

When should you dip a commutator in varnish?

Never.

There are several good reasons to make sure that you never subject a v-ring commutator to varnish or VPI, all of which are critical to the unit's operation.

Commutators are designed with gaps throughout (see Fig. 1). This allows for differential expansion and contraction of the various materials in operation, and results in successful operation over many years. If varnish is introduced into these gaps, the commutator can no longer perform as designed and the varnish can cause three distinct problems:

Overheating: When dipped with varnish, these gaps are filled, which inhibits cooling and can often result in overheating in specific areas of the commutator.

Imbalance: Uneven distribution of the varnish may result in imbalance of the armature. For example, if the unit is dried horizontally, the varnish will pool to one side, and within the confines of the commutator, it may never entirely cure. This material can then result in the overheating noted above, but also in imbalance in operation.

Shorting: In addition to the problems noted above, exposing the commutator to any impurities in the varnish can also result in failure due to shorting bars. Though most repair facilities keep their varnish as clean as possible, minimal impurities which would not affect coils, will potentially bridge the small spaces between commutator bars.

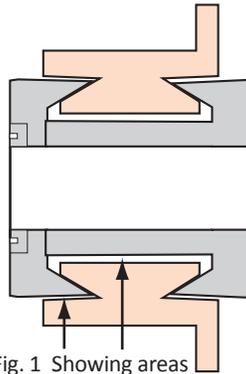


Fig. 1 Showing areas where varnish can infiltrate

What should do if you receive a commutator that has been dipped?

Depending on the severity, the comm may indeed need to be refilled. However, if after having banded the unit and taking it apart, you discover that the varnish deposits are minimal and contained mainly to the dovetail area, you may be able to simply clean the dovetails and replace the v-rings. Sanding or taking a very light skim cut should do this effectively. For tips on v-ring replacement, see Motor Fax Issue 2, or call us for information.

