TELETYPE CORPORATION
Skokie, Illinois, U.S.A.

SPECIFICATION 5534S
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INSTRUCTIONS FOR INSTALLING THE MANUAL AND POWER DRIVE BACKSPACE, AND BACKSPACE COVER MODIFICATION KITS ON MODEL 28 OR MODEL 35 PERFORATOR OR REPERFORATOR (LPR, LPE, LRPE, LTPE, LARP) AND MODEL 37 REPERFORATOR (YPR, YRPE)

1. GENERAL

1.01 This specification covers the following modification kits: 159363, 159364, 160881, 161304, 161828, 162245, 170196, 172640, 178697, 178698, 178917, 178918, and 324292. See Part 1 and Figure 6 for application and usage.

1.02 The 159363 (for units equipped for chadless tape), 178917 (for typing reperforator units equipped for fully perforated tape and print between feed holes), 170196, 172640, 178697, 178698, or 324292 (for units equipped for fully perforated tape and do not print between feed holes) modification kit, when installed on a Model 28, Model 35, or Model 37 perforator or reperforator, provides a manual backspace mechanism for replacing an erroneous punched character with the letters code. Depressing the backspace bellcrank post nut on the perforator allows the tape to backspace. The 170196, 178697, or 324292 modification kit also provides the power drive described below.

1.03 The 159364, 161304, or 162245 modification kit, when installed on a Model 28 or Model 35 perforator or reperforator, provides a power drive (from the Model 28 or Model 35 punch main shaft) for the 159363, 172640, or 178917 manual backspace mechanism. The start magnet operates on 115 volts, 60 cycles ac, 110 volts dc (with a 600 ohm series resistance) and 48 volts dc. Facilities for mounting the dc series resistors are not provided. Additional parts and wiring information needed to control the power backspace are supplied by the customer. The 162245 modification kit includes a cable for use with typing reperforators having a 36-point connector.

1.04 The 160881 or 178918 modification kit, when installed on a Model 28 and Model 35 perforator or reperforator, respectively, provides a cover for the backspace mechanism. This prevents accidental insertion of objects or fingers.

1.05 The 161828 modification kit, when installed on a Model 28 or Model 35 reperforator, allows the power tape backspace (159363 and 159364 modification kits) to operate when noninterfering blank tape feed-out (159351 modification kit, Specification 5772S) is present on the same unit.

1.06 The modification kits consist of:

Qty	Part No.	Description	159363	159364	161304	162245	170196	172640	178697	178698	324292
	2191	Lockwasher		4	4	4	5		5		5
1	3598	Nut		X	X	X	X		X		X
1	7002	Washer, flat		X	X	X	X		X		2
	8330	Washer, flat		1	1	1	1		2		1
	110743	Lockwasher					2				2
1	84575	Spring		X	X	X	X				X
1	122149	Screw	X					X		X	
2	125011	Washer, flat	X							X	
1	151626	Lug, terminal				X					
2	151630	Screw		X	X	X			X		
1	151631	Screw							X		
2	151632	Screw					X				X
1	151721	Screw		X	X	X	X		X		X
	153817	Screw	3				1	1	1	1	1
2	155750	Sleeve, insulating				X					
1	159916	Post, eccentric	X					X		X	
1	159960	Eccentric									X
1	159962	Retaining ring									X
1	159963	Hub		X			X		X		
1	159983	Eccentric assembly		X	X	X			X		
1	159984	Link assembly		X	X	X	X		X		X
1	159985	Bellcrank assembly	X							X	
1	159986	Rake assembly	X								
1	159987	Bracket, guide	X				X	X	X	X	X
1	160672	Stud					X		X		X
1	161493	Post					X		X		X
1	162207	Cable assembly				X					
1	164518	Bellcrank assembly					X	X	X		X
1	170192	Eccentric assembly					X				
1	170193	Bracket, guard					X		X		X
1	193825	Magnet assembly		X	X	X	X		X		
1	324286	Drive link									X
1	324287	Magnet assembly									X

Note: The 170192 eccentric assembly is the same as the 159983 eccentric assembly except that 170200 arm is substituted for 159961 arm (Figure 2).

1.07 The 160881 modification kit consists of:

Qty	Part No.	Description	Qty	Part No.	Description
1	2191	Lockwasher	1	160673	Shaft, feed wheel
1	8330	Washer, flat	1	160674	Nut
1	160666	Guard	1	161493	Post
1	160672	Stud			

1.08 The 161828 modification kit consists of:

Qty	Part No.	Description
1	151631	Screw
1	161928	Post
1	161930	Lever w/hub

1.09 The 178917 modification kit consists of:

Qty	Part No.	Description	Qty	Part No.	Description
1	49420	Spring	1	178921	Plate w/post
1	2191	Lockwasher	1	178923	Crank assembly
1	111017	Screw	1	178924	Shaft
1	119651	Ring, retaining	1	178925	Ratchet
1	125011	Washer, flat	1	178927	Clamp
2	153817	Screw			

1.10 The 178918 modification kit consists of:

Qty	Part No.	Description
1	178930	Guard
1	178931	Post
1	178932	Post

1.11 For part numbers referred to and for parts ordering information, refer to Bulletin 1166B (LARP), 1167B (LPR), 1169B (LPE, LTPE), or 1187B (LRPE).

