

New Mice Target Stator

IMPERIAL COLLEGE London
The Blackett Laboratory



Progress of New Mice Target Stator.

Geoff Barber Imperial College
Eamonn Capocci Rutherford Lab

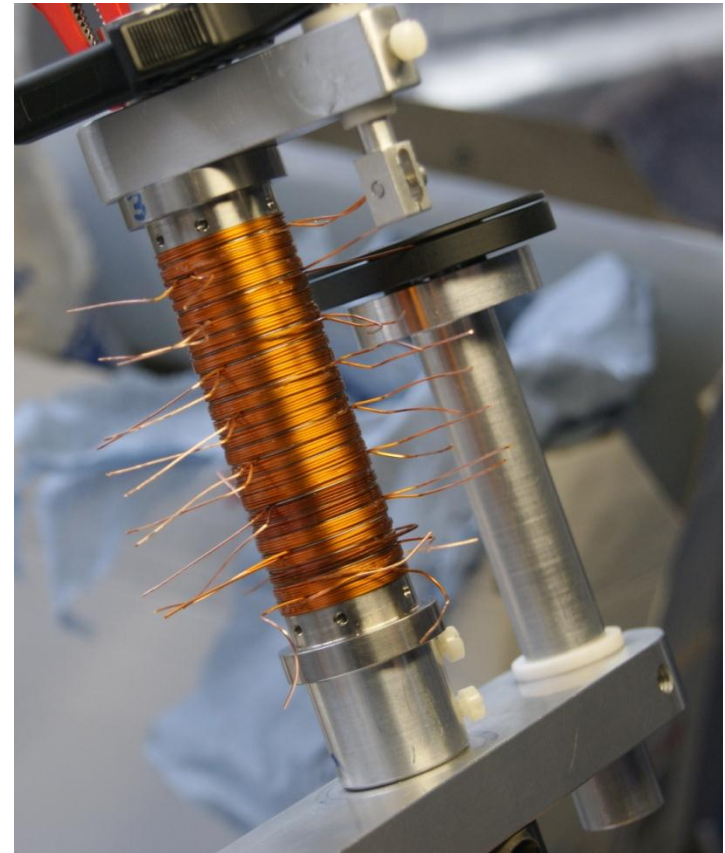
Progress Since CM31

At the last collaboration meeting we were having problems winding the coils onto the bobbin without getting shorts. We had ordered new wire as we felt this to be a contributing factor. We also fettled the bobbin to ensure there were no sharp edges anywhere. We were also waiting for 'improved' bobbins, the bobbins we had were found to have slight deformations in the rib structure due to manufacturing. A decision was taken to proceed with the first assembly using what we had and to use this to find and iron out problems for the whole of the manufacturing process. This is what we have done.

Progress Since CM31

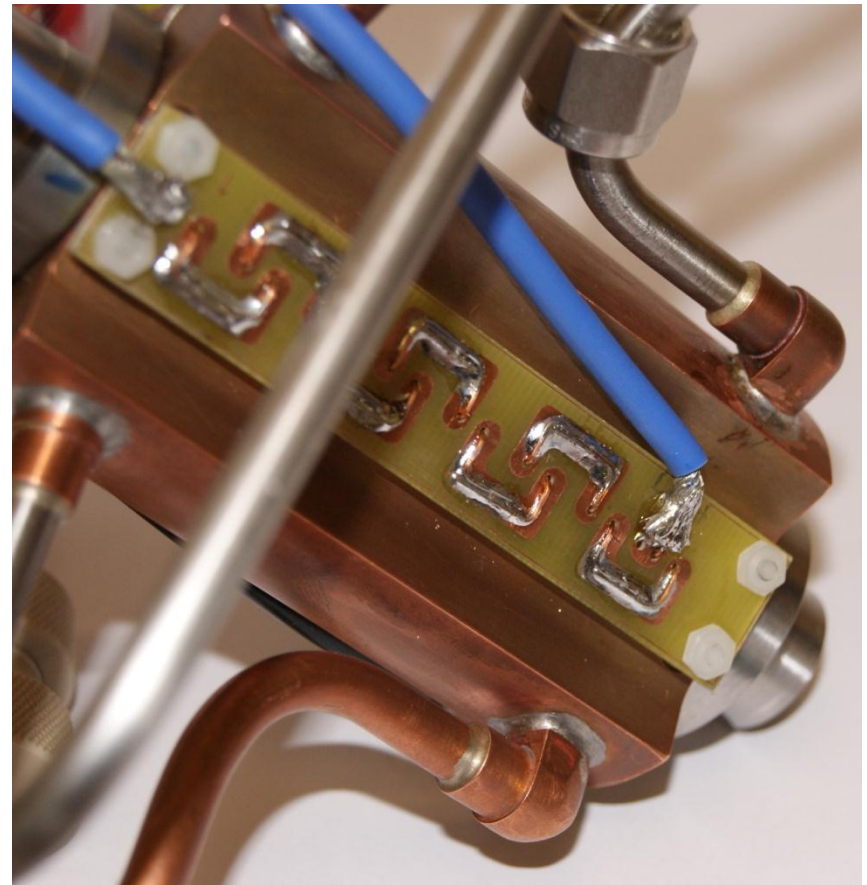
The new wire arrived at the beginning of this year and there was an immediate improvement in the reliability of the coil manufacture, we still had failures but they were the exception and not the rule as was the case previously.

