



Presented to:
2009 U.S. Army Corrosion Summit

Engineering Support / Corrosion Prevention & Control Evaluation

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TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

February 5, 2009



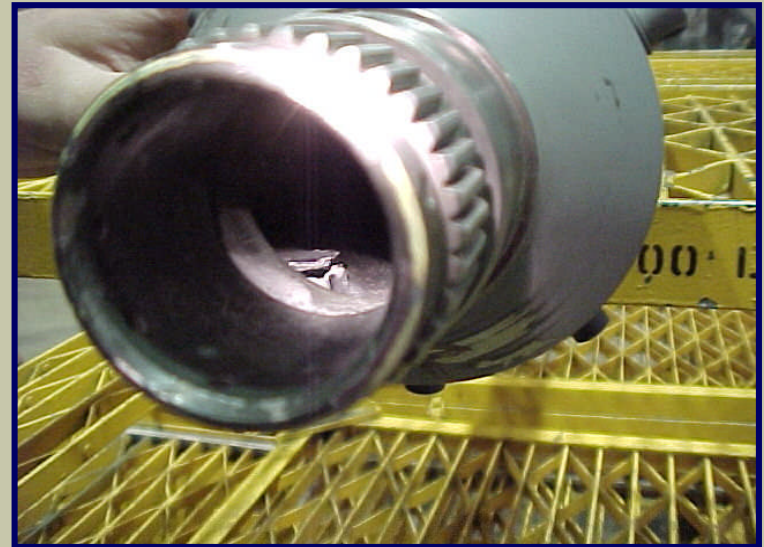
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Development and Engineering Center**

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- Aircraft Corrosion
 - Corrosion Prevention & Control Evaluation
 - 3D Mapping
 - Pressure Washing
- Engineering Support
 - Maintenance Engineering Calls
 - Maintenance Engineering Order
 - Corrosion Prevention Techniques
 - ACE/Corrosion website





AH-64 A/D



Aircraft Corrosion

CH-47 D/F



UH-60 A/L/M



OH-58 D



- CPCE is performed concurrently with the Airframe Condition Evaluation (ACE)
- The evaluation collects environmental, operational, and maintenance data
- These variables enable Maintenance Engineering Division (MED) to develop corrosion prevention measures for Army-wide implementation



