INSTALLATION INSTRUCTIONS FOR *HI-TORQUE* ™ *STARTER FORD*

REMOVAL OF THE ORIGINAL STARTER

1. **CAUTION !** Before proceeding, the negative (-) or ground terminal **must** be removed from the battery. Failure to do so can result in damage to the vehicle and/or injury to the installer!

2. Remove the large cable from the starter motor.

3. Remove the two (2) mounting bolts holding the starter to the engine (some Ford vehicles may be equipped with three mounting bolts). Keep these for re-use.

INSTALLATION OF THE *HI-TORQUE* STARTER MOTOR

1. Run an appropriate tap through the mounting bolt holes to clean out any grease or debris.

2. Ford uses two different lengths of starter motors. These vary as to how far the starter pinion gear extends past the mounting flange (refer to Figure 1). The pinion gear on cars equipped with an automatic transmission extend past the mounting flange by .591" (15mm) -see Fig1A. The pinion gear on the starter usually used on manually equipped cars extend .237" (6mm) past the mounting flange (Fig1B). If the *Hi-Torque* starter is to be used in place of the shorter starter, then the "spacer ring" supplied with the kit will have to be installed between the mounting flange and the starter (see Fig. 3).

3. Temporarily attach the mounting plate to the engine using the original bolts (Fig 3). NOTE: big block Fords use the 906T mounting flange, which has a threaded hole. At this point DO NOT bolt the starter to the mounting plate. Hold the starter motor temporarily up into position on the mounting plate. While holding the starter motor in place, check for clearance between the starter and the engine block, and between the headers/exhaust system. NOTE: there are eighteen mounting holes located at 20 degree increments. Rotate the starter until you have roughly equal clearance on both sides of the motor. Using a felt tipped marker, mark across the mounting plate and the body of the starter motor. Remove the starter motor and the mounting plate from the engine. Position the mounting plate onto the starter motor. Install the two 5mm allen screws into the pair of holes which allow the closest alignment of the previously made marks. Using a metric allen wrench, temporarily tighten the bolts.

4. End clearance between the ring gear and the pinion gear teeth in the retracted position is critical (Figure 2). On the *Hi-Torque* starter, the pinion gear extends past the mounting plate flange by ½ " in the retracted position. The distance from the motor mount plate to the front edge of the ring gear must be measured (Fig.4). Calculate the clearance by subtracting ½" from this dimension. If you are using the spacer ring (Fig. 3) in your installation, then subtract an additional 0.4". The clearance should be between .040" to .100". If the measurement is less than this, you will have to add a circular shim (supplied with the starter) between the starter motor and the mounting plate. Each shim is .074" thick. After determining the proper number of shims, apply **LOCTITE** ® *262* (or equivalent) to the bolts and tighten them to 95 IN/LBS. We recommend that you use a 4mm or 5mm hex driver with an inch pound torque wrench to do this.

5. Using the original mounting bolts, install the starter motor. Tighten the bolts evenly to 25 FT/LBS.

ELECTRICAL CONNECTIONS

1. Fords are equipped with a remote starter solenoid. Make a Jumper using the supplied "pig tail". Crimp an insulated ring terminal of the appropriate size onto the stripped end of the pig tail lead. Plug the pigtail connector into the black plastic receptacle on the side of the solenoid. The ring connector attaches to the B+ terminal of the starter

2. Ensure there are no loose wires touching any "grounded" areas of the car. Also, ensure the wiring is not in a position that it could rub against the block, frame or exhaust system. Re-rout if required.

