

## Multi-Mission Maritime Aircraft (MMA)

### SUMMARY

- The Navy selected Boeing as the prime contractor for the Multi-mission Maritime Aircraft (MMA) in June 2004, and will use a modified commercial Boeing 737-800 jet as the airframe.
- The MMA passed the Milestone B decision in May 2004 and entered the System Development and Demonstration phase.
- The Navy requires an updated Test and Evaluation Master Plan.



### SYSTEM DESCRIPTION AND MISSION

The MMA will be the next generation U.S. Navy maritime patrol aircraft, based on an extended range Boeing 737-800 aircraft.

The MMA will carry and employ anti-ship missiles, air-to-surface weapons, depth bombs, torpedoes, naval mines, sonobuoys, and other expendables. The MMA will also have onboard sensors, including radar and electro-optical sensors, and will be able to process data received from off-board sensors.

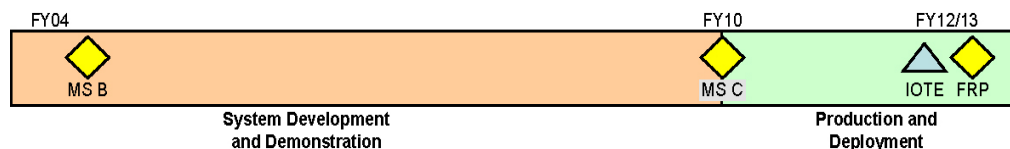
*The MMA will conduct armed maritime and littoral surveillance and reconnaissance missions.*

The MMA will replace the Navy's aging P-3 Orion aircraft, which is reaching the end of its service life. In addition, the Navy's P-3 fleet suffers from poor mission availability rates, high ownership costs, limited system growth capacity, interoperability deficiencies, and lack of an integrated survivability suite.

The MMA will conduct armed maritime and littoral surveillance and reconnaissance missions, with the primary missions being persistent anti-submarine warfare and anti-surface warfare. The MMA must be able to search for, detect, locate, track, classify, and identify surface, subsurface, and littoral land-based targets and deny, disrupt, or destroy them. The MMA must also provide a flexible and responsive intelligence gathering capability; and process, evaluate, and disseminate surveillance and reconnaissance information to Naval and joint forces.

A fielded MMA will be in block increments of increasing operational capability. The initial production block must provide an overall mission capability no less effective than the latest configuration of the P-3C aircraft, namely, the P-3C Anti-surface Warfare Improvement Program and the Block Modification Upgrade Program.

### TEST AND EVALUATION ACTIVITY



The MMA program entered Component Advanced Development work in January 2002. The Component Advanced Development phase included competitive contracts to Lockheed Martin for the Orion 21 aircraft (a P-3 derivative aircraft)

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and to Boeing for a military derivative of the 737 aircraft. This phase consisted of refining system requirements, development of concept architectures, risk analysis and mitigation, and detailed lifecycle cost analyses. Data from the Component Advanced Development phase allowed the Navy to conduct a technology readiness assessment and provided data for the selection of the prime contractor.

The May 2004 Milestone B decision approved entry of the MMA program into the System Development and Demonstration phase. Shortly afterwards, the Navy chose the Boeing 737-800 airframe as the MMA platform. Of the seven initial aircraft built, the first three will be for System Development and Demonstration Phase I. The last four aircraft supports System Development and Demonstration Phase II for developmental and operational testing. A low-rate initial production of 34 MMA aircraft will allow establishment of the production base and prevent a break in the production line.

The MMA program completed a TEMP in FY04 to support the Milestone B decision. The TEMP provided a generic template for the test program, which included considerable testing in a systems integration lab, airworthiness flight-testing, developmental testing, and operational testing.

The Under Secretary of Defense for Acquisition, Technology, and Logistics approved a waiver from full-up, system-level live fire test in March 2004. DOT&E approved the Alternative Live Fire Test plan on January 21, 2004. The alternative plan requires the Navy to complete a system level survivability assessment. The Navy will develop live fire vulnerability ballistic test plans on major components based on the survivability assessment findings. Component level testing of aircraft (fuselage, wings, engines, nacelles, etc.) is a long-standing practice for determining and reducing the aircraft's vulnerability.

## TEST AND EVALUATION ASSESSMENT

The updated Test and Evaluation Master Plan will need to provide a clear picture of the operational missions during the test program, the definitions of mission accomplishment, testing conditions, and the interactions with other needed systems for mission accomplishment.

Reasonable assurance of a successful execution of the MMA program requires resolving several identified risk areas. First, the integration of the onboard sensors, data processing capabilities, and weapons stores will be perhaps the most significant technological challenge. Second, closely monitoring weight growth is critical onboard the aircraft to prevent impacting aircraft flying range. Third, the MMA must be interoperable and well integrated with the rest of the family of systems making up the Navy's Broad Area Maritime and Littoral Armed Intelligence, Surveillance, and Reconnaissance mission. These systems include the Broad Area Maritime Surveillance Unmanned Aerial Vehicle and the Distributed Common Ground/Surface System-Navy.

Finally, the acquisition program for the MMA proposes to buy 34 aircraft as low-rate initial production out of a total buy of 115 aircraft. The large low-rate initial production buy will necessitate a significant amount of test and evaluation early in the program, especially in the system integration lab and during early flight-testing.