

FAB LAB Develops Blade Separator Tool



By Chris Wyatt, MARMC Public Affairs Specialist

Mid-Atlantic Regional Maintenance Center's (MARMC) Fabrication Laboratory (FAB LAB) is in the final stages of testing a new 3D printed blade separator tool for gas turbine engines in Building CEP-200, Naval Station Norfolk, Va.

MARMC FAB LAB Project Supervisor Lt. Todd Coursey and MARMC Gas Turbine Shop Supervisor Ashley Horn have been working together to create and test a new and innovative blade separator tool.

When doing a stage one inspection on Navy gas turbine engines, the blades have to be separated in order to properly inspect the Carb-Alloy pads' wear level. Currently there is no specific tool made for this procedure, according to Horn.

"In the past, we have had to use unconventional tools in order to get this job done. Those tools would work, but we've always wanted a permanent solution," said Horn.

Horn found that solution when he met a Master Chief Petty Officer in the German Navy, during his Marine Gas Turbine Inspector Training School, who made a blade separator tool out of cutting board plastic and a broom stick handle.

"I asked him if I could borrow the tool because I thought we could fabricate one up in our FAB LAB," said Horn.

The FAB LAB group, led by Lead Technician Gas Turbine System Technician-Electrical 1st Class Christopher Sellman, worked fast to not only manufacture a replica version of this tool, but also improve upon its' design.

“First, we create the digital design; then, we made a mockup out of cardboard using our laser cutter,” said Sellman. “There, we ensure the sizing is accurate and make any tweaks necessary. Next, we make a low resolution print and double check that everything works and is to Mr. Horn’s liking. The final step is a high resolution design for final fitting.”

The tool head is made of Polylactic Acid (PLA) plastic which is made from renewable resources such as corn starch and sugarcane. The handle is made of stainless steel.

“This tool now allows us to separate the pads without any risk of putting undo tension on the gas turbine blades. The plastic heads will wear out over time, but because it’s plastic, we will have inexpensive replacements on hand now thanks to our FAB LAB,” said Horn.

The new tool will be made available to all Regional Maintenance Centers under Naval Sea Systems Command umbrella.

“This is what a FAB LAB is all about. Someone comes to us in need of a specific tool to be made. You can come in the FAB LAB where we can create a rapid prototype, test it, and then go out into the production shops and produce that tool to scale. It allows the warfighter to touch the problem and gives them the opportunity to be a part of the solution,” said Coursey.