEL 28 ONLY)
OR 194324 MODIFICATION KIT ON A MODEL 28,29,34,35 OR 28-32
PRINTER (FRICTION FEED) TO PROVIDE A PAPER-OUT ALARM SWITCH

1. GENERAL

*a. The 194324 Modification Kit (replaces the 159366 Modification Kit) when installed on a Model 28,29,34,35 or 28-32 Printer (Friction Feed), including wall mount printer, provides a paper-out alarm switch which is activated when the supply of paper is almost depleted. When a signalling device is connected to the switch, closure of the contact in the switch completes an electrical circuit to the signalling device which warns the attendant that a new roll of paper is needed. This feature operates as follows: An electrical break-make switch is activated by means of a lever which senses the decrease in diameter of the paper roll. Either the normally open or the normally closed side of the switch can be connected to a signalling device in an external circuit. With a full roll of paper in the printer the "normally closed" contact is closed. The lever which rides on the paper roll may be adjusted to activate the switch to within approximately one eighth of an inch (on the radius of the roll of paper) from the end of the roll. For single copy paper this is equivalent to approximately 15 feet of paper length. Due to the design of the paper spindle and spindle holder, the axis of rotation of the paper spindle may move up and down slightly during operation of the line-feed or form-out functions. For this reason, when the paper-out alarm first senses a "low paper" condition the switch may flick on and off intermittently as the spindle turns. The 155954 Switch will operate satisfactorily at the following current loads: 115V AC, 60 cycle, inductive, .060 ampere; 115V DC, inductive, .060 ampere; 60V DC, resistive, .100 ampere. When used with an inductive load it is recommended that adequate electrical contact protection be provided for this switch. The 194324 Modification Kit is compatible with the 152340 Modification Kit for handling multicopy roll paper. It will operate properly with all paper roll sizes of five inches or less in diameter and greater than four inches in width.

b. The 159366 Modification Kit when installed on a Model 28 Typing Unit (Friction Feed) provides a paper-out device to close an electrical contact when the signalling device is connected to the switch, closure of the contact in the switch completes an electrical circuit to the signalling device which warns the attendant that a new roll of paper is needed. An electrical break-make switch is activated by means of a bell crank follower which rides downward on the roll of paper as the diameter decreases. The normally open side of the switch can be used to control an external circuit. The follower may be adjusted to activate the switch to within one quarter inch of the end of the paper roll.

The 159366 Modification Kit cannot be used with a Model 28 Typing Unit equipped with any of the following modification kits.

Modification Kit

Specification

152302	Page Feed-Out	5751S
152303	Transmitter Control	5751S
152915	Local Reverse Line Feed	5765S
152340	Permit Use of Multi-Copy Paper	5789S
152345	Off Line Stunt Shift Control	5823S
154743	Manual Selection of Stunt Box Operation	5800S
159362	Locate Narrow Rolls of Paper Centrally	

c. The 159366 Modification Kit consists of:

1	2191	Washer, Lock	1	151611	Bushing
1	4708	Spring	1	151618	Screw
2	7001	Washer, Flat	1	151721	Screw
3	8330	Washer, Flat	1	155954	Switch
2	13681	Spacer	1	158314	Bracket w/Stud
2	71073	Flat Washer	1	158315	Follower, Bell Crank
2	93118	Washer, Lock	1	158316	Plate, Nut
1	119652	Retainer, Ring	1	158317	Insulator, Switch
2	151354	Screw	1	158318	Cable Assembly
2	151442	Screw			

d. The 194324 Modification Kit consists of:

*6	2191	Washer, Lock	2	151354	Screw
*6	3598	Nut	*2	151626	Terminal
4	3599	Nut	*4	153537	Screw
2	7002	Washer, Flat	2	155750	Sleeve, Insulating
2	93118	Washer, Lock	1	155954	Switch
1	110436	Spring	1	158317	Insulator, Switch
4	110743	Washer, Lock	1	158318	Cable Assembly
2	111017	Screw	1	194325	Bracket w/Post
2	112627	Nut	1	194326	Switch Bracket
2	124244	Washer, Felt	1	194327	Lever
2	125124	Screw	1	194371	Guide
2	151036	Screw			

e. For part numbers referred to and for parts ordering information see applicable Teletype Model 28 Parts Bulletin.

