

INSTRUCTIONS FOR INSTALLING A SHIFT CONTROL
MODIFICATION KIT (152337, 157509, 152345, 178358)
ON A MODEL 28 TYPING UNIT

The chart below pertains to Bell System only

Unit	Teletype Code	Bell System Code
Typing Unit	LP6, LP8, LP9	28B, 28C, 28D

1. GENERAL

a. The 152337 Modification Kit when installed on a Model 28 Typing Unit LP6, LP8, LP9 equipped with the "O" code bar and bell crank (provided by the 153945 Modification Kit, see Specification 5788S) and 152810 Stunt Box or equivalent provides facilities for suppression of printing and suppression of LINE FEED, FIGS SHIFT, and LTRS SHIFT, from a remote station on the signal line. The 152337 and 153945 Modification Kit are part of the 153941 Modification Kit covered in Specification 5847S, which provides the parts required for converting a Model 28 Printer from nonselective calling to selective calling.

b. The 157509 Modification Kit when installed on a Model 28 Typing Unit LP10 or up provides facilities for suppression of printing and suppression of LINE FEED, FIGS SHIFT, and LTRS SHIFT from a remote station on the signal line.

c. The 152345 Modification Kit when installed on a Model 28 Typing Unit LP6, LP8, LP9 equipped with the facilities provided by the 152337 On-Line Shift Control Modification Kit, provides a means of shifting the suppression code bar so that a selective calling typing unit may be shifted from a nonprint to a print condition manually by means of a local switch such as provided by a 152342 or 154681 Modification Kit on a receive-only base. The 152345 Modification Kit is not compatible with the page feed out mechanism (152302 or 153907 Modification Kit Specification 5751S).

d. The 178358 Modification Kit when installed on a Model 28 Typing Unit equipped with page feed-out (Specification 5751S) or vertical tabulation (Specification 50004S) mechanism provides a means of shifting the suppression code bar of the typing unit so the selective calling typing unit may be shifted from a non-print to a print condition when the magnet is energized. The magnet in this modification kit has an operating voltage range of 48 to 130 volts d.c. The 173881 and 178415 parallel output contact modification kits (Specification 50069S) are compatible with the 178358 Modification Kit.

IF NORMAL INSTALLATION USE 1093-04, 10 WATT DRIPPING RESISTOR See p 6 & Fig 5.

*Indicates change.

*e. The 152337, 157509, or 178358 Modification Kit consists of:

			<u>152337</u>	<u>157509</u>	<u>178358</u>
1	233M	Magnet			X
2	1028	Screw			X
2	2191	Washer, Lock	X	X	
7	2191	Washer, Lock			X
2	2438	Washer, Flat			X
3	7002	Washer			X
2	7002	Washer	X	X	
1	31636	Spring	X		
2	93758	Washer, Felt	X	X	X
1	110743	Washer, Lock		X	
3	110743	Washer, Lock	X		X
2	119648	Ring, Retainer			X
3	119649	Ring, Retainer	X	X	X
1	125011	Washer	X	X	
2	125011	Washer			X
1	135716	Spring			X
2	151152	Screw	X		
1	158186	Screw			X
3	151630	Screw			X
2	151632	Screw			X
2	151637	Screw			X
2	151722	Screw	X	X	X
1	152893	Screw	X	X	
2	152893	Screw			X
1	153566	Bracket	X	X	X
1	153570	Arm, Suppression	X	X	X
1	153600	Bracket, Spring	X		
1	154380	Bracket W/Posts	X		
2	155755	Sleeve, Insulating			X
1	157047	Lever	X	X	X
1	157048	Lever	X	X	
1	157049	Pin	X	X	X
1	163250	Shaft			X
*1	173882	Stud			X
*1	173883	Bracket			X
1	177083	Yoke			X
1	178188	Lever			X
1	178189	Armature			X
1	178190	Extension			X
1	178359	Bracket			X

e. The 152345 Modification Kit consists of:

7	2191	Washer, Lock	2	151618	Screw
1	7002	Washer, Lock	1	151632	Screw
2	8330	Washer, Flat	4	151692	Screw
1	70388	Spring	1	153563	Bracket
1	80708	Clamp, Cable	1	153564	Lever
1	106281	Screw, Shoulder	1	153565	Pin
1	110435	Nut	1	153588	Solenoid
1	110743	Washer, Lock	1	153594	Cable Assembly
2	119649	Retainer, Ring	4	155751	Tubing, Vinyl
3	121605	Spacer			

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

2. INSTALLATION

a. 152337 or 178358 Modification Kit

(1) The following paragraphs apply to the 152337 Modification Kit.

