

INSTRUCTIONS FOR INSTALLING THE 152915 OR 157511 AND 152916 OR 154145 MODIFICATION KIT ON MODEL 28 TYPING UNIT LP4 OR LP10 AND UP AND A MODEL 28 KEYBOARD LK4 OR LK6, LAK RESPECTIVELY TO PROVIDE THE LOCAL REVERSE LINE FEED MECHANISM

1. GENERAL

NOTE

This mechanism is applicable only to Typing Units and Keyboards with serial number 11,501 and above.

a. The 152915 or 157511 Modification Kit provides the Model 28 Typing Unit LP4 or LP10 and up respectively with facilities for reversing the feeding action of the line feed bars on the printer. The direction of the platen rotation may be selected at will from either of the two key levers on the keyboard. Suitable linkage is provided in the keyboard to move the reverse line feed intermediate lever roller into position to bear against the lower extensions of the line feed bars in their forward and downward travel. Further travel of the trip link (keyboard) releases the line feed clutch to rotate the line feed eccentric assembly. With the shifting of the pivot point of the line feed bars below the eccentric, the action of the upper end of the feed bars is reversed.

b. The 152916 or 154145 Modification Kit provides the Model 28 Keyboard LK4 or LK6 and up, and LAK respectively with a local reverse line feed key lever and linkage for operating the associated line feed reversing mechanism on the typing unit. As the key lever is depressed the trip link moves a roller into position so that the lower extensions of the line feed bars pivot below the eccentric to reverse the feeding action. Further travel of the trip link toward the rear releases the line feed clutch which rotates the line feed eccentric and drives the platen in the opposite direction.

c. The 152915 or 157511 Modification Kit consists of:

			<u>152915</u>	<u>157511</u>
2	2191	Washer, Lock		x
4	2191	Washer, Lock	x	
2	73035	Spring	x	x
1	81731	Spring	x	x
2	110743	Washer, Lock	x	
1	119648	Ring, Retainer	x	x
2	151610	Washer, Flat	x	
2	151632	Screw 6-40 x 3/8 Hex.	X	
2	151657	Screw 6-40 x 1/4 Fil.	X	X
1	151692	Screw 6-40 x 3/16 Fil.	X	X
1	151722	Screw 6-40 x 3/16 Hex.	X	X
2	151732	Screw 4-40 x 11/32 Fil.	X	
2	153229	Bushing 6-40 Shoulder	X	X

			<u>152915</u>	<u>157511</u>
1	153230	Pawl, W/Rivet	X	X
1	153231	Pawl, W/Rivet	X	X
1	153233	Guide, Lever	X	X
1	153234	Lever	X	
1	153235	Plate, Mounting	X	
1	153236	Gear 42T	X	
1	153237	Arm, W/Stud	X	X
1	153239	Roller, Cam	X	X
1	153240	Bracket, Retainer	X	X
1	153241	Cam Link	X	X
1	153242	Bracket	X	X
2	153267	Washer, Felt	X	X
1	153287	Spring	X	X
1	176598	Bell Crank	X	X
1	179198	Lever		X

d. The 152916 or 154145 Modification Kit consists of:

			<u>152916</u>	<u>154145</u>
3	2191	Washer, Lock		X
4	2191	Washer, Lock	X	
2	3598	Nut 6-40 Hex.	X	X
1	7002	Washer, Flat	X	
1	7603	Spring	X	
2	81731	Spring	X	X
1	92626	Stud	X	X
1	93758	Washer, Felt	X	X
1	150932	Bushing	X	X
1	119651	Ring, Retaining	X	X
2	119652	Ring, Retaining	X	
1	151631	Screw 6-40 x 5/16 Hex.	X	X
1	151658	Screw 6-40 x 5/16 Fil.	X	
1	151692	Screw 6-40 x 3/16 Fil.	X	
1	151722	Screw 6-40 x 3/16 Hex.	X	X
1	151853	Lever, Function	X	
1	153243	Bail, W/Stud	X	
1	153245	Bracket	X	
1	153246	Bracket	X	X
1	153247	Lever, Trip	X	X
1	153248	Bushing	X	X
1	153249	Bail, Transfer	X	X
1	153250	Link, Trip	X	X
1	153252	Link, Trip	X	
1	153283	Key Lever	X	X
1	154116	Bail		X
1	154132	Bracket		X

e. To provide "on line" operation of the local reverse line feed mechanism see Specification 5898S.

