B-1B Conventional Mission Upgrade Program (CMUP)

The B-1B, produced by The Boeing Company, is a variable-geometry heavy bomber. The aircraft has four afterburning turbofan engines and its maximum takeoff weight is 477,000 pounds. With air refueling, the B-1B's four-man crew can deliver approximately 50,000 pounds of conventional bombs or precision-guided weapons to targets anywhere in the world at penetration speeds up to Mach 1.2.

IOT&E of the B-1B was conducted from 1984 through 1989. The B-1B achieved initial operating capability as a nuclear bomber in FY87. Starting in 1993, the Conventional Mission Upgrade Program (CMUP) marked the aircraft's transition from a nuclear to a conventional role. Initial conventional load was limited to 84 Mark 82 500-pound general-purpose bombs. Block changes carried out under the CMUP have upgraded the aircraft's capabilities as follows:

- Software upgrades to offensive and defensive systems (Block B).
- Capability to deliver CBU-87/89/97 cluster bombs (Block C).
- Communication system upgrades, addition of Global Positioning System navigation, and the capability to deliver the GBU-31 Joint Direct Attack Munition (Block D).
- Avionics computer upgrade to enable the delivery of three different weapon types (one type from each weapon bay) on a single mission and the capability to employ Wind Corrected Munitions Dispenser weapons (Block E, full-rate production in April 2003).

In addition to these block upgrades, the remaining capability enhancement planned for the B-1B under the CMUP is the integration of the Joint Stand-Off Weapon (JSOW) and the Joint Air-to-Surface Standoff Missile (JASSM).

TEST & EVALUATION ACTIVITY

IOT&E of the B-1B Block E began in September 2002 and completed in January 2003. Testing consisted of 20 missions and totaled 106 flight hours. DOT&E delivered a test and evaluation report assessing the operational effectiveness and suitability as well as survivability of the B-1B Block E to Congress and the Secretary of Defense in April 2003. Testing to evaluate changes to the Block E, necessitated by shortfalls in performance identified during B-1B Block E IOT&E, began in May 2003 and should conclude in November 2004.

Developmental flight testing to integrate JSOW and JASSM weapon capability on the B-1B began in March 2003. Operational testing should begin in December 2003. The program will be a combined developmental/operational test and evaluation with a small, independent operational test and evaluation phase to confirm the results of combined testing. Scheduled events consist of JSOW and JASSM separation test vehicle performance and the transfer of targeting data to JSOW and JASSM captive flight vehicles. A release of a representative load of the qualified inventory of B-1B Block E weapons will also be conducted to ensure JSOW/JASSM integration software has not degraded the fielded accuracy capability. The confirmation phase should include the release of a guided JSOW and JASSM weapon.

Operational testing during JSOW/JASSM integration testing will also seek to confirm that B-1B Block E IOT&E effectiveness and suitability shortfalls are resolved.

TEST & EVALUATION ASSESSMENT

Operational testing did not confirm that the B-1B Block E system actually tested would be effective in combat. However, it would be suitable. Compared to the performance of the B-1B Block D in IOT&E, the B-1B Block E demonstrated a

16 percent decrease in weapon release rate and a reduction in accuracy of Mark 82 low-drag weapons. When employing the Ground Moving Target Indicator/Ground Moving Track mode of the radar to engage moving targets, the B-1B Block E system demonstrated a hit rate of 14 percent. In addition, the operational test indicated a tendency for Wind Corrected Munition Dispenser weapons to go to unintended impact points with miss distances as high as 6,500 feet, thus increasing the chance of collateral damage. While technical order publications, weapons load checklist procedures, and maintainer training deficiencies are resolved, effectiveness and suitability shortfalls remain.

Since the conclusion of IOT&E, operational testing was initiated to confirm the effectiveness and suitability of hardware and software solutions intended to rectify deficiencies identified in B-1B Block E IOT&E. Operational testing is expected to conclude in November 2004. Operational testing during JSOW/JASSM integration testing will also seek to confirm that B-1B Block E IOT&E effectiveness and suitability shortfalls are resolved.

Developmental flight-testing of JSOW and JASSM integration on the B-1B has demonstrated satisfactory weapon safe separation. Combined developmental and operational testing as well as independent operational testing begins in December 2003.

The B-1B LFT&E program for Block D identified a number of vulnerabilities to threats. These baseline vulnerabilities are also in Block E. However, there is no significant increase in vulnerability due to the addition of B-1B Block E-unique equipment.