

## PART 4. GEARED STARTERS

### TO REMOVE AND INSTAL STARTER ASSEMBLY

(1) Loosen, but do not remove, the centre starter assembly retaining bolt.

(2) Remove the outer starter assembly retaining bolts and remove the starter from the crankcase, ensuring that the starter components are not dislodged from their mounted position.

(3) Where necessary, to retain the components in the housing instal a  $\frac{5}{16}$ " UNC nut to the centre bolt.

Installation is a reversal of the removal procedure with attention to the following points:

(1) Place the anti-bounce bracket onto the starter housing and retain it in position with the outer starter assembly retaining bolts.

(2) Ensure that the turned down leg of the anti-bounce bracket lies between the legs of the friction spring. Refer to the illustration.

(3) Instal the starter assembly to the crankcase and loosely tighten the centre retaining bolt.

*NOTE: Some early production assemblies have a flat washer on the inner end of the centre bolt, against the crankcase. Where a new pinion, pulley and bush assembly has been fitted, this washer must be discarded.*

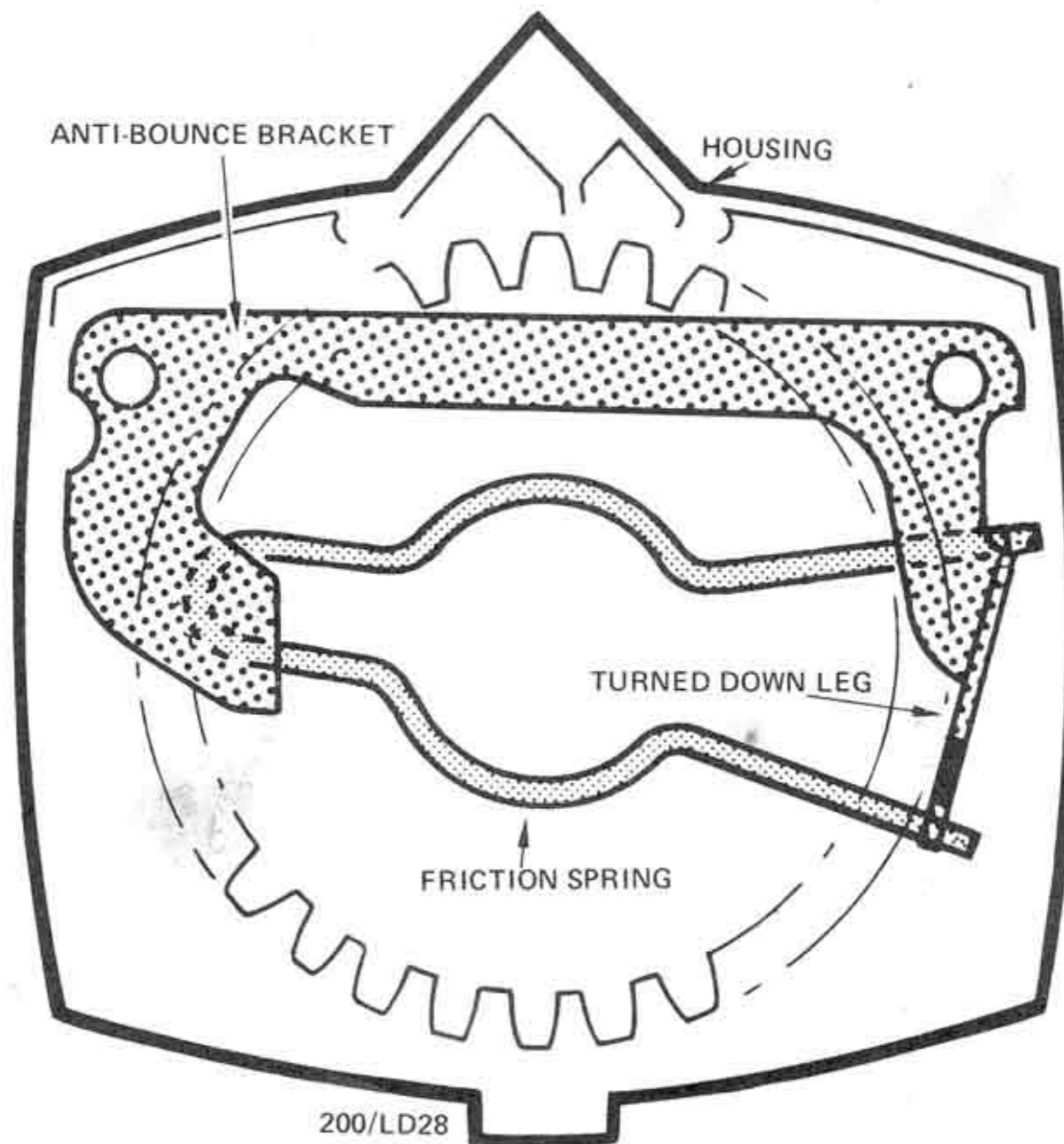


Illustration showing the correctly installed position of the friction spring.

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(4) Ensuring that the anti-bounce bracket is correctly installed, tighten the outer and centre retaining bolts.

### TO RENEW RECOIL SPRING

(1) Remove the starter assembly as previously described.

(2) Pull the starter cord and handle from the starter assembly approximately 150 mm (6 ins) and pull the handle away from the knot in the end of the cord.

(3) Untie the knot in the end of the cord and remove the handle.

*NOTE: Do not release the starter cord during any of the previous operations as the starter components will unwind at a high speed.*

(4) Grip the starter pinion gear and housing to stop them from turning, release the starter cord and allow the recoil spring tension to be released by allowing the pinion gear to slowly slip past the fingers.

(5) Once all the spring tension has been released, remove the temporary retaining nut and gently remove the pinion gear and pulley assembly from the housing.

(6) Using suitable pliers, hold the coils of the spring together on one side and remove the spring from the housing and discard.

*NOTE: New recoil springs are supplied in a plastic magazine to aid installation. Do not remove the magazine until instructed in the following operations.*

(7) Smear the housing side of the new recoil spring with multi-purpose grease.