NOTE

Bell System Units must be equipped with the 153945 Modification Kit and 152810 Stunt Box or equivalent.

(a) Remove the platen assembly and the paper pressure roller assembly in accordance with standard practice.

NOTE

If the 153945 Modification Kit is to be installed, the platen assembly and paper pressure roller assembly need not be removed since the 153605 Bracket can be installed when the front plate assembly is removed.

(b) Mount the 154380 Bracket on the suppression code bar studs and secure in position with the 151152 Screws and the 110743 Lock Washers.

(c) Remove the 151630 Screws and 2191 Lock Washer from the left end of the 153321 Tie Bar.

(d) Mount the 153600 Spring Bracket into position and replace the 151630 Screw and 2191 Lock Washer just removed.

(e) Place the 31636 Spring into position between the 154380 Bracket and the 153600 Spring Bracket.

(f) Replace the pressure roller assembly and platen assembly.

* (2) Assemble the 157047 Lever to the 157048 or 178188 Lever using the 152893 Screw, the 125011 Washer and the 110743 Lock Washer.

(3) Assemble the above combination to the 153566 Bracket as follows:

* (a) With the parts in position, place the ear of the 157048 or 178188 Lever to which the 157047 Lever was assembled over the ear of the 153566 Bracket containing one hole.

* (b) The two holes of the 157048 or 178188 Lever should now be in alignment with the two holes of the 153566 Bracket; the ears of the 157048 or 178188 Lever resting on the ears of the 153566 Bracket.

* (c) Insert the 157049 Pin, with the grooved end up, through the upper hole of the 157048 or 178188 Lever and the upper hole of the 153566 Bracket.

* (d) Place the 93758 Felt Washer on the 157049 Pin before placing the pin in the lower hole of the 157048 or 178188 Lever and the lower hole of the 153566 Bracket.

(e) Place a 119649 Retainer Ring in the bottom groove of the 157059 Pin just below the upper ear of the 153566 Bracket.

* (f) Place a 119649 Retainer Ring in the middle groove above the upper ear of the 157048 or 178188 Lever.

(g) Place a 93758 Felt Washer on the upper end of the 157049 Pin.

(h) Place a 119649 Retainer Ring in the groove of the 157049 Pin above the 93758 Felt Washer.

* (4) Remove the ball bearings and springs associated with the suppression code bar. To do this remove the two 151618 Screws, 2191 Lock Washers and 152572 Bracket. Note the number of shims between the 152572 and 152575 Brackets. Hold the bracket so that the left-hand retainer plate (as viewed from left side of unit) is horizontal and faces upward. Carefully remove the 150293 Retainer Plate by removing the two 110434 Screws and 110743 Lock Washers. Retain the lock washers. Remove the 150535 Spring and 150537 Ball Bearing associated with the suppression code bar. Place the retainer plate in position. Place the 153566 Bracket on top of the retainer plate so that the extension of the 157048 Lever will be in position to engage the suppression code bar. Fasten the bracket and retainer plate using the two 151637 Screws and 110743 Lock Washers. Turn the bracket so that the right hand retainer plate (adjacent to the code bar markings) is horizontal and faces upward. Carefully remove

the retainer plate. Remove the 150535 Spring and 150537 Ball Bearing associated with the suppression code bar. Replace the retainer plate. Remount the 152572 Bracket so that the extension on the 157048 or 178188 Lever engages the square notch in the suppression code bar using the 151618 Screws, 2191 Lock Washers and the proper number of shims between the 152572 and 152575 Brackets.

(5) Mount the 153570 Suppression Arm to the 153569 Type Box Clutch Trip Arm using the two 151722 Screws, 2191 Lock Washers and 7002 Washers.

