

## COMMAND AND CONTROL VEHICLE (C2V)



### Army ACAT III Program

Total Number of Systems:	102
Total Program Cost (TY\$):	\$499M
Average Unit Cost (TY\$):	\$4.9M
Full-rate production:	1QFY00

### Prime Contractor

Unified Defense, LP; Rosslyn, VA

### SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2020

The Command and Control Vehicle (C2V) was under development to provide a highly mobile, survivable, and reconfigurable platform capable of hosting current and future command, control, communications, computer, and intelligence (C<sup>4</sup>I) systems for operational planning. C2V was expected to be used by battalion through corps battle staffs in heavy force operations in support of the *Joint Vision 2020* concept of *information superiority* for battalion through corps leaders, with a resulting improvement in the employment of a *dominant maneuver* force. However, the **C2V program was cancelled in late 1999** as one of the programs identified as bill payers for the Army's transformation to more deployable forces.

## **BACKGROUND INFORMATION**

The C2V program was under DOT&E oversight for both OT&E and LFT&E. The C2V TEMP was approved in October 1993, and updated in March 1994 following a December 1993 Milestone II. The LFT&E strategy was approved in July 1996, but contained an open issue regarding the applicability of the Explosively Formed Penetrator (EFP) as a threat munition to the system. The issue was resolved in FY98, and an EFP shot was included in the full-up, system-level Live Fire Test conducted during FY99-00.

In early FY99, the Program Manager decided to modify the armor composition of the mission module used in the prototypes and LRIP I vehicles. For LRIP II and beyond, the sidewalls of the module were to be made from monolithic aluminum armor rather than the aluminum/Kevlar combination initially used. The Program Manager provided an LRIP II system for the full-up, system-level Live Fire Test. C2V participated as an initiative during the 1997 Task Force XXI Advanced Warfighting Experiment. It was observed that the C2V provided greater mobility and protection than predecessor systems, and with more interior room allowed for better staff coordination when the staff had to operate within the command vehicle. The larger size and array of antennas also made C2V an attractive target for enemy direct-fire or close-air support systems. There were also indications that motion sickness might be a serious problem with the configuration tested. Additional testing was conducted in 1998 on three C2V variants to examine the effect on crew motion sickness. However, no difference in the frequency of motion sickness was detected among the variants.

## **TEST & EVALUATION ACTIVITY**

In early FY00, the Army completed the full-up, system-level Live Fire Test on a complete C2V system, including all on-board communications and computers. Overall, the system was subjected to five near-miss artillery detonations, impacts on the roof by two dual-purpose improved conventional munitions and one EFP, and one scatterable anti-tank blast mine under a track. The nine test events were executed as planned, and operational checks and damage assessments were conducted immediately after each event. Army soldiers were on hand to perform troop-level battle damage assessment and repair. In addition, test firings were conducted of artillery fragment simulator projectiles at two types of weld seams to assess penetration resistance at armor joints. The Army provided a complete test report to DOT&E.

There were no OT activities conducted during FY00.

## **TEST & EVALUATION ASSESSMENT**

Although a Live Fire assessment was not submitted to Congress due to the program's cancellation, the full-up, system-level Live Fire Test did not reveal any major vulnerability in the design of the C2V's mission module. The chassis, however, afforded less ballistic protection than the mission module, and some vulnerability flaws were found during testing.

## **CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED**

Live Fire Test and Evaluation efforts led to several design changes in the C2V mission module: (1) thicker monolithic armor instead of the original thinner armor with a ballistic liner; (2) more robust

latches for doors and hatches using the Abrams tank hatch design; (3) increased protection around the rear door of the mission module; and (4) better mounting fasteners and inserts for the primary power-unit panel. The Live Fire Testing identified several minor flaws in the vulnerability of the Multiple Launch Rocket System chassis, upon which the mission module is mounted. In particular, the cab front and doors, door latches, and rear fuel tank showed some susceptibility to damage from artillery fragments.

