

# RAPID PROTOTYPING AT RMS

*By Dean Curtis, Senior CAD Designer*

With the acquisition of a MOJO 3D printer we have been able to prototype innovative new design, reduce turn-around time, and improve our quality, for many projects. 3D-printed ABS plastic parts provide satisfactory representations of form for finished parts. With this new method, we are able to quickly assess innovative ideas by having a real world models to judge. This provides for rapid iteration from innovative idea to finished product.

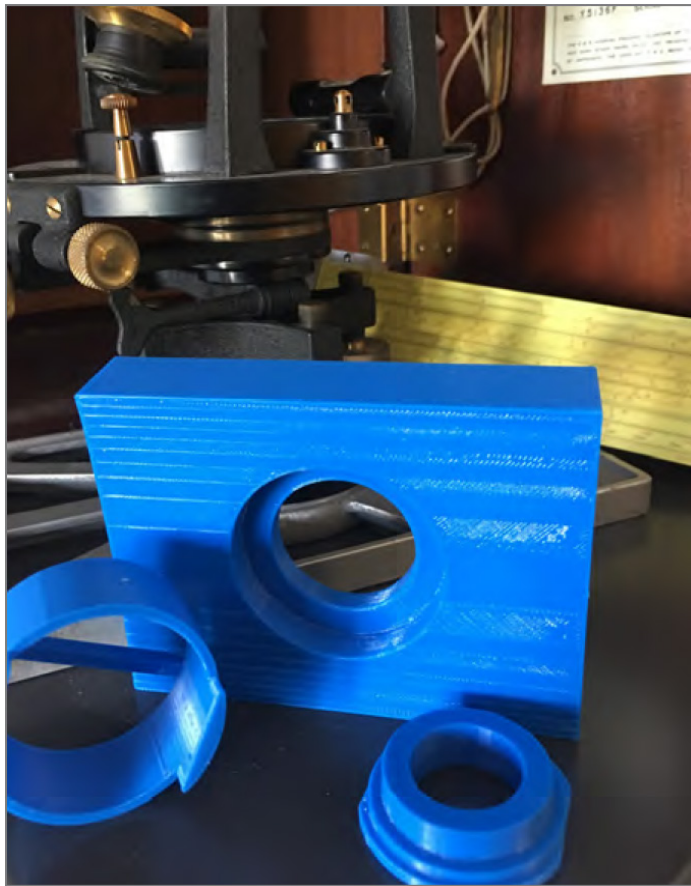


Figure 1

Our extensive searchable library of parts, assemblies and technical data enable us to quickly leverage existing designs. A legacy design from a decades old project can be quickly located, modified and re-created to adapt it to use in a new project.

A recent example is an axial compressor repair. It has been historically difficult to remove the bushings from

the inner variable stator rings. We created a modified bushing from a legacy drawing, added some key tabs to it, and were able to use that 3D model to create a removal tool which promises to speed the turn-around time for repairs of this type of compressor.

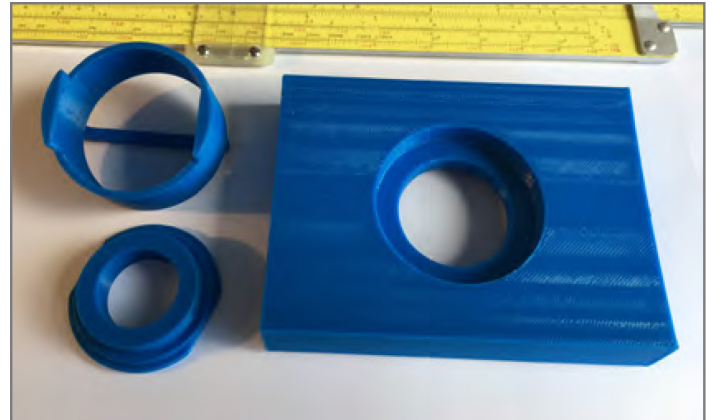


Figure 2

To verify the design, we printed a small section of the inner stator ring, the modified bushing, the existing variable stator and hardware, and a removal tool we created in SolidWorks. The time from idea to prototype was approximately 72 hours. The success of the concept, as well as the necessity of a minor design tweak to the removal tool, were immediately apparent.

At this point we were at a total of four working days into the process. Manufacturing drawings and solid models for the modified bushings and the removal tool are in engineering approval, nearly ready to go to the vendor for production.

Had we had to machine a first article, the process would likely have stretched months, and iterations to refine the design would have been far more difficult, costly and time consuming. Innovations like these help us get to solutions more quickly, allowing us to get customers back up and running in record time.

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