2. INSTALLATION

a. 159366 Modification Kit (Figure 1)

(1) Solder one of the two leads of one end of the cable to the terminal of the switch marked "C" (or common) and the other to the terminal of the switch marked "NO" (or normally open).

(2) Mount the 155954 Switch and the 158317 Insulator to the 158314 Bracket with two 151354 Screws, 93118 Lock Washers, 71073 Flat Washer and one 158316 Nut Plate. Assemble the switch so that the switch button is in its nearest position to the stud in the bracket.

(3) Assemble the 158315 Bell Crank Follower on the stud of the 158314 Bracket and fasten with a 119652 Retaining Ring. Assemble the 4708 Spring to the 158315 Bell Crank Follower and the 158314 Bracket.

(4) For typing units equipped with the 150902 Lever, (a) remove and discard the 3598 Nut and 1010 Shoulder Screw from the 150902 Lever on the left side frame. (b) Remove and retain the 3598 Nuts and 2191 Lock Washers from the 151657 Screws that hold the 150654 Guide to the left side frame. Discard the 151657 Screws. (c) Assemble the 158314 Bracket to the left side frame through the hole in the 150902 Lever with a 151618 Screw, 2191 Lock Washer, 8330 Flat Washer, two 7001 Washers and 151611 Bushing placing the 151611 Bushing into the hole of the 150902 Lever and placing the 7001 Washers on the 151618 Screw between the 158314 Bracket and the 150902 Lever.

(5) For typing units equipped with a 153312 Lever, (a) remove and discard the 151346 Screw, 2191 Lock Washer and 7002 Flat Washer from the 153312 Lever on the left side frame. Retain the 153304 Bushing. (b) Follow procedure in Paragraph 2.a.(4)(b) (c) Assemble the 158314 Bracket to the left side frame through the hole in the 153312 Lever and 153304 Bushing with a 151618 Screw, 2191 Lock Washer, 8330 Flat Washer and one 7001 Flat Washer placing the 7001 Washer on the 151618 Screw between the 158314 Bracket and the 153312 Lever.

(6) Fasten the 158314 Bracket to the left side frame with two 151442 Screws, 13681 Spacers, 8330 Flat Washers and the 2191 Lock Washers and 3598 Nuts previously retained in Paragraph 2.a.(4)(b). If the typing unit is equipped with the 154743 Modification Kit (manual selective control of functions) use the 151721 Screw in place of one of the 151442 Screws as shown.

(7) Route the 158318 Cable along the upper 150544 Handle to the 152467 Connector and tie the cable where necessary.

(8) Solder the remaining ends of the 158318 Cable to the connector block.

b. 194324 Modification Kit (Figure 4)

* (1) Solder one of the two leads of one end of the 158318 Cable to the terminal of the 155954 Switch marked "C" (common) and the other to the terminal of the switch marked either "NO" (normally open), or "NC" (normally closed), whichever is desired. For wall mounted printer, solder two 151626 Terminals to the other ends of the two leads; discard terminals when not used.

(2) Mount the 155954 Switch and the 158317 Insulator to the 194325 Bracket with two 151354 Screws, 93118 Lock Washers, and 112627 Nuts, on the same side of the 194325 Bracket as the spring post. Assemble the switch so that the switch button is in its

nearest position to the spring post on the 194325 Bracket, with the switch button pointing as in Figure 4. Assemble the 158317 Insulator so that the tab extension on the insulator is farthest from the spring post when the switch and insulator are mounted on the 194325 Bracket. The switch with insulator may be mounted on either side of the spring post.

(3) Assemble the 194326 Switch Bracket between the ears of the 194325 Bracket so that the cut-out is directly under the post and the switch bracket strikes the switch button. Fasten the switch bracket with two 125124 Shoulder Screws, 124244 Felt Washers, 110743 Lock Washers, and 3599 Nuts.

(4) Assemble the 194327 Lever between the sides of the 194326 Switch Bracket so that the spring eye points toward the spring post of the 194325 Bracket and the lever points in the same direction as the post. Fasten with two 151036 Shoulder Screws, 110743 Lock Washers, and 3599 Nuts.

(5) Fasten the 194325 Bracket with above parts, to the rear side of the 194371 Guide with two 111017 Screws, 7002 Flat Washers, 2191 Lock Washers, and 3598 Nuts.