*(6) For the 178358 Modification Kit, install the 233M Magnet as follows:

(a) Remove the lower 151647 Screw and 2191 Lock Washer holding the 150546 Bracket to the left frame. (Retain 2191 Lock Washer.) Mount the right angle end of the 173883 Bracket to the left side of the frame with a 151630 Screw and the retained lock washer. Remove the upper 151442 Screw (retain 2191 Lock Washer and 3598 Nut) holding the 151602 Plate and replace with 173882 Stud using the retained 2191 Lock Washer and 3598 Nut. Mount the other end of the 173883 Bracket to the 173882 Stud using 151632 Screw, 2191 Lock Washer, and 7002 Flat Washer.

(b) Insert the 178189 Armature into yoke and place the 163250 Pin in place to hold armature to yoke.

(c) Insert two 119648 Retainer Rings to hold the 163250 Pin in place.

*(d) Mount the 178359 Bracket against yoke and assemble the completed armature assembly to the 173883 Bracket with the 151630 Screws and 2191 Lock Washers. Assemble 233M Magnet to the 177083 Yoke with the 151632 Screw and 2191 Lock Washer.

(e) Assemble the 178190 Armature Extension to the 178189 Armature with the 152893 Screw, 110743 Lock Washers and 125011 Flat Washers in the rear position and the 158186 Screw and 110743 Lock Washer in the front. Operating blade of the 178188 Lever must move freely in throat of the 178190 Armature Extension.

(f) Remove the 31636 Spring activating the suppression code bar and attach the 135716 Armature Spring between the 178189 Armature and the 177083 Yoke.

(g) Wire print magnet to appropriate terminals of printer connector with customer supplied cabling. Wiring changes in Electrical Service Unit due to insertion of the 233M Magnet must also be done by the customer. Use the 155755 sleeving supplied to prevent terminals from shorting.

NOTE

The 233M Magnet (740 ohms) will normally operate at 48 V DC. If a 120 V DC source is used a dropping resistor must be supplied by the customer. To reduce current to approximately .075 amperes, a 700 ohm resistor (Teletype Part 155858) has been used satisfactorily.

$$I = \frac{E}{R} = \frac{120}{1440} = .0833 \text{ A}$$

b. 157509 Modification Kit

- (1) Follow procedure in Paragraphs 2. a. (2) through (5) inclusive.

c. 152345 Modification Kit

- (1) Assemble the 153588 Solenoid to the 153563 Bracket with the four 151692 Screws and 2191 Lock Washers.

- (2) Mount the 153564 Lever to the 153563 Bracket with the 106281 Screw, the 110743 Lock Washer and 110435 Nut.

- (3) Place the 153565 Pin through the hole in the solenoid plunger so that it engages a 157048 Lever and secure the 153565 Pin in place with the two 119649 Retainer Rings.

- (4) Remove the 151657 Screw and the 2191 Lock Washer which mounts the 150546 Bracket to the left side frame and the 151657 Screw and 2191 Lock Washer which mounts in the rear hole of the 150894 Tie Bar. Discard the 151657 Screws.

- (5) Mount the assembly to the left side frame with the three 121605 Spacers, two 151618 Screws, a 151632 Screw, a 7002 Washer, two 8330 Washers and the 2191 Lock Washers. The 70388 Spring should be installed between the 153565 Pin and the 153566 Bracket.

- (6) Slip a 155751 Vinyl Tubing over each lead of the 153594 Cable. Solder the 153594 Cable to the solenoid and to the #6 and #9 terminal of the right typing unit connector as shown in Figure 1. Slip each 155751 Tubing over the terminal.

- (7) Route the cable and tie to upper stunt box handle three places and clamp with 80708 Clamp.

- (8) Refer to Figure 2 for the schematic wiring of the 152345 Off-Line Stunt Shift Mechanism when used with the Receive-Only Base Local Remote or Print Suppression Switch.

3. ADJUSTMENTS

For adjusting procedure refer to standardized adjustment information, for other than Bell System see Bulletin 217B. Make the following selective calling mechanism adjustments.

a. 152337, 157509, 152345 Modification Kits

Type Box Clutch Trip Lever
Suppressor Code Bar Spring
Code Bar Shift Mechanism
Condition Code (Zero) Code Bar Shift Mechanism
Type Box Clutch Suppression Arm
Off-Line Stunt Shift Solenoid Spring
Off-Line Shift Bracket Assembly
Blocking Bail

*b. 178358 Modification Kit

(1) Suppressor code bar position.

