USAFE/PACAF
Corrosion Surveys

16 August 2011

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AFCPCO
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**Report Documentation Page**

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Report 298 (Rev. 8-98)
Pursuant by ANSI Std Z39-18
Overview

- Focus
- Team Members
- Survey Areas
- USAFE Itinerary
- USAFE Observations/Recommendations
- PACAF Itinerary
- PACAF Observations/Recommendations
- Summary
Focus

• AUTHORITY
  – Formerly AFI 21-105, Air and Space Equipment Structural Maintenance, 9 April 2003
  – Now AFI 20-114, Air and Space Equipment Structural Management, 7 June 2011

• PURPOSE
  – Evaluation of MAJCOM’s corrosion program
  – Assessment of condition of aircraft and equipment w/respect to corrosion
  – On-site technical assistance and information exchange

• APPROACH
  – Evaluation using AF and command instruction/T.O. guidance
  – Emphasis on survey and not inspection
  – Sound corrosion control materials and processes while complying with environmental restrictions
# Team Members

## USAFE
- CARL PERAZZOLA, AFCPCO
- CMSGT RONALD ALLISON, AFCPCO
- MSGT ROBERT THIMM, HQ USAFE
- OWEN JETT, AFCPCO (SKT, CMSGT RET)
- MAC MCKENNA, AFCPCO (SKT, CMSGT RET)
- MARK FOLEY, AFCPCO (SKT, SMSGT RET)
- RUTH JETT, AFCPCO (SKT)

## PACAF
- CARL PERAZZOLA, AFCPCO
- CAPT MARY GUTIERREZ, AFCPCO
- CMSGT RONALD ALLISON, AFCPCO
- MSGT STEVE HOLSINGER, HQ PACAF
- DENNIS DOUGLAS, HQ PACAF (CMSGT RET)
- OWEN JETT, AFCPCO (SKT, CMSGT RET)
- DAN MARS, AFCPCO (SKT, CMSGT RET)
- WES BARFIELD, AFCPCO (SKT)
- JOE LEONE, AFRL CO-LOCATE
Survey Areas

- Paint / Corrosion Control
- Structural Maintenance
- Wash Rack
- AGE Facilities
- Haz Mart
- Quality Assurance
- Flight Line Sampling / Support Sections
- Phase & Isochronal Phase Docks
- Plans & Scheduling
- Wheel & Tire
- Hydraulics
- Avionics
- Ammunition
- Armament
- Munitions
- Training
- Vehicle Maintenance
- Environmental Mgt
**USAFE Itinerary**

- MORON AB, SPAIN  
  8 Dec 08

- LAJES FIELD, AZORES*  
  9-11 Dec 08

- SPANGDAHLEM AB, GERMANY*  
  15-16 Dec 08

- RAF LAKENHEATH, UK*  
  8-9 Jul 09

- RAF MILDENHALL, UK*  
  10 Jul 09

- AVIANO AB, ITALY*  
  13-14 Jul 09

- RAMSTEIN AB, GERMANY*  
  16-17 Jul 09

*Previous USAFE survey locations
Observations

Paint/Corrosion Control

• Facility requirements require plans for future operations…present infrastructure requires validation for potential upgrade/replacement
• Good use of vacuum sanders, gun cleaners, approved materials
• Effective rotation of personnel amongst corrosion and structural sections
• No APC available for touch-up or full paints
  – APC is called out as topcoat for APC treated aircraft
    (identified in paint block)
Observations

Paint/Corrosion Control

- **Recommendations:**
  - Utilize aircraft down-time for max touch-up
  - WCMs be proactive in work-center materials / processes and work alongside QA to ensure program success
  - Procure TO-approved materials for touch-ups and ensure they are readily available in work centers
Observations

Structural Maintenance

- Recommendations:
  - Continue to research, procure, use appropriate materials
Observations

Aircraft Wash Rack

• Using good approved materials & processes...however, better materials are available (wash pads (melamine) & more aggressive soap – MIL-PRF-87937, Types 1 & 4)

• Good use of approved soaps, wash pads, other authorized materials

• Recommendations:
  – Ensure roles and responsibilities are clearly defined to personnel…local A/C specific brief recommended
Observations

