



Air Force Materiel Command



OO-ALC Technology Challenges

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Overview

- **Strategic Goals & Competencies**
- **OO-ALC Challenges & Needs**
- **Technology Insertion to Meet Strategic Goals**
- **Summary**



OO-ALC Strategic Goals

- **Lifecycle Sustainment Provider of Choice for Fighters and Low Observables**
- **Provider of Choice for Missile Mx**
- **Provider of Choice for Weapon System Software Development and Sustainment**
- **Provider of Choice for Commodity Maintenance**
- **Lifecycle Sustainment Provider of Choice for Space and C3I Systems**

**Achieving Our Strategic Goals Depends on
Leveraging Technology**



OO-ALC Core Competencies



Depot Maintenance

F-16, A-10, F-22, C-130, ICBM,
Landing Gear, Software, Composites



Weapon System Management

F-16, A-10, T-38, Space & C3I
Simulators and Trainers



Supply Chain Management

Munitions , Space & C3I



Readiness

Provide Combat Ready Airmen



OO-ALC Technology Challenges

- **Processes**
 - **Coatings Removal & Application**
 - **Non Destructive Inspection (NDI)**
- **People**
 - **Low Observables Training and Equipment**
- **Weapon Systems**
 - **Health Monitoring (Mechanical and Structural)**
 - **Parts and Materials Obsolescence**
- **Materials**
 - **Hexavalent Chrome (L/G)**
 - **Corrosion Resistant Structures**
 - **Lead Free Solder**
 - **Composites**



OO-ALC Technology Needs

- **Environmental Improvements**
 - Develop Compliant Coatings, Plating and Materials Without Performance Compromises
 - Reduce Harmful Chemicals and Waste Streams
- **Non Destructive Inspection**
 - Capability to “See Through” Multiple Layers
 - Inspect Holes Without Removing Fasteners
 - Reliably Find Defects Without False Negatives
- **Low Observable Repairs**
 - Less Intrusive
 - Any Environment (Expeditionary)
- **Condition-Based Maintenance/Health Monitoring**
- **Wiring Integrity**
 - Prognostics to Help Detect Aged-Wiring Deficiencies



Technology Insertion at OO-ALC

- **AFMC Sustainment Technology Process (STP)**
 - **Ogden Participating at All Levels of STP & Defining Technology Needs**
 - Senior Sustainment Steering Committee: OO-ALC/CA
 - Sustainment Review Group: OO-ALC/ENS
 - Maintenance, Repair, Overhaul & Production Technology Working Group: 309 MXW/TD
 - **Requirements Flow -Technology Working Groups**
 - Locally Generated & Command Validated
- **Main Funding Source: AFRL Small Business Innovative Research - \$6-8M/year for Center**

Many Successful Technology Inserts with SBIR



OO-ALC Antenna Tower Success Story

Before: Metal Structures

- Prone to Corrosion
- Technicians Had to Climb to Maintain
- Frequent Stripping, Painting & Repair



After: Advanced Composite Structures

- Developed as OO-ALC SBIR Project
- Greatly Reduced Maintenance, **No Corrosion**
- Light Weight, Tower Can Be **Lowered for Mx**
- Impacts: **Life Cycle Cost Reduced** and Safer

Project Status: Now Fielded



OO-ALC Airfield ILS Tower Success Story

Before: Rigid Metal Towers

- Hazardous in Event of Aircraft Collision
- Require Anti-Corrosion Maintenance

After: Composite Frangible Airfield Tower

- Developed as OO-ALC SBIR
- Designed to **Minimize Mishap Damage**
- Reduced Mx, **No Corrosion**, Permanent Pigment
- First Composite Shelter With Electro-Magnetic Interference Shielding



Project Status: Now Fielded In Guam



OO-ALC Gun Tube Bore Success Story

Before: 30 mm Gun Tube Bores Plated With Chrome

- Short Gun Tube Life Expectancy Due to Plating Wear-Out
- Plating Process Creates Waste Stream (Chrome Dissolved In Liquid Medium)

After: New 30 mm Gun Tube Bore Plating Material and Process

- Initial Firing Tests Show **Enhanced Wear Properties**
- New Process **Reduces Waste Stream**
- Due to Initial Results, **Army, Navy and OEM Now Participating**



Project Status: Phase 2 SBIR Project (Demo) Stage



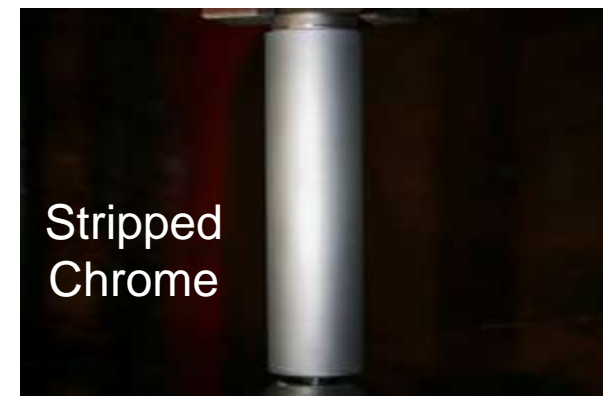
OO-ALC Pulsed Water Stripping Success Stories

Before: Two Processes For Chrome/Tungsten High Velocity Oxygenated Fuel (HVOF) Coatings

- Chrome Uses Chemical (Acid) Process – Creates Hazardous Waste Stream
- Acid Process Can Lead to Hydrogen Embrittlement
- HVOF Uses Grinding Process – Can Damage Parts

After: Pulsed Water Stripping For Both Chrome and HVOF

- In Development at OO-ALC
- **Reduces Waste** Stream – Solids Can Be Filtered Out
- Potential For **Embriement** or **Damage Reduced**
- Joint Project With WR-ALC



Project Status: Phase 2 SBIR Project (Demo) Stage



Summary

- **Aging A/C & Systems Depend Upon Technology**
- **Depot and Weapon System Core Competencies**
 - **Need Technology to Help Maintain Fleet Viability Until 2030/2040**
- **Partnering With AFRL, Small Business and Industry**



Contacts

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