F/A-18 E/F and EA-18G Super Hornet

SUMMARY

- The combat proven F/A-18E/F is operationally effective and suitable. It is in production and replacing the F-14 and older F/A-18s as part of an integrated and networked force.
- The EA-18G will serve as the Navy's replacement for the EA-6Bs, providing an enhanced capability to detect, identify, locate, and suppress hostile emitters.
- Both aircraft have current and approved Test and Evaluation Master Plans.

The F/A-18E/F features improvements in range, endurance, carrier bring-back, weapon payload, and survivability over earlier models of the Hornet.

SYSTEM DESCRIPTION AND MISSION

The F/A-18E/F Super Hornet is a multi-mission, day/night strike fighter aircraft that provides precision strike capabilities to Joint Task Force and Carrier Strike Group Commanders. The F/A-18E/F features improvements in range, endurance, carrier bring-back, weapon payload, and survivability over earlier models of the Hornet. It also provides in-flight refueling for other tactical aircraft and additional room for growth and upgrades. The F/A-18E is a single-seat aircraft while the F/A-18F is a two-seater. The EA-18G is a two-seat derivative of the F/A-18F and will incorporate a version of the new EA-6B Improved Capability III electronic attack suite.

All F/A-18 E/Fs in Lot 22 through Lot 25 are Block 1 aircraft. Block 2 begins with Lot 26 (FY03) and incorporates a re-designed forward fuselage and provisions to incorporate major equipment upgrades including Active Electronically Scanned Array radar, Advanced Crew Station, 8x10 display (in the F model), Fiber Channel Network Switch, and Digital Video Map Computer. Advanced Mission Computers and display upgrades the mission computers from an assembly language-based system to an open architecture, higher order language beginning with Lot 25.

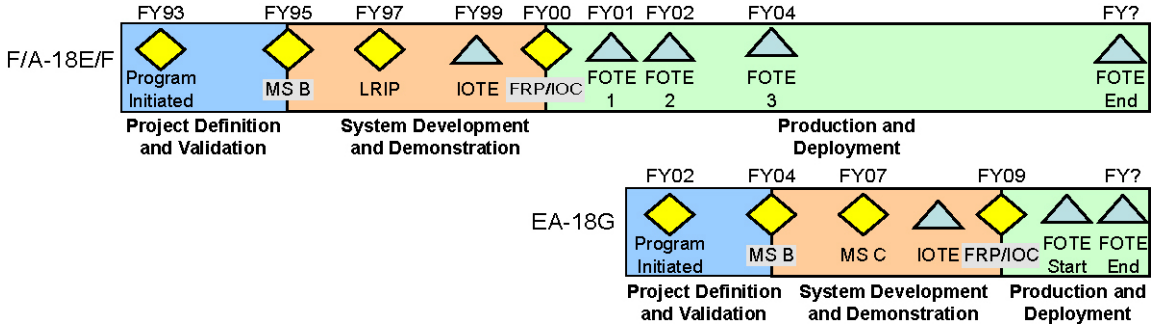
The Advanced Crew Station is a completely re-designed aft cockpit in Block 2 F model aircraft. It provides a workstation for the Weapon System Officer that will enhance aircrew coordination and situational awareness for increased combat capability in heavy threat and high cockpit task loading environments. Advanced Crew Station will allow for spiral capability upgrades, including completely de-coupled cockpits in which one crewmember can be in air-air mode and the other in air-ground mode.

The Advanced Targeting and Designation Forward-Looking Infrared System fields the latest generation of technology in infrared targeting capabilities, including laser spot tracker, air-to-air laser ranging, electronic zoom, geographic-point targeting, and Electro-optics. It combines the functions of two legacy pod systems (Targeting and Designation Forward-Looking Infrared System and laser spot tracker) into one pod. This next-generation technology provides three fields of view and allows flight operations up to 50,000 feet altitude. The Advanced Targeting and Designation Forward-Looking Infrared System fits on the left fuselage weapons station of all variants of the F/A-18.