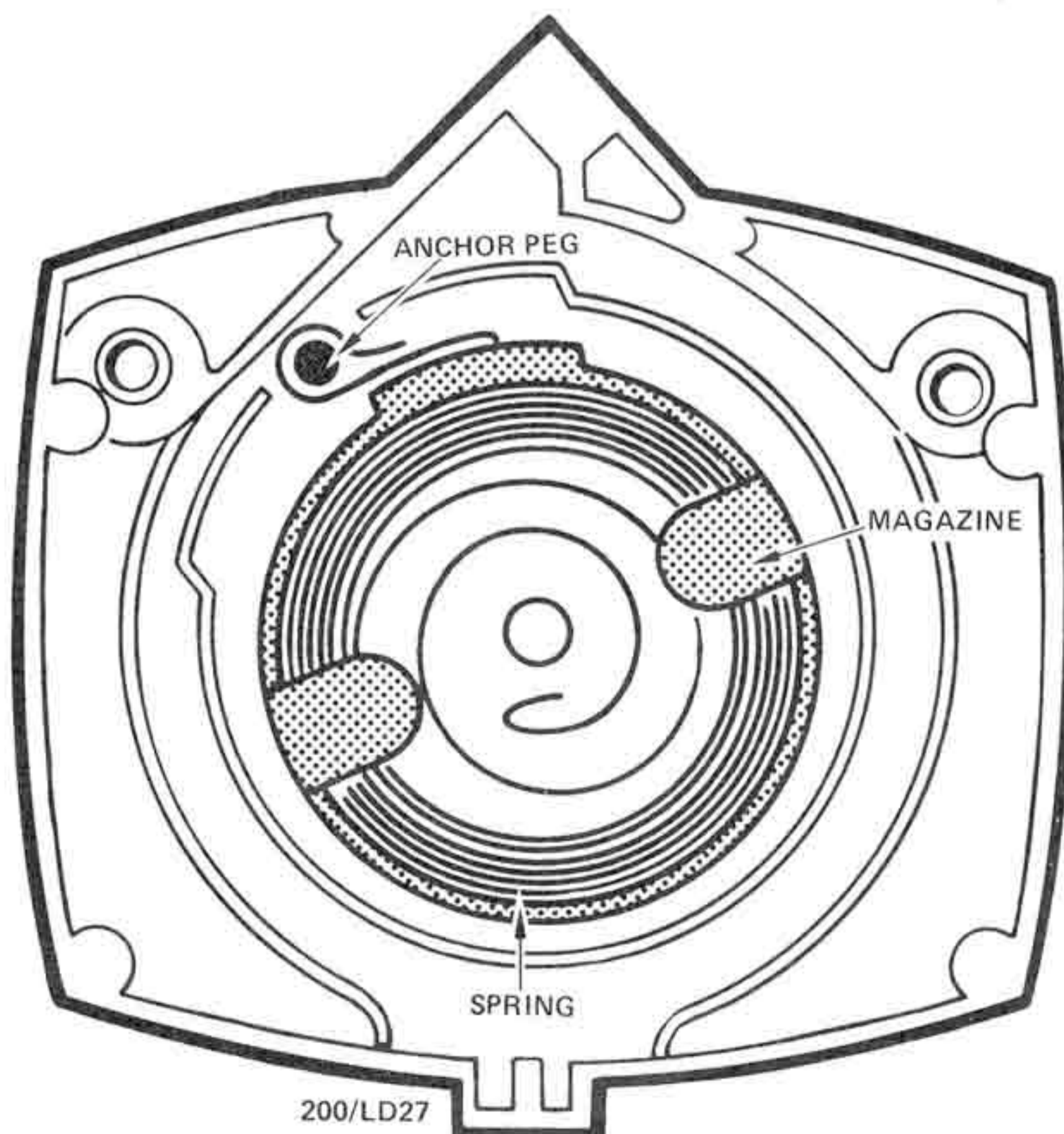


Illustration showing a new recoil spring installed to the starter housing with the plastic magazine still in place.

(8) Place the spring into the housing, locating the eye of the spring over the anchor post in the housing.

(9) While holding the spring firmly in the housing, carefully remove the spring retaining magazine, allowing the spring to expand until it is retained by the circular rib in the housing.

(10) Install the pinion gear and pulley assembly to the housing and turn the assembly clockwise until the pulley engages the spring. Install the temporary retaining nut.

(11) Preload the recoil spring as follows:

(a) Turn the pulley assembly in a clockwise direction until the notch in the pulley lines up with the cord exit hole.

(b) From this position turn the pulley another two full turns in a clockwise direction.

