A New Way of Looking at Old Airplanes

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“The Problem”

- Continued Cost of Operation Rising at Unprecedented levels
- Age Increasing

Naval Aviation Flying Hour Program Costs
Reported by CAVTS for All Aircraft Except CNET

Depot Level Repairables Increasing 6 - 8% Per Year!
Aging Aircraft IPT

“Improving the fleet’s readiness and reducing life cycle cost by aggressively attacking and countering the effects of aging aircraft.”

- Approx 80 Fleet and Depot Personnel Trained on AWA Equipment
- Wash Cycles: Reduced MMH, and labor saving (est. 20,000)
- Leveraging Data from F-18 to improve H-60 Seals
- Corrosion
- Transparencies
- Hydraulics
- Sub-Systems
- Air Vehicle Team
- Inspections & Training
- Process
- Tools
- Training
- Wiring & Power Team
- Obsolete Parts & Investigations
- Analysis
- Diagnostics AWA
- Obsolescence Team
- Mosa II
- Lead Free Solder
- Commonality
- Avionics Team
- # of publications Released
- Fleet Introduction
- AFCB Core Logistics
- Logistics
- Training
- Obsolescence Cost Avoidance
- Batteries
- Solutions

- Updated & Released 01-1A-509 Vol. 1 thru -4
- 4-6 Part Inquires / Week
- 77% of Investigations Resolved
- 150 DMSMS Case Review YTD for PMA-275
- Fleet Survey’s wiring and corrosion combined) = Approximately 1,000
- $3.3M in Savings & Avoidance
- $3.2M in Savings in Maintenance & MMH
PM Dilemma – Successful Tech Insertion

Transition
Development
Acquisition
Sustainment

The Frogger Affect
# Integrated Wiring Strategy

**Joint Council of Aging Aircraft**

## ARC Fault Circuit Breaker
- Reduction in aircraft fires
- Support standardization
- Joint Logistics Package and Procurement

## Wiring Diag/Prog Efforts

<table>
<thead>
<tr>
<th></th>
<th>FY03</th>
<th>FY04</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
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<tbody>
<tr>
<td>Un-Scheduled Maintenance-Diagnostics</td>
<td>SBIR ($1M)</td>
<td>SBIR ($300K)</td>
<td>DACP ($500K)</td>
<td>INITIAL BUY FY07</td>
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<tr>
<td>O-Level Wiring Diagnostics/Prognostics</td>
<td>NEW WP FOR 505 MANUAL</td>
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<td>DIAGNOSTICS/PROGNOSTICS SPECIFICATION</td>
<td>SBIR</td>
<td>NO BUY SCHEDULED</td>
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<td>ECAD/COSSI RDT&amp;E ($3.0M)</td>
<td>SBIR</td>
<td>NO BUY SCHEDULED</td>
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<td>MAINTENANCE POLICY</td>
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<td>AWA CTTO ($1.3M)</td>
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<tr>
<td>AWA FY04 Follow On ($3.0M)</td>
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<tr>
<td>AWA FY05 Follow On ($4.0M)</td>
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<tr>
<td>FCT ($300K)</td>
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<tr>
<td>SBIR</td>
<td>SBIR</td>
<td>INITIAL BUY FY07</td>
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</tbody>
</table>

## AWA (Off-Line Diagnostics) Program
- Develop and Field Depot level Wiring Diagnostic Tool
- Standing Wave Reflectometry (SWR)
- 128,000 point switching

## Balance of technology, conditioned based maintenance (CBM), training and publications

## Continuous Tech Insertion

## Integrated Roadmap – coordinated Procurement
Tech Refresh – Key to Cost Wise Readiness

Problem: Current aircraft batteries
- have to be inspected every 28 days (56,000 Man Hours)
- 80% have to be replaced within a year

MOA △ Feasibility
Evaluate COTS Solutions
Qual Test
Spec Sheet
Operational Test
Coordinate Funding for Testing
ECP
DCN’s
Procurement
Transition Logistics to Program Team

Providing the mechanism to transition better technology
What’s the next successful program?
Aging Aircraft – Steps to Success

1. It's not just technology
   • Everything from new tech to pubs & training
2. Listen to Industry – Steal the Good Ideas
3. Leverage Funding – think Joint
4. Don’t forget the logistics
   • Publications, training and Supply Support
5. Tech Refresh = Smart Obsolescence
National Sustainment Technology Center
Resources to help technology refresh

Evaluate tech refresh
- ABDR
- NDI
- Goops
Focus Transition
- SATAI model
Coordinate Logistics
Who is the JCAA?