The EA-18G is the fourth major variant of the F/A-18 aircraft. It will serve as the Navy's replacement for the aging fleet of EA-6Bs, providing an enhanced capability to detect, identify, locate, and suppress hostile emitters. The EA-18G will possess enhanced connectivity to national, theater, and strike assets and provide organic precision emitter targeting for

employment of onboard suppression weapons such as the High-speed Anti-Radiation Missile. The EA-18G will also provide self-escort capability through its inherent AIM-120 capability. The first production EA-18Gs will be Lot 30 aircraft (FY08) incorporating a functionally equivalent version of the EA-6B Improved Capability III Airborne Electronic Attack system.

TEST AND EVALUATION ACTIVITY



In April 2000, DOT&E's beyond low-rate initial production report to Congress stated that the F/A-18E/F was operationally effective and operationally suitable. Since then, the Navy's Operational Test and Evaluation Force has conducted two follow-on test and evaluation (FOT&E) periods incorporating new tactical software and hardware upgrades to the F/A-18E/F. The Navy completed the latest FOT&E in early 2004 and certified the conversion of the aircraft mission computers from assembly language to the new open architecture higher order language.
FOT&E 3 began in June 2004 and is testing the following upgrades:

- Software configuration set H-2 (the first higher order language software that will deploy in late FY04 or early FY05)
- Type II advanced mission computers
- Advanced Crew Station upgrade for Block 2 F aircraft
- AIM-9X (for the E/F)
- Additional F/A-18 roadmap improvements

Operational evaluation of the Shared Reconnaissance Pod system and follow-on operational test of the Advanced Targeting Forward Looking Infrared system Block 2 capabilities, which include electro-optic camera and laser spot tracker, were originally intended for FOT&E 3. The Navy delayed the Shared Reconnaissance Pod system due to high altitude sensor production and other outstanding system deficiencies. Additionally, the Navy convened an independent panel to assess the current Advanced Targeting Forward Looking Infrared program and weigh alternatives due to deficiencies in the performance of Block 2 subsystems.

The Defense Acquisition Executive approved Milestone B for the EA-18G in December 2003 for FY04-FY09 System Development and Demonstration. Shortly after this approval, the Navy signed two contracts with Boeing - an $8+billion multiyear production contract for an additional 210 F/A-18 aircraft and an Airborne Electronic Attack System Development and Demonstration contract for $1+billion. To date, Boeing has concentrated testing on the aeromechanical aspects of the System Development and Demonstration prototype aircraft. By January 2005, the Navy should have an updated Test and Evaluation Master Plan that addresses Airborne Electronic Attack capabilities more comprehensively.

TEST AND EVALUATION ASSESSMENT

DOT&E based its assessment on operational testing activities conducted during the past year.

The F/A-18E/F program is progressing well as the Navy integrates the Super Hornet within the vision of a networked force. The Navy schedules and conducts testing at regular intervals to incorporate warfighting upgrades. FOT&E 3 testing is progressing satisfactorily and will result in a fleet deployable mission computer software load (H-2E) for Lot 25 and newer aircraft. Planned testing, to begin in January 2005, of the next iteration of higher order language software

(H-2E+) will enable the F/A-18E/F to send and receive imagery via Link-16. Assessment of the next major E/F upgrade, the Active Electronically Scanned Array radar, is in the Active Electronically Scanned Array radar chapter of this report. The Navy is planning for appropriate testing to explore and characterize the following EA-18G risk areas:

- Effective operation of wing pod antenna/receiver configuration in the high vibration F/A-18F under-wing and wingtip environments.
- Modifications to, and integration of, the Improved Capability III weapon replaceable assemblies with the F/A-18F airframe.
- Installation and antenna pattern sufficiency of existing ALQ-99 jammer pods.
- Human factor/operator issues in Electronic Attack and Support operations as performed by the EA-6B.