*(6) Fasten the 194371 Guide to the left and right side frames of the printer after removing similar guide from printer and discarding. For wall mounted printer fasten the 194371 Guide to the left and right frames of the back plate assembly to the rear of the paper spindle brackets with four 153537 Screws, 2191 Lock Washers and 3598 Nuts; discard mounting hardware when not used. For wall mounted printers, drill holes, as shown in Figure 5, when needed.

(7) Hook the 110436 Spring through the spring eye of the 194327 Lever and over the spring post on the 194325 Bracket.

*(8) Route the 158318 Cable from the switch along the 150544 Handle on the stunt box, under the 154872 Bracket, to the 152467 Connector. Tie cable as necessary to avoid interference with stunt box mechanism and paper roll. For wall mounted printer, route the cable directly to the electrical service unit; make certain that the cable does not interfere with the paper supply.

*(9) Solder the remaining ends of the 158318 Cable to the proper terminals of the 152467 Connector Block, covering connection with 155750 Sleeve. If spare wires provided from connector block to electrical service unit (see actual wiring diagram) are not in use, their terminals may be used for this purpose. If no spare wires are available at connector, wire cable to any two unused connector terminals and add external wiring from connector receptacle to selected terminal point. Use Flexible Wire, 22 Gage, for external wiring. For wall mounted printer discard the two 155750 Sleeves and connect the terminal ends of the 153518 Cable directly to the terminal boards. (Refer to the actual wiring diagram of the electrical service unit used for terminal selection.

3. ADJUSTMENTS AND LUBRICATION

For adjustment and lubrication procedure refer to standardized information. Make the following adjustments.

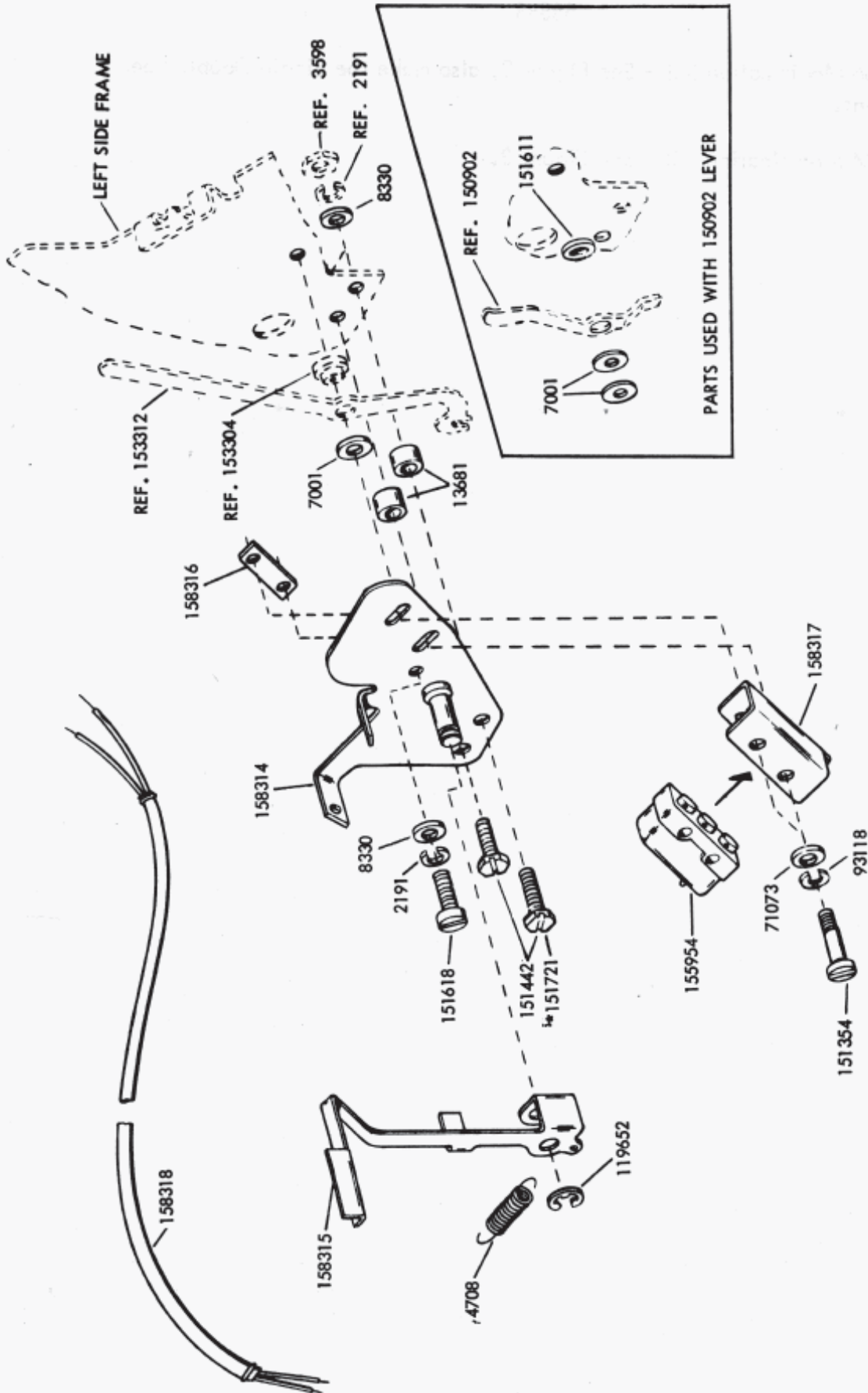
a. 159366 Modification Kit - See Figure 2, also make the Single Double Feed Lever Adjustment.