Vision

Jointly Identify, Investigate, and Implement Programs that will Field Products to Improve the Availability and Affordability of all the Services’ and Agencies’ Aging Aeronautical Systems.

Process

Through the use of Integrated Roadmaps, Shared Data and Analyses, the JCAA will:

- Identify Process Recommendations & Improvements
- Advocate/Enable Promising Technology
- Facilitate Transition of Technology/Program Opportunities
- Promote Knowledge Management on Aging Aircraft
- Coordinate Funding for Promising Areas
OsD and JLC Charged JCAA to Develop a National Strategy
Arc Fault Circuit Breaker Timeline

Testing - 14105
- Ops Test
- B-2 & F-15 Fit Ck
- Eaton 3 Ph (P-3)
- Eaton DC (F-18)
- Ametek DC (F-18/H-60)

Testing - 3320 Delivery
- Ops Test
- 2 month delay, EMI problems
- Replacement Units – 15 Jun
- SOF still on schedule
- Eaton DC (F-18/H-60)

Core Team Meet

Maint Planning FMECA/RCM Documentation

Supply Support

Support Equipment Specification

Training

ILS ELEMENT PLANNING

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR

6-7 Apr 05
- Conf Call
- 14105 Qualified Parts List/ Others TBD

28-29 Jun
- TRL & LRA
- Update
- Maint. Concept Best Practices

3-4 Aug 15 Sep
- SOE Meeting – 20th
- Approve 1st Slash Sheet
- 1st Slash Sheet

15 Sep
- 3-4 Aug
- 15 Sep
- SOE Meeting – 20th
- Approve 1st Slash Sheet

2 month delay, EMI problems
- Replacement Units – 15 Jun
- SOF still on schedule

Define Tasks
- Trng Cnmd Rev

Training TBD
Summary

• Solutions to Aging Aircraft problems are available.
• Integrated Roadmaps optimize balance of new technology, COTS insertion and logistics
• Need to partner with Industry to find the best of breed
  – NTSC/JCAA resources provide leverage
• Need to focus on real “Cost Wise” Solutions for our legacy fleet
Next Aging Aircraft Conference

9th Joint FAA/DoD/NASA
Conference on Aging Aircraft
March 6-9, 2006 • Hyatt Regency-Atlanta, GA

Contact Us

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http://www.agingaircraftconference.org/
Questions?
Obsolescence Policy – “The Problem”

- Component Repair growing by an average of 7.8% per year
- Age Appears As Primary Contributor to ALL DLR Categories
- Obsolescence a Key Factor for Avionics Cost Growth
- Obsolescence impact to Naval Aviation alone = $750M
- PMA 265-$18M
Parts Process Management – Planning for Tech Refresh

III) Incorporate User Defined Upgrades/Spirals

II) Need to work across all levels of industry

<table>
<thead>
<tr>
<th>Component/ICs</th>
<th>Cards</th>
<th>Box System</th>
<th>OEM Integrator</th>
<th>User</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Moderate</td>
<td>Increasing</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
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</table>

Manage tech refresh & obsolescence with Warfighter requirements
Integrate DMSMS Strategies with Technology Roadmaps

– Ensure DMSMS forecasts and mitigation strategies are an **integral part of the program’s technology roadmap**

– Criteria for DMSMS decisions (e.g., DMSMS planning, mitigations, etc.) need to consider:
  
  • Where the technology is going – availability, size, speed, new technologies, **technology trends as related to your system**.
  