With the print magnet energized and the code bars in the spacing condition, the tines of the suppression code bar shall be aligned with the tines of the other code bars as judged by eye.

Place code bars in spacing condition. Hold the magnet armature against the core either manually or electrically. Loosen the screws fastening the armature extension to the armature. Pivot the extension in its elongated mounting hole until the requirement is met. Tighten screws and recheck.

(2) Type box clutch stop lever trip arm.

With the clutch trip shaft cam follower on the lowest surface of the cam in the code bar clutch unit, the type box clutch stop lever inner face should clear the clutch disc arm outer face by .040" to .055".

To adjust, position the stop lever trip arm on the trip shaft by means of its clamp screw. When making this adjustment, position the trip arm on the shaft so that the type box clutch latch lever has some side play, not more than .008".

(3) Type box clutch suppression arm - same as standard adjustment.

(4) Blocking bail - same as standard adjustment.

(5) Print Magnet armature return.

With the print magnet de-energized, hook the pull end of a 32 oz. scale next to the point where the spring engages the armature. Pull parallel to the magnet core. It should require 7 to 10-1/2 ozs. to start the armature moving toward the core.

NOTE

The code bar must be free of all binds and jams.

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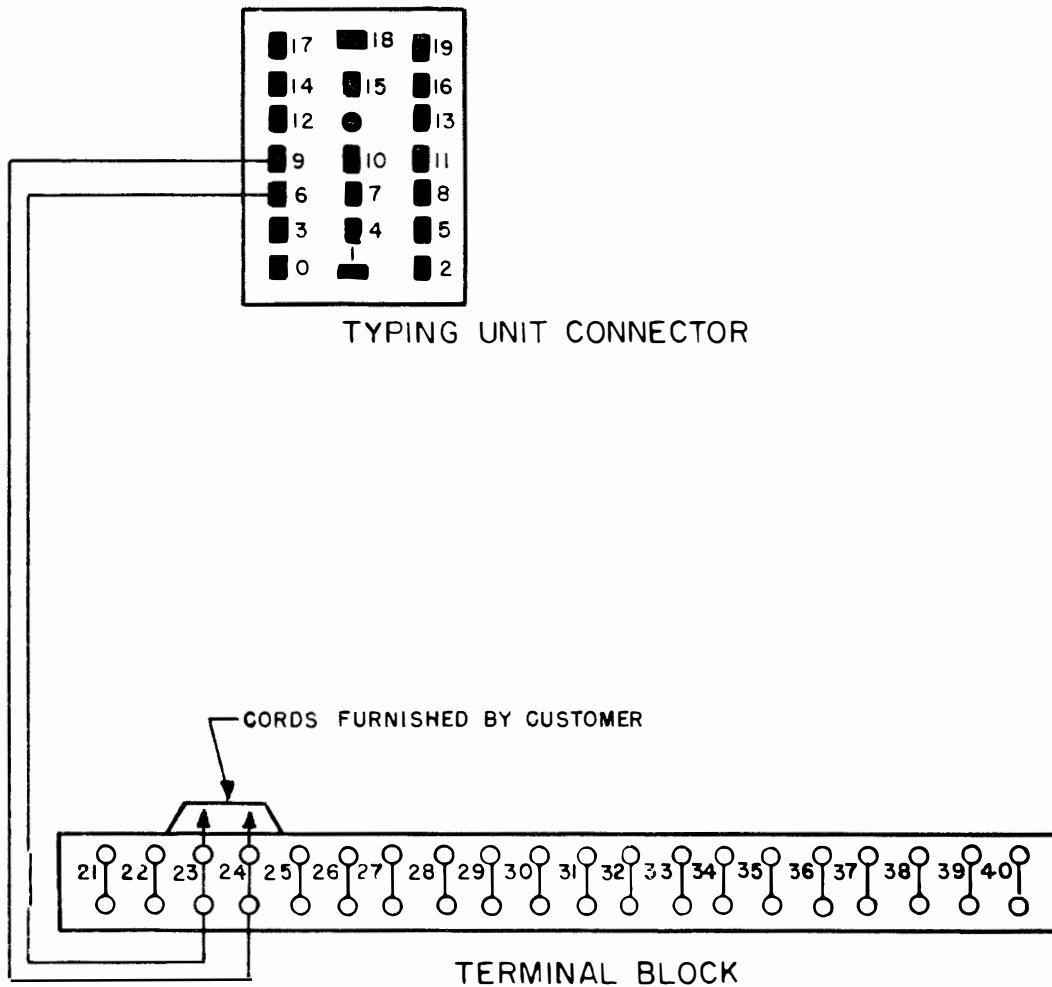
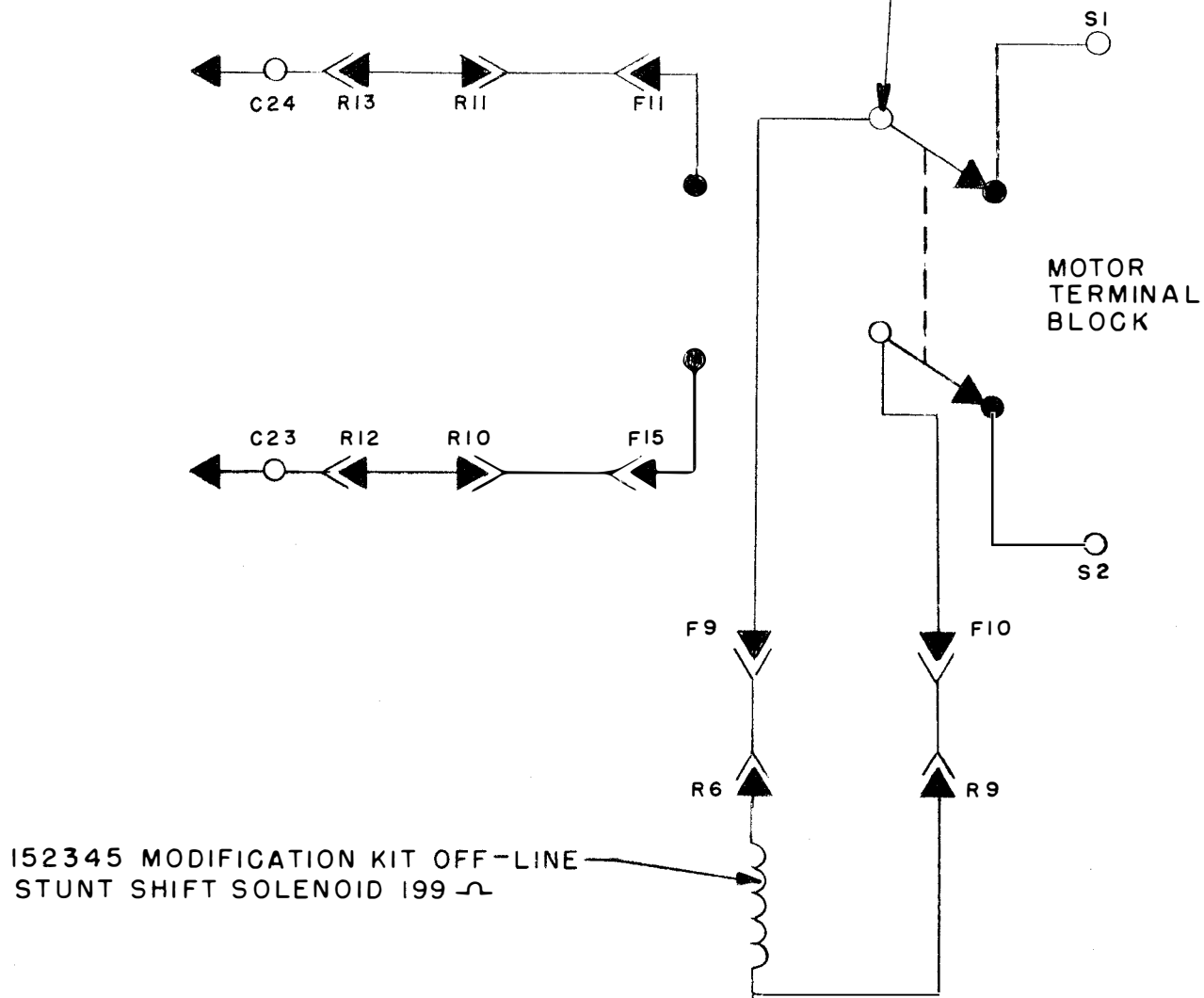


