

# GEAR REDUCTION STARTER INSTALLATION INSTRUCTIONS

**Contents:**

- (1) Starter motor
- (2) Mounting bolts
- (2) Engine block shim
- (1) Solderless terminal
- (1) Round-nose shim
- (1) Housing shim
- (1) Housing gasket

This starter is intended for use on GM corporate engines, small and big block V-8 as well as V-6. With either 12-3/4 inch (153 tooth) or the 14 inch (168 tooth) flywheels.

The armature housing may be rotated in relation to the mounting block. This allows for adjustment, if necessary, for clearance problems when used with large wet oil sumps and/or older exhaust systems.

This starter motor is designed for 12 volt-negative ground electrical systems.

**NOTICE: NEVER OPERATE THIS STARTER MOTOR MORE THAN 30 SECONDS AT A TIME WITHOUT ALLOWING IT TO COOL FOR AT LEAST TWO MINUTES. OVERHEATING CAUSED BY TOO LONG OF A CRANKING PERIOD WILL DAMAGE THE STARTING MOTOR.**

**CAUTION:** Disconnect battery leads prior to starter installation

## INSTRUCTIONS

Hold starter motor into position at engine block. Install (2) supplied mounting bolts. Tighten to 38 lbs. ft.

Before operating starter, gear clearance must be checked.

See Fig. 1. If not enough clearance exists, install supplied shims as follows:

- 1) Remove (3) nose piece mounting bolts. Note: one bolt is located inside starter.
- 2) Remove (2) end cap bolts and cap.
- 3) Carefully remove armature with holding ring. Do not allow armature to move within housing. (Bolts may disengage if armature is moved.) Note: Third nose piece bolt is now accessible.
- 4) Fully remove nose piece gasket and discard.
- 5) Insert round shim into mounting block.
- 6) Align new gasket and holding ring shim into position.
- 7) Insert holding ring into starter mounting block.
- 8) Install (3) bolts, and tighten to 10-15 lb. ft.
- 9) Assemble O-ring seal in place on armature holding ring.
- 10) Carefully install armature and holding ring into mounting block.
- 11) Install end cap and bolts, tighten to 50-65 lb. ft.

(B) Check starter pinion backlash. This should be .040 to .015 inch. Measure and adjust as follows:

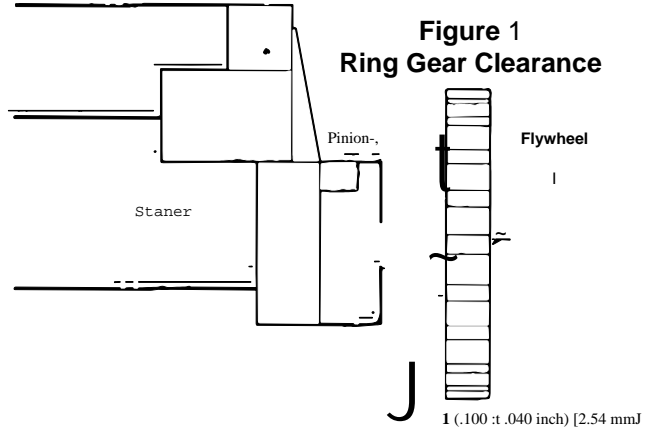
- 1) Pull off and engage pinion gear into flywheel.
- 2) Measure clearance between meshing gears. (See Fig. 2.)
- 3) Remove starter mounting bolts, and install supplied shims as required.
- 4) Tighten starter mounting bolts to 38 lb. ft.

**Wiring:**

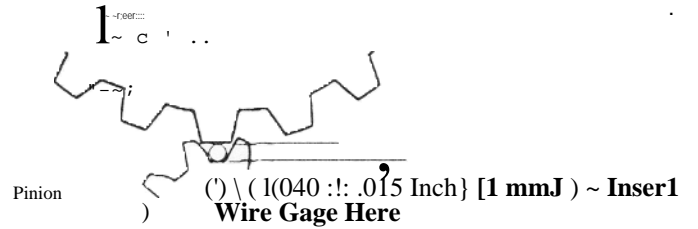
**CAUTION: BATTERY LEADS MUST BE DISCONNECTED PRIOR TO STARTER INSTALLATION.**

Note: (3) terminals at end of solenoid (See Fig. 3)

- a) Upper terminal
  - b) Lower terminal (Note: Black lead is already attached.)
  - c) Spade terminal
- 1) Attach positive battery to upper terminal
  - 2) Connect a 12 or 14 gauge wire from starter switch to the spade terminal. Use the supplied mating connector if required.



**Figure 2 Pinion Backlash**



**Figure 3 Electrical**