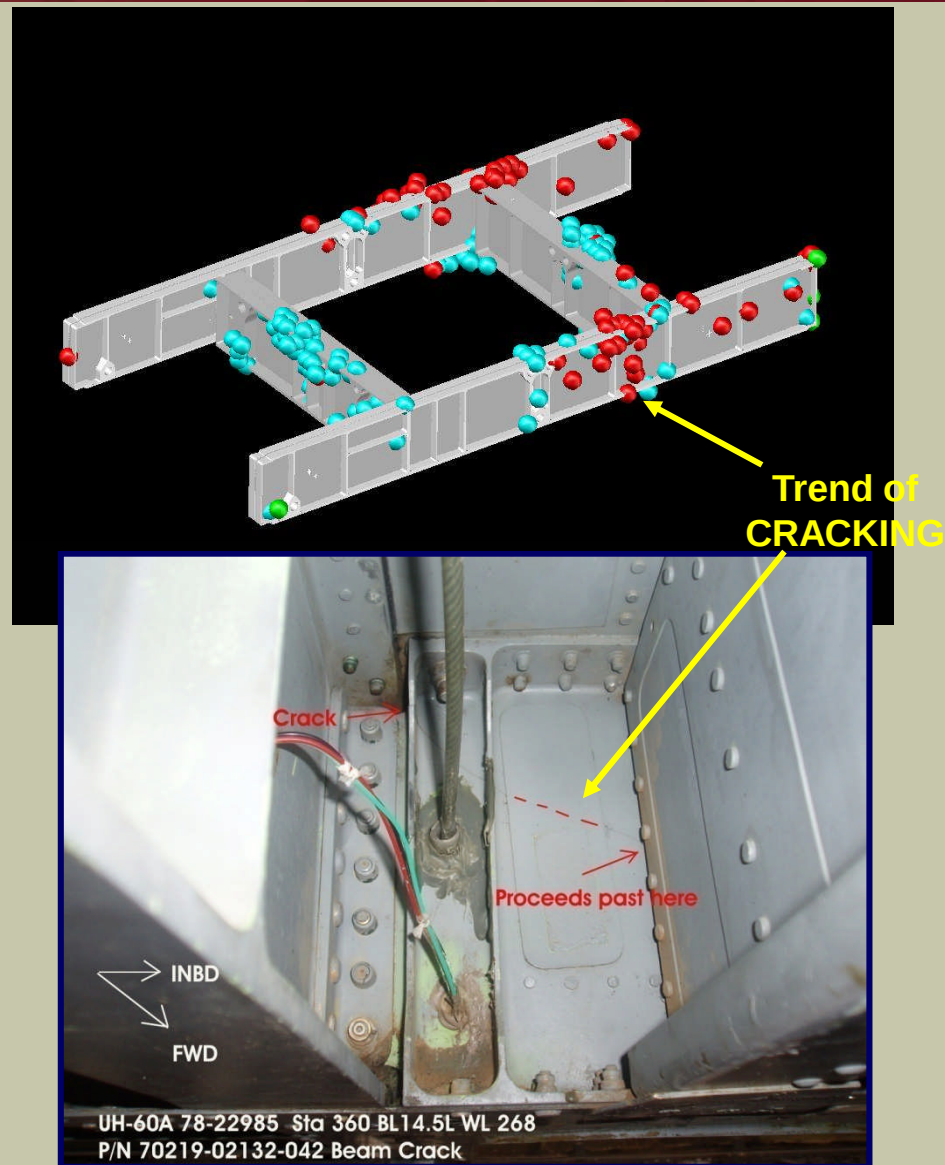


- Trained ACE evaluators examine aircraft using Technical Bulletins developed for each platform
- Evaluators document defects of indicators for each aircraft with location positioning F.S., W.L., B.L.
- Discrepancy Data gathered in field, compiled in ACE Database, and evaluated by the MED