Once the coils were wound and tested the segments of the cooling jackets were fitted... This caused 3 coils to short 'NOT GOOD'. However the cooling segments were given a larger radius and this seemed to solve the problem.



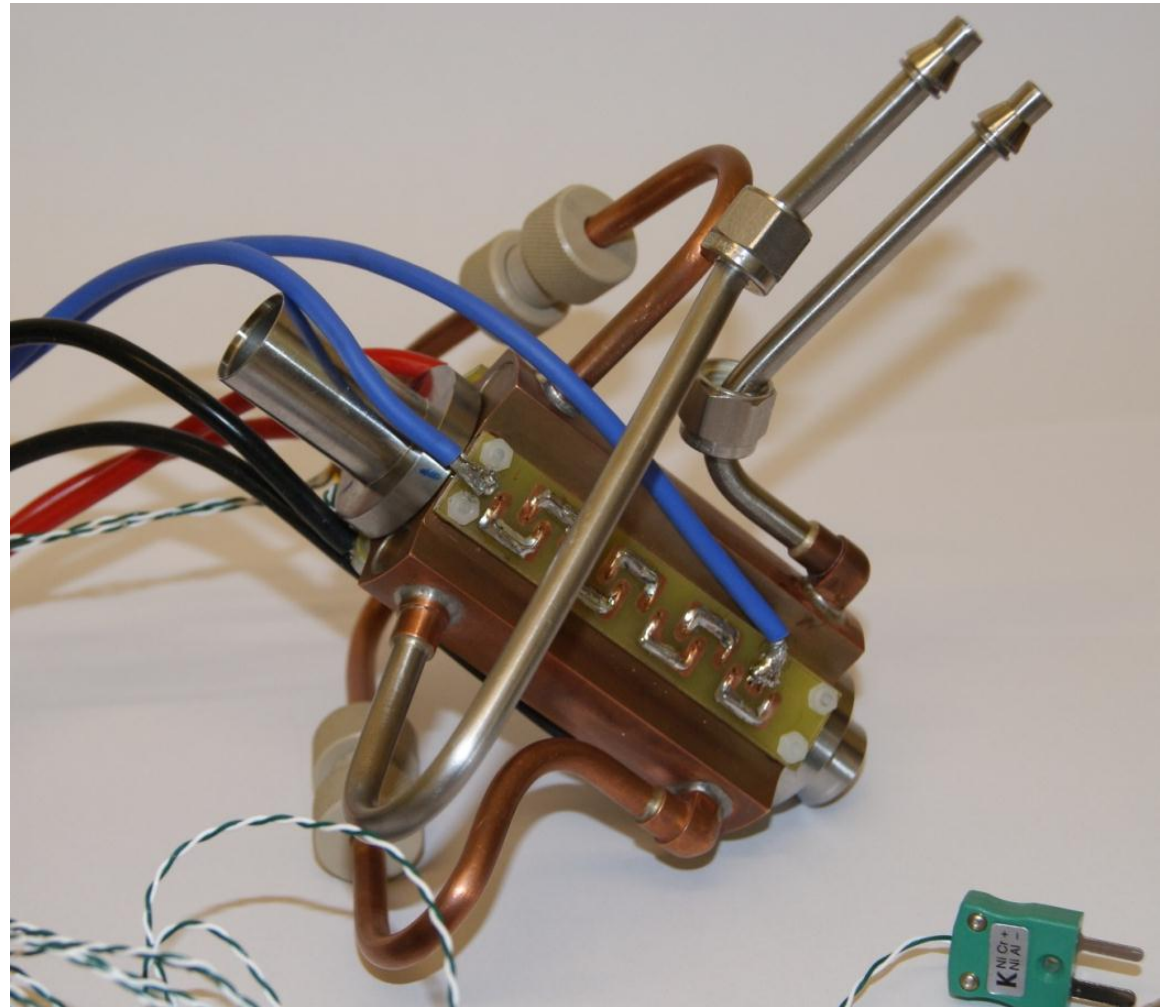
Progress Since CM31

The Next step was to fit the printed circuit power rails. This highlighted the problem that with the current layout too much stress can be put into the coil wire and although this still held the voltage it will be redesigned to be kinder to the leads. The next step was to solder the tails onto the board and make one final check.



Progress Since CM31

We now have a stator ready for potting....



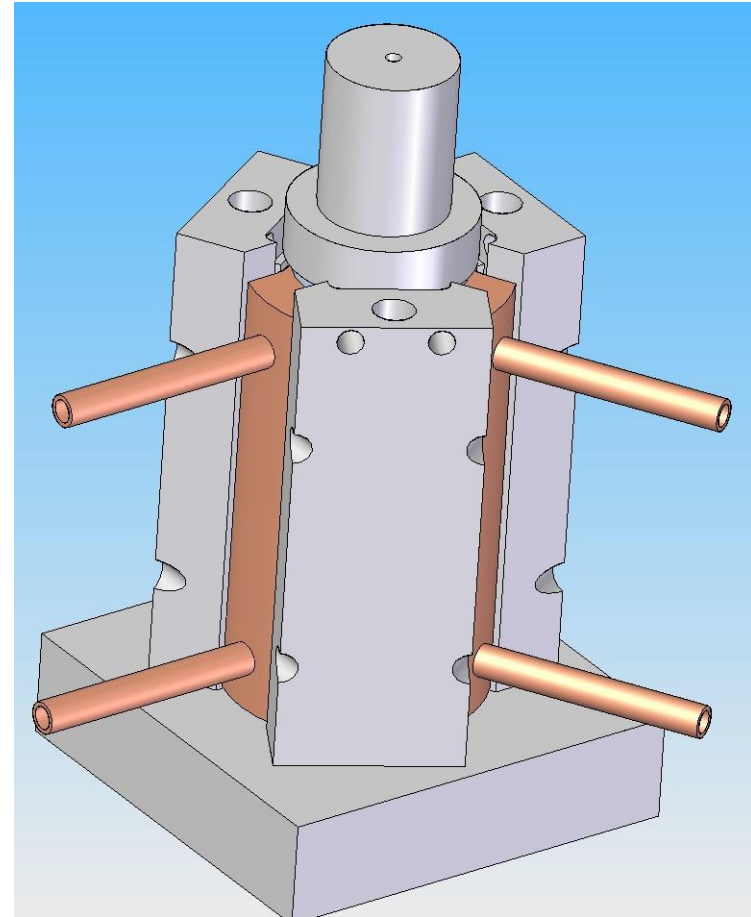
Progress Since CM31

When the assembly was fitted into the potting jig we found the final problem.

When the potting jig is secured around the body cable ties were used. these secure the sections of the jig around the stator assembly and in order to make a seal these need to be quite tight. It was found that applying this pressure caused shorts between the coils and the bobbin body

!#@#!!

This is now been re-designed



Progress Since CM31

Conclusions.

- A great deal of progress has been made in the development of the new stator.
- We have found and hopefully designed out the problems that we have encountered in the manufacture of this prototype.
- With a few design changes we are now ready to build the first working stator, we have the wire, a bobbin that has been machined to exacting standards and more importantly a considerable amount of experience.