(c) Feed the starter cord through the exit hole, instal

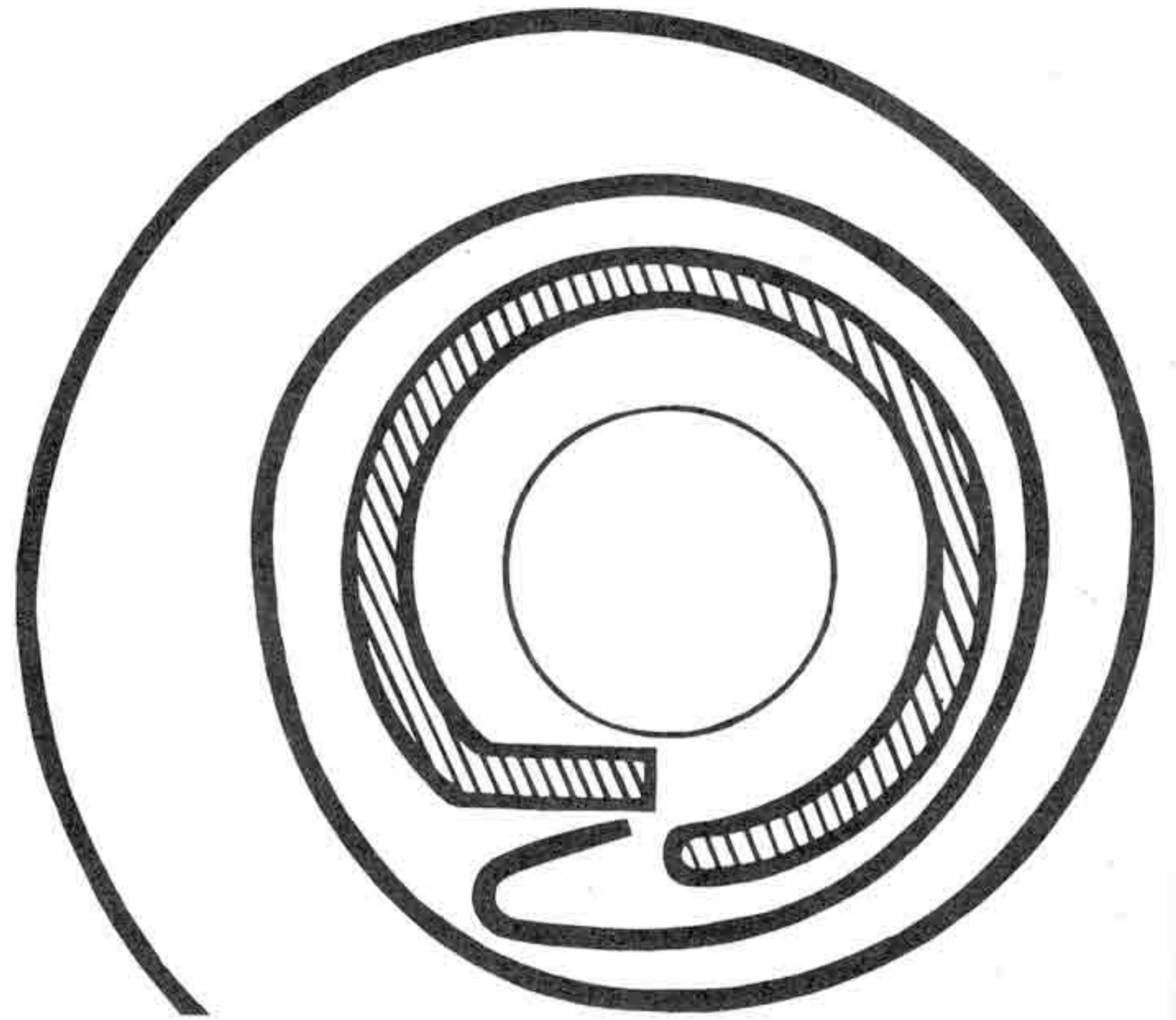


Illustration showing the inner end of the recoil spring about to engage the pulley notch.

the handle and tie a knot in the end of the cord retain the handle.

(12) Remove the temporary retaining nut and install the starter assembly to the engine as previously described.

### TO RENEW STARTER CORD

(1) Remove the starter assembly as previously described.