*b. 194324 Modification Kit - See Figure 3.

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SPECIFICATION 58885

*PECULIAR TO UNITS EQUIPPED WITH 154743 MODIFICATION KIT.

FIGURE 1. 159366 MODIFICATION KIT TO EQUIP A FRICTION FEED PRINTER WITH PAPER-OUT ALARM

PAPER-OUT ALARM

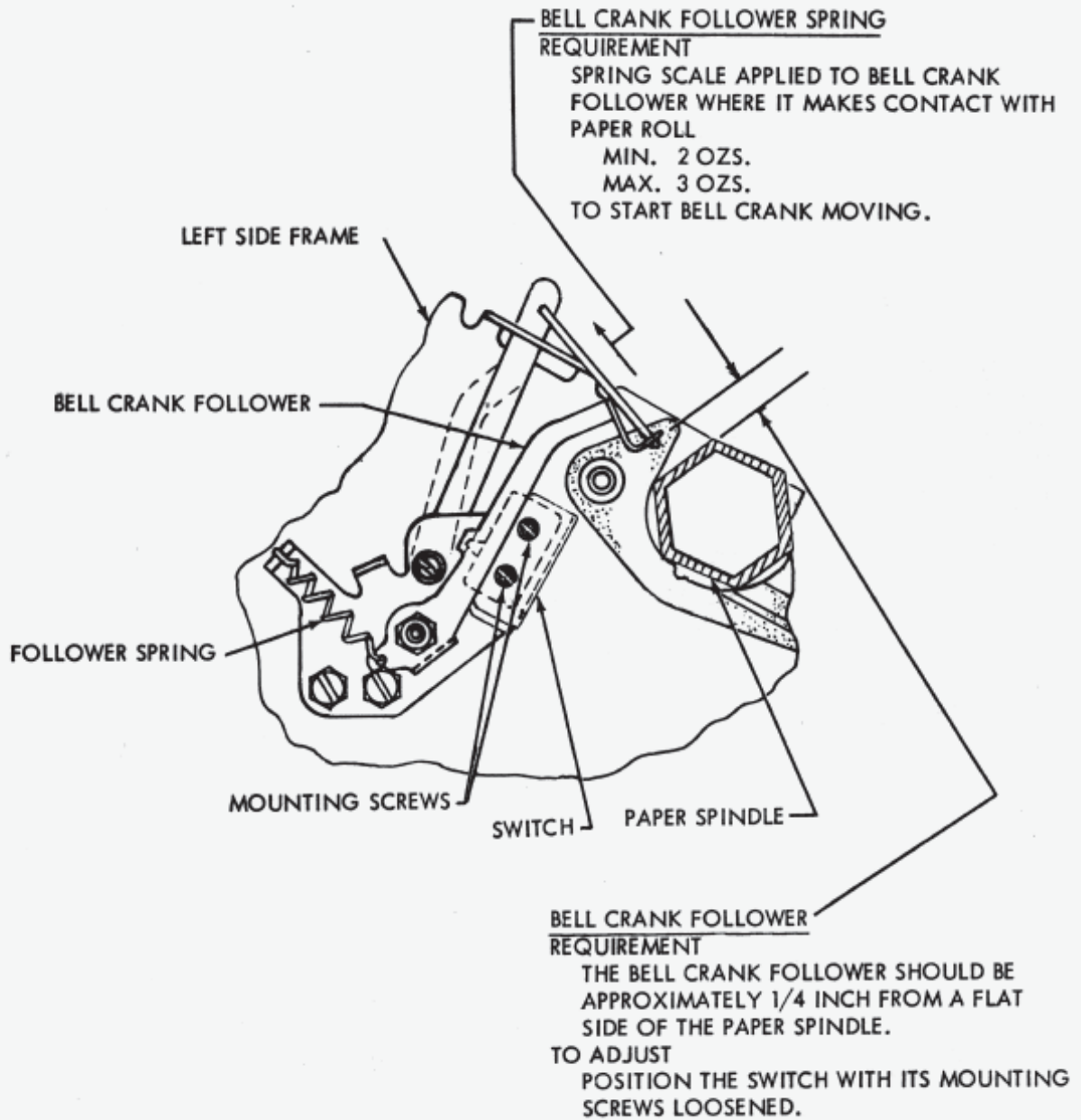
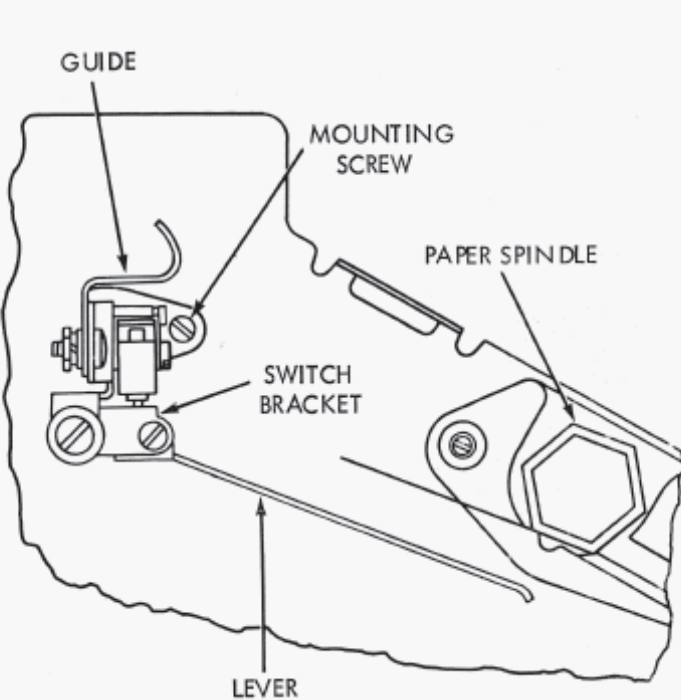