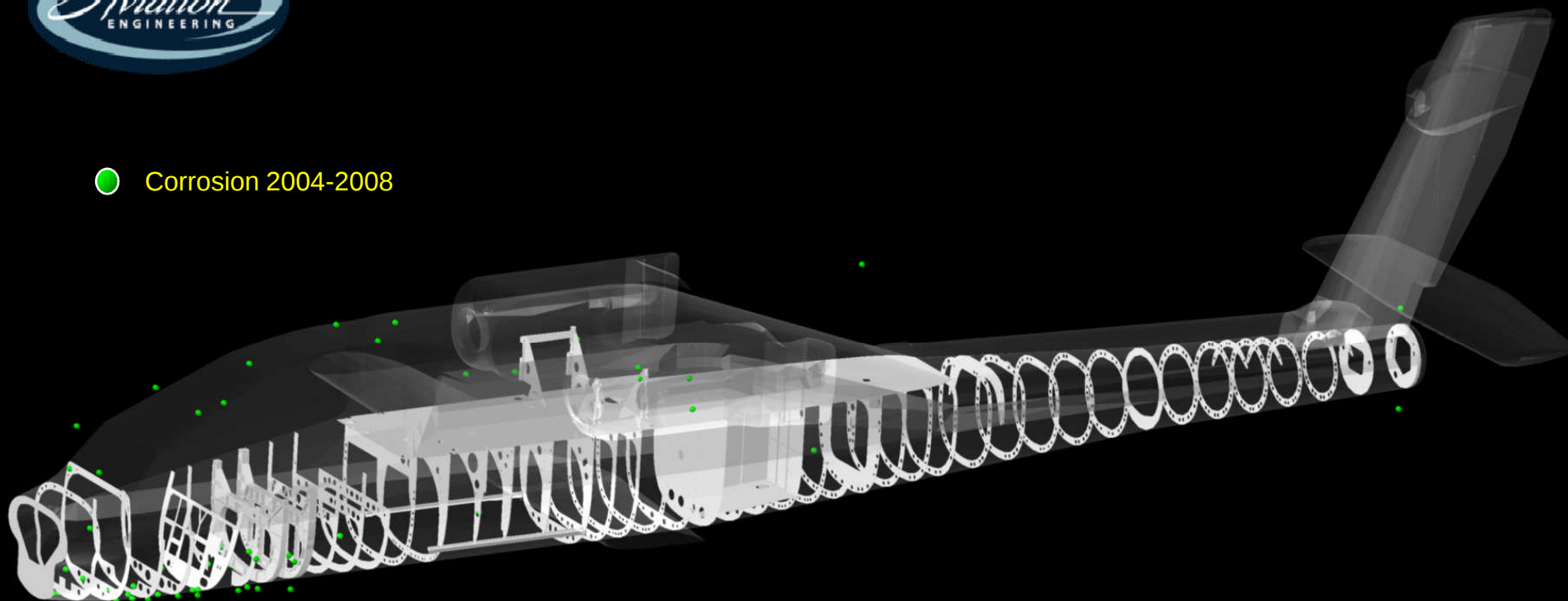


- Quick visual reference of defects identified during evaluations
- Provides historical data for long-term trend analysis
- User defined queries allow for detailed analysis



