Joint Direct Attack Munition (JDAM)

The Joint Direct Attack Munition (JDAM) is a low cost, autonomously controlled, adverse weather, accurate guidance kit for the Air Force/Navy 2,000-pound MK-84 and BLU-109 general-purpose bomb and the 1,000-pound MK-83 and BLU-110 general-purpose bomb. The JDAM tail kit and wind strake assemblies are also to be adapted to the MK-82 500-pound bomb. There are no planned design changes to the bombs. However, the existing inventory of weapons will be configured with JDAM guidance kits and wind strake assemblies. Guidance is accomplished via an Inertial Navigation System aided by the Global Positioning System (GPS).

The JDAM kit is required to yield a delivery accuracy of less than 13 meters when GPS is available and less than 30 meters when GPS is absent or jammed after release. JDAM is employed by a variety of fighter/attack and bomber aircraft, allowing precision engagement from all altitudes under adverse environmental conditions. The primary aircraft for integration and operational testing of the 2,000-pound JDAM were the B-52H and the F/A-18C/D. The F-16, F-14B, F/A-18E/F, B-1, and B-2 are also operational users of JDAM. The 1,000-pound JDAM is to be tested and integrated initially on the F/A-18C/D, AV-8B, and F-22. The 500-pound JDAM is to be tested and integrated initially on the F/A-18C/D and B-2.

Low-Rate Initial Production (LRIP) of the 2,000-pound variant was approved in April 1997. However, due to numerous problems with the design, the Under Secretary of Defense (Acquisition and Technology) approved the delay of Milestone III to 3QFY99. A total of four LRIP decisions were rendered before a Milestone III approval in March 2001.

JDAM completed operational test of the 2,000-pound variant in August 2000. Operational tests were adequate to evaluate the operational effectiveness and suitability of the 2,000-pound variant. Test results demonstrated the 2,000-pound variant is operationally effective, but not operationally suitable. However, the high degree of effectiveness and substantial increase in targeting and weapon delivery flexibility were sufficient to justify fielding the 2,000-pound variant. The “not suitable” assessment resulted from shortfalls in container durability, system reliability, and a failure to meet mission-planning timelines. Although improvements were demonstrated during the test period, deficiencies remain that will affect operational employment. The redesign of the container, as well as system reliability, continues to be tracked and will be evaluated through Follow-on Test and Evaluation (FOT&E) and lot acceptance tests. Mission planning time should not adversely affect JDAM effectiveness and will be evaluated during FOT&E and again during the 1,000-pound variant Multi-service Operational Test & Evaluation (MOT&E).

JDAM was determined to be operationally effective only in combination with existing fuzes, specifically the FMU-139 and FMU-143. Testing is required, but not completed, with the FMU-152 Joint Programmable Fuze, due to numerous arming failures and subsequent decertification of FMU-152/JDAM combinations for both Air Force and Navy use. To address unresolved and unsatisfactory issues from MOT&E, a dedicated FMU-152 Joint Programmable Fuze/ JDAM FOT&E is planned for FY03.

A quick reaction assessment of the 1,000-pound variant concluded in FY02. DOT&E determined that the 1,000-pound variant is potentially operationally effective and potentially operationally suitable.

TEST & EVALUATION ACTIVITY

A quick reaction assessment (QRA) of the 1,000-pound variant concluded in FY02. DOT&E determined that the 1,000-pound variant is potentially operationally effective and potentially operationally suitable.

MOT&E of the 1,000-pound variant began in July 2002 and is planned to conclude in FY03. A full-rate production decision for the 1,000-pound variant is planned for FY03. Integration tests on the F-22 are planned to begin in FY04.

Developmental flight test of the 500-pound variant began in FY02. MOT&E is planned for FY03 with the F/A-18C/D and FY04 with the B-2. A full-rate production decision on the 500-pound variant is planned for FY05.

TEST & EVALUATION ASSESSMENT

The potential effectiveness and suitability of the 1,000-pound variant mirror that of the 2,000-pound weapon system. However, items were noted during the QRA that need to be resolved. Limited data from the QRA indicates there may be a problem with rate capture algorithms for the 1,000-pound kit. However, follow on testing to date, and a review of rate capture anomalies during the QRA indicate that recurrence of rate capture anomalies by the 1,000-pound variant remain low. Based on the limited sample size, confidence in the weapon's capability is low. Although only a few contributors to system reliability deficiencies were evident, additional data to further characterize overall system reliability is required. This data is currently compiled in conjunction with the 19 weapon, 1,000-pound variant MOT&E. The MOT&E report will combine the results from both the QRA and the MOT&E to make a recommendation.

MOT&E results to date confirm results of the QRA. Accuracy, in most cases, falls within the requirements. However, five weapon events remain. Planning timelines are improved and now fall within requirement document parameters. Expectations are that results will continue to be fairly representative of the QRA.