f. For part numbers referred to and for parts ordering information, see Teletype Model 28 Printer Parts Bulletin 1149B.

2. INSTALLATION

NOTE

Refer to the Model 28 Printer Adjustment Bulletin for instructions for removal of major components and assemblies.

a. 152915 or 157511 Modification Kit for Typing Unit LP4 or LP10 and up respectively.

(1) To facilitate the installation of the mechanism, remove the following assemblies: Main Shaft (only when using the 152915 Modification Kit); Stunt Box; and Line Feed Eccentric.

(2) Remove and discard the following parts: 150654 Guide; 150642 Bell Crank Assembly; 150646 Shoulder Screw; 152871 Bell Crank Spring; 150586 Lever; two 150585 Line Feed Bars; two 151692 Screws from the 150557 Lock Lever Guide Bracket.

(3) For the 152915 Modification Kit, remove and discard the 150665 Spur Gear; two 152887 Screws, 152886 Screw Lock Plate (if present), 151794 Washer, and the 150391 Washer from the main shaft assembly. Retain all mounting screws except those listed for disposal.

(4) Attach the 176598 Bell Crank Assembly to the side frame with the 153229 Bushing, 151722 Screw and 2191 Lock Washer. The mounting hole is immediately above the main shaft bearing about 1/4 inch in front of the bearing center line. Install the two 153267 Felt Washers on the projection of the bell crank behind the roller.

(5) For the 152915 Modification Kit, secure the 153235 Plate on the main shaft with the two 151732 Screws and the 110743 Lock Washers. The plate replaces the 150391 Washer previously discarded. The 153236 Fibre Gear is mounted to the 153235 Plate with two 151632 Screws, 2191 Lock Washers, and 151610 Flat Washers. Position the gear in the center of its adjusting range and replace the main shaft assembly.

(6) Install the 153230 and 153231 Feed Bars to replace the bars removed previously. Place the 153230 Bar adjacent to the eccentric gear with the pin in the bar toward the gear. Replace the line feed eccentric assembly. The roller on the bell crank should ride against the edge of the feed bars. Mount the 153233 Guide in place of the 150654 Guide. Attach the 153287 Spring from the bell crank to the side frame in place of the side frame in place of the 152871 Spring. Attach the two 73035 Springs from the feed bars to the 153233 Guide.

(7) Install the 179198 lever in place of the 163957 or 179199 lever and attach 80581 spring retained. On early design printers without improved manual platen line feed feature; replace the 150586 lever with a 153234 lever, (Part of 152915).

(8) Install the 153239 Roller on the 153237 Assembly and secure with the 119648 Retainer Ring. Place the 153237 Arm Assembly around the main shaft bearing next to the side frame with the roller away from the side frame. Mount the 153240 Bracket retainer under the bearing clamp plate rear mounting screw and washer. The bracket should be positioned so that the 153237 Arm Assembly is free to pivot around the main shaft bearing yet is held against the side frame by the "steps" in the 153240 Bracket.

(9) Mount the 153241 Link to the rear leg of left side frame using the 153229 Bushing, 151692 Screw and 2191 Lock Washer. The link should be on the inner side of the side frame and the curved camming surface of the link against the roller on the 153237 Arm Assembly.

