

## Instructions

# B&M StarTek Starter

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**Part Number 77106 – GM LS1 – LS7 Engines (Not GTO)**

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Proper installation of your *StarTek* Starter is essential for trouble free operation. Correct alignment and spacing is required. Please read all instructions before installing your new high performance starter.

mounting bolts to 32 ft-lbs.

**STEP 4.** With the starter now in position, make sure the solenoid housing and starter body have

maximum clearance from heat sources and other components. The starter can be clocked in different locations on the mounting block to obtain the best position. To re-clock,

### INTRODUCTION

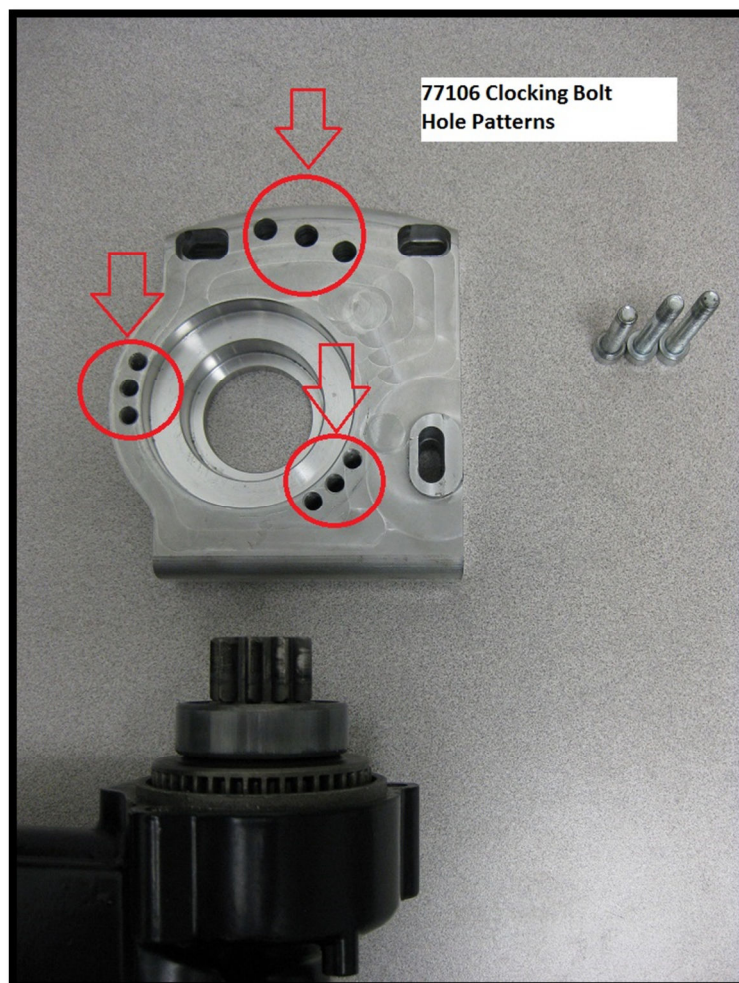
This starter can be installed in about an hour by carefully following the instructions. It is suggested that the vehicle be allowed to cool off for a few hours to avoid burns from hot parts, especially any exhaust parts which might be near the starter. The vehicle should be off the ground for ease of installation - jack stands, wheel ramps or a hoist will work fine. **MAKE SURE VEHICLE IS FIRMLY SUPPORTED - DO NOT WORK UNDER A VEHICLE IF IT IS SUPPORTED BY ONLY A JACK!** Try to raise the vehicle 1-2 feet so you will have plenty of room to work.