FIGURE 1

LOCAL-REMOTE (PRINT-SUPPRESSION)
 SWITCH (DPDT) SHOWN IN LOCAL POSITION



152345 MODIFICATION KIT OFF-LINE
 STUNT SHIFT SOLENOID 199

C CABINET TERMINAL BLOCK
 F RECEIVE-ONLY BASE CONNECTOR
 R TYPING UNIT CONNECTOR

FIGURE 2

FIGURE 3. 152345 OFF-LINE STUNT SHIFT CONTROL SET OF PARTS

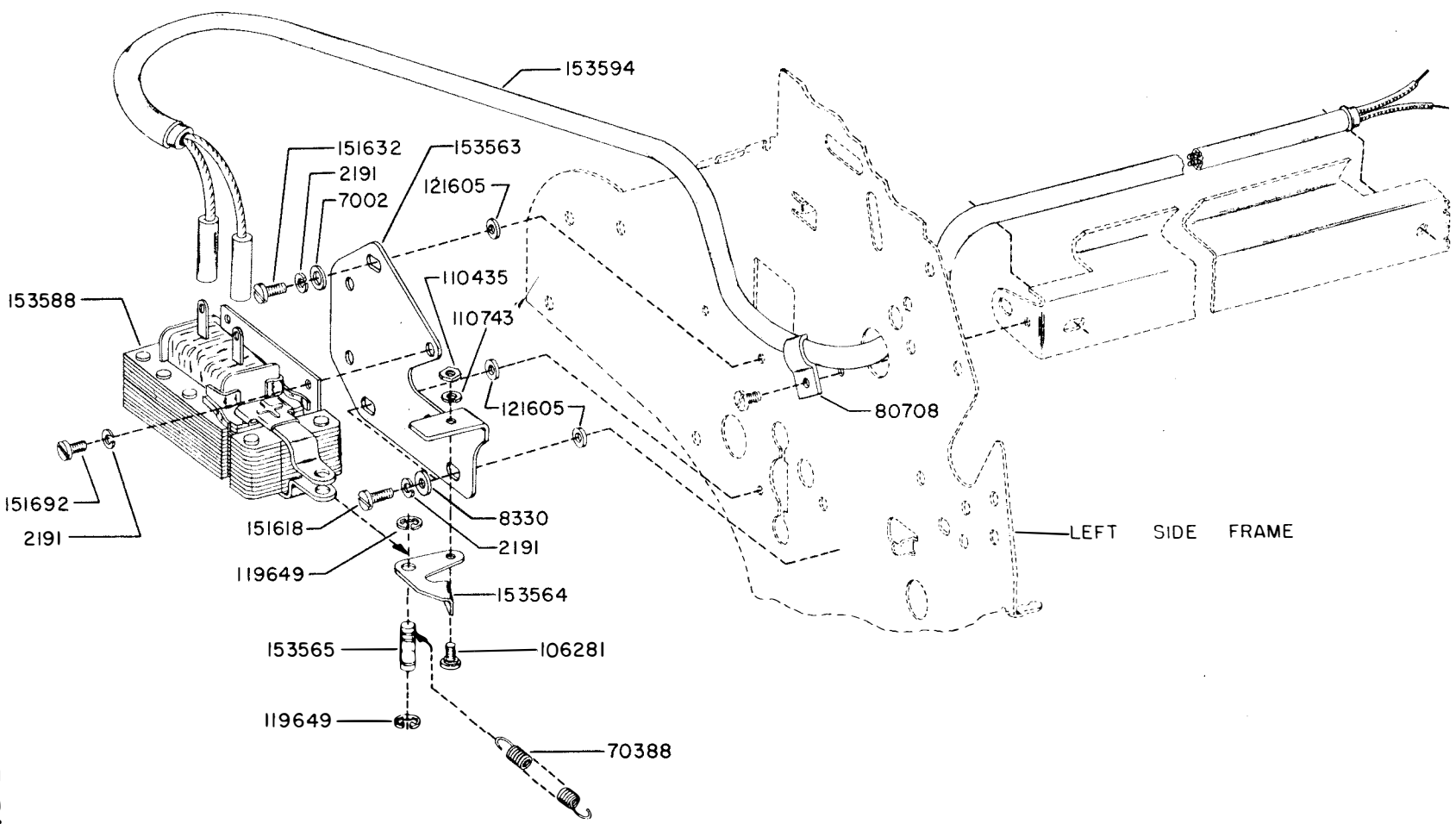


FIGURE 4.