(10) Install the 153242 Bracket between the side frame and the 150557 Keyboard Lock Lever Bracket, mounting the 150557 Bracket with the 151657 Screw and using the 2191 Lock Washers that were retained. The projection of the bracket should be under 153241 Link. Attach the 81731 Spring from the bracket to the link.

b. 152916 Modification Kit for Keyboard LK4

(1) Remove and discard the 153116 Plug-Button and 117608 Speed Nut (sixth key lever position from the left) in the top row. Remove and discard the 151159 Bracket and the 151859 Link. Retain the 151658 Screws (2), the 2191 Lock Washers (2), the 112630 Spring and the 119651 Retaining Ring. Remove the code bar unit to facilitate the installation of the function lever.

(2) Install the 151853 Function Lever in position 21 of the code bar assembly. Attach the 7603 Spring from the function lever to the code lever guide. Press the 153283 Key Lever Assembly on the 151853 Function Lever.

(3) Remove the retaining rings from the 153244 Shaft (basic keyboard part) and slide the shaft out of its bracket so that the 153243 Bail may be added to the assembly. Position the 153243 Bail so that the extension with the stud projects through the base and the lower extension rests on the end of the number 21 Function Lever. Reassemble the components in their proper order and install the two additional retaining rings 119652 on both sides of the bail in the groove provided in the extreme right end of the shaft.

(4) Support the right end of the shaft with the 153245 Bracket which in turn is to be attached to the mounting screw for the time delay mechanism. In the event that the keyboard base is not equipped with the time delay mechanism, mount the bracket with the 151658 Screw, 7002 Washer and 2191 Lock Washer furnished. Insert the screw with the 7002 Washer under the head.

(5) Replace the 151159 Bracket with the 153246 Bracket using the 151658 Screw and 2191 Lock Washer that were retained.

CAUTION

Make certain that the signal generator conduit and the attached cables do not interfere with any moving part.

NOTE

On early LK4 Keyboards, the signal generator conduit and attached wires may require re-routing to facilitate the mounting of the mechanism. Proceed as follows: Remove the clamp that secures the signal generator cable conduit to the keyboard lock mechanism mounting screw. Position the signal generator conduit under the bracket so that the conduit lies in the notch provided at the rear of the bracket.

(6) Secure the 153247 Trip Lever to the 153246 Bracket using the 153248 Bushing, 151692 Screw and 2191 Lock Washer. The irregular shaped arm should extend upward and toward the rear so as to move freely in the slot of the bracket. Place the 93758 Felt Washer on the notched portion of the trip lever.

(7) Install the 153252 Link in place of the 151859 Local Line Feed Link previously discarded. Use the 119651 Retaining Ring that was retained in the disassembly procedure to secure the link and attach the 112630 Spring from the link to the bracket.

(8) Place the 153249 Bail on the 153246 Bracket with both extensions toward the front, the bail section downward and each pivot on the outside of its support. On the right support, insert the 151631 Screw from the left with the 150932 Bushing under the head. The shoulder of the bushing should extend through the bracket to provide a bearing surface for the right end of the bail. Lock in place with the 2191 Lock Washer and the 3598 Nut. Attach the 92626 Stud to the left end of the bail to provide the left pivot. Secure the stud with the 2191 Lock Washer and 3598 Nut.

(9) Install the 153250 Link with the forward end connected to the 153243 Bail and secure with the 119651 Retaining Ring. The forked end of the link rides in the slots provided in the 153246 Bracket. The right arm of the 153249 Bail rests on the top (sloped surface) of the link. Attach one 81731 Spring from the 153246 Bracket to the link and the other 81731 Spring from the link to the 153248 Bail.

c. 154145 Modification Kit for Keyboard LK6 and up or LAK

(1) Remove the keyboard from the cabinet in accordance with standard practice.

(2) Remove the windows and hood from the keyboard in accordance with standard practice.

(3) Remove and discard the 154197 Plastic Plug and 117608 Speed Nut from the keytop hole, fifth from the left in the top row. Remove and discard the 154106 Bracket. Retain the 153252 Link, the two 151632 Screws, 2191 Lock Washers, 112630 Spring, and the 119651 Retainer Ring.

