

INSTRUCTIONS FOR INSTALLING THE 195154 MODIFICATION
KIT TO PROVIDE THREE SPEED GEARSHIFT ON MODEL 28 ASR SETS

1. GENERAL

- 1.01 The 195154 modification kit provides a quick change, three speed (60, 67, and 100 wpm) gearshift for Model 28 ASR Sets. All units, except the auxiliary reperforator, in the ASR Set will change speed when the gearshift is operated.
- 1.02 The 195154 modification kit mounts on the base of the keyboard (LAK) of the ASR Set in the same area as the intermediate gear assembly, and can be added to units equipped with the time delay motor stop mechanism.
- 1.03 The 195154 modification kit cannot be installed on units with the 163146 modification kit which provides a universal contact on the printer.
- 1.04 If the 195154 modification kit is to be installed on a keyboard (LAK) which is equipped with the 154145 local reverse line feed modification kit, two of the local reverse line feed parts must be replaced. These replacement parts are not supplied with the 195154 modification kit but are available as the 149896 modification kit.
- 1.05 The 195154 modification kit consists of:

13	2191	Lockwasher	3	151630	Screw
8	2669	Lockwasher	7	151631	Screw
1	3598	Nut	4	151658	Screw
2	6970	Nut	3	151725	Screw
2	7002	Flat washer	1	152441	Flat washer
2	34432	Flat washer	1	159287	Pinion retainer
2	44035	Screw	2	161301	Post
2	76099	Flat washer	2	192025	Flat washer
1	90790	Flat washer	1	195155	Cable assembly
1	93160	Flat washer	1	195156	Gear
1	97393	Shoulder screw	1	195157	Gear
1	98502	Flat washer	1	195160	Gear with insert
3	112626	Nut	1	195161	Shaft
1	119652	Retaining ring	1	195164	Bearing bracket
1	130499	Bearing	1	195165	Shaft with bearings
1	145365	Gear	1	195166	Plate
1	145366	Gear	1	195167	Lever
2	145393	Bushing	1	195168	Bracket
1	149881	Gear guard	1	195169	Bracket

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1	195170	Gear shift assembly	3	198680	Clamping screw
1	195420	Pawl	1	304229	Plate
1	198679	Bracket			

1.06 For parts ordering information see Teletype Model 28 Parts Bulletin 1169B.

CAUTION: MOTOR POWER MUST BE SHUT OFF WHILE CHANGING SPEEDS.

2. INSTALLATION

2.01 Remove the keyboard from the cabinet in accordance with standard practice.

2.02 Remove from the keyboard and discard the following items:

- (a) Intermediate gear assembly and associated mounting facilities. Retain one 151712 pivot washer.
- (b) Connector and motor terminal block mounting bracket retaining all connector and terminal block hardware.
- (c) Motor pinion.
- (d) Cable assembly between backspace magnet and motor terminal block (note routing).
- (e) 158079 shaft and associated coupling.

Note: To make subsequent assembly easier, the motor should be removed in accordance with standard practice.

2.03 Remove the 158071 bearing bracket from the keyboard and discard mounting hardware.

2.04 Remove the 158271 gear guard and mounting hardware from the bearing bracket and retain.

2.05 Remove 158073 shaft and its associated gear and bearing from the 158071 bearing bracket. Remount the shaft and gear to new 195164 bearing bracket with retained hardware.

2.06 Note position of gear and hub of 158075 shaft in the 158071 bearing bracket. Place the 195165 shaft in the same position on the 195164 bearing bracket and fasten with hardware from the 158071 bracket.

2.07 Put the new 195164 bearing bracket in place of one removed in 2.03. Use furnished 195166 plate (notch in plate should be in towards gear) two 151725 screws, and two 2669 lockwashers to fasten the front of the bracket. Use furnished 93160 washer, 151725 screw, and 2669 lockwasher to fasten the rear of bracket. See Figure 2.

