

New PMGR Starter for 1999 Ford Trucks

FORD HAS INTRODUCED a new starter for 1999 F250, 350, 450, 550 Super-Duty Trucks with 5.4 L & 6.8 L engines and 1999 Ford F250 with 4.6 L & 5.4 L engines (OE #F81U-11000-AA, WAI #2-1910-FD) (Figure 1). This starter has an open-style D.E. frame with two drain tubes. It also uses silicone sealant where the solenoid cap contacts the solenoid body. Silicone sealant is also applied where the motor case contacts the D.E. frame and at the new dish-design C.E. plate, which has a larger area for applying the sealant. These new starters also use yellow anodized field cases and solenoid cases. We have also seen anodized field cases and solenoid cases on other Ford starters

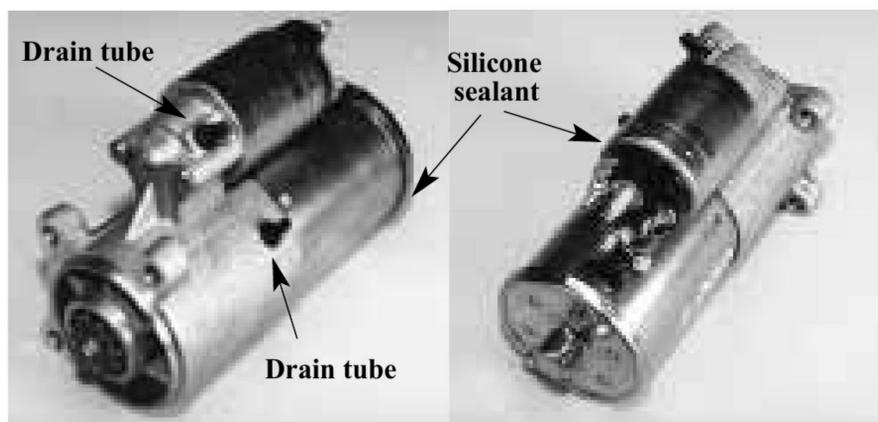


Figure 1. The PMGR starter for 1999 Ford trucks.

To disassemble these starters, you must first remove the drive-pinion snap ring and gear. The balance of the starter can then be disassembled the same as other Ford PMGR starters, except for one item – the drive.

The drive for these new PMGR starters is locked to the drive shaft like the Hitachi drive we discussed in *Technical Update 30*. (The Mitsubishi drive for Ford 7.3 L diesel is set up this same way, as well.) To remove the drive from the drive shaft, first remove the thick "E" ring that is retaining the tracking ring to the drive shaft. This will allow the drive to move down on the shaft and disengage the splines. Now the drive can be turned one spline to line up the installation splines and removed. If the drive will not come off, try again. You may have turned it too far or not far enough.

Once the drive is removed, you will see that the drive shaft is shorter than other Ford PMGR drive

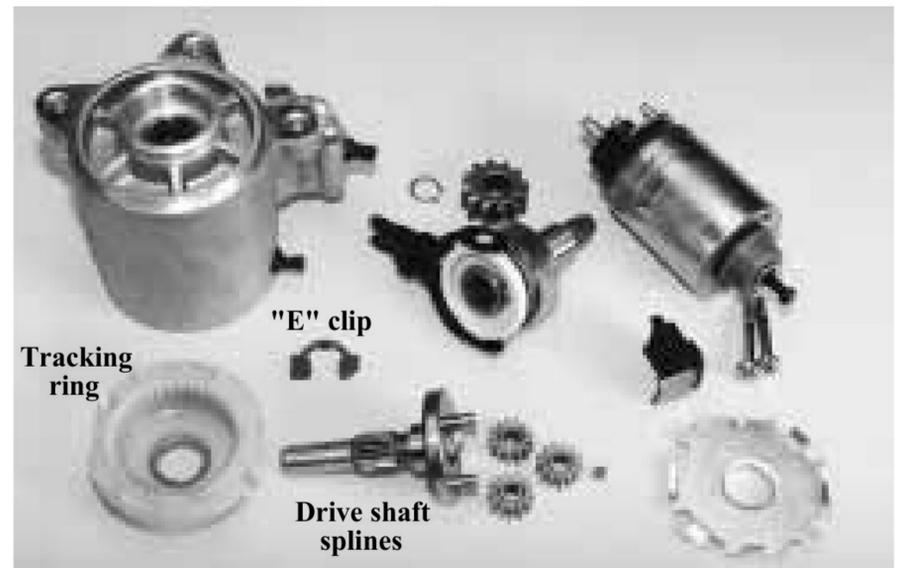


Figure 2. D.E. parts for 1999 Ford PMGR.

shafts and that every other spline has an area that looks like the spline has been damaged. This area is the locking mechanism that keeps the drive on the drive shaft. There is also a needle bearing in the D.E. frame that supports the drive.

When you look at the motor, you will see six permanent magnets in the motor case. The small piece of iron next to each magnet is a shunt, which does the same job as a wire-wound shunt -- it slows down the speed of the armature when there is no load on the starter (free run when the engine starts). You will also notice a new brush holder, new style brush springs and brushes that are 2mm longer than the standard Ford PMGR brushes.



Figure 3. Motor parts for 1999 Ford PMGR.