AGE/GSE

• AGE program not as robust as A/C wash and paint program
• In place scoring systems could be used more effectively
  – Lack of touch-up program or CPC usage
  – Lack of repainting due to limited resources (manpower, money, facilities)
• Recommendations:
  – Ensure corrosion is addressed during periodic maintenance
  – Procure TO-driven materials such as two-component aerosols, SEMPENS, and hard-film CPC’s for protection
  – Sheltering for equipment has been proven to reduce corrosion
  – Consider increased use of paint contracts (Aviano great prgm)
Flight Line Sampling

- Overall, aircraft were in very good condition
- Recommendations:
  - Spot cleaning, paint touch-up be emphasized across the board

Wheel & Tire

- Several bases had suspect chemicals in parts washers
- Good practices found at several bases using contractor-maintained parts washer (turnkey operation)
- Recommendations:
  - Ensure TO-approved materials are used in shops

SECTION III INSPECTION

2.9 VISUAL INSPECTION.

Visual inspection shall be accomplished at each tire change. Prior cleaning is required. Paint stripping is optional.

a. Inspect wheel visually for cracks or indication of cracks. A four or five power magnifying glass may be used to aid in inspection. If any questionable indications are found, the wheel must be cleaned, stripped of paint, and inspected using Fluorescent Penetrant Inspection (FPI) per Table 1-2, and Eddy-Current method (if identified in Table 2-1), in accordance with T.O. 33B-1-1 (reference paragraph 2.13). All wheels with questionable or non-confirmed defects after nondestructive testing will be forwarded to depot.

b. Paragraphs 2.10 through 2.12 provide a guide for accomplishing visual inspection of the various wheel types.
Observations

Armament

• Lack of paint program

• Recommendations:
  • Develop a pervasive maintenance painting program
  • Ensure only TO-driven materials used

Hydraulics

• Generally good use of qualified/approved materials
Ammo/Trailer Maintenance

- Generally good corrosion awareness throughout workcenters
- **Recommendations:**
  - Procure/use authorized materials for painting/touch-ups
  - Ensure trailers are incorporated into AGE paint program
  - Use TO 35-1-3 to establish a wash program

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**TO 35-1-3**

**TECHNICAL MANUAL**

**CORROSION PREVENTION AND CONTROL, CLEANING, PAINTING, AND MARKING OF USAF SUPPORT EQUIPMENT (SE)**
HAZMAT Pharmacy

• Material approval/certification process lacking
• TO requirements not validated in approval/recert process, allowing procurement of unauthorized materials

**Recommendations:**

– Haz Mart open house to MX community to show-case availability of approved materials
– Add verification to certification process (include QA for TO validation)
Observations

Avionics
- General lack of awareness or usage of avionics-grade CPCs
- Lack of awareness of contents of TO 1-1-689, Vol I, III, V
- **Recommendations:**
  - Publicize success stories of CPC usage in avionics systems
  - Use of TO approved spot cleaners

Vehicle Maintenance
- Civilian/DoD/MOA adds continuity to ensure effective program
- Units doing lots of organic repairs, while sending needed work downtown
Observations

Training

• **Recommendations:**
  – WCM develop local conditions oriented supplemental trg

Quality Assurance

• Very effective follow-up inspections of CCIs
• MSEP effectively addresses corrosion-related maintenance
PACAF Itinerary

• Yokota AB, Japan* 17 – 19 Feb 10
• Osan AB, Korea* 22 – 23 Feb 10
• Kunsan AB, Korea* 24 – 25 Feb 10
• Kwang Ju, Korea (Det 1 607 MMS) 26 Feb 10
• Suwon, Korea (Det 2 607 MMS) 01 Mar 10
• Kadena AB, Japan* 08 – 10 Jun 10
• Andersen AFB, Guam 14 – 15 Jun 10
• Elmendorf AFB, AK* 17 – 18 Jun 10
• Hickam AFB, HI* 23 – 24 Jun 10

*Previous PACAF survey locations
Observations

Paint/Corrosion Control

- Good assortment of paints
- Limited supply of APC…paint AME with APC to match A/C
- Quality of facility, tools, equipment varied widely
- Good supply of portable vacuum sanders and units
- Good use of CPCs
- Good identification of blaster materials usage…improved tracking system for media change requirement
- Painting/touch-up program is not being fully utilized
Observations