2. INSTALLATION

2.01 Modification kit 159363, 172640 or 178698 (Figure 1)

(1) Remove the four (for the 159363 modification kit) or front two (for the 170196 or 172640 modification kit) 152893 screws and 110743 lockwashers that secure the punch block to the perforator. Discard the screws and retain the lockwashers.

(2) Mount the 159985 or 164518 bellcrank assembly and the 159987 guide bracket using the 122149 screw, 110743 lockwasher, and 159916 eccentric in the lower mounting hole of the assembly. Install a 153817 screw and 110743 lockwasher in the upper mounting hole.

(3) For the 159363 modification kit, mount the 159986 rake assembly using two 153817 screws, 110743 lockwashers and 125011 flat washers.

2.02 Modification kit 159364, 161304 or 162245 (Figure 2)

(1) Adjust the magnet assembly. See Part 3.

(2) Install the 193825 magnet assembly inside the punch frames (with the magnet yoke toward the punch side of the punch assembly) using two 151630 screws, 2191 lockwashers, and one 7002 flat washer (used at lower mounting hole).

(3) Remove and discard the 3598 nut (located on the front plate) which mounts one side of the slide lever guidepost and replace with the 159984 link assembly. Make certain that the backspace post is engaged with its operating link.

(4) Remove the 3598 nut (discard) 2191 lockwasher (retain), and 151693 screw (discard) from the clutch drum if the unit has a selector (if a selector clutch drum is not used mount the 159963 hub furnished). Install the 159963 hub using the 151721 screw and 2191 lockwasher. Start a 3598 nut, 2191 lockwasher (retained), and 8330 flat washer on the 151721 screw. Slip the 159983 or 170192 eccentric assembly (with the retaining ring out) over the clutch drum hub and under the 8330 flat washer. Make certain that the drive link fork is riding on its guidepost and is under the drive link latch (high part of eccentric should be to the right). Tighten the 3598 nut.

(5) Attach the 84575 spring on the drive link latch and its spring post.

(6) For the 162245 modification kit, secure the 162207 cable assembly to the magnet assembly by means of the terminal lugs on the cable and the screws on the magnet. Slip the two 155750 insulating sleeves over the other end of the 162207 cable assembly. Solder the cable ends to terminal numbers 27 and 28 of the 36-point connector. Slide insulating sleeves over soldered connections. Assemble the 151626 terminal lug to the 8-1/2 inch long red lead of the 162207 cable assembly when a magnet having screw terminals is used.

2.03 Modification kit 160881 (Figure 4)

(1) Remove and discard the top left 153817 screw, the 156045 feed wheel knob, the 159914 nut, and remove and retain the 151630 screw. Retain the lockwashers.

(2) Install in place of the 153817 screw the 160672 stud, in place of the 151630 screw the 161493 post and 2191 lockwasher, in place of the 156045 knob the 160673 shaft, in place of the 159914 nut the 160674 nut. Secure the 160673 feed wheel shaft in its place and secure the 160674 nut in position with the high side of the eccentric up. Tighten all loose parts.

(3) Place the 160666 guard over the top portion of the backspace mechanism, sliding the guard onto the grooved portion of the 160672 stud until the hole lines up with the 161493 post. Secure with the 151630 screw, 2191 lockwasher, and 8330 flat washer.

2.04 Modification kit 161828

(1) Remove and discard the 151722 screw and 2191 lockwasher from the punch assembly.

(2) Replace the 156740 screw on the power drive backspace drive arm with the 151631 screw, 7002 flat washer, and 2191 lockwasher.

(3) Install the 161928 post and 161930 lever (in place of the 151722 screw and 2191 lockwasher removed in 2.04 (1) so that the lever engages the drive arm screw on the backspace mechanism and the feed pawl on the noninterfering blank feed-out mechanism.

2.05 Modification kit 178917 (Figure 3)

(1) Remove two front 152893 screws and 110743 lockwashers that secure the punch block to the perforator. Discard the screws and retain the lockwashers.

(2) Mount the 178921 plate, in upper hole using the 153817 screw and 110743 lockwasher. In lower hole use 153817 screw, 125011 flat washer, and 110743 lockwasher.

(3) Mount 178923 crank assembly to stud of 178921 plate and insert 119651 retaining ring. Hook 49420 spring between crank and spring ear of 178921 plate.

(4) Complete the installation by removing and discarding, 160673 shaft and 160948 screw, retain 93117 lockwasher. Insert 178924 backspace shaft and at far end insert 160948 screw and 93117 lockwasher. In front end of shaft slide on 178925 ratchet, place 178927 adjusting clamp over shoulder of ratchet, and fasten with 110017 screw and 92260 lockwasher.

2.06 Modification kit 178918 (Figure 3)

(1) Remove the upper 153917 screw and 110743 lockwasher which mounts 178921 plate w/post; discard the screw and retain the lockwasher. Install the 178931 post and 110743 lockwasher.

(2) Remove 151630 screw and 2191 lockwasher from right uppermost hole in front plate. Retain both screw and lockwasher. Install the 178932 post and 2191 lockwasher.

(3) Slide 178930 guard in place and securely tighten with 151630 screw.