(4) Remove the two 119653 Retainer Rings from the end of the 154092 Pivot Shaft in the 154171 Functions Assembly, and withdraw the 154092 Shaft out through the side of the base, either direction, whichever is most convenient. It is advisable to unhook any springs on the various function bails present so as to make it easier to withdraw the pivot shaft out of the bail hubs.

(5) Place the 154116 Bail into the functions assembly, such that the arm w/stud is between the 154066 Local Line Feed Lever and the 154067 Keyboard Lock Lever and the arm w/hook rests in the eighth slot from the left end of the function bracket. The arm w/hook should extend forward into the key lever assembly so that the hook is on top of its corresponding local reverse line feed function lever.

NOTE

The 154067 Keyboard Lock Lever and 154037 Line Break Lever (if present) go "inside" the 154116 Local Reverse Line Feed Bail.

(6) Insert the 154092 Pivot shaft, making certain that all function bails and levers are in their correct locations. Install the two 119653 Retainer Rings previously removed, and rehook the various bail springs present. Check the relation of the forward ends of the functions bails and levers with respect to their corresponding key levers. All go on top of the key levers except the keyboard lock lever which must be underneath the end of its key lever so that the printer mechanism can operate keyboard lock.

(7) Mount the 154132 Bracket in the place formerly occupied by the 154106 Bracket, using the 151632 Screws and 2191 Lock Washers that were retained.

(8) Mount the 153247 Trip Lever on the 154132 Bracket using the 153248 Bushing 151692 or 151722 (Part of 154145) Screw, and 2191 Lock Washer. The larger portion of the lever should be up and to the rear so that the lever will be free to move up and down in the slot provided. Install the 93758 Felt Washer in the notched portion of the 153247 Trip Lever.

(9) Install the 153252 Link (Loc. L.F.) in its former position using the 119651 Retainer Ring. Attach the 112630 Spring from the link to the bracket.

(10) Mount the 153249 Bail on the 154132 Bracket. The backside of the bail should be down, the projecting arms to the front, and the sides of the bail should be outside the bracket. The 150932 Bushing, 151631 Screw, 2191 Lock Washer, and 3598 Nut attach the right-hand side of the bail to the bracket; and the 92626 Stud, 2191 Lock Washer and 3598 Nut are attached to the left-hand side of the bracket through the hole in the left arm of the 153249 Bail.

(11) Install the 153250 Link (L.R.L.F.). The forward end of this link attaches to the stud on the 154116 Bail with the 119651 Retainer Ring provided in the 154132 Bracket. The right-hand arm of the 153249 Bail should rest on the sloped portion of this link. Attach the two 81731 Springs, one from the 154132 Bracket, the other from the 153249 Bail to the link.

(12) Install the 153283 Keytop Assembly (L.R.L.F.) in the fifth hole previously unplugged, snapping onto the function lever at this position provided in the key lever assembly.

(13) Replace the hood and windows in accordance with standard practice. Reinstall the keyboard into the cabinet in accordance with standard practice. Install the typing unit into the cabinet.