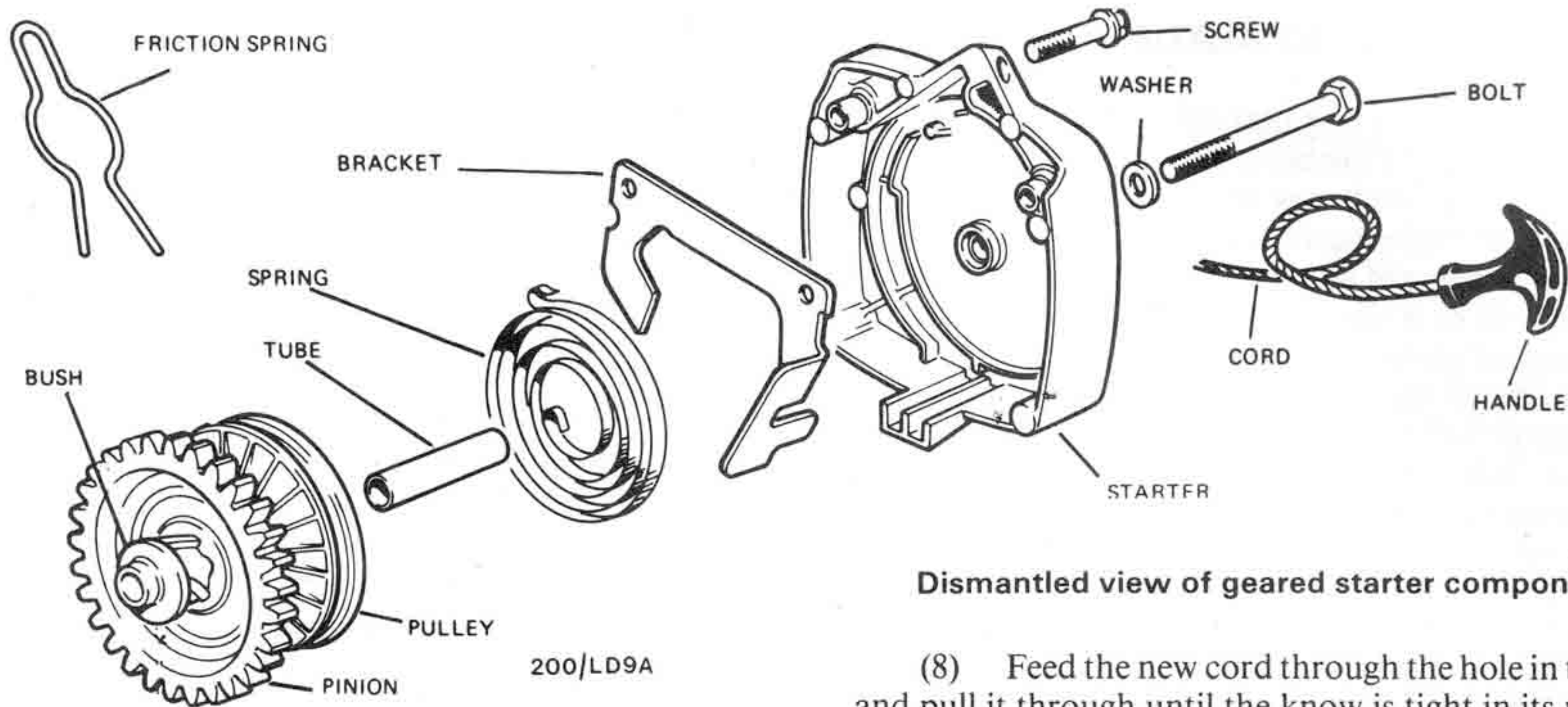
(2) Pull the starter cord and handle from the starter assembly approximately 150 mm, (6 ins) and pull the handle away from the knot in the end of the cord.

(3) Untie the knot in the end of the cord and remove the handle.

*NOTE: Do not release the starter cord during any of the previous operations as the starter components will unwind at a high speed.*

(4) Grip the starter pinion gear and housing to stop them from turning, release the starter cord and allow the

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**Dismantled view of geared starter components.**

spring tension to be released by allowing the pinion gear to slowly slip past the fingers.

(5) Once all the spring tension has been released, remove the pinion gear and pulley assembly from the housing.

*NOTE: Take care not to dislodge the recoil spring from its mounted position.*

(6) Remove the old starter cord from the pulley.

(7) The new starter cord should be 1326 to 1341 mm (52.2 to 52.8 ins) long and with a single Granny knot in one end.

(8) Feed the new cord through the hole in the pulley and pull it through until the knot is tight in its recess.

(9) Wind the cord onto the pulley in a clockwise direction as viewed from the pinion gear end, exactly five turns.

(10) Install the pinion gear and pulley assembly to the housing and turn the assembly clockwise until the pulley engages the recoil spring. Install the temporary retaining nut.

(11) Preload the recoil spring as described under the heading To Renew Recoil Spring.

(12) Remove the temporary retaining nut and install the starter assembly to the engine as previously described.