3. Finally, the battery must be fully charged and properly grounded to the engine block or frame.

4. Reconnect the negative (-) terminal to the battery and test for proper operation.
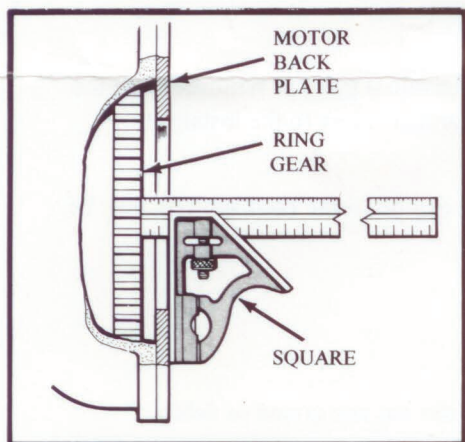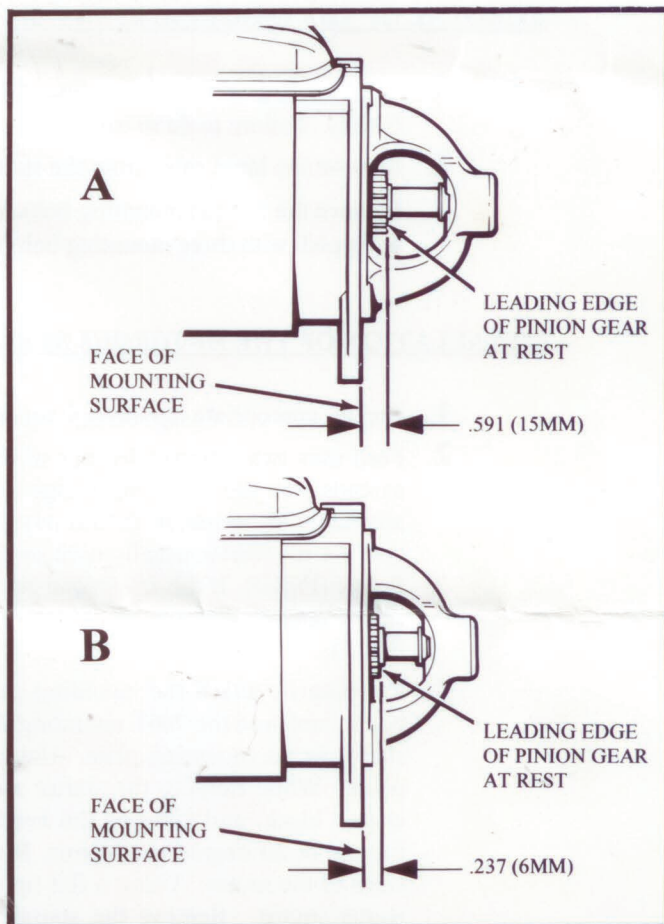
MOTOR BACK PLATE
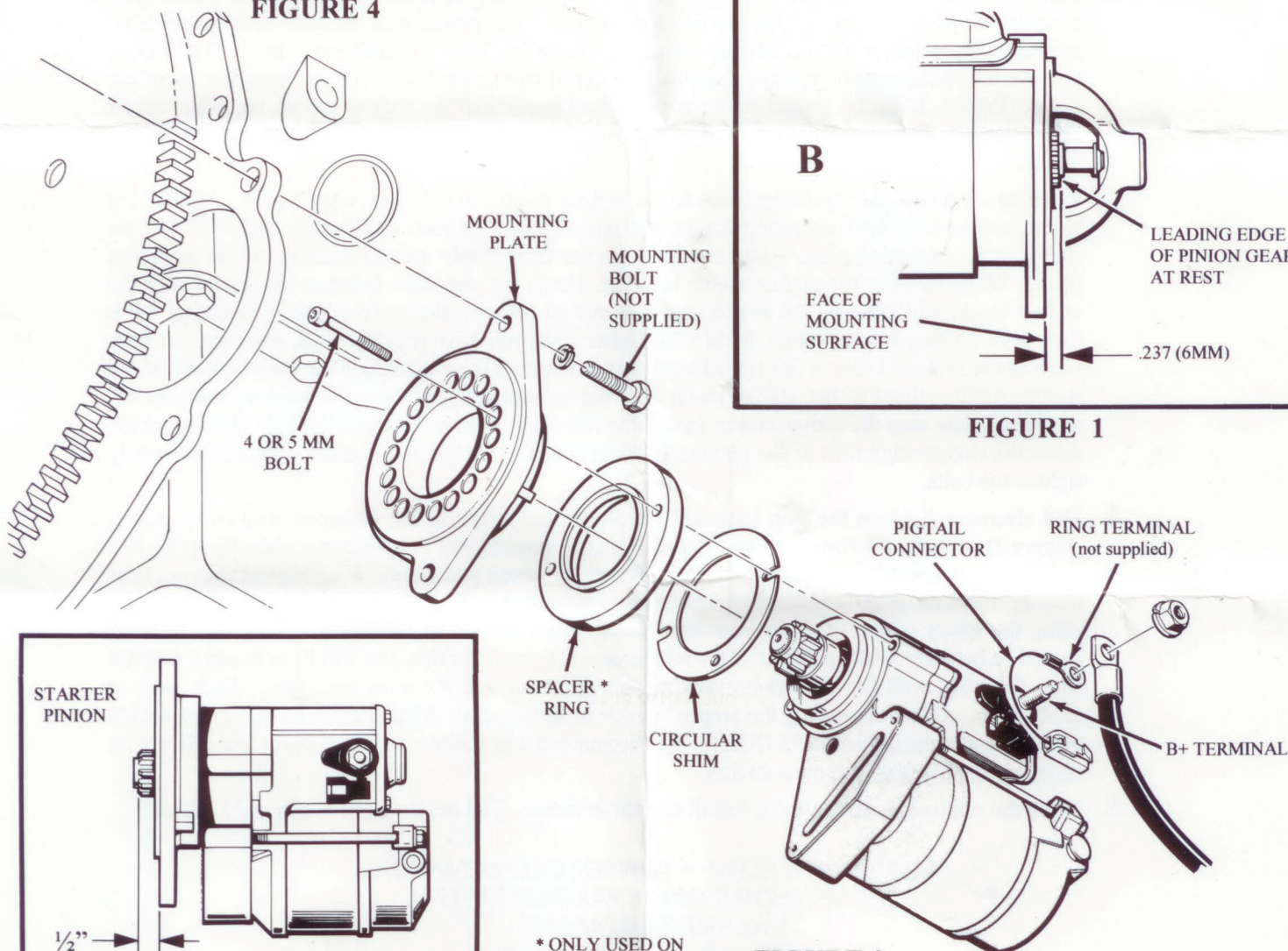
RING GEAR

SQUARE

FIGURE 4

A

FACE OF MOUNTING SURFACE

LEADING EDGE OF PINION GEAR AT REST

.591 (15MM)

B

FACE OF MOUNTING SURFACE

LEADING EDGE OF PINION GEAR AT REST

.237 (6MM)

FIGURE 1

MOUNTING PLATE

MOUNTING BOLT (NOT SUPPLIED)

4 OR 5 MM BOLT

SPACER * RING

CIRCULAR SHIM

PIGTAIL CONNECTOR

RING TERMINAL (not supplied)

B+ TERMINAL

STARTER PINION

1/2"

FIGURE 2

* ONLY USED ON SOME MANUAL TRANSMISSION MODELS

FIGURE 3