An Influence of Commutation Arc in Gasoline on Brush Wear and Commutator

Many D.C motors are used for automotive electrical equipment. Particularly, a motor for a fuel pump has a distinctive feature that its commutation is carried out in gasoline. Our previous study reported that brush wear in gasoline was much more than that in air. And also carbon brushes were sometimes severely worn in negative polar. In this paper, the wear of carbon brushes for negative polar, sliding against the copper commutator in gasoline and air is reported. In order to find the cause of severe wear on the carbon brush, we examined the range of brush wear, arc energy and the influence of arc on the commutator with changing commutation current 5A to 10A. As a result, arc energy in air is larger than that in gasoline, but the range of brush wear is narrow. Commutator surface in gasoline is rougher than that in air. And excessive film is observed on the commutator surface when severe wear takes place.