

INSTRUCTIONS FOR INSTALLING NEEDLE BEARINGS AND ASSOCIATED IMPROVED PARTS FOR THE MODEL 28 PERFORATOR AND REPERFORATOR FUNCTION CAM ASSEMBLIES USING THE 173336 173337, 173338, OR 173339 MODIFICATION KIT

5815-325-2311

1. GENERAL

a. When installed on Model 28 Perforators and Reperforators, the following modification kits covered in this specification provide improved parts for units indicated:

<u>Modification Kit</u>	<u>Remarks</u>
173336	All LPR's, LRPE 4, 7, 8, 10 and LRPE1
173337	LRPE2
173338	LRPE3, 6; LPE1, 2 and 3
173339	LARP 1 and 2

b. The kits are for installation on units already equipped with certain parts covered in Specification 5911S. If not already equipped with these parts, they may be ordered separately or taken from kits covered by Specification 5911S. These parts are identified on Figure 1 by the # sign.

c. The Modification Kits consist of the following parts:

<u>Qty.</u>	<u>Part No.</u>	<u>Description</u>	<u>173336</u>	<u>173337</u>	<u>173338</u>	<u>173339</u>
1	2191	Lock Washer				X
1	70314	Flat Washer				X
1	151630	Screw				X
1	154397	Shaft w/bearing	X		X	
40	154398	Needle Rollers	X	X	X	X
1	173200	Bearing Sleeve	X			
1	173203	Bearing Sleeve		X	X	X
1	173204	Shaft w/bearing		X		
1	173205	Shaft w/bearing				X
1	173340	Collar	X	X	X	

d. For part numbers referred to in the following installation instructions, see appropriate parts bulletins and Figures 1 and 2. Unless it is definitely stated to the contrary, retain all parts that are removed in disassembly.

2. INSTALLATION (Figures 1 and 2)

NOTE

Instructions apply to all types of units unless stated otherwise.

- a. Remove the power backspace eccentric assembly (if present) by removing its mounting screw.
- b. Remove the selector cam-clutch (if present) as follows:
 - (1) Remove the 151693 Screw, 2191 Lock Washer and 3598 Nut (if these parts are present) from the 150001 Selector Clutch Drum. Lift and move the 152410 or 158903 Reset Bail to the rear so the bail will remain in its raised position.
 - (2) Holding 152432 or 158928 Stop Arm and 152405 or 158902 Marking Lock Lever to left, grasp cam-clutch by cam disk (not by drum) and pull forward rotating cam-clutch slowly. Cam-clutch should come off easily; it should not be forced.
- c. Remove the 87401 Latch Lever Spring.
- d. Remove the 3598 Nut, 2191 Lock Washer and the 156472 Spring Post.
- e. Remove the selector assembly (if present) by removing the 153538 Screw, with 2191 Lock Washer and 151442 Screw with 2191 Lock Washer also remove the 162758 cam follower lever (if present).
- f. Remove the main shaft assembly as follows:
 - (1) Remove front 156467 or 119654 Retaining Ring, front 83814 or 151639 Washer or 151246 (2 Req.) Flat Washers, and front 161105 or 151638 or 156465 Spring Washer. For LARP units discard retaining ring, flat washer, and spring washer (if present), or 151630 Screw, 2191 Lock Washer, 70314 Lock Washer.
 - (2) Remove 150040 Screw and 2191 Lock Washer (if present) from function clutch drum. Remove 151346 or 151632 Screw and 2191 Lock Washer from 156236 Collar (if present).
 - (3) On units equipped with the 159351 Blank Tape Feed Out, remove the screw and lock washer (if present) from the cam, two 151631 Screws; 2191 Lock Washers and remove the 156139 Main Frame with associated parts. On units equipped with the 162379 Automatic Letters Feed Out remove the screw and lock washer from the 162741 cam, two 151632 Screws, 2191 Lock Washers, and the 162773 Main Plate with associated parts.
 - (4) Remove the 151630 Screw and 2191 Lock Washer from the 158745 Bearing Clamp.
 - (5) Pull the main shaft out from the rear of the unit.