- 2.08 Insert two 198680 clamping screws through the 198679 bracket. See Figure 4. Secure bracket to base (raised extension to rear) using the furnished 44035 screws, 2669 lockwasher, and 304229 plate. Use the slots in the base at the rear of the keyboard vacated by the intermediate gear assembly. Position bracket at forward edge of slots (toward printer) and tighten the 44035 screws.
- 2.09 Place 130499 ball bearing into the hole in the gear bracket opposite the bronze bearing. Fasten the bearing in place with two each 151631 screw, 2191 lockwasher and 90790 flat washer. Put small end of 195161 shaft thru bronze bearing from outside of bearing bracket. Slide 195160 gear over shaft inside the bearing bracket with the hub towards the bronze bearing. Fasten end of shaft to ball bearing with 151630 screw, 2191 lockwasher, and 151610 flat washer. Refer to Figure 3.

Note: The following three items are preassembled. Assembly instructions for reference only.

- 2.10 Fasten the 195160 gear to the shaft with 151658 screw and 2191 lockwasher. Fasten the 195157 gear to the end of the 195161 shaft with the hub towards the casting with 151658 screw and 2191 lockwasher. Refer to Figure 3.
- 2.11 Assemble the 195167 lever to the 195163 bracket with 97393 shoulder screw, 2191 lockwasher, and 3598 nut. Assemble the 195163 bracket to the gearshift casting with three each 151631 screw and 2191 lockwasher. At the same time the slot in the lower end of the 195167 lever should be placed over the stud on the 145386 sleeve. Fasten lever in place with the 152441 flat washer and 119652 retaining ring.
- 2.12 Place the gear bracket assembly over the clamping screws. Assemble the remaining 198680 clamping screw and associated hardware through the remaining slot vacated by the intermediate gear assembly.
- 2.13 Position the 151245 felt washer on the 145386 sleeve assembly. Refer to Figure 1.
- 2.14 Insert the 145383 key into the keyway of the 195417 shaft with a 145385 spring and 145384 pin in place, holding the spring depressed. Refer to Figure 1.
- 2.15 With the left end of the 145383 key extending beyond the left end of the 195417 shaft, position the extension of the key in the hole on the inner bearing surface of the sleeve assembly and slide the sleeve assembly onto the 195417 shaft. Care must be taken that the spring and pin at the right end of the key remain in alignment as the key slides into the bearing in the 195158 bracket. The 145386 sleeve assembly should be assembled on the 195417 shaft with the 151245 felt washer nearest the 195158 bracket casting.
- 2.16 If a time delay mechanism is to be used, insert the 195420 pawl into the gear bracket assembly. The open end of the pawl fits on the eccentric hub of the 195418 gear. Refer to Figure 3.

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- 2.17 Fasten the 145365 motor pinion to the motor with a 159287 retainer and two 161301 posts.
- 2.18 Fasten the 195156 gear to the 195165 shaft of the new 195164 bearing bracket assembly of 2.06 so that it mates with the gear on the gearshift assembly. Adjust in accordance with Section 3.
- 2.19 Replace 158271 gear guard and mounting hardware.
- 2.20 Mount the connector to the 195168 bracket using retained hardware and following reverse of removal procedure.
- 2.21 Fasten the 195168 bracket and 195169 terminal block bracket to the bracket mounted to the gearshift casting. Place the 195169 bracket between the 195168 bracket and the gearshift bracket. Use two each 151630 screw and 2191 lockwasher. See Figure 5.
- 2.22 Fasten the motor terminal block to the 195169 bracket using retainer hardware.

Note: Any leads not long enough to reach the new terminal block position must have additional wire spliced to the lead.

- 2.23 Connect 195155 cable assembly to backspace magnet and route to motor terminal block.
- 2.24 Connect 195155 cable and check wiring diagram of the unit on which kit is being installed for all correct connections to motor terminal block. Check cable routing clearances to moving parts.
- 2.25 Replace motor, if previously removed.

Note: Transmitter distributor and perforator must have 100 wpm gears.

- 2.26 Mount the 194881 gear cover on top of the terminal block cover. Replace the original screws holding the cover with two 151631 screws. Also use two 7002 flat washers.

3. ADJUSTMENTS AND LUBRICATION

- 3.01 For standard adjustments and lubrication procedure of related equipment see Teletype Model 28 Bulletin 250B.