152337 MODIFICATION KIT TO PROVIDE ON-LINE STUNT SHIFT CONTROL

NOTE.
THE 157509 MODIFICATION KIT
CONSISTS OF PARTS MARKED
WITH AN ASTERISK (*).

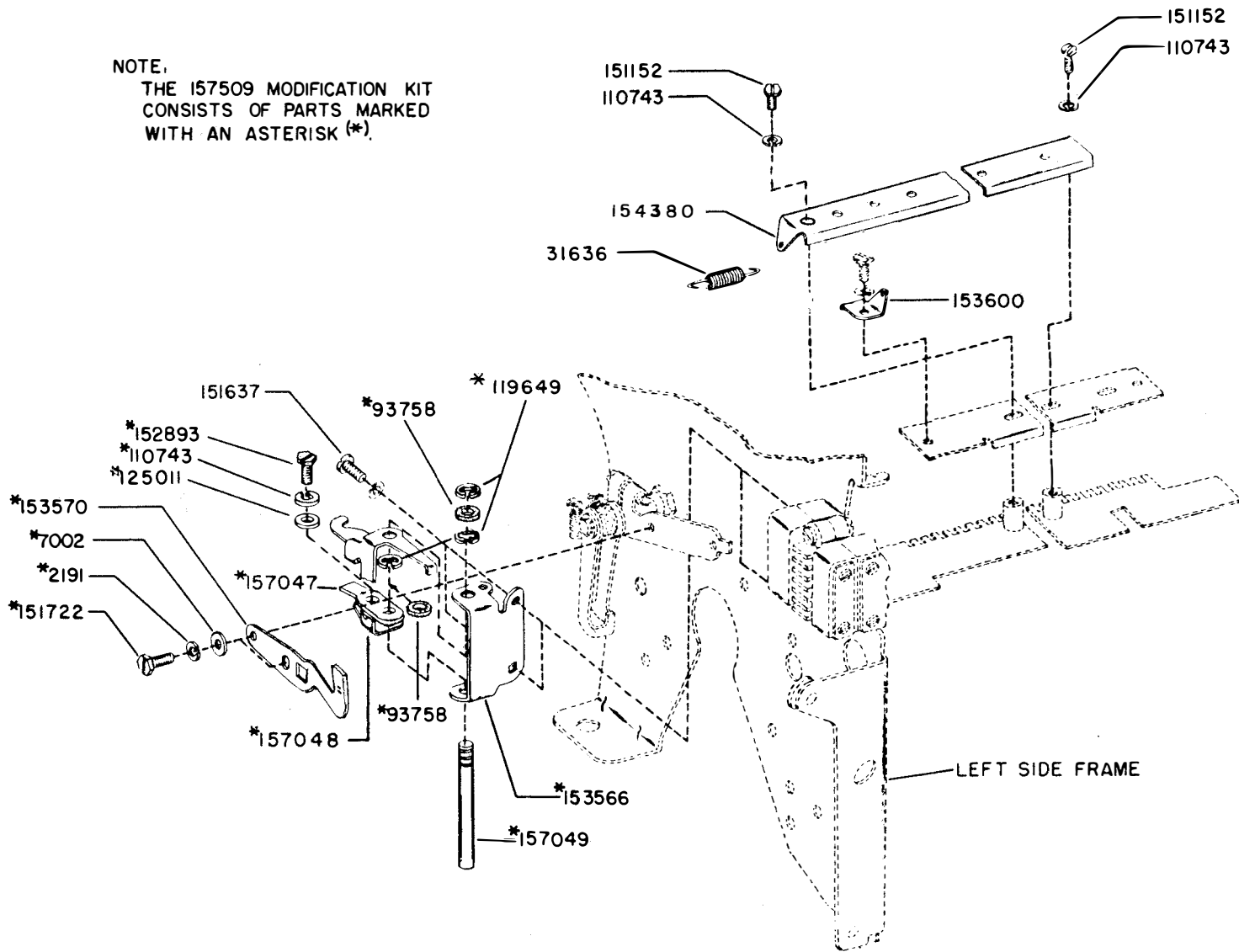