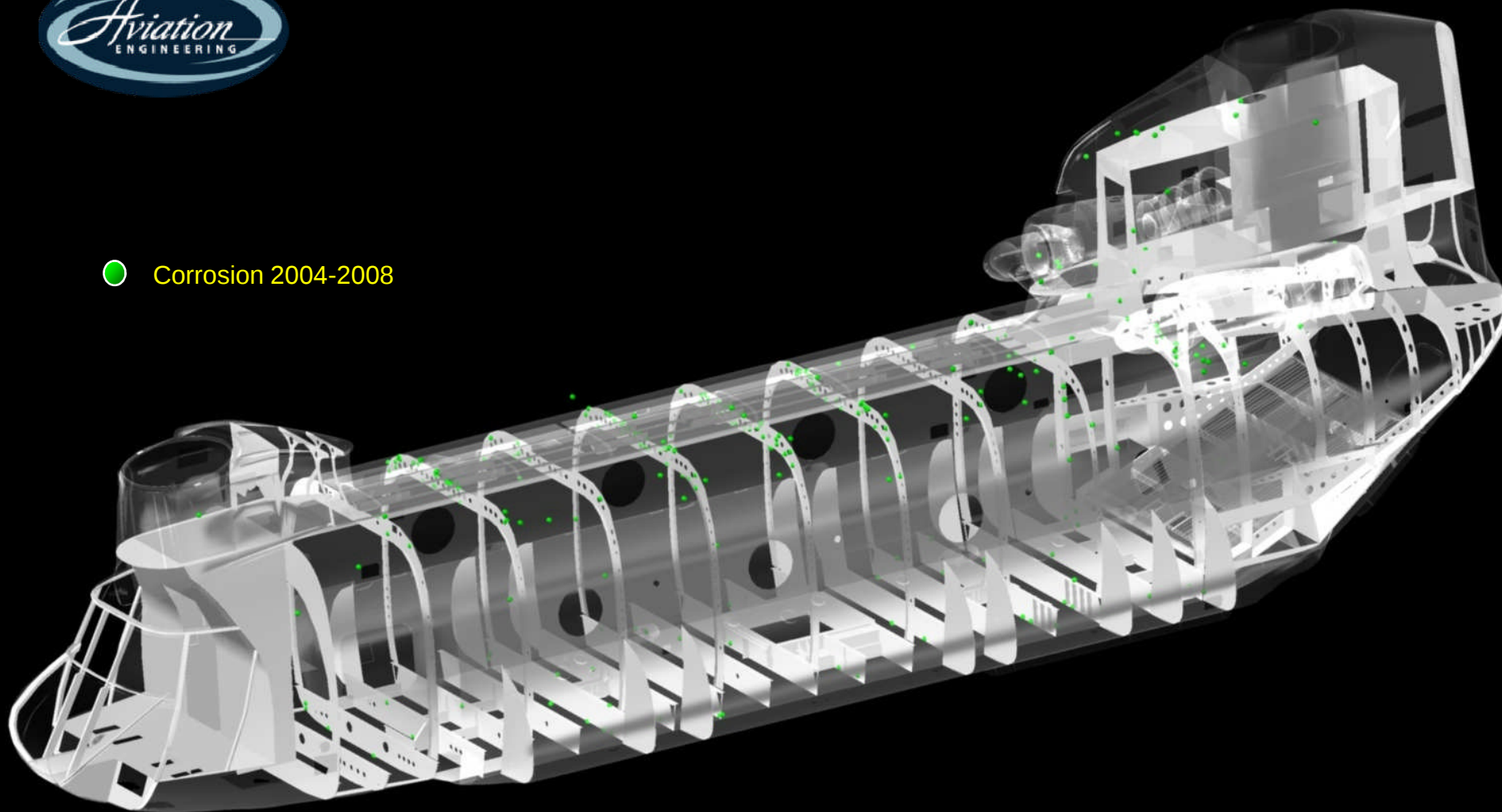


● Corrosion 2004-2008



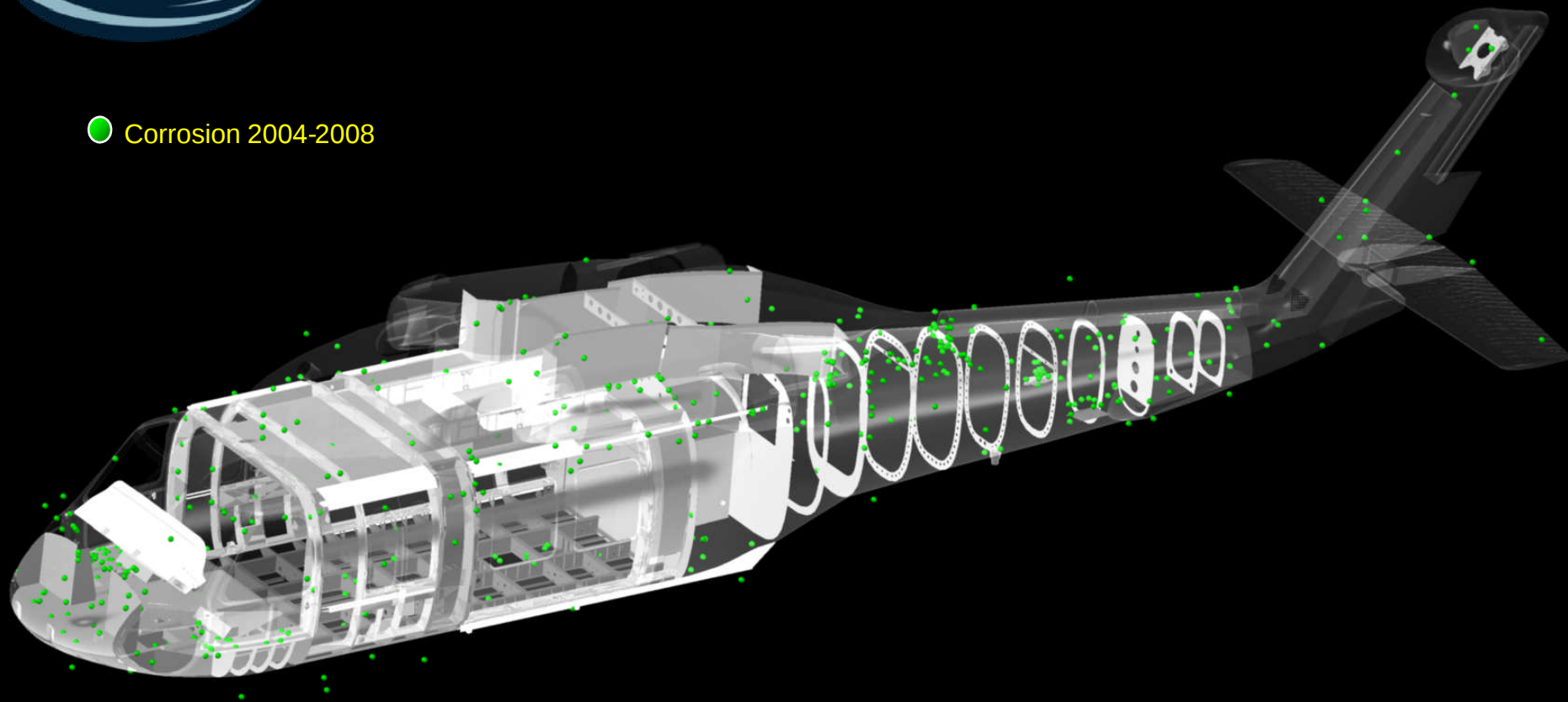


● Corrosion 2004-2008