### INSTALLATION

**STEP 1.** Disconnect battery cables, removing the negative cable first.

**STEP 2.** Remove the old starter, and make sure the mounting flange is clean and burr free.

**STEP 3.** Install the new starter with the supplied hardware. Leave all shims out at this time. Torque

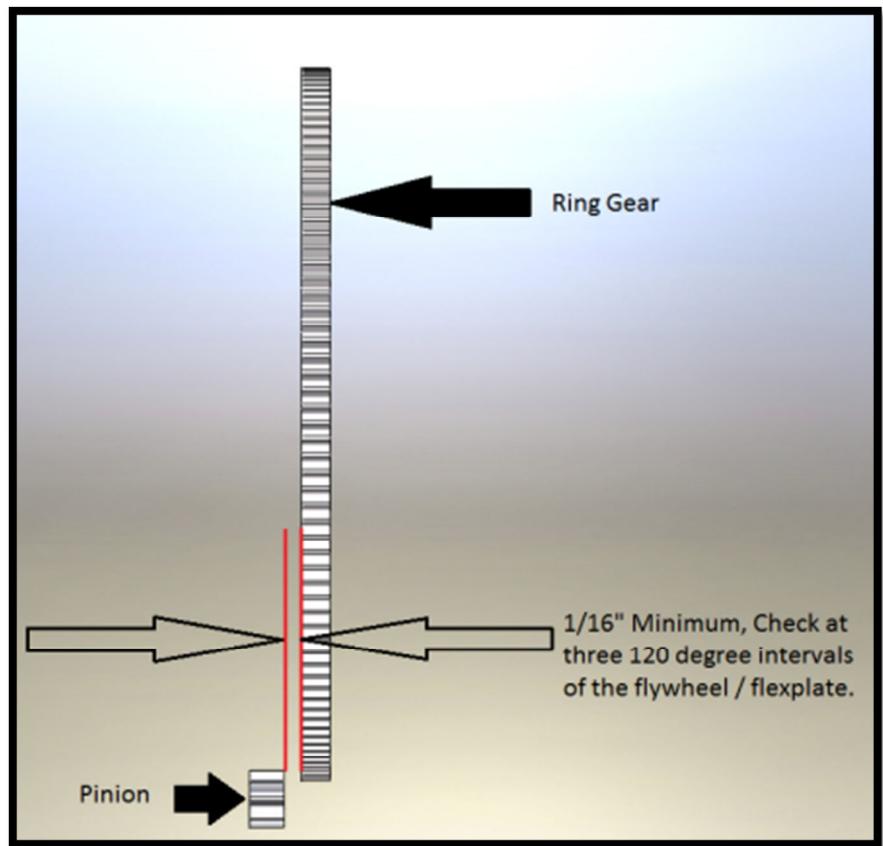


**Figure 1: Starter Clocking Positions**

take the starter out, then remove the three M6 x 1 mounting bolts between the starter and the mounting block and re-position accordingly. Re-Torque to 8 ft-lbs. Please see Figure 1. **PLEASE NOTE:** Corvette applications are particularly tightly packaged. Please make sure the starter does not contact any portion of the exhaust manifold.

**STEP 5.** With the starter installed and clocked at the best position, check clearance between the faces of the ring gear and pinion gear. There should be at least 1/16" (.0625", 1.6mm) space between gear faces. Please see Figure 2.

**If there is not enough clearance,** you will need to install the included shim kit. Remove the starter assembly from the engine and remove the mounting block. Install the shim ring into the bearing bore, place the outer shim on the starter body, then re-assemble. This will move the starter and pinion away from the ring gear by approximately 1/16". Please see Figure 3.



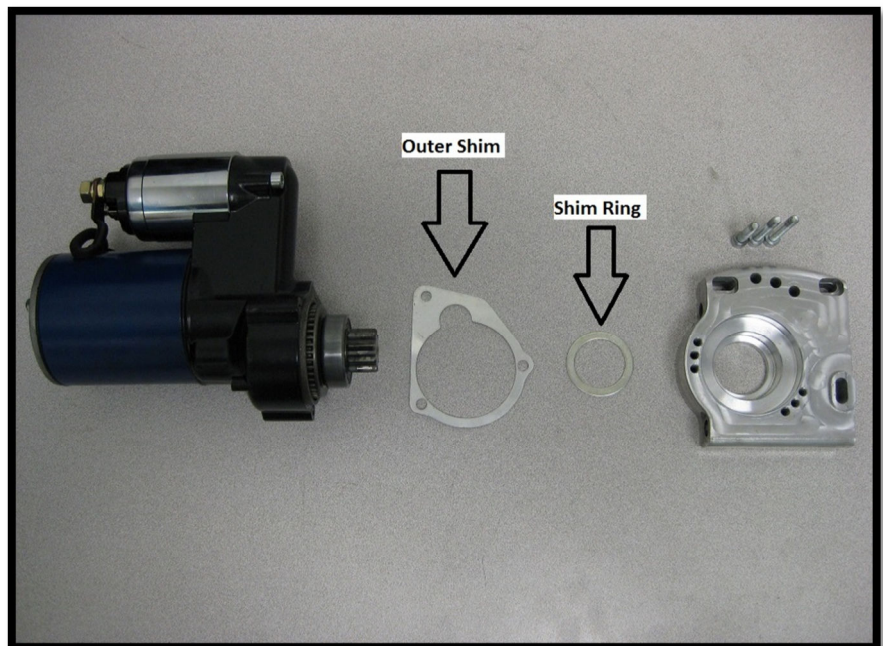
**Figure 2: Pinion to Ring Gear Face Distance**

**STEP 6.** Connect the solenoid switch wire. With the amperage being considerable (~30A) to pull the bendix, B&M recommends 12 Ga. wire as a minimum. **PLEASE NOTE:** In Corvette applications, the solenoid wire is extremely close to the engine block. Please take precautions in tightening the wire to make sure it does not rotate and contact the block.

**STEP 7.** Connect the main cable to the starter. Due to the high amperage required to turn the starter motor, it is important to size the wire in accordance to its length. Keep in mind to size all ground wires accordingly also, these are carrying equal current. Please see Table 1 for cable length versus gage recommendations.

**STEP 8.** Reconnect the battery terminals, starting with the positive cable.

**STEP 9.** Start the engine. In order to



**Figure 3: Face Distance Shims**

not exceed the duty cycle of the starter, please do not operate the starter for more than 30 seconds at a time. Allow the starter to cool at least two minutes between repeated cycles.

**Table 1:**

Starter Cable Length vs. Gage					
Length	3'	5'	7'	10'	10+'
AWG	4	2	1	0	00

**Trouble Shooting Information:**

**Pinion Gear Engagement:** While setting the face distance between the pinion and the ring gear (see Step 5) should yield proper engagement, a final check can be performed. After cranking the engine multiple times, you should be able to inspect the witness pattern on the pinion gear to check for proper engagement. The gear should show wear from the outer face to between 1/4" & 3/8" back towards the body of the starter.

**Slow Cranking:** Generally this can be attributed to low voltage at the starter. The battery should be checked, as well as wire size, terminals, and switches. **Keep in mind any switches (such as master kill switches used in race cars) must have very high amperage ratings, between 400 to 700 amps.**

**Parts List**

- (1) B&M StarTek Starter
- (2) Mounting Bolts
- (1) Shim Ring
- (1) Outer Shim

**Tools List**

- Jack & Jack Stands
- Work Light
- Torque Wrench
- 5mm Allen
- 9/16" Socket + Ratchet
- Flat Blade Screwdriver
- 1/2" Wrench



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