**Causes**

- Condensation under brush face from extended shutdown time
- A jolt on the brushes and interruption of contact or electrical spike at the same point in rotation

**Streaking**

**Threading**

**Grooving**

**Photographing**

**Commutator Conditions**

**Problems and Causes**

**Acceptable Commutator Film**

**Light Film**

Indicates good brush performance. Lighter color results from light current loads, low humidity conditions, film reducing contamination, or brush grades with low filming rates.

**Medium Film**

Ideal commutator condition for maximum brush and commutator life. The film will be even and the color is coppery brown to dark brown.

**Heavy Film**

Results from high current load, high humidity, high temperature or heavy filming site grades. Colors not in the brown tones indicate contamination, resulting in high friction and high resistance.

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**Photographing**

- Commutator damage from long-term streaking conditions
- Low spring pressure
- Low current loads
- Contaminated atmosphere
- High humidity

**Threading**

- Commutator damage from long-term streaking conditions
- Low spring pressure
- Low current loads
- Contaminated atmosphere
- High humidity

**Grooving**

- Arcing due to low spring pressure
- Abrasive brush grades
- Vibration
- Contaminated atmosphere
- Low humidity and temperature

**Streaking**

**Threading**

**Grooving**

**Photographing**

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**Call Helwig’s Expert Technical Services Staff**

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