FIGURE 2

PAPER-OUT ALARM (NEW DESIGN)

SWITCH
REQUIREMENT

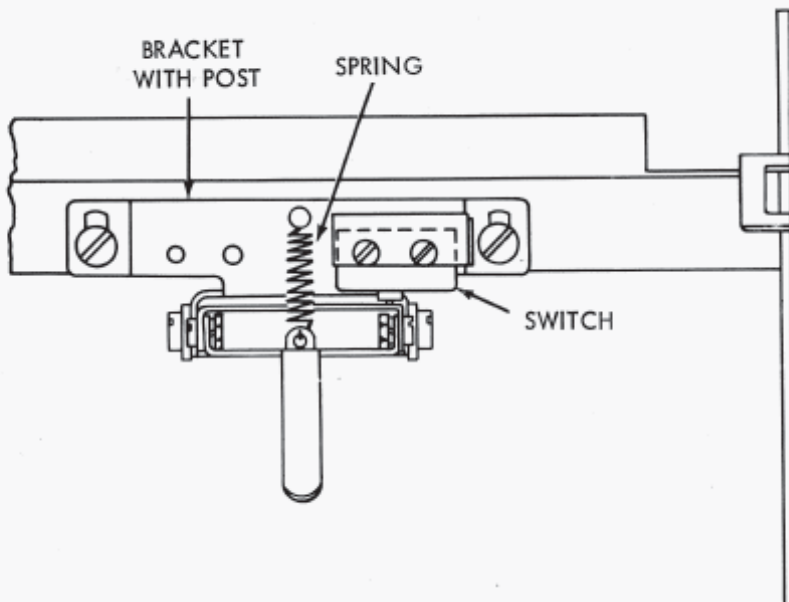
SWITCH IN UPPERMOST POSITION PARALLEL TO SWITCH BRACKET.