2.07 Modification kit 170196, 178697 or 324292

(1) Remove the front two 152843 screws and 110743 lockwashers that secure the punch "B" lock to the perforator. Discard the screws and retain the lockwashers.

(2) Mount the 164518 bellcrank assembly and the 159987 guide bracket using the 160672 stud and retained 110743 lockwasher in the upper hole and the 153817 screw and retained 110743 lockwasher in the lower hole.

(3) For modification kit 170196 mount the 159963 hub on the main shaft using a 151721 screw, 2191 lockwasher, 8330 flat washer, 2191 lockwasher and a 3598 nut.

(4) Mount the 193825 or 324287 magnet assembly on the front punch plate using a 151630 screw, 2191 lockwasher and 7002 flat washer in the lower adjusting hole and a 151630 screw and 2191 lockwasher in the upper mounting hole.

(5) Remove and discard the 3598 nut from the punch slide mounting guide and mount the 159984 link assembly using a retained 2191 lockwasher.

(6) For modification kit 324292 (Figure 7) assemble the 324286 drive link to the 159960 eccentric with a 159962 retaining ring.

(7) For modification kit 324292 remove the 3598 nut, 2191 lockwasher and 151693 screw from the selector clutch drum. Install the 151721 screw and 2191 lockwasher and tighten the screw. Start the 3598 nut, 2191 lockwasher and 8330 flat washer. Slip the eccentric assembly over the clutch drum hub and under the 8330 flat washer, making sure that the drive link fork is riding on its guidepost and under the drive link latch (highest part of the eccentric should be toward the right for installation). Tighten the 3598 nut.

(8) Remove the 151630 screw from the 156040 post and assemble the 161493 stud using the retained 2191 lockwasher. Mount the 170193 guard bracket in the slot in the 160672 stud and fasten using a 8330 flat washer, 2191 lockwasher, and 151631 screw.

3. ADJUSTMENTS AND LUBRICATION

3.01 For adjustment and lubrication procedures refer to appropriate bulletin(s) as follows (Bell System refer to standardized information):

(1) LPR — Bulletin 247B

(2) LPE & LTPE — Bulletin 250B

(3) LRPE — Bulletin 256B

(4) LARP — Bulletin 294B and applicable information in Bulletin 250B (178697 kit) or 247B (178698 kit)