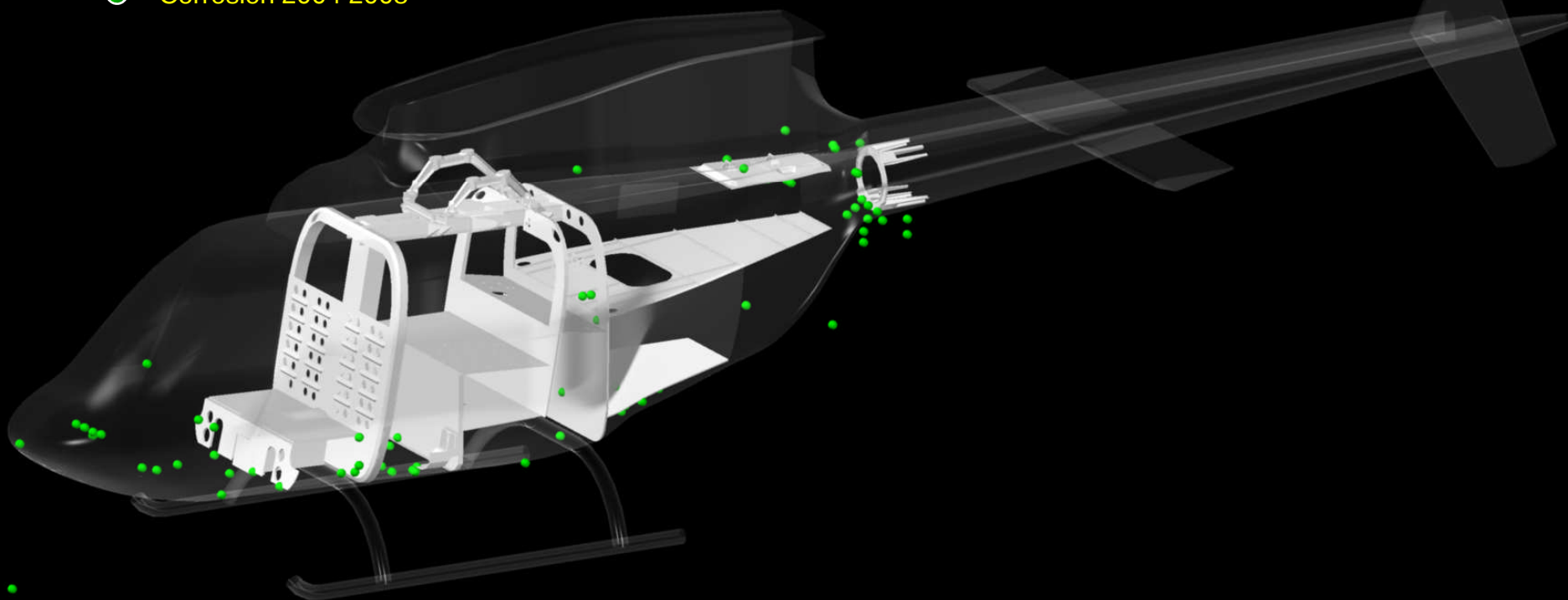


● Corrosion 2004-2008



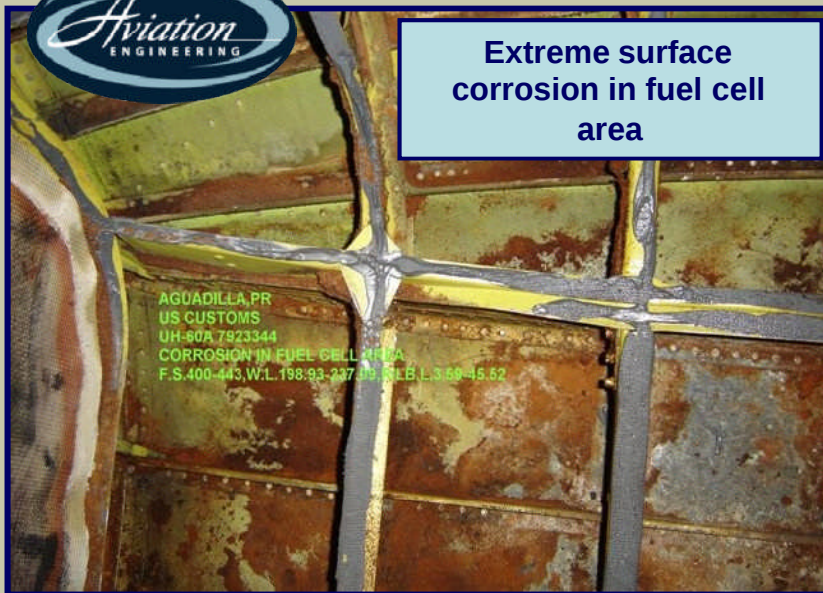


● Corrosion 2004-2008





Extreme surface corrosion in fuel cell area



AGUADILLA, PR
US CUSTOMS
UH-60A 7923344
CORROSION IN FUEL CELL AREA
F.S.400-443, W.L. 198-93-237, 39, 31B, L.3, 59-45, 52

