

Stryker Armored Vehicle

The Stryker program was formerly called the Interim Armored Vehicle program. It is a family of medium armored vehicles intended to equip the Army's Stryker Brigade Combat Team (SBCT). Based on the Light Armored Vehicle III, it consists of two basic variants, the Infantry Carrier Vehicle (ICV) and the Mobile Gun System (MGS). The ICV is the baseline vehicle for eight additional configurations. These configurations are the mortar carrier (MC), the anti-tank guided missile vehicle, the reconnaissance vehicle, the fire support vehicle, the engineer squad vehicle, the commander's vehicle, the medical evacuation vehicle, and the nuclear biological chemical reconnaissance vehicle (NBCRV).

The Army initiated the Stryker program in FY00. SBCT is intended to use enhanced strategic deployability and be capable of immediate employment upon arrival. The Army envisions the SBCT as more strategically deployable than current Army heavy forces, but with greater tactical mobility than current light forces. The SBCT is designed to conduct operations across the depth and breadth of an area of operations, against both traditional and asymmetric adversaries. Though optimized for small scale contingencies, the SBCT is designed to engage in all types of military conflicts, including Major Theater Wars when augmented or when operating as part of a larger force.

TEST & EVALUATION ACTIVITY

DOT&E approved the initial Stryker Test and Evaluation Master Plan (TEMP) in November 2000 and an updated TEMP in May 2003 in conjunction with the Milestone B decision.

The 2001 National Defense Authorization Act required that a Medium Armored Vehicle Comparison Evaluation would be conducted between the Stryker and the current Medium Armored Vehicle. This Comparison Evaluation took place at Fort Lewis, Washington, during September 2002. DOT&E monitored this event and prepared a report.

The 2002 National Defense Authorization Act required that an operational evaluation (OE) would be conducted to assess the SBCT's unit design and readiness. DOT&E approved the Army's evaluation plan in 2QFY03. The OE took place over several months, culminating with brigade deployments to the National Training Center at Fort Irwin, California, and the Joint Readiness Training Center at Fort Polk, Louisiana.

The Stryker IOT&E took place at Fort Knox, Kentucky, from March through September 2003. Two Stryker companies participated in this evaluation; a third company participated through simulation. In addition, battalion and brigade level assets participated in this event. These assets included reconnaissance, engineer, and anti-tank elements. A brigade tactical operations center provided the command and control for this evaluation through the Army Battle Command System. A light infantry battalion was the baseline unit used for comparison. Both the light infantry battalion and the Stryker battalion executed the same scenarios and missions.

All Stryker variants and configurations, with the exception of the MGS and NBCRV, participated in the IOT&E. During the



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IOT&E, the MC had a dismounted mortar only (designated MC-A). A soft-recoil 120mm mounted mortar (designated MC-B) began developmental testing in June 2003. In addition to developmental testing, a separate IOT&E for the MC-B is planned for early 2004, which will supplement the results of the IOT&E. A three-shot live fire test is planned for the MC-B as well. This is scheduled to be complete prior to the February 2004 Milestone III review.

Additional operational test events are planned for variants, which were not available during the IOT&E. The MGS will undergo a limited user test in 2004 at Fort Knox, Kentucky and an IOT&E in 2005.

NBCRV Production Qualification Testing was conducted from June to December 2003. Key tests included sensor performance; automotive safety and performance; environmental testing; electro-magnetic interference, and system overpressure testing. This variant contains a variety of chemical and biological sensor systems. Additional side-by-side testing is being conducted between the Joint Service Light Standoff Chemical Agent Detector and the M21 Rascal chemical standoff detection device to validate requirements.

The Army conducted an NBCRV limited user test at Dugway Proving Ground, Utah, in October 2003. Two systems were evaluated in three 72-hour NBC reconnaissance and security scenarios. Results from these tests are pending. Of major concern with this variant is the ability to conduct standoff chemical detection.

The Stryker LFT&E program will support the system's survivability evaluation. Base-vehicle armor coupon testing addressing small arms (through 14.5mm heavy machine gun fire) and fragments from high explosive artillery munitions began in FY02 to qualify and characterize armor recipes used in production. Testing continued into FY03 as the contractor refined armor recipes to address specific performance shortfalls. 4QFY03 was marked by a period of high-priority armor coupon testing following the revelation that inadequate internal controls between the vehicle contractor and its armor subcontractors resulted in the installation of untested, unqualified armor configurations on some vehicles in the first and second Stryker brigades. This investigative-type testing and corresponding mitigation program supported the Army's short-term SBCT needs to deploy the SBCT to Iraq. Government qualification of each armor configuration is currently ongoing and expected to be complete before the Milestone III review in February 2004. Stryker vehicles already fielded will be retrofitted with appropriately tested and qualified configurations as necessary.

Production Qualification Testing of the rocket-propelled grenade-level add-on armor began in May 2003 and found that the armor performance did not meet Army requirements. As a result, the Stryker program experienced delays in all add-on armor related testing to allow the contractor to refine its armor solution to meet Army requirements. Re-qualification of the new add-on armor solution resumed in September 2003 and will continue through February 2004.

Full-up system-level (FUSL) testing of production-representative configurations began in July 2002. Fifty-one of sixty-five system-level test events have been completed to date for six different Stryker configurations: the ICV, the engineer squad vehicle, the commander's vehicle, the reconnaissance vehicle, the anti-tank guided missile, and the medical evacuation vehicle. The fire support vehicle was removed from the test series due to commonality with other configurations so it can be evaluated using data provided by other testing. FUSL testing for the Stryker vehicle with add-on armor is expected to resume in November 2003 and for the Mortar Carrier B in December 2003. DOT&E will address Stryker FUSL test results in the classified beyond low-rate initial production (BLRIP) report to Congress.

The Army will include additional details of the survivability test programs supporting the later Milestone reviews for the NBCRV and MGS in the next TEMP. DOT&E continues to participate in the test planning, execution, and reporting of each system-level test event.

TEST & EVALUATION ASSESSMENT

The Stryker test and evaluation program is challenging because of the requirement to test and evaluate ten different variants. The Army's OE Report concludes, "current design and training performance of the first SBCT meets the requirements of the Organizational and Operational Concept." Based on the Army's assessment, DOT&E does not believe there are any unit design issues. However, the OE was not sufficient to completely address the operational effectiveness and suitability of an SBCT, nor did it address the operational effectiveness, suitability, or survivability of the Stryker vehicles themselves. Stryker vehicle effectiveness, suitability, and survivability will be assessed in the BLRIP report.

The Army recently completed the Stryker IOT&E. DOT&E's independent evaluation is ongoing. This evaluation will determine the operational effectiveness and suitability of eight of ten Stryker vehicles types that were available for testing. This BLRIP report will be disseminated in 2QFY04.