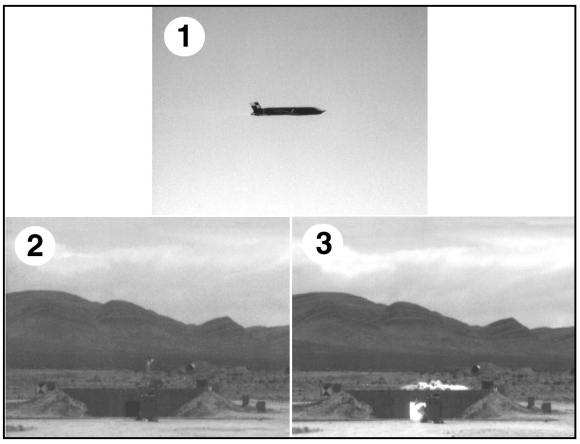
JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM)



The Joint Air-to-Surface Standoff Missile (JASSM) is precision cruise missile capable of launching from outside area defenses to kill hard, medium-hardened, and soft/soft-distributed targets. It is required to attack fixed and relocatable targets and uses an Inertial Navigation System/Global Positioning System for en route navigation and an Imaging Infrared (IIR) seeker for precision terminal guidance. Threshold integration aircraft are the F-16 (Block 50) and B-52H. Key Performance Parameters (KPPs) are: Missile Mission Effectiveness (MME) (measure of ability to kill a defined target set), Interoperability, Aircraft Carrier Operability and Missile Range. Funding issues and F/A-18 E/F test platform availability will prevent carrier operability from being evaluated during IOT&E. To avoid delay in AF deliveries, the Joint Requirements Oversight Council approved deferral of this KPP until after the Milestone III full-rate production decision in 4QFY03. Integration on the F/A-18 E/F will also be delayed until 4QFY03.

BACKGROUND INFORMATION

In June 1996, during the Program Definition-Risk Reduction phase, Congress directed the AF and Navy to perform an updated Analysis of Alternatives to determine the relative value of JASSM versus a proposed variant of the Navy Stand-Off Land Attack Missile-Expanded Response Plus (SLAM-ER+). The result was a substantiated requirement for JASSM, which the Secretary of Defense certified to Congress in April 1998.

A November 1998 Milestone II decision approved entry into EMD and the LRIP entrance criteria, and funded a 6-month EMD extension to reduce program risk. As a result, LRIP moved to January 2001 and Milestone III moved to July 2002. In September 1999, SAF/AQ directed the JASSM program office to further re-structure the schedule and delay LRIP from January 2001 to December 2001. This second delay was driven by technical problems and changes to the engine. Outer missile mold line changes were also required due to anomalies discovered during jettison testing.

Flight-testing began in FY00 with a prototype pre-production flight test vehicle, launched from an F-16.The first launch of a production configuration All-Up Round (AUR) was in September 2000. After completing 25 percent of the mission, the missile impacted the water after a premature engine flameout, caused by a malfunctioning fuel control valve, which has been redesigned. Flight-testing also included releasing jettison test vehicles from the F-16 and B-52. Additionally, over 80 captive carry

flights of the IIR seeker were conducted using production JASSM navigation and seeker hardware in a pod mounted externally on a helicopter.

The JASSM test strategy includes: (1) early OT involvement; (2) early and continued use of modeling and simulation to gain T&E efficiencies; (3) DT to reduce the operational test matrix, and (4) operational units in T&E to minimize training time when JASSM is fielded. The program is based on contractor run DT that the government supports with test aircraft, ranges, and instrumentation. The DT program supports combined DT/OT requirements and will lead to independent government IOT&E. The approved LFT&E strategy for JASSM calls for the lethality evaluation to be derived from contractor-conducted tests and combined DT/OT and IOT&E attacks.

In December 2001, JASSM was approved for entry into LRIP and the program was designated as an ACAT 1C. As a result, the Air Force is the lead service for the Full-Rate Production, Milestone III decision, which is scheduled for 4QFY03. The AF plans to buy 3,700 units in a 13-year period. Navy quantities are still to be determined. Peak rate production is planned for 360 units per year.

TEST & EVALUATION ACTIVITY

JASSM warhead sled testing was completed in FY01. In late 2000, two bare warhead sled tests were conducted, and both detonated correctly after perforating reinforced concrete targets. Following these, two AUR sled tests were conducted with warheads in wingless JASSM missile bodies. Both tests were successful. Although the approved TEMP originally planned for four AUR sled tests, the contractor, with DOT&E approval, ended the sled testing, retaining the remaining two assets as a contingency in the event future sled testing was required during DT/OT.

DT began in 2001 with a successful launch and inert warhead delivery. The next four flight tests were with live warheads against representative threat targets. The first attacked a communications van and the second, a thin-roof concrete bunker. Both were destroyed. The third live test was to achieve a surface burst of the warhead against a radar site. Although the missile was accurately delivered, the warhead failed to detonate because the fuze did not arm. The fuze was recovered, analyzed, and corrective measures were taken. The fourth live test was to attack the radar site again, in order to validate the fuze corrective actions. This test experienced an arming problem and a failure of the warhead to detonate. Following this second failure, a fuze and arming system modification was incorporated that was flown on the following two DT flight tests. This modification successfully demonstrated fuze arming and warhead detonation on both soft distributed and hardened targets.

TEST & EVALUATION ASSESSMENT

There are *three areas of concern. First*, the models and simulations intended to predict missile behavior during launch/aircraft separation have not performed as expected. The program includes test events to validate the models and determine the aircraft envelopes using those models. Test results have not correlated well with the model and the results have significantly reduced the operating envelope. The Program Office is working with Air Combat Command to determine whether to conduct additional modeling and testing to validate/update the model or accept the reduced operating and employment envelopes. *Second*, JASSM integrates complex multiple mission-planning components into a single mission planning system to meet user needs. The program has not yet demonstrated this capability, but must before OT can begin. The Program Office is working aggressively with AFOTEC to resolve the

mission-planning deficiencies. *Third*, the Missile Mission Effectiveness KPP will be evaluated against a JROC target set of 17 targets. However, not all of these targets will be attacked/destroyed. Instead, MME will be derived employing models validated using test data from a small subset (6-7) of the target set. These models are immature and their ability to describe real behavior is yet unknown. Therefore, the ability to predict MME and lethality will continue to be monitored closely by DOT&E.

Overall, the JASSM program is on track. Launch, guidance, and control systems performance has been excellent. Program difficulties are being addressed in an open and cooperative environment. From these, DOT&E offers the following lessons. *First*, early OTA and DOT&E involvement has significantly reduced risk in the upcoming OT phase. In addition, this early OT involvement has helped the DT team to consider future OT requirements in their testing. This cooperation will enable the OTA to incorporate some DT data in Operational Assessments. *Second*, coordination with other defense agencies successfully provides realistic representative targets during live missile flights. This so far has provided a clear indication of the warhead's lethality against intended targets when accurately delivered and properly fuzed. However, unknowns remain regarding targets in the set that have not yet been attacked or will never be attacked during testing. *Third*, these unknowns highlight the need for the modeling effort to be closely monitored and validated with an appropriate number of data points.

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