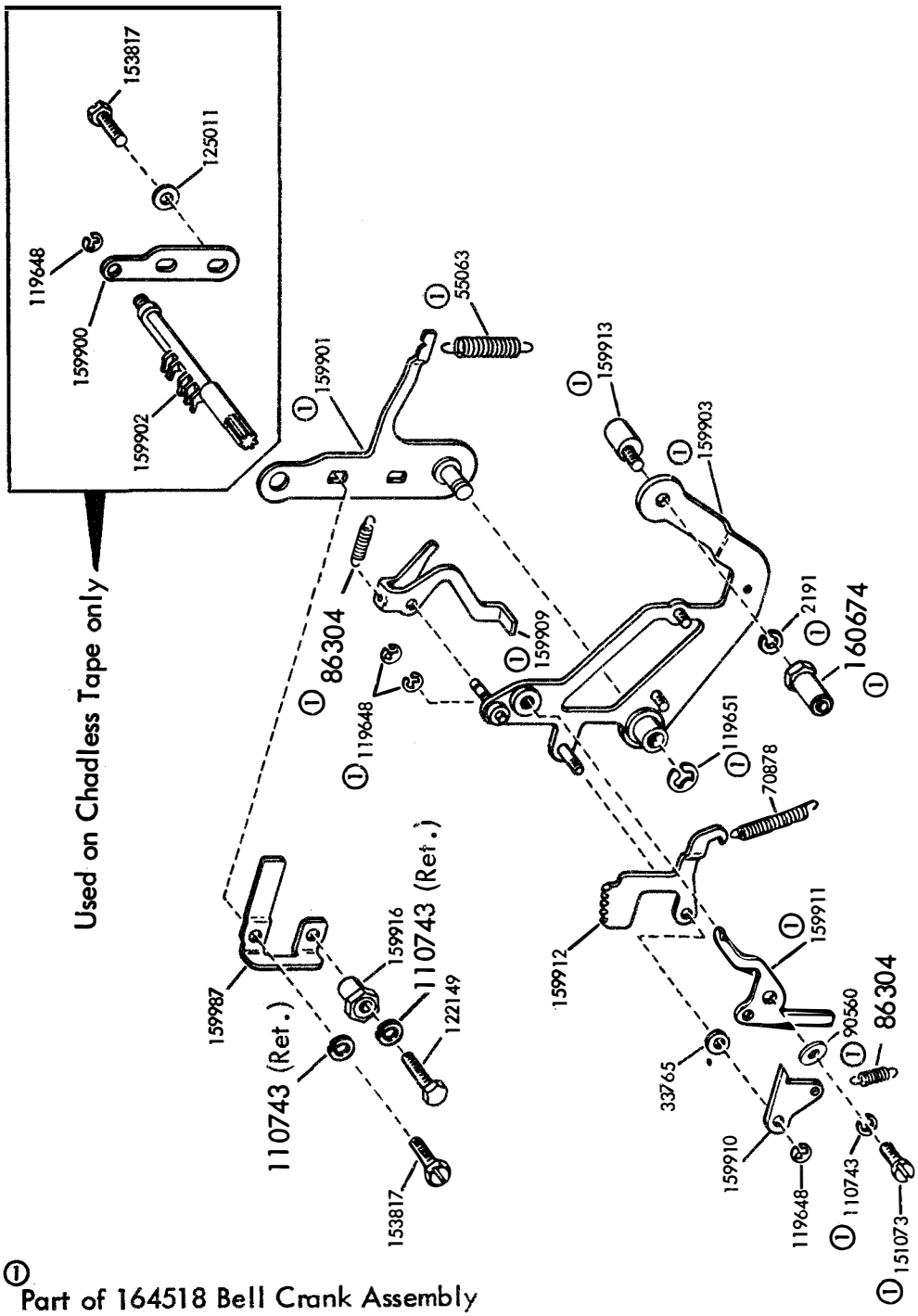
(5) YPR — Bulletins 334B and 318B

(6) YRPE — Bulletin 318B

3.02 Make the applicable manual and power drive backspace mechanism adjustments shown in Figure 5.

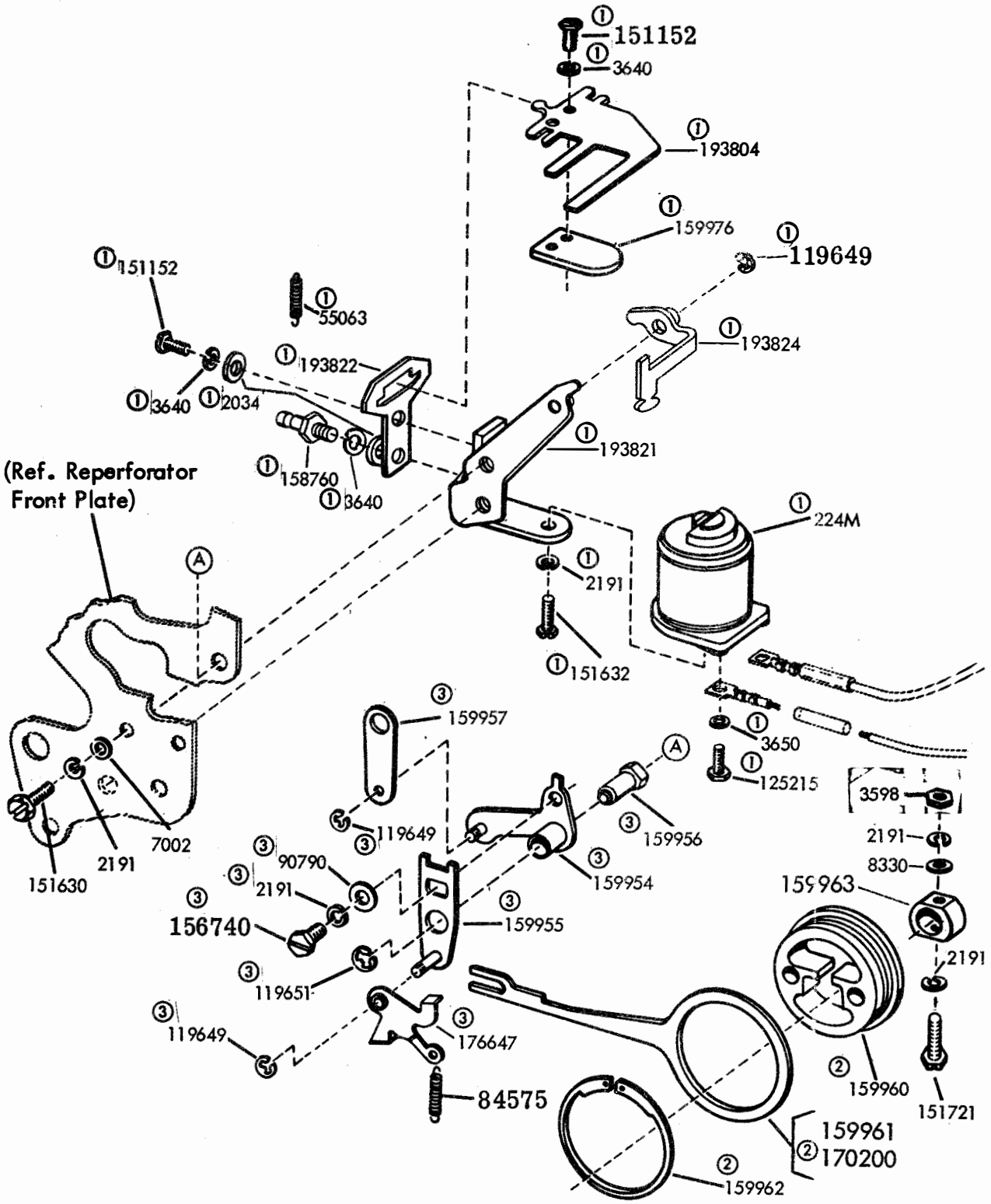
3.03 Pertains only to power drive backspace mechanism — For dc operation, the backspace magnet armature should be positioned so that the side marked "C" faces the pole side of the magnet core. For ac operation, the unmarked side of the magnet core should face the pole side of the magnet core.