(6) The following parts left in the unit are free for removal; the 156236 Collar (if present discard), 156153 or 162741 Cam (if present), 98117 Spring Washer (if present), 156132 Eccentric Bushing (if present), 156155 or 162743 Feed Pawl (if present), 156137 Flat Washer (if present), 156156 or 162742 Check Pawl (if present), Clutch and Drum Assembly.

g. Disassemble main shaft assembly as follows:

(1) For LARP, or LPR equipped with noninterfering feed-out remove 119656 Retaining Ring.

(2) Remove the ^X 156226 or ^{P.2-3} 162248 Hub with sprocket or gear (if present) by removing its mounting screw and loosening its set screws, (if present).

(3) Remove the ^{P.2-3} 158745 Bearing Clamp from the bearing.

h. Disassemble function cam-clutch assembly as follows:

(1) Units equipped with 156247 or 162341 Bearing and 162340 Bearing Sleeve (Figure 1):

(a) Remove function clutch drum.

(b) Remove the 150043 and 150044 Clutch Shoes, 150241 Clutch Shoe Spring, 151640 or 150026 Clutch Shoe Lever, and 151728 Clutch Shoe Lever Spring.

(c) Remove the 152893 or 151737 Screws and the function cam.

(d) Remove the 159896 Collar (if present) by removing the two 139697 or 151685 Screws and 3640 or 110743 Lock Washers.

(e) Remove the 156247 or 162341 Bearing and 162340 Bearing Sleeve and discard.

(2) Units equipped with 158179 or 162364 Bearing and 162340 Bearing Sleeve (Figure 1):

(a) Remove the function clutch drum.

(b) Remove the 150043 and 150044 Clutch Shoes, 150241 Clutch Shoe Spring, and 150027 Shoe Release Lever.

(c) Remove the function cam by removing two 151737 Screws and 3640 Lock Washers.

(d) Remove the 158177 Collar by removing the 158186 Screws and 110743 Lock Washers.

(e) Remove the two 150832 Keys or one 162573 Retainer.

(f) Remove the 158179 or 162364 Bearing and 162340 Bearing Sleeve and discard, retaining associated parts.

i. Assemble function cam-clutch as follows:

(1) Units equipped with the 156247 or 162341 Bearing and 162340 Bearing Sleeve (Figure 1):

(a) Reassemble the function cam, clutch and drum assembly replacing the 156247 or 162341 Bearing and 162340 Bearing Sleeve with the 173200 Bearing Sleeve.

(2) Units equipped with 158179 or 162364 Bearing and 162340 Bearing Sleeve (Figure 2):

(a) Reassemble the function cam, clutch and drum assembly replacing the 158179 or 162364 Bearing and 162340 Bearing Sleeve with the 173203 Bearing Sleeve.

j. Assemble the new main shaft in unit as follows:

(1) Apply a light coat of grease to each needle race in the shaft.

(2) On units that are equipped with a blank or letters tape feed-out assembly the following steps should be taken:

(a) If the unit has a clutch drum on which a gear is mounted, remove the front 151633 Ball Bearing for extra assembly room by removing two 152893 Screws, two 3640 Lock Washers and the 156403 Main Shaft Bearing Disk.

(3) Insert the new main shaft through the rear bearing hole in the frame. As it is moved forward install parts on shaft in the following order:

- (a) 98117 or 160842 Spring Washer.
- (b) 156132 Eccentric Bearing (flat side toward rear).
- (c) 156155 or 162743 Feed Pawl.
- (d) 156137 Flat Washer.
- (e) 156156 or 162742 Check Pawl.
- (f) 156153 or 162741 Cam.
- (g) The function cam, clutch and drum assembly.

CAUTION

Hold the clutch and clutch drum firmly so that when the shaft is inserted it will not push the drum off the clutch.

(h) With the shaft positioned so that the first needle bearing race is just entering the function cam assembly insert twenty 154398 Needle Rollers in the race.

