

Environmentally Compliant Painting at Hill AFB

Presented by Ken Walter EPEI
Battelle

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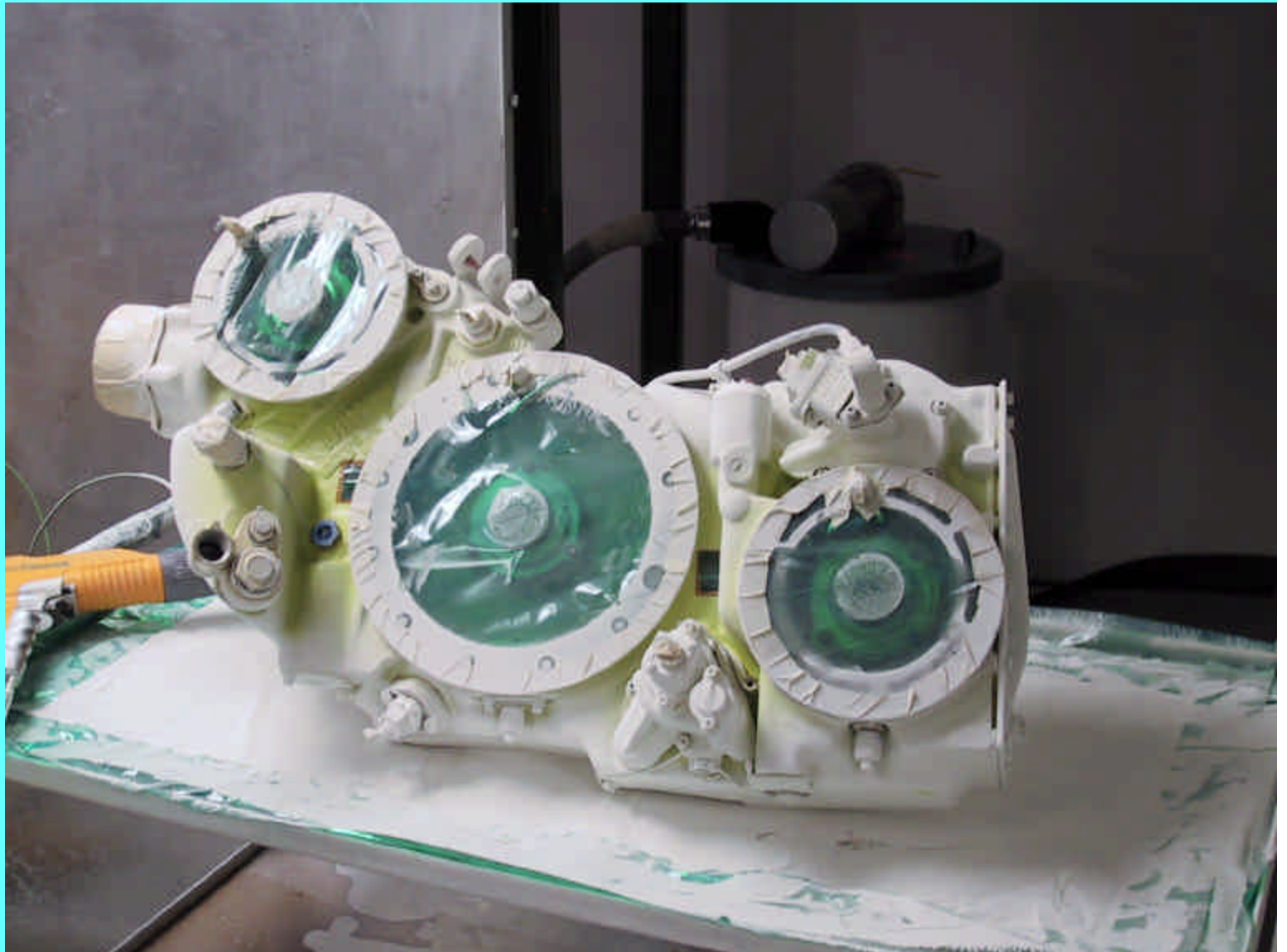
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Agenda

- Information about powder paint
- Background
- Transition issues
- Qualification of powder paint primer issues
- Technical issues
- Metal specific issues
- How to improve the process
- Q & A Session

Information about powder paint



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Background

- System originally at Kelly AFB
 - Had 5800 ft² shop space
 - Major pieces of Equipment
 - 5 stage washer
 - dry off oven
 - Back to Back paint booths
 - Cure oven (conveyor and batch)
 - Information availability

Transition to Hill AFB

- System as transitioned to Hill AFB
 - Has 2100 ft² shop space
 - Major pieces of Equipment
 - Back to Back paint booths
 - Cure oven (conveyor and batch)
 - Pushing to only do powder paint
 - Installation issues (Environmental & Safety)
- Substrates to be coated Al, Steel, Mag, Ti, and Stainless
- Coat parts and assembled components

Transition to Hill (2)



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Qualifying a Non-Chromated Primer

- Primer coat was applied by another organization
- Worked with engineers for evaluation criteria
- Tests performed
 - Impact resistance
 - Scratch resistance
 - Elevated temperature solvent soak in oil 24 hours
 - Flexibility
 - Stripability
 - Thermal Degradation

Mistakes in the Primer Qualification Process

- Did not evaluate shear
- Only looked at Al parts - coated Mag, Stainless mating surfaces
- Did go back and start the qualification process over using the CTIO starting with Al

Technical Issues

- Oil
 - Assemblies that went through a functional test
 - Only allowed cleaning process is Isopropyl Alcohol
 - Tried lots of methods



Technical Issues (2)

- Painting over old paint
 - Magnesium gearbox and steel electrical starter
 - Cases with >10 mils of paint std military epoxy
 - Apply prime coat with chrome primer
 - Scuff sand and coat with powder paint primer

Metal Specific Issues

■ Steel & Aluminum

- None

■ Magnesium

- Big problems getting the primer coat to adhere to the base metal

■ Titanium

- Was painted by accident with primer. Seemed to be a good coating but was removed due to non conformance issues

How to Improve the Process

- Besides the prime coat tests
- Internally vented system
- 3 batch ovens
- Corrosion control station
- Wet/solvent prime booth
- Solvent/wet topcoat booth

Questions????