

Tilton Super Starter - 54-4XXXX Series

DESCRIPTION

Tilton Engineering's Super Starter® is designed to fit much like the OEM starter whenever possible. It's compact size will often provide significantly more clearance for various engine and chassis components. Many of the top manufacturers of oil pans, exhaust systems, and engine accessories have designed their products for use with the Super Starter®.

Unfortunately, with the wide variety of components currently on the market, it is not possible to guarantee that the installation of a starter will be a simple "bolt-on" for every application. From time to time, a customer will have to perform minor modifications to the engine block, oil pan, or even the starter mounting nose (only when recommended by Tilton) to achieve the recommended clearance. We have, for many applications, alternative starter solutions when the starter recommended by your dealer simply will not fit. Any modifications undertaken to install the Tilton Super Starter® are well worth the time and effort, as they will be rewarded with the superior performance of the original high-torque mini-starter.

In all models of the Super Starter®, the relationship between the starter pinion and the ring gear is important for proper operation. Due to the starter's high operating torque, failure to install correctly will usually result in starter and/or ring gear damage. Be sure to check the following items before attempting to use your Super Starter®.

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.

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.

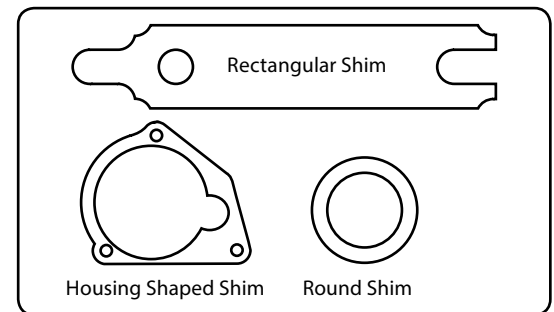


Figure 1
(Shim-Type definitions)

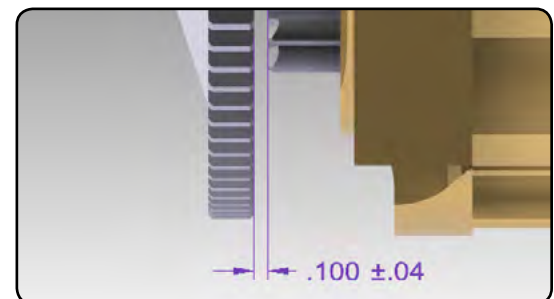


Figure 2
(Pinion Ring Gear Clearance)

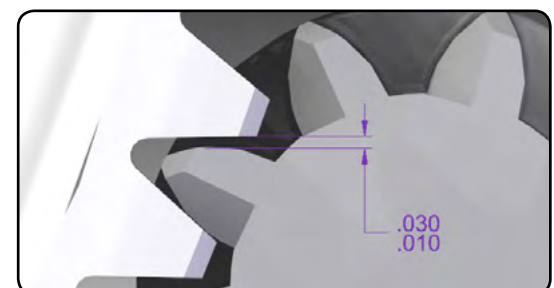


Figure 3
(Ring gear backlash)

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.

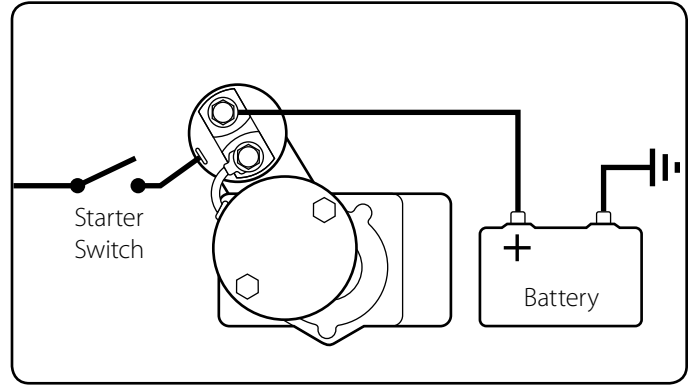


Figure 4
(Standard Connection)

Remote Solenoid (Ford Or Chrysler) *Figure 5*

If your vehicle has a remote solenoid, connect the large positive lead from the remote solenoid to the unused post on the starter solenoid. Use the short jumper wire (provided) to connect the spade terminal to the same starter solenoid post as shown.

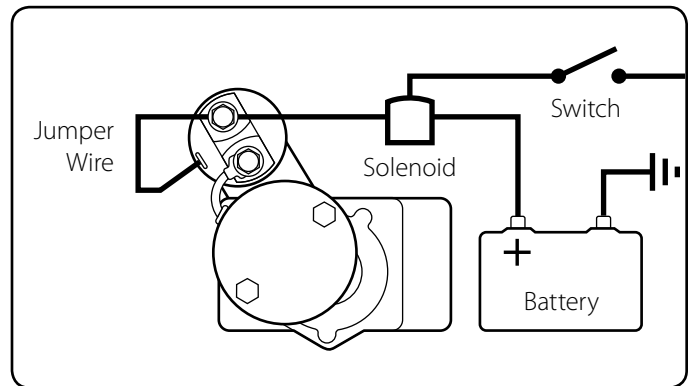


Figure 5
(Remote Solenoid Connection)

Ignition Resistor Bypass *Figure 6*

If your vehicle requires an ignition resistor bypass, you can connect the existing bypass wire to the lower stud IF a 10 amp diode is placed in the wire to prevent feedback voltage from reaching the starter. **Note:** Resistor bypass was used only on some GM models (late-60's, early-70's) and applies to cars still using the OEM distributor and point-type ignition. If you are running an aftermarket distributor, you will not connect the extra wire (usually purple) to anything.

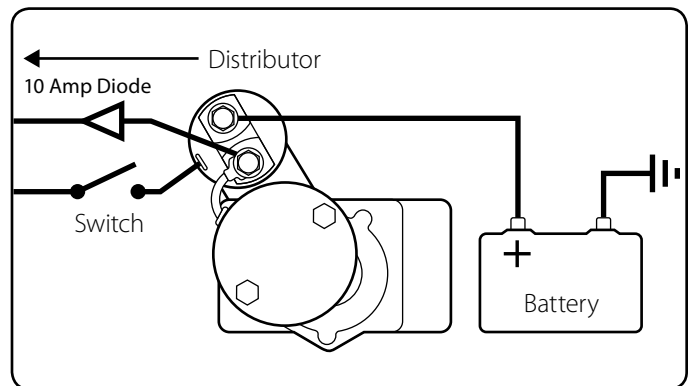


Figure 6
(Ignition Resistor Bypass)