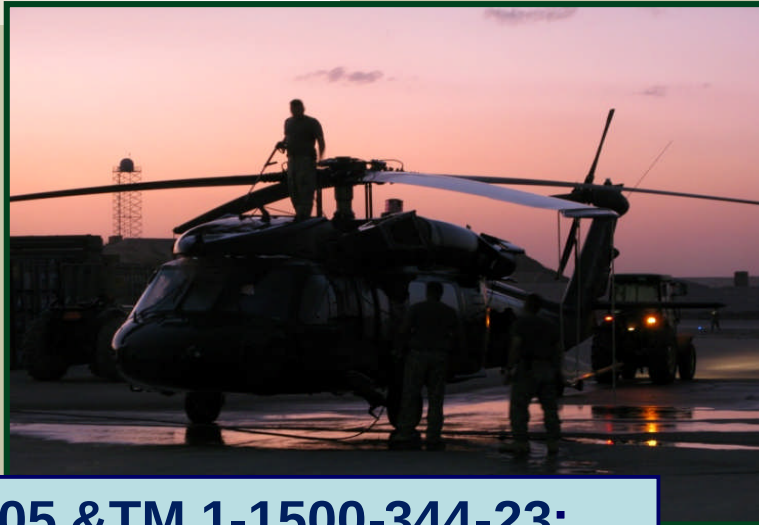
79-23327 r/s stringer San Juan, Pr



Corroded Stringer

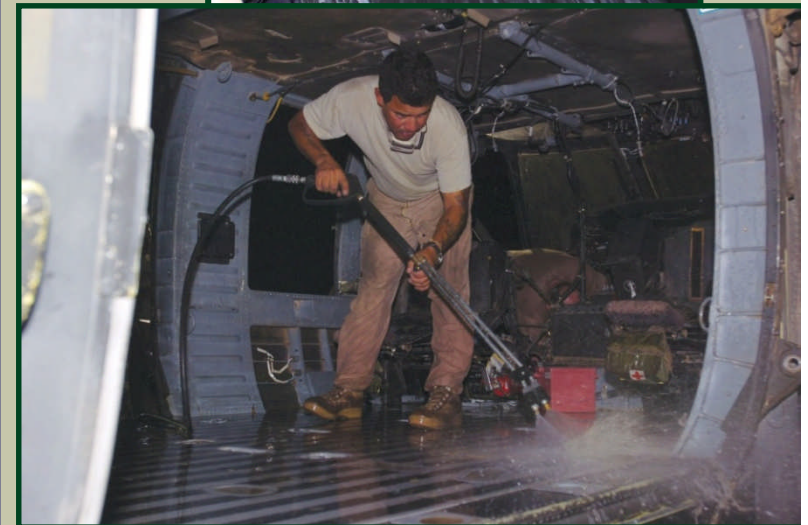
Corrosion can be prevented by:

1. Education: Corrosion training
2. Performing required maintenance inspections to identify corrosion
3. Performing good maintenance practices: use TMs, protect working surfaces, wash and clean on schedule
4. Using QPL approved cleaners and Corrosion Preventive Compounds (CPC)



Gen-MIM-2005-005 & TM 1-1500-344-23:

1. Use of Foam Cleaning methods
2. Maximum of 175 PSI w/ fixed, flat, wide-angle nozzles (> 30 Degrees), 12 inches from surface
3. Rinse at an angle between 15 and 30 degrees
4. High pressure causes:
 - Removes and damages paints and sealants
 - Forces water into seals
 - Structural damage to joints/honeycomb/thin structures.
 - Water intrusion into electronic components





AH-64 A/D



Engineering Support

CH-47 D/F



UH-60 A/L/M



OH-58 D

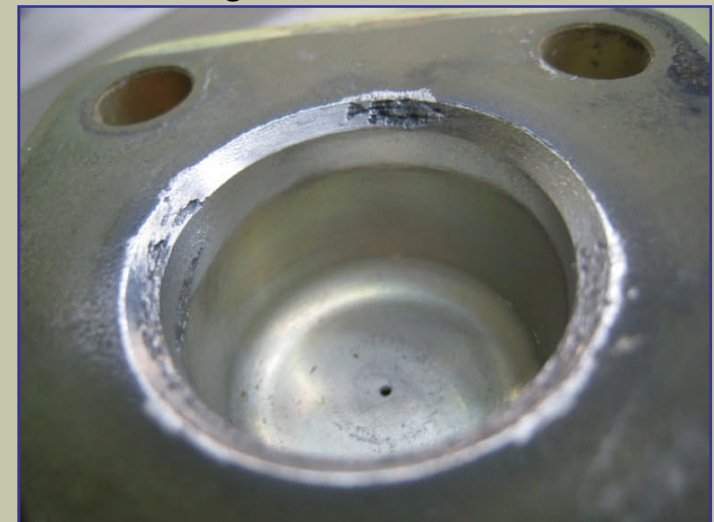


- MEC: Are initiated by depot or field maintenance personnel requesting AMRDEC engineering support
- Typical requests are for deviations, special repairs, and to resolve DMWR inadequacies
- Engineering dispositions include clarifications, one time deviations, or short term deviations for depot programs (< 30 days)

OH-58 XMSN Strap



AH-64 Engine Mount

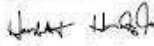
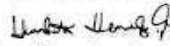