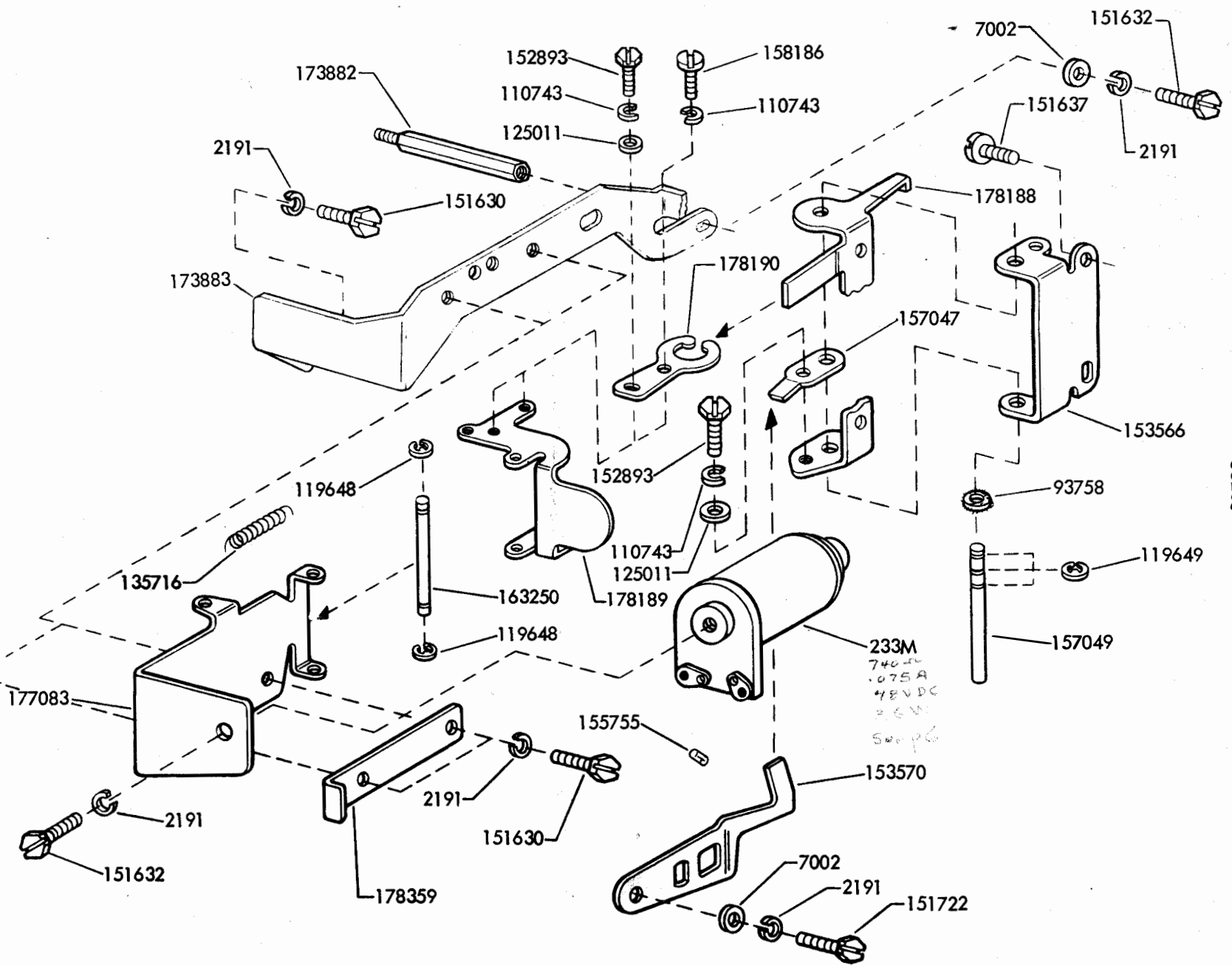


FIGURE 5. 178358 MODIFICATION KIT TO PROVIDE STUNT SHIFT CONTROL MECHANISM



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