* * *



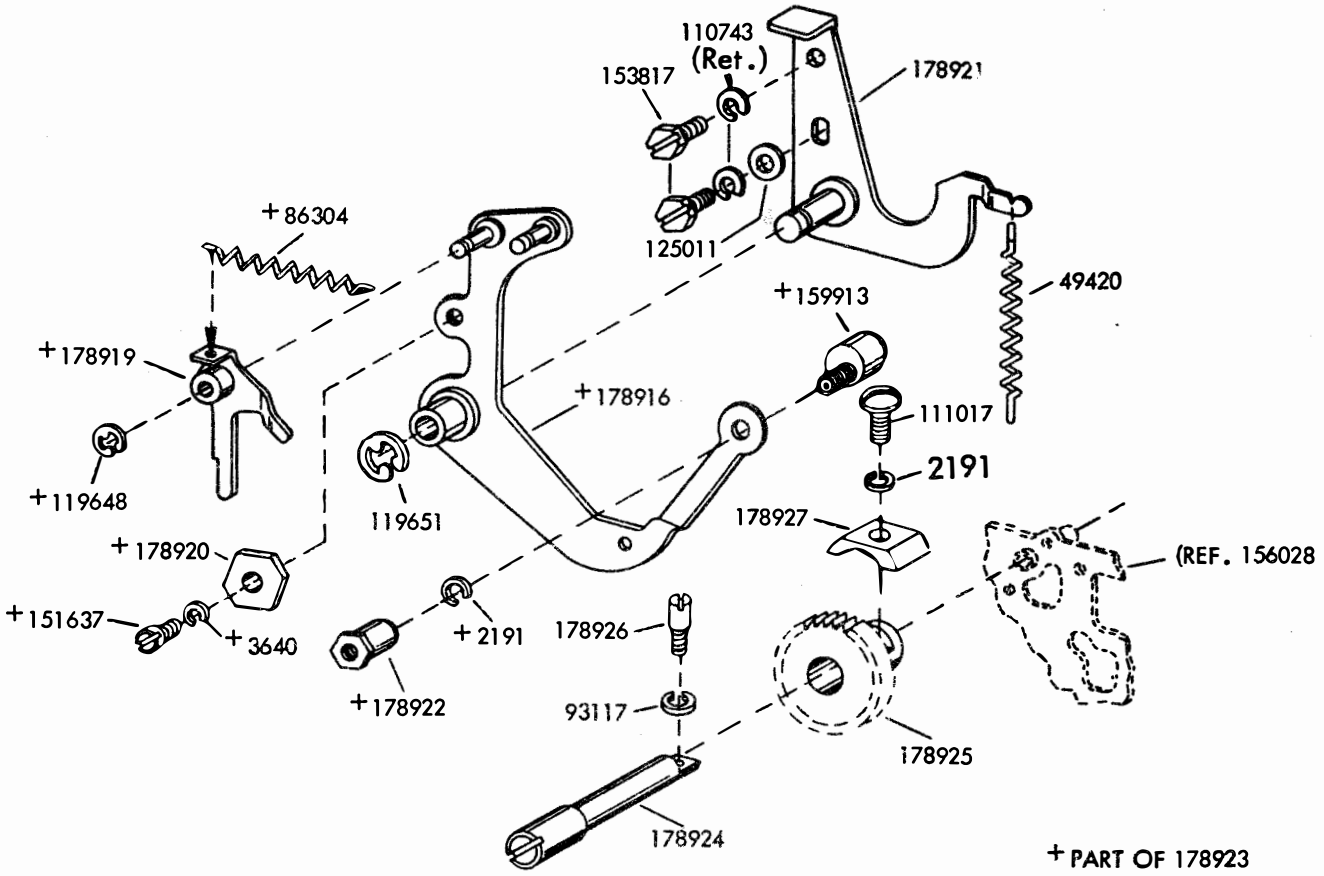
① Part of 164518 Bell Crank Assembly

FIGURE 1 - PARTS TO ADD MANUAL BACKSPACE

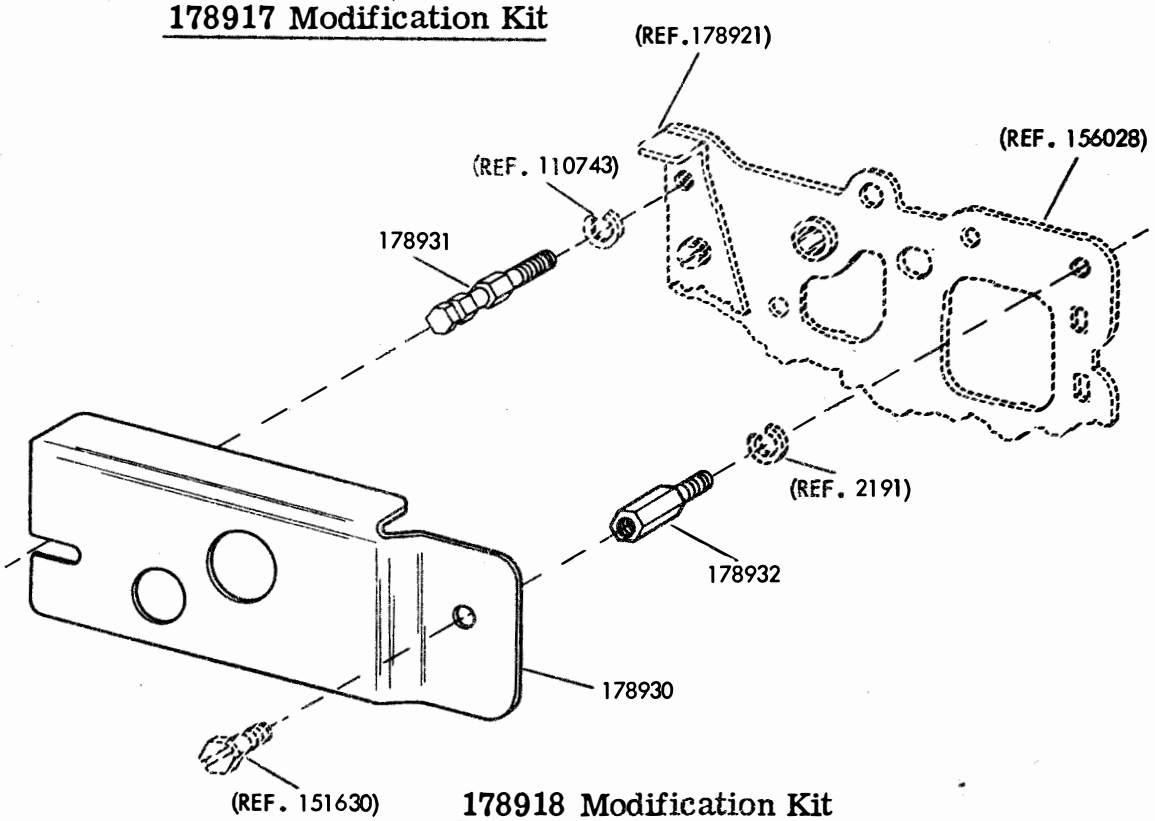


① Part of 193825 Backspace Magnet Assembly
② Part of 170192 Eccentric Assembly
③ Part of 159984 Link Assembly