- MEO: These engineering documents are issued to enact permanent changes to AMCOM Depot Maintenance Work Requirements (DMWRs) or Technical Manuals (TMs)



CH-47 Floor Former

MAINTENANCE ENGINEERING ORDER (AMCOM Reg 750-11)						MEO NO. C4697	
TITLE CH-47 Cruise Guide Indicator, P/N 114VS805-3 and 114VS805-4						DATE DEC 05 2003	PAGE 1 of 1
TOLERANCES Unless otherwise noted, dimensions are in inches and tolerances are: Fractional +/- 1/32 Decimal +/- .010 Angular +/- 1/2 degrees							
APPLICABILITY INTERIM USE OF THIS MEO IS AUTHORIZED FOR DEPOT MAINTENANCE UNTIL AFFECTED DOCUMENT IS UPDATED.				CSI Critical Characteristic ☐ YES ☒ NO			
DOCUMENT(S) AFFECTED DMWR 55-8810-383, Dtd 15 Apr 1990				REFERENCES FOR RDECOM USE ONLY CH-47 DAA Project 28479C		DATE 12/5/2003	
DOCUMENT CHANGE IS REQUIRED							
PURPOSE OR PROBLEM Correction to IPB text.							
PROJECT ENGINEER  Humberto Hernandez, Jr.			ENGINEERING REVIEW			ENGINEERING RELEASE  Humberto Hernandez, Jr.	
PUBLICATION CHANGE REQUEST: REQUEST THAT THE FOLLOWING DATA BE INCLUDED IN THE NEXT CHANGE OR REVISION TO THE PUBLICATION IDENTIFIED ABOVE.							
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.	FIGURE NO.	TABLE NO.	CHANGES (EXACT WORDING OF CHANGE MUST BE GIVEN)	
	4-7.			4-1.		CHANGE the Part Number for Item # 25, Movement Assembly, from "370B2" to "37082"	
MED FORM 16-OCT-03 1401-R-E							
Click to insert figure sheet			Click to insert formatted continuation sheet			Click to insert unformatted continuation sheet	

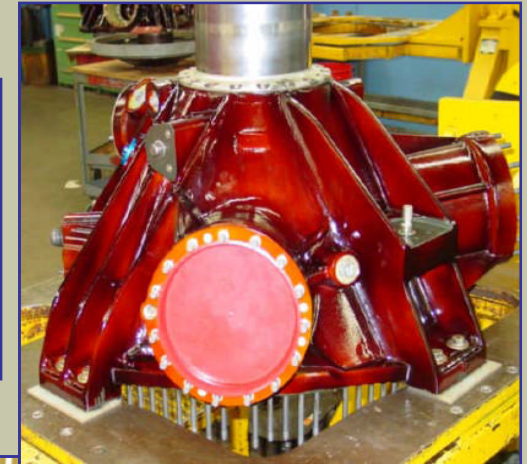


•Past and Present Initiatives

- RockHard Coating
- Av-Dec seals
- Cor-Ban CPCs
- Dual-Tape Connector Wrap

•Future Initiatives

- Army-wide use of Tagnite for Mg components
- Envelop Protective Covers
- Laser cladding
- Pre-manufacturing technologies
 - Advanced metals
 - Advanced composites
 - Advanced adhesives
 - Ect....



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Conclusion

- CPCE enables early detection of emerging structural and corrosion issues
- ACE/CPCE data collection defines the impact of corrosion and aircraft stresses
- Analysis of ACE/CPCE data provides solutions that will continue to reduce the cost of maintenance and promote readiness



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Welcome to the Aviation Engineering Directorate (AED)- Maintenance Engineering Division (MED) ACE/Corrosion Website

The site provides you ACE & Corrosion Prevention resources and a place
for your comments & questions. Contact us @

DSN 861-4041

(361) 961-4041

or E-mail at: corrosion@amrdec.army.mil

Questions?