3.02 Make the following adjustments:

(a) Gearshift Assembly Gear Play Adjustment

(1) Requirement

There should be a barely perceptible amount of backlash between the printer main shaft gear and the driving gear of the gearshift assembly at the closest point.

To Adjust

Loosen three gearshift mounting screws and position gearshift assembly.

(2) Requirement

There should be a barely perceptible amount of backlash between the motor pinion and its mating gear on the gearshift assembly at the closest point.

To Adjust

Loosen three gearshift mounting screws. Raise or lower rear end of the gearshift assembly by loosening clampnuts and turning adjusting bushings.

(3) Recheck (1) Requirement.

(b) Cross Shaft Gear Play Adjustment

Requirement

There should be 0.004 to 0.008 inch backlash between the cross shaft gear and its mating gear on the gearshift assembly at the closest point.

To Adjust

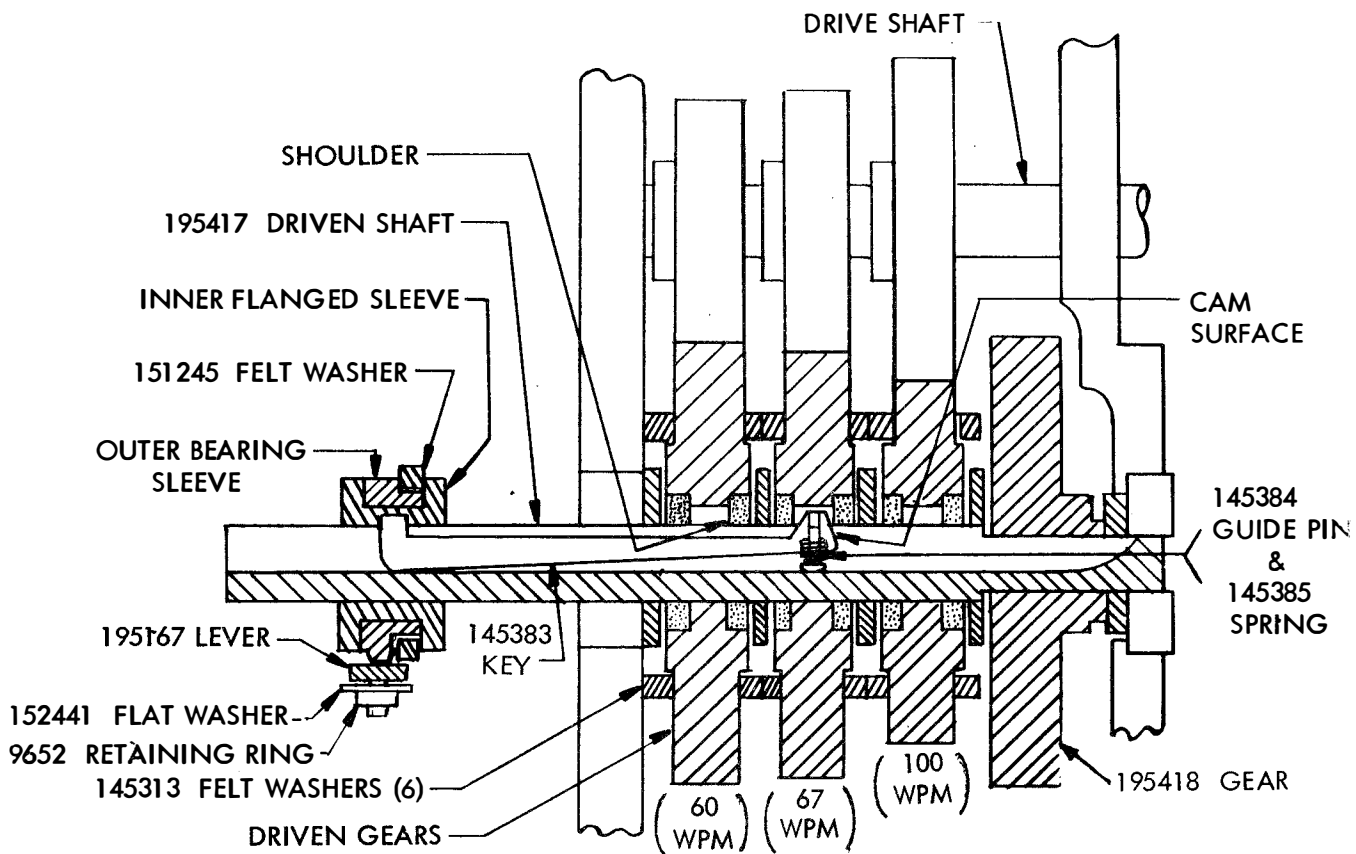
Loosen bearing bracket mounting screws and rubber coupling setscrew connecting to the perforator shaft. Position bracket to meet requirement.

