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Banding the outboard end on a V-Ring comm

Although this is a popular consideration when finding a commutator with high bars, this field fix can easily cause additional problems.

High bars are typically the result of one of these four causes

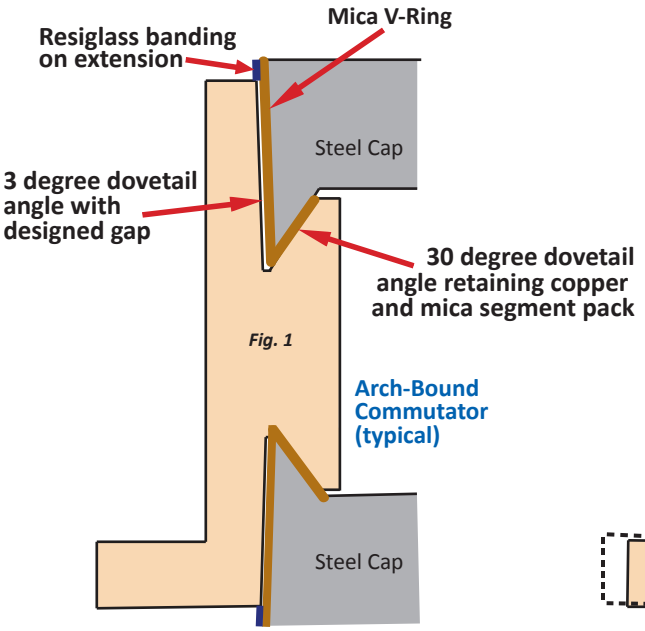
1. **Overheating** – caused by current fluctuations or a stall condition. This causes the copper to swell, typically in an identifiable pattern, appearing as high bars.
2. **Bent dovetails** – caused by over tightening the commutator as part of routine maintenance.
3. **Loose commutator** – typically the result of insufficient thermal cycling in closings, or bolts having backed off over time.
4. **Knocked or tapped bars** – which have been machined smooth, but have then raised in operation as the dovetail re-seated itself due to centrifugal force.

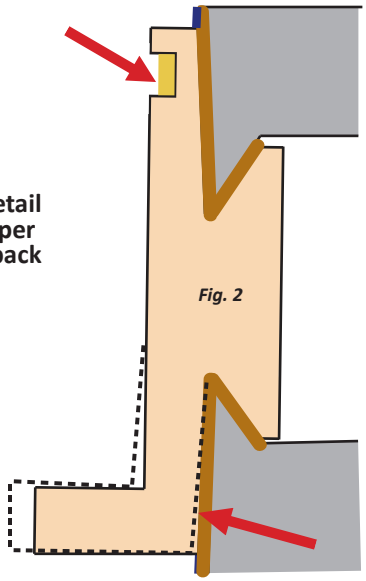
Repairs for these situations are as varied as the causes, but banding the outboard end is not a solution.

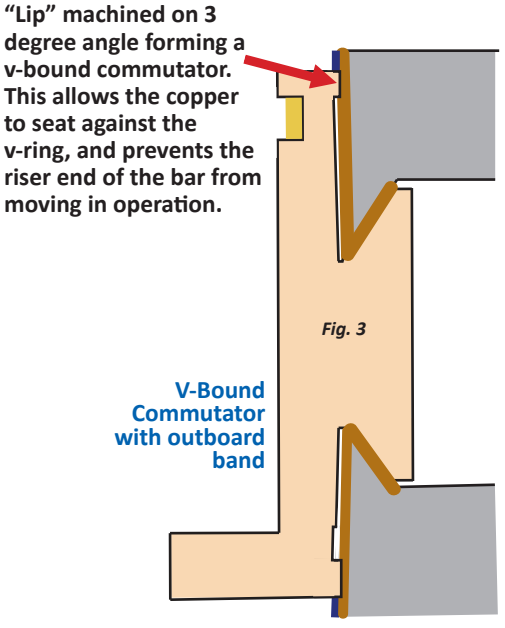
In v-ring commutators there is a designed gap between the steel cap and the copper bar on the 3° angle of the dovetail (see fig 1). This is included to allow differential expansion of the copper and steel in operation, and is a necessary design component.

By banding the outboard end, the gap is forced closed, effectively shifting the entire length of the bar and causing the riser end and center to lift in operation (see fig 2). In addition, at the outbound end, the angles begin fighting for seating position, and the result is even more bar instability at this end.

Some commutators are designed with a band on the outboard end (see fig.3). This design incorporates a machined lip on the inside of the dovetail which rests against the steel cap. This maintains the gap, but prevents any bar movement in operation.







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