EA-18G Growler (Electronic Attack Variant of F/A-18)

Executive Summary

- The Navy flew the first government flight of the EA-18G ahead of schedule in October 2006.
- The Navy's testing focused on supporting the 3QFY07 Milestone C/low-rate initial production (LRIP) decision.
- The schedule remains aggressive because the Navy plans to fully assess the primary risk areas to achieve initial operational capability in FY09. However, EA-18G testing, as outlined in the 2005 Test and Evaluation Master Plan (TEMP) (Revision A), is adequate to support the Milestone C/LRIP decision.
- The primary EA-18G risks center on integrating the Airborne Electronic Attack (AEA) weapons system onto the F/A-18F platform, developing an entirely new digital auxiliary receiver system, incorporating a new communications countermeasures set, and employing the EA-18G weapons system with a two-person crew instead of the four-person crew in the EA-6B.
- The approved TEMP (Revision A) incorporated event-based performance assessments prior to each major acquisition decision point to assess system and integration maturity growth.

System

- The EA-18G Growler is a carrier-based radar and communication jammer.
- The two-seat EA-18G replaces the Navy's four-seat EA-6B. The new ALQ-218 receiver, improved connectivity, and linked displays are the primary design features implemented to reduce the operator workload in support of the EA-18G's two-person crew.
- Integration of AEA capability into the F/A-18F includes:
  - Modified EA-6B Improved Capability (ICAP) III ALQ-218 receiver system
  - Advanced crew station
  - Legacy ALQ-99 jamming pods
  - New communications countermeasures receiver set
  - Expanded digital Link 16 communications network
  - Electronic Attack Unit
  - Voice Interference Cancellation System

- Additional systems include:
  - Active Electronically Scanned Array (AESA) radar
  - Joint Helmet Mounted Cueing System
  - High Speed Anti-radiation Missile (HARM)
  - AIM -120 Advanced Medium-Range Air-to-Air Missile (AMRAAM)

Mission

- Combatant commanders use the EA-18G to support friendly air, ground, and sea operations by suppressing enemy radar and communications.
- EA-18G capabilities include:
  - Jamming integrated air defenses
  - Supporting non-integrated air defense missions and emerging non-lethal target sets
  - Enhancing crew situational awareness and mission management
  - Enhancing connectivity to national, theater, and tactical strike assets
  - Providing the operators with enhanced lethal suppression through more accurate HARM targeting
  - Providing the EA-18G crew air-to-air self-protection with AMRAAM

Activity

- The EA-18G is in the System Development and Demonstration phase with testing focused on supporting the 3QFY07 Milestone C decision.
- EA-18G acceptance and ground testing began in FY06.
- The primary contractor flew the first EA-18G in August 2006 with a Naval Flight Officer onboard.
- The Navy flew the first government flight of the EA-18G one month ahead of schedule in October 2006.
- The Navy conducted aero-mechanical ground and flight testing on modified F/A-18 E/F testbed aircraft to determine EA-18G flying qualities and carrier landing loads qualification.

- The Navy's operational test agency, Commander, Operational Test and Evaluation Force, began detailed planning for the EA-18G operational assessment, which will support the FY07 Milestone-C/LRIP decision.
- A Design Advisory Group comprised of fleet operators, test community representatives, and contractors identified and prioritized crew mission tasks.
- The Navy initiated a second revised TEMP (Revision B) to support EA-18G testing under the Integrated Test and Evaluation (IT&E) concept.
- The FY07 Defense Budget reduced the FY07 EA-18G LRIP from 12 to 8 aircraft, while the FY08 LRIP quantities remained at 18. Total LRIP quantities are 26 of the 90 production EA-18G aircraft.
- FY06 testing was conducted in accordance with the USD (AT&L) and DOT&E approved TEMP (Revision A).

Assessment

- The schedule remains aggressive because the Navy plans to fully assess the primary risk areas to achieve initial operational capability in FY09. However, EA-18G testing as outlined in the 2005 TEMP (Revision A), is adequate to support the Milestone C/LRIP decision. The EA-18G program's testing is on schedule based on early delivery of the first EA-18G (EA-1), software build timing, and adequate operational assessment planning. Additionally, the Navy recently accelerated delivery of the second mission software build (build 1.5) to better support the in-flight spot jamming assessment for the Milestone C/LRIP decision.
- The primary EA-18G risks center on integrating the AEA weapons system onto the F/A-18F platform. Specific risk areas include:
  - Effective operation of the ALQ-99 external jammer pods and ALQ-218 wingtip pods in the high vibration F/A-18F under-wing and wing tip environments
  - Modified F/A-18E/F mission planning system
  - New communications countermeasures set
  - Revised ALQ-218 receiver (new digital auxiliary receiver) design and component modifications for form and fit
  - Operator workload of the two man crew in electronic attack and electronic support missions currently performed by the four-person EA-6B
- The Navy will not test all primary integration risk areas prior to Milestone C.
  - The Navy will test the EA-18's basic threat signal identification and simple jamming in-flight, while utilizing the initial version of the mission planning system and two-person crew prior to Milestone C.
  - The Navy will not test the new communications countermeasures set functionality, low band functionality, precision threat locating, and complex threat identification and jamming prior to Milestone C.
- The approved TEMP (Revision A) incorporated event-based performance assessments prior to each major program decision point to assess system and integration maturity.
- The approved TEMP describes the general need for large force exercises but does not precisely identify the key resources needed through IOT&E to support evaluation of the EA-18G missions described in the Navy's EA-18G concept of operations.
- USD (AT&L) and DOT&E approved the TEMP (Revision A) to support Milestone C but directed that a second revised TEMP (Revision B) be approved by OSD prior to Milestone C. That TEMP should incorporate more defined long-term operational suitability plans.
- The draft TEMP (Revision B), which introduces an integrated test and evaluation strategy, is expected to be submitted to OSD in 1QFY07 for approval. This draft TEMP preserves adequate independent operational testing, while offering the benefits of early operational test personnel involvement, improved test efficiency, and early identification of problems.

Recommendations

- Status of Previous Recommendations. The Navy has taken effective action on the FY05 DOT&E recommendations.
- FY06 Recommendations. The Navy should:
  1. Provide a revised TEMP prior to Milestone C that adequately defines operational suitability plans through IOT&E.
  2. Incorporate detailed resource requirements available via large force exercises to support evaluation of the EA-18G missions described in the Navy's EA-18G concept of operations.