3. ADJUSTMENTS AND LUBRICATION

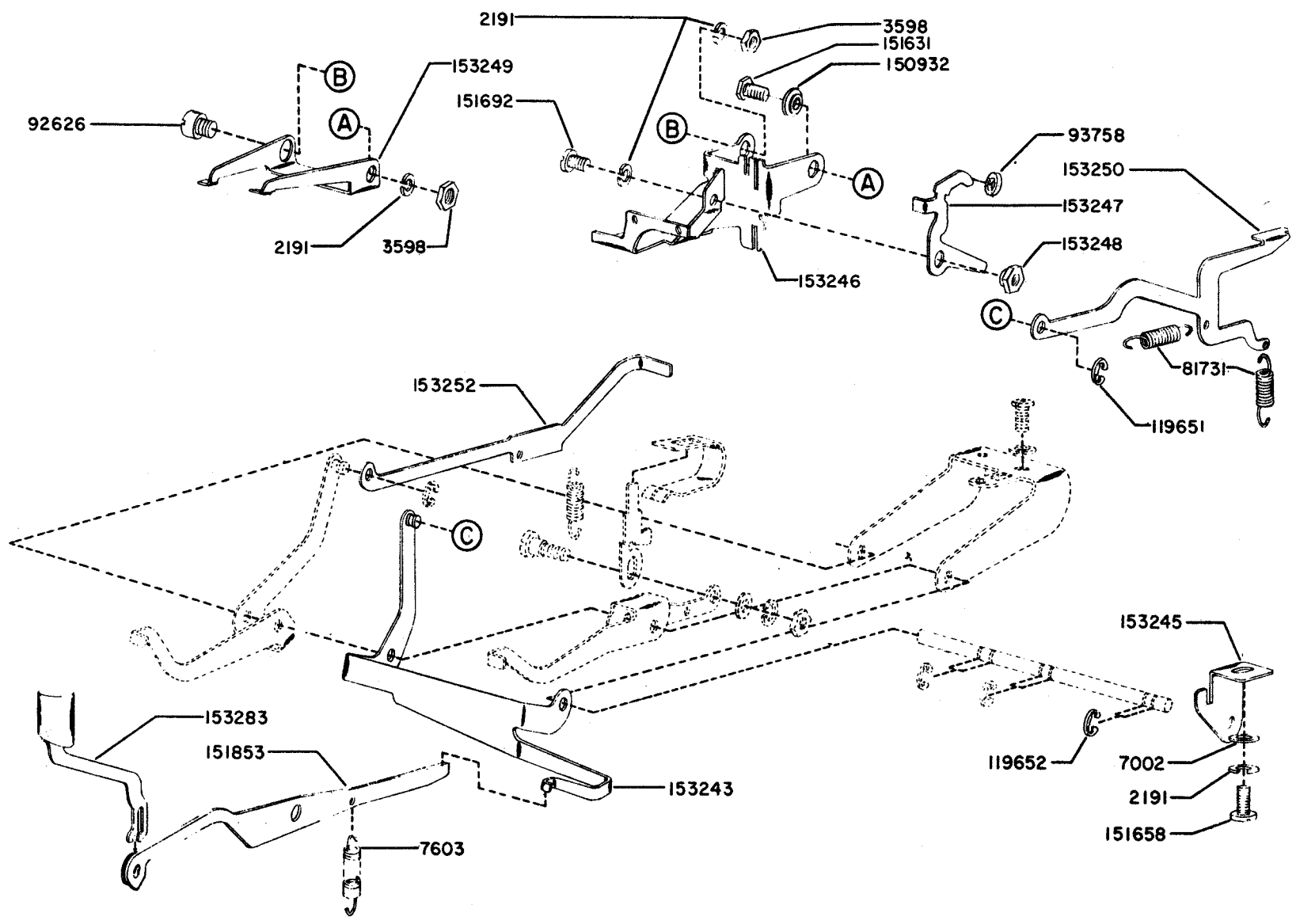
For standard adjustments and lubrication procedure refer to standardized information, Bulletin 217B. Make the Local Reverse Line Feed Mechanism Adjustment.

