

P-8A Multi-Mission Maritime Aircraft (MMA)

Executive Summary

- The System Development and Demonstration phase began in May 2004 and is ongoing.
- Thirty-four aircraft were approved for low-rate initial production out of a total aircraft buy of 115. Seven of those aircraft are test assets.
- DOT&E approved the Test and Evaluation Master Plan (TEMP) in October 2006.
- Contractor developmental Live Fire ballistic vulnerability testing identified candidate dry bay fire suppression system designs and evaluated the vulnerability of high-pressure oxygen bottles.

System

- The Multi-Mission Maritime Aircraft (MMA) is the Navy's next generation maritime patrol aircraft that will replace the P-3C.
- The MMA is based on the Boeing 737-800 aircraft, but uses the 737-900 extended-range wing.
- It carries and employs anti-ship missiles, air-to-surface weapons, depth bombs, torpedoes, naval mines, sonobuoys, and other expendables.
- The P-8A carries onboard sensors, including radar, electro-optic sensors, and a magnetic anomaly detector.
- Survivability enhancement and vulnerability reduction features are incorporated into the P8-A design.
 - Susceptibility is reduced with an integrated Aircraft Survivability Equipment (ASE) suite that consists of a radar warning receiver, chaff/flare dispenser, directed infrared countermeasures (DIRCM) and Tactical Data Unit (TDU) to control the system. Radio frequency countermeasures, based on a towed decoy, are planned for spiral development with installation provisions (including wiring and mounting pylons) incorporated into all production aircraft.



- Vulnerability is reduced through the addition of fuel tank inerting systems and fire protection systems for the vulnerable dry bays that surround aircraft fuel tanks.

Mission

Units equipped with the MMA will perform a wide-range of patrol missions including:

- Armed anti-submarine warfare
- Armed anti-surface warfare
- Intelligence collection, processing, evaluation, and dissemination to Naval and joint forces
- Maritime and littoral reconnaissance missions

Activity

- The contractor completed MMA weapons separation wind tunnel tests in February 2006.
- The updated TEMP was submitted to OSD for approval. DOT&E is currently reviewing it.
- The contractor conducted developmental ballistic testing during FY06, which included:
 - Testing of the vulnerability of crew high pressure oxygen supply bottles
 - Testing that evaluated candidate fire suppression system designs for MMA dry bays

Assessment

- The large low-rate initial production buy (34 of 115) of aircraft will necessitate a significant amount of test and evaluation prior to the Milestone C decision to reduce risk.
- The evaluation will be based on a P-8A Design Reference Mission, a representative set of combat and non-combat situations in which the P-8A is expected to accomplish its missions.
- Major risks to the planned timeline include the integration of onboard sensors, data processing capabilities, system

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software integration of weapons stores, weight growth, and interoperability with the Navy's family of intelligence, surveillance, and reconnaissance systems. For example, MMA integration with the Navy's Broad Area Maritime Surveillance Unmanned Aerial Vehicle is required in order to accomplish all of the missions currently conducted by the Navy's P-3 fleet.

- Vulnerability testing of the oxygen bottles showed that aluminum/composite material bottles present significant explosion and shrapnel hazards when hit by threat munitions. Consideration is being given to moving the bottles to safer locations in the aircraft.
- Preliminary vulnerability evaluations indicate that MMA vulnerable area will fall within required levels assuming that

the actual performance of vulnerability reduction systems meets predicted levels.

Recommendations

- Status of Previous Recommendations. The Navy has taken action on DOT&E's FY05 recommendation.
- FY06 Recommendation.
 1. Planning for future full-scale vulnerability testing of the structural test article and 737 wings should begin as early as possible.