Paint/Corrosion Control

• Recommendations:
  – Rollers for touch-up applications
  – Sempens for all paint colors
  – Establish local OI for corrosion operations
  – Develop continuity books
Observations

Wash Racks

• Good supply of PPE and materials storage
• Overall good quality in washes-- performance depends on factors such as indoor vs. outdoor, contractor knowledge, and post inspection
• Excellent use of contractors for aircraft washing
• Overall quality of work looks good
• Good selection of soaps--ensure correct mixing ratio
• **Recommendations:**
  – Use hot water in all locations
  – Investigate soaps for best performance and environmental mix
Observations

Haz Mart Pharmacy

• Good supply of approved soaps, CPCs and materials
• Good understanding and use of SLED (SLES) system
• Outstanding use of temperature controlled environment for sealants and paints in tropical environments
• Excessive quantity levels of some materials

Recommendations:

– Haz Mart open house to MX community to showcase availability of approved materials
Observations

Wheel & Tire

• **Recommendations:**
  – Use Calla 296 for parts washer
  – Use PRF-680 for bearing washer
  – Smaller units share resources

Avionics

• **Recommendations:**
  – Establish paint program with fabrication flights across the command—good project for PACAF working group on corrosion
Observations

Phase Support & HSC

• Good supply of airframe grade type I and II CPCs
• Work cards generally easily accessible and broken out well
Observations

Plans and Scheduling
• Shared resource meetings have effective communication and positive feedback
• Washes effectively tracked, overdues well documented when in PDM or heavy maintenance
• Command Functional very involved in wash program throughout command

Quality Assurance
• Reviewed MSEP program - robust program
• Recommendations:
  – QA perform PEs on QAEs
Observations

Training

• Initial and recurring training requirements inconsistent throughout command
• Validate initial newcomers corrosion training requirements with CAF and MAF
• Ensure recurring corrosion training on annual cycle per AFI 21-101
• Develop local conditions oriented supplemental training per AFI 21-101
Observations

AGE

• Overall improved condition as compared to last MAJCOM survey
• Ensure proper mix ratio for soaps
• Preventive maintenance program lacking
• Limited CPC supply and usage
Observations

AGE

• Recommendations:
  – Procure Sempens in all colors for touch ups
  – Obtain hot water…most effective process
  – Investigate performance and environmental mix for soaps
  – Utilize WRM while inspecting/repairing severe in-use units
  – Zinc-Rich primer (MIL-PRF-26915) for bare metal prepped AGE
  – Paint touch-up of welding joints
  – Fog units with CPC before deployment to severe locations
Observations

Trailer Maintenance
• Very limited touch up capability
• Recommendations:
  – Work with WCM to obtain proper wash soaps
  – Use bearing washers for effective bearing repack

Hydraulics
• Recommendations:
  – Use Calla 602 LF and ensure proper soap amount and water temperature for foaming issues
Observations

Armament

• Good CPCs and lubricants available

• Recommendations:
  – Establish paint program with fabrication flights across the command—good project for PACAF working group on corrosion
Observations

Flightline Sampling

• Overall C-17 paint systems in poor condition - need aggressive APC touch up
• Overall paint system in good condition for all other airframes
• Paint blocks incorrect/insufficient – Add paint blocks, don’t remove!
Summary

- **USAFE** aircraft in very good condition with few exceptions
- AGE USAFE-wide requires attention
- New weapons systems bring new corrosion control challenges, requiring constant scrutiny of materials and processes
- Must work with program offices and OEM’s to ensure cross-flow of communication and future success

- **PACAF** has greatly improved corrosion program with a focused effort on teamwork since last survey
- Recommend participation in aircraft CPABs & AF Corrosion Conference...Recommend MXG support $$
- Recommend WCM’s review AFCPCO website and ensure active corrosion program throughout MXG
Questions?

- AFCPCO
- “AFRL/RXSSR” in the Global
- afcorr@robins.af.mil
- DSN 468-3284
- AF Portal, Search for RXSSR