

# Tech Sheet 003

## GM Pad Mount Starter Installation

Correct starter to ring gear clearance and backlash must be obtained before starting the engine. Failure to do so will cause damage to the pinion and or the ring gear.

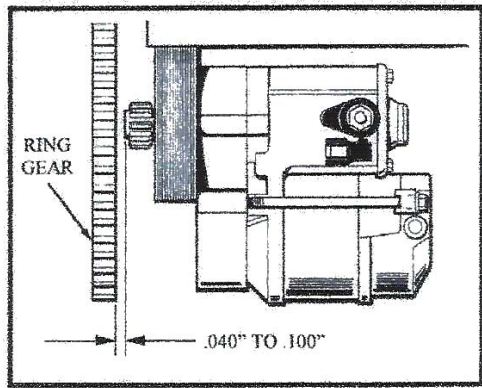
**Checking backlash (fig C):** To check backlash, pull the starter pinion forward to engage in the ring gear. You should have 0.020"-0.030" between the pinion and the ring gear teeth (backlash). If insufficient, add appropriate shims between the starter and the engine block to gain correct measurement. These shims are available in 0.016", 0.040" and 0.080" thickness. If backlash is excessive the mounting plate will need to be machined.

**Checking pinion to ring gear clearance (fig B):** Pinion to ring gear clearance should be 0.100" plus or minus 0.040". If insufficient, add appropriate shim(s) between the mounting plate and intermediate housing (see Tech sheet 004). Starters with one-piece front housing assemblies, such as RS725/R635, are non-adjustable in this manner.

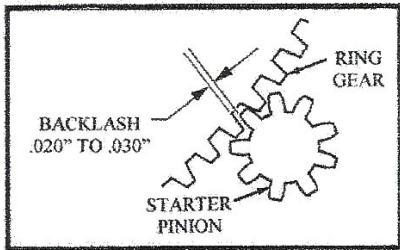
**Check all measurements in 4-6 positions or engine rotation:** It is extremely important to check backlash and pinion clearance measurements in multiple positions of engine rotation as these measurements can have excessive variation through degrees of rotation. If ring gear "run-out" is acceptable, adjustment must be made at the "high spot" where clearance is at a minimum. If excessive, discard the ring gear.

**Mounting bolts:** Most Roadrunner pad mount starters are supplied with 3/8" UNC cap head mounting bolts. Some engine blocks require M10 metric cap head mounting bolts. Compare replacement mounting bolt thread pitch with originals to ensure that correct bolts are used.

**Wiring hook-up:** Switch and ballast terminal hook-up may differ from OEM. See Tech sheet 002.



STARTER PINION TO RING GEAR CLEARANCE  
FIGURE "B"



RING GEAR BACKLASH  
FIGURE "C"

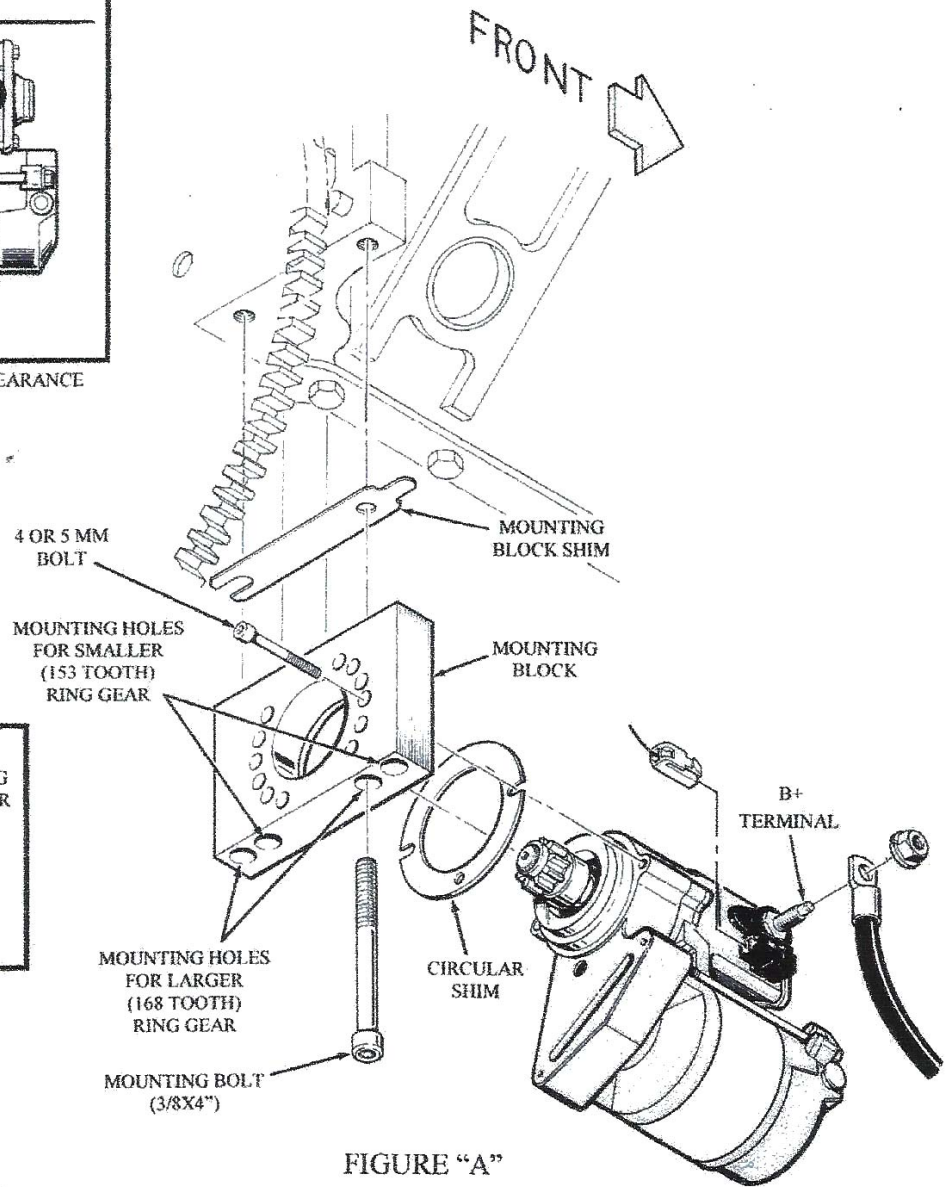


FIGURE "A"