Case study

RAF wheel crack detection

With a requirement to reduce Aircraft on Ground (AOG) time the Royal Air Force (RAF) have installed multiple Vapormatt wet blasting machines for preparing aircraft wheels for non-destructive testing (NDT) including crack detection, a critical and regular requirement to guarantee airworthiness as part of their safety checks.

Vapormatt have developed a specially formulated process for the purpose. A fast, safe and clean process is delivered by directing a jet of hot water mixed with detergent and minute plastic particles at the wheel's surface. This proven process creates a scrubbing effect that can quickly degrease, clean and strip paint from even the most complex of wheel geometries in preparation for NDT / crack detection.

The advantage of the process is twofold with its ability to safely remove sticky and heavy deposits, like grease, without chemicals, prior to eddy current testing (ECT), and also having the flexibility to remove paint and other coatings from a wheel's surfaces for dye penetration testing of the substrate. In both cases clean surfaces can be achieved without damaging the wheel or its Alodine coating.

With its closed-loop and self-contained filtration system all greasy deposits, loose paint and harmful particulates are easily and safely separated from the process slurry. The separation of waste from good plastic media allows the system to run for long intervals without extensive downtime for cleaning and replenishing.

Being an aqueous process means harmful dust, typically associated with dry blasting, makes the wet blasting process faster and more environmentally friendly. And in terms of speed, it is fast! A fighter jet wheel can be degreased and entirely stripped of paint in approximately 20 minutes, with automation options making this even quicker.

RAF Lyneham were able to reduce their turnaround time from 8 to 10 days to 48 hours by replacing the chemical stripping element of the operation with wet blasting. This improvement in turnaround time is particularly important to the RAF because fighter jets might be grounded unless a spare wheel or donor aircraft is available.

Reducing the turnaround time by replacing chemical cleaning with wet blasting also resulted in significant labour savings because of operators spending less time on the cleaning and stripping of wheels. With these results it is clear to see why Vapormatt have supplied over 35 machines to the RAF around the world for their wheel and brake MRO operations.

Learn more about the applications and benefits of wet blasting for aerospace MRO operations by visiting our dedicated industry page:

vapormatt.com/aerospace-mro

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