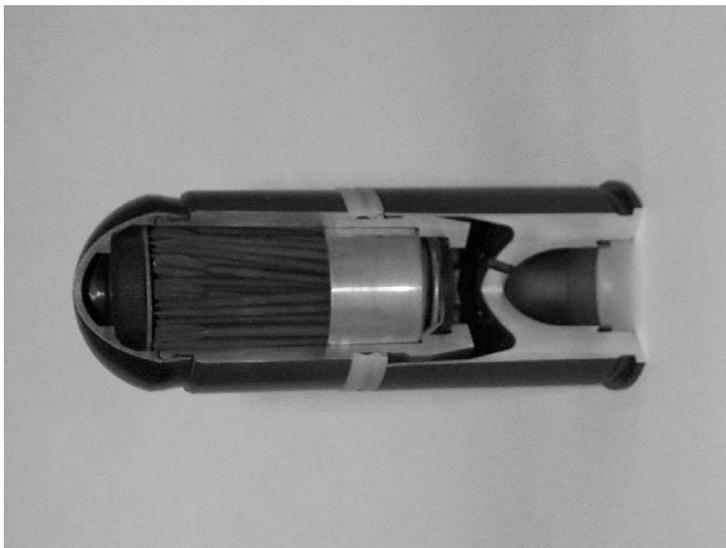


XM1001 40MM CANISTER CARTRIDGE



Army ACAT III Program

Total Number of Rounds:	1M (approx.)
Total Program Cost (TY\$):	\$200M
Average Unit Cost (TY\$):	\$200 per round
Full-rate production:	4QFY00

Prime Contractor

Primex Technologies, Inc.

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The XM1001 will provide a short-range antipersonnel capability (from muzzle to 100 meters) for the Mk 19 Mod 3 Grenade Machine Gun. This cartridge is a flechette-dispensing grenade that will be used by combat forces as a force multiplier against ground troops in: (1) exposed positions; (2) extremely rugged terrain; (3) dense vegetation; (4) military operations in urban environment; and (5) other scenarios where the effectiveness and user-safety of the current Mk 19 family of ammunition is limited. This capability will support the *Joint Vision 2010* concept of *dominant maneuver*.

This program was briefed to DOT&E as part of the Fourth Live Fire Test and Evaluation Oversight Review Conference for Small and Medium Caliber Ammunition held in December 1997. The total number of rounds produced is unknown at this time, but is estimated to be over one million. Hence, the Army nominated the XM1001 as a LFT&E program, and it was placed under DOT&E oversight in April 1998.

The XM1001 40MM grenade contains 115, two-inch long flechettes, with half of those packed within the grenade facing rearward. Upon exiting the muzzle of the Mk 19, an expulsion charge detonates expelling the flechettes. Upon expulsion, the rearward facing flechettes rotate in-flight until they are forward facing.

BACKGROUND INFORMATION

This munition is part of the Soldier Enhancement Program (SEP) and funds were first identified for it in the June 1996 SEP review. The combined LFT&E Strategy/Event Design Plan was approved by DOT&E on 2 November 1998. DOT&E activity for this program involved only LFT&E.

TEST & EVALUATION ACTIVITY

LFT&E activity during FY99 included development of an acceptable Detailed Test Plan (DTP). The DTP was approved by DOT&E on 30 July 1999. LFT occurred during October-November 1999, and consisted of firings against mannequins in the open and with protection. In June 1999, thirty-eight rounds were also fired at the Aberdeen Test Center for the purpose of better characterizing flechette velocity and dispersion as a function of range.

TEST & EVALUATION ASSESSMENT

In November 1997, the Army Research, Development, and Engineering Center, Picatinny Arsenal, conducted preliminary testing of the prototype XM1001 munition at the Aberdeen Test Center. The data revealed a lower than predicted average velocity for the flechettes and a lower than predicted number of impacts on the targets, especially for cold-conditioned rounds. More recent firings in June 1999 have provided better characterization of flechette velocity as a function of range; however, additional data from Technical Feasibility Tests (TFT), conducted during September 1999, were required before the start of LFT.

A robust lethality test program, comprising 112 shots against a variety of targets (i.e., personnel simulants in the open and behind protection, with and without body armor), has been conducted in accordance with the DOT&E-approved combined LFT&E strategy and EDP. Such a program will provide the necessary data for a thorough LFT evaluation of the lethality of the XM1001.

CONCLUSIONS, RECOMMENDATIONS, LESSONS LEARNED

Initial testing of the XM1001 showed that the predictions of flechette velocity and penetration were too high. Preliminary testing, although minimal in nature, is often necessary to provide accurate values for early assessment of performance, model input, and to assist with Live Fire Test planning. For this program, further data from DT were necessary for final test planning prior to the start of LFT.