

Commutators & Slip Rings (Collectors)

Collectors should be smooth and true. A collector which is in bad condition should be reground or turned. In general commutators with a TIR (Total Indicated Reading) of greater than $75\mu\text{m}$ (0.003") and/or to bar variance of $7.5\mu\text{m}$ (0.0003") needs to be reground or turned.

If it is impossible to regrind a worn collector, a collector grinding stone can be used to reduce flats, ridges, high mica and rough spots. In this way the performance of the machine may be improved sufficiently to allow continues operation.

Methods for reconditioning collector

A commutator or slip ring surface can be reconditioned in any one of seven ways, although other methods have been used in emergencies. The recognised and approved techniques are listed below in order of preference:

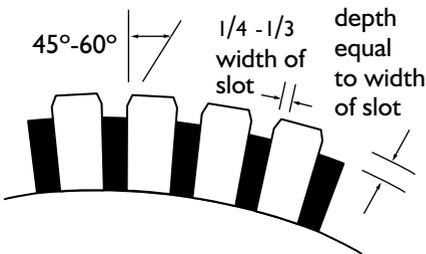
1. Turning with a diamond tipped tool
2. Turning with a tungsten carbide tipped tool
3. Grinding with a rotating wheel
4. Turning with a tool of normal high-speed steel
5. Grinding with a 'fixed' stone mounted in a toolrest
6. Grinding with a handstone
7. Scouring with abrasive cloth

Whichever of these methods is adopted, the collector should be trued whilst running at full speed in its own bearings if possible. This is especially important when the machine operates at high speed. Surface should be broken up with silicon carbide cloth before any machining is attempted, the depth of undercut on the micas must be checked and compared with the amount of material required to true the commutator up. If the undercuts will be removed completely by the turning operation then it is imperative that the micas are undercut before any turning is done; in this way the existing undercuts can be used as a guide for the undercutting tool.

Mica Recessing

If the mica is sufficiently recessed the segment edges should be bevelled and any flakes of mica adhering to the edges of the segments should be carefully removed

Recommended recessing and bevelling



Recessing faults