FIGURE 2 - PARTS TO ADD POWER DRIVE TO BACKSPACE

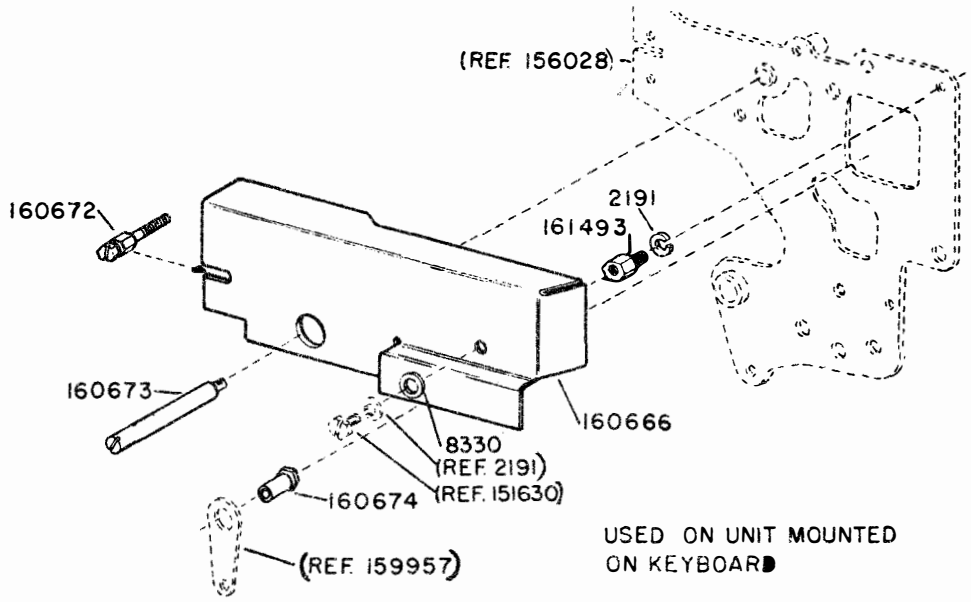


178917 Modification Kit

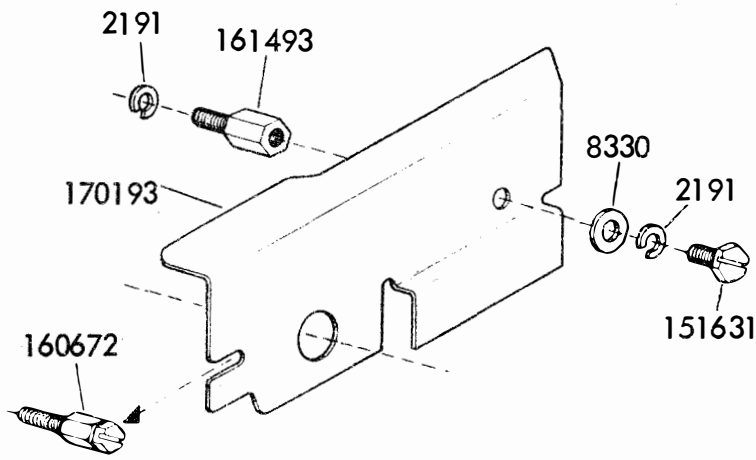


178918 Modification Kit

FIGURE 3



160881 MODIFICATION KIT TO ADD GUARD TO
COVER BACKSPACE MECHANISM



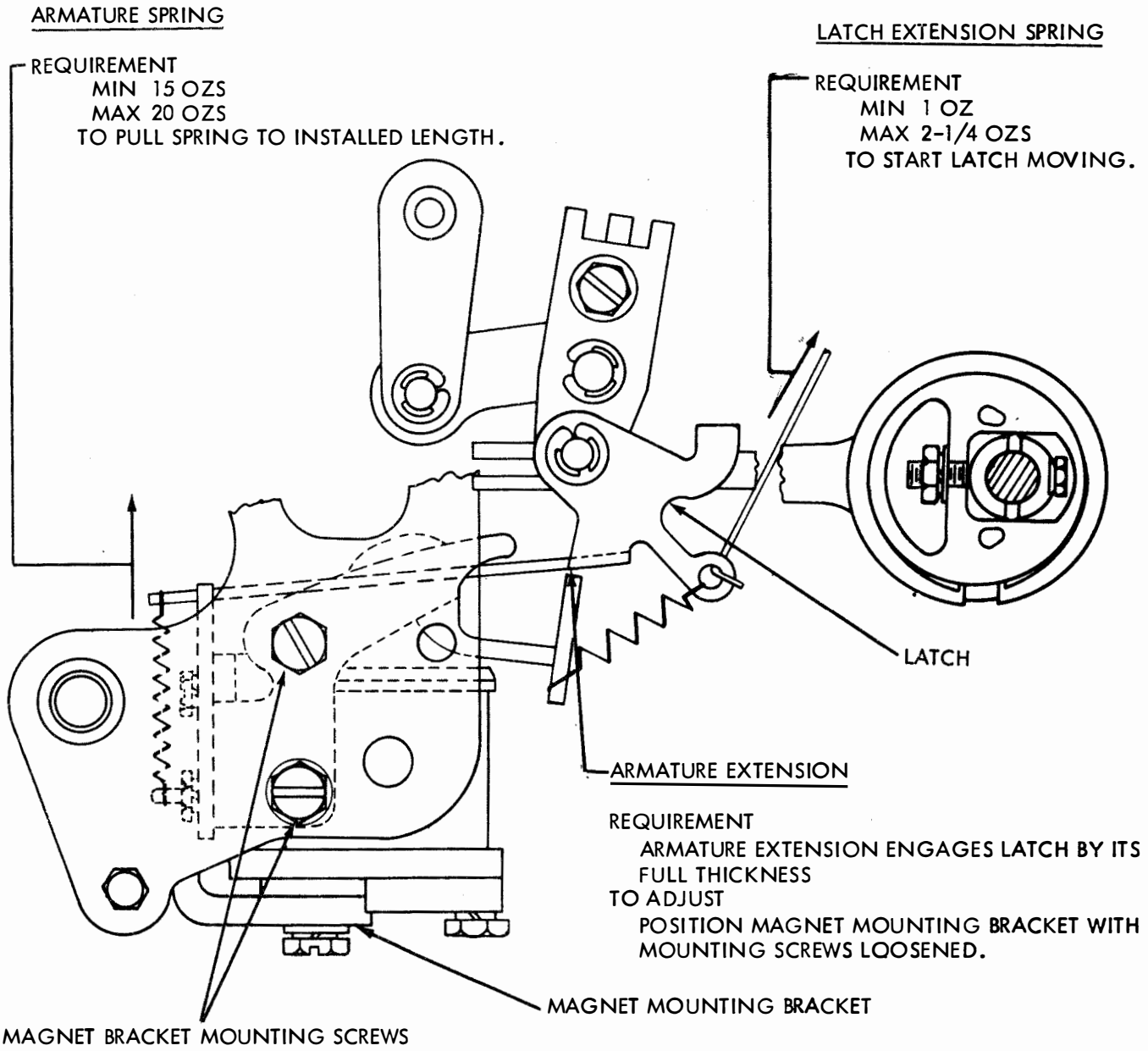
GUARD TO COVER BACKSPACE MECHANISM ON NONTYPING PERFORATOR

FIGURE 4

MAKE THE FOLLOWING STANDARD ADJUSTMENTS.