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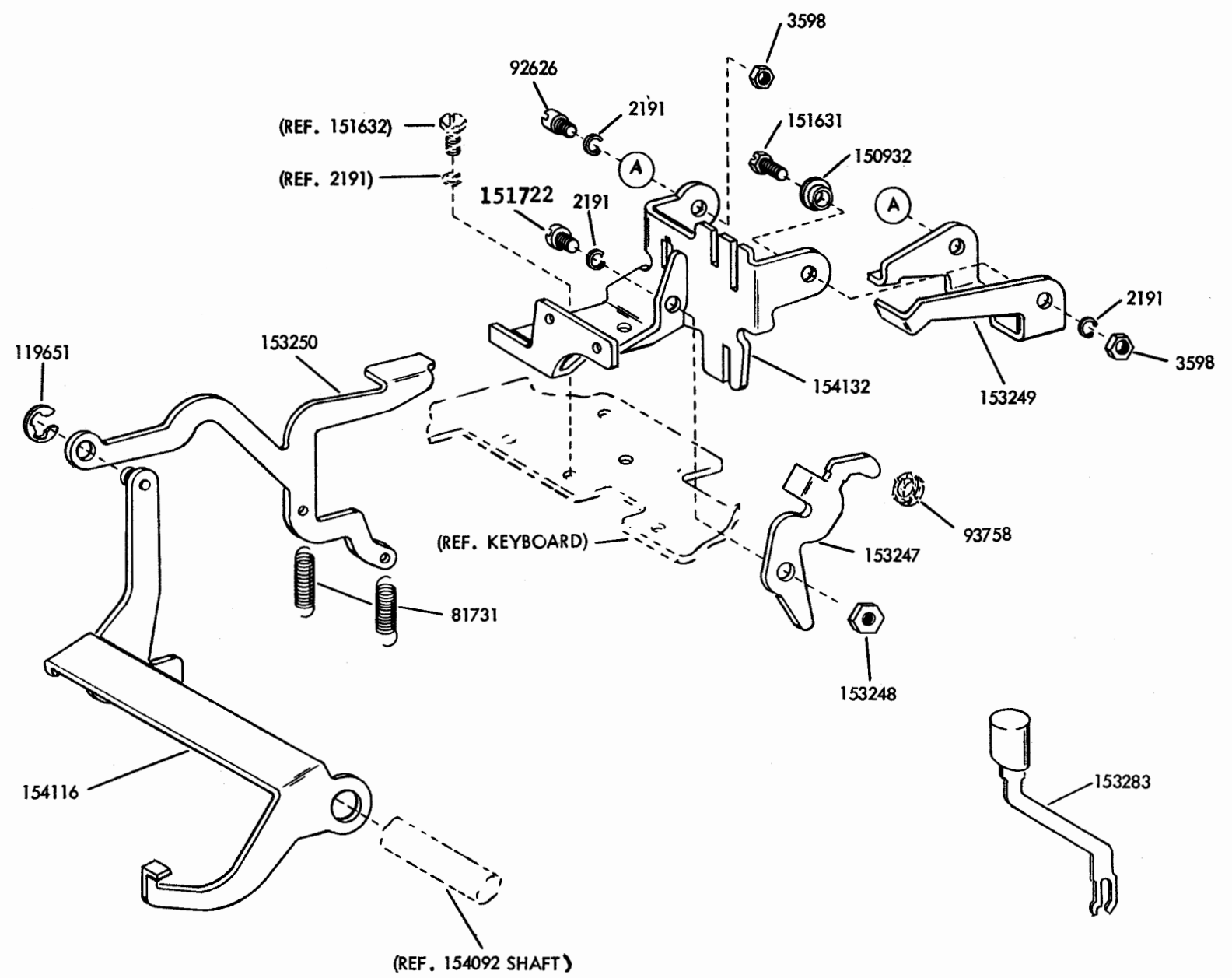
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FIGURE 1
 152916 MODIFICATION KIT TO PROVIDE LOCAL REVERSE
 LINE FEED MECHANISM (MARK II KEYBOARD)