NOTE

A 125252 Spring used on the ribbon feed pawl or a similar type spring may be hooked around the shaft near the middle of the race to help hold the needle rollers in position until the bearing sleeve is moved over the needle rollers.

NOTE

Care should be taken to prevent contamination of the needle rollers with foreign matter.

(i) Move the shaft forward carefully allowing the needle rollers to enter the bearing sleeve. Remove needle rollers retainer. Position the shaft so that the rear needle bearing race is exposed then follow the same procedure as in the assembly of the first race.

(4) Replace the 119656 Retaining Ring on the main shaft.

(5) Replace the 151633 Ball Bearing, 156403 Bearing Disk, two 152893 Screws, and two 3640 Lock Washers if removed previously .

(6) Replace screw and lock washer (if present) for the 156153 or 162741 Cam.

k. On units that do not have a blank or letters tape feed out mechanism.

(1) Assemble the 173340 Collar to the new main shaft with the 151346 or 151632 Screw and 2191 Lock Washer previously removed.

(2) Insert twenty 154398 Needle Rollers into each race on the new main shaft.

NOTE

A 125252 Ribbon Feed Pawl Spring or a similar spring may be hooked around the shaft near the middle of each bearing race to help hold the 154398 Needle Rollers in position until the bearing sleeve is moved over the needle rollers.

NOTE

Care should be taken to prevent contamination of the needle rollers with foreign matter.

(3) Insert the new main shaft through the rear bearing hole in the frame. As the shaft is moved forward install the function cam, clutch and drum assembly on the shaft carefully to prevent the needle rollers falling out of the bearing races in the shaft.

CAUTION

Hold the clutch and clutch drum firmly so that when the shaft is inserted it will not push the drum off the clutch.

l. Line up hole in the shaft with the large hole (if present) in the function clutch drum. Replace the 150040 Screw and 2191 Lock Washer on Drum.

m. Replace the front 161105 or 151638 or 156465 Spring Washer, front 83814 or 151639 or 151246 (2 required) Flat Washers, and front 119654 or 156467 Retaining Ring for units other than LARP. On the LARP install 70314 Flat Washer, 2191 Lock Washer and 151630 Screw in the front end of the new 173205 Main Shaft.

n. Replace the selector assembly (if unit was so equipped) by replacing the 153538 Screw with 2191 Lock Washer, and 151442 Screw with 2191 Lock Washer.

o. Replace the 156472 Spring Post with 2191 Lock Washer and 3598 Nut.

p. Replace the 87401 Latch Lever Spring.

q. Replace the 158745 Bearing Clamp with the 2191 Lock Washer and 151630 Screw.

r. Install the selector cam, clutch and drum assembly (if present) by holding the stop arm and the marking lock lever to the left, being careful that the shaft does not push the clutch drum off the clutch assembly.

s. Replace the mounting screw, lock washer, and nut for the selector clutch (if present) or replace the power backspace eccentric assembly (if present).

t. Replace the 156226 or 162248 Hub with gear or sprocket by replacing its mounting screws.

u. Replace the 156139 Frame with associated parts (if present) or 162773 Main Plate with associated parts (if present).

3. ADJUSTMENTS

a. For adjustments refer to standard information.

b. After unit has been reassembled, check any adjustments that may have been disturbed.

4. LUBRICATION

a. Initial Lubrication

(1) The needle rollers shall be lubricated with a light coat of KS7471 Grease applied to the bearing race of the shaft only before installation.

(2) Apply a liberal amount of KS7470 Oil at each of the bearing sleeve.

b. Maintenance Lubrication

(1) Apply a liberal amount of KS7470 Oil to the needle rollers at the ends of the bearing sleeve and if the 156250 Cam is used apply oil through the oil hole in the bearing sleeve.

NOTES:

1. *Parts furnished in Modification Kits covered by this specification.

2. #THESE IMPROVED PARTS NOT INCLUDED WITH MODIFICATION KITS BUT MAY BE ORDERED SEPARATELY.

