NAVAIR Reliability-Centered Maintenance

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Topics

- RCM History
- NAVAIR RCM Program
- NAVAIR RCM Applications
- RCM and CBM+
- NAVAIR RCM Software
- The Road Ahead for RCM

NAVAIR RCM History

- NAVAIR RCM evolved from MSG-2, Nowlan & Heap processes
- Refined in MIL-HDBK 266, MIL-STD 2173
- NAVAIR 00-25-403 manual rewritten, and supersedes MIL-HDBK, MIL-STD
  - Includes FMECA, RCM, and Age Exploration elements
  - Sections on planning, execution, and sustainment
- NAVAIR RCM Steering Committee
  - Maintains -403 manual, directs interface with SAE, DoD, and other industry RCM groups.

NAVAIR RCM Program

- NA 00-25-403 manual guides the RCM process for NAVAIR aircraft and engine programs.
- Compliant with SAE JA1011 – "Evaluation Criteria for Reliability-Centered Maintenance Processes."
- RCM Plans developed and maintained for legacy and new acquisitions, including modifications and upgrades.
- RCM Steering Committee reviews all NAVAIR RCM plans, tracks metrics for preventive maintenance and program impacts.

- Examples of success stories:
  - EA-6B Integrated Maintenance Program
    - Transition from evaluative to restorative procedure
    - All PM packages RCM based
    - Increased fleet availability, and flexibility for surge scenarios
  - T-45 RCM Program
    - Repackaging of corrosion intervals in RCM Sustainment
    - Review and extension of original RAF life limits
    - Paint, wash, and IMP intervals extended; all RCM based

- RCM serves as the decision-making guide for failure management strategies.
  - The right task, at the right time, by the right personnel
  - Appropriate "other action", such as redesign
  - Recommendations for improvement in other logistics elements
- CBM+ is the source of methods and technologies to implement these strategies.
- Sustainment of RCM assists CBM+ refinement (prognostics, diagnostics, human interface)
- Example: PHM on JSF Program, used for corrosion monitoring

- Integrated Reliability-Centered Maintenance System (IRCMS)
  - Serves as means for performing RCM, documenting and reporting decisions, packaging PM, and providing historical audit trail.
  - Current release – IRCMS Version 6.3
    - Available for download and use by any RCM practitioner
    - Training available via NAVAIR certified instructors
  - Upgrade in work
    - Web-based RCM analysis, with stand-alone capability maintained separately
    - Conversion capability from Version 6.3

- Legacy Platforms
  - RCM Sustainment
    - Emergent failure mode management
    - Life extensions and risk mitigation
    - Prioritization of Age Exploration
  - RCM for modifications and block upgrades
- New Acquisitions
  - Initial FMECA and RCM early in life cycle
    - Influence design
    - Better prediction of logistics support required
  - Sustainment
    - Flight Test: update FMECA, R&M predictions
    - Operations & Support: update and review all packages

- All Platforms Must Continue:
  - Metrics tracking
  - Funding justification
  - Sharing lessons learned (Knowledge Management)
- RCM as a Process Must Continue:
  - Joint Service Development
    - DoDI
    - Joint Manual
  - Other Government and Industry Contact and Interaction
  - Direct when and where to apply PHM and other emerging technologies
  - Push for performance of RCM early in the life cycle to influence design

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Conclusion

- The RCM process is used throughout the NAVAIR community.
  - Aircraft, engines, components, plant maintenance
- The NAVAIR RCM team is active.
  - Regular interface with other DoD groups
  - Internal reviews with RCM Steering Committee
  - Seek industry involvement (OEMs and others)
- For more information:
  - http://logistics.navair.navy.mil/rcm/
  - Site includes NA 00-25-403, IRCMS, RCM training

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Questions?