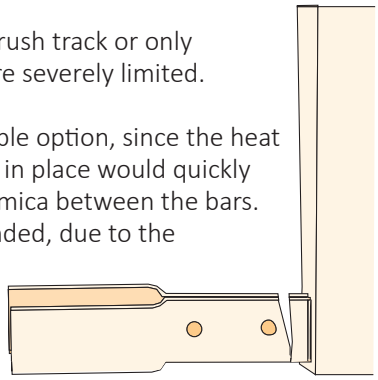
ICC INTERNATIONAL
MOTOR fax
ISSUE 5

Options for repairing broken commutator risers

If the risers are broken at the brush track or only slightly beyond, your options are severely limited.



Inserting new risers is not a viable option, since the heat required to braze the new riser in place would quickly burn and destroy the segment mica between the bars. Soldering is also not recommended, due to the likelihood of contamination of the segment insulation. In addition, solder will rarely withstand the operating temperature requirements of the unit.

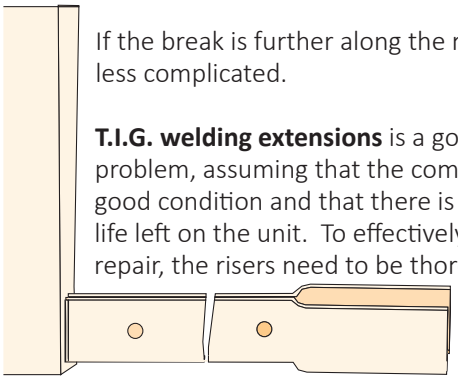
T.I.G. welding extensions is not an option due to the small amount of riser material remaining attached to the comm.

In this situation, there are typically two possible options remaining for repairing the problem:

Refilling the commutator - involves reusing the steel core, but manufacturing new copper, risers, and insulation.

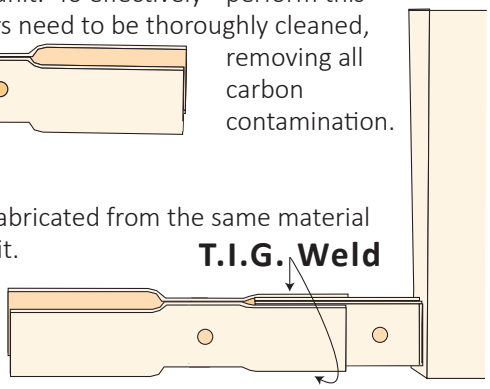
Reinsulating the commutator - involves reusing the steel core, and the copper bars (on large units), replacing the risers and insulation. Note: reinsulation is not typically an option for glassband commutators, which we will address in a future issue of Motor Fax.

If the break is further along the riser, the repair is much less complicated.



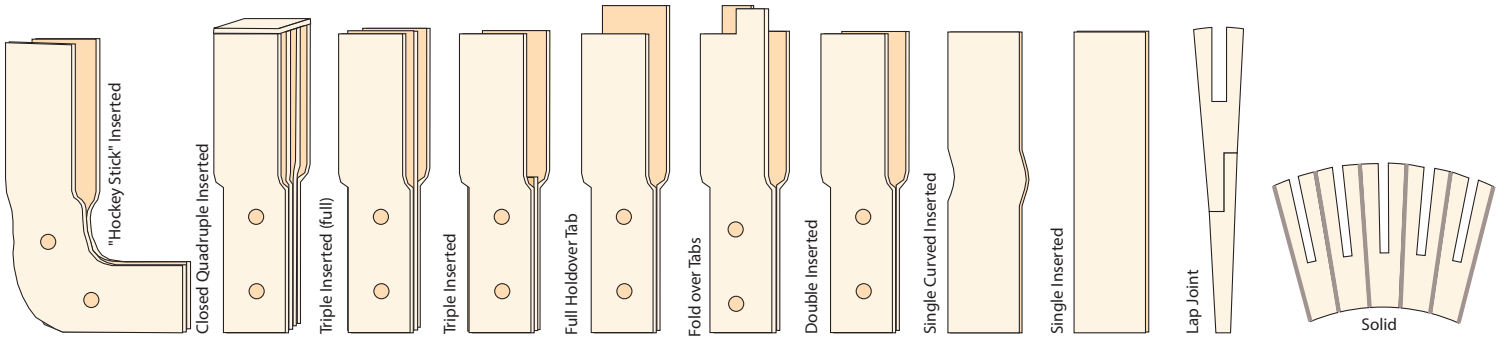
T.I.G. welding extensions is a good solution to this problem, assuming that the commutator is otherwise in good condition and that there is still substantial brush life left on the unit. To effectively perform this repair, the risers need to be thoroughly cleaned, removing all carbon contamination.

New risers should be fabricated from the same material used in the original unit. This is typically half hard, oxygen-free copper, in thicknesses ranging from 0.020" to 0.125". Riser extensions should be bent prior to installation, allowing 0.002" in width and 0.312" in depth greater than coil sizes for easy coil installation.



For recurring problems with cracked risers due to vibration, you may want to consider adding a row of lashing to help minimize this effect.

Shown below are some of the more common riser styles, to help in your identification.



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