

AIR FORCE PROGRAMS

Small Diameter Bomb (SDB)

The Small Diameter Bomb (SDB), produced by The Boeing Company for the Air Force, is a 250-pound class, air-launched weapon using deployable wings to achieve standoff range. Guidance is provided by inertial navigation and enhanced with a near-precision navigation solution against fixed and stationary targets. Near-precision navigation is obtained through a differential Global Positioning System (GPS) signal transmitted through the launch platform prior to weapon release. The SDB system will possess a GPS anti-jam and anti-spoof capability. The SDB warhead is a combined penetrator design with blast/fragmentation capability. The warhead uses the same explosive fill as on the Joint Air-to-Surface Stand-off Missile. Fuzing of the warhead is initiated by contact, reaching a preset height above the intended target, or by achieving a specified delay after initial warhead penetration. The SDB is employed from a four-place carriage mounted to the aircraft. Initial integration of the SDB is with the F-15E. Follow-on integration may occur with the F/A-22, F-35, UCAV, F-16 (Block 30/40/50), F-117, A-10, MQ-9, B-1, B-2, and the B-52. The SDB will initially be designed to attack fixed and stationary (but relocatable) targets. An additional SDB increment is also under consideration for development to conduct attack against specified moving targets with possible further development to conduct an autonomous attack of moving targets. However, only the capability to attack fixed and stationary (but relocatable) targets is funded.

The SDB entered System Design and Development (SDD) on October 17, 2003. Testing in this phase is anticipated to conclude in late FY05 with IOT&E to conclude in late FY06.

TEST & EVALUATION ACTIVITY

Pre-Milestone B test and evaluation activities consisted of contractor sled and arena tests to characterize warhead lethality, as well as limited flight tests to evaluate weapon accuracy, carriage performance, and the performance of the differential GPS system. Ground tests have also been conducted of the weapon, carriage, container system, and weapon components to evaluate system performance under anticipated field, environmental, and aerodynamic stress.

TEST & EVALUATION ASSESSMENT

Early ground tests have identified several anomalies in the SDB design. This early identification provided more time for component redesign. Free-flight testing through FY03 consisted of nonproduction representative, inert weapons with surveyed coordinates against fixed targets. Although testing was conducted in a non-GPS jamming environment, SDB free-flight performance now demonstrates the ability to meet accuracy requirements. To confirm SDB effectiveness and suitability against the required target set (i.e., fixed and stationary (but relocatable) targets), the Air Force will conduct operational free-flight testing of production representative, live weapons in a GPS-jammed environment utilizing coordinates derived by national-level and third-party systems expected to be used in combat (e.g., overhead imagery, JSTARS, Special Operations Forces, Predator).



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