TO ADJUST POSITION SWITCH WITH SWITCH MOUNTING SCREWS LOOSE.

LEVER
REQUIREMENT

FLAT SIDE OF EMPTY PAPER SPINDLE PARALLEL WITH UPPER SURFACE OF LEVER EXTENSION. LEVER 1/4 INCH BELOW PAPER SPINDLE.

TO ADJUST POSITION BRACKET WITH POST VERTICALLY UP OR DOWN WITH MOUNTING SCREWS LOOSE. IF NECESSARY, FORM THE LEVER BY HAND FOR LP68, LP96, LP103, AND MODEL 28-32 PRINTER.

LEVER SPRING
REQUIREMENT

SPRING SCALE APPLIED TO LEVER NEAR SPRING EYE

MIN. 11 OZS.

MAX. 18 OZS.

TO MOVE SWITCH BRACKET CLEAR OF SWITCH BUTTON.

FIGURE 3

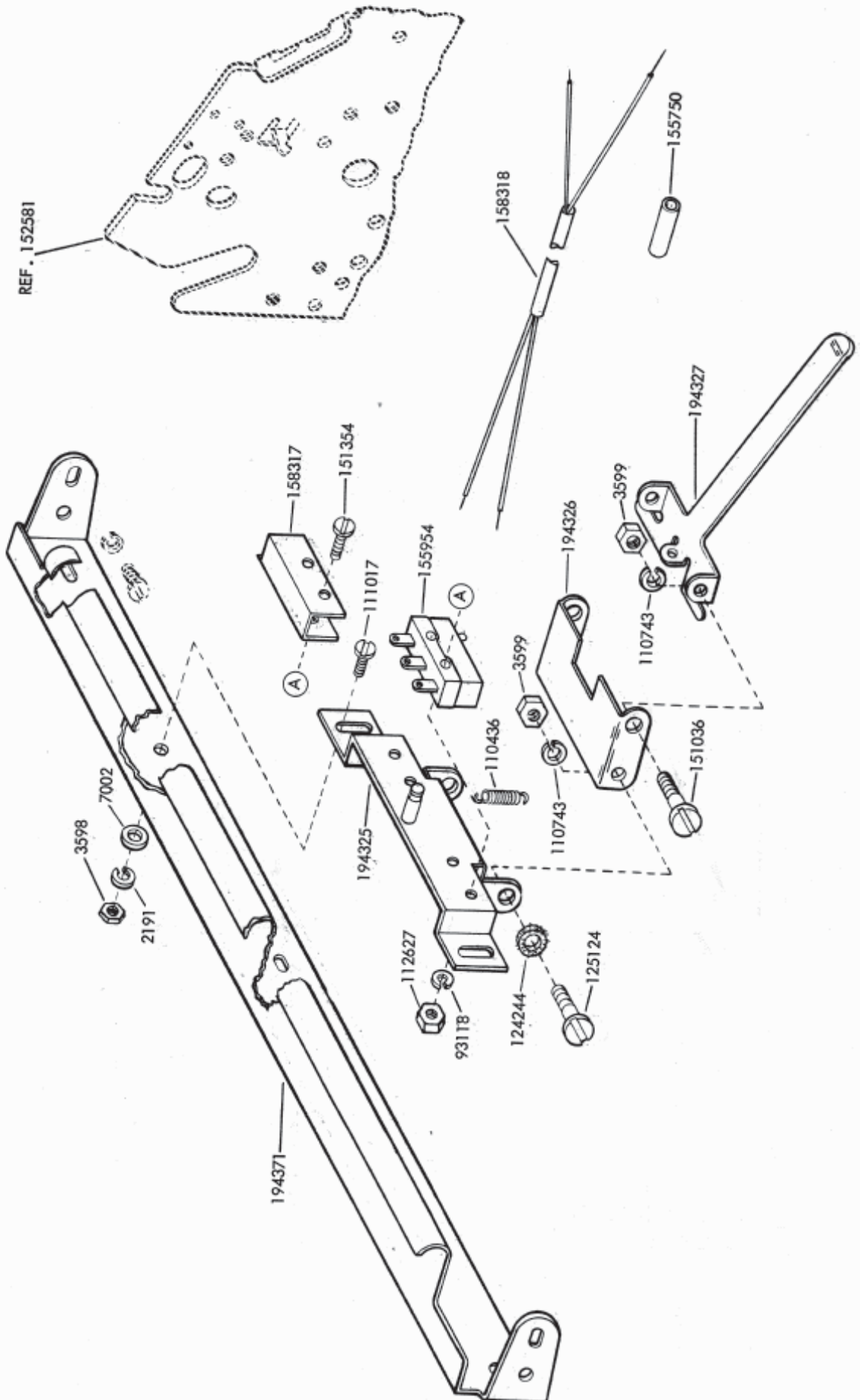


FIGURE 4

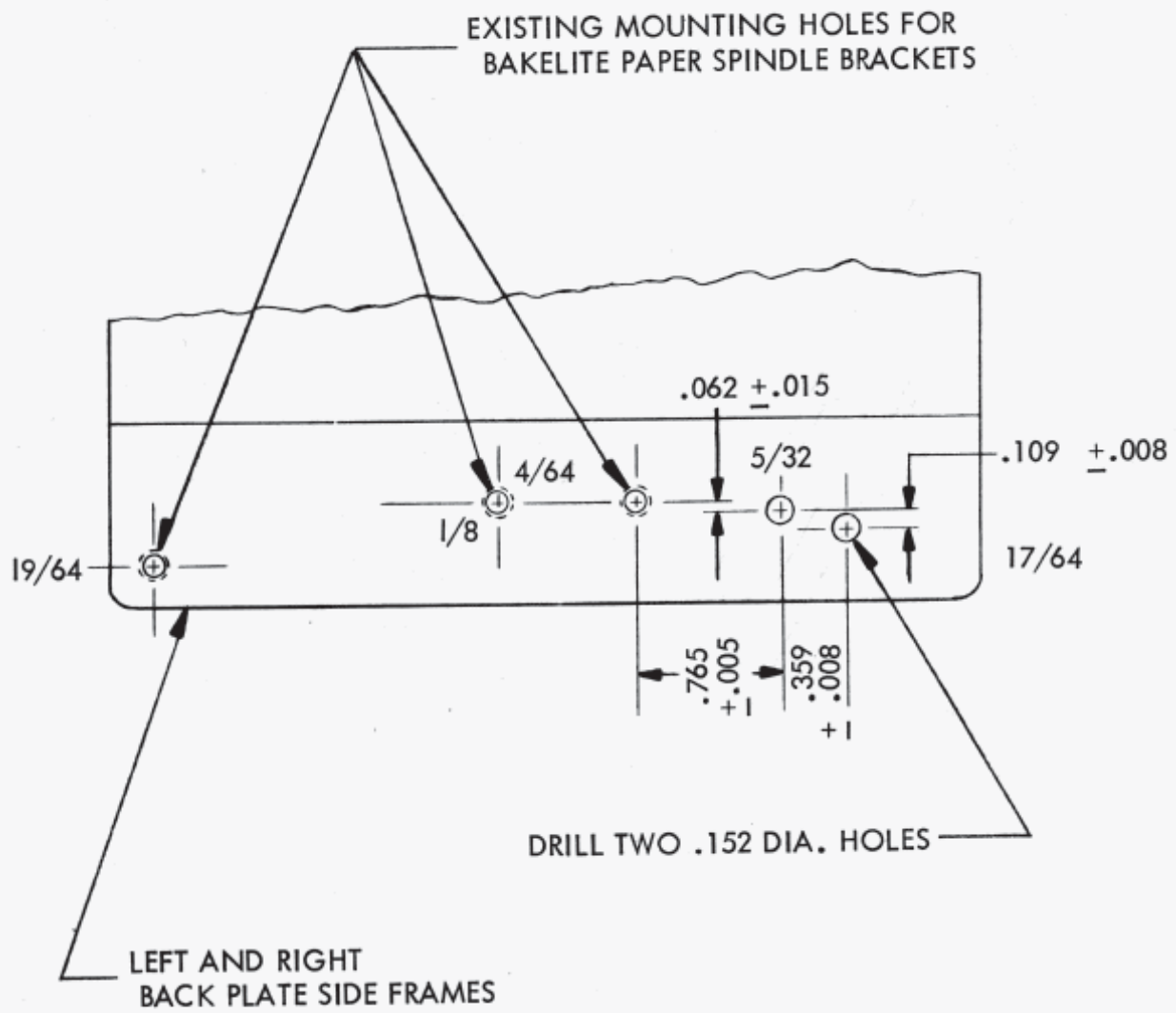


Figure 5