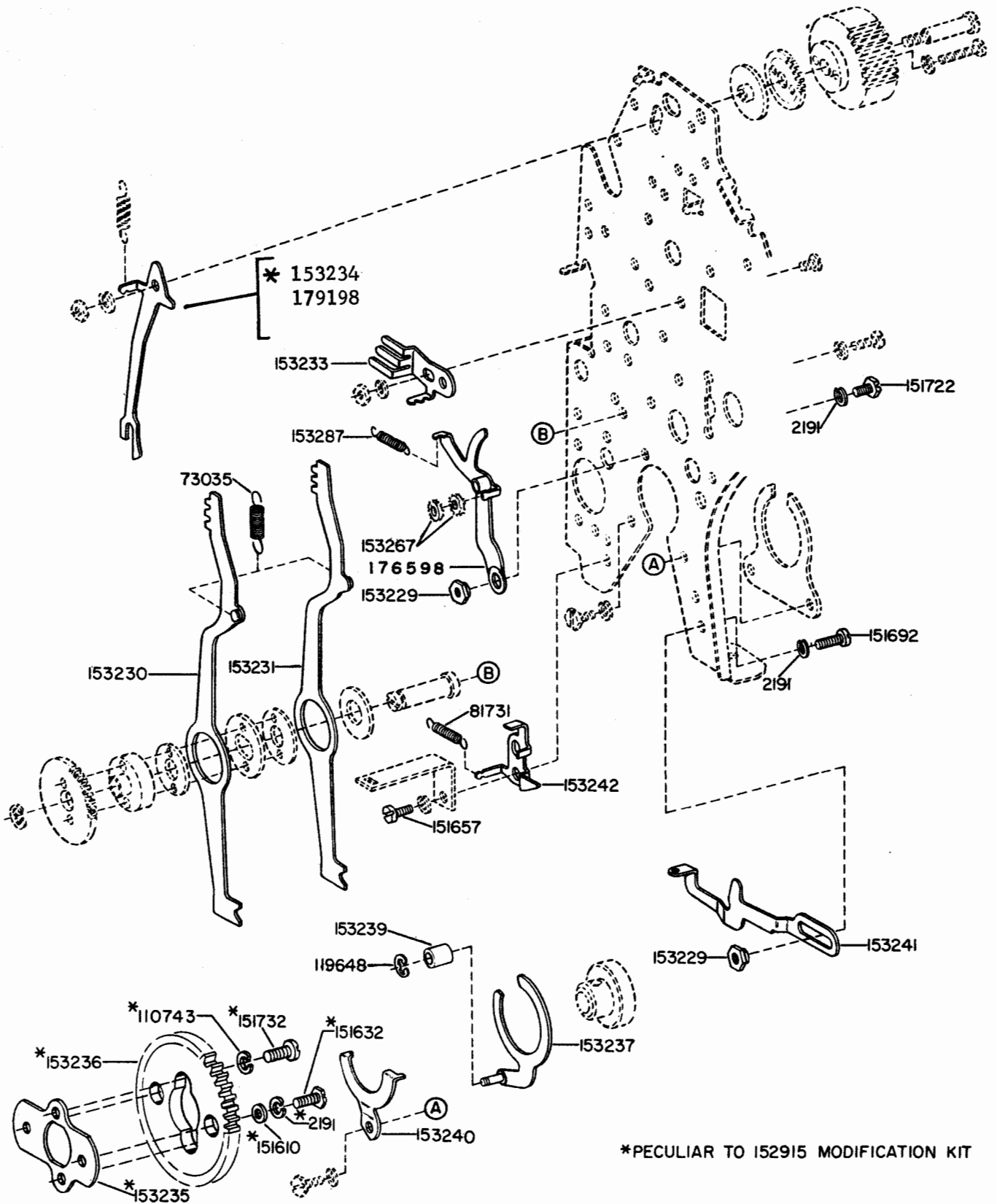


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FIGURE 2
154145 MODIFICATION KIT TO PROVIDE LOCAL REVERSE LINE FEED MECHANISM
(MARK III KEYBOARD)



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*PECULIAR TO I52915 MODIFICATION KIT

FIGURE 3

I52915 AND I57511 MODIFICATION KITS TO PROVIDE LOCAL REVERSE LINE FEED