FOR CHADLESS TAPE
(1) RAKE
(2) FEED PAWL CLEARANCE
(3) RETURN LATCH
(4) FEED PAWL

FOR FULLY PERFORATED TAPE
(1) BACKSPACE RATCHET
(2) BACKSPACE PAWL CLEARANCE
(3) FEED PAWL DISABLING



FINAL POWER OR MANUAL (FOR CHADLESS TAPE)
SAME AS STANDARD ADJUSTMENT

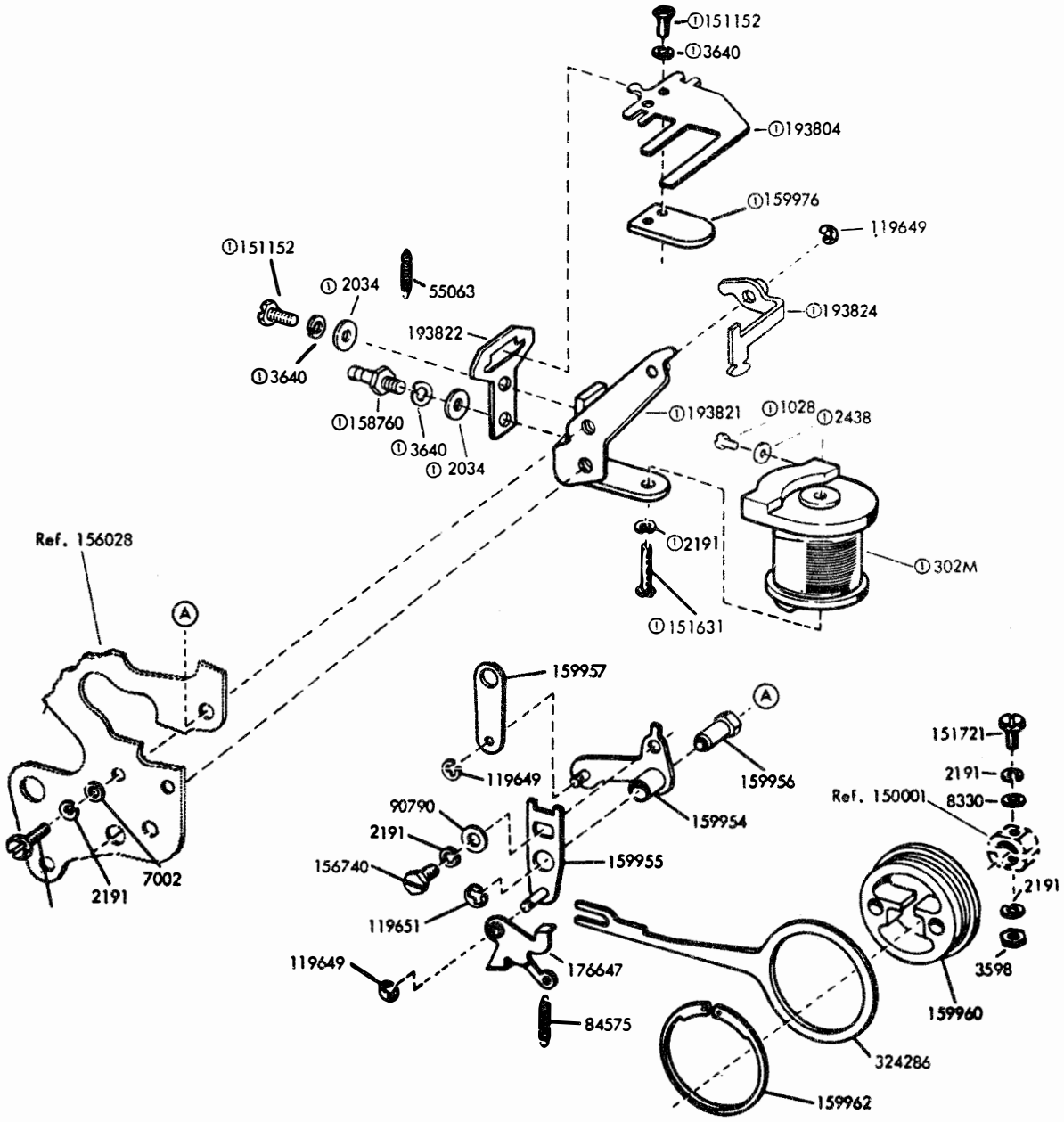
FIGURE 5 - MANUAL AND POWER DRIVE BACKSPACE MECHANISM FOR CHADLESS OR FULLY PERFORATED TAPE

MOD. KIT	To Provide Manual & Power Backspace	To Provide Manual Backspace	To Add Power to Backspace	To Provide Cover for Backspace Mech.	To Make Power Backspace & Blank Feed-Out Compatible	LPR - Chadless	LPR - Chadless (with 36-Pt. Conn.)	LPR or LRPE - Fully Perf. (with Base wired for Back-space Mag.)	LPE	LRPE	LTPE	LARP (Miniaturized)	Remarks
159363		X				X			X	X	X	X	Chadless tape
15936			X						X		X		
160881				X					X				Unit on keyb'd.
161304			X			X		X		X			
161828					X	X				X			
162245			X				X			X			
170196	X								X				Includes guard
172640		X		•				⊗	X	X	⊗		Fully perf. tape
178697	X											X	Includes guard
178698		X										X	Fully perf. tape
178917		X						⊠			⊠		Fully perf. tape
178918				X				X			X		
Parts Covered in Bulletin:						1167B	1167B	1167B, 1187B	1169B	1187B	1169B	1166B	

⊗ LPR & LTPE print over code holes. ⊠ LPR & LTPE print between feed holes.

MODIFICATION KIT APPLICATION AND USAGE (See Text Par. 1. for further details.)

FIGURE 6



① 324287 Backspace Magnet Assembly

FIGURE 7 - PARTS TO ADD POWER DRIVE TO BACKSPACE MECHANISM