

NADEP NEWS



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NEAC develops new product line for engines

The Naval Engine Airfoil Center (NEAC) is a world-class and world-renowned cutting edge organization. This was recently demonstrated when the NEAC artisans embarked on a new technology enterprise for the NEAC, the depot and the fleet. Specifically, the NEAC developed a new product line for F404-GE-402 engines, which power the F-18 aircraft.

In 1996, the NEAC engineers learned of a new engine design and its unique nozzle apparatus. Those nozzles were constructed from a first generation single crystal Rene N4 material, which provides enhanced performance to the engine.

Sensing an opportunity to create a sole market niche for rework of this nozzle, the NEAC developed the metallurgical technology and processes required to do nozzle repairs for this specific engine. This included developing a successful braze repair and recoat application, prototyping and testing the repair methods, analyzing the results and fine-tuning the production procedures.

Repairs of this nature were the first of their kind in either a public or private aviation maintenance facility.

The successful design development of this repair process and its rapid introduction to the production shops is an example of what can be accomplished through cooperative efforts of the work force and adherence to ISO 9000 principles and procedures.

The NEAC received final approval of its new repair in October 2000 and received the first order for 75 nozzles in November 2000.

Although the anticipated repair turnaround time was expected to be 90 days, the demands of the fleet, coupled with the expertise of the NEAC artisans, resulted in a much quicker response.



Photo by Larry Conley

On Dec. 6 at the Naval Engine Airfoil Center, (from left): Terry Allen, Heat Treater and Temperer (6.9.1.1.1); Julian Arrington, Aerospace Engineer (4.4.8.1) and Dr. Bruce Laviolette, NEAC Director (6.9), proudly display the first group of nozzles that was packaged for the first shipment to a fleet customer. NEAC developed this new product line for F404-GE-402 engines, which power the F-18 aircraft. Looking on (background) is Staff Sgt. D. D. Carpenter, Logistics and Engineering Assistant Coordinator (6.0A).

In December the first production parts were returned to the fleet customer, considerably ahead of schedule.

Another significant advantage to the NEAC's repair capability is a lower cost to the fleet customer.

New nozzles cost in excess of \$3,000 per unit, whereas the unit repair cost is less than \$900. This can result in a \$50,000 savings per engine to the fleet. Since the first shipment, additional orders have been received. Fleet requirements are expected to be in excess of 3,000 parts per year. This repair process makes these nozzles a better quality product than when originally manufactured, and

ensures they are positioned in afloat and ashore aircraft units more quickly and at a lower cost than through non-depot repair sources.

The cost, quality and response time to customer requirements will ensure that the fleet customer continues to demand depot products such as these.

The NEAC is continuing to expand upon this success by developing additional follow-on product lines.

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