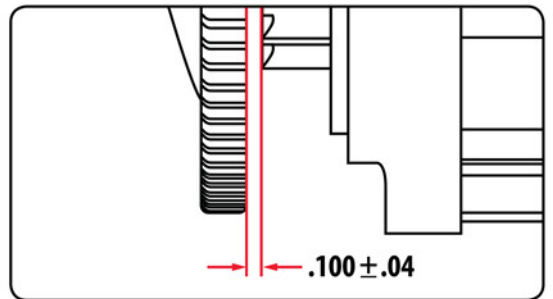


**Figure 1**  
(Shim-Type definitions)

## INSTALLATION

The starter pinion-to-ring-gear must be  $.100'' (\pm .040'')$  when pinion is in its relaxed position (Figure 2). Check this at several flywheel locations to be sure that the ring gear is running true. If the pinion is too close, use the housing shaped shim and round shim (Figure 1) included with the starter, to move the pinion  $.062''$  away from the ring gear. If it is impossible to see the pinion when the starter is installed (as with some cars with bellhousing-mounted starters), measure in from the face of the bellhousing that the starter rests against to the ring gear. Then, measure from the face of the starter nose to the end of the relaxed pinion. The difference between the two measurements is the pinion-to-ring-gear clearance.



**Figure 2**  
(Pinion Ring Gear Clearance)

When the pinion is engaged into the ring gear, there is to be  $.010''-.030''$  backlash between them (Figure 3). This can be checked with a wire gauge when holding the pinion engaged into the ring gear. (A small pry bar or flat-blade screwdriver can be used to help hold the pinion out.) If the fit is too tight on an engine-block-mounted starter, use the rectangular shim (Figure 1) between the starter nose and engine block.

**Note:** For block mounted starter applications, additional rectangular shims, if required, can be purchased at most local auto parts stores.

If the starter solenoid interferes with the engine block or any component, determine if the nose on the starter is an indexable model (most are). If so, the entire starter can be rotated about the nose to gain additional clearance.

Care must be taken that the starter motor does not interfere with some of the kickout configurations of aftermarket oil pans. Maximize the clearance between the solenoid and heat sources like exhaust headers.

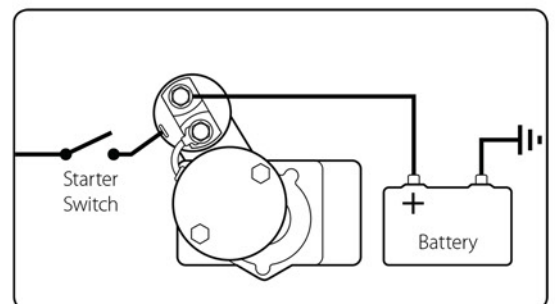


**Figure 3**  
(Ring gear backlash)

## SOLENOID CONFIGURATIONS

### Standard (General Motors) Figure 4

Connect the positive battery lead to the unused post on the solenoid. Connect the smaller switch lead to the spade terminal on the solenoid.



**Figure 4**  
(Standard Connection)