F/A-18E/F Hornet Naval Strike Fighter (All Upgrades)

Executive Summary

- The Navy's Integrated Test (IT) process as practiced by the F/A-18 program appears to be working well. The Navy should continue to refine this IT process.
- The F/A-18E/F is continuing to grow in capability with upgraded software and hardware on a well-defined growth path.
- To date the Navy has resolved 43 of the 50 deferred required capabilities from the original F/A-18E/F Operational Evaluation (OPEVAL) in 2000.

System

- The Super Hornet is replacing earlier Hornets and F-14 Tomcats in the Navy's carrier air wings. The F/A-18E is a single seat aircraft and the F model has two seats.
- Because the Super Hornet is about 30 percent larger than the original Hornet, it has greater range, endurance, and weapon payload. It can also bring a larger combination of unused fuel and ordnance back to the aircraft carrier and is more survivable.
- The aircraft carries the Advanced Targeting and Designation Forward-Looking Infrared System (ATFLIR) that the aircrew uses to find ground targets. Once the crew finds a target they can put a laser spot on it for laser-guided weapons or they can derive a coordinate for a Global Positioning System (GPS)-guided weapon.
- The Super Hornet is also equipped with the Shared Reconnaissance Pod, Multi-Function Information Distribution System for Link-16 tactical data link connectivity, and the Joint Helmet Mounted Cueing System.

Mission

- Carrier Strike Group Commanders and Joint Force Air Component Commanders use the F/A-18E/F to:
  - Conduct air combat missions with AIM-9 series infrared-guided missiles, AIM-120 and AIM-7 radar-guided missiles, and an internal 20 mm cannon
  - Attack ground targets with most of the U.S. inventory of GPS-guided, laser-guided, and free-fall weapons, as well as the 20 mm cannon
  - Fire the High Speed Anti-Radiation missile (HARM) at enemy radars
  - Provide in-flight refueling for other tactical aircraft

Activity

- The Navy's Operational Test and Evaluation Squadron conducted software qualification testing on the latest version of F/A-18E/F Software Configuration Set (SCS), H2E+. This was the first complete test period conducted under the Navy's new IT concept. New functionality enabled with this software includes:
  - GBU-38 (500-pound Joint Direct Attack Munition) carriage and release on the Super Hornet
  - Validation of a Solid State Recorder replacement for 8-mm tape recorders (enables imagery transfer to/from the aircraft via Link-16 and/or the Variable Message Format digital radio)
  - The larger 8x10 inch Aft Seat Multi-Purpose Display (AMPD)
  - Advanced Close Air Support data transfer system
- To date, the Navy has resolved 43 of the 50 deferred required capabilities from the original F/A-18E/F OPEVAL in 2000. This year's testing did not resolve any more. Next year's SCS H3E and Advanced Electronically Scanned Array (AESA) radar testing is designed to resolve six more, and the final deferred required capability is expected to be met with SCS H4 and Advanced Navigation, scheduled for 2007.

- The Super Hornet program continued developmental testing of Block 2 aircraft that primarily incorporates the AESA radar. AESA radar is reported on separately in this annual report.

Assessment

- Operational testing for SCS H2E+ was adequate.
- The Navy's Integrated Test concept as practiced by the F/A-18 program, using DOT&E-approved Test and Evaluation Master Plans and operational test plans as an integral part, appears to reduce redundant testing. However, IT is not yet codified for use by all Navy programs. In using the IT process, the Navy's developmental and operational test squadrons at China Lake, California, have been able to work around manpower shortages and occasional poor aircraft availability through the synergy of sharing both people and assets on an "as needed" basis.

Recommendations

The Navy should:

1. Continue to refine and codify the IT process until it has an approved framework that other Navy programs can use in future testing.
2. Strengthen efforts to relieve the shortages of trained personnel at the test squadrons at China Lake, California.