3.03 Lubricate as follows:

(a) Light coat of grease around the periphery of all gears.

(b) Saturate felt washers in gear shift assembly with oil.

(c) Two drops of oil on bronze bearings in gearshift assembly.



OPERATION OF SPEED SHIFT GEAR BRACKET ASSEMBLY AND ASSOCIATED PARTS

NOT TO SCALE

Figure 1

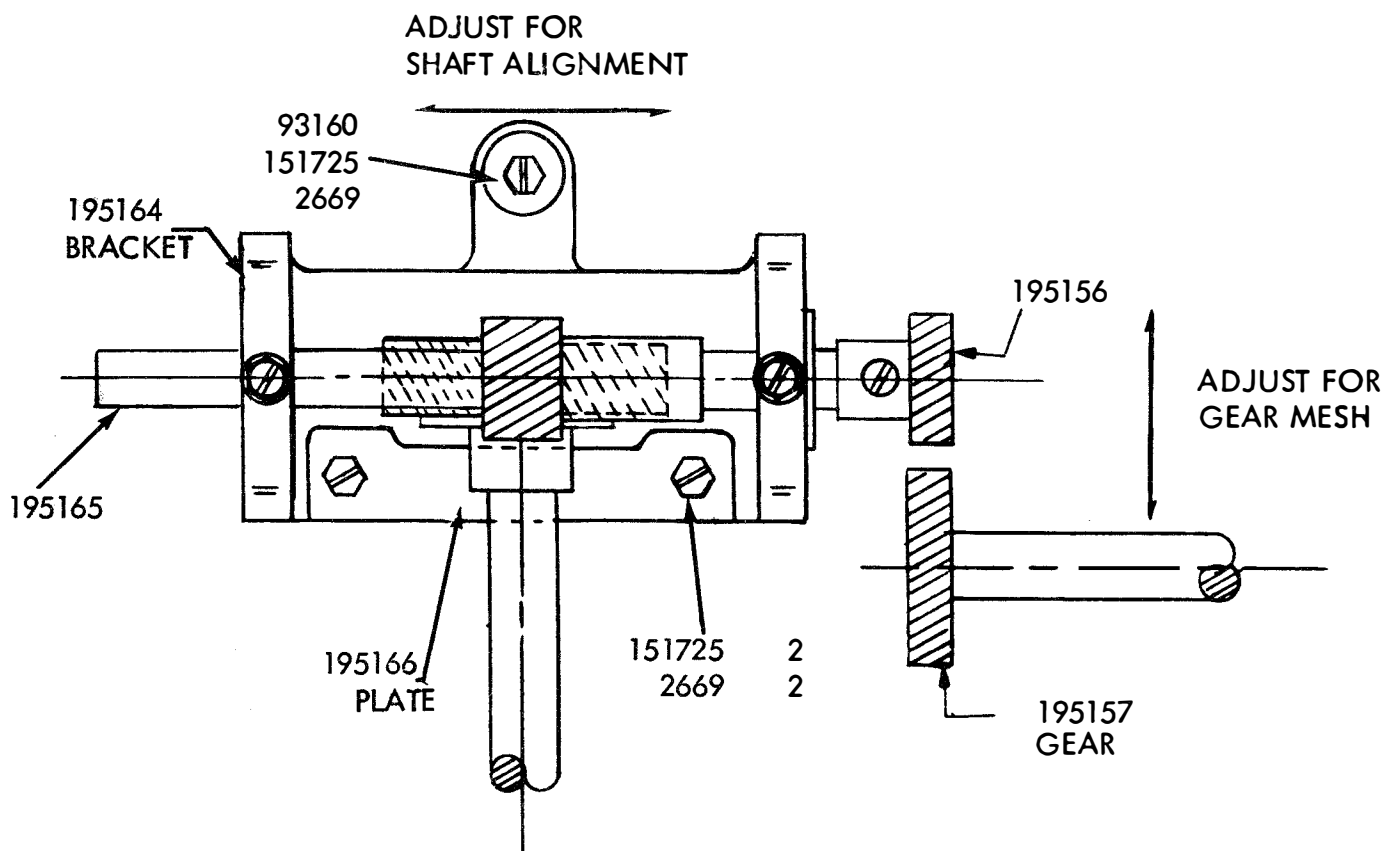


Figure 2

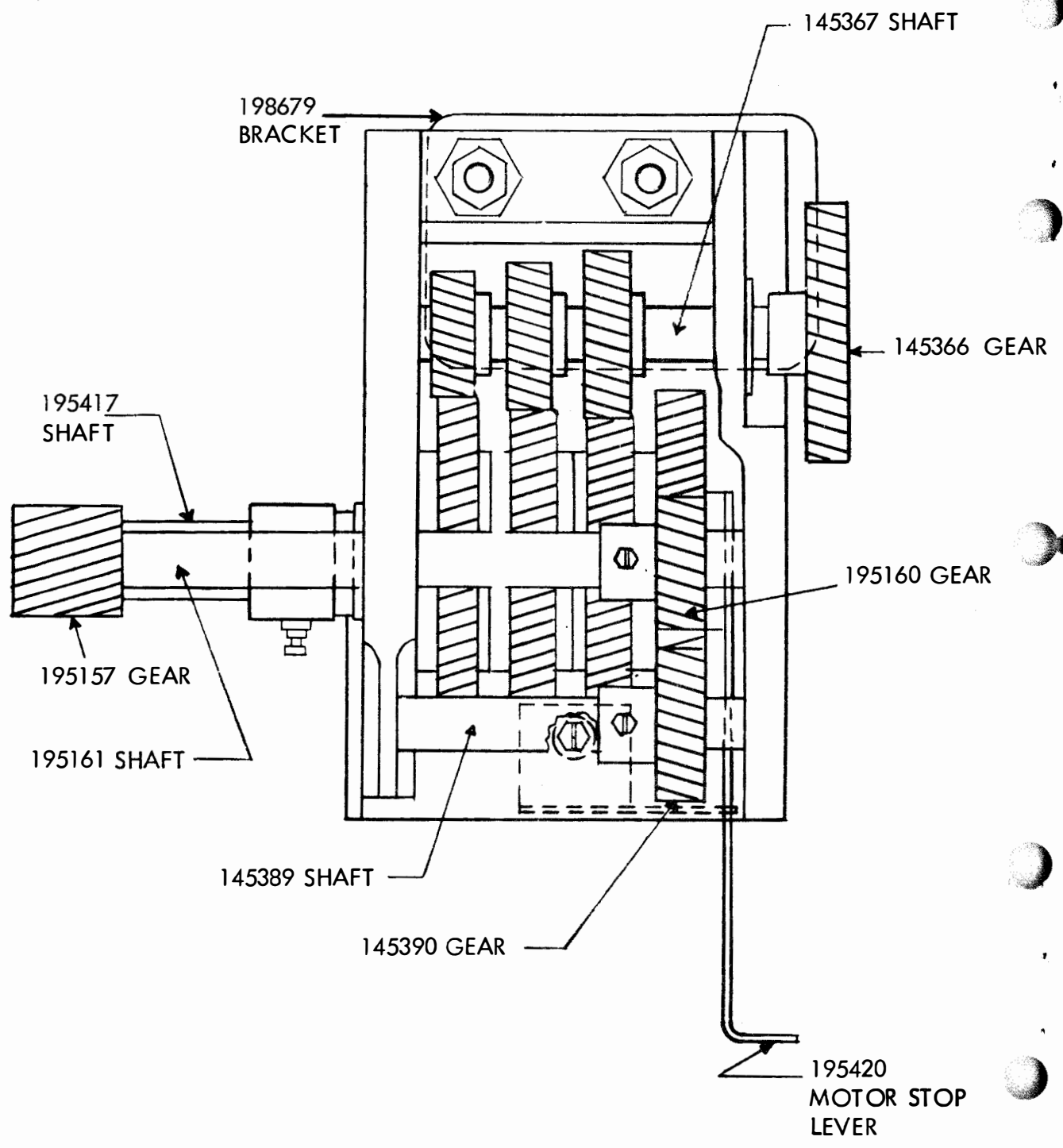
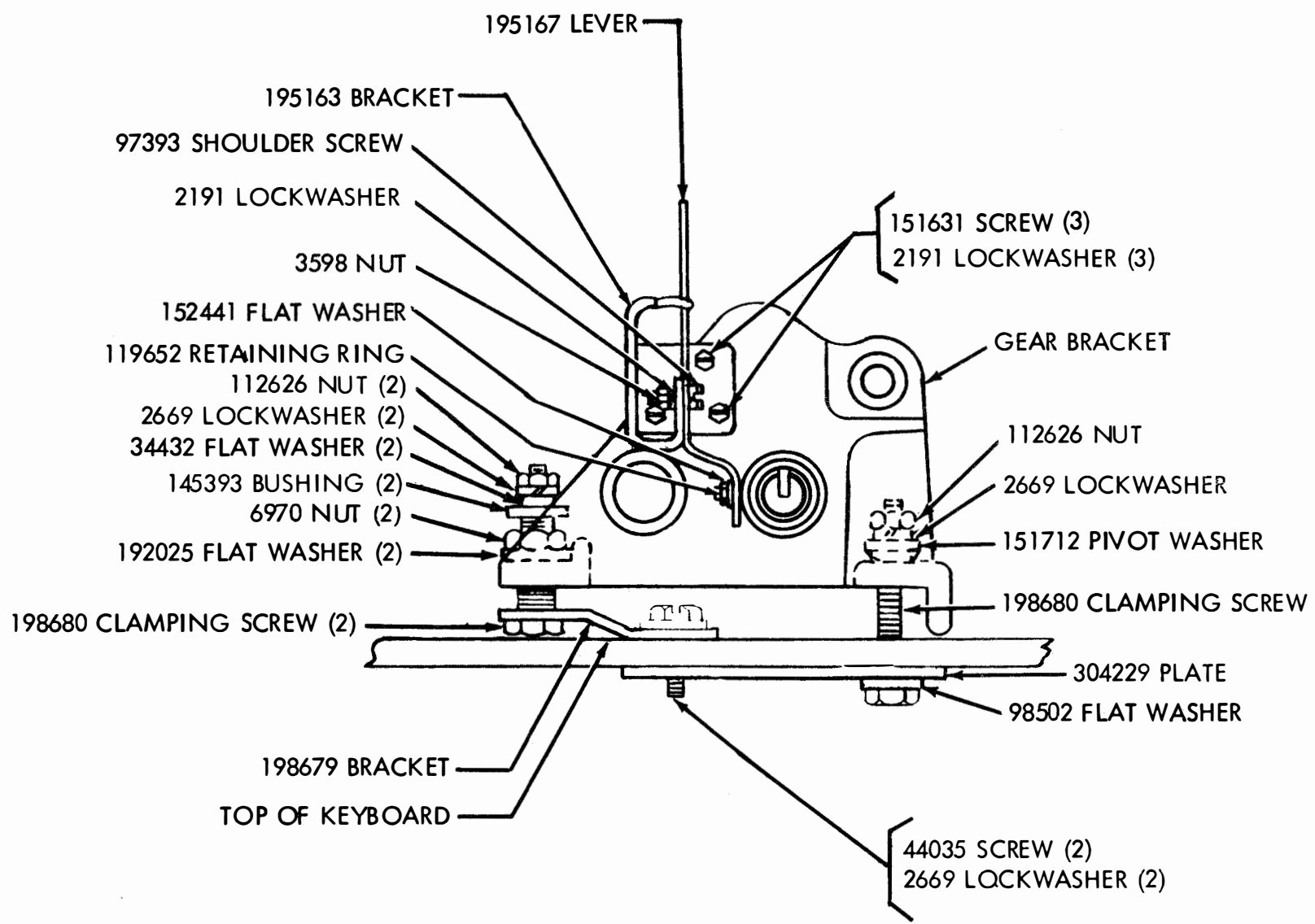