  • It should consider your acquisition strategy, maintenance concept, program plan
Program Elements for each Milestone

- Integrate DMSMS Strategies with Technology Roadmaps
- Utilize Configuration Data to **piece part level**
- Identify and Forecast piece-part obsolescence impacts and mitigations using recognized **forecasting tools**
- Encourage **proactive, cost-effective industry solutions**
- **Leverage** across system/platform solutions
- Provide documentation and **metrics**
- Assess contractors’ DMSMS programs
- Utilize **BCAs** to support decisions

**Iterative Process**
Tech Refresh –
Key to Cost Wise Readiness

MOA
EA-6B (spin assist)

Feasibility
E-6

Qual Test
F-5 & EA-6B
6 months

Spec Sheet
F-5 & EA-6B

Install With
2-6 month test

Follow up checks
For 3 year maintenance cycle

ECP

DCN's

Procurement

(Note: Red Arrow → Beginning FY04 / Black arrow → Current Status)

Battery Program

Projected Savings

<table>
<thead>
<tr>
<th>Current Battery</th>
<th>Replacement Battery</th>
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<tbody>
<tr>
<td>TMS</td>
<td>No. of Batteries per Aircraft</td>
</tr>
<tr>
<td>T-2C</td>
<td>2</td>
</tr>
<tr>
<td>EA-6B</td>
<td>2</td>
</tr>
<tr>
<td>CH-53E</td>
<td>3</td>
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<tr>
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<tr>
<td>TOTALS</td>
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</tr>
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</table>

Savings $2.4M Material & 56,000 MMhrs

Transition to Production:
AAIPT – Analysis, NRE, Program Coordination
DLA – Qualification Testing
Programs – Logistics, Implementation
Corrosion Repair Kit

- Mechanical and Chemical Kit
  - Design and Implementation
  - Dod Wide Application
  - Accomplish Required Corrosion Efforts
  - Aircraft and Ground Support Equipment

- Accomplishments
  - USA and USAF Implementation of USN Products
  - One Product Multiple Users
## JALC Thrust - Arc Fault Circuit Breaker

### Purpose/Description of Issue:
- The FAA, USAF, USN are jointly developing the arc fault circuit breakers and a core logistics package must be developed prior to implementation.

### End Product/Outcome:
- Common Core Logistics Elements & Processes will be identified/addressed
- QPL (Jan 06) ** (168 DLA $, 50k Contr)
- Common Training (Mar 06) (FY-06)
- Maintenance Concept Doc (Sep 06) **
- Navy FY-05 40k Wyle)
- Procurement contract (TBD) **(DLA cost
- Support equipment (TBD) **(200k DLA funding)

** FUNDED

### Task Group Composition:
- **USN** Bob Ernst (4.1D)
- **USN** Andrew Yang (4.4.4.3); Chuck Singer (4.4.4.1); Rick Clarkson (3.1.4)
- **USAF** Terry Miller (ASC/AAAV)
- **USCG** Keith Stevenson
- **USA** Jean Grotophorst (AMSRD-AMR-SE-IO-VE)
- **DLA** Dale Roberts (DSCR)
- **FAA** Mike Walz (Adjunct member)

### Metrics:
- Reduction in aircraft fires
- Support standardization
- Time to transition technology
FastTrack – The Need

DLA Managed Consumables Have Experienced Significant Increases in Acquisition Costs

- Many different FSCs
  - Many are simple structural parts
- up to 300% increase
- increased use of OEM’s for “readiness at all cost” solutions

DLA Managed items one of two major issues in depot cost growth

Process to qualify alternate sources severely fragmented and inefficient

Smaller Program Teams Don’t have the Resources to Establish Stand Alone Contracts for Individual Parts
Proposed FastTrack Role

1. Data System Establishes Need
   - Data Package Development
   - Review if Depot wants to bid

2. Adequate Data Package?
   - Establish "e-business" data system
   - Criteria: No Bid, Cost-Incr

3. NAVAIR Approval Board
   - Deparat Core?
     - yes
     - no

4. Certification
   - Common NAVAIR Rqmts - upfront
   - Utilize Contract for NRE
   - FAT

5. Source Approval
   - Data Package Development
   - Review if Depot wants to bid
   - Develop FAT unit

6. Production

Area (A)
- SB 1
- SB 2
- LB 1

Area (B)
- SB 3
- SB 4
- LB 2

Establish Consortium of contractors

Not Core?