

FINAL REPORT

Cold Spray for Repair of Magnesium Components

ESTCP Project WP-200620

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14. ABSTRACT The U. S. Army has experienced significant corrosion problems with magnesium alloys that are used to fabricate aircraft components. The most severe of these are associated with large and expensive transmission and gearbox housings for rotorcraft, which have to be removed prematurely because of corrosion. Many of the parts cannot be reclaimed because there is not an existing technology that can restore them adequately for service. The U.S. Army Research Laboratory has developed a cold spray process to reclaim magnesium components that shows significant improvement over existing methods. Part of this program has demonstrated and validated a Cold Spray (supersonic particle deposition) process using aluminum and/or Al alloys as a cost-effective, environmentally acceptable technology to provide surface protection and a repair/rebuild methodology to a variety of magnesium alloy components for use on Army and Navy helicopters and advanced fixed-wing aircraft.					
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