Figure 3

Figure 4



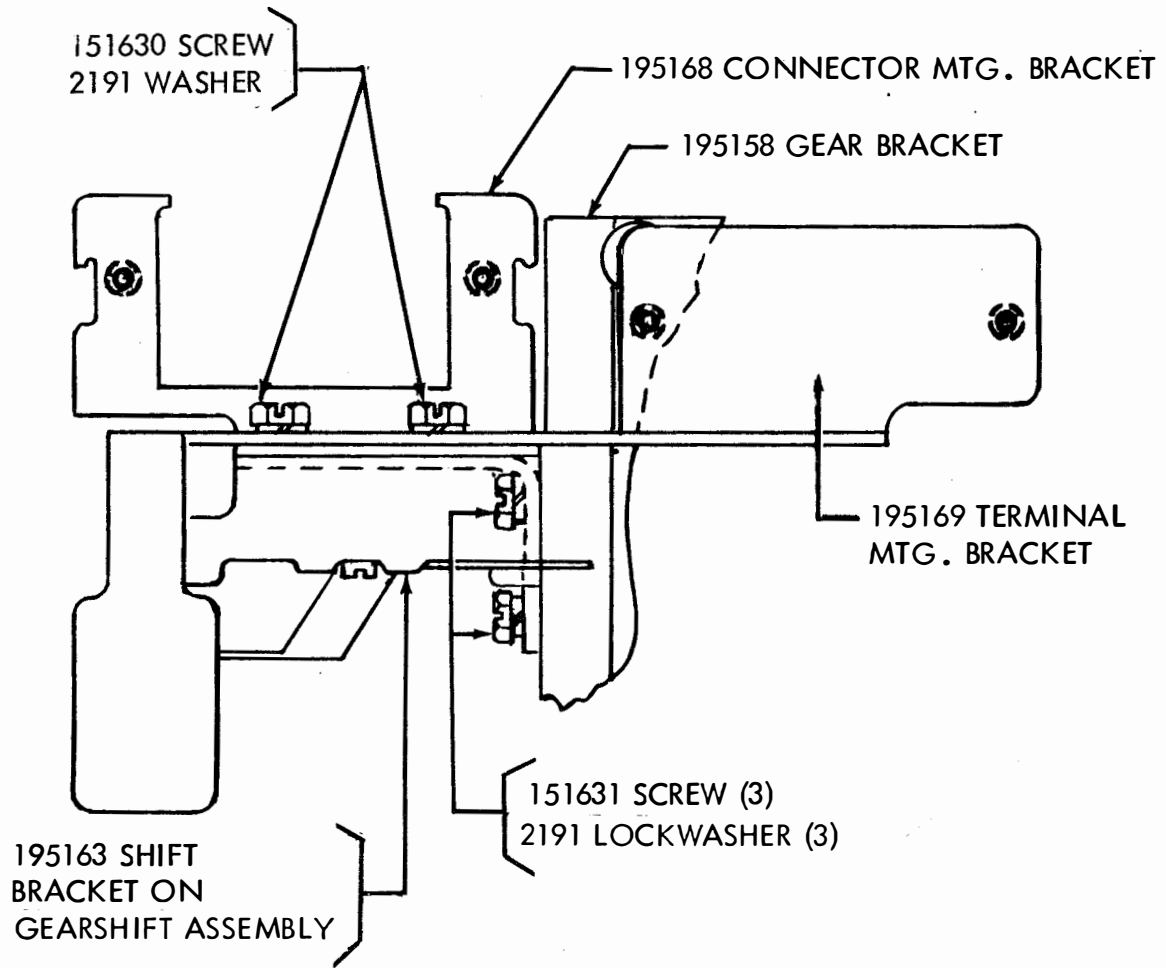


Figure 5