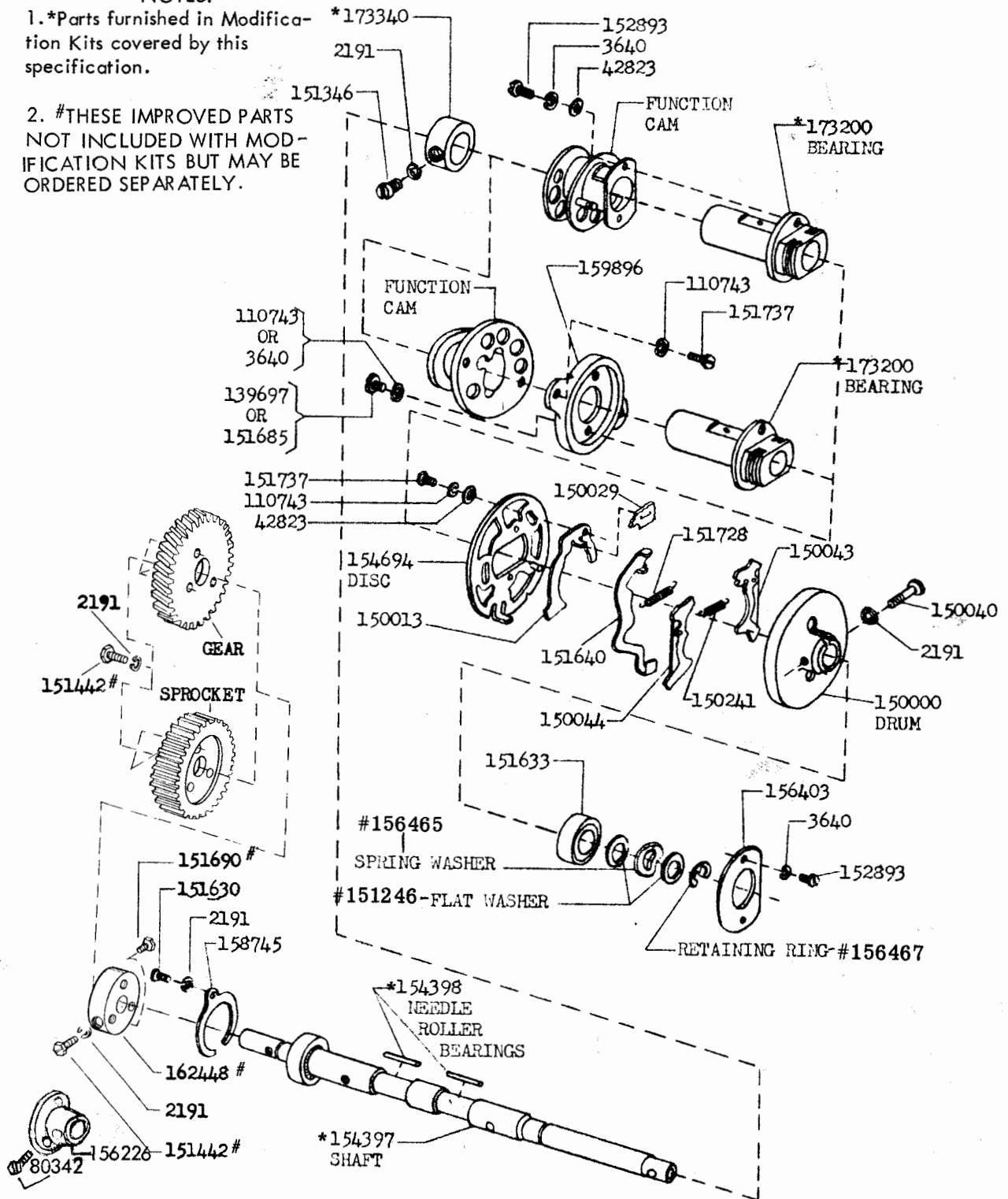


Figure 1

